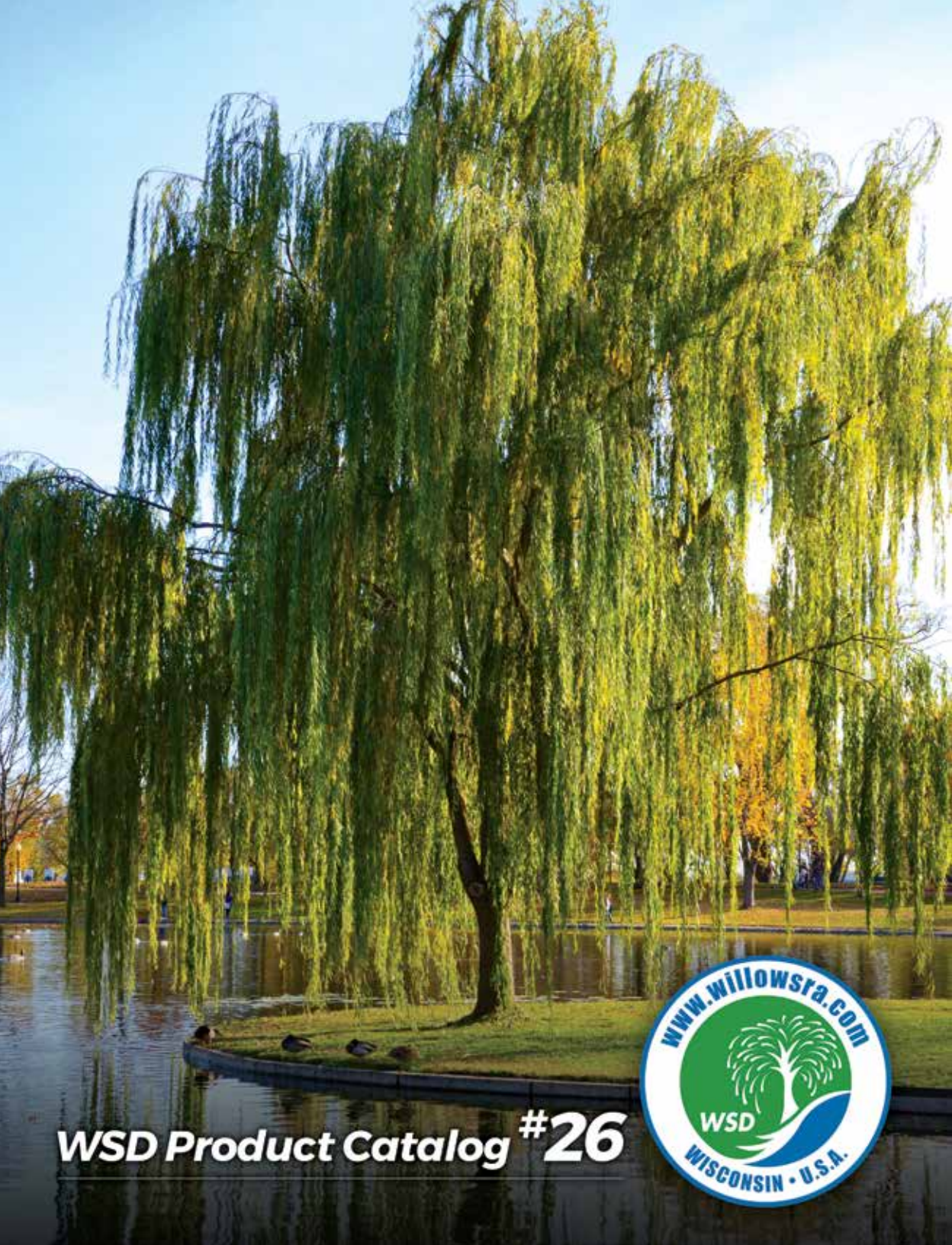




**WSD Product Catalog #26**





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## ► **ABOUT WILLOW SPRINGS SRA**



**T**he seed for Willow Springs was planted in 1993 by Dan & Karen Higgins. Through the years this company has evolved from a contractor, to wholesaler, distributor and now Willow Springs, S.R.A, LLC.

Willow Springs SRA warehouses over \$1 million in products. Being located in North Central Wisconsin has helped us create a supply network to the majority of the lower 48 states. We also have our own product labeled (WSD). We have product built by other manufacturers to our specs with our private label (WSD) and we do some production in our own facilities. Willow Springs SRA utilizes Rep Agencies to help distribute through HVAC, Plumbing and Concrete wholesalers. We ship product coast to coast.

Willow Springs has custom designed products for many uses like a special heat exchanger used in x-ray equipment for the metal industry. We are very proud to say we have custom designed a heat exchanger that is used by the US Military in the production of new vehicles.

We focus on our customer's needs of getting product to them when they need it. With an inventory of over 90% of the products listed in our catalog, we have become known as "the go to guys" for specialized heating components.

We take great pride in our friendly experienced sales staff. By continuously updating our education, we are able to pass on the latest information to our customers on the applications and technical details of the products we represent.

Our friendly staff is complimented by our reliable and efficient shipping department. We average a 98.8% success rate of our same day shipping policy. In stock inventory is processed and shipped on the same day for orders received by 1:00 pm. (CST)

### **Physical Address:**

N7071 US Highway 45  
Wittenberg, WI 54499

### **Mailing Address:**

P.O. Box L  
Wittenberg, WI 54499

### **Phone Number:**

**715-253-3010**

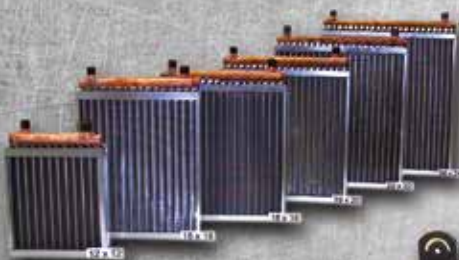
**NATIONWIDE  
SHIPPING!**





[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)

## ► **HEAT EXCHANGERS**



- Water To Air
- Plate To Plate
- Shell And Tube
- Domestic Side Arm
- Replacement Coils
- JAD
- Plate And Frame
- Steam

**We will quote  
any type or style!**



[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)



# WSD Hot/Chilled Water Coils

| WSD         | 140°F/180°F       | LIST     | Performance Guide |
|-------------|-------------------|----------|-------------------|
| Part Number | Approx. BTU Range | PRICE    |                   |
| WSD 12x12   | 21,000 - 54,500   | \$286.96 | See PAGE 9        |
| WSD 12x18   | 38,000 - 80,000   | \$364.60 | See PAGE 10       |
| WSD 15x15   | 38,000 - 83,000   | \$367.74 | See PAGE 11       |
| WSD 16x16   | 39,000 - 94,000   | \$388.60 | See PAGE 12       |
| WSD 16x18   | 40,000 - 106,000  | \$407.76 | See PAGE 13       |
| WSD 17x22   | 50,000 - 133,000  | \$476.21 | See PAGE 14       |
| WSD 18x18   | 47,000 - 120,000  | \$456.63 | See PAGE 15       |
| WSD 18x20   | 49,000 - 133,000  | \$474.46 | See PAGE 16       |
| WSD 19x20   | 50,000 - 139,000  | \$487.65 | See PAGE 17       |
| WSD 20x19   | 49,000 - 136,000  | \$509.18 | See PAGE 18       |
| WSD 20x20   | 50,000 - 145,000  | \$524.76 | See PAGE 19       |
| WSD 22x22   | 69,000 - 173,000  | \$611.49 | See PAGE 20       |
| WSD 22x25   | 72,000 - 197,000  | \$625.89 | See PAGE 21       |
| WSD 24x24   | 72,000 - 210,000  | \$664.04 | See PAGE 22       |



**10 Year Warranty  
Against Manufacturer  
Defect On Stock Coils!**



**Assembled in the USA**  
with foreign and domestic parts

- **CUSTOM SIZES AND STYLES AVAILABLE.**
- **BUILT TO YOUR SPECS.**
- **PLEASE CALL FOR DETAILS!**

These coils can be used in chilled water applications but they are not fitted with a drain pan from the factory. A pan will have to be sourced to fit your specific application.



# WSD Hot/Chilled Water Coils

► **14 SIZES IN STOCK—  
READY FOR IMMEDIATE DELIVERY!**

| Fin Dimensions  | BTU's            |
|-----------------|------------------|
| 12" x 12" ..... | 21,000 - 54,500  |
| 12" x 18" ..... | 38,000 - 80,000  |
| 15" x 15" ..... | 38,000 - 83,000  |
| 16" x 16" ..... | 39,000 - 94,000  |
| 16" x 18" ..... | 40,000 - 106,000 |
| 18" x 18" ..... | 47,000 - 120,000 |
| 18" x 20" ..... | 50,000 - 133,000 |
| 17" x 22" ..... | 49,000 - 133,000 |
| 19" x 20" ..... | 50,000 - 139,000 |
| 20" x 19" ..... | 49,000 - 136,000 |
| 20" x 20" ..... | 50,000 - 145,000 |
| 22" x 22" ..... | 69,000 - 173,000 |
| 22" x 25" ..... | 72,000 - 197,000 |
| 24" x 24" ..... | 72,000 - 210,000 |



- **3 ROW COILS**
- **12 FINS PER INCH**
- **1" COPPER SWEAT HEADERS**
- **3/8" COPPER W/ SMOOTH TUBING**
- **.0055" CORRUGATED ALUMINUM FINS**
- **20 GAUGE CASING**
  - CUSTOM COILS
  - REPLACEMENT COILS
  - A-COILS
  - CHILLER COILS



**Assembled in the USA**  
with foreign and domestic parts

The BTU outputs stated are based on specific parameters and may vary depending on your situation.

These units do not come with a drain pan. In chilled water applications you will need to source a drain pan.

## Perfect to use with:

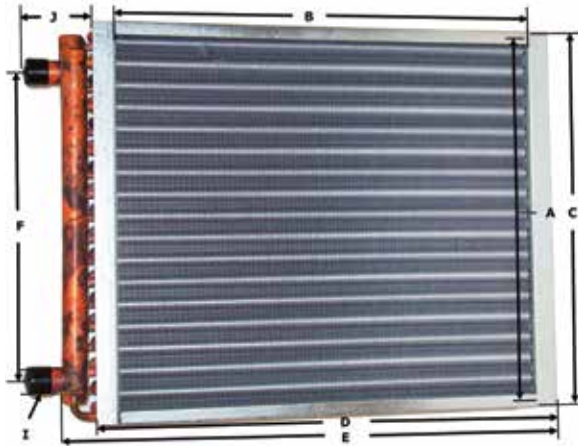
- **Outdoor Wood Boilers**
- **Gas Boilers**
- **SOLAR/GEO Systems**
- **Air Handlers**





# ► WSD HOT/CHILLED WATER COIL

## Approximate Dimensions



| Coil Size   | A   | B   | C       | D   | E       | F       | G      | H | I  | J  |
|-------------|-----|-----|---------|-----|---------|---------|--------|---|----|----|
| WSD 12 x 12 | 12" | 12" | 12-1/4" | 14" | 15-1/2" | 9"      | 3-1/2" | 3 | 1" | 3" |
| WSD 12 x 18 | 12" | 18" | 12-1/4" | 20" | 21-1/2" | 8-1/2"  | 3-1/2" | 3 | 1" | 3" |
| WSD 15 x 15 | 15" | 15" | 15-1/4" | 17" | 18-1/2" | 11-1/2" | 3-1/2" | 3 | 1" | 3" |
| WSD 16 x 16 | 16" | 16" | 16-1/4" | 18" | 19-1/2" | 13"     | 3-1/2" | 3 | 1" | 3" |
| WSD 16 x 18 | 16" | 18" | 16-1/4" | 20" | 21-1/4" | 13"     | 3-1/2" | 3 | 1" | 3" |
| WSD 18 x 18 | 18" | 18" | 18-1/4" | 20" | 21-1/4" | 15-1/2" | 3-1/2" | 3 | 1" | 3" |
| WSD 18 x 20 | 18" | 20" | 18-1/4" | 22" | 23-1/2" | 15-1/2" | 3-1/2" | 3 | 1" | 3" |
| WSD 17 x 22 | 17" | 22" | 17-1/4" | 24" | 25-1/2" | 13-1/4" | 3-1/2" | 3 | 1" | 3" |
| WSD 19 x 20 | 19" | 20" | 19-1/4" | 22" | 23-1/2" | 16"     | 3-1/2" | 3 | 1" | 3" |
| WSD 20 x 19 | 20" | 19" | 20-1/4" | 21" | 22-1/2" | 17-1/4" | 3-1/2" | 3 | 1" | 3" |
| WSD 20 x 20 | 20" | 20" | 20-1/4" | 22" | 23-1/2" | 17-1/4" | 3-1/2" | 3 | 1" | 3" |
| WSD 22 x 22 | 22" | 22" | 22-1/4" | 24" | 25-1/2" | 19"     | 3-1/2" | 3 | 1" | 3" |
| WSD 22 x 25 | 22" | 25" | 22-1/4" | 27" | 28-1/2" | 19-1/4" | 3-1/2" | 3 | 1" | 3" |
| WSD 24 x 24 | 24" | 24" | 24-1/4" | 26" | 27-1/2" | 21-1/2" | 3-1/2" | 3 | 1" | 3" |

Please note that these are approximate dimensions! Actual dimensions may vary slightly!  
Please see the website for more specifications and performance data.



**Assembled in the USA**  
with foreign and domestic parts



# Special Order & Custom Hot Water Coils

For custom and special order coils please try to acquire as much information as you can from this sheet.

## Dimensional Data

|                        |  |
|------------------------|--|
| Finned area height:    |  |
| Finned area length:    |  |
| Finned Area Thickness: |  |
| Casing height:         |  |
| Casing length:         |  |
| Casing thickness:      |  |
| Connection Size:       |  |
| Connection Type:       |  |

## Additional Information

|                         |  |
|-------------------------|--|
| Fins per inch:          |  |
| Rows deep:              |  |
| Tubes high:             |  |
| Steam Pressure:         |  |
| System pressure:        |  |
| Drain Pan:              |  |
| Glycol Percentage:      |  |
| Thermal Expansion Valve |  |

## Type of coil

|                |  |
|----------------|--|
| Evaporator:    |  |
| Condenser:     |  |
| Hot Water:     |  |
| Chilled water: |  |
| Steam:         |  |
| Slab coil:     |  |
| A coil:        |  |
| Dual Circuit:  |  |

## Flange Style

|                           |  |
|---------------------------|--|
| Outward flange:           |  |
| Inverted flange:          |  |
| Slip and Drive:           |  |
| No flange:                |  |
| Insulated Cabinet Coil:   |  |
| A coil with Drain Pan:    |  |
| Slab coil with drain pan: |  |
| Other:                    |  |

## Performance Data

|                                  |  |
|----------------------------------|--|
| CFM:                             |  |
| GPM:                             |  |
| Entering Air Temp:               |  |
| Leaving Air Temp:                |  |
| Entering water Temp:             |  |
| Leaving Water Temp:              |  |
| Type of Refrigerant:             |  |
| Air pressure Drop to stay under: |  |
| BTU's:                           |  |

## Material Data

|                                    |  |
|------------------------------------|--|
| Fin Thickness:                     |  |
| Fin Material:                      |  |
| Tube Thickness:                    |  |
| Tube Material:                     |  |
| Casing material:                   |  |
| Casing thickness:                  |  |
| Header size:                       |  |
| Coating for corrosive environment: |  |



# ► WSD 12 X 12 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 12.0 In. x 12.0 In.            |
| Number of Tubes            | 12                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 1.00 Square Feet               |
| Approx Weight of Coil      | 5.96 lbs.                      |
| Number of Circuits         | 6                              |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 400                                                       | 80°F                  | 58°F                 | 400                | 0.23                      | 40°F                | 44.8°F             | 6            | 1.92                        | 3.04                | 14,375           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 600                                                       | 60°F                  | 86.57°F              | 600                | 0.26                      | 110°F               | 103.05°F           | 5            | 1.11                        | 2.53                | 17,232           |
| 600                                                       | 60°F                  | 87.75°F              | 600                | 0.26                      | 110°F               | 104.82°F           | 7            | 2.01                        | 3.54                | 17,995           |
| 600                                                       | 60°F                  | 88.46°F              | 600                | 0.26                      | 110°F               | 105.86°F           | 9            | 3.13                        | 4.56                | 18,457           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 400                                                       | 60°F                  | 110.16°F             | 400                | 0.13                      | 140°F               | 131.19°F           | 5            | 1.03                        | 2.53                | 21,686           |
| 400                                                       | 60°F                  | 111.65°F             | 400                | 0.13                      | 140°F               | 133.52°F           | 7            | 1.87                        | 3.54                | 22,333           |
| 400                                                       | 60°F                  | 112.53°F             | 400                | 0.13                      | 140°F               | 134.87°F           | 9            | 2.92                        | 4.56                | 22,714           |
| 500                                                       | 60°F                  | 106.30°F             | 500                | 0.19                      | 140°F               | 129.83°F           | 5            | 1.03                        | 2.53                | 25,024           |
| 500                                                       | 60°F                  | 107.96°F             | 500                | 0.19                      | 140°F               | 132.47°F           | 7            | 1.87                        | 3.54                | 25,921           |
| 500                                                       | 60°F                  | 108.95°F             | 500                | 0.19                      | 140°F               | 134.03°F           | 9            | 2.92                        | 4.56                | 26,457           |
| 600                                                       | 60°F                  | 103.11°F             | 600                | 0.26                      | 140°F               | 128.64°F           | 5            | 1.03                        | 2.53                | 27,960           |
| 600                                                       | 60°F                  | 104.89°F             | 600                | 0.26                      | 140°F               | 131.55°F           | 7            | 1.87                        | 3.54                | 29,116           |
| 600                                                       | 60°F                  | 105.97°F             | 600                | 0.26                      | 140°F               | 133.27°F           | 9            | 2.92                        | 4.56                | 29,812           |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 400                                                       | 60°F                  | 136.02°F             | 400                | 0.13                      | 180°F               | 166.46°F           | 5            | 0.95                        | 2.53                | 32,871           |
| 400                                                       | 60°F                  | 138.11°F             | 400                | 0.13                      | 180°F               | 170.07°F           | 7            | 1.73                        | 3.54                | 33,773           |
| 400                                                       | 60°F                  | 139.34°F             | 400                | 0.13                      | 180°F               | 172.15°F           | 9            | 2.7                         | 4.56                | 34,303           |
| 500                                                       | 60°F                  | 130.30°F             | 500                | 0.19                      | 180°F               | 164.35°F           | 5            | 0.95                        | 2.53                | 37,997           |
| 500                                                       | 60°F                  | 132.64°F             | 500                | 0.19                      | 180°F               | 168.45°F           | 7            | 1.73                        | 3.54                | 39,258           |
| 500                                                       | 60°F                  | 134.02°F             | 500                | 0.19                      | 180°F               | 170.85°F           | 9            | 2.7                         | 4.56                | 40,005           |
| 600                                                       | 60°F                  | 125.56°F             | 600                | 0.26                      | 180°F               | 162.49°F           | 5            | 0.95                        | 2.53                | 42,521           |
| 600                                                       | 60°F                  | 128.08°F             | 600                | 0.26                      | 180°F               | 167.01°F           | 7            | 1.73                        | 3.54                | 44,154           |
| 600                                                       | 60°F                  | 129.58°F             | 600                | 0.26                      | 180°F               | 169.68°F           | 9            | 2.7                         | 4.56                | 45,128           |
| 800                                                       | 60°F                  | 123.13°F             | 800                | 0.43                      | 180°F               | 168.76°F           | 10           | 3.25                        | 5.06                | 54,589           |





# WSD 12 X 18 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 12.0 In. x 18.0 In.            |
| Number of Tubes            | 12                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 150 Square Feet                |
| Approx Weight of Coil      | 8.3 lbs.                       |
| Number of Circuits         | 6                              |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN, WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 600                                                       | 80°F                  | 57.8°F               | 400                | 0.23                      | 40°F                | 46.2°F             | 7            | 3.22                        | 3.54                | 21,875           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1200                                                      | 60°F                  | 82.60°F              | 800                | 0.43                      | 110°F               | 98.18°F            | 5            | 1.41                        | 2.53                | 29,312           |
| 1200                                                      | 60°F                  | 84.06°F              | 800                | 0.43                      | 110°F               | 101.01°F           | 7            | 2.55                        | 3.54                | 31,212           |
| 1200                                                      | 60°F                  | 84.97°F              | 800                | 0.43                      | 110°F               | 102.74°F           | 9            | 3.99                        | 4.56                | 32,385           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                       | 60°F                  | 104.00°F             | 533.33             | 0.21                      | 140°F               | 124.54°F           | 5            | 1.31                        | 2.53                | 38,049           |
| 800                                                       | 60°F                  | 106.01°F             | 533.33             | 0.21                      | 140°F               | 128.45°F           | 7            | 2.38                        | 3.54                | 39,787           |
| 800                                                       | 60°F                  | 107.21°F             | 533.33             | 0.21                      | 140°F               | 130.78°F           | 9            | 3.72                        | 4.56                | 40,826           |
| 1,000                                                     | 60°F                  | 99.98°F              | 666.67             | 0.31                      | 140°F               | 122.44°F           | 5            | 1.31                        | 2.53                | 43,216           |
| 1,000                                                     | 60°F                  | 102.15°F             | 666.67             | 0.31                      | 140°F               | 126.77°F           | 7            | 2.38                        | 3.54                | 45,557           |
| 1,000                                                     | 60°F                  | 103.46°F             | 666.67             | 0.31                      | 140°F               | 129.39°F           | 9            | 3.72                        | 4.56                | 46,974           |
| 1,200                                                     | 60°F                  | 96.73°F              | 800                | 0.43                      | 140°F               | 120.64°F           | 5            | 1.31                        | 2.53                | 47,641           |
| 1,200                                                     | 60°F                  | 98.99°F              | 800                | 0.43                      | 140°F               | 125.32°F           | 7            | 2.38                        | 3.54                | 50,582           |
| 1,200                                                     | 60°F                  | 100.38°F             | 800                | 0.43                      | 140°F               | 128.17°F           | 9            | 3.72                        | 4.56                | 52,381           |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                       | 60°F                  | 126.81°F             | 533.33             | 0.21                      | 180°F               | 156.21°F           | 5            | 1.21                        | 2.53                | 57,772           |
| 800                                                       | 60°F                  | 129.69°F             | 533.33             | 0.21                      | 180°F               | 162.28°F           | 7            | 2.2                         | 3.54                | 60,262           |
| 800                                                       | 60°F                  | 131.39°F             | 533.33             | 0.21                      | 180°F               | 165.88°F           | 9            | 3.43                        | 4.56                | 61,738           |
| 1,000                                                     | 60°F                  | 120.81°F             | 666.67             | 0.31                      | 180°F               | 152.93°F           | 5            | 1.21                        | 2.53                | 65,729           |
| 1,000                                                     | 60°F                  | 123.93°F             | 666.67             | 0.31                      | 180°F               | 159.67°F           | 7            | 2.2                         | 3.54                | 69,100           |
| 1,000                                                     | 60°F                  | 125.80°F             | 666.67             | 0.31                      | 180°F               | 163.73°F           | 9            | 3.43                        | 4.56                | 71,130           |
| 1,200                                                     | 60°F                  | 115.94°F             | 800                | 0.43                      | 180°F               | 150.12°F           | 5            | 1.21                        | 2.53                | 72,564           |
| 1,200                                                     | 60°F                  | 119.23°F             | 800                | 0.43                      | 180°F               | 157.40°F           | 7            | 2.2                         | 3.54                | 76,827           |
| 1,200                                                     | 60°F                  | 121.22°F             | 800                | 0.43                      | 180°F               | 161.83°F           | 9            | 3.43                        | 4.56                | 79,410           |
| 1,200                                                     | 60°F                  | 121.95°F             | 800                | 0.43                      | 180°F               | 163.46°F           | 10           | 4.14                        | 5.06                | 80,357           |



# ► WSD 15 X 15 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 15.0 In. x 15.0 In.            |
| Number of Tubes            | 15                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 1.56 Square Feet               |
| Approx Weight of Coil      | 9.17 lbs.                      |
| Number of Circuits         | 7                              |

| CFM Flow                                                         | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|------------------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| <b>40° F Entering Water Temperature (Drain pan not included)</b> |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 625                                                              | 80°F                  | 57.8°F               | 400                | 0.23                      | 40°F                | 45.7°F             | 8            | 2.98                        | 3.47                | 22,813           |
| <b>110° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1200                                                             | 60°F                  | 82.57°F              | 768                | 0.4                       | 110°F               | 98.19°F            | 5            | 1.03                        | 2.17                | 29,275           |
| 1200                                                             | 60°F                  | 84.10°F              | 768                | 0.4                       | 110°F               | 100.99°F           | 7            | 1.87                        | 3.04                | 31,259           |
| 1200                                                             | 60°F                  | 85.05°F              | 768                | 0.4                       | 110°F               | 102.72°F           | 9            | 2.92                        | 3.91                | 32,492           |
| <b>140° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                              | 60°F                  | 104.08°F             | 512                | 0.2                       | 140°F               | 124.51°F           | 5            | 0.96                        | 2.17                | 38,115           |
| 800                                                              | 60°F                  | 106.18°F             | 512                | 0.2                       | 140°F               | 128.41°F           | 7            | 1.74                        | 3.04                | 39,937           |
| 800                                                              | 60°F                  | 107.45°F             | 512                | 0.2                       | 140°F               | 130.74°F           | 9            | 2.72                        | 3.91                | 41,030           |
| 1,000                                                            | 60°F                  | 100.02°F             | 640                | 0.29                      | 140°F               | 122.42°F           | 5            | 0.96                        | 2.17                | 43,256           |
| 1,000                                                            | 60°F                  | 102.28°F             | 640                | 0.29                      | 140°F               | 126.73°F           | 7            | 1.74                        | 3.04                | 45,705           |
| 1,000                                                            | 60°F                  | 103.66°F             | 640                | 0.29                      | 140°F               | 129.34°F           | 9            | 2.72                        | 3.91                | 47,194           |
| 1,200                                                            | 60°F                  | 96.73°F              | 768                | 0.4                       | 140°F               | 120.63°F           | 5            | 0.96                        | 2.17                | 47,648           |
| 1,200                                                            | 60°F                  | 99.10°F              | 768                | 0.4                       | 140°F               | 125.28°F           | 7            | 1.74                        | 3.04                | 50,719           |
| 1,200                                                            | 60°F                  | 100.56°F             | 768                | 0.4                       | 140°F               | 128.12°F           | 9            | 2.72                        | 3.91                | 52,609           |
| <b>180° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                              | 60°F                  | 127.00°F             | 512                | 0.2                       | 180°F               | 156.14°F           | 5            | 0.89                        | 2.17                | 57,938           |
| 800                                                              | 60°F                  | 130.01°F             | 512                | 0.2                       | 180°F               | 162.19°F           | 7            | 1.61                        | 3.04                | 60,544           |
| 800                                                              | 60°F                  | 131.89°F             | 512                | 0.2                       | 180°F               | 165.79°F           | 9            | 2.51                        | 3.91                | 62,095           |
| 1,000                                                            | 60°F                  | 120.94°F             | 640                | 0.29                      | 180°F               | 152.87°F           | 5            | 0.89                        | 2.17                | 65,876           |
| 1,000                                                            | 60°F                  | 124.21°F             | 640                | 0.29                      | 180°F               | 159.59°F           | 7            | 1.61                        | 3.04                | 69,404           |
| 1,000                                                            | 60°F                  | 126.17°F             | 640                | 0.29                      | 180°F               | 163.64°F           | 9            | 2.51                        | 3.91                | 71,530           |
| 1,200                                                            | 60°F                  | 116.03°F             | 768                | 0.4                       | 180°F               | 150.07°F           | 5            | 0.89                        | 2.17                | 72,681           |
| 1,200                                                            | 60°F                  | 119.46°F             | 768                | 0.4                       | 180°F               | 157.31°F           | 7            | 1.61                        | 3.04                | 77,129           |
| 1,200                                                            | 60°F                  | 121.55°F             | 768                | 0.4                       | 180°F               | 161.74°F           | 9            | 2.51                        | 3.91                | 79,838           |
| 1,250                                                            | 60°F                  | 121.95°F             | 800                | 0.43                      | 180°F               | 164.33°F           | 11           | 3.58                        | 4.77                | 83,701           |



# WSD 16 X 16 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 16.0 In. x 16.0 In.            |
| Number of Tubes            | 16                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 1.78 Square Feet               |
| Approx Weight of Coil      | 10.38 lbs.                     |
| Number of Circuits         | 8                              |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 725                                                       | 80°F                  | 57.9°F               | 408                | 0.238                     | 40°F                | 45.8°F             | 9            | 2.8                         | 3.42                | 26,250           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1200                                                      | 60°F                  | 83.35°F              | 675                | 0.32                      | 110°F               | 97.78°F            | 5            | 0.78                        | 1.9                 | 30,291           |
| 1200                                                      | 60°F                  | 84.97°F              | 675                | 0.32                      | 110°F               | 100.67°F           | 7            | 1.42                        | 2.66                | 32,385           |
| 1200                                                      | 60°F                  | 85.97°F              | 675                | 0.32                      | 110°F               | 102.45°F           | 9            | 2.22                        | 3.42                | 33,685           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                       | 60°F                  | 105.50°F             | 450                | 0.16                      | 140°F               | 124.01°F           | 5            | 0.73                        | 1.9                 | 39,346           |
| 800                                                       | 60°F                  | 107.70°F             | 450                | 0.16                      | 140°F               | 128.03°F           | 7            | 1.33                        | 2.66                | 41,248           |
| 800                                                       | 60°F                  | 109.02°F             | 450                | 0.16                      | 140°F               | 130.43°F           | 9            | 2.08                        | 3.42                | 42,388           |
| 1,000                                                     | 60°F                  | 101.37°F             | 562.5              | 0.23                      | 140°F               | 121.83°F           | 5            | 0.73                        | 1.9                 | 44,718           |
| 1,000                                                     | 60°F                  | 103.75°F             | 562.5              | 0.23                      | 140°F               | 126.27°F           | 7            | 1.33                        | 2.66                | 47,293           |
| 1,000                                                     | 60°F                  | 105.20°F             | 562.5              | 0.23                      | 140°F               | 128.97°F           | 9            | 2.08                        | 3.42                | 48,857           |
| 1,200                                                     | 60°F                  | 98.01°F              | 675                | 0.32                      | 140°F               | 119.96°F           | 5            | 0.73                        | 1.9                 | 49,309           |
| 1,200                                                     | 60°F                  | 100.51°F             | 675                | 0.32                      | 140°F               | 124.74°F           | 7            | 1.33                        | 2.66                | 52,552           |
| 1,200                                                     | 60°F                  | 102.05°F             | 675                | 0.32                      | 140°F               | 127.68°F           | 9            | 2.08                        | 3.42                | 54,547           |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                       | 60°F                  | 129.16°F             | 450                | 0.16                      | 180°F               | 155.37°F           | 5            | 0.68                        | 1.9                 | 59,811           |
| 800                                                       | 60°F                  | 132.31°F             | 450                | 0.16                      | 180°F               | 161.61°F           | 7            | 1.23                        | 2.66                | 62,535           |
| 800                                                       | 60°F                  | 134.19°F             | 450                | 0.16                      | 180°F               | 165.32°F           | 9            | 1.91                        | 3.42                | 64,153           |
| 1,000                                                     | 60°F                  | 123.01°F             | 562.5              | 0.23                      | 180°F               | 151.95°F           | 5            | 0.68                        | 1.9                 | 68,111           |
| 1,000                                                     | 60°F                  | 126.44°F             | 562.5              | 0.23                      | 180°F               | 158.87°F           | 7            | 1.23                        | 2.66                | 71,822           |
| 1,000                                                     | 60°F                  | 128.51°F             | 562.5              | 0.23                      | 180°F               | 163.06°F           | 9            | 1.91                        | 3.42                | 74,055           |
| 1,200                                                     | 60°F                  | 117.99°F             | 675                | 0.32                      | 180°F               | 149.02°F           | 5            | 0.68                        | 1.9                 | 75,228           |
| 1,200                                                     | 60°F                  | 121.62°F             | 675                | 0.32                      | 180°F               | 156.49°F           | 7            | 1.23                        | 2.66                | 79,926           |
| 1,200                                                     | 60°F                  | 123.82°F             | 675                | 0.32                      | 180°F               | 161.06°F           | 9            | 1.91                        | 3.42                | 82,787           |
| 1,400                                                     | 60°F                  | 122.57°F             | 787.5              | 0.42                      | 180°F               | 165.00°F           | 13           | 3.67                        | 4.94                | 94,689           |





# ► WSD 16 X 18 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 16.0 In. x 18.0 In.            |
| Number of Tubes            | 16                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 2.00 Square Feet               |
| Approx Weight of Coil      | 11.61 lbs.                     |
| Number of Circuits         | 8                              |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                       | 80°F                  | 58.0°F               | 400                | 0.23                      | 40°F                | 46.4°F             | 9            | 3.02                        | 3.02                | 28,750           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1600                                                      | 60°F                  | 81.10°F              | 800                | 0.43                      | 110°F               | 95.28°F            | 5            | 0.84                        | 1.9                 | 36,494           |
| 1600                                                      | 60°F                  | 82.83°F              | 800                | 0.43                      | 110°F               | 98.63°F            | 7            | 1.53                        | 2.66                | 39,483           |
| 1600                                                      | 60°F                  | 83.92°F              | 800                | 0.43                      | 110°F               | 100.73°F           | 9            | 2.39                        | 3.42                | 41,367           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                       | 60°F                  | 107.23°F             | 400                | 0.13                      | 140°F               | 123.40°F           | 5            | 0.79                        | 1.9                 | 40,843           |
| 800                                                       | 60°F                  | 109.43°F             | 400                | 0.13                      | 140°F               | 127.59°F           | 7            | 1.43                        | 2.66                | 42,749           |
| 800                                                       | 60°F                  | 110.75°F             | 400                | 0.13                      | 140°F               | 130.09°F           | 9            | 2.24                        | 3.42                | 43,884           |
| 1,000                                                     | 60°F                  | 103.07°F             | 500                | 0.19                      | 140°F               | 121.08°F           | 5            | 0.79                        | 1.9                 | 46,553           |
| 1,000                                                     | 60°F                  | 105.48°F             | 500                | 0.19                      | 140°F               | 125.73°F           | 7            | 1.43                        | 2.66                | 49,159           |
| 1,000                                                     | 60°F                  | 106.93°F             | 500                | 0.19                      | 140°F               | 128.55°F           | 9            | 2.24                        | 3.42                | 50,732           |
| 1,200                                                     | 60°F                  | 99.66°F              | 600                | 0.26                      | 140°F               | 119.09°F           | 5            | 0.79                        | 1.9                 | 51,446           |
| 1,200                                                     | 60°F                  | 102.21°F             | 600                | 0.26                      | 140°F               | 124.10°F           | 7            | 1.43                        | 2.66                | 54,754           |
| 1,200                                                     | 60°F                  | 103.77°F             | 600                | 0.26                      | 140°F               | 127.18°F           | 9            | 2.24                        | 3.42                | 56,774           |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 800                                                       | 60°F                  | 131.71°F             | 400                | 0.13                      | 180°F               | 154.46°F           | 5            | 0.73                        | 1.9                 | 62,013.69        |
| 800                                                       | 60°F                  | 134.87°F             | 400                | 0.13                      | 180°F               | 160.96°F           | 7            | 1.32                        | 2.66                | 64,748.42        |
| 800                                                       | 60°F                  | 136.74°F             | 400                | 0.13                      | 180°F               | 164.82°F           | 9            | 2.06                        | 3.42                | 66,362.63        |
| 1,000                                                     | 60°F                  | 125.51°F             | 500                | 0.19                      | 180°F               | 150.84°F           | 5            | 0.73                        | 1.9                 | 70,813.06        |
| 1,000                                                     | 60°F                  | 128.99°F             | 500                | 0.19                      | 180°F               | 158.06°F           | 7            | 1.32                        | 2.66                | 74,576.28        |
| 1,000                                                     | 60°F                  | 131.07°F             | 500                | 0.19                      | 180°F               | 162.42°F           | 9            | 2.06                        | 3.42                | 76,825.70        |
| 1,200                                                     | 60°F                  | 120.42°F             | 600                | 0.26                      | 180°F               | 147.73°F           | 5            | 0.73                        | 1.9                 | 78,374.69        |
| 1,200                                                     | 60°F                  | 124.12°F             | 600                | 0.26                      | 180°F               | 155.54°F           | 7            | 1.32                        | 2.66                | 83,177.18        |
| 1,200                                                     | 60°F                  | 126.36°F             | 600                | 0.26                      | 180°F               | 160.31°F           | 9            | 2.06                        | 3.42                | 86,081.51        |
| 1,600                                                     | 60°F                  | 121.78°F             | 800                | 0.43                      | 180°F               | 163.08°F           | 13           | 3.95                        | 4.94                | 106,849.30       |



# WSD 17 X 22 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 17.0 In. x 22.0 In.            |
| Number of Tubes            | 17                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 2.60 Square Feet               |
| Approx Weight of Coil      | 14.95 lbs.                     |
| Number of Circuits         | 8                              |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1050                                                      | 80°F                  | 58.6°F               | 404                | 0.235                     | 40°F                | 48.1°F             | 9            | 3.68                        | 3.42                | 36,563           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1600                                                      | 60°F                  | 83.27°F              | 616.04             | 0.27                      | 110°F               | 93.77°F            | 5            | 1.03                        | 1.9                 | 40,241           |
| 1600                                                      | 60°F                  | 85.11°F              | 616.04             | 0.27                      | 110°F               | 97.49°F            | 7            | 1.87                        | 2.66                | 43,424           |
| 1600                                                      | 60°F                  | 86.2°F               | 616.04             | 0.27                      | 110°F               | 99.83°F            | 9            | 2.92                        | 3.42                | 45,399           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                     | 60°F                  | 106.79°F             | 385.03             | 0.12                      | 140°F               | 119.44°F           | 5            | 0.96                        | 1.9                 | 50,384           |
| 1,000                                                     | 60°F                  | 109.26°F             | 385.03             | 0.12                      | 140°F               | 124.54°F           | 7            | 1.75                        | 2.66                | 53,249           |
| 1,000                                                     | 60°F                  | 110.73°F             | 385.03             | 0.12                      | 140°F               | 127.62°F           | 9            | 2.72                        | 3.42                | 54,831           |
| 1,300                                                     | 60°F                  | 101.76°F             | 500.54             | 0.19                      | 140°F               | 116.15°F           | 5            | 0.96                        | 1.9                 | 58,687           |
| 1,300                                                     | 60°F                  | 104.49°F             | 500.54             | 0.19                      | 140°F               | 121.85°F           | 7            | 1.75                        | 2.66                | 62,521           |
| 1,300                                                     | 60°F                  | 106.14°F             | 500.54             | 0.19                      | 140°F               | 125.36°F           | 9            | 2.72                        | 3.42                | 64,838           |
| 1,500                                                     | 60°F                  | 99.02°F              | 577.54             | 0.24                      | 140°F               | 114.28°F           | 5            | 0.96                        | 1.9                 | 63,274           |
| 1,500                                                     | 60°F                  | 101.87°F             | 577.54             | 0.24                      | 140°F               | 120.29°F           | 7            | 1.75                        | 2.66                | 67,882           |
| 1,500                                                     | 60°F                  | 103.60°F             | 577.54             | 0.24                      | 140°F               | 124.04°F           | 9            | 2.72                        | 3.42                | 70,699           |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                     | 60°F                  | 130.99°F             | 385.03             | 0.12                      | 180°F               | 148.40°F           | 5            | 0.89                        | 1.9                 | 76,738           |
| 1,000                                                     | 60°F                  | 134.56°F             | 385.03             | 0.12                      | 180°F               | 156.29°F           | 7            | 1.61                        | 2.66                | 80,602           |
| 1,000                                                     | 60°F                  | 136.67°F             | 385.03             | 0.12                      | 180°F               | 161.04°F           | 9            | 2.51                        | 3.42                | 82,602           |
| 1,300                                                     | 60°F                  | 123.48°F             | 500.54             | 0.19                      | 180°F               | 143.27°F           | 5            | 0.89                        | 1.9                 | 89,197           |
| 1,300                                                     | 60°F                  | 127.46°F             | 500.54             | 0.19                      | 180°F               | 152.12°F           | 7            | 1.61                        | 2.66                | 94,798           |
| 1,300                                                     | 60°F                  | 129.85°F             | 500.54             | 0.19                      | 180°F               | 157.55°F           | 9            | 2.51                        | 3.42                | 98,152           |
| 1,500                                                     | 60°F                  | 119.37°F             | 577.54             | 0.24                      | 180°F               | 140.36°F           | 5            | 0.89                        | 1.9                 | 96,265.76        |
| 1,500                                                     | 60°F                  | 123.54°F             | 577.54             | 0.24                      | 180°F               | 149.69°F           | 7            | 1.61                        | 2.66                | 103,027.00       |
| 1,500                                                     | 60°F                  | 126.07°F             | 577.54             | 0.24                      | 180°F               | 155.49°F           | 9            | 2.51                        | 3.42                | 107,120.10       |
| 2,000                                                     | 60°F                  | 121.68°F             | 770.05             | 0.4                       | 180°F               | 158.85°F           | 13           | 4.82                        | 4.94                | 133,344.00       |



# ► WSD 18 X 18 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 18.0 In. x 18.0 In.            |
| Number of Tubes            | 18                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 2.25 Square Feet               |
| Approx Weight of Coil      | 13.05 lbs.                     |
| Number of Circuits         | 9                              |

| CFM Flow                                                         | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|------------------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| <b>40° F Entering Water Temperature (Drain pan not included)</b> |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 925                                                              | 80°F                  | 58.6°F               | 411                | 0.242                     | 40°F                | 47.1°F             | 9            | 2.45                        | 3.04                | 31,875           |
| <b>110° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 925                                                              | 80°F                  | 58.6°F               | 411                | 0.242                     | 40°F                | 47.1°F             | 9            | 2.45                        | 3.04                | 31,875           |
| 1600                                                             | 60°F                  | 83.58°F              | 711.11             | 0.35                      | 110°F               | 98.25°F            | 7            | 1.24                        | 2.36                | 40,779           |
| 1600                                                             | 60°F                  | 84.72°F              | 711.11             | 0.35                      | 110°F               | 100.42°F           | 9            | 1.94                        | 3.04                | 42,757           |
| <b>140° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 104.32°F             | 444.45             | 0.152                     | 140°F               | 120.53°F           | 5            | 0.64                        | 1.69                | 47,911           |
| 1,000                                                            | 60°F                  | 106.83°F             | 444.45             | 0.152                     | 140°F               | 125.30°F           | 7            | 1.16                        | 2.36                | 50,623           |
| 1,000                                                            | 60°F                  | 108.34°F             | 444.45             | 0.152                     | 140°F               | 128.20°F           | 9            | 1.81                        | 3.04                | 52,257           |
| 1,300                                                            | 60°F                  | 99.34°F              | 577.78             | 0.242                     | 140°F               | 117.53°F           | 5            | 0.64                        | 1.69                | 55,288           |
| 1,300                                                            | 60°F                  | 102.07°F             | 577.78             | 0.242                     | 140°F               | 122.84°F           | 7            | 1.16                        | 2.36                | 59,116           |
| 1,300                                                            | 60°F                  | 103.74°F             | 577.78             | 0.242                     | 140°F               | 126.12°F           | 9            | 1.81                        | 3.04                | 61,465           |
| 1,500                                                            | 60°F                  | 96.66°F              | 666.67             | 0.312                     | 140°F               | 115.84°F           | 5            | 0.64                        | 1.69                | 59,445           |
| 1,500                                                            | 60°F                  | 99.47°F              | 666.67             | 0.312                     | 140°F               | 121.42°F           | 7            | 1.16                        | 2.36                | 64,001           |
| 1,500                                                            | 60°F                  | 101.22°F             | 666.67             | 0.312                     | 140°F               | 124.91°F           | 9            | 1.81                        | 3.04                | 66,828           |
| <b>180° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 127.42°F             | 444.45             | 0.152                     | 180°F               | 149.99°F           | 5            | 0.59                        | 1.69                | 72,878           |
| 1,000                                                            | 60°F                  | 131.05°F             | 444.45             | 0.152                     | 180°F               | 157.41°F           | 7            | 1.07                        | 2.36                | 76,797           |
| 1,000                                                            | 60°F                  | 133.21°F             | 444.45             | 0.152                     | 180°F               | 161.90°F           | 9            | 1.67                        | 3.04                | 79,134           |
| 1,300                                                            | 60°F                  | 119.98°F             | 577.78             | 0.242                     | 180°F               | 145.29°F           | 5            | 0.59                        | 1.69                | 84,289           |
| 1,300                                                            | 60°F                  | 123.95°F             | 577.78             | 0.242                     | 180°F               | 153.57°F           | 7            | 1.07                        | 2.36                | 89,862           |
| 1,300                                                            | 60°F                  | 126.36°F             | 577.78             | 0.242                     | 180°F               | 158.67°F           | 9            | 1.67                        | 3.04                | 93,248           |
| 1,500                                                            | 60°F                  | 115.96°F             | 666.67             | 0.312                     | 180°F               | 142.64°F           | 5            | 0.59                        | 1.69                | 90,735           |
| 1,500                                                            | 60°F                  | 120.07°F             | 666.67             | 0.312                     | 180°F               | 151.35°F           | 7            | 1.07                        | 2.36                | 97,398           |
| 1,500                                                            | 60°F                  | 122.59°F             | 666.67             | 0.312                     | 180°F               | 156.76°F           | 9            | 1.67                        | 3.04                | 101,490          |
| 1,800                                                            | 60°F                  | 121.95°F             | 800                | 0.43                      | 180°F               | 163.46°F           | 15           | 4.14                        | 5.06                | 120,536          |



# WSD 18 X 20 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 18.0 In. x 20.0 In.            |
| Number of Tubes            | 18                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 2.50 Square Feet               |
| Approx Weight of Coil      | 14.44 lbs.                     |
| Number of Circuits         | 9                              |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1050                                                      | 80°F                  | 58.9°F               | 420                | 0.251                     | 40°F                | 47.8°F             | 9            | 2.62                        | 3.04                | 35,313           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1600                                                      | 60°F                  | 82.65°F              | 640                | 0.29                      | 110°F               | 94.20°F            | 5            | 0.73                        | 1.69                | 39,166           |
| 1600                                                      | 60°F                  | 84.51°F              | 640                | 0.29                      | 110°F               | 97.79°F            | 7            | 1.33                        | 2.36                | 42,382           |
| 1600                                                      | 60°F                  | 85.67°F              | 640                | 0.29                      | 110°F               | 100.05°F           | 9            | 2.08                        | 3.04                | 44,398           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                     | 60°F                  | 105.84°F             | 400                | 0.126                     | 140°F               | 119.86°F           | 5            | 0.69                        | 1.69                | 49,551           |
| 1,000                                                     | 60°F                  | 108.37°F             | 400                | 0.126                     | 140°F               | 124.82°F           | 7            | 1.25                        | 2.36                | 52,285           |
| 1,000                                                     | 60°F                  | 109.88°F             | 400                | 0.126                     | 140°F               | 127.83°F           | 9            | 1.94                        | 3.04                | 53,920           |
| 1,300                                                     | 60°F                  | 100.81°F             | 520                | 0.201                     | 140°F               | 116.70°F           | 5            | 0.69                        | 1.69                | 57,341           |
| 1,300                                                     | 60°F                  | 103.58°F             | 520                | 0.201                     | 140°F               | 122.22°F           | 7            | 1.25                        | 2.36                | 61,238           |
| 1,300                                                     | 60°F                  | 105.27°F             | 520                | 0.201                     | 140°F               | 125.64°F           | 9            | 1.94                        | 3.04                | 63,614           |
| 1,500                                                     | 60°F                  | 98.08°F              | 600                | 0.258                     | 140°F               | 114.91°F           | 5            | 0.69                        | 1.69                | 61,736           |
| 1,500                                                     | 60°F                  | 100.95°F             | 600                | 0.258                     | 140°F               | 120.72°F           | 7            | 1.25                        | 2.36                | 66,400           |
| 1,500                                                     | 60°F                  | 102.72°F             | 600                | 0.258                     | 140°F               | 124.36°F           | 9            | 1.94                        | 3.04                | 69,275           |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                     | 60°F                  | 129.65°F             | 400                | 0.126                     | 180°F               | 149°F              | 5            | 0.63                        | 1.69                | 75,286           |
| 1,000                                                     | 60°F                  | 133.31°F             | 400                | 0.126                     | 180°F               | 156.69°F           | 7            | 1.15                        | 2.36                | 79,242           |
| 1,000                                                     | 60°F                  | 135.48°F             | 400                | 0.126                     | 180°F               | 161.34°F           | 9            | 1.79                        | 3.04                | 81,586           |
| 1,300                                                     | 60°F                  | 122.13°F             | 520                | 0.201                     | 180°F               | 144.05°F           | 5            | 0.63                        | 1.69                | 87,306           |
| 1,300                                                     | 60°F                  | 126.17°F             | 520                | 0.201                     | 180°F               | 152.65°F           | 7            | 1.15                        | 2.36                | 92,990           |
| 1,300                                                     | 60°F                  | 128.62°F             | 520                | 0.201                     | 180°F               | 157.94°F           | 9            | 1.79                        | 3.04                | 96,420           |
| 1,500                                                     | 60°F                  | 118.04°F             | 600                | 0.258                     | 180°F               | 141.25°F           | 5            | 0.63                        | 1.69                | 94,106           |
| 1,500                                                     | 60°F                  | 122.25°F             | 600                | 0.258                     | 180°F               | 150.31°F           | 7            | 1.15                        | 2.36                | 100,937          |
| 1,500                                                     | 60°F                  | 124.82°F             | 600                | 0.258                     | 180°F               | 155.96°F           | 9            | 1.79                        | 3.04                | 105,105          |
| 2,000                                                     | 60°F                  | 121.56°F             | 800                | 0.43                      | 180°F               | 161.73°F           | 15           | 4.43                        | 5.06                | 133,086          |





# ► WSD 19 X 20 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 19.0 In. x 20.0 In.            |
| Number of Tubes            | 19                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 2.64 Square Feet               |
| Approx Weight of Coil      | 15.24 lbs.                     |
| Number of Circuits         | 9                              |

| CFM Flow                                                         | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|------------------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| <b>40° F Entering Water Temperature (Drain pan not included)</b> |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1050                                                             | 80°F                  | 58.7°F               | 398                | 0.228                     | 40°F                | 48°F               | 9            | 2.78                        | 3.04                | 36,094           |
| <b>110° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1600                                                             | 60°F                  | 83.10°F              | 606.32             | 0.26                      | 110°F               | 93.89°F            | 5            | 0.78                        | 1.69                | 39,949           |
| 1600                                                             | 60°F                  | 84.98°F              | 606.32             | 0.26                      | 110°F               | 97.55°F            | 7            | 1.41                        | 2.36                | 43,206           |
| 1600                                                             | 60°F                  | 86.16°F              | 606.32             | 0.26                      | 110°F               | 99.86°F            | 9            | 2.21                        | 3.04                | 45,239           |
| <b>140° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 106.61°F             | 378.95             | 0.114                     | 140°F               | 119.52°F           | 5            | 0.727                       | 1.69                | 50,387           |
| 1,000                                                            | 60°F                  | 109.15°F             | 378.95             | 0.114                     | 140°F               | 124.58°F           | 7            | 1.32                        | 2.36                | 53,130           |
| 1,000                                                            | 60°F                  | 110.66°F             | 378.95             | 0.114                     | 140°F               | 127.64°F           | 9            | 2.06                        | 3.04                | 54,766           |
| 1,300                                                            | 60°F                  | 101.55°F             | 492.63             | 0.182                     | 140°F               | 116.27°F           | 5            | 0.727                       | 1.69                | 58,391           |
| 1,300                                                            | 60°F                  | 104.35°F             | 492.63             | 0.182                     | 140°F               | 121.91°F           | 7            | 1.32                        | 2.36                | 62,323           |
| 1,300                                                            | 60°F                  | 106.05°F             | 492.63             | 0.182                     | 140°F               | 125.39°F           | 9            | 2.06                        | 3.04                | 64,712           |
| 1,500                                                            | 60°F                  | 98.80°F              | 568.42             | 0.235                     | 140°F               | 114.43°F           | 5            | 0.727                       | 1.69                | 62,912           |
| 1,500                                                            | 60°F                  | 101.71°F             | 568.42             | 0.235                     | 140°F               | 120.37°F           | 7            | 1.32                        | 2.36                | 67,629           |
| 1,500                                                            | 60°F                  | 103.50°F             | 568.42             | 0.235                     | 140°F               | 124.08°F           | 9            | 2.06                        | 3.04                | 70,529           |
| <b>180° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 130.78°F             | 378.95             | 0.114                     | 180°F               | 148.49°F           | 5            | 0.67                        | 1.69                | 76,515           |
| 1,000                                                            | 60°F                  | 134.46°F             | 378.95             | 0.114                     | 180°F               | 156.33°F           | 7            | 1.22                        | 2.36                | 80,487           |
| 1,000                                                            | 60°F                  | 136.63°F             | 378.95             | 0.114                     | 180°F               | 161.05°F           | 9            | 1.9                         | 3.04                | 82,834           |
| 1,300                                                            | 60°F                  | 123.23°F             | 492.63             | 0.182                     | 180°F               | 143.41°F           | 5            | 0.67                        | 1.69                | 88,849           |
| 1,300                                                            | 60°F                  | 127.31°F             | 492.63             | 0.182                     | 180°F               | 152.18°F           | 7            | 1.22                        | 2.36                | 94,588           |
| 1,300                                                            | 60°F                  | 129.77°F             | 492.63             | 0.182                     | 180°F               | 157.57°F           | 9            | 1.9                         | 3.04                | 98,041           |
| 1,500                                                            | 60°F                  | 119.10°F             | 568.42             | 0.235                     | 180°F               | 140.54°F           | 5            | 0.67                        | 1.69                | 95,832           |
| 1,500                                                            | 60°F                  | 123.37°F             | 568.42             | 0.235                     | 180°F               | 149.78°F           | 7            | 1.22                        | 2.36                | 102,749          |
| 1,500                                                            | 60°F                  | 125.96°F             | 568.42             | 0.235                     | 180°F               | 155.53°F           | 9            | 1.9                         | 3.04                | 106,956          |
| 2,100                                                            | 60°F                  | 121.47°F             | 795.79             | 0.426                     | 180°F               | 160.85°F           | 15           | 4.69                        | 5.06                | 139,551          |



# ► **WSD 20 X 19 HOT WATER COIL**

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 20.0 In. x 19.0 In.            |
| Number of Tubes            | 20                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 2.64 Square Feet               |
| Approx Weight of Coil      | 15.26 lbs.                     |
| Number of Circuits         | 10                             |

| CFM Flow                                                         | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|------------------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| <b>40° F Entering Water Temperature (Drain pan not included)</b> |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1075                                                             | 80°F                  | 58.6°F               | 407                | 0.238                     | 40°F                | 47.4°F             | 10           | 2.54                        | 3.04                | 37,188           |
| <b>110° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1600                                                             | 60°F                  | 82.81°F              | 606.32             | 0.26                      | 110°F               | 94.09°F            | 5            | 0.59                        | 1.52                | 39,454           |
| 1600                                                             | 60°F                  | 84.73°F              | 606.32             | 0.26                      | 110°F               | 97.68°F            | 7            | 1.07                        | 2.13                | 42,768           |
| 1600                                                             | 60°F                  | 85.93°F              | 606.32             | 0.26                      | 110°F               | 99.95°F            | 9            | 1.67                        | 2.73                | 44,849           |
| <b>140° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 106.22°F             | 378.95             | 0.114                     | 140°F               | 119.69°F           | 5            | 0.55                        | 1.52                | 49,965           |
| 1,000                                                            | 60°F                  | 108.83°F             | 378.95             | 0.114                     | 140°F               | 124.68°F           | 7            | 1                           | 2.13                | 52,779           |
| 1,000                                                            | 60°F                  | 110.39°F             | 378.95             | 0.114                     | 140°F               | 127.7              | 9            | 1.56                        | 2.73                | 54,464           |
| 1,300                                                            | 60°F                  | 101.14°F             | 492.63             | 0.182                     | 140°F               | 116.50°F           | 5            | 0.55                        | 1.52                | 57,814           |
| 1,300                                                            | 60°F                  | 104.00°F             | 492.63             | 0.182                     | 140°F               | 122.05°F           | 7            | 1                           | 2.13                | 61,829           |
| 1,300                                                            | 60°F                  | 105.74°F             | 492.63             | 0.182                     | 140°F               | 125.49°F           | 9            | 1.56                        | 2.73                | 64,282           |
| 1,500                                                            | 60°F                  | 98.38°F              | 568.42             | 0.24                      | 140°F               | 114.71°F           | 5            | 0.55                        | 1.52                | 62,237           |
| 1,500                                                            | 60°F                  | 101.35°F             | 568.42             | 0.24                      | 140°F               | 120.54°F           | 7            | 1                           | 2.13                | 67,042           |
| 1,500                                                            | 60°F                  | 103.18°F             | 568.42             | 0.24                      | 140°F               | 124.19°F           | 9            | 1.56                        | 2.73                | 70,012           |
| <b>180° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 130.27°F             | 378.95             | 0.114                     | 180°F               | 148.72°F           | 5            | 0.51                        | 1.52                | 75,956           |
| 1,000                                                            | 60°F                  | 134.03°F             | 378.95             | 0.114                     | 180°F               | 156.46°F           | 7            | 0.92                        | 2.13                | 80,026           |
| 1,000                                                            | 60°F                  | 136.27°F             | 378.95             | 0.114                     | 180°F               | 161.14°F           | 9            | 1.44                        | 2.73                | 82,440           |
| 1,300                                                            | 60°F                  | 122.68°F             | 492.63             | 0.182                     | 180°F               | 143.73°F           | 5            | 0.51                        | 1.52                | 88,081           |
| 1,300                                                            | 60°F                  | 126.85°F             | 492.63             | 0.182                     | 180°F               | 152.37°F           | 7            | 0.92                        | 2.13                | 93,936           |
| 1,300                                                            | 60°F                  | 129.37°F             | 492.63             | 0.182                     | 180°F               | 157.70°F           | 9            | 1.44                        | 2.73                | 97,477           |
| 1,500                                                            | 60°F                  | 118.55°F             | 568.42             | 0.24                      | 180°F               | 140.91°F           | 5            | 0.51                        | 1.52                | 94,934           |
| 1,500                                                            | 60°F                  | 122.89°F             | 568.42             | 0.24                      | 180°F               | 150.01°F           | 7            | 0.92                        | 2.13                | 101,974          |
| 1,500                                                            | 60°F                  | 125.55°F             | 568.42             | 0.24                      | 180°F               | 155.69°F           | 9            | 1.44                        | 2.73                | 106,277          |
| 2,100                                                            | 60°F                  | 119.92°F             | 795.79             | 0.43                      | 180°F               | 161.33°F           | 15           | 4.79                        | 5.06                | 136,026          |



# ► WSD 20 X 20 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 20.0 In. x 20.0 In.            |
| Number of Tubes            | 20                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 2.78 Square Feet               |
| Approx Weight of Coil      | 16.03 lbs.                     |
| Number of Circuits         | 10                             |

| CFM Flow                                                         | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|------------------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| <b>40° F Entering Water Temperature (Drain pan not included)</b> |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1100                                                             | 80°F                  | 58.7°F               | 396                | 0.226                     | 40°F                | 47.6°F             | 10           | 2.62                        | 3.04                | 38,125           |
| <b>110° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1600                                                             | 60°F                  | 83.25°F              | 576                | 0.24                      | 110°F               | 93.79°F            | 5            | 0.61                        | 1.52                | 40,203           |
| 1600                                                             | 60°F                  | 85.18°F              | 576                | 0.24                      | 110°F               | 97.45°F            | 7            | 1.11                        | 2.13                | 43,556           |
| 1600                                                             | 60°F                  | 86.40°F              | 576                | 0.24                      | 110°F               | 99.77°F            | 9            | 1.73                        | 2.73                | 45,653           |
| <b>140° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 106.96°F             | 360                | 0.105                     | 140°F               | 119.37°F           | 5            | 0.57                        | 1.52                | 50,763           |
| 1,000                                                            | 60°F                  | 109.57°F             | 360                | 0.105                     | 140°F               | 124.44°F           | 7            | 1.03                        | 2.13                | 53,585           |
| 1,000                                                            | 60°F                  | 111.13°F             | 360                | 0.105                     | 140°F               | 127.52°F           | 9            | 1.61                        | 2.73                | 55,269           |
| 1,300                                                            | 60°F                  | 101.86°F             | 468                | 0.166                     | 140°F               | 116.10°F           | 5            | 0.57                        | 1.52                | 58,818           |
| 1,300                                                            | 60°F                  | 104.74°F             | 468                | 0.166                     | 140°F               | 121.75°F           | 7            | 1.03                        | 2.13                | 62,865           |
| 1,300                                                            | 60°F                  | 106.49°F             | 468                | 0.166                     | 140°F               | 125.25°F           | 9            | 1.61                        | 2.73                | 65,329           |
| 1,500                                                            | 60°F                  | 99.08°F              | 540                | 0.214                     | 140°F               | 114.25°F           | 5            | 0.57                        | 1.52                | 63,362           |
| 1,500                                                            | 60°F                  | 102.07°F             | 540                | 0.214                     | 140°F               | 120.20°F           | 7            | 1.03                        | 2.13                | 68,217           |
| 1,500                                                            | 60°F                  | 103.92°F             | 540                | 0.214                     | 140°F               | 123.92°F           | 9            | 1.61                        | 2.73                | 71,209           |
| <b>180° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,000                                                            | 60°F                  | 131.35°F             | 360                | 0.105                     | 180°F               | 148.24°F           | 5            | 0.52                        | 1.52                | 77,128           |
| 1,000                                                            | 60°F                  | 135.13°F             | 360                | 0.105                     | 180°F               | 156.11°F           | 7            | 0.95                        | 2.13                | 81,211           |
| 1,000                                                            | 60°F                  | 137.36°F             | 360                | 0.105                     | 180°F               | 160.87°F           | 9            | 1.49                        | 2.73                | 83,627           |
| 1,300                                                            | 60°F                  | 123.73°F             | 468                | 0.166                     | 180°F               | 143.12°F           | 5            | 0.52                        | 1.52                | 89,555           |
| 1,300                                                            | 60°F                  | 127.93°F             | 468                | 0.166                     | 180°F               | 151.92°F           | 7            | 0.95                        | 2.13                | 95,462           |
| 1,300                                                            | 60°F                  | 130.47°F             | 468                | 0.166                     | 180°F               | 157.35°F           | 9            | 1.49                        | 2.73                | 99,021           |
| 1,500                                                            | 60°F                  | 119.57°F             | 540                | 0.214                     | 180°F               | 140.23°F           | 5            | 0.52                        | 1.52                | 96,586           |
| 1,500                                                            | 60°F                  | 123.96°F             | 540                | 0.214                     | 180°F               | 149.50°F           | 7            | 0.95                        | 2.13                | 103,703          |
| 1,500                                                            | 60°F                  | 126.63°F             | 540                | 0.214                     | 180°F               | 155.28°F           | 9            | 1.49                        | 2.73                | 108,043          |
| 2,200                                                            | 60°F                  | 121.05°F             | 792                | 0.423                     | 180°F               | 160.07°F           | 15           | 3.67                        | 4.56                | 145,172          |



# WSD 22 X 22 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 22.0 In. x 22.0 In.            |
| Number of Tubes            | 20                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 3.36 Square Feet               |
| Approx Weight of Coil      | 19.32 lbs.                     |
| Number of Circuits         | 11                             |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1350                                                      | 80°F                  | 58.5°F               | 402                | 0.232                     | 40°F                | 47.9°F             | 12           | 3.27                        | 3.31                | 47,188           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 2000                                                      | 60°F                  | 81.86°F              | 595.04             | 0.25                      | 110°F               | 90.94°F            | 5            | 0.55                        | 1.38                | 47,267           |
| 2000                                                      | 60°F                  | 83.99°F              | 595.04             | 0.25                      | 110°F               | 95.06°F            | 7            | 1                           | 1.93                | 51,865           |
| 2000                                                      | 60°F                  | 85.34°F              | 595.04             | 0.25                      | 110°F               | 97.73°F            | 9            | 1.56                        | 2.49                | 54,782           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,600                                                     | 60°F                  | 99.99°F              | 476.03             | 0.172                     | 140°F               | 111.89°F           | 5            | 0.513                       | 1.38                | 69,161           |
| 1,600                                                     | 60°F                  | 103.20°F             | 476.03             | 0.172                     | 140°F               | 118.31°F           | 7            | 0.93                        | 1.93                | 74,721           |
| 1,600                                                     | 60°F                  | 105.18°F             | 476.03             | 0.172                     | 140°F               | 122.36°F           | 9            | 1.45                        | 2.49                | 78,140           |
| 2,000                                                     | 60°F                  | 95.60°F              | 595.04             | 0.255                     | 140°F               | 108.72°F           | 5            | 0.513                       | 1.38                | 76,973           |
| 2,000                                                     | 60°F                  | 98.96°F              | 595.04             | 0.255                     | 140°F               | 115.55°F           | 7            | 0.93                        | 1.93                | 84,237           |
| 2,000                                                     | 60°F                  | 101.08°F             | 595.04             | 0.255                     | 140°F               | 119.95°F           | 9            | 1.45                        | 2.49                | 88,801           |
| 2,400                                                     | 60°F                  | 92.13°F              | 714.05             | 0.352                     | 140°F               | 106.12°F           | 5            | 0.513                       | 1.38                | 83,363           |
| 2,400                                                     | 60°F                  | 95.55°F              | 714.05             | 0.352                     | 140°F               | 113.22°F           | 7            | 0.93                        | 1.93                | 92,236           |
| 2,400                                                     | 60°F                  | 97.74°F              | 714.05             | 0.352                     | 140°F               | 117.89°F           | 9            | 1.45                        | 2.49                | 97,913           |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,600                                                     | 60°F                  | 120.91°F             | 476.03             | 0.172                     | 180°F               | 136.62°F           | 5            | 0.47                        | 1.38                | 105,352          |
| 1,600                                                     | 60°F                  | 125.64°F             | 476.03             | 0.172                     | 180°F               | 146.61°F           | 7            | 0.86                        | 1.93                | 113,533          |
| 1,600                                                     | 60°F                  | 128.52°F             | 476.03             | 0.172                     | 180°F               | 152.89°F           | 9            | 1.34                        | 2.49                | 118,511          |
| 2,000                                                     | 60°F                  | 114.32°F             | 595.04             | 0.255                     | 180°F               | 131.64°F           | 5            | 0.47                        | 1.38                | 117,441          |
| 2,000                                                     | 60°F                  | 119.30°F             | 595.04             | 0.255                     | 180°F               | 142.29°F           | 7            | 0.86                        | 1.93                | 128,204          |
| 2,000                                                     | 60°F                  | 122.40°F             | 595.04             | 0.255                     | 180°F               | 149.14°F           | 9            | 1.34                        | 2.49                | 134,892          |
| 2,400                                                     | 60°F                  | 109.09°F             | 714.05             | 0.352                     | 180°F               | 127.56°F           | 5            | 0.47                        | 1.38                | 127,346          |
| 2,400                                                     | 60°F                  | 114.18°F             | 714.05             | 0.352                     | 180°F               | 138.66°F           | 7            | 0.86                        | 1.93                | 140,564          |
| 2,400                                                     | 60°F                  | 117.41°F             | 714.05             | 0.352                     | 180°F               | 145.93°F           | 9            | 1.34                        | 2.49                | 148,927          |
| 2,600                                                     | 60°F                  | 121.88°F             | 773.55             | 0.405                     | 180°F               | 160.11°F           | 18           | 4.58                        | 4.97                | 173,923          |



# ► WSD 22 X 25 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 22.0 In. x 25.0 In.            |
| Number of Tubes            | 22                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 3.82 Square Feet               |
| Approx Weight of Coil      | 21.86 lbs.                     |
| Number of Circuits         | 11                             |

| CFM Flow                                                         | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|------------------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| <b>40° F Entering Water Temperature (Drain pan not included)</b> |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1550                                                             | 80°F                  | 58.8°F               | 406                | 0.236                     | 40°F                | 48.8°F             | 12           | 3.57                        | 3.31                | 52,813           |
| <b>110° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 2000                                                             | 60°F                  | 82.88°F              | 523.64             | 0.2                       | 110°F               | 90.05°F            | 5            | 0.6                         | 1.38                | 49,460           |
| 2000                                                             | 60°F                  | 85.08°F              | 523.64             | 0.2                       | 110°F               | 94.38°F            | 7            | 1.09                        | 1.93                | 54,218           |
| 2000                                                             | 60°F                  | 86.46°F              | 523.64             | 0.2                       | 110°F               | 97.18°F            | 9            | 1.7                         | 2.49                | 57,213           |
| <b>140° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,600                                                            | 60°F                  | 101.69°F             | 418.91             | 0.14                      | 140°F               | 110.70°F           | 5            | 0.56                        | 1.38                | 72,095           |
| 1,600                                                            | 60°F                  | 104.98°F             | 418.91             | 0.14                      | 140°F               | 117.41°F           | 7            | 1.02                        | 1.93                | 77,802           |
| 1,600                                                            | 60°F                  | 106.99°F             | 418.91             | 0.14                      | 140°F               | 121.65°F           | 9            | 1.59                        | 2.49                | 81,280           |
| 2,000                                                            | 60°F                  | 97.20°F              | 523.64             | 0.2                       | 140°F               | 107.32°F           | 5            | 0.56                        | 1.38                | 80,412           |
| 2,000                                                            | 60°F                  | 100.68°F             | 523.64             | 0.2                       | 140°F               | 114.47°F           | 7            | 1.02                        | 1.93                | 87,941           |
| 2,000                                                            | 60°F                  | 102.85°F             | 523.64             | 0.2                       | 140°F               | 119.08°F           | 9            | 1.59                        | 2.49                | 92,632           |
| 2,400                                                            | 60°F                  | 93.62°F              | 628.36             | 0.28                      | 140°F               | 104.55°F           | 5            | 0.56                        | 1.38                | 87,216           |
| 2,400                                                            | 60°F                  | 97.19°F              | 628.36             | 0.28                      | 140°F               | 111.99°F           | 7            | 1.02                        | 1.93                | 96,475           |
| 2,400                                                            | 60°F                  | 99.45°F              | 628.36             | 0.28                      | 140°F               | 116.89°F           | 9            | 1.59                        | 2.49                | 102,356          |
| <b>180° F Entering Water Temperature</b>                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,600                                                            | 60°F                  | 123.40°F             | 418.91             | 0.14                      | 180°F               | 134.85°F           | 5            | 0.52                        | 1.38                | 109,649          |
| 1,600                                                            | 60°F                  | 128.26°F             | 418.91             | 0.14                      | 180°F               | 145.28°F           | 7            | 0.94                        | 1.93                | 118,059          |
| 1,600                                                            | 60°F                  | 131.20°F             | 418.91             | 0.14                      | 180°F               | 151.83°F           | 9            | 1.47                        | 2.49                | 123,136          |
| 2,000                                                            | 60°F                  | 116.65°F             | 523.64             | 0.2                       | 180°F               | 129.57°F           | 5            | 0.52                        | 1.38                | 122,477          |
| 2,000                                                            | 60°F                  | 121.82°F             | 523.64             | 0.2                       | 180°F               | 140.69°F           | 7            | 0.94                        | 1.93                | 133,649          |
| 2,000                                                            | 60°F                  | 125.01°F             | 523.64             | 0.2                       | 180°F               | 147.85°F           | 9            | 1.47                        | 2.49                | 140,537          |
| 2,400                                                            | 60°F                  | 111.26°F             | 628.36             | 0.28                      | 180°F               | 125.24°F           | 5            | 0.52                        | 1.38                | 132,990          |
| 2,400                                                            | 60°F                  | 116.59°F             | 628.36             | 0.28                      | 180°F               | 145.28°F           | 7            | 0.94                        | 1.93                | 146,799          |
| 2,400                                                            | 60°F                  | 119.93°F             | 628.36             | 0.28                      | 180°F               | 144.43°F           | 9            | 1.47                        | 2.49                | 155,478          |
| 3,000                                                            | 60°F                  | 120.91°F             | 785.46             | 0.42                      | 180°F               | 157.41°F           | 18           | 5.01                        | 4.97                | 197,534          |





# WSD 24 X 24 HOT WATER COIL

|                            |                                |
|----------------------------|--------------------------------|
| Fin Height x Fin Length    | 24.0 In. x 24.0 In.            |
| Number of Tubes            | 24                             |
| Rows Deep x Fins Per Inch  | 3.0 Rows x 12.0 Fins Per Inch  |
| Tube O.D. and Thickness    | 3/8 In. .014 Wall—Smooth Tube  |
| Fin Thickness and Material | .0055 Corrugated Aluminum Fins |
| Face Area                  | 4.0 Square Feet                |
| Approx Weight of Coil      | 22.92 lbs.                     |
| Number of Circuits         | 12                             |

| CFM Flow                                                  | Entering Air Dry Bulb | Leaving Air Dry Bulb | Face Velocity SFPM | Air Pressure Drop IN. WG. | Entering Water Temp | Leaving Water Temp | GPM # Gallon | Water Pressure Drop in FTHD | Liquid Velocity FPS | Total BTU BTU/HR |
|-----------------------------------------------------------|-----------------------|----------------------|--------------------|---------------------------|---------------------|--------------------|--------------|-----------------------------|---------------------|------------------|
| 40° F Entering Water Temperature (Drain pan not included) |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1550                                                      | 80°F                  | 58.8°F               | 406                | 0.236                     | 40°F                | 48.8°F             | 12           | 3.57                        | 3.31                | 52,813           |
| 110° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 2400                                                      | 60°F                  | 80.77°F              | 600                | 0.26                      | 110°F               | 88.27°F            | 5            | 0.5                         | 1.27                | 53,876           |
| 2400                                                      | 60°F                  | 83.06°F              | 600                | 0.26                      | 110°F               | 92.77°F            | 7            | 0.91                        | 1.77                | 59,825           |
| 2400                                                      | 60°F                  | 84.54°F              | 600                | 0.26                      | 110°F               | 95.74°F            | 9            | 1.42                        | 2.28                | 63,652           |
| 140° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,600                                                     | 60°F                  | 101.96°F             | 400                | 0.126                     | 140°F               | 110.51°F           | 5            | 0.47                        | 1.27                | 72,566           |
| 1,600                                                     | 60°F                  | 105.33°F             | 400                | 0.126                     | 140°F               | 117.24°F           | 7            | 0.85                        | 1.77                | 78,400           |
| 1,600                                                     | 60°F                  | 107.39°F             | 400                | 0.126                     | 140°F               | 121.24°F           | 9            | 1.32                        | 2.28                | 81,960           |
| 2,000                                                     | 60°F                  | 97.43°F              | 500                | 0.19                      | 140°F               | 107.11°F           | 5            | 0.47                        | 1.27                | 80,919           |
| 2,000                                                     | 60°F                  | 100.99°F             | 500                | 0.19                      | 140°F               | 114.27°F           | 7            | 0.85                        | 1.77                | 88,615           |
| 2,000                                                     | 60°F                  | 103.21°F             | 500                | 0.19                      | 140°F               | 118.91°F           | 9            | 1.32                        | 2.28                | 93,420           |
| 2,400                                                     | 60°F                  | 93.82°F              | 600                | 0.26                      | 140°F               | 104.34°F           | 5            | 0.47                        | 1.27                | 87,742           |
| 2,400                                                     | 60°F                  | 97.47°F              | 600                | 0.26                      | 140°F               | 111.78°F           | 7            | 0.85                        | 1.77                | 97,204           |
| 2,400                                                     | 60°F                  | 99.79°F              | 600                | 0.26                      | 140°F               | 116.69°F           | 9            | 1.32                        | 2.28                | 103,230          |
| 180° F Entering Water Temperature                         |                       |                      |                    |                           |                     |                    |              |                             |                     |                  |
| 1,600                                                     | 60°F                  | 123.84°F             | 400                | 0.126                     | 180°F               | 134.53°F           | 5            | 0.43                        | 1.27                | 110,417          |
| 1,600                                                     | 60°F                  | 128.81°F             | 400                | 0.126                     | 180°F               | 144.99°F           | 7            | 0.78                        | 1.77                | 119,013          |
| 1,600                                                     | 60°F                  | 131.82°F             | 400                | 0.126                     | 180°F               | 151.59°F           | 9            | 1.22                        | 2.28                | 124,207          |
| 2,000                                                     | 60°F                  | 117.04°F             | 500                | 0.19                      | 180°F               | 129.22°F           | 5            | 0.43                        | 1.27                | 123,315          |
| 2,000                                                     | 60°F                  | 122.32°F             | 500                | 0.19                      | 180°F               | 140.37°F           | 7            | 0.78                        | 1.77                | 134,734          |
| 2,000                                                     | 60°F                  | 125.58°F             | 500                | 0.19                      | 180°F               | 147.56°F           | 9            | 1.22                        | 2.28                | 141,789          |
| 2,400                                                     | 60°F                  | 111.60°F             | 600                | 0.26                      | 180°F               | 124.88°F           | 5            | 0.43                        | 1.27                | 133,864          |
| 2,400                                                     | 60°F                  | 117.04°F             | 600                | 0.26                      | 180°F               | 136.47°F           | 7            | 0.78                        | 1.77                | 147,983          |
| 2,400                                                     | 60°F                  | 120.47°F             | 600                | 0.26                      | 180°F               | 144.11°F           | 9            | 1.22                        | 2.28                | 156,875          |
| 3,200                                                     | 60°F                  | 120.78°F             | 800                | 0.43                      | 180°F               | 158.36°F           | 20           | 5.02                        | 5.06                | 210,256          |



## ► WSD 12 X 12 AIR-HANDLER

Part# WSD-12AH



Unit Shown with Optional Louvers

### CASE DIMENSIONS:

- LENGTH - 22 1/4"
- WIDTH - 12 1/2"
- HEIGHT - 15 3/4"
- 1" COIL CONNECTIONS
- WEIGHT- 35 LBS

12"x 12" Water to Air Heat Exchanger with 500 CFM. Rotom Blower that can produce over 40,000 BTU's/hr. The unit also has its own filter rack. Filter included!

This unit is perfect for small garages or work shops!!

Uses WSD 12 x 12 coil from **page 9**.

**LIST Price: \$955.56**

Louvers sold separately:  
\$22.22 per piece

**Does not include  
any controls**

| 0.00 SP | 0.10 SP | 0.20 SP | 0.30 SP | 0.40 SP | 0.50 SP | 0.60 SP | 0.70 SP | 0.80 SP |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 549 CFM | 538 CFM | 510 CFM | 500 CFM | 480 CFM | 450 CFM | 435 CFM | 390 CFM | 360 CFM |



## ► WSD MULTIPOSITION AIR HANDLER

### Hydronic Heat

#### FEATURES:

- PSC air handler
- Four-Way Multiposition
- Electronic fan control board
- Dry contacts to energize pump and boiler
- EAC and Humidifier contacts
- Pump timer for recirculation
- Adjustable blower time delay
- Dehumidification selection
- Efficient low continuous fan selection
- Bottom or side returns
- Supports two-stage outdoor units
- Blower assembly slides out for easy maintenance
- Cabinet is heavy gauge galvanized steel, pre-painted a durable neutral gray
- 1" foil faced insulation
- All units are suitable for "0" inch clearance to combustible materials

#### OPTIONS:

- Hot water circulating pumps
- Matching Summit cased coils
  - Draw-through for AC
  - Blow-through for HP or AC



| Model      | Nominal   | Motor | Unit Dim in (mm)                          | Ship. Dim. In (mm)                      | Unit Wt       | Ship Wt       |
|------------|-----------|-------|-------------------------------------------|-----------------------------------------|---------------|---------------|
| Series     | Tons      | Hp    | H x W x D                                 | H x W x D                               | lbs/kg Approx | lbs/kg Approx |
| MPS0S4NAA  | 1.5 - 2.0 | 1/3HP | 29 X 17.5 X 21<br>(737 X 445 X 534)       | 33 X 21.5 X 25<br>(838 X 546 X 635)     | 78/35.4       | 95/43         |
| MMPS0M4NAA | 1.5 - 3.0 | 1/2HP | 29 X 21 X 21<br>(737 X 534 X 534)         | 33 X 25 X 25<br>(838 X 635 X 635)       | 100/45.4      | 115/52        |
| MMPS0L4NAA | 3.5 - 5   | 3/4HP | 29 X 24 1/2 X 21 3/4<br>(737 X 622 X 553) | 33 X 28.5 X 25 3/4<br>(838 X 724 X 654) | 132/59.9      | 150/68        |



# ► WSD SMALL AIR-HANDLER

Part# 1-MMPSOS4NAA



MMPSOS4NAA 1.5 to 2.5 ton,  
NO pump, 4 row Singal Speed  
PSC Motor

**Note: these are single  
speed psc motors**

**LIST Price: \$1391.67**



**Made in the USA!**

**Not for Sale  
in California**



## ► WSD MEDIUM AIR HANDLER

Part# 2-MMPSOM4NAA



MMPSOM4NAA 1.5 to 3 ton NO pump 4 row Singal Speed PSC Motor

**Note: these are single speed psc motors**

**LIST Price: \$1,483.33**



**Made in the USA!**

**Not for Sale in California**





## ► WSD LARGE AIR HANDLER

Part# 3-MMPSOL4NAA



MMPSOL4NAA 3.5 to 6 ton NO  
pump 4 row Singal Speed PSC  
Motor

**Note: these are single  
speed psc motors**

**LIST Price: \$1,661.11**



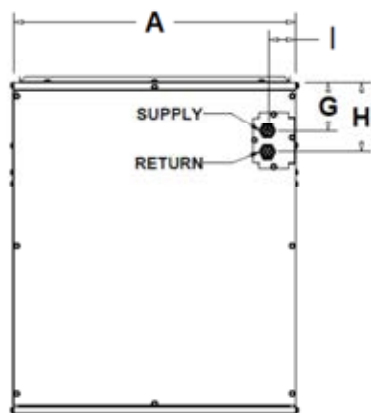
**Made in the USA!**

**Not for Sale  
in California**

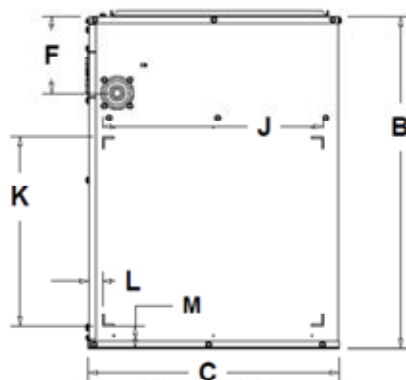


## ► WSD MULTIPOSITION AIR HANDLER

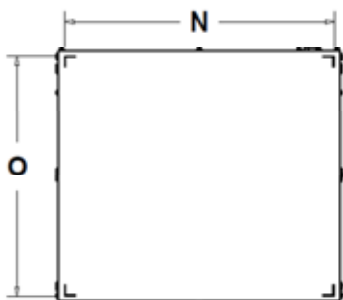
### Hydronic Heat



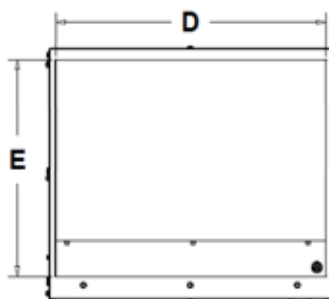
FRONT



RIGHT SIDE  
LEFT SIDE IS MIRROR IMAGE



BOTTOM

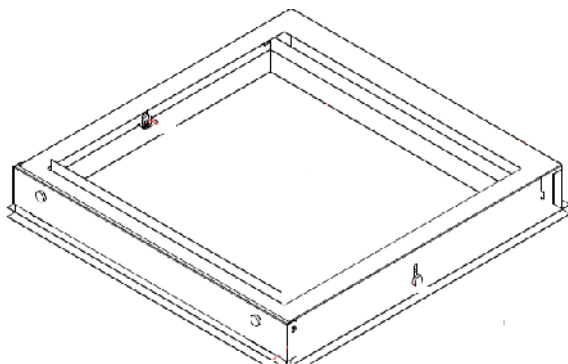


TOP

DIMENSIONAL DATA MODULAR AIR HANDLER

|        | OVERALL DIMENSIONS |       |       | TOP PLENUM |       |      |      |      |       |       |      |      |       | BOTTOM RETURN |       |
|--------|--------------------|-------|-------|------------|-------|------|------|------|-------|-------|------|------|-------|---------------|-------|
| MODEL  | A                  | B     | C     | D          | E     | F    | G    | H    | I     | J     | K    | L    | M     | N             | O     |
| MMPSOS | 17.50              | 29.00 | 21.00 | 16.00      | 18.00 | 6.75 | 3.88 | 2.50 | 19.25 | 16.50 | 1.13 | 1.94 | 16.50 | 16.50         | 20.00 |
| MMPSOM | 21.00              | 29.00 | 21.00 | 18.88      | 18.00 | 6.75 | 3.88 | 2.50 | 19.25 | 16.50 | 1.13 | 1.94 | 20.00 | 20.00         | 20.00 |
| MMPSOL | 24.50              | 29.00 | 21.75 | 23.50      | 18.75 | 6.75 | 6.00 | 2.50 | 19.25 | 16.50 | 1.13 | 1.94 | 23.50 | 23.50         | 20.94 |





| Filter Kits with 1" Throw away filter, accepts 2" |                   |                                           |
|---------------------------------------------------|-------------------|-------------------------------------------|
| For Model                                         | For Bottom Return | For Side Return                           |
| MMPS0S4NAA                                        | 86ET0002          | 86ET0002                                  |
| MMPS0M4NAA                                        | 86ET0001          | 86ET0001                                  |
| MMPS0L4NAA                                        | 86ET0003          | 86ET0001 (requires (2), one on each side) |

**SPECIAL ORDER - CALL FOR PRICE.**

| Fan Data     |         |         |       |       |                                      |       |       |       |       |
|--------------|---------|---------|-------|-------|--------------------------------------|-------|-------|-------|-------|
| Cabinet Size | Blower  | Motor   | Motor | Motor | CFM @ External Static Pressure In-WC |       |       |       |       |
|              | Housing | Voltage | HP    | Tap   | 0.10"                                | 0.20" | 0.30" | 0.40" | 0.50" |
| MMPS0S4NAA   | 10 x 7  | 120     | 1/3   | H     | 982                                  | 931   | 885   | 828   | 757   |
|              |         |         |       | M     | 925                                  | 881   | 835   | 779   | 726   |
|              |         |         |       | L     | 859                                  | 822   | 776   | 735   | 674   |
| MMPS0M4NAA   | 10 x 7  | 120     | 1/2   | H     | 1448                                 | 1378  | 1304  | 1222  | 1154  |
|              |         |         |       | M     | 1280                                 | 1230  | 1169  | 1115  | 1035  |
|              |         |         |       | L     | 1087                                 | 1070  | 1035  | 999   | 941   |
| MMPS0L4NAA   | 12 x 9  | 120     | 3/4   | H     | 2092                                 | 2029  | 1979  | 1898  | 1852  |
|              |         |         |       | M     | 1756                                 | 1723  | 1689  | 1664  | 1612  |
|              |         |         |       | L     | 1462                                 | 1452  | 1432  | 1402  | 1371  |

## WSD HOT WATER CAPACITY-BOILER LOOP 65°F EAT 180°F EWT 20°F Δt (NO PUMP)

| MODEL      | CFM  | GPM  | BTUH    | LAT °F | LWT °F | APD IWC | WPD FT | ROWS | FPI |
|------------|------|------|---------|--------|--------|---------|--------|------|-----|
| MMPS0S4NAA | 600  | 5.6  | 54,740  | 149.1  | 160    | 0.18    | 2.7    | 4    | 10  |
|            | 700  | 6.3  | 61,510  | 146    | 160    | 0.23    | 3.3    | 4    | 10  |
|            | 800  | 7    | 67,890  | 143.3  | 160    | 0.29    | 4      | 4    | 10  |
|            | 900  | 7.6  | 73,928  | 140.7  | 160    | 0.35    | 4.6    | 4    | 10  |
| MMPS0M4NAA | 600  | 5.6  | 54,160  | 148.2  | 160    | 0.15    | 3.1    | 4    | 10  |
|            | 800  | 6.9  | 67,160  | 142.4  | 160    | 0.24    | 4.4    | 4    | 10  |
|            | 900  | 7.5  | 73,140  | 139.9  | 160    | 0.29    | 4.9    | 4    | 10  |
|            | 1000 | 8.1  | 78,830  | 137.7  | 160    | 0.34    | 5.2    | 4    | 10  |
|            | 1200 | 9.2  | 89,455  | 133.7  | 160    | 0.46    | 5.7    | 4    | 10  |
|            | 1400 | 10.2 | 99,230  | 130.4  | 160    | 0.6     | 6.6    | 4    | 10  |
| MMPS0L4NAA | 1200 | 10.1 | 98,890  | 144    | 160    | 0.23    | 1.7    | 4    | 10  |
|            | 1400 | 11.4 | 111,020 | 141.1  | 160    | 0.31    | 2.1    | 4    | 10  |
|            | 1600 | 12.6 | 122,430 | 138.6  | 160    | 0.39    | 2.5    | 4    | 10  |
|            | 1800 | 13.7 | 133,200 | 136.2  | 160    | 0.47    | 3      | 4    | 10  |
|            | 2000 | 14.7 | 143,400 | 134.1  | 160    | 0.57    | 12.7   | 4    | 10  |
|            | 2100 | 15.4 | 147,245 | 132    | 160    | 0.46    | 13.9   | 4    | 10  |
|            | 2200 | 15.1 | 147,400 | 126.8  | 160    | 1.05    | 9.5    | 4    | 10  |

## WSD HOT WATER CAPACITY - WITH FACTORY PUMP 65 °F EAT @ STATED GPM - NOTE: Special Order Only

| MODEL      | CFM   | GPM | BTUH   | BTUH   | BTUH   | BTUH   | BTUH    | APD  | ROWS | FPI |
|------------|-------|-----|--------|--------|--------|--------|---------|------|------|-----|
| MMPS0S4NAA | 500   | 4   | 21,870 | 25,930 | 30,015 | 34,110 | 38,225  | 0.13 | 4    | 12  |
|            | 600   | 4   | 24,620 | 29,215 | 33,820 | 38,460 | 43,115  | 0.18 | 4    | 12  |
|            | 700   | 4   | 27,050 | 32,108 | 37,195 | 42,305 | 47,440  | 0.23 | 4    | 12  |
|            | 800   | 4   | 29,210 | 34,680 | 40,190 | 45,725 | 51,295  | 0.29 | 4    | 12  |
| MMPS0M4NAA | 900   | 4   | 31,140 | 36,990 | 42,845 | 48,800 | 54,755  | 0.35 | 4    | 12  |
|            | 600   | 4   | 24,840 | 29,415 | 34,005 | 38,605 | 43,200  | 0.15 | 4    | 12  |
|            | 800   | 4   | 29,770 | 35,270 | 40,785 | 46,315 | 51,860  | 0.24 | 4    | 12  |
|            | 900   | 4   | 31,895 | 37,790 | 43,710 | 49,645 | 55,595  | 0.29 | 4    | 12  |
|            | 1,000 | 4   | 33,836 | 40,100 | 46,385 | 52,685 | 59,010  | 0.34 | 4    | 12  |
|            | 1,200 | 4   | 37,260 | 44,165 | 51,104 | 58,065 | 65,045  | 0.46 | 4    | 12  |
| MMPS0L4NAA | 1,400 | 4   | 40,195 | 47,660 | 55,150 | 62,670 | 70,220  | 0.6  | 4    | 12  |
|            | 1,200 | 7   | 44,170 | 52,530 | 60,960 | 69,460 | 78,020  | 0.23 | 4    | 10  |
|            | 1,400 | 7   | 48,080 | 57,220 | 66,640 | 75,750 | 85,130  | 0.31 | 4    | 10  |
|            | 1,600 | 7   | 51,490 | 61,310 | 71,230 | 81,250 | 91,340  | 0.39 | 4    | 10  |
|            | 1,800 | 7   | 54,490 | 64,910 | 75,450 | 86,090 | 96,820  | 0.47 | 4    | 10  |
|            | 2,000 | 7   | 57,160 | 68,120 | 79,200 | 90,400 | 101,710 | 0.57 | 4    | 10  |
|            | 2,100 | 7   | 58,380 | 69,590 | 80,930 | 93,380 | 103,750 | 0.62 | 4    | 10  |
|            | 2,200 | 7   | 59,200 | 70,400 | 81,600 | 92,900 | 104,400 | 1.05 | 4    | 10  |

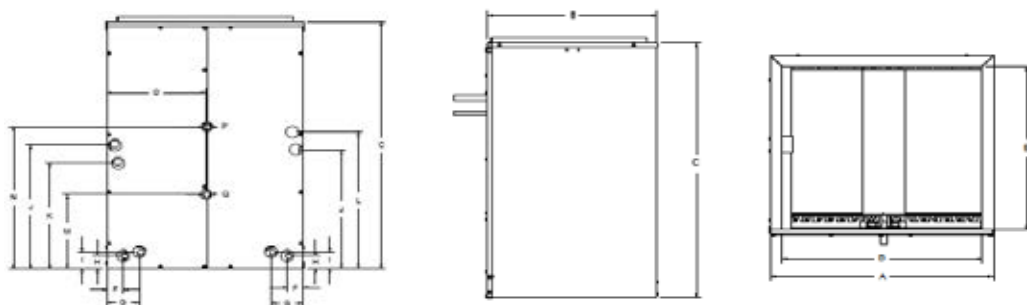




# WSD Hot Water / Chilled Water A-Coils

| Part #       | Description                                                        | List Price |
|--------------|--------------------------------------------------------------------|------------|
| CW024A8K3MCC | CW024A8K3MCC Cased Hot water Chilled water "A" coil with drain pan | \$1,191.67 |
| CW036A8K5MEC | CW036A8K5MEC Cased Hot water Chilled water "A" coil with drain pan | \$1,322.22 |
| CW048A9K9MGC | CW048A9K9MGC Cased Hot water Chilled water "A" coil with drain pan | \$1,944.44 |

## DIMENSIONS AND SPECIFICATIONS



|   | CW024A8K3MC | CW036A8K5ME | CW048A9K9MG | CW060A9K9MG |
|---|-------------|-------------|-------------|-------------|
| A | 17.5"       | 21"         | 24.5"       | 24.5"       |
| B | 21"         | 21"         | 21.5"       | 21.5"       |
| C | 20"         | 24"         | 34"         | 34"         |
| D | 15-1/8"     | 18-5/8"     | 22"         | 22"         |
| E | 19-1/8"     | 19-1/8"     | 19-7/8"     | 19-7/8"     |
| F | 2-1/8"      | 4"          | 2-3/16"     | 2-3/16"     |
| G | 4-1/8"      | 6"          | 4-3/16"     | 4-3/16"     |
| H | 1-1/2"      | 1-11/16"    | 1-7/8"      | 1-7/8"      |
| I | 2"          | 2-1/4"      | 2-1/4"      | 2-1/4"      |
| J | 11"         | 13"         | 17-1/4"     | 17-1/4"     |
| K | 8-3/8"      | 10-7/16"    | 14-3/4"     | 14-3/4"     |
| L | 13-5/8"     | 15-9/16"    | 19-3/4"     | 19-3/4"     |
| M | 4-13/16"    | 7-3/4"      | 10-1/4"     | 10-1/4"     |
| N | 13-1/2"     | 14-9/16"    | 19-9/16"    | 19-9/16"    |
| O | 8-3/4"      | 10-1/2"     | 12-1/2"     | 12-1/2"     |
| P | 7/8"        | 7/8"        | 7/8"        | 7/8"        |
| Q | 7/8"        | 7/8"        | 1-1/8"      | 1-1/8"      |





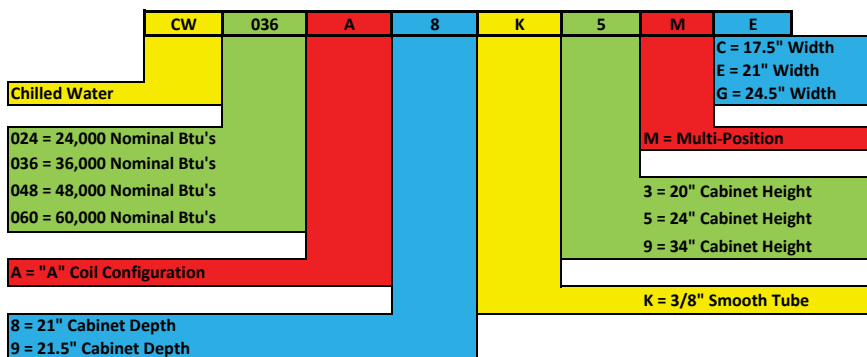
# WSD CW SERIES CASED MULTIPOSITION CHILLED WATER A COILS

|                            |     |   |   |   |   |   |                                                     |
|----------------------------|-----|---|---|---|---|---|-----------------------------------------------------|
| CW                         | 036 | A | 8 | K | 5 | M | E                                                   |
| Chilled Water              |     |   |   |   |   |   | C = 17.5" Width<br>E = 21" Width<br>G = 24.5" Width |
| 024 = 24,000 Nominal Btu's |     |   |   |   |   |   | M = Multi-Position                                  |
| 036 = 36,000 Nominal Btu's |     |   |   |   |   |   | 3 = 20" Cabinet Height                              |
| 048 = 48,000 Nominal Btu's |     |   |   |   |   |   | 5 = 24" Cabinet Height                              |
| 060 = 60,000 Nominal Btu's |     |   |   |   |   |   | 9 = 34" Cabinet Height                              |
| A = "A" Coil Configuration |     |   |   |   |   |   | K = 3/8" Smooth Tube                                |
| 8 = 21" Cabinet Depth      |     |   |   |   |   |   |                                                     |
| 9 = 21.5" Cabinet Depth    |     |   |   |   |   |   |                                                     |

|                             | Cooling Performance Data                           |          |                    |          |      |     |                                     |                            |
|-----------------------------|----------------------------------------------------|----------|--------------------|----------|------|-----|-------------------------------------|----------------------------|
| CHILLED WATER<br>COIL MODEL | Cooling Capacities @<br>Entering Water Temperature |          |                    |          | CFM  | GPM | PRESS.<br>DROP<br>WATER<br>(FT-WTR) | PRESS.<br>DROP AIR<br>(WC) |
|                             | 80°F / 67°F / 45°F                                 |          | 80°F / 67°F / 42°F |          |      |     |                                     |                            |
|                             | Total                                              | Sensible | Total              | Sensible |      |     |                                     |                            |
| CW024A8K3MC                 | 16,640                                             | 11,680   | 18,515             | 12,495   | 400  | 2   | 0.53                                | 0.06                       |
|                             | 20,546                                             | 13,446   | 22,871             | 14,532   |      | 4   | 1.81                                |                            |
|                             | 21,992                                             | 14,125   | 24,492             | 15,347   |      | 6   | 3.71                                |                            |
|                             | 19,765                                             | 15,353   | 21,855             | 16,161   | 600  | 2   | 0.53                                | 0.12                       |
|                             | 26,171                                             | 17,979   | 29,062             | 19,394   |      | 4   | 1.81                                |                            |
|                             | 29,218                                             | 19,394   | 32,500             | 21,010   |      | 6   | 3.71                                |                            |
|                             | 21,875                                             | 18,669   | 24,101             | 19,469   | 800  | 2   | 0.53                                | 0.19                       |
|                             | 30,078                                             | 21,869   | 33,437             | 23,469   |      | 4   | 1.81                                |                            |
|                             | 34,531                                             | 23,736   | 38,486             | 25,603   |      | 6   | 3.71                                |                            |
|                             | 22,773                                             | 20,296   | 25,000             | 21,191   | 900  | 2   | 0.53                                | 0.24                       |
|                             | 31,640                                             | 23,877   | 35,156             | 25,071   |      | 4   | 1.81                                |                            |
|                             | 36,778                                             | 25,967   | 40,859             | 27,459   |      | 6   | 3.71                                |                            |
| CW036A8K5ME                 | 33,828                                             | 23,658   | 37,656             | 25,272   | 800  | 5   | 1.81                                | 0.13                       |
|                             | 37,393                                             | 25,272   | 41,562             | 26,885   |      | 7   | 3.29                                |                            |
|                             | 39,531                                             | 26,078   | 44,062             | 28,229   |      | 9   | 5.19                                |                            |
|                             | 37,656                                             | 27,337   | 41,796             | 29,337   | 1000 | 5   | 1.81                                | 0.19                       |
|                             | 42,226                                             | 29,337   | 47,089             | 31,334   |      | 7   | 3.29                                |                            |
|                             | 45,292                                             | 30,677   | 50,625             | 33,004   |      | 9   | 5.19                                |                            |
|                             | 40,585                                             | 30,941   | 45,000             | 32,925   | 1200 | 5   | 1.81                                | 0.28                       |
|                             | 46,250                                             | 33,322   | 51,406             | 35,305   |      | 7   | 3.29                                |                            |
|                             | 50,156                                             | 34,908   | 55,937             | 37,288   |      | 9   | 5.19                                |                            |
|                             | 43,164                                             | 34,411   | 47,812             | 36,246   | 1400 | 5   | 1.81                                | 0.34                       |
|                             | 49,531                                             | 36,705   | 55,000             | 38,999   |      | 7   | 3.29                                |                            |
|                             | 54,179                                             | 38,541   | 60,312             | 41,293   |      | 9   | 5.19                                |                            |
| CW048A9K9MG<br>CW060A9K9MG  | 52,578                                             | 36,317   | 58,490             | 38,738   | 1200 | 8   | 2.42                                | 0.12                       |
|                             | 56,093                                             | 37,931   | 62,431             | 40,353   |      | 10  | 3.59                                |                            |
|                             | 59,492                                             | 39,142   | 66,127             | 42,370   |      | 13  | 5.72                                |                            |
|                             | 56,731                                             | 40,280   | 63,203             | 43,090   | 1400 | 8   | 2.42                                | 0.17                       |
|                             | 61,093                                             | 42,153   | 67,968             | 44,963   |      | 10  | 3.59                                |                            |
|                             | 65,512                                             | 44,027   | 72,968             | 47,305   |      | 13  | 5.72                                |                            |
|                             | 60,468                                             | 44,190   | 67,089             | 46,852   | 1600 | 8   | 2.42                                | 0.21                       |
|                             | 65,312                                             | 45,787   | 72,812             | 48,981   |      | 10  | 3.59                                |                            |
|                             | 70,781                                             | 48,449   | 78,882             | 52,176   |      | 13  | 5.72                                |                            |
|                             | 63,593                                             | 47,652   | 70,625             | 50,631   | 1800 | 8   | 2.42                                | 0.25                       |
|                             | 69,214                                             | 50,035   | 77,097             | 53,013   |      | 10  | 3.59                                |                            |
|                             | 75,468                                             | 52,418   | 83,906             | 55,992   |      | 13  | 5.72                                |                            |
|                             | 66,360                                             | 50,676   | 73,593             | 53,966   | 2000 | 8   | 2.42                                | 0.3                        |
|                             | 77,578                                             | 53,308   | 80,781             | 56,599   |      | 10  | 3.59                                |                            |
|                             | 79,492                                             | 56,599   | 88,593             | 60,548   |      | 13  | 5.72                                |                            |



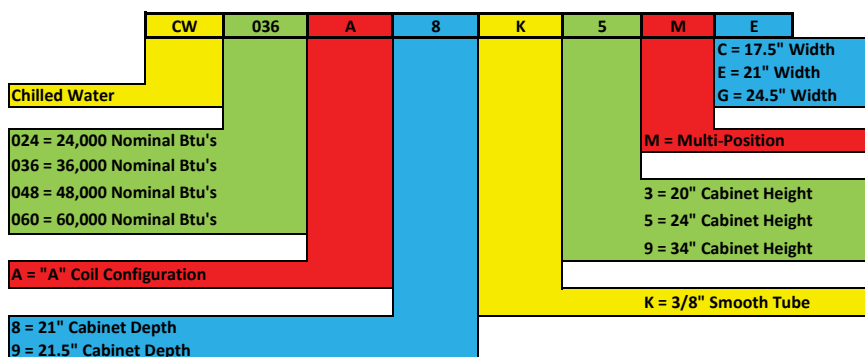
# WSD CW SERIES CASED MULTIPOSITION CHILLED WATER A COILS



|                             | Heating Performance Data                               |        |        |        |      |      |                                     |                            |
|-----------------------------|--------------------------------------------------------|--------|--------|--------|------|------|-------------------------------------|----------------------------|
| CHILLED WATER<br>COIL MODEL | Hot Water Capacities @<br>70° Entering Air Temperature |        |        |        | CFM  | GPM  | PRESS.<br>DROP<br>WATER<br>(FT-WTR) | PRESS.<br>DROP AIR<br>(WC) |
|                             | Entering Water Temperature                             |        |        |        |      |      |                                     |                            |
|                             | 100° F                                                 | 105° F | 110° F | 115° F |      |      |                                     |                            |
| CW024A8K3MC                 | 11,767                                                 | 13,746 | 15,728 | 17,714 | 400  | 2    | 0.44                                | 0.06                       |
|                             | 12,439                                                 | 14,521 | 16,604 | 18,689 |      | 4    | 1.51                                |                            |
|                             | 12,603                                                 | 14,709 | 16,816 | 18,924 |      | 6    | 2.99                                |                            |
|                             | 15,627                                                 | 18,268 | 20,917 | 23,575 | 600  | 2    | 0.44                                | 0.12                       |
|                             | 17,591                                                 | 20,546 | 23,505 | 26,469 |      | 4    | 1.51                                |                            |
|                             | 18,143                                                 | 21,182 | 24,224 | 27,269 |      | 6    | 2.99                                |                            |
|                             | 18,305                                                 | 21,407 | 24,521 | 27,645 | 800  | 2    | 0.44                                | 0.19                       |
|                             | 21,880                                                 | 25,567 | 29,263 | 32,966 |      | 4    | 1.51                                |                            |
|                             | 23,016                                                 | 26,881 | 30,752 | 34,630 |      | 6    | 2.99                                |                            |
|                             | 19,329                                                 | 22,607 | 25,897 | 29,199 | 900  | 2    | 0.44                                | 0.24                       |
|                             | 23,737                                                 | 27,742 | 31,757 | 35,783 |      | 4    | 1.51                                |                            |
|                             | 25,216                                                 | 29,455 | 33,703 | 37,958 |      | 6    | 2.99                                |                            |
| CW036A8K5ME                 | 23,145                                                 | 27,034 | 30,931 | 34,834 | 800  | 5    | 1.51                                | 0.08                       |
|                             | 23,852                                                 | 27,851 | 31,855 | 35,864 |      | 7    | 2.75                                |                            |
|                             | 24,211                                                 | 28,265 | 32,323 | 36,385 |      | 9    | 4.18                                |                            |
|                             | 27,351                                                 | 31,959 | 36,578 | 41,208 | 1000 | 5    | 1.51                                | 0.11                       |
|                             | 28,574                                                 | 33,375 | 38,184 | 43,001 |      | 7    | 2.75                                |                            |
|                             | 29,216                                                 | 34,116 | 39,023 | 43,936 |      | 9    | 4.18                                |                            |
|                             | 30,962                                                 | 36,190 | 41,482 | 46,688 | 1200 | 5    | 1.51                                | 0.15                       |
|                             | 32,783                                                 | 38,302 | 43,832 | 49,374 |      | 7    | 2.75                                |                            |
|                             | 33,767                                                 | 39,440 | 45,723 | 50,815 |      | 9    | 4.18                                |                            |
|                             | 34,069                                                 | 39,829 | 45,610 | 51,408 | 1400 | 5    | 1.51                                | 0.19                       |
|                             | 36,535                                                 | 42,695 | 48,871 | 55,062 |      | 7    | 2.75                                |                            |
|                             | 37,903                                                 | 44,281 | 50,672 | 57,074 |      | 9    | 4.18                                |                            |
| CW048A9K9MG<br>CW060A9K9MG  | 35,510                                                 | 41,050 | 46,960 | 52,878 | 1200 | 8    | 2.02                                | 0.07                       |
|                             | 35,815                                                 | 41,818 | 47,828 | 53,846 |      | 10   | 3                                   |                            |
|                             | 36,382                                                 | 42,472 | 48,568 | 54,669 |      | 13   | 4.61                                |                            |
|                             | 39,642                                                 | 46,307 | 52,985 | 59,674 | 1400 | 8    | 2.02                                | 0.09                       |
|                             | 40,628                                                 | 47,447 | 54,277 | 61,117 |      | 10   | 3                                   |                            |
|                             | 41,484                                                 | 48,436 | 55,396 | 62,364 |      | 13   | 4.61                                |                            |
|                             | 43,731                                                 | 51,093 | 58,472 | 65,866 | 1600 | 8    | 2.02                                | 0.12                       |
|                             | 45,083                                                 | 52,659 | 60,250 | 67,854 |      | 10   | 3                                   |                            |
|                             | 46,275                                                 | 54,034 | 61,813 | 69,597 |      | 13   | 4.61                                |                            |
|                             | 47,450                                                 | 55,447 | 63,468 | 71,505 | 1800 | 8    | 2.02                                | 0.14                       |
|                             | 49,202                                                 | 57,481 | 65,776 | 74,089 |      | 10   | 3                                   |                            |
|                             | 50,770                                                 | 59,297 | 67,837 | 76,391 |      | 13   | 4.61                                |                            |
| 50,836                      | 59,415                                                 | 68,018 | 76,643 | 2000   | 8    | 2.02 | 0.17                                |                            |
| 53,010                      | 61,939                                                 | 70,889 | 78,859 |        | 10   | 3    |                                     |                            |
| 54,987                      | 64,230                                                 | 73,491 | 82,767 |        | 13   | 4.61 |                                     |                            |



# WSD CW SERIES CASED MULTIPOSITION CHILLED WATER A COILS



| Heating Capacities |                              |       |     |      |     |
|--------------------|------------------------------|-------|-----|------|-----|
| MODEL NUMBER       | 120° F EWT 20° F Δ 68° F EDB |       |     |      |     |
|                    | BTUH                         | LAT   | GPM | APD  | WPD |
| CW024A8K3MC        | 30,340                       | 103   | 3.1 | 0.16 | 1.9 |
| CW036A8K5ME        | 42,790                       | 100.9 | 4.3 | 0.25 | 1.6 |
| CW048A9K9MG        | 58,080                       | 101.5 | 5.9 | 0.22 | 2.2 |
| CW060A9K9MG        | 75,600                       | 102.9 | 7.6 | 0.21 | 3.5 |

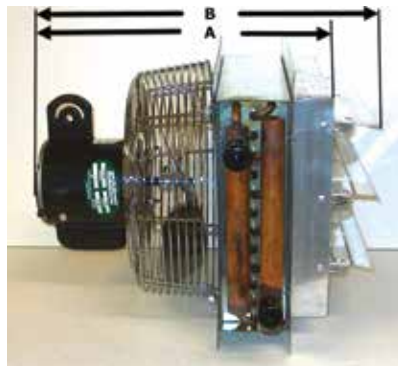
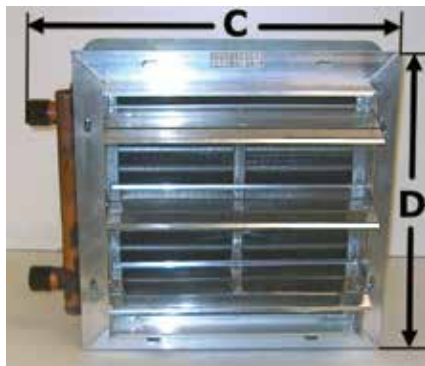
| Heating Capacities |                              |       |      |      |     |
|--------------------|------------------------------|-------|------|------|-----|
| MODEL NUMBER       | 140° F EWT 20° F Δ 68° F EDB |       |      |      |     |
|                    | BTUH                         | LAT   | GPM  | APD  | WPD |
| CW024A8K3MC        | 46,660                       | 121.8 | 4.7  | 0.16 | 2.1 |
| CW036A8K5ME        | 66,370                       | 119   | 6.7  | 0.25 | 3.6 |
| CW048A9K9MG        | 89,870                       | 119.8 | 9.1  | 0.22 | 1.8 |
| CW060A9K9MG        | 115,190                      | 121.1 | 11.7 | 0.21 | 3.1 |

| Heating Capacities |                              |       |      |      |     |
|--------------------|------------------------------|-------|------|------|-----|
| MODEL NUMBER       | 160° F EWT 20° F Δ 68° F EDB |       |      |      |     |
|                    | BTUH                         | LAT   | GPM  | APD  | WPD |
| CW024A8K3MC        | 62,590                       | 140.1 | 6.4  | 0.16 | 3.6 |
| CW036A8K5ME        | 89,480                       | 136.8 | 9.1  | 0.25 | 2.5 |
| CW048A9K9MG        | 120,990                      | 137.7 | 12.3 | 0.22 | 3.1 |
| CW060A9K9MG        | 153,970                      | 139   | 15.7 | 0.21 | 3.2 |

| Heating Capacities |                              |       |      |      |     |
|--------------------|------------------------------|-------|------|------|-----|
| MODEL NUMBER       | 180° F EWT 20° F Δ 68° F EDB |       |      |      |     |
|                    | BTUH                         | LAT   | GPM  | APD  | WPD |
| CW024A8K3MC        | 78,340                       | 158.3 | 8    | 0.16 | 2.4 |
| CW036A8K5ME        | 112,340                      | 154.3 | 11.5 | 0.25 | 3.8 |
| CW048A9K9MG        | 151,770                      | 155.5 | 15.6 | 0.22 | 2.8 |
| CW060A9K9MG        | 192,360                      | 156.7 | 19.7 | 0.21 | 4.7 |



# WSD Unit Heaters



## 4 SIZES IN STOCK TO CHOOSE FROM!

| WSD 12"<br>Unit Heater          | WSD 16"<br>Unit Heater          | WSD 20"<br>Unit Heater           | WSD 24"<br>Unit Heater           |
|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| Part# WSD-12UH                  | Part# WSD-16UH                  | Part# WSD-20UH                   | Part# WSD-24UH                   |
| Weight 25 lbs                   | Weight 34 lbs                   | Weight 49 lbs                    | Weight 67 lbs                    |
| <b>Dimensions</b>               | <b>Dimensions</b>               | <b>Dimensions</b>                | <b>Dimensions</b>                |
| A: 17"                          | A: 17"                          | A: 17"                           | A: 18"                           |
| B: 19.5"                        | B: 19.5"                        | B: 19.5"                         | B: 20.5"                         |
| C: 17.5"                        | C: 21.5"                        | C: 25.5"                         | C: 29.5"                         |
| D: 15"                          | D: 19"                          | D: 23"                           | D: 27"                           |
| 1" Connection                   | 1" Connection                   | 1" Connection                    | 1" Connection                    |
| Estimated BTU's @180°<br>55,000 | Estimated BTU's @180°<br>95,000 | Estimated BTU's @180°<br>145,000 | Estimated BTU's @180°<br>210,000 |
| <b>List Price: \$702.88</b>     | <b>List Price: \$851.27</b>     | <b>List Price: \$1107.59</b>     | <b>List Price: \$1265.82</b>     |

All Models come wired with a 10' cord for 120V but can be wired for 240V and are also variable speed rated up to 30% reduction with a proper controller. Controller is not included.

BTU outputs are just estimations. Unit performance will greatly vary depending on water temps, air temps, Flow, and CFM..



## ► WSD UNIT HEATER FEATURES

- Unbelievably smooth and quiet operation.
- Comes totally assembled out of the box.
- No Electrician required when plugged into a locally approved electrical circuit.
- Aluminum blade with a zinc plated steel hub balanced for smooth, vibration free operation. Pitch is designed to correlate with motor horsepower to deliver maximum efficiency.
- Chrome grill allows for easy cleaning and meets OSHA guidelines. OSHA approved on interior wall and approved on exterior wall when mounted 7' above ground.
- 10' cord attached is wired for 120 volt plug.
- Extremely energy efficient, totally enclosed, maintenance free, direct drive high efficiency motors have completely sealed ball bearings, UL and ULC certification, and built in automatic thermal overload protection.

| Part#    | HP   | Volt<br>Wired for | Amps | HZ | Noise<br>H/Low DB | Phs | Speed | Cord |
|----------|------|-------------------|------|----|-------------------|-----|-------|------|
| WSD-12UH | 1/10 | 115               | 1    | 60 | 56/50             | 1   | S/Var | 10'  |
| WSD-16UH | 1/10 | 115               | 1    | 60 | 56/50             | 1   | S/Var | 10'  |
| WSD-20UH | 1/3  | 115               | 3.5  | 60 | 58/52             | 1   | S/Var | 10'  |
| WSD-24UH | 1/2  | 115               | 4.8  | 60 | 60/54             | 1   | S/Var | 10'  |

The WSD Unit Heater fan consists of an agricultural grade, variable speed motor with a 10' cord. The motor is attached with a heavy duty chrome plated OSHA approved guard. The coil is covered by an aluminum shutter with tie bar to eliminate shutter flapping and locking open.



**Assembled in the USA**  
with foreign and domestic parts



# WSD Domestic Sidearm Exchangers



## 2 SIZES IN STOCK TO CHOOSE FROM!

| WSD Sidearm<br>Part# DSAWSDSW42 | WSD Sidearm<br>Part# DSAWSDSW42-6 |
|---------------------------------|-----------------------------------|
| A single walled unit            | A single walled unit              |
| with 1" connections.            | with 1" boiler and 3/4"           |
| This is a cost effective        | domestic connections.             |
| unit that gets the job          | This is a cost effective          |
| done.                           | unit that gets the job done.      |
| <b>BTU Output</b>               | <b>BTU Output</b>                 |
| Thermosyphon 8,000              | Thermosyphon 7,000                |
| <b>Domestic Pump 12,000</b>     | <b>Domestic Pump 11,000</b>       |
| @ 2 GPM 180°                    | @ 2 GPM 180°                      |

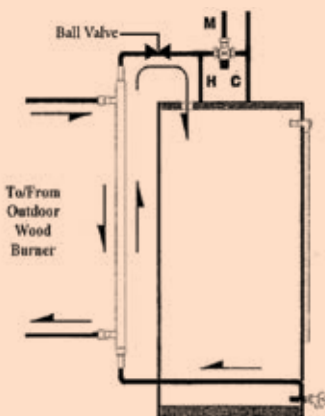
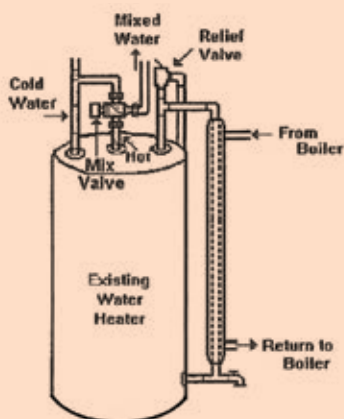
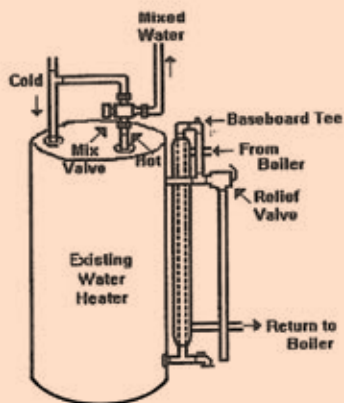


**Assembled in the USA**  
with foreign and domestic parts



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## ► Side-Arm Installation Guide

To ensure proper operation of the side arm, please plumb it as shown in the pictures on the left. The domestic water runs through the inner tube. Heat is transferred from the boiler water that is running through the outer jacket. As the domestic water starts to heat up, it rises, causing it to thermosyphon through the water heater.

If you are removing the factory installed relief valve please re-plumb a relief valve in accordance with the water heater manufacturers instructions and all appropriate state and local codes, for proper installation.

An anti-scald device should be used at the water heater or fixtures to prevent possible injury.

### Testing parameters

#### Boiler side:

8 GPM @ 180 degrees F.

#### Domestic side:

40 gallon water heater @ 49 F startup.

### Perfect to use with:

Outdoor Wood Boilers,  
Corn Boilers, Pellet Boilers,  
Gas Boilers & Solar.

## ► WSD DOMESTIC SIDE-ARM WATER TO WATER EXCHANGER



### WSD Side-Arm

Part# DSAWSDSW42

- Single Walled Unit
- 1" Sweat Connections
- BTU Output: Thermosyphon 8,000 BTU'S
- Domestic Pump: @ 2 GPM 12,000 BTU'S
- Cost Effective Unit

**List Price: \$198.56**



**Assembled in the USA**

| Letter | Description                   |
|--------|-------------------------------|
| A      | 1-1/2" Pipe Diameter          |
| B      | 34" in Length                 |
| C      | 1-5/8" to 1-1/8" Female Sweat |
| D      | 1-1/8" OD Copper Pipe Sweat   |
| E      | 40" in Length                 |
| F      | 1-1/8" ID Copper Female Sweat |
| G      | 1" in Length                  |
| H      | 32" Centers                   |
| I      | 3" On each End                |



### WSD Side-Arm

Part# DSAWSDSW42-6

- Single Walled Unit
- 1" Female Sweat Boiler Connections
- 3/4" Male Sweat Domestic Connections
- BTU Output: Thermosyphon 7,000 BTU'S
- Domestic Pump: @ 2 GPM 11,000 BTU'S
- Cost Effective Unit

**List Price: \$186.26**



**Assembled in the USA**

| Letter | Description                   |
|--------|-------------------------------|
| A      | 1-1/2" Pipe Diameter          |
| B      | 34" in Length                 |
| C      | 1-5/8" to 1-1/8" Female Sweat |
| D      | 3/4" Copper Pipe Sweat        |
| E      | 40" in Length                 |
| F      | 1-1/8" Female Sweat           |
| G      | 1" in Length                  |
| H      | 32" Centers                   |
| I      | 3" On each End                |





BRAZED PLATE  
HEAT EXCHANGERS



# L-Line Plate-To-Plate Heat Exchangers



## Plates and Connections:

- AISI 316L Stainless Steel

## Brazing Material:

- Copper, Single Wall Plates.
- Working Pressure up to 481 PSI.
- Working Temperature up to 445° F



**Not for  
Steam**



**CAUTION:  
NOT FOR USE  
WITH SWIMMING  
POOLS!**

## Typical Applications:

- Central Heating
- Hydronic Heating
- Solar and Geothermic Heating
- Industrial Process Heat Recovery
- Condensers and Evaporators in Refrigeration Systems
- Oil Coolers
- Close Approach Fluid - To - Fluid Heat Transfer

**Made in  
POLAND**



**To choose a heat exchanger for your specific application,  
or for help with sizing, please call our office.**



## SINGLE WALL

| Model #:    | Dimensions                                                   | Connections                | LIST PRICE   |
|-------------|--------------------------------------------------------------|----------------------------|--------------|
| LA14-10     | L. 7.6in W. 3.1in                                            | 3/4" MPT                   | \$183.60     |
| LA14-20     | L. 7.6in W. 3.1in                                            | 3/4" MPT                   | \$220.80     |
| LA14-30     | L. 7.6in W. 3.1in                                            | 3/4" MPT                   | \$258.00     |
| LA14-40     | L. 7.6in W. 3.1in                                            | 3/4" MPT                   | \$294.00     |
| LB31-10XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$283.08     |
| LB31-20XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$378.46     |
| LB31-30XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$461.54     |
| LB31-40XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$566.15     |
| LB31-50XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$645.52     |
| LB31-60XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$746.67     |
| LB31-70XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$838.52     |
| LB31-80XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$961.20     |
| LB31-90XJ   | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$1,052.40   |
| LB31-100XJ  | L. 12.0in W. 5.0in                                           | 1" MPT OD 3/4" Solder ID • | \$1,144.80   |
| LC110-1-5/8 | 2"NPT to 1-5/8" Refrigerant Insert for LC 110X2J connections |                            | \$22.23 Each |
| LC110-30X2J | L. 20.9in W. 9.8in                                           | 2" MPT                     | \$1,450.80   |
| LC110-40X2J | L. 20.9in W. 9.8in                                           | 2" MPT                     | \$1,779.60   |
| LC110-50X2J | L. 20.9in W. 9.8in                                           | 2" MPT                     | \$2,112.00   |
| LC110-60X2J | L. 20.9in W. 9.8in                                           | 2" MPT                     | \$2,439.60   |
| LC110-70H   | L. 20.9in W. 9.8in                                           | 2-1/2" MPT                 | \$2,769.60   |

- These are nominal copper ID's. These will fit standard copper pipe.  
Many Other Sizes Available as a Special Order.

**Please Call For Sizing and Price!**



# Brazed Plate Heat Exchangers



## Advantages of Brazed Plate Heat Exchangers

- high heat transfer coefficient
- small unit size with high heat transfer capacity
- high resistance to pressure and temperature fluctuations
- cost efficiency
- stainless steel connections
- easy installation

Brazed plate heat exchangers consist of stainless steel plate packs, which have embossed chevron patterns. The plates are turned 180° to each other, causing the plate ridges to intersect, and creating a lattice of intersecting channels. The fluids can flow in counter-current or co-current way.

The entire construction is sealed together by the means of brazing in a special vacuum furnace.

*Special corrugation patterns promotes high turbulence flow.*

*Turbulence dramatically improves heat transfer rates and reduces the amount of deposits inside the unit.*



## Flow Chanel Diagram in Heat Exchanger



one-pass - channels are parallel.

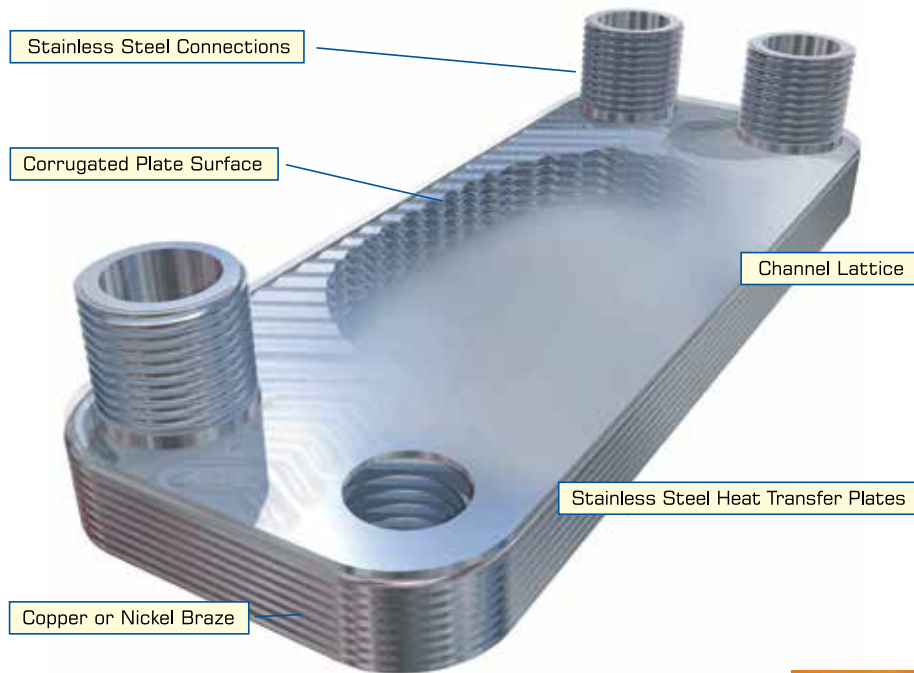


multi-pass - system of channels is divided into groups which are connected in series.

By changing number of plates, geometry of plates, pattern of plate corrugation and channel diagrams we can custom design heat exchangers for individual needs of the customers.



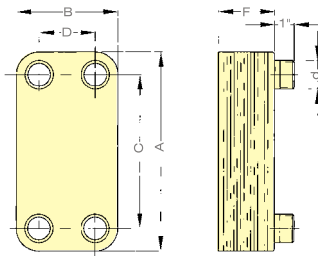




## Applications:

- Central Heating
- Hydronic Heating
- Solar and Geothermal Heating
- Industrial Process Heat Recovery
- Condensers and Evaporators in Refrigeration Systems
- Oil Coolers
- Close Approach Fluid-To-Fluid Heat Transfer





## Technical Parameters

| Heat Exchanger Type | Dimensions mm (in) |           |            |           |                              | Plate Area m <sup>2</sup> (sq.ft) | Chanel Volume L (USGPM) | Maximum Flow L/min (GPM) | Maximum Number of Plate | Weight (empty) kg (lb)       |
|---------------------|--------------------|-----------|------------|-----------|------------------------------|-----------------------------------|-------------------------|--------------------------|-------------------------|------------------------------|
|                     | A                  | B         | C          | D         | F                            |                                   |                         |                          |                         |                              |
| LA 14               | 194 (7.6)          | 80 (3.1)  | 154 (6.1)  | 40 (1.6)  | 10.0 + 2.3NP (0.39 + 0.09NP) | 0.012 (0.13)                      | 0.021 (0.005)           | 110 (29)                 | 80                      | 0.8 + 0.05NP (1.8 + 0.10NP)  |
| LA 22               | 300 (11.8)         | 79 (3.1)  | 260 (10.2) | 42 (1.7)  | 9.0 + 2.3NP (0.36 + 0.09NP)  | 0.022 (0.24)                      | 0.034 (0.009)           | 68 (18)                  | 80                      | 1.1 + 0.09NP (2.4 + 0.20NP)  |
| LB 22               | 183 (7.2)          | 122 (4.8) | 130 (5.1)  | 68 (2.7)  | 9.0 + 2.3NP (0.36 + 0.09NP)  | 0.022 (0.24)                      | 0.034 (0.009)           | 68 (18)                  | 80                      | 1.2 + 0.09NP (2.6 + 0.20NP)  |
| LB 31               | 306 (12.0)         | 126 (5.0) | 250 (9.8)  | 70 (2.8)  | 12.4 + 2.4NP (0.49 + 0.09NP) | 0.032 (0.34)                      | 0.054 (0.014)           | 290 (77)                 | 150                     | 2.2 + 0.16NP (4.8 + 0.35NP)  |
| LB 47               | 414 (16.3)         | 122 (4.8) | 360 (14.2) | 68 (2.7)  | 9.0 + 2.3NP (0.36 + 0.09NP)  | 0.047 (0.51)                      | 0.072 (0.019)           | 190 (50)                 | 150                     | 2.1 + 0.18NP (4.6 + 0.40NP)  |
| LB 60               | 506 (19.9)         | 126 (5.0) | 444 (17.5) | 64 (2.5)  | 12.4 + 2.4NP (0.49 + 0.09NP) | 0.058 (0.62)                      | 0.097 (0.026)           | 240 (63)                 | 150                     | 3.6 + 0.25NP (7.9 + 0.55NP)  |
| LC 110X             | 530 (20.9)         | 248 (9.8) | 456 (17.9) | 174 (6.9) | 13.0 + 2.4NP (0.51 + 0.09NP) | 0.113 (1.22)                      | 0.196 (0.052)           | 450 (119)                | 200                     | 7.2 + 0.52NP (15.8 + 1.14NP) |
| LC 110Y             | 523 (20.6)         | 241 (9.5) | 430 (16.9) | 148 (5.8) | 13.4 + 2.8NP (0.53 + 0.11NP) | 0.104 (1.12)                      | 0.216 (0.057)           | 700 (185)                | 200                     | 7.2 + 0.55NP (15.8 + 1.21NP) |
| LC 110Z             | 523 (20.6)         | 241 (9.5) | 430 (16.9) | 148 (5.8) | 13.4 + 2.8NP (0.53 + 0.11NP) | 0.104 (1.12)                      | 0.216 (0.057)           | 900 (238)                | 200                     | 7.3 + 0.55NP (15.9 + 1.21NP) |

NP - number of plates

### Standard Construction:

- Plates & Connections: AISI 316
- Brazing Material: Copper (Optional - Nickel)
- Single Wall Plates (Optional - Double-Wall)

### Design Parameters:

- Working Pressure up to 481 PSI
- Working Temperature up to 445°F

## Standard Connections

| Heat Exchanger Type | Solder  | Threaded NPT |
|---------------------|---------|--------------|
|                     | d* (in) | d (in)       |
| LA 14               | 7/8"    | 3/4"         |
| LA 22               | 7/8"    | 3/4"         |
| LB 22               | 1-1/8"  | 1"           |
| LB 31               | 1-1/8"  | 1"           |
| LB 47               | 1-1/8"  | 1"           |
| LB 60               | 1-1/8"  | 1"           |
| LC 110X             | 1-5/8"  | 1-1/2"       |
| LC 110Y             | 1-5/8"  | 2 1/2"       |
| LC 110Z             | 1-5/8"  | 3"           |

\* inner diameter of connection





# L-Line Double Wall Plate-To-Plate Heat Exchangers



## Plates and Connections:

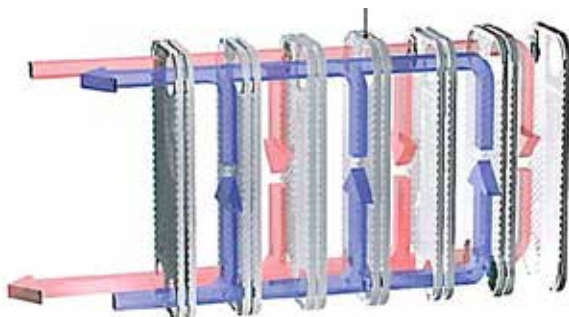
- ANSI 316 Stainless Steel

## Brazing Material:

- Double Wall Plates.
- Working Pressure up to 481 PSI
- Working Temperature up to 445° F

## Typical Applications:

- Potable Water Heating
- Domestic Hot Water Heating
- Suitable for any stringent applications and regulations that require double wall, vented heat exchangers.

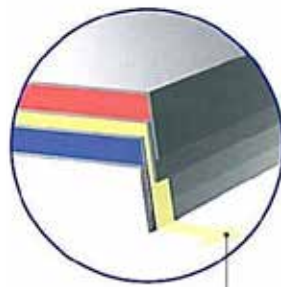


**Double walls allow leaks to be visually detected without cross contaminating the fluid streams.**

**CAUTION:  
NOT FOR USE  
WITH SWIMMING  
POOLS!**



**Not for  
Steam**



**Leaks escape into the atmosphere through the airgap between the double walls.**

**Made in  
POLAND**



**WWW.WILLOWSRA.COM**

# L-Line Double Wall Plate-To-Plate Heat Exchangers

## DOUBLE WALL

| Model #:      | Dimensions         | Connections                    | LIST PRICE |
|---------------|--------------------|--------------------------------|------------|
| LA14-10DWR    | L. 7.6in W. 3.1in  | 3/4" MPT                       | \$469.24   |
| LA14-20DWR    | L. 7.6in W. 3.1in  | 3/4" MPT                       | \$614.48   |
| LA14-30DWR    | L. 7.6in W. 3.1in  | 3/4" MPT                       | \$794.48   |
| LA14-40DWR    | L. 7.6in W. 3.1in  | 3/4" MPT                       | \$1,091.17 |
| LB31-10DWR    | L. 12.0in W. 5.0in | 1" MPT / 3/4" Solder ID •      | \$707.59   |
| LB31-20DWR    | L. 12.0in W. 5.0in | 1" MPT / 3/4" Solder ID •      | \$1,082.40 |
| LB31-30DWR    | L. 12.0in W. 5.0in | 1" MPT / 3/4" Solder ID •      | \$1,474.80 |
| LB31-40DWR    | L. 12.0in W. 5.0in | 1" MPT / 3/4" Solder ID •      | \$1,977.52 |
| LB31-50DWR    | L. 12.0in W. 5.0in | 1" MPT / 3/4" Solder ID •      | \$2,356.80 |
| LB31-60DWR    | L. 12.0in W. 5.0in | 1" MPT / 3/4" Solder ID •      | \$2,749.20 |
| LC110-30DWRB  | L. 18.2in W. 10in  | 2-1/2" MPT OD / 2" solder ID • | \$3,438.00 |
| LC110-40DWRB  | L. 18.2in W. 10in  | 2-1/2" MPT OD / 2" solder ID • | \$4,267.20 |
| LC110-50DWRB  | L. 18.2in W. 10in  | 2-1/2" MPT OD / 2" solder ID • | \$5,202.00 |
| LC110-60DWRB  | L. 18.2in W. 10in  | 2-1/2" MPT OD / 2" solder ID • | \$6,039.60 |
| LC110X-70DWRB | L. 18.2in W. 10in  | 2-1/2" MPT OD / 2" solder ID • | \$6,973.20 |
| LC110X-80DWRB | L. 18.2in W. 10in  | 2-1/2" MPT OD / 2" solder ID • | \$7,854.00 |

- These are nominal copper ID's. These will fit standard copper pipe.  
Many Other Sizes Available as a Special Order.

**Please Call For Sizing and Price!**

**Connection size and style may vary.**

*Special corrugation patterns promote highly turbulent flow. Turbulence dramatically improves heat transfer rates and reduces the amount of deposits inside the unit.*

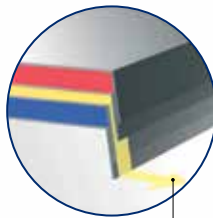


## Advantages of AIC Double Wall Brazed Plate Heat Exchangers

- visual leak detection
- prevents fluid cross-contamination
- high thermal efficiency
- compact design
- strong, durable stainless steel construction
- quick and easy installation

The design of the double wall brazed plate heat exchanger prevents cross contamination of fluid streams if there is an internal leak within the unit.

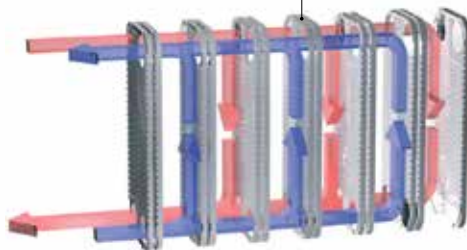
Two stainless steel plate walls separate the fluid streams, with an air gap in between. In the event of a leak, the affected fluid will flow into the air gap and escape out of the heat exchanger, enabling visual detection of the leak.



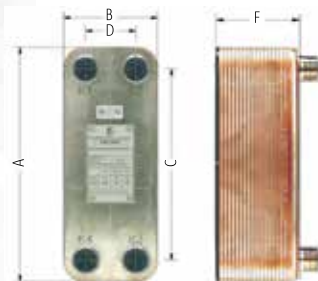
Leaks escape into the atmosphere through the air gap between the double walls.

## Flow Channel Diagram in Double Wall Heat Exchanger

Double walls allow leaks to be visually detected without cross contaminating the fluid streams.







## Technical Parameters

| Model    | Dimensions<br>mm (in) |            |            |           |                                | Plate<br>Area<br>m <sup>2</sup> (sq.ft) | Channel<br>Volume<br>L (Gal) | Maximum<br>Flow<br>L/min (GPM) | Maximum<br>Number<br>of Plates | Weight<br>(empty)<br>kg (lb) |
|----------|-----------------------|------------|------------|-----------|--------------------------------|-----------------------------------------|------------------------------|--------------------------------|--------------------------------|------------------------------|
|          | A                     | B          | C          | D         | F                              |                                         |                              |                                |                                |                              |
| LA14 DW  | 201 (7.9)             | 79 (3.1)   | 165 (6.5)  | 43 (1.7)  | 7.62 + 2.36NP (0.30 + 0.093NP) | 0.014 (0.15)                            | 0.023 (0.006)                | 75 (20)                        | 50                             | 0.9 + 0.07NP (2.0 + 0.15NP)  |
| LB31 DW  | 287 (11.3)            | 122 (4.8)  | 231 (9.1)  | 69 (2.7)  | 8.89 + 2.46NP (0.35 + 0.097NP) | 0.030 (0.33)                            | 0.045 (0.012)                | 220 (58)                       | 80                             | 1.3 + 0.14NP (2.9 + 0.30NP)  |
| LC110 DW | 462 (18.2)            | 254 (10.0) | 378 (14.9) | 170 (6.7) | 12.7 + 2.03NP (0.50 + 0.08NP)  | 0.110 (1.18)                            | 0.163 (0.043)                | 340 (90)                       | 80                             | 3.6 + 0.5NP (8.0 + 1.10NP)   |

NP - number of plates

### Standard Construction

- Double Wall Plates
- Plate Material: ANSI 316
- Brazing Material: Copper

### Design Parameters

- Working Temperature up to 445°F
- Working Pressure up to 481 PSI

AIC brazed plate heat exchangers consist of stainless steel plate packs, which have embossed chevron patterns. The plates are turned 180° to each other, causing the plate ridges to interact, and creating a lattice of intersecting channels. The fluids can flow in either a counter-current or a co-current direction.

The entire construction is sealed together by means of brazing in a special vacuum furnace.



### Standard Connection Sizes

| Heat<br>Exchanger<br>Type | Solder<br>(in)* | Thread NPT<br>(in) |
|---------------------------|-----------------|--------------------|
| LA14 DW                   | 7/8"            | 3/4"               |
| LB31 DW                   | 1-1/8"          | 1"                 |
| LC110 DW                  | 1-5/8"          | 1-1/2"             |

\* inner diameter of connection

### Applications:

- Potable Water Heating
- Domestic Hot Water Heating

Suitable for any stringent applications and regulations that require double wall, vented heat exchangers.

AIC heat exchangers are designed, manufactured, and tested to the strictest codes, and are certified by many national and international inspection authorities. We are a registered ISO-9001 company and are UL certified.

# High Temp Boiler to Low Temp Radiant Floor Heating

| Boiler side water<br>(Supply) 180° F. (Return) 160° F |           |             |                             |                 | Radiant Floor Side<br>(Supply) 120° F. (Return) 100° F |      |                 |                             |                        |
|-------------------------------------------------------|-----------|-------------|-----------------------------|-----------------|--------------------------------------------------------|------|-----------------|-----------------------------|------------------------|
|                                                       |           |             | Pressure Drop<br>PSI - (HP) |                 |                                                        |      |                 | Pressure Drop<br>PSI - (HP) |                        |
| Model #:                                              | BTU/Hr    | Flow<br>GPM | PSI                         | Feet of<br>Head | Flow<br>GPM                                            | PSI  | Feet of<br>Head | Inlet /<br>outlet           | Suggested<br>pipe size |
| LA14-10                                               | 25,000    | 2.57        | 1                           | 2.3             | 2.52                                                   | 1.6  | 3.7             | 0.75                        | 0.75                   |
| LA14-20                                               | 50,000    | 5.14        | 1.2                         | 2.8             | 5.04                                                   | 1.49 | 3.4             | 0.75                        | 1                      |
| LA14-20                                               | 75,000    | 7.71        | 2.53                        | 5.8             | 7.56                                                   | 3.16 | 7.3             | 0.75                        | 1                      |
| LA14-30                                               | 100,000   | 10.28       | 2.6                         | 6               | 10.08                                                  | 2.95 | 6.8             | 0.75                        | 1.25                   |
| LA14-40                                               | 125,000   | 12.84       | 3                           | 6.9             | 12.59                                                  | 3.24 | 7.5             | 0.75                        | 1.25                   |
| LB31-010XJ                                            | 25,000    | 2.57        | 1.03                        | 2.4             | 2.52                                                   | 1.72 | 4               | 1                           | 1                      |
| LB31-020XJ                                            | 50,000    | 5.1         | 1.05                        | 2.4             | 5                                                      | 1.4  | 3.2             | 1                           | 1                      |
| LB31-020XJ                                            | 75,000    | 7.65        | 2.2                         | 5.1             | 7.56                                                   | 2.9  | 6.7             | 1                           | 1                      |
| LB31-030XJ                                            | 100,000   | 10.28       | 1.84                        | 4.3             | 10.08                                                  | 2.25 | 5.2             | 1                           | 1.25                   |
| LB31-040XJ                                            | 125,000   | 12.84       | 1.72                        | 4               | 12.59                                                  | 2.01 | 4.6             | 1                           | 1.25                   |
| LB31-040XJ                                            | 150,000   | 15.41       | 2.41                        | 5.6             | 15.11                                                  | 2.81 | 6.5             | 1                           | 1.5                    |
| LB31-050XJ                                            | 175,000   | 17.98       | 2.26                        | 5.2             | 17.63                                                  | 2.57 | 5.9             | 1                           | 1.5                    |
| LB31-050XJ                                            | 200,000   | 20.55       | 2.89                        | 6.7             | 20.15                                                  | 3.29 | 7.6             | 1                           | 1.5                    |
| LB31-060XJ                                            | 225,000   | 23.12       | 2.76                        | 6.4             | 22.67                                                  | 3.08 | 7.1             | 1                           | 1.5                    |
| LB31-060XJ                                            | 250,000   | 25.69       | 3.36                        | 7.8             | 25.19                                                  | 3.74 | 8.6             | 1                           | 2                      |
| LC110-30X2J                                           | 200,000   | 20.55       | 1.97                        | 4.55            | 20.07                                                  | 1.85 | 4.27            | 2                           | 2                      |
| LC110-30X2J                                           | 250,000   | 25.69       | 2.96                        | 6.84            | 25.19                                                  | 2.78 | 6.42            | 2                           | 2                      |
| LC110-30X2J                                           | 300,000   | 30.83       | 4.13                        | 9.54            | 30.10                                                  | 3.88 | 8.96            | 2                           | 2                      |
| LC110-40X2J                                           | 400,000   | 41.1        | 4.22                        | 9.75            | 40.13                                                  | 4.1  | 9.47            | 2                           | 2                      |
| LC110-50X2J                                           | 500,000   | 51.38       | 4.43                        | 10.23           | 50.17                                                  | 4.38 | 10.12           | 2                           | 2                      |
| LC110-60X2J                                           | 600,000   | 61.66       | 4.73                        | 10.93           | 60.2                                                   | 4.73 | 10.93           | 2                           | 2                      |
| LC110-70H                                             | 1,000,000 | 102.76      | 3.65                        | 8.43            | 100.33                                                 | 3.67 | 8.48            | 2.5                         | 3                      |



# Condensing Boiler to Radiant Floor Heating

| Boiler side water<br>(Supply) 180° F, (Return) 160° F |           |             |                             |                 | Radiant Floor Side<br>(Supply) 120° F, (Return) 100° F |      |                 |                             |                        |
|-------------------------------------------------------|-----------|-------------|-----------------------------|-----------------|--------------------------------------------------------|------|-----------------|-----------------------------|------------------------|
|                                                       |           |             | Pressure Drop<br>PSI - (HP) |                 |                                                        |      |                 | Pressure Drop<br>PSI - (HP) |                        |
| Model #:                                              | BTU/Hr    | Flow<br>GPM | PSI                         | Feet of<br>Head | Flow<br>GPM                                            | PSI  | Feet of<br>Head | Inlet /<br>outlet           | Suggested<br>pipe size |
| LA14-10                                               | 25,000    | 2.53        | 1.00                        | 2.30            | 2.52                                                   | 1.60 | 3.70            | 0.75                        | 0.75                   |
| LA14-20                                               | 50,000    | 5.07        | 1.23                        | 2.80            | 5.04                                                   | 1.49 | 3.40            | 0.75                        | 1.00                   |
| LA14-20                                               | 75,000    | 7.60        | 2.61                        | 6.00            | 7.56                                                   | 3.16 | 7.30            | 0.75                        | 1.00                   |
| LA14-30                                               | 100,000   | 10.14       | 2.66                        | 6.10            | 10.08                                                  | 2.95 | 6.80            | 0.75                        | 1.25                   |
| LA14-40                                               | 125,000   | 12.67       | 3.05                        | 7.00            | 12.59                                                  | 3.24 | 7.50            | 0.75                        | 1.25                   |
| LB31-10XJ                                             | 25,000    | 2.53        | 1.07                        | 2.50            | 2.52                                                   | 1.72 | 4.00            | 1.00                        | 1.00                   |
| LB31-20XJ                                             | 50,000    | 5.04        | 1.10                        | 2.50            | 5.04                                                   | 1.38 | 3.20            | 1.00                        | 1.00                   |
| LB31-20XJ                                             | 75,000    | 7.60        | 2.30                        | 5.30            | 7.56                                                   | 2.90 | 6.70            | 1.00                        | 1.00                   |
| LB31-30XJ                                             | 100,000   | 10.14       | 1.92                        | 4.40            | 10.08                                                  | 2.25 | 5.20            | 1.00                        | 1.25                   |
| LB31-40XJ                                             | 125,000   | 12.67       | 1.79                        | 4.10            | 12.59                                                  | 2.01 | 4.60            | 1.00                        | 1.25                   |
| LB31-40XJ                                             | 150,000   | 15.20       | 2.51                        | 5.80            | 15.20                                                  | 2.81 | 6.50            | 1.00                        | 1.25                   |
| LB31-50XJ                                             | 175,000   | 17.74       | 2.35                        | 5.40            | 17.63                                                  | 2.57 | 5.90            | 1.00                        | 1.50                   |
| LB31-50XJ                                             | 200,000   | 20.27       | 3.00                        | 6.90            | 20.15                                                  | 3.29 | 7.60            | 1.00                        | 1.50                   |
| LB31-60XJ                                             | 225,000   | 22.81       | 2.86                        | 6.60            | 22.67                                                  | 3.08 | 7.10            | 1.00                        | 1.50                   |
| LB31-60XJ                                             | 250,000   | 25.34       | 3.47                        | 8.00            | 25.19                                                  | 3.74 | 8.60            | 1.00                        | 2.00                   |
| LC110-30X2J                                           | 200,000   | 20.27       | 2.05                        | 4.73            | 20.07                                                  | 1.85 | 4.27            | 2.00                        | 2.00                   |
| LC110-30X2J                                           | 250,000   | 25.34       | 3.09                        | 7.14            | 25.08                                                  | 2.78 | 6.42            | 2.00                        | 2.00                   |
| LC110-30X2J                                           | 300,000   | 30.41       | 4.31                        | 9.95            | 30.10                                                  | 3.88 | 8.96            | 2.00                        | 2.00                   |
| LC110-40X2J                                           | 400,000   | 40.54       | 4.39                        | 10.14           | 40.13                                                  | 4.10 | 9.47            | 2.00                        | 2.00                   |
| LC110-50X2J                                           | 500,000   | 50.68       | 4.59                        | 10.61           | 50.17                                                  | 4.38 | 10.12           | 2.00                        | 2.00                   |
| LC110-60X2J                                           | 600,000   | 60.81       | 4.88                        | 11.27           | 60.20                                                  | 4.73 | 10.93           | 2.00                        | 2.00                   |
| LC110-70H                                             | 1,000,000 | 101.36      | 3.76                        | 8.69            | 100.33                                                 | 3.67 | 8.48            | 2.50                        | 2.50                   |



# LOW Temp to LOW Temp Radiant Floor Heating

| Boiler side water<br>(Supply) 120° F , (Return) 100° F |         |             |                             |                 | Radiant Floor Side<br>(Supply) 100° F, (Return) 80° F |      |                 |                             |                        |
|--------------------------------------------------------|---------|-------------|-----------------------------|-----------------|-------------------------------------------------------|------|-----------------|-----------------------------|------------------------|
|                                                        |         |             | Pressure Drop<br>PSI - (HP) |                 |                                                       |      |                 | Pressure Drop<br>PSI - (HP) |                        |
| Model #:                                               | BTU/Hr  | Flow<br>GPM | PSI                         | Feet of<br>Head | Flow<br>GPM                                           | PSI  | Feet of<br>Head | Inlet /<br>outlet           | Suggested<br>pipe size |
| LA14-10                                                | 25,000  | 2.52        | 1.64                        | 3.79            | 2.50                                                  | 1.10 | 2.54            | 0.75                        | 1.00                   |
| LA14-20                                                | 50,000  | 5.04        | 1.49                        | 3.44            | 5.00                                                  | 1.29 | 2.98            | 0.75                        | 1.25                   |
| LA14-30                                                | 75,000  | 7.56        | 1.72                        | 3.98            | 7.50                                                  | 1.60 | 3.70            | 0.75                        | 1.25                   |
| LA14-40                                                | 100,000 | 10.08       | 2.12                        | 4.90            | 10.00                                                 | 2.04 | 4.71            | 0.75                        | 1.25                   |
| LB31-10XJ                                              | 25,000  | 2.52        | 1.55                        | 3.58            | 2.50                                                  | 1.03 | 2.38            | 1.00                        | 1.00                   |
| LB31-20XJ                                              | 50,000  | 5.04        | 1.25                        | 2.88            | 5.00                                                  | 1.05 | 2.42            | 1.00                        | 1.25                   |
| LB31-20XJ                                              | 75,000  | 7.56        | 2.61                        | 6.03            | 7.50                                                  | 2.20 | 5.08            | 1.00                        | 1.25                   |
| LB31-30XJ                                              | 100,000 | 10.08       | 2.03                        | 4.69            | 10.00                                                 | 1.84 | 4.25            | 1.00                        | 1.50                   |
| LB31-40XJ                                              | 125,000 | 12.59       | 1.83                        | 4.22            | 12.50                                                 | 1.72 | 3.97            | 1.00                        | 1.50                   |
| LB31-50XJ                                              | 150,000 | 15.11       | 1.77                        | 4.08            | 15.00                                                 | 1.70 | 3.93            | 1.00                        | 2.00                   |

# Radiant Heating (High Temp) Selections

| Boiler side water<br>(Supply) 180° F , (Return) 160° F |         |             |                             |                 | Radiant Floor Side<br>(Supply) 170° F, (Return) 150° F |      |                 |                             |                        |
|--------------------------------------------------------|---------|-------------|-----------------------------|-----------------|--------------------------------------------------------|------|-----------------|-----------------------------|------------------------|
|                                                        |         |             | Pressure Drop<br>PSI - (HP) |                 |                                                        |      |                 | Pressure Drop<br>PSI - (HP) |                        |
| Model #:                                               | BTU/Hr  | Flow<br>GPM | PSI                         | Feet of<br>Head | Flow<br>GPM                                            | PSI  | Feet of<br>Head | Inlet /<br>outlet           | Suggested<br>pipe size |
| LA14-20                                                | 25,000  | 2.57        | 0.33                        | 0.80            | 2.56                                                   | 0.40 | 0.90            | 0.75                        | 0.75                   |
| LA14-30                                                | 50,000  | 5.14        | 0.70                        | 1.60            | 5.12                                                   | 0.77 | 1.80            | 0.75                        | 1.00                   |
| LA14-40                                                | 75,000  | 7.71        | 1.10                        | 2.50            | 7.68                                                   | 1.20 | 2.80            | 0.75                        | 1.00                   |
| LB31-10XJ                                              | 25,000  | 2.57        | 1.03                        | 2.40            | 2.56                                                   | 1.92 | 4.40            | 1.00                        | 1.00                   |
| LB31-20XJ                                              | 50,000  | 5.14        | 1.54                        | 3.60            | 5.12                                                   | 1.30 | 3.00            | 1.00                        | 1.00                   |
| LB31-20XJ                                              | 75,000  | 7.71        | 2.25                        | 5.20            | 7.68                                                   | 2.73 | 6.30            | 1.00                        | 1.00                   |
| LB31-30XJ                                              | 100,000 | 10.28       | 1.84                        | 4.30            | 10.24                                                  | 2.12 | 4.90            | 1.00                        | 1.25                   |
| LB31-30XJ                                              | 125,000 | 12.84       | 2.77                        | 6.40            | 12.80                                                  | 3.19 | 7.40            | 1.00                        | 1.25                   |
| LB31-40XJ                                              | 150,000 | 15.41       | 2.41                        | 5.60            | 15.36                                                  | 2.67 | 6.20            | 1.00                        | 1.50                   |
| LB31-50XJ                                              | 175,000 | 17.98       | 3.20                        | 7.40            | 17.92                                                  | 3.54 | 8.20            | 1.00                        | 1.50                   |
| LC110-30X2J                                            | 200,000 | 20.55       | 1.97                        | 4.55            | 20.33                                                  | 1.75 | 4.04            | 2.00                        | 2.00                   |
| LC110-30X2J                                            | 300,000 | 30.83       | 4.13                        | 9.54            | 30.50                                                  | 3.67 | 8.48            | 2.00                        | 2.00                   |
| LC110-40X2J                                            | 400,000 | 41.10       | 4.22                        | 9.75            | 40.66                                                  | 3.89 | 8.99            | 2.00                        | 2.00                   |
| LC110-50X2J                                            | 500,000 | 51.38       | 4.43                        | 10.23           | 50.83                                                  | 4.18 | 9.65            | 2.00                        | 2.00                   |
| LC110-60X2J                                            | 600,000 | 61.66       | 4.73                        | 10.93           | 60.99                                                  | 4.53 | 10.47           | 2.00                        | 2.00                   |
| LC110-70H                                              | 750,000 | 77.07       | 2.13                        | 4.92            | 76.24                                                  | 2.06 | 4.76            | 2.00                        | 2.00                   |



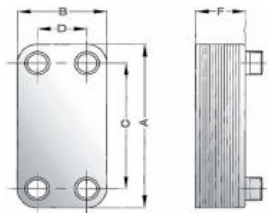
# Snow Melt Selections

| Boiler side water<br>(Supply) 180° F, (Return) 160° F |         |             |                             |                 | Radiant Floor Side<br>(Supply) 120° F, (Return) 100° F |                             |                 |                   |                        |
|-------------------------------------------------------|---------|-------------|-----------------------------|-----------------|--------------------------------------------------------|-----------------------------|-----------------|-------------------|------------------------|
| Model #:                                              | BTU/Hr  | Flow<br>GPM | Pressure Drop<br>PSI - (HP) |                 | Flow<br>GPM                                            | Pressure Drop<br>PSI - (HP) |                 | Inlet /<br>outlet | Suggested<br>pipe size |
|                                                       |         |             | PSI                         | Feet of<br>Head |                                                        | PSI                         | Feet of<br>Head |                   |                        |
| LA14-10                                               | 25,000  | 2.57        | 1.00                        | 2.30            | 2.79                                                   | 2.60                        | 6.00            | 0.75              | 0.75                   |
| LA14-20                                               | 50,000  | 5.14        | 1.19                        | 2.70            | 5.58                                                   | 2.29                        | 5.30            | 0.75              | 1.00                   |
| LA14-30                                               | 75,000  | 7.71        | 1.51                        | 3.50            | 8.36                                                   | 2.55                        | 5.90            | 0.75              | 1.00                   |
| LA14-40                                               | 100,000 | 10.28       | 1.96                        | 4.50            | 11.15                                                  | 3.04                        | 7.00            | 0.75              | 1.25                   |
| LB31-10XJ                                             | 25,000  | 2.57        | 1.03                        | 2.40            | 2.79                                                   | 2.73                        | 6.30            | 1.00              | 1.00                   |
| LB31-20XJ                                             | 50,000  | 5.14        | 1.05                        | 2.40            | 5.58                                                   | 2.19                        | 5.10            | 1.00              | 1.00                   |
| LB31-30XJ                                             | 75,000  | 7.71        | 1.09                        | 2.50            | 8.36                                                   | 2.09                        | 4.80            | 1.00              | 1.00                   |
| LB31-40XJ                                             | 100,000 | 10.28       | 1.14                        | 2.60            | 11.15                                                  | 2.09                        | 4.80            | 1.00              | 1.25                   |
| LB31-40XJ                                             | 125,000 | 12.84       | 1.72                        | 4.00            | 13.94                                                  | 3.14                        | 7.30            | 1.00              | 1.25                   |
| LB31-50XJ                                             | 150,000 | 15.41       | 1.70                        | 3.90            | 16.73                                                  | 2.98                        | 6.90            | 1.00              | 1.25                   |
| LB31-50XJ                                             | 175,000 | 17.98       | 2.26                        | 5.20            | 19.52                                                  | 3.96                        | 9.10            | 1.00              | 1.50                   |
| LB31-60XJ                                             | 200,000 | 20.55       | 2.22                        | 5.10            | 22.30                                                  | 3.77                        | 8.70            | 1.00              | 1.50                   |
| LC110-30X2J                                           | 200,000 | 20.55       | 1.97                        | 4.54            | 20.07                                                  | 1.85                        | 4.26            | 2.00              | 2.50                   |
| LC110-30X2J                                           | 300,000 | 30.83       | 4.13                        | 9.54            | 30.10                                                  | 3.88                        | 8.97            | 2.00              | 2.50                   |
| LC110-40X2J                                           | 400,000 | 41.10       | 4.22                        | 9.74            | 40.13                                                  | 4.10                        | 9.50            | 2.00              | 2.50                   |
| LC110-50X2J                                           | 500,000 | 51.38       | 4.43                        | 10.23           | 50.17                                                  | 4.38                        | 10.12           | 2.00              | 2.50                   |
| LC110-60X2J                                           | 600,000 | 61.66       | 4.73                        | 10.92           | 60.20                                                  | 4.73                        | 10.92           | 2.00              | 2.50                   |

# Domestic Heating (High Temp) Selections Double Wall

| Boiler side water<br>(Supply) 180° F, (Return) 160° F |         |             |                             |                 | Radiant Floor Side<br>(Supply) 50° F, (Return) 120° F |                             |                 |                   |                        |
|-------------------------------------------------------|---------|-------------|-----------------------------|-----------------|-------------------------------------------------------|-----------------------------|-----------------|-------------------|------------------------|
| Model #:                                              | BTU/Hr  | Flow<br>GPM | Pressure Drop<br>PSI - (HP) |                 | Flow<br>GPM                                           | Pressure Drop<br>PSI - (HP) |                 | Inlet /<br>outlet | Suggested<br>pipe size |
|                                                       |         |             | PSI                         | Feet of<br>Head |                                                       | PSI                         | Feet of<br>Head |                   |                        |
| LA14-10DWR                                            | 25      | 2.57        | 1.53                        | 3.53            | 0.71                                                  | 0.11                        | 0.25            | 0.75              | 1.00                   |
| LA14-20DWR                                            | 50,000  | 5.14        | 1.41                        | 3.26            | 1.43                                                  | 0.13                        | 0.30            | 0.75              | 1.00                   |
| LA14-20DWR                                            | 75,000  | 7.71        | 2.99                        | 6.91            | 2.14                                                  | 0.27                        | 0.63            | 0.75              | 1.00                   |
| LB31-20DWR                                            | 75,000  | 7.71        | 2.11                        | 4.88            | 2.14                                                  | 0.20                        | 0.46            | 1.00              | 1.00                   |
| LB31-20DWR                                            | 100,000 | 10.28       | 3.56                        | 8.22            | 2.85                                                  | 0.33                        | 0.77            | 1.00              | 1.00                   |
| LB31-30DWR                                            | 150,000 | 15.41       | 3.58                        | 8.27            | 4.28                                                  | 0.35                        | 0.81            | 1.00              | 1.25                   |
| LB31-40DWR                                            | 200,000 | 20.55       | 2.78                        | 6.43            | 5.71                                                  | 0.27                        | 0.63            | 1.00              | 1.25                   |
| LC110-30DWR                                           | 300,000 | 30.83       | 2.87                        | 6.63            | 8.56                                                  | 0.29                        | 0.67            | 2.50              | 2.50                   |
| LC110-30DWR                                           | 400,000 | 41.10       | 4.84                        | 11.18           | 11.42                                                 | 0.49                        | 1.13            | 2.50              | 2.50                   |
| LC110-40DWR                                           | 500,000 | 51.38       | 4.18                        | 9.66            | 14.27                                                 | 0.43                        | 0.99            | 2.50              | 2.50                   |
| LC110-50DWR                                           | 750,000 | 77.07       | 4.10                        | 9.45            | 21.41                                                 | 0.44                        | 0.95            | 2.50              | 2.50                   |





Refrigerant Fluid: R410A  
Water in Secondary Circuit

## EVAPORATOR SINGLE CIRCUIT

| MODEL           | RT   | BTU/H   |
|-----------------|------|---------|
| LB31ES-10XJ     | 1    | 12,000  |
| LB31ES-20XJ     | 2    | 24,000  |
| LB60ES-20X5J    | 3    | 36,000  |
| LB60ES-30X5J    | 5    | 60,000  |
| LB60ES-50X5J    | 7.5  | 90,000  |
| LC110ES-20X2J   | 10   | 120,000 |
| LC110ES-30X2J   | 12.5 | 150,000 |
| LC110ES-30X2J   | 15   | 180,000 |
| LC110ES-50VX2J  | 20   | 240,000 |
| LC110ES-60VX2J  | 25   | 300,000 |
| LC110ES-70VX2J  | 30   | 360,000 |
| LC110ES-110VX2J | 40   | 480,000 |

## DUAL CIRCUIT

| MODEL                | RT        | BTU/H   |
|----------------------|-----------|---------|
| LB60ES-20x20-DCX5J   | 3+3       | 72,000  |
| LB60ES-30x30-DCX5J   | 5+5       | 120,000 |
| LB60ES-50x50-DCX5J   | 7.5+7.5   | 180,000 |
| LC110ES-20x20-DCX2J  | 10+10     | 240,000 |
| LC110ES-30x30-DCX2J  | 12.5+12.5 | 300,000 |
| LC110ES-40x40-DCVX2J | 15+15     | 360,000 |
| LC110ES-50x50-DCVX2J | 20+20     | 480,000 |

\* VX... models available with distributor

## CONDENSER SINGLE CIRCUIT

| MODEL          | RT   | BTU/H   |
|----------------|------|---------|
| LB31ES-10XJ    | 1    | 12,000  |
| LB31ES-20XJ    | 2    | 24,000  |
| LB60ES-20X5J   | 3    | 36,000  |
| LB60ES-30X5J   | 5    | 60,000  |
| LB60ES-40X5J   | 7.5  | 90,000  |
| LC110ES-20X2J  | 10   | 120,000 |
| LC110ES-30X2J  | 12.5 | 150,000 |
| LC110ES-40X2J  | 15   | 180,000 |
| LC110ES-50X2J  | 20   | 240,000 |
| LC110ES-60X2J  | 25   | 300,000 |
| LC110ES-70X2J  | 30   | 360,000 |
| LC110ES-100X2J | 40   | 480,000 |

## DUAL CIRCUIT

| MODEL               | RT        | BTU/H   |
|---------------------|-----------|---------|
| LB60ES-20x20-DCX5J  | 3+3       | 72,000  |
| LB60ES-30x30-DCX5J  | 5+5       | 120,000 |
| LB60ES-40x40-DCX5J  | 7.5+7.5   | 180,000 |
| LC110ES-20x20-DCX2J | 10+10     | 240,000 |
| LC110ES-30x30-DCX2J | 12.5+12.5 | 300,000 |
| LC110ES-30x30-DCX2J | 15+15     | 360,000 |
| LC110ES-40x40-DCX2J | 20+20     | 480,000 |

| Heat Exchanger Type | Dimensions (in) |     |      |     |             | Dual Connections |        |
|---------------------|-----------------|-----|------|-----|-------------|------------------|--------|
|                     | A               | B   | C    | D   | F           | NPT              | Solder |
| LB31ES-XJ           | 12.0            | 5.0 | 9.8  | 2.8 | 0.47+0.09NP | 1"               | 7/8"   |
| LB60ES-X5J          | 20.0            | 5.0 | 17.5 | 2.5 | 0.60+0.09NP | 1-1/2"           | 1-3/8" |
| LC110ES-X2J         | 20.9            | 9.8 | 17.9 | 6.9 | 0.57+0.09NP | 2"               | 2"     |

NP = number of plates

Different Connection Options may be available from stock at time of order. Please consult AIC.

### Standard Construction:

Heating Plates: AISI 316

Brazing Material: Copper (Optional-Nickel)

Single Wall Plates (Optional-Double Wall)

### Design Parameters:

Working Pressure up to 650 PSI

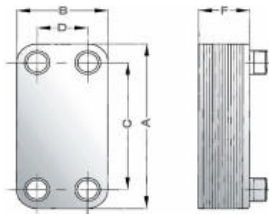
Working Temperature up to 302° F

'ES' Models Required for high pressures

Standard Products are UL Listed  
(ASME option- contact AIC for details)







**Refrigerant Fluid: R22**  
**Water in Secondary Circuit**

**EVAPORATOR**  
**SINGLE CIRCUIT**

| MODEL         | RT   | BTU/H   |
|---------------|------|---------|
| LB31-20XJ     | 1    | 12,000  |
| LB31-30XJ     | 2    | 24,000  |
| LB60-20X5J    | 3    | 36,000  |
| LB60-30X5J    | 5    | 60,000  |
| LB60-40X5J    | 7.5  | 90,000  |
| LB60-60VX5J   | 10   | 120,000 |
| LC110-40VX2J  | 12.5 | 150,000 |
| LC110-50VX2J  | 15   | 180,000 |
| LC110-60VX2J  | 20   | 240,000 |
| LC110-80VX2J  | 25   | 300,000 |
| LC110-100VX2J | 30   | 360,000 |
| LC110-130VX2J | 40   | 480,000 |

**DUAL CIRCUIT**

| MODEL              | RT        | BTU/H   |
|--------------------|-----------|---------|
| LB60-20x20-DCX5J   | 3+3       | 72,000  |
| LB60-30x30-DCX5J   | 5+5       | 120,000 |
| LB60-40x40-DCX5J   | 7.5+7.5   | 180,000 |
| LC110-30x30-DCX2J  | 10+10     | 240,000 |
| LC110-40x40-DCVX2J | 12.5+12.5 | 300,000 |
| LC110-50x50-DCVX2J | 15+15     | 360,000 |
| LC110-60x60-DCVX2J | 20+20     | 480,000 |

**CONDENSER**  
**SINGLE CIRCUIT**

| MODEL        | RT   | BTU/H   |
|--------------|------|---------|
| LB31-20XJ    | 1    | 12,000  |
| LB31-30XJ    | 2    | 24,000  |
| LB60-20X5J   | 3    | 36,000  |
| LB60-30X5J   | 5    | 60,000  |
| LB60-40X5J   | 7.5  | 90,000  |
| LB60-60X5J   | 10   | 120,000 |
| LC110-40X2J  | 12.5 | 150,000 |
| LC110-50X2J  | 15   | 180,000 |
| LC110-60X2J  | 20   | 240,000 |
| LC110-80X2J  | 25   | 300,000 |
| LC110-100X2J | 30   | 360,000 |
| LC110-130X2J | 40   | 480,000 |

**DUAL CIRCUIT**

| MODEL             | RT        | BTU/H   |
|-------------------|-----------|---------|
| LB60-20x20-DCX5J  | 3+3       | 72,000  |
| LB60-30x30-DCX5J  | 5+5       | 120,000 |
| LB60-40x40-DCX5J  | 7.5+7.5   | 180,000 |
| LC110-30x30-DCX2J | 10+10     | 240,000 |
| LC110-40x40-DCX2J | 12.5+12.5 | 300,000 |
| LC110-50x50-DCX2J | 15+15     | 360,000 |
| LC110-60x60-DCX2J | 20+20     | 480,000 |

\* VX... models available with distributor

| Heat Exchanger Type | Dimensions (in) |     |      |     |             | Dual Connections |        |
|---------------------|-----------------|-----|------|-----|-------------|------------------|--------|
|                     | A               | B   | C    | D   | F           | NPT              | Solder |
| LB31-XJ             | 12.0            | 5.0 | 9.8  | 2.8 | 0.39+0.09NP | 1"               | 7/8"   |
| LB60-X5J            | 20.0            | 5.0 | 17.5 | 2.5 | 0.39+0.09NP | 1-1/2"           | 1-3/8" |
| LC110-X2J           | 20.9            | 9.8 | 17.9 | 6.9 | 0.45+0.09NP | 2"               | 2"     |

NP = number of plates

Different Connection Options may be available from stock at time of order. Please consult AIC.

**Standard Construction:**

Heating Plates: AISI 316

Brazing Material: Copper (Optional-Nickel)

Single Wall Plates (Optional-Double Wall)

**Design Parameters:**

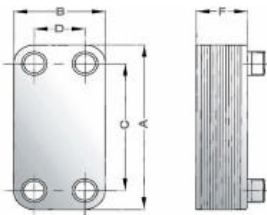
Working Pressure up to 435 PSI

Working Temperature up to 302° F

Standard Products are UL Listed

(ASME option- contact AIC for details)





Refrigerant Fluid: R134A  
Water in Secondary Circuit

## EVAPORATOR SINGLE CIRCUIT

| MODEL         | RT   | BTU/H   |
|---------------|------|---------|
| LB31-20XJ     | 1    | 12,000  |
| LB31-30XJ     | 2    | 24,000  |
| LB60-20X5J    | 3    | 36,000  |
| LB60-30X5J    | 5    | 60,000  |
| LB60-50X5J    | 7.5  | 90,000  |
| LC110-30X2J   | 10   | 120,000 |
| LC110-40VX2J  | 12.5 | 150,000 |
| LC110-50VX2J  | 15   | 180,000 |
| LC110-70VX2J  | 20   | 240,000 |
| LC110-90VX2J  | 25   | 300,000 |
| LC110-110VX2J | 30   | 360,000 |
| LC110-180VX2J | 40   | 480,000 |

## CONDENSER SINGLE CIRCUIT

| MODEL        | RT   | BTU/H   |
|--------------|------|---------|
| LB31-20XJ    | 1    | 12,000  |
| LB31-30XJ    | 2    | 24,000  |
| LB60-20X5J   | 3    | 36,000  |
| LB60-30X5J   | 5    | 60,000  |
| LB60-40X5J   | 7.5  | 90,000  |
| LC110-20X2J  | 10   | 120,000 |
| LC110-30X2J  | 12.5 | 150,000 |
| LC110-40X2J  | 15   | 180,000 |
| LC110-50X2J  | 20   | 240,000 |
| LC110-60X2J  | 25   | 300,000 |
| LC110-70X2J  | 30   | 360,000 |
| LC110-100X2J | 40   | 480,000 |

## DUAL CIRCUIT

| MODEL              | RT        | BTU/H   |
|--------------------|-----------|---------|
| LB60-20x20-DCX5J   | 3+3       | 72,000  |
| LB60-40x40-DCX5J   | 5+5       | 120,000 |
| LB60-50x50-DCX5J   | 7.5+7.5   | 180,000 |
| LC110-30x30-DCX2J  | 10+10     | 240,000 |
| LC110-40x40-DCVX2J | 12.5+12.5 | 300,000 |
| LC110-50x50-DCVX2J | 15+15     | 360,000 |
| LC110-70x70-DCVX2J | 20+20     | 480,000 |

## DUAL CIRCUIT

| MODEL             | RT        | BTU/H   |
|-------------------|-----------|---------|
| LB60-20x20-DCX5J  | 3+3       | 72,000  |
| LB60-30x30-DCX5J  | 5+5       | 120,000 |
| LB60-40x40-DCX5J  | 7.5+7.5   | 180,000 |
| LC110-20x20-DCX2J | 10+10     | 240,000 |
| LC110-30x30-DCX2J | 12.5+12.5 | 300,000 |
| LC110-30x30-DCX2J | 15+15     | 360,000 |
| LC110-40x40-DCX2J | 20+20     | 480,000 |

\* VX... models available with distributor

| Heat Exchanger Type | Dimensions (in) |     |      |     |             | Dual Connections |        |
|---------------------|-----------------|-----|------|-----|-------------|------------------|--------|
|                     | A               | B   | C    | D   | F           | NPT              | Solder |
| LB31-XJ             | 12.0            | 5.0 | 9.8  | 2.8 | 0.39+0.09NP | 1"               | 7/8"   |
| LB60-X5J            | 20.0            | 5.0 | 17.5 | 2.5 | 0.39+0.09NP | 1-1/2"           | 1-3/8" |
| LC110-X2J           | 20.9            | 9.8 | 17.9 | 6.9 | 0.45+0.09NP | 2"               | 2"     |

NP = number of plates

Different Connection Options may be available from stock at time of order. Please consult AIC.

### Standard Construction:

Heating Plates: AISI 316

Brazing Material: Copper (Optional-Nickel)

Single Wall Plates (Optional-Double Wall)

### Design Parameters:

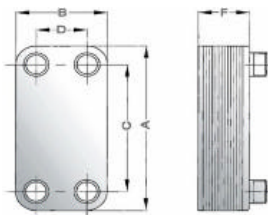
Working Pressure up to 435 PSI

Working Temperature up to 302° F

Standard Products are UL Listed

(ASME option- contact AIC for details)





Refrigerant Fluid: R407C  
Water in Secondary Circuit

## EVAPORATOR SINGLE CIRCUIT

| MODEL         | RT   | BTU/H   |
|---------------|------|---------|
| LB31-10XJ     | 1    | 12,000  |
| LB31-20XJ     | 2    | 24,000  |
| LB60-20X5J    | 3    | 36,000  |
| LB60-30X5J    | 5    | 60,000  |
| LB60-40X5J    | 7.5  | 90,000  |
| LC110-20X2J   | 10   | 120,000 |
| LC110-30X2J   | 12.5 | 150,000 |
| LC110-40VX2J  | 15   | 180,000 |
| LC110-50VX2J  | 20   | 240,000 |
| LC110-60VX2J  | 25   | 300,000 |
| LC110-70VX2J  | 30   | 360,000 |
| LC110-110VX2J | 40   | 480,000 |

## DUAL CIRCUIT

| MODEL              | RT        | BTU/H   |
|--------------------|-----------|---------|
| LB60-20x20-DCX5J   | 3+3       | 72,000  |
| LB60-30x30-DCX5J   | 5+5       | 120,000 |
| LB60-40x40-DCX5J   | 7.5+7.5   | 180,000 |
| LC110-20x20-DCX2J  | 10+10     | 240,000 |
| LC110-30x30-DCX2J  | 12.5+12.5 | 300,000 |
| LC110-40x40-DCVX2J | 15+15     | 360,000 |
| LC110-50x50-DCVX2J | 20+20     | 480,000 |

## CONDENSER SINGLE CIRCUIT

| MODEL        | RT   | BTU/H   |
|--------------|------|---------|
| LB31-20XJ    | 1    | 12,000  |
| LB31-40XJ    | 2    | 24,000  |
| LB60-30X5J   | 3    | 36,000  |
| LB60-40X5J   | 5    | 60,000  |
| LC110-40X2J  | 7.5  | 90,000  |
| LC110-50X2J  | 10   | 120,000 |
| LC110-60X2J  | 12.5 | 150,000 |
| LC110-70X2J  | 15   | 180,000 |
| LC110-90X2J  | 20   | 240,000 |
| LC110-110X2J | 25   | 300,000 |
| LC110-130X2J | 30   | 360,000 |
| LC110-180X2J | 40   | 480,000 |

## DUAL CIRCUIT

| MODEL             | RT        | BTU/H   |
|-------------------|-----------|---------|
| LB60-30x30-DCX5J  | 3+3       | 72,000  |
| LB60-50x50-DCX5J  | 5+5       | 120,000 |
| LC110-40x40-DCX2J | 7.5+7.5   | 180,000 |
| LC110-40x40-DCX2J | 10+10     | 240,000 |
| LC110-60x60-DCX2J | 12.5+12.5 | 300,000 |
| LC110-70x70-DCX2J | 15+15     | 360,000 |
| LC110-90x90-DCX2J | 20+20     | 480,000 |

\* VX... models available with distributor

| Heat Exchanger Type | Dimensions (in) |     |      |     |             | Dual Connections |        |
|---------------------|-----------------|-----|------|-----|-------------|------------------|--------|
|                     | A               | B   | C    | D   | F           | NPT              | Solder |
| LB31-XJ             | 12.0            | 5.0 | 9.8  | 2.8 | 0.39+0.09NP | 1"               | 7/8"   |
| LB60-X5J            | 20.0            | 5.0 | 17.5 | 2.5 | 0.39+0.09NP | 1-1/2"           | 1-3/8" |
| LC110-X2J           | 20.9            | 9.8 | 17.9 | 6.9 | 0.45+0.09NP | 2"               | 2"     |

NP = number of plates

Different Connection Options may be available from stock at time of order. Please consult AIC.

### Standard Construction:

Heating Plates: AISI 316

Brazing Material: Copper (Optional-Nickel)

Single Wall Plates (Optional-Double Wall)

### Design Parameters:

Working Pressure up to 435 PSI

Working Temperature up to 302° F

Standard Products are UL Listed

(ASME option- contact AIC for details)



# B-Line Shell & Tube Heat Exchangers



## B-Line Shell and Tube Exchangers:

Designed to perform at high velocities with low pressure drops. Made of high quality, AISI 316L stainless steel to ensure superior corrosion resistance and longer product life. The self-cleansing feature is one less thing to worry about.

**WARNING: NOT FOR USE IN SALT WATER APPLICATIONS!**

Please See the NiCrome 24 M-Lines on for use with salt water pools.



**Made in  
POLAND**

## Typical Residential Applications:

- Swimming Pools, Spas, Hot Tubs with standard chlorine count of 1-3 ppm. Higher chlorine levels please look to the M series or the AM/AP series

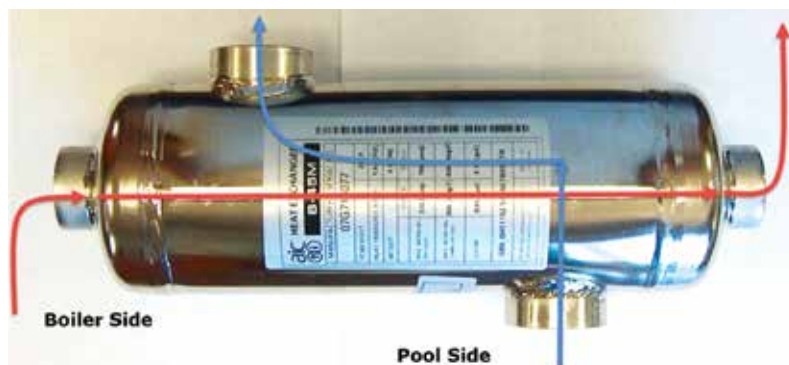
## Typical Industrial Applications:

- Oil Coolers
- Transmission and Engine Coolers
- Boiler Sample Coolers
- Waste Water Heat Recovery

**To choose a heat exchanger for your specific application, or for help with sizing, please call our office.**

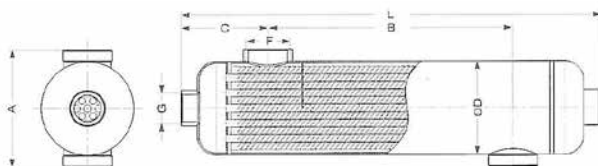


| Model #: | Estimated Gallons | Heat Transfer Area | LIST PRICE |
|----------|-------------------|--------------------|------------|
| B-45     | 3,000             | 1.97 SQ.FT         | \$642.11   |
| B-70     | 6,000             | 2.79 SQ.FT         | \$665.57   |
| B-130    | 11,000            | 3.30 SQ.FT         | \$708.20   |
| B-180    | 16,000            | 4.91 SQ.FT         | \$946.67   |
| B-250    | 22,000            | 7.29 SQ.FT         | \$1,110.71 |
| B-300    | 27,000            | 9.38 SQ.FT         | \$1,396.83 |
| B-500    | 44,000            | 17.32 SQ.FT        | \$1,888.89 |
| B-1000   | 88,000            | 23.86 SQ.FT        | \$2,694.27 |



Boiler Side

Pool Side



| Model  | A     | L      | F      | G    |
|--------|-------|--------|--------|------|
| B-45   | 4.17" | 10.51" | 1"     | 3/4" |
| B-70   | 4.17" | 13.58" | 1-1/2" | 3/4" |
| B-130  | 4.17" | 15.55" | 1-1/2" | 3/4" |
| B-180  | 5.04" | 15.08" | 1-1/2" | 1"   |
| B-250  | 5.04" | 20.20" | 1-1/2" | 1"   |
| B-300  | 5.04" | 24.88" | 1-1/2" | 1"   |
| B-500  | 5.04" | 42.72" | 2"     | 1"   |
| B-1000 | 6.57" | 36.10" | 2"     | 2"   |

**Proper sizing based on actual system requirements and parameters is STRONGLY encouraged.**

# b series

HEAT EXCHANGERS



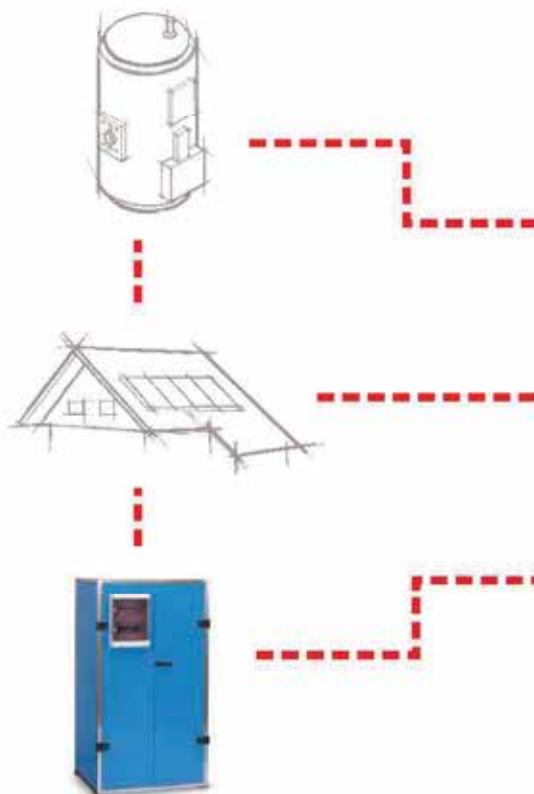
be>  
S E R I E S



[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)



- In-floor heating
- swimming pools, spas, hot tubs
- driveway snowmelts

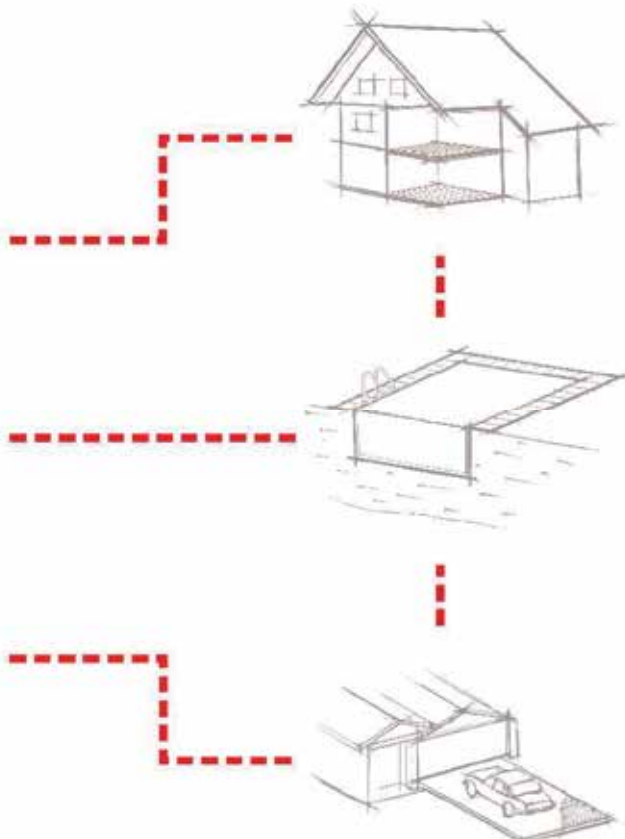


## Typical industrial applications

- oil coolers
- transmission and engine coolers
- boiler sample coolers
- waste water heat recovery

**be>**  
S E R I E S





# Choosing the right B Series Heat Exchanger

Selection of the correct heat exchanger will guarantee you performance at the right price.

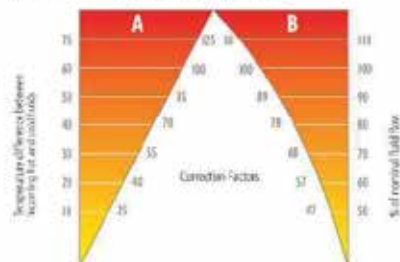
## Your Benefits

- Designed to perform at high fluid velocities with low pressure drops
- Made entirely of high quality specially treated AISI 316L stainless steel to ensure superior corrosion resistance and longer product life
- Induced self-cleansing feature - one less thing to worry about

**Table 1** Fluid Correction Factors

| Fluid                  | Fx10 <sup>2</sup> |
|------------------------|-------------------|
| Water                  | 1.00              |
| Ethylene Glycol 30%    | 0.92              |
| Ethylene Glycol 50%    | 0.85              |
| Propylene Glycol 30%   | 0.94              |
| Propylene Glycol 50%   | 0.89              |
| Oil SAE10              | 0.50              |
| Hydraulic Oil ISO VG22 | 0.45              |

**Chart 1** Temperature (°C) and Flow Rate Correction Factors



## Step 1

### Record incoming temperatures and fluid flows

Example: (based on performance of B 180)

Temp. of incoming boiler water = 60°C (140°F)

Temp. of incoming pool water = 10°C (50°F)

Flow of boiler water = 26.5 l/min (7 USGPM)

Flow of pool water = 189 l/min (50 USGPM)

## Step 2

### Calculate

Calculate temp. difference between incoming fluids: 60°C - 10°C = 50°C

From Table 2 Calculate percentage of nominal hot water flow:  $26.5/30 \times 100\% = 88.3\%$

From Table 2 Calculate percentage of nominal cold water flow:  $189/210 \times 100\% = 90\%$

From Table 2 Obtain nominal capacity of heat exchanger (e.g. B-180 = 53kW)

## Step 3

### Read correction factors

Read correction values from chart 1

A=85 for temperature difference 50°C

B<sub>hot</sub>=87 for 88.3% of hot flow

B<sub>cold</sub>=89 for 90% cold flow

From fluid correction table (Table 1) for water

both hot and cold fluids are F<sub>hot</sub>=F<sub>cold</sub>= 1.00 x 10<sup>-2</sup>

## Step 4

### Solution

$$\text{Corrected Thermal Output} = \text{Nominal Capacity} \times A \times F_{\text{hot}} \times F_{\text{cold}} \times \sqrt{B_{\text{hot}} \times B_{\text{cold}}}$$

$$\text{Corrected Thermal Output} = 53 \times 85 \times 0.01 \times 0.01 \times \sqrt{87 \times 89} = 39.6 \text{ kW (135,115 BTU/h)}$$

Notes: °C = (°F - 32) x 5/9, 1 USGPM = 3.78 l/min

**Table 2** Nominal Values

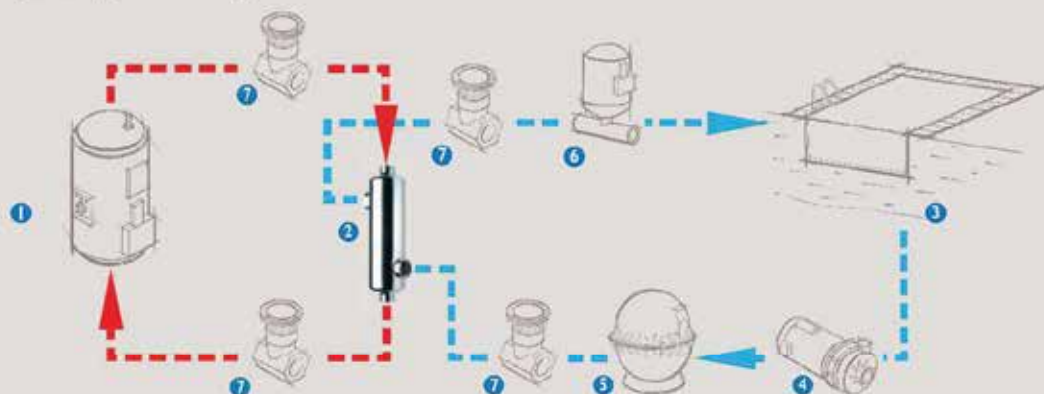
Nominal values are based on 60°C (140°F) temperature between incoming heating and heated water

| Model  | Nominal Capacity |  | Hot Water Flow |         | Cold Water Flow |          |
|--------|------------------|--|----------------|---------|-----------------|----------|
|        | kW               |  | l/min          | (USGPM) | l/min           | (USGPM)  |
| B 45   | 13               |  | 23             | (6.08)  | 150             | (39.63)  |
| B 70   | 20               |  | 25             | (6.60)  | 170             | (44.91)  |
| B 130  | 38               |  | 27             | (7.13)  | 200             | (52.83)  |
| B 180  | 53               |  | 30             | (7.93)  | 210             | (55.48)  |
| B 250  | 73               |  | 35             | (9.25)  | 270             | (71.33)  |
| B 300  | 88               |  | 40             | (10.57) | 300             | (79.25)  |
| B 400  | 117              |  | 46             | (12.42) | 342             | (90.10)  |
| B 500  | 146              |  | 55             | (14.53) | 360             | (95.10)  |
| B 1000 | 293              |  | 95             | (25.10) | 705             | (185.24) |

**Table 3** Quick Sizing Reference

| Model  | Pool Capacity  |        |
|--------|----------------|--------|
|        | m <sup>3</sup> | USGAL  |
| B 45   | 12             | 3,000  |
| B 70   | 24             | 6,000  |
| B 130  | 40             | 11,000 |
| B 180  | 60             | 16,000 |
| B 250  | 80             | 22,000 |
| B 300  | 100            | 27,000 |
| B 400  | 130            | 34,000 |
| B 500  | 170            | 44,000 |
| B 1000 | 330            | 88,000 |

**Figure 2** Typical swimming pool installation

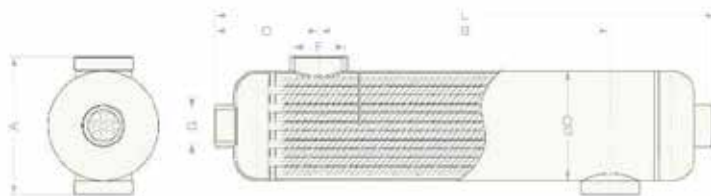


1 Boiler 2 Heat exchanger 3 Swimming Pool 4 Pump 5 Filter 6 Chlorine Feeder 7 Gate Valve

Table 4 Heat Exchanger Nominal Performance

| Heat Exchanger Type | Nominal Capacity |           | Hot Water |       |               |      | Cold Water |        |               |      |
|---------------------|------------------|-----------|-----------|-------|---------------|------|------------|--------|---------------|------|
|                     |                  |           | Flow      |       | Pressure drop |      | Flow       |        | Pressure drop |      |
|                     | kW               | Btu/hr    | l/min     | USGPM | kPa           | psig | l/min      | USGPM  | kPa           | psig |
| B 45                | 13               | 45,000    | 23        | 6.08  | 6.2           | 0.90 | 150        | 39.63  | 7.4           | 1.07 |
| B 70                | 20               | 70,000    | 25        | 6.60  | 7.5           | 1.09 | 170        | 44.91  | 9.2           | 1.33 |
| B 130               | 38               | 130,000   | 27        | 7.13  | 8.1           | 1.17 | 200        | 52.83  | 11.4          | 1.65 |
| B 180               | 53               | 180,000   | 30        | 7.93  | 2.7           | 0.40 | 210        | 55.48  | 7.5           | 1.10 |
| B 250               | 73               | 250,000   | 35        | 9.25  | 4.2           | 0.60 | 270        | 71.33  | 12.0          | 1.70 |
| B 300               | 88               | 300,000   | 40        | 10.57 | 6.4           | 0.90 | 300        | 79.25  | 17.0          | 2.50 |
| B 400               | 117              | 400,000   | 46        | 12.42 | 7.8           | 1.13 | 342        | 90.10  | 20.0          | 2.90 |
| B 500               | 146              | 500,000   | 55        | 14.53 | 9.2           | 1.30 | 360        | 95.10  | 22.0          | 3.20 |
| B 1000              | 293              | 1,000,000 | 95        | 25.10 | 16.2          | 2.35 | 705        | 185.24 | 29.1          | 4.22 |

Nominal values are based on 60°C (140°F) temperature difference between incoming heating and heated water



## Standard Materials:

316 L Stainless Steel,  
Titanium

## Maximum Allowable Working Pressure:

SS 316 L 1.03 MPa (150 psig)  
Titanium 1.03 MPa (150 psig)

## Maximum Allowable Working Temperature:

SS 316 L 208°C (406°F)  
Titanium 190°C (375°F)

Table 5 Advanced B Series Stainless Steel - 316L

| Type   | L            | A          | B             | C            | D           | F      | G    | Heat Transfer Area     |
|--------|--------------|------------|---------------|--------------|-------------|--------|------|------------------------|
|        | mm (in)      |            |               |              |             |        |      | m <sup>2</sup> (sq ft) |
| B 45   | 267 (10.51)  | 105 (4.17) | 111.5 (4.39)  | 77.5 (3.05)  | 80 (3.15)   | 1"     | 3/4" | 0.183 (1.97)           |
| B 70   | 345 (13.58)  |            | 175 (6.89)    | 85 (3.35)    |             |        |      | 0.259 (2.79)           |
| B 130  | 395 (15.55)  |            | 225 (8.86)    |              |             |        |      | 0.307 (3.30)           |
| B 180  | 383 (15.08)  |            | 193 (7.60)    |              |             | 1-1/2" |      | 0.465 (4.91)           |
| B 250  | 513 (20.20)  | 128 (5.04) | 323 (12.72)   | 95 (3.74)    | 101.6 (4.0) |        | 1"   | 0.677 (7.29)           |
| B 300  | 632 (24.88)  |            | 442 (17.40)   |              |             |        |      | 0.871 (9.38)           |
| B 400  | 747 (29.41)  |            | 557 (21.93)   |              |             |        |      | 1.058 (11.39)          |
| B 500  | 1085 (42.72) |            | 884 (34.80)   | 100.5 (3.96) |             | 2"     |      | 1.609 (17.32)          |
| B 1000 | 917 (36.10)  | 167 (6.57) | 676.5 (26.63) | 120 (4.72)   | 139.7 (5.5) |        | 2"   | 2.200 (23.68)          |

Table 6 Advanced B Series Titanium

| Type   | L            | A          | B             | C           | D           | F      | G    | Heat Transfer Area     |
|--------|--------------|------------|---------------|-------------|-------------|--------|------|------------------------|
|        | mm (in)      |            |               |             |             |        |      | m <sup>2</sup> (sq ft) |
| B 45   | 267 (10.51)  | 115 (4.53) | 101.5 (3.97)  | 83 (3.27)   | 88.9 (3.5)  | 1"     | 3/4" | 0.171 (1.84)           |
| B 70   | 345 (13.58)  |            | 164 (6.46)    |             |             |        |      | 0.247 (2.66)           |
| B 130  | 395 (15.55)  |            | 214 (8.43)    | 90.5 (3.56) |             |        |      | 0.295 (3.18)           |
| B 180  | 383 (15.08)  |            | 196 (7.72)    |             |             | 1-1/2" |      | 0.465 (4.91)           |
| B 250  | 513 (20.20)  | 141 (5.55) | 326 (12.83)   | 99.5 (3.68) | 114.3 (4.5) |        | 1"   | 0.677 (7.29)           |
| B 300  | 632 (24.88)  |            | 445 (17.52)   |             |             |        |      | 0.871 (9.38)           |
| B 400  | 747 (29.41)  |            | 560 (22.05)   |             |             |        |      | 1.058 (11.39)          |
| B 500  | 1085 (42.72) |            | 887 (34.92)   | 99 (3.90)   |             | 2"     |      | 1.609 (17.32)          |
| B 1000 | 912 (35.91)  | 167 (6.57) | 676.5 (26.63) | 117 (4.6)   | 139.7 (5.5) |        | 2"   | 2.160 (23.25)          |

Our stringent quality processes and management systems are certified to the requirements of ISO 9001.

AIC standard B-series heat exchangers are designed, tested, and manufactured according to ASME B31.3 code. Our factory and broad selection of heat transfer products are certified by many national and international technical inspection authorities: Canadian CRN, UL, ASME, PED (97/23/EC). We can also work closely with our clients to design products to meet their exact criteria.







We are pleased to introduce our new revolutionary line of **B Heat Exchangers**.

Thanks to our patented helically corrugated tube design, the B Series Heat Exchangers can deliver excellent thermal performance even with fouled heating media.

**Performance you desire**

**Quality you deserve**

[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)



## B6-Line High Efficiency Shell & Tube Heat Exchangers



### B-Line Shell and Tube Exchangers:

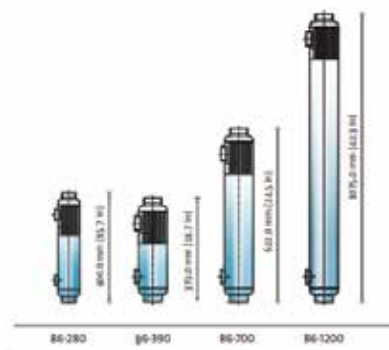
Designed to perform at high velocities with low pressure drops. Made of high quality, AISI 316L stainless steel to ensure superior corrosion resistance and longer product life. Induced self-cleansing feature one less thing to worry about. The B6-Line are a High efficiency pool HX they are a different flow compared to the B-line and thus allow for more flow and better heat transfer. Works very good with low temp systems.

### WARNING: NOT FOR USE IN SALT WATER APPLICATIONS!

Please See the NiChrome 24 M-Lines on for use with salt water pools.

### Typical Residential Applications:

- Swimming Pools, Spas, Hot Tubs with standard chlorine count of 1-3 ppm. Higher chlorine levels please look to the M series or the AM/AP series



### Typical Industrial Applications:

- Oil Coolers
- Transmission and Engine Coolers
- Boiler Sample Coolers
- Waste Water Heat Recovery

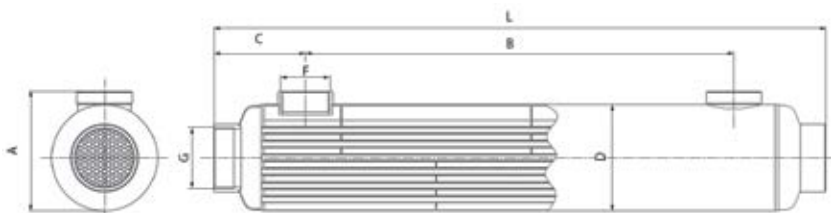
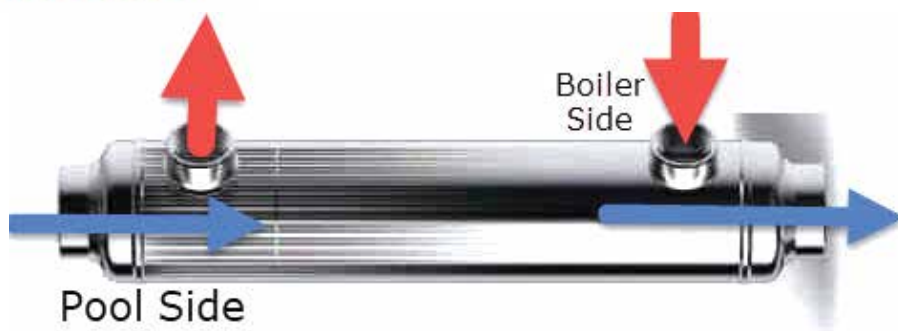
Made in  
POLAND

**To choose a heat exchanger for your specific application, or for help with sizing, please call our office.**





| Model #: | Estimated Gallons | Heat Transfer Area | LIST PRICE |
|----------|-------------------|--------------------|------------|
| B6-280   | 25,000            | 5.10 sq.ft         | \$1,036.10 |
| B6-390   | 33,000            | 6.50 sq.ft         | \$1,418.30 |
| B6-700   | 62,000            | 12.40 sq.ft        | \$1,912.30 |
| B6-1200  | 105,000           | 23.00 sq.ft        | \$2,723.50 |



| Model   | A    | L     | F      | G    |
|---------|------|-------|--------|------|
| B6-280  | 3.7" | 15.7" | 1"     | 1.5" |
| B6-390  | 4.6" | 14.7" | 1-1/2" | 2"   |
| B6-700  | 4.6" | 24.5" | 1-1/2" | 2"   |
| B6-1200 | 4.6" | 42.3" | 1-1/2" | 2"   |

**Proper sizing based on actual system requirements and parameters is STRONGLY encouraged.**



# M-Line Marine Alloy Heat Exchangers

FOR USE IN SALT WATER APPLICATIONS!



Made in  
POLAND

| Part # | Nominal Capacity |         | Hot Water |       | Cold Water |       | List PRICE |
|--------|------------------|---------|-----------|-------|------------|-------|------------|
|        | KW               | BTU/HR  | PSIG      | USGPM | PSIG       | USGPM |            |
| M-180  | 53               | 180,000 | 0.4       | 7.93  | 1.1        | 55.48 | \$2,430.22 |
| M-300  | 88               | 300,000 | 0.9       | 10.57 | 2.5        | 79.25 | \$3,224.89 |
| M-500  | 146              | 500,000 | 1.3       | 14.53 | 3.2        | 95.1  | \$4,513.78 |

**Nominal Values are based on 60°C (140°F) temperature difference between incoming heated and heating water.**

## M- LINE

### MARINE ALLOY HEAT EXCHANGERS

#### INNOVATIVE PRODUCT SOLUTIONS

The AIC M-Line is a line of complete welded, shell and tube heat exchangers made entirely of NICROM-24, a super austenitic marine alloy. Its compact structure is an integration of innovative material with detailed engineering for effective use with high fluid velocities and low pressure drops, designed specifically for the salt water pool market.

The versatility of this robust straight tube design covers a comprehensive range of capacities, suitable for all residential and commercial applications.

#### NICROM-24

NICROM-24 is a super austenitic alloy that for the past two decades has been tested and used in marine environments around the world.

A low carbon, high purity, nitrogen-bearing alloy, it was originally engineered to be a seawater resistant material, but has since proven to be resilient in a wide range of corrosive environments.

| MODELS | HTA   | Overall Length | Shell OD | Connections |           |
|--------|-------|----------------|----------|-------------|-----------|
|        | (ft²) |                |          | Tubeside    | Shellside |
| M-180  | 4.7   | 15.3           | 4.1      | 1" NPT      | 1.5" NPT  |
| M-300  | 9.0   | 25.1           | 4.1      | 1" NPT      | 1.5" NPT  |
| M-500  | 16.8  | 42.9           | 4.1      | 1" NPT      | 1.5" NPT  |

DESIGN PRESSURE: 150 PSI DESIGN TEMPERATURE: 406 °F

MATERIAL OF CONSTRUCTION: NICROM-24



# NICROM-24

## SUPER AUSTENITIC MARINE ALLOY

### SEAWATER ENVIRONMENT

Seawater environments are very corrosive due to their high concentration of chloride salts, dissolved oxygen, and carbon dioxide. In stagnant or polluted conditions, additional corrosive elements such as ammonia or sulfide ions are present. Such environments are damaging to the structural integrity of traditional copper-based alloys, and enhance the potential for localized pitting, crevice corrosion and chloride stress-corrosion cracking (SCC) in stainless materials.

### NICROM-24 CORROSION RESISTANCE

Elevated levels of chromium, molybdenum, and the addition of nitrogen enhance the strength and resistance of NICROM-24 to chloride pitting, crevice corrosion, and SCC, making it the ideal material for use in such environments. Its chemical composition enables it to perform at levels only previously achieved by materials such as titanium.

Consistently, NICROM-24 has demonstrated its superior performance and strength over other commercially marketed 'marine alloys', such as 90/10 CuNi and 254SMo®, and is highly valued for use in the fabrication of seawater and salt water heat exchangers.

| Material  | PREN | Crevice Corrosion in Seawater (% of Sites Attacked) |
|-----------|------|-----------------------------------------------------|
| 254SMo®   | 46.8 | 6                                                   |
| NICROM-24 | 47.7 | 0                                                   |

Pitting Resistance Equivalent number (PREn) of an alloy can be correlated to its chemical composition of chromium, molybdenum, and nitrogen, in terms of weight percentage.

| Material   | Corrosion <sup>1</sup> (avg. mils/year) | Erosion Corrosion Rate <sup>2</sup> (avg. mils/year) |
|------------|-----------------------------------------|------------------------------------------------------|
| 90/10 CuNi | 20.84                                   | 25.00                                                |
| NICROM-24  | 0.00                                    | 1.00                                                 |

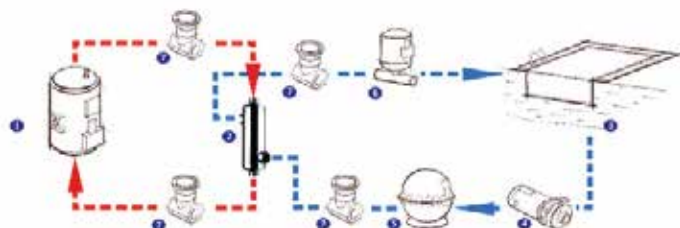
1. Synthetic Seawater (pH=8.2) 168 hours at 149°F  
2. 90 day exposure in natural seawater at 48-59°F

### ALLOY STRENGTH COMPARISONS

| Alloy      | Min. Tensile Strength (Mpa) | Max. Stress @ 200°F (Mpa) |
|------------|-----------------------------|---------------------------|
| 90/10 CuNi | 275                         | 65.5                      |
| SS316      | 483                         | 97.9                      |
| 254SMo®    | 648                         | 164.8                     |
| NICROM-24  | 690                         | 180.6                     |

NICROM-24 is a trademark of AIC Inc.  
254SMo® is a registered trademark of Avesta Sheffield AB

### TYPICAL POOL INSTALLTION



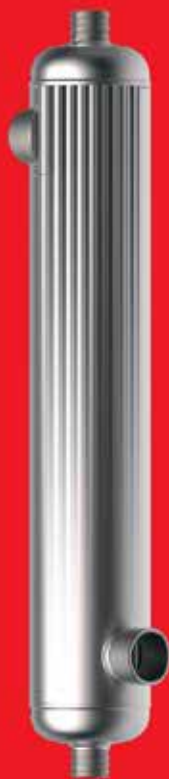
1. Boiler 2. Heat exchanger 3. Swimming Pool 4. Pump 5. Filter 6. Chlorinator Feeder 7. Gate Valve

- Boiler/Heating Circuit through the TUBE SIDE
- Pool Circuit through the SHELL SIDE
- Connect in counter-current flow to achieve maximum effectiveness





b<sub>6</sub>



m



TW







#### About AIC

*With over a decade of experience, AIC is a renowned specialist in the design, engineering, and fabrication of stainless steel and titanium heat exchangers.*

Our two manufacturing locations and teams of seasoned in-house engineers, designers, and manufacturing specialists, ensure that AIC remains at the forefront of advanced heat transfer solutions.

With proven product designs, a "no compromise on quality" attitude, and automated production processes, we are able to carry out the most complex and technologically advanced projects.

Our state-of-the-art facilities utilize the most leading edge processes, advanced automated and robotic systems,

and well sourced materials for the most stringent of applications. CFD analysis and simulation software improve our modelling capabilities and help analyze multiple design variations.

Our own in-house tube mills and sophisticated CNC equipment provide substantial technological flexibility and minimal product development times.

AIC products are manufactured in accordance with the guidelines of ASME and PED industry design codes.

Our stringent quality management system ensures that we continue to provide top quality products that clients have come to associate with the AIC brand.



b<sub>6</sub>

STAINLESS STEEL 316L

Complete SS316L  
welded design

Pool water on  
the tube side

Densely packed  
6mm precision tubing

Closely spaced baffles

Passivated and  
externally  
electropolished

Heating source  
on the shell side

#### Typical Applications

- Standard chlorinated pools
- Fresh water applications
- Pool heating with low temperatures (condensing boilers, geothermal)
- Oil/glycol coolers
- In-floor heating

#### Distinct Advantages

- Dense heat transfer area
- Low pressure drops
- Specifically designed for low temperature sources







Complete Nicrom-24  
welded design

Directional  
baffles

Specialized  
8 mm tubing

Vertical or  
horizontal  
installation

Fully  
passivated

NICROM-24  
super austenitic alloy

#### CORROSION RESISTANCE

Elevated levels of chromium, molybdenum, and the addition of nitrogen enhance the strength and resistance of NICROM-24 to chloride pitting, crevice corrosion, and stress-corrosion cracking (SCC).

Heating source on the  
tube side

Pool water on the shell  
side



#### Typical Applications

- Salt water swimming pools, spas, hot tubs
- Marine oil coolers
- Waste water heat recovery

#### Distinct Advantages

- Superior corrosion resistance provides protection for salt water and other marine applications.
- High erosion corrosion resistance suitable for applications with high fluid velocities.
- High material strength for quality performance and long product life.
- Low pressure drops.



## POOL POWER PRODUCTS

The A/C series of Pool Power Products define innovation with attention to design excellence and uncompromising quality. Market-driven and market-proven, these products excel in the most rigorous and demanding of environments with unsurpassed performance and finesse. Each intricate design is versatile, yet grounded in rigid standards. Robust, yet finely crafted with the most technically superior materials.

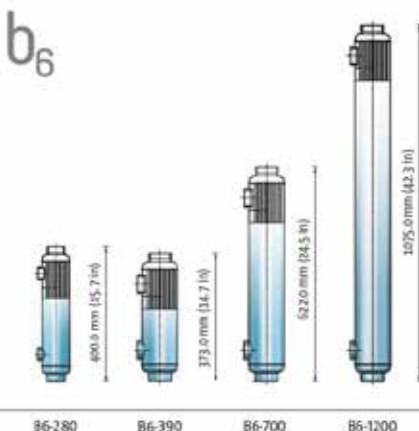
Experience an A/C Pool Power Product: heat exchangers that are efficient in nature, compact in design, and pioneering at heart.



### B6 line

A product with a purpose. Complete welded construction with high strength 316L stainless steel, underlined by distinctive densely packed precision tubing, this series is formulated for consistent, reliable performance with high fluid velocities and a close temperature approach.

Exceptional thermal performance



### B6 Line

SS 316L

#### 1. Calculate Your Pool Capacity

##### Rectangular pool:

- capacity [m<sup>3</sup>] = length [m] x width [m] x average depth [m]
- capacity [USGal] = 7.5 x length [ft] x width [ft] x average depth [ft]

##### Circular pool:

- capacity [m<sup>3</sup>] = 0.785 x [diameter [m]]<sup>2</sup> x average depth [m]
- capacity [USGal] = 5.9 x [diameter [ft]]<sup>2</sup> x average depth [ft]

#### 2. Determine Required Material of Construction

| SS 316L                                           | Nicrom-24                                         | Titanium                                                        |
|---------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------|
| Fresh water applications                          | Salinated pools                                   | Complete immunity to chlorine and chlorides                     |
| Standard chlorinated pools                        | Salt water applications                           | Salt water systems involving elevated temperatures (e.g. steam) |
| Chloride concentration below 400mg/l              | Chloride concentration above 400mg/l              | Pool systems using refrigerants as a heating source             |
| Chlorine concentration below 0.8mg/l (long term)  | Chlorine concentration above 0.8mg/l (long term)  |                                                                 |
| Chlorine concentration below 1.2mg/l (short term) | Chlorine concentration above 1.2mg/l (short term) |                                                                 |

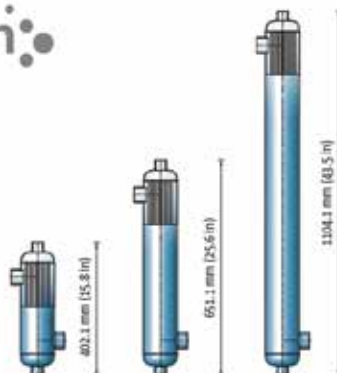
A corrosive environment is often the result of multiple variables, not just chemical levels. For systems with operating temperatures above 212°F (100°C), use titanium.



### M line

Combine engineering ingenuity with nature's vitality and yield a resilient, **super austenitic marine alloy** product series that has continuously demonstrated its superior performance and strength over other commercially marketed marine alloys. True to form, the **M-line** is a marriage of resistances: superior corrosion resistance with high erosion corrosion resistance, highly valued for its use in the seawater and salt water environments.

Unrivaled in its perfection.



M-180

M-300

M-500

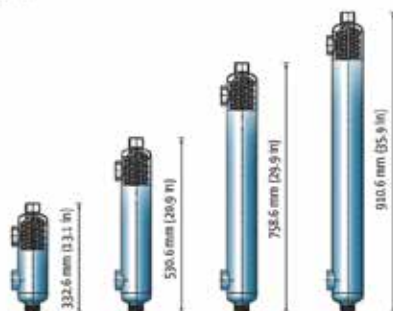
### M Line

NICROM-24

### TW line

A unique heating coil geometry that captures and enhances the closest of temperature approach. A one-piece welded **pure titanium** masterpiece, intrinsically designed for the most aggressive of environments. Exceptional material strength and corrosion resistance, matched with unparalleled quality.

Ultralight construction.



TW-100

TW-200

TW-300

TW-400

### TW Line

TITANIUM

### 3. Evaluate The Boiler Capacity

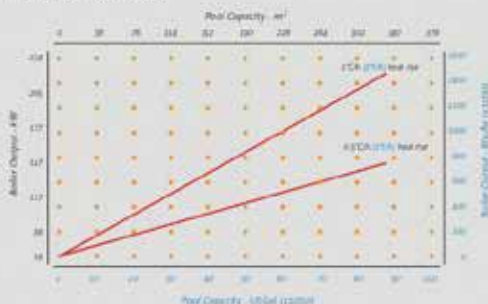
Ensure that your boiler has enough capacity to reach the required pool temperature, and to maintain it at this temperature through daily use.

To maintain the pool at the required temperature, the boiler should have the capacity to handle the pool heat losses, calculated as:

Heat Loss [kW] =  $0.0682 \times [\text{pool surface area (m}^2\text{)}] \times [\text{pool temperature (}^{\circ}\text{C)} - \text{air temperature (}^{\circ}\text{C)}]$

Heat Loss [Btu/hr] =  $12 \times [\text{pool surface area (sqft)}] \times [\text{pool temperature (}^{\circ}\text{F)} - \text{air temperature (}^{\circ}\text{F)}]$

### Boiler Selection Chart



Based on heating source 18°F (6.2°C).



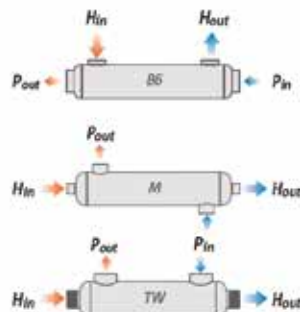
## Nominal Pool Capacity

| Heat Exchanger Model | Pool Capacity  |        |
|----------------------|----------------|--------|
|                      | m <sup>3</sup> | USGal  |
| B6-250               | 95             | 25000  |
| B6-350               | 125            | 33000  |
| B6-700               | 235            | 62000  |
| B6-1200              | 397            | 105000 |
| M-280                | 61             | 16000  |
| M-300                | 102            | 27000  |
| M-500                | 167            | 44000  |
| TW100                | 34             | 9000   |
| TW200                | 68             | 18000  |
| TW300                | 102            | 27000  |
| TW400                | 129            | 34000  |

Based on 180°F (82.2°C) supply water and specified nominal flows.  
See Technical Product Specifications table.  
For general reference only. Please consult our office for product selection verification.

## Flow Direction

|                  |                    |
|------------------|--------------------|
| H <sub>in</sub>  | Heating Source IN  |
| H <sub>out</sub> | Heating Source OUT |
| P <sub>in</sub>  | Pool Water IN      |
| P <sub>out</sub> | Pool Water OUT     |

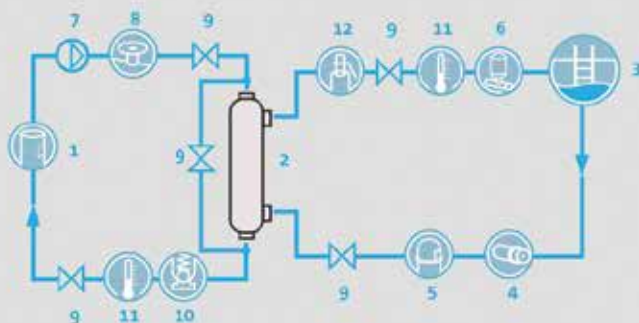


## Swimming Pool Installation



## Typical Swimming Pool Installation

1. Boiler
2. Heat Exchanger
3. Swimming Pool
4. Pump
5. Filtration
6. Chlorine Feeder
7. Circulation Pump
8. Flow Control Valve
9. Gate Valve
10. Check Valve
11. Thermometer
12. Safety Relief Valve



Complete titanium  
welded design

Unique helical 8mm  
heating coils

Heating source on the  
tube side

Pool water on the shell  
side

Vertical or horizontal  
installation



#### Typical Applications

- Applications with extremely high salt water concentration
- Swimming pools heated by high temperature sources ( steam, refrigerants, solar)
- Corrosive fluids

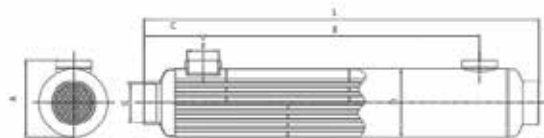
#### Distinct Advantages

- Total immunity to salt corrosion even at high temperatures
- Ultra-high thermal performance
- Coil expansion handles extreme temperature differences
- Light weight
- Condensate sub-cooling

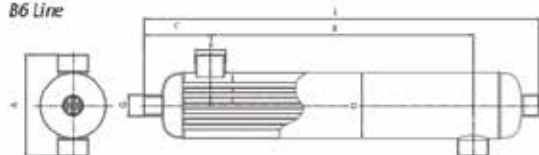


# Technical Product Specifications

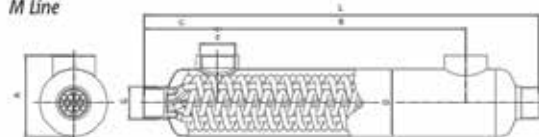
| Heat Exchanger Model | Dimensions |      |       |     |       |      |       |     |       |     | Connections |        | Heat Transfer Area |         |
|----------------------|------------|------|-------|-----|-------|------|-------|-----|-------|-----|-------------|--------|--------------------|---------|
|                      | L          |      | A     |     | B     |      | C     |     | Ø D   |     | F           | G      | sq. ft.            | sq. ft. |
|                      | mm         | in.  | mm    | in. | mm    | in.  | mm    | in. | mm    | in. |             |        |                    |         |
| B6-280               | 400.0      | 15.7 | 94.5  | 3.7 | 240.0 | 9.4  | 80.0  | 3.1 | 80.0  | 3.1 | 1"          | 1 1/2" | 0.47               | 5.10    |
| B6-350               | 373.0      | 14.7 | 117.6 | 4.6 | 193.0 | 7.6  | 90.0  | 3.5 | 103.6 | 4.1 | 1 1/2"      | 2"     | 0.60               | 6.50    |
| B6-700               | 622.0      | 24.5 | 117.6 | 4.6 | 442.0 | 17.4 | 90.0  | 3.5 | 103.6 | 4.1 | 1 1/2"      | 2"     | 1.15               | 12.40   |
| B6-1200              | 1075.0     | 42.3 | 117.6 | 4.6 | 895.0 | 35.2 | 90.0  | 3.5 | 103.6 | 4.1 | 1 1/2"      | 2"     | 2.14               | 23.00   |
| M-180                | 402.1      | 15.8 | 160.0 | 6.3 | 193.0 | 7.6  | 104.6 | 4.1 | 103.6 | 4.1 | 1 1/2"      | 1"     | 0.44               | 4.70    |
| M-300                | 651.1      | 25.6 | 160.0 | 6.3 | 442.0 | 17.4 | 104.6 | 4.1 | 103.6 | 4.1 | 1 1/2"      | 1"     | 0.84               | 9.00    |
| M-500                | 1104.1     | 43.5 | 160.0 | 6.3 | 895.0 | 35.2 | 104.6 | 4.1 | 103.6 | 4.1 | 1 1/2"      | 1"     | 1.56               | 16.80   |
| TW-100               | 332.6      | 13.1 | 108.9 | 4.3 | 134.6 | 5.3  | 99.0  | 3.9 | 90.4  | 3.6 | 1 1/2"      | 1 1/4" | 0.21               | 2.24    |
| TW-200               | 530.6      | 20.9 | 108.9 | 4.3 | 332.6 | 13.1 | 99.0  | 3.9 | 90.4  | 3.6 | 1 1/2"      | 1 1/4" | 0.38               | 4.15    |
| TW-300               | 758.6      | 29.9 | 108.9 | 4.3 | 560.6 | 22.1 | 99.0  | 3.9 | 90.4  | 3.6 | 1 1/2"      | 1 1/4" | 0.58               | 6.26    |
| TW-400               | 910.6      | 35.9 | 108.9 | 4.3 | 712.6 | 28.1 | 99.0  | 3.9 | 90.4  | 3.6 | 1 1/2"      | 1 1/4" | 0.72               | 7.71    |



B6 Line



M Line



TW Line

## Standard materials

|         |                       |
|---------|-----------------------|
| B6 LINE | Stainless Steel 316 L |
| M LINE  | Nicrom-24             |
| TW LINE | Titanium              |

## Maximum allowable working pressure

|         |                   |
|---------|-------------------|
| B6 LINE | 10 bar / 150 PSIG |
| M LINE  | 10 bar / 150 PSIG |
| TW LINE | 10 bar / 150 PSIG |

## Maximum allowable working temperature

|         |               |
|---------|---------------|
| B6 LINE | 208°C / 406°F |
| M LINE  | 208°C / 406°F |
| TW LINE | 120°C / 248°F |

| Heat Exchanger Model | Nominal Capacity | Hot Water Side |       |               |       |      | Cold Water Side |       |               |     |  |
|----------------------|------------------|----------------|-------|---------------|-------|------|-----------------|-------|---------------|-----|--|
|                      |                  | flow           |       | pressure drop |       |      | flow            |       | pressure drop |     |  |
|                      |                  | kW             | BTU/h | l/min         | USGPM |      | l/min           | USGPM | kPa           | PSI |  |
| B6-280               | 82               | 280,000        | 125   | 33.0          | 22.4  | 3.3  | 250             | 66.1  | 14.8          | 2.2 |  |
| B6-350               | 114              | 390,000        | 260   | 68.7          | 30.6  | 4.4  | 520             | 137.4 | 26.8          | 3.9 |  |
| B6-700               | 205              | 700,000        | 215   | 56.8          | 14.3  | 2.1  | 430             | 113.6 | 25.0          | 3.6 |  |
| B6-1200              | 352              | 1,200,000      | 238   | 62.9          | 25.2  | 3.7  | 476             | 125.8 | 47.0          | 6.8 |  |
| M-180                | 53               | 180,000        | 100   | 26.4          | 7.0   | 1.0  | 150             | 39.6  | 8.7           | 1.3 |  |
| M-300                | 88               | 300,000        | 105   | 27.7          | 8.2   | 1.2  | 157             | 41.6  | 8.6           | 1.3 |  |
| M-500                | 146              | 500,000        | 120   | 31.7          | 11.4  | 1.7  | 180             | 47.6  | 11.8          | 1.7 |  |
| TW-100               | 29               | 100,000        | 17    | 4.6           | 6.1   | 0.9  | 38              | 10.0  | 0.3           | 0.1 |  |
| TW-200               | 57               | 200,000        | 28    | 7.5           | 26.7  | 3.9  | 61              | 16.0  | 1.4           | 0.2 |  |
| TW-300               | 87               | 300,000        | 35    | 9.5           | 63.2  | 9.2  | 76              | 20.0  | 2.9           | 0.4 |  |
| TW-400               | 113              | 400,000        | 35    | 9.1           | 71.7  | 10.4 | 265             | 70.0  | 40.7          | 5.9 |  |

Nominal Capacity Values are based on heating water 280°F (80.2°C) and return pool water 80°F (26.7°C)





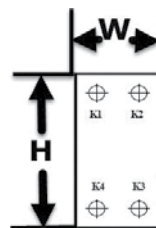
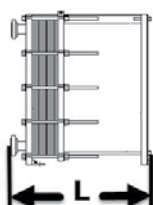


We are certified by renowned international inspection authorities. Our quality process and management systems fulfill the requirements of ISO 9001 Quality Management System. AIC heat exchangers are designed, tested and manufactured in accordance with ASME (Section IV and VIII) and PED (97/23/UE) regulations.

# AM/AP-Line Titanium Heat Exchangers



Also available in a full Stainless steel Unit



|               | Standard  | W    | H    | L    | Max Flow | Connections | LIST        |
|---------------|-----------|------|------|------|----------|-------------|-------------|
|               | Model #:  | (in) | (in) | (in) | (USGPM)  | (NPT)       | PRICE       |
| Special Order | AM-1000Ti | 8    | 18.6 | 17.2 | 42       | 1.25"       | PLEASE CALL |
| Special Order | AM-1450Ti | 8    | 18.6 | 17.2 | 58       | 1.25"       | PLEASE CALL |
| Special Order | AP-2500Ti | 11.8 | 27.3 | 17.2 | 150      | 2"          | PLEASE CALL |
| Special Order | AP-3000Ti | 11.8 | 27.3 | 17.2 | 180      | 2"          | PLEASE CALL |
| Special Order | AP-3800Ti | 11.8 | 27.3 | 17.2 | 225      | 2"          | PLEASE CALL |

## THE AM/AP ADVANTAGE

Corrosion resistant materials of construction reduce product lifecycle costs, due to less downtime and maintenance requirements.

Gasketed plate and frame design allows for removal, addition, and replacement of all components, for ease of inspection, maintenance, and changes in capacity.

Rugged, compact structure for durable, trouble-free service.



## THE TITANIUM SOLUTION

Unlike other commercially available heat exchanger materials on the market, titanium is fully immune to corrosive attacks by salt and sea water, high chlorine concentration solutions, and has exceptional resistance to other media such as acids and alkalis.

- High structural strength lends to less material requirements
- Immunity to corrosion leaves surfaces smooth and clear for efficient heat transfer
- Erosion-corrosion resistance enables high operating velocities.

Once considered an inaccessible material for standard construction, titanium has become a mainstream component of systems for various industries. Utilizing the superior qualities of titanium in the design of the AM/AP heat exchangers has resulted in a product line with exceptional value and long continuous service.

There are special build models of all of these plate and frame units that are available for various applications. Changes include plate style, material type, gasket material, and also connection types. Consult our office for product selection verification.

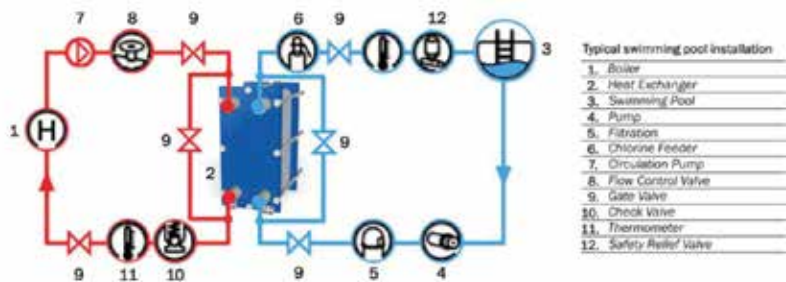


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## TITANIUM IS FOR USE IN SALT WATER APPLICATIONS!

### THE SALT WATER ADVANTAGE

AM/AP's inherent plate designs make them the optimal choice for applications with close temperature approaches, and married with non-corrosive materials, create the ideal solution for the salt water pool market, and other marine environments. The AM/AP series covers a comprehensive range of capacities, suitable for all residential and commercial applications.



POOL - QUICK SIZING GUIDE

#### ...with BOILER source 180°F

| MODEL     | Nominal Capacity* (MBH) | Pool Size (Gallons) |
|-----------|-------------------------|---------------------|
| AM-1000Ti | 1,000                   | 88,000              |
| AM-1450Ti | 1,450                   | 127,000             |
| AP-2500Ti | 2,500                   | 220,000             |
| AP-3000Ti | 3,000                   | 260,000             |
| AP-3800Ti | 3,800                   | 330,000             |

\* Nominal Values are based on a boiler source at 180°F, with 120°F temperature differential between incoming heating, and heated, water.

#### ...with SOLAR source 160°F

| MODEL     | Nominal Capacity* (MBH) | Pool Size (Gallons) |
|-----------|-------------------------|---------------------|
| AM-1000Ti | 700                     | 62,000              |
| AM-1450Ti | 1,000                   | 88,000              |
| AP-2500Ti | 1,600                   | 140,000             |
| AP-3000Ti | 2,000                   | 175,000             |
| AP-3800Ti | 2,500                   | 220,000             |

\* Nominal Values are based on a solar heating source (40% propylene glycol) at 160°F.

#### ...with GEOTHERMAL source (108°F)

| MODEL     | Nominal Capacity* (MBH) | Pool Size (Gallons) |
|-----------|-------------------------|---------------------|
| AM-1000Ti | 350                     | 30,000              |
| AM-1450Ti | 500                     | 44,000              |
| AP-2500Ti | 800                     | 70,000              |
| AP-3000Ti | 950                     | 84,000              |
| AP-3800Ti | 1200                    | 105,000             |

\* Nominal Values are based on a geothermal heating source (30% propylene glycol) at 108°F.

#### sample geothermal pool application

| Model         | AM-1000Ti        |               |
|---------------|------------------|---------------|
|               | Primary Side     | Swimming Pool |
| Fluid         | 30% Prop. Glycol | Salt Water    |
| Temperatures  | 108°F            | 82°F          |
| Flows         | 20 USGPM         | 35 USGPM      |
| Pressure Drop | 4 PSI            | 9 PSI         |
| Heat Load     | 230,000 BTU/hr   |               |



# Information Needed to Size a Plate-to-Plate Heat Exchanger

**Other useful information on the source side:**

Operating pressure \_\_\_\_\_

% of Glycol if any \_\_\_\_\_

Max pressure drop or acceptable head pressure. \_\_\_\_\_

**Parameter 1**

**Load Side BTU's Needed**  
Or

**Load side GPM**

**Other useful information on the load side:**

Operating pressure \_\_\_\_\_

% of Glycol if any \_\_\_\_\_

Max pressure drop or acceptable head pressure. \_\_\_\_\_

**Parameter 2**  
Incoming Water temp from the heat source.

**K1**      **K2**

**K4**      **K3**

This shows counter current flow design

**Parameter 4**  
Water temp going to the load side.

**Parameter 3**  
Leaving Water temp back to the heat source.

**Parameter 5**  
Incoming Water temp from the load side.

**Parameters in RED are REQUIRED!**

**WARNING - PLEASE MAKE NOTE: THIS UNIT IS NOT FOR USE IN POOL APPLICATIONS!**





# Information Needed to Size a Shell & Tube Heat Exchanger

Other useful information on the source side:

Operating pressure \_\_\_\_\_

% of Glycol if any \_\_\_\_\_

Max pressure drop or acceptable head pressure. \_\_\_\_\_

## Parameter 1

Load Side BTU's Needed  
Or

Load side GPM

Other useful information on the load side:

Operating pressure \_\_\_\_\_

% of Glycol if any \_\_\_\_\_

Max pressure drop or acceptable head pressure. \_\_\_\_\_

## Parameter 2

Incoming Water temp from the heat source.

## Parameter 4

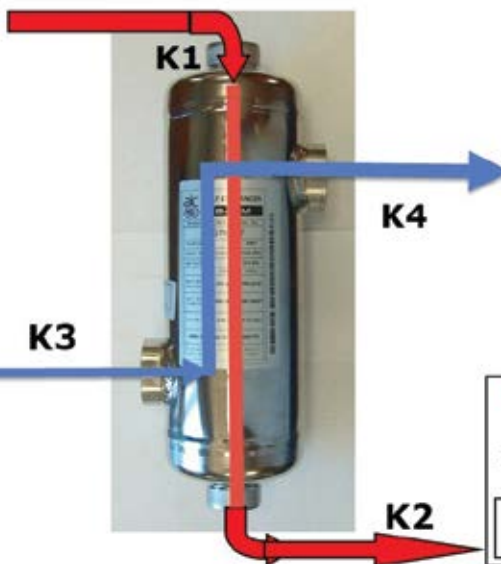
Water temp going to the load side.

## Parameter 5

Incoming Water temp from the load side.

## Parameter 3

Leaving Water temp back to the heat source.



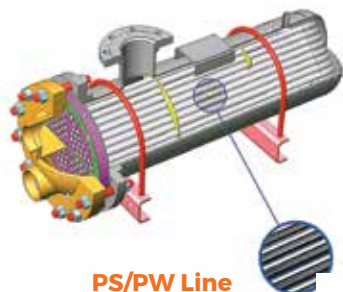
**Parameters in RED are REQUIRED!**

**WARNING - PLEASE MAKE NOTE IF THIS IS A SALT WATER APPLICATION OR OVER 3PPM CHLORINE.**

# Special Order Heat Exchangers



**A-Line Plate and Frame**



**PS/PW Line  
Shell and Tube**



**Steam Pool HX**



**JAD Line  
Shell and coil**



**L-Line Single and  
Double Walled**



## ASK ABOUT OUR NEW LINE OF TITANIUM PLATE AND FRAME HEAT EXCHANGERS.

PERFECT FOR USE WITH LOW WATER TEMPERATURES SUPPLIED FROM GEO THERMAL AND SOLAR.

### Also available in custom order are:

- ASME
- Steam Coils
- Hot Water Coils
- Chilled Water Coils
- Evaporator Coil-DX Coils

These are all special order to the job.  
Please call for correct sizing and use.







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# ► WSD MANIFOLDS & GAUGES



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# WSD 1" Manifolds

WSD 1" Stainless steel modular manifolds operate with a maximum of 194-degree water temperature and 87 psi operating pressure with a flowmeter range of 0-2 gpm. All manifolds come with flow meters with integrated shut off stems providing positive shut off for loop isolation during charging and testing. Total maximum flow rate 14 GPM.



## WSD 1" Manifold Kits

| Description                                                                    | Part Number     | Qty. | List Price |
|--------------------------------------------------------------------------------|-----------------|------|------------|
| 2 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-2SS  | 1    | \$313.59   |
| 3 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-3SS  | 1    | \$356.18   |
| 4 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-4SS  | 1    | \$401.43   |
| 5 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-5SS  | 1    | \$449.63   |
| 6 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-6SS  | 1    | \$497.25   |
| 7 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-7SS  | 1    | \$531.53   |
| 8 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-8SS  | 1    | \$601.95   |
| 9 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.00-9SS  | 1    | \$623.57   |
| 10 Port 1" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents) | MCSET-1.00-10SS | 1    | \$685.33   |



## WSD 1" Manifold (only)

| Description                                       | Part Number   | Qty. | List Price |
|---------------------------------------------------|---------------|------|------------|
| 2 Port 1" Stainless Steel Flow Balancing Manifold | MSET-1.00-2SS | 1    | \$155.65   |
| 3 Port 1" Stainless Steel Flow Balancing Manifold | MSET-1.00-3SS | 1    | \$203.55   |
| 4 Port 1" Stainless Steel Flow Balancing Manifold | MSET-1.00-4SS | 1    | \$257.15   |
| 5 Port 1" Stainless Steel Flow Balancing Manifold | MSET-1.00-5SS | 1    | \$310.42   |
| 6 Port 1" Stainless Steel Flow Balancing Manifold | MSET-1.00-6SS | 1    | \$366.69   |



# WSD 1 1/4" Manifold Kits

WSD 1 1/4" Stainless steel modular manifolds operate with a maximum of 194-degree water temperature and 87 psi operating pressure with a flowmeter range of 0-4 gpm. Total maximum flow rate 19 GPM.



## WSD 1 1/4" Manifold Kits

| Description                                                                        | Part Number     | Qty. | List Price |
|------------------------------------------------------------------------------------|-----------------|------|------------|
| 2 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-2SS  | 1    | \$460.20   |
| 3 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-3SS  | 1    | \$523.44   |
| 4 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-4SS  | 1    | \$572.09   |
| 5 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-5SS  | 1    | \$631.99   |
| 6 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-6SS  | 1    | \$684.82   |
| 7 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-7SS  | 1    | \$710.95   |
| 8 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-8SS  | 1    | \$782.50   |
| 9 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents)  | MCSET-1.25-9SS  | 1    | \$810.20   |
| 10 Port 1 1/4" Stainless Steel Flow Balancing Manifold Kit (Valves, Gauges, Vents) | MCSET-1.25-10SS | 1    | \$891.73   |



## WSD 1 1/4" Manifold (only)

| Description                                           | Part Number   | Qty. | List Price |
|-------------------------------------------------------|---------------|------|------------|
| 2 Port 1 1/4" Stainless Steel Flow Balancing Manifold | MSET-1.25-2SS | 1    | \$172.51   |
| 3 Port 1 1/4" Stainless Steel Flow Balancing Manifold | MSET-1.25-3SS | 1    | \$232.65   |
| 4 Port 1 1/4" Stainless Steel Flow Balancing Manifold | MSET-1.25-4SS | 1    | \$283.09   |
| 5 Port 1 1/4" Stainless Steel Flow Balancing Manifold | MSET-1.25-5SS | 1    | \$343.18   |
| 6 Port 1 1/4" Stainless Steel Flow Balancing Manifold | MSET-1.25-6SS | 1    | \$400.00   |



# WSD Manifold Accessories



## Manifold Coupling Kits

| Description                      | Part Number | Qty. | List Price |
|----------------------------------|-------------|------|------------|
| 1" Manifold Coupling Kit (2)     | MCOUP1.00   | 1    | \$52.20    |
| 1 1/4" Manifold Coupling Kit (2) | MCOUP1.25   | 1    | \$170.90   |

Allows you to couple two manifolds together when you have a manifold location requiring more than six zones. Example: combine two four port manifolds into an eight port.



## Manifold Elbow Kits

| Description                   | Part Number | Qty. | List Price |
|-------------------------------|-------------|------|------------|
| 1" Manifold Elbow Kit (2)     | MELLK1.00   | 1    | \$54.63    |
| 1 1/4" Manifold Elbow Kit (2) | MELLK1.25   | 1    | \$130.29   |

Elbow kits allow for a compact 90-degree turn making it very easy to connect vertical supply and return pipes.



## Manifold Extension Sets

| Description                                       | Part Number | Qty. | List Price |
|---------------------------------------------------|-------------|------|------------|
| 1" Manifold Extension Set w/ Flow Supply & Return | MEXSET1.00  | 1    | \$151.16   |

The extension set makes it very simple to add a zone to an existing manifold.



## End Sets w/ Hose Adapter

| Description                                                  | Part Number | Qty. | List Price |
|--------------------------------------------------------------|-------------|------|------------|
| 1" Female BSP Manifold End Set w/ Garden Hose Thread (2)     | MES1.00     | 1    | \$83.06    |
| 1 1/4" Female BSP Manifold End Set w/ Garden Hose Thread (2) | MES1.25     | 1    | \$106.71   |





# WSD Manifold Accessories



## Manifold End-Cap Kits

| Description                    | Part Number | Qty. | List Price |
|--------------------------------|-------------|------|------------|
| 1" Manifold End-Cap Kit (2)    | MECAP1.00   | 1    | \$12.66    |
| 1 1/4" Manifold End-Cap Kit(2) | MECAP1.25   | 1    | \$17.28    |



## Multi-Purpose End Kits

| Description                                                         | Part Number | Qty. | List Price |
|---------------------------------------------------------------------|-------------|------|------------|
| 1" Manifold Multi-Purpose End Kit w/ Vent and Charging Port (2)     | MECVD1.00   | 1    | \$70.43    |
| 1 1/4" Manifold Multi-Purpose End Kit w/ Vent and Charging Port (2) | MECVD1.25   | 1    | \$77.92    |



## Manifold Ball Valve

| Description                        | Part Number | Qty. | List Price |
|------------------------------------|-------------|------|------------|
| 1" Manifold Ball Valve Kit (2)     | MBVSK1.00   | 1    | \$108.40   |
| 1 1/4" Manifold Ball Valve Kit (2) | MBVSK1.25   | 1    | \$250.10   |



## 3/4" Eurocone Mini Ball Valve

| Description                   | Part Number  | Qty. | List Price |
|-------------------------------|--------------|------|------------|
| 3/4" Eurocone Mini Ball Valve | MOUTVALVE.75 | 1    | \$21.25    |

Provides positive shutoff and isolation of loops on 2013 and 2015 manifolds

# WSD Manifold Fitting Series



## Manifold Fitting Series

| Description                       | Part Number | Qty. | List Price |
|-----------------------------------|-------------|------|------------|
| 3/8" Connection for PEX x 3/4" EC | MFTG.38PEX  | 1    | \$6.67     |
| 1/2" Connection for PEX x 3/4" EC | MFTG.50PEX  | 1    | \$7.19     |
| 5/8" Connection for PEX x 3/4" EC | MFTG.625PEX | 1    | \$8.18     |
| 3/4" Connection for PEX x 3/4" EC | MFTG.75PEX  | 1    | \$15.61    |
| 1/2" Connection for PAP x 3/4" EC | MFTG.50PAP  | 1    | \$7.19     |
| 5/8" Connection for PAP x 3/4" EC | MFTG.625PAP | 1    | \$8.18     |
| 3/4" Connection for PAP x 3/4" EC | MFTG.75PAP  | 1    | \$16.67    |



## Manifold Gasket Series

| Description            | Part Number | Qty. | List Price |
|------------------------|-------------|------|------------|
| 1" Manifold Gasket     | MGASKET1.00 | 1    | \$2.91     |
| 1 1/4" Manifold Gasket | MGASKET1.25 | 1    | \$3.49     |



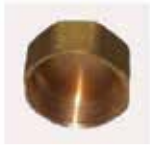
## Auto Air Vent

| Description            | Part Number | Qty. | List Price |
|------------------------|-------------|------|------------|
| 3/8" BSP Auto Air Vent | MVENT       | 1    | \$28.81    |





# WSD Pro Zone Actuators / Motors



## Eurocone

| Description                       | Part Number | Qty. | List Price |
|-----------------------------------|-------------|------|------------|
| 3/4" Eurocone Blank Cap w/ Gasket | MOUTCAP.75  | 1    | \$7.34     |



## Replacement Temp Gauge

| Description                            | Part Number | Qty. | List Price |
|----------------------------------------|-------------|------|------------|
| Replacement Manifold Temperature Gauge | MTGUAGE     | 1    | \$16.60    |



## Pro Zone Actuators / Motors

| Description                             | Part Number | Qty. | List Price |
|-----------------------------------------|-------------|------|------------|
| ProMix Zone Actuator NC, 24 VDC, 4 Wire | MACT/END    | 1    | \$45.04    |

ProZone Actuators match the ProMix line of manifolds 2013xx/2015xx. 4 wire models include an end switch to operate a pump or other function only when actuator is fully opened. Operating temperature 32° F - 122°F, Power supply 24 VAC, Action is Open/Close, NC normally closed.



## Helpful Hints and Programs to Help You Better Understand the Manifold Section Offered By Willow Springs S.R.A. LLC.

### Cut Program

We will cut any of the stock 72", 3" on center ( up to 2" headers) product in the following section. These sizes can be cut with no surcharges.

**Cut manifold pricing is based off the following formula:**

Full stick price ÷ Outlets of full stick x number of desired outlets = cut price

Any manifolds with more than 12 outlets may be coupled.

Any manifold less than a full stick is considered special order and cannot be returned.

### Box Price Program

Purchase one full box of any size and receive box lot pricing on the remainder of your order. This is per order basis. Cut pieces excluded.

**Example:**

Buy a box of (5) CC1005024 at box lot price, you can buy (1) stick of CX1507524V at box lot price as well even though that item comes in a box of (2).



**CALIFORNIA PROPOSITION 65 WARNING**

Cancer and Reproductive Harm -

[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



# Understanding Our Part Numbers



## CMV1005008PEX

The first letters distinguish how the manifold is terminated.

- CC= Sweat Header x Sweat Drop
- CX= Sweat Header x 1/2" Pex Crimp
- PMR= Pex Manifold Return
- PMS= Pex Manifold Supply
- WSD= Sweat Header x 3/4" Pex Crimp
- CMA= Sweat Header x Compression Adaptor
- CMV= Sweat Header x Compression Valve
- EV= Sweat Header x F2080 Valve
- EA= Sweat Header x F2080 Adaptor
- PRPXV= Sweat Header x F1960 Valve
- PRPXA= Sweat Header x F1960 Adaptor
- CMR= Compression Manifold Return
- CMS= Compression Manifold Supply

The numbers determine copper and tubing sizes

- First 3 numbers are the header size.
- Next 2 numbers are the tubing size (if applicable)
- The last 2 are the number of drops on the manifold

Any letters after the numbers will determine tubing style or fitting style (if applicable)

- PEX= Pex tubing
- PAP= PEX-AL-PEX tubing



## ► WSD Custom Tee Products



**72" Long | 36 Outlets, 2" On Center**

### 1" Header with (36) 1/2" Copper Outlets

| Part Number | Description  | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|--------------|---------------|-----------------|---------------------|
| CC1005036   | 1" x 1/2" CU | 5             | \$487.91        | \$390.33            |



**72" Long | 24 Outlets, 3" On Center**

### 1", 1-1/4", 1-1/2" or 2" Header with (24) 1/2", 3/4" or 1" Copper Outlets

| Part Number | Description      | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|------------------|---------------|-----------------|---------------------|
| CC1005024   | 1" x 1/2" CU     | 5             | \$245.13        | \$196.10            |
| CC1255024   | 1-1/4" x 1/2" CU | 4             | \$309.20        | \$247.36            |
| CC1505024   | 1-1/2" x 1/2" CU | 3             | \$370.38        | \$296.31            |
| CC2005024   | 2" x 1/2" CU     | 2             | \$542.68        | \$434.14            |
| CC1007524   | 1" x 3/4" CU     | 4             | \$263.85        | \$211.08            |
| CC1257524   | 1-1/4" x 3/4" CU | 4             | \$325.85        | \$260.68            |
| CC1507524   | 1-1/2" x 3/4" CU | 3             | \$391.19        | \$312.95            |
| CC2007524   | 2" x 3/4" CU     | 2             | \$563.49        | \$450.79            |
| CC1251024   | 1 1/4" x 1" CU   | 4             | \$346.66        | \$277.33            |
| CC1501024   | 1 1/2" x 1" CU   | 3             | \$412.00        | \$329.60            |
| CC2001024   | 2" x 1" CU       | 2             | \$584.30        | \$467.44            |



**72" Long | 18 Outlets, 4" On Center**

### 1", 1-1/4", 1-1/2" or 2" Header with (18) 1/2" or 3/4" Copper Outlets

| Part Number | Description      | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|------------------|---------------|-----------------|---------------------|
| CC1005018   | 1" x 1/2"        | 5             | \$201.94        | \$161.55            |
| CC1007518   | 1" x 3/4" CU     | 4             | \$216.00        | \$172.80            |
| CC1257518   | 1-1/4" x 3/4" CU | 4             | \$269.67        | \$215.73            |
| CC1507518   | 1-1/2" x 3/4" CU | 3             | \$326.18        | \$260.94            |
| CC2007518   | 2" x 3/4" CU     | 2             | \$475.05        | \$380.04            |



## ► WSD Custom Tee Products



**72" Long | 12 Outlets, 6" On Center**

### 1", 1-1/4", 1-1/2" or 2" Header with (12) 1/2" or 3/4" Copper Outlets

| Part Number | Description      | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|------------------|---------------|-----------------|---------------------|
| CC1005012ER | 1" x 1/2" CU     | 5             | \$158.77        | \$127.02            |
| CC1007512ER | 1" x 3/4" CU     | 4             | \$168.14        | \$134.51            |
| CC1257512ER | 1-1/4" x 3/4" CU | 4             | \$213.49        | \$170.79            |
| CC1507512ER | 1-1/2" x 3/4" CU | 3             | \$261.14        | \$208.91            |



**72" Long | 9 Outlets, 8" On Center**

### 1", 1-1/4", 1-1/2" or 2" Header with (9) 3/4" or 1" Copper Outlets

| Part Number | Description      | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|------------------|---------------|-----------------|---------------------|
| CC100750972 | 1" x 3/4" CU     | 4             | \$224.51        | \$179.61            |
| CC1257509   | 1-1/4" x 3/4" CU | 4             | \$295.59        | \$236.47            |
| CC1251009   | 1-1/4" x 1" CU   | 3             | \$283.99        | \$227.19            |
| CC1507509   | 1-1/2" x 3/4" CU | 3             | \$363.07        | \$290.46            |
| CC1501009   | 1-1/2" x 1" CU   | 3             | \$352.45        | \$281.96            |
| CC2007509   | 2" x 3/4" CU     | 2             | \$497.55        | \$398.04            |
| CC2001009   | 2" x 1" CU       | 2             | \$508.17        | \$406.54            |



**72" Long | 6 Outlets, 12" On Center**

### 1-1/4", or 1-1/2" Header with (6) 3/4" or 1" Copper Outlets

| Part Number | Description      | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|------------------|---------------|-----------------|---------------------|
| CC125750672 | 1-1/4" x 3/4" CU | 4             | \$244.28        | \$195.42            |
| CC150750672 | 1-1/2" x 3/4" CU | 3             | \$306.37        | \$245.10            |
| CC125100672 | 1-1/4" x 1" CU   | 4             | \$253.12        | \$201.70            |





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## ► F1807 Pex Crimp Manifolds



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## ► WSD 1/2" PEX CRIMP

for ASTM F1807 Copper Manifolds Open Both Ends



**72" Long | 24 Outlets, 3" On Center**

**1", 1-1/4", or 1-1/2" Header with (24) 1/2" or 3/4" Crimpex Mini ball Valves**

| Part Number | Description                       | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|-----------------------------------|---------------|-----------------|---------------------|
| CX1005024V  | 1" x 1/2" PEX Mini Ball Valve     | 2             | \$601.15        | \$480.92            |
| CX1255024V  | 1-1/4" x 1/2" PEX Mini Ball Valve | 2             | \$682.91        | \$546.33            |
| CX1505024V  | 1-1/2" x 1/2" PEX Mini Ball Valve | 1             | \$838.41        | N.A.                |
| CX2005024V  | 2" x 1/2" PEX Mini Ball Valve     | 1             | \$990.72        | N.A.                |

## ► WSD CUSTOM TEE PRODUCTS



**72" Long | 24 Outlets, 3" On Center**

**1", 1-1/4", or 1-1/2" Header with (24) 1/2" or 3/4" CRIMPEX (ASTM F877)**

| Part Number | Description       | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|-------------------|---------------|-----------------|---------------------|
| CX1005024   | 1" x 1/2" PEX     | 6             | \$280.07        | \$224.06            |
| CX1255024   | 1-1/4" x 1/2" PEX | 4             | \$344.17        | \$275.33            |
| CX1505024   | 1-1/2" x 1/2" PEX | 1             | \$475.11        | N.A.                |
| CX2005024   | 2" x 1/2" PEX     | 1             | \$627.41        | N.A.                |



**72" Long | 36 Outlets, 2" On Center**

**1", 1-1/4", or 1-1/2" Header with (24) 1/2" or 3/4" CRIMPEX (ASTM F877)**

| Part Number | Description       | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|-------------------|---------------|-----------------|---------------------|
| CX1005036   | 1" x 1/2" PEX     | 6             | \$576.31        | \$461.05            |
| CX1255036   | 1 1/4" x 1/2" PEX | 4             | \$695.42        | \$556.34            |



## WSD 1/2" PEX CRIMP for ASTM F1807 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

### PEX Crimp Mini Ball Valve Manifold

|         | Valved Return Part # | Return List Price Each |
|---------|----------------------|------------------------|
| 2 Loop  | CX1005002VPEX        | \$50.10                |
| 3 Loop  | CX1005003VPEX        | \$75.14                |
| 4 Loop  | CX1005004VPEX        | \$100.19               |
| 5 Loop  | CX1005005VPEX        | \$125.24               |
| 6 Loop  | CX1005006VPEX        | \$150.29               |
| 7 Loop  | CX1005007VPEX        | \$175.34               |
| 8 Loop  | CX1005008VPEX        | \$200.39               |
| 9 Loop  | CX1005009VPEX        | \$225.43               |
| 10 Loop | CX1005010VPEX        | \$250.48               |
| 11 Loop | CX1005011VPEX        | \$275.53               |
| 12 Loop | CX1005012VPEX        | \$300.58               |

### ASTM F876/877 Adaptor Manifold

|         | Adaptor Supply Part # | Supply List Price Each |
|---------|-----------------------|------------------------|
| 2 Loop  | CX1005002PEX          | \$23.34                |
| 3 Loop  | CX1005003PEX          | \$35.01                |
| 4 Loop  | CX1005004PEX          | \$46.68                |
| 5 Loop  | CX1005005PEX          | \$58.35                |
| 6 Loop  | CX1005006PEX          | \$70.02                |
| 7 Loop  | CX1005007PEX          | \$81.69                |
| 8 Loop  | CX1005008PEX          | \$93.36                |
| 9 Loop  | CX1005009PEX          | \$105.03               |
| 10 Loop | CX1005010PEX          | \$116.69               |
| 11 Loop | CX1005011PEX          | \$128.36               |
| 12 Loop | CX1005012PEX          | \$140.03               |

**Supply Includes:** (1) 1" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" Pex Crimp adaptors for pipes meeting (ASTM F876/877).

**Return Includes:** (1) 1" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" Pex Crimp mini-ball valves for pipes meeting (ASTM F876/877).

Please call for pricing on 1-1/4", 1-1/2", and 2" headers. Items on this page are made per order and are considered special order. Please allow 1-2 days production time plus freight time.



# WSD Custom Tee Products

## WSD PEX SHUT OFF VALVE HEADERS (ASTM F877)



### 1" with Header 2,3,4,6 and 12 1/2" Crimpex Mini ball Valves on 2" Ctrs. Expanded 1 End

| Part Number | Description                             | Units Per Box | Single Lot List | Box Lot List / Each |
|-------------|-----------------------------------------|---------------|-----------------|---------------------|
| CVP1005002  | 1" x 1/2", (2) Crimpex Mini Ball Valve  | 5             | \$60.89         | \$48.72             |
| CVP1005003  | 1" x 1/2", (3) Crimpex Mini Ball Valve  | 5             | \$89.19         | \$71.35             |
| CVP1005004  | 1" x 1/2", (4) Crimpex Mini Ball Valve  | 5             | \$117.46        | \$93.97             |
| CVP1005006  | 1" x 1/2", (6) Crimpex Mini Ball Valve  | 5             | \$174.03        | \$139.23            |
| CVP1005012  | 1" x 1/2", (12) Crimpex Mini Ball Valve | 5             | \$343.74        | \$274.99            |

## PEX HEADERS (ASTM F877)



### 1" with Header 2,3,4, and 6 1/2" Crimpex (ASTM F877) Ftg, 2" Ctrs, Expanded 1 End

| Part Number   | Description                    | Units Per Box | Single Lot List | Box Lot List / Each |
|---------------|--------------------------------|---------------|-----------------|---------------------|
| SX1005002EXPL | 1" x 1/2", (2) Crimpex Fitting | 5             | \$39.38         | \$31.50             |
| SX1005003EXPL | 1" x 1/2", (3) Crimpex Fitting | 5             | \$55.39         | \$44.31             |
| SX1005004EXPL | 1" x 1/2", (4) Crimpex Fitting | 5             | \$71.41         | \$57.12             |
| SX1005006EXPL | 1" x 1/2", (6) Crimpex Fitting | 5             | \$103.43        | \$82.75             |



# WSD 1" X 1/2" COMPLETE MANIFOLDS



**Assembled in the USA**  
with foreign and domestic parts

## Pex Crimp F1807

| Part #   | Valved Return List Price |
|----------|--------------------------|
| PMR2PEX  | \$97.56                  |
| PMR3PEX  | \$119.70                 |
| PMR4PEX  | \$141.84                 |
| PMR5PEX  | \$163.98                 |
| PMR6PEX  | \$186.12                 |
| PMR7PEX  | \$208.27                 |
| PMR8PEX  | \$230.41                 |
| PMR9PEX  | \$252.55                 |
| PMR10PEX | \$274.69                 |
| PMR11PEX | \$296.83                 |
| PMR12PEX | \$318.98                 |

| Part #   | Adaptor Supply List Price |
|----------|---------------------------|
| PMS2PEX  | \$73.90                   |
| PMS3PEX  | \$84.12                   |
| PMS4PEX  | \$94.53                   |
| PMS5PEX  | \$104.85                  |
| PMS6PEX  | \$115.17                  |
| PMS7PEX  | \$125.48                  |
| PMS8PEX  | \$135.80                  |
| PMS9PEX  | \$146.11                  |
| PMS10PEX | \$156.43                  |
| PMS11PEX | \$166.74                  |
| PMS12PEX | \$177.06                  |



**Supply Includes:** (1) 1" header with 1/2" adaptors, (1) 1" ball valve, (1) 1/4 turn boiler drain with cap.

**Return Includes:** (1) 1" header with 1/2" mini-ball valves, (1) 1" ball valve, (1) 1/4 turn boiler drain with cap.

Please call for pricing on 1-1/4", 1-1/2", and 2" headers. Note: Pex manifolds are crimp style only.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



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## ► WSD 3/4" PEX CRIMP for ASTM F1807 Copper Manifolds Full Sticks



**Assembled in the USA**  
with foreign and domestic parts

**72" Long | 24 Outlets, 3" On Center**

**1", 1-1/4", 1-1/2" or 2" Header with (24) 3/4" Crimp Pex Ball Valves (ASTM F876/877) soldered on**

| Part Number | Description       | Units Per Box | Single Lot List |
|-------------|-------------------|---------------|-----------------|
| WSD1007524V | 1" x 3/4" PEX     | 1             | \$787.92        |
| WSD1257524V | 1-1/4" x 3/4" PEX | 1             | \$842.72        |
| WSD1507524V | 1-1/2" x 3/4" PEX | 1             | \$900.47        |
| WSD2007524V | 2" x 3/4" PEX     | 1             | \$1052.80       |



**Assembled in the USA**  
with foreign and domestic parts

**72" Long | 24 Outlets, 3" On Center**

**1", 1-1/4", 1-1/2" or 2" Header with (24) 3/4" Crimp Pex Adaptors (ASTM F876/877) soldered on**

| Part Number | Description       | Units Per Box | Single Lot List |
|-------------|-------------------|---------------|-----------------|
| WSD1007524  | 1" x 3/4" PEX     | 1             | \$409.36        |
| WSD1257524  | 1-1/4" x 3/4" PEX | 1             | \$464.16        |
| WSD1507524  | 1-1/2" x 3/4" PEX | 1             | \$521.91        |
| WSD2007524  | 2" x 3/4" PEX     | 1             | \$674.24        |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD 3/4" PEX CRIMP for ASTM F1807 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

## 1" Header with 3/4 Pex outlets



| Number of Drops | Valved Return Part # | Return List Price Each |
|-----------------|----------------------|------------------------|
| 2 Loop          | WSD1007502V          | \$65.66                |
| 3 Loop          | WSD1007503V          | \$98.45                |
| 4 Loop          | WSD1007504V          | \$131.32               |
| 5 Loop          | WSD1007505V          | \$164.15               |
| 6 Loop          | WSD1007506V          | \$196.98               |
| 7 Loop          | WSD1007507V          | \$229.81               |
| 8 Loop          | WSD1007508V          | \$262.64               |
| 9 Loop          | WSD1007509V          | \$295.47               |
| 10 Loop         | WSD1007510V          | \$328.30               |
| 11 Loop         | WSD1007511V          | \$361.18               |
| 12 Loop         | WSD1007512V          | \$393.96               |

### Return Includes:

(1) 1" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC with 3/4" Pex Crimp ball valves for pipes meeting (ASTM F876/877).

### Supply Includes:

(1) 1" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC with 3/4" Pex Crimp adaptors for pipes meeting (ASTM F876/877).

| Number of Drops | Adaptor Supply Part # | Return List Price Each |
|-----------------|-----------------------|------------------------|
| 2 Loop          | WSD1007502            | \$34.11                |
| 3 Loop          | WSD1007503            | \$51.17                |
| 4 Loop          | WSD1007504            | \$68.23                |
| 5 Loop          | WSD1007505            | \$85.28                |
| 6 Loop          | WSD1007506            | \$102.34               |
| 7 Loop          | WSD1007507            | \$119.40               |
| 8 Loop          | WSD1007508            | \$136.45               |
| 9 Loop          | WSD1007509            | \$153.51               |
| 10 Loop         | WSD1007510            | \$170.56               |
| 11 Loop         | WSD1007511            | \$187.62               |
| 12 Loop         | WSD1007512            | \$204.68               |



**Assembled in the USA**  
with foreign and domestic parts

## 1-1/4" Header with 3/4 Pex outlets



| Number of Drops | Valved Return Part # | Return List Price Each |
|-----------------|----------------------|------------------------|
| 2 Loop          | WSD1257502V          | 70.23                  |
| 3 Loop          | WSD1257503V          | 105.43                 |
| 4 Loop          | WSD1257504V          | 140.45                 |
| 5 Loop          | WSD1257505V          | 175.57                 |
| 6 Loop          | WSD1257506V          | 210.68                 |
| 7 Loop          | WSD1257507V          | 245.79                 |
| 8 Loop          | WSD1257508V          | 280.91                 |
| 9 Loop          | WSD1257509V          | 316.02                 |
| 10 Loop         | WSD1257510V          | 351.13                 |
| 11 Loop         | WSD1257511V          | 386.25                 |
| 12 Loop         | WSD1257512V          | 421.36                 |

### Return Includes:

(1) 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC with 3/4" Pex Crimp ball valves for pipes meeting (ASTM F876/877).

### Supply Includes:

(1) 1-1/4" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC with 3/4" Pex Crimp adaptors for pipes meeting (ASTM F876/877).

| Number of Drops | Adaptor Supply Part # | Return List Price Each |
|-----------------|-----------------------|------------------------|
| 2 Loop          | WSD1257502            | 38.68                  |
| 3 Loop          | WSD1257503            | 58.02                  |
| 4 Loop          | WSD1257504            | 77.36                  |
| 5 Loop          | WSD1257505            | 96.70                  |
| 6 Loop          | WSD1257506            | 116.04                 |
| 7 Loop          | WSD1257507            | 135.38                 |
| 8 Loop          | WSD1257508            | 154.72                 |
| 9 Loop          | WSD1257509            | 174.06                 |
| 10 Loop         | WSD1257510            | 193.40                 |
| 11 Loop         | WSD1257511            | 212.74                 |
| 12 Loop         | WSD1257512            | 232.08                 |

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





# ▶ WSD 3/4" PEX CRIMP for ASTM F1807 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

## 1-1/2" Header with 3/4 Pex outlets



| Number of Drops | Valved Return Part # | Return List Price Each |
|-----------------|----------------------|------------------------|
| 2 Loop          | WSD1507502V          | 75.04                  |
| 3 Loop          | WSD1507503V          | 112.56                 |
| 4 Loop          | WSD1507504V          | 150.08                 |
| 5 Loop          | WSD1507505V          | 187.60                 |
| 6 Loop          | WSD1507506V          | 225.12                 |
| 7 Loop          | WSD1507507V          | 262.64                 |
| 8 Loop          | WSD1507508V          | 300.16                 |
| 9 Loop          | WSD1507509V          | 337.68                 |
| 10 Loop         | WSD1507510V          | 375.19                 |
| 11 Loop         | WSD1507511V          | 412.71                 |
| 12 Loop         | WSD1507512V          | 450.23                 |

### Return Includes:

(1) 1-1/2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC with 3/4" Pex Crimp ball valves for pipes meeting (ASTM F876/877).

### Supply Includes:

(1) 1-1/2" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC with 3/4" Pex Crimp adaptors for pipes meeting (ASTM F876/877).

| Number of Drops | Adaptor Supply Part # | Return List Price Each |
|-----------------|-----------------------|------------------------|
| 2 Loop          | WSD1507502            | 43.49                  |
| 3 Loop          | WSD1507503            | 65.24                  |
| 4 Loop          | WSD1507504            | 86.98                  |
| 5 Loop          | WSD1507505            | 108.73                 |
| 6 Loop          | WSD1507506            | 130.48                 |
| 7 Loop          | WSD1507507            | 152.22                 |
| 8 Loop          | WSD1507508            | 173.97                 |
| 9 Loop          | WSD1507509            | 195.72                 |
| 10 Loop         | WSD1507510            | 217.46                 |
| 11 Loop         | WSD1507511            | 239.21                 |
| 12 Loop         | WSD1507512            | 260.95                 |



**Assembled in the USA**  
with foreign and domestic parts

## 2" Header with 3/4 Pex outlets



| Number of Drops | Valved Return Part # | Return List Price Each |
|-----------------|----------------------|------------------------|
| 2 Loop          | WSD2007502V          | 87.76                  |
| 3 Loop          | WSD2007503V          | 131.60                 |
| 4 Loop          | WSD2007504V          | 175.47                 |
| 5 Loop          | WSD2007505V          | 219.33                 |
| 6 Loop          | WSD2007506V          | 263.20                 |
| 7 Loop          | WSD2007507V          | 307.07                 |
| 8 Loop          | WSD2007508V          | 350.93                 |
| 9 Loop          | WSD2007509V          | 394.80                 |
| 10 Loop         | WSD2007510V          | 438.67                 |
| 11 Loop         | WSD2007511V          | 482.53                 |
| 12 Loop         | WSD2007512V          | 526.40                 |

### Return Includes:

(1) 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC with 3/4" Pex Crimp ball valves for pipes meeting (ASTM F876/877).

### Supply Includes:

(1) 2" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC with 3/4" Pex Crimp adaptors for pipes meeting (ASTM F876/877).

| Number of Drops | Adaptor Supply Part # | Return List Price Each |
|-----------------|-----------------------|------------------------|
| 2 Loop          | WSD2007502            | 56.19                  |
| 3 Loop          | WSD2007503            | 84.28                  |
| 4 Loop          | WSD2007504            | 112.37                 |
| 5 Loop          | WSD2007505            | 140.47                 |
| 6 Loop          | WSD2007506            | 168.56                 |
| 7 Loop          | WSD2007507            | 196.65                 |
| 8 Loop          | WSD2007508            | 224.75                 |
| 9 Loop          | WSD2007509            | 252.84                 |
| 10 Loop         | WSD2007510            | 280.93                 |
| 11 Loop         | WSD2007511            | 309.03                 |
| 12 Loop         | WSD2007512            | 337.12                 |

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





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## ► F1807 Pex Compression Manifolds



[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)

## ► WSD 1/2" PEX COMPRESSION for ASTM F1807 Copper Manifolds



**For Standard Pex Pipe  
ASTM F876/877**

**72" Long | 24 Outlets, 3" On Center**

### 1", 1-1/4", 1-1/2" or 2" Header with (24) 1/2" PEX Compression Adaptor (ASTM F876/877 pipe)

| Part Number   | Description          | Units Per Box | Single Lot List |
|---------------|----------------------|---------------|-----------------|
| CMA1005024PEX | 1" x 1/2" Compex     | 1             | \$618.14        |
| CMA1255024PEX | 1-1/4" x 1/2" Compex | 1             | \$674.79        |
| CMA1505024PEX | 1-1/2" x 1/2" Compex | 1             | \$728.87        |
| CMA2005024PEX | 2" x 1/2" Compex     | 1             | \$881.17        |



**72" Long | 24 Outlets, 3" On Center**

### 1", 1-1/4", 1-1/2" or 2" Header with (24) 1/2" PEX Compression Mini Ball valves (ASTM F876/877 pipe)

| Part Number   | Description                | Units Per Box | Single Lot List |
|---------------|----------------------------|---------------|-----------------|
| CMV1005024PEX | 1" x 1/2" Compex Valve     | 1             | \$747.79        |
| CMV1255024PEX | 1-1/4" x 1/2" Compex Valve | 1             | \$804.44        |
| CMV1505024PEX | 1-1/2" x 1/2" Compex Valve | 1             | \$858.52        |
| CMV2005024PEX | 2" x 1/2" Compex Valve     | 1             | \$1,010.82      |

## ► 1" x 1/2" Compression Style Compax Manifolds (F1807)



**72" Long**

**24 Outlets, 3" On Center**



### Pipe run 1" with (2), (3) or (4), 1/2" Compax Fittings on 2" Ctrs. Expanded 1 End

| Part Number | Description                        | Units per Box | Single Lot List | Box Lot List / each |
|-------------|------------------------------------|---------------|-----------------|---------------------|
| CACX1005002 | (2) Outlet Compax Fitting Manifold | 5             | \$66.36         | \$53.09             |
| CACX1005003 | (3) Outlet Compax Fitting Manifold | 5             | \$97.39         | \$77.91             |
| CACX1005004 | (4) Outlet Compax Fitting Manifold | 5             | \$128.40        | \$102.72            |
| CVCX1005002 | (2) Outlet Compax Valve Manifold   | 5             | \$65.26         | \$52.21             |
| CVCX1005003 | (3) Outlet Compax Valve Manifold   | 5             | \$95.74         | \$76.59             |
| CVCX1005004 | (4) Outlet Compax Valve Manifold   | 5             | \$126.19        | \$100.96            |

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD 1" OR 1-1/4" X 1/2" PEX COMPRESSION for ASTM F1807 Copper Manifolds Open Both Ends



Assembled in the USA  
with foreign and domestic parts

For Standard Pex Pipe  
ASTM F876/877



| Number of Loops | PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|------------------------------------------|------------------------|
| 1" Header       | Return Part #                            | Return List Price Each |
| 2 Loop          | CMV1005002PEX                            | \$62.32                |
| 3 Loop          | CMV1005003PEX                            | \$93.47                |
| 4 Loop          | CMV1005004PEX                            | \$124.63               |
| 5 Loop          | CMV1005005PEX                            | \$155.79               |
| 6 Loop          | CMV1005006PEX                            | \$186.95               |
| 7 Loop          | CMV1005007PEX                            | \$218.11               |
| 8 Loop          | CMV1005008PEX                            | \$249.26               |
| 9 Loop          | CMV1005009PEX                            | \$280.42               |
| 10 Loop         | CMV1005010PEX                            | \$311.58               |
| 11 Loop         | CMV1005011PEX                            | \$342.74               |
| 12 Loop         | CMV1005012PEX                            | \$373.89               |

Full Stick Available on Page 107

| Number of Loops | For ASTM F876/877 Pipe Adaptor Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1 Header        | Supply Part #                           | Supply List Price Each |
| 2 Loop          | CMA1005002PEX                           | \$51.51                |
| 3 Loop          | CMA1005003PEX                           | \$77.27                |
| 4 Loop          | CMA1005004PEX                           | \$103.02               |
| 5 Loop          | CMA1005005PEX                           | \$128.78               |
| 6 Loop          | CMA1005006PEX                           | \$154.53               |
| 7 Loop          | CMA1005007PEX                           | \$180.29               |
| 8 Loop          | CMA1005008PEX                           | \$206.05               |
| 9 Loop          | CMA1005009PEX                           | \$231.80               |
| 10 Loop         | CMA1005010PEX                           | \$257.56               |
| 11 Loop         | CMA1005011PEX                           | \$283.31               |
| 12 Loop         | CMA1005012PEX                           | \$309.07               |

| 1-1/4" Header | Return Part # | Return List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | CMV1255002PEX | \$67.04                |
| 3 Loop        | CMV1255003PEX | \$100.56               |
| 4 Loop        | CMV1255004PEX | \$134.07               |
| 5 Loop        | CMV1255005PEX | \$167.59               |
| 6 Loop        | CMV1255006PEX | \$201.11               |
| 7 Loop        | CMV1255007PEX | \$234.63               |
| 8 Loop        | CMV1255008PEX | \$268.15               |
| 9 Loop        | CMV1255009PEX | \$301.67               |
| 10 Loop       | CMV1255010PEX | \$335.18               |
| 11 Loop       | CMV1255011PEX | \$368.70               |
| 12 Loop       | CMV1255012PEX | \$402.22               |

Full Stick Available on Page 107

| 1-1/4" Header | Supply Part # | Supply List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | CMA1255002PEX | \$56.23                |
| 3 Loop        | CMA1255003PEX | \$84.35                |
| 4 Loop        | CMA1255004PEX | \$112.46               |
| 5 Loop        | CMA1255005PEX | \$140.58               |
| 6 Loop        | CMA1255006PEX | \$168.70               |
| 7 Loop        | CMA1255007PEX | \$196.81               |
| 8 Loop        | CMA1255008PEX | \$224.93               |
| 9 Loop        | CMA1255009PEX | \$253.05               |
| 10 Loop       | CMA1255010PEX | \$281.16               |
| 11 Loop       | CMA1255011PEX | \$309.28               |
| 12 Loop       | CMA1255012PEX | \$337.39               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" compression mini-ball valves for (ASTM F876/877) soldered on.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" compression adaptors for (ASTM F876/877) soldered on.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





# ▶ WSD 1-1/2" OR 2" X 1/2" PEX COMPRESSION for ASTM F1807 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe  
ASTM F876/877**



| Number of Loops | PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|------------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                            | Return List Price Each |
| 2 Loop          | CMV1505002PEX                            | \$71.54                |
| 3 Loop          | CMV1505003PEX                            | \$107.32               |
| 4 Loop          | CMV1505004PEX                            | \$143.09               |
| 5 Loop          | CMV1505005PEX                            | \$178.86               |
| 6 Loop          | CMV1505006PEX                            | \$214.63               |
| 7 Loop          | CMV1505007PEX                            | \$250.40               |
| 8 Loop          | CMV1505008PEX                            | \$286.17               |
| 9 Loop          | CMV1505009PEX                            | \$321.95               |
| 10 Loop         | CMV1505010PEX                            | \$357.72               |
| 11 Loop         | CMV1505011PEX                            | \$393.49               |
| 12 Loop         | CMV1505012PEX                            | \$429.26               |

Full Stick Available on Page 107

| Number of Loops | For ASTM F876/877 Pipe Adaptor Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                           | Supply List Price Each |
| 2 Loop          | CMA1505002PEX                           | \$60.74                |
| 3 Loop          | CMA1505003PEX                           | \$91.11                |
| 4 Loop          | CMA1505004PEX                           | \$121.48               |
| 5 Loop          | CMA1505005PEX                           | \$151.85               |
| 6 Loop          | CMA1505006PEX                           | \$182.22               |
| 7 Loop          | CMA1505007PEX                           | \$212.59               |
| 8 Loop          | CMA1505008PEX                           | \$242.96               |
| 9 Loop          | CMA1505009PEX                           | \$273.33               |
| 10 Loop         | CMA1505010PEX                           | \$303.69               |
| 11 Loop         | CMA1505011PEX                           | \$334.06               |
| 12 Loop         | CMA1505012PEX                           | \$364.43               |

| 2" Header | Return Part # | Return List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMV2005002PEX | \$84.24                |
| 3 Loop    | CMV2005003PEX | \$126.35               |
| 4 Loop    | CMV2005004PEX | \$168.47               |
| 5 Loop    | CMV2005005PEX | \$210.59               |
| 6 Loop    | CMV2005006PEX | \$252.71               |
| 7 Loop    | CMV2005007PEX | \$294.82               |
| 8 Loop    | CMV2005008PEX | \$336.94               |
| 9 Loop    | CMV2005009PEX | \$379.06               |
| 10 Loop   | CMV2005010PEX | \$421.18               |
| 11 Loop   | CMV2005011PEX | \$463.29               |
| 12 Loop   | CMV2005012PEX | \$505.41               |

Full Stick Available on Page 107

| 2" Header | Supply Part # | Supply List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMA2005002PEX | \$73.43                |
| 3 Loop    | CMA2005003PEX | \$110.15               |
| 4 Loop    | CMA2005004PEX | \$146.86               |
| 5 Loop    | CMA2005005PEX | \$183.58               |
| 6 Loop    | CMA2005006PEX | \$220.29               |
| 7 Loop    | CMA2005007PEX | \$257.01               |
| 8 Loop    | CMA2005008PEX | \$293.72               |
| 9 Loop    | CMA2005009PEX | \$330.44               |
| 10 Loop   | CMA2005010PEX | \$367.15               |
| 11 Loop   | CMA2005011PEX | \$403.87               |
| 12 Loop   | CMA2005012PEX | \$440.58               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" compression mini-ball valves for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" compression adaptors for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



## WSD 5/8" PEX COMPRESSION ASTM F1807 COPPER MANIFOLDS FULL STICKS



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe**  
**ASTM F876/877**

**72" Long | 24 Outlets, 3" On Center**

**1", 1-1/4", 1-1/2" or 2" Header with (24) 5/8" PEX Compression Mini Ball valves (ASTM F876/877 pipe)**

| Part Number   | Description                | Units Per Box | LIST Price each |
|---------------|----------------------------|---------------|-----------------|
| CMV1005824PEX | 1" x 5/8" Compex Valve     | 1             | \$1,052.77      |
| CMV1255824PEX | 1-1/4" x 5/8" Compex Valve | 1             | \$1,107.57      |
| CMV1505824PEX | 1-1/2" x 5/8" Compex Valve | 1             | \$1,165.32      |
| CMV2005824PEX | 2" x 5/8" Compex Valve     | 1             | \$1,317.65      |

## WSD 5/8" PEX COMPRESSION ASTM F1807 COPPER MANIFOLDS



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe**  
**ASTM F876/877**

**72" Long | 24 Outlets, 3" On Center**

**1", 1-1/4", 1-1/2" or 2" Header with (24) 5/8" PEX Compression Adaptor (ASTM F876/877 pipe)**

| Part Number   | Description          | Units Per Box | LIST Price each |
|---------------|----------------------|---------------|-----------------|
| CMA1005824PEX | 1" x 5/8" Compex     | 1             | \$908.56        |
| CMA1255824PEX | 1-1/4" x 5/8" Compex | 1             | \$963.36        |
| CMA1505824PEX | 1-1/2" x 5/8" Compex | 1             | \$1,021.11      |
| CMA2005824PEX | 2" x 5/8" Compex     | 1             | \$1,173.44      |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





# ► WSD 1" OR 1-1/4" X 5/8" PEX COMPRESSION for ASTM F1807 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe  
ASTM F876/877**



► WSD MANIFOLDS

| Number of Loops | PEX Compression Mini Ball Valve Manifold |  |
|-----------------|------------------------------------------|--|
|-----------------|------------------------------------------|--|

| 1" Header | Return Part # | Return List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMV1005802PEX | \$87.73                |
| 3 Loop    | CMV1005803PEX | \$131.60               |
| 4 Loop    | CMV1005804PEX | \$175.46               |
| 5 Loop    | CMV1005805PEX | \$219.33               |
| 6 Loop    | CMV1005806PEX | \$263.19               |
| 7 Loop    | CMV1005807PEX | \$307.06               |
| 8 Loop    | CMV1005808PEX | \$350.92               |
| 9 Loop    | CMV1005809PEX | \$394.79               |
| 10 Loop   | CMV1005810PEX | \$438.65               |
| 11 Loop   | CMV1005811PEX | \$482.52               |
| 12 Loop   | CMV1005812PEX | \$526.38               |

Full Stick Available on Page 110

| Number of Loops | For ASTM F876/877 Pipe Adaptor Manifold |  |
|-----------------|-----------------------------------------|--|
|-----------------|-----------------------------------------|--|

| 1" Header | Supply Part # | Supply List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMA1005802PEX | \$75.71                |
| 3 Loop    | CMA1005803PEX | \$113.57               |
| 4 Loop    | CMA1005804PEX | \$151.43               |
| 5 Loop    | CMA1005805PEX | \$189.28               |
| 6 Loop    | CMA1005806PEX | \$227.14               |
| 7 Loop    | CMA1005807PEX | \$265.00               |
| 8 Loop    | CMA1005808PEX | \$302.85               |
| 9 Loop    | CMA1005809PEX | \$340.71               |
| 10 Loop   | CMA1005810PEX | \$378.56               |
| 11 Loop   | CMA1005811PEX | \$416.42               |
| 12 Loop   | CMA1005812PEX | \$454.28               |

| 1-1/4" Header | Return Part # | Return List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | CMV1255802PEX | \$92.30                |
| 3 Loop        | CMV1255803PEX | \$138.45               |
| 4 Loop        | CMV1255804PEX | \$184.60               |
| 5 Loop        | CMV1255805PEX | \$230.74               |
| 6 Loop        | CMV1255806PEX | \$276.89               |
| 7 Loop        | CMV1255807PEX | \$323.04               |
| 8 Loop        | CMV1255808PEX | \$369.19               |
| 9 Loop        | CMV1255809PEX | \$415.34               |
| 10 Loop       | CMV1255810PEX | \$461.49               |
| 11 Loop       | CMV1255811PEX | \$507.64               |
| 12 Loop       | CMV1255812PEX | \$553.79               |

Full Stick Available on Page 111

| 1-1/4" Header | Supply Part # | Supply List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | CMA1255802PEX | \$80.28                |
| 3 Loop        | CMA1255803PEX | \$120.42               |
| 4 Loop        | CMA1255804PEX | \$160.56               |
| 5 Loop        | CMA1255805PEX | \$200.70               |
| 6 Loop        | CMA1255806PEX | \$240.84               |
| 7 Loop        | CMA1255807PEX | \$280.98               |
| 8 Loop        | CMA1255808PEX | \$321.12               |
| 9 Loop        | CMA1255809PEX | \$361.26               |
| 10 Loop       | CMA1255810PEX | \$401.40               |
| 11 Loop       | CMA1255811PEX | \$441.54               |
| 12 Loop       | CMA1255812PEX | \$481.68               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" compression mini-ball valves for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" compression adaptors for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# ► WSD 1-1/2" OR 2" X 5/8" PEX COMPRESSION for ASTM F1807 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe  
ASTM F876/877**



| Number of Loops | PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|------------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                            | Return List Price Each |
| 2 Loop          | CMV1505802PEX                            | \$97.11                |
| 3 Loop          | CMV1505803PEX                            | \$145.67               |
| 4 Loop          | CMV1505804PEX                            | \$194.22               |
| 5 Loop          | CMV1505805PEX                            | \$242.78               |
| 6 Loop          | CMV1505806PEX                            | \$291.33               |
| 7 Loop          | CMV1505807PEX                            | \$339.89               |
| 8 Loop          | CMV1505808PEX                            | \$388.44               |
| 9 Loop          | CMV1505809PEX                            | \$437.00               |
| 10 Loop         | CMV1505810PEX                            | \$485.55               |
| 11 Loop         | CMV1505811PEX                            | \$534.11               |
| 12 Loop         | CMV1505812PEX                            | \$582.66               |

Full Stick Available on Page 110

| Number of Loops | For ASTM F876/877 Pipe Adaptor Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                           | Supply List Price Each |
| 2 Loop          | CMA1505802PEX                           | \$85.09                |
| 3 Loop          | CMA1505803PEX                           | \$127.64               |
| 4 Loop          | CMA1505804PEX                           | \$170.18               |
| 5 Loop          | CMA1505805PEX                           | \$212.73               |
| 6 Loop          | CMA1505806PEX                           | \$255.28               |
| 7 Loop          | CMA1505807PEX                           | \$297.82               |
| 8 Loop          | CMA1505808PEX                           | \$340.37               |
| 9 Loop          | CMA1505809PEX                           | \$382.92               |
| 10 Loop         | CMA1505810PEX                           | \$425.06               |
| 11 Loop         | CMA1505811PEX                           | \$468.01               |
| 12 Loop         | CMA1505812PEX                           | \$510.55               |

| 2" Header | Return Part # | Return List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMV2005802PEX | \$109.80               |
| 3 Loop    | CMV2005803PEX | \$164.71               |
| 4 Loop    | CMV2005804PEX | \$219.61               |
| 5 Loop    | CMV2005805PEX | \$274.51               |
| 6 Loop    | CMV2005806PEX | \$329.41               |
| 7 Loop    | CMV2005807PEX | \$384.31               |
| 8 Loop    | CMV2005808PEX | \$439.22               |
| 9 Loop    | CMV2005809PEX | \$494.12               |
| 10 Loop   | CMV2005810PEX | \$549.02               |
| 11 Loop   | CMV2005811PEX | \$603.92               |
| 12 Loop   | CMV2005812PEX | \$658.83               |

Full Stick Available on Page 110

| 2" Header | Supply Part # | Supply List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMA2005802PEX | \$97.79                |
| 3 Loop    | CMA2005803PEX | \$146.68               |
| 4 Loop    | CMA2005804PEX | \$195.57               |
| 5 Loop    | CMA2005805PEX | \$244.47               |
| 6 Loop    | CMA2005806PEX | \$293.36               |
| 7 Loop    | CMA2005807PEX | \$342.25               |
| 8 Loop    | CMA2005808PEX | \$391.15               |
| 9 Loop    | CMA2005809PEX | \$440.04               |
| 10 Loop   | CMA2005810PEX | \$488.93               |
| 11 Loop   | CMA2005811PEX | \$537.83               |
| 12 Loop   | CMA2005812PEX | \$586.72               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" compression mini-ball valves or adaptors for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" compression adaptors for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



## WSD 3/4" PEX COMPRESSION ASTM F1807 COPPER MANIFOLDS FULL STICKS



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe**  
ASTM F876/877

**72" Long | 24 Outlets, 3" On Center**

1", 1-1/4", 1-1/2" or 2" Header with (24) 3/4" PEX Compression Mini Ball valves (ASTM F876/877 pipe)

| Part Number   | Description                | Units Per Box | LIST Price each |
|---------------|----------------------------|---------------|-----------------|
| CMV1007524PEX | 1" x 3/4" Compex Valve     | 1             | \$1,077.73      |
| CMV1257524PEX | 1-1/4" x 3/4" Compex Valve | 1             | \$1,132.53      |
| CMV1507524PEX | 1-1/2" x 3/4" Compex Valve | 1             | \$1,190.28      |
| CMV2007524PEX | 2" x 3/4" Compex Valve     | 1             | \$1,342.61      |

## WSD 3/4" PEX COMPRESSION ASTM F1807 COPPER MANIFOLDS



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe**  
ASTM F876/877

**72" Long | 24 Outlets, 3" On Center**

1", 1-1/4", 1-1/2" or 2" Header with (24) 3/4" PEX Compression Adaptor (ASTM F876/877 pipe)

| Part Number   | Description          | Units Per Box | LIST Price each |
|---------------|----------------------|---------------|-----------------|
| CMA1007524PEX | 1" x 3/4" Compex     | 1             | \$921.73        |
| CMA1257524PEX | 1-1/4" x 3/4" Compex | 1             | \$976.53        |
| CMA1507524PEX | 1-1/2" x 3/4" Compex | 1             | \$1,034.28      |
| CMA2007524PEX | 2" x 3/4" Compex     | 1             | \$1,186.61      |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order. Please allow 1-2 days production time plus freight time.



# WSD 1" OR 1-1/4" X 3/4" PEX COMPRESSION for ASTM F1807 Copper Manifolds Open Both Ends



Assembled in the USA  
with foreign and domestic parts

For Standard Pex Pipe  
ASTM F876/877



| Number of Loops | PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|------------------------------------------|------------------------|
| 1" Header       | Return Part #                            | Return List Price Each |
| 2 Loop          | CMV1007502PEX                            | \$89.81                |
| 3 Loop          | CMV1007503PEX                            | \$134.72               |
| 4 Loop          | CMV1007504PEX                            | \$179.62               |
| 5 Loop          | CMV1007505PEX                            | \$224.53               |
| 6 Loop          | CMV1007506PEX                            | \$269.43               |
| 7 Loop          | CMV1007507PEX                            | \$314.34               |
| 8 Loop          | CMV1007508PEX                            | \$359.24               |
| 9 Loop          | CMV1007509PEX                            | \$404.15               |
| 10 Loop         | CMV1007510PEX                            | \$449.05               |
| 11 Loop         | CMV1007511PEX                            | \$493.96               |
| 12 Loop         | CMV1007512PEX                            | \$538.86               |

Full Stick Available on Page T14

| Number of Loops | For ASTM F876/877 Pipe Adaptor Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1" Header       | Supply Part #                           | Supply List Price Each |
| 2 Loop          | CMA1007502PEX                           | \$76.81                |
| 3 Loop          | CMA1007503PEX                           | \$115.22               |
| 4 Loop          | CMA1007504PEX                           | \$153.62               |
| 5 Loop          | CMA1007505PEX                           | \$192.03               |
| 6 Loop          | CMA1007506PEX                           | \$230.43               |
| 7 Loop          | CMA1007507PEX                           | \$268.84               |
| 8 Loop          | CMA1007508PEX                           | \$307.24               |
| 9 Loop          | CMA1007509PEX                           | \$345.65               |
| 10 Loop         | CMA1007510PEX                           | \$384.05               |
| 11 Loop         | CMA1007511PEX                           | \$422.46               |
| 12 Loop         | CMA1007512PEX                           | \$460.86               |

| 1-1/4" Header | Return Part # | Return List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | CMV1257502PEX | \$94.38                |
| 3 Loop        | CMV1257503PEX | \$141.57               |
| 4 Loop        | CMV1257504PEX | \$188.76               |
| 5 Loop        | CMV1257505PEX | \$235.94               |
| 6 Loop        | CMV1257506PEX | \$283.13               |
| 7 Loop        | CMV1257507PEX | \$330.32               |
| 8 Loop        | CMV1257508PEX | \$377.51               |
| 9 Loop        | CMV1257509PEX | \$424.70               |
| 10 Loop       | CMV1257510PEX | \$471.89               |
| 11 Loop       | CMV1257511PEX | \$519.08               |
| 12 Loop       | CMV1257512PEX | \$566.27               |

Full Stick Available on Page T14

| 1-1/4" Header | Supply Part # | Supply List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | CMA1257502PEX | \$81.38                |
| 3 Loop        | CMA1257503PEX | \$122.07               |
| 4 Loop        | CMA1257504PEX | \$162.76               |
| 5 Loop        | CMA1257505PEX | \$203.44               |
| 6 Loop        | CMA1257506PEX | \$244.13               |
| 7 Loop        | CMA1257507PEX | \$284.82               |
| 8 Loop        | CMA1257508PEX | \$325.51               |
| 9 Loop        | CMA1257509PEX | \$366.20               |
| 10 Loop       | CMA1257510PEX | \$406.89               |
| 11 Loop       | CMA1257511PEX | \$447.58               |
| 12 Loop       | CMA1257512PEX | \$488.27               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" compression mini-ball valves for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" compression adaptors for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# ► WSD 1-1/2" OR 2" X 3/4" PEX COMPRESSION for ASTM F1807 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**For Standard Pex Pipe  
ASTM F876/877**



► WSD MANIFOLDS

| Number of Loops | PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|------------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                            | Return List Price Each |
| 2 Loop          | CMV1507502PEX                            | \$99.19                |
| 3 Loop          | CMV1507503PEX                            | \$148.79               |
| 4 Loop          | CMV1507504PEX                            | \$198.38               |
| 5 Loop          | CMV1507505PEX                            | \$247.98               |
| 6 Loop          | CMV1507506PEX                            | \$297.57               |
| 7 Loop          | CMV1507507PEX                            | \$347.17               |
| 8 Loop          | CMV1507508PEX                            | \$396.76               |
| 9 Loop          | CMV1507509PEX                            | \$446.36               |
| 10 Loop         | CMV1507510PEX                            | \$495.95               |
| 11 Loop         | CMV1507511PEX                            | \$545.55               |
| 12 Loop         | CMV1507512PEX                            | \$595.14               |

Full Stick Available on Page T14

| Number of Loops | For ASTM F876/877 Pipe Adaptor Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                           | Supply List Price Each |
| 2 Loop          | CMA1507502PEX                           | \$86.19                |
| 3 Loop          | CMA1507503PEX                           | \$129.29               |
| 4 Loop          | CMA1507504PEX                           | \$172.38               |
| 5 Loop          | CMA1507505PEX                           | \$215.48               |
| 6 Loop          | CMA1507506PEX                           | \$258.57               |
| 7 Loop          | CMA1507507PEX                           | \$301.67               |
| 8 Loop          | CMA1507508PEX                           | \$344.76               |
| 9 Loop          | CMA1507509PEX                           | \$387.86               |
| 10 Loop         | CMA1507510PEX                           | \$430.95               |
| 11 Loop         | CMA1507511PEX                           | \$474.05               |
| 12 Loop         | CMA1507512PEX                           | \$517.14               |

| 2" Header | Return Part # | Return List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMV2007502PEX | \$111.88               |
| 3 Loop    | CMV2007503PEX | \$167.83               |
| 4 Loop    | CMV2007504PEX | \$223.77               |
| 5 Loop    | CMV2007505PEX | \$279.71               |
| 6 Loop    | CMV2007506PEX | \$335.65               |
| 7 Loop    | CMV2007507PEX | \$391.59               |
| 8 Loop    | CMV2007508PEX | \$447.54               |
| 9 Loop    | CMV2007509PEX | \$503.48               |
| 10 Loop   | CMV2007510PEX | \$559.42               |
| 11 Loop   | CMV2007511PEX | \$615.36               |
| 12 Loop   | CMV2007512PEX | \$671.31               |

Full Stick Available on Page T14

| 2" Header | Supply Part # | Supply List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | CMA2007502PEX | \$98.88                |
| 3 Loop    | CMA2007503PEX | \$148.33               |
| 4 Loop    | CMA2007504PEX | \$197.77               |
| 5 Loop    | CMA2007505PEX | \$247.21               |
| 6 Loop    | CMA2007506PEX | \$296.65               |
| 7 Loop    | CMA2007507PEX | \$346.09               |
| 8 Loop    | CMA2007508PEX | \$395.54               |
| 9 Loop    | CMA2007509PEX | \$444.98               |
| 10 Loop   | CMA2007510PEX | \$494.42               |
| 11 Loop   | CMA2007511PEX | \$543.86               |
| 12 Loop   | CMA2007512PEX | \$593.31               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" compression mini-ball valves or adaptors for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" compression adaptors for (ASTM F876/877) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.









[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)

## ► F2080 EV Lock Pex Manifolds

► **PEX COLD EXPANSION  
AS PER ASTM F2080**

**- NOT PEX CRIMP -**



ASTM F2080  
Lock™

**ALL MANIFOLDS IN THE FOLLOWING  
SECTION ARE CONSIDERED SPECIAL  
ORDER AND CANNOT BE RETURNED.**

**ALL MANIFOLDS ALSO AVAILABLE  
UP TO 24 OUTLET 3" ON CENTER.  
CALL FOR PRICING**

[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)



## WSD 1" TO 2" X 1/2" PEX VALVE FOR ASTM F2080 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number  | Description         | Units Per Box | LIST Price each |
|--------------|---------------------|---------------|-----------------|
| EV1005024PEX | 1" X 1/2" VALVE     | 1             | \$655.58        |
| EV1255024PEX | 1 1/4" X 1/2 VALVE  | 1             | \$712.23        |
| EV1505024PEX | 1 1/2" X 1/2" VALVE | 1             | \$766.31        |
| EV2005024PEX | 2" X 1/2" VALVE     | 1             | \$918.61        |

## WSD 1" TO 2" X 1/2" PEX ADAPTER FOR ASTM F2080 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number  | Description          | Units Per Box | LIST Price each |
|--------------|----------------------|---------------|-----------------|
| EA1005024PEX | 1" X 1/2" ADAPT.     | 1             | \$451.04        |
| EA1255024PEX | 1 1/4" X 1/2 ADAPT.  | 1             | \$507.69        |
| EA1505024PEX | 1 1/2" X 1/2" ADAPT. | 1             | \$561.77        |
| EA2005024PEX | 2" X 1/2" ADAPT.     | 1             | \$714.08        |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD 1" OR 1-1/4" X 1/2" PEX EV for ASTM F2080 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**



| Number of Loops | PEX EV F2080 Mini Ball Valve Manifold |                        |
|-----------------|---------------------------------------|------------------------|
| 1" Header       | Return Part #                         | Return List Price Each |
| 2 Loop          | EV1005002PEX                          | \$54.63                |
| 3 Loop          | EV1005003PEX                          | \$81.95                |
| 4 Loop          | EV1005004PEX                          | \$109.26               |
| 5 Loop          | EV1005005PEX                          | \$136.58               |
| 6 Loop          | EV1005006PEX                          | \$163.89               |
| 7 Loop          | EV1005007PEX                          | \$191.21               |
| 8 Loop          | EV1005008PEX                          | \$218.53               |
| 9 Loop          | EV1005009PEX                          | \$245.84               |
| 10 Loop         | EV1005010PEX                          | \$273.16               |
| 11 Loop         | EV1005011PEX                          | \$300.47               |
| 12 Loop         | EV1005012PEX                          | \$327.79               |

Full Stick Available on Page 118

| Number of Loops | For ASTM F2080 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | EA1005002PEX                         | \$37.59                |
| 3 Loop          | EA1005003PEX                         | \$56.38                |
| 4 Loop          | EA1005004PEX                         | \$75.17                |
| 5 Loop          | EA1005005PEX                         | \$93.97                |
| 6 Loop          | EA1005006PEX                         | \$112.76               |
| 7 Loop          | EA1005007PEX                         | \$131.55               |
| 8 Loop          | EA1005008PEX                         | \$150.35               |
| 9 Loop          | EA1005009PEX                         | \$169.14               |
| 10 Loop         | EA1005010PEX                         | \$187.93               |
| 11 Loop         | EA1005011PEX                         | \$206.73               |
| 12 Loop         | EA1005012PEX                         | \$225.52               |

| 1-1/4" Header | Return Part # | Return List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | EV1255002PEX  | \$59.35                |
| 3 Loop        | EV1255003PEX  | \$89.03                |
| 4 Loop        | EV1255004PEX  | \$118.70               |
| 5 Loop        | EV1255005PEX  | \$148.38               |
| 6 Loop        | EV1255006PEX  | \$178.06               |
| 7 Loop        | EV1255007PEX  | \$207.73               |
| 8 Loop        | EV1255008PEX  | \$237.41               |
| 9 Loop        | EV1255009PEX  | \$267.09               |
| 10 Loop       | EV1255010PEX  | \$296.76               |
| 11 Loop       | EV1255011PEX  | \$326.44               |
| 12 Loop       | EV1255012PEX  | \$356.11               |

Full Stick Available on Page 118

| 1-1/4" Header | Supply Part # | Supply List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | EA1255002PEX  | \$42.31                |
| 3 Loop        | EA1255003PEX  | \$63.46                |
| 4 Loop        | EA1255004PEX  | \$84.62                |
| 5 Loop        | EA1255005PEX  | \$105.77               |
| 6 Loop        | EA1255006PEX  | \$126.92               |
| 7 Loop        | EA1255007PEX  | \$148.08               |
| 8 Loop        | EA1255008PEX  | \$169.23               |
| 9 Loop        | EA1255009PEX  | \$190.39               |
| 10 Loop       | EA1255010PEX  | \$211.54               |
| 11 Loop       | EA1255011PEX  | \$232.69               |
| 12 Loop       | EA1255012PEX  | \$253.85               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" Dahl EV mini-ball valves or Everloc adaptors for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" Everloc adaptors for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# ► WSD 1-1/2" OR 2" PEX EV for ASTM F2080 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold  
expansion tool.**



| Number of Loops | PEX EV F2080 Mini Ball Valve Manifold |                        |
|-----------------|---------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                         | Return List Price Each |
| 2 Loop          | EV1505002PEX                          | \$63.86                |
| 3 Loop          | EV1505003PEX                          | \$95.79                |
| 4 Loop          | EV1505004PEX                          | \$127.72               |
| 5 Loop          | EV1505005PEX                          | \$159.65               |
| 6 Loop          | EV1505006PEX                          | \$191.58               |
| 7 Loop          | EV1505007PEX                          | \$223.51               |
| 8 Loop          | EV1505008PEX                          | \$255.44               |
| 9 Loop          | EV1505009PEX                          | \$287.37               |
| 10 Loop         | EV1505010PEX                          | \$319.29               |
| 11 Loop         | EV1505011PEX                          | \$351.22               |
| 12 Loop         | EV1505012PEX                          | \$383.15               |

Full Stick Available on Page 118

| Number of Loops | For ASTM F2080 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | EA1505002PEX                         | \$46.81                |
| 3 Loop          | EA1505003PEX                         | \$70.22                |
| 4 Loop          | EA1505004PEX                         | \$93.63                |
| 5 Loop          | EA1505005PEX                         | \$117.04               |
| 6 Loop          | EA1505006PEX                         | \$140.44               |
| 7 Loop          | EA1505007PEX                         | \$163.85               |
| 8 Loop          | EA1505008PEX                         | \$187.26               |
| 9 Loop          | EA1505009PEX                         | \$210.67               |
| 10 Loop         | EA1505010PEX                         | \$234.07               |
| 11 Loop         | EA1505011PEX                         | \$257.48               |
| 12 Loop         | EA1505012PEX                         | \$280.89               |

| 2" Header | Return Part # | Return List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | EV2005002PEX  | \$76.55                |
| 3 Loop    | EV2005003PEX  | \$114.83               |
| 4 Loop    | EV2005004PEX  | \$153.10               |
| 5 Loop    | EV2005005PEX  | \$191.38               |
| 6 Loop    | EV2005006PEX  | \$229.65               |
| 7 Loop    | EV2005007PEX  | \$267.93               |
| 8 Loop    | EV2005008PEX  | \$306.20               |
| 9 Loop    | EV2005009PEX  | \$344.48               |
| 10 Loop   | EV2005010PEX  | \$382.75               |
| 11 Loop   | EV2005011PEX  | \$421.03               |
| 12 Loop   | EV2005012PEX  | \$459.30               |

Full Stick Available on Page 118

| 2" Header | Supply Part # | Supply List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | EA2005002PEX  | \$59.51                |
| 3 Loop    | EA2005003PEX  | \$89.26                |
| 4 Loop    | EA2005004PEX  | \$119.01               |
| 5 Loop    | EA2005005PEX  | \$148.77               |
| 6 Loop    | EA2005006PEX  | \$178.52               |
| 7 Loop    | EA2005007PEX  | \$208.27               |
| 8 Loop    | EA2005008PEX  | \$238.03               |
| 9 Loop    | EA2005009PEX  | \$267.78               |
| 10 Loop   | EA2005010PEX  | \$297.53               |
| 11 Loop   | EA2005011PEX  | \$327.28               |
| 12 Loop   | EA2005012PEX  | \$357.04               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" Dahl EV mini-ball valves for (ASTM F2080) soldered on.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" Everloc adaptors for (ASTM F2080) soldered on.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



## ► WSD 1" TO 2" X 5/8" PEX VALVE FOR ASTM F2080 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number  | Description         | Units Per Box | LIST Price each |
|--------------|---------------------|---------------|-----------------|
| EV1005824PEX | 1" X 5/8" VALVE     | 1             | \$930.05        |
| EV1255824PEX | 1 1/4" X 5/8" VALVE | 1             | \$984.85        |
| EV1505824PEX | 1 1/2" X 5/8" VALVE | 1             | \$1,042.60      |
| EV2005824PEX | 2" X 5/8" VALVE     | 1             | \$1,194.93      |

## ► WSD 1" TO 2" X 5/8" PEX ADAPTER FOR ASTM F2080 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number  | Description          | Units Per Box | LIST Price each |
|--------------|----------------------|---------------|-----------------|
| EA1005824PEX | 1" X 5/8" ADAPT.     | 1             | \$777.52        |
| EA1255824PEX | 1 1/4" X 5/8" ADAPT. | 1             | \$832.32        |
| EA1505824PEX | 1 1/2" X 5/8" ADAPT. | 1             | \$890.07        |
| EA2005824PEX | 2" X 5/8" ADAPT.     | 1             | \$1,042.40      |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order. Please allow 1-2 days production time plus freight time.





# ► WSD 1" OR 1-1/4" X 5/8" PEX EV for ASTM F2080 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold  
expansion tool.**



| Number of Loops | PEX EV F2080 Mini Ball Valve Manifold |                        |
|-----------------|---------------------------------------|------------------------|
| 1" Header       | Return Part #                         | Return List Price Each |
| 2 Loop          | EV1005802PEX                          | \$77.50                |
| 3 Loop          | EV1005803PEX                          | \$116.26               |
| 4 Loop          | EV1005804PEX                          | \$155.01               |
| 5 Loop          | EV1005805PEX                          | \$193.76               |
| 6 Loop          | EV1005806PEX                          | \$232.51               |
| 7 Loop          | EV1005807PEX                          | \$271.26               |
| 8 Loop          | EV1005808PEX                          | \$310.02               |
| 9 Loop          | EV1005809PEX                          | \$348.77               |
| 10 Loop         | EV1005810PEX                          | \$387.52               |
| 11 Loop         | EV1005811PEX                          | \$426.27               |
| 12 Loop         | EV1005812PEX                          | \$465.02               |

Full Stick Available on Page 121

| Number of Loops | For ASTM F2080 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | EA1005802PEX                         | \$64.79                |
| 3 Loop          | EA1005803PEX                         | \$97.19                |
| 4 Loop          | EA1005804PEX                         | \$129.59               |
| 5 Loop          | EA1005805PEX                         | \$161.98               |
| 6 Loop          | EA1005806PEX                         | \$194.38               |
| 7 Loop          | EA1005807PEX                         | \$226.78               |
| 8 Loop          | EA1005808PEX                         | \$259.17               |
| 9 Loop          | EA1005809PEX                         | \$291.57               |
| 10 Loop         | EA1005810PEX                         | \$323.96               |
| 11 Loop         | EA1005811PEX                         | \$356.36               |
| 12 Loop         | EA1005812PEX                         | \$388.76               |

| 1-1/4" Header | Return Part # | Return List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | EV1255802PEX  | \$82.07                |
| 3 Loop        | EV1255803PEX  | \$123.11               |
| 4 Loop        | EV1255804PEX  | \$164.14               |
| 5 Loop        | EV1255805PEX  | \$205.18               |
| 6 Loop        | EV1255806PEX  | \$246.21               |
| 7 Loop        | EV1255807PEX  | \$287.25               |
| 8 Loop        | EV1255808PEX  | \$328.28               |
| 9 Loop        | EV1255809PEX  | \$369.32               |
| 10 Loop       | EV1255810PEX  | \$410.35               |
| 11 Loop       | EV1255811PEX  | \$451.39               |
| 12 Loop       | EV1255812PEX  | \$492.43               |

Full Stick Available on Page 121

| 1-1/4" Header | Supply Part # | Supply List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | EA1255802PEX  | \$69.36                |
| 3 Loop        | EA1255803PEX  | \$104.04               |
| 4 Loop        | EA1255804PEX  | \$138.72               |
| 5 Loop        | EA1255805PEX  | \$173.40               |
| 6 Loop        | EA1255806PEX  | \$208.08               |
| 7 Loop        | EA1255807PEX  | \$242.76               |
| 8 Loop        | EA1255808PEX  | \$277.44               |
| 9 Loop        | EA1255809PEX  | \$312.12               |
| 10 Loop       | EA1255810PEX  | \$346.80               |
| 11 Loop       | EA1255811PEX  | \$381.48               |
| 12 Loop       | EA1255812PEX  | \$416.16               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" Dahl EV mini-ball valves for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" Everloc adaptors for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
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# ► WSD 1-1/2" OR 2" X 5/8" PEX EV for ASTM F2080 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**



► WSD MANIFOLDS

| Number of Loops | PEX EV F2080 Mini Ball Valve Manifold |                        |
|-----------------|---------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                         | Return List Price Each |
| 2 Loop          | EV1505802PEX                          | \$86.88                |
| 3 Loop          | EV1505803PEX                          | \$130.33               |
| 4 Loop          | EV1505804PEX                          | \$173.77               |
| 5 Loop          | EV1505805PEX                          | \$217.21               |
| 6 Loop          | EV1505806PEX                          | \$260.65               |
| 7 Loop          | EV1505807PEX                          | \$304.09               |
| 8 Loop          | EV1505808PEX                          | \$347.53               |
| 9 Loop          | EV1505809PEX                          | \$390.98               |
| 10 Loop         | EV1505810PEX                          | \$434.42               |
| 11 Loop         | EV1505811PEX                          | \$477.86               |
| 12 Loop         | EV1505812PEX                          | \$521.30               |

Full Stick Available on Page 121

| Number of Loops | For ASTM F2080 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | EA1505802PEX                         | \$74.17                |
| 3 Loop          | EA1505803PEX                         | \$111.26               |
| 4 Loop          | EA1505804PEX                         | \$148.34               |
| 5 Loop          | EA1505805PEX                         | \$185.43               |
| 6 Loop          | EA1505806PEX                         | \$222.52               |
| 7 Loop          | EA1505807PEX                         | \$259.60               |
| 8 Loop          | EA1505808PEX                         | \$296.69               |
| 9 Loop          | EA1505809PEX                         | \$333.78               |
| 10 Loop         | EA1505810PEX                         | \$370.86               |
| 11 Loop         | EA1505811PEX                         | \$407.95               |
| 12 Loop         | EA1505812PEX                         | \$445.03               |

| 2" Header | Return Part # | Return List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | EV2005802PEX  | \$99.58                |
| 3 Loop    | EV2005803PEX  | \$149.37               |
| 4 Loop    | EV2005804PEX  | \$199.16               |
| 5 Loop    | EV2005805PEX  | \$248.94               |
| 6 Loop    | EV2005806PEX  | \$298.73               |
| 7 Loop    | EV2005807PEX  | \$348.52               |
| 8 Loop    | EV2005808PEX  | \$398.31               |
| 9 Loop    | EV2005809PEX  | \$448.10               |
| 10 Loop   | EV2005810PEX  | \$497.89               |
| 11 Loop   | EV2005811PEX  | \$547.68               |
| 12 Loop   | EV2005812PEX  | \$597.47               |

Full Stick Available on Page 121

| 2" Header | Supply Part # | Supply List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | EA2005802PEX  | \$86.87                |
| 3 Loop    | EA2005803PEX  | \$130.30               |
| 4 Loop    | EA2005804PEX  | \$173.73               |
| 5 Loop    | EA2005805PEX  | \$217.17               |
| 6 Loop    | EA2005806PEX  | \$260.60               |
| 7 Loop    | EA2005807PEX  | \$304.03               |
| 8 Loop    | EA2005808PEX  | \$347.47               |
| 9 Loop    | EA2005809PEX  | \$390.90               |
| 10 Loop   | EA2005810PEX  | \$434.33               |
| 11 Loop   | EA2005811PEX  | \$477.77               |
| 12 Loop   | EA2005812PEX  | \$521.20               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" Dahl EV mini-ball valves for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" Everloc adaptors for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



## WSD 1" TO 2" X 3/4" PEX VALVE FOR ASTM F2080 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number  | Description         | Units Per Box | LIST Price each |
|--------------|---------------------|---------------|-----------------|
| EV1007524PEX | 1" X 3/4" VALVE     | 1             | \$946.69        |
| EV1257524PEX | 1 1/4" X 3/4" VALVE | 1             | \$1,001.49      |
| EV1507524PEX | 1 1/2" X 3/4" VALVE | 1             | \$1,059.24      |
| EV2007524PEX | 2" X 3/4" VALVE     | 1             | \$1,211.57      |

## WSD 1" TO 2" X 3/4" PEX ADAPTER FOR ASTM F2080 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number  | Description          | Units Per Box | LIST Price each |
|--------------|----------------------|---------------|-----------------|
| EA1007524PEX | 1" X 3/4" ADAPT.     | 1             | \$507.81        |
| EA1257524PEX | 1 1/4" X 3/4" ADAPT. | 1             | \$562.61        |
| EA1507524PEX | 1 1/2" X 3/4" ADAPT. | 1             | \$620.36        |
| EA2007524PEX | 2" X 3/4" ADAPT.     | 1             | \$772.69        |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# ► WSD 1" OR 1-1/4" X 3/4" PEX EV for ASTM F2080 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold  
expansion tool.**



| Number of Loops | PEX EV F2080 Mini Ball Valve Manifold |                        |
|-----------------|---------------------------------------|------------------------|
| 1" Header       | Return Part #                         | Return List Price Each |
| 2 Loop          | EV1007502PEX                          | \$78.89                |
| 3 Loop          | EV1007503PEX                          | \$118.34               |
| 4 Loop          | EV1007504PEX                          | \$157.78               |
| 5 Loop          | EV1007505PEX                          | \$197.23               |
| 6 Loop          | EV1007506PEX                          | \$236.67               |
| 7 Loop          | EV1007507PEX                          | \$276.12               |
| 8 Loop          | EV1007508PEX                          | \$315.56               |
| 9 Loop          | EV1007509PEX                          | \$355.01               |
| 10 Loop         | EV1007510PEX                          | \$394.45               |
| 11 Loop         | EV1007511PEX                          | \$433.90               |
| 12 Loop         | EV1007512PEX                          | \$473.34               |

Full Stick Available on Page 124

| Number of Loops | For ASTM F2080 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | EA1007502PEX                         | \$42.32                |
| 3 Loop          | EA1007503PEX                         | \$63.48                |
| 4 Loop          | EA1007504PEX                         | \$84.63                |
| 5 Loop          | EA1007505PEX                         | \$105.79               |
| 6 Loop          | EA1007506PEX                         | \$126.95               |
| 7 Loop          | EA1007507PEX                         | \$148.11               |
| 8 Loop          | EA1007508PEX                         | \$169.27               |
| 9 Loop          | EA1007509PEX                         | \$190.43               |
| 10 Loop         | EA1007510PEX                         | \$211.59               |
| 11 Loop         | EA1007511PEX                         | \$232.75               |
| 12 Loop         | EA1007512PEX                         | \$253.90               |

| 1-1/4" Header | Return Part # | Return List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | EV1257502PEX  | \$83.46                |
| 3 Loop        | EV1257503PEX  | \$125.19               |
| 4 Loop        | EV1257504PEX  | \$166.92               |
| 5 Loop        | EV1257505PEX  | \$208.64               |
| 6 Loop        | EV1257506PEX  | \$250.37               |
| 7 Loop        | EV1257507PEX  | \$292.10               |
| 8 Loop        | EV1257508PEX  | \$333.83               |
| 9 Loop        | EV1257509PEX  | \$375.56               |
| 10 Loop       | EV1257510PEX  | \$417.29               |
| 11 Loop       | EV1257511PEX  | \$459.02               |
| 12 Loop       | EV1257512PEX  | \$500.75               |

Full Stick Available on Page 124

| 1-1/4" Header | Supply Part # | Supply List Price Each |
|---------------|---------------|------------------------|
| 2 Loop        | EA1257502PEX  | \$46.88                |
| 3 Loop        | EA1257503PEX  | \$70.33                |
| 4 Loop        | EA1257504PEX  | \$93.77                |
| 5 Loop        | EA1257505PEX  | \$117.21               |
| 6 Loop        | EA1257506PEX  | \$140.65               |
| 7 Loop        | EA1257507PEX  | \$164.09               |
| 8 Loop        | EA1257508PEX  | \$187.54               |
| 9 Loop        | EA1257509PEX  | \$210.98               |
| 10 Loop       | EA1257510PEX  | \$234.42               |
| 11 Loop       | EA1257511PEX  | \$257.86               |
| 12 Loop       | EA1257512PEX  | \$281.31               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" Dahl EV mini-ball valves for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" Everloc adaptors for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD 1-1/2" OR 2" X 3/4" PEX EV for ASTM F2080 Copper Manifolds Open Both Ends



Assembled in the USA  
with foreign and domestic parts

Fittings require a cold  
expansion tool.



| Number of Loops | PEX EV F2080 Mini Ball Valve Manifold |                        |
|-----------------|---------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                         | Return List Price Each |
| 2 Loop          | EV1507502PEX                          | \$88.27                |
| 3 Loop          | EV1507503PEX                          | \$132.41               |
| 4 Loop          | EV1507504PEX                          | \$176.54               |
| 5 Loop          | EV1507505PEX                          | \$220.68               |
| 6 Loop          | EV1507506PEX                          | \$264.81               |
| 7 Loop          | EV1507507PEX                          | \$308.95               |
| 8 Loop          | EV1507508PEX                          | \$353.08               |
| 9 Loop          | EV1507509PEX                          | \$397.22               |
| 10 Loop         | EV1507510PEX                          | \$441.35               |
| 11 Loop         | EV1507511PEX                          | \$485.49               |
| 12 Loop         | EV1507512PEX                          | \$529.62               |

Full Stick Available on Page 124

| Number of Loops | For ASTM F2080 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | EA1507502PEX                         | \$51.70                |
| 3 Loop          | EA1507503PEX                         | \$77.55                |
| 4 Loop          | EA1507504PEX                         | \$103.39               |
| 5 Loop          | EA1507505PEX                         | \$129.24               |
| 6 Loop          | EA1507506PEX                         | \$155.09               |
| 7 Loop          | EA1507507PEX                         | \$180.94               |
| 8 Loop          | EA1507508PEX                         | \$206.79               |
| 9 Loop          | EA1507509PEX                         | \$232.64               |
| 10 Loop         | EA1507510PEX                         | \$258.48               |
| 11 Loop         | EA1507511PEX                         | \$284.33               |
| 12 Loop         | EA1507512PEX                         | \$310.18               |

| 2" Header | Return Part # | Return List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | EV2007502PEX  | \$100.96               |
| 3 Loop    | EV2007503PEX  | \$151.45               |
| 4 Loop    | EV2007504PEX  | \$201.93               |
| 5 Loop    | EV2007505PEX  | \$252.41               |
| 6 Loop    | EV2007506PEX  | \$302.89               |
| 7 Loop    | EV2007507PEX  | \$353.37               |
| 8 Loop    | EV2007508PEX  | \$403.86               |
| 9 Loop    | EV2007509PEX  | \$454.34               |
| 10 Loop   | EV2007510PEX  | \$504.82               |
| 11 Loop   | EV2007511PEX  | \$555.30               |
| 12 Loop   | EV2007512PEX  | \$605.79               |

Full Stick Available on Page 124

| 2" Header | Supply Part # | Supply List Price Each |
|-----------|---------------|------------------------|
| 2 Loop    | EA2007502PEX  | \$64.39                |
| 3 Loop    | EA2007503PEX  | \$96.59                |
| 4 Loop    | EA2007504PEX  | \$128.78               |
| 5 Loop    | EA2007505PEX  | \$160.98               |
| 6 Loop    | EA2007506PEX  | \$193.17               |
| 7 Loop    | EA2007507PEX  | \$225.37               |
| 8 Loop    | EA2007508PEX  | \$257.56               |
| 9 Loop    | EA2007509PEX  | \$289.76               |
| 10 Loop   | EA2007510PEX  | \$321.95               |
| 11 Loop   | EA2007511PEX  | \$354.15               |
| 12 Loop   | EA2007512PEX  | \$386.35               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" Dahl EV mini-ball valves for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" Everloc adaptors for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)

## ► F1960 Pro Pex Manifolds

► **PEX COLD EXPANSION  
AS PER ASTM F1960**

**- NOT PEX CRIMP -**



ASTM F1960  
Grip™

**ALL MANIFOLDS IN THE FOLLOWING  
SECTION ARE CONSIDERED SPECIAL  
ORDER AND CANNOT BE RETURNED.**

**ALL MANIFOLDS ALSO AVAILABLE  
UP TO 24 OUTLET 3" ON CENTER.  
CALL FOR PRICING**

[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)





## WSD 1" TO 2" X 1/2" PEX VALVE FOR ASTM F1960 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number     | Description         | Units Per Box | LIST Price each |
|-----------------|---------------------|---------------|-----------------|
| PRPXV1005024PEX | 1" X 1/2" VALVE     | 1             | \$742.94        |
| PRPXV1255024PEX | 1 1/4" X 1/2" VALVE | 1             | \$799.59        |
| PRPXV1505024PEX | 1 1/2" X 1/2" VALVE | 1             | \$853.67        |
| PRPXV2005024PEX | 2" X 1/2" VALVE     | 1             | \$1,005.97      |

## WSD 1" TO 2" X 1/2" PEX ADAPTER FOR ASTM F1960 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number     | Description          | Units Per Box | LIST Price each |
|-----------------|----------------------|---------------|-----------------|
| PRPXA1005024PEX | 1" X 1/2" ADAPT.     | 1             | \$422.62        |
| PRPXA1255024PEX | 1 1/4" X 1/2" ADAPT. | 1             | \$479.27        |
| PRPXA1505024PEX | 1 1/2" X 1/2" ADAPT. | 1             | \$533.35        |
| PRPXA2005024PEX | 2" X 1/2" ADAPT.     | 1             | \$685.65        |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





# ► WSD 1" OR 1-1/4" X 1/2" PRO PEX

## for ASTM F1960 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**



► WSD MANIFOLDS

| Number of Loops | PEX PRPX F1960 Mini Ball Valve Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1" Header       | Return Part #                           | Return List Price Each |
| 2 Loop          | PRPXV1005002PEX                         | \$61.91                |
| 3 Loop          | PRPXV1005003PEX                         | \$92.87                |
| 4 Loop          | PRPXV1005004PEX                         | \$123.82               |
| 5 Loop          | PRPXV1005005PEX                         | \$154.78               |
| 6 Loop          | PRPXV1005006PEX                         | \$185.73               |
| 7 Loop          | PRPXV1005007PEX                         | \$216.69               |
| 8 Loop          | PRPXV1005008PEX                         | \$247.65               |
| 9 Loop          | PRPXV1005009PEX                         | \$278.60               |
| 10 Loop         | PRPXV1005010PEX                         | \$309.56               |
| 11 Loop         | PRPXV1005011PEX                         | \$340.51               |
| 12 Loop         | PRPXV1005012PEX                         | \$371.47               |

Full Stick Available on Page 128

| Number of Loops | For ASTM F1960 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | PRPXA1005002PEX                      | \$35.22                |
| 3 Loop          | PRPXA1005003PEX                      | \$52.83                |
| 4 Loop          | PRPXA1005004PEX                      | \$70.44                |
| 5 Loop          | PRPXA1005005PEX                      | \$88.04                |
| 6 Loop          | PRPXA1005006PEX                      | \$105.65               |
| 7 Loop          | PRPXA1005007PEX                      | \$123.26               |
| 8 Loop          | PRPXA1005008PEX                      | \$140.87               |
| 9 Loop          | PRPXA1005009PEX                      | \$158.48               |
| 10 Loop         | PRPXA1005010PEX                      | \$176.09               |
| 11 Loop         | PRPXA1005011PEX                      | \$193.70               |
| 12 Loop         | PRPXA1005012PEX                      | \$211.31               |

| 1-1/4" Header | Return Part #   | Return List Price Each |
|---------------|-----------------|------------------------|
| 2 Loop        | PRPXV1255002PEX | \$66.63                |
| 3 Loop        | PRPXV1255003PEX | \$99.95                |
| 4 Loop        | PRPXV1255004PEX | \$133.26               |
| 5 Loop        | PRPXV1255005PEX | \$166.58               |
| 6 Loop        | PRPXV1255006PEX | \$199.90               |
| 7 Loop        | PRPXV1255007PEX | \$233.21               |
| 8 Loop        | PRPXV1255008PEX | \$266.53               |
| 9 Loop        | PRPXV1255009PEX | \$299.85               |
| 10 Loop       | PRPXV1255010PEX | \$333.16               |
| 11 Loop       | PRPXV1255011PEX | \$366.48               |
| 12 Loop       | PRPXV1255012PEX | \$399.79               |

Full Stick Available on Page 128

| 1-1/4" Header | Supply Part #   | Supply List Price Each |
|---------------|-----------------|------------------------|
| 2 Loop        | PRPXA1255002PEX | \$39.94                |
| 3 Loop        | PRPXA1255003PEX | \$59.91                |
| 4 Loop        | PRPXA1255004PEX | \$79.88                |
| 5 Loop        | PRPXA1255005PEX | \$99.85                |
| 6 Loop        | PRPXA1255006PEX | \$119.82               |
| 7 Loop        | PRPXA1255007PEX | \$139.79               |
| 8 Loop        | PRPXA1255008PEX | \$159.76               |
| 9 Loop        | PRPXA1255009PEX | \$179.73               |
| 10 Loop       | PRPXA1255010PEX | \$199.69               |
| 11 Loop       | PRPXA1255011PEX | \$219.66               |
| 12 Loop       | PRPXA1255012PEX | \$239.63               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" Dahl Expansion mini-ball valves for (ASTM F1960) soldered on.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" Pro Pex adaptors for (ASTM F1960) soldered on.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD 1-1/2" OR 2" X 1/2" PRO PEX for ASTM F1960 Copper Manifolds Open Both Ends



Assembled in the USA  
with foreign and domestic parts

Fittings require a cold  
expansion tool.



| Number of Loops | PEX PRPX F1960 Mini Ball Valve Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                           | Return List Price Each |
| 2 Loop          | PRPXV1505002PEX                         | \$71.14                |
| 3 Loop          | PRPXV1505003PEX                         | \$106.71               |
| 4 Loop          | PRPXV1505004PEX                         | \$142.28               |
| 5 Loop          | PRPXV1505005PEX                         | \$177.85               |
| 6 Loop          | PRPXV1505006PEX                         | \$213.42               |
| 7 Loop          | PRPXV1505007PEX                         | \$248.99               |
| 8 Loop          | PRPXV1505008PEX                         | \$284.56               |
| 9 Loop          | PRPXV1505009PEX                         | \$320.13               |
| 10 Loop         | PRPXV1505010PEX                         | \$355.69               |
| 11 Loop         | PRPXV1505011PEX                         | \$391.26               |
| 12 Loop         | PRPXV1505012PEX                         | \$426.83               |

Full Stick Available on Page 128

| Number of Loops | For ASTM F1960 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | PRPXA1505002PEX                      | \$44.45                |
| 3 Loop          | PRPXA1505003PEX                      | \$66.67                |
| 4 Loop          | PRPXA1505004PEX                      | \$88.89                |
| 5 Loop          | PRPXA1505005PEX                      | \$111.11               |
| 6 Loop          | PRPXA1505006PEX                      | \$133.34               |
| 7 Loop          | PRPXA1505007PEX                      | \$155.56               |
| 8 Loop          | PRPXA1505008PEX                      | \$177.78               |
| 9 Loop          | PRPXA1505009PEX                      | \$200.01               |
| 10 Loop         | PRPXA1505010PEX                      | \$222.23               |
| 11 Loop         | PRPXA1505011PEX                      | \$244.45               |
| 12 Loop         | PRPXA1505012PEX                      | \$266.67               |

| 2" Header | Return Part #   | Return List Price Each |
|-----------|-----------------|------------------------|
| 2 Loop    | PRPXV2005002PEX | \$83.83                |
| 3 Loop    | PRPXV2005003PEX | \$125.75               |
| 4 Loop    | PRPXV2005004PEX | \$167.66               |
| 5 Loop    | PRPXV2005005PEX | \$209.58               |
| 6 Loop    | PRPXV2005006PEX | \$251.49               |
| 7 Loop    | PRPXV2005007PEX | \$293.41               |
| 8 Loop    | PRPXV2005008PEX | \$335.32               |
| 9 Loop    | PRPXV2005009PEX | \$377.24               |
| 10 Loop   | PRPXV2005010PEX | \$419.15               |
| 11 Loop   | PRPXV2005011PEX | \$461.07               |
| 12 Loop   | PRPXV2005012PEX | \$502.98               |

Full Stick Available on Page 128

| 2" Header | Supply Part #   | Supply List Price Each |
|-----------|-----------------|------------------------|
| 2 Loop    | PRPXA2005002PEX | \$57.14                |
| 3 Loop    | PRPXA2005003PEX | \$85.71                |
| 4 Loop    | PRPXA2005004PEX | \$114.27               |
| 5 Loop    | PRPXA2005005PEX | \$142.84               |
| 6 Loop    | PRPXA2005006PEX | \$171.41               |
| 7 Loop    | PRPXA2005007PEX | \$199.98               |
| 8 Loop    | PRPXA2005008PEX | \$228.55               |
| 9 Loop    | PRPXA2005009PEX | \$257.12               |
| 10 Loop   | PRPXA2005010PEX | \$285.69               |
| 11 Loop   | PRPXA2005011PEX | \$314.26               |
| 12 Loop   | PRPXA2005012PEX | \$342.82               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" Pro Pex adaptors for (ASTM F1960) soldered on.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" Pro Pex adaptors for (ASTM F2080) soldered on. Also available 13-23 outlets, call for pricing. These may be coupled.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



## ► WSD 1" TO 2" X 5/8" PEX VALVE FOR ASTM F1960 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number     | Description         | Units Per Box | LIST Price each |
|-----------------|---------------------|---------------|-----------------|
| PRPXV1005824PEX | 1" X 5/8" VALVE     | 1             | \$1,009.09      |
| PRPXV1255824PEX | 1 1/4" X 5/8" VALVE | 1             | \$1,063.89      |
| PRPXV1505824PEX | 1 1/2" X 5/8" VALVE | 1             | \$1,121.64      |
| PRPXV2005824PEX | 2" X 5/8" VALVE     | 1             | \$1,273.97      |

## ► WSD 1" TO 2" X 5/8" PEX ADAPTER FOR ASTM F1960 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number     | Description          | Units Per Box | LIST Price each |
|-----------------|----------------------|---------------|-----------------|
| PRPXA1005824PEX | 1" X 5/8" ADAPT.     | 1             | \$580.61        |
| PRPXA1255824PEX | 1 1/4" X 5/8" ADAPT. | 1             | \$635.41        |
| PRPXA1505824PEX | 1 1/2" X 5/8" ADAPT. | 1             | \$693.16        |
| PRPXA2005824PEX | 2" X 5/8" ADAPT.     | 1             | \$845.49        |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD 1" OR 1-1/4" X 5/8" PRO PEX for ASTM F1960 Copper Manifolds Open Both Ends



Assembled in the USA  
with foreign and domestic parts

Fittings require a cold  
expansion tool.



| Number of Loops | PEX PRPX F1960 Mini Ball Valve Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1" Header       | Return Part #                           | Return List Price Each |
| 2 Loop          | PRPXV1005802PEX                         | \$84.09                |
| 3 Loop          | PRPXV1005803PEX                         | \$126.14               |
| 4 Loop          | PRPXV1005804PEX                         | \$168.18               |
| 5 Loop          | PRPXV1005805PEX                         | \$210.23               |
| 6 Loop          | PRPXV1005806PEX                         | \$252.27               |
| 7 Loop          | PRPXV1005807PEX                         | \$294.32               |
| 8 Loop          | PRPXV1005808PEX                         | \$336.36               |
| 9 Loop          | PRPXV1005809PEX                         | \$378.41               |
| 10 Loop         | PRPXV1005810PEX                         | \$420.45               |
| 11 Loop         | PRPXV1005811PEX                         | \$462.50               |
| 12 Loop         | PRPXV1005812PEX                         | \$504.54               |

Full Stick Available on Page 131

| Number of Loops | For ASTM F1960 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | PRPXA1005802PEX                      | \$48.38                |
| 3 Loop          | PRPXA1005803PEX                      | \$72.58                |
| 4 Loop          | PRPXA1005804PEX                      | \$96.77                |
| 5 Loop          | PRPXA1005805PEX                      | \$120.96               |
| 6 Loop          | PRPXA1005806PEX                      | \$145.15               |
| 7 Loop          | PRPXA1005807PEX                      | \$169.34               |
| 8 Loop          | PRPXA1005808PEX                      | \$193.54               |
| 9 Loop          | PRPXA1005809PEX                      | \$217.73               |
| 10 Loop         | PRPXA1005810PEX                      | \$241.92               |
| 11 Loop         | PRPXA1005811PEX                      | \$266.11               |
| 12 Loop         | PRPXA1005812PEX                      | \$290.30               |

| 1-1/4" Header | Return Part #   | Return List Price Each |
|---------------|-----------------|------------------------|
| 2 Loop        | PRPXV1255802PEX | \$88.66                |
| 3 Loop        | PRPXV1255803PEX | \$132.99               |
| 4 Loop        | PRPXV1255804PEX | \$177.32               |
| 5 Loop        | PRPXV1255805PEX | \$221.64               |
| 6 Loop        | PRPXV1255806PEX | \$265.97               |
| 7 Loop        | PRPXV1255807PEX | \$310.30               |
| 8 Loop        | PRPXV1255808PEX | \$354.63               |
| 9 Loop        | PRPXV1255809PEX | \$398.96               |
| 10 Loop       | PRPXV1255810PEX | \$443.29               |
| 11 Loop       | PRPXV1255811PEX | \$487.62               |
| 12 Loop       | PRPXV1255812PEX | \$531.95               |

Full Stick Available on Page 131

| 1-1/4" Header | Supply Part #   | Supply List Price Each |
|---------------|-----------------|------------------------|
| 2 Loop        | PRPXA1255802PEX | \$52.95                |
| 3 Loop        | PRPXA1255803PEX | \$79.43                |
| 4 Loop        | PRPXA1255804PEX | \$105.90               |
| 5 Loop        | PRPXA1255805PEX | \$132.38               |
| 6 Loop        | PRPXA1255806PEX | \$158.85               |
| 7 Loop        | PRPXA1255807PEX | \$185.33               |
| 8 Loop        | PRPXA1255808PEX | \$211.80               |
| 9 Loop        | PRPXA1255809PEX | \$238.28               |
| 10 Loop       | PRPXA1255810PEX | \$264.75               |
| 11 Loop       | PRPXA1255811PEX | \$291.23               |
| 12 Loop       | PRPXA1255812PEX | \$317.71               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" Dahl Expansion mini-ball valves for (ASTM F1960) soldered on.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC, with 5/8" Pro Pex adaptors for (ASTM F1960) soldered on.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# ► WSD 1-1/2" OR 2" X 5/8" PRO PEX for ASTM F1960 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**



► WSD MANIFOLDS

| Number of Loops | PEX PRPX F1960 Mini Ball Valve Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                           | Return List Price Each |
| 2 Loop          | PRPXV1505802PEX                         | \$93.47                |
| 3 Loop          | PRPXV1505803PEX                         | \$140.21               |
| 4 Loop          | PRPXV1505804PEX                         | \$186.94               |
| 5 Loop          | PRPXV1505805PEX                         | \$233.68               |
| 6 Loop          | PRPXV1505806PEX                         | \$280.41               |
| 7 Loop          | PRPXV1505807PEX                         | \$327.15               |
| 8 Loop          | PRPXV1505808PEX                         | \$373.88               |
| 9 Loop          | PRPXV1505809PEX                         | \$420.62               |
| 10 Loop         | PRPXV1505810PEX                         | \$467.35               |
| 11 Loop         | PRPXV1505811PEX                         | \$514.09               |
| 12 Loop         | PRPXV1505812PEX                         | \$560.82               |

Full Stick Available on Page 131

| Number of Loops | For ASTM F1960 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | PRPXA1505802PEX                      | \$57.76                |
| 3 Loop          | PRPXA1505803PEX                      | \$86.65                |
| 4 Loop          | PRPXA1505804PEX                      | \$115.53               |
| 5 Loop          | PRPXA1505805PEX                      | \$144.41               |
| 6 Loop          | PRPXA1505806PEX                      | \$173.29               |
| 7 Loop          | PRPXA1505807PEX                      | \$202.17               |
| 8 Loop          | PRPXA1505808PEX                      | \$231.05               |
| 9 Loop          | PRPXA1505809PEX                      | \$259.94               |
| 10 Loop         | PRPXA1505810PEX                      | \$288.82               |
| 11 Loop         | PRPXA1505811PEX                      | \$317.70               |
| 12 Loop         | PRPXA1505812PEX                      | \$346.58               |

| 2" Header | Return Part #   | Return List Price Each |
|-----------|-----------------|------------------------|
| 2 Loop    | PRPXV2005802PEX | \$106.16               |
| 3 Loop    | PRPXV2005803PEX | \$159.25               |
| 4 Loop    | PRPXV2005804PEX | \$212.33               |
| 5 Loop    | PRPXV2005805PEX | \$265.41               |
| 6 Loop    | PRPXV2005806PEX | \$318.49               |
| 7 Loop    | PRPXV2005807PEX | \$371.57               |
| 8 Loop    | PRPXV2005808PEX | \$424.66               |
| 9 Loop    | PRPXV2005809PEX | \$477.74               |
| 10 Loop   | PRPXV2005810PEX | \$530.82               |
| 11 Loop   | PRPXV2005811PEX | \$583.90               |
| 12 Loop   | PRPXV2005812PEX | \$636.99               |

Full Stick Available on Page 131

| 2" Header | Supply Part #   | Supply List Price Each |
|-----------|-----------------|------------------------|
| 2 Loop    | PRPXA2005802PEX | \$70.46                |
| 3 Loop    | PRPXA2005803PEX | \$105.69               |
| 4 Loop    | PRPXA2005804PEX | \$140.92               |
| 5 Loop    | PRPXA2005805PEX | \$176.14               |
| 6 Loop    | PRPXA2005806PEX | \$211.37               |
| 7 Loop    | PRPXA2005807PEX | \$246.60               |
| 8 Loop    | PRPXA2005808PEX | \$281.83               |
| 9 Loop    | PRPXA2005809PEX | \$317.06               |
| 10 Loop   | PRPXA2005810PEX | \$352.29               |
| 11 Loop   | PRPXA2005811PEX | \$387.52               |
| 12 Loop   | PRPXA2005812PEX | \$422.75               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" Dahl Expansion mini-ball valves for (ASTM F1960) soldered on.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC, with 5/8" Pro Pex adaptors for (ASTM F1960) soldered on.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



## WSD 1" TO 2" X 3/4" PEX VALVE FOR ASTM F1960 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number     | Description         | Units Per Box | LIST Price each |
|-----------------|---------------------|---------------|-----------------|
| PRPXV1007524PEX | 1" X 3/4" VALVE     | 1             | \$1,079.12      |
| PRPXV1257524PEX | 1 1/4" X 3/4" VALVE | 1             | \$1,133.92      |
| PRPXV1507524PEX | 1 1/2" X 3/4" VALVE | 1             | \$1,191.67      |
| PRPXV2007524PEX | 2" X 3/4" VALVE     | 1             | \$1,344.00      |

## WSD 1" TO 2" X 3/4" PEX ADAPTER FOR ASTM F1960 COPPER MANIFOLDS OPEN BOTH ENDS



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**

**72" Long | 24 Outlets, 3" On Center**

| Part Number     | Description          | Units Per Box | LIST Price each |
|-----------------|----------------------|---------------|-----------------|
| PRPXA1007524PEX | 1" X 3/4" ADAPT.     | 1             | \$532.77        |
| PRPXA1257524PEX | 1 1/4" X 3/4" ADAPT. | 1             | \$587.57        |
| PRPXA1507524PEX | 1 1/2" X 3/4" ADAPT. | 1             | \$645.32        |
| PRPXA2007524PEX | 2" X 3/4" ADAPT.     | 1             | \$797.65        |

All full sticks are available in cut to length sizes. Take the single unit price and divide by 24 to get the price per outlet. Then multiply that number by the number of outlets you wish to buy.

Please call our office with any questions. 715-253-3010

All the items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





# ► WSD 1" OR 1-1/4" X 3/4" PRO PEX for ASTM F1960 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold expansion tool.**



► WSD MANIFOLDS

| Number of Loops | PEX PRPX F1960 Mini Ball Valve Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1" Header       | Return Part #                           | Return List Price Each |
| 2 Loop          | PRPXV1007502PEX                         | \$89.93                |
| 3 Loop          | PRPXV1007503PEX                         | \$134.89               |
| 4 Loop          | PRPXV1007504PEX                         | \$179.85               |
| 5 Loop          | PRPXV1007505PEX                         | \$224.82               |
| 6 Loop          | PRPXV1007506PEX                         | \$269.78               |
| 7 Loop          | PRPXV1007507PEX                         | \$314.74               |
| 8 Loop          | PRPXV1007508PEX                         | \$359.71               |
| 9 Loop          | PRPXV1007509PEX                         | \$404.67               |
| 10 Loop         | PRPXV1007510PEX                         | \$449.63               |
| 11 Loop         | PRPXV1007511PEX                         | \$494.59               |
| 12 Loop         | PRPXV1007512PEX                         | \$539.56               |

Full Stick Available on Page 134

| Number of Loops | For ASTM F1960 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | PRPXA1007502PEX                      | \$44.40                |
| 3 Loop          | PRPXA1007503PEX                      | \$66.60                |
| 4 Loop          | PRPXA1007504PEX                      | \$88.79                |
| 5 Loop          | PRPXA1007505PEX                      | \$110.99               |
| 6 Loop          | PRPXA1007506PEX                      | \$133.19               |
| 7 Loop          | PRPXA1007507PEX                      | \$155.39               |
| 8 Loop          | PRPXA1007508PEX                      | \$177.59               |
| 9 Loop          | PRPXA1007509PEX                      | \$199.79               |
| 10 Loop         | PRPXA1007510PEX                      | \$221.99               |
| 11 Loop         | PRPXA1007511PEX                      | \$244.19               |
| 12 Loop         | PRPXA1007512PEX                      | \$266.38               |

| 1-1/4" Header | Return Part #   | Return List Price Each |
|---------------|-----------------|------------------------|
| 2 Loop        | PRPXV1257502PEX | \$94.49                |
| 3 Loop        | PRPXV1257503PEX | \$141.74               |
| 4 Loop        | PRPXV1257504PEX | \$188.99               |
| 5 Loop        | PRPXV1257505PEX | \$236.23               |
| 6 Loop        | PRPXV1257506PEX | \$283.48               |
| 7 Loop        | PRPXV1257507PEX | \$330.73               |
| 8 Loop        | PRPXV1257508PEX | \$377.97               |
| 9 Loop        | PRPXV1257509PEX | \$425.22               |
| 10 Loop       | PRPXV1257510PEX | \$472.47               |
| 11 Loop       | PRPXV1257511PEX | \$519.71               |
| 12 Loop       | PRPXV1257512PEX | \$566.96               |

Full Stick Available on Page 134

| 1-1/4" Header | Supply Part #   | Supply List Price Each |
|---------------|-----------------|------------------------|
| 2 Loop        | PRPXA1257502PEX | \$48.96                |
| 3 Loop        | PRPXA1257503PEX | \$73.45                |
| 4 Loop        | PRPXA1257504PEX | \$97.93                |
| 5 Loop        | PRPXA1257505PEX | \$122.41               |
| 6 Loop        | PRPXA1257506PEX | \$146.89               |
| 7 Loop        | PRPXA1257507PEX | \$171.37               |
| 8 Loop        | PRPXA1257508PEX | \$195.86               |
| 9 Loop        | PRPXA1257509PEX | \$220.34               |
| 10 Loop       | PRPXA1257510PEX | \$244.82               |
| 11 Loop       | PRPXA1257511PEX | \$269.30               |
| 12 Loop       | PRPXA1257512PEX | \$293.79               |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" Dahl Expansion mini-ball valves for (ASTM F1960) soldered on.

**Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC, with 3/4" Uponor Pro Pex adaptors.

Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD 1-1/2" OR 2" X 3/4" PRO PEX for ASTM F1960 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts

**Fittings require a cold  
expansion tool.**



| Number of Loops | PEX PRPX F1960 Mini Ball Valve Manifold |                        |
|-----------------|-----------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                           | Return List Price Each |
| 2 Loop          | PRPXV1507502PEX                         | \$99.31                |
| 3 Loop          | PRPXV1507503PEX                         | \$148.96               |
| 4 Loop          | PRPXV1507504PEX                         | \$198.61               |
| 5 Loop          | PRPXV1507505PEX                         | \$248.26               |
| 6 Loop          | PRPXV1507506PEX                         | \$297.92               |
| 7 Loop          | PRPXV1507507PEX                         | \$347.57               |
| 8 Loop          | PRPXV1507508PEX                         | \$397.22               |
| 9 Loop          | PRPXV1507509PEX                         | \$446.88               |
| 10 Loop         | PRPXV1507510PEX                         | \$496.53               |
| 11 Loop         | PRPXV1507511PEX                         | \$546.18               |
| 12 Loop         | PRPXV1507512PEX                         | \$595.83               |

Full Stick Available on Page 134

| Number of Loops | For ASTM F1960 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | PRPXA1507502PEX                      | \$53.78                |
| 3 Loop          | PRPXA1507503PEX                      | \$80.67                |
| 4 Loop          | PRPXA1507504PEX                      | \$107.55               |
| 5 Loop          | PRPXA1507505PEX                      | \$134.44               |
| 6 Loop          | PRPXA1507506PEX                      | \$161.33               |
| 7 Loop          | PRPXA1507507PEX                      | \$188.22               |
| 8 Loop          | PRPXA1507508PEX                      | \$215.11               |
| 9 Loop          | PRPXA1507509PEX                      | \$242.00               |
| 10 Loop         | PRPXA1507510PEX                      | \$268.88               |
| 11 Loop         | PRPXA1507511PEX                      | \$295.77               |
| 12 Loop         | PRPXA1507512PEX                      | \$322.66               |

| 2" Header | Return Part #   | Return List Price Each |
|-----------|-----------------|------------------------|
| 2 Loop    | PRPXV2007502PEX | \$112.00               |
| 3 Loop    | PRPXV2007503PEX | \$168.00               |
| 4 Loop    | PRPXV2007504PEX | \$224.00               |
| 5 Loop    | PRPXV2007505PEX | \$280.00               |
| 6 Loop    | PRPXV2007506PEX | \$336.00               |
| 7 Loop    | PRPXV2007507PEX | \$392.00               |
| 8 Loop    | PRPXV2007508PEX | \$448.00               |
| 9 Loop    | PRPXV2007509PEX | \$504.00               |
| 10 Loop   | PRPXV2007510PEX | \$560.00               |
| 11 Loop   | PRPXV2007511PEX | \$616.00               |
| 12 Loop   | PRPXV2007512PEX | \$672.00               |

Full Stick Available on Page 134

| 2" Header | Supply Part #   | Supply List Price Each |
|-----------|-----------------|------------------------|
| 2 Loop    | PRPXA2007502PEX | \$66.47                |
| 3 Loop    | PRPXA2007503PEX | \$99.71                |
| 4 Loop    | PRPXA2007504PEX | \$132.94               |
| 5 Loop    | PRPXA2007505PEX | \$166.18               |
| 6 Loop    | PRPXA2007506PEX | \$199.41               |
| 7 Loop    | PRPXA2007507PEX | \$232.65               |
| 8 Loop    | PRPXA2007508PEX | \$265.88               |
| 9 Loop    | PRPXA2007509PEX | \$299.12               |
| 10 Loop   | PRPXA2007510PEX | \$332.35               |
| 11 Loop   | PRPXA2007511PEX | \$365.59               |
| 12 Loop   | PRPXA2007512PEX | \$398.83               |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 3/4" Dahl Expansion mini-ball valves for (ASTM F1960) soldered on.

**Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC, with 3/4" Pro Pex adaptors for (ASTM F1960) soldered on.

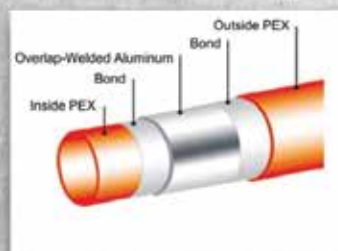
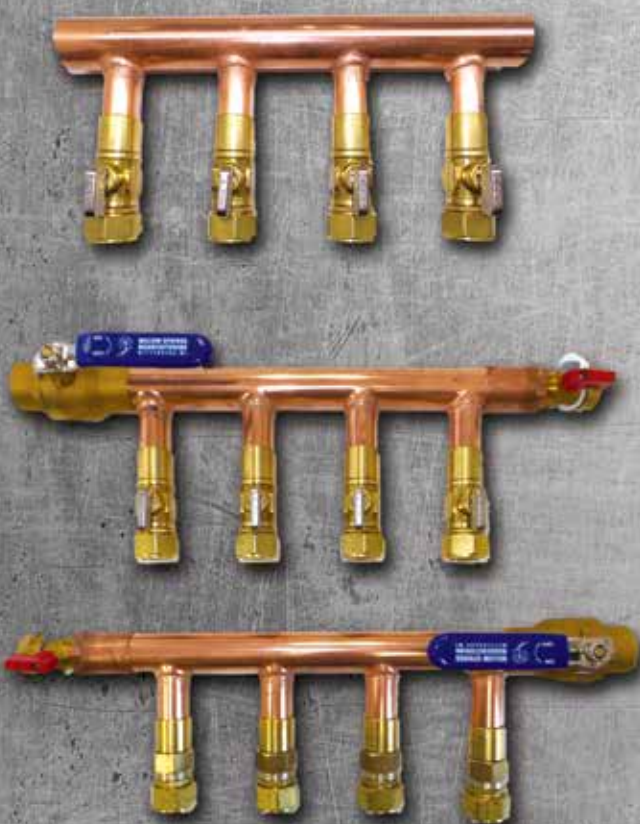
Items on this page are made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.





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## ► F1281/F1282 PEX-AL-PEX Compression Manifolds



**NOT FOR  
POTABLE WATER**

WWW.WILLOWSRA.COM



# WSD 1 THRU 2" X 1/2" & 5/8" COMPRESSION PEX-AL-PEX for ASTM F1281 Copper Manifolds Open Both Ends



Assembled in the USA  
with foreign and domestic parts

**72" Long | 24 Outlets, 3" On Center**

## 1", 1-1/4", 1-1/2" or 2" Header with (24) 1/2" Compression Mini Ball valves (ASTM F1281)

| Part Number   | Description              | Units Per Box | Single Lot List |
|---------------|--------------------------|---------------|-----------------|
| CMV1005024PAP | 1" x 1/2" Comp Valve     | 1             | \$726.99        |
| CMV1255024PAP | 1-1/4" x 1/2" Comp Valve | 1             | \$783.64        |
| CMV1505024PAP | 1-1/2" x 1/2" Comp Valve | 1             | \$837.72        |
| CMV2005024PAP | 2" x 1/2" Comp Valve     | 1             | \$990.02        |



Assembled in the USA  
with foreign and domestic parts

**72" Long | 24 Outlets, 3" On Center**

## 1", 1-1/4", 1-1/2" or 2" Header with (24) 1/2" Compression Adaptor (ASTM F1281)

| Part Number   | Description        | Units Per Box | Single Lot List |
|---------------|--------------------|---------------|-----------------|
| CMA1005024PAP | 1" x 1/2" Comp     | 1             | \$431.63        |
| CMA1255024PAP | 1-1/4" x 1/2" Comp | 1             | \$488.28        |
| CMA1505024PAP | 1-1/2" x 1/2" Comp | 1             | \$542.36        |
| CMA2005024PAP | 2" x 1/2" Comp     | 1             | \$694.66        |



Assembled in the USA  
with foreign and domestic parts

**72" Long | 24 Outlets, 3" On Center**

## 1", 1-1/4", 1-1/2" or 2" Header with (24) 5/8" Compression Mini Ball valves (ASTM F1281)

| Part Number   | Description              | Units Per Box | Single Lot List |
|---------------|--------------------------|---------------|-----------------|
| CMV1005824PAP | 1" x 5/8" Comp Valve     | 1             | \$966.10        |
| CMV1255824PAP | 1-1/4" x 5/8" Comp Valve | 1             | \$1,020.90      |
| CMV1505824PAP | 1-1/2" x 5/8" Comp Valve | 1             | \$1,078.65      |
| CMV2005824PAP | 2" x 5/8" Comp Valve     | 1             | \$1,230.98      |



Assembled in the USA  
with foreign and domestic parts

**72" Long | 24 Outlets, 3" On Center**

## 1", 1-1/4", 1-1/2" or 2" Header with (24) 5/8" Compression Adapters (ASTM F1281)

| Part Number   | Description        | Units Per Box | Single Lot List |
|---------------|--------------------|---------------|-----------------|
| CMA1005824PAP | 1" x 5/8" Comp     | 1             | \$878.05        |
| CMA1255824PAP | 1-1/4" x 5/8" Comp | 1             | \$932.85        |
| CMA1505824PAP | 1-1/2" x 5/8" Comp | 1             | \$990.60        |
| CMA2005824PAP | 2" x 5/8" Comp     | 1             | \$1,142.93      |

Items on this page are made per order and are considered special order. Please allow 1-2 days production time plus freight time.



# ► WSD 1" X 1/2" PEX-AL-PEX COMPRESSION for ASTM F1281 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts



► WSD MANIFOLDS

| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|-------------------------------------------------|------------------------|
| 1" Header       | Return Part #                                   | Return List Price Each |
| 2 Loop          | CMV1005002PAP                                   | \$60.58                |
| 3 Loop          | CMV1005003PAP                                   | \$90.87                |
| 4 Loop          | CMV1005004PAP                                   | \$121.16               |
| 5 Loop          | CMV1005005PAP                                   | \$151.46               |
| 6 Loop          | CMV1005006PAP                                   | \$181.75               |
| 7 Loop          | CMV1005007PAP                                   | \$212.04               |
| 8 Loop          | CMV1005008PAP                                   | \$242.33               |
| 9 Loop          | CMV1005009PAP                                   | \$272.62               |
| 10 Loop         | CMV1005010PAP                                   | \$302.91               |
| 11 Loop         | CMV1005011PAP                                   | \$333.20               |
| 12 Loop         | CMV1005012PAP                                   | \$363.49               |

Full Stick Available on Page 138

| Number of Loops | For ASTM F1281 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | CMA1005002PAP                        | \$35.97                |
| 3 Loop          | CMA1005003PAP                        | \$53.95                |
| 4 Loop          | CMA1005004PAP                        | \$71.94                |
| 5 Loop          | CMA1005005PAP                        | \$89.92                |
| 6 Loop          | CMA1005006PAP                        | \$107.91               |
| 7 Loop          | CMA1005007PAP                        | \$125.89               |
| 8 Loop          | CMA1005008PAP                        | \$143.88               |
| 9 Loop          | CMA1005009PAP                        | \$161.86               |
| 10 Loop         | CMA1005010PAP                        | \$179.85               |
| 11 Loop         | CMA1005011PAP                        | \$197.83               |
| 12 Loop         | CMA1005012PAP                        | \$215.81               |

**Return Includes:** (1) 1" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" compression mini-ball valves for (ASTM F1281) soldered on.n.

**Supply Includes:** (1) 1" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" compression adaptors for (ASTM F1281) soldered on.

Also available 13-23 outlets, call for pricing. These may be coupled. These are all made per order and are considered special order. Please allow 1-2 days production time plus freight time.





# WSD 1-1/4" X 1/2" PEX-AL-PEX COMPRESSION for ASTM F1281 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts



| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|-------------------------------------------------|------------------------|
| 1-1/4" Header   | Return Part #                                   | Return List Price Each |
| 2 Loop          | CMV1255002PAP                                   | \$65.30                |
| 3 Loop          | CMV1255003PAP                                   | \$97.96                |
| 4 Loop          | CMV1255004PAP                                   | \$130.61               |
| 5 Loop          | CMV1255005PAP                                   | \$163.26               |
| 6 Loop          | CMV1255006PAP                                   | \$195.91               |
| 7 Loop          | CMV1255007PAP                                   | \$228.56               |
| 8 Loop          | CMV1255008PAP                                   | \$261.21               |
| 9 Loop          | CMV1255009PAP                                   | \$293.87               |
| 10 Loop         | CMV1255010PAP                                   | \$326.52               |
| 11 Loop         | CMV1255011PAP                                   | \$359.17               |
| 12 Loop         | CMV1255012PAP                                   | \$391.82               |

Full Stick Available on Page 138

| Number of Loops | For ASTM F1281 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/4" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | CMA1255002PAP                        | \$40.69                |
| 3 Loop          | CMA1255003PAP                        | \$61.04                |
| 4 Loop          | CMA1255004PAP                        | \$81.38                |
| 5 Loop          | CMA1255005PAP                        | \$101.73               |
| 6 Loop          | CMA1255006PAP                        | \$122.07               |
| 7 Loop          | CMA1255007PAP                        | \$142.42               |
| 8 Loop          | CMA1255008PAP                        | \$162.76               |
| 9 Loop          | CMA1255009PAP                        | \$183.11               |
| 10 Loop         | CMA1255010PAP                        | \$203.45               |
| 11 Loop         | CMA1255011PAP                        | \$223.80               |
| 12 Loop         | CMA1255012PAP                        | \$244.14               |

**Return Includes:** (1) 1-1/4" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" compression mini-ball valves for (ASTM F1281) soldered on.

**Supply Includes:** (1) 1-1/4" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" compression adaptors for (ASTM F1281) soldered on.

Also available 13-23 outlets, call for pricing. These may be coupled. These are all made per order and are considered special order. Please allow 1-2 days production time plus freight time.





# ► WSD 1-1/2" X 1/2" PEX-AL-PEX COMPRESSION for ASTM F1281 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts



| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|-------------------------------------------------|------------------------|
| 1-1/2" Header   | Return Part #                                   | Return List Price Each |
| 2 Loop          | CMV1505002PAP                                   | \$69.81                |
| 3 Loop          | CMV1505003PAP                                   | \$104.72               |
| 4 Loop          | CMV1505004PAP                                   | \$139.62               |
| 5 Loop          | CMV1505005PAP                                   | \$174.53               |
| 6 Loop          | CMV1505006PAP                                   | \$209.43               |
| 7 Loop          | CMV1505007PAP                                   | \$244.34               |
| 8 Loop          | CMV1505008PAP                                   | \$279.24               |
| 9 Loop          | CMV1505009PAP                                   | \$314.15               |
| 10 Loop         | CMV1505010PAP                                   | \$349.05               |
| 11 Loop         | CMV1505011PAP                                   | \$383.96               |
| 12 Loop         | CMV1505012PAP                                   | \$418.86               |

Full Stick Available on Page 138

| Number of Loops | For ASTM F1281 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 1-1/2" Header   | Supply Part #                        | Supply List Price Each |
| 2 Loop          | CMA1505002PAP                        | \$45.20                |
| 3 Loop          | CMA1505003PAP                        | \$67.80                |
| 4 Loop          | CMA1505004PAP                        | \$90.39                |
| 5 Loop          | CMA1505005PAP                        | \$112.99               |
| 6 Loop          | CMA1505006PAP                        | \$135.59               |
| 7 Loop          | CMA1505007PAP                        | \$158.19               |
| 8 Loop          | CMA1505008PAP                        | \$180.79               |
| 9 Loop          | CMA1505009PAP                        | \$203.39               |
| 10 Loop         | CMA1505010PAP                        | \$225.98               |
| 11 Loop         | CMA1505011PAP                        | \$248.58               |
| 12 Loop         | CMA1505012PAP                        | \$271.18               |

**Return Includes:** (1) 1-1/2" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" compression mini-ball valves for (ASTM F1281) soldered on.

**Supply Includes:** (1) 1-1/2" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" compression adaptors for (ASTM F1281) soldered on.

Also available 13-23 outlets, call for pricing. These may be coupled. These are all made per order and are considered special order. Please allow 1-2 days production time plus freight time.



# WSD 2" X 1/2" PEX-AL-PEX COMPRESSION for ASTM F1281 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts



| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                        |
|-----------------|-------------------------------------------------|------------------------|
| 2" Header       | Return Part #                                   | Return List Price Each |
| 2 Loop          | CMV2005002PAP                                   | \$82.50                |
| 3 Loop          | CMV2005003PAP                                   | \$123.75               |
| 4 Loop          | CMV2005004PAP                                   | \$165.00               |
| 5 Loop          | CMV2005005PAP                                   | \$206.25               |
| 6 Loop          | CMV2005006PAP                                   | \$247.51               |
| 7 Loop          | CMV2005007PAP                                   | \$288.76               |
| 8 Loop          | CMV2005008PAP                                   | \$330.01               |
| 9 Loop          | CMV2005009PAP                                   | \$371.26               |
| 10 Loop         | CMV2005010PAP                                   | \$412.51               |
| 11 Loop         | CMV2005011PAP                                   | \$453.76               |
| 12 Loop         | CMV2005012PAP                                   | \$495.01               |

Full Stick Available on Page 138

| Number of Loops | For ASTM F1281 Pipe Adapter Manifold |                        |
|-----------------|--------------------------------------|------------------------|
| 2" Header       | Supply Part #                        | Supply List Price Each |
| 2 Loop          | CMA2005002PAP                        | \$57.89                |
| 3 Loop          | CMA2005003PAP                        | \$86.83                |
| 4 Loop          | CMA2005004PAP                        | \$115.78               |
| 5 Loop          | CMA2005005PAP                        | \$144.72               |
| 6 Loop          | CMA2005006PAP                        | \$173.67               |
| 7 Loop          | CMA2005007PAP                        | \$202.61               |
| 8 Loop          | CMA2005008PAP                        | \$231.55               |
| 9 Loop          | CMA2005009PAP                        | \$260.50               |
| 10 Loop         | CMA2005010PAP                        | \$289.44               |
| 11 Loop         | CMA2005011PAP                        | \$318.39               |
| 12 Loop         | CMA2005012PAP                        | \$347.33               |

**Return Includes:** (1) 2" header open both ends, 1-1/2" leads, 1/2" drops at 3" OC, with 1/2" compression mini-ball valves for (ASTM F1281) soldered on.

**Supply Includes:** (1) 2" header open both ends, 1-1/2" Leads, 1/2" drops at 3" OC, with 1/2" compression adaptors for (ASTM F1281) soldered on.

Also available 13-23 outlets, call for pricing. These may be coupled. These are all made per order and are considered special order. Please allow 1-2 days production time plus freight time.



# ► WSD 1" X 1/2" COMPLETE MANIFOLDS

## for PEX-AL-PEX Compression ASTM F1281/1282



**Assembled in the USA**  
with foreign and domestic parts



| Number of Loops | PEX-AL-PEX Compression<br>ASTM F1281/1282 |                          | Number of Loops | PEX-AL-PEX Compression<br>ASTM F1281/1282 |                           |
|-----------------|-------------------------------------------|--------------------------|-----------------|-------------------------------------------|---------------------------|
| 1" Header       | Return Part #                             | Valved Return List Price | 1" Header       | Supply Part #                             | Adaptor Supply List Price |
| 2 Loop          | CMR2PAP                                   | \$113.88                 | 2 Loop          | CMS2PAP                                   | \$89.27                   |
| 3 Loop          | CMR3PAP                                   | \$144.17                 | 3 Loop          | CMS3PAP                                   | \$107.25                  |
| 4 Loop          | CMR4PAP                                   | \$174.46                 | 4 Loop          | CMS4PAP                                   | \$125.24                  |
| 5 Loop          | CMR5PAP                                   | \$204.76                 | 5 Loop          | CMS5PAP                                   | \$143.22                  |
| 6 Loop          | CMR6PAP                                   | \$235.05                 | 6 Loop          | CMS6PAP                                   | \$161.21                  |
| 7 Loop          | CMR7PAP                                   | \$265.34                 | 7 Loop          | CMS7PAP                                   | \$179.19                  |
| 8 Loop          | CMR8PAP                                   | \$295.63                 | 8 Loop          | CMS8PAP                                   | \$197.18                  |
| 9 Loop          | CMR9PAP                                   | \$325.92                 | 9 Loop          | CMS9PAP                                   | \$215.16                  |
| 10 Loop         | CMR10PAP                                  | \$356.21                 | 10 Loop         | CMS10PAP                                  | \$233.15                  |
| 11 Loop         | CMR11PAP                                  | \$386.50                 | 11 Loop         | CMS11PAP                                  | \$251.13                  |
| 12 Loop         | CMR12PAP                                  | \$416.79                 | 12 Loop         | CMS12PAP                                  | \$269.11                  |

**Return Includes:** (1) 1" header with 1/2" mini-ball valves, (1) 1" ball valve, (1) 1/4 turn boiler drain with cap.

**Supply Includes:** (1) 1" header with 1/2" adaptors, (1) 1" ball valve, (1) 1/4 turn boiler drain with cap.

**Please call for pricing on 1-1/4", 1-1/2", and 2" headers.**

These are all made per order and are considered special order. Please allow 1-2 days production time plus freight time.



# WSD 1" OR 1-1/4" X 5/8" PEX-AL-PEX COMPRESSION for ASTM F1281/1282 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts



| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                          |
|-----------------|-------------------------------------------------|--------------------------|
| 1" Header       | Return Part #                                   | Valved Return List Price |
| 2 Loop          | CMV1005802PAP                                   | \$80.51                  |
| 3 Loop          | CMV1005803PAP                                   | \$120.76                 |
| 4 Loop          | CMV1005804PAP                                   | \$161.02                 |
| 5 Loop          | CMV1005805PAP                                   | \$201.27                 |
| 6 Loop          | CMV1005806PAP                                   | \$241.53                 |
| 7 Loop          | CMV1005807PAP                                   | \$281.78                 |
| 8 Loop          | CMV1005808PAP                                   | \$322.03                 |
| 9 Loop          | CMV1005809PAP                                   | \$362.29                 |
| 10 Loop         | CMV1005810PAP                                   | \$402.54                 |
| 11 Loop         | CMV1005811PAP                                   | \$442.80                 |
| 12 Loop         | CMV1005812PAP                                   | \$483.05                 |

Full Stick Available on Page 138

| Number of Loops | PEX-AL-PEX Compression Adapter Manifold |                           |
|-----------------|-----------------------------------------|---------------------------|
| 1" Header       | Supply Part #                           | Adaptor Supply List Price |
| 2 Loop          | CMA1005802PAP                           | \$73.17                   |
| 3 Loop          | CMA1005803PAP                           | \$109.76                  |
| 4 Loop          | CMA1005804PAP                           | \$146.34                  |
| 5 Loop          | CMA1005805PAP                           | \$182.93                  |
| 6 Loop          | CMA1005806PAP                           | \$219.51                  |
| 7 Loop          | CMA1005807PAP                           | \$256.10                  |
| 8 Loop          | CMA1005808PAP                           | \$292.68                  |
| 9 Loop          | CMA1005809PAP                           | \$329.27                  |
| 10 Loop         | CMA1005810PAP                           | \$365.85                  |
| 11 Loop         | CMA1005811PAP                           | \$402.44                  |
| 12 Loop         | CMA1005812PAP                           | \$439.02                  |

| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                          |
|-----------------|-------------------------------------------------|--------------------------|
| 1-1/4" Header   | Return Part #                                   | Valved Return List Price |
| 2 Loop          | CMV1255802PAP                                   | \$85.08                  |
| 3 Loop          | CMV1255803PAP                                   | \$127.61                 |
| 4 Loop          | CMV1255804PAP                                   | \$170.15                 |
| 5 Loop          | CMV1255805PAP                                   | \$212.69                 |
| 6 Loop          | CMV1255806PAP                                   | \$255.23                 |
| 7 Loop          | CMV1255807PAP                                   | \$297.76                 |
| 8 Loop          | CMV1005808PAP                                   | \$340.30                 |
| 9 Loop          | CMV1255809PAP                                   | \$382.84                 |
| 10 Loop         | CMV1255810PAP                                   | \$425.38                 |
| 11 Loop         | CMV1255811PAP                                   | \$467.91                 |
| 12 Loop         | CMV1255812PAP                                   | \$510.45                 |

Full Stick Available on Page 138

| Number of Loops | PEX-AL-PEX Compression Adapter Manifold |                           |
|-----------------|-----------------------------------------|---------------------------|
| 1-1/4" Header   | Supply Part #                           | Adaptor Supply List Price |
| 2 Loop          | CMA1255802PAP                           | \$77.74                   |
| 3 Loop          | CMA1255803PAP                           | \$116.61                  |
| 4 Loop          | CMA1005804PAP                           | \$155.48                  |
| 5 Loop          | CMA1255805PAP                           | \$194.34                  |
| 6 Loop          | CMA1255806PAP                           | \$233.21                  |
| 7 Loop          | CMA1005807PAP                           | \$272.08                  |
| 8 Loop          | CMA1255808PAP                           | \$310.95                  |
| 9 Loop          | CMA1255809PAP                           | \$349.82                  |
| 10 Loop         | CMA1255810PAP                           | \$388.69                  |
| 11 Loop         | CMA1255811PAP                           | \$427.56                  |
| 12 Loop         | CMA1255812PAP                           | \$466.43                  |

**Return Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" compression mini-ball valves for (ASTM F1281/1282) soldered on. **Supply Includes:** (1) 1" or 1-1/4" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC, with 5/8" compression adaptors for (ASTM F1281/1282) soldered on.

These are all made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# ► WSD 1-1/2" OR 2" X 5/8" PEX-AL-PEX COMPRESSION for ASTM F1281/1282 Copper Manifolds Open Both Ends



**Assembled in the USA**  
with foreign and domestic parts



| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                          |
|-----------------|-------------------------------------------------|--------------------------|
| 1-1/2" Header   | Return Part #                                   | Valved Return List Price |
| 2 Loop          | CMV1505802PAP                                   | \$89.89                  |
| 3 Loop          | CMV1505803PAP                                   | \$134.83                 |
| 4 Loop          | CMV1505804PAP                                   | \$179.78                 |
| 5 Loop          | CMV1505805PAP                                   | \$224.72                 |
| 6 Loop          | CMV1505806PAP                                   | \$269.66                 |
| 7 Loop          | CMV1505807PAP                                   | \$314.61                 |
| 8 Loop          | CMV1505808PAP                                   | \$359.55                 |
| 9 Loop          | CMV1505809PAP                                   | \$404.50                 |
| 10 Loop         | CMV1505810PAP                                   | \$449.44                 |
| 11 Loop         | CMV1505811PAP                                   | \$494.38                 |
| 12 Loop         | CMV1505812PAP                                   | \$539.33                 |

Full Stick Available on Page 138

| Number of Loops | PEX-AL-PEX Compression Adapter Manifold |                           |
|-----------------|-----------------------------------------|---------------------------|
| 1-1/2" Header   | Supply Part #                           | Adaptor Supply List Price |
| 2 Loop          | CMA1505802PAP                           | \$82.55                   |
| 3 Loop          | CMA1505803PAP                           | \$123.83                  |
| 4 Loop          | CMA1505804PAP                           | \$165.10                  |
| 5 Loop          | CMA1505805PAP                           | \$206.38                  |
| 6 Loop          | CMA1505806PAP                           | \$247.65                  |
| 7 Loop          | CMA1505807PAP                           | \$288.93                  |
| 8 Loop          | CMA1505808PAP                           | \$330.20                  |
| 9 Loop          | CMA1505809PAP                           | \$371.48                  |
| 10 Loop         | CMA1505810PAP                           | \$412.75                  |
| 11 Loop         | CMA1505811PAP                           | \$454.03                  |
| 12 Loop         | CMA1505812PAP                           | \$495.30                  |

| Number of Loops | PEX-AL-PEX Compression Mini Ball Valve Manifold |                          |
|-----------------|-------------------------------------------------|--------------------------|
| 2" Header       | Return Part #                                   | Valved Return List Price |
| 2 Loop          | CMV2005802PAP                                   | \$102.58                 |
| 3 Loop          | CMV2005803PAP                                   | \$153.87                 |
| 4 Loop          | CMV2005804PAP                                   | \$205.16                 |
| 5 Loop          | CMV2005805PAP                                   | \$256.46                 |
| 6 Loop          | CMV2005806PAP                                   | \$307.75                 |
| 7 Loop          | CMV2005807PAP                                   | \$359.04                 |
| 8 Loop          | CMV2005808PAP                                   | \$410.33                 |
| 9 Loop          | CMV2005809PAP                                   | \$461.62                 |
| 10 Loop         | CMV2005810PAP                                   | \$512.91                 |
| 11 Loop         | CMV2005811PAP                                   | \$564.20                 |
| 12 Loop         | CMV2005812PAP                                   | \$615.49                 |

Full Stick Available on Page 138

| Number of Loops | PEX-AL-PEX Compression Adapter Manifold |                           |
|-----------------|-----------------------------------------|---------------------------|
| 2" Header       | Supply Part #                           | Adaptor Supply List Price |
| 2 Loop          | CMA2005802PAP                           | \$95.24                   |
| 3 Loop          | CMA2005803PAP                           | \$142.87                  |
| 4 Loop          | CMA2005804PAP                           | \$190.49                  |
| 5 Loop          | CMA2005805PAP                           | \$238.11                  |
| 6 Loop          | CMA2005806PAP                           | \$285.73                  |
| 7 Loop          | CMA2005807PAP                           | \$333.35                  |
| 8 Loop          | CMA2005808PAP                           | \$380.98                  |
| 9 Loop          | CMA2005809PAP                           | \$428.60                  |
| 10 Loop         | CMA2005810PAP                           | \$476.22                  |
| 11 Loop         | CMA2005811PAP                           | \$523.84                  |
| 12 Loop         | CMA2005812PAP                           | \$571.47                  |

**Return Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" leads, 3/4" drops at 3" OC, with 5/8" compression mini-ball valves for (ASTM F1281/1282) soldered on. **Supply Includes:** (1) 1-1/2" or 2" header open both ends, 1-1/2" Leads, 3/4" drops at 3" OC, with 5/8" compression adaptors for (ASTM F1281/1282) soldered on.

These are all made per order and are considered special order.  
Please allow 1-2 days production time plus freight time.



# WSD End Caps and Accessories



Pipe run 1", 1-1/4", 1-1/2", or 2" with 1/8" tap for vent.  
Spun closed one end and expanded to coupling size the other end.

| Part # | Description            | Units per Box | Single Lot List | Box Lot List / each |
|--------|------------------------|---------------|-----------------|---------------------|
| ECV100 | 1" - 1/8" Vent Tap     | 50            | \$25.98         | \$20.78             |
| ECV125 | 1-1/4" - 1/8" Vent Tap | 40            | \$34.15         | \$27.32             |
| ECV150 | 1-1/2" - 1/8" Vent Tap | 30            | \$44.77         | \$35.82             |
| ECV200 | 2" - 1/8" Vent Tap     | 15            | \$92.81         | \$74.25             |



Pipe run 1", 1-1/4", 1-1/2", or 2" with 1/8" tap for vent and 1/2" FIP for Drain.  
Spun closed one end and expanded to coupling size the other end.

| Part #  | Description                       | Units per Box | Single Lot List | Box Lot List / each |
|---------|-----------------------------------|---------------|-----------------|---------------------|
| ECVD100 | 1" - 1/8" Vent Tap & 1/2" FIP     | 50            | \$27.23         | \$21.79             |
| ECVD125 | 1-1/4" - 1/8" Vent Tap & 1/2" FIP | 30            | \$34.21         | \$27.37             |
| ECVD150 | 1-1/2" - 1/8" Vent Tap & 1/2" FIP | 30            | \$42.39         | \$33.91             |
| ECVD200 | 2" - 1/8" Vent Tap & 1/2" FIP     | 15            | \$65.18         | \$52.14             |



| Part #    | Description                                      | List Price each |
|-----------|--------------------------------------------------|-----------------|
| WSD1/2BD  | 1/2" 1/4 turn boiler drain with cap              | \$13.33         |
| APAS0-100 | 0-100 PSI Air pressure assembly with hose thread | \$29.39         |
| ECD100    | 1" swt x 1/2" FIP                                | \$14.25         |





# WSD Combo Kits



- **Tridicator Combo Kit Includes:**
- **1-Gauge Part #PB300804-1.5-50**
- **1-Temperature Gauge Tee**
- **Choose from 3/4", 1", 1-1/4"/1-1/2", and 2"**
- **Unassembled**

| Part #      | Description                             | List Price / each |
|-------------|-----------------------------------------|-------------------|
| UGT075EXTRI | 3/4" - 1/2" FIP, Tridicator Combo Kit   | \$53.68           |
| UGT100EXTRI | 1" - 1/2" FIP, Tridicator Combo Kit     | \$54.28           |
| UGT125EXTRI | 1-1/4" - 1/2" FIP, Tridicator Combo Kit | \$58.18           |
| UGT150EXTRI | 1-1/2" - 1/2" FIP, Tridicator Combo Kit | \$63.37           |
| UGT200EXTRI | 2" - 1/2" FIP, Tridicator Combo Kit     | \$75.10           |



- **Bimetal Combo Kit Includes:**
- **1-Gauge Part# B259951-2W**
- **1-Temperature Gauge Tee**
- **Choose from 3/4", 1", 1-1/4"/1-1/2", and 2"**
- **Unassembled**

| Part #     | Description                          | List Price / each |
|------------|--------------------------------------|-------------------|
| UGT075EXBI | 3/4" - 1/2" FIP, Bimetal Combo Kit   | \$30.07           |
| UGT100EXBI | 1" - 1/2" FIP, Bimetal Combo Kit     | \$30.67           |
| UGT125EXBI | 1-1/4" - 1/2" FIP, Bimetal Combo Kit | \$34.57           |
| UGT150EXBI | 1-1/2" - 1/2" FIP, Bimetal Combo Kit | \$39.76           |
| UGT200EXBI | 2" - 1/2" FIP, Bimetal Combo Kit     | \$52.09           |



# Thermometer Gauge Tees



Pipe run 1", 1-1/4", 1-1/2", or 2" with 1/2" FIP for temperature gauge or drain. Plain one end and expanded to coupling size the other end. (The 3/4" is 1" pipe run reduced to 3/4" male pipe run 1 end & reduced to 3/4" coupling size on the other end)

| Part #  | Description       | Units per Box | Single Lot List | Box Lot List / each |
|---------|-------------------|---------------|-----------------|---------------------|
| GT075EX | 3/4" - 1/2" FIP   | 50            | \$16.32         | \$13.06             |
| GT100EX | 1" - 1/2" FIP     | 50            | \$16.92         | \$13.54             |
| GT125EX | 1-1/4" - 1/2" FIP | 40            | \$20.82         | \$16.65             |
| GT150EX | 1-1/2" - 1/2" FIP | 30            | \$26.01         | \$20.81             |
| GT200EX | 2" - 1/2" FIP     | 15            | \$38.34         | \$30.68             |



Pipe run 1", 1-1/4", 1-1/2", or 2" with 1/2" FIP, Plain Both Ends.

| Part #     | Description       | Units per Box | Single Lot List | Box Lot List / each |
|------------|-------------------|---------------|-----------------|---------------------|
| GT100PL-LF | 1" - 1/2" FIP     | 50            | \$20.59         | \$16.47             |
| GT125PL-LF | 1-1/4" - 1/2" FIP | 40            | \$24.84         | \$19.87             |
| GT150PL-LF | 1-1/2" - 1/2" FIP | 30            | \$30.72         | \$24.58             |
| GT200PL-LF | 2" - 1/2" FIP     | 15            | \$43.46         | \$34.77             |

## Outlet Tools



Resize or Re-round 1/2", 3/4" or 1" Types M, L, or K Copper Tube

| Part Number | Description        | Units per Box | Single Lot List |
|-------------|--------------------|---------------|-----------------|
| AOTTL50     | For 1/2" Copper    | 1             | \$107.85        |
| AOTTL75     | For 3/4" Copper    | 1             | \$123.85        |
| AOTTL100    | For 1" Copper      | 1             | \$138.23        |
| AOTTLSET    | 1/2", 3/4", 1" Kit | 3 tools total | \$362.43        |



# Miljoco Gauges



## Lower Mount Tridicator

## Bi-Metal Temp.

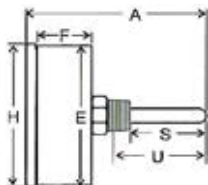
## Center Back Mount Tridicator

| WSD Part #      | List for<br>(1 to 9) | List for<br>(10 to 49) | List for<br>(50 plus) | Description                                   |
|-----------------|----------------------|------------------------|-----------------------|-----------------------------------------------|
| B259951-2W      | \$17.50              | \$15.75                | \$15.18               | Bi-Metal Temperature Gauge with Well          |
| PB300804-2-5    | \$43.73              | \$39.36                | \$37.42               | Tridicator W/center Back Mount-Long           |
| PB300804-2-25   | \$43.73              | \$39.36                | \$37.42               | Tridicator W/center Back Mount-Long           |
| PB300804-1.5-50 | \$43.73              | \$39.36                | \$37.42               | Tridicator W/center Back Mount-Short          |
| PB3008L04-2     | \$53.03              | \$47.73                | \$44.96               | Tridicator with Lower Mount                   |
| P2508L-03       | \$15.77              | \$14.19                | \$13.77               | 0-30 Pressure Gauge with 1/4" MPT Lower Mount |

## TRIDICATOR

### Mix and Match for all gauge quantities

|                         |                                             |
|-------------------------|---------------------------------------------|
| <b>Case:</b>            | Black Painted                               |
| <b>Window:</b>          | Acrylic                                     |
| <b>System Accuracy:</b> | Press: +/-3%-2%-3%<br>Temp: +/-1 scale div. |
| <b>Standard Range:</b>  | 80° - 290° F<br>30° - 140° C                |



## BI-METAL

### Mix and Match for all gauge quantities

|                         |                             |
|-------------------------|-----------------------------|
| <b>Case:</b>            | Zinc Plated Brass           |
| <b>Window:</b>          | Glass                       |
| <b>System Accuracy:</b> | +/-5°F<br>+/-2°C            |
| <b>Standard Range:</b>  | 30° - 250° F<br>0° - 120° C |

| Miljoco Part#   | Connection | A     | E     | F     | H     | S      | U      |
|-----------------|------------|-------|-------|-------|-------|--------|--------|
| B259951-2W      | 1/2" NPT   | 2.5"  | 2.5"  | 3/8"  | 2.5"  | 1.125" | 1.75"  |
| PB300804-2-5    | 1/2" NPT   | 5.25" | 3"    | 1.5"  | 3.25" | 2.5"   | 3.25"  |
| PB300804-2-25   | 1/4" NPT   | 5.25" | 3"    | 1.5"  | 3.25" | 2.5"   | 3.25"  |
| PB300804-1.5-50 | 1/2" NPT   | 4"    | 3"    | 1.5"  | 3.25" | 1.5"   | 2.135" |
| PB3008L04-2     | 1/2" NPT   | 6.5"  | 3"    | 1.5"  | 3.25" | 2.25"  | 3"     |
| P2508L03        | 1/4" NPT   | NA    | 2.44" | 1.15" | 2.48" | NA     | .73"   |





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## ► WSD Tubing & Fittings



[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)

# WSD-PEX C Barrier Pex Tubing

| Product Description<br>WSD-PEX C Barrier Tubing | WSD-PEX C<br>Part Number | List Price<br>Each | Pallet Qty |
|-------------------------------------------------|--------------------------|--------------------|------------|
| 1/2" x 300 ft. coils                            | EVOH5x300Red             | \$200.00           | 30         |
| 1/2" x 1000 ft. coils                           | EVOH5x1000Red            | \$666.67           | 30         |
| 5/8" x 300 ft. coils                            | EVOH6x300RED             | \$274.29           | 30         |
| 5/8" x 400 ft. coils                            | EVOH6x400Red             | \$365.60           | 12         |
| 5/8" x 450 ft. coils                            | EVOH6x450Red             | \$411.43           | 12         |
| 5/8" x 500 ft. coils                            | EVOH6x500Red             | \$457.14           | 12         |
| 5/8" x 1000 ft. coils                           | EVOH6x1000Red            | \$914.29           | 7          |
| 3/4" x 100 ft. coils                            | EVOH7x100Red             | \$110.48           | 17         |
| 3/4" x 300 ft. coils                            | EVOH7x300Red             | \$331.43           | 15         |
| 3/4" x 500 ft. coils                            | EVOH7x500Red             | \$552.38           | 11         |
| 1" x 100 ft. coils                              | EVOH8x100Red             | \$209.52           | 17         |
| 1" x 300 ft. coils                              | EVOH8x300Red             | \$628.57           | 10         |
| 1" x 500 ft. coils                              | EVOH8x500Red             | \$1,047.62         | 6          |

| Nominal<br>Tube Size | Outer<br>Diameter | Tolerance  | Wall<br>Thickness | Tolerance  |
|----------------------|-------------------|------------|-------------------|------------|
| 3/8"                 | 0.500"            | +/- 0.003" | 0.070"            | +/- 0.010" |
| 1/2"                 | 0.625"            | +/- 0.004" | 0.070"            | +/- 0.010" |
| 5/8"                 | 0.750"            | +/- 0.004" | 0.083"            | +/- 0.010" |
| 3/4"                 | 0.875"            | +/- 0.004" | 0.097"            | +/- 0.010" |
| 1"                   | 1.125"            | +/- 0.005" | 0.125"            | +/- 0.013" |





# WSD (PEX-AL-PEX) Tubing Barrier

| Product Description<br>WSD PEX-AL-PEX Composite | Part Number     | List Price<br>Each | Pallet Qty |
|-------------------------------------------------|-----------------|--------------------|------------|
| 1/2" x 250 ft. coil Orange                      | PAP4x250Orange  | \$166.66           | 30         |
| 1/2" x 300 ft. coil Orange                      | PAP4x300Orange  | \$200.00           | 30         |
| 1/2" x 1000 ft. coil Orange                     | PAP4x1000Orange | \$666.66           | 10         |
| 5/8" x 500 ft. coil Orange                      | PAP5x500Orange  | \$488.88           | 28         |
| 3/4" x 100 ft. coil White                       | PAP6x100White   | \$155.55           | 32         |
| 3/4" x 500 ft. coil White                       | PAP6x500White   | \$777.77           | 8          |
| 1" x 100 ft. coil Orange                        | PAP7x100Orange  | \$217.77           | 12         |
| 1" x 300 ft. coil Orange                        | PAP7x300Orange  | \$653.33           | 9          |
| 1" x 500 ft. coil Orange                        | PAP7x500Orange  | \$1,088.88         | 8          |

WSD PEX-AL-PEX is a composite pipe that combines the advantages of metal and plastic pipe into an innovative and universal piping solution for all your radiant heating. WSD PEX-AL-PEX multi-layered composite pipe consists of an overlapped welded aluminum core with an inner and outer layer composed of cross linked polyethylene. The inner welded layer of aluminum makes WSD PEX-AL-PEX 100% oxygen tight, providing longer life for heating system components. Dimensionally built to the F1281 standards.

**For Heating Purposes Only.  
Not Certified for Potable Water.**

**Color of Pipe and roll size may vary.  
These products have long lead times  
when they are not in stock and we are  
occasionally out of normal stock  
items. Please check stock status when  
ordering.**

**Made in China**





# WSD Pex-A Pipe Barrier



## PEX-A Piping 94000 Series

| Description                                     | Part Number | Qty.   | List Price |
|-------------------------------------------------|-------------|--------|------------|
| 3/8" PEX-A x 300' With O2 Diffusion Barrier     | WSD3x300A   | 1      | \$220.05   |
| 3/8" PEX-A x 1000' With O2 Diffusion Barrier    | WSD3x1000A  | 1      | \$733.51   |
| 1/2" PEX-A X 20' Pipe with O2 Diffusion Barrier | WSD4x20A    | 20/Bag | \$15.19    |
| 1/2" PEX-A x 100' With O2 Diffusion Barrier     | WSD4x100A   | 1      | \$75.53    |
| 1/2" PEX-A x 300' With O2 Diffusion Barrier     | WSD4x300A   | 1      | \$226.58   |
| 1/2" PEX-A x 500' With O2 Diffusion Barrier     | WSD4x500A   | 1      | \$377.67   |
| 1/2" PEX-A x 1000' With O2 Diffusion Barrier    | WSD4x1000A  | 1      | \$755.30   |
| 5/8" PEX-A x 450' With O2 Diffusion Barrier     | WSD5x450A   | 1      | \$447.72   |
| 5/8" PEX-A x 500' With O2 Diffusion Barrier     | WSD5x500A   | 1      | \$497.57   |
| 5/8" PEX-A x 1000' With O2 Diffusion Barrier    | WSD5x1000A  | 1      | \$995.15   |
| 3/4" PEX-A X 20' Pipe with O2 Diffusion Barrier | WSD6x20A    | 10/Bag | \$25.93    |
| 3/4" PEX-A x 100' With O2 Diffusion Barrier     | WSD6x100A   | 1      | \$128.85   |
| 3/4" PEX-A x 300' With O2 Diffusion Barrier     | WSD6x300A   | 1      | \$386.55   |
| 3/4" PEX-A x 500' With O2 Diffusion Barrier     | WSD6x500A   | 1      | \$644.25   |
| 3/4" PEX-A x 1000' With O2 Diffusion Barrier    | WSD6x1000A  | 1      | \$1288.50  |
| 1" PEX-A X 20' Pipe with O2 Diffusion Barrier   | WSD7x20A    | 5/Bag  | \$44.14    |
| 1" PEX-A x 100' With O2 Diffusion Barrier       | WSD7x100A   | 1      | \$219.99   |
| 1" PEX-A x 300' With O2 Diffusion Barrier       | WSD7x300A   | 1      | \$659.95   |
| 1" PEX-A x 500' With O2 Diffusion Barrier       | WSD7x500A   | 1      | \$1099.91  |

WSD Pex-A tubing is made using the Engel method. The Engel method is a hot cross-linking process, meaning the actual cross-linking takes place during the extrusion process when the base polyethylene is above its crystal melting temperature. The Engel method provides more precise control over the degree, consistency and uniformity of cross-linking. This means the tubing is evenly cross-linked, with no weak links within its molecular chains.



# WSD Pex-A Pipe SDR-9 Barrier



## WSD PEX-A Piping SDR-9

| Description                                              | Part Number | Qty.    | List Price     |
|----------------------------------------------------------|-------------|---------|----------------|
| PEX-A 1-1/4" X 20' SDR-9 Pipe with O2 Diffusion Barrier  | WSD8x20A    | 1       | \$54.14        |
| PEX-A 1-1/4" X 100' SDR-9 Pipe with O2 Diffusion Barrier | WSD8x100A   | 1       | \$270.09       |
| PEX-A 1-1/4" X 300' SDR-9 Pipe with O2 Diffusion Barrier | WSD8x300A   | 1       | \$810.28       |
| PEX-A 1-1/4" SDR-9 Pipe with O2 Diffusion Barrier        | WSD8xCTLA   | Per Ft. | \$2.70 per Ft. |
| PEX-A 1-1/2" X 20' SDR-9 Pipe with O2 Diffusion Barrier  | WSD9x20A    | 1       | \$75.07        |
| PEX-A 1-1/2" X 100' SDR-9 Pipe with O2 Diffusion Barrier | WSD9x100A   | 1       | \$374.75       |
| PEX-A 1-1/2" X 300' SDR-9 Pipe with O2 Diffusion Barrier | WSD9x300A   | 1       | \$1124.24      |
| PEX-A 1-1/2" SDR-9 Pipe with O2 Diffusion Barrier        | WSD9xCTLA   | Per Ft. | \$3.75 per Ft. |
| PEX-A 2" X 20' SDR-9 Pipe with O2 Diffusion Barrier      | WSD10x20A   | 1       | \$125.96       |
| PEX-A 2" X 100' SDR-9 Pipe with O2 Diffusion Barrier     | WSD10x100A  | 1       | \$629.17       |
| PEX-A 2" X 300' SDR-9 Pipe with O2 Diffusion Barrier     | WSD10x300A  | 1       | \$1887.52      |
| PEX-A 2" SDR-9 Pipe with O2 Diffusion Barrier            | WSD10xCTLA  | Per Ft. | \$6.29 per Ft. |

Note: Per foot pipe available as cut-to-length. Max. coil length 1,000'  
Additional Service Cutting Charges apply.

\*\*\* ALL ITEMS SPECIAL ORDER \*\*\*



# WSD Pex-B Pipe Barrier



| Description                                     | Part Number | Qty.   | List Price |
|-------------------------------------------------|-------------|--------|------------|
| 3/8" PEX-B x 300' With O2 Diffusion Barrier     | WSD3x300B   | 1      | \$162.18   |
| 3/8" PEX-B x 1000' With O2 Diffusion Barrier    | WSD3x1000B  | 1      | \$540.61   |
| 1/2" PEX-B x 20' Pipe with O2 Diffusion Barrier | WSD4x20B    | 50/Bag | \$12.63    |
| 1/2" Pex-B x 100' With O2 Diffusion Barrier     | WSD4x100B   | 1      | \$63.10    |
| 1/2" PEX-B x 300' With O2 Diffusion Barrier     | WSD4x300B   | 1      | \$189.29   |
| 1/2" PEX-B x 1000' With O2 Diffusion Barrier    | WSD4x1000B  | 1      | \$630.97   |
| 5/8" PEX-B x 450' With O2 Diffusion Barrier     | WSD5x450B   | 1      | \$376.72   |
| 5/8" PEX-B x 500' With O2 Diffusion Barrier     | WSD5x500B   | 1      | \$418.58   |
| 5/8" PEX-B x 1000' With O2 Diffusion Barrier    | WSD5x1000B  | 1      | \$837.16   |
| 3/4" PEX-B X 20' Pipe with O2 Diffusion Barrier | WSD6x20B    | 25/Bag | \$21.91    |
| 3/4" PEX-B x 100' With O2 Diffusion Barrier     | WSD6x100B   | 1      | \$104.92   |
| 3/4" PEX-B x 300' With O2 Diffusion Barrier     | WSD6x300B   | 1      | \$314.77   |
| 3/4" PEX-B x 500' With O2 Diffusion Barrier     | WSD6x500B   | 1      | \$524.61   |
| 3/4" PEX-B x 1000' With O2 Diffusion Barrier    | WSD6x1000B  | 1      | \$1049.23  |
| 1" PEX-B X 20' Pipe with O2 Diffusion Barrier   | WSD7x20B    | 5/Bag  | \$37.90    |
| 1" PEX-B x 100' With O2 Diffusion Barrier       | WSD7x100B   | 1      | \$175.81   |
| 1" PEX-B x 300' With O2 Diffusion Barrier       | WSD7x300B   | 1      | \$526.83   |

WSD Pex-B pipes are manufactured from special HDPE resins. The cross-linking is performed in a state of the art Silane accelerator post extrusion resulting in an excellent and even cross-linking. The cross-linking renders the pipe improved mechanical process such as resistance to corrosion, pressures at high temperature, superb abrasion and chemical resistance. Product is coated with EVOH barrier which prevents oxygen from entering the system through the pipe wall. Products are manufactured in red color. WSD Pex-B pipes can be used with the following ASTM fitting systems: F2159, F1807, F1960, and F2080. Twenty-five year manufacturers warranty applies.

\*\*\* ALL ITEMS SPECIAL ORDER \*\*\*



# WSD Pert Heating Accessories



**Not Plumbing Approved**

| Description                        | Part Number   | Qty. | List Price |
|------------------------------------|---------------|------|------------|
| 3/8"x300' Heat-Pert Barrier Pipe   | WSD3x300PERT  | 1    | \$133.67   |
| 3/8"x1,000' Heat-Pert Barrier Pipe | WSD3x1000PERT | 1    | \$445.56   |
| 1/2"x100' Heat-Pert Barrier Pipe   | WSD4x100PERT  | 1    | \$55.15    |
| 1/2"x300' Heat-Pert Barrier Pipe   | WSD4x300PERT  | 1    | \$165.44   |
| 1/2"x1,000' Heat-Pert Barrier Pipe | WSD4x1000PERT | 1    | \$551.47   |
| 5/8"x300' Heat-Pert Barrier Pipe   | WSD5x300PERT  | 1    | \$240.08   |
| 5/8"x500' Heat-Pert Barrier Pipe   | WSD5x500PERT  | 1    | \$400.13   |
| 5/8"x1,000' Heat-Pert Barrier Pipe | WSD5x1000PERT | 1    | \$800.25   |
| 3/4"x100' Heat-Pert Barrier Pipe   | WSD6x100PERT  | 1    | \$106.53   |
| 3/4"x300' Heat-Pert Barrier Pipe   | WSD6x300PERT  | 1    | \$319.60   |

WSD Heat Pert pipe is a 5 layer pipe made from Dowlex 2344 resin offering high temperature and pressure resistance without cross linking of the pipe. PERT stands for Poly Ethylene Raised Temperature and carries ratings up to 180F at 100psi. It has superior flexibility and can be used in both radiant and snow melt systems. It is manufactured to ASTM F2623 and is approved by NSF and CSA. Oxygen diffusion meets DIN 4726 which limits oxygen permeation through the pipe wall. It is SDR9 sized pipe and can be used with any ASTM F1807 or F2159 fittings.

\*\*\* ALL ITEMS SPECIAL ORDER \*\*\*



# WSD 5 Layer PEX C with UV Outer Layer



| Description                                             | Part Number | Qty. | List Price |
|---------------------------------------------------------|-------------|------|------------|
| PEX-C 3/8" x 300' five layer with O2 Diffusion Barrier  | WSD3x300FL  | 1    | \$170.27   |
| PEX-C 3/8" x 1000' five layer with O2 Diffusion Barrier | WSD3x1000FL | 1    | \$567.54   |
| PEX-C 1/2" x 300' five layer with O2 Diffusion Barrier  | WSD4x300FL  | 1    | \$210.64   |
| PEX-C 1/2" x 500' five layer with O2 Diffusion Barrier  | WSD4x500FL  | 1    | \$377.88   |
| PEX-C 1/2" x 1000' five layer with O2 Diffusion Barrier | WSD4x1000FL | 1    | \$702.14   |
| PEX-C 5/8" x 20' five layer with O2 Diffusion Barrier   | WSD5x20FL   | 1    | \$18.77    |
| PEX-C 5/8" x 450' five layer with O2 Diffusion Barrier  | WSD5x450FL  | 1    | \$419.23   |
| PEX-C 5/8" x 1000' five layer with O2 Diffusion Barrier | WSD5x1000FL | 1    | \$931.60   |
| PEX-C 3/4" x 20' five layer with O2 Diffusion Barrier   | WSD6x20FL   | 1    | \$23.48    |
| PEX-C 3/4" x 100' five layer with O2 Diffusion Barrier  | WSD6x100FL  | 1    | \$116.76   |
| PEX-C 3/4" x 300' five layer with O2 Diffusion Barrier  | WSD6x300FL  | 1    | \$350.28   |
| PEX-C 3/4" x 500' five layer with O2 Diffusion Barrier  | WSD6x500FL  | 1    | \$583.80   |
| PEX-C 3/4" x 1000' five layer with O2 Diffusion Barrier | WSD6x1000FL | 1    | \$1167.57  |
| PEX-C 1" x 20' five layer with O2 Diffusion Barrier     | WSD7x20FL   | 1    | \$42.14    |
| PEX-C 1" x 100' five layer with O2 Diffusion Barrier    | WSD7x100FL  | 1    | \$209.99   |
| PEX-C 1" x 300' five layer with O2 Diffusion Barrier    | WSD7x300FL  | 1    | \$629.98   |
| PEX-C 1" x 500' five layer with O2 Diffusion Barrier    | WSD7x500FL  | 1    | \$1049.97  |

PEX-C piping is a five layer pex heating pipe with exceptional barrier properties and flexibility. It's Advantages are high flex-ibility, low oxygen permeability, full scratch protection barrier layer, full moisture protection barrier layer with a black UV outer layer.

- **Completely quiet - ideal for wooden floors**
- **Most flexible for snow melt applications**

\*\*\*ALL ITEMS SPECIAL ORDER\*\*\*



# WSD Pex-A Pipe Non-Barrier Plumbing



## Blue Pipe PEX-A

| Description             | Part Number       | Qty./Coil Length | List Price |
|-------------------------|-------------------|------------------|------------|
| Blue Pex-A 1/2" X 20'   | WSDPLB4x20ABLUE   | 20 / bag         | \$11.16    |
| Blue Pex-A 1/2" X 100'  | WSDPLB4x100ABLUE  | 100'             | \$53.92    |
| Blue Pex-A 1/2" X 300'  | WSDPLB4x300ABLUE  | 300'             | \$161.46   |
| Blue Pex-A 1/2" X 1000' | WSDPLB4x1000ABLUE | 1000'            | \$539.18   |
| Blue Pex-A 3/4" X 20'   | WSDPLB6x20ABLUE   | 10 / bag         | \$19.04    |
| Blue Pex-A 3/4" X 100'  | WSDPLB6x100ABLUE  | 100'             | \$94.60    |
| Blue Pex-A 3/4" X 300'  | WSDPLB6x300ABLUE  | 300'             | \$283.79   |
| Blue Pex-A 1" X 20'     | WSDPLB7x20ABLUE   | 5 / bag          | \$32.51    |
| Blue Pex-A 1" X 100'    | WSDPLB7x100ABLUE  | 100'             | \$161.95   |



## Red Pipe PEX-A

| Description            | Part Number      | Qty./Coil Length | List Price |
|------------------------|------------------|------------------|------------|
| Red Pex-A 1/2" X 20'   | WSDPLB4x20ARED   | 20 / bag         | \$11.16    |
| Red Pex-A 1/2" X 100'  | WSDPLB4x100ARED  | 100'             | \$53.92    |
| Red Pex-A 1/2" X 300'  | WSDPLB4x300ARED  | 300'             | \$161.46   |
| Red Pex-A 1/2" X 1000' | WSDPLB4x1000ARED | 1000'            | \$539.18   |
| Red Pex-A 3/4" X 20'   | WSDPLB6x20ARED   | 10 / bag         | \$19.04    |
| Red Pex-A 3/4" X 100'  | WSDPLB6x100ARED  | 100'             | \$94.60    |
| Red Pex-A 3/4" X 300'  | WSDPLB6x300ARED  | 300'             | \$283.79   |
| Red Pex-A 1" X 20'     | WSDPLB7x20ARED   | 5 / bag          | \$32.51    |
| Red Pex-A 1" X 100'    | WSDPLB7x100ARED  | 100'             | \$161.95   |



## Natural Pipe PEX-A

| Description                | Part Number      | Qty./Coil Length | List Price |
|----------------------------|------------------|------------------|------------|
| Natural Pex-A 1/2" X 20'   | WSDPLB4x20ANAT   | 20 / bag         | \$11.16    |
| Natural Pex-A 1/2" X 100'  | WSDPLB4x100ANAT  | 100'             | \$53.92    |
| Natural Pex-A 1/2" X 300'  | WSDPLB4x300ANAT  | 300'             | \$161.46   |
| Natural Pex-A 1/2" X 1000' | WSDPLB4x1000ANAT | 1000'            | \$539.18   |
| Natural Pex-A 3/4" X 20'   | WSDPLB6x20ANAT   | 10 / bag         | \$19.04    |
| Natural Pex-A 3/4" X 100'  | WSDPLB6x100ANAT  | 100'             | \$94.60    |
| Natural Pex-A 3/4" X 300'  | WSDPLB6x300ANAT  | 300'             | \$283.79   |
| Natural Pex-A 1" X 20'     | WSDPLB7x20ANAT   | 5 / bag          | \$32.51    |
| Natural Pex-A 1" X 100'    | WSDPLB7x100ANAT  | 100'             | \$161.95   |
| Natural Pex-A 1" X 300'    | WSDPLB7x300ANAT  | 300'             | \$485.55   |





# WSD Pex-A Plumbing Pipe SDR-9



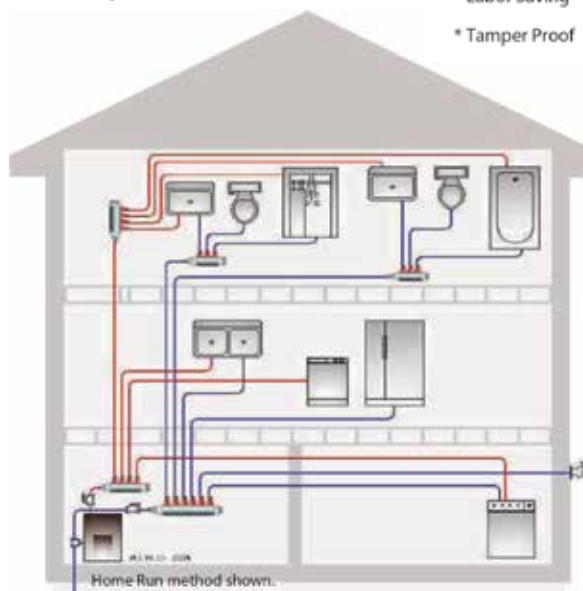
Pex-A and Pex-B in red, blue, and natural colors in a variety of lengths make plumbing with pex fast and easy.

## WSD PEX-A Piping SDR-9

| Description                    | Part Number      | Qty.    | List Price     |
|--------------------------------|------------------|---------|----------------|
| PEX-A 1-1/4" X 20' SDR-9 Pipe  | WSDPLB8x20ANAT   | 1       | \$46.33        |
| PEX-A 1-1/4" X 100' SDR-9 Pipe | WSDPLB8x100ANAT  | 1       | \$231.11       |
| PEX-A 1-1/4" X 300' SDR-9 Pipe | WSDPLB8x300ANAT  | 1       | \$693.34       |
| PEX-A 1-1/4" SDR-9 Pipe        | WSDPLB8xCTLANAT  | Per Ft. | \$2.31 per Ft. |
| PEX-A 1-1/2" X 20' SDR-9 Pipe  | WSDPLB9x20ANAT   | 1       | \$64.24        |
| PEX-A 1-1/2" X 100' SDR-9 Pipe | WSDPLB9x100ANAT  | 1       | \$320.66       |
| PEX-A 1-1/2" X 300' SDR-9 Pipe | WSDPLB9x300ANAT  | 1       | \$961.98       |
| PEX-A 1-1/2" SDR-9 Pipe with   | WSDPLB9xCTLANAT  | Per Ft. | \$3.21 per Ft. |
| PEX-A 2" X 20' SDR-9 Pipe      | WSDPLB10x20ANAT  | 1       | \$107.78       |
| PEX-A 2" X 100' SDR-9 Pipe     | WSDPLB10x100ANAT | 1       | \$538.37       |
| PEX-A 2" X 300' SDR-9 Pipe     | WSDPLB10x300ANAT | 1       | \$1615.10      |
| PEX-A 2" SDR-9 Pipe            | WSDPLB10xCTLANAT | Per Ft. | \$5.38 per Ft. |

## NEW ASTM F-1960 Cold Expansion System

- \* Cost Effective
- \* Labor Saving
- \* Tamper Proof



- \* Plenum Rated - May be run in drop ceilings and chases
- \* Totally clean, lead free freeze protection
- \* Flexible - bends easily making installations quicker
- \* Resists corrosive water and scaling
- \* Fewer fittings
- \* Quiet - no water hammer noise
- \* Equalized pressure drops, minimize hot or cold surges
- \* Can easily be repaired if pipe is kinked
- \* Durable/long life
- \* 25 year limited warranty
- \* Labor costs reduced by up to 40%
- \* Lightweight
- \* Approved for continuous re-circulation of hot water
- \* Fire stop caulk compatible

## Connection Options

- \* Cold Expansion Rings
- \* Stainless Press Sleeves
- \* Pinchlock Clamps
- \* Copper crimp rings

Note: Pipe available as cut-to-Length. Additional Service Charges apply.



# WSD Pex-B Pipe Plumbing



## Blue Pipe PEX-B

| Description             | Part Number        | Qty./Coil Length | List Price |
|-------------------------|--------------------|------------------|------------|
| Blue Pex-B 1/2" X 20'   | WSDPLB4x20BBBLUE   | 50 / bag         | \$8.47     |
| Blue Pex-B 1/2" X 100'  | WSDPLB4x100BBBLUE  | 100'             | \$41.00    |
| Blue Pex-B 1/2" X 300'  | WSDPLB4x300BBBLUE  | 300'             | \$122.98   |
| Blue Pex-B 1/2" X 1000' | WSDPLB4x1000BBBLUE | 1000'            | \$410.06   |
| Blue Pex-B 3/4" X 20'   | WSDPLB6x20BBBLUE   | 25 / bag         | \$15.85    |
| Blue Pex-B 3/4" X 100'  | WSDPLB6x100BBBLUE  | 100'             | \$78.65    |
| Blue Pex-B 3/4" X 300'  | WSDPLB6x300BBBLUE  | 300'             | \$232.95   |
| Blue Pex-B 1" X 20'     | WSDPLB7x20BBBLUE   | 15 / bag         | \$30.20    |
| Blue Pex-B 1" X 100'    | WSDPLB7x100BBBLUE  | 100'             | \$150.42   |
| Blue Pex-B 1" X 300'    | WSDPLB7x300ABBLUE  | 300'             | \$451.25   |



## Red Pipe PEX-B

| Description            | Part Number      | Qty./Coil Length | List Price |
|------------------------|------------------|------------------|------------|
| Red Pex-B 1/2" X 20'   | WSDPLB4x20BRED   | 50 / bag         | \$8.47     |
| Red Pex-B 1/2" X 100'  | WSDPLB4x100BRED  | 100'             | \$41.00    |
| Red Pex-B 1/2" X 300'  | WSDPLB4x300BRED  | 300'             | \$122.98   |
| Red Pex-B 1/2" X 1000' | WSDPLB4x1000BRED | 1000'            | \$410.06   |
| Red Pex-B 3/4" X 20'   | WSDPLB6x20BRED   | 25 / bag         | \$15.85    |
| Red Pex-B 3/4" X 100'  | WSDPLB6x100BRED  | 100'             | \$78.65    |
| Red Pex-B 3/4" X 300'  | WSDPLB6x300BRED  | 300'             | \$232.95   |
| Red Pex-B 1" X 20'     | WSDPLB7x20BRED   | 15 / bag         | \$30.20    |
| Red Pex-B 1" X 100'    | WSDPLB7x100BRED  | 100'             | \$150.42   |
| Red Pex-B 1" X 300'    | WSDPLB7x300BRED  | 300'             | \$451.25   |



## White Pipe PEX-B

| Description              | Part Number        | Qty./Coil Length | List Price |
|--------------------------|--------------------|------------------|------------|
| White Pex-B 1/2" X 20'   | WSDPLB4x20BWHITE   | 50 / bag         | \$8.47     |
| White Pex-B 1/2" X 100'  | WSDPLB4x100BWHITE  | 100'             | \$41.00    |
| White Pex-B 1/2" X 300'  | WSDPLB4x300BWHITE  | 300'             | \$122.98   |
| White Pex-B 1/2" X 1000' | WSDPLB4x1000BWHITE | 1000'            | \$410.06   |
| White Pex-B 3/4" X 20'   | WSDPLB6x20BWHITE   | 25 / bag         | \$15.85    |
| White Pex-B 3/4" X 100'  | WSDPLB6x100BWHITE  | 100'             | \$78.65    |
| White Pex-B 3/4" X 300'  | WSDPLB6x300BWHITE  | 300'             | \$232.95   |
| White Pex-B 1" X 20'     | WSDPLB7x20BWHITE   | 15 / bag         | \$30.20    |
| White Pex-B 1" X 100'    | WSDPLB7x100BWHITE  | 100'             | \$150.42   |





# WSD Pre-Insulated Pipe

**3 & 5 WRAP**



**Assembled in the USA**  
with foreign and domestic parts

## Why choose WSD Pre-insulated Pipe:

- **Available with** – PEX-AL-PEX, Non Barrier, and Oxygen Barrier Pex Pipe
- **Pre-assembled** – Unroll and connect the ends. It's that easy!
- **Flexible** – No corners to buy, no corners to struggle with!
- **Uses** – Gas boiler & wood boiler distribution lines.
- **Winter Sales** – Very little heat loss when laid on frozen ground < 2 degrees average per 100ft on the 3 wrap and < 1 degrees on the 5 wrap.
- **Affordable** – Inexpensive pipe Allows you to put the wood stove where you want.
- **Efficient** – Lengths up to 500' in 3 wrap and up to 450' in 5 wrap No splice in the transfer lines.
- **Saves Money** – Only buy what you need! With cut to length prices there is no need to buy a full roll.
- **Easy Connections** – Screw compression fittings available for the PEX-AL-PEX. NO Special Tools. Standard pex barb fittings for the non barrier.

Available in multiple pipe sizes

3/4"  
1"  
1 1/4"  
1 1/2"

Pipe can be special ordered with additional lines of tubing inside

All insulated pipe always comes with a string inside to pull electrical and other wiring.



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# WSD Pre-Insulated Pipe

## A Few Measuring Tips:

- Include the measurement from the house inlet to the bottom of the trench.
- Include the measurement from the stove connections to the bottom of the trench.
- Allow enough length inside the house for easy splicing to internal piping.
- Consider adding additional footage for an uneven trench, avoiding tree roots, rocks etc.

This completely pre-assembled pipe includes: Two PEX-AL-PEX or plain Pex lines, It is tightly wrapped with 3 or 5 wraps of closed-cell, reflective foil-faced insulation. It is taped solid and covered with a flexible non-perforated drain tile, and then coiled on a pallet for EASY transporting. Color of pipe and tile may vary.



# WSD Insulated Special Order Pex Pipe

**3 WRAP**



**Assembled in the USA**  
with foreign and domestic parts



(2) Lines of Pex wrapped in 3 layers of closed-cell reflective insulation and fed inside flexible non-perforated drain tile. We will cut to length in 5' increments. Dimensionally built to F876/F877 standard.

| Part Number        | Description                                                      | Price per Ft |
|--------------------|------------------------------------------------------------------|--------------|
| WSD-EZ0.7502BCTL3W | Insulated Pipe w/3/4" <b>Oxygen Barrier</b> Pex 3 wrap 4" Tile   | \$10.83      |
| WSD-EZ1.0002BCTL3W | Insulated Pipe w/1" <b>Oxygen Barrier</b> Pex 3 wrap 4" Tile     | \$11.62      |
| WSD-EZ1.2502BCTL3W | Insulated Pipe w/1 1/4" <b>Oxygen Barrier</b> Pex 3 wrap 4" Tile | \$15.83      |
| WSD-EZ1.5002BCTL3W | Insulated Pipe w/1 1/2" <b>Oxygen Barrier</b> Pex 3 wrap 5" Tile | \$18.98      |
| WSD-EZ0.75NBCTL3W  | Insulated Pipe w/3/4" <b>Non-Barrier</b> Pex 3 Wrap 4" Tile      | \$8.86       |
| WSD-EZ1.00NBCTL3W  | Insulated Pipe w/1" <b>Non-Barrier</b> Pex 3 Wrap 4 Tile         | \$10.44      |
| WSD-EZ1.25NBCTL3W  | Insulated Pipe w/1 1/4" <b>Non-Barrier</b> Pex 3 Wrap 5" Tile    | \$13.98      |
| WSD-EZ1.50NBCTL3W  | Insulated Pipe w/1 1/2" <b>Non-Barrier</b> Pex 3 Wrap 5" Tile    | \$16.43      |
| WSD-IPAP1.00CTL3W  | Insulated pipe with 1.00" PEX-AL-PEX 3 wrap 5" Tile              | \$11.11      |
| WSD-EC4            | 4" end cap                                                       | \$18.11      |
| WSD-EC5            | 5" end cap                                                       | \$20.33      |

**\*\* No Returns on cut to length or special orders.**



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# WSD Insulated Special Order Pex Pipe

## 5 WRAP



**Assembled in the USA**  
with foreign and domestic parts



(2) Pex wrapped in 5 layers of closed-cell reflective insulation and fed inside 5" or 6" flexible non-perforated drain tile. We will cut to length in 5' increments. Dimensionally built to F876/877 standard.

| Part Number        | Description                                              | Price per Ft |
|--------------------|----------------------------------------------------------|--------------|
| WSD-EZ0.7502BCTL5W | Insulated Pipe w/0.75" <b>Oxygen Barrier</b> Pex 5 wrap  | \$12.29      |
| WSD-EZ1.0002BCTL5W | Insulated Pipe w/1" <b>Oxygen Barrier</b> Pex 5 wrap     | \$15.44      |
| WSD-EZ1.2502BCTL5W | Insulated Pipe w/1 1/4" <b>Oxygen Barrier</b> Pex 5 wrap | \$18.00      |
| WSD-EZ1.5002BCTL5W | Insulated Pipe w/1 1/2" <b>Oxygen Barrier</b> Pex 5 wrap | \$21.15      |
| WSD-EZ0.75NBCTL5W  | Insulated Pipe w/3/4" <b>Non-Barrier</b> Pex 5 Wrap      | \$11.32      |
| WSD-EZ1.00NBCTL5W  | Insulated Pipe w/1.00" <b>Non-Barrier</b> Pex 5 Wrap     | \$14.26      |
| WSD-EZ1.25NBCTL5W  | Insulated Pipe w/1 1/4" <b>Non-Barrier</b> Pex 5 Wrap    | \$16.13      |
| WSD-EZ1.50NBCTL5W  | Insulated Pipe w/1 1/2" <b>Non-Barrier</b> Pex 5 Wrap    | \$18.58      |
| WSD-IPAP1.00CTL5W  | Insulated pipe with 1.00" PEX-AL-PEX 5 wrap              | \$14.95      |
| WSD-EC5            | 5" END CAPWSD-EZ0.7502BCTL5W                             | \$20.33      |



# WSD Terre-Pex Insulated Pipe System

## Product Properties

### HDPE Outer Jacket

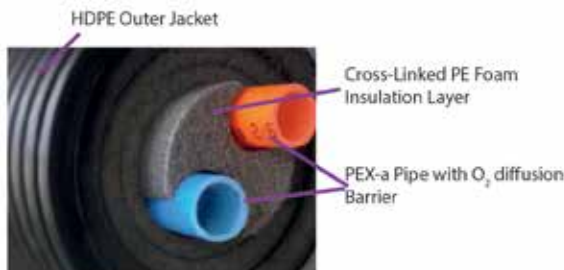
This corrugated high density polyethylene casing provides the necessary mechanical protection and water sealant properties, and is shock-resistant, even at sub-zero temperatures

### Insulation Properties

The insulation of Terre-Pex pipes is fully composed of micro-cellular cross linked polyethylene foam with a closed cellular structure, permitting low water vapor diffusion, good insulation and resistance to extreme temperatures and is not water soluble like competition using polyurethane.

### Pex-A Pipe

Plastic pipes have more than proved their quality in recent years. They are flexible, heat and pressure resistant, non-corrosive and lightweight. The Terre-Pex pipe is supplied with pipes manufactured according to the Engel process.



## Applications

Terre-Pex Piping Systems are a complete line of flexible piping from 1" to 4" in size with all required accessories for cost effective and permanent installations of:

- **District Heating and Cooling** running hydronic lines between buildings with minimal energy losses, through unheated spaces, and for extending traditional distribution systems easily and economically
- **Underground Piping Systems** direct burial of lines up to 328' in length without joints for chilled water, condenser water, or any subterranean system requiring minimal heat gains/losses
- **Plumbing Systems** for networked cold, hot, and recirculated water lines between buildings, to external or remote facilities such as barns, animal sheds, etc.
- **Radiant & snowmelting Systems** for feeding remote manifold boxes or adding onto existing systems
- **Interior Building Piping** to provide the quickest and most guaranteed installation of piping systems with no couplings or joints, already insulated to save time and money at the jobsite, and allow maximum flexibility of carrier pipes through difficult spaces.



# WSD Terre-Pex Insulated Pipe System

## Terre-Pex Insulated Pipe System

Terre-Pex Insulated Pipes are the ideal solution for delivery of hot and chilled water where the energy preservation is key. Terre-Pex insulated piping provides the highest bending flexibility in the industry and thus minimizes overhead in project related pipe system considerations.

We differentiate Terre-Pex insulated pipes with either single or double carrier pipes for convenient supply and return piping based on project needs.

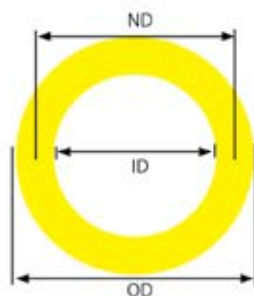
Terre-Pex insulated pex-A pipe can be delivered in any length required up to full coils of 328 feet. ComfortPro Systems provides a cut-to-length quick ship service for your project's needs. With a wide selection of pipe diameters in stock CPS can provide the right solution for your application requirements.

ComfortPro Systems also offers a full selection of pipe matching brass fittings 1" to 4" (110mm)

## Energy Efficiency of Terre-Pex Pipes (R-Value)

Insulation Efficiency is commonly referred to as R-value. The tables below show R-Values for Terre-Pex Single and Double pipes.

### Nomenclature Diameters



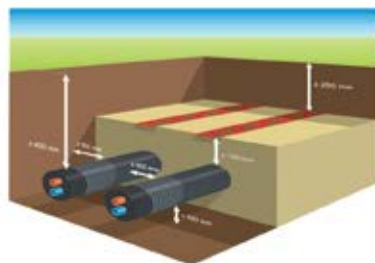
ND = Nominal Diameter  
ID = Internal Diameter  
OD = Outer Diameter

### Single Heating Pipes

| Part #    | Jacket Pipe OD in | Medium Pipe OD in | \$ in | ID in | Bending radius in | Water content gal/100ft | Heat capacity Btu/hr | R-value Btu/hr/ft <sup>2</sup> /°F |
|-----------|-------------------|-------------------|-------|-------|-------------------|-------------------------|----------------------|------------------------------------|
| WSD32mmSL | 3.5               | 1.26              | 0.11  | 1.03  | 9.8               | 4.34                    | 205                  | 7.064                              |
| WSD1.25SL | 5.5               | 1.57              | 0.15  | 1.28  | 13.8              | 6.72                    | 307                  | 6.868                              |
| WSD1.5SL  | 5.5               | 1.97              | 0.18  | 1.61  | 15.7              | 10.53                   | 478                  | 6.868                              |
| WSD2.0SL  | 6.3               | 2.48              | 0.23  | 2.02  | 21.7              | 16.71                   | 751                  | 6.434                              |
| WSD2.5SL  | 6.3               | 2.95              | 0.27  | 2.42  | 29.5              | 23.85                   | 1126                 | 5.229                              |
| WSD3.0SL  | 7.9               | 3.54              | 0.32  | 2.90  | 43.3              | 34.27                   | 1638                 | 5.227                              |
| WSD4.0SL  | 7.9               | 4.33              | 0.39  | 3.54  | 47.2              | 51.24                   | 2388                 | 3.889                              |

### Double Heating Pipes

| Part #    | Jacket Pipe OD in | Medium Pipe OD in | \$ in | ID in | Bending radius in | Water content gal/100ft | Heat capacity Btu/hr | R-value Btu/hr/ft <sup>2</sup> /°F |
|-----------|-------------------|-------------------|-------|-------|-------------------|-------------------------|----------------------|------------------------------------|
| WSD28mmDL | 5.5               | 0.98              | 0.09  | 0.80  | 13.8              | 5.26                    | 1.02                 | 7.109                              |
| WSD32mmDL | 5.5               | 1.26              | 0.11  | 1.03  | 15.7              | 8.68                    | 205                  | 5.661                              |
| WSD1.25DL | 6.3               | 1.57              | 0.15  | 1.28  | 23.6              | 13.45                   | 307                  | 5.468                              |
| WSD1.5DL  | 6.3               | 1.97              | 0.18  | 1.61  | 23.6              | 21.06                   | 478                  | 3.918                              |
| WSD2.0DL  | 7.9               | 2.48              | 0.23  | 2.02  | 47.2              | 33.42                   | 751                  | 3.595                              |



### Quick Installation

1. Simply dig a trench (Minimum 24" deep)
2. Place 6" of sand into trench
3. Lay the Terre-Pex pipe in the trench
4. Cover over with fine earth or sand
5. Connect to appliance or wall outlet, e.g. boiler or heat exchanger

No compensation elements needed since the pipe moves inside the HDPE jacket with temperature.



# WSD Terre-Pex Insulated Pipe System



| Description                                         | Part Number | Qty. | List Price |
|-----------------------------------------------------|-------------|------|------------|
| 32mm Single Insulated Pex 90mm Outer Jacket         | WSD32mmSL   | 1    | \$17.60    |
| 1-1/4" 40mm Single Insulated Pex 140mm Outer Jacket | WSD1.25SL   | 1    | \$25.88    |
| 1-1/2" 50mm Single Insulated Pex 140mm Outer Jacket | WSD1.5SL    | 1    | \$29.04    |
| 2" 63mm Single Insulated Pex 160mm Outer Jacket     | WSD2.0SL    | 1    | \$41.30    |
| 2-1/2" 75mm Single Insulated Pex 160mm Outer Jacket | WSD2.5SL    | 1    | \$42.62    |
| 3" 90mm Single Insulated Pex 200mm Outer Jacket     | WSD3.0SL    | 1    | \$57.07    |
| 4" 110mm Single Insulated Pex 200mm Outer Jacket    | WSD4.0SL    | 1    | \$400.13   |



| Description                                         | Part Number | Qty. | List Price |
|-----------------------------------------------------|-------------|------|------------|
| 28mm Double Insulated Pex 140mm Outer Jacket        | WSD28mmDL   | 1    | \$26.03    |
| 32mm Double Insulated Pex 140mm Outer Jacket        | WSD32mmDL   | 1    | \$26.03    |
| 1-1/4" 40mm Double Insulated Pex 160mm Outer Jacket | WSD1.25DL   | 1    | \$38.70    |
| 1-1/2" 50mm Double Insulated Pex 160mm Outer Jacket | WSD1.5DL    | 1    | \$44.49    |
| 2" 63mm Double Insulated Pex 200mm Outer Jacket     | WSD2.0DL    | 1    | \$66.93    |



| Description                   | Part Number     | Qty. | List Price |
|-------------------------------|-----------------|------|------------|
| 32mm NPT Pex Connector        | WSDHC32mmPEXCON | 1    | \$64.59    |
| 1-1/4" NPT 40mm Pex Connector | WSDHC1.25PEXCON | 1    | \$106.85   |
| 1-1/2" NPT 50mm Pex Connector | WSDHC1.5PEXCON  | 1    | \$121.42   |
| 2" NPT 63mm Pex Connector     | WSDHC2.0PEXCON  | 1    | \$173.70   |
| 2-1/2" NPT 75mm Pex Connector | WSDHC2.5PEXCON  | 1    | \$271.60   |
| 3" NPT 90mm Pex Connector     | WSDHC3.0PEXCON  | 1    | \$449.13   |
| 4" NPT 110mm Pex Connector    | WSDHC4.0PEXCON  | 1    | \$534.21   |

## Operating Range

- Pressures of up to 87 Psi in heating applications with PEX piping from 1" to 4" diameter
- Pressure of up to 140 Psi in plumbing applications with PEX piping from 1" to 2 1/2" diameter

Couplings can be combined with other brass accessories to make T- and knee couplings, connecting pieces, etc.

\*\*\* ALL ITEMS SPECIAL ORDER \*\*\*



# WSD Dust & Shrink Caps



## Single Pipe Dust Caps

| Description                          | Part Number | Qty. | List Price |
|--------------------------------------|-------------|------|------------|
| 1" 32mm Single Dust Cap 90mm OD      | WSD32MMDC   | 1    | \$29.34    |
| 1-1/4" 40mm Single Dust Cap 140mm OD | WSD1.25DC   | 1    | \$29.34    |
| 1-1/2" 50mm Single Dust Cap 140mm OD | WSD1.5DC    | 1    | \$29.34    |
| 2" 63mm Single Dust Cap 160mm OD     | WSD2.0DC    | 1    | \$29.34    |
| 2-1/2" 75mm Single Dust Cap 160mm OD | WSD2.5DC    | 1    | \$29.34    |
| 3" 90mm Single Dust Cap 200mm OD     | WSD3.0DC    | 1    | \$29.34    |
| 4" 110mm Single Dust Cap 200mm OD    | WSD4.0DC    | 1    | \$29.34    |



## Double Pipe Dust Caps

| Description                          | Part Number | Qty. | List Price |
|--------------------------------------|-------------|------|------------|
| 1" 32mm Double Dust Cap 140mm OD     | WSD32MMDDC  | 1    | \$29.34    |
| 1-1/4" 40mm Double Dust Cap 160mm OD | WSD1.25DDC  | 1    | \$29.34    |
| 1-1/2" 50mm Double Dust Cap 160mm OD | WSD1.5DDC   | 1    | \$29.34    |
| 2" 63mm Double Dust Cap 200mm OD     | WSD2.0DDC   | 1    | \$29.34    |



## Single Pipe Shrink Caps

| Description                       | Part Number    | Qty. | List Price |
|-----------------------------------|----------------|------|------------|
| Single 1-1/4" & 1-1/2" Shrink Cap | WSD1.25-1.5SSC | 1    | \$100.42   |
| Single 2" & 2-1/2" Shrink Cap     | WSD2.0-2.5SSC  | 1    | \$129.11   |
| Single 3" & 4" Shrink Cap         | WSD3.0-4.0SSC  | 1    | \$153.56   |



## Double Pipe Shrink Caps

| Description                       | Part Number | Qty. | List Price |
|-----------------------------------|-------------|------|------------|
| 1" Double Shrink Cap 140mm OD     | WSD1.0DSC   | 1    | \$351.46   |
| 1-1/4" Double Shrink Cap 160mm OD | WSD1.25DSC  | 1    | \$342.00   |
| 1-1/2" Double Shrink Cap 160mm OD | WSD1.5DSC   | 1    | \$372.63   |
| 2" Double Shrink Cap 200mm OD     | WSD2.0DSC   | 1    | \$372.63   |

\*\*\*ALL ITEMS SPECIAL ORDER\*\*\*



# WSD Wall Feed-Throughs & Sleeves



## Shrink Sleeves (SSL series)

| Description                            | Part Number       | Qty. | List Price |
|----------------------------------------|-------------------|------|------------|
| 90mm & 110mm Shrink Sleeve 225mm long  | WSDSSL90MM-110MM  | 1    | \$38.06    |
| 140mm & 160mm Shrink Sleeve 225mm long | WSDSSL140MM-160MM | 1    | \$46.04    |
| 200mm & 225mm Shrink Sleeve 225mm long | WSDSSL200MM-225MM | 1    | \$80.84    |

Terre-Pex SINGLE and DOUBLE pipe Shrink Sleeve for HDPE jacket repair. An easy to use way to seal small cuts or damages to the outer jacket. The Terre-Pex shrink sleeve provides leakage protection into the insulation layer.



## R Series Repair Tape

| Description          | Part Number   | Qty. | List Price |
|----------------------|---------------|------|------------|
| 200mm wide 10mm long | WSDRTAPE200MM | 1    | \$323.57   |
| 150mm wide 10mm long | WSDRTAPE150MM | 1    | \$687.85   |

\*\*\* ALL ITEMS SPECIAL ORDER \*\*\*





# WSD Pex Barbed Fittings - Lead Free ASTM F1807 Fittings NSF-PW Approved

| Tees                         | Part Number | List Price Each |
|------------------------------|-------------|-----------------|
| 1/2" Barbed                  | BT4         | \$2.04          |
| 3/4" Barbed                  | BT6         | \$3.59          |
| 1" Barbed                    | BT7         | \$6.29          |
| 1-1/4" Barbed                | BT8         | \$21.94         |
| 1-1/2" Barbed                | BT9         | \$42.99         |
| 2" Barbed                    | BT10        | \$62.87         |
| Elbows                       | Part Number | List Price Each |
| 3/8" Barbed                  | BL3         | \$1.83          |
| 1/2" Barbed                  | BL4         | \$1.53          |
| 3/4" Barbed                  | BL6         | \$2.59          |
| 1" Barbed                    | BL7         | \$4.92          |
| 1-1/4" Barbed                | BL8         | \$14.08         |
| 1-1/2" Barbed                | BL9         | \$36.53         |
| 2" Barbed                    | BL10        | \$41.92         |
| Female Threaded Adapters     | Part Number | List Price Each |
| 3/8" x 1/2" FPT              | BC3FPT4     | \$2.56          |
| 1/2" Barbed x 1/2" FPT       | BC4FPT4     | \$2.91          |
| 3/4" Barbed x 3/4" FPT       | BC6FPT6     | \$3.75          |
| 1" Barbed x 1" FPT           | BC7FPT7     | \$6.45          |
| 1-1/4" Barbed x 1-1/4" FPT   | BC8FPT8     | \$36.32         |
| 1-1/2" Barbed x 1-1/2" FPT   | BC9FPT9     | \$58.23         |
| 3/8" Barbed x 1/2" MPT       | BC3MPT4     | \$1.92          |
| Male Threaded Adapters       | Part Number | List Price Each |
| 1/2" Barbed x 1/2" MPT       | BC4MPT4     | \$2.20          |
| 3/4" Barbed x 3/4" MPT       | BC6MPT6     | \$3.18          |
| 1" Barbed x 1" MPT           | BC7MPT7     | \$5.70          |
| 1-1/4" Barbed x 1-1/4" MPT   | BC8MPT8     | \$10.34         |
| 1-1/2" Barbed x 1-1/2" MPT   | BC9MPT9     | \$23.51         |
| Couplings                    | Part Number | List Price Each |
| 3/8" Barbed                  | BC3         | \$0.83          |
| 1/2" Barbed                  | BC4         | \$1.17          |
| 3/4" Barbed                  | BC6         | \$1.17          |
| 1" Barbed                    | BC7         | \$3.18          |
| 1-1/4" Barbed                | BC8         | \$7.24          |
| 1-1/2" Barbed                | BC9         | \$22.89         |
| 2" Barbed                    | BC10        | \$26.51         |
| Male Sweat Adapters (Spigot) | Part Number | List Price Each |
| 1/2" Barbed x 1/2" CU Spigot | BC4SM4      | \$1.17          |
| 5/8" Barbed x 3/4" CU Spigot | BC5SM6      | \$2.22          |
| 3/4" Barbed x 3/4" CU Spigot | BC6SM6      | \$2.17          |
| 1" Barbed x 1" CU Spigot     | BC7SM7      | \$3.80          |

Call for availability.



# WSD Pex Barbed Fittings

## ASTM F1807 Fittings NSF-PW Approved

| Female Sweat Adapt. (Socket) | Part Number | List Price Each |
|------------------------------|-------------|-----------------|
| 1/2" Barbed x 1/2" CU Socket | BC4SF4      | \$1.37          |
| 5/8" Barbed x 3/4" CU Socket | BC5SG6      | \$2.22          |
| 3/4" Barbed x 3/4" CU Socket | BC6SF6      | \$3.18          |
| 1" Barbed x 1" CU Socket     | BC7SF7      | \$5.70          |
| 1-1/4"x1-1/4" CU Socket      | BC8SF8      | \$10.34         |
| Sweat Adapter Elbows         | Part Number | List Price Each |
| 1/2" Barbed x 1/2" CU Socket | BL4SF4      | \$2.73          |
| Plugs                        | Part Number | List Price Each |
| 3/8" Barbed Plug             | BP3         | \$0.53          |
| 1/2" Barbed x Plug           | BP4         | \$0.78          |
| 3/4" Barbed x Plug           | BP6         | \$1.26          |
| 1" Barbed x Plug             | BP7         | \$2.15          |
| 1-1/4" Barbed Plug           | BP8         | \$8.02          |
| 1-1/2" Barbed Plug           | BP9         | \$27.19         |
| 2" Barbed Plug               | BP10        | \$30.69         |
| Crimp Rings                  | Part Number | List Price Each |
| 3/8"                         | BR3         | \$0.28          |
| 1/2"                         | BR4         | \$0.38          |
| 3/4"                         | BR6         | \$0.44          |
| 1"                           | BR7         | \$0.85          |
| 1-1/4"                       | BR8 *       | \$2.61          |
| 1-1/2"                       | BR9         | \$5.54          |
| 2"                           | BR10        | \$10.21         |
| Stainless Steel Cinch Clamps | Part Number | List Price Each |
| 3/8"                         | BCC3        | \$0.31          |
| 1/2"                         | BCC4        | \$0.35          |
| 5/8"                         | BCC5        | \$0.64          |
| 3/4"                         | BCC6        | \$0.54          |
| 1"                           | BCC7        | \$0.73          |
| Pex Pipe Clamp Hex Key       | Part Number | List Price Each |
| 1"                           | PPC7 *      | \$4.62          |
| 1 1/4"                       | PPC8 *      | \$6.51          |
| 1 1/2"                       | PPC9 *      | \$10.00         |

Call for availability.



\* Special Order



# WSD Fittings - F-2159 PPSU - Plastic



## Plastic Plastic Barb Coupling

| Description               | Part Number | Qty./Bag | List Price |
|---------------------------|-------------|----------|------------|
| 1/2" x 1/2" Barb Coupling | AC4         | 50       | \$0.55     |
| 3/4" x 1/2" Barb Coupling | AC64        | 50       | \$0.54     |
| 3/4" x 3/4" Barb Coupling | AC6         | 50       | \$0.82     |
| 1" x 3/4" Barb Coupling   | AC76        | 25       | \$1.55     |
| 1" x 1" Barb Coupling     | AC7         | 25       | \$1.54     |



## Plastic Swivel Coupling

| Description                      | Part Number | Qty./Bag | List Price |
|----------------------------------|-------------|----------|------------|
| 3/8" Barb x 1/2" Swivel Coupling | AC3FPT4     | 50       | \$2.55     |
| 1/2" Barb x 1/2" Swivel Coupling | AC4FPT4     | 50       | \$1.53     |
| 3/4" Barb x 3/4" Swivel Coupling | AC6FPT6     | 50       | \$1.75     |



## Plastic Barbed Male Adapter

| Description                          | Part Number | Qty./Bag | List Price |
|--------------------------------------|-------------|----------|------------|
| 1/2" Barb x 1/2" MPT Straight Adpter | AC4MPT4     | 100      | \$0.89     |
| 1/2" Barb x 3/4" MPT Straight Adpter | AC4MPT6     | 50       | \$1.08     |
| 3/4" Barb x 3/4" MPT Straight Adpter | AC6MPT6     | 100      | \$1.15     |



## Plastic Barbed Plugs

| Description    | Part Number | Qty./Bag | List Price |
|----------------|-------------|----------|------------|
| 3/8" Barb Plug | AP3         | 50       | \$0.53     |
| 1/2" Barb Plug | AP4         | 25       | \$0.57     |
| 3/4" Barb Plug | AP6         | 25       | \$0.69     |
| 1" Barb Plug   | AP7         | 25       | \$1.07     |

# WSD Fittings F-2159 PPSU Plastic



## Plastic Elbows

| Description               | Part Number | Qty./Bag | List Price |
|---------------------------|-------------|----------|------------|
| 1/2" Barb Elbow           | AL4         | 50       | \$0.70     |
| 3/4" Barb x 1/2" Barb ELL | AL64        | 50       | \$0.96     |
| 3/4" Barb Elbow           | AL6         | 50       | \$1.03     |
| 1" Barb Elbow             | AL7         | 25       | \$3.24     |

WSD plastic fittings are manufactured to ASTM F2159 and CSA B137.5 standards and approved by CSA, IAPMO and NSF.



## Plastic Swivel Elbows

| Description                 | Part Number | Qty./Bag | List Price |
|-----------------------------|-------------|----------|------------|
| 1/2" Barb x 1/2" Swivel ELL | AL44SWELL   | 50       | \$2.04     |
| 3/4" Barb x 3/4" Swivel ELL | AL66SWELL   | 50       | \$2.96     |



## Plastic Barbed 90 Degree Adapter

| Description                          | Part Number | Qty./Bag | List Price |
|--------------------------------------|-------------|----------|------------|
| 1/2" Barb x 3/8" MPT 90 Deg. Adapter | 4AL3MPT     | 25       | \$1.08     |
| 1/2" Barb x 1/2" MPT 90 Deg. Adapter | 4AL4MPT     | 25       | \$1.08     |
| 3/4" Barb x 3/4" MPT 90 Deg. Adapter | 6AL6MPT     | 25       | \$1.64     |



## Plastic Barbed Tees

| Description                 | Part Number | Qty./Bag | List Price |
|-----------------------------|-------------|----------|------------|
| 1/2" x 1/2" x 1/2" Barb Tee | AT4         | 50       | \$1.31     |
| 3/4" x 3/4" x 3/4" Barb Tee | AT6         | 50       | \$1.88     |
| 1" x 1" x 1" Barb Tee       | AT7         | 25       | \$3.71     |
| 1/2" x 1/2" x 3/4" Barb Tee | AT446       | 50       | \$1.88     |
| 3/4" x 1/2" x 1/2" Barb Tee | AT644       | 50       | \$1.88     |
| 3/4" x 1/2" x 3/4" Barb Tee | AT646       | 50       | \$1.88     |
| 3/4" x 3/4" x 1/2" Barb Tee | AT664       | 50       | \$1.88     |
| 1" x 1" x 1/2" Barb Tee     | AT774       | 25       | \$3.71     |
| 1" x 3/4" x 3/4" Barb Tee   | AT766       | 25       | \$3.71     |
| 1" x 3/4" x 1" Barb Tee     | AT767       | 25       | \$3.71     |
| 1" x 1" x 3/4" Barb Tee     | AT776       | 25       | \$3.71     |



# WSD Fittings - F1960 Brass



## Pex Sleeves

| Description             | Part Number | Qty./Bag | List Price |
|-------------------------|-------------|----------|------------|
| 1/2" F1960 PEX Ring     | UP4S        | 50       | \$0.23     |
| 3/4" F1960 PEX Ring     | UP6S        | 25       | \$0.42     |
| 1" F1960 PEX Ring       | UP7S        | 10       | \$0.78     |
| 1 1/4" F1960 Pex Sleeve | UP8S        | 10       | \$0.99     |
| 1 1/2" F1960 Pex Sleeve | UP9S        | 10       | \$1.31     |
| 2" F1960 Pex Sleeve     | UP10S       | 10       | \$2.39     |

WSD cold expansion F1960 lead free brass fittings conform to ASTM F877, F1960, NSF-61 PW-G, CAN/CSA B137.5 standards.



## Elbows

| Description                                  | Part Number | Qty./Bag | List Price |
|----------------------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" F1960 Elbow NL             | UPL4        | 50       | \$7.08     |
| 3/4" F1960 x 3/4" F1960 Elbow NL             | UPL6        | 25       | \$11.70    |
| 1" F1960 x 1" F1960 Elbow NL                 | UPL7        | 10       | \$26.53    |
| 3/4" F1960 x 3/4" CU Male (Fitting) Elbow NL | UPL6MPT6    | 25       | \$12.75    |
| 3/4" F1960 x 3/4" CU Female (Sweat) Elbow NL | UPL6SF6     | 25       | \$14.46    |
| 1/2" F1960 x 1/2" FIP Drop Ear 90 NL         | UPL4FPT4DE  | 25       | \$14.46    |



## Tees

| Description                                 | Part Number | Qty./Bag | List Price |
|---------------------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" F1960 x 1/2" F1960 Tee NL | UPT4        | 50       | \$10.09    |
| 3/4" F1960 x 3/4" F1960 x 3/4" F1960 Tee NL | UPT6        | 25       | \$16.44    |
| 1" F1960 x 1" F1960 x 1" F1960 Tee NL       | UPT7        | 10       | \$30.37    |
| 1/2" F1960 x 1/2" F1960 x 3/4" F1960 Tee NL | UPT446      | 25       | \$16.82    |
| 3/4" F1960 x 1/2" F1960 x 1/2" F1960 Tee NL | UPT644      | 25       | \$16.50    |
| 3/4" F1960 x 1/2" F1960 x 3/4" F1960 Tee NL | UPT646      | 25       | \$18.57    |
| 3/4" F1960 x 3/4" F1960 x 1/2" F1960 Tee NL | UPT664      | 25       | \$17.21    |
| 3/4" F1960 x 3/4" F1960 x 1" F1960 Tee NL   | UPT667      | 10       | \$40.84    |
| 1" F1960 x 3/4" F1960 x 3/4" F1960 Tee NL   | UPT766      | 10       | \$31.87    |
| 1" F1960 x 1" F1960 x 1/2" F1960 Tee NL     | UPT774      | 10       | \$30.37    |
| 1" F1960 x 1" F1960 x 3/4" F1960 Tee NL     | UPT776      | 10       | \$30.37    |

# WSD Fittings - F1960 No Lead Brass



## Couplings

| Description                         | Part Number | Qty./Bag | List Price |
|-------------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" F1960 Coupling NL | UP4         | 50       | \$5.98     |
| 3/4" F1960 x 3/4" F1960 Coupling NL | UP6         | 25       | \$9.16     |
| 1" F1960 x 1" F1960 Coupling NL     | UP7         | 2        | \$16.68    |
| 3/4" F1960 x 1/2" F1960 Coupling NL | UP64        | 25       | \$9.37     |
| 1" F1960 x 3/4" F1960 Coupling NL   | UP76        | 10       | \$14.12    |



## Male Sweat Adapter

| Description                            | Part Number | Qty./Bag | List Price |
|----------------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" CU Male (Fitting) NL | UP4SM4      | 50       | \$3.74     |
| 3/4" F1960 x 1/2" CU Male (Fitting) NL | UP6SM4      | 25       | \$8.61     |
| 3/4" F1960 x 3/4" CU Male (Fitting) NL | UP6SM6      | 25       | \$8.22     |
| 3/4" F1960 x 1" CU Male (Fitting) NL   | UP6SM7      | 10       | \$11.57    |



## Female Sweat Adapter

| Description                            | Part Number | Qty./Bag | List Price |
|----------------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" CU Female (Sweat) NL | UP4SF4      | 50       | \$3.83     |
| 1/2" F1960 x 3/4" CU Female (Sweat) NL | UP4SF6      | 25       | \$8.44     |
| 3/4" F1960 x 1/2" CU Female (Sweat) NL | UP6SF4      | 25       | \$9.10     |
| 3/4" F1960 x 3/4" CU Female (Sweat) NL | UP6SF6      | 25       | \$8.22     |
| 3/4" F1960 x 1" CU Female (Sweat) NL   | UP6SF7      | 10       | \$13.93    |
| 1" F1960 x 1" CU Female (Sweat) NL     | UP7SF7      | 10       | \$14.98    |





# WSD Fittings - F1960 Brass



## PEX x MPT Adaptors

| Description                      | Part Number | Qty./Bag | List Price |
|----------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" MPT Adapter NL | UP4MPT4     | 50       | \$5.31     |
| 3/4" F1960 x 3/4" MPT Adapter NL | UP6MPT6     | 25       | \$9.83     |
| 3/4" F1960 x 1" MPT Adapter NL   | UP6MPT7     | 10       | \$15.93    |
| 1" F1960 x 1" MPT Adapter NL     | UP7MPT7     | 25       | \$18.87    |



## FIP and FPT Adapter

| Description                      | Part Number | Qty./Bag | List Price |
|----------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" FPT Adapter NL | UP4FPT4     | 50       | \$9.39     |
| 3/4" F1960 x 1/2" FPT Adapter NL | UP6FPT4     | 25       | \$10.47    |
| 3/4" F1960 x 3/4" FPT Adapter NL | UP6FPT6     | 25       | \$13.27    |
| 3/4" F1960 x 1" FPT Adapter NL   | UP6FPT7     | 10       | \$17.78    |
| 1" F1960 x 1" FPT Adapter NL     | UP7FPT7     | 10       | \$21.05    |



## Plugs

| Description          | Part Number | Qty./Bag | List Price |
|----------------------|-------------|----------|------------|
| 1/2" F1960 x Plug NL | UPP4        | 50       | \$3.74     |
| 3/4" F1960 x Plug NL | UPP6        | 25       | \$6.02     |
| 1" F1960 x Plug NL   | UPP7        | 10       | \$10.42    |



## Ball Valves

| Description                        | Part Number | Qty./Bag | List Price |
|------------------------------------|-------------|----------|------------|
| 1/2" F1960 Full Port Ball Valve NL | UP4FPBV4    | 1        | \$38.68    |
| 3/4" F1960 Full Port Ball Valve NL | UP6FPBV6    | 1        | \$62.68    |
| 1" F1960 Full Port Ball Valve NL   | UP7FPBV7    | 1        | \$106.13   |

# WSD Fittings - F1960 Plastic Poly



## Elbows

| Description                                | Part Number | Qty./Bag | List Price |
|--------------------------------------------|-------------|----------|------------|
| Poly 1/2" F1960 x 1/2" F1960 Elbow         | UPL4POLY    | 25       | \$1.92     |
| Poly 3/4" F1960 x 3/4" F1960 Elbow         | UPL6POLY    | 25       | \$2.47     |
| Poly 1" F1960 x 1" F1960 Elbow             | UPL7POLY    | 10       | \$5.02     |
| Poly 1 1/4" x 1 1/4" F1960 90 Degree Elbow | UPL8POLY    | 5        | \$8.30     |
| Poly 1 1/2" x 1 1/2" F1960 90 Degree Elbow | UPL9POLY    | 5        | \$12.63    |
| Poly 2" x 2" F1960 90 Degree Elbow         | UPL10POLY   | 5        | \$37.89    |

WSD cold expansion F1960 Plastic Poly fittings conform to ASTM F877, F1960, NSF-61 PW-G, CAN/CSA B137.5 standards.



## Couplings

| Description                               | Part Number | Qty./Bag | List Price |
|-------------------------------------------|-------------|----------|------------|
| Poly 1/2" F1960 x 1/2" F1960 Coupling     | UP4POLY     | 25       | 1.54       |
| Poly 3/4" F1960 x 3/4" F1960 Coupling     | UP6POLY     | 25       | \$1.97     |
| Poly 1" F1960 x 1" F1960 Coupling         | UP7POLY     | 25       | \$3.18     |
| Poly 3/4" F1960 x 1/2" F1960 Coupling     | UP64POLY    | 25       | \$3.36     |
| Poly 1" F1960 x 3/4" F1960 Coupling       | UP76POLY    | 10       | \$2.38     |
| Poly 1" F1960 x 1/2" F1960 Coupling       | UP74POLY    | 10       | \$2.57     |
| Poly 1 1/4" F1960 x 1 1/4" F1960 Coupling | UP88POLY    | 5        | \$6.68     |
| Poly 1 1/4" F1960 x 3/4" F1960 Coupling   | UP86POLY    | 5        | \$6.23     |
| Poly 1 1/4" F1960 x 1" F1960 Coupling     | UP87POLY    | 5        | \$6.72     |
| Poly 1 1/2" F1960 x 1 1/2" F1960 Coupling | UP99POLY    | 5        | \$11.60    |
| Poly 1 1/2" F1960 x 1 1/4" F1960 Coupling | UP98POLY    | 5        | \$9.88     |
| Poly 2" F1960 x 2" F1960 Coupling         | UP1010POLY  | 5        | \$20.44    |
| Poly 2" F1960 x 1 1/2" F1960 Coupling     | UP109POLY   | 5        | \$24.22    |



## Plugs

| Description            | Part Number | Qty./Bag | List Price |
|------------------------|-------------|----------|------------|
| Poly 1/2" F1960 Plug   | UPP4PLUG    | 25       | \$1.22     |
| Poly 3/4" F1960 Plug   | UPP6PLUG    | 25       | \$1.92     |
| Poly 1" F1960 Plug     | UPP7PLUG    | 10       | \$2.50     |
| Poly 1 1/4" F1960 Plug | UPP8PLUG    | 5        | \$6.50     |
| Poly 1 1/2" F1960 Plug | UPP9PLUG    | 5        | \$6.01     |
| Poly 2" F1960 Plug     | UPP10PLUG   | 5        | \$23.03    |



# WSD Fittings - F1960 Plastic Poly



## Tees

| Description                                         | Part Number    | Qty./Bag | List Price |
|-----------------------------------------------------|----------------|----------|------------|
| Poly 1/2" F1960 x 1/2" F1960 x 1/2" F1960 Tee       | UPT4POLY       | 25       | \$1.92     |
| Poly 3/4" F1960 x 3/4" F1960 x 3/4" F1960 Tee       | UPT6POLY       | 25       | \$3.20     |
| Poly 1" F1960 x 1" F1960 x 1" F1960 Tee             | UPT7POLY       | 10       | \$5.77     |
| Poly 1/2" F1960 x 1/2" F1960 x 3/4" F1960 Tee       | UPT446POLY     | 25       | 3.02       |
| Poly 3/4" F1960 x 1/2" F1960 x 1/2" F1960 Tee       | UPT644POLY     | 25       | 3.02       |
| Poly 3/4" F1960 x 1/2" F1960 x 3/4" F1960 Tee       | UPT646POLY     | 25       | 3.02       |
| Poly 3/4" F1960 x 3/4" F1960 x 1/2" F1960 Tee       | UPT664POLY     | 25       | \$2.56     |
| Poly 1" F1960 x 1" F1960 x 3/4" F1960 Tee           | UPT776POLY     | 10       | \$3.83     |
| Poly 1" F1960 x 1" F1960 x 1/2" F1960 Tee           | UPT774POLY     | 10       | \$5.88     |
| Poly 1" F1960 x 3/4" F1960 x 3/4" F1960 Tee         | UPT766POLY     | 10       | \$4.27     |
| Poly 1" F1960 x 3/4" F1960 x 1" F1960 Tee           | UPT767POLY     | 10       | \$5.12     |
| Poly 1 1/4" F1960 x 1 1/4" F1960 x 1 1/4" F1960 Tee | UPT888POLY     | 5        | \$11.55    |
| Poly 1 1/4" F1960 x 1" F1960 x 1 1/4" F1960 Tee     | UPT878POLY     | 5        | \$11.32    |
| Poly 1 1/4" F1960 x 1 1/4" F1960 x 1/2" F1960 Tee   | UPT884POLY     | 5        | \$10.01    |
| Poly 1 1/4" F1960 x 1 1/4" F1960 x 3/4" F1960 Tee   | UPT886POLY     | 5        | \$7.13     |
| Poly 1 1/4" F1960 x 1 1/4" F1960 x 1" F1960 Tee     | UPT887POLY     | 5        | \$11.14    |
| Poly 1 1/2" F1960 x 1 1/2" F1960 x 1 1/2" F1960 Tee | UPT9POLY       | 5        | \$10.64    |
| Poly 1 1/2" F1960 x 1 1/2" F1960 x 1 1/4" F1960 Tee | UPT998POLY     | 5        | \$16.69    |
| Poly 1 1/2" F1960 x 1 1/4" F1960 x 1 1/2" F1960 Tee | UPT989POLY     | 5        | \$16.83    |
| Poly 1 1/2" F1960 x 1 1/2" F1960 x 3/4" F1960 Tee   | UPT996POLY     | 5        | \$13.44    |
| Poly 1 1/2" F1960 x 1 1/2" F1960 x 1" F1960 Tee     | UPT997POLY     | 5        | \$13.98    |
| Poly 1 1/2" F1960 x 1 1/2" F1960 x 1 1/4" F1960 Tee | UPT998POLY     | 5        | \$16.69    |
| Poly 2" F1960 x 2" F1960 x 2" F1960 Tee             | UPT10          | 5        | \$55.33    |
| Poly 2" F1960 x 1 1/2" F1960 x 2" F1960 Tee         | UPT10910PO L Y | 5        | \$56.42    |
| Poly 2" F1960 x 2" F1960 x 1" F1960 Tee             | UPT10107PO L Y | 5        | \$49.74    |
| Poly 2" F1960 x 2" F1960 x 1 1/4" F1960 Tee         | UPT10108PO L Y | 5        | \$52.02    |
| Poly 2" F1960 x 2" F1960 x 1 1/2" F1960 Tee         | UPT10109PO L Y | 5        | \$52.99    |



## Adapters

| Description                   | Part Number | Qty./Bag | List Price |
|-------------------------------|-------------|----------|------------|
| 1/2" F1960 x 1/2" MPT Adapter | UP4MPT4POLY | 25       | \$2.81     |
| 3/4" F1960 x 3/4" MPT Adapter | UP6MPT6POLY | 25       | \$3.13     |



# WSD Brass Fittings *For Heating Only*



## PEX to Sweat Adapters

| Description                                | Part Number | Qty./Bag | List Price |
|--------------------------------------------|-------------|----------|------------|
| 1/2" PEX x 1/2" Sweat Adapter              | CP4SM4      | 25       | \$9.57     |
| 5/8" PEX x 3/4" Sweat Adapter              | CP5SM6      | 25       | \$14.01    |
| 3/4" PEX x 3/4" Sweat Adapter              | CP6SM6      | 25       | \$13.68    |
| 1/2" PEX x 1/2" Female Sweat Adapter       | CP4SF4      | 25       | \$9.88     |
| 5/8" PEX x 3/4" Female Sweat Adapter       | CP5SF6      | 25       | \$11.25    |
| 1/2" PEX x 1/2" Sweat 90 Degree Elbow      | CP4SMELL4   | 25       | \$21.34    |
| 5/8" PEX x 3/4" Fem. Sweat 90 Degree Elbow | CP5SFELL6   | 25       | \$30.75    |
| 3/4" PEX x 3/4" Fem Sweat 90 Degree Elbow  | CP6SFELL6   | 25       | \$24.23    |
| 1/2" PEX x 3/4" Female Sweat Adapter       | CP4SF6      | 25       | \$10.20    |
| 1/2" PEX x 3/4" Sweat 90 Degree Elbow      | CP4SMELL6   | 25       | \$20.67    |



## PEX Compression to MIP Adapters

| Description                 | Part Number | Qty./Bag | List Price |
|-----------------------------|-------------|----------|------------|
| 3/8" PEX x 1/2" MIP Adapter | CP3MPT4     | 25       | \$8.79     |
| 1/2" PEX x 1/2" MIP Adapter | CP4MPT4     | 25       | \$8.56     |
| 5/8" PEX x 3/4" MIP Adapter | CP5MPT6     | 25       | \$10.08    |
| 3/4" PEX x 3/4" MIP Adapter | CP6MPT6     | 25       | \$11.02    |



## PEX Compression Couplings

| Description            | Part Number | Qty./Bag | List Price |
|------------------------|-------------|----------|------------|
| 3/8" PEX Pipe Coupling | CCP3        | 25       | \$11.89    |
| 1/2" PEX Pipe Coupling | CCP4        | 25       | \$12.16    |
| 5/8" PEX Pipe Coupling | CCP5        | 25       | \$13.92    |
| 3/4" PEX Pipe Coupling | CCP6        | 25       | \$17.34    |
| 1" PEX Pipe Coupling   | CCP7        | 25       | \$24.69    |

Note: For hydronic system use only. Not intended for potable water systems.

\*\*\* ALL ITEMS SPECIAL ORDER \*\*\*



# WSD (PEX-AL-PEX) Compression Fittings ASTM F1281 *For Heating Only*

Call for availability.

| Tees                       | Part Number | List Price Each |
|----------------------------|-------------|-----------------|
| 3/4" PAP Comp.             | CT6         | \$25.83         |
| 1" PAP Comp.               | CT7         | \$40.45         |
| Elbows                     | Part Number | List Price Each |
| 3/4" PAP Comp.             | CL6         | \$19.03         |
| 1" PAP Comp.               | CL7         | \$25.83         |
| Male Elbow                 | Part Number | List Price Each |
| 3/4" PAP Comp. x 3/4" MNPT | CL6MPT6     | \$13.61         |
| 1" PAP Comp. x 1" MNPT     | CL7MPT7     | \$21.77         |
| Female Adapters            | Part Number | List Price Each |
| 3/4" PAP Comp. 3/4" FNPT   | CC6FPT6     | \$11.46         |
| 1" PAP Comp. x 1" FNPT     | CC7FPT7     | \$21.88         |
| Male Adapters              | Part Number | List Price Each |
| 1/2" PAP Comp. 1/2" MNPT   | CC4MPT4     | \$6.60          |
| 5/8" PAP Comp. 3/4" MNPT   | CC5MPT6     | \$9.20          |
| 3/4" PAP Comp. 3/4" MNPT   | CC6MPT6     | \$12.26         |
| 3/4" PAP Comp. 1" MNPT     | CC6MPT7     | \$13.23         |
| 1" PAP Comp. x 1" MNPT     | CC7MPT7     | \$19.26         |
| Couplings                  | Part Number | List Price Each |
| 3/8" Comp. x 3/8" Comp.    | CC3 *       | \$9.26          |
| 1/2" Comp. x 1/2" Comp.    | CC4         | \$9.10          |
| 3/4" Comp. x 3/4" Comp.    | CC6         | \$19.38         |
| 1" Comp. x 1" Comp.        | CC7         | \$27.77         |



\* While They Last

# WSD (PEX-AL-PEX) Compression Fittings ASTM F1281 *For Heating Only*

| Sweat Adapter – Male (Spigot)   | Part Number | List Price Each |
|---------------------------------|-------------|-----------------|
| 3/8" Comp. x 1/2" CU Spigot     | CC3SM4 *    | \$7.05          |
| 1/2" Comp. x 3/4" CU Spigot     | CC4SM6 *    | \$7.74          |
| 3/4" Comp. x 3/4" CU Spigot     | CC6SM6      | \$13.96         |
| 3/4" Comp. x 1" CU Spigot       | CC6SM7 *    | \$14.97         |
| 1" Comp. x 1" CU Spigot         | CC7SM7      | \$19.03         |
| Sweat Adapter – Female (Socket) | Part Number | List Price Each |
| 3/8" Comp. x 1/2" CU Socket     | CC3SF4 *    | \$7.01          |
| 1/2" Comp. x 1/2" CU Socket     | CC4SF4      | \$6.25          |
| 5/8" Comp. x 3/4" CU Socket     | CC5SF6      | \$11.87         |
| 3/4" Comp. x 3/4" CU Socket     | CC6SF6      | \$13.80         |
| 1" Comp. x 1" CU Socket         | CC7SF7      | \$20.90         |
| Plugs                           | Part Number | List Price Each |
| 1/2" PAP Comp. x Plug           | CP4 *       | \$6.32          |
| 5/8" PAP Comp. x Plug           | CP5 *       | \$8.26          |
| 3/4" PAP Comp. x Plug           | CP6 *       | \$13.61         |
| 1" PAP Comp. x Plug             | CP7 *       | \$19.79         |

Call for availability.



\* While They Last





# WSD Press Fittings For ASTM F1281 (PEX-AL-PEX Pipe) *For Heating Only*

Call for availability.

| Tees                       | Part Number | List Price Each |
|----------------------------|-------------|-----------------|
| 1/2" Press *               | PT4         | \$8.74          |
| 3/4" Press                 | PT6         | \$18.22         |
| 1" Press                   | PT7         | \$25.41         |
| 1/2"x1/2"x3/4" Press *     | PT446       | \$12.70         |
| 3/4"x1/2"x1/2" Press *     | PT644       | \$13.01         |
| 3/4"x1/2"x3/4" Press *     | PT646       | \$15.86         |
| 3/4"x3/4"x1/2" Press *     | PT664       | \$14.47         |
| 3/4"x3/4"x1" Press *       | PT667       | \$21.03         |
| 1"x1/2"x3/4" Press *       | PT746       | \$19.58         |
| 1"x1/2"x1/2" Press *       | PT744       | \$15.62         |
| 1"x3/4"x3/4" Press *       | PT766       | \$21.03         |
| 1"x3/4"x1" Press *         | PT767       | \$24.93         |
| 1"x1"x3/4" Press *         | PT776       | \$22.74         |
| Elbows                     | Part Number | List Price Each |
| 1/2" Press                 | PL4         | \$7.45          |
| 3/4" Press                 | PL6         | \$15.65         |
| 1" Press                   | PL7         | \$17.07         |
| Male Elbows                | Part Number | List Price Each |
| 1/2" Press x 1/2" MNPT *   | PL4MPT4     | \$8.29          |
| 3/4" Press x 3/4" MNPT *   | PL6MPT6     | \$13.36         |
| Female Adapters            | Part Number | List Price Each |
| 1/2" Press x 1/2" FNPT     | PC4FPT4     | \$7.03          |
| 1/2" Press x 3/4" FNPT *   | PC4FPT6     | \$7.99          |
| 3/4" Press x 1/2" FNPT *   | PC6FPT4     | \$8.51          |
| 3/4" Press x 3/4" FNPT     | PC6FPT6     | \$11.45         |
| 3/4" Press x 1" FNPT *     | PC6FPT7     | \$12.73         |
| 1" Press x 1" FNPT         | PC7FPT7     | \$17.07         |
| 1" Press x 3/4" FNPT *     | PC7FPT6     | \$11.52         |
| Transition Fittings        | Part Number | List Price Each |
| 3/4" Press x 3/4" Barbed * | PC6BC6      | \$8.50          |
| 1" Press x 3/4" Barbed *   | PC7BC6      | \$11.42         |



\* While They Last

# WSD Press fittings are for use in heating only.

| Male Adapter                        | Part Number | List Price Each |
|-------------------------------------|-------------|-----------------|
| 1/2" Press x 1/2" MNPT              | PC4MPT4     | \$6.58          |
| 1/2" Press x 3/4" MNPT              | PC4MPT6     | \$7.45          |
| 5/8" Press x 3/4" MNPT              | PC5MPT6     | \$8.26          |
| 3/4" Press x 3/4" MNPT              | PC6MPT6     | \$11.35         |
| 3/4" Press x 1" MNPT *              | PC6MPT7     | \$11.24         |
| 1" Press x 3/4" MNPT *              | PC7MPT6     | \$13.05         |
| 1" Press x 1" MNPT                  | PC7MPT7     | \$15.51         |
| Couplings                           | Part Number | List Price Each |
| 1/2" Press                          | PC4         | \$5.03          |
| 5/8" Press                          | PC5         | \$6.38          |
| 3/4" Press                          | PC6         | \$10.81         |
| 1" Press                            | PC7         | \$14.17         |
| 3/4" Press x 1/2" Press *           | PC64        | \$7.49          |
| 1" Press x 3/4" Press *             | PC76        | \$11.42         |
| Sweat Adpt. Male ( Spigot)          | Part Number | List Price Each |
| 1/2" Press x 1/2" CU Spigot *       | PC4SM4      | \$4.61          |
| 1/2" Press 3/4" CU Spigot *         | PC4SM6      | \$6.42          |
| 1/2" Press x 3/4" CU Spigot ELBOW * | PL4SM6      | \$8.71          |
| 3/4" Press x 3/4" CU Spigot *       | PC6SM6      | \$8.22          |
| 1" Press x 1" CU Spigot *           | PC7SM7      | \$11.31         |
| Sweat Adpt. Female (Socket)         | Part Number | List Price Each |
| 1/2" Press x 1/2" CU Socket         | PC4SF4      | \$4.63          |
| 3/4" Press x 3/4" CU Socket         | PC6SF6      | \$9.33          |
| 1/2" Press x 3/4" CU Socket         | PC4SF6      | \$10.00         |
| 3/4" Press x 1/2" CU Socket *       | PC6SF4      | \$6.52          |
| 1/2" Press x 3/4" CU Socket ELBOW   | PL4SF6      | \$10.54         |
| 3/4" Press x 3/4" CU Socket ELBOW   | PL6SF6      | \$21.56         |
| 1" Press x 1" CU Socket             | PC7SF7      | \$12.29         |
| Drop Ear Elbow (w/plate)            | Part Number | List Price Each |
| 1/2" Press x 1/2" FNPT *            | PL4FPT4DE   | \$11.73         |
| 3/4" Press x 3/4" FNPT *            | PL6FPT6DE   | \$18.47         |
| Plugs                               | Part Number | List Price Each |
| 1/2" Press Plug *                   | PP4         | \$3.50          |
| 3/4" Press Plug *                   | PP6         | \$7.15          |
| 1" Press Plug *                     | PP7         | \$10.06         |

Call for availability.

\* While They Last



| Crimp Tools                                           | Part Number     | List Price |
|-------------------------------------------------------|-----------------|------------|
| Crimp Gauge                                           | CRIMPGAUGE      | \$1.31     |
| Combination 1-1/4", 1-1/2", 2" Copper Crimp Ring Tool | COPPERCRIMPRING | \$383.54   |
| 1/2" Crimp Tool                                       | 1/2Crimp        | \$234.64   |
| 1/2" - 3/4" Crimp Tool                                | 1/23/4Crimp     | \$386.76   |
| 3/4" Crimp Tool                                       | 3/4Crimp        | \$279.33   |
| 1" Crimp Tool                                         | 1Crimp          | \$386.76   |

Full circle crimp, c/w crimp gauge, adjustment wrench and instructions.

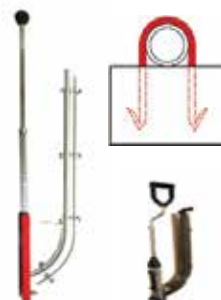
| Press Tools                                        | Part Number | List Price |
|----------------------------------------------------|-------------|------------|
| Manual Press tool kit 1/2", 5/8", 3/4", 1" Inserts | MPT-Kit     | \$488.28   |

| Assorted Tools            | Part Number | List Price |
|---------------------------|-------------|------------|
| Ratchet Style Pipe Cutter | PRT-CUT     | \$32.64    |
| PEX Tubing Cutter         | PWT-CUT     | \$22.20    |
| Pipe Reamer 1/2" - 5/8"   | PRT-REAM4   | \$30.00    |
| Pipe Reamer 3/4" - 1"     | PRT-REAM6   | \$30.00    |

| Tubing Staplers and Staples                   | Part Number         | List Price |
|-----------------------------------------------|---------------------|------------|
| Reddi Strip Stapler                           | Reddi Strip Stapler | \$466.67   |
| 1.525" Staples for the Reddi Strip Box of 200 | S5RE-13             | \$43.33    |
| 1.9" Staples for the Reddi Strip Box of 200   | S5RE-16             | \$43.33    |
| Case of 50 boxes of the S5RE-13               | S5RE-13CASE         | \$1,777.78 |
| Case of 50 boxes of the S5RE-16               | S5RE-16CASE         | \$1,777.78 |
| Pneumatic Staple Gun                          | RB-6                | \$555.56   |
| 1/2" Stand-off Clips for the RB-6             | P4BK                | \$14.48    |

| WSD Stapler                                                   | Part Number       | List Price |
|---------------------------------------------------------------|-------------------|------------|
| Manual stapler for 1-1/2" and 2-3/8" staples                  | WSD-TASM-STAPLER  | \$400.00   |
| 300 count box of 2-3/8" staples for use with WSD-TASM-STAPLER | WSD-STAPLE-PB2.38 | \$62.22    |
| 300 count box of 1-1/2" staples for use with WSD-TASM-STAPLER | WSD-STAPLE-PB1.5  | \$62.22    |

| Portable Pipe Un-coiler | Part Number | List Price |
|-------------------------|-------------|------------|
| Portable Pipe Un-coiler | Un-coiler   | \$421.44   |



# WSD Track-Plates



## Heat Transfer Plates – VersaPlate

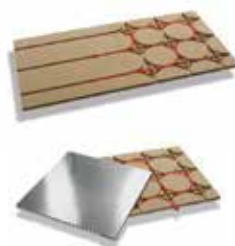
| Description                              | Part Number | Qty./Bundle | List Price |
|------------------------------------------|-------------|-------------|------------|
| VersaPlate 24" Steel Heat Transfer Plate | WSDVP24TP   | 50          | \$2.08     |



## Heat Transfer Plates – HeatTrak

| Description        | Part Number | Qty./Box | List Price |
|--------------------|-------------|----------|------------|
| HeatTrak 3/8" x 4' | WSDHT3      | 20       | \$11.45    |
| HeatTrak 1/2" x 4' | WSDHT4      | 20       | \$12.61    |

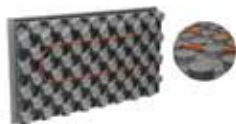
Heat transfer plates are used for Dry Below installations of 3/8", 1/2" or 5/8" pex. Plates provide a direct transfer and heat distribution from Pex piping to the underside of a wooden subfloor. HeatTrak simplifies the installation by allowing the pipe to be snapped in place.



## WSD ProPanel

| Description                             | Part Number  | Qty. | List Price |
|-----------------------------------------|--------------|------|------------|
| 24 x 24 x 3/4" 1/2" Pipe Straight Run   | WSD4SRPEXPAN | 1    | \$27.98    |
| 24 x 24 x 3/4" 1/2" Pipe Ultimate Board | WSD4UBPEXPAN | 1    | \$43.32    |
| 24 x 24 x 5/8" 3/8" Pipe Straight Run   | WSD3SRPEXPAN | 1    | \$27.98    |
| 24 x 24 x 5/8" 3/8" Pipe Ultimate Board | WSD3UBPEXPAN | 1    | \$43.32    |

The new WSD ProPanel radiant heat panels for dry above systems are available for 3/8" and 1/2" pex tubing. ProPanel is available in 24" x 24" with aluminum coating on the bottom of the panels to reflect the heat upwards and the cold down. The panels come in two configurations, straight and turning or what we call the Ultimate panel as it allows turning in any direction without any routing needed. The pipe grooves are specially manufactured on 8 centers so that the pex tubing snaps into the grooves and stays without needing silicone to hold the tubing in place. ProPanel is approved for indoor use manufactured with MDF composite board and is water resistant.



| Description         | Part Number | Bundle Qty. | List Price |
|---------------------|-------------|-------------|------------|
| Insulated Pex Panel | AMPEX2015F  | 20          | \$21.62    |

| Standard    | ASTM C518-10  | ASTM D1621-10        | ASTM E 96E96M-12                | Overall Board Size (lxw) | Usable Size (lxw) | Overall Thickness Including Grid | Pex Pipe Accommodation        |
|-------------|---------------|----------------------|---------------------------------|--------------------------|-------------------|----------------------------------|-------------------------------|
| Description | R-Value       | Compressive Strength | Water Vapor Barrier             | Inches                   | Inches            | Inches                           | Inches                        |
| 102015      | 100Ft2 .h/Btu | 28.0 psi             | 23.8 (ng/Pa.s.m2)<br>0.42 Perms | 49.25" x 25.25"          | 48" x 24"         | 3 3/8"                           | 3/8", 1/2", 5/8",<br>3/4", 1" |





## Conduit Elbows

| Description                | Part Number | Qty./Box | List Price |
|----------------------------|-------------|----------|------------|
| 3/8" & 1/2" Conduit Elbows | WSD34CE     | 60       | \$4.96     |
| 5/8" & 3/4" Conduit Elbows | WSD56CE     | 40       | \$5.87     |

High impact strength moulded plastic 90 degree long radius elbow, designed to direct and protect heating pipes in transition areas where pipe enters and exits concrete slab.



## Pipe Tracking

| Description                                  | Part Number           | Qty./Box | List Price |
|----------------------------------------------|-----------------------|----------|------------|
| 3/8", 1/2", 5/8", 3/4" x 39.5" Pipe Tracking | WSD3456PIPETRACK      | 1        | \$5.73     |
| Staples for WSD3456PIPETRACK Tracking        | WSD3456PIPE-TRACKSTPL | 500      | \$88.49    |

Pipe tracking provides even pipe spacing and exact regulation of pipe heights and can be fastened to many surfaces; concrete or plywood subfloors, steel Q decking and styrofoam insulation.



## Metal Bend Support

| Description                      | Part Number | Qty./Box | List Price |
|----------------------------------|-------------|----------|------------|
| Metal Bend Support for 3/8" Pipe | WSDMBS3     | 50       | \$1.86     |
| Metal Bend Support for 1/2" Pipe | WSDMBS4     | 50       | \$2.51     |
| Metal Bend Support for 5/8" Pipe | WSDMBS5     | 50       | \$3.09     |
| Metal Bend Support for 3/4" Pipe | WSDMBS6     | 25       | \$4.66     |



## Tube Talon

| Description             | Part Number | Qty./Bag | List Price |
|-------------------------|-------------|----------|------------|
| 1/2" Tube talon W/ Nail | WSD4TTwNAIL | 100      | \$11.66    |
| 3/4" Tube talon W/ Nail | WSD6TTwNAIL | 100      | \$12.12    |

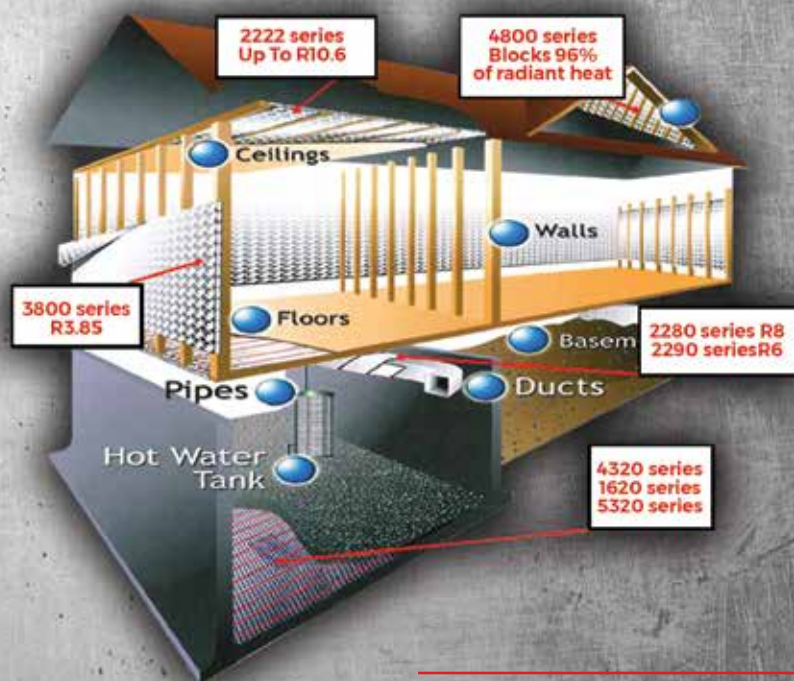






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## ► Coverttech rFOIL



- REFLECTIVE INSULATION TAPES
- RADIANT BARRIER
- CUSTOM BUILDS

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# COVERTECH

## Coverttech Reflective Insulation & Tapes

### Concrete Underpad

| Part Number | Description                         | Size       | Sq. Ft./ Roll | List Price | Lit Page |
|-------------|-------------------------------------|------------|---------------|------------|----------|
| 5320-48-125 | Reflective/Double Bubble/Poly white | 48" x 125' | 500 sq. ft.   | \$261.57   | 204-205  |
| 4320-48-125 | Reflective/Double Bubble/Poly clear | 48" x 125' | 500 sq. ft.   | \$261.57   | 204-205  |
| 4320-72-50  | Reflective/Double Bubble/Poly clear | 72" x 50'  | 300 sq. ft.   | \$157.03   | 204-205  |
| 4320-72-125 | Reflective/Double Bubble/Poly clear | 72" x 125' | 750 sq. ft.   | \$392.32   | 204-205  |
| 4320-96-125 | Reflective/Double Bubble/Poly clear | 96" x 125' | 1000 sq. ft.  | \$523.08   | 204-205  |

**RECOMMENDED TAPE PART# 45313 or 45312**

### Ultra CBF

| Part Number | Description              | Size       | Sq. Ft./ Roll | List Price | Lit Page |
|-------------|--------------------------|------------|---------------|------------|----------|
| 1620-48-125 | Bubble/Reflective/Bubble | 48" x 125' | 500 sq. ft.   | \$465.71   | 192-193  |

**RECOMMENDED TAPE PART# 45313 or 45312**

### Reflective Duct Wrap Insulation for R4.2-R6

| Part Number | Description                         | Size       | Sq. Ft./ Roll | List Price | Lit Page |
|-------------|-------------------------------------|------------|---------------|------------|----------|
| 2290-48-100 | Reflective/Double Bubble/Reflective | 48" x 100' | 400 sq. ft.   | \$225.29   | 194-195  |
| 2290-48-125 | Reflective/Double Bubble/Reflective | 48" x 125' | 500 sq. ft.   | \$281.54   | 194-195  |

**RECOMMENDED TAPE PART# 15113**

### Reflective Duct Wrap Insulation for R8

| Part Number | Description                               | Size      | Sq. Ft./ Roll | List Price | Lit Page |
|-------------|-------------------------------------------|-----------|---------------|------------|----------|
| 2280-48-050 | BIG 8 Multi-Layer Duct Wrap <b>Indoor</b> | 48" x 50' | 200 sq. ft.   | \$208.34   | 192-193  |

**Indoor RECOMMENDED TAPE PART# 15113**

|             |                                  |          |              |        |         |
|-------------|----------------------------------|----------|--------------|--------|---------|
| 2299-02-050 | Duct Spacer Strips for R6 and R8 | 2" x 50' | 8.33 sq. ft. | \$9.09 | 192-193 |
|-------------|----------------------------------|----------|--------------|--------|---------|



# Coverttech Reflective Insulation & Tapes

## Between Joist Insulation

| Part Number | Description                         | Size       | Sq. Ft./ Roll | List Price | Lit Page |
|-------------|-------------------------------------|------------|---------------|------------|----------|
| 2222-16-125 | Reflective/Double Bubble/Reflective | 16" x 125' | 167 sq. ft.   | \$99.24    | 198      |
| 2222-18-125 | Reflective/Double Bubble/Reflective | 18" x 125' | 187.5 sq. ft. | \$111.62   | 198      |
| 2222-24-125 | Reflective/Double Bubble/Reflective | 24" x 125' | 250 sq. ft.   | \$148.84   | 198      |

### RECOMMENDED TAPE PART# 15113

All Between Joist Insulation Products are in Tab 2 format (5/8" - 3/4" tab on both sides)

## NT Radiant Barrier Foils

| Part Number  | Description                | Size       | Sq. Ft./ Roll | List Price | Lit Page |
|--------------|----------------------------|------------|---------------|------------|----------|
| 1800-48-125S | Ultra NT/SCIF              | 48" x 125' | 500 sq. ft.   | \$275.49   | 208-209  |
| 4800-48-125P | NT barrier foil perforated | 48"x125'   | 500 sq. ft.   | \$180.87   | 206-207  |

### RECOMMENDED TAPE PART# 15513 or 15512

## Adhesive Foil Tapes

| Part Number | Description                                     | Size      | Sq. Ft./ Roll | List Price | Lit Page |
|-------------|-------------------------------------------------|-----------|---------------|------------|----------|
| 15512       | Aluminum Tape w/ Kraft Liner                    | 2" x 150' | 24            | \$20.61    | 212-213  |
| 15513       | Aluminum Tape w/Kraft Liner                     | 3" x 150' | 16            | \$30.93    | 212-213  |
| 15113       | Premium Metalized High Tack Linerless Foil Tape | 3" x 150' | 16            | \$23.98    | 212-213  |
| 45312       | White Poly Tape                                 | 2" x 150' | 24            | \$17.17    | 212-213  |
| 45313       | White Poly Tape                                 | 3" x 150' | 16            | \$23.18    | 212-213  |
| 11701       | Conductive Adhesive Tape                        | 1"x54'    | 9             | \$138.67   | 212-213  |
| 11702       | Conductive Adhesive Tape                        | 2"x54'    | 5             | \$275.45   | 212-213  |







**BIG 8 DUCT INSULATION**  
R-8.0 Thermal Value

(2280 Series)

R-8.0 Reflective bubble duct insulation is now ICC-ES listed ESL-1044 and Evaluation Report ESR-1236

### rFOIL® Benefits:

- R-Value = 8.0... Improves HVAC System Efficiency
- No Foam Corner Spacers Needed
- The First R-8.0 without a Mineral Fiber / Fiber Glass Core... NO ITCH!
- Thermal Value Unaffected by Moisture or Humidity
- Will NOT harbor Mold, Mildew or other Fungi
- Prevents Exterior Build-Up of Condensation
- Saves Energy, Money and it's Easy to Install

### rFOIL® Applications:

- Duct Wrap Insulation
- Suitable for all duct types
- Residential and Commercial
- Indoor Use
- R-8 Code Requirements



See ESR-1236 for thermal resistance (R-value) of the assembly or assemblies



rFOIL® BIG-8 is specially designed to reduce radiant heat gain/loss in all residential and commercial duct applications. rFOIL® also helps control condensation by providing an airtight thermal break around duct work.

rFOIL® BIG-8 Reflective Duct Insulation increases system efficiency, lowers stress on HVAC equipment, reduces energy usage and utility bills. The first R-8 reflective bubble insulation is now here!



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| Aluminized Radiant Barrier Outer Surface                                                                                                                                                                                                                                                                                                                                       | Heavy-Duty Bubble Thermal Core                                                                                                                                                                                                                                                                                                                                                                                          | Non-Fibrous Materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Low-Profile Insulation                                                                                                                                                                                                                           | Meets R-8 and/or R-6 Code Requirements                                                                                                                                                                                 | Full-Length, Printed Code Certification Strip                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Provides unmatched</li> <li>- Thermal performance</li> <li>- Stops virtually all heat from radiating into or out of duct systems</li> <li>- Greatly improves hvac system efficiency</li> <li>- Lowers run-time and increases lifespan of HVAC equipment</li> <li>- Reduces energy usage and utility bills ... saves \$\$\$</li> </ul> | <ul style="list-style-type: none"> <li>- Air spaces provide tremendous condensation control</li> <li>- Airtight and impermeable to moisture</li> <li>- Provides a consistent thermal block around ductwork</li> <li>- Superior tear strength and puncture resistance</li> <li>- High compression resistance maintains thermal value</li> <li>- Seals duct system from attic dust and fibrous glass particles</li> </ul> | <ul style="list-style-type: none"> <li>- Clean, Safe and Easy to Install</li> <li>- No Protective Equipment or Clothing Required</li> <li>- No ITCH or Exposure to Glass Fibers</li> <li>- Will Not Harbor Mold, Mildew or other Fungi</li> <li>- Will not Rot, Degrade, Compress or Break Down over Time</li> <li>- Unaffected by Humidity (unlike Fibrous Products)</li> <li>- Seals Duct System from Attic Dust and Fibrous Glass Particles</li> <li>- Improves Indoor Air Quality (when Properly Sealed)</li> </ul> | <ul style="list-style-type: none"> <li>- High Thermal Value with Less Product Thickness</li> <li>- Easy to Handle and Quick to Install</li> <li>- Flexible and Lightweight</li> <li>- Simple to Cut and Configure around Obstructions</li> </ul> | <ul style="list-style-type: none"> <li>- First Reflective Bubble (non-fibrous) Insulation to Achieve R-8 (with Air Space) or R-6 (without Air Space)</li> <li>- Does NOT require costly foam corner spacers</li> </ul> | <ul style="list-style-type: none"> <li>- Allows inspectors to easily identify product and specs</li> <li>- Printed with R-values and ASTM fire ratings</li> <li>- Greater inspector acceptance and approval</li> </ul> |

## PRODUCT SIZE

## PRODUCT SPECIFICATIONS

Size:  
48" x 50"



Comes Complete with  
Spacer Strips

| Physical Properties                 | Test           | BIG-8 (Indoor Use Only)<br>2280 Series (Metalized Foil)                                            |
|-------------------------------------|----------------|----------------------------------------------------------------------------------------------------|
| THERMAL RESISTANCE                  | ASTM C335      | R-8.0 with Bubble Spacers (INCLUDED)                                                               |
| TEMPERATURE RANGE                   | ASTM C411      | -50°F to 180°F                                                                                     |
| FIRE RATING                         | ASTM E84-09    | CLASS 1 / CLASS A                                                                                  |
|                                     | CANULC-S102-10 | FLAME SPREAD = 0<br>SMOKE DEVELOPED = 0                                                            |
| EMISSIVITY                          | ASTM C1371     | 0.04                                                                                               |
| REFLECTIVITY                        | ASTM E903      | 0.96                                                                                               |
| WATER VAPOR PERMEABILITY            | ASTM E96       | 0.029 Perms                                                                                        |
| RESISTANCE TO FUNGI & BACTERIA      | ASTM C1338-08  | DOES NOT PROMOTE GROWTH                                                                            |
| BLEEDING and DELAMINATION           | ASTM C1224-03  | NO BLEEDING or DELAMINATION                                                                        |
| PLIABILITY                          | ASTM C1224-03  | NO CRACKING                                                                                        |
| TEMPERATURE and HUMIDITY RESISTANCE | ASTM C1258     | Evidence of Delamination - NONE<br>Evidence of Corrosion - NONE<br>Loss of Metallization - MINIMAL |
| FIRE RATING - FULL ROOM BURN TEST   | NFPA 286       | PASSES                                                                                             |

Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)

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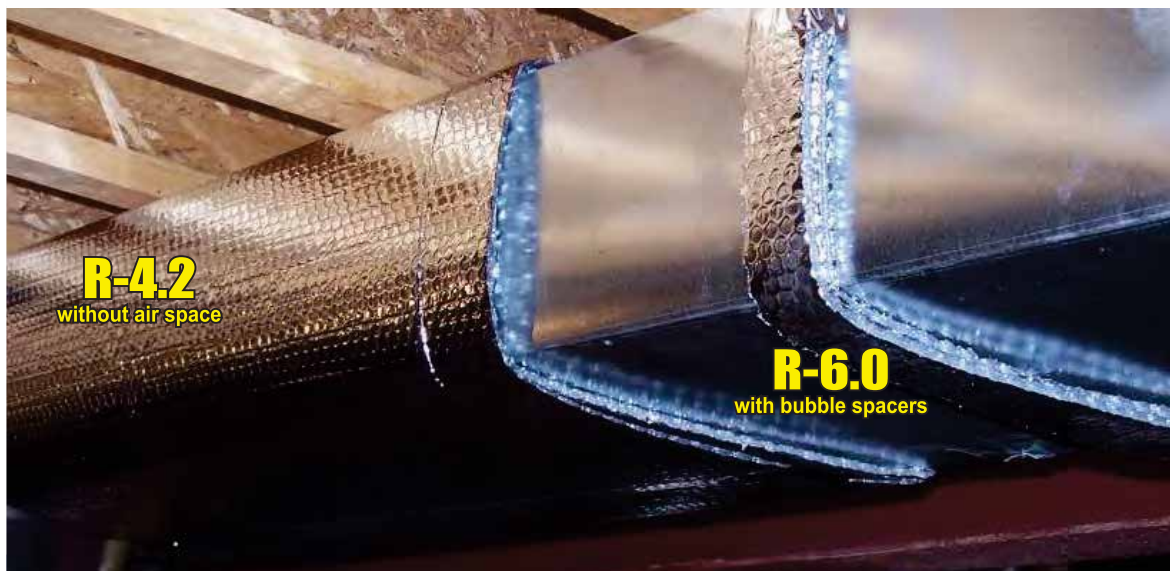




# DUCT INSULATION

## R-4.2 and R-6.0

(2290 Series)



**R-4.2**  
without air space

**R-6.0**  
with bubble spacers

### rFOIL® Benefits:

- Meets R-4.2 and/or R-6 Insulation Code Requirements
- Achieve R-Values with Less Material Thickness
- Will Not Harbor Mold, Mildew or other Fungi
- Greatly Improves HVAC System Efficiency
- Reduces Energy Usage and Utility Bills
- Lowers Run-Time and Increases Lifespan of Heating and Cooling Systems
- Impermeable Thermal Core Provides Tremendous Condensation Control
- Easy, Clean, and Safe to Install
- Printed with Full-Length Code Certification Strip

rFOIL® Reflective Duct Insulation is a double-layer of polyethylene bubble, bonded to and sandwiched between two radiant barrier sheets.

rFOIL® is specially designed to reduce radiant heat gain/loss in all residential and commercial duct applications. rFOIL® also helps control condensation by providing an airtight thermal break around duct work.

rFOIL® Reflective Duct Insulation increases system efficiency, lowers stress on HVAC equipment, reduces energy usage and utility bills.

### rFOIL® Applications:

- Duct Wrap Insulation
- Suitable for all metal ductwork
- Residential and Commercial
- Indoor Insulation Use (2290 Series)



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### Aluminized Radiant Barrier Outer Surface

- Provides unmatched thermal performance
- Stops virtually all heat from radiating into or out of duct systems
- Greatly improves hvac system efficiency
- Lowers run-time and increases lifespan of HVAC equipment
- Reduces energy usage and utility bills ... saves \$\$\$

### Heavy-Duty Double Bubble Thermal Core

- Air spaces provide tremendous condensation control
- Airtight and impermeable to moisture
- Provides a consistent thermal block around ductwork
- Superior tear strength and puncture resistance
- High compression resistance maintains thermal value
- Seals duct system from attic dust and fibrous glass particles

### Non-Fibrous Materials

- Clean, safe easy to install
- No protective equipment or clothing required
- No ITCH or exposure to glass fibers
- Will not harbor mold, mildew or other fungi
- Will not rot, degrade, compress or break down over time
- Thermal Value unaffected by humidity (unlike fibrous products)
- Seals duct system from attic dust and fibrous glass particles

### Low-Profile Insulation

- High thermal Value with less product thickness
- Easy to handle and quick to install
- Flexible and lightweight
- Simple to cut and configure around obstructions

### Full-Length, Printed Code Certification Strip

- Allows inspectors to easily identify product and specs
- Printed with R-values and ASTM fire ratings
- Greater inspector acceptance and approval

## PRODUCT SIZES

|            |            |
|------------|------------|
| 36" X 50'  | 48" X 50'  |
| 48" X 100' | 48" X 125' |



## PRODUCT SPECIFICATIONS

| Physical Properties               | Test            | Duct Insulation (Indoor Use Only)<br>2290 Series (Metalized Foil) |
|-----------------------------------|-----------------|-------------------------------------------------------------------|
| NOMINAL THICKNESS                 | —               | 5/16"                                                             |
| WEIGHT                            | —               | 1.25 oz / sq. ft.                                                 |
| TEMPERATURE RANGE                 | ASTM C411       | -50°F to 180°F                                                    |
| FIRE RATING                       | ASTM E84-09     | CLASS 1 / CLASS A                                                 |
|                                   | CAN/ULC-S102-10 | FLAME SPREAD = 0<br>SMOKE DEVELOPED = 0                           |
| THERMAL RESISTANCE                | ASTM C335       | R-4.2 (without spacers)                                           |
|                                   |                 | R-6.0 (with bubble spacers)                                       |
| EMISSIVITY                        | ASTM C1371      | 0.04                                                              |
| REFLECTIVITY                      | ASTM E903       | 0.96                                                              |
| WATER VAPOR PERMEABILITY          | ASTM E96        | <0.02 Perms                                                       |
| RESISTANCE TO FUNGI & BACTERIA    | ASTM C1338      | DOES NOT PROMOTE GROWTH                                           |
| FIRE RATING - FULL ROOM BURN TEST | NFPA 286        | PASSES                                                            |

Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)





# REFLECTIVE INSULATION

(2200 Series)



## rFOIL® Benefits:

- Staple Tabs for Between Joists
- Minimal Product Thickness
- Vapor Barrier Protection
- Increases Insulating Value of Wall Systems
- Achieve R-Values with Less Material Thickness
- Will Not Harbor Mold, Mildew or other Fungi
- Reduces Energy Usage and Utility Bills
- Impermeable Thermal Core Provides Tremendous Condensation Control
- Easy, Clean, and Safe to Install

## rFOIL® Applications:

- Commercial buildings
- Residential buildings
- Manufactured homes
- Mobile homes
- Cottages
- Basements
- Metal Roofs
- DIY applications and much more...

rFOIL® reflective Insulation is a single or double layer of polyethylene bubbles bonded to and sandwiched between two radiant barrier metalized sheet.

Its unique construction is specially designed to reduce radiant heat gain or loss in Residential, Commercial and HVAC applications while increasing comfort.



[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)



# REFLECTIVE INSULATION

(2200 Series)

► COVERTECH

## Square edge configuration for normal edges

- Square edge metalized rFOIL® is a multi purpose insulation
- Easily cut and configured around obstacles
- Tape seals can be made at any angle

## 1" tabs running the length of the rFOIL®

- Staple tabs can be stapled between joists
- Allows for quick and easy installation
- Helps create the air space necessary

## Tabs equipped with tape running the length of the rFOIL®

- Quick seam tabs can be used in place of rFOIL® tape
- Seals the seams with ease
- Seals the metalized rFOIL™ in order to avoid breaks in the insulation

## PRODUCT SIZES

- Width: 12", 16", 18", 24", 48", 72" and 96"
- Length: 50', 75', 100', 102' and 125'

## PRODUCT OPTIONS

- Single or Double Bubble
- Square Edge, Tab 1 Side, Tab 2 Sides, Quick Seam Adhesive Strip

## PRODUCT SPECIFICATIONS



| Physical Properties               | Test           | Double Layer                | Single Layer |
|-----------------------------------|----------------|-----------------------------|--------------|
| NOMINAL THICKNESS                 | —              | 5/16"                       | 3/16"        |
| FIRE RATING                       | ASTM E84-09    | CLASS 1 / CLASS A           |              |
| EMISSION                          | ASTM C1371-04A | 0.04                        | 0.04         |
| REFLECTIVITY                      | ASTM E903      | 0.96                        | 0.96         |
| WATER VAPOR PERMEABILITY          | ASTM E96       | 0.02 Perms                  | 0.04 Perms   |
| RESISTANCE TO FUNGI & BACTERIA    | ASTM C1149     | DOES NOT PROMOTE GROWTH     |              |
| PLIABILITY                        | ASTM C1224-03  | NO CRACKING                 |              |
| BLEEDING AND DELAMINATION         | ASTM C1224-03  | NO BLEEDING OR DELAMINATION |              |
| CORROSIVENESS                     | ASTM D3310-00  | PASSES                      |              |
| FIRE RATING - FULL ROOM BURN TEST | NFPA 286       | PASSES                      |              |



Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)

**PATENTED**  
(See website for details)  
[www.rfoil.com](http://www.rfoil.com)

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# INSTALLATION SHEET

## RADIANT HEATING BETWEEN JOISTS: R-13

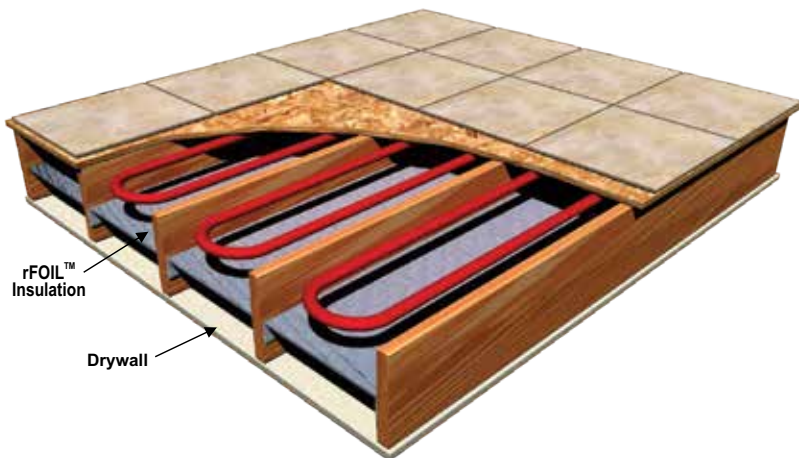
(In-Between Floor Joists with Drywall Installed to the Underside)

INSTALLATION APPLICATION

- EFFECTIVELY DIRECTS HEAT BACK INTO THE LIVING SPACE
- QUICK AND EASY TO INSTALL, AND ADDS R-VALUE
- INCREASES EFFICIENCY OF RADIANT HEATING SYSTEMS
- CAN BLOCK UP TO 96% OF RADIANT HEAT

### INSTALLATION METHOD

1. Using 16" wide reflective insulation with staple tabs, insert the material between joists, 2"-4" below heating coils.
2. Using regular staples, affix the insulation by stapling the tabs into the sides of the joists.
3. Using rFOIL™ reflective tape, seal all seams created by the wood butting up against the insulation.
4. Install drywall to the underside of the joists, creating two reflective air spaces.



### SUGGESTED PRODUCTS FOR THIS APPLICATION:

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| rFOIL™ INSULATION PRODUCT | 2220 and/or 2222 Series (Available in Various Dimensions) |
| rFOIL™ TAPE               | 15013 or 15012 (Reflective)                               |

- Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL™ Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL™ Reflective Insulation products and rFOIL™ makes no claims that these construction systems are universally accurate.
- All warranties are void if rFOIL™ Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- Exercise caution when using rFOIL™ Reflective Insulation products near and around electrical wiring and devices.

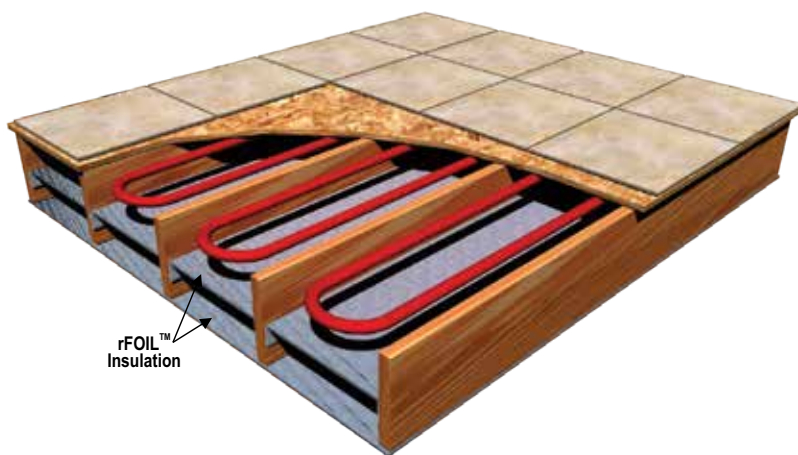




- EFFECTIVELY DIRECTS HEAT BACK INTO THE LIVING SPACE
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- CAN BLOCK UP TO 96% OF RADIANT HEAT

### INSTALLATION METHOD

1. Using 16" wide reflective insulation with staple tabs, insert the material between joists, 2"-4" below heating coils.
2. Using regular staples, affix the insulation by stapling the tabs into the sides of the joists.
3. Using rFOIL™ reflective tape, seal all seams created by the wood butting up against the insulation.
4. Unroll and staple 48" wide reflective insulation to the bottom of floor joists.
5. Tape all joints and seal around the perimeter with rFOIL™ reflective tape.



### SUGGESTED PRODUCTS FOR THIS APPLICATION:

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| rFOIL™ INSULATION PRODUCT | 2220 and/or 2222 Series (Available in Various Dimensions) |
| rFOIL™ TAPE               | 15013 or 15012 (Reflective)                               |

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL™ Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL™ Reflective Insulation products and rFOIL™ makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL™ Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL™ Reflective Insulation products near and around electrical wiring and devices.





# INSTALLATION SHEET

**WALL: R-14.4 for 2"x4" or R-21 for 2"x6" Framing**  
(In-Between Joist Over Existing Insulation in a 2"x4" or 2"x6" Stud Wall)

INSTALLATION APPLICATION

- HELPS TO REDUCE BASEMENT DAMPNESS, AND INCREASES COMFORT
- REDUCES HEAT LOSS TO THE SURROUNDING ENVIRONMENT
- EXCELLENT VAPOR AND RADON BARRIER
- UNAFFECTED BY MOISTURE AND HUMIDITY
- QUICK AND EASY TO INSTALL - ADDS R-VALUE

## INSTALLATION METHOD

1. Install R-13 batt insulation (for 2"x4" framing) or R-19 Batt insulation (for 2"x6" framing un-faced (as per manufacturer's specifications).
2. Place the first corner edge of the rFOIL™ insulation in an upper corner of the stud cavity. Staple the product to the side of the stud (creating a 3/4" tab on the product and compressing it into the fiberglass). The edge of the product should be flush with the forward corner of the stud.
2. Staple the rFOIL™ insulation along the staple tabs and affix to the studs. Repeat on opposite stud.
3. Seal all edges with rFOIL™ tape to ensure a continuous insulation and vapor barrier.
4. Install drywall as per the usual method. The recessed insulation material will create the necessary airspace require for reflective insulation.



## SUGGESTED PRODUCTS FOR THIS APPLICATION:

|                           |                                               |
|---------------------------|-----------------------------------------------|
| rFOIL™ INSULATION PRODUCT | 2222 Series (Available in Various Dimensions) |
| rFOIL™ TAPE               | 15013 or 15012 (Reflective)                   |

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL™ Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL™ Reflective Insulation products and rFOIL™ makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL™ Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL™ Reflective Insulation products near and around electrical wiring and devices.

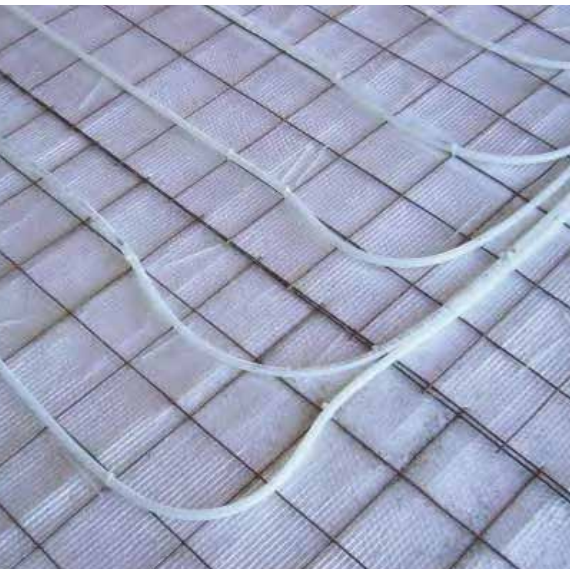






## ULTRA CBF Concrete Barrier Foil (1620 Series)

► COVERTECH



### rFOIL® Benefits:

- Reduces Radiant Heat Loss Making Floors Warmer and more Comfortable
- Multi-Layer Vapor and Radon Barrier (14.2 mil)
- Cost-Effective Alternative to Rigid Foam Insulation
- Improves Efficiency of In-Floor Radiant Heating Systems
- Saves Energy Usage and Utility Costs
- Easy to Form around Obstructions and Conforms Easily to Uneven Grades
- Installs Easily Over any Grade
- Withstands Job Site Traffic

### rFOIL® Applications:

- Insulating Under Concrete Slabs
- In-Floor Radiant Heating
- Beneath Concrete Over-Pours
- Edge-Slabs and Expansion Joints
- Outside Foundation Walls
- Snow Melt Systems
- Under Carpet

**Ultra CBF** is an outstanding reflective insulation and puncture-resistant vapor barrier. Ultra CBF is composed of a single layer reflective sheet, laminated between two layers of ultra-strong polyethylene bubble (up to 140 psi).

**Ultra CBF** is the ultimate under-slab insulation. It provides exceptional thermal value and a strong, permanent vapor and radon barrier. Ultra CBF typically costs less than 2" rigid PE board insulation. Ultra CBF is easier to handle, cut, and install than rigid foam insulation, yet has nearly six times the compression strength.



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# ULTRA CBF Concrete Barrier Foil (1620 Series)

## Reflective Sheet Inner Layer

- Reduces Radiant Heat Loss
- Redirects Radiant Heat Energy Back to Living Area
- Saves Energy Usage and Lowers Heating Costs
- Extends Life of Heating System
- Faster Reaction Time for Radiant Floor Heating

## Multi-Layer Vapor and Radon Barrier (14.2 mil)

- Provides Continuous Thermal Break below the Slab
- Keeps underground moisture away from slab
- Durable and Long-Lasting Polyethylene
- Superior Puncture Resistance and Tear Strength
- Outstanding Vapor and Radon Barrier
- Can also Insulate the Edge-Slab and Outside of Foundation

## Lightweight, Flexible Materials

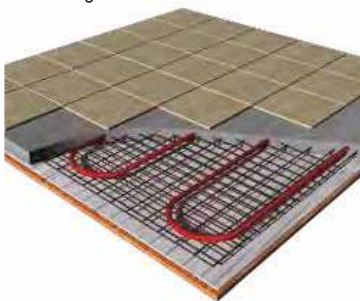
- Just Unroll, Overlap, and Tape the Seams
- Easy to Cut and Configure around Obstructions
- Ideal for Edge-Slab Insulation and Expansion Joint (Easily Folds Upward at Perimeter Footing)

## MORE BENEFITS

- Strongly Bonded to Resist Delamination
- Will not deteriorate over time
- Sealed Seams Provide a Consistent Insulation
- Aluminum Radiant Barrier Permanently Protected from Corrosive Ground Elements, such as Lime and Soil Alkaline

## PRODUCT SIZES

- Configurations: Square Edge
- Width: 16" and 48"
- Length: 125'



## PRODUCT SPECIFICATIONS

| Physical Properties            | Test                     | Value                   |
|--------------------------------|--------------------------|-------------------------|
| NOMINAL THICKNESS              | —                        | 5/16"                   |
| WEIGHT                         | —                        | 1.16 oz / sq. ft.       |
| TEMPERATURE RANGE              | ASTM C411                | -50°F to 180°F          |
| EMISSION                       | ASTM C1371-04A           | 43%                     |
| REFLECTIVITY                   | ASTM E903                | 57%                     |
| COMPRESSION STRENGTH           | ASTM D751                | 140 psi                 |
| TENSILE STRENGTH               | CAN/CGSB - 51.33-M89     | 21.13 lbs/sq. in.       |
| DEFLECTION                     | ASTM 1621                | <10% under 0.5 PSI      |
| PUNCTURE RESISTANCE            | —                        | 85 lbs/sq. in.          |
| WATER VAPOR PERMEABILITY       | ASTM E96, ONGC 51.33-M89 | <0.01 Perms             |
| RESISTANCE TO FUNGI & BACTERIA | ASTM C1338               | DOES NOT PROMOTE GROWTH |
| LINEAR SHRINKAGE               | —                        | NONE                    |
| FLEXIBILITY                    | CAN/CGSB - 51.33-M89     | NO CRACKING             |

Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)

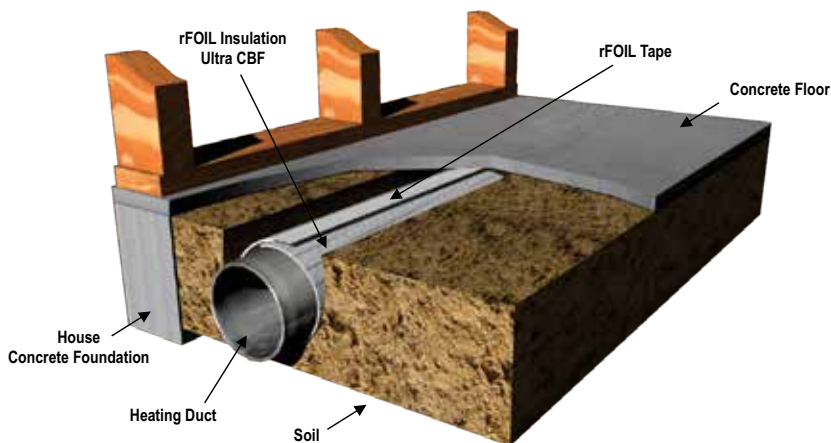


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- UNAFFECTED BY MOISTURE AND HUMIDITY
- QUICK AND EASY TO INSTALL, AND ADDS R-VALUE
- REDUCES HEAT LOSS, AND HEAT GAIN ALL YEAR ROUND
- CAN BLOCK SIGNIFICANT AMOUNTS OF RADIANT HEAT TRANSFER

### INSTALLATION METHOD

1. Unroll rFOIL™ Ultra CBF and position it at the bottom of the duct cavity or trench.
2. Lay duct work directly on to insulation material.
3. Wrap insulation around the duct until it is fully enclosed. Seal the joint with 3" rFOIL™ white poly tape.
4. Fill the duct trench with soil, or install floor decking as usual.



### SUGGESTED PRODUCTS FOR THIS APPLICATION:

|                           |                                               |
|---------------------------|-----------------------------------------------|
| rFOIL™ INSULATION PRODUCT | 1620 Series (Available in Various Dimensions) |
| rFOIL™ TAPE               | 15853 or 15582 (White Poly)                   |

- a) Check local building codes for compliance before installation. This installation sheet is intended solely to illustrate the proper location and placement of rFOIL™ Reflective Insulation products in specific constructions applications. They are not intended to illustrate proper construction methods (which is ultimately the responsibility of the builder or contractor). The installation instructions are only recommendations relating to the location and placement of rFOIL™ Reflective Insulation products and rFOIL™ makes no claims that these construction systems are universally accurate.
- b) All warranties are void if rFOIL™ Reflective Insulation products are used in exterior applications, or in non-enclosed systems or buildings.
- c) Exercise caution when using rFOIL™ Reflective Insulation products near and around electrical wiring and devices.

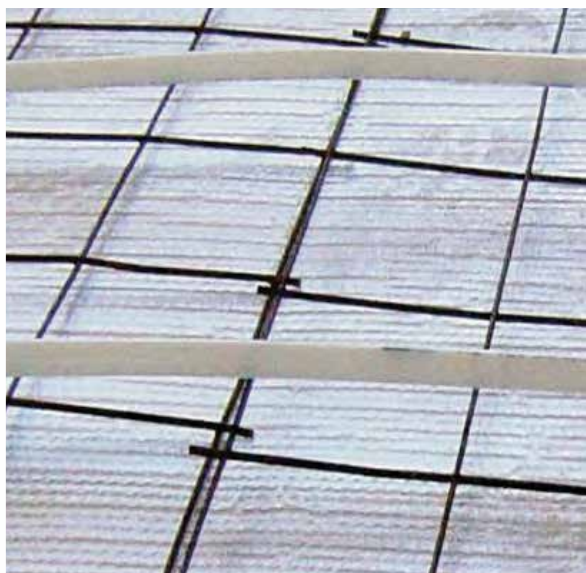






# CONCRETE UNDERPAD

(4320 Series)



## rFOIL® Benefits:

- Reduces Radiant Heat Loss through Floors
- High-Strength, Multi-Layer Vapor and Radon Barrier
- Cost-Effective Alternative to Rigid Foam Insulation
- Improves Efficiency of In-Floor Radiant Heating Systems
- Reduces Slab Reaction Time at System Startup
- Saves Energy Usage and Utility Costs
- Easy to Form around Obstructions
- Installs Easily Over any Grade
- Withstands Job Site Traffic

## rFOIL® Applications:

- Insulating Under Concrete Slabs
- Beneath Concrete Over-Pours
- Edge-Slabs and Expansion Joints

rFOIL® Standard Concrete Underpad are an outstanding reflective insulation and puncture-resistant vapor barrier. They are composed of a double layer of high-strength polyethylene bubbles sandwiched between one layer of metalized foil, and a layer of clear polyethylene.

rFOIL® Standard Concrete Underpad provides exceptional thermal value and a strong, permanent vapor and radon barrier. They are cost-effective alternative to rigid foam insulation, and are always installed with the clear side facing upwards.



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## Reflective Metalized Foil Facing (installed facing down)

- Reduces Radiant Heat Loss
- Redirects Radiant Heat Energy Back to Living Area
- Saves Energy Usage and Lowers Heating Costs
- Extends Life of Heating System
- Faster Reaction Time for Radiant Floor Heating

## Clear Polyethylene Facing

- Unaffected by Lime and other Corrosive Chemicals, often Found in Concrete.

## Multi-Layer Bubble Core (8.4 mil)

- Provides Continuous Thermal Break below the Slab
- Keeps underground moisture away from slab
- Durable and Long-Lasting Polyethylene
- Strong Puncture Resistance and Tear Strength
- Outstanding Vapor and Radon Barrier
- Can also Insulate the Edge-Slab and Outside of Foundation

## Lightweight, Flexible Materials

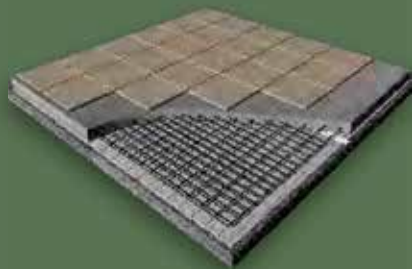
- Just Unroll, Overlap, and Tape the Seams
- Easy to Cut and Configure around Obstructions
- Ideal for Edge-Slab Insulation and Expansion Joint (Easily Folds Upward at Perimeter Footing)

## MORE BENEFITS

- Warmer, More Comfortable Floors
- Conforms Easily to Uneven Grades
- Strongly Bonded to Resist Delamination
- Sealed Seams Provide a Consistent Insulation

## PRODUCT SIZES

- Configurations: Square Edge
- Width: 48" - Length: 125'



## PRODUCT SPECIFICATIONS

| Physical Properties            | Test           | Value                       |
|--------------------------------|----------------|-----------------------------|
| NOMINAL GAUGE                  | ASTM D751      | 8.4 mil                     |
| FIRE RATING                    | ASTM E84-09    | CLASS 1 / CLASS A           |
| EMISSION                       | ASTM C1371-04A | 0.04                        |
| REFLECTIVITY                   | ASTM E903      | 0.96                        |
| WATER VAPOR PERMEABILITY       | ASTM E96       | 0.42 Perms                  |
| RESISTANCE TO FUNGI & BACTERIA | ASTM C1149     | DOES NOT PROMOTE GROWTH     |
| PLIABILITY                     | ASTM C1224-03  | NO CRACKING                 |
| BLEEDING AND DELAMINATION      | ASTM C1224-03  | NO BLEEDING OR DELAMINATION |
| CORROSIVENESS                  | ASTM D3310-00  | PASSES                      |
| COMPRESSION                    | CAN/CGSB 4.2   | 70 PSI                      |
| FIRE RATING - FULL ROOM BURN   | NFPA 286       | PASSES                      |

Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)





# NT RADIANT BARRIER

(4800 Series)



## rFOIL® Benefits:

- Blocks 96% of Radiant Heat Transfer
- Lowers Summer Attic Temperatures
- Helps Attics Retain Heat in Winter
- Class 1 / Class A Fire Rating
- Easy to Unroll, Cut and Install
- Safe, Clean, Non-Toxic, No Itch
- Enhances Performance of Installed Fiber Insulation
- Perforated for Breath ability
- Reduces Heating and Cooling Costs
- Lowers Energy Usage and Utility Bills

rFOIL® NT (No-Tear) Radiant Barrier are available in a solid or perforated sheet composed of a single layer of woven polyethylene, bonded to and sandwiched between two highly reflective radiant barrier sheets.

rFOIL® NT (No-Tear) Radiant Barrier will dramatically reduce summer attic temperatures, making it easier and less expensive to cool your home and reduce the workload on heating and cooling equipment.

rFOIL® also helps reduce winter heating costs by helping existing fiber insulation hold heat and lower energy usage.

## rFOIL® Applications:

- Attics  
*Warm Climates: Near Roof*  
*Cold Climates: Atop mass floor insulation*
- Over drop-ceiling tiles
- Roof Decking Attachment (facing attic)





## Inner Layer of Woven Polyethylene

- Outstanding tear strength and puncture resistance
- Allows for a permanent bond of foil layers
- Allows firm hold when stapled

## Reflective Radiant Barrier Facings

- Reduces radiant heat gain and loss
- Redirects radiant heat energy back to living area
- Saves energy usage and lowers heating costs
- Extends life of heating and cooling systems
- Helps lower attic temperatures by up to 40°F
- Improves effectiveness of fiber/mass insulations
- Helps attic floor insulation retain heat

## Lightweight, Flexible Materials

- Easy to unroll, cut to fit, and install
- Lightweight - 500 square feet weighs only 15 lbs.
- Easily cut to fit around obstructions

## PRODUCT SIZES

48" x 125' and 48" x 250'



## PRODUCT SPECIFICATIONS

| Physical Properties       | Test           | 4800P Perforated            | 4800S Solid |
|---------------------------|----------------|-----------------------------|-------------|
| FIRE RATING               | ASTM E84-09    | CLASS 1 / CLASS A           |             |
| EMISSION                  | ASTM C1371-04A | 0.04                        | 0.04        |
| REFLECTIVITY              |                | 0.96                        | 0.96        |
| WATER VAPOR TRANSMISSION  | ASTM E96-05    | 8.53 Perms                  | 0.027 Perms |
| CORROSIVENESS             | ASTM D3310-00  | PASSES                      | PASSES      |
| BLEEDING and DELAMINATION | ASTM C1313-05  | NO BLEEDING or DELAMINATION |             |
| PLIABILITY                | ASTM C1313-05  | NO CRACKING                 |             |
| GROWTH OF FUNGI           | ASTM C1338-08  | DOES NOT PROMOTE GROWTH     |             |
| TENSILE STRENGTH          | ASTM D2261     | LENGTH: 27.34 lbs           |             |
|                           |                | WIDTH: 16.31 lbs            |             |

## TESTING

The photo to the right shows the RIGHT side of the hot box which is insulated with fiberglass is at a much higher temperature then the LEFT box which is insulated with the rFOIL Radiant Barrier.

The rFOIL® Radiant Barrier is reflecting a tremendous amount of the radiant heat. The RIGHT side (which is not insulated with a layer of rFOIL®) shows 62 degrees hotter difference therefore illustrating how much heat it keeps out in the summer. In the winter it would be doing the same but only in reverse reflecting the heat back into the home. Having 2 layers help all 3 forms of heat gain/heat loss, conduction, convection and radiant heat.



Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)





# ULTRA NT RADIANT BARRIER for SCIF'S

(1800 Series)

## HIGH SECURITY FACILITIES



## MAXIMUM SHIELDING EFFECTIVENESS

### rFOIL® Benefits:

- Minimum Shielding Effectiveness (100MHz – 10GHz):  
- 85 dB (Solid) - 67 dB (Perforated)
- Highly reflective radiant barrier surface
- Reflects 97% of Radiant Heat
- Thermal performance unaffected by moisture
- Unrolls and cuts easily
- Durable and flexible woven polyethylene base
- Increases sound attenuation for SCIF's
- Reduces heating and cooling costs
- Lowers energy usage and utility bills

### rFOIL® Applications:

- Sensitive Compartmented Information Facilities (SCIF's)
- Secured Government Buildings

rFOIL® Ultra NT Radiant Barrier is a heavy duty radiant barrier sheet made up of a single layer of woven polyethylene material bonded to and sandwiched between two highly reflective aluminum surfaces.

rFOIL® Ultra NT Radiant Barrier is designed to be used in Sensitive Compartmented Information Facilities (SCIF's). In addition to being a highly effective radiant barrier, the Ultra NT (Solid) is also an approved vapor barrier.

rFOIL® Ultra NT Radiant Barrier also helps reduce winter heating costs by helping existing fiber insulation hold heat and lower energy usage.





# ULTRANT RADIANT BARRIER for SCIF's

(1800 Series)

► COVERTTECH

## Inner Layer of Woven Polyethylene

- Outstanding tear strength and puncture resistance
- Allows for a permanent bond of foil layers
- Allows firm hold when stapled

## Reflective Radiant Barrier Facings

- Reduces radiant heat gain and loss
- Redirects radiant heat energy back to living area
- Saves energy usage and lowers heating costs
- Extends life of heating and cooling systems
- Increases sound attenuation for SCIF's
- Improves effectiveness of fiber / mass insulations

## Lightweight, Flexible Materials

- Easy to unroll, cut to fit, and install
- Lightweight - 500 square feet weighs only 15 lbs.
- Easily cut to fit around obstructions

## PRODUCT SIZE

48" x 125'  
(Solid & Perforated Aluminum Surface)



## PRODUCT SPECIFICATIONS

| Physical Properties      | Test                                          | 1800 (Solid)                | 1800 (Perforated)         |
|--------------------------|-----------------------------------------------|-----------------------------|---------------------------|
| EMISSION                 | ASTM C1371-04A                                | 0.03                        |                           |
| REFLECTIVITY             | —                                             | 0.97                        |                           |
| CORROSIVENESS            | ASTM D3310-00                                 | PASSES                      |                           |
| FIRE RATING              | ASTM E84-09                                   | CLASS 1 / CLASS A           |                           |
| BLEEDING & DELAMINATION  | ASTM C1313-05                                 | No Bleeding or Delamination |                           |
| PLIABILITY               | ASTM C1313-05                                 | No Cracking or Delamination |                           |
| TEAR RESISTANCE          | ASTM D2261                                    | Length 14.93 / Width 15.13  |                           |
| WATER VAPOR PERMEABILITY | ASTM E96-05                                   | 0.01 Perms                  | 2.69 Perms                |
| RESISTANCE TO FUNGI      | ASTM C1338-08                                 | PASSES                      |                           |
| SHIELDING EFFECTIVENESS  | IEEE-299:1997 (Solid)<br>IEEE-299:2006 (Perf) | 85 dB                       | 67 dB<br>(100MHz - 10GHz) |

## TESTING

The photo to the right shows the RIGHT side of the hot box which is insulated with fiberglass is at a much higher temperature then the LEFT box which is insulated with the rFOIL Radiant Barrier.

The rFOIL® Radiant Barrier is reflecting a tremendous amount of the radiant heat. The RIGHT side (which is not insulated with a layer of rFOIL®) shows 62 degrees hotter difference therefore illustrating how much heat it keeps out in the summer. In the winter it would be doing the same but only in reverse reflecting the heat back into the home. Having 2 layers help all 3 forms of heat gain/heat loss, conduction, convection and radiant heat.



Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)



[WWW.WILLOWSRA.COM](http://WWW.WILLOWSRA.COM)





# METAL & POST FRAME BUILDING INSULATION

(2500 Series)



## rFOIL® Benefits:

- Blocks 96% of Radiant Heat Transfer
- Prevents Interior Condensation
- Class 1 / Class A Fire-Rated (ASTM E84-09)
- Puncture and Tear-Resistant
- Unaffected by Humidity
- Will not Promote Mold and Mildew
- Safe, Non-Toxic and Non-Carcinogenic
- Easy to Handle and Install
- Various Tab Options
- UV-Resistant

## rFOIL® Applications:

- Pre-Engineered Steel Buildings
- Post Frame / Pole Barns
- Agricultural Buildings
- Residential Metal Roofs
- Mini Storage
- Livestock Confinement

rFOIL® reflective Insulation is a layer of polyethylene bubbles bonded to and sandwiched between a radiant barrier metalized foil and white polyethylene sheet.

rFOIL® is specifically designed to control heat gain or loss, and prevent interior condensation, in all types of metal and metal-clad buildings.



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## Reflective Metalized Surface Facing

- Reduces radiant heat gain and loss
- Blocks 96% of radiant heat transfer
- Saves energy use
- Lowers heating / cooling costs
- Improves interior comfort

## Multi-Layer Bubble Core

- Provides continuous thermal break
- Lowers risk of interior surface condensation
- Durable and long-lasting
- Superior puncture, tensile and tear strength
- Will not absorb water or vapor
- Does not harbor moisture or mold
- Clean, safe, no-itch material

## White Interior Facing Option

- Brightens building interior
- Attractive appearance
- Easy to clean

## Practical Tab/Edge Options

- Various options for all metal building applications
- Simplifies installations
- Improves vapor-sealing efforts

## Quick Seam (Adhesive Tape on Tab)

- Saves time and labor
- Ensures a continuous vapor and condensation barrier
- Simplifies and speeds installation

## PRODUCT SIZES

- Width: 12", 16", 18", 24", 48" and 72"
- Length: 102' and 125'

## PRODUCT OPTIONS

- Single or Double Bubble
- Square Edge, Tab 1 Side, Tab 2 Sides, Quick Seam Adhesive Strip

## PRODUCT SPECIFICATIONS



| Physical Properties            | Test                        | Double Layer                           | Single Layer |
|--------------------------------|-----------------------------|----------------------------------------|--------------|
| NOMINAL THICKNESS              | —                           | 5/16"                                  | 3/16"        |
| FIRE RATING                    | ASTM E84-09 / ASTM E2599-08 | CLASS 1 / CLASS A                      |              |
| FIRE TESTING                   | NFPA 286                    | PASSES                                 |              |
| EMISSION                       | ASTM C1371-04A              | 0.04                                   | 0.04         |
| REFLECTIVITY                   | ASTM E903                   | 0.96                                   | 0.96         |
| WATER VAPOR PERMEABILITY       | ASTM E96                    | 0.12 Perms                             | 0.01 Perms   |
| RESISTANCE TO FUNGI & BACTERIA | ASTM C1149                  | DOES NOT PROMOTE GROWTH                |              |
| PLIABILITY                     | ASTM C1224-03               | NO CRACKING                            |              |
| BLEEDING AND DELAMINATION      | ASTM C1224-03               | NO BLEEDING OR DELAMINATION            |              |
| CORROSIVENESS                  | ASTM D3310-00               | PASSES                                 |              |
| UV TESTING                     | ASTM G155                   | 4000hrs Exposure 90+% Retain Retention |              |

Warranty, Specific Applications and Installation Guides can be found at [www.rfoil.com](http://www.rfoil.com)







## Adhesive Tapes

(15000 Series)

### Recommended For:

- All rFOIL™ insulation products and related applications
- Maintaining a vapor barrier and constant insulator

### Seals:

- Seams
- Gaps
- Tab sections
- Rips
- Tears

### Benefits:

- Economical
- Quick and easy to install
- Approved vapor barrier
- Available in a variety of sizes to suit your needs

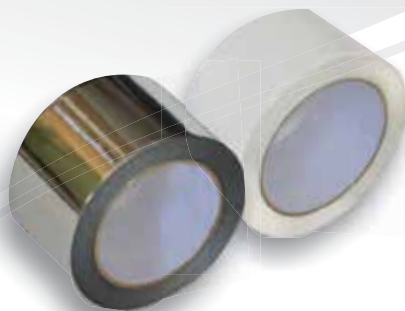


rFOIL™ Adhesive Tapes are available in three varieties: Aluminum, White Poly and Metalized Foil.

All rFOIL™ tapes provide an excellent vapour barrier seal and are specifically designed for use with all rFOIL™ Insulation Products.

Acrylic pressure sensitive adhesive combines superior quick-stick at normal temperatures, with excellent low temperature performance below freezing.

[www.rFOIL.com](http://www.rFOIL.com)



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## FEATURES

## BENEFITS

### Metalized Foil & Aluminium Tapes

- Soft, Metalized Foil / Aluminum Foil
- Pressure Sensitive Acrylic Adhesive

- Conforms to irregular surfaces
- Maintains reflective / radiant barrier
- Adheres well to rFOIL™, sheet metal, and more!
- Effective in hot and cold climates
- Forms strong bond for long life adhesion

### White Poly Tape

- Polypropylene Material
- Acrylic Adhesive

- Durable to withstand installation
- Adheres to any polyethylene or related material
- Conforms to foil or poly to give the seamless look
- Will adhere to poly or aluminium faced rFOIL™
- Adheres in all four seasons
- Will seal seams effectively for many years

### Applications

STANDARD METALIZED FOIL TAPE:  
PREMIUM METALIZED FOIL TAPE:  
ALUMINUM FOIL TAPE:  
WHITE POLY TAPE:

- Sealing seams in all Metalized Surface rFOIL products.
- Sealing seams in all Metalized Surface rFOIL products [High Tack adhesive]
- Sealing seams in all Aluminum Surface rFOIL products.
- Sealing seams in all Poly Surface rFOIL products.

(Class 1/A Application)  
(Class 1/A Application)  
(Class 2/B Application)  
(Class 1/A Application)

## PRODUCTS

## SPECIFICATIONS

### AVAILABLE IN:

- Standard Metalized Foil
- Premium Metalized Foil
- Aluminum Foil
- White Poly

### SIZES:

- Width: 2" or 3"
- Length 150' (for Premium, Poly and Aluminum tape)
- Length 180' (for Standard tape only)

| Physical Properties    | STANDARD METALIZED FOIL | PREMIUM METALIZED FOIL     | ALUMINUM FOIL              | WHITE POLY               |
|------------------------|-------------------------|----------------------------|----------------------------|--------------------------|
| THICKNESS              | 3.0 MILS (0.003")       | 3.2 MILS (0.0032")         | 2.7 MILS (0.0027")         | 3.0 MILS (0.003")        |
| ADHESION               | 41 oz. / in.            | 60 oz. / in.               | —                          | 16.0 oz. / in. (to Poly) |
| PEEL                   | —                       | —                          | 98 oz. / in. width         | —                        |
| BACKING                | Metalized Polyester     | UV Metalized Polypropylene | UV Metalized Polypropylene | White Polypropylene      |
| ELONGATION             | 150%                    | 130%                       | 4.4%                       | 130%                     |
| TENSILE STRENGTH       | 22 lbs. / in.           | 20 lbs. / in.              | 17 lbs. / in.              | 20 lbs. / in.            |
| TEMPERATURE RESISTANCE | -37°C to 127°C          | -40°C to 85°C              | -40°C to 121°C             | -40°C to 85°C            |
| ADHESIVE               | Acrylic                 | Acrylic                    | Acrylic                    | Acrylic                  |

Warranty, Specific Applications and Installation Guides can be found on our Applications Manuals or at [www.rfoil.com](http://www.rfoil.com)





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## ► Accessories



Bell & Gossett

a xylem brand



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# Circulator Pumps



**NRF-22**  
**\$146.67**



**NRF-25**  
**\$160.00**



**NRF-36**  
**\$442.22**



**ECOCIRC 19-16**  
**\$377.78**



## CIRCULATORS ecocirc® 19-16

### Description

ecocirc® 19-16 is a TRUE Variable Speed ECM Circulator with energy efficient spherical motor technology. Higher Efficiency and Improved Performance The ecocirc® 19-16 is a Smart, User-friendly, TRULY variable speed circulator which is ideally suited for use in heating, cooling and potable water application. Designed to be set once and forgotten. The onboard intelligence automatically adjusts speed to ensure maximized efficiency and accurate performance to suit a wide range of performance requirements.

The ecocirc is setting new standards! ecocirc® 19-16 is a TRUE Variable Speed ECM Circulator with energy efficient spherical motor technology.

### Standard Modes of Operation

1. Proportional Pressure (factory default mode) Sensorless control mode that automatically adjusts differential pressure and flow according to the selected proportional pressure curve. This mode is recommended for use in systems with high pressure losses in the system. Identified by blue LED lit behind the adjustment dial.
2. Constant Pressure Sensorless control mode that automatically maintains a constant differential pressure by varying the flow according to the selected pressure curve. This mode of operation is preferred in systems with relatively small pressure losses in distribution systems. Identified by green LED lit on the adjustment dial.
3. Constant Speed The pump maintains a fixed speed at any flow demand, based on the curve that is set on the adjustment dial. Identified by the white light lit on the speed adjustable dial.

### Auxiliary Modes

1. Automatic Air Purge Air trapped in the pump housing can be purged using this function.
2. Standby This helps to keep the power consumption low.

### Materials of Construction

Pump Body: Cast Iron and Stainless Steel  
O-Ring: EPDM  
Bearing: Carbon/Alumina Ceramic  
Impeller: Nylon/PPG  
Motor: High Efficiency ECM/PM  
All Other Wetted Parts: Stainless Steel

### Operating Data

Maximum Working Pressure: 150 PSI (10 Bar)  
Maximum Working Temperature: 203°F (95°C)  
Minimum Working Temperature: 14°F (-10°C)

### Motor

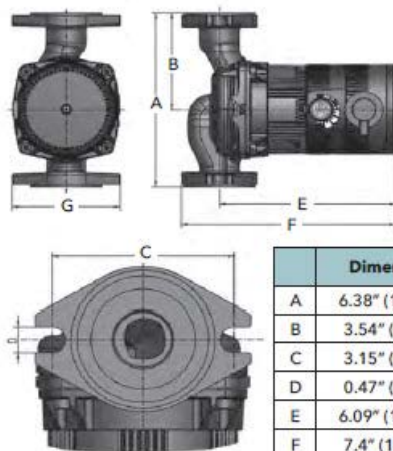
ECM spherical motor  
115 Volt 60 Hz, 1 Phase  
4-60 Watts Variable Power Consumption  
Automatic Overload Protection  
Low in-rush current

### Piping Connection

Flanged, 2-Bolt  
For use with 3/4", 1, 1 1/4" or 1 1/2" inch pipe

### Check Valve

1" Nonyl Check Valve  
Shipped loose for field installation



| Dimensions |               |
|------------|---------------|
| A          | 6.38" (162mm) |
| B          | 3.54" (90mm)  |
| C          | 3.15" (80mm)  |
| D          | 0.47" (12mm)  |
| E          | 6.09" (154mm) |
| F          | 7.4" (188mm)  |
| G          | 3.74" (95mm)  |

| Model Number  | Part Number | Pump Body       | Shipping Weight |
|---------------|-------------|-----------------|-----------------|
| ecocirc 19-16 | 6050B2003   | Cast Iron       | 7.25 lb         |
| ecocirc 19-16 | 6050B2004LF | Stainless Steel | 7.00 lb         |

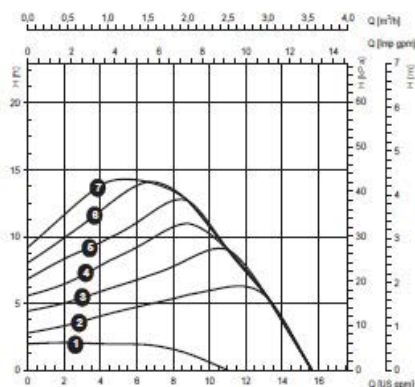




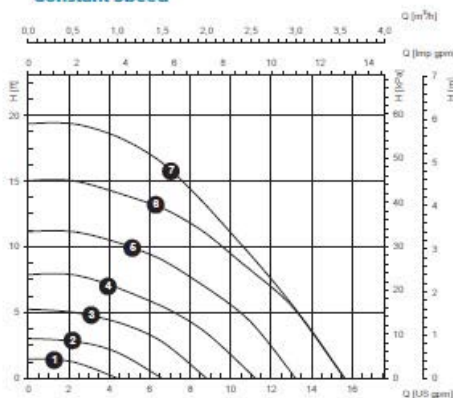


Always easy to access. The screw ring design results in a pump motor that can be rotated in any position around the 360° circle. Therefore the electrical connection as well as the control dial is easy to access.

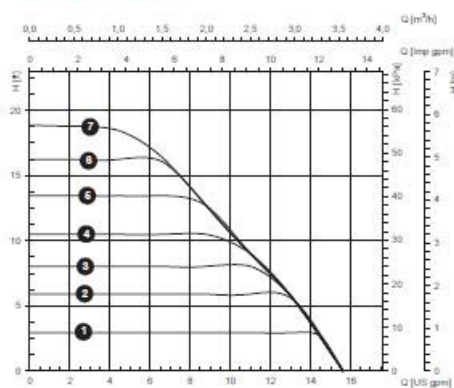
## Proportional Pressure (default mode)



## Constant Speed



## Constant Pressure



# CIRCULATORS Bell & Gossett Cast Iron Wet Rotor Circulators / NRF

## Description

A residential or light commercial, maintenance free, axial flanged, in-line, cast iron, wet rotor circulation pump for hydronic heating systems. UL and cUL Listed.

## Operating Data

Maximum Working Pressure: 150 PSI (10 bar)

Maximum Operating Temperature:

NRF-22 & NRF-9F/LW: 240°F (115°C)

NRF-25, NRF-33, NRF-36 & NRF-45: 225°F (107°C)

## Materials of Construction

Pump Body: Cast Iron

Impeller: Noryl

Shaft: Ceramic

Bearings: Double-Sintered Carbon

## Warranty

Bell & Gossett offers a warranty of 3 years from date of manufacture or 18 months from date of installation (which ever comes first) against failure as a result of defects in materials and workmanship.

## Specifications

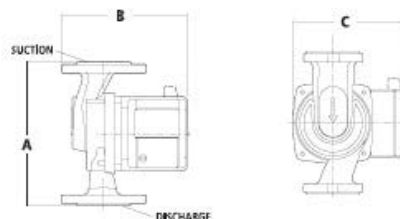
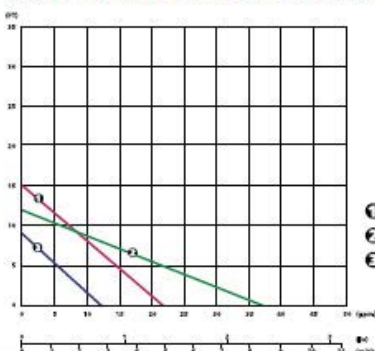
| Model Number | Single Speed | Three Speed | Part Number | Flange Sizes Inches - NPT | Dimensions Inches (mm) |              |             | Standard 60 Cycle Motor Characteristics* |   |       |           |      | Shipping Weight lbs. (Kg) |
|--------------|--------------|-------------|-------------|---------------------------|------------------------|--------------|-------------|------------------------------------------|---|-------|-----------|------|---------------------------|
|              |              |             |             |                           | A                      | B            | C           | Watts                                    | φ | Volts | F.L. Amps | RPM  |                           |
| NRF-9F/LW    | ●            |             | 103267      | 3/4, 1, 1 1/4, 1 1/2      | 6 3/8 (162)            | 6 3/16 (157) | 5 1/8 (130) | 41                                       | 1 | 115   | 0.40      | 2800 | 9.3 (4.2)                 |
| NRF-22       | ●            |             | 103251      |                           | 6 3/8 (162)            | 6 3/16 (157) | 5 1/8 (130) | 92                                       |   |       | 0.80      | 2940 | 9.3 (4.2)                 |
| NRF-25       |              | ●           | 103417      |                           | 6 3/8 (162)            | 6 3/16 (157) | 5 1/8 (130) | 125                                      |   |       | 1.20      | 2950 | 10.4 (4.7)                |
| NRF-33       | ●            |             | 103350      |                           | 6 3/8 (162)            | 5 9/16 (141) | 4 7/8 (124) | 125                                      |   |       | 1.10      | 2950 | 10.4 (4.7)                |
| NRF-36       |              | ●           | 103400      |                           | 6 3/8 (162)            | 6 7/8 (175)  | 5 3/4 (146) | 270                                      |   |       | 2.30      | 3300 | 13.1 (6.0)                |
| NRF-45       |              | ●           | 103404      | 1, 1 1/4, 1 1/2           | 8 1/2 (216)            | 7 3/8 (187)  | 5 3/4 (146) | 270                                      |   |       | 2.30      | 3300 | 14.5 (6.6)                |

NRF-9F/LW, NRF-22, NRF-25 and NRF-33 are impedance protected.

NRF-36 and NRF-45 are thermally protected.

Dimensions are approximate and subject to change. Contact factory for certified dimensions.

## Single Speed NRF Circulator Performance Curves



## Single Speed NRF Circulators



NRF-9F/LW



NRF-22

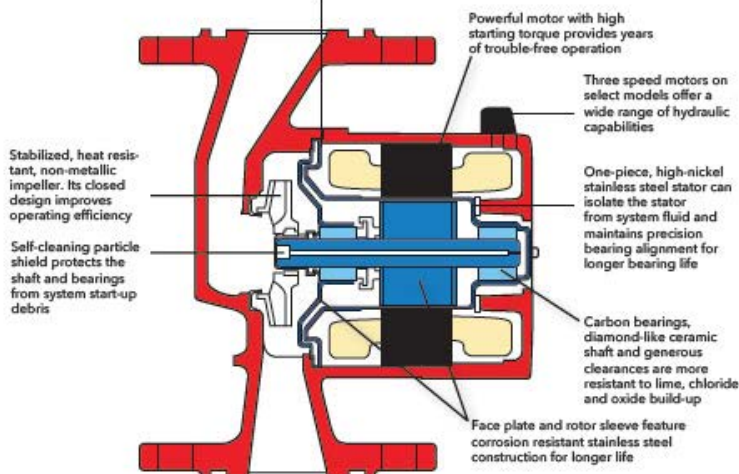


NRF-33

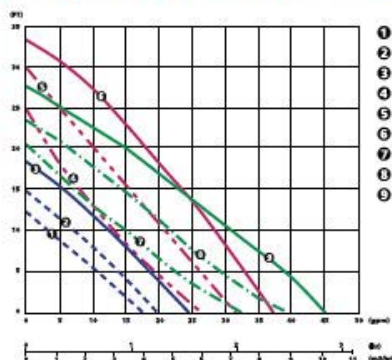


Reliable, maintenance-free, whisper quiet wet rotor circulators designed for residential and light commercial heating systems.

DuraGlide™ Bearing System (blue areas in cutaway illustration) incorporates several components working together to eliminate seasonal freeze-up



## Three-Speed NRF Circulator Performance Curves



## Optional Zone Pump Relay Control



The ZoneTrol II AZ-1A is a single zone pump relay that turns the pump and boiler on when the thermostat calls for heat. The AZ-1A is ideal when adding a zone to an existing system and can be daisy-chained together to control multiple zones (See page 25.)

## Three-Speed NRF Circulators



NRF-25



NRF-36



NRF-45

## Expansion Tanks - ASME and NON-ASME



Elbi "XT" Series Expansion Tanks Available in Vertical and in line models.

**For heating systems.**



Elbi "DXT" Series Thermal Expansion Tanks. Available in Vertical and in line models. **For potable water.**



Elbi "DWT" Series Well Tanks. Available in Vertical and in-line models.



Elbi Tanks are a great addition to any product lineup. With a huge selection of ASME and NON ASME models to choose from at a competitive price whychoose anyone else. Please feel free to give us a call to get current pricing.

**Special order items ship factory direct to save you money!**

- Elbi ASME Code Products
- Well Tanks
- Thermal Expansion Tanks
- Hydronic heating Tanks
- Air Separators
- All Replaceable Bladders







### "XT" SERIES EXPANSION TANKS Base Price List

#### IN-LINE MODELS

| Model Number | Capacity In U.S. Gallons | Weight (Lbs.) | Acceptance Volume* | Quantity per Pallet | LIST Price |
|--------------|--------------------------|---------------|--------------------|---------------------|------------|
| XT-15        | 2.1                      | 6             | 1.4                | 150                 | \$51.60    |
| XT-30        | 5                        | 9.5           | 3                  | 70                  | \$62.47    |
| XT-60        | 6.5                      | 10.5          | 4.2                | 70                  | \$88.44    |
| XT-90        | 13.5                     | 19.5          | 8.5                | 33                  | \$217.91   |



# Elbi Expansion Tanks



\*\*\* ALL TANKS SPECIAL ORDER \*\*\*



| Item #        | Description                                           | List Price  |
|---------------|-------------------------------------------------------|-------------|
| Elbi:HTS- 8   | Elbi ASME 2 gal Replaceable Bladder Expansion Tank    | \$654.22    |
| Elbi:HTS- 19  | Elbi ASME 5 gal Replaceable Bladder Expansion Tank    | \$851.00    |
| Elbi:HTS- 30  | Elbi ASME 8 gal Replaceable Bladder Expansion Tank    | \$1,252.22  |
| Elbi:HTS- 45  | Elbi ASME 12 gal Replaceable Bladder Expansion Tank   | \$1,564.00  |
| Elbi:HTS- 80  | Elbi ASME 21 gal Replaceable Bladder Expansion Tank   | \$1,727.56  |
| Elbi:HTS-100  | Elbi ASME 26.5 gal Replaceable Bladder Expansion Tank | \$2,057.22  |
| Elbi:HTS-140  | Elbi ASME 37 gal Replaceable Bladder Expansion Tank   | \$2,287.22  |
| Elbi:HTL- 170 | Elbi ASME 45 gal Replaceable Bladder Expansion Tank   | \$2,504.44  |
| Elbi:HTL- 200 | Elbi ASME 53 gal Replaceable Bladder Expansion Tank   | \$2,606.67  |
| Elbi:HTL- 300 | Elbi ASME 80 gal Replaceable Bladder Expansion Tank   | \$2,844.33  |
| Elbi:HTL- 400 | Elbi ASME 105 gal Replaceable Bladder Expansion Tank  | \$3,373.33  |
| Elbi:HTL- 450 | Elbi ASME 121 gal Replaceable Bladder Expansion Tank  | \$4,094.00  |
| Elbi:HTL- 500 | Elbi ASME 132 gal Replaceable Bladder Expansion Tank  | \$4,209.00  |
| Elbi:HTL- 600 | Elbi ASME 160 gal Replaceable Bladder Expansion Tank  | \$4,980.78  |
| Elbi:HTL- 800 | Elbi ASME 210 gal Replaceable Bladder Expansion Tank  | \$5,737.22  |
| Elbi:HTL-1000 | Elbi ASME 265 gal Replaceable Bladder Expansion Tank  | \$6,153.78  |
| Elbi:HTL-1200 | Elbi ASME 320 gal Replaceable Bladder Expansion Tank  | \$8,300.44  |
| Elbi:HTL-1400 | Elbi ASME 370 gal Replaceable Bladder Expansion Tank  | \$8,510.00  |
| Elbi:HTL-1600 | Elbi ASME 420 gal Replaceable Bladder Expansion Tank  | \$9,631.89  |
| Elbi:HTL-2000 | Elbi ASME 530 gal Replaceable Bladder Expansion Tank  | \$10,807.44 |
| Elbi:HTL-3000 | Elbi ASME 790 gal Replaceable Bladder Expansion Tank  | \$18,075.44 |
| Elbi:HTL-4000 | Elbi ASME 1060 gal Replaceable Bladder Expansion Tank | \$23,293.89 |
| Elbi:HTL-5000 | Elbi ASME 1320 gal Replaceable Bladder Expansion Tank | \$26,723.44 |



# Expansion Tanks Cross Reference Chart



| Elbi      | Flexcon  | Vent-Rite   | Amtrol | Watts | State | B&G      | Sparco    |
|-----------|----------|-------------|--------|-------|-------|----------|-----------|
| XT - 15   | HT-15    | VR-15-FG    | 15     | ET-15 | ET-2  | HFT-15   | TK3000-15 |
| XT - 30   | HT-30    | VR-30-FG    | 30     | ET-30 | ET-5  | HFT-30   | TK3000-30 |
| XT - 60   | HT-60    | VR-60-FG    | 60     | ET-60 | ET-7  | HFT-60   | TK3000-60 |
| XT - 90   | HT-90    | VR-90-FG    | 90     | ET-90 | ET-14 | HFT-90   | TK3000-90 |
| XTV - 030 | SXHT-30  | SXVR-30-FG  | SX-30  | NA    | ET-15 | HFT-30V  | XPS-30    |
| XTV - 040 | SXHT-40  | SXVR-40-FG  | SX-40  | NA    | ET-20 | HFT-40V  | XPS-40    |
| XTV - 060 | SXHT-60  | SXVR-60-FG  | SX-60  | NA    | ET-36 | HFT-60V  | XPS-60    |
| XTV - 090 | SXHT-90  | SXVR-90-FG  | SX-90  | NA    | ET-52 | HFT-90V  | XPS-90    |
| XTV - 110 | SXHT-110 | SXVR-110-FG | SX-110 | NA    | ET-86 | HFT-110V | XPS-110   |
| XTV - 160 | SXHT-160 | SXVR-160-FG | SX-160 | NA    | ET-96 | HFT-160V | XPS-160   |



*XT-XTV Series - Expansion Tanks*



## Elbi's XT-XTV Series Expansion Tanks...



The XT-XTV Series diaphragm expansion tanks are available in sizes from 2 to 80 gallons in either in-line or stand models (see chart). Designed and manufactured by Elbi since 1975, the XT-XTV Series expansion tanks are solid and have proven reliable in millions of installations worldwide.

The two shell welded construction allows the tank to withstand high pressure ratings and therefore adds safety to your system. The BUTYL diaphragm separates the air from the water and prevents waterlogging while saving space and energy. Product is intended for use in hot water, solar and cooling systems and is compatible with glycol. Call our factory for compatibility and suitability in special applications.



### FEATURES AND BENEFITS

| FEATURE                                  | BENEFIT                                                                                                                                                                                                                                                                       |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| • WELDED STRONG CONSTRUCTION             | Steel shells are designed to withstand high pressure loads and add safety to your installation. Tanks are sturdy and built to last while at the same time they are lightweight, easy to handle and simple to install.                                                         |
| • HEAVY DUTY BUTYL DIAPHRAGM             | Withstands temperatures as high as 240°F. Of solid construction, manufactured in house through an injection molding process. Made of proprietary food quality compound which will not release taste or odors in the water. Compatible with glycol, solar and cooling systems. |
| • EPOXY GRAY PAINT FINISH                | Provides an attractive, durable appliance like finish obtained through an oven baking process of the epoxy paint powder.                                                                                                                                                      |
| • 12 PSI FACTORY PRECHARGE ON ALL MODELS | Suits most common installations. The precharge can be manually adjusted on site.                                                                                                                                                                                              |

### DIMENSIONAL DATA

| Model Number          | Capacity (Gal.) | Acceptance Volume* (Gal.) | Conn. NPTM (in.) | Max. Working Pressure (PSIG) | Factory <sup>1</sup> Precharge (PSIG) | Max. Working Temperature (° F) | Diameter (in.) | Height (in.) | Weight (lbs.) |
|-----------------------|-----------------|---------------------------|------------------|------------------------------|---------------------------------------|--------------------------------|----------------|--------------|---------------|
| <b>IN-LINE MODELS</b> |                 |                           |                  |                              |                                       |                                |                |              |               |
| XT-15                 | 2.1             | 1.4                       | 1/2"             | 150                          | 12                                    | 210                            | 8              | 11 3/4       | 6.34          |
| XT-30                 | 5.0             | 3.0                       | 1/2"             | 150                          | 12                                    | 210                            | 10 1/2         | 15           | 11.50         |
| XT-60                 | 6.5             | 4.2                       | 1/2"             | 150                          | 12                                    | 210                            | 10 3/4         | 17           | 13.72         |
| XT-90                 | 13              | 8.5                       | 1"               | 150                          | 12                                    | 210                            | 15 3/4         | 20           | 24            |
| <b>STAND MODELS</b>   |                 |                           |                  |                              |                                       |                                |                |              |               |
| XTV-30                | 13              | 8.5                       | 1"               | 150                          | 12                                    | 210                            | 15 3/4         | 25           | 27.16         |
| XTV-40                | 21              | 14                        | 1"               | 90                           | 12                                    | 210                            | 15 3/4         | 32           | 41.16         |
| XTV-60                | 27              | 17                        | 1"               | 90                           | 12                                    | 210                            | 20             | 29 1/2       | 48.16         |
| XTV-90                | 40              | 26                        | 1"               | 90                           | 12                                    | 210                            | 20             | 38           | 63.16         |
| XTV-100               | 53              | 36                        | 1"               | 90                           | 12                                    | 210                            | 24             | 42 1/3       | 80.16         |
| XTV-110               | 66              | 42                        | 1"               | 90                           | 12                                    | 210                            | 26             | 40 1/2       | 90.2          |
| XTV-160               | 80              | 52                        | 1"               | 90                           | 12                                    | 210                            | 26             | 45           | 111.16        |



\* At 60 PSIG; Maximum working pressure allowed in Canada: 30 PSIG

\*\* When installed in normal environmental conditions. By normal environmental conditions it is meant environments which are free of acids, scale or chemical deposits or other factors known to affect paints, coatings and metals.

1) Factory precharge can be affected by variations in environmental conditions (ex. temperature changes) and systems conditions (ex. pressure changes). Product should be carefully inspected upon receipt and all charges should be adjusted to fit your particular system installation.



## XT-XTV EXPANSION TANKS - SELECTION TABLES

TABLE 1 - TYPE OF RADIATION

| Boiler Net Output*<br>baseboard | Fin tube baseboard<br>or radiant panels | Convectors or<br>unit heaters | Cast iron<br>radiators | Cast iron<br>baseboard |
|---------------------------------|-----------------------------------------|-------------------------------|------------------------|------------------------|
| 25                              | XT-15                                   | XT-15                         | XT-15                  | XT-15                  |
| 50                              | XT-15                                   | XT-15                         | XT-30                  | XT-30                  |
| 75                              | XT-30                                   | XT-30                         | XT-30                  | XT-60                  |
| 100                             | XT-30                                   | XT-30                         | XT-60                  | XT-60                  |
| 125                             | XT-30                                   | XT-60                         | XT-60                  | XT-90                  |
| 150                             | XT-30                                   | XT-60                         | XT-90                  | XT-90                  |
| 175                             | XT-60                                   | XT-60                         | XT-90                  | XT-90                  |
| 200                             | XT-60                                   | XT-60                         | XT-90                  | XT-90                  |
| 250                             | XT-60                                   | XT-90                         | XT-90                  | XTV-40                 |
| 300                             | XT-90                                   | XT-90                         | XT-90                  | XTV-40                 |
| 350                             | XT-90                                   | XT-90                         | XTV-40                 | XTV-60                 |
| 400                             | XT-90                                   | XTV-40                        | XTV-40                 | XTV-60                 |

\* in 1000s BTU/Hour - Fill pressure 12 PSIG/ Relief Pressure 30 PSIG/Average System Temperature 200° F

TABLE 2 - SYSTEM CONTENT

| System<br>Content | 100°F  | 110°F  | 120°F  | 130°F  | 140°F  | 150°F   | 160°F   | 170°F   | 180°F   | 190°F   | 200°F       | 210°F       |
|-------------------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|-------------|-------------|
| 25                | XT-15  | XT-15  | XT-15  | XT-15  | XT-15  | XT-15   | XT-15   | XT-15   | XT-15   | XT-15   | XT-30       | XT-30       |
| 50                | XT-15  | XT-15  | XT-15  | XT-15  | XT-15  | XT-30   | XT-30   | XT-30   | XT-30   | XT-30   | XT-30       | XT-30       |
| 75                | XT-15  | XT-15  | XT-15  | XT-30  | XT-30  | XT-30   | XT-30   | XT-30   | XT-60   | XT-60   | XT-60       | XT-90       |
| 100               | XT-15  | XT-15  | XT-30  | XT-30  | XT-30  | XT-30   | XT-60   | XT-60   | XT-90   | XT-90   | XT-90       | XT-90       |
| 200               | XT-30  | XT-30  | XT-30  | XT-60  | XT-90  | XT-90   | XT-90   | XTV-40  | XTV-40  | XTV-40  | XTV-40      | XTV-40      |
| 300               | XT-30  | XT-60  | XT-90  | XT-90  | XT-90  | XT-90   | XTV-40  | XTV-40  | XTV-40  | XTV-60  | XTV-60      | XTV-90      |
| 400               | XT-60  | XT-90  | XT-90  | XT-90  | XTV-40 | XTV-40  | XTV-40  | XTV-60  | XTV-60  | XTV-60  | XTV-90      | XTV-90      |
| 500               | XT-90  | XT-90  | XT-90  | XTV-40 | XTV-40 | XTV-60  | XTV-60  | XTV-90  | XTV-90  | XTV-90  | XTV-100     | XTV-100     |
| 600               | XT-90  | XT-90  | XTV-40 | XTV-40 | XTV-60 | XTV-60  | XTV-90  | XTV-90  | XTV-100 | XTV-100 | XTV-100     | XTV-110     |
| 700               | XT-90  | XT-90  | XTV-40 | XTV-60 | XTV-60 | XTV-90  | XTV-90  | XTV-100 | XTV-100 | XTV-110 | XTV-110     | XTV-160     |
| 800               | XT-90  | XTV-40 | XTV-40 | XTV-60 | XTV-90 | XTV-90  | XTV-100 | XTV-100 | XTV-110 | XTV-110 | XTV-160     | XTV-160     |
| 900               | XT-90  | XTV-40 | XTV-60 | XTV-90 | XTV-90 | XTV-90  | XTV-100 | XTV-110 | XTV-110 | XTV-160 | XTV-160     | 2 x XTV-100 |
| 1000              | XTV-40 | XTV-40 | XTV-60 | XTV-90 | XTV-90 | XTV-110 | XTV-100 | XTV-110 | XTV-160 | XTV-160 | 2 x XTV-100 | 2 x XTV-100 |

Fill pressure: 12 PSIG, Relief pressure: 30 PSIG, System Fill Temperature: 40°F

### MAINTENANCE

It is recommended that a periodic maintenance inspection of the complete heating system be performed by a professional licensed plumber. The inspection must be done at least once a year and, during such check, the tank's precharge should be tested and adjusted to the correct pressure if necessary. Failure to perform periodic maintenance will void all warranty. We strongly recommend the use of dielectric union when connecting dissimilar metals.

### PACKAGING AND SHIPPING DATA

| Model<br>Number       | Packaging Dimensions<br>(in.) | Volume<br>(cu.ft.) | Quantity<br>per Pallet |
|-----------------------|-------------------------------|--------------------|------------------------|
| <b>IN-LINE MODELS</b> |                               |                    |                        |
| XT-15                 | 8.43x8.43x12.60               | 0.35               | 162                    |
| XT-30                 | 10.83x10.83x17.52             | 1.06               | 70                     |
| XT-60                 | 13.00x13.00x14.76             | 1.41               | 70                     |
| XT-90                 | 16.14x16.14x21.06             | 3.08               | 33                     |
| <b>STAND MODELS</b>   |                               |                    |                        |
| XTV-30                | 16.14x16.14x24.02             | 3.52               | 33                     |
| XTV-40                | 16.14x16.14x33.86             | 4.96               | 22                     |
| XTV-60                | 20.08x20.08x32.68             | 7.40               | 10                     |
| XTV-90                | 20.08x20.08x40.94             | 9.27               | 8                      |
| XTV-100               | 24.02x24.02x41.34             | 13.40              | 8                      |
| XTV-110               | 25.98x25.98x47.64             | 18.07              | 6                      |
| XTV-160               | 25.98x25.98x50.39             | 19.11              | 6                      |

\*Quantity per pallet may vary depending on the size of the pallets and the limitations presented by the means of transportation used when shipping out the product to its final destination. In case there are differences between the quantities per pallet listed here and the actual quantity per pallet loaded, you will be contacted by one of our staff members.

### WARRANTY

Elbi's XT - XTV Series tanks are guaranteed to be free of workmanship or material defects for a period of five (5) years from the date of manufacturing. For a complete description of our warranty policy consult the literature which comes with the product or call our offices to request a copy.





## Who We Are...

*Elbi has over 30 years of experience in tank manufacturing and a worldwide reputation for quality, offering an extensive line of products which satisfy the taste and exigency of all modern installations in water distribution, water storage, water heating and water treatment systems. We are represented in all major world markets either by a network of authorized distributors or by direct presence. Our widespread presence ensures that our lines of products always keep up with all technological advances.*

*Our most valuable assets are experience and reputation. We take pride in equipping our plants with the most modern production equipment including robotic systems, CAD/CAM machines and automatic welding and assembly systems.*

*Product design is handled by our internal development team, our testing facilities and quality control services which ensures that you get a quality product from design to installation. All of the components are manufactured in house to ensure total control of the manufacturing process, this includes our butyl diaphragm.*

*Our manufacturing plant, located in Houston TX, started operations in 1990 and since 2000 has become fully operational. Another plant located in northern Italy is dedicated to the manufacturing of our diaphragms and bladders through modern injection molding processes, and holds the quality control of these critical components in-house.*





# STAINLESS STEEL INDIRECT WATER HEATERS

## **\*\*Call for Pricing\*\***

Heat-flo's high efficiency indirect water heaters are made with quality stainless steel materials that provide excellent heat transfer and a longer tank life, as well as abundant hot water and low operating costs. Indirect water heaters work in conjunction with a boiler to heat the water that's circulated through the heat exchanger in the tank.

When paired with an high efficiency boiler, Heat-flo's indirect water heaters can generate over 50% more hot water than many water heaters of similar size.

## **FEATURES AND BENEFITS INCLUDE:**

### **QUALITY DESIGN & CONSTRUCTION**

- Tanks and coils are all stainless steel construction.
- Large, smooth-wall coils deliver full output for years - no finned tubing to collect lime and sediment.
- Over 2" of insulation, providing less than 1° / hr. heat loss.
- Flexible thermoplastic jacket that will not corrode and resists denting.

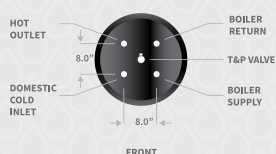
### **EASY INSTALLATION**

- All connections are on top on the standard units for a neat, quick, and clean installation.
- Brass drain and relief valves are factory installed.
- Honeywell L4080B Aquastat control is standard.

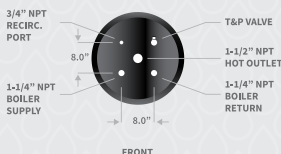
### **RESIDENTIAL & COMMERCIAL**

- Models are available in 30, 40, 50, 60, 80, and 115 gallon sizes.
- Bank together 80 and 115 gallon units for applications with high water heating demands.
- Limited warranty residential installation, 5 year commercial.

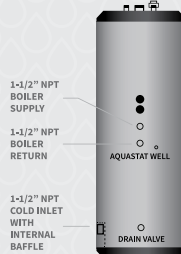
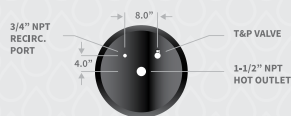
## **SYSTEM CONNECTION CONFIGURATIONS FOR EACH MODEL**



**STANDARD & HO UNITS**



**C UNITS**



**XHO UNITS**



## DIMENSIONS & CAPACITIES

| MODEL  | Storage Volume | Coil Heating Surface | Dimensions (inches) |        | Piping Connections NPT |        | Max. Tank Working Pressure | Max. Coil Working Pressure | Approximate Shipping Wt. |
|--------|----------------|----------------------|---------------------|--------|------------------------|--------|----------------------------|----------------------------|--------------------------|
|        | (Gal.)         | (Sq. ft.)            | (Ht.)               | (Dia.) | In/Out                 | In/Out | (psi)                      | (psi)                      | (Lbs.)                   |
| HF-30  | 30             | 7.3                  | 34.0                | 23.5   | 3/4                    | 1      | 150                        | 90                         | 85                       |
| HF-40  | 40             | 7.7                  | 44.0                | 23.5   | 3/4                    | 1      | 150                        | 90                         | 100                      |
| HF-40L | 42             | 7.4                  | 36.0                | 28.0   | 3/4                    | 1      | 150                        | 90                         | 100                      |
| HF-50  | 50             | 8.2                  | 54.0                | 23.5   | 3/4                    | 1      | 150                        | 90                         | 110                      |
| HF-60  | 60             | 8.6                  | 62.0                | 23.5   | 3/4                    | 1      | 150                        | 90                         | 125                      |
| HF-60L | 60             | 7.7                  | 46.0                | 28.0   | 3/4                    | 1      | 150                        | 90                         | 120                      |
| HF-80  | 80             | 8.2                  | 56.0                | 28.0   | 1                      | 1      | 150                        | 90                         | 140                      |
| HF-115 | 115            | 9.1                  | 74.0                | 28.0   | 1                      | 1      | 150                        | 90                         | 175                      |

## HIGH OUTPUT UNITS

|             |     |      |      |      |       |       |     |    |     |
|-------------|-----|------|------|------|-------|-------|-----|----|-----|
| HF-60-HO    | 60  | 15.1 | 62.0 | 23.5 | 1     | 1     | 150 | 90 | 140 |
| HF-80-HO    | 80  | 14.8 | 56.0 | 28.0 | 1     | 1     | 150 | 90 | 155 |
| HF-80-HO-C  | 80  | 14.8 | 56.0 | 28.0 | 1 1/2 | 1 1/4 | 150 | 90 | 155 |
| HF-115-HO   | 115 | 15.6 | 74.0 | 28.0 | 1     | 1     | 150 | 90 | 190 |
| HF-115-HO-C | 115 | 15.6 | 74.0 | 28.0 | 1 1/2 | 1 1/4 | 150 | 90 | 190 |
| HF-85-XHO   | 87  | 28.7 | 64.0 | 28.0 | 1 1/2 | 1 1/2 | 150 | 90 | 215 |
| HF-115-XHO  | 115 | 28.7 | 74.0 | 28.0 | 1 1/2 | 1 1/2 | 150 | 90 | 240 |

## 180° F BOILER SUPPLY RATINGS

| MODEL  | First Hour Rating (Gal./Hr.) |        | Continuous Rating (Gal./Hr.) |        | Boiler Output Needed | Boiler Water Flow Through Coil | Pressure Drop Through Coil |
|--------|------------------------------|--------|------------------------------|--------|----------------------|--------------------------------|----------------------------|
|        | 140° F                       | 115° F | 140° F                       | 115° F | (BTU/Hr.)            | (Gal./Min.)                    | (Ft. Water)                |
| HF-30  | 176                          | 233    | 149                          | 206    | 111,560              | 14.0                           | 5.3                        |
| HF-40  | 193                          | 254    | 157                          | 218    | 117,870              | 14.0                           | 5.7                        |
| HF-40L | 186                          | 251    | 150                          | 157    | 112,200              | 14.0                           | 5.3                        |
| HF-50  | 196                          | 254    | 151                          | 209    | 113,290              | 14.0                           | 6.0                        |
| HF-60  | 231                          | 298    | 177                          | 244    | 132,340              | 14.0                           | 6.2                        |
| HF-60L | 211                          | 272    | 157                          | 218    | 117,785              | 14.0                           | 5.7                        |
| HF-80  | 241                          | 306    | 169                          | 234    | 126,980              | 14.0                           | 6.0                        |
| HF-115 | 291                          | 363    | 188                          | 260    | 140,890              | 14.0                           | 6.0                        |

## HIGH OUTPUT UNITS

|             |     |     |     |     |         |      |      |
|-------------|-----|-----|-----|-----|---------|------|------|
| HF-60-HO    | 353 | 468 | 299 | 414 | 220,880 | 14.0 | 10.1 |
| HF-80-HO    | 366 | 479 | 294 | 407 | 220,440 | 14.0 | 9.9  |
| HF-80-HO-C  | 386 | 507 | 314 | 435 | 235,510 | 21.0 | 10.5 |
| HF-115-HO   | 413 | 532 | 310 | 429 | 232,135 | 14.0 | 15.8 |
| HF-115-HO-C | 423 | 545 | 320 | 442 | 239,530 | 21.0 | 16.7 |
| HF-85-XHO   | 649 | 868 | 571 | 790 | 428,000 | 28.0 | 13.0 |
| HF-115-XHO  | 674 | 893 | 571 | 790 | 428,000 | 28.0 | 13.0 |

Note: All ratings are based on 180°F boiler water supply and 50°F cold water inlet.  
In the interest of continuous improvement, specifications are subject to change without notice.

**\*\*Call for Pricing\*\***



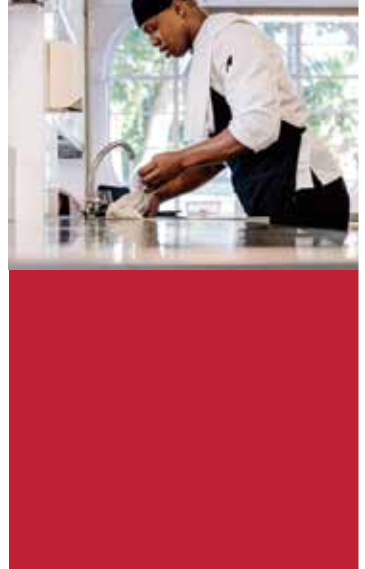
# RAISING THE STANDARD

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 Intertek  
 Conforms to UL STD 174 and NSF/ANSI 372  
 Certified to CAN/CSA STD C22.2 No. 110-94

**ACCESSORIES**



## HOT WATER BOOSTER/ STORAGE TANKS

### **\*\*Call for Pricing\*\***

Heat-flo's Hot Water Storage / Booster Tanks offer high quality and high efficiency and are engineered to provide the reliable, abundant hot water that today's larger homes require. Homes with multiple baths, hot tubs, and body sprays increase the requirement for the "dump loads" that tankless coils, instantaneous water heaters, and plate heat exchangers cannot provide.

Adding the ability to store hot water in a storage tank with accurate temperature control reduces boiler fuel consumption because water can be produced and stored at lower temperatures, resulting in reduced burner cycling and more readily available hot water.

### **FEATURES AND BENEFITS INCLUDE:**

#### **QUALITY DESIGN & CONSTRUCTION**

- All stainless steel.
- Over 2" of insulation, providing less than 1° / hr. heat loss.
- Flexible thermoplastic jacket that will not corrode and resists denting.
- Stainless steel dip tubes.

#### **EASY INSTALLATION**

- All connections are on top on the standard units. Connecting to a high-efficiency wall-mount boiler or instantaneous water heater is about as easy as it gets.
- Units are provided with two separate connections for heat source supply and return - resulting in excellent temperature control and no guesswork. Heat source supply and return connections are hydraulically decoupled from cold and hot. High hot water draw rates will not affect the circulator/control performance.
- Drain valve and T&P valve are factory installed.
- Honeywell L4080B control is standard.

#### **RESIDENTIAL & COMMERCIAL**

- Models available in 30, 40, 60, 80, and 115 gallon sizes.
- Bank together 80 and 115 gallon units for applications with high water heating demands.

### **SYSTEM CONNECTION CONFIGURATIONS FOR EACH MODEL**



## DIMENSIONS & CAPACITIES

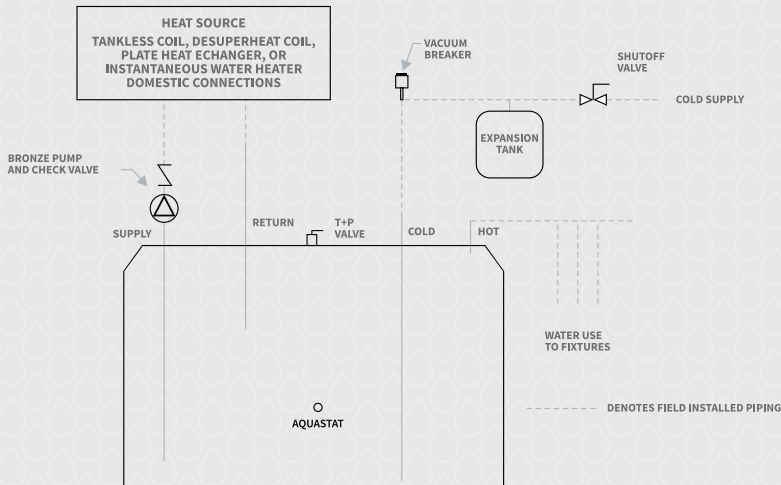
| MODEL       | Storage Volume | Dimensions (inches) |       |        | Piping Connections NPT |                 | Max. Tank Working Pressure | Approximate Shipping Wt. |
|-------------|----------------|---------------------|-------|--------|------------------------|-----------------|----------------------------|--------------------------|
|             |                | (Gal.)              | (Ht.) | (Dia.) | Domestic Water         | Supply / Return |                            |                          |
| HF-30-ST    | 30             | 34.0                | 23.5  | 1      | 1                      | 1               | 150                        | 75                       |
| HF-40-ST    | 40             | 44.0                | 23.5  | 1      | 1                      | 1               | 150                        | 90                       |
| HF-40L-ST   | 42             | 36.0                | 28.0  | 1      | 1                      | 1               | 150                        | 90                       |
| HF-60-ST    | 60             | 62.0                | 23.5  | 1      | 1                      | 1               | 150                        | 115                      |
| HF-60L-ST   | 60             | 46.0                | 28.0  | 1      | 1                      | 1               | 150                        | 110                      |
| HF-80-ST    | 80             | 56.0                | 28.0  | 1      | 1                      | 1               | 150                        | 140                      |
| HF-115-ST   | 115            | 74.0                | 28.0  | 1      | 1                      | 1               | 150                        | 175                      |
| HF-80-ST-C  | 80             | 56.0                | 28.0  | 1 1/2  | 1                      | 1               | 150                        | 140                      |
| HF-115-ST-C | 115            | 74.0                | 28.0  | 1 1/2  | 1                      | 1               | 150                        | 175                      |

**\*\*Call for Pricing\*\***



**ACCESSORIES**

## STANDARD DOMESTIC WATER HEATING SYSTEM SCHEMATIC



Conforms to UL STD 174 and NSF/ANSI 372  
Certified to CAN/CSA STD C22.2 No. 110-94



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# MULTI-ENERGY TANKS

## \*\*Call for Pricing\*\*

Heat-flo's industry-leading, Multi-Energy Tanks are ideal for a variety of residential and commercial solar hot water and heating applications. Each Multi Energy Tank is available with or without a heat exchanger, in 60, 80 or 115 gallon capacities. Tanks with heat exchangers are available with one or two coil configurations.

Our versatile Heat-flo multi-energy hot water storage tanks configured with heat exchanger coils can be connected directly to solar collectors to maximize efficiency. Units without coils can be connected to external brazed plate heat exchangers. All units are available with or without built-in electric backup.

Units equipped with electric backup are provided with a heating element, thermostat, and controls that can heat the tank if solar heat is not available, ensuring consistent hot water performance. Additionally, all electric backup units are also equipped with a high quality low watt density 240 volt AC, 3500 watt element. All units are equipped with a removable thermal well to accept a solar control thermostat or thermistor.

## FEATURES AND BENEFITS INCLUDE:

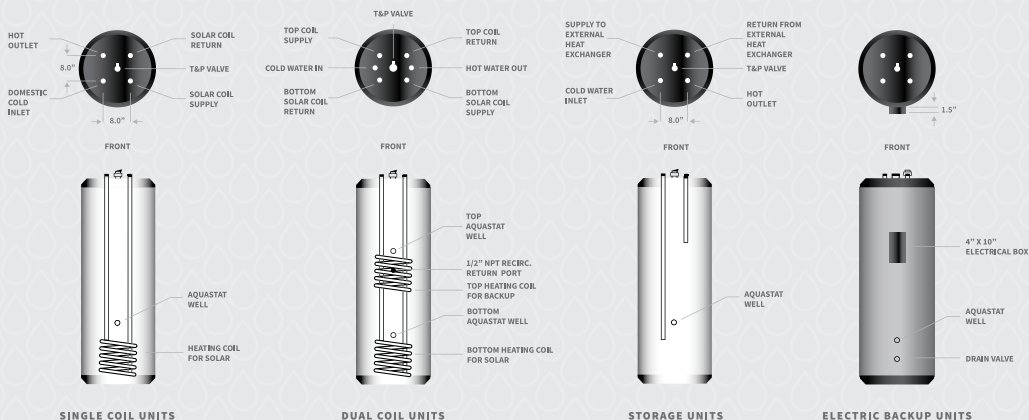
### QUALITY DESIGN & CONSTRUCTION

- Tanks and coils are all stainless steel.
- Large, smooth, stainless steel coils; no finned tubing to collect lime and sediment.
- Over 2" of insulation, providing less than 1° / hr. heat loss.
- Flexible thermoplastic jacket that will not corrode and resists denting.

### EASY INSTALLATION

- All pipe connections are on top for a neat, quick and clean installation.
- Brass drain and relief valves are factory installed.
- Includes thermostat well.
- Large 4" X 10" electrical box with pre-wired heating element, thermostat, and high limit on electric backup units.
- Long life, low watt density element.

## SYSTEM CONNECTION CONFIGURATIONS FOR EACH MODEL & TYPE



## DIMENSIONS & CAPACITIES

| MODEL | Storage Vol-<br>ume | Top Coil<br>Heating<br>Surface | Bottom Coil<br>Heating<br>Surface | Dimensions<br>(inches) |        | Pipe<br>Connections | Max. Working<br>Pressure | Approximate<br>Shipping Wt. |
|-------|---------------------|--------------------------------|-----------------------------------|------------------------|--------|---------------------|--------------------------|-----------------------------|
|       | (Gal.)              | (Sq. Ft.)                      | (Sq. Ft.)                         | (Ht.)                  | (Dia.) | (NPT)               | (psi)                    | (Lbs.)                      |

### SINGLE COIL - NO ELECTRIC BACKUP

|        |     |   |     |      |      |    |     |     |
|--------|-----|---|-----|------|------|----|-----|-----|
| HF-115 | 115 | — | 9.1 | 74.0 | 28.0 | 1" | 150 | 175 |
| HF-80  | 80  | — | 8.2 | 56.0 | 28.0 | 1" | 150 | 140 |
| HF-60  | 60  | — | 8.6 | 62.0 | 23.5 | 1" | 150 | 125 |

### SINGLE COIL WITH 3,500 WATT ELECTRIC BACKUP

|          |     |   |     |      |      |    |     |     |
|----------|-----|---|-----|------|------|----|-----|-----|
| HF-115-E | 115 | — | 9.1 | 74.0 | 28.0 | 1" | 150 | 180 |
| HF-80-E  | 80  | — | 8.2 | 56.0 | 28.0 | 1" | 150 | 145 |
| HF-60-E  | 60  | — | 8.6 | 62.0 | 23.5 | 1" | 150 | 135 |

### DUAL COIL - NO ELECTRIC BACKUP

|          |     |     |     |      |      |    |     |     |
|----------|-----|-----|-----|------|------|----|-----|-----|
| HF-115-D | 115 | 7.4 | 9.1 | 74.0 | 28.0 | 1" | 150 | 205 |
| HF-80-D  | 80  | 7.4 | 8.2 | 56.0 | 28.0 | 1" | 150 | 175 |
| HF-60-D  | 60  | 7.4 | 8.6 | 62.0 | 23.5 | 1" | 150 | 135 |

### DUAL COIL WITH 3,500 WATT ELECTRIC BACKUP

|           |     |     |     |      |      |    |     |     |
|-----------|-----|-----|-----|------|------|----|-----|-----|
| HF-115-DE | 115 | 7.4 | 9.1 | 74.0 | 28.0 | 1" | 150 | 215 |
| HF-80-DE  | 80  | 7.4 | 8.2 | 56.0 | 28.0 | 1" | 150 | 185 |
| HF-60-DE  | 60  | 7.4 | 8.6 | 62.0 | 23.5 | 1" | 150 | 175 |

### STORAGE ONLY - NO COIL, NO ELECTRIC BACKUP

|           |     |   |                         |      |      |    |     |     |
|-----------|-----|---|-------------------------|------|------|----|-----|-----|
| HF-115-ST | 115 | — | No Coil<br>Storage Only | 74.0 | 28.0 | 1" | 150 | 170 |
| HF-80-ST  | 80  | — |                         | 56.0 | 28.0 | 1" | 150 | 130 |
| HF-60-ST  | 60  | — |                         | 62.0 | 23.5 | 1" | 150 | 115 |

| MODEL          | Top Coil Max Recovery | Bottom Coil Max. Recovery | Water Flow Through Coil | Pressure Drop Through Coil |
|----------------|-----------------------|---------------------------|-------------------------|----------------------------|
|                | (Gal./Hr.)            | (Gal./Hr.)                | (Gal./Min.)             | (Ft. Water)                |
| 115-Gal. Units | 190                   | 214                       | 10.0                    | 3.9                        |
| 80-Gal. Units  | 180                   | 214                       | 10.0                    | 3.6                        |
| 60-Gal. Units  | 185                   | 214                       | 10.0                    | 3.5                        |

### FOR ALL UNITS WITH 3,500 WATT ELECTRIC BACKUP

| MODEL          | First Hour Rating<br>(Gal./Hr.) |       | Continuous Rating<br>(Gal./Hr.) |       |
|----------------|---------------------------------|-------|---------------------------------|-------|
|                | 140°F                           | 115°F | 140°F                           | 115°F |
| 115-Gal. Units | 73.9                            | 80.0  | 15.9                            | 22.0  |
| 80-Gal. Units  | 55.9                            | 62.0  | 15.9                            | 22.0  |
| 60-Gal. Units  | 45.9                            | 52.0  | 15.9                            | 22.0  |

Note: All ratings are based on 180°F boiler water supply and 50°F cold water inlet.  
In the interest of continuous improvement, specifications are subject to change without notice.

**\*\*Call for Pricing\*\***



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Conforms to UL STD  
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STD C22.2 No. 110-94

**► ACCESSORIES**



# HYDRONIC BUFFER TANKS

**\*\*Call for Pricing\*\***

Heat-flo's Hydronic Buffer Tanks are designed to be used in closed loop heating systems with low-mass boilers, geothermal systems, and chilled water applications. Utilizing our hydronic buffer tanks improves system efficiency and can extend equipment life by reducing the wear and tear on chillers or boilers due to short cycling.

## HF-22-BT

The primary application for the HF-22-BT is to reduce low-mass modulating, condensing boiler short cycling. The high and low left side connections are used for boiler supply and return. The top connection is used to supply the distribution system and the low right connection is the return from the distribution system. If the top connection is piped to the line supplying the air purger and vent, the tank will be self-venting.

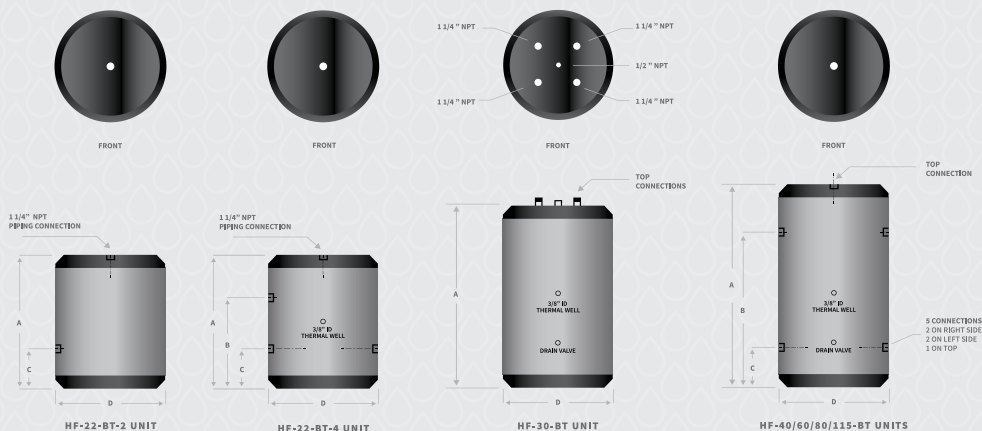
## HF-30-BT

The HF-30-BT is designed with 4 - 1 1/4" NPT connections on top, and can be installed under a typical residential mod-con boiler to save space, piping, and labor. Two top connections are connected to the top of the tank, and two top connections direct water to the bottom of the tank via internal stainless steel dip tubes. A 1/2" connection is in the center of the tank for an air vent.

## HF-40-BT THROUGH HF-115-BT

Our hydronic buffer tanks are built with 5 connections: 2 connections can be piped to the chiller or boiler, and 2 connections can be piped to the distribution system. A fifth connection is available for alternate piping configurations. When configured and piped correctly, Heat-flo hydronic buffer tanks can serve as both a thermal buffer and a hydraulic separator - allowing the heating or cooling source to be hydraulically decoupled from the distribution system.

### SYSTEM CONNECTION CONFIGURATIONS & DIMENSIONS FOR EACH MODEL



## FEATURES AND BENEFITS INCLUDE:

### QUALITY DESIGN & CONSTRUCTION

- All stainless steel.
- Over 2" of insulation, providing less than 1° / hr. heat loss.
- Flexible thermoplastic jacket that will not corrode and resists denting.

### EASY INSTALLATION

- All pipe connections are on top for a neat, quick and clean installation.
- Brass drain and relief valves are factory installed.

### RESIDENTIAL AND COMMERCIAL

- Models available in 22, 30, 40, 60, 80, and 115 gallon sizes.
- Bank together 80 and 115 gallon units for large commercial applications.

### DIMENSIONS & CAPACITIES

| MODEL         | Storage Volume | Dimensions (Inches) |      |      |          | Piping Connections | Max. Tank Working Pressure | Approx. Shipping Wt. |
|---------------|----------------|---------------------|------|------|----------|--------------------|----------------------------|----------------------|
|               | (Gal.)         | A (Ht.)             | B    | C    | D (Dia.) | (NPT)              | (psi)                      | (Lbs.)               |
| HF-22-BT-2    | 22             | 24.5                | —    | 8.0  | 22.5     | 1 1/4"             | 60                         | 35                   |
| HF-22-BT-4    | 22             | 24.5                | 15.0 | 8.0  | 22.5     | 1 1/4"             | 60                         | 35                   |
| HF-30-BT      | 30             | 34.0                | —    | —    | 23.5     | 1 1/4"             | 60                         | 77                   |
| HF-40-BT-114  | 40             | 42.0                | 31.0 | 11.0 | 23.5     | 1 1/4"             | 60                         | 87                   |
| HF-40-BT-112  | 40             | 42.0                | 31.0 | 11.0 | 23.5     | 1 1/2"             | 60                         | 87                   |
| HF-40-BT-2    | 40             | 42.0                | 31.0 | 11.0 | 23.5     | 2"                 | 60                         | 87                   |
| HF-60-BT-114  | 60             | 44.0                | 31.5 | 11.5 | 28.0     | 1 1/4"             | 60                         | 115                  |
| HF-60-BT-112  | 60             | 44.0                | 31.5 | 11.5 | 28.0     | 1 1/2"             | 60                         | 115                  |
| HF-60-BT-2    | 60             | 44.0                | 31.5 | 11.5 | 28.0     | 2"                 | 60                         | 115                  |
| HF-80-BT-114  | 80             | 54.0                | 40.5 | 11.5 | 28.0     | 1 1/4"             | 60                         | 125                  |
| HF-80-BT-112  | 80             | 54.0                | 40.5 | 11.5 | 28.0     | 1 1/2"             | 60                         | 125                  |
| HF-80-BT-2    | 80             | 54.0                | 40.5 | 11.5 | 28.0     | 2"                 | 60                         | 125                  |
| HF-115-BT-114 | 115            | 72.0                | 61.5 | 11.5 | 28.0     | 1 1/4"             | 60                         | 160                  |
| HF-115-BT-112 | 115            | 72.0                | 61.5 | 11.5 | 28.0     | 1 1/2"             | 60                         | 160                  |
| BT-115-BT-2   | 115            | 72.0                | 61.5 | 11.5 | 28.0     | 2"                 | 60                         | 160                  |

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Certified to CAN/CSA STD C22.2 No. 110-94





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