doucette industries, inc

Item # FW 10M2 1/2, Tube-in-Tube Fresh Water Condensers

Call dii

1/3 to 40 tons

Freshwater and Marine

Doucette CounterFlow Condensers are mechanically cleanable with "fail safe" proven design. These condensers offer OEM's, contractors and end-users the advantages of high performance and compact packaging.

Specifications	
HP	10
Application	Fresh Water
Refrig. In	1 3/8 "
Refrig. Out	1 1/8 "
Water Conn.	2 1/8 "
Width	8 "
Length	26 "
Height	17-15/16 "
Weight	150 lbs
Construction	Steel shell & header tubes, copper water tubes & return bends cast bronze cleanout fittings

4 Reasons to Select Doucette CounterFlow Condensers

1. Cost Effectiveness.
Doucette compact counterflow condensers cost less. The counterflow design of a Doucette condenser requires 60% less tubing than a typical shell and tube. This is due to the high efficiency and controlled counterflow of refrigerant and water. Maximum performance is achieved by combining craftsmanship and design...not material. And, our cleanable condensers are very costeffective compared to other mechanically cleanable and condenser designs.

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2. High Performance.
All Doucette counterflow condensers use an exclusive TurboFlow fluted tube which enhances heat transfer and induces waterside turbulence for top performance. This minimizes the effect of scale and fouling, and helps assure long-life efficiency. The Counterflow Condenser is rugged enough for commercial and industrial applications.

3. Compact Size.
The Doucette CounterFlow Condenser is compact. This means it takes up less packaging space and weighs significantly less.

4. Design Flexibility.
Doucette gives refrigeration systems engineers design flexibility. The tube in tube counterflow can be ordered in standard copper tubes {FW Series) or cupronickel tubes (SW Marine Series). Custom units are available with stainless steel tubes, double wall tubes, and dual refrigerant circuits. Military specification, U.S. Navy and Coast Guard units are also available.

Proven Design and Applications

With over a decade of experience and thousands of installations, no other company offers a Compact CounterFlow design like Doucette. The FW Series is mechanically cleanable and incorporates a unique "Fail-Safe" feature to help protect the compressor. The Doucette CounterFlow Condenser gives engineers design flexibility for standard and custom packages in air conditioning and refrigeration. FW Series applications include ice machines, rooftop HVAC systems, walk-in coolers, built-up systems, industrial chillers, and many more.

Mechanically Cleanable

Doucette condensers have removable plugs on each tube end for easy mechanical cleaning. Cast bronze fittings join the water tubes together for efficient CounterFlow heat transfer and eliminate the heads, plates and gaskets. Units are designed and tested for 450 psig refrigerant side and 300 psig water side.

Fail-Safe Design/Compressor Protection

No other condenser has a fail-safe design and protects the compressor like Doucette. All other designs have a fatal problem. . .if a rolled or brazed tube joint leaks, the water leak can contaminate the refrigeration system. And tube joints eventually leak. The FW Series condensers have external welds and joints. . .no opportunities for internal joint leaks or contamination.

Condenser Selection

FW Series Condensers should be selected based on the refrigeration system's Total Heat of Rejection (THR), the design water temperatures and water flow rate. Typical ratings in this catalog are based on standard conditions of 15,000 BTUH heat of rejection per low side ton at 40º F suction, 110º F condensing temperature, and 3 GPM per ton at 85º F EWT.
For selection of a Doucette condenser at other operation conditions, use the Re-rating Chart and formula below:
Total Heat of Rejection (BTUH) ÷ 15,000 BTUH / ton ÷ Re-rating Factor = Condenser Selection

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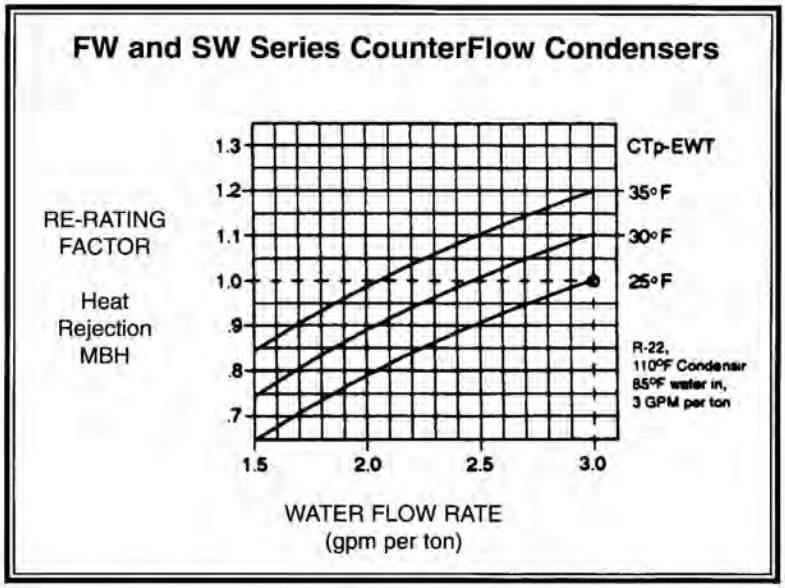
FW / SW Selections

Condenser Selection

FW and SW Series Condensers should be selected based on the refrigeration system's Total Heat of Rejection (THR), the design water temperatures and water flow rate. Typical ratings in this catalog are based on standard conditions of 15,000 BTUH heat of rejection per low side ton at 40° F suction, 110° F condensing temperature, and 3 GPM per ton at 85° F EWT.

For selection of a Doucette condenser at other operation conditions, use the Re-rating Chart (at right) and formula below:



Total Heat of Rejection (BTUH) ÷ **15,000 BTUH / ton** ≒ **Re-rating Factor = Condenser Selection**

Example:

To select a condenser for 110,000 BTUH (THR), 7.33 nominal condensing tons, at 110° F condensing and 2 GPM per high side ton, 85° F ECWT, use the Re-rating Table to select the re-rating factor at 25° F Ct-ECWT (110° F minus 85° F ECWT) and 2 GPM per ton. The re-rating factor is .8. Divide 110,000 BTUH by 15,000 BTUH/Hp and divide by .8 re-rating factor. Therefore, the appropriate minimum condenser is an FW 9 (fresh water) or SW 9 (sea water).

If you need engineering selections or product design assistance, Doucette application support is just a phone call away.

Waterside Pressure Drop

Condenser Model	GPM per ton 1	2	3
FW & SW 1/3	.03	.12	.23
FW & SW 1/2	.05	.18	.4
FW & SW 3/4	.23	1.0	2.1
FW & SW 1	.67	2.6	5.6
FW & SW 1-1/2	2.5	7.5	10
FW & SW 2	.5	1.8	3.5
FW & SW 2-1/2	.8	2.7	6.5
FW & SW 3	1.1	4.0	8.6
FW & SW 3-1/3	1.1	5.5	10
FW & SW 3-3/4	1.2	7.4	12
FW & SW 4	1.2	8.5	13
FW & SW 4M2	.5	1.8	3.5
FW & SW 5M2-1/2	.8	2.7	6.5
FW & SW 6M3	1.1	4.0	8.6
FW & SW 7-1/2M2-1/2	.8	2.7	6.5
FW & SW 7-1/2M3-3/4	1.2	7.4	12
FW & SW 8M4	1.2	8.5	13
FW & SW 9M3	1.1	4.0	8.6
FW & SW 10M2-1/2	.8	2.7	6.5
FW & SW 10M3-1/3	1.1	5.5	10
FW & SW 12M4	1.2	8.5	13
FW & SW 15M3-3/4	1.2	7.4	12
FW & SW 20M4	1.2	8.5	13
FW & SW 26M3-3/4	1.2	7.4	12
FW & SW 30M3-3/4	1.2	7.4	12
FW & SW 36M4	1.2	8.5	13
FW & SW 40M4	1.2	8.5	13

To convert to Feet of Head, multiply Psi by 2.3

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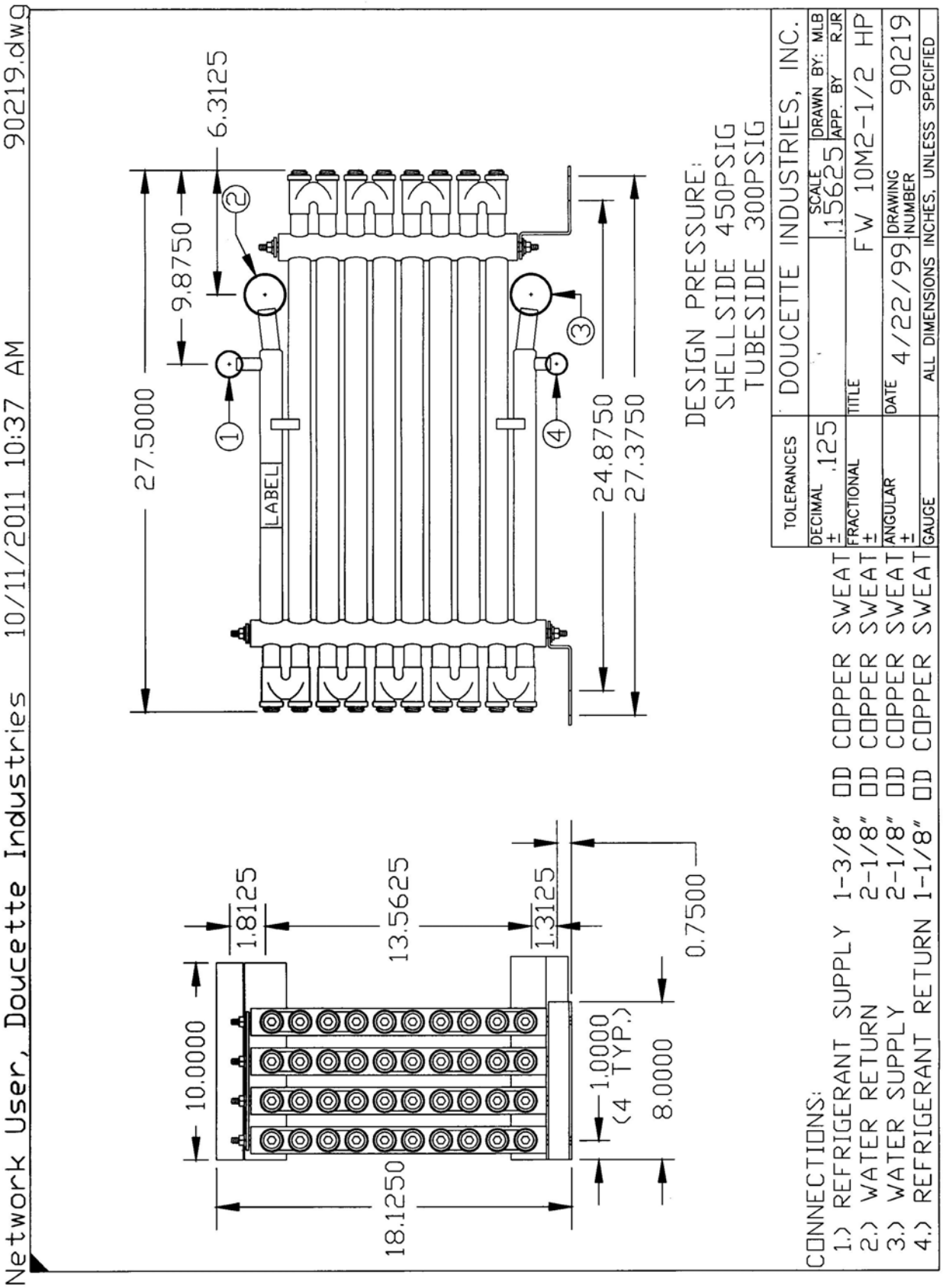

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