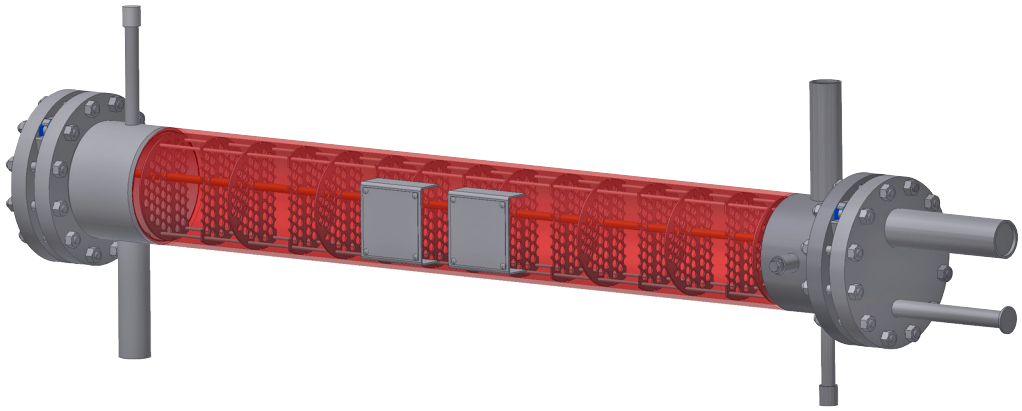
Frick®
BY JOHNSON CONTROLS

Form 120-350 SED (MAY 2010)
SPECIFICATIONS - ENGINEERING DATA - DIMENSIONS
File: EQUIPMENT MANUAL - Section 120
Replaces: NOTHING (New Information)
Dist: 1, 1a, 1b, 1c, 4, 4b, 4c

# DX ECONOMIZER



## DESCRIPTION

Frick DX Economizers are compact shell and tube heat exchangers built in compliance with the ASME pressure vessel code. The typical application is subcooling refrigerant to provide a source of chilled high pressure liquid to the system. Economizing a system provides significant improvement in system efficiency thus reducing yearly operating costs.

They come standard in many configurations from which an optimum size is selected for your specific application. These exchangers can also be used for cooling oil and brines. In addition to the bare heat exchanger, an economizing kit can be ordered for your convenience.

## FEATURES

- ASME BPV code certified
- 350 psi shell side and tube side design pressure
- High quality, corrosion resistant, long lasting epoxy paint

**Options:**

- Dual circuits for chiller applications allow two stages of cooling for better system control and performance
- Custom designs to meet specific applications

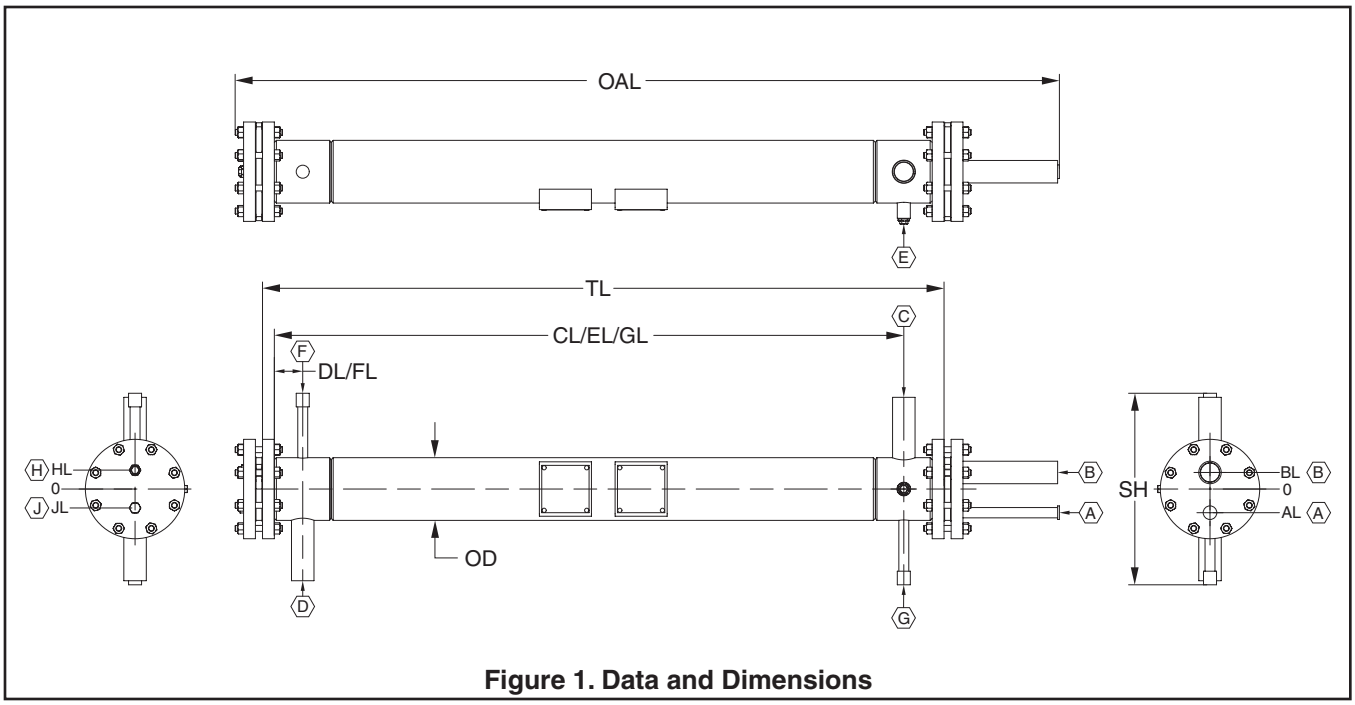



**Figure 1. Data and Dimensions**

| Key to Nozzle/Coupling Descriptions: | | |
|---|---|---|
| A - Economizer Liquid Supply | F - Shell Vent | OD - Outside Diameter |
| B - Economizer Suction | G - Shell Drain | SH - Shipping Height |
| C - High Pressure Liquid Inlet | H - Tube Vent (Plug) | TL - Tube Length |
| D - Chilled High Press. Liquid Outlet | J - Tube Drain (Plug) | OAL - Overall Length |
| E - Relief (Coupling) | | |

## NOMENCLATURE

**DX - 5 - 60 - 4**

| PRODUCT |
|---|
| DIRECT EXPANSION |

| NOMINAL OD |
|---|
| 5 = 5 9/16" |
| 6 = 6 5/8" |
| 8 = 8 5/8" |
| 10 = 10 3/4 |

| TUBE LENGTH |
|---|
| 60" |
| 72" |
| 96" |
| 120" |

| NUMBER OF PASSES |
|---|
| 4 |
| 6 |

## CAPACITIES

| Model Number | MAWP | Vessel | | | | | Dry Wt | Refrig Charge (lbm) | |
|---|---|---|---|---|---|---|---|---|---|
| | Shell/Tube (psi) | OD | No. of Passes | TL | SH | OAL | (lbm) | R-717 | R-507 |
| DX-5-60-4 | 350/350 | 5 9/16 | 4 | 60 | 19 3/16 | 72 3/8 | 300 | 17 | 30 |
| DX-6-72-4 | 350/350 | 6 5/8 | 4 | 72 | 20 1/4 | 87 | 400 | 28 | 50 |
| DX-6-96-4 | 350/350 | 6 5/8 | 4 | 96 | 20 1/4 | 111 | 450 | 38 | 68 |
| DX-6-120-4 | 350/350 | 6 5/8 | 4 | 120 | 20 1/4 | 135 | 500 | 48 | 86 |
| DX-8-72-4 | 350/350 | 8 5/8 | 4 | 72 | 20 11/16 | 87 3/16 | 600 | 51 | 91 |
| DX-8-96-4 | 350/350 | 8 5/8 | 4 | 96 | 20 11/16 | 111 3/16 | 700 | 68 | 122 |
| DX-8-120-4 | 350/350 | 8 5/8 | 4 | 120 | 20 11/16 | 135 3/8 | 800 | 85 | 153 |
| DX-10-72-4 | 350/350 | 10 3/4 | 4 | 72 | 27 11/16 | 87 13/16 | 900 | 74 | 133 |
| DX-10-96-4 | 350/350 | 10 3/4 | 4 | 96 | 27 11/16 | 112 1/4 | 1,050 | 98 | 178 |
| DX-10-120-4 | 350/350 | 10 3/4 | 4 | 120 | 27 11/16 | 135 13/16 | 1,200 | 124 | 224 |
| DX-6-72-6 | 350/350 | 6 5/8 | 6 | 72 | 20 1/4 | 86 3/4 | 400 | 29 | 52 |
| DX-6-96-6 | 350/350 | 6 5/8 | 6 | 96 | 20 1/4 | 110 7/8 | 475 | 38 | 69 |
| DX-6-120-6 | 350/350 | 6 5/8 | 6 | 120 | 20 1/4 | 134 7/8 | 550 | 48 | 86 |
| DX-8-72-6 | 350/350 | 8 5/8 | 6 | 72 | 25 13/16 | 87 3/8 | 600 | 51 | 92 |
| DX-8-96-6 | 350/350 | 8 5/8 | 6 | 96 | 25 13/16 | 111 3/8 | 725 | 68 | 122 |
| DX-8-120-6 | 350/350 | 8 5/8 | 6 | 120 | 25 13/16 | 135 3/8 | 825 | 85 | 153 |
| DX-10-72-6 | 350/350 | 10 3/4 | 6 | 72 | 27 11/16 | 88 7/16 | 950 | 74 | 133 |
| DX-10-96-6 | 350/350 | 10 3/4 | 6 | 96 | 27 11/16 | 112 7/16 | 1,100 | 99 | 179 |
| DX-10-120-6 | 350/350 | 10 3/4 | 6 | 120 | 27 11/16 | 136 7/16 | 1,250 | 124 | 225 |

## DIMENSIONAL DATA

| Model Number | Nozzle /CPLG NPS | | | | | | | | | Nozzle Locations | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | AL | BL | CL/EL/GL | DL/FL | HL | JL |
| DX-5-60-4 | 1/2 | 1 1/2 | 1 | 1 | 1/2 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 2 1/8 | 1 5/8 | 54 1/2 | 3 | 2 | 2 |
| DX-6-72-4 | 3/4 | 2 | 2 | 2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 2 1/2 | 1 3/4 | 66 1/2 | 3 | 2 | 2 |
| DX-6-96-4 | 3/4 | 2 | 2 | 2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 2 1/2 | 1 3/4 | 90 1/2 | 3 | 2 | 2 |
| DX-6-120-4 | 3/4 | 2 | 2 | 2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 2 1/2 | 1 3/4 | 114 1/2 | 3 | 2 | 2 |
| DX-8-72-4 | 1 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 | 2 1/4 | 66 1/4 | 2 3/4 | 3 | 2 3/4 |
| DX-8-96-4 | 1 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 | 2 1/4 | 90 1/4 | 2 3/4 | 3 | 2 3/4 |
| DX-8-120-4 | 1 1/2 | 2 1/2 | 2 1/2 | 2 1/2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 | 2 1/4 | 114 1/4 | 2 3/4 | 3 | 2 3/4 |
| DX-10-72-4 | 2 | 3 | 3 | 3 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 15/16 | 3 1/8 | 65 3/4 | 2 3/4 | 4 | 4 |
| DX-10-96-4 | 2 | 3 | 3 | 3 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 15/16 | 3 1/8 | 89 3/4 | 2 3/4 | 4 | 4 |
| DX-10-120-4 | 2 | 3 | 3 | 3 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 15/16 | 3 1/8 | 113 3/4 | 2 3/4 | 4 | 4 |
| DX-6-72-6 | 3/4 | 1 1/2 | 1 1/2 | 1 1/2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 2 1/2 | 2 1/8 | 66 1/2 | 3 | 2 | 2 |
| DX-6-96-6 | 3/4 | 1 1/2 | 1 1/2 | 1 1/2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 2 1/2 | 2 1/8 | 90 1/2 | 3 | 2 | 2 |
| DX-6-120-6 | 3/4 | 1 1/2 | 1 1/2 | 1 1/2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 2 1/2 | 2 1/8 | 114 1/2 | 3 | 2 | 2 |
| DX-8-72-6 | 1 | 2 1/2 | 2 | 2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 3/8 | 2 9/16 | 66 1/4 | 2 3/4 | 3 | 2 3/4 |
| DX-8-96-6 | 1 | 2 1/2 | 2 | 2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 3/8 | 2 9/16 | 90 1/4 | 2 3/4 | 3 | 2 3/4 |
| DX-8-120-6 | 1 | 2 1/2 | 2 | 2 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 3 3/8 | 2 9/16 | 114 1/4 | 2 3/4 | 3 | 2 3/4 |
| DX-10-72-6 | 1 1/4 | 2 1/2 | 3 | 3 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 4 5/16 | 3 1/2 | 65 3/4 | 2 3/4 | 4 | 4 |
| DX-10-96-6 | 1 1/4 | 2 1/2 | 3 | 3 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 4 5/16 | 3 1/2 | 89 3/4 | 2 3/4 | 4 | 4 |
| DX-10-120-6 | 1 1/4 | 2 1/2 | 3 | 3 | 3/4 | 3/4 | 3/4 | 3/4 NPT | 3/4 NPT | 4 5/16 | 3 1/2 | 113 3/4 | 2 3/4 | 4 | 4 |

**NOTES**:
1. All dimensions and nozzle nominal pipe sizes are in inches unless noted otherwise.
2. Volume is given in total cubic feet of vessel.
3. Nozzle connections are supplied as pipe stubs unless otherwise specified as a coupling (Cplg).
4. Couplings are ASME B16.11 Class 3000 "full" couplings.
5. All dimensions are subject to change; please consult factory for certified drawings.
6. Vessels are built in accordance with ASME Boiler & Pressure Vessel Code, Section VIII, Division 1.

Form 120-350 SED (2010-05)
Supersedes: NOTHING
Subject to change without notice
Published in USA • GUI 1C


JOHNSON CONTROLS
100 CV Avenue • P.O. Box 997
Waynesboro, PA 17268-0997 USA
Phone: 717-762-2121 • FAX: 717-762-8624
**www.johnsoncontrols.com**