

INDUSTRIAL COOLERS

HEX Series

Brazed Plate Heat Exchangers



Description

Heat exchangers are used to exchange heat between two fluids. Plate heat exchangers are high performance components and provide a high level of efficiency combined with compact dimensions and low weight. Their efficiency reduces the amount of cooling water required for heat transfer which results in low operating costs.

Features

Plates and connections are manufactured from stainless steel to AISI 316, 1.4401, vacuum-brazed with copper. The special molding of the plates produces the turbulent flow necessary for effective heat transfer and provides the plate heat exchanger with a high level of mechanical strength. Nickel brazed option available.

Applications



Agricultural



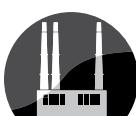
Automotive



Construction



Gearboxes



Industrial



Elevators



Commercial
Municipal



Power
Generation



Pulp & Paper



Railways

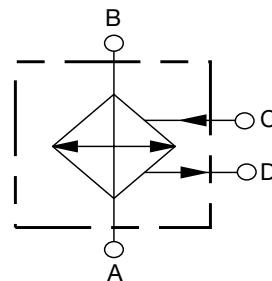


Shipbuilding



Steel / Heavy
Industry

Hydraulic Symbol



Operating Details

Medium:

- Water glycol (coolants)
- HFC operating fluids
- Water
- Oil

Contamination:

The quantity of particles in suspension should be less than 10 mg/l. Particle size < 0.6 mm (spherical).

Thread-like particles cause a rapid rise in pressure drops.

Temperature Range:

- 50° to 437°F (10° to 225°C)
(freezing point and boiling point must be taken into consideration!)

Pressure:

- max. 435 psi (30bar) (static)
- Test pressure: 650 psi

Corrosion:

The following limits refer to a pH value of 7

- free chlorine, Cl2 < 0.5 ppm
- chloride ions Cl- < 700 ppm at 20 °C
< 200 ppm at 50 °C

Other Limits:

- pH 7 – 10
- sulphate SO4 2- < 100 ppm
- [HCO3-] / [SO4 2-] > 1
- ammonia, NH3 < 10 ppm
- free CO < 10 ppm

The following ions are not corrosive under normal conditions: phosphate, nitrate, nitrite, iron, manganese, sodium and potassium

Model Code

HEX 610 - 10 NPT

Series

 HEX 610
 HEX 615
 HEX 722

Number of Plates

| | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 120 | 150 |
|-----|----|----|----|----|----|----|----|----|-----|-----|-----|
| 610 | x | x | x | x | x | x | x | x | x | x | x |
| 615 | x | x | x | x | x | x | x | x | x | x | x |
| 722 | x | x | x | x | x | x | x | x | x | x | x |

(Other number of plates available - consult factory.)

Port Type

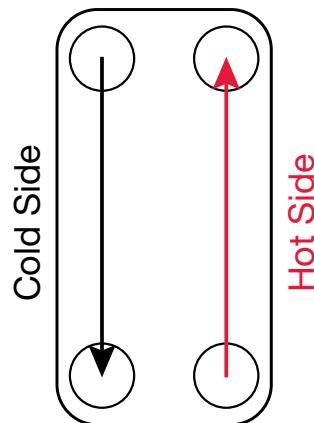
 NPT = 610 + 615 series w/ 1" NPT: 722 series w/ 1-1/2" NPT
 G = 610 + 615 series w/ G1" : 722 series w/ G1-1/2"

(Other port types available - consult factory.)

Mounting brackets must be ordered separately. See page C23 for drawings and part numbers.

Note: Pipes must be connected so that connections are stress free. Linear expansion and vibrations from the pipes to the heat exchanger must be avoided.

| Preferred HEX Models | Part Number |
|----------------------|-------------|
| HEX 610-10 NPT | 2582225 |
| HEX 610-20 NPT | 2582226 |
| HEX 610-40 NPT | 2582228 |
| HEX 610-60 NPT | 2582230 |
| HEX 610-100 NPT | 2582232 |
| HEX 615-40 NPT | 2582237 |



Counter-current flow used to maximize efficiency

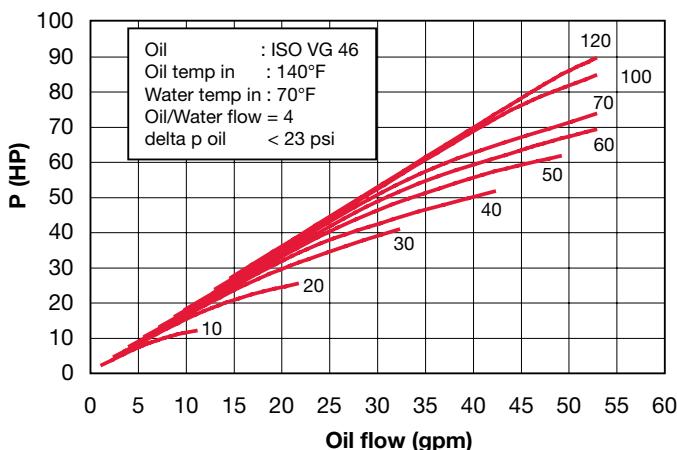
Pressure Drop Across Heat Exchanger

This table is based on an ISO VG45 oil at 130°F and shows the pump flows with the 1,800 RPM motors. If other grades of oil are to be used, consult the sizing software. When using the 72 psi clogging indicator the pressure drop should not exceed 15 psi max across the heat exchanger. When using the 29 psi clogging indicator the pressure drop should not exceed 30 psi max across the heat exchanger.

| Heat Exchanger Size | Pump 3.5 1.6 gpm (6.3 l/min) | Pump 7 3.3 gpm (12.6 l/min) | Pump 10 4.75 gpm (18 l/min) | Pump 15 7 gpm (18 l/min) | Pump 20 9.5 gpm (18 l/min) | Pump 30 14.5 gpm (55 l/min) | Pump 40 18.5 gpm (70 l/min) | Pump 50 23.5 gpm (90 l/min) | Pump 70 34 gpm (130 l/min) | Pump 100 47.5 gpm (180 l/min) |
|---------------------|------------------------------|-----------------------------|-----------------------------|--------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|-------------------------------|
| 610-10 | 3 | 5 | 8 | - | - | - | - | - | - | - |
| 610-20 | 1 | 2 | 3 | 5 | 7 | 13.66 | - | - | - | - |
| 610-40 | - | - | - | 2 | 3 | 7.35 | 9.85 | 13.4 | - | - |
| 610-50 | - | - | - | - | - | 5.64 | 7.54 | 10.27 | 16.19 | - |
| 610-70 | - | - | - | - | - | 4.1 | 5.2 | 7 | 11.1 | 16.8 |
| 610-100 | - | - | - | - | - | 3 | 3.8 | 4.9 | 7.6 | 11.66 |
| 610-120 | - | - | - | - | - | 2.55 | 3.25 | 4.2 | 6.35 | 9.8 |
| 615-10 | 4 | 9 | 15 | - | - | - | - | - | - | - |
| 615-20 | 2 | 3.3 | 5 | 9 | 13 | - | - | - | - | - |
| 615-40 | - | - | - | 4 | 5 | 13.25 | 17.8 | - | - | - |
| 615-60 | - | - | - | - | - | 8.15 | 10.8 | 14.75 | - | - |
| 615-80 | - | - | - | - | - | 5.95 | 7.75 | 10.5 | 16.6 | - |

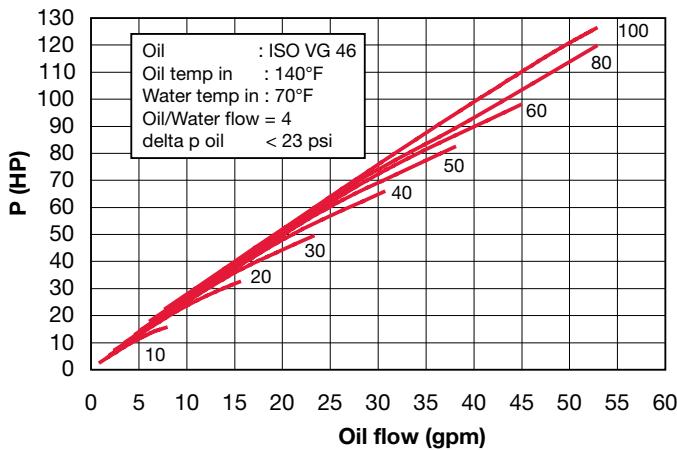
INDUSTRIAL COOLERS

Technical Data HEX Size 610



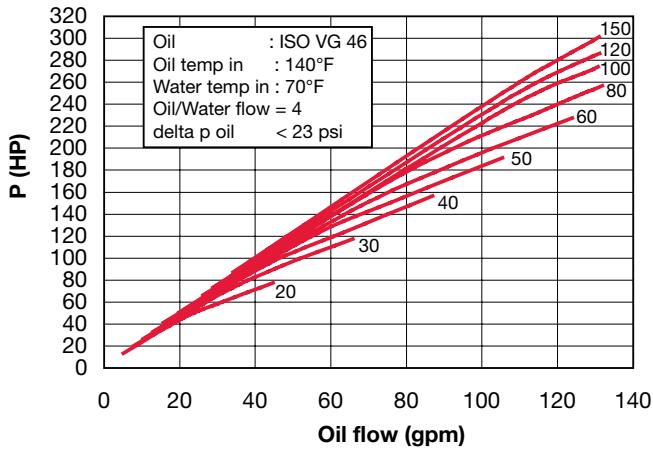
| Number of plates (N) | H = 10 + Nx2.4 (mm) | lbs |
|----------------------|---------------------|------|
| 10 | 34 | 5.5 |
| 20 | 58 | 8.4 |
| 30 | 82 | 11.2 |
| 40 | 106 | 14.0 |
| 50 | 130 | 17.0 |
| 60 | 154 | 19.8 |
| 70 | 178 | 22.6 |
| 100 | 250 | 31.2 |
| 120 | 298 | 37.0 |

HEX Size 615



| Number of plates (N) | H = 10 + Nx2.4 (mm) | lbs |
|----------------------|---------------------|------|
| 10 | 34 | 9.2 |
| 20 | 58 | 14.3 |
| 30 | 82 | 19.4 |
| 40 | 106 | 24.4 |
| 50 | 130 | 29.7 |
| 60 | 154 | 35.5 |
| 80 | 202 | 44.6 |

HEX Size 722



| Number of plates (N) | H = 10 + Nx2.85 (mm) | lbs |
|----------------------|----------------------|-------|
| 20 | 67 | 34.7 |
| 30 | 95.5 | 44.5 |
| 40 | 124 | 54.1 |
| 50 | 152.5 | 63.8 |
| 60 | 181 | 73.5 |
| 80 | 238 | 92.8 |
| 100 | 295 | 112.2 |

The cooling capacity is also dependent on the viscosity class. At a lower viscosity class the cooling capacity increases, at a higher viscosity class it decreases. In order to make an accurate calculation, the following details are required:

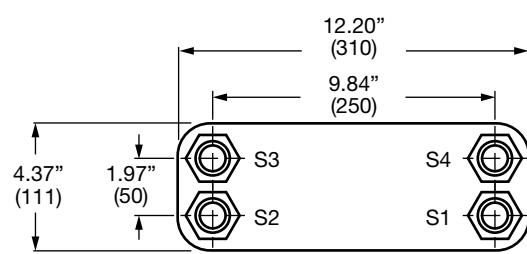
- type of oil
- permissible tank temperature
- required outlet temperature of the oil or necessary cooling capacity
- inlet temperature of the water and maximum water quantity

Selection/Sizing Program

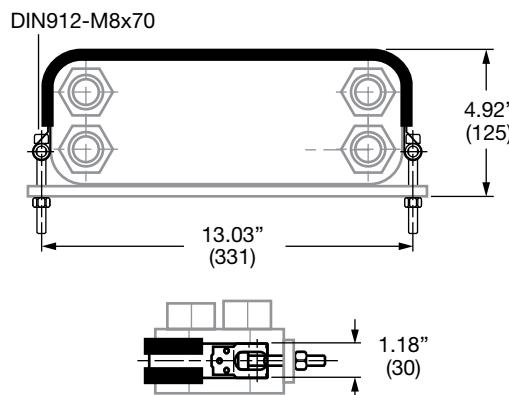
The cooler selection program calculates the correct heat exchanger in the case of non-standard operating data.

Please contact your local HYDAC distributor for sizing to your application.

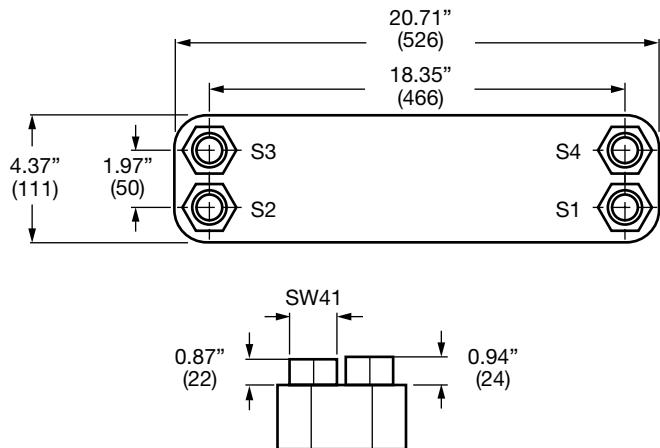
Dimensions HEX Size 610



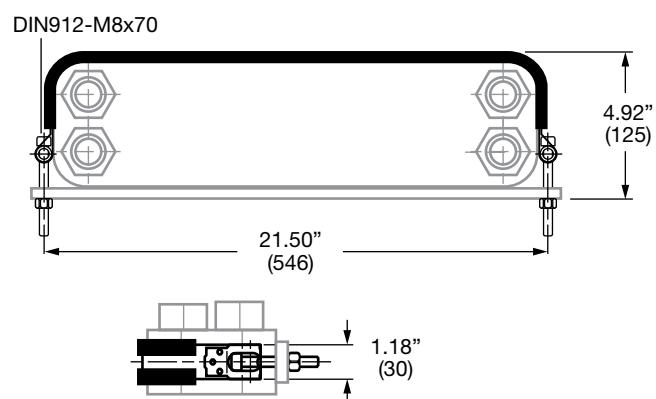
Mounting Bracket (PN 443281)



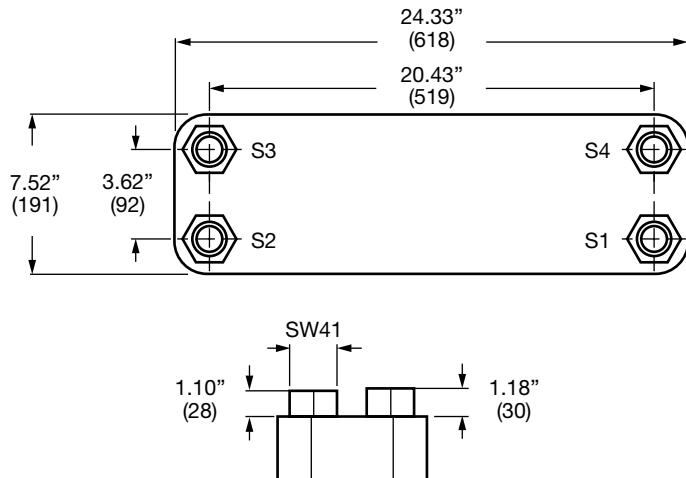
HEX Size 615



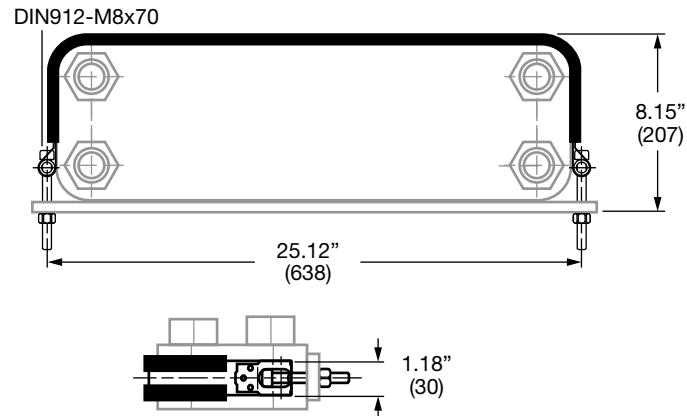
Mounting Bracket (PN 3014029)



HEX Size 722



Mounting Bracket (PN 3013884)



Please note: For mounting heat exchangers with 60 plates and above, two clamps are recommended.

Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print. Dimensions are in inches (mm).