STAINLESS STEEL CONSTRUCTION

Features

- Stacked Plate
- Stainless Steel
- Copper Brazed
- Oil to Water Applications
- High Performance
- Compact Design
- SAE Connections
- Corrosion Resistant Type 316 Stainless Steel Plates
- Mounting Studs Standard
- SAE Oil Connections, NPT Water Connections
- Optional Mounting Bracket
- Optional Nickel/Chrome Brazed Construction

ADDITIONAL MODELS AVAILABLE – please consult factory for more information

Ratings

Maximum Working Temperature 350° F at 450 psi*

Maximum Working Pressure 450 psi**

Test Pressure 600 psi

*Maximum working temperature can increase with derating of working pressure.

**Maximum working pressure can increase with a derating of working temperature.

Pressure rating is for copper brazed only.

Materials

Plate Material 316L Stainless Steel

Braze Material Copper – Standard
Nickel/Chrome – Optional

Stud Bolts 304 Stainless Steel

Front and Back Pressure Plates 304 Stainless Steel

Connectors 304 Stainless Steel

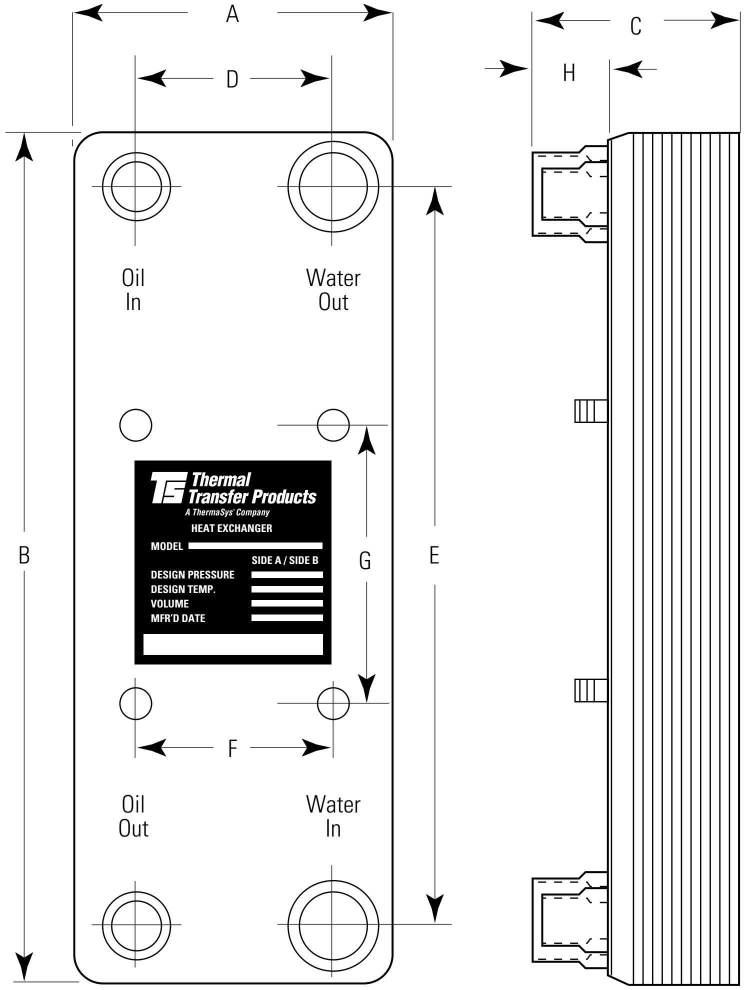
Foot Mounting Brackets 304 Stainless Steel

How to Order

BPS	–		–		–	
Model Series		Number of Plates		Model Size Selected 12 x 5 20 x 10		Options FB - Foot Mounting Brackets

BPS - SAE Oil Connections, NPT Water

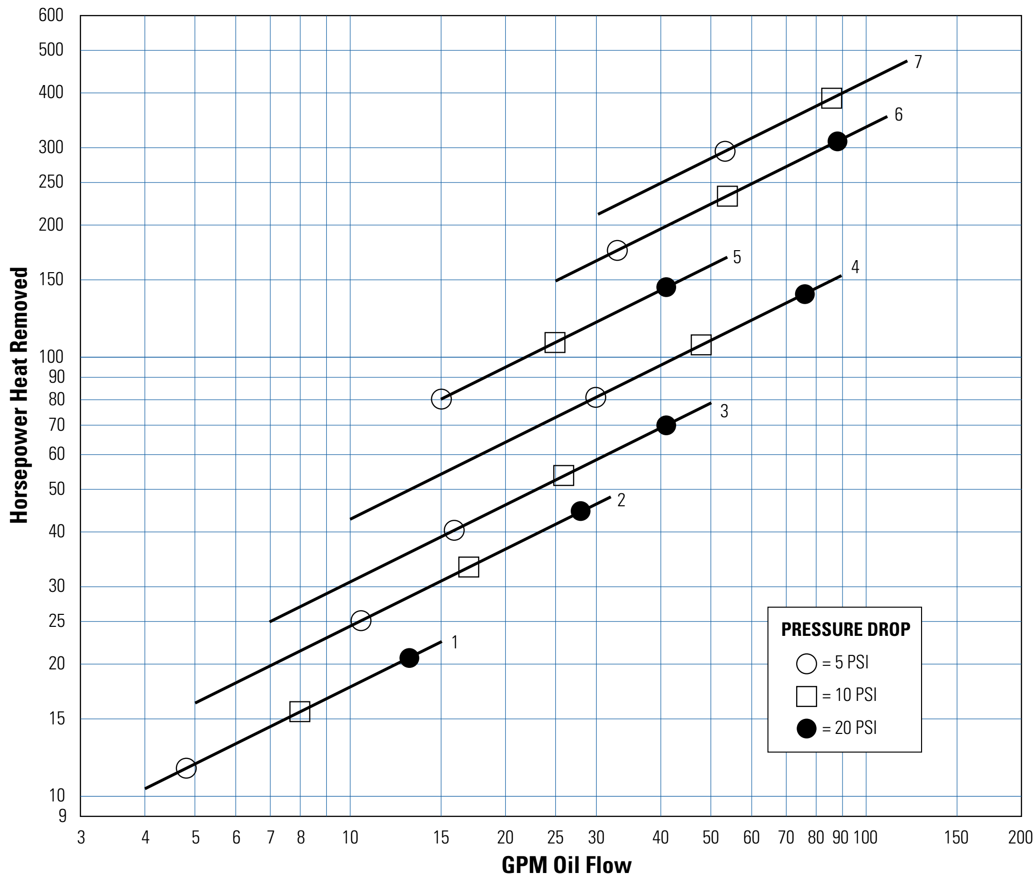
Dimensions



Model	A	B	C	D	E	F	G	H SAE	H NPT	Oil SAE	Water NPT	Net Wt. lbs.
BPS-12-12x5	4.9	12.2	2.61	2.7	9.9	2.5	3.5	1.25	1.12	#12	3/4	8
BPS-24-12x5			3.75									12
BPS-36-12x5			5.00					1.50	1.25	#20	1-1/4	16
BPS-70-12x5			8.19									27
BPS-24-20x10	9.8	20.3	3.99	6.5	17.0	4.0	5.5	1.75	1.38	#24	1-1/2	39
BPS-50-20x10			6.44									68
BPS-80-20x10			9.25									100

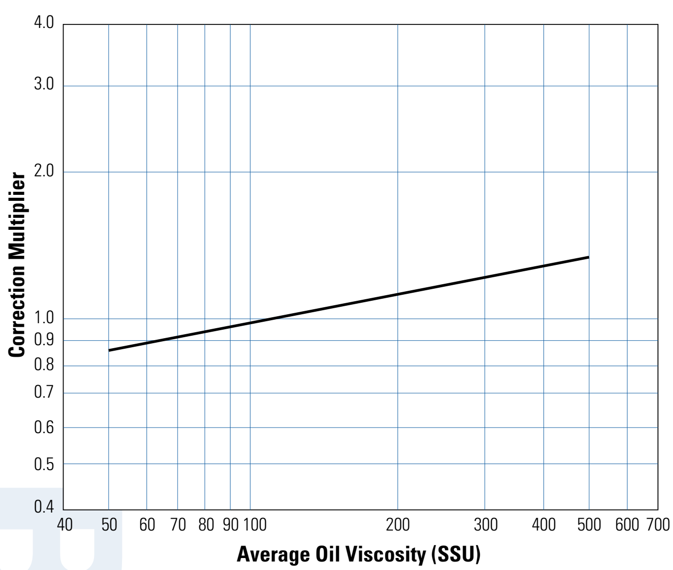
NOTE: We reserve the right to make reasonable design changes without notice. Dimensions are in inches.
SAE Connection Thread Forms: #12 SAE = 1-1/16 - 12UN-2B #20 SAE = 1-5/8 - 12UN-2B #24 SAE = 1-7/8 - 12UN-2B
NPT Connections are internal threads (female).

Performance Curves

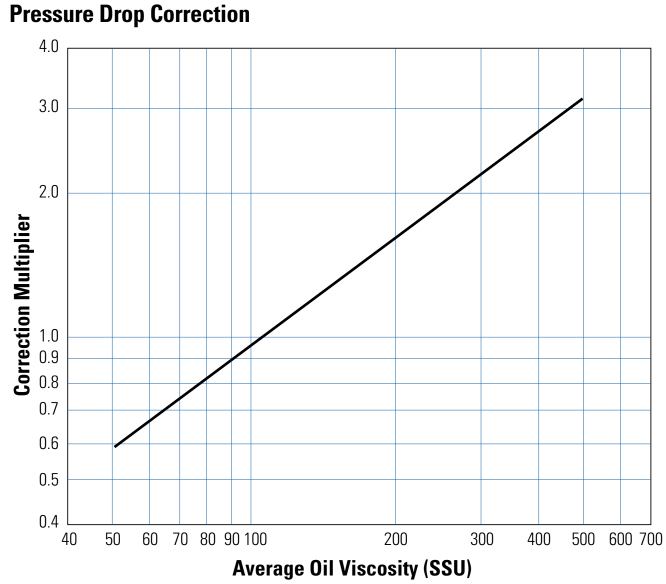


Model
1. BPS-12-12X5
2. BPS-24-12X5
3. BPS-36-12X5
4. BPS-70-12X5
5. BPS-24-20X10
6. BPS-50-20X10
7. BPS-80-20X10

Performance Correction



Pressure Drop Correction



Selection Procedure

Performance Curves are based on 100SSU oil at 40°F approach temperature (125°F oil leaving cooler, 85°F water entering cooler), 2:1 oil: water ratio (1 GPM water flow for each 2 GPM oil flow).

Step 1 **Determine Curve Horsepower Heat to be Removed.**

$$\text{Horsepower heat load} \times \frac{40}{\text{Oil leaving cooler °F Minus water entering cooler °F}} \times \text{Performance Correction Multiplier} = \text{Curve Horsepower Heat to be Removed}$$

Step 2 **Determine Actual Oil Pressure Drop.** Pressure drop shown on curve x Pressure drop correction multiplier = Actual pressure drop.

Oil Temperature

Oil coolers can be selected by using entering or leaving oil tempertures.

Typical operating temperature ranges are:

Hydraulic Motor Oil	110°F - 130°F
Hydrostatic Drive Oil	130°F - 180°F
Lube Oil Circuits	110°F - 130°F
Automatic Transmission Fluid	200°F - 300°F

Desired Reservoir Temperature

Return Line Cooling: Desired temperature is the oil temperature leaving the cooler. This will be the same temperature that will be found in the reservoir.

Off-Line Recirculation Cooling Loop: Desired temperature is the temperature entering the cooler. In this case, the oil temperature change must be determined so that the actual oil leaving temperature can be found. Calculate the oil temperature change (Oil △T) with this formula:

Oil △T=(BTU's/Hr.)/GPM Oil Flow x 210).

To calculate the oil leaving temperature from the cooler, use this formula:

Oil Leaving Temperature = Oil Entering Temperature - Oil △T.

This formula may also be used in any application where the only temperature available is the entering oil temperature.

Oil Pressure Drop: Most systems can tolerate a pressure drop through the heat exchanger of 20 to 30 PSI. Excessive pressure drop should be avoided. Care should be taken to limit pressure drop to 5 PSI or less for case drain applications where high back pressure may damage the pump shaft seals.