

HYDRAULIC MOTOR FAN DRIVEN PRODUCTS

HEAT EXCHANGERS

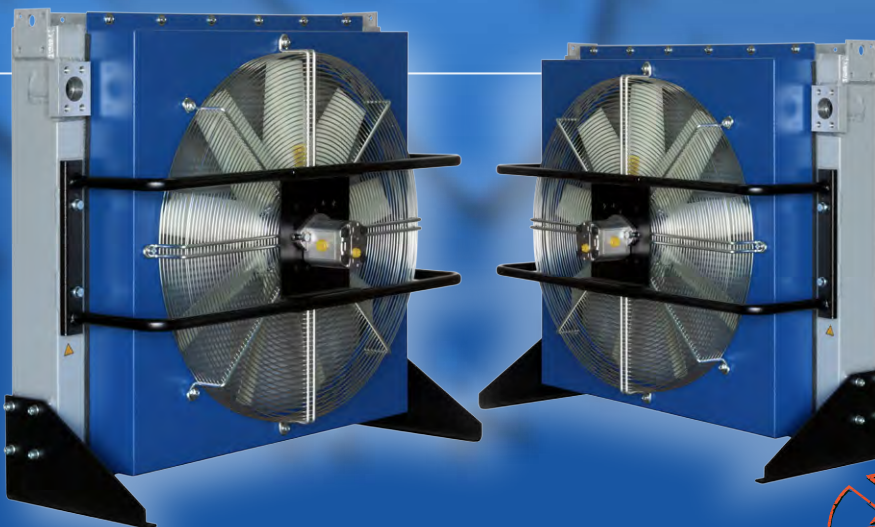


2000K & KBV SERIES

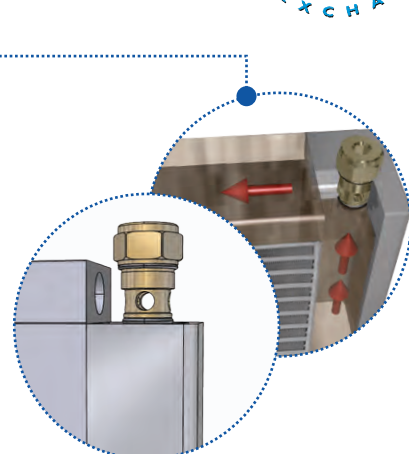
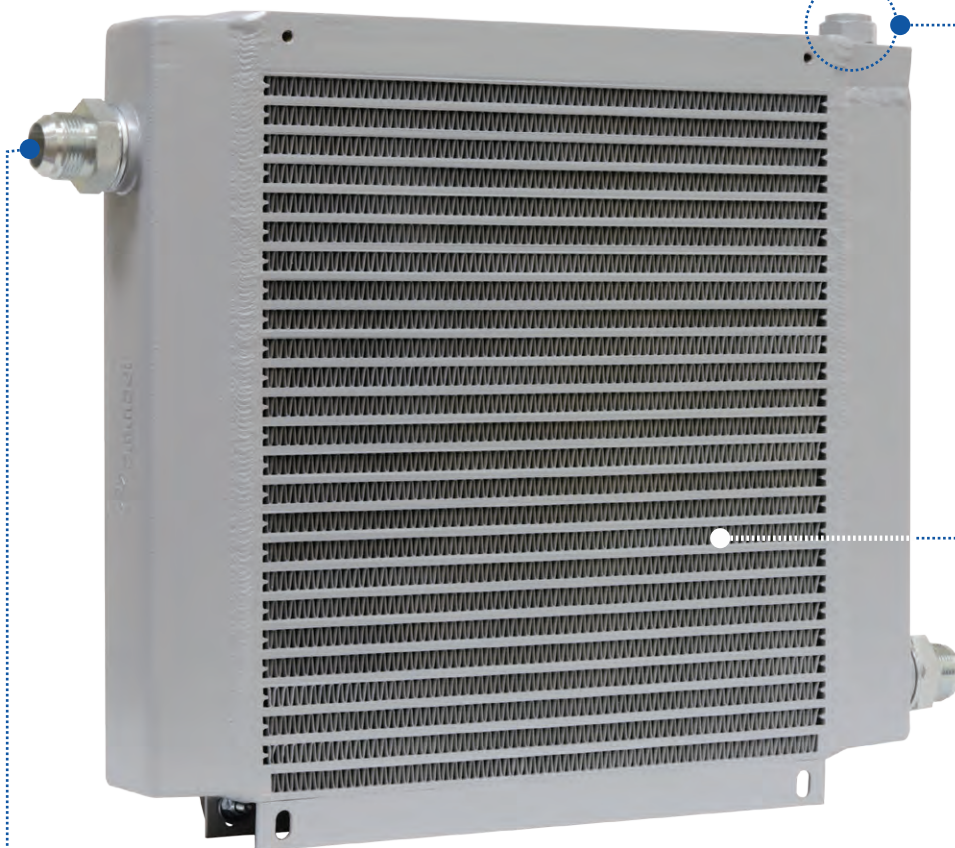
HPV SERIES I



HPV Series II



HEAT-EXCHANGERS



Built-in Bypass Valve



Heavy Duty Construction



Oil Connections

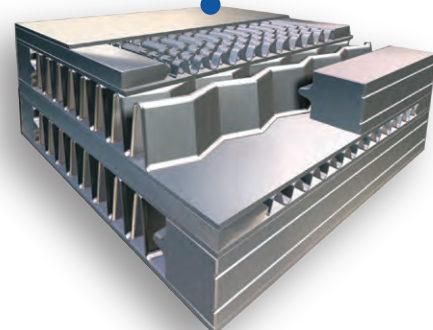
EMMEGI oil coolers are stocked with BSP Parallel thread oil connections. This allows us to draw inventory from our other Worldwide locations as needed. Product shipped from our US facility include SAE J514 37° flare adaptors. Both straight and 90° fittings are standard. A wide selection of optional types and sizes are available.

Bar & Plate Technology

Aluminum Bar & Plate construction is the most advanced heavy duty technology available today. This design has several significant features:

- > **Compact Performance:** Up to 50% smaller than traditional fin & tube construction.
- > **Rugged Construction:** 1/4" Thick bars protect the fluid channels from damage.
- > **Serviceable:** Bars extend to fin edges allowing high pressure washing.
- > **Non-Louvered Air Fins :** Low fouling (9 Fins / inch).

Ultra-low fouling air fins optional (5 Fins / inch).



EMMEGI Heat Exchanger Features

Hydraulic Motor Options



Gerotor Motors

Stock Displacements:
0.218, 0.372, 0.580 cu-in

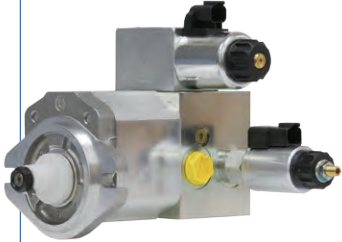


Gear Motors

Stock Displacements:
0.513, 0.879, 1.171, 1.538 cu-in

Sensor Port

Sensors plug directly into provided port.



Variable Speed & Reversing Motors

Special Order

Motors with integrated valves for variable speed and/or reversing airflow for cooler clean-out.



Piston Motors

Special Order

High efficiency fan drive



Performance values for the hydraulic driven models are shown in ranges. Fan speeds can be varied within the typical operating ranges shown. In some cases the cooler model and hydraulic motor displacement can be selected based on the flow/pressure available, in other cases displacement is selected based on size and preferred fan speeds.

STOCK STANDARD HYDRAULIC MOTORS

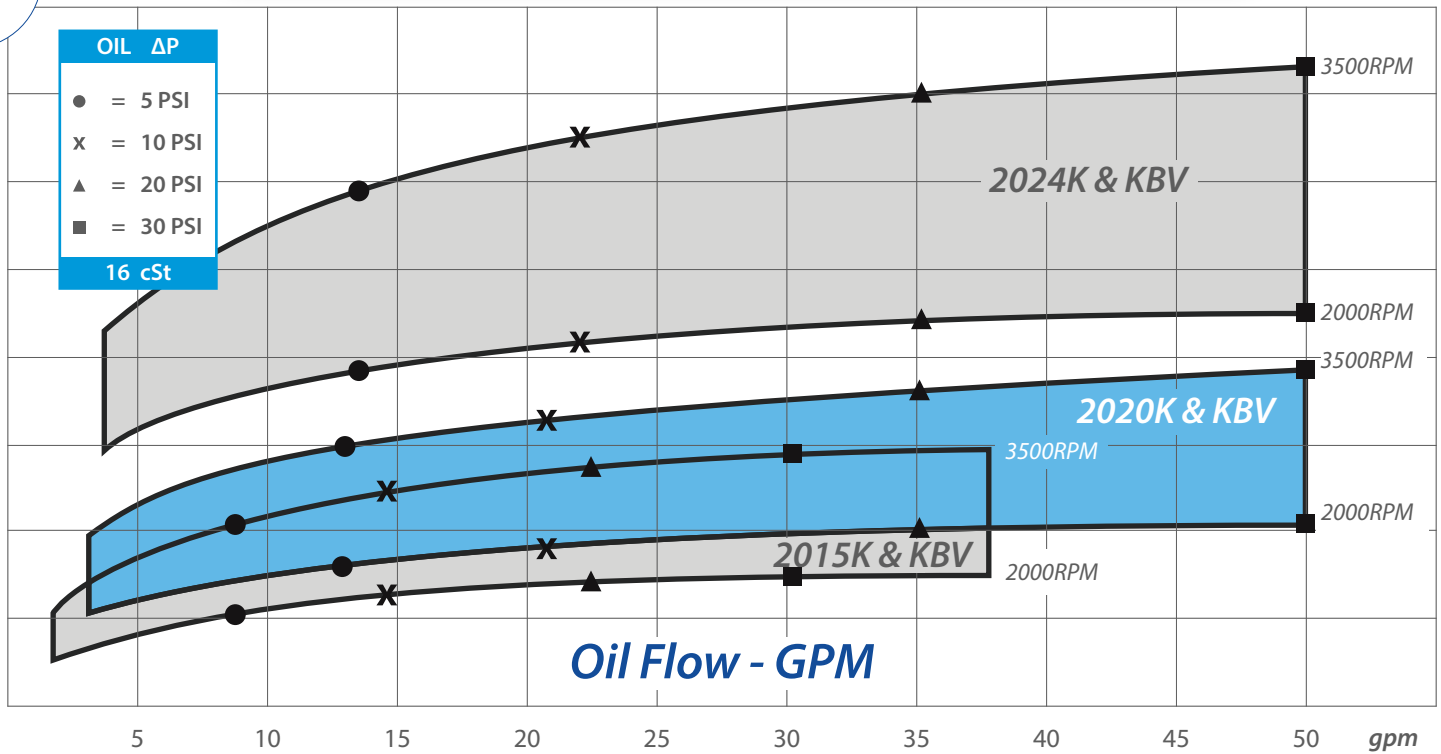
MOTOR TYPE	DISPLACEMENT		PRESSURE		SPEED		Port Size	Inlet Port Suction Standard	CASE DRAIN
	IN ³	CM ³	MIN	MAX	MIN	MAX			
Gerotor	0.218	3.57	500	2000	1000	5000	SAE 8	B Port = Inlet	None - Back pressure not to exceed 1000 PSI
	0.372	6.10							
	0.580	9.51							
Gear	0.513	8.40	500	3625	700	4000	SAE 10	Facing Back of Motor, Right Port Inlet	#6 SAE ORB
	0.879	14.40							
	1.171	19.20		2320	500	3500			SAE 12
	1.538	25.20							

Important Note About Fan Speeds:

The horsepower goes up at the cube of the RPM fan speed.
A nominal change in RPM has a significant effect on the horsepower required by the fan blade.

Hydraulic Performance Data — 2015-2024K & KBV

Horsepower Heat Rejection @ 50°F ETD



Hydraulic Motor Data

MODEL	RPM	Fan (HP)	Displacement (cu-in)	Oil Flow (GPM)	Minimum (psi)	Maximum (psi)	External (Case Drain)
2015K & KBV	2000	0.04	0.218	2.1	500	2000	no
			0.513	4.9		3625	yes
	3500	0.22	0.218	3.7		2000	no
			0.513	8.6		3625	yes
2020K & KBV	2000	0.04	0.218	2.1		2000	no
			0.513	4.9		3625	yes
	3500	0.22	0.218	3.7		2000	no
			0.513	8.6		3625	yes
2024K & KBV	2000	0.06	0.218	2.1	2000	no	
			0.513	4.9	3625	yes	
	3500	0.32	0.218	3.7	2000	no	
			0.513	8.6	3625	yes	

Typical hydraulic motor displacements listed. Other displacements available

Conversion Formulas

Correcting Heat Removal for Cooler Selection from Curve

$$\text{Horsepower Heat Load} \times \frac{50^\circ\text{F}}{\text{Desired ETD } ^\circ\text{F}} = \text{Corrected Horsepower Heat Removal for Curve Selection}$$

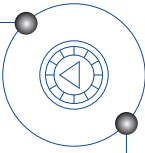
Correcting Curve to Actual Heat Removal

$$\text{Horsepower (FROM CURVE)} \times \frac{\text{Desired ETD } ^\circ\text{F}}{50^\circ\text{F}} = \text{Corrected Horsepower Heat Removal}$$

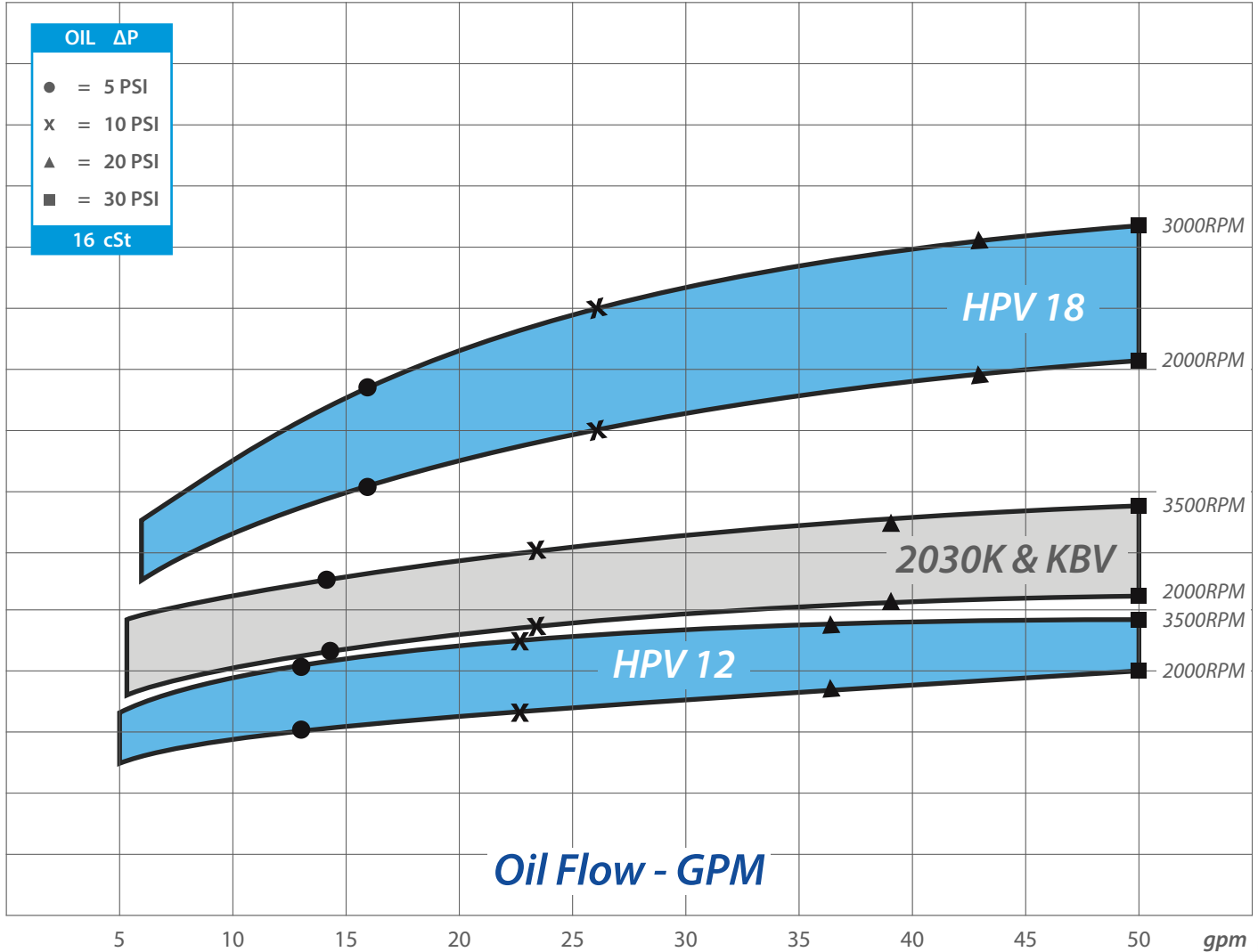
Entering Temperature Difference

$$\text{ETD } ^\circ\text{F} = \text{Oil Inlet Temperature } ^\circ\text{F} - \text{Air Entering Temperature } ^\circ\text{F}$$

These correction formulas apply to all of the performance curves.



Horsepower Heat Rejection @ 50°F ETD



Hydraulic Motor Data

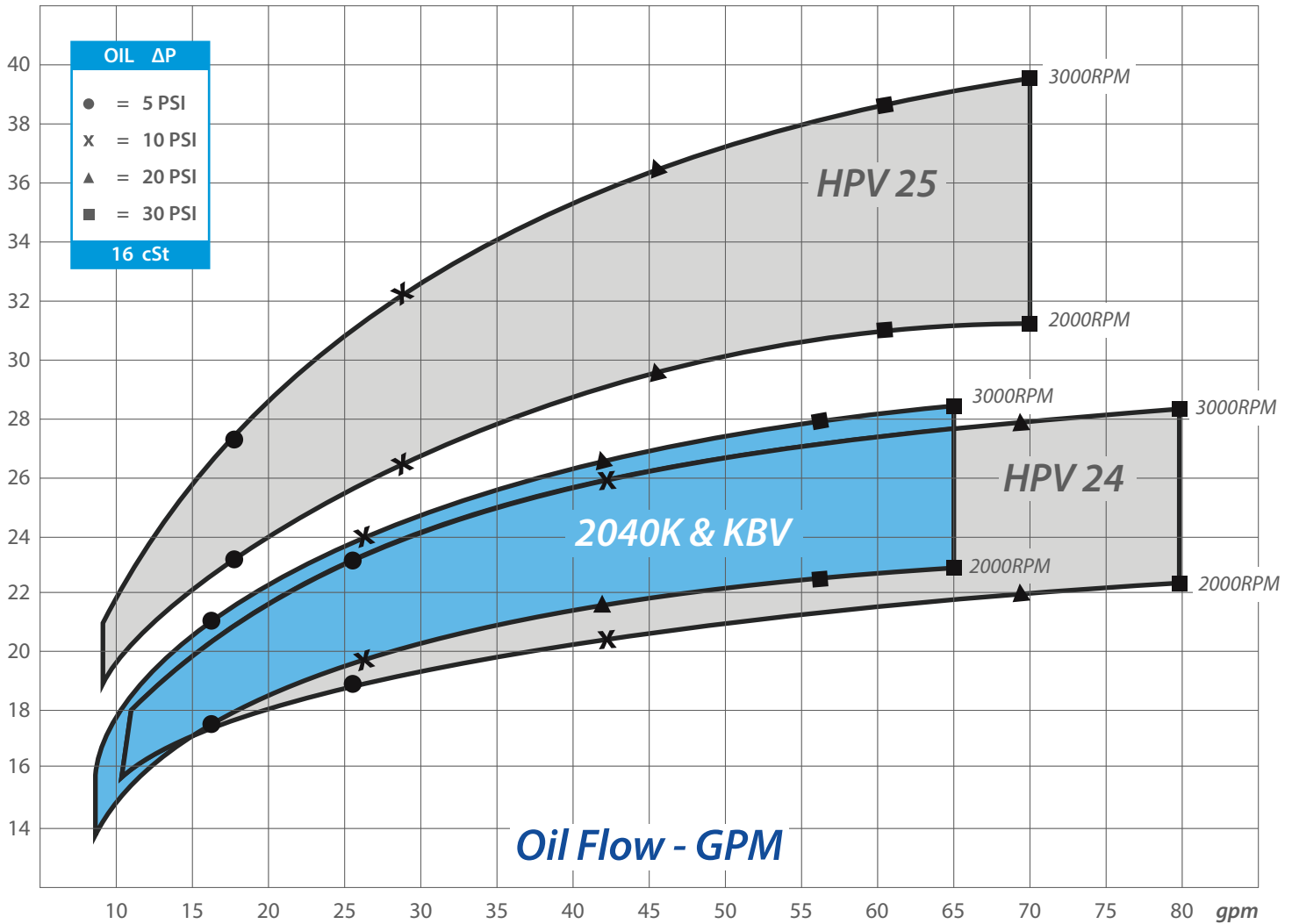
MODEL	RPM	Fan (HP)	Displacement (cu-in)	Oil Flow (GPM)	Minimum (psi)	Maximum (psi)	External (Case Drain)
2030K & KBV	2000	0.90	0.218	2.1	500	2000	no
			0.513	4.9		3625	yes
	3500	0.50	0.218	3.7		2000	no
			0.513	8.6		3625	yes
HPV 12	2000	0.06	0.218	2.1	2000	no	
			0.513	4.9	3625	yes	
	3500	0.30	0.218	3.7	2000	no	
			0.513	8.6	3625	yes	
HPV 18	2000	0.75	0.218	2.1	717	2000	no
			0.513	4.9	500	3625	yes
	3500	2.50	0.372	5.4	939	2000	no
			0.513	7.4	681	3625	yes

Typical hydraulic motor displacements listed. Other displacements available

HEAT-EXCHANGERS



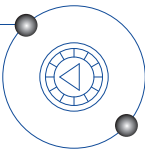
Horsepower Heat Rejection @ 50°F ETD



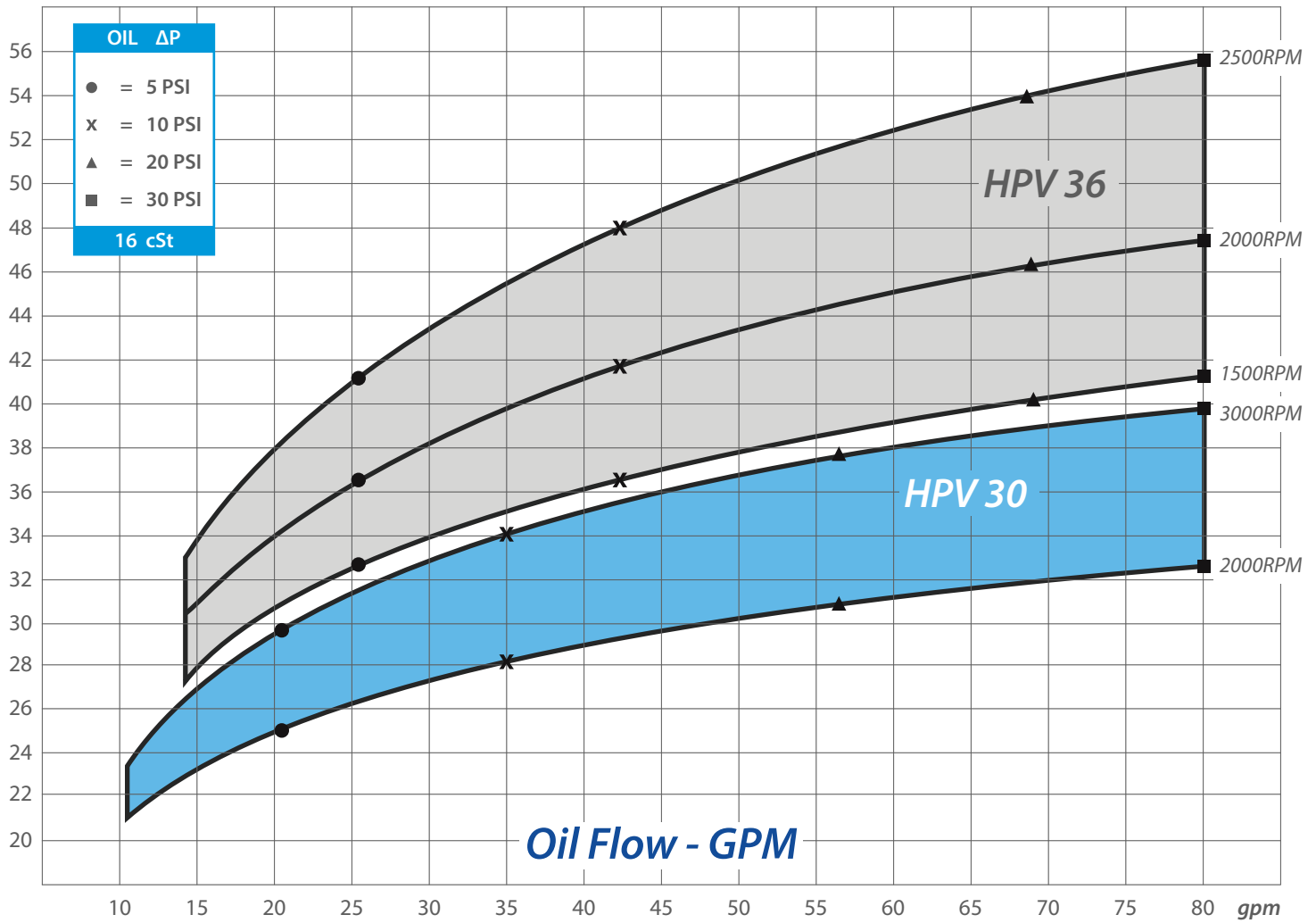
Hydraulic Motor Data

MODEL	RPM	Fan (HP)	Displacement (cu-in)	Oil Flow (GPM)	Minimum (psi)	Maximum (psi)	External Case Drain
2040K & KBV	2000	0.75	0.218	2.1	721	2000	no
			0.513	4.9	500	3625	yes
	3000	2.53	0.372	5.4	950	2000	no
			0.513	7.4	690	3625	yes
HPV24	2000	0.76	0.218	2.1	731	2000	no
			0.513	4.9	500	3625	yes
	3000	2.6	0.372	5.4	977	2000	no
			0.513	7.4	708	3625	yes
HPV25	2000	1.2	0.218	2.1	1154	2000	no
			0.513	4.9	500	3625	yes
	3000	3.9	0.372	5.4	1465	2000	no
			0.513	7.4	1062	3625	yes

Typical hydraulic motor displacements listed. Other displacements available



Horsepower Heat Rejection @ 50°F ETD



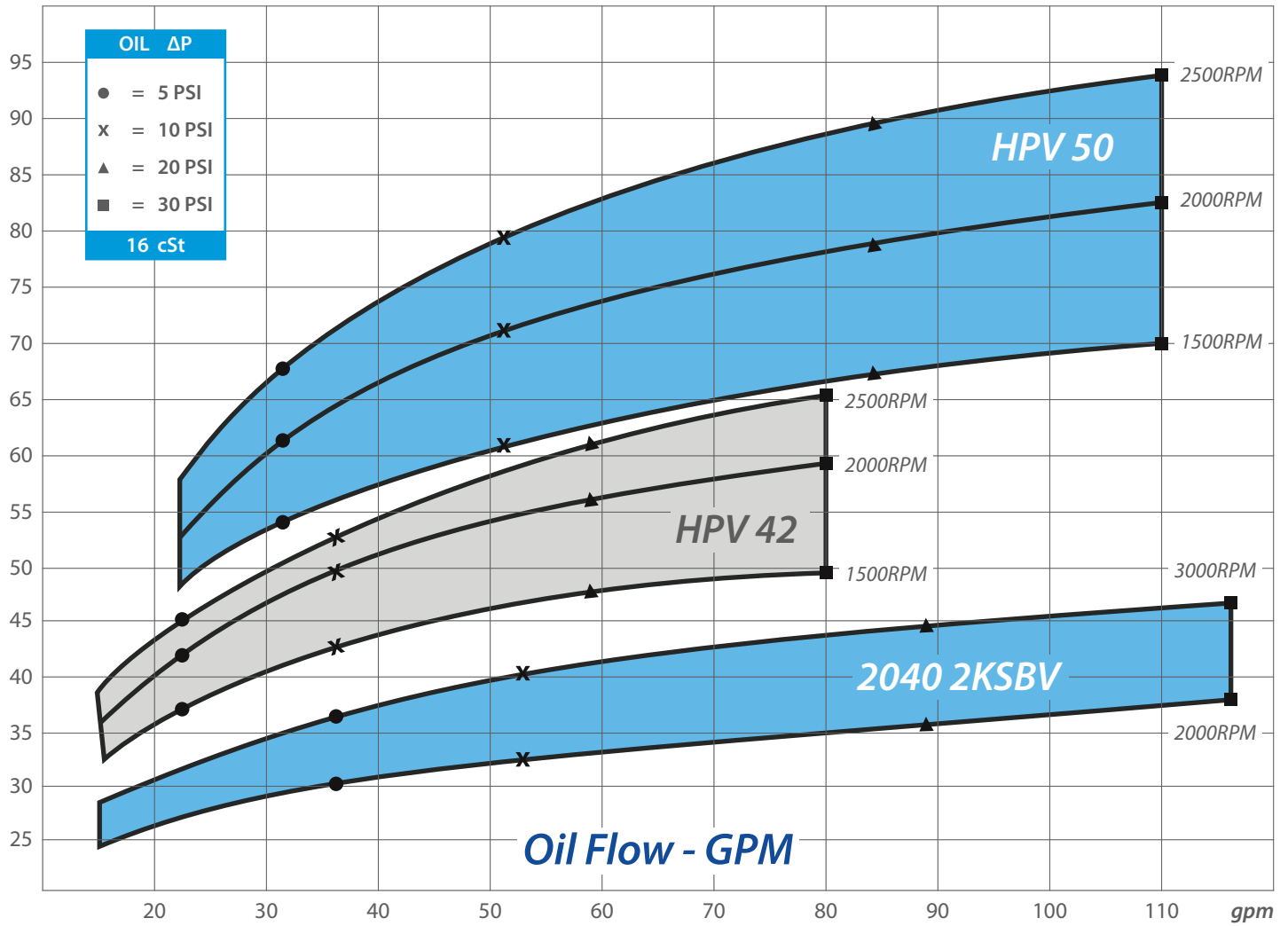
Hydraulic Motor Data

MODEL	RPM	Fan (HP)	Displacement (cu-in)	Oil Flow (GPM)	Minimum (psi)	Maximum (psi)	External (Case Drain)
HPV30	2000	1.2	0.218	2.1	1154	2000	no
			0.513	4.9	500	3625	yes
	3000	3.9	0.372	5.4	1465	2000	no
			0.513	7.4	1062	3625	yes
HPV36	1500	0.93	0.218	1.6	1192	2000	no
			0.513	3.7	507	3625	yes
	2000	2.2	0.372	3.6	1240	2000	no
			0.513	4.9	899	3625	yes
	2500	4.3	0.58	7	1243	2000	no
			0.513	6.2	1406	3625	yes

Typical hydraulic motor displacements listed. Other displacements available.



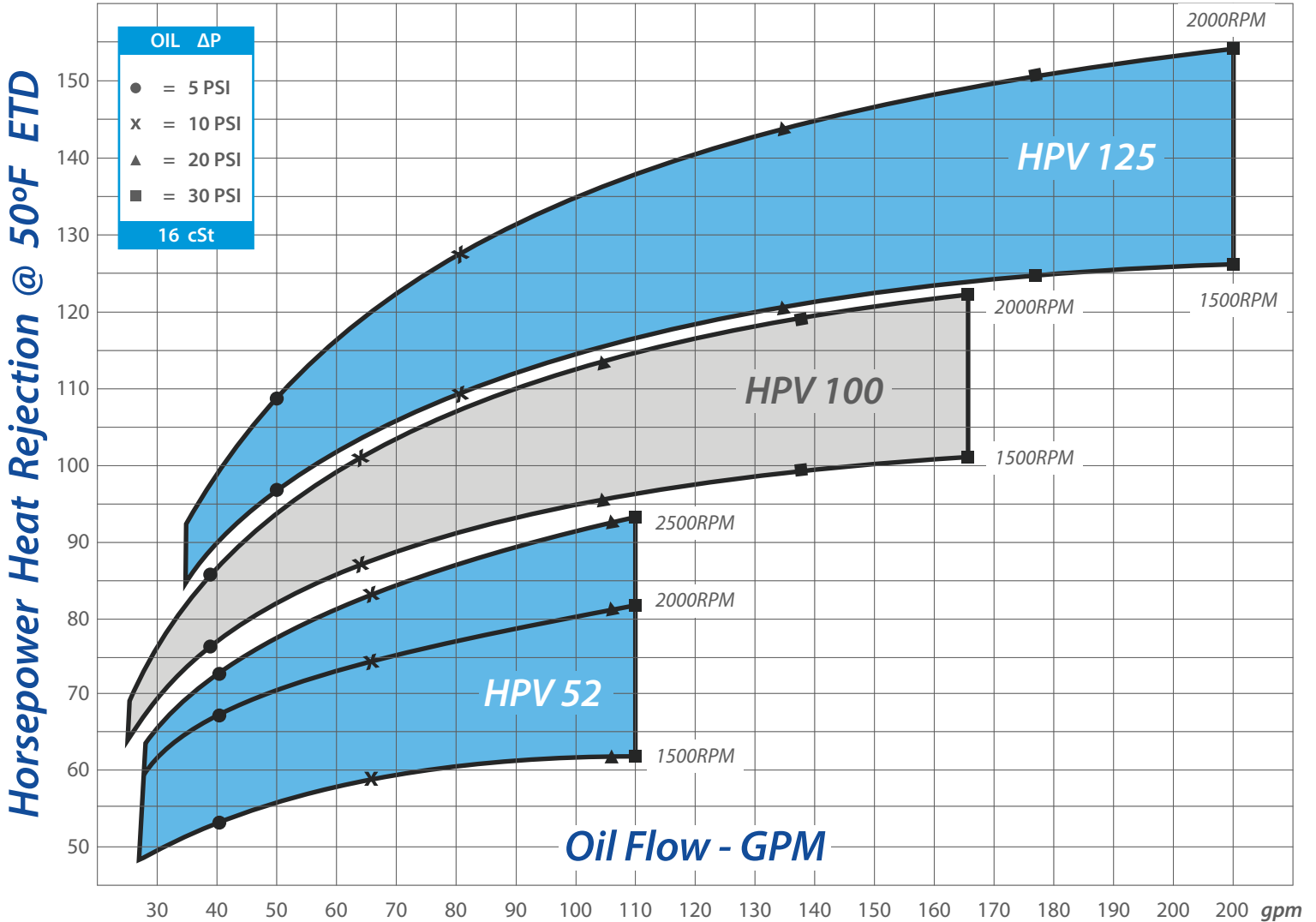
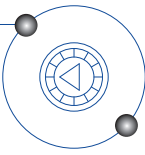
Horsepower Heat Rejection @ 50°F ETD



Hydraulic Motor Data

MODEL	RPM	Fan (HP)	Displacement (cu-in)	Oil Flow (GPM)	Minimum (psi)	Maximum (psi)	External Case Drain
2040-2KSBV	2000	0.42/fan plumbed in parallel	0.218	2.1	500	2000	no
		0.84 plumbed in series	0.218	2.1	808	2000	no
	3000	1.42/fan plumbed in parallel	0.372	5.4	533	2000	no
		2.84 plumbed in series	0.372	5.4	1066	2000	no
HPV42	1500	0.94	0.372	2.7	706	2000	no
			0.513	3.7	512	3625	yes
	2000	2.30	0.372	3.6	1296	2000	no
			0.513	4.9	940	3625	yes
	2500	4.40	0.580	5.6	1590	2000	no
			0.513	4.9	1798	3625	yes
HPV50	1500	1.30	0.372	2.7	977	2000	no
			0.513	3.7	708	3625	yes
	2000	3.00	0.580	5.6	1084	2000	no
			0.879	8.5	715	3625	yes
	2500	5.80	0.580	7.0	1677	2000	no
			0.879	10.6	1106	3625	yes

Typical hydraulic motor displacements listed. Other displacements available.



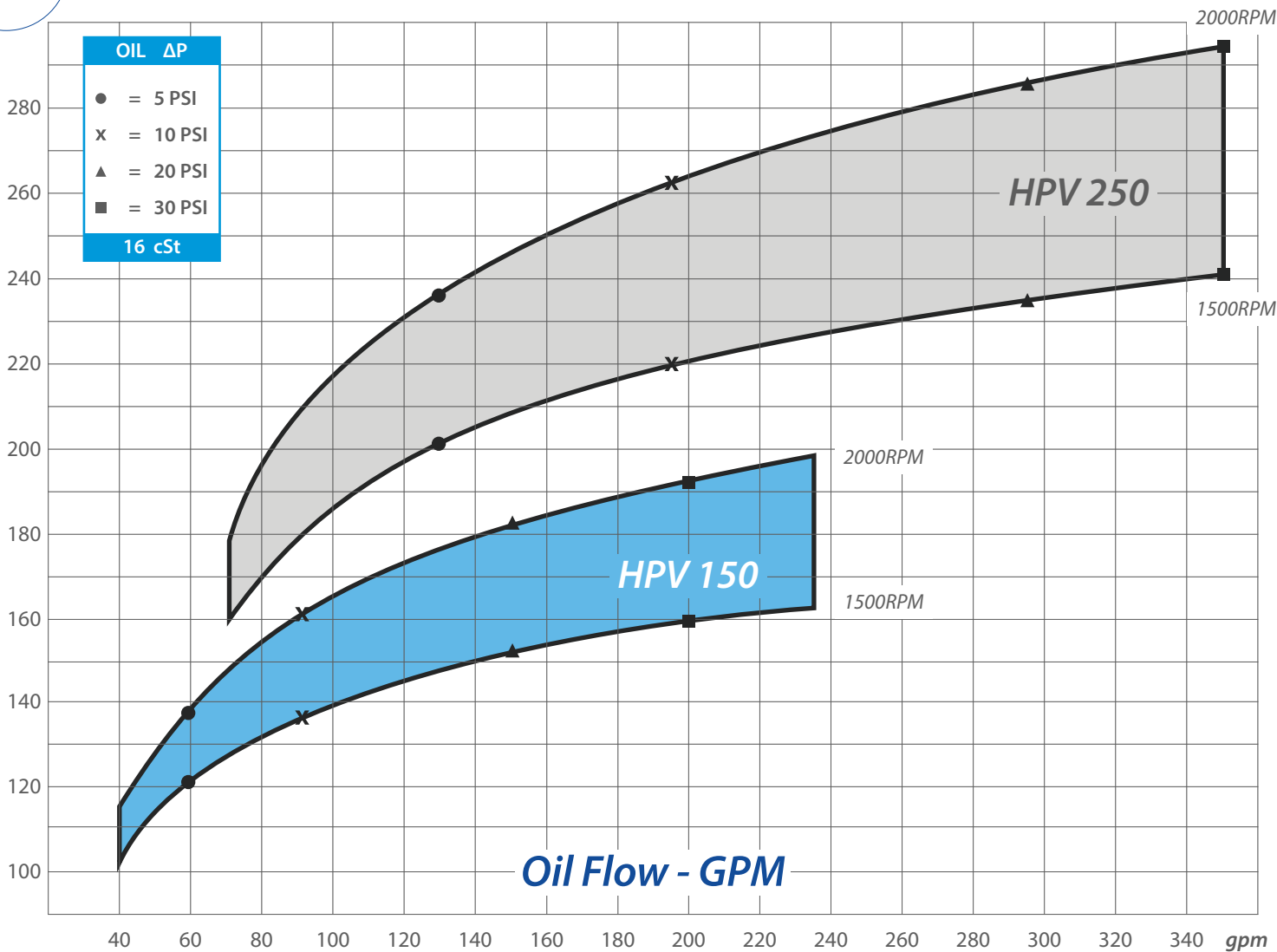
Hydraulic Motor Data

MODEL	RPM	Fan (HP)	Displacement (cu-in)	Oil Flow (GPM)	Minimum (psi)	Maximum (psi)	External Case Drain
HPV52	1500	1.3	0.372	2.7	977	2000	no
			0.513	3.7	708	3625	yes
	2000	3.1	0.58	5.6	1120	2000	no
			0.513	4.9	1267	3625	yes
	2500	6	0.879	10.6	1145	3625	
			1.171	14.1	859	3045	
HPV100	1500	3.2	0.58	4.2	1542	2000	no
			0.879	6.3	1017	3625	yes
	2000	7.4	1.171	11.3	1325	3045	
			1.538	14.8	1009	2320	
	2500	13.6	1.171	13.6	1948	3045	
			1.538	18.5	1483	2320	
HPV125	1500	4.7	0.879	6.3	1494	3625	
			1.171	8.4	1122	3045	
	2000	11.1	1.171	11.3	1987	3045	
			1.538	14.8	1513	2320	

Typical hydraulic motor displacements listed. Other displacements available.

Hydraulic Performance Data — HPV 150 & 250

Horsepower Heat Rejection @ 50°F ETD



Hydraulic Motor Data

MODEL	RPM	Fan (HP)	Displacement (cu-in)	Oil Flow (GPM)	Minimum (psi)	Maximum (psi)	External Case Drain
HPV150	1500	3.8	0.879	6.3	1208	3625	Yes
			1.171	8.4	907	3045	
	2000	9	1.171	11.3	1611	3045	
			1.538	14.8	1227	2320	
HPV250	1500	5.7	0.879	6.3	1812	3625	
			1.171	8.4	1360	3045	
	2000	13.5	1.171	11.3	2417	3045	
			1.538	14.8	1840	2320	

Typical hydraulic motor displacements listed. Other displacements available.

Correcting Heat Removal for Cooler Selection from Curve

$$\text{Horsepower Heat Load} \times \frac{50^\circ\text{F}}{\text{Desired ETD } ^\circ\text{F}} = \text{Corrected Horsepower Heat Removal for Curve Selection}$$

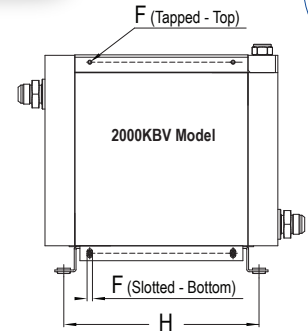
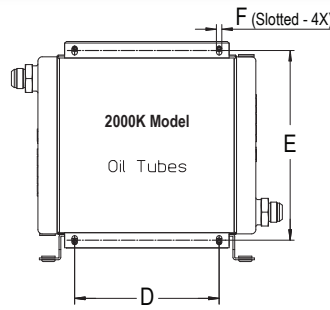
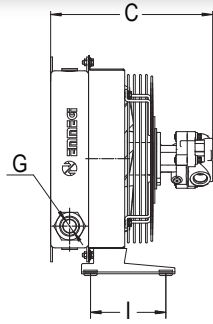
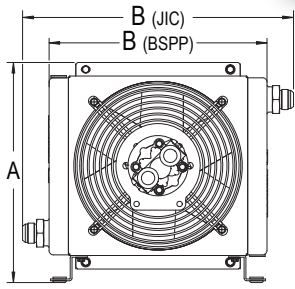
Correcting Curve to Actual Heat Removal

$$\text{Horsepower (FROM CURVE)} \times \frac{\text{Desired ETD } ^\circ\text{F}}{50^\circ\text{F}} = \text{Corrected Horsepower Heat Removal}$$

Entering Temperature Difference

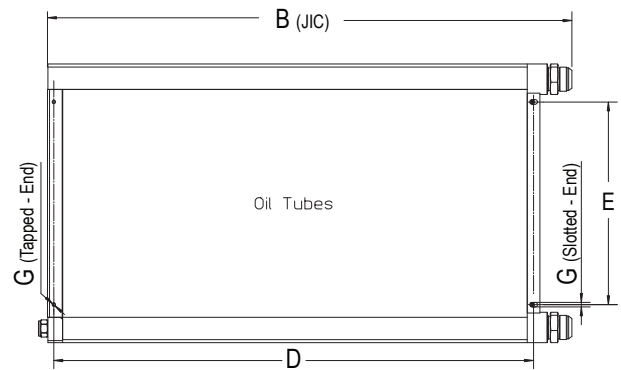
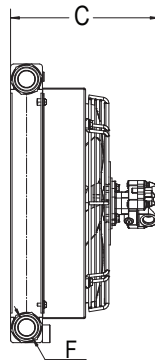
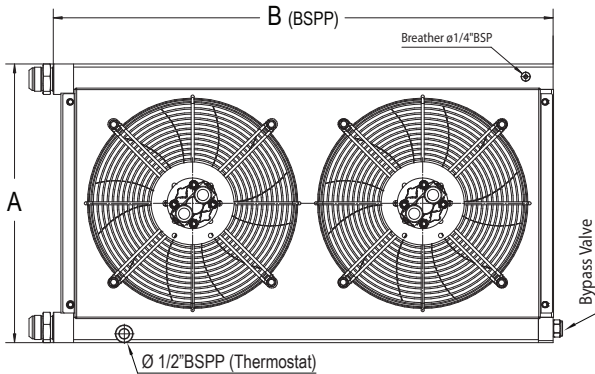
$$\text{ETD } ^\circ\text{F} = \text{Oil Inlet Temperature } ^\circ\text{F} - \text{Air Entering Temperature } ^\circ\text{F}$$

2000K & KBV Series Heat Exchangers



MODEL	UNIT OF MEASURE	OVERALL DIMENSIONS				MOUNTING (NO FEET)				MOUNTING (WITH FEET)		OIL CONNECTIONS		NET WEIGHT LBS		
		A	B		C (approx.)	D	E		F		G	H	I	K	KBV	
			BSPP	JIC			K	KBV	K	KBV						BSPP
2015K & KBV	(inch)	12.12	13.38	16.54	9.88	7.09	10.04	10.20	0.35 x .59 (4) Slotted Holes	M6 Helicoil (2) Tapped Holes & 0.35 x .59 (2) Slotted Holes	10.91	4.92	1" Internal	# 16 External	18	20
	(mm)	308	340	420	251	180	255	259			277	125			20	24
2020K & KBV	(inch)	12.09	13.38	16.54	10.59	7.09	10.04	10.24			277	125			24	29
	(mm)	307	340	420	269	180	255	260			327	125			33	38
2024K & KBV	(inch)	14.39	15.75	18.90	10.59	9.45	12.41	12.6			392	125			40	46
	(mm)	366	400	480	269	240	315	320	487	125						
2030K & KBV	(inch)	16.91	18.31	21.46	10.86	12.20	14.96	15.16								
	(mm)	430	465	545	276	310	380	385								
2040K & KBV	(inch)	20.98	22.05	25.20	11.53	15.75	19.13	18.98			1.25" Internal	# 20 External				
	(mm)	533	560	640	293	400	486	482								

NOTE: C dimension varies with motor type and displacement.



MODEL	UNIT OF MEASURE	OVERALL DIMENSIONS				MOUNTING			OIL CONNECTIONS		G		NET WEIGHT LBS	
		A	B		C (approx.)	D	E		F		K	KBV	K	KBV
			BSPP	JIC			K	KBV	BSPP	JIC				
2040-2KSBV	(inch)	38.82	38.88	40.63	11.53	36.93	15.75	15.75	1.5" Internal	# 24 External	0.35 x .59 (4) Slotted Holes	M6 Helicoil (2) Tapped Holes	78	90
	(mm)	986	988	1033	293	938	400	400						

NOTE: C dimension varies with motor type and displacement.

Ordering Code

Model: **2015KBV** — Cu. In. Displacement & Airflow: **0.513 S** — Oil Connection / Thread Type: **JE** — Relief Bypass: **22**

Model Size: **2015K - 2040K (No Bypass)** — Displacement: **0.513** (Suction) or **0.879** (Blowing) — Airflow: **0.218** (Suction) or **0.372** (Blowing) — Oil Connection: **JE** (JIC External Thread), **BP** (BSPP Internal Thread), **JE90** (JIC 90° External Thread) — Relief Bypass: **22** (22 psi) or **44** (44 psi)

Model Size: **2015KBV - 2040KBV (With Bypass)** — Displacement: **1.171** (Suction) or **1.538** (Blowing) — Airflow: **0.580** (Suction) or **0.580** (Blowing) — Oil Connection: **JE90** (JIC 90° External Thread) — Relief Bypass: **44** (44 psi)

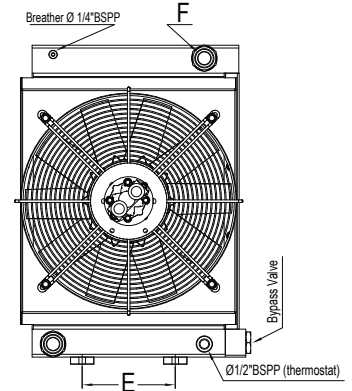
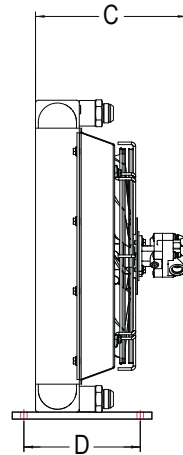
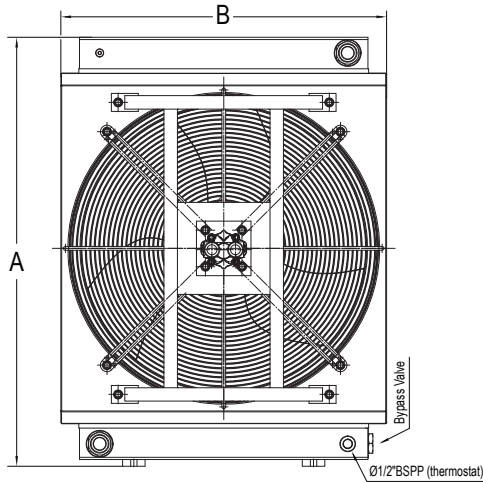
Indicates Standard Selection

HPV 12 - 52 Series I Heat Exchangers



HPV 42 - 52

HPV 12 - 36

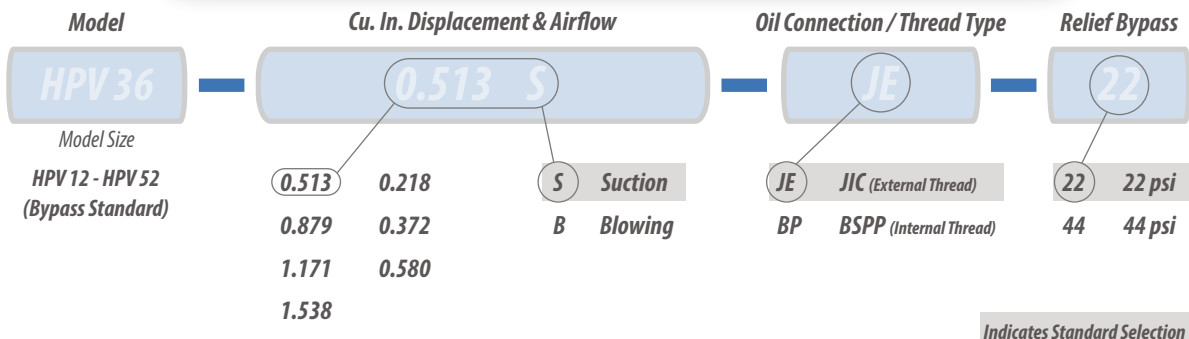


HEAT-EXCHANGERS

MODEL	UNIT OF MEASURE	OVERALL DIMENSIONS			MOUNTING		OIL CONNECTIONS		TECH DATA NET WEIGHT LBS.	
		A	B	C	D	E	F			
							BSPP	JIC		
HPV 12	(inch)	15.74	14.05	11.81	7.87	5.90	1"	Internal	# 16 External	34
	(mm)	400	357	300	200	150				
HPV 18	(inch)	20.07	17.91	11.57	7.87	7.87	1.25"	Internal	# 20 External	45
	(mm)	510	455	294	200	200				
HPV 24	(inch)	21.06	17.91	12.83	9.84	7.87	1.25"	Internal	# 20 External	60
	(mm)	535	455	326	250	200				
HPV 25	(inch)	25.59	23.82	11.69	7.08	15.74	1.25"	Internal	# 20 External	73
	(mm)	650	605	297	180	400				
HPV 30	(inch)	26.97	18.46	12.76	9.84	7.87	1.25"	Internal	# 20 External	81
	(mm)	685	469	324	250	200				
HPV 36	(inch)	30.90	24.17	12.72	9.84	12.20	1.50"	Internal	# 24 External	107
	(mm)	785	614	323	250	310				
HPV 42	(inch)	36.81	24.02	12.95	9.84	12.20	1.50"	Internal	# 24 External	128
	(mm)	935	610	329	250	310				
HPV 50	(inch)	37.59	28.64	14.57	9.84	15.74	1.50"	Internal	# 24 External	191
	(mm)	955	727	370	250	400				
HPV 52	(inch)	37.59	28.67	15.67	9.84	15.74	1.50"	Internal	# 24 External	219
	(mm)	955	728	398	250	400				

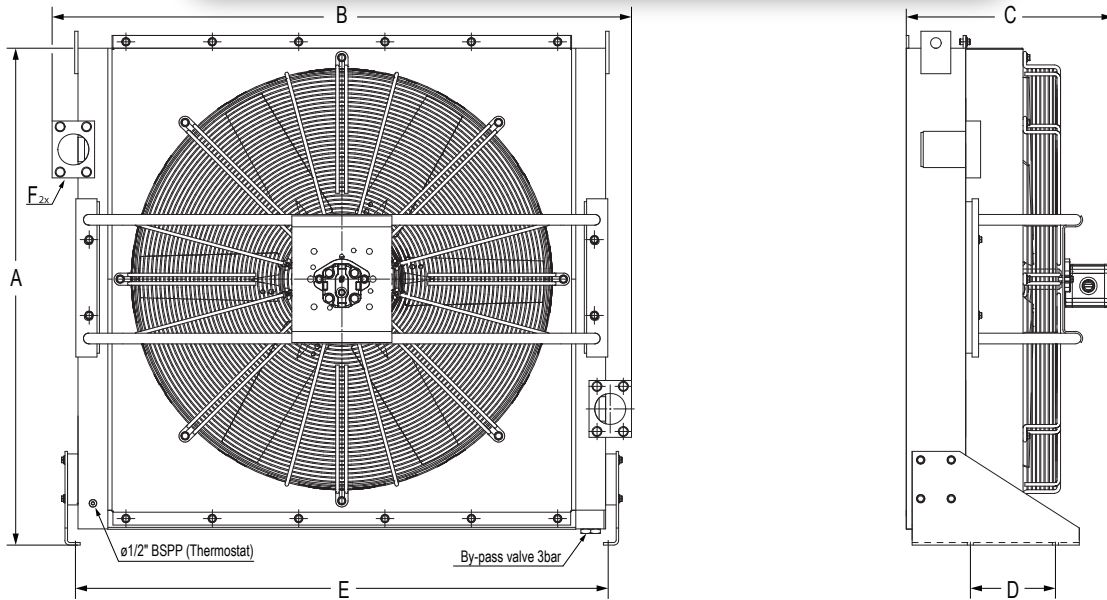
NOTE: C dimension varies with motor type and displacement.

Ordering Code



Indicates Standard Selection

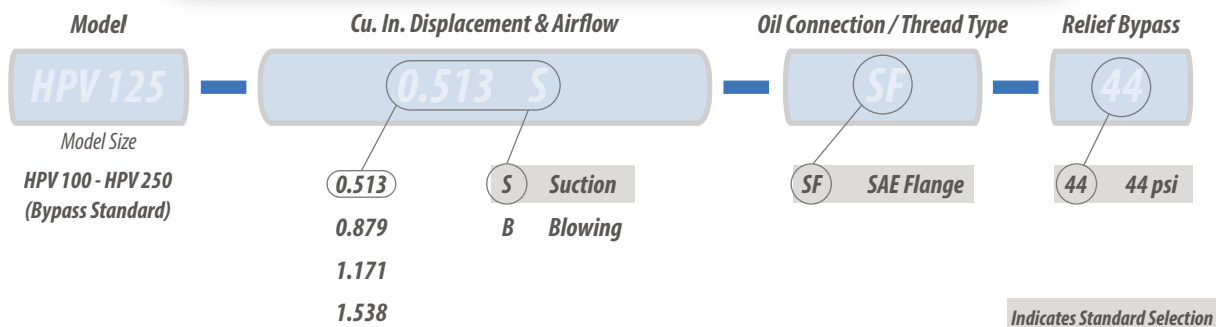
HPV 100 - 250 Series II Heat Exchangers



MODEL	UNIT OF MEASURE	OVERALL DIMENSIONS			MOUNTING		OIL CONNECTIONS	TECH DATA
		A	B	C	D	E	F	NET WEIGHT LBS.
HPV 100	(inch)	39.13	43.70	16.46	7.87	41.65	2" SAE Flange	285
	(mm)	994	1110	418	200	1058		
HPV 125	(inch)	40.20	44.88	18.90	7.87	43.62	3" SAE Flange	333
	(mm)	1021	1140	480	200	1108		
HPV 150	(inch)	47.56	53.62	19.13	7.87	49.53	3" SAE Flange	438
	(mm)	1208	1362	486	200	1258		
HPV 250	(inch)	66.61	52.36	20.55	10.00	49.37	3" SAE Flange	646
	(mm)	1692	1330	522	254	1254		

NOTE: C dimension varies with motor type and displacement.

Ordering Code



TECHNICAL DATA FOR ALL 2000 K/KBV & HPV MODELS

Compatible fluids

- Mineral Oils : HL & HLP.
- Water - Oil Emulsion.
- Water - Glycol.
- Consult Factory for other fluids.

Ratings

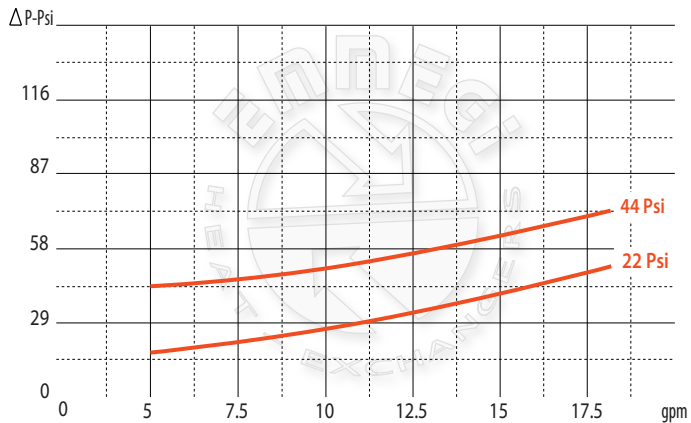
- Operating Pressure : 280 PSI
- Test Pressure: 500 PSI
- Maximum Operating Temperature: 248°F



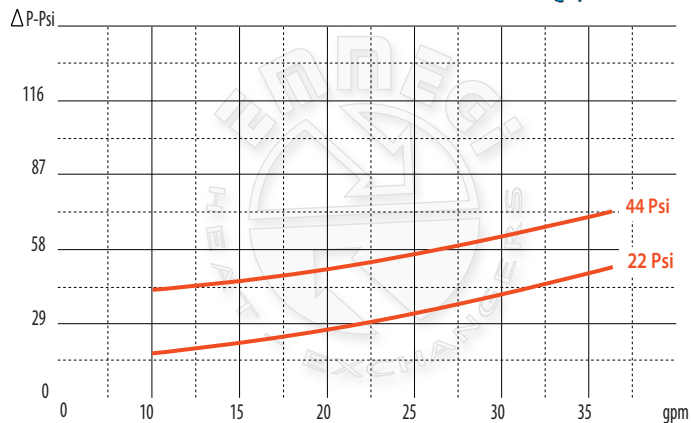
Built-in Internal Bypass Checkvalve



Cartridge valve type 2



Cartridge valve type 3



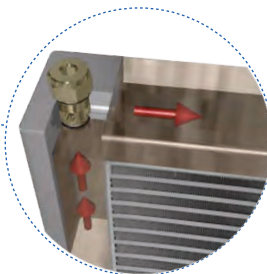
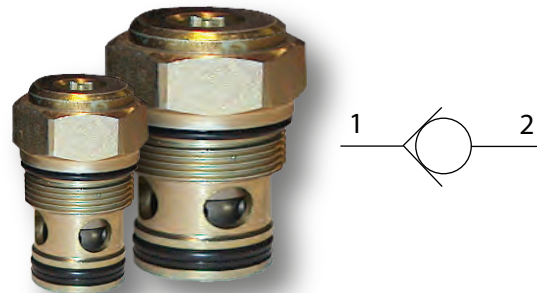
HEAT-EXCHANGERS

The integrated bypass checkvalve helps protect the hydraulic system and oil cooler from excessive back pressure.

Two primary operating conditions are :

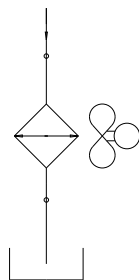
- Cold Weather Start-up
- Intermittent Flow Surges

The fully integrated cartridge style valve eliminates the need to add an external valve and the related fittings and hoses. It may be removed for inspection and service.

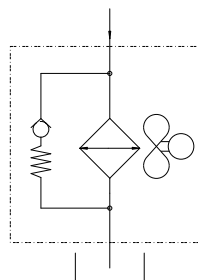


Detail

2000K Hydraulic Motor Series Hydraulic circuit



2000KBV & HPV Hydraulic Motor Series Hydraulic circuit



Model	Cartridge valve type
All 2000KBV	2
HPV 12 - 24	2
HPV 30 - 250	3



AC Fan Driven



**2000K & KBV
AC Motors**
Heat Removals to 16 HP.
Optional Internal Bypass Valve.
Totally Enclosed Motors.
Oil Flows to 50 GPM.



**HPV Series I
AC Motors**
Heat Removals to 70 HP.
Internal Bypass Valve Standard.
Totally Enclosed Motors.
Oil Flows to 100 GPM.



**HPV Series II
AC Motors**
Heat Removals to 265 HP.
Internal Bypass Valve Standard.
Totally Enclosed Motors.
Oil Flows to 350 GPM.

DC Fan Driven



**2000K & KBV
DC Motors**
Heat Removals to 35 HP.
Optional Internal Bypass Valve.
Oil Flows to 125 GPM.



**HPV Series
DC Motors**
Heat Removals to 36 HP.
Internal Bypass Valve Standard.
Oil Flows to 80 GPM.



**S & SBV Series
DC Motors**
Heat Removals to 38 HP.
Optional Internal Bypass Valve.
Oil Flows to 100 GPM.

Hydraulic Fan Driven



**2000K & KBV
Hydraulic Motors**
Heat Removals to 30 HP.
Optional Internal Bypass Valve.
Wide range of Hydraulic Motor
Displacements available.
Oil Flows to 50 GPM.



**HPV Series I
Hydraulic Motors**
Heat Removals to 130 HP.
Internal Bypass Valve Standard.
Oil Flows to 100 GPM.



**HPV Series II
Hydraulic Motors**
Heat Removals to 300 HP.
Optional Internal Bypass Valve.
Oil Flows to 350 GPM.

Cooling Systems



Silent Evo II
Off-line cooling systems with
oil cooler & recirculation.
Pump heat removals to 60 HP.



RID Series
Gearbox cooling systems with oil
cooler, recirculation pump & filter
heat removals to 25 HP.



HPA TK
Combination reservoir, oil cooler,
& suction filter.
Ideal for closed loop hydrostatic
cooling.

Water / Oil



**WB Series
Water/Oil**
Stainless steel Water/Oil Coolers.
Compact water saving design.
Heat Removals to 360 HP.
Oil Flows to 200 GPM.



**MG Series
Water/Oil**
Sea Water duty shell & tube heat
exchangers.
Corrosion resistant copper-nickel
cooling tubes & bronze end
bonnets.



Water Modulating Valves
Control water flow through Water/Oil
heat exchangers to maintain desired
oil temperatures.
No external input required.

Accessories



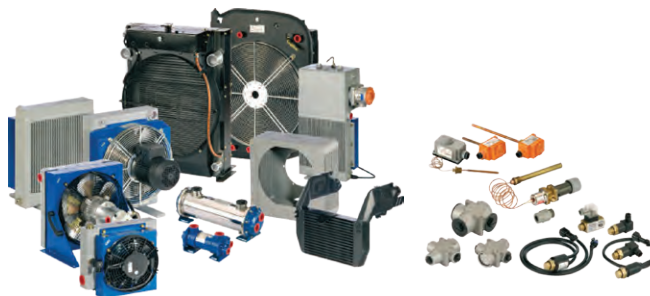
AC Temperature Switches
Cycle cooling fan to maintain desired
temperatures.
Fixed & adjustable designs available.



DC Temperature Switches
12v & 24v Models.
TMR Switches are prewired & include
relay for plug & play operation.



Thermostatic Valves
Modulating valves bypass oil during
cold startup.
#8 through #24 sizes available.



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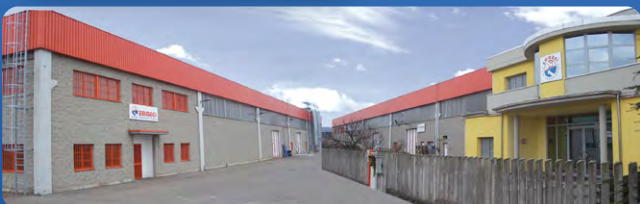
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