ELH Series

Hydraulic Motor Drive

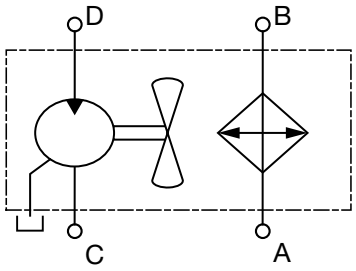
Description

These coolers use a combination of high performance cooling elements combined with a high capacity hydraulic fan drive to give long, trouble free operation in mobile hydraulic applications. The compact design allows the coolers to fit most equipment and provides the highest cooling performance in heat dissipation while minimizing space required.

Features

- ELH 4 and 5 coolers are designed with the inlet/outlet ports facing towards the back to help reduce fittings
- Available with internal pressure and temperature bypass
- All units feature a built in thermostat port
- Up to 125 HP cooling capacity
- Rated flows up to 80 gpm (consult factory for higher flows)
- Hydraulic motor drive offers more cooling in a smaller package

Hydraulic Symbol



Applications

Agricultural

Offshore

Construction

Railways

Industrial

Utility

Material Handling

Forestry

General

Materials	Housing: welded steel Heat exchanger: aluminum, brazed bar-and-plate Fan: plastic Motor: aluminum housing, steel gears and shaft
Max. Oil Temp.	266˚F (130˚C)
Max. Operating Pressure	230 psi (16 bar)
Mounting Orientation	All positions
Fluids	Mineral oil to DIN 51524 Part 1 and 2 *(Contact factory for other fluid usages)*
Filtration	ISO/DIS 4406 Code 19/16- Filtration grade B25>75
Motor	– Max. Drain Pressure: 29 psi (2 bar) – Fluid Viscosity Range:10-600 cSt *(recommended 30-45 cSt)* – Fluid Temperature Range: up to 194˚ F (90°C)

PN#02085359 / 10.26 / COL2309-2412

Model Code

ELH 4 1.5 H6.3 S IBT 45 - 2

Model
ELH = Air Cooled Oil Cooler with Hydraulic Fan Drive

Size
4, 5, 6, 8, 9

Version Number

Hydraulic Motor Displacement
H6.3 = 6.3 cc/rev
H14 = 14 cc/rev
H22 = 22 cc/rev

Air Flow Direction
S = Suction *(through heat exchanger, exhausting through fan)*

Accessories
(omit) = None
IBT = Internal Thermostatic Bypass Valve
IBP = Internal Pressure Bypass Valve

Opening Temperature *(IBT Only)*
45 = 113°F (45°C) *(closes at 131°F)*
50 = 130°F (50°C) *(closes at 150°F)*

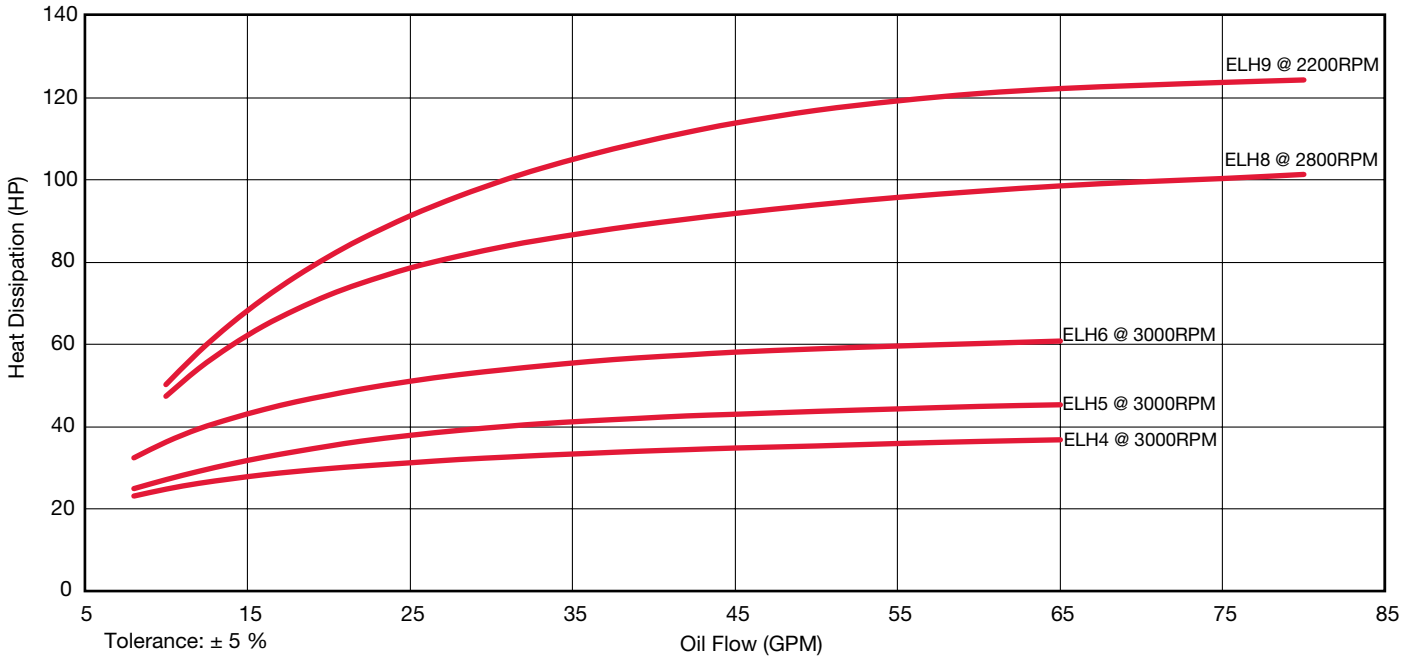
Opening Pressure Drop *(IBT & IBP Only)*
2 = 2 bar (29 psi)
3 = 3 bar (45 psi)

Technical Specifications

Size	Motor Displacement (cm3/rev)	Fan Operating Speed Range (rpm)	Min. Pressure Required for 1500 RPM	Motor Oil Flow @1500 RPM (gpm)	Max. Continuous Motor Operating Pressure (psi)	Noise Level @1000 RPM (dBa @1 Meter)*	Weight (lbs.)
ELH 4	6.3 / 14 / 22	1000 / 3000	725 / 435 / 290	2.8 / 5.7 / 9.7	3625 / 3625 / 2175	70	40
ELH 5	6.3 / 14 / 22	1000 / 3000	1015 / 435 / 290	2.8 / 5.7 / 9.7	3625 / 3625 / 2175	70	53
ELH 6	6.3 / 14 / 22	1000 / 3000	2175 / 1015 / 725	2.8 / 5.7 / 9.7	3625 / 3625 / 2175	70	95
ELH 8	6.3 / 14 / 22	1000 / 2800	2900 / 1160 / 870	2.8 / 5.7 / 9.7	3625 / 3625 / 2175	76	148
ELH 9	14 / 22	1000 / 2200	1885 / 1305	5.7 / 9.7	3625 / 2175	78	188

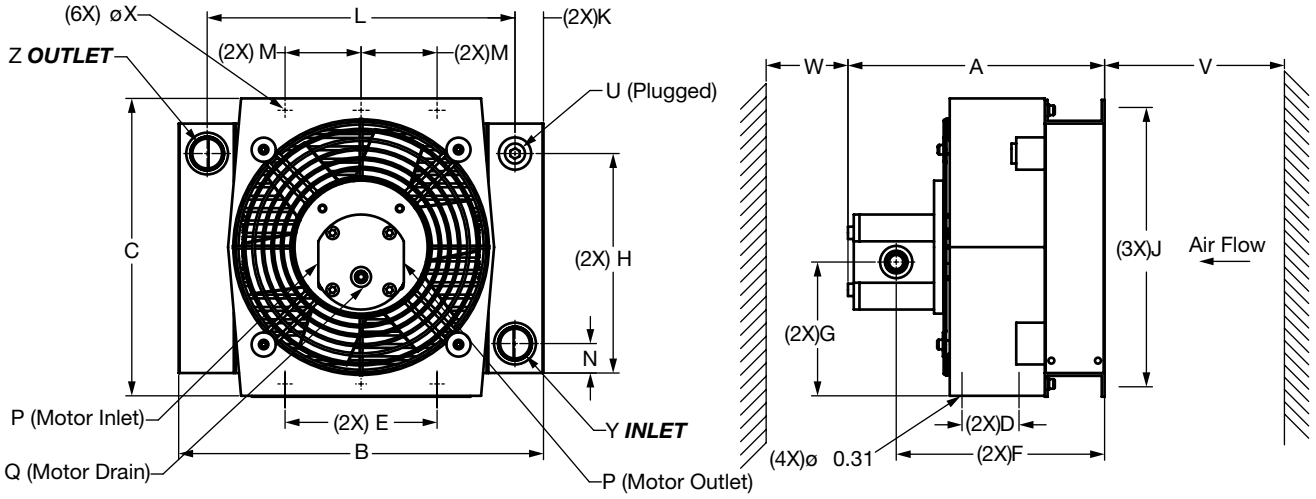
*The noise levels are only a guide as acoustic properties vary and depend on the characteristics of the room, connections, viscosity, and resonance.

Heat Dissipation @ ΔT = 72°F
Sizes 4-9



Dependent on the oil flow rate and the temperature difference ΔT between oil inlet and air inlet.
Note: The values are measured at ΔT = 72°F (40°C). For smaller ΔT values, the heat dissipation can change. Please reference page E1 or contact your local HYDAC distributor for further consultation.

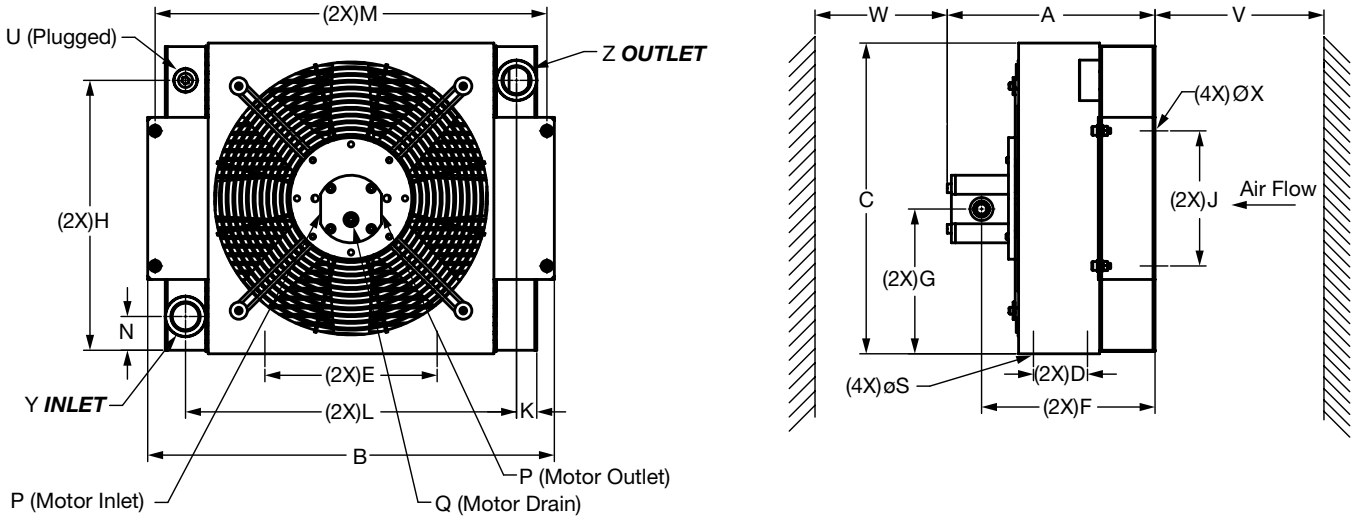
Dimensions
ELH Size 4



Size	A (6.3cc)	A (14cc)	A (22cc)	B	C	D	E	F (6.3cc)	F (14cc)	F (22cc)	G	H	J
4	11.56 [294]	12.06 [306]	12.62 [321]	19.69 [500]	17.72 [450]	3.15 [80]	10.52 [267]	9.56 [243]	9.81 [249]	10.09 [256]	8.24 [209]	13.35 [339]	16.57 [421]

Size	K	L	M	N	P	Q	U	V	W	X	Y	Z
4	0.98 [25]	17.72 [450]	5.91 [150]	1.97 [50]	SAE-10	SAE-4	1/2" NPT	7.87 [200]	13.78 [350]	ø0.39x0.59 [ø10x15]	SAE-16	SAE-16

Dimensions
ELH Size 5

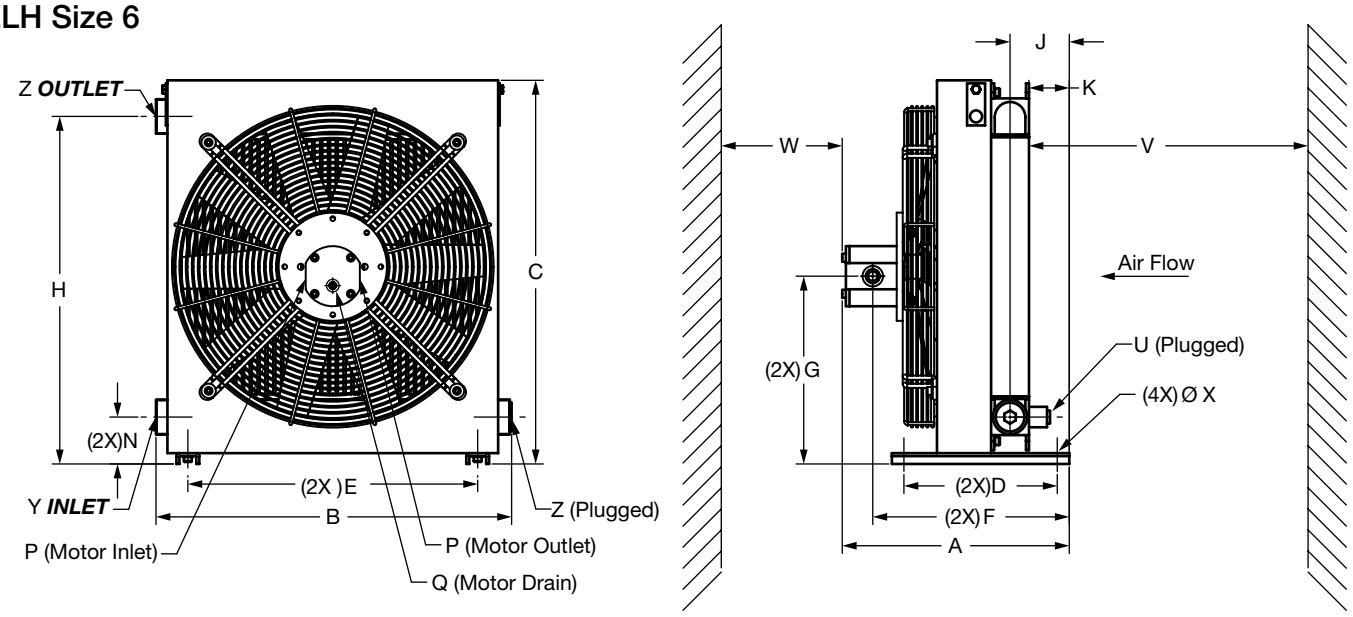


Size	A (6.3cc)	A (14cc)	A (22cc)	B	C	D	E	F (6.3cc)	F (14cc)	F (22cc)	G	H	J
5	12.11 [308]	12.61 [320]	13.17 [335]	23.70 [602]	18.11 [460]	3.15 [80]	10.04 [255]	10.11 [257]	10.36 [263]	10.64 [270]	8.44 [214]	15.73 [400]	7.87 [200]

Size	K	L	M	N	P	Q	U	V	W	X	Y	Z
5	1.19 [30]	19.29 [490]	22.83 [580]	1.97 [50]	SAE-10	SAE-4	1/2" NPT	9.84 [250]	15.75 [400]	ø0.47 [ø12]	SAE-20	SAE-20

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

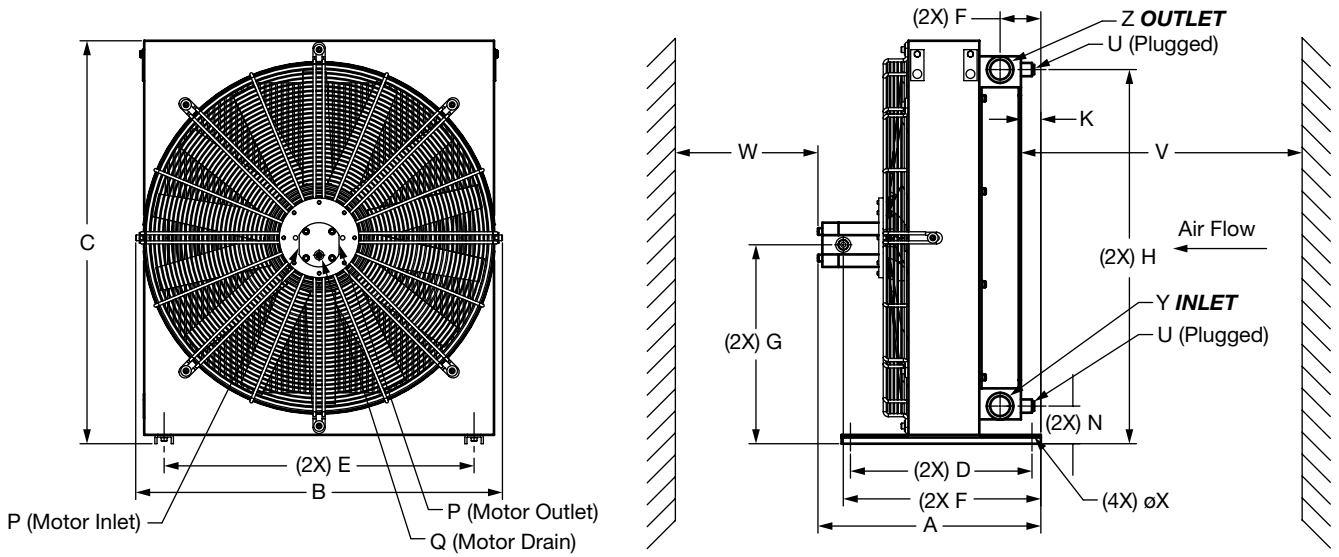
Dimensions
ELH Size 6



Size	A (6.3cc)	A (14cc)	A (22cc)	B	C	D	E	F (6.3cc)	F (14cc)	F (22cc)	G	H	J
6	14.87 [378]	15.37 [390]	15.93 [405]	23.17 [589]	25.12 [638]	10.04 [255]	18.98 [482]	12.87 [327]	13.12 [333]	13.40 [340]	12.30 [312]	22.76 [578]	3.88 [99]

Size	K	L	M	N	P	Q	U	V	W	X	Y	Z
6	2.64 [67]	N/A	N/A	3.08 [78]	SAE-10	SAE-4	1/2" NPT	22.62 [575]	39.37 [1000]	ø0.35 [ø9]	SAE-20	SAE-20

Dimensions
ELH Size 8

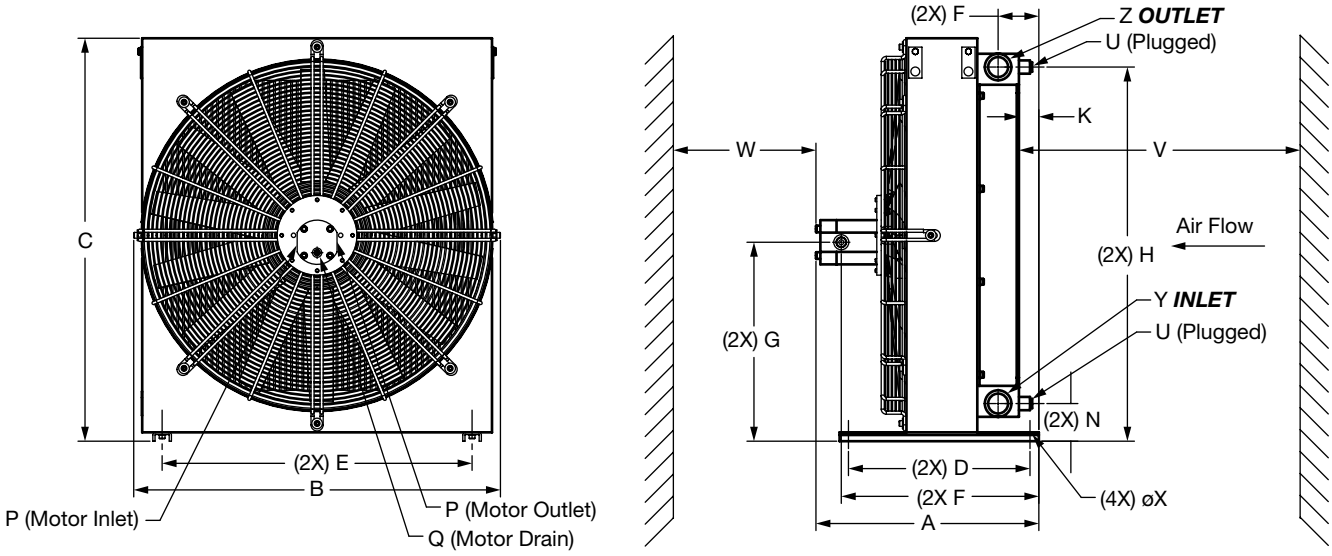


Size	A (6.3cc)	A (14cc)	A (22cc)	B	C	D	E	F (6.3cc)	F (14cc)	F (22cc)	G	H	J
8	15.07 [383]	15.57 [395]	16.13 [410]	27.24 [692]	30.08 [764]	10.04 [255]	18.98 [482]	13.06 [332]	13.31 [338]	13.59 [345]	14.78 [375]	27.76 [705]	3.70 [94]

Size	K	L	M	N	P	Q	U	V	W	X	Y	Z
8	2.09 [53]	N/A	N/A	3.03 [77]	SAE-10	SAE-4	1/2" NPT	27.56 [700]	43.31 [1100]	ø0.35 [ø9]	SAE-20	SAE-20

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

Dimensions
ELH Size 9



Size	A (6.3cc)	A (14cc)	A (22cc)	B	C	D	E	F (6.3cc)	F (14cc)	F (22cc)	G	H	J
9	N/A	19.82 [503]	20.38 [518]	32.61 [828]	35.83 [910]	16.14 [410]	27.56 [700]	N/A	17.57 [446]	17.85 [453]	17.69 [449]	33.27 [845]	3.62 [92]

Size	K	L	M	N	P	Q	U	V	W	X	Y	Z
9	1.77 [45]	N/A	N/A	3.35 [85]	SAE-10	SAE-4	1/2" NPT	35.43 [900]	47.24 [1200]	ø0.39x0.78 [ø10x20]	SAE-24	SAE-24

Notes

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Comparing Heat Exchanger Performance from HYDAC to other Manufacturers

Not all heat exchangers are rated the same way, especially in terms of heat transfer performance. This guide will help you calculate your the performance with your specific ETD.

Definitions:

- HP = horsepower in terms of the amount of heat transferred (this can be converted to other units of measure, like Btu/min, Btu/hr, kW, etc.)
- ETD = Entering Temperature Differential, hot oil inlet temp minus air inlet temp
- Heat transfer curve is simply a rating of a heat exchanger at various flow rates

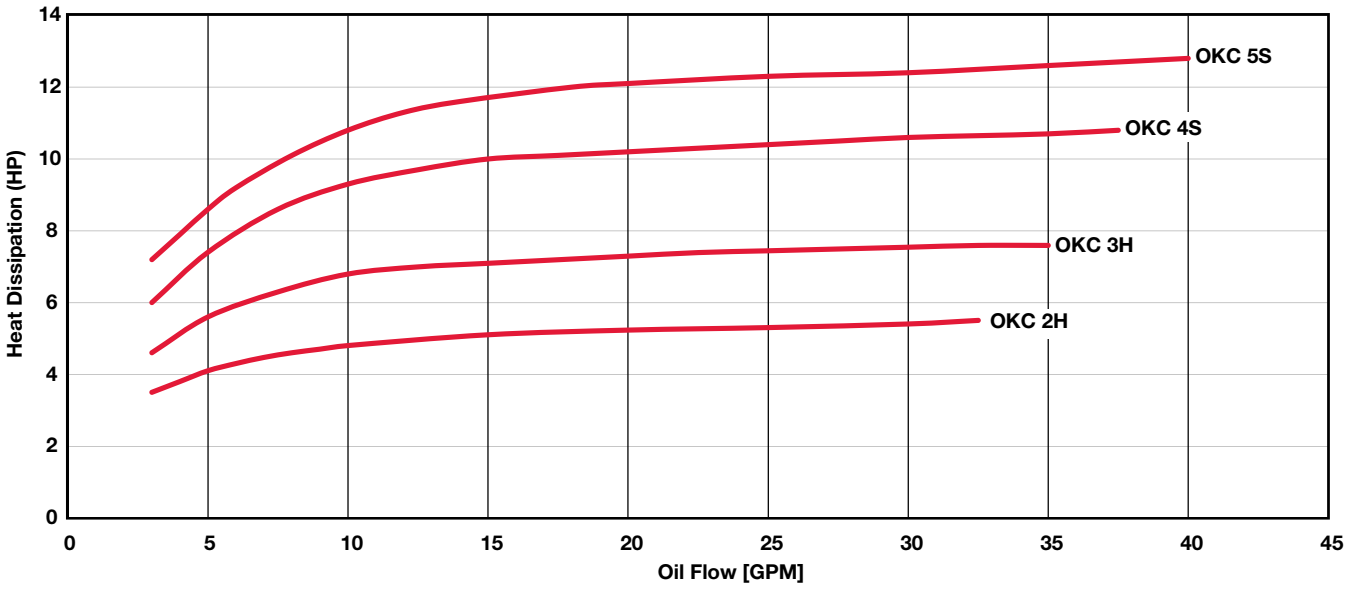
HYDAC rates the industrial coolers at 40˚F ETD. This means the oil inlet temp is 40˚F hotter than the air inlet temp. We rate the AC-M and ELH cooler at 72˚F ETD. They can be rated differently and you can convert them to be equivalent.

Adjusting the HP rating to a different ETD is a simple ratio. You can ratio up or down.

Example:

Based on the OKC Series Heat Dissipation chart below, our OKC 4S has a rating of 10HP at 40˚F ETD at 20 gpm oil flow (it is an easy point to find on the chart). This rating can be stated at a higher (or lower) ETD. For instance, if your ETD is 50°F, you can adjust the OKC 4S rating: (10HP / 40˚ F) x 50˚ F = 12.5HP. Therefore, the new OKC 4S rating is 12.5HP at 50˚F ETD at 20 gpm.

Heat Dissipation @ ΔT = 40°F



Cooling capacity is dependent on the oil flow rate and the temperature difference ΔT between oil inlet and air inlet.