

INDUSTRIAL COOLERS

OK LN Series - AC Motor Drive

Air Cooled Oil Coolers



Features

The OK-LN is the optimized, low noise version of the OK series coolers. They are available in sizes 8-14 and have flexible adaptation to various applications to cool industrial hydraulic applications.

- Up to 200 HP cooling capacity
- Highly efficient and rugged bar-and-plate style heat exchangers
- Externally mounted heat exchangers for easy maintenance and cleaning
- Modular pump and filter options for a plug and play fluid conditioning system
- Available with HYDAC MF, LPF and FLND series filters
- Accessories include: Thermostats (adjustable and fixed), integrated thermostatic bypass valves and pressure bypass valves.
- Packaged systems with pump flows up to 62 gpm
- Maximum flows (w/o pump) up to 220 gpm

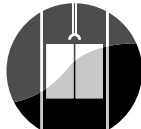
Applications



Gearboxes



Industrial



Elevators



Power Generation



Pulp & Paper



Railways



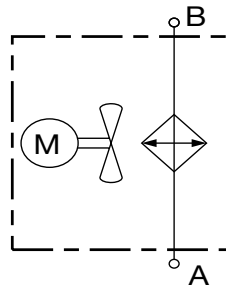
Shipbuilding



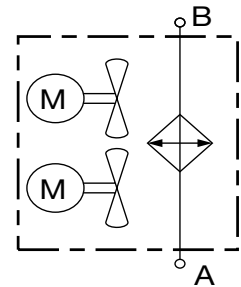
Steel / Heavy Industry

Hydraulic Symbol

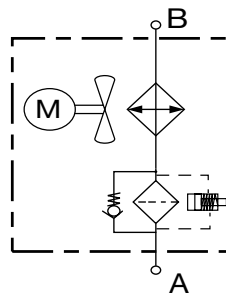
OK LN Sizes 8 - 11



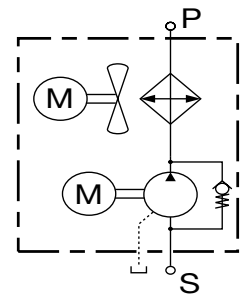
OK - LN Sizes 12 - 14



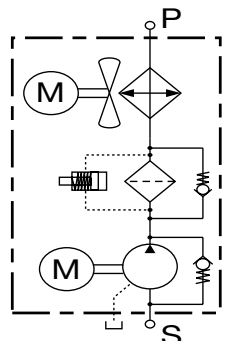
OKF LN Sizes 8 - 11



OKA LN Size 8 - 11



OKAF LN Sizes 8 - 11



Low Noise Solution

Product Development

HYDAC Cooling Systems engineers have utilized modern CFD technologies to carefully study the impact of shroud design, fan type and finger guard design on the cooling airflow, noise level, cooler performance and overall design efficiency. The goal was to achieve a significant decibel decrease while improving overall cooler efficiency. The result is the new OK-LN (Low Noise) product series.

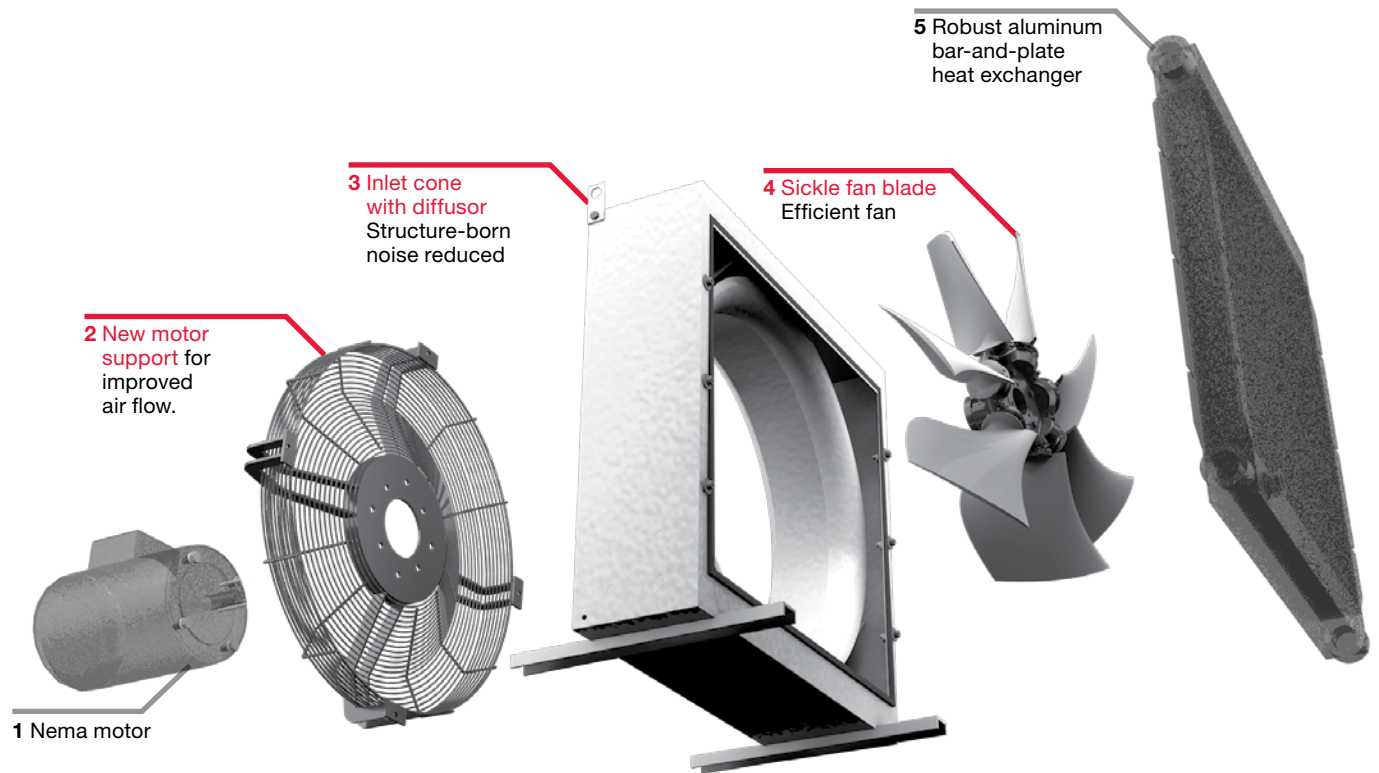
The new OK-LN cooler product line can be used in most industrial applications, where oil or a water-glycol mixture must be cooled using forced air. Typical applications include hydraulic circuits of industrial power units, gearboxes, tool-machines, transformers and others.

Noise Reduction

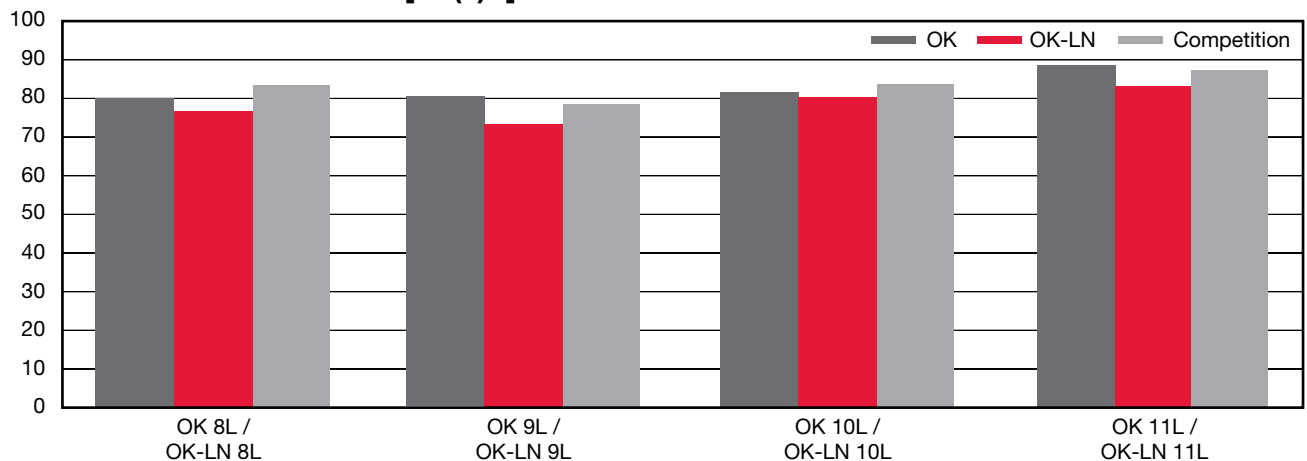
- Optimized air stream
- Application of a high efficiency fan with special characteristic curve
- Housing design optimization, i.e. less vibration conduction
- Decibel levels reduced without compromise of fan speed or performance

Product Series Characteristics

- Low noise - average of 10 dB lower than competitor unit
- High heat dissipation
- Low electric current consumption



Sound Pressure Level @ 1m [dB(9)A]



INDUSTRIAL COOLERS

General

Materials	Housing: Welded steel housing Heat Exchanger: Aluminum Heavy duty bar-and-plate Motors: NEMA frame style TEFC Fan: Plastic Mounting foot and motor stand: Steel
Mounting Orientation	Horizontal, motor shaft
Maximum Pressure	w/o pump: 230 psi (16 bar) Dynamic 290 psi (20 bar) Static with pump: 145 psi (10 bar)
Fluids	Mineral oil to DIN 51524 Part 1 and 2; Permissible contamination < NAS 12 (contact factory for other fluid usages)
Maximum Oil Viscosity	w/o pump: 2000 cst w/ pump: 180cst
Maximum Oil Temperature	w/o pump: 266° F (130°C) with pump: 176° F (80°C)
Air Flow Direction	Pulled across heat exchanger

Technical Specifications

Model	Set up	Max. Oil Flow Rate (gpm)	Pump Displacement - Flow Rate			Noise (dBa @ 1 m)	Motor Specifications		
			Fan (HP)	Pump (HP)	RPM				
OK-LN 8L, OKF-LN 8L	Fan	74	NA			75.9	1.5	NA	1200
OKA-LN 8L, OKAF-LN 8L	Fan w/pump	-	70cc/rev 34.3 gpm	100 cc/rev 47.5 gpm	130 cc/rev 61.8 gpm	TBD	1.5	5 (70cc/rev) 7.5 (100cc/rev) 10 (130cc/rev)	1200 / 1800
OK-LN 8S, OKF-LN 8S	Fan	74	NA			82.7	3	NA	1800
OKA-LN 8S, OKAF-LN 8S	Fan w/pump	-	70cc/rev 34.3 gpm	100 cc/rev 47.5 gpm	130 cc/rev 61.8 gpm	TBD	3	5 (70cc/rev) 7.5 (100cc/rev) 10 (130cc/rev)	1800/ 1800
OK-LN 9L, OKF-LN 9L	Fan	79	NA			73	1.5	NA	1200
OKA-LN 9L, OKAF-LN 9L	Fan w/ pump	-	70cc/rev 34.3 gpm	100 cc/rev 47.5 gpm	130 cc/rev 61.8 gpm	TBD	1.5	5 (70cc/rev) 7.5 (100cc/rev) 10 (130cc/rev)	1200 / 1800
OK-LN 10L, OKF-LN 10L	Fan	79	NA			80.1	3	NA	1200
OKA-LN 10L, OKAF-LN 10L	Fan w/pump	-	70cc/rev 34.3 gpm	100 cc/rev 47.5 gpm	130 cc/rev 61.8 gpm	TBD	3	5 (70cc/rev) 7.5 (100cc/rev) 10 (130cc/rev)	1200 / 1800
OK-LN 11L, OKF-LN 11L	Fan	79	NA			83.5	5	NA	1200
OKA-LN 11L, OKAF-LN 11L	Fan w/ pump	-	70cc/rev 34.3 gpm	100 cc/rev 47.5 gpm	130 cc/rev 61.8 gpm	TBD	5	5 (70cc/rev) 7.5 (100cc/rev) 10 (130cc/rev)	1200 / 1800
OK-LN 12L	Fan	220	NA			83.1	(2x) 3	NA	1200
OK-LN 14L	Fan	220				86.5	(2x) 5		1200
OK-LN 14S	Fan	220				TBD	(2x) 7.5		1800

Model Code

OKAF-LN 10L 3.6 B 70 LPF240 3 B IBP 2 TS140

Model

- OK- LN = Basic Cooler
- OKF- LN = Cooler with Filter (sizes 8-11 only)
- OKA- LN = Cooler with Pump (sizes 8-11 only)
- OKAF- LN = Cooler with Pump & Filter (sizes 8-11 only)

Size

- 8L, 8S, 9L, 10L, 10S, 11L, 11S, 12L, 14L, 14S
- (Note: S = 1800 RPM, L = 1200 RPM)

Modification Number (latest version supplied)

Motor Voltage

- B = 230/460 Volts, 3ph
- C = 575 Volts, 3ph
- X = No Motor

Pump

- (omit) = No Pump
- 70 = 70 ccm/rev, L/S=34.3 gpm
- 100 = 100 ccm/rev, L/S=47.5 gpm
- 130 = 130 ccm/rev, L/S=61.8 gpm

Filter Type

- (omit) = No Filter
- MF195 = Spin-On 60 rated gpm
- LPF240 = Cartridge Filter 63 rated gpm
- LPF280 = Cartridge Filter 73 rated gpm
- FLND250 = Duplex Filter 66 rated gpm
- FLND400 = Duplex Filter 105 rated gpm

Micron Rating

- (omit) = No Filter
- 3 = 3 micron, Absolute
- 5 = 5 micron, Absolute (MF, LPF only)
- 6 = 6 micron, Absolute (FLND only)
- 10 = 10 micron, Absolute
- 20 = 20 micron, Absolute (MF, LPF only)
- 25 = 25 micron, Absolute (FLND only)

Filter Indicator

- (omit) = No Filter
- B = Visual
- C = Electrical (AC/DC) (LPF + FLND filters only)
- D24 = 24 VDC Lamp/Switch (LPF + FLND filters only)
- D115 = 115 VAC Lamp/Switch (LPF + FLND filters only)
- D230 = 230 VAC Lamp/Switch (LPF + FLND filters only)

Accessories

- (omit) = None
- IBT = Internal Temperature Bypass Valve
- IBP = Internal Pressure Bypass Valve

Opening Temperature (IBT Only)

- 45 = Opens 113°F (45°C) Closes at 131°F (55°C)
- 50 = Opens 130°F (50°C) Closes at 150°F (65°C)
- 60 = Opens 140°F (60°C) Closes at 158°F (70°C)

Opening Pressure (IBT & IBP)

- 2 = 2 bar (29 psi)
- 3 = 3 bar (45 psi)
- 4 = 4 bar (58 psi) (IBP only)

Temperature Switch

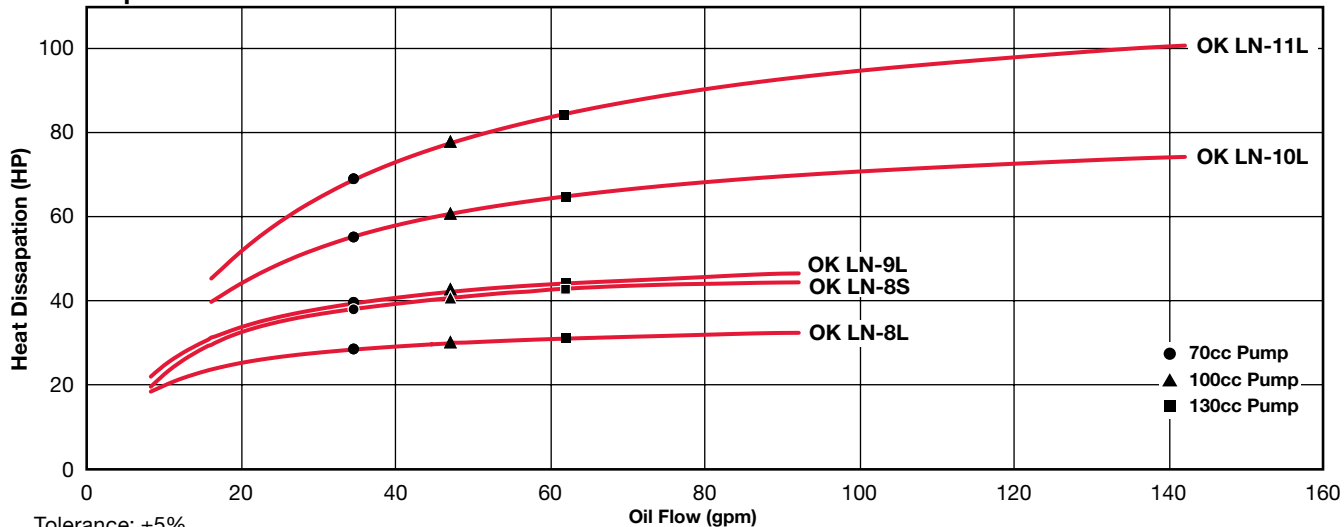
- TR1 = Reservoir Thermostat, adjustable 32° to 200°F (must be ordered as a separate line item)
 - AITR = Inline Thermostat, adjustable 32°F to 200°F
 - TS-120 = Inline Temperature Switch, Fixed 120°F
 - TS-140 = Inline Temperature Switch, Fixed 140°F
 - TS-160 = Inline Temperature Switch, Fixed 160°F
- (TS switches OK and OKF models only)

Preferred OK-LN Models	P/N
OK-LN8S3.6B QS	2597967
OK-LN8L3.6B SC	2597966
OK-LN10L3.6B QS	2597969
OK-LN10S3.6B SC	2599150
OK-LN11L3.6B QS	2597970
OK-LN11S3.6B SC	2957463

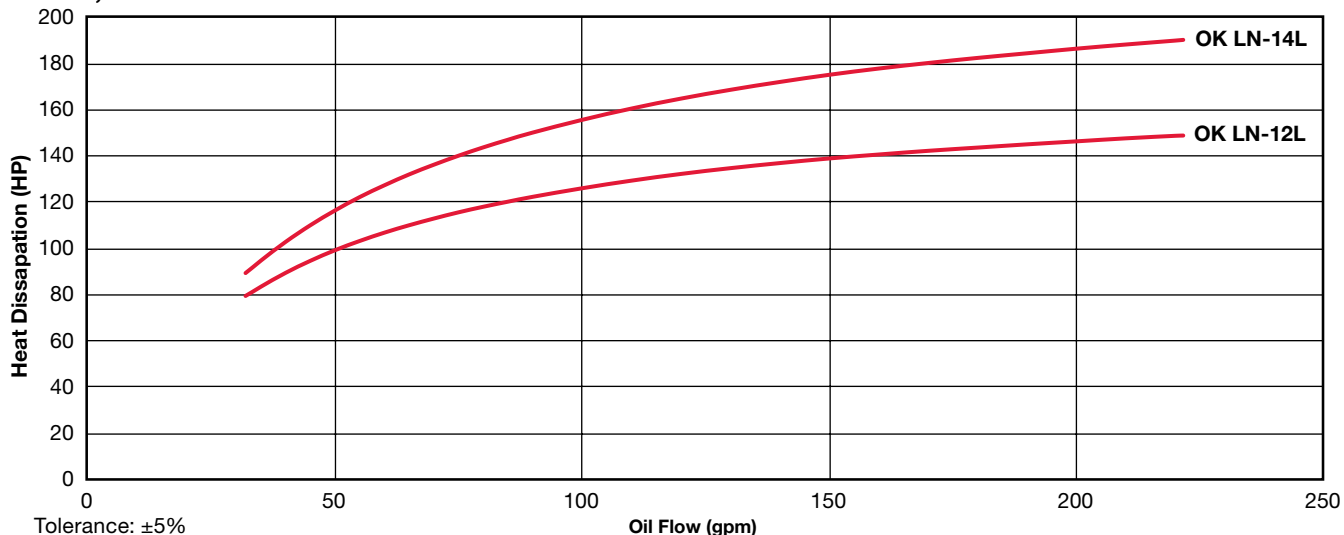
Model Codes containing RED are Options – Contact HYDAC Cooling Division for information and availability

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Heat Dissipation @ $\Delta T = 40^\circ\text{F}$ Sizes 8 -11

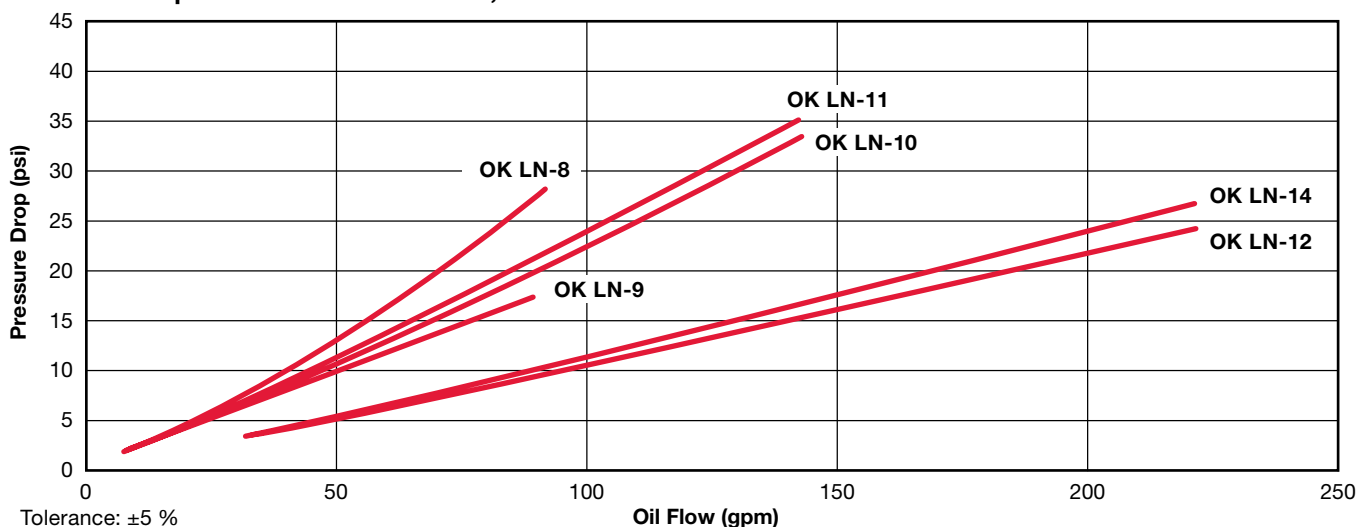


Sizes 12, 14



Cooling capacity depending on oil flow and the temperature differential ΔT between the oil inlet and air inlet.

Pressure Drop @ 30cSt Sizes 8 -12, 14



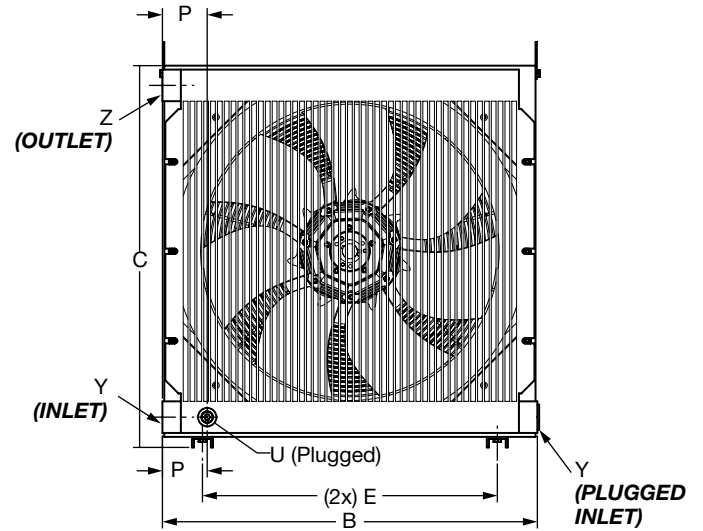
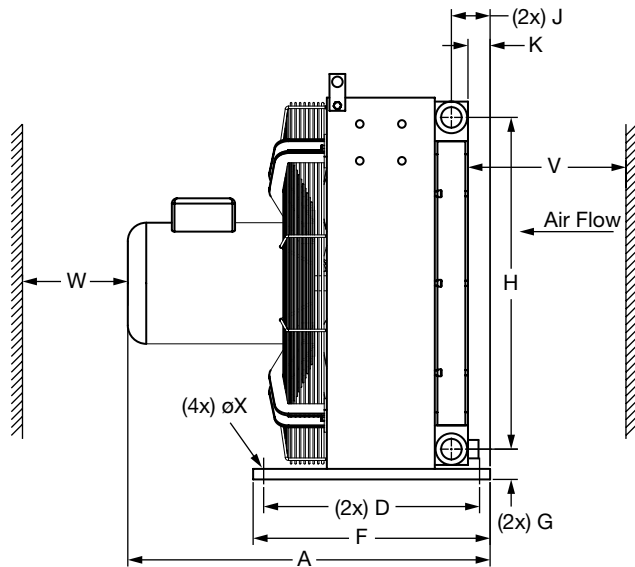
Note: Values measured at ΔT of 40°F , may vary at lower ΔT .

Pressure drop curves above use fluid viscosity of 30 cSt. For other viscosities the result must be multiplied by the K factors below.

K Factor Chart

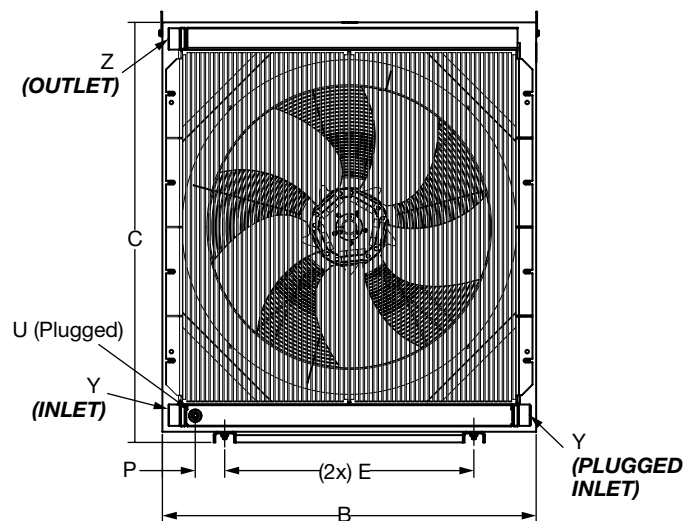
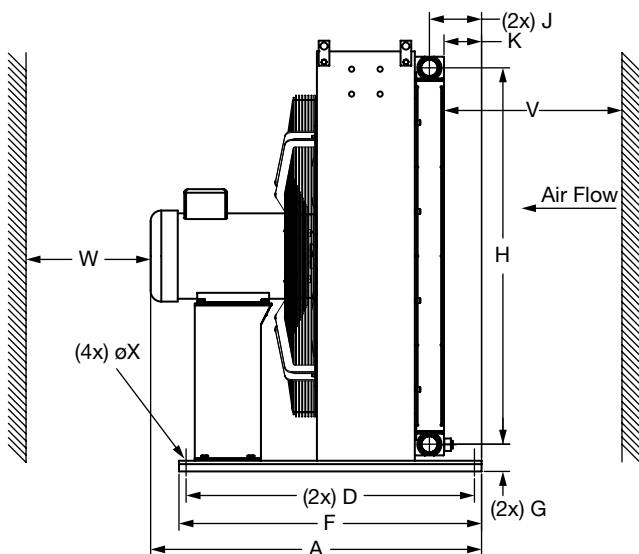
K Factor	0.5	0.65	0.77	1	1.3	1.52	1.9	2.8	5.3
Viscosity (SSU)	46	70	102	150	213	250	315	464	695
Viscosity (cSt)	10	15	22	32	46	54	68	100	150

Dimensions OK LN Size 8 - 9



Size	A	B	C	D	E	F	G	H	I
OKLN8L,S3.6B	27.09	27.76	28.54	16.14	22.05	17.72	2.26	24.80	2.89
OKLN9L3.6B	33.15	31.10	34.65	29.53	27.56	31.10	3.01	29.80	5.83
Size	K	P	U	V	W	X	Y	Z	
OKLN8L,S3.6B	1.65	3.21	1/2" NPT	23.62	47.24	ø0.35x0.78 Slot	SAE-20	SAE-20	
OKLN9L3.6B	4.21	3.34	1/2" NPT	35.43	98.43	0.47	SAE-24	SAE-24	

Dimensions OK LN Size 10 - 11



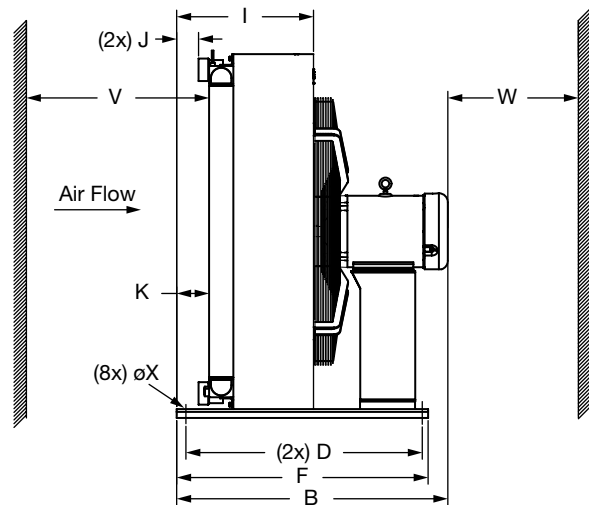
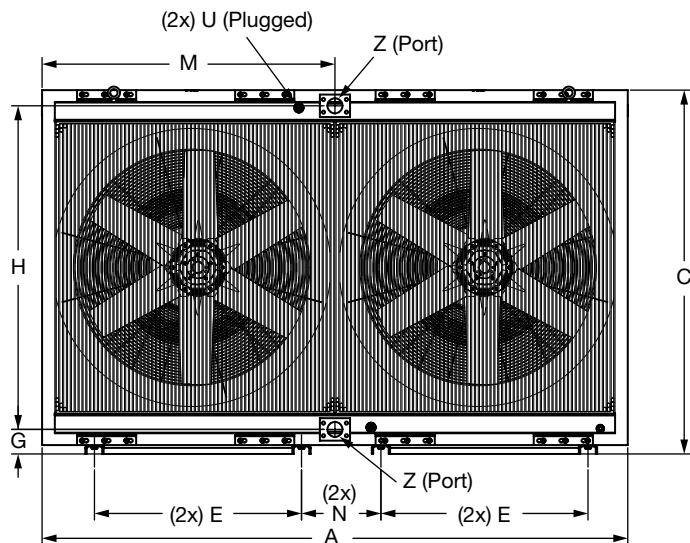
Size	A	B	C	D	E	F	G	H	J
OKLN10L3.6B	36.09	36.61	40.55	31.89	27.56	33.46	2.95	35.83	6.31
OKLN11L3.6B	36.60	41.34	46.46	31.89	27.56	33.46	3.01	41.61	5.77
Size	K	P	U	V	W	X	Y	Z	
OKLN10L3.6B	4.23	3.72	1/2" NPT	35.43	110.24	0.47	SAE 24	SAE 24	
OKLN11L3.6B	4.15	3.63	1/2" NPT	39.37	118.11	0.47	SAE 24	SAE 24	

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

INDUSTRIAL COOLERS

Dimensions

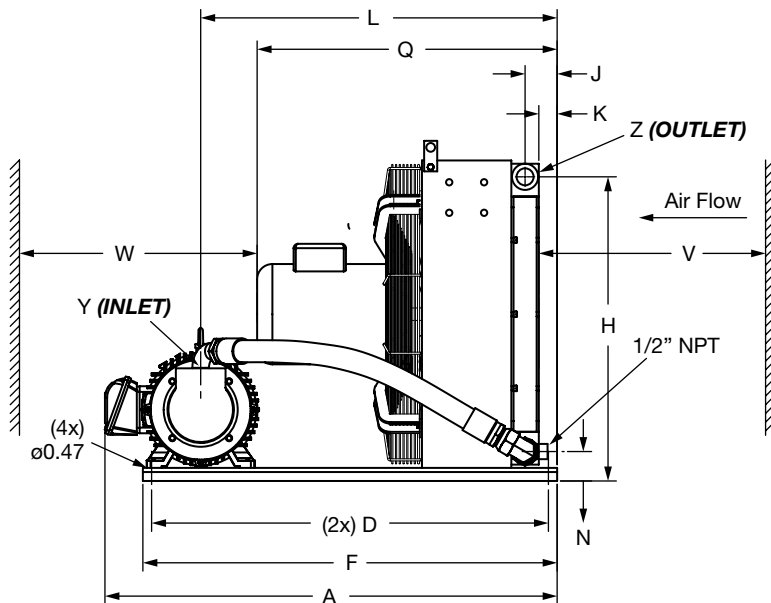
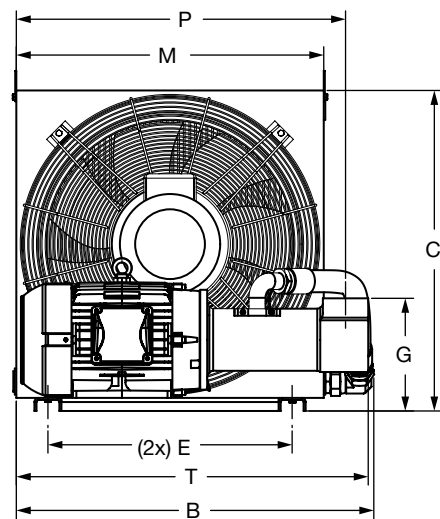
OK LN Size 12 - 14



Size	A	B	C	D	E	F	G	H
OKLN12	72.8	36.1	43.7	31.9	27.5	33.5	3.97	37.0
OKLN14	77.9	36.8	48.4	31.9	27.5	33.5	3.3	43.0
Size	K	M	U	V	W	X	Y/Z	
OKLN12	36.4	36.4	1/2" NPT	35.4	110	.475	2" SAE Code 61	
OKLN14	38.9	38.9	1/2" NPT	39.4	118	.475	2" SAE Code 61	

Dimensions

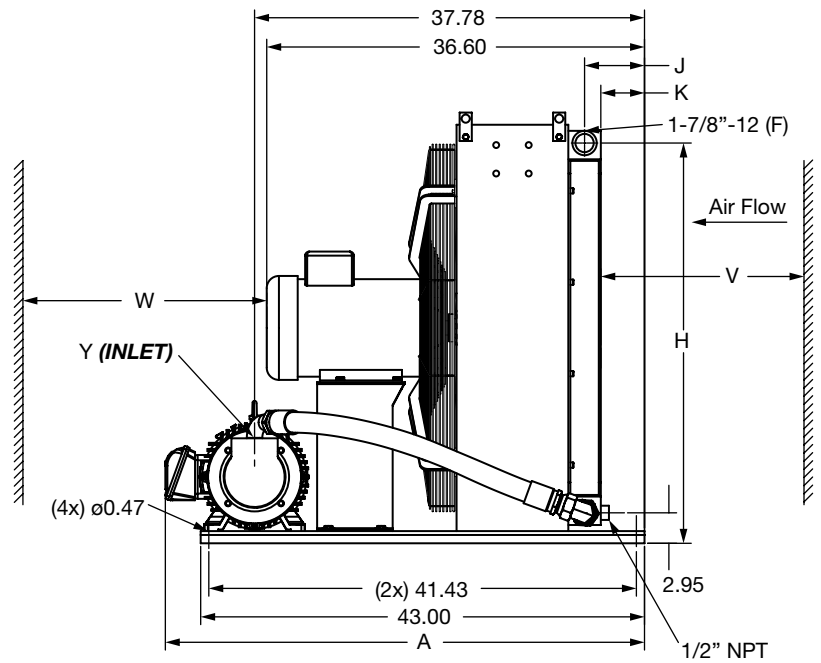
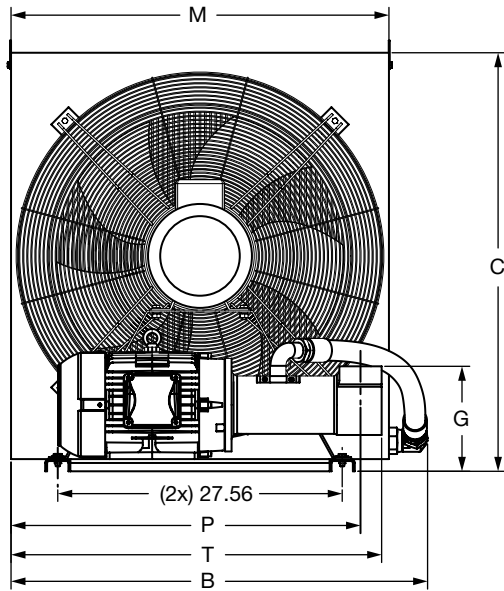
OKA LN Size 8 - 9



Size	A	B	C	D	E	F	G	H	J	K
8L,S3.6B70	39.05	32.24	28.94	35.83	22.05	37.4	9.00	27.46	2.89	1.65
8L,S3.6B100, 130	40.85	32.24	28.94	35.83	22.05	37.4	10.17	27.46	2.89	1.65
9L,S3.6B70	44.64	35.48	34.65	41.43	27.56	43.0	9.00	32.82	5.83	4.21
9L,S3.6B100, 130	46.45	35.48	34.65	41.43	27.56	43.0	10.17	32.82	5.83	4.21
Size	L	M	N	P	Q	T	V	W	Y	Z
8L,S3.6B70	32.18	27.76	2.66	29.72	27.09	31.50	23.62	47.24	SAE 2"	SAE 20
8L,S3.6B100, 130	32.18	27.76	2.66	29.72	27.09	31.77	23.62	47.24	SAE 2-1/2"	SAE 20
9L,S3.6B70	37.78	31.10	2.95	31.10	33.15	32.87	35.43	98.43	SAE 2"	SAE 24
9L,S3.6B100, 130	37.78	31.10	2.95	31.10	33.15	33.15	35.43	98.43	SAE 2-1/2"	SAE 24

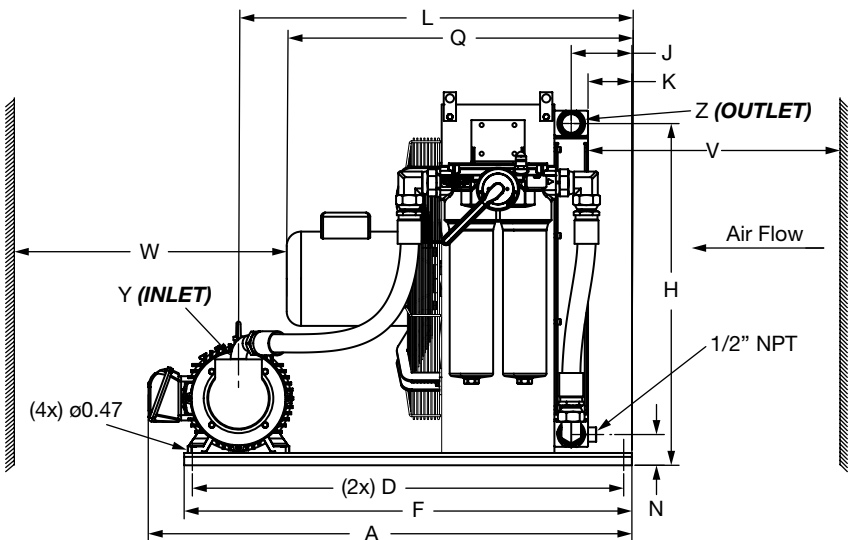
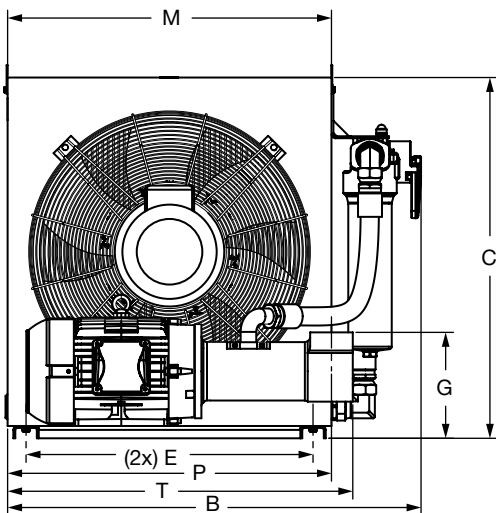
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Dimensions OKA LN Size 10 - 11



Size	A	B	C	D	E	F	G	H	J	K
8L, S3.6B70	39.05	32.24	28.94	35.83	22.05	37.4	9.00	27.46	2.89	1.65
8L,S3.6B100, 130	40.85	32.24	28.94	35.83	22.05	37.4	10.17	27.46	2.89	1.65
9L,S3.6B70	44.64	35.48	34.65	41.43	27.56	43.0	9.00	32.82	5.83	4.21
9L,S3.6B100, 130	46.45	35.48	34.65	41.43	27.56	43.0	10.17	32.82	5.83	4.21
Size	L	M	N	P	Q	T	V	W	Y	Z
8L, S3.6B70	32.18	27.76	2.66	29.72	27.09	31.50	23.62	47.24	SAE 2"	SAE 20
8L,S3.6B100, 130	32.18	27.76	2.66	29.72	27.09	31.77	23.62	47.24	SAE 2-1/2"	SAE 20
9L,S3.6B70	37.78	31.10	2.95	31.10	33.15	32.87	35.43	98.43	SAE 2"	SAE 24
9L,S3.6B100, 130	37.78	31.10	2.95	31.10	33.15	33.15	35.43	98.43	SAE 2-1/2"	SAE 24

Dimensions OKAF LN Size 8 - 9



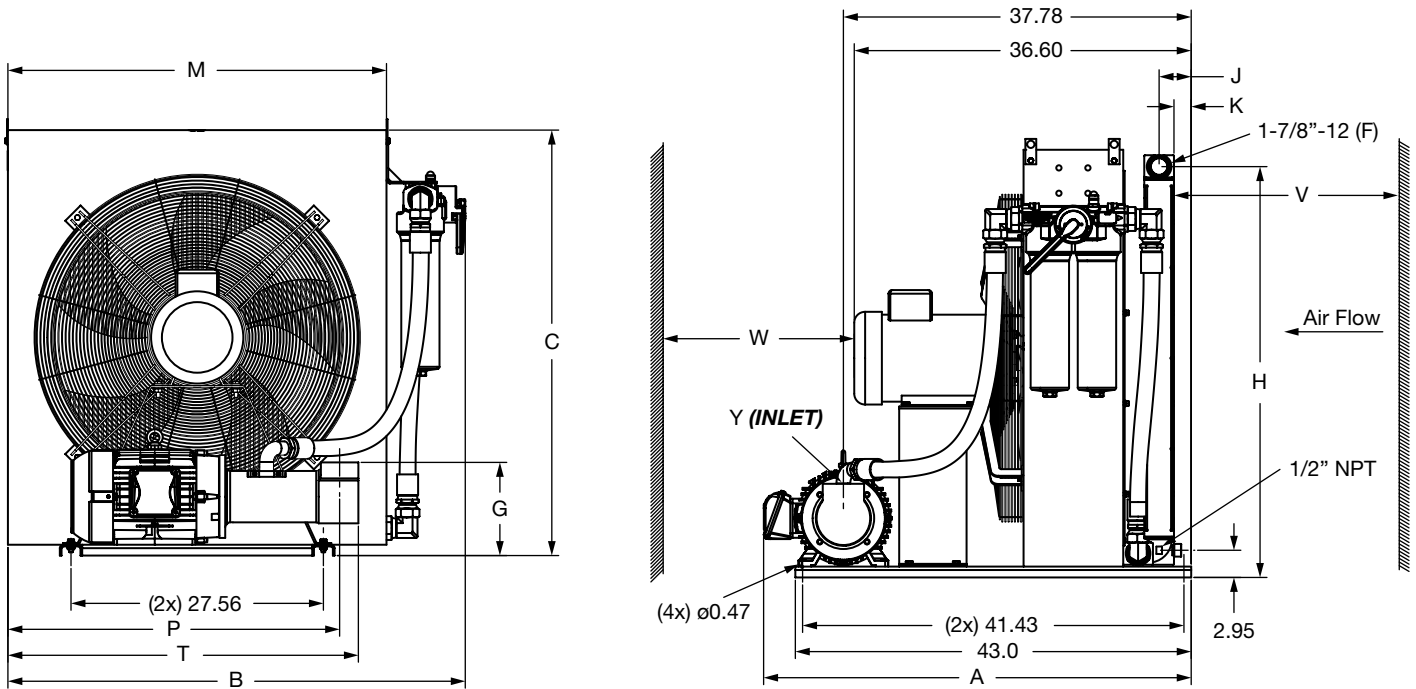
Size	A	B	C	D	E	F	G	H	J	K	L
OKAFLN8L,S3.6B70	39.05	36.36	28.94	35.83	22.05	37.40	9.00	27.46	2.89	1.65	32.18
OKAFLN8L,S3.6B100,130	40.85	36.36	28.94	35.83	22.05	37.40	10.17	27.46	2.89	1.65	32.18
OKAFLN9L,S3.6B70	44.64	39.70	34.65	41.43	27.56	43.00	9.00	32.82	5.83	4.21	37.78
OKAFLN9L,S3.6B100,130	46.45	39.70	34.65	41.43	27.56	43.00	10.17	32.82	5.83	4.21	37.78
Size	M	N	P	Q	T	V	W	Y	Z		
OKAFLN8L,S3.6B70	27.76	2.66	29.72	27.09	31.50	23.62	47.24	SAE 2" Code 61 Flange	SAE 20		
OKAFLN8L,S3.6B100,130	27.76	2.66	29.72	27.09	31.77	23.62	47.24	SAE 2-1/2" Code 61 Flange	SAE 20		
OKAFLN9L,S3.6B70	31.10	2.95	31.10	33.15	32.87	35.43	98.43	SAE 2" Code 61 Flange	SAE 24		
OKAFLN9L,S3.6B100,130	31.10	2.95	31.10	33.15	33.15	35.43	98.43	SAE 2-1/2" Code 61 Flange	SAE 24		

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INDUSTRIAL COOLERS

Dimensions

OKAF LN Size 10 - 11



Size	A	B	C	G	H	J	K	M	P	T	V	W	Y
OKAFLN10L3.6B70	44.64	45.21	40.55	9.00	38.78	5.81	4.23	36.61	33.86	35.63	35.43	110.24	SAE 2" Code 61 Flange
OKAFLN10L3.6B100,130	46.45	45.21	40.55	10.17	38.78	5.81	4.23	36.61	33.86	35.91	35.43	110.24	SAE 2-1/2" Code 61 Flange
OKAFLN11L3.6B70	44.64	49.94	46.46	9.00	44.64	5.77	4.15	41.34	36.22	37.99	39.37	118.11	SAE 2" Code 61 Flange
OKAFLN11L3.6B100,130	46.45	49.94	46.46	10.17	44.64	5.77	4.15	41.34	36.22	38.27	39.37	118.11	SAE 2-1/2" Code 61 Flange

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