Hexonic | HEAT EXCHANGERS

OIL COOLERS

FOR MOBILE AND INDUSTRIAL APPLICATIONS

Let's exchange

OIL COOLERS FOR MOBILE AND INDUSTRIAL APPLICATIONS

Hexonic brazed plate heat exchangers are specifically designed for hydraulic oil cooling applications. They provide efficient heat transfer and high flow velocity for viscous fluids.

PRODUCT FEATURES

Brazed plate heat exchangers consist of stainless steel corrugated plates that are brazed with copper using vacuum brazing technology. This eliminates the need for seals and thick frame plates.

The plates are sealed together at the contact points, ensuring optimal efficiency and pressure resistance. The special plate stamp pattern ensures turbulent flow, which enhances optimal heat transfer and creates a self-cleaning effect. The plates are designed for maximum possible lifetime with lower maintenance costs.

BENEFITS

High heat efficiency allows for smaller, compact units that are easy to install where space is limited. Brazed plate heat exchangers have no gaskets; therefore, they are suitable for applications where temperature and/or pressure is high.

L-line heat exchangers work as high-efficiency oil coolers that contribute to a long, maintenance-free lifespan for hydraulic power pack cooling systems or lube oil systems.

There is a wide range of different oil connections to choose from, such as BSPP and SAE connections

BENEFITS OF USING BRAZED PLATE HEAT EXCHANGERS

HEXONIC OFFERS A COMPLETE PORTFOLIO OF COMPACT OIL COOLERS SPECIALLY DESIGNED TO WITHSTAND THE RIGORS OF THE TOUGHEST HYDRAULIC SYSTEMS.

SAE CONNECTIONS

LEAK-PROOF AND EASY TO ASSEMBLE.

CAIRO EASY SELECTION

WITH USER-FRIENDLY CAIRO SELECTION SOFTWARE.

SMALLER FOOTPRINT

TAKES UP TO 60% LESS SPACE THAN COMPARABLE SHELL & TUBE HE AND LESS SPACE THAN OTHER OIL COOLERS. IT ALSO GENERATES LOWER INVESTMENT COSTS.

HIGH PERFORMANCE

HEAT EXCHANGERS ARE DESIGNED TO WORK VERY EFFICIENTLY IN A WIDE RANGE OF APPLICATIONS. THEY GUARANTEE COMPACT AND FLEXIBLE SOLUTIONS.

CORRUGATED PLATES

MADE OF 316L STAINLESS STEEL AND BRAZED WITH PURE COPPER OR STAINLESS MATERIAL.

RELIABILITY

ADVANCED TECHNOLOGY AND HIGH-QUALITY MATERIALS OFFER DURABILITY AND RELIABILITY.

SELF-CLEANING

HIGH TURBULENT FLOW PREVENTS FOULING. MAXIMUM LIFETIME AND REDUCED MAINTENANCE.

CERTIFICATES AND STANDARDS

MANUFACTURED IN ACCORDANCE WITH ASME, PED.

OPERATIONAL CONDITIONS

TEMPERATURE RANGE PED

COPPER BRAZED — FROM -195°C (-319°F) TO 230°C (446°F)

STAINLESS BRAZED (LUNA) — FROM -195°C (-319°F) TO 200°C (392°F)

TEMPERATURE RANGE ASME

COPPER BRAZED — FROM -150°F (-101°C) TO 445°F (229°C)

STAINLESS BRAZED (LUNA) — FROM -150°F (-101°C) TO 392°F (200°C)

WORKING PRESSURE PED/ASME

UP TO 30 BAR (435 PSI)

MEDIA

- HYDRAULIC OIL, LUBRICATION OIL
- MINERAL OILS: HL & HLP
- WATER–OIL EMULSION
- MIXTURE OF WATER AND ETHYLENE OR PROPYLENE GLYCOL

MATERIALS

PLATES & CONNECTIONS
- STAINLESS STEEL 1.4401 (AISI 316L)

BRAZING MATERIAL
- COPPER (STANDARD),
- STAINLESS (LUNA)

ACCESSORIES

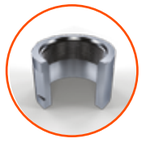
INSTALLATION
- MOUNTING BRACKETS AND BOLTS ON THE FRONT AND REAR PLATE (OPTIONAL)

INSULATION
- POLYURETHANE FOAM COVERED WITH ALUMINUM (APFI) EXPANDED POLYPROPYLENE (EPPI)

OPTIONAL FEATURES

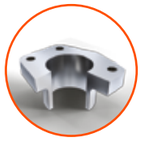
- DOUBLE WALL SYSTEM (SAFEPLATE)

CONNECTIONS

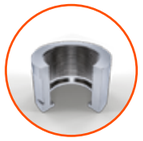


INTERNAL THREAD
FROM ³/₈ TO 1¹/₂
(PED AND ASME)

EXTERNAL THREAD
FROM ³/₈ TO 1¹/₂
(PED AND ASME)



SAE FLANGES
FROM 2" TO 3"
(PED AND ASME)



SAE O-RING
CONNECTIONS
FROM ³/₈ TO 1¹/₂
(ASME)

	Mark	Type of connection	ASME	PED
Oil side	△	SAE Flanges according to ISO 6162-1 (SAE J518)	UNC bolts according to ASA B 18.3	Metric bolts according to DIN 912-8.8 (ISO 4762-8.8)
	⬡	SAE Straight Thread O-ring (O-Ring Boss), SAE J1926-1	Internal thread	—
	⬢	British Standard Pipe Parallel (BSPP)	—	Internal and external thread
Water side	△	SAE Flanges according to ISO 6162-1 (SAE J518)	UNC bolts according to ASA B 18.3	Metric bolts according to DIN 912-8.8 (ISO 4762-8.8)
	⏢	National Pipe Straight Mechanical (NPSM)	Internal thread	—
	⬢	British Standard Pipe Parallel (BSPP)	—	Internal and external thread

Type	Connections																	
	3/8''		1/2''		3/4''		1''		1 1/4''		1 1/2''		2'' (DN50)		2 1/2''		3'' (DN80)	
	Oil side	Water side	Oil side	Water side	Oil side	Water side	Oil side	Water side	Oil side	Water side	Oil side	Water side	Oil side	Water side	Oil side	Water side	Oil side	Water side
LA12	⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢												
LA14	⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢												
LA22	⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢												
LA34	⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢												
LH40					⬡⬢	⏢⬢	⬡⬢	⏢⬢										
LB31					⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢								
LB47					⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢								
LB60					⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢								
LM110													△	△				
LC110							⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢	△	△	△	△		
LC170							⬡⬢	⏢⬢	⬡⬢	⏢⬢	⬡⬢	⏢⬢	△	△	△	△		
LD235															△	△	△	△

For specific dimensions or information about other types of connections, please contact your Hexonic sales representative.

TECHNICAL DATA

STANDARD LOCATION OF CONNECTIONS:

1-PASS HEAT EXCHANGER

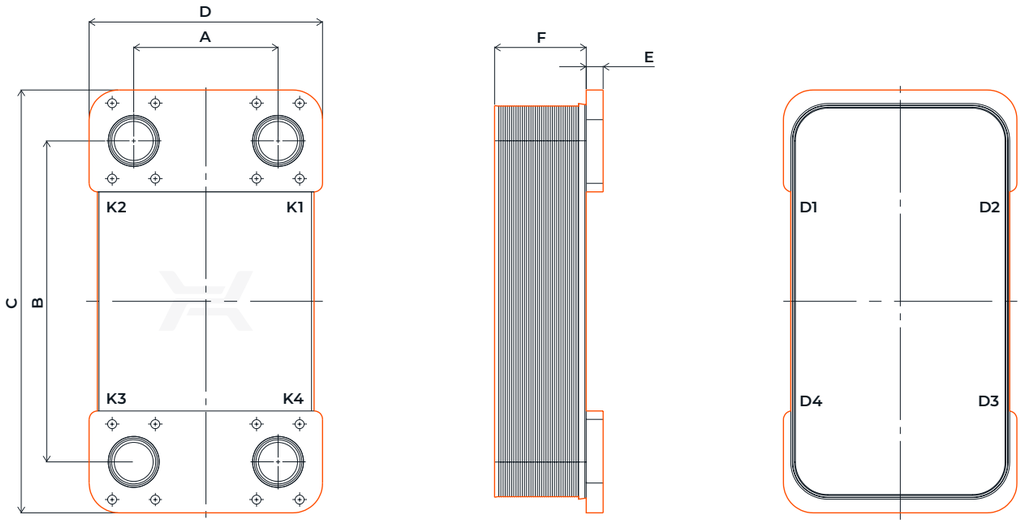
K1 / K4 — inlet / outlet hot side
K3 / K2 — inlet / outlet cold side

2-PASS HEAT EXCHANGER

D4 / K4 — inlet / outlet hot side
D3 / K3 — inlet / outlet cold side

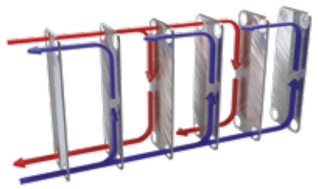
2-PASS WITH 6 CONNECTIONS
ADDITIONALLY

K1 — vent connection / inlet
K2 — vent connection / inlet

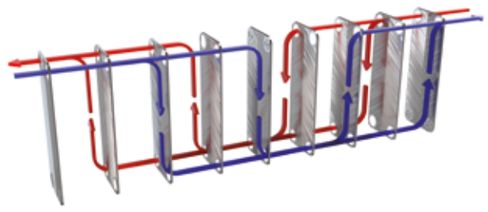


PASS ARRANGEMENT

ONE-PASS
Channels are paralleled.



TWO-PASS
Plates divided into two groups which are connected in series.



* Other configurations are available upon request.

TECHNICAL PARAMETERS

PED

Type	Dimensions						Max no. of plates
	A	B	C*	D*	E*	F	
	mm	mm	mm	mm	mm	mm	—
LM110-2"	91	520	634	198	20	10+2,60*NP	200
LC110-2"	170	378	492	270	20	11+2,40*NP	200
LC110-2 1/2"	170	378	498	275	20	11+2,40*NP	200
LC170-2"	170	600	714	270	20	11+2,40*NP	200
LC170-2 1/2"	170	600	720	275	20	11+2,40*NP	200
LD235-2 1/2"	204	682	802	310	20	13+2,50*NP	280
LD235-3"	204	682	802	332	20	13+2,50*NP	280

* NP – no. of plates. Dim. F+/-3%.
* All dimensions and technical data are approximate and may change without further notice.

ASME

Type	Dimensions						Max no. of plates
	A	B	C*	D*	E*	F	
	in	in	in	in	in	in	—
LM110-2"	3,58	20,47	24,96	7,79	0,78	0,39+0,1*NP	200
LC110-2"	6,69	14,88	19,37	10,62	0,78	0,39+0,09*NP	200
LC110-2 1/2"	6,69	14,88	19,60	10,62	0,78	0,39+0,09*NP	200
LC170-2"	6,69	23,62	28,11	10,62	0,78	0,39+0,09*NP	200
LC170-2 1/2"	6,69	23,62	28,34	10,62	0,78	0,39+0,09*NP	200
LD235-2 1/2"	8,03	26,85	31,57	12,20	0,78	0,51+0,1*NP	280
LD235 - 3"	8,03	26,85	32,36	13,07	0,78	0,51+0,1*NP	280

* NP – no. of platesdim. F+/-3%.
* All dimensions and technical data are approximate and may change without further notice.

APPLICATIONS

GEARBOXES

RAILWAYS

MOBILE HYDRAULIC SYSTEMS

AUTOMOTIVE

CONSTRUCTION

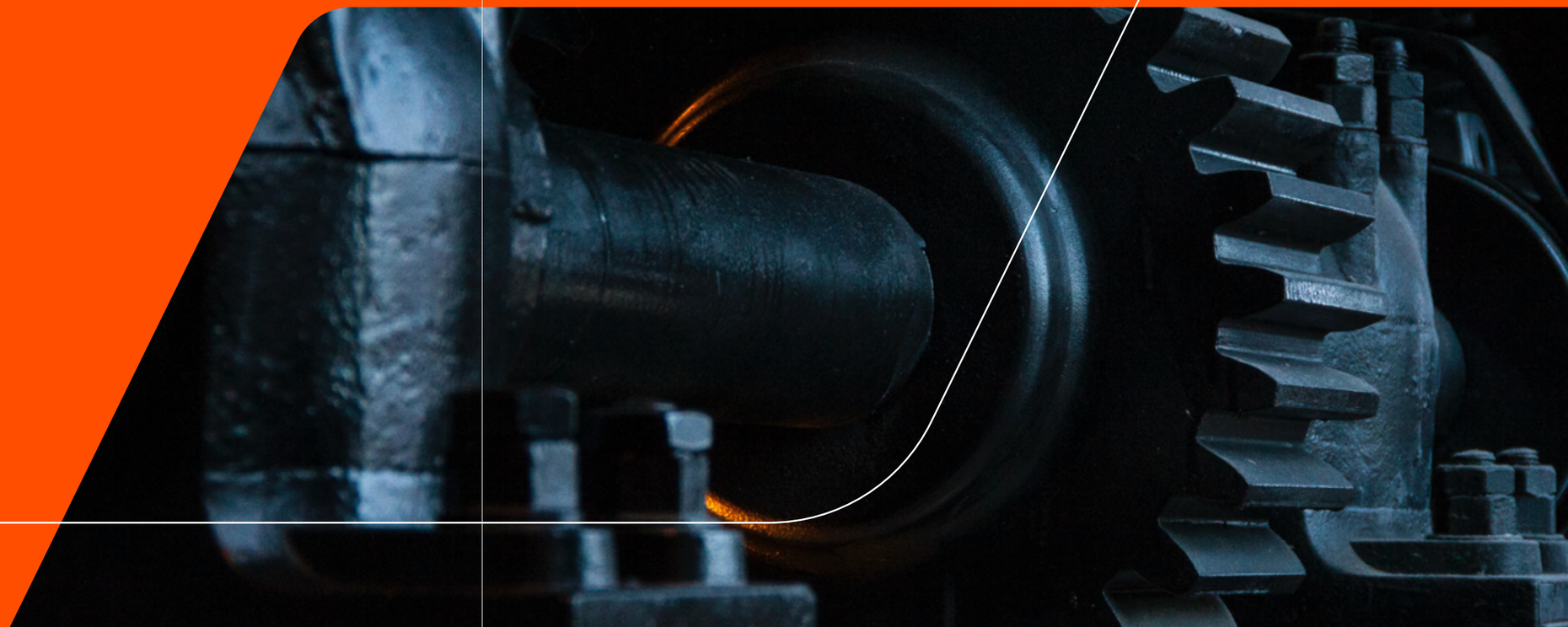
PULP & PAPER

INDUSTRIAL

POWER GENERATION

STEEL/HEAVY INDUSTRY

AND MORE



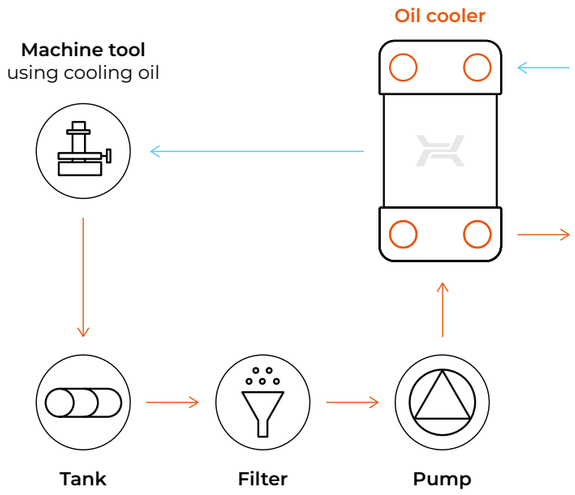
EXAMPLES OF APPLICATION

Hexonic oil coolers can be used in a variety of different industries and applications.

CNC MILLING MACHINES

In machining processes, tool cooling plays an essential function. The coolant's main role during machining is to reduce and eliminate heat accumulation in the cutting area and workpiece, provide lubrication to reduce friction between tools and chip removal, wash away chips and small abrasive particles from the work area and prevent corrosion.

The use of an effective cooling system increases the cutting tool's durability by reducing the cutting forces, and thermal load. Maintaining the correct operating temperature for the coolant has a significant effect on the whole process.

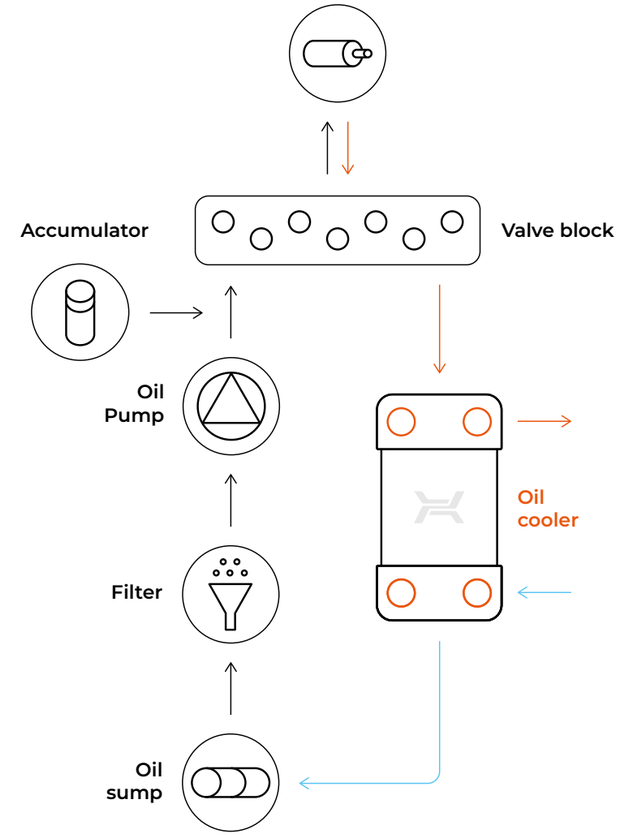


HYDRAULIC SYSTEMS

Hydraulic systems are relatively easy to install and maintain, but they can be prone to failure due to overheating, overpressure, contamination, and other conditions.

One of the most critical reasons for system malfunction and hazards is temperature. When oil flows through the system, friction between system elements and long-term operation can cause the oil temperature to rise. This elevated temperature can affect oil viscosity, increase device wear, degrade the lubricative film, increase the risk of cavitation and internal leakages, and shorten the system's lifetime.

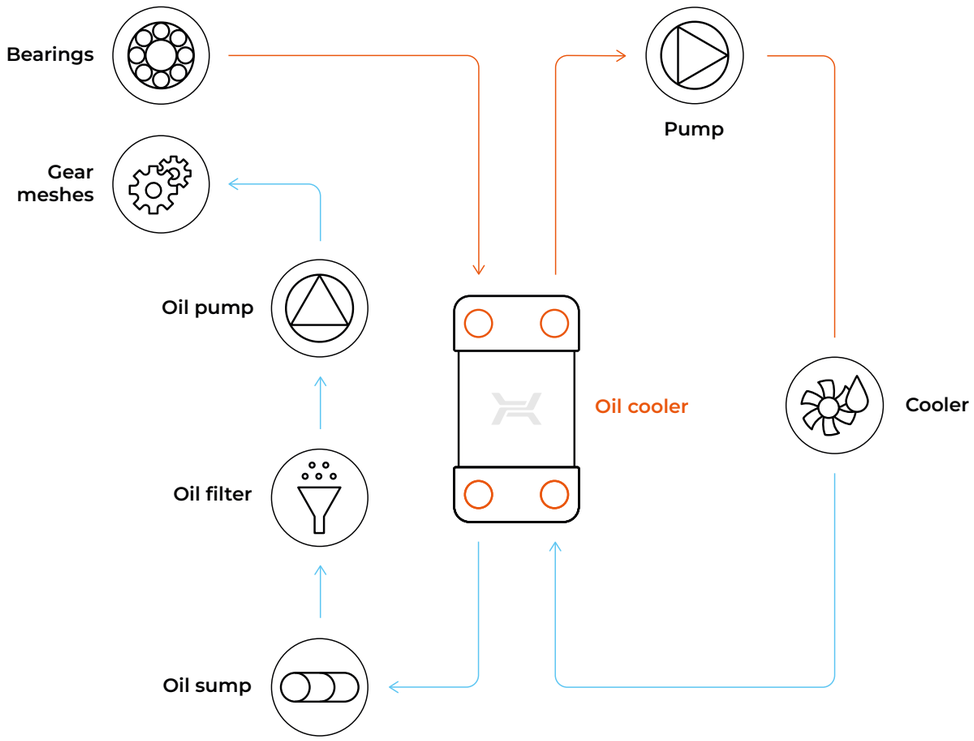
Fortunately, most hydraulic system overheating issues can be solved by using an effective cooling system. An oil cooler-equipped system can operate effectively for an extended period without overheating. This is particularly important in machines for the paper industry, hydraulic presses, hydraulic power packs, and other heavy-duty equipment.



GEARBOXES

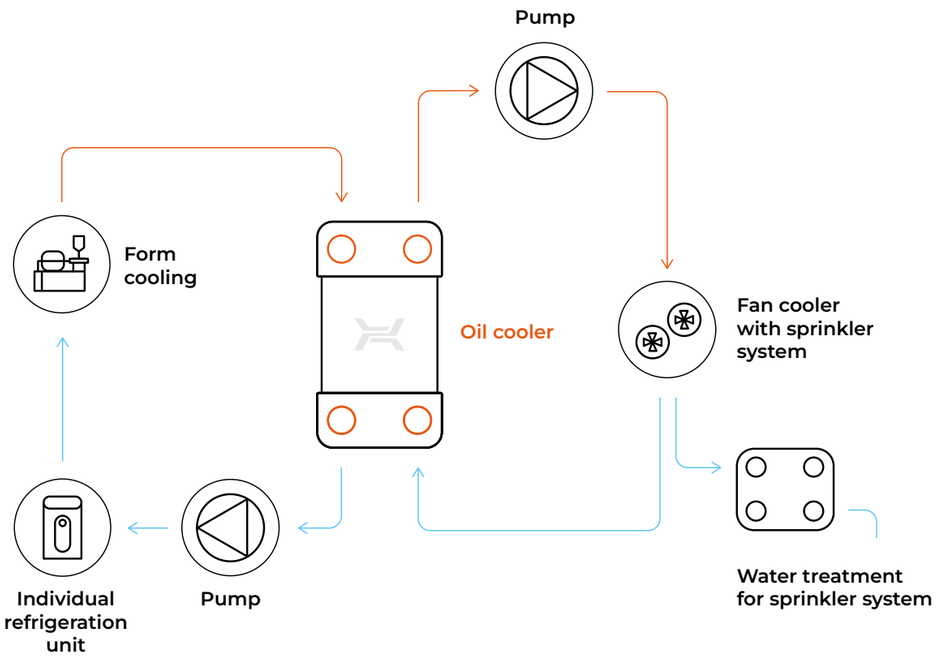
Many wind turbines are equipped with a transmission system between the rotors and generator. To ensure efficient operating conditions, they should be equipped with oil cooling systems. In the gear unit, heat is generated from friction and stress.

Therefore, it is essential to keep the gear oil at set working temperature to ensure optimum lubrication.



PLASTIC
INJECTION MOLDING MACHINES

That plastic injection molding machines are equipped with a hydraulic system which needs to provide reliable performance throughout continuous manufacturing cycles. While the temperature of hydraulic oil must be controlled to keep the hydraulic system working properly, specific cooling solutions are needed to reduce molding temperature as quickly as possible without causing excessive shrinkage. If the plastic is cooled too quickly, it can separate from the molding cavity, resulting in a substantial decrease in the heat transfer rate. As cooling occupies the majority of the time in the injection molding process, this makes thermal performance one of the top priorities.

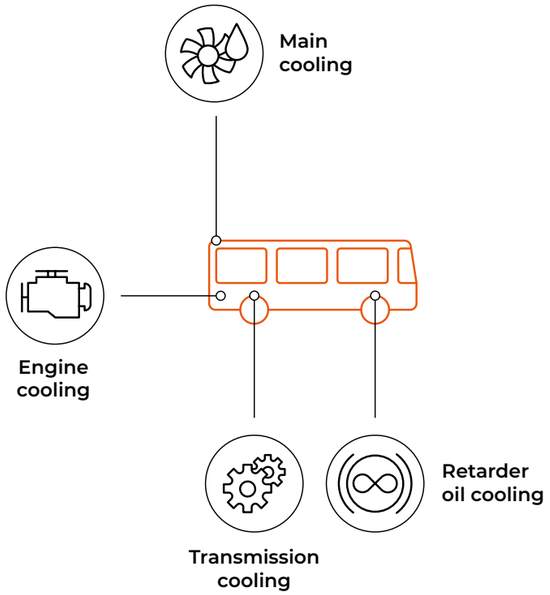


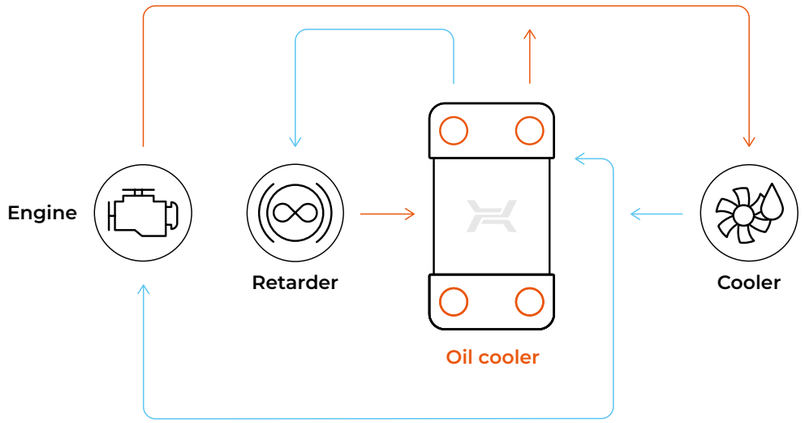
TRANSPORTATION

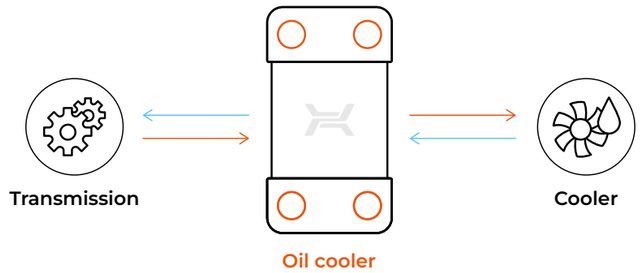
Modern cargo and public transport vehicles have additional braking mechanisms besides the traditional braking system. These mechanisms include an electrodynamic brake, an engine brake, or a hydraulic brake.

Hydraulic retarders, commonly used in commercial vehicles, are auxiliary devices that can reduce vehicle speed by converting the vehicle's mechanical energy into heat energy absorbed by the retarder's working medium, which is oil. When retardation is required, oil is pumped into the retarder's chamber. The oil flows through the chamber and reaches the stator's stationary blades. Its flow is re-directed, and it is led back to the rotor. This results in the generation of torque that counteracts the rotor's direction of motion and is transferred to the driveline via the step-up gear, which slows down the vehicle.

Proper thermal control of a vehicle's systems can significantly reduce pollution and fuel consumption.

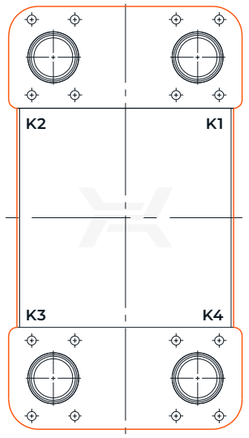






PERFORMANCE CURVES

Cooling capacity is calculated with the following conditions: oil types – ISO VG 32, oil/water flow ratio – 2:1, oil inlet temperature 100°C (212°F), water inlet temperature 21°C (70°F). For other flow conditions, type of fluids, or temperatures, please contact Hexonic Technical Sales Support Department.



The cooling capacity of the heat exchangers depends on the oil viscosity class. In order to make an accurate calculation the following details are required:

- type of oil
- required outlet temperature of the oil or necessary cooling capacity
- inlet temperature of the water and maximum water flow rate
- maximum allowable pressure drop
- required working conditions

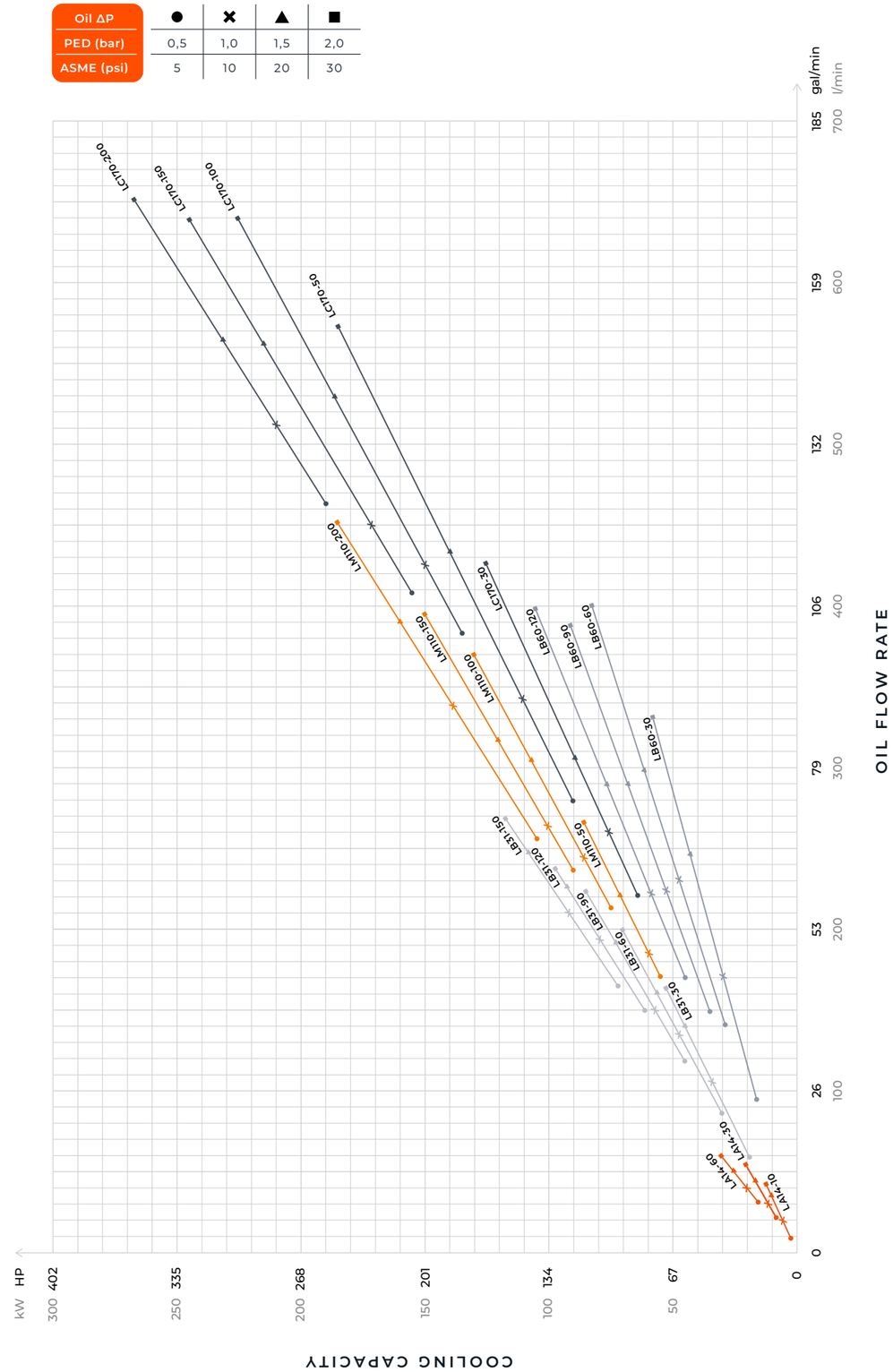
CAIRO SELECTION SOFTWARE

CAIRO Selection Software is a user-friendly tool to calculate the correct heat exchanger size. In case of nonstandard operating data, please contact Hexonic Technical Support Department.

SELECTION CHART

Exchanger type	Cooling capacity range PED	Cooling capacity range ASME	Oil connection PED		Oil connection ASME	
			Oil side*	Water side	Oil side**	Water side
	kW	HP	—	—	—	—
LA14	2 – 30	3 – 40	BSPP 1/2" (internal thread)	BSPP 3/8" (internal thread)	SAE O-Ring 1/2"	NPSM 3/8" (internal thread)
LB31	19 – 117	25 – 157	BSPP 11/4" (internal thread)	BSPP 1" (internal thread)	SAE O-Ring 1 1/4"	NPSM 1" (internal thread)
LB60	16 – 105	22 – 141	BSPP 1 1/2" (internal thread)	BSPP 1 1/4" (internal thread)	SAE O-Ring 1 1/2"	NPSM 1 1/4" (internal thread)
LM110	55 – 185	73 – 248	SAE 2" (flange)	SAE 1 1/2" (flange)	SAE 2" (flange)	SAE 1 1/2" (flange)
LC170	64 – 267	85 – 358	SAE 2 1/2" (flange)	SAE 2" (flange)	SAE 2 1/2" (flange)	SAE 2" (flange)

Heat exchangers with higher cooling capacity and performance are available upon request.
SAE Flanges according to ISO 6162-1 (SAE J518), * metric bolts according to DIN 912-8.8 (ISO 4762-8.8), ** UNC bolts according to ASA B 18.3
The type of connections should be consulted with Hexonic Technical Support Department.



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