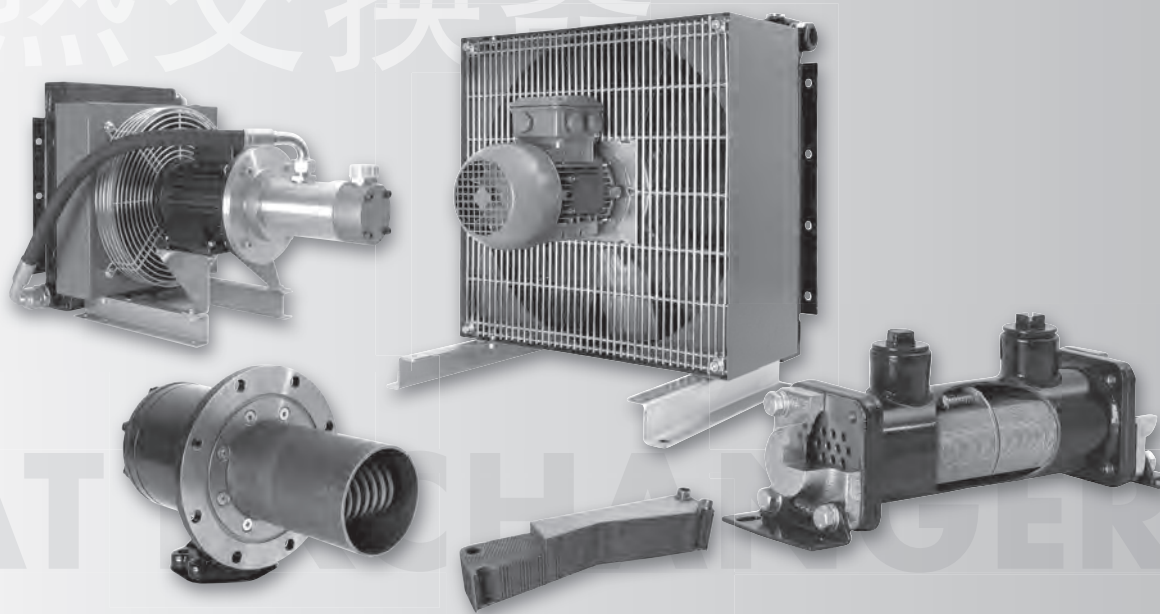


液压配件
联轴器
油箱

HBE.

*Hydraulic Components
Drive Couplings
Oil Tanks*

热交换器



热交换器

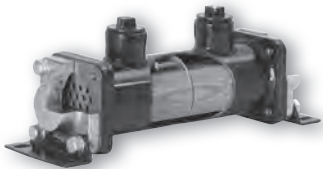
HEAT EXCHANGERS

热交换器

HEAT EXCHANGERS

EKM 系列 管束式油冷却器

SERIES EKM TUBE BUNDLE OIL COOLER



管束带铝鳍, 冷却表面是标准管式冷却器的 4 倍。冷却能力高达 230 kW。最大耐压: 35 bar。端盖可拆卸, 方便清洗管路。可选内置旁路阀(专利)。可选海水版本。

Tube bundle with aluminium fins, providing up to 4-times greater cooling surface compared to a standard shell and tube cooler. Cooling capacity up to 230 kW. Extremely pressure resistant – max.: 35 bar. Removeable end caps for easy cleaning of the water pipes. Optionally available with internal bypass valve (patented). Option: seawater version.

UKTM 系列 管束式油冷却器

SERIES UKTM TUBE BUNDLE OIL COOLER

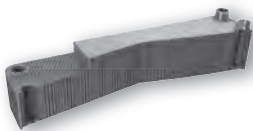


管束带铝鳍, 结构极紧凑, 适用于油箱内或油箱顶部安装。基于 EKM 系列, 更高效率, 高达 29 平米换热表面及 650 升/分钟油体积。该设计针对油箱内置安装, 占用最小空间和更少管路。

Tube bundle with aluminium fins. Extremely compact cooler for in-tank and top-tank mounting. Based on the EKM, with a very high performance range up to 29 m² heat exchange surface and 650 l/min oil volume. Designed for internal tank installation with minimum space requirement and low piping requirement.

PWT 系列 板式油冷却器

SERIES PWT PLATE OIL COOLER

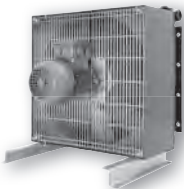


焊板式换热器材料为不锈钢。紧凑经济。油压高达 30 bar, 流量范围 25 至 3,000 升/分钟。工作温度为 -100 至 +195 摄氏度。可选镍焊。安装灵活, 采用聚氨酯硬泡材料绝缘。

Soldered plate heat exchanger made of stainless steel. Compact and economical. Oil pressure up to 30 bar and oil flow rate from 25 to 3,000 l/min. Operating temperatures from -100 to +195°C. Also available with nickel soldering. Various installation fittings and isolations of PU hard foam.

LKI 系列 油-气冷却器

SERIES LKI OIL AIR COOLER

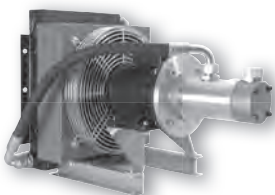


油-气冷却器为工业用途, 有 10 个不同规格可选。块式结构 (最大工作压力 16 bar)。1 路或 2 路, 可选 SAE 法兰。可选海上设备版本。

Oil air cooler for industrial use. Available in 10 different sizes. Block construction (max. operating pressure 16 bar). 1-way and 2-way. Available with SAE flange. Off-Shore version optional.

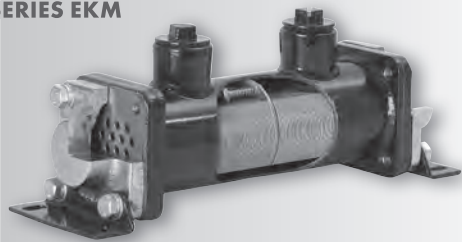
TFS/A 系列 油-气冷却器

SERIES TFS / A OIL AIR COOLER



紧凑旁路冷却单元。单元由电机、泵组和油-气冷却器组成。该单元独立运作, 与主系统动力无关。泵法兰直连在电机。采用内啮合螺杆泵, 超低噪音。安装灵活, 3 个不同规格。

Compact bypass-flow cooling unit. Combination of motor pump station and oil air cooler in a single unit that operates independently of the actual unit. Pump flange is connected directly to the motor. Extremely low-noise due to internal screw pump. Various installation positions possible. Available in 3 different sizes.

EKM 系列
SERIES EKM**产品介绍**

EKM 系列管束式热交换器适用于各种工业应用。该系列冷却效果显著,得益于额外的冷却面积。最大可满足 230 kW 应用的冷却。管束间通过铝鳍实现金属-金属接触。EKM 系列的冷却面积从 0.43 到 18.41 平米。EKM 系列由 20 个基本单元组成,有 1, 2, 4 个流程版本。

产品特性

- 铝鳍与铜管(标准)确保最大热交换效果
- 油路大接口减少压损
- 散热效果高达 230 kW
- 流体流速高达 330 升/分钟
- 端盖可拆卸,方便清洗管路
- 法兰允许换热器 90 度安装
- 可选内置旁路单向阀(专利)
- 高品质材料
- 最大压力:油 35 bar / 水 10 bar
- 可选各种附件
- 库存现货,货期短

PRODUCT DESCRIPTION

The EKM series is a consistent development of a tube bundle heat exchanger for a wide range of industrial applications. This range is particularly effective due to the additional cooling area, and offers a heat exchange performance of 230 kW. This is achieved by aluminium fins, which are pushed over the tube bundle with metal-to-metal contact. The EKM range of heat exchangers have a cooling surface of 0.43 m² to 18.41 m². The EKM series is constructed of 20 basic units, which are available as single, double and four pass versions.

PRODUCT FEATURES

- Aluminium fins and copper tubes (standard) ensure maximum levels of heat exchange
- Large oil connectors for minimum flow resistance
- Heat dissipation up to 230 kW
- Oil flow rates of up to 330 l/min
- Removable end caps for easy cleaning of the tubes
- Flanges allow a 90° rotation of the heat exchanger
- Optionally available with internal bypass check valve (patented)
- High-quality materials
- Max. pressure: oil 35 bar / water 10 bar
- Full range of accessories available
- Delivery ex-stock

材料**MATERIALS**

	标准 / STANDARD
外壳 / SHELL, 安装支架 / MOUNTING BRACKET, 挡板 / BAFFLES	钢质 / Steel
端板 / END PLATES	钢质 / Steel
冷却鳍 / COOLING FINS, 板类型 / TYPE SPECIFICATION PLATE	铝 / Aluminium
管路 / TUBES	铜, 镀镍 / Copper, Nickel
端盖 / END CAPS	铸铁 / Cast iron
垫圈 / GASKETS	丁腈橡胶, 纤维 / Nitrile rubber, cellulose fibre

最大流量**MAXIMUM FLOW RATE**

升/分钟 l/min	油 / OIL 外壳 / SHELL	水 / WATER 管 / TUBES		
规格 / SIZE		O	T	F
EKM-500	75	45	22	-
EKM-700	225	90	46	23
EKM-1000	330	210	106	53

最大工作压力 / Maximum operating pressure:

壳式 / Shell = 35 bar

管式 / Tubes = 10 bar

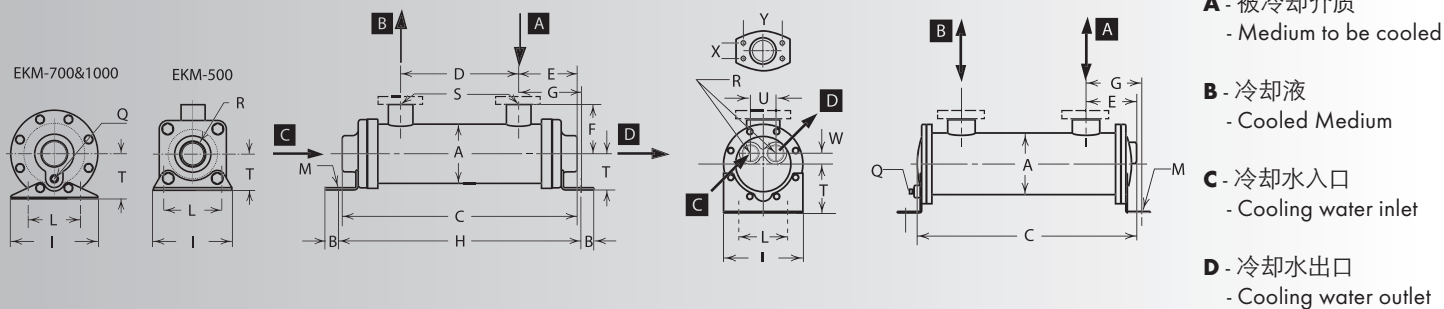
最大工作温度 / Maximum operating temperature:

= 95 度 / 95°C

注意: 不正确安装会损坏冷却器**CAUTION:** Incorrect installation may lead to damage to the cooler.

1 流程型 „O“ / 1 PASS TYPE „O“

2 流程型 „T“ / 2 PASS TYPE „T“



EKM 系列尺寸

DIMENSIONS EKM

规格 / SIZE	C	H	D	E	G	L	U	A	S	R	Q	M	T	F
EKM-505-O	187	189	55	66	66	62,5	-	65	G 3/4"	G 3/4"	—	9	41	53
EKM-505-T				83	67		28			G 3/8"				
EKM-508-O	263	265	97	82	83		-			G 3/4"				
EKM-508-T	265			83	85		28			G 3/8"				
EKM-510-O	314	316	148	82	83		-			G 3/4"				
EKM-510-T				83	85		28			G 3/8"				
EKM-512-O	365	367	199	82	83		-			G 3/4"				
EKM-512-T				83	85		28			G 3/8"				
EKM-514-O	416	418	250	82	83		-			G 3/4"				
EKM-514-T				83	85		28			G 3/8"				
EKM-518-O	517	519	351	82	83		-			G 3/4"				
EKM-518-T				83	85		28			G 3/8"				
EKM-524-O	670	672	504	82	83		-			G 3/4"				
EKM-524-T	672			83	85		28			G 3/8"				
EKM-536-O	975	976	809	82	83		-			G 3/4"				
EKM-536-T	976			83	85		28			G 3/8"				
EKM-708-O	283	272	76	103	103	76	-	90	G 1 1/2"	G 1 1/4"	G 1/4"	11	66	73
EKM-708-T	258			91	95		41			G 1"				
EKM-712-O	385	373	177	103	103		-			G 1 1/4"				
EKM-712-T	360			91	95		41			G 1"				
EKM-714-O	435	424	228	103	103		-			G 1 1/4"				
EKM-714-T	411			91	95		41			G 1"				
EKM-718-O	537	526	330	103	103		-			G 1 1/4"				
EKM-718-T	513			91	95		41			G 1"				
EKM-724-O	689	678	482	103	103		-			G 1 1/4"				
EKM-724-T	665			91	95		41			G 1"				
EKM-736-O	994	983	787	103	103		-			G 1 1/4"				
EKM-736-T	995			91	95		41			G 1"				
EKM-1012-O	389	392	157	116	116	102	-	128	G 1 1/2"	G 1 1/2"	G 1/4"	11	102	92
EKM-1012-T	369			113	110		60			G 1 1/4"				
EKM-1014-O	440	443	207	116	116		-			G 1 1/2"				
EKM-1014-T	420			113	110		60			G 1 1/4"				
EKM-1018-O	541	544	309	116	116		-			G 1 1/2"				
EKM-1018-T	522			113	110		60			G 1 1/4"				
EKM-1024-O	694	697	461	116	116		-			G 1 1/2"				
EKM-1024-T	674			113	110		60			G 1 1/4"				
EKM-1036-O	999	1002	766	116	116		-			G 1 1/2"				
EKM-1036-T	979			113	110		60			G 1 1/4"				
EKM-1048-O	1303	1306	1071	116	166		-			G 1 1/2"				
EKM-1048-T	1284			113	110		60			G 1 1/4"				

为了区分油出口温度,水入口温度和粘度,计算如下:

假设:

散热功率(AW)	= 17 kW
油流速 (V)	= 80 l/min
油出口温度 (t 出油)	= 45°C
水入口温度 (t 进水)	= 25°C
油类型	= 68 号液压油
散热效率	= kW eff.

1. 参考粘度系数计算如下:

温度差 ΔT (°C) =

$$\frac{AW \text{ (kW)} \times 34,1}{Q \text{ (l/min)}} = 7,2$$

平均油温 (°C) =

$$\frac{t_{\text{出油}} + \Delta t + t_{\text{出油}}}{2} = 49^\circ\text{C}$$

2. 68 号液压油参数:

49°C 粘度 = 38 cSt

3. 从粘度修正数据表 „A”:

38 cSt = 1,11

AW (kW) x 25 x 粘度 (cSt) 图表A

$$= \frac{t_{\text{出油}} \text{ (°C)} - t_{\text{进水}} \text{ (°C)}}{20} = \frac{17 \times 25 \times 1,11}{20} = 23,6 \text{ kW}$$

从油/水 2:1 性能图根据 80 升/分钟和 23.6 kW, 查得:

冷却器 No.31 = EKM- 714 -T -CN

For deviating oil outlet temperatures, water inlet temperatures and viscosities, the calculation has to be made as follows:

WHERE:

Heat to be dissipated (AW)	= 17 kW
Oil flow (V)	= 80 l/min.
Oil outlet temp. (t oil out)	= 45°C
Water inlet temp. (t water in)	= 25°C
Oil type	= ISO 68
Effective heat to be dissipated	= kW eff.

1. The viscosity correction factor is calculated as follows:

Temperature difference ΔT (°C) =

$$\frac{AW \text{ (kW)} \times 34,1}{Q \text{ (l/min)}} = 7,2$$

Average oil temp. therefore (°C) =

$$\frac{t_{\text{oil out}} + \Delta t + t_{\text{oil out}}}{2} = 49^\circ\text{C}$$

2. From oil manufacturer's data for ISO 68:

Viscosity at 49°C = 38 cSt

3. From viscosity correction table „A”:

38 cSt = 1,11

AW eff. =

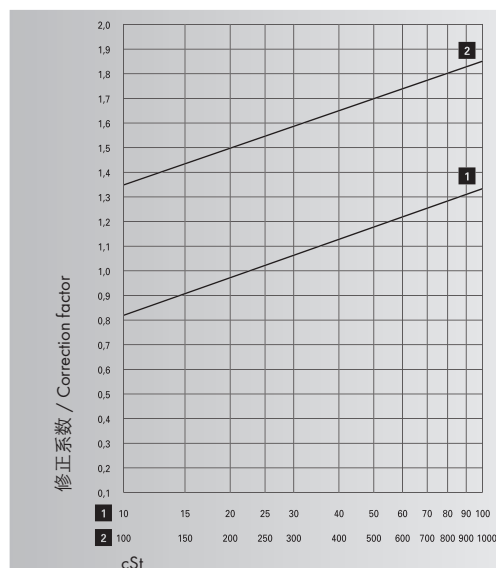
AW (kW) x 25 x viscosity (cSt) Tab. A

$$= \frac{t_{\text{oil out}} \text{ (°C)} - t_{\text{water in}} \text{ (°C)}}{20} = \frac{17 \times 25 \times 1,11}{20} = 23,6 \text{ kW}$$

From oil/water 2:1 performance diagram at an oil flow of 80 l/min and 23.6 kW, the outcome is: Cooler no. 31 = EKM- 714 -T -CN

选择冷却器

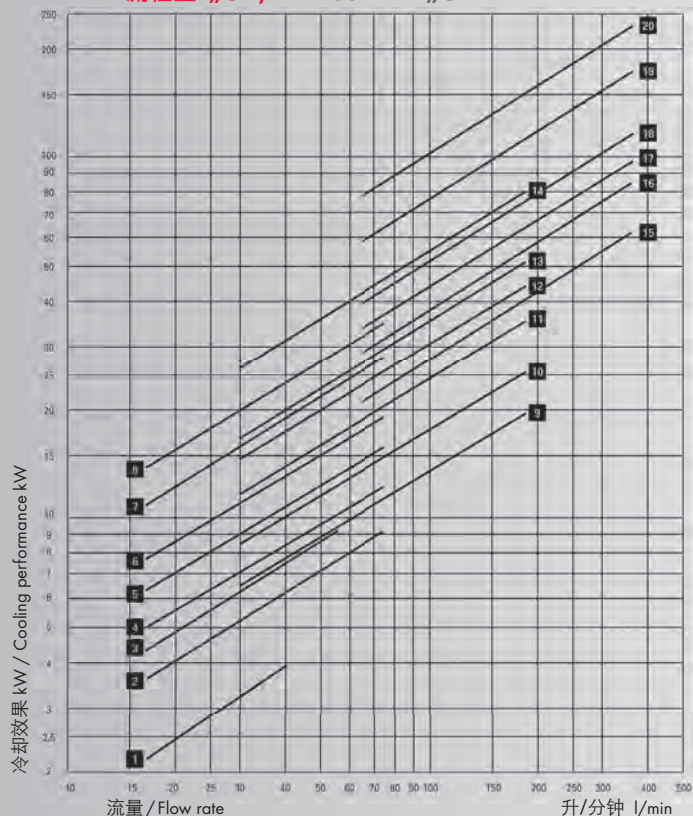
CHOICE OF COOLER



所示性能参数基于水入口温度为 25°C 和油出口温度为 50°C。及油粘度 20.6 cSt。不同粘度,修正系数 „A” 可由下图曲线读出。

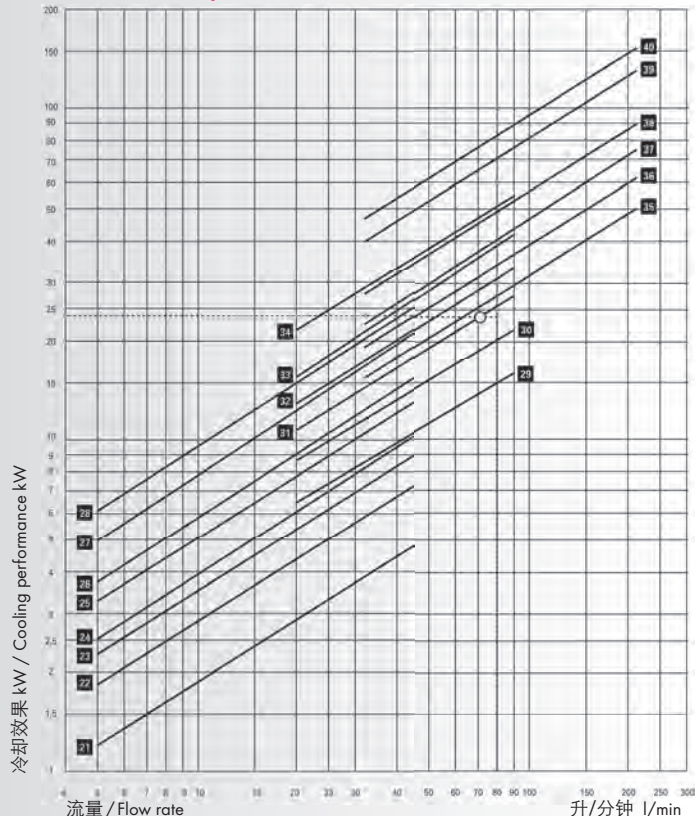
The performance data shown is based on a water inlet temperature of 25°C and an oil outlet temperature of 50°C, together with an oil viscosity of 20.6 cSt. For different viscosities, the correction factor „A” can be read off from the performance curve below.

1 流程型 „O” / 1 PASS TYPE „O”



图表中的性能曲线图受限于流量范围。
范围以外的请咨询厂家。

2 流程型 „T” / 2 PASS TYPE „T”



The performance data shown in the diagram are
limited by the flow rate and may be exceeded
after consultation with the manufacturer.

1 EKM-505-O	11 EKM-714-O
2 EKM-508-O	12 EKM-718-O
3 EKM-510-O	13 EKM-724-O
4 EKM-512-O	14 EKM-736-O
5 EKM-514-O	15 EKM-1012-O
6 EKM-518-O	16 EKM-1014-O
7 EKM-524-O	17 EKM-1018-O
8 EKM-536-O	18 EKM-1024-O
9 EKM-708-O	19 EKM-1036-O
10 EKM-712-O	20 EKM-1048-O

21 EKM-505-T	31 EKM-714-T
22 EKM-508-T	32 EKM-718-T
23 EKM-510-T	33 EKM-724-T
24 EKM-512-T	34 EKM-736-T
25 EKM-514-T	35 EKM-1012-T
26 EKM-518-T	36 EKM-1014-T
27 EKM-524-T	37 EKM-1018-T
28 EKM-536-T	38 EKM-1024-T
29 EKM-708-T	39 EKM-1036-T
30 EKM-712-T	40 EKM-1048-T

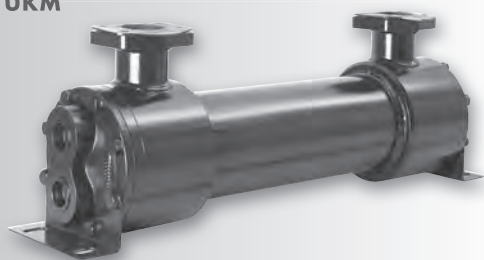
订货号

ORDERING CODE



* W 仅与 SW 搭配

* W is only available in combination with SW.

UKM 系列
SERIES UKM

产品介绍

UKM 系列管束式热交换器适用于各种工业应用。该系列冷却效果显著,得益于额外的冷却面积。管束间通过铝鳍实现金属-金属接触。UKM 系列的冷却面积从 0.73 到 29 平米。UKM 系列由 30 个基本单元组成,有 2,4 个流程版本。

PRODUCT DESCRIPTION

The UKM series is a consistent development of a tube bundle heat exchanger for a wide range of industrial applications. This range is particularly effective due to the additional cooling area. This is achieved by aluminium fins, which are pushed over the tube bundle with metal-to-metal contact. The UKM range of heat exchangers have a cooling surface of 0.73 m² to 29 m². The UKM series is constructed of more than 30 basic units, and is available as double and four pass versions.

产品特性

- 铝鳍与铜管或镀镍铜管确保最大热交换效果
- 油路大接口减少压损
- 流体流速高达 650 升/分钟
- 端盖可拆卸
- 法兰允许换热器90度安装
- 可选内置旁路单向阀(专利)
- 高品质材料
- 最大压力:油 35 bar 水 / 16 bar
- 可选各种附件
- 库存现货,货期短

PRODUCT FEATURES

- Aluminium fins and copper or cupro-nickel tubes ensure maximum levels of heat exchange
- Large oil connectors for minimum flow resistance
- Oil flow rates of up to 650 l/min
- Removable end cap
- Flanges allow a 90° rotation of the heat exchanger
- Optionally available with internal bypass check valve (patented)
- High-quality materials
- Max. pressure: oil 35 bar / water 16 bar
- Full range of accessories available
- Delivery ex-stock

材料

MATERIALS

	标准 / STANDARD
外壳 / SHELL, 安装支架 / MOUNTING BRACKET, 挡板 / BAFFLES	钢质 / Steel
端板 / END PLATES	黄铜 / Brass
冷却鳍 / COOLING FINS, 板类型 / TYPE SPECIFICATION PLATE	铝 / Aluminium
管路 / TUBES	铜 / Copper
端盖 / END CAPS	铸铁 / Cast iron
垫圈 / GASKETS	丁腈橡胶, 纤维 / Nitrile rubber, cellulose fibre

最大流量

MAXIMUM FLOW RATE

升/分钟 l/min	油 / OIL 外壳 / SHELL	水 / WATER 管 CU / TUBES CU		水 / WATER 管 CN / TUBES CN	
规格 / VERSION		T	F	T	F
UKM-500	75	17	-	26	-
UKM-700	225	34	16	52	24
UKM-1000	400	82	40	122	58
UKM-1200	650	182	91	272	136

最大工作压力 / Maximum operating pressure:

壳式 / Shell = 35 bar

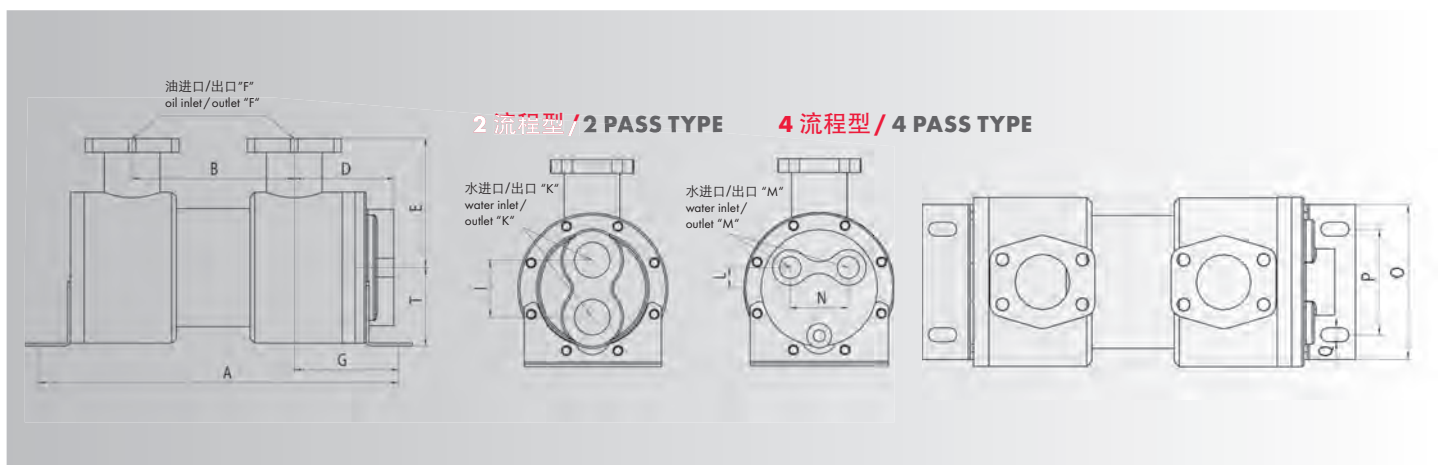
管式 / Tubes = 10 bar

最大工作温度 / Maximum operating temperature:

= 95 度 / 95°C

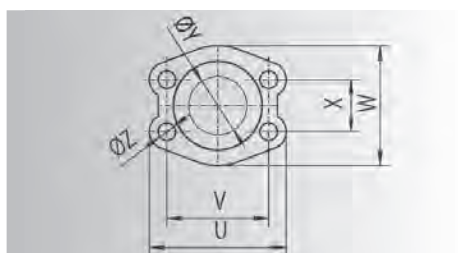
注意: 不正确安装会损坏冷却器

CAUTION: Incorrect installation may lead to damage to the cooler.



法兰尺寸

DIMENSIONS FLANGE



	U	V	W	X	Z
SAE 1"	70	52,4	55	26,2	M10
SAE 1 1/4"	79	58,7	68	30,2	M10
SAE 1 1/2"	93	69,9	78	35,7	M12
SAE 2"	102	77,8	90	42,9	M12

冷却器尺寸

UNIT DIMENSIONS

	尺寸 / DIMENSIONS							2-流程 / 2-WAYS			4-流程 / 4-WAYS			脚架 / FOOT		
毫米mm / BSPP	A	B	D	E	G	F	T	I	K	L	M	N	O	P	Q (Ø)	平方米 m²
UKM-508	310	177,5	66	75	71	G 1"	55	35	G ½"	-	-	-	95	63	8,5 x 16	0,73
UKM-512	410	278,8	66	75	71	G 1"	55	35	G ½"	-	-	-	95	63	8,5 x 16	1,13
UKM-514	461	329,5	66	75	71	G 1"	55	35	G ½"	-	-	-	95	63	8,5 x 16	1,43
UKM-518	563	431,5	66	75	71	G 1"	55	35	G ½"	-	-	-	95	63	8,5 x 16	1,74
UKM-524	715	583,5	66	75	71	G 1"	55	35	G ½"	-	-	-	95	63	8,5 x 16	2,35
UKM-536	1020	888,5	66	75	71	G 1"	55	35	G ½"	-	-	-	95	63	8,5 x 16	3,57
UKM-708	324	155	85	90	89	G 1½"	66	47	G 1"	18	G ½"	48	120	76	11 x 25	1,38
UKM-712	425	256	85	90	89	G 1½"	66	47	G 1"	18	G ½"	48	120	76	11 x 25	2,18
UKM-714	476	307	85	90	89	G 1½"	66	47	G 1"	18	G ½"	48	120	76	11 x 25	2,53
UKM-718	578	409	85	90	89	G 1½"	66	47	G 1"	18	G ½"	48	120	76	11 x 25	3,29
UKM-724	730	561	85	90	89	G 1½"	66	47	G 1"	18	G ½"	48	120	76	11 x 25	4,44
UKM-736	1035	866	85	90	89	G 1½"	66	47	G 1"	18	G ½"	48	120	76	11 x 25	6,73
UKM-1012	464	261	105	140	108	SAE 2"	85	62	G 1¼"	22	G ¾"	63	150	102	13 x 28	4,38
UKM-1014	515	312	105	140	108	SAE 2"	85	62	G 1¼"	22	G ¾"	63	150	102	13 x 28	5,17
UKM-1018	617	414	105	140	108	SAE 2"	85	62	G 1¼"	22	G ¾"	63	150	102	13 x 28	6,73
UKM-1024	769	566	105	140	108	SAE 2"	85	62	G 1¼"	22	G ¾"	63	150	102	13 x 28	9,06
UKM-1036	1074	871	105	140	108	SAE 2"	85	62	G 1¼"	22	G ¾"	63	150	102	13 x 28	13,74
UKM-1048	1379	1176	105	140	108	SAE 2"	85	62	G 1¼"	22	G ¾"	63	150	102	13 x 28	18,41
UKM-1060	1684	1481	105	140	108	SAE 2"	85	62	G 1¼"	22	G ¾"	63	150	102	13 x 28	23,10
UKM-1218	618	390	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	6,00
UKM-1224	770	542	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	8,06
UKM-1230	923	695	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	10,19
UKM-1236	1075	847	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	12,25
UKM-1242	1228	1000	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	14,38
UKM-1248	1380	1152	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	16,35
UKM-1254	1532	1304	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	18,48
UKM-1260	1685	1457	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	20,52
UKM-1266	1837	1609	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	22,63
UKM-1272	1990	1762	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	24,74
UKM-1276	2143	1915	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	26,88
UKM-1284	2295	2067	131	145	116	SAE 2 ½"	120	87	G 1½"	25	G 1"	70	190	142	13 x 28	28,99

为了区分油出口温度,水入口温度和粘度,计算如下:

假设:

散热功率 (AW) = 17 kW
油流速 (V) = 80 l/min
油出口温度 (t 出油) = 45°C
水入口温度 (t 进水) = 25°C
油类型 = 68 号液压油
散热效率 = kW eff.

1. 参考粘度系数计算如下:
温度差 ΔT (°C) =

$$\frac{AW \text{ (kW)} \times 34,1}{Q \text{ (l/min)}} = 7,2$$

平均油温 (°C) =

$$\frac{t_{\text{出油}} + \Delta t + t_{\text{出油}}}{2} = 49^\circ\text{C}$$

2. 68 号液压油参数:
49°C 粘度 = 38 cSt

3. 从粘度修正数据表 „A“:
38 cSt = 1,11

AW eff. =

AW (kW) x 25 x 粘度 (cSt) 图表 A

$$= \frac{t_{\text{出油}} \text{ (°C)} - t_{\text{进水}} \text{ (°C)}}{20} = \frac{17 \times 25 \times 1,11}{20} = 23,6 \text{ kW}$$

从油/水 2:1 性能图根据 80 升/分钟和 23.6 kW,
查得:

冷却器 No. 31 = UKM-718-T

For deviating oil outlet temperatures, water inlet temperatures and viscosities, the calculation has to be made as follows:

WHERE:

Heat to be dissipated (AW) = 17 kW
Oil flow (V) = 80 l/min.
Oil outlet temp. (t oil out) = 45°C
Water inlet temp. (t water in) = 25°C
Oil type = ISO 68
Effective heat to be dissipated = kW eff.

1. The viscosity correction factor is calculated as follows:

Temperature difference ΔT (°C) =

$$\frac{AW \text{ (kW)} \times 34,1}{Q \text{ (l/min)}} = 7,2$$

Average oil temp. therefore (°C) =

$$\frac{t_{\text{oil out}} + \Delta t + t_{\text{oil out}}}{2} = 49^\circ\text{C}$$

2. From oil manufacturer's data for ISO 68:

Viscosity at 49°C = 38 cSt

3. From viscosity correction table „A“:
38 cSt = 1,11

AW eff. =

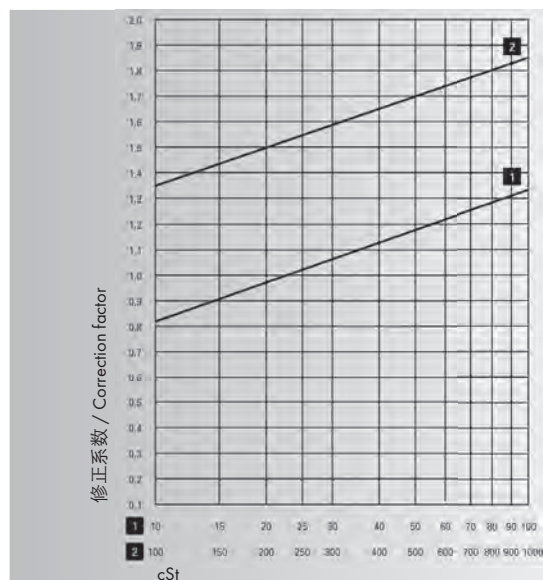
AW (kW) x 25 x viscosity (cSt) Tab. A

$$= \frac{t_{\text{oil out}} \text{ (°C)} - t_{\text{water in}} \text{ (°C)}}{20} = \frac{17 \times 25 \times 1,11}{20} = 23,6 \text{ kW}$$

From oil/water 2:1 performance diagram at an oil flow of 80 l/min and 23.6 kW, the outcome is:
Cooler no. 31 = UKM-718-T

选择冷却器

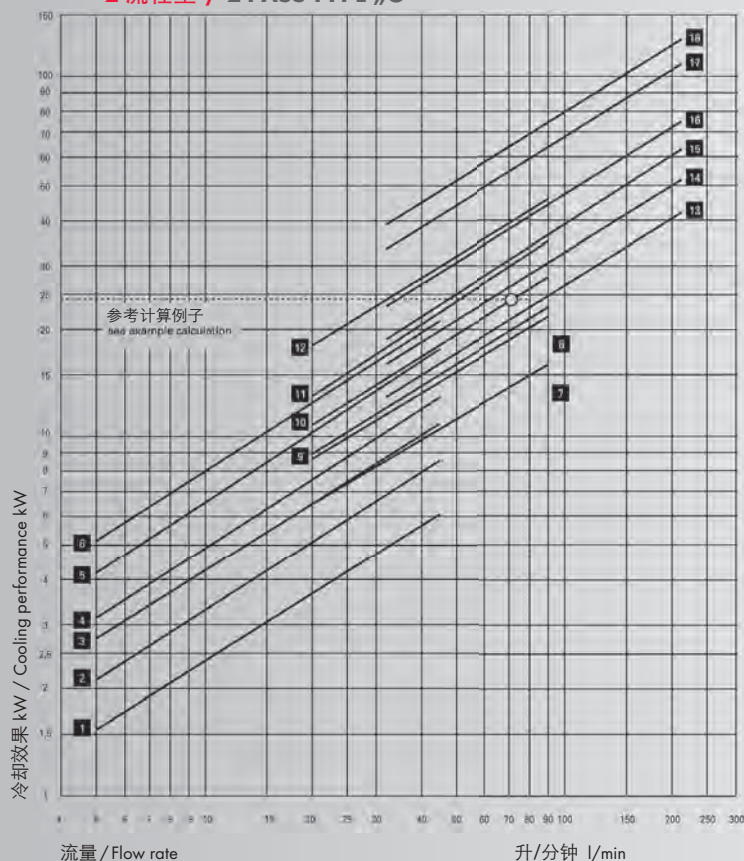
CHOICE OF COOLER



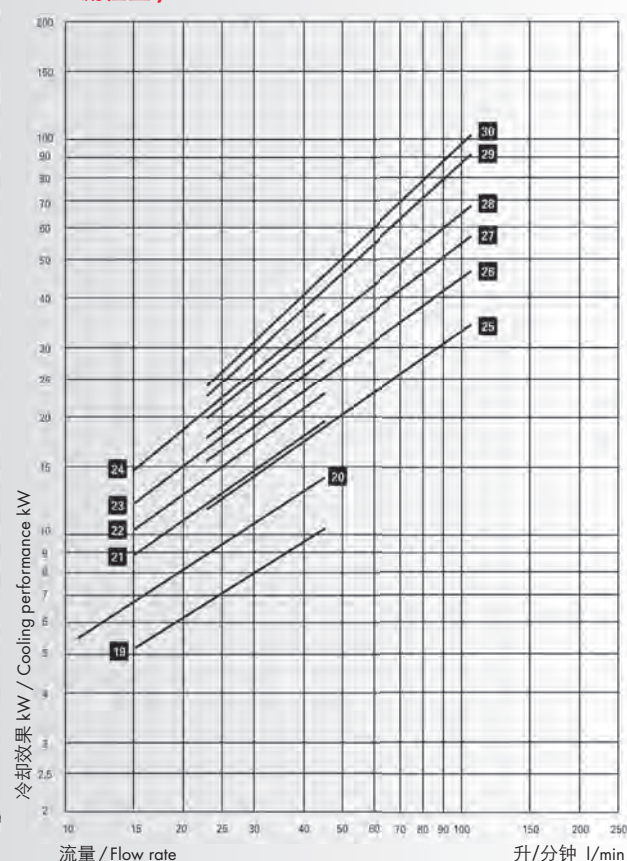
所示性能参数基于水入口温度为 25°C 和油出口温度为 50°C。及油粘度 20.6 cSt。不同粘度,修正系数 „A“ 可由下图曲线读出。

The performance data shown is based on a water inlet temperature of 25°C and an oil outlet temperature of 50°C, together with an oil viscosity of 20.6 cSt. For different viscosities, the correction factor „A“ can be read off from the performance curve below.

2 流程型 / 2 PASS TYPE „O“



4 流程型 / 4 PASS TYPE



图表中的性能曲线图受限于流量范围。
范围以外的请咨询厂家。

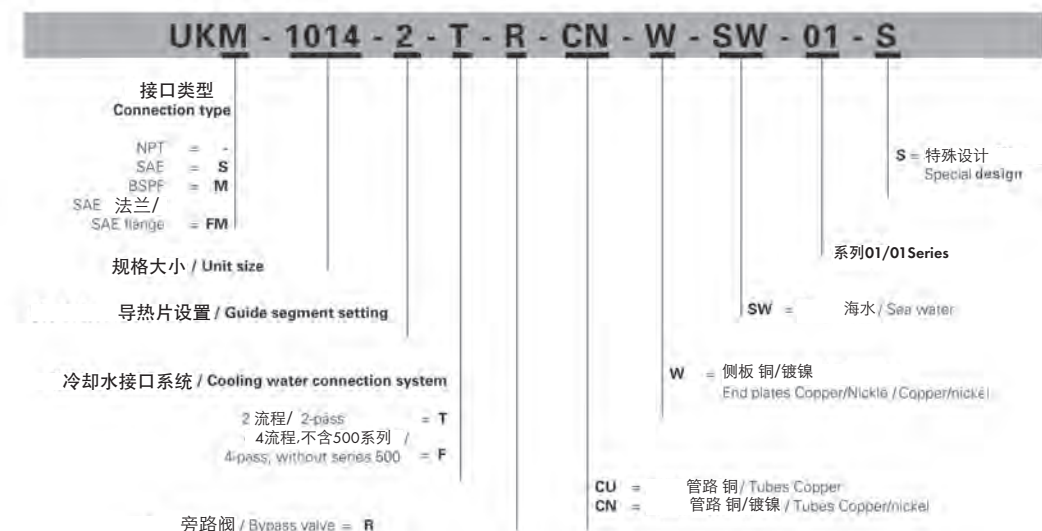
The performance data shown in the diagram are limited by the flow rate and may be exceeded after consultation with the manufacturer.

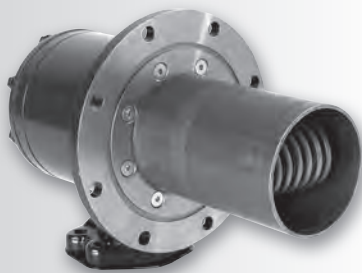
1 UKM-508-T	10 UKM-718-T
2 UKM-512-T	11 UKM-724-T
3 UKM-514-T	12 UKM-736-T
4 UKM-518-T	13 UKM-1012-T
5 UKM-524-T	14 UKM-1014-T
6 UKM-536-T	15 UKM-1018-T
7 UKM-708-T	16 UKM-1024-T
8 UKM-712-T	17 UKM-1036-T
9 UKM-714-T	18 UKM-1048-T

19 UKM-708-F	25 UKM-1012-F
20 UKM-712-F	26 UKM-1014-F
21 UKM-714-F	27 UKM-1018-F
22 UKM-718-F	28 UKM-1024-F
23 UKM-724-F	29 UKM-1036-F
24 UKM-736-F	30 UKM-1048-F

订货号

ORDERING CODE



UKTM 系列
SERIES UKTM

产品介绍

UKTM 系列管束式热交换器适用于各种工业应用。该系列冷却效果显著,得益于额外的冷却面积。管束间通过铝鳍实现金属-金属接触。UKTM系列的冷却面积从 0.73 到 29 平米。UKTM 系列由 29 个基本单元组成,有 2,4 个流程版本。

产品特性

- 铝鳍与铜管或镀镍铜管确保最大热交换效果
- 油路大接口减少压损
- 流体流速高达 650 升/分钟
- 端盖可拆卸,方便清洗管路
- 法兰允许换热器 90 度安装
- 可选内置旁路单向阀(专利)
- 高品质材料
- 最大压力:油 35 bar / 水 16 bar
- 可选各种附件
- 库存现货,货期短

PRODUCT DESCRIPTION

The UKTM series is a consistent development of a tube bundle heat exchanger for a wide range of industrial applications. This range is particularly effective due to the additional cooling area. This is achieved by aluminium fins, which are pushed over the tube bundle with metal-to-metal contact. The UKTM range of heat exchangers have a cooling surface of 0.73 m² to 29 m². The UKTM series is constructed of more than 29 basic units, and is available as double and four pass versions.

PRODUCT FEATURES

- Aluminium fins and copper or cupro-nickel tubes ensure maximum levels of heat exchange
- Large oil connectors for minimum flow resistance
- Oil flow rates of up to 650 l/min
- Removable end cap for easy cleaning of the tubes
- Flanges allow a 90° rotation of the heat exchanger
- Optionally available with internal bypass check valve (patented)
- High-quality materials
- Max. pressure: oil 35 bar / water 16 bar
- Full range of accessories available
- Delivery ex-stock

材料

MATERIALS

	标准 / STANDARD
外壳 / SHELL, 安装支架 / MOUNTING BRACKET, 挡板 / BAFFELS	钢质 / Steel
端板 / END PLATES	黄铜 / Brass
冷却鳍 / COOLING FINS, 板类型 / TYPE SPECIFICATION PLATE	铝 / Aluminium
管路 / TUBES	铜 / Copper
端盖 / END CAPS	铸铁 / Cast iron
垫圈 / GASKETS	丁腈橡胶, 纤维 / Nitrile rubber, cellulose fibre

最大流量

MAXIMUM FLOW RATE

升/分钟 l/min	油 / OIL 外壳 / SHELL	水 / WATER 管 CU / TUBES CU		水 / WATER 管 CN / TUBES CN	
规格 / VERSION		T	F	T	F
UKTM-500	75	17	-	26	-
UKTM-700	225	34	16	52	24
UKTM-1000	400	82	40	122	58
UKTM-1200	650	182	91	272	136

最大工作压力 / Maximum operating pressure:

壳式 / Shell = 35 bar

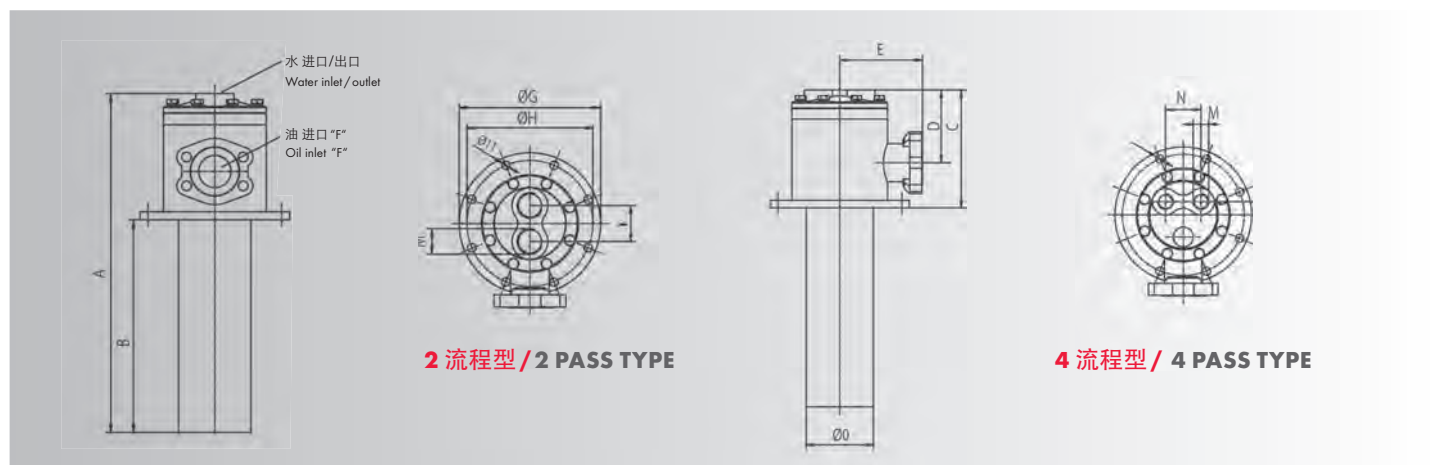
管式 / Tubes = 10 bar

最大工作温度 / Maximum operating temperature:

= 95 度 / 95°C

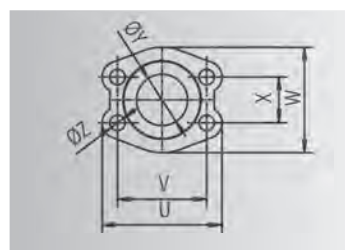
注意: 不正确安装会损坏冷却器

CAUTION: Incorrect installation may lead to damage to the cooler.



法兰尺寸

DIMENSIONS FLANGE



	U	V	W	X	Y	Z
SAE 1"	70	52,37	55	26,19	25	M10
SAE 1 1/2"	93	69,85	78	35,71	38	M12
SAE 2"	102	77,77	90	42,88	49	M12

冷却器尺寸

UNIT DIMENSIONS

毫米 mm / BSPP	尺寸 / DIMENSIONS									2-流程 / 2-WAYS			4-流程 / 4-WAYS			平方米 m ²
	A	B	C	D	E	F*	G	O	H	I	K	L	M	N		
UKTM-508	285	140	145	92	48	G 1"	150	65	130	35	G 1/2"	-	-	-		0,73
UKTM-512	386	241	145	92	48	G 1"	150	65	130	35	G 1/2"	-	-	-		1,13
UKTM-514	437	292	145	92	48	G 1"	150	65	130	35	G 1/2"	-	-	-		1,43
UKTM-518	539	394	145	92	48	G 1"	150	65	130	35	G 1/2"	-	-	-		1,74
UKTM-524	691	546	145	92	48	G 1"	150	65	130	35	G 1/2"	-	-	-		2,35
UKTM-536	996	851	145	92	48	G 1"	150	65	130	35	G 1/2"	-	-	-		3,57
UKTM-708	296	141	155	95	110	SAE 1 1/2"	185	89	165	47	G 1"	18	R 1/2"	48		1,38
UKTM-712	397	242	155	95	110	SAE 1 1/2"	185	89	165	47	G 1"	18	R 1/2"	48		2,18
UKTM-714	448	293	155	95	110	SAE 1 1/2"	185	89	165	47	G 1"	18	R 1/2"	48		2,53
UKTM-718	550	395	155	95	110	SAE 1 1/2"	185	89	165	47	G 1"	18	R 1/2"	48		3,29
UKTM-724	702	547	155	95	110	SAE 1 1/2"	185	89	165	47	G 1"	18	R 1/2"	48		4,44
UKTM-736	1007	852	155	95	110	SAE 1 1/2"	185	89	165	47	G 1"	18	R 1/2"	48		6,73
UKTM-1012	425	240	185	110	125	SAE 2"	230	128	205	62	G 1 1/4"	22	R 3/4"	63		4,38
UKTM-1014	476	291	185	110	125	SAE 2"	230	128	205	62	G 1 1/4"	22	R 3/4"	63		5,17
UKTM-1018	578	393	185	110	125	SAE 2"	230	128	205	62	G 1 1/4"	22	R 3/4"	63		6,73
UKTM-1024	730	545	185	110	125	SAE 2"	230	128	205	62	G 1 1/4"	22	R 3/4"	63		9,06
UKTM-1036	1035	850	185	110	125	SAE 2"	230	128	205	62	G 1 1/4"	22	R 3/4"	63		13,74
UKTM-1048	1340	1155	185	110	125	SAE 2"	230	128	205	62	G 1 1/4"	22	R 3/4"	63		18,41
UKTM-1218	592	390	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		6,00
UKTM-1224	744	542	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		8,06
UKTM-1230	897	695	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		10,19
UKTM-1236	1049	847	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		12,25
UKTM-1242	1202	1000	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		14,38
UKTM-1248	1354	1152	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		16,35
UKTM-1254	1506	1304	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		18,48
UKTM-1260	1659	1457	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		20,52
UKTM-1266	1811	1609	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		22,63
UKTM-1272	1964	1762	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		24,74
UKTM-1276	2117	1915	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		26,88
UKTM-1284	2269	2067	202	132	145	SAE 2 1/2"	275	160	240	87	G 1 1/2"	25	G 1"	70		28,99

* 选项 / Option: 规格 / Unit size 500 + 700: SAE 1 1/2"; 规格 / Unit size 1000: 螺纹/网 / Thread / Fillet

* 选项 / Option: 规格 / Unit size 1200: K - R 1", R 1 1/4", R 2"

为了区分油出口温度,水入口温度和粘度,计算如下:

假设:

散热功率 (AW)	= 17 kW
油流速 (V)	= 80 l/min
油出口温度 (t _{出油})	= 45°C
水入口温度 (t _{进水})	= 25°C
油类型	= ISO 68
散热效率	= kW eff.

1. 参考粘度系数计算如下:

温度差 ΔT (°C) =

$$\frac{AW \text{ (kW)} \times 34,1}{Q \text{ (l/mm)}} = 7,2$$

平均油温 (°C) =

$$\frac{t_{\text{出油}} + \Delta t + t_{\text{出油}}}{2} = 49^\circ \text{C}$$

2. 68 号液压油参数:

49°C 粘度 = 38 cSt

3. 从粘度修正数据表 „A”:

38 cSt = 1,11

AW eff. =

AW (kW) x 25 x 粘度(cSt)图表A

$$= \frac{t_{\text{出油}} (^\circ\text{C}) - t_{\text{进水}} (^\circ\text{C})}{17 \times 25 \times 1,11} = 23,6 \text{ kW}$$

从油/水 2:1 性能图根据 80 升/分钟和 23.6 kW, 查得:

冷却器 No. 31 = UKTM-718-T

For deviating oil outlet temperatures, water inlet temperatures and viscosities, the calculation has to be made as follows:

WHERE:

Heat to be dissipated (AW)	= 17 kW
Oil flow (V)	= 80 l/mn.
Oil outlet temp. (t _{oil out})	= 45°C
Water inlet temp. (t _{water in})	= 25°C
Oil type	= ISO 68
Effective heat to be dissipated	= kW eff.

1. The viscosity correction factor is calculated as follows:

Temperature difference ΔT (°C) =

$$\frac{AW \text{ (kW)} \times 34,1}{Q \text{ (l/mm)}} = 7,2$$

Average oil temp. therefore (°C) =

$$\frac{t_{\text{oil out}} + \Delta t + t_{\text{oil out}}}{2} = 49^\circ \text{C}$$

2. From oil manufacturer's data for ISO 68:

Viscosity at 49°C = 38 cSt

3. From viscosity correction table „A”:

38 cSt = 1,11

AW eff. =

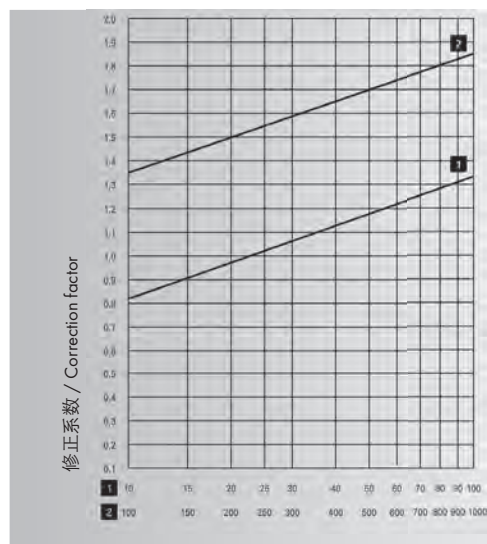
AW (kW) x 25 x viscosity (cSt) Tab. A

$$= \frac{t_{\text{oil out}} (^\circ\text{C}) - t_{\text{water in}} (^\circ\text{C})}{17 \times 25 \times 1,11} = 23,6 \text{ kW}$$

From oil/water 2:1 performance diagram at an oil flow of 80 l/min and 23.6 kW, the outcome is: Cooler no. 31 = UKTM-718-T

选择冷却器

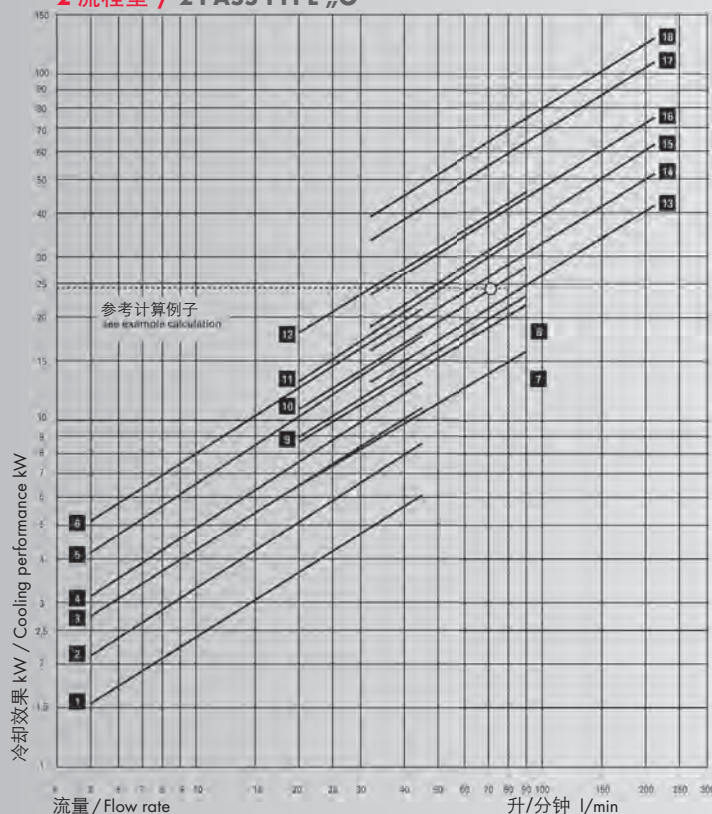
CHOICE OF COOLER



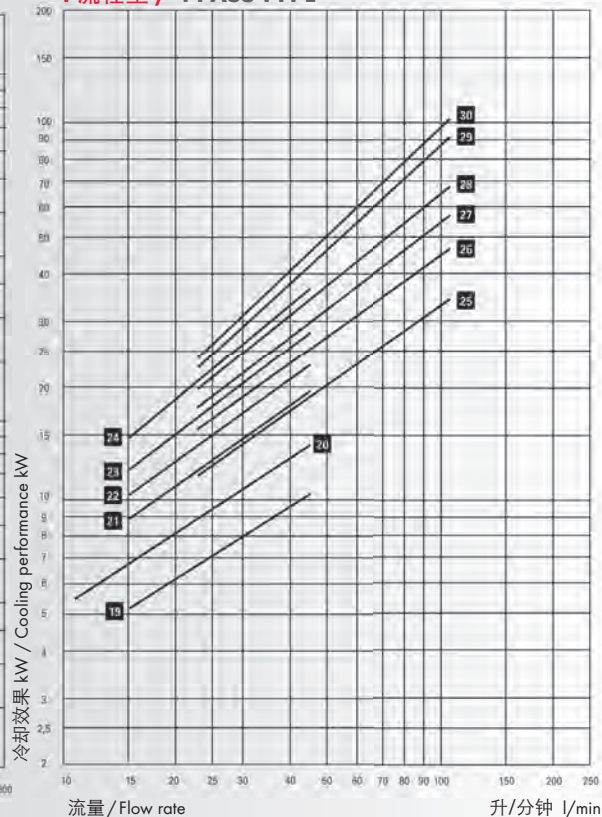
所示性能参数基于水入口温度为 25°C 和油出口温度为 50°C。及油粘度 20.6 cSt。不同粘度,修正系数 „A” 可由下图曲线读出。

The performance data shown is based on a water inlet temperature of 25°C and an oil outlet temperature of 50°C, together with an oil viscosity of 20.6 cSt. For different viscosities, the correction factor „A” can be read off from the performance curve below.

2 流程型 / 2 PASS TYPE „O“



4 流程型 / 4 PASS TYPE



图表中的性能曲线图受限于流量范围。
范围以外的请咨询厂家。

The performance data shown in the diagram are
limited by the flow rate and may be exceeded
after consultation with the manufacturer.

1 UKTM-508-T	10 UKTM-718-T
2 UKTM-512-T	11 UKTM-724-T
3 UKTM-514-T	12 UKTM-736-T
4 UKTM-518-T	13 UKTM-1012-T
5 UKTM-524-T	14 UKTM-1014-T
6 UKTM-536-T	15 UKTM-1018-T
7 UKTM-708-T	16 UKTM-1024-T
8 UKTM-712-T	17 UKTM-1036-T
9 UKTM-714-T	18 UKTM-1048-T

19 UKTM-708-F	25 UKTM-1012-F
20 UKTM-712-F	26 UKTM-1014-F
21 UKTM-714-F	27 UKTM-1018-F
22 UKTM-718-F	28 UKTM-1024-F
23 UKTM-724-F	29 UKTM-1036-F
24 UKTM-736-F	30 UKTM-1048-F

订货号

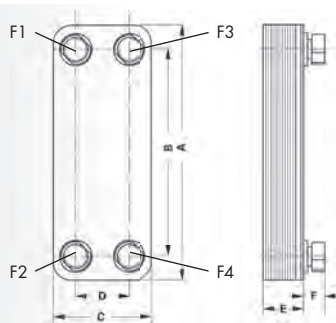
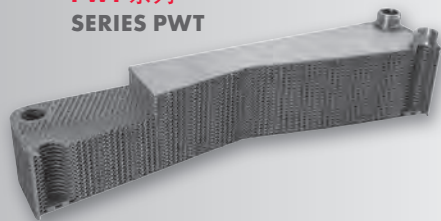
ORDERING CODE

UKTM - 1014 - 2 - T - R - CN - W - SW - 01 - S	
接口类型 Connection type	S = 特殊设计 Special design
NPT = -	
SAE = S	
BSPF = M	
SAE 法兰/ SAE flange = FM	
规格大小 / Unit size	系列 01/01Series
导热片设置 / Guide segment setting	SW = 海水 / Sea water
冷却水接口系统 / Cooling water connection system	W = 侧板 铜/镀镍 End plates Copper/nickel
2 流程 / 2-pass / 2-voies = T	
4 流程, 不含 500 系列 / 4-pass, without series 500 / = F	
旁路阀 / Bypass valve = R	
	CU = 管路 铜 / Tubes Copper
	CN = 管路 铜/镀镍 / Tubes Copper/nickel

板式热交换器(工业用途)

PLATE HEAT EXCHANGERS FOR INDUSTRIAL USE

PWT 系列 SERIES PWT



设备接口 / EQUIPMENT CONNECTIONS

F1 = 主管路进口 / Primary on
F2 = 主管路出口 / Primary off
F3 = 副管路出口 / Secondary off
F4 = 副管路进口 / Secondary on

产品介绍

焊板式换热器材料为不锈钢。紧凑经济。油压高达 30 bar, 流量范围 25 至 3,000 升/分钟。工作温度为 -100 至 +195 摄氏度。可选镍焊。安装灵活,采用聚氨酯硬泡材料绝缘。

PRODUCT DESCRIPTION

Soldered plate heat exchanger made of stainless steel. Compact and economical. Oil pressure up to 30 bar and oil flow rate from 25 to 3,000 l/min. Operating temperatures from -100 to +195°C. Also available with nickel soldering. Various installation fittings and isolations of PU hard foam.

技术参数

规格 / SIZE	A	B	C	D	E	F
PWT-10	203	170	73	40	7 + 2,0* n	20
PWT-20	230	182	89	43	7 + 2,3* n	20
PWT-220	325	279	89	43	7 + 2,3* n	20
PWT-240	461	415	89	43	7 + 2,3* n	20
PWT-30	171	120	124	73	7 + 2,3* n	20
PWT-40	332	281	124	73	7 + 2,3* n	20
PWT-50	529	478	124	73	7 + 2,3* n	20
PWT-70L/70M	529	460	269	200	7 + 2,4* n	65
PWT-80	529	421	269	161	7 + 2,4* n	65
PWT-90	798	690	269	161	7 + 2,4* n	65
PWT-100	870	723,3	383	237	22,5 + n x 2,4	65

* PWT-10 至 PWT-90 的尺寸 "E" 由换热板数量和盖板及底座的尺寸组成。

* The dimension „E“ for PWT-10 to PWT-90 results from the number of plates and the value of cover plate + base plate.

TECHNICAL DATA

换热板材料 / PLATE MATERIAL	不锈钢 / Stainless steel
焊料 / SOLDER	铜 / Copper
最大工作压力 / MAX. OPERATING PRESSURE	30 bar (镀镍 / Nickel 16 bar)
最大工作压力 / MAX. OPERATING TEMPERATURE	-100°C - +195°C

技术参数

ACCESSORIES

- 各种螺纹接头
- 聚氨酯硬泡绝缘材料
- 紧凑型隔层
- 支架:
 - PTW-30规格以上,落地式或悬挂式
 - 根据图纸焊接螺栓
- Various screw connections
- Insulation made of PU hard foam
- Diffusion-tight insulation
- Brackets:
 - Floor-wall consoles from PWT-30
 - Threaded bolts welded on as per drawing

订货号

ORDERING CODE

N - PWT - 10 - 20 - GI - G 1"
镍焊 / Nickel soldered
板式热交换器 / Plate heat exchanger
规格大小 / Construction size
换热板数量 / Number of plates
螺纹大小 / Thread size
螺纹形式 / Type of thread
GA = 外螺纹 / External thread
GI = 内螺纹 / Internal thread
DN = 法兰式 / Flange

结构尺寸 CONSTRUCTION SIZE	换热板数量 NO. OF PLATES	内螺纹 INTERNAL THREAD GI	键宽 KEY WIDTH SW	外螺纹 EXTERNAL THREAD GA	法兰 DN FLANGE DN
PWT-10	10, 14, 20, 24, 30	G 1/2"	-	G 1/2", G 3/4"	
PWT-20	10, 14, 20, 24, 30, 40, 50	G 1/2", G 3/4"	-	G 1/2", G 3/4", G 1"	
PWT-220	10, 14, 20, 24, 30	G 1/2", G 3/4"	-, SW 30	G 1/2", G 3/4", G 1"	
PWT-240					
PWT-30	10, 14, 20, 24, 30, 40, 50	G 1/2", G 1"	-, SW 36	G 3/4", G 1", G 1 1/4"	
PWT-40	10, 14, 20, 24, 30, 34, 40, 44, 50, 60, 70, 80, 90, 100	G 1/2", G 1"	-, SW 36	G 3/4", G 1", G 1 1/4"	
PWT-50					
PWT-70L/70M	10, 14, 20, 24, 30, 34, 40, 44, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150	G 1/2", G 1 1/2"	-, SW 55	G 1 1/2", G 2"	DN 40, DN 50
PWT-80	20, 24, 30, 34, 40, 44, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200			G 3"	DN 65*
PWT-90				G 2 1/2", G 3"	DN 65*
PWT-100				G 2 1/2", G 3"	DN 100*

其它接口规格。
Other connection sizes on request.

*紧凑型 / Compact

LKI 系列
SERIES LKI

产品介绍

新一代 LKI 系列油冷却器,噪音水平大为降低。该系列冷却器适用于固定安装-用于液压油或润滑油的冷却。该系列壳体特别设计,噪音低,适用于低速通风设备。该系列小规格有单流程和双流程版本,通用性更强,覆盖低流量和高流量范围。

产品特性

- 测试压力: 静态 25 bar, 符合 DIN 50104 规范
- 工作压力: 16 bar
(2 Hz 和 60°C, 0-16 bar 最少 2 百万次循环)
- 紧凑型油冷却器
- 高换热效率
- 低压损
- 最高工作温度: 120°C
- 高灵活性
- LKI 700 系列以上采用 SAE 2" 接口
- 适用于: 液压油, HFA, HFB, HFC, HFD, 粘度高达 $\nu = 100 \text{ mm}^2/\text{s}$, 水/乙二醇 最低 65:35 - 水无抗腐蚀保护。
- 冷却媒介: 空气
- 各种电机: 液压马达/12/24 V

PRODUCT DESCRIPTION

With this new generation of LKI oil coolers, the noise level has been successfully reduced. These coolers are ideally suited for stationary installations - for the cooling of hydraulic or lubricating oils. The range has been extended to include slow-running ventilators and the housings have been optimised in order to achieve the very low noise level. In order to make the cooler range as comprehensive as possible, the smaller models are also available as single or dual versions, thus covering oilcooling requirements for both low and high oil flow rates.

PRODUCT FEATURES

- Testing pressure: 25 bar static according to DIN 50104
- Operating pressure: 16 bar
(min. 2 Mill. Cycles from 0-16 bar at 2 Hz and 60°C)
- Compact oil-cooler
- High cooling performance
- Low pressure loss
- Max. operating temperature: 120°C
- High flexibility
- 2" SAE flange from LKI 700 upward
- Cooling of: Oil, HFA, HFB, HFC, HFD fluids up to $\nu = 100 \times 10^{-6} \text{ m}^2/\text{s}$, water/glycol min. 65:35 - under no circumstances water without corrosion prevention
- Coolant: air
- Variable motor; Hydro /12/24 V

材料

MATERIALS

	标准 / STANDARD	海水 / SEA WATER
冷却阀块 / COOLING BLOCK	铝 / Aluminium, RAL 9006	两材料涂装 / 2-component paint
外壳 / HOUSING	钢 / Steel, RAL 5009	电镀 / Electroplated
风扇 / FAN	PPG (聚丙烯醇)	
安全防护栅 / SAFETY BARRIER	钢, 镀铬, 蓝色 / Steel with blue-chrome finish	
脚架 / FEET	电镀 / Galvanized	

举例1: (假设已知所需冷却功率)

冷却功率 = 65 kW
 最高油温 = 70°C
 环境温度 = 30°C
 油液流量 = 250 l/min
 所需冷却效果:

$$\frac{Q}{T_{ol} - T_{umg}} = \frac{65}{70 - 30} = 1,63 \text{ kW/}^{\circ}\text{C}$$

可选:

LKI-710-400-6 或 LKI 810-400-8.

选型也考虑噪音因素。

举例2:

(假设所需冷却功率未知)

通常,电机应用功率(柴油机或电动机) 的 25-30% 会转化成热,升高油温。

电机功率 = 30 kW
 冷却功率:
 (0,3 x 30 kW) = 9,0 kW
 最高油温 = 70°C
 环境温度 = 30°C
 油液流量 = 250 l/min
 所需冷却效果:

$$\frac{Q}{T_{ol} - T_{umg}} = \frac{9}{60 - 30} = 0,3 \text{ kW/}^{\circ}\text{C}$$

可选:

LKI-210-400-2 或 LKI 310-400-6.

选型也考虑噪音因素。

油温冷却效果:

$$\Delta t_{öl} = \frac{36 \times Q}{V_{öl}} = \frac{36 \times 9}{35} = 9,26^{\circ}\text{C}$$

Q = 冷却功率 [kW]
 T_{ol} = 最高油温 [°C]
 T_{umg} = 环境温度 [°C]
 $V_{öl}$ = 油液流量 [l/min]

Example 1: (If required cooling performance is known)

Cooling performance = 65 kW
 Max. oil temperature = 70°C
 Ambient temperature = 30°C
 Oil flow rate = 250 l/min
 Special cooling performance:

$$\frac{Q}{T_{ol} - T_{umg}} = \frac{65}{70 - 30} = 1,63 \text{ kW/}^{\circ}\text{C}$$

Options:

LKI-710-400-6 or LKI 810-400-8. The selection

depends on any possible noise restrictions.

Example 2:

(If the required cooling performance is not known).

Normally, there is a heat transfer to the oil of 25-30% of the motor performance (diesel motor or electric motor)

Motor performance = 30 kW
 Cooling performance:
 (0,3 x 30 kW) = 9,0 kW
 Max. oil temperature = 70°C
 Ambient temperature = 30°C
 Oil flow rate = 250 l/min
 Special cooling performance:

$$\frac{Q}{T_{ol} - T_{umg}} = \frac{9}{60 - 30} = 0,3 \text{ kW/}^{\circ}\text{C}$$

Options:

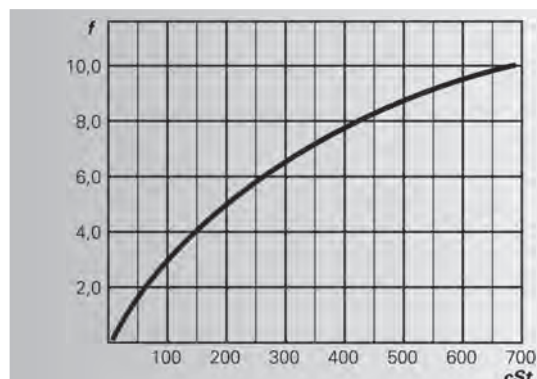
LKI-210-400-2 or LKI 310-400-6. The selection

depends on any possible noise restrictions.

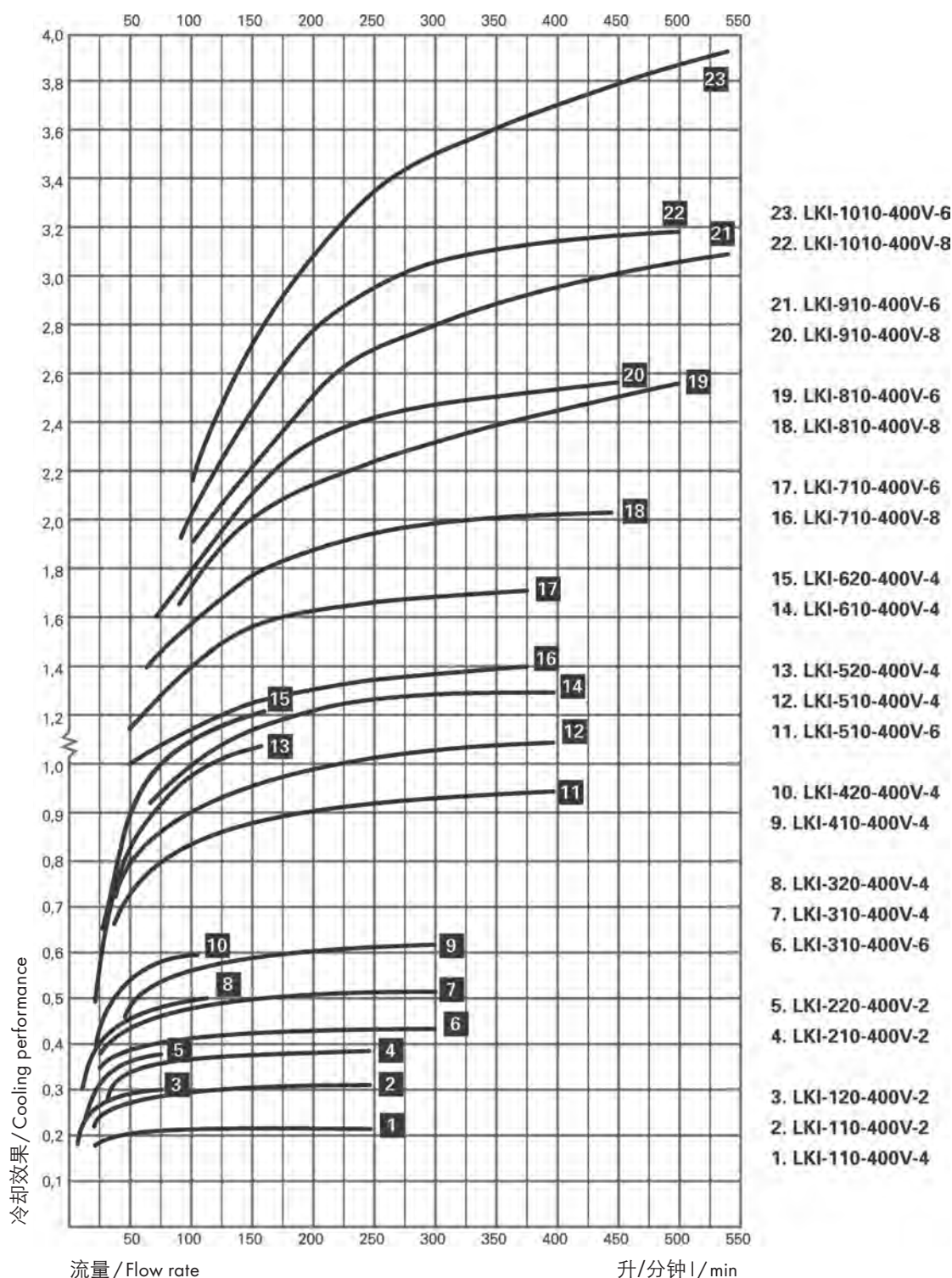
Oil cooling:

$$\Delta t_{öl} = \frac{36 \times Q}{V_{öl}} = \frac{36 \times 9}{35} = 9,26^{\circ}\text{C}$$

Q = Cooling performance [kW]
 T_{ol} = max. oil temperature [°C]
 T_{umg} = Ambient temperature [°C]
 $V_{öl}$ = Oil flow rate [l/min]

**不同粘度压损修正系数****CORRECTION FACTOR FOR THE PRESSURE LOSS FOR OTHER VISCOSITIES**

$$\Delta p_{öl} = \Delta p_{30cSt} \times f$$

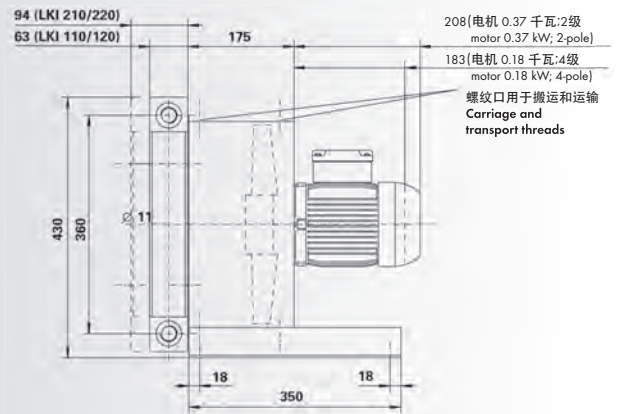
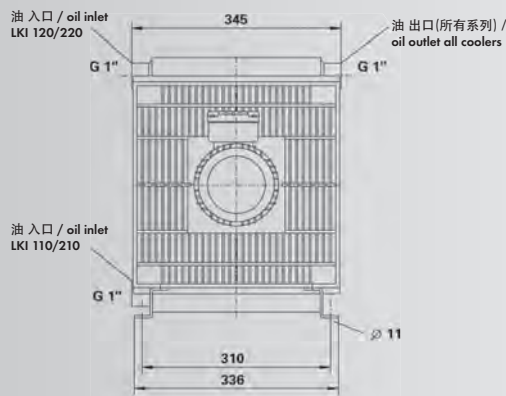


图表中冷却效果计算基于油温 60°C, 环境温度 20°C, 温差为 40°C。图表适用于 32 号液压油, 粘度为 30。其它粘度, Δp 需要乘以修正系数, 请参考第 17 页。

The calculation of the specific cooling performance is based on an oil temperature of 60°C, an ambient temperature of 20°C – thus a temperature difference of 40°C. The figures apply to ISO VG32 hydraulic oil with 30 cSt. For variances, Δp is multiplied by the correction factor f from the diagram on page 17.

尺寸图 / DIMENSIONS

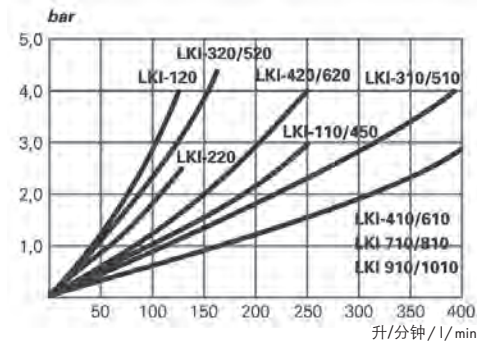
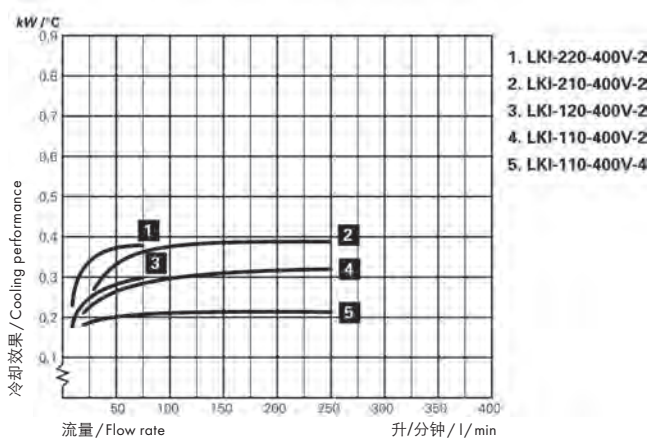
侧面内螺纹油接口
Lateral internal thread oil connections



冷却效果

COOLING PERFORMANCE

压损 PRESSURE LOSS



技术参数

TECHNICAL DATA

规格 / SIZE	电机功率 / MOTOR PERFORMANCE 千瓦 / kW	电流消耗 / POWER CONSUMPTION 安培 A	转速 / REVOLUTIONS 转/分钟 / min ⁻¹	空气流速 / AIR FLOW RATE 立方米/秒 / m ³ /s	噪音等级* / NOISE LEVEL* 1 米 / 7 米 / 1 m / 7 m (dBA)	重量 / WEIGHT 公斤 / kg
LKI-110-400 V-2	0,37	0,88	3000	1,29	77/62	17
LKI-120-400 V-2	0,37	0,88	3000	1,29	77/62	17
LKI-110-400 V-4	0,18	0,58	1500	0,49	64/50	17
LKI-120-400 V-4	0,18	0,58	1500	0,49	64/50	17
LKI-210-400 V-2	0,37	0,88	3000	1,18	79/64	20
LKI-220-400 V-2	0,37	0,88	3000	1,18	79/64	20
LKI-210-400 V-4	0,18	0,58	1500	0,50	64/50	20
LKI-220-400 V-4	0,18	0,58	1500	0,50	64/50	20

* 可能偏差 ±3 dB(A); 由室内环境, 交流电频率, 油口接头和粘度等决定。

* May vary by ±3 dB(A) due to room characteristics, own frequencies, oil connections, viscosities etc.

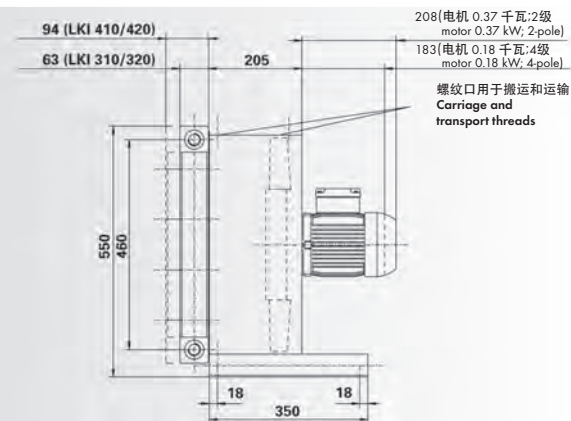
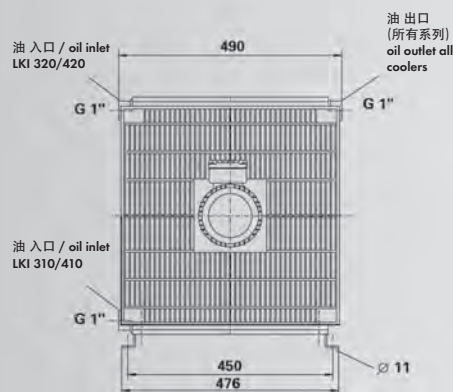
尺寸图 /

DIMENSIONS

LKI 100 - 600:

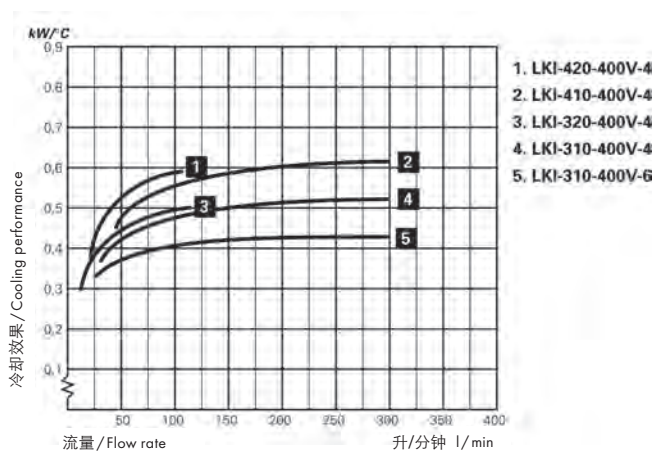
侧面内螺纹油接口

Lateral internal thread oil connections



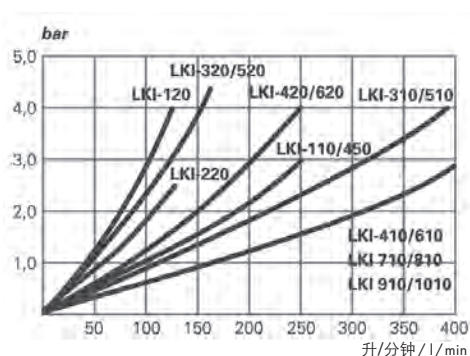
冷却效果

COOLING PERFORMANCE



压损

PRESSURE LOSS



技术参数

TECHNICAL DATA

规格 / SIZE	电机功率 / MOTOR PERFORMANCE 千瓦 / kW	电流消耗 / POWER CONSUMPTION 安培 / A	转速 / REVOLUTIONS 转/分钟 / min ⁻¹	空气流速 / AIR FLOW RATE 立方米/秒 / m ³ /s	噪音等级* / NOISE LEVEL* 1 米 / 7 米 / 1 m / 7 m (dBA)	重量 / WEIGHT 公斤 / kg
LKI-310-400 V-4	0,37	0,89	1500	0,74	73/58	25
LKI-320-400 V-4	0,37	0,89	1500	0,74	73/58	25
LKI-310-400 V-6	0,12	0,48	1000	0,59	65/51	26
LKI-320-400 V-6	0,12	0,48	1000	0,59	65/51	26
LKI-410-400 V-4	0,37	0,48	1500	0,76	75/63	32
LKI-420-400 V-4	0,37	0,48	1500	0,76	75/63	32
LKI-410-400 V-6	0,12	0,48	1000	0,55	67/53	33
LKI-420-400 V-6	0,12	0,48	1000	0,55	67/53	33

* 可能偏差 ±3 dB(A);由室内环境,交流电频率,油口接头和粘度等决定。

* May vary by ±3 dB(A) due to room characteristics, own frequencies, oil connections, viscosities etc.

尺寸图 /

DIMENSIONS

LKI 100 - 600:

侧面内螺纹油接口

Lateral internal thread oil connections

油入口 / oil inlet
LKI 520/620油出口
(所有系列)
oil outlet all
coolers油入口 / oil inlet
LKI 510/61094 (LKI 610/620)
63 (LKI 510/520)228(电机 0.75 千瓦;2级 /
motor 0.75 kW; 2-pole)
208(电机 0.25 千瓦;4级 /
motor 0.25 kW; 4-pole)

G 1 1/2"

715

614

245

18

350

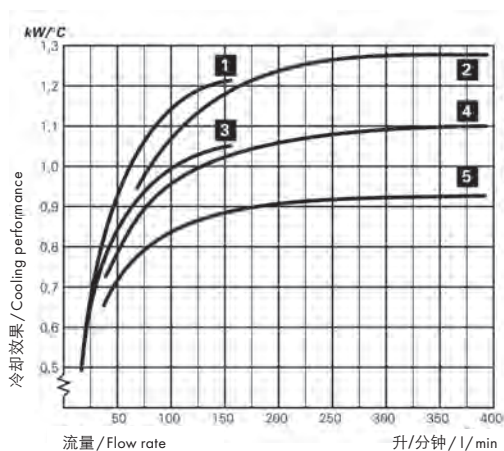
414,5

18

11

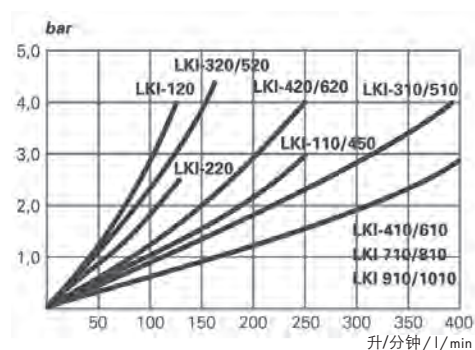
冷却效果

COOLING PERFORMANCE



压损

PRESSURE LOSS



技术参数

TECHNICAL DATA

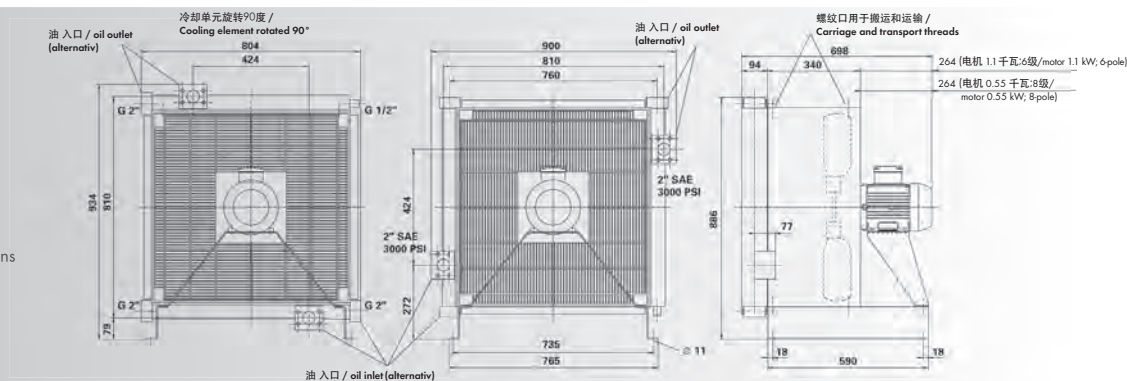
规格 / SIZE	电机功率 / MOTOR PERFORMANCE 千瓦 / kW	电流消耗 / POWER CONSUMPTION 安培 A	转速 / REVOLUTIONS 转/分钟 / min ⁻¹	空气流速 / AIR FLOW RATE 立方米/秒 / m ³ /s	噪音等级* / NOISE LEVEL* 1 米 / 7 米 / 1 m / 7 m (dBA)	重量 / WEIGHT 公斤 / kg
LKI-510-400 V-4	0,75	1,71	1500	1,70	80/70	40
LKI-520-400 V-4	0,75	1,71	1500	1,70	80/70	40
LKI-510-400 V-6	0,25	0,99	1000	1,06	70/57	37
LKI-520-400 V-6	0,25	0,99	1000	1,06	70/57	37
LKI-610-400 V-4	0,75	1,71	1500	1,50	80/70	49
LKI-620-400 V-4	0,75	1,71	1500	1,50	80/70	49
LKI-610-400 V-6	0,25	0,99	1000	0,95	70/57	49
LKI-620-400 V-6	0,25	0,99	1000	0,95	70/57	49

* 可能偏差 ±3 dB(A);由室内环境,交流电频率,油口接头和粘度等决定。

* May vary by ±3 dB(A) due to room characteristics, own frequencies, oil connections, viscosities etc.

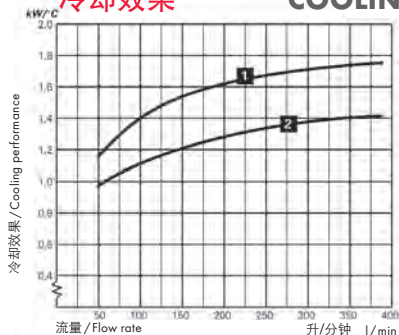
尺寸图 / DIMENSIONS

LKI 700 - 1000:
侧面内螺纹油接口,
正面或背面SAE法兰
Lateral internal thread oil connections
and SAE flange at front or rear



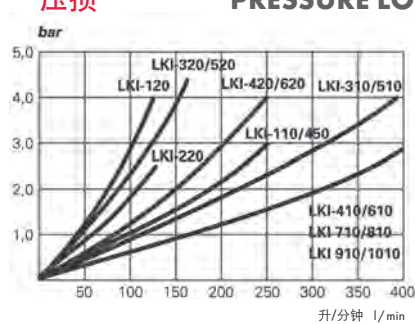
冷却效果

COOLING PERFORMANCE



压损

PRESSURE LOSS



技术参数

TECHNICAL DATA

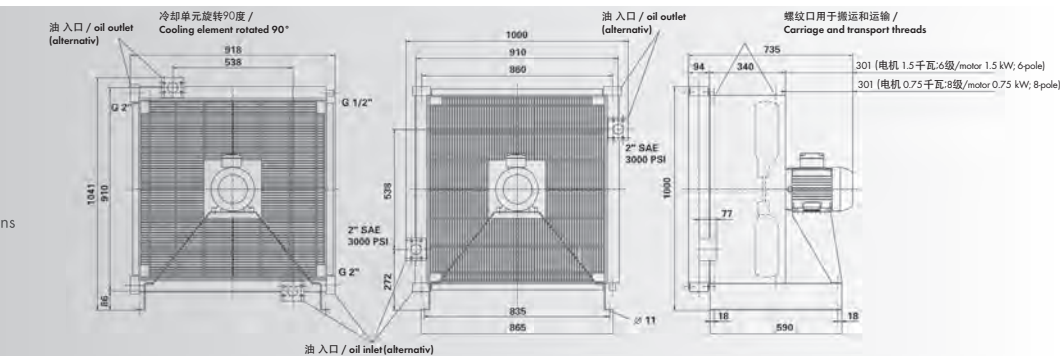
规格 / SIZE	电机功率 / MOTOR PERFORMANCE 千瓦 / kW	电流消耗 / POWER CONSUMPTION 安培 A	转速 / REVOLUTIONS 转/分钟 / min ⁻¹	空气流速 / AIR FLOW RATE 立方米/秒 / m ³ /s	噪音等级* / NOISE LEVEL* 1米 / 7米 / 1m / 7m (dBA)	重量 / WEIGHT 公斤 / kg
LKI-710-400 V-6	1,1	2,56	1000	2,14	77/64	91
LKI-710-400 V-8	0,55	2,56	750	1,56	69/56	91

LKI-800

LKI-800

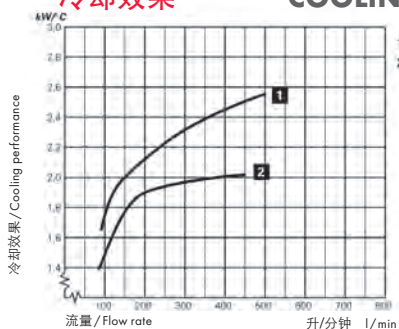
尺寸图 / DIMENSIONS

LKI 700 - 1000:
侧面内螺纹油接口,
正面或背面SAE法兰
Lateral internal thread oil connections
and SAE flange at front or rear



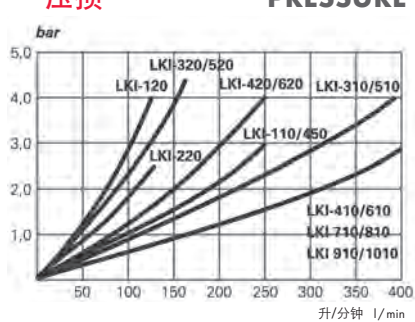
冷却效果

COOLING PERFORMANCE



压损

PRESSURE LOSS



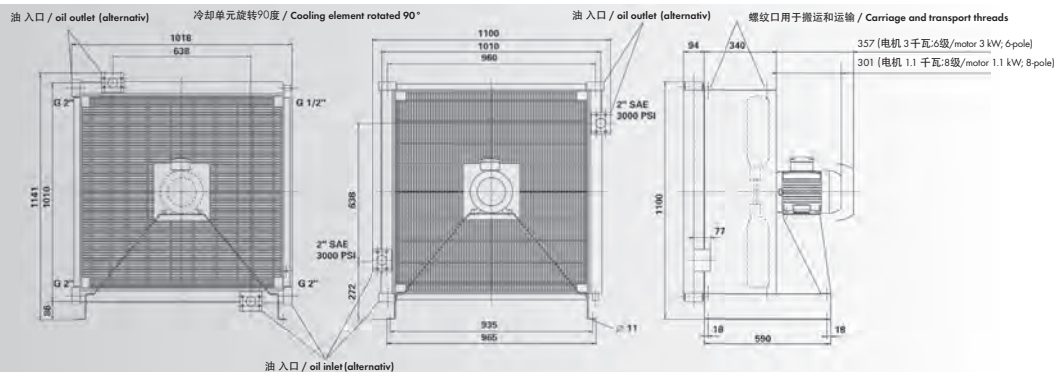
技术参数

TECHNICAL DATA

规格 / SIZE	电机功率 / MOTOR PERFORMANCE 千瓦 / kW	电流消耗 / POWER CONSUMPTION 安培 A	转速 / REVOLUTIONS 转/分钟 / min ⁻¹	空气流速 / AIR FLOW RATE 立方米/秒 / m ³ /s	噪音等级* / NOISE LEVEL* 1米 / 7米 / 1m / 7m (dBA)	重量 / WEIGHT 公斤 / kg
LKI-810-400 V-6	1,5	3,78	1000	3,38	79/68	111
LKI-810-400 V-8	0,75	2,42	750	2,64	72/60	111

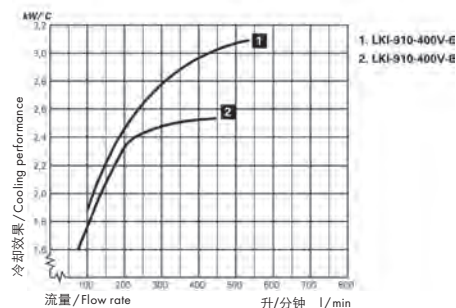
尺寸图 / DIMENSIONS

LKI 700 - 1000:

侧面内螺纹油接口,
正面或背面SAE法兰Lateral internal thread oil connections
and SAE flange at front or rear

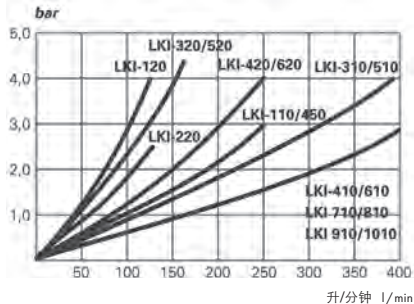
冷却效果

COOLING PERFORMANCE



压损

PRESSURE LOSS



技术参数

TECHNICAL DATA

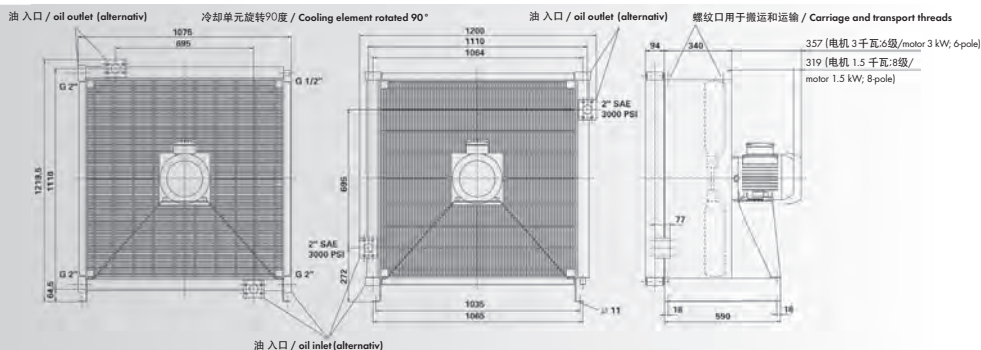
规格 / SIZE	电机功率 / MOTOR PERFORMANCE 千瓦 / kW	电流消耗 / POWER CONSUMPTION 安培 A	转速 / REVOLUTIONS 转/分钟 / min ⁻¹	空气流速 / AIR FLOW RATE 立方米/秒 / m ³ /s	噪音等级* / NOISE LEVEL* 1 米 / 7 米 / 1 m / 7 m (dBA)	重量 / WEIGHT 公斤 / kg
LKI-910-400 V-6	3	6,28	1000	4,32	85/72	137
LKI-910-400 V-8	1,1	3,78	750	3,07	76/64	131

LKI-1000

LKI-1000

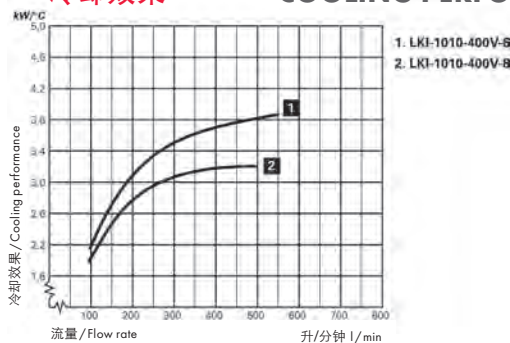
尺寸图 / DIMENSIONS

LKI 700 - 1000:

侧面内螺纹油接口,
正面或背面SAE法兰Lateral internal thread oil connections
and SAE flange at front or rear

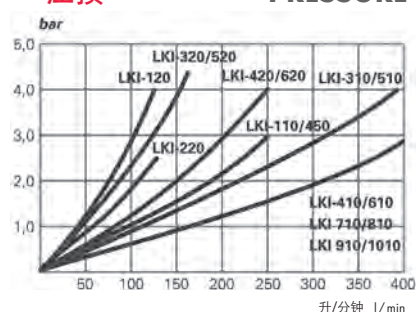
冷却效果

COOLING PERFORMANCE



压损

PRESSURE LOSS



技术参数

TECHNICAL DATA

规格 / SIZE	电机功率 / MOTOR PERFORMANCE 千瓦 / kW	电流消耗 / POWER CONSUMPTION 安培 A	转速 / REVOLUTIONS 转/分钟 / min ⁻¹	空气流速 / AIR FLOW RATE 立方米/秒 / m ³ /s	噪音等级* / NOISE LEVEL* 1 米 / 7 米 / 1 m / 7 m (dBA)	重量 / WEIGHT 公斤 / kg
LKI-1010-400 V-6	3	6,28	1000	5,38	84/71	157
LKI-1010-400 V-8	1,5	3,78	750	3,84	76/64	151

* 可能偏差 ±3 dB(A);由室内环境,交流电频率,油口接头和粘度等决定。

* May vary by ±3 dB(A) due to room characteristics, own frequencies, oil connections, viscosities etc.

LKI - 110 - 400V - 2 - G - L

应用 / Application

工业用冷却器
Cooler for industrial use = LKI

移动式冷却器*
Mobile cooler* = LKM

冷却器含液压马达*
Cooler with hydraulic motor* = LKHYD

· = 分钟 / Standard
L = 平板式,无脚座,带紧固件 /
Flat version, no feet, with mounting

· = 分钟 / Standard
G 90 = 分钟 / Cooling block turned 90°

G 180 = 分钟 / Cooling block turned 180°

* 请咨询 / On request

规格 / Unit Size

1
2
3
4
5
6
7
8
9
10

转速 / Revolutions per minute

2 = 2 pole / 3,000 min-1 2 级 / 3,000 转/分钟
4 = 4 pole / 1,500 min-1 4 级 / 1,500 转/分钟
6 = 6 pole / 1,000 min-1 6 级 / 1,000 转/分钟
8 = 8 pole / 750 min-1 8 级 / 750 转/分钟

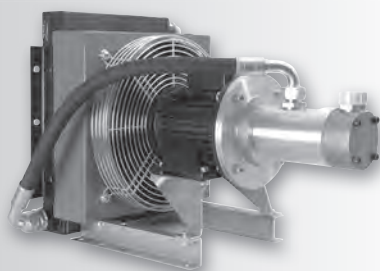
电机类型 / Motor type

400 V 多级电机 / multi-stage motor

其它电压,液压马达,防爆型请咨询
Motors with special voltages, hydraulic and explosion protection
available on request.

版本 / Version

1 流程 / 1 Way = 10
2 流程 / 2 way = 20

TFS/A 系列
SERIES TFS/A**产品介绍**

TFS/A 系列为紧凑型部分流量冷却单元。该系列有效提高液压系统的实用性和可靠性。该系列由液压泵和油-气冷却器组合而成,油液动力自主,无需主系统提供动力。因此,可以确保持续冷却。

产品特性

- 紧凑设计
- 降低工作噪音
- 维护简易,磨损件大大减少
- 标配包含多款电机
- 适合各种安装位置
- 选项:低噪音齿轮泵

优点

- 延长液压部件工作寿命
- 加强可靠性
- 提高定位精度
- 极容易在现有系统上使用

PRODUCT DESCRIPTION

The TFS/A is a compact partial flow cooling unit. It was developed to improve the availability and reliability of hydraulic systems. Due to its combination of a motor pump unit and an oil air cooler in one device, the TFS/A is an autonomous unit, which can be operated independently of the main system. Thereby, continuous cooling is ensured.

PRODUCT FEATURES

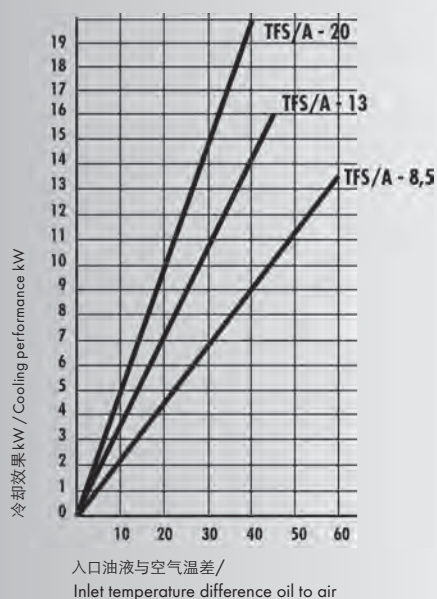
- Compact design
- Reduced noise operation
- Ease of maintenance since the number of wearing parts has been consequently reduced
- Equipped with multirange motors as standard equipment
- Any mounting position is possible
- Option: Low noise gear pump

ADVANTAGES

- Extension of the service life of the hydraulic components
- Enhancement of the application reliability
- Improvement of the positioning accuracy
- Unproblematical retrofitting on existing systems is possible

冷却能力图表

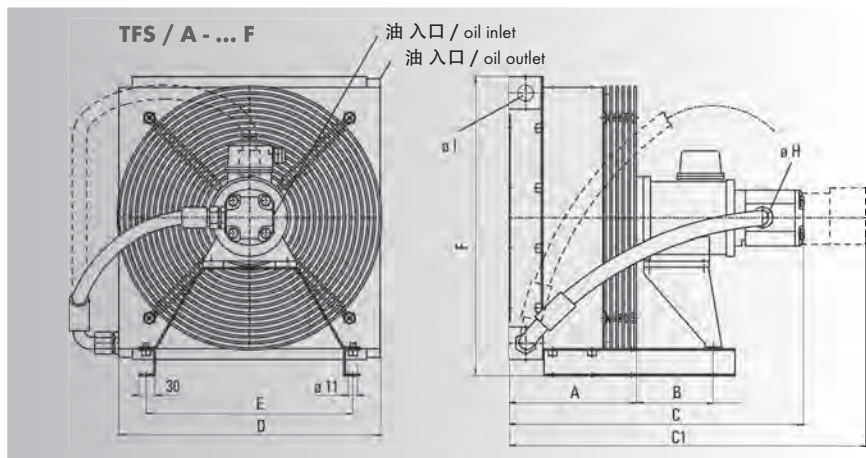
COOLING CAPACITY DIAGRAM



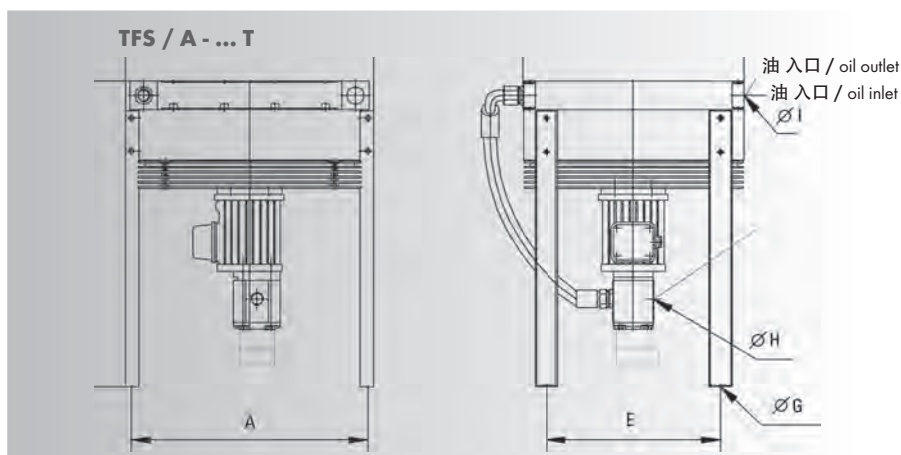
规格 SIZE	ETD (kW Δt 40 °C)	标准 泵 PUMP (升/分钟 L/MIN)
TFS / A - 8,5	8,5	30
TFS / A - 13	13	38
TFS / A - 20	20	50

油-气冷却器 (含输送泵) 冷却能力与油-气温差关系图

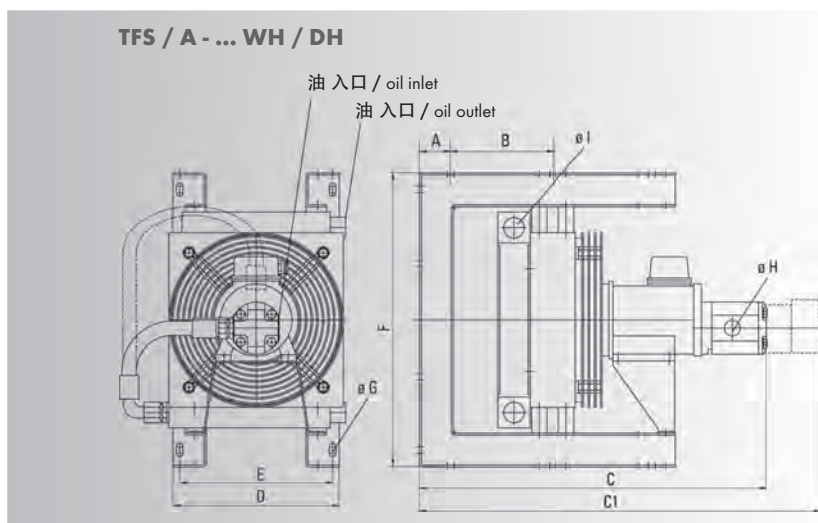
Cooling capacity of the oil-air cooler (with feed pump) as a function of the input temperature difference of oil to air.



毫米 in mm	... -8,5	... -13	... -20
A	204	237	237
B	150	150	150
C	525	552	611
C1	632	660	690
D	342	480	480
E	240	380	380
F	430	547	547
G	11	11	11
H	G1"	G1"	G1"



毫米 in mm	... -8,5	... -13	... -20
W 最小 / min	150	150	150
A	374	514	514
B	420	520	520
D	342	480	480
E	240	380	380
F	627	665	696
G	11	11	11
H	G1"	G1"	G1"



毫米 in mm	... -8,5	... -13	... -20
A	61	70	70
B	200	263	263
C	677	757	816
C1	785	864	923
D	342	480	480
E	298	440	440
F	572	714	714
G	26 x 13	11	11
H	G1"	G1"	G1"

TFS / A - 8,5 - 400 - F - 04 - 19

型号 / Model

冷却能力 / Cooling capacity

8,5 千瓦 / kW = **8,5**
 13 千瓦 / kW = **13**
 20 千瓦 / kW = **20**
 ETD = 40°C 时

泵规格 / Device type

4,5 = 4,5 毫升 / ccm
6,0 = 6,0 毫升 / ccm
8,3 = 8,3 毫升 / ccm
11 = 11 毫升 / ccm
14 = 14 毫升 / ccm
16 = 16 毫升 / ccm
19 = 19 毫升 / ccm - 8,5 千瓦 标准 / kW Standard
27 = 27 毫升 / ccm - 13 千瓦 标准 / kW Standard
36 = 36 毫升 / ccm - 20 千瓦 标准 / kW Standard

系列 / Series

04 = 螺杆泵 / Screw pump

电机电压 / Rated voltage of motor

多级电机 / Multi range motor = **400**
 230 / 400 V 50 Hz 240 / 420 V 50 Hz
 254 / 440 V 60 Hz 280 / 480 V 60 Hz

安装方式 / Mounting

F = 标准脚座 / Standard feet
WH/DH = 墙式/吊式 支架/固定螺栓 /
 Wall/ceiling bracket/fixation mur
T = 面板安装 / Table mounting

技术参数

TECHNICAL DATA

性能指标	UNIT SIZE		... -8,5	... -13	... -20
电机功率 *	Electrical connected load *	千瓦 / kW	1,1	1,1	1,5
消耗电流 400 V-50 Hz *	Rated current at 400 V/50 Hz *	安培 / A	1,7	2,6	3,6
转速 50 Hz *	Revolutions at 50 Hz *	转/分钟 / U/min	1385	1410	1410
空气流速 *	Air flow *	立方米/小时 / m³/h	1131	2565	2232
粘度范围	Viscosity range	mm²/s	10-300		
介质允许温度	Permissible medium operating temperature	°C	100	100	100
介质允许压力 40 mm²/s	Permissible medium operating pressure at 40 mm²/s	bar	10	10	5
噪音等级	Sound intensity level	分贝 / dB (A)	64	74	76
最大入口高度	Maximum suction height	米 / m	1	1	1

* 所有参数基于
400V-50Hz.

* All declarations refer to a voltage
of 400 V/50 Hz.

HBE 公司保留修改技术指标的权利.

HBE reserves the right to modify technical data at any time.

- 钢质油箱, 不锈钢质油箱
- Oil tanks made of steel / stainless steel



- 铝质油箱
- Oil tanks made of aluminium



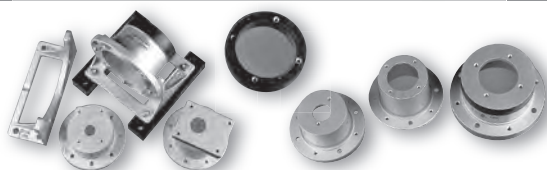
- 清洗盖及其他油箱附件
- 液位计和温度计
- Cleaning covers and further accessories
- Level- and temperature indicators



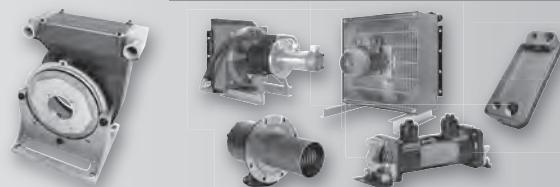
- 油箱加热器
- Tank heaters



- 钟形罩及其附件
- Bell housings and accessories



- 钟形罩内置油冷却器
- 热交换器
- 铜板热交换器
- Bellhousing with oil-cooler
- Heat exchangers
- Brazed plate heat exchanger



- SOFTEX® 弹性联轴器, 无齿隙弹性联轴器
- SOFTEX® elastic and no backlash shaft couplings



- STAREX® 曲面齿联轴器, 内燃机法兰联轴器
- STAREX® flexible couplings



- 内燃机联轴器
- Diesel Engine Couplings



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