

二、GL系列列管式油冷却器 GL TUBE TYPE OIL COOLER SERIES

(一) 简介

本产品是我公司综合国内外先进技术和工艺的基础研制而成。换热管材质采用低肋翅片紫铜管，并采用横向折流板，纵向紊流板结构及机械胀管等先进制造工艺，因而具有结构新颖，体积小，重量轻，换热效果显著等特点。

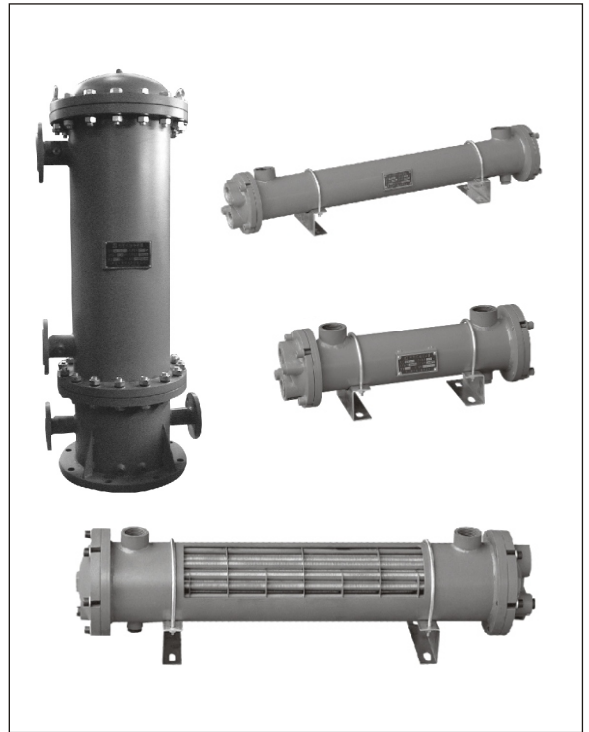
本产品是一种新型、高效冷却器。它主要用于低粘度液压和润滑系统，将工作油液冷却到规定的温度。因此广泛适用于化工、电力、冶金、矿山、轻工等行业的各种液压设备的冷却，是一种较为理想的冷却装置。

每个冷却器系列有很多规格和型式，以适用于各种不同的用户要求。除说明书介绍的基本产品外，公司还可以根据用户的要求制造各种大型的、特殊的冷却器。

INTRODUCTION

This product is manufactured by our company that combining with the internal and external base of advanced technology and craft. The material of heat-exchange pipe, adopted low-rib finned red copper pipe, used the structure of transverse current breaker board, turbulence board and the advanced manufacture craft of mechanism expanding, has the features of novel structure, small dimension, light weight and well heat-exchanging effect and soon. This product is a new type and high efficiency cooler, mainly used in low-viscosity hydraulic and oil system to cool the work oil to the specified temperature. So it is an ideal cooling facility that can be widely used in cooling the hydraulic equipment in the trades such as chemical industry, electric power, metallurgical industry, mine and light industry and soon.

Each cooler series has many specification and type to suit for each user's requirement. Except the main products introduced in the operation manual, the company also can make all kinds large or special cooler for the customers according to their requirements.



(二) 型号说明 MODEL CODE

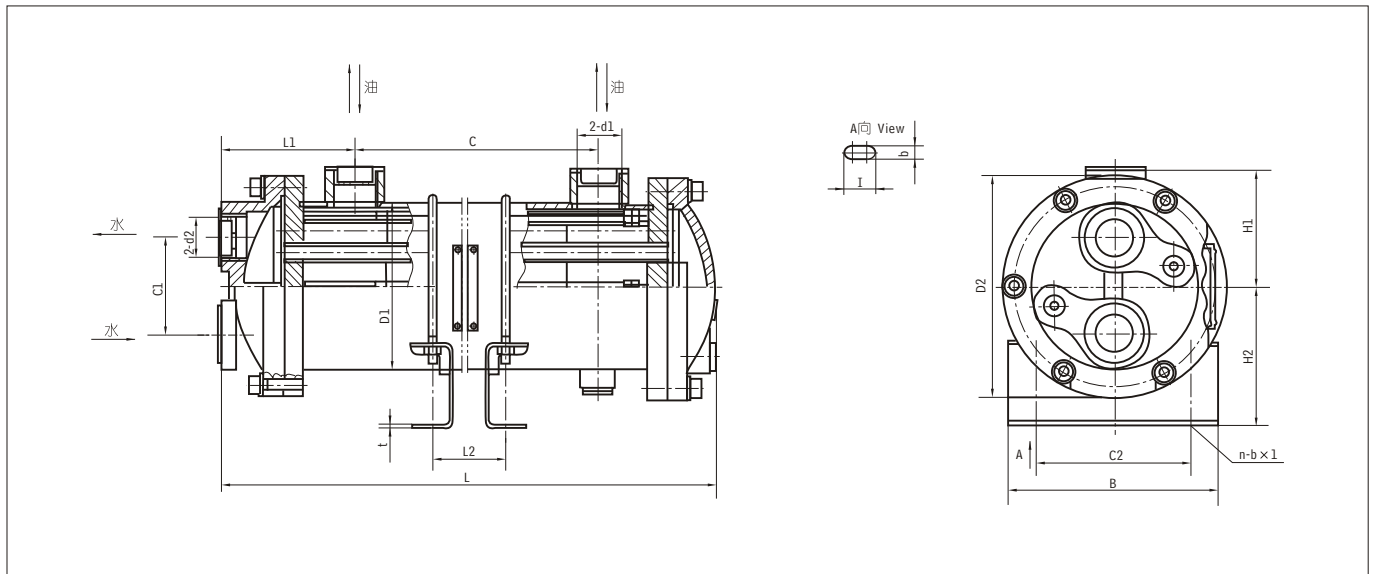
列管式油冷却器 Tube type oil cooler	GL □ □ - □ □ □ - □	特殊品: B:壳体不锈钢 H:适用于冷却水为海水 进出油(水)口尺寸不同请直接标明 其它要求FB-□ 标准品可省略 安装方式: L-立式; 无-卧式 Install method: L-vertical; non-horizontal type 公称压力: A=1.6MPa(可省略) Nominal pressure: A=1.6MPa(omit)
C: 翅片管 finned tube L: 裸管 bare pipe		
系列序号 Series No.		
公称冷却面积 Nominal cooling area: m ²		

(三) GLC型冷却器性能参数和外形结构尺寸

1、性能参数 TECHICAL DATA

介质粘度 Medium viscosity	进油温度℃ Inlet-oil temperature	进水温度℃ Inlet-water temperature	油降温℃ Oil cooling	压力损失(MPa) Pressure lose		油水流量比 Flow-ratio of oil to water	热交换系数 W/M ² · °C Heat-exchange factor
				油侧 Oil side	水侧 Water side		
N68	55 ± 1	≤ 30	≥ 8	≤ 0.1	< 0.05	1:1	≥ 350

2、外形结构尺寸 MOUNTING SIZE



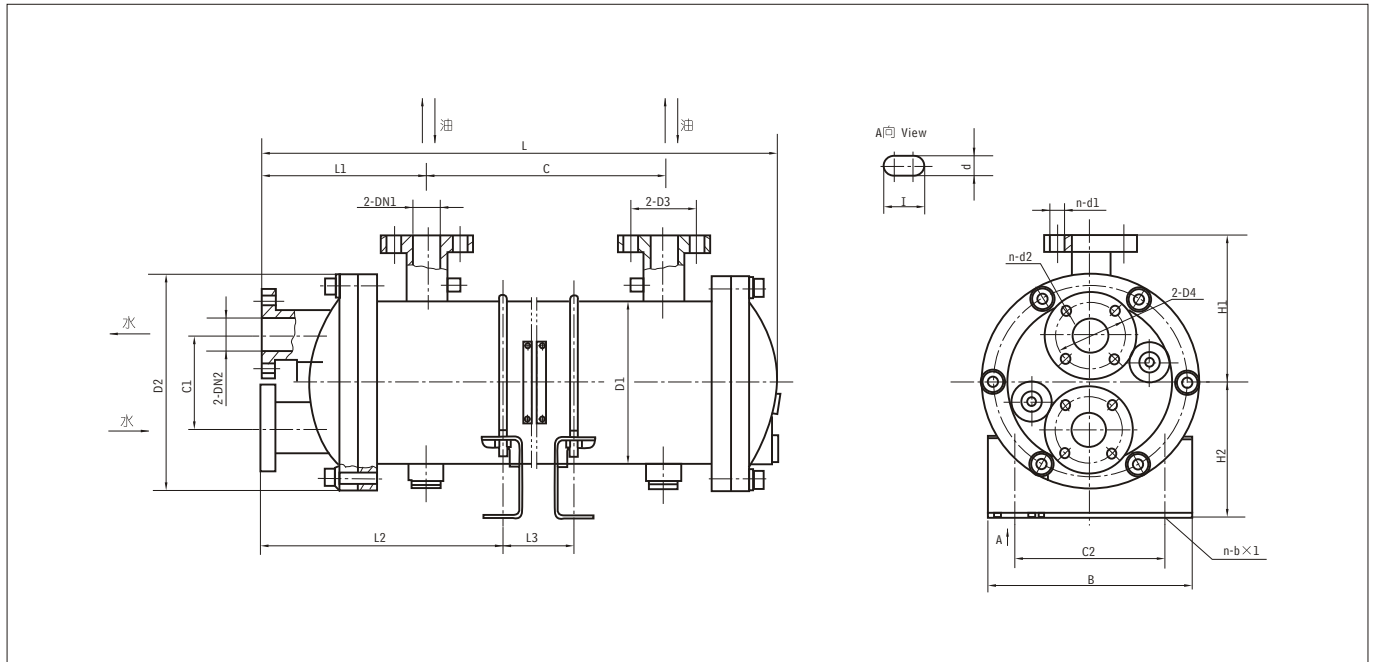
型号 Model	L	C	L1	H1	H2	D1	D2	C1	C2	B	L2	t	n-b × I	d1	d2	油流量 L/min	重量 Weight (Kg)
GLC1-0.4	390	240									145					20	7
GLC1-0.6	555	405									310					30	9
GLC1-0.8	685	532	80	64	75	80	120	50	65	105	435	2	4-10 × 20	G1	G3/4	40	10
GLC1-1	815	665									570					45	12
GLC1-1.2	955	805									715					50	14
GLC2-1.3	555	375									225					52	17
GLC2-1.7	680	500									350					57	20
GLC2-2.1	815	635	94	85	100	121	160	70	110	150	485	2	4-10 × 20	G1	G1	62	24
GLC2-2.6	955	775									630					70	28
GLC2-3	1105	925									780					80	33
GLC2-3.5	1265	1085									935					85	37
GLC3-4	820	570									380					75	45
GLC3-5	970	720									530			G1 1/2	G1 1/4	100	51
GLC3-6	1120	870									680					125	57
GLC3-7	1290	1040	132	115	151	162	220	100	160	205	850	3	4-15 × 25			150	64
GLC3-8	1450	1200									1010					175	70
GLC3-9	1610	1360									1170			G2	G1 1/2	200	76
GLC3-10	1780	1530									1340					225	83
GLC3-11	1960	1710									1520					250	90
GLC4-13	1355	985									745					230	132
GLC4-15	1515	1145									905					260	142
GLC4-17	1675	1305									1065					300	153
GLC4-19	1845	1475									1235					330	165
GLC4-21	2025	1655	197	160	180	219	310	120	200	280	1415	8.5	4-22 × 30	G2	G2	360	177
GLC4-23	2195	1825									1585					400	188
GLC4-25	2375	2005									1765					430	200
GLC4-27	2545	2175									1935					470	212

(四) GLL型冷却器性能参数和外形结构尺寸

1、性能参数 TECHNICAL DATA

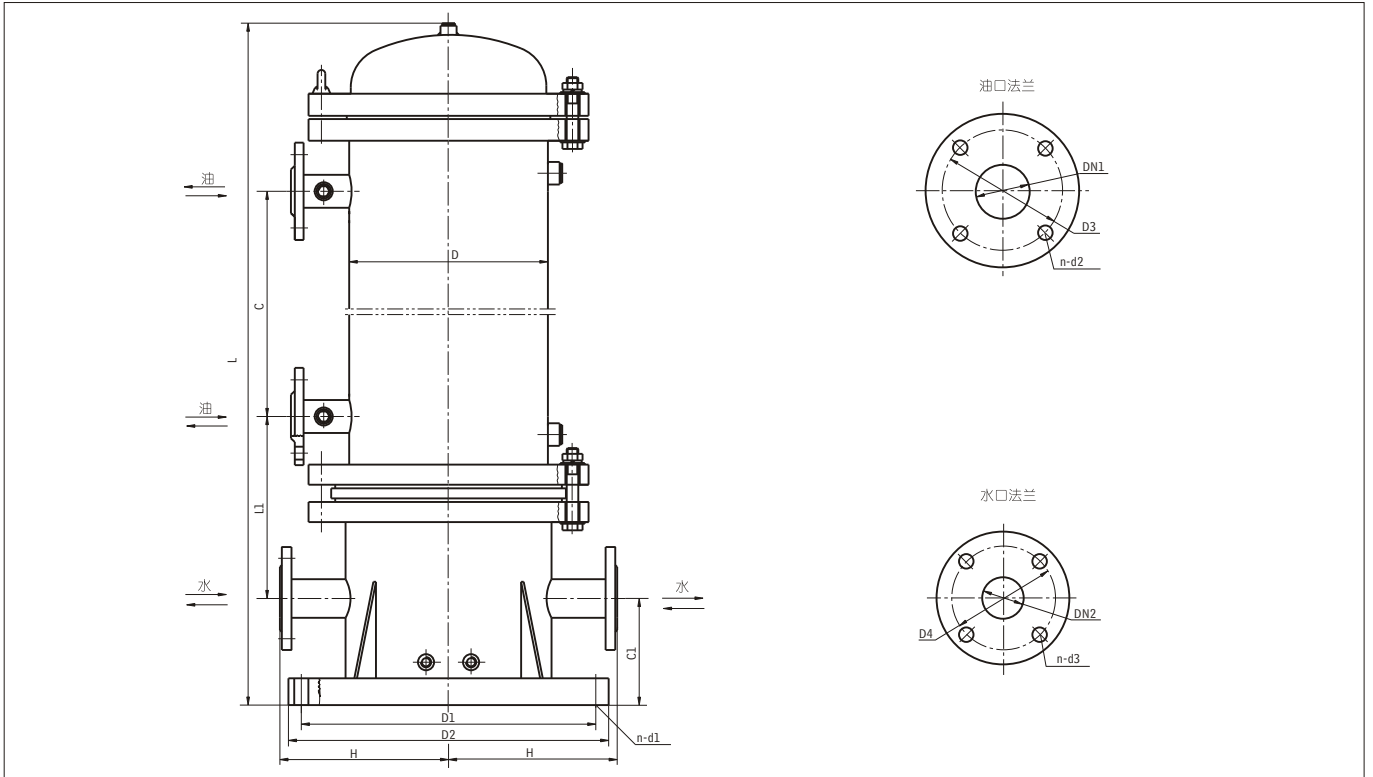
介质粘度 Medium viscosity	进油温度℃ Inlet-oil temperature	进水温度℃ Inlet-water temperature	油降温℃ Oil cooling	压力损失(MPa) Pressure lose		油水流量比 Flow-ratio of oil to water	热交换系数 W/M ² · °C Heat-exchange factor
				油侧 Oil side	水侧 Water side		
N68	50 ± 1	≤30	≥8	≤0.1	< 0.05	1:1.5	≥230

2、外形结构尺寸 MOUNTING SIZE



型号 Model	L	C	L1	H1	H2	D1	D2	C1	C2	B	L2	L3	D3	D4	n-d1	n-d2	n-b × I	DN1	DN2	油流量 Flow of oil (L/min)	重量 Weight (Kg)
GLL3-4	1150	682										485	100					32		75	108
GLL3-5	1450	982	265	190	180	219	310	140	200	280	367	785	100	4-φ 17.5	4-φ 17.5	4-22 × 30		32	100	123	
GLL3-6	1750	1282										1085	110					40		125	138
GLL3-7	1980	1512										1385	110							150	150
GLL4-12	1555	960										660	145							250	238
GLL4-16	1960	1365										1065	145	4-φ 17.5				65		350	300
GLL4-20	2370	1775	345	262	232	325	435	200	300	370	497	1475	145		4-φ 17.5	4-22 × 30		65	450	360	
GLL4-24	2770	2175										1885	160		8-φ 17.5			80		550	455
GLL4-28	3180	2585										2295	160							650	536
GLL5-35	2480	1692										1232								625	570
GLL5-40	2750	1962										1502	180							750	640
GLL5-45	2990	2202	500	315	293	426	535	235	400	500	730	1772	180	8-φ 17.5	8-φ 17.5	4-22 × 30		100	875	745	
GLL5-50	3260	2472										2042								1000	825
GLL5-60	3800	3012										2582	210					125		1250	955
GLL6-80	3160	2015										1555								1500	1617
GLL6-100	3760	2615	700	500	408	616	780	360	550	700	935	2155	295	295	8-φ 22	8-φ 22	4-25 × 32	200	200	2000	1890
GLL6-120	4360	3215										2755								2500	2163

3、GLL-L型立式冷却器外形结构尺寸 MOUNTING SIZE



型号 Model	L	C	L1	C1	H	D	D1	D2	D3	D4	DN1	DN2	n-d1	n-d2	n-d3	油流量 (L/min)	重量 (kg)
GLL3-4L	1220	682														75	125
GLL3-5L	1520	982							100	100	32	32	8-φ24	4-φ17.5	4-φ17.5	100	140
GLL3-6L	1820	1282	320	100	190	219	320	360	110		40					125	155
GLL3-7L	2050	1512														150	165
GLL4-12L	1630	960														250	268
GLL4-16L	2035	1365							145	145	65	65	8-φ24	4-φ17.5	4-φ17.5	350	330
GLL4-20L	2445	1775	400	130	262	325	440	480								450	390
GLL4-24L	2845	2175							160		80					550	485
GLL4-28L	3255	2585												8-φ17.5		650	566
GLL5-35L	2545	1692							180		100					625	605
GLL5-40L	2815	1962														750	660
GLL5-45L	3065	2202	530	180	315	426	570	620		180		100	8-φ28	8-φ17.5	8-φ17.5	875	781
GLL5-50L	3335	2472							210		125					1000	860
GLL5-60L	3875	3012														1250	960
GLL6-80L	3170	2015														1500	1630
GLL6-100L	3770	2615	690	215	500	616	800	870	295	295	200	200	8-φ35	8-φ22	8-φ22	2000	1900
GLL6-120L	4370	3215														2500	2175

(五) 选用冷却器的方法 1、计算法:

(1) 所需换热的面积A(m²)

$$A = \frac{Q}{\Delta\tau m \cdot k}$$

Q=热交换量(kca l/h)
k=传热系数(kca l/m² h°C)

$\Delta\tau m$ = 平均温差(°C)

(2) 热交换量: Q(kca l/h)
 $Q = (T1-T2)CW = (t2-t1)C'W'$

其中: T1=进口油温°C
T2=出口油温°C
t1=进口水温°C
t2=出口水温°C
C=油的比热(kca l/kg°C)
C'=水的比热(kca l/kg°C)
W=油的流量(kg/h)
W'=水的流量(kg/h)

(3) 平均温差 $\Delta\tau m$ (°C)

$$T1-T2 = \Delta\tau 1 \quad t2-t1 = \Delta\tau 2$$

$$\text{当 } \frac{\Delta\tau 1}{\Delta\tau 2} \leq 2 \text{ 时 } \quad \Delta\tau m = \frac{(T1+T2)-(t1+t2)}{2}$$

$$\text{当 } \frac{\Delta\tau 1}{\Delta\tau 2} > 2 \text{ 时 } \quad \Delta\tau m = \frac{(T1-T2)-(t1-t2)}{2}$$

(4) 传热系数: K(kca l/m²h°C)

a) 冷却水流量小, 工作油粘度高

时取k=200;

b) 一般工作油时取k=250;

c) 冷却水流量大, 工作油粘度低

时取k=350~400;

2、估算法

电机功率 kw	7.5-10	10-15	15-20	20-30	30-40	40-75	75-100	100-120	120-150	150-200
选择冷却 面积(m²)	0.4 0.6	0.8 1.0	1.2 1.3	1.7 2.1	2.6 3	3.5 4	5 6	7 8	8 9	10 11