

# R+L HYDRAULICS

HYDRAULIC COMPONENTS · POWER TRANSMISSION · OIL COOLERS

## R+L HYDRAULICS



### BNZ系列油-水冷却器 铝制翅片和刚性管壳式 *Oil-Water Cooler BNZ with aluminium fins and rigid tube stack*

- 大冷却面积
- 紧凑型设计
- 低压力损失
- 集成测试端口
- 冷却能力可达 500 kW
- 流量可达850 l/min

- *Extended cooling surface*
- *Compact design*
- *Low pressure loss*
- *Integrated test ports*
- *Cooling capacity up to 500 kW*
- *Flow rate up to 850 l/min*

NewCool® 产品是多年经验与来自于流体和传动工程领域丰富知识的结晶。由于单个元件的标准化，使得技术高超的解决方案具有很高的性价比。BNZ标准系列提供了四个管壳规格，长度可达2100mm。R+L HYDRAULICS 还能对一些严酷的应用，以及根据客户的要求提供量身定制的解决方案。BNZ冷却器适合所有工业和海洋环境。

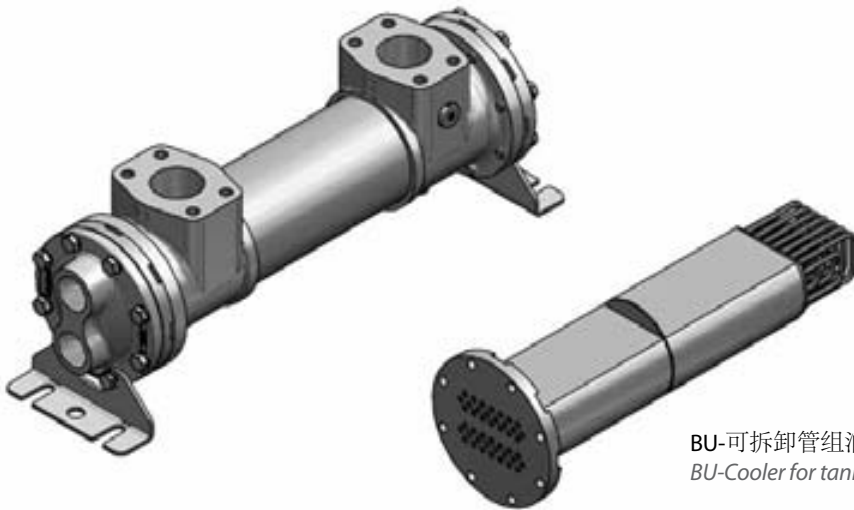
我们全新的在线冷却器选型软件，BNZ-Selection，可以在[www.rl-hydraulics.com](http://www.rl-hydraulics.com)下载。这能根据您的应用快速对冷却器进行选型。下面是所要求的选型参数：进口油温、油量、油的规格、水流量、进口水温、冷却性能要求。我们的技术人员会在收到所需的信息后进行选型。NewCool® 具有紧凑的设计、结实的结构、极低的压力损失、高品质的材料和易于维护的特点。

其它产品有：

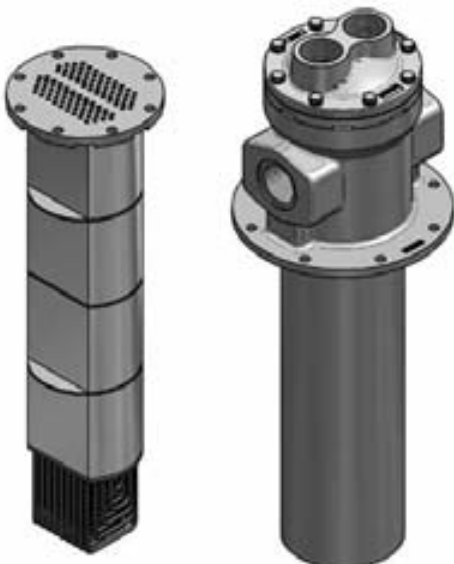
*NewCool® products are the result of many years of experience combined with a wealth of knowledge from within the field of fluid and transmission engineering. Thanks to the standardisation of individual components, technically sophisticated solutions are available at a highly competitive price/performance ratio. The standard BNZ series offers four shell sizes with available lengths of up to 2100 mm. R+L HYDRAULICS also offer tailor made solutions to the most arduous applications and according to customer specification. BNZ coolers are suitable for all industrial and marine environments.*

*Our new online selection programs for coolers, BNZ-Selection, can be found at [www.rl-hydraulics.com](http://www.rl-hydraulics.com). This will enable quick determination of the cooler size required for your application. The following data will be required: oil inlet temperature, oil volume, oil specification, volume of water, water inlet temperature, cooling performance required. Our technical staff will be happy to perform the selection upon receipt of the required information. Compact design, robust construction, extremely low pressure drop, high quality materials and ease of maintenance are the prominent features of the NewCool® shell & tube coolers.*

Additional products are:



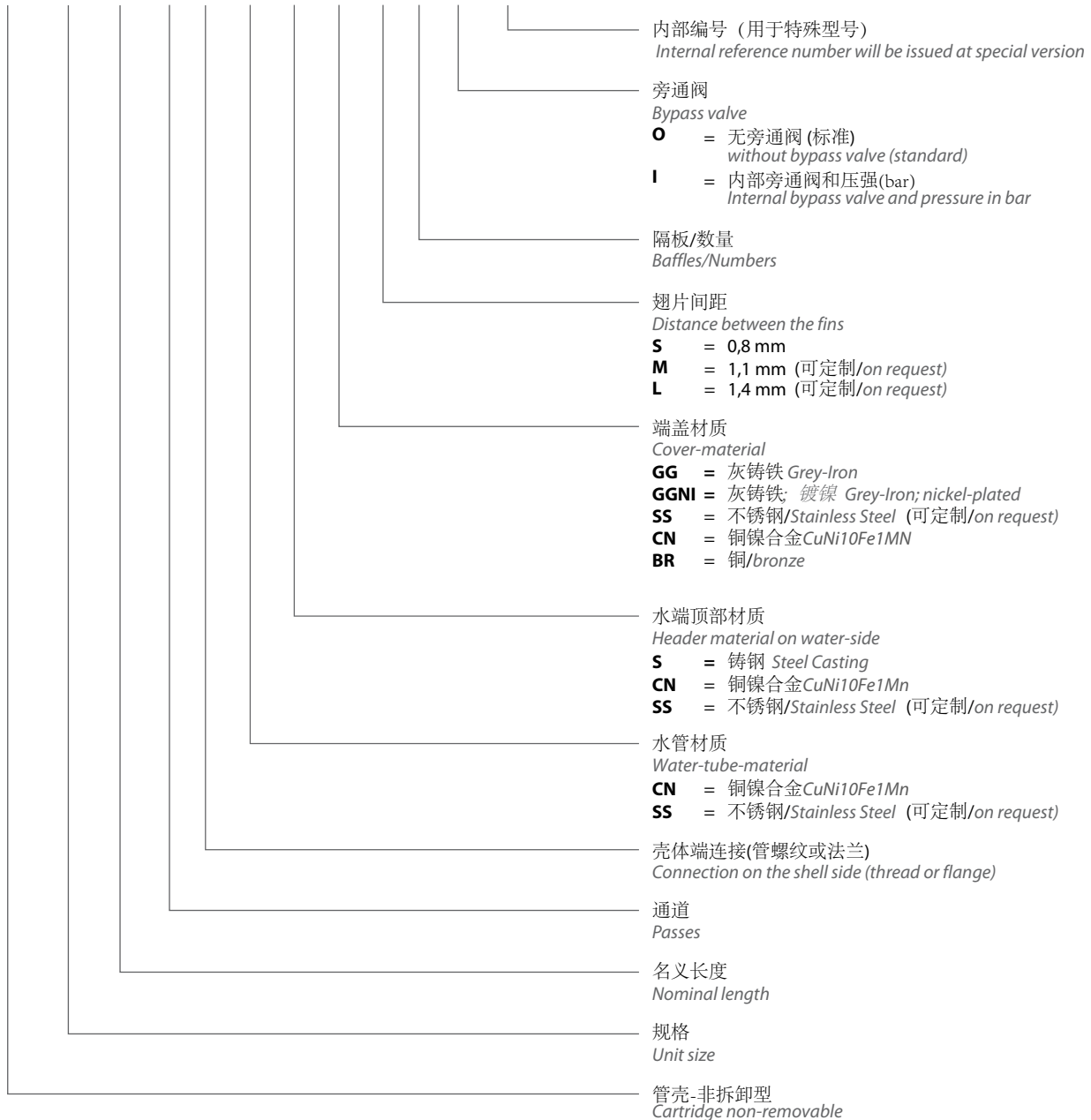
BU-可拆卸管组油箱外安装型  
BU-Cooler for tank mounting with removable tube stack



BTU-可拆卸管组油箱内安装型  
BTU-Cooler for in-tank mounting with removable tube stack

## BNZ 型的符号含义 *Type designation code BNZ*

**BNZ - 60 - 131 - 1 - G - CN - S - GG - S - 3 - I3 - S13**



型号命名代码必须完整。

例外: 没有特殊型号, 内部编号省略  
例如: BNZ - 80 - 361 - 4 - F - CN - S - GG - S - 5 - O

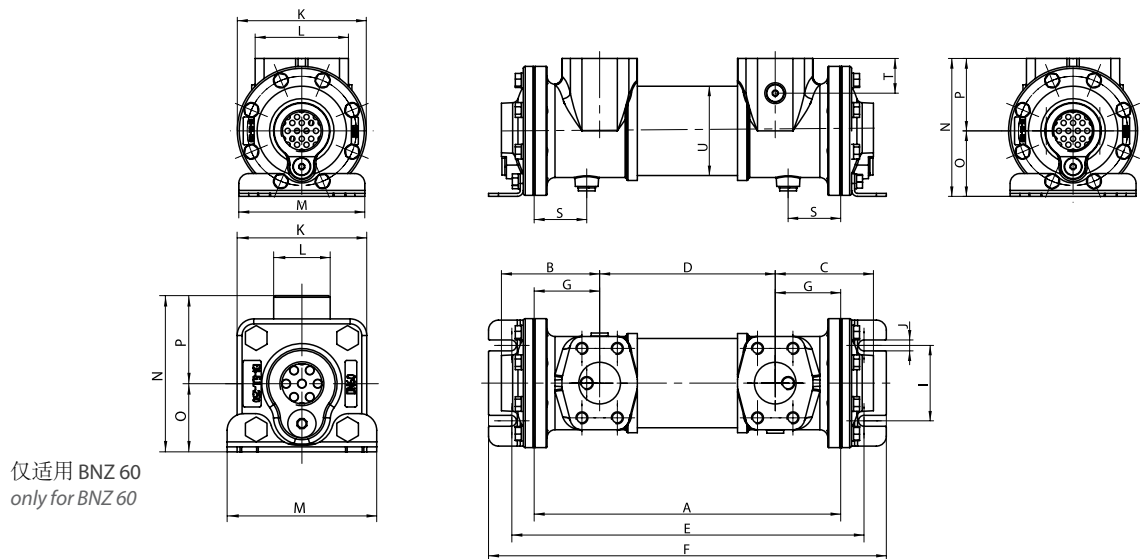
特殊型号  
例如: BNZ - 80 - 361 - 4 - F - CN - S - GG - S - 5 - O - S25

*The type designation code must always be complete.*

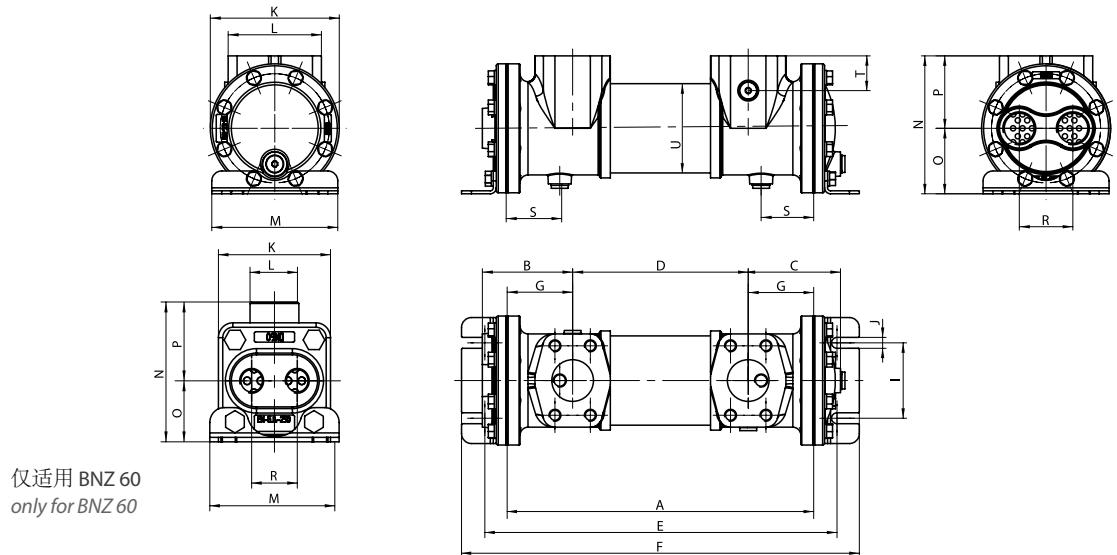
*Exception: is no special version assigned it will be omitted.*  
Example: BNZ - 80 - 361 - 4 - F - CN - S - GG - S - 5 - O

*Special version*  
Example: BNZ - 80 - 361 - 4 - F - CN - S - GG - S - 5 - O - S25

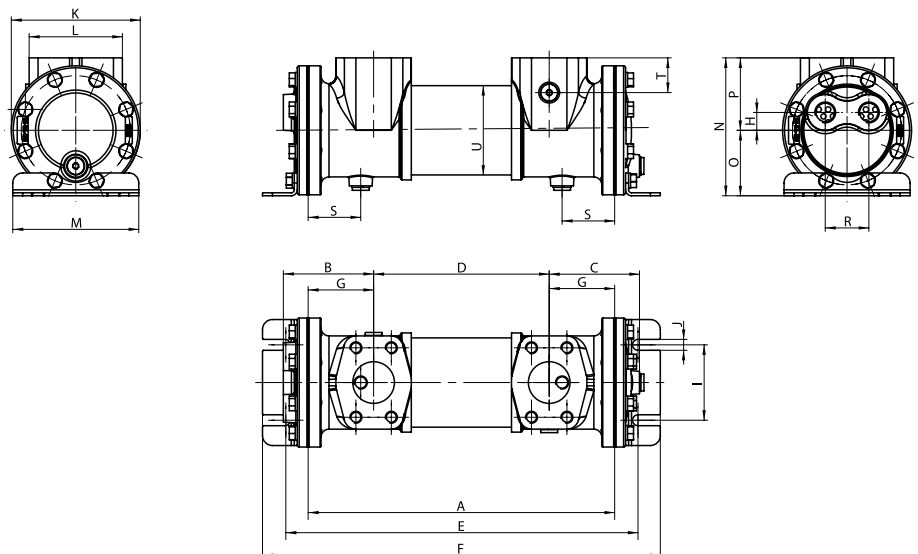
**1通道 1-pass**



**2通道 2-pass**



**4通道 4-pass**



## 尺寸 Dimensions

表1 Table 1

型号 Types	A	B			C			D	E	F	G	H	I	J	K	L	M	N	O	P	R		S	T	U
		1通道 1-pass	2通道 2-pass	4通道 4-pass	1通道 1-pass	2通道 2-pass	4通道 4-pass														2通道 2-pass	4通道 4-pass			
BNZ-60-131	131	65	65	-	65	65	-	55	181	213	38	-	63.5	9	78	34	90	94	41	57	31.75	-	-	-	65
BNZ-60-208	208	82.5	82.5	-	82.5	82.5	-	97	259	290	55.5	-	63.5	9	78	34	90	98	41	57	31.75	-	-	-	65
BNZ-60-259	259	82.5	82.5	-	82.5	82.5	-	148	310	341	55.5	-	63.5	9	78	34	90	98	41	57	31.75	-	-	-	65
BNZ-60-310	310	82.5	82.5	-	82.5	82.5	-	199	361	392	55.5	-	63.5	9	78	34	90	98	41	57	31.75	-	-	-	65
BNZ-60-361	361	82.5	82.5	-	82.5	82.5	-	250	412	443	55.5	-	63.5	9	78	34	90	98	41	57	31.75	-	-	-	65
BNZ-60-463	463	82.5	82.5	-	82.5	82.5	-	352	514	545	55.5	-	63.5	9	78	34	90	98	41	57	31.75	-	-	-	65
BNZ-60-615	615	82.5	82.5	-	82.5	82.5	-	504	666	697	55.5	-	63.5	9	78	34	90	98	41	57	31.75	-	-	-	65
BNZ-60-920	920	82.5	82.5	-	82.5	82.5	-	809	971	1002	55.5	-	63.5	9	78	34	90	95	41	57	31.75	-	-	-	65
BNZ-80-208	208	99	91	91	99	93	91	76	255	300	66	18	76	11	130	94	127	139	66	73	54	44	53	35	90
BNZ-80-310	310	99	91	91	99	93	91	178	357	402	66	18	76	11	130	94	127	139	66	73	54	44	53	35	90
BNZ-80-361	361	99	91	91	99	93	91	229	408	453	66	18	76	11	130	94	127	139	66	73	54	44	53	35	90
BNZ-80-463	463	99	91	91	99	93	91	331	510	555	66	18	76	11	130	94	127	139	66	73	54	44	53	35	90
BNZ-80-615	615	99	91	91	99	93	91	483	662	707	66	18	76	11	130	94	127	139	66	73	54	44	53	35	90
BNZ-80-920	920	99	91	91	99	93	91	788	967	1012	66	18	76	11	130	94	127	139	66	73	54	44	53	35	90
BNZ-125-310	310	116	109.5	109.5	116	101.5	101.5	157	375	436	76.5	21	102	11	165	103	165	194	102	92	60	56	62	35	128
BNZ-125-361	361	116	109.5	109.5	116	101.5	101.5	208	426	487	76.5	21	102	11	165	103	165	194	102	92	60	56	62	35	128
BNZ-125-463	463	116	109.5	109.5	116	101.5	101.5	310	528	589	76.5	21	102	11	165	103	165	194	102	92	60	56	62	35	128
BNZ-125-615	615	116	109.5	109.5	116	101.5	101.5	462	680	741	76.5	21	102	11	165	103	165	194	102	92	60	56	62	35	128
BNZ-125-920	920	116	109.5	109.5	116	101.5	101.5	767	985	1046	76.5	21	102	11	165	103	165	194	102	92	60	56	62	35	128
BNZ-125-1225	1225	116	109.5	109.5	116	101.5	101.5	1072	1290	1351	76.5	21	102	11	165	103	165	194	102	92	60	56	62	35	128
BNZ-175-370	370	169	169	169	169	155	155	174	461	544	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-500	500	169	169	169	169	155	155	304	591	674	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-840	840	169	169	169	169	155	155	644	931	1014	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-1000	1000	169	169	169	169	155	155	804	1091	1174	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-1200	1200	169	169	169	169	155	155	1004	1291	1374	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-1400	1400	169	169	169	169	155	155	1204	1491	1574	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-1600	1600	169	169	169	169	155	155	1404	1691	1774	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-1700	1700	169	169	169	169	155	155	1504	1791	1874	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-1900	1900	169	169	169	169	155	155	1704	1991	2074	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180
BNZ-175-2100	2100	169	169	169	169	155	155	1904	2191	2274	98	36	140	11	220	152	210	249	130	119	94	80	80	35	180

**注意!** 采用海水冷却时, 尺寸 S, G, B, C 增长 5 mm, 尺寸 A, E, F 增长 10 mm。

**Please note!** The dimensions of a sea water-cooler design are 5 mm longer (dimensions S, G, B, C) and 10 mm longer (dimensions A, E, F).

## 尺寸 Dimensions

表2 Table 2

型号 Types	表面积 Surface area in m <sup>2</sup>	油端口 Oil port		排泄孔(S) Drain plug (S)	测试端口 (T) Test port (T)	水端口连接 Water connection			排泄孔 (S) Drain plug (S)	隔板数量 Number of baffles
		标准 Standard	可选 Optional			1通道 1-pass	2通道 2-pass	4通道 4-pass		
BNZ-60-131	0.32	G 1/2"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	1
BNZ-60-208	0.57	G 3/4"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	1
BNZ-60-259	0.73	G 3/4"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	3
BNZ-60-310	0.9	G 3/4"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	1
BNZ-60-361	1.06	G 3/4"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	3
BNZ-60-463	1.38	G 3/4"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	3
BNZ-60-615	1.86	G 3/4"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	5
BNZ-60-920	2.83	G 3/4"	-	-	-	G 3/4"	G 3/8"	-	G 1/8"	5
BNZ-80-208	1.11	G 1 1/2"	-	G 1/4"	G 1/4"	G 1 1/4"	G 1"	G 1/2"	G 1/4"	1
BNZ-80-310	1.74	G 1 1/2"	SAE 1 1/2"	G 1/4"	G 1/4"	G 1 1/4"	G 1"	G 1/2"	G 1/4"	1
BNZ-80-361	2.04	G 1 1/2"	SAE 1 1/2"	G 1/4"	G 1/4"	G 1 1/4"	G 1"	G 1/2"	G 1/4"	3
BNZ-80-463	2.67	G 1 1/2"	SAE 1 1/2"	G 1/4"	G 1/4"	G 1 1/4"	G 1"	G 1/2"	G 1/4"	3
BNZ-80-615	3.6	G 1 1/2"	SAE 1 1/2"	G 1/4"	G 1/4"	G 1 1/4"	G 1"	G 1/2"	G 1/4"	3
BNZ-80-920	5.47	G 1 1/2"	SAE 1 1/2"	G 1/4"	G 1/4"	G 1 1/4"	G 1"	G 1/2"	G 1/4"	5
BNZ-125-310	3.72	G 1 1/2"	SAE 2"	G 1/4"	G 1/4"	G 1 1/2"	G 1 1/4"	G 3/4"	G 1/4"	1
BNZ-125-361	4.35	G 1 1/2"	SAE 2"	G 1/4"	G 1/4"	G 1 1/2"	G 1 1/4"	G 3/4"	G 1/4"	3
BNZ-125-463	5.71	G 1 1/2"	SAE 2"	G 1/4"	G 1/4"	G 1 1/2"	G 1 1/4"	G 3/4"	G 1/4"	3
BNZ-125-615	7.71	G 1 1/2"	SAE 2"	G 1/4"	G 1/4"	G 1 1/2"	G 1 1/4"	G 3/4"	G 1/4"	3
BNZ-125-920	11.72	G 1 1/2"	SAE 2"	G 1/4"	G 1/4"	G 1 1/2"	G 1 1/4"	G 3/4"	G 1/4"	3, 5
BNZ-125-1225	15.71	G 1 1/2"	SAE 2"	G 1/4"	G 1/4"	G 1 1/2"	G 1 1/4"	G 3/4"	G 1/4"	3, 5, 7
BNZ-175-370	8.54	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	1
BNZ-175-500	11.73	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	1, 3
BNZ-175-840	20.19	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	3, 5
BNZ-175-1000	24.18	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	3, 5, 7
BNZ-175-1200	29.18	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	3, 5, 7
BNZ-175-1400	34.13	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	5, 7, 9
BNZ-175-1600	39.12	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	5, 7, 9
BNZ-175-1700	41.62	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	3, 7, 11
BNZ-175-1900	46.61	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	3, 7, 11
BNZ-175-2100	51.56	SAE 3 1/2"	-	G 1/2"	G 1/2"	SAE 3 1/2"	SAE 2"	SAE 1 1/4"	G 1/2"	3, 7, 11

因生产工艺原因，长度可能有± 2mm的误差。

Length measurements may vary for production engineering reasons by ± 2 mm.

## 材质 *Materials*

表 3 *Table 3*

元件 <i>Components</i>	标准冷却器 <i>Standard-Cooler</i>	海水冷却器 <i>Seawater-Cooler</i>	可选(特殊定制) <i>Optional (on special request)</i>
管道 <i>Tubes</i>	铜镍 90/10 <i>CuNi 90/10</i>	铜镍 90/10 <i>CuNi 90/10</i>	铜/不锈钢 <i>Copper/Stainless Steel</i>
壳, 导板, 安装架, 旁通阀 <i>Shell, guide plate, mounting bracket, bypass valve</i>	钢 <i>Steel</i>	钢 <i>Steel</i>	
端盖 <i>End cover</i>	GG25 铸铁 <i>Cast Iron GG25</i>	化工镀镍 <i>chemically nickel-plated</i>	不锈钢 <i>Stainless Steel</i> 青铜 <i>Bronze</i>
翅片 <i>Fins</i>	铝 <i>Aluminium</i>	铝 <i>Aluminium</i>	铜/不锈钢 <i>Copper/Stainless Steel</i>
管板 <i>Tube sheet</i>	钢 <i>Steel</i>	镀铜镍钢板 <i>Steel with CuNi end plate 90/10</i>	不锈钢 <i>Stainless Steel</i>
垫片 <i>Gaskets</i>	C4400 平垫片 <i>Flat Gasket C4400</i>		

## 技术数据 *Technical data*

- 1) 最大工作温度为95 °C (更高温度可定制)
- 2) 壳端和管道端可承受的最大压强分别为40bar和16 bar
- 3) 最大流速 [l/min] 见表 4

- 1) *Maximum operating temperature 95 °C (higher temperatures on request)*
- 2) *Maximum operating pressure 40 bar on shell side and 16 bar on tube side*
- 3) *Maximum flow rate volumes [l/min] see table 4*

## 最大流速 *Maximum flow rate volumes*

表 4 *Table 4*

产品系列 <i>Product Series</i>	油 [l/min] <i>Oil [l/min]</i>	BNZ 水 [l/min] <i>Water [l/min]</i>								
		1通道/1-pass			2通道/2-pass			4通道/4-pass		
		CU	CuNi	SS	CU	CuNi	SS	CU	CuNi	SS
DN 60	75	47	70	105	23	35	54	-	-	-
DN 80 G/F	225	90	135	202	45	67	100	22	34	51
DN 125 G	330	206	310	465	103	155	232	51	77	115
DN 125 F	400	206	310	465	103	155	232	51	77	115
DN 175	850	410	614	921	205	307	460	102	154	230

G = BSP; F = 法兰 (规格见表 2)

采用海水冷却时, 应该减少水流量。请垂询技术部门。

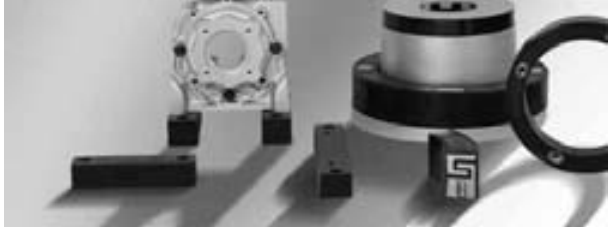
**注意!** 安装前, 请参阅冷却器的维护与使用说明。操作不当会损坏冷却器!

*G = BSP; F = flange (sizes see table 2)*

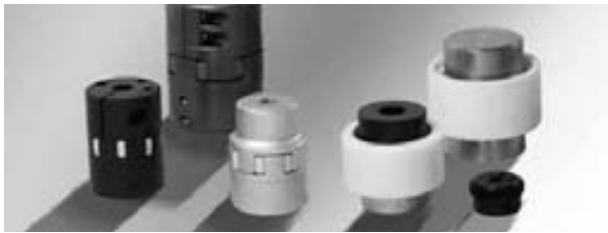
*For sea water application, the water volume should be reduced. Please contact our technical dept.*

**Caution!** – *Please study the maintenance and operating instructions before installation of the heat exchanger. Incorrect installation can cause damage to the cooler!*

## 液压元件 Hydraulic Components



钟罩/减振元件  
Bellhousings/Damping Elements



SPIDEX® 爪式联轴器, DENTEX® 齿式联轴器  
SPIDEX® Jaw Couplings, DENTEX® Gear Couplings



NG 3,5 - NG 130 铝制油箱  
Al-Reservoirs NG 3.5-NG 130

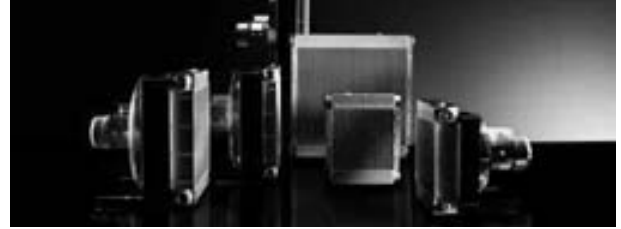


钢制油箱  
Steel Tanks



铝制/钢制油箱附件  
Accessories for Al-Reservoirs/Steel Tanks

## 油冷却器/热交换器 Oil Coolers/Heat Exchangers



ACN/DCN 油-风冷却器  
Oil-Air Coolers ACN and DCN



BNZ 油-水冷却器  
Oil-Water Cooler BNZ



ESK 油-水热交换器  
Oil-Water Heat Exchanger ESK



PK 板式冷却器  
Plate Cooler PK



NRS - 液压装备降噪系统  
NRS - System for noise level reduction on hydraulic equipment