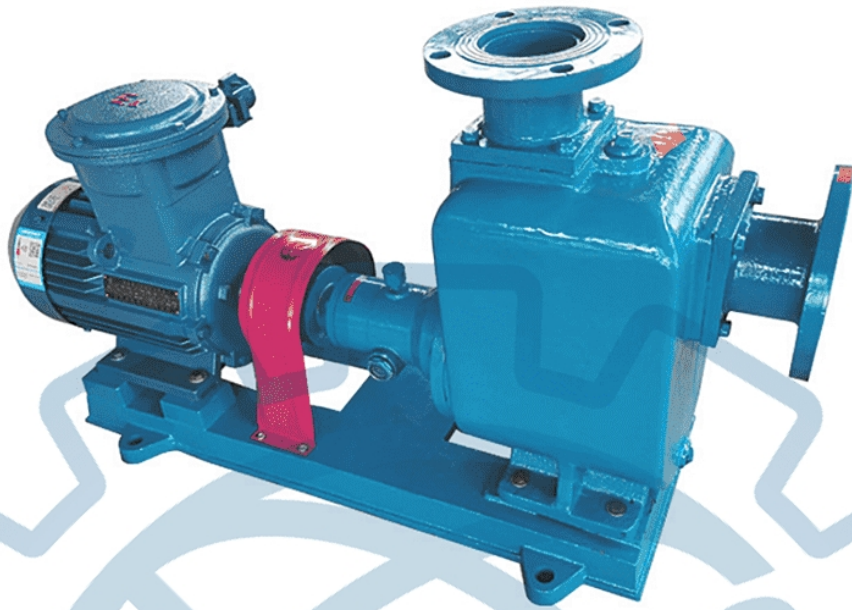




CYZ-A自吸式离心泵Self Priming Centrifugal Pump



描述Introduction

CYZ-A型自吸式离心油泵是根据国内外有关技术资料经消化、吸收、改进后研制而成的新泵类产品，国内空白独一无二，该自吸式离心泵适用于石油行业、陆地油库、油罐车的理想产品，并适合于作船用货油泵、舱底泵、消防泵和压载泵及机器冷却水循环等，分别输送汽油、煤油、柴油、航煤等石油产品和海水、清水，介质温度-20℃~140℃，介质粘度≤100厘珀、含固量可达30%以下。

CYZ - type A self-priming centrifugal pump is according to the relevant technical data at home and abroad after digestion, absorption, improve the development of the new pump products, domestic blank, unique the self-priming centrifugal pump is suitable for the oil industry, the ideal of land oil depot, oil tank truck products, and is suitable for Marine cargo pump, bilge pump, fire pump, ballast pump and cooling water circulation machine, etc., Respectively transport gasoline, kerosene, diesel, jet fuel and other petroleum products and seawater, water, medium temperature -20℃ ~ 140℃, such as the transport of chemical liquid can use corrosion resistant mechanical seal.

特点Feature

- 1、该泵属自吸式离心泵，它具有结构简单、操作方便、运行平稳、维护容易、效率高、寿命长，具有较强的自吸能力等优点。管路中不需底阀，工作前只需保证泵体内储有定量引油即可。用于油轮或输水船舶上时，可兼作扫舱泵，扫舱效果良好，
- 2、该泵是选用优质材料精制而成，密封采用硬质合金机械密封，经久耐用，吐出管路不需要安装安全阀，吸入管路不需安装底阀，因此简化了管路系统，又改善了劳动条件。

1. The pump is self-priming centrifugal pump, it has a simple structure, convenient operation, stable operation, easy maintenance, high efficiency, long life, with a strong self-priming capacity. Pipeline without bottom valve, before work just to ensure that pump body priming oil. When used to ship oil tanker or water, it can be as stripping pumps, stripping to good effect.

2. The pump is made of high quality materials and refined, sealed with carbide mechanical seal, durable, no need to install a safety valve discharge piping, without having to install the suction line valve at the end, thus simplifying the pipeline system and improve working conditions

产品型号Ordering Code



工作原理 Working Principle

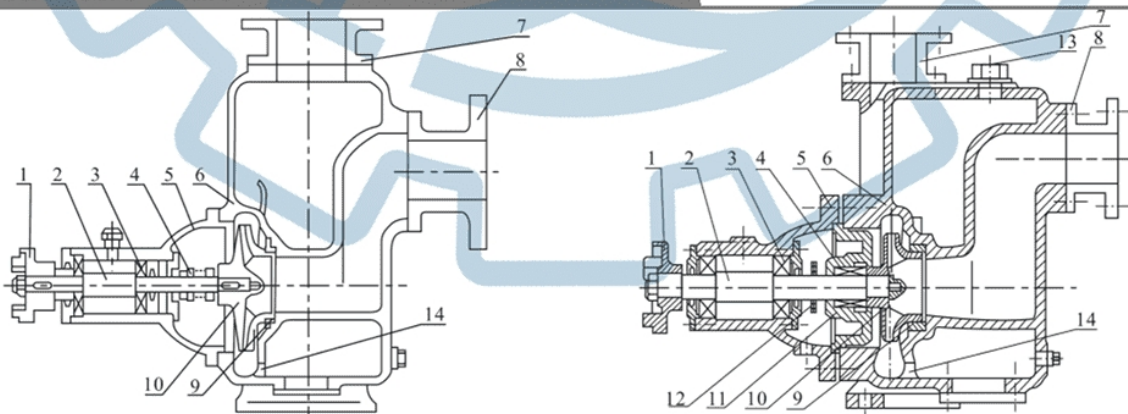
该泵均采用轴向回液的泵体结构。泵体由吸入室、储液室、涡卷室、回液孔、气液分离室等组成,泵正常起动后,叶轮将吸入室所存的液体及吸入管路中的空气一起吸入,并在叶轮内得以完全混合,在离心力的作用下,液体夹带着气体向涡卷室外缘流动,在叶轮的外缘上形成有一定厚度的白色泡沫带及高速旋转液环。气液混合体通过扩散管进入气液分离室。此时,由于流速突然降低,较轻的气体从混合气液中被分离出来,气体通过泵体吐出口继续上升排出。脱气后的液体回到储液室,并由回流孔再次进入叶轮,与叶轮内部从吸入管路中吸入的气体再次混合,在高速旋转的叶轮作用下,又流向叶轮外缘……。随着这个过程周而复始地进行下去,吸入管路中的空气不断减少,直到吸尽气体,完成自吸过程,泵便投入正常作业。因为该泵具有这种独特的排气能力,所以此泵能输送含有气体的液体,无需安装底阀,使用在油轮上时具有良好的扫舱功能。

在一些泵的轴承体底部还设有冷却室。当轴承发热引起轴承体温升超过70P时,可在冷却室处通过任意一只冷却液管接头,注入冷却液循环冷却。泵内部防止液体由高压区向低压区泄漏的密封机构是前后密封环,前密封环装在泵体上,后密封环装在轴承体上,当泵经长期运转密封环磨损到一定程度,并影响到泵的效率 and 自吸性能时,应给予更换。

The pump adopts the pump body structure of axial liquid return. The pump body is composed of suction chamber, liquid storage chamber, vortex coil chamber, liquid return hole, gas-liquid separation chamber and so on. After the pump is started normally, the impeller will inhale the liquid stored in the suction chamber and the air in the suction pipe together, and can be completely mixed in the impeller. Under the action of centrifugal force, the liquid entrain the gas to flow to the outer edge of the vortex coil. On the outer edge of the impeller, a white foam band with a certain thickness and a high-speed rc enters the gas-liquid separation chamber through the diffusion tube. At this point, due to a sudden decrease in the flow rate, the lighter gas is separated from the mixture, and the gas continues to rise and discharge through the pump body outlet. The degassed liquid returns to the liquid storage chamber, and enters the impeller again through the return hole, and remixes with the gas inhaled from the suction pipe inside the impeller, and flows to the outer edge of the impeller under the action of the high-speed rotating impeller... . As this process goes round and round, the air in the suction line is constantly reduced until the gas is sucked up, and the self-priming process is completed, and the pump is put into normal operation. Because the pump has this unique exhaust capacity, so the pump can transport the liquid body containing gas, no need to install the bottom valve, when used in the tanker has a good cleaning function.

A cooling chamber is also provided at the bottom of the bearing body of some pumps. When the bearing temperature rises more than 70P due to bearing fever, the cooling liquid can be injected into the cooling chamber through any coolant pipe joint for circulation cooling. The sealing mechanism inside the pump to prevent liquid leakage from high pressure area to low pressure area is the front and back sealing ring, the front sealing ring is installed on the pump body, the rear sealing ring is installed on the bearing body, when the pump after long-term operation of the sealing ring wear to a certain degree, and affect the pump efficiency and self-priming performance, should be replaced.

结构图 Structure Chart



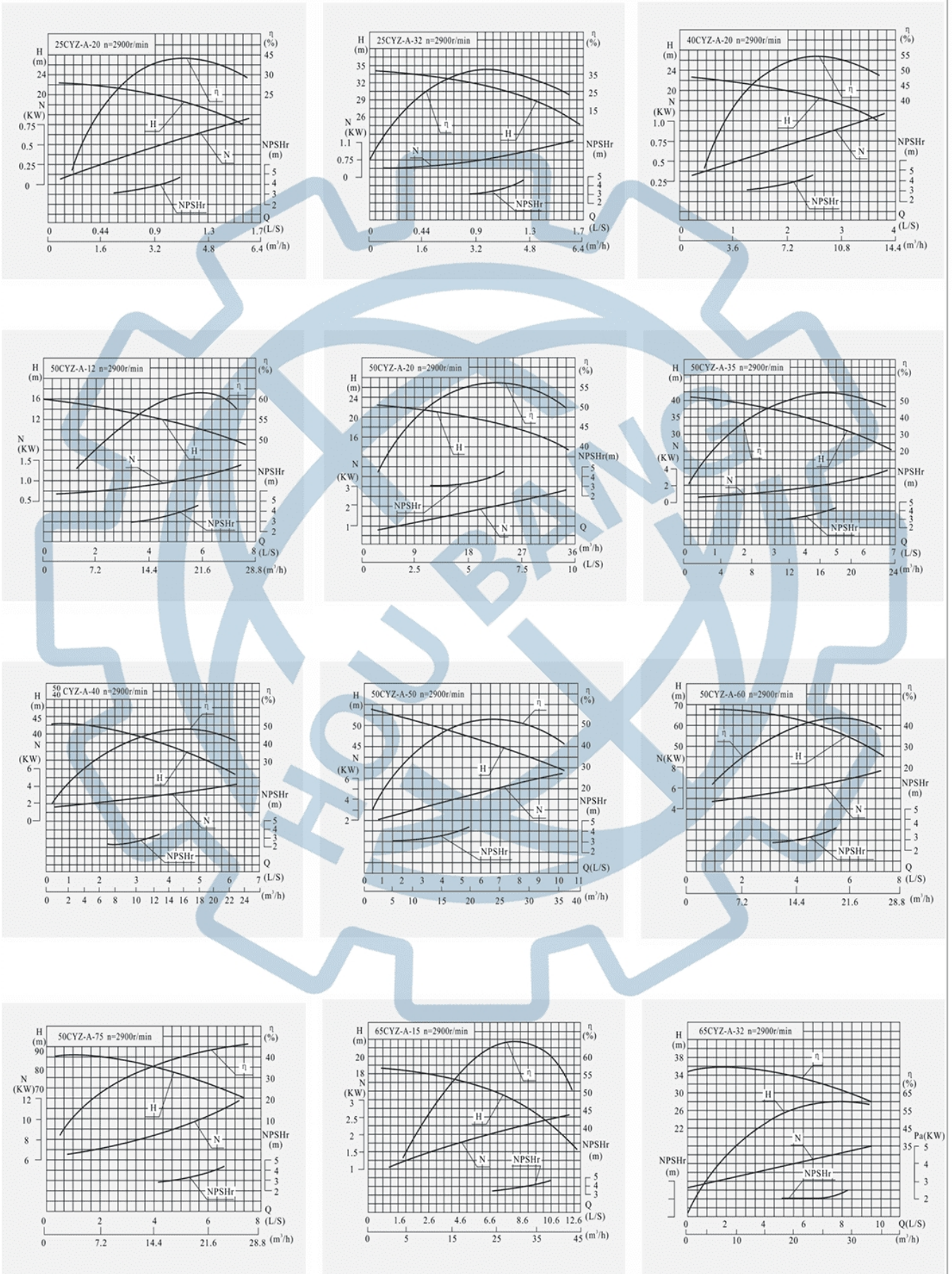
1	联轴器coupling	2	泵轴pump spindle	3	轴承bearing
4	机械密封mechanical seal	5	轴承体bearing body	6	泵壳pump case
7	出口座Export base	8	进口座intake seat	9	前密封环Before sealing ring
10	叶轮impeller	11	后盖rear cover	12	挡水圈Against hydrosphere
13	加液孔Charging hole	14	回液孔liquid hole		

技术参数 Technical Specification

型号	流量		扬程 (m)	吸程 (m)	转速 (r/min)	自吸性能	功率 (KW)		口径mm		重量 (KG1728)
	(m³/h)	(L/S)					轴功率	电机功率	吸入	排出	
25CYZ-A-20	3.2	0.9	20	6.5	2900	1.9	0.46	0.75	25	25	72
25CYZ-A-32	3.2	0.9	32	6.5	2900	1.8	0.8	1.1	25	25	80
40CYZ-A-20	6.3	1.8	20	6.5	2900	1.9	0.8	1.1	40	32	85
40CYZ-A-40	10	2.8	40	6.5	2900	1.5	2.7	4	50	40	138
50CYZ-A-12	15	4.2	12	6.5	2900	2.4	1.1	1.5	50	50	90
50CYZ-A-20	18	5	20	6.5	2900	1.9	1.8	2.2	50	50	98
50CYZ-A-30	20	5.6	30	6.5	2900	1.5	2.6	4	50	50	140
50CYZ-A-35	14	3.9	35	6.5	2900	1.5	2.6	4	50	50	145
50CYZ-A-40	10	2.8	40	6.5	2900	1.5	2.7	4	50	50	145
50CYZ-A-50	12.5	3.5	50	6.5	2900	1.4	2.7	5.5	50	50	160
50CYZ-A-60	15	4.2	60	6.5	2900	1.3	4.3	7.5	50	50	190
50CYZ-A-75	20	5.6	75	6.5	2900	1.3	6.2	11	50	50	240
65CYZ-A-15	30	8.3	15	6.5	2900	2	9.8	3	65	50	100
65CYZ-A-32	25	6.9	32	6	2900	1.5	1.9	5.5	65	50	165
80CYZ-A-13	35	9.7	13	6	2900	3.4	4.4	3	80	65	107
80CYZ-A-17	43	12	17	6	2900	1.8	1.9	4	80	65	156
80CYZ-A-22	40	11.1	22	6	2900	1.9	3.1	5.5	80	65	169
80CYZ-A-25	50	13.9	25	6	2900	1.5	4.4	7.5	80	80	177
80CYZ-A-32	50	13.9	25	6	2900	1.5	5.2	7.5	80	80	180
80CYZ-A-55	60	16.7	55	6	2900	1.5	6.8	18.5	80	80	310
80CYZ-A-70	60	16.7	70	6	2900	1.2	15	22	80	80	333
100CYZ-A-20	100	27.8	20	6	2900	1.8	20.1	11	100	80	258
100CYZ-A-40	100	27.8	40	6	2900	1.8	7.8	22	100	100	455
100CYZ-A-40A	100	27.8	40	6	1450	1.5	16.3	22	100	100	520
100CYZ-A-65	100	27.8	65	6	2900	1.8	18.5	30	100	100	620
100CYZ-A-75	70	19.4	75	6	2900	1.8	27.7	30	100	100	639
150CYZ-A-45	170	47.2	45	5	2900	1.8	24.2	37	150	100	750
150CYZ-A-55	170	47.2	55	5	2900	1.8	39.2	45	150	100	830
150CYZ-A-65	170	47.2	65	5	2900	1.3	46.3	55	150	100	957
150CYZ-A-65A	170	47.2	65	5	2900	1.2	49.8	55	150	150	1138
150CYZ-A-80	160	44.4	80	5	2900	1.2	53.6	55	150	100	986
200CYZ-A-32	400	111.1	32	5	1450	2	52.1	55	200	200	1205
200CYZ-A-63	280	77.8	63	5	1450	1.5	73.9	90	200	200	1338
200CYZ-A-65	350	97.2	65	5	1450	1.5	97.2	110	200	200	1553
250CYZ-A-32	550	152.8	32	5	1450	2	72.3	75	250	250	1307
250CYZ-A-50	400	111.1	50	5	1450	2	80	90	250	250	1486
250CYZ-A-55	450	125	55	5	1450	2	102.1	110	250	250	1681
250CYZ-A-75	400	111.1	75	5	1450	1.5	125.6	132	250	250	1829
300CYZ-A-32	600	166.7	32	5	1450	2	79.2	90	300	300	1608
300CYZ-A-50	500	138.9	50	5	1450	2	104.6	110	300	300	1728
300CYZ-A-55	550	152.8	55	5	1450	2	117.6	132	300	300	1995

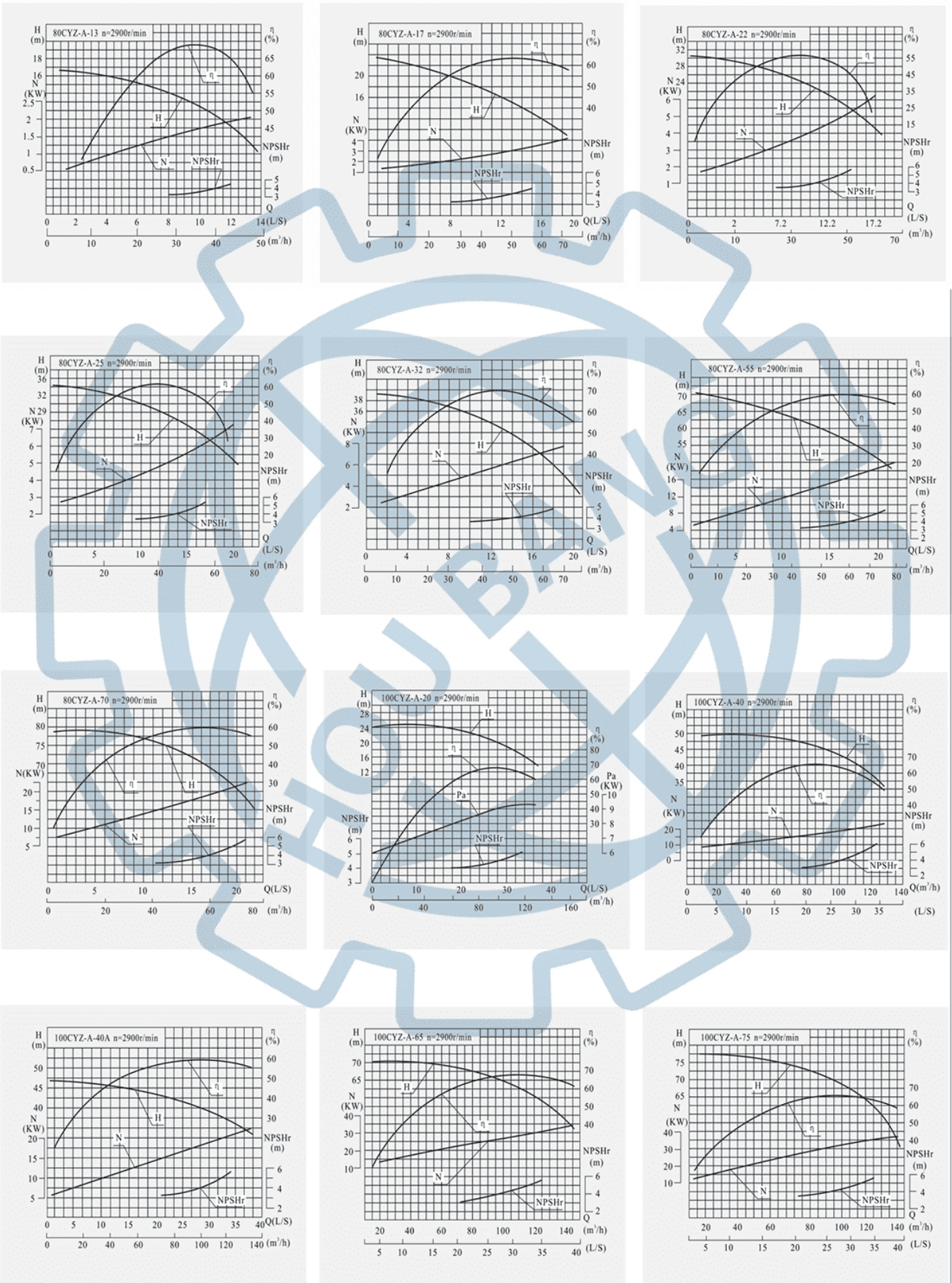


流量图 Performance curve



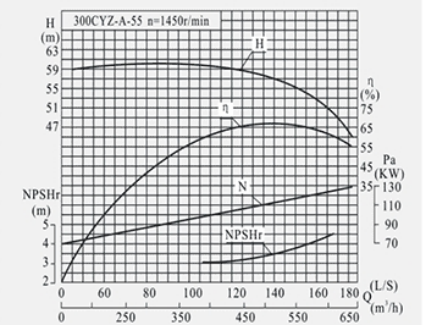
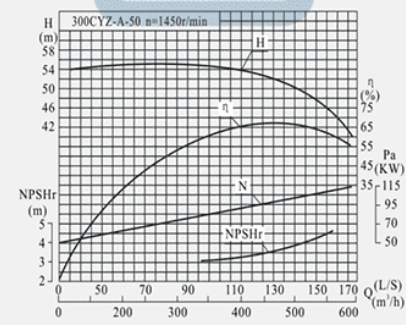
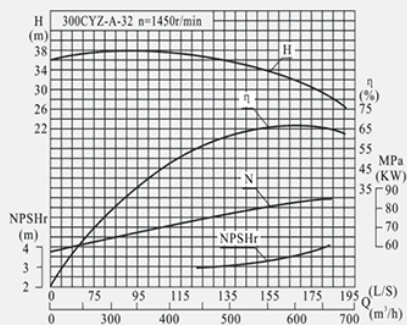
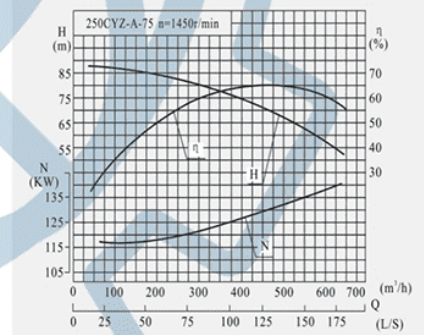
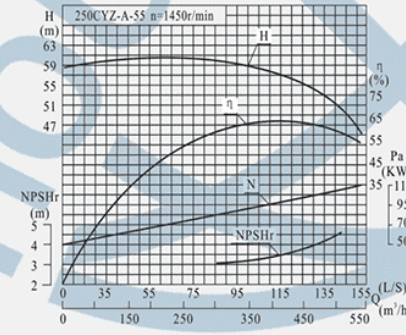
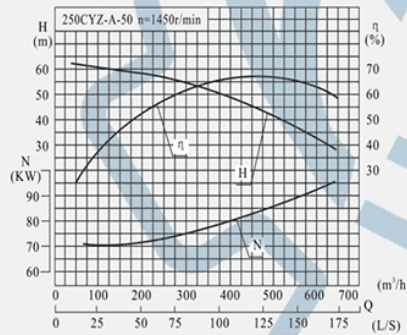
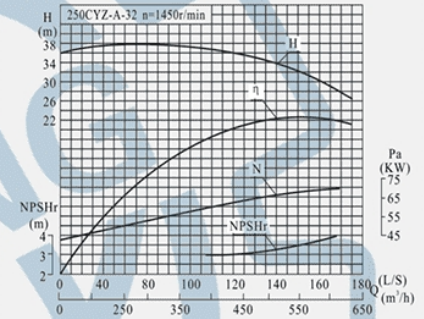
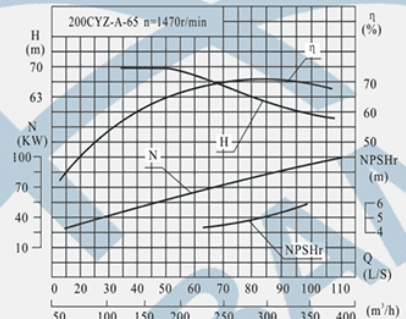
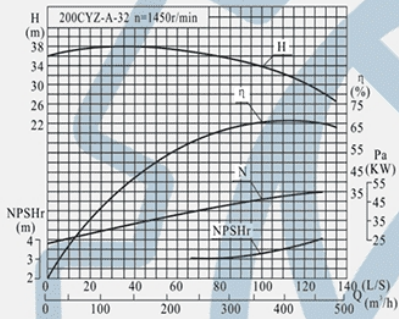
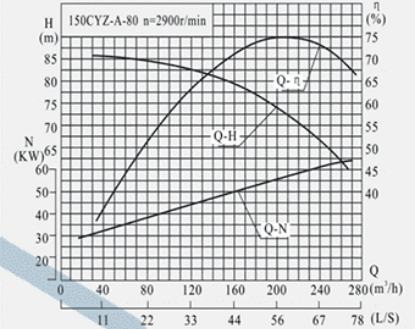
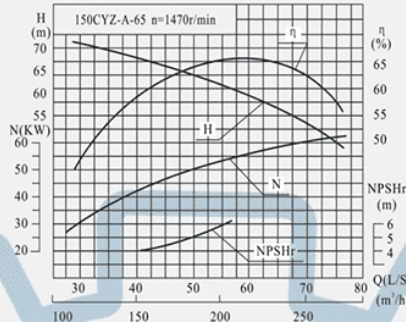
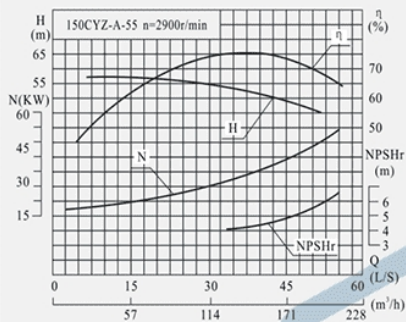


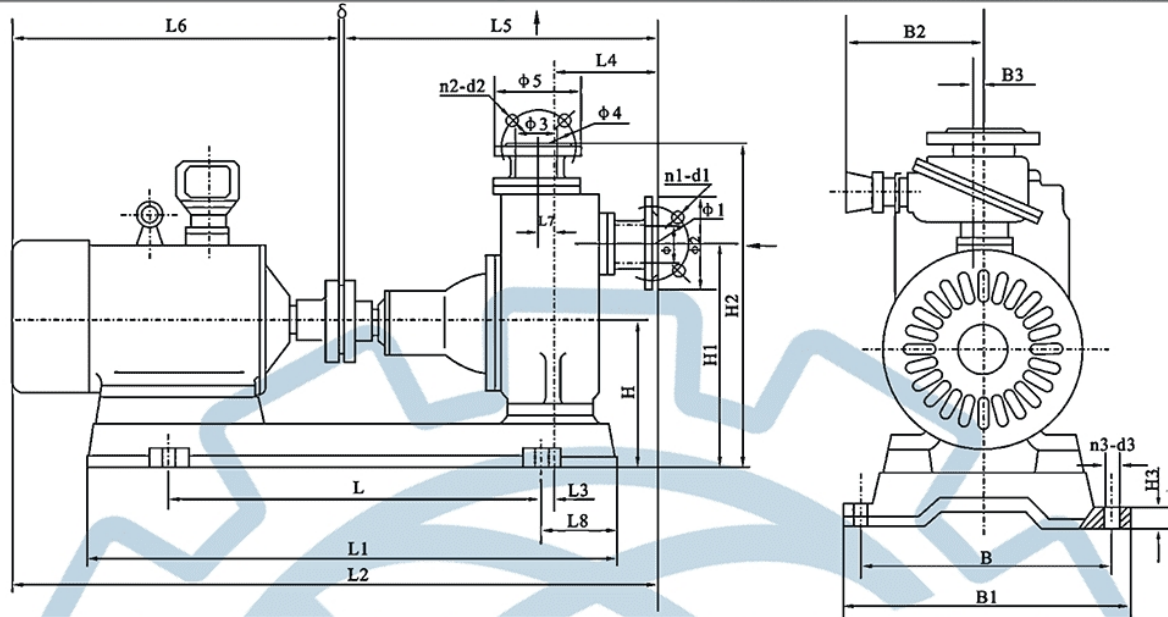
流量图 Performance curve



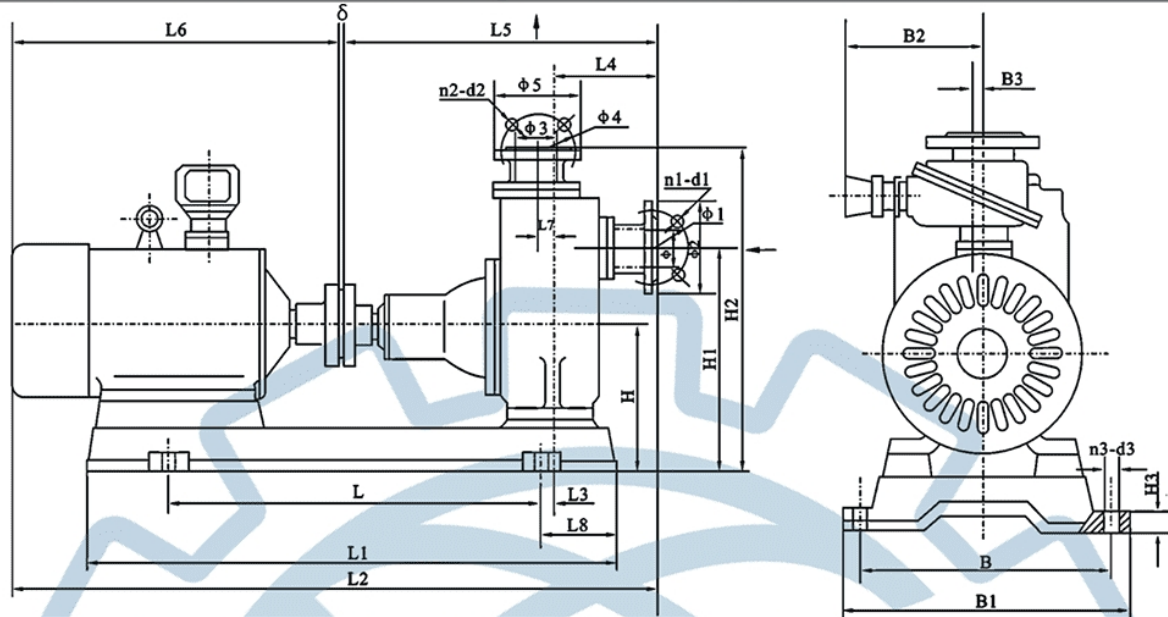


流量图 Performance curve

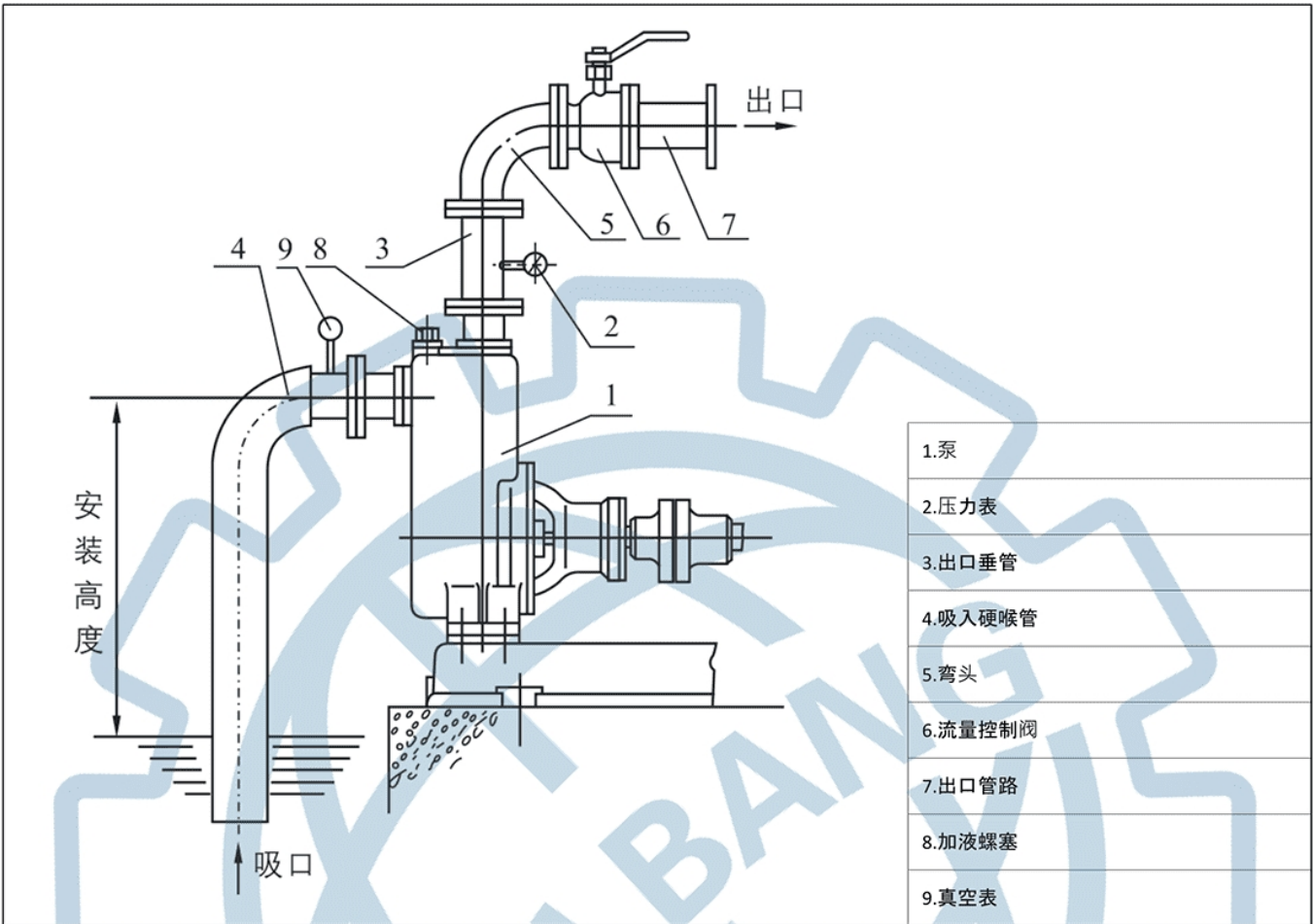


外形尺寸图 Overall and Dimensions Figure


型号	电动机		L	L1	L2	L3	L4	L5	L6	L7	L8	δ	H	H1
	型号	功率(KW)												
25CYZ-A-20	YB801-2	0.75	320	615	791	75	155	450	339	38	155	2	195	300
25CYZ-A-32	YB802-2	1.1	350	580	732	45	125	391	339	重合	115	2	200	320
40CYZ-A-20	YB802-2	1.1	320	615	791	75	155	450	339	38	150	2	195	300
40CYZ-A-40	YB112M-2	4	500	795	990	33	173	515	470	重合	145	3	220	380
40CYZ-A-50	YB100L-2	3	440	680	880	50	148	438	440	重合	120	2	223	433
50CYZ-A-12	YN90S-2	1.5	320	615	777	80	131	406	369	重合	150	2	185	305
50CYZ-A-20	YB90L-2	2.2	440	680	833	25	152	436	394	重合	120	3	193	323
50CYZ-A-30	YB112M-2	4	500	795	990	33	173	515	470	重合	145	3	220	380
50CYZ-A-35	YB112M-2	4	500	795	990	33	173	515	470	重合	145	3	220	380
50CYZ-A-40	YB112M-2	4	500	795	990	33	173	515	470	重合	145	3	220	380
50CYZ-A-50	YB132S1-2	5.5	480	870	977	74	142	454	520	重合	195	3	220	380
50CYZ-A-60	YB132S2-2	7.5	510	870	1064	60.5	230	541	520	重合	180	3	270	440
50CYZ-A-75	YB160M1-2	11	600	1000	1212	87.5	230	541	668	重合	200	3	280	450
65CYZ-A-15	YB100L-2	3	440	680	864	36	135	421	440	重合	120	3	203	333
65CYZ-A-32	YB132S1-2	5.5	480	870	989	63	148	466	520	重合	195	3	220	370
80CYZ-A-13	YB100L-2	3	440	680	884	42	145	441	440	重合	120	3	203	343
80CYZ-A-17	YB112M-2	4	500	795	949	25	152	476	470	重合	145	3	220	370
80CYZ-A-22	YB132S1-2	5.5	480	870	999	61	152	476	520	重合	195	3	220	370
80CYZ-A-25	YB132S2-2	7.5	480	870	1080	70.5	270	557	520	70	195	3	225	406
80CYZ-A-32	YB132S2-2	7.5	480	870	1080	70.5	270	557	520	70	195	3	225	406
80CYZ-A-55	YB160L-2	18.5	600	1025	1269	95	200	558	708	重合	200	3	280	450
80CYZ-A-70	YB180M-2	22	730	1170	1404	38	211	656	745	重合	195	3	300	490
100CYZ-A-20	YB160M1-2	11	600	1000	1246	87.5	202	575	668	重合	200	3	260	420
100CYZ-A-40	YB180M-2	22	730	1170	1537	64	355	789	745	55	195	3	300	510
100CYZ-A-40A	YB180L-4	22	780	1220	1469	84	213	701	765	重合	220	3	360	610
100CYZ-A-65	YB200L1-2	30	780	1320	1566	116	230	743	820	重合	270	3	335	555
100CYZ-A-75	YB200L1-2	30	780	1320	1566	116	230	743	820	重合	270	3	335	555
150CYZ-A-55	YB225M-2	45	950	1450	1788	30	360	900	885	重合	250	3	390	760
150CYZ-A-65	YB250M-2	55	950	1500	1853	91	360	900	950	重合	275	3	390	760
150CYZ-A-65A	YB250M-4	55	1000	1860	2087	165	470	1150	935	重合	430	2	500	900
150CYZ-A-80	YB250M-2	55	950	1500	1853	91	362	900	950	重合	275	3	390	760
200CYZ-A-32	YB250M-4	55	900	1620	2083	165	470	1127	953	重合	360	3	440	800
200CYZ-A-63	YB280M-4	90	1000	1860	2242	210	430	1180	1060	重合	430	2	500	900
200CYZ-A-65	YB315S-4	110	1000	1860	2452	230	430	1180	1270	重合	430	2	535	935
250CYZ-A-32	YB280S-4	75	1000	1860	2628	195	875	1604	1031	重合	430	3	470	1110
250CYZ-A-50	YB280M-4	90	1000	1860	2604	240	792	1542	1060	重合	430	2	500	1100
250CYZ-A-55	YB315S-4	110	1200	2000	2814	210	792	1542	1270	重合	400	2	500	1100
250CYZ-A-75	YB315M-4	132	1200	2000	3000	195	800	1647	1350	重合	400	3	550	1150
300CYZ-A-32	YB280M-4	90	1000	1860	2808	195	995	1724	1081	重合	430	3	470	1230
300CYZ-A-50	YB315S-4	110	1200	2000	2962	170	890	1690	1270	重合	400	2	550	1210
300CYZ-A-55	YB315M-4	132	1200	2000	3042	170	890	1690	1350	重合	400	2	550	1210

外形尺寸图 Overall and Dimensions Figure


号	H2	H3	B	B1	B2	B3	φ	φ1	φ2	φ3	φ4	φ5	n1-d1	n2-d2	n3-d3
25CZY-A-20	436	20	280	320	225	4	25	75	100	25	75	100	4-12	4-12	4-14
25CZY-A-32	450	15	300	330	225	重合	25	75	100	25	75	100	4-12	4-12	4-12
40CZY-A-20	436	20	280	320	225	重合	40	100	130	32	100	120	4-14	4-14	4-14
40CZY-A-40	530	30	370	410	225	重合	40	100	130	40	100	130	4-14	4-14	4-14
40CZY-A-50	593	25	320	360	225	4	40	100	130	40	100	130	4-14	4-14	4-14
50CZY-A-12	436	20	280	320	225	4.5	50	110	140	50	110	140	4-14	4-14	4-14
50CZY-A-20	475	25	320	360	225	7	50	110	140	50	110	140	4-14	4-14	4-14
50CZY-A-30	530	30	370	410	225	重合	50	110	140	50	110	140	4-14	4-14	4-14
50CZY-A-35	530	30	370	410	225	重合	50	110	140	50	110	140	4-14	4-14	4-14
50CZY-A-40	530	30	370	410	225	重合	50	110	140	50	110	140	4-14	4-14	4-14
50CZY-A-50	540	30	360	404	240	5	50	110	140	50	110	140	4-14	4-14	4-18
50CZY-A-60	600	25	380	410	240	8	50	125	160	50	125	160	4-18	4-18	4-18
50CZY-A-75	630	25	415	445	240	8	50	125	160	50	125	160	4-18	4-18	4-18
65CZY-A-15	473	25	320	360	225	8	65	130	160	65	130	140	4-18	4-18	4-14
65CZY-A-32	530	30	360	404	240	8	65	130	160	65	130	140	4-18	4-18	4-18
80CZY-A-13	493	25	320	360	225	9	80	150	185	80	150	160	4-18	4-18	4-14
80CZY-A-17	530	30	370	410	225	12	80	150	185	80	150	160	4-18	4-18	4-14
80CZY-A-22	530	30	360	404	240	12	80	150	185	80	150	160	4-18	4-18	4-14
80CZY-A-25	595	30	360	404	240	重合	80	160	195	80	160	195	4-18	4-18	4-18
80CZY-A-32	595	30	360	404	240	重合	80	160	195	80	160	195	4-18	4-18	4-18
80CZY-A-55	655	25	415	445	240	10	80	160	195	80	160	195	4-18	4-18	4-18
80CZY-A-70	705	30	460	510	240	10	80	160	195	80	160	195	4-18	4-18	4-18
100CZY-A-20	590	30	415	445	240	重合	100	170	210	100	170	210	4-18	4-18	4-18
100CZY-A-40	940	30	460	510	240	102	100	170	210	100	170	210	4-18	4-18	4-18
100CZY-A-40A	835	25	530	570	240	12	100	170	210	100	170	185	4-18	4-18	4-18
100CZY-A-65	785	30	546	596	290	14	100	180	215	100	180	215	8-18	8-18	4-19
100CZY-A-75	785	30	546	596	290	14	100	180	215	100	180	215	8-18	8-18	4-19
150CZY-A-55	990	30	560	620	290	重合	150	240	280	150	240	215	8-23	8-23	4-19
150CZY-A-65	990	30	650	700	290	重合	150	240	280	150	240	215	8-23	8-23	4-19
150CZY-A-6	1220	40	760	840	290	22	150	240	280	150	240	280	8-23	8-23	4-25
150CZY-A-80	990	30	650	700	290	重合	150	240	280	150	240	215	8-23	8-23	4-19
200CZY-A-32	1170	30	710	770	290	30	200	280	315	200	280	315	8-18	8-18	4-25
200CZY-A-63	1220	40	760	840	330	22	200	295	335	200	295	280	8-23	8-23	4-25
200CZY-A-65	1255	40	760	840	330	22	200	295	335	200	295	280	8-23	8-23	4-25
250CZY-A-32	1290	30	760	840	330	35	250	335	370	250	335	370	12-18	12-18	4-25
250CZY-A-50	1300	40	760	840	330	25	250	350	390	250	350	390	12-23	12-23	4-25
250CZY-A-55	1300	40	900	980	400	25	250	350	390	250	350	390	12-23	12-23	4-25
250CZY-A-75	1420	40	900	980	400	24	250	350	390	250	350	390	12-23	12-23	4-25
300CZY-A-32	1330	30	760	840	330	35	300	395	435	300	395	435	12-23	12-23	4-25
300CZY-A-50	1440	40	900	980	400	30	300	400	440	300	400	440	12-23	12-23	4-25
300CZY-A-55	1440	40	900	980	400	30	300	400	400	300	400	440	12-23	12-23	4-25

安装操作 Performance curve


1、在油泵与电动机直联传动时，应注意泵轴与电动机输出的同轴度；泵安装的准确与否对泵的运行平稳性和使用寿命有较大的影响，因此必须仔细地安装和校正。

1. When the oil pump and the motor drive directly, attention should be paid to the coaxially of the pump shaft and the motor output; The accuracy of pump installation has a great impact on the operation stability and service life of the pump, so it must be carefully installed and corrected.

2、泵联轴器必须用螺母紧固好，并锁紧螺母，谨防螺母松动，否则易引起叶轮窜动，造成机械故障。

2, the pump coupling must be tightened with nuts, and lock the nut, beware of nut loosening, otherwise easy to cause impeller movement, causing mechanical failure.

3、为使泵体内能够保持一定的储液量，以达到较好的自吸能力和防止机械密封的干摩擦，必须使泵的进口高于泵轴中心线。

3, in order to make the pump body can maintain a certain amount of storage fluid, in order to achieve better self-priming capacity and prevent dry friction mechanical seal, must make the pump inlet higher than the center line of the pump shaft.

4、吸入管路的安装应注意Attention should be paid to the installation of suction pipeline :

A.吸入口的安装高度尽量不超过5米，在条件许可时，吸入口的安装高度应尽可能地低于油库最低储油面，并尽量缩短吸入管的长度，少装弯头，这样有利于缩短自吸时间，提高扫舱功能。

A. The installation height of the suction inlet should not exceed 5 meters. If conditions permit, the installation height of the suction inlet should be lower than the lowest oil storage surface of the oil depot as far as possible, and the length of the suction pipe should be shortened as far as possible, and less elbow should be installed, so as to shorten the self-priming time and improve the cleaning function.

B.吸入管路中的阀门、法兰等应严防漏气或渗漏液体，即吸入管路不允许有漏气现象存在。

B. The valves and flanges in the suction pipeline should be strictly prevented from leaking air or liquid, that is, the suction pipeline is not allowed to leak air.

C.应防止泵体内吸入固体等杂物，为此吸入管路上应设置过滤器。过滤器的有效过流面积应为吸入管截面的2-3倍，过滤器应定期检查。

C. To prevent the inhalation of solids and other sundries in the pump body, a filter should be set up on the suction line. The effective flow area of the filter should be 2-3 times of the suction tube section, and the filter should be checked regularly.

D.吸入管路和吐出管路应有自己的支架，泵体本身不允许承受管路的负荷。

D. Suction and discharge pipelines should have their own supports, and the pump body itself is not allowed to bear the load of the pipeline.

5、油泵在安装时，应使泵及管路的静电接地电阻达到其规定要求。

5. When installing the oil pump, the static grounding resistance of the pump and pipeline should meet the specified requirements.

6、安装时应严格检查泵壳及管路中是否有石块，铁砂等杂物。

6, installation should strictly check the pump shell and pipeline for stones, iron sand and other sundries.

7、校正泵联轴器及电机动联轴器的安装间隙及同轴度，其不同轴度允许偏差为0.1毫米。泵轴和电动机轴的高度差可在底脚上垫铜皮或铁皮调整。

7, correct the installation clearance and coaxially of the pump coupling and the electric motor coupling, and the allowable deviation of the different coaxially is 0.1 mm. The height difference between pump shaft and motor shaft can be adjusted by padding copper or iron sheet on the bottom foot.

8、在机组实际运转3-4小时后，作最后检查，如无不良现象，则认为安装已妥，在试运转中应检查轴承的温度，轴承体的温度不宜超过70P。

8. After 3-4 hours of actual operation of the unit, make the final check. If there is no bad phenomenon, it is considered that the installation has been completed.

9、该泵轴承体凡设有冷却室装置的冷却水接头供配内孔为。12的胶管或塑料管之用，其螺纹尺寸为 M12x 1.750

9. The inner hole of the cooling water joint of the bearing body of the pump with cooling chamber device is. 12 rubber or plastic hose, thread size M12x 1.750

10、在泵的出口管路上如装有单向阀而在自吸过程中不能使泵顺利地排出气体时，应在泵的出口处加接排气小管及阀。

10, in the outlet pipe of the pump such as equipped with a one-way valve and in the process of self-priming can not make the pump smoothly discharge gas, should be in the outlet of the pump exhaust pipe and valve.

输入液体压力控制汇总 Pressure control gauge

型号Model Medium	介质	水Water(Mpa)	汽油gas (Mpa)	煤油kerosene (Mpa)	柴油diesel (Mpa)
25CZY-A-20		0.13-0.23	0.09-0.15	0.10-0.18	0.10-0.19
25CZY-A-32		0.28-0.38	0.20-0.27	0.21-0.29	0.23-0.32
40CZY-A-20		0.15-0.25	0.11-0.18	0.12-0.20	0.12-0.21
40CZY-A-40		0.33-0.41	0.24-0.30	0.26-0.33	0.28-0.35
50CZY-A-12		0.10-0.15	0.07-0.11	0.08-0.12	0.08-0.13
50CZY-A-20		0.15-0.25	0.11-0.18	0.12-0.20	0.12-0.21
50CZY-A-30		0.29-0.39	0.21-0.28	0.22-0.30	0.24-0.33
50CZY-A-35		0.30-0.40	0.22-0.29	0.23-0.31	0.25-0.33
50CZY-A-40		0.33-0.41	0.24-0.30	0.26-0.33	0.28-0.35
50CZY-A-50		0.45-0.64	0.33-0.47	0.36-0.46	0.38-0.49
50CZY-A-60		0.55-0.65	0.40-0.47	0.48-0.60	0.47-0.55
50CZY-A-75		0.72-0.78	0.53-0.57	0.58-0.62	0.61-0.66
65CZY-A-15		0.12-0.20	0.09-0.13	0.09-0.14	0.10-0.15
65CZY-A-32		0.29-0.39	0.21-0.28	0.22-0.30	0.24-0.33
80CZY-A-13		0.10-0.15	0.07-0.11	0.08-0.12	0.08-0.13
80CZY-A-17		0.13-0.21	0.09-0.15	0.10-0.17	0.11-0.18
80CZY-A-22		0.19-0.26	0.13-0.20	0.14-0.21	0.14-0.22
80CZY-A-25		0.21-0.28	0.15-0.20	0.17-0.22	0.18-0.24
80CZY-A-32		0.28-0.36	0.20-0.26	0.22-0.29	0.24-0.31
80CZY-A-55		0.54-0.62	0.39-0.45	0.43-0.50	0.46-0.53
80CZY-A-70		0.66-0.76	0.48-0.55	0.53-0.61	0.56-0.65
100CZY-A-20		0.18-0.28	0.14-0.22	0.15-0.23	0.15-0.24
100CZY-A-40		0.37-0.49	0.27-0.36	0.30-0.39	0.31-0.39
100CZY-A-40A		0.35-0.46	0.26-0.34	0.28-0.37	0.30-0.39
100CZY-A-65		0.60-0.68	0.44-0.50	0.48-0.54	0.51-0.58
100CZY-A-75		0.72-0.78	0.53-0.57	0.58-0.63	0.61-0.66
150CZY-A-55		0.52-0.58	0.38-0.42	0.42-0.46	0.44-0.49
150CZY-A-65		0.60-0.66	0.44-0.48	0.48-0.53	0.51-0.56
150CZY-A-80		0.72-0.77	0.53-0.56	0.56-0.62	0.61-0.65
200CZY-A-63		0.63-0.69	0.45-0.51	0.51-0.53	0.53-0.58
250CZY-A-50		0.45-0.60	0.33-0.44	0.36-0.46	0.38-0.49