



## **DG Series**

BOILER WATER SUPPLY PUMP



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DG SERIES MIDDLE LOW PRESSURE, HYPO HIGH PRESSURE BOILER WATER SUPPLY PUMP

**Product Purpose**

Model DG pump is a horizontal multi-stage centrifugal pump and suitable for transporting pure water (with the contained foreign matter's content less than 1% and graininess less than 0.1mm) and other liquids of both physical and chemical natures similar to those of pure water.

DG model middle and low pressure boiler water supply pump is application to transporting medium with temperature of not higher than 105 C, and is also applicable for small boiler water supply or transporting medium similar to hot water.

**Performance range of model DG series**

Flow : 3.75-185m /h  
Head : 69-684m

Corollary Power : 4.0-400kW  
Inlet Diameter : 40-150mm

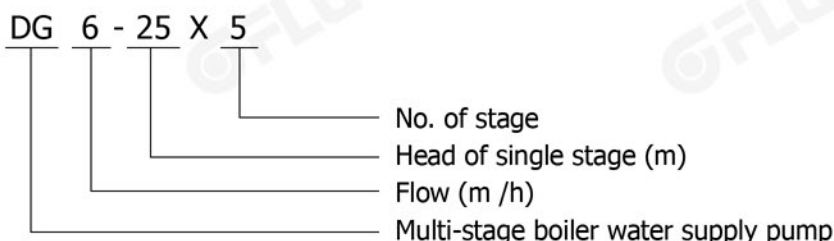
DG model hypo high pressure boiler water supply pump is applicable to transport medium with temperature of not higher than 160 C, and is also applicable for small boiler water supply or transporting medium similar to hot water.

**Performance range of model DG series**

Flow : 15-300m /h  
Head : 390-1050m

Corollary Power : 75-1250kW  
Inlet Diameter : 65-200mm

**Model Meaning**



**About The Structure**

For this series horizontal multi-stage centrifugal pump, both ends of it are supported, the casing portion is in a sectional form, it is connected to and actuated by a motor via a resilient clutch and the rotating direction of it, viewing from the actuating end, is clockwise. Refer to fig. 1 for the structure of it.

**Stator Portion**

Consists of suck in section, middle section, spitting section, guide vane, packing etc. which are linked together with a take up bolt, with both suck in and spitting mouths vertically upward.

**Rotor Portion**

Consist of a shaft, impeller, balancing disk, muff etc, parts.

**Bearing Portion**

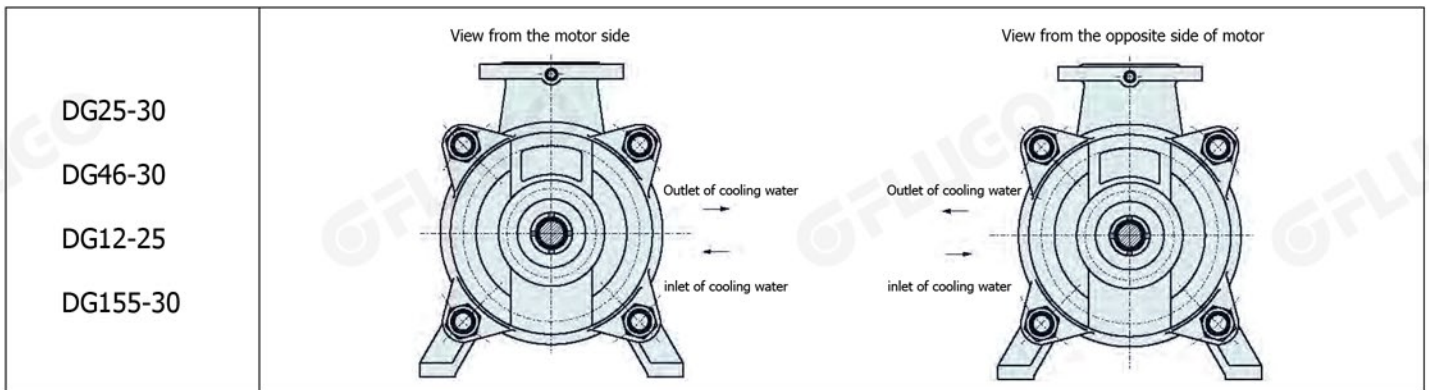
The whole rotor is supported by the roller bearings or sliding bearings on both ends of the shaft and the bearing are lubricated with grease or 20 engine oil.

**Cooling and seal of pump**

The joint part between suction section, intermediate section and discharge section will be coated with molybdenum disulfide lubricating grease as seal. Rotor and fixed parts will be sealed by seal ring, guide vane jacket and packing. The packing tensile degree of shaft seal should be proper and sheep should be feasible dip by dip Unload run should be forbid. The seal ring and guide vane jacket should be replaced if they are too worn to be used any more and even do harm to pump work. There is spare shaft sleeve near shaft seal to protect shaft of pump.

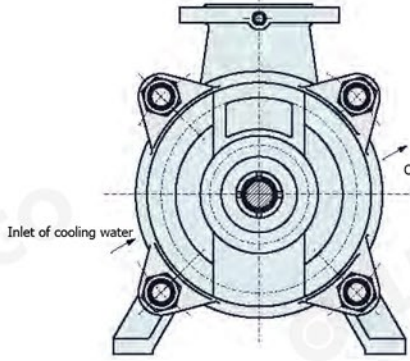
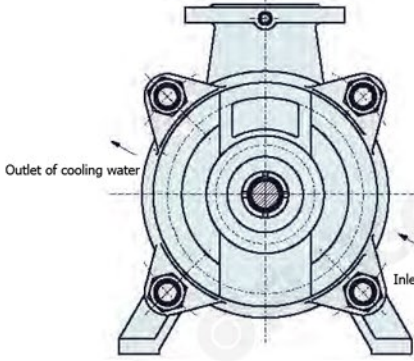
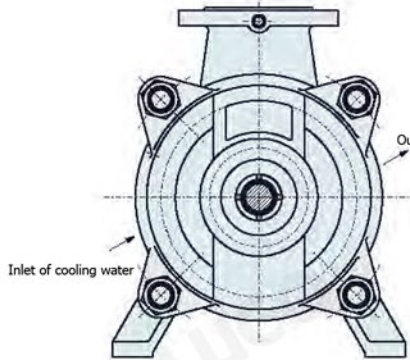
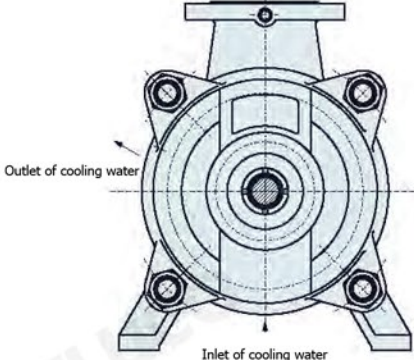
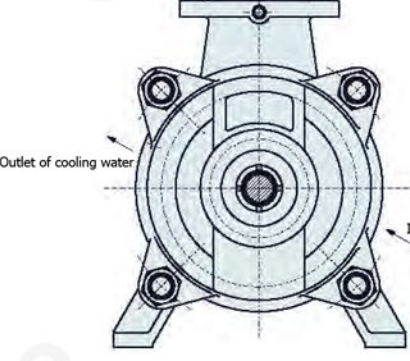
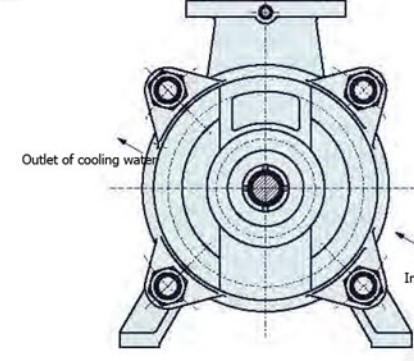
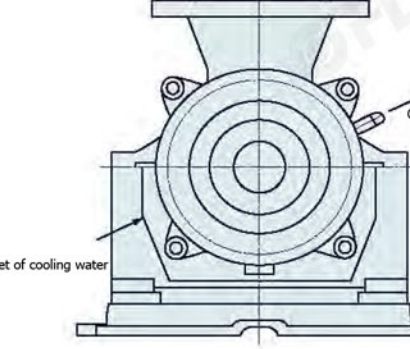
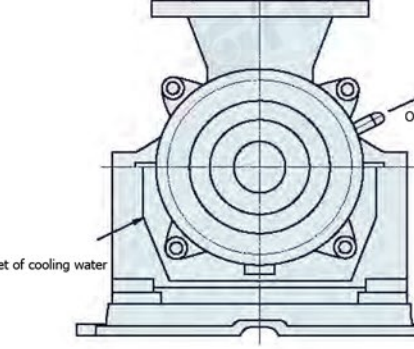
When temperature of the liquid transferred is above 80°C, cooled water should be filled to the water cooling packing gland and shaft seal cooling chamber. Cooled water should be clean water in normal degree. The pressure of water should be 1.5-3kg/Cm<sup>2</sup>. The positions of cooling water pipe joints are different for various kind of water pump. Please refer to construction drawing of pump for axial position, and refer to chart 1 for radial position.

Shaft seals are classified as packing seal and mechanical seal. The water seal water of packing seal is softened water, with pressure of 2-3kgkg/Cm<sup>2</sup>. The flushing water of mechanical seal is softened water, whose pressure shall be 3kg/Cm<sup>2</sup> higher than the inlet pressure.

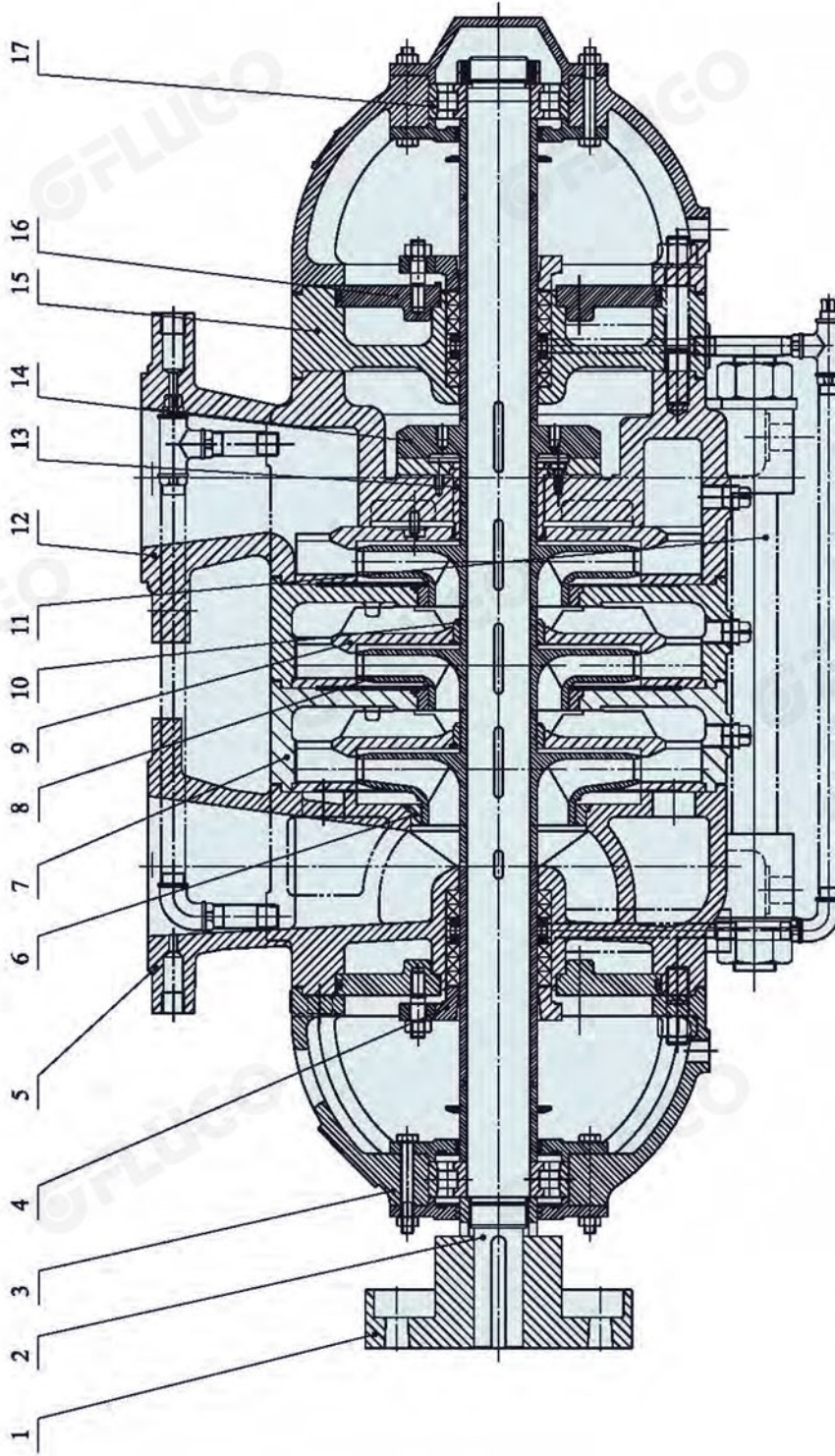




DG Series Boiler Water Supply Pump

<p>DG6-25</p>	<p>View from the motor side</p>  <p>Inlet of cooling water</p> <p>Outlet of cooling water</p>	<p>View from the opposite side of motor</p>  <p>Outlet of cooling water</p> <p>Inlet of cooling water</p>
<p>DG25-50 DG46-50</p>	<p>View from the motor side</p>  <p>Inlet of cooling water</p> <p>Outlet of cooling water</p>	<p>View from the opposite side of motor</p>  <p>Outlet of cooling water</p> <p>Inlet of cooling water</p>
<p>DG85-45 DG85-67 DG155-67</p>	<p>View from the motor side</p>  <p>Outlet of cooling water</p> <p>Inlet of cooling water</p>	<p>View from the opposite side of motor</p>  <p>Outlet of cooling water</p> <p>Inlet of cooling water</p>
<p>DG25-80 DG45-80 DG85-80 DG150-100 DG280-100</p>	<p>View from the motor side</p>  <p>Inlet of cooling water</p> <p>Outlet of cooling water</p>	<p>View from the opposite side of motor</p>  <p>Outlet of cooling water</p> <p>Inlet of cooling water</p>

Structural drawing of DG model middle and low pressure boiler water supply pump.



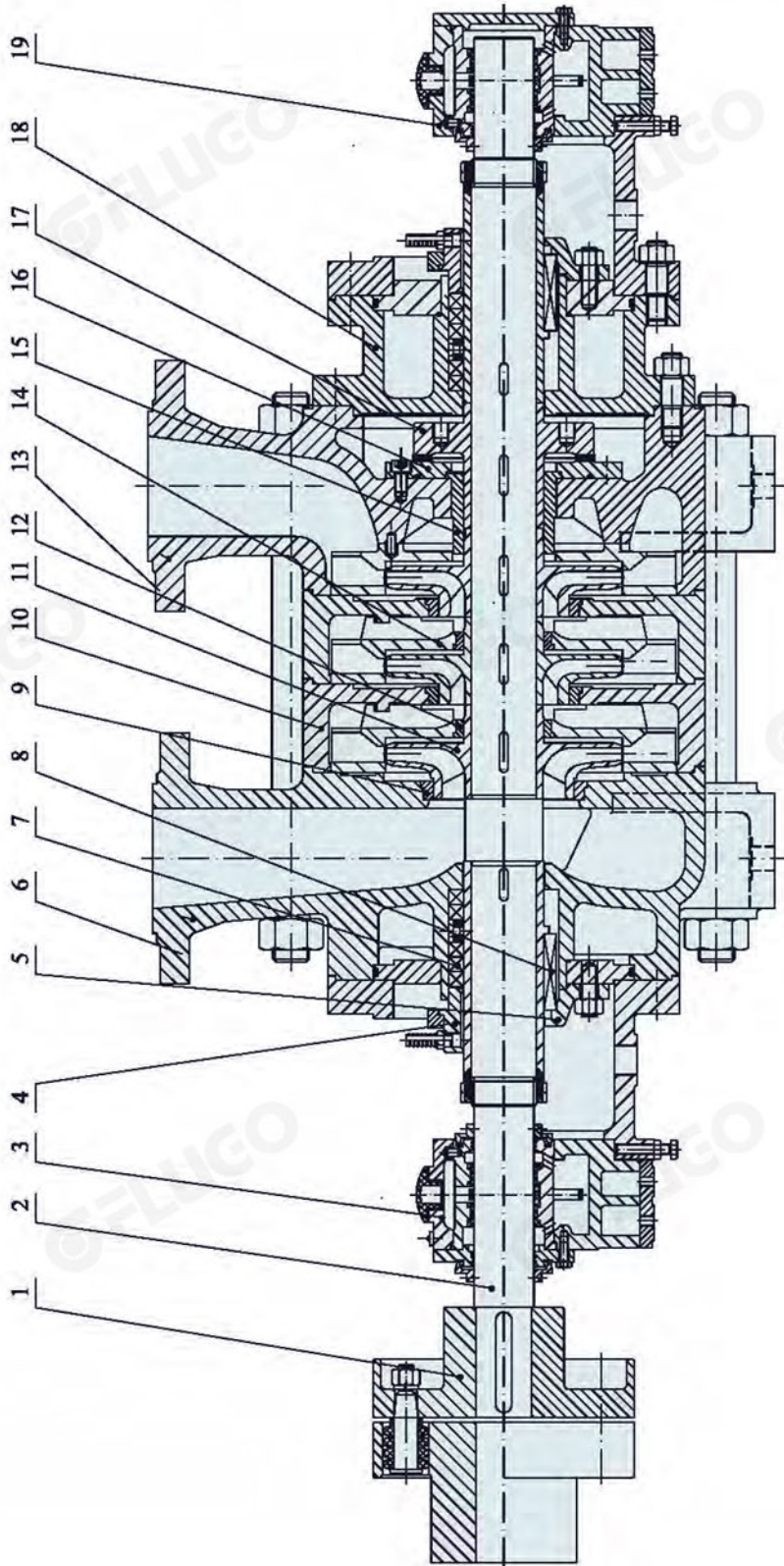
DG6-25, DG12-25, DG25-30, DG46-30, DG46-50, DG85-45, DG155-30, DG280-43, DG280-65, DG450-60, DG500-57

fig.1

1	Column resilient clutch part	2	Shaft	3	Roller bearing part	4	Water cooled packing gland	5	suck-in section
6	Seal ring	7	Middle section	8	Impeller	9	Guide vane	10	Guide vane sleeve
11	Take-up bolt	12	Spitting section	13	Balancing sleeve	14	Balancing disk	15	Packing
16	Cover of water cooling room	17	Bearing						



Structural drawing of DG model middle and low pressure boiler water supply pump.



DG85-67, DG155-67

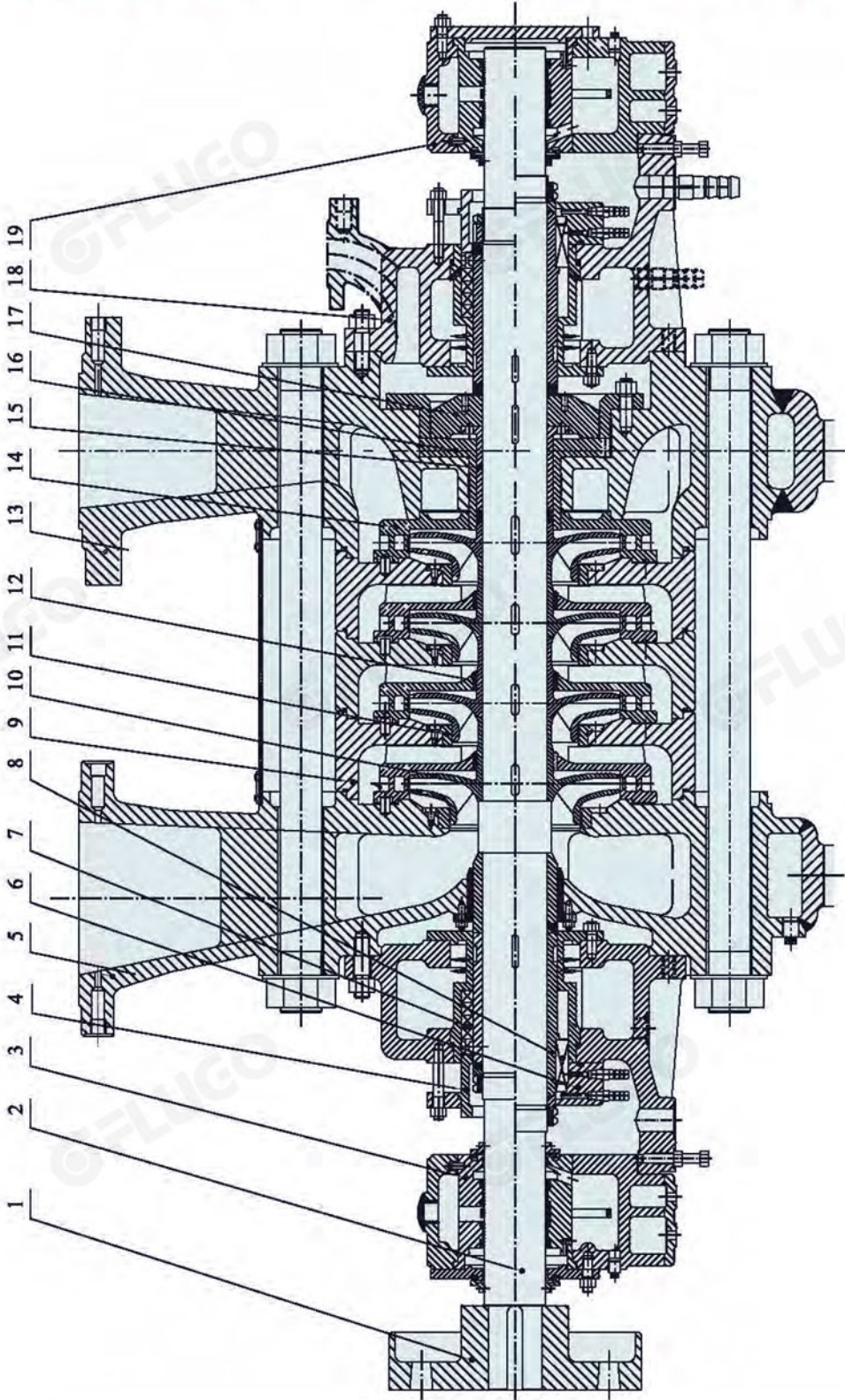
fig.2

1	Column resilient clutch part	2	Shaft	3	Bearing part	4	Water cooled packing gland	5	Mechanical seal gland
6	Suck-in section	7	Stuffing	8	Mechanical seal	9	Seal ring	10	Middle section
11	Impeller	12	Guide vane sleeve	13	Spitting section	14	Guide vane	15	Balancing sleeve
16	Balancing ring	17	Balancing disk	18	Stuffing content	19	Bearing part		

Note : use the structure in Fig.2 when the stage number of DG85-67, DG155-67 is over 6, or that in Fig.1



Structural drawing of DG model hypo high pressure boiler water supply pump.



DG85-80, DG150-100, DG280-100

fig.3

Note : DG150-100, DG280-100 are connected to the actuation side via a single-diaphragm coupling

1	Column resilient clutch part	2	Shaft	3	Bearing part	4	Stuffing gland	5	Suck-in section
6	Mechanical seal gland	7	Stuffing	8	Mechanical seal	9	Middle section	10	Impeller
11	Seal ring	12	Guide vance sleeve	13	Splitting section	14	Guide vane	15	Balancing sleeve
16	Balancing ring	17	Balancing disk	18	(Front) Behind cover	19	Bearing part		



Performance table of DG model middle and low pressure boiler water supply pump.

Model	No. of Stag	Speed (r/min)	Flow (m³/h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)	Model	No. of Stag	Speed (r/min)	Flow (m³/h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)				
					Shaft	Motor								Shaft	Motor						
DG6-25	3	2950	3.75	76.5	2.37	4.0	33	2	DG12-25	10	2950	7.5	282	13.09	18.5	44	2				
			6.3	75	2.86		45	2				12.5	250	15.76		54	2				
			7.5	73.5	3.19		47	2.5				15	230	17.73		53	2.5				
	4		3.75	102	3.16	5.5	33	2		7.5		310.2	14.4	22	44	2	7.5	275	17.34	54	2
			6.3	100	1.81		45	2		12.5		253	19.5		53	2.5					
			7.5	98	4.26		47	2.5													
	5		3.75	127.5	3.95	5.5	33	2		7.5		127.5	3.95	5.5	44	2	7.5	125	4.77	54	2
			6.3	125	4.77		45	2		12.5		125	4.77		54	2					
			7.5	122.5	5.32		47	2.5													
	6		3.75	153	4.73	7.5	33	2		7.5		162	8.8	18.5	37.8	2	12.5	150	10.6	48	2
			6.3	150	5.72		45	2		15		139.5	11.9		48	2.5					
			7.5	147	6.39		47	2.5													
7	3.75	178.5	5.52	7.5	33	2	7.5	216	11.7	22	37.8	2	12.5	200	14.1	48	2				
	6.3	176	6.67		45	2	15	186	15.9		48	2.5									
	7.5	171.5	7.45		47	2.5															
8	3.75	204	6.31	11	33	2	7.5	270	14.6	30	37.8	2	12.5	250	17.7	48	2				
	6.3	200	7.63		45	2	15	232.5	19.8		48	2.5									
	7.5	163	8.52		47	2.5															
9	3.75	229.5	7.1	11	33	2	7.5	324	17.6	30	37.8	2	12.5	300	21.3	48	2				
	6.3	225	8.58		45	2	15	279	23.7		48	2.5									
	7.5	220.5	9.58		47	2.5															
10	3.75	225	7.89	18.5	33	2	7.5	378	20.4	37	37.8	2	12.5	350	24.8	48	2				
	6.3	250	9.53		45	2	15	325.5	27.7		48	2.5									
	7.5	245	10.65		47	2.5															
11	3.75	280.5	8.68	18.5	33	2	7.5	432	23.3	37	37.8	2	12.5	400	28.4	48	2				
	6.3	275	10.5		45	2	15	372	31.7		48	2.5									
	7.5	269.5	11.71		47	2.5															
12	3.75	306	9.47	18.5	33	2	7.5	468	26.3	45	37.8	2	12.5	450	31.9	48	2				
	6.3	300	11.44		45	2	15	418.5	35.7		48	2.5									
	7.5	294	12.78		47	2.5															
DG12-25	3	2950	7.5	84.6	3.93	5.5	44	2	DG12-50	10	2950	7.5	540	29.2	45	37.8	2				
			12.5	75	4.73		54	2				12.5	500	35.5		48	2				
			15	69	5.32		53	2.5				15	465	39.6		48	2.5				
	4		7.5	112.8	5.24	7.5	44	2		7.5		594	32.1	55	37.8	2	12.5	550	39.0	48	2
			12.5	100	6.3		54	2		15		511.5	43.5		48	2.5					
			15	92	7.09		53	2.5													
	5		7.5	141	6.55	11	44	2		7.5		648	35.0	75	37.8	2	12.5	600	42.6	48	2
			12.5	125	7.88		54	2		15		558	47.8		48	2.5					
			15	115	8.89		53	2.5													
	6		7.5	169.2	7.85	15	44	2		15		102	8.33	15	50	2.2	12.5	150	9.88	62	2.2
			12.5	150	9.46		54	2		30		82.5	10.7		63	2.6					
			15	138	10.46		53	2.5													
7	7.5	197.5	9.16	15	44	2	15	136	11.1	18.5	50	2.2	12.5	175	11.0	62	2.2				
	12.5	175	11.0		54	2	30	120	13.1		62	2.2									
	15	161	12.41		53	2.5															
8	7.5	225.6	10.41	15	44	2	15	170	13.89	22	50	2.2	12.5	200	16.47	62	2.2				
	12.5	200	12.61		54	2	30	137.5	17.83		63	2.6									
	15	184	14.18		53	2.5															
9	7.5	253.8	11.78	18.5	44	2	15	204	16.67	30	50	2.2	12.5	225	14.18	62	2.2				
	12.5	225	14.18		54	2	30	165	21.4		63	2.6									
	15	207	15.95		53	2.5															
DG25-30	3	2950	15	102	8.33	15	50	2.2	DG25-30	4	2950	15	136	11.1	18.5	50	2.2				
			25	90	9.88		62	2.2				25	120	13.1		62	2.2				
			30	82.5	10.7		63	2.6				30	110	14.26		63	2.6				
	4		15	170	13.89	15	50	2.2		15		170	13.89	22	50	2.2	25	150	16.47	62	2.2
			25	150	16.47		62	2.2		30		137.5	17.83		63	2.6					
			30	137.5	17.83		63	2.6													
	5		15	204	16.67	18.5	50	2.2		15		204	16.67	30	50	2.2	25	180	19.17	62	2.2
			25	180	19.17		62	2.2		30		165	21.4		63	2.6					
			30	165	21.4		63	2.6													

Performance table of DG model middle and low pressure boiler water supply pump.

Model	No. of Stag	Speed (r/min)	Flow (m³/h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)
					Shaft	Motor		
DG25-30	7	2950	15	238	19.44	30	50	2.2
			25	210	23.1		62	2.2
			30	192.5	24.96		63	2.6
	8		15	272	22.22	37	50	2.2
			25	240	26.4		62	2.2
			30	220	28.53		63	2.6
	9		D	306	25	37	50	2.2
			25	270	29.65		62	2.2
			30	247.5	32.1		63	2.6
	10		15	340	27.8	45	50	2.2
			25	300	32.9		62	2.2
			30	275	35.7		63	2.6
DG25-50	3	15	154.5	15.78	22	4	2.5	
		25	150	18.91		54	2.8	
		30	144	20.64		57	3.2	
	4	15	206	21.04	30	4	2.5	
		25	200	25.22		54	2.8	
		30	192	27.5		57	3.2	
	5	15	257.5	26.2	37	4	2.5	
		25	250	31.52		54	2.8	
		30	240	34.40		57	3.2	
	6	15	309	31.56	45	4	2.5	
		25	300	37.82		54	2.8	
		30	288	41.28		57	3.2	
	7	15	380.5	35.86	55	4	2.5	
		25	350	44.1		54	2.8	
		30	336	48.16		57	3.2	
	8	15	412	42	75	4	2.5	
		25	400	50.45		54	2.8	
		30	348	55.04		57	3.2	
	9	15	463.5	47.33	75	4	2.5	
		25	450	56.74		54	2.8	
		30	432	61.92		57	3.2	
	10	15	515	52.59	75	4	2.5	
		25	500	63.04		54	2.8	
		30	480	68.8		57	3.2	
11	15	566	57.8	90	4	2.5		
	25	550	69.3		54	2.8		
	30	528	75.68		57	3.2		
12	15	618	63.11	110	4	2.5		
	25	600	75.65		54	2.8		
	30	576	82.56		57	3.2		
DG46-30	3	2950	30	102	13.02	22	64	2.4
			46	90	16.11		70	3
			55	81	18.84		68	4.6
	4		30	136	17.36	30	64	2.4
			46	120	21.48		70	3
			55	108	23.79		68	4.6
	5		30	170	21.7	37	64	2.4
			46	150	26.85		70	3
			55	135	29.74		68	4.6

Model	No. of Stag	Speed (r/min)	Flow (m³/h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)
					Shaft	Motor		
DG46-30	6	2950	30	204	26.04	37	64	2.4
			46	180	32.21		70	3
			55	162	35.68		68	4.6
	7		30	238	30.38	45	64	2.4
			46	210	37.58		70	3
			55	189	41.63		68	4.6
	8		30	274	34.72	55	64	2.4
			46	240	42.95		70	3
			55	216	47.58		68	4.6
	9		30	306	39.06	55	64	2.4
			46	270	48.32		70	3
			55	243	53.53		68	4.6
10	30	340	43.3	75	64	2.4		
	46	300	53.7		70	3		
	55	270	59.5		68	4.6		
DG46-50	3	2950	30	166.5	25.19	37	54	2.5
			46	150	29.83		63	2.8
			55	138	32.3		64	3.2
	4		30	222	33.59	45	54	2.5
			46	200	39.77		63	2.8
			55	184	43.06		64	3.2
	5		30	277.5	41.98	55	54	2.5
			46	250	49.71		63	2.8
			55	230	53.85		64	3.2
	6		30	333	50.38	75	54	2.5
			46	300	59.65		63	2.8
			55	276	64.59		64	3.2
	7		30	388.5	58.78	90	54	2.5
			46	350	69.6		63	2.8
			55	322	75.36		64	3.2
	8		30	440	67.18	90	54	2.5
			46	400	79.54		63	2.8
			55	368	86.12		64	3.2
	9		30	499.5	75.57	110	54	2.5
			46	450	89.48		63	2.8
			55	414	96.89		64	3.2
	10		30	555	83.97	132	54	2.5
			46	500	99.42		63	2.8
			55	560	107.66		64	3.2
11	30	610.5	92.37	132	54	2.5		
	46	550	109.36		63	2.8		
	55	506	118.42		64	3.2		
12	30	666	100.8	132	54	2.5		
	46	600	119.3		63	2.8		
	55	552	129.2		64	3.2		
DG85-45	2	2950	55	102	24.25	37	63	3.2
			85	90	28.94		72	4.2
			100	78	30.33		70	5.2
	3		55	153	36.38	55	63	3.2
			85	135	43.4		72	4.2
			100	117	45.52		70	5.2



Performance table of DG model middle and low pressure boiler water supply pump.

Model	No. of Stag	Speed (r/min)	Flow (m <sup>3</sup> /h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)	Model	No. of Stag	Speed (r/min)	Flow (m <sup>3</sup> /h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)				
					Shaft	Motor								Shaft	Motor						
DG85-45	4	2950	55	204	48.5		63	3.2	DG155-30	7	1480	119	224	100.66		72.0	3.2				
			85	180	57.87	75	72	4.2				155	210	114.97	160	77.0	3.9				
			100	156	60.7		70	5.2				190	189	128.38		76.5	4.8				
	5		55	255	60.63		63	3.2		119		256	115.04		72.0	3.2					
			85	225	72.34	90	72	4.2		155		240	131.36	160	77.0	3.9					
			100	195	75.86		70	5.2		190		216	146.72		76.5	4.8					
	6		55	306	72.75		63	3.2		119		288	129.42		72.0	3.2					
			85	270	86.81	110	72	4.2		155		270	147.78	200	77.0	3.9					
			100	234	91.04		70	5.2		190		243	165.06		76.5	4.8					
	7		55	357	84.88		63	3.2		119		320	143.80		72.0	3.2					
			85	315	101.3	132	72	4.2		155		300	164.20	200	77.0	3.9					
			100	273	106.2		70	5.2		190		270	183.40		76.5	4.8					
	8		55	408	97		63	3.2		100		228	97.0		64	3.2					
			85	360	115.7	132	72	4.2		155		201	114.7	132	74	3.9					
			100	312	121.4		70	5.2		185		177	123.9		72	4.8					
	9		55	459	109.1		63	3.2		100		304	129.3		64	3.2					
			85	405	130.2	160	72	4.2		155		268	152.9	200	74	3.9					
			100	351	136.6		70	5.2		185		236	165.1		72	4.8					
DG85-67	3	2950	55	222	57.3		58	3.3	DG155-67	3	2950	100	380	161.6		64	3.2				
			85	201	68.4	90	68	4.0				155	335	191.1	220	74	3.9				
			100	183	73.3		68	4.4				185	295	206.4		72	4.8				
	4		55	296	76.4		58	3.3		100		456	194		64	3.2					
			85	269	91.2	110	68	4.0		155		402	229.3	280	74	3.9					
			100	244	97.7		68	4.4		185		354	247.7		72	4.8					
	5		55	370	95.6		58	3.3		100		532	226.3		64	3.2					
			85	335	114	132	68	4.0		155		469	267.5	315	74	3.9					
			100	305	122.2		68	4.4		185		413	289		72	4.8					
	6		55	444	114.7		58	3.3		100		608	258.6		64	3.2					
			85	402	136.9	160	68	4.0		155		536	305.7	355	74	3.9					
			100	366	146.6		68	4.4		185		472	330.3		72	4.8					
	7		55	518	133.8		58	3.3		100		684	290.9		64	3.2					
			85	469	159.6	200	68	4.0		155		603	344	400	74	3.9					
			100	427	171		68	4.4		185		531	371.6		72	4.8					
	8		55	592	152.9		58	3.3		185		141	103.0		69	3.0					
			85	536	182.4	220	68	4.0		280		129	127.7	160	77	4.7					
			100	488	195.4		68	4.4		335		114	138.7		75	6.0					
	9		55	666	172		58	3.3		185		188	137.3		69	3.0					
			85	603	205.2	250	68	4.0		280		172	170.3	200	77	4.7					
			100	549	219.9		68	4.4		335		152	184.9		75	6.0					
	DG155-30		2	1480	119	65	28.76			72.0		3.2	DG280-43	5	1480	185	235	171.6		69	3.0
					155	60	32.84	55		77.0		3.9				280	215	212.9	250	77	4.7
					190	54	36.68			76.5		4.8				335	190	231.1		75	6.0
3		119	96		43.14		72.0	3.2	185	282	205.9			69		3.0					
		155	90		49.26	75	77.0	3.9	280	258	255.5	315		77		4.7					
		190	81		55.02		76.5	4.8	335	228	277.3			75		6.0					
4		119	128		57.52		72.0	3.2	185	329	240.2			69		3.0					
		155	120		65.68	90	77.0	3.9	280	301	298.1	355		77		4.7					
		190	108		73.36		76.5	4.8	335	266	323.6			75		6.0					
5		119	160		71.90		72.0	3.2	185	376	274.5			69		3.0					
		155	150		82.10	110	77.0	3.9	280	344	340.7	400		77		4.7					
		190	135		91.70		76.5	4.8	335	304	369.8			75		6.0					
6		119	192		86.28		72.0	3.2	185	423	308.9			69		3.0					
		155	180		98.52	132	77.0	3.9	280	387	383.2	450		77		4.7					
		190	162		110.04		76.5	4.8	335	342	416.0			75		6.0					

Performance table of DG model middle and low pressure boiler water supply pump.

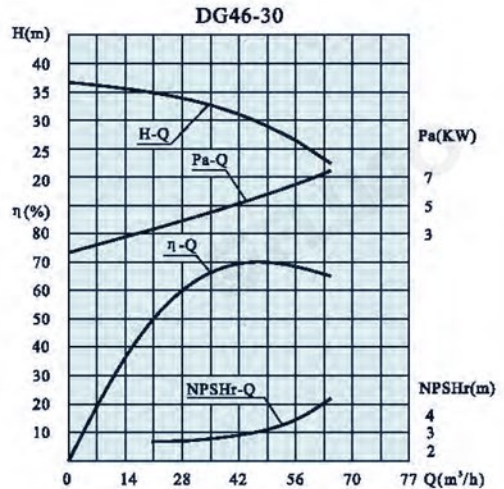
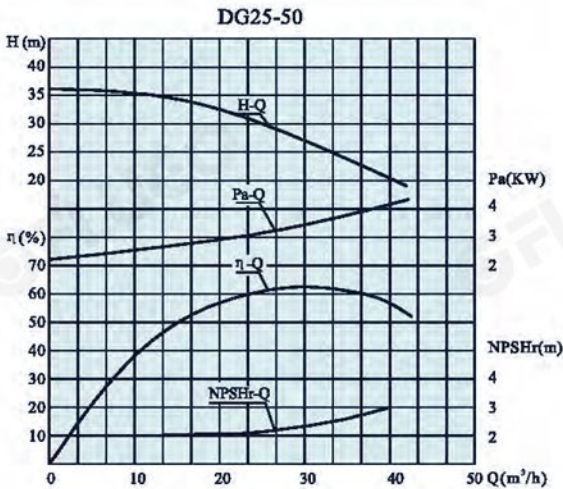
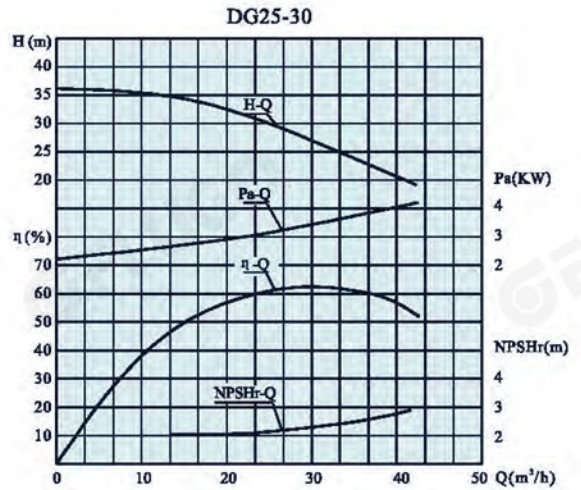
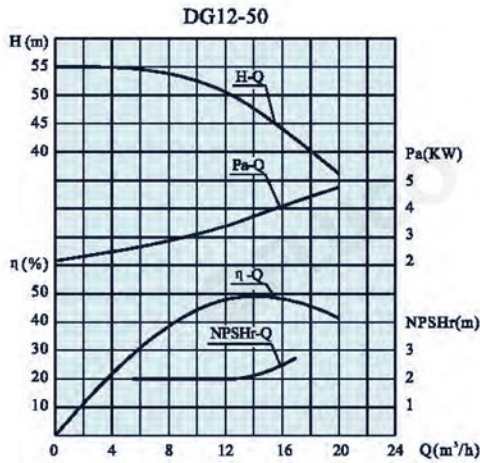
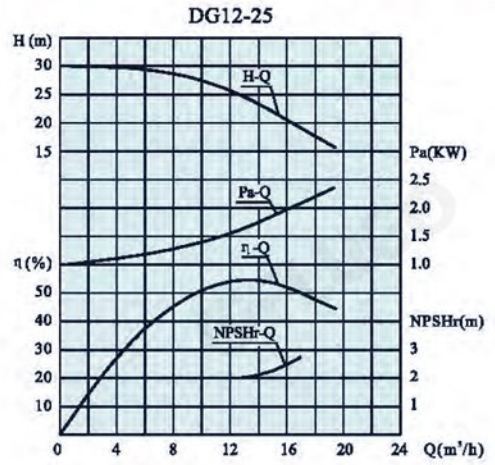
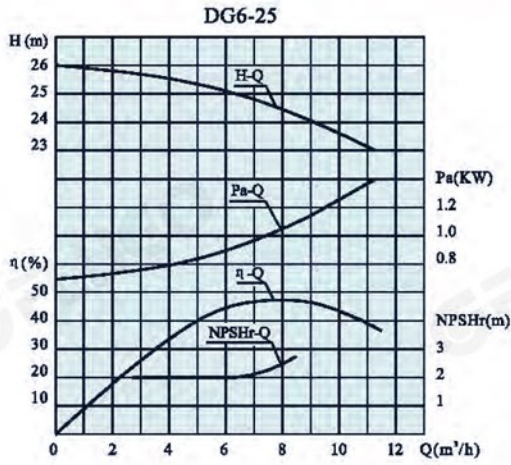
Model	No. of Stag	Speed (r/min)	Flow (m³/h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)
					Shaft	Motor		
57	3	1480	335	195	247.1		69	3
			450	180	279.2	355	77	4.7
			500	170	298.5		75	6
	4		335	260	329.4		69	3
			450	240	372.3	450	77	4.7
			500	228	398		75	6
	5		335	325	411.8		69	3
			450	300	465.4	560	77	4.7
			500	285	497.5		75	6
	6		335	390	494.2		69	3
			450	360	558.2	630	77	4.7
			500	342	597		75	6
	7		335	455	576.5		69	3
			450	420	651.5	800	77	4.7
			500	399	696.5		75	6
	8		335	520	658.9		69	3
			450	480	744.6	900	77	4.7
			500	456	796		75	6
9	335	585	741.2		69	3		
	450	540	837.7	1000	77	4.7		
	500	513	895.6		75	6		
10	335	650	823.6		69	3		
	450	600	930.8	1120	77	4.7		
	500	470	995.1		75	6		
11	335	715	906.1		69	3		
	450	660	1023.4	1250	77	4.7		
	500	627	1095.9		75	6		
DG500-57	3	1480	425	186	286.9		75	4.6
			500	171	294.6	355	77	6
			600	150	318.2		77	7
	4		425	248	382.8		75	4.6
			500	228	392.8	450	77	6
			600	200	424.2		77	7
	5		425	310	478.2		75	4.6
			500	285	491	560	77	6
			600	250	530.3		77	7
	6		425	372	573.8		75	4.6
			500	342	589.2	710	77	6
			600	300	636.4		77	7
	7		425	434	669.5		75	4.6
			500	399	687.4	800	77	6
			600	350	742.4		77	7
	8		425	496	765.1		75	4.6
			500	456	785.7	900	77	6
			600	400	848.5		77	7
9	425	558	860.7		75	4.6		
	500	513	883.8	1000	77	6		
	600	450	945.5		77	7		
10	425	620	956.4		75	4.6		
	500	570	982.1	1120	77	6		
	600	500	1060.6		77	7		
11	425	682	1051.5		75	4.6		
	500	627	1081.1	1250	77	6		
	600	550	1169.2		77	7		



Performance table of DG model hypo-high pressure boiler water supply pump.

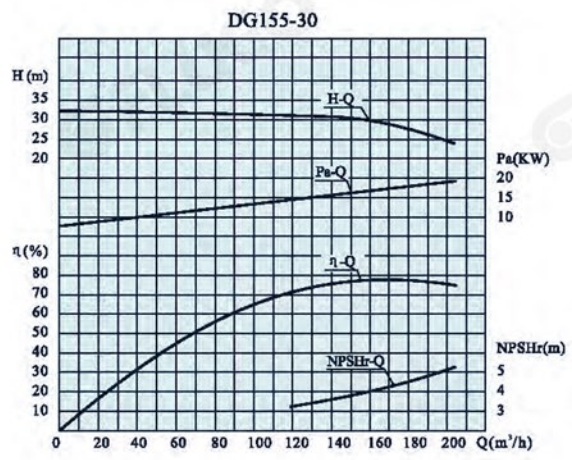
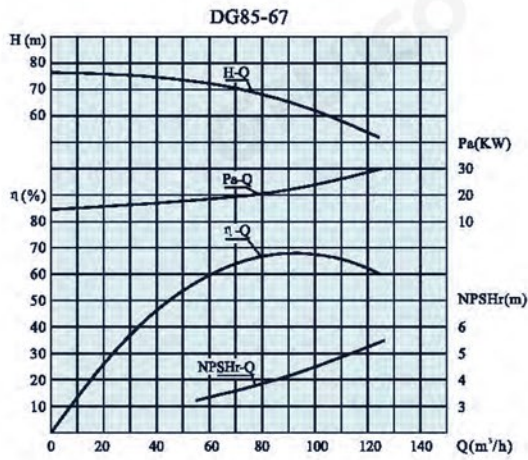
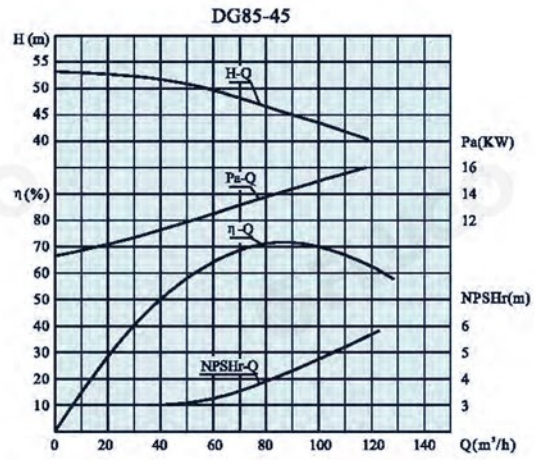
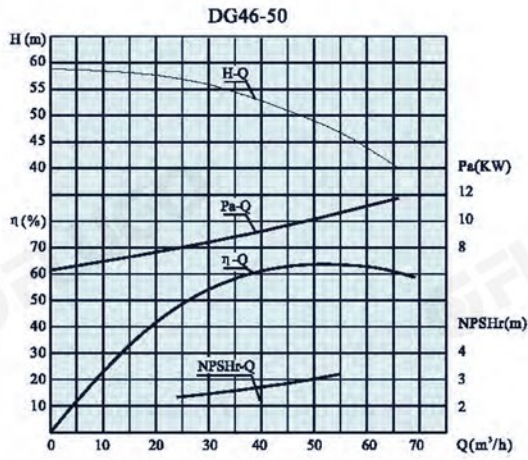
Model	No. of Stag	Speed (r/min)	Flow (m³/h)	Head	Power (kW)		Efficiency (%)	(NPSH) r (m)		
					Shaft	Motor				
DG25-80	4	2980	15	346.4	44.3		32	3.2		
			25	320	49	55.0	45	3.5		
			30	312	58		44	5		
	5		15	433.0	55.00		32	3.2		
			25	400.0	60.50	75.0	45	3.5		
			30	390.0	72.10		44	5		
	6		15	519.6	66.00		32	3.2		
			25	480.0	72.60	90.0	45	3.5		
			30	468.0	86.52		44	5		
	7		15	606.2	77.00		32	3.2		
			25	560.0	84.70	110.0	45	3.5		
			30	546.0	100.94		44	5		
	8		15	692.8	88.00		32	3.2		
			25	640.0	96.80	132.0	45	3.5		
			30	624.0	115.36		44	5		
	9		15	779.4	99.00		32	3.2		
			25	720.0	108.90	132.0	45	3.5		
			30	702.0	129.78		44	5		
	10		15	866.0	110.00		32	3.2		
			25	800.0	121.00	160.0	45	3.5		
			30	780.0	144.20		44	5		
	11		15	952.6	121.00		32	3.2		
			25	880.0	133.10	200.0	45	3.5		
			30	858.0	158.62		44	5		
	12		15	1039.2	132.00		32	3.2		
			25	960.0	145.20	200.0	45	3.5		
			30	936.0	173.04		44	5		
	DG45-50		4	2950	36	334.2	65.6		50	3.9
					45	320	71.3	110	55	4
					62	277.2	83.6		56	5.5
			5		36	417.7	81.9		50	3.9
					45	400	89.2	132	55	4
					62	346.5	104.5		56	5.5
			6		36	501.2	98.3		50	3.9
					45	480	107.0	160	55	4
					62	415.7	125.4		56	5.5
7		36	585.2		114.8		50	3.9		
		45	560.0		124.6	160	55	4		
		62	477.4		143.5		56	5.5		
8		36	668.8		131.2		50	3.9		
		45	640.0		142.4	200	55	4		
		62	545.6		164.0		56	5.5		
9		36	752.4		147.6		50	3.9		
		45	720.0		160.2	220	55	4		
		62	613.8		184.5		56	5.5		
10		36	836.0		164.0		50	3.9		
		45	800.0		178.0	250	55	4		
		62	682.0		205.0		56	5.5		
11		36	919.6		180.4		50	3.9		
		45	880.0		195.8	280	55	4		
		62	750.2		225.5		56	5.5		
12		36	1003.2		196.8		50	3.9		
		45	960.0		213.6	280	55	4		
		62	818.4		246.0		56	5.5		
DG85-80		5	2950		54	443.6	123.2		53	4.4
					85	400	142.5	250	65	4.5
					108	338.9	151.1		66	5.3
DG85-80		6	2950		54	540.3	150.0		53	4.4
					85	480	171.0	250	65	4.5
					108	412.2	183.8		66	5.3
		7			54	616	170.9		53	4.4
					85	560	199.3	250	65	4.5
					108	490	218.4		66	5.3
	8	54		704	195.3		53	4.4		
		85		640	227.8	280	65	4.5		
		108		560	249.6		66	5.3		
	9	54		792	219.8		53	4.4		
		85		720	256.3	355	65	4.5		
		108		630	280.7		66	5.3		
	10	54		880	244.2		53	4.4		
		85		800	284.8	355	65	4.5		
		108		700	311.9		66	5.3		
	11	54		968	268.6		53	4.4		
		85		880	313.2	400	65	4.5		
		108		770	343		66	5.3		
	12	54		1056	293		53	4.4		
		85		960	341.7	450	65	4.5		
		108		840	374.3		66	5.3		
	DG150-106	6		2950	120	630	307		53	4.4
					150	600	353	450	65	4.5
					180	540	368		66	5.3
		7			120	735	359		53	4.4
					150	700	412	500	65	4.5
					180	630	429		66	5.3
		8			120	840	410		53	4.4
					150	800	470	630	65	4.5
					180	720	491		66	5.3
		9			120	945	461		53	4.4
					150	900	518	630	65	4.5
					180	810	552		66	5.3
	10	120			1050	512		53	4.4	
		150			1000	588	800	65	4.5	
		180			900	613		66	5.3	
DG280-100	4	2950	250		420.0	386.4		74	5.1	
			280		400.0	396.0	450	77	5.6	
			300		392.0	416.0		77	5.9	
	5		250		525.0	483.0		74	5.1	
			280		500.0	495.0	630	77	5.6	
			300		490.0	520.0		77	5.9	
	6		250		630.0	579.6		74	5.1	
			280		600.0	594.0	710	77	5.6	
			300		588.0	624.0		77	5.9	
	7		250		735.0	676.2		74	5.1	
			280		700.0	693.0	800	77	5.6	
			300		686.0	728.0		77	5.9	
8	250		840.0		772.8		74	5.1		
	280		800.0		792.0	1000	77	5.6		
	300		784.0		832.0		77	5.9		
9	250		945.0		869.4		74	5.1		
	280		900.0		891.0	1120	77	5.6		
	300		882.0		936.0		77	5.9		
10	250		1050.0		966.0		74	5.1		
	280		1000.0		990.0	1250	77	5.6		
	300		980.0		1040.0		77	5.9		

Performance curve figures of DG model hypo-high pressure boiler water supply pump.

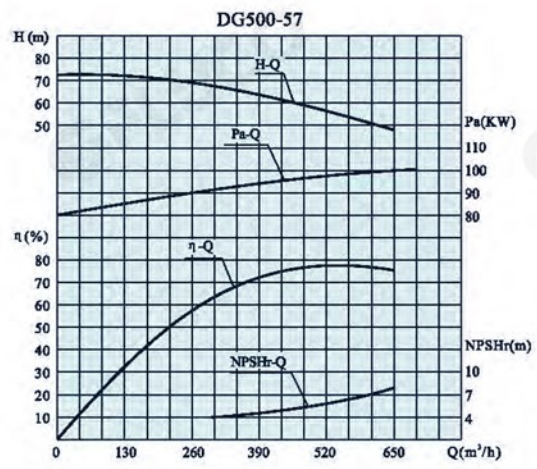
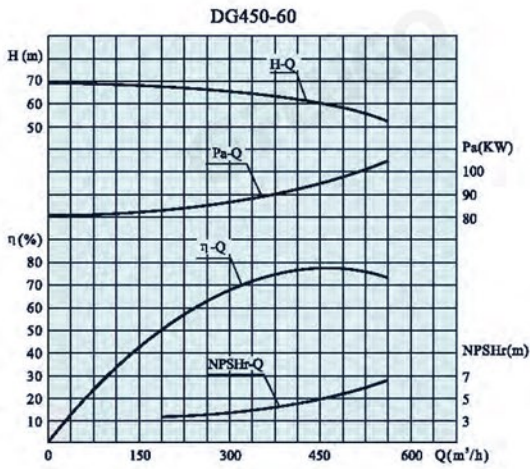
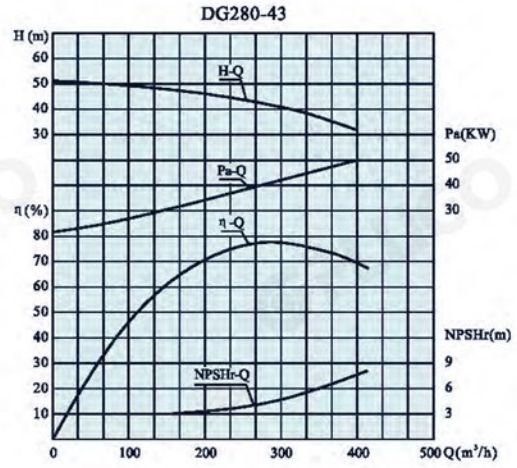
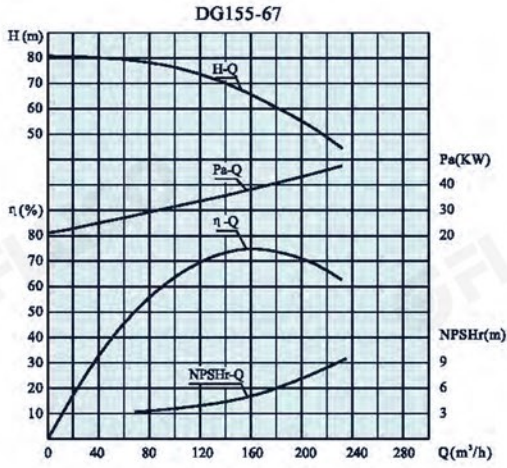




Performance curve figures of DG model hypo-high pressure boiler water supply pump.

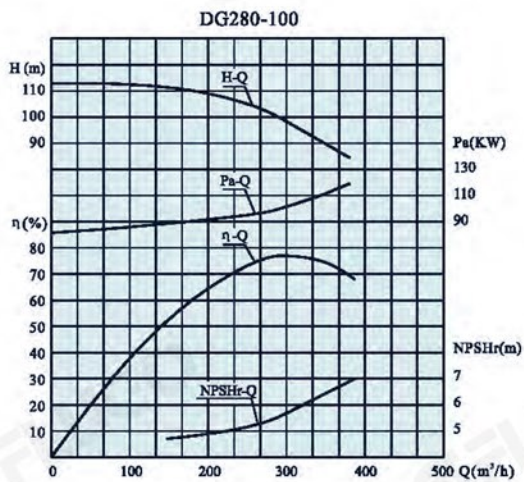
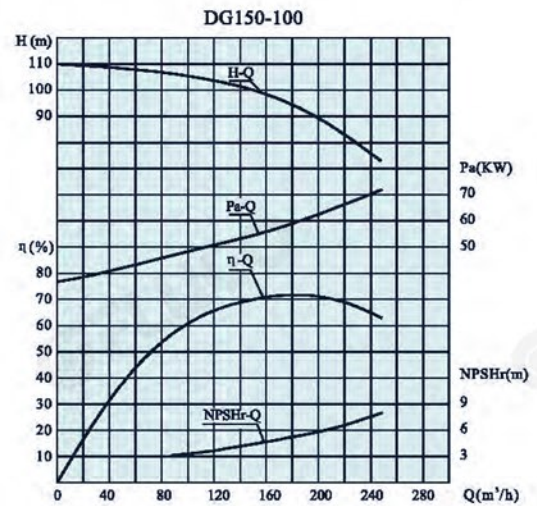
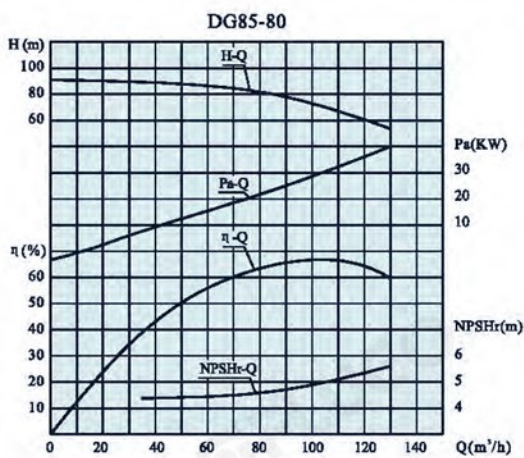
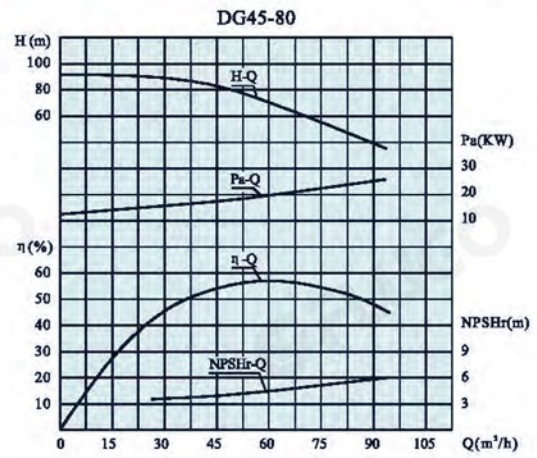
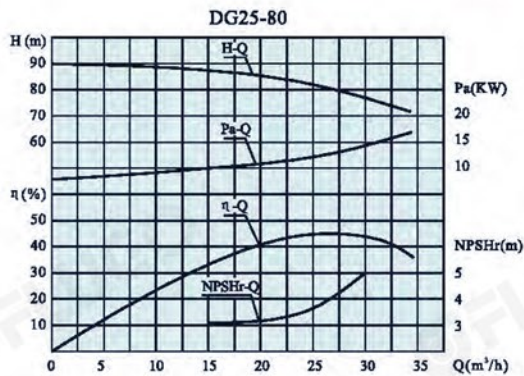


Performance curve figures of DG model hypo-high pressure boiler water supply pump.





Performance curve figures of DG model hypo-high pressure boiler water supply pump.



The curve shows the performance of No. 1 stage. When the stage number is increased, the flow is kept unchanged, both head and shaft power are those gained from the curves and multiplied by the number of the stage, e.g. multiplied by 2 in case of 2 stages, by 3 in case of 3 stages, and so on and so forth.

## Assembly and detection of pump

The assembly quality of the pump will result in notable affection to the preformance and the running stability of it and can not be guaranteed unless the technical requirements in the drawings are strictly followed in the assembly, such as on the alignment between the centers of the impeller’s outlet and the guide vane’s inlet, the uniform values of the sealing intervals of both rotor and stator portions etc.

### 1.Rotor

It takes two bearings as the support and measure the circle jumping values of the oral ring of the impeller, the impeller buffing sleeve (or rear navel), the balancing baffling sleeve and the muff, respectively, and the jumping value of the balancing disk’s end face, which should conform the requirements in the figure of the jointed parts of rotor (Fig.4).

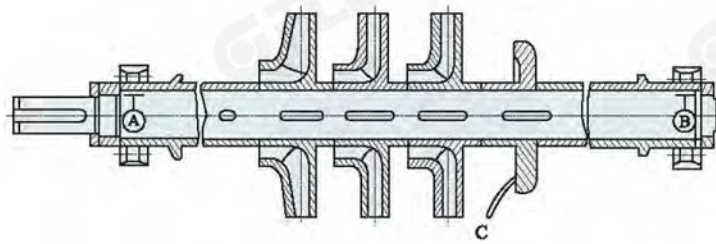


Fig.4

For the nominal radial intervals of the seal rings of both pump casing and impeller, upon the table below :

Nominal Size (mm)	30 ~ 90	> 90 ~ 120	> 120 ~ 180	> 180 ~ 250	> 250 ~ 500	> 800 ~ 1250	> 1250
Diameter Interval (mm)	0.3 ~ 0.4	0.4 ~ 0.5	0.5 ~ 0.6	0.6 ~ 0.7	0.85 ~ 1.2	1.2 ~ 1.6	1.6 ~ 2.0

For the allowed radial jumping error of each part of the assembled rotor, upon the table below :

Nominal diameter	≤ 50	> 50 ~ 120	> 120 ~ 260	> 260 ~ 500	> 500 ~ 800
Seal ring of impeller (A-B)	0.08	0.10	0.10	0.12	0.15
End-face jumping of disk C (A-B)	0.05	0.05	0.06	0.08	0.08

### 2.Stator

Measure the axial serial amount of the rotor and the end-face jumping value of the balancing ring (sleeve), which should conform the requirements in the overall assembly drawing.

3.At the end of assembly, move the rotor with hand to check if there is frictional sound, non-flexible movement etc. abnormal condition inside of the pump.



## Installation of pump

### 1. Installation steps

Generally covering the placement of the pump on the foundation, levelling, adjustment and connection of the pump's pipeline.

### 2. Facilities necessary for installation

The following common facilities and tools are required in installation :

- a. Safe lifters available with a proper loading capacity.
- b. Set a steel horn or wedge horn in every foot screw for leveling foundation.
- c. The grouting material must be a non-shrinking one and it is necessary to prepare a wood case for grouting, which has to be fitted with a hopper.
- d. To mount and remove the packing, a set of special tools is required, such as the clamp with hooks.

### 3. Pump transportation

When to transport the pump, take care of safety to prevent any accident from occurring and the following cautions :

- a. Place the hook of the lifter under the foundation or use a fork lifter, do not lift it with the hook in the pump, the prime mover and bolt holes or on the bearing, furthermore, on the pump shaft.
- b. Make the lifted load even and balanced, take care about the lifting capacity and not to let the processed fitting surface of the shaft on the pump clutch, not to let it damaged.
- c. Prohibited foreign matters or dust from getting into both pump and motor during transportation.

### 4. Unpacking and check of pump

Unpack and check, when the pump arrives, if many part is lost and if there is any damage, report it to the transporter and the pump manufacturer at once if any.

### 5. Temporary storage

If the pump is to be stored for a period of time before installation, pack it and place it on a dry, rain-proof ground with both spitting and suck-in mouths covered to prevent foreign matters in, Pay attention not to let the shaft, bearing and other precisely processed parts of the pump getting wet and coat them with a protective oil layer.



**Note : Turn the pump once per two weeks and make sure it can be turned flexibly.**

### 6. Basis for the pump

- 6.1 The basis should be a concrete one of sufficient strength and size, with the mass of it 3~5 time that of the unit one, and 50~70mm longer than of the pump foundation, plus the foot bolt holes (a steel pipe's diameter 3 ~ 4 times that of the foot bolt).
- 6.2 The job set the basis covers: locating the foot bolt hole, grouting and leave the place for the pipeline connection, effect.
- 6.3 Do not install any equipment until the basis gets completely solidified.

### 7. Movement, placement and leveling

- 7.1 Place steel and wedge horns regulating iron at the foot bolts under the pump foundation, in general, place a horn in between two bolts in case of a longer foundation.
- 7.2 Check the basis under the pump foundation and clear dust, oil and other foreign matters.
- 7.3 Place lifting hooks on the four corners of the foundation to lift it above the basis and then slowly put it on the position with the bolt holes aligned.
- 7.4 Place a knife edge flat ruler and a mechanical leveler under the processed planes of both pump and motor's foundations and use the thickness of a regulating wedge iron or pad to decide the levelness of the foundation on every respect, for which, non-flatness less than 0.25mm per 100mm is recommended, Then tighten the nut of the foot bolt to a proper extent (not over-tightened) and secure the wedge iron regulating pad.
- 7.5 Level the foundation, do not grout until it is more closely fitted with the basis.

### 8. Grout the foundation

- 8.1 Make sure the air inside of each space is completely exhausted.
- 8.2 Tighten the nut of the foot bolt when the grouted material is solidified and then coat the material with paint for water resisting.
- 8.3 After grouting, adjust both pump and motor.

### 9. Adjustment of equipment.

Covering angle and central line position adjustment, check the equipment at least in the following three periods and take adjustment : The first time, both pump and foundation are secured while the bolts on the suck-in and spitting pipeline flangers are not. The third time is in 24 hours after the pump starts running, then secure both pump and motor.

Pay attention to the following cautions in the adjustment:

- a. Before adjusting, check all pipelines to make sure they will not produce any action or moment on the pump and motor.
- b. Put the pad under the motor while to adjust both pump and motor. Angle adjustment is to guarantee the parallelism of the two planes of the clutches. Use a dial gauge to check four points on the end-face of the clutch flange, the reading on the gauge is 0.02-0.03, and use a feeler to check the parallelism, the difference (a-b) between the two planes is  $\leq 0.06$  (see Fig.5). Central line alignment means the aligned degree between the central line of both pump and motor's shafts, c should be  $\leq 0.08$  (see Fig.5).

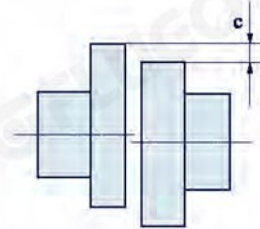


Fig.5

## 10. Link th main pipeline.

After grouting and securing the pump on the basis, algin and link flanger of both pump and pipeline without subject to an external force, i.e. the force from the flange bolt. For pipeline support (additional), it should be able to avoid the pipeline vibration and reduce the cleaning to the pipeline.

Caution in the installation of the pipeline:

- a. The pipeline used should be of a proper norm and length and a sufficient bearing capacity, reducing both bends and fittings of the pipeline as can as possible.
- b. The suck-in pipeline of the pump should be short and straight, the diameter of it should be equal or more than that of the pump's suction inlet and the bent radius of the suck-in pipeline should be made as big as possible.

## 11. Link the additional equipments

### 11.1 Pressure gauge

The pressure gauges used on both suck-in and spitting pipelines must be good quality and certified performance. It is better for the spitting pressure gauge to be mounted at the distance 2 times of the diameter of the spitting flange of pump and main pipeline while not by both elbow and valve so as to prevent the disturbance from unstable flowing,

### 11.2 Clutch

Recheck the alignment before linking the clutches of both pump and motor, check if the motor moves in the correct direction, and the pump shaft as well; viewing from the clutch, the pump moves clockwise and adjust it if the motor moves in a direction not in line with the pump's.

### 11.3 Shaft seal

Readjust or reassemble the shaft seal before the pump starts moving if necessary.

## Running of the pump

### 1. Caution in operation

- 1.1 The pump is allowed to run within the set parameter range only.
- 1.2 The pump is not allowed to run with the spitting valve closed or closed to a little opening, or it will be caused heated and duration lowered. Each pump is required to run under the special parameters so as to guarantee the flow of it if mounted in a parallel system.
- 1.3 The pump can not run with the suck-in valve closed, or it may be dried moving to cause parts damaged.
- 1.4 The medium the pump transports can not contain air or gas, or both flow and head of the pump may not be accurately measured and, meanwhile, grinding may be produced to damage parts.
- 1.5 This pump is not allowed to transport any material with grains, or both pump efficiency and part duration may be lowered.
- 1.6 Check the pump before starting it.



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- 1.6 Check the pump before starting it.

## 2. Check before starting the pump

- 2.1 Before starting the pump, check if all the bolts, pipelines and the lead-wires are securely connected.
- 2.2 Check if all the meters, valves and instruments are normal.
- 2.3 Check if the oil ring's position and the oil in the oil leveler are normal.
- 2.4 Check if the motor moves in the correct direction.
- 2.5 Turn the pump before starting it to make sure it does not get stuck.

## 3. Start the pump

### 3.1 Cautions therein

- a. The temperature of the medium this pump transports is higher ( $<160^{\circ}\text{C}$ )
- b. Look at the indications of both pressure gauge and switch during starting so as to adjust them.
- c. After starting the pump, do not let the spitting valve closed or nearly closed for a longer time, or the liquid inside of the pump may become overheated.

### 3.2 Steps to start the pump

- a. First do the before-starting check (as abovementioned).
- b. Open the pump's suck-in valve and the water sealed water pipeline's valve
- c. Close the spitting pipeline to have inside of the pump full of liquid.
- d. Start the motor and then open the valve on spitting pipeline.

## 4. Check of the pump movement

After the pump starts moving, check the meters every certain time upon the procedure in 2.2 to see if it works normally and the rotating speed of it. In addition, check the flow, head, temperature and lubrication of it. In case of a failure, stop it and repair it by referring the table of troubleshooting.

## 5. Stop the pump

- 5.1 Close the pump's spitting valve to the smallest flow, but do not close the pump's suck-in.
- 5.2 Turn off the motor's.
- 5.3 Close the pump's spitting valve.
- 5.4 Then close the suck-in valve when the pump stops stably.



**Warning : Idle running is forbidden!**

## Repair of the pump



**Turn off power before maintenance!**

### 1. General

To keep the pump is high effective and stable work, it must be often repaired, the items of repair and the interval between every repair depend on the working condition and running state of it

### 2. Maintenance of pump

Hold a periodic check of the pump's performance (as the flow, head, vibration etc) And make a record, then analyze the pump upon these recorded data to see if it works normally, needs repairing or decide which portion needs repairing. In general conditions, reliable information whether the pump needs repairing can be gained every several month provide that insistent and accurate test and records as well as periodic summarizing of the record have been made.

In addition to the monitor of the pump at the set time, the followings need to be maintained often:

- a. Check if the pump, foundation and motor are secured, causing the pump vibrated if loose.
- b. Check the leaks or loosen or gets damaged in any other forms, repair it at once if necessary.
- c. Do not let the packing gland pressed to tightly, or the duration of it may be affected.
- d. Replaced the lubricating oil on the bearings every 1000h of work.

## Failures and troubleshooting of pump

Failure	Causes	Troubleshooting
1. Pump not suck in, pointers of pressure gauge and vacuum meter severely jumping	water injected into the pump insufficient, air leaks from water inlet pipe, meters etc.	Inject water into pump, tighten the leaking places
2. Pump not suck water, high vacuum shown on vacuum meter	Foot valve not opened or blocked up, too big resistance with water sucking pipe, too high suck-in height	Correct or replace foot valve, clean or replace water sucking pipe, lower the height
3. Pressure available at pump outlet viewing from pressure gauge while no water out of pump	too big resistance with water outlet pipe, wrong rotating direction, impeller blocked up, or pump damaged, insufficient r.p.m.	Check or shorten outlet pipe, check motor, remove the pipe union, clean or replace impeller, raise r.p.m.
4. Insufficient flow	pump blocked up, too much friction with seal ring, insufficient r.p.m.	Clean pump and pipe, replace seal ring, raise r.p.m.
5. Too big power the pump consumes	Too tightly pressed packing gland, packing room heated, impeller worn out, water supply quantity of the pump increase.	Loosen packing gland or replace packing, replace impeller, increase resistance with outlet pipe to reduce the flow.
6. Abnormal sound inside of pump, no water into pump	Too big flow, too big resistance inside of water sucking pipe, too high water sucking height, air gets in the water-sucking place, to high temperature of the liquid being transported	Increase the resistance inside of water outlet pipe to reduce the flow, check water-sucking pipe and foot valve, lower the height, tighten the air leaking places
7. Pump vibrates	Axes of pump and motor not on one central line, dirt or water gets into the bearing	Align the two central lines, clean bearing, replace lubricating grease
8. Bearing overheated	Lubricating grease dried or dirty, axes of pump and motor not on one central line	Check or clean bearing, replace lubricating grease, align the central lines
9. Balancing water stops, balancing room heated, motor's power increased	Pump runs under a big flow and low head, grinding occurs between balancing disk and board	Close outlet valve to the designed working condition, remove balancing disk for repairing



#### 4. Removal of pump

##### 4.1 Cautions in the removal

- a. Stop the pump the stopping procedure in 5.
- b. Drain the liquid inside of the pump casing out (for the cooling water sleeve too if it is available).
- c. Drain out the thinned oil if it is used for lubricating the bearings.
- d. Remove the additional pipelines obstructing the removal, such as the balancing pipe, water sealed water pipe etc.
- e. Remove the if necessary to remove it).

##### 4.2 Sequence of removal

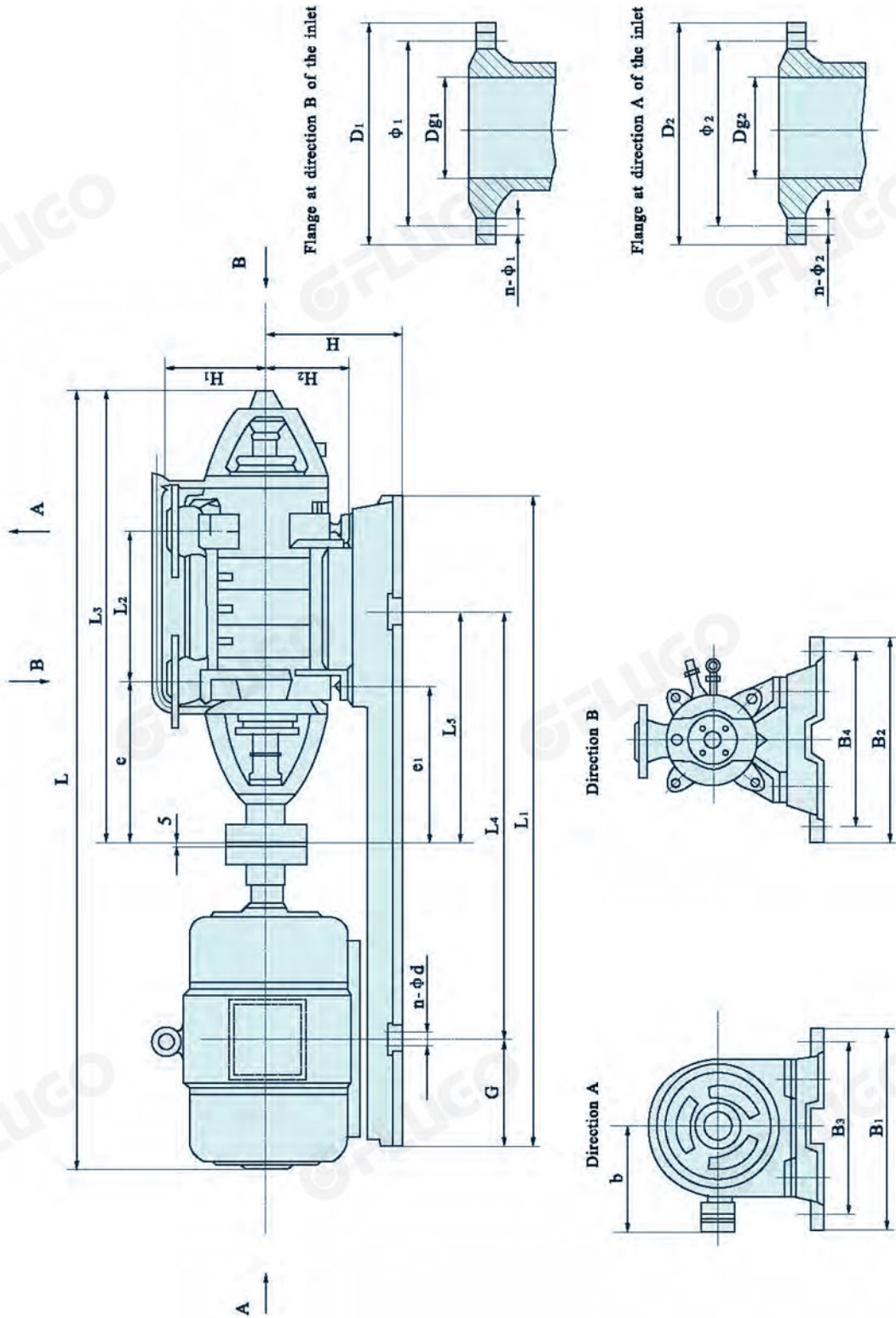
Start the pump removal from the bearing on the spitting side, the sequence comes as below:

- a. Screw out the bolts on the bearing gland on the spitting side and the linking nuts between the spitting section, packing and bearing to remove the bearing.
- b. Screw out the circular nut on the shaft, then in turn remove the inner ring of the bearing (including the packing gland, packing ring, packing etc.)
- c. Remove the O-seal ring, muff, balancing disk and key on the shaft in turn, then the spitting section (including the guide vane on the last stage, balancing board etc.)
- d. After removing the last-stage impeller and key, remove the middle section (including the guide vane), then the impeller, middle section, guide vane on the rest stages in the same way till the impeller on the first stage.
- e. Screw out the link nuts between the suck-in section and the bearing and the bolt on the bearing gland to remove the bearing (remove the pump clutch prior to this).
- f. Draw out the shaft from the suck-in section, screw out the fixing nut on it, then remove the inner ring of the bearing O-seal ring, muff, baffing sleeve etc. in turn) The removal has been finished generally, however some parts are still linked together during the removal and can be removed once the linking nuts are screwed out, in general.

#### 5. Clean and check

- 5.1 Clean all the parts with coal oil and let them dried in the air or with a cloth.
- 5.2 Check the worm-out conditions on the all parts and replace those unable to make sure of normal work.
- 5.3 Check if there is dust or rust on the shaft and use a dial gauge to check the non-straightness of it (the radial jumping valve of it not more than the 8-class accuracy).
- 5.4 Replace the sealing element when the sealing interval is over the maximum value of the recommended one by 50%.

Out-form and installation dimensions of pump





The dimension of model DG, middle and low pressure, hypo-high pressure boiler water supply pump

Model	No. of stage	Installation dimension of pump(mm)																											
		Flange at inlet										Flange at outlet																	
		L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>	e	e <sub>1</sub>	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	b	H	H <sub>1</sub>	H <sub>2</sub>	G	n-d	Dg <sub>1</sub>	φ <sub>1</sub>	D <sub>1</sub>	n-φ <sub>1</sub>	Dg <sub>2</sub>	φ <sub>2</sub>	D <sub>2</sub>	n-φ <sub>2</sub>		
DG6-25	3	1198	885	180	718	600	358			440	440	390	390	210	230			148.5											
	4	1248	985	230	768	650	408																						
	5	1298		280	818																								
	6	1350	1206	330	868	785	459																						
	7	1400		380	918			261	266																				
	8	1573	1306	430	968	835	509																						
	9	1623		480	1018																								
	10	1673	1500	530	1068																								
	11	1723	1500	580	1118	935	584																						
	12	1773		630	1168																								
	DG12-25	3	1192	965	180	695	645	355			420	420	370	370	210	250			130										
		4	1378	1120	230	745	745	403			490	410	440	360		255			170										
5		1428		280	795																								
6		1478	1215	330	845	820	458			480	410	430	360	235															
7		1528		380	895			275	275																				
8		1623	1430	430	945	920	501			530	460	480	410		270														
9		1673		480	995																								
10		1743	1490	530	1045	975	520			530	415	470	365	285	280														
11		1793		580	1095																								
12		1952	1640	630	1145	965	578			550	400	500	350	310	350														
DG25-30		3	1450	1110	230	845	760	432			530		460		255	250			165										
		4	1560	1219	295	910	850	478							285	260			180										
	5	1650	1297	360	975	880	510																						
	6	1825	1432	425	1040	970	553																						
	7	1890	1497	490	1105	1000	583			330	315	530	460																
	8	1955	1562	555	1170	1030	613																						
	9	2020	1627	620	1235	1080	663																						
	10	2120	1728	685	1300	1120	680			610		545		345	305														
	3	1520	1167	230	845	845	487			530		460		285	260			192											
	4	1690	1312	295	910	850	443																						
	5	1755	1367	360	975	910	503																						
	6	1820	1432	425	1040	935	528																						
7	1925	1532	490	1105	1010	580			330	315	530	460																	
8	2105	1694	555	1170	1110	600																							
9	2170	1759	620	1235	1140	630			664		594		385	330															
10	2305	1897	685	1300	1245	679			720		650		410	360															



The dimension of model DG, middle and low pressure, hypo-high pressure boiler water supply pump

Model	No. of stage	Installation dimension of pump(mm)																										
		L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>	e	e <sub>1</sub>	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	b	H	H <sub>1</sub>	H <sub>2</sub>	G	n-d	Dg <sub>1</sub>	D <sub>1</sub>	n-φ <sub>1</sub>	Dg <sub>2</sub>	φ <sub>2</sub>	D <sub>2</sub>	n-φ <sub>2</sub>		
DG12-50	3	1517	1230	248	852	845				490					250			250	250									
	4	1597	1310	301	905	880									280				247									
	5	1762		354	958																							
	6	1822	1650	407	1011	990																						
	7	1882		460	1064																							
	8	1982	1750	513	1117	1305		319	315				490		310	230	200		190	4-φ27								
	9	2042		566	1170																							
	10	2204	1870	619	1223	1200																						
	11	2264		672	1276																							
	12	2407	2000	725	1329	1300																						
	DG25-50	3	1615	1228	245	936	830	506								285	360			188								
		4	1780	1426	305	996	935	509		550		480				315	390			219	4-φ24							
5		1840		365	1056																							
6		1940	1517	425	1116	985	547																					
7		2115	1679	485	1176	1100	581																					
8		2245	1811	545	1236	1180	620	351	318.5																			
9		2305	1931	605	1296	1280	625																					
10		2365		665	1356																							
11		2475	2102	725	1416	1420	646																					
12		2535		785	1476																							
DG46-50		3	1720	1317	245	937	875	475.5								315	360			227								
		4	1820	1415	305	997	925	460.5																				
	5	1995	1571	365	1057	1020	535.5																					
	6	2125	1758	425	1117	1130	615.5																					
	7	2185	1758	485	1177																							
	8	2295	1869	545	1237	1180	665.5	351	318																			
	9	2575	2046	605	1297	1330	770.5																					
	10	2665		665	1357																							
	11	2765	2222	725	1427	1480	880.5																					
	12	2825		785	1477																							
	DG85-45	3	1945	1468	277	1010	1040	473																				
		4	2089	1615	351	1084	1060	505																				
5		2213	1740	425	1158	1120	549																					
6		2507	683	499	1232	303																						
7		2651	757	573	1306	377	430																					
DG155-30	8	2725	831	647	1380	415																						
	9	2799	905	721	1454	525																						
	2	2137	1550	315	1202	1060	572.5																					
	3	2322	1895	430	1317	1260	760.5																					
4	2487		545	1432		815																						



Figure of the out form and installation dimension of model DG85-67, DG155-67, DG280-43 pump

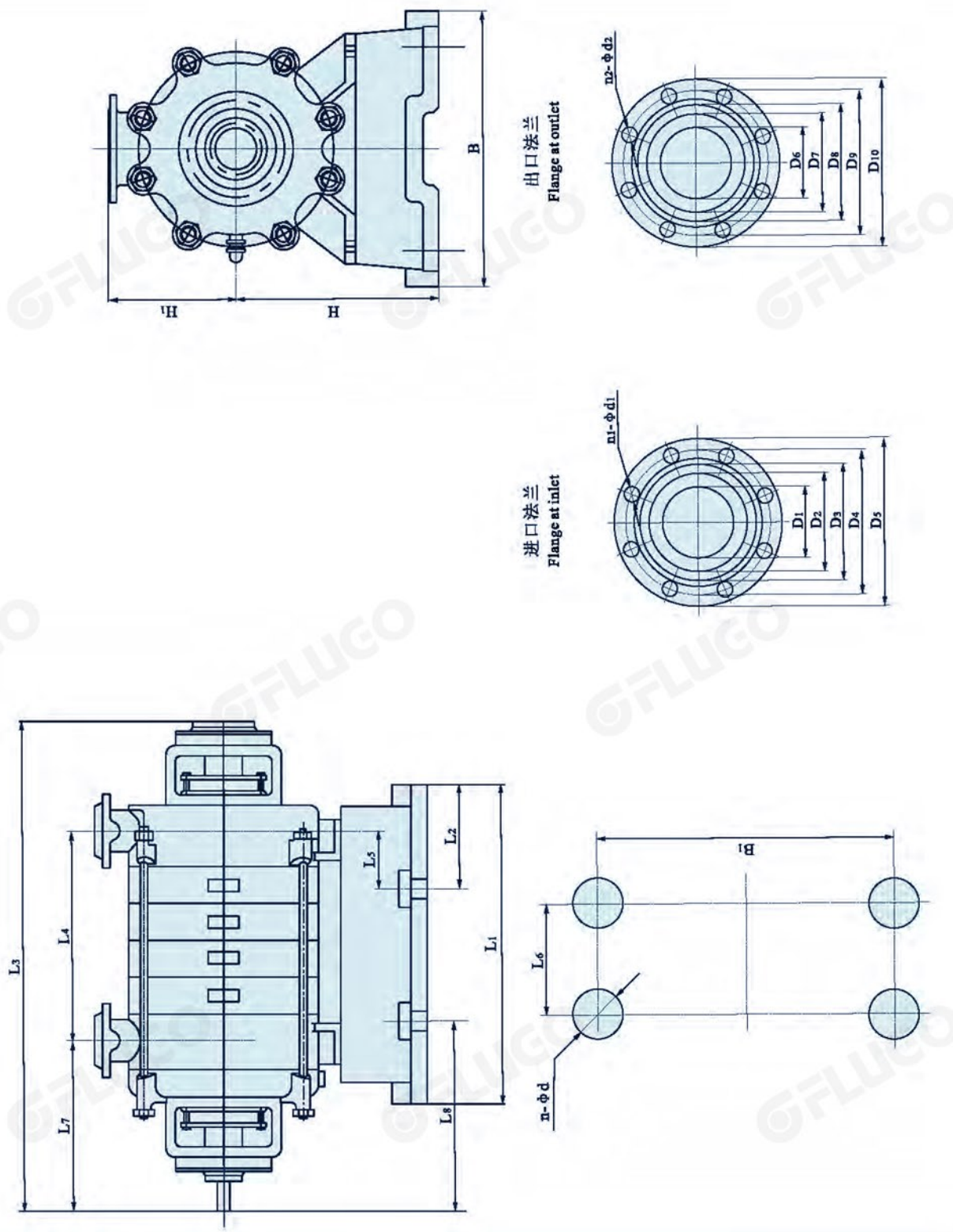
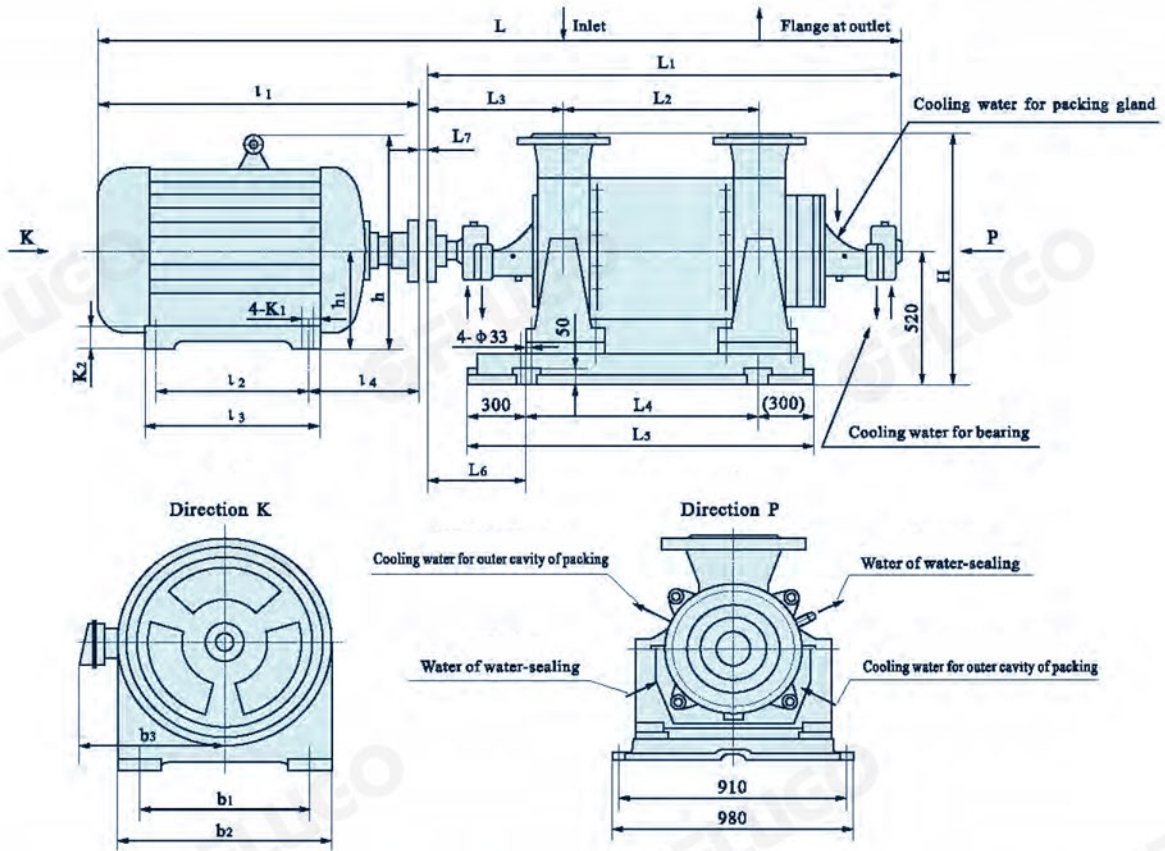


Table of the out form and installation dimension of model DG85-67, DG155-67, DG280-43 pump

Model of pump	Dimension		No. of stage																Corollary motor										
	L1	L2	L3	L4	L6	L7	L8	B	B1	H	H1	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	n-φd	n1-φd1	n2-φd2	Model	Power (kW)	Voltage (V)		
DG85-67	3	765	182	1409	371	13	400	557	541	670	600	420	350													Y280M-2	90	380	
	4	765	182	1497	459	31	400	557	585	670	600	420	350													Y315S-2	110	380	
	5	765	182	1585	547	75	400	557	629	670	600	420	350													Y315M-2	132	380	
	6	945	182	1673	635	27	580	557	585	670	600	420	350	100	149	168	200	250	100	149	168	200	250	4-φ30	8-φ24	8-φ24	Y315L1-2	160	380
	7	945	182	1761	723	71	580	557	629	670	600	420	350														Y315L2-2	200	380
	8	1125	182	1849	811	27	760	557	581	670	600	420	350														Y3551-2	220	6000
	9	1125	182	1937	899	71	760	557	625	670	600	420	350														Y3552-2	250	6000
	5	1030	175	1547	660	-50	680	435	524	670	600	430	350														Y315S-4	110	380
	6	1030	175	1662	775	7.5	680	435	524	670	600	430	350														Y315M-4	132	380
DG155-30	7	1030	175	1777	890	65	680	435	524	670	600	430	350														Y315L1-4	160	380
	8	1375	175	1892	1005	-50	1025	435	524	670	600	430	350	150	203	211	250	300	150	203	211	250	300	4-φ30	8-φ22	8-φ26	Y315L1-4	160	380
	9	1375	175	2007	1120	7.5	1025	435	524	670	600	430	350														Y315L2-4	200	380
	10	1375	175	2122	1235	65	1025	435	524	670	600	430	350														Y315L2-4	200	380
	3	765	182	1407	371	13	400	557	541	670	600	420	350														Y315M-2	132	380
	4	765	182	1495	459	31	400	557	585	670	600	420	350														Y315L2-2	200	380
	5	765	182	1583	547	75	400	557	629	670	600	420	350														Y3551-2	220	6000
	6	945	182	1671	635	27	580	557	585	670	600	420	350	150	203	242	280	345	150	203	242	280	345	4-φ30	8-φ33	8-φ33	Y3553-2	280	6000
	7	945	182	1759	723	71	580	557	629	670	600	420	350														Y3555-2	355	6000
	8	1125	182	1847	811	27	760	557	581	670	600	420	350														Y3555-2	355	6000
DG280-43	9	1125	182	1935	899	71	760	557	625	670	600	420	350														Y4001-2	450	6000
	3	605	152.5	1459	509	62.5	300	491	618.5	810	740	450	400														Y315L1-4	160	380
	4	865	182.5	1589	639	27.5	500	491	583.5	810	740	450	400														Y315L2-4	200	380
	5	865	182.5	1719	769	92.5	500	491	648.5	810	740	450	400														Y35541-4	250	6000
	6	1125	207.5	1849	899	52.5	710	491	608.5	810	740	450	400	200	265	-	295	341	200	259	282	320	375	4-φ30	12-φ23	12-φ30	Y3556-4	315	6000
	7	1125	207.5	1979	1029	117.5	710	491	673.5	810	740	450	400														Y4001-4	355	6000
	8	1385	217.5	2109	1159	62.5	950	491	618.5	810	740	450	400														Y4002-4	400	6000
	9	1385	217.5	2239	1289	127.5	950	491	683.5	810	740	450	400														Y4003-4	450	6000



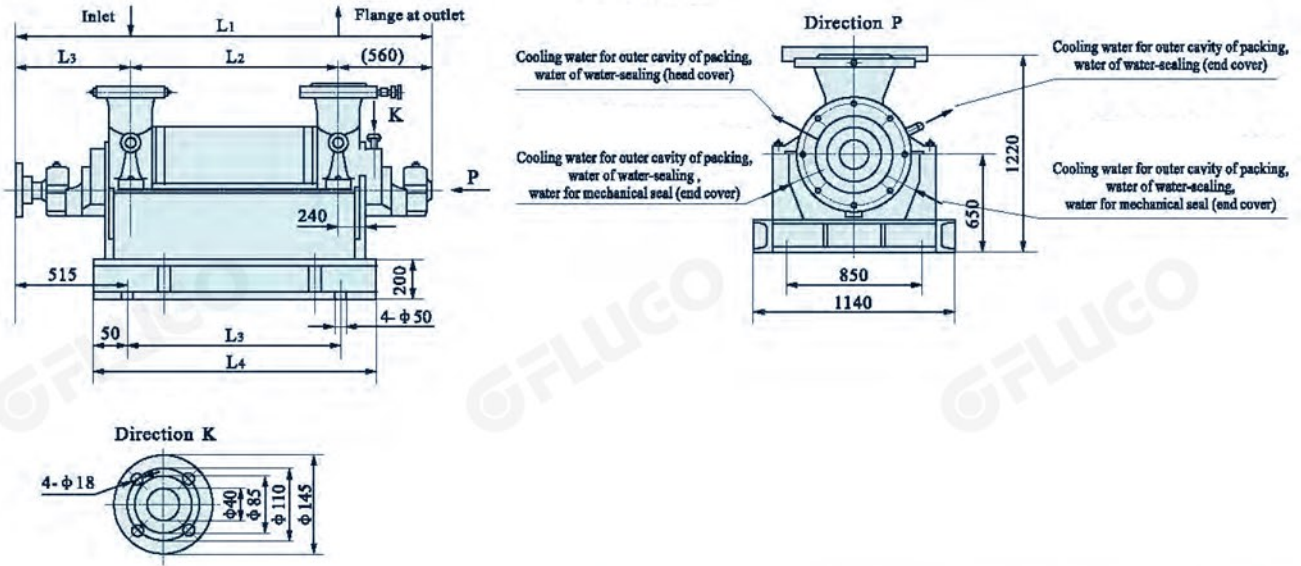
DG45-80 pump installation dimensions



DG45-80 pump installation dimensions table

Model	Total L	Pump part									Motor part									
		L1	L2	L3	L4	L5	L6	L7	H	l1	l2	l3	l4	b1	b2	b3	h	h1	K1	K2
DG25-80x5	2378	1388	449	447	432	1032	643	5	880	985	368	535	330	457	550	410	680	280	24	38
DG25-80x6	2507	1467	528	447	432	1032	643	5	880	1035	419	586	330	457	550	410	680	280	24	38
DG25-80x7	2736	1546	607	447	432	1032	643	5	880	1185	406	610	356	508	635	530	845	315	28	45
DG25-80x8	2925	1625	686	447	595	1195	643	5	880	1295	457	660	356	508	635	530	845	315	28	45
DG25-80x9	3004	1704	765	447	595	1195	643	5	880	1295	457	660	356	508	635	530	845	315	28	45
DG25-80x10	3083	1783	844	447	827	1427	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG25-80x11	3162	1862	923	447	827	1427	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG25-80x12	3241	1941	1002	447	827	1427	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x7	2846	1505	615	439	432	1032	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x8	2925	1574	694	439	595	1195	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x9	3004	1663	773	439	595	1195	643	5	880	1295	508	740	356	508	635	530	845	315	28	45
DG45-80x10	3288	1742	852	439	827	1427	643	5	880	1500	560	750	394	610	730	655	1010	355	28	52
DG45-80x11	3367	1821	931	439	827	1427	643	5	880	1500	630	750	394	610	730	655	1010	355	28	52
DG45-80x12	3446	1900	1010	439	827	1427	643	5	880	1500	630	750	394	610	730	655	1010	355	28	52

DG280-100 Installation dimensions

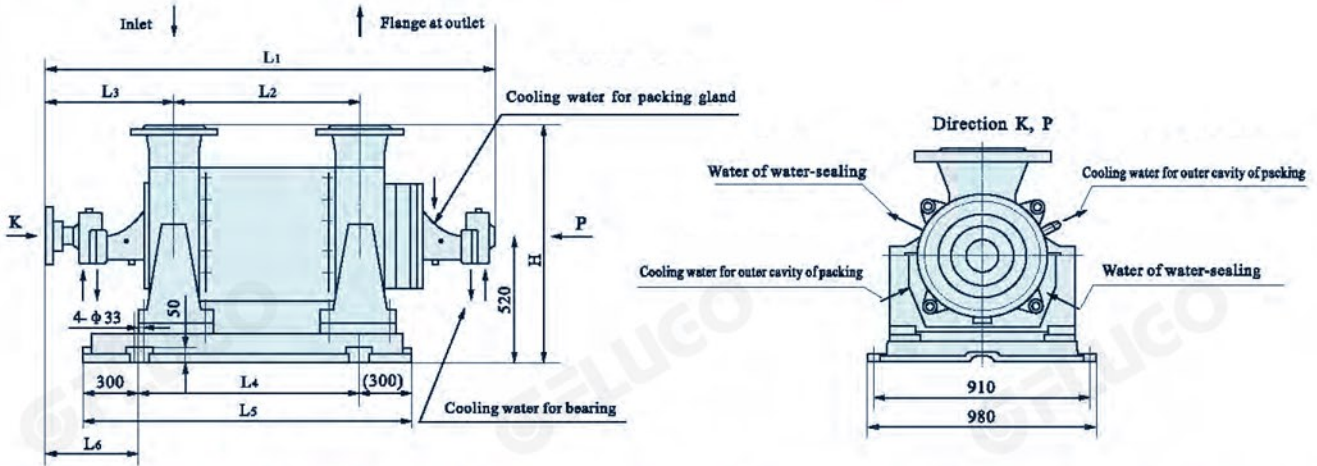


DG280-100 Installation dimensions table

Model	L1	L2	L3	L4	L5	L6	H1	H2	B1	B2
DG150-100x6	2052	795	642	1085	1185	507	650	1220	850	1140
DG150-100x7	2157	900		1190	1290					
DG150-100x8	2262	1005		1295	1395					
DG150-100x9	2367	1110		1400	1500					
DG150-100x10	2472	1215		1505	1605					
DG280-100x4	1861	600	663	930	1030	498	585	1085	870	1130
DG280-100x5	1981	720		1050	1150					
DG280-100x6	2101	840		1170	1270					
DG280-100x7	2221	960		1290	1390					
DG280-100x8	2341	1080		1410	1510					
DG280-100x9	2461	1200		1530	1630					
DG280-100x10	2581	1320		1650	1750					



**DG85-80 Installation dimensions**



**DG85-80 Installation dimensions table**

Model	L1	L2	L3	L4	L5	L6	H1	H2	B1	B2
DG85-80x7	1700	630	543	432	1032	643	520	880	910	980
DG85-80x8	1780	710		595	1195					
DG85-80x9	1860	790		827	1427					
DG85-80x10	1940	870								
DG85-80x11	2020	950								
DG85-80x12	2100	1030								

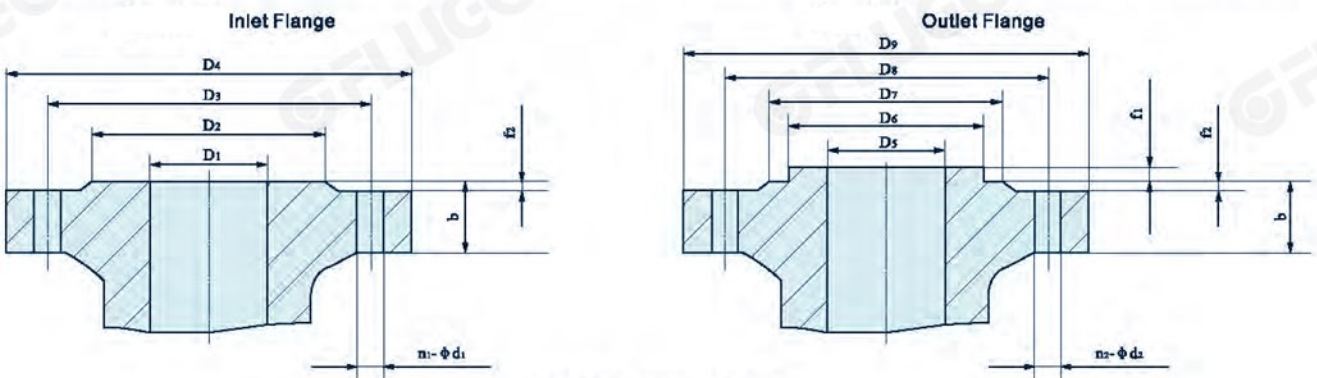


Figure of the inlet and outlet flange dimensions

**Flange dimensions table**

	Inlet Flange							Outlet Flange								
	D1	D2	D3	D4	f2	b	n1-φd1	D5	D6	D7	D8	D9	f1	f2	b	n2-φd2
DG25-80	65	118	145	185	3	20	4-φ18	65	110	138	170	220	4	3	32	8-φ25
DG45-80	80	135	160	195	3	22	8-φ18	65	109	138	170	220	4	3	32	8-φ25
DG85-80	100	155	180	220	3	22	8-φ18	100	149	172	210	265	4	3	38	8-φ30
DG150-100	200	278	310	360	3	36	12-φ25	150	203	250	290	350	4.5	4.5	50.5	12-φ34
DG280-100	200	278	310	360	3	36	12-φ26	150	203	250	290	355	4.5	3	50	12-φ33

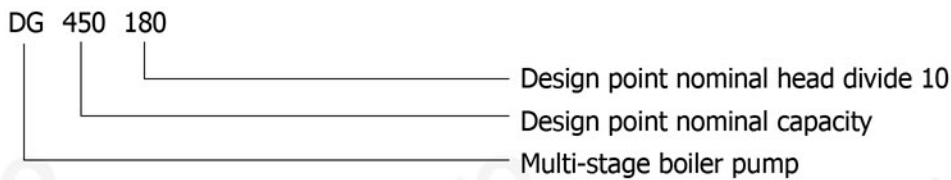
DG TYPE HIGH-PRESURE BOILER WATER FEED PUMP

**Application**

Type DG high pressure boiler feed pumps are used for feeding high pressure boiler or pumping high pressure clean water. The temperature of pumped media is not more than 170°C.

Range of capacity: 120-1100m<sup>3</sup>/h  
 range of total head: 967 to 2500m

**Model Meaning**



**Construction**

- 1.The pumps are sectional casing, multi-stage centrifugal pumps. The suction casing, stage casing and discharge casings are rigidly held together by tie bolts. The joints between these casings are primarily sealed by means of metal-metal contact. Simultaneously, O-rings are used as auxiliary seals.
- 2.The shaft of these pumps are sealed by soft-packing and cooling water. Mechanical seal can be used according to the client's requirement.
- 3.The rotating assembly is supported by sliding bearings on both ends of the pump shaft. Bearings of pump are forced lubricated. The oil system is equipped for type DG pump. The axial thrust of rotor is balanced by disc. And the thrust bearing is also provided which is used to bear residual axial force caused by the change of working conditions.



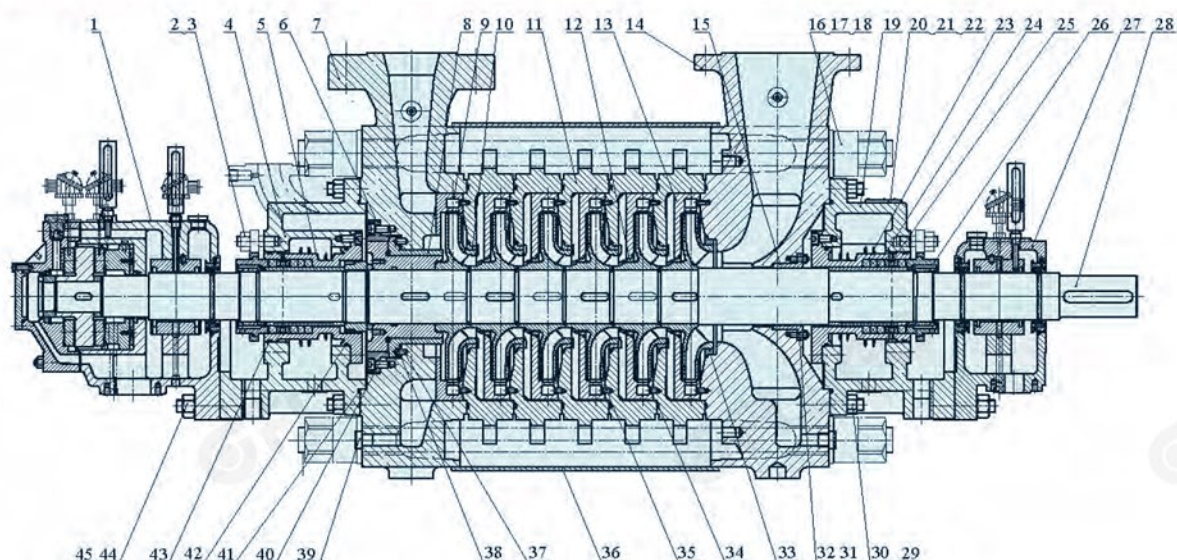
### Drive

The pump is driven by the motor through the coupling. The gear, membrane coupling and hydraulic coupling can be used according to client's requirements. The pump can be driven by turbine or motor. The rotating direction of pumps are lockwise when viewed from the driving end.

### Material

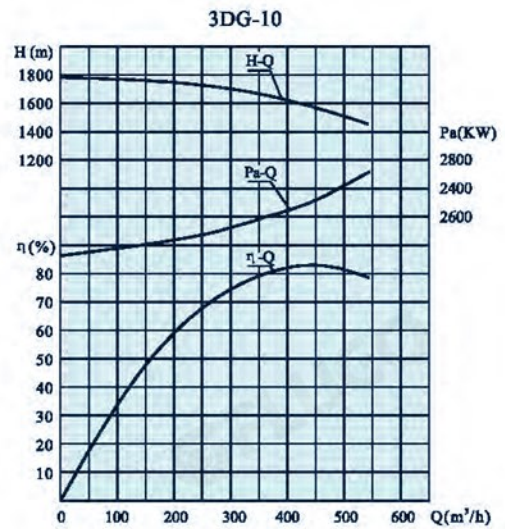
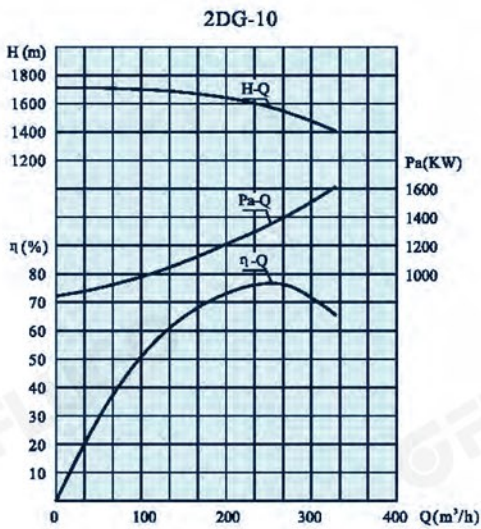
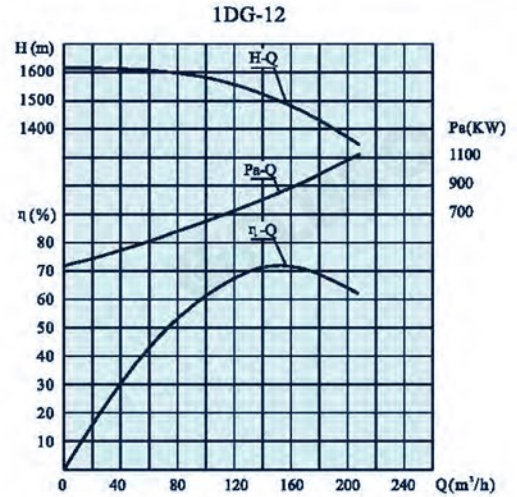
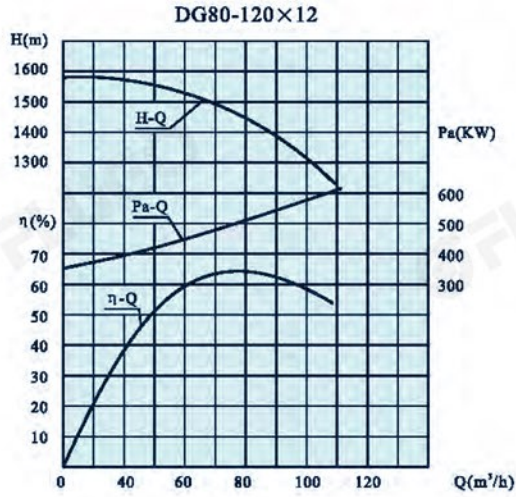
Suction casing, discharge casing, diffuser, and impeller :  
 Carbon steel or chrome steel shaft, wear ring and diffuser bush :  
 Chromic alum steel or chrome steel.

### Standard construction of type DG pumps



1	Rear bearing part	13	Guide vane	25	Packing ring	37	O-seal ring
2	Stud	14	Suck-in section	26	Packing gland part	38	Pin
3	Nut	15	Bush of water inlet section	27	First bearing part	39	Wire-jam
4	Tail cover	16	Through handspike	28	Rotor part	40	Screw
5	Bush of tail cover	17	Nut	29	Stud	41	O-seal ring
6	Press-ring of balancing sleeve	18	Washer	30	Nut	42	O-seal ring
7	Spitting section	19	Head cover	31	Stud	43	O-seal ring
8	Balancing sleeve	20	Label	32	Nut	44	Stud
9	End-section guide vane	21	Rotating direction plate	33	Suck-in section seal-ring	45	Nut
10	Mid-section seal-ring	22	Rivet	34	O-seal ring		
11	Mid-section	23	Bush of head cover	35	Screw		
12	Guide vane sleeve	24	Packing	36	Pump cover part		

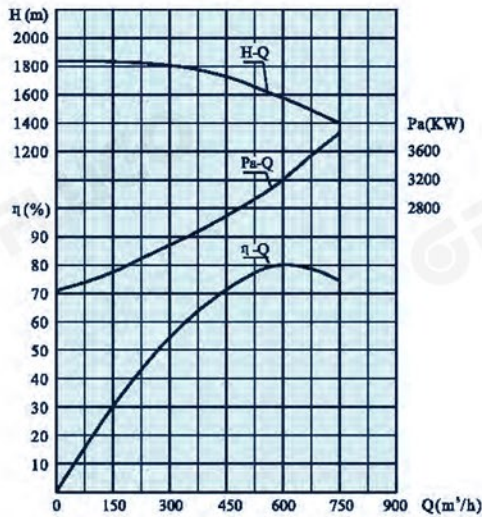
Performance Curve Figures



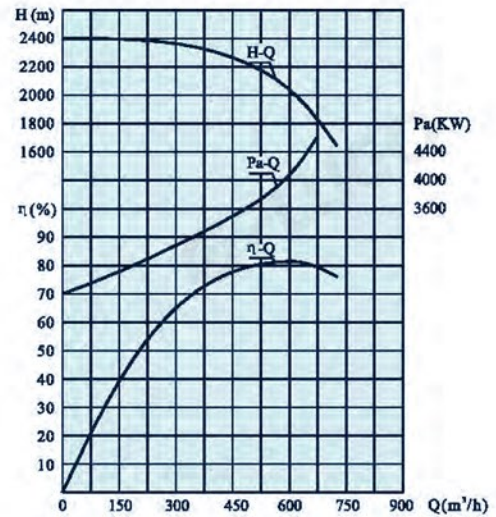


Performance Curve Figures

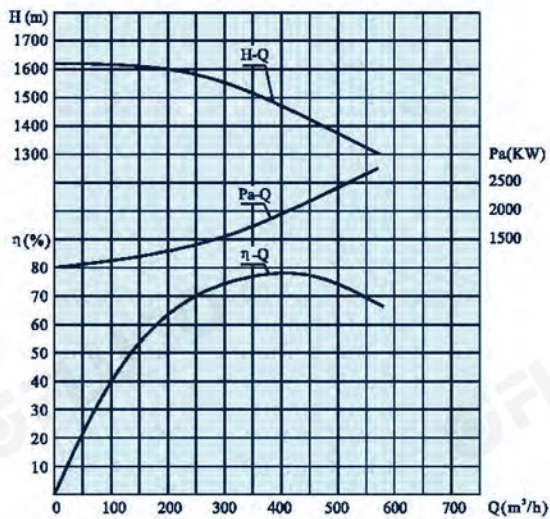
4DG-8C



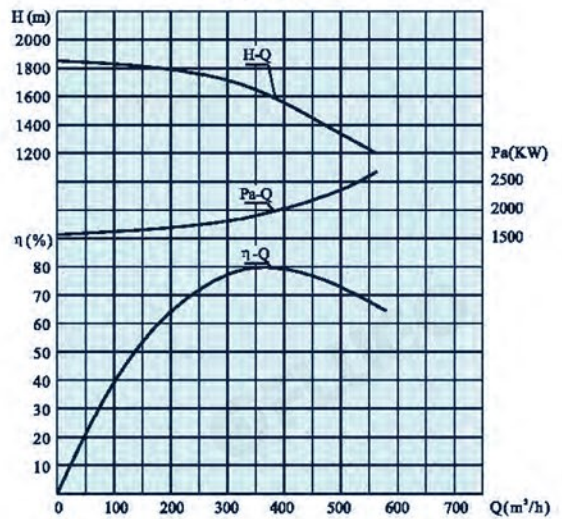
5DG-10



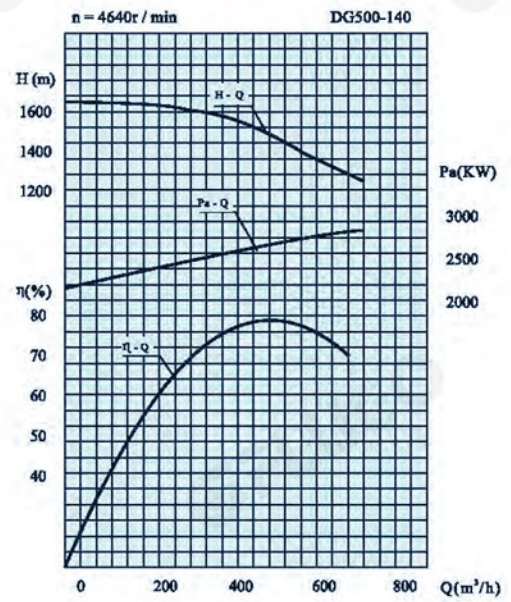
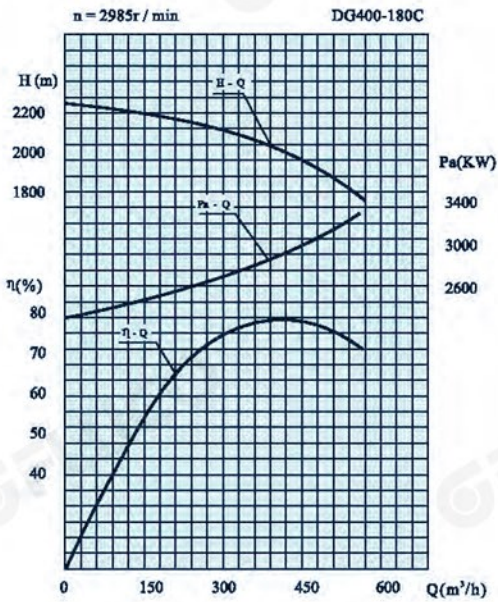
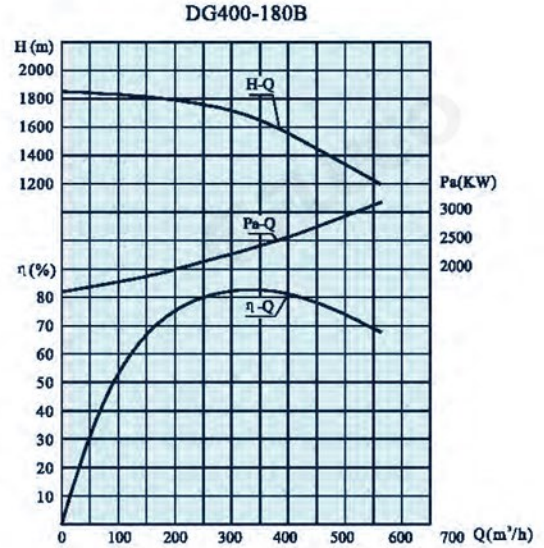
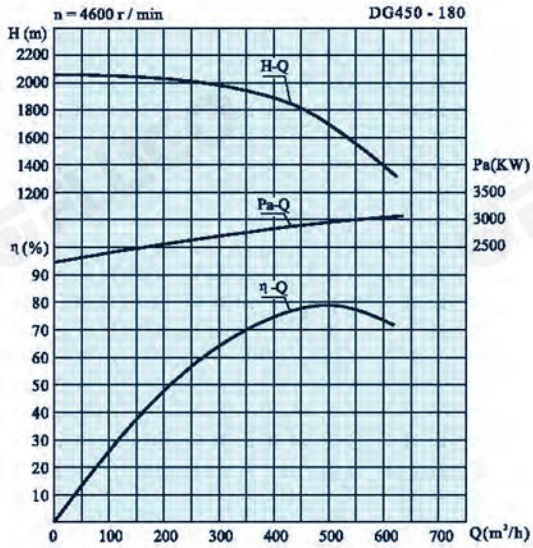
DG270-140B



DG270-140C

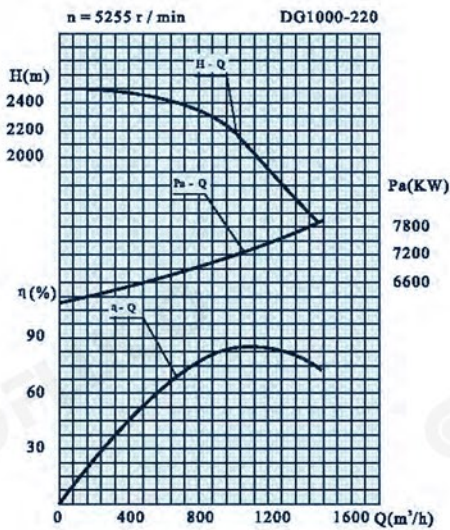
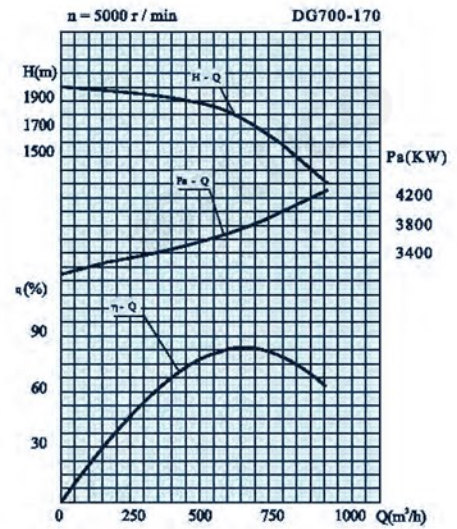
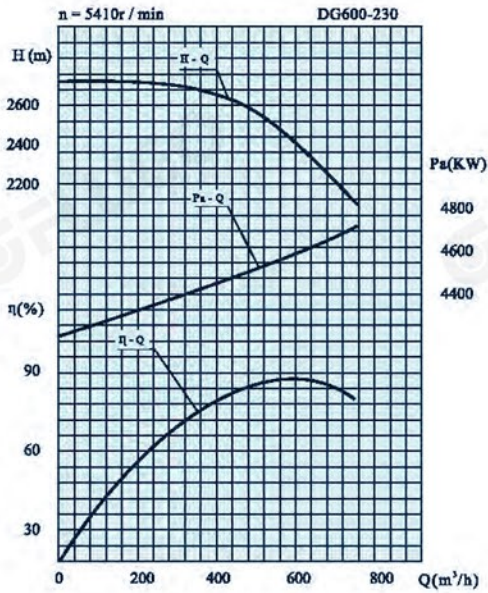


Performance Curve Figures





Performance Curve Figures



DG type high pressure boiler feed pumps performance

Type	Q (m3/h)	H (m)	n (r/min)	Pa (kW)	η (%)	(NPSH) <sub>r</sub> (m)	N (kW)
DG80-120X9	56	1143	2980	329	53	3.8	500
	80	1080		380	62		
	96	1017		397	67		
DG80-120X10	56	1270	2980	365	53	3.8	560
	80	1200		422	62		
	96	1130		441	67		
DG80-120X11	56	1397	2980	402	53	3.8	560
	80	1320		464	62		
	96	1243		485	67		
DG80-120X12	56	1524	2980	438	53	3.8	630
	80	1440		506.4	62		
	96	1356		529.2	67		
1DG-8	120	1040	2980	500	68	4.5	710
	140	1027		544	75		
	170	967		631	71		
1DG-9	120	1170	2980	563	68	4.5	800
	140	1155		612	72		
	170	1088		710	71		
1DG-10	120	1300	2980	625	68	4.5	800
	140	1283		680	72		
	170	1208		788	71		
1DG-11	120	1430	2980	688	68	4.5	1000
	140	1412		748	72		
	170	1330		867	71		
1DG-12	120	1560	2980	750	68	4.5	1000
	140	1540		816	72		
	170	1450		946	71		
2DG-8	200	1344	2980	990	74	5	1400
	270	1213		1189	75		
	280	1184		1221	74		
2DG-9	200	1512	2980	1114	74	5	1600
	270	1363		1337	75		
	280	1330		1371	74		
2DG-10	200	1680	2980	1237	74	5	1600
	270	1515		1486	75		
	280	1480		1524	74		

Type	Q (m3/h)	H (m)	n (r/min)	Pa (kW)	η (%)	(NPSH) <sub>r</sub> (m)	N (kW)
3DG-10	360	1660	2985	2033	80.1	8	2500
	440	1560		2270	82.4		
	496	1470		2453	81		
4DG-8C	500	1670	2985	2953	77	10	3400
	550	1630		3090	79		
	600	1580		3227	80		
5DG-10	500	2210	2987	3764	80	10	4800
	572	2150		4087	82		
	620	2100		4327	82		
DG270-140B	270	1570	2985	1560	74	5	2300
	320	1500		1721	76		
	440	1422		2186	78		
DG270-140C	270	1750	2985	1705	75.5	5	2300
	320	1610		1999	79		
	440	1460		2244	78		
DG400-180B	245	1940	4640	2279	80	12	3200
	385	1910		2444	82		
	415	1800		2513	81		
DG400-180C	400	1975	2985	2778	77	12	4000
	450	1900		2949	79		
	500	1815		3131	79		
DG450-180	400	1920	4640	2790	75	23.5	3200
	450	1825		2869	78		
	500	1700		2932	79		
DG500-140	450	1540	4640	2518	75	23.5	3200
	504	1470		2588	78		
	550	1400		2656	79		
DG600-230	540	2500	5410	4486	82	23.5	4800
	597	2380		4557	85		
	650	2260		4655	86		
DG700-170	600	1810	5000	3699	80	23.5	4500
	671	1730		3811	83		
	740	1640		3937	84		
DG1000-220	900	2320	5255	6939	82	23.5	8000
	1014	2213		7194	85		
	1100	2100		7319	86		

- Note: 1. The above performance parameter table is made by converting the test with water temperature at 20 C.  
 2. It is not allowed for the pump to run when the minimum flow is less than the rated one by 30%  
 3. The performance of other stages shall be calculated per proportion.



### Range of completed supply

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The completed supply of steam-powered water supply pump group includes:

- Its inlet filtering pre-pump (upon the real requirement) and water supply pumps.
- Actuating motor for the pre-pump, motor and prepump mutually used foundation
- Check valve at the outlet of the water supply pump
- Minimum flow device: includes recycling valve, stop valve and flow measurer
- Clutch and other accessories
- Oil thinning station

The complete supply of electric water supply pump group includes:

- Water supply pump, pre-pump and its inlet filtering screen
- Motor
- Hydraulic coupler and oil cooler for both working and lubricating oils
- Check valve at the outlet of the water supply pump
- Minimum flow device : includes recycling valve, stop valve and flow measurer
- Clutch and other accessories
- Oil thinning station

Of which the motor, recycling valve, hydraulic coupler, oil thinning station, check valve, pre-pump, stop valve and flow measurer can also be purchased by clients and this Co. will be in charge of technical coordination.

### Notice at order

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Please provide the following parameters when to order the product of this Co:

Flows at the outlet water supply pump and the tap (boosting class). Pressures (or the pump group's head) at the outlet of the water supply pump and the inlet of the pre-pump water supply temperature pump group's type (steam-powered or electric pump) The installation dimensions are to be provide at order upon the requirement.



DG SERIES BOILER WATER SUPPLY PUMP

*Authorized Distributor*