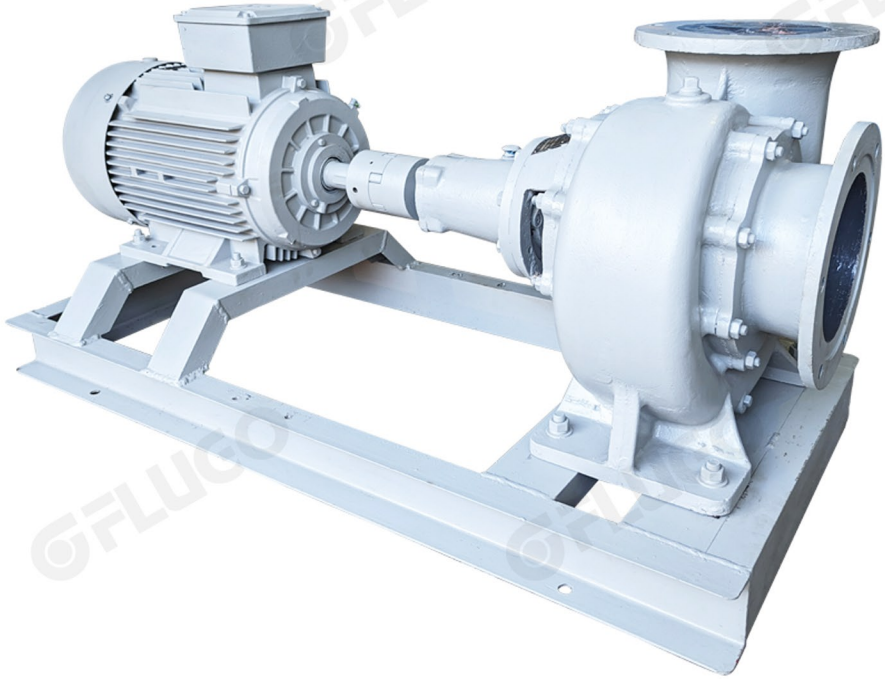
FLUGO

Technical Catalogue



HW Series

Axial-Flow Pump

Overview

1. Use:

The HW-S type mixed flow pump is a horizontal, single-stage, single-suction, front and rear door opening structure, cantilevered mixed flow pump.Suitable for conveying clean water or physical and chemical properties, for other liquids with a quality similar to water, the temperature of the transported liquid should not be higher than 50°C. Widely used in farmland drainage and irrigation, industrial and urban water supply and drainage, etc.

Kind of occasion.

Performance range of HW-S type mixed flow pump:

Flow rate: 50~4500 meters 3/hour

Head: 3-20 meters

2. Characteristics:

It has a simple structure, reliable use, easy assembly and disassembly, small body shape, light weight, large flow rate and high efficiency.

3. Transmission method:

There are two types of direct drive and belt drive.The commonly used power engines are electric motors and diesel engines. When ordering, the model of the power engine (power, rpm) should be indicated. Speed in order to determine the specifications of the pulley or coupling.

4. Water pump steering:

From the inlet of the water pump, the impeller rotates counterclockwise (650HW-7S rotates clockwise).

5. Model description: Take 300HW-7S as an example:

300-pump diameter, outlet diameter.Unit: mm

HW-horizontal shell-and-tube mixed flow pump.

7-Design head.Unit: meters

S-structure formation (front and rear door opening structure).

6. Adopt standards

The HW-S pump adopts GB/T13008 and JB/T6667 standards for design, manufacturing and acceptance.

Structure and use

1. HW-S type mixed flow pump is mainly composed of main parts such as pump cover, impeller, pump body, pump shaft, bushing, packing seat and bearing body (bearing frame). It adopts the structural form of front and rear door opening (see Figures 1, 2, and 3).

2. The pump cover is in contact with the pump body and the inlet pipe respectively.There should be an appropriate gap between the plane of the pump cover and the plane of the impeller.The gap is too small, which is easy to cause friction;

If the gap is too large, it will cause a large amount of pressure water in the pump body to return, which will reduce the efficiency of the pump.The suitable clearance for actual use is 0.3~0.7mm (the pump shaft push to the inlet end of the pump to measure), the gap can be adjusted by increasing or decreasing the thickness of the paper pad.

3. The shaft package device adopts a skeleton oil seal for 100HW~150HW, and a packing seal structure for 200HW~650HW.Its role is to prevent air absorption Into the pump and prevent water from flowing out of the pump too much along the shaft.
4. The shaft should be applied to protect the pump shaft, and it can be replaced in time after wear.
5. The pump shaft is supported by a single-row centripetal ball bearing.Bearings can be lubricated with lubricating oil, and the amount of oil should be controlled between the marking of the oil benchmark, and grease can also be used. Lubrication-can be added when assembling the water pump, and can be supplemented by disassembling and assembling the front and back covers during use.
6. The screw hole at the upper end of the pump body is used for filling and diverting water or connecting the vacuum pump for pumping and diverting water, and the screw hole at the lower end is used for discharging water.
7. In order to expand the scope of use of the pump and meet the different requirements of users, impellers with different properties can be replaced.
8. The accessories of the 150-350HW-S type pump include inlet and outlet fixed bending, movable bending, bottom valve, pulley or coupling, and 400~650HW-S type pump. The accessories include inlet and outlet fixed bends, check valves, pulleys or couplings for users to use.
9. The bearing model and shaft seal specifications of the HW-S pump are shown in Table 1.

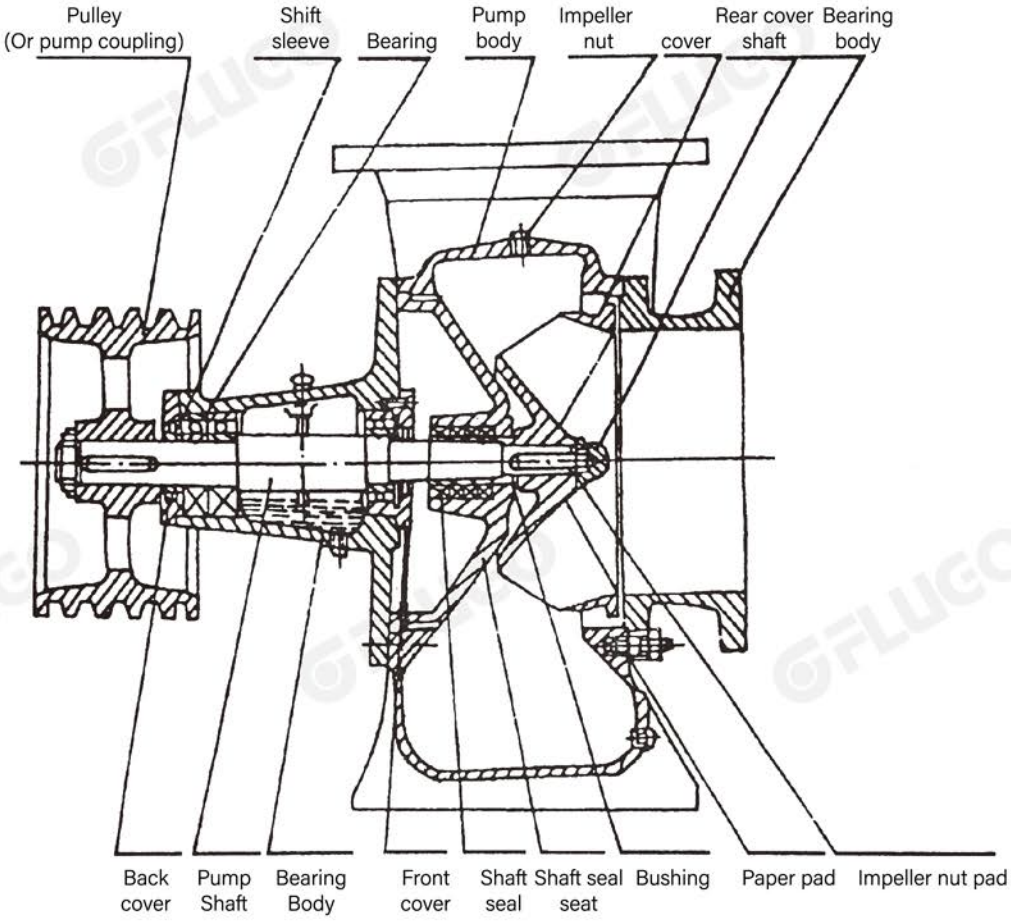


Figure 1. Structure diagram of 100~150HW type mixed flow pump

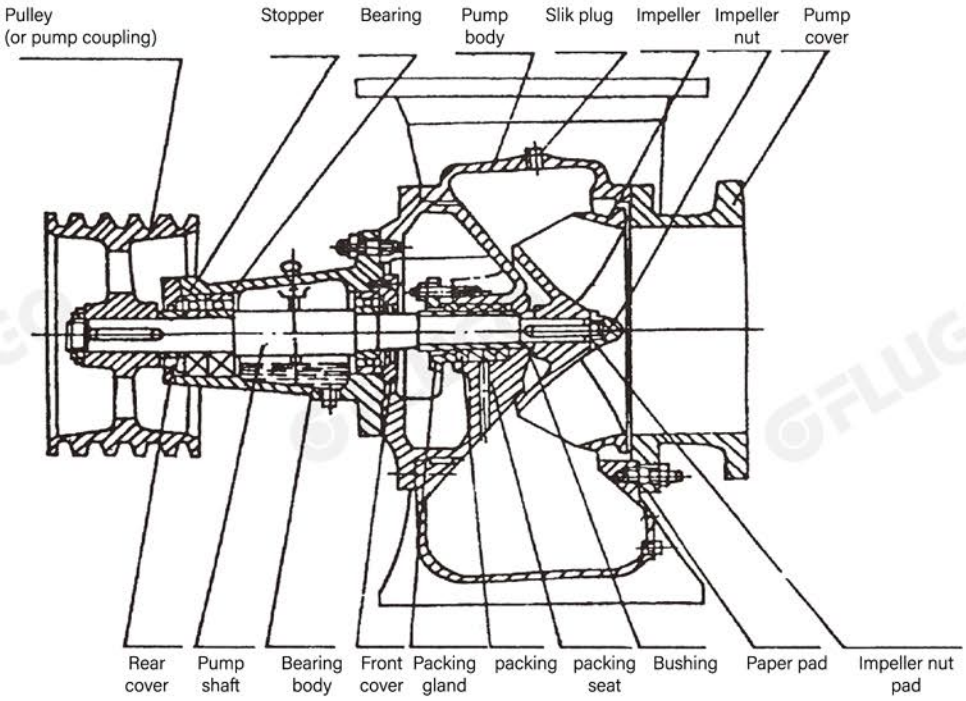


Figure 2. Structural diagram of 200~350HW mixed pump

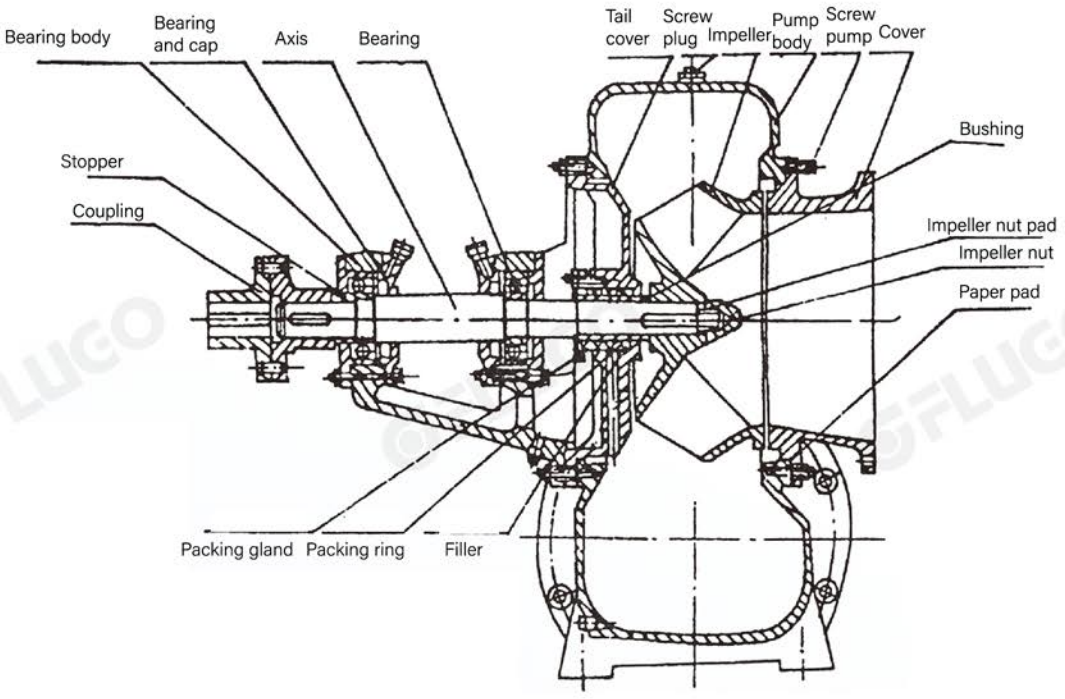


Figure 3. Structural diagram of 400~650HW mixed flow pump

Table 1. Bearing and shaft seal specifications of HW-S type mixed flow pump

Water pump model	Bearing model	Shaft seal specifications
100HW	305	PD30 × 55 × 12 skeleton oil seal
150HW	306	PD35 × 60 × 12 skeleton oil seal
200HW	308	10 × 10 × 188 asbestos packing
250HW	309	13 × 13 × 229 asbestos packing
300HW 350HW	311	13 × 13 × 229 asbestos packing
400HW	312	13 × 13 × 261 asbestos packing
500HW	314	15 × 15 × 298 asbestos packing
650HW	46322	20 × 20 × 420 asbestos packing

Conversion of main technical parameters

1. Pump performance transformation:

(1) Changing the speed of the pump can change the performance of the pump and expand the scope of use of the pump.

(2) Method of changing the speed: change the outer diameter of the pulley or change the transmission ratio of the gear reducer, you can also choose a power machine with different speeds.

(3) After the speed of the water pump changes, the relationship between the flow rate (Q), head (H) and power (N) is shown in the following formula:

$$Q_1=Q\frac{n_1}{n} \qquad H_1=H(\frac{n_1}{n})^2 \qquad N_1=N(\frac{n_1}{n})^3$$

Where: Q4, H4, and N4 represent the flow rate, head, and power after the speed is changed.
Q, H, and N represent the flow rate, head, and power at the specified speed.

(4) After the speed of the water pump is increased, the power consumption increases, the degree of vacuum absorbed decreases, and the life is shortened.Excessive increase in speed will cause other accidents, so should be used with caution.

(5) When the speed of the water pump is too low, the efficiency of the pump is low. For this reason, the pump should be avoided as much as possible at low speeds. Users should choose to use it according to the performance graph.

2. The conversion relationship between the allowable suction degree of vacuum [Hs] and the necessary gas-oil margin [NPSH]r:
[Hs] and the necessary gas-oil margin [NPSH]r:
[Hs]~ 10-[HPSH]c
[NPSH]r= [NPSH]c+0.3

Where: [Hs] - The degree of vacuum allowed to be sucked up
[NPSH]c - Critical cavitation margin
[NPSH]r - Required cavitation margin

Performance Parameter Table

Model	Speed n (r/min)	Flow (m^3/h)	Flow l/s	Lift H (m)	Efficiency η (%)	Power Shaft Power (KW)	Power Equipped (HP/KW)	Critical (NPSH)c (m)	Weight (kg)
100HW-8S (4HBC-35)	2900	68	19	9.6	80	2.42	4/3	4.0	30
		90	25	8.0					
		108	30	6.0					
150HW-5S (6HBC-35)	1450	137	38	6.1	80.5	3.0	5/4	3.0	65
		180	50	5.0					
		216	60	3.7					
	1850	175	49	10	80.5	6.3	12/7.5	3.5	
		230	64	8.2					
		276	76	6.1					
150HW-8S (6HBC-25)	1450	137	38	8.7	82	4.78	8/5.5	2.7	60
		180	50	8.0					
		216	60	6.8					
150HW-12S (6HBC-35T)	2900	137	38	15.3	82	7.47	12/11	6.0	60
		180	50	12.5					
		216	60	9.7					
200HW-4S (8HBC-40)	1060	300	83	5	81	4.6	8/5.5	4.0	
		340	95	4					
		420	117	3					
200HW-5S (8HBC-50)	1160	250	69	6.7	81.5	6.01	12/7.5	4.0	
		360	100	5					
		440	122	4					
200HW-5 (8HBC-50)	1450	240	67	6.8	81.5	6.01	12/7.5	4.0	110
		360	100	5.0					
		445	124	3.9					
200HW-8S (8HBC-35)	1360	250	70	8.5	82	7.9	12/10	4.0	
		340	95	7.1					
		405	112	5.3					
	1450	270	75	9.6	82	9.6	15/11	4.0	
		360	100	8.0					
		432	120	6.0					
200HW-12S (8HBC-25)	1450	270	75	13.5	83.5	14.68	25/18.5	4.0	105
		360	100	12.5					
		432	120	10.8					
250HW-4S (10HBC-40)	980	400	111	4.0	82.5	6.3	12/7.5	4.0	
		450	125	4.2					
		480	133	3.5					
250HW-5S (10HBC-50)	1110	450	125	7.0	84	8.8	15/11	4.0	165
		540	150	5.0					
		650	180	4.1					

Model	Speed n (r/min)	Flow (m³/h)	Flow l/s	Lift H (m)	Efficiency η (%)	Power Shaft Power (KW)	Power Equipped (HP/KW)	Critical (NPSH)c (m)	Weight (kg)
250HW–5 (10HBC–50)	1180	440	112	6.8	81	9.1	15/11	4.0	
		540	150	5					
		660	183	4					
250HW–7S (10HBC–30)	870	355	98	6.5	83	7.4	12/11	4.0	165
		400	111	5.5					
		450	125	5.0					
	980	400	111	8.0	83	10.5	20/15	4.0	
		450	125	7.0					
		500	139	6.3					
250HW–8S (10HBC–45)	1100	460	128	9.1	84.5	13.9	25/18.5	4.0	170
		540	150	8					
		660	183	5					
250HW–8 (10HBC–45)	1180	450	125	9	84	14	25/18.5	4.0	170
		540	150	8.0					
		670	186	4.9					
250HW–12S (10HBC–25)	1180	500	139	14.6	84	24.4	40/30	4.0	165
		600	167	12.5					
		710	197	9.8					
300HW–4S (12HBC–50)	780	650	180	5.4	83.5	9.4	15/11	4.0	
		710	197	4					
		810	225	3					
300HW–5S (12HBC–45)	870	660	183	5.6	84	12.8	25/18.5	4.0	
		792	220	5.0					
		900	250	4					
300HW–5 (12HBC–45)	980	650	180	5.5	84	12.8	25/18.5	4.0	195
		792	220	5.0					
		890	247	3.9					
300HW–7S (12HBC–40)	730	508	141	4.5	84	7.3	12/11	4.0	
		585	163	3.9					
		723	201	2.8					
	980	680	189	8.0	84	17.7	30/22	4.0	
		780	216	7.0					
		910	252	5.0					
300HW–8S (12HBC–40T)	970	660	183	9.1	85	20.3	30/22	4.0	200
		792	220	8					
		900	250	6.5					
300HW–12 (12HBC–25)	970	670	186	14.4	85	31.8	50/37	4.0	200
		792	220	12.5					
		910	253	10.1					

Model	Speed n (r/min)	Flow (m³/h)	Flow l/s	Lift H (m)	Efficiency η (%)	Power Shaft Power (KW)	Power Equipped (HP/KW)	Critical (NPSH)c (m)	Weight (kg)
350HW-4S (14HBC-50)	980	900	250	5.1	85	16.6	30/22	4.5	330
		1000	278	4.3					
		1180	328	3.5					
350HW-8S (14HBC-40)	730	670	186	5.2	85.5	10.5	20/15	4.5	330
		745	207	4.4					
		819	228	3.7					
	980	900	250	9.4	85.5	25.5	40/30	4.5	
		1000	278	8.0					
		1100	306	6.7					
400HW-7S (16HBC-40)	730	1080	300	7.8	86	28.1	40/30	5	550
		1260	350	6.8					
		1368	380	6.2					
	980	1450	403	14.1	86	66.0	100/75	5.5	
		1692	470	12.3					
		1836	510	11.2					
400HW-10S (16HBC-30)	730	1098	305	11.5	86	44.5	66/55	5	560
		1400	390	10.0					
		1720	478	7.55					
	980	1470	410	20.7	86	106	165/110	5.5	
		1880	520	18.0					
		2300	640	13.6					
500HW-6S (20HBC-40)	580	1690	469	7.6	86	38.9	60/45	5.5	790
		1980	550	6.2					
		2180	606	5.3					
	730	2127	591	12.0	86	77.3	120/95	6.0	
		2492	692	9.8					
		2744	762	8.4					
650HW-7S (26HBC-40)	450	3060	850	7.4	90	68	120/90	5.5	1800
		3400	944	6.5					
		3960	1100	5.0					
	590	4014	1115	12.7	90	152	220/180	6.0	
		4457	1238	11.2					
		5193	1442	8.6					
650HW-10S (26HBC-30)	490	2658	738	10.9	89	98.6	150/115	5.5	1800
		3322	923	9.7					
		4153	1154	8.6					
	590	3200	889	15.8	89	171	250/180	5.5	
		4000	1111	14					
		5000	1389	10.4					

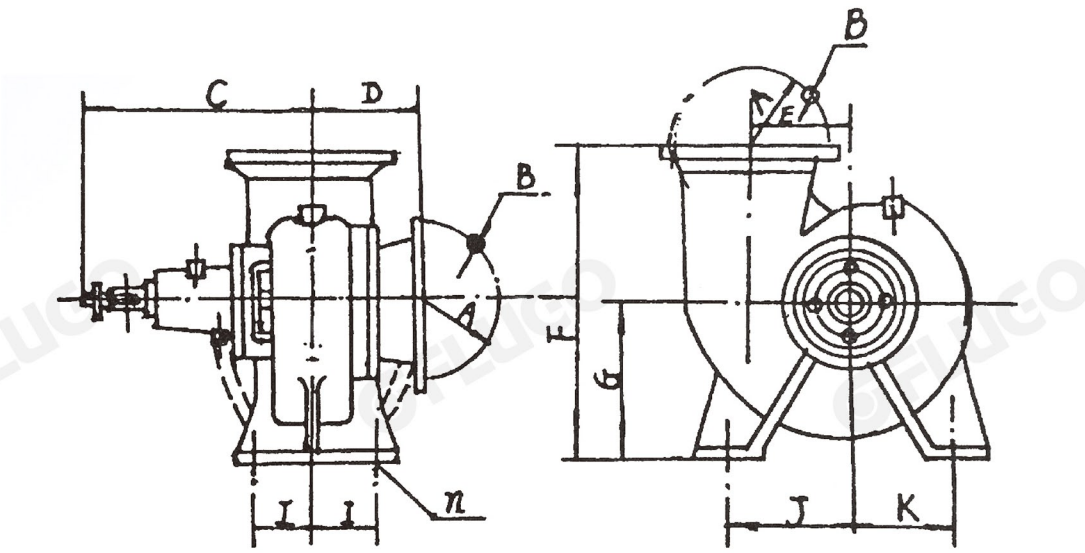


Figure 4 Installation diagram of the upper outlet of the 100-350HW mixed flow pump

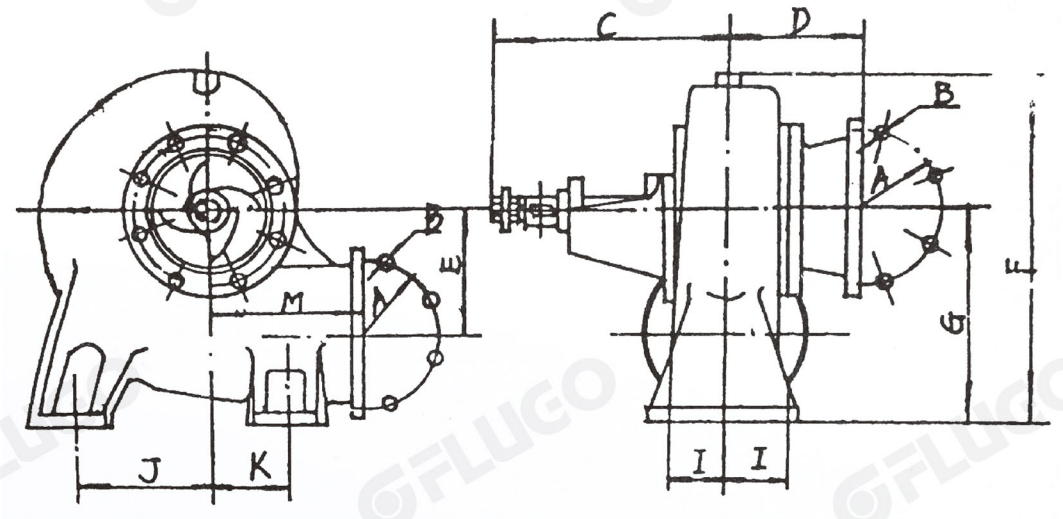


Figure 5 Installation diagram of the upper outlet of the 350-650HW mixed flow pump
(The outlet direction and impeller steering of the 650HW pump are opposite to the figure)

Table 2 HW type pump shape and installation size table

Model	A	B	C	D	E	F	G	I	J	K	n	H
100HW	ϕ160	6–ϕ12.5	230	170	99	280	140	45	110	80	4–ϕ14.5	/
150HW	ϕ210	6–ϕ13.5	270	150	148	380	195	78	154	92	4–ϕ18.5	/
200HW	ϕ270	6–ϕ17.5	470	188	193.5	500	265	100	220	150	4–ϕ18.5	/
250HW	ϕ320	8–ϕ18	544	250	232	583	295	123	262	164	4–ϕ18	/
300HW	ϕ380	8–ϕ18	646	236	282	710	360	150	320	200	4–ϕ23	/
350HW Upper outlet	ϕ445	8–ϕ23	656	290	290	780	400	150	320	200	4–ϕ23	/
350HW Horizontal water outlet	ϕ445	8–ϕ23	656	290	290	903	545	150	240	200	4–ϕ23	380
400HW	ϕ500	8–ϕ23	746	305	370	1082	655	190	320	230	4–ϕ30	450
500HW	ϕ600	10–ϕ23	906	332	400	1226	730	195	425	335	4–ϕ30	565
650HW	ϕ770	12–ϕ27	1138	480	570	1670	1000	290	550	430	4–ϕ34	735

Authorized Distributor

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HW Series - Axial-flow Pump