



Manual **BOOK**







Introduction

Model screening: after performance optimization, double-channel impeller is adopted with two or three reasonably arranged mechanical seals, which ensures the lubrication and cooling of mechanical seals, the smooth operation without blocking and good flow capacity.

Improvement of mechanical seals: series mechanical seal is adopted, with more reliable shaft seal and longer service life.

Structural optimization: the structural design ensures the airtightness of mechanical seals, smooth operation, vibration resistance, drop resistance, and higher reliability. The optimized sewage pump is more portable, practical, corrosion-resistant and wear-resistant.

The submersible motor is featured with IPX8 protection level, good cooling effect and temperature rise lower than ordinary motor, which ensure the better durability. Based on the F-level insulation, the motor has longer service life.

The motor is equipped with a variety of protection devices, which is convenient for users' choice at the time of optimization.

Main Application

It is applicable to discharge the waste water, rainwater and sewage containing solid particles and long fibers in buildings, hospitals, residential areas, municipal engineering, road traffic and their construction, engineering sewage discharge, small-scale sewage treatment and other occasions.

Pump Body & Impeller

Both pump body and impeller are carefully selected, which ensures the good passage capacity of flow channel, high efficiency, flat power curve and not ease to overload. The impeller is featured with accurate balance, small vibration and stable rotation.

Motor

The specially designed submersible motor, featured with IPX8 protection level and F-level insulation, can tolerate the high temperature rise. Under the normal temperature rise condition, the motor insulation life is extended, while the submersible cooling effect is good and the actual temperature rise is low, thus ensuring the longer insulation life of motor.

Motor Cooling

The heat of motor dissipates through the casing. As long as half of the motor stator casing is soaked by the medium, the motor can operate reliably and safely. The more soaked, the more favorable the motor cooling is.

Shaft Seal

The shaft seal of motor is realized with two or three series mechanical seals, which form multiple reliable sealing defense lines. One of the seals is in the medium of pump. The sealing surface is compressed more tightly with the increase of medium pressure, thus effectively preventing water from entering the oil chamber; the other two seals are in the oil chamber, which can prevent oil from entering the motor. If the first seal is failed, the other two can still prevent oil and water from entering the motor. Besides, the bellows-type mechanical seals cooperate with the innovative structural cavity to further improve the reliability of shaft seal greatly. Under normal use, the non-failure operation time is more than 9,000h.

Oil Chamber

The oil chamber is filled with proper machine oil and installed with two mechanical seals. It is the first barrier to prevent the medium from entering the motor through the pump shaft. If the first seal is failed, the buffer medium in oil chamber can not directly enter the motor. Meanwhile, the friction surfaces of the two independent mechanical seals are lubricated and cooled to make the mechanical seals work more reliable, which can also take away the heat of lower bearing and some heat of the motor.



Bearing

The lower bearing forms the reliable support of motor pump shaft. According to radial and axial forces and pulsating load generated during the operation of sewage pump, the lower bearing can be composed of two or three different types of bearing, thus ensuring the stable operation and long service life of unit.

Cable and Cable Seal

1) The cable is sewage-resistant flexible cable with rubber sheath. The cable core section is designed for long-term and reliable operation at 40P ambient temperature and motor full-load power. When the sewage pump works, if the motor runs at non-full load power or under the ambient temperature lower than 40P, the longer service life will be ensured.

2) There is seal compressed between the cable rubber sheath and the motor gland, so as to prevent the medium from penetrating into the inner cavity of motor from the interface between cable and motor gland.

3) There is rubber vulcanization between the cable sheath and the cable core. Once the rubber sheath is scratched, it can still effectively prevent the medium from entering the motor through the sheath.

Motor Shell

The frame, bearing seat and cover compose the motor shell. The connection place of all components is provided with the reliable static seal. Besides, each motor has been checked through the strict hydrostatic test, so as to ensure the good water tightness.

Safety Protection in Motor Pump

(operated by the special electrically controlled phase)

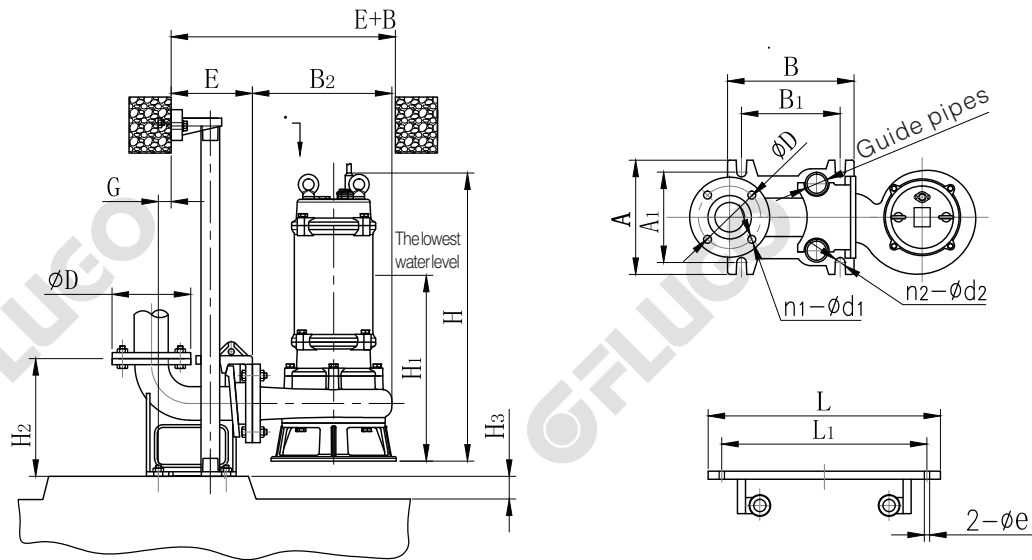
1) Oil-water probe: installed in the oil chamber to check the leakage of the first mechanical seal (in the medium), which will send the alarm signal when the medium leaks into the oil chamber and reaches a certain proportion.

2) Inlet probe: installed in the motor chamber to check the leakage of the second mechanical seal, which will send the alarm signal and stop the pump when the oil (oil-water mixture) enters the motor.

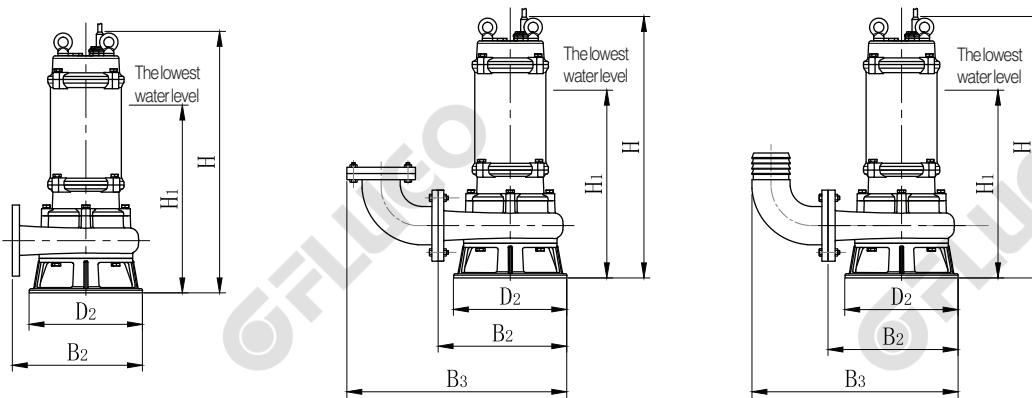
3) Thermo-sensitive element: installed in the motor stator winding, which will send the alarm signal and stop the pump when the motor is overloaded for long time and the temperature of motor winding (or the heating of the motor winding caused by other reasons) reaches a certain value.

Installation

Fixed with connection foot: this installation includes foot, guide pipes, chain, etc. this connection allows for quick removal and installation of pumps from the system during maintenance.



Removable installation with base frame



A. Submersible portable installation

B. Submersible portable installation with flange elbow

C. Submersible portable installation with flanged hose connection



WQW, WQF, WQ, JWWQ Submersible sewage pypm with Auto-coupling set

No.	Model	Dimension PN0.6MPa mm			Lightweight auto-coupling set dimension mm					G	H ₂	H ₃	L	L ₁	Rail pipe (inch)	Φ _e	E
		D	D ₁	n ₁ -Φd ₁	A	A ₁	B	B ₁	n ₂ -Φd ₂								
1	DN50	140	110	4-Φ14	132	115	160	118	4-Φ16	23	210	160	265	220	1	12	145
2	DN65	160	130	4-Φ14	160	140	185	135	4-Φ16	25	246	165	275	240	1	12	158
3	DN80	190	150	4-Φ18	185	160	220	160	4-Φ16	30	280	165	315	266	1.5	12	188
4	DN100	210	170	4-Φ18	210	175	260	196	4-Φ18	46	335	185	360	305	1.5	12	205
5	DN150	265	225	8-Φ18	260	230	340	252	4-Φ18	92	415	200	465	400	1.5	16	245
No.	Model	Dimension PN0.6MPa mm			Heavyweight auto-coupling set dimension mm					G	H ₂	H ₃	L	L ₁	Rail pipe (inch)	Φ _e	E
		D	D ₁	n ₁ -Φd ₁	A	A ₁	B	B ₁	n ₂ -Φd ₂								
1	DN50	140	110	4-Φ14	160	140	210	166	4-Φ16	72	210	160	265	220	1	12	145
2	DN65	160	130	4-Φ14	200	175	235	185	4-Φ16	73	245	165	275	240	1	12	155
3	DN80	190	150	4-Φ18	230	195	270	210	4-Φ16	80	280	165	315	266	1.5	12	188
4	DN100	210	170	4-Φ18	270	230	320	256	4-Φ20	110	335	185	360	305	1.5	12	212
5	DN150	265	225	8-Φ18	320	260	486	370	4-Φ20	234	415	200	465	400	1.5	16	240
6	DN200	320	280	8-Φ18	390	350	626	490	4-Φ20	361	444	200	530	465	1.5	16	245
No.	Model	Dimension PN0.6MPa mm			Heavyweight auto-coupling set dimension mm					G	H ₂	H ₃	L	L ₁	Rail pipe (inch)	Φ _e	E
		D	D ₁	n ₁ -Φd ₁	A	A ₁	B	B ₁	n ₂ -Φd ₂								
1	DN250	395	350	12-Φ22	480	420	666	480	4-Φ30	330	500	200	595	525	2	16	300
2	DN300	445	400	12-Φ22	560	500	760	570	4-Φ30	423	600	250	630	560	2	16	300
3	DN350	505	460	16×Φ22	620	560	860	660	4-Φ30	503	700	250	630	560	2	16	321
4	DN400	565	515	16×Φ26	700	620	980	750	4-Φ40	559	800	300	680	610	3	16	377
5	DN500	670	620	20×Φ26	840	760	1210	930	4-Φ40	736	1000	300	777	707	3	24	408

Pump material

Spare parts	Pump casing, impeller, cover	Motor shell	Shaft	Material of mechanical seal	
				Motor side	Pump side
Cast iron pump	HT200/QT600	HT200	45#/20Cr13	Carbon/Sic	Carbon/SIC/WC
Stainless steel pump	304-316L	304-316L	45#/304-316L	Carbon/Sic	Carbon/SIC/WC

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FFLUGO