

Submersible Sludge Pump XJS 110

SULZER

Specification

Electric submersible pump.
 Maximum submergence: 20 m (65 ft). Protection class IP 68.
 Max temperature of pumped medium at max power input and continuous duty 40 °C (104 °F).
 Max medium density 1100 kg/m³ (0.0397 lbs/inch³).
 pH of the pumped medium 5-8.
 Free passage: 48 x 60 mm (1 7/8" x 2 3/8").
 Max number of starts 30/hour.
 Min. impeller diameter for duty with low water level or intermittent dry running. Max impeller diameter requires half motor or more submersed for continuous duty. (Pump can operate lying down.)

XJS 110 D - 155 3-phase
XJS 110 D - 155 AT* 3-phase
XJS 110 D - 166 3-phase
XJS 110 D - 166 AT* 3-phase

*AquaTronic: Built-in electronic pump control.

Electric Motor

3-phase squirrel-cage induction motor, 60 Hz.
 Service factor 1.1. Class F insulation.
 Dual voltage stator 230/460 V (single voltage contactor coil).***
 Motor rating P₂: 13.5 kW (18 Hp). 2 pol. Speed: 3500 rpm
 η: 90 (50 %), 91 (75 %), 90.8 (100 % load)

***For pumps with built in contactor.

| Voltage, V | 230 | 380 | 460 | 575 |
|--------------------|------|------|------|------|
| Nominal current, A | 42.8 | 25.9 | 21.4 | 17.1 |

Starting Method and Motor Protection

XJS 110 AT: Direct on line start (DOL 575 V) with built in AquaTronic unit, which automatically adjusts phase order by dual contactors, ensuring correct motor rotation.

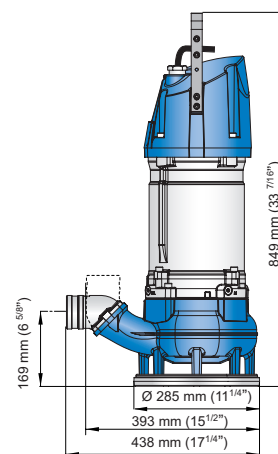
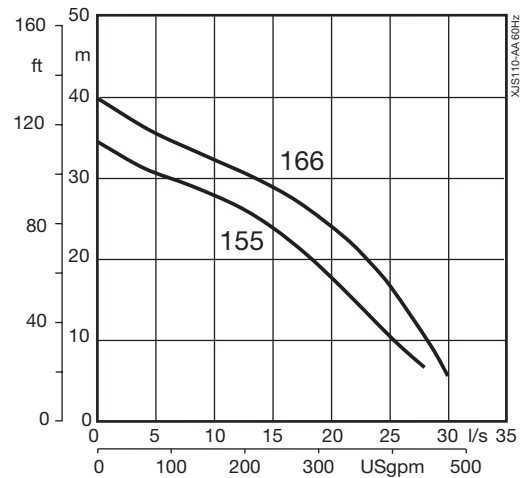
Soft start (380-460 V) is built in with the AquaTronic unit, where three thyristors reduces start current to three times the nominal current. Here two relays ensure correct motor rotation. The AquaTronic unit monitors motor temperature, by use of NTC thermistors built into stator windings, and stops the motor at high temperature. It will also stop the motor at high amperage or if a phase is missing.

XJS 110: Direct on line start with built in contactor. Pumps to be used with VFD must have terminal block instead of contactor. Thermal switches (140 °C/284 °F, ±5) built into the stator windings are connected to the contactor and stop the pump at high temperature.

Power Cable

20 m type H07RN8-F (standard cable):
 4 x 6 sq.mm. (230 V)
 4 x 4 sq.mm. (380-460 V)

20 m type NSSHÖU.../3E (heavy duty cable):
 3x6+3x6/3E+3x1.5 (3 control cables included) (230, 380, 460 and 575 V or terminal block)



Shaft Seal

Double mechanical seal in oil bath.
 Primary seal: Silicon carbide on silicon carbide.
 Secondary seal: Silicon carbide on carbon.

Bearings

Upper bearing: Single-row deep groove ball bearing.
 Lower bearing: Double angular contact ball bearing.

Discharge Connections

2 1/2", 3" (standard), 4" hose connections.
 2 1/2", 3", 4" G/B.S.P. threaded connections.
 2 1/2", 3", 4" NPT threaded connections.

Weight

80 kg / 176 lbs (without cable)

Options and Accessories

AquaPlug. AquaTronic control panel.
 Level sensor. Service data kit. Zinc anodes.
 Surface protection coating. Floatation system.
 Discharge connection accessories and hose.

Pump control

| Features | XJS 110 | XJS 110 AT | | | | Service Data Kit Read out |
|--|---------|------------|-------------------|--|--|---------------------------|
| | | AT | AT + Level Sensor | AT + AquaPlug / AquaTronic Control Panel | AT + AquaPlug/ AquaTronic Control Panel + Level Sensor | |
| Run mode | X | X | X | X | X | |
| Integrated start equipment | X | X | X | X | X | |
| Automatic direction of rotation | | X | X | X | X | |
| Motor protection high temp | X | X | X | X | X | X |
| Motor protection high amp | | X | X | X | X | X |
| Protection against missing phase | | X | X | X | X | X |
| Level control | | | X | | X | |
| Dry run protection | | | X | | X | |
| Automatic restarting | | | X | | X | |
| Stop mode | | | | X | X | |
| E-mode (Automatic stop/run) | | | | | X | |
| Indication of water in oil | | | | X | X | X |
| Indication of low motor insulation | | | | X | X | X |
| Indication of high or low voltage | | | | XX | XX | X |
| Indication of high temperature | | | | XX | XX | X |
| Indication of high amp | | | | XX | XX | X |
| Indication of phase unbalance | | | | XX | XX | X |
| USB cable connection | | X | X | X | X | X |
| Crash log (10 latest) | | | | | | X |
| Documentation (spare part list, workshop manual) | | | | | | X |

XX = Fault indication when pump is automatically stopped to protect the motor.

Materials

| Description | Material | EN | ASTM |
|-------------------|--------------------------------|-------------------------------|------------------------|
| Motor housing | Aluminium | EN 1706:AC-43100 | ASTM AISI10mg |
| Handle | Stainless steel | 10088:X5CrNi18-10 (1.4301) | AISI 304 |
| Rotor shaft | Stainless steel | 10088:X20Cr13 (1.4021) | AISI 420 |
| Volute / Impeller | Nodular cast iron | 1563:ENGJS-HB150 | ASTM A 536-80:60-40-18 |
| Fasteners | Stainless steel | 10088:X5CrNiMo 17122 (1.4401) | AISI 316 |
| O-rings | Nitrile rubber | | |
| Coating | 2 component epoxy paint 120 µm | | |