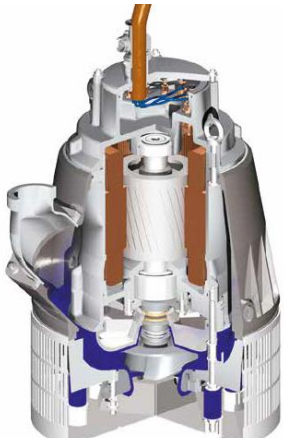
NZPGS SULZER

New Zealand distributor for Sulzer Pumps

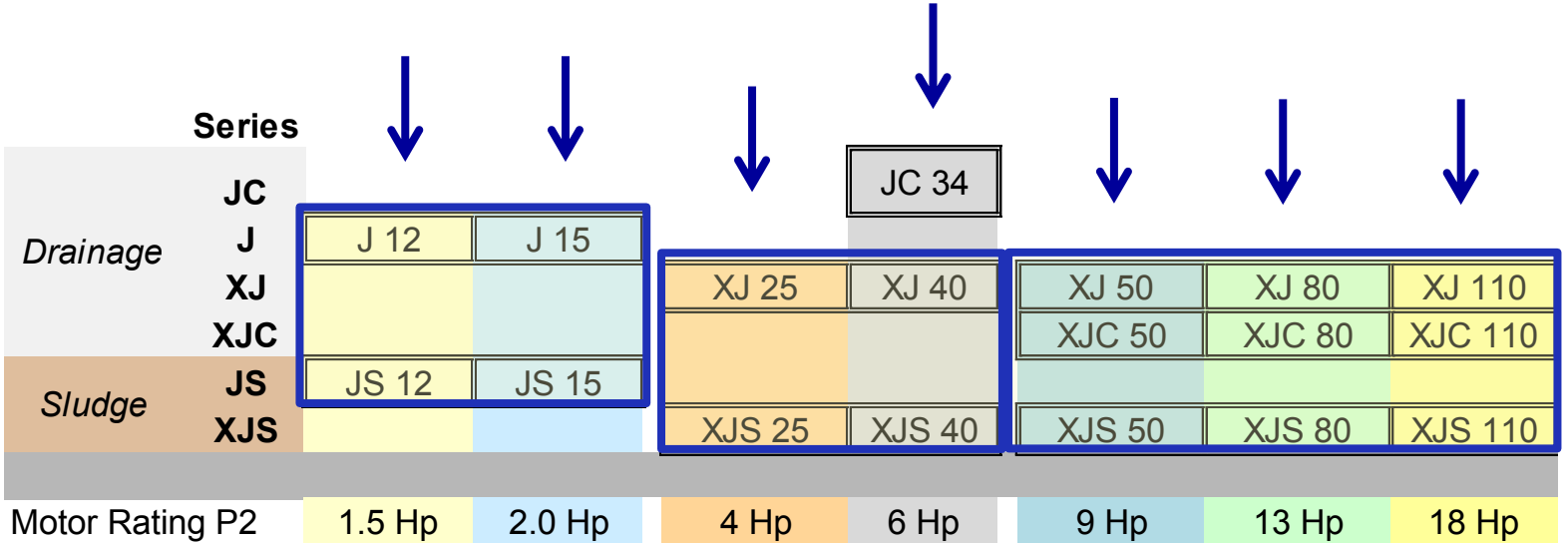
Sulzer Submersible Pumps



Drainage			Center Line	Trash Pumps	MSHA Pumps	Sewage Pumps
J	XJ	Jumbo J	JC	JS	J MEX	XFPT
			XJC	XJS		Type ABS

Submersible Dewatering Pumps

- Common motor sizes
- Common modules for multiple sizes



Common parts across modules

- Same mechanical seals, bearings, shaft diameter
- One **repair kit** for all pumps in the module
- Different motor size and impeller diameter
- Use the common discharge elbows for each version

J 12, 15
JS 12, 15

- Motor housing
- Top cover
- Mechanical seal
- Handle

XJ 25, 40
XJS 25, 40
XJC 25, 40

- Motor housing
- Top cover
- Mechanical seal
- Handle

XJ 50, 80, 110
XJS 50, 80, 110
XJC 50, 80, 110

- Motor housing
- Top cover
- Mechanical seal
- Handle

XJ Series

XJ Series Drainage Pumps

Submersible drainage pump XJ is excellent for pumping water and dirty water mixed with light abrasives. The slim design makes the pump easy to move and easy to handle.

XJ

XJC
Center Line

XJS
Sludge

XJ Series - Across all XJ Models

- Common parts across multiple models
  - Reduces the investment in spare parts – construction site, repair shops
  - Common Mechanical Seal is unique
- Both wear ring and diffuser are adjustable
- Higher efficiency by design

Why does better efficiency matter?

- Better efficiency → less power required → smaller motors → less weight → no crane
- Better efficiency → less wear → better hydraulic efficiency
- Better efficiency → lower temperature – less cooling needed, especially important in sludge pumps – we are the only sludge pump without a cooling jacket – others just circulate sludge

Performance Range 25 - 40

	Flow, max (Usgpm)	Head, max (feet)	Hydraulic Range Options	Motor (1) Rating P2 (Hp)	%eff	Weight (lbs)	Impeller type
XJ 25	300	95	ND, HD	4	87	86	Closed
XJ 40	340	120	ND, HD	6	86	93	Closed
XJS 25	250	65	118, 128	4	87	86	Closed
XJS 40	320	90	128, 143	6	86	90	Closed

1 - at 100% load 2 - with cable

- Same Repair Kit
- Conversions between ND and HD
- Discharge sizes common - Thread NPT 2½”, 3”, 4”
- IE2 High efficiency motors

LD-Low Head, High Flow ND-Normal Head HD-High Head SD-Extra High Head

Performance Range 50 - 80 - 110

	Flow, max (Usgpm)	Head, max (feet)	Hydraulic Range Options	Motor [1] Rating P2 (Hp)	%eff	Weight (lbs)[2]	Impeller type
XJ 50	800	155	LD, ND, HD	9	91	130	Closed
XJ 80	800	300	LD, ND, HD, SD	13	89	172	Closed
XJ 110	840	200	ND, HD	18	91	179	Closed
XJC 50	800	160	LD, ND, HD	9	91	130	Closed
XJC 80	815	300	LD, ND, HD, SD	13	89	139 -172	Closed
XJC 110	835	200	ND, HD	18	91	176	Closed
			Trim				
XJS 50	425	100	143, 160	9	91	130	Vortex
XJS 80	450	122	160, 175	13	89	141	Vortex
XJS 110	475	130	155, 166	18 HP	91	176	Vortex

1 - at 100% load 2 - with cable

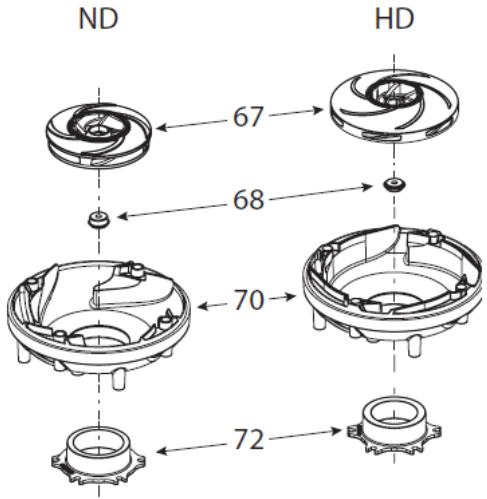
- Same Repair Kit
- Conversions between ND, HD
- IE2 High efficiency motors
- XJ/XJC - common discharge sizes - Thread NPT 3", 4", 6"

LD-Low Head, High Flow ND-Normal Head HD-High Head SD-Extra High Head

Hydraulic Performance Conversion Kits

- Conversions kits between ND and HD
- Conversions between LD, ND and HD for some models

XJ 25	→ ND (3")	→ HD (3")
Impeller 50 Hz	833046	833049
Impeller 60 Hz	833047	833050
Diffuser, lower	833039	833264
Wear ring	833066	833067



XJ 50	→ ND (4")	→ HD (3")	→ LD (6")
Impeller 50 Hz	833056	833061	833058
Impeller 60 Hz	833387	833054	833059
Impeller washer	833028	833089	833028
Diffuser lower	833042	833044	833043
Wear ring 50 Hz	833071	833067	-
Wear ring 60 Hz	833071	833067	-
Distance ring	-	-	833317
Discharge (hose)	833081	833077	833085
Discharge (thread G/BSP)	833083	833079	833086

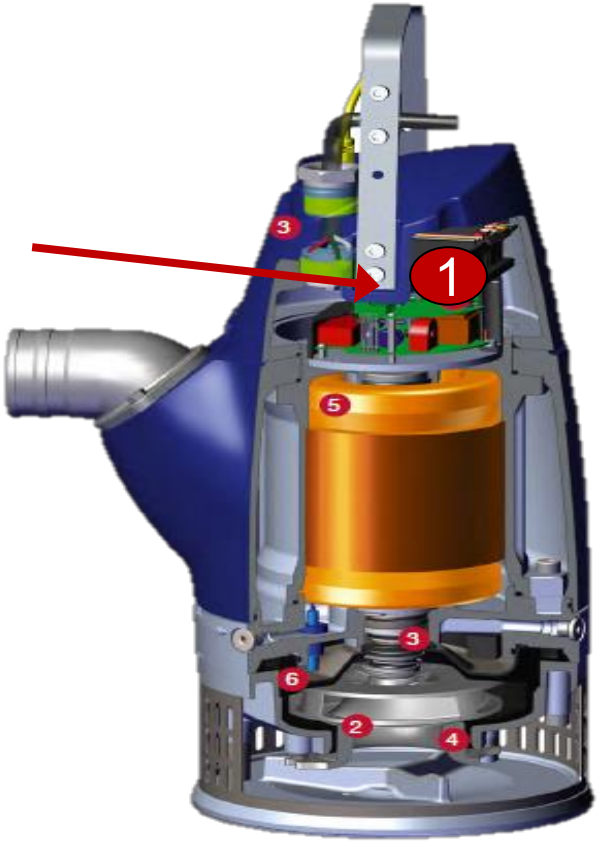
XJS Series – Sludge Performance Range

- Vortex impeller – less clogging
- Light weight – easy to move – only model with no cooling jacket
- **Maximum diameter** impeller requires motor to be submersed half or more for continuous duty. (Pump can operate lying down.)
- **Trimmed impeller** allows for duty with low water level or intermittent dry running.
- One pump that can be used in all applications
  - Bentonite
  - Waste Water
  - Dewatering

Features and benefits – XJ, XJC, XJS

1 Easy and fail-safe starting

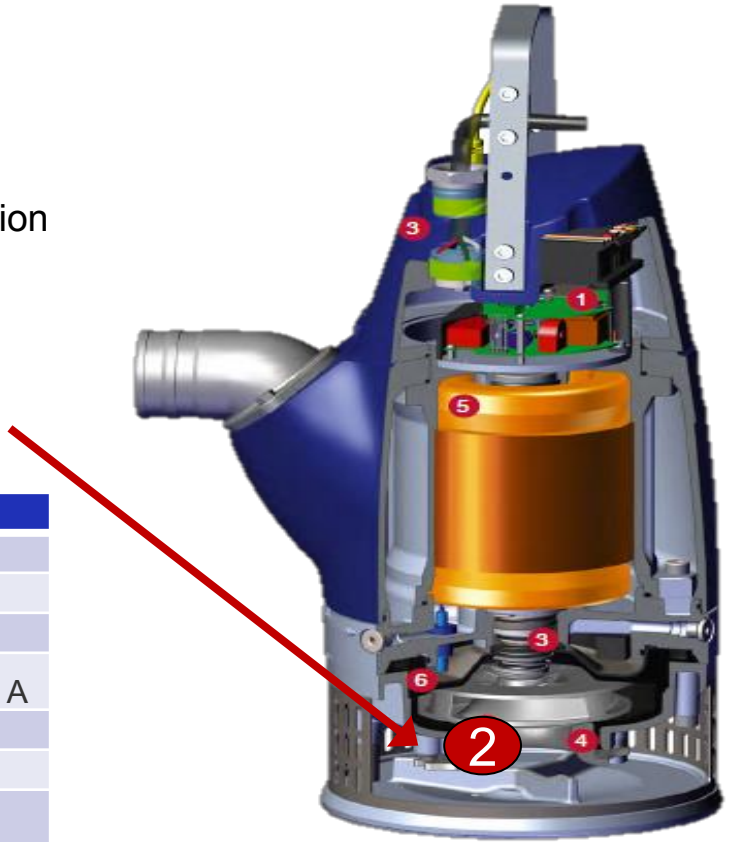
- Built-in contactor:
  - Run mode
  - Integrated start equipment
  - Motor protection– high temp
- Optional AquaTronic unit
  - Correct motor rotation every time. The pump electronically adjusts for incorrect phase order.
  - Rapid assessment of operation / fault history
  - No traditional control panel required
  - Reduced energy consumption and wear



Features and benefits – XJ, XJC, XJS

2 Wear resistance

- Impeller and wear ring in high chrome alloy
- Nitrile rubber coated diffusers provide high abrasion resistance.
- Uniform velocities reduces wear from abrasion
- High efficiency – less rotations – less wear



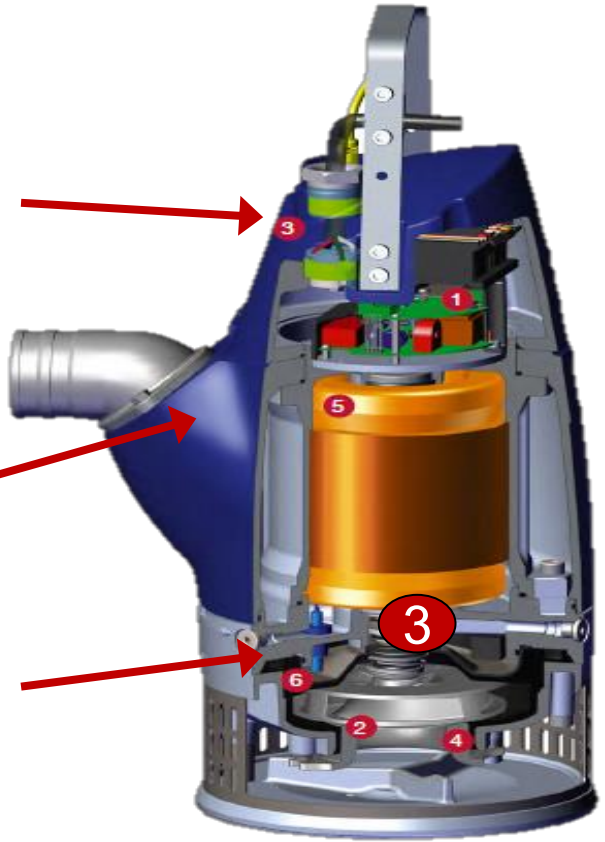
Materials of Construction

Description	Material	ASTM
Castings	Aluminium	ASTM AlSi10mg
Strainer / Handle	Stainless steel	AISI 304
Rotor shaft	Stainless steel	AISI 420
Impeller / Wear ring	White cast iron	ASTM A 532: Alloy III A
Fasteners	Stainless steel	AISI 316
Wear parts / O-rings	Nitrile rubber	
Coating	2 component epoxy paint 120 µm	

Features and benefits – XJ, XJC, XJS

3 Reliable operation

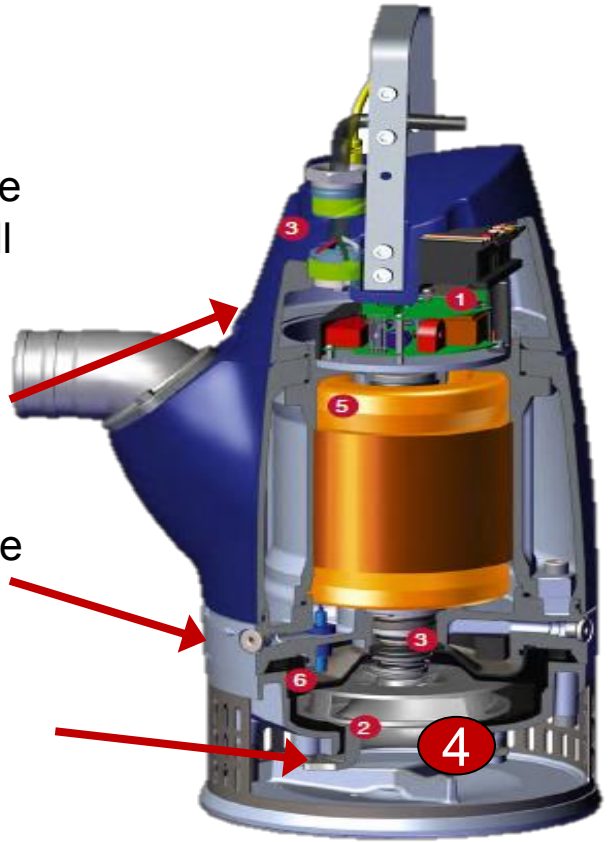
- A double cable-entry seal system increases the protection against moisture entering the electrical junction area.
- Run dry without damaging the motor
  - Double outer casing and good heat convection enable the pump to operate continuously at low levels
- Extended pump life
  - Double mechanical shaft seals in an oil bath
  - Primary seal surfaces in silicon carbide
  - Secondary seal surfaces in silicon carbide on carbon



Features and benefits – XJ, XJC, XJS

4 Serviceability

- Due to the modular design, the same parts can be used for different pumps, which lowers the overall service costs.
- Electrical junction area can easily be checked by removing the top cover of the pump.
- External inspection ports for the oil and motor chambers enable quick and easy evaluation of the shaft seal during service.
- The adjustable wear ring ensures proper clearance throughout the impeller lifetime.



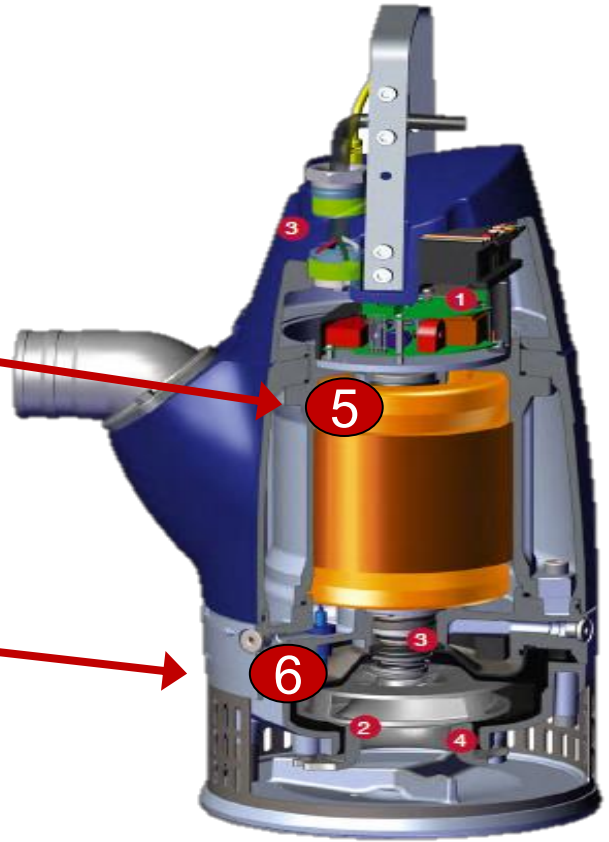
Features and benefits – XJ, XJC, XJS

5 Less energy, lower environmental impact

- The high-efficiency motor and new hydraulics combine with low-friction bearings to reduce is low total energy costs and minimized carbon footprint.

6 Flexibility

- Conversion between high-volume and high-head hydraulics is managed with only a few parts, ensuring the right performance for the application.



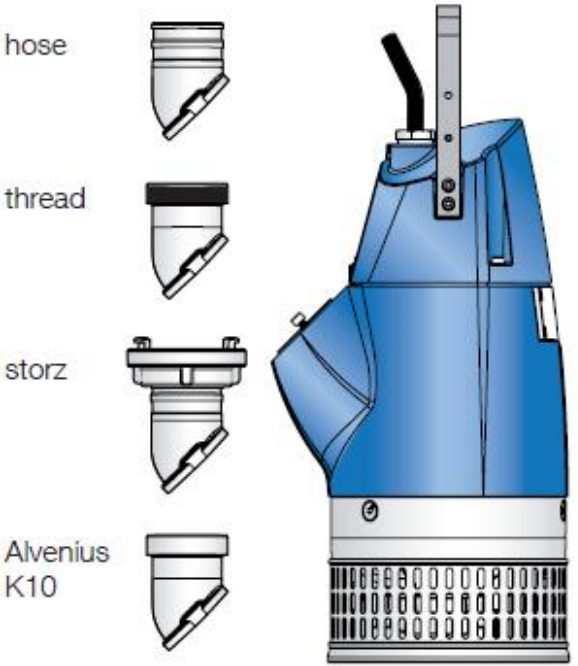
Options and Accessories

- AquaPlug
- AquaPanel
- Service data kit
- Zinc anodes
- Surface protection coating
- Floatation ring
- Discharge connection accessories and hose

Zinc Anode Belt

- Zinc anode belts on submersible pumps provide an easy, flexible and inexpensive way to mount, inspect and replace zinc anodes on all Sulzer dewatering pumps.
- The zinc anodes protect the aluminum parts of the pump from corrosion from sea water.
  - The durability of the zinc anodes may vary widely with concentration, temperature and the presence of abrasives in the media being pumped.
- Easy to assemble – both new and replacements

Discharge Connection



- Flexibility with discharge connections
- Discharge connections are available in various sizes, and can be supplied with connection hose, BSP-thread (G), NPT-thread, storz quick-coupling or Alvenius K10.
- All discharge connections can be fitted in horizontal or vertical direction (central discharge pumps only vertical).
- All discharge connections are sealed efficiently with an o-ring between the discharge connection and the main outer casing.
- Elbow must be ordered as a separate line item.

Aquatronic - Built In Intelligence

- **Correct motor rotation everytime**
- **Motor protection**
- **Rapid assessment of operation / fault history**
  - A USB port allows pump condition to be checked with a PC without disassembly.
- **No traditional control panel required**
  - Built-in pump electronics eliminate traditional control panels.
- **Reduced energy consumption and wear**
  - The pump can be set to stop at dry running and start again at a specified level, which saves energy and minimizes wear.

Aquatronic – Pump Intelligence

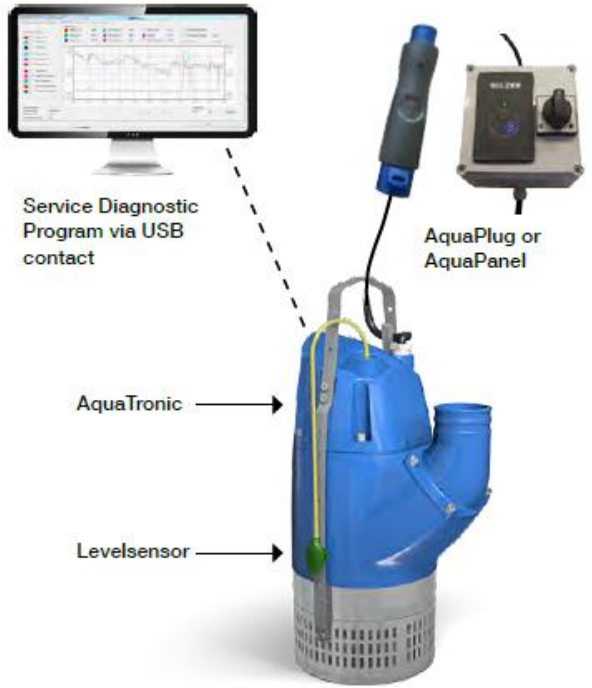
Features	XJ40	XJ40 AT				
	Basic pump with contactor	AquaTronic	AquaTronic + Level Sensor	AquaTronic + AT Control Panel	AquaTronic + AT Control Panel+ Level Sensor	Service Data Kit Readout
Run mode	✓	✓	✓	✓	✓	
Integrated start equipment	✓	✓	✓	✓	✓	
Automatic correction of rotation		✓	✓	✓	✓	
Motor protection– high temp	✓	✓	✓	✓	✓	✓
Motor protection– high amp		✓	✓	✓	✓	✓
Protection against missing phase		✓	✓	✓	✓	✓
Level control			✓		✓	
Protection against dry running			✓		✓	
Automatic restart			✓		✓	
Stop mode				✓	✓	
E-mode (automatic stop/run)					✓	
Indication of water in oil				✓	✓	✓
Indication of low motor insulation				✓	✓	✓
Indication of high/ low voltage				✓✓	✓✓	✓
Indication of high temp				✓✓	✓✓	✓
Indication of high amp				✓✓	✓✓	✓
Indication of phase imbalance				✓✓	✓✓	✓
USB cable connection				✓	✓	✓
Crash log (10 latest)						✓
Documentation (spare parts list, workshop manual)						✓

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

Features	XJ40	XJ40 AT				
	Basic pump with contactor	AquaTronic	AquaTronic + Level Sensor	AquaTronic + AT Control Panel	AquaTronic + AT Control Panel+ Level Sensor	Service Data Kit Readout
Run mode	✓	✓	✓	✓	✓	
Integrated start equipment	✓	✓	✓	✓	✓	
Automatic correction of rotation		✓	✓	✓	✓	
Motor protection– high temp	✓	✓	✓	✓	✓	✓
Motor protection– high amp		✓	✓	✓	✓	✓
Protection against missing phase		✓	✓	✓	✓	✓
Level control			✓		✓	
Protection against dry running			✓		✓	
Automatic restart			✓		✓	
Stop mode				✓	✓	
E-mode (automatic stop/run)					✓	
Indication of water in oil				✓	✓	✓
Indication of low motor insulation				✓	✓	✓
Indication of high/ low voltage				✓✓	✓✓	✓
Indication of high temp				✓✓	✓✓	✓
Indication of high amp				✓✓	✓✓	✓
Indication of phase imbalance				✓✓	✓✓	✓
USB cable connection				✓	✓	✓
Crash log (10 latest)						✓
Documentation (spare parts list, workshop manual)						✓

Electronic Supervision

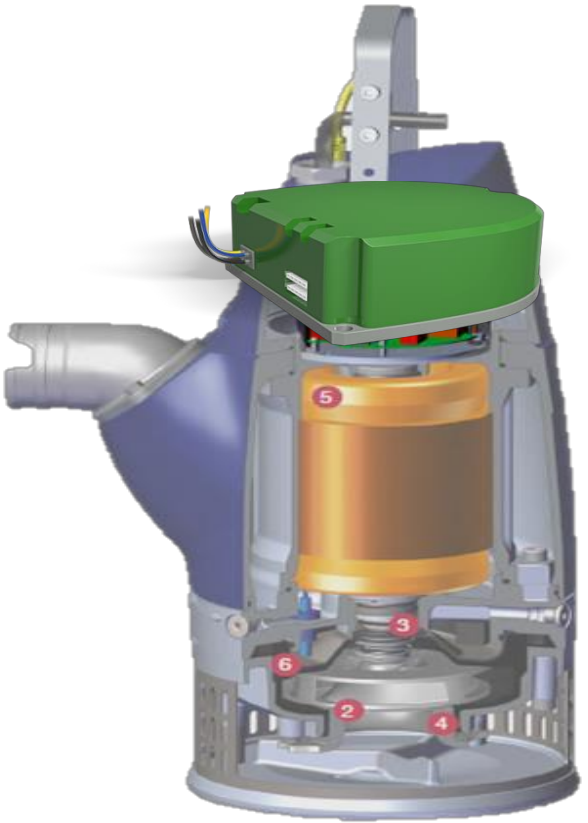
- The Electronic Supervision is available in five tiers
  1. AquaTronic in Stand Alone mode
  2. AquaTronic and Level sensor
  3. AquaTronic and AquaPanel
  4. AquaTronic, AquaPanel and Level sensor
  5. Service Diagnostic Program



Electronic Supervision

AquaTronic in Stand Alone mode

- Run mode
- Integrated start equipment
  - Direct start XJ 25/40/50
  - Soft Start XJ 80, XJ 110 (option on XJ 50)
- Automatic direction of rotation
- Motor protection
  - High temperature
  - High amperage
  - Missing phase



Electronic Supervision

AquaTronic in Stand Alone mode

- Run mode
- Integrated start equipment
  - Direct start XJ 25/40/50
  - Soft Start XJ 80 (option on XJ 50)
- **Automatic direction of rotation**
- Motor protection
  - High temperature
  - High amperage
  - Missing phase

Pumps will run if wired incorrectly, the operator may not know the rotation is wrong.

Pump efficiency will be very low.

Pump will wear very fast.

The benefit of the Auto detection are

- Lower cost of ownership
- Less wear
- Less frequent service
- Lower energy costs

Electronic Supervision

AquaTronic in Stand Alone mode

- Run mode
- Integrated start equipment
  - Direct start XJ 25/40/50
  - Soft Start XJ 80 (option on XJ 50)
- Automatic direction of rotation
- Motor protection
  - High temperature
  - **High amperage**
  - Missing phase

High amperage can be the result of water in the motor housing or the oil bath.

Without motor protection, pump will continue to run, causing accelerated wear.

By the time the pump is pulled from service, it will most likely need to be replaced.

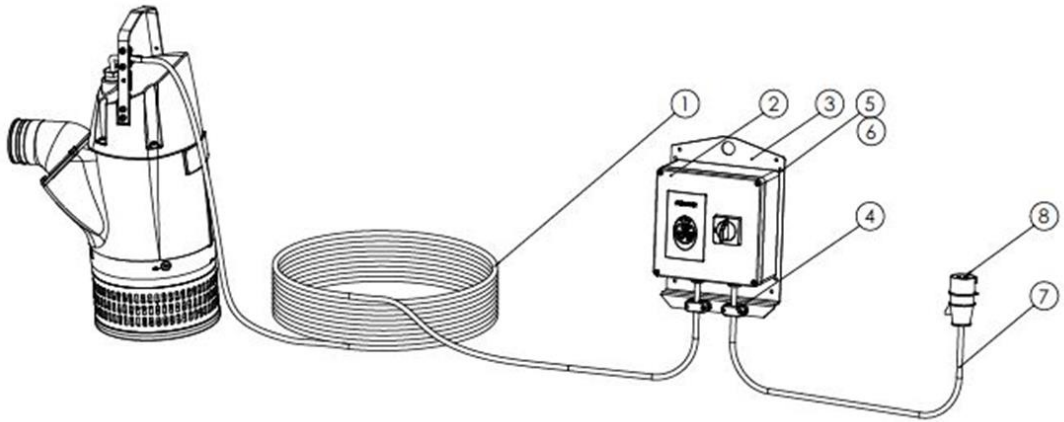
The benefit of the Motor Protection is

- Pump is stopped at the earliest sign of broken seals
- Because the pump is stopped, wear parts have very little damage
- Pump can be repaired cost effectively

Electronic Supervision

AquaTronic and AquaPanel

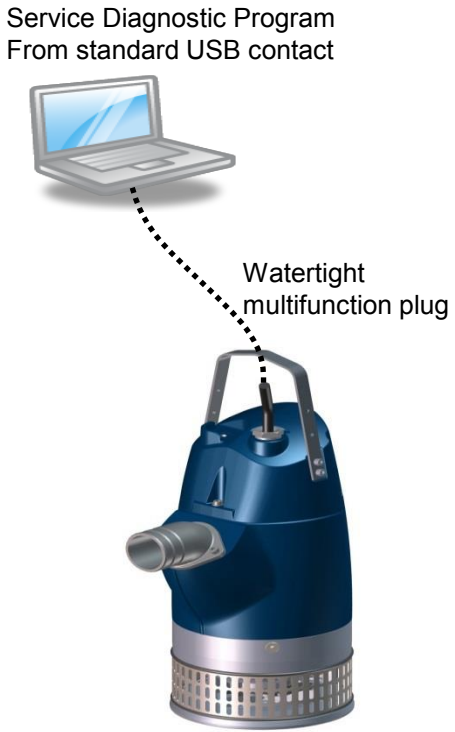
- Adds the following features to tier 1
- Stop mode
- Automatic re-starting
- Indication of
  - Water in oil
  - Moisture in motor
  - High or low voltage
  - High temperature
  - Phase unbalance



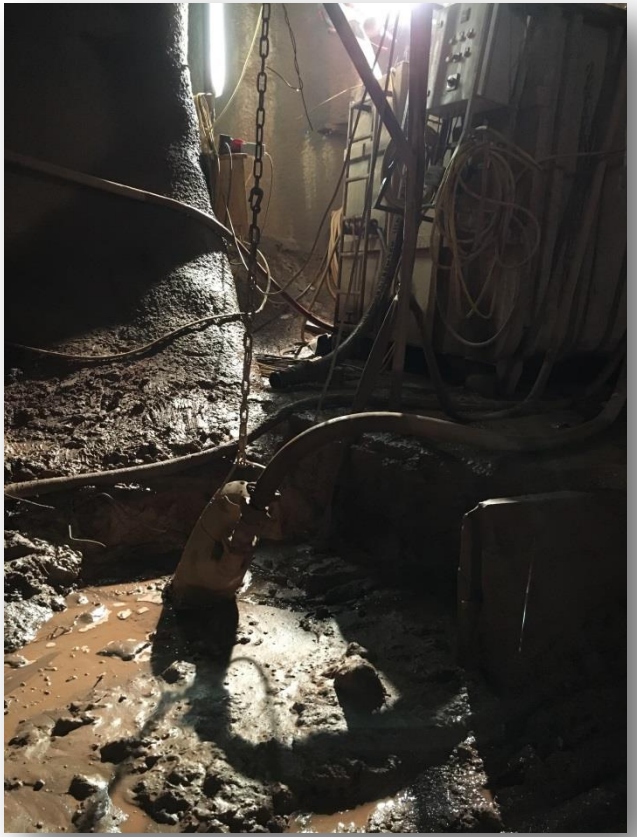
Electronic Supervision

Service Diagnostic Program

- Works like a USB memory stick
- USB Cable Connection
- Read outs
  - Crash log, ten latest
  - Temperature
  - Voltage, three phases
  - Amperage, three phases
  - Water in oil, kΩ
  - Moisture in motor, kΩ
- Documentation in memory
  - Spare part list, Work shop manual



J Series



J Series Pumps - Submersible Drainage

- J & JC - Portable submersible drainage pumps designed for draining abrasive water from construction sites, mines, ships, docks and flooded areas.
- JS - Portable submersible sludge pumps with excellent handling ability for sludge, slurry or abrasive water with solids content from construction sites, mining, tunneling and quarries.

	Flow, max (Usgpm)	Head, max (feet)	Hydraulic Range Options	Motor [1] Rating P2 (Hp)	%eff	Weight (lbs)[2]	Impeller
J 12	340	120	D, W	6 Hp	93	35	Semi-open
J 15	300	95	D, W	4 Hp	86	40 (W), 36 (D)	Semi-open
JS 12	150	160	D, W	1.5 Hp	40	40	Vortex
JS 15	145	300	D, W	2.0 Hp	40	40	Vortex
JC 34	375	160	ND, HD	9 Hp	68	68	Semi-open

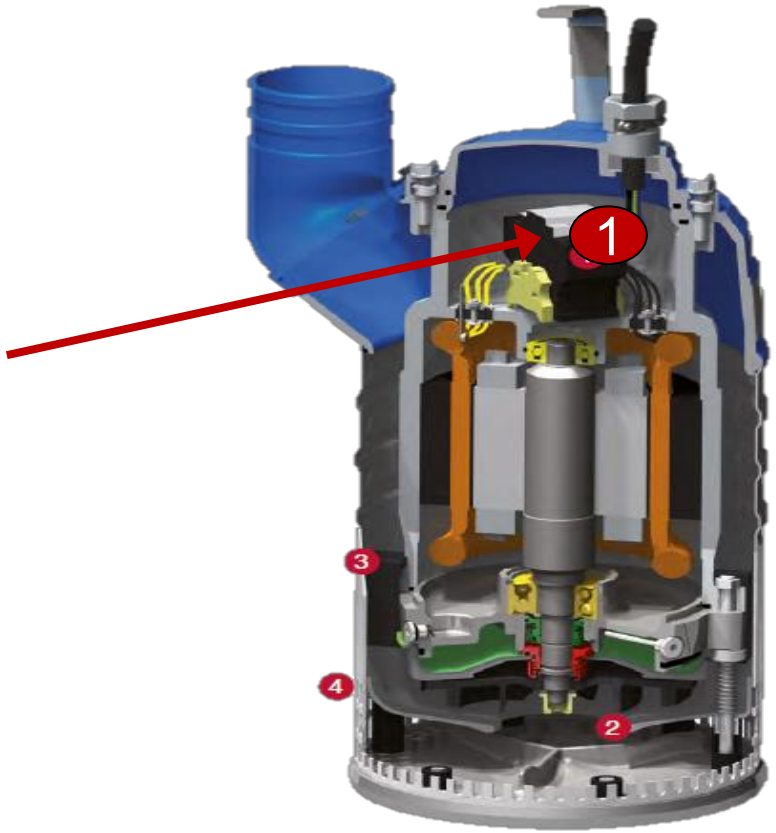
1 - at 100% load 2 - with cable

D= 3 phase W = single phase

J Series – Easy Start

1 Easy start

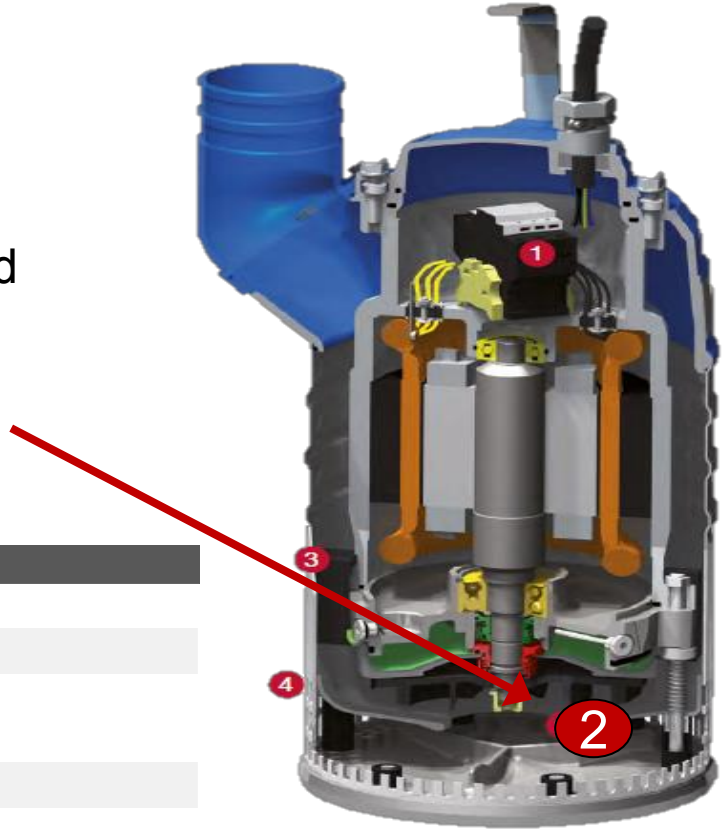
- Built-in contactor connected to the thermal sensors in the stator windings protects the motor from overheating and features an automatic restart function.



J Series - Wear resistance

2 Wear resistance

- White cast iron impeller with full upper shroud and adjustable wear parts coated in nitrile rubber ensure high abrasion resistance.



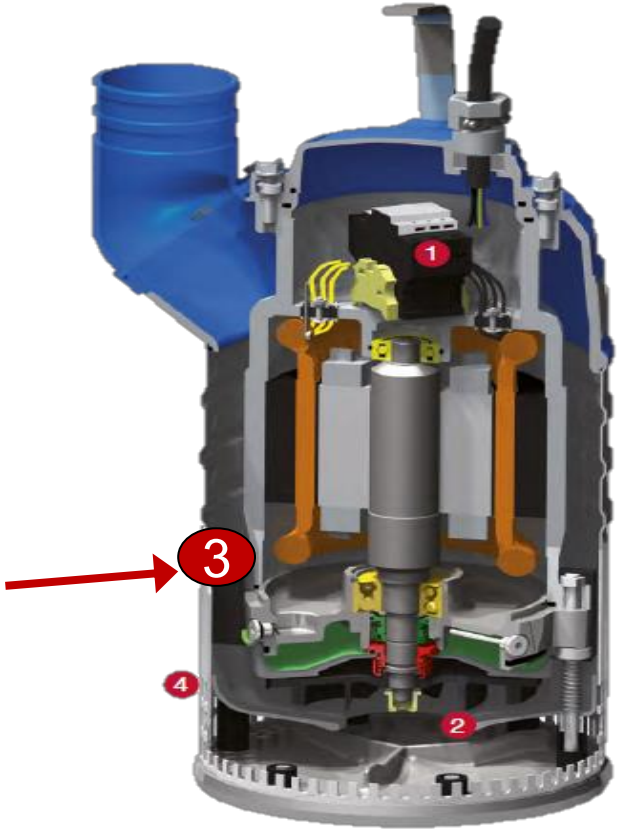
Materials

Description	Material	ASTM
Castings	Aluminium	ASTM AlSi10mg
Casing / Fasteners	Stainless steel	AISI 304
Shaft	Stainless steel	AISI 420
Impeller	High-chrome alloy	ASTM A 532: Alloy III A
Wear parts / O-rings	Nitrile rubber	

J Series - Reliable operation

3 Reliable operation

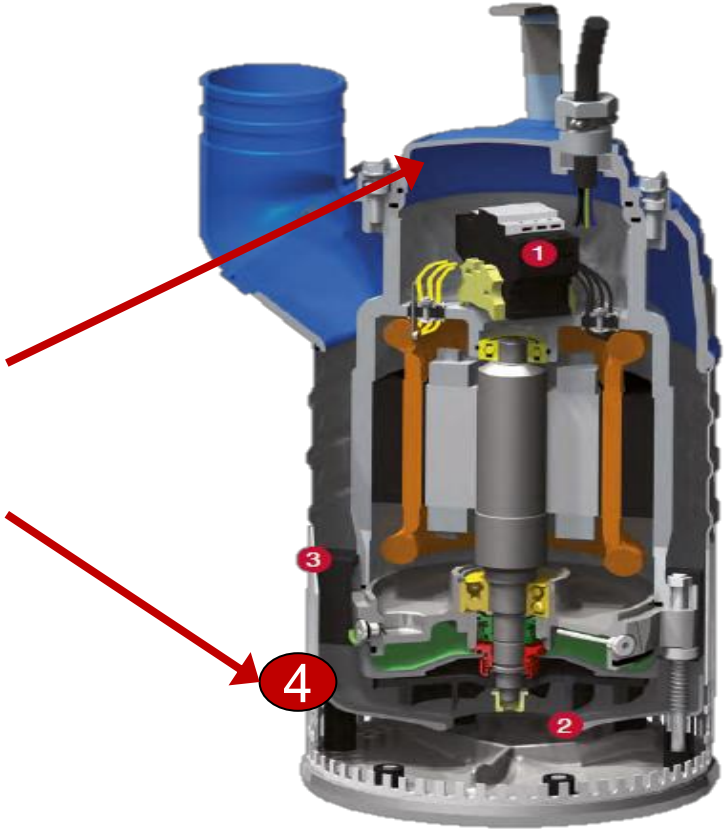
- Extended life
  - Double mechanical shaft seal in oil bath
  - Silicon carbide primary and secondary seal surfaces
- Double outer casing & good heat convection enable pump to operate continuously at low levels – or even run dry - without damaging the motor.



J Series – Serviceability

4 Serviceability

- The same parts can be used for different pumps - lowers the overall service costs.
- Electrical junction area can easily be checked by removing the top cover.
- An adjustable diffuser ensures proper clearance throughout the impeller lifetime.



Jumbo Drainage Pumps

Submersible drainage pump designed for dewatering light abrasive water from construction sites, mines, ships, docks and flooded areas.

- Excellent performance capacity
- High motor power combined with compact light weight design
- High head performance can easily be converted into high volume
- Discharge sizes common – J 205/403 4, 6, 8” J 604 6, 8, 10”

	Flow, max (Usgpm)	Head, max (feet)	Hydraulic Range Options	Motor (1) Rating P2 (Hp)	%eff	Weight (lbs)	Impeller type
J 205	1700	270	ND, HD	35	90	342	Semi-open
J 405	2500	325	ND, HD	56	92	595	Semi-open
J 604	3500	220	ND, HD	94	92	1157	Semi-open

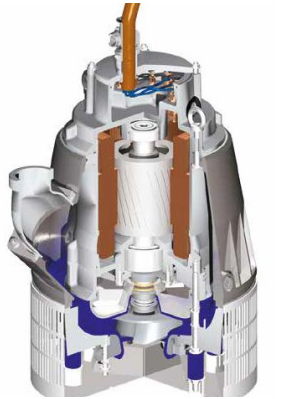
1 - at 100% load 2 - with cable · with cable

Jumbo Drainage Pumps

- Robust cooling jacket gives optimal cooling for the motor
- Long life duty
  - Hydraulic section has stainless steel strainer
  - Adjustable rubber lined wear parts
  - Open multi-vane impeller in hardened chromed iron
- Optional starter box with monitoring features such as thermal sensors and seal probe ensure safe duty in abrasive environments.
- Environmentally friendly white oil is used in the pump.

MSHA Drainage Pumps

Submersible drainage pumps J 10 - 350 MEX are Explosion proof mine pumps suitable for pumping water and dirty water mixed with light abrasive soil.



- Approved MSHA (Mine Safety and Health Administration) and D.O.E.R. (Pennsylvania Department of Environmental Resources).
- Applications include gassy coal mines, tunnels, strip mines, and quarries where MSHA is required.

	Discharge sizes	Flow, max (Usgpm)	Head, max (feet)	Hydraulic Range Options	Motor [1] Rating P2 (Hp)	%eff	Weight (lbs)	Impeller type
J 10B MEX	3	210	66	B	1.8		135	Semi-open
J 20B MEX	3	300	80	B	3.5	79	135	Semi-open
J 50B MEX	4	700	165	BHH, BHV	8.0	84	143	Semi-open
J 80B MEX	3,6	820	300	BHH, BHV	13.4	87	176	Semi-open
J 200B MEX	4,6	1550	250	BHH, BHV	30.8	89	426	Semi-open
J 350B MEX	4,6	800	325	HH	59.0	93	551	Semi-open

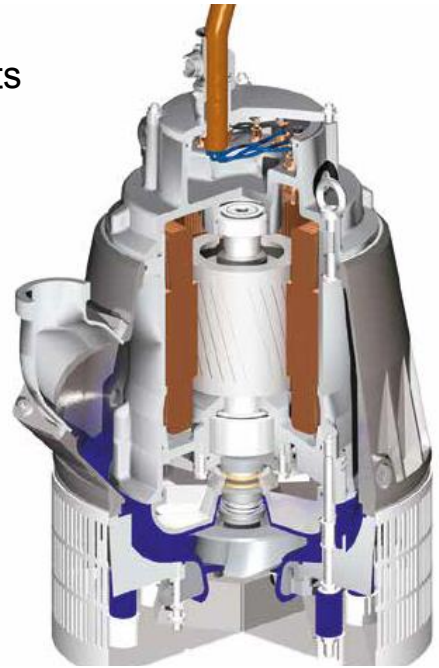
1 - at 100% load 2 - with cable

1 - at 100% load 2 - with cable

B- ???, BHH - ??, BHV - ???, HH - ???

MSHA Drainage Pumps

- Wear resistance – one investment, years of cost efficient pumping
  - Stainless steel impeller, shaft and hardware as well as adjustable wear parts in oil, resistant nitrile rubber provide a long life and high efficiency.
- Robust design
  - Rigid stainless steel shaft with heavy duty bearings gives vibration free operation.
- Complete supply – MSHA approved pump and panel
  - All J MEX series are equipped with MSHA approved power cable and are supplied with a manual or automatic control panel.



Waste Water Pumps

Submersible sewage pump XFP range of submersible pumps deliver reliable and economic pumping of clear water, dirty water and waste water in commercial, industrial and municipal application.

60Hz Models
Capacity up to 3500 USgpm
Head, max. 330ft

- Clog-free pumping - ContraBlock Plus impellers provide state of the art wastewater solids handling for clog free operation.
- Easy handling - Open stainless steel lifting hoop, and large, stable cast iron (optional stainless steel) pump support stand provide easy handling and stable operation.
- The XFPT range has built-in IE3 Premium Efficiency motors. Sulzer is the first company in the world to offer submersible motors with such a high standard.

Waste Water Pumps

- Dry running capability
  - Silicon carbide mechanical seals and oil filled motor allows for continuous dry running
- Reliability
  - Heavy duty shaft and bearings
  - Dual silicon carbide mechanical seals provide long life and market leading reliability
  - Seal protection system prolongs the life of the primary mechanical seal
- Serviceability
  - Cable plug system
  - ContraBlock Impeller
  - Field adjustable wear plate allow for easy field service. Modular system reduces spare parts inventory requirements.

Waste Water Pumps

- Driven by Premium Efficiency IE3 motor in according with IEC 60034-30, exceeding CEMEP EFF 1
- Motor insulation according to Class H, temperature rise according to Class A
- Continuously rated motor suitable for wet and dry installation as standard.(PE1 and PE2)
- PE3 has the option of internal closed loop cooling system for dry installation
- Equipped with temperature and moisture sensors as standard
- Safety and monitoring features
  - Explosion proof as standard, ATEX, FM and CSA
  - All XFPT sewage pumps are available in Class I Div 1

Submersible Light and Medium Duty Pumps

- For the collection and removal of both ground water and wastewater in Domestic & Smaller Commercial properties Sulzer offers a complete range of light and medium duty submersible pumps including drainage, grinder and sewage pumps for handling contaminated water.

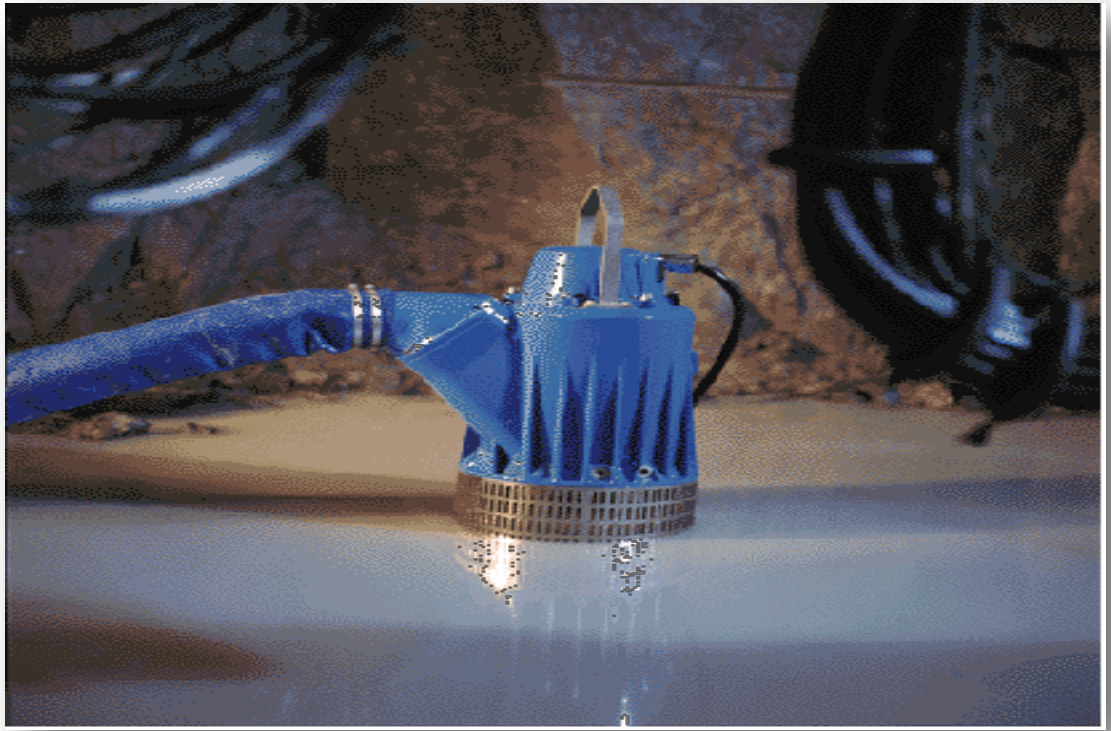
Tunnel Work Pumping Light Slurry with JS Line

Bypass Pumping with J-Series or Portable WW

Pumping with Pontoon Installation in a Quarry

Underground Mineral or Coal Mining

- J Series or JMEX
  Mine Explosion Proof



Open Pit Mineral Mining

Temporary or Permanent Well Dewatering

Bilge Pumping or Dry Dock Pump Applications

Summary

- Sulzer Submersible Dewatering Line is a great fit for Sales and Rental across several markets such as construction dewatering, mine dewatering, temporary sewer bypass and industrial pumping applications
- The low weight and compact design makes for convenient transport, handling and installation
- The Serviceability and Flexibility of the line due to the Modular Design gives you the advantage over the competition

Straight Ground Water in During Excavation