

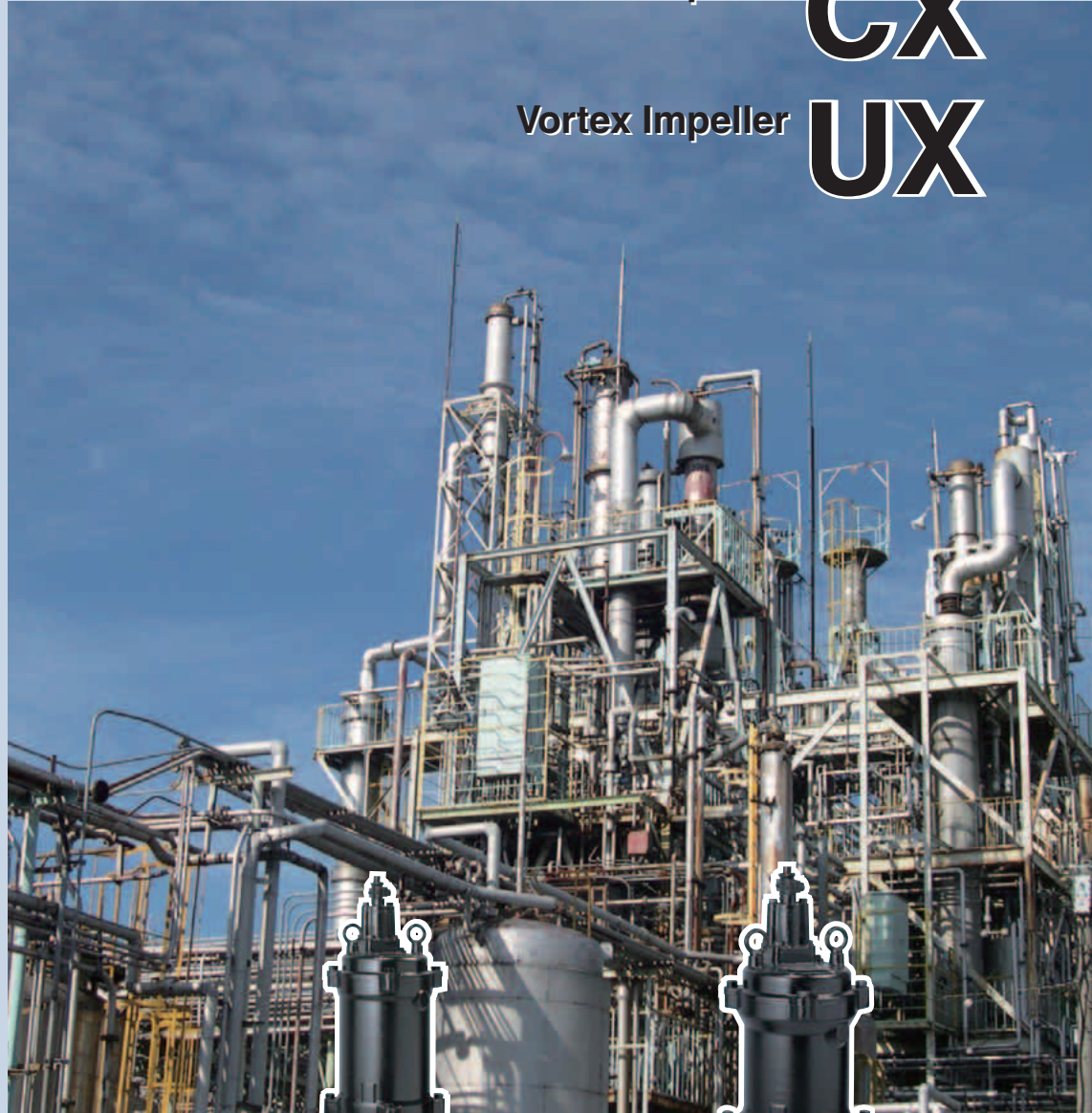


Ex *Submersible Sewage Pumps*
Explosion-proof

Channel Impeller **BX**




Cutter Impeller **CX**

Vortex Impeller **UX**



Tsurumi provides three models: **BX** has a channel impeller, **CX** has a cutter mechanism, and **UX** has a vortex impeller. These explosion-proof pumps are certified by **ATEX II 2 G Ex d IIB T4** standard.

Individual Features

Model	BX	CX	UX
	Channel	Cutter	Vortex
Impeller	 The impeller is a semi-open type with a single blade. It has a wide channel extending from inlet to exit. This construction allows the pump to pass the solid matters from inflow to discharge with minimal blockage.	 The impeller is a semi-open type with a single blade. A sintered tungsten carbide alloy tip is brazed on the impeller vane, and it rotates on the serrated part of the suction cover. This mechanism allows to cut the fibrous matter flowed into the impeller to discharge it.	 The impeller is a vortex type. The rotation of the impeller produces a whirling, centrifugal action between the impeller and pump casing. Being coupled with a wide pump casing, even large solids and fibrous matters can be pumped out without obstruction.
Discharge Bore (mm)	80-100	80-100	50-80
Motor Output (kW)	1.6-3.8	1.6-3.8	1.6-4.0
Application	The pumps are available for pumping up and draining in the atmosphere such as explosive gas and vapor. They conform to the relevant directives of the EU and are certified by ATEX II 2 G Ex d IIB T4 standard.		

TOS

TOS is the Tsurumi standard guide rail fitting system. This system connects the pump to and from the piping easily just by lowering and hoisting the pump, allowing easy maintenance and inspection without the need to enter the sump.



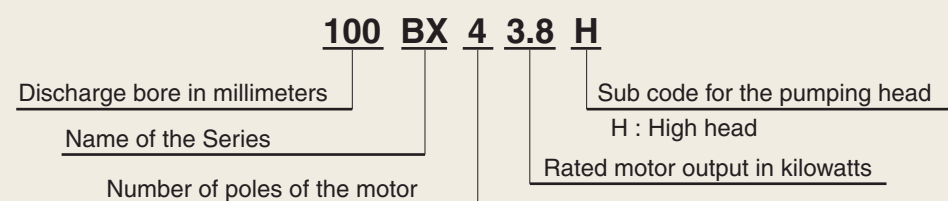
TS

This compact guide rail fitting system is ideal for installing on prefabricated lift stations. Its discharge flange is compatible with major flange standards including ANSI 150lb, BS PN10, and DIN PN10.



NOTE: Pump models used in combination with the guide rail fitting system are identified by the prefix TOS or TS. Refer to the specifications table for detail of the correct model number.

MODEL NUMBER DESIGNATION



BX

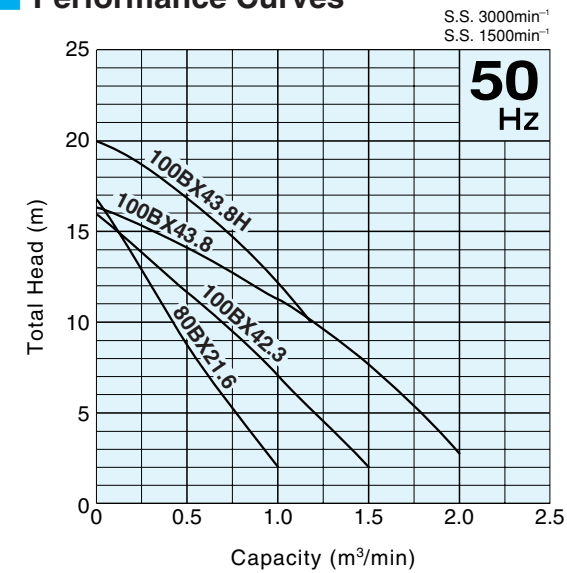
Channel Impeller



Major Standard Specifications

Discharge Bore	mm	80	100
Motor Output	kW	1.6	2.3 3.8
Pumping Liquid	Type of Liquid	Wastewater, and Liquid carrying Waste and Solid Matters	
	Liquid Temperature	0 to 40°C	
Pump	Parts	Impeller	Channel Impeller
		Shaft Seal	Double-Mechanical Seal (with Oil Lifter)
		Bearing	Double-Shielded Ball Bearing
	Materials	Impeller	Gray Iron Casting
		Suction Cover	Gray Iron Casting
Casing		Gray Iron Casting	
	Shaft Seal	SiC	
Motor	Type, Pole	Dry Type Submersible Induction Motor, 2-pole	Dry Type Submersible Induction Motor, 4-pole
	Class of Insulation	Class F	
	Phase/Voltage	Three-phase / 380V, 400V, 415V	
	Starting Method	Direct on Line	
	Motor Protector (Built-in)	Miniature Thermal Protector	
	Lubricant	Turbine Oil (ISO VG32)	
	Materials	Frame	Gray Iron Casting
	Shaft	Stainless Steel 420	
	Cable	Chloroprene Rubber	
Discharge Connection	Special Screwed Flange (Free-standing)	JIS 10K Flange	

Performance Curves



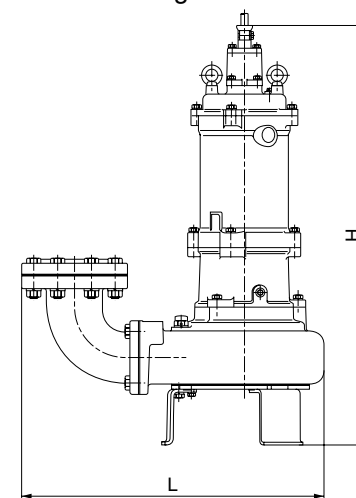
Standard Specifications

Discharge Bore mm	Standard Model			Motor Output kW	Performance		Speed (S.S.) min ⁻¹	Solids Passage mm	Cable Length m	Dimensions L×H mm			Dry Weight kg	
	Free Standing	Guide Rail Fitting			Max. Head m	Max. Capacity m ³ /min				Free Standing	Guide Rail Fitting		Free Standing	Guide [※] Rail Fitting
		TOS	TS								TOS	TS		
80	80BX21.6	TOS80BX21.6	TS80BX21.6	1.6	16.8	1.00	3000	49×41	10	446×695	668×744	515×744	52	50
100	100BX42.3	TOS100BX42.3	TS100BX42.3	2.3	16.0	1.50	1500	47×53	10	597×761	754×775	599×775	79	68
100	100BX43.8	TOS100BX43.8	TS100BX43.8	3.8	16.4	2.00	1500	81×53	10	602×838	759×847	604×847	93	82
100	100BX43.8H	TOS100BX43.8H	TS100BX43.8H	3.8	20.0	1.18	1500	35×62	10	604×814	761×828	606×828	92	81

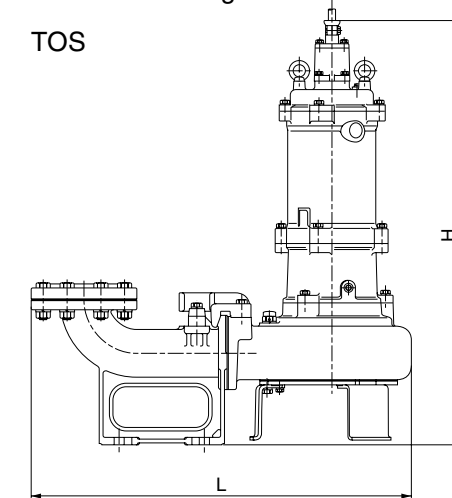
※Dry weights excluding duckfoot bend.

Dimensions

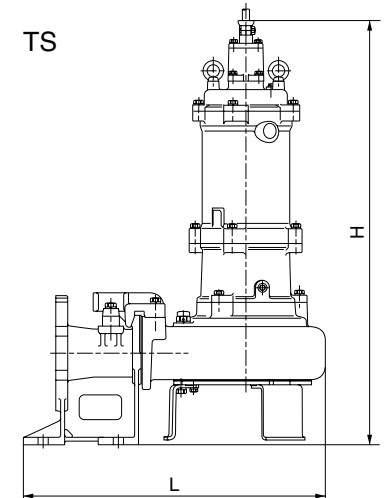
Free Standing



Guide Rail Fitting



TS



CX

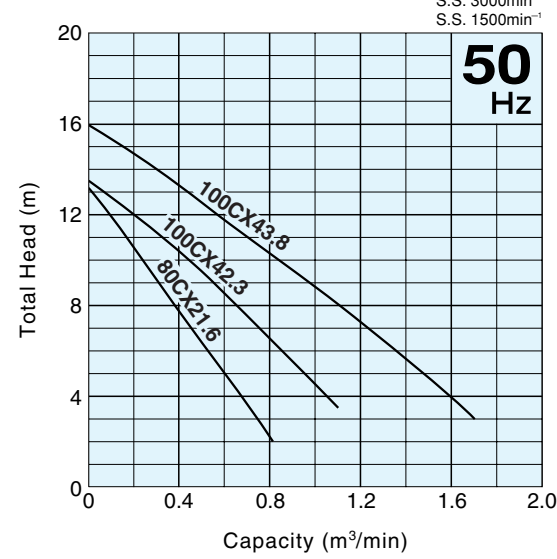
Cutter Impeller



Major Standard Specifications

Discharge Bore	mm	80	100	
Motor Output	kW	1.6	2.3	3.8
Pumping Liquid	Type of Liquid	Wastewater, and Liquid carrying Waste and Solid Matters		
	Liquid Temperature	0 to 40°C		
Pump	Parts	Impeller	Channel Impeller with Cutter Mechanism	
		Shaft Seal	Double Mechanical Seal (with Oil Lifter)	
		Bearing	Double-Shielded Ball Bearing	
	Materials	Impeller	Gray Iron Casting	
		Suction Cover	Ductile Iron Casting	
Casing		Gray Iron Casting		
	Shaft Seal	SiC		
Motor	Type, Pole	Dry Type Submersible Induction Motor, 2-pole	Dry Type Submersible Induction Motor, 4-pole	
	Class of Insulation	Class F		
	Phase/Voltage	Three-phase / 380V, 400V, 415V		
	Starting Method	Direct on Line		
	Motor Protector (Built-in)	Miniature Thermal Protector		
	Lubricant	Turbine Oil (ISO VG32)		
	Materials	Frame	Gray Iron Casting	
		Shaft	Stainless Steel 420	
		Cable	Chloroprene Rubber	
	Discharge Connection	Special Screwed Flange (Free-standing)	JIS 10K Flange	

Performance Curves



UX

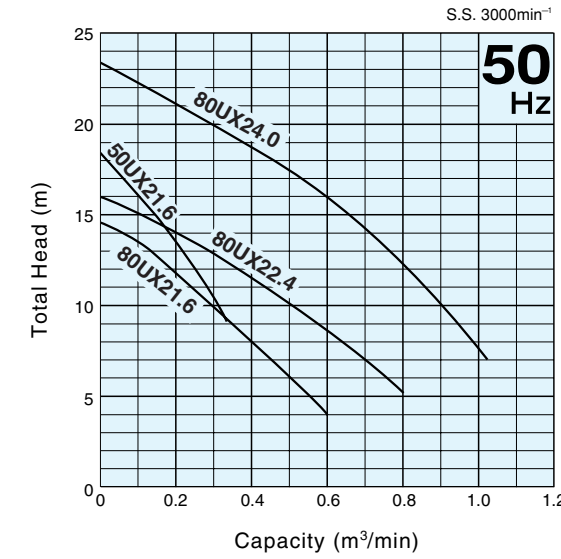
Vortex Impeller



Major Standard Specifications

Discharge Bore	mm	50	80	80	
Motor Output	kW	1.6	1.6	2.4	4.0
Pumping Liquid	Type of Liquid	Wastewater, and Liquid carrying Waste and Solid Matters			
	Liquid Temperature	0 to 40°C			
Pump	Parts	Impeller	Vortex Impeller		
		Shaft Seal	Double Mechanical Seal (with Oil Lifter)		
		Bearing	Double-Shielded Ball Bearing		
	Materials	Impeller	Gray Iron Casting		
		Casing	Gray Iron Casting		
	Shaft Seal	SiC			
Motor	Type, Pole	Dry Type Submersible Induction Motor, 2-pole			
	Class of Insulation	Class F			
	Phase/Voltage	Three-phase / 380V, 400V, 415V			
	Starting Method	Direct on Line			
	Motor Protector (Built-in)	Miniature Thermal Protector			
	Lubricant	Turbine Oil (ISO VG32)			
	Materials	Frame	Gray Iron Casting		
		Shaft	Stainless Steel 420		
		Cable	Chloroprene Rubber		
	Discharge Connection	Special Screwed Flange (Free-standing)	JIS 10K Flange		

Performance Curves



Standard Specifications

Discharge Bore mm	Standard Model			Motor Output kW	Performance		Speed (S.S.) min ⁻¹	Solids Passage mm	Cable Length m	Dimensions L×H mm			Dry Weight kg	
	Free Standing	Guide Rail Fitting			Max. Head m	Max. Capacity m ³ /min				Free Standing	Guide Rail Fitting		Free Standing	Guide [※] Rail Fitting
		TOS	TS								TOS	TS		
80	80CX21.6	TOS80CX21.6	TS80CX21.6	1.6	13.2	0.81	3000	43×60	10	446×695	668×744	515×744	52	50
100	100CX42.3	TOS100CX42.3	TS100CX42.3	2.3	13.5	1.10	1500	67×56	10	597×761	754×775	599×775	78	67
100	100CX43.8	TOS100CX43.8	TS100CX43.8	3.8	16.0	1.70	1500	70×81	10	602×838	759×847	604×847	94	83

※Dry weights excluding duckfoot bend.

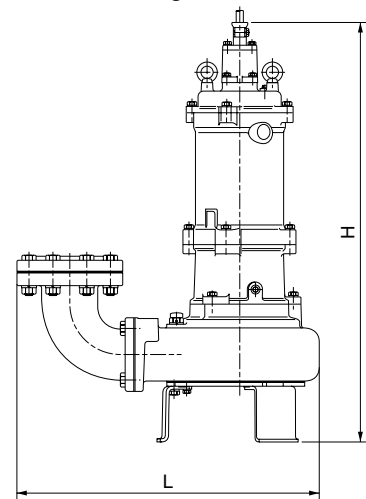
Standard Specifications

Discharge Bore mm	Standard Model		Motor Output kW	Performance		Speed (S.S.) min ⁻¹	Solids Passage mm	Cable Length m	Dimensions L×H mm		Dry Weight kg	
	Free Standing	Guide Rail Fitting		Max. Head m	Max. Capacity m ³ /min				Free Standing	Guide Rail Fitting	Free Standing	Guide [※] Rail Fitting
		TOS								TOS		
50	50UX21.6	TOS50UX21.6	1.6	18.4	0.33	3000	35	10	297×625	658×637	39	41
80	80UX21.6	TOS80UX21.6	1.6	14.5	0.60	3000	46	10	420×658	607×760	48	46
80	80UX22.4	TOS80UX22.4	2.4	16.0	0.80	3000	56	10	502×694	641×779	62	54
80	80UX24.0	TOS80UX24.0	4.0	23.5	1.03	3000	56	10	502×742	641×827	71	63

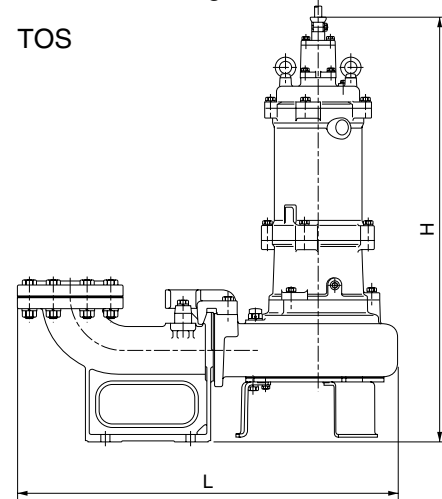
※Dry weights excluding duckfoot bend.

Dimensions

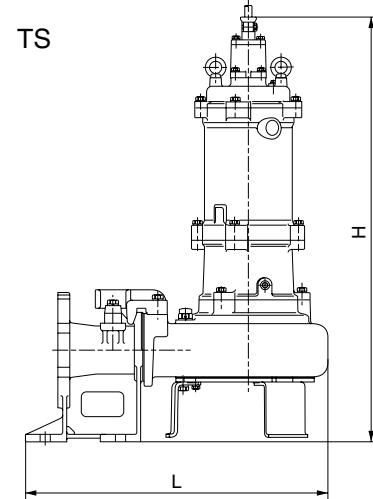
Free Standing



Guide Rail Fitting

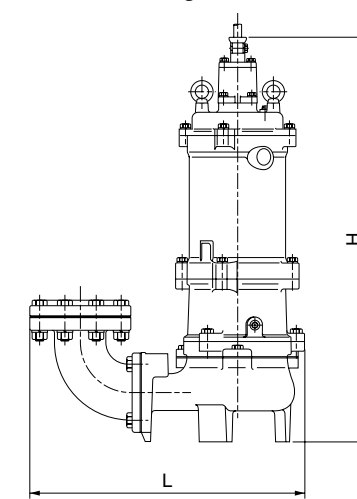


TS

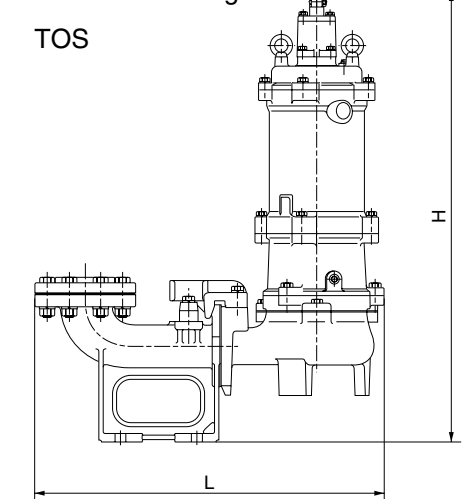


Dimensions

Free Standing



Guide Rail Fitting



The BX, CX, UX-series are suitable for pumping up and draining in the atmosphere such as explosive gas and vapor.

Explosion-proof Submersible Motor

A reliable and high-efficient motor is used. The shaft is made of 13 Cr 420 stainless steel. The bearings are double shielded, grease-enclosed type that is maintenance-free.

Dual-inside Mechanical Seal

The mechanical seal with two seal faces containing silicon carbide (SiC) is equipped with the oil chamber. The advantages of the seal are two-fold, it eliminates spring failure caused by corrosion, abrasion or fouling which prevents the seal faces from closing properly, and prevents loss of cooling to the lower seal faces during run-dry conditions which causes the lower seal faces to fail.

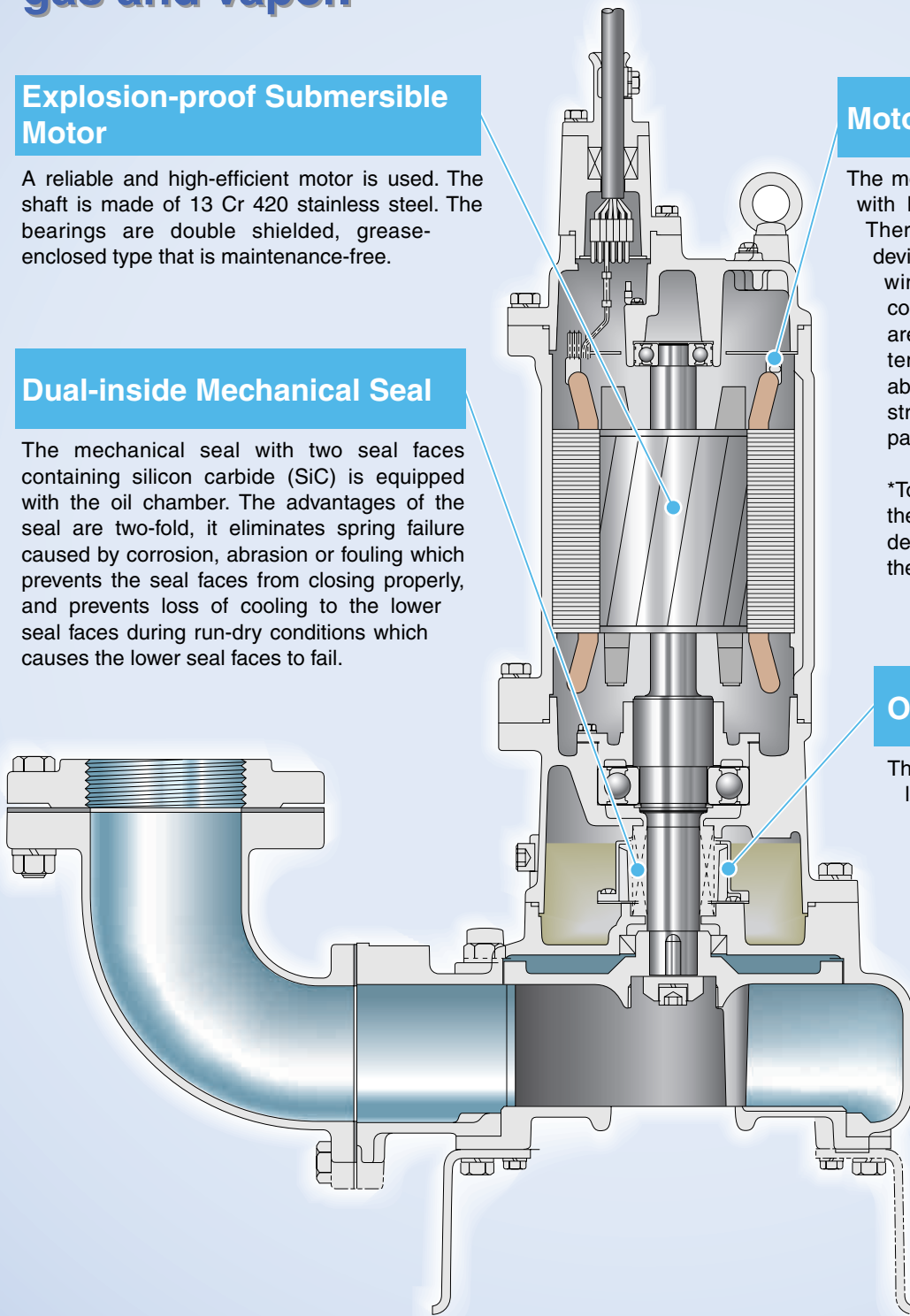
Motor Protector

The motor has three protection devices with bimetal switch called "Miniature Thermal Protectors" (MTPs). The devices are embedded in the stator winding. These devices are connected in series, and their wires are led out of the motor. When the temperature in the motor is abnormally increased, the bimetal strip opens to cause the control panel to shut the power supply.

*To detect this operation and stop the power supply to the motor, a dedicated circuit is necessary on the operating panel.

Oil Lifter (Patented)

The Oil Lifter was developed as a lubricating device for the mechanical seal. Utilizing the centrifugal force of the shaft seal, the Oil Lifter forcibly supplies lubricating oil to the mechanical seal and continues to supply the oil to the upper seal faces even if lubricant falls below the rated volume. This amazingly simple device is not only reliably lubricates and cools down, but also retains the stable shaft seal effect and extends the inspection term.



We reserve the right to change the specifications and designs for improvement without prior notice.

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