

GSZ/GSD

HIGH VOLUME DEWATERING PUMPS



Submersible High Volume Dewatering Pumps

Tsurumi GSZ and GSD series of submersible heavy-duty pumps deliver high volume discharge. This former consists of the GSZ-4 (4-pole motor) that fully demonstrates the high head performance and the GSZ-6 (6-pole motor) that can discharge slurries laden with silt, earth, sand or other particulate. The GSD is a slurry pump, built with a high-chromium cast iron agitator. With extensive lineups featuring motor outputs of 22 to 150kW, these pumps are used in a wide range of fields from civil engineering and construction projects that demand high reliability to mining and large-scale works for building tunnels, bridges, dams, etc.

To stand up to rough working conditions, these pumps employ impellers made of high-chromium cast iron or cast 304 stainless steel, both of which deliver the high wear resistance needed in heavy-duty applications. The pumps are also designed for side discharge via a spiral path that ensures the passage of solids. And, their motors are wrapped in a water jacket that keeps the motor cool during extended operation at low water level. Reliable and durable by design and construction, Tsurumi's pumps are made for continuous duty.

Tsurumi also offers optional seawater-resistant versions, developed from years of research to draw and discharge seawater over extended periods of time.



GSZ-4: High head, high volume drainage pump with internal 4-pole motor

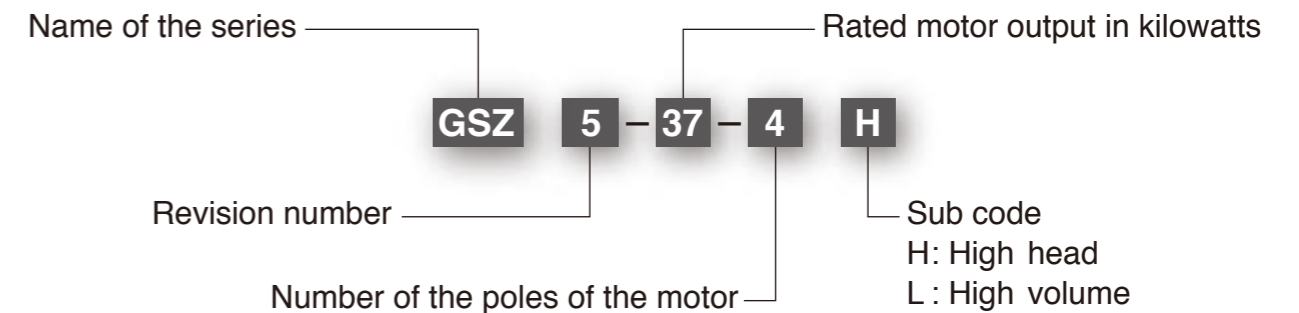
GSZ-6: High volume drainage pump with internal 6-pole motor capable of discharging slurries laden with silt, earth, sand or other particulate

GSD : High-powered slurry pump that delivers powerful agitation, high head and high volume discharge

Selection Table

Motor Output		22kW	37kW	45kW	55kW	75kW	150kW
GSZ-4	6" 150mm						
	8" 200mm						
	10" 250mm						
GSZ-6	8" 200mm						
	10" 250mm						
GSD	8" 200mm						
	10" 250mm						

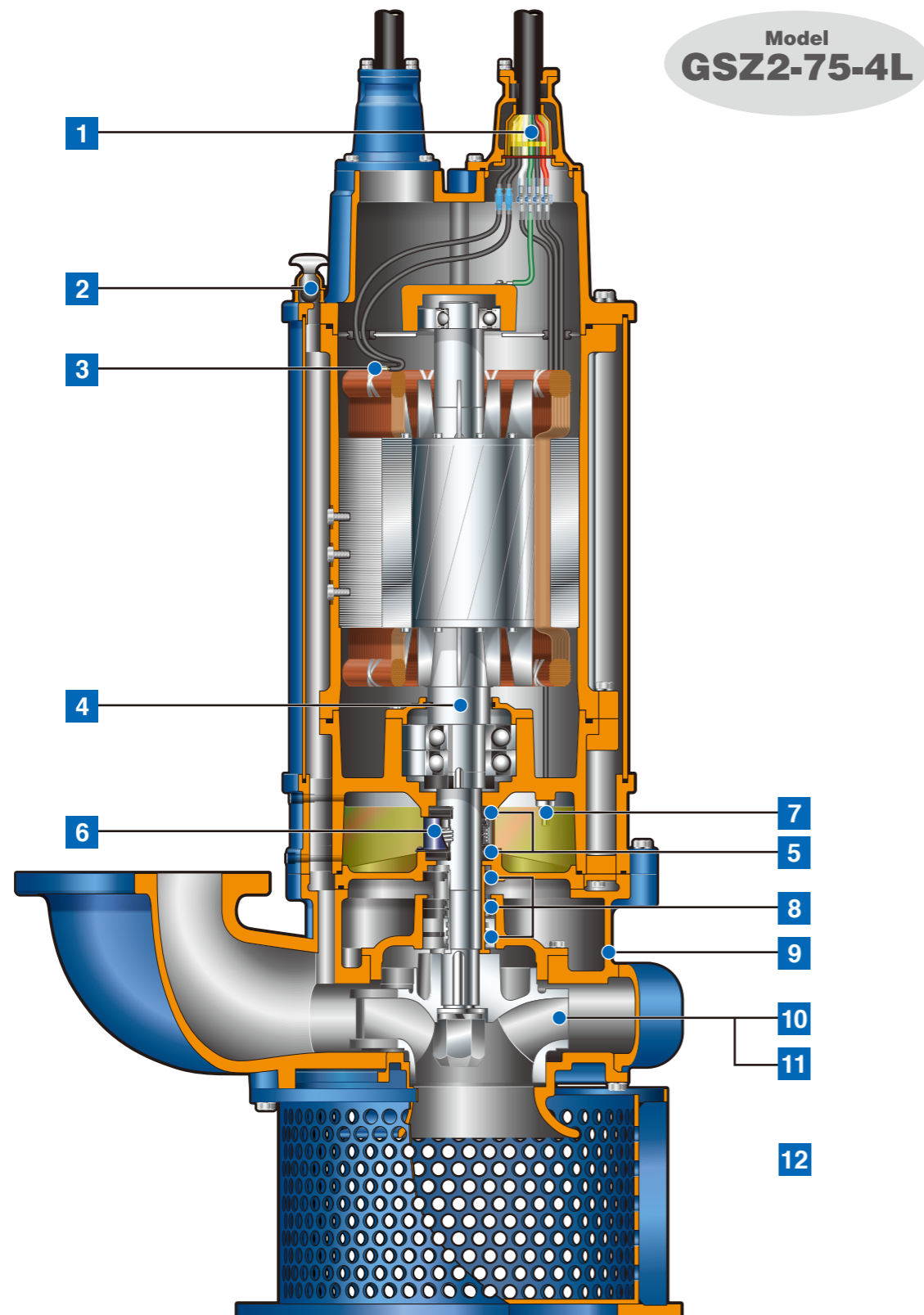
Model Number Designation



Options

- Seawater-resistant version;
- High temperature liquids version;
- Galvanic anode & Special impeller
- Max. 60°C

Tsurumi hones its pump design in consideration of product characteristics. For example, because of the high head they deliver, the GSZ-4 and GSD have seal pressure relief ports that release pump pressure applied to the mechanical seal. Similarly, the GSZ-6 and GSD have impellers, suction plates and mouth rings made of high-chromium cast iron in order to defend against incoming wear-causing substances. And, if these parts wear down, the pumps maintain their original performance owing to a proprietary mechanism that continuously adjusts the clearance between the parts.



Spiral Design with Water Jacket

The side discharge, spiral design allows smoother passage of the sucked solid matters. The motor is cooled by a water jacket assuring efficient motor cooling even when the pump operates with its motor exposed to air.

1 Anti-wicking Cable Entry

Prevents water incursion due to capillary action should the cable sheath be damaged or the end of cable submerged. Also prevents moist air from infiltrating the motor housing and condensation from forming inside the housing due to temperature differences between the housing and outside air.

2 Air Release Valve

Fitted on the water jacket to prevent the Air-lock. When air flows through the valve, the ball stays at the bottom, but when the pumped water starts to flow, the ball closes the outlet because of its buoyancy.

3 Miniature Thermal Protectors

React to excessive heat caused by dry-running. The bimetal strip opens to cause the control panel to shut the power supply.

4 Shaft

Made of a solid material (without welds) of thoroughly proven bending strength and tensile strength.

5 Dual Inside Mechanical Seals with Silicon Carbide Faces

Isolated in the oil chamber where a clean, non-corrosive and abrasion-free lubricating environment is maintained. Compared with the water-cooled outside mechanical seal, it reduces the risk of failure caused by dry-heating and adhering matter. The silicon carbide provides 5 times higher corrosion, wear and heat resistance than the tungsten carbide. Rubber parts of the upper and lower fixing rings are made of NBR or FPM (FKM), which provides higher resistance to heat and chemicals.

6 Oil Lifter [Patented]

Provides lubrication and cooling of the seal faces down to 1/3 of normal oil level, thus maintaining a stable shaft sealing effect and prolonging seal life longer.

7 Leakage Sensor (55kW and above)

Detects flooding into the oil chamber that may occur in a worst case scenario. When flooding is detected, signals are sent to operate the indicator lamps through the external control panel.

8 Single/Triple/Quadruple Oil Seals + Labyrinth Ring (55kW and 75kW)

Used as a "Dust Seal", a number of oil seals from 1 to 4 protect the mechanical seal from abrasive particles. The labyrinth ring is equipped to provide a better countermeasure against wear caused by high pressure generated in the casing and improve the maintainability for pumps of 55kW and 75kW.

9 Seal Pressure Relief Ports (excluding GSZ-6)

Protect the mechanical seal from pump pressure. They also protect the seal face by discharging wear particles.

10 High-chromium Cast Iron / Cast 304 Stainless Steel Impeller (GSZ-4)

Resists wear caused by abrasive particles and enables the pump to maintain its original performance for an extended period of time.

11 High-chromium Cast Iron Impeller & Suction Plate/Mouth Ring (GSZ-6 & GSD)

Made of high-chromium cast iron ensuring highest durability. Even if the performance drops due to wearing out of the impeller and/or suction plate/mouth ring, it can be improved by adjusting impeller clearance.

12 Agitating Mechanism (GSD)

Consists of a shaft-mounted agitator and a dedicated strainer. The agitator made of high-chromium cast iron resists wear caused by abrasive particles, and it suspends solids to assist in pumping sediments in combination with the strainer.

GSZ-4

High head, high volume drainage pump with internal 4-pole motor

The GSZ-4-series is a submersible three-phase cast iron high head and high volume heavy-duty drainage pump driven by a 4-pole motor. The side discharge, spiral design allows smoother passage of the sucked solid matters. The motor is cooled by a water jacket that assures efficient motor cooling even when it operates with its motor exposed to air. The pump incorporates seal pressure relief ports that prevent the pumping pressure from applying to the shaft seal.



GSZ-6

High volume drainage pump with internal 6-pole motor capable of discharging slurries laden with silt, earth, sand or other particulate

The GSZ-6-series is a submersible three-phase high power and high volume heavy-duty drainage pump driven by a 6-pole motor. In combination with abrasion-resistant wear parts, the very low speed motor ensures extremely long wear life. The side discharge, spiral design allows smoother passage of the sucked solid matters. The motor is cooled by a water jacket that assures efficient motor cooling even when it operates with its motor exposed to air.



GSD

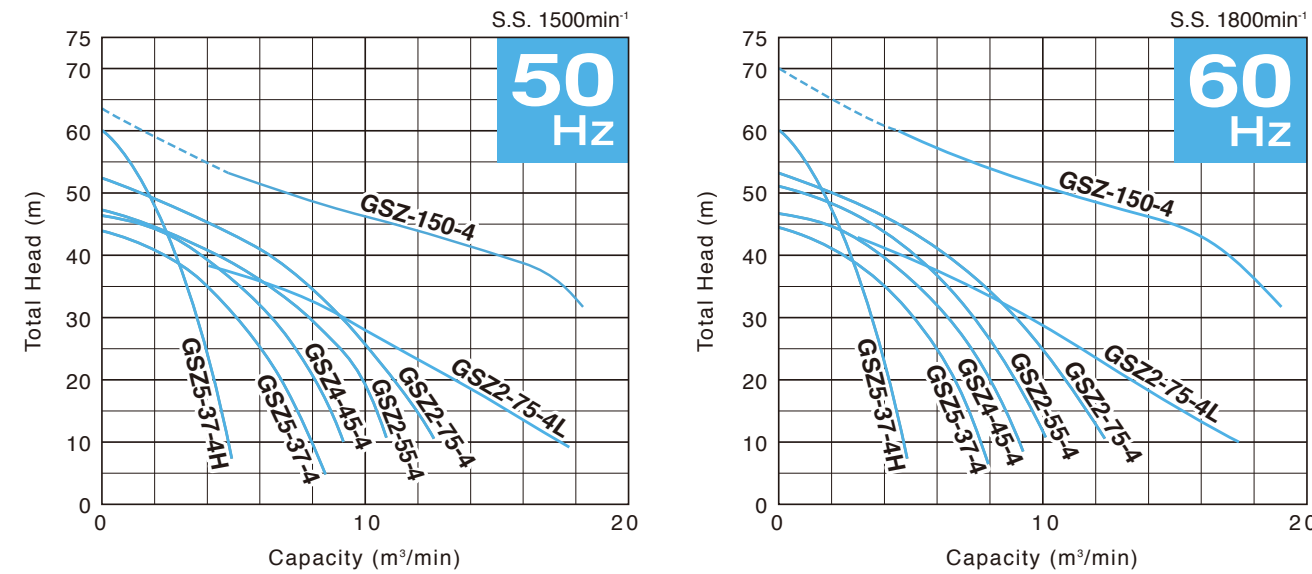
High-powered slurry pump that delivers powerful agitation, high head and high volume discharge

The GSD-series is a submersible three-phase high power, high head and high volume heavy-duty slurry pump driven by a 4-pole motor. It is equipped with a high-chromium cast iron agitator that assists smooth suction of the settled matters. The side discharge, spiral design allows smoother passage of the sucked solid matters. The motor is cooled by a water jacket that assures efficient motor cooling even when it operates with its motor exposed to air. The pump incorporates seal pressure relief ports that prevent the pumping pressure from applying to the shaft seal.



Performance Curves

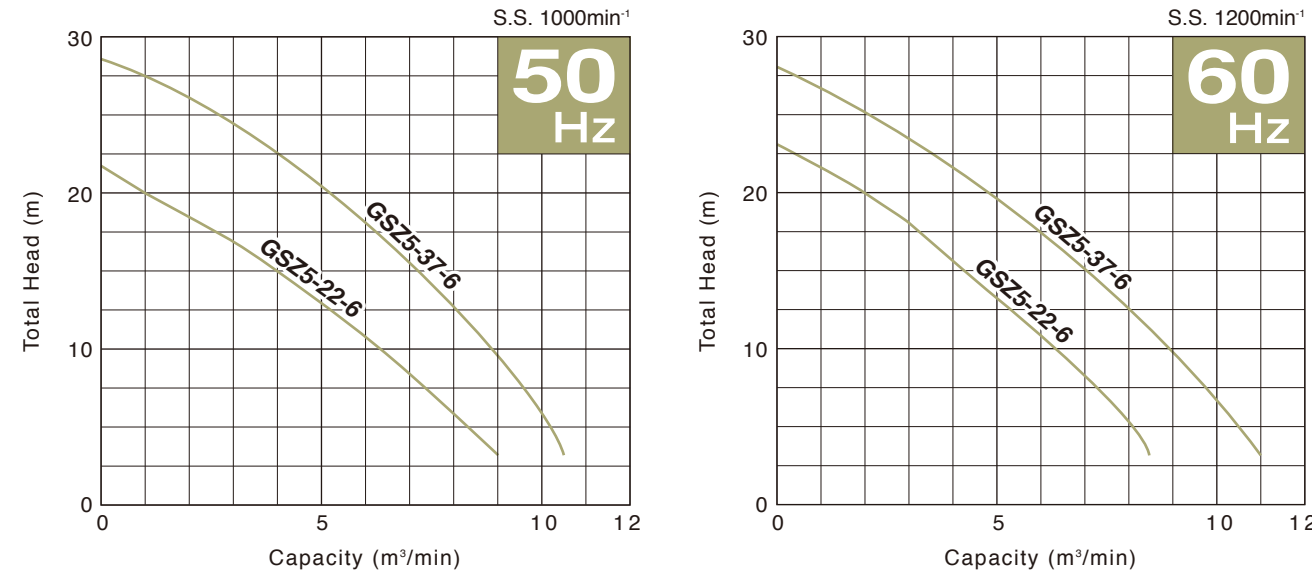
It is not recommended to operate the unit continuously along the dashed curve.



Discharge Bore mm	Model	Motor Output kW	Phase	Pole	Starting Method	Solids Passage mm	Dimensions L x H mm	Dry Weight kg	Cable Length m
150	GSZ5-37-4H	37	Three	4	Star-Delta	10	900 x 1553	595	10
200	GSZ5-37-4	37			Star-Delta	25	915 x 1583	566	10
200	GSZ4-45-4	45			Star-Delta	25	915 x 1591	583	10
250	GSZ2-55-4	55			Star-Delta	25	1050 x 1927	1091	10
250	GSZ2-75-4	75			Star-Delta	25	1050 x 1927	1141	10
250	GSZ2-75-4L	75			Star-Delta	25	1050 x 1972	1200	10
250	GSZ-150-4	150			Star-Delta	25	1218 x 2420	2315	10

* Weights excluding cable

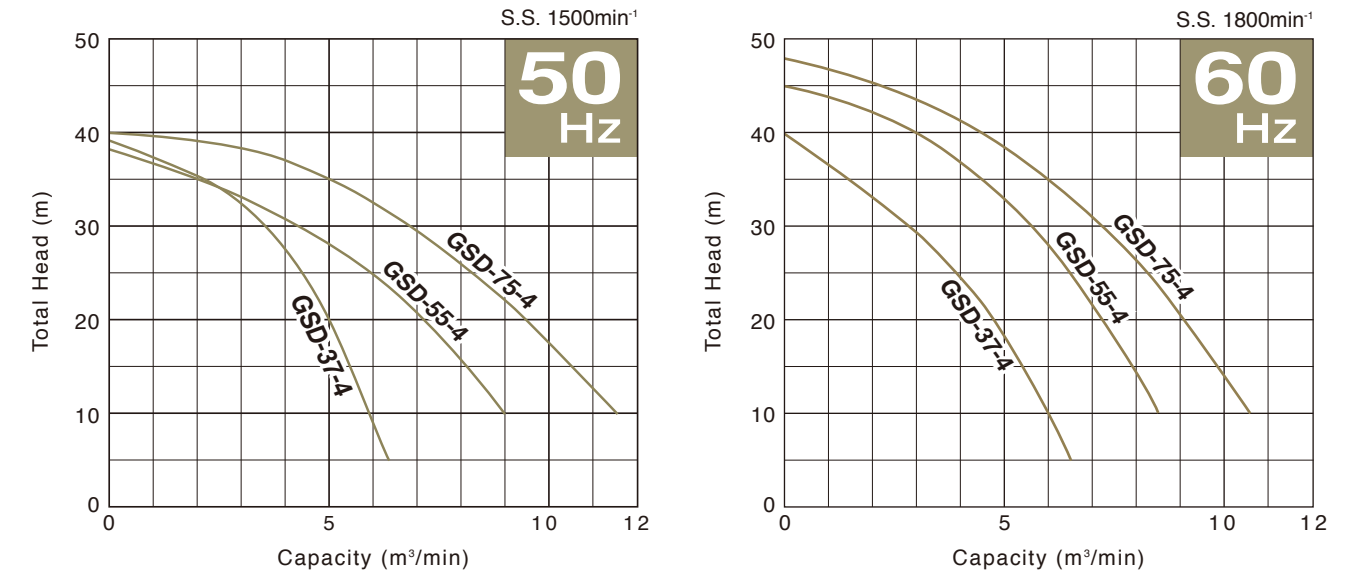
Performance Curves



Discharge Bore mm	Model	Motor Output kW	Phase	Pole	Starting Method	Solids Passage mm	Dimensions L x H mm	Dry Weight kg	Cable Length m
200	GSZ5-22-6	22	Three	6	D.O.L.	50	965 x 1360	685	10
200	GSZ5-37-6	37			Star-Delta	50	1047 x 1421	796	10

* Weights excluding cable

Performance Curves



Discharge Bore mm	Model	Motor Output kW	Phase	Pole	Starting Method	Solids Passage mm	Dimensions L x H mm	Dry Weight kg	Cable Length m
200	GSD-37-4	37	Three	4	Star-Delta	25	915 x 1583	685	10
250	GSD-55-4	55			Star-Delta	25	1050 x 1927	1215	10
250	GSD-75-4	75			Star-Delta	25	1050 x 1927	1215	10

* Weights excluding cable

Specifications

		GSZ-4						GSZ-6		GSD			
		GSZ 5-37-4H	GSZ 5-37-4	GSZ 4-45-4	GSZ 2-55-4	GSZ 2-75-4	GSZ 2-75-4L	GSZ 150-4	GSZ 5-22-6	GSZ 5-37-6	GSD 37-4	GSD 55-4	GSD 75-4
PUMP	Discharge Bore mm	150	200		250			200		250			
	Discharge Connection	JIS 10kg/cm ² Flange											
	Solids Passage mm	10	25					50	25				
	Impeller	Closed						Semi-open		Closed			
		Cast 304 Stainless Steel	High-chromium Cast Iron			Cast 304 Stainless Steel	High-chromium Cast Iron						
	Suction Cover	Gray Cast Iron											
	Suction Plate	—							High-chromium Cast Iron		—		
	Mouth Ring	—									High-chromium Cast Iron		
	Oil Seal	Q'ty	Quadruple		Triple		Quadruple	Single		Quadruple	Triple		
		Nitrile Butadiene Rubber											
	Labyrinth Ring	—			403 Stainless Steel		—				403 Stainless Steel		
	Casing	Gray Cast Iron											
	Shaft Seal	Dual Inside Mechanical Seals (with Oil Lifter)											
		Silicon Carbide											
Agitator	—									High-chromium Cast Iron			
MOTOR	Type	Continuous-duty Rated, Dry-type Induction Motor											
	Output kW	37	45	55	75	150	22	37	55	75			
	Phase	Three											
	Pole	4					6		4				
	Insulation	F											
	Starting Method	Star-Delta						D.O.L.		Star-Delta			
	Motor Protector (built-in)	MTP											
	Leakage Sensor (built-in)	—			Electrode			—			Electrode		
	Lubricant	ml	8400	8000	9400		26000	5400	9200	5400	9400		
		Turbine Oil (ISO VG32)											
	Shaft	420 Stainless Steel											
Cable	m	10											
	Chloroprene Rubber												
Dry Weight*	kg	595	565	583	1091	1141	1200	2315	685	796	685	1215	

*Weights excluding cable



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

**TSURUMI
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