



SUBMERSIBLE EXPLOSION-PROOF DEWATERING PUMPS



Submersible Explosion-proof Dewatering Pumps

Tsurumi’s submersible explosion-proof pumps come in three series of pumps, namely, KRDX-series pumps for slurry, and HSX- and KTX-series pumps for drainage. Intended for explosion-proof applications, these pumps feature an explosion-proof structure that is suitable for drainage/pumping operations in coal mines, oil/gas refineries and similar worksites under an “explosive atmosphere” where dangerous combustible gases or vapors or flammable liquids exist.

KRDX-series pumps are submersible slurry pumps equipped with agitators recognized by both IECEx and ATEX. With the impeller, suction plate, and agitator made of high-chromium cast iron and the pump casing and motor frame made of ductile cast iron, KRDX-series pumps are excellent in terms of wear resistance, and thus suited for drainage of mud-water, sediment-containing water, and various kinds of liquid slurry. In addition, KRDX-series pumps can be built to specifications of rated voltages of 380 V to 1000 V.

HSX- and KTX-series pumps (with a motor output of up to 3.7 kW), though not complying with IECEx/ATEX, are general-purpose drainage pumps recognized by the type certification for explosion-proof-structured electric machinery by TIIS of Japan. Both single-phase HSX-series and three-phase KTX-series pumps are built to a specification requiring the use of impellers made of extremely wear-resistant high-chromium cast iron for heavy-duty workability.

These explosion-proof pumps, like Tsurumi’s other standard-specification submersible ones, are equipped with an anti-wicking cable, a motor protector, and dual inside mechanical seals with silicon carbide faces.

Tsurumi’s prime design objective is to ensure continuous duty over a long time on the basis of reliability that promises stable operation even under harsh operating environments as well as outstanding durability and maintainability.

Making the most of its longstanding experience and know-how, Tsurumi also carries products that withstand particularly severe applications such as drainage of high-temperature liquids and corrosive liquids as well as pumps built to 1000-V-rating specifications. Contact our dealer if you are interested.

Selection Table

		Slurry	Drainage	
		KRDX	HSX	KTX
Discharge Bore	mm	80 • 100	50	50 - 100
Motor Output	kW	3.7 - 7.5	0.4	1.5 - 11
Phase		Three	Single	Three
Discharge Connection		BSPT Male Threaded Coupling	Hose Coupling (Nipple type) ¹⁾	
Discharge Design		Top Discharge, Side Flow Design	Side Discharge	Top Discharge, Side Flow Design
Power Cable	General ²⁾	NSSHÖU screened	JIS 3RNCT or JIS 3PNCT	
	Europe		-	-
	South Africa	SANS Type 41	JIS 3RNCT	SANS Type 41
Insulation		H	E	F
Applicable Voltage ²⁾ (50Hz)	V	380 - 1000	110 - 240	380 - 525

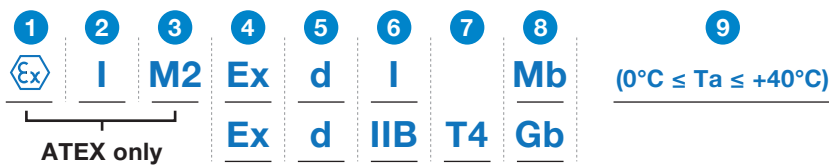
¹⁾ Male threaded coupling available upon request

²⁾ For orders from areas other than Europe and South Africa, it is necessary to check the voltage, the cable specification, the specification of the diode and the designation of its orientation, and the circuit diagram.

Ex Certification List

Model		International IECEx certification	Europe ATEX certification	Japan TIIS certification	South Africa SANAS certification
KRDX	KRDX33.7-50 KRDX45.5-50 KRDX47.5-50	Ex d I Mb (0°C ≤ Ta ≤ +40°C) IECEx TUR 19.0038X	ⓂI M2 Ex d I Mb (0°C ≤ Ta ≤ +40°C) TÜV 19 ATEX 8398 X		Ex d I Mb (0°C ≤ Ta ≤ +40°C) S-XPL/21.0411 X
	HSX	HSX2.4S-51		JPEX d2G4, Group II, Zone 1 (Ex d IIB T4 Gb equiv.) T69055	Ex db I Mb (0°C ≤ Ta ≤ +40°C) M-XPL/21.0678 X
KTX	50KTX21.5-51			JPEX d2G4, Group II, Zone 1 (Ex d IIB T4 Gb equiv.) T28999	Ex db I Mb (0°C ≤ Ta ≤ +40°C) M-XPL/21.0678 X
	80KTX23.7-51			JPEX d2G4, Group II, Zone 1 (Ex d IIB T4 Gb equiv.) T29000	Ex db I Mb (0°C ≤ Ta ≤ +40°C) M-XPL/21.0678 X
	100KTX27.5-51 100KTX211-51				Ex db I Mb (0°C ≤ Ta ≤ +40°C) M-XPL/21.0678 X

Explanation of Ex Marking



- 1

ATEX symbol mark
- 2

ATEX Equipment-Group

I: for underground mine gas and dust

II: except for underground mining, gas or dust
- 3

ATEX Equipment-Category

M1: for underground mine gas and dust which present over 1000h/y or >10% of the time

M2: for underground mine gas and dust which present under 1000h/y or <10% of the time

1G, 2G, 3G: except for underground mining, explosive gas (M1>M2, 1G>2G>3G. Each higher category for higher hazard frequency covers lower.)
- 4

Symbol of "Explosion Protection"
- 5

Type of Protection

d, da, db, dc: flameproof enclosure (da > d (= db) > dc. Higher grade covers lower. "d" (= db) is for Mb and Gb of EPL.)
- 6

Equipment Group

I: for underground mining, mine gas and dust

IIC, IIB, IIA: except for underground mining, explosive gas (IIC>IIB>IIA. Higher group for higher explosivity covers lower.)
- 7

Temperature Class (Max. Surface Temperature of Equipment)

T6: ≤ 85 °C (acceptable gas in thermal: Carbon di-sulfide, Ethyl nitrate)

T5: ≤ 100 °C

T4: ≤ 135 °C (acceptable gas in thermal: All gases except Carbon di-sulfide, Ethyl nitrate)

(T6>...>T1. Higher class for higher ignitability covers lower.)
- 8

Equipment Protection Level (EPL)

Ma: for underground mining, with very high protection to remain energised when mine gas is detected.

Mb: for underground mining, with high protection to be de-energised when mine gas is detected.

Ga, Gb, Gc: except for underground mining, explosive gas (Ma>Mb, Ga>Gb>Gc. Each higher protection level covers lower.)
- 9

Ambient Temperature Range

(The temperature of Ambient air and pumped liquid must be in this range.)

KRDX

— Slurry —

IECEx and ATEX  approved



KRDX –Slurry–

Explosion-proof slurry pumps that deliver powerful agitation for discharging slurries laden with silt, earth, sand or other particulate

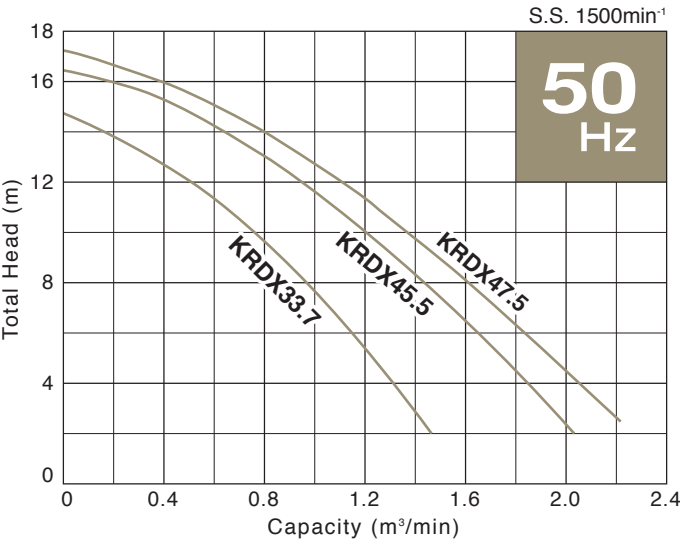
The KRDX-series is a submersible three-phase heavy-duty explosion-proof slurry pump. It is equipped with a high-chromium cast iron agitator that assists the smooth suction of the settled material. Among other parts subject to wear, impellers and suction plates are made of high-chromium cast iron, with the pump casing and motor frame made of ductile cast iron, which provides excellent wear resistance for both types of parts.



KRDX33.7

KRDX47.5

Performance Curves



Features

- Anti-wicking Cable Entry
- Motor Protector
- Ground Check Diode
- Dual Inside Mechanical Seals
- Seal Pressure Relief Ports
- Oil Seal and Labyrinth Ring
- High-chromium Cast Iron Impeller & Suction Plate
- Agitator

Model		Discharge Bore mm	Motor Output kW	Phase	Starting Method	Solids Passage mm	Dimensions L x W x H mm	Dry Weight* kg	Cable Length m
KRDX	KRDX33.7	80	3.7	Three	D.O.L.	21	415 x 369 x 829	155	20 (NSSHÖU) or 15 (SANS Type 41)
	KRDX45.5	100	5.5		D.O.L.	28	446 x 416 x 838	175	
	KRDX47.5	100	7.5		D.O.L.	33	446 x 416 x 868	186	


* Weights excluding cable

HSX / KTX –Drainage–

HSX: Single-phase, portable explosion-proof drainage pump
KTX: Three-phase, high head explosion-proof drainage pumps

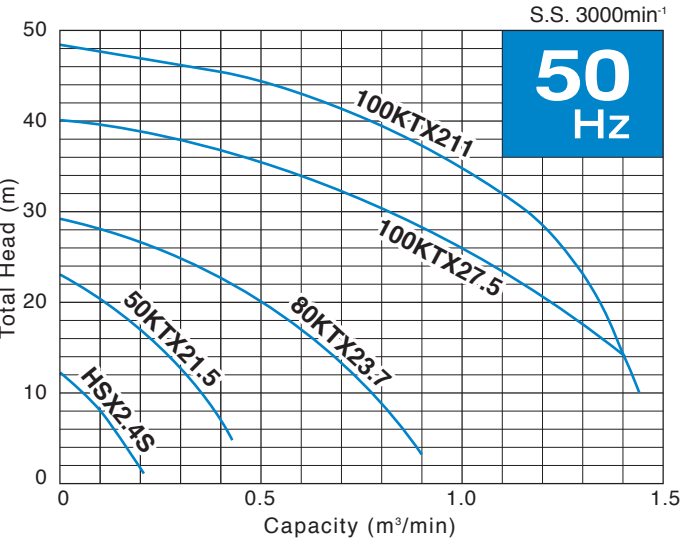
The HSX/KTX series are submersible explosion-proof drainage pumps. Equipped with high-chromium cast iron impellers excellent in wear resistance, they are built to heavy-duty specifications.

The HSX-series pump is single-phase powered, and the shaft-mounted agitator prevents air locks, which tend to occur in vortex or semi-vortex pumps. The KTX-series pump is three-phase powered and built to high head specifications, and the slim design allows the pump to be placed in a confined space.

Does not comply with IECEx/ATEX 



Performance Curves



Features

- Anti-wicking Cable Entry
- Motor Protector
- Dual Inside Mechanical Seals
- Oil Lifter
- V-ring / Oil Seal
- High-chromium Cast Iron Impeller
- Agitator (HSX only)

Model		Discharge Bore mm	Motor Output kW	Phase	Starting Method	Solids Passage mm	Dimensions L x W x H mm	Dry Weight* kg	Cable Length m
HSX	HSX2.4S	50	0.4	Single	Capacitor Run	7	250 x 214 x 563	24	5 (JIS 3RNCT)
KTX	50KTX21.5	50	1.5	Three	D.O.L.	8	282 x 300 x 652	55	10 (JIS 3RNCT) or 15 (SANS Type 41)
	80KTX23.7	80	3.7		D.O.L.	8	316 x 300 x 738	70	
	100KTX27.5	100	7.5		D.O.L.	20	432 x 400 x 970	176	10 (JIS 3PNCT) or 15 (SANS Type 41)
	100KTX211	100	11		D.O.L.	20	432 x 400 x 970	184	

* Weights excluding cable

Specifications

			KRDx			HSx	KTx				
			KRDx33.7	KRDx45.5	KRDx47.5	HSx2.4S	50KTx21.5	80KTx23.7	100KTx27.5	100KTx211	
PUMP	Discharge Bore		mm	80	100		50		80	100	
	Discharge Connection			BSPT Male Threaded Coupling			Hose Coupling (Nipple type) ¹				
	Solids Passage		mm	21	28	33	7	8		20	
	Impeller			Semi-open			Vortex	Semi-open			
				High-chromium Cast Iron							
	Suction Cover			Gray Cast Iron			-	Ductile Cast Iron			
	Suction Plate			High-chromium Cast Iron			-				
	Oil Seal / V-Ring			Nitrile Butadiene Rubber							
	Labyrinth Ring			Alloy Tool Steel			-				
	Pump Casing			Ductile Cast Iron				Gray Cast Iron			
	Shaft Seal			Dual Inside Mechanical Seals			Dual Inside Mechanical Seals (with Oil Lifter)				
				Silicon Carbide							
	Shaft Sleeve			Alloy Tool Steel			304 Stainless Steel	403 Stainless Steel	-	403 Stainless Steel	
Agitator			High-chromium Cast Iron			Sintered Alloy	-				
MOTOR	Type			Continuous-duty Rated, Dry-type Induction Motor							
	Output		kW	3.7	5.5	7.5	0.4	1.5	3.7	7.5	11
	Phase			Three			Single	Three			
	Pole			4			2				
	Speed (S.S.) 50 Hz		min ⁻¹	1500			3000				
	Insulation			H			E	F			
	Starting Method			D.O.L.			Capacitor Run	D.O.L.			
	Motor Protector (built-in)			MTP Ground Check Diode ²			CTP				
	Lubricant		ml	1050			160	770	1200	1800	
				Turbine Oil (ISO VG32)							
	Frame			Ductile Cast Iron			Gray Cast Iron				
	Shaft			410 Stainless Steel			403 Stainless Steel	420 Stainless Steel			
	Power Cable		General ²	NSSHÖU screened x 20m			JIS 3RNCT x 5m	JIS 3RNCT x 10m		JIS 3PNCT x 10m	
Europe			-								
			South Africa	SANS Type 41 x 15m			JIS 3RNCT x 5m	SANS Type 41 x 15m			
C.W.L. ³			mm	290	300		90	125	160	190	
Dry Weight ⁴			kg	155	175	186	24	55	70	176	184

¹ Male threaded coupling available upon request

² For orders from areas other than Europe and South Africa, it is necessary to check the voltage, the cable specification, the specification of the diode and the designation of its orientation, and the circuit diagram.

³ The pump is equipped with an explosion-proof motor, but never operate the pump below the continuous running water level (C.W.L.). Doing so may cause sparks to occur, which in turn may lead to an explosion.

⁴ Weights excluding cable



We reserve the right to change the specifications and designs without prior notice. The OO series and model OO are indicated with our series/model codes in this catalog.

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