

Series:

**CZ**

Discharge Bore:

**100mm**

Motor Output / Pole:

**2.2 - 15kW / 4-pole**



The CZ-series is a submersible smashing cutter pump specially designed for pumping sewage and wastewater containing various solid waste including fibrous materials. A unique design of heart-shaped suction cover equipped with a sharp-edged stationary blade along with an improved semi-open channel impeller having two sharp-edged vanes incorporates the scissor mechanism. This innovative scissor-like mechanism remarkably enhances the solid handling capabilities. It prevents pump clogging through crushing and shredding of solid objects.

In addition to that, the extended rotating guide equipped on impeller prevents the retention of solid waste at the central part of the impeller, thereby providing a smooth pumping operation.

**Guide Rail Fitting System**

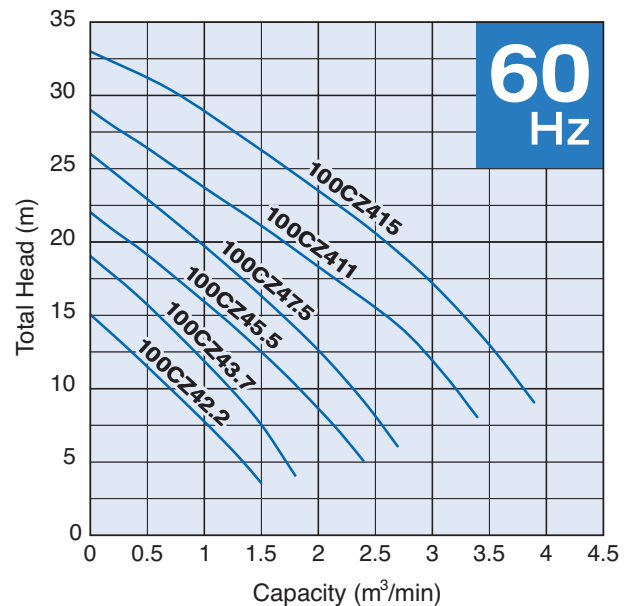
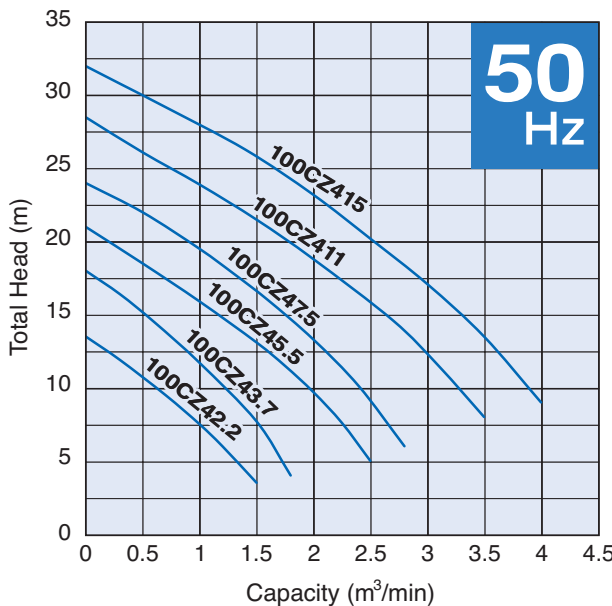
The guide rail fitting system connects the pump to and from the piping easily just by lowering or hoisting the pump, allowing easy maintenance and inspection without the need to enter the sump.

**Selection Table**

Model	Discharge Bore mm	Motor Output kW	Phase	Pole	Optional Accessories for Types of Installation		
					Free Standing		Guide Rail Fitting
					Bend Set	Stand Set	“TOS” Set
100CZ42.2	100	2.2	3-phase	4	BEND 80-100F	STAND SET 4 A	TOS3-80-100
100CZ43.7	100	3.7	3-phase	4	BEND 80-100F	STAND SET 4 A	TOS3-80-100
100CZ45.5	100	5.5	3-phase	4	BEND 100-100F	STAND SET	TOS3-100-100
100CZ47.5	100	7.5	3-phase	4	BEND 100-100F	STAND SET	TOS3-100-100
100CZ411	100	11	3-phase	4	BEND 100-100F	STAND SET	TOS3-100-100
100CZ415	100	15	3-phase	4	BEND 100-100F	STAND SET	TOS3-100-100

● Every above model is supplied without the discharge bend and pump stand. Select the accessory for the desired type of installation.

**Performance Curves**



**Special Features**

- Pump Casing / Oil Casing material: **Gray Cast Iron JIS FC250 (EN-GJL 250 equivalent)**
- Impeller / Suction cover material: **Ductile Cast Iron JIS FCD500 (EN-GJS 500 equivalent)**

SPECIFICATIONS	Model	100CZ42.2		CZ-series																														
				2.2kW, 3-phase																														
<p><b>Type of Pump</b> Submersible cast iron smashing cutter pump suitable for sewage, wastewater, and heavy-duty industrial applications</p> <p><b>Type of Fluid</b> Sewage, wastewater, and water carrying solid matters</p> <p>Temperature: 0 to 40°C</p> <p><b>Discharge Bore</b> 100mm</p> <p><b>Motor Output</b> 2.2kW</p> <p><b>Power Supply</b> Three-phase</p> <p><b>Starting Method</b> Direct on Line</p> <p><b>Motor</b> Continuous-duty rated, dry-type induction motor</p> <p>Insulation Class: F Degree of Protection: IP68</p> <p>No. of Poles &amp; Speed (Synchronous Speed) 4-pole, 1500/1800min<sup>-1</sup> (50/60Hz)</p> <p>Power Supply Voltages &amp; Rated Currents</p> <table border="0"> <tr> <td>50Hz</td> <td>60Hz</td> </tr> <tr> <td>380V – 4.9A</td> <td>220V – 8.5A</td> </tr> <tr> <td>400V – 4.8A</td> <td>380V – 4.8A</td> </tr> <tr> <td>415V – 4.8A</td> <td>440V – 4.6A</td> </tr> </table> <p><b>Power Cable</b> Sheath: PVC Standard Length: 6m 380 to 600V supply: 1 × 4 × 1.25mm<sup>2</sup>, O.D. 11.1mm 200 to 240V supply: 1 × 4 × 2.0mm<sup>2</sup>, O.D. 11.8mm</p> <p><b>Dry Weight</b> (excluding cable) Free Standing Type: 81kg Guide Rail Fitting Type: 69kg</p>		50Hz	60Hz	380V – 4.9A	220V – 8.5A	400V – 4.8A	380V – 4.8A	415V – 4.8A	440V – 4.6A	<p><b>Impeller</b> Semi-open channel impeller with two sharp-edged vanes and an extended rotating guide</p> <p><b>Solids Passage</b> 50Hz – <math>\phi</math>30mm* 60Hz – <math>\phi</math>30mm* * Solids larger than aforementioned size can be transferred easily with the help of improved shredding and crushing mechanism.</p> <p><b>Heart-shaped Suction Cover</b> Made of ductile cast iron with unique heart-shaped stationary suction blade</p> <p><b>Cable Entry with Anti-Wicking Block</b> Watertight cable entry with strain-relief device. The anti-wicking block prevents water incursion due to capillary action should the power cable be damaged or the end submerged.</p> <p><b>Bearing</b> Permanently lubricated, deep-groove, double-shielded C3 ball bearings</p> <p><b>Shaft</b> 420 stainless steel</p> <p><b>Shaft Seal (Mechanical Seal)</b> Furnished with a double-face mechanical seal located in oil chamber. Both upper and lower seal faces always run in a clean environment.</p> <p>Upper Seal Face: Ceramic + Carbon Lower Seal Face: SiC + SiC</p> <p><b>Oil Seal (Lip Seal)</b> Used as a "Dust Seal"; it protects the mechanical seal from abrasive particles.</p> <p><b>OIL Lifter</b> Equipped in oil chamber. It 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.</p> <p>Type of Lubricating Oil &amp; Volume Turbine Oil (ISO VG32), 1250ml</p> <p><b>Motor Protection Device</b> A circle thermal protector built in the motor housing. Directly cuts the motor circuit if excessive heat builds up or an overcurrent condition occurs in the motor.</p> <p><b>Main Components' Material</b></p> <table border="0"> <thead> <tr> <th></th> <th>JIS</th> <th>EN / AISI (Equivalent)</th> </tr> </thead> <tbody> <tr> <td>Motor Enclosure</td> <td>FC200</td> <td>Cast iron EN-GJL 200</td> </tr> <tr> <td>Shaft</td> <td>SUS420J2</td> <td>AISI 420 Stainless steel</td> </tr> <tr> <td>Oil Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Pump Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Impeller</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> <tr> <td>Suction Cover</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> </tbody> </table>					JIS	EN / AISI (Equivalent)	Motor Enclosure	FC200	Cast iron EN-GJL 200	Shaft	SUS420J2	AISI 420 Stainless steel	Oil Casing	FC250	Cast iron EN-GJL 250	Pump Casing	FC250	Cast iron EN-GJL 250	Impeller	FCD500	Cast iron EN-GJS 500	Suction Cover	FCD500	Cast iron EN-GJS 500
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<p><b>Optional Accessories</b></p> <p><b>Bend Set</b> (Free Standing Type) • Discharge Bend • Threaded JIS 10kg/cm<sup>2</sup> Flange</p> <p><b>Stand Set</b> (Free Standing Type) • Stand</p> <p><b>TOS Set</b> (Guide Rail Fitting Type) • Duckfoot Bend • Guide Support • Guide Hook • Lifting Chain 5m (with Shackles) • Threaded JIS 10kg/cm<sup>2</sup> Flange</p> <p><b>External Leakage Sensor</b> (Electrode)</p>		<p><b>Special Specifications</b> <b>High Temperature Liquids Version (60°C)</b></p>																																
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SPECIFICATIONS	Model	100CZ43.7		CZ-series																													
				3.7kW, 3-phase																													
<p><b>Type of Pump</b> Submersible cast iron smashing cutter pump suitable for sewage, wastewater, and heavy-duty industrial applications</p> <p><b>Type of Fluid</b> Sewage, wastewater, and water carrying solid matters</p> <p>Temperature: 0 to 40°C</p> <p><b>Discharge Bore</b> 100mm</p> <p><b>Motor Output</b> 3.7kW</p> <p><b>Power Supply</b> Three-phase</p> <p><b>Starting Method</b> Direct on Line</p> <p><b>Motor</b> Continuous-duty rated, dry-type induction motor</p> <p>Insulation Class: F Degree of Protection: IP68</p> <p>No. of Poles &amp; Speed (Synchronous Speed) 4-pole, 1500/1800min<sup>-1</sup> (50/60Hz)</p> <p>Power Supply Voltages &amp; Rated Currents</p> <table border="0"> <tr> <td>50Hz</td> <td>60Hz</td> </tr> <tr> <td>380V – 8.4A</td> <td>220V – 14.8A</td> </tr> <tr> <td>400V – 8.3A</td> <td>380V – 7.8A</td> </tr> <tr> <td>415V – 8.3A</td> <td>440V – 7.4A</td> </tr> </table> <p><b>Power Cable</b> Sheath: PVC Standard Length: 6m 380 to 600V supply: 1 × 4 × 2.0mm<sup>2</sup>, O.D. 11.8mm 200 to 240V supply: 1 × 4 × 3.5mm<sup>2</sup>, O.D. 13.9mm</p> <p><b>Dry Weight</b> (excluding cable) Free Standing Type: 92kg Guide Rail Fitting Type: 80kg</p>		50Hz	60Hz	380V – 8.4A	220V – 14.8A	400V – 8.3A	380V – 7.8A	415V – 8.3A	440V – 7.4A	<p><b>Impeller</b> Semi-open channel impeller with two sharp-edged vanes and an extended rotating guide</p> <p><b>Solids Passage</b> 50Hz – <math>\phi</math>30mm* 60Hz – <math>\phi</math>30mm* * Solids larger than aforementioned size can be transferred easily with the help of improved shredding and crushing mechanism.</p> <p><b>Heart-shaped Suction Cover</b> Made of ductile cast iron with unique heart-shaped stationary suction blade</p> <p><b>Cable Entry with Anti-Wicking Block</b> Watertight cable entry with strain-relief device. The anti-wicking block prevents water incursion due to capillary action should the power cable be damaged or the end submerged.</p> <p><b>Bearing</b> Permanently lubricated, deep-groove, double-shielded C3 ball bearings</p> <p><b>Shaft</b> 420 stainless steel</p> <p><b>Shaft Seal (Mechanical Seal)</b> Furnished with a double-face mechanical seal located in oil chamber. Both upper and lower seal faces always run in a clean environment.</p> <p>Upper Seal Face: Ceramic + Carbon Lower Seal Face: SiC + SiC</p> <p><b>Oil Seal (Lip Seal)</b> Used as a "Dust Seal"; it protects the mechanical seal from abrasive particles.</p> <p><b>OIL Lifter</b> Equipped in oil chamber. It 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.</p> <p>Type of Lubricating Oil &amp; Volume Turbine Oil (ISO VG32), 1250ml</p> <p><b>Motor Protection Device</b> A circle thermal protector built in the motor housing. Directly cuts the motor circuit if excessive heat builds up or an overcurrent condition occurs in the motor.</p> <p><b>Main Components' Material</b></p> <table border="0"> <thead> <tr> <th></th> <th>JIS</th> <th>EN / AISI (Equivalent)</th> </tr> </thead> <tbody> <tr> <td>Motor Enclosure</td> <td>FC200</td> <td>Cast iron EN-GJL 200</td> </tr> <tr> <td>Shaft</td> <td>SUS420J2</td> <td>AISI 420 Stainless steel</td> </tr> <tr> <td>Oil Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Pump Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Impeller</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> <tr> <td>Suction Cover</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> </tbody> </table>				JIS	EN / AISI (Equivalent)	Motor Enclosure	FC200	Cast iron EN-GJL 200	Shaft	SUS420J2	AISI 420 Stainless steel	Oil Casing	FC250	Cast iron EN-GJL 250	Pump Casing	FC250	Cast iron EN-GJL 250	Impeller	FCD500	Cast iron EN-GJS 500	Suction Cover	FCD500	Cast iron EN-GJS 500
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<p><b>Type of Pump</b> Submersible cast iron smashing cutter pump suitable for sewage, wastewater, and heavy-duty industrial applications</p> <p><b>Type of Fluid</b> Sewage, wastewater, and water carrying solid matters</p> <p>Temperature: 0 to 40°C</p> <p><b>Discharge Bore</b> 100mm</p> <p><b>Motor Output</b> 5.5kW</p> <p><b>Power Supply</b> Three-phase</p> <p><b>Starting Method</b> Direct on Line (Star-Delta available on special request)</p> <p><b>Motor</b> Continuous-duty rated, dry-type induction motor</p> <p>Insulation Class: F Degree of Protection: IP68</p> <p>No. of Poles &amp; Speed (Synchronous Speed) 4-pole, 1500/1800min<sup>-1</sup> (50/60Hz)</p> <p>Power Supply Voltages &amp; Rated Currents</p> <table border="0"> <tr> <td>50Hz</td> <td>60Hz</td> </tr> <tr> <td>380V – 12.4A</td> <td>220V – 21.4A</td> </tr> <tr> <td>400V – 12.1A</td> <td>380V – 12.1A</td> </tr> <tr> <td>415V – 12.0A</td> <td>440V – 10.7A</td> </tr> </table> <p><b>Power Cable</b> Sheath: Chloroprene rubber Standard Length: 8m 200 to 600V supply: 1 × 4 × 3.5mm<sup>2</sup>, O.D. 14.1mm</p> <p><b>Dry Weight</b> (excluding cable) Free Standing Type: 166kg Guide Rail Fitting Type: 150kg</p>		50Hz	60Hz	380V – 12.4A	220V – 21.4A	400V – 12.1A	380V – 12.1A	415V – 12.0A	440V – 10.7A	<p><b>Impeller</b> Semi-open channel impeller with two sharp-edged vanes and an extended rotating guide</p> <p><b>Solids Passage</b> 50Hz – <math>\phi</math>35mm* 60Hz – <math>\phi</math>35mm* * Solids larger than aforementioned size can be transferred easily with the help of improved shredding and crushing mechanism.</p> <p><b>Heart-shaped Suction Cover</b> Made of ductile cast iron with unique heart-shaped stationary suction blade</p> <p><b>Cable Entry with Anti-Wicking Block</b> Watertight cable entry with strain-relief device. The anti-wicking block prevents water incursion due to capillary action should the power cable be damaged or the end submerged.</p> <p><b>Bearing</b> Permanently lubricated, deep-groove, double-shielded C3 ball bearings</p> <p><b>Shaft</b> 420 stainless steel</p> <p><b>Shaft Seal (Mechanical Seal)</b> Furnished with a double-face mechanical seal located in oil chamber. Both upper and lower seal faces always run in a clean environment.</p> <p>Upper Seal Face: Ceramic + Carbon Lower Seal Face: SiC + SiC</p> <p><b>Oil Seal (Lip Seal)</b> Used as a "Dust Seal"; it protects the mechanical seal from abrasive particles.</p> <p><b>OIL Lifter</b> Equipped in oil chamber. It 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.</p> <p>Type of Lubricating Oil &amp; Volume Turbine Oil (ISO VG32), 4200ml</p> <p><b>Motor Protection Device</b> A circle thermal protector built in the motor housing. Directly cuts the motor circuit if excessive heat builds up or an overcurrent condition occurs in the motor.</p> <p><b>Main Components' Material</b></p> <table border="0"> <thead> <tr> <th></th> <th>JIS</th> <th>EN / AISI (Equivalent)</th> </tr> </thead> <tbody> <tr> <td>Motor Enclosure</td> <td>FC200</td> <td>Cast iron EN-GJL 200</td> </tr> <tr> <td>Shaft</td> <td>SUS420J2</td> <td>AISI 420 Stainless steel</td> </tr> <tr> <td>Oil Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Pump Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Impeller</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> <tr> <td>Suction Cover</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> </tbody> </table>				JIS	EN / AISI (Equivalent)	Motor Enclosure	FC200	Cast iron EN-GJL 200	Shaft	SUS420J2	AISI 420 Stainless steel	Oil Casing	FC250	Cast iron EN-GJL 250	Pump Casing	FC250	Cast iron EN-GJL 250	Impeller	FCD500	Cast iron EN-GJS 500	Suction Cover	FCD500	Cast iron EN-GJS 500
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SPECIFICATIONS	Model	100CZ411		CZ-series																														
				11kW, 3-phase																														
<p><b>Type of Pump</b> Submersible cast iron smashing cutter pump suitable for sewage, wastewater, and heavy-duty industrial applications</p> <p><b>Type of Fluid</b> Sewage, wastewater, and water carrying solid matters</p> <p>Temperature: 0 to 40°C</p> <p><b>Discharge Bore</b> 100mm</p> <p><b>Motor Output</b> 11kW</p> <p><b>Power Supply</b> Three-phase</p> <p><b>Starting Method</b> Star-Delta</p> <p><b>Motor</b> Continuous-duty rated, dry-type induction motor</p> <p>Insulation Class: F Degree of Protection: IP68</p> <p>No. of Poles &amp; Speed (Synchronous Speed) 4-pole, 1500/1800min<sup>-1</sup> (50/60Hz)</p> <p>Power Supply Voltages &amp; Rated Currents</p> <table border="0"> <tr> <td>50Hz</td> <td>60Hz</td> </tr> <tr> <td>380V – 24.5A</td> <td>220V – 39.2A</td> </tr> <tr> <td>400V – 23.4A</td> <td>380V – 22.8A</td> </tr> <tr> <td>415V – 22.8A</td> <td>440V – 19.6A</td> </tr> </table> <p><b>Power Cable</b> Sheath: Chloroprene rubber Standard Length: 8m 200 to 600V supply: 1 × 4 × 3.5mm<sup>2</sup>, O.D. 14.1mm 1 × 3 × 3.5mm<sup>2</sup>, O.D. 12.9mm 1 × 2 × 1.25mm<sup>2</sup>, O.D. 9.6mm</p> <p><b>Dry Weight</b> (excluding cable) Free Standing Type: 231kg Guide Rail Fitting Type: 214kg</p>			50Hz	60Hz	380V – 24.5A	220V – 39.2A	400V – 23.4A	380V – 22.8A	415V – 22.8A	440V – 19.6A	<p><b>Impeller</b> Semi-open channel impeller with two sharp-edged vanes and an extended rotating guide</p> <p><b>Solids Passage</b> 50Hz – φ41mm* 60Hz – φ41mm* * Solids larger than aforementioned size can be transferred easily with the help of improved shredding and crushing mechanism.</p> <p><b>Heart-shaped Suction Cover</b> Made of ductile cast iron with unique heart-shaped stationary suction blade</p> <p><b>Cable Entry with Anti-Wicking Block</b> Watertight cable entry with strain-relief device. The anti-wicking block prevents water incursion due to capillary action should the power cable be damaged or the end submerged.</p> <p><b>Bearing</b> Permanently lubricated, deep-groove, double-shielded C3 ball bearings</p> <p><b>Shaft</b> 420 stainless steel</p> <p><b>Shaft Seal (Mechanical Seal)</b> Furnished with a double-face mechanical seal located in oil chamber. Both upper and lower seal faces always run in a clean environment.</p> <p>Upper Seal Face: SiC + Carbon Lower Seal Face: SiC + SiC</p> <p><b>Oil Seal (Lip Seal)</b> Used as a “Dust Seal”, it protects the mechanical seal from abrasive particles.</p> <p><b>OIL Lifter</b> Equipped in oil chamber. It 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.</p> <p>Type of Lubricating Oil &amp; Volume Turbine Oil (ISO VG32), 5400ml</p> <p><b>Motor Protection Device</b> A miniature thermal protector is embedded in each winding of the motor. Should excessive heat builds up, the bimetal strip opens to cause the control panel to shut the power supply.</p> <p><b>Main Components' Material</b></p> <table border="0"> <thead> <tr> <th></th> <th>JIS</th> <th>EN / AISI (Equivalent)</th> </tr> </thead> <tbody> <tr> <td>Motor Enclosure</td> <td>FC200</td> <td>Cast iron EN-GJL 200</td> </tr> <tr> <td>Shaft</td> <td>SUS420J2</td> <td>AISI 420 Stainless steel</td> </tr> <tr> <td>Oil Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Pump Casing</td> <td>FC250</td> <td>Cast iron EN-GJL 250</td> </tr> <tr> <td>Impeller</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> <tr> <td>Suction Cover</td> <td>FCD500</td> <td>Cast iron EN-GJS 500</td> </tr> </tbody> </table>				JIS	EN / AISI (Equivalent)	Motor Enclosure	FC200	Cast iron EN-GJL 200	Shaft	SUS420J2	AISI 420 Stainless steel	Oil Casing	FC250	Cast iron EN-GJL 250	Pump Casing	FC250	Cast iron EN-GJL 250	Impeller	FCD500	Cast iron EN-GJS 500	Suction Cover	FCD500	Cast iron EN-GJS 500
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TSURUMI MANUFACTURING CO., LTD.																																		

<b>SPECIFICATIONS</b>	Model	<b>100CZ415</b>	<b>CZ-series</b>
			<b>15kW, 3-phase</b>

**Type of Pump**

Submersible cast iron smashing cutter pump suitable for sewage, wastewater, and heavy-duty industrial applications

**Type of Fluid**

Sewage, wastewater, and water carrying solid matters

Temperature: 0 to 40°C

**Discharge Bore**

100mm

**Motor Output**

15kW

**Power Supply**

Three-phase

**Starting Method**

Star-Delta

**Motor**

Continuous-duty rated, dry-type induction motor

Insulation Class: F

Degree of Protection: IP68

No. of Poles & Speed (Synchronous Speed)  
4-pole, 1500/1800min<sup>-1</sup> (50/60Hz)

**Power Supply Voltages & Rated Currents**

50Hz	60Hz
380V – 32.4A	220V – 53.4A
400V – 30.9A	380V – 30.5A
415V – 30.5A	440V – 26.7A

**Power Cable**

Sheath: Chloroprene rubber

Standard Length: 8m

200 to 600V supply:

1 × 4 × 5.5mm<sup>2</sup>, O.D. 16.8mm

1 × 3 × 5.5mm<sup>2</sup>, O.D. 15.2mm

1 × 2 × 1.25mm<sup>2</sup>, O.D. 9.6mm

**Dry Weight (excluding cable)**

Free Standing Type: 247kg

Guide Rail Fitting Type: 231kg

**Optional Accessories**
**Bend Set (Free Standing Type)**

- Discharge Bend
- Threaded JIS 10kg/cm<sup>2</sup> Flange

**Stand Set (Free Standing Type)**

- Stand

**TOS Set (Guide Rail Fitting Type)**

- Duckfoot Bend
- Guide Support
- Guide Hook
- Lifting Chain 5m (with Shackles)
- Threaded JIS 10kg/cm<sup>2</sup> Flange

**External Leakage Sensor (Electrode)**
**Impeller**

Semi-open channel impeller with two sharp-edged vanes and an extended rotating guide

**Solids Passage**

50Hz – φ41mm\*

60Hz – φ41mm\*

\* Solids larger than aforementioned size can be transferred easily with the help of improved shredding and crushing mechanism.

**Heart-shaped Suction Cover**

Made of ductile cast iron with unique heart-shaped stationary suction blade

**Cable Entry with Anti-Wicking Block**

Watertight cable entry with strain-relief device. The anti-wicking block prevents water incursion due to capillary action should the power cable be damaged or the end submerged.

**Bearing**

Permanently lubricated, deep-groove, double-shielded C3 ball bearings

**Shaft**

420 stainless steel

**Shaft Seal (Mechanical Seal)**

Furnished with a double-face mechanical seal located in oil chamber. Both upper and lower seal faces always run in a clean environment.

Upper Seal Face: SiC + SiC

Lower Seal Face: SiC + SiC

**Oil Seal (Lip Seal)**

Used as a "Dust Seal"; it protects the mechanical seal from abrasive particles.

**OIL Lifter**

Equipped in oil chamber. It 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.

**Type of Lubricating Oil & Volume**

Turbine Oil (ISO VG32), 5700ml

**Motor Protection Device**

A miniature thermal protector is embedded in each winding of the motor. Should excessive heat builds up, the bimetal strip opens to cause the control panel to shut the power supply.

**Main Components' Material**

	JIS	EN / AISI (Equivalent)
Motor Enclosure	FC200	Cast iron EN-GJL 200
Shaft	SUS420J2	AISI 420 Stainless steel
Oil Casing	FC250	Cast iron EN-GJL 250
Pump Casing	FC250	Cast iron EN-GJL 250
Impeller	FCD500	Cast iron EN-GJS 500
Suction Cover	FCD500	Cast iron EN-GJS 500

**Special Specifications**

**High Temperature Liquids Version (60°C)**

**DIMENSIONS**

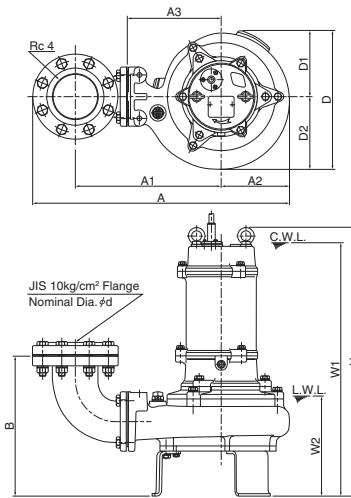
**Model (TOS)100CZ42.2 to (TOS)100CZ415**

**CZ-series**

**100mm**

**Free Standing Type**

C. W. L. : Continuous Running Water Level  
L. W. L. : Lowest Running Water Level



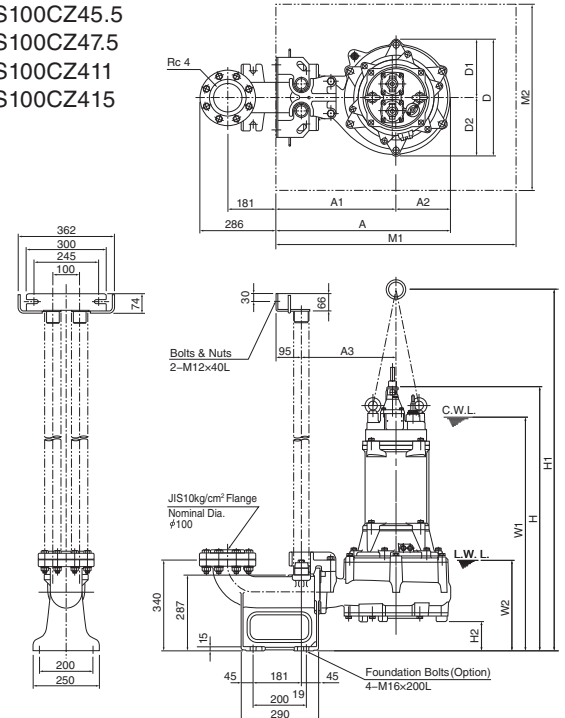
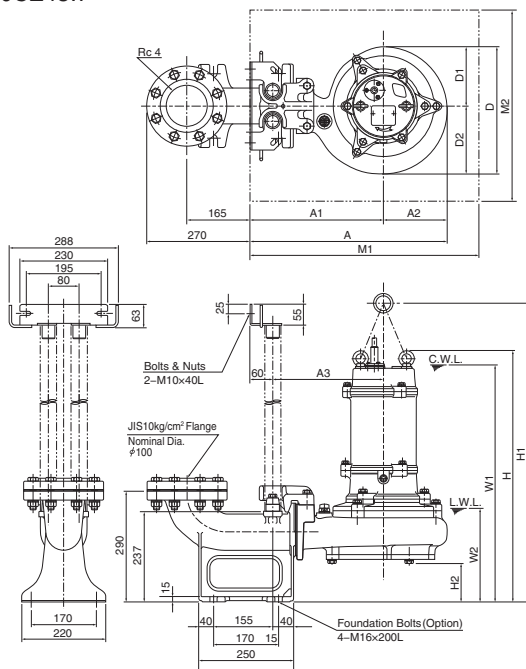
Unit: mm

Model	d	A	A1	A2	A3	B	D	D1	D2	W1	W2	H
100CZ42.2	100	629	357	167	230	342	341	162	179	620	245	658
100CZ43.7	100	629	357	167	230	342	341	162	179	670	245	708
100CZ45.5	100	685	387	193	260	372	410	205	205	805	320	930
100CZ47.5	100	685	387	193	260	372	410	205	205	790	320	911
100CZ411	100	722	412	205	285	380	438	219	219	875	350	1000
100CZ415	100	722	412	205	285	380	438	219	219	945	350	1070

**Guide Rail Fitting Type: TOS Set**

TOS100CZ42.2  
TOS100CZ43.7

TOS100CZ45.5  
TOS100CZ47.5  
TOS100CZ411  
TOS100CZ415



Unit: mm

Model	A	A1	A2	A3	D	D1	D2	W1	W2	H	H1	H2	M1	M2
TOS100CZ42.2	517	350	167	290	334	155	179	620	245	659	782	100	600	500
TOS100CZ43.7	517	350	167	290	334	155	179	670	245	709	832	100	600	500
TOS100CZ45.5	618	425	193	330	391	188	203	805	315	927	1289	118	700	600
TOS100CZ47.5	618	425	193	330	391	188	203	785	315	908	1274	118	700	600
TOS100CZ411	655	450	205	355	438	219	219	865	340	990	1356	111	900	700
TOS100CZ415	655	450	205	355	438	219	219	935	340	1060	1426	111	900	700