



**MG - SERIES  
SEMI-VORTEX - GRINDER PUMPS**

**SPECIFICATIONS**

**■ FEATURES**

1. Semi-vortex , Cast Iron, impeller and high chrome cast iron grinder with regurgitating action, reduces solids size and grinds stringy material without clogging.
2. Double inside mechanical seals with silicon carbide faces, running in an oil filled chamber and further protected by a lip seal, provides for the most durable seal design available.
3. Highly efficient, continuous duty, air filled, copper wound motor with class F, E, insulation minimizes the cost of operation.
4. Built in thermal & amperage sensing, protector prevents motor failure due to overloading, single phasing (in three phase units), or accidental run -dry conditions.
5. Double shielded, permanently lubricated, high temperature C3 ball bearings rated for a B-10 life of 60,000 hours, extend operational life.

**■ APPLICATION**

Residential, sewage, effluent.  
Commercial, office buildings  
Restaurants  
Pump stations  
Municipal lift station  
Industrial process lift stations



**■ SPECIFICATIONS**

Discharge Size  
Horsepower Range  
Performance Range Capacity  
Head  
Maximum water temperature  
Materials of Construction  
Casing  
Impeller  
Shaft  
Motor Frame  
Fasteners  
  
Mechanical Seal  
Elastomers  
  
Impeller Type  
Solids Handling Capability  
  
Bearings  
  
Motor Nomenclature  
Type, Speed, Hz.  
Voltage, Phase  
Insulation  
  
Accessories  
  
Operational Mode

**■ STANDARD**

2" N.P.t. (50 mm)  
2 ~ 5 Hp. (1.5 ~ 3.7 KW)  
7.9 ~ 87.0 G.P.M. (.03 ~ .33 m<sup>3</sup>/min)  
34.4 Ft. ~ 115 Ft. (10.5 ~ 35.1 m)  
104° F. (40° C.)  
  
Cast Iron, ASTM 48 Class 35  
Cast Iron, ASTM 48 Class 35  
403 Stainless Steel  
Cast Iron, ASTM 48 Class 30  
304 Stainless Steel  
  
Silicon Carbide  
NBR (Nitril Buna Rubber)  
  
Semi-Vortex, solids handling.  
.2" (5 mm)  
  
Pre-lubricated, Double Shielded  
  
Air Filled, 3600 Rpm, 60 Hz.  
208-230 or 440, 460 or 575 V. (3 Phase)  
Class E, F  
  
Submersible Power Cable 32' (10 m)  
  
Manual

**■ OPTIONS**

Nema 3R inverter available for  
230 V., 1 Ph. operation from 2~5  
Hp.  
  
Length as Required  
  
TOS Slide rail system

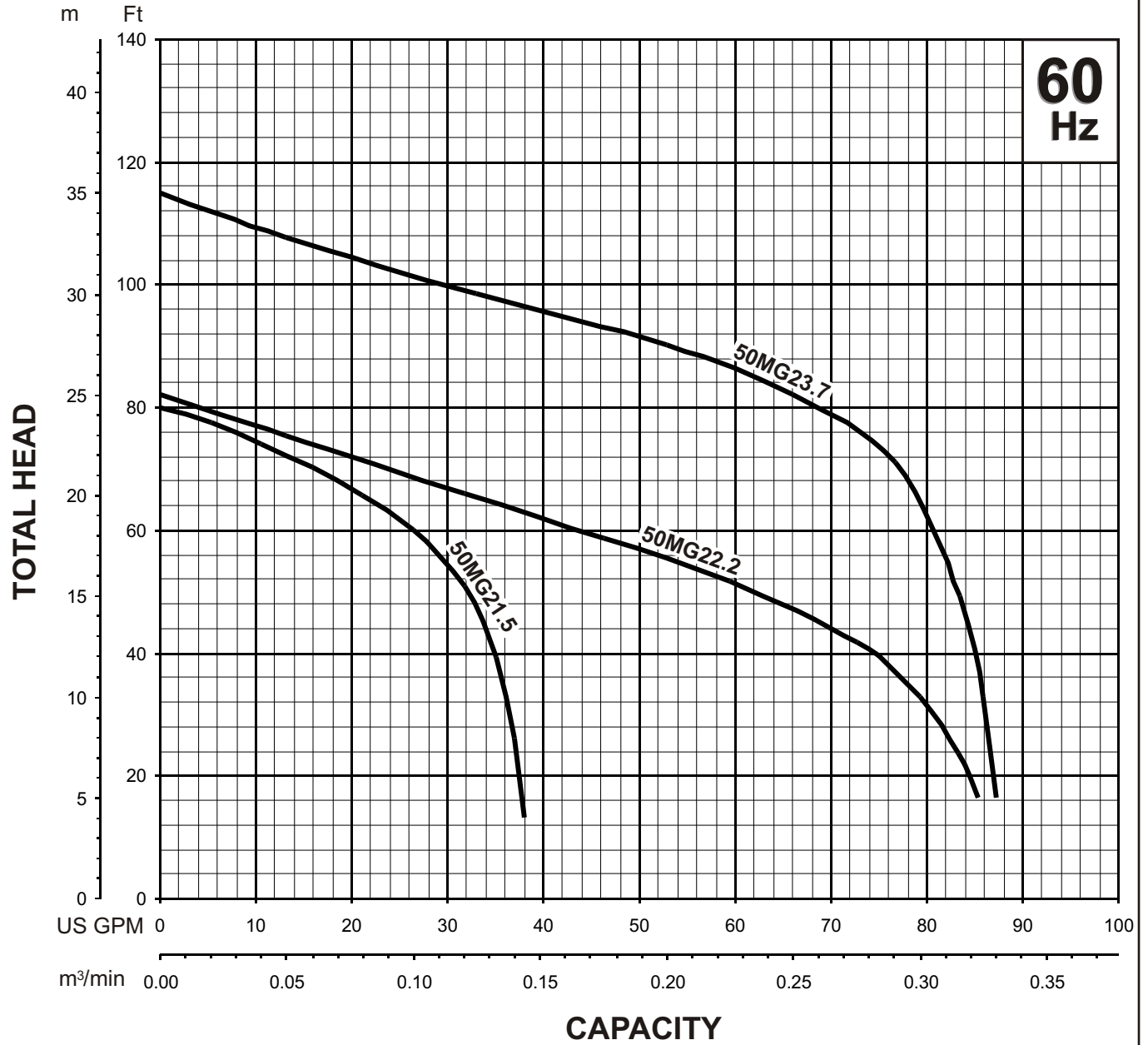


**TSURUMI PUMP**

**MG - SERIES**  
**SEMI-VORTEX - GRINDER PUMPS**

**PERFORMANCE**  
**RANGE**

**PERFORMANCE RANGE**

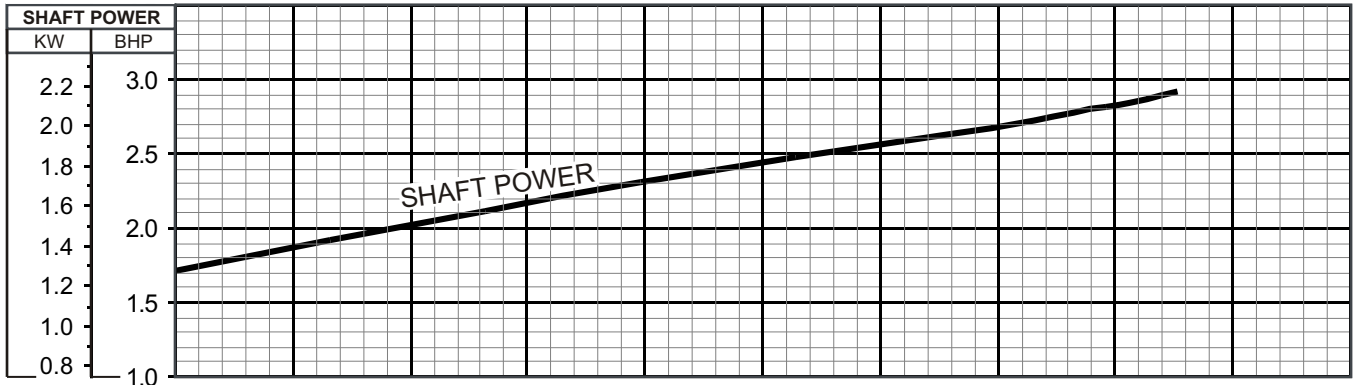
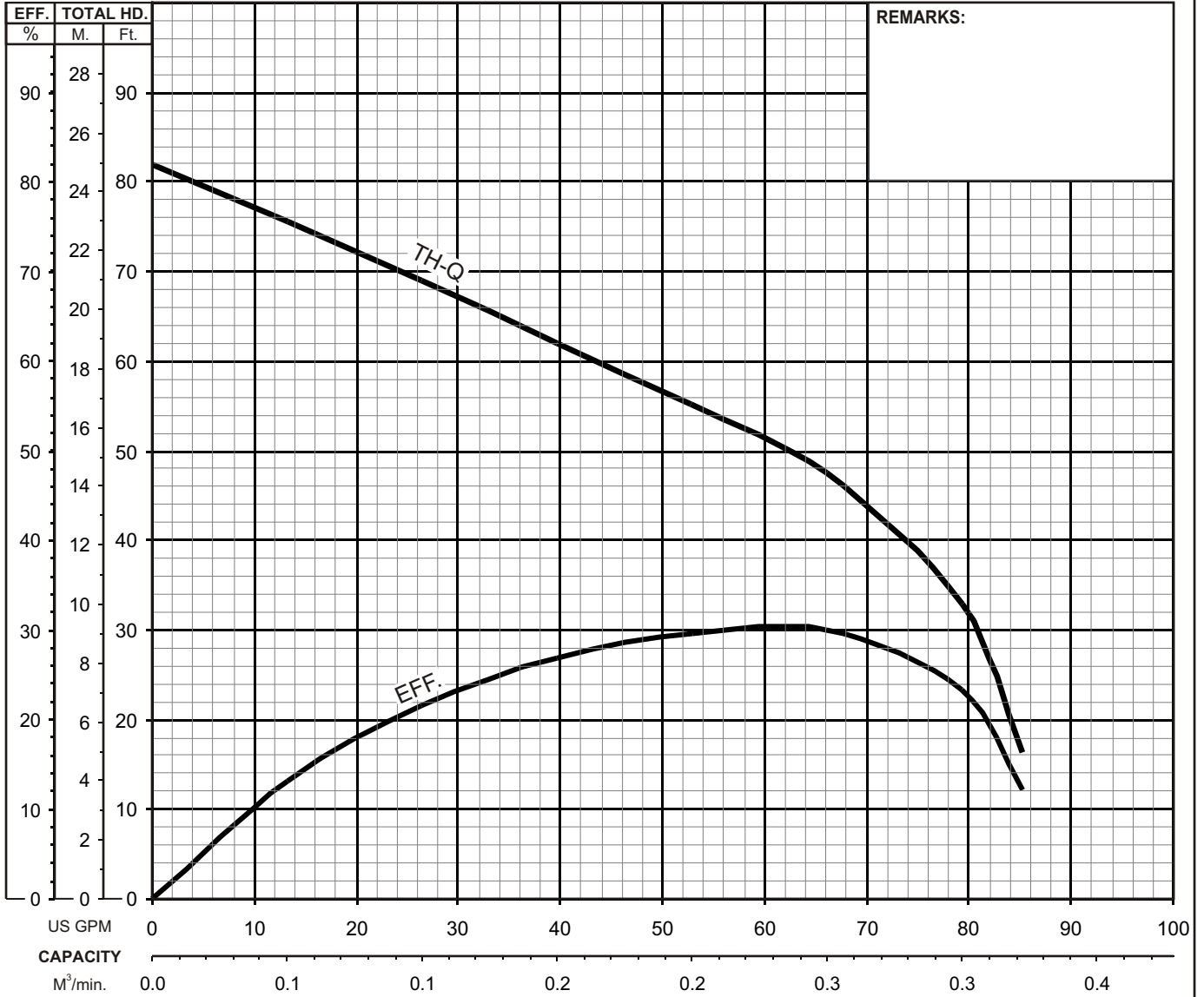




# MG - SERIES GRINDER PUMPS

# PERFORMANCE CURVE

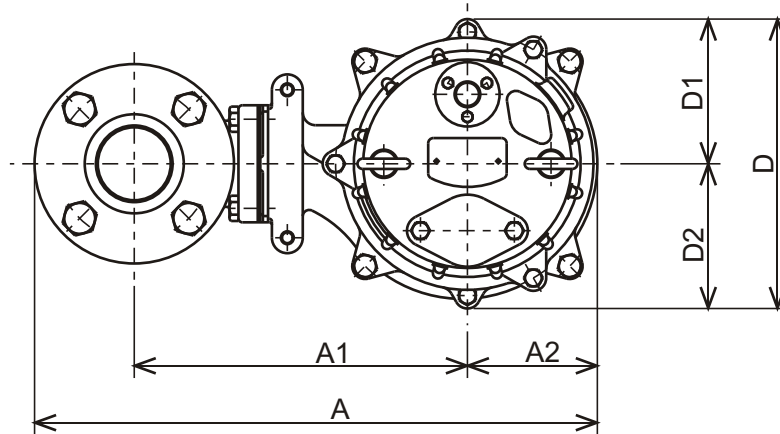
MODEL	BORE	HP	KW	RPM	SOLIDS DIA	LIQUID	SG.	VISCOSITY	TEMP.
(TOS)50MG22.2 -63	2"/50mm	3	2.2	3490	0.2"/ 5mm	Water	1.0	1.123 cSt.	60°F
PUMP TYPE	PHASE	VOLTAGE	AMPERAGE	HZ	STARTING METHOD	INS. CLASS			
Grinder	3	208-230/460/575	10.0-9.8 / 4.9 / 3.8	60	Direct On Line	F			
CURVE No.	DATE	PHASE	VOLTAGE	AMPERAGE	HZ	STARTING METHOD	INS. CLASS		
-	-	-	-	-	-	-	-		



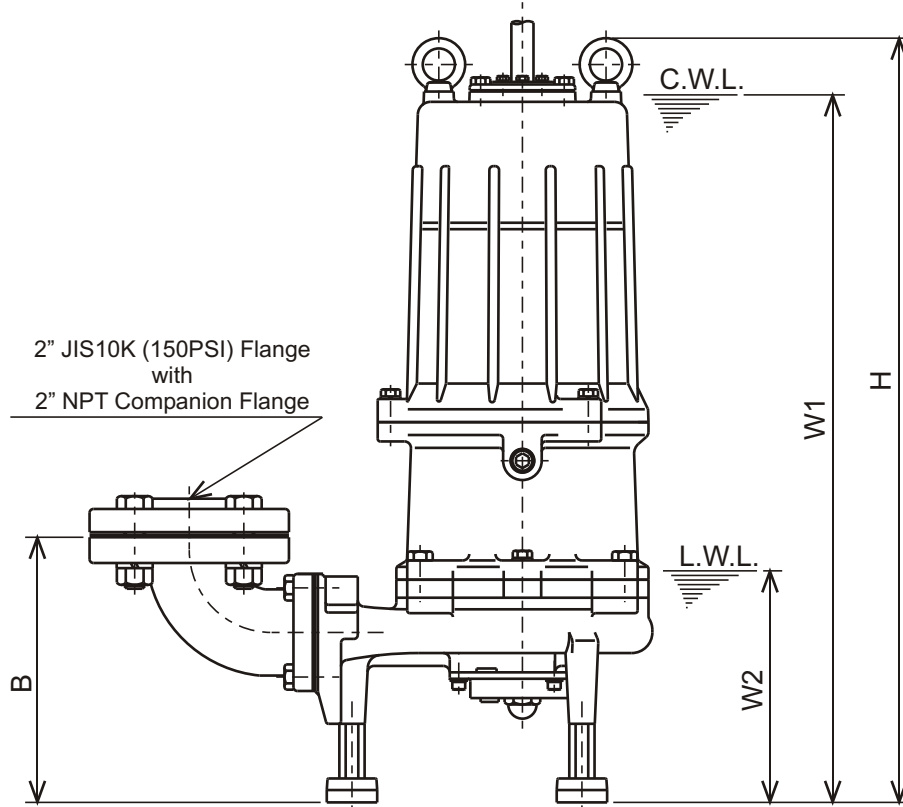


**MG - SERIES  
GRINDER PUMPS**

**DIMENSIONS**



**50MG22.2-63  
50MG23.7-63**



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

**DIMENSIONS:USCS (Inch)**

Model	HP	NOM. SIZE	Pump & Motor								C.W.L. W1	L.W.L. W2	Wt. (lbs.)
			A	A1	A2	B	D	D1	D2	H			
50MG22.2-63	3	2"	17 1/4	10 3/16	4	8 1/8	8 7/8	4 7/16	4 7/16	23 3/8	21 5/8	7 1/8	170
50MG23.7-63	5	2"	17 1/4	10 3/16	4	8 1/8	8 7/8	4 7/16	4 7/16	23 3/8	21 5/8	7 1/8	172

**DIMENSIONS:METRIC (mm)**

Model	kW	NOM. SIZE	Pump & Motor								C.W.L. W1	L.W.L. W2	Wt. (kg)
			A	A1	A2	B	D	D1	D2	H			
50MG22.2-63	2.2	50	438	259	101	206	226	113	113	594	550	180	77
50MG23.7-63	3.7	50	438	259	101	206	226	113	113	594	550	180	78



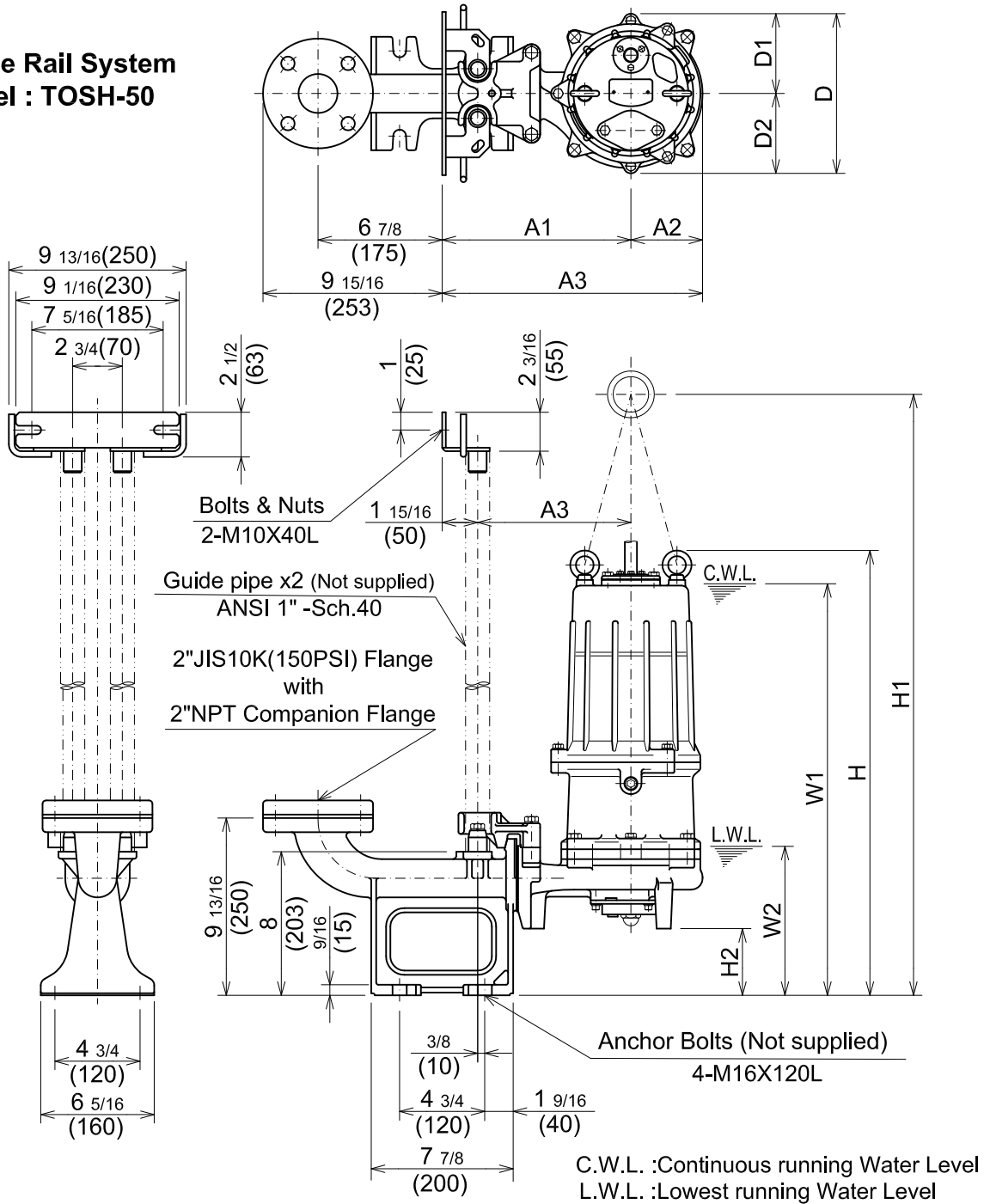
**TSURUMI PUMP**

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**DIMENSIONS**

**TOS50MG22.2 -63**

**Guide Rail System  
Model : TOSH-50**



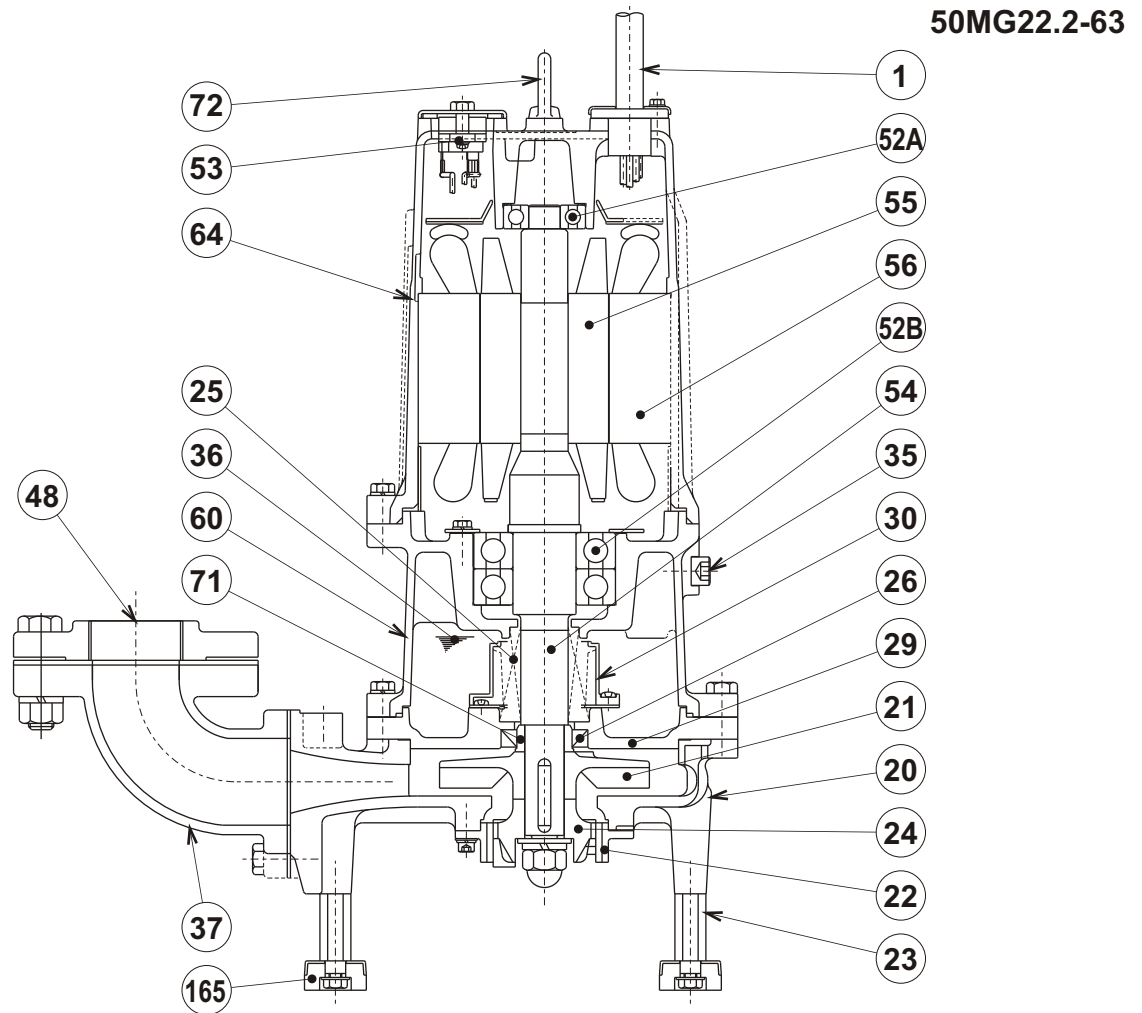
**DIMENSIONS:USCS(Inch)**

Model	HP	NOM. SIZE	Pump & Motor									C.W.L.	L.W.L.	*Wt. (lbs.)	
			A	A1	A2	A3	D	D1	D2	H	H1				H2
TOS50MG22.2 -63	3	2"	14 7/16	10 1/2	4	8 1/2	8 7/8	4 7/16	4 7/16	24 11/16	33 3/8	3 11/16	22 7/8	8 1/4	161

**DIMENSIONS:METRIC(mm)**

Model	kW	NOM. SIZE	Pump & Motor									C.W.L.	L.W.L.	*Wt. (kg)	
			A	A1	A2	A3	D	D1	D2	H	H1				H2
TOS50MG22.2 -63	2.2	50	367	266	101	216	225	113	113	627	847	94	580	210	73

\*Excluding Cable & TOS



PART#	DESCRIPTION	MAIN MATERIAL / NOTE	ASTM, AISI CODE	RELATED DIN CODE	QTY
1	Power Cable	PVC Sheath AWG14/4- 32ft			1
20	Pump Casing	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
21	Impeller	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
22	Stationary Blade	High Chrome Cast Iron (hardened)	A532 Class TypeA	DIN 1695 G-X260Cr27	1
23	Pump Stand	Stainless Steel	S 41000	1.4006	3
24	Rotatory Blade	High Chrome Cast Iron (hardened)	A532 Class TypeA	DIN 1695 G-X260Cr27	1
25	Mechanical Seal	Silicon Carbide/H-30			1
26	Oil Seal	Nitril Butadiene Rubber/TC355511			1
29	Oil Casing	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
30	Oil Lifter	PBT Plastic W/(GF+MD)40			1
35	Oil Plug	Stainless Steel	S 30400	1.4301	1
36	Lubricant	Turbine Oil ISO VG32 or SAE 10W-20			
37	Discharge Bend	Cast Iron	A48M Class30B	EN 1561 GJL-200	1
48	Companion Flange	Cast Iron/NPT 2"	A48M Class30B	EN 1561 GJL-200	1
52A	Upper Bearing	#6204ZZC3			1
52B	Lower Bearing	#6307ZZD2C3			1
53	Motor Protector				1
54	Shaft	Stainless Steel	S 42000	1.4028	1
55	Rotor				1
56	Stator				1
60	Bearing Housing	Cast Iron	A48M Class25B	EN 1561 GJL-150	1
64	Motor Housing	Cast Iron	A48M Class25B	EN 1561 GJL-150	1
71	Shaft Sleeve	Stainless Steel	S 40300	1.4000	1
72	Lifting Lug Bolt	Stainless Steel	S 30400	1.4301	1
165	Rubber Cushion	Nitril Butadiene Rubber			3



**MG - SERIES**  
**SEMI-VORTEX - GRINDER PUMPS**

**SAMPLE**  
**SPECIFICATIONS**

**1. SCOPE OF SUPPLY -**

Furnish and install TSURUMI Model \_\_\_\_\_ Submersible Pump(s). Each unit shall be capable of delivering \_\_\_\_\_ GPM (\_\_\_\_\_ m<sup>3</sup>/min) at \_\_\_\_\_ Feet (\_\_\_\_\_ m) TDH. The pump(s) shall be designed to pump waste water, sewage or effluent containing \_\_\_\_\_ inch (\_\_\_\_\_ mm) diameter solids without damage during operation. The pump(s) shall be designed so that the shaft power required (BHP)/(kW) shall not exceed The motor rated output throughout the entire operating range of the pump performance curve. The pump discharge size shall be \_\_\_\_\_ inch, (\_\_\_\_\_ mm).

**2. MATERIALS OF CONSTRUCTION -**

Construction of major parts of the pumping unit(s) including pump casing, impeller, and discharge elbow shall be manufactured from gray cast iron, ASTM A48 CLASS 35. Internal and external surfaces coming into contact with the pumpage shall be protected by a fused polymer coating. All exposed fasteners shall be stainless steel. All units shall be furnished with a discharge elbow with 150 lb. (10 kg/cm<sup>2</sup>) flat face flange and NPT companion flange. Impellers shall be of the semi-vortex, solids handling design equipped with back pump out vanes and shall be slip fit to the shaft and key driven. The grinding units shall provide horizontal and vertical grinding action. Both rotating and stationary grinding units shall be hardened high chrome cast iron rated at 60 HRC. The pump casing shall incorporate an air relief port.

**3. MECHANICAL SEAL -**

All units shall be furnished with a dual inside mechanical shaft seal located completely out of the pumpage, running in a separate oil filled chamber and further protected by an exclusionary oil seal located between the bottom seal faces and the fluid being pumped. The oil chamber shall be fitted with a device that shall provide positive lubrication of top mechanical seal, (down to one third of the standard oil level). The device shall not consume any additional electrical power. Mechanical seals shall rated to preclude the incursion of water up to 42.6 PSI. (98.4 Ft.). Units shall have silicon carbide mechanical seal faces. Mechanical seal hardware shall be stainless steel.

**4. MOTOR -**

The pump motor(s) shall be \_\_\_\_\_ Hp., \_\_\_\_\_ kW., \_\_\_\_\_ V., 60 Hz., 3 Phase and shall be NEMA MG-1, Design Type B equivalent. Motor(s) shall be rated at \_\_\_\_\_ full load amps. Motor(s) shall have a 1.15 service factor and shall be rated for 20 starts per hour. Motor(s) shall be air filled, copper wound, class E insulated with built in thermal and over amperage protection for each winding. Motor shaft shall be 403 or 420 stainless steel and shall be supported by two permanently lubricated, high temperature ball bearings, with a B-10 life rating at best efficiency point of 60,000 hours. The bottom bearing shall be two row, double shielded, C3, deep groove type ball bearing. The top bearing shall be single row, double shielded, C3, deep groove type ball bearing. Motor housing and bearing housing shall be gray cast iron, ASTM A48 CLASS 30. Motors shall be suitable variable speed applications, utilizing a properly sized variable frequency drive.

**5. POWER CABLE AND CABLE ENTRANCE -**

The pump power cable shall be suitable for submersible pump applications. The cable entrance shall incorporate built in strain relief, a one piece, three way mechanical compression seal with a fatigue reducing cable boot. The cable entrance assembly shall contain an anti-wicking block to eliminate water incursion into the motor due to capillary wicking should the power cable be accidentally damaged.