Submersible Grinder XP

Specifications:

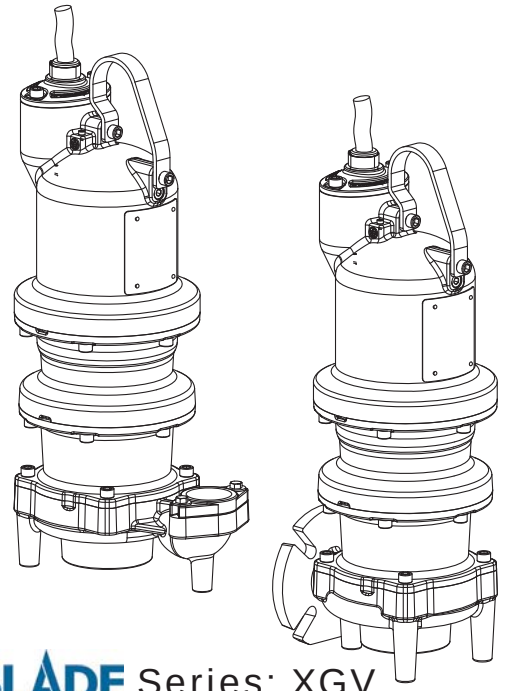
DISCHARGE:
- *Vertical* ..... 2" NPT
- *Flange* ..... 2"/2.5"/3", Horizontal

LIQUID TEMPERATURE ..... 104°F (40°C) Continuous
VOLUTE ..... Cast Iron ASTM A-48, Class 30
MOTOR HOUSING ..... Cast Iron ASTM A-48, Class 30
SEAL PLATE ..... Cast Iron ASTM A-48, Class 30
IMPELLER: *Design* ..... 12 Vane,Vortex, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3
Material ..... Cast Iron
SHREDDING RING ..... Hardened 440C Stainless Steel, Rockwell® C-55
CUTTER ..... Hardened 440C Stainless Steel, Rockwell® C-55
SHAFT ..... 416 Stainless Steel
"O" RINGS ..... Buna-N
HARDWARE ..... 300 Series Stainless Steel
LIFTING BAIL ..... 300 Series Stainless Steel
PAINT ..... Air Dry Enamel
SEAL: *Design* ..... Tandem Mechanical, Oil Filled Reservoir
Material ..... Rotating Faces - Carbon
Stationary Faces - Ceramic
Elastomer - Buna-N
Hardware -300 Series Stainless
CORD ENTRY ..... Custom Molded, Quick Connected for Sealing and Strain Relief
POWER CORD ..... CSA Certified Submersible Power Cable 2000V

UPPER BEARING:
Design ..... Single Row, Ball, Oil Lubrication
Load ..... Radial

LOWER BEARING:
Design ..... Double Row, Ball, Oil Lubrication
Load ..... Radial & Thrust

MOTOR: *Design* ..... NEMA B
Three Phase Torque Curve
Oil-Filled, Squirrel Cage Induction,
Inverter Duty rated per NEMA MG1
Insulation ..... Class H Varnish & Magnet Wire
SINGLE PHASE ..... Requires overload protection to be included in control panel. Requires start components to be included in panel. Provided with pump
THREE PHASE ..... Requires overload protection to be included in control panel
MOISTURE SENSORS ..... Normally Open (N/O), Requires relay in control panel
TEMPERATURE SENSOR ..... Normally Closed (N/C)
To be wired in series with control circuit
OPTIONAL EQUIPMENT ..... Seal Material, Impeller Trims, Cord Length, Leg Kit
WEIGHT ..... XGV: 194 lbs, XGVH: 204 lbs



BLADE Series: XGV
3, 5 & 7.5HP, 3450RPM, 60Hz

Explosion Proof, Class 1, Division 1, Groups C & D, T4

Submersible Wastewater Pump Association SWPA MEMBER

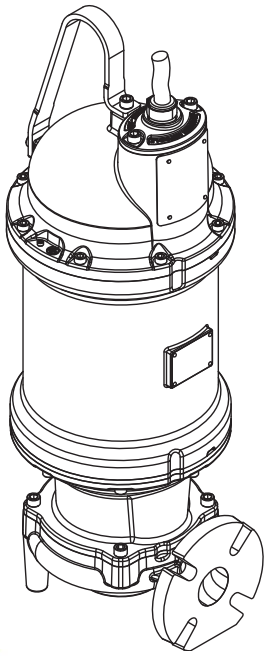
This product may be covered by one or more of the following patents and other patent(s) pending:
US Patent 7, 931, 473

CSA® **Canadian Standards Association**
File No. LR16567

DESCRIPTION:

THE GRINDER PUMP IS FOR USE IN **HAZARDOUS** LOCATIONS AND IS DESIGNED TO REDUCE DOMESTIC, COMMERCIAL, INSTITUTIONAL AND LIGHT INDUSTRIAL SEWAGE TO A FINELY GROUND SLURRY.

Submersible Grinder XP



BLADE Series: XGV
7.5, 10 & 15HP, 3450RPM, 60Hz

Explosion Proof, Class 1, Division 1, Groups C & D, T4

Submersible Wastewater Pump Association SWPA MEMBER

This product may be covered by one or more of the following patents and other patent(s) pending:
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THE GRINDER PUMP IS FOR USE IN **HAZARDOUS** LOCATIONS AND IS DESIGNED TO REDUCE DOMESTIC, COMMERCIAL, INSTITUTIONAL AND LIGHT INDUSTRIAL SEWAGE TO A FINELY GROUND SLURRY.

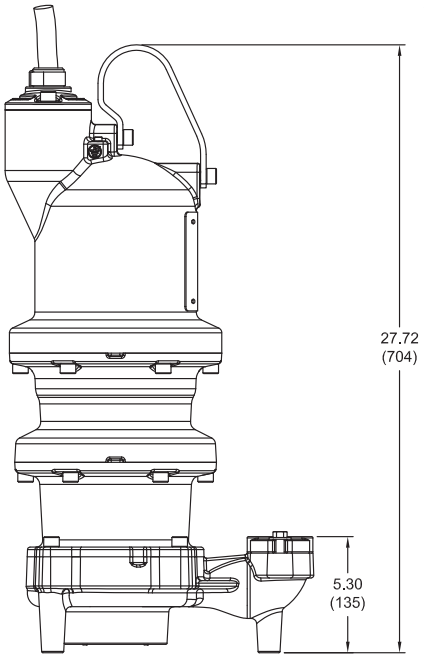
Specifications:

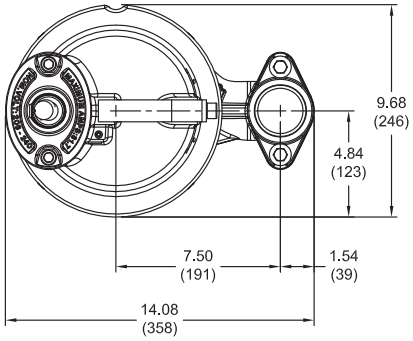
DISCHARGE:		
	Flange	2"/2.5"/3", Horizontal
LIQUID TEMPERATURE		104°F (40°C) Continuous
VOLUTE		Cast Iron ASTM A-48, Class 30
MOTOR HOUSING		Cast Iron ASTM A-48, Class 30
SEAL PLATE		Cast Iron ASTM A-48, Class 30
IMPELLER:	*Design*	12 Vane,Vortex, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3
	Material	Cast Iron
SHREDDING RING		Hardened 440C Stainless Steel, Rockwell® C-55
CUTTER		Hardened 440C Stainless Steel, Rockwell® C-55
SHAFT		416 Stainless Steel
"O" RINGS		Buna-N
HARDWARE		300 Series Stainless Steel
LIFTING BAIL		300 Series Stainless Steel
PAINT		Air Dry Enamel
SEAL:	*Design*	Tandem Mechanical, Oil Filled Reservoir
	Material	Rotating Faces - Carbon Stationary Faces - Ceramic Elastomer - Buna-N Hardware -300 Series Stainless
CORD ENTRY		Custom Molded, Quick Connected for Sealing and Strain Relief
POWER CORD		CSA Certified Submersible Power Cable 2000V
UPPER BEARING:		
	Design	Single Row, Ball, Oil Lubrication
	Load	Radial
LOWER BEARING:		
	Design	Double Row, Ball, Oil Lubrication
	Load	Radial & Thrust
MOTOR:	*Design*	NEMA B Three Phase Torque Curve Oil-Filled, Squirrel Cage Induction, Inverter Duty rated per NEMA MG1
	Insulation	Class H Varnish & Magnet Wire
SINGLE PHASE		Requires overload protection to be included in control panel. Requires start components to be included in panel. Provided with pump
THREE PHASE		Requires overload protection to be included in control panel
MOISTURE SENSORS		Normally Open (N/O), Requires relay in control panel
TEMPERATURE SENSOR		Normally Closed (N/C) To be wired in series with control circuit
OPTIONAL EQUIPMENT		Seal Material, Impeller Trims, Cord Length, Leg Kit
WEIGHT		XGVHH: 305 lbs

Submersible Grinder XP

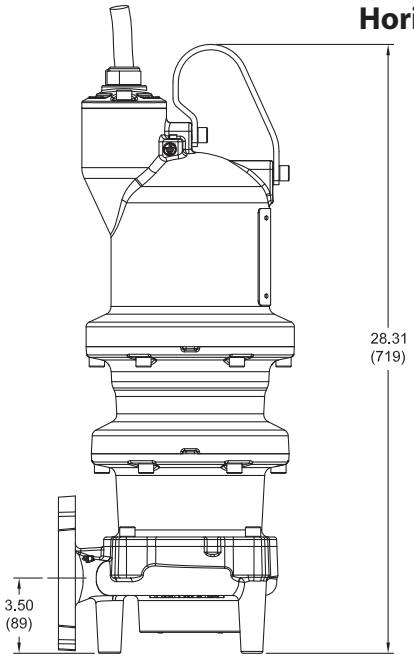
Vertical

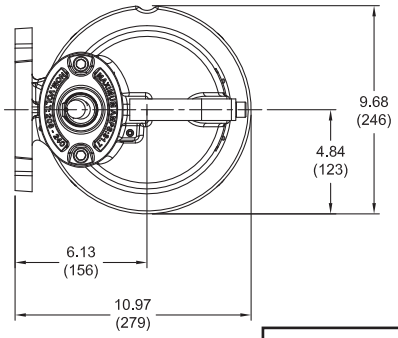
inches (mm)



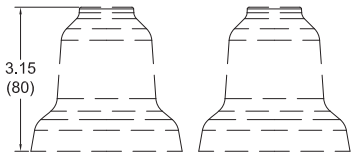


Horizontal





Optional Leg Kit - p/n 125506



IMPORTANT !

1.) MOISTURE AND TEMPERATURE SENSORS MUST BE CONNECTED TO VALIDATE THE CSA LISTING.
2.) A SPECIAL MOISTURE SENSOR RELAY IS REQUIRED IN THE CONTROL PANEL FOR PROPER OPERATION OF THE MOISTURE SENSORS. CONTACT BARNES PUMPS FOR INFORMATION CONCERNING MOISTURE SENSING RELAYS FOR CUSTOMER SUPPLIED CONTROL PANELS.
3.) THESE PUMPS ARE CSA LISTED FOR PUMPING WATER AND WASTEWATER. **DO NOT USE TO PUMP FLAMMABLE LIQUIDS** . NOT SUITABLE FOR ENVIRONMENTS CONTAINING GASOLINE OR HEXANE.
4.) INSTALLATIONS SUCH AS DECORATIVE FOUNTAINS OR WATER FEATURES PROVIDED FOR VISUAL ENJOYMENT MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ANSI/NFPA 70 AND/OR THE AUTHORITY HAVING JURISDICTION. THIS PUMP IS NOT INTENDED FOR USE IN SWIMMING POOLS, RECREATIONAL WATER PARKS, OR INSTALLATIONS IN WHICH HUMAN CONTACT WITH PUMPED MEDIA IS A COMMON OCCURRENCE.
5.) A **NON-SPARKING** BREAKAWAY FITTING MUST BE USED TO VALIDATE THE EXPLOSION PROOF LISTING.

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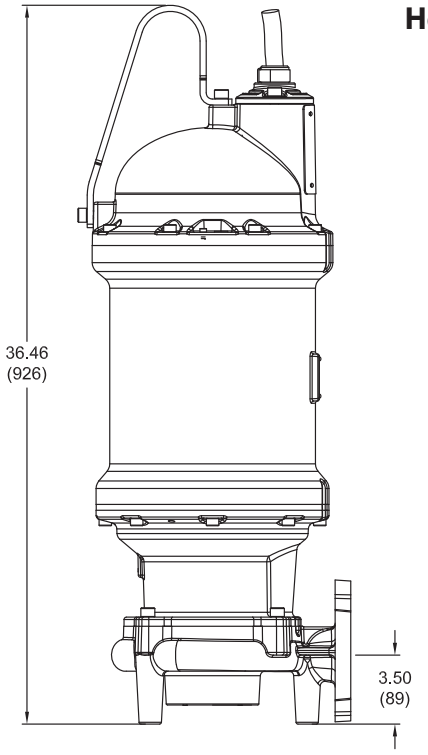
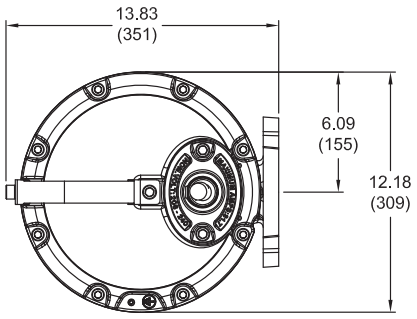
Submersible Grinder XP

Horizontal

inches
(mm)





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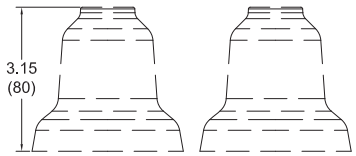

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CRANE®
A Crane Co. Company

PUMPS & SYSTEMS

USA: (937) 778-8947 • Canada: (905) 457-6223 • International: (937) 615-3598

BLADE XGV Pump - Vertical

MODEL NO	PART NO	HP	VOLT	PH	Hz	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	SERVICE FACTOR	LOCKED ROTOR AMPS	CORD P/N ▲	CORD SIZE	CORD O.D.	WINDING RESISTANCE MAIN - START
XGV3072	141339	3.0	208	1	60	3450	J	25.0	1.0	113.2	125496	12/4-18/4	.86 ± .02	.38
			230				M	23.2		131.2	125496			1.66
XGV30N2	141340	3.0	208	3	60	3450	P	12.1	1.0	85.4	125496	12/4-18/4	.86 ± .02	.75
			230					12.6		95.2	125496			
			460					6.3		47.6	125497	12/4-18/4	.86 ± .02	3.00
XGV3052	141342	3.0	575	3	60	3450	P	5.0	1.0	38.1	125497	12/4-18/4	.86 ± .02	4.34
XGV5072	141343	5.0	208	1	60	3450	E	34.1	1.0	113.2	125498	8/4 - 18/4	1.12 ± .02	.38
			230				G	29.9		131.2	125498			1.66
XGV50N2	141344	5.0	208	3	60	3450	J	17.8	1.0	85.4	125496	12/4 - 18/4	.86 ± .02	.75
			230					16.0		95.2	125496			
			460					8.0		47.6	125497	12/4 - 18/4	.86 ± .02	3.00
XGV5052	141346	5.0	575	3	60	3450	J	6.4	1.0	38.1	125497	12/4 - 18/4	.86 ± .02	4.34
XGV75N2	141347	7.5	208	3	60	3450	M	28.0	1.0	173.9	125496	12/4 - 18/4	.86 ± .02	.40
			230					28.2		201.0	125496			
			460					14.1		100.5	125497	12/4 - 18/4	.86 ± .02	1.58
XGV7552	141349	7.5	575	3	60	3450	M	11.3	1.0	80.4	125497	12/4 - 18/4	.86 ± .02	2.47

IMPORTANT !

Moisture and Temperature sensor leads are integral to power cord.
Winding Resistance ± 7.5% Winding resistance measured in OHMS @ 25°C (Between Lines) at motor leads.
Pump rated for operation at ± 10% voltage at motor.
▲ Cord Suffix XC - 30 Feet, XF - 50 Feet, XJ - 75 Feet, or XL - 100 Feet
▲ Cord sold separately
Single Phase pumps require start components to be included in panel. Provided with pump.

BLADE XGVH Pump - Horizontal

MODEL NO	PART NO	HP	VOLT	PH	Hz	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	SERVICE FACTOR	LOCKED ROTOR AMPS	CORD P/N ▲	CORD SIZE	CORD O.D.	WINDING RESISTANCE MAIN - START
XGVH3072	141350	3.0	208	1	60	3450	J	25.0	1.0	113.2	125496	12/4-18/4	.86 ± .02	.38
			230				M	23.2		131.2	125496			1.66
XGVH30N2	141351	3.0	208	3	60	3450	P	12.1	1.0	85.4	125496	12/4-18/4	.86 ± .02	.75
			230					12.6		95.2	125496			
			460					6.3		47.6	125497	12/4-18/4	.86 ± .02	3.00
XGVH3052	141353	3.0	575	3	60	3450	P	5.0	1.0	38.1	125497	12/4-18/4	.86 ± .02	4.34
XGVH5072	141354	5.0	208	1	60	3450	E	34.1	1.0	113.2	125498	8/4 - 18/4	1.12 ± .02	.38
			230				G	29.9		131.2	125498			1.66
XGVH50N2	141355	5.0	208	3	60	3450	J	17.8	1.0	85.4	125496	12/4 - 18/4	.86 ± .02	.75
			230					16.0		95.2	125496			
			460					8.0		47.6	125497	12/4 - 18/4	.86 ± .02	3.00
XGVH5052	141357	5.0	575	3	60	3450	J	6.4	1.0	38.1	125497	12/4 - 18/4	.86 ± .02	4.34
XGVH75N2	141358	7.5	208	3	60	3450	M	28.0	1.0	173.9	125496	12/4 - 18/4	.86 ± .02	.40
			230					28.2		201.0	125496			
			460					14.1		100.5	125497	12/4 - 18/4	.86 ± .02	1.58
XGVH7552	141360	7.5	575	3	60	3450	M	11.3	1.0	80.4	125497	12/4 - 18/4	.86 ± .02	2.47

IMPORTANT !

Moisture and Temperature sensor leads are integral to power cord.
Winding Resistance ± 7.5% Winding resistance measured in OHMS @ 25°C (Between Lines) at motor leads.
Pump rated for operation at ± 10% voltage at motor.
▲ Cord Suffix XC - 30 Feet, XF - 50 Feet, XJ - 75 Feet, or XL - 100 Feet
▲ Cord sold separately
Single Phase pumps require start components to be included in panel. Provided with pump.

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www.cranepumps.com
BARNES

BLADE XGVHH Pump - Horizontal

MODEL NO	PART NO	HP	VOLT	PH	Hz	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD P/N ▲	CORD SIZE	CORD O.D.	WINDING RESISTANCE MAIN - START
XGVHH75N2	141369	7.5	208	3	60	3450	K	38.8	195.7	125498	8/4 - 18/4	1.12 ± .02	.247
			230					35.1		125498			
			460					17.5	88.5	125497	12/4 - 18/4	.86 ± .02	.988
XGVHH7552	141371	7.5	575	3	60	3450	K	14.0	70.8	125497	12/4 - 18/4	.86 ± .02	1.610
XGVHH100N2	141372	10.0	208	3	60	3450	H	45.9	195.7	125498	8/4 - 18/4	1.12 ± .02	.247
			230					41.6		125498			
			460					20.8	88.5	125497	12/4 - 18/4	.86 ± .02	.988
XGVHH10052	141374	10.0	575	3	60	3450	H	16.6	70.8	125497	12/4 - 18/4	.86 ± .02	1.610
XGVHH150N2	141375	15.0	208	3	60	3450	E	59.0	195.7	125498	8/4 - 18/4	1.12 ± .02	.247
			230					57.1		125498			
			460		60			28.5	88.5	125497	12/4 - 18/4	.86 ± .02	.988
XGVHH15052	141377	15.0	600	3	60	3450	E	22.8	70.8	125497	12/4 - 18/4	.86 ± .02	1.610

IMPORTANT !

Moisture and Temperature sensor leads are integral to power cord.
Winding Resistance ± 7.5% Winding resistance measured in OHMS @ 25°C (Between Lines) at motor leads.
Pump rated for operation at ± 10% voltage at motor.
▲ Cord Suffix XC - 30 Feet, XF - 50 Feet, XJ - 75 Feet, or XL - 100 Feet
▲ Cord sold separately

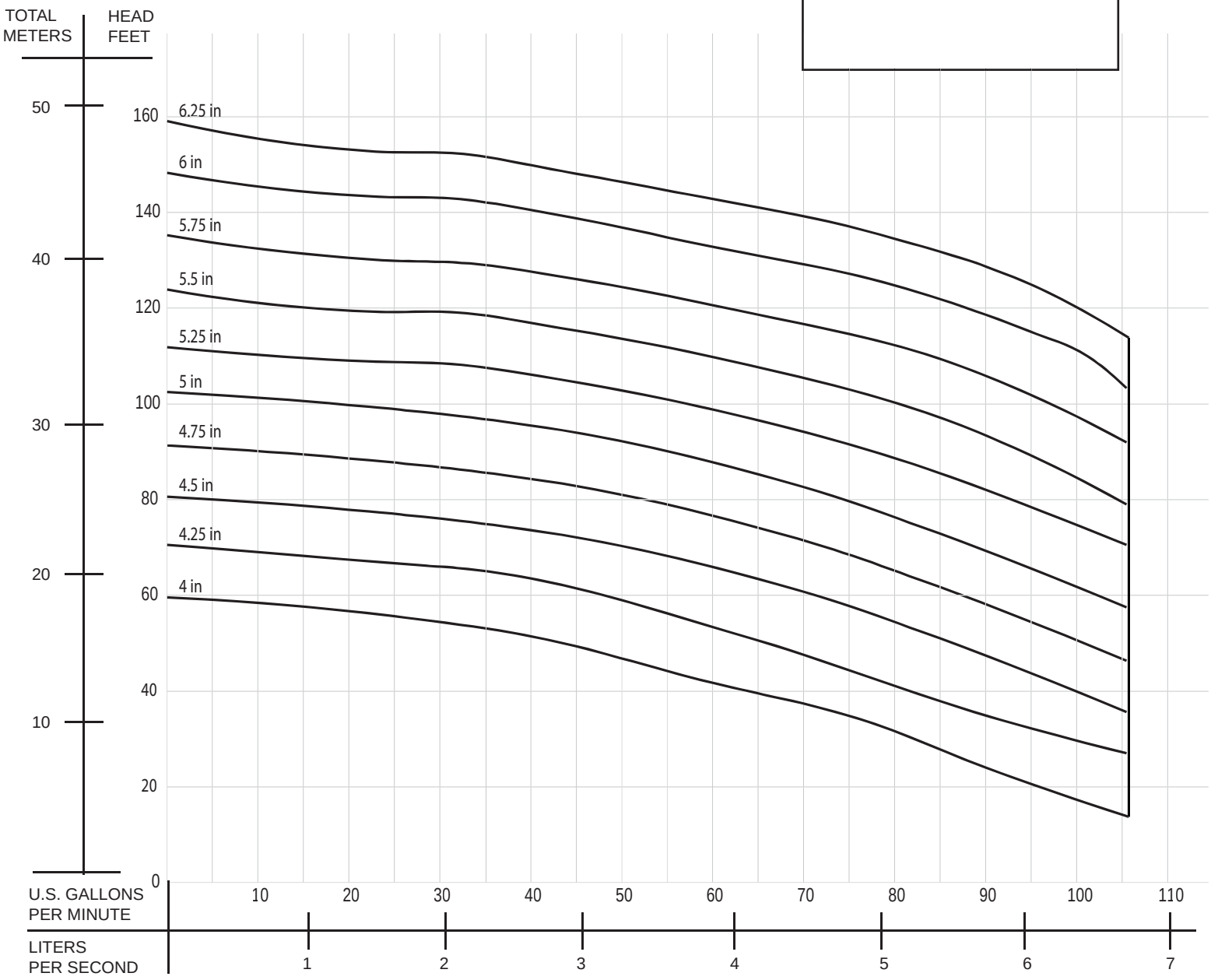
BLADE Series XGV / XGVH

Performance Curve
3, 5 & 7.5HP, 3450RPM, 60Hz

BARNES®
www.cranepumps.com

Submersible Grinder XP

Standard Impeller Sizes	
Pump HP	**Impeller Dia. (in.) mm**
7.5	**6.25 (159)**
5.0	**5.25 (133)**
3.0	**4.50 (114)**



Testing is performed with water, specific gravity 1.0 @ 68° **F @ (20°C), other fluids may vary performance**

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PUMPS & SYSTEMS

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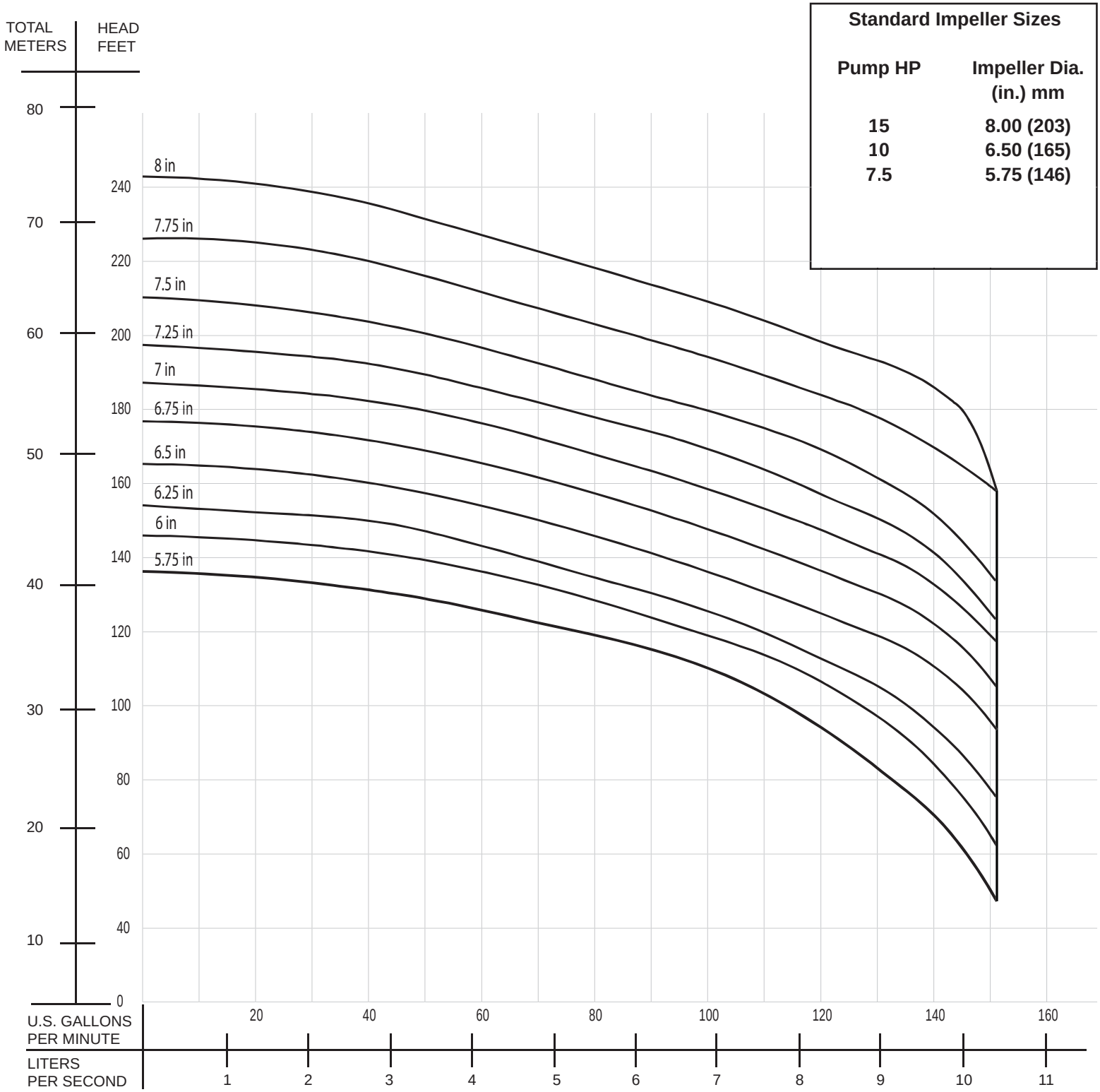
BLADE Series XGVHH

Performance Curve
7.5, 10 & 15HP, 3450RPM, 60Hz

Submersible Grinder XP

Standard Impeller Sizes

Pump HP	Impeller Dia. (in.) mm
15	8.00 (203)
10	6.50 (165)
7.5	5.75 (146)



Testing is performed with water, specific gravity 1.0 @ 68° **F @ (20°C), other fluids may vary performance**

SCOPE: Furnish and install_____ submersible grinder pump (s). Each pump shall be capable of delivering the following performance points, _____ U.S. GPM at _____ TDH;
_____ U.S. GPM at _____ TDH;
_____ U.S. GPM at _____ TDH,
with a shut off head of _____TDH (minimum). The pump motor speed shall be_____RPM, _____ HP (maximum), _____Phase, 60 Hertz,_____Volts. The pump (s) shall be manufactured by a company regularly engaged in the manufacture and assembly of similar units for a minimum of five (5) years. The pump (s) shall be Barnes® model_____.

DESIGN: A centrifugal submersible grinder pump designed to reduce all material found in normal domestic and light industrial sewage, including plastics, rubber, sanitary napkins, and disposable diapers into a finely ground slurry. The resultant slurry is then pumped through small diameter piping into a gravity interceptor or treatment facility. The temperature limitation of the liquid being pumped is 104 degrees F continuous and shall be capable of running dry for extended periods.

PUMP CONSTRUCTION: Unit (s) shall be CSA listed for Class I, Group D, Division 1, hazardous locations. The volute, seal plates and motor housing shall be constructed of high quality ASTM A-48 class 30 cast iron. The pump (s) shall be painted with a water based air dry enamel of 2.0 mil minimum thickness. All exposed hardware shall be 300 series stainless steel. Discharge connection shall be a standard _____ inch NPT in the vertical position.

The pump impeller shall be of the recessed vortex design. Pumps with standard centrifugal semi-open impeller designs shall not be acceptable. The impeller shall be of ASTM A-48 class 30 cast iron construction and machined for threading to the motor shaft. The impeller shall be capable of being trimmed to meet specific performance characteristics.

The grinder mechanism shall consist of a radial cutter threaded and locked on the motor shaft by a washer in conjunction with a countersunk flat head capscrew, and a shredding ring containing a minimum of fifteen flow passages with cutting edges. The shredding ring shall be reversible to provide twice the cutting edge life. Both the shredding ring and radial cutter shall be constructed of 440C stainless steel hardened to a min. Rockwell C55 and shall be finish ground for a fine cutting edge. Two-stage cutter mechanisms requiring external adjustment for proper clearance are not acceptable.

The unit shall utilize a tandem mechanical shaft seal arrangement and shall operate in an oil atmosphere. The materials of construction shall be carbon for the rotating face and ceramic for the stationary face, lapped and polished to a tolerance of one light band, 300 series stainless steel hardware, and all elastomer parts to be Buna-N. The seal shall be commercially available and not a proprietary design of the manufacturer.

Single phase motors shall be of the capacitor start, capacitor run design and the three phase motors shall be of the dual-voltage 230/460 design. The pump shall be designed to be non-overloading throughout the entire pump curve. The rotor and stator assembly shall be of the standard frame design and secured to the pump seal plate by four threaded fasteners allowing for easy serviceability.

The motor shall be constructed with the windings operating in a sealed environment containing clean dielectric oil, making it capable of operating in a totally, partially or non-submerged condition for extended periods of time without damage due to the heat being generated.

Air-filled motors shall not be acceptable. The motor windings shall be of Class F insulation with Class H wire. The motor shall meet the standard NEMA design L for single phase and NEMA design B for three phase. The motor shaft shall be of 416 stainless steel. Protection against excessive temperature shall be provided by heat sensor thermostat attached to the stator windings and connected in series with the contactor coil in the control panel.

The lower bearing shall be of the double row ball type to accept radial and thrust loads, and the upper bearing of the single row ball type for radial loads. Bearings shall operate in an oil bath atmosphere for superior life. Permanently lubricated bearings are not acceptable.

THREE PHASE: The pump shall be equipped with (30/50/75/100) ft. of a CSA-qualified submersible plug-n-play connect power cable constructed in accordance with type W guidelines and shall include the moisture and temperature sensor leads. The cable entry system shall consist of a expanding rubber plug held in place by a cast stainless steel plate indicating voltage and max amps.

SINGLE PHASE: The pump shall be equipped with (30/50/75/100) ft. of a CSA-qualified submersible plug-n-play connect power cable constructed in accordance with Type W guidelines and shall include the moisture and temperature sensor leads. The cable entry system shall consist of an expanding rubber plug held in place by a cast stainless steel plate indicating voltage and max amps.

PUMP TEST: The pump manufacturer shall perform the following inspections and tests in accordance with Hydraulic Institute type B standards before shipment from the factory:

1. A check of the motor voltage and frequency shall be made as shown on the name plate.
2. A motor and cord insulation test for moisture content or insulation defects shall be made per CSA.
3. The pump shall be completely submerged and run to determine that the unit meets three pre-determined hydraulic performance points.
4. A written report shall be available showing the aforementioned tests have been performed in accordance with the specifications.

START-UP: The pump (s) shall be tested at start-up by a qualified representative of the manufacturer. A start-up report as provided by the manufacturer shall be completed before final acceptance of the pump (s).

DOCUMENTATION: The manufacturer, if requested, will supply a minimum of_____sets of standard submittal data;
Standard submittal data consist of:

a. Pump catalog data;
b. Pump performance curve;
c. Break away fitting data;
d. Access frame data;
e. Typical installation drawing;
f. Control panel data
g. Panel wiring schematic;
h. Accessory data;
i. Installation & Operation Manuals with Parts List