KPCGX-(C)

PROGRESSIVE GRINDER SERIES

Optional - Start Components on Board (No Control Panel)

SUPERIOR Progressive Cavity Grinder Pump Provides Reliable Service for the Low Pressure Sewer Industry!

"Slicer"

FM APPROVED

ADVANCED SLICING FOR "FLUSHABLES"

- Wipes, Floor Pads, etc.

NO CONTROL PANEL REQUIRED

- For Internal Start Configuration if Replacing Competitor Existing Pump

SILICON CARBIDE DUAL SEALS

- Viton® Elastomers

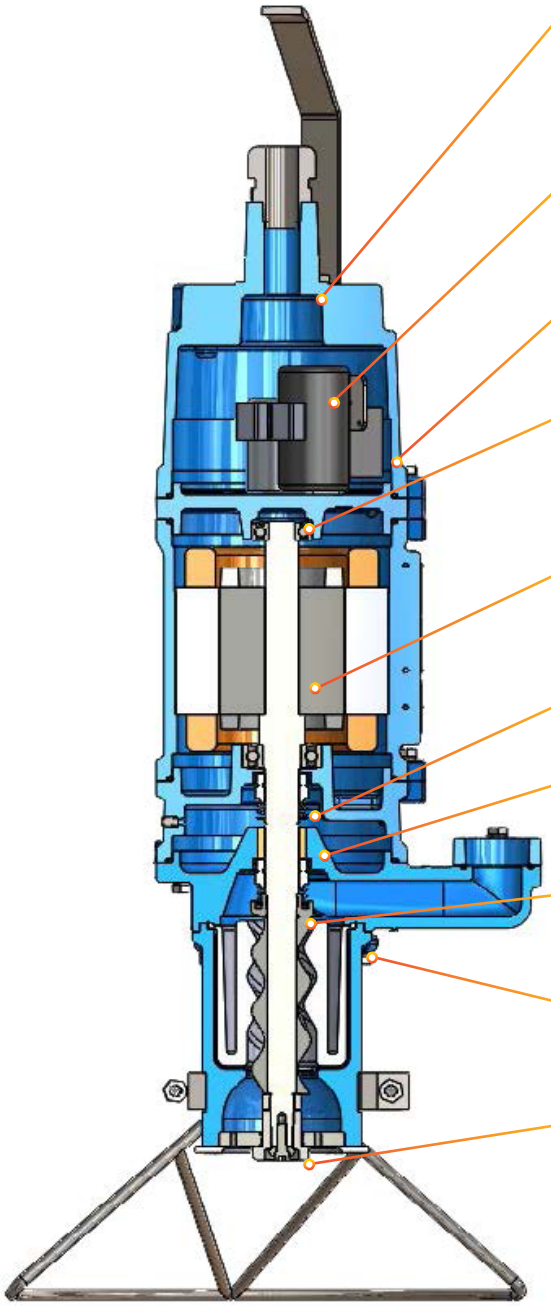
PRESSED OIL-COOLED MOTOR

- Superior Heat Transfer
- Long Bearing & Seal Life
- Class N Insulation

HAZARDOUS LOCATION DESIGN

- True "Explosion-Proof" Service
- FM 3615 Listed
- Third Party Quality Standard to Validate Pump Performance and Cosntruction

KPCG = External Start Kit - Best Configuration For New Construction
KPCG-C = Internal Start Kit - Replacing Existing Competitor Pump (As Shown Below)
KPCGX = Explosion-Proof - Hazardous Location



CABLE SEALING SYSTEM
- Triple-Water Barrier Intrusion
- SST Compression Grommet
- Motor Leads, Power Cable Leads - Solder Block
- Epoxy Potting

START COMPONENTS
- Start/Run Capacitors
- Relay

RUGGED PUMP CONSTRUCTION
- Strongest Class 35 Iron Castings
- No Plastic Materials

- Three Bearing Design Upper And Lower Ball Bearing And Brass Sleeve Bearing
- Lower Sleeve Bearing Provides Strongest Alignment for Shaft And Motor Support

STRONGEST MOTOR DESIGN IN OUR MARKET FOR BEST PERFORMANCE, LONGEVITY IN TOUGH APPLICATIONS

SUPERIOR DOUBLE MECHANICAL SEAL - SILICON CARBIDE W/ VITON® ELASTOMERS

MOISTURE SENSOR
- Alerts Customer if Lower Seal Fails Via Light Inside Control Panel

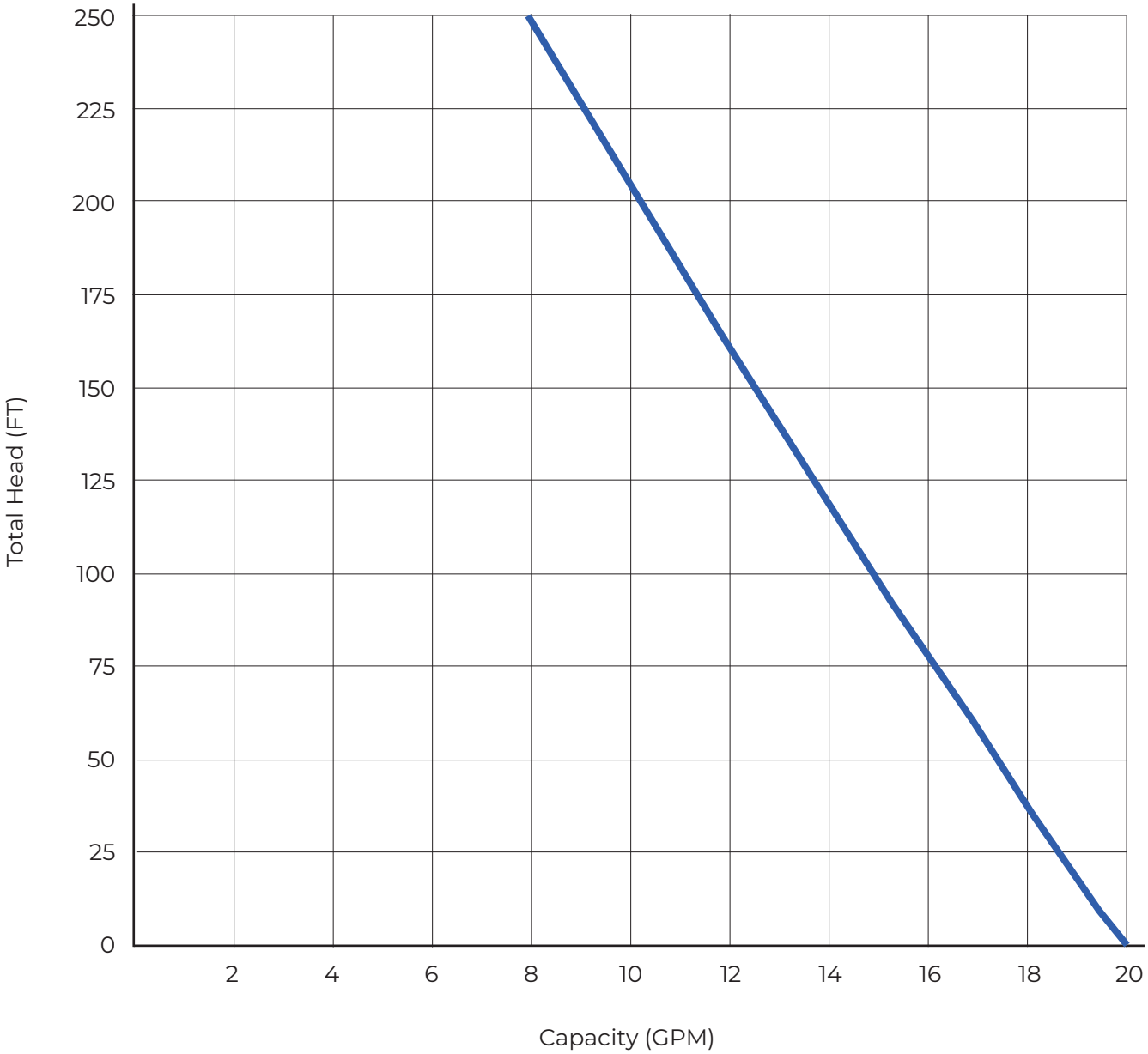
DURABLE STAINLESS STEEL ROTOR WEAR-RESISTANT STATOR
- Proprietory Construction for Long Life

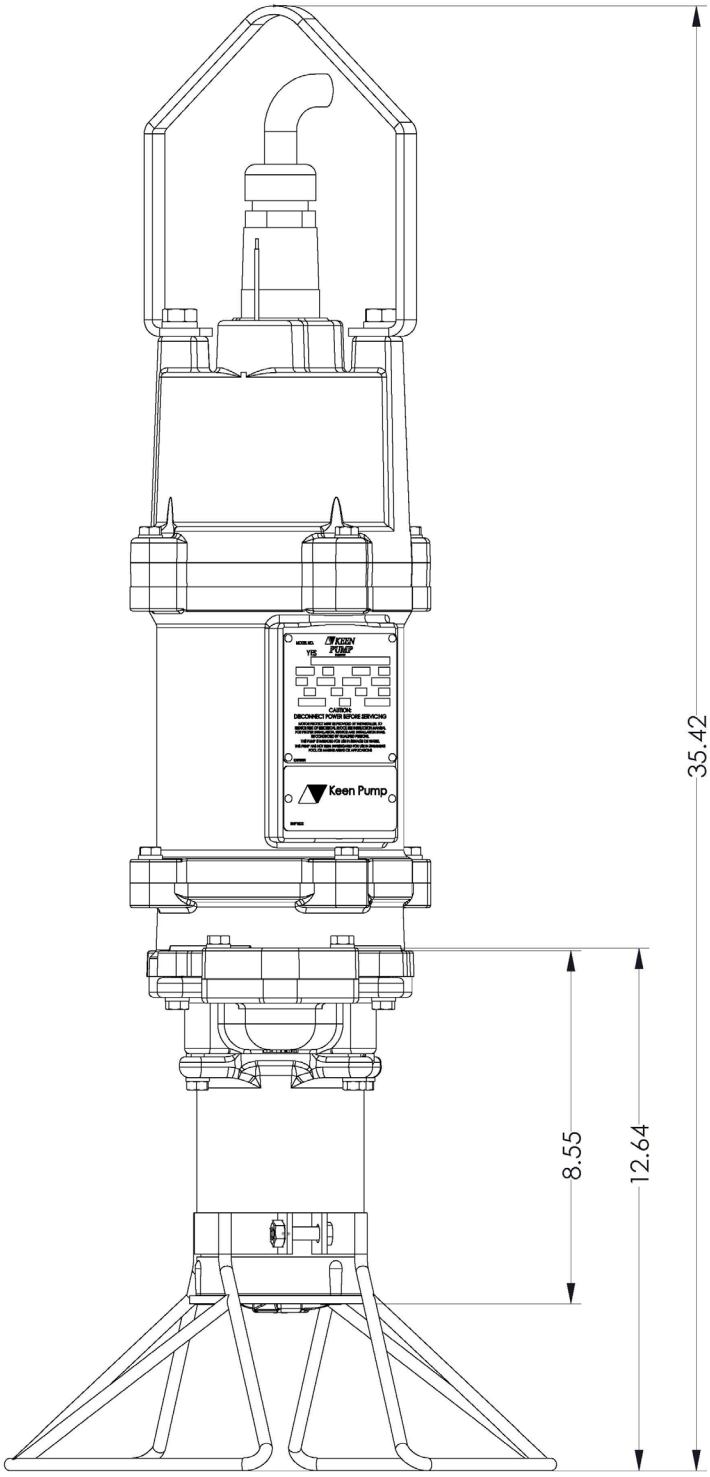
DURABLE STAINLESS STEEL ROTOR WEAR-RESISTANT STATOR

ADVANCED SLICING SYSTEM
- Highly Efficient Solids-Slicing
- Hardened Stainless Steel

PUMP SERIES	KPCG-(C)		1HP PROGRESSIVE CAVITY GRINDER
Speed	1750 RPM	Discharge	1-1/4”

BEST PUMP PERFORMANCE IN THE INDUSTRY!

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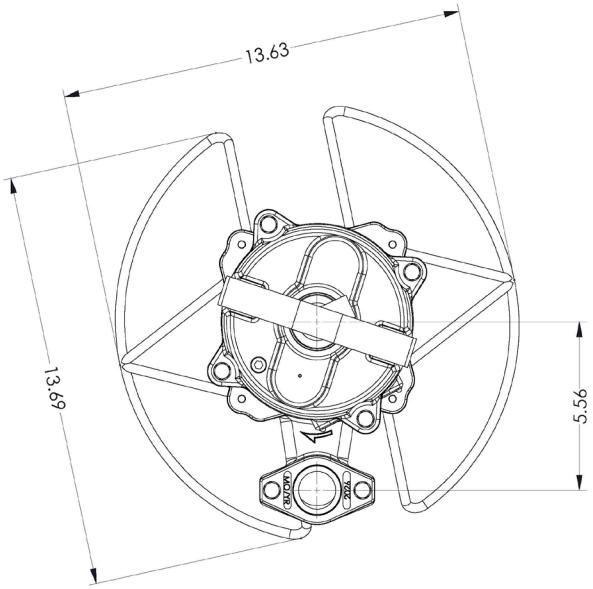
Keen Pump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PHYSICAL DATA	
Discharge Size	1-1/4” NPT or 2-Bolt Flange Vertical
Impeller Type	Progressive Cavity – Rotor w/ Stator
Power/Control Cable Length	30’ Standard
Paint	Blue, Powder Coat Paint Finish

MOTOR CONSTRUCTION	
Motor Type	Enclosed Submersible Oil Filled
NEMA Insulation Code	Class N
Service Factor	1.2
Motor Protection	Thermal Sensors Embedded in the Windings
Maximum Stator Temperature	392°F (200°C)
Power Cord “C” Pump	14-3 SOOW - 600V, 90° C
Power Cord (Remote Start Kit)	14-5 SOOW – 600V, 90° C
Std. Third Party Approval	FM3615

MATERIALS OF CONSTRUCTION	
Cord Entry	Cast Iron, ASTM A48, Class 35
Motor Housing	Cast Iron, ASTM A48, Class 35
Bearing Housing	Cast Iron, ASTM A48, Class 35
Volute	Cast Iron, ASTM A48, Class 35
Rotor, Wobble	Stainless Steel
Stator, Full Lobe	EPDM
Stator Liner	Nylon
Shaft	ANSI 400 Stainless Steel
Rotating “Axial” Slicer	440 SST Hardened 58-60 Rockwell C
Stationary “Axial” Slicer	440 SST Hardened 58-60 Rockwell C
Inboard Mechanical Seal	Silicon Carbide / Silicon Carbide, Viton® Elastomers
Outboard Mechanical Seal	Silicon Carbide / Silicon Carbide, Viton® Elastomers
Fasteners	304 Stainless Steel
O-Rings	Fluorocarbon
Upper Bearing	Conrad Style Single Row Deep Groove Ball Bearing 100,000 Hours, L-10
Lower Bearing	Conrad Style Single Row Deep Groove Ball Bearing 100,000 Hours, L-10
Sleeve Bearing	Bronze, Sintered

THERMAL DATA		
Maximum Liquid		140° F (60° C)
Maximum Stator		392° F (200° C)
Heat Sensor	Open:	275° F (135° C) Max. / 257° F (125° C) Min. (Engineering Advise)
	Closed:	205° F (96° C) Max. / 154° F (68° C) Min. (Engineering Advise)
Oil Flash Point		390° F (199° C)

ELECTRICAL DATA				
RPM	1750			
Electrical Ratings	Heat Sensor	24VDC, 5AMPS	115VAC, 5AMPS	230VAC, 5AMPS
	Seal Fail	300VAC 5mAMPS		
Voltage Tolerance	± 10%			
Start Kit	Start Capacitor = 216 ufd, 250 VAC			
	Run Capacitor = 30 ufd, 370 VAC			

MODEL "C" INTERNAL CAPS (SLICER)	HP	VOLTS	PHASE	NEC CODE	SERVICE FACTOR	FULL LOAD AMPS	SF AMPS	START AMPS	FULL LOAD KW	FULL LOAD KVA
KPCG-01CSL	1	208	1	G	1.2	9.0		40.5	1.87	2.34
KPCG-21CSL	1	230	1	G	1.2	8.0		37.0	1.84	2.30

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1 HP GRINDER PUMPS

MODEL NO. KPCG(X)-C(SL)

PUMP MODEL – Pump shall be of the progressive cavity type, KPCG(SL), with an integrally built-in grinder unit and submersible type motor. KPCG(X)-C or KPCG(X)-C(SL) Series pump and motor assembly shall be FM3615 listed for Class 1, Division 1, Groups C & D hazardous location service. KPCG(X)-C(SL) shall have internal start components (Start capacitor, Run Capacitor, Start switch).

OPERATING CONDITIONS – The pump shall have a non-overloading maximum capacity of ___GPM, a maximum total dynamic head of ___ feet, and shall use a motor rated at 1 HP and 1750 RPM. The grinder unit shall be capable of macerating all material in typical domestic and commercial sewage, including reasonable amounts of foreign objects such as sanitary napkins, disposable diapers, thin rubber, sanitary wipes, floor pads, small wood, plastic and the like to fine slurry that will easily pass through the pump and 1-1/4" NPT discharge.

CONSTRUCTION – Major pump components shall be of gray cast iron, ASTM A-48, Class 35, with smooth surfaces devoid of blowholes or other irregularities. All exposed nuts or bolts shall be 304 stainless steel. All metal surfaces coming into contact with the pumpage, other than stainless steel, shall be protected by a baked on, powder coat finish to the exterior of the pump.

Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with O-rings, designed and constructed to meet FM3615 for Class 1, Division 1, Groups C & D standards. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides (rabbet joint construction) without the requirement of a specific torque limit. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

ROTOR – Progressive cavity full lobe rotor to be polished stainless steel construction.

STATOR – Progressive cavity design stator that has a full lobe. Material shall be ethylene propylene synthetic. Stator material to be acceptable for wastewater, having good resistance properties to heat, weather, grease, detergents, and abrasive materials.

STATOR LINER – Stator to be encapsulated by stator liner. Liner material shall be high density polyethylene. Liner to stabilize stator when in use, allowing for improved wear resistance and longer stator life.

SLICER GRINDER CONSTRUCTION – Maceration is accomplished by a combination of a rotary slicer and stationary slicer plate. Rotary slicer shall consist of (3) blades which protrude away from the inlet. Rotary slicer shall be bolted to shaft within close tolerance of grinding slicer plate. The stationary slicer plate shall consist of engineered-shaped holes for optimum cutting of debris. A slicer plate shall contain grooved slots to eject pump media away from underside of rotary cutter. Slicer plate shall be fastened with countersunk head screws that are flush with surface of plate. Pumps with protruded or exposed head fasteners shall be considered not equal. Both rotary slicer and slicer plate shall be 440C stainless steel hardened to 58-60 Rockwell C.

SEALS – Type 21, domestic manufactured, dual mechanical seal construction mounted in tandem, shall protect the motor. Standard construction of primary seal shall be silicon / carbide with Viton® elastomers. Standard construction of secondary seal shall be silicon / carbide with Viton® elastomers. The seal face shall be lapped to a flatness of one light band. For remote start/run capacitor pumps ONLY, an electrode shall be mounted in the seal chamber to detect water entering the chamber through the lower seal. Water in the chamber shall cause a red light to turn on at the control box. This signal shall not stop the

MOTOR – The pump motor construction shall be per NEMA MG-1 1.15 standard and shall be of the submersible type, rated 1 HP, 1750 RPM. The motor shall be for 60 Hz, either 208 or 230 volt, single-phase operation. Single-phase motors shall be capacitor start, capacitor run type for high starting torque. “C” model pump shall contain both capacitors and start switch housed “internally”, below the cord entry. Start and run capacitors, and starting switch will be found remotely in a control box for standard pump model. Major motor operating temperature must not exceed Class N ratings.

The stator winding shall be of the open type with Class N insulation. Any other construction shall not be considered equal. The stator shall be pressed into the cast iron motor housing. Winding housing shall be filled with clean, high dielectric oil that lubricates bearings and seals, transferring heat from windings and rotor to the outer cast housing.

Single phase motors shall have automatic reset overload protection attached to the top end of the motor windings to stop the motor if the motor winding temperature reaches 130 degrees C. The high temperature shut-off will cause the pump to cease operation should a control failure cause the pump to run in a dry wet well or any condition that may cause the pump to run outside of the specified operating temperature range.

INTERNAL START KIT (“C” MODEL ONLY) – Start/Run capacitor with start relay securely positioned in dry compartment. A total of (4) bolts quickly removes cord cap for easy servicing.

BEARINGS / SHAFT – The motor shall have two heavy-duty ball bearings and one sleeve bearing to support the pump shaft, taking radial and thrust loadings. Bearings shall be designed to an ABEC® System 1 or better. The upper bearing shall be a Conrad type, single-row, deep groove ball bearing designed to adequately handle the required radial loads. The lower bearing shall be a single-row deep groove ball bearing designed to adequately compensate for the axial loads and radial forces. Bearings shall be designed to deliver a minimum L-10 bearing life of 100,000 hours when operation is within the limitations of the manufacturer’s performance curve. The bearings shall be lubricated in oil and will not require maintenance as described in ANSI/HI 1.4-2010 A.6.

POWER CORD – The motor power cord shall be 14 Ga. Type SOOW, UL listed, CSA approved cable. The cable
jacket shall be sealed at the motor entrance by means of an agency-approved rubber compression washer and compression nut. An epoxy-filled cord cap seals the outer cable jacket and individual leads to prevent water from entering the motor housing. Compression fittings with quick disconnect molded pins shall not be considered equal. Cord shall withstand a pull strain to meet FM requirements.

MOISTURE PROBE – Rotor and stator in the motor housing shall be separated and protected from the pumped liquid by an oil filled seal housing incorporating two type 21, Silicon Carbide upper and lower mechanical seals. The seal housing shall be equipped with a moisture sensing probe installed between the seals, and the sensing of moisture in the seal chamber shall be automatic, continuous, and not require the pump to be stopped or removed from the wetwell.

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