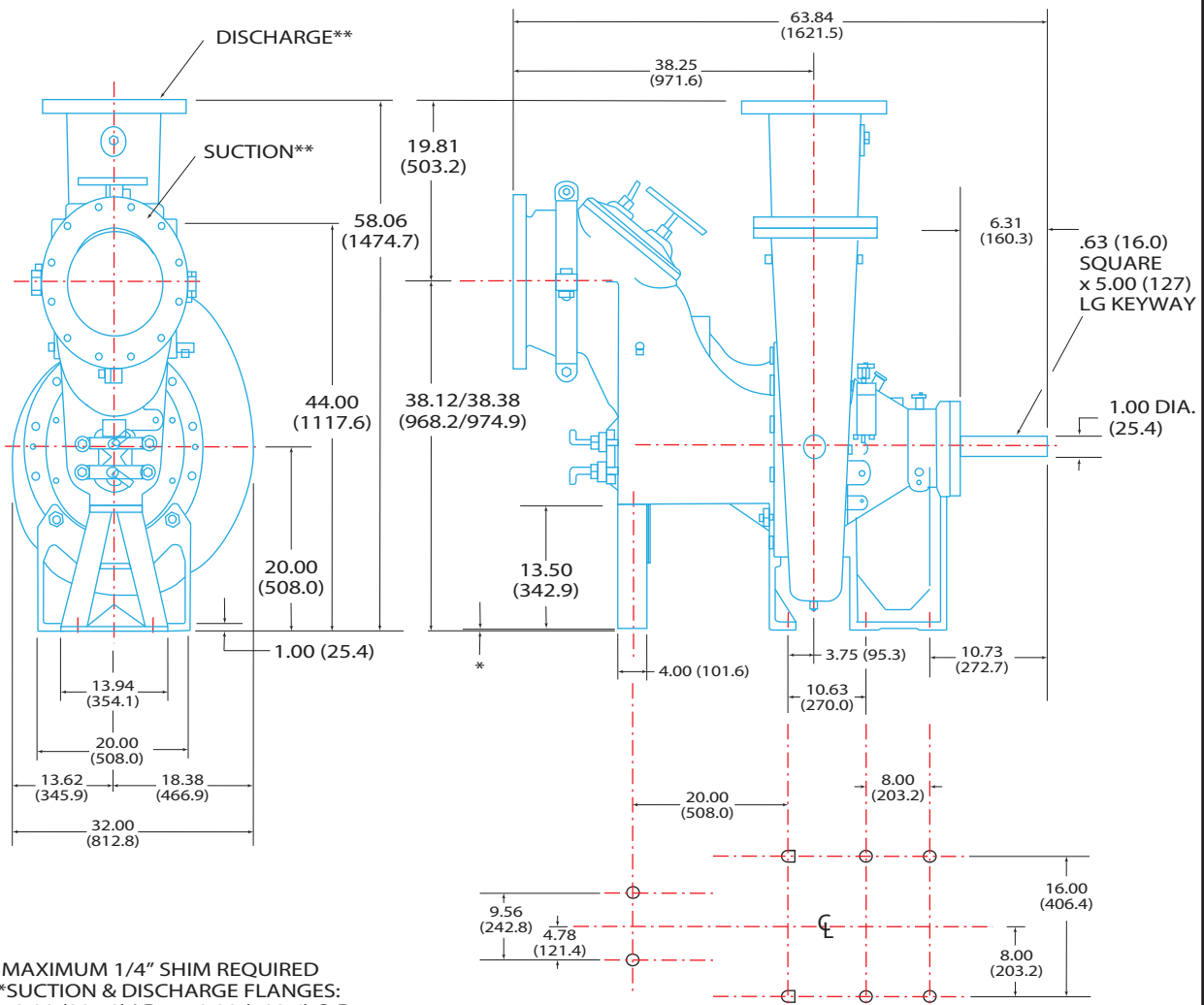




GENERAL		CONSTRUCTION DATA	
Date	09-Jan-2012 / KTP12DIM.1	Impeller Shaft	Alloy Steel No. 4140
PUMP DATA		Shaft Sleeve	Stainless Steel No. 304
Model No.	KTP12	Check Valve	Steel Reinforced Neoprene
Size	12" x 12" (300mm X 300mm)	Seal Plate	ASTM A48 Grey Iron CL30
Discharge Dia.	12" FL'G (Opt. 12" Flg ASA or DIN)	Bearing Housing	ASTM A48 Grey Iron CL30
Suction Dia.	12" FL'G (Opt. 12" Flg ASA or DIN)	Radial Bearing	Single Row Ball - Open
Casing	ASTM A48 Grey Iron CL30	Thrust Bearing	Double Row Ball - Open
Impeller Type	2-Vane Semi-Open	Bearing & Seal Lubrication	SAE No. 30 Non-Detergent
Impeller Material	ASTM A536 Ductile Iron 80-60-03	O-Rings	NBR (Buna-N)
		Mechanical Seal	Silicon-Carbide (SST/Flouorocarbon fitted)

### DIMENSIONAL DATA



\* MAXIMUM 1/4" SHIM REQUIRED  
 \*\*SUCTION & DISCHARGE FLANGES:  
 12.00 (304.8) I.D. x 19.00 (482.6) O.D.  
 1.00 (25.4) DIA. (12) HOLES ON 17.00  
 (431.8) B.C. - STRADDLING CENTERLINE

# Specifications: Primer

## KTP SERIES SELF-PRIMING TRASH PUMPS

### 1.1 GENERAL

1.1.1 The said contractor will be responsible for furnishing all labor, materials, equipment and the incidentals that are required to provide installation of the Keen supplied horizontal self-priming solids handling centrifugal sewage and trash pump(s) as specified here within. Pump(s) will be furnished by Keen Pump.

1.1.2 The pump shall be Keen model number \_\_\_\_\_:

Suction Size: \_\_\_\_\_ (Inches)  
Suction Configuration: \_\_\_\_\_ (NPT or 125# Gray Iron CL30)  
Discharge Size: \_\_\_\_\_ (Inches)  
Discharge Configuration: \_\_\_\_\_ (NPT or 125# Gray Iron CL30)  
Solid Size Handling Capability: \_\_\_\_\_ (Inches)

### 2.1 OPERATING CONDITIONS

2.1.1 The Keen delivered pump shall be capable of pumping raw unscreened sewage and/or trash and properly selected to perform at these operating conditions:

Capacity: \_\_\_\_\_ (USGPM)  
Total Dynamic Head (TDH): \_\_\_\_\_ (FT)  
Total Dynamic Suction Lift: \_\_\_\_\_ (FT)  
Total Dynamic Discharge Head: \_\_\_\_\_ (FT)  
Maximum Static Suction Lift: \_\_\_\_\_ (FT)  
Design Pump Efficiency: \_\_\_\_\_ (%)  
Design Pump Speed: \_\_\_\_\_ (RPM)  
Design Pump Motor Horsepower: \_\_\_\_\_ (HP)  
Design Pump Motor Speed: \_\_\_\_\_ (RPM)

2.1.2 The motors shall be NEMA general purpose horizontal, \_\_\_\_\_ (TEFC, ODP or Explosion-Proof) induction type motor with the necessary starting torque and low starting current characteristics for the available locally supplied electrical service:

Voltage: \_\_\_\_\_  
Phase: \_\_\_\_\_ (Single or Poly)  
Frequency: \_\_\_\_\_ (Hertz)

The selected motor shall be non-overloading at the determined design operating condition of the pump(s) or at any pressure (head) throughout the operating range of the pump.

2.1.3 The selected motor shall conform to current NEMA motor design parameters and shall be equal to in construction a NEMA B motor design to provide the necessary operating performance as per the pump design.

- 2.1.4 The performance curve submitted by the manufacturer, Keen Pump, for approval shall state, in addition to pump capacity and head, pump efficiency, solid handling capability, brake horsepower, the impeller speed and the net positive suction head required (NPSH).

### **3.1 PUMP MOUNTING BASE**

- 3.1.1 The pump shall be mounted to steel fabricated of sufficient design to prevent flexing and/or warping under all normal operating conditions and connected to the motor by factory designed v-belt of flexible coupling configuration as supplied in the operating conditions. The design shall be that the pump or any piping alignment is not disturbed and alignment is achieved by movement of the motor.

Connection configuration:

\_\_\_\_\_ V-Belt

\_\_\_\_\_ Flexible Coupling

- 3.1.2 The fabricated base will be designed to provide all the provisions for setting and grouting the base after installation.

### **4.1 PUMP CONSTRUCTION**

- 4.1.1 The pump volute case, suction cover, suction and discharge connections, rotating unit assembly and priming cover shall of quality gray cast iron equivalent to ASTM A-48 Class 30 or better (see section **6.1 Optional Materials of Construction** below).

### **4.2 SUCTION COVER**

- 4.2.1 The pump suction cover and wear plate shall be removable as a unit. Removal of the suction cover shall provide access to all parts of the pump case including the priming port. The wear plate shall be bolted to the suction cover.
- 4.2.2 Removal of the suction cover shall provide service access to the pump impeller and the mechanical seal without disturbing pump case or any of the system piping.

### **4.3 VOLUTE CASE**

- 4.3.1 Shall contain a suction type flapper check valve. The check shall be fastened in place. The check valve shall be constructed of neoprene with nylon and steel reinforcing and contain rupture disk center to prevent the over-pressure of the volute case. All other designs will be considered unacceptable.
- 4.3.2 The pump volute case shall contain sufficient liquid volume to obtain the priming capacity published in the on the catalog curve. Re-priming lift data is furnished in feet of water below the centerline of the pump suction inlet and test data is based on 70 degree clean water. Published re-prime lifts are such that five repeatable tests are performed and completed in not more than a five minute time limit. Factory re-prime test are performed with the suction check removed during the test.
- 4.3.3 All internal passages shall satisfactorily pass the minimum solid sizes as published in the pump models performance data.

- 4.3.4 Volute case shall be factory equipped with brass pressure relief valve. Optional pressure relief valve material will be stainless steel.

#### **4.4 SEALS**

- 4.4.1 The mechanical seal shall be a cartridge type, oil lubricated, double floating and self aligning. Faces, both stationary and rotating, shall titanium/tungsten carbide. Metal components of the mechanical seal shall be 316 stainless steel. The mechanical seal shall be accessible by removing the suction cover and impeller. The pump impeller shall have pump out vanes on the backside of the impeller to keep debris out of the seal area.
- 4.4.2 Pumps shall be equipped with a shaft sleeve installed for the mechanical seal. The shaft sleeve shall prolong the life of the pump shaft.

#### **4.5 PUMP IMPELLER**

- 4.5.1 Impeller shall be of a two-vane, semi-open, solids handling design and incorporate pump out vanes on the backside to prevent debris from collecting in the mechanical seal area. The impeller material shall be of ductile iron construction.
- 4.5.2 Pump impeller shall be threaded and/or keyed to the pump shaft. Stainless hardware shall secure the impeller from reverse rotation on the pump shaft.
- 4.5.3 The pump rotating unit and/or suction cover shall be shimmed to allow proper renewable impeller to wear plate clearances for optimal pump performance.

#### **4.6 WEAR PLATE**

- 4.6.1 The wear plate shall be fastened to the suction cover. The clearance between the wear plate and impeller shall be maintained at 15 thousandths (.015). Replacement of the wear plate shall be accomplished by removal of the suction cover.
- 4.6.2 Wear plate material shall be either of a cast iron CL30.

#### **4.7 BEARING HOUSING**

- 4.7.1 A cast iron bearing housing shall be utilized for the rotating assembly. The bearing housing shall be removable from the pump case without disturbing the suction or discharge piping or the pump volute case.
- 4.7.2 The bearing housing shall contain and support the pump shaft two ball bearings. The ball bearings shall be oil lubricated and sized to provide a minimum B10 life of 20,000 hours under normal operating conditions.
- 4.7.3 The bearing housing shall be of a double oil seal design to provide protection from contamination of the ball bearings.
- 4.7.4 The rotating unit shall be equipped with an oil level sight glass for ease of determining proper oil level is maintained for adequate lubrication.

## 5 OPTIONAL EQUIPMENT

### 5.1 Automatic Air Release Valve

5.1.1 Construction shall be of corrosion resistant material cast iron, stainless steel reinforced neoprene and plated hardware. The valve is to function to evacuate air from the pump case during the priming cycle and automatically close when pump achieves rated capacity and pressure and remain closed during the pumping cycle.

5.1.2 The valve is fitted with stainless steel rod, spring and washers with cast iron valve body. All stainless steel construction is available upon request.

5.2 A case heater shall be available for prevention of the pump case freezing.

5.3 A thermostat shall be available for prevention of the pump case overheating.

## 6.1 OPTIONAL MATERIALS of CONSTRUCTION

### 6.1.1 Fitted Pumps

Parts	Standard (CI)	A216* Fitted	CD4MCu Fitted	304SST Fitted	ADI** Fitted
Casing	ASTM A-48 Grey Iron CL30				
Impeller	DI 60-40-18	A216	CD4MCu	304SST	ADI
Wear Plate	SAE 1020	A216	CD4MCu	304SST	ADI
Cover Plate	A48 CL30	A216	CD4MCu	304SST	ADI
Bearing Housing	ASTM A-48 Grey Iron CL30				
Seal Plate	A48 CL30	A216	CD4MCu	304SST	ADI
Check Valve	Neoprene				
Shaft Sleeve	316 SST				
Flanges	A48 CL30				
O-Rings	NBR		Flourocarbon		
Pump Shaft	ANSI 4140		304 SST		
Mechanical Seal	Tungsten/Titanium faces, Flourocarbon elastomers and 316SST fitted				

\* A216 is Cast Steel

\*\* ADI is Austempered Ductile Iron

### 6.1.2 Constructed Pumps

Parts	CD4MCu	316 SST	304 SST	ADI**	C276***
Casing	CD4MCu	316 SST	304 SST	ADI	C276
Impeller	CD4MCu	316 SST	304 SST	ADI	C276
Wear Plate	CD4MCu	316 SST	304 SST	ADI	C276
Cover Plate	CD4MCu	316 SST	304 SST	ADI	C276
Bearing Housing	CD4MCu	316 SST	304 SST	ADI	C276
Seal Plate	CD4MCu	316 SST	304 SST	ADI	C276
Check Valve	Flourocarbon				
Shaft Sleeve	316 SST				
Flanges	CD4MCu	316 SST	304 SST	ADI	C276
O-Rings	Flourocarbon				
Pump Shaft	304 SST			316 SST	
Mechanical Seal	Tungsten/Titanium faces, Flourocarbon elastomers and 316SST fitted				



\*\* ADI is Austempered Ductile Iron

\*\*\* C276 is Alloy C or Hastelloy ®

## 7.1 WARRANTY

### **KEEN PUMP COMPANY, INC.**

471E State Route 250 East Ashland, OH 44805

Phone: 419-207-9400 Fax: 419-207-8031

### **Limited 3 – Year Warranty**

During the time periods and subject to the conditions hereinafter set forth, Keen Pump will repair or replace to the original user or consumer, any portion of your new Keen product which proves defective due to defective materials or workmanship of Keen Pump. Contact your closest authorized Keen Pump representative or distributor for warranty service. At all times, Keen Pump shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components. Damage caused by acts of GOD or conditions beyond the control of Keen Pump is not covered by this warranty.

#### **WARRANTY PERIOD:**

36 months from date of manufacture.

Start-up reports may be required to support warranty claims. Warranty effective only if Keen Pump supplied or authorized control panels are used. Single phase pumps must utilize Keen Pump supplied start components.

#### **THIS WARRANTY WILL NOT APPLY:**

- (1) To defects or malfunctions resulting from failure to properly install, operate or maintained the product in accordance with printed instructions provided.
- (2) To failures resulting from abuse, accident or negligence.
- (3) To normal maintenance services and the parts used in conjunction with such service.
- (4) To products which are not installed in accordance with applicable local codes, ordinances and good trade practices.
- (5) The product is used for purposes other than for what it was designed and manufactured.
- (6) If 3 phase motors are installed on a single phase power supply using a phase converted of if 3 phase power is supplied by only two transformers, making an open Delta system.

#### **WARRANTY EXCLUSIONS:**

Keen Pump specifically disclaims the implied warranties of merchantability and fitness for a particular purpose after the termination of the warranty period set forth herein. No warranties or representations at any time made by any representatives of Keen Pump shall vary or expand the provision hereof.

#### **LIABILITY LIMITATION:**

In no event shall Keen Pump be liable or responsible for consequential, incidental or special damages resulting from or related in any manner to any Keen Pump product or parts thereof. Personal injury and/or property damage may result from improper installation. Keen Pump disclaims all liability, including liability under this warranty, for improper installation. Keen Pump recommends following the instructions in the installation manual. When in doubt, consult a professional. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

#### **LABOR, ETC., COSTS:**

Keen Pump shall in no event be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or reaffixing any Keen Pump product, part or component thereof.

#### **RETURNED OR REPLACED COMPONENTS:**

Any item to be replaced under this Warranty must be returned to Keen Pump, or such other place as Keen Pump may designate, freight prepaid.

This warranty gives you specific legal rights and other rights which may vary from state to state.

In the absence of suitable proof of this purchase date, the effective date of this warranty will be based upon the date of manufacture. Example: 0105 = Month-Year = January, 2005.