CRANE
DEMING
PUMPS

FOR SEWAGE AND INDUSTRIAL WASTES

BULLETIN 7560
SECTION 46

VERTICAL
SOLIDS HANDLING
SUMP PUMPS

FEATURES OF CONSTRUCTION
• Enclosed Two-Port Impeller
• Easy Axial Adjustment
• Flanged Column Construction
• Stainless Steel Pump Shaft
• Stuffing Box Top Closure
• Vapor-Tight Cover Plate
• Heavy Duty Ball Thrust Bearing
• Sealed Thrust Bearing Housing
• Flexible Motor Coupling
• Vertical NEMA C-Flange Motors
• Control Equipment Options
• Cast Iron or Steel Basins Available
• Simplex and Duplex Units

CAPACITIES TO OVER 3000 GPM
HEADS TO 150 FEET
SOLIDS 1½, 2, 2½ AND 3 INCH

Standard Fitted
Bronze Fitted
Stainless Steel

All iron
All Bronze
Other Alloys

SERVICES
• Building Installations
• Construction Projects
• Industrial Processes
• Municipal Systems
• Pollution Control
• Sewage Lift Stations
• Underpass Drainage
• Waste Treatment Plants

For Dry Pit Solids Handling Pumps refer to Bulletin 7150, Section 45.
For Demersible Solids Handling Pumps refer to bulletin 7360, Section 42.
**Motor Support**—Heavy cast iron with machined register fit for mounting NEMA C-Flange vertical motors. Adaptors for other motors are available as optional extra.

**Impeller Adjustment**—The axial clearance between the impeller and suction cover is easily adjusted by means of an adjusting nut located above the thrust bearing housing to maintain maximum efficiency.

**Thrust Bearing**—High thrust ball bearing is located in sealed housing well above the support plate to protect from dirt and moisture. Grease lubrication has a purging action by which the fresh grease pushes old grease out.

**Vapor-Tight Construction**—Includes Design 3 Stuffing Box where shaft goes through support plate, bellows around float rod and necessary gaskets to seal off gas vapor and obnoxious odors.

**Pump Shaft**—High Strength Type 410 stainless steel, heat treated, ground and polished, and specially straightened for longer life.

**Column**—Full weight pipe with welded flanges. accurately machined with register fit at all assembly points to insure positive alignment.

**Intermediate Bearing Assembly** as illustrated is required for sump depths over 6 feet. Regularly furnished in Design No. 8 with bronze bushings for forced grease lubrication through individual lube lines from pressure fitting above cover plate.

**Bottom Bearing Assembly**—Design No. 6 as illustrated includes bronze sleeve bearings and cast iron choker ring. Lubrication may be by liquid pumped supplemented by forced grease or outside clear water flush to the bearings.

**Note**—Other bearing designs and materials are available to meet any requirements of service and type of lubrication. Alternate bearing materials include Cast Iron, Nicumo-40 Alloy Iron, Meehanite, Ni-Resist Illium-B, Babbitt Graphite. Carbon, Cutless Rubber and Glass Filled Teflon.

**Impeller**—Fully enclosed, two-port design, accurately balanced, keyed and locked securely to shaft for smooth operation. Impellers are specifically designed to handle large solids and unscreened liquids with minimum clogging. Caved repelling vanes on back shroud reduce pressure at the hub and prevent solids from accumulating behind the impeller.

**Casing**—Improved volute design with large waterway allows smooth, unobstructed flow for any solids that will pass though the impeller. Large hand hole and separate suction cover facilitate maintenance.

**Rotation**—All Fig. 7560 pumps are built-in right hand construction, i.e. clockwise rotation when looking down on motor.
FOR SEWAGE AND INDUSTRIAL WASTES

FEATURES AND CUSTOMER BENEFITS

Crane-Deming Fig. 7560 Vertical Wet-Pit Pumps are designed for sewage and drainage application where solids and unscreened wastes are carried in the liquid. These pumps have important advantages for safe, efficient handling of waste and process liquids.

- Positive, Automatic Priming with pump impeller submerged in the liquid at all times.
- Minimum Space Requirements with sump basin safely below ground.
- Solids Handling Capability assures minimum clogging.
- Seal or Packing problems are eliminated.
- Economical Maintenance due to modular design of pump and column components.
- Wide Range of Application with optional materials and construction features available for conditions involving abrasive materials, corrosive liquids, varying temperatures and other special requirements.

Your Crane-Deming representative is backed by the experience gained on thousands of vertical pump installations now in daily operation, giving dependable, economical pumping service.

LIQUID LEVEL PUMP CONTROLS

Float Controls for single pump includes float switch mounted on cover plate, %-inch fiberglass float rod guided at plate and at bottom of pump and ceramic float which slides on rod between two stops to determine the Start and Stop levels of the pump. Floats are also available in plastic, copper or stainless steel and with stainless steel float rod.

SINGLE PUMP FLOAT SWITCHES

Fig. 9036 GG2S-1 NEMA 1 General Purpose Enclosure
Fig. 9036 DW-1 NEMA 4 Watertight Enclosure
Fig. 9036 DR-1 NEMA 7 Explosion Proof Enclosure

These reliable two-pole switches may be used for direct control of single phase motors 1 HP and smaller having built-in overload protection and for pilot control to magnetic starter with other motors.

DUPLEX PUMP ALTERNATOR FLOAT CONTROL

Fig. 9038 AG-1 NEMA 1 General Purpose Enclosure
Fig. 9038 AW-1 NEMA 4 Watertight Enclosure
Fig. 9038 AR-1 NEMA 7 Explosion Proof Enclosure

Duplex Pump Float Control includes one Fig. 9038 mechanical alternator float switch with float and rod as described for single pump control. Switch is mounted on a separate control plate with the float rod guide assembly so that the entire float control assembly may be removed for adjustment without disturbing either pump. The control alternates two pumps and operates both pumps at same time if flow into sump exceeds the capacity of one pump. Magnetic starters are required except for single phase motors 1 HP and smaller having built-in overload protection.

OPTIONAL CONTROL EQUIPMENT

Mercury Switch Liquid Level Control System for single or two pump control can be furnished instead of standard float controls. Mercury switches are suspended in pit at desired levels to control pump operation.

Additional Control Equipment available includes:

- Floatless Liquid Level Controls
- Bubbler Type Level Control Systems
- Simplex and Duplex Control Panels
- Automatic Lubrication Control
- High Water Alarm
- Variable Speed Controls
Crane-Deming Vertical Solids Handling Sump Pumps

FIG. 7560 SERIES - FOR SEWAGE AND INDUSTRIAL WASTES

SELECTION AND APPLICATION

**Pump Capacity**—In addition to being adequate for the service, the design capacity should be sufficient to maintain proper velocity flow through the pump and discharge pipe to prevent solids from settling out. (See table at right)

**Total Head**—Pumps should be rated to deliver the required capacity against the difference in elevation between the water level in the sump and the highest point in the discharge line, plus any pressure required at the end of the line, plus the friction loss in the discharge elbow and discharge pipe, plus the velocity head in the discharge pipe.

Where the head will vary it is advisable to also specify the minimum dynamic head in addition to the rated total head to permit accurate selection of pump and motor.

**Solid Size**—Pumps in commercial, industrial and public buildings should be capable of handling 2½ inch and preferably 3 inch solids. Private and residential installations should handle at least 1½ or 2 inch solids.

Note—Refer to 7560 Dimension Pages for minimum sump size, pump and cover plate dimensions.

**STANDARD MATERIALS OF CONSTRUCTION**

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<tr>
<th>ITEM NO.</th>
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<th>STANDARD FITTED</th>
<th>BRONZE FITTED</th>
<th>ALL IRON</th>
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<td>25</td>
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<td>Type 302 St. St.</td>
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<td>Discharge Elbow</td>
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**NOTE**—Optional materials including All Bronze, Stainless Steel and other machinable alloys are available for special conditions. Refer to Application Engineering for recommendation.

**TYPICAL ARCHITECTS - ENGINEERS SPECIFICATION**

**DUTY**—Furnish and install in accordance with plans. Single (or Duplex) automatic Crane-Deming Fig. 7560 Series Vertical Wet Pit Solids Handling Pump(s) each with a capacity of GPM at a total head of _____ feet (including friction in the discharge pipe and velocity head) and capable of handling _____ inch solids. Pump speed not to exceed 1750 (1150) (870) RPM.

Pump(s) shall be mounted on heavy steel cover plate _____ Inches diameter (square) and shall be suitable for installation in a sump (basin) _____ inches diameter (square) and _____ feet in dept. Plates shall be gasketed or sealed to prevent sump vapors from escaping except through vent.

Duplex units shall be mounted on individual support plates to permit removal of either pump without disturbing the other. Sump cover to include manhole with gasketed cover. Vent (if required in the sump cover) shall be threaded (flanged) for _____ inch pipe.

**CONSTRUCTION**—Pumps shall be iron or bronze fitted with Type 410 stainless steel shaft. Shaft and impeller shall be supported by a heavy duty ball thrust bearing located in sealed housing above the support plate. Shaft shall be guided by renewable bronze (or other) sleeve bearings in flanged housing spaced not over 5 feet apart. Column shall be full weight pipe with welded flanges having register fit at all assembly points. Discharge pipe shall be rigidly connected to the casing assembly and supported at the pump support plate to eliminate strain in the pump assembly.

**MOTOR** shall be sized to operate pump at minimum total head of feet without exceeding the nameplate (or service factor) rating. Motor shall be in Drip proof (Totally Enclosed) (Explosion Proof) enclosure with canopy, for 230 (460) (200) (575) volt _____ Phase Hertz.

**AUTOMATIC CONTROL**—Float switch shall be in NEMA 1 (NEMA 4) (NEMA 7) enclosure, mounted above cover plate and actuated by a guided, corrosion resisting float. Duplex switch shall include mechanical alternator to operate both pumps if required for peak ion.

**EXTRA EQUIPMENT**—Sump basin (specify size, type and location of inlet), float pipe, high water alarm, magnetic starter, circuit breaker and other special equipment should be noted individually in the specifications.