



Pre-engineered Package Wastewater Lift Stations

TechNotes

ROMTEC UTILITIES, INC.

Product Information & Updates

Installation & Technical Tips

March, 2004

TechNotes is sent to you regularly by Romtec Utilities, Inc. This monthly newsletter brings you descriptions of Romtec Utilities products and their applications. More information is available at our web site, www.romtecutilities.com, by sending e-mail to info@romtec.com or by phoning 541-496-3541 during business hours.

This bulletin provides information on **Romtec Utilities Pre-engineered Package Wastewater Lift Stations**. These sewage-pumping systems are delivered to the construction site as complete packages. They meet the toughest requirements found in sanitary sewer systems, and they are also used for pumping industrial wastewater and storm water.



Complete lift station arrives at job site in a single delivery.



In this issue of TechNotes

we describe the **Base Section**, which is typical in every Romtec Utilities wet well.

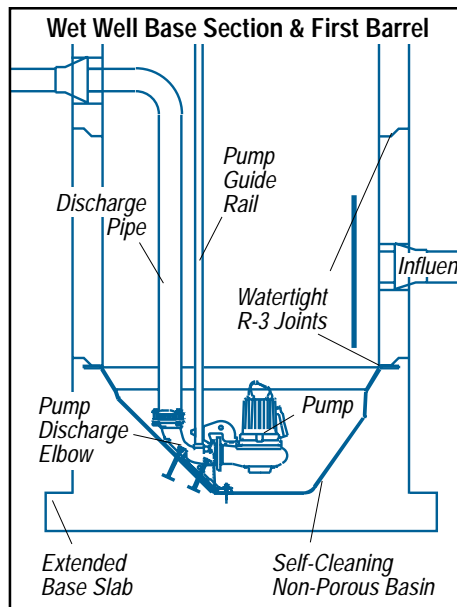
The wet well of a Romtec Lift Station is cylindrical with base, barrel sections and top of pre-cast reinforced concrete. The diameter of the well is 5', 6' or 7', depending on the maximum sewage flow to the lift station. The underground wet well sections are stacked one atop another, to a maximum depth of 30 feet.

Extended Base Slab

The pre-cast base of the wet well includes a cast rectangular pad. The outward extension of this pad beyond the cylindrical wet well prevents hydraulic uplift of the wet well after backfill material is properly compacted around the structure.

Watertight R-3 Joint

The top edge of the base wall forms an R-3 single offset joint, which includes a rubber gasket fitted between the top edge of the base and the bottom edge of the first barrel section. This forms a watertight seal.



Self-Cleaning, Non-Porous Basin

Cast into the Romtec wet well base is the self-cleaning, non-porous basin. This proprietary design of the Flygt Corp., an affiliate of ITT Industries, is used by Romtec Utilities through a license agreement with Flygt.

The basin, built of fiberglass, has sloping sides and a small, flat floor area. This design creates minimum fluid volume at the bottom of the wet well and generates maximum flow velocities during pumping times. The result is the elimination of solids build-up on the wet well floor and bottom sides.

Pump Discharge Elbows

Two pump discharge elbows are fastened into the basin; their anchor bolts *continues on page 2*



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are actually pre-cast into the concrete. The discharge elbows are positioned precisely so the pumps will be properly emplaced when lowered into position, and so the discharge pipes will fit correctly with simple installation.

Flygt Submersible Pumps

Submersible pumps from ITT Flygt, the world's foremost manufacturer of submersible electric pumps, are used exclusively in Romtec Utilities Lift Stations. Duplex pumps are supplied from 2 to 23 horsepower rating, depending on the specifications and performance requirements of the lift station.

The patented impeller and volute combination of the Flygt pumps gives them a self-cleaning flow path, which results in high-efficiency pumping over long duty periods, with greatly reduced occurrence of clogging.

Mix-Flush Valve

Optionally one of the pumps may be fitted with the Flygt mix-flush valve, which recycles a portion of the pumped fluid at high velocity back into the basin. This recycle stream, some 20 seconds in duration after the start of pump operation, adds circulation and turbulence to the fluid in the bottom of the basin, minimizing solids build-up.

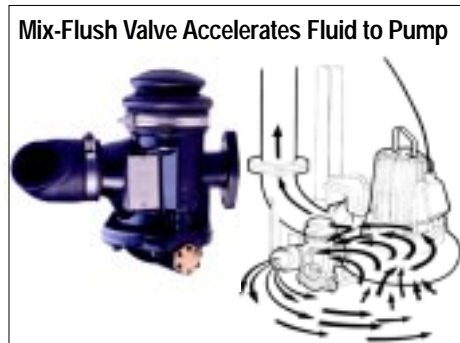
Pump Guide Rails

Cast into the pump discharge elbows are the four lower brackets for the pump rails. These stainless steel rails, two per pump, permit installation and removal of either pump by simply lowering the unit in place or lifting it up for service or replacement.



Flygt Pumps & Discharge Elbows (above), Top-down view of pumps with discharge pipes & guide rails (right).

FLYGT



Mix-Flush Valve Accelerates Fluid to Pump



Stainless Steel Guide Rail

Close-up view of discharge elbow with bottom of guide rail positioned in bracket.

Completing the Picture

These then are the components and sub-assemblies of each wet well base unit: First is the concrete base itself, with its integral concrete slab that serves as the footing to be placed on engineered fill at the bottom of the excavation. With backfill material in place, the slab, which extends beyond the wet well outer walls, assists in preventing hydraulic uplift, even in the worst-case condition of saturated sand.

Inside the concrete base is the non-porous TOPS basin. Fastened through the sump into the concrete are the pump discharge elbows, what accept the pump guide rails.

Installation of two Flygt pumps, one equipped with the optional mix-flush valve, completes the equipped wet well base.

This "ready-to-go" base is a key part of each Romtec Utilities Wastewater Lift Station. Engineered prefabrication of the base for your application eliminates all the custom engineering, fabrication and installation time and materials associated with custom building a lift station from scratch.

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