CAPSULAR® Pump Stations Versus Concrete Built-In-Place Stations

Most large underground pump stations are "cast in stone" or "cast in concrete". The Smith & Loveless factory-built **CAPSULAR®** pump station offers many advantages to the consulting engineer, installing contractor and, most importantly, to the ultimate owner. The **CAPSULAR®** Station is specifically designed and built for municipal and industrial non-clog pumping applications. The factory-built concept pioneered more than 50 years ago by Smith & Loveless for small lift stations has developed and expanded to include very large stations – pump motors to 400 HP and larger. Here are some important advantages of the Smith & Loveless factory-built **CAPSULAR®** Pump Station over concrete built-in-place pump stations.

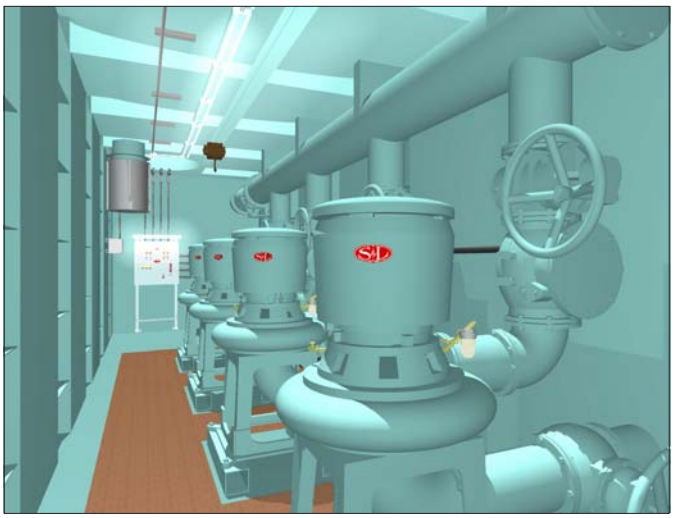
Engineering

There have been cases in which 20% to 30% of the total cost of the concrete built-in-place station is in design. The principal savings available from the factory-built concept is the fact that Smith & Loveless has substantial engineering expertise providing a design which reduces the price of the station. The Smith & Loveless team of specialists offers each client years of experience. They design and coordinate structure, pump selection, piping, station layout, electrical controls, environmental systems (ventilation, lighting, humidity and temperature control), material handling equipment, entrance tube and alarms. Special modifications for unique requirements are easily made, and provisions for future capacity expansion can be incorporated. Outline drawings and specification data are available for the customer's use.

On the contrary, the concrete station must be designed at a considerable expense (a structural engineer would be required for the concrete shell; an electrical engineer, mechanical engineer and HVAC engineer would also be needed), and the consulting engineer shoulders the responsibility and liability. Smith & Loveless offers all this expertise under one roof and at no additional cost.

Versatility

The Smith & Loveless **CAPSULAR®** Pump Station offers practically unlimited capacity and options. Either multiple pumps for parallel or series operation or variable speed pumps are available for use, depending upon conditions. Flowmeters, maintenance lifts, equipment handling tubes, square stairways, air conditioners and alarm systems are all available in Smith & Loveless stations. Special modifications for unique requirements are easily made, and provisions for future expansion of capacity can be incorporated. Station sizes are tailored to both the equipment and adequate maintenance space. When necessary to facilitate shipment, very large stations may be shipped in two or more segments and joined in the field by Smith & Loveless personnel. Smith & Loveless can custom-build for each application.



Three-dimensional view of the ***CAPSULAR®*** *Pump Station interior.*

Double Protection For Longer Life

After welding, all inside and outside surfaces of the structure are blasted with steel grit. This ensures proper surface preparation for adhesion of the protective coating, **VERSAPOX®** epoxy resin. **VERSAPOX®** has been specifically developed for this application, combining the properties of high adhesion, resistance to hydroxyl ions, low permeability, high abrasion resistance and ease of application.

In addition to the excellent protection provided to the steel by the **VERSAPOX®** epoxy resin, a cathodic protection system which has a design life of fifty (50) years is also furnished. Extensive field experience has proven this system to be very effective in protecting the steel structure by maintaining a protective current to oppose any electrochemical corrosion.

On the contrary, concrete is permeable to water, thus allowing moisture to come in contact with the reinforcing steel. As steel rusts, the oxide occupies 13 times the volume of the original iron, creating a pressure which causes the concrete to chip off, therefore reducing its strength. As you can see, the protection afforded by concrete cannot compare with that provided by the Smith & Loveless system.

Factory Assembled and Tested

Each Smith & Loveless **CAPSULAR®** Pump Station is fabricated and assembled in a controlled environment by personnel

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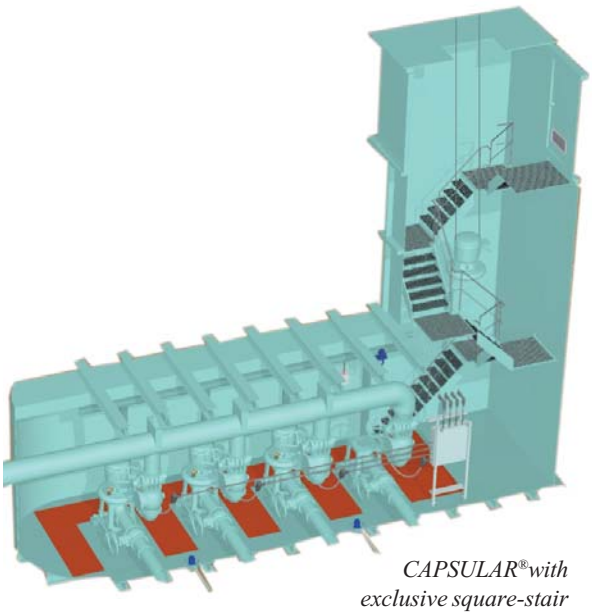
specifically trained in this area of expertise. All Smith & Loveless stations are factory tested as a complete system. This ensures that the station will perform and function correctly at the job site.

Concrete stations, on the other hand, must be fully installed at the job site before a system can be found fully functional. Should there be a problem, it becomes more complex and expensive to remedy in the field. Because Smith & Loveless stations are factory tested, no field testing will be necessary. A quality controlled, pre-tested, fully assembled station can be installed with none of the problems associated with a field-assembled, field-tested station.



CAPSULAR®with exclusive square-stair

System Responsibility

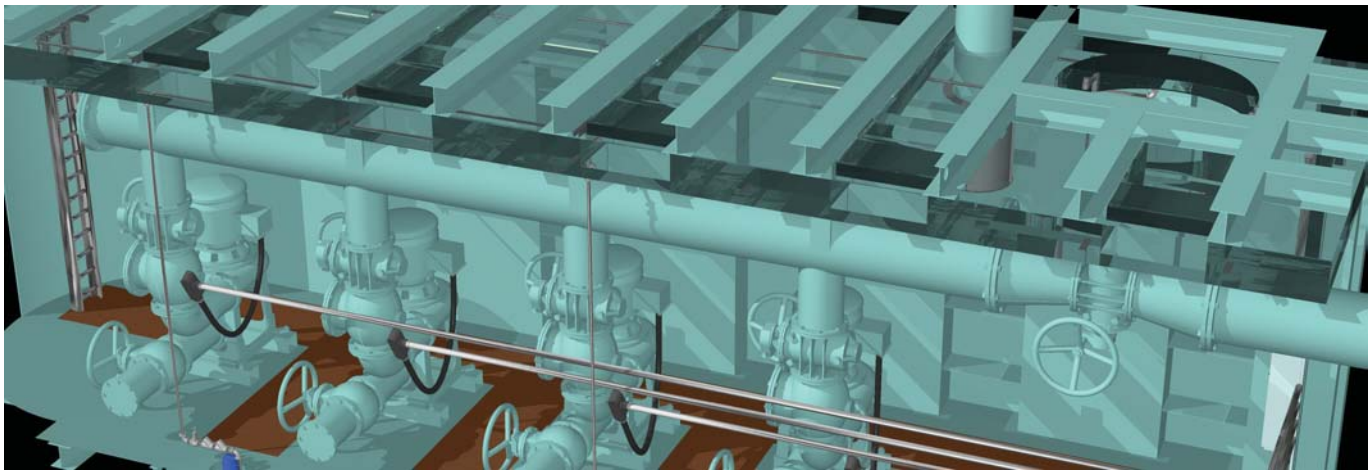
Because Smith & Loveless stations are sold as a complete package, customers have single source responsibility offered to them. On the contrary, a concrete pump station could be a conglomerate of many different manufacturers, suppliers and representatives. Should a problem occur, responsibility becomes an issue. With a number of individuals involved, it can be expected that there will be a good amount of finger pointing, resulting in delays and recycling of a problem. Smith & Loveless' single source responsibility is not only a benefit during the initial start-up stage of the station, but becomes increasingly important through the years when parts will be required. Single source responsibility enables the customer to get the efficient service throughout the long service life of the station.

Cost Effectiveness

Consulting engineers who have made cost comparisons report that the savings to their client for the design and construction of a factory-built **CAPSULAR®** Pump Station is up to 30% of the cost of a concrete built-in-place station of the same capacity. This is true for several reasons. First, the complexities of engineering the station are reduced. Second, the amount of expensive field labor is reduced. The contractor's job is made easier since the excavation is open and maintained for less time. This also decreases the dewatering cost. Therefore, the overall cost is greatly reduced and the headache of vendor coordination is eliminated.

Experience

Smith & Loveless has installed more units, and larger units, than any other manufacturer. Tens of thousands of Smith & Loveless Pump Stations have been installed, including hundreds of specially engineered **CAPSULAR®** stations. The Smith & Loveless pump, the heart of any Smith & Loveless station, has proven its reliability.



SMITH & LOVELESS INC.

Innovators for global pumping, water and wastewater treatment

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