

Metropolitan Industries

Romeoville IL, USA

METROPOLITAN INDUSTRIES USES INNOVATIVE APPROACH TO ENGINEERING HEADACHES

ROMEOVILLE, IL. - A large water booster system constructed in a fiberglass modular enclosure was unveiled by Metropolitan Industries in Romeoville during the month of November.

This unique system was created for the Ford-Wixom Michigan plant, a major manufacturing facility for the Ford Motor Company. Chris Schempf, a Metropolitan representative at Kennedy Industries, sold the job.

This particular situation called for creative engineering by Metropolitan. The problem facing engineers was a lack of usable space occupied by huge manufacturing machines. After long deliberations, the only feasible option available was to enclose the pumps and controls into a massive house-like facility that measured 16ft. wide x 20 ft. long x 10ft high that mounted outside of the production area.

The pump system was shipped completely assembled and ready to install. The house is molded of fiberglass reinforced polyester (FRP) and constructed with minimum wall, door, and roof thickness of 2" and an insulation rating of R 14. All materials used are ultraviolet resistant and the finished product can withstand winds up to 150 MPH and a 30-lb. snow load.

The housing is mounted on 3/8" epoxy coated galvanized steel plate with 6" channel supports. The housing has double doors so that any part can be easily removed or serviced inside the heated area. Pumps and motors can be easily removed without having to disassemble or break down parts because of space constraints or building design.

Three 50 horsepower horizontally mounted, flex coupled, end suction pumps are inside the

house. Each pump is designed to match the variable frequency drive control and is capable of meeting all speeds from zero to maximum flow without exceeding the temperature design of the motor windings. This system can deliver from zero to 2000 G.P.M. at a constant

discharge pressure of 84 P.S.I.G. when the minimum suction pressure is 30 P.S.I.G. The pump speed is variable to exactly match the flow requirements at a constant pressure level.

A microprocessor based computer controls the pumping system. The microprocessor based computer coordinates operational input signals including the system pressure set point, flow set points, operator selector switch positions, indicator lights and alarms. Pump operation, pump speed, alternation and system



The modular enclosure being raised and set atop the steel frame.

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METROPOLITAN INTRODUCES NEW BOOSTER PUMP CONTROLLER AT WESTIN HOTEL.

CHICAGO – Metropolitan Industries hosted a formal dinner reception for some of the finest

variable speed pumping systems versus constant speed pumping systems. This was accomplished



Moments before dinner was served.

commercial plumbing engineers in Chicago at the Westin hotel on Michigan Avenue.

The goal of the event was to inform engineers about the benefits associated with using



John Kochan, Sr. (middle) explains the horizontal submersible turbine in greater detail.

during an hour-long presentation conducted by Brendan Bates, commercial sales manager.

Bates highlighted many differences between variable speed and constant speed pumps. He noted that in the long run variable speed pumps would save the customer or owner money because of the system design and the elimination of frequent maintenance complications that are associated with constant speed pumps. Bates said it doesn't make sense to run a pump at a constant speed when there are times during the day when the pump sits idle. "It adds a lot of wear and tear on the pump when it is constantly running, this leads to high maintenance costs and costly energy bills," said Bates.

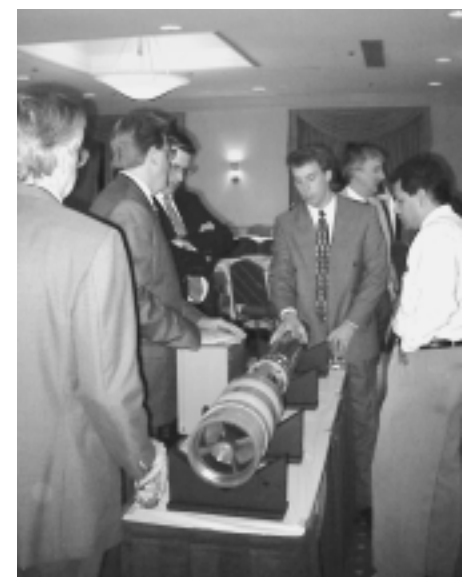


After the presentation, Metropolitan's guests were treated to a five star dinner.

Turnout was impressive. An estimated 70 engineers attended, making the evening a great success.



Mike Tierney, sales coordinator of the manufacturing department, shows a display that demonstrates the benefits associated with variable speed pumps.



The horizontal submersible turbine on display.

VILLAGE OF ROMEOVILLE UPGRADES LIFT STATION FOR FUTURE GROWTH

ROMEDEVILLE, IL. – In anticipation of future growth, the Village of Romeoville, in conjunction with Robinson Engineering, decided to rehabilitate an existing lift station



The completed lift station site in Romeoville.

that would become an important piece of Romeoville’s sanitary collection system.

Metropolitan Industries was invited to become part of the design team at the onset of the project. Mark Rosebraugh, sales engineer, oversaw Metropolitan’s portion of the project. “Our focus was to increase the capacity of the pumps and controls while minimizing space and ensuring system efficiency and reliability” Rosebraugh said.

The original station was operating at constant speed in a “batch” type of operation via float switches. It was originally sized to pump a peak capacity of approximately 1.5 million gallons per day with one pump in operation and one pump on standby at 38hp per pump. With the anticipation of growth in the village, this would not make the grade.

According to Russ Prekwas, chairman of Robinson Engineering, Metropolitan

Industries supplied four 150hp non-clog submersible sewage pumps. Three pumps provide capacity for peak flow and one unit is a standby to meet Illinois Environmental Protection Agency Requirements.

According to Rosebraugh, the project didn’t end with the addition of new pumps. “Due to the increase in horsepower, it was necessary to upgrade not only the pump controls, but also the emergency generator that maintains power in the event of a power outage.”

Working in concert with the engineers from Robinson Engineering and Gaskill & Walton Construction, Metropolitan Industries employed a PLC-based quadruplex control system that included a complete motor control center, a variable frequency drive (VFD) for each pump, flow meter, submersible level transducer, and integration into the village’s existing SCADA system.

The VFDs provided a means of reducing the annual cost of pumping, while maintaining a relatively “steady state” flow to the treatment plant. This “steady state” approach helps eliminate large surges of sewage that can upset the treatment process. The SCADA Optimized PLC that was

installed provided a means for Metropolitan’s programmers to implement a variety of complex mathematical routines, as well as communicate with the Master Controller located at the public works office.

In terms of reliability, Metropolitan found it important to keep the system running no matter what the circumstances. As a result, Metropolitan replaced the existing 150kw generator with a much larger 500kw generator. Typically, the generator is “exercised” approximately one time per week, which can be disturbing to residents because of the noise from the large diesel engine. Bill Taylor, public works director of the Village of Romeoville, said in consideration



From L to R: Bill Taylor, public works director of the Village of Romeoville; Mayor Fred P. Dewald Jr., Village of Romeoville; Russ Prekwas, chairman of Robinson Engineering.

of local residents, the generator was supplied with a special “sound attenuated” enclosure that reduced the decibel (noise) level.

Presently, the lift station expansion is complete and running which will allow Romeoville to service the anticipated future growth.

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INNOVATIVE APPROACH TO ENGINEERING HEADACHE *continued from front page*

alarms are also controlled by the system computer.

The pump station is equipped with a forced draft ventilation system capable of at least 40 air changes per hour. A direct drive, squirrel cage type blower, discharges through a rain-hooded screened outlet. A thermostat controls blower operation.

The system provides a dual, 120-volt, thermostatically controlled, resistance space heater with a quiet air circulation fan. It has a wattage range of 1300-1500. During a power failure, a Sumpro back-up power supply (Metropolitan accessory) is supplied to operate

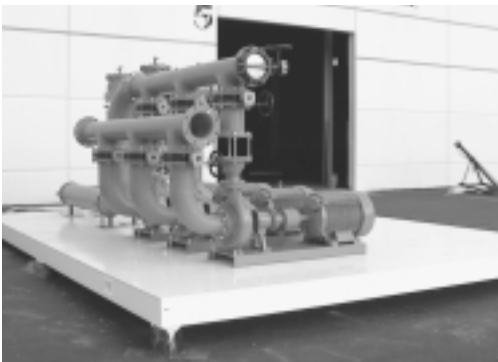
the heater during power outages. The station is also equipped with a low-temperature alarm with contacts for remote monitoring.

Shipping the pump station was a task within itself. A police escort was needed to ship the oversized load from Illinois to Michigan. George McAuliff, inside sales associate, was visibly nervous as the truck left Metropolitan headquarters. "I am not watching the news for the next couple days," said McAuliff. That day happened to be very windy and conditions were not good for shipping the billboard sized pump station. In the end, however, everybody made it to

Michigan safely.

Metropolitan Industries is a leading producer of custom control and computer systems. All products are engineered and designed in-house and conform to all UL requirements.

Metropolitan Industries also produces complete package fluid handling systems for water boosting services, sewage pump stations, storm water, chilled water, hydronic systems and other processes systems. For more information about the fiberglass pump house or any other product, call 800-323-1665 or log on to www.metropolitanind.com.



Booster system before the fiberglass housing was set atop of the steel frame.



The final product.



The control panels that operate the system.