CASE STUDY: MODERN FLUID HANDLING & MANAGEMENT SYSTEM

APPLICATION: HEAVY EQUIPMENT MAINTENANCE FACILITY

When a new heavy equipment maintenance facility was being developed, the customer needed more than just a place to service equipment. They also needed a reliable, efficient way to store, dispense and manage the various fluids used throughout the shop, while providing a convenient means of collecting and removing waste fluids.

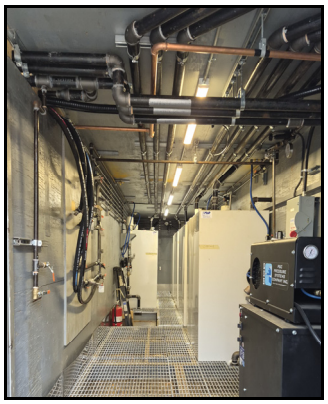


With 10 heavy equipment service bays and 1 light vehicle bay, the challenge was to design a system that would provide convenient access to fluids throughout the facility without requiring a separate dispensing station in every bay. FLO Components worked closely with the customer from the early planning stages to develop a complete fluid handling and inventory management solution.

THE FLO SOLUTION

FLO designed a centralized fluid handling system built around a dedicated lube room, housed in 2 adjacent shipping containers located outside the maintenance facility. This kept bulk fluid storage and pumping equipment out of the shop, while allowing fluids to be distributed to strategically located dispensing stations throughout the building, through dedicated piping and tubing connecting the storage tanks, pumps, dispensing stations, remote fill connections and waste storage tanks. The system was designed to handle 5 different oils, 1 coolant, waste oil and waste coolant.

System at a Glance	
Heavy equipment bays	10
Light vehicle bays	1
New fluid storage	13,200 L
Waste fluid storage	9,000 L
Dispensing stations	4





Centralized Fluid Storage – Containerized Lube Room

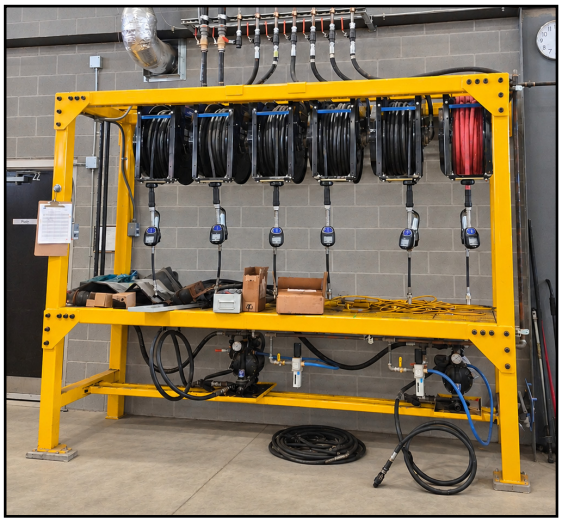
The lube room houses six 2,200-litre double-walled storage tanks for new fluids and two 4,500-litre double-walled tanks for waste oil and waste coolant. Each new fluid tank is equipped with its own air-operated pump, providing the pressure needed to deliver fluids through dedicated distribution lines to the dispensing stations. The system uses a combination of pumps, filters and other supporting equipment to ensure reliable fluid delivery. The double-walled tank construction provides an additional level of containment, helping protect against potential leaks. Keeping the storage tanks and pumping equipment in a centralized location makes it easier to manage bulk fluid inventory and maintain the system.





Remote Tank Filling & Overfill Protection

New fluid suppliers can connect directly to designated fill connections located outside the lube room to transfer bulk fluids into the appropriate storage tanks without entering the building. The system incorporates Graco Fluid Defender® level monitoring and alarm equipment to prevent tank overfilling. Each of the 8 storage tanks (6 new fluid and 2 waste fluid) is equipped with a high-level sensor. When a tank reaches its predetermined fill level, the system automatically activates a shut-off valve in the fill line, stopping the incoming fluid. Indicator lights at the remote fill connections and hose reel stations provide visual confirmation of tank status. This arrangement makes bulk deliveries more convenient while providing an important safeguard against accidental overfilling.



Strategically Located Hose Reel Stations

Rather than installing dispensing equipment in every service bay, FLO worked with the customer to determine the most effective locations for 4 hose reel stations. This approach provides coverage throughout the 10 heavy equipment bays and 1 light vehicle bay while minimizing the number of stations required. Each station is equipped with multiple hose reels, providing convenient access to the required oils and coolant.

- Reels fitted with 50' and 75' dispensing hoses, allowing technicians to reach equipment being serviced without having to move vehicles into a specific location.
- Electronic dispensing meters installed on reels measure and record fluid usage.
- Stations connected to central lube room through dedicated fluid distribution lines, delivering the required fluids directly to the point of use.



Integrated Waste Fluid Collection

An important feature of the system is the ability to evacuate waste oil and waste coolant directly from the hose reel stations to the outdoor waste storage tanks. Each station is equipped with a waste fluid evacuation connection and an air-operated diaphragm pump. When a technician needs to remove waste fluid from a piece of equipment, they simply connect the evacuation hose and activate the pump. The waste fluid is then transferred directly through dedicated piping to the appropriate outdoor storage tank. This eliminates the need to transport waste fluids across the shop floor or manually move collection containers to a separate disposal point. Drain dollies/pans can also be connected to these pumps to evacuate fluid directly to the outside tank.



Monitored Electronic Fluid Management



To provide accurate fluid inventory control and eliminate paper-based tracking, FLO incorporated the Graco Pulse® Pro electronic fluid management system. The system wirelessly connects the dispensing meters, tank level monitors and pump controls through a central hub. Each time a technician dispenses fluid, the transaction is electronically recorded, providing management with a record of fluid usage:

- Dispense Meters - Technicians can enter pin codes and other data quickly on the meter's display, or they can flash an NFC tag to the screen to get started. All data is tracked directly to the meter and technician.
- Tank Level Monitors - Automatically record levels with an ultrasonic sensor and provide alerts and customized reports.
- Pump Air Controllers - Shut off air to the pump automatically when not in use (prevents spills and pump runaway from broken lines).
- Software - Provides consolidated view of dispenses & tank levels, with customizable reports and automated email alerts.

FLO RESULTS

From the initial planning and system design through to equipment supply, installation coordination and operator training, FLO helped bring together a complete fluid management solution that provides the customer with a modern, centralized and integrated system designed around the needs of the entire maintenance facility. The system simplifies bulk deliveries, improves shop efficiency, simplifies fluid management and inventory control, reduces the manual handling of both new and waste fluids and the risk of spills, and provides cleaner, safer operations.

For Total Lube Solutions,

GO WITH THE FLO!

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