

Automated Valve Greasing System

Eliminate red zone activities and reduce greasing time with optimized remote valve maintenance

Temperature:
-10 to 140 degF [-23 to 60 degC]

Applications

Valve maintenance during hydraulic fracturing operations

How it improves wells

The automated valve greasing system improves valve maintenance activities on hydraulic fracturing sites to reduce risk and costs, save time, and optimize grease consumption. The system's remote operating capability eliminates the need for personnel to enter the red zone for valve maintenance and reduces maintenance time by 25% while reducing grease consumption by 20%.

Eliminating transition time and greasing during the critical path means operators save money and achieve first production sooner, with fewer people on location.

What it replaces

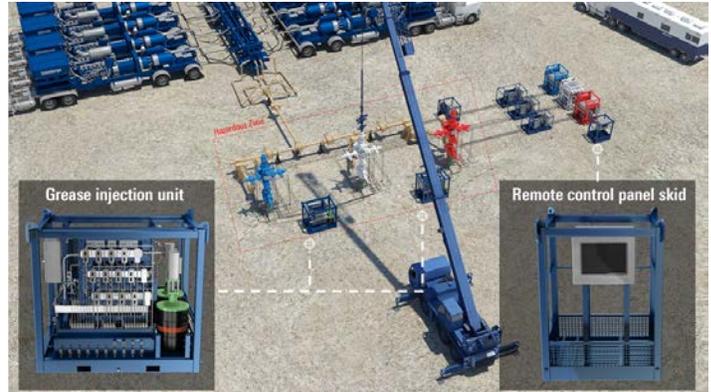
During hydraulic fracturing operations, the valves on the frac tree and manifold need regular maintenance (grease injection) to ensure proper working conditions. Traditionally, a grease service provider manually connects a greasing hose to one valve, turns on the grease pump for a certain amount of time to push grease into the valve, then disconnects the hose from that valve and moves it to the next one. The process is repeated for each valve.

If valve greasing is performed manually, an operator must enter the high-pressure zone. Therefore, when any valve on the frac tree is being greased, other activities at the wellsite must stop, which delays stimulation operations.

Because of the risks and delays associated with the process, valve greasing is sometimes skipped, but improper maintenance may damage valves. In addition to the obvious problem of undergreasing, lack of visualization and sensors can lead to overgreasing, which adds time and can result in excess grease falling into the wellbore, interrupting operations or impacting well performance.

How it works

The automated valve greasing system comprises a remote-control skid that houses a human machine interface (HMI) outside the red zone and a grease injection unit (GIU) that is placed in the red zone and houses a control rack, an air compressor, air manifold, air hoses, and grease tote. Greasing hoses are affixed to each valve during rig-up and remain in place until rig-down.



The automated valve greasing system removes personnel from the red zone with remote control that reduces maintenance time by 25% and grease consumption by 20%.

When maintenance is required, a technician uses the intuitive remote-control panel to select each valve that needs greasing. The system uses a high-pressure grease pump to push grease to the control rack, which directs the optimal volume of grease—determined using advanced analytics and instrumentation—to the selected valve. The control panel enables visualization of the valve cavity pressure and grease volume during the operation. Minimizing the distance between the grease pump and the valve accelerates the greasing process. Also, because no personnel enter the red zone, normal fracturing operations can continue on other wells, improving wellsite efficiency.

Additional information

Dual grease pumps in each skid improve performance and reliability.

The HMI on the remote-control panel skid can generate on-demand maintenance reports.

Automated Valve Greasing System Specifications	
Pressure rating, psi [MPa]	20,000 [137.8]
Temperature rating, degF [degC]	-10 to 140 [-23 to 60]
Hazardous area classification	Class 1 Div. 1
Grease outlets	40 outlets per injection unit, 20 outlets per tree

All specifications are subject to change without notice.