

ELLIOTT GROUP
EBARA CORPORATION

Elliott Liquid Injection Systems

■ LIQUID INJECTION SYSTEMS

Maintaining compressor performance is critical for efficient operation of your process. When foulant accumulates in a compressor, it causes unbalance and high vibration, restricts flow, and reduces efficiency which has a direct impact on performance and can result in unplanned outages. It is important to have a system in place that reduces or eliminates foulant before problems arise.

Elliott understands the risks associated with operating a compressor in a fouled condition. We have engineered and manufactured wash oil and water injection systems for more than 10 years. Both systems inject liquid between the diaphragms in a compressor casing to reduce or eliminate fouling. An oil wash dissolves foulant and protects the internal compressor components from foulant buildup. A water wash cools the temperature of the process gas to minimize the accumulation of foulant.

Liquid injection systems:

- ◆ Improve compressor reliability and efficiency by reducing or eliminating fouling
- ◆ Eliminate downtime for maintenance
- ◆ Eliminate unplanned outages caused by fouling

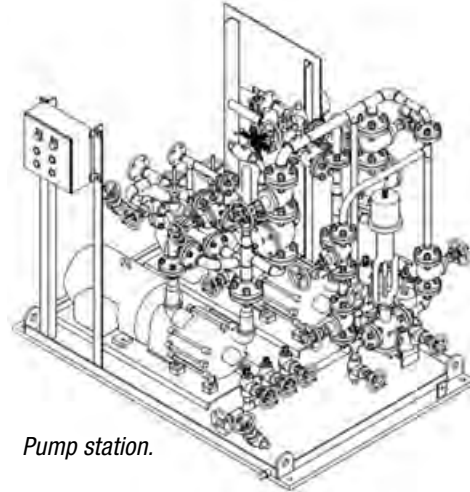


Wash system.

■ LIQUID INJECTION SYSTEM SIZING AND SELECTION

Elliott recommends a particular type of wash system based upon the compressor application. Each system is custom designed for a specific installation.

Each liquid injection system is sized for a specific pressure, temperature, and flow rate. Elliott calculates the number of injection points, nozzle quantity, and flow rates for maximum efficiency and effectiveness. For applications with low-pressure injection fluids, Elliott includes pump stations to increase the supply pressure.



Pump station.

Elliott engineers, specializing in liquid injection system and spray nozzle design, work with you to determine the best cleaning methods for your equipment - wash oil or water.

Wash Oil Injection Systems

Wash oil injection systems are used during normal compressor operation. Nozzles spray a petroleum-based solvent, such as naphtha or other light hydrocarbons compatible with the process, to eliminate foulant from the internal compressor components. When applied continuously, wash oil wets the flow path surfaces to prevent fouling. Wash oil can also dissolve and remove foulant when injected intermittently.

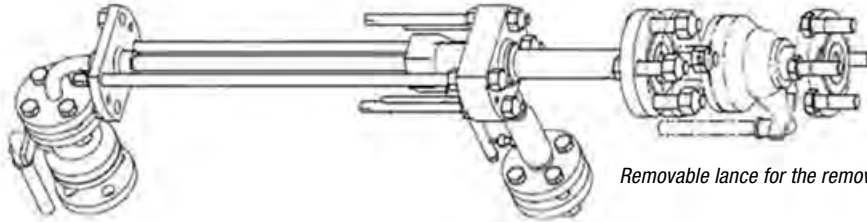
Water Injection Systems

Water injection systems cool the temperature of process gas when the compressor is in normal operation. Water is sprayed continuously into the compressor and immediately vaporizes into steam. This removes heat from the process gas to prevent the formation of foulant.

Cleaning with abrasives or solvents can also be performed when the compressor is not in operation, but online injection of either wash oil or water reduces unnecessary downtime.

■ LIQUID INJECTION NOZZLE ASSEMBLIES

Elliott designs the spray nozzle assembly to fit a specific compressor configuration. Wash oil and water nozzle assemblies can be removable (retractable) or fixed (non-removable, non-retractable). A removable nozzle assembly allows for maintenance or repair while the compressor is in operation; a fixed spray nozzle assembly does not.



Removable lance for the removable nozzle assembly.

■ LIQUID INJECTION SYSTEM DESIGN AND INSTALLATION

The presence of liquid in the flow path of a compressor can have a negative effect on compressor performance. Consequently, the injection of wash oil or water into the gas stream must be carefully calculated to preserve the reliability and efficiency of the compressors. Elliott has extensive experience installing liquid injection systems in compressors for a broad range of applications. Elliott can modify installed equipment to add a liquid injection system, either in a service shop or on-site.

Elliott is committed to helping customers maintain process efficiency and maximize production. All Elliott systems are backed by more than 100 years of engineering excellence and are manufactured with the highest quality materials. Contact Elliott today to discuss how a liquid injection system can help eliminate foulant and optimize the performance of your critical process compressor.



Elliott Group is a global leader in the design, manufacture, and service of technically advanced centrifugal compressors, steam turbines, power recovery expanders, cryogenic pumps and expanders, and axial compressors used in the petrochemical, refining, oil & gas, liquefied gas, and process industries, as well as in power applications.

Elliott Group is a wholly owned subsidiary of Ebara Corporation, a major industrial conglomerate headquartered in Tokyo, Japan.



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T H E W O R L D T U R N S T O E L L I O T T



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