

# Tips for a Safe Startup



## Industrial Valves

Valves used in process plants handle fluids that are inert, corrosive, flammable or poisonous depending on the industry and process. Line pressures and temperatures vary, and the valves could be manual, automated or semi-automated. The valves are used for on-off applications or to regulate flow, to relieve excess pressure or to control process parameters. Whatever be the type or function of the valve, while starting up a plant after a lockdown, care should be taken to eliminate chances of leakages that can harm people, the plant and the planet.

## Safe Startup after Unscheduled Shutdown

Follow your company's Standard Operating Procedures (SOP) for a safe start-up. The instructions given below would enhance the safety and reliability of valve installations in your plant. Please note that the content is provided in public interest, and does not supersede any instructions provided in the manufacturer's operation and maintenance manuals.

**Important:** Before the startup operations begin, trained manpower with appropriate PPE should confirm the integrity of tanks containing toxic and hazardous fluid. Similarly, do ensure that Lower Explosive Limit (LEL) in confined spaces and around tanks and equipment carrying flammable fluids is within safe limits.

### Flanged Joints

To avoid leakage to the atmosphere, ensure that body - bonnet joints and pipe flange joints are torqued as specified by the valve manufacturer. If a valve was shut down while hot, cooling down could cause relaxation of the bolt loads, and hence it is important that all bolted joints be checked.

### Gland, Stuffing Box

Leakage through the stem is a potential hazard. Ensure that the gland nuts are tightened to the recommended values and also ensure that the stem and stuffing box are aligned, and do not rub while operating.

### Entrapped Pressure

The pressure of fluid trapped between two closed valves or between two equipment in a piping system could increase with the rise in temperature or a change in process parameters. Identify and address entrapped pressure to avoid pressure build up and consequent damage/leaks.

### Valve Positions

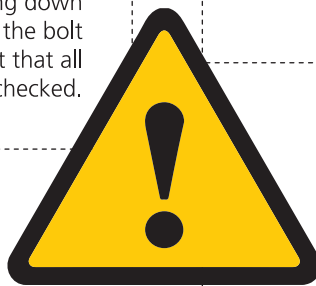
Ensure that valves are positioned as per process requirements for a startup. It is possible that some valves were left in incorrect positions when the plant was shut down.

### Stem Threads, Nuts and Operators

Airborne dust and particles can get deposited on exposed stem threads, nuts and valve operators during an extended shutdown and impact valve operation. Hence, before the startup do ensure that all deposits are removed and that the drive components are well lubricated.

### Electrical Actuators

Ensure that connections to electric actuators are correct and that the power supply meets equipment requirements. Also, make sure that the position indicators are working correctly.



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