

# TECHNICAL INSTALLATION GUIDELINES

## Threaded & Flanged Valves

Proper installation is essential to ensure reliable valve performance and to prevent leakage, body cracking, deformation, or premature failure. The following instructions shall be observed during installation.

### 1. THREADED VALVES

- Inspect both male and female threads before installation. Threads shall be clean, undamaged, and free from dirt or foreign material.
- Ensure proper alignment between the valve and pipe before engagement.
- **Always start threading by hand.** The valve should engage smoothly for several turns before using any wrench or tool.
- Never force the connection if abnormal resistance is encountered. Remove the valve, inspect the threads, realign, and restart.
- Avoid **cross-threading**, as incorrect thread engagement followed by excessive tightening may cause cracking or permanent damage to the valve body.
- Apply an appropriate amount of **PTFE tape or approved thread sealant**. Excessive sealing material shall be avoided.
- When tightening, apply the wrench only to the designated **hexagonal/wrenching area nearest to the connection being tightened**.
- Never apply tightening force directly to the valve body, bonnet, stem, handwheel, or actuator.
- Avoid **over-tightening**. Excessive torque may cause cracking, distortion, or thread damage, particularly on bronze and brass valves.
- Never use the valve to pull misaligned pipework into position.
- Pipework shall be adequately supported so that the valve is not subjected to pipe weight, bending loads, vibration, or external stresses.

### 2. FLANGED VALVES

- Ensure that mating pipe flanges are **clean, parallel, correctly aligned, and properly supported** before installing the valve.
- Never use flange bolts to pull misaligned pipework or flanges into position.
- Select a suitable **gasket according to the service medium, pressure, and operating temperature**.
- Position the gasket centrally and ensure that it does not obstruct the valve bore or flow passage.
- Install all bolts and nuts and initially tighten them **by hand**.
- Tighten flange bolts gradually using a **cross/star tightening sequence** to ensure uniform gasket compression.
- Where a specified tightening torque is available, tighten progressively in stages, typically **30% - 60% - 100%** of the specified final torque.
- A **calibrated torque wrench** should be used where controlled bolt torque is required.
- Do not over-tighten flange bolts. Excessive tightening may damage the gasket, distort the flange, or impose excessive stress on the valve body.

- The valve shall not be used to support the weight of the connected piping.
- Appropriate pipe supports shall be provided to prevent bending, torsional, vibration, or other external loads from being transferred to the valve.

### 3. FINAL INSPECTION & TESTING

- Verify correct valve and pipeline alignment.
- Check all threaded or flanged connections.
- Confirm that the valve operates freely without obstruction.
- Ensure that the piping system is adequately supported.
- Pressurize the system **gradually** and inspect all connections for leakage.
- Do not exceed the valve's specified pressure and temperature ratings during testing or operation.

### IMPORTANT INSTALLATION NOTICE

**Cross-threading, excessive tightening torque, improper pipe alignment, insufficient pipe support, or external piping loads may result in valve body cracking, deformation, leakage, or premature failure.**

Installation shall always be carried out using proper tools and accepted piping installation practices. Valve connections shall never be forced into position.