REOTEMP

Installation, Operation & Maintenance Manual

Needle Valves & Manifolds

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Read this manual completely before installing or operating this equipment.

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1. Scope & General Description

This manual provides installation, operating, and maintenance instructions for Reotemp needle valves, block-and-bleed valves, and 2-way, 3-way, and 5-way instrument manifolds. It applies to valves and manifolds used to isolate, vent, equalize, and protect pressure instrumentation in process piping systems.

This manual is intended for use by qualified personnel familiar with process piping, instrumentation, and the safety requirements of the facility in which the equipment is installed. It does not replace site-specific safety procedures, lockout/tagout policies, or the instructions provided with the connected instrument.

Keep This Manual

- Retain this manual for the service life of the valve or manifold.
- Provide a copy to all personnel responsible for installation, operation, or maintenance of this equipment.
- Additional copies are available from Reotemp or at the support contact listed in Section 11.

2. Safety Warnings

General Warnings

- Never remove or loosen any valve component while the valve or system is under pressure.
- Never carry a valve or manifold by its handle, stem, or any single protruding component.
- Never cover, paint over, or deface valve etching, tags, or nameplates — this information is required for traceability and safe operation.
- Never operate a valve outside the pressure and temperature ratings stamped on the valve body or listed in the datasheet.
- Never use a valve handle or stem as a step, handhold, or lifting point for the connected instrument or piping.

Personnel & PPE

- Installation, operation, and maintenance must be performed only by personnel trained in pressurized piping systems and the facility's safety procedures.
- Always wear appropriate personal protective equipment (PPE), including eye protection, gloves, and any PPE required for the process fluid (e.g., chemical-resistant gloves, face shields, or specialized clothing for hazardous, toxic, or high-temperature media).
- Follow all applicable lockout/tagout (LOTO) procedures before performing maintenance.
- Be aware of the process fluid's hazards (toxicity, flammability, temperature) before beginning any work.

Residual Pressure & Trapped Media

- Before disconnecting or disassembling any valve, confirm the system has been fully depressurized and isolated.
- Be aware that trapped process fluid may remain between closed isolation valves even after the system pressure gauge reads zero. Vent slowly and in a controlled manner, directed away from personnel.
- Allow high-temperature systems to cool to a safe handling temperature before servicing.

3. Receiving, Inspection & Storage

3.1 Receiving & Inspection

- Inspect packaging for damage immediately upon receipt and before unpacking.
- Verify the model number, connection type, and material on the valve etching match the purchase order.
- Visually inspect the valve body, stem, and connections for shipping damage.
- Confirm that bleed plugs are in place and undamaged.
- Report any damage or discrepancy to the carrier and to Reotemp before installation.

3.2 Storage

- Store valves indoors, in a clean, dry location, protected from dust, moisture, and physical damage.
- Store valves in the fully open position with all vent/bleed plugs securely installed.
- Avoid stacking heavy items on top of stored valves or manifolds.
- Reotemp needle valves do not have a specified shelf life when stored as described above; however, periodic visual inspection of long-stored stock is recommended.

4. Installation

4.1 Pre-Installation Checks

- Confirm the valve's pressure and temperature rating, material of construction, and connection type are suitable for the intended service.
- Ensure the valve is in the fully closed position and all bleed/vent plugs are securely fastened before installation.
- Inspect connection threads or flange faces for damage or contamination, and clean as needed.
- Always wear appropriate PPE and follow site-specific safety procedures during installation.

4.2 Threaded (NPT) Connections

- Apply an application-appropriate thread sealant or PTFE tape to the male threads of each connection.
- Hand-tighten the connection, then securely tighten using a backup wrench on the valve body and a second wrench.
- Do not overtighten; follow the fitting or instrument manufacturer's torque guidance where available.

4.3 Flanged Connections

- Use a gasket or seal appropriate for the process fluid, pressure, and temperature between the valve flange and the mating flange.
- Align the flanges.
- Install bolts and tighten in a staggered (cross-pattern) sequence, gradually increasing torque in 2–3 passes to achieve uniform gasket compression.

4.4 Bringing a Straight Pressure Gauge Valve Into Service

- With the valve closed, slowly pressurize the upstream side of the system.
- Open the valve slowly and incrementally to reduce pressure shock to the connected instrument.
- Check all connections for leaks at operating pressure before leaving the valve unattended.

4.5 Bringing a 3-way or 5-way Manifold Into Service

- For 3-way and 5-way manifolds used with differential pressure instruments, always consult the instrument manufacturer's IOM for instrument-specific requirements. The general sequence below minimizes the risk of damaging the instrument:
    1. Confirm all valves are closed.
    2. Open the equalizer valve(s) to equalize pressure across both sides of the instrument.
    3. Slowly open one isolate/block valve to admit process pressure to both sides of the instrument equally.
    4. Close the equalizer valve(s).
    5. Slowly open the second isolate/block valve.
    6. Verify the instrument reading is stable and check all connections for leaks.

5. Operation

5.1 General Operating Guidelines

- Operate needle valves in the fully open or fully closed position. Do not use a needle valve to throttle flow for extended periods.
- Open and close valves slowly and smoothly; avoid forcing the handle past its natural stop.
- Operate valves periodically (e.g., during routine rounds) even when not required by the process, to keep the valve movement smooth.

5.2 Vent / Bleed Operation

- Before opening a vent or bleed valve, confirm the direction of discharge is safe and will not expose personnel to process fluid, pressure, or temperature hazards.
- Remove bleed plugs if present.
- Open vent/bleed valves slowly to control the rate of depressurization.
- Reinstall bleed plugs securely after venting is complete if applicable.

6. Maintenance

6.1 Routine Inspection

- Visually inspect valves and manifolds for external leakage, corrosion, and damage at intervals defined by site procedure.
- Check that handles turn smoothly.
- Confirm valve etching, tags, and/or nameplates remain legible.
- Verify dust caps and bleed plugs are present.

7. Dust Cap Color Reference

Reotemp manifolds use color-coded dust caps to help identify valve function at a glance during installation, operation, and maintenance. Confirm function against the manifold's flow diagram or nameplate if there is ever doubt.

Function	Dust Cap Color	Color Sample
Isolate / Block Valve	Black or Blue	
Vent / Test / Drain Valve	Red	
Equalize Valve	Green	

8. Reotemp Contact Information

Department	Contact
Customer Service	800-648-7737
Fax	858-784-0720
Email	sales@reotemp.com
Website	reotemp.com
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This document is provided by Reotemp Instrument Corporation for use with Reotemp needle valves and manifolds. Specifications are subject to change without notice.