INTRODUCTION

- Globe valves have many advantages. They usually require fewer turns to operate than a gate valve and the seats do not slide against each other, so are less prone to wear. They are recommended where frequent operation is required. If a plug type disc is fitted, they are particularly suitable for throttling and are less prone to erosion and wire drawing, although they should not be used in the nearly closed position. The main disadvantages of globe valves are a relatively high resistance to flow and a higher cost.

- Soft seated valves are recommended when used with gasses, if a complete shut off is to be assured.

- Flow direction is usually with pressure under the disc on closure, but may be reversed on hard seated valves to help guarantee a tight shut off. This may be advantageous if the valve is subject to extreme temperature variations, or if its condition deteriorates with time. Closing torques are also reduced. Globe valves used for permanent end of line service, should be installed with the pressure on top of the disc on closure.

- Crane globe valves have not been designed as fire safe valves.

- Service temperature and pressure indicated on the identification plate or body marking, should not be exceeded.

- Valves must be installed into a well-designed system and it is recommended that the system be inspected in accordance with the appropriate member state legislation. These products have been classified in accordance with Pressure Equipment Directive 2014/68/EU and the Pressure Equipment (Safety) Regulations 2016.

INSTALLATION

Preparation

Ensure valve is suitable for service conditions e.g. pressure, temperature, service media.

- Remove dust caps/flange protectors, where fitted.

- The Installation shall be designed to provide adequate means of draining and venting to avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions and to permit cleaning, inspection and maintenance in the correct manner.

- The product has not been designed to include corrosion, erosion or abrasion allowances.

Any queries regarding service applications should be addressed to the Crane Fluid Systems - Technical Sales Department.
Valve Location
- Valves should be located to ensure ease and safety of operation.
- Valves should be located to allow access for subsequent maintenance of the valve.
- Valves should be located to allow access for gland adjustment and re-packing.

Piping Supports
These must be carefully aligned and at the correct distance between centres for the size and type of pipe. The following publications provide details of correct spans and installation details:
BS3974, Specification for Pipe Supports (Available from BSI DOI Directorate of M&E Engineering Services, M & E No. 3 (Available from HMSO)

Flange Joints
Bronze, malleable iron and cast iron flanges may be damaged by over tightening the bolts.

The following procedures will reduce this risk:
- Make sure the pipe flanges are correctly aligned.
- Full face gaskets reduce the stresses in flat face flanges and should be used with bronze flanges.
- Low strength carbon steel bolting has traditionally been used to restrict the load imposed on grey iron flanges, but should not be used for temperatures above 200°C.
- Always use the correct size and number of bolts.
- Find out the correct assembly torque for the specific gasket and conditions applicable, and use a torque wrench to achieve this. Use the correct tightening sequence.
- Do not match a flat-faced flange to a raised face flange.

Threaded joints
- The valves are supplied with taper threads and, with the use of a thread sealant will give a pressure tight seal. To avoid distortion of the valve when fitting and tightening pipe, the valve must be held securely using the flats provided at the end of the valve to which the pipe is being fitted.
- Care should be taken to avoid ‘pipe ending’. This is a condition that occurs when the pipe is screwed in too far resulting in distortion to the valve seat.
- The male thread on the pipe must have fully formed, undamaged threads.

OPERATION
Cast Iron, Malleable Iron and Bronze globe valves are designed to seat with the Crane standard handwheel. Levers, wrenches or other tools should not be used to operate a valve. Excessive torque can cause damage to seating faces and/or stem/handwheel.

With valves DN200 and above, the use of a ‘pinch bar’ is acceptable providing the bar length does not exceed 1.5 x the handwheel diameter.

ROUTINE MAINTENANCE
- Check for leaks at gland. If gland is leaking tighten the gland nut(s). The gland nut(s) should be tightened only enough to prevent stuffing box leakage. Over-tightening can cause excessive wear on stem and packing and make valve difficult to operate. If leakage is still occurring add additional or new packing.
- Valves with back-seating rising stems are constructed so that packing can be replaced when the valve is fully open. It is strongly recommended that the pipeline is isolated when re-packing the stuffing box.
- Check for leaks at the body/bonnet joint.
  - Screwed in bonnet and union bonnet valves – the valve should be replaced.
  - Bolted bonnet valves – re-tighten nuts in vicinity of leak. If leakage still occurs, isolate pipeline, dismantle body/bonnet joint and renew bonnet gasket. Be careful not to over tighten bolting. If information is required relating to torque values then contact the Crane Fluid Systems Technical Department.
- Occasionally operate valves that remain open or closed for long periods to ensure they are in good working order, thus avoiding the possibility of being inoperable in a time of emergency.
- Maximum operating pressure reduces as service temperature increases. Pressure and temperature limitations are shown by the valve body marking or on the identification plate, and must not be exceeded.
- Valves are not designed to operate under high shock loadings. Where pressure increases occur due to shock loading (water hammer), they should be added to the working pressure to obtain the total pressure acting on the valve. The total must not exceed the pressure rating of the valve. A pressure surge, or shock, is usually caused by the rapid closure of a check valve or quarter turn valve resulting in a sudden reduction in flow rate.
- It is bad practise to install valves with the hand wheels pointing downwards, as damage may be caused to the gland packing and stem seal, by debris in the system.
- Where the handwheel, and therefore the identification plate, is removed for maintenance they must be refitted after the work is completed. The absence of the identification plate invalidates the valve’s CE status.
- The surfaces of valves in service may be subject to extreme temperatures; care should be taken when handling.
LIMITS OF USE

These valves have been categorised in accordance with the Pressure Equipment Directive 2014/68/EU. The fluid to be transported is limited to those shown in the product table below. On no account must these valves be used on any unstable fluids.

**Note:** Valves that are classified as SEP (Sound Engineering Practice) are not CE marked and therefore do not require a declaration of conformity.

<table>
<thead>
<tr>
<th>Fig No.</th>
<th>Material</th>
<th>PED Category By Valve Size (DN)</th>
<th>Product Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1254</td>
<td>Bronze</td>
<td>SEP (Not CE Marked) 8-50 65-80</td>
<td>Export Only</td>
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<td>Bronze</td>
<td>15-50 65-80</td>
<td></td>
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<tr>
<td>D14</td>
<td>Bronze</td>
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<td>✓ ✓ ✓</td>
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<tr>
<td>D15</td>
<td>Bronze</td>
<td>8-32 40-50 65-80</td>
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<tr>
<td>D16</td>
<td>Bronze</td>
<td>8-32 40-50 65-80</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>D4</td>
<td>Bronze</td>
<td>6-50</td>
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<tr>
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<td>8-32 40 50-80</td>
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<tr>
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<td>Bronze</td>
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<td>D7</td>
<td>Bronze</td>
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<tr>
<td>DM11</td>
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<tr>
<td>DM6</td>
<td>Bronze</td>
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<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>F372</td>
<td>Cast Iron</td>
<td>50-65 80-125 150</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>FM369</td>
<td>Cast Iron</td>
<td>50 65-150</td>
<td>✓ ✓ ✓</td>
</tr>
</tbody>
</table>

The above products are not suitable for use with unstable fluids.

To visit our Video Library go to: www.youtube.com/user/CraneBSU

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