# 1 GENERAL INSTALLATION

**1.1 General**

The installation procedure is a critical stage in the life of a valve and care should be taken to avoid damaging the valve.

# 2 GATE VALVES

**2.1 Installation and operation**

2.1.1 Prior to installation Valves not required for immediate use should be stored under clean conditions to reduce the risk of foreign matter entering the valve during unpacking. If the valves are unpacked for checking purposes, they should be immediately re-packed until required for use. Protection caps fitted to inlet and outlet connections must be removed, but not until immediately prior to installation. Seating faces should be wiped clean with a dry cloth before commencing installation.

**2.1.2 Installation**

Valves are suitable for flow in either direction, but they should be fitted in either horizontal pipelines with the stem upright or vertical lines. Other positions can be detrimental to the proper seating of the wedge.

The valves should be installed in positions where the minimum stress is imposed on them from expansion and contraction of the pipe, and pipework should be adequately supported close to the valve to minimize mechanical pipe strain. For bolting valves into the pipeline, see General Installation Instructions Section 1.

All valves will have been pressure tested at ambient temperature before delivery, so it is recommended that gland packing nuts should be tightened after a short time on higher temperature service.



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**2.1.3 Operation**

Rotation of the handwheel in the clockwise direction (see markings) will cause the valve to close, and vice versa. Shut off should be achieved by application of the handwheel torque only. Excessive application of force can result in failure of the thrust assembly or damage to the valve seating.

**2.2 Maintenance**

**CAUTION**

On no account should stem gland repacking be attempted under pressure if the contained fluid is dangerous because of temperature, high pressure or chemical composition.

Evenly tighten the gland adjusting nuts to compress the packing rings. If this does not correct the leakage or if the adjustment is fully used up, it will be necessary to repack the gland using a new set of the correct grade packing, or to add packing ring(s).

**Re-packing glands**

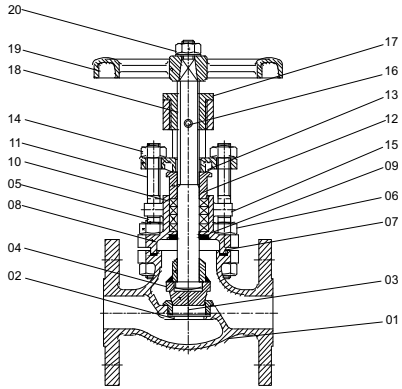
To gain access to the packing box, the gland adjusting nuts should be removed and the gland and packing flange removed or retracted along the stem as far as possible. When the stuffing box has been completely emptied of the original packing, it must be thoroughly cleaned before the new packing is introduced. It is recommended that the packing manufacturers general instructions are followed when repacking glands.

**General**

It is recommended that the reconditioned valve should be subjected to hydrostatic testing in line, before being reinstated on line working conditions.

**2.3 Spares**

The normal requirement for spare parts for normal wear in service are gland packing and gaskets.




***PARTS LIST***

| *No.* | *DESCRIPTION* | *No.* | *DESCRIPTION* |
|---|---|---|---|
| 01 | Body | 11 | Gland Eyebolt |
| 02 | Seat Ring | 12 | Gland |
| 03 | Wedge Gate | 13 | Gland Flange |
| 04 | Stem | 14 | Eyebolt Nut |
| 05 | Bonnet Boll | 15 | Eyebolt Pin |
| 06 | Bonnet Nut | 16 | Nipple |
| 07 | Gasket | 17 | Stem Nut |
| 08 | Bonnet | 18 | Yoke Sleeve Nut |
| 09 | Backseat | 19 | Handwheel |
| 10 | Packing | 20 | Handwheel Nut |



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aira® VALVE AUTOMATION

### ◆ Troubleshooting

The following table will cover the various problems which are common to most valves.

The information provided will aid in isolating and correcting these problems.

| Problem | Possible cause | Solution |
|---|---|---|
| Leakage through the stem packing | 1. Gland nuts are loose.<br>2. Gland is binding against the stem or packing chamber wall.<br>3. Inadequate amount of packing rings.<br>4. Packing is hard and dry.<br>5. Packing was not properly cut and staggered.<br>6. Stem is damaged. | 1. Tighten gland bolts.<br>2. Check to ensure gland is centered and evenly tightened.<br>3. Install additional packing rings.<br>4. Replace with new packing.<br>5. Replace with new packing.<br>6. Repair or replace as required. |
| Problems in operating valve | 1. Stem binding during travel.<br>2. Stem packing is exerting excessive force on the stem.<br>3. Stem is damaged.<br>4. Internal components may be damaged. | 1. Remove dirt and lubricate stem with grease.<br>2. Check torque on gland nuts.<br>3. Examine stem through full open and close action. Repair or replace as required.<br>4. Disassemble the valve. Inspect and repair as needed. |
| Bonnet leakage | 1. Bonnet nuts are loose.<br>2. Gasket is damaged.<br>3. Flange faces are damaged. | 1. Tighten to values as listed.<br>2. Disassemble and install a new gasket.<br>3. Repair and install a new gasket. |
| Seat leakage | 1. Valve not properly seated.<br>2. Internal components are damaged or worn. | 1. Check to see if valve is tightly closed.<br>2. Inspect internal components and repair as required. |

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