

# NELES

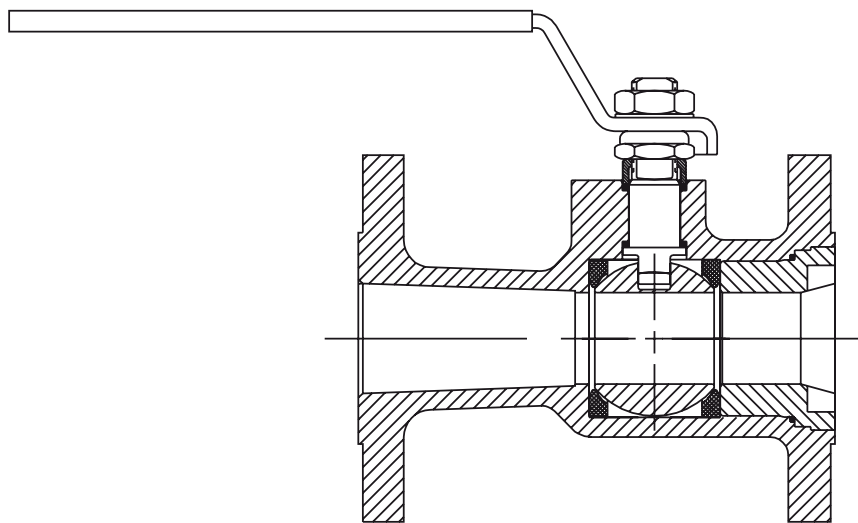
## Flanged ball valves series 5000 model B & C

class 150 & 300, ½" - 2" (DN15-50)

## series 6000 model B & C

class 150 & 300, ½" – 1½" (DN15-40)

Installation, maintenance and  
operating instructions



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### READ THESE INSTRUCTIONS FIRST!

These instructions provide information about safe handling and operation of the valve.

If you require additional assistance, please contact the manufacturer or manufacturer's representative.

### SAVE THESE INSTRUCTIONS!

Addresses and phone numbers are printed on the back cover.

## 1. GENERAL

### 1.1 Scope of the Manual

This instruction manual contains important information regarding the installation, operation and maintenance of the Jamesbury® ½" - 2" (DN15-50) ASME Class 150 & 300 Full Bore; Series 6000 and ½" - 1 ½" (DN15-40) ASME Class 150 & 300 Standard Bore; Series 5000 Flanged Ball Valves; Models B & C. Please read these instructions carefully and save them for future reference.

#### WARNING:

AS THE USE OF THE VALVE IS APPLICATION SPECIFIC, A NUMBER OF FACTORS SHOULD BE TAKEN INTO ACCOUNT WHEN SELECTING A VALVE FOR A GIVEN APPLICATION. THEREFORE, SOME OF THE SITUATIONS IN WHICH THE VALVES ARE USED ARE OUTSIDE THE SCOPE OF THIS MANUAL.

IF YOU HAVE ANY QUESTIONS CONCERNING THE USE, APPLICATION OR COMPATIBILITY OF THE VALVE WITH THE INTENDED SERVICE, CONTACT NELES FOR MORE INFORMATION.

#### WARNING:

DOUBLE-SEATED BALL VALVE DESIGNS, LIKE THE SERIES 5000, CAN UNDER CERTAIN CONDITIONS TRAP FLUID IN THE BALL CAVITY. RAISING THE TEMPERATURE OF THE TRAPPED FLUID CAUSES THE INTERNAL VALVE PRESSURE TO RISE. EXTREME TEMPERATURE RISE CAN BUILD UP EXCESSIVE PRESSURE WHICH COULD LEAD TO UNCONTROLLED PRESSURE RELEASE. DAMAGE OR PERSONAL INJURY MAY RESULT.

### 1.2 Valve Markings

The valve has an identification plate attached to the pipeline flange (see Figure 1).

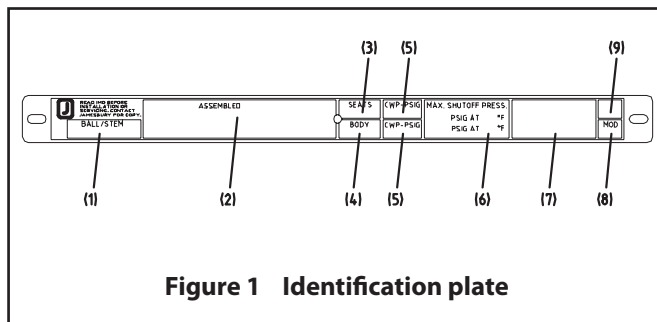


Figure 1 Identification plate

Identification plate markings:

1. Ball/Stem material
2. Valve catalog code
3. Seat Material
4. Body Material
5. Maximum operating pressure
6. Maximum/minimum shut-off pressure/temperature
7. Approvals/Special Service marking
8. Model
9. Assembly date

## 1.3 Safety Precautions

#### WARNING:

##### DO NOT EXCEED THE VALVE PERFORMANCE LIMITATIONS!

EXCEEDING THE PRESSURE OR TEMPERATURE LIMITATIONS MARKED ON THE VALVE IDENTIFICATION PLATE MAY CAUSE DAMAGE AND LEAD TO UNCONTROLLED PRESSURE RELEASE, DAMAGE OR PERSONAL INJURY MAY RESULT.

#### WARNING:

##### SEAT AND BODY RATINGS!

THE PRACTICAL AND SAFE USE OF THIS PRODUCT IS DETERMINED BY BOTH THE SEAT AND BODY RATINGS. READ THE IDENTIFICATION PLATE AND CHECK BOTH RATINGS. THIS PRODUCT IS AVAILABLE WITH A VARIETY OF SEAT MATERIALS. SOME OF THE SEAT MATERIALS HAVE PRESSURE RATINGS THAT ARE LESS THAN THE BODY RATINGS. ALL OF THE BODY AND SEAT RATINGS ARE DEPENDENT ON VALVE TYPE AND SIZE, SEAT MATERIAL, AND TEMPERATURE. DO NOT EXCEED THESE RATINGS!

#### WARNING:

##### BEWARE OF BALL MOVEMENT!

KEEP HANDS, OTHER PARTS OF THE BODY, TOOLS AND OTHER OBJECTS OUT OF THE OPEN FLOW PORT. LEAVE NO FOREIGN OBJECTS INSIDE THE PIPELINE. WHEN THE VALVE IS ACTUATED, THE BALL FUNCTIONS AS A CUTTING DEVICE. DISCONNECT ANY PNEUMATIC SUPPLY LINES, ANY ELECTRICAL POWER SOURCES AND MAKE SURE SPRINGS IN SPRING-RETURN ACTUATORS ARE IN THE FULL EXTENDED/RELAXED STATE BEFORE PERFORMING ANY VALVE MAINTENANCE. FAILURE TO DO THIS MAY RESULT IN DAMAGE OR PERSONAL INJURY!

#### WARNING:

##### WHEN HANDLING THE VALVE OR VALVE/ACTUATOR ASSEMBLY, TAKE ITS WEIGHT INTO ACCOUNT!

NEVER LIFT THE VALVE OR VALVE/ACTUATOR ASSEMBLY BY THE ACTUATOR, POSITIONER, LIMIT SWITCH OR THEIR PIPING. PLACE LIFTING DEVICES SECURELY AROUND THE VALVE BODY. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE OR PERSONAL INJURY FROM FALLING PARTS (SEE FIGURE 2).

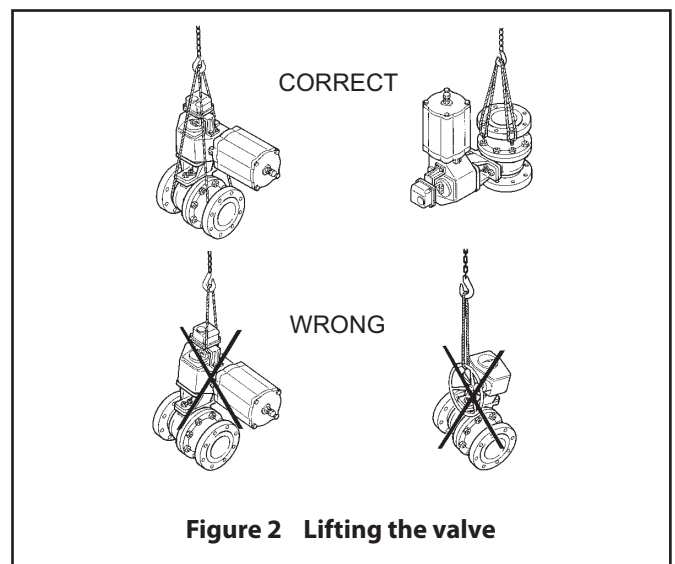


Figure 2 Lifting the valve

## 2. TRANSPORTATION AND STORAGE

Check the valve and the accompanying devices for any damage that may have occurred during transport.

Store the valve carefully. Storage indoors in a dry place is recommended.

Do not remove the flow port protectors until installing the valve.

Move the valve to its intended location just before installation.

The valve is usually delivered in the open position.

If the valve(s) are to be stored for a long duration, follow the recommendations of IMO-S1.

## 3. INSTALLATION

### 3.1 General

Remove the flow port protectors and check that the valve is clean inside. Clean valve if necessary.

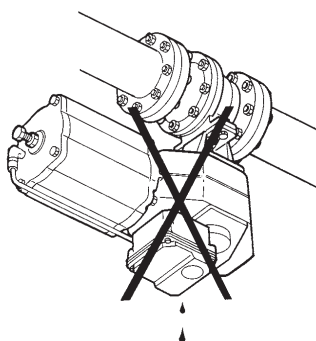
Flush the pipeline carefully before installing the valve. Foreign objects, such as sand or pieces of welding electrodes, will damage the ball and seats.

### 3.2 Installing in the pipeline

#### WARNING:

THE VALVE SHOULD BE TIGHTENED BETWEEN FLANGES USING APPROPRIATE GASKETS AND FASTENERS COMPATIBLE WITH THE APPLICATION, AND IN COMPLIANCE WITH APPLICABLE PIPING CODES AND STANDARDS. CENTER THE FLANGE GASKETS CAREFULLY WHEN FITTING THE VALVE BETWEEN FLANGES. DO NOT ATTEMPT TO CORRECT PIPELINE MISALIGNMENT BY MEANS OF FLANGE BOLTING!

The valve may be installed in any position and offers tightness in both directions. It is recommended, however, that the valve be installed with the insert facing upstream. It is not recommended to install the valve with the stem on the underneath side because dirt in the pipeline may then enter the body cavity and potentially damage the stem packing (see Figure 3).

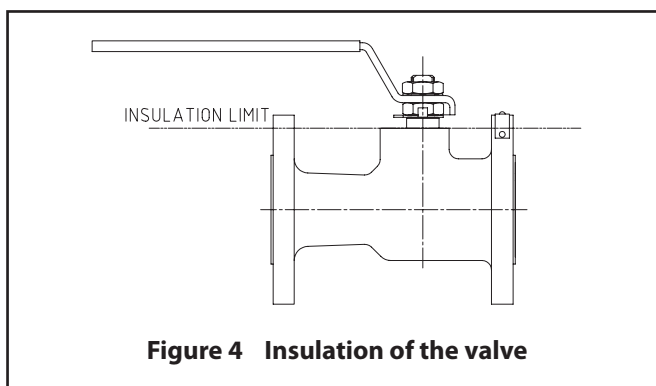


**Figure 3** Avoid this mounting position

Refer to the Section 4, **MAINTENANCE** for stem seal adjustment. If there is weepage past the stem seals upon installation, it means the valve may have been subject to wide temperature variations in shipment. Leak-tight performance will be restored by a simple stem seal adjustment described in the **MAINTENANCE** section.

### 3.3 Valve Insulation

If necessary, the valve may be insulated. Insulation must not continue above the upper level of the valve (see Figure 4).



**Figure 4** Insulation of the valve

### 3.4 Actuator

#### WARNING:

WHEN INSTALLING THE ACTUATOR ON THE VALVE, MAKE SURE THAT THE VALVE ASSEMBLY FUNCTIONS PROPERLY. INFORMATION ON ACTUATOR INSTALLATION IS GIVEN IN **SECTION 6** OR IN THE SEPARATE ACTUATOR INSTRUCTIONS.

The actuator should be installed in a manner that allows plenty of room for its removal.

The upright position is recommended for the actuator.

The actuator must not touch the pipeline, because pipeline vibration may interfere with its operation.

In certain cases it may be considered advantageous to provide additional support to the actuator. These cases will normally be associated with large actuators, extended stems, or where severe vibration is present. Please contact Neles for advice.

### 3.5 Commissioning

Ensure that there is no dirt or foreign objects left inside the valve or pipeline. Flush the pipeline carefully. Make sure that the valve is fully open when flushing.

Ensure that all nuts, fittings, and cables are properly fastened.

If so equipped, check that the actuator positioner and/or switch are correctly adjusted. To adjust any accompanying device(s) refer to the separate control equipment instruction manuals.

## 4. MAINTENANCE

### 4.1 General

Although Neles *Jamesbury* valves are designed to work under severe conditions, proper preventative maintenance can significantly help to prevent unplanned downtime and in real terms reduce the total cost of ownership. Neles recommends inspecting valves at least every five (5) years. The inspection and maintenance frequency depends on the actual application and process condition. Routine maintenance consists of tightening the lower stem nut (**item 16 in Figure 10**) periodically to compensate for stem seal wear.

Overhaul maintenance consists of replacing seats and seals. A standard repair kit consisting of these parts may be obtained through your authorized Neles distributor.

**NOTE:** Repair kits contain the stem seals for both fire-tested and non-fire-tested valves, two stem seals (8), one secondary stem seal (7), and one lower stem seal (24). The two stem seals (8) are white in color and are both used for non-fire-tested; one upper and one lower. The lower stem seal (24) and secondary stem seal (7) are used for fire-tested valves. The Xtreme® (XT) seated repair kit contain a black lower stem seal (24). All other kits (TT, MT, BT, BP) contain a red tinted lower stem seal (24) to distinguish it from the white upper stem seal (8). If the lower stem seal (24) is not noticeably different in color from the upper stem seal (8), the lower stem seal (24) is always 0.030" (0.76mm) thinner than the upper stem seal (8). PEEK® seated valves (LG) contain two identical graphite stem seals (8), one upper and one lower.

Refer to the Repair Kit chart (**see Table 3 OR 4**).

#### **WARNING:**

FOR YOUR SAFETY IT IS IMPORTANT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVAL OF THE VALVE FROM THE PIPELINE OR BEFORE ANY DISASSEMBLY:

1. WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE FLUID INVOLVED.
2. DEPRESSURIZE THE PIPELINE AND CYCLE THE VALVE AS FOLLOWS:
  - A. PLACE THE VALVE IN THE OPEN POSITION AND DRAIN THE PIPELINE.
  - B. CYCLE THE VALVE TO RELIEVE RESIDUAL PRESSURE IN THE BODY CAVITY BEFORE REMOVAL FROM THE PIPELINE.
  - C. AFTER REMOVAL AND BEFORE ANY DISASSEMBLY, CYCLE THE VALVE AGAIN SEVERAL TIMES.

### 4.2 Actuated Valve

It is generally most convenient to detach the actuator and its auxiliary devices before removing the valve from the pipeline. If the valve package is small or if it is difficult to access, it may be more practical to remove the entire assembly.

**NOTE:** To ensure proper reassembly, observe the position of the actuator and positioner/limit switch with respect to the valve before detaching the actuator.

#### **WARNING:**

ALWAYS DISCONNECT THE ACTUATOR FROM ITS POWER SOURCE, PNEUMATIC, HYDRAULIC OR ELECTRICAL, BEFORE ATTEMPTING TO REMOVE IT FROM THE VALVE!

#### **WARNING:**

DO NOT REMOVE A SPRING-RETURN ACTUATOR UNLESS A STOP-SCREW IS CARRYING THE SPRING FORCE!

1. Detach the air supply, electrical supply, hydraulic supply and control signal cables or pipes from their connectors.
2. Unscrew the actuator mounting bracket screws.
3. If the valve assemble has a split no-play (clamped) coupling, loosen the coupling screws.
4. Lift the actuator straight up in line with the valve stem until the coupling between actuator drive and valve stem is completely disengaged.
5. Place actuator in a safe location to avoid damage or personal injury.

### 4.3 Manual Valve – with Handle

1. Remove the handle screw (16) and washer (19). Lift the handle (17) straight up in line with the valve stem until it is completely disengaged (**see Figure 17**).
2. Place all disassembled handle parts in small basket or bag to prevent damage or loss.

### 4.4 Disassembly

Tools needed to disassemble *Jamesbury* valves may be ordered from your local Neles distributor.

**NOTE:** If complete disassembly becomes necessary; it is recommended to replace all seats and seals. Refer to the Repair Kit chart (**see Table 3 or 4**).

**NOTE:** Always use original OEM parts to make sure that the valve functions properly.

1. Follow the steps in all the **WARNING** sections above before performing any work on the valve.
2. Open and close the valve and leave in the closed position.
3. Unbend the stem nut lock tab (15) and remove the lower stem nut (16), stem nut lock (15), the compression ring (21), the upper stem seal (8) and associated hardware from the top of the stem (4). See **Figure 10**.
4. Unscrew and remove the insert (2). Remove and discard body seal (6).
5. Slowly place the valve in the vertical position with the insert end down on a soft cloth or cardboard. The ball

(3) and one seat (5) may fall out. If not, use a piece of wood or some other soft material to gently tap the ball from the non-insert end of the valve.

6. Carefully remove the bottom seat (5) out of the body, **BEING CAREFUL NOT TO SCRATCH THE BODY SEALING SURFACE BEHIND THE SEAT.**

**NOTE:** On ½" (DN15) valves, the stem cannot be removed with the stem seals and body seat in place.

7. Press the stem (4) and lower stem seal into the valve body cavity and remove the upper stem seal. Then remove the stem and lower stem seal together from the valve body. It may be necessary to tap the stem with a piece of wood or some other soft material.
8. Remove the all stem seals (8) and/or (7 & 24), **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACE INSIDE THE STEM BORE.**

#### 4.5 Checking Parts

1. Clean all disassembled parts.
2. Check the stem (4) and ball (3) for damage. Pay particular attention to the sealing areas.
3. Check all sealing and gasket surfaces of the body (1) and insert (2).
4. Replace any damaged parts.
5. Replace any fastener where the threads are damaged or have been heated, stretched or corroded.
6. Replace any parts that have cracks, gouges or pits that will affect sealing.

**NOTE:** When ordering spare parts, always include the following information:

- a. Valve catalog code from Identification plate,
- b. If the valve is serialized – the serial number (stamped on the valve body),
- c. From **Figure 10**, the ballooned part number, part name and quantity required.

#### 4.6 Assembly

It is advisable to replace seats and seals if complete disassembly and reassembly become necessary. Refer to the Repair Kit chart (see **Table 3 or 4**). A good lubricant, compatible with the flow media, **MUST** be applied to the threads on insert (2) to prevent galling during assembly. Lubricant should also be applied to the seats, seals, ball and stem to facilitate assembly and ease on initial operation of the valve.

Clean all valve components if not done previously.

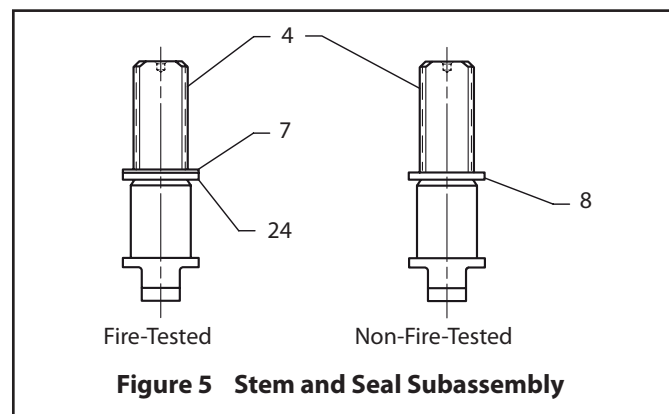
Re-inspect all components for damage before reassembling the valve. Look for damage to the seating areas, stem, body and insert; and look for wear in the bearing areas. Replace any damaged parts.

Carefully clean and polish the ball (3) sealing surface: It should be free of all scratches and grooves.

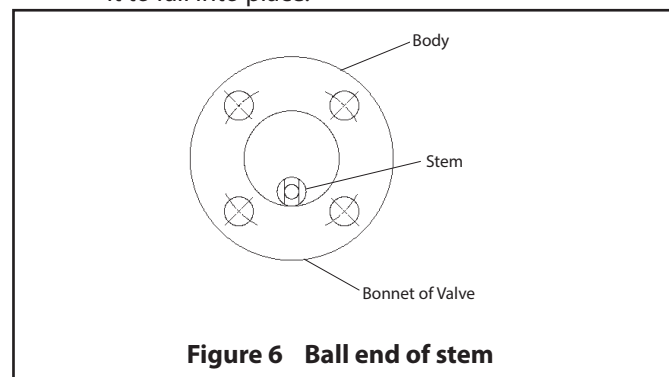
If the ball is slightly damaged, it may be possible to smooth the sealing surface with crocus cloth or equivalent. If deep scratches are present, replace the ball.

##### 1. ½" (DN15) Series 5000 Valves

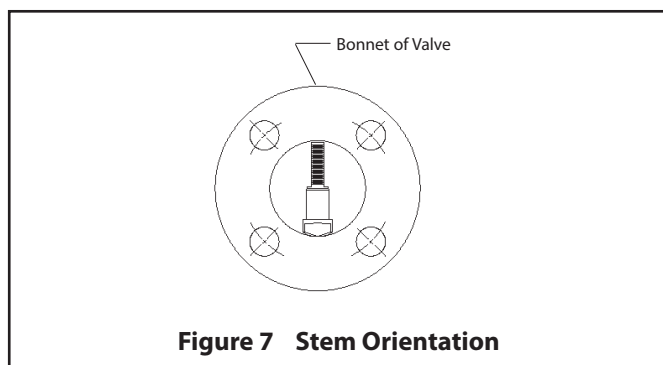
- A. Slide the lower stem seal (24) and secondary stem seal (7) (for fire-tested valves), or lower stem seal (8) (for non-fire-tested valves), over the threaded portion of the stem (4). The stem and seal subassembly must look like **Figure 5**.



- B. Place the body (1) on a flat surface resting it on both flanges with bonnet facing down.
- C. Slide the stem and stem seal subassembly, threaded-end first, along the inside of the body bore towards the stem hole. The blade at the ball end of the stem must be vertical as seen from the insert end of the valve (see **Figure 6**). When the threaded end of the stem reaches the stem bore, guide it down into the bore and swing the entire subassembly up into the vertical position, allowing it to fall into place.



- D. Roll the entire valve on its flanges until the bonnet faces up. Then rotate the stem ¼ turn. The stem subassembly should look like (**Figure 7**) as seen from the insert end of the valve.

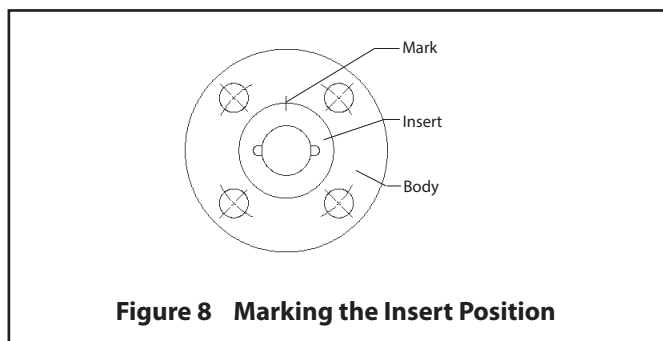


**Figure 7 Stem Orientation**

- E. Press the seals (7) and (24), or (8), up into the lower stem bore.
- F. From the outside, insert the upper stem seal (8).
- G. Press the stem (4) up into the stem bore until resistance is felt from the lower stem seal. Go on to Step 2.

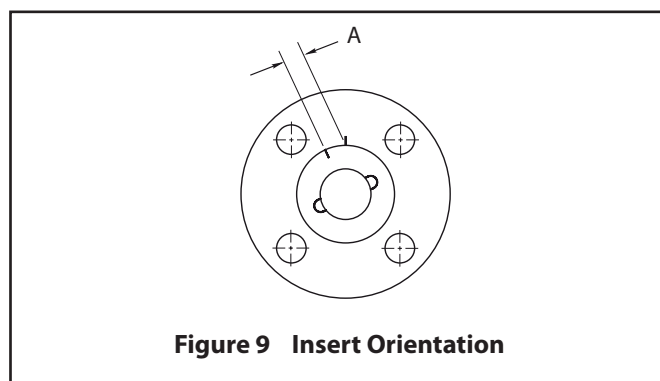
1.  $\frac{1}{2}$ " – 2" (DN15-50) Series 5000 or 6000 Valves
  - A. From inside the body cavity, first insert the secondary stem seal (7) and then the lower stem seal (24) (for fire-tested valves), or insert only the lower stem seal (8) (for non-fire-tested valves), up into the lower stem bore.
  - B. From the outside insert the upper stem seal (8) into the upper stem bore.
  - C. Insert the stem (4) into the body cavity and press it gently up into the stem bore until resistance is felt from the lower stem seal. Be careful not to scratch the seals. Go to Step 2.

2. Holding the stem in place from inside the body, drop the compression ring (21) and the stem nut lock (15) into place. Screw on the stem nut (16) and torque to the value shown in (Table 1).
3. Select the tab of the stem nut lock that aligns with a flat on the stem nut and bend the tab up until it contacts the flat.
4. If you have a torque wrench, skip this step and proceed to Step 5. Screw the insert (2) into the body until it is fully seated. Use a pencil or felt tip marker to mark the position as shown in (Figure 8). Counting the number of turns, remove the insert.



**Figure 8 Marking the Insert Position**

5. Insert the body seat (5) into the body at an angle to slide it past the ball end of the stem, then rotating it so it sits flat on the seat face in the body.
6. Insert the ball (3), rotating it on the stem (4) in the closed position. If necessary, turn the stem blade to align with the ball slot.
7. Insert the second seat (5) so that the sealing surface of the seat is towards the ball (see Figure 10).
8. Insert the body seal (6) and gently press it into the groove in the body.
9. After applying a lubricant compatible with the media to the insert threads, screw the insert (2) into the body and tighten to the required torque shown in (Table 2). If a torque-wrench is not available, tighten the insert the same number of turns as in Step 4 until the marks match the "A" dimension shown in (Table 2) and illustrated in (Figure 9).



**Figure 9 Insert Orientation**

| TABLE 1                  |         |           |         |
|--------------------------|---------|-----------|---------|
| Stem Nut Assembly Torque |         |           |         |
| Valve Size               |         | Item #16  |         |
| Inches                   | DN      | IN•LBS    | N•m     |
| 1/2 – 3/4                | 15 – 20 | 30 – 40   | 4 – 5   |
| 1 & 1-1/4                | 25 & 30 | 70 – 80   | 8 – 9   |
| 1-1/2 & 2                | 40 & 50 | 160 – 170 | 18 – 19 |

| TABLE 2            |    |               |           |                |           |        |       |
|--------------------|----|---------------|-----------|----------------|-----------|--------|-------|
| Series 5000 Valves |    |               |           |                |           |        |       |
| Valve Size         |    | Torque        |           |                |           | A      |       |
|                    |    | Alum.& Bronze |           | Other Material |           |        |       |
| inches             | DN | FT•LBS        | N•m       | FT•LBS         | N•m       | inches | mm    |
| 1/2                | 15 | 90 – 100      | 122 – 136 | 125 – 150      | 170 – 203 | 7/32   | 5.56  |
| 3/4                | 20 | 90 – 100      | 122 – 136 | 125 – 150      | 170 – 203 | 1/4    | 6.35  |
| 1                  | 25 | 90 – 100      | 122 – 136 | 125 – 150      | 170 – 203 | 5/16   | 7.94  |
| 1-1/2              | 40 | 125 – 150     | 170 – 203 | 170 – 200      | 231 – 271 | 3/8    | 9.53  |
| 2                  | 50 | 125 – 150     | 170 – 203 | 170 – 200      | 231 – 271 | 7/16   | 11.11 |
| Series 6000 Valves |    |               |           |                |           |        |       |
| Valve Size         |    | Torque        |           |                |           | A      |       |
|                    |    | FT•LBS        |           | N•m            |           |        |       |
| inches             | DN | FT•LBS        |           | N•m            |           | inches | mm    |
| 1/2                | 15 | 125-150       |           | 170-203        |           | 7/32   | 5.56  |
| 3/4                | 20 | 125 – 150     |           | 170 – 203      |           | 5/16   | 7.94  |
| 1                  | 25 | 125 – 150     |           | 170 – 203      |           | 11/32  | 8.73  |
| 1-1/2              | 40 | 170 – 200     |           | 231 – 271      |           | 7/16   | 11.11 |



## 4.7 Testing the Valve

### WARNING:

WHEN PRESSURE TESTING, EXERCISE CAUTION AND MAKE SURE ALL EQUIPMENT USED IS IN GOOD WORKING CONDITION AND APPROPRIATE FOR THE INTENDED PRESSURE.

If the valve is to be tested prior to returning to service make sure the test pressures are in accordance with an applicable standard.

When testing the valve for external tightness, keep the ball in the half open position.

If testing the valve seat tightness, please contact Neles for advice.

### WARNING:

WHEN PERFORMING ANY TESTS, NEVER EXCEED THE MAXIMUM OPERATING PRESSURE OR MAXIMUM SHUT-OFF PRESSURE LISTED ON THE IDENTIFICATION PLATE!

## 5. HANDLE MOUNTING

Place the handle (17), the shakeproof washer (19) and handle nut (16) on the valve stem and tighten the nut to the torque shown in (**Table 1**). Cycle the valve slowly with a gentle back and forth motion to build gradually to the full quarter turn. By cycling the valve slowly, the seat lips will seal against the ball. A fast turning motion at this point may cut the seats before they have a chance to form the proper seal.

## 6. ACTUATOR MOUNTING

See AMI-8 for complete instructions.

**IMPORTANT:** When these valves are equipped with an actuator and the actuator is removed to service the valve, **PROPER ALIGNMENT OF THE ACTUATOR DRIVER AND VALVE STEM IS ESSENTIAL WHEN THE ACTUATOR IS REMOUNTED.** In the case of valves and actuators connected with a split no-play (clamped) coupling, tighten the coupling bolts before final tightening of the valve bracket bolts. In the case of valves and actuators with solid, loose-fit couplings, the actuator should be positioned on the valve without any side loading of the coupling in both the open and closed positions before final tightening of the valve bracket bolts.

AMI-8 is available from your Neles distributor, or on [www.neles.com/valves](http://www.neles.com/valves).

### WARNING:

FOR YOUR SAFETY IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN!

BEFORE INSTALLING THE VALVE AND ACTUATOR, BE SURE THE INDICATOR POINTER ON TOP OF THE ACTUATOR IS CORRECTLY INDICATING THE VALVE'S POSITION. FAILURE TO ASSEMBLE THESE TO INDICATE THE CORRECT VALVE POSITION COULD RESULT IN DAMAGE OR PERSONAL INJURY!

WHEN INSTALLING A LINKAGE KIT OR SERVICING THE VALVE/ACTUATOR ASSEMBLY, THE BEST PRACTICE IS TO REMOVE THE ENTIRE ASSEMBLY FROM SERVICE!

AN ACTUATOR SHOULD BE REMOUNTED ON THE SAME VALVE FROM WHICH IT WAS REMOVED. THE ACTUATOR MUST BE ADJUSTED FOR THE PROPER "OPEN" AND "CLOSE" POSITIONS EACH TIME IT IS REMOVED!

THE LINKAGE KITS HAVE BEEN DESIGNED TO SUPPORT THE WEIGHT OF THE NELES ACTUATOR AND RECOMMENDED ACCESSORIES. USE OF THE LINKAGE TO SUPPORT ADDITIONAL EQUIPMENT OR ADDITIONAL WEIGHT SUCH AS PEOPLE, LADDERS, ETC., MAY RESULT IN THE FAILURE OF THE LINKAGE, VALVE, OR ACTUATOR; AND MAY CAUSE DAMAGE OR PERSONAL INJURY!

## 6.1 Open/Close Position Adjustment

**NOTE:** Refer to the appropriate Installation, Maintenance, and Operating Instructions (IMO) for specific directions on how to adjust the actuator travel stops or limit switch (**see Table 5**).

## 7. SERVICE / SPARE PART

We recommend that valves be directed to our service centers for maintenance. The service centers are equipped to provide rapid turn-around at a reasonable cost and offer new valve warranty with all reconditioned valves.

**NOTE:** When sending goods to the service center for repair, do not disassemble them. Clean the valve carefully and flush the valve internals. Include the material safety datasheet(s) (MSDS) for all media flowing through the valve. Valves sent to the service center without MSDS datasheet(s) will not be accepted.

For further information on spare parts and service or assistance visit our web-site at [www.neles.com/valves](http://www.neles.com/valves).

**NOTE:** When ordering spare parts, always include the following information:

- Valve catalog code from identification plate,
- If the valve is serialized – the serial number (from identification plate).
- From **Figure 10**, the ballooned part number, part name and quantity required.



| TABLE 3                       |              |              |            |                |            |
|-------------------------------|--------------|--------------|------------|----------------|------------|
| Series 5000 Valve Repair Kits |              |              |            |                |            |
| Seat Material                 | Valve Size   |              |            |                |            |
|                               | 1/2" (DN 15) | 3/4" (DN 20) | 1" (DN 25) | 1-1/2" (DN 40) | 2" (DN 50) |
| PTFE                          | RKN-41TT     | RKN-42TT     | RKN-43TT   | RKN-45TT       | RKN-46TT   |
| Filled PTFE                   | RKN-41MT     | RKN-42MT     | RKN-43MT   | RKN-45MT       | RKN-46MT   |
| PFA                           | RKN-41BT     | RKN-42BT     | RKN-43BT   | RKN-45BT       | RKN-46BT   |
| PEEK                          | RKN-41LG     | RKN-42LG     | RKN-43LG   | RKN-45LG       | RKN-46LG   |
| PFA Seat & Seals              | RKN-41BP     | RKN-42BP     | RKN-43BP   | RKN-45BP       | RKN-46BP   |
| <i>Xtreme</i>                 | RKN-41XT     | RKN-42XT     | RKN-43XT   | RKN-45XT       | RKN-46XT   |

| TABLE 4                       |              |              |            |                |
|-------------------------------|--------------|--------------|------------|----------------|
| Series 6000 Valve Repair Kits |              |              |            |                |
| Seat Material                 | Valve Size   |              |            |                |
|                               | 1/2" (DN 15) | 3/4" (DN 20) | 1" (DN 25) | 1-1/2" (DN 40) |
| PTFE                          | RKN-41TT     | RKN-43TT     | RKN-44TT   | RKN-46TT       |
| Filled PTFE                   | RKN-41MT     | RKN-43MT     | RKN-44MT   | RKN-46MT       |
| PFA                           | RKN-41BT     | RKN-43BT     | RKN-44BT   | RKN-46BT       |
| PEEK                          | RKN-41LG     | RKN-43LG     | RKN-44LG   | RKN-46LG       |
| PFA Seat & Seals              | RKN-41BP     | RKN-43BP     | RKN-44BP   | RKN-46BP       |
| <i>Xtreme</i>                 | RKN-41XT     | RKN-43XT     | RKN-44XT   | RKN-46XT       |

| Table 5                                                                     |                                     |
|-----------------------------------------------------------------------------|-------------------------------------|
| Actuator Installation, Maintenance and Operating Instructions               |                                     |
| Actuator                                                                    | IMO                                 |
| QPX                                                                         | 215                                 |
| VPVL                                                                        | 553                                 |
| B1C                                                                         | 6 BC 71                             |
| B1J                                                                         | 6 BJ 71                             |
| BCH                                                                         | 6 BCH 70                            |
| M                                                                           | 549                                 |
| ADC                                                                         | I4400, I4500 or I4600               |
| ESR                                                                         | I7016                               |
| I                                                                           | I6500, I6600 or I6700               |
| LCR                                                                         | I1262                               |
| LCU                                                                         | I1263                               |
| Q6                                                                          | I1227 or I1383                      |
| QX                                                                          | I3000                               |
| V                                                                           | I2100, I2475, I2500, I2700 or I5500 |
| Torq-Handle®                                                                | 71                                  |
| Contact your authorized Neles distributor for copies of these instructions. |                                     |

## EXPLODED VIEWS AND PARTS LISTS

| PARTS LIST – MODEL “C” |                         |     |
|------------------------|-------------------------|-----|
| ITEM                   | PART NAME               | QTY |
| 1                      | Body                    | 1   |
| 2                      | Insert                  | 1   |
| 3                      | Ball                    | 1   |
| 4                      | Stem                    | 1   |
| 5                      | Seat                    | 2   |
| 6                      | Body Seal               | 1   |
| 7*                     | Secondary Stem Seal     | 1   |
| 8**                    | Upper & Lower Stem Seal | 2   |
| 15                     | Stem Nut Lock           | 1   |
| 16                     | Handle Nut & Stem Nut   | 2   |
| 17†                    | Handle                  | 1   |
| 19                     | Lockwasher              | 1   |
| 21                     | Compression Ring        | 1   |
| 22                     | Identification Tag      | 1   |
| 24                     | Lower Stem Seal         | 1   |
| 25                     | Stop Screw              | 2   |
| 26                     | Stop Screw Spacer       | 1   |

\* Fire-tested valves only.  
 \*\* Upper and lower stem seals identical in Non-Fire-Tested valves.  
 † **NOTE:** Round handles are available in place of lever handles for the following valves: 1/2" – 2" (DN 15 – 50) Type 5150, 1/2" – 1-1/2" (DN 15 – 40) Type 5300/530S, 3/4" – 1-1/2" (DN 20 – 40) Type 6150, and 3/4" – 1" (DN 20 – 25) Type 6300.

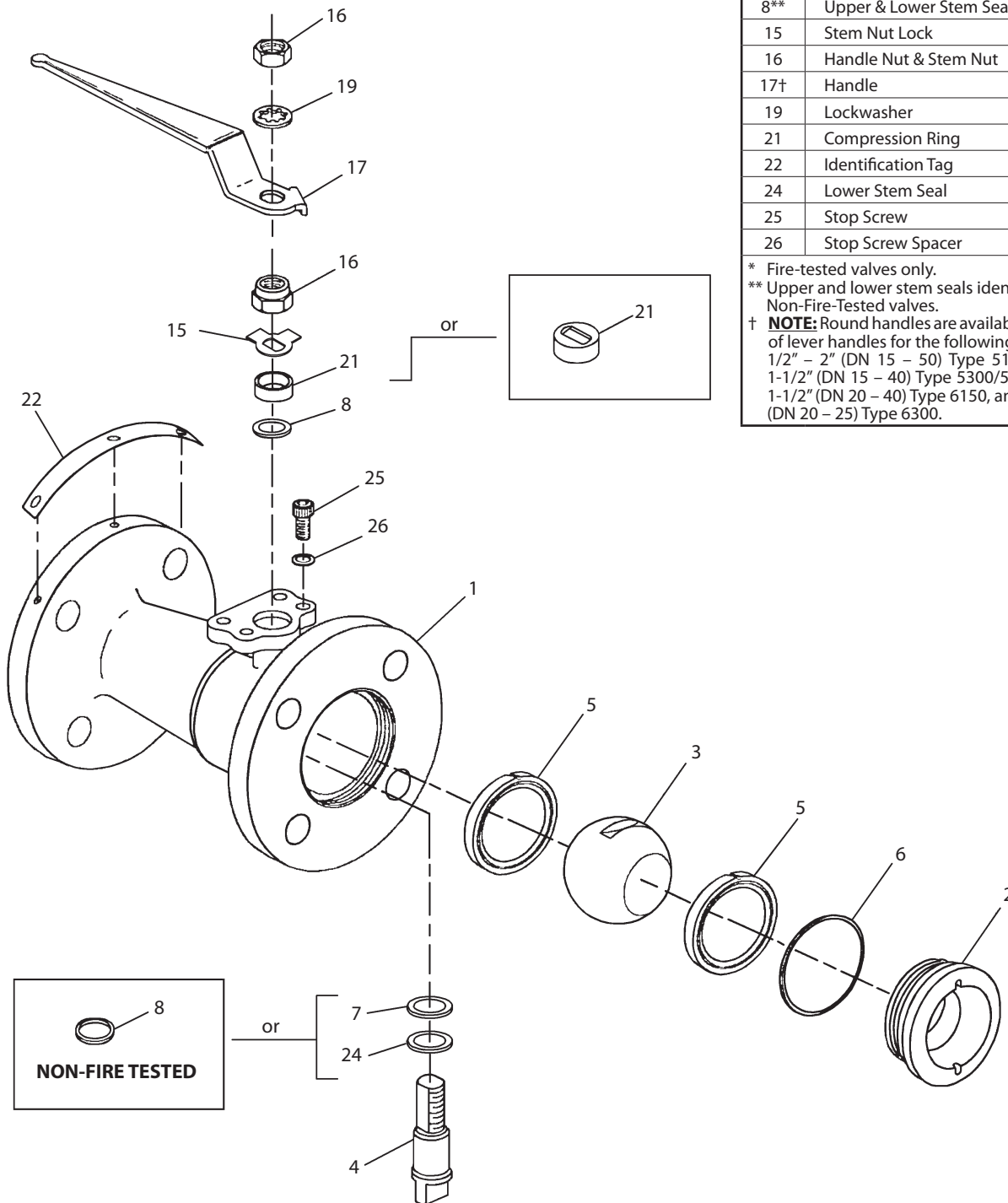


Figure 10

**WARNING:**

As the use of the valve is application specific, a number of factors should be taken into account when selecting a valve for a given application. Therefore, some of the situations in which the valves are used are outside the scope of this manual. If you have any questions concerning the use, application or compatibility of the valve with the intended service, contact Neles for more information.

**HOW TO ORDER**

**EXAMPLE:** A 2" ANSI Class 300 short design valve (530S) in *Fire-Tite* design (3) with raised-face flanges (31), carbon steel body (22), and 316 stainless steel trim (36), with filled PTFE seats and seals (M) is written: **2" 530S-31-2236MT**.

| 1  | 2    | 3 | 4  | 5  | 6  | 7  |
|----|------|---|----|----|----|----|
| 2" | 530S |   | 31 | 22 | 36 | MT |

| 1          | Size                                                                              |
|------------|-----------------------------------------------------------------------------------|
| 1/2" to 2" | 1/2" (DN 15)*      3/4" (DN 20)      1" (DN 25)<br>1-1/2" (DN 40)      2" (DN 50) |

\* 1/2" Series 5000 valves have a full-bore (this size only)

| 2    | Valve Series & Style            | Size Range    |
|------|---------------------------------|---------------|
| 5150 | Standard Bore Class 150         | 1/2" – 2"     |
| 530S | Standard Bore Class 300 (Short) | 1/2" – 2"     |
| 5300 | Standard Bore Class 300         | 1/2" – 2"     |
| 6150 | Full Bore Class 150             | 1/2" – 1-1/2" |
| 6300 | Full Bore Class 300             | 1/2" – 1-1/2" |

| 3   | Special Construction  |
|-----|-----------------------|
| —   | Standard (no entry)   |
| C   | Chlorine              |
| N   | NACE                  |
| O   | Oxygen                |
| STG | Grounded              |
| V   | High Vacuum           |
| VC  | High Vacuum Certified |
| DT  | 125 RMS Flange Finish |

| 4  | End Connection                                    | Size Range                                       |
|----|---------------------------------------------------|--------------------------------------------------|
| 11 | Raised Face, Non- <i>Fire-Tite</i> , Non-Trunnion | 1/2" – 1-1/2" Full Bore<br>1/2"-2" Standard Bore |
| 31 | Raised Face, <i>Fire-Tite</i> , Non-Trunnion      | 1/2" – 1-1/2" Full Bore<br>1/2"-2" Standard Bore |

| 5  | Body Material*         | Size Range                    |
|----|------------------------|-------------------------------|
| 14 | Aluminum Bronze        | 1"-2" Std Bore Class 150      |
| 22 | Carbon Steel (WCB)     | All                           |
| 28 | Carbon Steel (LCC)     | Class 600, optional on others |
| 35 | Alloy 20 (CN7M)        | All                           |
| 36 | Stainless Steel (CF8M) | All                           |
| 71 | Monel®                 | Optional in all sizes         |

\* Other materials available on application

| 6  | Ball & Stem Materials* | Size Range                 |
|----|------------------------|----------------------------|
| 14 | Aluminum Bronze        | 1" – 2" Std Bore Class 150 |
| 22 | Carbon Steel           | All                        |
| 35 | Alloy 20 (CN7M)        | All                        |
| 36 | 316 Stainless Steel    | All                        |
| 71 | Monel                  | All                        |
| 73 | Hastelloy®             | Optional in all sizes      |
| HB | 316 SS, 17-4PH         | All                        |
| HG | 316 SS, Alloy 20       | All                        |
| 00 | Same as body           | All                        |

\* Other materials available upon request

| 7    | Seat & Seal Materials  | Size Range             |
|------|------------------------|------------------------|
| TT   | PTFE/PTFE/PTFE         | All                    |
| MT   | Filled PTFE/PTFE/PTFE  | All                    |
| BT   | PFA/PTFE/PTFE          | All                    |
| LG   | PEEK/Graphite/Graphite | All                    |
| UU   | UHMW/UHMW/UHMW         | All                    |
| RT†  | Acetal/PTFE            | 1/2"-2" Class 600 only |
| VA†1 | Polyimide/Graphite     | All                    |

† Requires 17-4PH Stem

1 Not suitable for water or steam service

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