

Jamesbury™ reactor discharge flanged ball valves with MD, QA and QC Conversions and ESSD stem seal option Series 5000 & 6000

Series 5000, Standard Bore, Class 300, 8" - 12" (DN 200 - 300);
Series 6000, Full Bore, Class 300, 6" - 8" (DN 150 - 200)

Installation, maintenance and
operating instructions

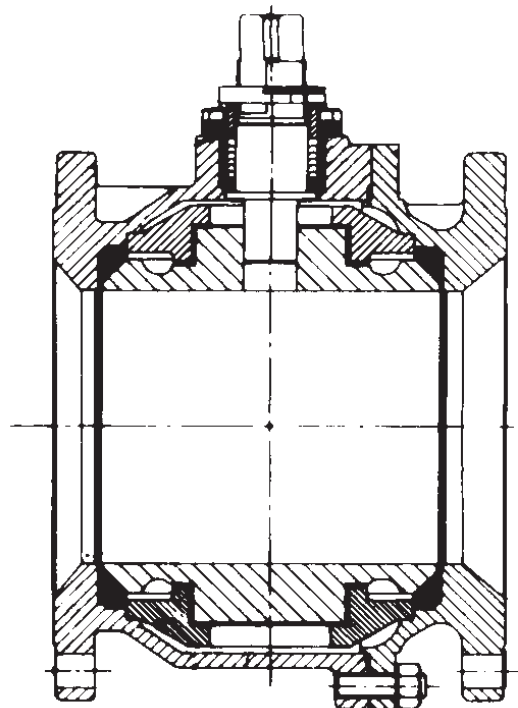


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READ THESE INSTRUCTIONS FIRST!

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

This instruction manual contains important information regarding the installation, maintenance, and troubleshooting of Jamesbury 5000 & 6000 Series Reactor Discharge valves. Please read the 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 VALMET FOR MORE INFORMATION.

1.1 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 SPRINGRETURN 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! REFERENCE THE APPLICABLE TECHNICAL BULLETIN FOR VALVE WEIGHTS.

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.

2. INSTALLATION

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 nut adjustment described in the **MAINTENANCE** section.

These valves may be installed for flow in either direction. To ensure that good installation is achieved, standard piping practices should be followed.

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!

3. MAINTENANCE

Although *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. Valmet recommends inspecting valves at least every five (5) years. The inspection and maintenance frequency depends on the actual application and process condition.

WARNING

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

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

Routine maintenance consists of tightening the stem nut (15) 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 Valmet distributor or representative.

TABLE 1			
Repair Kits			
Valve Size	6" 6300 8" 530S 8" 5300	8" 6300 10" 530S 10" 5300	10" 6300 12" 530S 12" 5300
QC Filled TFE Seats	RKY34QC	RKY35QC	RKY36QC
w/ESSD Live-Loaded Packing Option	RKY115QC	RKY116QC	RKY117QC
QA Filled TFE Seats	RKY34QA	RKY35QA	RKY36QA
w/ESSD Live-Loaded Packing Option	RKY115QA	RKY116QA	RKY117QA
MD Filled TFE Seats	RKY34MD	RKY35MD	RKY36MD
w/ESSD Live-Loaded Packing Option	RKY115MD	RKY116MD	RKY117MD

Conversion Kits				
Type of Conversion	Body Material	6" 6300 8" 530S 8" 5300	8" 6300 10" 530S 10" 5300	10" 6300 12" 530S 12" 5300
From MD to QA*	Carbon Steel Stainless Steel	RKY9322* RKY9336*	RKY9422* RKY9436*	RKY9522* RKY9536*
From MD to QC	Carbon Steel Stainless Steel	RKY14222QC RKY14236QC	RKY14322QC RKY14336QC	RKY14422QC RKY14436QC
From QA to QC	N/A	See Conversion Instructions	See Conversion Instructions	See Conversion Instructions

* The kits to convert from MDtoQA will only be supplied in limited situations. They have been superseded by the kits to convert from MD to QC.

3.1 DISASSEMBLY

NOTE: If complete disassembly becomes necessary, replacement of all seats and seals is recommended. Refer to the Repair Kit chart on page 3.

- Follow the steps in the **WARNING** section before performing any work on the valve.
- Open and close the valve and leave in the closed position.
- Place the valve in a vertical position with the body cap (2) facing upward and the ball closed. (Parts are numbered per **Figure 9**).
- The following steps apply to valves having the ESSD live loaded stem seal and retainer kit. (**Figure 10**)
 - Remove self locking nuts (13), spacers (18), washers (19), spring washers (20), compression plate (14) and compression ring (21).
 - Remove cap screws (29) from stem retainer (30).
 - Remove stem (4) and stem retainer (30) as a subassembly. It may be necessary to loosen with a block of wood and hammer.
 - Press down on stem (4) to remove it from stem retainer (30).
 - Remove the lower stem bearing (12) from the body.
 - Remove the secondary stemseal (7) and upper stem bearing (8) from the stem.

G. Pry out and discard the two sets of shaft seal adapters (31) and shaft seal V-rings (32). Be careful not to scratch any sealing surfaces. (For valves without a leakoff there is only one set of shaft seal adapters and V-rings.) For valves with leakoff, do not discard lantern ring (16).

H. Follow the remaining Disassembly steps beginning with Stem Retainer Seal Removal. (Step 9)

- Remove the stem nut (15), stem nut lock (9) (if fitted), compression ring (21) and four hex head cap screws (29).
- Remove the stem (4) and stem retainer (30) as a subassembly. It may be necessary to loosen with a block of wood and hammer.
- Push down on top of the stem (4) to remove it from the stem retainer (30).
- Remove the secondary stem seal (7) and the stem bearing (8) from the stem. Pry out and discard the upper stem seal set (32) from the stem retainer (30), **BEING CAREFUL NOT TO SCRATCH ANY SEALING SURFACES.**
- Remove and discard the stem retainer seal (25) from the body.
- Remove the body fasteners [(11) for 6300 and 5300 valves, or (34) for 530S valves.]
- Lift the body cap (2) off of the body (1), **BEING CAREFUL NOT TO NICK OR SCRATCH THE BALL.**
- Remove the ball (3) and trunnion plates (26) as a subassembly. (The subassembly consists of the ball with a trunnion plate on both ends with their appropriate bearings and spacers.)

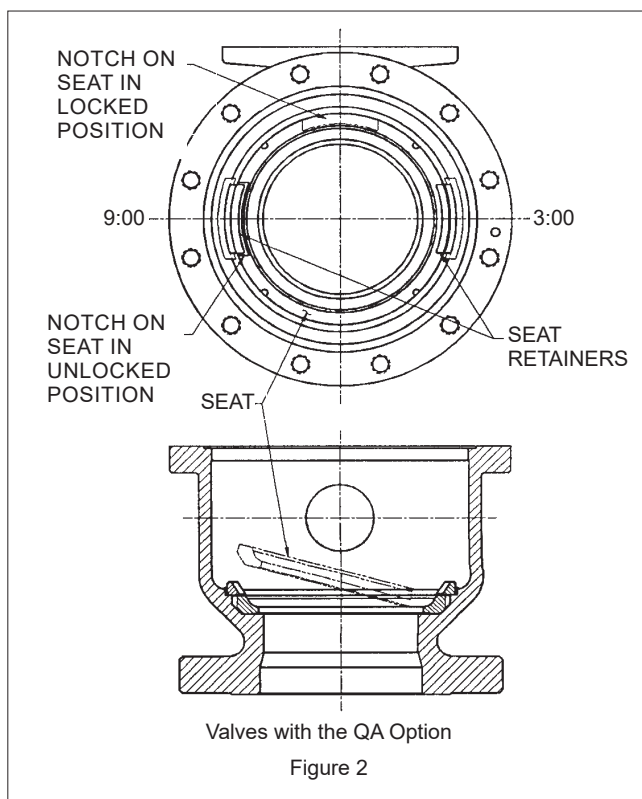
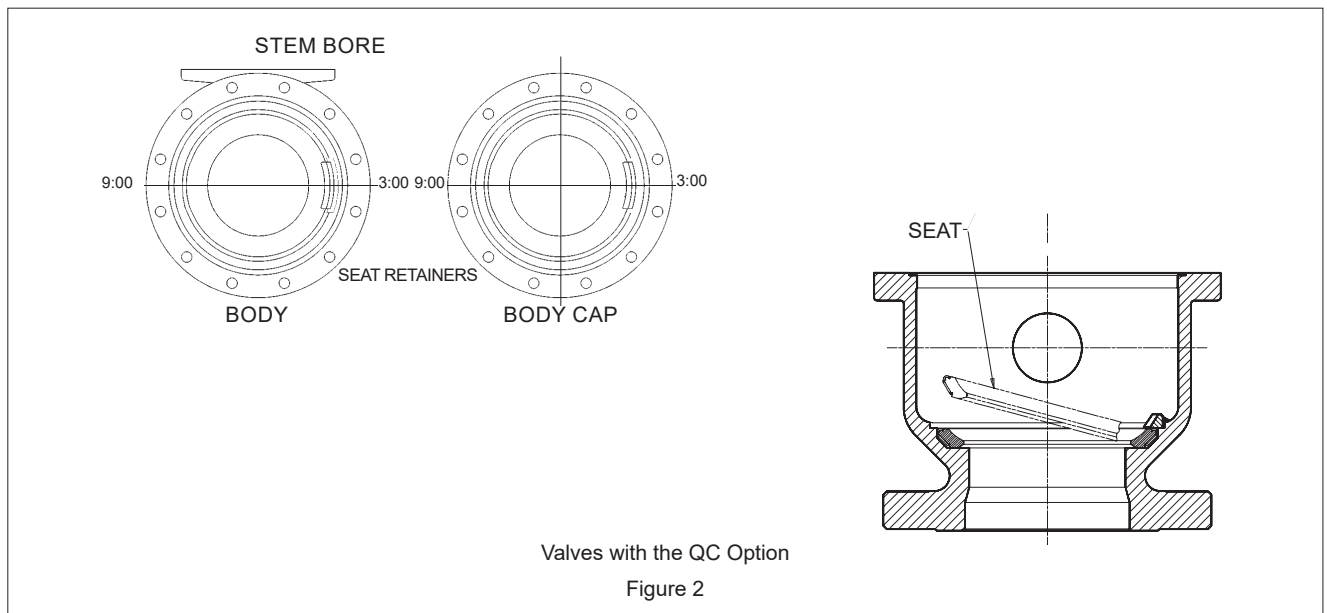
13. Pull each trunnion plate away from the ball and remove the bearing spacer (28) and trunnion bearing (27).
14. Remove the seat (5) from the body (1) and body cap (2) using the proper disassembly method for that type seat as follows:

A. QA Type Seats

Remove the seats by first rotating the seat so that the large notch that is cut on the outside diameter of the seat lines

up with one of the seat retainers (**see Figure 2**). Lift the seat from the cavity and remove it as shown in **Figure 2**. Repeat procedure for second seat.

NOTE: If the seat is cemented in its cavity by pipeline media, it may be cut and removed using extreme caution not to damage the metal sealing surface in the seat cavity.



B. QC Type Seats

Lift the end opposite the seat retainer first and remove from the seat cavity.

C. MD Type Seats

No special requirements.

3.2 ASSEMBLY

NOTE: If necessary, seats, seals and bearings can be lubricated with Dow Corning III.

1. Place the body (1) and the body cap (2) in a vertical position with the body joint facing upward. Assemble a seat (5) in the body and body cap using the proper assembly method for that type seat as follows:

A. QA Type Seats

Insert a seat (5) by sliding one side under one seat retainer and aligning the notch on the outside diameter of the seat with the opposite seat retainer. Drop the seat into the cavity so that the notch passes over the seat retainer (**See Figure 2**).

ROTATE SEAT 90° SO THAT IT IS LOCKED IN PLACE. NOTCH WILL BE UNDER TRUNNION PLATE.

Repeat procedure for the second seat.

B. QC Type Seats

Insert a seat (5) by sliding one side under one seat retainer and dropping the seat into the cavity, **see Figure 1**. Repeat the procedure for the second seat.

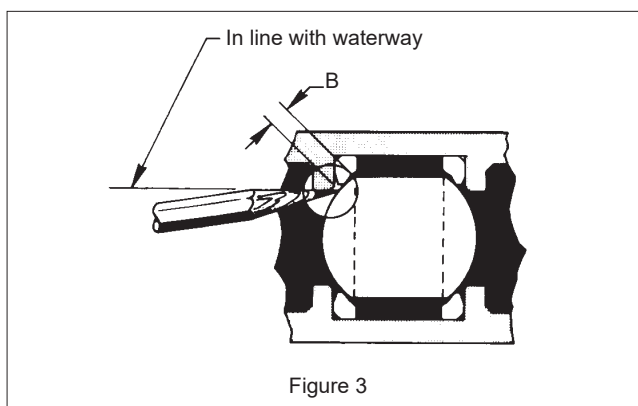
C. MD Type Seats

No special requirements.

2. Insert a trunnion bearing (27) into each trunnion plate (26) counterbore.
3. Place a bearing spacer (28) over each ball trunnion.
4. Fit a trunnion plate over each ball trunnion until the plate rests against the bearing spacer (28). This operation must be performed with care and without excessive force or the bearings may be damaged. The plate should be started squarely on the trunnion and evenly tapped with a plastic mallet. With new bearings it may be necessary to tap and rotate the plate all the way on. Lubrication is helpful. Once installed, without cocking, the plate will be snug, but can be smoothly rotated with a mallet or block of wood.
5. Align the trunnion plates relative to the ball port as shown in **Figure 9**. This will approximate proper position when the ball and trunnion plate subassembly is lowered into the body.
6. With the ball in the closed position as shown in **Figure 9**, lower the ball/trunnion plate subassembly partially into the body.
NOTE: This procedure is critical and careful attention must be paid to points A and B of the plates as shown in **Figure 9**. The outside diameter of the trunnion plate must pilot in the body counterbore. Carefully lower the subassembly until a trunnion plate enters the counterbore. Usually one plate will enter the counterbore and the other plate will be out of position. When this happens it is due to the plates not being in perfect alignment per step 5, or not being parallel to each other. Use a plastic mallet or block of wood to rotate the second trunnion plate and cause it to drop into position. It might be necessary to lift the ball slightly. Lower the subassembly until the trunnion plates are seated in the bottom of the cavity.
7. The following steps (A - O) apply only to valves with live loaded stem seal and retainer kit (**Figure 10**):

- A. The stem retainer must have a flow arrow on it. If it doesn't attach per **Figure 8**.
- B. Place the lower stem bearing (12) in the bottom of the stem retainer bore of the body (1).
- C. Slide the upper stem bearing (8) over the top of the stem (4) and down to the stem shoulder. Place a secondary stem seal (7) over the stem and down on top of the upper stem bearing.
- D. Slide the stem retainer (30) down the stem (4) until it rests on the secondary stem seal (7).
- E. Place stem retainer seal (25) in the bonnet groove of the body (1).
- F. Slide the stem subassembly into the stem bore of the body so that the stem enters the slot in the ball, and the arrow on the side of the stem retainer points in the direction of the flow. The groove on top of the stem should be parallel to the ball waterway.
- G. Install the cap screws (29) into the stem retainer and tighten to the recommended torque listed in **Table 5**. (Use a diagonal pattern when tightening the screws.)
- H. Install the stem seal adapters (31), stem seal V rings (32) and lantern ring (16) into the stem retainer bore over the stem. (For valves without a leakoff there is only one set of stem seal adapters and V-rings.

- I. Slide the compression ring (21) and compression plate (14) over the stem (4) and studs (36).
 - J. Slide the disc springs (20), washers (19) and spacers (18) over the studs (36).
 - K. Lubricate studs (36) with "Never-Seez."
 - L. Place nuts (13) on studs (36).
 - M. Tighten nuts evenly and alternately in 2 lb.-ft. increments until stack height listed in **Table 6**, p. 11, is obtained.
 - N. Install the drive key on the key drive stems.
 - O. Follow the remaining steps beginning with step 17 of the Assembly instructions.
8. Slide the stem bearing (8) over the top of the stem (4) and down to the stem shoulder. Place a secondary stem seal (7) over the stem and down on top of the stem bearing (8).
 9. Slide the stem retainer (30) over the stem and down on top of the secondary stem seal (7).
 10. Slide the upper stem seal set (32) over the stem and down into the stem retainer. 'V' shape of stem seals must point away from the ball (See **Figure 9**).
 11. Slide the compression ring (21) over the stem and down to the upper stem seal set (32) in the stem retainer.
 12. Place the stem nut (15), with the side marked "top" up over the stem and thread it down until contact is made with the compression ring. (Use a wrench on the bottom stem blade to keep the stem from turning.)
 13. Tighten the stem nut until the stem seal is fully seated, then tighten the nut an additional 1/8 to 1/4 turn.
 14. Place the stem retainer seal (25) in the bonnet groove of the body (1).



15. Place the stem subassembly into the body bonnet hole and engage the stem in the ball slot. The groove on top of the stem should be parallel to the ball waterway.
16. Align the stem retainer flange holes with the tapped holes in the body bonnet. Lubricate the hex head cap screws (29) with Never-Seez or equivalent. Place the four hex head cap screws (29) through the stem retainer flange and thread into the body. Tighten with sequence and torque per **Table 5** and **Figure 7**. Install the drive key (33) on the key drive stems.
17. Place the body seal (6) in the body groove. **NOTE:** The ball must be in the closed position before proceeding to step 18. Do not install the body cap (2) with the ball in any other position.

18. Lower the body cap (2) with the seat onto the body. Pay careful attention to the alignment with the trunnion plates as described in step 6. **NOTE:** Some valves have an alignment pin (41) or have the bolt holes spaced so that the body cap can only be installed one way.
19. Using a light coat of Never-Seez or equivalent, lubricate the threads and underside face of each body fastener. Tighten with sequence and torque per **Table 5** and **Figure 7**.
REMOUNTING ACTUATOR: When an actuator is remounted on the valve, it may be necessary to readjust the actuator travel stops to ensure proper setting of the ball in the open and closed position. Follow the procedure in step 20 for proper adjustment.
20. Adjust the actuator stop adjusting screws for proper ball position when in the full open and full closed position. For proper alignment, follow these guidelines:
21. A. Valve Open Position: Allowable misalignment of the ball port in relation to the body port should not exceed 1/16".
22. B. Valve Closed Position: Scribe a pencil mark on the ball as shown in **Figure 3**. Open the valve and measure dimension "B". Adjust the stops according to the dimensions in **Table 2**.

4. SEAT DESIGN CONVERSION INSTRUCTIONS (INCLUDING SEAT RETAINER WELDING)

WARNING: TAKE EXTRA CARE NOT TO ALLOW ANY WELDING OR WELD SPATTER TO FALL ON THE SEAT CAVITY SURFACES IN EITHER THE BODY OR BODY CAP AS SHOWN IN **FIGURE 4**. WELD OR SPATTER ON THESE SURFACES WILL PREVENT SEALING AND/OR ASSEMBLY AND CAN NOT BE ALLOWED.

1. Choose the appropriate set of instructions to convert the valve from one type of seat configuration to another. Select the appropriate conversion kit from **Table 1**.

A. To convert the MD design to the QA design:

Four seat retainers are supplied with the conversion kit.

1. Place one seat retainer at the 9 o'clock position and one at the 3 o'clock position in the body, with the stem bore being the 12 o'clock position. See **Figure 2**.
2. Clamp the seat retainers firmly in place and weld per **Figure 4 and 5**, being careful not to get any weld or spatter on the seat cavity surfaces. Dimension "A" (**Figure 4**), per **Table 3** must be held in order to allow proper assembly of the seats later.
3. Place one seat retainer at the 9 o'clock position and one at the 3 o'clock position in the body cap and weld the same as was done on the body per step 2 above. Be sure that the seat retainers will be in the 9 and 3 o'clock positions when the body cap is assembled with the body. Some body caps (8" and 10" 6300) can only be assembled with the body one way, and failure to weld the retainers in the correct position will not allow proper assembly with the seats and trunnion plates later.

NOTE: The weldment should be a full fabrication weld extending the entire length of the retainer and across the ends as shown in **Figure 5**.

B. To convert the MD design to the QC design:

Two seat retainers are supplied with the conversion kit.

1. Place one seat retainer at the 3 o'clock position in the body with the stem bore being the 12 o'clock position. See **Figure 1**.
2. Clamp the seat retainer firmly in place and weld per **Figures 4 and 5**, being careful not to get any weld or spatter on the seat cavity surfaces. Dimension "A" (**Figure 4**), per **Table 3** must be held in order to obtain proper assembly of the seats later.
3. Place one seat retainer at the 3 o'clock position in the body cap and weld the same as was done on the body per step 2. Be sure that the seat retainer that is welded in the body cap will be positioned as shown per **Figure 6** when the body cap is assembled onto the body. Some body caps (8" and 10" 6300) can only be assembled with the body one way, and failure to weld the seat retainers in the correct position will not allow proper assembly with the seats and trunnion plates later.

NOTE: Valves reworked in this manner should be actuated "clockwise to close" only. Any other actuator orientation may lead to seat damage.

C. To convert QA design to the QC design:

1. Grind a segment out of the body and cap so the remaining segment is as shown in **Figure 1**.

5. 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. Send valves to the service center in the half open position.

For further information on spare parts and service or assistance visit our web-site at www.valmet.com/flowcontrol/valves.

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 (from identification plate)
- c. From **Figure 5**, the ballooned part number, part name and quantity required.

Table 2	
Ball Position (Figure 3)	
Valve Size	Dimension "B"
6" 6300 (B) 8" 530S (B) 8" 5300 (B)	1-3/32"
8" 6300 (B) 10" 530S (B) 10" 5300 (B)	1-3/16"
10" 6300 (B) 12" 530S (B) 12" 5300 (B)	1-9/16"

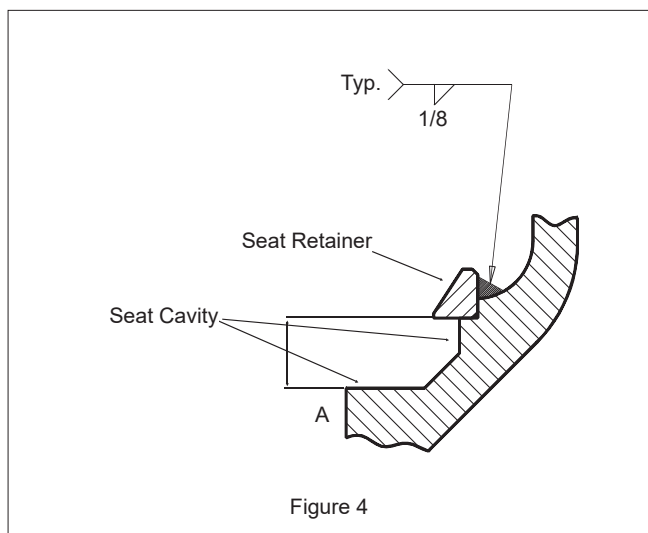


Table 3	
(Figure 4)	
Valve Size	Dimension "A"
6" 6300 (B) 8" 530S (B) 8" 5300 (B)	0.768/0.756
8" 6300 (B) 10" 530S (B) 10" 5300 (B)	0.830/0.818
10" 6300 (B) 12" 530S (B) 12" 5300 (B)	1.018/1.006

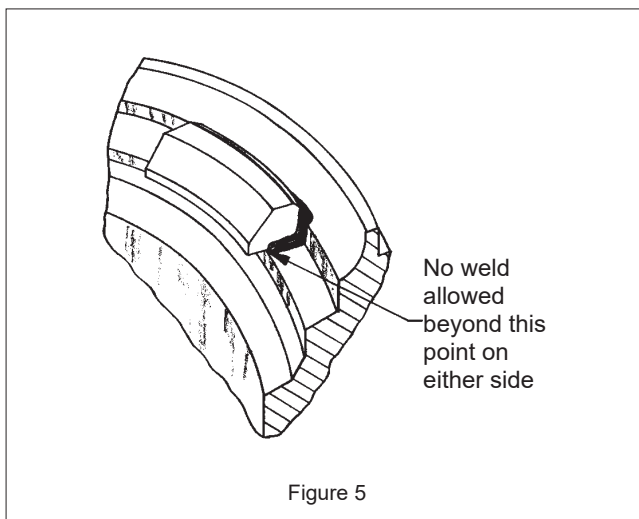
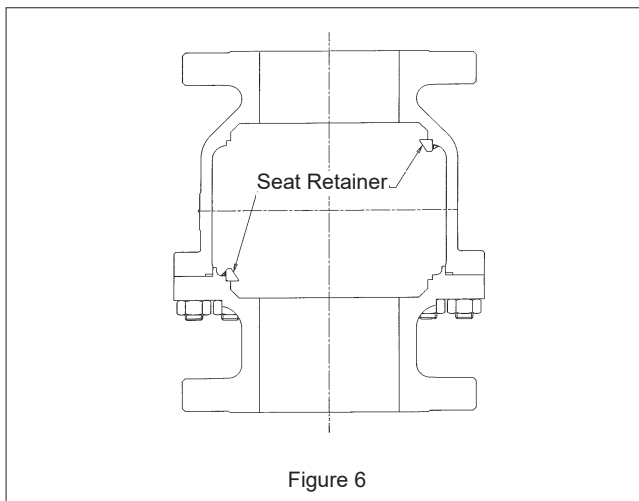
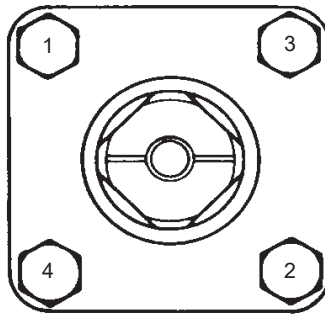
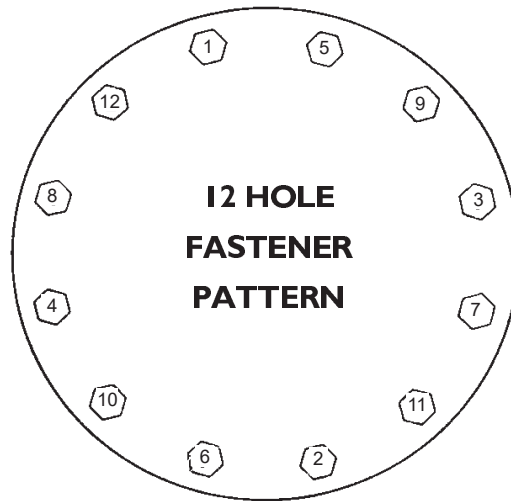


Table 4		
Body/Body Cap Fasteners		
Valve Size	Body Bolt Size	Qty.
6" 6300 (B)	3/4	12
8" 530S (B)	7/8	12
8" 5300 (B)	7/8	12
8" 6300 (B)	1	12
10" 530S (B)	7/8	16
10" 5300 (B)	7/8	16
10" 6300 (B)	1 1/4	12
12" 530S (B)	1 1/8	16
12" 5300 (B)	1 1/8	16

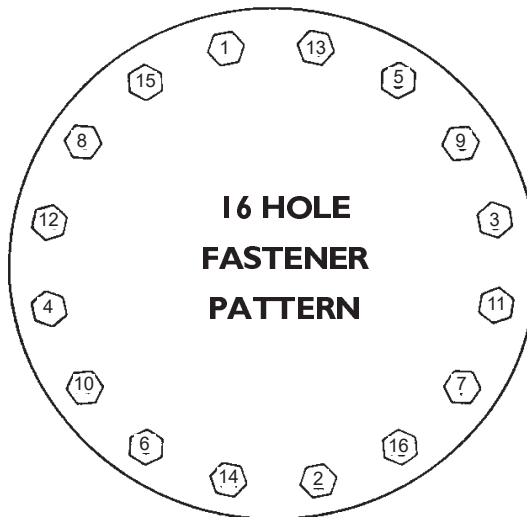




Stem retainer



6" - 10" 6300, 8" 530S/5300

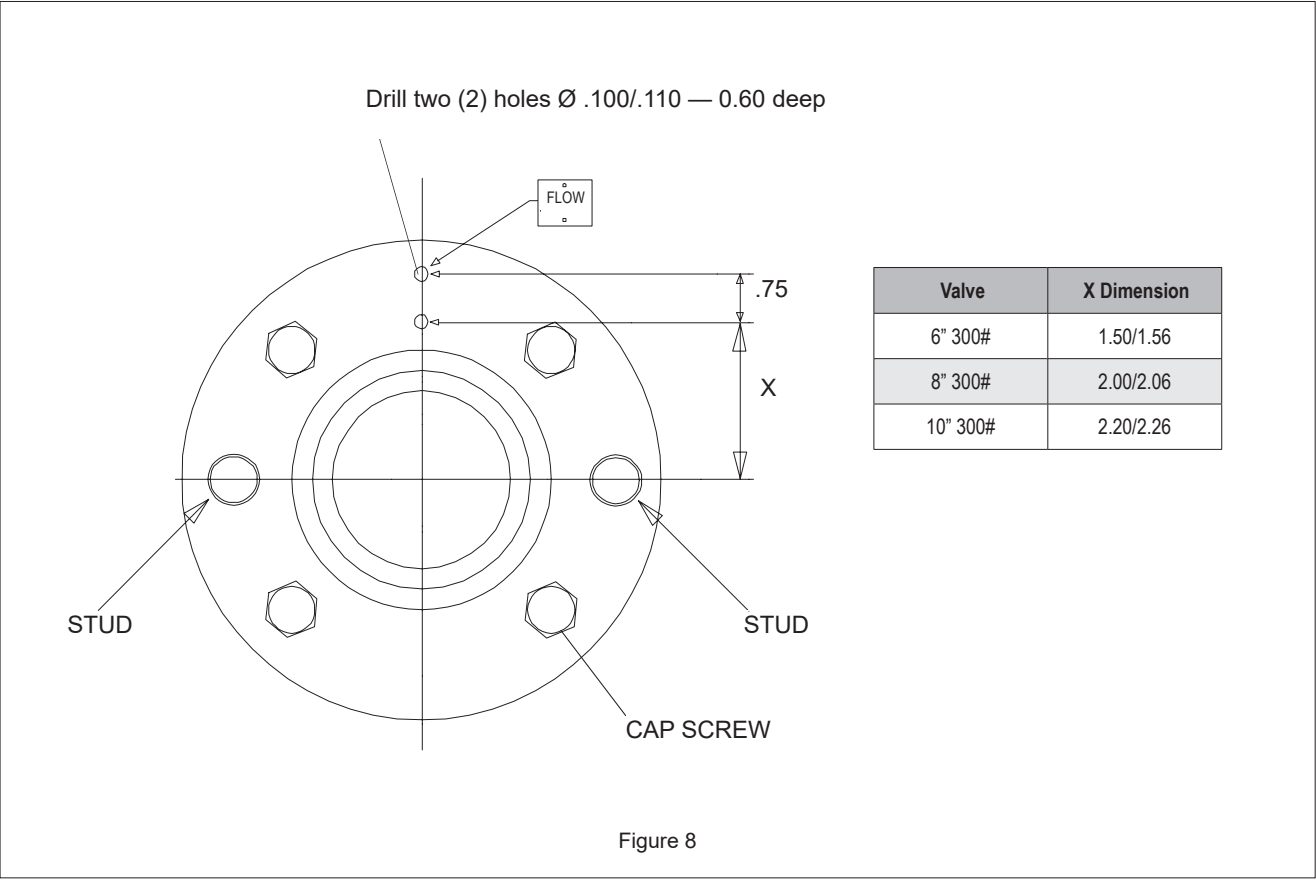


10" - 12" 530S/5300

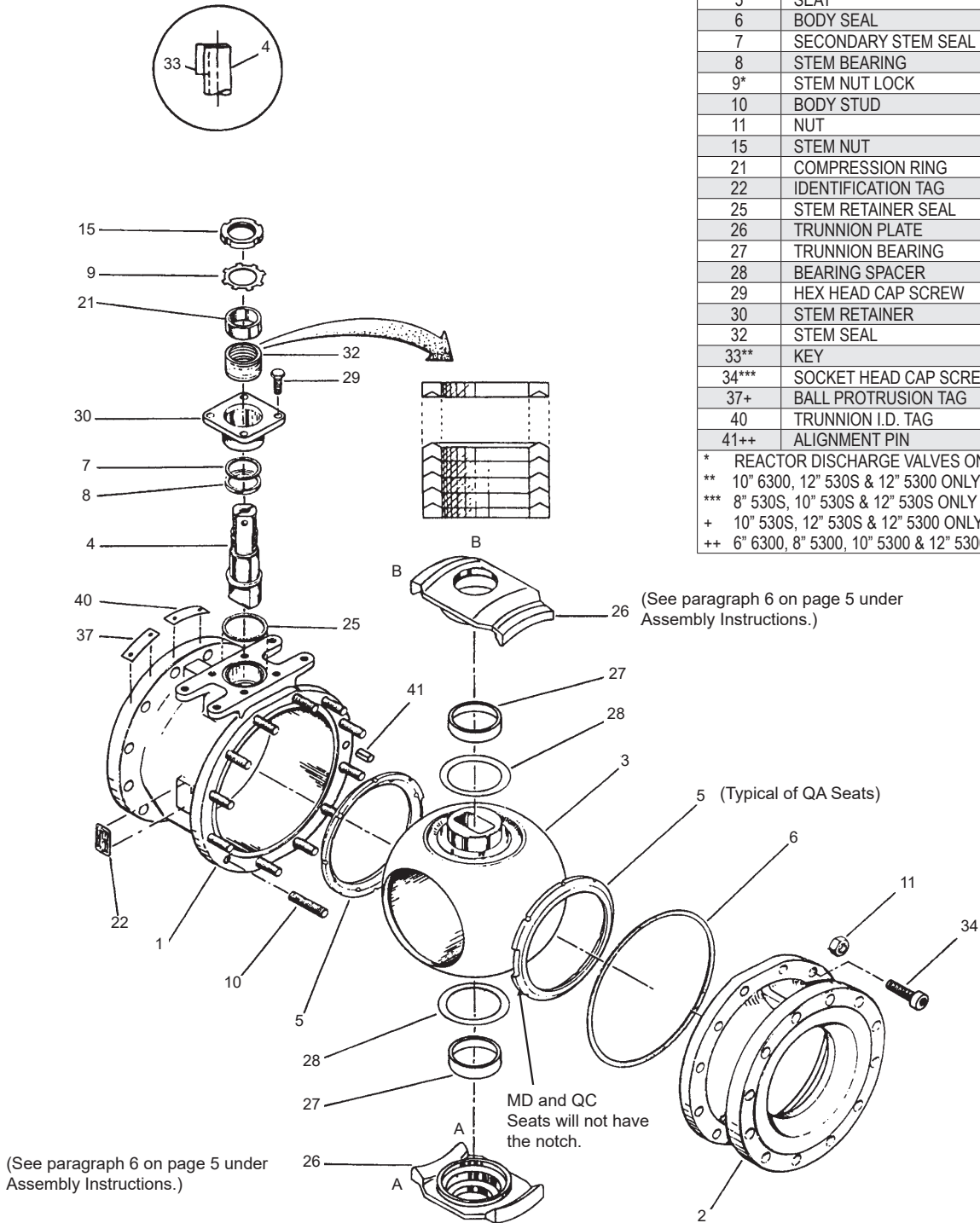
Figure 7

TABLE 5					
Recommended Torques (LB. -FT.)					
Fastener Size	Last Digit In Fig. No.	1	2	4	5
	Fastener Material	A193 GR. B7	A193 GR. B8	K-Monel®	A193 GR. B7M
	Fastener Ident. Mark	B7	B8	K	B7M
1/2"		75-85	70-85	65-75	55-65
5/8"		160-190	155-180	140-160	125-145
3/4"		250-290	235-275	210-245	190-220
7/8"		380-445	290-340	325-380	290-340
1"		575-630	435-510	495-540	435-510
1-1/8"		850-1000	526-615	690-805	650-760
1-1/4"		1160-1360	715-840	940-1100	885-1030

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EXPLODED VIEW AND PARTS LIST



Valve Parts		
Item No.	Part Name	Qty.
1	BODY	1
2	BODY CAP	1
3	BALL	1
4	STEM	1
5	SEAT	2
6	BODY SEAL	1
7	SECONDARY STEM SEAL	1
8	STEM BEARING	1
9*	STEM NUT LOCK	1
10	BODY STUD	TABLE 4
11	NUT	TABLE 4
15	STEM NUT	1
21	COMPRESSION RING	1
22	IDENTIFICATION TAG	1
25	STEM RETAINER SEAL	1
26	TRUNNION PLATE	2
27	TRUNNION BEARING	2
28	BEARING SPACER	2
29	HEX HEAD CAP SCREW	4
30	STEM RETAINER	1
32	STEM SEAL	1 SET
33**	KEY	1
34***	SOCKET HEAD CAP SCREW	TABLE 4
37+	BALL PROTRUSION TAG	1
40	TRUNNION I.D. TAG	1
41++	ALIGNMENT PIN	1

* REACTOR DISCHARGE VALVES ONLY
 ** 10" 6300, 12" 530S & 12" 5300 ONLY
 *** 8" 530S, 10" 530S & 12" 530S ONLY
 + 10" 530S, 12" 530S & 12" 5300 ONLY
 ++ 6" 6300, 8" 5300, 10" 5300 & 12" 5300 ONLY

Figure 9

EXPLODED VIEW AND PARTS LIST VALVES WITH THE ESSD LIVE LOADED PACKING OPTION

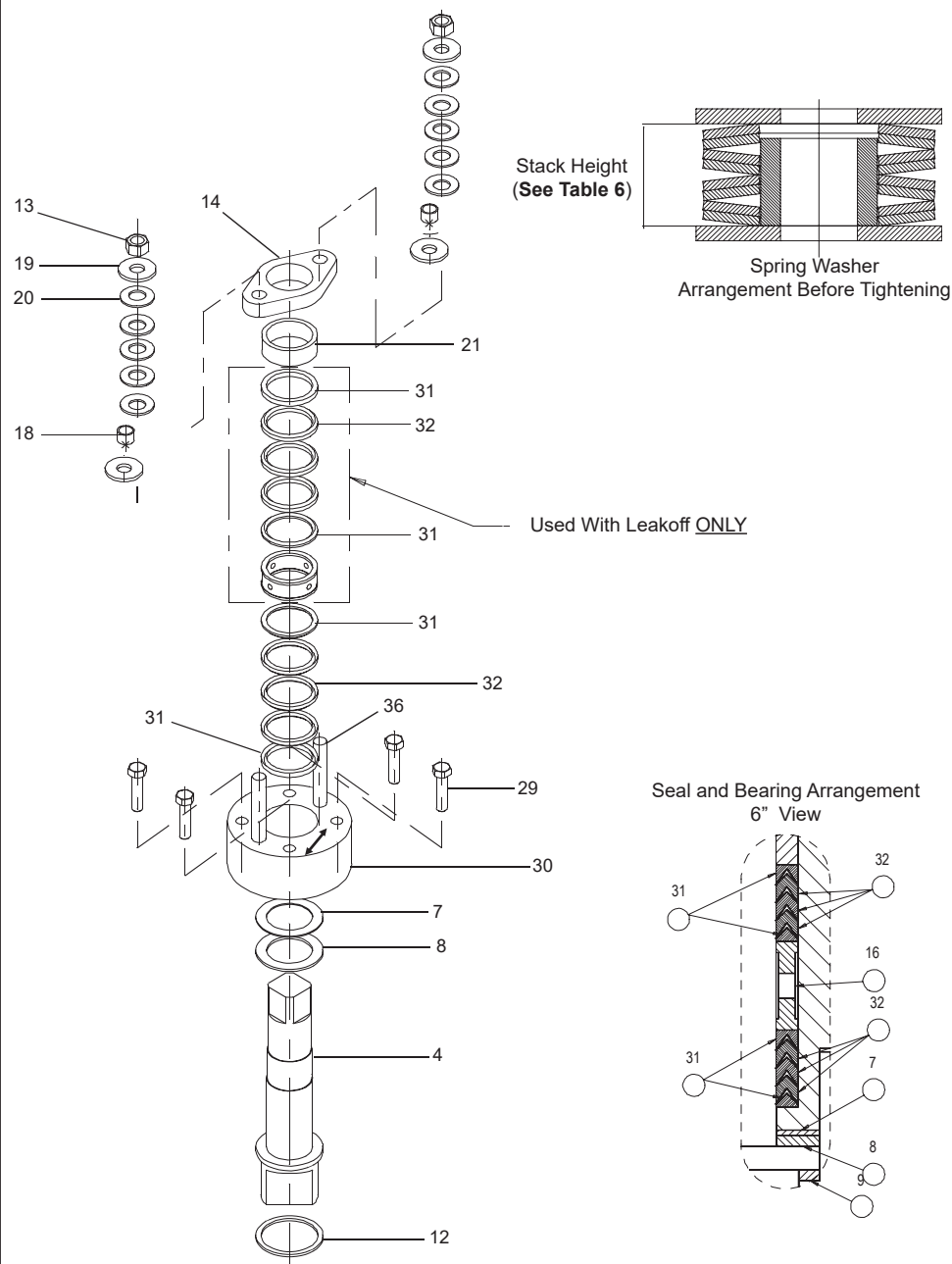


Figure 10

Valve Parts		
Item	Part Name	Qty.
4	STEM	1
7	SECONDARY STEM SEAL	1
8	UPPER STEM BEARING	1
12	LOWER STEM BEARING	1
13	SELF LOCKING NUTS	2
14	COMPRESSION PLATE	1
16	LANTERN RING	1*
18	SPACER	2
19	WASHER	4
20	SPRING WASHERS	10
21	COMPRESSION RING	1
29	CAP SCREWS	4
30	STEM RETAINER	1
31	SHAFT SEAL ADAPTORS	2**
32	V-RINGS	3+
36	STUDS	2

* Only on valves with leak-off.
 ** Four (4) for valves with leak-off.
 + Six (6) for valves with leak-off.

TABLE 6	
Valve Size (IN)	Stack Height (IN)
6	.563/.531
8	.680/.650
10	.923/.903

Subject to change without prior notice.

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Valmet Flow Control Oy

Vanha Porvoontie 229, 01380 Vantaa, Finland.

flowcontrol@valmet.com

Tel. +358 10 417 5000.

www.valmet.com/flowcontrol

