

Jamesbury™ Emission-pak™ assembly cartridges A, B & C model B for:

Series 5000, Standard Bore:

Class 150 & 300, 1/2" - 2" (DN 15 - 50)

Class 600, 2" (DN 50);

Series 6000, Full Bore:

Class 150 & 300, 3/4" - 1-1/2" (DN 20 - 40)

Class 600, 1/2" - 1-1/2" (DN 15 - 40)

Installation, maintenance and
operating instructions

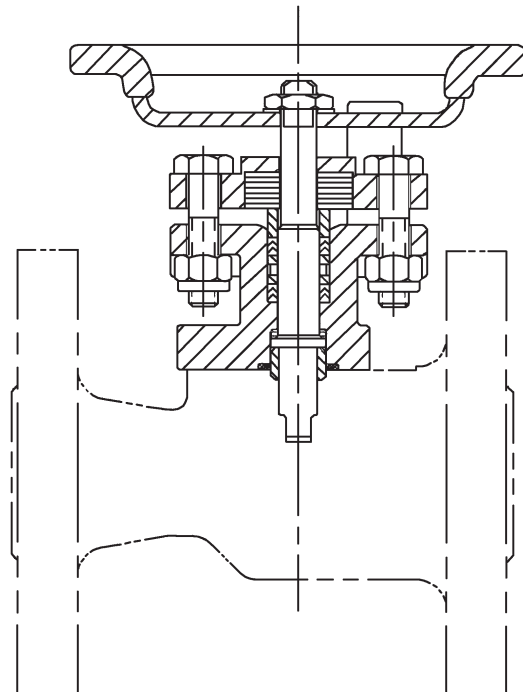


Table of contents

GENERAL	3
Safety precautions	3
INSTALLATION	3
Installation Into Pipeline – Emission-Pak	
Assembly with Valve:	3
Retrofitting the Emission-Pak Assembly to	
Customer Supplied Valve:	4
MAINTENANCE	5
General	5
Disassembly	5
Assembly	6
REPAIR KITS/ SPARE PARTS	6

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™ *Emission-Pak* Assembly Cartridges A, B and C Model B for 1/2" – 2" (DN 15 – 50) Series 5150, 1/2" – 2" (DN 15 – 50) Series 5300 and 530S, 3/4" – 1-1/2" (DN 20 – 40) Series 6150, 3/4" – 1-1/2" (DN 20 – 40) Series 6300, 2" (DN 50) Series 5600 and 1/2" – 1-1/2" (DN 15 – 40) Series 6600. 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

2.1 INSTALLATION INTO PIPELINE – *EMISSION-PAK* ASSEMBLY WITH VALVE:

1. For optimum performance, the disc spring height should be periodically checked and adjusted if required. See the **MAINTENANCE** Section for further details.
2. Flow through a *Jamesbury* valve can be in either direction, however, it is recommended that the valve be installed with the insert facing upstream.

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!

2.2 RETROFITTING THE EMISSION-PAK ASSEMBLY TO CUSTOMER SUPPLIED VALVE:

Retrofitting will require that the valve be disassembled. Replacement of the seats is recommended and replacement of the body seal is required. Refer to the appropriate IMO listed in **Table 1** for proper disassembly of the valve. Follow the steps in the **WARNING** Section before performing any work on the valve. For valve to body seal sizing refer to **Table 5**.

1. The valve must be removed from the pipeline in order to mount the cartridge.
2. The original stem of the valve must be removed, along with the parts assembled to the stem. (**Refer to the applicable IMO listed in Table 1 for instructions.**)
3. The valve bonnet should be clean and free of any paint, rust or foreign matter, and should be reasonable smooth prior to mounting the *Emission-Pak* Assembly.

4. Place the centering ring (79) into the stem bore on the top of the valve bonnet. Place the stem retainer seal (78) onto the top of the valve bonnet.

WARNING: *Emission-Pak* Assemblies that are supplied with a 1/8 NPT leak-off connection are assembled with a plastic pipe cap only. This leak-off connection **must** be fitted with either a pipe plug, fitting or a pipe prior to placing the assembly into service. The *Emission-Pak* assembly mounted to the valve can only be fitted with a pipe plug or long pipe nipple due to the orientation of the 1/8 NPT leak-off connection and the adjacent pipe flange. An *Emission-Pak* assembly can be fitted with a fitting (i.e. elbow, tee, etc.), but must be done prior to mounting the *Emission-Pak* assembly onto the valve.

5. Place the complete cartridge assembly onto the valve. To ensure correct ball positioning and orientation, align the mounting holes of the *Emission-Pak* assembly with those of the valve bonnet.
6. To center the cartridge on the valve bonnet, insert the two flat head cap screws (120) into two opposing socket cap holes in the stem retainer. Tighten these only sufficiently to center the cartridge.

TABLE 1

IMO FOR VALVE SIZE AND SERIES

SIZE	5150	5300	530S	5600	6150	6300	6600
1/2" (DN 15)	IMO-50	IMO-50	IMO-50	N/A	N/A	N/A	IMO-231
3/4"-1-1/2" (DN 20 – 40)	IMO-50	IMO-50	IMO-50	N/A	IMO-50	IMO-50	IMO-231
2" (DN 50)	IMO-50	IMO-50	IMO-50	IMO-231	N/A	N/A	N/A

7. After the cartridge has been centered, insert two of the four socket head cap screws (93) into the other two socket cap holes in the retainer. Tighten these until snug (this will lock the cartridge to the valve bonnet). Then remove the two flat head cap screws (120) from the cartridge and insert the remaining two socket head cap screws (93) and tighten until snug.

NOTE: The flat head socket cap screws (120) are not part of the permanent assembly and are only used to center the cartridge.

8. Tighten these socket head cap screws (93) evenly, alternately between them until they are tightened to the torque in **Table 2**.

9. Check the height of the disc springs against the dimensions listed in **Table 4, page 5**. Adjust if necessary.
10. Reassemble seats, ball, body seal and insert per Assembly Instructions in IMO listed in (**Table 1**).
11. The full assembly must be hydrostatically tested in accordance with ANSI B16.34 prior to replacing the assembly in service.

TABLE 2

STEM RETAINER SOC. HEAD CAP SCREW TORQUE FT•LBS (N•M)

Fastener Material	A193 GR B7	A194 GR B8	Inconel® X-750	K-Monel®	A193 GR B7M
Fastener Ident. Mark	B7	B8	2A	K	B7M
Cartridge					
A	8 – 10 (11 – 14)	8 – 10 (11 – 14)	8 – 10 (11 – 14)	7 – 9 (9 – 12)	7 – 9 (9 – 12)"
B	17 – 20 (23 – 27)	17 – 20 (23 – 27)	17 – 20 (23 – 27)	13 – 16 (18 – 22)	13 – 16 (18 – 22)
C	17 – 20 (23 – 27)	17 – 20 (23 – 27)	17 – 20 (23 – 27)	13 – 16 (18 – 22)	13 – 16 (18 – 22)

NOTE: Lubricate threads with Never-Seez® or equivalent. Inconel and Monel are registered trademarks of Special Metals Corporation.

3. MAINTENANCE

3.1 GENERAL

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 AND PROTECTION, IT IS IMPORTANT THAT THE FOLLOWING PRECAUTIONS BE TAKEN PRIOR TO REMOVING THE VALVE FROM SERVICE OR BEFORE ANY DISASSEMBLY OF THE VALVE.

1. WEAR ANY PROTECTIVE CLOTHING OR EQUIPMENT NORMALLY REQUIRED WHEN WORKING WITH THE MEDIA INVOLVED.
2. DEPRESSURIZE THE LINE AND VALVE AS FOLLOWS:
 - A. OPEN THE VALVE AND DRAIN THE LINE.
 - B. CLOSE AND OPEN THE VALVE TO RELIEVE ANY RESIDUAL PRESSURE THAT MAY BE IN THE VALVE PRIOR TO REMOVING THE VALVE FROM SERVICE. LEAVE THE VALVE IN THE OPEN POSITION.
 - C. AFTER REMOVAL AND PRIOR TO ANY DISASSEMBLY, DRAIN ANY REMAINING MEDIA BY PLACING THE VALVE IN THE VERTICAL POSITION AND CAREFULLY OPENING AND CLOSING THE VALVE SEVERAL TIMES.

Routine maintenance consists of tightening the hex head cap screws (88) periodically to compensate for disc spring deflection and stem seal wear. Check the disc spring height dimension in **Table 4** before adjusting cap screws.

Overhaul maintenance consists of replacing seats and body seals. A standard Repair kit containing these parts may be obtained through your Valmet Distributor.

These Repair kits are listed in the appropriate valve IMO. Refer to **Table 1** for the correct Repair kit. A Repair kit is also available for the *Emission-Pak* assembly which include seals, bearings and stem retainer seal. This Repair kit is listed in **Table 3**.

3.2 DISASSEMBLY

NOTE: Replacement of the seats is recommended and replacement of the body seal is required. Refer to the appropriate IMO listed in (**Table 1**) for proper disassembly of the valve. Follow the steps in the **WARNING** Section before performing any work on the valve.

WARNING: It is possible that there may be trapped media under pressure in between the packing sets. Refer to the **WARNING** Section at the front of these instructions and exercise the same precautions for protection from the media.

The following section addresses the disassembly of the cartridge from the valve.

TABLE 3										
SEALS				CENTERING RING						
Valve Series/Class		Material*		1/2" (DN 15)	3/4" (DN 20)	1" (DN 25)	1-1/2" (DN 40)	2" (DN 50)	Material**	
5150, 5300, 530S	RKN316	XTG, XXT, XGG	+	RKN317		RKN318	RKN319		36,71,73	
5600		XTG, XTT		N/A					RKN322	36,71,73
6150, 6300		XTG, XTT, XGG		N/A	RKN318		RKN319	N/A	36,71,73	
6600		XTG, XTT, XGG (XGG not available for 3/4" [DN 20], 1"[DN 25])		RKN320	RKN321		RKN322	N/A	36,71,73	
Example: RKN316XTG			+	RKN32071						
**XTG: Fire-Tite® Service Teflon stem seals, XTT: Non-Fire-Tite service, XGG: Fire-Tite service graphite seals. ** 36: 316SS (Should match stem material), 71: Monel, 73: Hastelloy C®."										

Loosen the hex head cap screws (88) enough to release the load of the packing. Cycle the stem several times to promote the release of any trapped potentially pressurized media in the packing set. Remove the cartridge from the valve by removing the four socket head cap screws (93) from the stem retainer (80). Remove this assembly from the valve bonnet.

The following section addresses the disassembly of the cartridge.

1. Remove the handle nut (96), shakeproof washer (95) and the handle (94) from the stem.
2. Remove the two hex head cap screws (88). Do not remove one and then the other. These should be loosened evenly until the disc springs (87) are unloaded.
3. Remove the compression plate (86), disc springs (87) and the compression ring (84) from the stem.
4. Remove the stem (4) from the stem retainer (80) from the bottom. Care should be taken to prevent scratching the sealing surface of the stem.
5. Remove the upper stem packing (81) and (82), the lantern ring (83) or compression ring (84) and the lower stem packing (81) and (82). Care should be taken not to scratch the stem retainer bore.
6. Remove the stem bearings (75) and secondary stem seal (76) from the stem.
7. Remove the stem retainer seal (78) and centering ring (79) from the bottom of the stem retainer (80).

3.3 ASSEMBLY

The Following Section Addresses the Assembly of the Cartridge Only.

1. Place one stem bearing (75) over the top of the stem and then the secondary stem seal (76) followed by a second stem bearing (75).
2. Insert the stem (4) into the stem retainer (80).
3. Insert the lower stem packing (81) and (82) over the stem and into the stem retainer bore. (**See Figure 1 for proper orientation of packing.**) Insert the lantern ring (83) for leak-off versions or compression ring (84) for non leak-off versions into the stem retainer bore. Add the upper stem packing assembly (81) and (82).
4. Insert the compression ring (84) and then the disc springs (87) over the stem. (**See Figure 1 for proper orientation of the disc springs.**)
5. Place the compression plate (86) over the stem so that the disc springs will be recessed inside the compression plate. The compression plate has a large notch on one side that lines up with the corner of the handle stop on top of the stem retainer.
6. Place the hex head cap screws (88) into the compression plate from the top and into the holes on the stem retainer.
7. Assemble the hex nuts (89) onto the hex head cap screws (88) by placing the hex nut into the stem retainer and tightening the hex head cap screw. Tighten the hex head cap screws evenly, alternating between them until the disc springs are compressed to the dimensions shown in (**Table 6**).

TABLE 4

Cartridge	Disc Spring Height – inches (mm)	
	Teflon Packing	Graphite Packing
A	0.511/0.491 (12.98/12.47)	0.499/0.479 (12.68/12.17)
B	0.766/0.746 (19.46/18.95)	0.764/0.744 (19.41/18.90)
C	0.766/0.746 (19.46/18.95)	0.764/0.744 (19.41/18.90)

8. Assemble the *Emission-Pak* Assembly to the valve by following the instructions listed under “Retrofitting the *Emission-Pak* Assembly to the Customer Supplied Valve,” items 4 through 11 in the **INSTALLATION INTO PIPELINE** Section. (Stem retaining seal (78) and centering ring (79) are used when mounting *Emission-Pak* Assembly to valve bonnet.)

4. REPAIR KITS/SPARE PARTS

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 2**, the ballooned part number, part name and quantity required.

TABLE 5						
BODY SEAL TO VALVE REFERENCE DIMENSIONS – INCHES (MM)						
Valve Size		5150	5300	530S	6150	6300
1/2" (DN 15)	I.D.	1.042 (26.5)	1.042 (26.5)	1.042 (26.5)	N/A	N/A
	O.D.	1.186 (30.1)	1.186 (30.1)	1.186 (30.1)	N/A	N/A
	WIDTH	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	N/A	N/A
3/4" (DN 20)	I.D.	1.184 (30.1)	1.184 (30.1)	1.184 (30.1)	1.500 (38.1)	1.500 (38.1)
	O.D.	1.328 (33.7)	1.328 (33.7)	1.328 (33.7)	1.644 (41.7)	1.644 (41.7)
	WIDTH	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)
1" (DN 25)	I.D.	1.500 (38.1)	1.500 (38.1)	1.500 (38.1)	1.761 (44.7)	1.761 (44.7)
	O.D.	1.644 (41.7)	1.644 (41.7)	1.644 (41.7)	1.905 (48.3)	1.905 (48.3)
	WIDTH	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)
1-1/2" (DN 40)	I.D.	2.135 (54.2)	2.135 (54.2)	2.135 (54.2)	2.511 (63.8)	2.511 (63.8)
	O.D.	2.279 (57.8)	2.279 (57.8)	2.279 (57.8)	2.655 (67.4)	2.655 (67.4)
	WIDTH	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)
2" (DN 50)	I.D.	2.511 (63.8)	2.511 (63.8)	2.511 (63.8)	N/A	N/A
	O.D.	2.655 (67.4)	2.655 (67.4)	2.655 (67.4)	N/A	N/A
	WIDTH	0.076 (1.9)	0.076 (1.9)	0.076 (1.9)	N/A	N/A

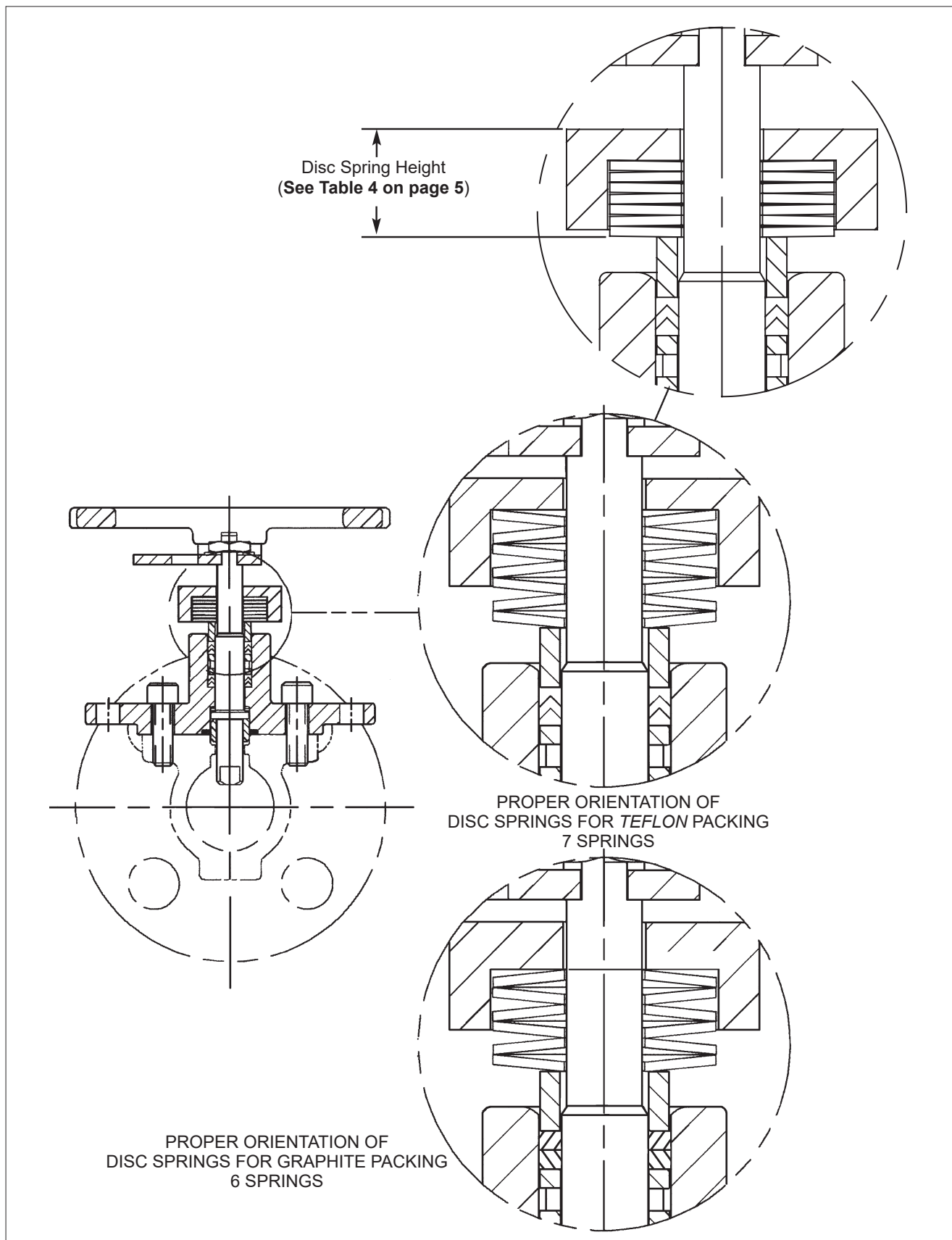


Figure 1.

EXPLODED VIEW AND PARTS LIST

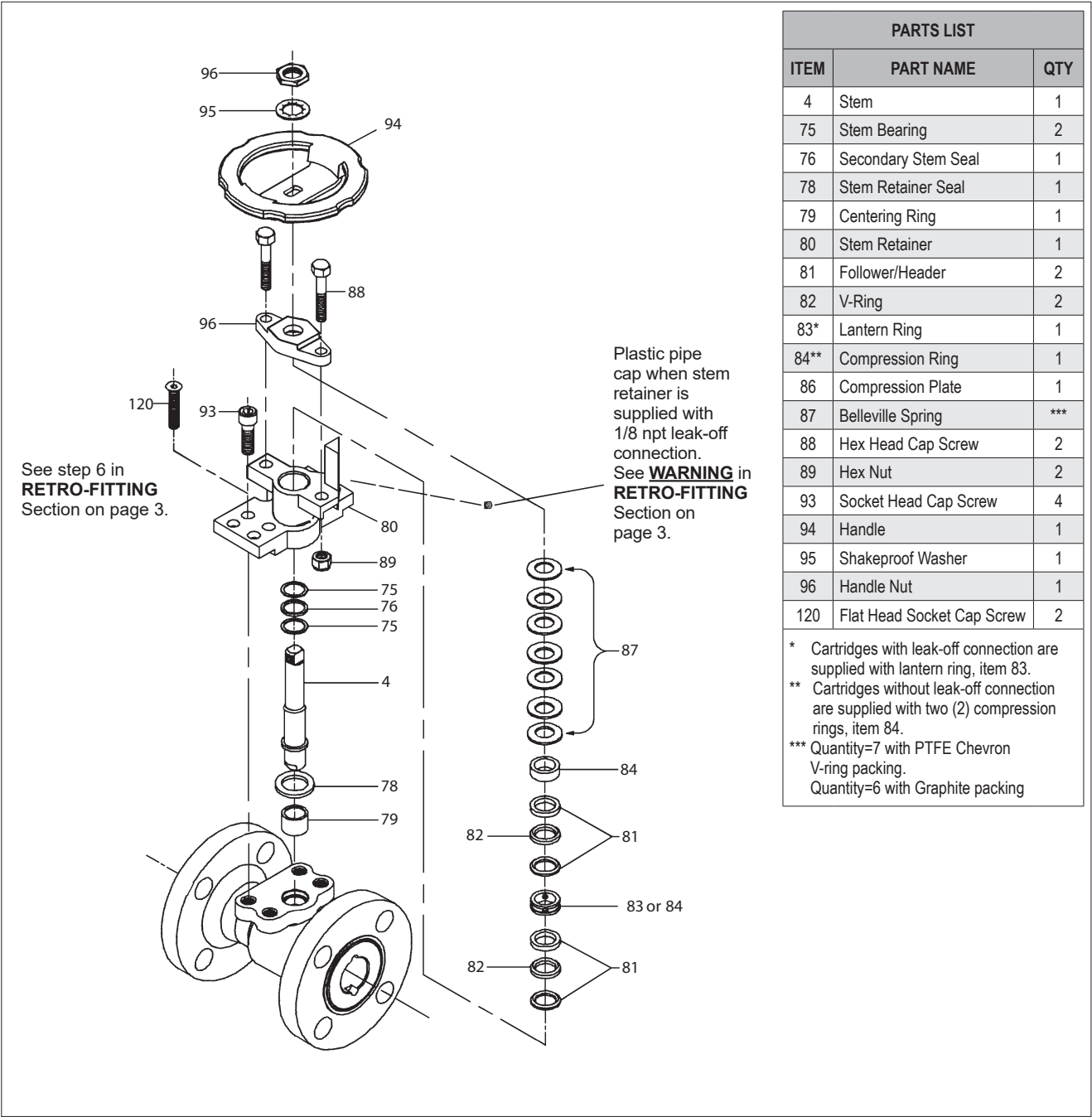


Figure 2.

Valmet Flow Control Oy

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