

Jamesbury™ Emission-Pak™ Assemblies 25, 35 and 45

Installation, maintenance and
operating instructions

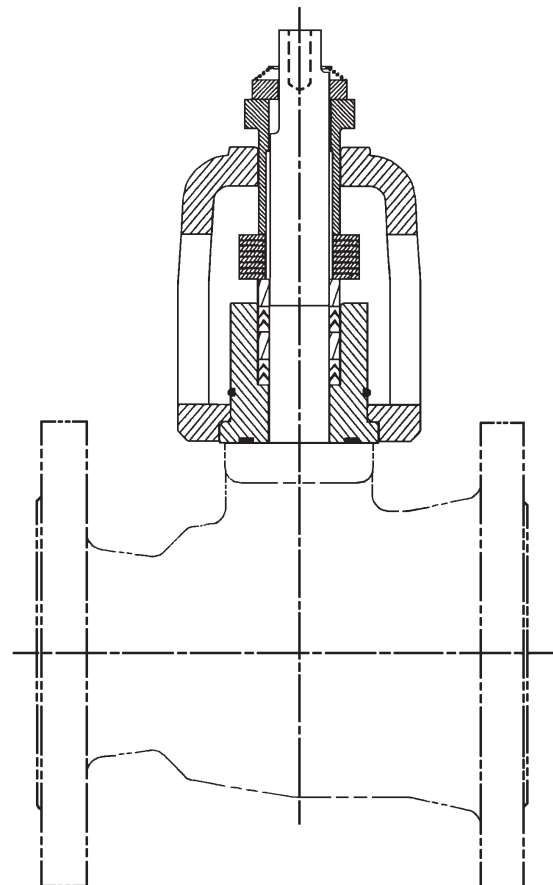


Table of contents

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	4
Disassembly	5
Assembly	6
ACTUATOR MOUNTING	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 Assemblies 25, 35 and 45. 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:

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

Retrofitting will require that the valve be disassembled.

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

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 all the stem seals and bearings. **(Refer to the applicable IMO listed in Table 1 for instructions.)**

TABLE 1					
IMO FOR SOFT SEATED VALVES					
Valve Size inches (DN)	7150	7300	730S	9150	9300
2 (50)	N/A	N/A	N/A	IMO-270	IMO-270
3 (80)	IMO-299	IMO-299	IMO-299	IMO-270	IMO-270
4 (100)	IMO-299	IMO-299	IMO-299	IMO-270	IMO-270
6 (150)	IMO-299	IMO-299	IMO-299	IMO-270	IMO-271
8 (200)	IMO-270	N/A	N/A	IMO-271	IMO-271
IMO FOR METAL SEATED VALVES					
Valve Size inches (DN)	MB	MC	MB	MT	MA, MS
2 (50)	IMO-272	IMO-272	IMO-272	IMO-297	IMO-297
3 (80)	IMO-272	IMO-272	IMO-272	IMO-297	IMO-297
4 (100)	IMO-272	IMO-272	IMO-272	IMO-297	IMO-297
6 (150)	IMO-272	IMO-272	IMO-272	IMO-297	IMO-298

3. The valve bonnet should be clean and free of any paint, rust or foreign matter prior to mounting the cartridge assembly. The valve bonnet should be reasonably smooth and should not have any nicks, scratches or other defects that will prevent the inner retainer seal (18) and outer retainer seal (78) from sealing.

NOTE: Make sure that the lower pilot bearing (76) is on the stem before assembling the cartridge to the valve. **(See Figure 1 & 3.)**

4. Place the inner retainer seal (18) and outer retainer seal (78) into the groove on the bottom of the retainer insert (77). Then place the cartridge on the valve bonnet by inserting the stem into the valve bore. Align the retainer yoke bolt holes with the actuator mounting holes on the valve bonnet.
5. Insert the four hex head cap screws (93) through the retainer yoke (5) and thread them into the valve bonnet.
6. Torque the hex head cap screws (93) evenly in a diagonal pattern until they are tightened to the torque per **(Table 2)**.

TABLE 2

RETAINER YOKE HEX HEAD CAP SCREW TORQUE LB- FT (NM)			
Cartridge Size	Bolt Size	B7, B8 Material	B7M, K Monel® Material
25 and 35	1/2"	75 – 83 (102 – 113)	60 – 68 (81 – 92)
45	5/8"	148 – 164 (201 – 222)	120 – 132 (163 – 179)

7. Check the height of the disc springs against the dimensions listed in **(Table 5)**. Adjust the disc spring height if necessary.
8. Assemble the internal components of the valve per the applicable IMO listed in **(Table 1)**.
9. The full assembly must be hydrostatically tested in accordance with ANSI B16.34 prior to placing the assembly in service.

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 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 hex head cap screws (88) periodically to compensate for disc spring deflection and stem seal wear. Check the disc spring height dimension in **(Table 5)** before adjusting packing 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 or representative. These repair kits are listed in the appropriate valve IMO. Refer to **(Table 1)** for the correct IMO to obtain the correct repair kit. Repair kits are also available for the Emission-Pak Assembly which includes seals, bearing and gaskets. These repair kits are listed in **(Table 3)**.

TABLE 3		
REPAIR KITS FOR EMISSION-PAK CARTRIDGE SIZES		
25	35	45
RKN-313-TG	RKN-314-TG	RKN-315-TG
RKN-313-GG	RKN-314-GG	RKN-315-GG

(Table 4) shows the appropriate cartridge for the valve series, size and pressure class.

TABLE 4				
CARTRIDGE SIZE VERSUS VALVE AND SERIES				
VALVE SIZE	7150	7300	9150	9300
2" (DN 50)	–	–	25	25
3" (DN 80)	25	25	25	35
4" (DN 100)	25	35	35	45
6" (DN 150)	35	45	45	–
8" (DN 200)	45	–	–	–

3.1 DISASSEMBLY

NOTE: Replacement of the valve 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.

Loosen the two hex head cap screws (88) enough to release the load on the packing. Cycle the stem several times to promote the release of any trapped, potentially pressurized media in the packing set.

The Following Section Addresses the Disassembly of the Emission-Pak from the Valve (See Figure 2 & 4):

1. Remove the cartridge from the valve by removing the four hex head cap screws (93) from the retainer yoke (5). Remove the cartridge from the valve bonnet.
2. Remove the handle bolt (96) and the handle (94) from the stem (4).
3. Remove the retaining ring (106), spring (102) and indicator stop (100) from the stem (4).

4. Remove the two compression plate hex head cap screws (88) and stop bushings (103) (if applicable). The hex head cap screws should be loosened evenly together until the disc springs (87) are fully unloaded. (**Do not** unload one cap screw and then another.)
5. Remove the compression plate (86) from the stem.
6. Remove the retaining ring (108) from the retainer insert (77). Slide the center subassembly out of the retainer yoke (5).

NOTE: For 45 and Special Application valves, the compression guide (99) and disc springs (87) may have to be removed while sliding the center subassembly out of the retainer yoke (5).

7. Remove the compression guide (99), disc springs (87), compression guide bearing (101) and compression ring (7) from the subassembly.
8. Remove the stem from the retainer insert (77) by pulling it out of the bottom of the retainer insert (77). Care should be taken to prevent scratching the sealing surface of the stem.
9. For valves with PTFE packing, remove the upper stem packing follower/header (81), and packing ring (82), the lantern ring (6) (if leak off assembly), or spacer (7), and the lower stem packing follower/header (81), and packing ring (82). Care should be taken not to scratch the retainer insert bore. For valves with Graphite packing, remove the upper stem packing rings (82), the lantern ring (6) (if leak off assembly), or spacer (7), and the lower stem packing follower/header (81), and packing ring (82). Care should be taken not to scratch the retainer insert bore.
10. For Fire-Tite™ assemblies, remove the upper stem bearing (75), graphite stem bearing (79) and pilot bearing (76) from the top and bottom of the stem (4).
On non-Fire-Tite assemblies remove both upper stem bearings (75), and the pilot bearing (76) from the top and bottom of the stem (4).
11. Remove the inner retainer seal (18) and outer retainer seal (78) from the bottom of the retainer insert (77) and the valve bonnet surface. The valve bonnet surface and retainer insert (77) should then be cleaned of any remaining residue from the inner retainer seal (18) and outer retainer seal (78).

3.2 ASSEMBLY

The Following Section Addresses the Assembly of the Emission-Pak Only (See Figure 2 & 4):

NOTE: Consult factory for packing material conversion PTFE to Graphite or Graphite to PTFE. Different parts are required for different materials.

1. On *Fire-Tite* assemblies place the pilot bearing (76), the graphite stem bearing (79) and the upper stem bearing (75) over the top of the stem (4). Next place the pilot bearing (76) onto the bottom of the stem. (**See Figure 1 for proper orientation of the stem bearings.**)
2. For non-*Fire-Tite* assemblies place pilot bearing (76), and two upper stem bearings (75) over the top of the stem (4). Next place the pilot bearing (76) onto the bottom of the stem. (**See Figure 3 for proper orientation of stem bearings.**)
3. Insert the stem (4) into the bottom of the retainer insert (77), being careful not to scratch the stem sealing surface.
4. On valves with PTFE packing, place the lower stem packing assembly, follower/header (81), and packing ring (82) over the stem (4) and into the retainer insert (77). (**See Figure 3 for proper orientation of packing.**) Place lantern ring (6) (if leak off assembly) or spacer (7) over the stem (4) and down on top of the lower packing assembly. Then place the upper packing assembly, follower/header (81), and packing ring (82) over the stem (4) and into the retainer insert (77).
5. For valves with graphite packing, place the lower stem packing assembly, packing rings (82) over the stem (4) and into the retainer insert (77). (**See Figure 3 for proper orientation of packing.**) Place lantern ring (6) (if leak off assembly) or spacer (7) over the stem (4) and down on top of the lower packing assembly. Then place the upper packing assembly, packing rings (82) over the stem (4) and into the retainer insert (77).
6. Place the compression ring (7), compression guide bearing (101) and the disc spring onto the stem (4). (**See Figure 1 for proper orientation of disc springs.**)

NOTE: For 45 and Special Application valves, the disc springs (87) and compression guide (99) may have to be assembled while sliding the center subassembly onto the retainer yoke (5).

7. Place the compression guide (99) over the stem (4). Next slide the retainer insert subassembly up into the bottom of the retainer yoke (5) **NOTE:** For cartridges with the leak-off option, make sure that the leak-off port is rotated to an accessible location within the retainer yoke (5).
8. Snap the retaining ring (108) into the groove of the retainer insert (77).
9. Place the compression plate (86) over the stem (4), then place the stop bushings (103) on top of the compression plate (86) (25 only).
10. Lubricate the hex head cap screw threads and bottom face of the head with Never-Seez®. Then insert the two hex head cap screws (88) through the stop bushing and/or compression plate, and thread them into the retainer yoke (5). Tighten the two hex head cap screws (88) until the required disc spring height has been achieved. (**See Table 5 for disc spring height.**)

11. Place the indicator stop (100), the indicator stop spring (102) and the retaining ring (106) over the stem (4). Then place the handle (94) onto the stem and thread the handle bolt (96) into the stem and tighten until snug.
12. Assemble the *Emission-Pak* Assembly to the valve by following the instructions listed under “**Retrofitting the Emission-Pak Assembly to the Customer Supplied Valve**” in the **INSTALLATION TO PIPELINE** Section.

4. ACTUATOR MOUNTING

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 the final tightening of the valve bracket bolts.

5. 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.

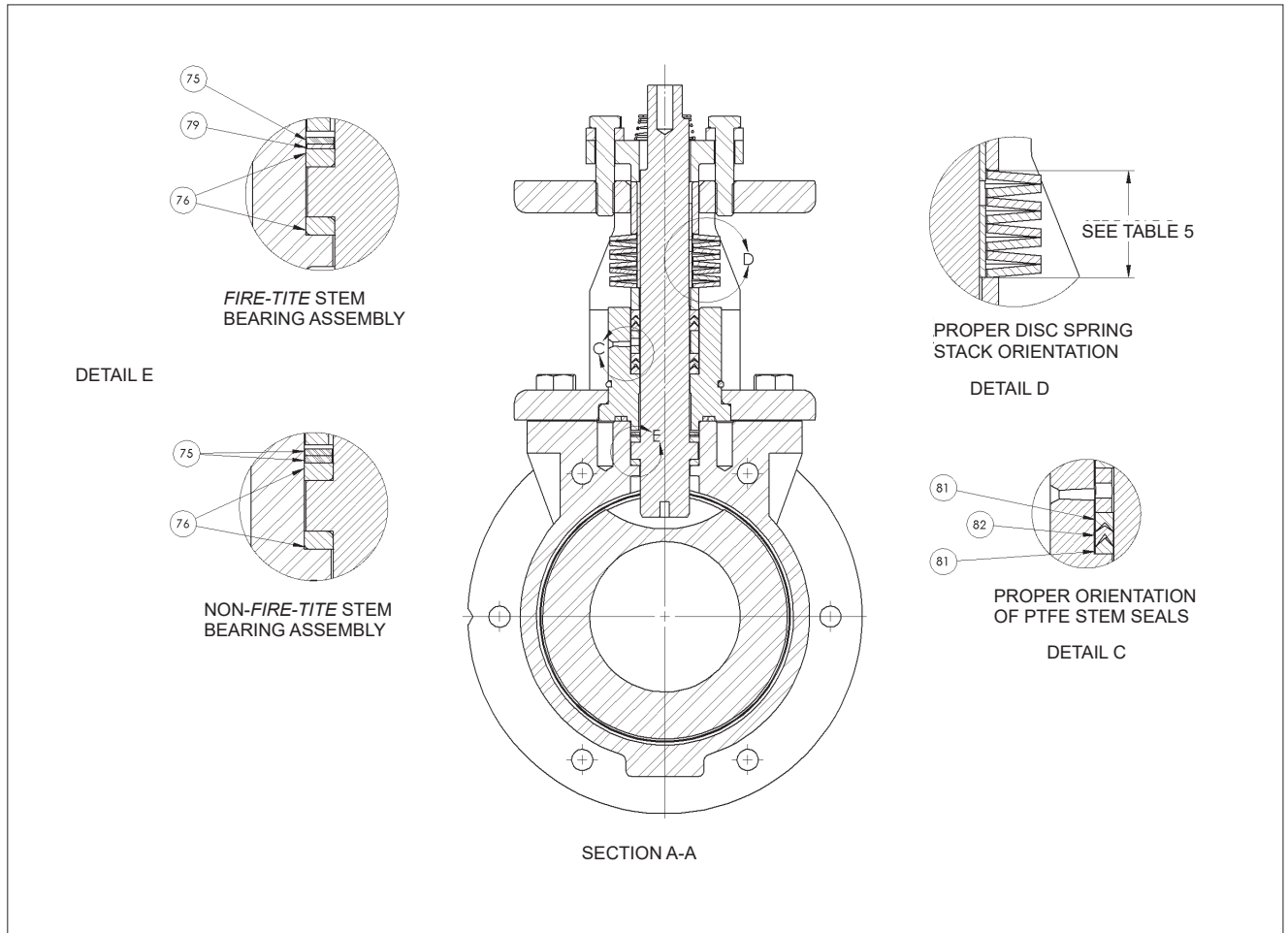
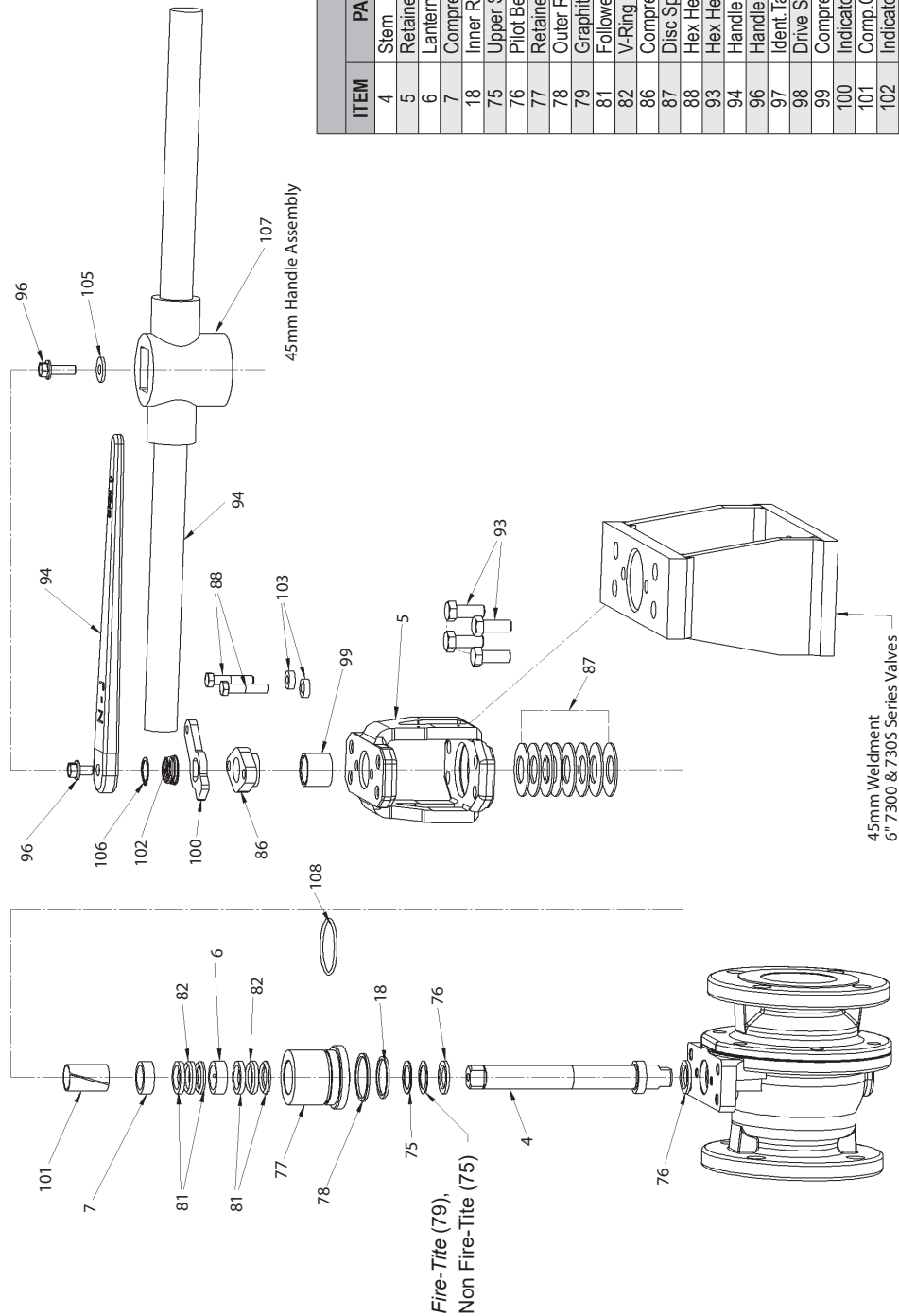


Figure 1. (PTFE Packing)

TABLE 5		
DISC SPRING HEIGHT (INCHES)		
<i>Emission-Pak Size</i>	Spring Height for PTFE Packing	Spring Height for Graphite Packing
25	0.74 / 0.71 (18.4 mm)	1.07 / 1.04 (26.8 mm)
35	1.17 / 1.14 (29.3 mm)	1.46 / 1.43 (36.7 mm)
45	1.19 / 1.16 (29.9 mm)	1.41 / 1.38 (35.4 mm)

EXPLODED VIEW (PTFE)



ITEM	PART DESCRIPTION	QTY.
4	Stem	1
5	Retainer Yoke	1
6	Lantern Ring	1
7	Compression Ring	1*
18	Inner Retainer Seal	1
75	Upper Stem Bearing	1***
76	Pilot Bearing	2
77	Retainer Insert	1
78	Outer Retainer Seal	1
79	Graphite Stem Bearing	1
81	Follower Header	2
82	V-Ring	2
86	Compression Plate	1
87	Disc Spring	****
88	Hex Head Cap Screw	2
93	Hex Head Cap Screw	4
94	Handle	1
96	Handle Bolt	1
97	Ident Tag	1
98	Drive Screw	2
99	Compression Guide	1
100	Indicator Stop	1
101	Comp Guide Bearing	1
102	Indicator Stop Spring	1
103	Stop Bushing	2
105	Flat Washer	1**
106	Retaining Ring	1
107	Tee Handle	1**
108	Retaining Ring	1

** Two Required for Non-Leak-Off Assemblies
** 45mm Only
*** Two Required for Non-Fire-Tite Assemblies
****25 & 35mm Use 8, 45mm Uses 6*

Figure 2.

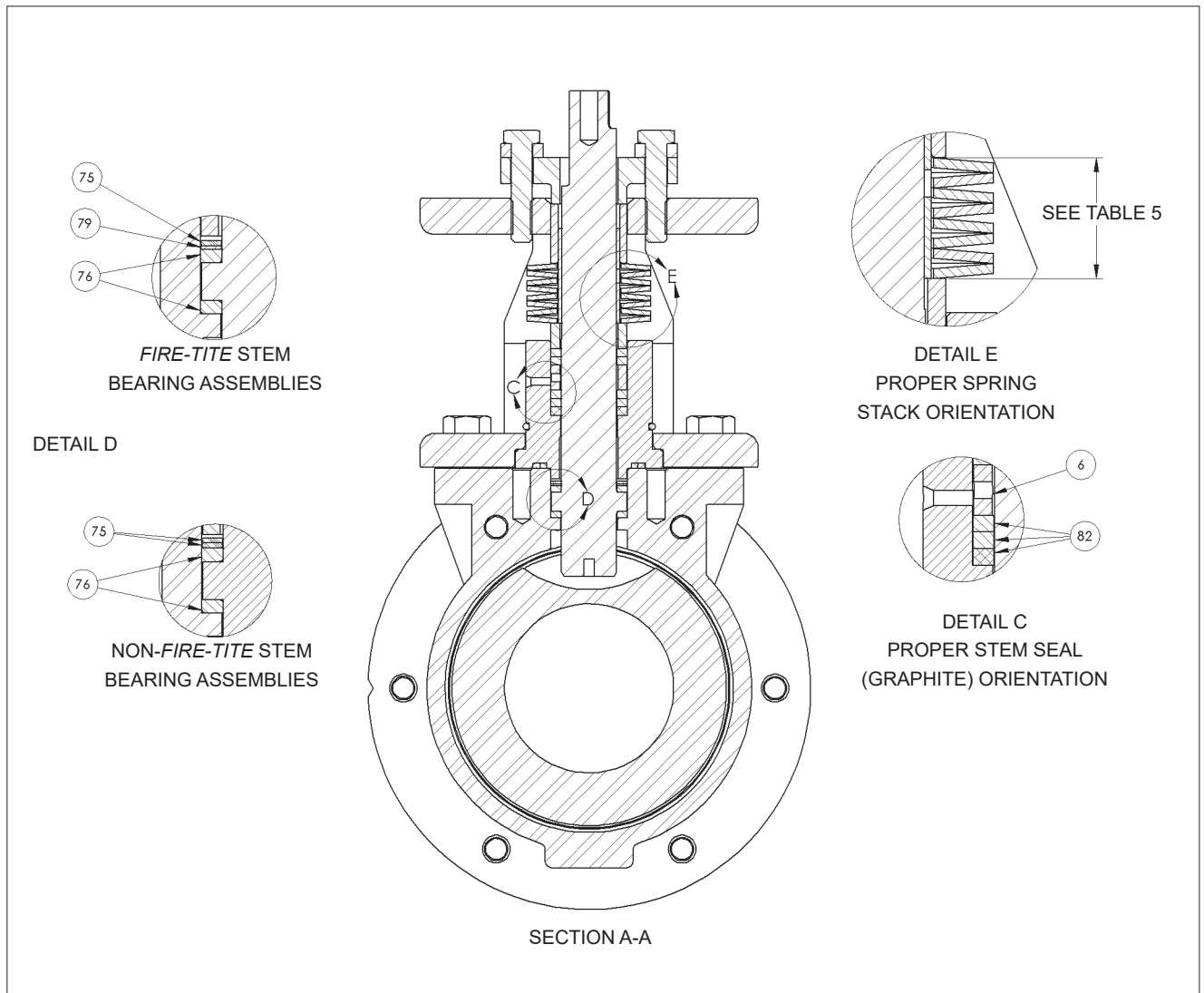


Figure 3. (Graphite Packing)

EXPLODED VIEW (GRAPHITE)

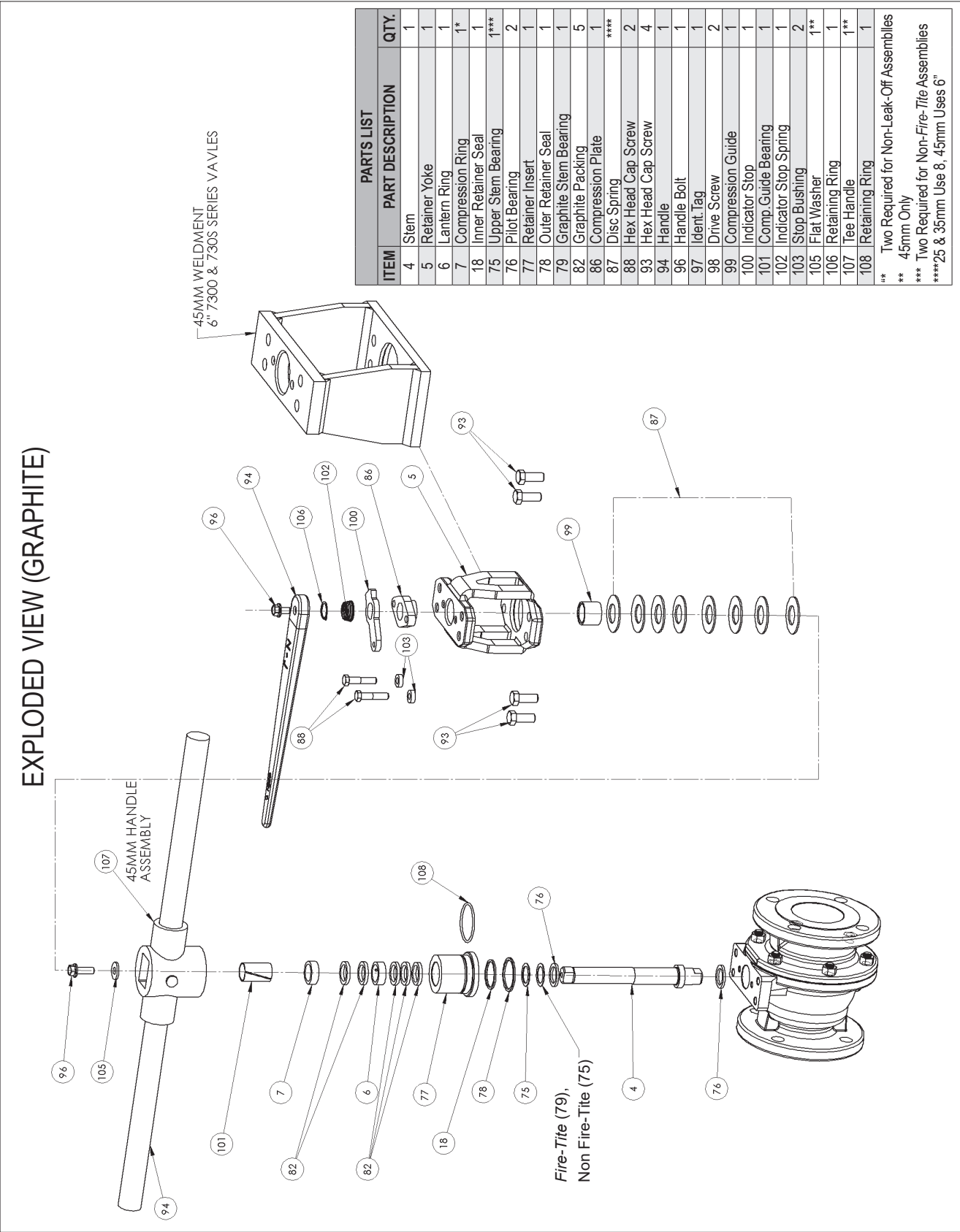


Figure 4.

Valmet Flow Control Oy

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