



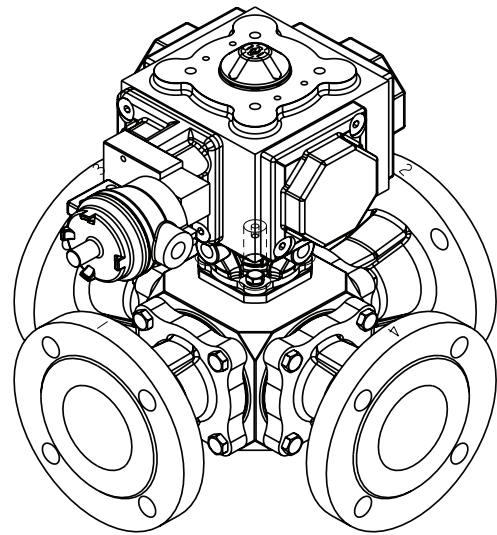
62P Series Pulsation System Valves Installation, Operating & Maintenance

Series included:

62P

Sizes included:

2½" DN65 (2" DN50 Full port) with ANSI flange 3" #150



1. GENERAL

This Installation, Operating & Maintenance manual covers the instructions required for safe use of Habonim Pulsation valve system. Before using a valve, read the entire IOM carefully and make sure you understand everything.

WARNINGS & SAFETY INSTRUCTIONS

Habonim cannot anticipate all of the situations a user may encounter while installing and using Habonim valves. The user **MUST** know and follow all applicable industry specifications on the safe installation and use of these valves. Misapplication of the product may result in injuries or property damage. Refer to Habonim product catalogues, product brochures and installation, operating and maintenance manuals for additional product safety information or contact Habonim.

1. Keep hands and objects away from the valve ports at all times. Actuated valves could be accidentally operated, resulting in serious injury or valve damage.
2. Before removing a valve from the line always make sure the line has been depressurized and drained. Cycle the valve a few times to relieve any pressure that could be trapped in

the body cavity.

3. The ASCO solenoid valve is rated for explosive defined zone, coil cover must not be removed when coil is energized.
4. Utmost caution must be taken when handling a valve that has toxic, corrosive, flammable or a contaminant nature media flowing through its pipeline. The following safety precautions are recommended when dismantling valves with hazardous media
 - a. Wear eye shield, protective headgear, clothing, gloves and footwear.
 - b. Have available running water.
 - c. Have a suitable fire extinguisher when media is flammable.
5. Do not try to operate a valve that exhibits any sign of leakage. Isolate the valve and either repair or replace it.
6. Do not use or substitute non Habonim components or parts in Habonim valves and assemblies.

SN: 1-62P-08/12



2. LIMITATIONS

The correct selection of materials of construction, seats and seals, internal valve components and pressure/temperature ratings determines the safe use of the valves and the particular performance requirements for the application. This information can be found on the nameplate welded to the valve body.

The combined corrosion and erosion allowance for the valve body wall thickness is 1 mm. When this allowance has gone, the valve should no longer be used. Inspect the valve wall thickness every time the valve is maintained. Refer to Habonim Corrosion Data Chart T-614 to determine the corrosion rate for your application.

As the extent of applications these valves can be used in is large, it does not make it possible to cover all installation and maintenance instructions to service the valves. It is the owners responsibility to use the valves as recommended and in accordance with the pressure and temperature limits as stated in this manual. Where in doubt, please consult with Habonim. Any unstable fluid or gas should be identified by its manufacturer and must not be used with Habonim valves.

CAUTION:

The valves should be used in a well designed, adequately protected system **to ensure that external and internal pressure and temperature limits are not exceeded**. The valve body rating can be higher than the seat rating. Valve surface temperature may become extremely hot or cold due to ambient or operating conditions. Prevent any type of direct contact with the valve that may harm the workers.

Wear protective gloves

The valves should be used in a well designed, adequately supported piping system such that it will not be subjected to undue forces and moments during service. Avoid shock loads (water hammer).

The valves are not designed to operate during or after earthquakes or under fatigue conditions. It is the responsibility of the owner to determine if fatigue conditions exist.

3. STORAGE

Prior to storage, inspect the valve for shipping damage.

Keep all protective packaging and flange covers attached to the valves during storage. It is recommended to keep the valves in a clean and dry environment until ready for use.

Stainless steel valves have their natural finish and do not need any additional protection once installed. Before installation valves that are stored more than one year must be cycled with a torque wrench. the torque measurement must indicate less than 50 Nm.

4. OPERATING INSTRUCTIONS

Pulsation valve system is used in a severe high cycle application and as such requires a frequent maintenance operation.

After 5 million operations valves must be repaired according to the following instructions.

After 3 million operations the compact actuator C35-2B must be overhauled according to this Habonim Installation operation and maintenance guide Note! All the soft parts of the actuator must be replaced. see **Table 3**.

The maintenance of the ASCO solenoid must be in accordance with

the manufacturer instruction. Purchase of spare parts for solenoid valve is the responsibility of the customer.

Habonim valves provide tight shut off when used under normal conditions and in accordance with Habonim's published pressure/temperature chart. Consult with Habonim for the proper seat material selection. Valve operation works by operating the valve handle 90° turn anti-clockwise to open, and 90° turn clockwise to close.

The Valve have square a headed shaft with a groove that shows the ball port position.

WARNING: Never look into the valve bore while the valve is in a flowline. Pressure and fluids could escape from the valve causing bodily injury.

A silicone-based lubricant is applied to assist valve break in. The lubricant, if unacceptable, may be removed by a solvent wash.

To prevent leakage malfunctions resulting from internal wear or seal degradation, the user must establish a preventive maintenance and inspection program. This program must include:

- a. Inspection of parts to detect loss of wall thickness which may result in decreased pressure capacity.
- b. Routine replacement of seals and inspection for proper operation.

5. INSTALLATION

The installation procedure for ball valves is critical to ensuring both long life and satisfactory performance. Valves stored on site awaiting installation should be kept in their original packing, in dry conditions, where damage will not occur. Before carrying out the installation, it is important to follow the basic procedures described below:

5.1 General

- 5.1.1. Carefully unpack the valve and check valve nameplate for identification of materials (see **Figure 1**).
- 5.1.2. Remove any special materials, which were used for packing.
- 5.1.3. Check the valve for any marks indication flow direction. Appropriate care must be taken, to install the valve for proper flow orientation.
- 5.1.4. Inspect the valve interior through the end ports to determine it is clean and free from foreign matter.
- 5.1.5. Cycle the valve and inspect any functionally significant features.
- 5.1.6. Read all the literature and note any special warning tags or plates attached to the valve.
- 5.1.7. Fail-to-close actuated valves should be operated to the open position for inspection. The valve performance depends on its original conditions.
- 5.1.8. Use the correct bolt material and size that suits the valve flanges.
- 5.1.9. Use the appropriate gasket material and structure for the application.

5.2 Flanged Valves

- 5.2.1. Before installing the valves, make sure the flanges on the mating pipe are free from excessive grit, dirt or burrs.
- 5.2.2. The mating flanges must be aligned and parallel with the correct distance to allow the valve face-to-face dimension and

gaskets to fit between.

- 5.2.3. Insert the valve between the mating flanges. If tilting or levering of the flanges is required, avoid harming the sealing surfaces of the flanges.
- 5.2.4. Align the valve and mating flanges and insert at least 2 bolts at the lowest side of the flange to support the gaskets.
- 5.2.5. Insert the gaskets between the flanges. Insert the remaining bolts.
- 5.2.6. Before tightening the bolts, make sure the gaskets are aligned with the raised face of the mating flanges.
- 5.2.7. Tighten the flange bolts according to the gasket manufacturer's recommended instructions.
- 5.2.8. It is recommended to use ring spanners to tighten and support the bolts and nuts.
- 5.2.9. Before flushing the line, be sure the valves are in the fully open position. Fail-to-close actuated valves should be operated to the open position for flushing.

6. MAINTENANCE

- 6.1. The repair requires replacement of all soft parts of the valve. See **table 2** in IOM.
- 6.2. Valve repair & assembly procedure must follow the IOM instructions.
- 6.3. After assembling valve you must confirm that required torque for opening & closing will not exceed 50 Nm.
- 6.4. You must notice when assembling the flanges to the number stamped on them 1-4 , flanges 1-2 should be opposing 180°. See **drawing 1**
- 6.5. Confirm that the ball port is open and directing toward port 3 and port 4. before assembling the actuator on the valve.
- 6.6. Assemble the actuator on the valve when the Namur cover directed towards flange no. 1. See **drawing 1**.
- 6.7. Assemble the ASCO Solenoid on the actuator with a plate in the form of 5/2, meaning operating air/air spring.
- 6.8. 6.8 Confirm that stroking time of the pulsation valve unit doesn't exceed 1.5 seconds.
- 6.9. 6.9 To extend valve performance and reduce possible plant problems, the following procedures should be followed:
If leakage at the stem area is noted, it is recommended to tighten the gland nut about 1/6 - turn as a routine maintenance procedure. This will compensate for any wear or settling of the gland packing.
Caution: Excessive tightening of the stem nut can result in accelerated seal wear and high valve operating torque.
- 6.10. If the valve is removed from the line and disassembled, replacement of all seats and seals is recommended using the appropriate Habonim Repair kit. Examine all metallic sealing surfaces such as ball and stem or the body and insert mating surfaces that contact the seats for wear, corrosion or damage.
- 6.11. Only Habonim's authorized spare parts should be used. Repair kits from Habonim flanged reduce bore valves consist of the following:
 - 4 x soft seat rings
 - 4 x body seals
 - 4 x insert seals

1 x stem thrust seal (black PEEK)

3 x stem packing (white RPTFE)

1 x bearing (black PEEK)

- a. In addition to repair kits, other spare parts available from Habonim are: valve balls, stems, glands, bolts, screws and nuts

7. DISASSEMBLY

The following instructions are for off-line disassembly of Pulsation valve system.

- 7.1. Cycle the valve with the line pressure fully relieved before attempting to remove the valve from the pipeline, to insure pressure has also been discharged from the valve cavity.
- 7.2. Loosen all flange bolts. Use means for supporting the valve.
- 7.3. Remove all but one flange bolt on each flange, so the valve body can be pulled away from its installed position and be brought out of the pipe line. Make sure there is no load on the flange before removing the remaining bolts and valve. If needed, use a lever to release the bolts.
- 7.4. Remove the actuator from the valve and store in a safe place.
- 7.5. Release all the bolts of the end connectors. Make sure none of the internal parts fall out.
- 7.6. Remove the valve inserts and place in secure area.
- 7.7. Remove and discard of the seats, the body seals and the seat seals from the inserts. Be careful not to damage the insert and body sealing surfaces.
- 7.8. The ball can be removed from its sphere side only. Support the ball to prevent it from falling out of the body. Set the ball aside in clean secure area for reuse.
- 7.9. Remove the stem parts including nut, lock washer, location ring, disc springs and gland. Place all components removed in clean secure area.
- 7.10. Push the stem down into the body and remove it. Discard of the stem thrust ring and stem packing, care taken not to scratch or nick the packing bore area of the body. Clean the stem and packing bore area.

8. ASSEMBLY

The following instructions are for in-line assembly of Pulsation valve system.

- 8.1. Lubricate the new stem thrust seal with appropriate lubricant (Molycote 33 - thin smear)
- 8.2. Place the stem PEEK thrust seal (black color) on the stem and insert the stem horizontally into the center body with the threaded side first and carefully guide it up through the stem bore.
- 8.3. Holding the stem up insert the 3 new stem RPTFE packing over the stem and into the stem bore. Insert the PEEK stem bearing (black color), gland, two disk springs (the first spring concave side down and the second spring concave side up), and lock washer onto the stem.
- 8.4. Thread the gland nut onto the stem. Tighten the gland nut to 30 Nm. Tap and bend the lock washer flaps to the nut flats.
- 8.5. Insert one body seal into the valve port so it is seated in its groove. Follow drawing 1 for proper flange orientation.

- 8.6. Place one seat into an insert and assemble it into the port.
- 8.7. Place one insert seal in the insert groove.
- 8.8. Assemble one flanged end connector with the body bolts. Make sure the flange holes are oriented horizontally to fit the opposing flange. Hand-tighten the bolts.
- 8.9. Bring the valve stem to the position that its flats are in line with the port just assembled, and insert the ball in the valve cavity until the stem flats engage to the ball slot.
- 8.10. Insert another body seal into the valve port where the ball has just been assembled so it is seated in its groove.
- 8.11. Place one seat into an insert and assemble it into the port making sure the ball is nested between the two opposing inserts.
- 8.12. Place an insert seal in the insert groove.
- 8.13. Assemble one flanged end connector with the body bolts. Make sure the flange holes are oriented horizontally to fit the opposing flange. Hand-tighten the bolts.
- 8.14. Continue assembling the remaining parts in the same manner with the two remaining ports.
- 8.15. Once the four end connectors have been successfully assembled rotate the stem 6-10 times so the ball will seat itself in its position.
- 8.16. Tighten the body bolts in a criss-cross pattern, moving from the first port to its opposing port before starting with the other two ports. In the final round tighten to 39 Nm.
- 8.17. Before tightening the second opposing ports, turn the stem 6 times so the ball seats itself in.
- 8.18. Tighten the second set of end connectors in the same manner and finally tighten to 39 Nm.
- 8.19. Turn the stem once more 6 times and make sure the valve is rotating smoothly.
- 8.20. Measure the valve torque and make sure it doesn't exceed 50 Nm.
- 8.21. Assemble the actuator to the valve. See **Drawing 1**.
- 8.22. Assemble the solenoid valve to the Namur cover of the actuator.

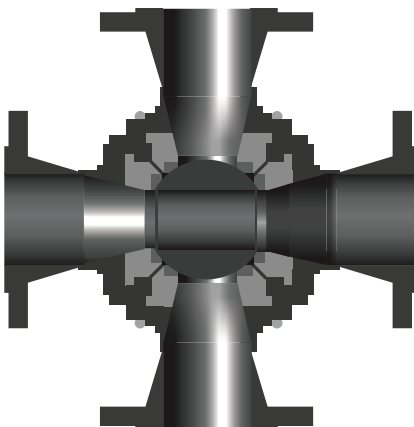


FIGURE 1
Valve Marking and Labeling

All valves marking is on a nameplate which is spot welded to the valve body. Valves for the European market and above 1" carry the CE mark with the information required by the PED.

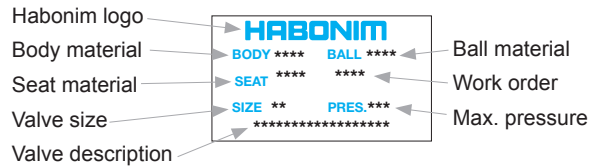


FIGURE 2
Flange Bolt Tightening Pattern

When installing the valves in-line, follow the bolt tightening patterns shown below, using the recommended torque figures for safe operation.

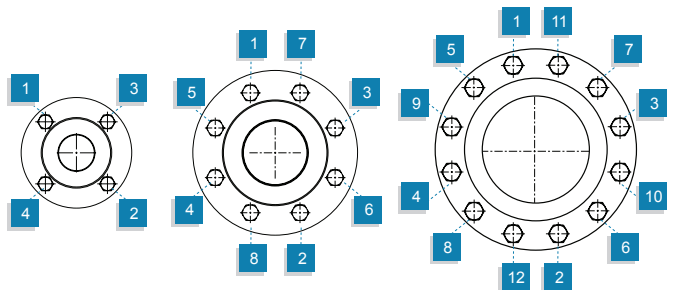


Table 1
Flange Bolt Tightening Torque

The following table provides flange bolt torque values and are to be used as guidelines only and are not rigid limits.

The torque values will be determined by the gasket type and the material of the gasket, bolt, flange and lubricant used.

It is the responsibility of the user to determine all these parameters and use the correct values.

Valve Size (in)	Valve Size (DN)	ANSI 150		ANSI 300	
		Nm	in.lb	Nm	in.lb
1/2"	15	80	710	80	710
3/4"	20	80	710	140	1240
1"	25	80	710	140	1240
1 1/2"	40	80	710	240	2120
2"	50	140	1240	140	1240
3"	80	170	1500	250	2210
4"	100	170	1500	250	2210
6"	150	170	1500	250	2210
8"	200	170	1500	420	3720

IMPORTANT:

From the bolts point of view, the torque selected should be high enough to ensure adequate strain (stretch) in the bolt, but not so high as to cause the material to be taken beyond yield into the plastic response region.

If the initial bolt stress is too low the total amount of strain (stretch in the bolt) is low and under these circumstances any subsequent reduction in thickness of the gasket due to creep will quickly result in loss of bolt strain and subsequent leakage.

Drawing 1

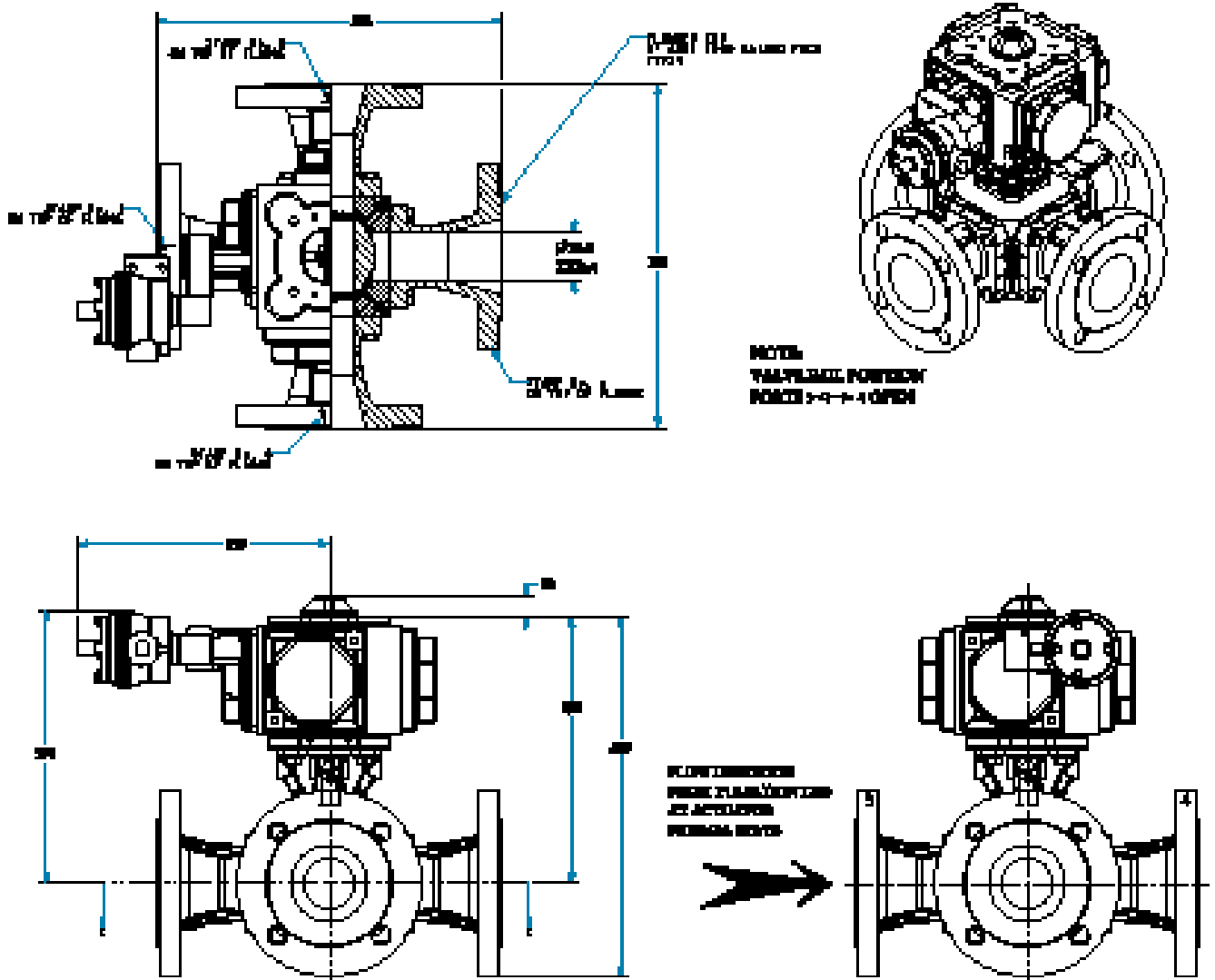


Table 2
Material Specifications

Item	Description	Material Specification	Qty.
1	Body	Stainless st. CF8M	1
2	End connector	Stainless st. CF8M	4
3	Ball	Stainless st. CF8M	1
4	Stem	Stainless st. 17-4PH	1
5*	Body seal	PTFE	4
6*	Seat	Carbon filled PTFE	4
7	Insert	Stainless st. 316/316L	4
8*	Insert seal	PTFE	4
9*	Thrust seal	Peek	1
10*	Stem packing	15% glass filled PTFE	3
11*	Bearing	Peek	1
12	Gland	Stainless st. 316/316L	1
13	Disc spring	Stainless st.17-7PH	2
14	Tab lock	Stainless st. AISI 304	1
15	Gland nut	Carbon st. zinc plated	1
16	Mounting bracket	Stainless st. CF8	1
17	Body bolt	Stainless st. A2-70	16
18	Actuator	C35-2B	1
19	Solenoid valve	ASCO 24 VDC	1

*Standard item for repair kit

62P SERIES VALVE FOR PULSATION SYSTEMS

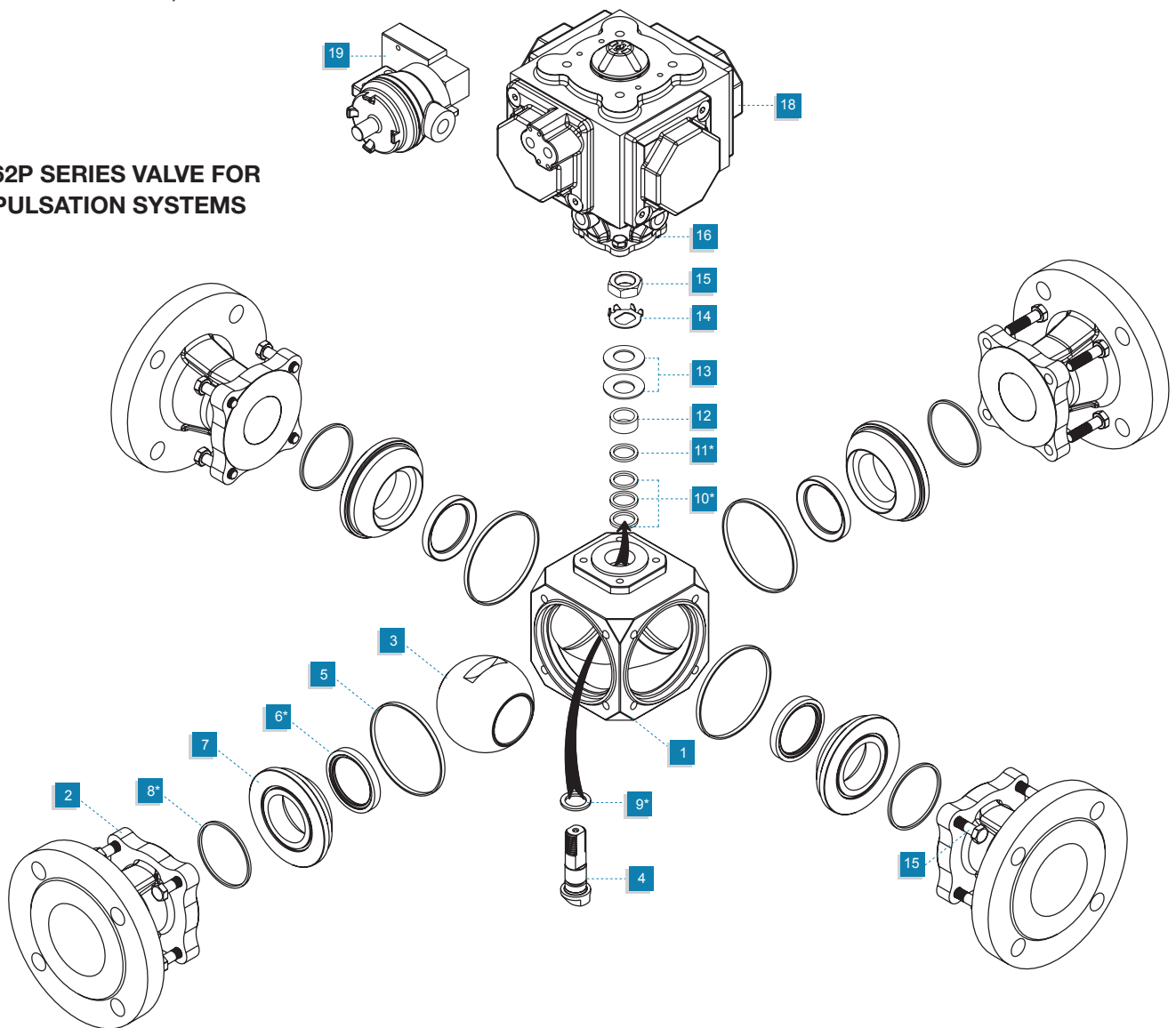
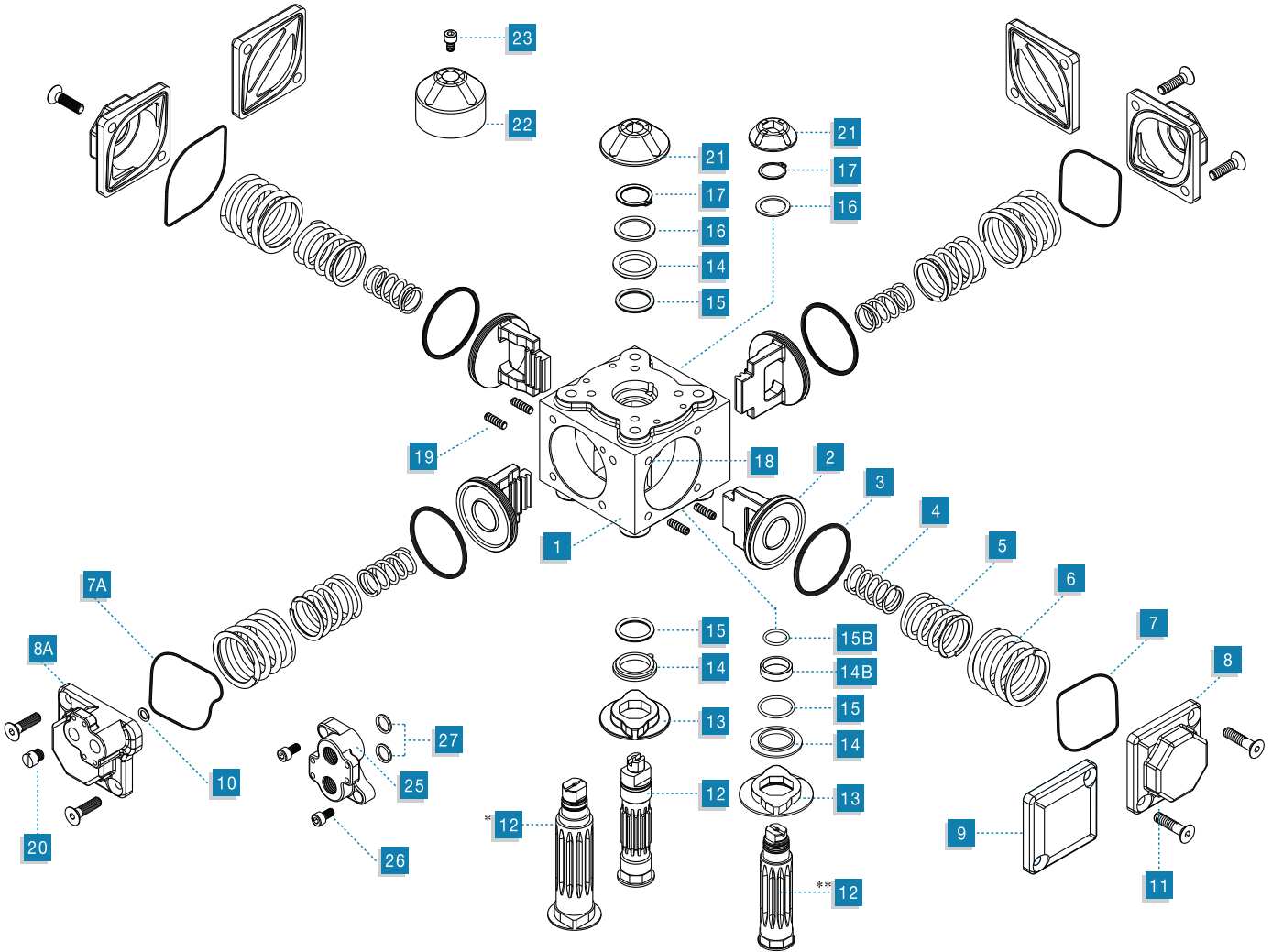


Table 3
Parts List



Item	Description	Material Specification	Qty.
1	Body	AL 356-T6	1
2	Piston	AL 356/380	4
3#	Piston O-Ring	Buna N, Viton, EPDM, LT	4
4	Inner Spring	Spring steel, Painted	4
5	Middle Spring	Spring steel, Painted	4
6	Outer Spring	Spring steel, Painted	4
7#	Cover O-Ring	Buna N, Viton, EPDM, LT	3
7a#	Namur Cover O-Ring	Buna N, Viton, EPDM, LT	1
8	Spring Return Cover	AL 380	3
8a	Namur Cover	AL 380	1
9	Double Acting Cover	AL 380	3
10#	Air Supply O-Ring	Buna N, Viton, EPDM, LT	1
11	Cover Screw	ST. ST.	8-16
12	Pinion	Steel E.N.Coated	1
13	Stop	ST.ST. 316	1
14#	Thrust Washer	Delrin, NRG, UHMWPE	2
14B#	Bearing	Delrin, NRG, UHMWPE	1
15#	Pinion O-Ring	Buna N, Viton, EPDM, LT	2

Item	Description	Material Specification	Qty.
15B#	Top Pinion O-Ring	Buna N, Viton, EPDM, LT	1
16#	Disc Bearing	ST. ST. / Delrin	1
17#	Circlip	ST. ST.	1
18#	Pad	Delrin, NRG, UHMWPE	4
19	Stroke Adjustment Screw	ST. ST.	4
20	Exhaust Plug (Silencer)	Delrin, (Brass)	1
21	Indicator	Plastic (ABS), Red & White	1
22	Puck	Plastic (ABS), Red & White	1
23	Indicator Screw	ST. ST.	1
24	Tag (not shown)	ST. ST.	4
25	Namur insert	AL 380	1
26	Insert screw	ST. ST.	2
27	Namur Insert O-Ring	Buna, Viton, EPDM, LT	2

*NOTE: C75 PINION (12) & STOP (13) ARE ONE PIECE

** Pinion Assembly for Actuators C35-C75

SPARE PARTS INCLUDED IN BATMAN C-35 RK: