

INSTALLATION, OPERATION & MAINTENANCE MANUAL

KF SERIES 35

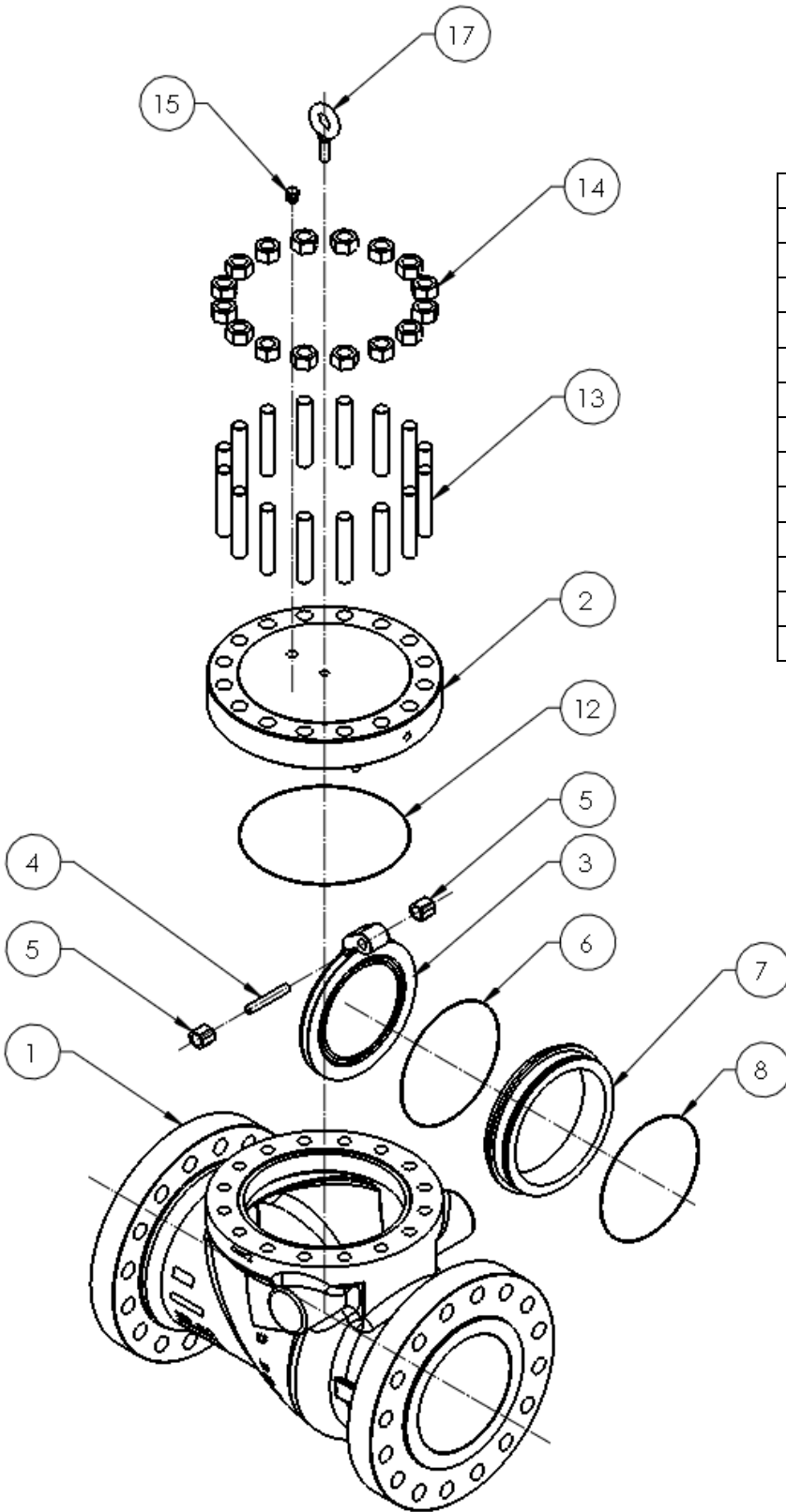
CHECK VALVE



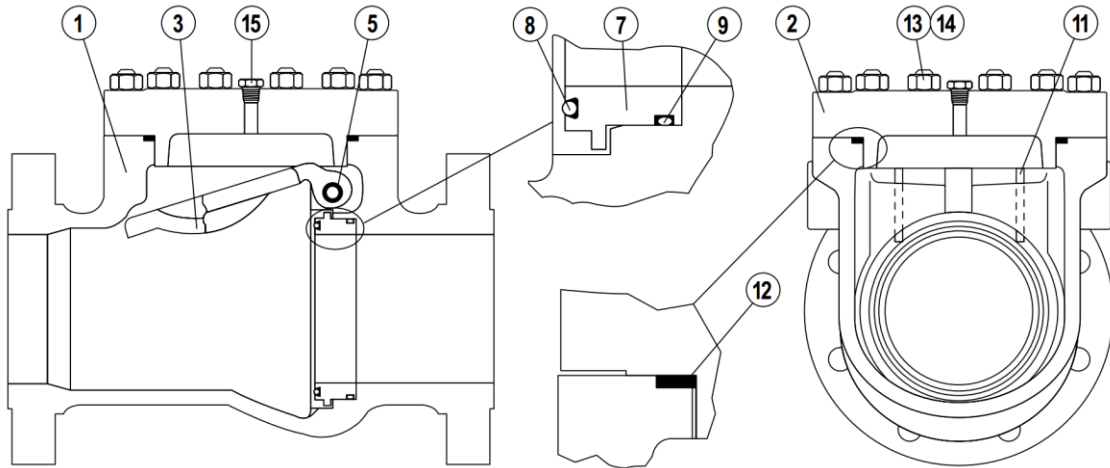
CONTENTS

1) SCOPE-----	6
2) INSTALLATION -----	6
2.1) Valve Orientation:-----	6
3) MAINTENANCE -----	6
4) RECONDITIONING-----	6
4.1) For Trough Style with “Drop-in” Style Disc:-----	6
4.2) For Old Shaft Style & New Springless Shaft Style:-----	6
5) REASSEMBLY -----	7
5.1) For Trough Style with “Drop-in” Style Disc:-----	7
5.2) For Old Shaft Style & New Springless Shaft Style:-----	7
6) HANDLING INSTRUCTIONS-----	7

BILL OF MATERIALS

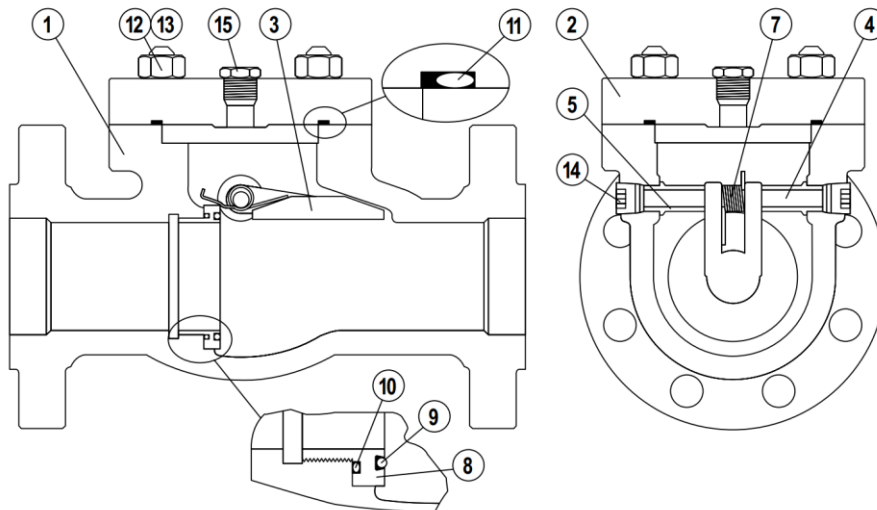


Part No.	Description
1	Body
2	Bonnet
3	Disc
4	Shaft
5	Bushing
6	Disc Seal, O-Ring
7	Replaceable Seat
8	Seat Face Seal, O-Ring
12	Bonnet Seal
13	Stud
14	Hex Nut
15	Hex Plug
17	Lifting Eye

TROUGH STYLE WITH "DROP-IN" STYLE DISC


Part No.	Description
1	Body
2	Bonnet
3	Disc
5	Bushing
7	Repl. Seat
8	Seat Face Seal

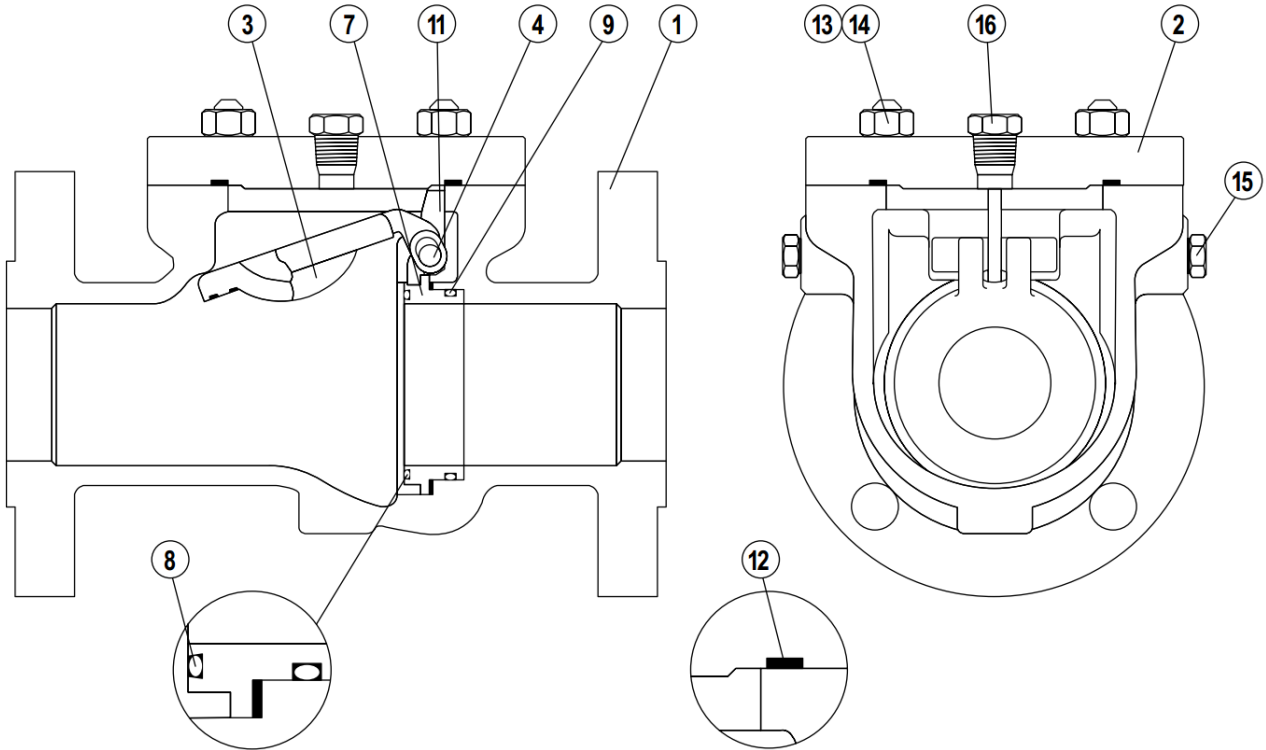
Part No.	Description
9	Seat Sub Seal
11	Retaining Pin
12	Bonnet Seal
13	Stud
14	Nut
16	Bonnet Plug

OLD SHAFT STYLE


Part No.	Description
1	Body
2	Bonnet
3	Disc
4	Shaft
5	Bushing
7	Spring
8	Repl. Seat

Part No.	Description
9	Face Seal
10	Back-up Seal
11	Bonnet Seal
12	Stud
13	Nut
14	Shaft Plug
15	Bonnet Plug

NEW SPRINGLESS SHAFT STYLE



Part No.	Description
1	Body
2	Bonnet
3	Disc
4	Shaft
7	Repl. Seat
8	Seat Face Seal
9	Seat Sub Seal

Part No.	Description
11	Seat Retainer
12	Bonnet Seal
13	Stud
14	Nut
15	Shaft Plug
16	Bonnet Plug

1) SCOPE

The following instructions are very important for the maintenance, disassembling and assembling of Series 35C Check Valve.

2) INSTALLATION

Install valve in system using proper size and type mating flanges and appropriate gaskets (for RF) or seal rings (for RTJ). Observe the following precautions:

- Do not install the valve whereby it directly discharges downstream into a tee or elbow fitting.
- KF Series 35 Check Valves should not be used in severe pulsating services such as reciprocating compressor discharges.
- It is recommended that the check valves be installed a minimum of three pipe diameters downstream of the pump or compressor.
- KF suggests installing the check valves downstream of the silencer in an air or gaseous system.
- KF suggests installing the check valves downstream of any pulsation dampeners in any system.

2.1) Valve Orientation:

KF Series 35 Check Valve installation can be horizontal or vertical, facing upwards. However, if a swing check valve is installed on a vertical pipe where the flow is upwards against gravity, the disc may slam against the seat when the flow stops, potentially leading to a water hammer. If the flow is downwards as in the case of boiler supply lines and mining applications with limited spacing, the swing check valve will always be open and hence does not deliver its function. Therefore, swing check valves are not preferred in vertical pipe runs and these valves are installed horizontally in most cases.

3) MAINTENANCE

KF Series 35 Check Valves are permanently lubricated and normally require no routine maintenance.

4) RECONDITIONING

Important! Prior to disassembly, the valve must first be isolated from system pressure and flow.

4.1) For Trough Style with “Drop-in” Style Disc:

Disc Removal: After observing the above precaution, the valve is ready to be serviced. At the option of the service personnel, the valve may be removed from the pipeline or serviced in line. Remove the bonnet nuts, bonnet, and bonnet seal. Lift disc, shaft, and bushings out of trough in body, together. For valves which include an integral face seal in the disc or disc closure area of the body, the seal may be removed from its dovetail holding groove. Clean and inspect seal and groove area.

Replaceable Seat Removal: (If applicable) After removal of disc, as described above, seat may be accessed and removed as follows: Simply remove the two retaining pins, pulling them upward and out of their holes in the body. Seat may now be easily removed by sliding it out of the seat pocket and into the body cavity. Remove seat from body and inspect both the seat face seal (if included) and the seat sub seal. Clean and inspect all parts for wear and/or damage. Observe seat pocket bore on replaceable seat models for rust pits and scale. If necessary, use fine emery for removal of deposits on the machined surfaces.

Cuts or nicks in any seal is cause for replacement. Flush all foreign matter from bonnet seal and seat pocket areas.

4.2) For Old Shaft Style & New Springless Shaft Style:

Disc & Shaft Removal: After observing the above precaution, the valve is ready to be serviced. At the option of the service personnel, the valve may be removed from the pipeline or serviced in line. Remove the bonnet nuts, bonnet, and bonnet seal. Next, unscrew and remove two pipe plugs located on either side of the body. The disc shaft may now be removed by sliding it through the disc, disc spring and bushings and out one side of the body. Remove shaft bushings and disc from body. Inspect all parts for damage and wear.

On valves which include an integral face seal in the disc, the seal may be removed from its dovetail holding groove. Clean and inspect seal and groove area.

Replaceable Seat Removal: (If applicable) After removal of disc, as described above, seat may be accessed and removed by unscrewing, in a counterclockwise direction, until seat is free of valve body. The use of a center-punch will be required to loosen seat. Remove and inspect both the seat face seal (if included) and the seat sub seal.

Clean and inspect all parts for wear and/or damage. Observe seat pocket bore on replaceable seat models for rust pits and scale. If necessary, use fine emery for removal of deposits on the machined surfaces. Cuts or nicks in any seal is cause for replacement. Flush all foreign matter from side shaft ports, bonnet seal and seat pocket areas.

5) REASSEMBLY

5.1) For Trough Style with “Drop-in” Style Disc:

Use new replacement parts, as required. Install O-ring seals in their proper locations. Use a liberal amount of general-purpose grease (such as Mystic JT-6) on seals and machined mating surfaces. After replacing seals, as necessary, on removable seat (if applicable) reinstall seat by pressing it back into the seat pocket and securing it with the two retaining pins.

Install shaft into disc (6" and larger valves only) and slide bushings onto each end of the shaft. Reinsert the disc/shaft/bushings assembly into the trough in the body. Check for float. The disc should move up and down in the body without any binding.

Install bonnet seal making sure that the seal lays flat in the bonnet seal step. Lower the bonnet onto the body and replace bonnet nuts on studs. Bonnet nuts should be tightened using a cross-tighten method. A quality thread lubricant should be used when making up the bonnet nuts.

5.2) For Old Shaft Style & New Springless Shaft Style:

Use new replacement parts, as required. Install O-ring seals in their proper locations. Use a liberal amount of general-purpose grease (such as Mystic JT-6) on seals and machined mating

surfaces. After replacing seals, as necessary, on removable seat (if applicable) reinstall seat by placing it in the body and screwing it into the body in a clockwise direction. Tighten with centerpunch to fully engage o-ring seal.


Note: Do not use petroleum-based grease or oils on EPDM or EPT seals or seal damage will occur.

Caution: Be very careful not to cross-thread the seat into the body. Cross-threading the seat may result in irreparable damage to the valve.

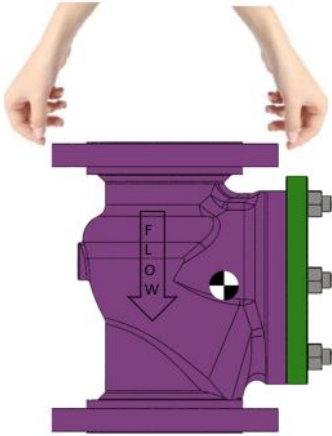
Install bushings into the body. Reinsert disc into body cavity with shaft holes inline with side shaft ports. Slide shaft into the body through shaft bearing on one side. Continue sliding shaft through disc, disc spring and remaining bushing. Install pipe plugs into body using a good industrial grade thread sealant compound.

Install bonnet seal making sure that the seal lays flat in the bonnet seal step. Lower the bonnet onto the body and replace bonnet nuts on studs. Bonnet nuts should be tightened using a cross-tighten method. A quality thread lubricant should be used when making up the bonnet nuts.

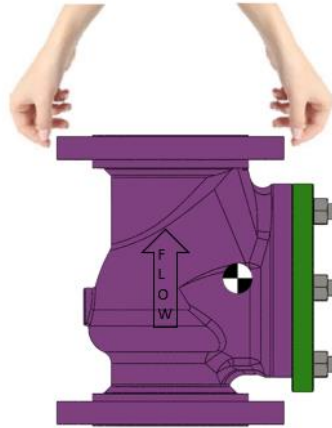
6) HANDLING INSTRUCTIONS

- Always make sure the disc is aligned in flow path or seating position, so that it won't dangle.
- If the valve end protectors are removed for any check or testing, the same preservation and protection shall be done after the check or testing.
- Location of Centre of Gravity of the valve has been marked in the below images with the symbol “”
- Valve sizes 8" and above are provided with lifting lugs for the purpose of proper lifting of the valve. Safe working limit of each lifting point is provided in Table-1. Valves without lifting lugs (sizes below 8") shall be handled using ropes/straps.

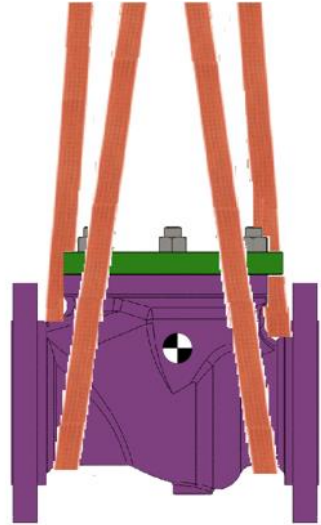
➤ Valves without Lifting Lugs (6" and smaller)



✘ Wrong



✔ Right

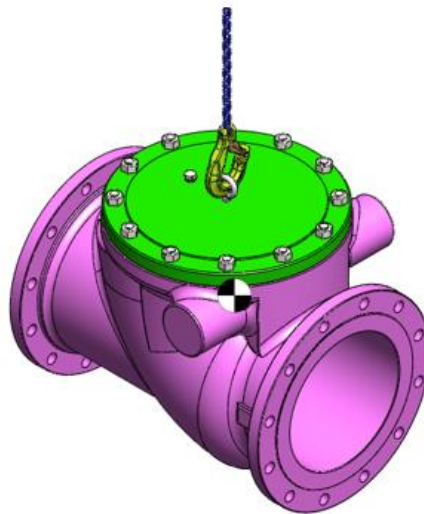


✔ Right

➤ Valves with Lifting Lugs (8" and larger)



✔ Right



✔ Right



✘ Wrong

TABLE-1: SAFE WORKING LIMIT (SWL) OF LIFTING LUG

SIZE	CLASS	ASSEMBLY NUMBER	No. of Lifting Lugs	SWL per Lifting Lug (Lbs.)	SWL per Lifting Lug (Kg)
8	150	7782	1	2600	1179
10	150	7783	1	2600	1179
12	150	7784	1	2600	1179
8	300	7808	1	2600	1179
10	300	7809	1	2600	1179
12	300	7810	1	6000	2722
8	600	7860	1	6000	2722
10	600	7861	1	6000	2722
12	600	7862	1	6000	2722

REVISION HISTORY				
REV	PREPARED BY	DESCRIPTION	DATE	APPROVED BY
EC-15333	TamilSelvan.J	Initial Release	06/19/2015	SEE ELECTRONIC APPROVALS
EC-15838	Ganapathi.S	Section for Handling has been added	11/30/2017	SEE ELECTRONIC APPROVALS
EC-16226	Naveen M	Logo changed from Circor to KF	03/21/2022	SEE ELECTRONIC APPROVALS
EC-16251	Silambarasan S	Valve center of gravity, safe working limit of Lifting lug, Valve Orientation added	04/28/2023	SEE ELECTRONIC APPROVALS