6SC SERIES

MODELS
910F, 910FLW, 920F

IRON SWING CHECK VALVE

INSTALLATION
OPERATION
MAINTENANCE
GUIDE

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APPROVED BY: _____ DATE: _____

INTRODUCTION

The APOLLO® Iron Swing Check valves covered in these guidelines are bolted bonnet, horizontal swing valve types. They are used to permit flow in one direction only and close when flow reverses. The disc, and any associated moving parts, may be in a constant state of movement if the velocity pressure is not sufficient to hold the disc in a stable position. Premature wear and noisy operation or vibration can be avoided by selecting the size of the check valve on the basis of flow conditions, rather than selecting the check valve according to the size of the pipeline.

Each valve is classified by its pressure rating. All valves designated as Class 125 and 250 comply with MSS SP-71 Standard Practice.

Table 1. APOLLO® Series & Model Numbers

SERIES	MODEL	DESCRIPTION
6SC-10x-x1	**910F**	**Class 125 Flanged Iron Swing Check**
6SC-20x-x1	**920F**	**Class 250 Flanged Iron Swing Check**
6SC-10x-x1L	**910FLW**	**Class 125 Flanged Iron Swing Check with Lever and Weight**

Table 2. APOLLO® Pipe Size (x) Designations

Pipe Size	Apollo code		Pipe Size	Apollo code		Pipe Size	Apollo code		Pipe Size	Apollo code
2”	**8**		**5”**	**B**		**12”**	**H**		**20”**	**N**
2-1/2”	**9**		**6”**	**C**		**14”**	**J**		**24”**	**P**
3”	**0**		**8”**	**E**		**16”**	**K**			
4”	**A**		**10”**	**G**		**18”**	**M**			

Table 3. APOLLO® Seat Trim Material (x) Designations

Seat Trim	Apollo code	Available Sizes
Bronze	**B**	**2"- 6"**
Iron	**0**	**8"- 20"**

Example: 6SC-10x-x1

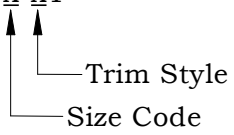


Table 4. APOLLO Iron Swing Check Valve Material Designation

PART	**MATERIAL**
BOLTS	STEEL (ASTM A307 B)
NAMEPLATE	ALUMINUM
BONNET	CAST IRON (ASTM A126 CL B)
BODY GASKET	GRAPHITE
NUTS	STEEL (ASTM A307 B)
SIDE PLUG	BRASS (ASTM B16)
GASKET	GRAPHITE
HANGER PIN	BRASS (ASTM B16)
HANGER	DUCTILE IRON (ASTM A536 65-45-12)
DISC RING	CAST BRONZE (2"-6")-CAST IRON (8"-20")
DISC	CAST IRON (ASTM A126 CL B)
WASHER	STEEL (ASTM A307 B)
SPLIT PIN	STAINLESS STEEL (ASTM 420 S42000)
SEAT RING	CAST BRONZE (2"-6")-CAST IRON (8"-20")
BODY	CAST IRON (ASTM A126 CL B)
DISC NUT	STEEL (ASTM A307 B)
STUD BOLT	STEEL (ASTM A307 B)

Pressure/Temperature Ratings

Class 125
Saturated Steam: 125 psi (8.6 Bar) to 353°F(178°C) (2”-12”)
100 psi (6.9 Bar) to 338°F(170°C) (14”-24”)
Cold Working Pressure: 200 psi (13.8 Bar) at 100°F (2”-12”)
150 psi (10.3 Bar) at 100°F (14”-24”)

CLASS 250
Saturated Steam: 250 psi (17.2 Bar) to 406°F(207°C)
Cold Working Pressure: 500 psi (34.5 Bar) at 100°F

Product Marking

All APOLLO® Swing Check Valves are equipped with a nameplate attached to the valve (Figure 1). This plate provides the model number, part number, size, max pressure rating, and date of manufacture.

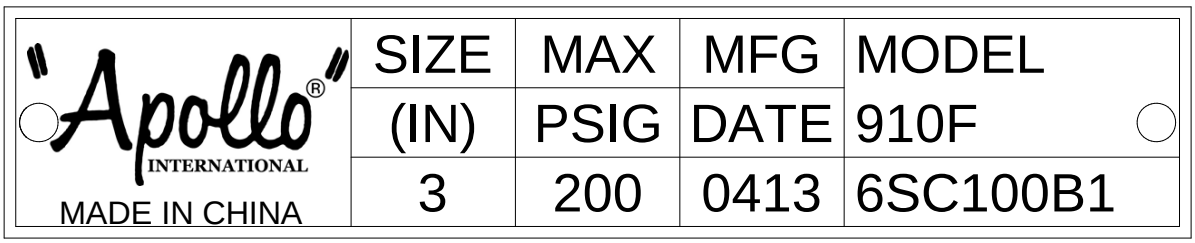


FIGURE 1. APOLLO® IRON SWING CHECK VALVE NAMEPLATE

INSTALLATION

APOLLO® Swing Check Valves are designed for use between the faces of ANSI 125 and 250 pound flat flanges. Raised faced flanges are not recommended.
Valves may be installed in horizontal or vertical pipe lines. For horizontal service, the valves inlet and outlet should be installed on the same level. The bonnet cap should be positioned upward to allow disc and hanger mechanism to operate properly. The arrow on the body must be pointing in the direction of intended flow. For vertical service, install the check valve with the flow arrow pointing upward.

Installation Instructions

Step 1. Check to make sure that the pipe flange and valve sealing faces are clean and free from any debris (pipe scale, welding slag, etc.).

Step 2. Check the valve nameplate to ensure that the pressure and valve materials are correct for the application.

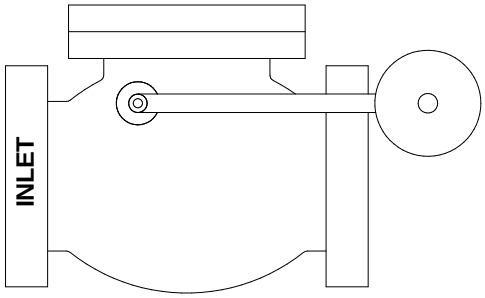
WARNING! – APOLLO® Swing Check Valves should never be installed where service conditions could exceed the valve ratings. Failure to heed warning may result in personal injury or property damage.

Step 3. Place the valve between the two flanges of the pipe and put the seal gasket between the valve flange and the pipe flange; make sure that it is correctly positioned. **See Figure 2 for correct positioning of Lever and Weight option.**

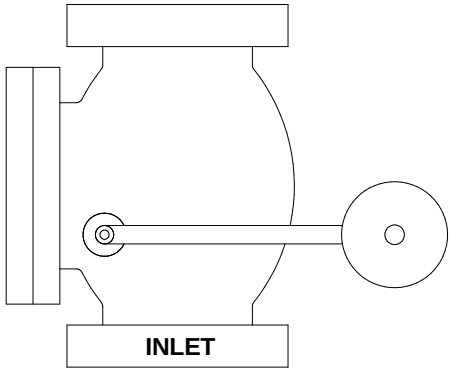
WARNING! – Upstream flow disturbances which create turbulence may also result in rapid wear. It is recommended that a minimum of 10 pipe diameters of straight pipe be provided between the check valve and any upstream devices such as pumps, control valves or elbows etc.

Step 4. Assemble the valve to the pipe using properly sized bolts for application. See Tables 5 and 6 below. Progressively tighten to the torque value recommended by the seal gasket provider. See Figure 3 for recommended method.

After the valve installation on the line and before the line pressurization, the following activities must be performed:
- the packing bolts must be verified for tightness, DO NOT OVERTIGHTEN.
- the torque of the body-bonnet bolts must be verified for tightness
- the valve must be fully stroke operated



Lever and Weight position for Horizontal installation



Lever and Weight position for Vertical installation

FIGURE 2. APOLLO® IRON SWING CHECK VALVE WITH LEVER AND WEIGHT

Table 5. Stud/Bolt Iron Flange – Class 125

Valve Size		Diameter	Length	Qty
(in)	(mm)			
2	50	5/8”	3-1/2”	4
2.5	65	5/8”	3-3/4”	4
3	80	5/8”	3-3/4”	4
4	100	5/8”	3-3/4”	8
5	125	3/4”	4”	8
6	150	3/4”	4-1/4”	8
8	200	3/4”	4-1/2”	8
10	250	7/8”	4-3/4”	12
12	300	7/8”	5”	12
14	350	1”	5-1/2”	12
16	400	1”	5-1/2”	16
18	450	1-1/8”		16
20	500	1-1/8”		20
24	600	1-1/4”		20

Table 6. Stud/Bolt Iron Flange – Class 250

Valve Size		Diameter	Length	Qty
(in)	(mm)			
2	50	5/8”	3-3/4”	8
2.5	65	5/8”	4-1/4”	8
3	80	5/8”	4-1/2”	8
4	100	5/8”	4-3/4”	8
5	125	5/8”	5”	8
6	150	5/8”	5”	12
8	200	7/8”	5-3/4”	12
10	250	1”	6-1/2”	16
12	300	1-1/8”	7”	16
14	350	1-1/8”	7-1/4”	20
16	400	1-1/4”	7-3/4”	20
18	450	1-1/4”	8”	24
20	500			
24	600			

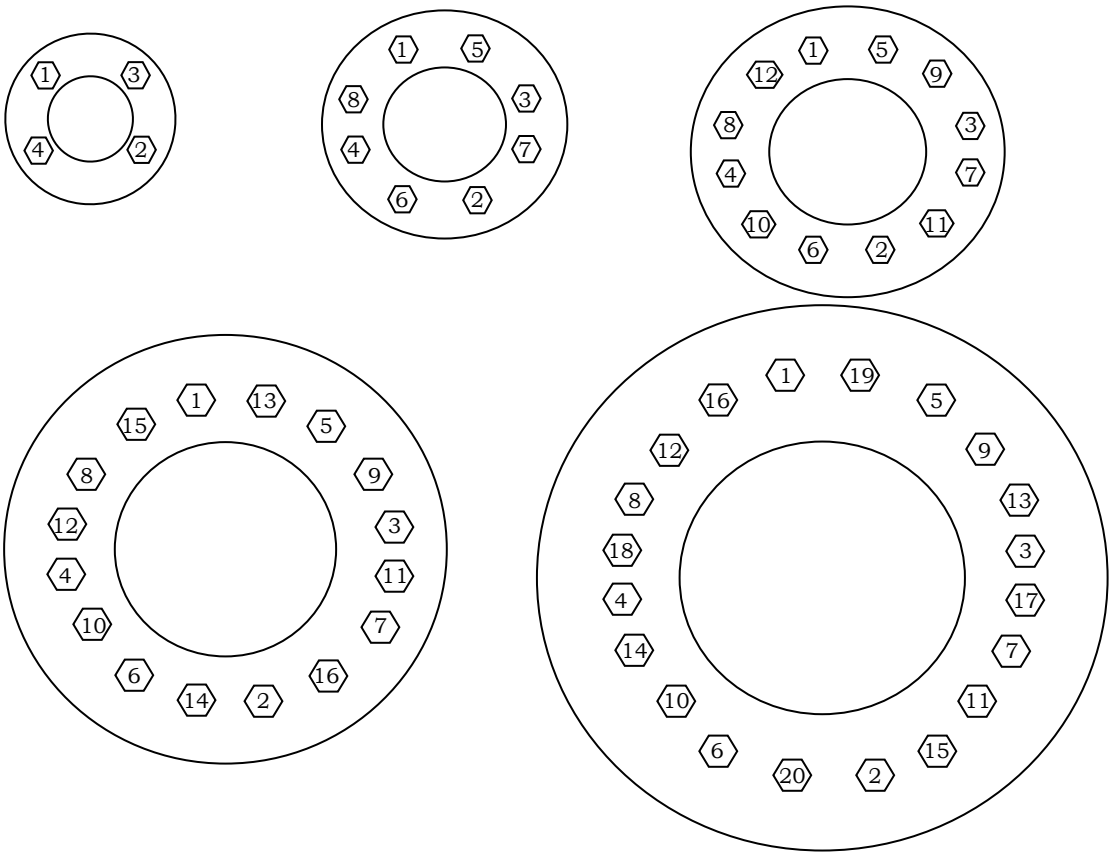


FIGURE 3. Bolt Tightening Sequence

OPERATION

APOLLO® Iron Swing Check valves function by allowing flow forces to move the disc from the closed position to the fully open position in a sweeping arc motion against a hinge-stop inside the valve body. Due to the weight and center-of-gravity location of the disc and swing arm assembly, the valve will return to the closed position should flow become interrupted or reversed. Swing check valves produce the lowest pressure drop when compared with other check valves of the same size.

MAINTENANCE

APOLLO® Iron Swing Check valves are designed for extended service with minimal wear and servicing. Replacement parts are not available.

WARNING! – The pipeline on either side of the valve MUST be depressurized and drained prior to repair.

Valve Seat

Leakage through the valve is generally caused by foreign matter lodged in the seat seal. This leakage can be overcome by cycling the valve or flushing. If leakage persists, disassemble the valve and examine the sealing surface on the body. If excessive damage is done to sealing area, the valve may need to be reconditioned or replaced.

Bonnet Joint

Leakage through the bonnet joint may be corrected by tightening bonnet bolts. Reference Table 7 below for recommended torque values depending on bolt size. See Figure 3 for recommended tightening sequence. If tightening does not correct leakage, replacement of graphite gasket will be required.

Table 7. Bonnet Bolt Torque

Bolt size	5/8”	3/4”	7/8”	1”	1-1/8”	1-1/4”	1-3/8”
Torque (Ft. Lbs.)	90	150	200	300	475	660	885

AMENDMENT REGISTER

DATE	ECN	REV	SECTION	PAGE	DESCRIPTION
9/25/2013	-	A	All	All	Released new standard
7/26/2018	M17040	B	Installation & Operation	5	Added Step 3 Warning