

Three Piece Ball Valve

AF35(L370MF)

Series

PED Category I □ II

User Manual

(Operating & Maintenance instructions)

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1. General Precautions

a. Material Selection:

The possibility of material deterioration in service and the need for periodic inspections is dependant on the line medium. Carbide phase conversion to graphite, oxidation of ferrite materials, decrease in ductility of carbon steels at low temperature (even in applications above –29 Deg C) are among those items. If information about corrosion data is available; the user is advised to refer to it to determine the suitability of material for the application.

b. Pressure-Temperature rating:

The stated Pressure -Temperature rating is based on zero pressure at ambient temperature. Please refer to P & T rating Section 4 for working conditions. The allowable temperature is between –20 and +180 Deg C. Do not exceed this range.

c. Thermal expansion:

When the ball valve is in the closed condition, it is likely that the cavity within the valve body will be filled with medium. If this medium is not released and the valve is subject to a temperature increase, excessive pressure may build up causing seal failure. To overcome this, our products have self-relieving seats. The user is, however, advised not to rely on this feature and to ensure that the pipeline design, installation and operating procedures are adequate to overcome such potential shortcomings.

d. Static electricity

The ball valves are provided with anti-static devices on ball-stem-body. When service conditions require electrical continuity to prevent static discharge, the user is responsible for specifying static grounding.

e. Firesafe condition:

Generally, the application of the valve shall comply with the Pressure-Temperature rating range. If the risk of fire is a major issue, user is recommended to select our fire-safe products, which have API-607 approval. Contact the valve distributor or manufacturer for details.

f. Liquids with high fluid velocity:

When soft-seated ball valves are to be operated frequently on liquids with very high velocity, a check should be made with the distributor or manufacturer for appropriate advice to minimize the possibility of seat deformation, especially when they are highly pressurized on high-temperature line.

g. Throttling service: Ball valves are not recommended for throttling service, as both the leading edge of the ball and the seats can be damaged, causing leakage. High fluid velocity or the presence of solid particles in suspension will further reduce seat life

h. Do not open the bonnet or cap when the valve is under pressure. The valve is not equipped with pressure access device. The valve should only be opened after depressurisation.

i. Do not touch the surface of valve on high temperature applications.

- j. Not allowed for unstable fluid, otherwise specified with category III in Declaration of conformity or/and in this user manual.

The handle has a locking feature to avoid unauthorised operation

2. Product Description

2.1 Feature

- a. STANDARD type, FULL BORE ball valve.
- b. Blowout proof stem.
- c. Anti-static devices for ball-stem-body.
- d. Heavy-duty body & end cap construction with traceable heat number.
- e. Pressure balance hole in ball slot.
- f. Self-relieving seat to prevent excess pressure built up.
- g. Lock design on the handle is optional requirement.

2.2 Product specification

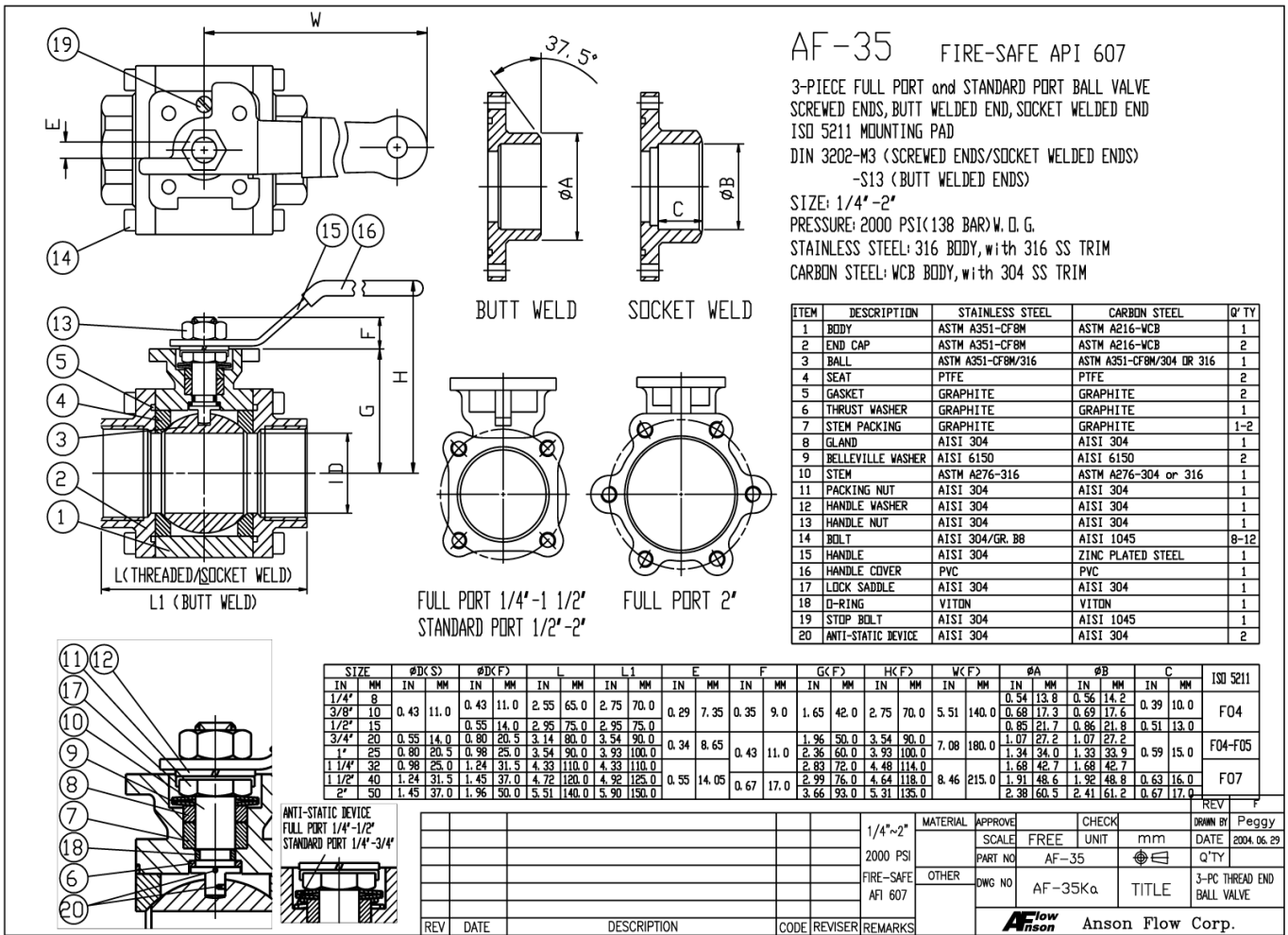
The scopes of product specifications are as following

Item No.	Nominal Pressure	Art.3 Para3 of PED No CE Marking	Category II
AF35 (L370MF)	PN 138	DN 8 □ 10 □ 15 □ 20 □ 25	DN 32 □ 40 □ 50

2.3 Material of construction

No.	Part Name	Stainless Steel	Carbon Steel
1	BODY	EN 10213-4 1.4408	EN 10213-2 1.0619
2	END CAP	EN 10213-4 1.4408	EN 10213-2 1.0619
3	BALL	EN 10213-4 1.4408	
4	SEAT	PTFE	
5	GASKET	GRAPHITE	
6	THRUST WASHER	GRAPHITE	
7	STEM PACKING	GRAPHITE	
8	GLAND	EN 10213-4 1.4308	
9	BELLEVILLE WASHER	DIN 1.4310	
10	STEM	EN 10213-4 1.4408	
11	PACKING NUT	EN 10213-4 1.4308	
12	HANDLE WASHER	EN 10213-4 1.4308	
13	HANDLE NUT	EN 10213-4 1.4308	
14	BOLT	EN 10213-4 1.4308	DIN 1.1191
15	HANDLE	EN 10213-4 1.4308	ZINC PLATED STEEL
16	HANDLE COVER	PVC	
17	LOCK SADDLE	EN 10213-4 1.4308	
18	O-RING	VITON	
19	STOP BOLT	EN 10213-4 1.4308	DIN 1.1191
20	ANTI-STATIC DEVICE	EN 10213-4 1.4308	

2.4 Common dimensions

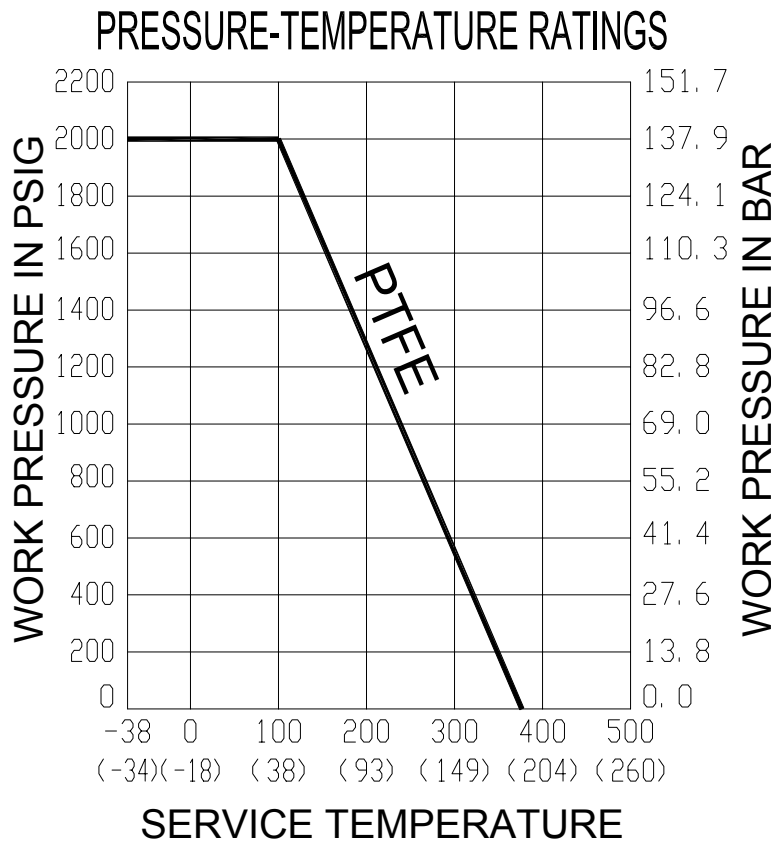


3. Design Specification

Items	Standards/Codes	
Standards of Design (P-T rating)	prEN 12516-1	ASME/ANSI B16.34
Testing	EN 12266-1	ASME/ANSI B16.34
Mounting Pad	ISO 5211	
Material of Casting (Body, Cap, Ball)	EN 10213-4 /1.4408	ASTM A351, A216
Bolt and Nut	ISO 3506 (A2-70)	ASTM A193, A194 (B8)

4. Pressure Temperature Ratings

The pressure-temperature rating of ball valves is determined not only by the body materials but also by the seal and trim combinations all of which are determined by the characteristics of the service mediums and conditions. The following general rating charts for non-shock fluid service for floating ball valves distinguished by sizes and seating materials. Please refer to section 1, General Precaution.



5. Delivery Condition and Storage

Valves are shipped in the open condition and should always be stored that way. For incoming QC, the following should be checked:

- a. Packing condition: Is there any damaged during the transportation.
- b. The tightness of all external bolts should be checked.
- c. Valves should be stored indoors, preferably in a climate-controlled environment

6. Installation and Operation

6.1 Handling

During installation, you must follow the procedure to handle both sides of the bodies. If using mechanical handling, ensure the equipment is of a suitable rating

6.2 Cleaning

Regardless of the storage environment, valves should be checked for cleanliness

before use. If necessary, clean before installation. Clean the valves by water, compressed air, or steam. Valves should first be cleaned in the fully-open position and then, if further cleaning is considered necessary, in the half-open position

6.3 Valve Installation

a. Direction

Valves are bi-directional, unless marked to the contrary.

b. Position

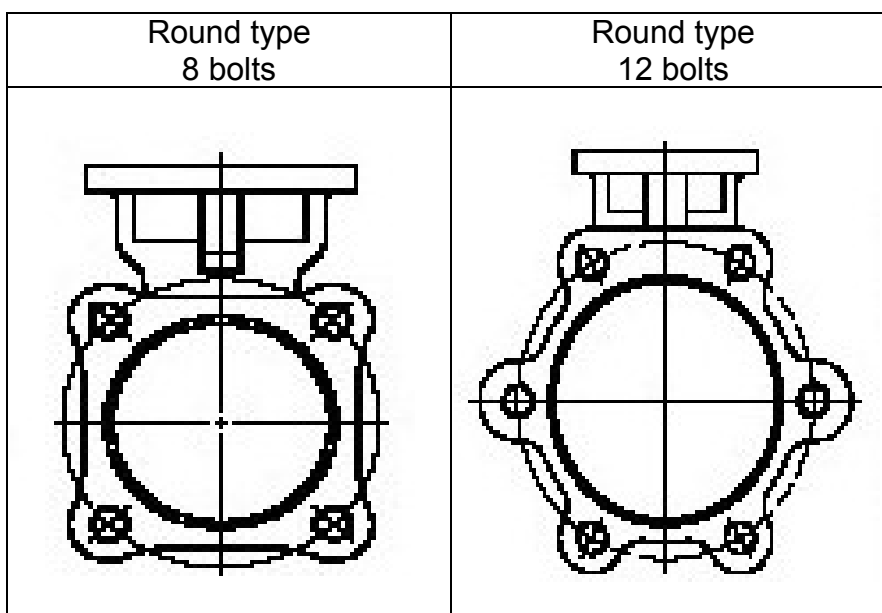
Valves are not designed to be self-supporting, nor are they designed to be structural; they should be properly supported.

c. Fittings

Select the correct specification of bolts to fasten the flange with pipeline. The following table shows the fitting information.

Nominal Pipe Size		Dia of Bolt Holes	Diameter of Bolts
DN 8	1/4"	9 mm - 8 hole	M 8
DN 10	3/8"	9 mm - 8 hole	M 8
DN 15	1/2"	9 mm - 8 hole	M 8
DN 20	3/4"	9 mm - 8 hole	M 8
DN 25	1"	9 mm - 8 hole	M 8
DN 32	1.1/4"	11 mm – 8 hole	M 10
DN 40	1.1/2"	13 mm -12 hole	M 12
DN 50	2"	13 mm -12 hole	M 12

Flange bolting should be conducted in accordance with sound engineering practice, spreading the load evenly and equally. See the drawings below for the order of bolts installation.



Torque data are provided in table as following table for information.
For A2 screws

Thread diameter	Friction coefficient	Tightening torque (N-m)		
		50	70	80
M8	0.2	10.1	21.4	28.7
M10	0.2	20.3	44.0	58.0
M12	0.2	34.8	74.0	100.0

d. Body hydrostatic test

Before delivery, valves are tested 1.5 times the allowable pressure at ambient temperature in the half-open position. Pipeline testing should not exceed this maximum

6.4 Actuator installation

The ball valves are provided with ISO 5211 mounting flanges. Following is the flange type against sizes of the ball valves.

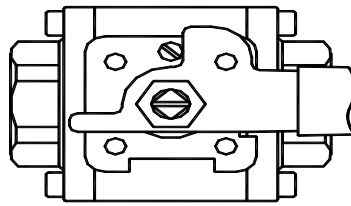
SIZE		Mounting Pad
DN 8	1/4"	F04
DN 10	3/8"	F04
DN 15	1/2"	F04
DN20	3/4"	F04 – F05
DN25	1"	F04 – F05
DN32	1.1/4"	F07
DN40	1.1/4"	F07
DN50	2"	F07

Actuator sizing depends on operating conditions but maximum power should not exceed the maximum allowable operating torque of the valve Excess power will damage the valve and possibly associated or attached equipment

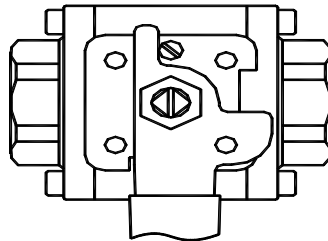
6.4 Operation

- For manual operation, turn the lever in a counter clockwise direction to close and clockwise to open.
- If the handle is in line with the flow direction, the valve is open. If the handle is at 90 deg to the flow direction, the valve is closed.
- When installing an actuator or the valve is operated with removable handle, the user should ensure that the position of the valve is open or close. There is a slot at the top of the stem for square type stem, as shown below

OPEN



CLOSE



7. Put into service

- 7.1 After installation in the pipeline, it is necessary to check the function of the product. Thus, operate the valve about 3 times to ensure it operates correctly.
- 7.2 The whole pipeline system may be tested with a proper pressure. User shall take care that the testing pressure shall not be exceeded 1.5 times the allowed working pressure with the valve in the half opened position. If tested in a closed position testing pressure should not exceed 1.1 times allowable working pressure.
- 7.3 After pressure testing, user shall operate the valve again about 3 times to ensure correct operation

8. Dangers of inappropriate use

- 8.1 Never exceed permitted pressures or temperatures
- 8.2 If the product has any inappropriate use, the product may be damaged without any immediate signs occurring. User shall change the product to avoid danger in the future.

9. Maintenance

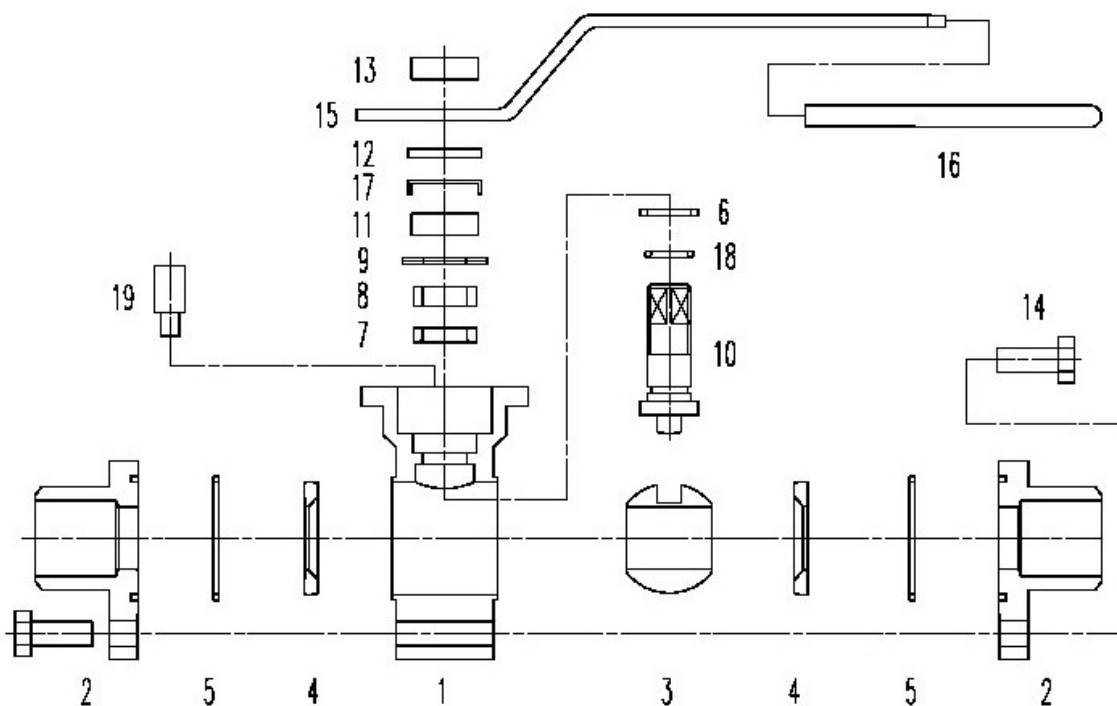
- 9.1 Maintenance frequency
The maintenance frequency is determined upon the application of the ball valve. User shall consider the time interval depending on the fluid, flow velocity, operation frequency, high-pressure effect and high-temperature effect etc.
- 9.2 Disassembly
 - 9.2.1 The user should check availability of spares kit for AF35(L370MF) with local distributors. If not available; please do not disassemble the valve, until having obtained spare seals and seal kits from your original supplier or nearest Anson distributor.
 - 9.2.2 To dismantle the valve, drawings needs to be looked at and procedures as below must be followed.
 - 9.2.3 Even if valve is removed from the pipeline medium may still be trapped under pressure within the body cavity, therefore great care must be taken when

removing the valve from the pipeline or dismantling. Open valve a little and let the fluid out slowly, great care should be taken for any poisonous or inflammability objects.

9.2.4 Turn ball in the close position before dismantle the valve. The ball cannot be taken out from valve body if the ball is in the open or semi-open position.

9.2.5 To dismantle the valve body, release the end cap carefully. Take care when dismantling the ball to avoid the seat retainer falling from end cap.

9.2.6 If lifting the ball by hoist, care must be taken to protect and avoid damaging the ball against metal contacts. The correct position for storing the valve is to put the open end on to the ground. This procedure protects the surface of the ball.



9.3 Parts inspection, maintenance and replacement:

9.3.1 Check the surface of ball for damage. If there is any damage on the surface, the root cause needs to be investigated such as dirty fluid, foreign matter...etc. Damage factors should be avoided as far as possible.

9.3.2 If the ball is found to be damaged, it must either be re-polished or replaced.

9.3.3 If the ball is damaged it is likely that the seats will also be damaged.

9.3.4 Check the wall thickness of valve body and cap. The minimum thickness shall be maintained in according to EN12516-1 table 10.

9.3.5 Inspect the seats for damage. Any damage will cause leakage and will necessitate replacement of the seats.

9.3.6 Stem packing and seals are more resilient than seats and will not necessarily require replacing. It may be prudent, however, to replace all soft seals as a matter of good practice. To tight the gland nut, please see Section 10 for torque data.

9.3.7 Final valve inspection. Operate 10 times from open to close to ensure all the parts are assembled correctly. It should operate smoothly and operating

torque should be consistent with all other valves of the same size and rating. If the torque is not the same in operation, then it may have been incorrectly assembled. Dismantle and re-assemble. Do not use if the operation is other than smooth.

9.4 Assembly

Assembly procedure is the reverse of dismantling. Valve must be in the close position while assembling the body and end caps. Care needs to be taken that the stops are located at the right place; otherwise, the open and close operation will be opposite.

10. Torque Data

Size	DN 8	DN 10	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
	1/4	3/8	1/2	3/4	1"	1 1/4	1 1/2	2"
Stem Nut Kgf-cm	38	38	45	53	115	160	210	245
Body&Cap Kgf-cm	20	20	25	30	35	40	50	55

11. Corrosion Data

Corrosion Data is available upon request. Contact manufacturer or distributor for further service. The corrosion data is just for information only.