

**3-PIECE BALL VALVE, 3600 PSI/ PN 248, WITH ISO DIRECT MOUNTING PAD  
306M SERIES/ PED Category II**

## **306M User Manual**

### **English Version**

Use for company in Europe who will place the product on the market,  
please amend which necessary.

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## Contents

1. General Precautions	Page- 2~3
2. Product Description	Page- 3~6
3. Design Specification	Page- 7
4. Pressure Temperature Ratings	Page- 7
5. Delivery Condition and Storage	Page- 8
6. Installation and Operation	Page- 8~9
7. Put into service	Page-9
8. Dangers of inappropriate use	Page-9
9. Maintenance	Page-10~11
10. Torque Data	Page-11
11. Corrosion Data	Page-11

# 1. General Precautions

## a. Material Selection:

The possibility of material deterioration in service and the need for periodic inspections is depended on the contained fluid. Carbide phase conversion to graphite, oxidation of ferrite materials, decrease in ductility of carbon steels at low temperature (even in applications above  $-29^{\circ}\text{C}$ ) are among those items. Even information about corrosion data is provided in this user manual, the user is requested to take attention or consideration to determine the suitability of material in their application.

## b. Pressure-Temperature rating:

The Pressure-Temperature rating is considered for static pressure. Please refer to P & T rating section on page 9 for working precaution. The allowable temperature is between  $-50^{\circ}\text{C}$  and  $600^{\circ}\text{C}$  (depends on different coating material) do not exceed the temperature range to avoid danger accident happen.

## c. Static electric effect:

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

## d. Fire safe condition:

We offer fire safe design valve in the type.

## e. Liquids with high fluid velocity:

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

- f. Throttling service: Ball valves are generally not recommended for throttling service, where both the fluid flow and the leading edge of the ball can damage or deform the resilient ball seats causing leakage. High fluid velocity or the presence of solid particles in suspension will further reduce seat life in throttling applications.
- g. Do not open the bonnet or cap when bearing pressure. Valve is not equipped with pressure access device. User should check it by other method through its piping system.
- h. Do not touch the surface of valve on high temperature.
- i. Not allowed for unstable fluid, otherwise specified with category III in Declaration of conformity or/and in this user manual.
- j. Lock design on the handle to avoid the valve operated by non-related people.

## 2. Product Description

### 2.1 Feature

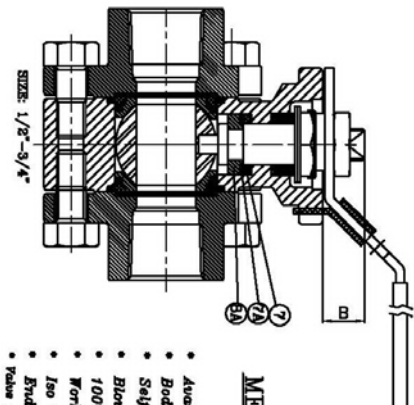
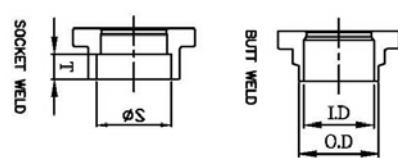
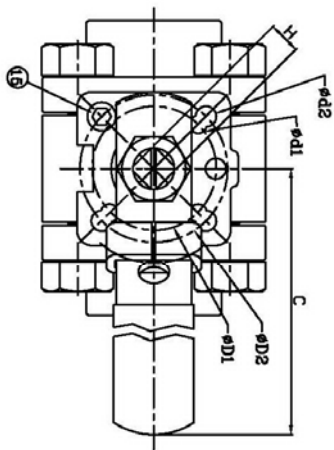
- a. Full Bore
- b. High performance design for 3600 WOG (PN 248)
- c. Blow-out proof stem design
- d. Anti-static devices for ball-stem-body.
- e. Fire safe design
- f. Heavy-duty body & end cap construction with traceable heat number.
- g. ISO 5211 direct mounting pad

### 2.2 Product specification

The scope of product specifications are as following

Item No.	PN	Art.3 Para3 of PED No CE Marking	Category I	Category II
306M	248	DN 08, 10, 15, 20, 25	---	DN 32, 40, 50

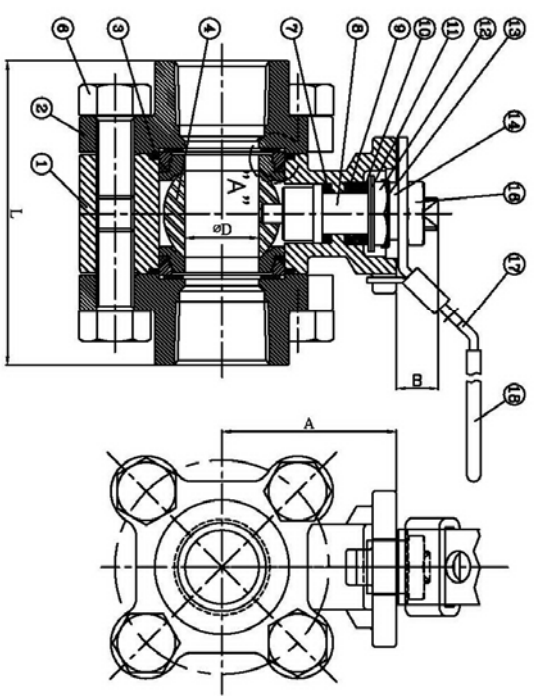
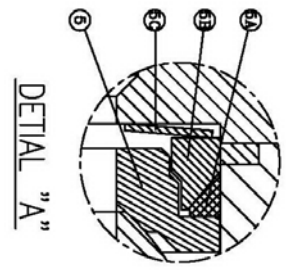
2.3 Material of construction & Common dimension  
In full bore design



**METAL SEATED BALL VALVE**

- Available in stainless steel or carbon steel
- Body & end cap are investment cast
- Self adjusting stem packing
- Blow-out proof stem design
- 100% air tested under water at 80-100 psi
- Working pressure : 3000Psi (max)
- Iso 5211 direct mounting pad
- End cap type : threaded socket weld/butt weld.
- Valve construct end thickness meet ANSI B16.34

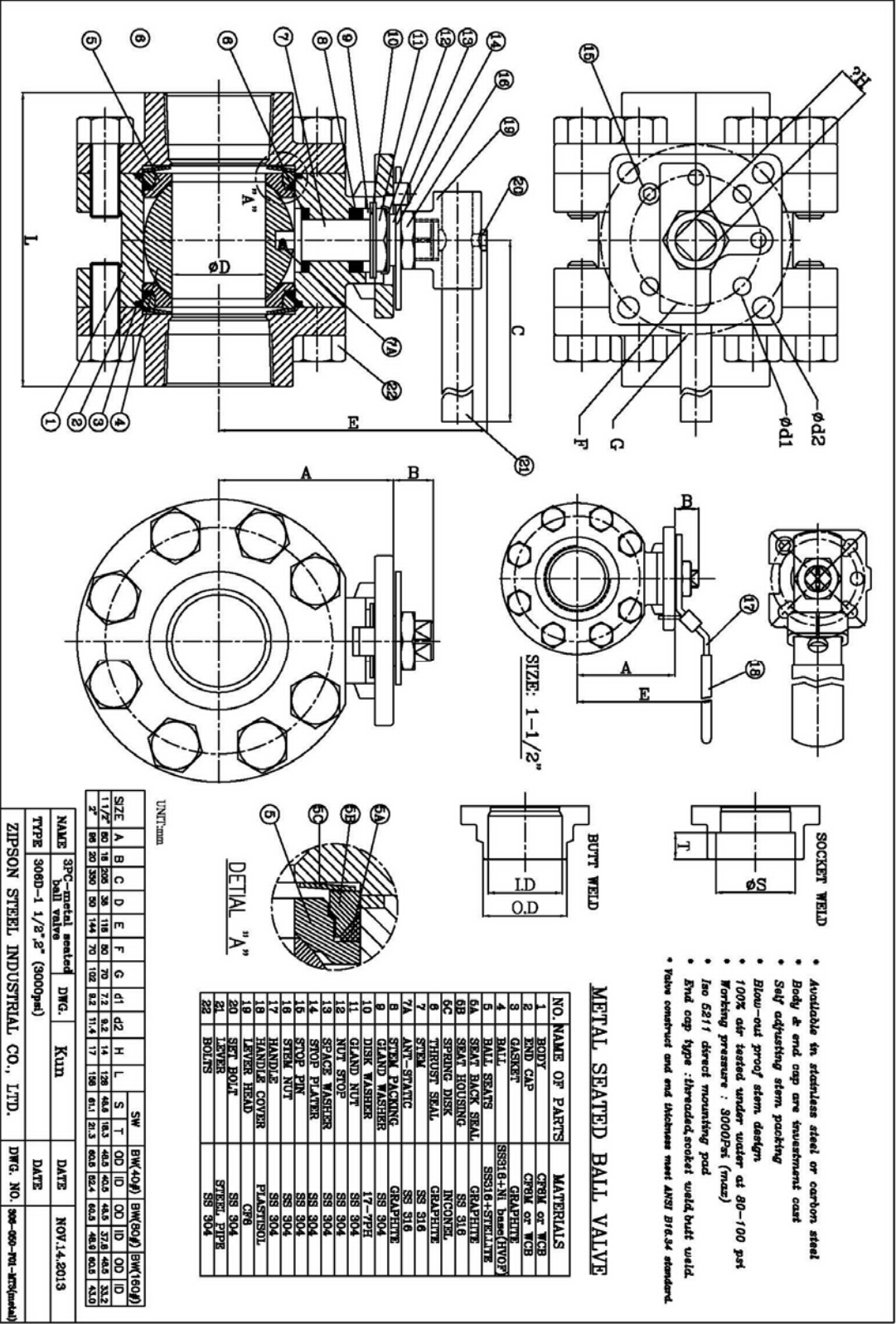
NO.	NAME OF PARTS	MATERIALS
1	BODY	CF8M or WC8
2	END CAP	CF8M or WC8
3	GASKET(BODY)	GRAPHITE
4	BALL	Co BASE /STAINLESS
5	BALL SEATS	SS316-STAINLESS
5A	SEAT BACK SEAL	GRAPHITE
5B	SEAT HOUSING	SS 316
5C	SPRING DISK	INCONEL
6	BOLTS	SS 304
7	THRUST SEAL	GRAPHITE
7A	THRUST WASHER	SS 316
8	STEM	SS 316
8A	HAIF SEAL RING	SS 316
9	STEM PACKING	GRAPHITE
10	STEM WASHER	SS 304
11	DISK WASHER	SS 304
11A	STEM WIPER	SS 304
12	STEM STOP	SS 304
13	SPRING WASHER	SS 304
14	SPRING PIN	SS 304
15	SPRING NUT	SS 304
16	HANDLE	SS 304
17	HANDLE NUT	SS 304
18	HANDLE COVER	PLASTIC



Unit : mm

SIZE	A	B	C	D	D1	D2	d1	d2	H	L	S	T	O.D.	I.D.	O.D.	I.D.
1/4"	48	8.5	130	11	36	42	6.0	7.0	9	70	14.1	11.2	—	—	—	—
3/8"	48	9.5	130	11	36	42	6.0	7.0	9	70	17.5	11.2	—	—	—	—
1/2"	48	9.5	130	15	36	42	6.0	7.0	9	70	21.8	12.7	21.3	15.8	21.3	11.7
3/4"	53	12	156	20	—	50	—	7.2	11	92	27.1	14.3	28.7	20.6	18.9	15.6
1"	59	12	156	25	—	50	—	7.2	11	105	33.8	15.9	33.3	26.6	33.3	20.6

NAME	SPC-METAL SEATED BALL VALVE	DWG. No.	3606	DATE	Oct.30.2009
TYPE	3000 (3000Psi) 1/4,3/8,1/2,3/4,1"	CHD.		DATE	
ZIPSON STEEL INDUSTRIAL CO., LTD.			DWG. NO.	366-088-TM-INT(0001)	



- Available in stainless steel or carbon steel
- Body & end cap are investment cast
- Self adjusting stem packing
- Blow-out proof stem design
- 100% air tested under water at 80-100 psi
- Working pressure : 3000Psi (max)
- Iso 5211 direct mounting pad
- End cap type : threaded, socket weld, butt weld.
- Valve construct and end thickness meet ANSI B16.34 standard.

**METAL SEATED BALL VALVE**

NO.	NAME OF PARTS	MATERIALS
1	BODY	CF8M or WCB
2	END CAP	CF8M or WCB
3	GASKET	GRAPHITE
4	BALL	SS316+Ni base(HVOF)
5	BALL SEATS	SS316+STELLITE
6A	SEAT BACK SEAL	GRAPHITE
6B	SEAT HOUSING	SS 316
6C	SPRING DISK	INCONEL
6	THROUST SEAL	GRAPHITE
7	STEM	SS 316
7A	ANT-STATIC	SS 316
8	STEM PACKING	GRAPHITE
9	GLAND WASHER	SS 304
10	DISK WASHER	17-7PH
11	GLAND NUT	SS 304
12	NUT STOP	SS 304
13	SPACE WASHER	SS 304
14	STOP PLAYER	SS 304
15	STOP PIN	SS 304
16	STEM PIN	SS 304
17	STEM NUT	SS 304
17	HANDLE	CF8
18	HANDLE COVER	PLASTISOL
19	LEVER HEAD	CF8
20	SET BOLT	SS 304
21	LEVER	STEEL PIPE
22	BOLTS	SS 304

UNIT:mm

SIZE	A	B	C	D	E	F	G	d1	d2	H	L	S	T	OD	ID	OD	ID	
1 1/2"	80	18	200	30	118	90	70	72	92	14	120	46.8	18.3	46.5	40.5	46.5	37.8	46.5
2"	90	20	300	50	144	70	102	82	114	17	150	61.1	21.3	60.8	54.4	60.8	48.3	60.8

NAME	3P-C-metal sealed ball valve	DMG.	KUM	DATE	NOV.14.2013
TYPE	306B-1-1/2"-2"	(3000psi)		DATE	
ZIPSON STEEL INDUSTRIAL CO., LTD.		DMG. NO.	900-000-PA-000(0000)		

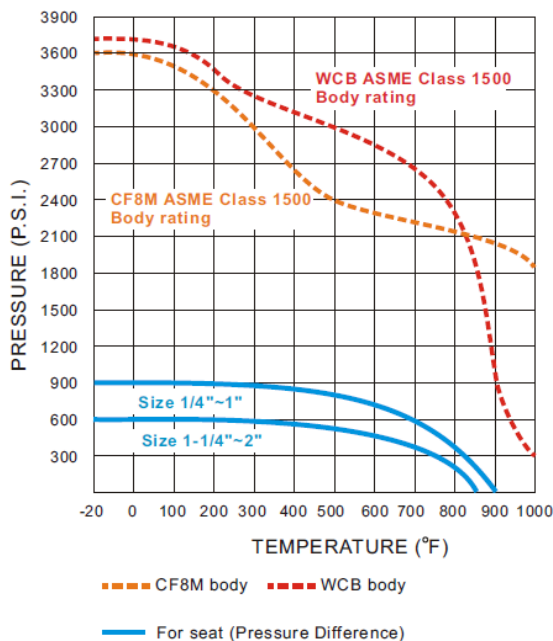
### 3. Design Specification

Items	Standards/Codes
Standards of Design (P-T rating)	ANSI B16.34
Testing	API 598
Material of Casting (Body, Cap, Ball)	ASTM A351
Mounting Pad	ISO-5211 direct
Bolt and Nut	ISO-3506 (A2-70)

### 4. Pressure Temperature Ratings

The pressure-temperature rating of ball valves are determined, not only by valve shell materials, but also by sealing materials used for ball seats, stem packing, and body seal. Sealing materials may be high molecule, elasticity and hardness, however, the choice is limited by the characteristics of the service fluid, temperature, pressure, velocity of fluid, frequency of valves operation and sizes of ball valves etc, Followings are the 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.

**PRESSURE/ TEMPERATURE CHART**





## 5. Delivery Condition and Storage

- a. Packing condition: Is there any damaged during the transportation.
- b. The bolts of cap and yoke: to make sure the bolt does not loose tightness when it arrived.

Valves must store in an indoor warehouse to avoid dusts and other foreign object, do not exposed in an open space without to put a cover over or take off the packing under an unnecessary situation.

## 6. Installation and Operation

### 6.1 Handling

During the ball valve installation, it must follow the procedure to handle at the both side of the bodies. If using cable for big size valve, be make sure the cable must be strong enough to ensure the safety during the installation.

### 6.2 Cleaning

Even the valves was transported under a clean environment, operator must check is there any foreign body or dusts inside the bore. If yes, clean it before installation. Operator clean the valves by water, compression air, or steam (automation valve shall be cleaned only with water or steam, the compression air is not allowed.) For cleaning operation, first step is put the valve bore perpendicular to the ground and clean, ensure all the dusts can be removed from the bore. The second step is checking and cleaning all the connecting pipe bore and connection area. No flush, rust and foreign bodies allow to avoid the blocking and leakage.

### 6.3 Valve Installation (Install to the pipeline system)

#### a. Direction

Please follow the arrow on the valve body.

#### b. Position

The body, cap and gasket are in the connection area of ball valve and pipeline. The bear weight ability and gradient are very important to the

pipe installation. Do not make the pressure from the pipeline and stress to concentrate on the connecting area of body and cap. It will cause the deformed and leakage, and the ball, seat, and stem will stick, leaking, and damaged.

c. Systems hydrostatic test

Before delivery, valves are tested 1.5 times the allowable pressure at ambient temperature. After installation, the piping system may subject to system tests, as condition not to exceed the above mentioned pressure.

#### 6.4 Operation

- a. For manual operation, shift the handle in counter clockwise and clockwise for changing the flow

## 7. Put into service

- 7.1 After install to the pipeline, it is necessary to check the function of the product. Thus, operate the valve about 3 times to ensure the function.
- 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.
- 7.3 After pressure testing, user shall operate the valve again about 3 times to ensure the function.

## 8. Dangers of inappropriate use

- 8.1 Never uses the product exceed its allowed condition, such as pressure, temperature and fluid.
- 8.2 If the product has any inappropriate use, the product was damage however there are no signals occurs immediately. 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 ball valve. User shall consider the time interval depend on the kinds of fluid, flow velocity, operation frequency, high-pressure effect and high-temperature effect etc.

### 9.2 Disassembly

9.2.1 The user should check the service kit of 306M, if available in the local market, if not, please do not disassembly the valve, otherwise, please make an order from the original manufactory for the service kit.

(suggestion: every time dismantle the ball valve, we suggest replacing the new seals of the valve to prevent from leaking before assembling)

9.2.2 To dismantle the valve must follow the procedure and drawings and be take care as mentioned below.

9.2.3 It doesn't matter where the position of valve located is, usually it contained the seal up fluid, so operator must be very carefully when remove the valve on the pipe. It must operate the ball a little and let the fluid come out slowly, it also need to watch out the poisonous and inflammability objects if there is any.

9.2.4 To dismantle the valve body, release the end cap carefully. It must be take care to dismantle the ball to avoid the seat retainer fall down from end cap.

9.2.5 To lift the ball by hoist, it must make the protection on corner to avoid the ball damaged by metal contacted. The right position for store the valve is put the open end on to the ground. This procedure is protecting the surface of the ball.

### 9.3 Parts inspection, maintenance and replacement:

9.3.1 Check the surface of ball is it scraped? It may use the PT for inspection if necessary. If there is any damaged on the surface, then found out the root cause such as the dirt fluid...etc. It must avoid the damage factors as far as possible.

9.3.2 If there is damage on the ball surface? Please change a new ball & seat at the same time.

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

9.3.4 The stem packing need to be replaced by the new parts after dismantling the valve. User shall make sure that your distributor able to serve the same packing of your valve if you do not have a service pack.

To tight the gland nut, please see Section 10 for torque data.

9.3.5 To do the final inspection for a valve, it must operate 10 times to ensure all the parts are assembled correctly. To ensure the torque in a same value during the open/close operation. If the torque is not the same in operation, than it may have some parts in a not corrected position or interference. It must dismantle and re-assembly. Otherwise, it is easy to damage if let this valve works on a pipeline under higher pressure.

#### 9.4 Assembly

For assembly process, it takes the opposite way of dismantle process. The stopper must be located at the right place; otherwise, the operation will be opposite.

## 10. Torque Data

The bolt torque on body & stem nut are tightened to metal to metal.

## 11. Corrosion Data

The following corrosion data is just for information only.