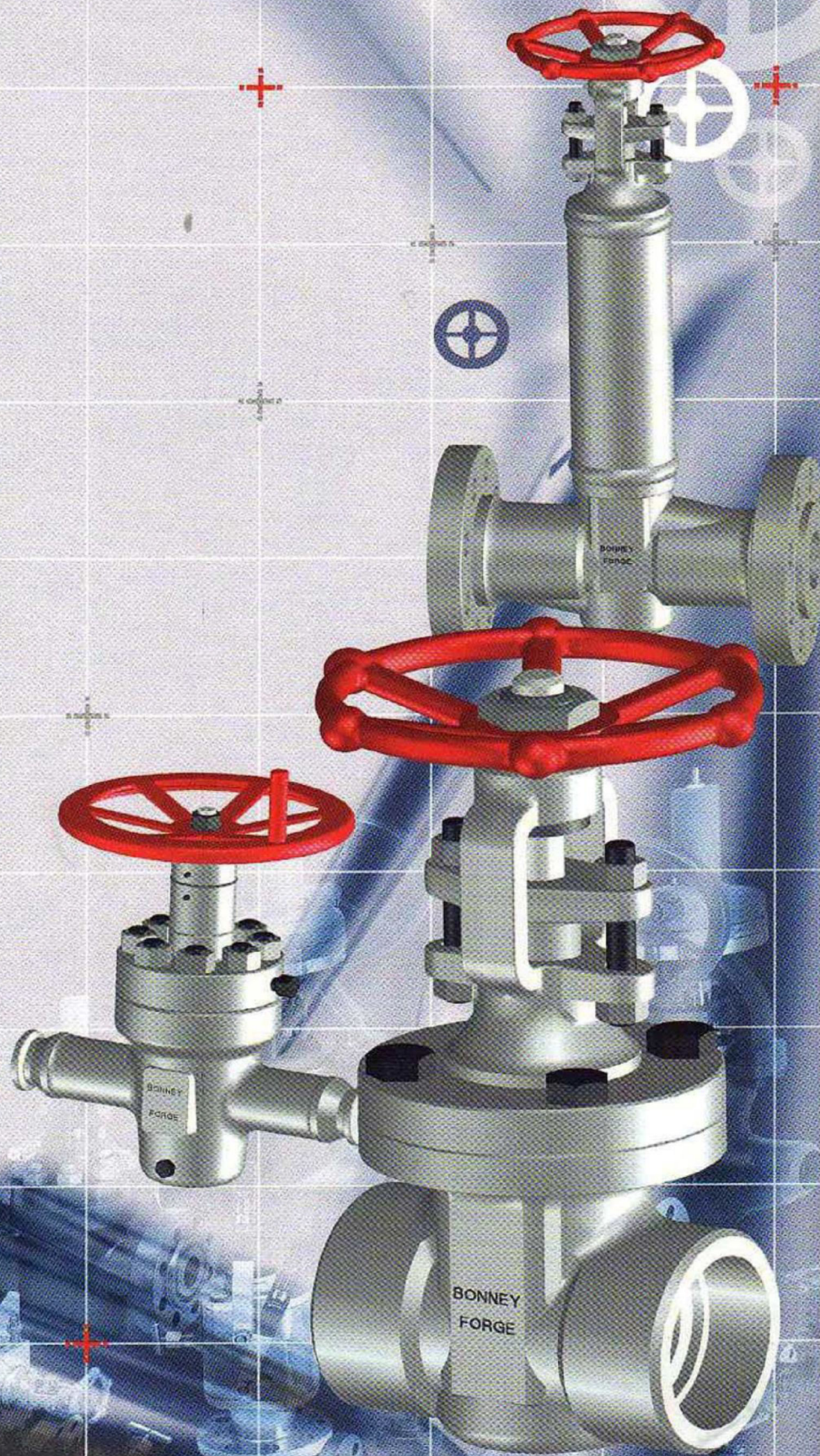


**BONNEY FORGED  
ITALY**

**FORGED VALVES**



[www.upcc.com.ph](http://www.upcc.com.ph)



# DESIGN, CONSTRUCTION, MARKING FOR FORGED VALVES

B.F.E. valves are manufactured according to API 602, ANSI B16.34, B31.1, B31.3 and MSS-SP 84 Standards or BS 5352 when the valve design is not included in API, ANSI or MSS standards.

## VALVE CLASSIFICATION

B.F.E. valves are available in API/ANSI 800, 1500, 2500 and 4500 Lbs classes, with socket-weld, butt weld threaded ends. Integral flanged valves are available in ANSI classes 150, 300, 600, 1500 and 2500.

## END TO END DIMENSIONS

End to End dimensions for socket weld, threaded and butt welding ends class 150, 300, 600, 1500, 2500 and 4500 Lbs are according to B.F.E. standards. End to end of flanged valves are in accordance with ANSI B16.5 and B16.10. B.F.E. can supply valves according to DIN Standard.

## BODY/BONNET JOINT

B.F.E. valves are available in two designs:

- Bolted Bonnet, with male-female joint, spiral gasket retained type, made in F316L/Graphite. Ring joint gaskets are also available on request. Body/bonnet bolting material is high strength molybdenum steel.
- Welded Bonnet, obtained with screwed and seal welded joint. On request a full penetration strength welded joint is available.

## OPERATING FEATURES

B.F.E. valves are OS & Y (Outside screw and yoke). The self aligning packing glands is two piece bolted style. The stem thread is ACME 2G.

- The stem surface in contact with the packing is lapped to a 2 r.m.s. max finish. This finish minimizes friction between the packing and the stem and lowers the required applied torque on the handwheel. This results in longer valve life.
- The stem contains a 45 degree seat for back-seating of the valve when valve is in the fully open position. This feature allows the valve to be repacked while under pressure and excludes the packing when the valve is fully open in service.
- In the gate valve design, the stem is coupled to the wedge by an integral "T" head. This special design feature ensures compliance with the stem pull test requirements of API 602, paragraph 2.8.2.

## SEATING

In order to comply with the minimum hardness differentials specified by the various standards for the seating surfaces,

and to ensure a tight seat closure, the valve seating surfaces (seats) are heat treated and precision machined (ground and lapped). Hardness differentials are not applicable when both seating surfaces (seats and disc/wedge) are made of austenitic stainless steel or when the seating surfaces are stellite (Stellite grade 6).

On globe, piston check and ball check valves the stellite overlay may be made directly on machined seating surface on the body of the valve.

## PORT DESIGN / FLOW PASSAGE

Two designs are available:

- Conventional or reduced port. Port dimensions for gate valves are per API 602 and BS 5352. Port dimensions for globe and check valves are per BS 5352.
- Standard or full port. Port dimensions are per BS 5352 and are approximately equal to the corresponding size of schedule 80 pipe 1.d.

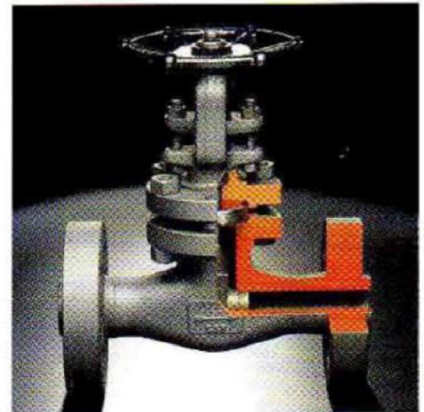
## MINIMUM THICKNESSES

Minimum wall requirements for pressure retaining components are in accordance with API 602, ANSI B16.34 and BS 5352 standards. End preparation details for socket weld and threaded end valves are in accordance with ANSI B16.11 and MSS-SP 84.

## MARKING AND IDENTIFICATION

Each valve is identified on proper name plate and on valve body as required by MSS-SP 25, B16.34.

Name plate carries all information on rating, size, valve body and trim material. On body, marking includes material designations (per ASTM) and heat symbol, size, rating and of course the trade mark. Globe and check valves are supplementary marked with an arrow indicating flow direction.



Name Plate



Supplementary marking (when required)

Trade mark, Material, Valve rating and size

**FORGED**

# GATE VALVES

Design construction:

API 602 - BS 5352 - ANSI B16.34 - NF M87.412

Testing according to API 598 - BS 6755

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning packing gland in two parts

Integral backseat

Bolted Bonnet design

Body Bonnet weld to ASME IX

Socket weld Ends to ANSI B16.11

Screwed Ends (NPT) to ANSI B1.20.1

Butt Welding Ends to ANSI B.16.25

Ratings:

- carbon steel class 800 1975 psig @ 100°F  
138 bar + 38°C

- carbon steel class 1500 3705 psig @ 100°F  
255 bar + 38°C

- carbon steel class 2500 6170 psig @ 100°F  
425 bar + 38°C

- carbon steel class 4500 11100 psig @ 100°F  
765 bar + 38°C

Size range: 1/4" to 2"



## **BOLTED BONNET**

<b>CLASS</b>	<b>FIGURE</b>
800 FB	H 100
800 RB	HL 100
1500 FB	9H 100
1500 RB	9HL 100
1500 FB	H9R 100
2500 FB	25HR 100

## **WELDED BONNET**

<b>CLASS</b>	<b>FIGURE</b>
800 FB	W 100
800 RB	WL 100
1500 FB	9W 100
1500 RB	9WL 100
2500 FB	25W 100
4500 FB	45W 100

# FORGED GLOBE VALVES

Design construction:  
 BS 5352 - ANSI B16.34 - NF M87.412  
 Testing according to API 598 - BS 6755  
 Marking MSS SP25  
 Outside Screw and Yoke (OS&Y)  
 Self aligning packing gland in two parts  
 Integral backseat  
 Loose solid disc  
 Bolted Bonnet design  
 Body Bonnet weld to ASME IX  
 Socket weld Ends to ANSI B16.11  
 Screwed Ends (NPT) to ANSI B1.20.1  
 Butt Welding Ends to ANSI B.16.25

**Ratings:**

- carbon steel class 800 1975 psig @ 100°F  
138 bar + 38°C
- carbon steel class 1500 3705 psig @ 100°F  
255 bar + 38°C
- carbon steel class 2500 6170 psig @ 100°F  
425 bar + 38°C
- carbon steel class 4500 11110 psig @ 100°F  
765 bar + 38°C

Size range: 1/4" to 2"

## BOLTED BONNET

CLASS	FIGURE
800 FB	H 300
800 RB	HL 300
1500 FB	9H 300
1500 RB	9HL 300
1500 FB	H9R 300
2500 FB	25HR 300

## WELDED BONNET

CLASS	FIGURE
800 FB	W 300
800 RB	WL 300
1500 FB	9W 300
1500 RB	9WL 300
2500 FB	25W 300
4500 FB	45W 300

## Y PATTERN W.B.

CLASS	FIGURE
800 FB	Y 300
1500 FB	9Y 300
2500 FB	25Y 300
4500 FB	45Y 300



**FORGED**

# CHECK VALVES

Design construction:  
 BS 5352 - ANSI B16.34 - NF M87.412  
 Testing according to API 598 - BS 6755  
 Marking MSS SP25  
 Socket weld Ends to ANSI B16.11  
 Screwed Ends (NPT) to ANSI B1.20.1  
 Butt Welding Ends to ANSI B.16.25  
 Spring only on request  
 Bolted Bonnet design  
 Body Bonnet weld to ASME IX

Ratings standard class:  
 - carbon steel class 800 1975 psig @ 100°F  
 138 bar + 38°C  
 - carbon steel class 1500 3705 psig @ 100°F  
 255 bar + 38°C  
 - carbon steel class 2500 6170 psig @ 100°F  
 425 bar + 38°C

Size range: 1/4" to 2"



BOLTED BONNET			
CLASS	FIGURE		
	Piston	Ball	Swing
800 FB	H 400	H 500	H 600
800 RB	HL 400	HL 500	HL 600
1500 FB	9H 400	9H 500	9H 600
1500 RB	9HL 400	9HL 500	9HL 600
1500 FB	H9R 400	H9R 500	H9R 600
2500 FB	25HR 400	25HR 500	25HR 600



WELDED BONNET			
CLASS	FIGURE		
	Piston	Ball	Swing
800 FB	W 400	W 500	WH 600
800 RB	WL 400	WL 500	WHL 600
1500 FB	9W 400	9W 500	9WH 600
1500 RB	9WL 400	9WL 500	9WHL 600
2500 FB	25W 400	25W 500	
4500 FB	45WH 400	45WH 500	



Y PATTERN WELDED BONNET			
CLASS	FIGURE		
	Piston	Ball	-
800 FB	Y 400	Y 500	-
1500 FB	9Y 400	9Y 500	-
2500 FB	25Y 400	25Y 500	-
4500 FB	45Y 400	45Y 500	-

**FORGED**

# INTEGRAL FLANGED VALVES

## GATE VALVES

CLASS	FIGURE	
	Full Bore	Reduced Bore
150	1 - 100	L1 - 100
300	3 - 100	L3 - 100
600	6 - 100	L6 - 100
1500	15RR 100	-
2500	25RR 100	-

## GLOBE VALVES

CLASS	FIGURE	
	Full Bore	Reduced Bore
150	1 - 300	L1 - 300
300	3 - 300	L3 - 300
600	6 - 300	L6 - 300
1500	15RR 300	-
2500	25RR 300	-

## CHECK VALVES

### PISTON TYPE

CLASS	FIGURE	
	Full Bore	Reduced Bore
150	1 - 400	L1 - 400
300	3 - 400	L3 - 400
600	6 - 400	L6 - 400
1500	15RR 400	-
2500	25RR 400	-

### BALL TYPE

CLASS	FIGURE	
	Full Bore	Reduced Bore
150	1 - 500	L1 - 500
300	3 - 500	L3 - 500
600	6 - 500	L6 - 500
1500	15RR 500	-
2500	25RR 500	-

### SWING TYPE

CLASS	FIGURE	
	Full Bore	Reduced Bore
150	1 - 600	L1 - 600
300	3 - 600	L3 - 600
600	6 - 600	L6 - 600
1500	15RR 600	-
2500	25RR 600	-

Applicable standards and specifications:  
 API 602 - BS 5352 - ANSI B16.34  
 Face to face according to ANSI B16.10  
 Flanges according to ANSI B16.5  
 Outside Screw and Yoke (OS&Y)  
 Self aligning packing gland in two parts  
 Integral backseat  
 Integral body flanges

For GLOBE VALVES only  
 Loosed disc on stem  
 Disc must be needle or parabolic type on request  
 Needle valves may have an integral disc/stem on request  
 For CHECK VALVES only  
 Spring only on request  
 Ball and piston type valves with full guided disc  
 Size range: 1/2" to 2"

