

JAN, 2021

# AFFCO FLOWCONTROL

## GLOBE VALVE



## Standards

Design and Manufacture:

- Cast steel globe valve to BS 1873, ASME B16.34;
- Forged steel globe valve to API 602

Inspection and Test: API 598.

End flange dimension: ASME B16.5, BW end ASME B16.25

Socket-weld dimension: ASME B16.11.

Face to face and end to end: ASME B16.10

Pressure-temperature ratings: ASME B16.34

## Gasket of Bonnet Flange

Stainless steel + flexible graphite wounded gasket is used for Class 150 and Class300 globe valve. Stainless steel+ flexible graphite wounded gasket is used for Class600, and ring joint gasket is also optional for Class600. Ring joint gasket is used for Class900 globe valve. Pressurized seal design is used for Class 1500-Class2500 globe valve.

## The features of globe valve

Bolted Bonnet, Outside Screw and Yoke, Rising handwheel, Metallic seating surfaces.

## Stem Design

The stem is of integral forged design. The minimum diameter of the stem shall as per the standard requirement.

## Backseat Design

Affco globe valves have the back seating design. In most cases, the carbon steel globe valve is fitted with a renewable backseat. For stainless steel globe valve, the backseat is machined directly in the bonnet or is machined after welding. When the globe valve is at fully open position, the sealing of the backseat can be very reliable. However, as per the requirement of API, it is not recommended to add or change packing by the mean of back seating when the valve is pressure containing.

## Stem Nut

In general, stem nut is A439 D2 material. It can also be made of copper alloy upon request. For large globe valves, rolling bearings are installed on both sides of stem nuts to reduce open and close torque of globe valves.



## Actuator

Handwheel, impact handwheel & gear box is usually used for globe valve actuation. Chain wheel and electric actuator can be also used for globe valve actuation upon request

## Body and Bonnet Connection

The body and bonnet of class 50 to 900 globe valves are normally bolted and nuts. Class 1500- 2500 globe valves are typically designed with a pressurized seal on the body and bonnet.

## Packing Seal

Molded flexible graphite is used as stem packing material. Teflon or combined stem packing can also be used if required by customer. The inner surface of the stuffing box, in which the part in contact with the packing has a roughness of ra3.2um. Stem surface, part of the stem packing in contact, machined accurately after rolling to achieve high accuracy ra0.8um to ensure reliable sealing of the stem area.

## Belleville Spring Loaded Packing Impacting System

Belleville spring packing impact system is available on request to improve the durability and reliability of packing seals.

## Seat

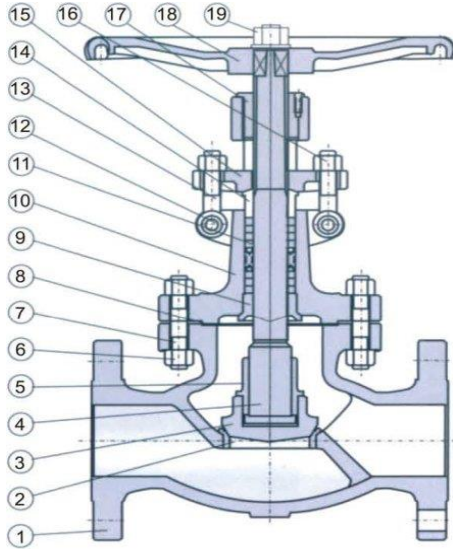
Carbon steel gate valves have forged steel seats with Stellite overlaid seating surface. Renewable with threaded seat is used for NPS ≤10 globe valves, and welded seat is also available for these valves upon request. Valve welded to seat is suitable for NPS ≥12 carbon steel valves. For stainless steel globe valves, integral seats are usually used or integral directly welded Stellite. Stainless steel globe valve seats can also be threaded or welded upon request.

## Special Globe Valve

In addition to common globe valves, Affco also produce cryogenic globe valves, bellows sealed globe valves and jacketed globe valves, etc.



## Parts and Material List



### Standards

Design and Manufacture:  
BS 1873 and ASME B 16.34

Inspection and Test:  
API 598

End flange dimension  
ASME B16.5

BW end dimension:  
ASME B16.25

Socket-weld dimension:  
ASME B16.11

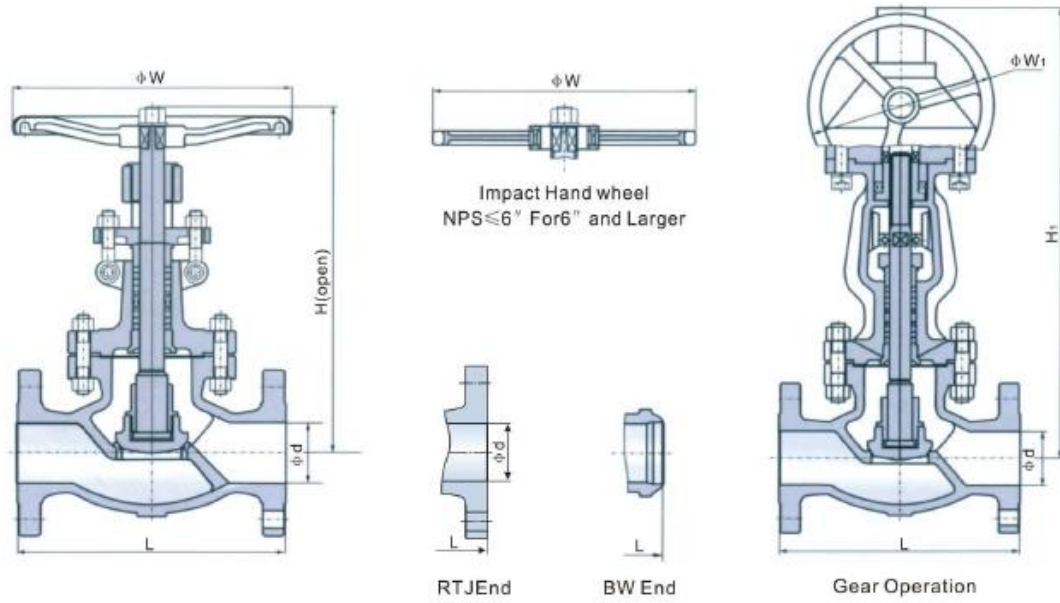
Face to face and end to end:  
ASME B16.10

Pressure-temperature ratings:  
ASME B16.34

Parts No.	Parts Name	Materials				
		WCB/Trim 1	WCB/Trim 5	WCB/Trim 8	CF8/304	CF8M/316
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Seat ring	A105+13Cr	A105+STL	A105+13STL	ASTM A351 CF8	ASTM A351 CF8M
3	Disc	ASTM A216 WCB+13Cr	ASTM A216 WCB+STL	ASTM A216 WCB+13Cr	ASTM A351 CF8	ASTM A351 CF8M
4	Stem	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
5	Disc nut	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
6	Bonnet nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
7	Bonnet bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
8	Gasket	Spiral wound SS304+Graphite	Spiral wound SS304+Graphite	Spiral wound SS304+Graphite	Spiral wound SS304+Graphite	Spiral wound SS304+Graphite
9	Backseat bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A351 CF8	ASTM A351 CF8M
10	Bonnet	ASTM A216 WCB	ASTMA 216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
11	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
12	Eyebolt pin	ASTM A36	ASTM A36	ASTM A36	SS304	SS316
13	Gland eyebolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
14	Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
15	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
16	Eyebolt nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
17	Stem nut	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2
18	Handwheel	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
19	Handwheel nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

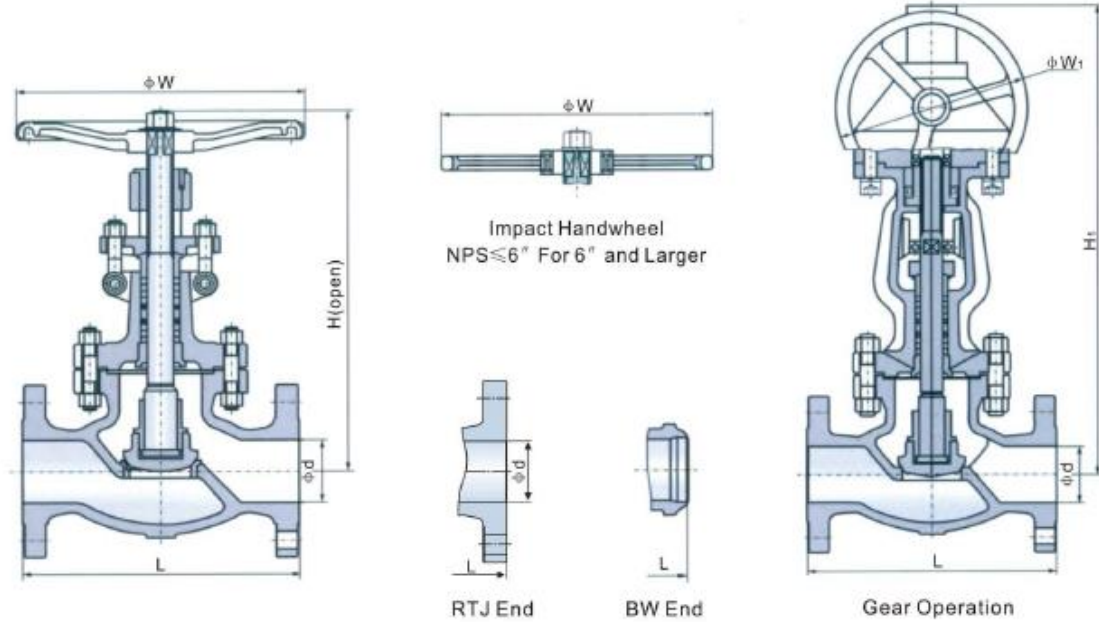
Note: Only some common components of steel globe valve are listed in the table. Other material can be provided upon request or according to actual valve working conditions.

## Class 150 Cast Steel Globe Valve



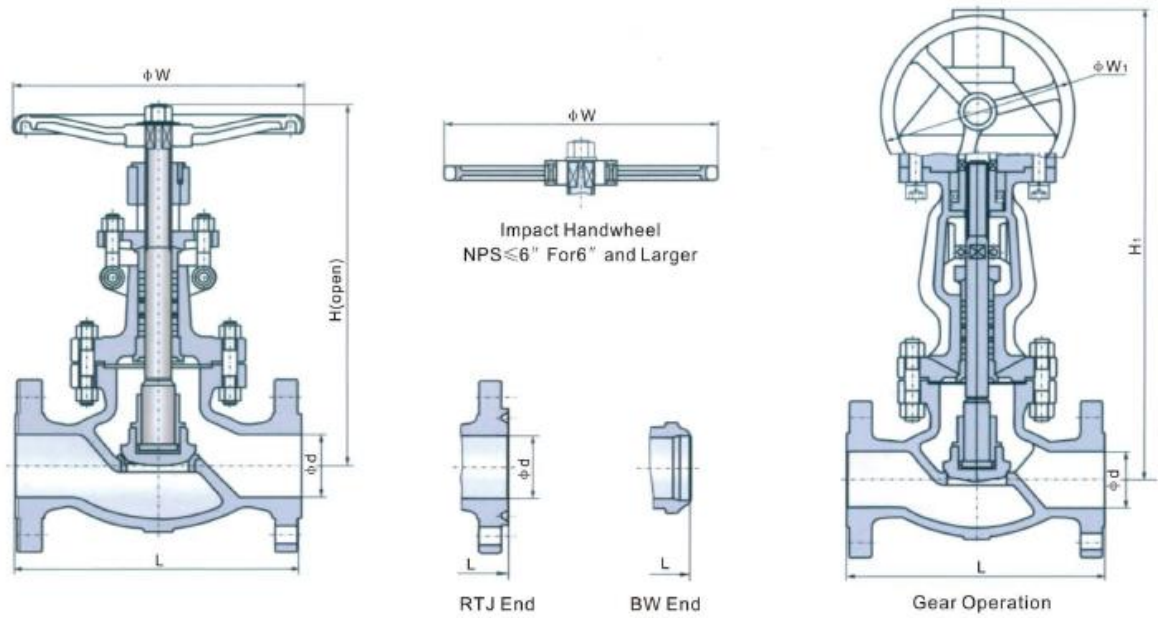
Pressure Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H1	W	W1	Hand Wheel	Gear Box
			RF	FF	BW							
Class 150	1/2	15	108	108	108	13	182	-	100	-	3	-
	3/4	20	117	117	117	19	193	-	100	-	4	-
	1	25	127	127	127	25	217	-	100	-	5	-
	1 1/4	32	140	140	140	32	235	-	135	-	8	-
	1 1/2	40	165	165	165	38	258	-	135	-	9	-
	2	50	203	203	203	51	330	-	200	-	19	-
	2 1/2	65	216	216	216	64	360	-	250	-	27	-
	3	80	241	241	241	76	390	-	280	-	36	-
	4	100	292	292	292	102	445	-	300	-	53	-
	5	125	356	356	356	127	480	-	350	-	75	-
	6	150	406	406	406	152	520	556	350	310	94	126
	8	200	495	495	495	203	600	658	400	310	148	180
10	250	622	622	622	254	773	805	450	460	242	291	
12	300	698	698	698	305	880	955	500	460	438	480	

## Class 300 Cast Steel Globe Valve



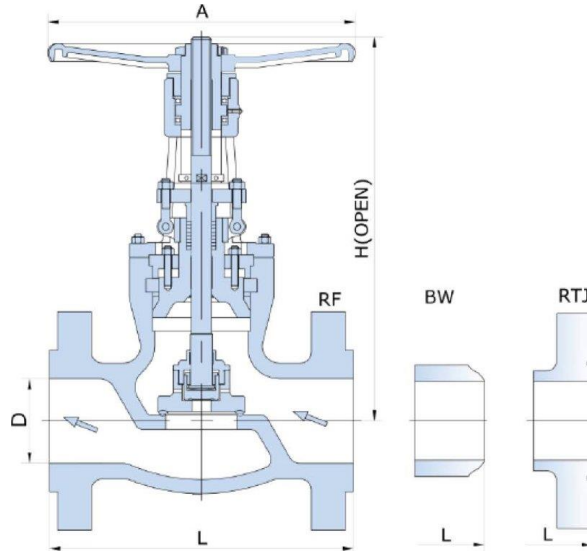
Pressure Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H1	W	W1	Hand Wheel	Gear Box
			RF	FF	BW							
Class 300	1/2	15	152	152	152	14	185	-	100	-	5	-
	3/4	20	178	178	178	19	195	-	100	-	7	-
	1	25	203	203	203	25	220	-	135	-	10	-
	1 1/4	32	216	216	216	32	240	-	135	-	14	-
	1 1/2	40	229	229	229	38	260	-	160	-	19	-
	2	50	267	267	267	51	385	-	200	-	25	-
	2 1/2	65	292	292	292	64	420	-	200	-	42	-
	3	80	318	318	318	76	440	-	280	-	46	-
	4	100	356	356	356	102	515	-	350	-	74	-
	5	125	400	400	400	127	580	-	350	-	111	-
	6	150	444	444	444	152	660	690	400	310	165	195
	8	200	559	559	559	203	900	950	550	460	275	327
10	250	622	622	622	254	950	990	600	460	400	452	
12	300	711	711	711	305	1030	1080	700	460	624	725	

## Class 600 & Class 900 Cast Steel Globe Valve



Pressure Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H1	W	W1	Hand Wheel	Gear Box
			RF	FF	BW							
Class 600	2	50	292	295	292	51	360	-	250	-	32	-
	2 1/2	65	330	333	330	64	410	-	280	-	42	-
	3	80	356	359	356	76	465	-	300	-	63	-
	4	100	432	435	432	102	545	575	400	310	107	138
	5	125	508	511	508	127	625	660	500	310	185	215
	6	150	559	562	559	152	785	820	550	460	290	342
	8	200	660	664	660	200	930	960	650	460	540	645
Class 900	2	50	368	371	368	51	480	-	350	-	55	-
	2 1/2	65	419	422	419	64	520	-	350	-	68	-
	3	80	381	384	381	76	564	630	400	310	95	128
	4	100	457	460	457	102	685	720	450	310	160	210
	5	125	559	562	559	127	780	840	550	460	270	325
	6	150	610	613	610	152	950	1015	650	460	410	480

Class 1500 & Class 2500 Cast Steel Pressure Sealed Globe Valve



Pressure Class	Size		Dimensions(mm)						Weight(kg)	
	NPS	DN	L			D	H	W	BW	RTJ
			RF	FF	BW					
Class 1500	2	50	358	371	279	47.5	430	300	68	73
	2 1/2	65	419	422	330	57	500	350	105	115
	3	80	470	473	368	70	750	400	132	U7
	4	100	546	549	457	91	820	450	1B2	19S
	6	125	705	711	610	136	910	600	485	510
	8	150	832	841	762	178	1015	-	-	-
	10	200	991	1000	914	222	1035	-	-	-
Class 2500	2	50	451	454	216	38	495	350	74	117
	2 1/2	65	508	514	254	48	550	450	130	155
	3	80	578	584	305	57	603	450	174	1953
	4	100	673	683	406	73	685	500	200	260
	6	125	914	927	559	111	971	600	767	1238
	8	150	1022	1038	711	145	1100	-	-	-
	10	200	1270	1292	864	184	1200	-	-	-