



INSTALLATION, OPERATION AND MAINTENANCE

2-PC FULL PORT FLANGED BALL VALVE (1/2"–10") B41/42 SERIES

GENERAL

SVF Ball valves have been designed and engineered to provide long lasting and trouble free service when used in accordance with the instruction and specifications herein.

The following instructions refer only to SVF STANDARD VALVES as described in the SVF current catalog sheets B41/42 SERIES.

Keep protective cover in place until moment of installation. Valve performance depends upon prevention of damage to ball surface. Upon removal of cover make sure that the valve is completely open and free of obstruction.

When shipped from the factory, the valve contains a silicon based lubricant which aids in the assembly of the valve. This may be removed with a solvent if found objectionable; alternatively valves can be ordered free of lubricants.

Certain ferrous valves are phosphated and oil dipped during the course of manufacture, but the processes used are completely non-toxic and the valves are quite safe to use for edible or potable products.

INSTALLATION

The valve may be installed for flow or vacuum in either direction. Use care to exclude pipe sealants from the valve cavity. When installing, use standard gaskets suitable for the specific service. Tighten flange bolts or studs evenly.

OPERATION

SVF valves provide tight shut off when used under normal conditions and in accordance with SVF's published pressure/temperature chart. If

these valves are used in a partially open (throttled) position seat life may be reduced.

SVF valves have ¼ turn operation closing in a counter-clockwise direction. It is possible to see when the valve is open or closed by the position of the wrench handle. When the wrench is across the pipeline, the valve is closed.

Any media which might solidify, crystallize or polymerize should not be allowed to stand in the ball valve cavities unless regular maintenance is provided. If minimal maintenance is performed, SVF offers steam jacketed ball valves.

TORQUE REQUIREMENTS

Torque ratings are subject to variations depending on the length of time between cycles and the media in the system. All values as shown in Catalog Sheet B41/42 SERIES are based on clean tap water after 24 hours.

Breakaway torque is that force which must be exerted to cause the ball to begin to open.

Note: media which contain fine powders (25 microns or less) will significantly raise ball valve torque requirements.

MAINTENANCE

GENERAL

With self-wiping ball/seats, SVF valves have a long, trouble free life, and maintenance is seldom required. But, when necessary, valves may be refurbished, using a small number of components, none of which require machining. SVF valves are designed for easy service and assembly in the field. The following checks will help to extend valve life, or reduce plant problems.



INSTALLATION, OPERATION AND MAINTENANCE

2-PC FULL PORT FLANGED BALL VALVE (1/2”–10”) B41/42 SERIES

STEM LEAKAGE

If gland is in good condition tighten gland bolts (part #12 in catalog).

Note: If Stem leakage is not cured by the simple means described above, it will be necessary to dismantle valve and replace the stem packing (*if there is no stem leakage the stem assembly should not be touched*).

IN-LINE LEAKAGE

Check that valve is fully closed. If it is, leakage will be due to damaged seat or ball sealing surfaces and it will be necessary to dismantle the valve.

REBUILDING

Before rebuilding, check that all the correct components are available and that they are fit for reassembling. When rebuilding, cleanliness is essential to allow long valve life and provide cost effective maintenance. **CAUTION: NO BODY OR STEM SEALS ARE REUSABLE.** Care must be taken to avoid scratching the seats and seal during installation.

Note: Caution must be taken with valves that have been in hazardous media. They must be decontaminated before disassembly by relieving the line pressure and flushing the line with the valve in the partially open position. Protective clothing and face shields, gloves, etc. **MUST BE USED** for this operation.

A Disassembly of Valve: (After removing from line)

- 1.) With valve in Open position, undo body bolts (#17) to separate valve body components (#1 & #2).
- 2.) Remove body seal (#9), ball (#4) and seats (#8) and discard body seal and seats if they shown signs of damage or leakage paths.

B Removing Stem Assembly

- 1.) Remove handle by removing Snap ring (#11).
- 2.) Undo and remove gland nuts and bolts (See parts #16, 20, 14, 7, 12 & 6).
- 3.) Push stem (#3) into valve body to remove stem from valve.
- 4.) Remove stem seals and thrust washers and discard.

C Inspection

- 1.) The ball and the surfaces against which the seats wipe and make contact should be free of pit marks and scratches. Light marring from the action of the ball against the seats is normal and will not affect the operation of the valve.
- 2.) The stem and body surfaces that the thrust bearing and stem seal contact, should be free of pit marks and scratches.

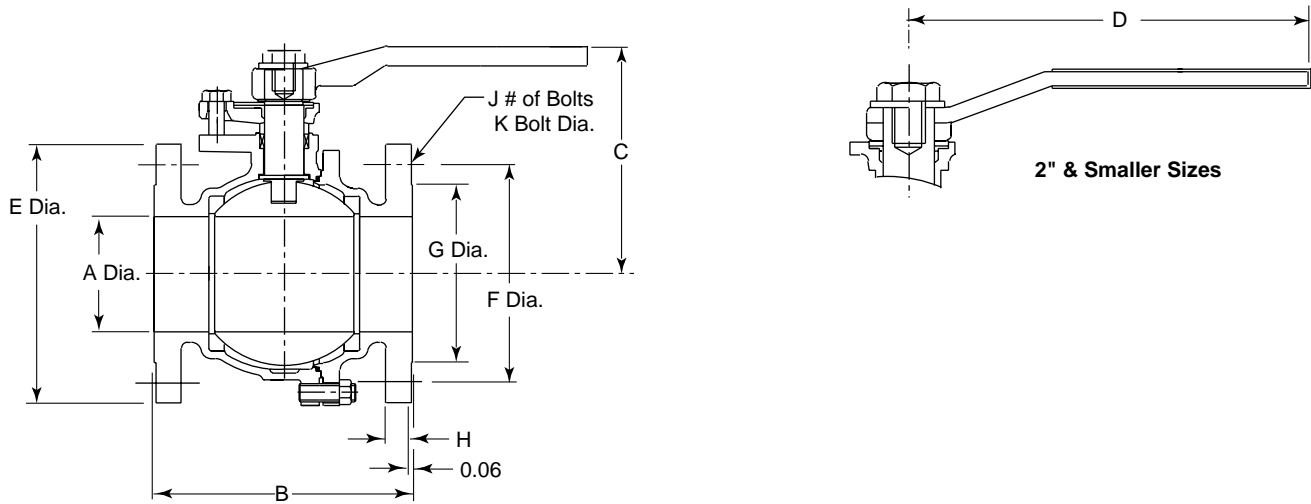
D Reassembly

- 1.) Lightly lubricate the ball, seats, body seal, stem seal and thrust bearing with lubricant compatible with media being handled. White petroleum jelly is a good general-purpose lubricant.
- 2.) To reassemble stem, disassembly procedure should be followed in reverse order.
- 3.) When stem assembly is complete, tighten gland nuts and bolts.
- 4.) Insert seats in body. Make sure seats rest firmly on back surface of each recess.
- 5.) With stem in the CLOSED position, insert ball into body so that stem slot engages with the tang at the base of the stem.
- 6.) Make sure body seal rests squarely on center seal surface of body. Insert and tighten body bolts diagonally.



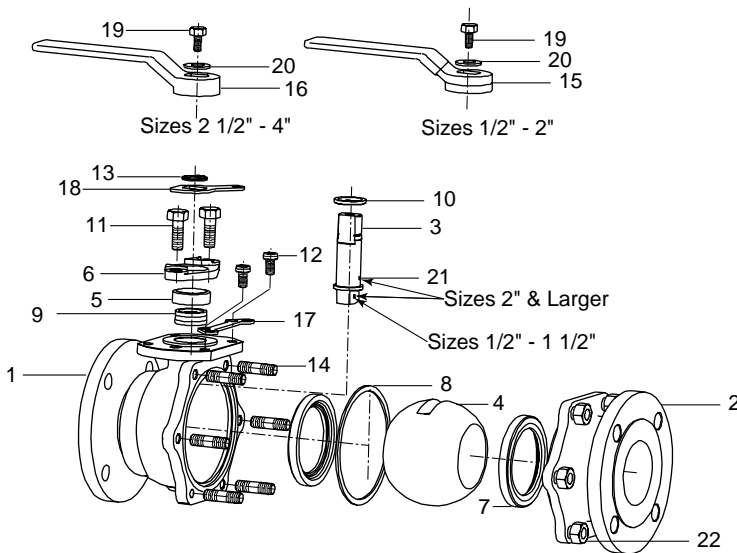
Series B41 Class 150, Full Bore, Sizes 1/2" - 4"

Dimensions & Weights



Size	A	B	C	D	E	F	G	H	J	K	CS Wt.	SS Wt.
1/2	0.51	4.25	3.30	5.10	3.50	2.38	1.38	0.44	4	0.62	4	4
3/4	0.75	4.61	3.46	5.10	3.88	2.75	1.69	0.44	4	0.62	5	5
1	1.00	5.00	4.01	5.10	4.25	3.12	2.00	0.44	4	0.62	7	7
1 1/2	1.50	6.50	5.00	9.10	5.00	3.88	2.88	0.56	4	0.62	15	15
2	2.00	7.00	5.59	9.10	6.00	4.75	3.62	0.62	4	0.75	22	22
2 1/2	2.50	7.50	5.98	13.80	7.00	5.50	4.12	0.69	4	0.75	34	35
3	3.00	8.00	6.69	13.80	7.50	6.00	5.00	0.75	4	0.75	44	45
4	4.00	9.00	8.11	17.70	8.50	7.50	6.19	0.94	8	0.75	75	77

Materials of Construction



► Remove for actuator mounting.

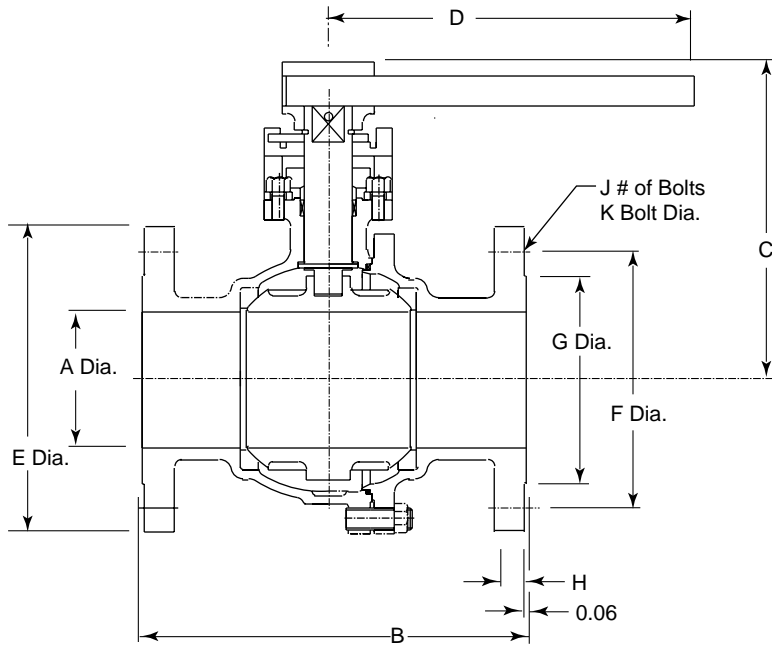
No.	Description	Material	
		Carbon Steel	Stainless
1	Body	A216-WCB	A351-CF8M
2	Cap	A216-WCB	A351-CF8M
3	Stem	A276-316	A276-316
4	Ball	A351-CF8M	A351-CF8M
5	Gland	A276-316	A276-316
6	Gland Flange	A351-CF8	A351-CF8
7	Seat	*RTFE	*RTFE
8	Seal	SPW304+Graphite	SPW304+Graphite
9	Gland Packing	**	**
10	Thrust Washer	RTFE 25% C.	RTFE 25% C.
11	Gland Bolt	A193-B8	A193-B8
12	Locking Bolt	A193-B8	A193-B8
13	Snap Ring	A686-W1***	A686-W1***
14	Body Bolt	A193-B7	A193-B8
15	Handle, Vinyl Coat	A108-1020****	A108-1020****
16	Handle	A536*****	A536*****
17	Locking Plate	A167-304	A167-304
18	Stop/Lock	A167-304	A167-304
19	Handle Bolt	A276-304	A276-304
20	Washer	A167-304	A167-304
21	Anti-Static Device	316 SS	316 SS
22	Body Nut	A194-2H	A194-8

* 15% Glass Standard, 25% Carbon Optional
 ** Expanded Graphite + Corrosion Inhibitor
 *** Cr Plated
 **** 2" & Smaller
 ***** 2 1/2"-4"

Series B41 Class 150, Full Bore, Sizes 6" & 8"

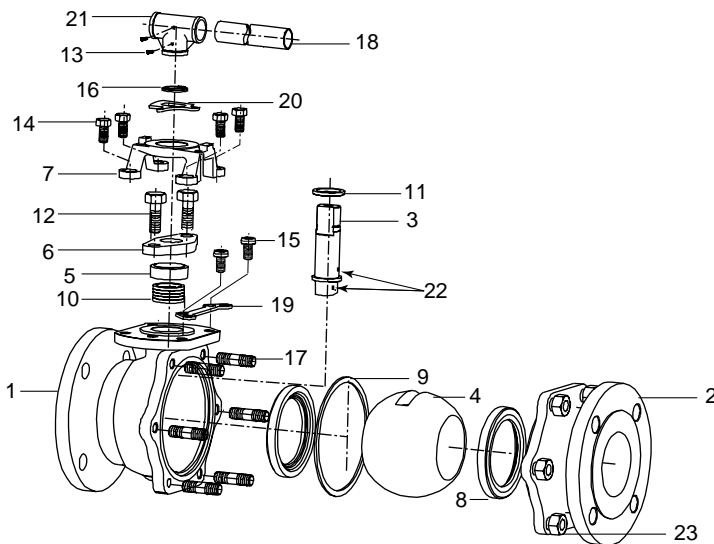


Dimensions & Weights



Size	A	B	C	D	E	F	G	H	J	K	CS Wt.	SS Wt.
6	6.00	15.50	13.03	23.60	11.00	9.50	8.50	1.00	8	0.88	162	149
8	8.00	18.00	15.98	31.50	13.50	11.75	10.62	1.12	8	0.88	266	266

Materials of Construction



► Remove for actuator mounting.

No.	Description	Material	
		Carbon Steel	Stainless
1	Body	A216-WCB	A351-CF8M
2	Cap	A216-WCB	A351-CF8M
3	Stem	A276-316	A276-316
4	Ball	A351-CF8M	A351-CF8M
5	Gland	A276-316	A276-316
6	Gland Flange	A351-CF8	A351-CF8
7	Yoke	A216-WCB	A351-CF8
8	Seat	*RTFE	*RTFE
9	Seal	SPW304+Graphite	SPW304+Graphite
10	Gland Packing	**	**
11	Thrust Washer	RTFE 25% C.	RTFE 25% C.
12	Gland Bolt	A193-B8	A193-B8
13	Set Screw	A108-1020	A108-1020
14	Yoke Bolt	A193-B8	A193-B8
15	Locking Bolt	A193-B8	A193-B8
16	Snap Ring	A686-W1***	A686-W1***
17	Body Bolt	A193-B7	A193-B8
18	Pipe Handle	Carbon Steel	Carbon Steel
19	Locking Plate	A167-304	A167-304
20	Stop/Lock	A167-304	A167-304
21	Handle Guide "T"	A216-WCB	A216-WCB
22	Anti-Static Device	316 SS	316 SS
23	Body Nut	A194-2H	A194-8

* 15% Glass Standard, 25% Carbon Optional

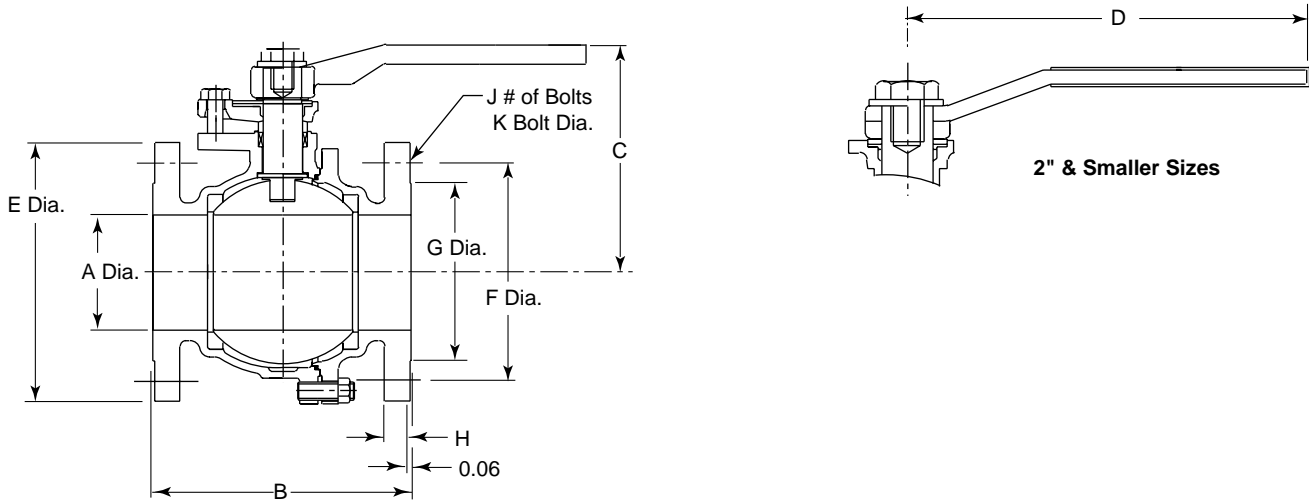
** Expanded Graphite + Corrosion Inhibitor

*** Cr Plated



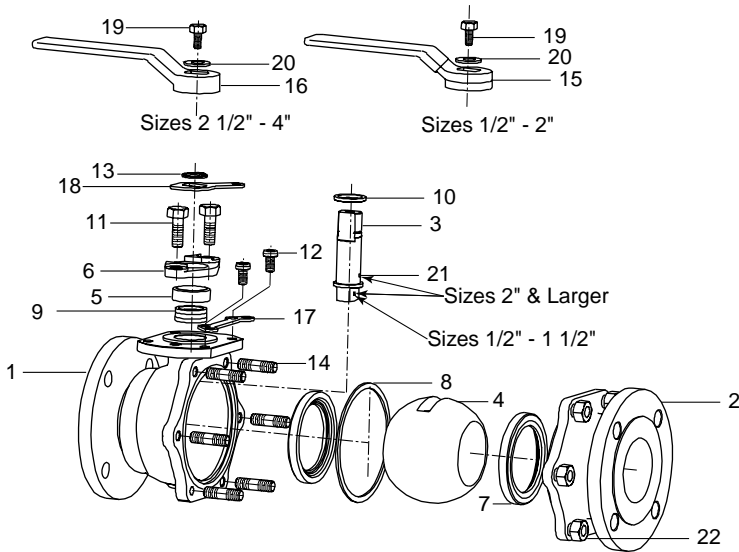
Series B42 Class 300, Full Bore, Sizes 1/2" - 4"

Dimensions & Weights



Size	A	B	C	D	E	F	G	H	J	K	CS Wt.	SS Wt.
1/2	0.51	5.50	3.30	5.10	3.50	2.62	1.38	0.56	4	0.62	6	6
3/4	0.75	6.00	3.46	5.10	4.62	3.25	1.69	0.62	4	0.75	8	8
1	1.00	6.50	4.01	6.10	4.88	3.50	2.00	0.69	4	0.75	12	12
1 1/2	1.50	7.50	5.19	9.10	6.12	4.50	2.88	0.81	4	0.88	24	24
2	2.00	8.50	5.79	9.10	6.50	5.00	3.62	0.88	8	0.75	31	32
2 1/2	2.50	9.50	5.98	13.80	7.50	5.88	4.12	1.00	8	0.88	48	48
3	3.00	11.13	6.93	13.80	8.25	6.62	5.00	1.12	8	0.88	65	66
4	4.00	12.00	8.27	17.70	10.00	7.88	6.19	1.25	8	0.88	107	110

Materials of Construction



► Remove for actuator mounting.

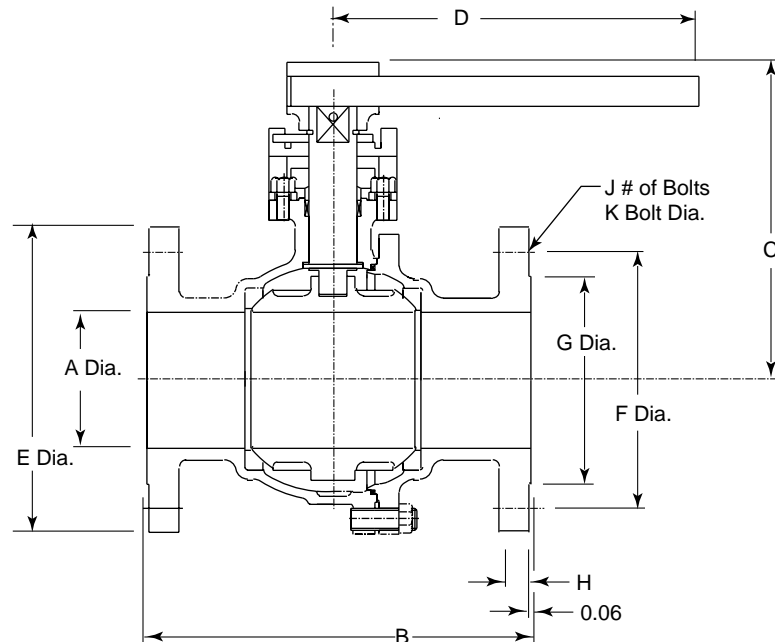
No.	Description	Material	
		Carbon Steel	Stainless
1	Body	A216-WCB	A351-CF8M
2	Cap	A216-WCB	A351-CF8M
3	Stem	A276-316	A276-316
4	Ball	A351-CF8M	A351-CF8M
5	Gland	A276-316	A276-316
6	Gland Flange	A351-CF8	A351-CF8
7	Seat	*RTFE	*RTFE
8	Seal	SPW304+Graphite	SPW304+Graphite
9	Gland Packing	**	**
10	Thrust Washer	RTFE 25% C.	RTFE 25% C.
11	Gland Bolt	A193-B8	A193-B8
12	Locking Bolt	A193-B8	A193-B8
13	Snap Ring	A686-W1***	A686-W1***
14	Body Bolt	A193-B7	A193-B8
15	Handle, Vinyl Coat	A108-1020****	A108-1020****
16	Handle	A536*****	A536*****
17	Locking Plate	A167-304	A167-304
18	Stop/Lock	A167-304	A167-304
19	Handle Bolt	A276-304	A276-304
20	Washer	A167-304	A167-304
21	Anti-Static Device	316 SS	316 SS
22	Body Nut	A194-2H	A194-8

* 15% Glass Standard, 25% Carbon Optional
 ** Expanded Graphite + Corrosion Inhibitor
 *** Cr Plated
 **** 2" & Smaller
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Series B42 Class 300, Full Bore, Sizes 6" & 8"

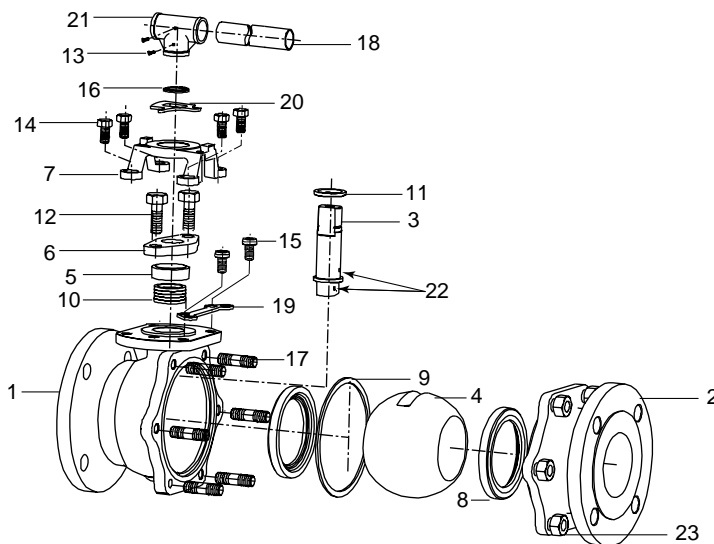


Dimensions & Weights



Size	A	B	C	D	E	F	G	H	J	K	CS Wt.	SS Wt.
6	6.00	15.86	13.03	23.60	12.50	10.62	8.50	1.44	12	0.88	221	212
8	8.00	19.75	15.98	31.50	15.00	13.00	10.62	1.62	12	1.00	381	390

Materials of Construction



► Remove for actuator mounting.

No.	Description	Material	
		Carbon Steel	Stainless
1	Body	A216-WCB	A351-CF8M
2	Cap	A216-WCB	A351-CF8M
3	Stem	A276-316	A276-316
4	Ball	A351-CF8M	A351-CF8M
5	Gland	A276-316	A276-316
6	Gland Flange	A351-CF8	A351-CF8
7	Yoke	A216-WCB	A351-CF8
8	Seat	*RTFE	*RTFE
9	Seal	SPW304+Graphite	SPW304+Graphite
10	Gland Packing	**	**
11	Thrust Washer	RTFE 25% C.	RTFE 25% C.
12	Gland Bolt	A193-B8	A193-B8
13	Set Screw	A108-1020	A108-1020
14	Yoke Bolt	A193-B8	A193-B8
15	Locking Bolt	A193-B8	A193-B8
16	Snap Ring	A686-W1***	A686-W1***
17	Body Bolt	A193-B7	A193-B8
18	Pipe Handle	Carbon Steel	Carbon Steel
19	Locking Plate	A167-304	A167-304
20	Stop/Lock	A167-304	A167-304
21	Handle Guide "T"	A216-WCB	A216-WCB
22	Anti-Static Device	316 SS	316 SS
23	Body Nut	A194-2H	A194-8

* 15% Glass Standard, 25% Carbon Optional

** Expanded Graphite + Corrosion Inhibitor

*** Cr Plated



Determining Valve Torque

Valve operating torque is a function of the differential pressure across the valve when it is in the closed position. The torque tables on the opposite page shows operating values for valves in clean, clear, particle-free liquid. For other services it is necessary to apply a Torque Safety Factor as outlined below:

Torque Safety Factors

Media	Factor
Oils, lubricating media	X 0.8
Liquid, clean (particle-free)	X 1.0
Liquid, dirty (slurry), raw water	X 1.8
Gas, clean & wet (saturated steam)	X 1.2
Gas, dry (superheated steam)	X 1.3
Gas, dirty (natural gas)	X 1.5
Oxygen, Chlorine	X 1.5
<i>For other conditions contact SVF.</i>	

Cv Values

41 Series

1 1/2"	2"	2 1/2"	3"	4"	6"
106	153	276	317	449	899

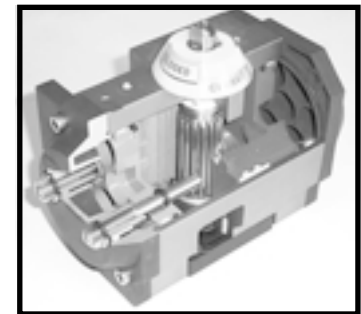
B41 & B42 Series

1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
26	61	113	270	500	800	1,200	2,200	5,300	9,700

Control Accessories

SVF flanged ball valves are available with a complete selection of control accessories for automation and communication.

Device	Model	Brochure
Actuators	Aero Rack & Pinion Pneumatic	Aero Actuator
	Electric Actuators	"E" Series
	Compact4 Pneumatic	"Compact4"
Communication	LTD4 Limit Switches	"LTD4", Limit Switches
	Pilot/Solenoid valve	"SV"
	Bus-type Network cards	"ASI" & "DeviceNet"



Aero Actuator



Electric Actuator



Network Solutions

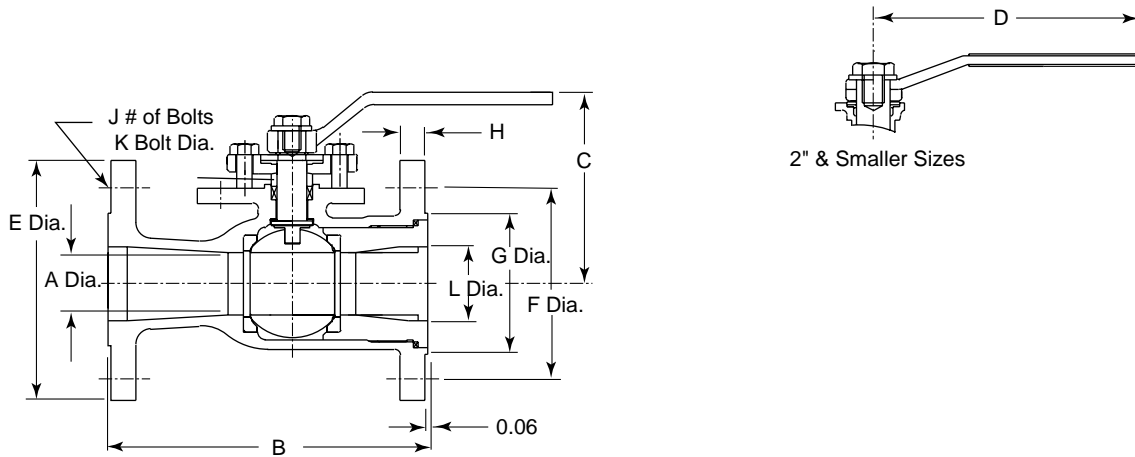
Torque Values for Gland Packing and Body Bolts

Valve Size	Gland Bolt		Body Flange Bolt	
	41/B41 Class 150	B42 Class 300	B41 Class 150	B42 Class 300
1/2"	52		87	87
3/4"	52		87	87
1"	78		191	191
1 1/2"	104		191	339
2"	104		339	868
2 1/2"	174		339	868
3"	174		339	868
4"	174		547	868
6"	347		1701	2300
8"	347		2300	2864

Series 41 Class 150, Reduced Bore, Sizes 1 1/2" - 6"

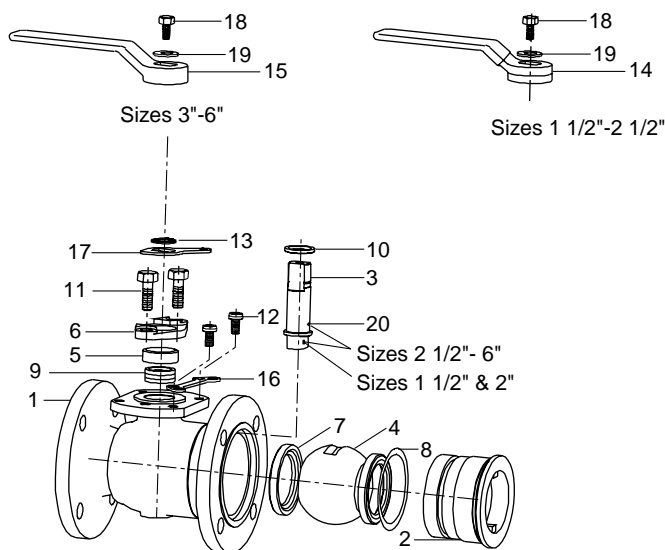


Dimensions & Weights



Size	A	B	C	D	E	F	G	H	J	K	L	M	N	Wt. CS	Wt. SS
1 1/2	1.00	6.50	4.00	6.00	5.00	3.88	2.87	0.56	4	0.62	1.50	0.551	0.315	11	11
2	1.50	7.00	5.00	9.00	6.00	4.75	3.62	0.62	4	0.75	2.00	0.787	0.472	21	19
3	2.32	8.00	6.06	13.80	7.50	6.00	5.00	0.75	4	0.75	3.00	1.063	0.669	39	40
4	3.00	9.00	6.69	13.80	9.00	7.50	6.19	0.94	8	0.75	4.00	1.063	0.669	60	62
6	4.01	10.50	8.11	17.70	11.00	9.50	8.50	1.00	8	0.88	6.00	1.339	0.866	104	103

Materials of Construction



► Remove for actuator mounting.

No.	Description	Material	
		Carbon Steel	Stainless Steel
1	Body	A216-WCB	A351-CF8M
2	Plug	A216-WCB	A351-CF8M
3	Stem	A276-316	A276-316
4	Ball	A351-CF8M	A351-CF8M
5	Gland	A276-316	A276-316
6	Gland Flange	A351-CF8	A351-CF8
7	Seat	*RTFE	*RTFE
8	Seal	Graphite	Graphite
9	Gland Packing	**	**
10	Thrust Washer	RTFE 25% C.	RTFE 25% C.
11	Gland Bolt	A193-B8	A193-B8
12	Locking Bolt	A193-B8	A193-B8
13	Snap Ring	A686-W1***	A686-W1***
14	Handle, Vinyl Coat	A108-1020	A108-1020
15	Handle	A536	A536
16	Locking Plate	A167-304	A167-304
17	Stop/Lock	A167-304	A167-304
18	Handle Bolt	A276-304	A276-304
19	Washer	A167-304	A167-304
20	Anti-Static Device	316 SS	316 SS

* 15% Glass Standard, 25% Carbon Optional

** Expanded Graphite + Corrosion Inhibitor

*** Cr Plated