

General ball valve

Total 316 stainless steel structure

Max. working pressure 20.6MPa (3000psi)

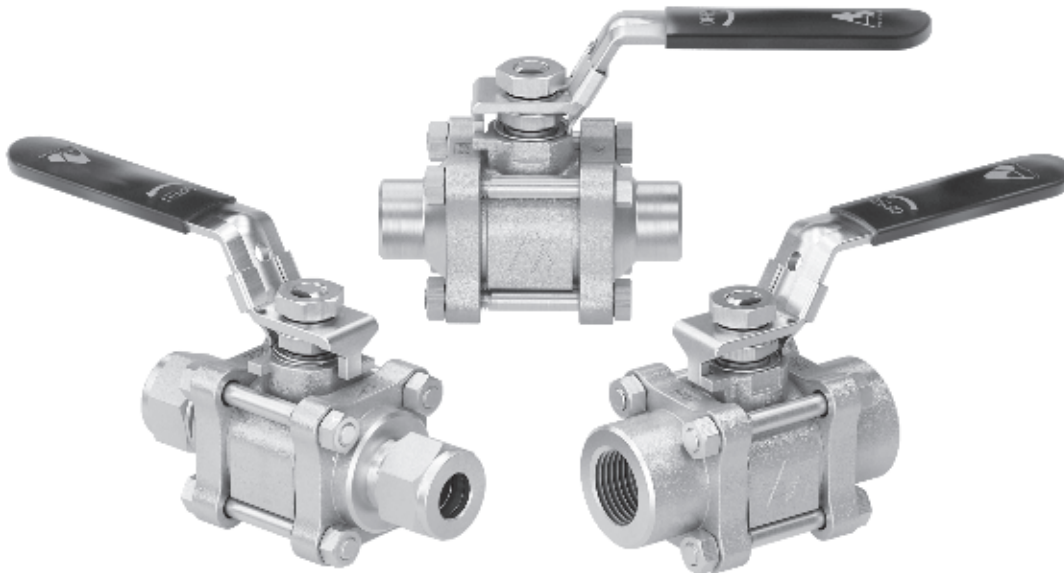
The highest permissible temperature 232°C (450°F)

1/4 circle on and off

The on and off positions can be locked

1/8 to 1 in. and 6 to 25mm aperture

Compensation valve seat design,
elastic loaded and tapered assembled packing



General ball valve

Structural features

Test

Parts details

Pressure-temperature
rated value

Applicable range

Coding rule for item No.

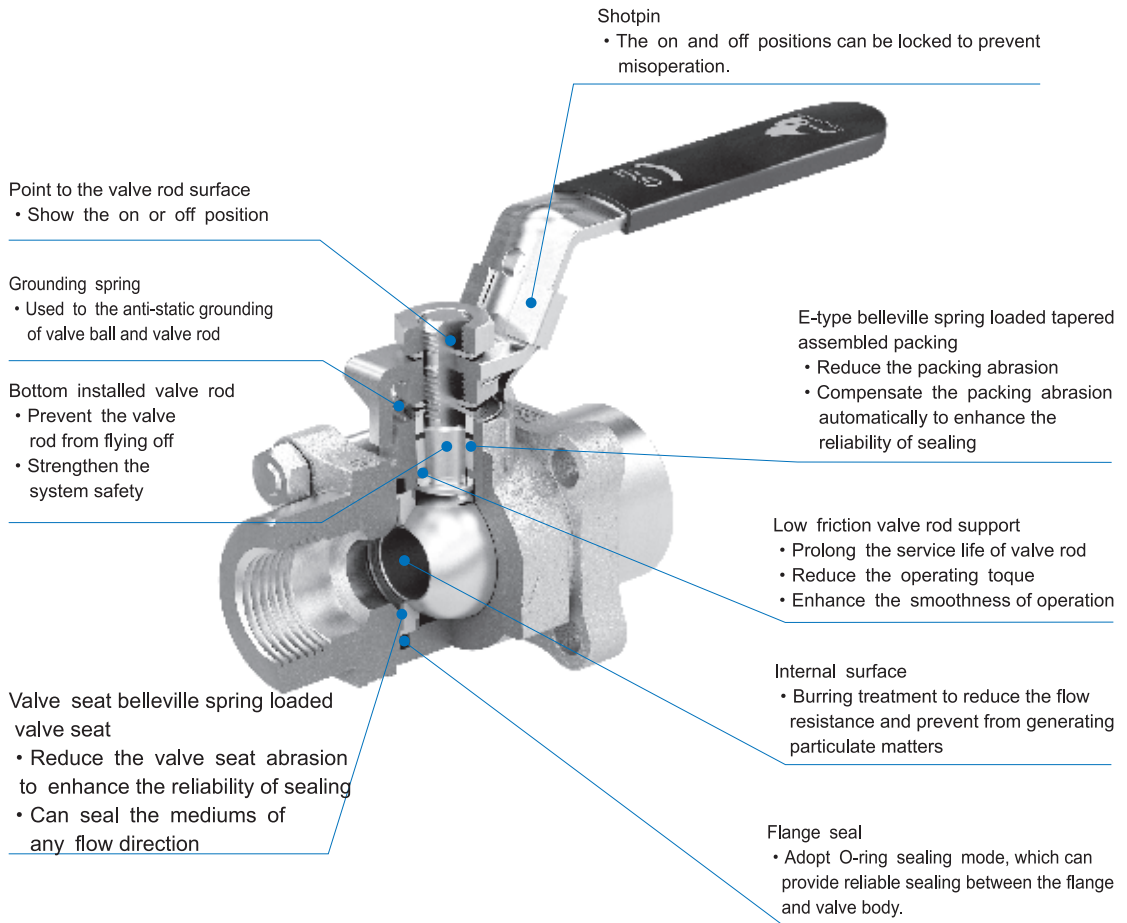
Order info & size

Structural features

The general ball valve is small in size and compact in structure, which can apply to the occasions with limited space. The valve body can be divided and has outstanding universality and interchangeability, which is easy to replace the vulnerable parts so as to reduce the cost of maintenance. The standard structural material is 316SS. The users can also use other materials according to the usage occasions.

The compensation valve seat ensures that the ball valve has reliable sealing. Under low pressure, the sealing is obtained by valve seat belleville spring loading on the valve seat. Under high pressure, the valve ball will move to the downstream under the action of medium pressure to make the downstream valve seat bend and strengthen the sealing. The upstream valve seat will, at the same time, keep sealing under the effects of valve seat belleville spring.

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Test

Before leaving the factory, each general ball valve has passed the 7MPa nitrogen pressure test. There is no bubble producing in the shell and valve seats within 1min.

1. The general ball valve is designed to work in the full-open or full-closing position. It is not suggested to apply to the flow regulation occasions.

2. In the application periods of ball valve, the packing may need to be adjusted.

The adjusting methods are:



a. Loosen and take down the valve rod nut 1, E-type belleville spring 2, handle 2 and grounding spring 6 by a wrench.

b. Properly screw up the valve rod nut 7 by a wrench, then install the grounding spring 6, handle 3, E-type belleville spring 2 and valve rod nut 1.

c. Screw up the valve rod nut 1 by a wrench.

Note: The figures behind the parts do mean the serial No. of part in the parts details table. For example, valve rod nut 1 means the valve rod nut whose serial No. in the parts details table is 1.

Parts details^①

Parts details		Material/ASTM standard
1	Valve rod nut	316 SS
2	E-type belleville spring	Hardening 316 SS / A240
3	Handle	316 SS / A240
4	Handle sleeve	Polyvinyl chloride (PVC)
5	Shotpin	316 SS / A240
6	Grounding spring	302 SS / A313
7	Valve rod nut	316 SS
8	E-type belleville spring	Hardening 316 SS / A240
9	Sealing gland	Coat PTFE 316 SS / B783
10	Packing support	PEEK
11	Upper packing	Strengthened PTFE ^②
12	Lower packing	Strengthened PTFE ^②

Parts details		Material/ASTM standard
13	Valve body	CF3M / A351
14	Valve rod support	Hardening 316 SS / A240
15	Valve rod	316 SS / A479
16	Valve ball	316 SS / A479
17	Support ring	316 SS / A240
18	Valve seat	Strengthened PTFE ^②
19	Valve seat belleville spring	Hardening 316 SS / A240
20	Flange seal ring	Carbon fluorine FKM ^②
21	Flange	CF3M / A351
22	Valve body fastener	316 SS
23	Valve body hex nut	316 SS
	Lubricant	Silicone grease or PTFE lubricant

Note ①: Other selectable structural materials include Alloy 400, Alloy C-276, Alloy 20, Alloy 600 and Ti etc.

Note ②: With respect to other selectable sealing materials, please refer to "Applicable range".

General ball valve

Structural features

Test

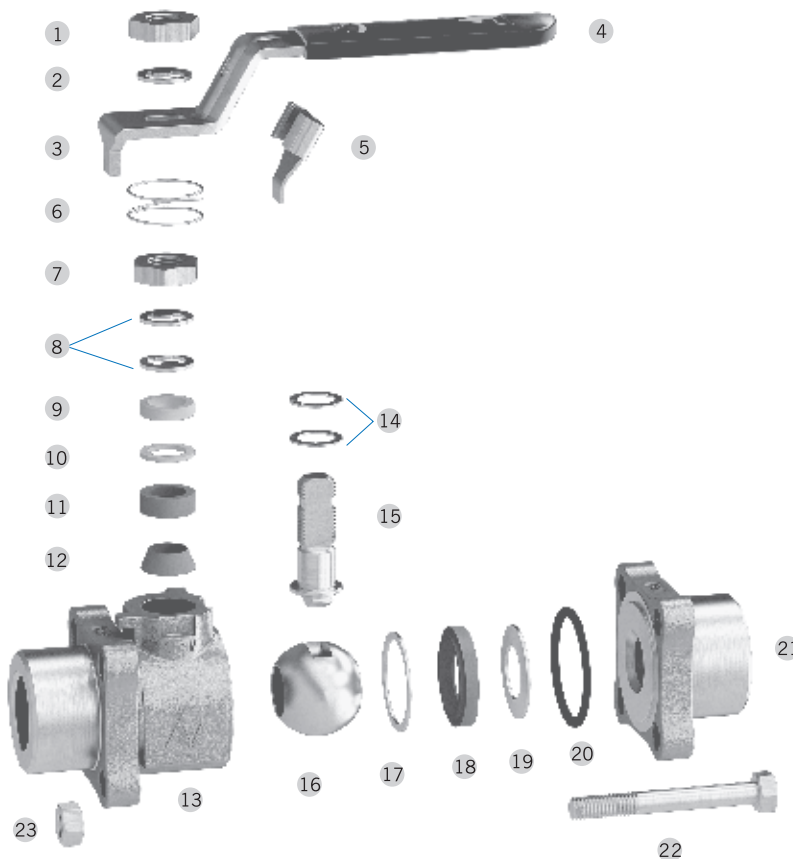
Parts details

Pressure-temperature rated value

Applicable range

Coding rule for item No.

Order info & size



Pressure-temperature rated value

The pressure-temperature rated value is based on the 316SS structural material and fluorocarbon FKM flange seal ring. With respect to the ball valve with replaced structural material, the rated value may be changed.

Strengthened PTFE valve seat

Type of flow	On-off (two-way)
Aperture series	2, 3, 5
Temperature °C(°F)	Working pressure MPa(psi)
-28(-20) to 37(100)	15.1(2200)
93(200)	10.3(1500)
148(300)	5.5(800)
232(450)	0.68(100)

Protogenetic PTFE valve seat

Type of flow	On-off (two-way)
Aperture series	2, 3, 5
Temperature °C(°F)	Working pressure MPa(psi)
-28(-20) to 37(100)	10.3(1500)
93(200)	10.3(1500)
148(300)	5.5(800)
232(450)	0.68(100)

PEEK valve seat

Type of flow	On-off (two-way)	
Aperture series	2	3, 5
Temperature °C(°F)	Working pressure MPa(psi)	
-28(-20) to 37(100)	20.6(3000)	17.2(2500)
93(200)	12.8(1870)	10.7(1560)
148(300)	11.0(1600)	9.0(1310)
232(450)	5.5(800)	5.5(800)

Polyethylene valve seat

Type of flow	On-off (two-way)	
Aperture series	2	3, 5
Temperature °C(°F)	Working pressure MPa(psi)	
-28(-20) to 37(100)	20.6(3000)	17.2(2500)
121(250)	1.7(250)	1.7(250)

Applicable range

Flange sealing material

Flange sealing material	Temperature °C(°F)
Fluorocarbon FKM	-26 to 232(-14 to 450)
Nitrile rubber	-28 to 121(-20 to 250)
Buna C	-53 to 121(-65 to 250)
Ethylene-propylene	-28 to 121(-20 to 250)
Chloroprene rubber	-28 to 121(-20 to 250)

Valve seat material

Valve seat material	Forbidden range
Strengthened PTFE	Cannot be used steam, heatproof or chlorine-resistant valves.
PEEK	Not provided for the fire-resistant, heatproof, chlorine-resistant or all-welded series, but it can be used in the steam series valves.
UHMWPE	Cannot be used in the steam, fire-resistan, heatproof or chlorine-resistant series valves.
Protogenetic PTFE	Cannot be used in the steam, fire-resistant, or heatproof series valves, but can be used in the chlorine-resistant series valves.

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Applicable range

Coding rule for item No.

Order info & size

Coding rule for item No.

SS – BG 2 – T – BW 4 T10 – B
1
2
3
4
5
6
7
8

1	Material type
	SS — 316 stainless steel

2	Ball valve series
	BG — General ball valve

3	Aperture size
	2 — Aperture size: 4.8mm, 6.4mm, 7.1mm
	3 — Aperture size: 9.5mm, 10.3mm, 13.1mm
	5 — Aperture size: 20.9mm, 22.2mm

4	Valve seat type
	T — Strengthened PTFE
	P — PEEK
	U — UHMWPE
	V — Protogenetic PTFE

5	Connector type
	Encode according to the order of "Coding for upstream connector type & size" - "Coding for downstream connector type & size". If the upstream and downstream connectors types and sizes are the same, the type and size of downstream connector can be omitted.
	K — Bite type tube fittings
	SW — Socket weld
	BW — Butt welding end joint
	F — NPT internal thread

6	Connector size
	British system: size value (Unit: in ×16
	For example: 1/2×16=8, 1/2in.NPT internal thread is indicated by F8
	Metric system: size value (Unit: mm) + "mm"

7	Wall thickness of connector
	With respect to the ball valve of butt welding end joint, the size of wall thickness should be increased, while it is unnecessary for the end joints of other types. The code of wall thickness is indicated by letter "T" and wall thickness specification. For instance, the thickness of SCH10S series is indicated by "T10".

8	Accessories & codes of special requirements
	Several code segments can be added according to the specific conditions. It is not necessary to mark this code segment for standard configuration.
	For instance, when the flange sealing material is not standard fluorocarbon FKM, this code segment should be marked. The codes for other flange sealing materials are:
	B — Nitrile rubber
	BC — Buna C
	E — Ethylene-propylene
	N — Chloroprene rubber

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Structural features

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Parts details

Pressure-temperature rated value

Applicable range

Coding rule for item No.

Order info & size

For example: SS-BG3-T-BW8T10-B

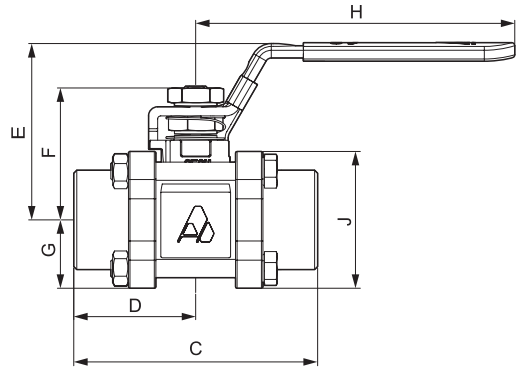
It means the general ball valve with strengthened PTFE valve seat, whose valve body material is 316SS and aperture is 13.1mm. The upstream and downstream connectors are 1/2 in., butt welding end joint (the specification of tube wall thickness is SCH10S series (tube wall thickness is 2.11 mm). The flange sealing material is nitrile rubber.



Not all the flange sealing and valve seat materials combination can be provided.

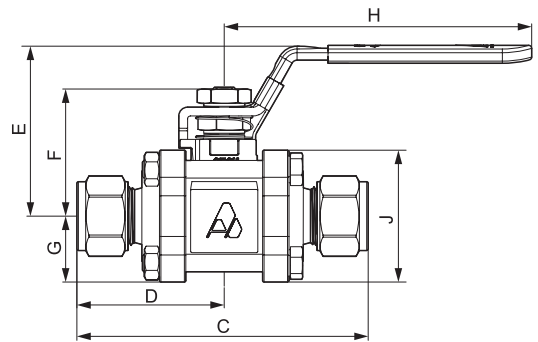
Order info & size

NPT internal end joint (The sizes are only for reference)



End joint size	Cv	Aperture (mm)	Item No.	Size (mm)						
				C	D	E	F	G	H	J
1/8in.	3.8	7.1	SS-BG2-T-F2	62.0	31.0	41.5	32.0	17.5	58.0	35.0
1/4in.	3.8	7.1	SS-BG2-T-F4	62.0	31.0	41.5	32.0	17.5	58.0	35.0
3/8in.	12	13.1	SS-BG3-T-F6	81.0	40.5	58.5	44.0	22.5	105	45.0
1/2in.	12	13.1	SS-BG3-T-F8	81.0	40.5	58.5	44.0	22.5	105	45.0
3/4in.	31	22.2	SS-BG5-T-F12	92.0	46.0	75.0	64.0	32.0	152	64.0
1in.	38	22.2	SS-BG5-T-F16	92.0	46.0	75.0	64.0	32.0	152	64.0

Bite type tube fitting end joint (The sizes are only for reference)



End joint size	Cv	Aperture (mm)	Item No.	Size (mm)						
				C	D	E	F	G	H	J
1/4 in.	1.2	4.8	SS-BG2-T-K4	76.0	38.0	41.5	32.0	17.5	58.0	35.0
3/8 in.	3.8	7.1	SS-BG2-T-K6	76.0	38.0	41.5	32.0	17.5	58.0	35.0
1/2 in.	7.5	10.3	SS-BG3-T-K8	101	50.5	58.5	44.0	22.5	105	45.0
3/4 in.	13.6	13.1	SS-BG3-T-K12	101	50.5	58.5	44.0	22.5	105	45.0
1 in.	40	22.2	SS-BG5-T-K16	136	68.0	75.0	64.0	32.0	152	64.0
6mm	1.2	4.8	SS-BG2-T-K6mm	76.0	38.0	41.5	32.0	17.5	58.0	35.0
8mm	2.5	6.4	SS-BG2-T-K8mm	76.0	38.0	41.5	32.0	17.5	58.0	35.0
10mm	3.8	7.1	SS-BG2-T-K10mm	76.0	38.0	41.5	32.0	17.5	58.0	35.0
12mm	7.5	9.5	SS-BG3-T-K12mm	101	50.5	58.5	44.0	22.5	105	45.0
18mm	13.6	13.1	SS-BG3-T-K18mm	101	50.5	58.5	44.0	22.5	105	45.0
25mm	40	22.2	SS-BG5-T-K25mm	136	68.0	75.0	64.0	32.0	152	64.0

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Pressure-temperature rated value

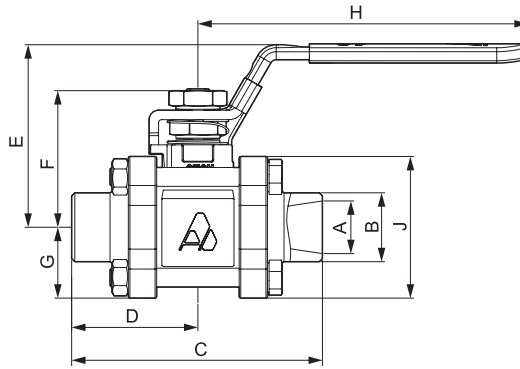
Applicable range

Coding rule for item No.

Order info & size

Butt welding end joint (The sizes are only for reference.)

The butt welding end joint accords with the ASME B16.25 standard. While welding the valve and the pipeline, note not to make the temperature of internal sealing elements exceed 140°C (If necessary, the cooling treatment should be conducted between the weld joint and the sealing element while welding.).



Connector size	Cv	Aperture (mm)	Item No.	Size (mm)									
				A	B	C	D	E	F	G	H	J	
Tube wall thickness specification SCH10S series													
1/4 in.	1.2	4.8	SS-BG2-T-BW4T10	10.4	13.7	62.0	31.0	41.5	32.0	17.5	58.0	35.0	
1/2 in.	15	13.1	SS-BG3-T-BW8T10	17.1	21.3	81.0	40.5	58.5	44.0	22.5	105	45.0	
3/4 in.	36	22.2	SS-BG5-T-BW12T10	22.5	26.7	92.0	46.0	75.0	64.0	32.0	152	64.0	
1 in.	40	22.2	SS-BG5-T-BW16T10	27.9	33.4	92.0	46.0	75.0	64.0	32.0	152	64.0	
Tube wall thickness specification SCH40S series													
1/4 in.	1.2	4.8	SS-BG2-T-BW4T40	9.2	13.7	62.0	31.0	41.5	32.0	17.5	58.0	35.0	
1/2 in.	15	13.1	SS-BG3-T-BW8T40	15.8	21.3	81.0	40.5	58.5	44.0	22.5	105	45.0	
3/4 in.	36	20.9	SS-BG5-T-BW12T40	20.9	26.7	92.0	46.0	75.0	64.0	32.0	152	64.0	
1 in.	90	22.2	SS-BG5-T-BW16T40	26.6	33.4	92.0	46.0	75.0	64.0	32.0	152	64.0	
Tube wall thickness specification SCH80S series													
1/4 in.	1.2	4.8	SS-BG2-T-BW4T80	7.7	13.7	62.0	31.0	41.5	32.0	17.5	58.0	35.0	
3/8 in.	3.8	7.1	SS-BG2-T-BW6T80	10.7	17.1	62.0	31.0	41.5	32.0	17.5	58.0	35.0	
1/2 in.	6.8	13.1	SS-BG3-T-BW8T80	13.9	21.3	81.0	40.5	58.5	44.0	22.5	105	45.0	
3/4 in.	13.6	13.1	SS-BG3-T-BW12T80	18.8	26.7	81.0	40.5	58.5	44.0	22.5	105	45.0	
1 in.	40	22.2	SS-BG5-T-BW16T80	23.9	33.4	92.0	46.0	75.0	64.0	32.0	152	64.0	

Appendix: Specification Table for Stainless Steel Tube Wall Thickness (Selected from ASME B36.19-2004)

Pipe aperture (in.)	Wall thickness of stainless steel tube (mm)		
	SCH10S	SCH40S	SCH80S
1/4	1.65	2.24	3.02
3/8	1.65	2.31	3.20
1/2	2.11	2.77	3.73
3/4	2.11	2.87	3.91
1	2.77	3.38	4.55

General ball valve

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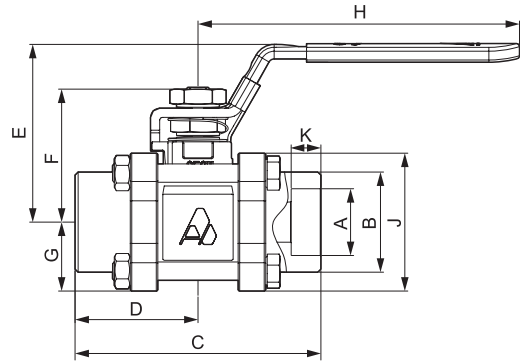
Applicable range

Coding rule for item No.

Order info & size

Socket weld end joint (The sizes are only for reference.)

The nominal tube socket diameter and depth accord with the ASME B16.11 standard. While welding the valve and the tube, note not to let the temperature of internal sealing elements exceed 140°C (if necessary, cooling treatment should be conducted between the welded joint and the sealing element while welding.)



General ball valve

Structural features

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Pressure-temperature rated value

Applicable range

Coding rule for item No.

Connector size	Cv	Aperture (mm)	Item No.	Size (mm)									
				A	B	C	D	E	F	G	H	J	K
1/2in.	15	13.1	SS-BG3-T-SW8	21.8	32.7	81.0	40.5	58.5	44.0	22.5	105	45.0	12.7
3/4in.	36	22.2	SS-BG5-T-SW12	27.2	42.2	92.0	46.0	75.0	64.0	32.0	152	64.0	12.7
1in.	42	22.2	SS-BG5-T-SW16	33.9	45.3	92.0	46.0	75.0	64.0	32.0	152	64.0	12.7

Order info & size