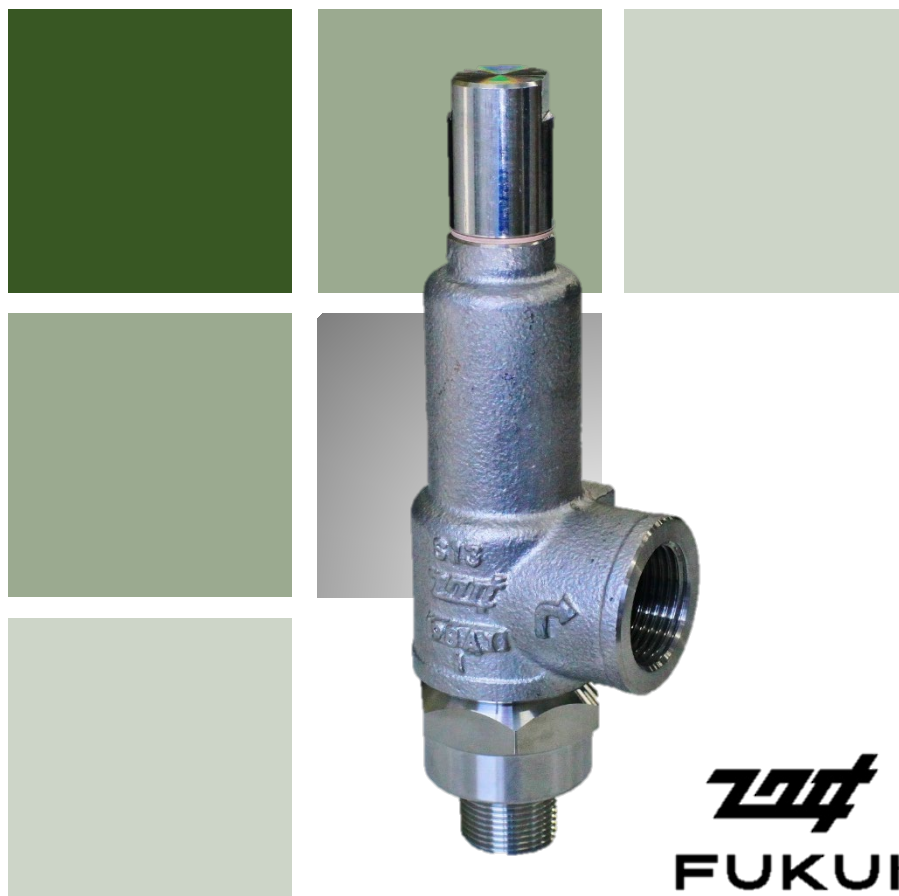




RG Series

Contents

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◆ Features

The RG series is a full-bore pressure relief valve developed for compact and versatile applications, using screwed or flanged connections. RG2000 and RG4000 with 2-piece structure, and RG3000, RG5000 and RG6000 with 3-piece structure are available. It has a wide range of applications from low to high pressure for gases and liquids except steam.

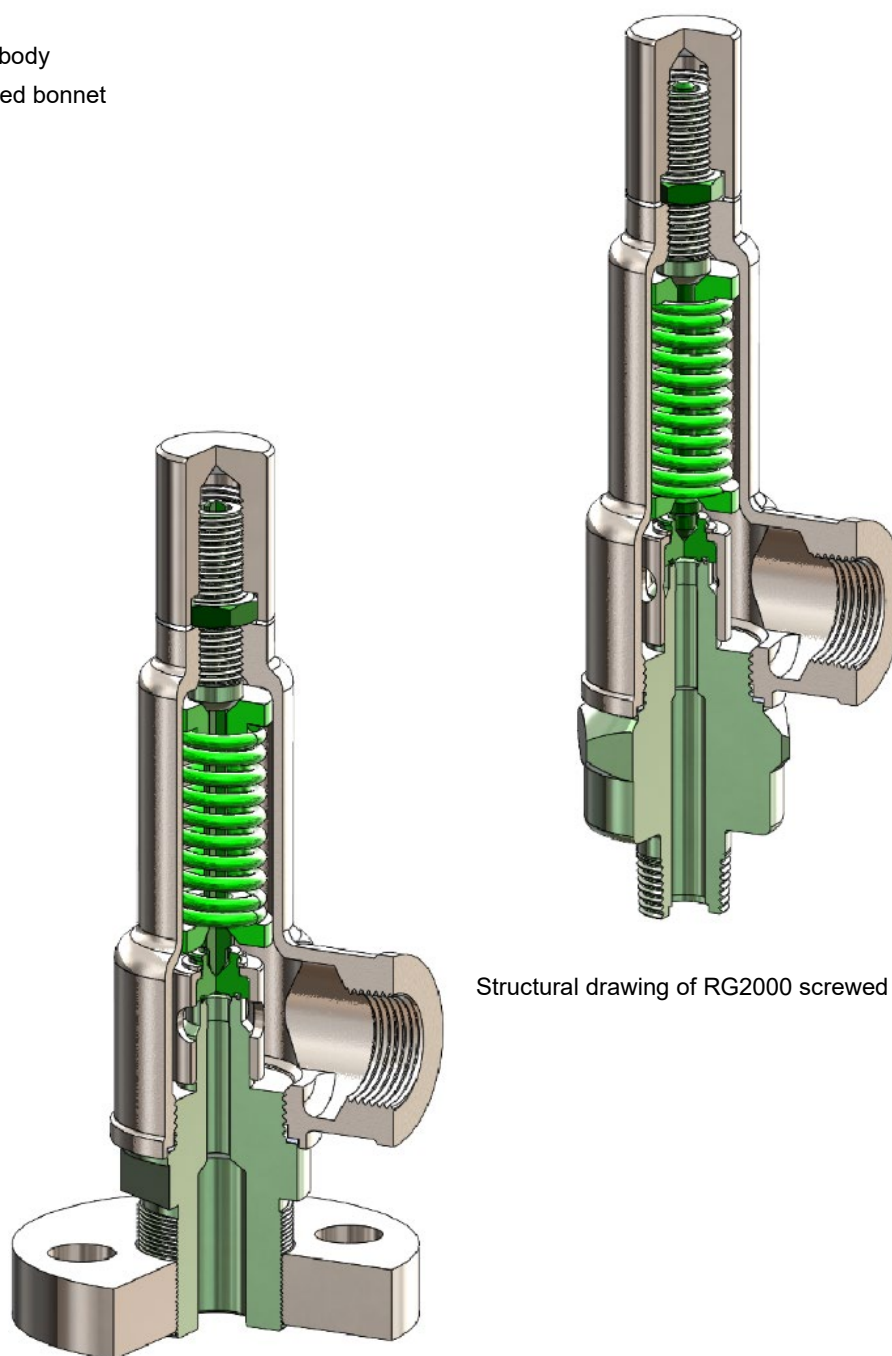
The RG series is mainly applied under the High Pressure Gas Safety Act and has a significant shipping record as a certified valve for high-pressure gas.

Structure

The RG structure is available in two types: the 2-piece (RG2000, RG4000) structure and 3-piece (RG3000, RG5000, RG6000) structure in the lineup. In the case of the 2-piece structure, the body and bonnet are integrated into a cast structure, aiming to simplify the structure. However, since it is a cast, there are limitations on materials that can be used for manufacturing. In the case of the 3-piece structure, the body and bonnet are separated, adopting a structure carved out of bar material or forged material, which is excellent in accommodating special materials etc.

RG2000 structure

- ◆ Full nozzle
- ◆ Cast integral body
- ◆ Body-integrated bonnet

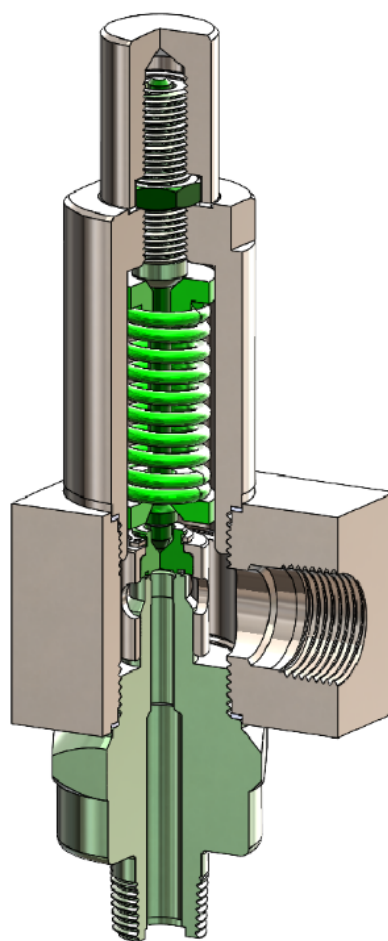


Structural drawing of RG2000 screwed type

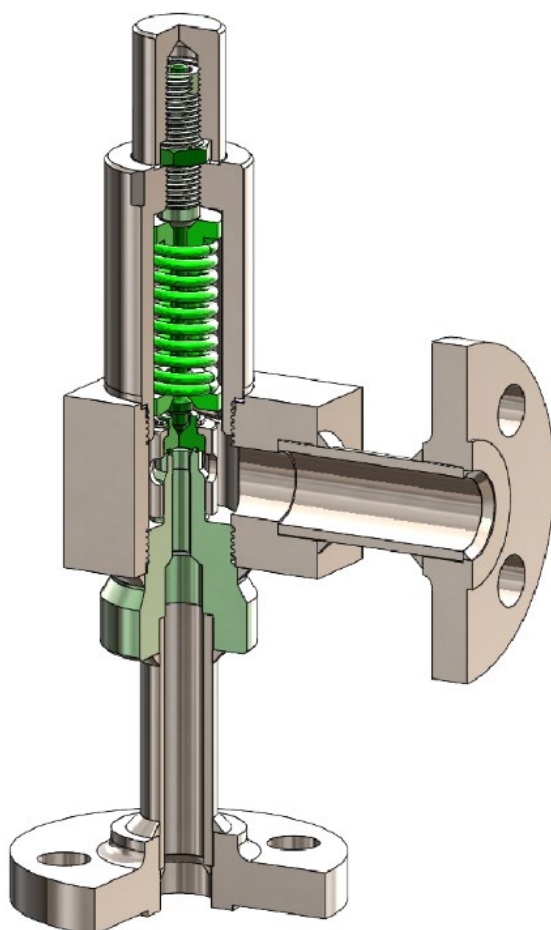
Structural drawing of RG2000 loose flanged type

RG3000 structure

- ◆ Full nozzle
- ◆ Forged (bar material) body
- ◆ Screw bonnet



Structural drawing of RG3000 screwed type



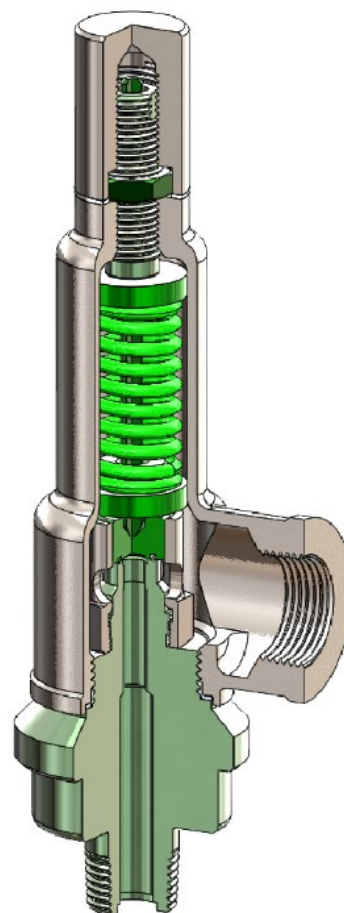
Structural drawing of RG3000 flanged type

The inlet flange is also manufactured by carving out of forged material.

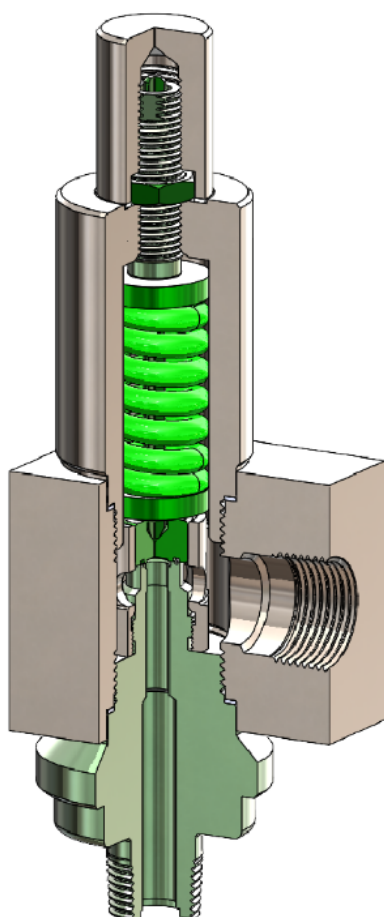
RG4000 structure

Screwed-connection type of high-pressure type (over 11.8 MPa) with 2-piece structure

- ◆ Full nozzle
- ◆ Cast integral body
- ◆ Body-integrated bonnet



Structural drawing of RG4000



Structural drawing of RG5000

RG5000 structure

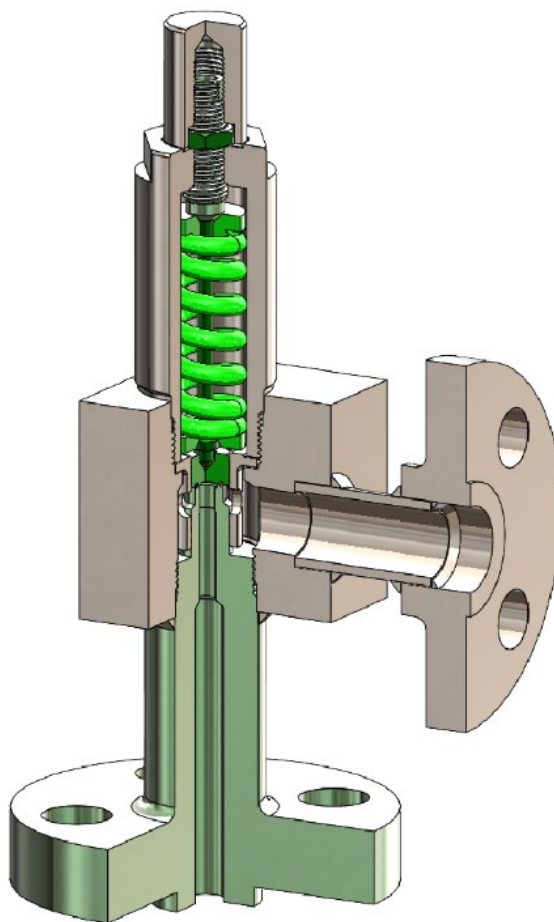
Screwed-connection type of high-pressure type (over 11.8 MPa) with 3-piece structure

- ◆ Full nozzle
- ◆ Forged (bar material) body
- ◆ Screw bonnet

RG6000 structure

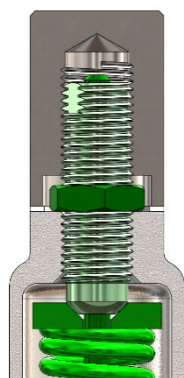
Flanged-connection type of high-pressure Type (over 11.8 MPa) with 3-piece structure

- ◆ Full nozzle
- ◆ Screw bonnet
- ◆ Forged (bar material) body

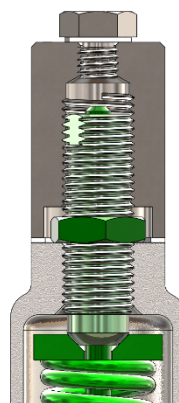


Structural drawing of RG6000

Cap code



(A) Sealed screwed cap



(B) Sealed screwed cap + Test gag

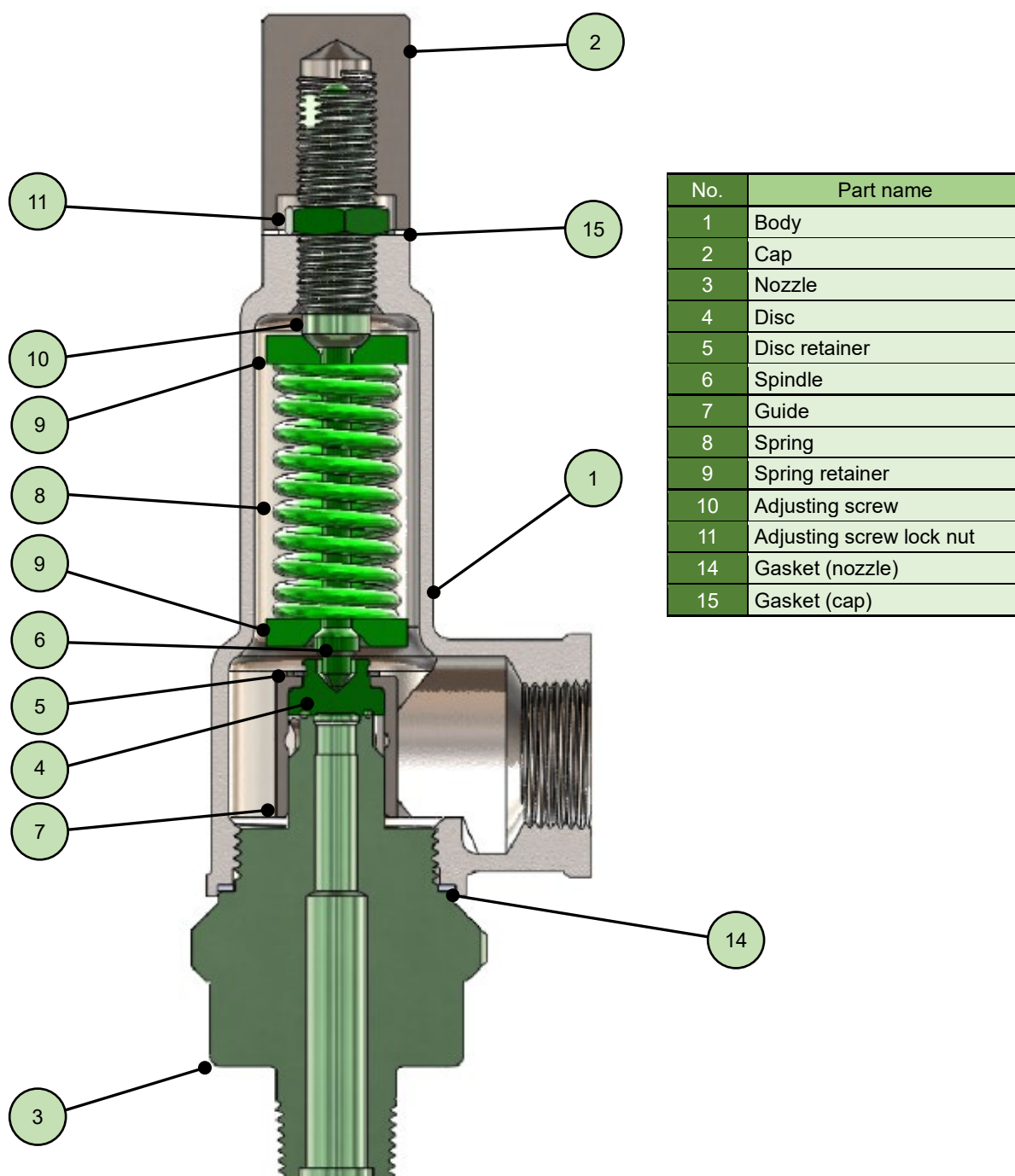


The sealed lever type can also be manufactured.

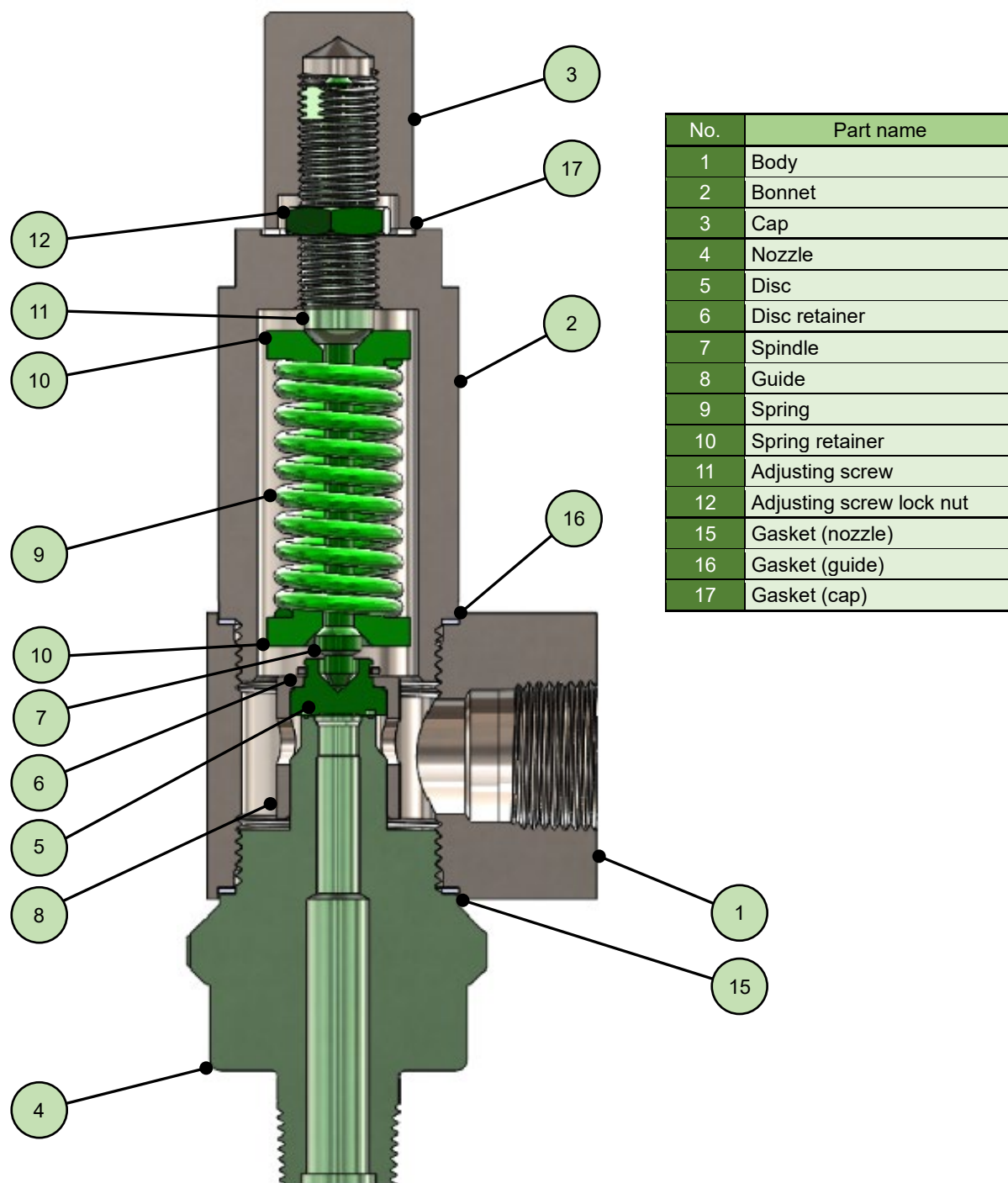
 Type code

RG2	1	6	1-	1	-S	-L	(A)					
							Cap code					
							(A)	Sealed screwed cap				
							(B)	Sealed screwed cap + Test gag				
							(D)	Sealed lever				
							(E)	Sealed lever + Test gag				
							Additional code					
							-L	Loose flange type (RG2000 only)				
							Blank	Other than above				
							Material code: Refer to the standard material table (page 12).					
							Connection addition code					
							Connection addition	Connection		Connection addition	Connection	
								1-, 2-	4-		6-, 7-, 8-	3-
							1	Class150	10K	F	Female thread	—
							2	—	20K	M	Male thread	—
							3	Class300	30K	W	—	Socket weld
							4	Class600	40K	B	—	Butt weld
							5	Class900	63K	—	—	—
							6	Class1500	—	—	—	—
							7	Class2500	—	—	—	—
							0	Others				
							Connection code					
							1-	ASME Flange	4-	JIS Flange	7-	Tapered pipe thread (NPT)
							2-	JPI Flange	5-	Special	8-	Parallel pipe thread (G)
							3-	Welding	6-	Tapered pipe thread (R, Rc)	9-	Other threads
							Temperature code (determined by discharge temperature)					
							4	-253°C (-423°F) ≤ T < -196 (-320°F)				
							5	-196°C (-320°F) ≤ T < -5°C (23°F)				
6	-5°C (23°F) ≤ T < 232°C (450°F)											
7	232°C (450°F) ≤ T < 400°C (750°F)											
0	Other than above											
Bonnet code: Refer to the pressure–temperature rating table (page 15)												
Type code												
	Series		Pressure classification		Structure	Connection						
RG2	RG2000 series		Low pressure 11.8 MPa or less		2-piece	Screwed, Loose flanged						
RG3	RG3000 series				3-piece	Screwed, Flanged						
RG4	RG4000 series		High pressure More than 11.8 MPa		2-piece	Screwed						
RG5	RG5000 series				3-piece	Screwed						
RG6	RG6000 series					Flanged						

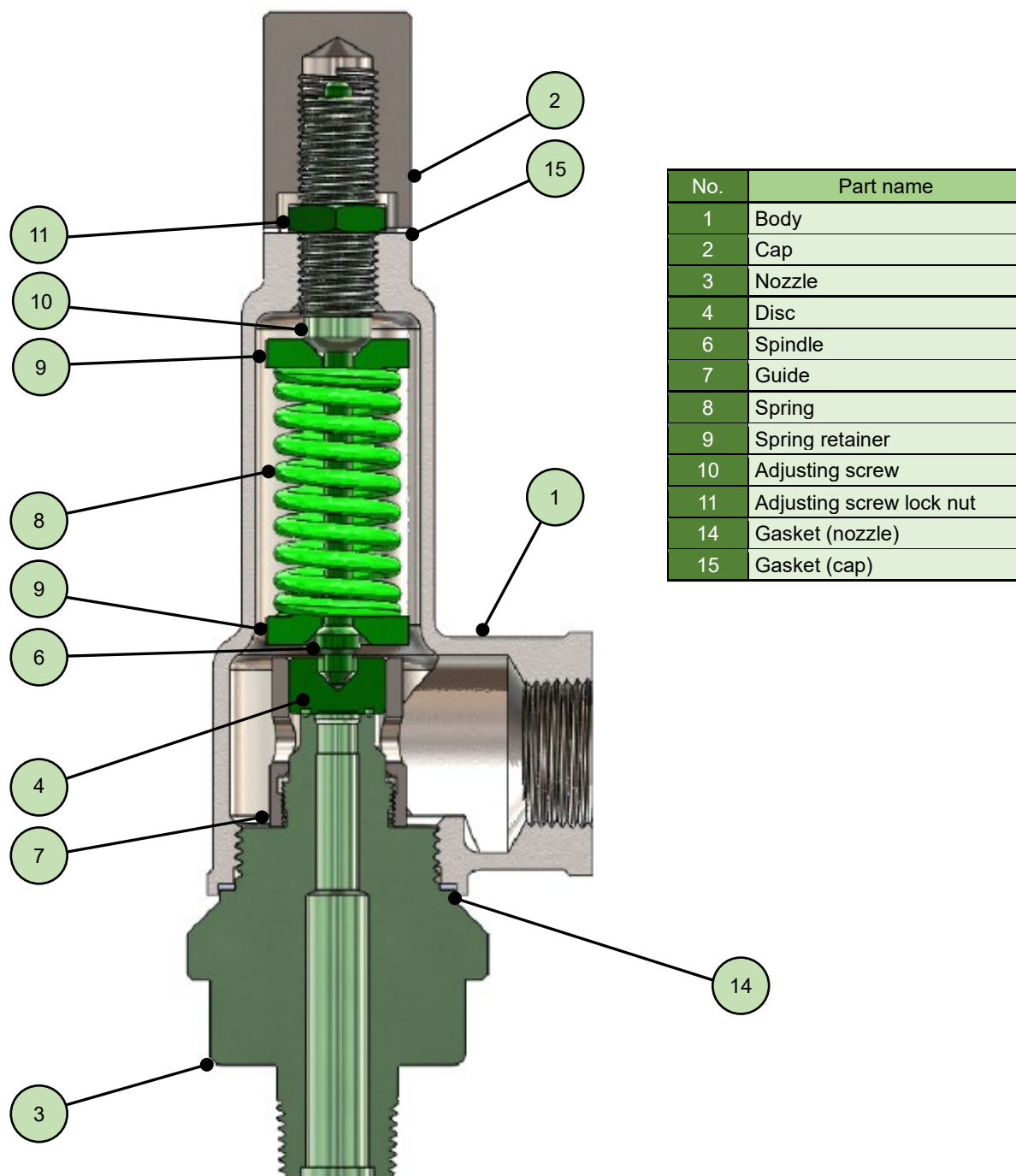
Cross-Sectional View



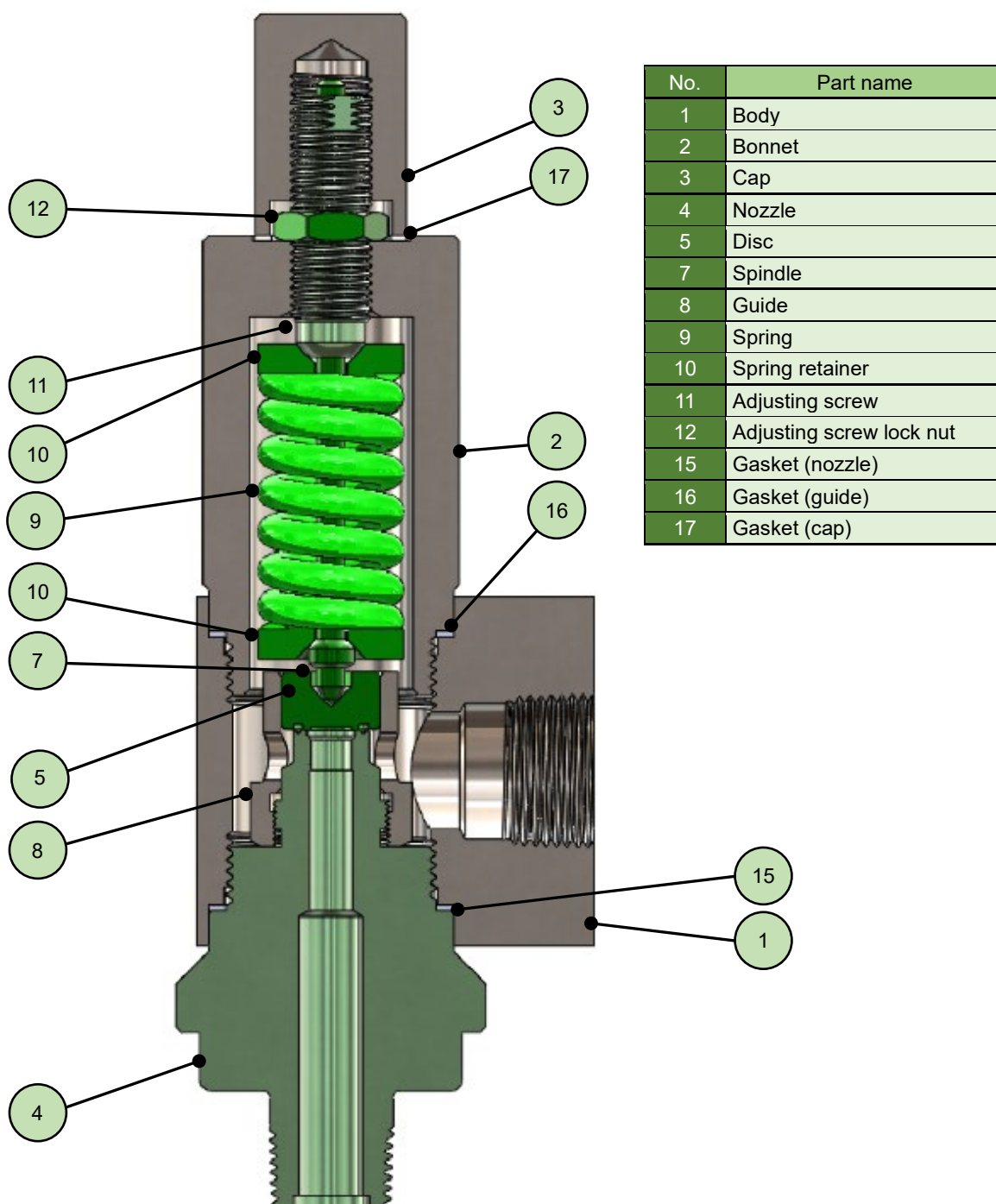
Cross-sectional view of RG2000



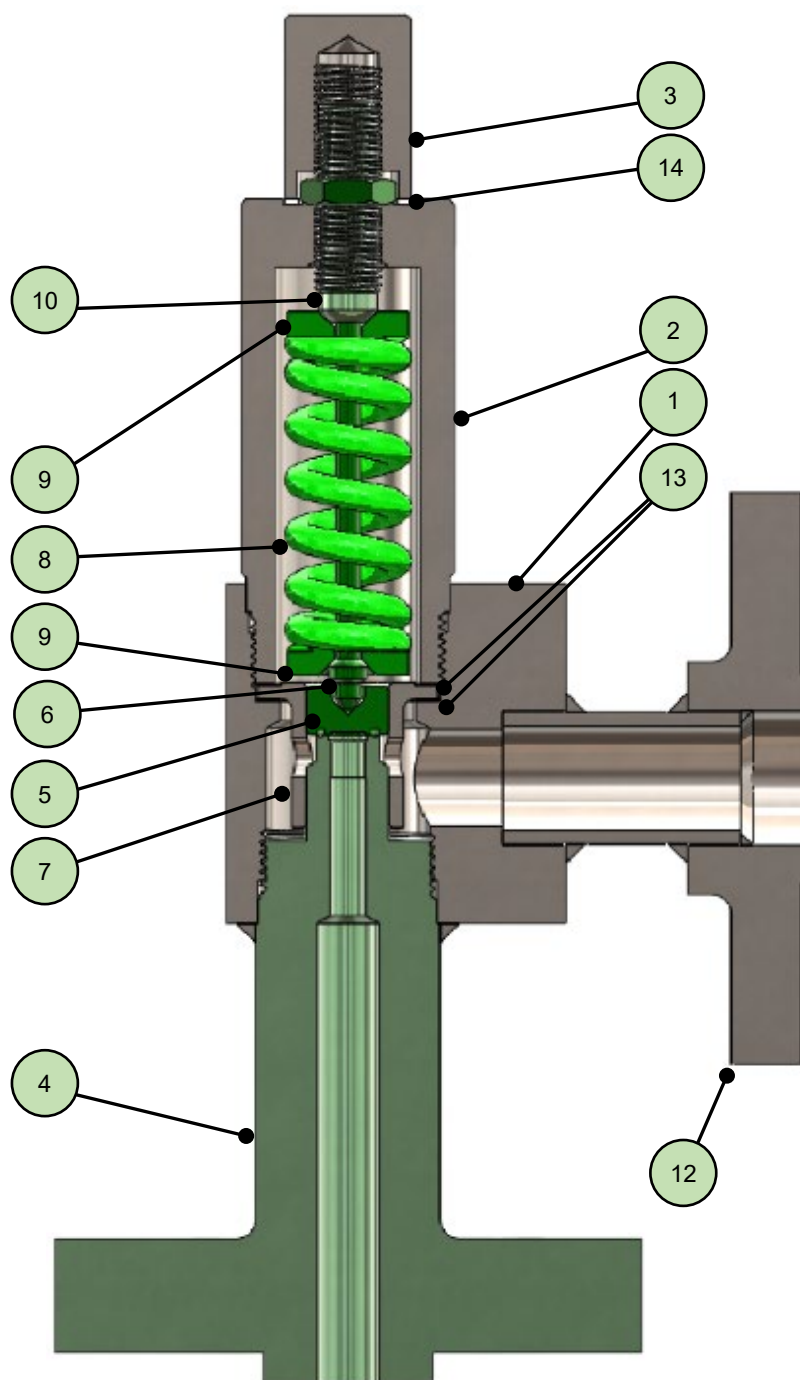
Cross-sectional view of RG3000



Cross-sectional view of RG4000



Cross-sectional view of RG5000



Cross-sectional view of RG6000

No.	Part name
1	Body
2	Bonnet
3	Cap
4	Nozzle
5	Disc
6	Spindle
7	Guide
8	Spring
9	Spring retainer
10	Adjusting screw
11	Adjusting screw lock nut
12	Outlet flange
13	Gasket (guide)
14	Gasket (cap)

Standard Material

RG2000, RG4000

No.	Material code	Blank				S0		
	Applicable temperature range	-196– -60	-60– -5	-5–200	200–225	-5–200	200–232	232–350
	Temperature class	5		6		6		7
1	Body	CAC406				SCS13		
2	Cap	SUS304		C3604		SUS304		
3	Nozzle	SUS304				SUS304		
4	Disc	SUS304* ¹				SUS304* ¹		
5	Disc retainer* ²	SUS304		SWRH+NIB		SWRH+NIB		
6	Spindle	SUS316		SUS403		SUS403		
7	Guide	SUS316		SUS316		SUS316		
8	Spring	SUS304	SUS304 or Spring Steel			SUS304 or Spring Steel		
9	Spring retainer	SUS316		S25C		S25C		
10	Adjusting screw	SUS316		SUS403		SUS403		
11	Adjusting screw lock nut	SUS316				SUS316		
12	Inlet flange	SUS304		SA105M		SA105M		
13	Outlet flange	SUS304		SA105M, STPG370		SA105M, STPG370		
14	Gasket (nozzle)	V7020			V560-304	V7020	V560-304	
15	Gasket (cap)	V7020			V560-304	V7020	V560-304	

RG2000, RG4000

No.	Material code	S			S1		
	Applicable temperature range	-196–200	200–232	232–350	-196–200	200–232	232–350
	Temperature class	6		7	6		7
1	Body	SCS13			SCS14		
2	Cap	SUS304			SUS316		
3	Nozzle	SUS304			SUS316		
4	Disc	SUS304*1			SUS316*1		
5	Disc retainer*2	SUS304			SUS304		
6	Spindle	SUS316			SUS316		
7	Guide	SUS316			SUS316		
8	Spring	SUS304			SUS316		
9	Spring retainer	SUS316			SUS316		
10	Adjusting screw	SUS316			SUS316		
11	Adjusting screw lock nut	SUS316			SUS316		
12	Inlet flange	SUS304			SUS316		
13	Outlet flange	SUS304			SUS316		
14	Gasket (nozzle)	V7020	V560-304		V7020	V560-316	
15	Gasket (cap)	V7020	V560-304		V7020	V560-316	

*1 If the set pressure is higher than 4.9 MPa, BISHILITE® will be used. BISHILITE® is a registered trademark of Hitachi Metals, Ltd., and is a wear-resistant cobalt alloy.

*2 The disc retainer is not included in the RG4000 configuration.

* Materials other than the standard materials are also manufactured.

RG3000, RG5000

No.	Material code	S1			S3		
	Applicable temperature range	-5-200	200-232	232-400	-253-200	200-232	232-400
	Temperature class	6		7	4, 5, 6	6	7
1	Body	SA105M			SUS304		
2	Bonnet	SA105M			SUS304		
3	Cap	S25C			SUS304		
4	Nozzle	SUS304			SUS304		
5	Disc	SUS304*1			SUS304*1		
6	Disc retainer*2	SWRH+NIB			SUS304		
7	Spindle	SUS403			SUS304		
8	Guide	SUS316			SUS316		
9	Spring	SUS304 or Spring Steel			SUS304		
10	Spring retainer	S25C			SUS316		
11	Adjusting screw	SUS403			SUS316		
12	Adjusting screw lock nut	SUS316			SUS316		
13	Inlet flange	SA105M, STPG370			SUS304		
14	Outlet flange	SA105M, STPG370			SUS304		
15	Gasket (nozzle)	V7020	V560-304		V7020	V560-304	
16	Gasket (guide)	V7020	V560-304		V7020	V560-304	
17	Gasket (cap)	V7020	V560-304		V7020	V560-304	

RG3000, RG5000

No.	Material code	S1			S3		
	Applicable temperature range	-5-200	200-232	232-400	-253-200	200-232	232-400
	Temperature class	6		7	4, 5, 6	6	7
1	Body	SUS316			SUS316L		
2	Bonnet	SUS316			SUS316L		
3	Cap	SUS316			SUS316L		
4	Nozzle	SUS316			SUS316L		
5	Disc	SUS316*1			SUS316L*1		
6	Disc retainer*2	SUS304			SUS304		
7	Spindle	SUS316			SUS316L		
8	Guide	SUS316			SUS316L		
9	Spring	SUS316			SUS316		
10	Spring retainer	SUS316			SUS316L		
11	Adjusting screw	SUS316			SUS316L		
12	Adjusting screw lock nut	SUS316			SUS316L		
13	Inlet flange	SUS316			SUS316L		
14	Outlet flange	SUS316			SUS316L		
15	Gasket (nozzle)	V7020	V560-316		V7020	V560-316L	
16	Gasket (guide)	V7020	V560-316		V7020	V560-316L	
17	Gasket (cap)	V7020	V560-316		V7020	V560-316L	

*1 If the set pressure is higher than 4.9 MPa, BISHILITE® will be used. BISHILITE® is a registered trademark of Hitachi Metals, Ltd., and is a wear-resistant cobalt alloy.

*2 The disc retainer is not included in the RG5000 configuration.

* Materials other than the standard materials are also manufactured.

RG6000

No.	Material code	Blank			S		
	Applicable temperature range	-5-200	200-232	232-400	-253-200	200-232	232-400
	Temperature class	6		7	4, 5, 6	6	7
1	Body	SA105M			SUS304		
2	Bonnet	SA105M			SUS304		
3	Cap	S25C			SUS304		
4	Nozzle	SUS304			SUS304		
5	Disc	SUS304* ¹			SUS304* ¹		
6	Spindle	SUS403			SUS304		
7	Guide	SUS316			SUS316		
8	Spring	SUS304 or Spring Steel			SUS304		
9	Spring retainer	S25C			SUS316		
10	Adjusting screw	SUS403			SUS316		
11	Adjusting screw lock nut	SUS316			SUS316		
12	Outlet flange	SA105M, STPG370			SUS304		
13	Gasket (guide)	PFA	V560-304		PFA	V560-304	
14	Gasket (cap)	V7020	V560-304		V7020	V560-304	

RG6000

No.	Material code	S1			S3		
	Applicable temperature range	-5-200	200-232	232-400	-253-200	200-232	232-400
	Temperature class	6		7	4, 5, 6	6	7
1	Body	SUS316			SUS316L		
2	Bonnet	SUS316			SUS316L		
3	Cap	SUS316			SUS316L		
4	Nozzle	SUS316			SUS316L		
5	Disc	SUS316* ¹			SUS316L* ¹		
6	Spindle	SUS316			SUS316L		
7	Guide	SUS316			SUS316L		
8	Spring	SUS316			SUS316		
9	Spring retainer	SUS316			SUS316L		
10	Adjusting screw	SUS316			SUS316L		
11	Adjusting screw lock nut	SUS316			SUS316L		
12	Outlet flange	SUS316			SUS316L		
13	Gasket (guide)	PFA	V560-316		PFA	V560-316L	
14	Gasket (cap)	V7020	V560-316		V7020	V560-316L	

*¹ If the set pressure is higher than 4.9 MPa, BISHILITE® will be used. BISHILITE® is a registered trademark of Hitachi Metals, Ltd., and is a wear-resistant cobalt alloy.

* Materials other than the standard materials are also manufactured.

Actual Area

Orifice	Throat diameter (mm)	Throat area (cm ²)	Throat area (in ²)	Seat diameter (mm)	Nominal lift (mm)
7.0	7.0	0.385	0.06	8.2	1.8
8.5	8.5	0.567	0.088	10.3	2.2
10.6	10.6	0.882	0.137	12.5	2.7
13.3	13.3	1.389	0.216	16	3.4
16.6	16.6	2.164	0.335	19.5	4.2

Pressure-temperature Rating

Size			Set pressure range (higher than-up to) MPaG		
1/2	7.0	3/4	RG2100, RG3100 0.137–11.8	RG4100 11.8–20.6 (15.7 ^{*2}) RG5100, RG6100 11.8–20.6	RG4200, RG5200 RG 6200 20.6–34.5 (26.8 ^{*3})
		1			
3/4		3/4			
		1			
1	8.5	1	RG2200, RG3200 0.137–11.8	RG4200 11.8–20.6 (15.7 ^{*2} , 19.1 ^{*3}) RG5200, RG 6200 11.8–20.6 (19.1 ^{*3})	RG4300, RG5300 RG6300 20.6–34.5 (25.4 ^{*3})
		3/4			
3/4		1			
1		1			
1/2	10.6	3/4 ^{*1}	RG2200, RG3200 0.0686–10.3 (8.83 ^{*3})	RG2300, RG3300 10.3–11.8	RG4300 11.8–24.1 (15.7 ^{*2} , 13.5 ^{*3}) RG5300, RG6300 10.3–24.1 (13.5 ^{*3})
		1			
3/4		3/4 ^{*1}			
		1			
1	13.3	1	RG2300, RG3300 0.0686–6.86 (4.41 ^{*3})	RG2400, RG3400 6.86–11.8 (11.1 ^{*3})	RG4400 11.8–24.1 (15.7 ^{*2} , 11.8 ^{*3}) RG5400, RG6400 11.8–24.1 (11.1 ^{*3})
		3/4 ^{*1}			
3/4		1			
1		1			
1	16.6	1 ^{*1}	RG2400, RG3400 0.0686–10.3 (6.27 ^{*3})		
		1.1/2			

*1 Size for liquid only

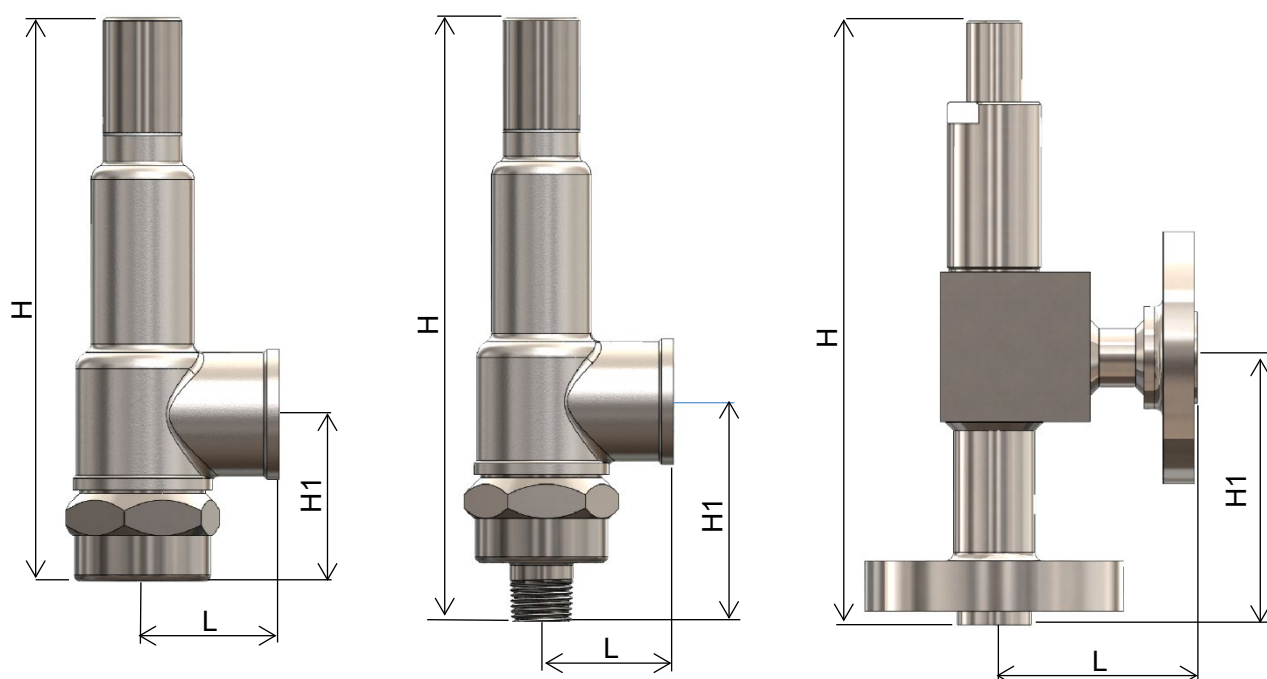
*2 Indicates the maximum set pressure for body material CAC406.

*3 Indicates the maximum set pressure for stainless steel springs.

◆ Dimensions and Weight

Dimensions and weight												Units: mm, kg	
Size	Bonnet code	Connection addition F				Connection addition M				Connection addition 1, 2, 4			
		Face-to-face		Overall length H	Weight (kg)	Center-to-face		Overall length H	Weight (kg)	Center-to-face		Overall length H	Weight (kg)
		H1	L			H1	L			H1	L		
7.0	1	55	45	180	1.2	75	45	200	1.2	125	95	250	4
	2	55	45	200	1.4	75	45	220	1.4	125	95	270	4.2
8.5	2	55	45	200	1.4	75	45	220	1.4	125	95	270	4.2
	3	60	50	210	2	80	50	230	2	125	100	275	5.3
10.6	2	55	45	200	1.4	75	45	220	1.4	125	95	270	4.2
	3	60	50	210	2	80	50	230	2	125	100	275	5.3
13.3	3	60	50	210	2	80	50	230	2	125	100	275	5.3
	4	65	65	280	3.7	85	65	300	3.7	125	115	340	7.9
16.6	6	65	65	280	3.7	85	65	300	3.7	125	115	340	7.9

* Common to type codes (RG2000, RG3000, RG4000, RG5000, and RG6000).





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