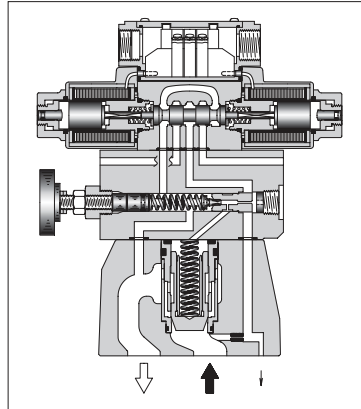


## Low Noise Type Solenoid Controlled Relief Valves

The low-noise solenoid controlled relief valve is a combination of a low-noise type pilot operated relief valve and a solenoid operated directional valve. It is used for no-load pump operation by using electric signals or, together with a remote control relief valve, for two or three pressure control of the hydraulic system.



### Specifications

Model Numbers	Max. Operating Pressure MPa (PSI)	Pressure Adj. Range MPa (PSI)	Max. Flow L/min (U.S.GPM)	Approx. Mass kg (lbs.)		
				Double Sol.	Single Sol.	With Vent Restrictor
S-BSG-03-*-53*	25 (3630)	★ - 25 (★ - 3630)	100 (26.4)	6.0 (13.2)	5.5 (12.1)	6.5 (14.3)
S-BSG-06-*-53*			200 (52.8)	6.9 (15.2)	6.4 (14.1)	7.4 (16.3)
S-BSG-10-*-53*			400 (106)	12.6 (27.8)	12.1 (26.7)	12.9 (28.4)

★ For relief valves, low-noise type pilot operated relief valves are used.  
For minimum adjustment pressures and other characteristics, see page 218.

### Model Number Designation

F-	A-	S-	BS	G	-03	-V	-2B3A	-A100	-N	-L	53	*
Special Seals	With Vent Restrictor	Low Noise Type	Series Number	Type of Mtg.	Valve size	High Venting Pres. Feature	Vent Type	Coil Type	Type of Electrical Connections	Direction of Handle	Design Number	Design Standards
<b>F:</b> Special Seals for Phosphate Ester Fluids (Omit if not required)	<b>A:</b> ★ <sup>1</sup> With Vent Restrictor (Option-Omit if not required)	<b>S:</b> Low Noise Type	<b>BS:</b> Solenoid Controlled Relief Valves	<b>G:</b> Sub-plate Mtg.	<b>03</b> <b>06</b> <b>10</b>	<b>V:</b> ★ <sup>2</sup> For High Venting Pressure Feature (Omit if not required)	<b>2B3A</b> ★ <sup>3</sup> <b>2B3B</b> <b>2B2B</b> <b>2B2</b> <b>3C2</b> <b>3C3</b>	<b>AC:</b> ★ <sup>4</sup> <b>A100</b> <b>A120</b> <b>A200</b> <b>A240</b> <b>DC:</b> <b>D12</b> <b>D24</b> <b>D48</b> <b>AC → DC:</b> <b>R100</b> <b>R200</b>	<b>None:</b> Terminal Box Type <b>N:</b> With Plug-in Connector (DIN) <b>N:</b> With Plug-in Connector (DIN)	<b>L:</b> Left (Normal) <b>R:</b> Right	<b>53</b>	<b>None:</b> Japanese Std. "JIS" <b>90:</b> N. American Design Std. <b>80:</b> European Design Std.

- ★ 1. Models with vent restrictor are applicable only for the vent type 2B3A and 2B3B. For details, see page 231.
- ★ 2. Use high venting pressure types to reduce response time from unloading to onloading.
- ★ 3. The vent types are the same as for the conventional type solenoid controlled relief valves. For the details of the vent types, see page 221.
- ★ 4. The coil codes are the same as for solenoid operated directional valve DSG-01 valve. See the solenoid ratings on page 345.

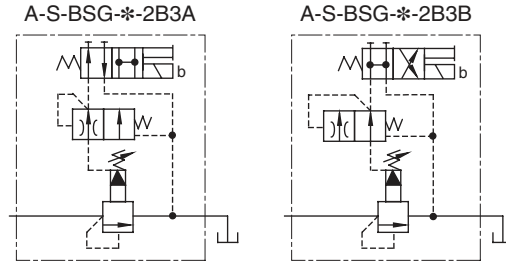
The coil type numbers in the shaded column are handled as optional extras. In case these coils are required to be chosen, please confirm the time of delivery with us before ordering.

## Option

### Models with vent restrictor

The type with a vent restrictor has a vent restrictor in vent types 2B3A and 2B3B added between a relief valve and a solenoid operated directional valve. It prevents shock to the main circuit by gradually lowering the venting pressure in the shift from the setting pressure to unloading.

Unloading pressures are the same as without a vent restrictor.



## Sub-plate

Valve Model Numbers	Japanese Standard "JIS"		European Design Standard		N. American Design Standard		Approx. Mass kg (lbs.)
	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	Sub-plate Model Numbers	Thread Size	
S-BSG-03	BGM-03-20	Rc 3/8	BGM-03-3080	3/8 BSP.F	BGM-03-2090	3/8 NPT	2.4(5.3)
	BGM-03X-20	Rc 1/2	BGM-03X-3080	1/2 BSP.F	BGM-03X-2090	1/2 NPT	3.1(6.8)
S-BSG-06	BGM-06-20	Rc 3/4	BGM-06-3080	3/4 BSP.F	BGM-06-2090	3/4 NPT	4.7(10.4)
	BGM-06X-20	Rc 1	BGM-06X-3080	1 BSP.F	BGM-06X-2090	1 NPT	5.7(12.6)
S-BSG-10	BGM-10-20	Rc 1-1/4	BGM-10-3080	1-1/4 BSP.F	BGM-10-2090	1-1/4 NPT	8.4(18.5)
	BGM-10X-20	Rc 1-1/2	BGM-10X-3080	1-1/2 BSP.F	BGM-10X-2090	1-1/2 NPT	10.3(22.7)

• Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.

• The sub-plates are those for pilot operated relief valves. For dimensions, see page 213.

## Attachment

### Mounting Bolts

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
S-BSG-03	M12 × 40 Lg.	1/2-13 UNC × 1-1/2 Lg.	4
S-BSG-06	M16 × 50 Lg.	5/8-11 UNC × 2 Lg.	4
S-BSG-10	M20 × 60 Lg.	3/4-10 UNC × 2-1/4 Lg.	4

## Instructions

- If a remote control relief valve is used in the vent circuit, see page 203. In addition, if the internal volume of the vent line is too large, chattering is likely to occur. Thus, as far as possible reduce the inside diameter and the length of the pipe.
- To adjust the pressure, loosen the lock nut and turn the handle slowly clockwise for higher pressures or anti-clockwise for lower pressures. After adjustments, do not forget to tighten the lock nut.
- Piping of the tank line should not be connected to any tank line of the other valves, but connected directly to the reservoir.
- Pressure is limited by collars fitted. If a working pressure cannot be attained, remove some collars. One collar is equivalent to 10 MPa (1450 PSI).
- With a small flow, the setting pressure may be unstable. Use models numbered 03 and 06 with a flow rate above 5 L/min (1.3 U.S. GPM) and model 10 with 8 L/min (2.1 U.S. GPM).

## Interchangeability in Installation between Old and New Design.

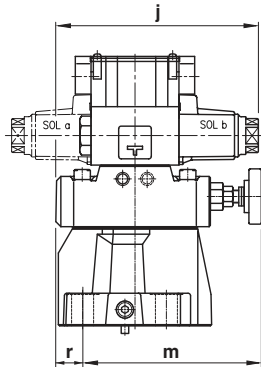
Design 53 valve is one on which DSG-01, design 70 is mounted as a pilot valve. It is interchangeable with old design (design 52) with respect to specifications, exterior shape and mounting dimensions.

**Terminal Box Type**

Opposite Handle Position

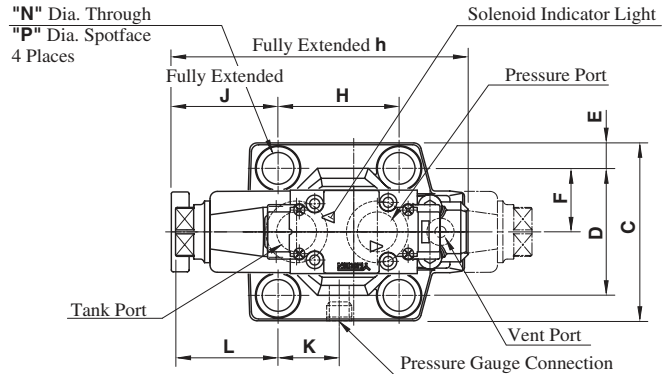
Mounting surface  
 S-BSG-03: ISO 6264-AR-06-2-A  
 S-BSG-06: ISO 6264-AS-08-2-A  
 S-BSG-10: ISO 6264-AT-10-2-A

S-BSG-03  
 06 -\*-\*-\*-R-53/5390



Note: For other dimensions, see the figures shown below.

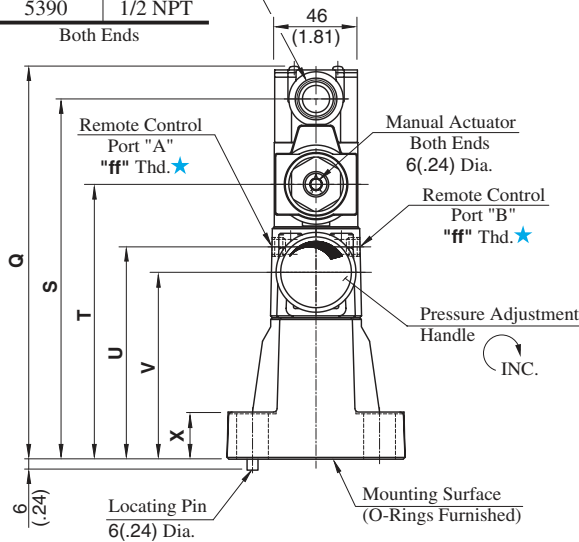
S-BSG-03  
 06 -\*-\*-\*-L-53/5390  
 S-BSG-10 -\*-\*-\*-53/5390



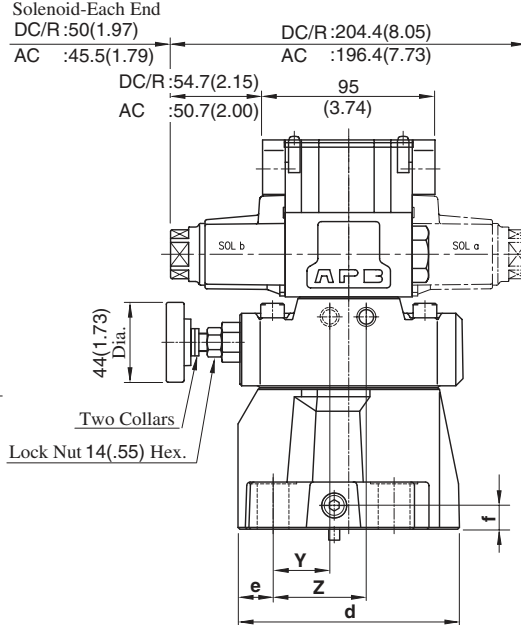
Electrical Conduit Connection

Design Std.	Thd. Size
53	G 1/2
5390	1/2 NPT

Both Ends



Space Needed to Remove Solenoid-Each End



Model Numbers	Dimensions mm (Inches)																						
	C	D	E	F	H	J	K	N	P	Q	S	T	U	V	X	Y	Z	d	e	f	h	m	r
S-BSG-03	76 (2.99)	53.8 (2.12)	11.1 (.44)	26.9 (1.06)	53.8 (2.12)	73.6 (2.90)	26.9 (1.06)	13.5 (.53)	21 (.83)	216.8 (8.54)	198.5 (7.81)	151.5 (5.96)	117 (4.61)	103 (4.06)	21.5 (.85)	17.1 (.67)	36.6 (1.44)	106 (4.17)	26.1 (1.03)	13 (.51)	163.5 (6.44)	127.4 (5.02)	36.1 (1.42)
S-BSG-06	98 (3.86)	70 (2.76)	14 (.55)	35 (1.38)	66.7 (2.63)	58.8 (2.31)	33.7 (1.33)	17.5 (.69)	26 (1.02)	216.8 (8.54)	198.5 (7.81)	151.5 (5.96)	117 (4.61)	103 (4.06)	26 (1.02)	31.9 (1.26)	51.4 (2.02)	122 (4.80)	19.3 (.76)	13 (.51)	163.5 (6.44)	142.2 (5.60)	21.3 (.84)
S-BSG-10	120 (4.72)	82.6 (3.25)	18.7 (.74)	41.3 (1.63)	88.9 (3.50)	46.1 (1.81)	44.9 (1.77)	21.5 (.85)	32 (1.26)	251.8 (9.91)	233.5 (9.19)	186.5 (7.34)	149 (5.87)	135 (5.31)	33.5 (1.32)	43.2 (1.70)	62.7 (2.47)	155 (6.10)	21.1 (.83)	18 (.71)	180 (7.09)	—	—

Model Numbers	AC Solenoid		DC/R Solenoid	
	L	j	L	j
S-BSG-03	71.3 (2.81)	161.2 (6.35)	75.3 (2.96)	165.2 (6.50)
S-BSG-06	56.5 (2.22)	161.2 (6.35)	60.5 (2.38)	165.2 (6.50)
S-BSG-10	44.3 (1.74)	—	48.3 (1.90)	—

**DIMENSIONS IN MILLIMETRES (INCHES)**

★ For the port screws, see the Plug-in Connector type on page 233.

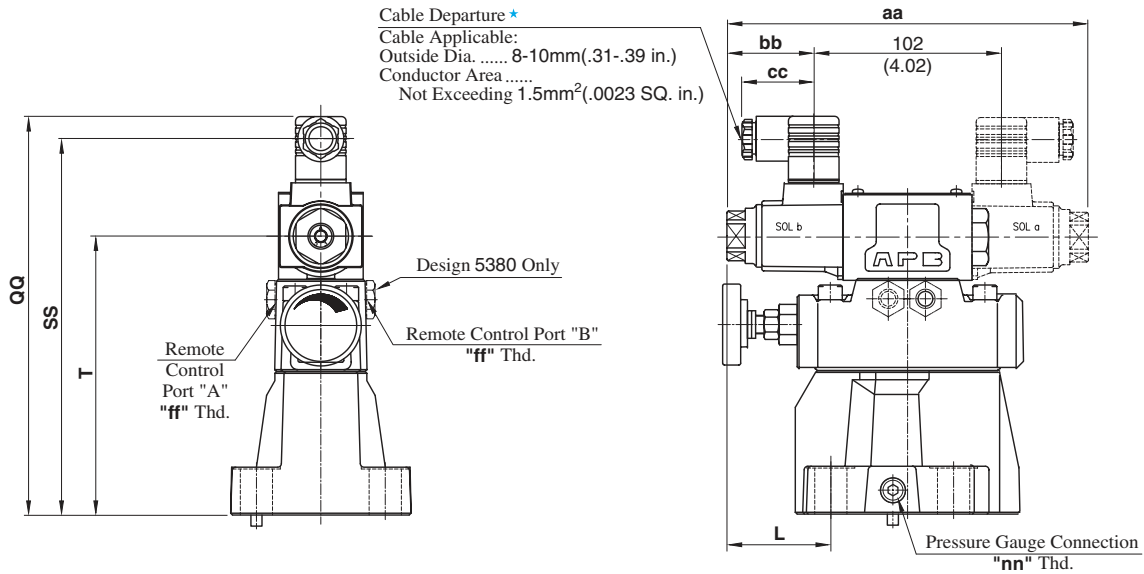
Note: For dimensions of the valve mounting surface, see the installation drawing (P. 213) of the sub-plate used together.

■ Plug-in Connector Type

S-BSG-03-\*\*-\*\*-N-L-53/5380/5390

S-BSG-10-\*\*-\*\*-N-L-53/5380/5390

DIMENSIONS IN MILLIMETRES (INCHES)



★ Position of cable departure can be changed. For details, refer to DSG-01 valve on page 357.

Model Numbers	Dimensions mm (Inches)							Remarks
	L	QQ	SS	T	aa	bb	cc	
S-BSG-03-**-**-A*-N	71.3 (2.81)	216.5 (8.52)	204.5 (8.05)	151.5 (5.96)	196.4 (7.73)	47.2 (1.86)	39 (1.54)	With AC Solenoid
S-BSG-06-**-**-A*-N	56.5 (2.22)	216.5 (8.52)	204.5 (8.05)	151.5 (5.96)				
S-BSG-10-**-**-A*-N	44.3 (1.74)	251.5 (9.90)	239.5 (9.43)	186.5 (7.34)				
S-BSG-03-**-**-D*-N	75.3 (2.96)	227.5 (8.96)	215.5 (8.48)	151.5 (5.96)	204.4 (8.05)	51.2 (2.02)	39 (1.54)	With DC Solenoid
S-BSG-06-**-**-D*-N	60.5 (2.38)	227.5 (8.96)	215.5 (8.48)	151.5 (5.96)				
S-BSG-10-**-**-D*-N	48.3 (1.90)	262.5 (10.33)	250.5 (9.86)	186.5 (7.34)				
S-BSG-03-**-**-R*-N	75.3 (2.96)	230.5 (9.07)	208.7 (8.22)	151.5 (5.96)	204.4 (8.05)	51.2 (2.02)	53 (2.09)	With AC → DC Solenoid
S-BSG-06-**-**-R*-N	60.5 (2.38)	230.5 (9.07)	208.7 (8.22)	151.5 (5.96)				
S-BSG-10-**-**-R*-N	48.3 (1.90)	265.5 (10.45)	243.7 (9.59)	186.5 (7.34)				

Model Numbers	Thread Size					
	Japanese Standard "JIS" Design 53		European Design Standard Design 5380		N. American Design Standard Design 5390	
	"ff" Thd.	"nn" Thd.	"ff" Thd.	"nn" Thd.	"ff" Thd.	"nn" Thd.
S-BSG-03-**-**-N	Rc 1/8	Rc 1/4	1/8 BSP.F	1/4 BSP.F	1/8 NPT	1/4 NPT
S-BSG-06-**-**-N						
S-BSG-10-**-**-N						

Low Noise Type Solenoid Controlled Relief Valves

Options-Models with Vent Restrictor

**DIMENSIONS IN  
MILLIMETRES (INCHES)**

● Terminal Box Type

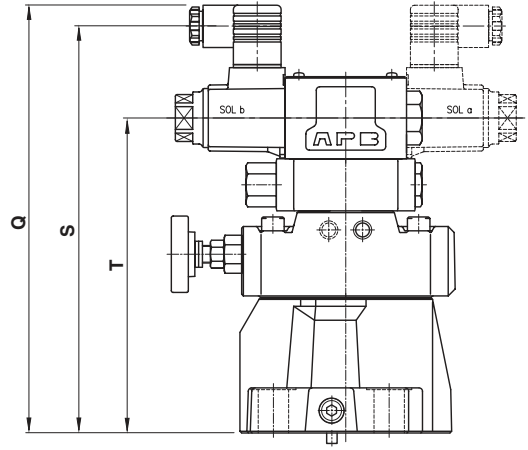
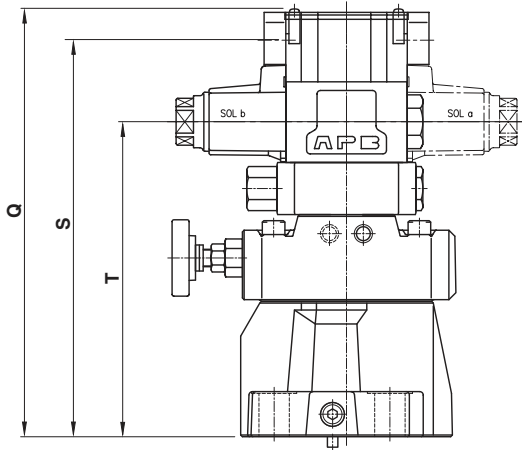
A-S-BSG-<sup>03</sup>/<sub>06</sub> -\*-\*-L-53/5390

A-S-BSG-10-\*-\*-53/5390

● Plug-in Connector Type

A-S-BSG-<sup>03</sup>/<sub>06</sub> -\*-\*-N-L-53/5380/5390

A-S-BSG-10-\*-\*-N-53/5380/5390

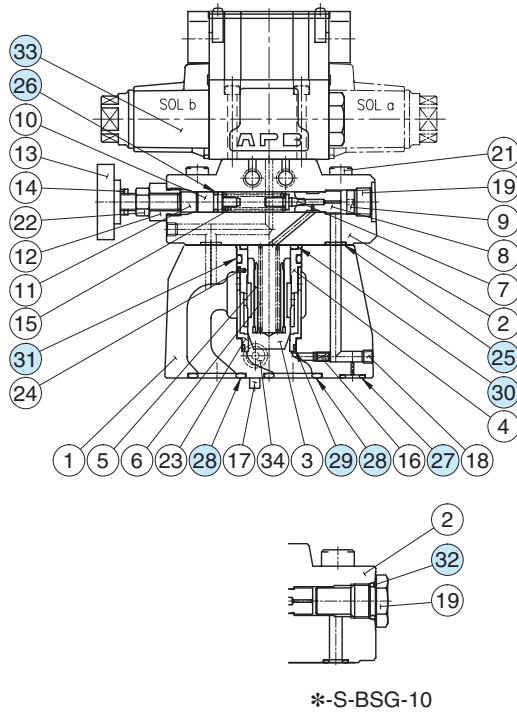


Model Numbers	Dimensions mm (Inches)			Remarks
	Q	S	T	
A-S-BSG-03-*-*-A*/D*/R*-L	246.8(9.72)	228.5(9.00)	181.5(7.15)	Terminal Box Type
A-S-BSG-06-*-*-A*/D*/R*-L				
A-S-BSG-10-*-*-A*/D*/R* *	281.8(11.09)	263.5(10.37)	216.5(8.52)	
A-S-BSG-03-*-*-A*-N-L	246.5(9.70)	234.5(9.23)	181.5(7.15)	Plug-in Connector with AC Solenoid
A-S-BSG-06-*-*-A*-N-L				
A-S-BSG-10-*-*-A*-N	281.5(11.08)	269.5(10.61)	216.5(8.52)	
A-S-BSG-03-*-*-D*-N-L	257.5(10.14)	245.5(9.67)	181.5(7.15)	Plug-in Connector with DC Solenoid
A-S-BSG-06-*-*-D*-N-L				
A-S-BSG-10-*-*-D*-N	292.5(11.52)	280.5(11.04)	216.5(8.52)	
A-S-BSG-03-*-*-R*-N-L	260.5(10.26)	238.7(9.40)	181.5(7.15)	Plug-in Connector with R Type Solenoid
A-S-BSG-06-*-*-R*-N-L				
A-S-BSG-10-*-*-R*-N	295.5(11.63)	273.7(10.78)	216.5(8.52)	

## Spare Parts List

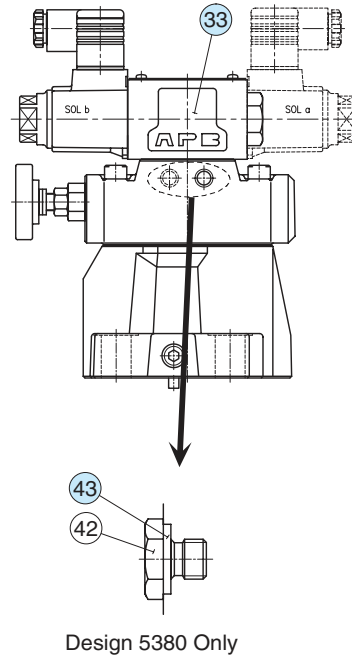
### Terminal Box Type

S-BSG-03,06,10-\*\*\*-53/5390



### Plug-in Connector Type

S-BSG-03,06,10-\*\*\*-N-53/5380/5390



### List of Seals

Item	Name of Parts	Part Numbers			Qty.
		S-BSG-03	S-BSG-06	S-BSG-10	
25	O-Ring	SO-NB-P9	SO-NB-P9	SO-NB-P9	2
26	O-Ring	SO-NA-P9	SO-NA-P9	SO-NA-P9	1
27	O-Ring	SO-NB-P9	SO-NB-P11	SO-NB-P9	1
28	O-Ring	SO-NB-P18	SO-NB-P28	SO-NB-P32	2
29	O-Ring	SO-NB-A024	SO-NB-A024	SO-NB-A128	1
30	O-Ring	SO-NB-P28	SO-NB-P28	SO-NB-P36	1
31	O-Ring	SO-NB-P32	SO-NB-P32	SO-NB-P42	1
32	O-Ring	—	—	SO-NB-P14	1
38*	O-Ring	SO-NB-P8			2
40*	O-Ring	SO-NB-P14			2
43	Bonded Seal	SG-FB-1/8	SG-FB-1/8	SG-FB-1/8	2

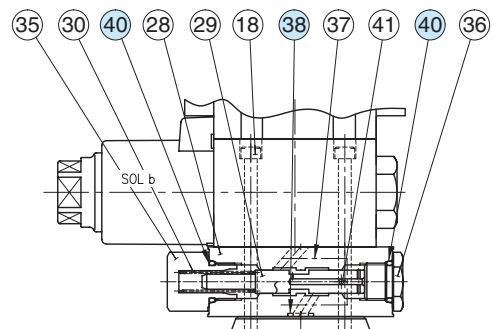
★ The O-Rings for item 38, 40 are used only for the models with the vent restrictor.

Note: When ordering the seals, please specify the seal kit number from the table right. In addition to the above seals, seals for the pilot valves are included in the seal kit.

For the detail of the pilot valve seals, see [page 359](#).

### Option-Models with Vent Restrictor

A-S-BSG-03,06,10-\*\*\*-53/5390  
N-53/5380/5390



### List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
S-BSG-03	KS-S-BSG-03-53
S-BSG-06	KS-S-BSG-06-53
S-BSG-10	KS-S-BSG-10-53
A-S-BSG-03	KS-A-S-BSG-03-53
A-S-BSG-06	KS-A-S-BSG-06-53
A-S-BSG-10	KS-A-S-BSG-10-53

Note: No bonded seals are included in the seal kits.

### Pilot Valves

See [page 236](#) for the pilot valve model numbers to be used.

**Spare Parts List**

**List of Pilot Valves**

Type of Electrical Conduit Connection	Valve Model Numbers	Pilot Valve Model Numbers	Remarks
Terminal Box Type	*-S-BSG-03/06/10-*-2B3A-★-53	DSG-01-2B3A-★-70	Japanese Standard "JIS"
	*-S-BSG-03/06/10-*-2B3B-★-53	DSG-01-2B3B-★-70	
	*-S-BSG-03/06/10-*-2B2B-★-53	DSG-01-2B2B-★-70	
	*-S-BSG-03/06/10-*-2B2-★-53	DSG-01-2B2-★-70	
	*-S-BSG-03/06/10-*-3C2-★-53	DSG-01-3C2-★-70	
	*-S-BSG-03/06/10-*-3C3-★-53	DSG-01-3C3-★-70	
	*-S-BSG-03/06/10-*-2B3A-★-5390	DSG-01-2B3A-★-7090	N. American Design Std.
	*-S-BSG-03/06/10-*-2B3B-★-5390	DSG-01-2B3B-★-7090	
	*-S-BSG-03/06/10-*-2B2B-★-5390	DSG-01-2B2B-★-7090	
	*-S-BSG-03/06/10-*-2B2-★-5390	DSG-01-2B2-★-7090	
*-S-BSG-03/06/10-*-3C2-★-5390	DSG-01-3C2-★-7090		
*-S-BSG-03/06/10-*-3C3-★-5390	DSG-01-3C3-★-7090		
Plug-in Connector Type	*-S-BSG-03/06/10-*-2B3A-★-N-53	DSG-01-2B3A-★-N-70	Japanese Standard "JIS"
	*-S-BSG-03/06/10-*-2B3B-★-N-53	DSG-01-2B3B-★-N-70	
	*-S-BSG-03/06/10-*-2B2B-★-N-53	DSG-01-2B2B-★-N-70	
	*-S-BSG-03/06/10-*-2B2-★-N-53	DSG-01-2B2-★-N-70	
	*-S-BSG-03/06/10-*-3C2-★-N-53	DSG-01-3C2-★-N-70	
	*-S-BSG-03/06/10-*-3C3-★-N-53	DSG-01-3C3-★-N-70	
	*-S-BSG-03/06/10-*-2B3A-★-N-5380	DSG-01-2B3A-★-N-70	European Design Std.
	*-S-BSG-03/06/10-*-2B3B-★-N-5380	DSG-01-2B3B-★-N-70	
	*-S-BSG-03/06/10-*-2B2B-★-N-5380	DSG-01-2B2B-★-N-70	
	*-S-BSG-03/06/10-*-2B2-★-N-5380	DSG-01-2B2-★-N-70	
	*-S-BSG-03/06/10-*-3C2-★-N-5380	DSG-01-3C2-★-N-70	
	*-S-BSG-03/06/10-*-3C3-★-N-5380	DSG-01-3C3-★-N-70	
	*-S-BSG-03/06/10-*-2B3A-★-N-5390	DSG-01-2B3A-★-N-7090	N. American Design Std.
	*-S-BSG-03/06/10-*-2B3B-★-N-5390	DSG-01-2B3B-★-N-7090	
	*-S-BSG-03/06/10-*-2B2B-★-N-5390	DSG-01-2B2B-★-N-7090	
	*-S-BSG-03/06/10-*-2B2-★-N-5390	DSG-01-2B2-★-N-7090	
*-S-BSG-03/06/10-*-3C2-★-N-5390	DSG-01-3C2-★-N-7090		
*-S-BSG-03/06/10-*-3C3-★-N-5390	DSG-01-3C3-★-N-7090		

Note: 1. Fill a coil type (a symbol representing current/voltage) in section marked ★.

2. For the details of the pilot valves, see [page 359](#).