

Hydraulic Fluids

Fluid Types

Any type of hydraulic fluids listed in the table below can be used.

Petroleum base oils	Use fluids equivalent to ISO VG 32 or VG 46.
Synthetic fluids	Use phosphate ester or polyol ester fluid. When phosphate ester fluid is used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.
Water containing fluids	Use water-glycol fluid.

Note: For use with hydraulic fluids other than those listed above, please consult your Yuken representatives in advance.

Recommended Fluid Viscosity and Temperature

Use under conditions where the viscosity and temperature of the hydraulic fluid remain in the ranges indicated in the following table.

Name	Viscosity	Temperature
Remote Control Relief Valves Direct Type Relief Valves Pilot Operated Relief Valves Low Noise Type Pilot Operated Relief Valves Solenoid Controlled Relief Valves * Low Noise Type Solenoid Controlled Relief Valves * H Type Pressure Control Valves HC Type Pressure Control Valves Pressure Reducing Valves Pressure Reducing and Check Valves Pressure Reducing and Relieving Valves Unloading Relief Valves Brake Valves	15 - 400 mm ² /s (88 - 1800 SSU)	-15 - +70°C (5 - 158°F)
Semiconductor Type Pressure Switches	15 - 400 mm ² /s (88 - 1800 SSU)	-20 - +70°C (- 4 - 158°F)

* If the valve is provided with a vent restrictor (ex. : A-BSG-03), the viscosity range should be 15 - 200 mm²/s (80 - 900 SSU).

Control of Contamination

Due caution must be paid to maintaining control over contamination of the hydraulic fluids which may otherwise lead to breakdowns and shorten the life of the valves. Please maintain the degree of contamination within NAS 1638-Grade 12. Use 25 μm or finer line filter.

Interchangeability in Installation between Current and New Design

Model change has been made on the following products.

The difference between current and new design has been described on the paragraph of "Interchangeability in Installation between Current and New Design". Refer to relevant pages on each series.

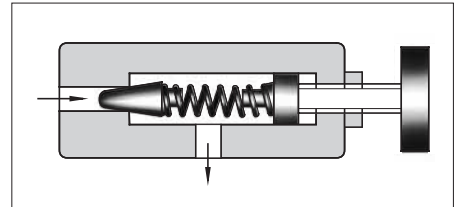
Name	Model Numbers		Mounting Interchangeability	Main Changes	Page
	Current	New			
Solenoid Controlled Relief Valve	BS*-03, -47*	BS*-03, -48*	Yes	Pilot valves (DSG-01) have been changed in the design numbers 70.	222
	BS*-06, -47*	BS*-06, -48*			
	BS*-10, -47*	BS*-10, -48*			
Low Noise Type Solenoid Controlled Relief Valve	S-BSG-03, -52*	S-BSG-03, -53*	Yes	Pilot valves (DSG-01) have been changed in the design numbers 70.	231
	S-BSG-06, -52*	S-BSG-06, -53*			
	S-BSG-10, -52*	S-BSG-10, -53*			

Remote Control Relief Valves

This valve is used as a remote control valve for pilot operated type pressure control valves.

Specifications

Model Numbers		Max. Operating Pres. MPa (PSI)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting		DT type	DG type
DT-01-22*	DG-01-22*	25 (3630)	1.6 (3.5)	1.4 (3.1)



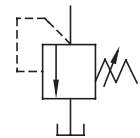
Model Number Designation

F-	D	T	-01	-22	*
Special Seals	Series Number	Type of Mounting	Valve Size	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	D: Remote Control Relief Valves	T: Threaded Connection	01	22	None: Japanese Std. "JIS" 80: European Design Std. 90: N. American Design Std.
		G: Sub-plate Mounting		22	None: Japanese Std. "JIS" and European Design Std. 90: N. American Design Std.

Instructions

- 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).
- If the internal volume of the vent line is too large, chattering is likely to occur.

Graphic Symbol



Attachment

Mounting bolts

Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
DG-01	M5 × 45 Lg.	No.10-24 UNC × 1-3/4 Lg.	4

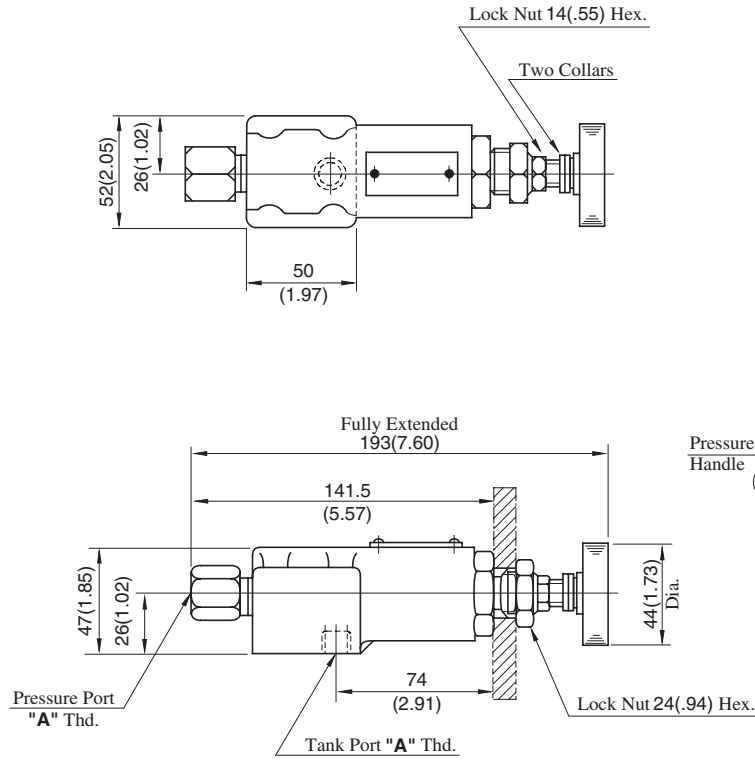
Sub-plate

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	
DG-01	DGM-02-20	Rc 1/4	DGM-02-2080	1/4 BSP.F	DGM-02-2090	1/4 NPT	0.7 (1.5)

- 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.

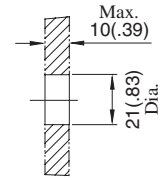
DT-01-22/2280/2290

DIMENSIONS IN MILLIMETRES (INCHES)



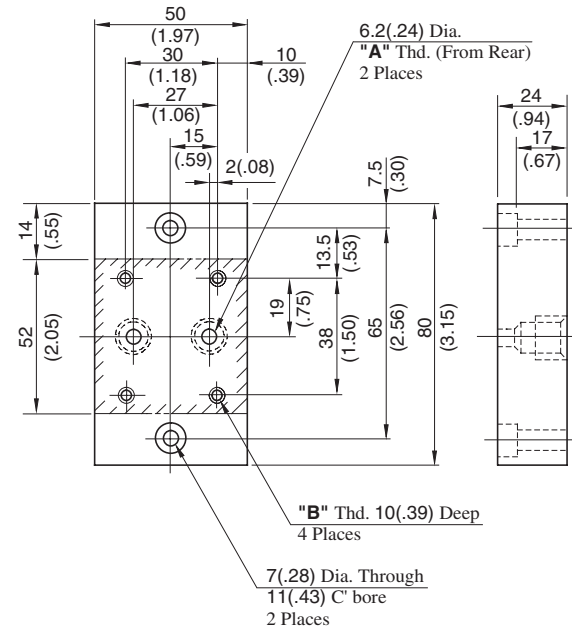
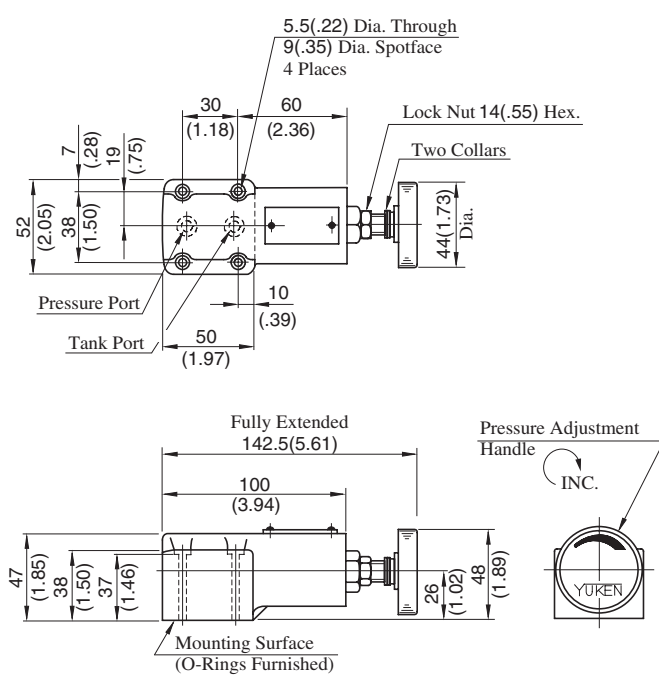
Model Numbers	"A" Thd.
DT-01-22	Rc 1/4
DT-01-2280	1/4 BSP.F
DT-01-2290	1/4 NPT

Dimensions of The Panel Mounting Hole



DG-01-22/2290

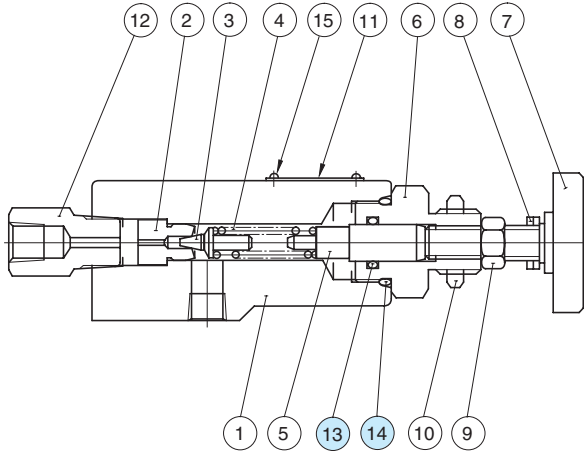
Sub-plate: DGM-02-20/2080/2090



Model Numbers	"A" Thd.	"B" Thd.
DGM-02-20	Rc 1/4	M5
DGM-02-2080	1/4 BSP.F	
DGM-02-2090	1/4 NPT	No. 10-24 UNC

Spare Parts List

DT-01-22/2280/2290



List of Seals

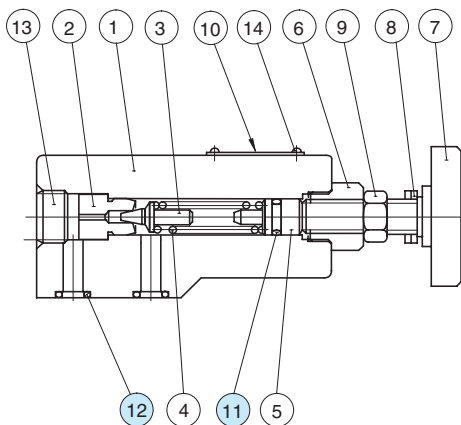
Item	Name of Parts	Part Numbers	Qty.
13	O-Ring	SO-NA-P12	1
14	O-Ring	SO-NB-P22.4	1

Note: When ordering the seals, please specify the seal kit number from the table below.

List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
DT-01	KS-DT-01-22
DG-01	KS-DG-01-22

DG-01-22/2290



List of Seals

Item	Name of Parts	Part Numbers	Qty.
11	O-Ring	SO-NA-P9	1
12	O-Ring	SO-NB-P9	2

Note: When ordering the seals, please specify the seal kit number from the table above.

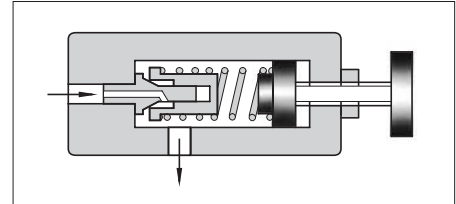
Direct Type Relief Valves

This valve is used in a hydraulic circuit to prevent damage due to over pressure and to adjust the maximum circuit pressure of small capacity.

Specifications

Model Numbers		Max. Operating Pressure MPa (PSI)	Pres. Adj. Range MPa (PSI)	Max. Flow L/min (U.S.GPM)	Approx. Mass kg (lbs.)	
Threaded Connection	Sub-plate Mounting				DT type	DG type
DT-02-*-22*	DG-02-*-22*	21 (3050)	Note)	16 (4.23)	1.5 (3.3)	1.5 (3.3)

Note: Refer to the Model Number Designation.



Model Number Designation

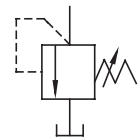
F-	D	T	-02	-B	-22	*
Special Seals	Series Number	Type of Mounting	Valve Size	Pres. Adj. Range MPa (PSI)	Design Number	Design Standards
F: Special Seals for Phosphate Ester Type Fluids (Omit if not required)	D: Direct Type Relief Valves	T: Threaded Connection	02	B: ★-7 (★-1020) C: 3.5-14 (510-2030) H: 7-21 (1020-3050)	22	None: Japanese Std. "JIS" 80: European Design Std. 90: N. American Design Std.
		G: Sub-plate Mounting			22	

★ Refer to the Minimum Adjustment Pressure Characteristics.

Instructions

- 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.

Graphic Symbol



Attachment

Mounting bolts

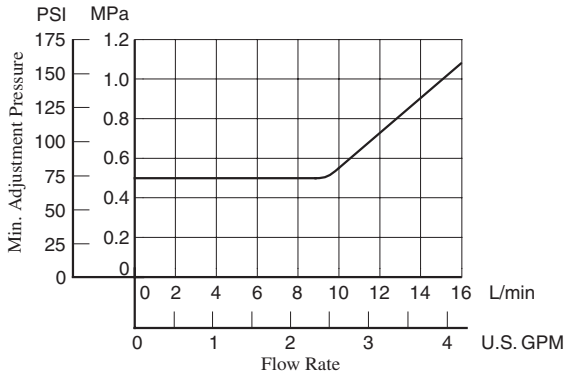
Valve Model Numbers	Socket Head Cap Screw		Qty.
	Japanese Std. "JIS" and European Design Std.	N. American Design Std.	
DG-02	M5 × 45 Lg.	No.10-24 UNC × 1-3/4 Lg.	4

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	
DG-02	DGM-02-20	Rc 1/4	DGM-02-2080	1/4 BSP.F	DGM-02-2090	1/4 NPT	0.7 (1.5)

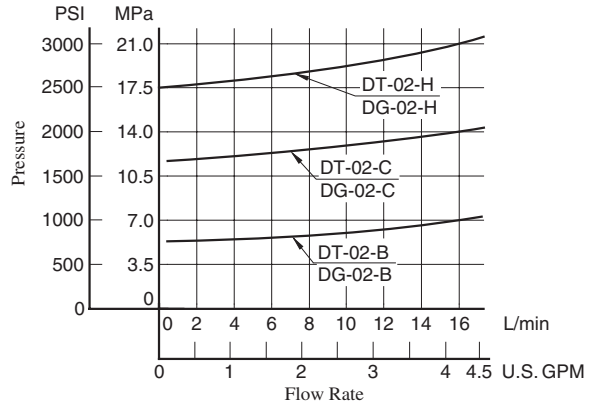
- Sub-plates are available. Specify the sub-plate model number from the table above. When sub-plates are not used, the mounting surface should have a good machined finish.
- The sub-plates are those for remote control relief valves. For dimensions, see [page 204](#).

Min. Adjustment Pressure

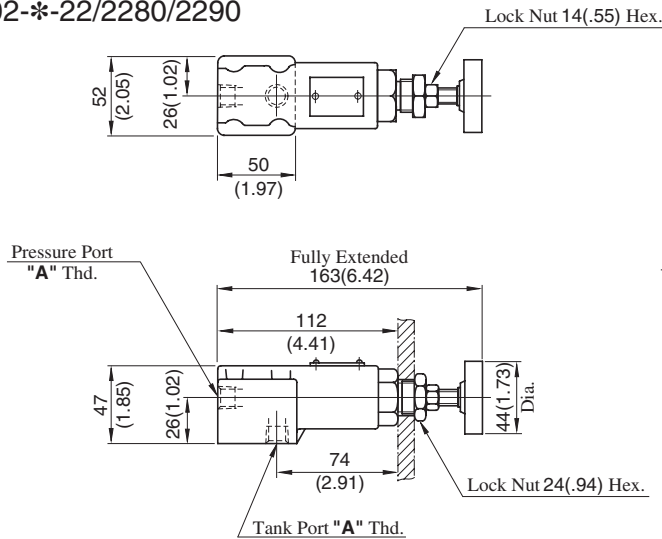


Nominal Override Characteristics

Hydraulic fluid
 Viscosity : 35 mm²/s (164 SSU)
 Specific Gravity : 0.850

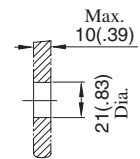


DT-02-*-22/2280/2290



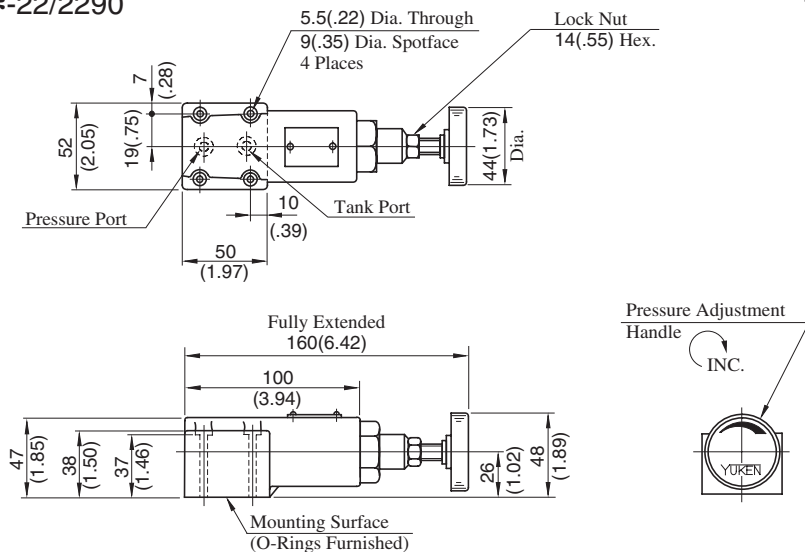
Model Numbers	"A" Thd.
DT-02-*-22	Rc 1/4
DT-02-*-2280	1/4 BSP.F
DT-02-*-2290	1/4 NPT

Dimensions of The Panel Mounting Hole



DIMENSIONS IN MILLIMETRES (INCHES)

DG-02-*-22/2290

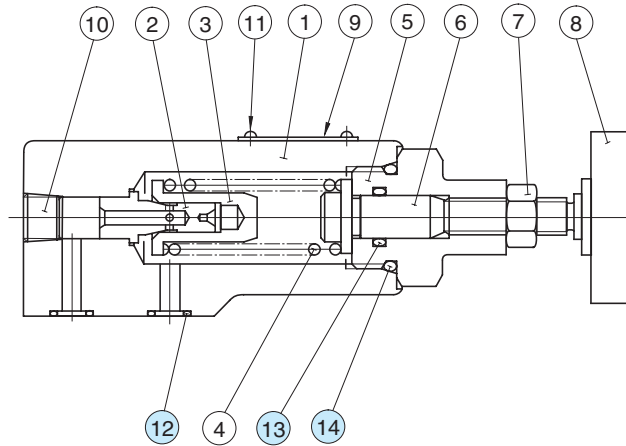


Note: For dimensions of the valve mounting surface, see the dimensional drawing (page 204) of the sub-plate used together.

■ Spare Parts List

DT-02-*-22/2280/2290

DG-02-*-22/2290



● List of Seals

Item	Name of Parts	Part Numbers	Qty.	Remarks
12	O-Ring	SO-NB-P9	2	Use only for DG-02
13	O-Ring	SO-NA-P12	1	———
14	O-Ring	SO-NB-P22.4	1	———

Note: When ordering the seals, please specify the seal kit number from the table below.

● List of Seal Kits

Valve Model Numbers	Seal Kit Numbers
DT-02	KS-DT-01-22
DG-02	KS-DG-02-22