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Modular Valves Hydraulic Valves Hydraulic Unit



SEVEN OCEAN HYDRAULIC INDUSTRIAL CO., LTD.

No. 99, Ln. 223, Sec. 1, Taiping Rd., Caotun Township, Nantou County 542, Taiwan

TEL: +886-49-235 8880 <http://www.fluidman.com.tw>

FAX: +886-49-235 8832 E-mail: sales@seven-ocean.com.tw

SEVEN OCEAN(SHA) HYDRAULIC INDUSTRIAL CO.

No.17, Rongxing Rd., Zhongshan St., Songjiang, Shanghai, China

TEL: +86-21-5778 1781 <http://www.sevenocean.com.cn>

FAX: +86-21-5778 0103 E-mail: sevenocean@online.sh.cn



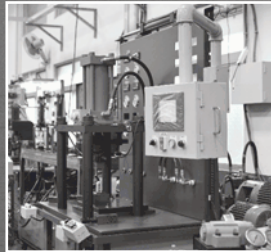
SEVEN OCEAN
HYDRAULIC INDUSTRIAL CO., LTD.



HIGHLY REPUTED MANUFACTURER OF HYDRAULIC VALVE

THE COMPLETE HYDRAULIC VALVE SERIES

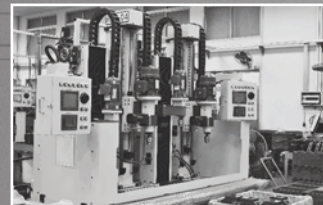
- Solenoid Operated Directional Control Valves
- Directional Control Valves
- Pressure Control Valves
- Flow Control / Check Valves
- Modular Valves
- Cartridge / Logic Valves
- Pressure Switch
- Other Specific Valves



Automatic Testing
Machines



The QA Department With
Precision Measurement



The Multifunctional Boring
Machines



The Precision Boring
Machines



Warehouse Management
System



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SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DGO3 SIZE 6

FEATURES :

- Highest performance in NG 6
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Coil outside cover with BMC fire proof material
- Surge suppressor inside DC wiring box type
- Connections to DIN, ISO and CETOP



Model: DG03-* *-DC24-WB-82

SPECIFICATION :

Maximum Flow Rate		80 L/Min (21 GPM)
Maximum Operating Pressure		320 Bar (4571 PSI)
Maximum Permissible Back Pressure		210 Bar (3045 PSI)
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		NAS Class 9 MAX
Degree of Protection		IEC 144 Class IP 65
Maximum Change over Frequency		240 Times/Min (AC/DC)
Mounting Pattern		ISO 4401-AB-03-4-A
Approx. Weight (Kg)	Single solenoid (AC/DC)	1.5 / 1.8
	Double solenoid (AC/DC)	1.9 / 2.2
Valve Fixing Screws	Metric	M5 x 45L (4pcs)
	Inch	10#~24UNCx1-3/4"L (4pcs)
Tightening Torque		5~7Nm

SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DGO3 SIZE 6

ORDERING CODE :

D G 03 - 2 C - A110 - DN - 82 - **
1 2 3 4 5 6 7 8 9

1 DIRECTIONAL CONTROL VALVE

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 TYPE OF SPOOL (CENTER CONDITION)

0 A B P T	1 A B P T	2 A B P T	3 A B P T	5 A B P T	6 A B P T
7 A B P T	8 A B P T	11 A B P T	22 A B P T	31 A B P T	33 A B P T

0: Open center (All ports)

1: Open center (P, A to T)

2: Closed center (All ports)

3: Closed center (P, B)

5: Closed center (T, B)

6: Closed center (P only)

7: Open center (P to A, B)

8: Tandem center (P to T)

11: Open center (P, B to T)

22: Closed center (Two way)

31: Closed center (P, A)

33: Closed center (Bleed A,B)

5 SPRING CRACKING PRESSUE

A: Spring offset to port "A" single solenoid

AL: Spring offset to port "B" single solenoid

B: Spring centered-single solenoid

BL: Spring centered-single solenoid

C: Spring centered-double solenoid

N: Without spring with detent

6 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz

A120: AC110V, 50 Hz; AC120V, 60 Hz

A220: AC200V, 50/60 Hz; AC220V, 60 Hz

A240: AC220V, 50 Hz; AC240V, 60 Hz

DC12: DC12V

DC24: DC24V

R110: AC110V, 60 Hz; Rectifier built-in type

R220: AC220V, 60 Hz; Rectifier built-in type

7 ELECTRICAL OPTIONS:

DN: DIN 43650 Coils with indicator lights

DN0: DIN 43650 Coils without indicator lights

WB: Wiring housing with G1/2 thread and indicator lights

8 DESIGN NUMBER

82

9 OPTIONAL INQUIRY

LS: Surge Killer

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG03 SIZE 6

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DG03-0C 	DG03-0B 	DG03-0BL
1 (F)	DG03-1C 	DG03-1B 	DG03-1BL
2 (E)	DG03-2C 	DG03-2B 	DG03-2BL
	/		
3 (L)	DG03-3C 	DG03-3B 	DG03-3BL
5	DG03-5C 	DG03-5B 	DG03-5BL
6 (J)	DG03-6C 	DG03-6B 	DG03-6BL
7 (M)	DG03-7C 	DG03-7B 	DG03-7BL
8 (G)	DG03-8C 	DG03-8B 	DG03-8BL
11 (P)	DG03-11C 	DG03-11B 	DG03-11BL
31 (U)	DG03-31C 	DG03-31B 	DG03-31BL
33 (W)	DG03-33C 	DG03-33B 	DG03-33BL

*() : Rexroth Model

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG03 SIZE 6

SPOOL TYPES:

Position type during transition	Double solenoid valves, spring centered -N-	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)	/	DG03-0A 	DG03-0AL
2 (E)		DG03-2A 	DG03-2AL
6 (J)	/	DG03-6A 	DG03-6AL
7 (M)		DG03-7A 	DG03-7AL
22 (A)	/	DG03-22A 	DG03-22AL

*() : Rexroth Model

FEATURES OF ELECTRO-MAGNETIC COIL :

Solenoid Classification	Power Source	Voltage (V)	Frequency (Hz)	Inrush Current (A)	Holding Current (A)	Holding Power (W)	Permissible Voltage (V)	Insulation Grade	Coil Insulation Class	Insulation Resistance (MΩ)
AC	A110	AC100V	50	2.22	0.44	25.2	90~110	B	H (180°C)	>50
			60	2.05	0.38	18.7	90~110			
	A120	AC110V	50	2.08	0.43	26.4	100~120			
			60	2.06	0.38	23.8	110~130			
	A220	AC200V	50	1.26	0.29	32.0	190~210			
			60	1.11	0.21	23.7	190~210			
	A240	AC220V	50	0.90	0.19	24.8	210~230			
			60	0.87	0.17	21.6	230~250			
DC	DC12	DC12V	-	-	2.50	30.0	10.8~13.2	B	H (180°C)	>50
	DC24	DC24V	-	-	1.25	30.0	21.6~26.4			

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG03 SIZE 6

PERFORMANCE FIGURES & CURVES:

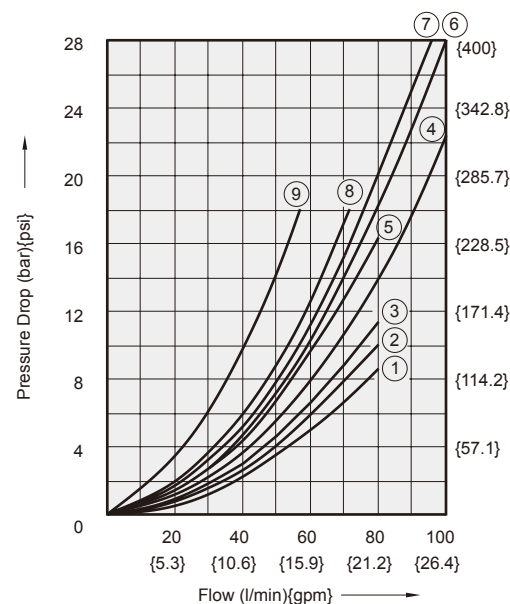
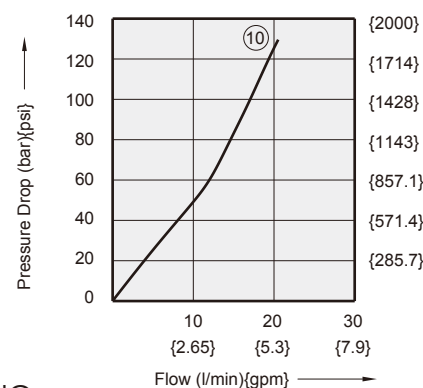
Pressure Drop Curve Reference Chart

Viscosity of Hydraulic Fluid: 20 mm²/s

Spool Type	C, B, BL							
	Control Position				Neutral Position			
	P→A	B→T	P→B	A→T	P→T	A→T	B→T	P→B
0 (H)	4	3	4	3	4	1	1	4
1 (F)	4	3	4	3	8	2	-	4
2 (E)	6	4	6	4	-	-	-	-
3 (L)	6	4	8	2	-	4	-	-
6 (J)	8	2	8	2	-	4	4	-
7 (M)	4	6	4	6	-	-	-	7
8 (G)	7	5	7	5	8	-	-	-
11 (P)	4	3	4	3	8	-	2	-
31 (U)	8	2	6	4	-	-	4	-
33 (W)	6	4	6	4	-	10	10	-

Spool Type	A, AL			
	Control Position			
	P→A	B→T	P→B	A→T
0 (H)	5	4	5	4
2 (E)	7	6	7	8
6 (J)	7	4	8	4
7 (M)	5	8	5	9
22 (A)	6	-	7	-

Spool Type	N			
	Control Position			
	P→A	B→T	P→B	A→T
2 (E)	7	4	7	4



WIRING:

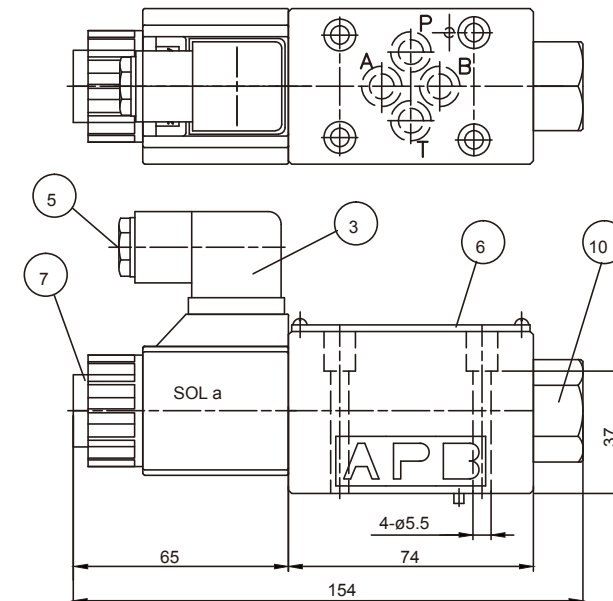
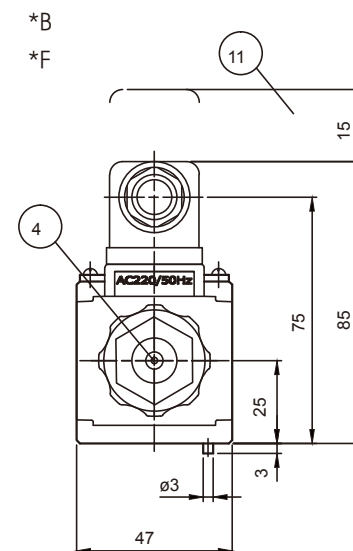
DG03-*C-*-WB-82	DG03-*-*-DN-82
Note: 1. COM terminal is fitted in double solenoid valve for easiness of wiring. 2. Use an earth terminal when ground wiring is necessary. 3. Use a compressed terminal for M3. 4. Fasten the screw of the terminal with 0.5~0.7 N.m (4.3~6.1 lbs) torque.	

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG03 SIZE 6

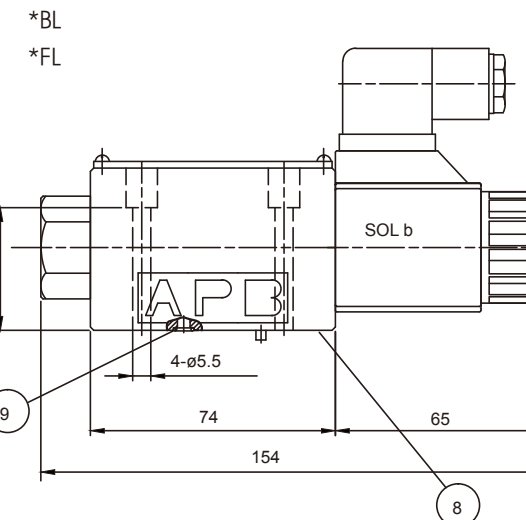
DIMENSIONS:

AC solenoid (DN Type)

■ DG03- *A-A*-DN-82

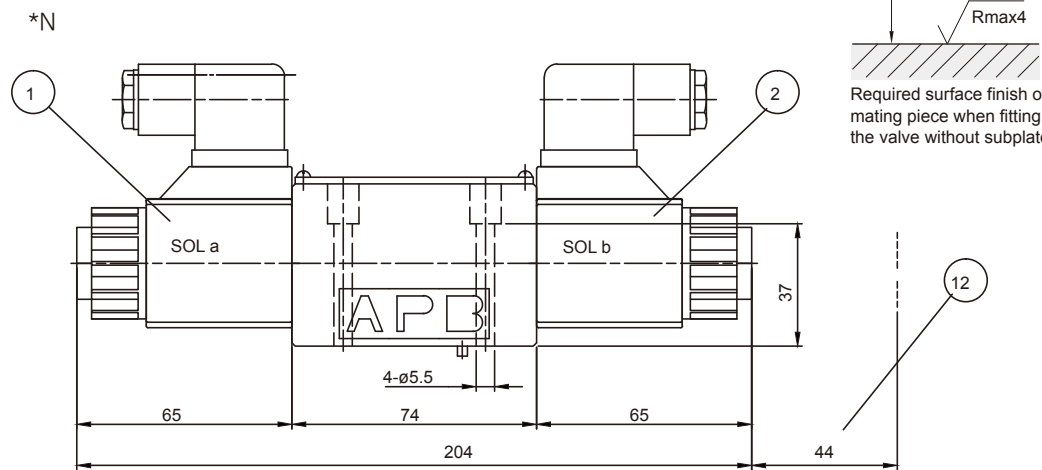


■ DG03- *AL-A*-DN-82



- Solenoid a
- Solenoid b
- Angled plug to DIN 43650
- Push pin for manual operation
- Lead wire take-out (Cable diameter ø6~9mm)
- Nameplate
- Lock nut with torque in the range 4~5 N.m
- Connections to DIN 24340 (NG6, ISO 4401-AB-03-4-A); valve fixing screws M5x45; tightening torques 5~7 Nm
- O-ring 1B~P9
- Hex nut (for single solenoid)
- Space required to remove plug
- Coil removable length

■ DG03- *C-A*-DN-82



SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG03 SIZE 6

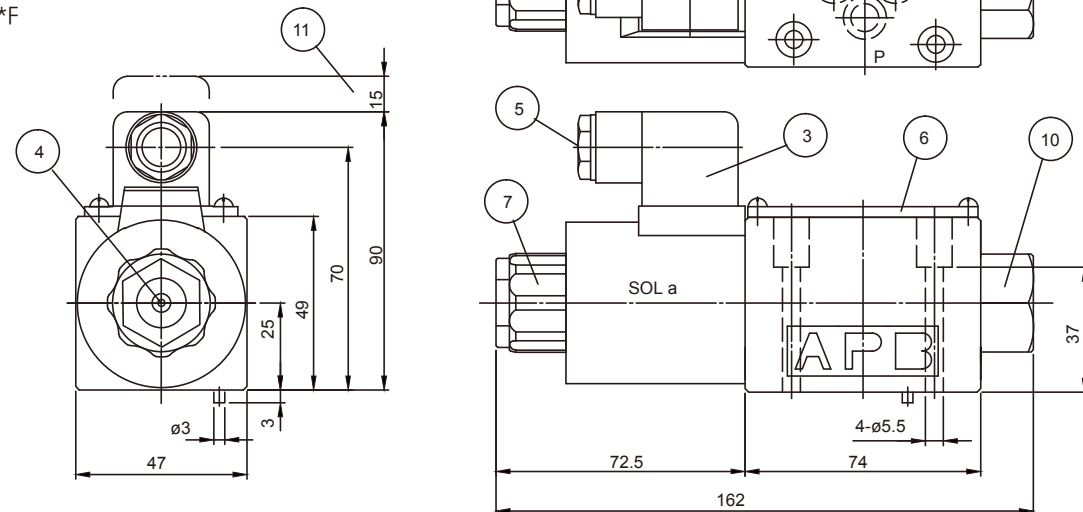
DIMENSIONS:

DC solenoid (DN Type)

■ DG03- *A-DC*-DN-82

*B

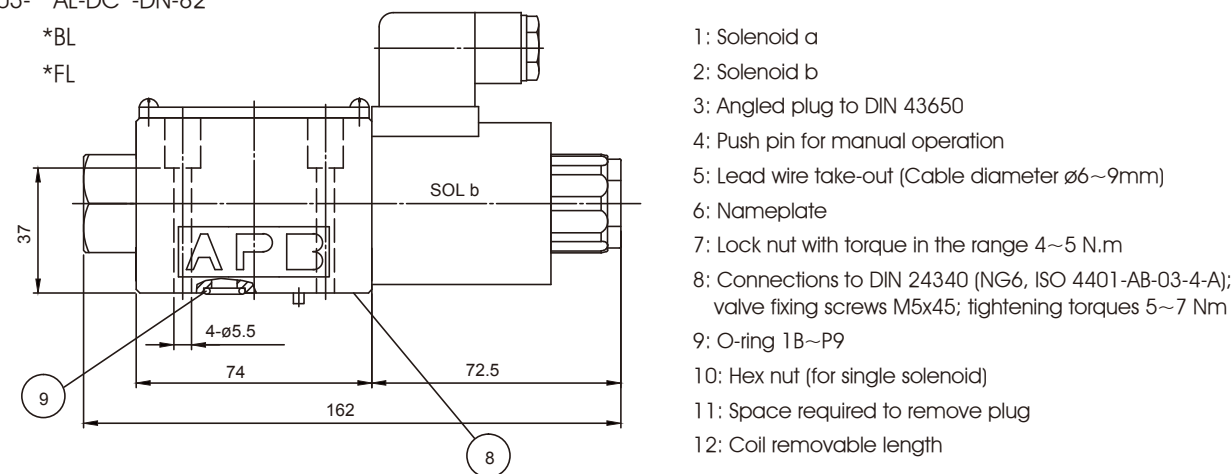
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■ DG03- *AL-DC*-DN-82

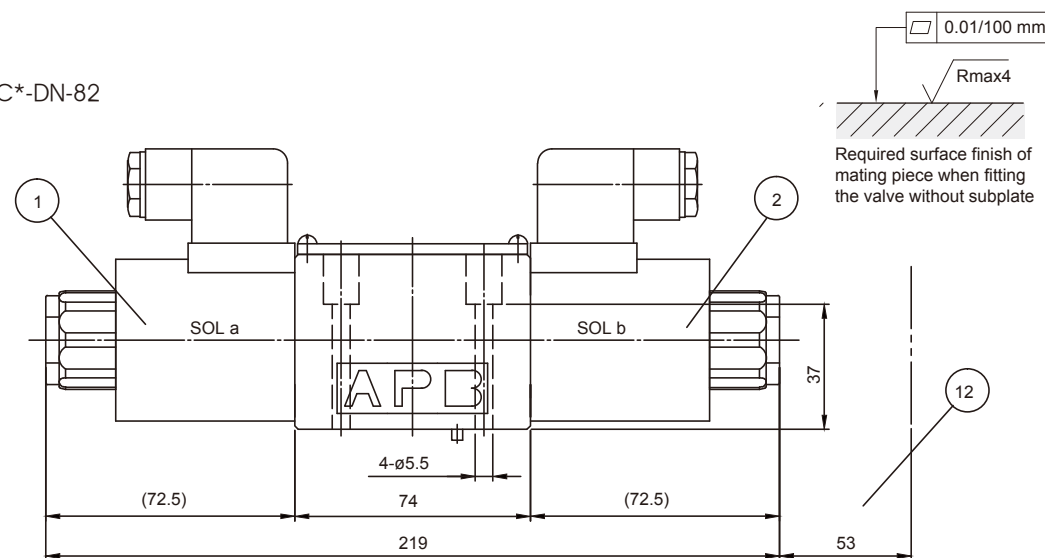
*BL

*FL



■ DG03- *C-DC*-DN-82

*N



SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG03 SIZE 6

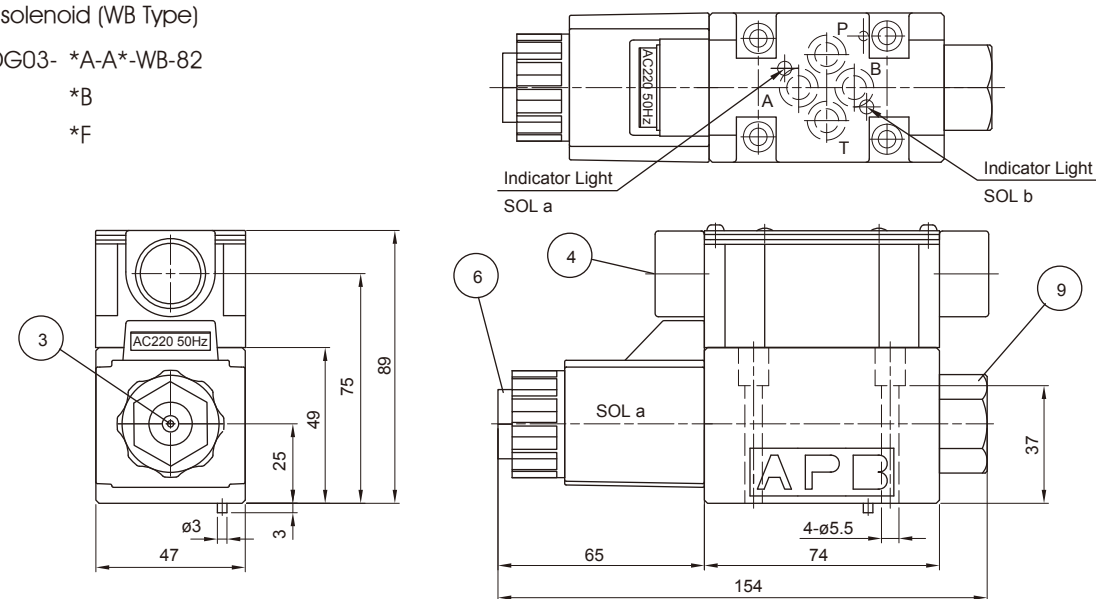
DIMENSIONS:

AC solenoid (WB Type)

■ DG03- *A-A*-WB-82

*B

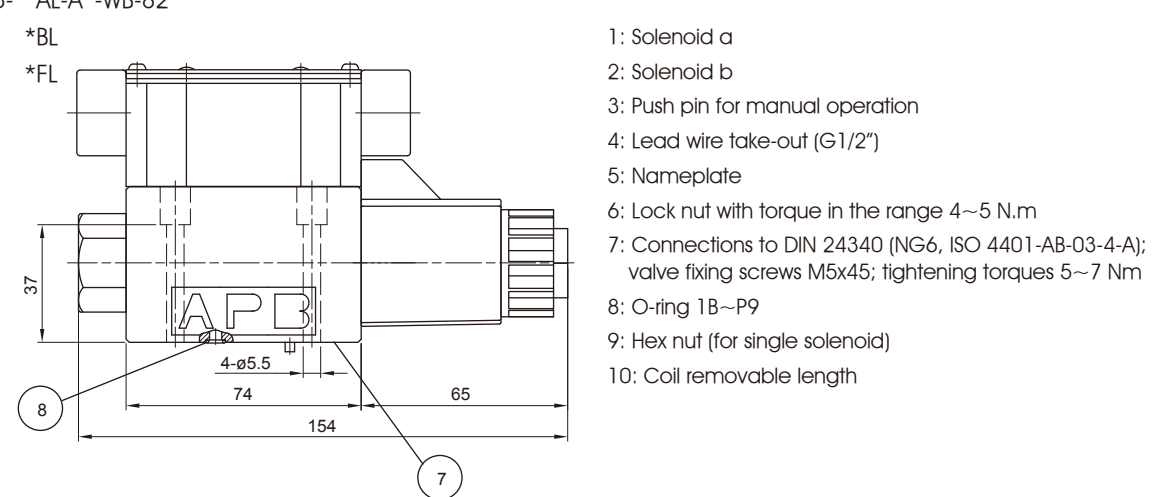
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■ DG03- *AL-A*-WB-82

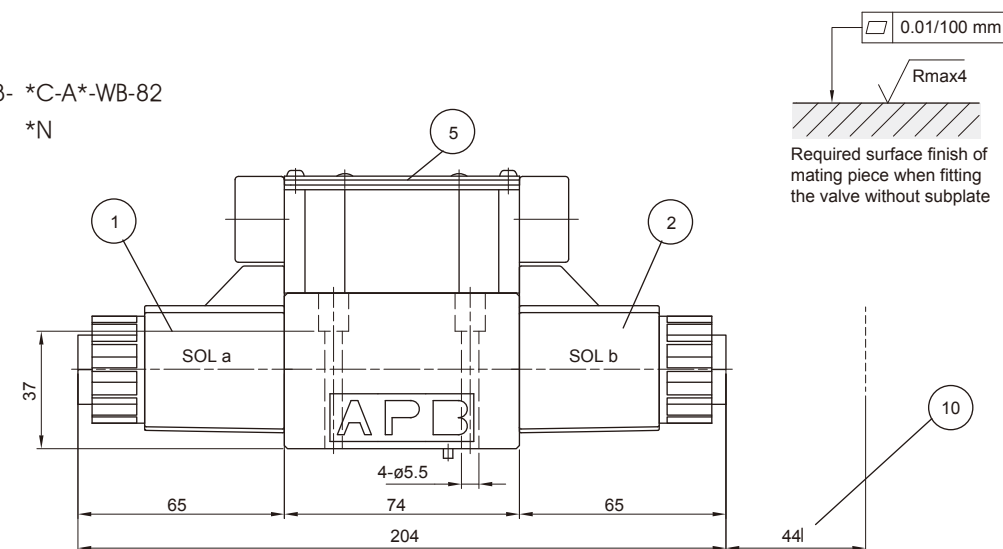
*BL

*FL



■ DG03- *C-A*-WB-82

*N



SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DGO3 SIZE 6

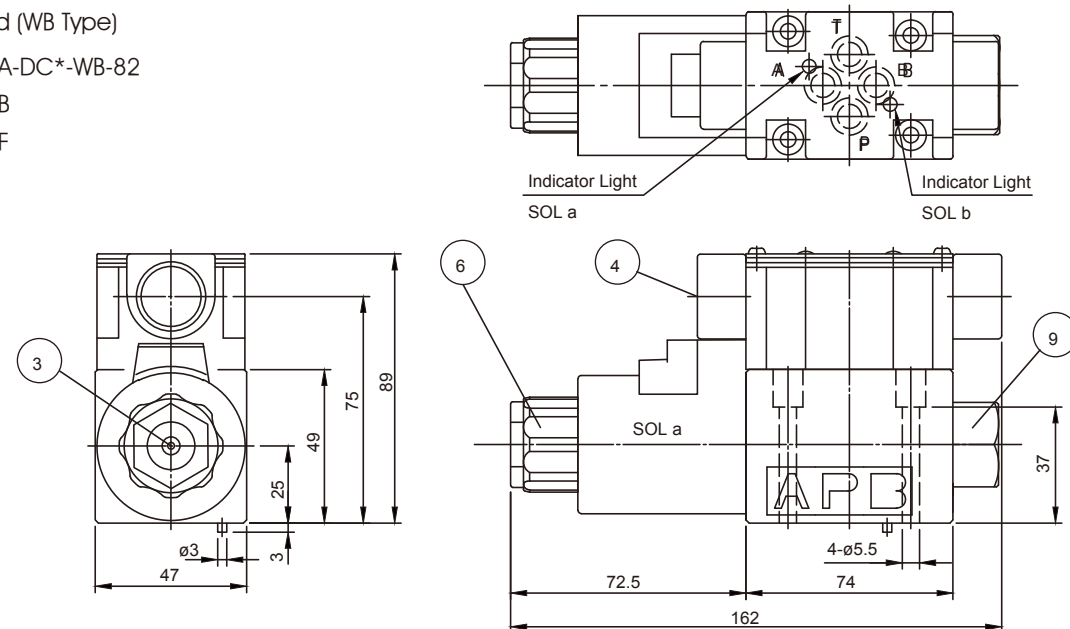
DIMENSIONS:

DC solenoid (WB Type)

■ DG03- *A-DC*-WB-82

*B

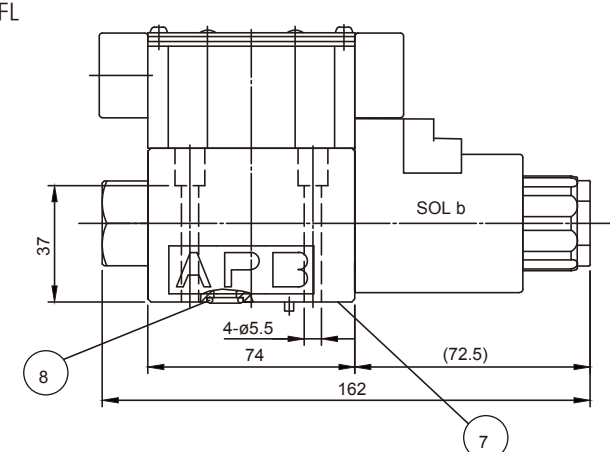
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■ DG03- *AL-DC*-WB-82

*BL

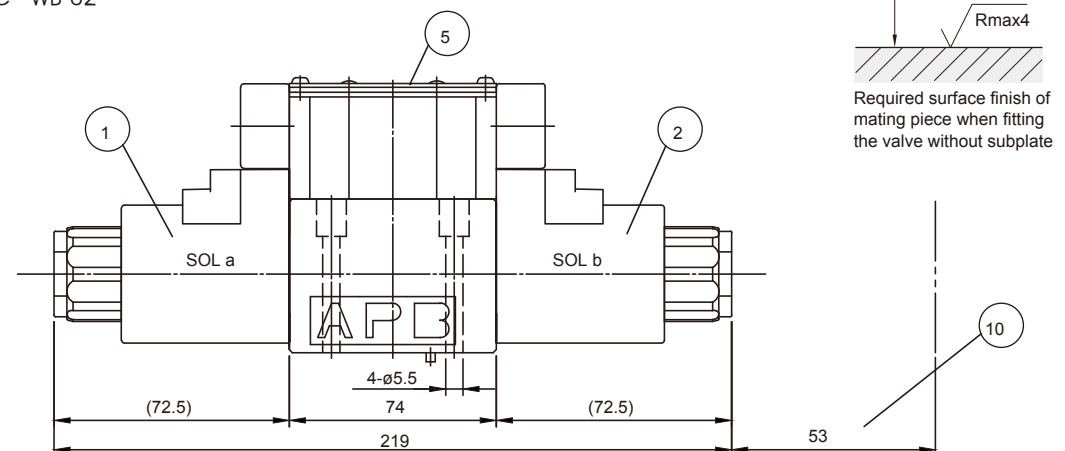
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Push pin for manual operation
- 4: Lead wire take-out (G1/2")
- 5: Nameplate
- 6: Lock nut with torque in the range 4~5 N.m
- 7: Connections to DIN 24340 (NG6, ISO 4401-AB-03-4-A); valve fixing screws M5x45; tightening torques 5~7 Nm
- 8: O-ring 1B~P9
- 9: Hex nut (for single solenoid)
- 10: Coil removable length

■ DG03- *C-DC*-WB-82

*N

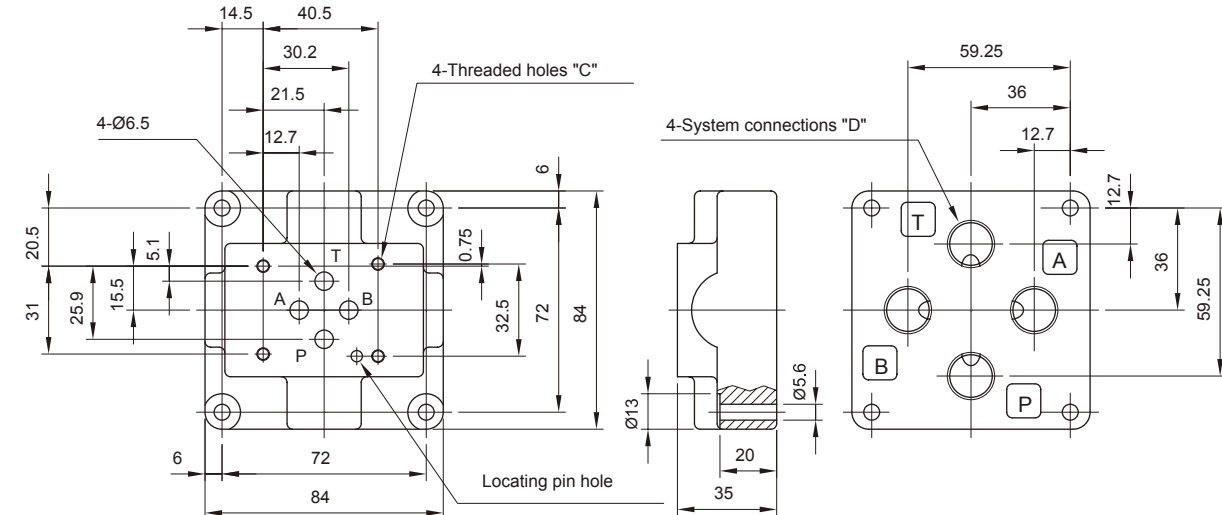


SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DGO3 SIZE 6

SUBPLATE DIMENSIONS:

Bottom Connection

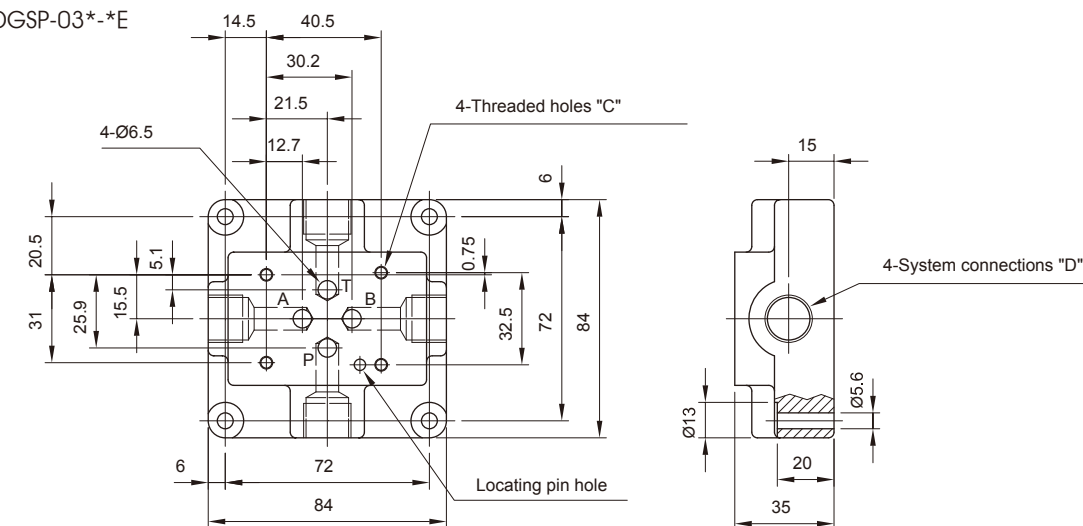
■ DGSP-03*-*



Model	C	D	Weight	Model	C	D	Weight
DGSP-03-6		3/8" Rc	1.4 kgs	DGSP-03N-6	NO.10-24UNC-2B	3/8" NPT	1.4 kgs
DGSP-03-8	M5x14 Deep (min)	1/2" Rc		DGSP-03N-8	Thd. x 1/2" Deep	1/2" NPT	
DGSP-03G-6	Full Thread Depth	3/8" BSP		DGSP-03S-6	Full	3/8" SAE	
DGSP-03G-8		1/2" BSP		DGSP-03S-8	Thread Depth	1/2" SAE	

Side Connection

■ DGSP-03*-*E

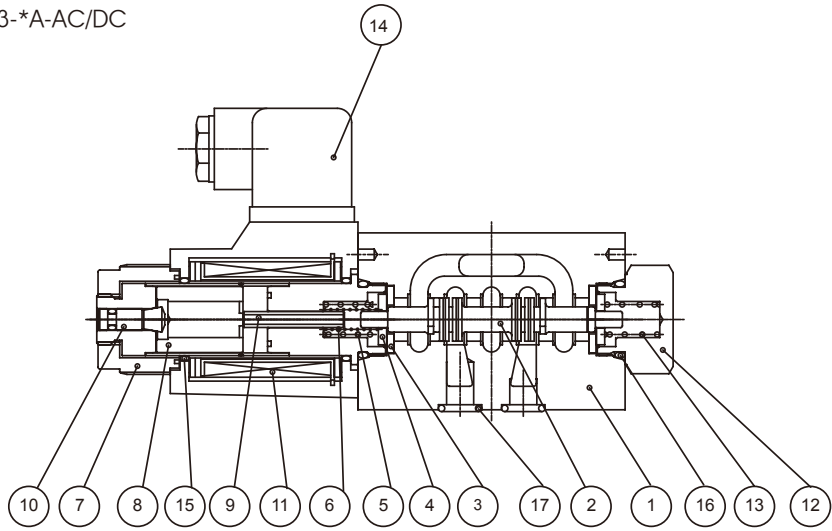


Model	C	D	Weight	Model	C	D	Weight
DGSP-03-6E		3/8" Rc	1.4 kgs	DGSP-03N-6E	NO.10-24UNC-2B	3/8" NPT	1.4 kgs
DGSP-03-8E	M5x14 Deep (min)	1/2" Rc		DGSP-03N-8E	Thd. x 1/2" Deep	1/2" NPT	
DGSP-03G-6E	Full Thread Depth	3/8" BSP		DGSP-03S-6E	Full	3/8" SAE	
DGSP-03G-8E		1/2" BSP		DGSP-03S-8E	Thread Depth	1/2" SAE	

CROSS SECTION DIAGRAM WITH SPEC

CROSS SECTION DRAWING:

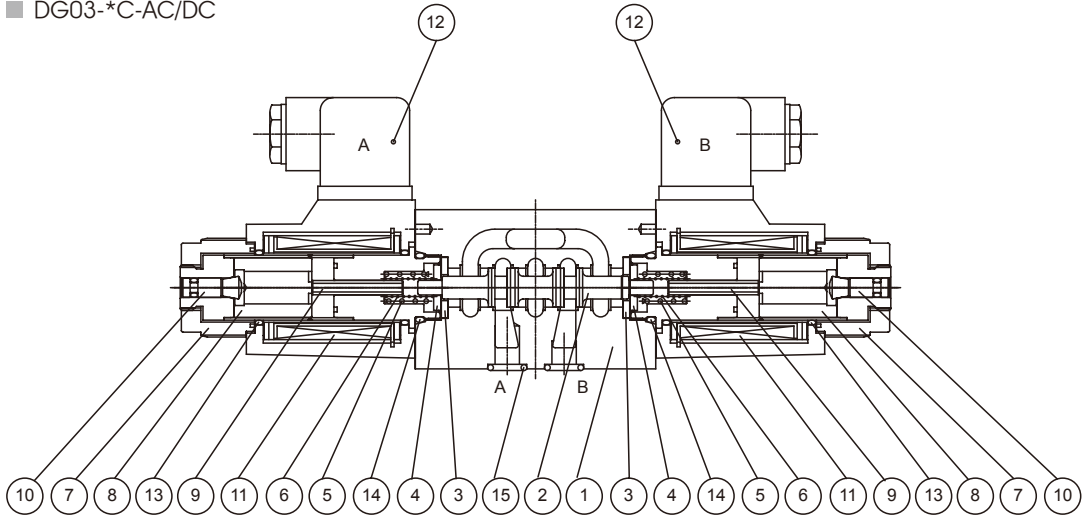
■ DG03-*A-AC/DC



NO.	PARTS NAME	PARTS NO.	Q'TY
15	O-ring	AS568-019 N70	2
16	O-ring	P18 N90	2
17	O-ring	P9 N90	4

NO.	Parts name
1	body
2	spool
3	retainer A
4	retainer B
5	spring
6	spring
7	nut
8	plunger
9	push pin
10	pin
11	coil
12	plug
13	spring
14	connector
15	O-ring
16	O-ring
17	O-ring

■ DG03-*C-AC/DC



NO.	PARTS NAME	PARTS NO.	Q'TY
13	O-ring	AS568-019 N70	4
14	O-ring	P18 N90	2
15	O-ring	P9 N90	4

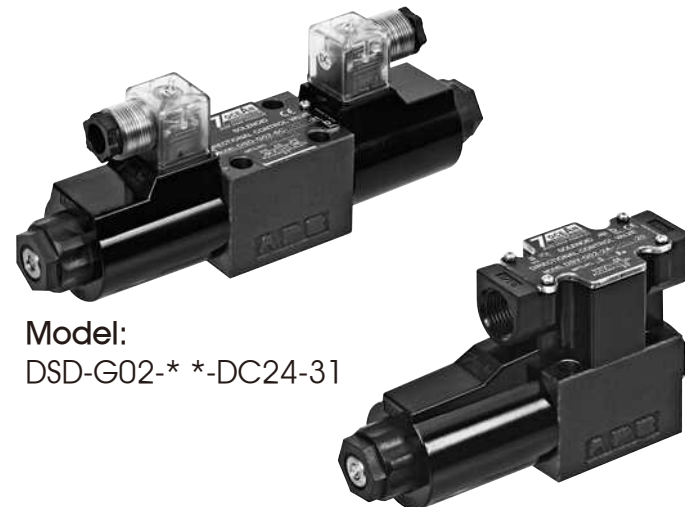
NO.	Parts name
1	body
2	spool
3	retainer A
4	retainer B
5	spring
6	spring
7	nut
8	plunger
9	push pin
10	pin
11	coil
12	connector
13	O-ring
14	O-ring
15	O-ring

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

FEATURES :

- Highest performance in NG 6
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Coil outside cover with BMC fire proof material
- Surge suppressor inside DC wiring box type
- Connections to DIN, ISO and CETOP



Model:
DSD-G02-* *-DC24-31

Model: DSV-G02-* *-DC24-20

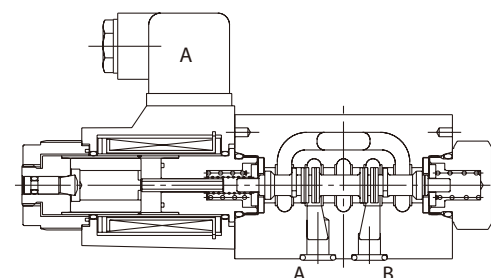
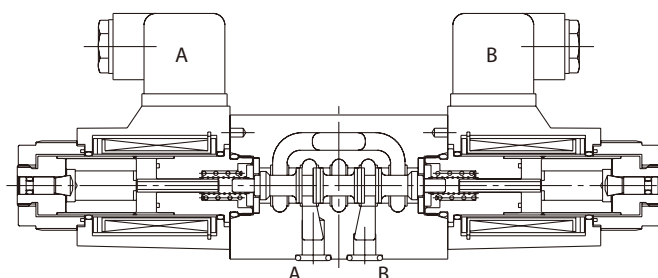
SPECIFICATION :

Maximum Flow Rate		80 L/Min (21 GPM)
Maximum Operating Pressure		250 Bar (3571 PSI)
Maximum Permissible Back Pressure		140 Bar (2000 PSI)
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Degree of Protection		IEC 144 Class IP 65
Maximum Change over Frequency		240 Times/Min (AC/DC)
		120 Times/Min (RF)
Mounting Pattern		ISO 4401-AB-03-4-A
Approx. Weight (Kg)	Single solenoid (AC/DC)	1.7 kg(DC/RF) / 1.6 kg(AC)
	Double solenoid (AC/DC)	2.1 kg(DC/RF) / 2.0 kg(AC)
Valve Fixing Screws	Metric	M5 x 45L (4pcs)
	Inch	10#~24UNCx1-3/4"L (4pcs)
Tightening Torque		5~7Nm

CROSS SECTION DIAGRAM:

■ DSD-G02-2C-A*-31

■ DSD-G02-2A-A*-31



SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

ORDERING CODE :

DSV - G 02 - 2 C - A110 - 20 - **
 1 2 3 4 5 6 7 8

1 DIRECTIONAL CONTROL VALVE

DSV: Wiring housing with G1/2 thread and indicator light
 DSD: DIN 43650 Coils

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 TYPE OF SPOOL (CENTER CONDITION)

0	1	2	3	5	6
7	8	11	22	31	33

0: Open center (All ports) 7: Open center (P to A, B)
 1: Open center (P, A to T) 8: Tandem center (P to T)
 2: Closed center (All ports) 11: Open center (P, B to T)
 3: Closed center (P, B) 22: Closed center (Two way)
 5: Closed center (T, B) 31: Closed center (P, A)
 6: Closed center (P only) 33: Closed center (Bleed A,B)

5 SPRING CRACKING PRESSURE

A: Spring offset to port "A" single solenoid
 AL: Spring offset to port "B" single solenoid
 B: Spring centered-single solenoid
 BL: Spring centered-single solenoid
 C: Spring centered-double solenoid
 N: Without spring with detent

6 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz
 A120: AC110V, 50 Hz; AC120V, 60 Hz
 A220: AC200V, 50/60 Hz; AC220V, 60 Hz
 A240: AC220V, 50 Hz; AC240V, 60 Hz
 DC12: DC12V
 DC24: DC24V
 R110: AC110V, 60 Hz; Rectifier built-in type
 R220: AC220V, 60 Hz; Rectifier built-in type

7 DESIGN NUMBER

10: Old Design Number
 20: New Design Number
 31: Connector with indicator light

8 OPTIONAL INQUIRY

LS: Surge Killer

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DSV-G02-0C 	DSV-G02-0B 	DSV-G02-0BL
1 (F)	DSV-G02-1C 	DSV-G02-1B 	DSV-G02-1BL
2 (E)	DSV-G02-2C 	DSV-G02-2B 	DSV-G02-2BL
		DSV-G02-2F 	DSV-G02-2FL
3 (L)	DSV-G02-3C 	DSV-G02-3B 	DSV-G02-3BL
5	DSV-G02-5C 	DSV-G02-5B 	DSV-G02-5BL
6 (J)	DSV-G02-6C 	DSV-G02-6B 	DSV-G02-6BL
7 (M)	DSV-G02-7C 	DSV-G02-7B 	DSV-G02-7BL
8 (G)	DSV-G02-8C 	DSV-G02-8B 	DSV-G02-8BL
11 (P)	DSV-G02-11C 	DSV-G02-11B 	DSV-G02-11BL
31 (U)	DSV-G02-31C 	DSV-G02-31B 	DSV-G02-31BL
33 (W)	DSV-G02-33C 	DSV-G02-33B 	DSV-G02-33BL

*() : Rexroth Model

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

SPOOL TYPES:

Position type during transition	Double solenoid valves, spring centered -N-	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)		DSV-G02-0A 	DSV-G02-0AL
2 (E)		DSV-G02-2A 	DSV-G02-2AL
6 (J)		DSV-G02-6A 	DSV-G02-6AL
7 (M)		DSV-G02-7A 	DSV-G02-7AL
22 (A)		DSV-G02-22A 	DSV-G02-22AL

*() : Rexroth Model

FEATURES OF ELECTRO-MAGNETIC COIL :

Solenoid Classification	Power Source	Voltage (V)	Frequency (Hz)	Holding Current (A)	Inrush Current (A)	Holding Power (W)	Permissible Voltage (V)	Insulation Grade	Coil Insulation Class	Insulation Resistance (MΩ)
AC	A110	AC100V	50	0.44	2.22	25.2	90~110	B	H (180°C)	>50
			60	0.33	2.05	18.7	90~110			
	A120	AC110V	50	0.43	2.08	26.4	100~120			
			60	0.38	2.06	23.8	110~130			
	A220	AC200V	50	0.29	1.26	32	190~210			
			60	0.21	1.11	23.7	190~210			
	A240	AC220V	50	0.19	0.90	24.8	210~230			
			60	0.17	0.87	21.6	230~250			
DC	DC12	DC12V	-	1.91	-	22	10.8~13.2	B	H (180°C)	>50
	DC24	DC24V	-	1.12	-	26.5	21.6~26.4			
RF	R110	AC110V, 60HZ DC99V		0.33	-	30	90~110	B	H (180°C)	>50
	R220	AC220V, 60HZ DC198V		0.16	-	30	190~220			

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

PERFORMANCE FIGURES & CURVES:

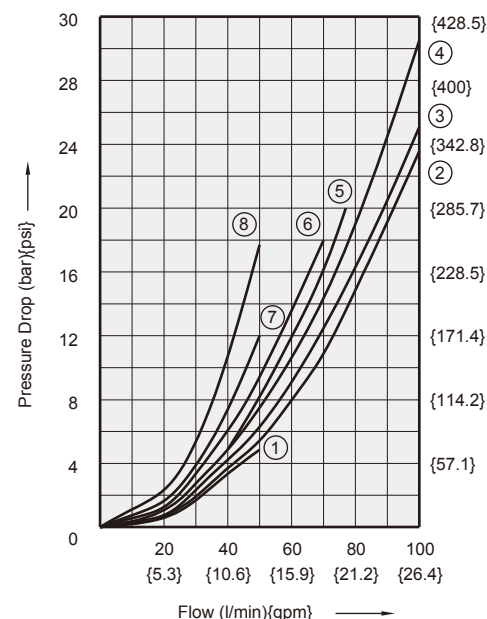
Pressure Drop Curve Reference Chart

Viscosity of Hydraulic Fluid: 20 mm²/s

Spool Type	C, B, BL				
	Control Position				
	P→A	B→T	P→B	A→T	P→T
0 (H)	4	1	4	1	5
1 (F)	6	8	6	8	7
2 (E)	4	2	4	2	-
3 (L)	5	2	5	2	-
6 (J)	5	2	5	2	-
7 (M)	4	3	4	3	-
8 (G)	6	8	6	8	7
11 (P)	6	8	6	8	7
31 (U)	5	2	5	2	-
33 (W)	5	2	5	2	-

Spool Type	A, AL			
	Control Position			
	P→A	B→T	P→B	A→T
0 (H)	4	2	4	2
2 (E)	4	6	4	6
6 (J)	5	2	5	2
7 (M)	4	3	4	3
22 (A)	4	-	4	-

Spool Type	N			
	Control Position			
	P→A	B→T	P→B	A→T
2 (E)	3	4	3	4



WIRING:

DSV-G02-*C*-*20	DSD-G02-*-*31
Note: 1. COM terminal is fitted in double solenoid valve for easiness of wiring. 2. Use an earth terminal when ground wiring is necessary. 3. Use a compressed terminal for M3. 4. Fasten the screw of the terminal with 0.5~0.7 N.m (4.3~6.1 lbf) torque.	

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

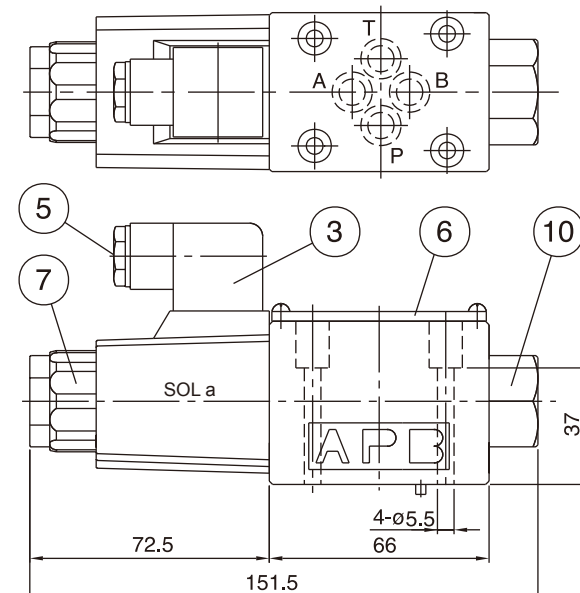
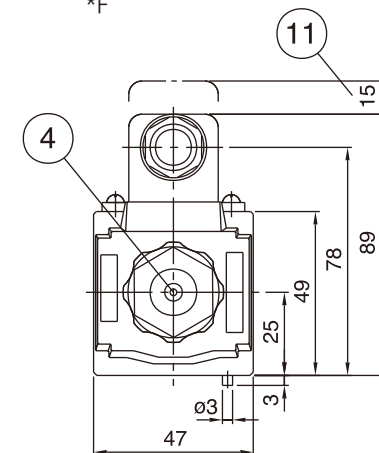
DIMENSIONS:

AC solenoid (DSD Type)

■ DSD-G02- *A-A*-*31

*B

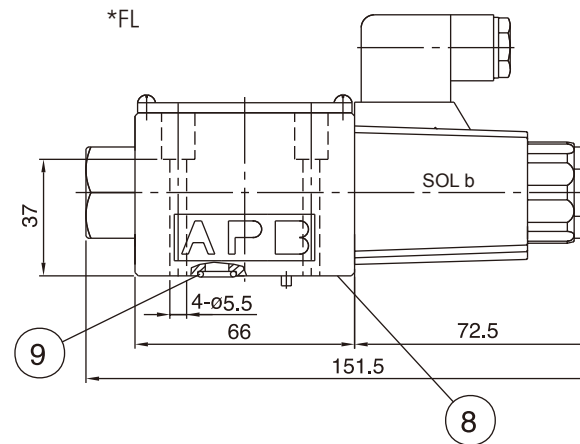
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■ DSD-G02- *AL-A*-*31

*BL

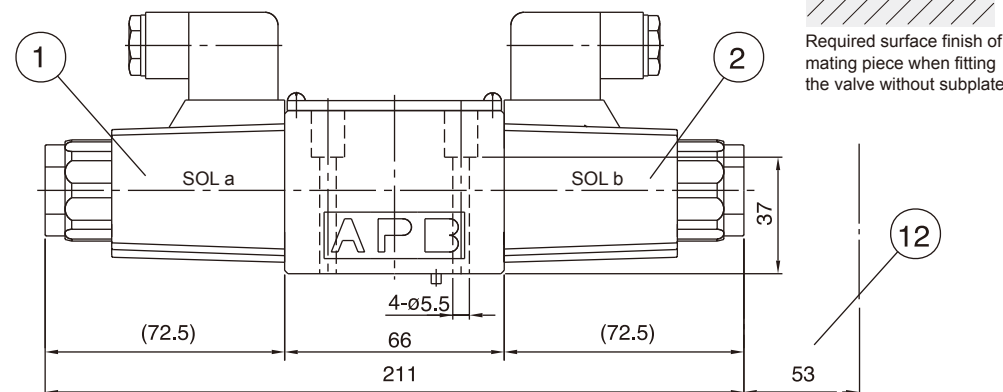
*FL



- Solenoid a
- Solenoid b
- Angled plug to DIN 43650
- Push pin for manual operation
- Lead wire take-out (Cable diameter ø8~10mm)
- Nameplate
- Lock nut with torque in the range 4~5 N.m
- Connections to DIN 24340 (NG6, ISO 4401-AB-03-4-A); valve fixing screws M5x45; tightening torques 5~7 Nm
- O-ring 1B~P9
- Hex nut (for single solenoid)
- Space required to remove plug
- Coil removable length

■ DSD-G02- *C-A*-*31

*N



SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

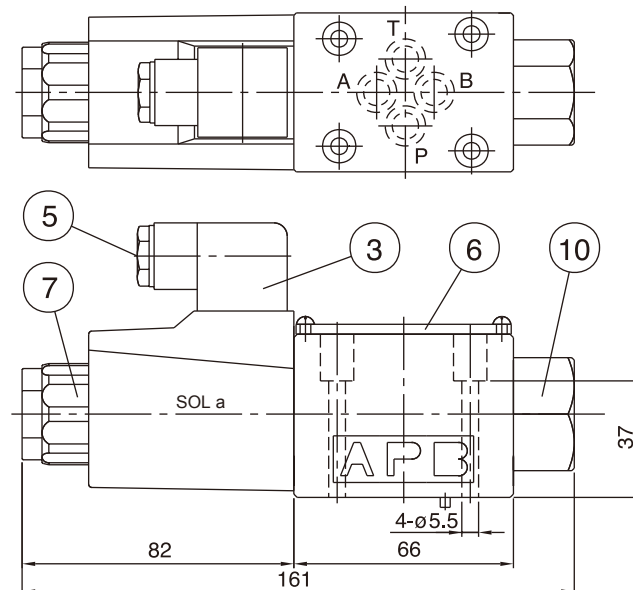
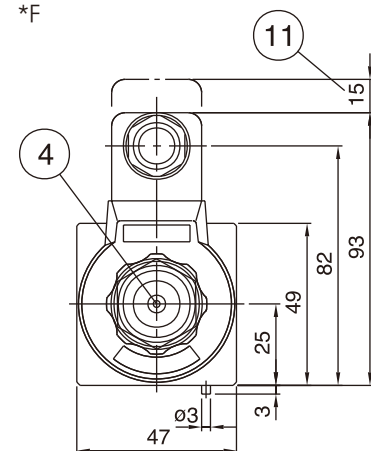
DIMENSIONS:

DC solenoid (DSD Type)

■ DSD-G02- *A-DC*-31

*B

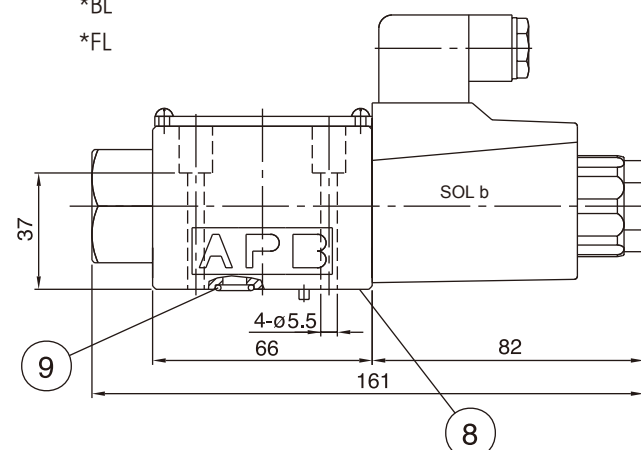
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■ DSD-G02- *AL-DC*-31

*BL

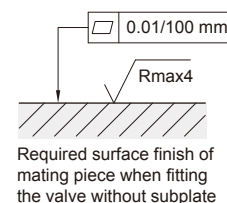
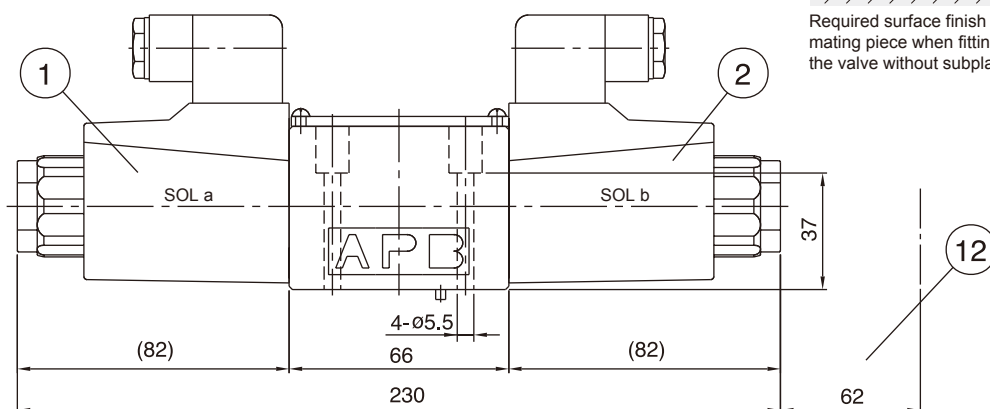
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Angled plug to DIN 43650
- 4: Push pin for manual operation
- 5: Lead wire take-out (Cable diameter ø8~10mm)
- 6: Nameplate
- 7: Lock nut with torque in the range 4~5 Nm
- 8: Connections to DIN 24340 (NG6, ISO 4401-AB-03-4-A); valve fixing screws M5x45; tightening torques 5~7 Nm
- 9: O-ring 1B~P9
- 10: Hex nut (for single solenoid)
- 11: Space required to remove plug
- 12: Coil removable length

■ DSD-G02- *C-DC*-31

*N



SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

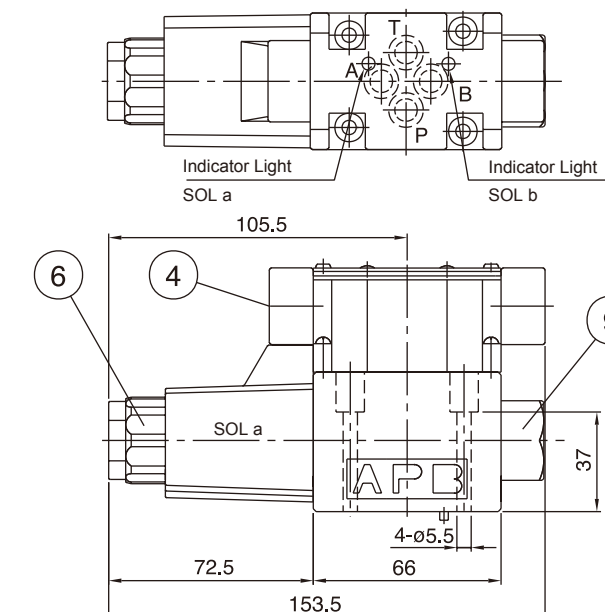
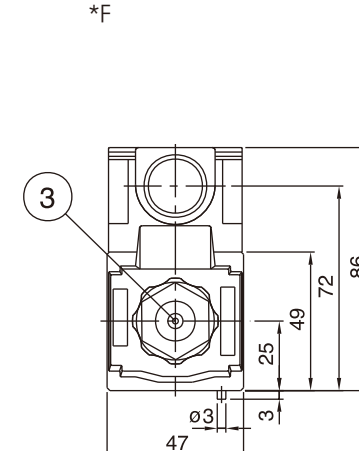
DIMENSIONS:

AC solenoid (DSV Type)

■ DSV-G02- *A-A*-20

*B

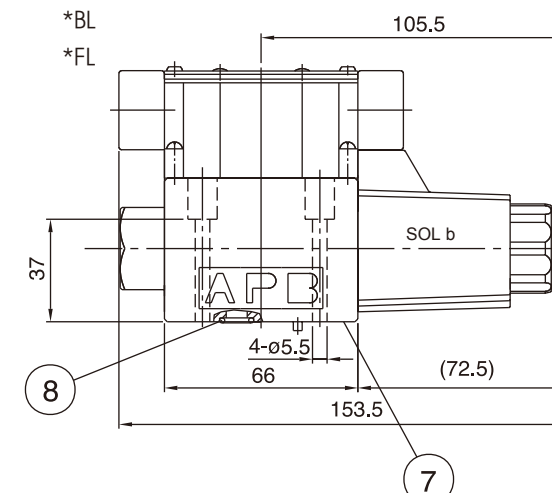
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■ DSV-G02- *AL-A*-20

*BL

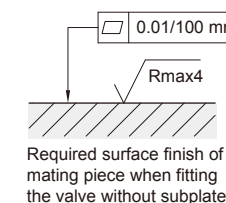
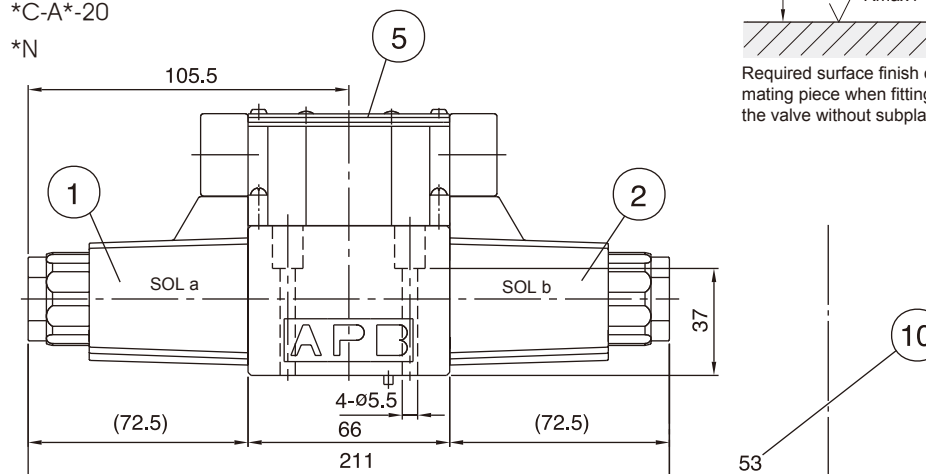
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Push pin for manual operation
- 4: Lead wire take-out (G1/2")
- 5: Nameplate
- 6: Lock nut with torque in the range 4~5 Nm
- 7: Connections to DIN 24340 (NG6, ISO 4401-AB-03-4-A); valve fixing screws M5x45; tightening torques 5~7 Nm
- 8: O-ring 1B~P9
- 9: Hex nut (for single solenoid)
- 10: Coil removable length

■ DSV-G02- *C-A*-20

*N



SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

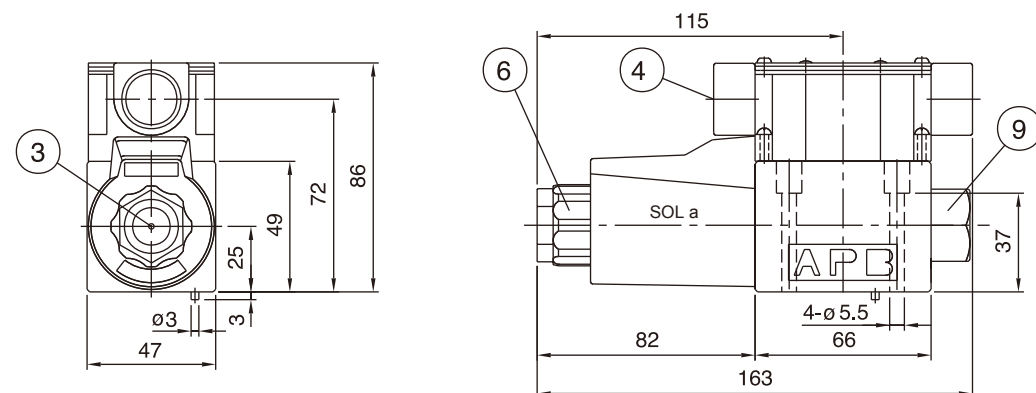
DIMENSIONS:

DC solenoid (DSV Type)

■ DSV-G02- *A-DC*-20

*B

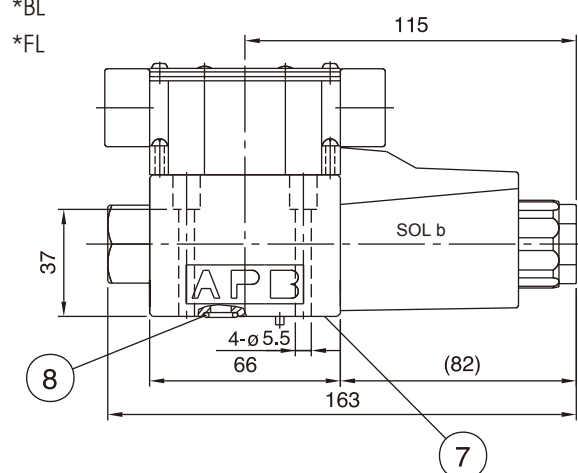
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■ DSV-G02- *AL-DC*-20

*BL

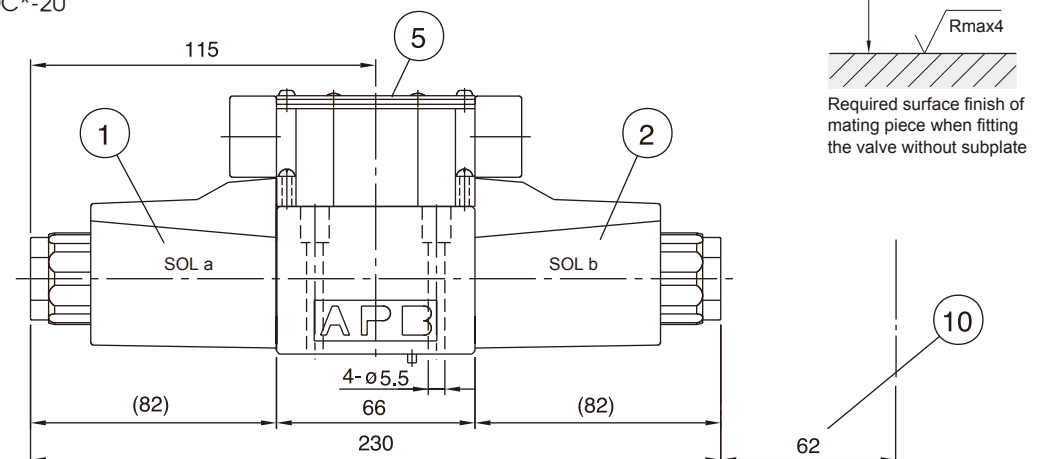
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Push pin for manual operation
- 4: Lead wire take-out (G1/2")
- 5: Nameplate
- 6: Lock nut with torque in the range 4~5 Nm
- 7: Connections to DIN 24340 (NG6, ISO 4401-AB-03-4-A);
valve fixing screws M5x45; tightening torques 5~7 Nm
- 8: O-ring 1B~P9
- 9: Hex nut (for single solenoid)
- 10: Coil removable length

DSV-G02- *C-DC*-20

*N





Required surface finish of mating piece when fitting the valve without subplate

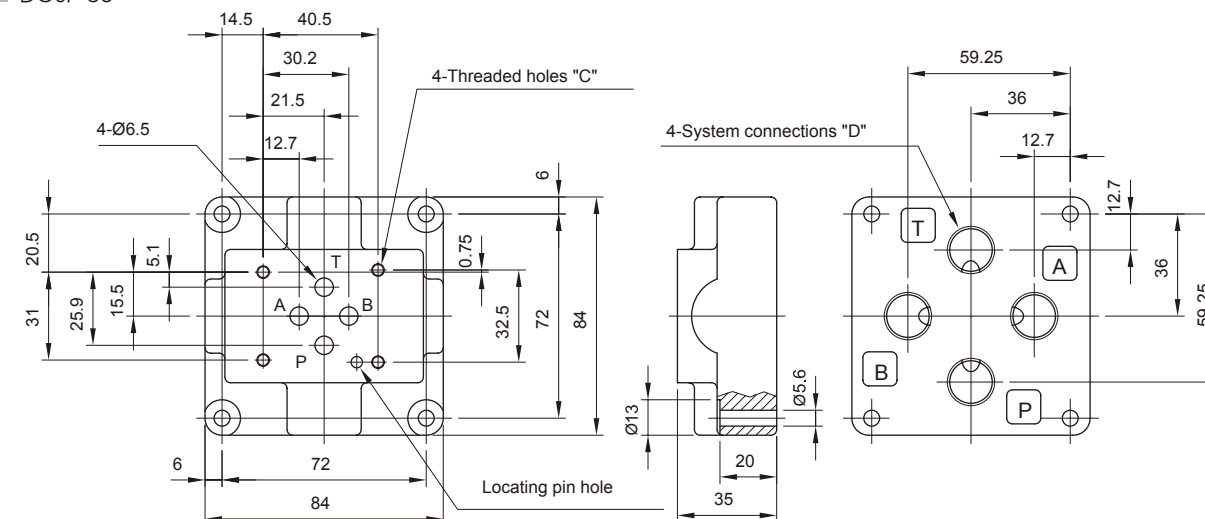
SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G02 SIZE 6

SUBPLATE DIMENSIONS:

Bottom Connection

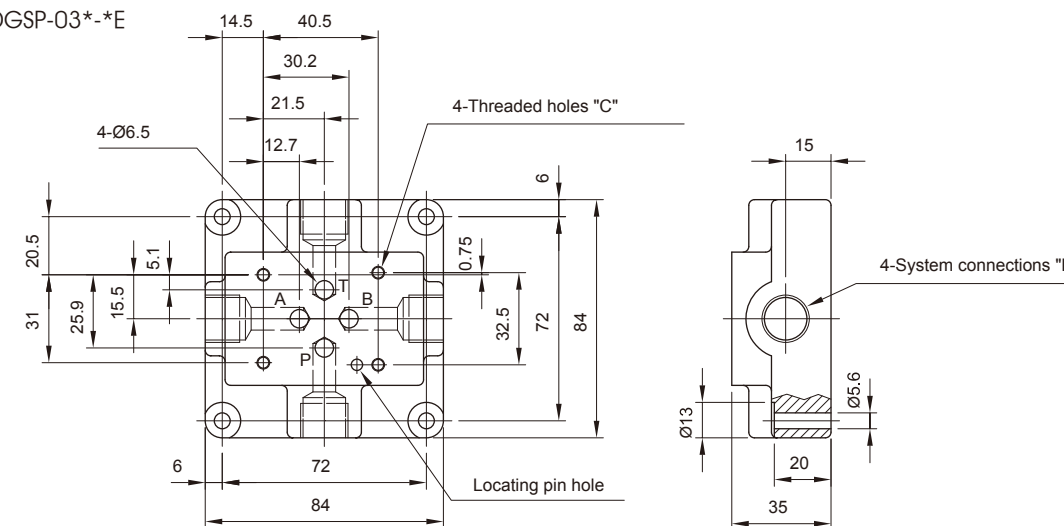
■ DGSP-03*-*



Model	C	D	Weight	Model	C	D	Weight
DGSP-03-6	M5x14 Deep (min) Full Thread Depth	3/8" Rc	1.4 kgs	DGSP-03N-6	NO.10-24UNC-2B	3/8" NPT	1.4 kg
DGSP-03-8		1/2" Rc		DGSP-03N-8	Thd. x 1/2" Deep	1/2" NPT	
DGSP-03G-6		3/8" BSP		DGSP-03S-6	Full	3/8" SAE	
DGSP-03G-8		1/2" BSP		DGSP-03S-8	Thread Depth	1/2" SAE	

Side Connection

■ DGSP-03*-*E



Model	C	D	Weight	Model	C	D	Weight
DGSP-03-6E	M5x1 4 Deep (min) Full Thread Depth	3/8" Rc	1.4 kgs	DGSP-03N-6E	NO.10-24UNC-2B	3/8" NPT	1.4 kg
DGSP-03-8E		1/2" Rc		DGSP-03N-8E	Thd. x 1/2" Deep	1/2" NPT	
DGSP-03G-6E		3/8" BSP		DGSP-03S-6E	Full	3/8" SAE	
DGSP-03G-8E		1/2" BSP		DGSP-03S-8E	Thread Depth	1/2" SAE	

SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DSWL-G02 SIZE 6

FEATURES :

- Push-Pull valve is developed for automatic gear-box.
- Extensively applied to construction machine, mining machine and engineering automobile.
- Permissible Contamination Level: within NAS 1638 Class 12.
- High and low temperature resistance.



Model: DSWL-G02-6C-DC*-50

SPECIFICATION :

Maximum Flow Rate		15 L/Min (7 MPa)
Maximum Operating Pressure		7 MPa
Maximum Permissible Back Pressure		2 MPa
Ambient Temperature Range		-25°C~+60°C
Hydraulic Fluid Temperature		-25°C~+90°C
Viscosity Range		13~300 mm²/s
Fluid Cleanliness		Below 25 μm
Vibration Tolerance		JIS D1601 Type-3 Class-D Stage-7
Waterproof Tolerance		JIS D 0203 S2
Degree of Protection		IP 65
Maximum Change over Frequency		120 Times/Min
Mounting Pattern		ISO 4401-AB-03-4-A
Approx. Weight		1.7 kg
Valve Fixing Screws	Metric	M5 x 45L (4pcs)
	Inch	10#~24UNCx1-3/4"L (4pcs)
Tightening Torque		5~7 Nm (51~71 kgf/cm)

SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DSWL-G02 SIZE 6

ORDERING CODE :

DSWL - G 02 - 6C - DC12 - 50 - 01
1 2 3 4 5 6 7

- 1 DIRECTIONAL CONTROL VALVE
- 2 MANIFOLD OR SUBPLATE MOUNTING
- 3 NOMINAL VALVE SIZE
NG 6, CETOP 3 and ISO 4401-03 (NFFA-D03/DIN 24340)
- 4 TYPE OF SPOOL
- 5 ELECTRIC POWER SOURCE INDICATION
DC12: DC12V
DC24: DC24V
- 7 DESIGN NUMBER
50: Coil at B side
50A: Coil at A side
- 8 CONNECTOR & TERMINAL TYPE
Connector and terminal can be made as request

SPOOL TYPES:

Position type during transition	Double solenoid valves, solenoid at port A end -*C-50A-	Double solenoid valves, solenoid at port B end -*C-50-
2 (C)		
6 (C)		

*() : Rexroth Model

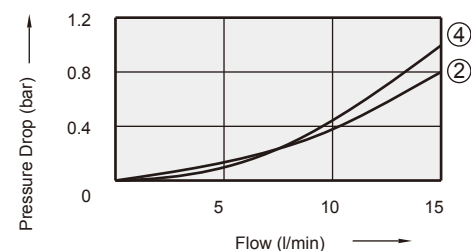
SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DSWL-G02 SIZE 6

PERFORMANCE FIGURES & CURVES:

Pressure Drop Curve Reference Chart

Viscosity of Hydraulic Fluid: 36 mm²/s

Spool Type	C			
	Control Position			
	P→A	P→B	A→T	B→T
2 (C)	4	4	4	2
6 (C)	4	4	2	2

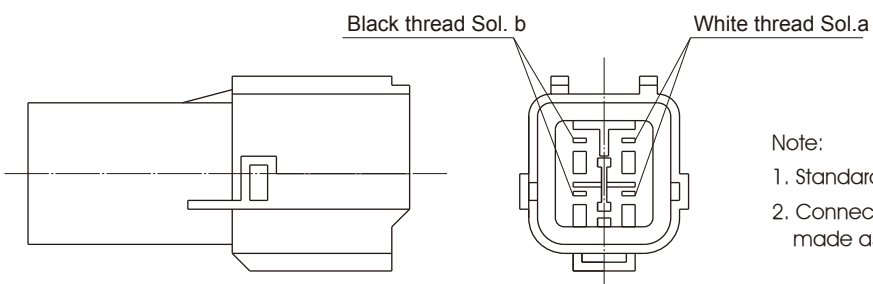


FEATURES OF ELECTRO-MAGNETIC COIL:

Voltage (V)	Holding Current (A)	Holding Power (W)	Permissible Voltage (V)	Insulation Grade	Coil Insulation Class	Insulation Resistance (MΩ)
24	0.97	25	21.6~26.4	B	H (180°C)	>50
12	1.83	25	10.8~13.2			

WIRING:

■ DSWL-G02-*C-DC* *-50/50A



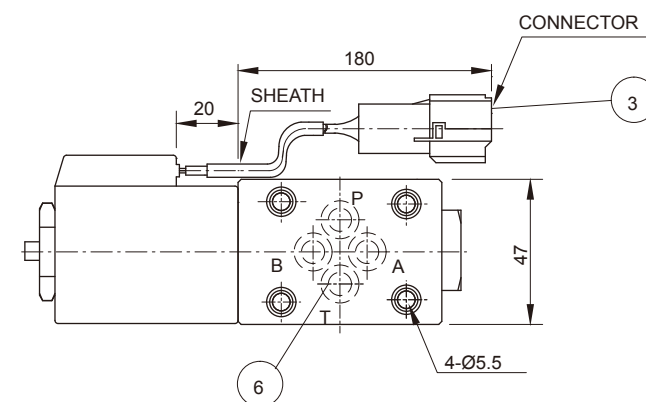
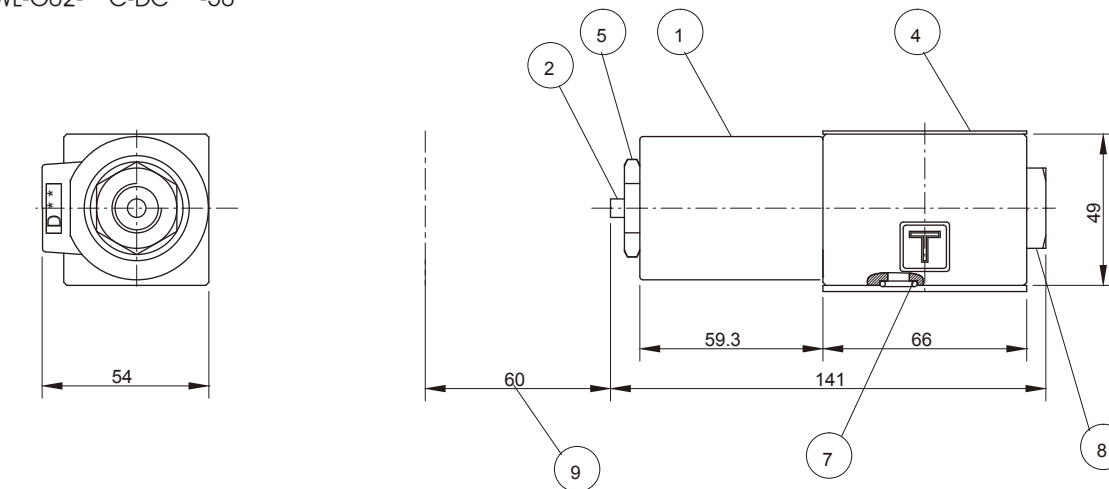
Note:

1. Standard type
2. Connector and terminal could be made as request.

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DSWL-G02 SIZE 6

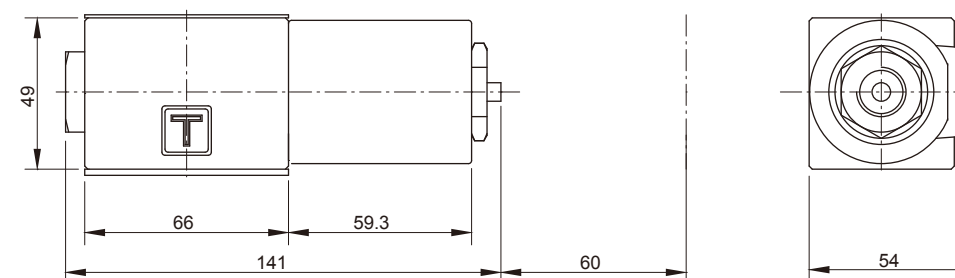
DIMENSIONS:

■ DSWL-G02- *C-DC* *-50



- 1: Coil and Solenoid
- 2: Push pin for manual operation
- 3: Connector
- 4: Nameplate
- 5: Lock nut with torque
- 6: Connections to DIN 24340 NG 6 (ISO4401-AB-03-4-A); valve fixing screws M5x45; tightening torque 5~7 Nm
- 7: O-ring 1B~P9
- 8: Hex nut
- 9: Coil removable length

■ DSWL-G02- *C-DC* *-50A



SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DG05 SIZE 10

FEATURES :

- Highest performance in NG 10
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Coil outside cover with BMC fire proof material
- Surge suppressor inside DC wiring box type
- Connections to DIN, ISO and CETOP



Model: DG05-* *-DC24-WB-82

SPECIFICATION :

Maximum Flow Rate		160 L/Min (42 GPM)
Maximum Operating Pressure		320 Bar (4500 PSI)
Maximum Permissible Back Pressure		160 Bar (2285 PSI)
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		NAS Class 11 MAX
Degree of Protection		IEC 144 Class IP 65
Maximum Change over Frequency		180 Times/Min (DC)
Mounting Pattern		ISO 4401-AC-05-4-A
Approx. Weight (Kg)	Single solenoid	3.0 kg(AC) / 4.2 kg(DC)
	Double solenoid	4.0 kg(AC) / 5.8 kg(DC)
Valve Fixing Screws	Metric	M6 x 35L (4pcs)
	Inch	1/4"~20UNCx1-3/8"L (4pcs)
Tightening Torque		12~15 Nm

SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DG05 SIZE 10

ORDERING CODE :

D G 05 - 2 C - DC24 - DN - 82 - * *

1 2 3 4 5 6 7 8 9

1 DIRECTIONAL CONTROL VALVE

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 TYPE OF SPOOL (CENTER CONDITION)

0	1	2	3	5	6
A B P T	A B P T	A B P T	A B P T	A B P T	A B P T
7	8	11	22	31	33
A B P T	A B P T	A B P T	A B P T	A B P T	A B P T

0: Open center (All ports)

1: Open center (P, A to T)

2: Closed center (All ports)

3: Closed center (P, B)

5: Closed center (T, B)

6: Closed center (P only)

7: Open center (P to A, B)

8: Tandem center (P to T)

11: Open center (P, B to T)

22: Closed center (Two way)

31: Closed center (P, A)

33: Closed center (Bleed A,B)

5 SPRING CRACKING PRESSUE

A: Spring offset to port "A" single solenoid

AL: Spring offset to port "B" single solenoid

B: Spring centered-single solenoid

BL: Spring centered-single solenoid

C: Spring centered-double solenoid

N: Without spring with detent

6 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz

A120: AC110V, 50 Hz; AC120V, 60 Hz

A220: AC200V, 50/60 Hz; AC220V, 60 Hz

A240: AC220V, 50 Hz; AC240V, 60 Hz

DC12: DC12V

DC24: DC24V

R110: AC110V, 60 Hz; Rectifier built-in type

R220: AC220V, 60 Hz; Rectifier built-in type

7 ELECTRICAL OPTIONS:

DN: DIN 43650 Coils with indicator lights

DN0: DIN 43650 Coils without indicator lights

WB: Wiring housing with G1/2 thread and indicator lights

8 DESIGN NUMBER

82

9 OPTIONAL INQUIRY

LS: Surge Killer

SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DG05 SIZE 10

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DG05-0C 	DG05-0B 	DG05-0BL
1 (F)	DG05-1C 	DG05-1B 	DG05-1BL
2 (E)	DG05-2C 	DG05-2B 	DG05-2BL
3 (L)	DG05-3C 	DG05-3B 	DG05-3BL
5	DG05-5C 	DG05-5B 	DG05-5BL
6 (J)	DG05-6C 	DG05-6B 	DG05-6BL
7 (M)	DG05-7C 	DG05-7B 	DG05-7BL
8 (G)	DG05-8C 	DG05-8B 	DG05-8BL
11 (P)	DG05-11C 	DG05-11B 	DG05-11BL
31 (U)	DG05-31C 	DG05-31B 	DG05-31BL
33 (W)	DG05-33C 	DG05-33B 	DG05-33BL

*() : Rexroth Model

SOLENOID OPERATED
DIRECTIONAL CONTROL VALVE DG05 SIZE 10

SPOOL TYPES:

Position type during transition	Double solenoid valves, spring centered -N-	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)		DG05-0A 	DG05-0AL
2 (E)		DG05-2A 	DG05-2AL
6 (J)		DG05-6A 	DG05-6AL
7 (M)		DG05-7A 	DG05-7AL
22 (A)		DG05-22A 	DG05-22AL

*() : Rexroth Model

FEATURES OF ELECTRO-MAGNETIC COIL :

Solenoid Classification	Power Source	Voltage (V)	Frequency (Hz)	Inrush Current (A)	Holding Current (A)	Holding Power (W)	Permissible Voltage (V)	Insulation Grade	Coil Insulation Class	Insulation Resistance (MΩ)
AC	A110	AC100V	50	≤5.63	≤1.1	≤37	90~110	B	H (180°C)	>50
			60	≤4.86	≤0.7	≤32	90~110			
	A120	AC110V	50	≤5.41	≤0.9	≤41	100~120			
			60	≤5.23	≤1.0	≤38	100~120			
	A220	AC200V	50	≤4.87	≤0.8	≤40	110~130			
			60	≤2.86	≤0.5	≤39	190~210			
	A240	AC220V	50	≤2.40	≤0.4	≤33	190~210			
			60	≤2.64	≤0.45	≤42	210~230			
DC	DC12	DC12V	50	≤2.53	≤0.5	≤38	210~230	B	F (140°C)	>50
			60	≤2.37	≤0.4	≤41	230~250			
			60	≤2.37	≤0.4	≤41	230~250			

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG05 SIZE 10

PERFORMANCE FIGURES & CURVES:

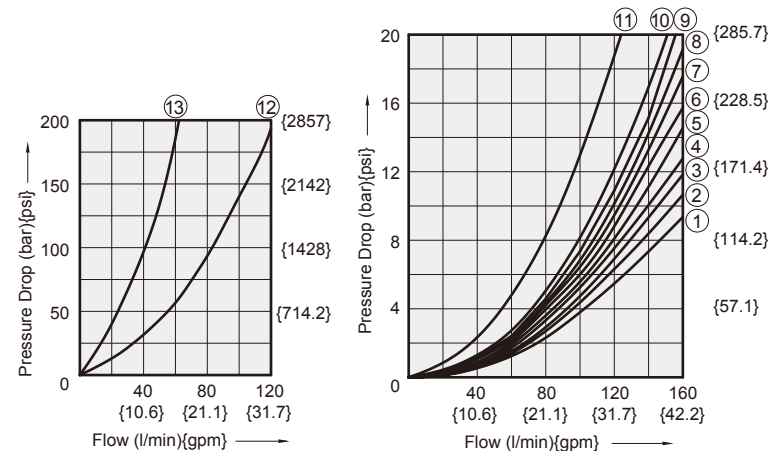
Pressure Drop Curve Reference Chart

Viscosity of Hydraulic Fluid: 36 mm²/s

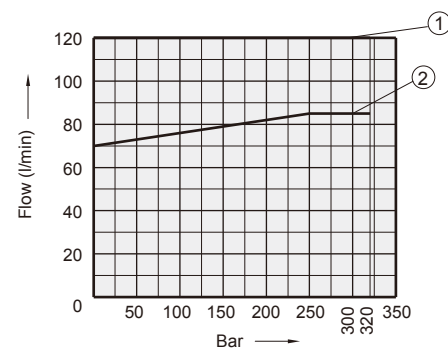
Spool Type	C, B, BL							
	Control Position				Neutral Position			
	P→A	B→T	P→B	A→T	P→T	A→T	B→T	P→B
0 (H)	7	10	7	10	8	8	8	6
1 (F)	6	3	9	11	10	2	-	6
2 (E)	5	3	5	3	-	-	-	-
3 (L)	5	3	5	9	-	4	-	-
6 (J)	5	9	5	9	-	4	4	-
7 (M)	6	3	6	3	-	-	-	7
8 (G)	1	10	1	10	11	-	-	-
11 (P)	9	11	6	3	10	-	2	6
31 (U)	5	9	5	3	-	-	4	-
33 (W)	5	3	5	3	-	13	13	-

Spool Type	A, AL			
	Control Position			
	P→A	B→T	P→B	A→T
0 (H)	6	9	6	6
2 (E)	6	3	6	3

Spool Type	N			
	Control Position			
	P→A	B→T	P→B	A→T
2 (E)	7	3	7	3



Max. Flow (L/Min) v.s. Pressure (Bar)					
Spool Type	0C	2C	6C	8C	2A
P→A B→T	①	①	①	②	①
P→B A→T	①	①	①	②	①



WIRING:

DG05- *C-DC*-WB-82	DG05- *-DC*-DN-82
Note: 1. COM terminal is fitted in double solenoid valve for easiness of wiring. 2. Use an earth terminal when ground wiring is necessary. 3. Use a compressed terminal for M3. 4. Fasten the screw of the terminal with 0.5~0.7 N.m (4.3~6.1 lbs) torque.	

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG05 SIZE 10

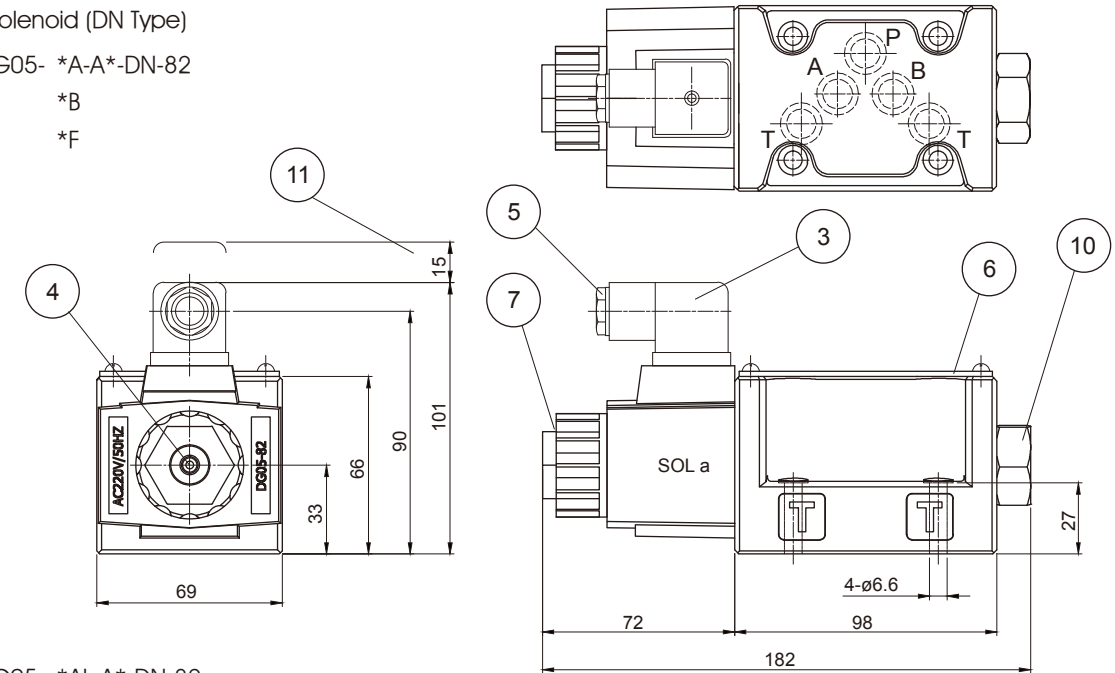
DIMENSIONS:

AC solenoid (DN Type)

■ DG05- *A-A*-DN-82

*B

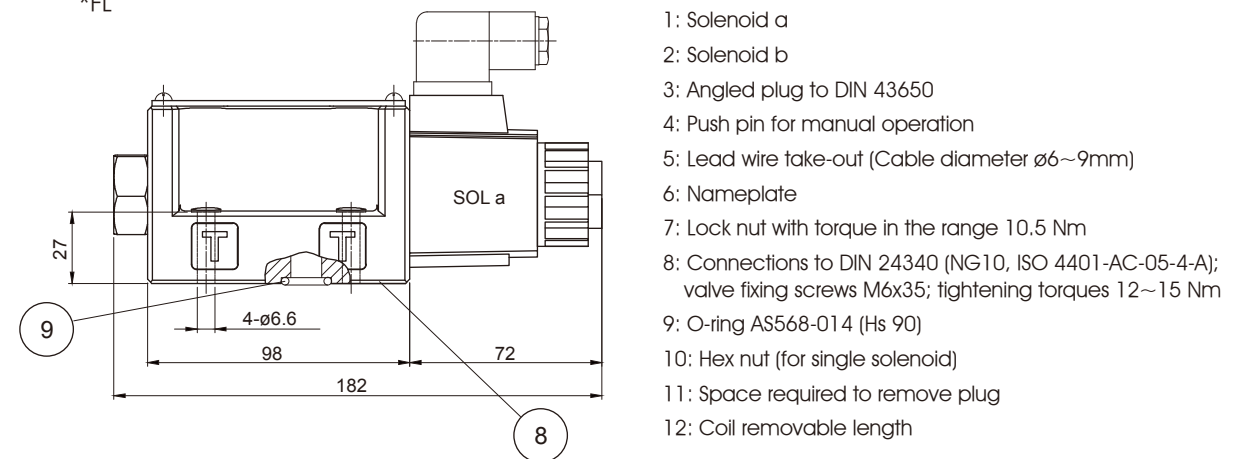
*F



■ DG05- *AL-A*-DN-82

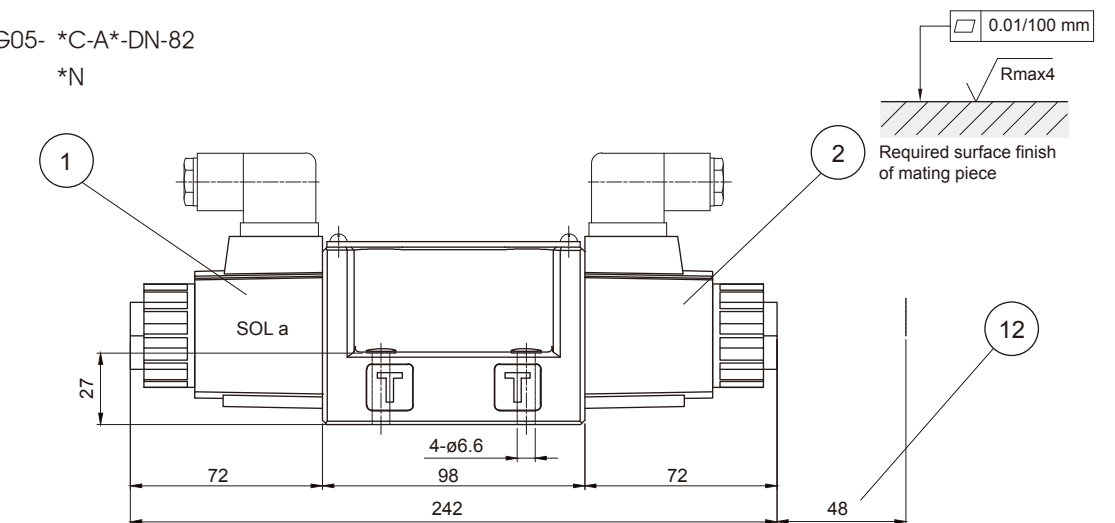
*BL

*FL



■ DG05- *C-A*-DN-82

*N



SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG05 SIZE 10

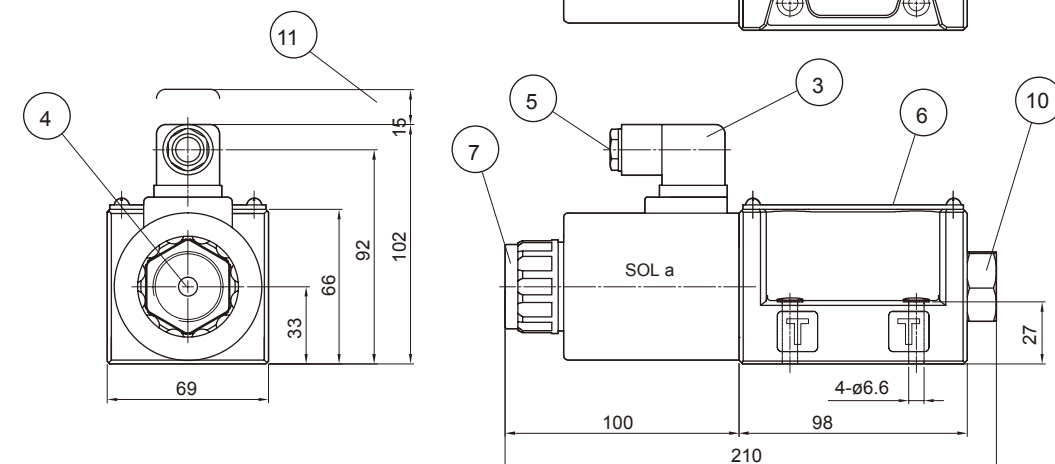
DIMENSIONS:

DC solenoid (DN Type)

■ DG05- *A-DC*-DN-82

*B

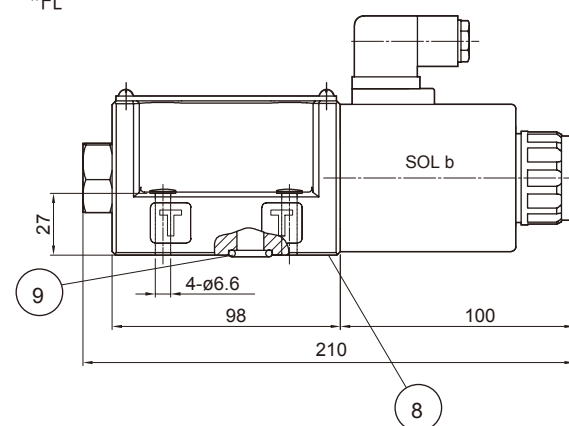
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■ DG05- *AL-DC*-DN-82

*BL

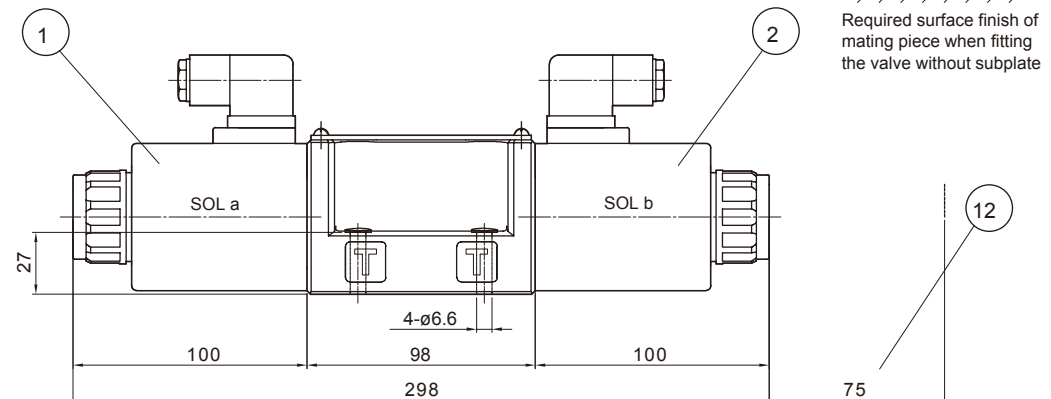
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Angled plug to DIN 43650
- 4: Push pin for manual operation
- 5: Lead wire take-out (Cable diameter $\phi 6 \sim 9$ mm)
- 6: Nameplate
- 7: Lock nut with torque in the range 10.5m
- 8: Connections to DIN 24340 (NG10, ISO 4401-AC-05-4-A); valve fixing screws M6x35; tightening torques 12~15 Nm
- 9: O-ring AS568-014 (Hs 90)
- 10: Hex nut (for single solenoid)
- 11: Space required to remove plug
- 12: Coil removable length

■ DG05- *C-DC*-DN-82

*N



0.01/100 mm
Rmax4
Required surface finish of mating piece when fitting the valve without subplate

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG05 SIZE 10

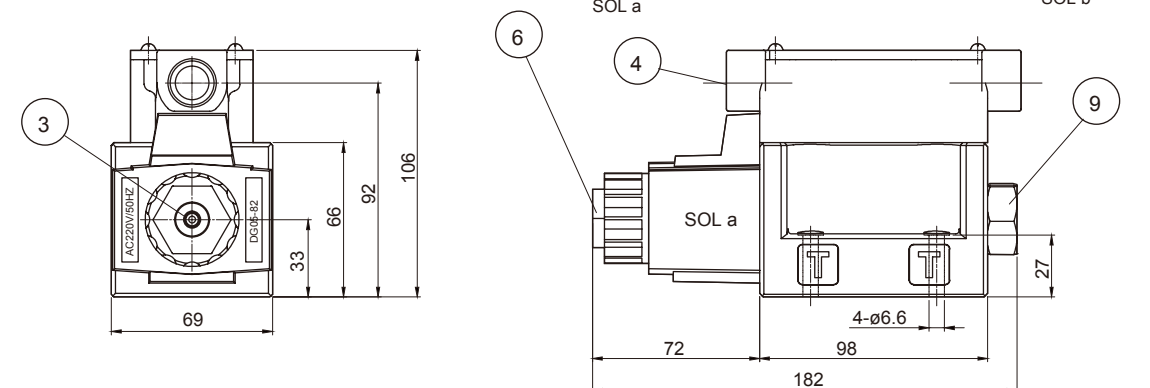
DIMENSIONS:

AC solenoid (WB Type)

■ DG05- *A-A*-WB-82

*B

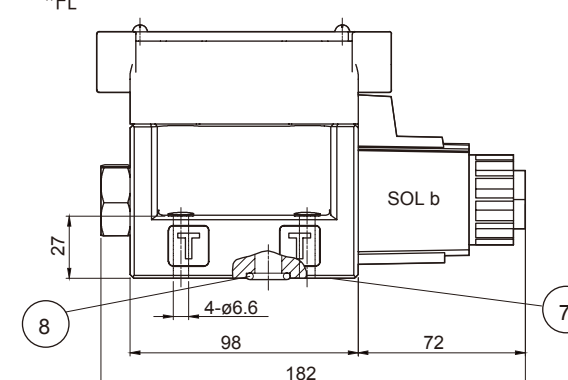
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■ DG05- *AL-A*-WB-82

*BL

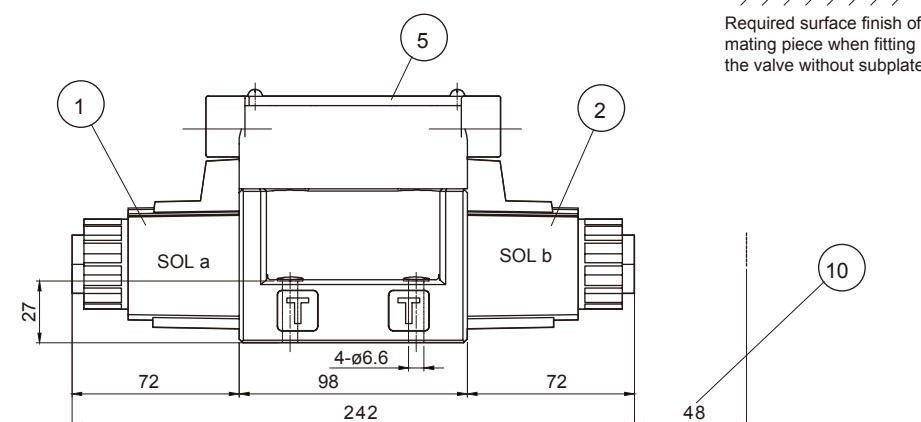
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Push pin for manual operation
- 4: Lead wire take-out (G1/2")
- 5: Nameplate
- 6: Lock nut with torque in the range 10.5 Nm
- 7: Connections to DIN 24340 (NG10, ISO 4401-AC-05-4-A); valve fixing screws M6x35; tightening torques 12~15 Nm
- 8: O-ring AS568-014 (Hs 90)
- 9: Hex nut (for single solenoid)
- 10: Coil removable length

■ DG05- *C-A*-WB-82

*N



0.01/100 mm
Rmax4
Required surface finish of mating piece when fitting the valve without subplate

SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG05 SIZE 10

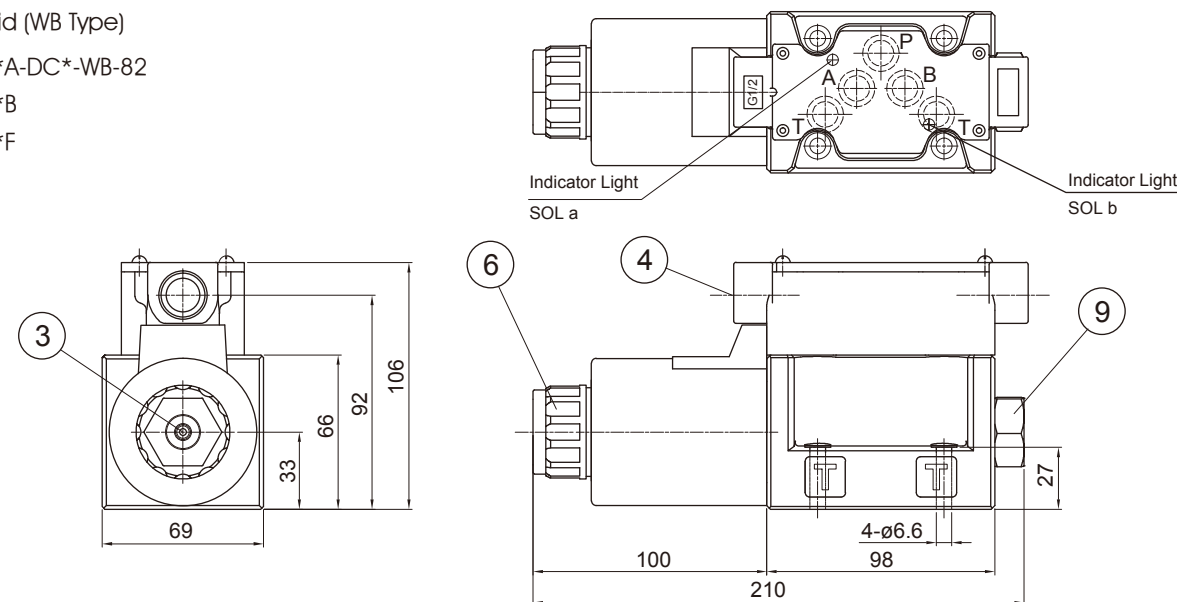
DIMENSIONS:

DC solenoid (WB Type)

■ DG05- *A-DC*-WB-82

*B

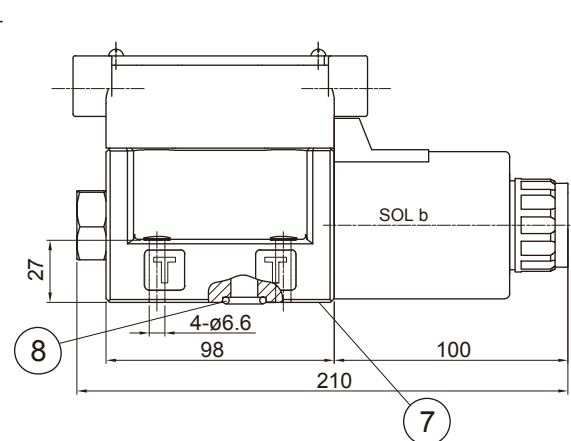
*F



■ DG05- *AL-DC*-WB-82

*BL

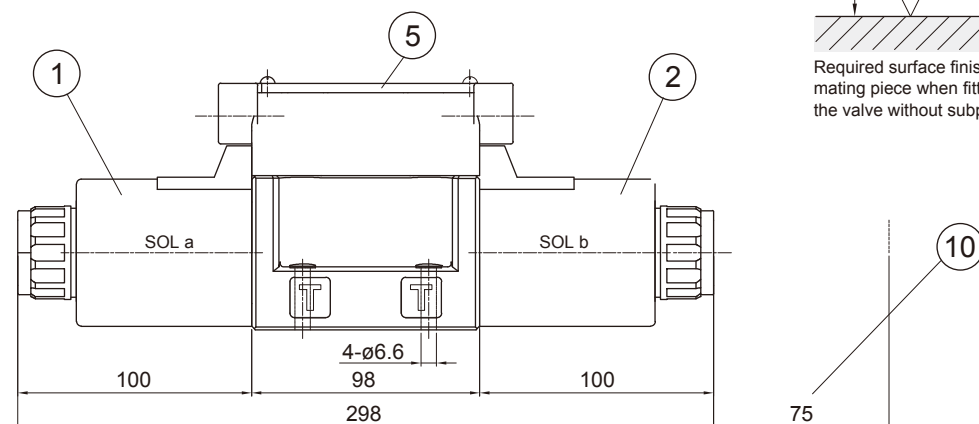
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Push pin for manual operation
- 4: Lead wire take-out (G1/2")
- 5: Nameplate
- 6: Lock nut with torque in the range 10.5 Nm
- 7: Connections to DIN 24340 (NG10, ISO 4401-AC-05-4-A); valve fixing screws M6x35; tightening torques 12~15 Nm
- 8: O-ring AS568-014 (Hs 90)
- 9: Hex nut (for single solenoid)w
- 10: Coil removable length

■ DG05- *C-DC*-WB-82

*N

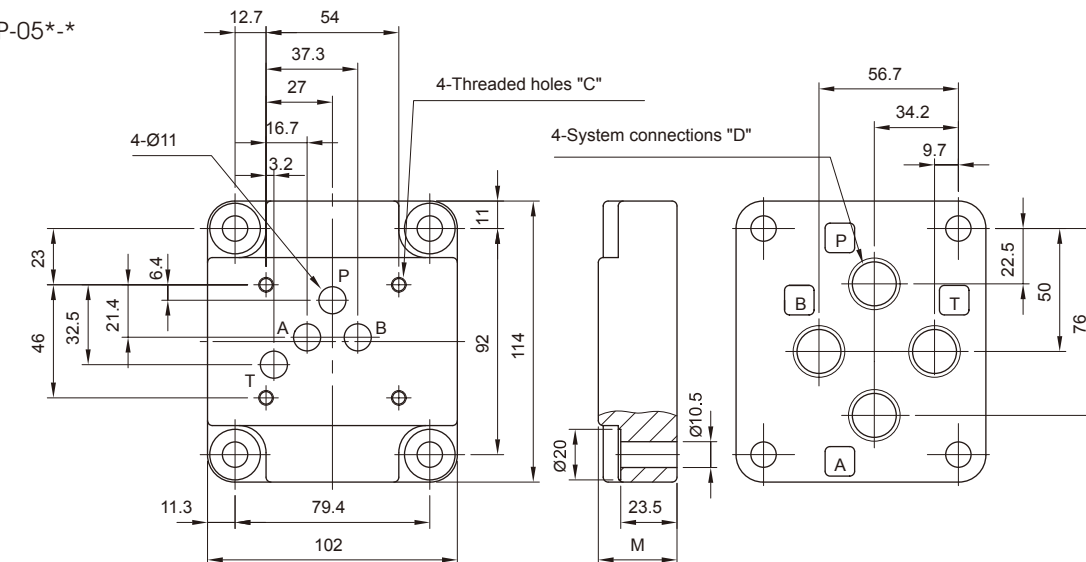


SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DG05 SIZE 10

SUBPLATE DIMENSIONS:

Bottom Connection

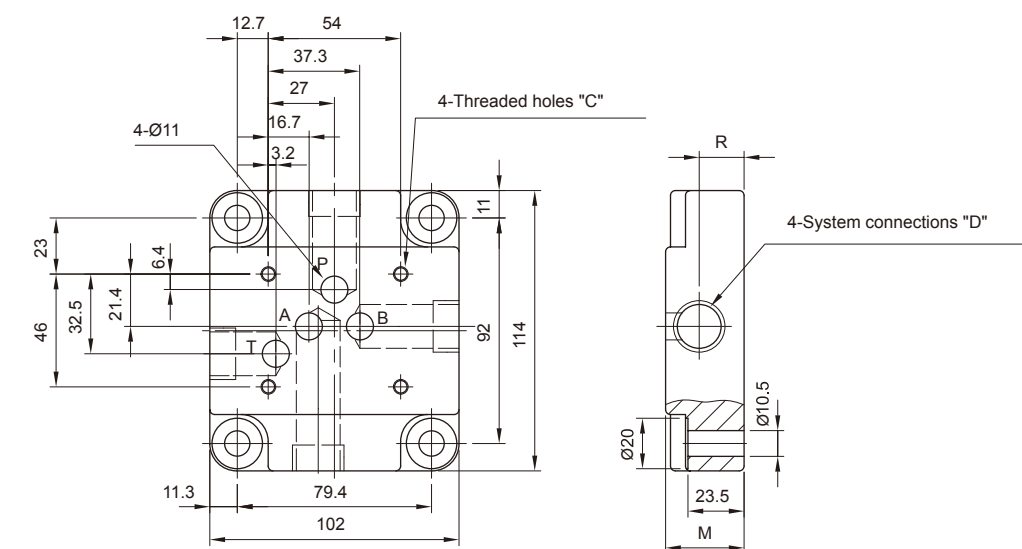
■ DGSP-05*-*



Model	C	D	M	Weight	Model	C	D	M	Weight
DGSP-05-8		1/2" Rc	32	2.1 kgs	DGSP-05N-8	1/4"~20UNC-2B	1/2" NPT	32	2.1 kgs
DGSP-05-12	M6x14 Deep (min)	3/4" Rc	38	2.4 kgs	DGSP-05N-12	Thd. x 1/2" Deep	3/4" NPT	38	2.4 kgs
DGSP-05G-8	Full Thread Depth	1/2" BSP	32	2.1 kgs	DGSP-05S-8	Full	1/2" SAE	32	2.1 kgs
DGSP-05G-12		3/4" BSP	38	2.4 kgs	DGSP-05S-12	Thread Depth	3/4" SAE	38	2.4 kgs

Side Connection

■ DGSP-05*-*E

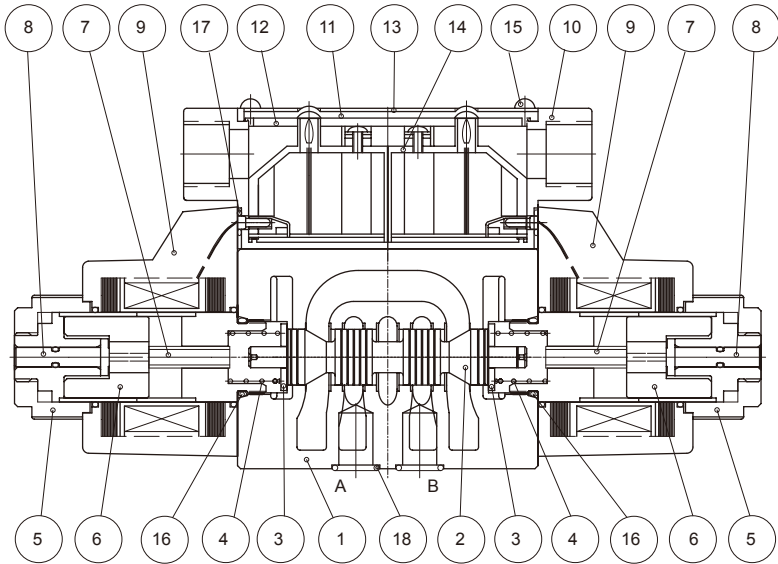


Model	C	D	M	R	Weight	Model	C	D	M	R	Weight
DGSP-05-8E		1/2" Rc	32	16	2.1 kgs	DGSP-05N-8E	1/4"~20UNC-2B	1/2" NPT	32	16	2.1 kgs
DGSP-05-12E	M6x14 Deep (min)	3/4" Rc	38	18	2.4 kgs	DGSP-05N-12E	Thd. x 1/2" Deep	3/4" NPT	38	18	2.4 kgs
DGSP-05G-8E	Full Thread Depth	1/2" BSP	32	16	2.1 kgs	DGSP-05S-8E	Full	1/2" SAE	32	16	2.1 kgs
DGSP-05G-12E		3/4" BSP	38	18	2.4 kgs	DGSP-05S-12E	Thread Depth	3/4" SAE	38	18	2.4 kgs

CROSS SECTION DIAGRAM WITH SPEC

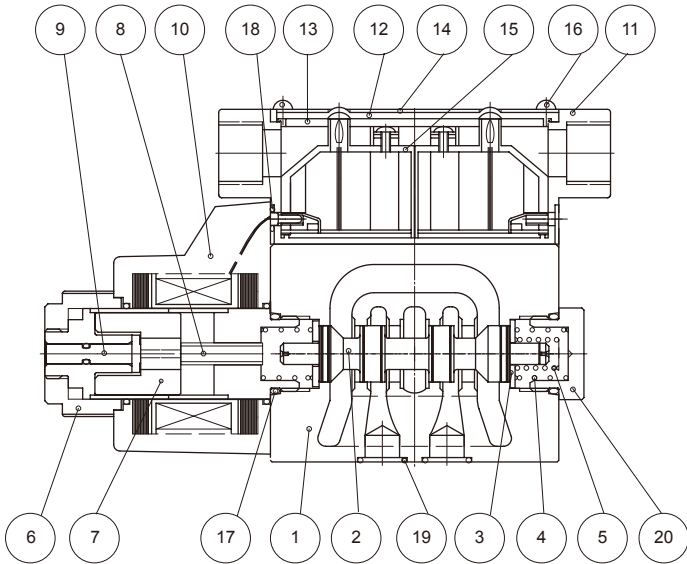
CROSS SECTION DRAWING:

■ DG05-*C-AC/DC



NO.	PARTS NAME	PARTS NO.	Q'TY
16	O-ring	P22 N90	2
17	O-ring	P4 N70	4
18	O-ring	AS568-014 N90	5

■ DG05-*A-AC/DC



NO.	PARTS NAME	PARTS NO.	Q'TY
17	O-ring	P22 N90	2
18	O-ring	P4 N70	2
19	O-ring	AS568-014 N90	5

NO.	parts name
1	body
2	spool
3	retainer
4	spring
5	nut
6	plunger
7	push pin
8	pin
9	coil
10	box
11	plate
12	packing
13	name plate
14	terminal
15	tap screw
16	O-ring
17	O-ring
18	O-ring

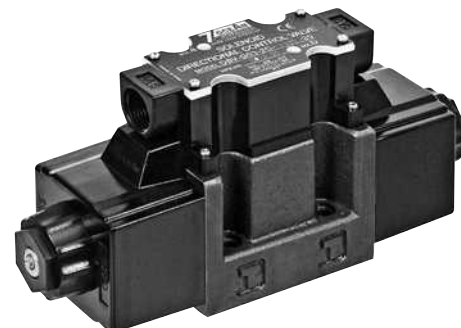
NO.	parts name
1	body
2	spool
3	retainer
4	spring
5	spring
6	nut
7	plunger
8	push pin
9	pin
10	coil
11	box
12	plate
13	packing
14	name plate
15	terminal
16	tap screw
17	O-ring
18	O-ring
19	O-ring
20	plug

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Coil outside cover with BMC fire proof material
- Surge suppressor inside DC wiring box type
- Connections to DIN, ISO and CETOP



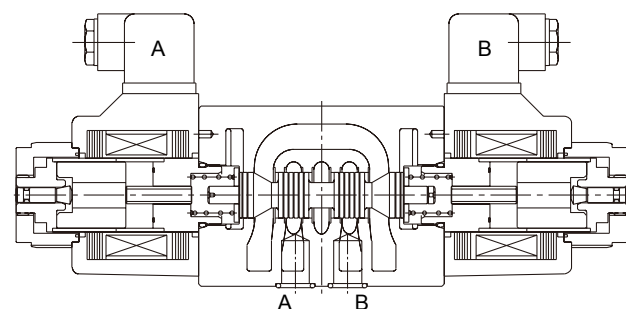
Model: DSV-G03-* *-A220-20

SPECIFICATION :

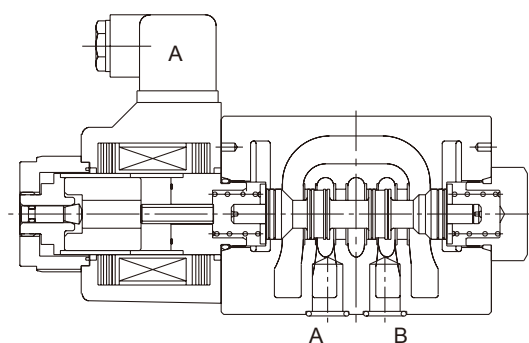
Maximum Flow Rate		160 L/Min (42 GPM)
Maximum Operating Pressure		250 Bar (3571 PSI)
Maximum Permissible Back Pressure		160 Bar (2285 PSI)
Ambient Temperature Range		-15 °C ~ +50 °C
Hydraulic Fluid Temperature		-15 °C ~ +70 °C
Viscosity Range		15 ~ 400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Degree of Protection		IEC 144 Class IP 65
Maximum Change over Frequency		180 Times/Min (AC/DC)
		120 Times/Min (RF)
Mounting Pattern		ISO 4401-AC-05-4-A
Approx. Weight (Kg)	Single solenoid	4.4 kg(DC/RF) / 3.6 kg(AC)
	Double solenoid	6.1 kg(DC/RF) / 4.6 kg(AC)
Valve Fixing Screws	Metric	M6 x 35L (4pcs)
	Inch	1/4" ~ 20UNCx1-3/8"L (4pcs)
Tightening Torque		12 ~ 15 Nm

CROSS SECTION DIAGRAM:

■ DSD-G03-2C-A*-31



■ DSD-G03-2A-A*-31



SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

ORDERING CODE :

DSV - G 03 - 2 C - A110 - 20 - **
1 2 3 4 5 6 7 8

1 DIRECTIONAL CONTROL VALVE

DSV: Wiring housing with G1/2 thread and indicator light
DSD: DIN 43650 Coils

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFFA-D05/DIN 24340)

4 TYPE OF SPOOL (CENTER CONDITION)

0	1	2	3	5	6
A B P T	A B P T	A B P T	A B P T	A B P T	A B P T
7	8	11	22	31	33
A B P T	A B P T	A B P T	A B P T	A B P T	A B P T

0: Open center (All ports) 7: Open center (P to A, B)
1: Open center (P, A to T) 8: Tandem center (P to T)
2: Closed center (All ports) 11: Open center (P, B to T)
3: Closed center (P, B) 22: Closed center (Two way)
5: Closed center (T, B) 31: Closed center (P, A)
6: Closed center (P only) 33: Closed center (Bleed A,B)

5 SPRING CRACKING PRESSURE

A: Spring offset to port "A" single solenoid
AL: Spring offset to port "B" single solenoid
B: Spring centered-single solenoid
BL: Spring centered-single solenoid
C: Spring centered-double solenoid
N: Without spring with detent

6 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz
A120: AC110V, 50 Hz; AC120V, 60 Hz
A220: AC200V, 50/60 Hz; AC220V, 60 Hz
A240: AC220V, 50 Hz; AC240V, 60 Hz
DC12: DC12V
DC24: DC24V
R110: AC110V, 60 Hz; Rectifier built-in type
R220: AC220V, 60 Hz; Rectifier built-in type

7 DESIGN NUMBER

10: Old Design Number
20: New Design Number
31: Connector with indicator light

8 OPTIONAL INQUIRY

LS: Surge Killer

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DSV-G03-0C 	DSV-G03-0B 	DSV-G03-0BL
1 (F)	DSV-G03-1C 	DSV-G03-1B 	DSV-G03-1BL
2 (E)	DSV-G03-2C 	DSV-G03-2B 	DSV-G03-2BL
		DSV-G03-2F 	DSV-G03-2FL
3 (L)	DSV-G03-3C 	DSV-G03-3B 	DSV-G03-3BL
5	DSV-G03-5C 	DSV-G03-5B 	DSV-G03-5BL
6 (J)	DSV-G03-6C 	DSV-G03-6B 	DSV-G03-6BL
7 (M)	DSV-G03-7C 	DSV-G03-7B 	DSV-G03-7BL
8 (G)	DSV-G03-8C 	DSV-G03-8B 	DSV-G03-8BL
11 (P)	DSV-G03-11C 	DSV-G03-11B 	DSV-G03-11BL
31 (U)	DSV-G03-31C 	DSV-G03-31B 	DSV-G03-31BL
33 (W)	DSV-G03-33C 	DSV-G03-33B 	DSV-G03-33BL

*() : Rexroth Model

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

SPOOL TYPES:

Position type during transition	Double solenoid valves, spring centered -N-	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)		DSV-G03-0A 	DSV-G03-0AL
2 (E)		DSV-G03-2A 	DSV-G03-2AL
6 (J)		DSV-G03-6A 	DSV-G03-6AL
7 (M)		DSV-G03-7A 	DSV-G03-7AL
22 (A)		DSV-G03-22A 	DSV-G03-22AL

*() : Rexroth Model

FEATURES OF ELECTRO-MAGNETIC COIL :

Solenoid Classification	Power Source	Voltage (V)	Frequency (Hz)	Holding Current (A)	Inrush Current (A)	Holding Power (W)	Permissible Voltage (V)	Insulation Grade	Coil Insulation Class	Insulation Resistance (MΩ)
AC	A110	AC100V	50	1.28	5	45.4	90~110	B	H (180°C)	>50
			60	1.09	4.24	26.2	90~110			
	A120	AC110V	50	1.08	4.70	46.6	100~120			
			60	0.87	4.32	38.2	110~130			
	A220	AC200V	50	0.68	2.66	47.4	190~210			
			60	0.55	2.34	31.9	190~210			
	A240	AC220V	50	0.41	2.35	59.3	210~230			
			60	0.44	2.38	65.9	230~250			
DC	DC12	DC12V	-	2.58	-	29.2	10.8~13.2	B	H (180°C)	>50
	DC24	DC24V	-	1.48	-	35.1	21.6~26.4			
RF	R110	AC110V, 60HZ DC99V		0.42	-	41	90~110	B	H (180°C)	>50
	R220	AC220V, 60HZ DC198V		0.21	-	41	190~220			

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

PERFORMANCE FIGURES & CURVES:

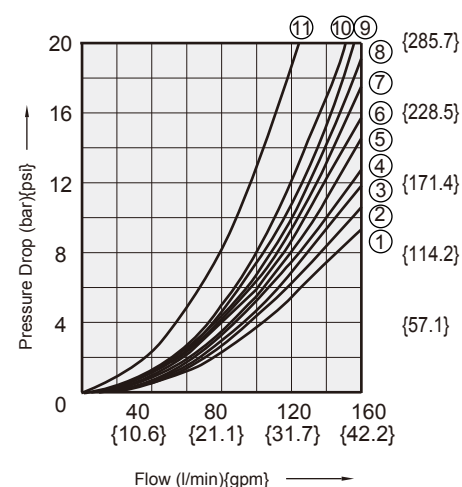
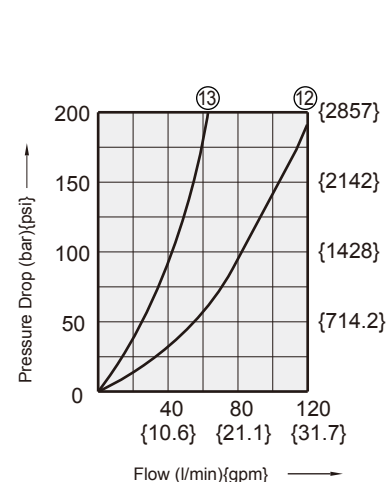
Pressure Drop Curve Reference Chart

Viscosity of Hydraulic Fluid: 36 mm²/s

Spool Type	C, B, BL							
	Control Position				Neutral Position			
	P→A	B→T	P→B	A→T	P→T	A→T	B→T	P→A
0 (H)	7	10	7	10	8	8	8	6
1 (F)	6	3	9	11	10	2	-	6
2 (E)	5	3	5	3	-	-	-	-
3 (L)	5	3	5	9	-	4	-	-
6 (J)	5	9	5	9	-	4	4	-
7 (M)	6	3	6	3	-	-	-	7
8 (G)	1	10	1	10	11	-	-	-
11 (P)	9	11	6	3	10	-	2	-
31 (U)	5	9	5	3	-	-	4	-
33 (W)	5	3	5	3	-	13	13	-

Spool Type	A, AL			
	Control Position			
	P→A	B→T	P→B	A→T
0 (H)	6	9	6	6
2 (E)	6	3	6	3

Spool Type	N			
	Control Position			
	P→A	B→T	P→B	A→T
2 (E)	7	3	7	3



WIRING:

DSV-G03-*C-*20	DSD-G03-*-*31
Note: 1. COM terminal is fitted in double solenoid valve for easiness of wiring. 2. Use an earth terminal when ground wiring is necessary. 3. Use a compressed terminal for M3. 4. Fasten the screw of the terminal with 0.5~0.7 N.m (4.3~6.1 lbs) torque.	

SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

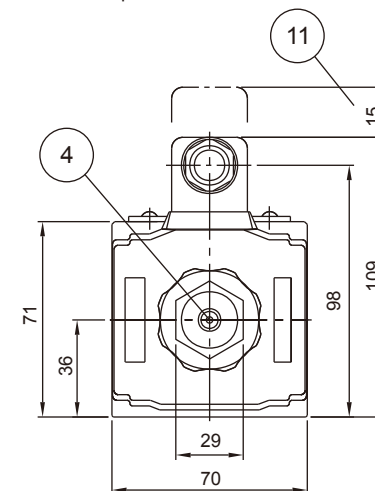
DIMENSIONS:

AC solenoid (DSD Type)

■ DSD-G03- *A-A*-31

*B

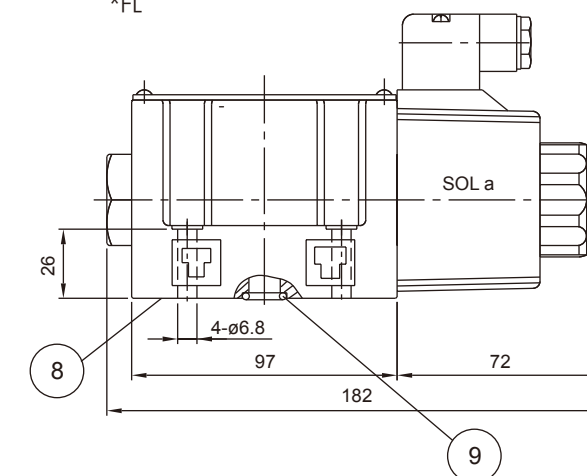
*F



■ DSD-G03- *AL-A*-31

*BL

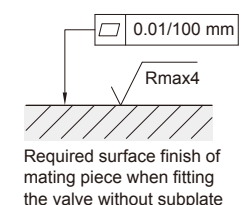
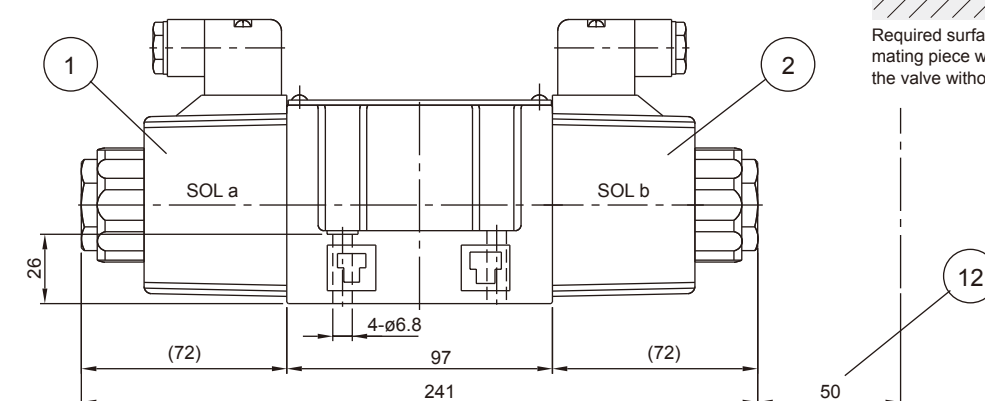
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Angled plug to DIN 43650
- 4: Push pin for manual operation
- 5: Lead wire take-out (Cable diameter ø8~10mm)
- 6: Nameplate
- 7: Lock nut with torque in the range 10.5 Nm
- 8: Connections to DIN 24340 (NG10, ISO 4401-AC-05-4-A); valve fixing screws M6x35; tightening torques 12~15 Nm
- 9: O-ring AS568-014 (Hs 90)
- 10: Hex nut (for single solenoid)
- 11: Space required to remove plug
- 12: Coil removable length

■ DSD-G03- *C-A*-31

*N



SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

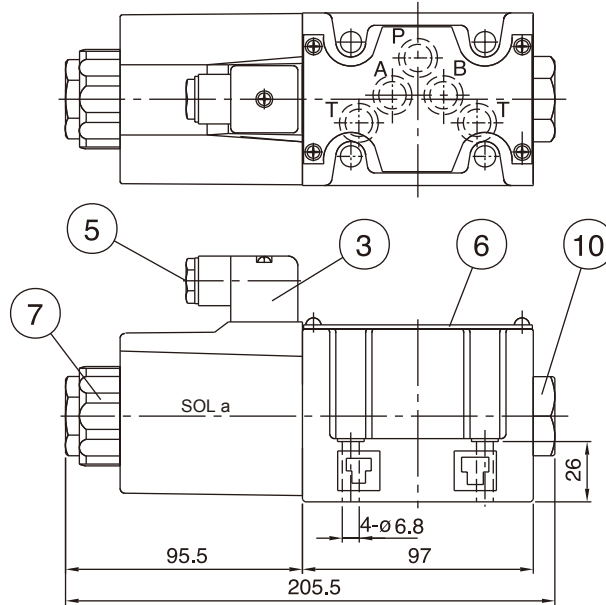
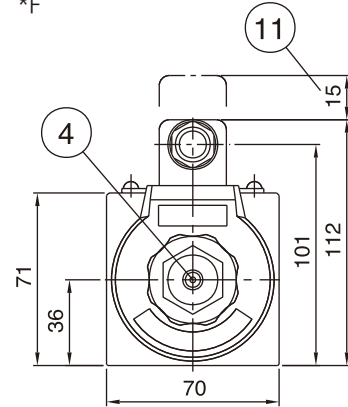
DIMENSIONS:

DC solenoid (DSD Type)

■ DSD-G03- *A-DC*-31

*B

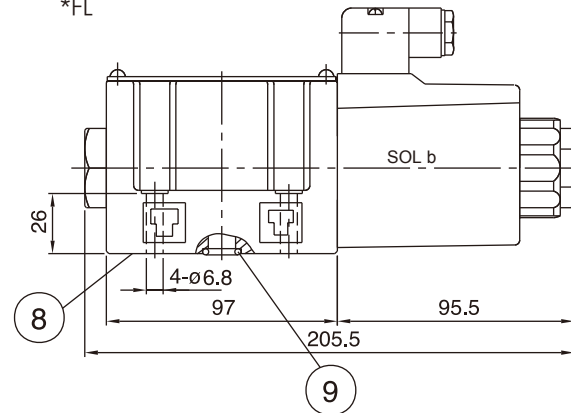
*F



■ DSD-G03- *AL-DC*-31

*BL

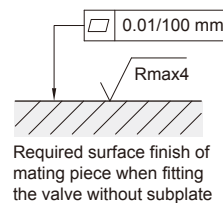
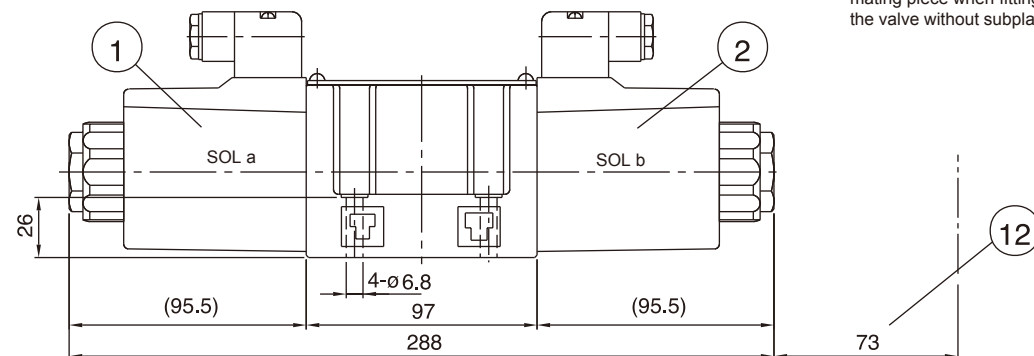
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Angled plug to DIN 43650
- 4: Push pin for manual operation
- 5: Lead wire take-out (Cable diameter ø8~10mm)
- 6: Nameplate
- 7: Lock nut with torque in the range 10.5 Nm
- 8: Connections to DIN 24340 (NG10, ISO 4401-AC-05-4-A); valve fixing screws M6x35; tightening torques 12~15 Nm
- 9: O-ring AS568-014 (Hs 90)
- 10: Hex nut (for single solenoid)
- 11: Space required to remove plug
- 12: Coil removable length

■ DSD-G03- *C-DC*-31

*N



SOLENOID OPERATED

DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

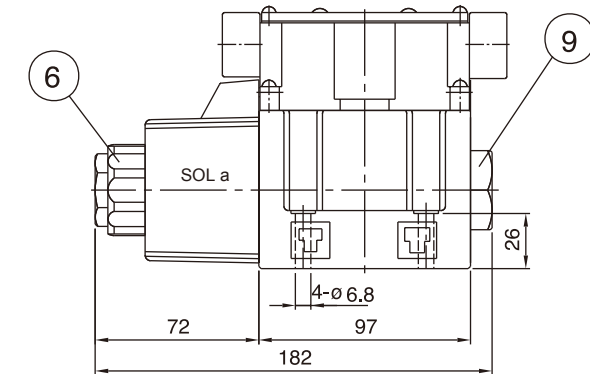
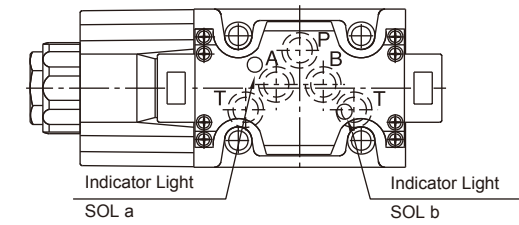
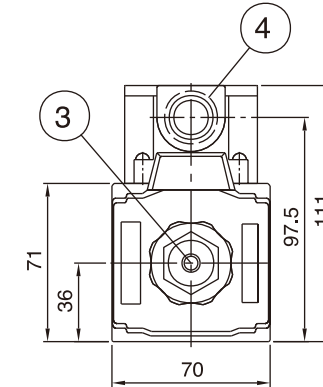
DIMENSIONS:

AC solenoid (DSV Type)

■ DSV-G03- *A-A*-20

*B

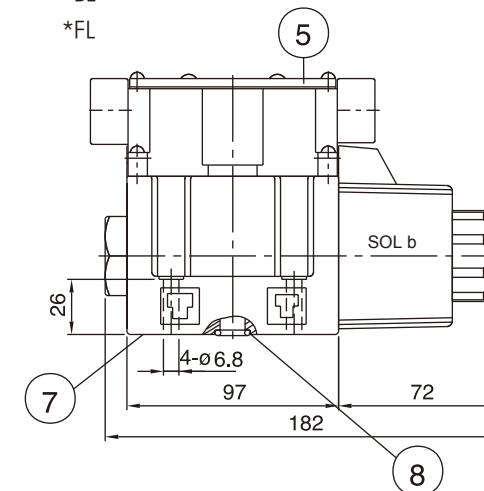
*F



■ DSV-G03- *AL-A*-20

*BL

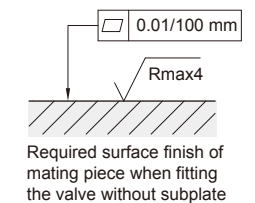
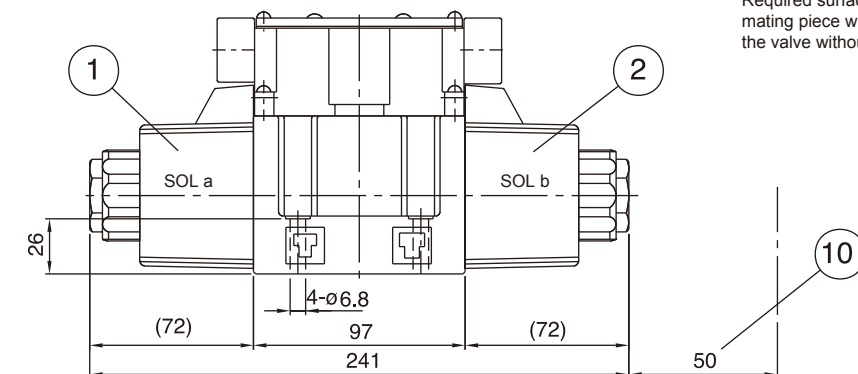
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Push pin for manual operation
- 4: Lead wire take-out (G1/2")
- 5: Nameplate
- 6: Lock nut with torque in the range 10.5 Nm
- 7: Connections to DIN 24340 (NG10, ISO 4401-AC-05-4-A); valve fixing screws M6x35; tightening torques 12~15 Nm
- 8: O-ring AS568-014 (Hs 90)
- 9: Hex nut (for single solenoid)
- 10: Coil removable length

■ DSV-G03- *C-A*-20

*N



SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

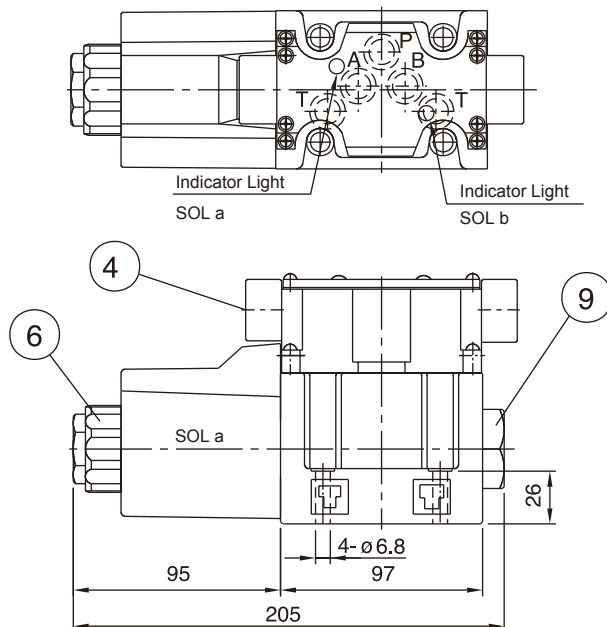
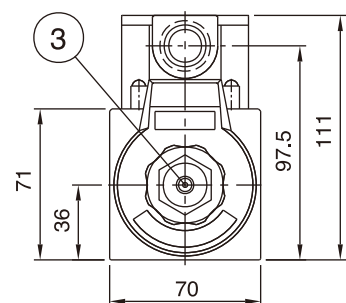
DIMENSIONS:

DC solenoid (DSV Type)

■ DSV-G03- *A-DC*-20

*B

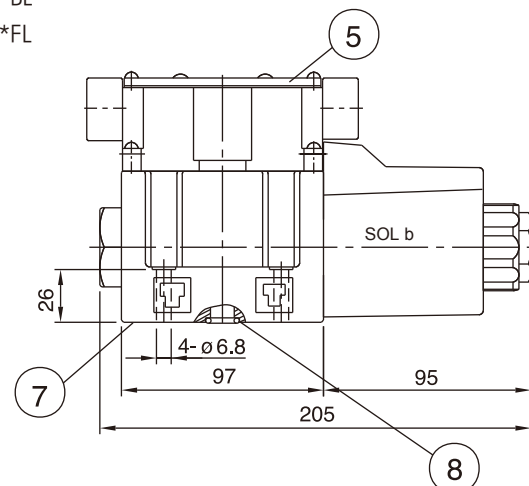
*F



■ DSV-G03- *AL-DC*-20

*BL

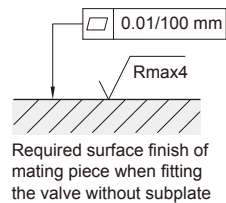
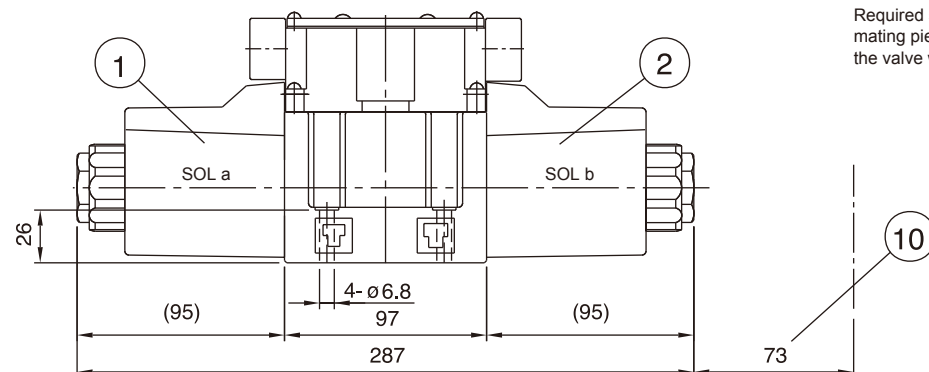
*FL



- 1: Solenoid a
- 2: Solenoid b
- 3: Push pin for manual operation
- 4: Lead wire take-out (G1/2")
- 5: Nameplate
- 6: Lock nut with torque in the range 10.5 Nm
- 7: Connections to DIN 24340 (NG10, ISO 4401-AC-05-4-A); valve fixing screws M6x35; tightening torques 12~15 Nm
- 8: O-ring AS568-014 (Hs 90)
- 9: Hex nut (for single solenoid)
- 10: Coil removable length

■ DSV-G03- *C-DC*-20

*N

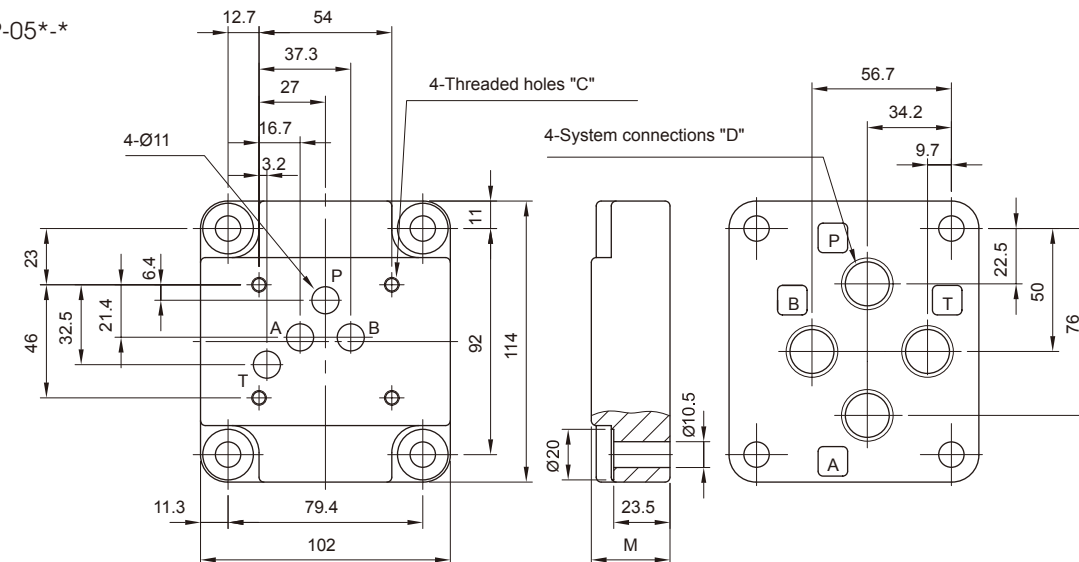


SOLENOID OPERATED DIRECTIONAL CONTROL VALVE DSV / DSD-G03 SIZE 10

SUBPLATE DIMENSIONS:

Bottom Connection

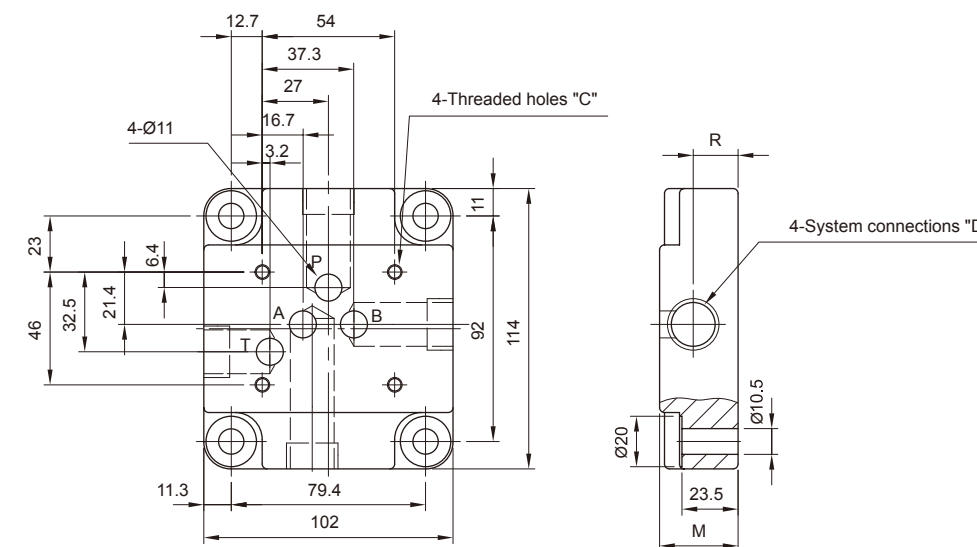
■ DGSP-05*-*



Model	C	D	M	Weight	Model	C	D	M	Weight
DGSP-05-8	M6x14 Deep (min) Full Thread Depth	1/2" Rc	32	2.1 kgs	DGSP-05N-8	1/4"~20UNC-2B	1/2" NPT	32	2.1 kgs
DGSP-05-12		3/4" Rc	38	2.4 kgs	DGSP-05N-12	Thd. x 1/2" Deep	3/4" NPT	38	2.4 kgs
DGSP-05G-8		1/2" BSP	32	2.1 kgs	DGSP-05S-8	Full	1/2" SAE	32	2.1 kgs
DGSP-05G-12		3/4" BSP	38	2.4 kgs	DGSP-05S-12	Thread Depth	3/4" SAE	38	2.4 kgs

Side Connection

■ DGSP-05*-*E



Model	C	D	M	R	Weight	Model	C	D	M	R	Weight
DGSP-05-8E	M6x14 Deep (min) Full Thread Depth	1/2" Rc	32	16	2.1 kgs	DGSP-05N-8E	1/4"~20UNC-2B	1/2" NPT	32	16	2.1 kgs
DGSP-05-12E		3/4" Rc	38	18	2.4 kgs	DGSP-05N-12E	Thd. x 1/2" Deep	3/4" NPT	38	18	2.4 kgs
DGSP-05G-8E		1/2" BSP	32	16	2.1 kgs	DGSP-05S-8E	Full	1/2" SAE	32	16	2.1 kgs
DGSP-05G-12E		3/4" BSP	38	18	2.4 kgs	DGSP-05S-12E	Thread Depth	3/4" SAE	38	18	2.4 kgs

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

FEATURES :

- Highest performance in NG 16
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Manual overrides standard
- P port pilot pressure insert for open center spools
- Connections to DIN, ISO and CETOP



Model: DG07

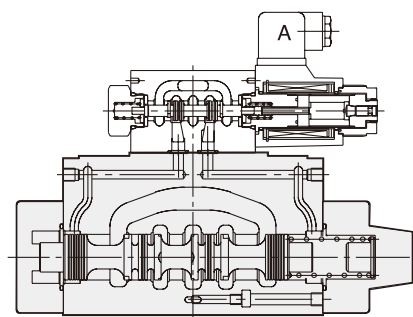
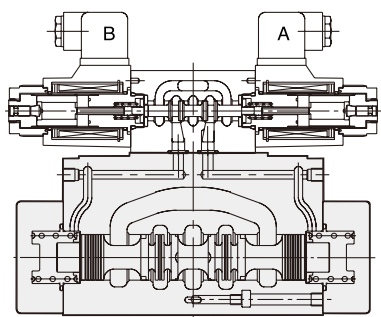
SPECIFICATION :

Maximum Flow Rate		300 L/Min (79 GPM)
Maximum Operating Pressure		320 Bar (4500 PSI)
Maximum Permissible Back Pressure		160 Bar (2285 PSI)
Pilot Pressure		12~250 bar
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Maximum Change over Frequency		120 Times/Min
Mounting Pattern		ISO 4401-AD-07-4-A
Approx. Weight (Valve with hydraulic operation)		7.2 kg
Valve Fixing Screws	Metric	M6 x 55L (2 pcs) M10 x 50L (4pcs)
	Inch	1/4"~20UNCx2-1/4"L (2pcs) 3/8"~16UNCx2"L (4pcs)
Tightening Torque		12~15 Nm(M6) / 58~72 Nm(M10)

CROSS SECTION DIAGRAM:

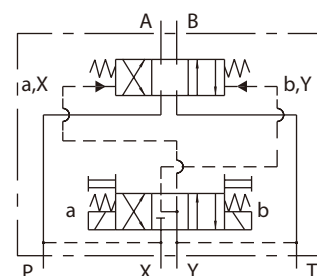
■ DG07-E1-2C-T-A*-DN-82

■ DG07-E1-2A-A*-DN-82



GRAPHIC SYMBOL:

■ DG07-E-*C-T-*-*



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

ORDERING CODE :

D G 07 - E1 - 2 C - E T - A110 - DN - 82 - * *

1 DIRECTIONAL CONTROL VALVE

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 16, CETOP 7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 OPERATOR

No code: Hydraulic (pilot) operation

E1: DSV/DSD electro-hydraulic operation

E2: DG electro-hydraulic operation

5 TYPE OF SPOOL (CENTER CONDITION)

0	1	2	3	5	6
7	8	11	22	31	33

0: Open center (All ports)

1: Open center (P, A to T)

2: Closed center (All ports)

3: Closed center (P, B)

5: Closed center (T, B)

6: Closed center (P only)

7: Open center (P to A, B)

8: Tandem center (P to T)

11: Open center (P, B to T)

22: Closed center (Two way)

31: Closed center (P, A)

33: Closed center (Bleed A,B)

6 SPRING CRACKING PRESSURE

A : Spring offset

AL: Same with A

B : Spring centered-single solenoid "A" removed

BL: Same with B

C : Spring centered

N : Without spring with detent (pilot only)

7 EXTERNAL PILOT PRESSURE

No code: Internal Pilot

E: External Pilot

8 INTERNAL PILOT DRAIN

No code: External Drain

T: Internal Drain

9 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz

A120: AC110V, 50 Hz; AC120V, 60 Hz

A220: AC200V, 50/60 Hz; AC220V, 60 Hz

A240: AC220V, 50 Hz; AC240V, 60 Hz

DC12: DC12V

DC24: DC24V

R110: AC110V, 60 Hz; Rectifier built-in type

R220: AC220V, 60 Hz; Rectifier built-in type

10 ELECTRICAL OPTIONS:

DN: DIN 43650 Coils with indicator lights

DNO: DIN 43650 Coils without indicator lights

WB: Wiring housing with G1/2 thread and indicator lights

11 DESIGN NUMBER

82

12 OPTIONAL INQUIRY

P: P Check

SA: Stroke Adjustment on A Port

SB: Stroke Adjustment on B Port

SW: Stroke Adjustment on Both A & B Port

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DG07-0C 	DG07-0B 	DG07-0BL
1 (F)	DG07-1C 	DG07-1B 	DG07-1BL
2 (E)	DG07-2C 	DG07-2B 	DG07-2BL
3 (L)	DG07-3C 	DG07-3B 	DG07-3BL
5	DG07-5C 	DG07-5B 	DG07-5BL
6 (J)	DG07-6C 	DG07-6B 	DG07-6BL
7 (M)	DG07-7C 	DG07-7B 	DG07-7BL
8 (G)	DG07-8C 	DG07-8B 	DG07-8BL
11 (P)	DG07-11C 	DG07-11B 	DG07-11BL
31 (U)	DG07-31C 	DG07-31B 	DG07-31BL
33 (W)	DG07-33C 	DG07-33B 	DG07-33BL

*() : Rexroth Model

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

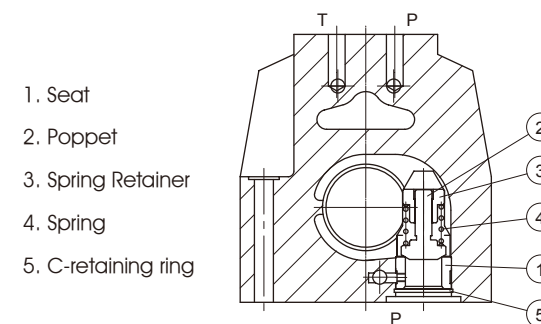
SPOOL TYPES:

Position type during transition	Double solenoid valves, spring centered -N-	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)		DG07-0A 	DG07-0AL
2 (E)		DG07-2A 	DG07-2AL
6 (J)		DG07-6A 	DG07-6AL
7 (M)		DG07-7A 	DG07-7AL
22 (A)		DG07-22A 	DG07-22AL

*() : Rexroth Model

P CHECK

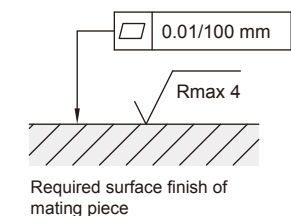
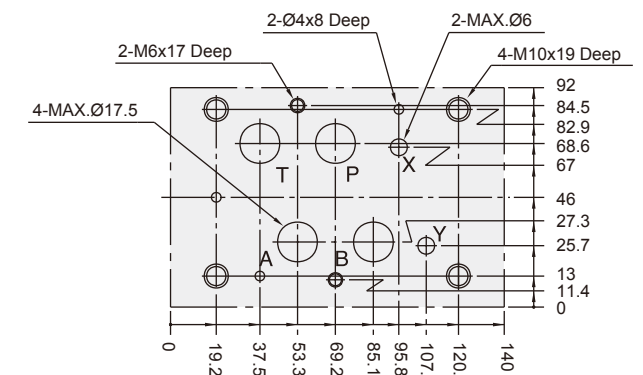
■ DG07-E*-.*-.*-82-P



INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

■ Mounting Surface: ISO 4401-AD-07-4-A



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

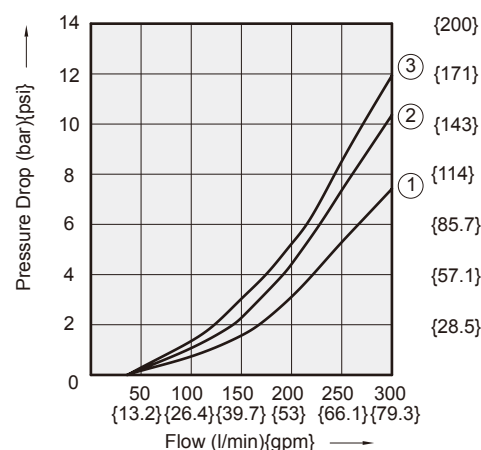
PERFORMANCE FIGURES & CURVES:

Pressure Drop Curve Reference Chart

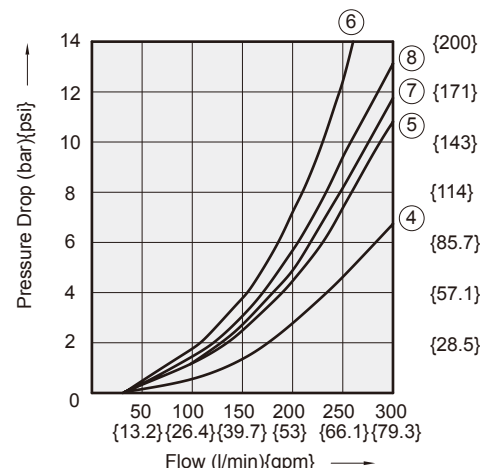
Viscosity of Hydraulic Fluid: 41 mm²/s

Spool Type	Pressure Drop Characteristics				
	P→A	P→B	A→T	B→T	P→T
0C	a-b	a-b	a-b	a-b	a-b
1C	a-b	a-b	a-b	a-b	a-b
2C	1	1	2	3	-
3C	a-b	a-b	a-b	a-b	a-b
6C	a-b	a-b	a-b	a-b	a-b
7C	a-b	a-b	a-b	a-b	a-b
8C	4	5	7	8	6
11C	a-b	a-b	a-b	a-b	a-b
31C	a-b	a-b	a-b	a-b	a-b
33C	a-b	a-b	a-b	a-b	a-b
0A	a-b	a-b	a-b	a-b	a-b
2A	1	1	2	3	-

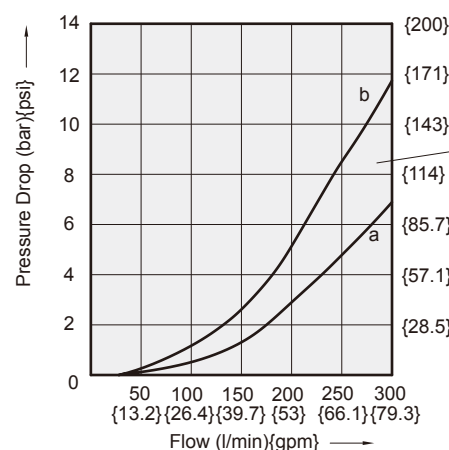
■ DG07-2C-*-82



■ DG07-8C-*-82



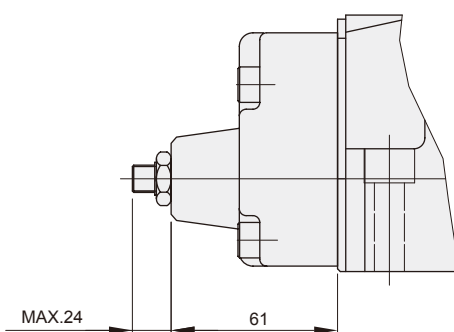
■ All other spools



All other spool types
fall in this area

STROKE ADJUSTMENT:

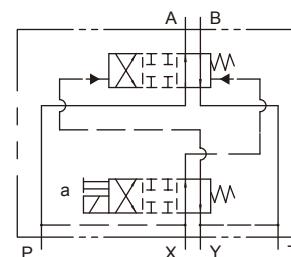
■ DG07-E-*-82-S



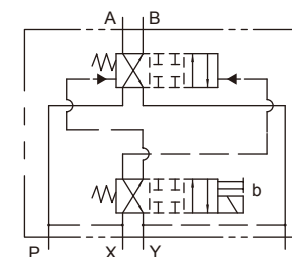
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

HYDRAULIC CONFIGURATION:

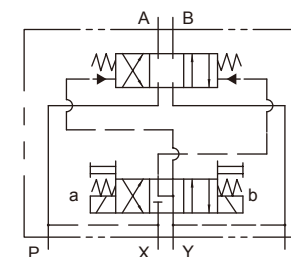
■ DG07-E-2A-T-*- (*A)



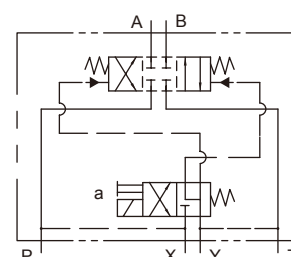
■ DG07-E-2AL-T-*- (*AL)



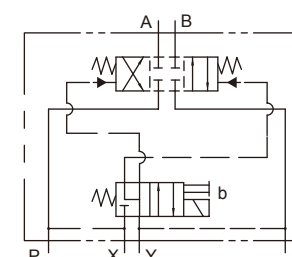
■ DG07-E-*C-T-*-



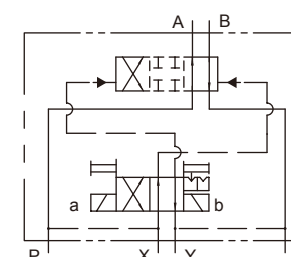
■ DG07-E-2B-T-*- (*B)



■ DG07-E-2BL-T-*- (*BL)

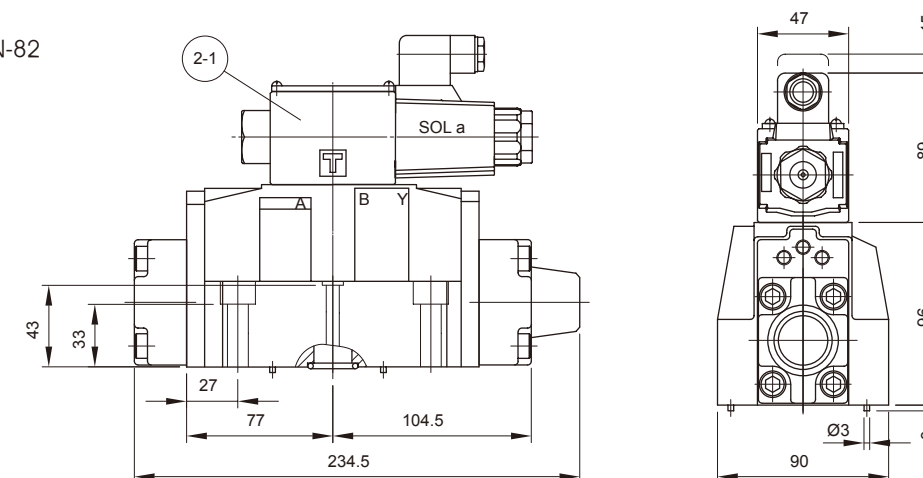


■ DG07-E-2N-T-*- (*N)

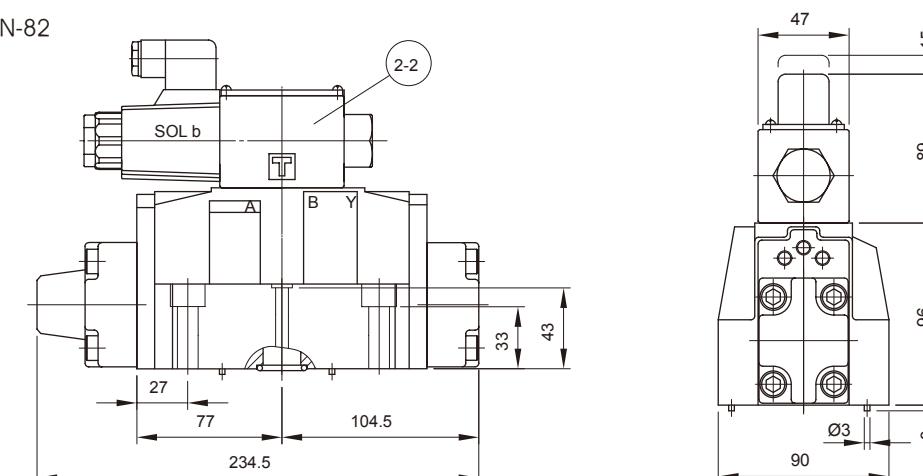


DIMENSIONS:

■ DG07-E1- *A-A*-DN-82
*B



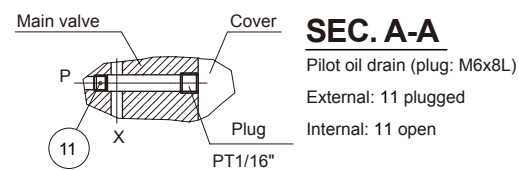
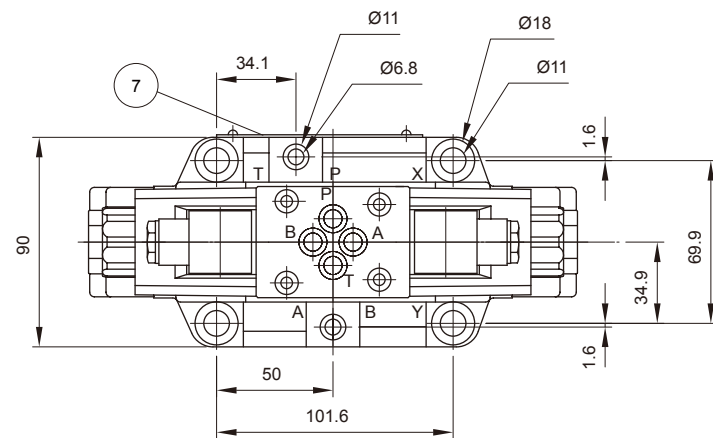
■ DG07-E1- *AL-A*-DN-82
*BL



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

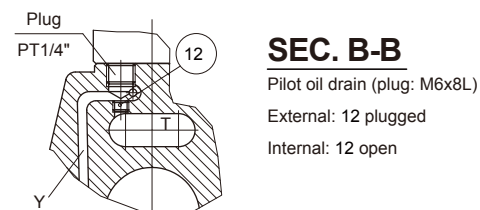
DIMENSIONS:

■ DG07-E1-*C-A*-DN-82



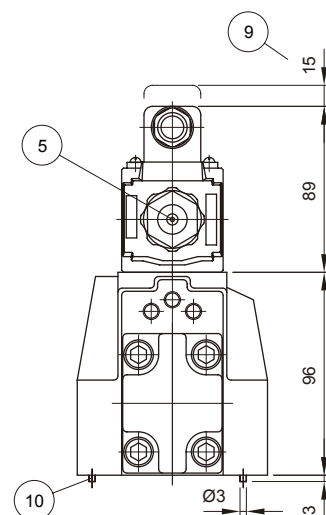
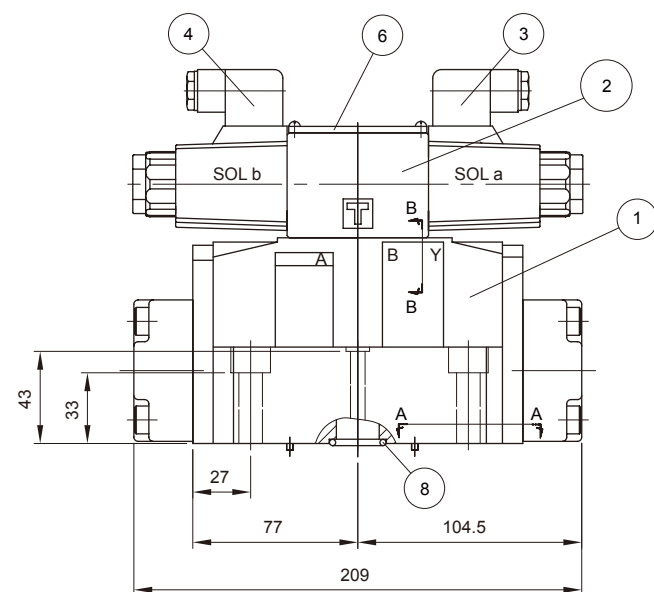
SEC. A-A

Pilot oil drain (plug: M6x8L)
External: 11 plugged
Internal: 11 open



SEC. B-B

Pilot oil drain (plug: M6x8L)
External: 12 plugged
Internal: 12 open



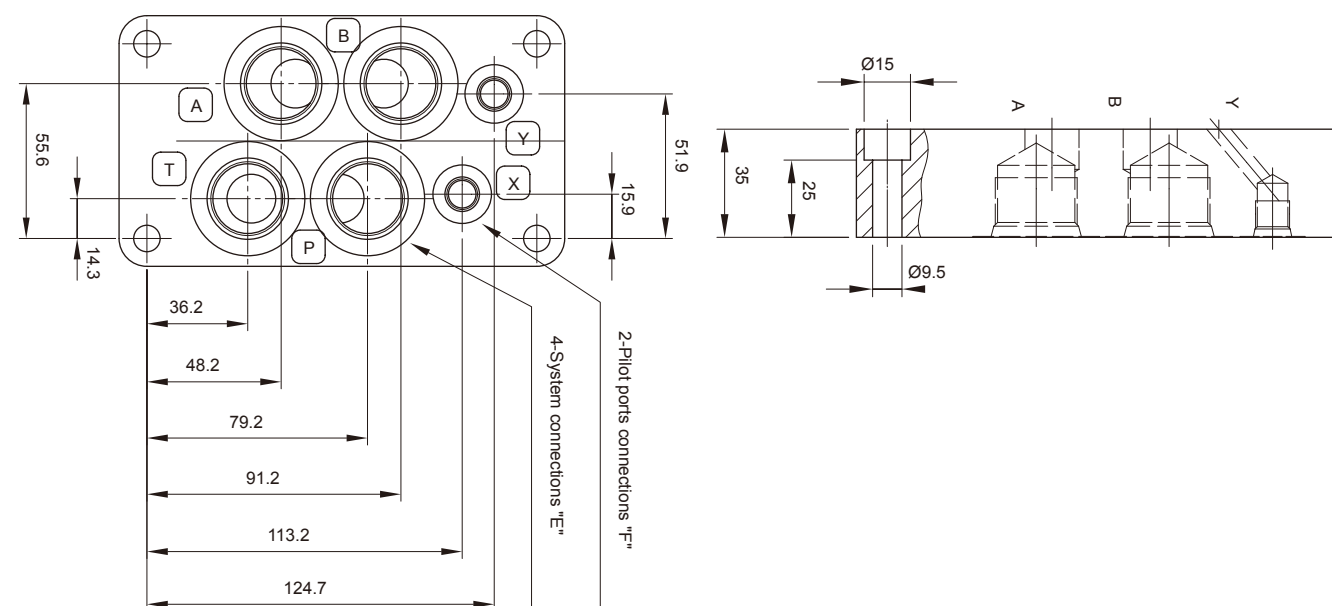
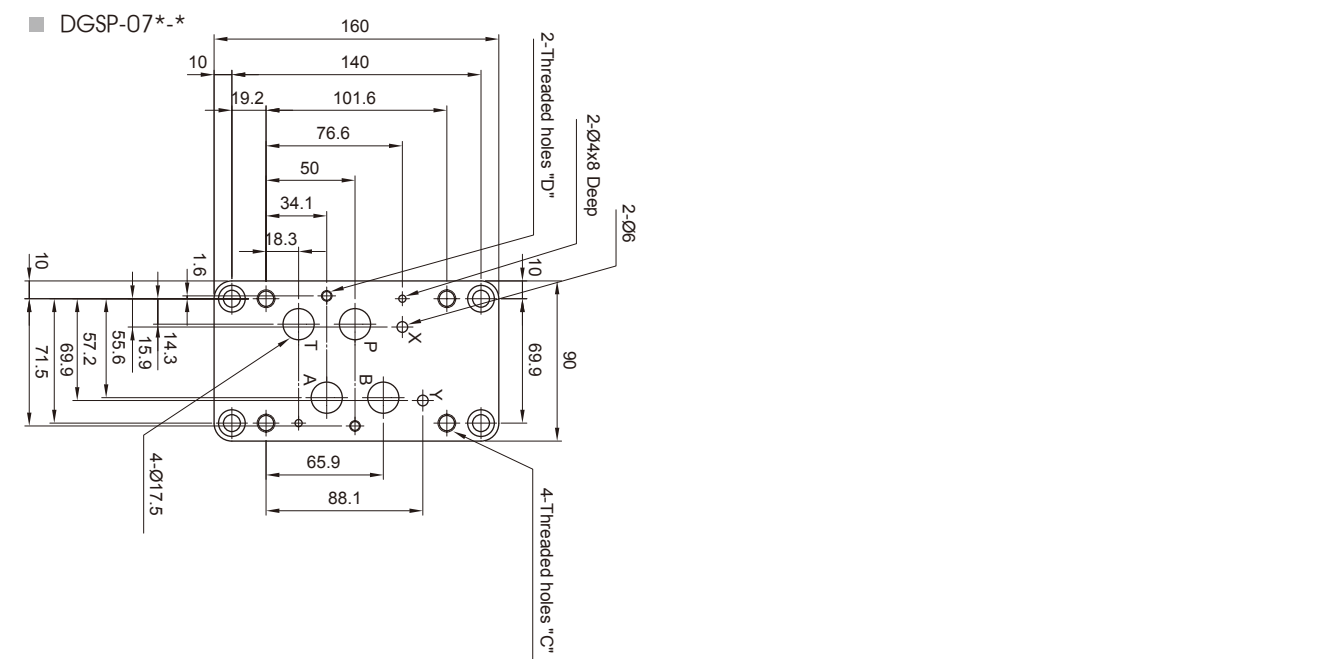
- 1: Main valve
- 2: Pilot valve
- 2-1: Pilot valve DSV/DSD-G02-2A-* (1 solenoid) for main valves with spools *A, *B (3 position valve with solenoid on side a)
- 2-2: Pilot valve DSV/DSD-G02-2AL-* (1 solenoid) for main valves with spools *AL, *BL (3 position valve with solenoid on side b)
- 2-3: Pilot valve DSV/DSD-G02-6C-* (2 solenoid) for main valves with 3 positions

- 3: Solenoid a
- 4: Solenoid b
- 5: Push pin for manual operation
- 6: Nameplate for pilot valve
- 7: Nameplate for whole valve
- 8: O-ring:
Ports A,B,P,T: AS568-118 (NBR,Hs90);
Ports X,Y: AS568-013 (NBR,Hs90)
- 9: Space required to remove plug
- 10: Locating pin

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

SUBPLATE DIMENSIONS:

Bottom Connection



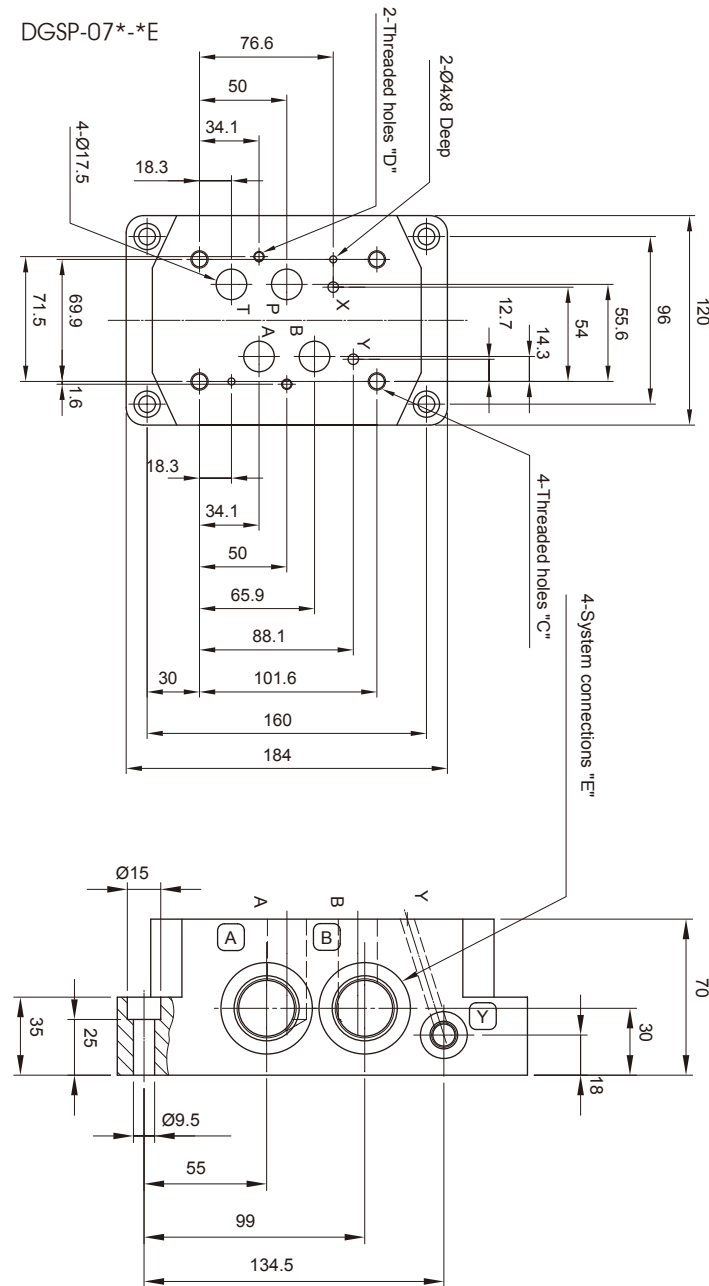
Model	C	D	E	F	Weight
DGSP-07-12	M10 x 19 Deep (Min)	M6 x 14 Deep (Min)	3/4" Rc	1/4" Rc	2.8 kgs
DGSP-07-16			1" Rc	1/4" Rc	2.8 kgs
DGSP-07G-12			3/4" BSP	1/4" BSP	2.8 kgs
DGSP-07G-16			1" BSP	1/4" BSP	2.8 kgs
DGSP-07N-12	3/8"-16UNC-2B Thd. x 3/4" Deep	1/4"-20UNC-2B Thd. x 9/16" Deep	3/4" NPT	1/4" NPT	2.8 kgs
DGSP-07N-16			1" NPT	1/4" NPT	2.8 kgs
DGSP-07S-12			3/4" SAE	1/4" SAE	2.8 kgs
DGSP-07S-16			1" SAE	1/4" SAE	2.8 kgs

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

SUBPLATE DIMENSIONS:

Side Connection

DGSP-07*-E

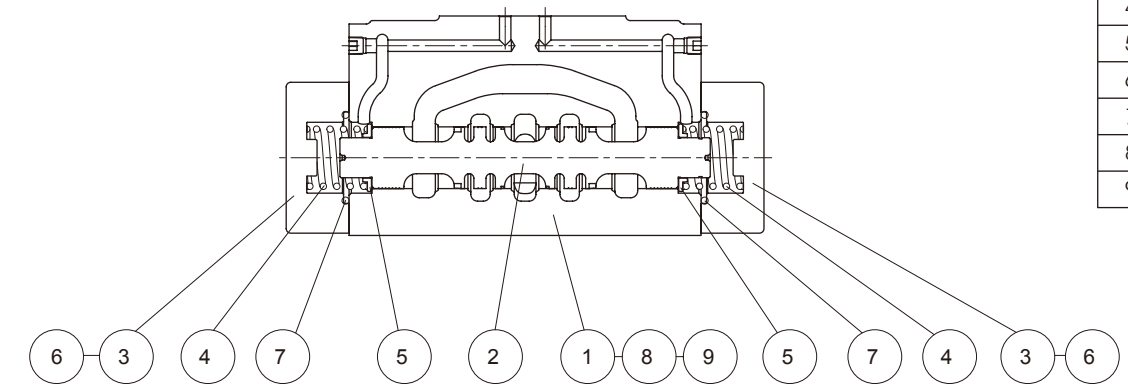


Model	C	D	E	F	Weight
DGSP-07-12E	M10 x 19 Deep (Min)	M6 x 14 Deep (Min)	3/4" Rc	1/4" Rc	3.8 kgs
DGSP-07-16E			1" Rc	1/4" Rc	3.8 kgs
DGSP-07G-12E			3/4" BSP	1/4" BSP	3.8 kgs
DGSP-07G-16E			1" BSP	1/4" BSP	3.8 kgs
DGSP-07N-12E	3/8"-16UNC-2B Thd. x 3/4" Deep	1/4"-20UNC-2B Thd. x 9/16" Deep	3/4" NPT	1/4" NPT	3.8 kgs
DGSP-07N-16E			1" NPT	1/4" NPT	3.8 kgs
DGSP-07S-12E			3/4" SAE	1/4" SAE	3.8 kgs
DGSP-07S-16E			1" SAE	1/4" SAE	3.8 kgs

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07 SIZE 16

CROSS SECTION DRAWING

■ DG07-E1-2C-T-A



No.	Parts Name
1	Body
2	Spool
3	Cover
4	Spring
5	Washer
6	Screw
7	O Ring
8	O Ring
9	O Ring

Parts No.	Parts Name	Specification	Port	Q'ty
7	O Ring	G35 N90		2
8	O Ring	AS568-Ø3 N90	X, Y	2
9	O Ring	AS568-118 N90	A, B, P, T	4

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07S SIZE 16

FEATURES :

- Highest performance in NG 16
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Manual overrides standard
- P port pilot pressure insert for open center spools
- Connections to DIN, ISO and CETOP



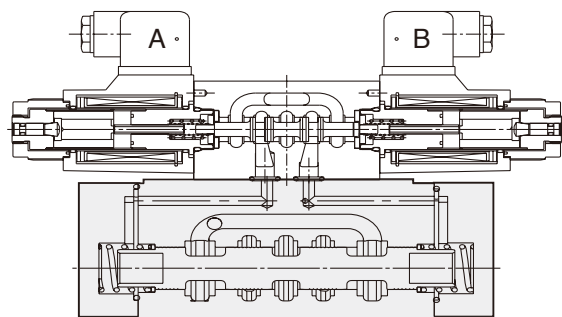
Model: DG07S

SPECIFICATION :

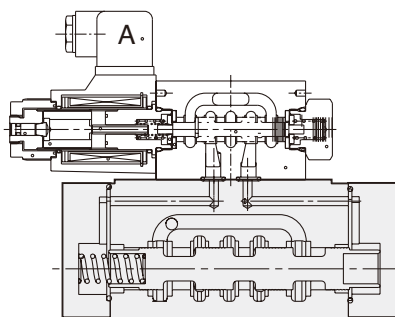
Maximum Flow Rate		227 L/Min (60 GPM)
Maximum Operating Pressure		210 Bar (3000 PSI)
Maximum Permissible Back Pressure		160 Bar (2285 PSI)
Pilot Pressure		12~250 bar
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Maximum Change over Frequency		120 Times/Min
Mounting Pattern		ISO 4401-AD-07-4-A
Approx. Weight (Valve with hydraulic operation)		4.6 kg
Valve Fixing Screws	Metric	M6 x 45L (2 pcs) M10 x 50L (4pcs)
	Inch	1/4"~20UNCx1-3/4"L (2pcs) 3/8"~16UNCx2"L (4pcs)
Tightening Torque		12~15 Nm (M6) / 58~72 Nm (M10)

CROSS SECTION DIAGRAM:

■ DG07S-E1-2C-T-A*-DN-82

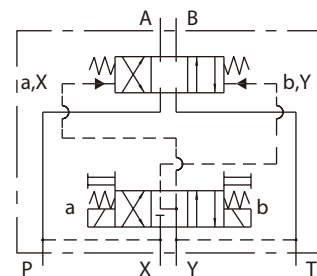


■ DG07S-E1-2A-T-A*-DN-82



GRAPHIC SYMBOL:

■ DG07S-E*-C-T-*-*



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07S SIZE 16

ORDERING CODE :

D G 07S - E1 - 2 C - E T - A110 - DN - 82
1 2 3 4 5 6 7 8 9 10 11

1 DIRECTIONAL CONTROL VALVE

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 16, CETOP 7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 OPERATOR

No code: Hydraulic (pilot) operation

E1: DSV/DSD electro-hydraulic operation

E2: DG electro-hydraulic operation

5 TYPE OF SPOOL (CENTER CONDITION)

0	2	3	6

0: Open center (All ports)

2: Closed center (All ports)

3: Closed center (P, B)

6: Closed center (P only)

8: Tandem center (P to T)

31: Closed center (P, A)

33: Closed center (Bleed A,B)

6 SPRING CRACKING PRESSURE

A: Spring offset

AL: Same with A

B: Spring centered-single solenoid "A" removed

BL: Same with B

C: Spring centered

N: Without spring with detent (pilot only)

7 EXTERNAL PILOT PRESSURE

No code: Internal Pilot

E: External Pilot

8 INTERNAL PILOT DRAIN

No code: External Drain

T: Internal Drain

9 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz

A120: AC110V, 50 Hz; AC120V, 60 Hz

A220: AC200V, 50/60 Hz; AC220V, 60 Hz

A240: AC220V, 50 Hz; AC240V, 60 Hz

DC12: DC12V

DC24: DC24V

R110: AC110V, 60 Hz; Rectifier built-in type

R220: AC220V, 60 Hz; Rectifier built-in type

10 ELECTRICAL OPTIONS:

DN: DIN 43650 Coils with indicator lights

DNO: DIN 43650 Coils without indicator lights

WB: Wiring housing with G1/2 thread and indicator lights

11 DESIGN NUMBER

82

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07S SIZE 16

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DG07S-0C 	DG07S-0B 	DG07S-0BL
2 (E)	DG07S-2C 	DG07S-2B 	DG07S-2BL
3 (L)	DG07S-3C 	DG07S-3B 	DG07S-3BL
6 (J)	DG07S-6C 	DG07S-6B 	DG07S-6BL
8 (G)	DG07S-8C 	DG07S-8B 	DG07S-8BL
31 (U)	DG07S-31C 	DG07S-31B 	DG07S-31BL
33 (W)	DG07S-33C 	DG07S-33B 	DG07S-33BL

Position type during transition	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)	DG07S-0A 	DG07S-0AL
2 (E)	DG07S-2A 	DG07S-2AL
6 (J)	DG07S-6A 	DG07S-6AL

*() : Rexroth Model

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07S SIZE 16

PRESSURE DROP CHARACTERISTICS :

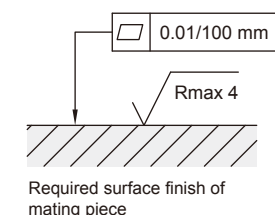
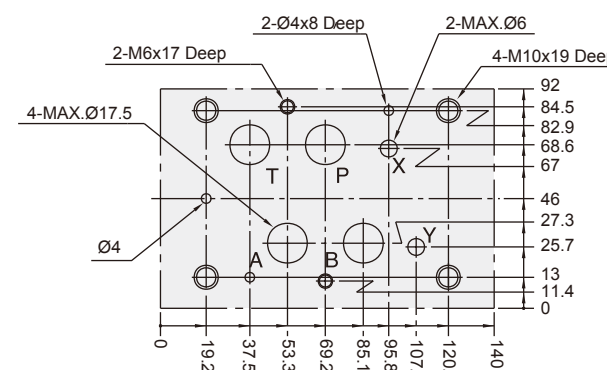
Pressure Drop at 95 L/min (25 USgpm)

Spool Type	Description	P→A	B→T	P→B	A→T	P→T
0 (H)	Open Center (all ports)	1.72 (25)	2.76 (40)	1.72 (25)	1.72 (25)	2.76 (40)
2 (E)	Closed Center (all ports)	2.41(35)	3.10 (45)	2.41(35)	2.41(35)	-
3 (L)	Closed Center (P, B)	2.41(35)	3.10 (45)	2.41(35)	1.72 (25)	-
6 (J)	Closed Center (P only)	2.41(35)	3.10 (45)	2.41(35)	1.72 (25)	-
8 (G)	Tandem Center (P to T)	2.41(35)	4.14 (60)	2.41(35)	3.45 (50)	4.14(60)
33 (W)	Closed Center (bleed AB)	2.41(35)	3.10 (45)	2.41(35)	2.41(35)	-

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports) VALVE

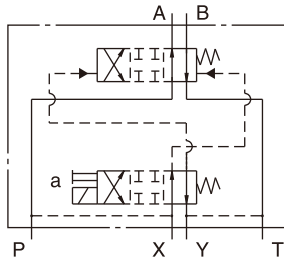
■ Mounting Surface: ISO 4401-AD-07-4-A



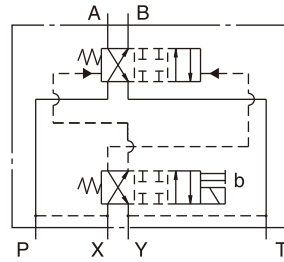
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07S SIZE 16

HYDRAULIC CONFIGURATION:

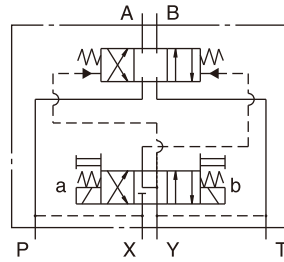
■ DG07S-E-2A-T-*-**
(*A)



■ DG07S-E-2AL-T-*-**
(*AL)

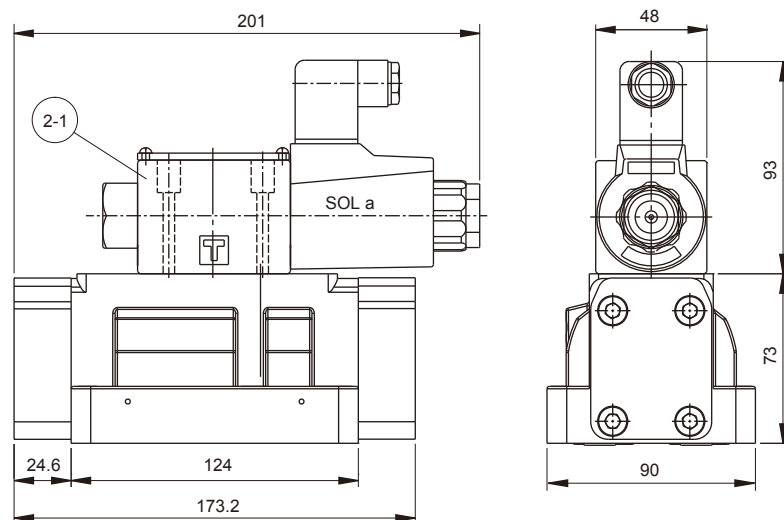


■ DG07S-E-*C-T-*-**

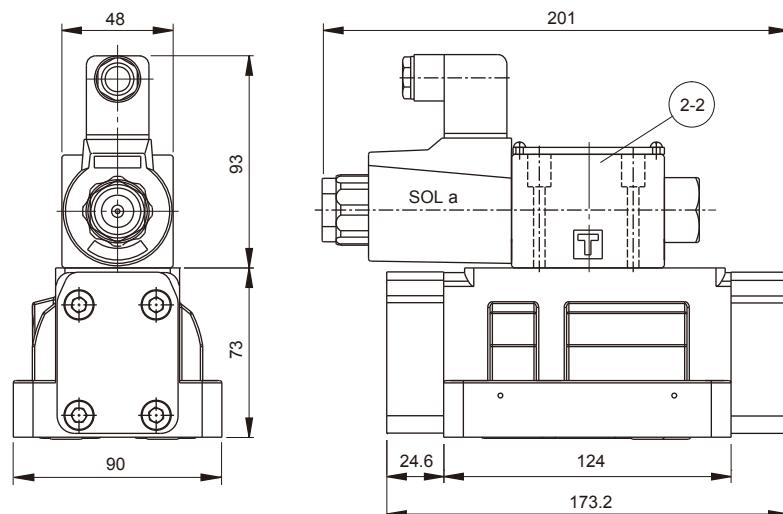


DIMENSIONS:

■ DG07S-E1- *A-A*-DN-82
*B



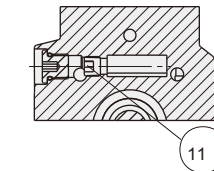
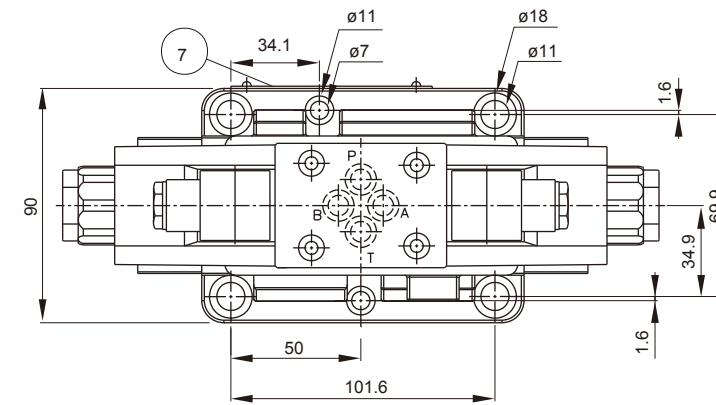
■ DG07S-E1- *AL-A*-DN-82
*BL



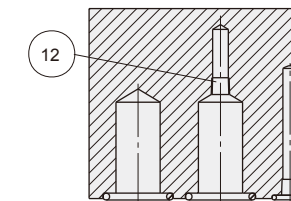
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG07S SIZE 16

DIMENSIONS:

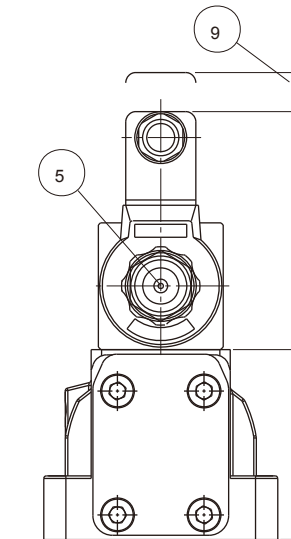
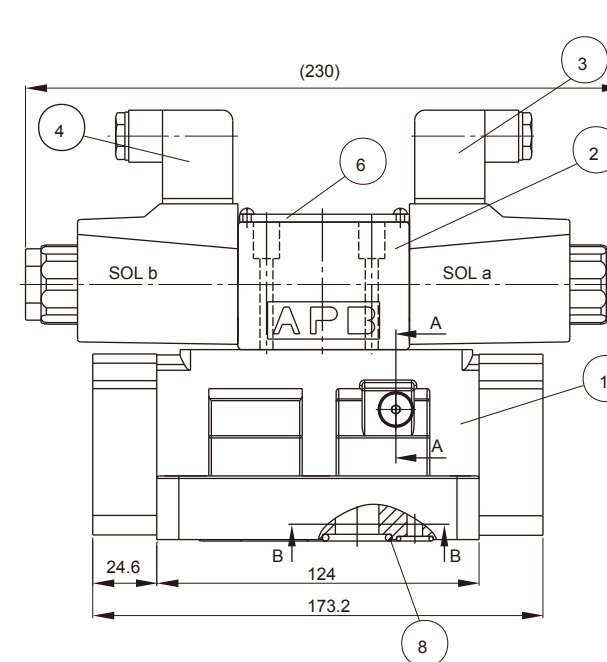
■ DG07S-E1-*C-A*-DN-82



SEC. A-A
Pilot oil drain (plug: PT1/16")
External: 11 plugged
Internal: 11 open



SEC. B-B
Pilot oil drain (plug: PT1/16")
External: 12 plugged
Internal: 12 open



- 1: Main valve
- 2: Pilot valve
- 2-1: Pilot valve DSV/DSD-G02-2A-* (1 solenoid) for main valves with spools *A, *B (3 position valve with solenoid on side a)
- 2-2: Pilot valve DSV/DSD-G02-2AL-* (1 solenoid) for main valves with spools *AL, *BL (3 position valve with solenoid on side b)
- 2-3: Pilot valve DSV/DSD-G02-6C-* (2 solenoid) for main valves with 3 positions

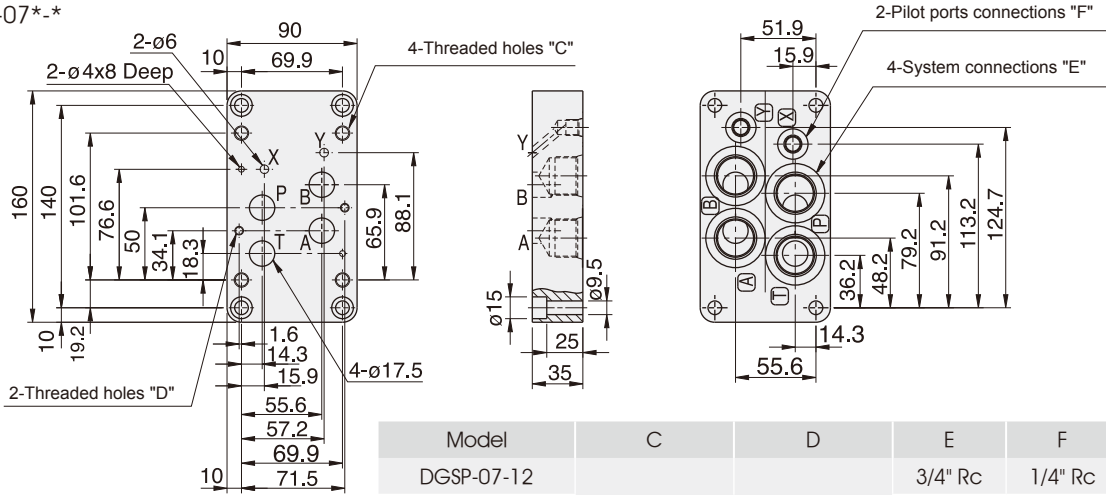
- 3: Solenoid a
- 4: Solenoid b
- 5: Push pin for manual operation
- 6: Nameplate for pilot valve
- 7: Nameplate for whole valve
- 8: O-ring:
Ports A,B,P,T: AS568-118 (NBR,Hs90);
Ports X,Y: AS568-013 (NBR,Hs90)
- 9: Space required to remove plug

SOLENOID CONTROLLED PILOT
OPERATED DIRECTIONAL VALVE DG07S SIZE 16

SUBPLATE DIMENSIONS:

Bottom Connection

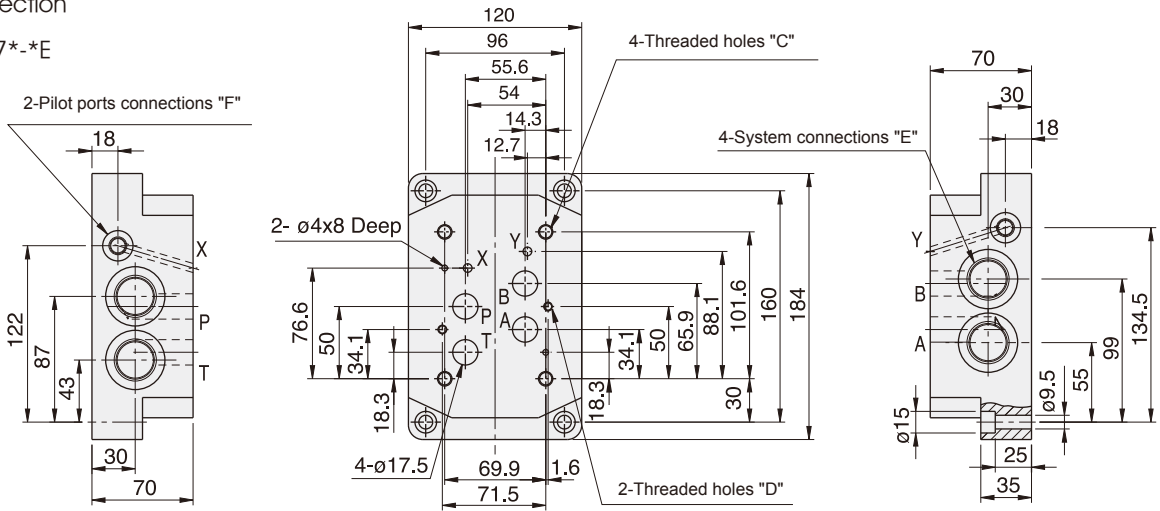
■ DGSP-07*-*



Model	C	D	E	F	Weight
DGSP-07-12	M10 x 19 Deep (Min)	M6 x 14 Deep (Min)	3/4" Rc	1/4" Rc	2.8 kgs
DGSP-07-16			1" Rc	1/4" Rc	2.8 kgs
DGSP-07G-12			3/4" BSP	1/4" BSP	2.8 kgs
DGSP-07G-16			1" BSP	1/4" BSP	2.8 kgs
DGSP-07N-12	3/8"-16UNC-2B Thd. x 3/4" Deep	1/4"-20UNC-2B Thd. x 9/16" Deep	3/4" NPT	1/4" NPT	2.8 kgs
DGSP-07N-16			1" NPT	1/4" NPT	2.8 kgs
DGSP-07S-12			3/4" SAE	1/4" SAE	2.8 kgs
DGSP-07S-16			1" SAE	1/4" SAE	2.8 kgs

Side Connection

■ DGSP-07*-*E



Model	C	D	E	F	Weight
DGSP-07-12E	M10 x 19 Deep (Min)	M6 x 14 Deep (Min)	3/4" Rc	1/4" Rc	3.8 kgs
DGSP-07-16E			1" Rc	1/4" Rc	3.8 kgs
DGSP-07G-12E			3/4" BSP	1/4" BSP	3.8 kgs
DGSP-07G-16E			1" BSP	1/4" BSP	3.8 kgs
DGSP-07N-12E	3/8"-16UNC-2B Thd. x 3/4" Deep	1/4"-20UNC-2B Thd. x 9/16" Deep	3/4" NPT	1/4" NPT	3.8 kgs
DGSP-07N-16E			1" NPT	1/4" NPT	3.8 kgs
DGSP-07S-12E			3/4" SAE	1/4" SAE	3.8 kgs
DGSP-07S-16E			1" SAE	1/4" SAE	3.8 kgs

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

FEATURES :

- Highest performance in NG 22
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Manual overrides standard
- P port pilot pressure insert for open center spools
- Connections to DIN, ISO and CETOP



Model: DG08

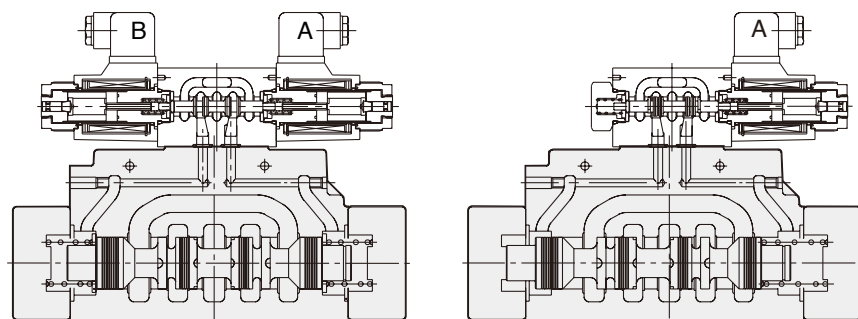
SPECIFICATION :

Maximum Flow Rate		450 L/Min (119 GPM)
Maximum Operating Pressure		320 Bar (4500 PSI)
Maximum Permissible Back Pressure		160 Bar (2285 PSI)
Pilot Pressure		11~210 bar
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Maximum Change over Frequency		120 Times/Min
Mounting Pattern		ISO 4401-AE-08-4-A
Approx. Weight (Valve with hydraulic operation)		12.5 kg
Valve Fixing Screws	Metric	M12 x 60L (6 pcs)
	Inch	1/2"~1.3UNCx2-1/4"L (6 pcs)
Tightening Torque		100~122.5 Nm (M10)

CROSS SECTION DIAGRAM:

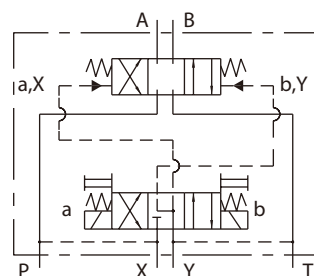
■ DG08-E1-2C-T-A*-DN-82

■ DG08-E1-2A-T-A*-DN-82



GRAPHIC SYMBOL:

■ DG08-E-*C-T-*-*



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

ORDERING CODE :

D G 08 - E1 - 2 C - E T - A110 - DN - 82 - **
1 2 3 4 5 6 7 8 9 10 11 12

1 DIRECTIONAL CONTROL VALVE

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 22, CETOP 8 and ISO 4401-08 (NFPA-D08/DIN 24340)

4 OPERATOR

No code: Hydraulic (pilot) operation

E1: DSV/DSD electro-hydraulic operation

E2: DG electro-hydraulic operation

5 TYPE OF SPOOL (CENTER CONDITION)

0	1	2	3	5	6
7	8	11	22	31	33

0: Open center (All ports)

1: Open center (P, A to T)

2: Closed center (All ports)

3: Closed center (P, B)

5: Closed center (T, B)

6: Closed center (P only)

7: Open center (P to A, B)

8: Tandem center (P to T)

11: Open center (P, B to T)

22: Closed center (Two way)

31: Closed center (P, A)

33: Closed center (Bleed A,B)

6 SPRING CRACKING PRESSURE

A: Spring offset

AL: Same with A

B: Spring centered-single solenoid "A" removed

BL: Same with B

C: Spring centered

N: Without spring with detent (pilot only)

7 EXTERNAL PILOT PRESSURE

No code: Internal Pilot

E: External Pilot

8 INTERNAL PILOT DRAIN

No code: External Drain

T: Internal Drain

9 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz

A120: AC110V, 50 Hz; AC120V, 60 Hz

A220: AC200V, 50/60 Hz; AC220V, 60 Hz

A240: AC220V, 50 Hz; AC240V, 60 Hz

DC12: DC12V

DC24: DC24V

R110: AC110V, 60 Hz; Rectifier built-in type

R220: AC220V, 60 Hz; Rectifier built-in type

10 ELECTRICAL OPTIONS:

DN: DIN 43650 Coils with indicator lights

DNO: DIN 43650 Coils without indicator lights

WB: Wiring housing with G1/2 thread and indicator lights

11 DESIGN NUMBER

82

12 OPTIONAL INQUIRY

P: P Check

SA: Stroke Adjustment on A Port

SB: Stroke Adjustment on B Port

SW: Stroke Adjustment on Both A & B Port

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DG08-0C 	DG08-0B 	DG08-0BL
1 (F)	DG08-1C 	DG08-1B 	DG08-1BL
2 (E)	DG08-2C 	DG08-2B 	DG08-2BL
3 (L)	DG08-3C 	DG08-3B 	DG08-3BL
5	DG08-5C 	DG08-5B 	DG08-5BL
6 (J)	DG08-6C 	DG08-6B 	DG08-6BL
7 (M)	DG08-7C 	DG08-7B 	DG08-7BL
8 (G)	DG08-8C 	DG08-8B 	DG08-8BL
11 (P)	DG08-11C 	DG08-11B 	DG08-11BL
31 (U)	DG08-31C 	DG08-31B 	DG08-31BL
33 (W)	DG08-33C 	DG08-33B 	DG08-33BL

*() : Rexroth Model

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

SPOOL TYPES:

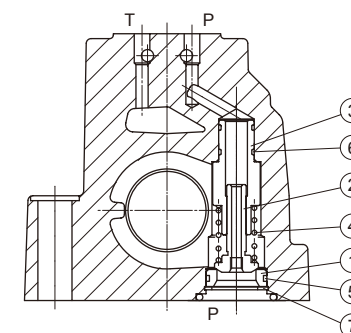
Position type during transition	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)	DG08-0A 	DG08-0AL
2 (E)	DG08-2A 	DG08-2AL
6 (J)	DG08-6A 	DG08-6AL
7 (M)	DG08-7A 	DG08-7AL
22 (A)	DG08-22A 	DG08-22AL

*() : Rexroth Model

P CHECK

■ DG08-E-*. *-82-P

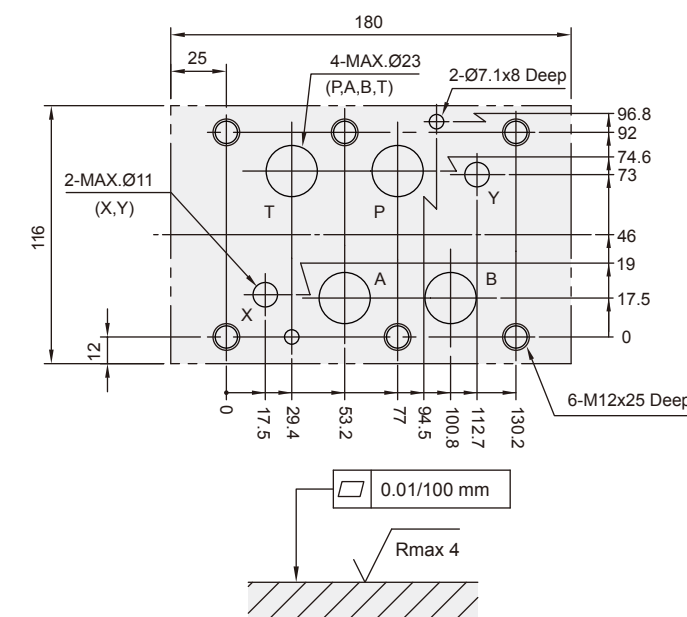
- 1.Seat
- 2.Poppet
- 3.Spring Retainer
- 4.Spring
- 5.O-Ring
- 6.O-Ring
- 7.C-retaining ring



INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

■ Mounting Surface: ISO 4401-AE-08-4-A



Required surface finish of
mating piece when fitting the
valve without subplate

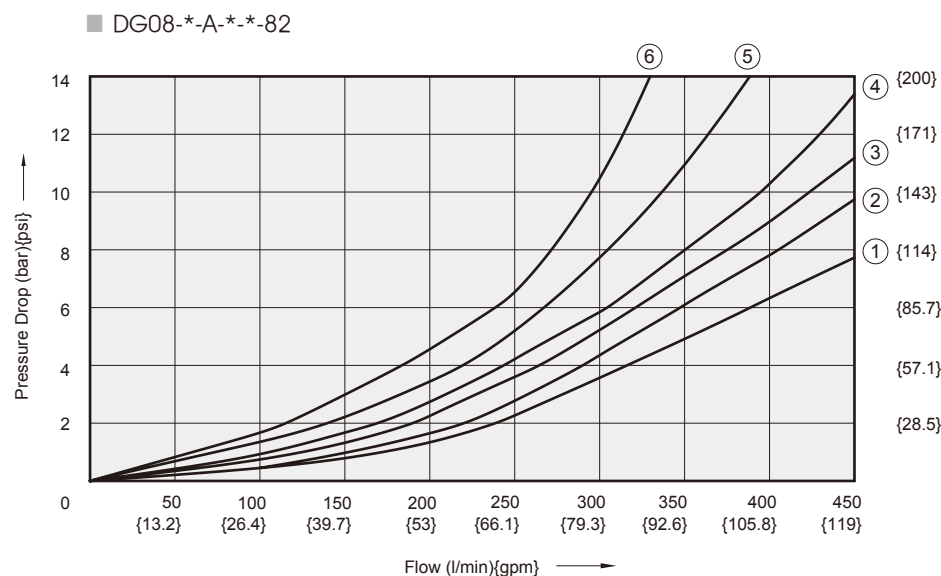
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

PERFORMANCE FIGURES & CURVES:

Pressure Drop Curve Reference Chart

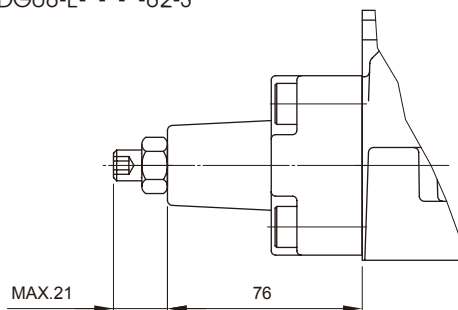
Viscosity of Hydraulic Fluid: 41 mm²/s

Spool Type	Pressure Drop Characteristics				
	P→A	P→B	A→T	B→T	P→T
0C (H)	2	2	1	3	2
1C (F)	1	2	1	2	4
2C (E)	2	2	1	4	-
3C (L)	2	2	1	2	-
6C (J)	2	2	1	3	-
7C (M)	2	2	1	4	-
8C (G)	2	2	2	4	6
11C (P)	2	2	1	4	6
31C (U)	2	2	1	4	-
33C (W)	2	2	1	3	-
0A (H)	2	2	1	3	-
2A (E)	2	2	1	4	-



STROKE ADJUSTMENT:

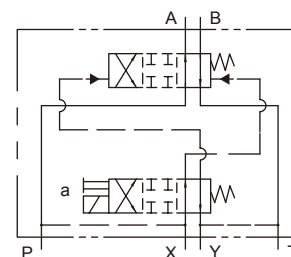
■ DG08-E-*A*-*A*-*A*-82-S



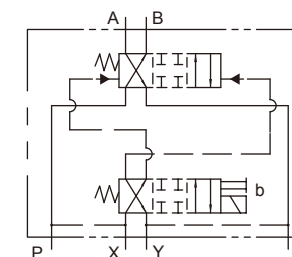
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

HYDRAULIC CONFIGURATION:

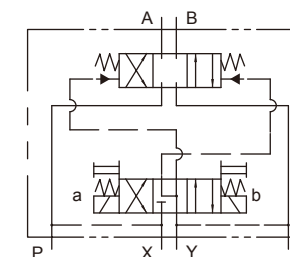
■ DG08-E-2A-T-*A*-*A*-*A*
(*A)



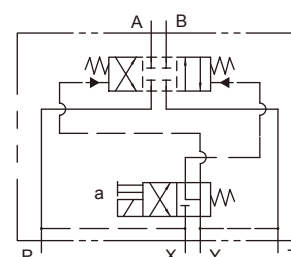
■ DG08-E-2AL-T-*A*-*A*-*A*
(*AL)



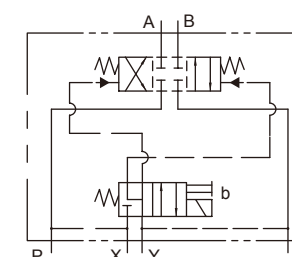
■ DG08-E-*C*-T-*A*-*A*-*A*



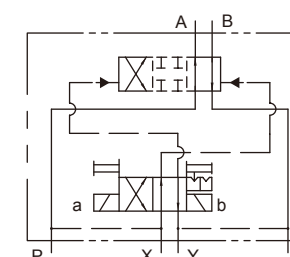
■ DG08-E-2B-T-*A*-*A*-*A*
(*B)



■ DG08-E-2BL-T-*A*-*A*-*A*
(*BL)

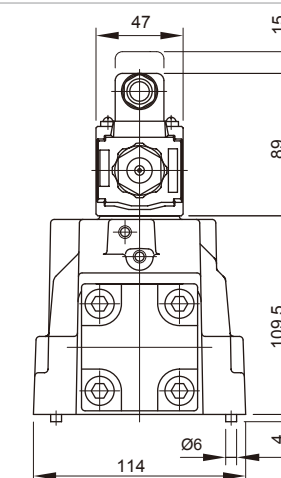
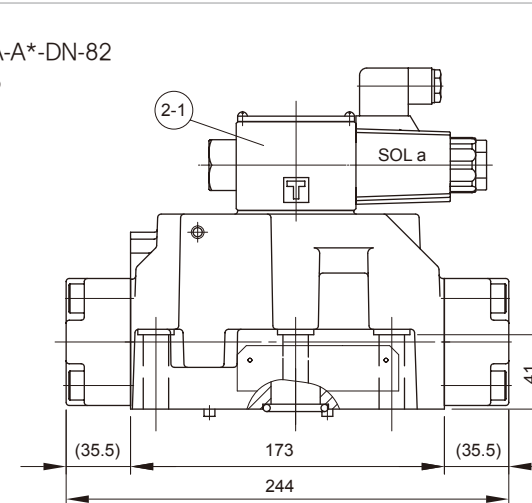


■ DG08-E-*N*-T-*A*-*A*-*A*

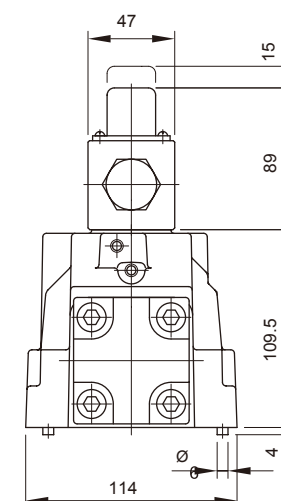
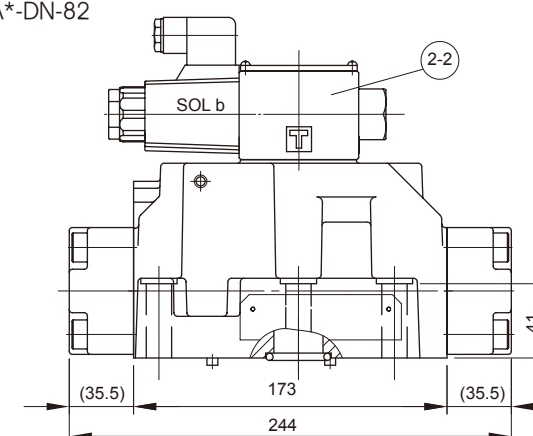


DIMENSIONS:

■ DG08-E1- *A*-*A*-*A*-DN-82
*B



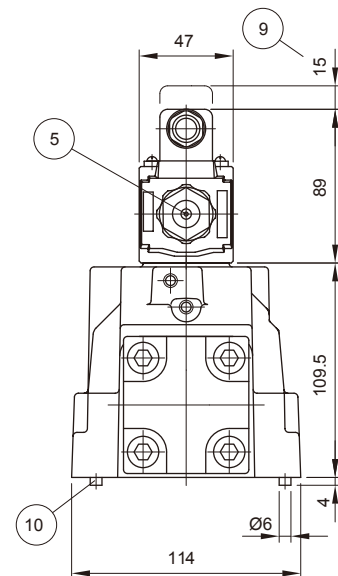
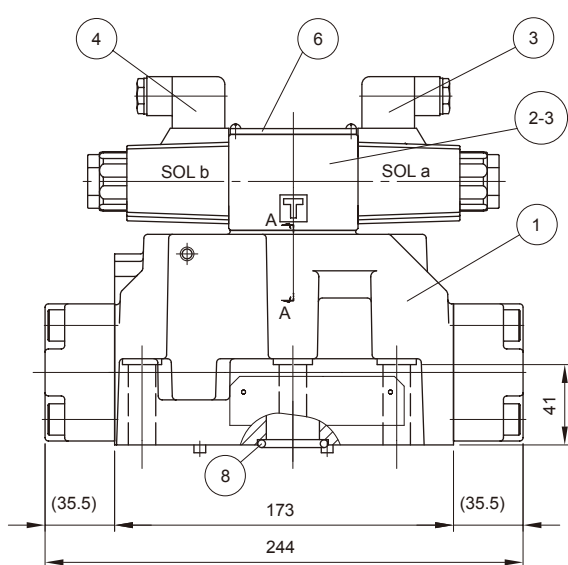
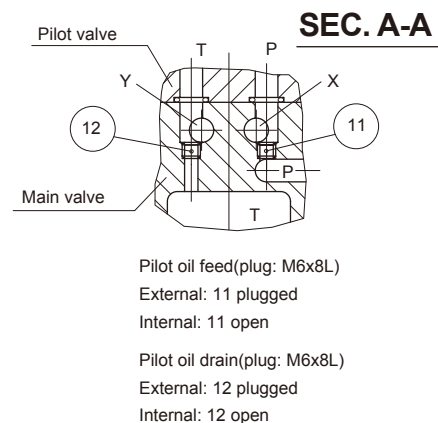
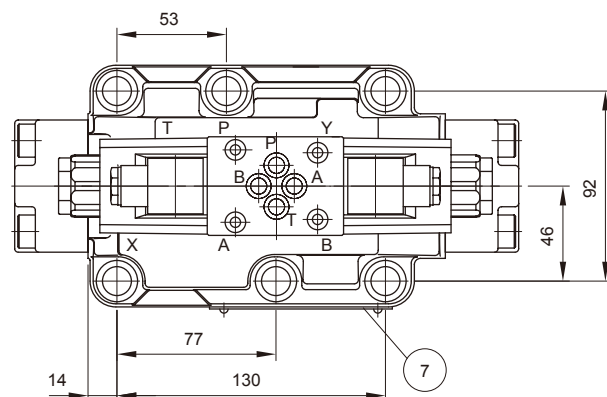
■ DG08-E1- *AL*-*A*-*A*-DN-82
*BL



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

DIMENSIONS:

■ DG08-E1-*C-A*-DN-82



1: Main valve

2: Pilot valve

2-1: Pilot valve DSV/DSD-G02-2A-* (1 solenoid)
for main valves with spools *A, *B
(3 position valve with solenoid on side a)

2-2: Pilot valve DSV/DSD-G02-2AL-* (1 solenoid)
for main valves with spools *AL, *BL
(3 position valve with solenoid on side b)

2-3: Pilot valve DSV/DSD-G02-6C-* (2 solenoid)
for main valves with 3 positions

3: Solenoid a

4: Solenoid b

5: Push pin for manual operation

6: Nameplate for pilot valve

7: Nameplate for whole valve

8: O-ring:

Ports A,B,P,T: AS568-215 (NBR,Hs90);

Ports X,Y: AS568-210 (NBR,Hs90)

9: Space required to remove plug

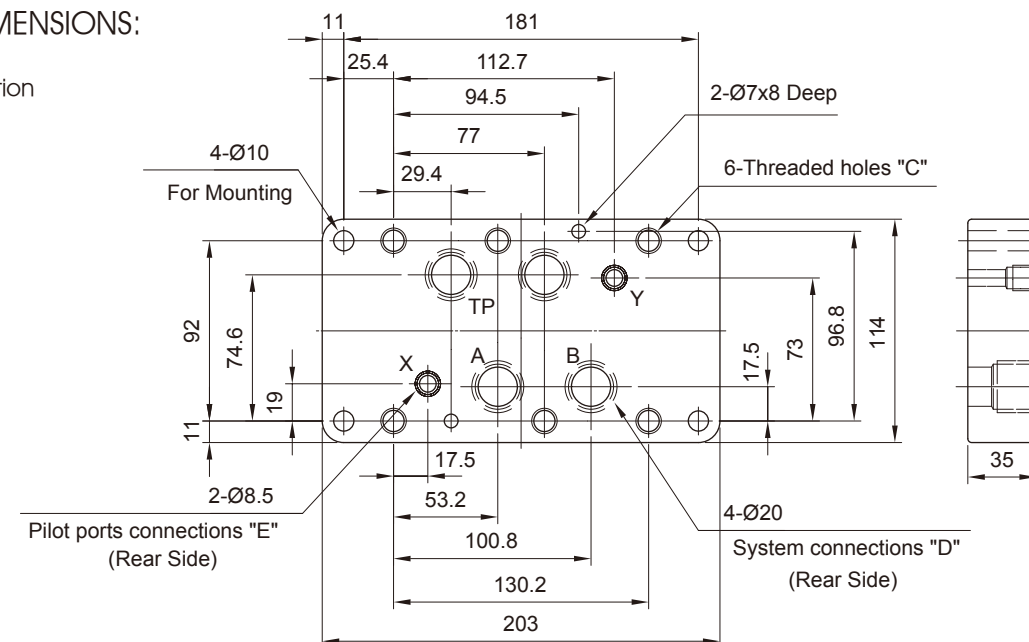
10: Locating pin

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08 SIZE 22

SUBPLATE DIMENSIONS:

Bottom Connection

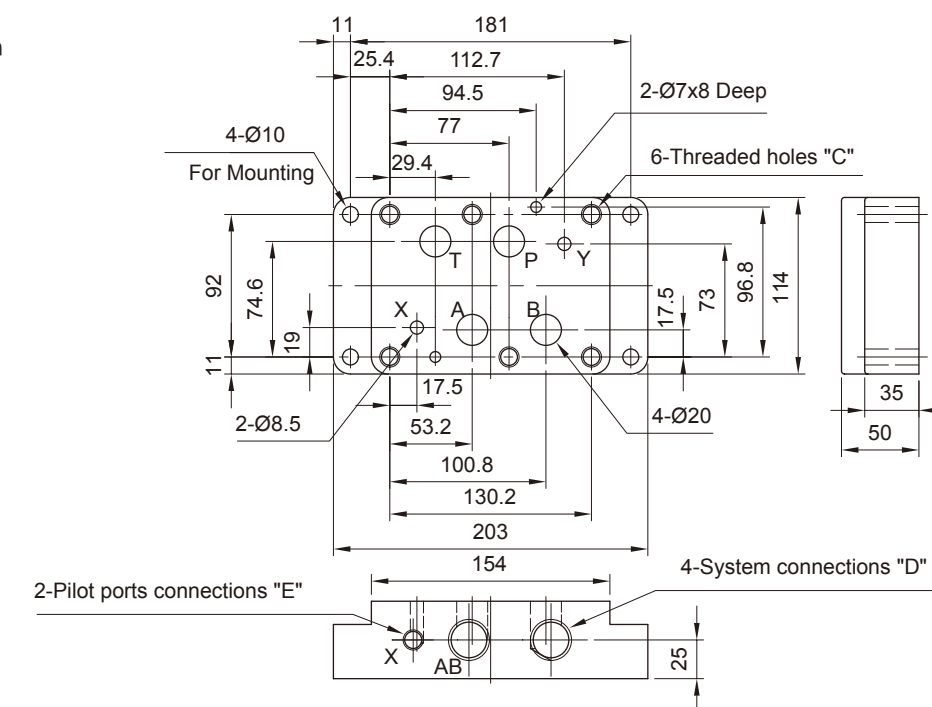
■ DGSP-08*-*



Model	C	D	E	Weight	Model	C	D	E	Weight
DGSP-08-12		3/4" Rc	1/4" RC	4.8 kgs	DGSP-08N-12		3/4" NPT	1/4" RC	4.8 kgs
DGSP-08-16	M12x25 Deep (min)	1" Rc	1/4" RC	4.8 kgs	DGSP-08N-16	1/2"~13UNC-2B	1" NPT	1/4" RC	4.8 kgs
DGSP-08G-12	Full Thread Depth	3/4" BSP	1/4" BSP	4.8 kgs	DGSP-08S-12	Thd. x 1" Deep Full	3/4" SAE	1/4" BSP	4.8 kgs
DGSP-08G-16		1" BSP	1/4" BSP	4.8 kgs	DGSP-08S-16	Thread Depth	1" SAE	1/4" BSP	4.8 kgs

Side Connection

■ DGSP-08*-*E

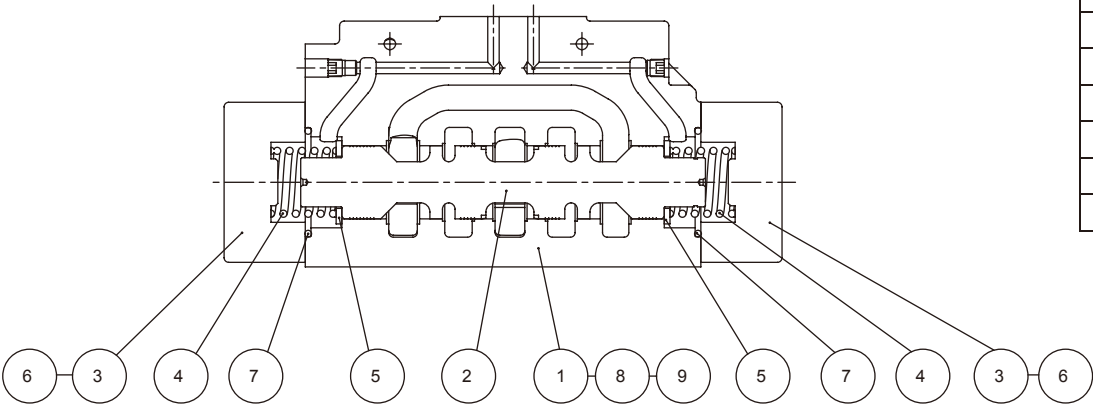


Model	C	D	E	Weight	Model	C	D	E	Weight
DGSP-08-12E		3/4" Rc	1/4" RC	6.4 kgs	DGSP-08N-12E		3/4" NPT	1/4" RC	6.4 kgs
DGSP-08-16E	M12x25 Deep (min)	1" Rc	1/4" RC	6.4 kgs	DGSP-08N-16E	1/2"~13UNC-2B	1" NPT	1/4" RC	6.4 kgs
DGSP-08G-12E	Full Thread Depth	3/4" BSP	1/4" BSP	6.4 kgs	DGSP-08S-12E	Thd. x 1" Deep Full	3/4" SAE	1/4" BSP	6.4 kgs
DGSP-08G-16E		1" BSP	1/4" BSP	6.4 kgs	DGSP-08S-16E	Thread Depth	1" SAE	1/4" BSP	6.4 kgs

**SOLENOID CONTROLLED PILOT
OPERATED DIRECTIONAL VALVE DG08 SIZE 22**

CROSS SECTION DRAWING

■ DG08-E1-2C-T-A



No.	Parts Name
1	Body
2	Spool
3	Cover
4	Spring
5	Washer
6	Screw
7	O Ring
8	O Ring
9	O Ring

Parts No.	Parts Name	Specification	Port	Q'ty
7	O Ring	42 x 48.2 x 3		2
8	O Ring	AS568-210 N90	X, Y	2
9	O Ring	AS568-215 N90	A, B, P, T	4

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

FEATURES :

- Highest performance in NG 25
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Manual overrides standard
- P port pilot pressure insert for open center spools
- Connections to DIN, ISO and CETOP



Model: DG08H

SPECIFICATION :

Maximum Flow Rate		700 L/Min (79 GPM)
Maximum Operating Pressure		320 Bar (4500 PSI)
Maximum Permissible Back Pressure		160 Bar (2285 PSI)
Pilot Pressure		13~250 bar
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Maximum Change over Frequency		120 Times/Min
Mounting Pattern		ISO 4401-AE-08-4-A
Approx. Weight (Valve with hydraulic operation)		17.0 kg
Valve Fixing Screws	Metric	M12 x 60L (6 pcs)
	Inch	1/2"~13UNCx2-1/4"L (6 pcs)
Tightening Torque		100~122.5 Nm (M6)

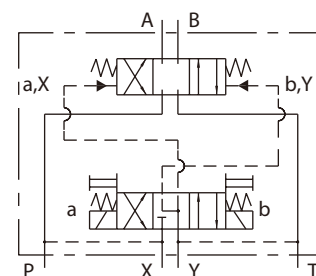
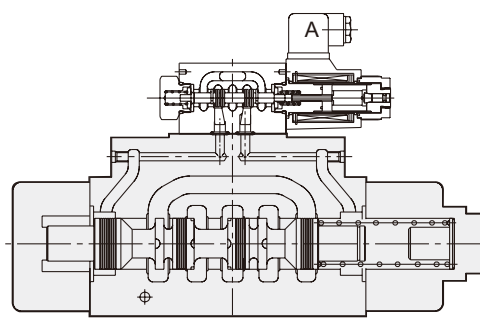
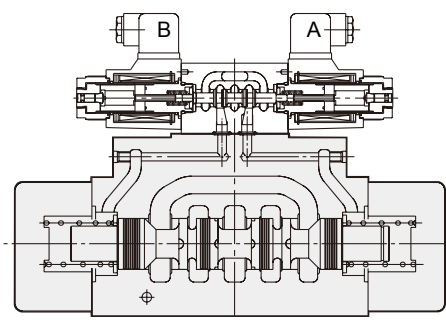
CROSS SECTION DIAGRAM:

■ DG08H-E1-2C-T-A*-DN-82

■ DG08H-E1-2A-T-A*-DN-82

GRAPHIC SYMBOL:

■ DG08H-E-*C-T-*-*



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

ORDERING CODE :

D G 08H- E1 - 2 C - E T - A110 - DN - 82 - **
1 2 3 4 5 6 7 8 9 10 11 12

1 DIRECTIONAL CONTROL VALVE

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 25, CETOP 8 and ISO 4401-08 (NFPA-D08/DIN 24340)

4 OPERATOR

No code: Hydraulic (pilot) operation

E1: DSV/DSD electro-hydraulic operation

E2: DG electro-hydraulic operation

5 TYPE OF SPOOL (CENTER CONDITION)

0	1	2	3	6	7
8	11	22	31	33	

0: Open center (All ports)

1: Open center (P, A to T)

2: Closed center (All ports)

3: Closed center (P, B)

6: Closed center (P only)

7: Open center (P to A, B)

8: Tandem center (P to T)

11: Open center (P, B to T)

22: Closed center (Two way)

31: Closed center (P, A)

33: Closed center (Bleed A,B)

6 SPRING CRACKING PRESSURE

A: Spring offset

AL: Same with A

B: Spring centered-single solenoid "A" removed

BL: Same with B

C: Spring centered

N: Without spring with detent (pilot only)

7 EXTERNAL PILOT PRESSURE

No code: Internal Pilot

E: External Pilot

8 INTERNAL PILOT DRAIN

No code: External Drain

T: Internal Drain

9 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz

A120: AC110V, 50 Hz; AC120V, 60 Hz

A220: AC200V, 50/60 Hz; AC220V, 60 Hz

A240: AC220V, 50 Hz; AC240V, 60 Hz

DC12: DC12V

DC24: DC24V

R110: AC110V, 60 Hz; Rectifier built-in type

R220: AC220V, 60 Hz; Rectifier built-in type

10 ELECTRICAL OPTIONS:

DN: DIN 43650 Coils with indicator lights

DNO: DIN 43650 Coils without indicator lights

WB: Wiring housing with G1/2 thread and indicator lights

11 DESIGN NUMBER

82

12 OPTIONAL INQUIRY

P: P Check

SA: Stroke Adjustment on A Port

SB: Stroke Adjustment on B Port

SW: Stroke Adjustment on Both A & B Port

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DG08H-0C 	DG08H-0B 	DG08H-0BL
1 (F)	DG08H-1C 	DG08H-1B 	DG08H-1BL
2 (E)	DG08H-2C 	DG08H-2B 	DG08H-2BL
3 (L)	DG08H-3C 	DG08H-3B 	DG08H-3BL
6 (J)	DG08H-6C 	DG08H-6B 	DG08H-6BL
7 (M)	DG08H-7C 	DG08H-7B 	DG08H-7BL
8 (G)	DG08H-8C 	DG08H-8B 	DG08H-8BL
11 (P)	DG08H-11C 	DG08H-11B 	DG08H-11BL
31 (U)	DG08H-31C 	DG08H-31B 	DG08H-31BL
33 (W)	DG08H-33C 	DG08H-33B 	DG08H-33BL

*() : Rexroth Model

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

SPOOL TYPES:

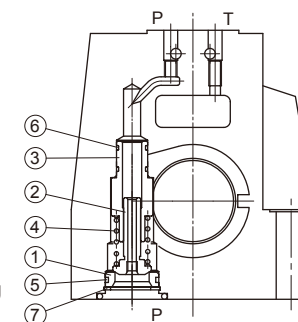
Position type during transition	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)	DG08H-0A 	DG08H-0AL
2 (E)	DG08H-2A 	DG08H-2AL
6 (J)	DG08H-6A 	DG08H-6AL
7 (M)	DG08H-7A 	DG08H-7AL
22 (A)	DG08H-22A 	DG08H-22AL

*() : Rexroth Model

P CHECK

■ DG08-H-*.**.-82-P

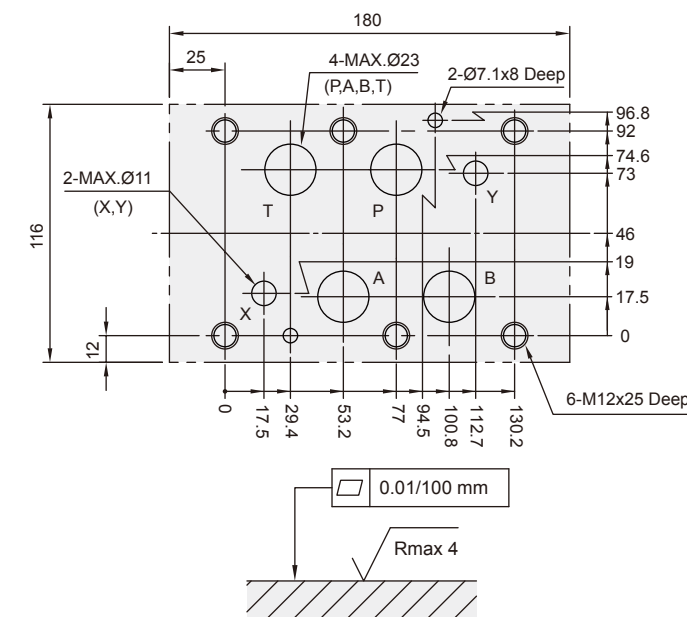
- 1.Seat
- 2.Poppet
- 3.Spring Retainer
- 4.Spring
- 5.O-Ring
- 6.O-Ring
- 7.C-retaining ring



INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

■ Mounting Surface: ISO 4401-AE-08-4-A



Required surface finish of
mating piece when fitting the
valve without subplate

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

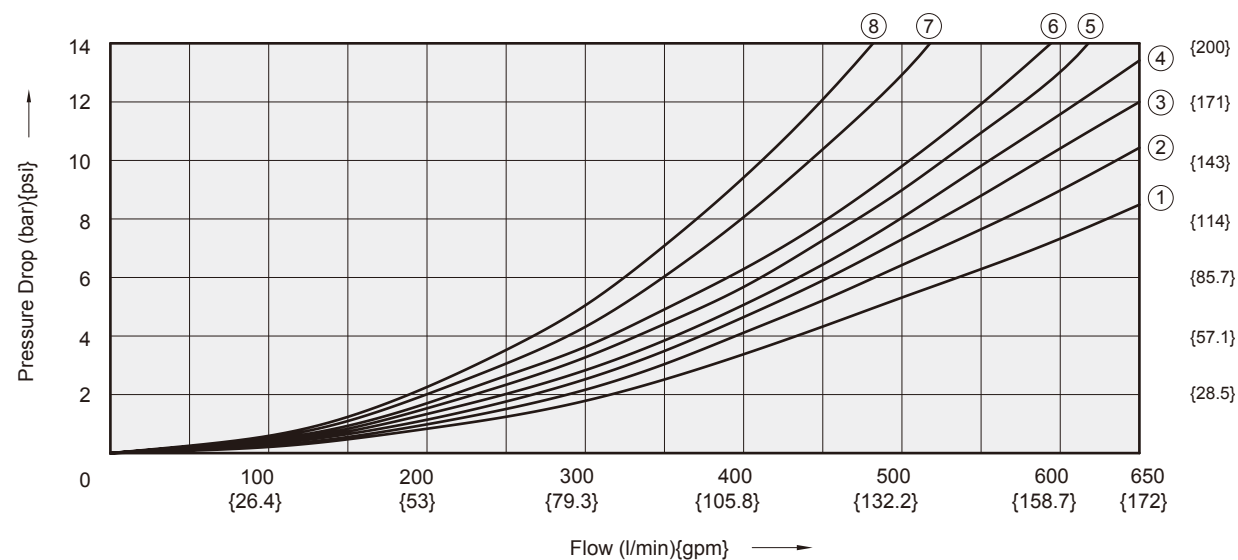
PERFORMANCE FIGURES & CURVES:

Pressure Drop Curve Reference Chart

Viscosity of Hydraulic Fluid: 41 mm²/s

Spool Type	Pressure Drop Characteristics				
	P→A	P→B	A→T	B→T	P→T
0C (H)	4	4	3	4	-
1C (F)	1	4	3	3	-
2C (E)	1	1	1	3	-
3C (L)	2	2	3	3	-
6C (J)	2	2	3	5	-
7C (M)	4	4	1	4	-
8C (G)	3	1	2	4	7
11C (P)	4	1	1	5	-
31C (U)	2	1	1	6	-
33C (W)	2	2	3	5	-

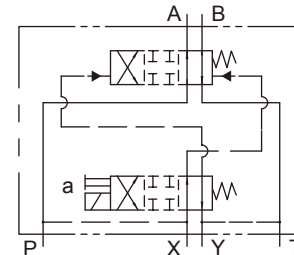
■ DG08H-*A*-*82



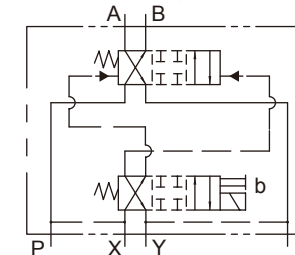
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

HYDRAULIC CONFIGURATION:

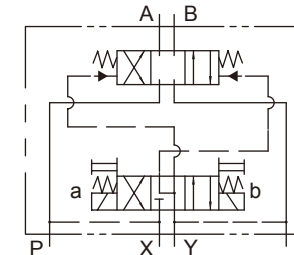
■ DG08H-E-2A-T-*-*
(*A)



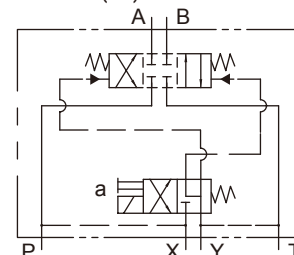
■ DG08H-E-2AL-T-*-*
(*AL)



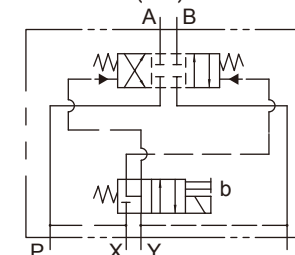
■ DG08H-E-*C-T-*-*



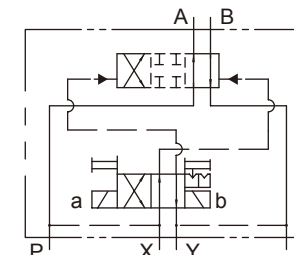
■ DG08H-E-2B-T-*-*
(*B)



■ DG08H-E-2BL-T-*-*
(*BL)

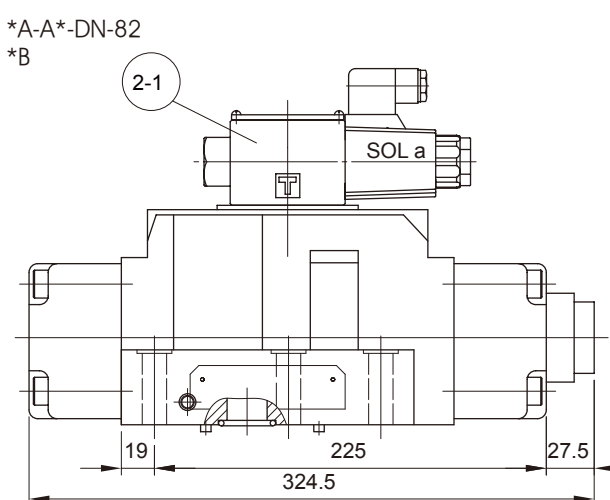


■ DG08H-E-*N-T-*-*

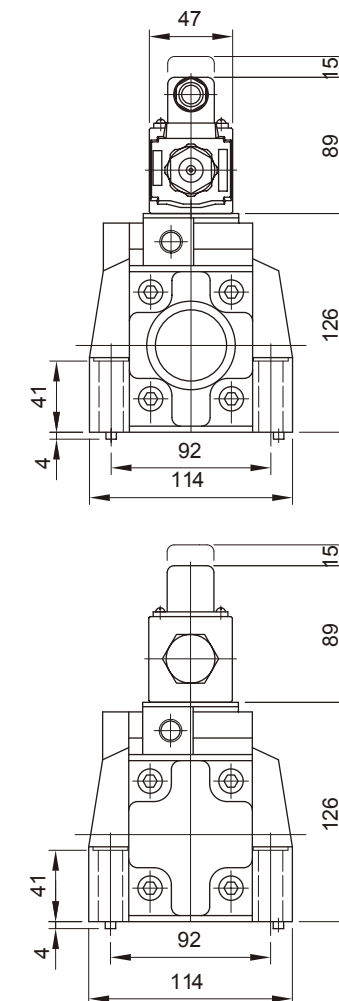
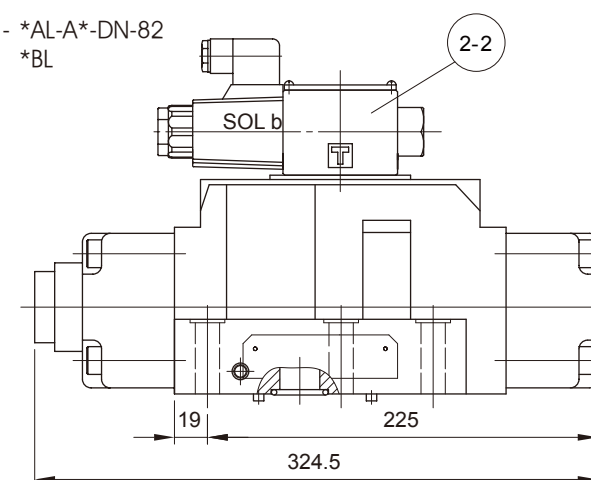


DIMENSIONS:

■ DG08H-E1- *A-A*-DN-82
*B



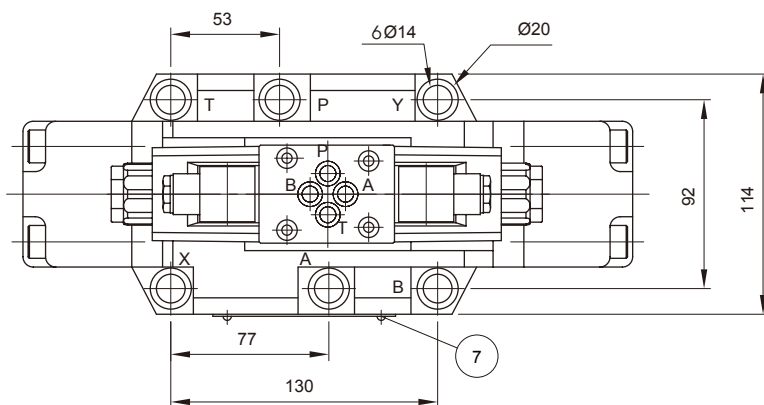
■ DG08H-E1- *AL-A*-DN-82
*BL



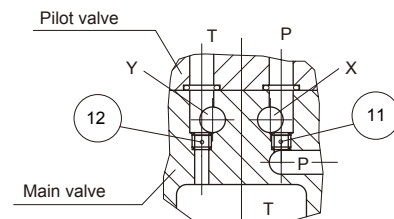
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

DIMENSIONS:

■ DG08H-E1-*C-A*-DN-82

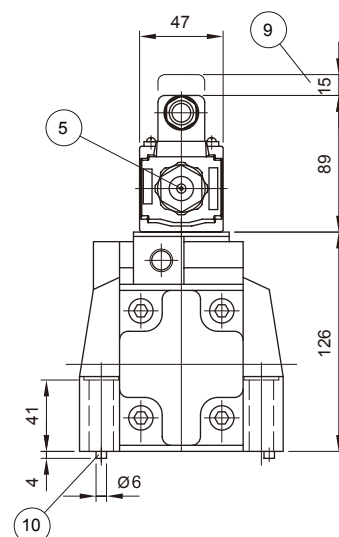
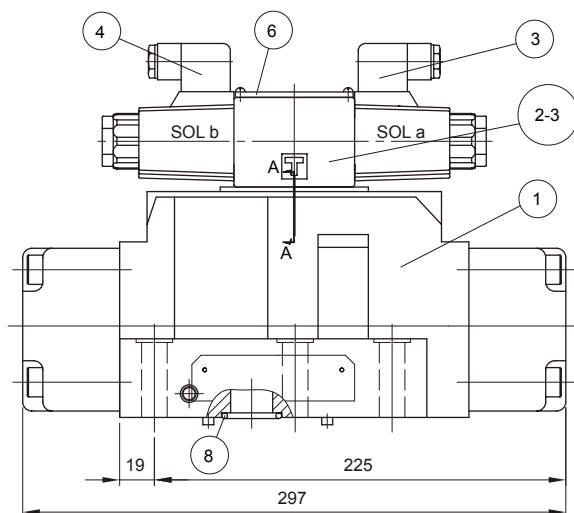


SEC. A-A



Pilot oil feed(plug: M6x8L)
External: 11 plugged
Internal: 11 open

Pilot oil drain(plug: M6x8L)
External: 12 plugged
Internal: 12 open



- 1: Main valve
- 2: Pilot valve
 - 2-1: Pilot valve DSV/DSD-G02-2A-* (1 solenoid)
for main valves with spools *A, *B
(3 position valve with solenoid on side a)
 - 2-2: Pilot valve DSV/DSD-G02-2AL-* (1 solenoid)
for main valves with spools *AL, *BL
(3 position valve with solenoid on side b)
 - 2-3: Pilot valve DSV/DSD-G02-6C-* (2 solenoid)
for main valves with 3 positions

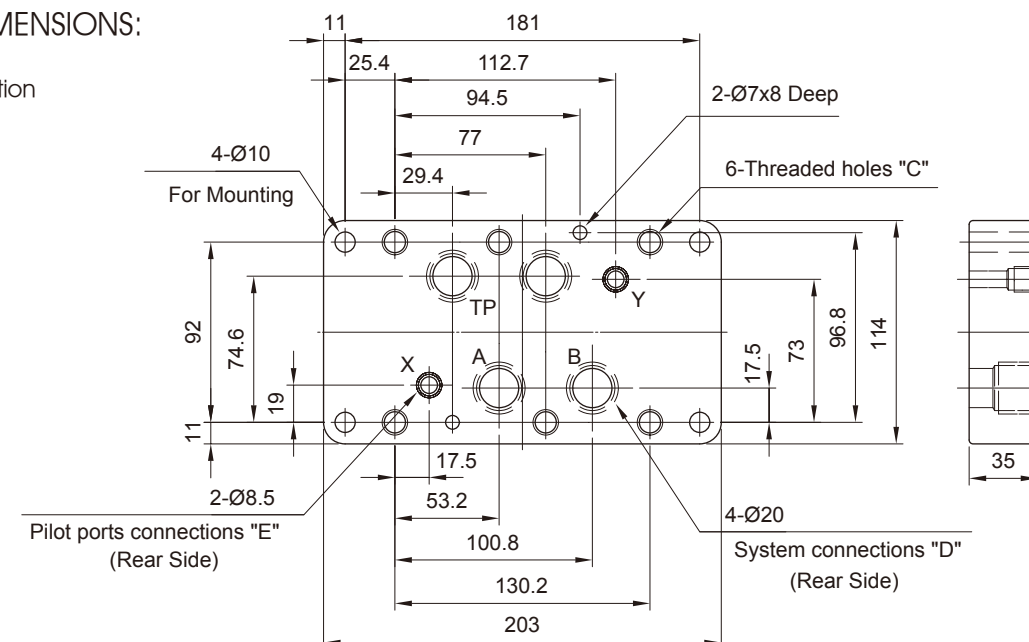
- 3: Solenoid a
- 4: Solenoid b
- 5: Push pin for manual operation
- 6: Nameplate for pilot valve
- 7: Nameplate for whole valve
- 8: O-ring:
Ports A,B,P,T: AS568-215 (NBR,Hs90);
Ports X,Y: AS568-210 (NBR,Hs90)
- 9: Space required to remove plug
- 10: Locating pin

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG08H SIZE 25

SUBPLATE DIMENSIONS:

Bottom Connection

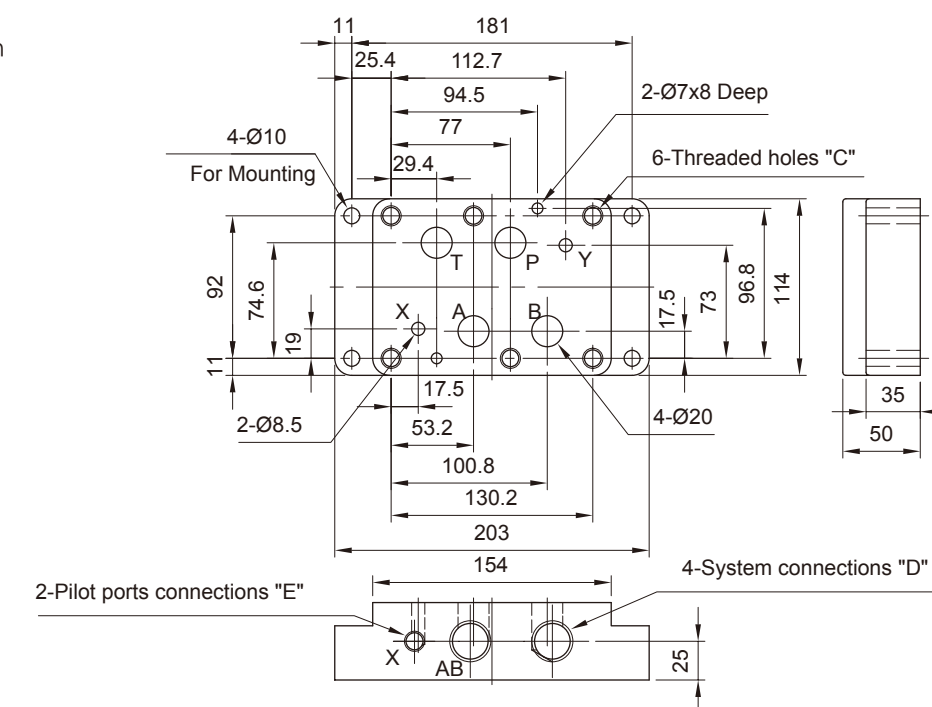
■ DGSP-08*-*



Model	C	D	E	Weight	Model	C	D	E	Weight
DGSP-08-12		3/4" Rc	1/4" RC	4.8 kgs	DGSP-08N-12		3/4" NPT	1/4" RC	4.8 kgs
DGSP-08-16	M12x25 Deep (min)	1" Rc	1/4" RC	4.8 kgs	DGSP-08N-16	1/2"~13UNC-2B	1" NPT	1/4" RC	4.8 kgs
DGSP-08G-12	Full Thread Depth	3/4" BSP	1/4" BSP	4.8 kgs	DGSP-08S-12	Thd. x 1" Deep Full	3/4" SAE	1/4" BSP	4.8 kgs
DGSP-08G-16		1" BSP	1/4" BSP	4.8 kgs	DGSP-08S-16	Thread Depth	1" SAE	1/4" BSP	4.8 kgs

Side Connection

■ DGSP-08*-*E

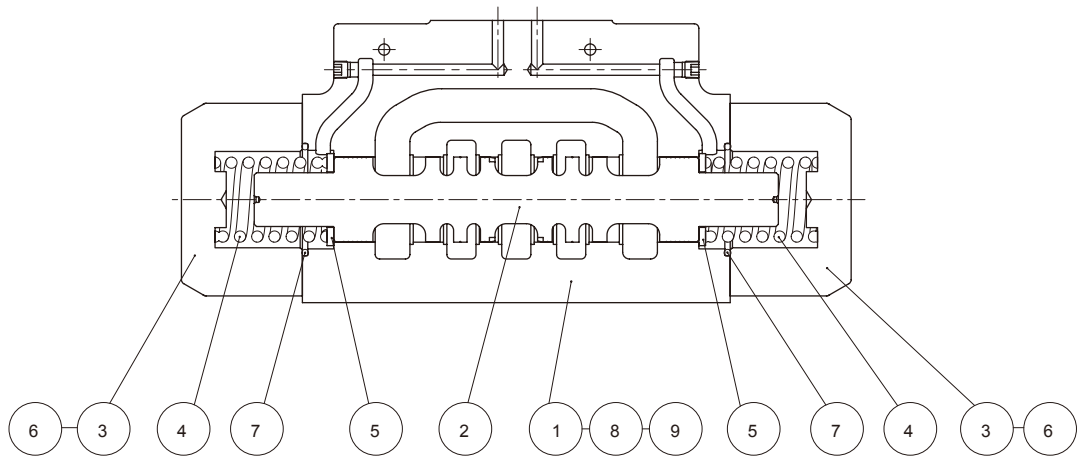


Model	C	D	E	Weight	Model	C	D	E	Weight
DGSP-08-12E		3/4" Rc	1/4" RC	6.4 kgs	DGSP-08N-12E		3/4" NPT	1/4" RC	6.4 kgs
DGSP-08-16E	M12x25 Deep (min)	1" Rc	1/4" RC	6.4 kgs	DGSP-08N-16E	1/2"~13UNC-2B	1" NPT	1/4" RC	6.4 kgs
DGSP-08G-12E	Full Thread Depth	3/4" BSP	1/4" BSP	6.4 kgs	DGSP-08S-12E	Thd. x 1" Deep Full	3/4" SAE	1/4" BSP	6.4 kgs
DGSP-08G-16E		1" BSP	1/4" BSP	6.4 kgs	DGSP-08S-16E	Thread Depth	1" SAE	1/4" BSP	6.4 kgs

**SOLENOID CONTROLLED PILOT
OPERATED DIRECTIONAL VALVE DG08H SIZE 25**

CROSS SECTION DRAWING

■ DG08H-E1-2C-T-A



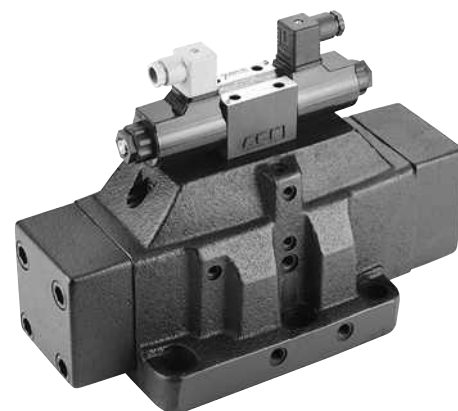
No.	Parts Name
1	Body
2	Spool
3	Cover
4	Spring
5	Washer
6	Screw
7	O Ring
8	O Ring
9	O Ring

Parts No.	Parts Name	Specification	Port	Q'ty
7	O Ring	G45 N90		2
8	O Ring	AS568-210 N90	X, Y	2
9	O Ring	AS568-215 N90	A, B, P, T	4

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DGIO SIZE 32

FEATURES :

- Highest performance in NG 32
- Optimized spool design to reduce flow force
- Proven quality through 10 million endurance test
- Manual overrides standard
- P port pilot pressure insert for open center spools
- Connections to DIN, ISO and CETOP



Model: DG10-E1-2C-T-DC24-DN82

SPECIFICATION :

Maximum Flow Rate		800 L/Min (211 GPM)
Maximum Operating Pressure		250 Bar (3571 PSI)
Maximum Permissible Back Pressure		160 Bar (2285 PSI)
Pilot Pressure		12~210 bar
Ambient Temperature Range		-15°C~+50°C
Hydraulic Fluid Temperature		-15°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Maximum Change over Frequency		120 Times/Min
Mounting Pattern		ISO 4401-AF-10-4-A
Approx. Weight (Valve with hydraulic operation)		43.0 kg
Valve Fixing Screws	Metric	M20 x 60L (6 pcs)
	Inch	3/4"~10UNCx2-1/2"L (6 pcs)
Tightening Torque		230~290 Nm (M6)

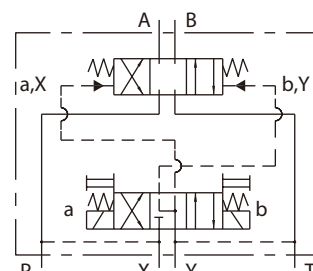
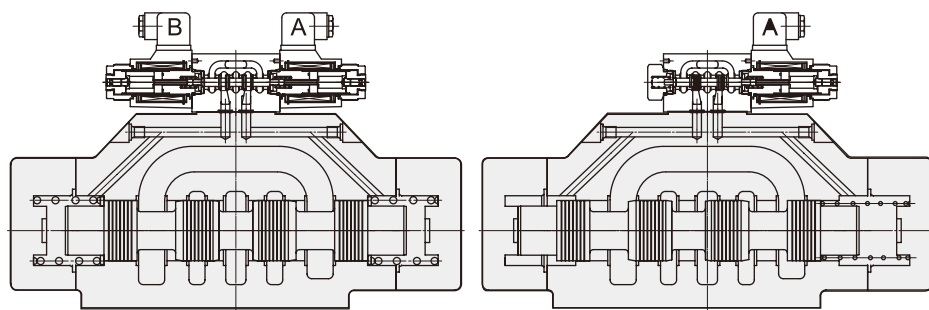
CROSS SECTION DIAGRAM:

■ DG10-E1-2C-T-A*-DN-82

■ DG10-E1-2A-T-A*-DN-82

GRAPHIC SYMBOL:

■ DG10-E-*C-T-*-*



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DGIO SIZE 32

ORDERING CODE :

D G 10 - E1 - 2 C - E T - A110 - DN - 82 - **
1 2 3 4 5 6 7 8 9 10 11 12

1 DIRECTIONAL CONTROL VALVE

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

NG 32, CETOP 10 and ISO 4401-10 (NFPA-D10/DIN 24340)

4 OPERATOR

No code: Hydraulic (pilot) operation

E1: DSV/DSD electro-hydraulic operation

E2: DG electro-hydraulic operation

5 TYPE OF SPOOL (CENTER CONDITION)

0	1	2	3	6	7
8	11	22	31	33	

0: Open center (All ports)

1: Open center (P, A to T)

2: Closed center (All ports)

3: Closed center (P, B)

6: Closed center (P only)

7: Open center (P to A, B)

8: Tandem center (P to T)

11: Open center (P, B to T)

22: Closed center (Two way)

31: Closed center (P, A)

33: Closed center (Bleed A,B)

6 SPRING CRACKING PRESSURE

A: Spring offset

AL: Same with A

B: Spring centered-single solenoid "A" removed

BL: Same with B

C: Spring centered

N: Without spring with detent (pilot only)

7 EXTERNAL PILOT PRESSURE

No code: Internal Pilot

E: External Pilot

8 INTERNAL PILOT DRAIN

No code: External Drain

T: Internal Drain

9 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz

A120: AC110V, 50 Hz; AC120V, 60 Hz

A220: AC200V, 50/60 Hz; AC220V, 60 Hz

A240: AC220V, 50 Hz; AC240V, 60 Hz

DC12: DC12V

DC24: DC24V

R110: AC110V, 60 Hz; Rectifier built-in type

R220: AC220V, 60 Hz; Rectifier built-in type

10 ELECTRICAL OPTIONS:

DN: DIN 43650 Coils with indicator lights

DNO: DIN 43650 Coils without indicator lights

WB: Wiring housing with G1/2 thread and indicator lights

11 DESIGN NUMBER

82

12 OPTIONAL INQUIRY

SA: Stroke Adjustment on A Port

SB: Stroke Adjustment on B Port

SW: Stroke Adjustment on Both A & B Port

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG10 SIZE 32

SPOOL TYPES:

Position type at neutral	Double solenoid valves, spring centered -C-	Single solenoid valves, solenoid at port A end -B-	Single solenoid valves, solenoid at port B end -BL-
0 (H)	DG10-0C 	DG10-0B 	DG10-0BL
1 (F)	DG10-1C 	DG10-1B 	DG10-1BL
2 (E)	DG10-2C 	DG10-2B 	DG10-2BL
3 (L)	DG10-3C 	DG10-3B 	DG10-3BL
6 (J)	DG10-6C 	DG10-6B 	DG10-6BL
7 (M)	DG10-7C 	DG10-7B 	DG10-7 BL
8 (G)	DG10-8C 	DG10-8B 	DG10-8BL
11 (P)	DG10-11C 	DG10-11B 	DG10-11BL
31 (U)	DG10-31C 	DG10-31B 	DG10-31BL
33 (W)	DG10-33C 	DG10-33B 	DG10-33BL

*() : Rexroth Model

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG10 SIZE 32

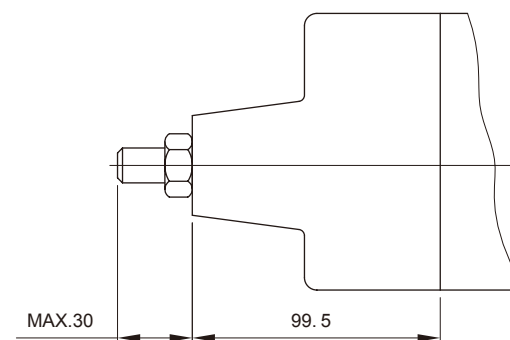
SPOOL TYPES:

Position type during transition	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0 (H)	DG10-0A 	DG10-0AL
2 (E)	DG10-2A 	DG10-2AL
6 (J)	DG10-6A 	DG10-6AL
7 (M)	DG10-7A 	DG10-7AL
22 (A)	DG10-22A 	DG10-22AL

*() : Rexroth Model

STROKE ADJUSTMENT

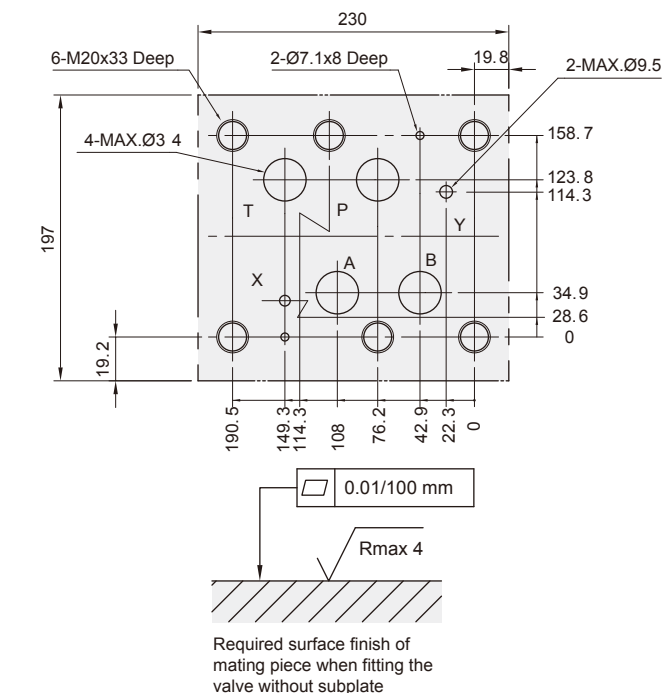
■ DG10-E-*.**.-82-S



INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

■ Mounting Surface: ISO 4401-AF-10-4-A



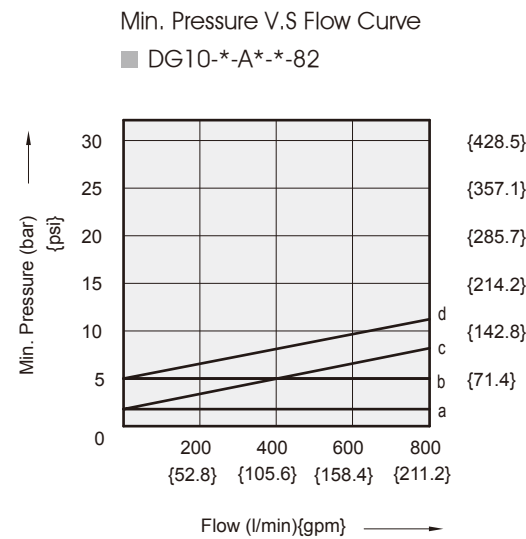
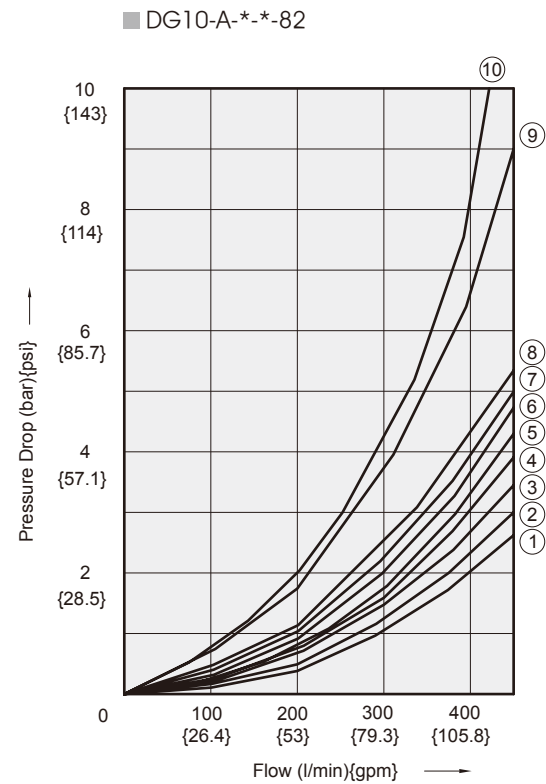
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG10 SIZE 32

PERFORMANCE FIGURES & CURVES:

Pressure Drop Curve Reference Chart

Viscosity of Hydraulic Fluid: 20 mm²/s

Spool Type	Pressure Drop Characteristics				
	P→A	P→B	A→T	B→T	P→T
0C	1	1	3	5	3
2C	2	2	4	6	-
3C	2	3	3	8	-
6C	2	2	3	4	-
8C	4	5	10	8	6
33C	2	2	6	5	-
0A	1	1	3	4	-
2A	2	2	4	5	-
6A	2	2	3	4	-

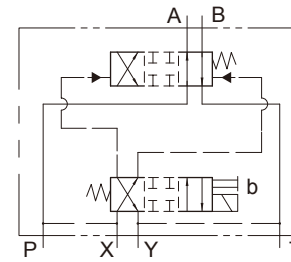


Spring	Spool	Curve
A, AL	0.9	a
	2.6	c
B, BL, C, N	0, 4, 8, 9	b
	2, 3, 6, 33	d

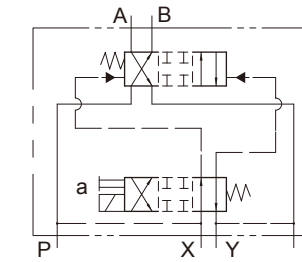
SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG10 SIZE 32

HYDRAULIC CONFIGURATION:

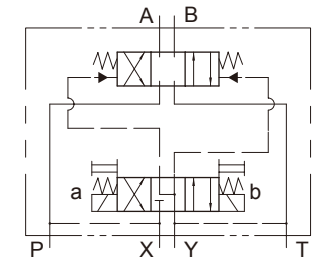
■ DG010-E-2A-T-*-**
(*A)



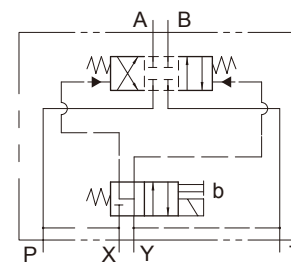
■ DG010-E-2AL-T-*-**
(*AL)



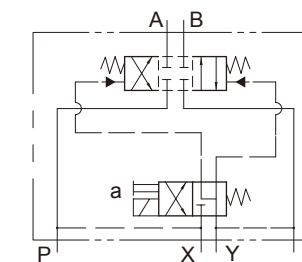
■ DG10-E-*C-T-*-**



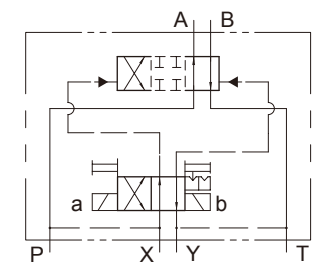
■ DG10-E-2B-T-*-**
(*B)



■ DG10-E-2BL-T-*-**
(*BL)

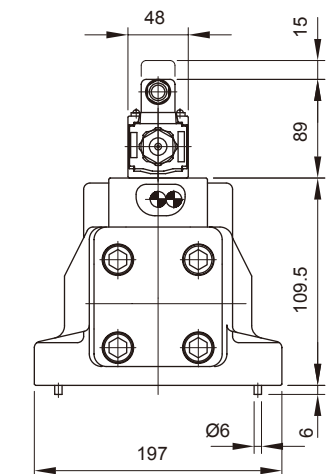
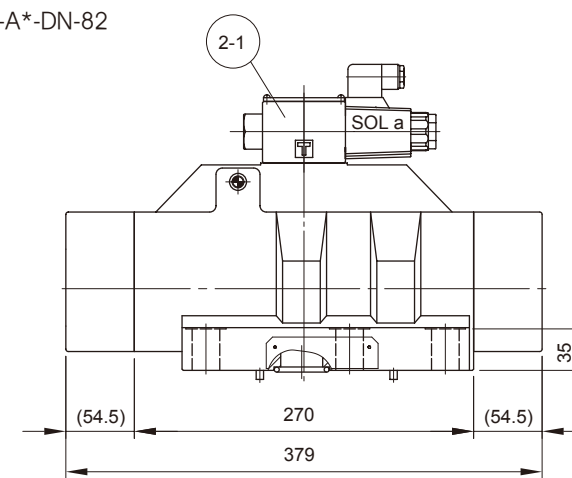


■ DG10-E-*N-T-*-**

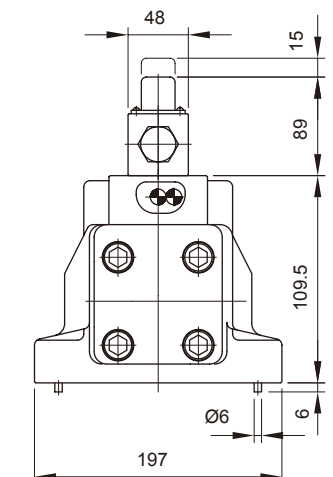
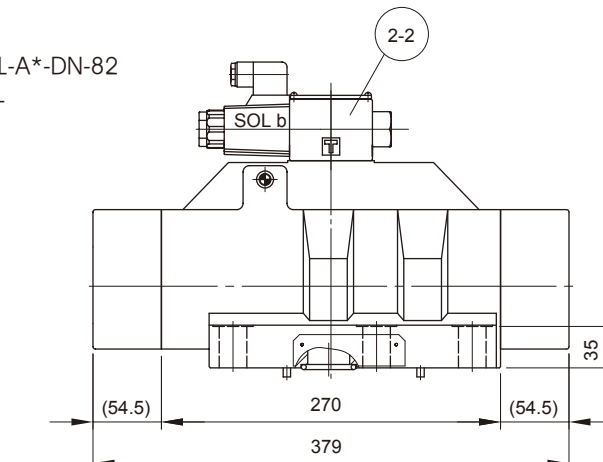


DIMENSIONS:

■ DG10-E1- *A-A*-DN-82
*B



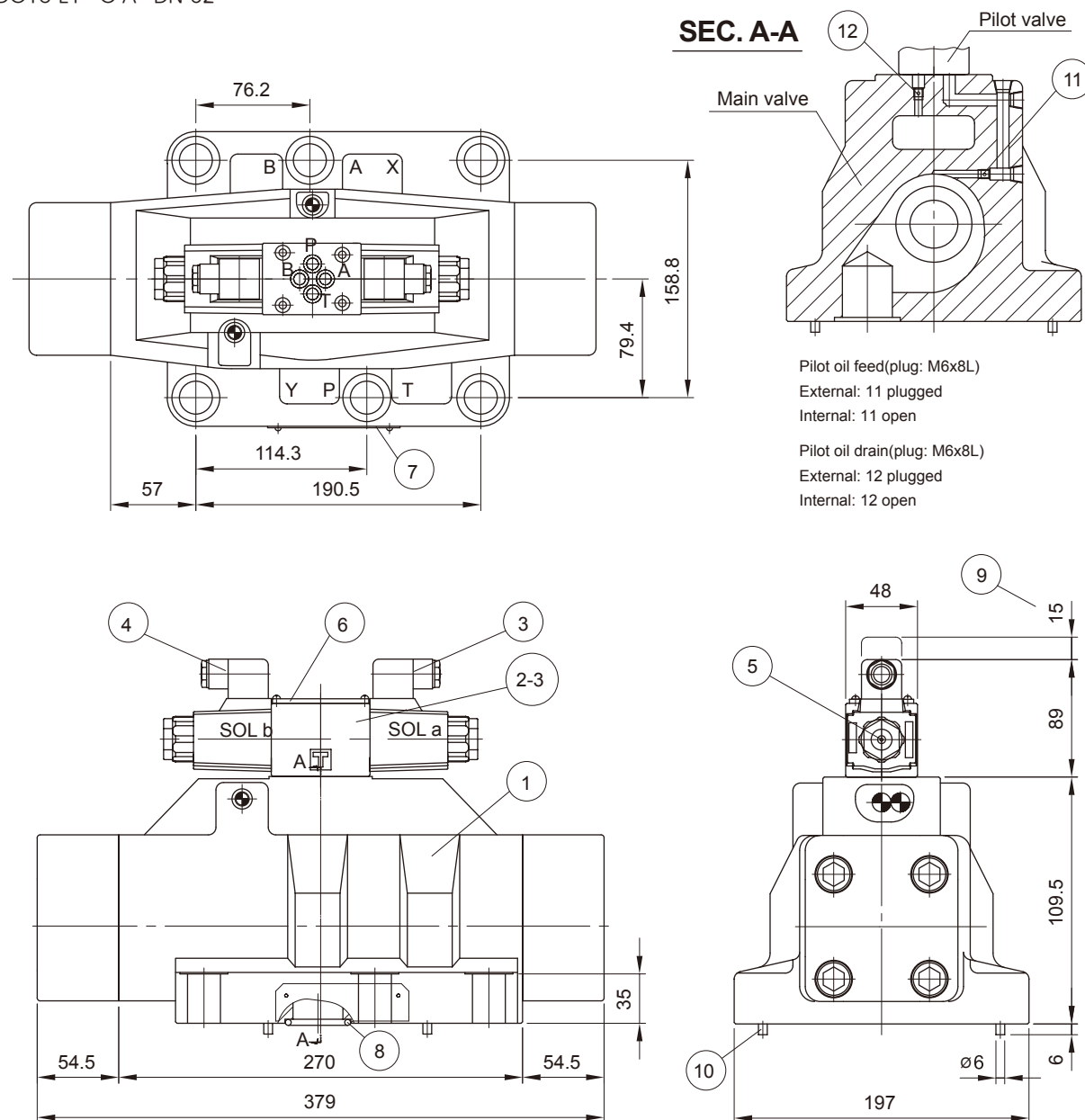
■ DG10-E1- *AL-A*-DN-82
*BL



SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG10 SIZE 32

DIMENSIONS:

■ DG10-E1-*C-A*-DN-82



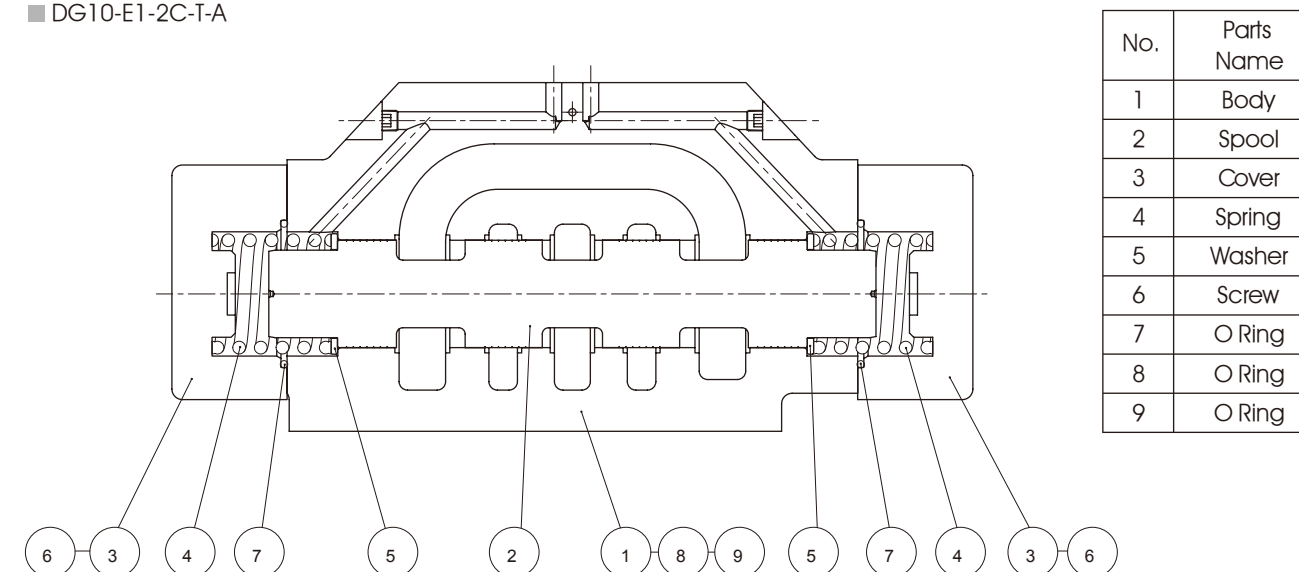
- 1: Main valve
2: Pilot valve
2-1: Pilot valve DSV/DSD-G02-2A-* (1 solenoid)
for main valves with spools *A, *B
(3 position valve with solenoid on side a)
2-2: Pilot valve DSV/DSD-G02-2AL-* (1 solenoid)
for main valves with spools *AL, *BL
(3 position valve with solenoid on side b)
2-3: Pilot valve DSV/DSD-G02-6C-* (2 solenoid)
for main valves with 3 positions

- 3: Solenoid a
4: Solenoid b
5: Push pin for manual operation
6: Nameplate for pilot valve
7: Nameplate for whole valve
8: O-ring:
Ports A,B,P,T: 1B-P38 (NBR, Hs 90);
Ports X,Y: 1B-P24 (NBR, Hs 90)
9: Space required to remove plug
10: Locating pin

SOLENOID CONTROLLED PILOT OPERATED DIRECTIONAL VALVE DG10 SIZE 32

CROSS SECTION DIAGRAM:

■ DG10-E1-2C-T-A



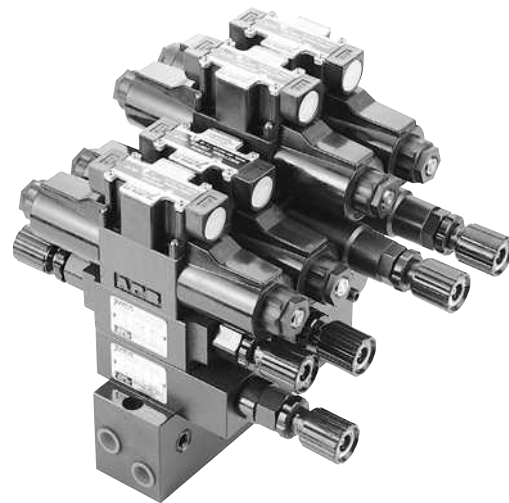
Parts No.	Parts Name	Specification	Port	Q'ty
7	O Ring	AS568-230 N90		2
8	O Ring	G24 N90	X, Y	2
9	O Ring	G38 N90	A, B, P, T	4

MODULAR VALVE SERIES

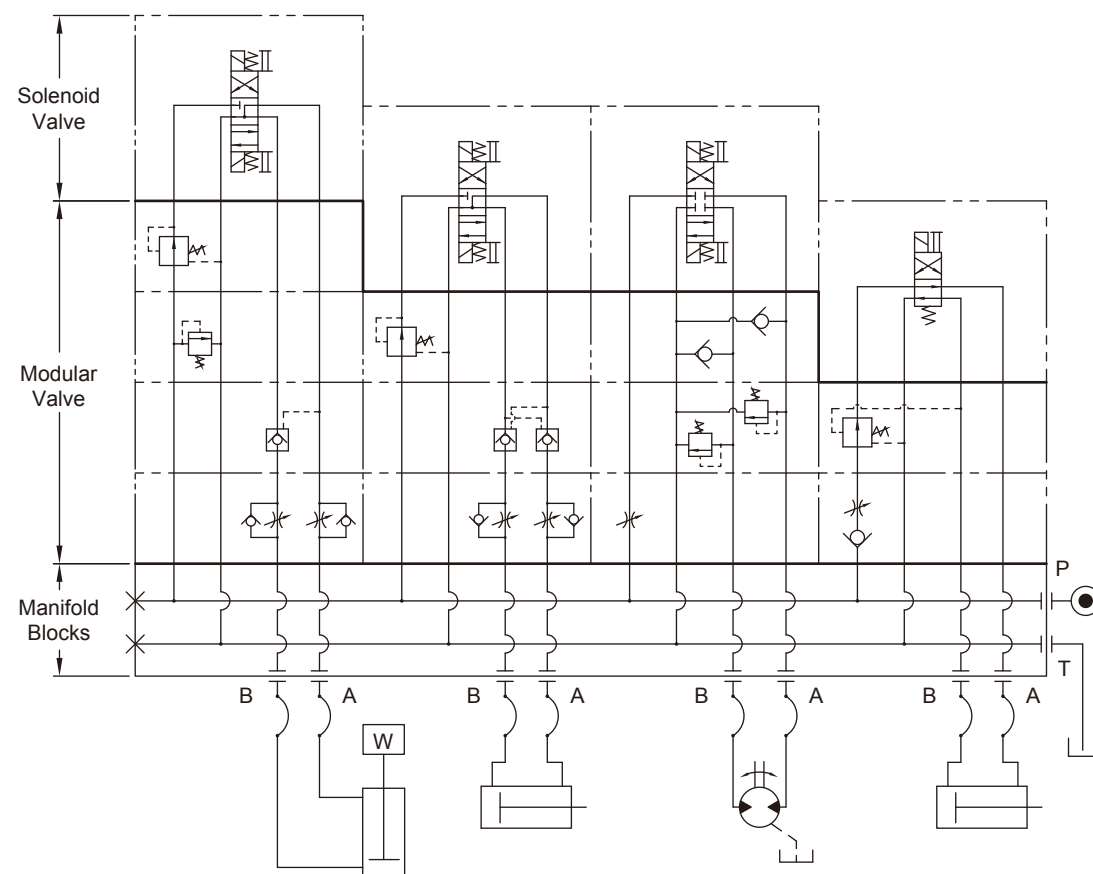
SANDWICH PLATE DESIGN O2 SIZE 6

FEATURES :

- Highest performance in NG 6.
- Compacting stacking valves.
- Eliminating intervalve piping and fittings.
- Reducing leakage and installation costs.
- Max. Operating Pressure: 32 MPa.
- Max. Flow: 50 L/min.
- Connections to DIN, ISO and CETOP



STACKING EXAMPLE :



MODULAR VALVE SERIES

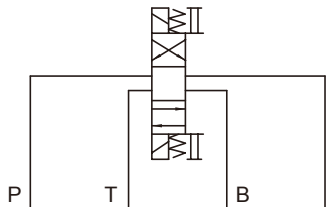
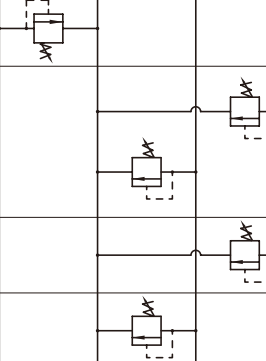
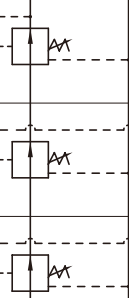
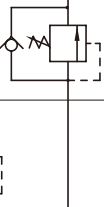
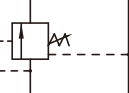
SANDWICH PLATE DESIGN O2 SIZE 6

CARE IN APPLICATION :

Valve Name	Wrong Example	Correct Example	Instructions
Solenoid Operated Directional Control Valve Pilot Operated Check Valve (MPC-02-W-*-10) Pressure Reducing Valve (MGV-02-B-*-10)			When MGV-02-B and MPC-02-W are used together in the same circuit, the right circuit is correct, and the left is wrong, as MPC-02-W would not be totally closed.
Solenoid Operated Directional Control Valve Flow Regulator with Metered Out Check (MTC-02-W-O-10) Pilot Operated Check Valve (MPC-02-W-*-10)			When MTC-02-W-O and MPC-02-W are used together in the same circuit, MTC-02-W-O should be installed closer to the cylinder ports, otherwise the cylinder may have a "knocking" phenomenon happened.
Solenoid Operated Directional Control Valve Flow Regulator with Metered Out Check (MTC-02-W-O-10) Pressure Reducing Valve (MGV-02-B-*-10)			When MGV-02-B and MTC-02-W-O are used together in the same circuit, the right circuit is correct, and the left is wrong, as the function of MGV-02-B from B port to T port. Because MTC-02-W-O will create a pressure which will cause MGV-02-B to reduce the pressure too low, and the cylinder then can not operate with enough force or move smoothly.

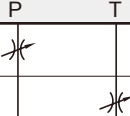
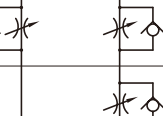
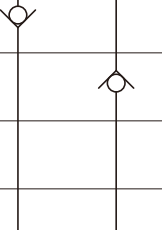
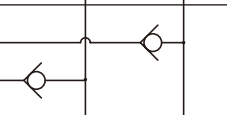
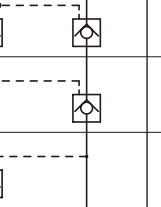
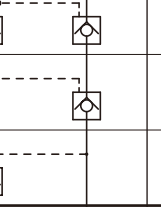
MODULAR VALVE SERIES
SANDWICH PLATE DESIGN O2 SIZE 6

LIST OF MODULAR VALVE SERIES :

Classifi- -cation	Valve Name	Valve Model	Pressure Adjusting Range (bar)	Max. Flow (L/min)	Hydraulic Symbol	Weight (kg)	Refer Page
Directional Control Valve	Solenoid Valve	DSV-G02-*-*-20	250	80			
		DG03-*-*-82	320				
Pressure Control Valve	Relief Valve (Balance Type)	MRV-02-P-*-10	0:7~35	50		1.5	102
		MRV-02-W-*-10	1:7~70			2.3	
		MRV-02-A-*-10	2:7~140			1.6	
		MRV-02-B-*-10	3:7~210			1.6	
	Brake Valve (Direct type)	MBV-02-W-*-10	1:8~70	20		1.5	105
		MBV-02-A-*-10	3:35~210			1.4	
		MBV-02-B-*-10				1.4	
	Reducing Valve (Direct type)	MGV-02-P-*-10	0:1.5~35	40		1.3	108
		MGV-02-A-*-10	1:7~70			1.3	
		MGV-02-B-*-10	2:7~140			1.3	
			3:7~210				
	Counter Balance Valve	MCB-02-A1-*-10	1:8~70	40		1.1	111
		MCB-02-B1-*-10	2:35~140			1.1	
	Sequence Valve	MSV-02-P2-*-10	1:8~70 3:35~210	40		1.1	114

MODULAR VALVE SERIES
SANDWICH PLATE DESIGN O2 SIZE 6

LIST OF MODULAR VALVE SERIES :

Classifi- -cation	Valve Name	Valve Model	Pressure Adjusting Range (bar)	Max. Flow (L/min)	Hydraulic Symbol	Weight (kg)	Refer Page
Flow Control Valve	Flow Regulator Valve	MTV-02-P-10		50		0.99	117
		MTV-02-T-10				0.99	
	Flow Regulator with Check Valve	MTC-02-P-10	(Cracking Pressure: 0.4)	50		1.0	120
	Flow Regulator with Metered Out Check	MTC-02-W-O-10	(Cracking Pressure: 0.8)	50		1.3	123
		MTC-02-A-O-10				1.2	
		MTC-02-B-O-10				1.2	
	Flow Regulator with Metered In Check	MTC-02-W-I-10	(Cracking Pressure: 0.8)	50		1.3	123
		MTC-02-A-I-10				1.2	
		MTC-02-B-I-10				1.2	
Directional Control Valve	Check Valve	MCV-02-P-*-10	(Cracking Pressure: 1: 0.4 2: 3.5 3: 5.0)	50		0.97	127
		MCV-02-T-*-10				0.97	
		MCV-02-A-*-10				1.2	
		MCV-02-B-*-10				1.2	
	Vacuum Check Valve	MAC-02-W-10	(Cracking Pressure: 0.15)	50		1.03	130
	Pilot Check Valve	MPC-02-W-*-10	(Cracking Pressure: 1: 2 2: 5)	50		1.2	133
		MPC-02-A-*-10				1.2	
		MPC-02-B-*-10				1.2	
	Pilot Check Valve (With shock prevent mechanism)	MPD-02-W-*-10	(Cracking Pressure: 1: 2 2: 5)	50		1.2	136
		MPD-02-A-*-10				1.2	
		MPD-02-B-*-10				1.2	
Modular Block	Manifold Block	MFB-02-*-10		50			139

PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV02 SIZE 6

FEATURES :

- Highest performance in NG 6
- Double stage pressure relief valves with balanced poppet
- Sandwich plate design
- 5 pressure ranges
- 4 optional effective directions of flow
- With one or two pressure relief cartridges
- Connections to DIN, ISO and CETOP



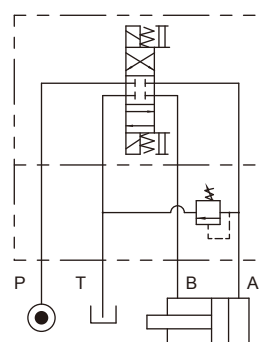
Model: MRV-02-P-1-10

SPECIFICATION :

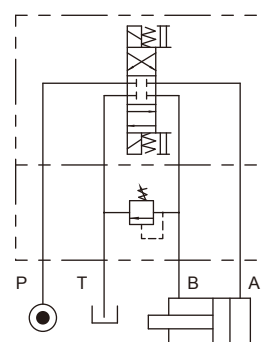
Maximum Flow Rate	50 l/Min (13.2 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Pressure Adjusting Range (Bar)	0: 7~35
	1: 7~70
	2: 7~140
	3: 7~210
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AB-03-4-A
Weight	P Type 1.5 kg
	W Type 2.3 kg
	A Type 1.6 kg
	B Type 1.6 kg

HYDRAULIC CONFIGURATION:

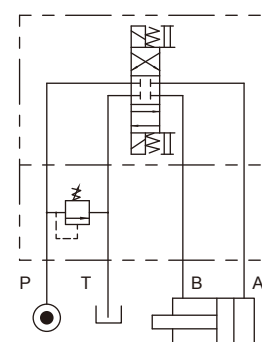
■ MRV-02-A-*-10



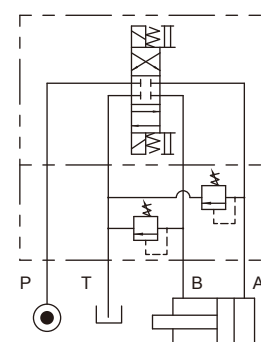
■ MRV-02-B-*-10



■ MRV-02-P-*-10



■ MRV-02-W-*-10



PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV02 SIZE 6

ORDERING CODE :

M RV - 02 - P - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE RELIEF VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFA-D03/DIN 24340)

4 CONFIGURATION

P : Single; acting on port P, discharge to port T

W : Double; acting on ports A and B, discharge to port T

A : Single; acting on port A, discharge to port T

B : Single; acting on port B, discharge to port T

5 PRESSURE ADJUSTING RANGE:

0: 7~35 Bar

1: 7~70 Bar

2: 7~140 Bar

3: 7~210 Bar

6 DESIGN NUMBER

10: With handle

20: Without handle

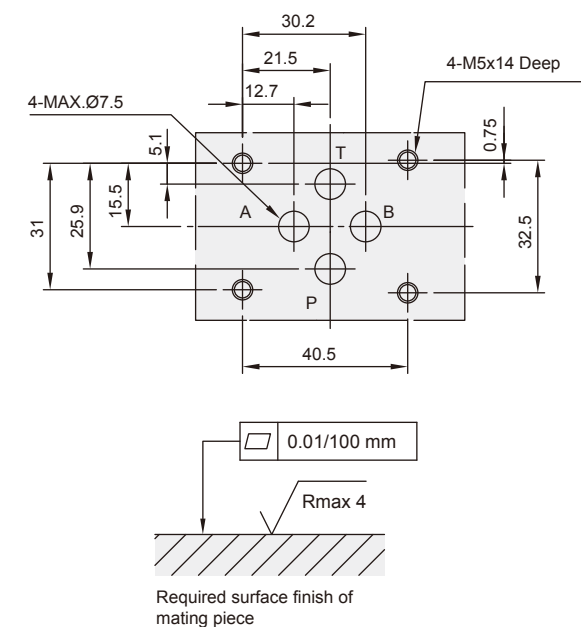
7 OPTIONAL INQUIRY

Q : Direct operated pressure relief valves

A : Setting Screw on A port

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

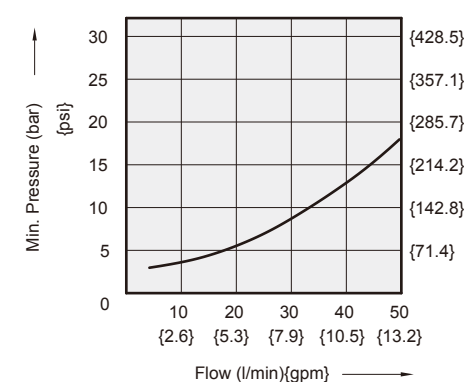


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

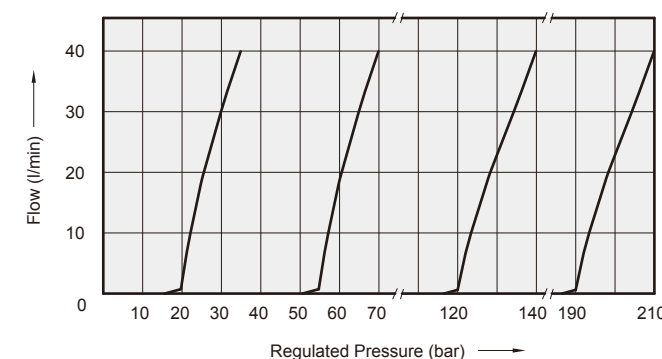
Minimum Pressure

■ MRV-02-*-1-10



Regulaed Pressure Versus Flow Diagram

■ MRV-02-*-1-10

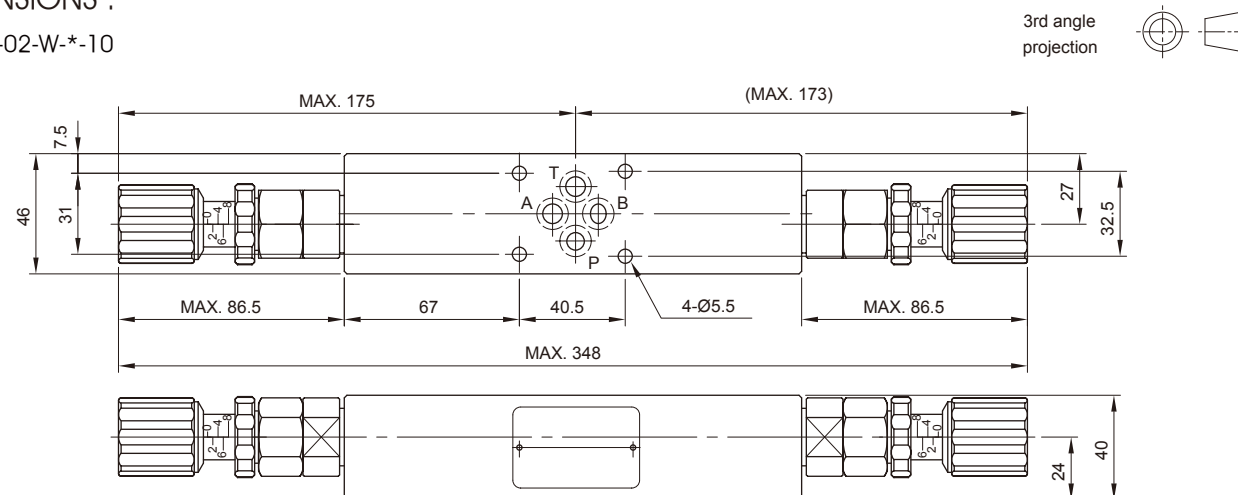


PRESSURE RELIEF VALVE

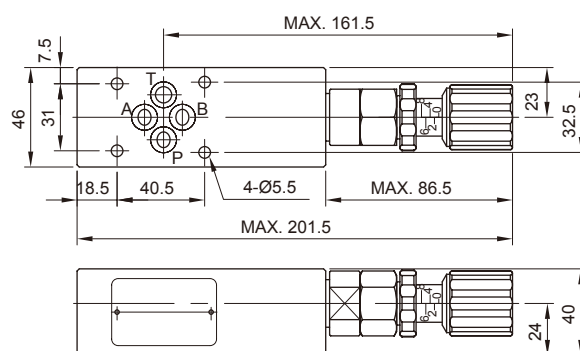
SANDWICH PLATE DESIGN MRV02 SIZE 6

DIMENSIONS :

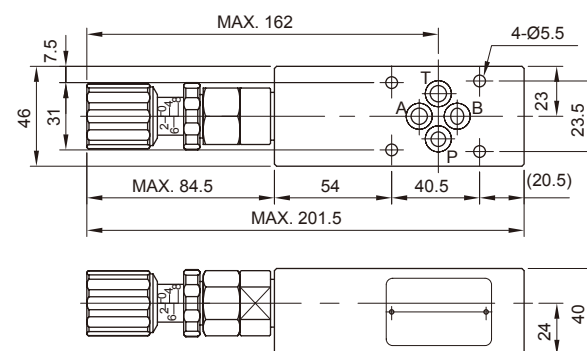
■ MRV-02-W-*-10



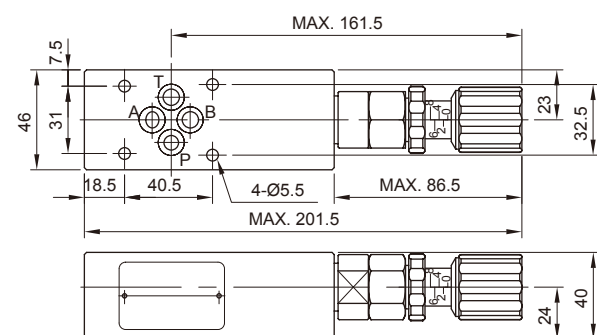
■ MRV-02-P-*-10



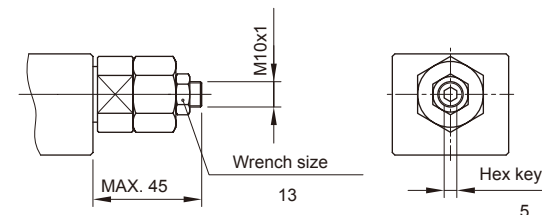
■ MRV-02-A-*-10



■ MRV-02-B-*-10

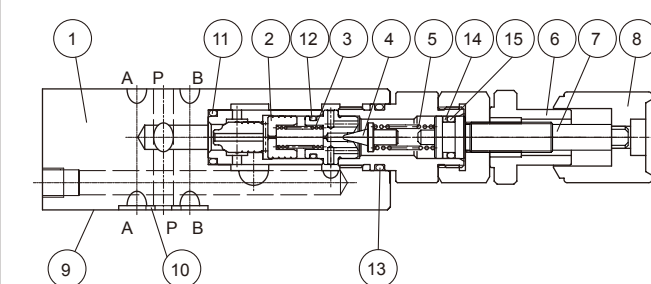


■ MRV-02-*-*-20



CROSS SECTION DRAWING :

■ MRV-02-P-*-10



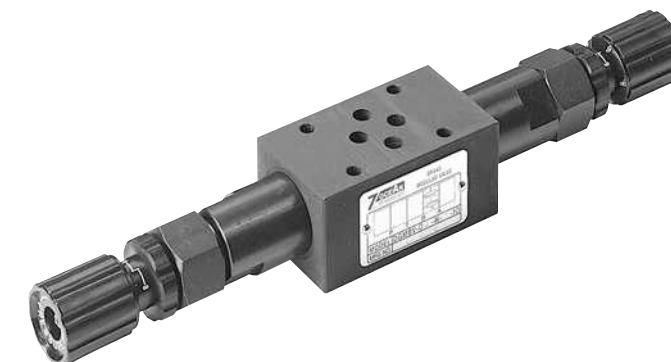
- | | |
|---------------------------|---|
| 1. Body | 9. Connections to DIN 24340 from A6; valve fixing screws M5 DIN 912-10.9 tightening torque 8~9 Nm |
| 2. Balanced poppet | 10. O-ring 1B-P9 for ports A,B,P and T |
| 3. Balanced poppet spring | 11. O-ring 1B-P14 |
| 4. Pilot valve poppet | 12. O-ring 1B-AS013 |
| 5. Adjustment spring | 14. O-ring 1A-P10A |
| 6. Locking nut | 15. O-ring BU-P10A |
| 7. Setting screw | |
| 8. Adjustment element | |

PRESSURE BRAKE VALVE

SANDWICH PLATE DESIGN MBV02 SIZE 6

FEATURES :

- Highest performance in NG 6
- Direct operated pressure relief valves
- Sandwich plate design
- 2 pressure adjusting ranges.
- 3 optional effective directions of flow
- With one or two pressure relief cartridges
- Connections to DIN, ISO and CETOP



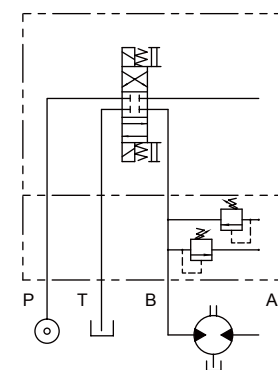
Model: MBV-02-W-1-10

SPECIFICATION :

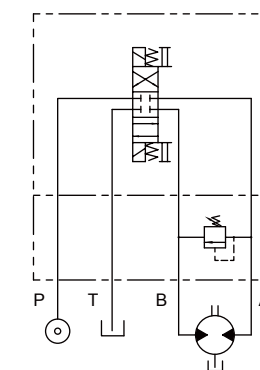
Maximum Flow Rate		20 l/Min (5.3 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Pressure Adjusting Range		1: 8~70 Bar
		3: 35~210 Bar
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AB-03-4-A
Weight	W Type	1.5 Kg
	A Type	1.4 Kg
	B Type	1.4 Kg

HYDRAULIC CONFIGURATION:

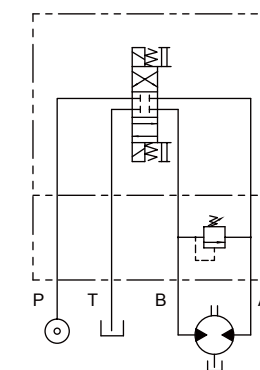
■ MBV-02-W-*-10



■ MBV-02-A-*-10



■ MBV-02-B-*-10



PRESSURE BRAKE VALVE

SANDWICH PLATE DESIGN MBV02 SIZE 6

ORDERING CODE :

M BV - 02 - W - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE BRAKE VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

W : Double; acting on ports A and B, with the relieved pressure cross-discharged

A : Single; acting on port A, discharge to port B

B : Single; acting on port B, discharge to port A

5 SPRING CRACKING PRESSURE

1: 8~70 Bar

3: 35~210 Bar

6 DESIGN NUMBER

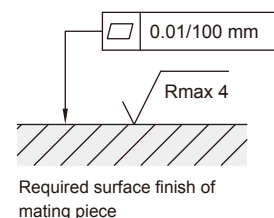
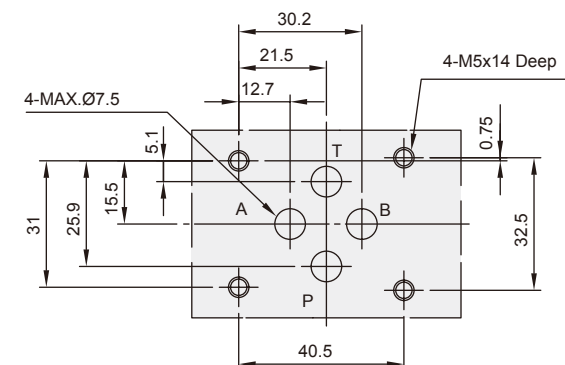
10: With handle

20: Without handle

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

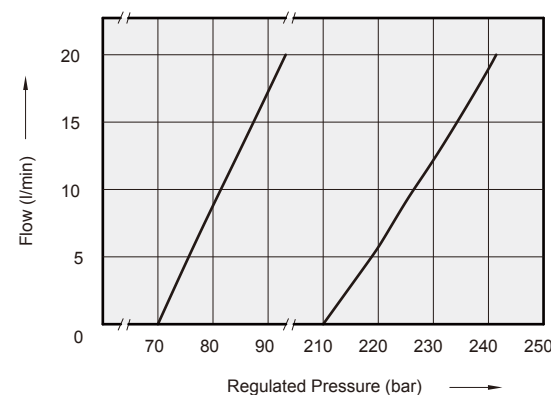


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Regulated Pressure Versus Flow Diagram

■ MBV-02-*-*-10

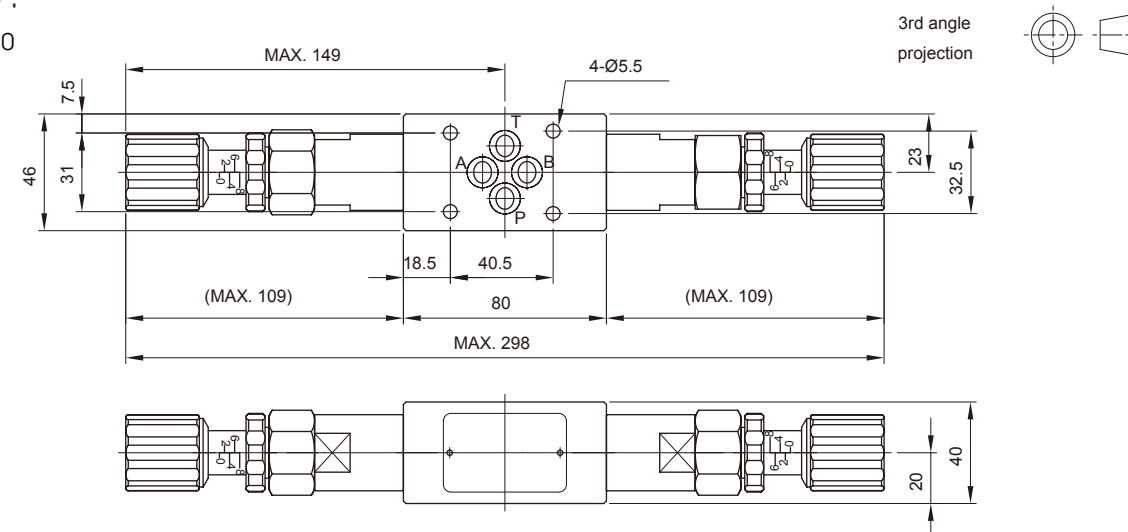


PRESSURE BRAKE VALVE

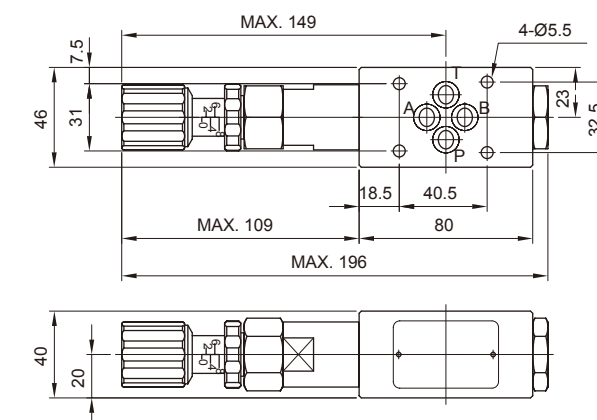
SANDWICH PLATE DESIGN MBV02 SIZE 6

DIMENSIONS :

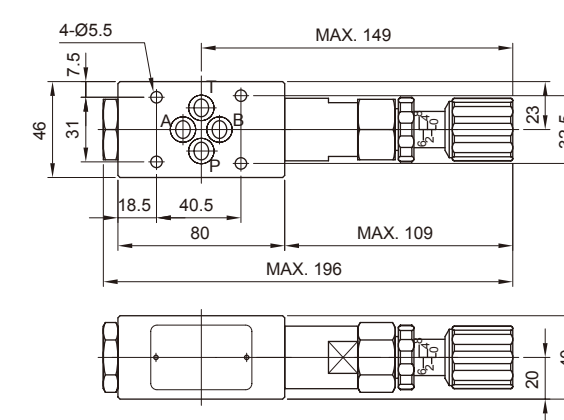
■ MBV-02-W-*-10



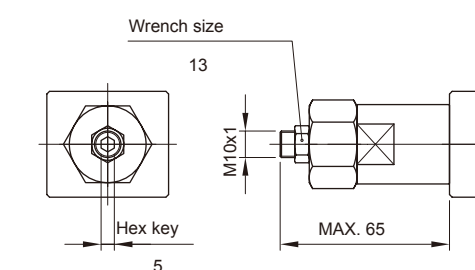
■ MBV-02-A-*-10



■ MBV-02-B-*-10

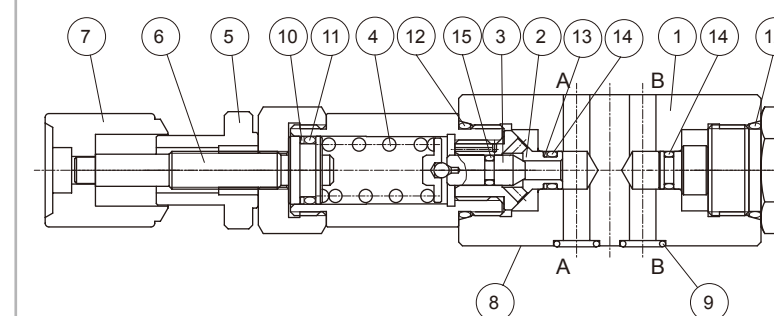


■ MBV-02-*-*-20



CROSS SECTION DRAWING :

■ MBV-02-A-*-10



- | | | |
|-----------------------|------------------------------|-------------------|
| 1. Body | 8. Connections to DIN 24340 | 11. O-ring 1A-P14 |
| 2. Seat | from A6; valve fixing screws | 12. O-ring 1B-P22 |
| 3. Poppet | M5x85 DIN 912-10.9 | 13. O-ring BU-P7 |
| 4. Adjustment sprin | tightening torque 8~9 Nm | 14. O-ring 1A-P7 |
| 5. Locking nut | 9. O-ring 1B-P9 | 15. O-ring 1A-P5 |
| 6. Setting screw | for ports A,B,P and T | |
| 7. Adjustment element | 10. O-ring BU-P14 | |

PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO2 SIZE 6

FEATURES :

- Highest performance in NG 6
- Direct operated pressure reducing valves
- Sandwich plate design
- 4 pressure adjusting ranges
- 3 optional effective directions of flow
- Pressure reduction in ports A, B, or P
- Connections to DIN, ISO and CETOP



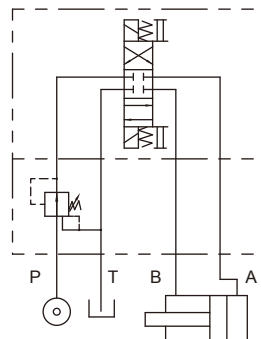
Model: MGVO2-P-0-10H

SPECIFICATION :

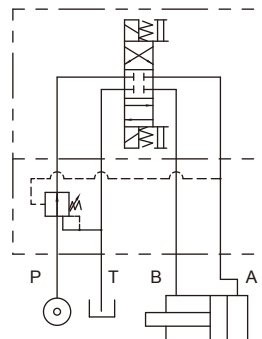
Maximum Flow Rate		40 l/Min (10.6 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Pressure Adjusting Range		0: 1.5~35 Bar
		1: 7~70 Bar
		2: 7~140 Bar
		3: 7~210 Bar
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25µm
Mounting Pattern		ISO 4401-AB-03-4-A
Weight	P Type	1.3 kg
	A Type	1.3 kg
	B Type	1.3 kg

HYDRAULIC CONFIGURATION:

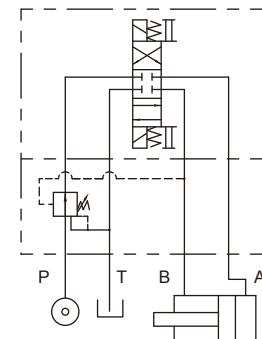
■ MGVO2-P-*-10



■ MGVO2-A-*-10



■ MGVO2-B-*-10



PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO2 SIZE 6

ORDERING CODE :

M GV - 02 - P - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE REDUCING VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

P: reduced pressure on P port

A: reduced pressure on A port

B: reduced pressure on B port

5 SPRING CRACKING PRESSURE

0: 1.5~35 Bar

1: 7~70 Bar

2: 7~140 Bar

3: 7~210 Bar

6 DESIGN NUMBER

10: with handle

20: without handle

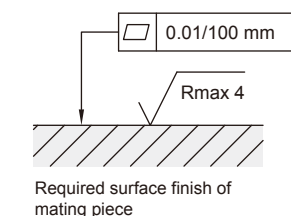
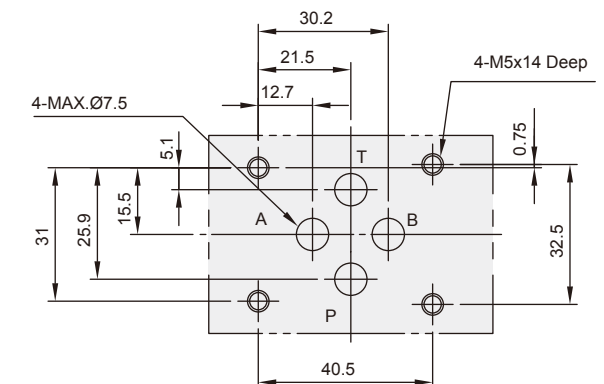
7 OPTIONAL INQUIRY

A: Handle on A port side

H: Auxiliary port for pressure gauge

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

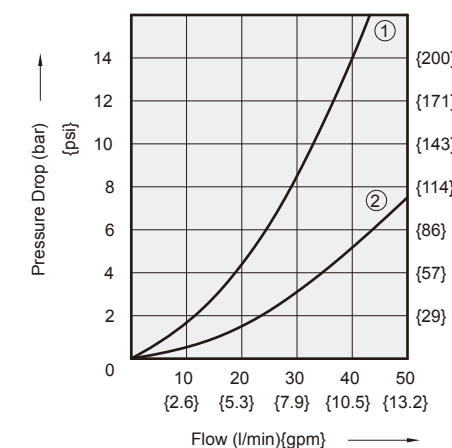


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

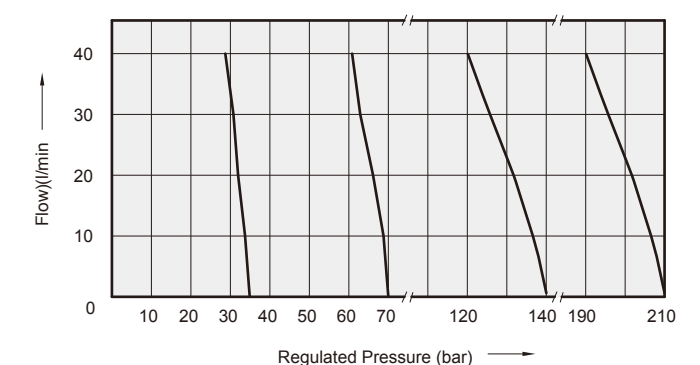
Pressure Drop Characteristic

■ MGVO2-P-*-10



Regulated Pressure Versus Flow Diagram

■ MGVO2-P-*-10



1. Differential pressure variation V.S. variation of flow between inlet port and use port
2. Differential pressure variation V.S. variation of between use port and discharge port

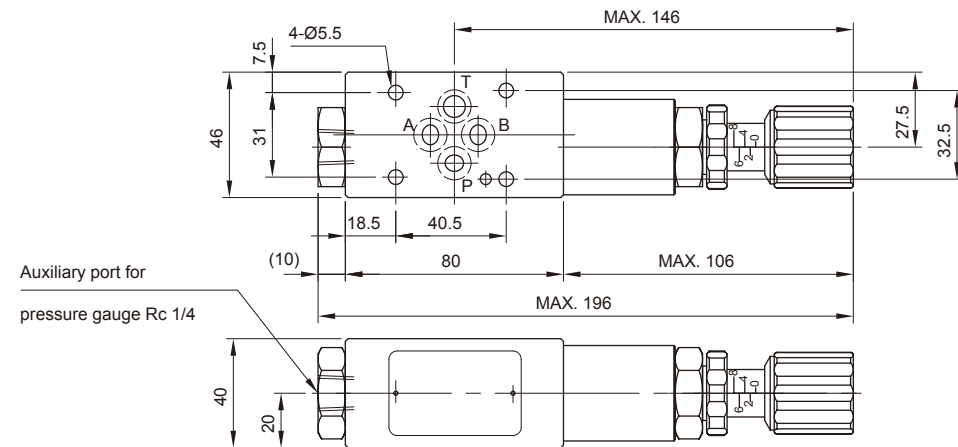
PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO2 SIZE 6

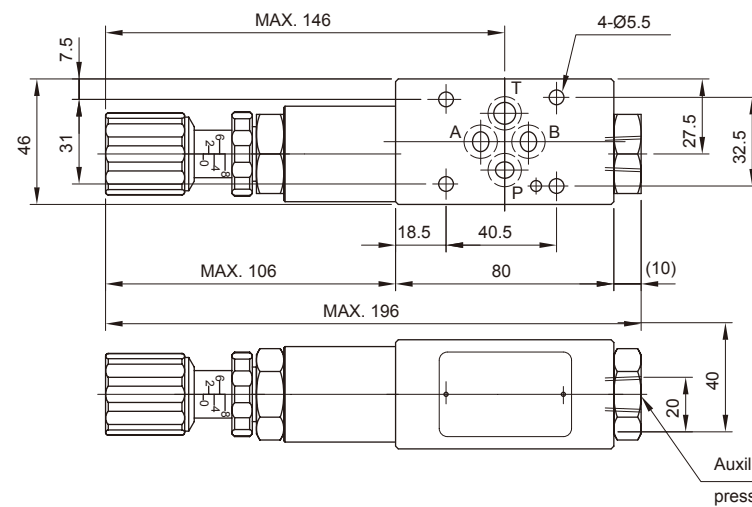
DIMENSIONS :

- MGVO2-P-*-10-H
- MGVO2-A-*-10-H

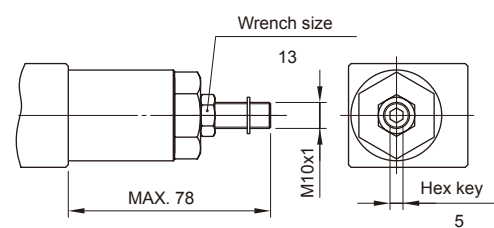
3rd angle
projection



- MGVO2-B-*-10-H

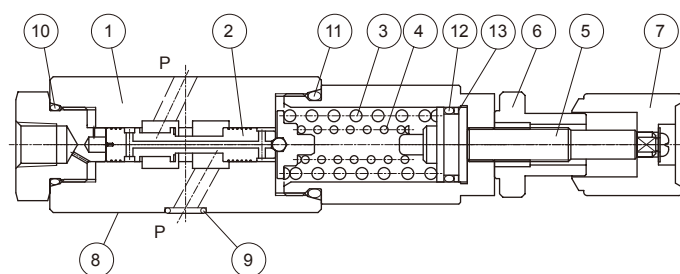


- MGVO2-*-*-20



CROSS SECTION DRAWING :

- MGVO2-P-*-10



1. Body
2. Spool
3. Adjustment spring 1
4. Adjustment spring 2
5. Setting screw
6. Locking nut
7. Adjustment element
8. Connections to DIN 24340 from A6; valve fixing screws M5 DIN 912-10.9 tightening torque 8~9 Nm
9. O-ring 1B-P9 for ports A,B,P and T
10. O-RING 1B-P20
11. O-RING 1B-P26
12. O-RING 1A-P18
13. O-RING BU-P18

COUNTER BALANCE VALVE

SANDWICH PLATE DESIGN MCBO2 SIZE 6

FEATURES :

- Highest performance in NG 6.
- Direct operated pressure counter balance valve
- Used for actuator back pressure control
- Sandwich plate design
- 2 Pressure adjusting ranges
- Connections to DIN, ISO and CETOP



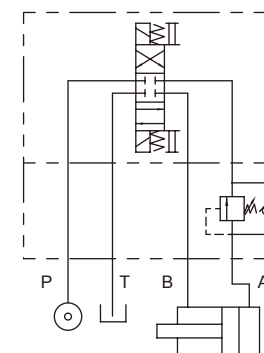
Model: MCB-02-B1-1-10

SPECIFICATION :

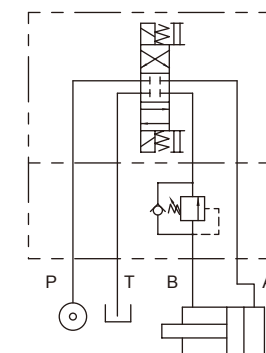
Maximum Flow Rate	40 l/Min (10.6 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Pressure Adjusting Range	1: 8~70 Bar 2: 35~140 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm ² /s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25μm
Mounting Pattern	ISO 4401-AB-03-4-A
Weight	A Type 1.1 kg B Type 1.1 kg

HYDRAULIC CONFIGURATION:

- MCB-02-A1-*-10



- MCB-02-B1-*-10



COUNTER BALANCE VALVE

ORDERING CODE :

M CB-02-A 1-1-10- **

1 2 3 4 5 6 7 8

- 1 SANDWICH PLATE DESIGN
2 COUNTER BALANCE VALVE
3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

- #### 4 CONTROL PORT

A: A port;
B: B port

- ## 5 CONTROL TYPE

1: internal pilot, internal drain

- ## 6 PRESSURE ADJUSTING RANGE

1: 8~70 Bar
2: 35~140 Bar

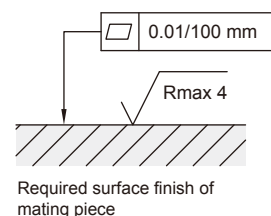
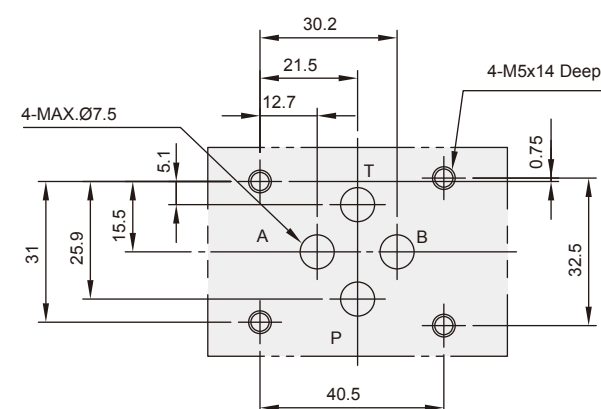
- ## 7 DESIGN NUMBER

10: with handle
20: without handle

- ## 8 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

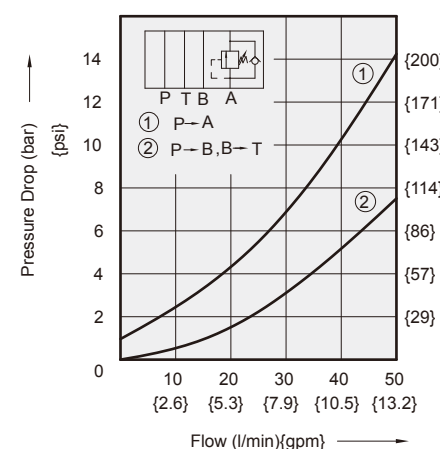


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

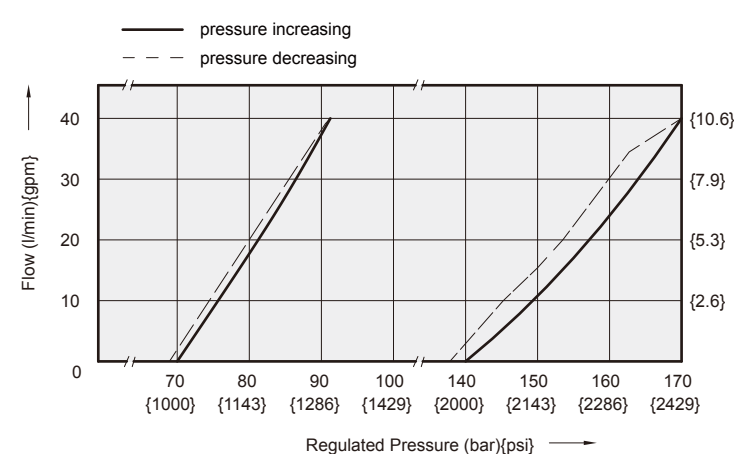
■ MCB-02-A1-*-10



Regulated Pressure Versus Flow Diagram

■ MCB-02-A1-*-10

MCB-02-B1-*-10



COUNTER BALANCE VALVE

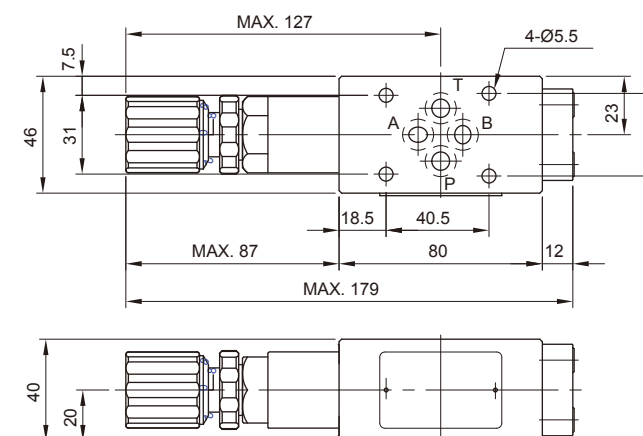
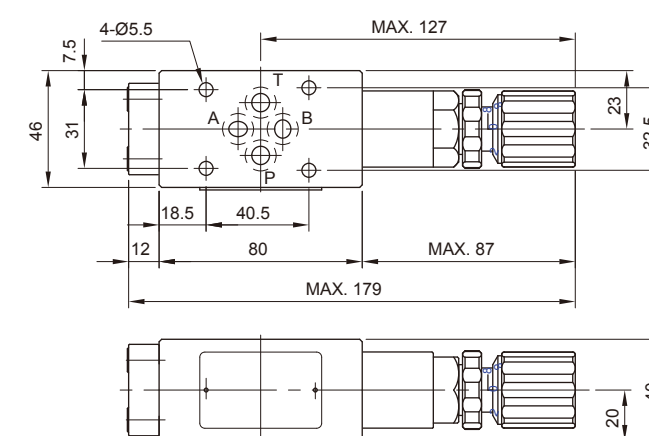
SANDWICH PLATE DESIGN MCBO2 SIZE 6

DIMENSIONS :

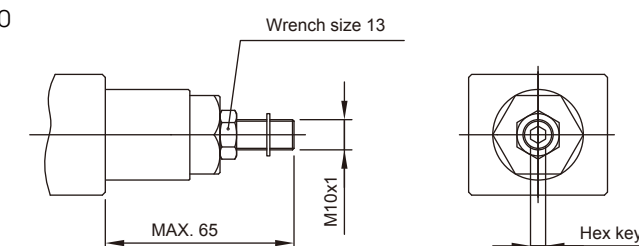
■ MCB-02-A1-* -10

■ MCB-02-B1-* -10

3rd angle
projection

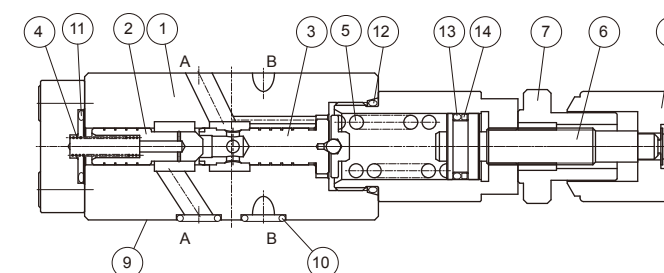


■ MCB-02-*-*-20



CROSS SECTION DRAWING :

■ MCB-02-A1-*-10



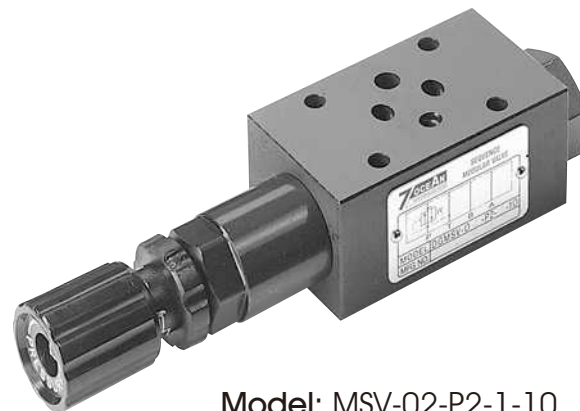
- | | |
|---|-----------------------|
| 1. Body | 10. O-ring 1B-P9 |
| 2. Poppet | for ports A,B,P and T |
| 3. Spool | 11. O-ring 1B-P16 |
| 4. Poppet spring | 12. O-RING 1B-P20 |
| 5. Adjustment spring | 13. O-RING 1A-P14 |
| 6. Setting screw | 14. O-RING BU-P14 |
| 7. Locking nut | |
| 8. Adjustment element | |
| 9. Connections to DIN 24340 from A6;
valve fixing screws M5 DIN 912-10.9
tightening torque 8–9 Nm | |

PRESSURE SEQUENCE VALVE

SANDWICH PLATE DESIGN MSVO2 SIZE 6

FEATURES :

- Highest performance in NG 6.
- Direct operated pressure sequence valve
- Sandwich plate design
- 2 Pressure adjusting ranges
- Connections to DIN, ISO and CETOP



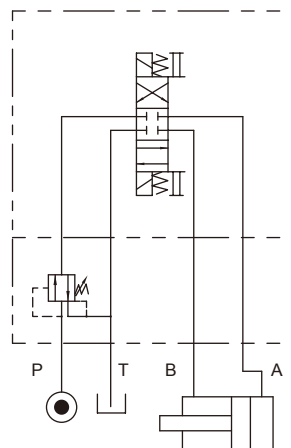
Model: MSV-02-P2-1-10

SPECIFICATION :

Maximum Flow Rate	40 l/Min (10.6 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Pressure Adjusting Range	1: 8~70 Bar 3: 35~210 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AB-03-4-A
Weight	1.3 kg

HYDRAULIC CONFIGURATION:

- MSV-02-P2-*-10



PRESSURE SEQUENCE VALVE

SANDWICH PLATE DESIGN MSVO2 SIZE 6

ORDERING CODE :

M SV - 02 - P 2 - 1 - 10 - **
1 2 3 4 5 6 7 8

1 SANDWICH PLATE DESIGN

2 PRESSURE SEQUENCE VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFFA-D03/DIN 24340)

4 CONTROL PORT

P: P port

5 CONTROL TYPE

2: internal pilot, external drain

6 PRESSURE ADJUSTING RANGE

1: 8~70 Bar

2: 35~210 Bar

7 DESIGN NUMBER

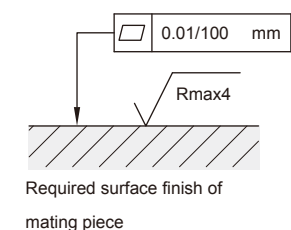
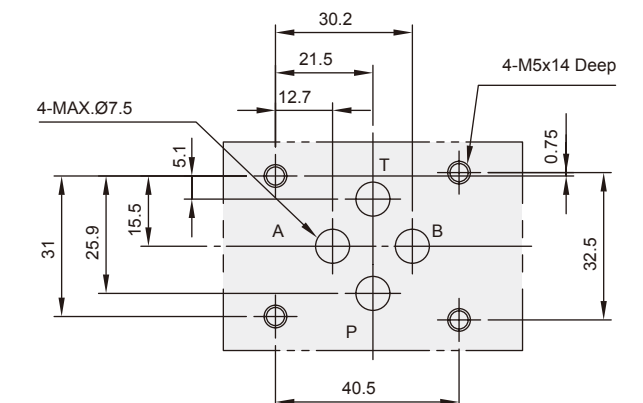
10: with handle

20: without handle

8 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

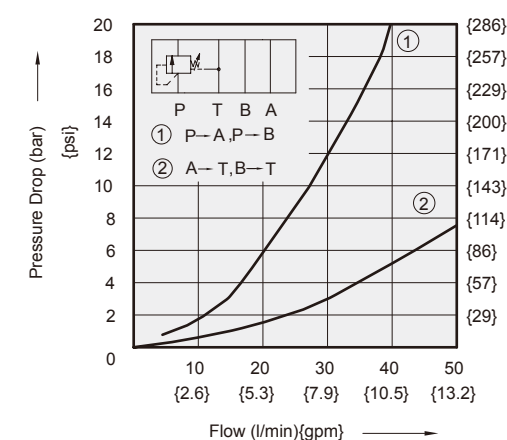


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

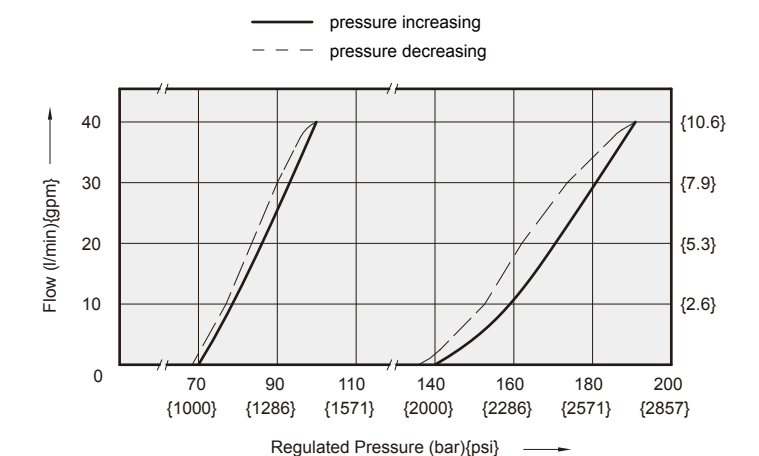
Pressure Drop Characteristic

- MSV-02-P2-*-10



Regulated Pressure Versus Flow Diagram

- MSV-02-P2-*-10

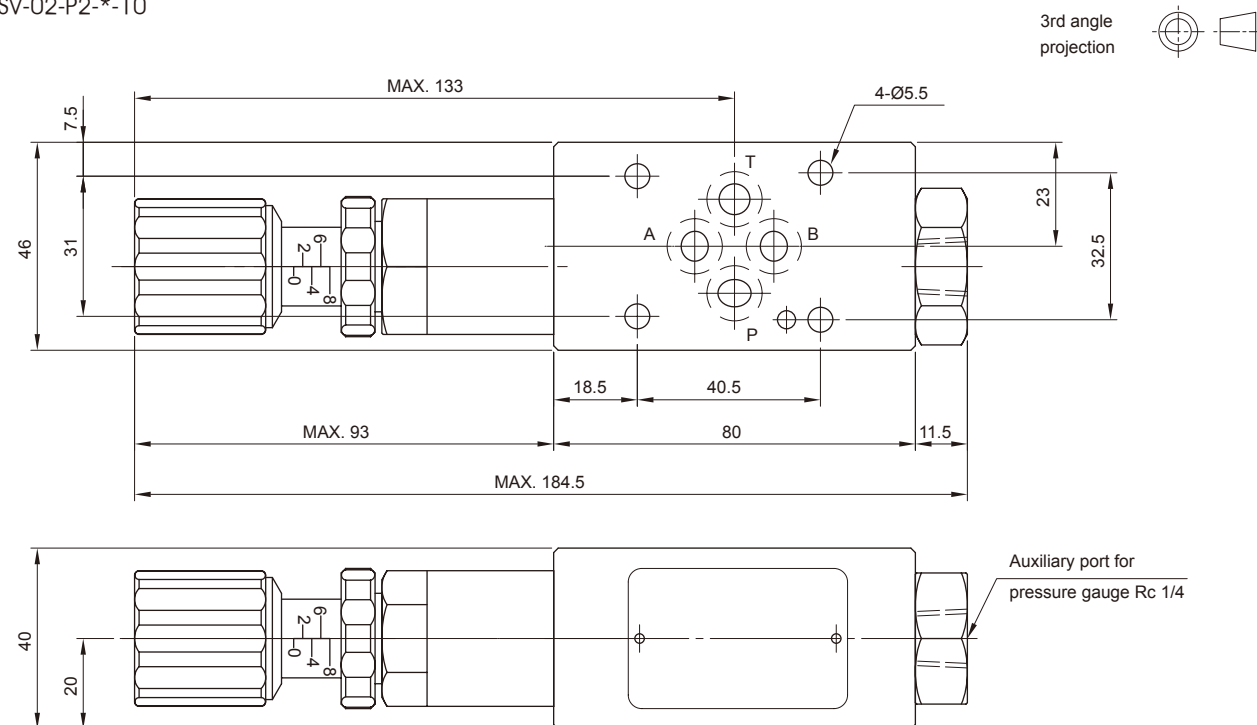


PRESSURE SEQUENCE VALVE

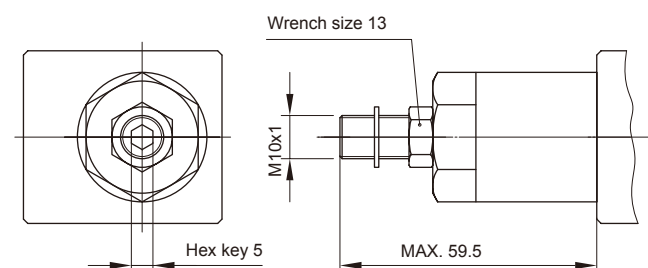
SANDWICH PLATE DESIGN MSV02 SIZE 6

DIMENSIONS :

■ MSV-02-P2-*-10

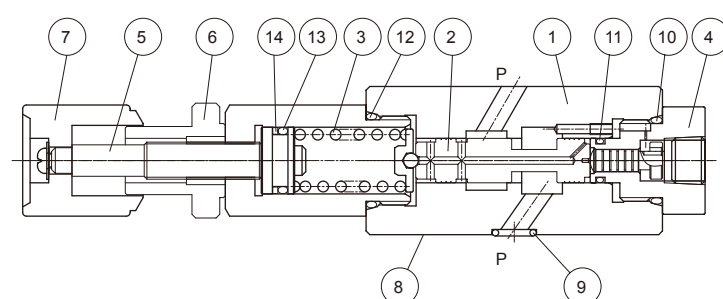


■ MSV-02-P2-*-20



CROSS SECTION DRAWING :

■ MSV-02-P2-*-10



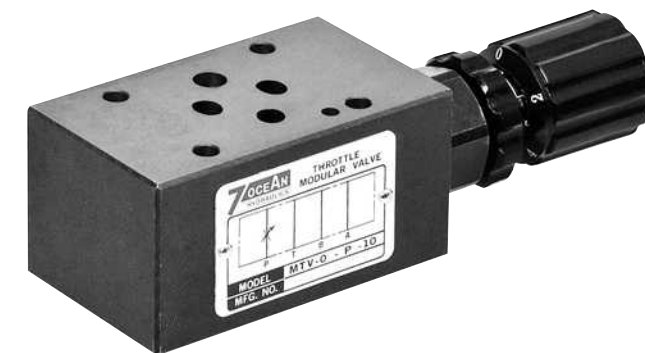
1. Body
2. Spool
3. Adjustment spring
4. Pressure gauge port Rc 1/4
5. Setting screw
6. Locking nut
7. Adjustment element
8. Connections to DIN 24340 from A6; valve fixing screws M5 DIN 912-10.9 tightening torque 8~9 Nm
9. O-ring 1B-P9 for ports A,B,P and T
10. O-ring 1B-P20
11. O-ring 1A-P9
12. O-RING 1B-P20
13. O-RING 1A-P14
14. O-RING BU-P14

FLOW REGULATOR VALVE

SANDWICH PLATE DESIGN MTV02 SIZE 6

FEATURES :

- Highest performance in NG 6.
- Sandwich plate design
- Used for actuator speed control
- Connections to DIN, ISO and CETOP



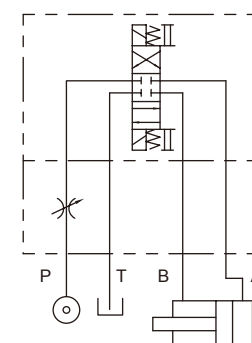
Model: MTV-02-P-10

SPECIFICATION :

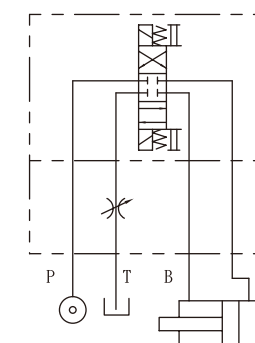
Maximum Flow Rate		50 l/Min (13.2 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25μm
Mounting Pattern		ISO 4401-AB-03-4-A
Weight	P Type	1.0 kg
	T Type	1.0 kg

HYDRAULIC CONFIGURATION:

■ MTV-02-P-10



■ MTV-02-T-10



FLOW REGULATOR VALVE SANDWICH PLATE DESIGN MTV02 SIZE 6

ORDERING CODE :

M TV - 02 - P - 10 - **
1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 FLOW REGULATOR VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFFA-D03/DIN 24340)

4 CONFIGURATION

P: single, acting on port P

T: single, acting on port T

5 DESIGN NUMBER

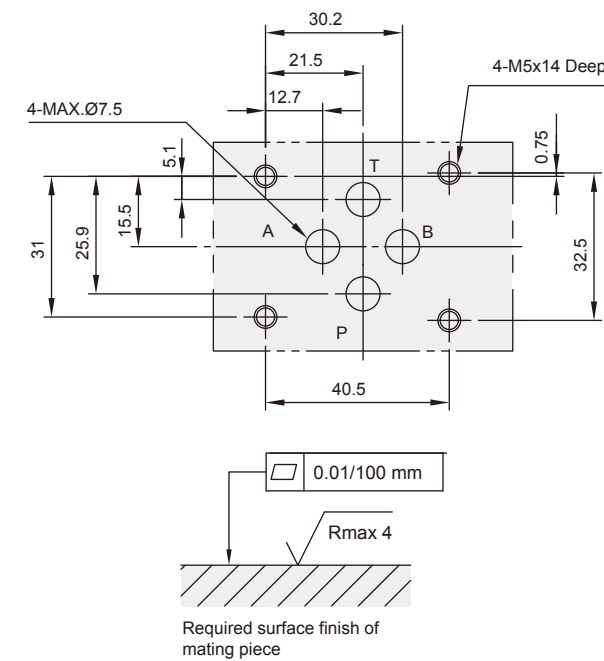
10: with handle

20: without handle

6 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)



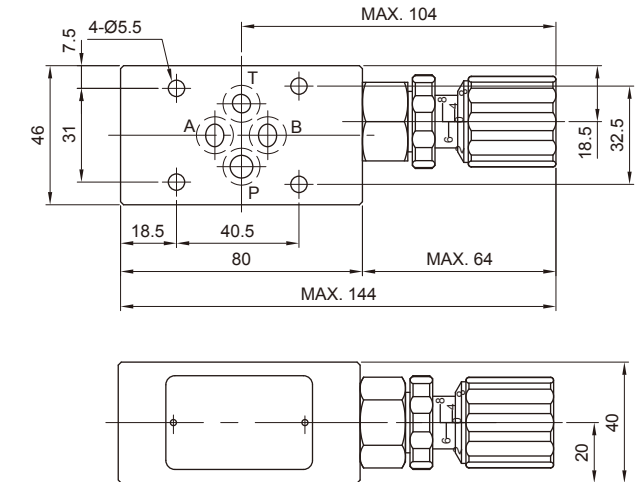
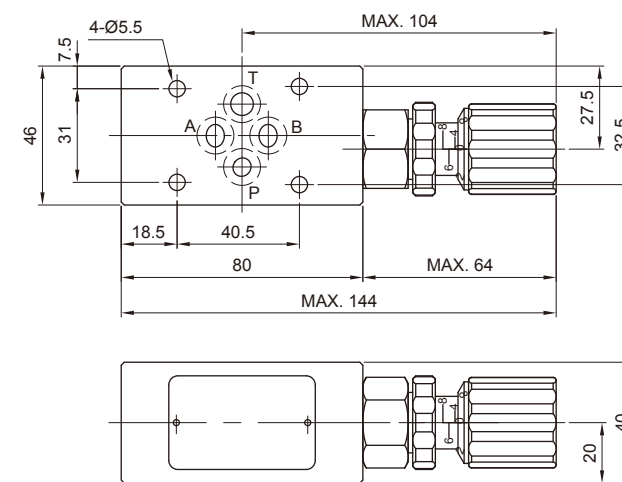
FLOW REGULATOR VALVE SANDWICH PLATE DESIGN MTV02 SIZE 6

DIMENSIONS :

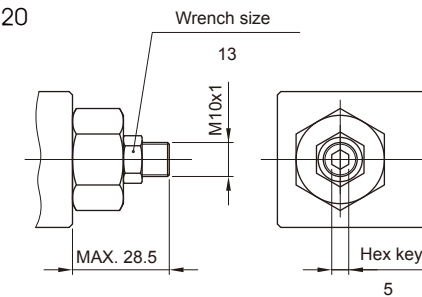
■ MTV-02-P-10

■ MTV-02-T-10

3rd angle projection



■ MTV-02-*-20

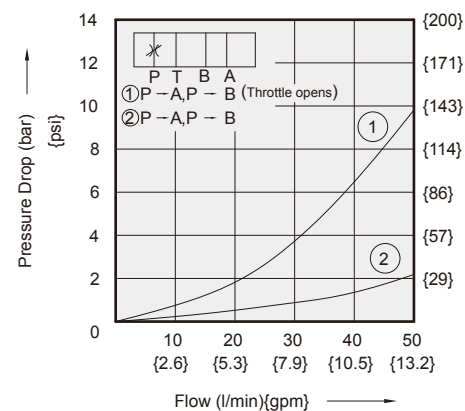


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

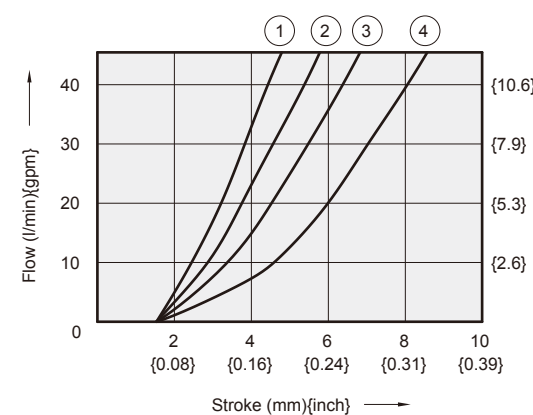
■ MTV-02-P-10



Stroke V.S. Flow Diagram

■ MTV-02-P-10

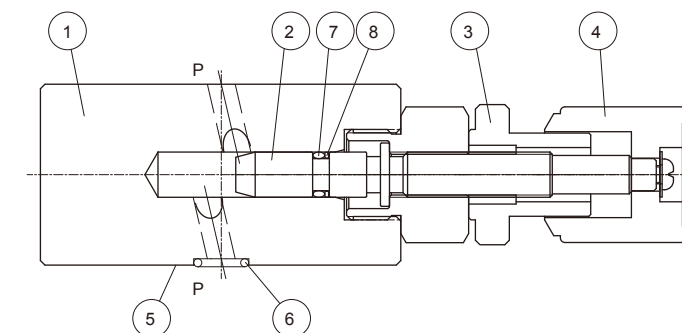
MTV-02-T-10



- ① Pressure Difference = 140 bar {2000psi} ③ Pressure Difference = 35 bar {500psi}
② Pressure Difference = 70 bar {1000psi} ④ Pressure Difference = 10 bar {143psi}

CROSS SECTION DRAWING :

■ MTV-02-P-10



1. Body
2. Setting screw
3. Locking nut
4. Adjustment element
5. Connections to DIN 24340 from A6; valve fixing screws M5 DIN 912-10.9, tightening torque 8~9 Nm
6. O-ring 1B-P9 for ports A,B,P and T
7. O-ring 1A-P7
8. O-ring BU-P7

FLOW REGULATOR WITH CHECK VALVE

SANDWICH PLATE DESIGN MTCO2 SIZE 6

FEATURES :

- Highest performance in NG 6
- Sandwich plate design
- For limiting the main or pilot fluid flow of 2 actuator connections
- For meter-in or meter-out control
- Connections to DIN, ISO and CETOP



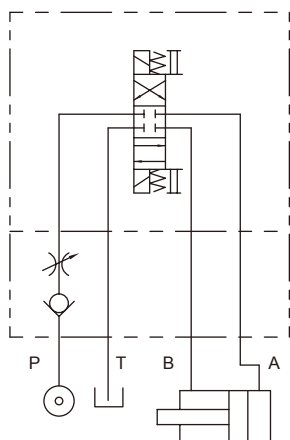
Model: MTC-02-P-10

SPECIFICATION :

Maximum Flow Rate	50 l/Min (13.2 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Check valve cracking pressure	0.4 Bar (5.7 PSI)
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AB-03-4-A
Weight	1.0 kg

HYDRAULIC CONFIGURATION:

- MTC-02-P-10



FLOW REGULATOR WITH CHECK VALVE

SANDWICH PLATE DESIGN MTCO2 SIZE 6

ORDERING CODE :

M TC - 02 - P - 10 - **
1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 FLOW REGULATOR WITH CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

P: single, acting on port P

5 DESIGN NUMBER

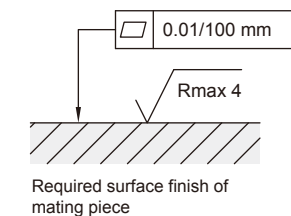
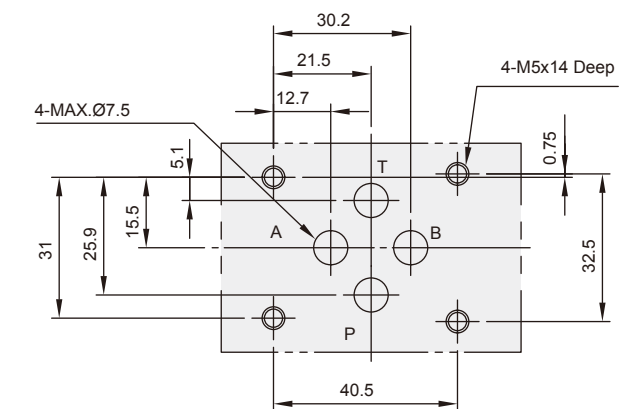
10: with handle

20: without handle

6 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

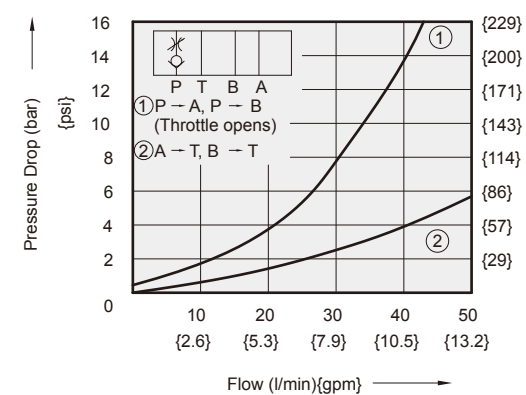


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

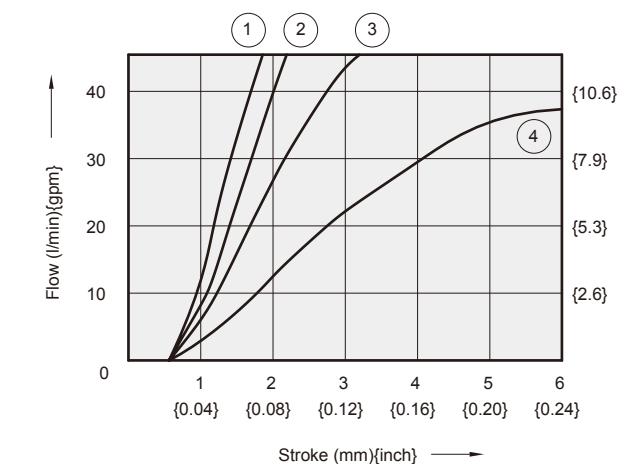
Pressure Drop Characteristic

- MTC-02-P-10



Stroke Versus Flow Diagram

- MTC-02-P-10

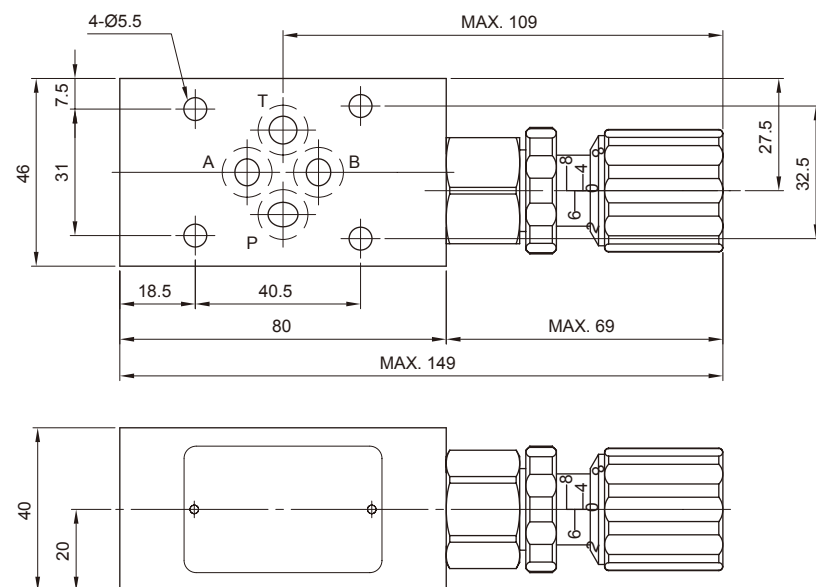


- ① Pressure Difference= 140 bar{2000psi} ③ Pressure Difference= 35 bar{500psi}
② Pressure Difference= 70 bar{1000psi} ④ Pressure Difference= 10 bar{143psi}

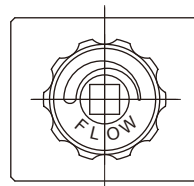
FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTCO2 SIZE 6

DIMENSIONS :

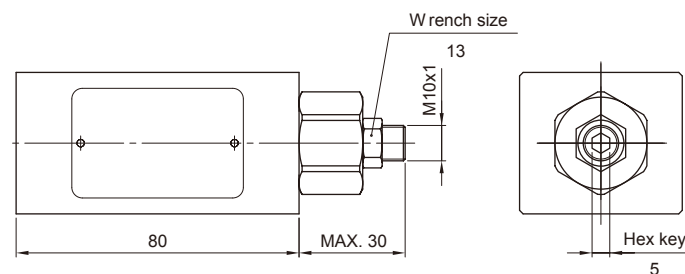
■ MTC-02-P-10



3rd angle
projection

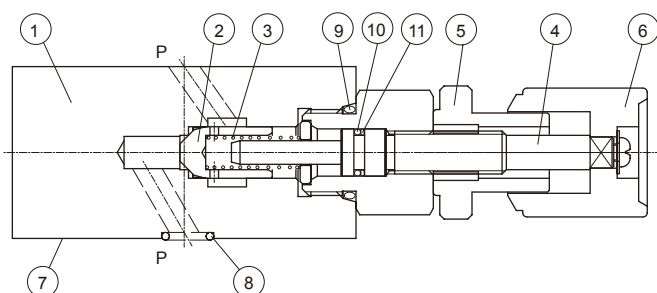


■ MTC-02-P-20



CROSS SECTION DRAWING :

■ MTC-02-P-10



1. Body
2. Throttle
3. Spring
4. Setting screw
5. Locking nut
6. Adjustment element
7. Connections to DIN 24340 from A6;
valve fixing screws M5x85 DIN 912-10.9
tightening torque 8~9 Nm
8. O-ring 1B-P9
for ports A,B,P and T
9. O-ring 1B-P18
10. O-ring 1A-P8
11. O-ring BU-P8

FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTCO2 SIZE 6

FEATURES :

- Highest performance in NG 6
- Sandwich plate design
- For limiting the main or pilot fluid flow of 2 actuator connections
- For meter-in or meter-out control
- Connections to DIN, ISO and CETOP



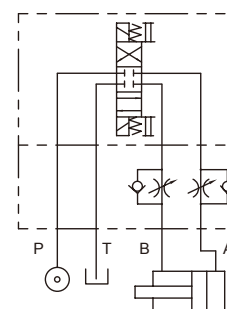
Model: MTC-02-W-O-10

SPECIFICATION :

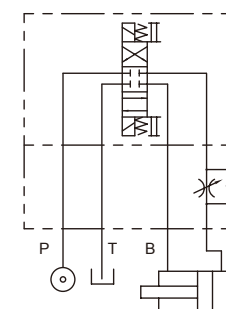
Maximum Flow Rate		50 l/Min (13.2 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Check valve cracking pressure		0.8 Bar (11.4 PSI)
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AB-03-4-A
Weight	W Type	1.3 kg
	A Type	1.2 kg
	B Type	1.2 kg

HYDRAULIC CONFIGURATION:

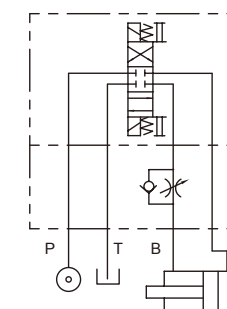
■ MTC-02-W-O-10



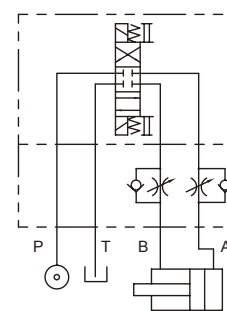
■ MCT-02-A-O-10



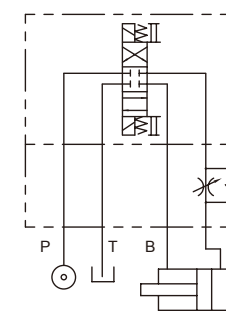
■ MTC-02-B-O-10



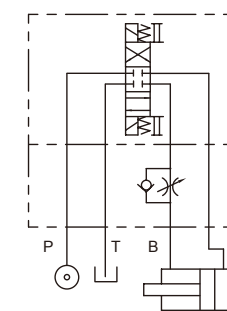
■ MTC-02-W-I-10



■ MTC-02-A-I-10



■ MTC-02-B-I-10



FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTCO2 SIZE 6

ORDERING CODE :

M TC - 02 - W - 0 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 FLOW REGULATOR WITH CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 CONTROL WAY

O: Meter out, control of flow discharged from the actuator

I: Meter in, control of flow entering the actuator

6 DESIGN NUMBER

10: with handle

20: without handle

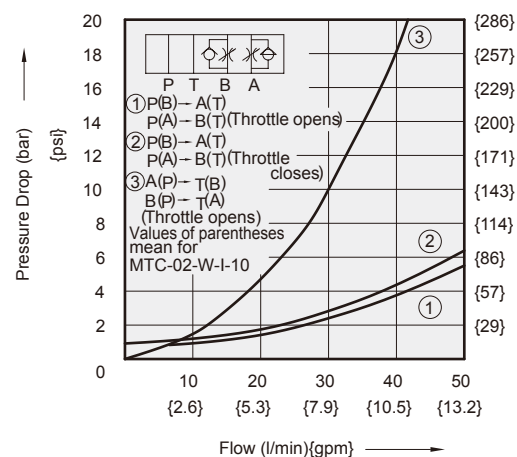
7 OPTIONAL INQUIRY

PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

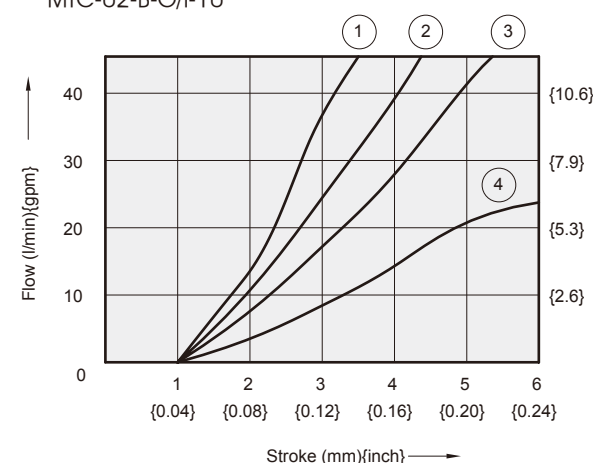
Pressure Drop Characteristic

■ MTC-02-W-O-10
(MTC-02-W-I-10)



Stroke V.S. Flow Diagram

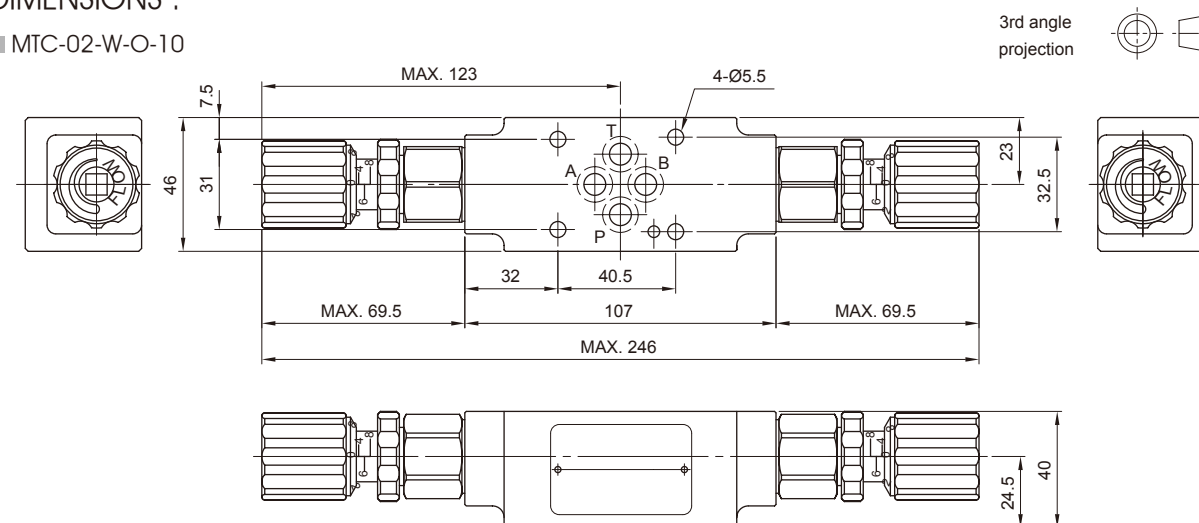
■ MTC-02-W-O/I-10
MTC-02-A-O/I-10
MTC-02-B-O/I-10



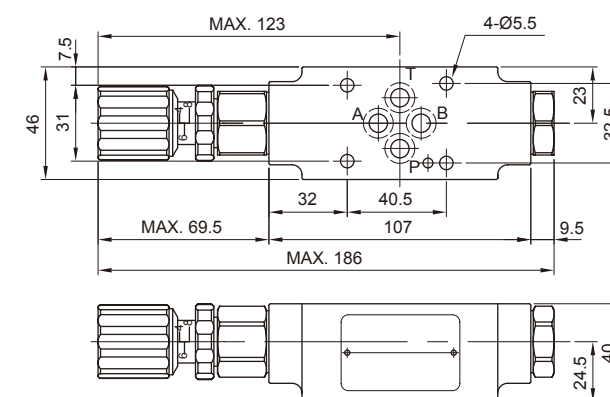
FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTCO2 SIZE 6

DIMENSIONS :

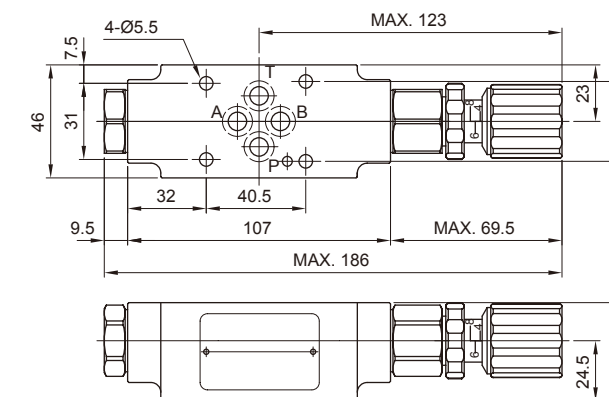
■ MTC-02-W-O-10



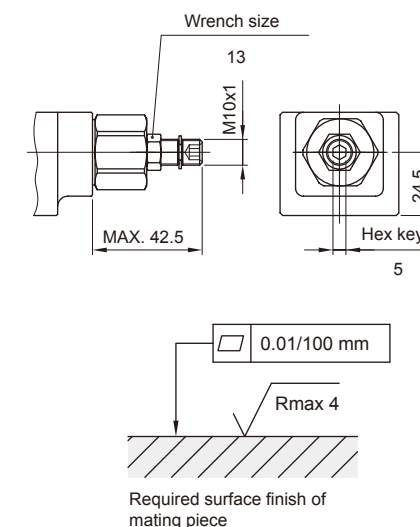
■ MTC-02-A-O-10



■ MTC-02-B-O-10

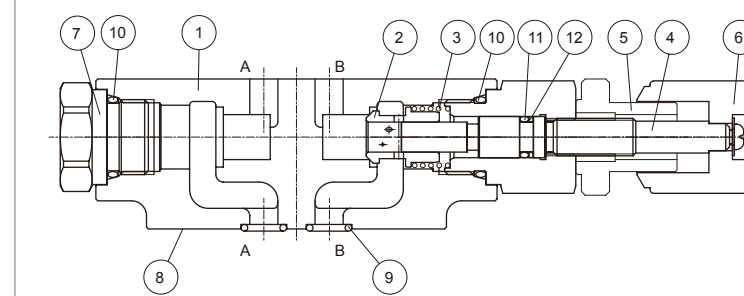


■ MTC-02-*O-20



CROSS SECTION DRAWING :

■ MTC-02-B-O-10



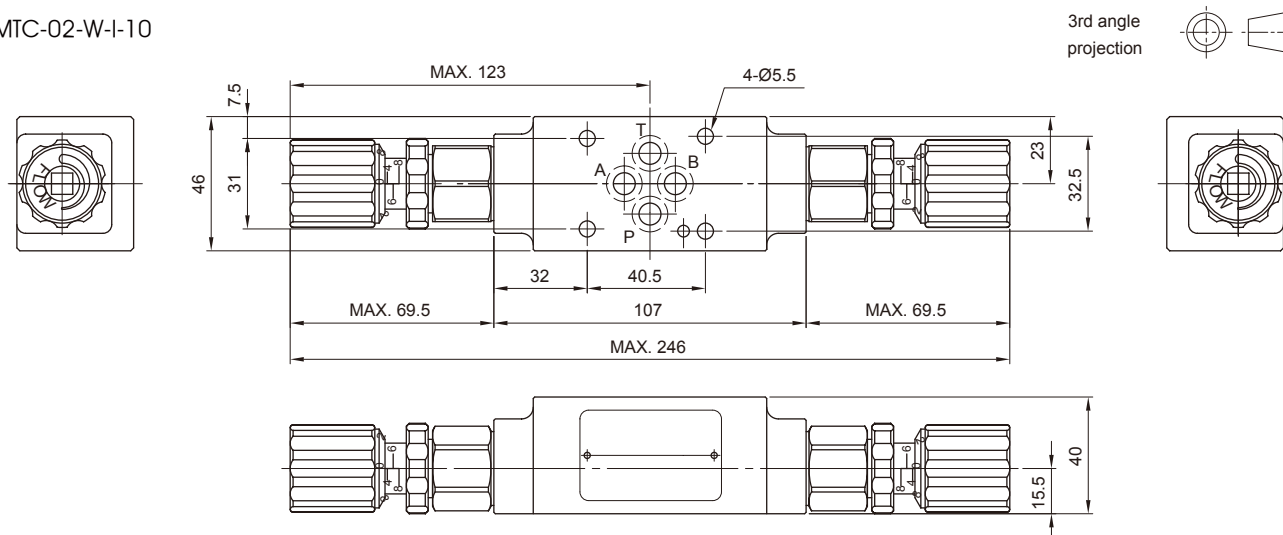
1. Body
2. Throttle
3. Spring
4. Setting screw
5. Locking nut
6. Adjustment element
7. Nut
8. Connections to DIN 24340 from A6; valve fixing screws M5 DIN 912-10.9 tightening torque 8~9 Nm
9. O-ring 1B-P9 for ports A,B,P and T
10. O-ring 1B-P18
11. O-ring 1A-P8
12. O-ring BU-P8

FLOW REGULATOR WITH CHECK VALVE

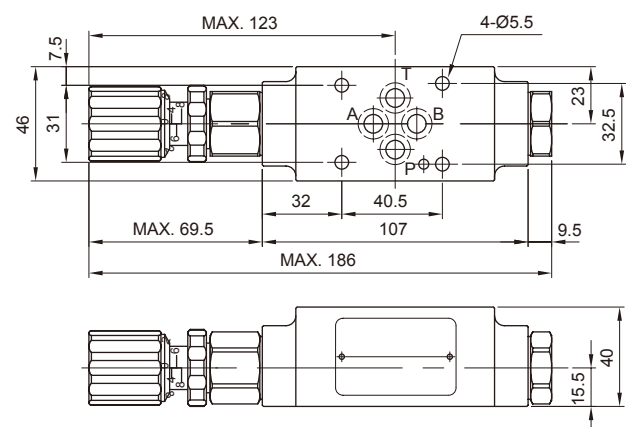
SANDWICH PLATE DESIGN MTC02 SIZE 6

DIMENSIONS :

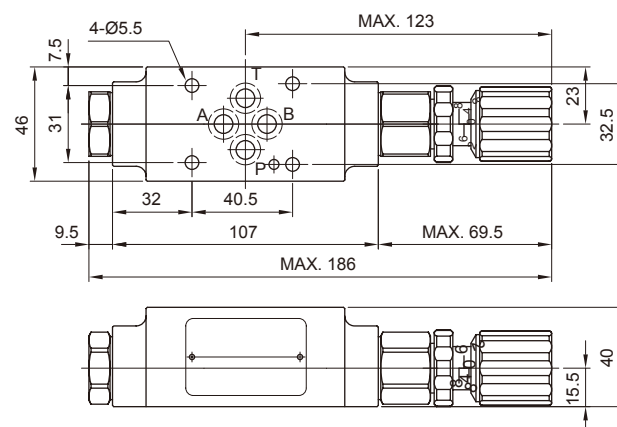
■ MTC-02-W-I-10



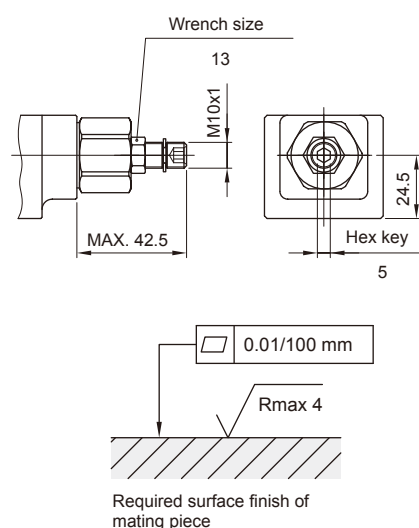
■ MTC-02-A-I-10



■ MTC-02-B-I-10

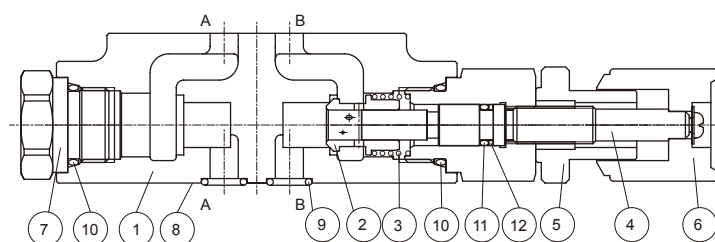


■ MTC-02-*-I-20



CROSS SECTION DRAWING :

■ MTC-02-B-I-10



1. Body
2. Throttle
3. Spring
4. Setting screw
5. Locking nut
6. Adjustment element
7. Nut

8. Connections to DIN 24340 from A6; valve fixing screws M5x85 DIN 912-10.9 tightening torque 8~9 Nm
9. O-ring 1B-P9 for ports A,B,P and T
10. O-ring 1B-P18
11. O-ring 1A-P8
12. O-ring BU-P8

CHECK VALVE

SANDWICH PLATE DESIGN MCVO2 SIZE 6

FEATURES :

- Highest performance in NG 6
- Sandwich plate design
- Direct operated check valve
- 5 different isolating functions
- Connections to DIN, ISO and CETOP



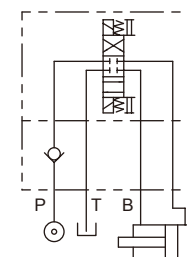
SPECIFICATION :

Model: MCV-02-P-1-10

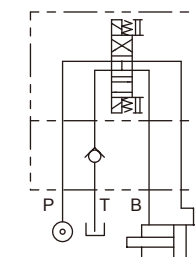
Maximum Flow Rate		50 l/Min (13.2 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Spring cracking pressure		1: 0.4 Bar (5.7 PSI)
		2: 3.5 Bar (50 PSI)
		3: 5.0 Bar (71 PSI)
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AB-03-4-A
Weight	P Type	0.97 kg
	T Type	0.97 kg
	A Type	1.2 kg
	B Type	1.2 kg
	W Type	1.4 kg

HYDRAULIC CONFIGURATION:

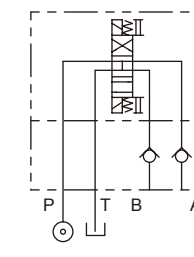
■ MCV-02-P-*-10



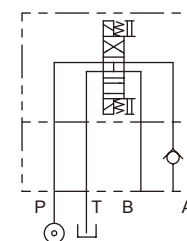
■ MCV-02-T-*-1000



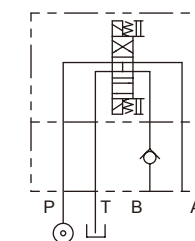
■ MCV-02-W-*-10



■ MCV-02-A-*-10



■ MCV-02-B-*-10



CHECK VALVE

SANDWICH PLATE DESIGN MCV02 SIZE 6

ORDERING CODE :

M CV - 02 - P - 0 - 10 - **

1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

P: single; acting on port P

T: single; acting on port T

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 SPRING CRACKING PRESSURE

1: 0.4 Bar

2: 3.5 Bar

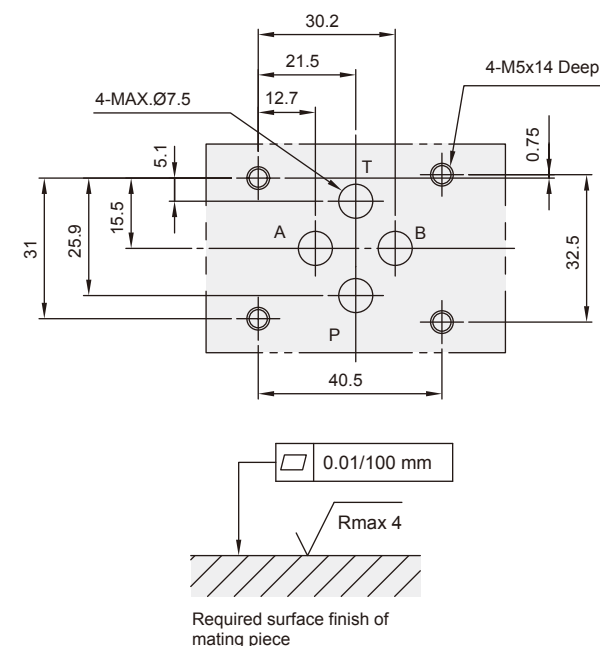
3: 5.0 Bar

6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

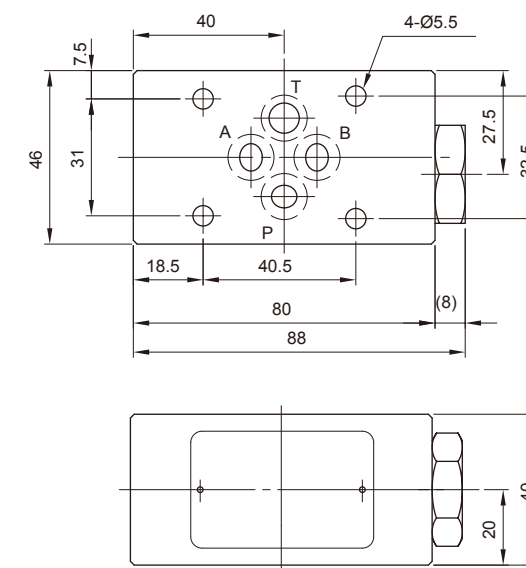


CHECK VALVE

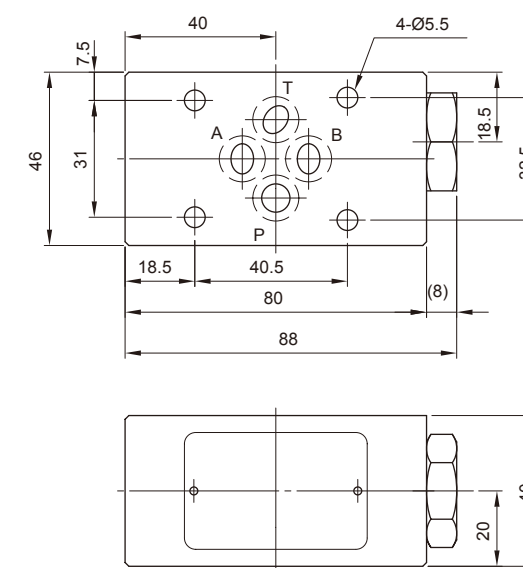
SANDWICH PLATE DESIGN MCV02 SIZE 6

DIMENSIONS :

■ MCV-02-P-*-10



■ MCV-02-T-*-10



3rd angle projection



■ MCV-02-A-*-10

MCV-02-B-*-10

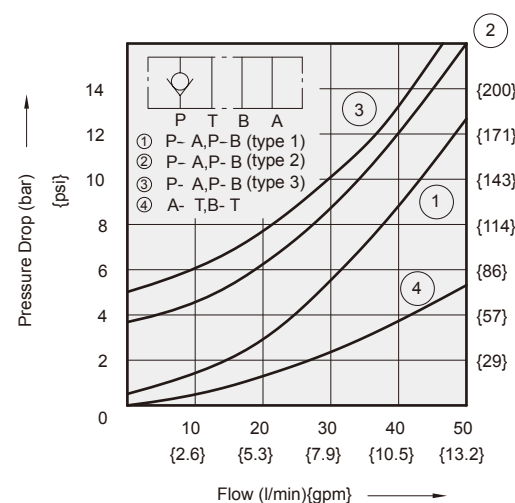
MCV-02-W-*-10

PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

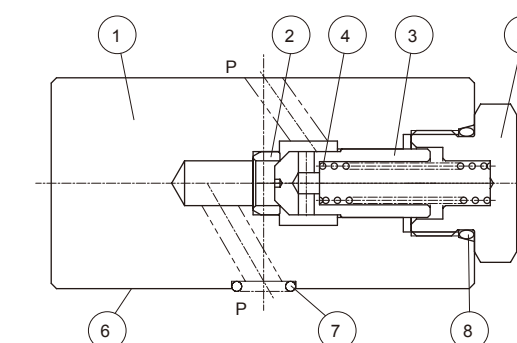
Pressure Drop Characteristic

■ MCV-02-P-*-10



CROSS SECTION DRAWING :

■ MCV-02-P-*-10



1. Body
2. Seat
3. Poppet
4. Spring
5. Nut
6. Connections to DIN 24340 from A6; valve fixing screws M5x85 DIN 912-10.9 tightening torque 8~9 Nm
7. O-ring 1B-P9 for ports A,B,P and T
8. O-ring 1B-P18

VACUUM CHECK VALVE

SANDWICH PLATE DESIGN MACO2 SIZE 6

FEATURES :

- Highest performance in NG 6
- Sandwich plate design
- Direct operated check valve
- Be incorporated between A, B ports and T port
- This check valve of a certain type can be used for suction
- Connections to DIN, ISO and CETOP



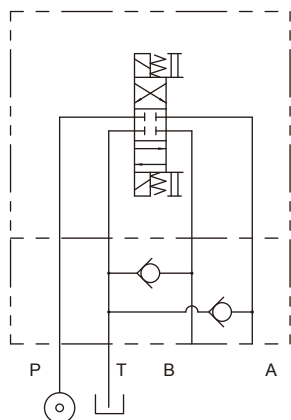
Model: MAC-02-W-10

SPECIFICATION :

Maximum Flow Rate	50 l/Min (13.2 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Spring cracking pressure	0.15 Bar (2.14 PSI)
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AB-03-4-A
Weight	1.0 Kg

HYDRAULIC CONFIGURATION:

- MAC-02-W-10



VACUUM CHECK VALVE

SANDWICH PLATE DESIGN MACO2 SIZE 6

ORDERING CODE :

M AC - 02 - W - 10 - **
1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 VACUUM CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

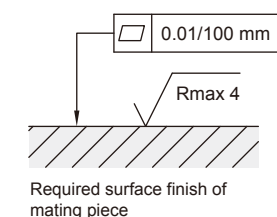
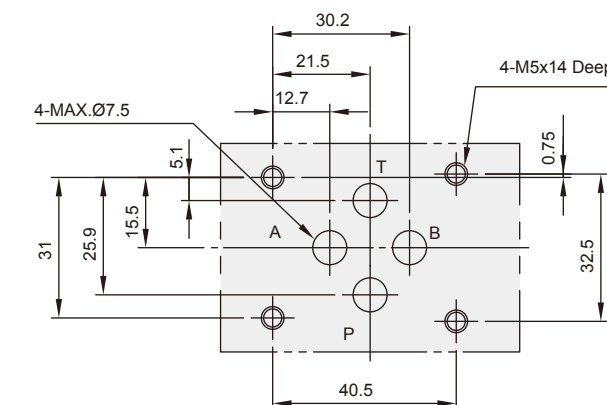
W: double; be incorporated between A, B port and T port

5 DESIGN NUMBER

6 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with poision of ports)

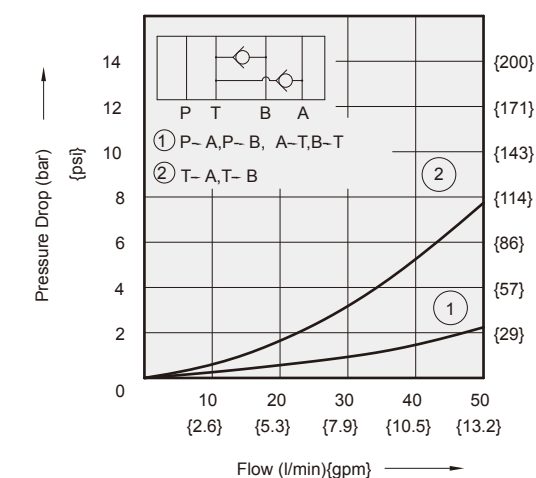


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

- MAC-02-W-10

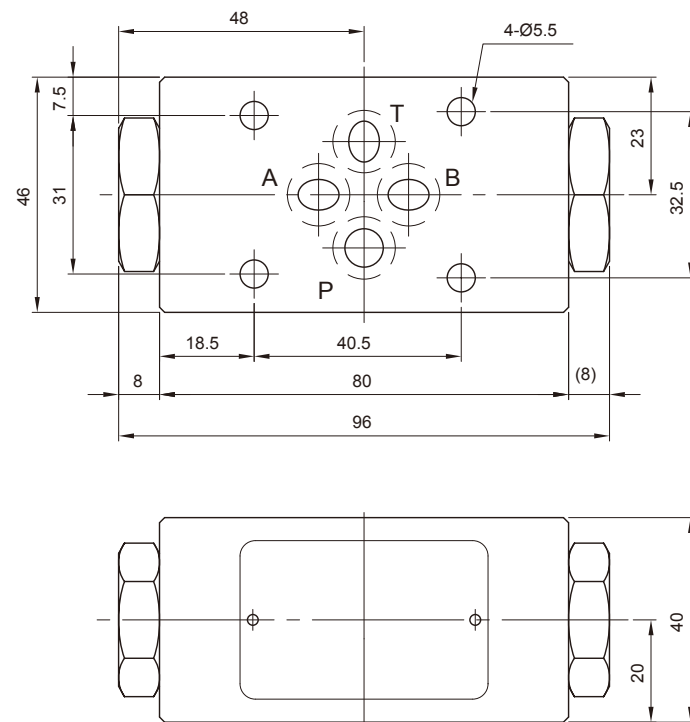


VACUUM CHECK VALVE

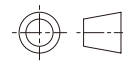
SANDWICH PLATE DESIGN MACO2 SIZE 6

DIMENSIONS :

■ MAC-02-W-10

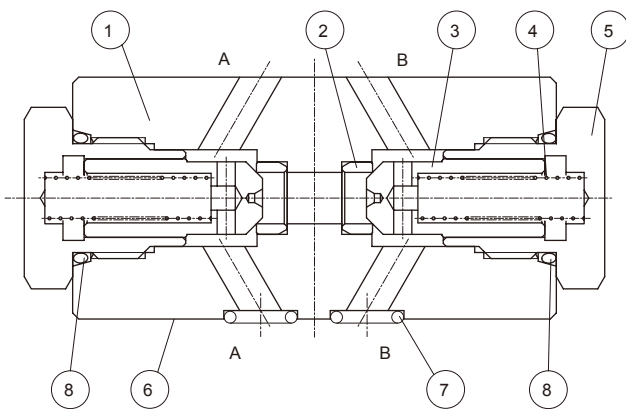


3rd angle
projection



CROSS SECTION DRAWING :

■ MAC-02-W-10



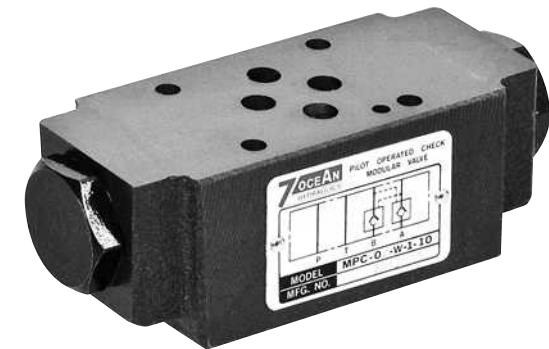
1. Body
2. Seat
3. Poppet
4. Spring
5. Nut
6. Connections to DIN 24340 from A6; valve fixing screws M5x85 DIN 912-10.9 tightening torque 8~9 Nm
7. O-ring 1B-P9 for ports A,B,P and T
8. O-ring 1B-P18

PILOT OPERATED CHECK VALVE

SANDWICH PLATE DESIGN MPCO2 SIZE 6

FEATURES :

- Highest performance in NG 6
- Sandwich plate design
- Pilot operated check valve
- For leak free sealing of one or two actuator port
- Connections to DIN, ISO and CETOP



Model: MPC-02-W-1-10

SPECIFICATION :

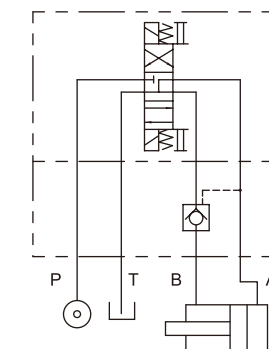
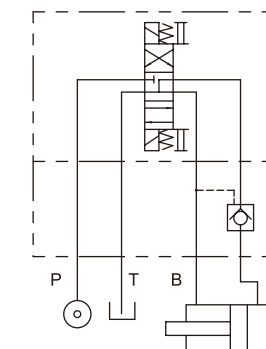
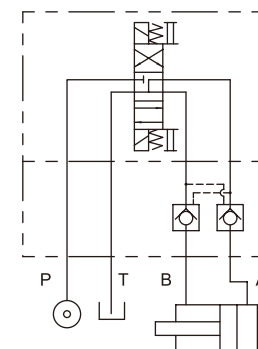
Maximum Flow Rate		50 l/Min (13.2 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Spring cracking pressure		1: 2 Bar (29 PSI)
		2: 5 Bar (71 PSI)
Area ratio	Pilot piston	1
	Check valve seat	0.37
	Needle valve seat	-
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AB-03-4-A
Weight	W Type	1.2 kg
	A Type	1.2 kg
	B Type	1.2 kg

HYDRAULIC CONFIGURATION:

■ MPC-02-W-*-10

■ MPC-02-A-*-10

■ MPC-02-B-*-10



PILOT OPERATED CHECK VALVE

SANDWICH PLATE DESIGN MPC02 SIZE 6

ORDERING CODE :

M PC - 02 - W - 1 - 10 - **

1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PILOT OPERATED CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 SPRING CRACKING PRESSURE

1: 2 Bar

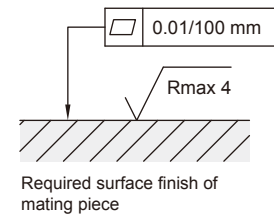
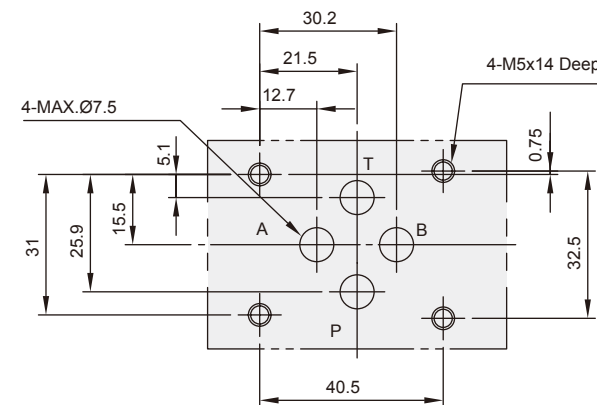
2: 5 Bar

6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

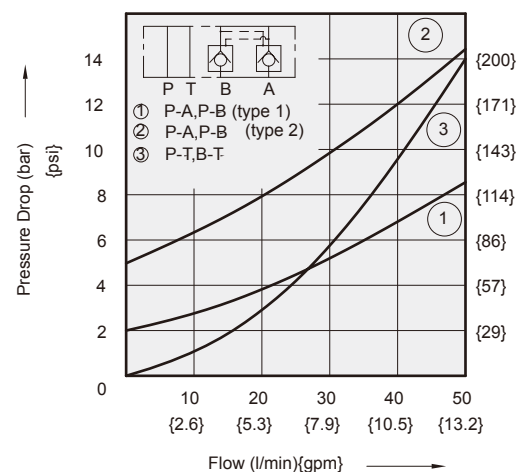


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

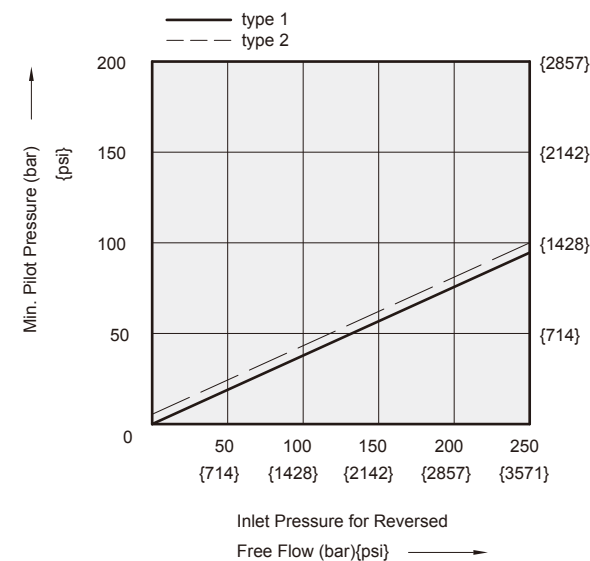
Pressure Drop Characteristic

■ MPC-02-W-*-10



Min. Pilot Pressure Characteristic

■ MPC-02-W-*-10



PILOT OPERATED CHECK VALVE

SANDWICH PLATE DESIGN MPC02 SIZE 6

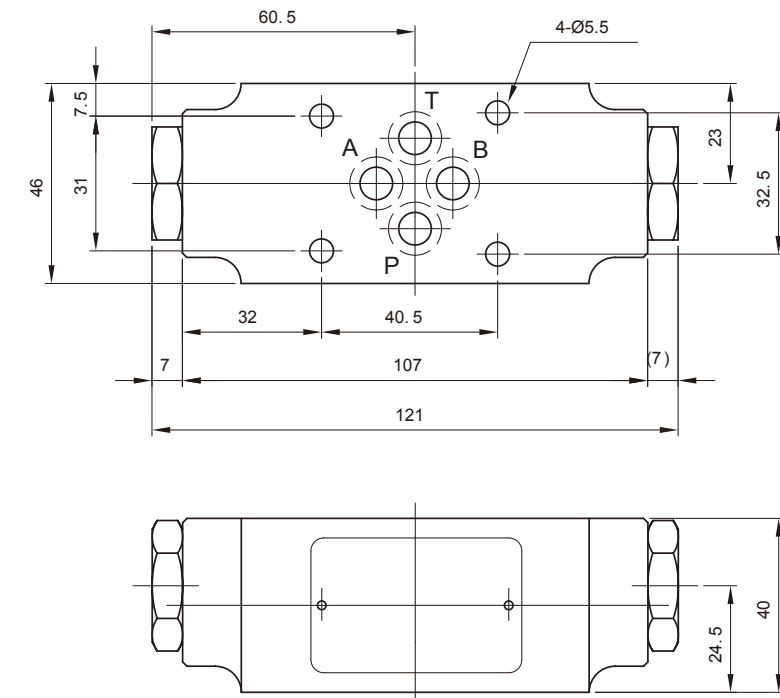
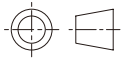
DIMENSIONS :

■ MPC-02-W-*-10

MPC-02-A-*-10

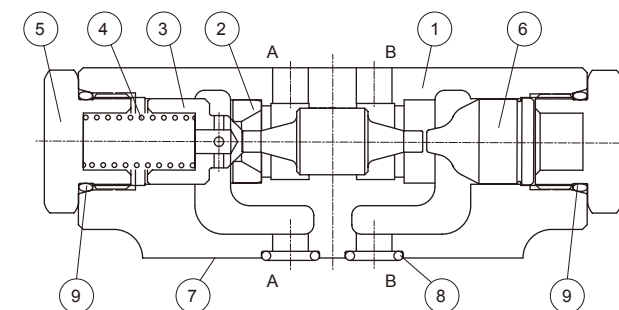
MPC-02-B-*-10

3rd angle
projection



CROSS SECTION DRAWING :

■ MPC-02-A-*-10



- 1. Body
- 2. Seat
- 3. Poppet
- 4. Spring
- 5. Nut
- 6. Bushing
- 7. Connections to DIN 24340 from A6;
valve fixing screws M5x85 DIN
912-10.9 tightening torque 8~9 Nm
- 8. O-ring 1B-P9
for ports A,B,P and T
- 9. O-ring 1B-P18

PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD02 SIZE 6

FEATURES :

- Highest performance in NG 6
- Sandwich plate design
- Pilot operated check valve with decompression
- For leak free sealing of one or two actuator port
- Connections to DIN, ISO and CETOP

SPECIFICATION :

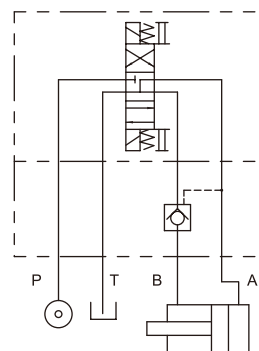
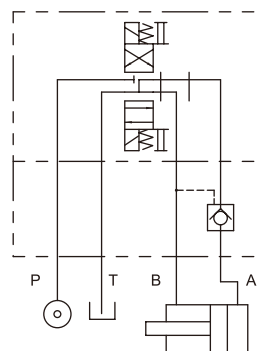
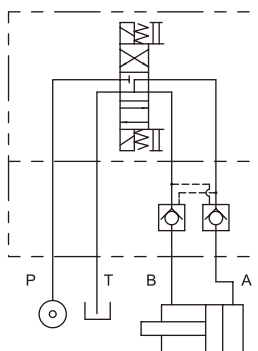
Maximum Flow Rate		50 l/Min (13.2 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Spring cracking pressure		1: 2 Bar (29 PSI)
		2: 5 Bar (71 PSI)
Area ratio	Pilot piston	1
	Check valve seat	0.51
	Needle valve seat	0.06
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 µm
Mounting Pattern		ISO 4401-AB-03-4-A
Weight	W Type	1.2 kg
	A Type	1.2 kg
	B Type	1.2 kg

HYDRAULIC CONFIGURATION:

■ MPD-02-W-*-10

■ MPD-02-A-*-10

■ MPD-02-B-*-10



PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD02 SIZE 6

ORDERING CODE :

M PD - 02 - W - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PILOT OPERATED CHECK VALVE WITH DECOMPRESSION

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 SPRING CRACKING PRESSURE

1: 2 Bar

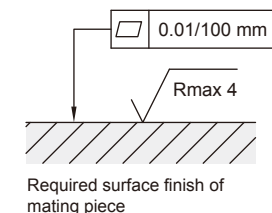
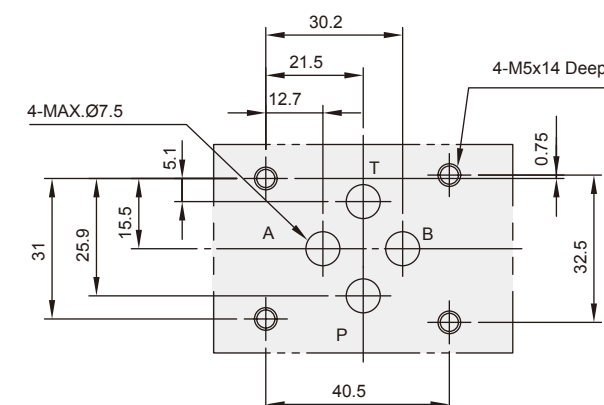
2: 5 Bar

6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

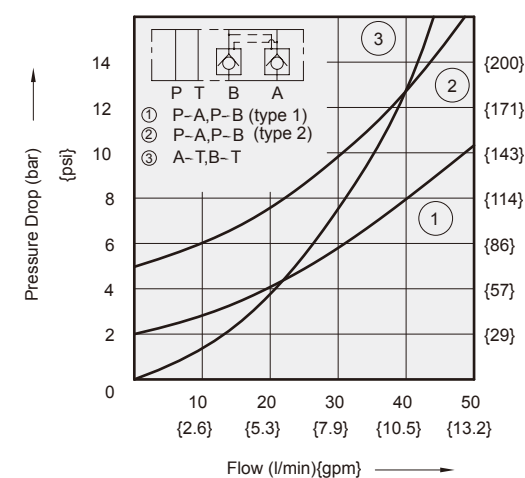


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

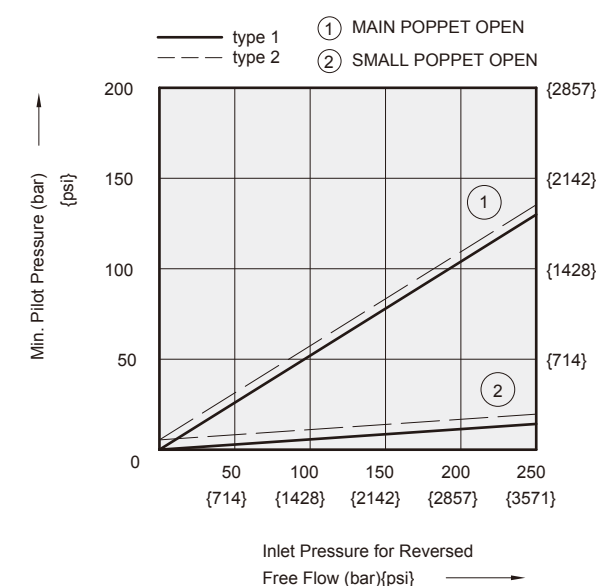
Pressure Drop Characteristic

■ MPD-02-W-*-10



Min. Pilot Pressure Characteristic

■ MPD-02-W-*-10

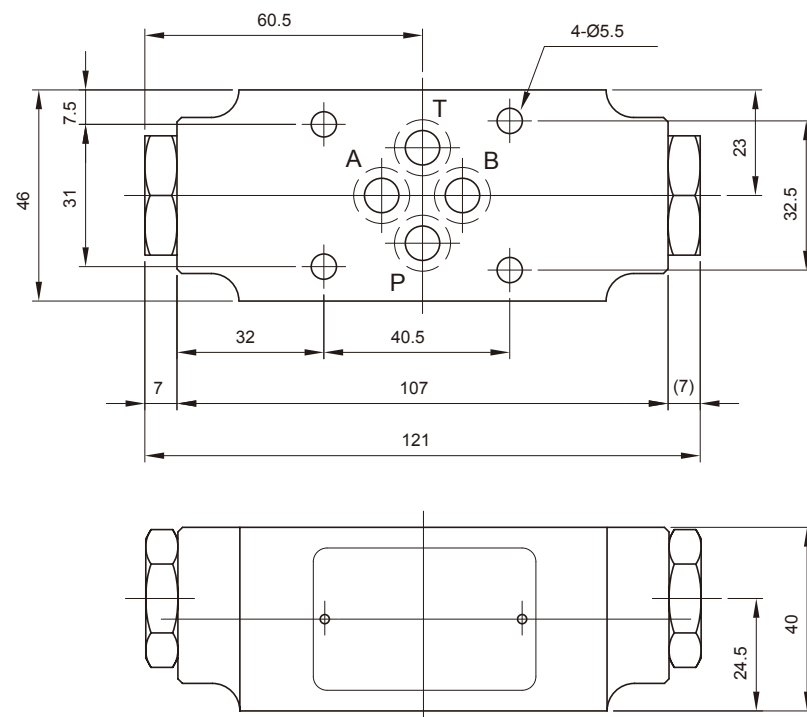
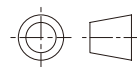


PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD02 SIZE 6

DIMENSIONS :

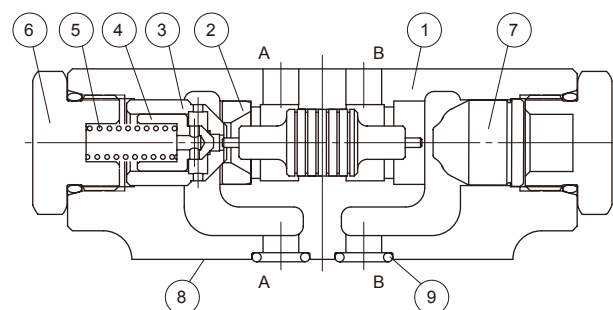
- MPD-02-W-*-10
- MPD-02-A-*-10
- MPD-02-B-*-10

3rd angle
projection



CROSS SECTION DRAWING :

- MPD-02-A-*-10

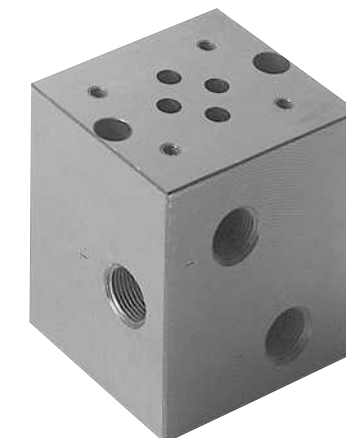


- 1. Body
- 2. Seat
- 3. Poppet 1
- 4. Poppet 2
- 5. Spring
- 6. Nut
- 7. Bushing
- 8. Connections to DIN 24340 from A6; valve fixing screws M5 DIN 912-10.9, tightening torque 8~9 Nm
- 9. O-ring 1B-P9 for ports A, B, P and T

MANIFOLD BLOCK SANDWICH PLATE DESIGN MFB02 SIZE 6

SPECIFICATION :

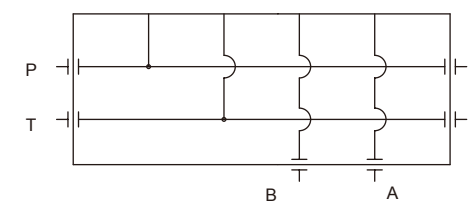
Maximum Flow Rate	50 l/Min (13.2 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Hydraulic Oil	ISO VG32, 46, 68
Mounting Pattern	ISO 4401-AB-03-4-A



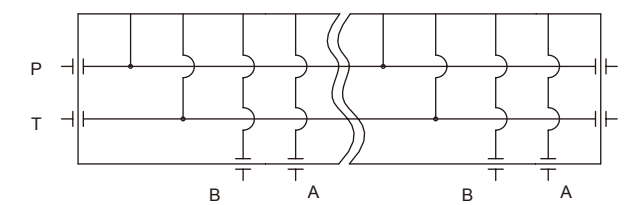
Model: MFB-02-1-10

HYDRAULIC CONFIGURATION:

- MFB-02-1-10



- MFB-02-*-10



ORDERING CODE :

M FB - 02 - 1 - 10 - **
1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 MANIFOLD BLOCK

3 NOMINAL VALVE SIZE:

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 CONFIGURATION

- 2: for 2 controls
- 3: for 3 controls
- 4: for 4 controls
- 5: for 5 controls
- 6: for 6 controls
- 7: for 7 controls

5 DESIGN NUMBER

6 OPTIONAL INQUIRY

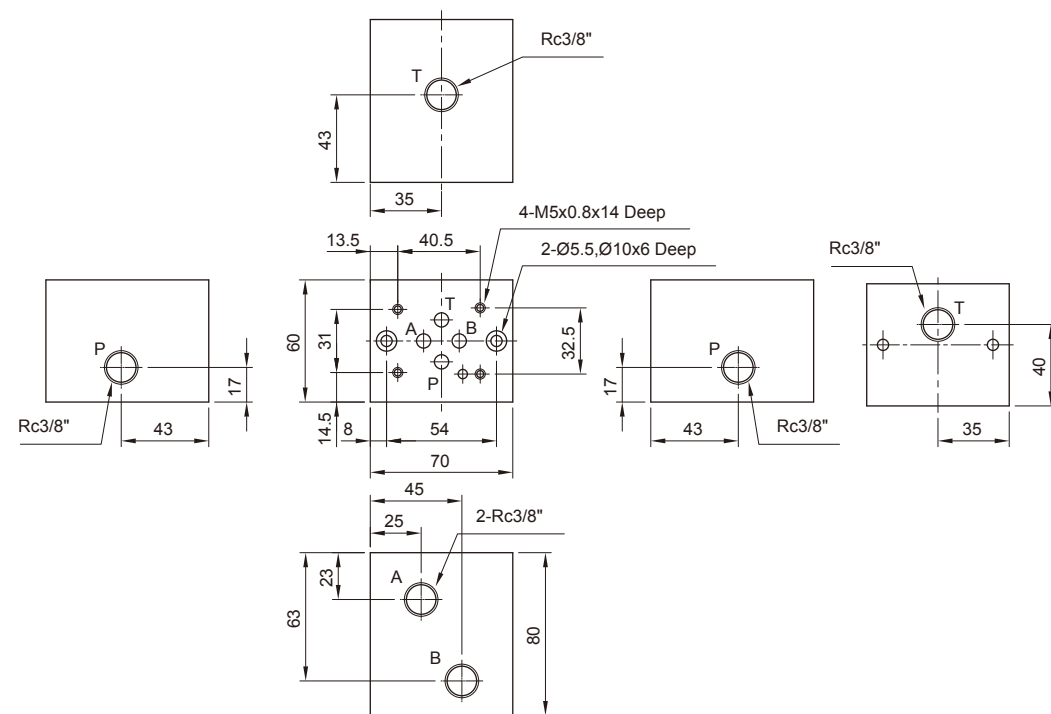
MANIFOLD BLOCK

SANDWICH PLATE DESIGN MFB02 SIZE 6

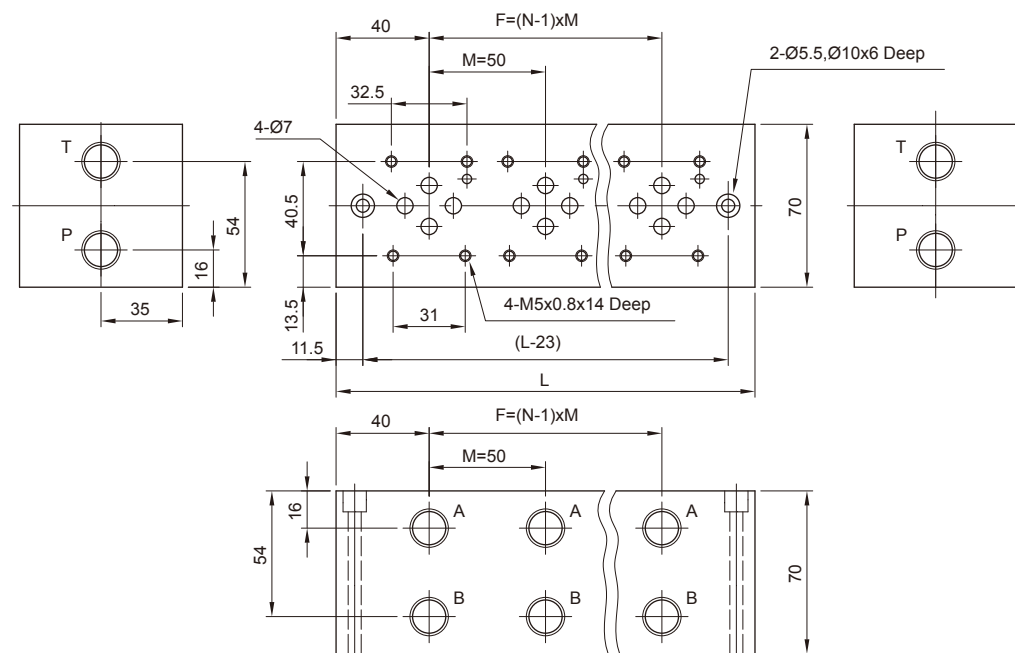
DIMENSIONS :

■ MFB-02-1-10

Weight: 2.2kg



■ MFB-02-*-10



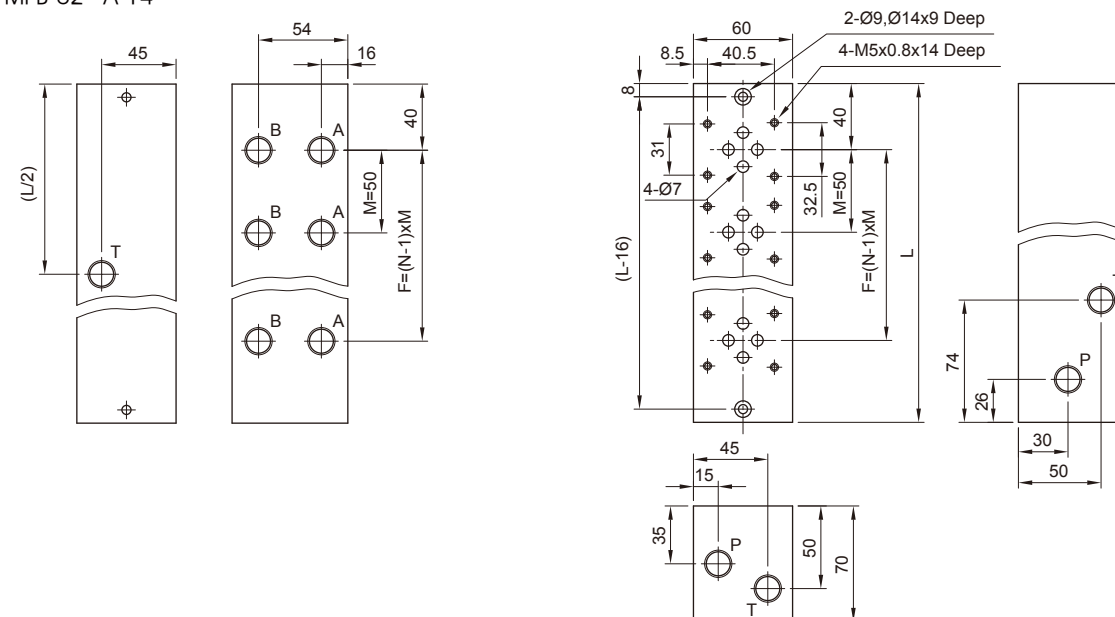
Types	N	F	L	A	B	P	T	Weight
MFB-02-2-10	2	50	130	Rc 3/8"				4.5 kgs
MFB-02-3-10	3	100	180					6.3 kgs
MFB-02-4-10	4	150	230					8.1 kgs
MFB-02-5-10	5	200	280					9.8 kgs
MFB-02-6-10	6	250	330					11.7 kgs
MFB-02-7-10	7	300	380					13.4 kgs

MANIFOLD BLOCK

SANDWICH PLATE DESIGN MFB02 SIZE 6

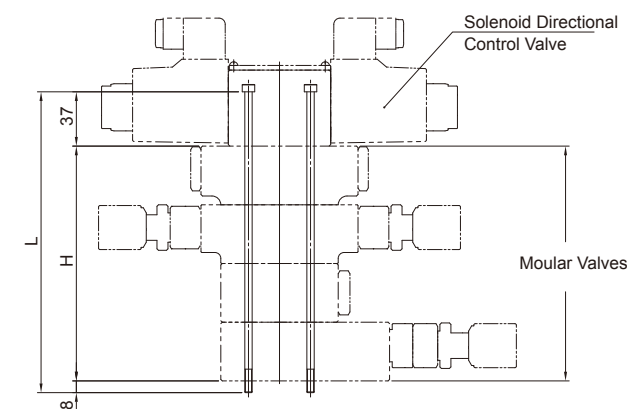
DIMENSIONS :

■ MFB-02-*-A-14



Types	N	F	L	A	B	P	T	Weight
MFB-02-2A-14	2	50	130	Rc 3/8"				3.2 kgs
MFB-02-3A-14	3	100	180					4.6 kgs
MFB-02-4A-14	4	150	230					5.9 kgs
MFB-02-5A-14	5	200	280					7.3 kgs
MFB-02-6A-14	6	250	330					8.6 kgs
MFB-02-7A-14	7	300	380					10 kgs

HEXAGON SOCKET HEAD BOLT:



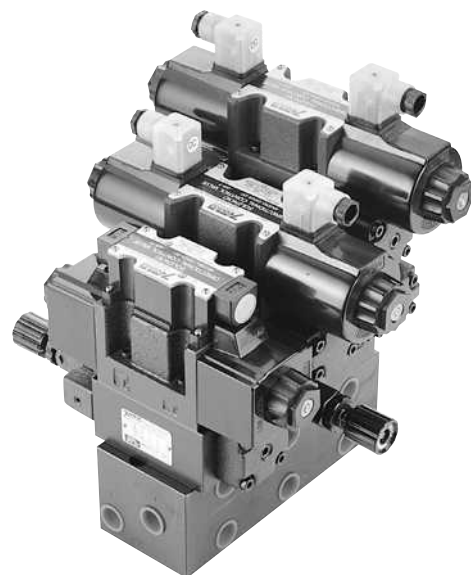
Types	H	L	Bolt length	
			Metric	Inch
1	40	85	M5 x 85L (4 pcs)	10#~24UNC x 3/8" L (4 pcs)
2	80	125	M5 x 125L (4 pcs)	10#~24UNC x 5" L (4 pcs)
3	120	165	M5 x 165L (4 pcs)	10#~24UNC x 6-1/2" L (4 pcs)
4	160	205	M5 x 205L (4 pcs)	10#~24UNC x 8-1/8" L (4 pcs)

MODULAR VALVE SERIES

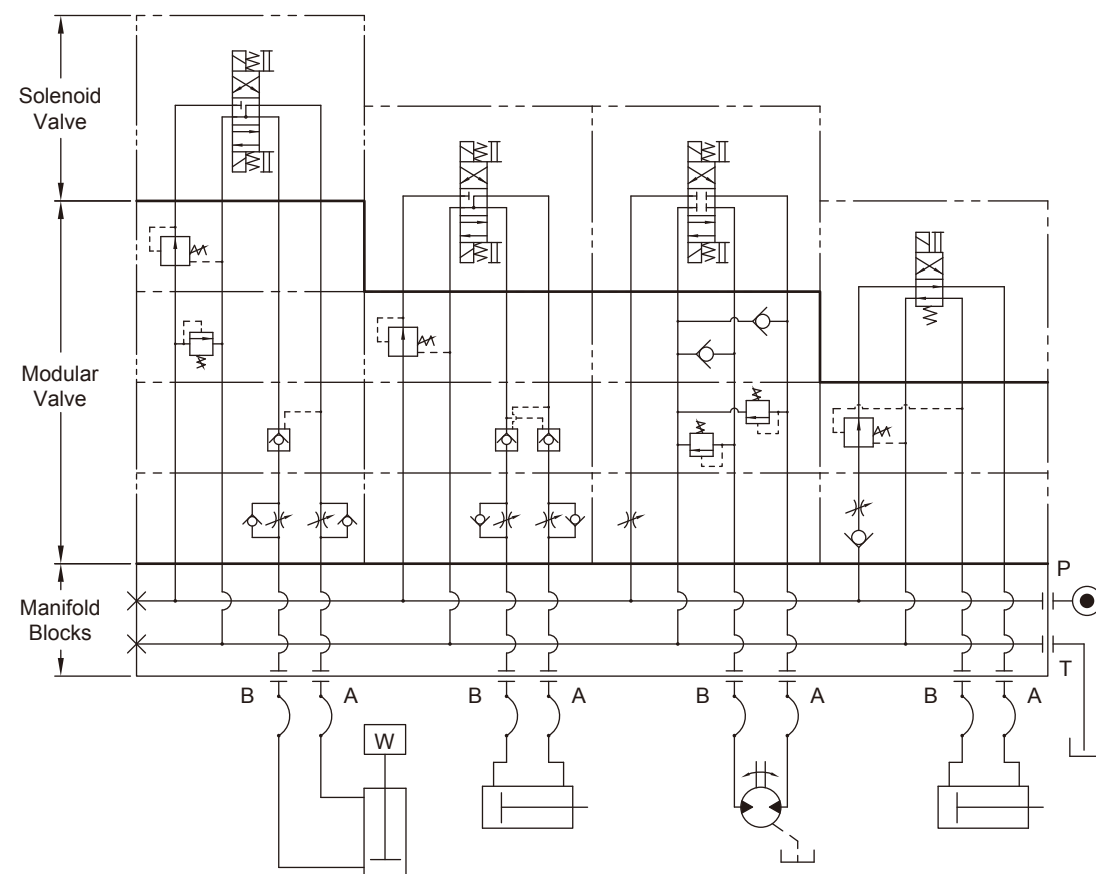
SANDWICH PLATE DESIGN 03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Compacting stacking valves.
- Eliminating intervalve piping and fittings.
- Reducing leakage and installation costs.
- Max. Operating Pressure: 32 MPa.
- Max. Flow: 100 L/min.
- Connections to DIN, ISO and CETOP



STACKING EXAMPLE :



MODULAR VALVE SERIES

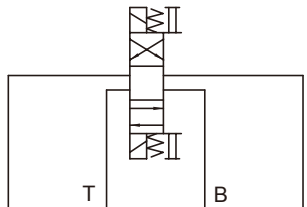
SANDWICH PLATE DESIGN 03 SIZE 10

CARE IN APPLICATION :

Valve Name	Wrong Example	Correct Example	Instructions
Solenoid Operated Directional Control Valve Pilot Operated Check Valve (MPC-03-W*-10) Pressure Reducing Valve (MGV-03-B*-10)			When MGV-03-B and MPC-03-W are used together in the same circuit, the right circuit is correct, and the left is wrong, as MPC-03-W would not be totally closed.
Solenoid Operated Directional Control Valve Flow Regulator with Metered Out Check (MTC-03-W-O-10) Pilot Operated Check Valve (MPC-03-W*-10)			When MTC-03-W-O and MPC-03-W are used together in the same circuit, MTC-03-W-O should be installed closer to the cylinder ports, otherwise the cylinder may have a "knocking" phenomenon happened.
Solenoid Operated Directional Control Valve Flow Regulator with Metered Out Check (MTC-03-W-O-10) Pressure Reducing Valve (MGV-03-B*-10)			When MGV-03-B and MTC-03-W-O are used together in the same circuit, the right circuit is correct, and the left is wrong, as the function of MGV-03-B will be affected when oil flow from B port to T port. Because MTC-03-W-O will create a pressure which will cause MGV-03-B to reduce the pressure too low, and the cylinder then can not operate with enough force or move smoothly.

MODULAR VALVE SERIES
SANDWICH PLATE DESIGN 03 SIZE 10

LIST OF MODULAR VALVE SERIES :

Classifi- cation	Valve Name	Valve Model	Pressure Adjusting Range (bar)	Max. Flow (L/min)	Hydraulic Symbol	Weight (kg)	Refer Page
Directional Control Valve	Solenoid Valve	DSV-G03-*-*-20	250	160			
		DG05-*-*-82	320				
Pressure Control Valve	Relief Valve (Balance Type)	MRV-03-P-*-10	0:7~35	80		3.1	146
		MRV-03-W-*-10	1:7~70			3.9	
		MRV-03-A-*-10	2:7~140			3.1	
		MRV-03-B-*-10	3:7~210			3.1	
	Brake Valve (Direct type)	MBV-03-W-*-10	1:8~70	30		4.8	149
		MBV-03-A-*-10	3:35~210			4.0	
		MBV-03-B-*-10				4.0	
	Reducing Valve (Direct type)	MGV-03-P-*-10	0:2.5~3.5	80		3.8	152
		MGV-03-A-*-10	1:7~70			3.8	
		MGV-03-B-*-10	2:7~140			3.8	
			3:7~210				
	Counter Balance Valve	MCB-03-A1-*-10	1:7~70	80		3.5	155
		MCB-03-B1-*-10	2:35~140			3.5	
	Sequence Valve	MSV-03-P2-*-10	1:7~70 2:35~140	80		3.5	158

MODULAR VALVE SERIES
SANDWICH PLATE DESIGN 03 SIZE 10

LIST OF MODULAR VALVE SERIES :

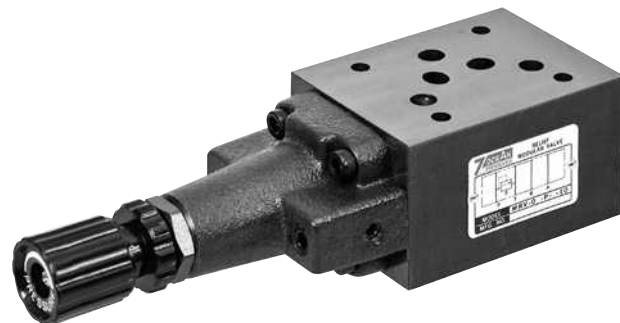
Classifi- cation	Valve Name	Valve Model	Pressure Adjusting Range (bar)	Max. Flow (L/min)	Hydraulic Symbol	Weight (kg)	Refer Page
Flow Control Valve	Flow Regulator Valve	MTV-03-P-10		100		2.5	161
		MTV-03-T-10				2.5	
	Flow Regulator with Check Valve	MTC-03-P-10	(Cracking Pressure: 0.4)	100		3.0	164
	Flow Regulator with Metered Out Check	MTC-03-W-O-10	(Cracking Pressure: 1.0)	100		3.0	167
		MTC-03-A-O-10				3.0	
		MTC-03-B-O-10				3.0	
	Flow Regulator with Metered In Check	MTC-03-W-I-10	(Cracking Pressure: 1.0)	100		3.1	167
		MTC-03-A-I-10				3.0	
		MTC-03-B-I-10				3.0	
Directional Control Valve	Check Valve	MCV-03-P-*-10	(Cracking Pressure: 1: 0.4 2: 3.5 3: 5.0)	100		2.8	171
		MCV-03-T-*-10				2.8	
		MCV-03-A-*-10				3.6	
		MCV-03-B-*-10				3.6	
	Vacuum Check Valve	MAC-03-W-10	(Cracking Pressure: 0.15)	100		3.5	174
	Pilot Check Valve	MPC-03-W-*-10	(Cracking Pressure: 1: 2 2: 5)	100		3.6	177
		MPC-03-A-*-10				3.6	
		MPC-03-B-*-10				3.6	
	Pilot Check Valve (With shock prevent mechanism)	MPD-03-W-*-10	(Cracking Pressure: 1: 2 2: 5)	100		3.6	180
		MPD-03-A-*-10				3.6	
		MPD-03-B-*-10				3.6	
Modular Block	Manifold Block	MFB-03-*-10		100			183

PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Double stage pressure relief valves with balance poppet
- Sandwich plate design
- 4 pressure ranges
- 4 optional effective directions of flow
- With one or two pressure relief cartridges
- Connections to DIN, ISO and CETOP



Model: MRV-03-P-2-10

SPECIFICATION :

Maximum Flow Rate		80 l/Min (21.2 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Pressure Adjusting Range		0: 7~35 Bar
		1: 7~70 Bar
		2: 7~140 Bar
		3: 7~210 Bar
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AC-05-4-A
Weight	P Type	3.1 kg
	W Type	3.9 kg
	A Type	3.1 kg
	B Type	3.1 kg

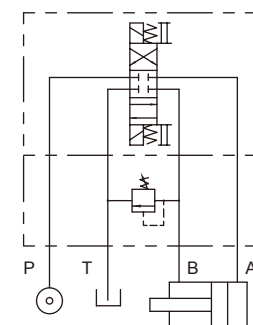
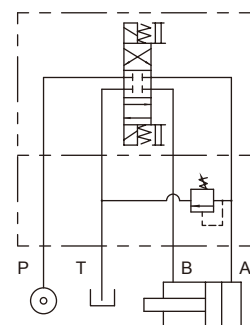
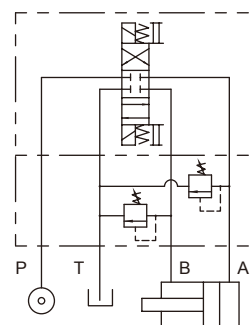
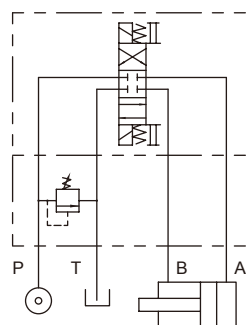
HYDRAULIC CONFIGURATION:

■ MRV-03-P-*-10

■ MRV-03-W-*-10

■ MRV-03-A-*-10

■ MRV-03-B-*-10



PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV03 SIZE 10

ORDERING CODE :

M RV - 03 - P - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE RELIEF VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

P: single; acting on port P, discharge to port T

W: double; acting on ports A and B, discharge to port T

A: single; acting on port A, discharge to port T

B: single; acting on port B, discharge to port T

5 SPRING CRACKING PRESSURE

0: 7~35 Bar

1: 7~70 Bar

2: 7~140 Bar

3: 7~210 Bar

6 DESIGN NUMBER

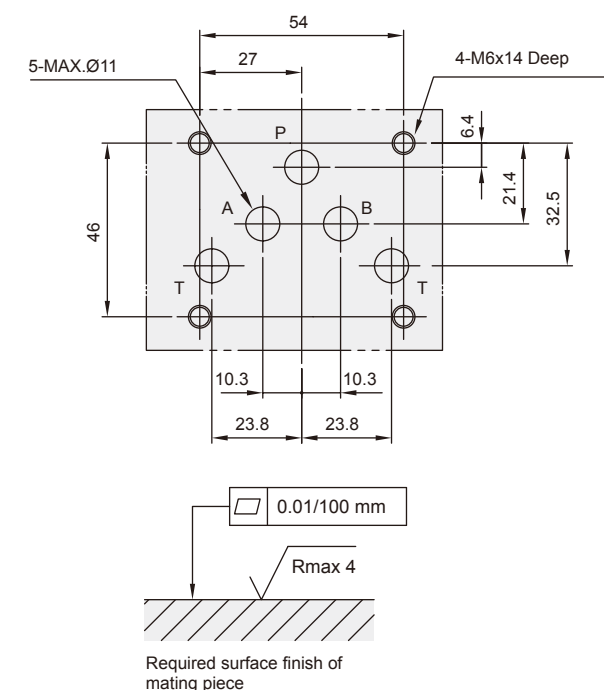
10: with handle

20: without handle

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

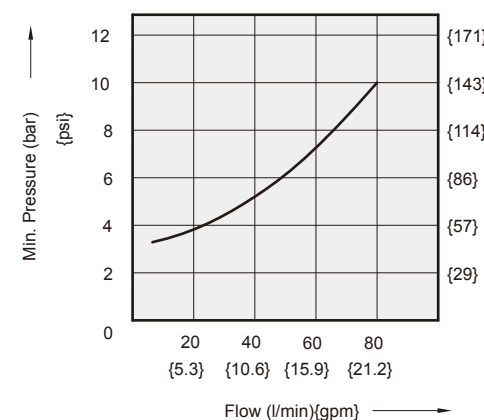


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

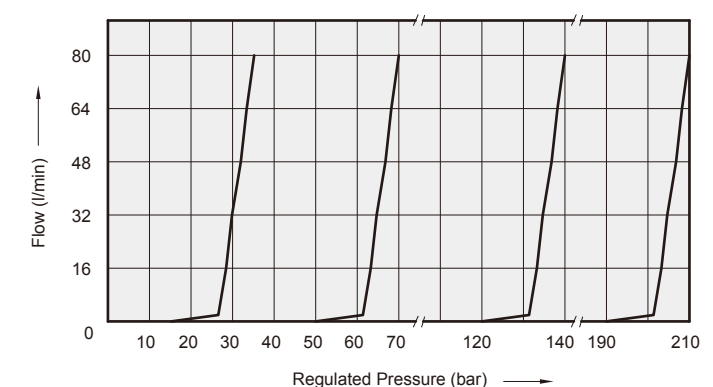
Minimum Pressure Versus flow Diagram

■ MRV-03-*-1-10



Regulated Pressure Versus flow Diagram

■ MRV-03-*-1-10

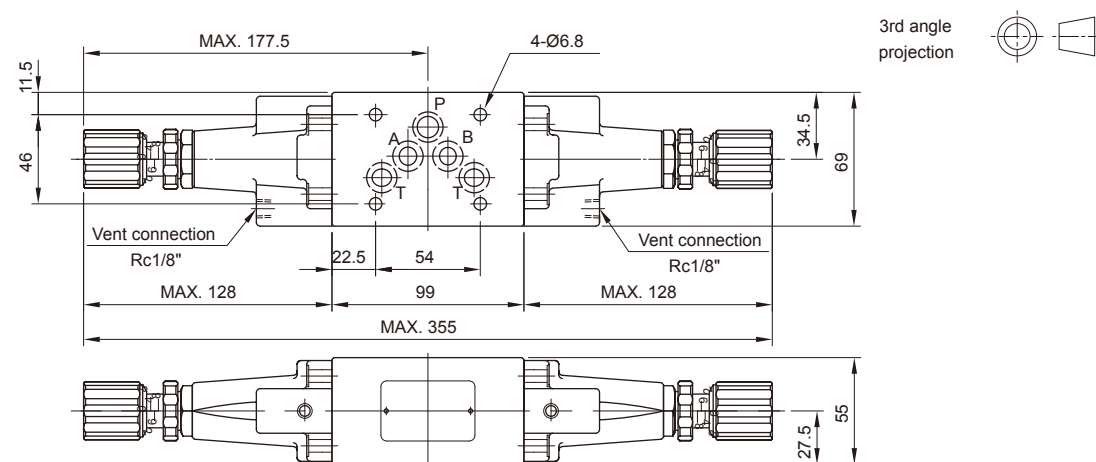


PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV03 SIZE 10

DIMENSIONS :

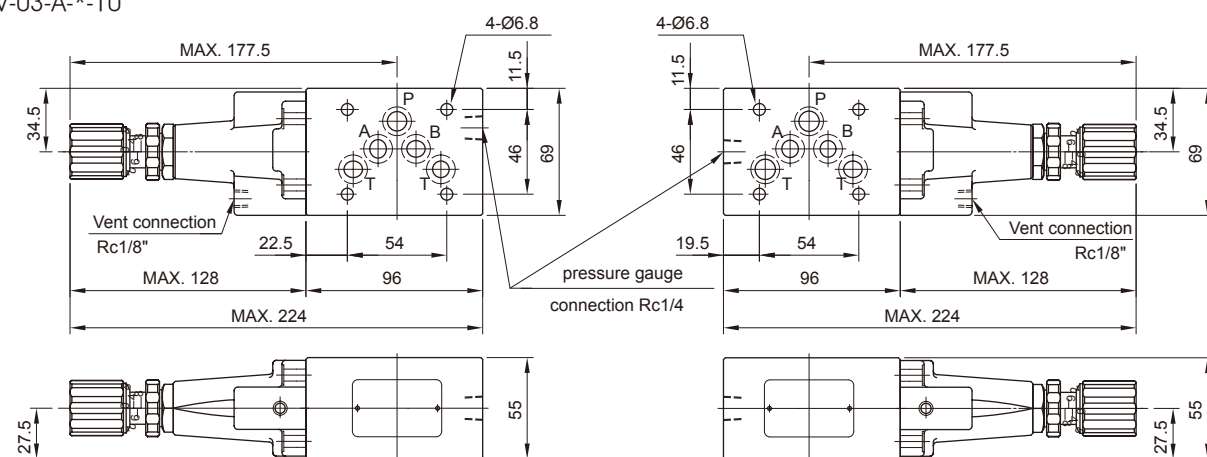
■ MRV-03-W-*-10



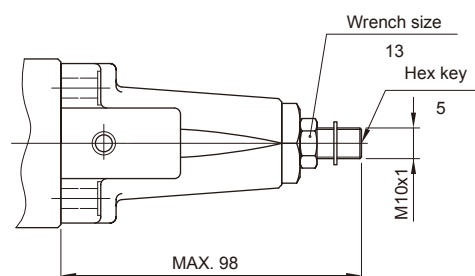
■ MRV-03-P-*-10

MRV-03-A-*-10

■ MRV-03-B-*-10

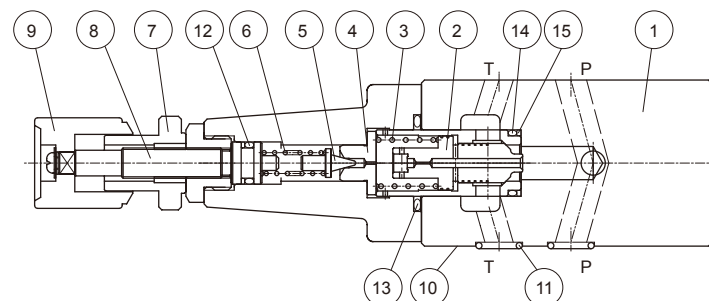


■ MRV-03-*-*-20



CROSS SECTION DRAWING :

■ MRV-03-P-*-10



1. Body.
2. Balanced poppet.
3. Balanced poppet spring
4. Seat
5. Pilot valve poppet.
6. Adjustment spring
7. Locking nut
8. Setting screw.
9. Adjustment element
10. Connections to DIN 24340 from A10; valve fixing screws M6x90 DIN 912-10.9, tightening torque 12~15 Nm
11. O-ring AS586-014(Hs90) for ports A,B,P and T
12. O-ring 1A-P10A
13. O-ring 1B-AS119
14. O-ring 1A-P18
15. O-ring BU-P18

PRESSURE BRAKE VALVE

SANDWICH PLATE DESIGN MBV03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Direct operated pressure relief valves
- Sandwich plate design
- 2 pressure adjusting ranges.
- 3 optional effective directions of flow
- With one or two pressure relief cartridges
- Connections to DIN, ISO and CETOP



Model: MBV-03-W-3-10

SPECIFICATION :

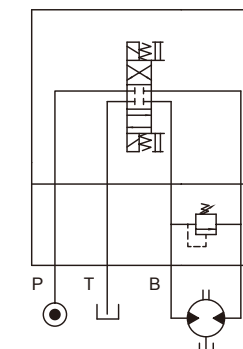
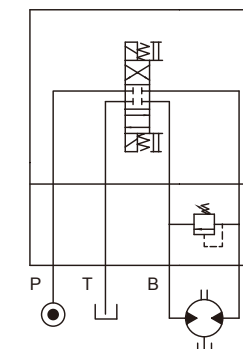
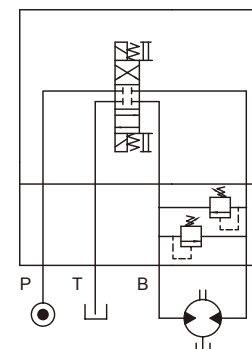
Maximum Flow Rate		30 l/Min (7.9 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Spring cracking pressure		1: 8~70 Bar
		3: 35~210 Bar
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AC-05-4-A
Weight	T Type	4.8 kg
	A Type	4.0 kg
	B Type	4.0 kg

HYDRAULIC CONFIGURATION:

■ MBV-03-W-*-10

■ MBV-03-A-*-10

■ MBV-03-B-*-10



PRESSURE BRAKE VALVE SANDWICH PLATE DESIGN MBV03 SIZE 10

ORDERING CODE :

M BV - 03 - W - 1 - 10 - **

1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE BRAKE VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A and B, with the relieved pressure cross-discharged

A: single; acting on port A, discharge to port B

B: single; acting on port B, discharge to port A

5 SPRING CRACKING PRESSURE

1: 8~70 Bar

3: 35~210 Barr

6 DESIGN NUMBER

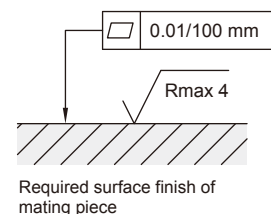
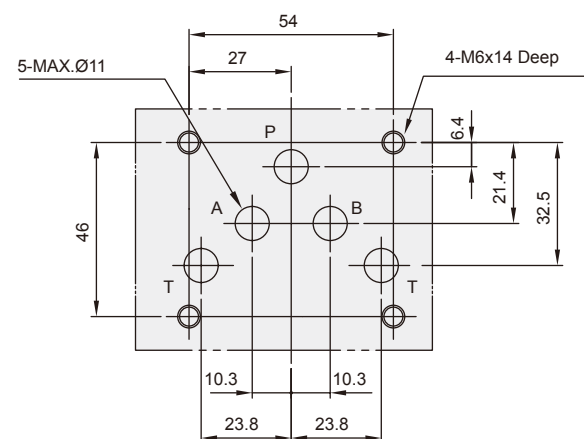
10: with handle

20: without handle

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with poision of ports)

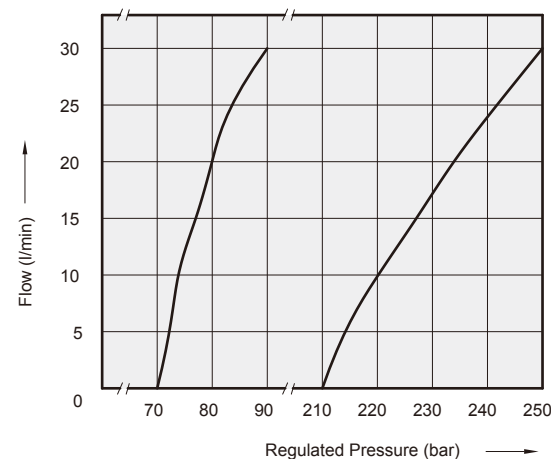


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Regulated pressure V.S. Flow Diagram

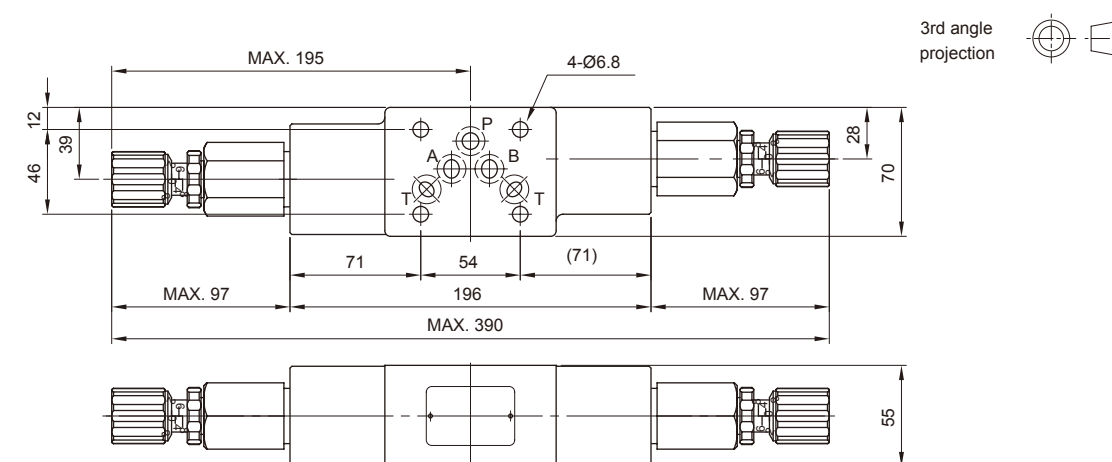
■ MBV-03-**-10



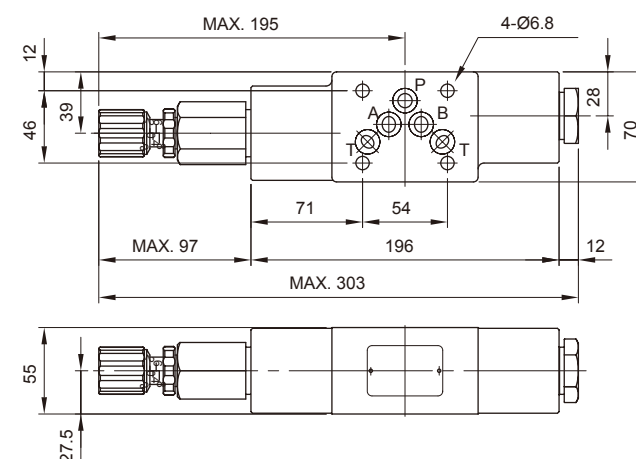
PRESSURE BRAKE VALVE SANDWICH PLATE DESIGN MBV03 SIZE 10

DIMENSIONS :

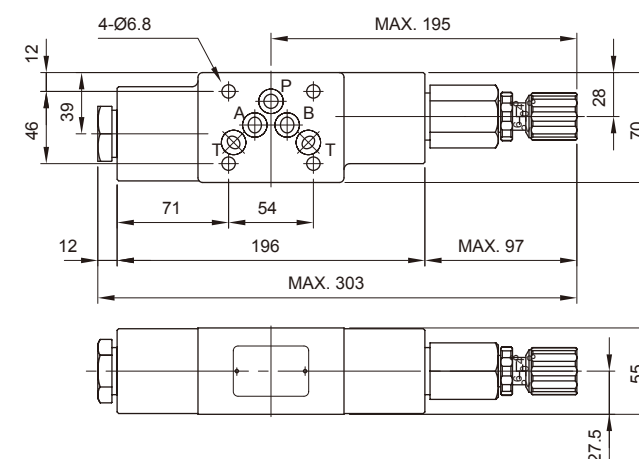
■ MBV-03-W-*-10



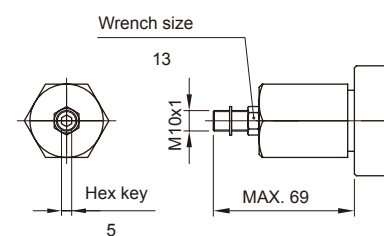
■ MBV-03-A-*-10



■ MBV-03-B-*-10

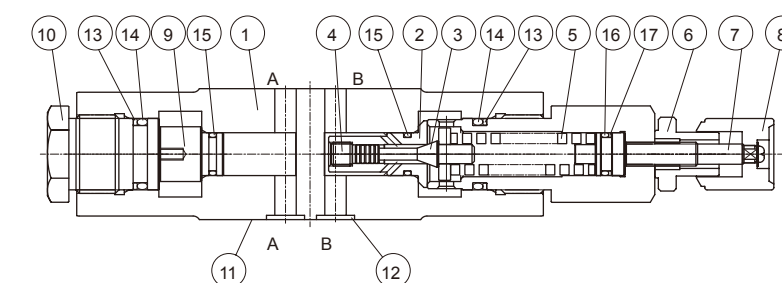


■ MBV-03-**-20



CROSS SECTION DRAWING :

■ MBV-03-B-*-10



- | | |
|-----------------------|---|
| 1. Body. | 10. Bushing |
| 2. Seat | 11. Connections to DIN 24340 from A10; valve fixing screws M6x90 DIN 912-10.9, tightening torque 12~15 Nm |
| 3. Poppet | 12. O-ring AS586-014(Hs90) for ports A, B, P and T |
| 4. Orifice | 13. O-ring BU-P24 |
| 5. Adjustment spring. | 14. O-ring 1A-P24 |
| 6. Locking nut. | 15. O-ring 1B-P14 |
| 7. Setting screw | 16. O-ring 1A-P14 |
| 8. Adjustment element | 17. O-ring BU-P14 |
| 9. Plug | |

PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO3 SIZE 10

FEATURES :

- Highest performance in NG 10
- Direct operated pressure reducing valves
- Sandwich plate design
- 4 pressure adjusting ranges.
- 3 optional effective directions of flow
- Pressure reduction in ports A, B, or P
- Connections to DIN, ISO and CETOP



Model: MGVO3-P-3-10

SPECIFICATION :

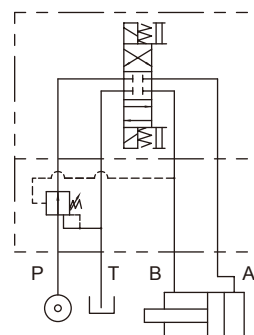
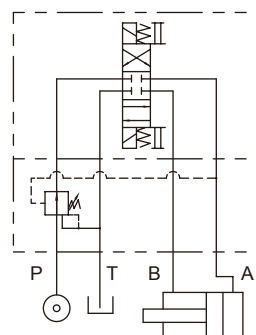
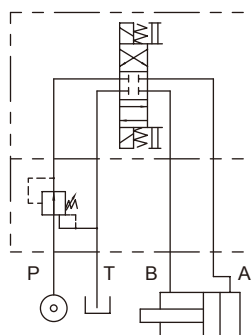
Maximum Flow Rate		80 l/Min (21.1 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Pressure Adjusting Range		0: 2.5~35 Bar
		1: 7~70 Bar
		2: 7~140 Bar
		3: 7~210 Bar
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AC-05-4-A
Weight	P Type	3.8 kg
	A Type	3.8 kg
	B Type	3.8 kg

HYDRAULIC CONFIGURATION:

■ MGVO3-P-*-10

■ MGVO3-A-*-10

■ MGVO3-B-*-10



PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO3 SIZE 10

ORDERING CODE :

M GV - 03 - P - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE REDUCING VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

P: reduced pressure on P port

A: reduced pressure on A port

B: reduced pressure on B port

5 SPRING CRACKING PRESSURE

0: 2.5~35 Bar

1: 7~70 Bar

2: 7~140 Bar

3: 7~210 Bar

6 DESIGN NUMBER

10: with handle

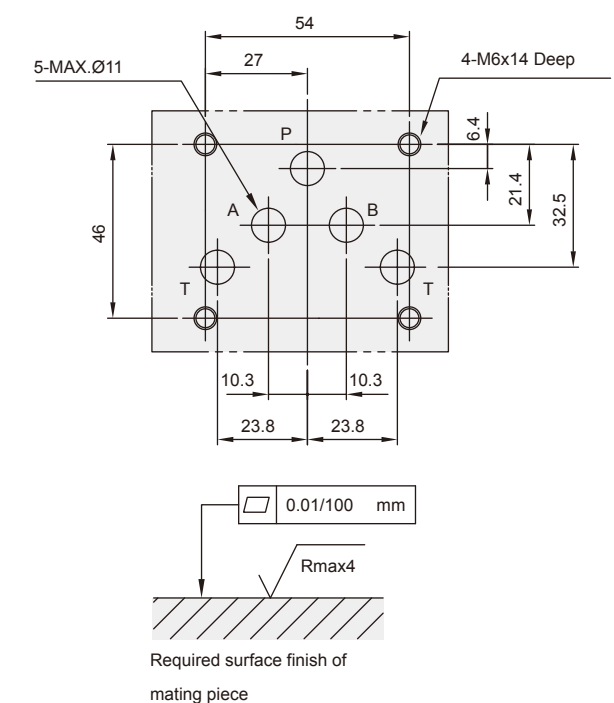
20: without handle

7 OPTIONAL INQUIRY

B: handle on A port side

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

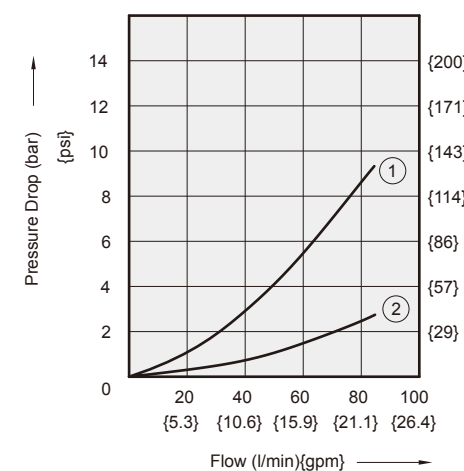


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

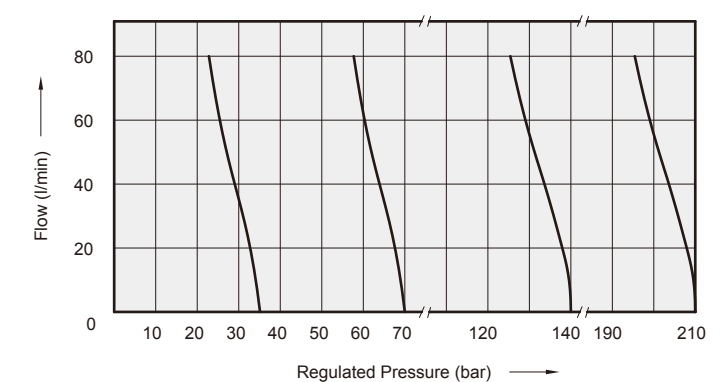
Pressure Drop Characteristic

■ MGVO3-P-*-10



Regulated Pressure V.S. Flow Diagram

■ MGVO3-P-*-10



1. Differential pressure variation V.S. variation of flow between inlet port and use port

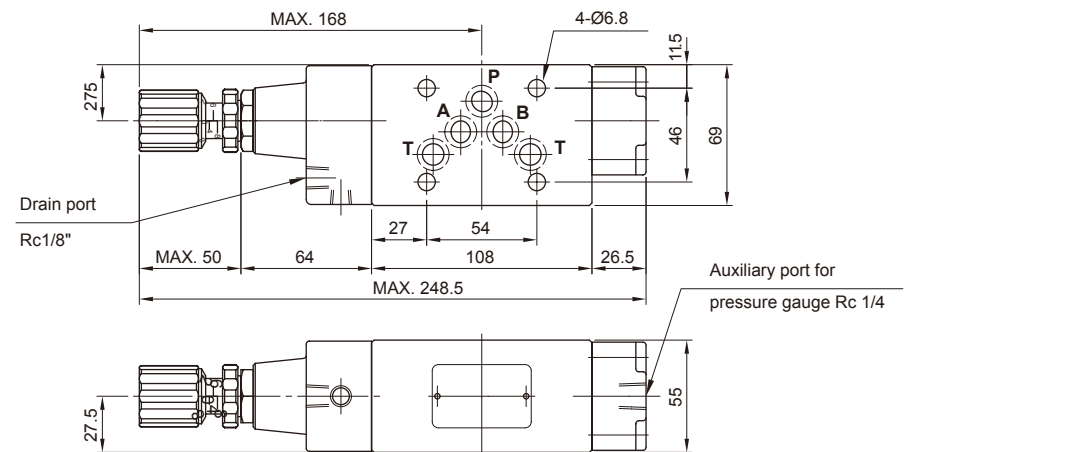
2. Differential pressure variation V.S. variation of between use port and discharge port

PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO3 SIZE 10

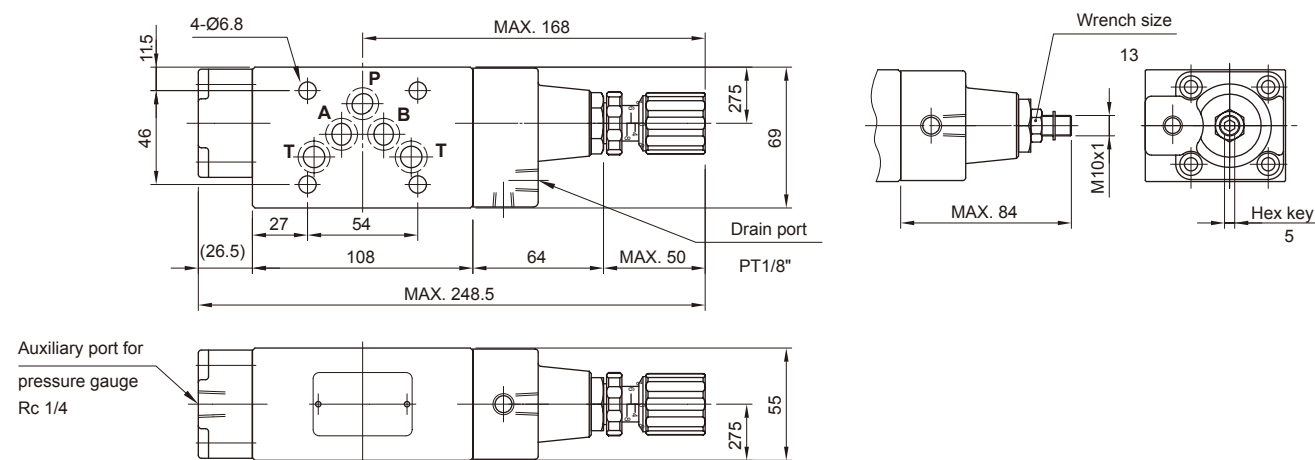
DIMENSIONS :

- MGVO3-P-*-10
- MGVO3-B-*-10



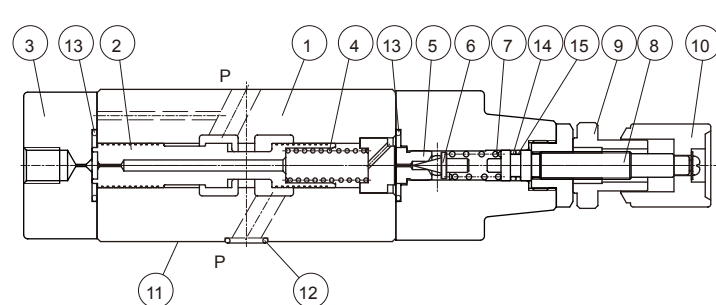
- MGVO3-P-*-10-B
- MGVO3-A-*-10

- MGVO3-*-20



CROSS SECTION DRAWING :

- MGVO3-P-*-10-B



- 1.Body
- 2.Spool
- 3.Cover
- 4.Adjustment spring 1
- 5.Seat
- 6.Poppet
- 7.Adjustment spring 2
- 8.Setting Screw
- 9.Locking nut.
10. Adjustment element
- 11.Connections to DIN 24340 from A10; valve fixing screws M6x90 DIN 912-10.9, tightening torque 12~15 Nm
- 12.O-ring AS586-014(Hs90) for ports A,B,P and T
- 13.O-ring 1B-P22
- 14.O-ring 1A-P8
- 15.O-ring BU-P8

COUNTER BALANCE VALVE

SANDWICH PLATE DESIGN MCB03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Direct operated pressure counter balance valve
- Used for actuator back pressure control
- Sandwich plate design
- 2 Pressure adjusting ranges
- Connections to DIN, ISO and CETOP



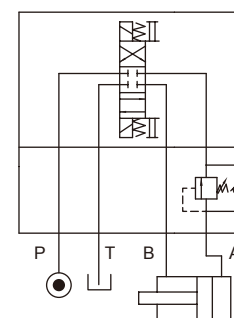
Model: MCB-03-A1-1-10

SPECIFICATION :

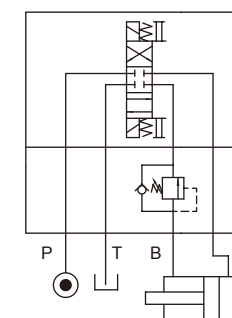
Maximum Flow Rate	80 l/Min (21.1 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Pressure Adjusting Range	1: 7~70 Bar 2: 35~140 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 µm
Mounting Pattern	ISO 4401-AC-05-4-A
Weight	A Type 3.5 kg B Type 3.5 kg

HYDRAULIC CONFIGURATION:

- MCB-03-A1-*-10



- MCB-03-B1-*-10



COUNTER BALANCE VALVE

SANDWICH PLATE DESIGN MCB03 SIZE 10

ORDERING CODE :

M CB - 03 - A 1 - 1 - 10 - **
1 2 3 4 5 6 7 8

1 SANDWICH PLATE DESIGN

2 COUNTER BALANCE VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NPPA-D05/DIN 24340)

4 CONTROL PORT

A: A port;
B: B port

5 CONTROL TYPE

1: internal pilot, internal drain

6 PRESSURE ADJUSTING RANGE

1: 7.0~70 Bar
2: 35~140 Bar

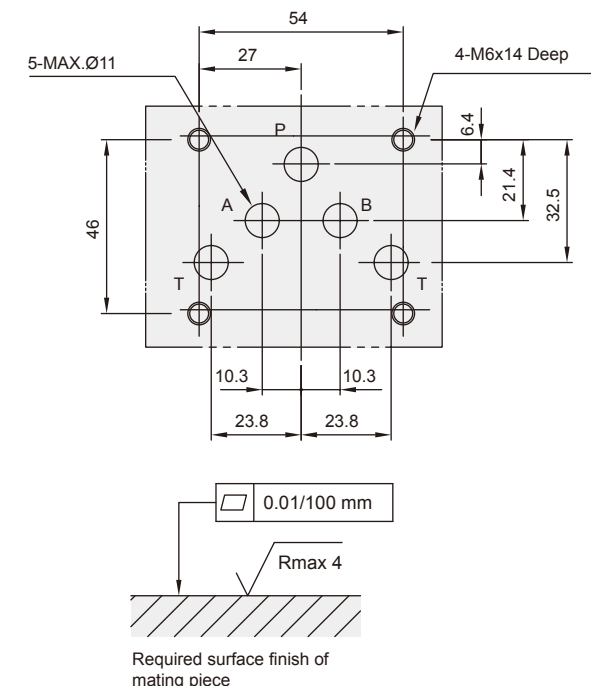
7 DESIGN NUMBER

10: with handle
20: without handle

8 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

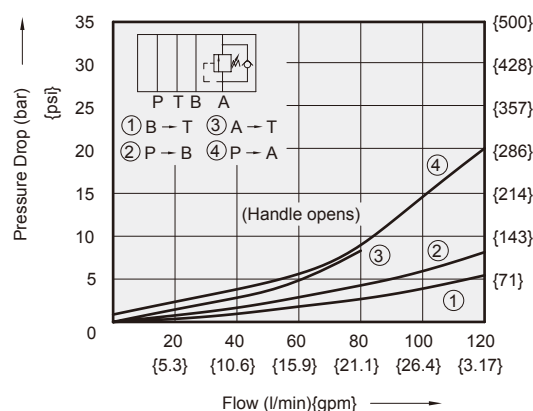


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

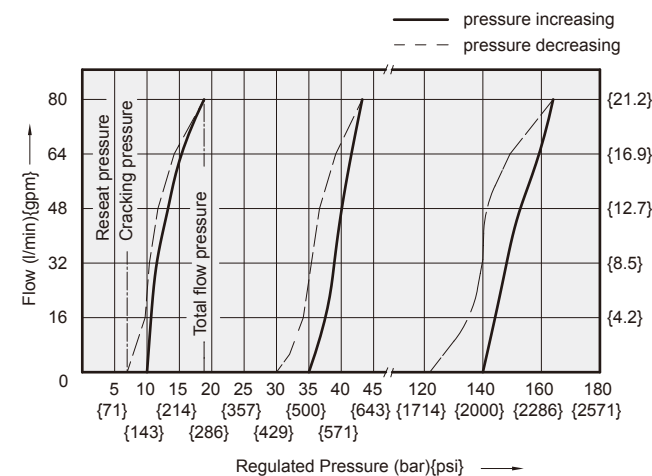
Pressure Drop Characteristic

■ MCB-03-A1-*-10



Regulated Pressure V.S. Flow Diagram

■ MCB-03-A1-*-10
■ MCB-03-B1-*-10

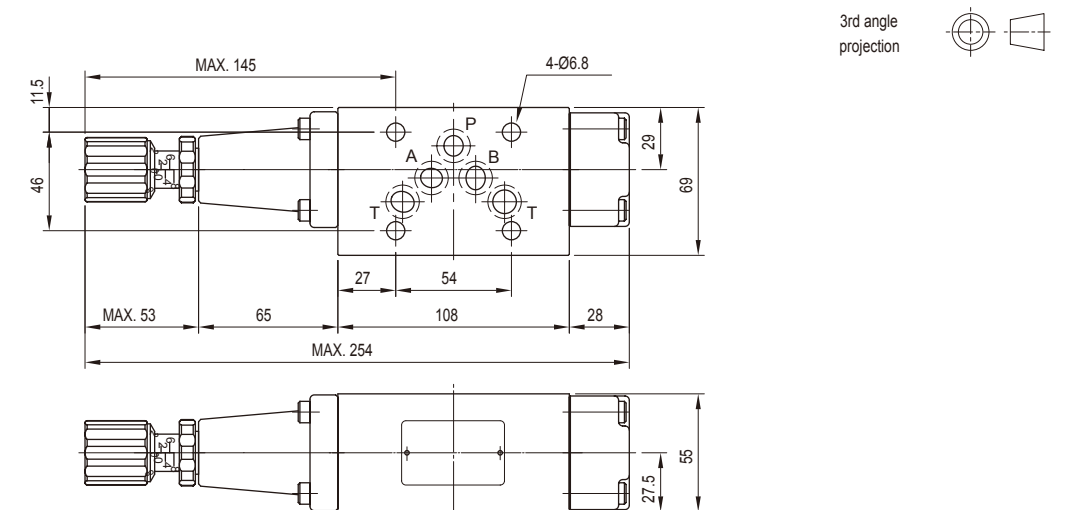


COUNTER BALANCE VALVE

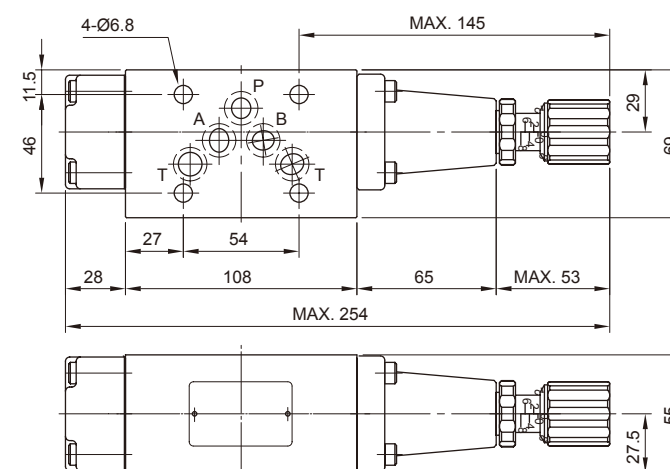
SANDWICH PLATE DESIGN MCB03 SIZE 10

DIMENSIONS :

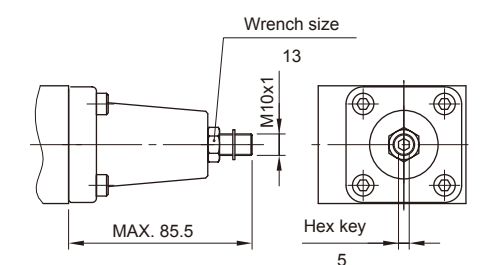
■ MCB-03-A1-*-10



■ MCB-03-B1-*-10

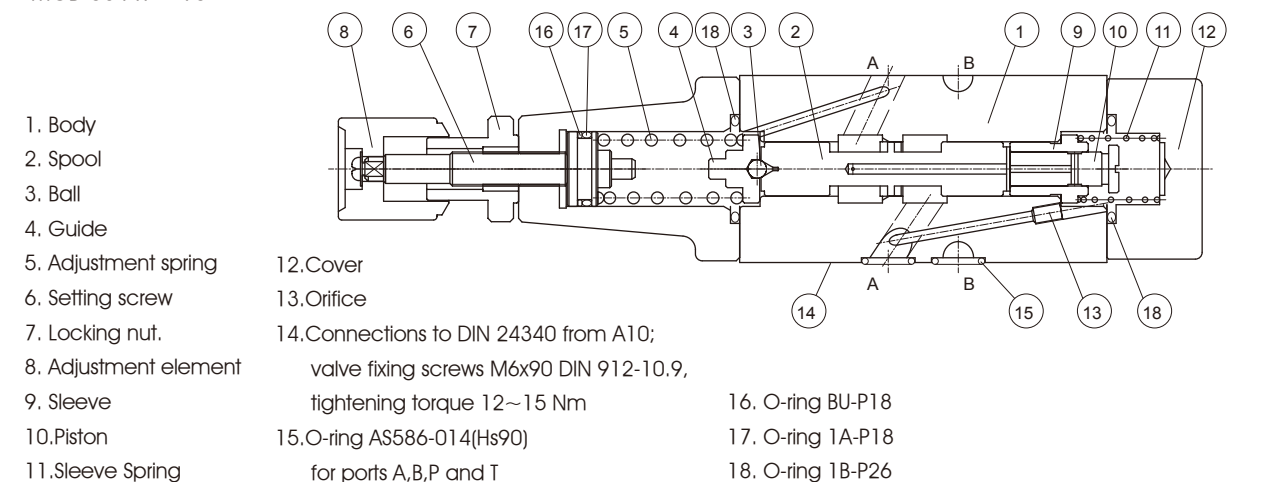


■ MCB-03-*-*-20



CROSS SECTION DRAWING :

■ MCB-03-A1-*-10



PRESSURE SEQUENCE VALVE

SANDWICH PLATE DESIGN MSV03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Direct operated pressure sequence valve
- Sandwich plate design
- 2 Pressure adjusting ranges
- Connections to DIN, ISO and CETOP



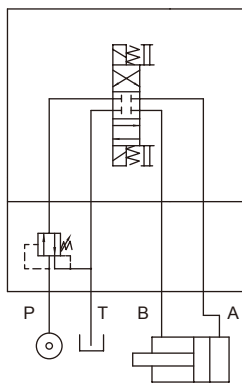
Model: MSV-03-P2-1-10

SPECIFICATION :

Maximum Flow Rate	80 l/Min (21.2 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Pressure Adjusting Range	1: 7~70 Bar 2: 35~140 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AC-05-4-A
Weight	3.5 kg

HYDRAULIC CONFIGURATION:

- MSV-03-P2-*-10



PRESSURE SEQUENCE VALVE

SANDWICH PLATE DESIGN MSV03 SIZE 10

ORDERING CODE :

M SV - 03 - P 2 - 1 - 10 - **
1 2 3 4 5 6 7 8

1 SANDWICH PLATE DESIGN

2 PRESSURE SEQUENCE VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONTROL PORT

P: P port

5 CONTROL TYPE

2: internal pilot, external drain

6 PRESSURE ADJUSTING RANGE

1: 7~70 Bar
2: 35~140 Bar

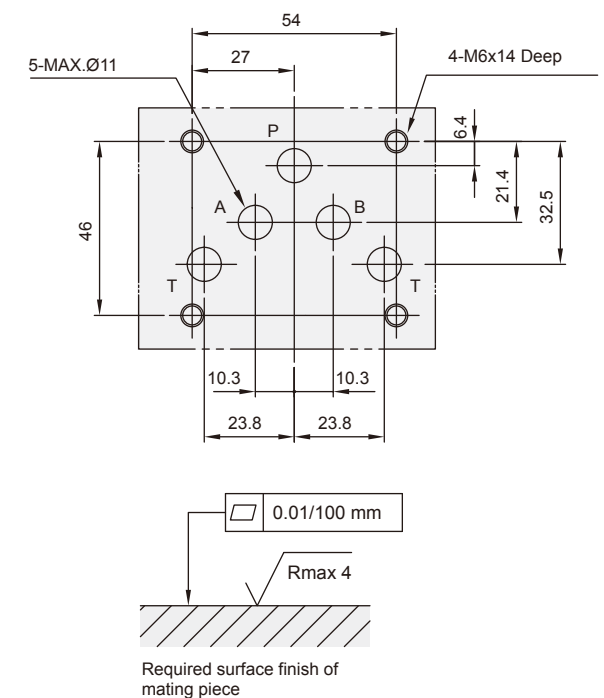
7 DESIGN NUMBER

10: with handle
20: without handle

8 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

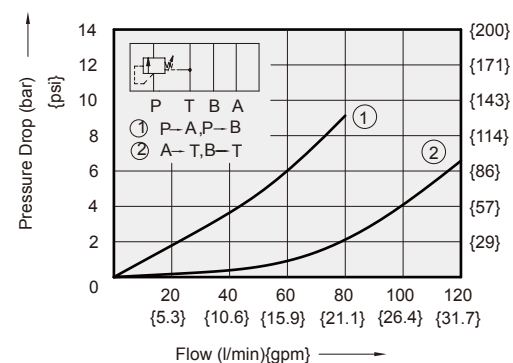


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

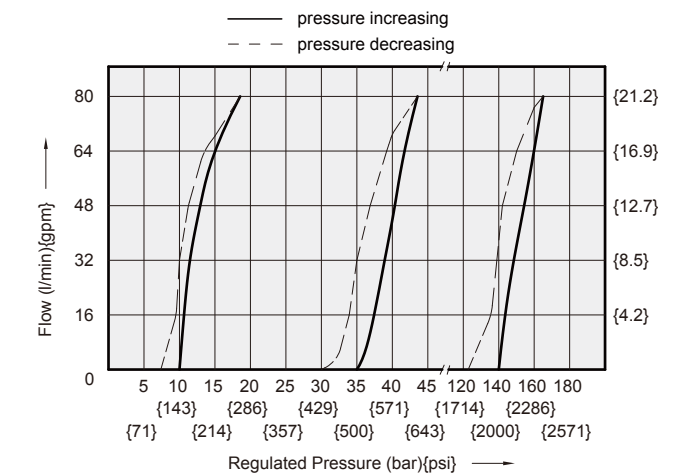
Pressure Drop Characteristic

- MSV-03-P2-*-10



Regulated Pressure V.S. Flow Diagram

- MSV-03-P2-*-10

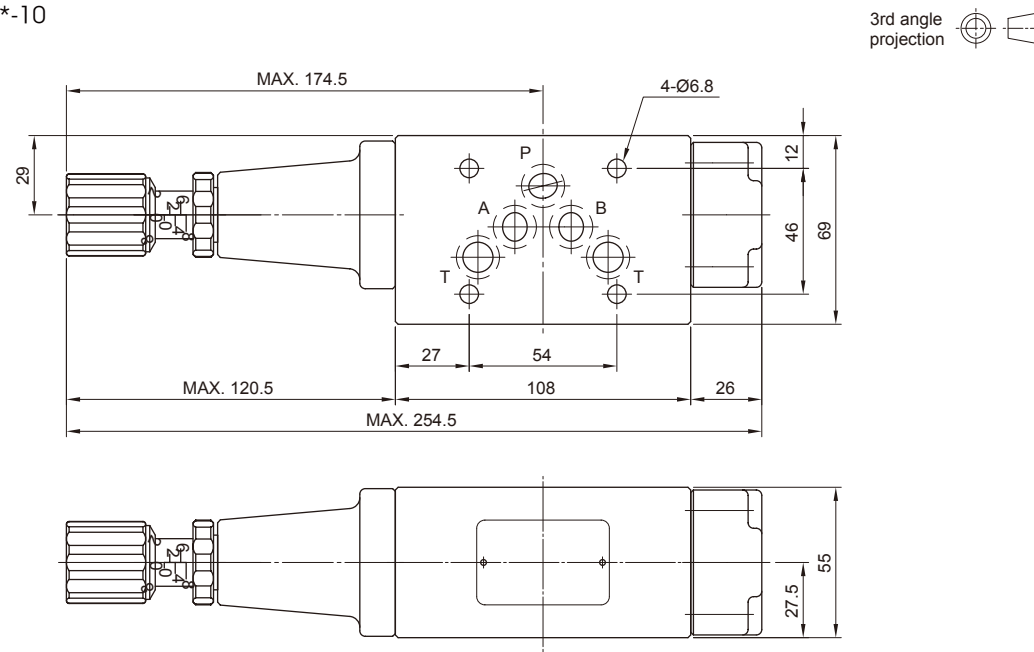


PRESSURE SEQUENCE VALVE

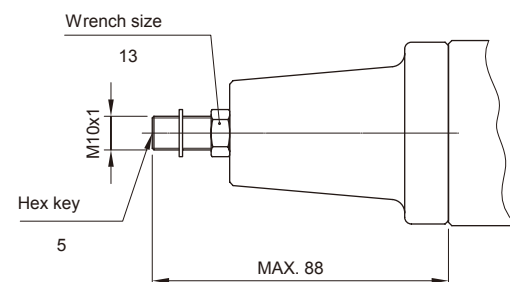
SANDWICH PLATE DESIGN MSV03 SIZE 10

DIMENSIONS :

■ MSV-03-P2-*-10

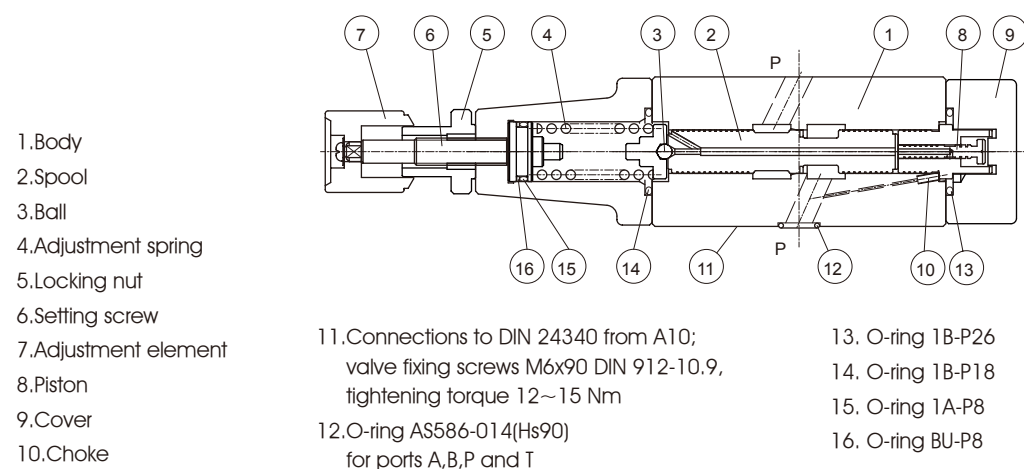


■ MSV-03-P2-*-20



CROSS SECTION DRAWING :

■ MSV-03-P2-*-10

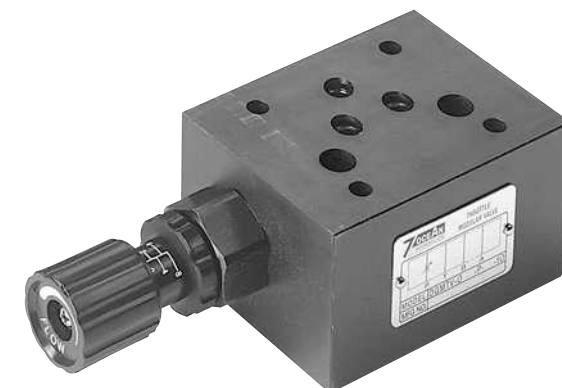


FLOW REGULATOR VALVE

SANDWICH PLATE DESIGN MTV03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Sandwich plate design
- Be used for actuator speed control
- Connections to DIN, ISO and CETOP



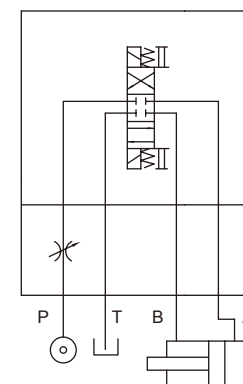
Model: MTV-03-P-10

SPECIFICATION :

Maximum Flow Rate	100 l/Min (26.5 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 µm
Mounting Pattern	ISO 4401-AC-05-4-A
Weight	P Type 2.5 kg

HYDRAULIC CONFIGURATION:

■ MTV-03-P-10



FLOW REGULATOR VALVE SANDWICH PLATE DESIGN MTV03 SIZE 10

ORDERING CODE :

M TV - 03 - P - 10 - **

1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 FLOW REGULATOR VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

P: single, acting on port P

5 DESIGN NUMBER

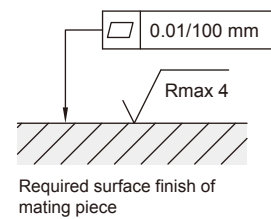
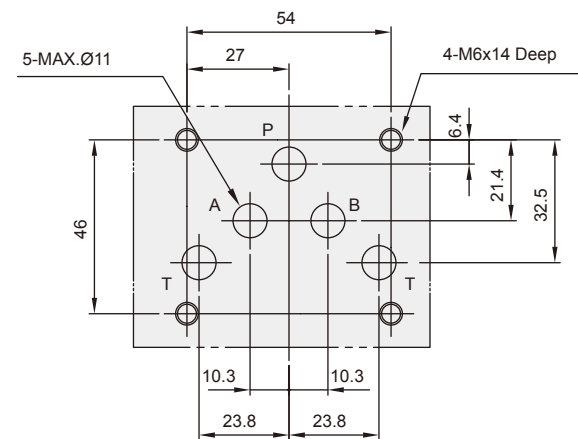
10: with handle

20: without handle

6 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

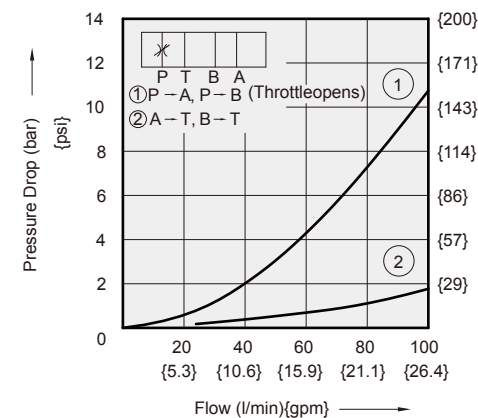


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

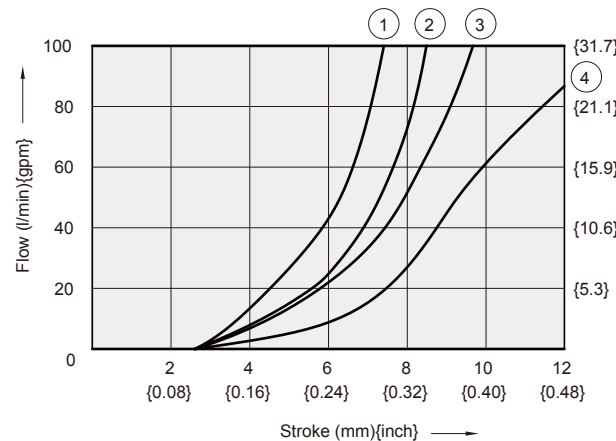
Pressure Drop Characteristic

■ MTV-03-P-10



Regulated Pressure V.S. Flow Diagram

■ MTV-03-P-10



① Pressure Difference = 140 bar {2000psi} ③ Pressure Difference = 35 bar {500psi}

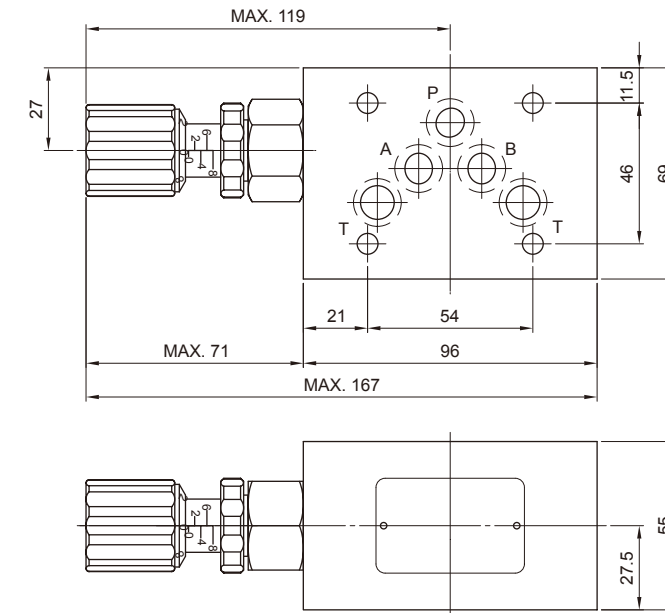
② Pressure Difference = 70 bar {1000psi} ④ Pressure Difference = 10 bar {143psi}

FLOW REGULATOR VALVE SANDWICH PLATE DESIGN MTV03 SIZE 10

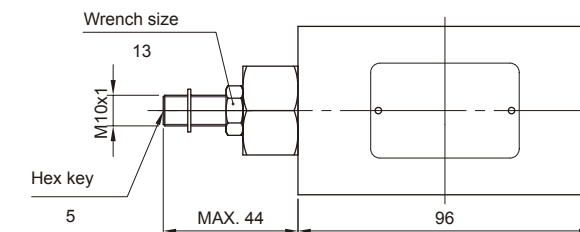
DIMENSIONS :

■ MTV-03-P-10

3rd angle projection

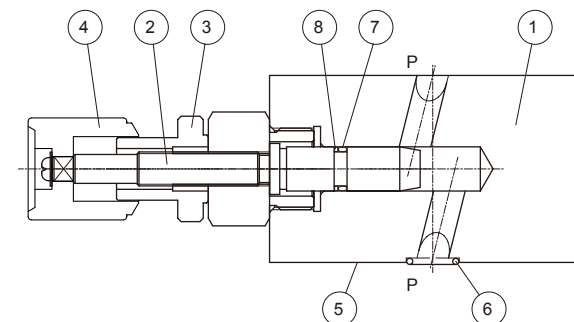


■ MTV-03-P-20



CROSS SECTION DRAWING :

■ MTV-03-P-10



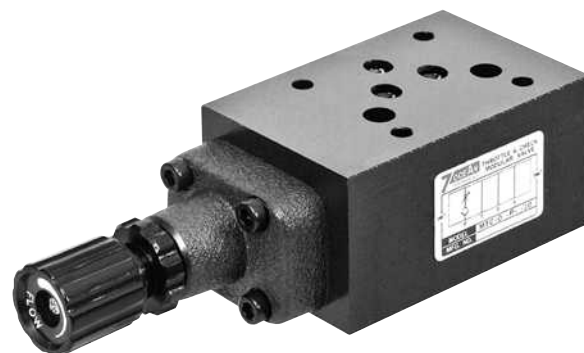
1. Body
2. Setting screw
3. Locking nut
4. Adjustment element
5. Connections to DIN 24340 from A10; valve fixing screws M6x90 DIN 912-10.9, tightening torque 12~15 Nm
6. O-ring AS586-014(Hs90) for ports A,B,P and T
7. O-ring 1A-P10
8. O-ring BU-P10

FLOW REGULATOR WITH CHECK VALVE

SANDWICH PLATE DESIGN MTC03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Sandwich plate design
- Connections to DIN, ISO and CETOP



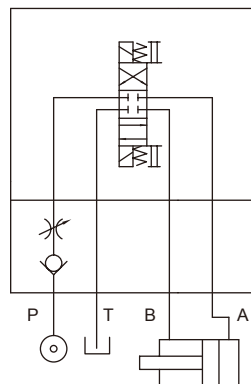
Model: MTC-03-P-10

SPECIFICATION :

Maximum Flow Rate	100 l/Min (26.5 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Check valve cracking pressure	0.4 Bar (5.7 PSI)
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AC-05-4-A
Weight	3.0 kg

HYDRAULIC CONFIGURATION:

- MTC-03-P-10



FLOW REGULATOR WITH CHECK VALVE

SANDWICH PLATE DESIGN MTC03 SIZE 10

ORDERING CODE :

M TC - 03 - P - 10 - **

1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 FLOW REGULATOR WITH CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

P: single, acting on port P

5 DESIGN NUMBER

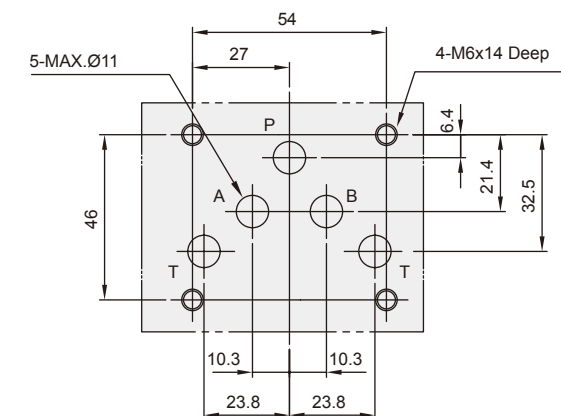
10: with handle

20: without handle

6 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

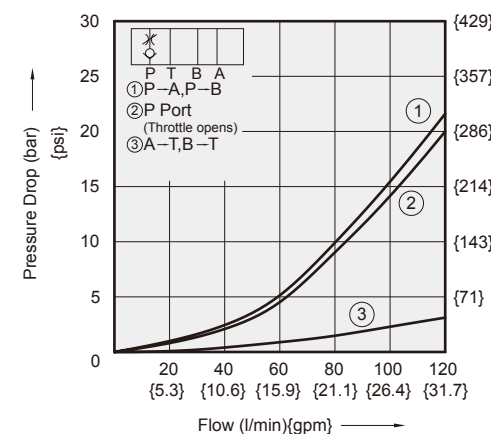


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

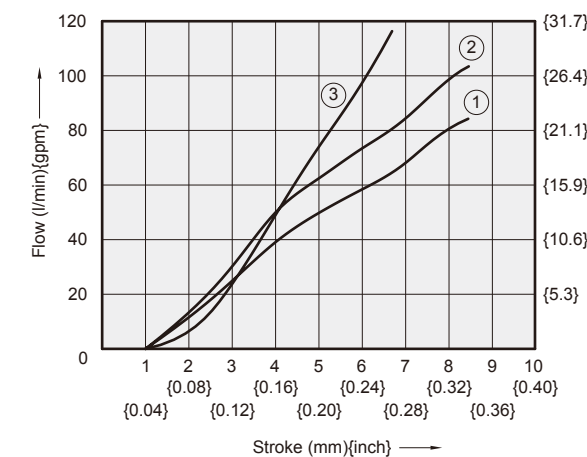
Pressure Drop Characteristic

- MTC-03-P-10



Stroke V.S. Flow Diagram

- MTC-03-P-10



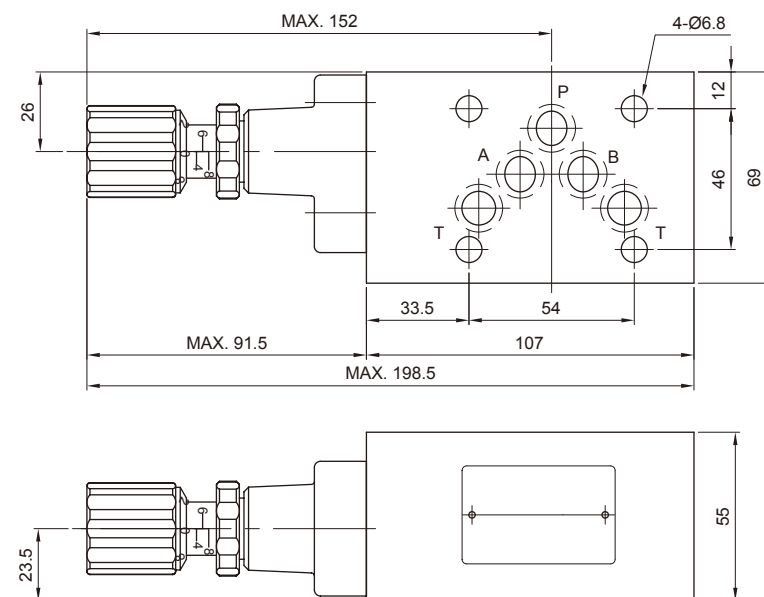
- ① Pressure Difference= 10 bar{143psi} ③ Pressure Difference= 50 bar{714psi}
 ② Pressure Difference= 15 bar{214psi}

FLOW REGULATOR WITH CHECK VALVE

SANDWICH PLATE DESIGN MTC03 SIZE 10

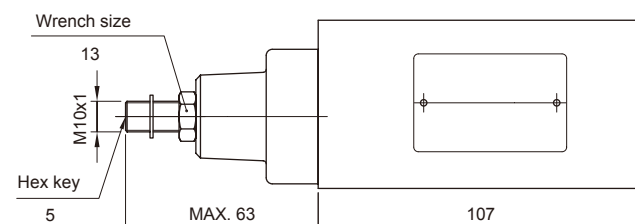
DIMENSIONS :

■ MTC-03-P-10



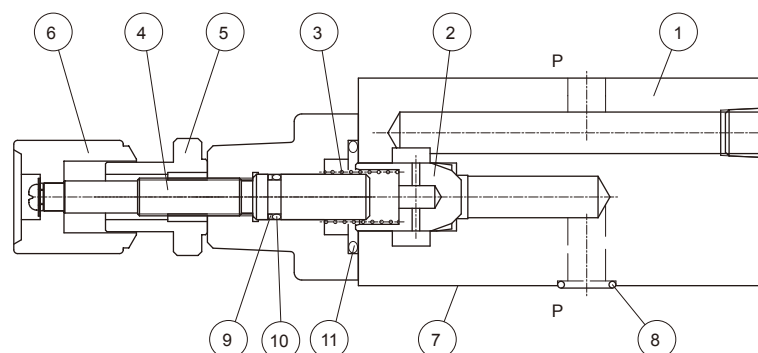
3rd angle
projection

■ MTC-03-P-20



CROSS SECTION DRAWING :

■ MTC-03-P-10



1. Body
2. Throttle
3. Spring
4. Setting screw
5. Locking nut
6. Adjustment element
7. Connections to DIN 24340 from A10;
valve fixing screws M6x90 DIN 912-10.9,
tightening torque 12~15 Nm
8. O-ring AS586-014(Hs90)
for ports A,B,P and T
9. O-ring BU-P9
10. O-ring 1A-P9
11. O-ring 1B-P24

FLOW REGULATOR WITH CHECK VALVE

SANDWICH PLATE DESIGN MTC03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Sandwich plate design
- For limiting the main or pilot fluid flow of 2 actuator connections
- For meter-in or meter-out control
- Connections to DIN, ISO and CETOP



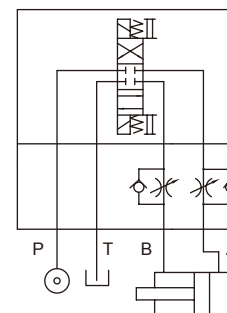
Model: MTC-03-W-O-10

SPECIFICATION :

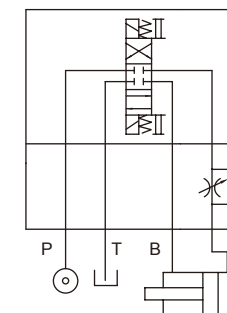
Maximum Flow Rate		100 l/Min (26.5 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Check valve cracking pressure		1.0 Bar (14.3 PSI)
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AC-05-4-A
Weight	W Type	3.1 kg
	A Type	3.0 kg
	B Type	3.0 kg

HYDRAULIC CONFIGURATION:

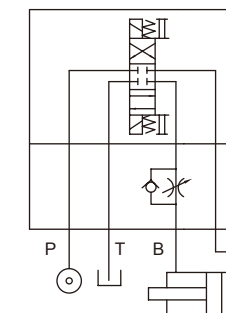
■ MTC-03-W-O-10



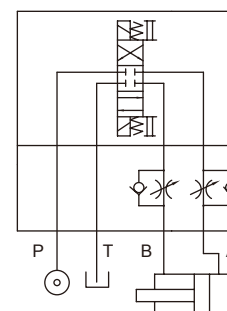
■ MCT-03-A-O-10



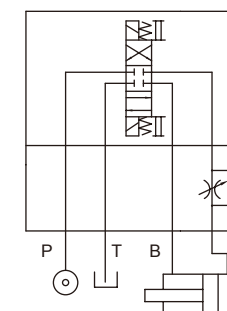
■ MTC-03-B-O-10



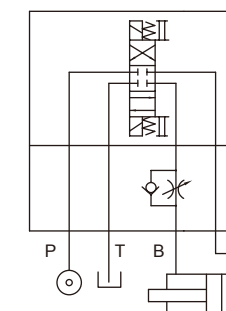
■ MTC-03-W-I-10



■ MCT-03-A-I-10



■ MTC-03-B-I-10



FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTC03 SIZE 10

ORDERING CODE :

M TC - 03 - W - O - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 FLOW REGULATOR WITH CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 CONTROL WAY

O : Meter out, control of flow discharged from the actuator

I : Meter in, control of flow entering the actuator

6 DESIGN NUMBER

10: with handle

20: without handle

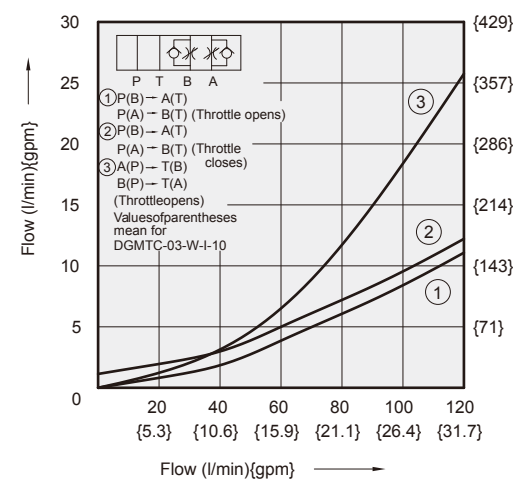
7 OPTIONAL INQUIRY

PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

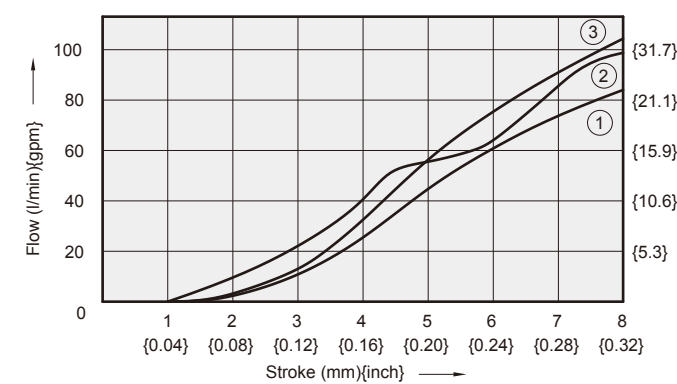
Pressure Drop Characteristic

■ MTC-03-W-O-10
(MTC-03-W-I-10)



Stroke V.S. Flow Diagram

■ MTC-03-W-O/I-10
MTC-03-A-O/I-10
MTC-03-B-O/I-10

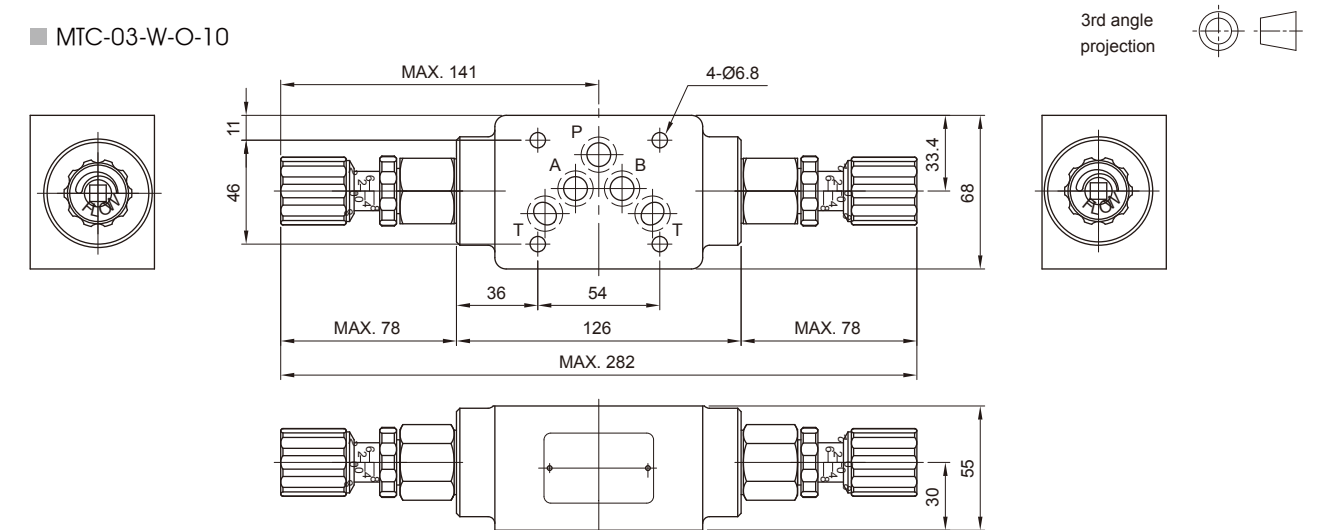


- ① Pressure Difference = 10 bar {143psi} ③ Pressure Difference = 50 bar {714psi}
② Pressure Difference = 15 bar {214psi}

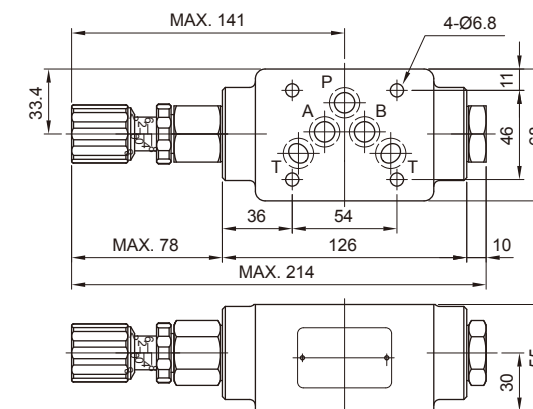
FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTC03 SIZE 10

DIMENSIONS :

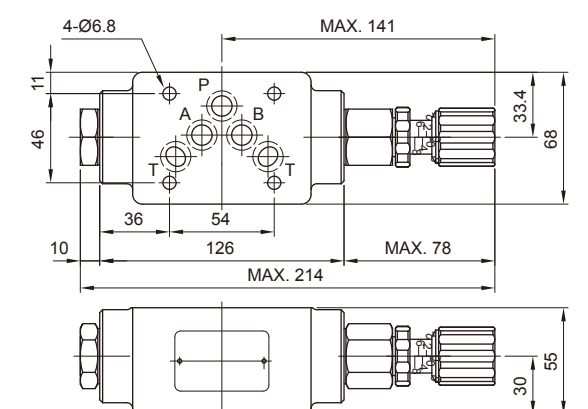
■ MTC-03-W-O-10



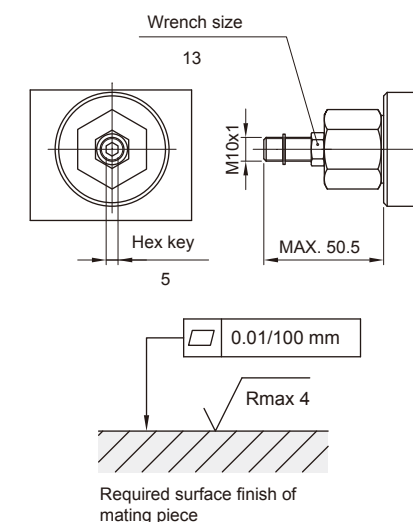
■ MTC-03-A-O-10



■ MTC-03-B-O-10

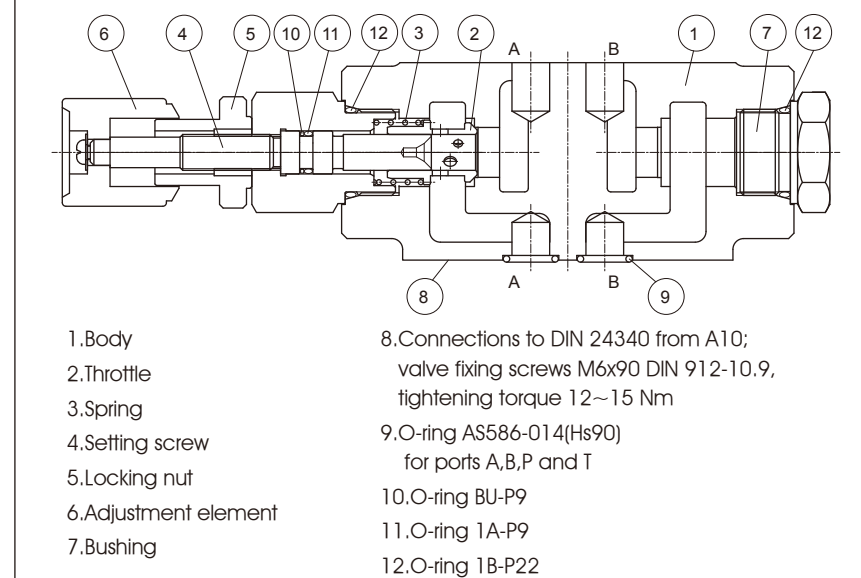


■ MTC-03-*O-20



CROSS SECTION DRAWING :

■ MTC-03-B-O-10

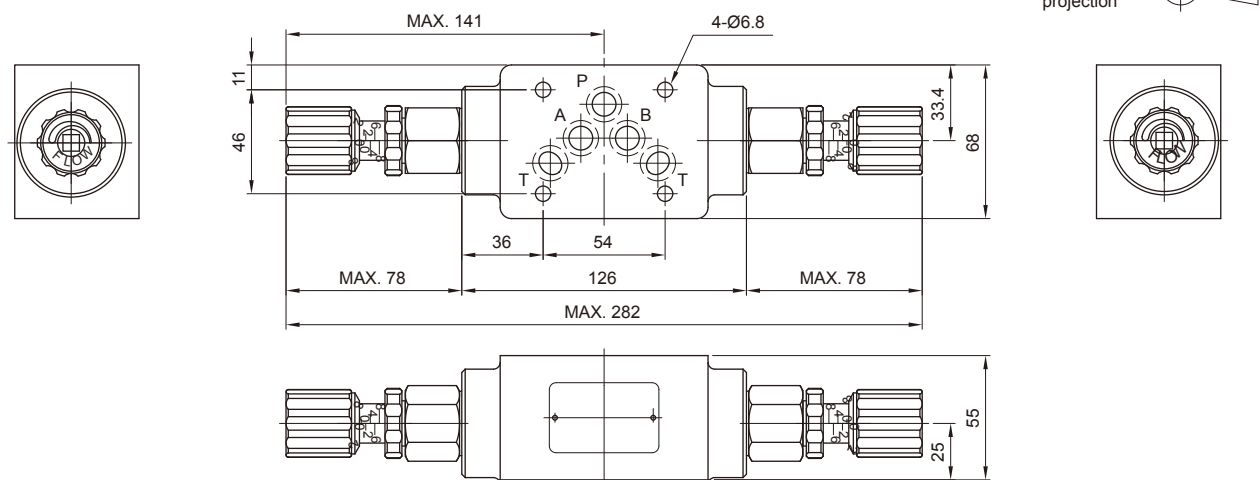


FLOW REGULATOR WITH CHECK VALVE

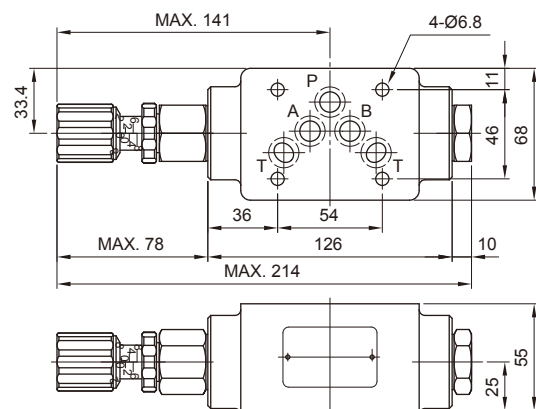
SANDWICH PLATE DESIGN MTC03 SIZE 10

DIMENSIONS :

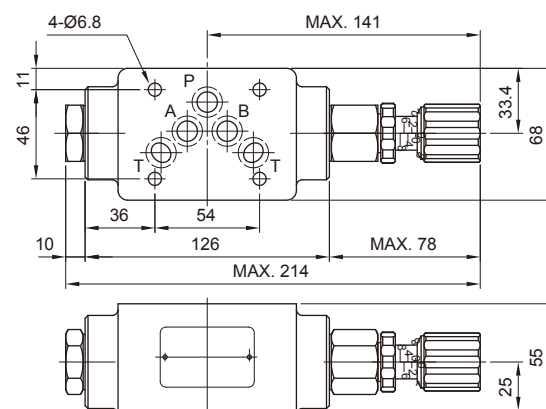
■ MTC-03-W-I-10



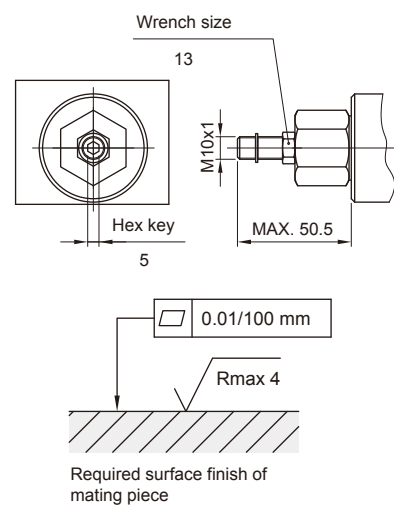
■ MTC-03-A-I-10



■ MTC-03-B-I-10

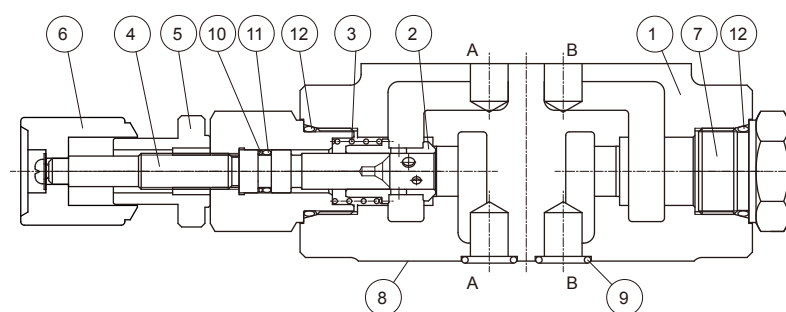


■ MTC-03-*-I-20



CROSS SECTION DRAWING :

■ MTC-03-A-I-10



1. Body
2. Throttle
3. Spring
4. Setting screw
5. Locking nut
6. Adjustment element
7. Bushing

8. Connections to DIN 24340 from A10; valve fixing screws M6x90 DIN 912-10.9, tightening torque 12~15 Nm
9. O-ring AS586-014(Hs90) for ports A,B,P and T
10. O-ring BU-P9
11. O-ring 1A-P9
12. O-ring 1B-P22

CHECK VALVE

SANDWICH PLATE DESIGN MCV03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Sandwich plate design for use in vertical stacking assemblies
- Direct operated check valve
- 4 different isolating functions
- Connections to DIN, ISO and CETOP



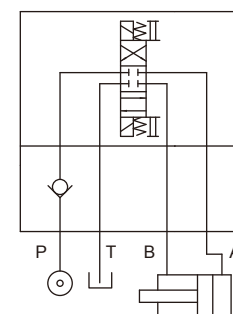
Model: MCV-03-P-1-10

SPECIFICATION :

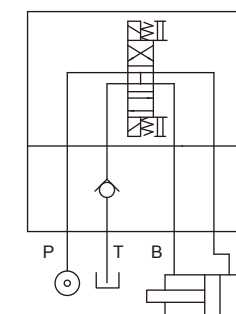
Maximum Flow Rate		100 l/Min (26.5 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Spring cracking pressure		1: 0.4 Bar (5.7 PSI)
		2: 3.5 Bar (50 PSI)
		3: 5 Bar (71 PSI)
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AC-05-4-A
Weight	P Type	2.8 kg
	T Type	2.8 kg
	A Type	3.6 kg
	B Type	3.6 kg

HYDRAULIC CONFIGURATION:

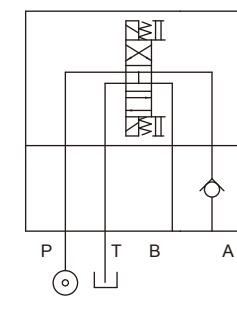
■ MCV-03-P-*-10



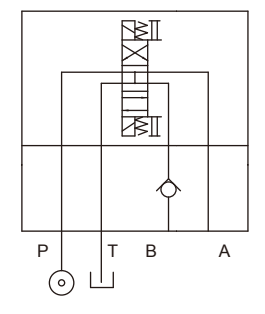
■ MCV-03-T-*-10



■ MCV-03-A-*-10



■ MCV-03-B-*-10



CHECK VALVE

SANDWICH PLATE DESIGN MCV03 SIZE 10

ORDERING CODE :

M CV - 03 - P - 1 - 10 - **

1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

P: single; acting on port P

T: single; acting on port T

A: single; acting on port A

B: single; acting on port B

5 SPRING CRACKING PRESSURE

1: 0.4 Bar

2: 3.5 Bar

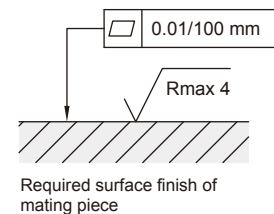
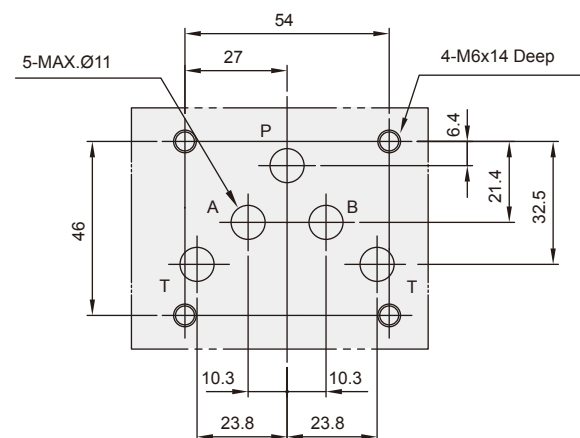
3: 5.0 Bar

6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

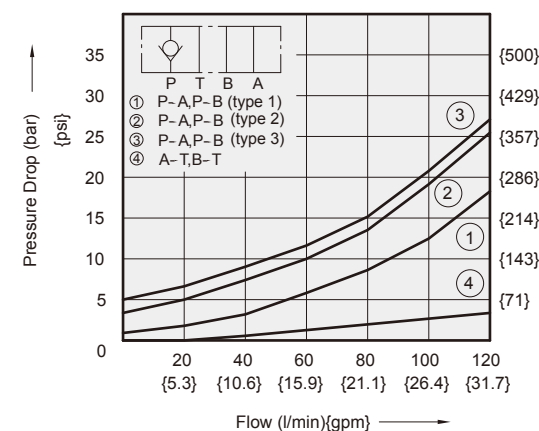


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

■ MCV-03-P-*-10

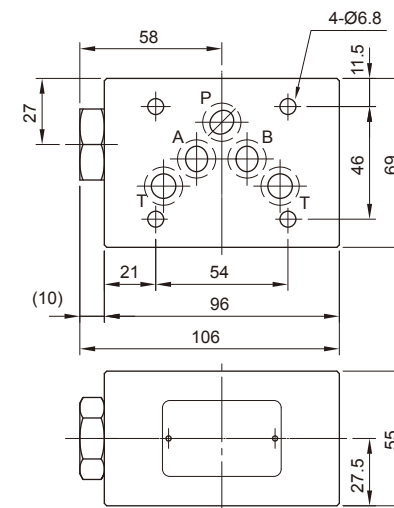


CHECK VALVE

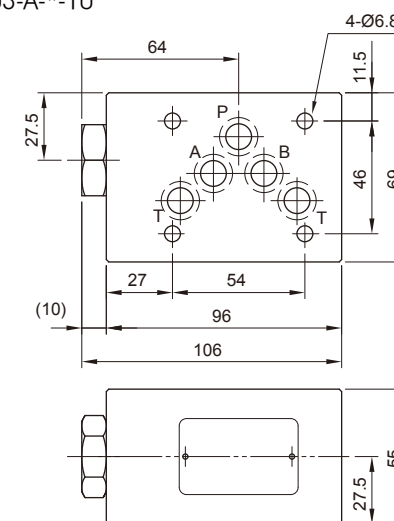
SANDWICH PLATE DESIGN MCV03 SIZE 10

DIMENSIONS :

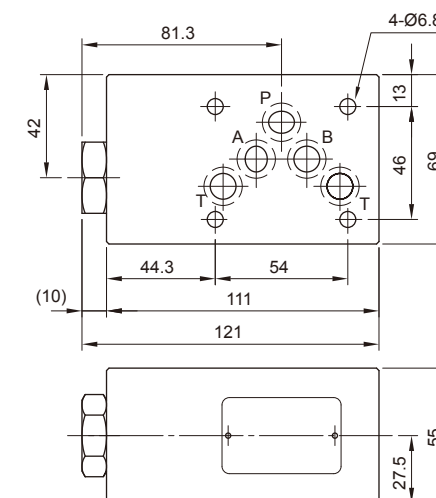
■ MCV-03-P-*-10



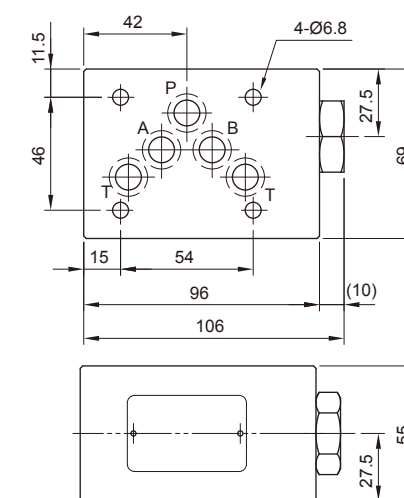
■ MCV-03-A-*-10



■ MCV-03-T-*-10

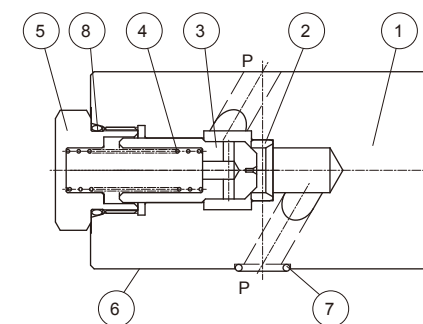


■ MCV-03-B-*-10



CROSS SECTION DRAWING :

■ MCV-03-P-*-10



1. Body
2. Seat
3. Poppet
4. Spring
5. Nut
6. Connections to DIN 24340 from A10;
valve fixing screws M6x90 DIN 912-10.9,
tightening torque 12~15 Nm
7. O-ring AS586-014(Hs90)
for ports A,B,P and T
8. O-ring 1B-P29

VACUUM CHECK VALVE

SANDWICH PLATE DESIGN MACO3 SIZE 10

FEATURES :

- Highest performance in NG 10
- Sandwich plate design for use in vertical stacking assemblies
- Direct operated check valve
- Be incorporated between A, B ports and T port
- This check valve of a certain type can be used for suction
- Connections to DIN, ISO and CETOP



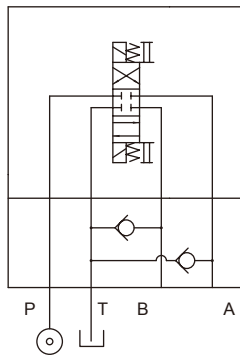
Model: MAC-03-W-10

SPECIFICATION :

Maximum Flow Rate	100 l/Min (26.5 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Spring cracking pressure	0.15 Bar (2.14 PSI)
Ambient Temperature Range	-20°C ~ +50°C
Hydraulic Fluid Temperature Range	-20°C ~ +70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AC-05-4-A
Weight	2.5 kg

HYDRAULIC CONFIGURATION:

- MAC-03-W-10



VACUUM CHECK VALVE

SANDWICH PLATE DESIGN MACO3 SIZE 10

ORDERING CODE :

M AC - 03 - W - 10 - **

1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 VACUUM CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

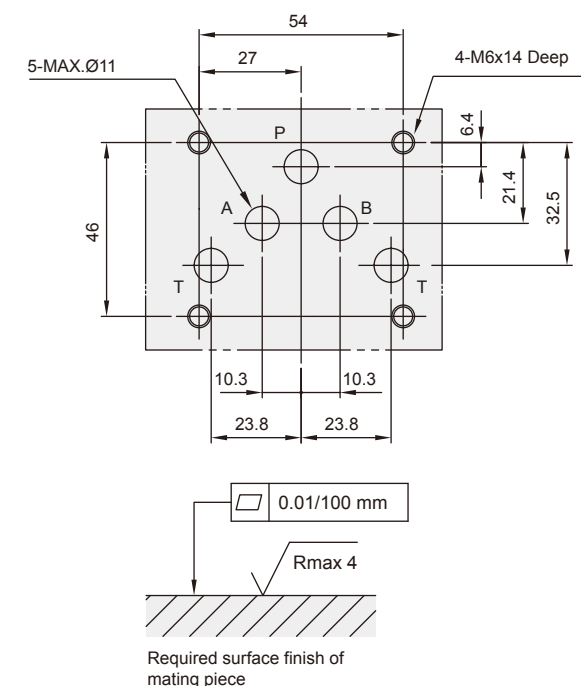
W: double; be incorporated between A, B port and T port

5 DESIGN NUMBER

6 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

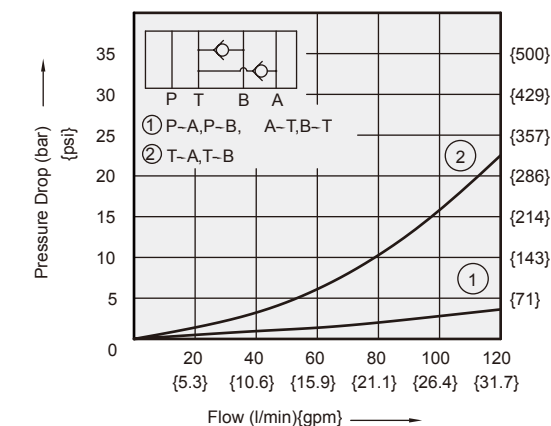


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

- MAC-03-W-10

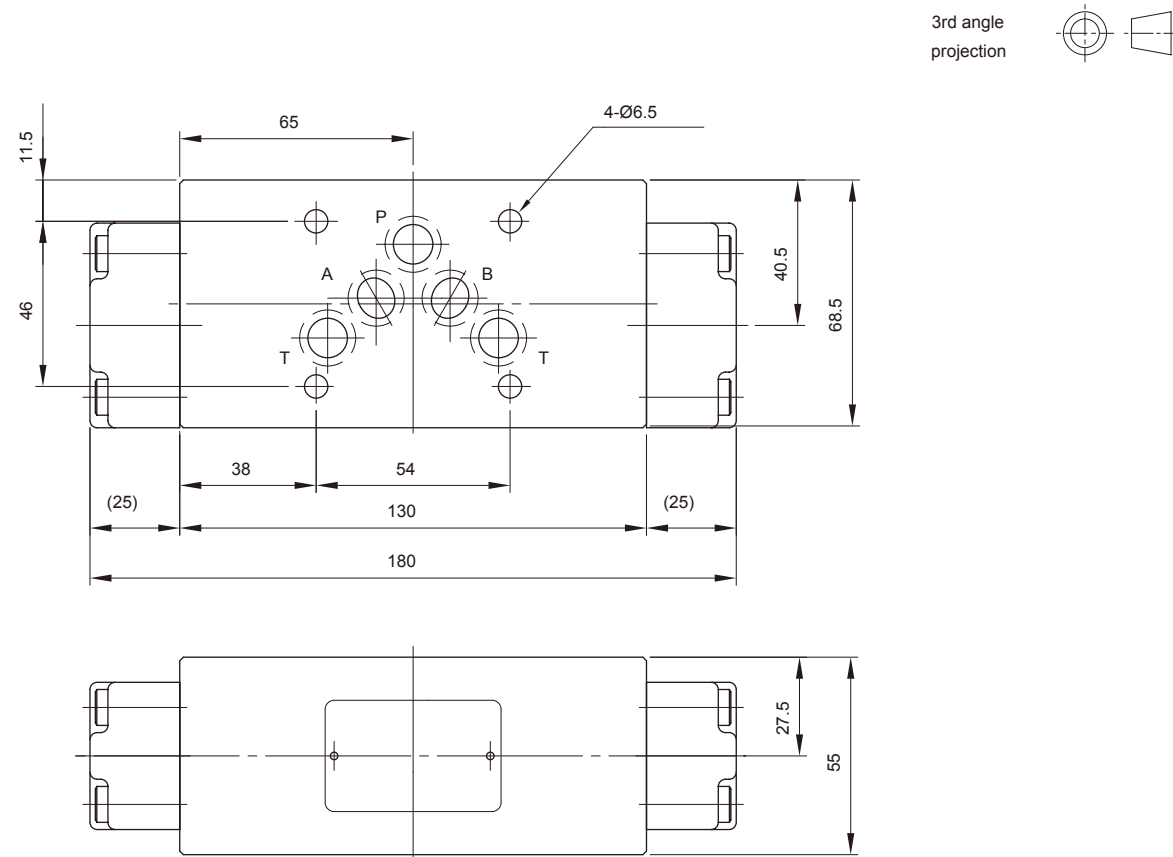


VACUUM CHECK VALVE

SANDWICH PLATE DESIGN MAC03 SIZE 10

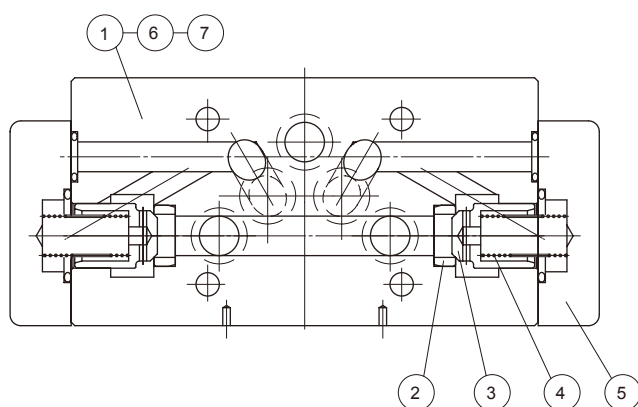
DIMENSIONS :

■ MAC-03-W-10



CROSS SECTION DRAWING :

■ MAC-03-W-10



1. Body
2. Seat
3. Poppet
4. Spring
5. Cover
6. Connections to DIN 24340 from A10; valve fixing screws M6 DIN 912-10.9, tightening torque 12~15 Nm
7. O-ring AS586-014 (Hs90) for ports A, B, P and T

PILOT OPERATED CHECK VALVE

SANDWICH PLATE DESIGN MPC03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Sandwich plate design
- Pilot operated check valve
- For leak free sealing of one or two actuator port
- Connections to DIN, ISO and CETOP



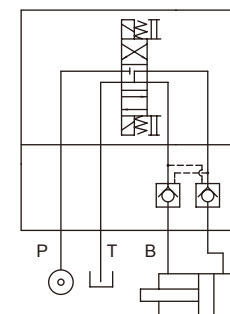
Model: MPC-03-W-1-10

SPECIFICATION :

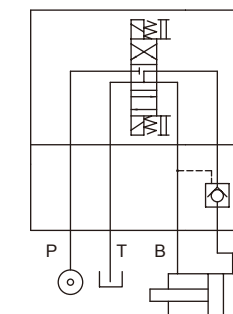
Maximum Flow Rate	100 l/Min (26.5 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Spring cracking pressure	1: 2 Bar (29 PSI) 2: 5 Bar (71 PSI)
Area ratio	Pilot piston: 1 Check valve seat: 0.33 Needle valve seat: -
Ambient Temperature Range	-20°C ~ +50°C
Hydraulic Fluid Temperature Range	-20°C ~ +70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 µm
Mounting Pattern	ISO 4401-AC-05-4-A
Weight	W Type: 3.6 kg A Type: 3.6 kg B Type: 3.6 kg

HYDRAULIC CONFIGURATION:

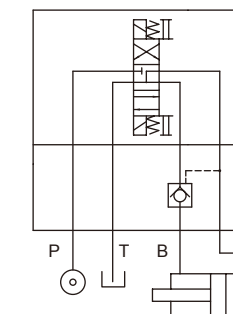
■ MPC-03-W-*-10



■ MPC-03-A-*-10



■ MPC-03-B-*-10



PILOT OPERATED CHECK VALVE SANDWICH PLATE DESIGN MPC03 SIZE 10

ORDERING CODE :

M PC - 03 - W - 1 - 10 - **

1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PILOT OPERATED CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 SPRING CRACKING PRESSURE

1: 2 Bar

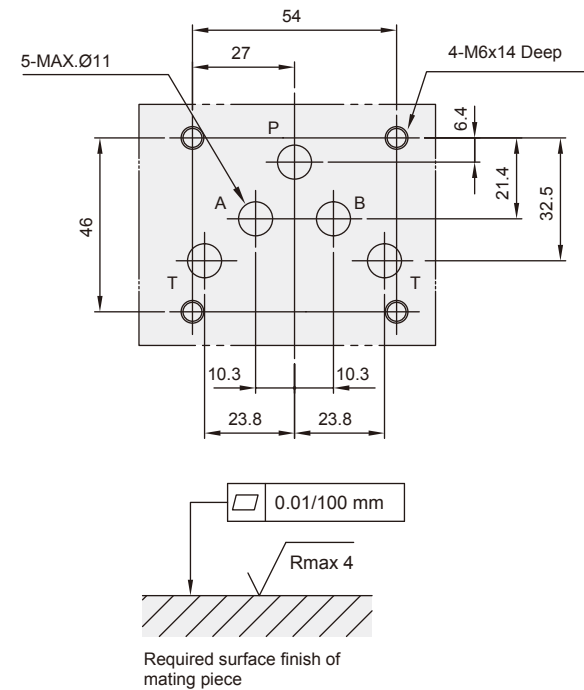
2: 5 Bar

6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)



PILOT OPERATED CHECK VALVE SANDWICH PLATE DESIGN MPC03 SIZE 10

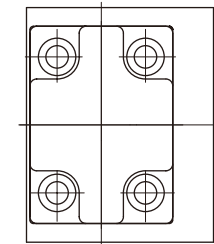
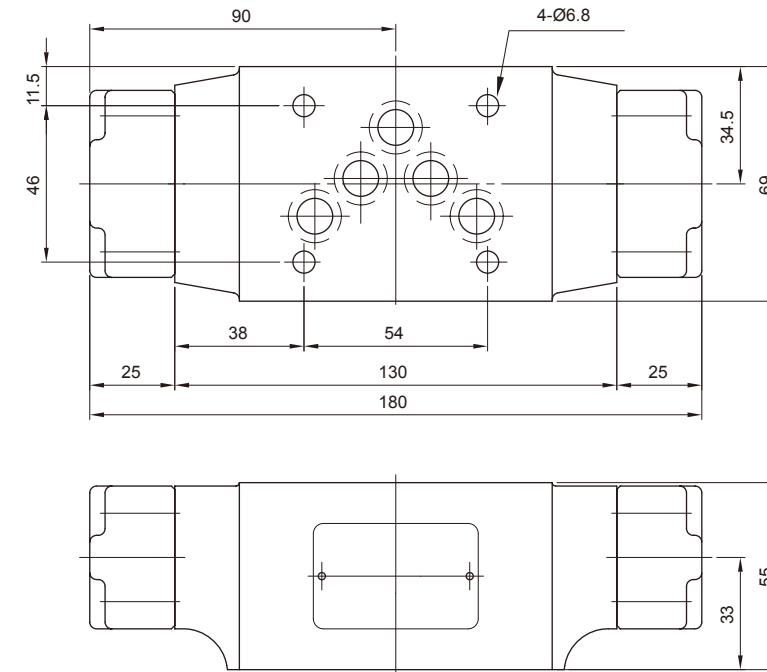
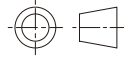
DIMENSIONS :

■ MPC-03-W-*-10

MPC-03-A-*-10

MPC-03-B-*-10

3rd angle
projection

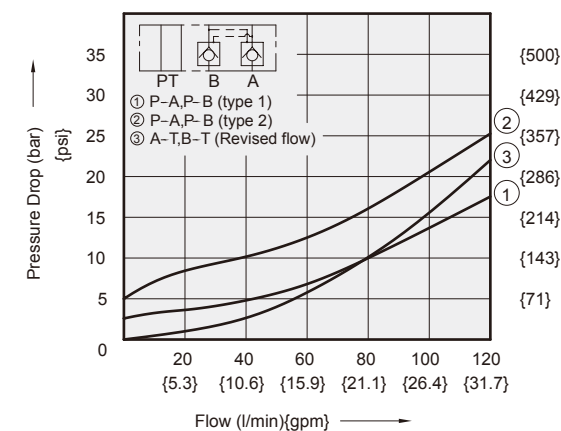


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

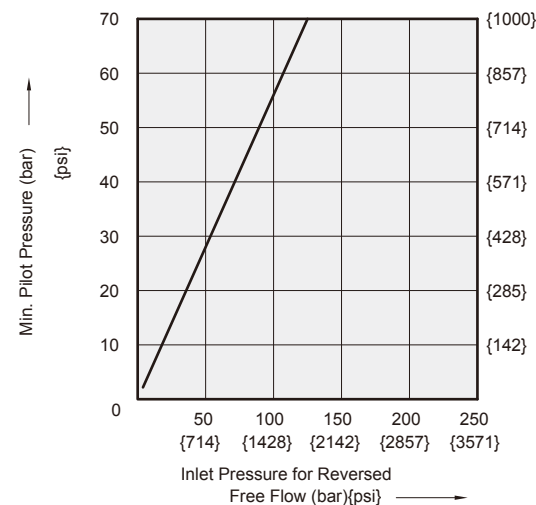
Pressure Drop Characteristic

■ MPC-03-W-*-10



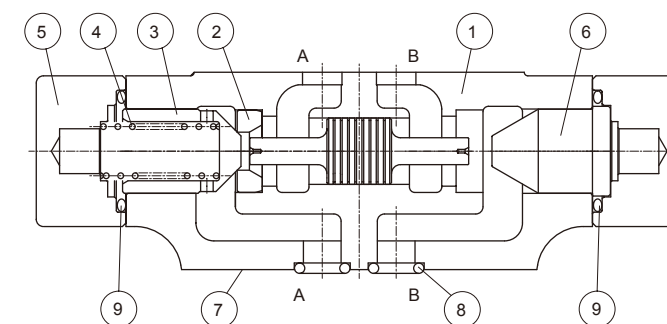
Min. Pilot Pressure Characteristic

■ MPC-03-W-*-10



CROSS SECTION DRAWING :

■ MPC-03-A-*-10



1. Body
2. Seat
3. Poppet
4. Spring
5. Cover
6. Bushing
7. Connections to DIN 24340 from A10; valve fixing screws M6x90 DIN 912-10.9, tightening torque 12~15 Nm
8. O-ring AS586-014(Hs90) for ports A,B,P and T
9. O-ring 1B-P29

PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD03 SIZE 10

FEATURES :

- Highest performance in NG 10
- Sandwich plate design
- Pilot operated check valve with decompression
- For leak free sealing of one or two actuator port
- Connections to DIN, ISO and CETOP



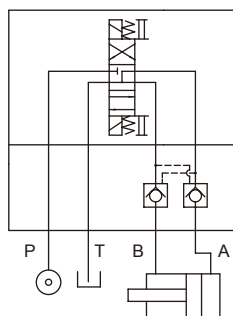
Model: MPD-03-W-1-10

SPECIFICATION :

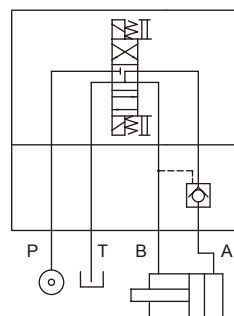
Maximum Flow Rate		100 l/Min (26.5 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Spring cracking pressure		1: 2 Bar (29 PSI)
		2: 5 Bar (71 PSI)
Area ratio	Pilot piston	1
	Check valve seat	0.49
	Needle valve seat	0.07
Ambient Temperature Range		-20°C ~ +50°C
Hydraulic Fluid Temperature Range		-20°C ~ +70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 µm
Mounting Pattern		ISO 4401-AC-05-4-A
Weight	W Type	3.6 kg
	A Type	3.6 kg
	B Type	3.6 kg

HYDRAULIC CONFIGURATION:

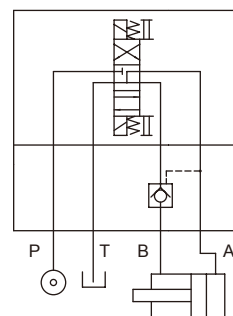
■ MPD-03-W-*-10



■ MPD-03-A-*-10



■ MPD-03-B-*-10



PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD03 SIZE 10

ORDERING CODE :

M PD - 03 - W - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PILOT OPERATED CHECK VALVE WITH DECOMPRESSION

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFPA-D05/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 SPRING CRACKING PRESSURE

1: 2 Bar

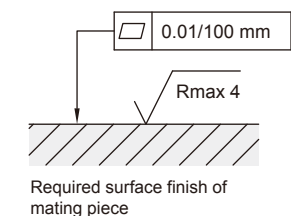
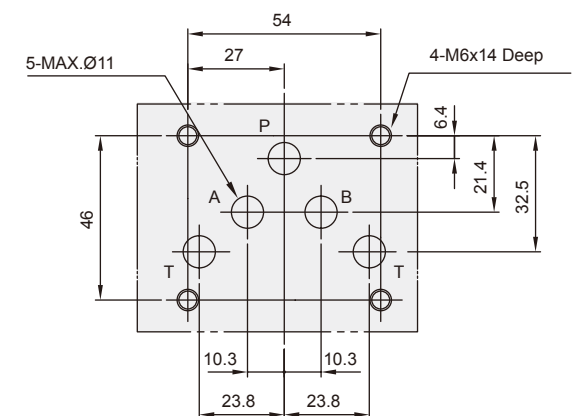
2: 5 Bar

6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

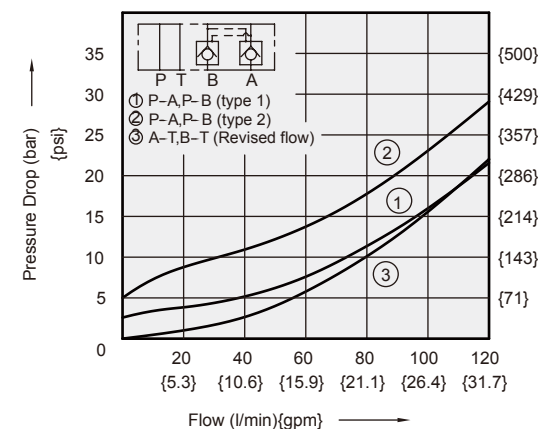


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

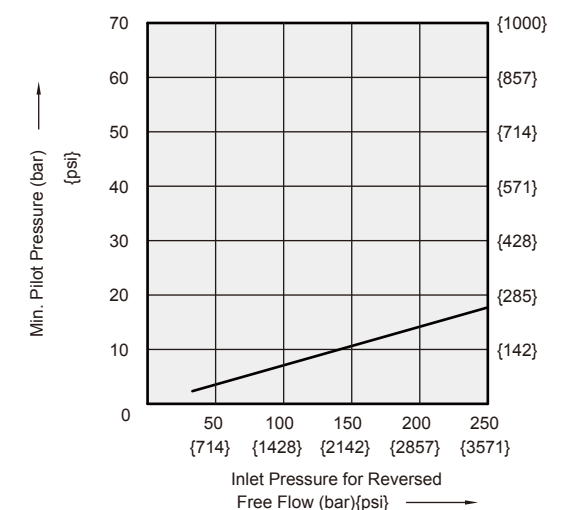
Pressure Drop Characteristic

■ MPD-03-W-*-10



Min. Pilot Pressure Characteristic

■ MPD-03-W-*-10

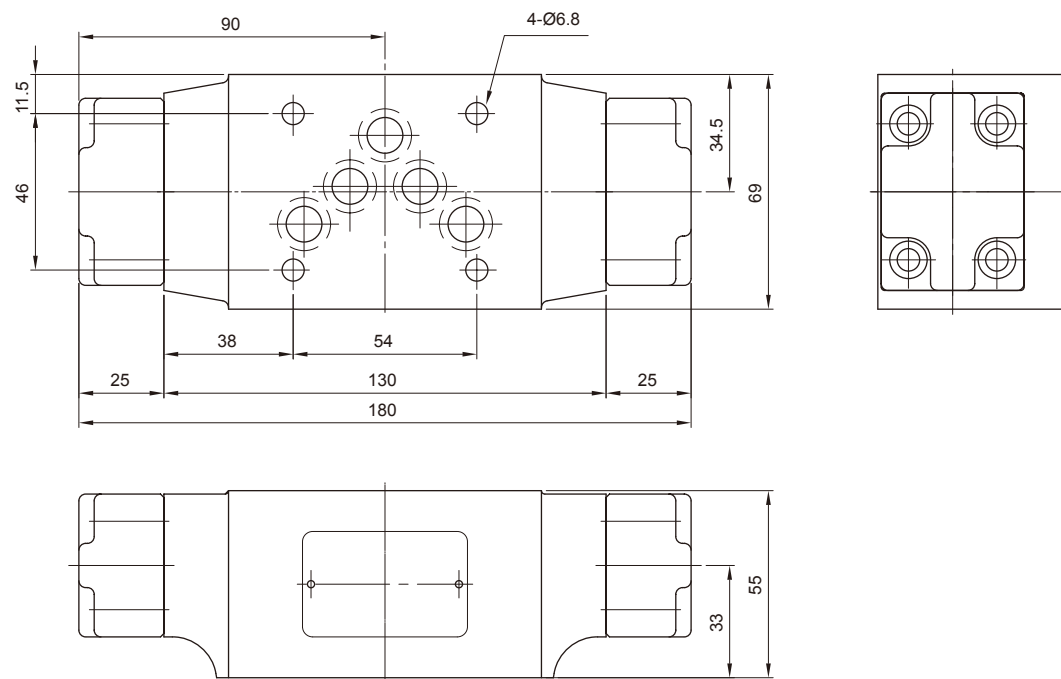


PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD03 SIZE 10

DIMENSIONS :

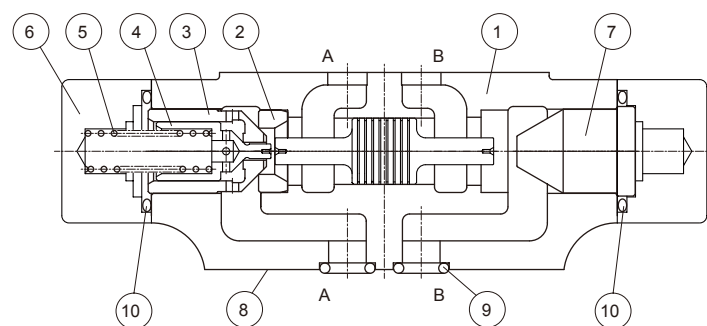
- MPD-03-W-*-10
- MPD-03-A-*-10
- MPD-03-B-*-10

3rd angle
projection



CROSS SECTION DRAWING :

- MPD-03-A-*-10



1. Body
2. Seat
3. Poppet 1
4. Poppet 2
5. Spring
6. Cover
7. Bushing
8. Connections to DIN 24340 from A10;
valve fixing screws M6x90 DIN 912-10.9,
tightening torque 12~15 Nm
9. O-ring AS586-014(Hs90)
for ports A,B,P and T
10. O-ring 1B-P28

MANIFOLD BLOCK SANDWICH PLATE DESIGN MFB03 SIZE 10

SPECIFICATION :

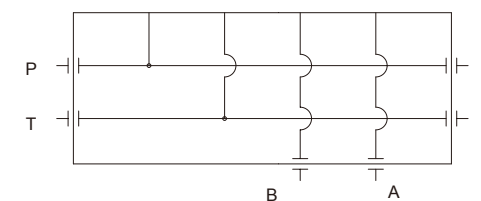
Maximum Flow Rate	100 l/Min (26.5 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Hydraulic Oil	ISO VG32, 46, 68
Mounting Pattern	ISO 4401-AC-05-4-A



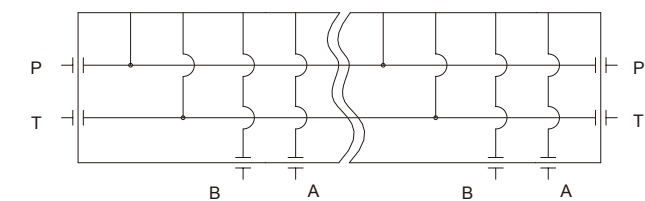
Model: MFB-03-1-10

HYDRAULIC CONFIGURATION:

- MFB-03-1-10



- MFB-03-*-10



ORDERING CODE :

M FB - 03 - 1 - 10 - **
1 2 3 4 5 6

1 SANDWICH PLATE DESIGN

2 MANIFOLD BLOCK

3 NOMINAL VALVE SIZE:

NG 10, CETOP 5 and ISO 4401-05 (NFFA-D05/DIN 24340)

4 NUMBER OF CONTROLS IN VERTICAL
STACKING DESIGN

- 2: for 2 controls
- 3: for 3 controls
- 4: for 4 controls
- 5: for 5 controls
- 6: for 6 controls

5 DESIGN NUMBER

6 OPTIONAL INQUIRY

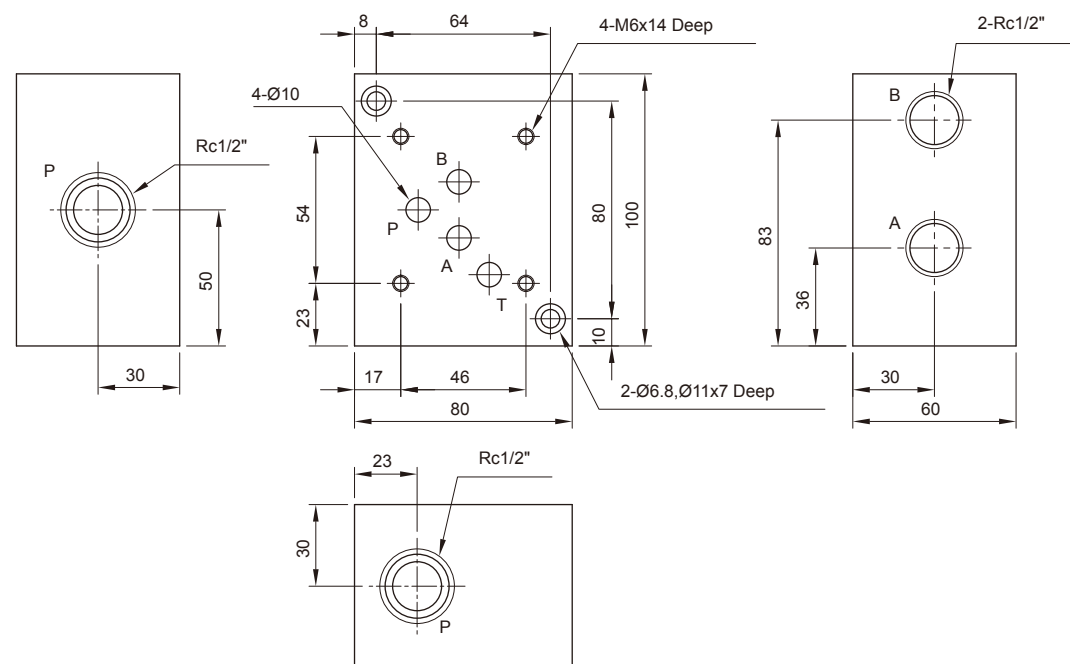
MANIFOLD BLOCK

SANDWICH PLATE DESIGN MFB03 SIZE 10

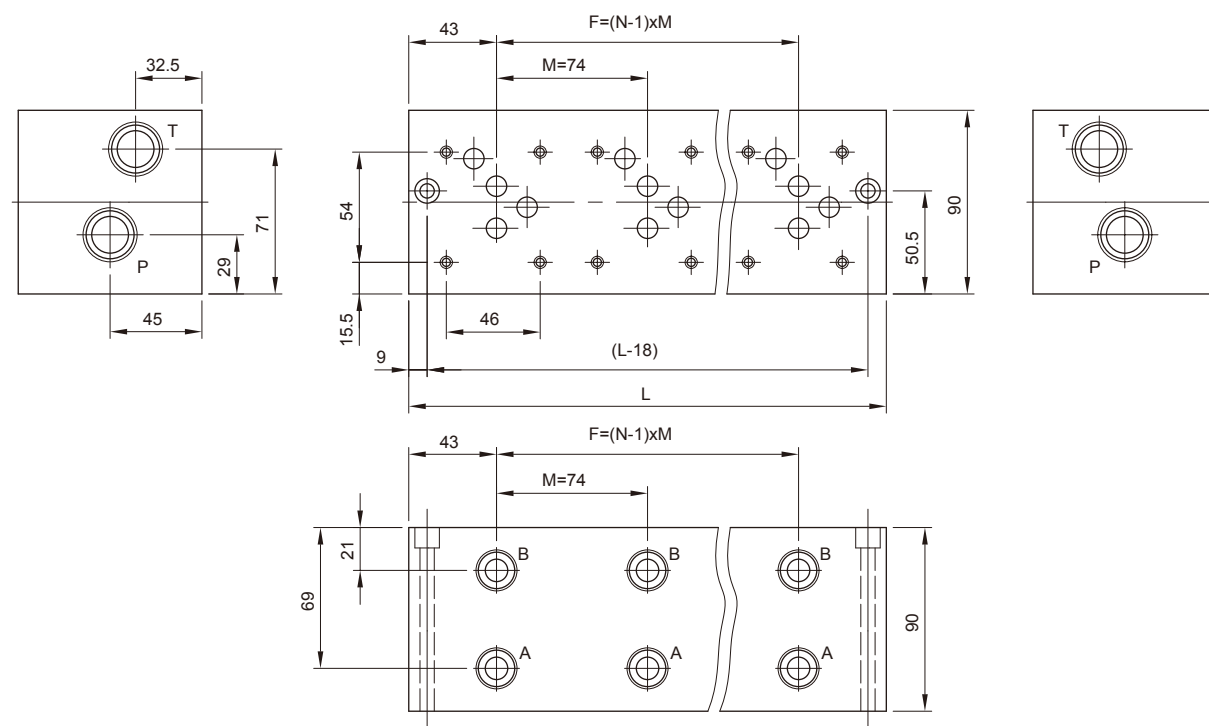
DIMENSIONS :

■ MFB-03-1-10

Weight:3kg



■ MFB-03-*-10



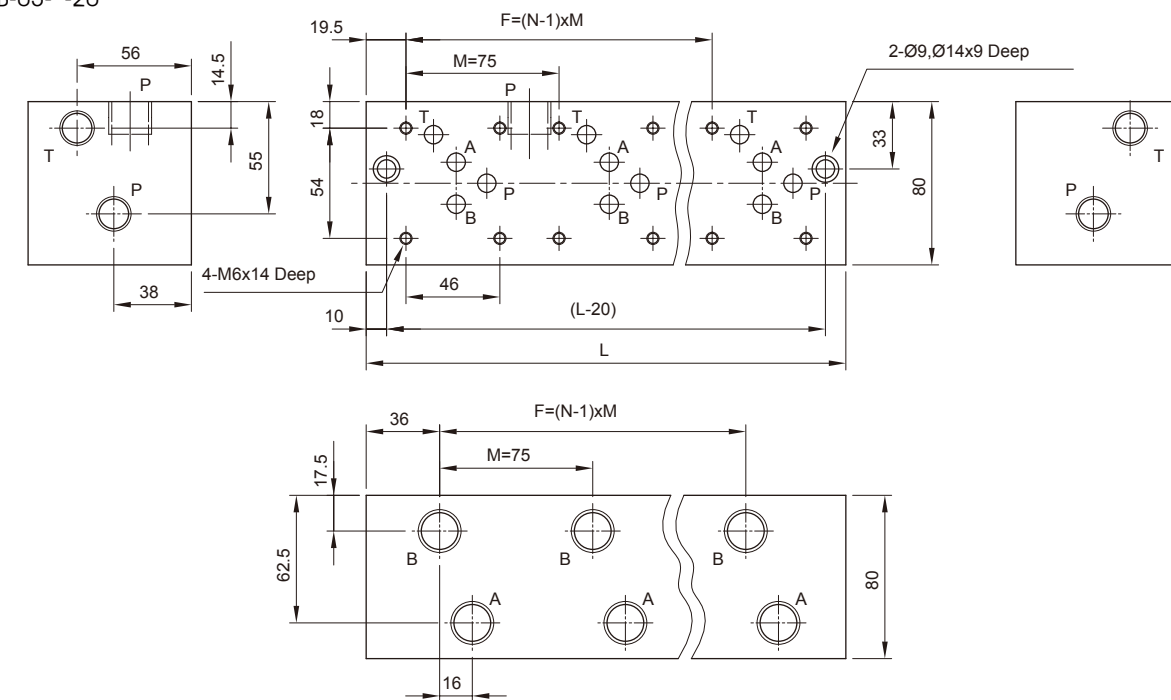
Types	N	F	L	A	B	P	T	Weight
MFB-03-2-10	2	74	164	Rc 1/2"	Rc 3/4"			10.4 kg
MFB-03-3-10	3	148	238					15.0 kg
MFB-03-4-10	4	222	312					19.7 kg
MFB-03-5-10	5	296	386					24.4 kg
MFB-03-6-10	6	370	460					29.0 kg

MANIFOLD BLOCK

SANDWICH PLATE DESIGN MFB03 SIZE 10

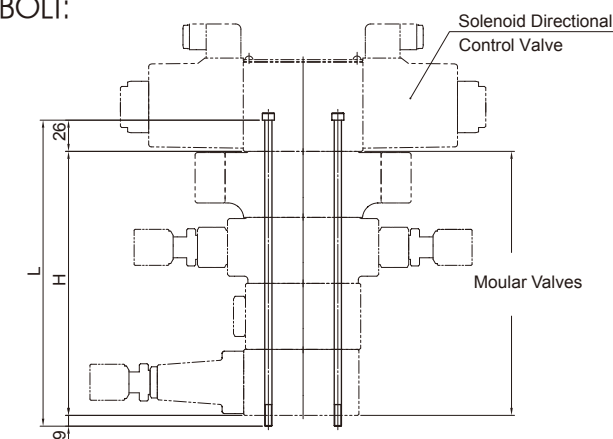
DIMENSIONS :

■ MFB-03-*-20



Types	N	F	L	A	B	P	T	Weight
MFB-03-2-10	2	75	160	Rc 1/2"	Rc 1/2"			10.2 kgs
MFB-03-3-10	3	150	235					15.0 kgs
MFB-03-4-10	4	225	310					19.6 kgs
MFB-03-5-10	5	300	385					24.3 kgs
MFB-03-6-10	6	375	460					29.0 kgs

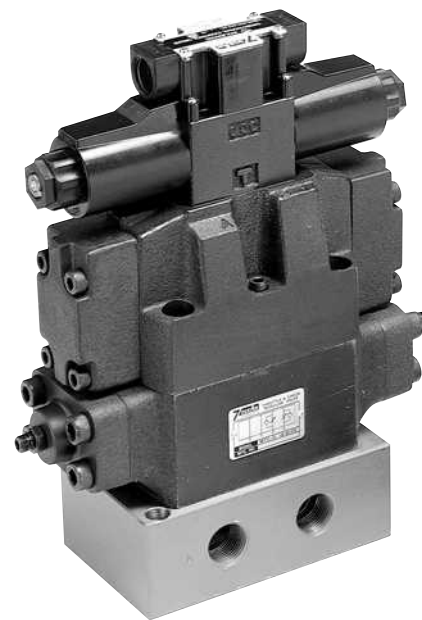
HEXAGON SOCKET HEAD BOLT:



Types	H	L	Bolt length	
			Metric	Inch
1	55	90	M6 x 90L (4 pcs)	1/4"~20UNC x 3-5/8" L (4 pcs)
2	110	145	M6 x 145L (4 pcs)	1/4"~20UNC x 5-3/4" L (4 pcs)
3	165	200	M6 x 200L (4 pcs)	1/4"~20UNC x 7-1/2" L (4 pcs)
4	220	255	M6 x 255L (4 pcs)	1/4"~20UNC x 10-1/8" L (4 pcs)

MODULAR VALVE SERIES

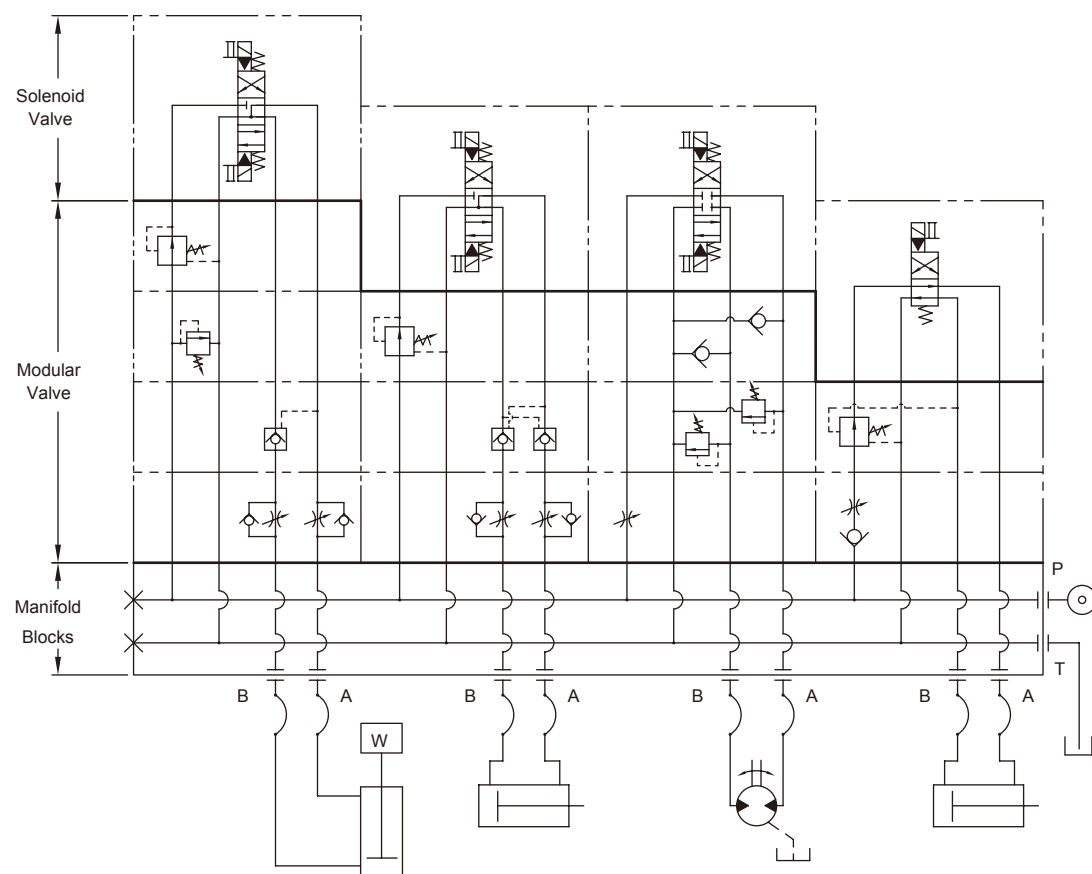
SANDWICH PLATE DESIGN 04 SIZE 16



FEATURES :

- Highest performance in NG 16
- Compacting stacking valves.
- Eliminating intervalve piping and fittings.
- Reducing leakage and installation costs.
- Max. Operating Pressure: 32 MPa.
- Max. Flow: 300 l/min
- Connections to DIN, ISO and CETOP

STACKING EXAMPLE :



MODULAR VALVE SERIES

SANDWICH PLATE DESIGN 04 SIZE 16

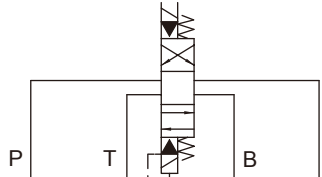
CARE IN APPLICATION :

Valve Name	Wrong Example	Correct Example	Instructions
Solenoid Operated Directional Control Valve Pilot Operated Check Valve (MPD-04-W*-10) Pressure Reducing Valve (MGV-04-B*-20)			When MGV-04-B and MPD-04-W are used together in the same circuit, the right circuit is correct, and the left is wrong, as MPD-04-W would not be totally closed.
Solenoid Operated Directional Control Valve Flow Regulator with Metered Out Check (MTC-04-W-O-20) Pilot Operated Check Valve (MPD-04-W*-10)			When MTC-04-W-O and MPD-04-W are used together in the same circuit, MTC-04-W-O should be installed closer to the cylinder ports, otherwise the cylinder may have a "knocking" phenomenon happened.
Solenoid Operated Directional Control Valve Flow Regulator with Metered Out Check (MTC-04-W-O-20) Pressure Reducing Valve (MGV-04-B*-20)			When MGV-04-B and MTC-04-W-O are used together in the same circuit, the right circuit is correct, and the left is wrong, as the function of MGV-04-B will be affected when oil flow from B port to T port. Because MTC-04-W-O will create a pressure which will cause MGV-04-B to reduce the pressure too low, and the cylinder then can not operate with enough force or move smoothly.

MODULAR VALVE SERIES

SANDWICH PLATE DESIGN 04 SIZE 16

LIST OF MODULAR VALVE SERIES :

Classi- cation	Valve Name	Valve Model	Pressure Adjusting Range (bar)	Max. Flow (L/min)	Hydraulic Symbol	Weight (kg)	Refer Page
Directional Control Valve	Solenoid Valve	DG07-*-*-82	320	300			
Pressure Control Valve	Relief Valve (Balance Type)	MRV-04-P-*-20	1:7~70 2:7~140 3:7~210	300		7.4	189
	Reducing Valve (Balance type)	MGV-04-P-*-20	1:7~70	300		8.6	192
		MGV-04-A-*-20	2:7~140			8.6	
		MGV-04-B-*-20	3:7~210			8.6	
	Counter Balance Valve	MCB-04-A1-*-20	1:5~35 2:20~140	300		8.7	195
		MCB-04-B1-*-20				8.7	
	Flow Control Valve	MTC-04-W-O-20	(Cracking Pressure: 1.0)	300		6.9	198
		MTC-04-A-O-20				6.7	
		MTC-04-B-O-20				6.7	
	Flow Regulator with Metered In Check	MTC-04-W-I-20	(Cracking Pressure: 1.0)	300		6.8	198
		MTC-04-A-I-20				6.7	
		MTC-04-B-I-20				6.7	
Directional Control Valve	Check Valve	MCV-04-P-*-10	(Cracking Pressure: 1: 0.4 2: 3.5 3: 5.0)	300		4.6	202
		MCV-04-T-*-10				6.5	
		MCV-04-A-*-10				4.6	
	Pilot Check Valve (With shock prevent mechanism)	MPD-04-W-*-10	(Cracking Pressure: 1: 2.0 2: 5.0)	300		7.0	205
		MPD-04-A-*-10				7.0	
		MPD-04-B-*-10				7.0	

PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV04 SIZE 16

FEATURES :

- Highest performance in NG 16
- Double stage pressure relief valves with balance poppet
- Sandwich plate design
- 3 pressure ranges
- Connections to DIN, ISO and CETOP



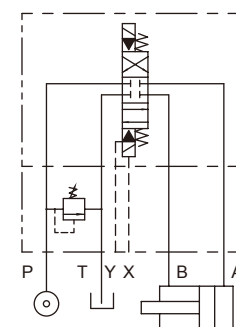
Model: MRV-04-P-1-10

SPECIFICATION :

Maximum Flow Rate	300 l/Min (79.3 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Spring cracking pressure	1: 7~70 Bar
	2: 7~140 Bar
	3: 7~210 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AD-07-4-A
Weight (Kg)	7.4 Kg

HYDRAULIC CONFIGURATION:

- MRV-04-P-*-20



PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV04 SIZE 16

ORDERING CODE :

M RV - 04 - P - 1 - 20 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE RELIEF VALVE

3 NOMINAL VALVE SIZE:

NG 16, CETOP7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 CONFIGURATION

P: single; acting on port P, discharge to port T

5 SPRING CRACKING PRESSURE

- 1: 7~70 Bar
- 2: 7~140 Bar
- 3: 7~210 Bar

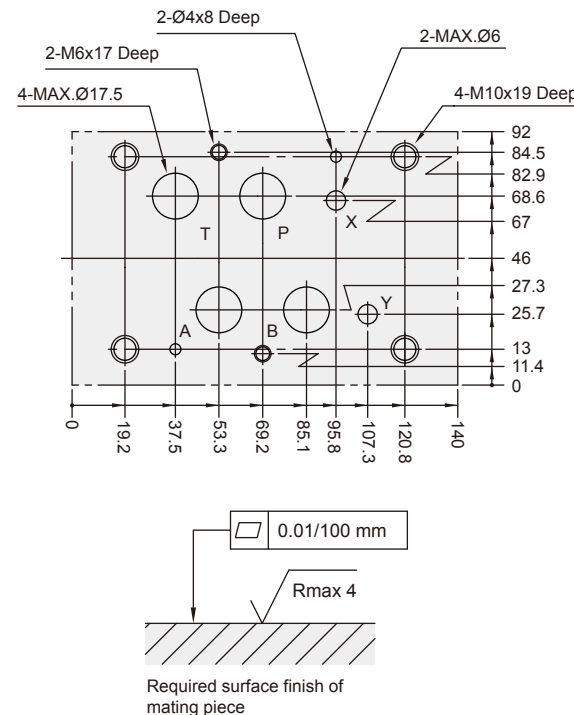
6 DESIGN NUMBER

- 10: with handle
- 20: without handle

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)
Mounting Surface: ISO 4401-AD-07-4-A



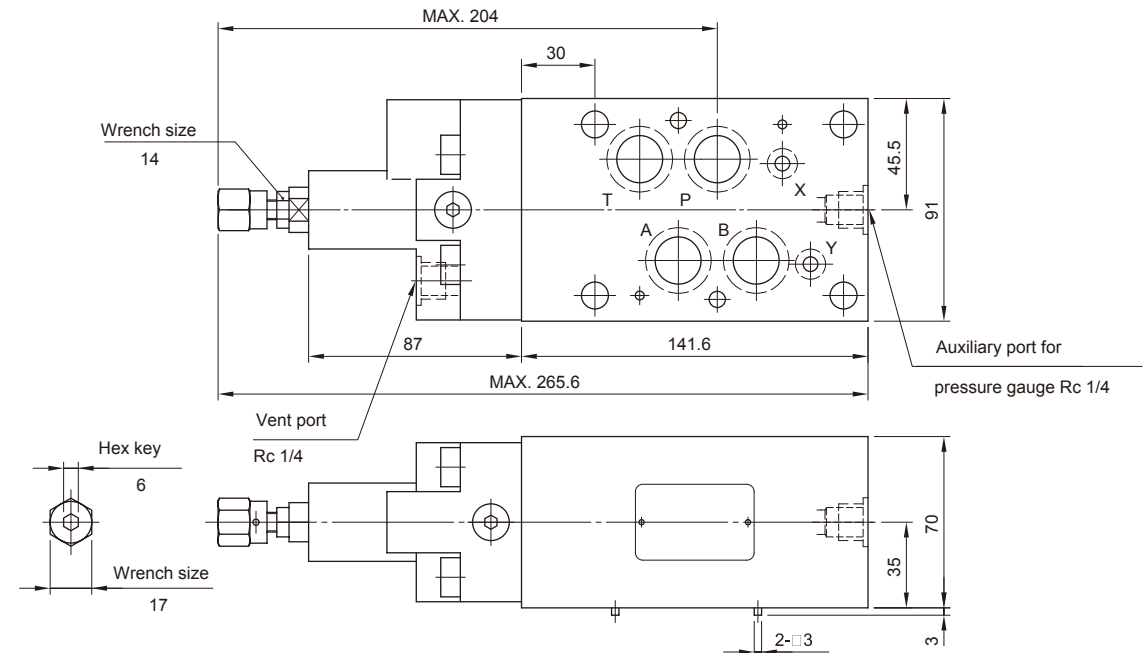
PRESSURE RELIEF VALVE

SANDWICH PLATE DESIGN MRV04 SIZE 16

DIMENSIONS :

■ MRV-04-P-*-20

3rd angle projection

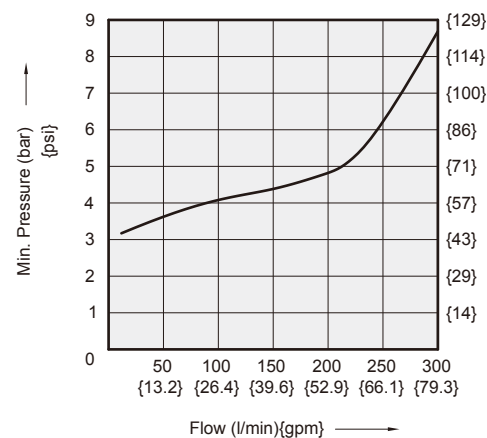


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

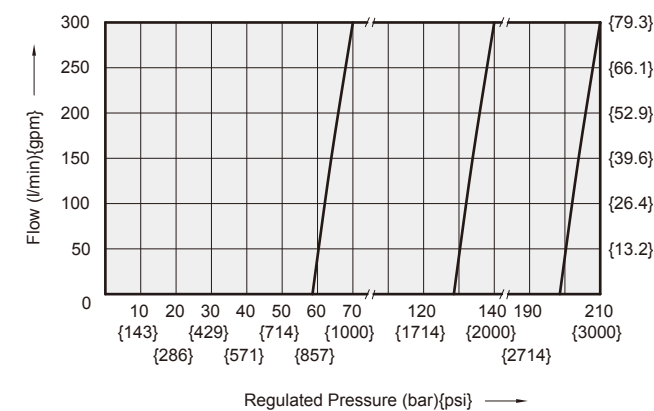
Minimum Pressure V.S. Flow Diagram

■ MRV-04-P-1-20



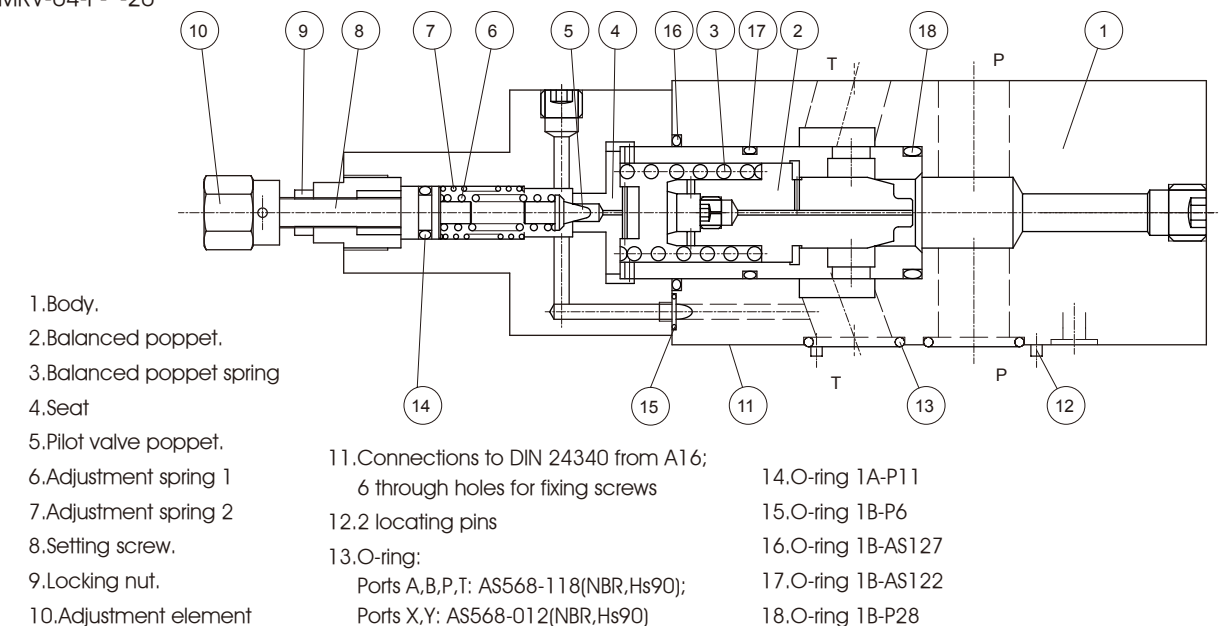
Regulated Pressure V.S. Flow Diagram

■ MRV-04-*-20



CROSS SECTION DRAWING :

■ MRV-04-P-*-20

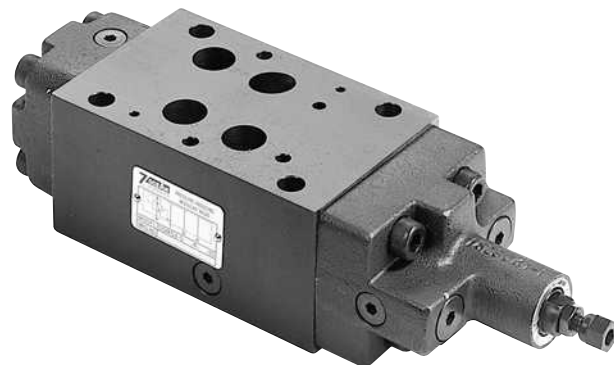


PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO4 SIZE 16

FEATURES :

- Highest performance in NG 16
- Double stage pressure reducing valve
- Sandwich plate design
- 3 pressure adjusting ranges.
- 3 optional effective directions of flow
- Pressure reduction in ports A, B, or P
- Connections to DIN, ISO and CETOP



Model: MGVO4-P-1-20

SPECIFICATION :

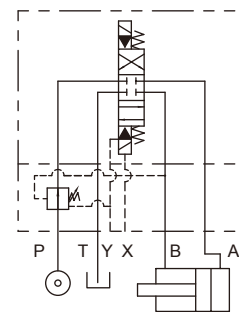
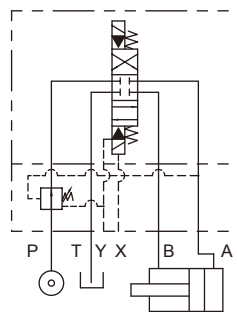
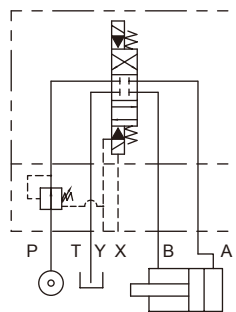
Maximum Flow Rate		300 l/Min (79.3 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Pressure Adjusting Range		1: 7~70 Bar
		2: 7~140 Bar
		3: 7~210 Bar
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/s
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AD-07-4-A
Weight	P Type	8.6 kg
	A Type	8.6 kg
	B Type	8.6 kg

HYDRAULIC CONFIGURATION:

■ MGVO4-P-*-20

■ MGVO4-A-*-20

■ MGVO4-B-*-20



PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO4 SIZE 16

ORDERING CODE :

M GV - 04 - P - 1 - 20 - **

1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PRESSURE REDUCING VALVE

3 NOMINAL VALVE SIZE:

NG 16, CETOP7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 CONFIGURATION

P: reduced pressure on P port

A: reduced pressure on A port

B: reduced pressure on B port

5 SPRING CRACKING PRESSURE

1: 7~70 Bar

2: 7~140 Bar

3: 7~210 Bar

6 DESIGN NUMBER

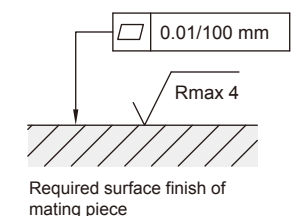
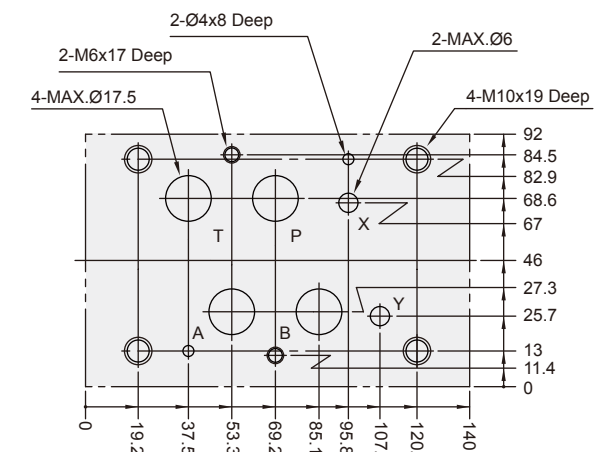
10: with handle

20: without handle

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)
Mounting Surface: ISO 4401-AD-07-4-A

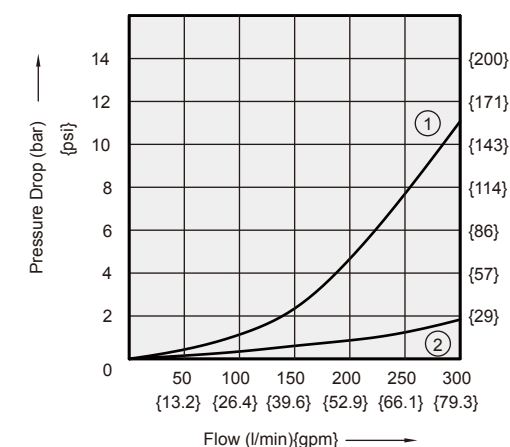


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

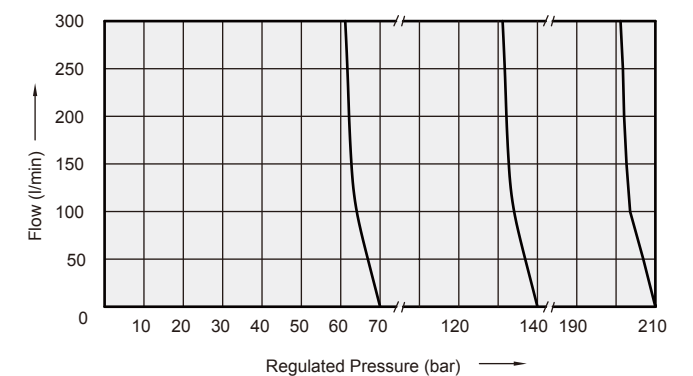
■ MGVO4-P-*-20



1. Differential pressure variation V.S. variation of flow between inlet port and use port
2. Differential pressure variation V.S. variation of between use port and discharge port

Regulated Pressure V.S. Flow Diagram

■ MGVO4-P-*-20

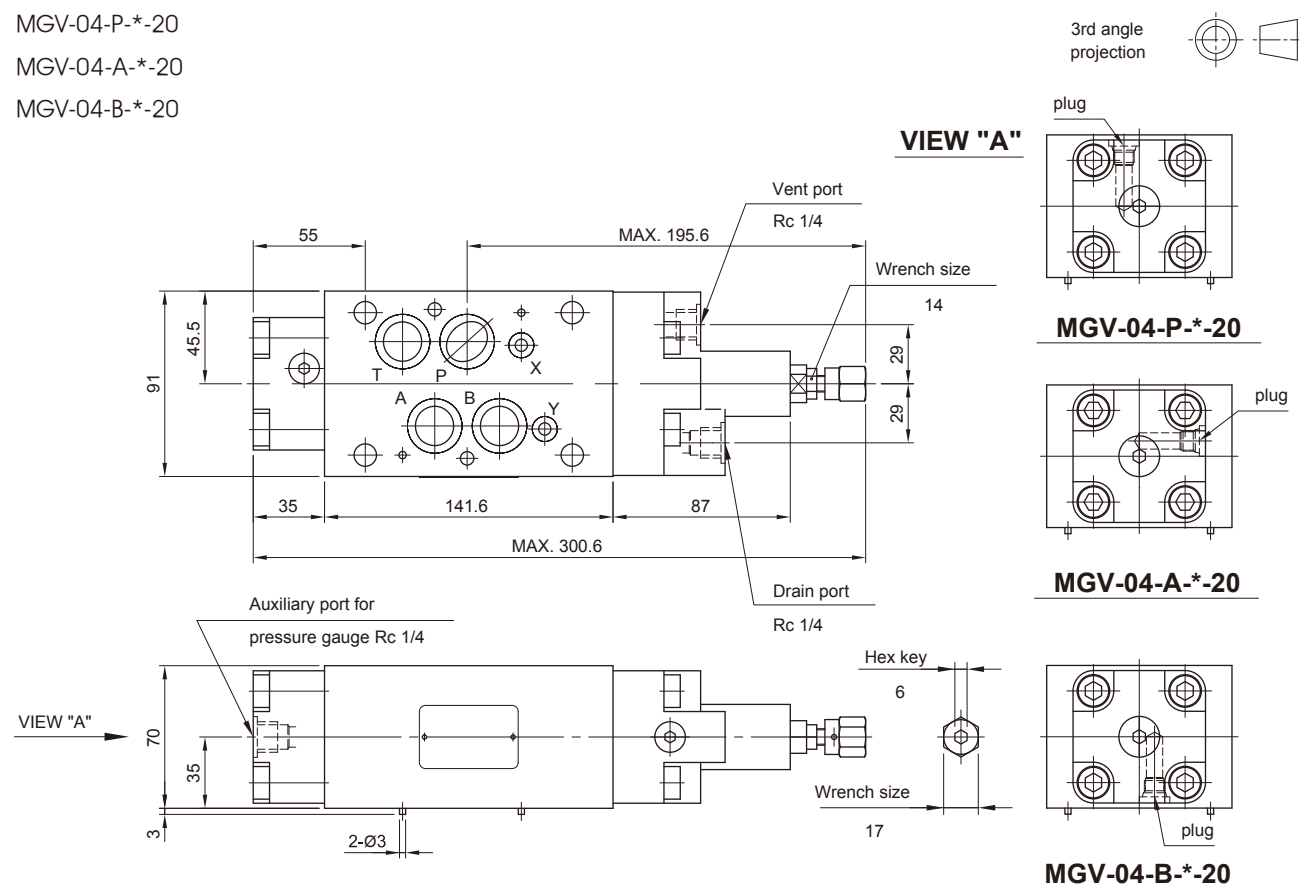


PRESSURE REDUCING VALVE

SANDWICH PLATE DESIGN MGVO4 SIZE 16

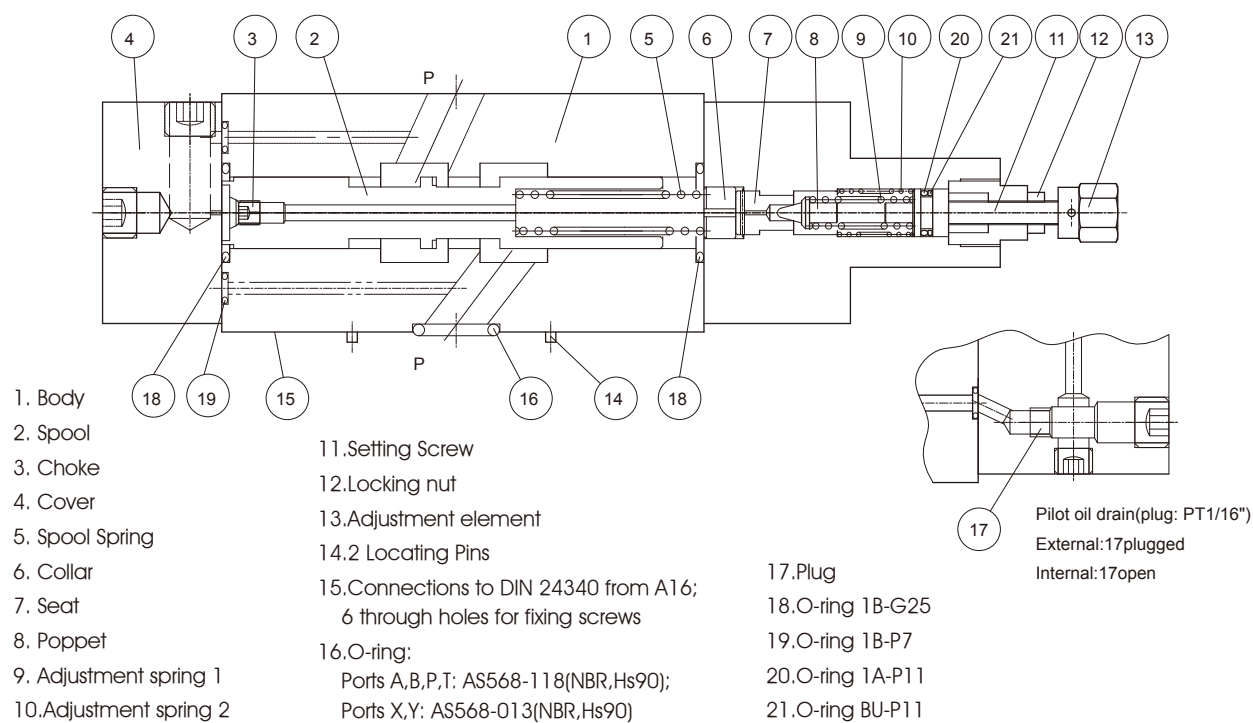
DIMENSIONS :

- MGVO4-P-*-20
- MGVO4-A-*-20
- MGVO4-B-*-20



CROSS SECTION DRAWING :

- MGVO4-P-*-20



COUNTER BALANCE VALVE

SANDWICH PLATE DESIGN MCB04 SIZE 16

FEATURES :

- Highest performance in NG 16
- Direct operated pressure counter balance valve
- Used for actuator back pressure control
- Sandwich plate design
- Connections to DIN, ISO and CETOP



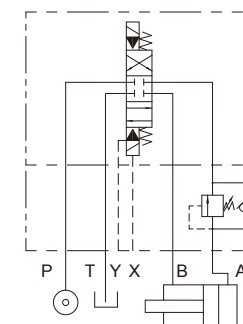
Model: MCB-04-A1-2-10

SPECIFICATION :

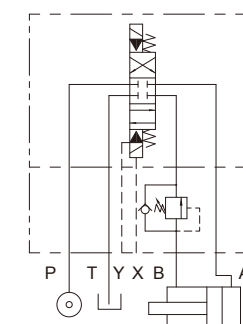
Maximum Flow Rate	300 l/Min (79.3 GMP)
Maximum Working Pressure	320 Bar (4570 PSI)
Pressure Adjusting Range	1: 5~35 Bar 2: 20~140 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature Range	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 µm
Mounting Pattern	ISO 4401-AD-07-4-A
Weight	A Type 8.6 kg B Type 8.6 kg

HYDRAULIC CONFIGURATION:

- MCB-04-A1-*-20



- MCB-04-B1-*-20



COUNTER BALANCE VALVE

SANDWICH PLATE DESIGN MCB04 SIZE 16

ORDERING CODE :

M CB - 04 - B 1 - 1 - 20 - **
1 2 3 4 5 6 7 8

1 SANDWICH PLATE DESIGN

2 COUNTER BALANCE VALVE

3 NOMINAL VALVE SIZE:

NG 16, CETOP7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 CONTROL PORT

A: A port

B: B port

5 CONTROL TYPE

1: internal pilot, internal drain

6 PRESSURE ADJUSTING RANGE

1: 5~35 Bar

2: 20~140 Bar

7 DESIGN NUMBER

10: with handle

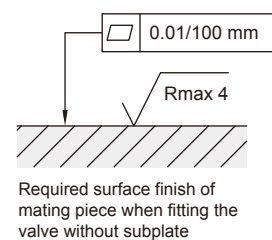
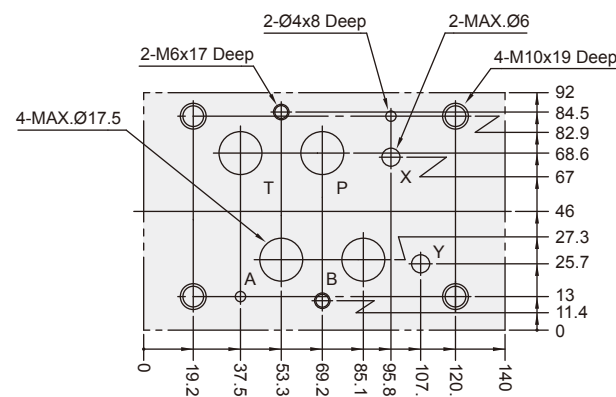
20: without handle

8 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

Mounting Surface: ISO 4401-AD-07-4-A

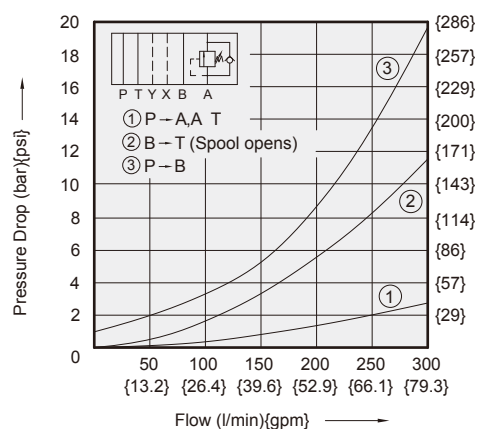


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

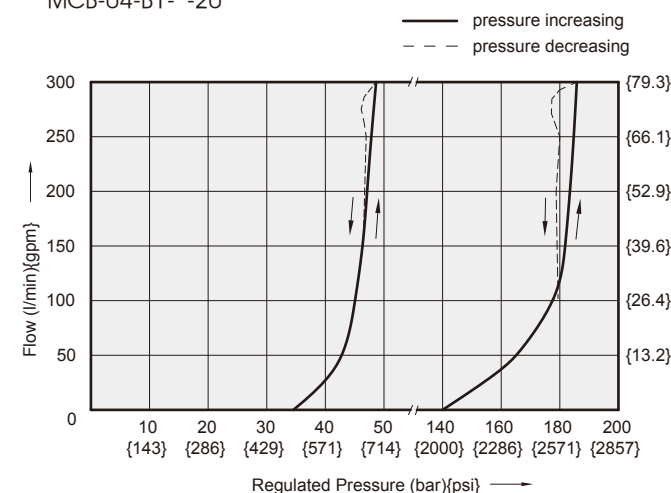
■ MCB-04-A1-1-20



Regulated Pressure V.S. Flow Diagram

■ MCB-04-A1-* -20

MCB-04-B1-* -20

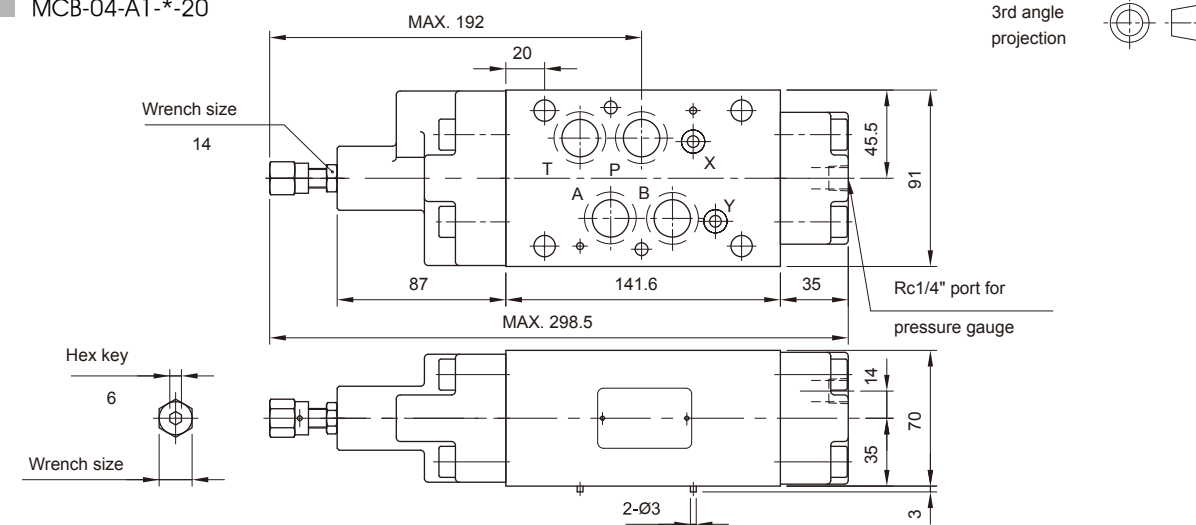


COUNTER BALANCE VALVE

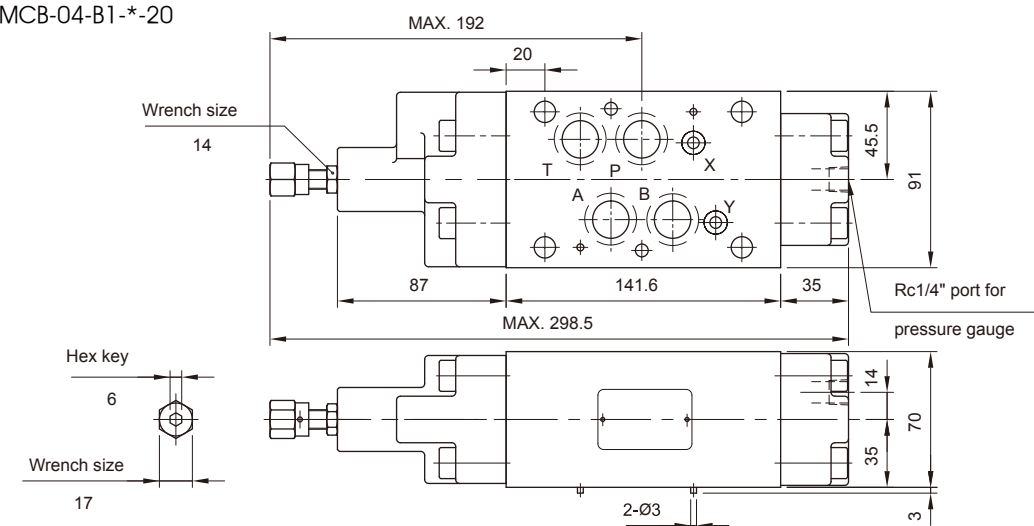
SANDWICH PLATE DESIGN MCB04 SIZE 16

DIMENSIONS :

■ MCB-04-A1-* -20



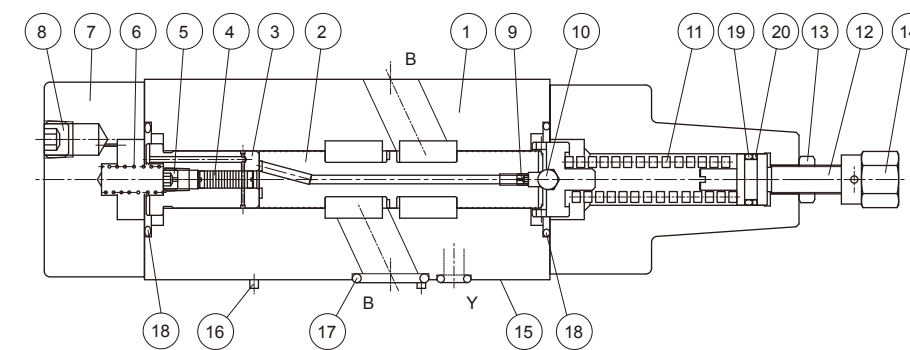
■ MCB-04-B1-* -20



CROSS SECTION DRAWING :

■ MCB-04-B1-* -10

1. Body
2. Spool
3. Sleeve
4. Piston
5. Choke
6. Sleeve Spring
7. Cover
8. Plug
9. Choke
10. Ball
11. Adjustment spring
12. Setting screw
13. Locking nut
14. Adjustment element



15. Connections to DIN 24340 from A16; 6 through holes for fixing screws
16.2 Locating Pins
17. O-ring: Ports A,B,P,T: AS568-118(NBR,Hs90); Ports X,Y: AS568-013(NBR,Hs90)
18. O-ring 1B-AS127
19. O-ring 1A-P14
20. O-ring BU-P14

FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTCO4 SIZE 16

FEATURES :

- Highest performance in NG 16
- Sandwich plate design
- For limiting the main or pilot fluid flow of 2 actuator
- Connections
- For meter-in or meter-out control
- Connections to DIN, ISO and CETOP



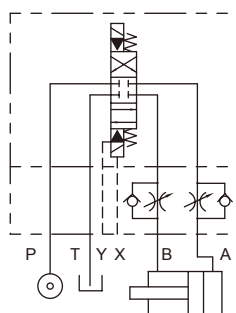
Model: MTC-04-W-O-10

SPECIFICATION :

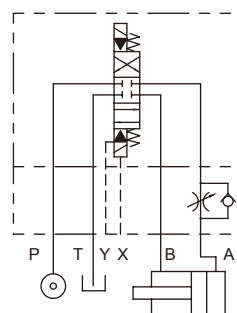
Maximum Flow Rate		300 l/Min (79.3 GPM)
Maximum working pressure		320 Bar (4570 PSI)
Check valve cracking pressur		1.0 Bar (14.3 PSI)
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperture Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AD-07-4-A
Weight	W Type	6.9 Kg
	A Type	6.7 Kg
	B Type	6.7 Kg

HYDRAULIC CONFIGURATION:

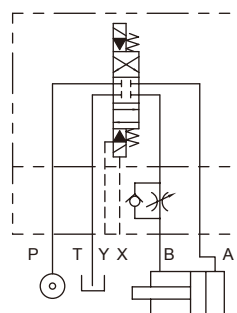
■ MTC-04-W-O-20



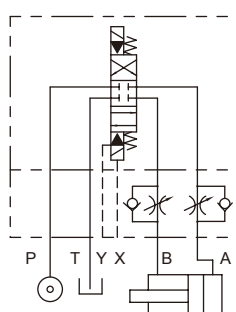
■ MCT-04-A-O-20



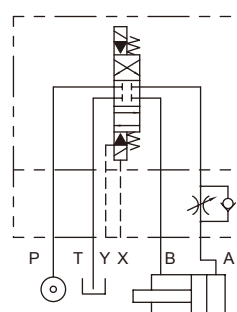
■ MTC-04-B-O-20



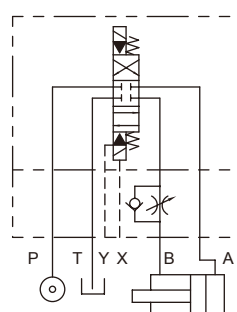
■ MTC-04-W-I-20



■ MCT-04-A-I-20



■ MTC-04-B-I-20



FLOW REGULATOR WITH CHECK VALVE SANDWICH PLATE DESIGN MTCO4 SIZE 16

ORDERING CODE :

M TC - 04 - W - 0 - 20 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 FLOW REGULATOR WITH CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 16, CETOP7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 CONTROL WAY

O: Meter out, control of flow discharged from the actuator

I: Meter in, control of flow entering the actuator

6 DESIGN NUMBER

10: with handle

20: without handle

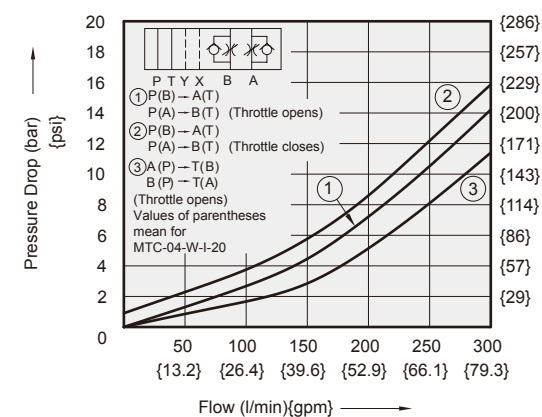
7 OPTIONAL INQUIRY

PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

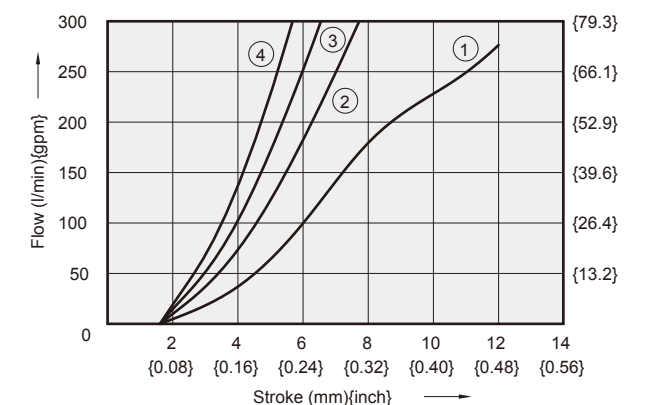
Pressure Drop Characteristic

■ MTC-04-W-O/I-20



Regulated Pressure V.S. Flow Diagram

■ MTC-04-W-O/I-20
MTC-04-A-O/I-20
MTC-04-B-O/I-20



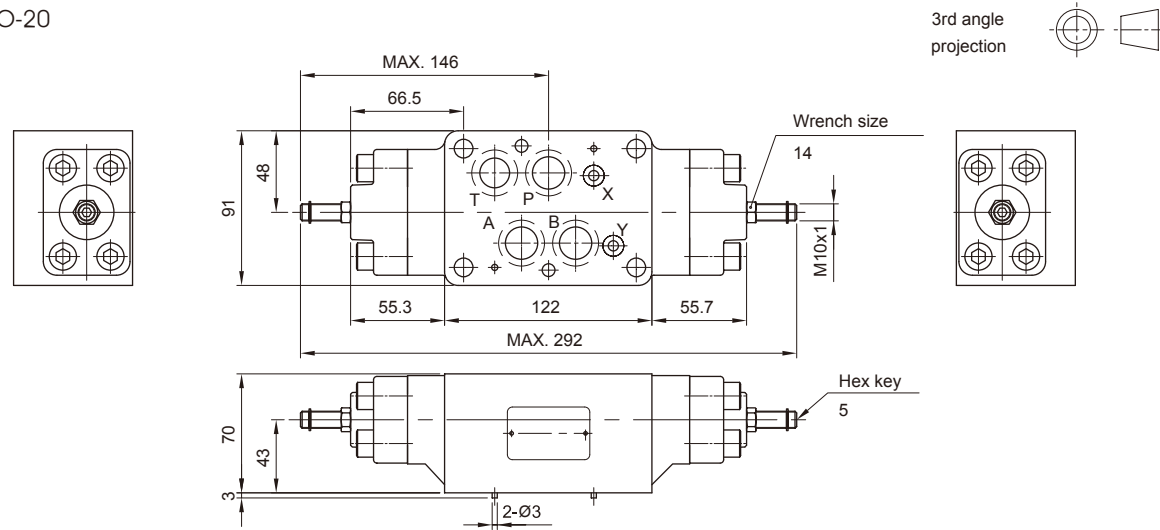
- ① Pressure Difference= 10 bar{143psi} ③ Pressure Difference= 50 bar{714psi}
② Pressure Difference= 15 bar{214psi} ④ Pressure Difference= 140 bar{2000psi}

FLOW REGULATOR WITH CHECK VALVE

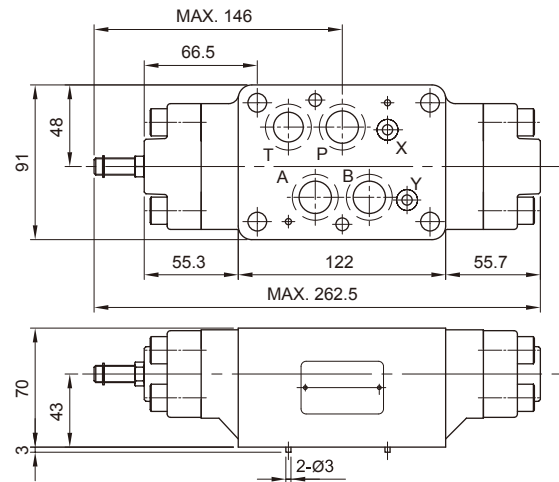
SANDWICH PLATE DESIGN MTCO4 SIZE 16

DIMENSIONS :

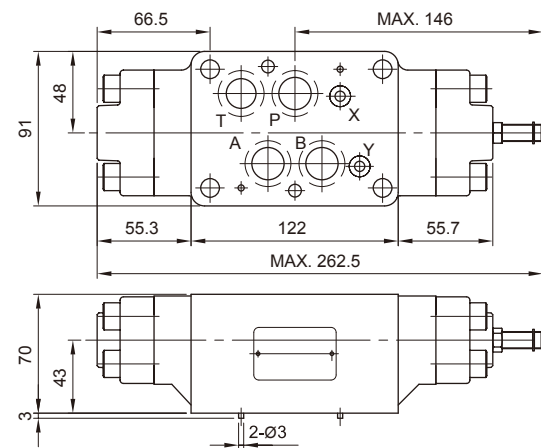
■ MTC-04-W-O-20



■ MTC-04-A-O-20

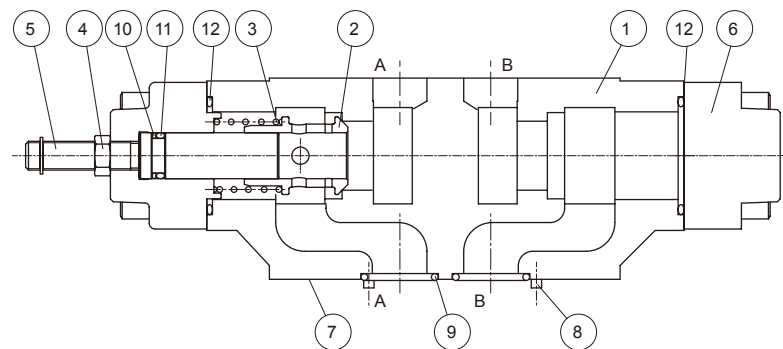


■ MTC-04-B-O-20



CROSS SECTION DRAWING :

■ MTC-04-A-O-20



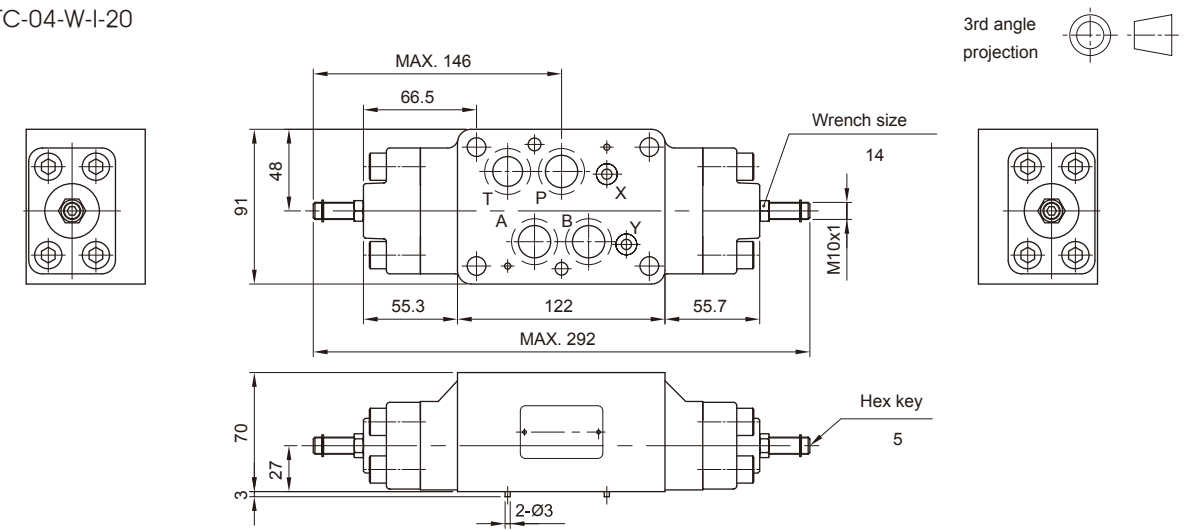
1. Body
2. Throttle
3. Spring
4. Locking nut
5. Setting screw
6. Cover
7. Connections to DIN 24340 from A16;
6 through holes for fixing screws
8. 2 Locating Pins
9. O-ring:
Ports A,B,P,T: AS568-118(NBR,Hs90);
Ports X,Y: AS568-013(NBR,Hs90)
10. O-ring BU-P12
11. O-ring 1A-P12
12. O-ring 1B-AS127

FLOW REGULATOR WITH CHECK VALVE

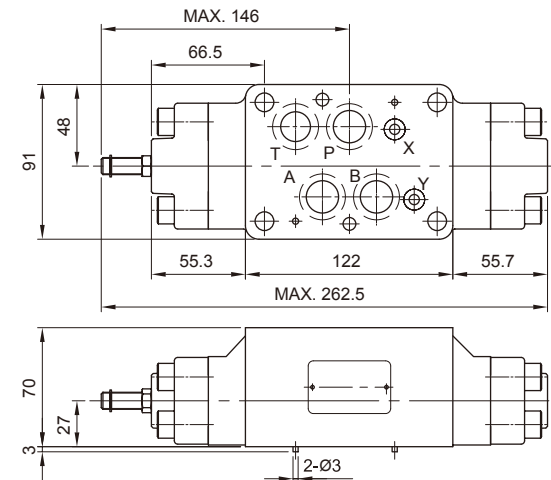
SANDWICH PLATE DESIGN MTCO4 SIZE 16

DIMENSIONS :

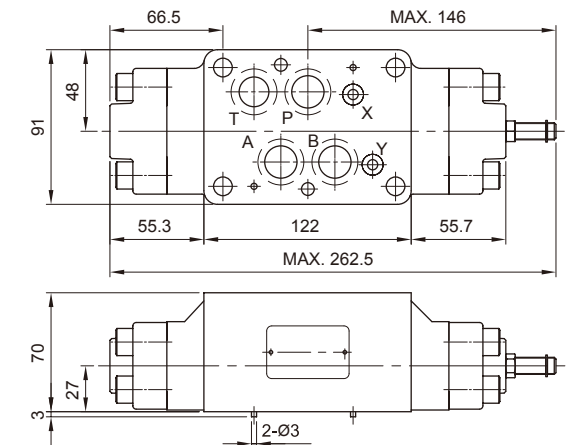
■ MTC-04-W-I-20



■ MTC-04-A-I-20

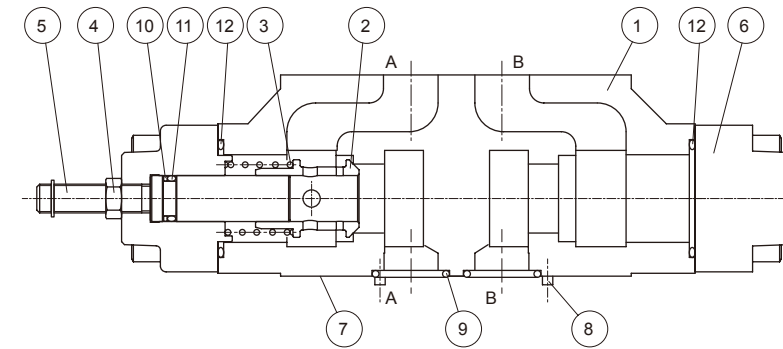


■ MTC-04-B-I-20



CROSS SECTION DRAWING :

■ MTC-04-A-I-20



1. Body
2. Throttle
3. Spring
4. Locking nut
5. Setting screw
6. Cover
7. Connections to DIN 24340 from A16;
6 through holes for fixing screws
8. 2 Locating Pins
9. O-ring:
Ports A,B,P,T: AS568-118(NBR,Hs90);
Ports X,Y: AS568-013(NBR,Hs90)
10. O-ring BU-P12
11. O-ring 1A-P12
12. O-ring 1B-AS127

CHECK VALVE

SANDWICH PLATE DESIGN MCVO4 SIZE 16

FEATURES :

- Highest performance in NG 16
- Sandwich plate design for use in vertical stacking
- Assemblies
- Direct operated check valve
- 4 different isolating functions
- Connections to DIN, ISO and CETOP



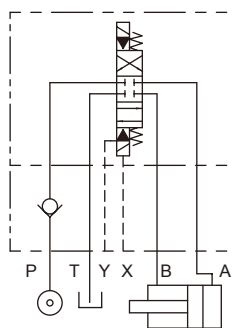
Model: MCV-04-P-1-10

SPECIFICATION :

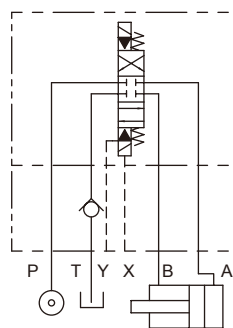
Maximum Flow Rate		300 l/Min (79.3 GMP)
Maximum working pressure		320 Bar (4570 PSI)
Spring cracking pressure		1: 0.4 Bar (5.7 PSI)
		2: 3.5 Bar (50 PSI)
		3: 5.0 Bar (71 PSI)
Ambient Temperature Range		-20°C~+50°C
Hydraulic Fluid Temperature Range		-20°C~+70°C
Viscosity Range		15~400 mm²/S
Hydraulic Oil		ISO VG32, 46, 68
Fluid Cleanliness		25 μm
Mounting Pattern		ISO 4401-AD-07-4-A
Weight	P Type	4.6 kg
	A Type	4.6 kg
	T Type	6.5 kg

HYDRAULIC CONFIGURATION:

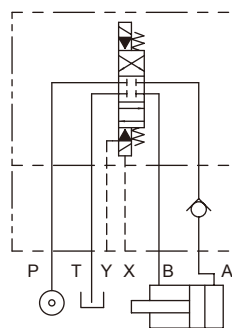
■ MCV-04-P-*-10



■ MCV-04-T-*-10



■ MCV-04-A-*-10



CHECK VALVE

SANDWICH PLATE DESIGN MCVO4 SIZE 16

ORDERING CODE :

M CV - 04 - P - 1 - 10 - **
1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 CHECK VALVE

3 NOMINAL VALVE SIZE:

NG 16, CETOP7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 CONFIGURATION

P: single; acting on port P

T: single; acting on port T

A: single; acting on port A

5 SPRING CRACKING PRESSURE

1: 0.4 Bar

2: 3.5 Bar

3: 5.0 Bar

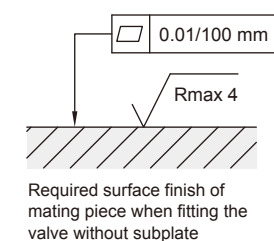
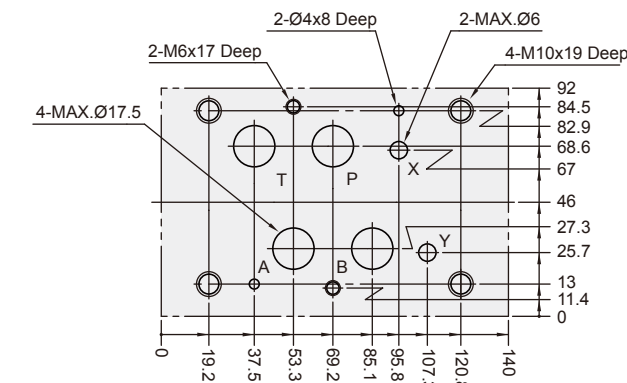
6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

Mounting Surface: ISO 4401-AD-07-4-A

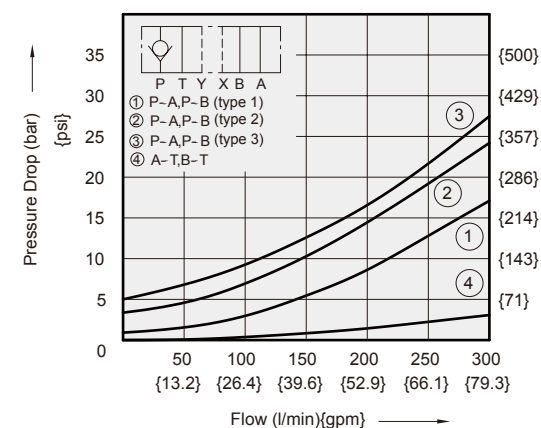


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

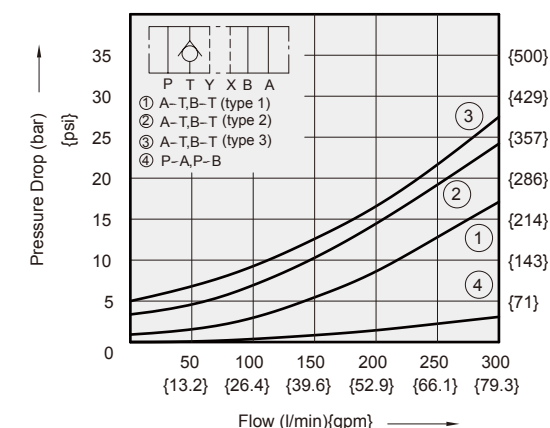
Pressure Drop Characteristic

■ MCV-04-P-*-10



Regulated Pressure V.S. Flow Diagram

■ MCV-04-T-*-10



CHECK VALVE

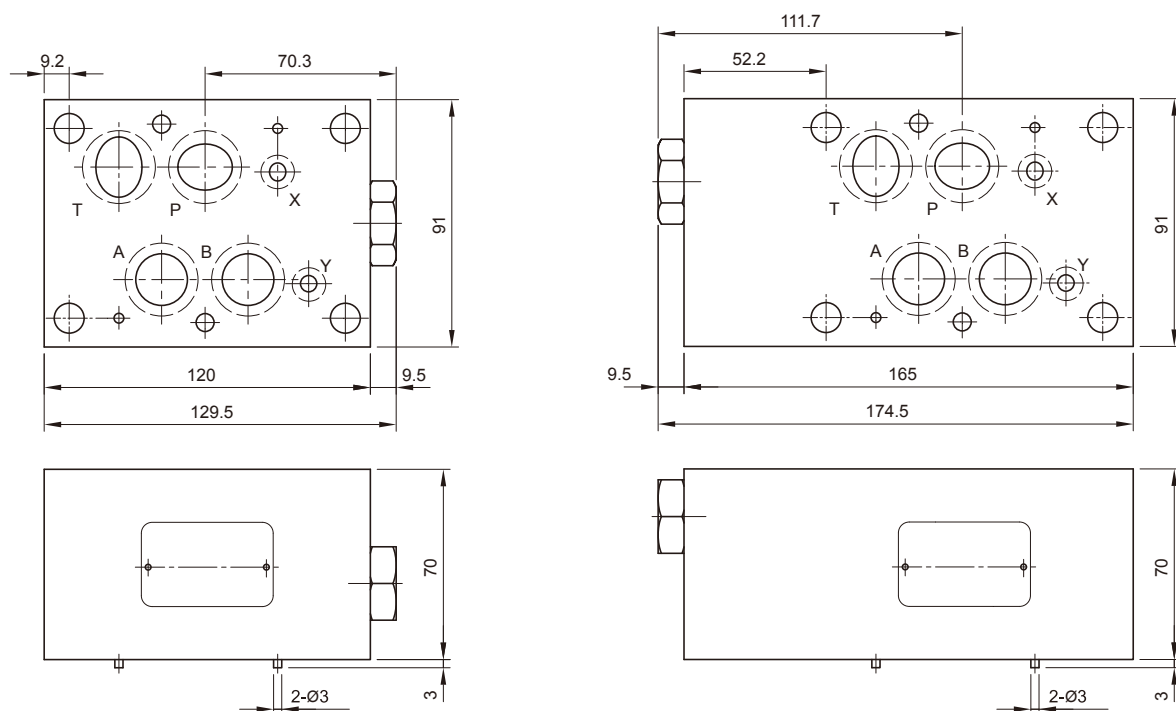
SANDWICH PLATE DESIGN MCV04 SIZE 16

DIMENSIONS :

- MCV-04-P-*-10
- MCV-04-A-*-10

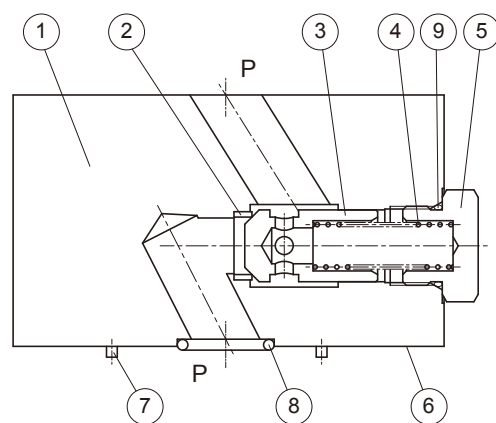
- MCV-04-T-*-10

3rd angle projection



CROSS SECTION DRAWING :

- MCV-04-P-*-10



1. Body
2. Seat
3. Poppet
4. Spring
5. Nut
6. Connections to DIN 24340 from A16;
6 through holes for fixing screws
7. 2 Locating Pins
8. O-ring:
Ports A,B,P,T: AS568-118(NBR,Hs90);
Ports X,Y: AS568-013(NBR,Hs90)
9. O-ring 1B-P20

PILOT OPERATED CHECK VALVE WITH DECOMPRESSION

SANDWICH PLATE DESIGN MPD04 SIZE 16

FEATURES :

- Highest performance in NG 16
- Sandwich plate design
- Pilot operated check valve with decompression
- For leak free sealing of one or two actuator ports
- Connections to DIN, ISO and CETOP



Model: MPD-04-W-1-10

SPECIFICATION :

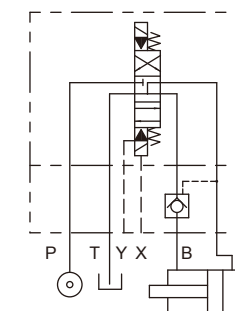
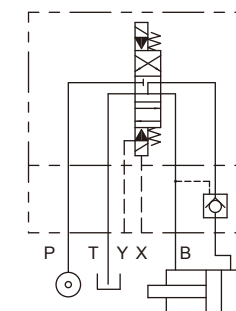
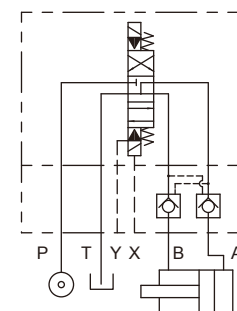
Maximum Flow Rate	300 l/Min (79.3 GPM)
Maximum working pressure	320 Bar (4570 PSI)
Spring cracking pressure	1: 2 Bar (29 PSI) 2: 5 Bar (71 PSI)
Area ratio	Pilot piston: 1 Check valve seat: 0.5 Needle valve seat: 0.07
Ambient Temperature Range	-20°C ~ +50°C
Hydraulic Fluid Temperature Range	-20°C ~ +70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 µm
Mounting Pattern	ISO 4401-AD-07-4-A
Weight	W Type: 7.0 kg A Type: 7.0 kg B Type: 7.0 kg

HYDRAULIC CONFIGURATION:

- MPD-04-W-*-10

- MPD-04-A-*-10

- MPD-04-B-*-100



PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD04 SIZE 16

ORDERING CODE :

M PD - 04 - W - 1 - 10 - **

1 2 3 4 5 6 7

1 SANDWICH PLATE DESIGN

2 PILOT OPERATED CHECK VALVE WITH DECOMPRESSION

3 NOMINAL VALVE SIZE:

NG 16, CETOP7 and ISO 4401-07 (NFPA-D07/DIN 24340)

4 CONFIGURATION

W: double; acting on ports A & B

A: single; acting on port A

B: single; acting on port B

5 SPRING CRACKING PRESSURE

1: 2 Bar

2: 5 Bar

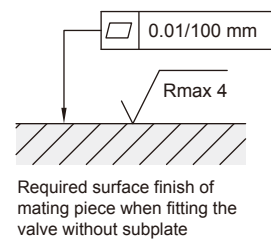
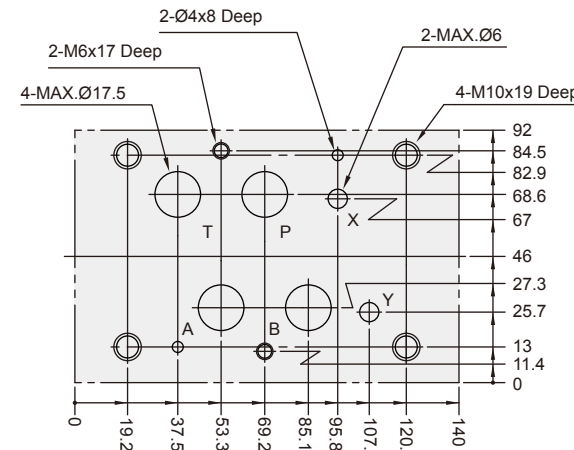
6 DESIGN NUMBER

7 OPTIONAL INQUIRY

INSTALLATION DIMENSIONS:

(Machined valve mounting face with position of ports)

Mounting Surface: ISO 4401-AD-07-4-A

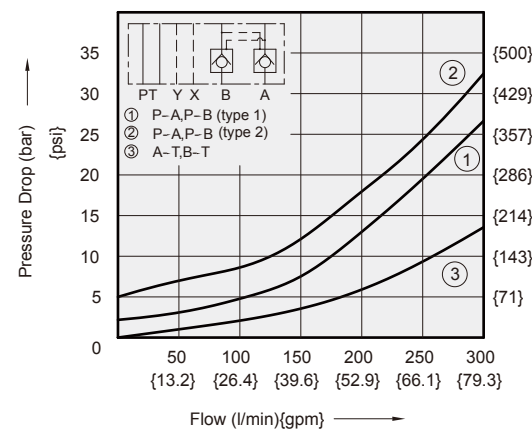


PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

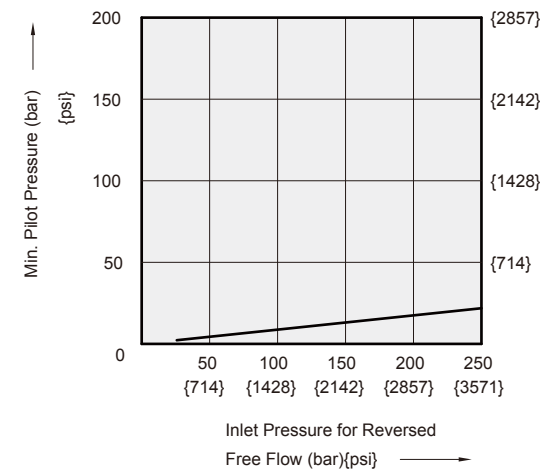
Pressure Drop Characteristic

■ MPD-04-W-*-10



Min. Pilot Pressure Characteristic

■ MPD-04-W-*-10



PILOT OPERATED CHECK VALVE WITH DECOMPRESSION SANDWICH PLATE DESIGN MPD04 SIZE 16

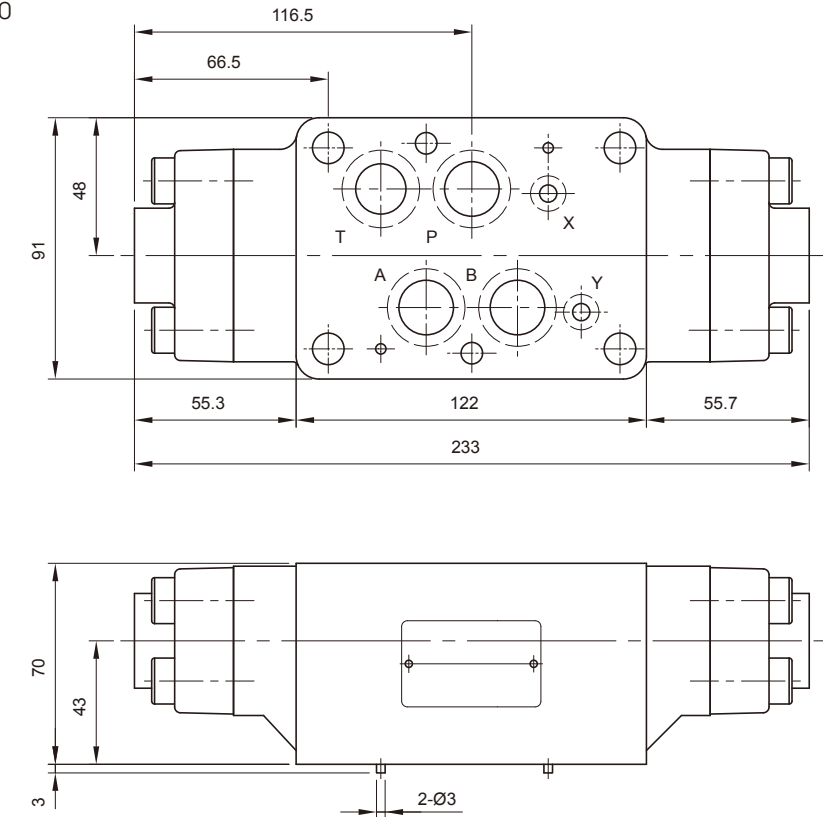
DIMENSIONS :

■ MPD-04-W-*-10

MPD-04-A-*-10

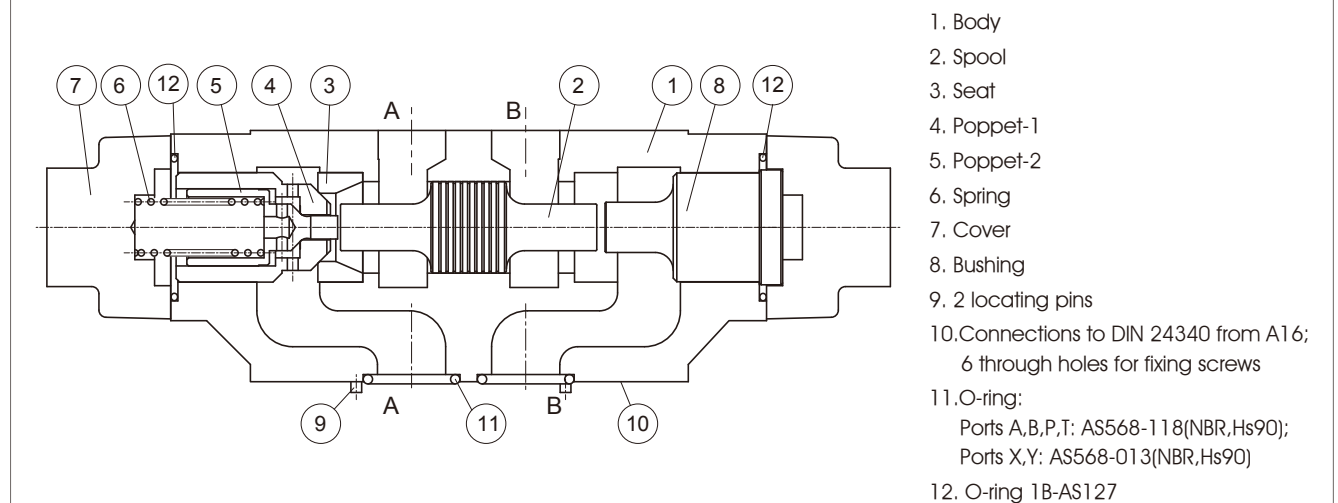
MPD-04-B-*-10

3rd angle
projection



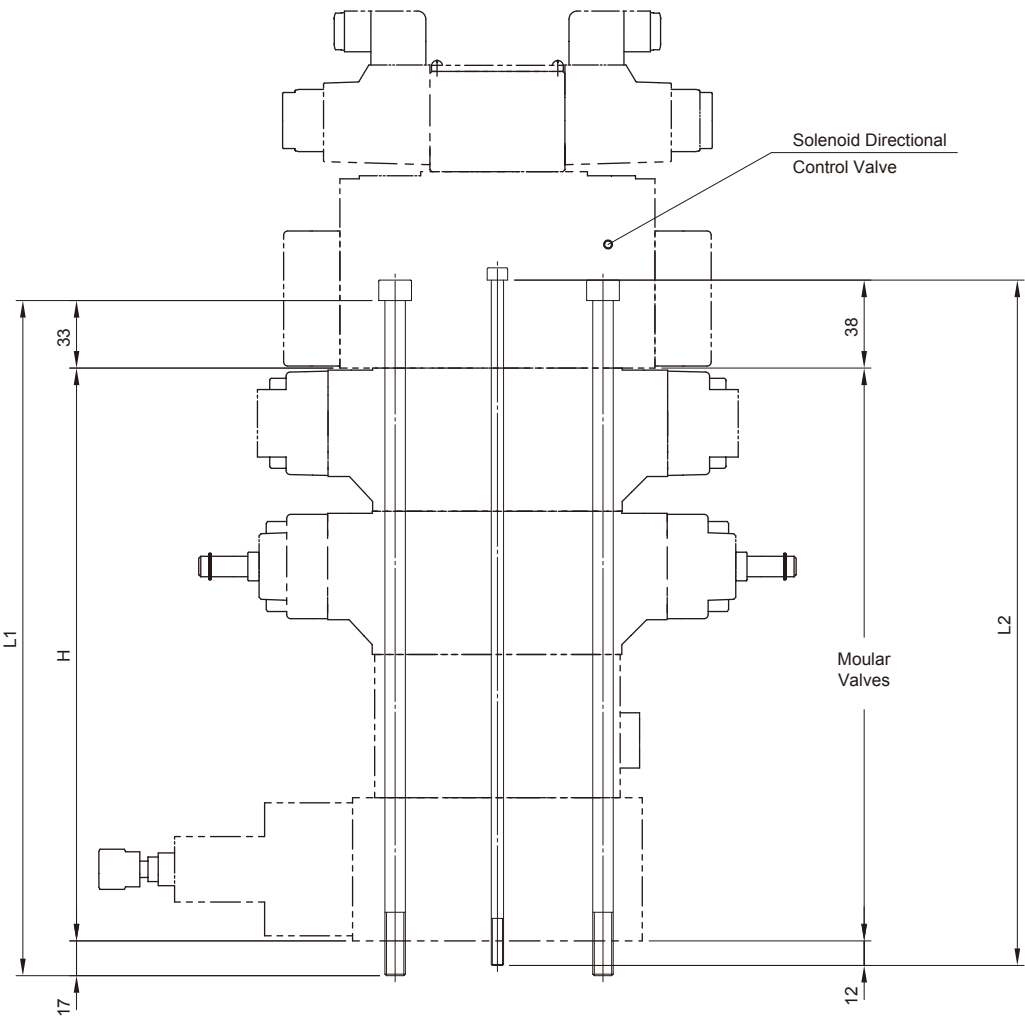
CROSS SECTION DRAWING :

■ MPD-04-A-*-10



LIST OF INSTALLATION BOLTS
SANDWICH PLATE DESIGN O4 SIZE I6

HEXAGON SOCKET HEAD BOLT:

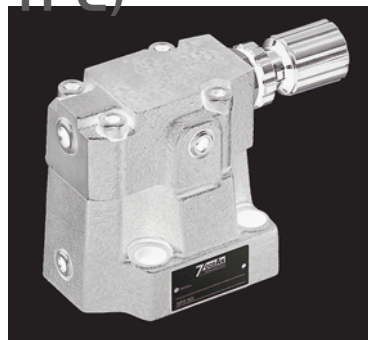


Numbers of the moular valves	H	L1	L2	Bolt length	
				Metric	Inch
1	70	120	125	M10x120L (4 pcs)	3/8"~16UNCx4-5/8"Lx4 pcs.
				M6x125L (2 pcs)	1/4"~20UNCx4-7/8"Lx2 pcs.
2	140	190	195	M10x190L (4 pcs)	3/8"~16UNCx7-3/8"Lx4 pcs.
				M6x195L (2 pcs)	1/4"~20UNCx7-5/8"Lx2 pcs.
3	210	260	265	M10x260L (4 pcs)	3/8"~16UNCx10-1/8"Lx4 pcs.
				M6x265L (2 pcs)	1/4"~20UNCx10-1/2"Lx2 pcs.
4	280	330	335	M10x330L (4 pcs)	3/8"~16UNCx13"Lx4 pcs.
				M6x335L (2 pcs)	1/4"~20UNCx13-1/4"Lx2 pcs.

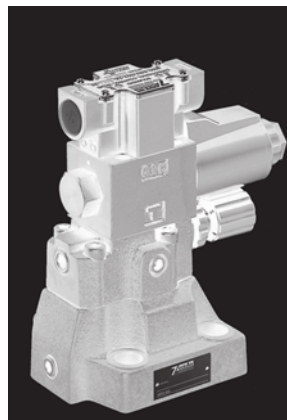
PILOT OPERATED RELIEF VALVE SOLENOID CONTROLLED RELIEF VALVE (DECOMPRESSION TYPE)

FEATURES :

- The valve protects the hydraulic system from excessive pressure.
- The valve can be used to maintain constant pressure in a hydraulic system
- Remote control and unloading are permitted by using vent circuit.



Model: DB-10-*10



Model: DBW-20-22A-*10

SPECIFICATION :

Model	DB-10	DB-20	DB-30	DBW-10	DBW-10	DBW-10
Max. Pressure		350 Bar			350 Bar	
Max. Flow Rate	250 L/min	500 L/min	650 L/min	250 L/min	500 L/min	650 L/min
Y Port Allowable Back Pressure		350 Bar			350 Bar	
Weight	2.6 Kg	3.5 Kg	4.4 Kg	4.3 Kg	5.2 Kg	6.1 Kg

ORDERING CODE :

DB W 10 - 22A - 1 - X - A220 - WB - 10
 1 2 3 4 5 6 7 8 9

1 PILOT OPERATED RELIEF VALVE

2 DIRECTIONAL VALVE

None: with dir. Valve
 W: with dir. valve

3 NOMINAL VALVE SIZE:

10: size 10
 20: size 25
 30: size 32

4 VALVE TYPE

22A: Closed
 22AL: Open

5 PRESSURE ADJ. RANGE

1: 0~70 Bar
 2: 0~140 Bar
 3: 0~240 Bar
 H: 320 Bar

6 DRAIN

None: Internal pilot, internal drain
 X: External pilot, internal drain
 Y: Internal pilot, external drain
 XY: External pilot, external drain

7 ELECTRIC POWER SOURCE INDICATION

A110: AC100V, 50/60 Hz; AC110V, 60 Hz
 A220: AC200V, 50/60 Hz; AC220V, 60 Hz
 DC12: DC12V
 DC24: DC24V
 R110: AC110V, 60 Hz; Rectifier built-in type
 R220: AC220V, 60 Hz; Rectifier built-in type

8 ELECTRICAL OPTIONS

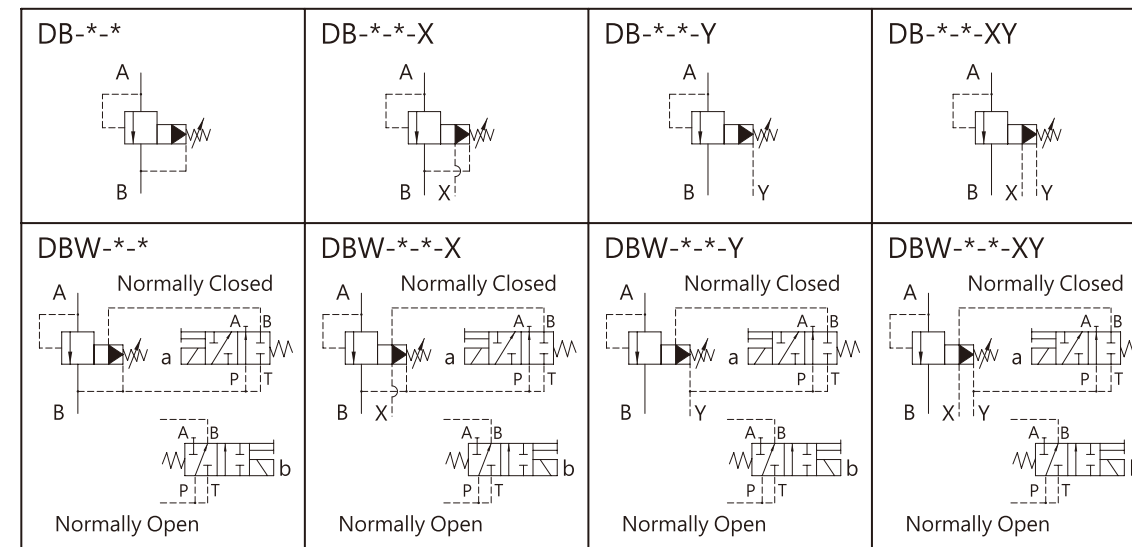
DN: DIN 43650 Coils
 WB: Wiring housing with G1/2 thread and indicator lights

8 DESIGN NUMBER

10: with handle
 20: without handle

PILOT OPERATED RELIEF VALVE SOLENOID CONTROLLED RELIEF VALVE (DECOMPRESSION TYPE)

ORDERING CODE :



NORMALLY CLOSED:

Coil de-energized build pressure,
 coil energized pressure drain

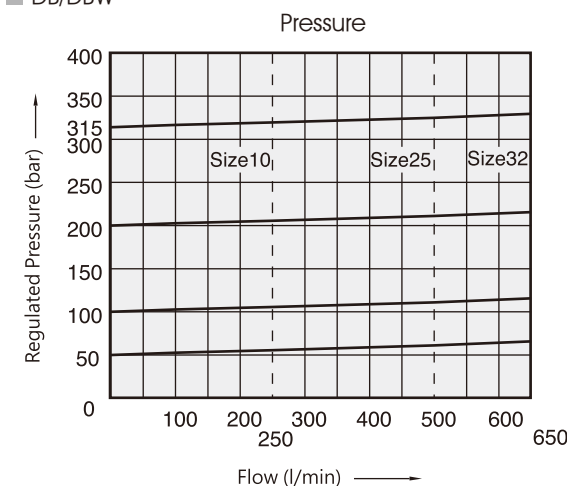
NORMALLY OPEN:

Coil de-energized build pressure,
 coil energized pressure drain

PERFORMANCE CURVES:

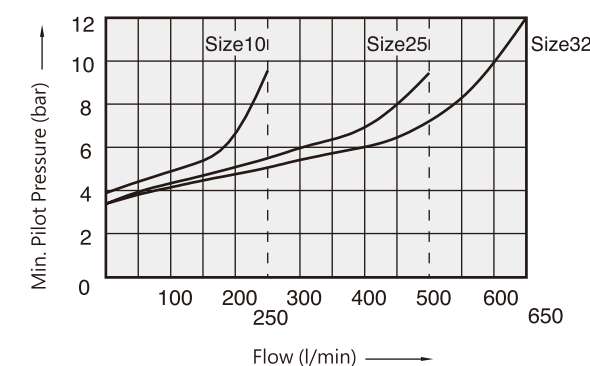
Flow VS Regulated

■ DB/DBW



Min.Pilot Pressure Characteristic

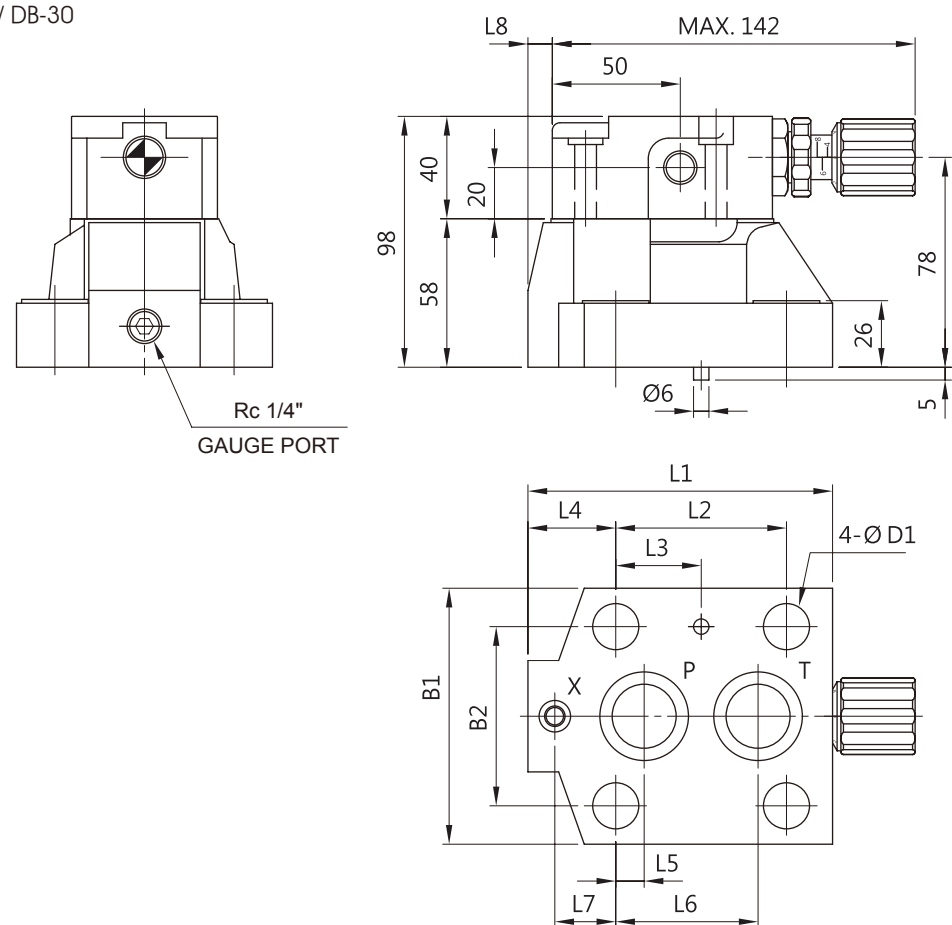
■ DB/DBW-*



PILOT OPERATED RELIEF VALVE SOLENOID CONTROLLED RELIEF VALVE (DECOMPRESSION TYPE)

Dimensions:

■ DB-10 / DB-20 / DB-30



Model	L1	L2	L3	L4	L5	L6	L7	L8	B1	B2	D1
DB-10	93.5	53.8	22.1	27.7	22.1	47.5	0	0.7	78	53.8	14
DB-20	119	66.7	33.4	34.3	11.1	55.6	23.8	10	100	70	18
DB-30	149	88.9	44.5	41.5	12.7	76.2	31.8	20	115	82.6	20

SCREW:

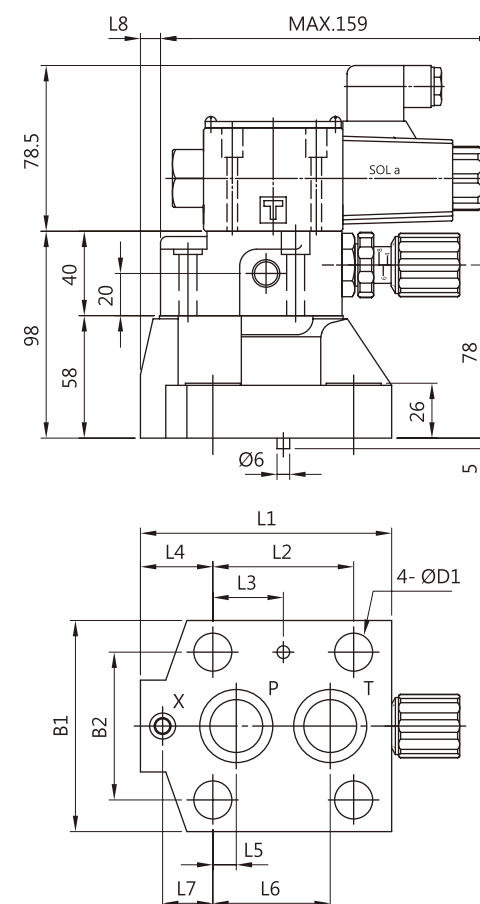
Model	Screw	Mounting Pattern
DB-10	M12 x 45 (4 pcs)	ISO 6264-AR-06-2-A
DB-20	M16 x 50 (4 pcs)	ISO 6264-AS-08-2-A
DB-30*	M18 x 50 (4 pcs)	ISO 6264-AT-10-2-A

* Please or der separately for M20 type (DB30)

PILOT OPERATED RELIEF VALVE SOLENOID CONTROLLED RELIEF VALVE (DECOMPRESSION TYPE)

Dimensions:

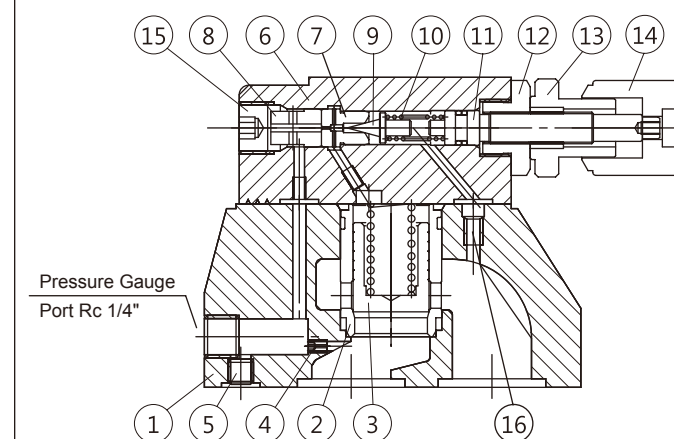
■ DBW-10 / DBW-20 / DBW-30



Model	L1	L2	L3	L4	L5	L6	L7	L8	B1	B2	D1
DBW-10	93.5	53.8	22.2	27.7	22.1	47.5	0	0.7	78	53.8	14
DBW-20	119	66.7	33.4	34.3	11.1	55.6	23.8	10	100	70	18
DBW-30	149	88.9	44.5	41.5	12.7	76.2	31.8	20	115	82.6	20

CROSS SECTION DRAWING :

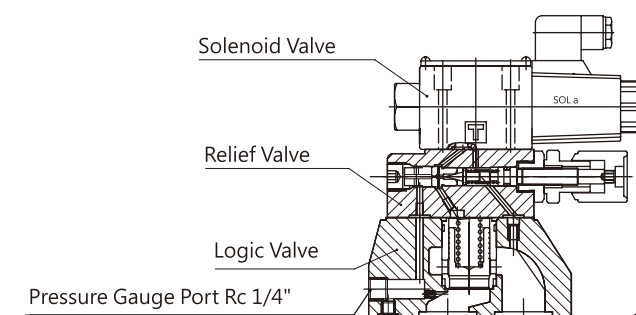
■ DB-20-*-10



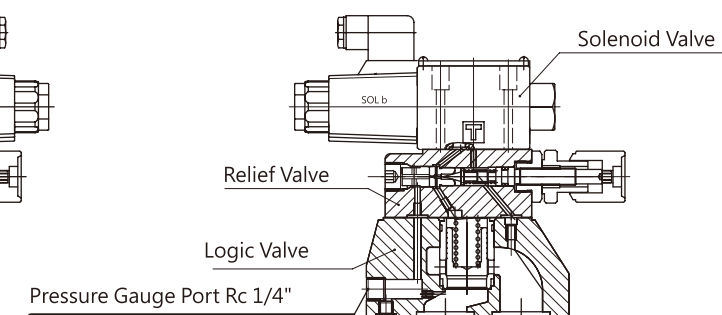
- | | | |
|---------------------|--------------------------|---------------|
| 1. Logic Valve Seat | 7. Needle Valve Seat | 13. Knob Unit |
| 2. Logic Valve Body | 8. Divider | 14. Knob |
| 3. Poppet | 9. Needle Valve | 15. Plug |
| 4. Orifice | 10. Pressure Adj. Spring | 16. Plug |
| 5. Plug | 11. Plunger | |
| 6. Relief Valve | 12. Bushing | |

CROSS SECTION DIAGRAM:

■ DBW-20-22A-*-10
(Normally Closed)



■ DBW-20-22AL-*-10
(Normally Open)



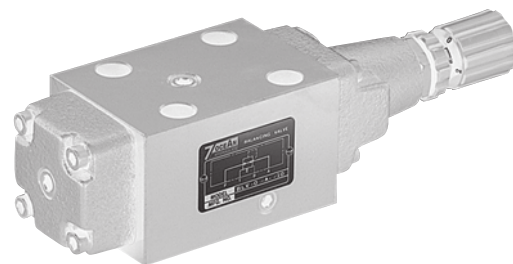
BALANCE VALVE

FEATURES :

- The valve provides both pressure reducing and counter-balancing functions.
- 2-in-1 operating allows a simpler circuit configuration.
- Single knob for easy pressure adjustment.
- Compact and lightweight valve that can be mounted using the same methods as a DG03, 05 size solenoid valve



Model: BLV-02-A-1-Y-10



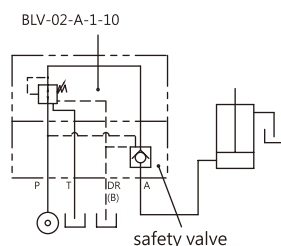
Model: BLV-03-A-1-Y-10

SPECIFICATION :

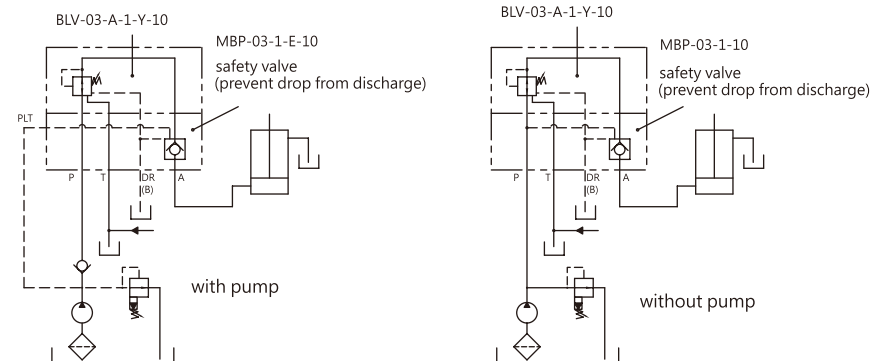
Model	BLV-02	BLV-03
Maximum Flow Rate	30 L/min (8 GPM)	30 L/min (13.3 GPM)
Maximum Operating Pressure	210 Bar (3000 PSI)	210 Bar (3000 PSI)
Pressure Adj. Range	1: 8~70 Bar 2: 35~140 Bar	
Ambient Temperature Range	-20°C~+50°C	
Hydraulic Fluid Temperature	-20°C~+70°C	
Viscosity Range	15~400 mm²/s	
Hydraulic Oil	ISO VG32, 46, 68	
Fluid Cleanliness	25 μm	
Mounting Pattern	ISO 4401-AB-03-4-A	ISO 4401-AC-05-4-A
Screws	M5 x 45L (4 pcs)	M8 x 30L (4 pcs)
Approx. Weight (Valve with hydraulic operation)	1.5 kg	3.5 kg

HYDRAULIC CONFIGURATION :

■ BLV-02



■ BLV-03



BALANCE VALVE

ORDERING CODE :

BLV - 02 - A - 1 - * - 10
1 2 3 4 5 6

1 BALANCE VALVE

2 NOMINAL VALVE SIZE

Mounting Pattern

02: NG 6 / ISO 4401/CETOP-3 (NFFA-D03/ DIN 24340)

03: NG 10 / ISO 4401/CETOP-5 (NFFA-D05/ DIN 24340)

3 CONFIGURATION

A: A Port

5 PRESSURE ADJ. RANG

1: 8~70 Bar

2: 35~140 Bar

6 DRAIN (03 TYPE ONLY)

None: Internal Drain

Y: External Drain

7 DESIGN NUMBER

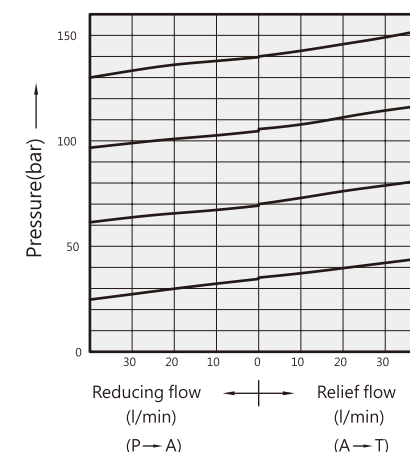
10: With handle

20: Without handle

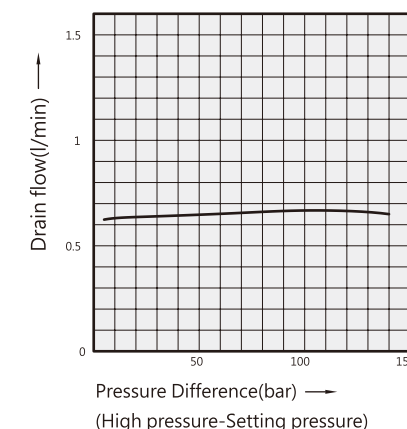
PERFORMANCE CURVES:

■ BLV-02

Pressure-Flow Characteristics

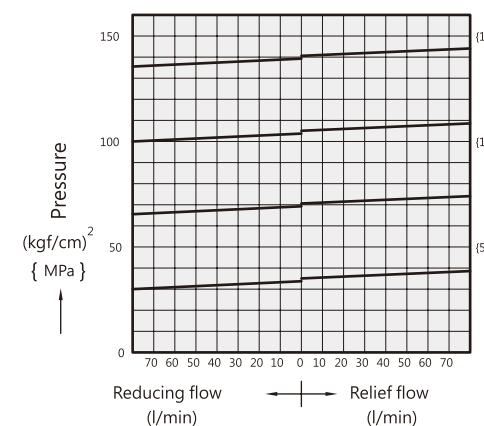


Pressure-Drain Flow Characteristics

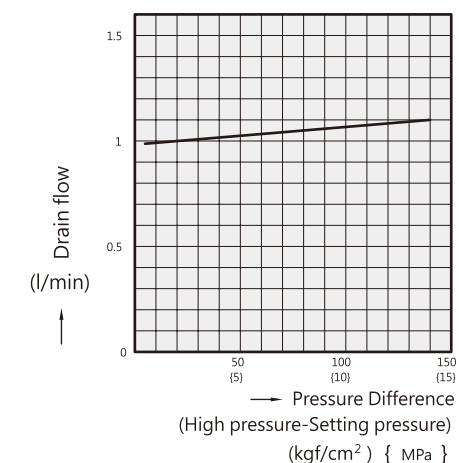


■ BLV-03

Pressure-Flow Characteristics



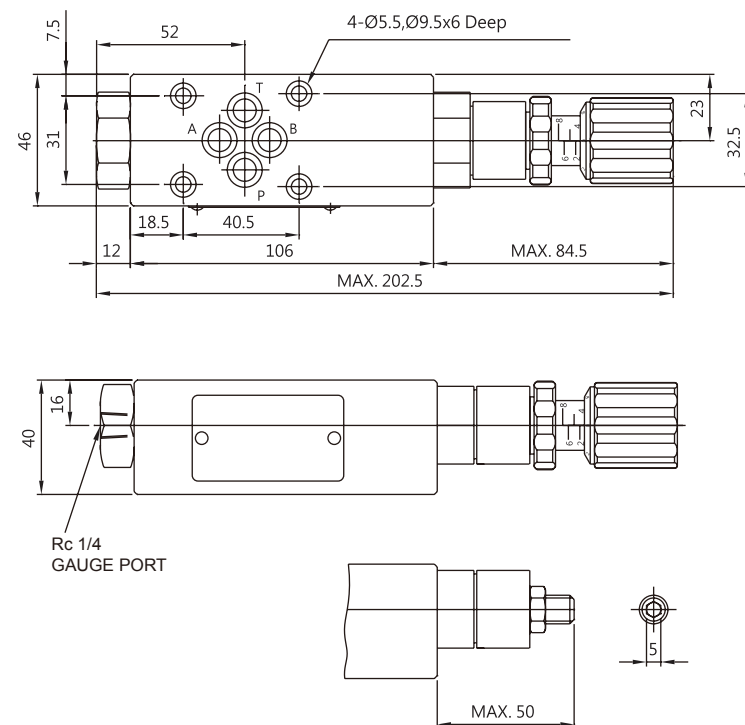
Pressure-Drain Flow Characteristics



BALANCE VALVE

DIMENSIONS :

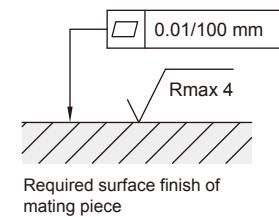
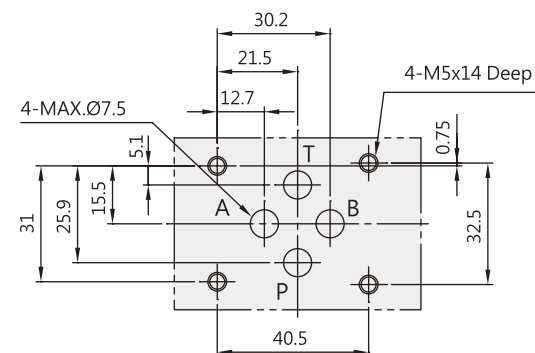
■ BLV-02-A-*-10



INSTALLATION DIMENSIONS:

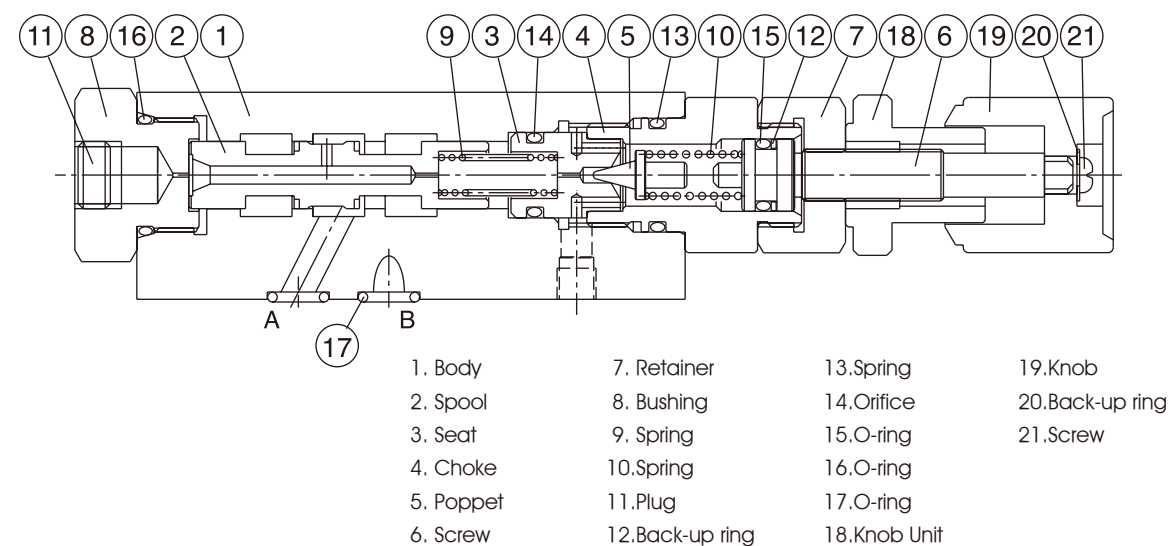
(Mounting Pattern ISO 4401-AB-03-4-A)

■ BLV-02



CROSS SECTION DRAWING :

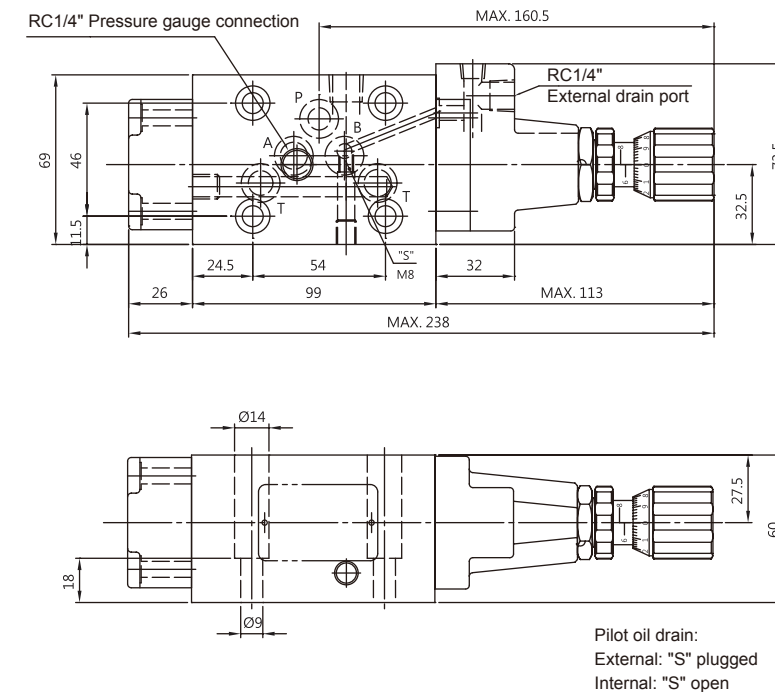
■ BLV-02-A-*-10



BALANCE VALVE

DIMENSIONS :

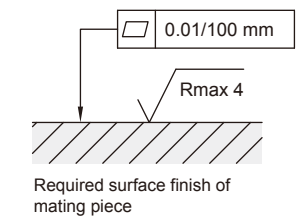
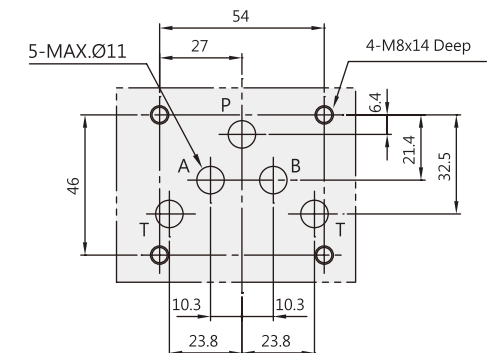
■ BLV-03-A-*-10



INSTALLATION DIMENSIONS:

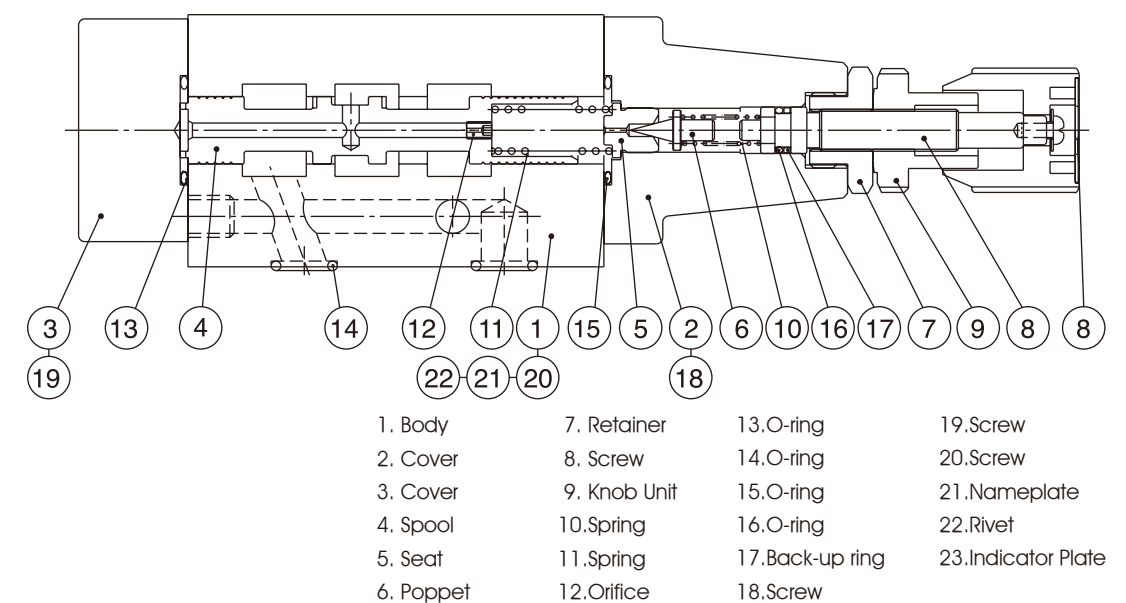
(Mounting Pattern ISO 4401-AC-05-4-A)

■ BLV-03



CROSS SECTION DRAWING :

■ BLV-03-A-*-10



PILOT OPERATED CHECK VALVE

FEATURES :

- This valve is applied between balance valve & manifold, can prevent unexpected electricity discharge.

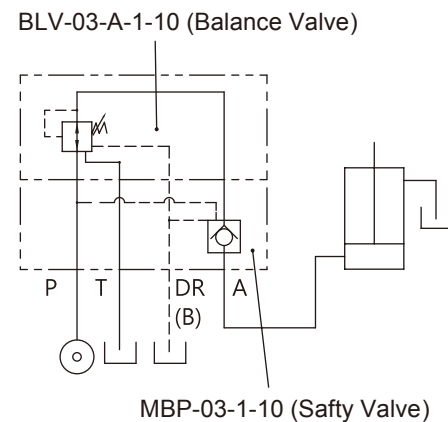


Model: MBP-03-1-10

SPECIFICATION :

Model	MBP-03
Maximum Flow Rate	50 L/Min
Maximum Operating Pressure	210 Bar (3000 PSI)
Check Valve Cracking Pressure	1: 0.4 Bar 2: 3.5 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 μm
Mounting Pattern	ISO 4401-AC-05-4-A
Screws	M8 x 85 L (4 pcs)
Weight (Valve with hydraulic operation)	2.7 kg

HYDRAULIC CONFIGURATION:



MBP-03-1-10 (Safety Valve)

ORDERING CODE :

M BP - 03 - 1 - E - 10

1 2 3 4 5 6

1 MODULAR TYPE

2 PILOT OPERATED CHECK VALVE FOR BALANCE VALVE

3 NOMINAL VALVE SIZE NG10

4 CHECK VALVE CRACKING PRESSURE

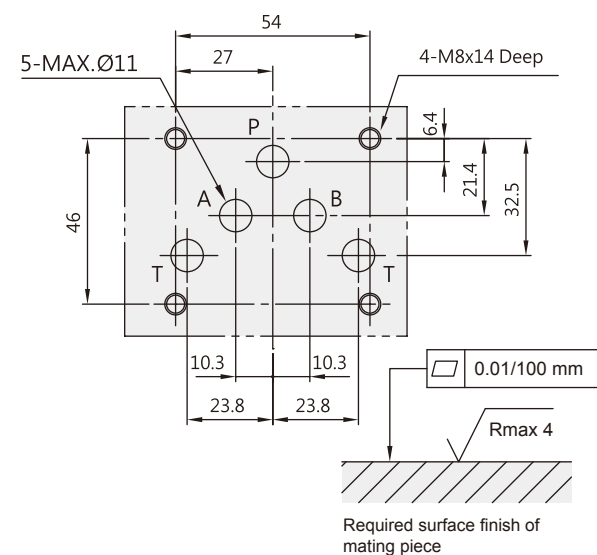
1: 0.4 Bar 2: 3.5 Bar

5 DRAIN

None: Internal pilot, external drain
E: External pilot, external drain

6 DESIGN NUMBER

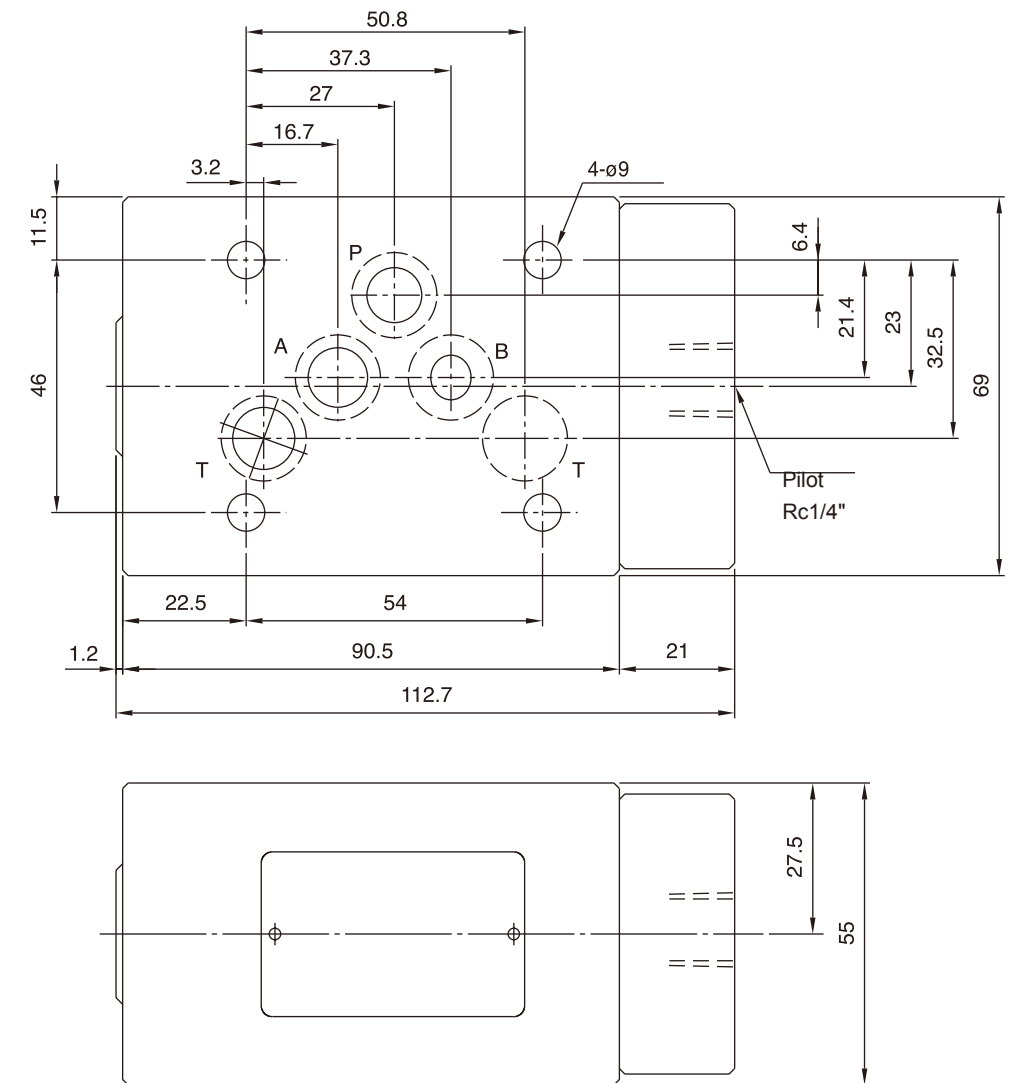
INSTALLATION DIMENSIONS:



PILOT OPERATED CHECK VALVE

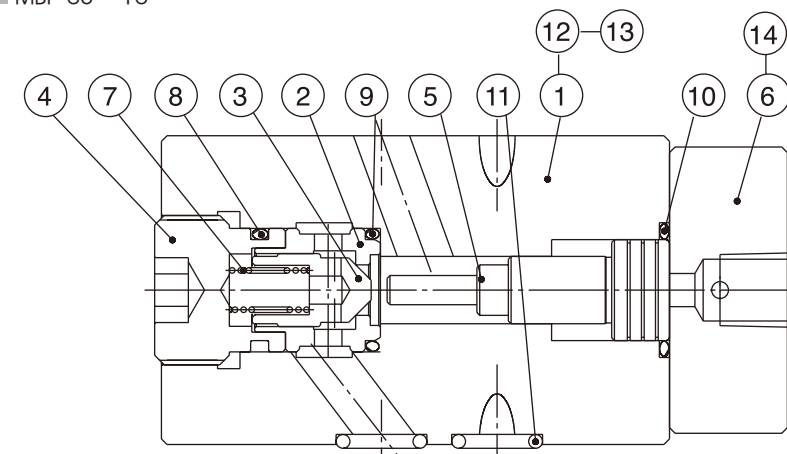
DIMENSION:

■ MBP-03-*-10



CROSS SECTION DRAWING :

■ MBP-03-*-10

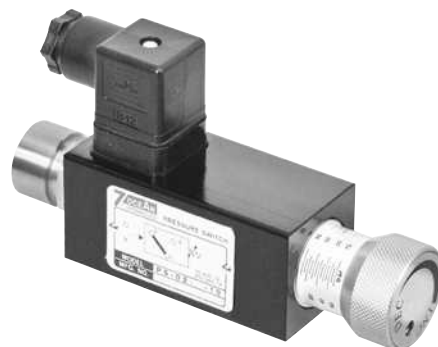


- | | |
|---------------|---------------|
| 1. Valve Body | 8. O Ring |
| 2. Valve Base | 9. O Ring |
| 3. Piston | 10. O Ring |
| 4. Nut | 11. O Ring |
| 5. Push Rod | 12. Nameplate |
| 6. Side Cover | 13. Rivet |
| 7. Spring | 14. Screw |

PRESSURE SWITCH

FEATURES :

- Rugged, Compact Design
- Convenient Setpoint Adjustment
- Plug-in Electrical Connections



Model: PS-02-1-10

SPECIFICATION :

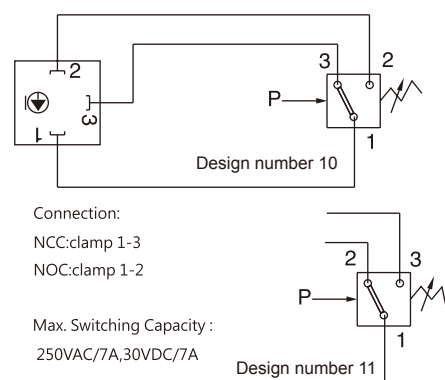
Model	PS-02
Maximum Operating Pressure	300 Bar (4285 PSI)
Check Valve Cracking Pressure	1: 5~70 Bar 2: 20~150 Bar 3: 40~230 Bar
Ambient Temperature Range	-20°C~+50°C
Hydraulic Fluid Temperature	-20°C~+70°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 µm
Weight	0.57 kg

ORDERING CODE :

PS - 02 - 1 - 10
1 2 3 4

- 1 PRESSURE SWITCH
- 2 NOMINAL SIZE
- 3 PRESSURE ADJ. RANGE
1: 5~70 Bar
2: 20~150 Bar
3: 40~230 Bar
- 5 DESIGN NUMBER
10: Standard type
11: Opposite to pipe type

HYDRAULIC CONFIGURATION:



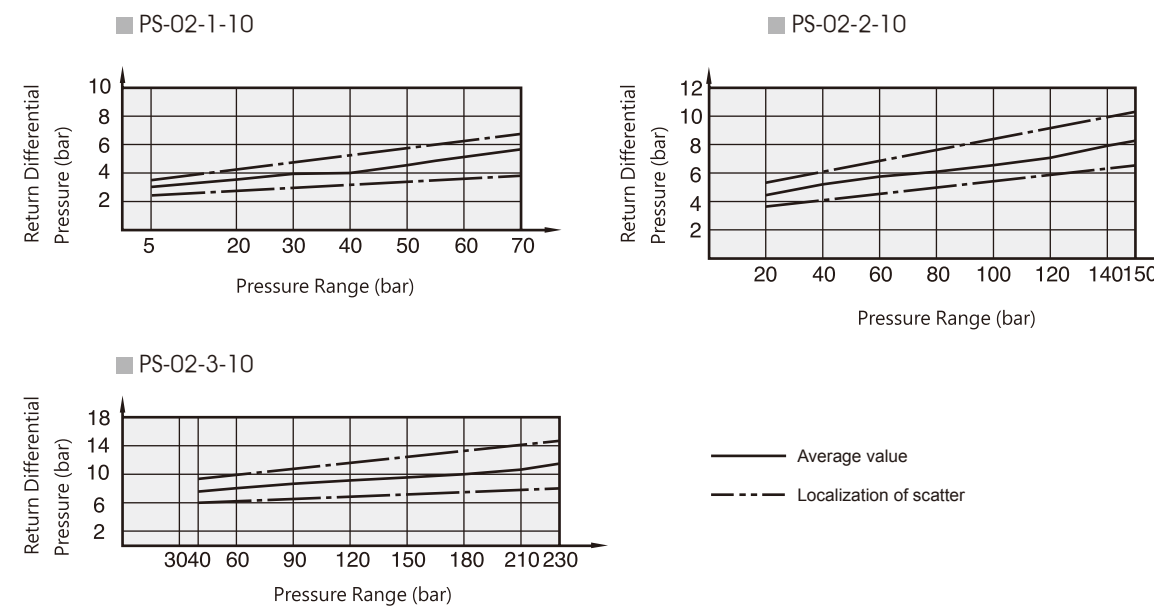
CONNECTING :

Code	10	11
Normally Closed	1-3	1-2
Normally Open	1-2	1-3

PRESSURE SWITCH

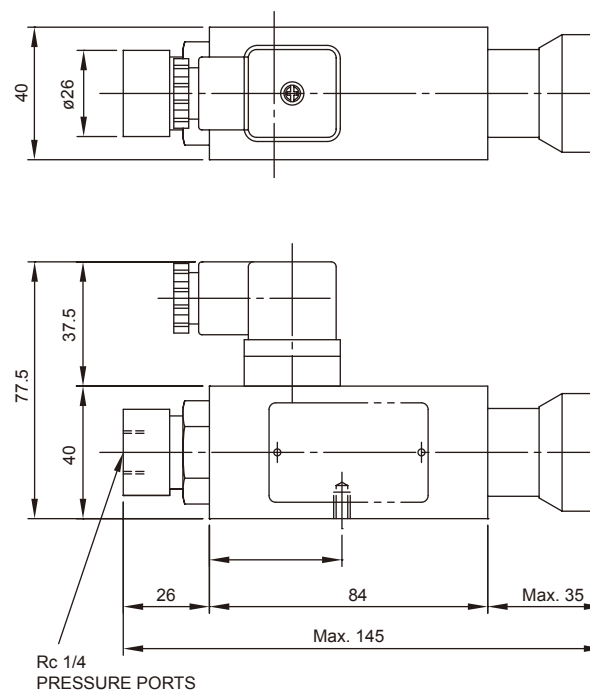
PERFORMANCE CURVES:

Pressure Switch Range



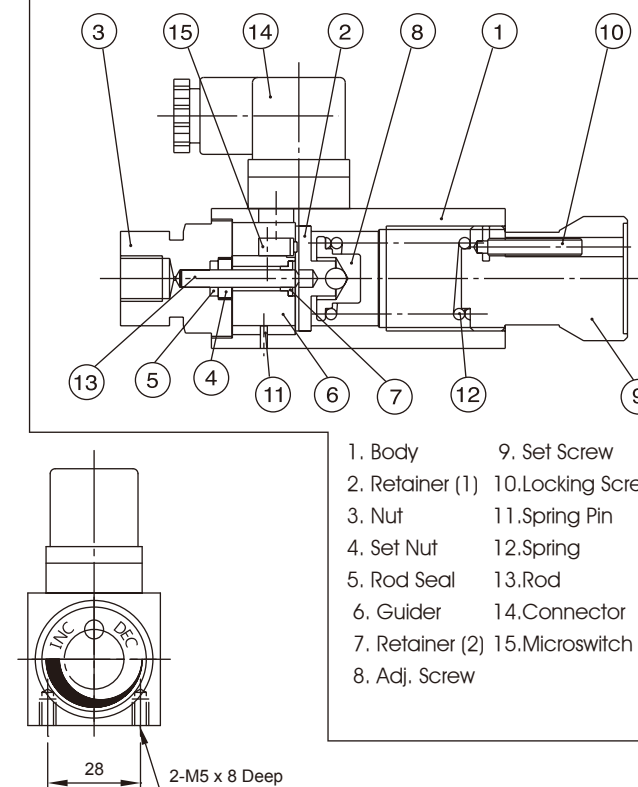
DIMENSION:

PS-02-*-10



CROSS SECTION DRAWING :

MRV-02-P-*-10

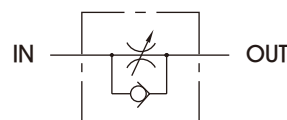


FLOW CONTROL VALVE

FEATURES :

- Compact and lightweight, requires very little space for installation
- Pressure is internally balanced for light handle operation, even at high pressure.

GRAPHIC SYMBOLS:



Model: FCI-06-*-10

SPECIFICATION :

Model	FCI-02-*-10	FCI-03-*-10	FCI-04-*-10	FCI-06-*-10
Flow Rate	19 L/min	30 L/min	57 L/min	95 L/min
Max. Limited Pressure	250 Bar			
Check Valve Cracking Pressure	1: 0.35 Bar		2: 3.5 Bar	
Weight (kg)	0.3 Kg	0.4 Kg	0.8 Kg	1.2 Kg

ORDERING CODE :

FCI-02 - 1 - N - 10

1 2 3 4 5

1 FLOW CONTROL VALVE

2 NOMINAL VALVE SIZE

3 CHECK VALVE CRACKING PRESSURE

1: 0.35 Bar

2: 3.5 Bar

4 THREAD

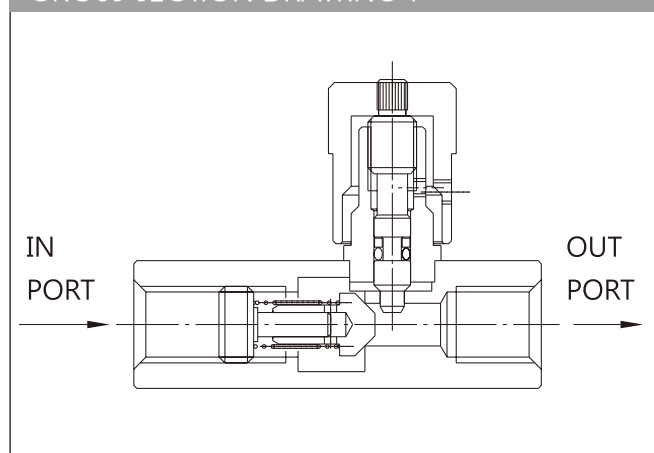
N: NPT

R: RC

B: BSP

5 DESIGN NUMBER

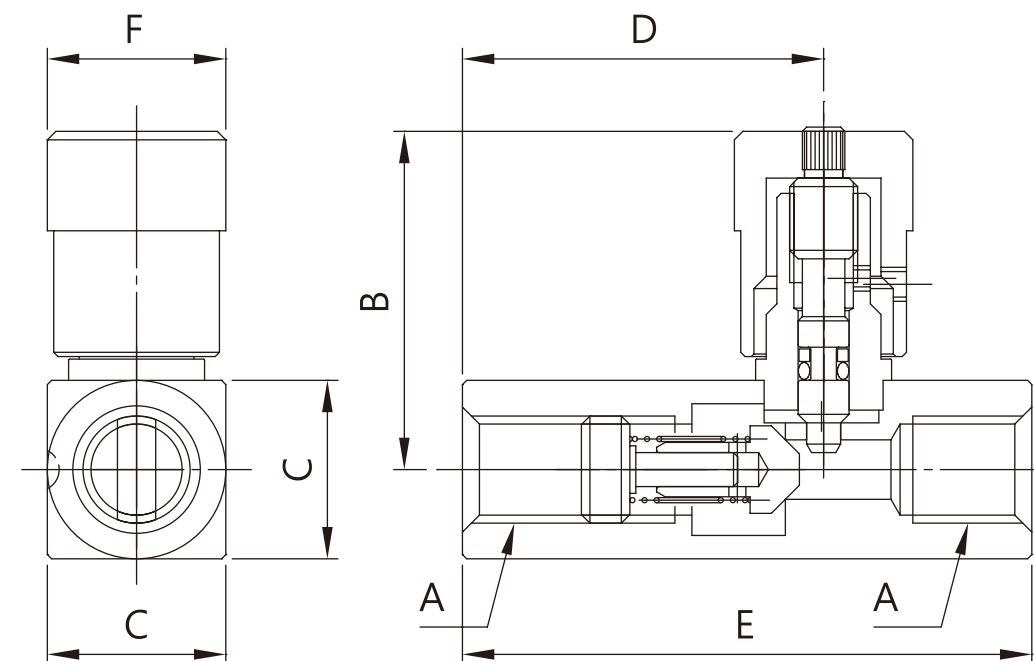
CROSS SECTION DRAWING :



FLOW CONTROL VALVE

DIMENSIONS :

■ FCI-*-10



Model	A	B	C	D	E	F
FCI-02-*-10	1/4"~18 NPTF	40	7/8"	4.2	67	ø21
FCI-03-*-10	3/8"~18 NPTF	45	1"	50	70	ø26
FCI-04-*-10	1/2"~14 NPTF	57.5	1-1/4"	60.5	87	ø32
FCI-06-*-10	3/4"~14 NPTF	67.5	1-1/2"	72	99	ø36

R16A / R25A / R32A

FEATURES :

- The valve has multi-function and it is possible to create a simple hydraulic system utilizing a minimum of logic valves to match system requirements.
- The valve has multi-function and it is possible to create a simple hydraulic system utilizing a minimum of logic valves to match system requirements.
- Besides enabling independent switch timing of individual flow paths, valve size and control function can be selected to suit each flow path which enable shockless operation and enhance circuit efficiency.



Model: R16A*-10 Model: R25A*-10 Model: R32A*-10

SPECIFICATION :

Model	R16A*-10	R25A*-10	R32A*-10
Max Operating Pressure	315 Bar (4500 PSI)	315 Bar (4500 PSI)	315 Bar (4500 PSI)
Max. Flow Rate	100 L/Min (2.6 GPM)	270 L/Min (71.3 GPM)	450 L/Min (118.8 GPM)
Spring Cracking Pressure		0: 0.5 Bar (7.3 PSI) 1: 1.0 Bar (14.5 PSI) 4: 4.0 Bar (57.1 PSI)	
Area Ratio	Pilot Piston	2	2
	Check valve seat	1	1
Ambient Temperature Range	-20°C ~ +50°C		
Hydraulic Fluid Temperature	-20°C ~ +50°C		
Viscosity Range	15~400 mm²/s		
Hydraulic Oil	ISO VG32, 46, 68		
Fluid Cleanliness	25 µm		
Weight	0.2 kg	0.4 kg	1.0 kg

ORDERING CODE :

R 16 - A - 1 - 10
1 2 3 4 5

1 LOGIC VALVE

2 NOMINAL VALVE SIZE

3 AREA RATIO

A: 2:1

4 SPRING CRACKING PRESSURE

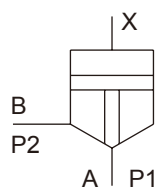
0: 0.5 Bar

1: 1.0 Bar

4: 4.0 Bar

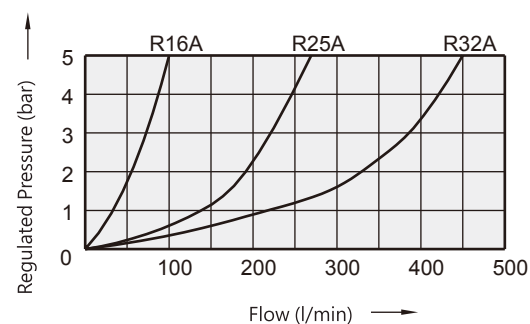
5 DESIGN NUMBER

GRAPHIC SYMBOLS:



PERFORMANCE CURVE :

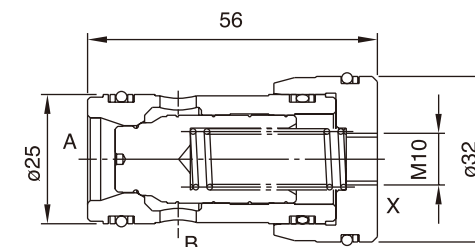
Pressure Drop Characteristics



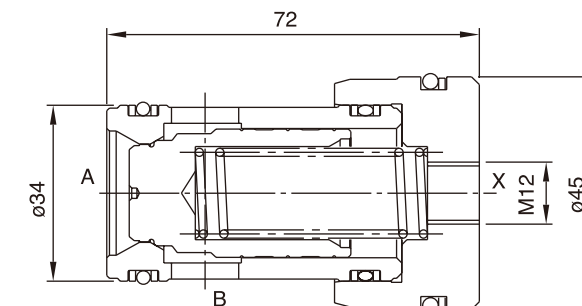
R16A / R25A / R32A

DIMENSION:

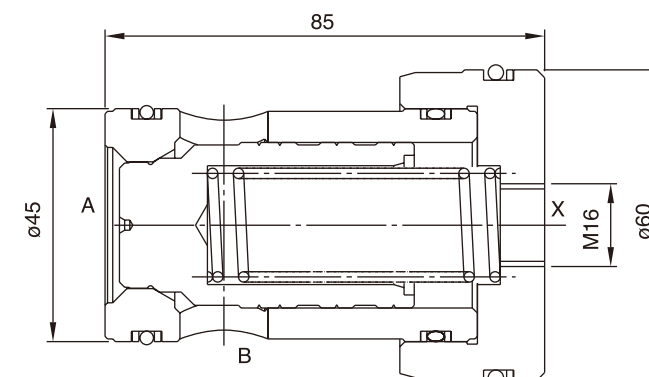
■ R16A*-10



■ R25A*-10

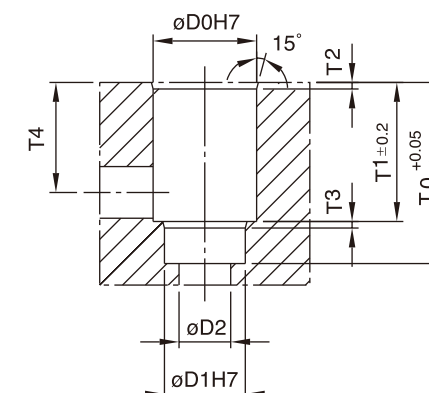
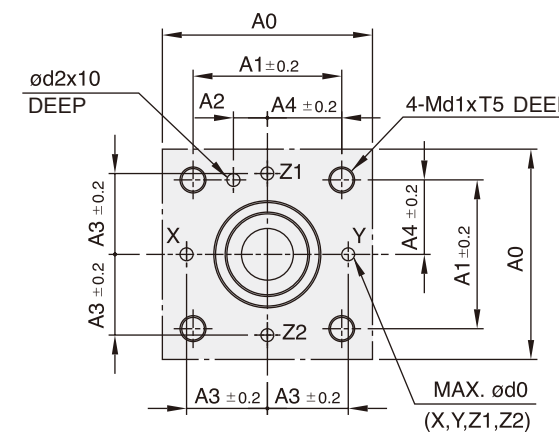


■ R32A*-10



INSTALLATION DIMENSIONS:

Mounting Surface: DIN 24342



Model	A0	A1	A2	A3	A4	D0	D1	D2	T0	T1	T2	T3	T4	T5	D0	D1	D2
16	65	46	10.5	25	23	4	8	4	56	43	2	2	34	20	32	25	16
25	85	58	16	33	29	6	12	6	72	58	2.5	2.5	44	25	45	34	25
32	102	70	17	41	35	7	16	8	85	70	2.5	2.5	52	35	60	45	32

CAM OPERATED DIRECTIONAL VALVE (MECHANICALLY OPERATED DIRECTIONAL VALVE)

FEATURES :

- This valve can be used to shift the flow direction by depressing the spool with a cam.
- Can be applied to injection machine for safety control.
- Resist high pressure.
- Standard DIN, ISO, CETOP, NFPA interfaces.



Model: CDV-G02-2AL-1-20

SPECIFICATION :

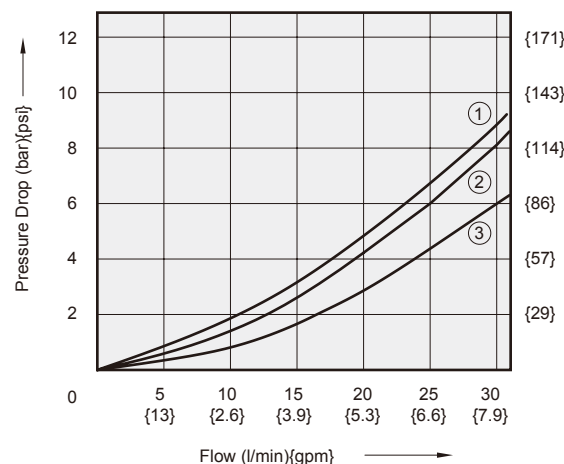
Max. Flow	30 L/Min (7.9 GPM)
Max Operating Pressure	250 Bar (3571 PSI)
Allowable Back Pressure	70 Bar (1000 PSI)
Ambient Temperature Range	-20°C ~ +50°C
Hydraulic Fluid Temperature	-20°C ~ +50°C
Viscosity Range	15~400 mm²/s
Hydraulic Oil	ISO VG32, 46, 68
Fluid Cleanliness	25 µm
Mounting Surface	ISO 4401-AB-03-4-A
Weight	1.1 kg

PERFORMANCE CURVE :

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop vs. Flow

■ CDV-*02-*-20



Model	Curve			
	P→A	B→T	P→B	A→T
CDV-T02-0AL	1	1	2	1
CDV-T02-2AL	1	1	2	1
CDV-T02-22AL	2	-	2	-
CDV-G02-0AL	2	2	3	3
CDV-G02-2AL	2	2	3	3
CDV-G02-22AL	3	-	3	-

CAM OPERATED DIRECTIONAL VALVE (MECHANICALLY OPERATED DIRECTIONAL VALVE)

ORDERING CODE :

CDV - G 02 - 2AL - 1 - 20 - R
1 2 3 4 5 6 7

1 CAM OPERATED DIRECTIONAL VALVE

2 SUBPLATE MOUNTING

G: Subplate Mounting

T: Threaded Connection

3 NOMINAL VALVE SIZE

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

4 SPOOL TYPE

5 ROLLER

0: Without Roller

1: With Roller

6 DESING NUMBER

7 CAM POSITION

None: Cam on T side (standard)

R: Cam on P side

Y: Cam faced up

Position type during transition	Single solenoid valves, solenoid at port A end -A-	Single solenoid valves, solenoid at port B end -AL-
0	CDV-*02-0A 	CDV-*02-0AL
2	CDV-*02-2A 	CDV-*02-2AL
22	CDV-*02-22A 	CDV-*02-22AL

FLOW DIRECTION & ROLLER POSITION:

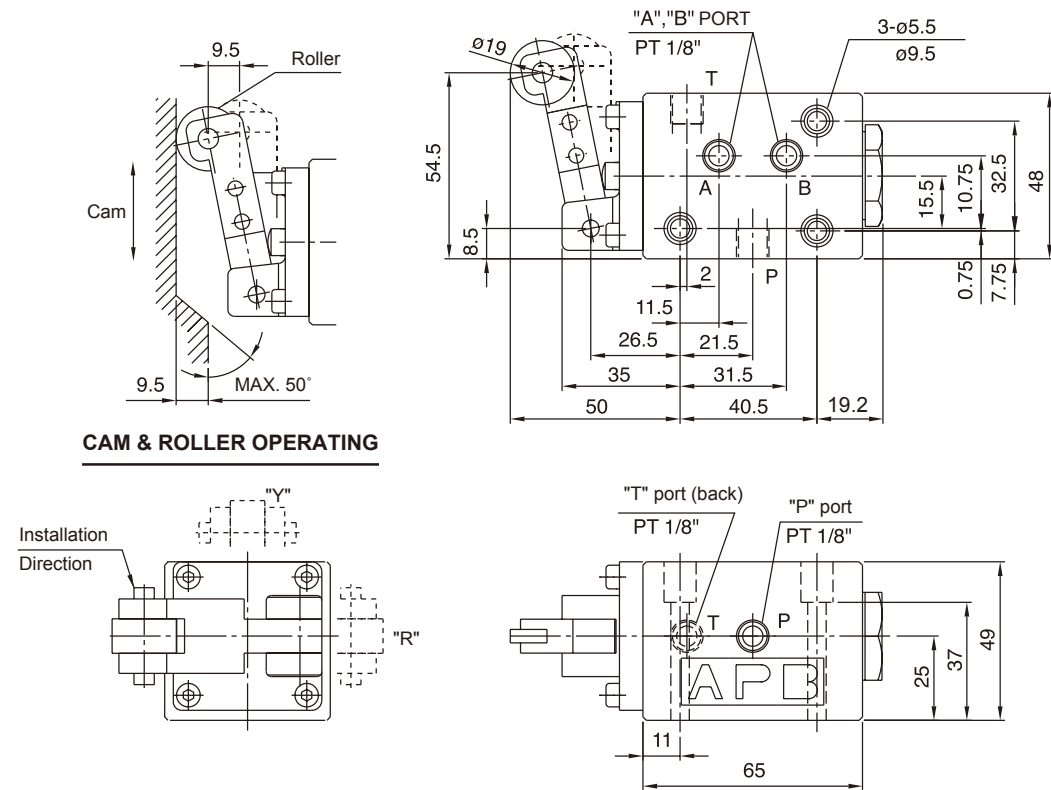
Spool Types	Graphic Symbols	FLOW DIRECTION & ROLLER POSITION	
		PUSH	PULL
0			
2A			
22A			
0AL			
2AL			
22AL			

CAM OPERATED DIRECTIONAL VALVE (MECHANICALLY OPERATED DIRECTIONAL VALVE)

DIMENSIONS :

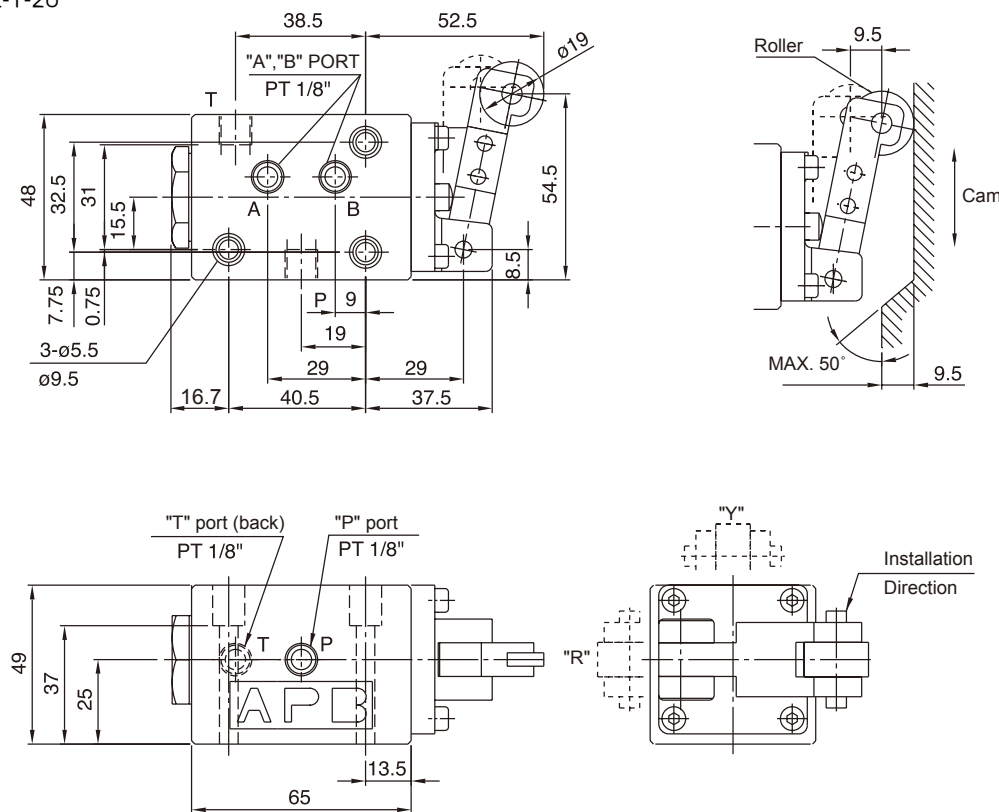
■ CDV-T02-*A-1-20

3rd angle
projection



CAM & ROLLER OPERATING

■ CDV-T02-*AL-1-20



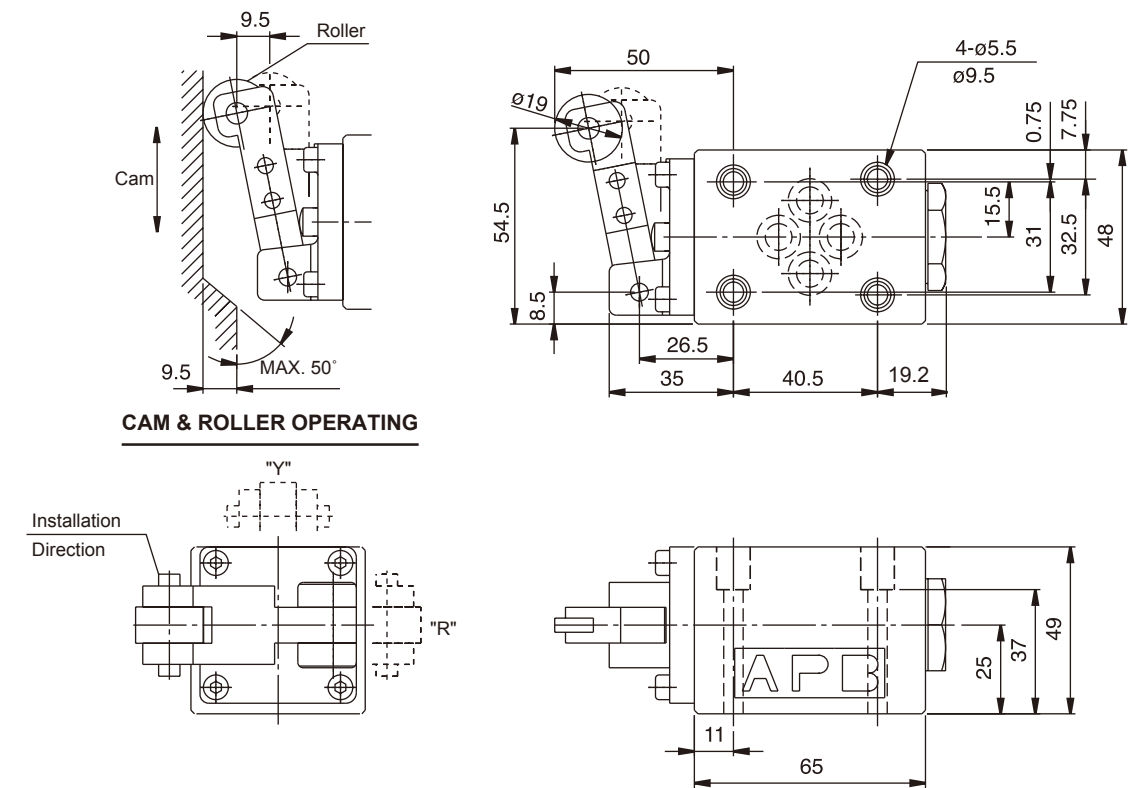
CAM & ROLLER OPERATING

CAM OPERATED DIRECTIONAL VALVE (MECHANICALLY OPERATED DIRECTIONAL VALVE)

DIMENSIONS :

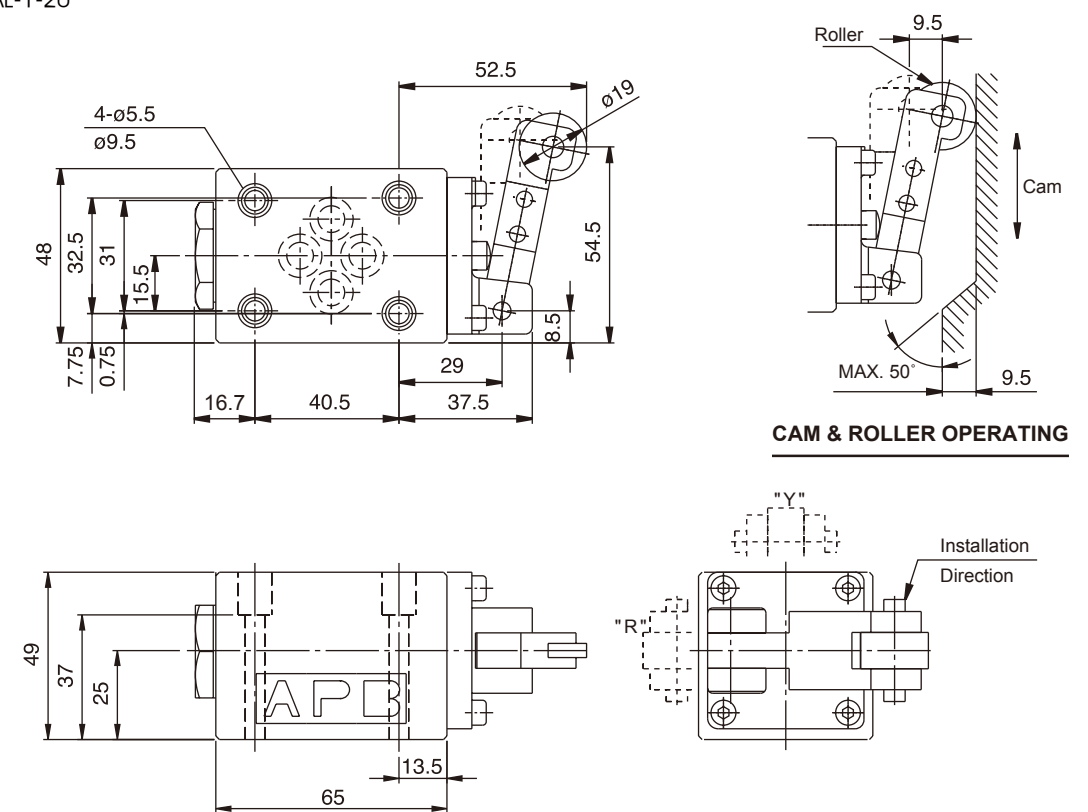
■ CDV-G02-*A-1-20

3rd angle
projection



CAM & ROLLER OPERATING

■ CDV-G02-*AL-1-20



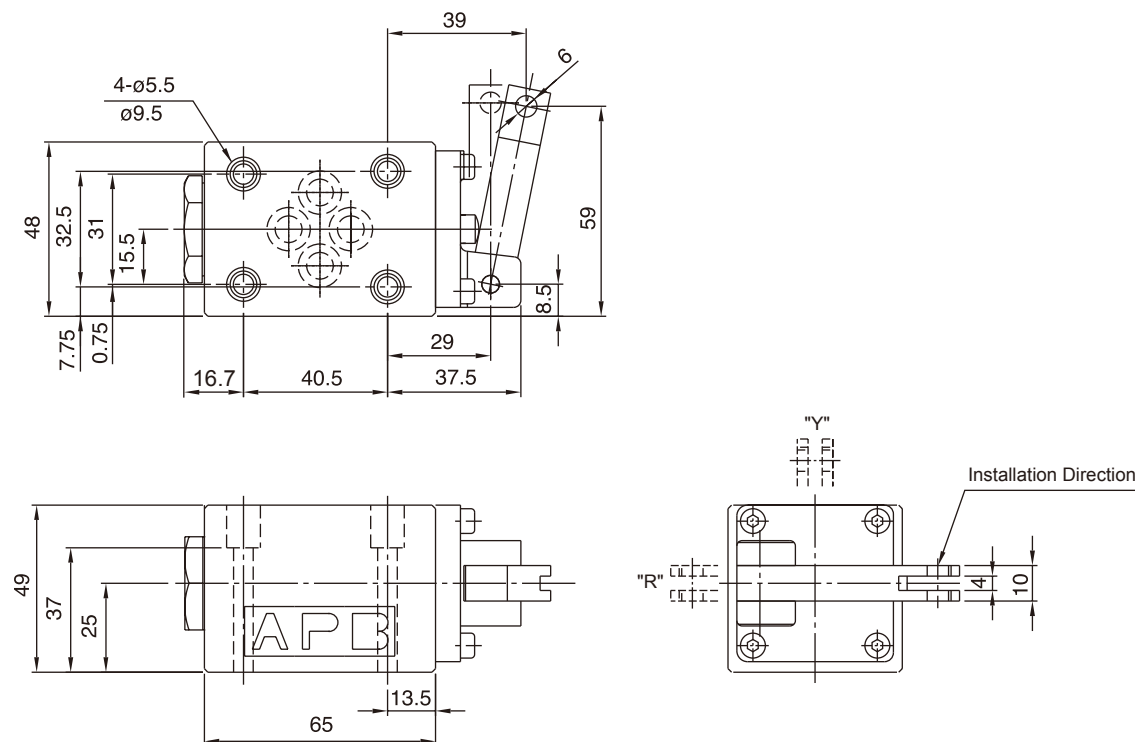
CAM & ROLLER OPERATING

CAM OPERATED DIRECTIONAL VALVE (MECHANICALLY OPERATED DIRECTIONAL VALVE)

DIMENSIONS :

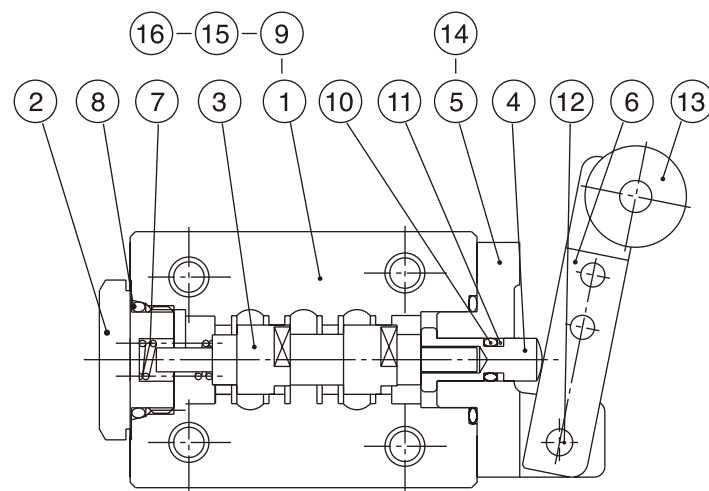
■ CDV-G02-*AL-0-20

3rd angle
projection



CROSS SECTION DRAWING :

■ CDV-G02-*AL-1-20



- | | |
|----------------|----------------|
| 1. Body | 9. O-ring |
| 2. Nut | 10. O-ring |
| 3. Spool | 11. B/U-ring |
| 4. Push rod | 12. Pin |
| 5. Front cover | 13. Roller |
| 6. Link | 14. Screw |
| 7. Spring | 15. Name plate |
| 8. O-ring | 16. Rivet |

No.	PARTS NAME	PARTS NO.	QTY
8	O-ring	P18 x 90°	2
9	O-ring	P9 x 90°	4
10	O-ring	P5 x 70°	1

RIGHT ANGLE TYPE CHECK VALVE

FEATURES :

- The valve allows free flow in one direction and prevents flow in the reverse direction.
- Cracking pressure specified is the pressure required to open the valve and allow free flow.
- Non ISO type is also available upon request.



Model: CRG-03-2-10

SPECIFICATION :

Model	CRG-03-*-10	CRG-06-*-10	CRG-10-*-10
Max. Flow	40 L/Min	125 L/Min	250 L/Min
Max Operating Pressure	250 Bar		
Allowable Back Pressure	1: 0.4 Bar		
	2: 3.5 Bar		
	3: 5.0 Bar		
Ambient Temperature Range	ISO 5781-AG-06-2-A	ISO 5781-AH-08-2-A	ISO 5781-AJ-10-2-A
Weight	1.7 kg	2.9 kg	5.5 kg
Mounting Bolts	M10 x 45L (4pcs)	M10 x 50L (4pcs)	M10 x 55L (6pcs)

ORDERING CODE :

CR G - 03 - 1 - 10
1 2 3 4 5

- RIGHT ANGLE TYPE CHECK VALVE
- MANIFOLD OR SUBPLATE MOUNTIN
- NOMINAL VALVE SIZE
03: 3/8"
06: 3/4"
10: 1-1/4"
- CHECK VALVE CRACKING PRESSURE
1: 0.4 Bar
2: 3.5 Bar
3: 5.0 Bar
- DESIGN NUMBER

GRAPHIC SYMBOL :

■ CRG-*-10



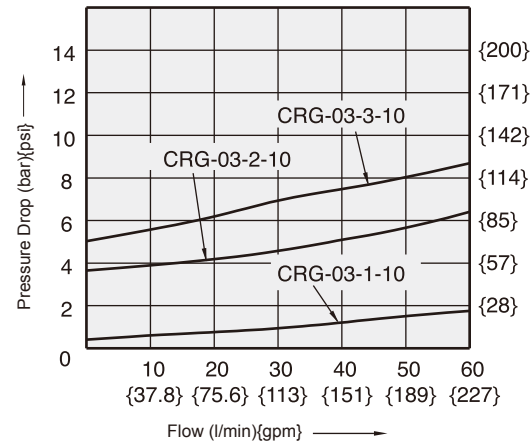
RIGHT ANGLE TYPE CHECK VALVE

PERFORMANCE CURVES:

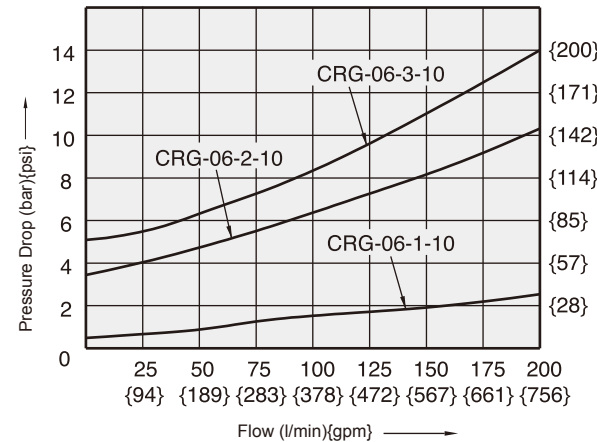
Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

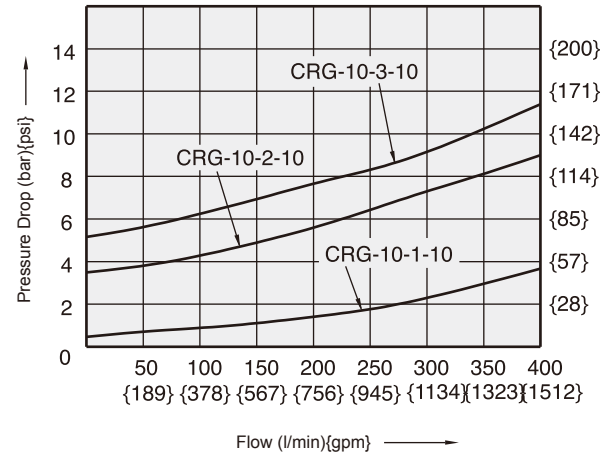
■ CRG-03-*-10



■ CRG-06-*-10

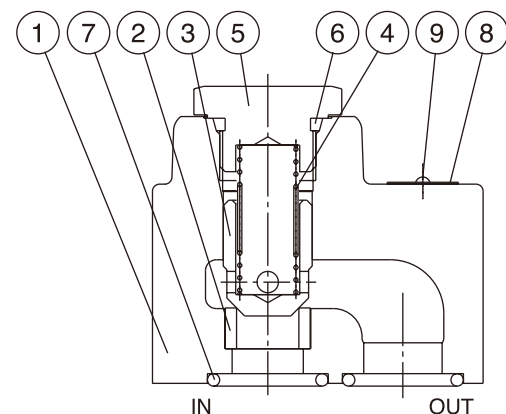


■ CRG-10-*-10



CROSS SECTION DRAWING :

■ CRG-06-*-10



- | | |
|-----------|--------------|
| 1. Body | 6. Ring |
| 2. Seat | 7. Ring |
| 3. Poppet | 8. Nameplate |
| 4. Spring | 9. Rivet |
| 5. Nut | |

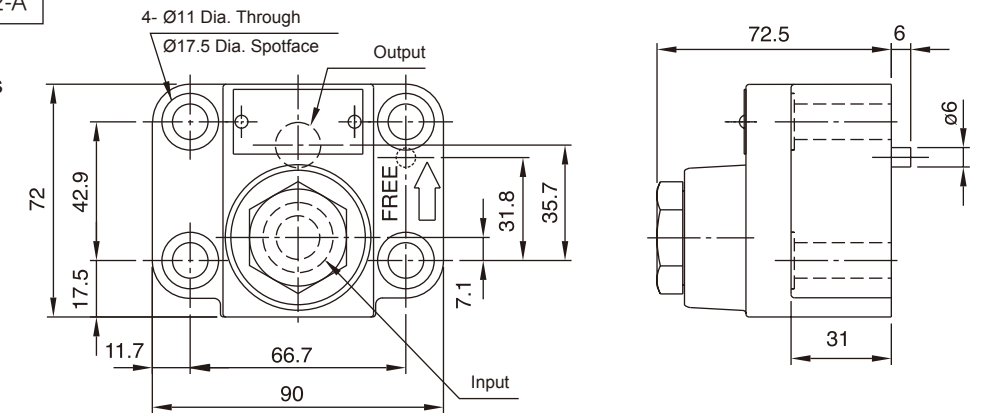
RIGHT ANGLE TYPE CHECK VALVE

DIMENSIONS :

■ CRG-03-*-10

Mounting Surface:
ISO 5781-AG-06-2-A

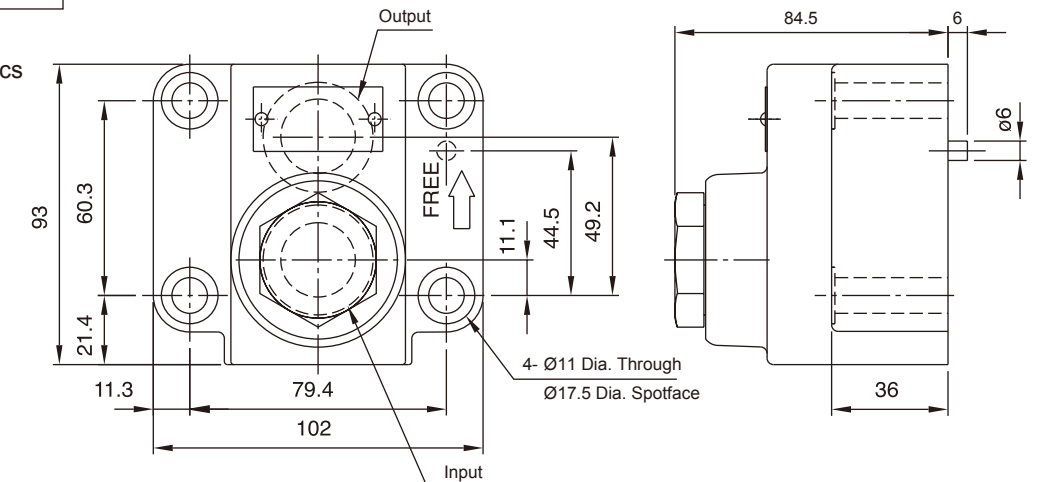
Mounting Bolts:
M10 x 45L x 4 pcs



■ CRG-06-*-10

Mounting Surface:
ISO 5781-AH-08-2-A

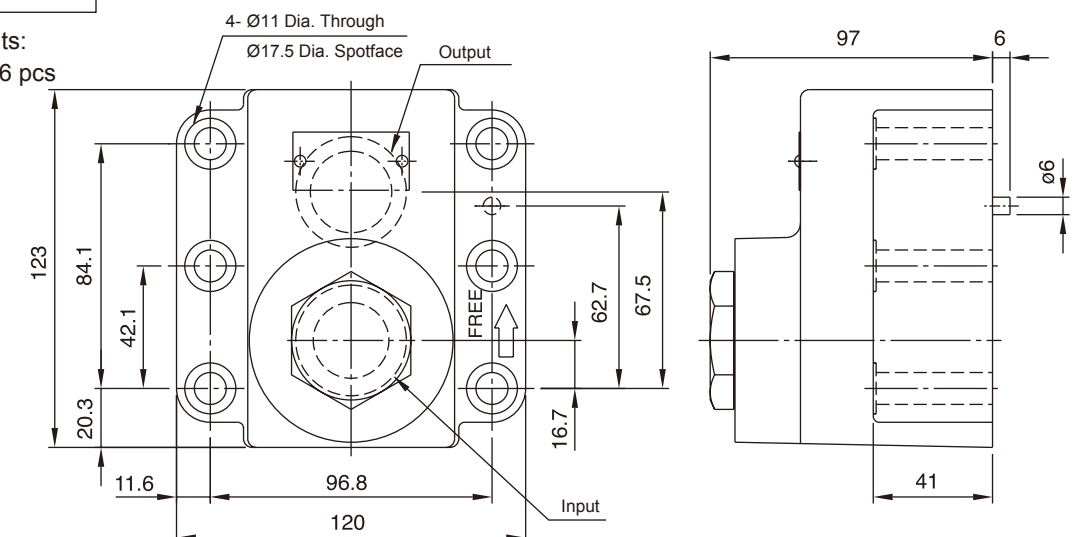
Mounting Bolts:
M10 x 50L x 4 pcs



■ CRG-10-*-10

Mounting Surface:
ISO 5781-AJ-10-2-A

Mounting Bolts:
M10 x 55L x 6 pcs



DECOMPRESSION TYPE PILOT CONTROLLED CHECK VALVE

FEATURES :

- The valve allows free flow in one direction and prevents flow in the reverse direction, until operated by pilot pressure to allow the reverse flow.
- Cracking pressure specified is the pressure required to open the valve and allow free flow.



Model: CPDG-06-1-50

SPECIFICATION :

Model	CPDG-03-*-50	CPDG-06-*-50	CPDG-10-*-50
Max. Flow	40 L/Min	125 L/Min	250 L/Min
Max Operating Pressure	250 Bar		
Cracking Pressure	1: 0.35 Bar 2: 3.5 Bar		
Mounting Surface	ISO 5781-AG-06-2-A	ISO 5781-AH-08-2-A	ISO 5781-AJ-10-2-A
Weight	4.5 kg	7.0 kg	12.0 kg
Mounting Bolts	M10 x 45L (4pcs)	M10 x 50L (4pcs)	M10 x 55L (6pcs)

ORDERING CODE :

CPD G - 03 - 1 - E - 50
1 2 3 4 5 6

1 DECOMPRESSION TYPE PILOT CONTROLLED CHECK VALVE

2 SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE

03: 3/8"
06: 3/4"
10: 1-1/4"

4 CHECK VALVE CRACKING PRESSURE

1: 0.35 Bar
2: 3.5 Bar

5 DRAIN

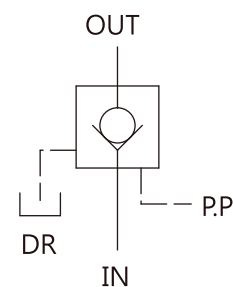
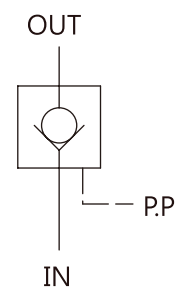
None: External Pilot, internal drain
E: External Pilot, External Drain

5 DESIGN NUMBER

GRAPHIC SYMBOL :

■ CPDG-*-50

■ CPDG-*-E-50

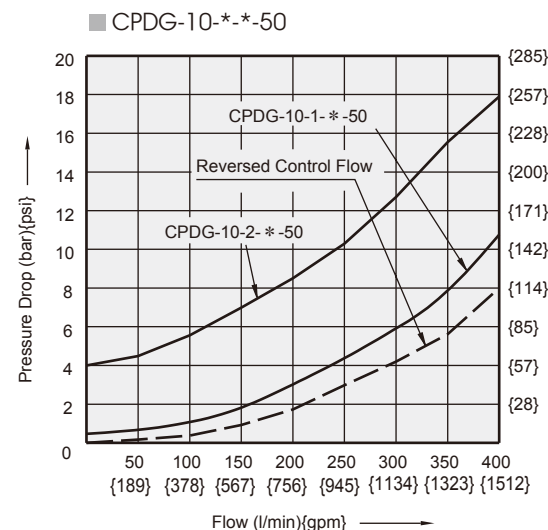
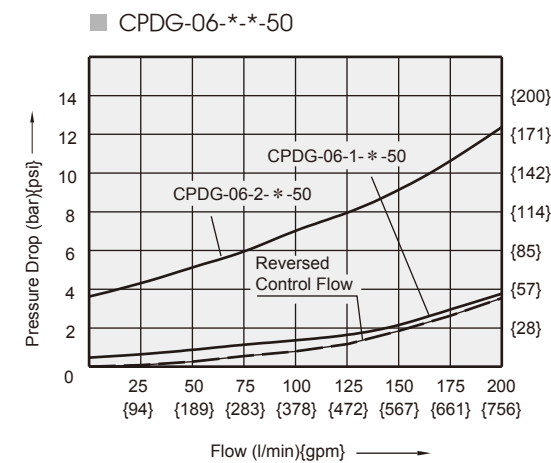
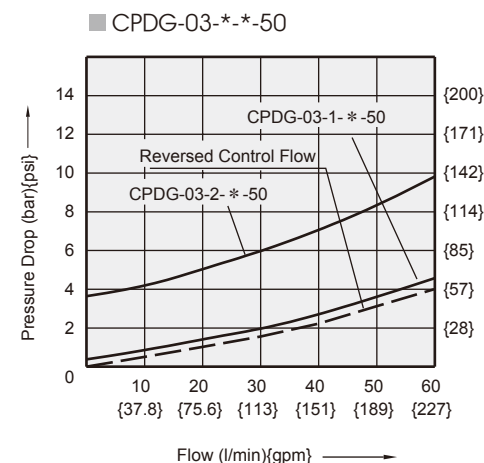


DECOMPRESSION TYPE PILOT CONTROLLED CHECK VALVE

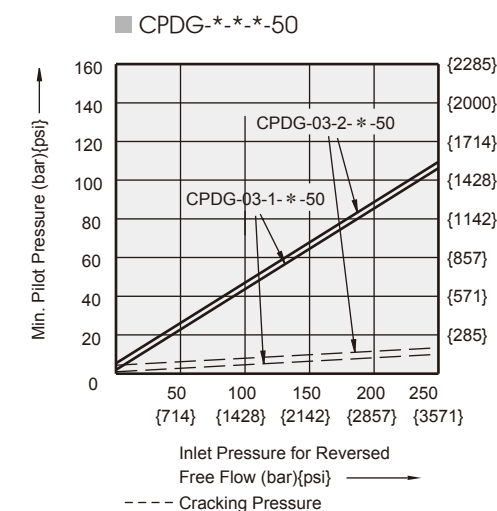
PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

Pressure Drop Characteristic

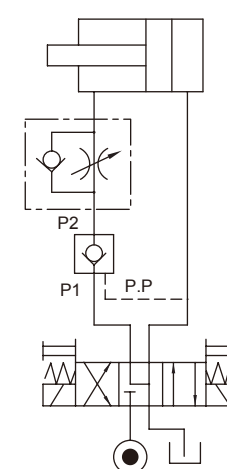


Pressure Drop Characteristic

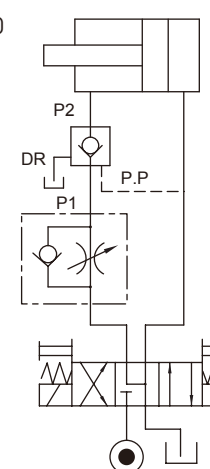


HYDRAULIC CONFIGURATION:

■ CPDG-*-50



■ CPDG-*-50



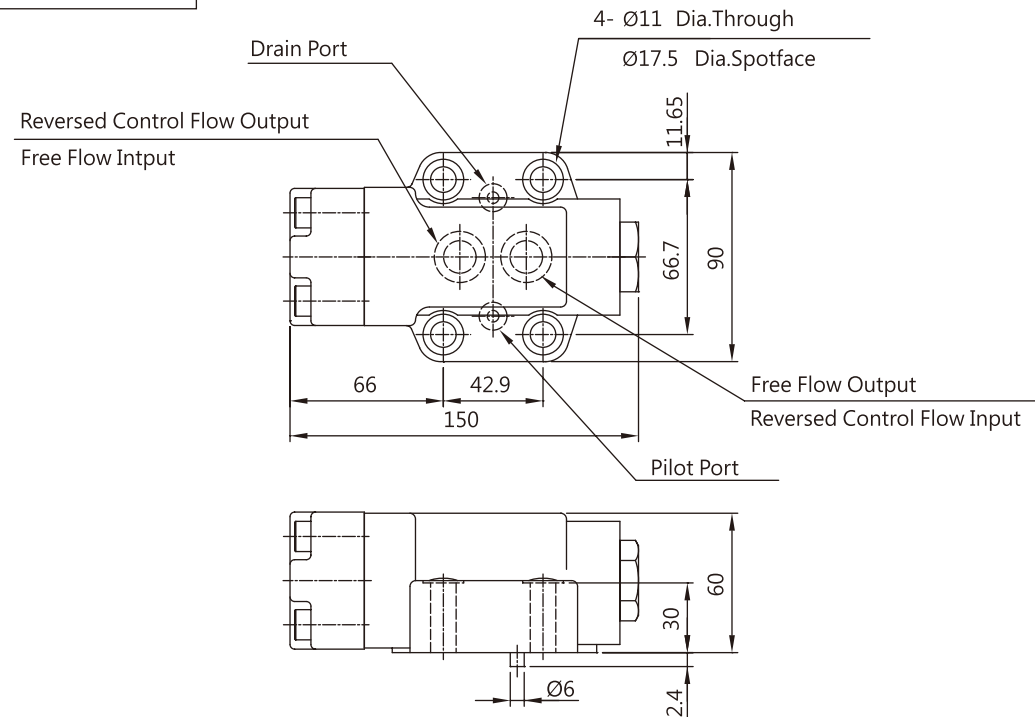
DECOMPRESSION TYPE PILOT CONTROLLED CHECK VALVE

DIMENSIONS :

■ CPDG-03-*-*.50

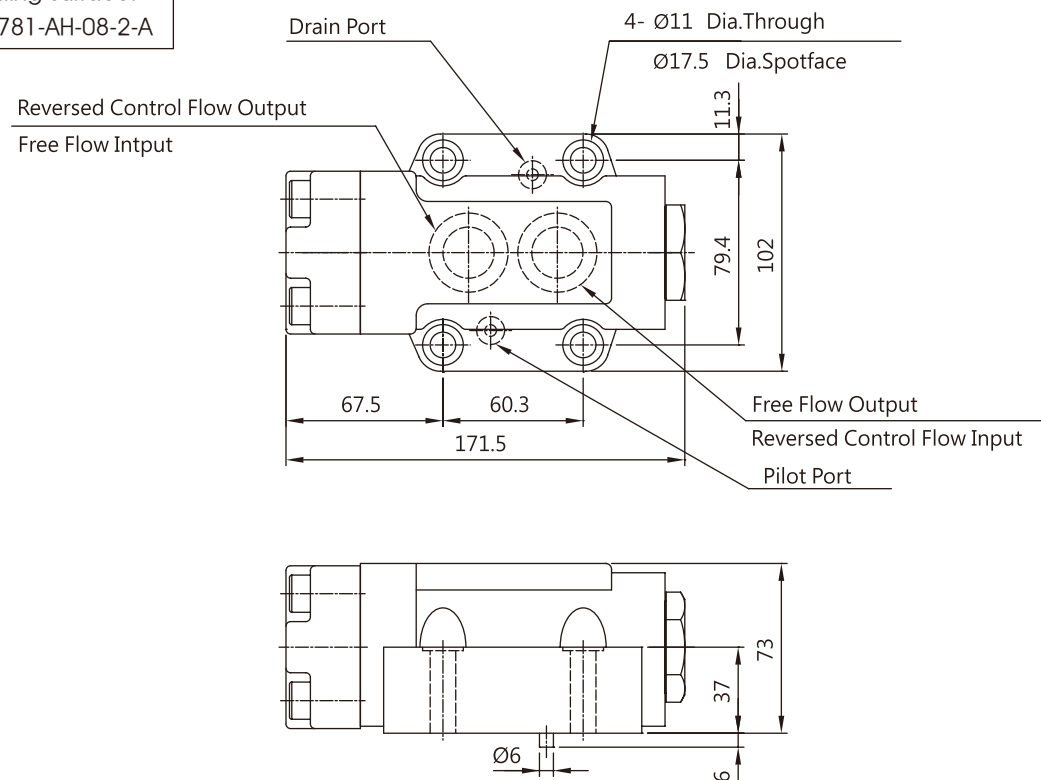
Mounting Surface:
ISO 5781-AG-06-2-A

3rd angle
projection



■ CPDG-06-*-*.50

Mounting Surface:
ISO 5781-AH-08-2-A



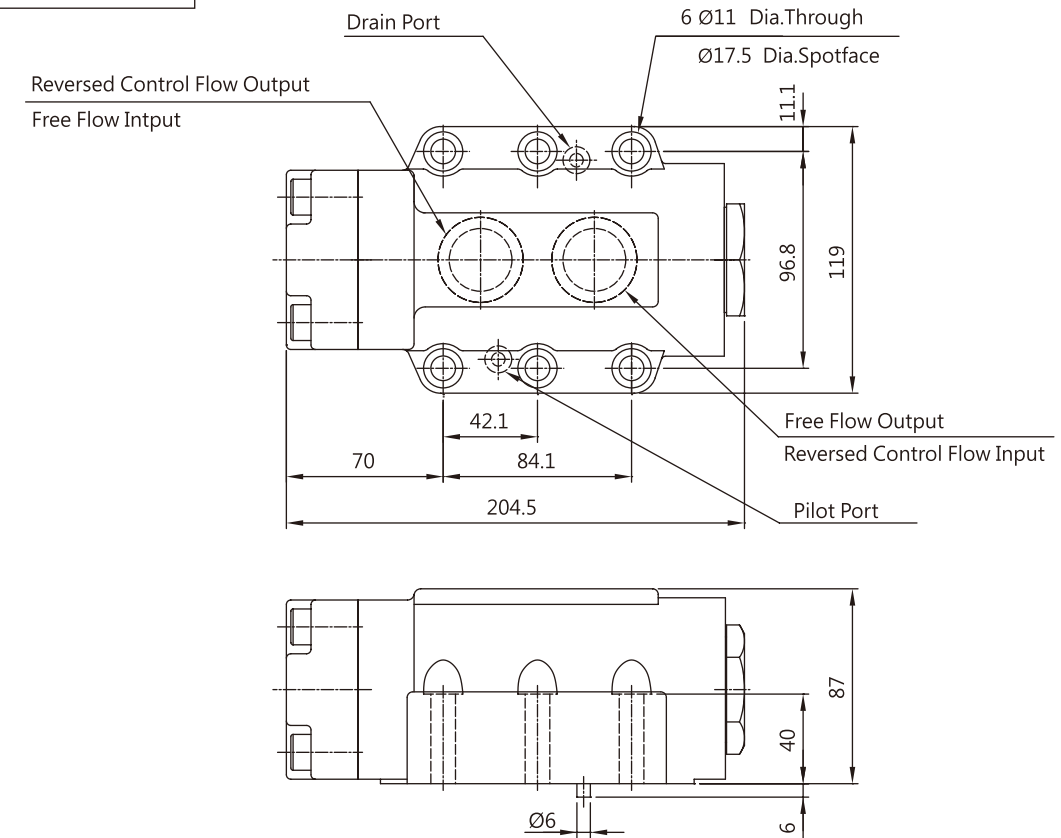
DECOMPRESSION TYPE PILOT CONTROLLED CHECK VALVE

DIMENSIONS :

■ CPDG-10-*-*.50

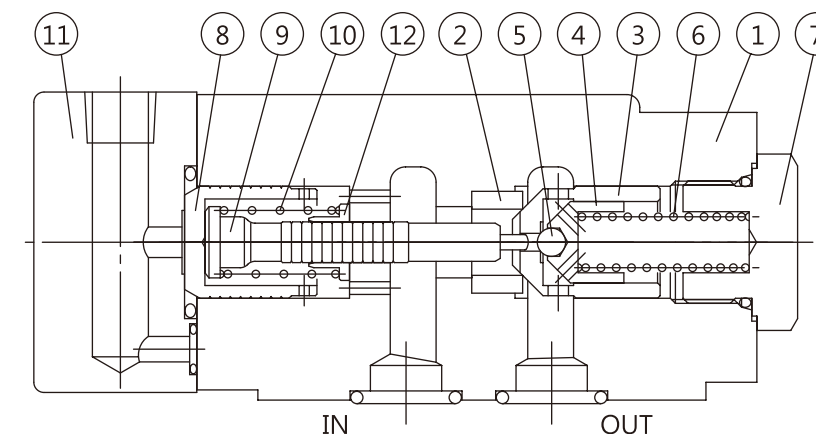
Mounting Surface:
ISO 5781-AJ-10-2-A

3rd angle
projection



CROSS SECTION DRAWING :

■ CPDG-10-*-*.50



- | | |
|---------------|---------------------|
| 1. Body | 7. Nut |
| 2. Seat | 8. Piston |
| 3. Poppet 1 | 9. Plunge |
| 4. Poppet 2 | 10. Return Spring |
| 5. Steel Ball | 11. Side Cover |
| 6. Spring | 12. Spring Retainer |

PREFILL VALVE

FEATURES :

- Hydraulic pilot operated check valve of sandwich plate design for flange connection and for in-pipe installation.
- With or without pre-decompression.
- Integrated high pressure port.
- Solenoid operated decompression through built-on directional valve.



Model: PFV-63-10

SPECIFICATION :

Model	PFV-50	PFV-63	PFV-100	PFV-125
Max. Flow	400 L/Min	600 L/Min	1500 L/Min	2200 L/Min
Max Operating Pressure	420 Bar			
Area Ratio	2.78 / 1	3.9 / 1	3.4 / 1	3.4 / 1
Cracking Pressure	0.06 Bar			
Ambient Temperature Range	-20°C~+50°C			
Hydraulic Fluid Temperature	-20°C~+70°C			
Viscosity Range	15~400 mm²/s			
Hydraulic Oil	ISO VG32, 46, 68			
Weight	2.3 kg	2.9 kg	19 kg	29.5 kg

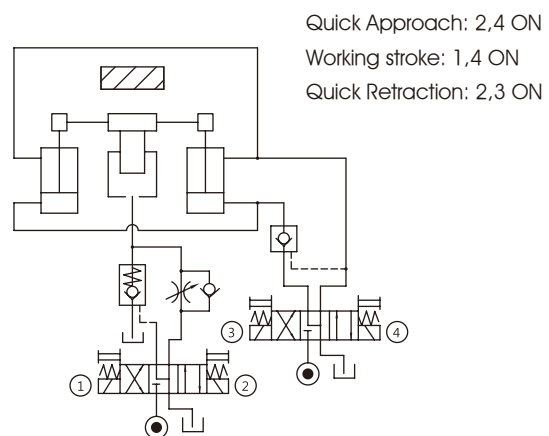
ORDERING CODE :

PFV - 50 - 10

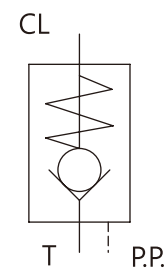
1 2 3

- 1 PREFILL VALVE
- 2 NOMINAL VALVE SIZE
- 3 DESIGN NUMBER

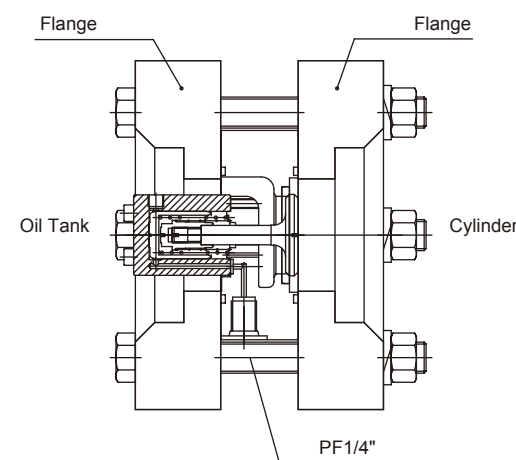
HYDRAULIC CONFIGURATION:



GRAPHIC SYMBOL :



INSTALLATION:

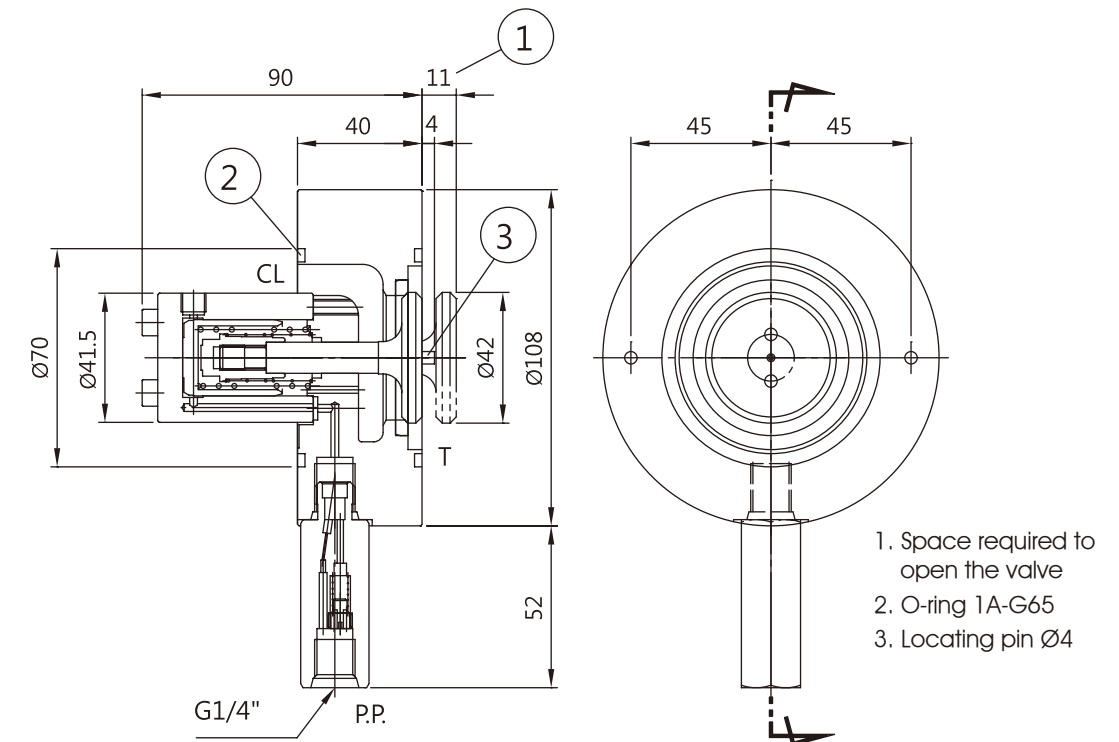


PREFILL VALVE

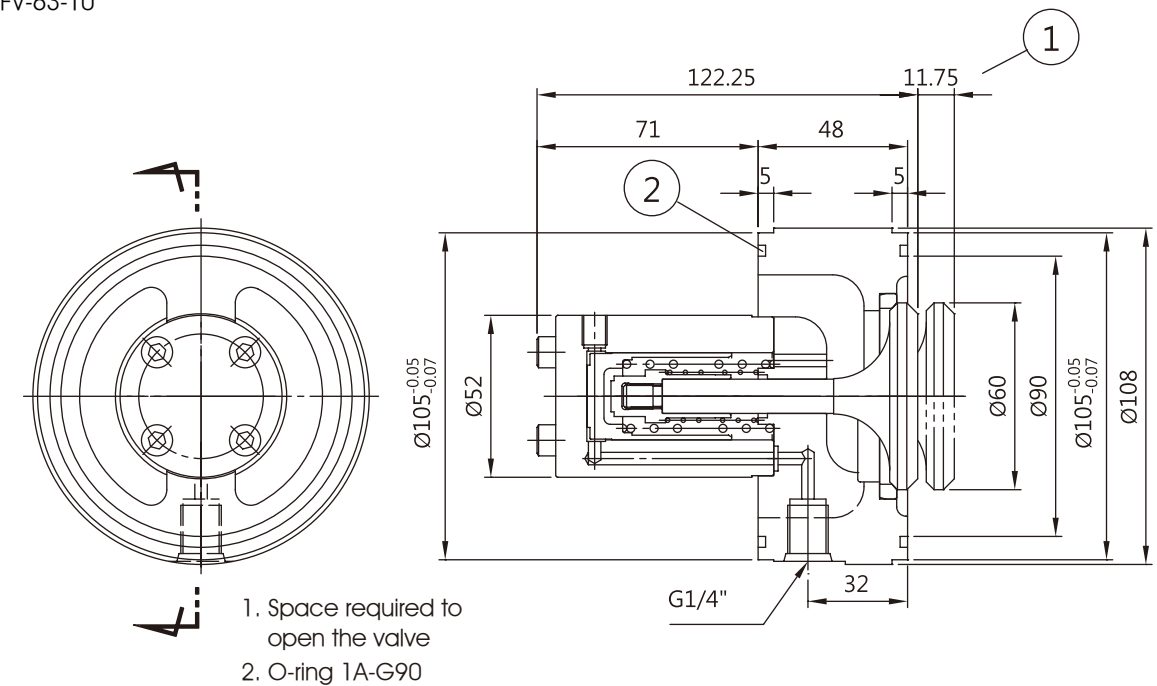
DIMENSIONS :

■ PFV-50-10

3rd angle projection



■ PFV-63-10

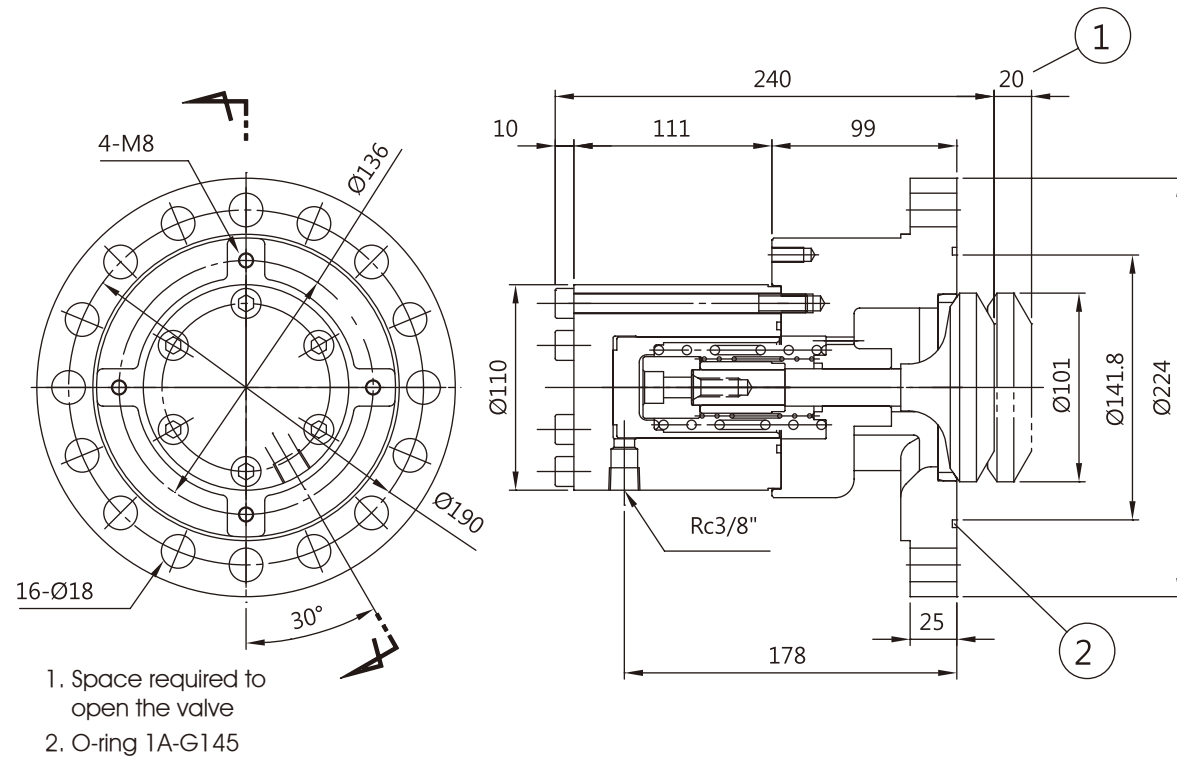


PREFILL VALVE

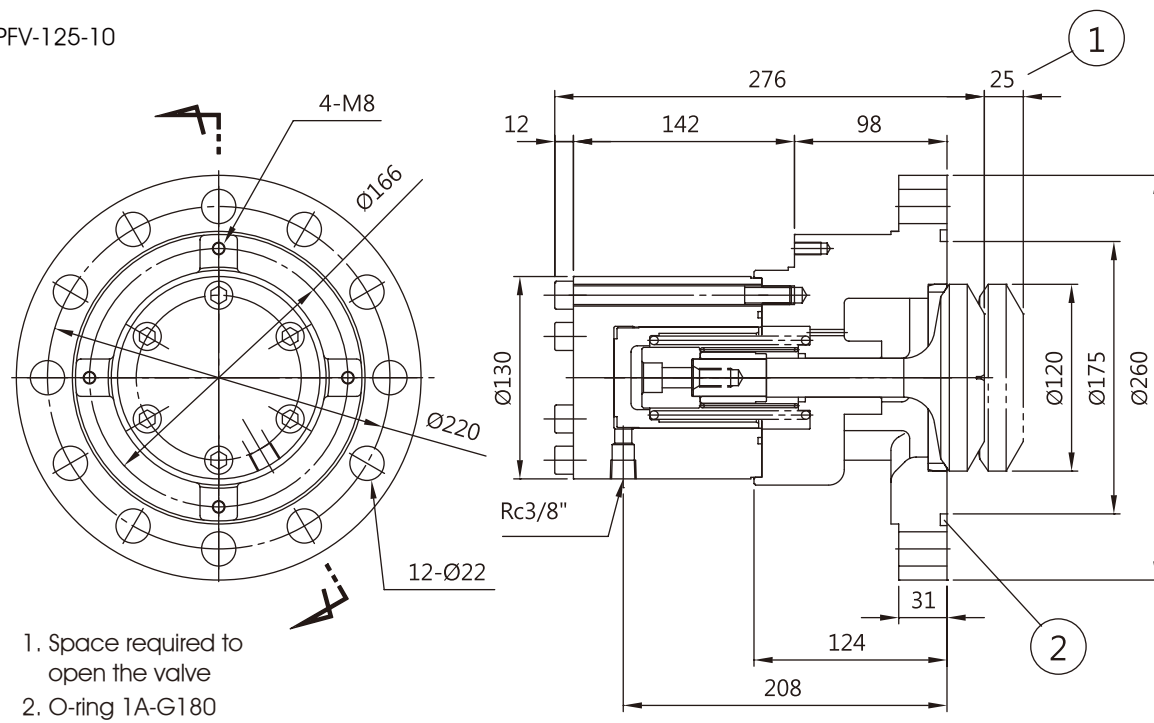
DIMENSIONS :

■ PFV-100-10

3rd angle
projection



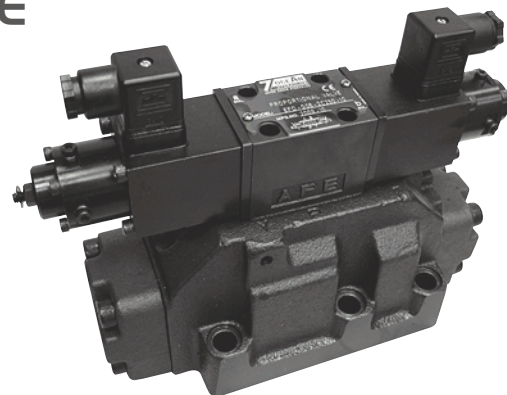
■ PFV-125-10



ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

FEATURES :

- Typical applications include reproducible control of actuator speed in rapid / slow speed profiling.
- Smooth acceleration & deceleration performance
- Standard DIN, ISO, CETOP, NFPA interfaces.



Model: EFD-G08-2C250-10

SPECIFICATION :

Model	EFD-G03-*-10	EFD-G05-*-10	EFD-G07-*-10	EFD-G08-*-10
Max Operating Pressure	250 MPa {255 kgf/cm ² }			
Rated Flow	20 L/Min	80 L/Min	140 L/Min	250 L/Min
Max. Flow Rate	25 L/Min	100 L/Min	140 L/Min	250 L/Min
Control Pressure	-	1.0 MPa {10 kgf/cm ² }		
Control Flow	-	Above 2 L/Min	Above 3 L/Min	Above 5 L/Min
T Port Allowable Back Pressure	2.5 Mpa (25.5 kgf/cm ²)	2.5 MPa {25.5 kgf/cm ² } Internal Drain 21 MPa {214 kgf/cm ² } External Drain		
Rated Current	850 mA			
AMPs	20 Ω			
Hysteresis	5 %			
Response Time	0.05 S	0.06 S	0.09 S	0.1 S
Approx. Weight	2.7 kg	7.5 kg	9.9 kg	15.2 kg

ORDERING CODE :

EFD - G 03 - 2C 20 - E T - 10
 1 2 3 4 5 6 7 8

1 ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

2 SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

4 SPOOL TYPE

2C	33C
A B P T	A B P T

2C : Closed center (All ports)

33C : Closed center (Bleed A,B)

5 FLOW RATE

6 EXTERNAL PILOT PRESSURE: 02: Not Applied

No code: Internal Pilot

E: External Pilot

7 INTERNAL PILOT DRAIN: 02: Not Applied

No code: External Drain

T: Internal Drain

8 DESIGN NUMBER

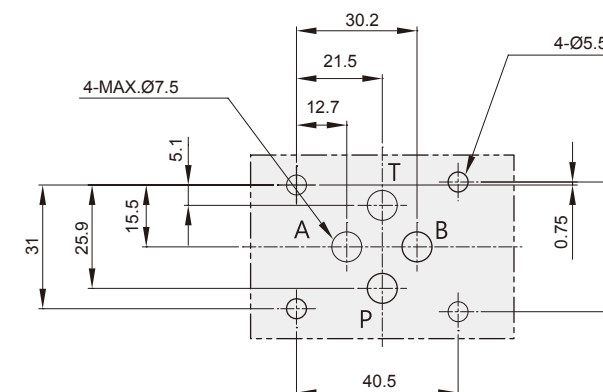
ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

SPOOL TYPES:

Spool Type	Graphic Symbol EFD-G03	Graphic Symbol EFD-G05	Graphic Symbol EFD-G07
2 C	EFD-G03 A B a b P T	EFD-G05 A B a b P T DR	EFD-G07 A B a b P T DR
33 C	EFD-G03 A B a b P T	EFD-G05 A B a b P T DR	EFD-G07 A B a b P T DR

INSTALLATION DIMENSIONS:

(Mounting Pattern ISO 4401-AB-03-4-A)



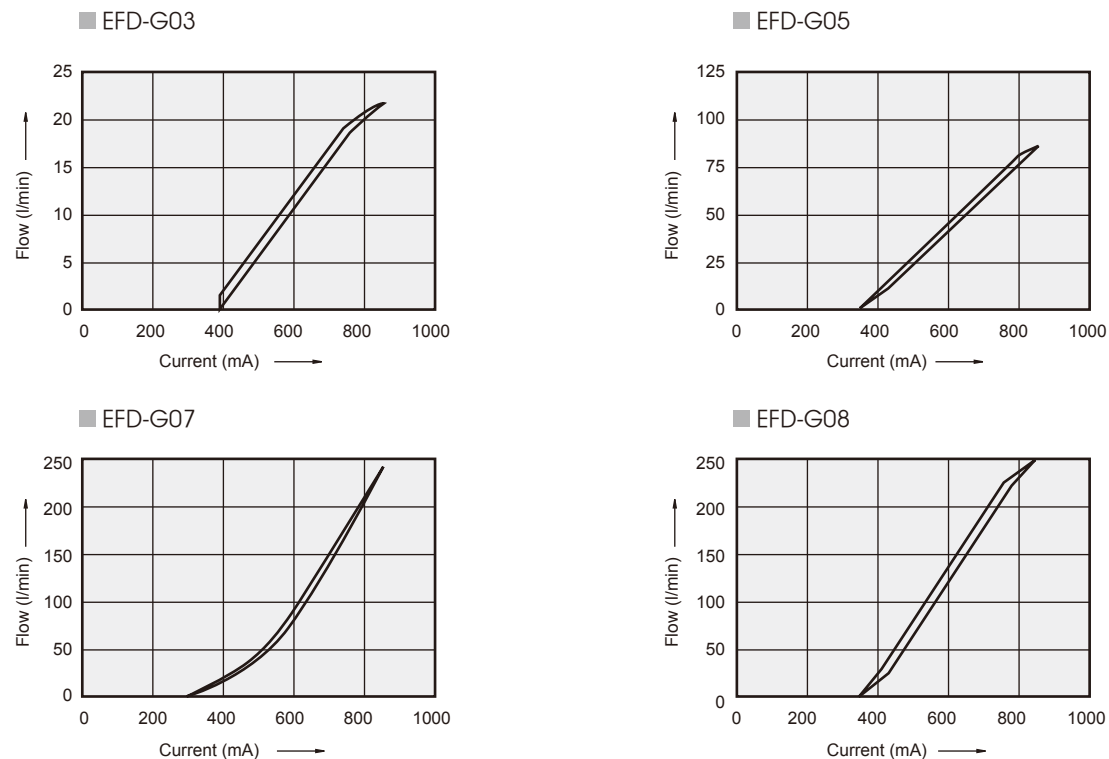
INSTRUCTION :

1. Place the valve body with proper leveling to achieve better control effect. It is suggested to allow the venting hole to face upward.
2. Before using, remove the screw from the venting hole to completely exhaust air in the valve body. Then tighten the screw to ensure Stable flow.
3. The flow regulation screw is used only when electric control damage occurs. In normal condition, it is reset at the original point.
4. 7 OCEAN also offers special circuit board for proportional valve control amplifier.
5. The recommended pressure difference between P-A and P-B is P= 1.0 MPa (10 kgf/cm²)
6. When pressure control (EFD-G05, G07, G08) is over 9 MPa (92 kgf/cm²), use modular type P-port pressure reducing valve. Setting pressure at 2 Mpa (20 kkgf/cm²)
7. Mounting sizes of EFD-G07: Iso 4401-AD-07-4-A
Mounting sizes of EFD-G07: Iso 4401-AE-08-4-A

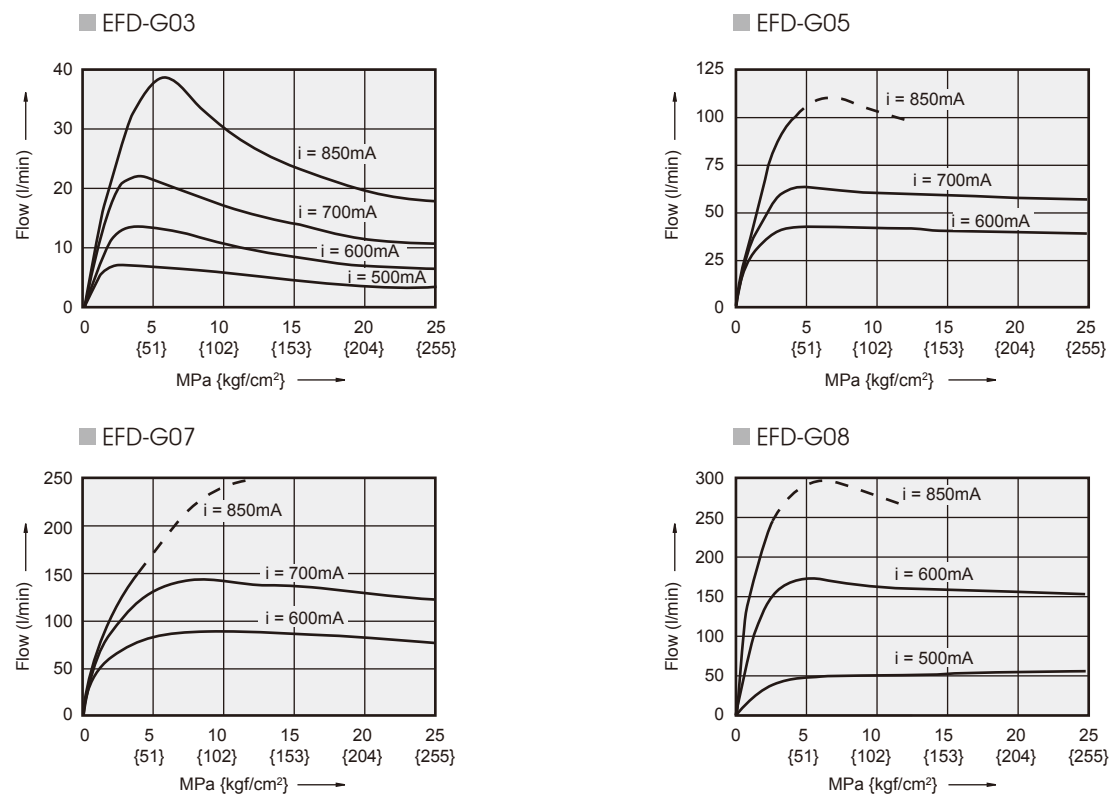
ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

PERFORMANCE CURVES:

Flow v.s. Current



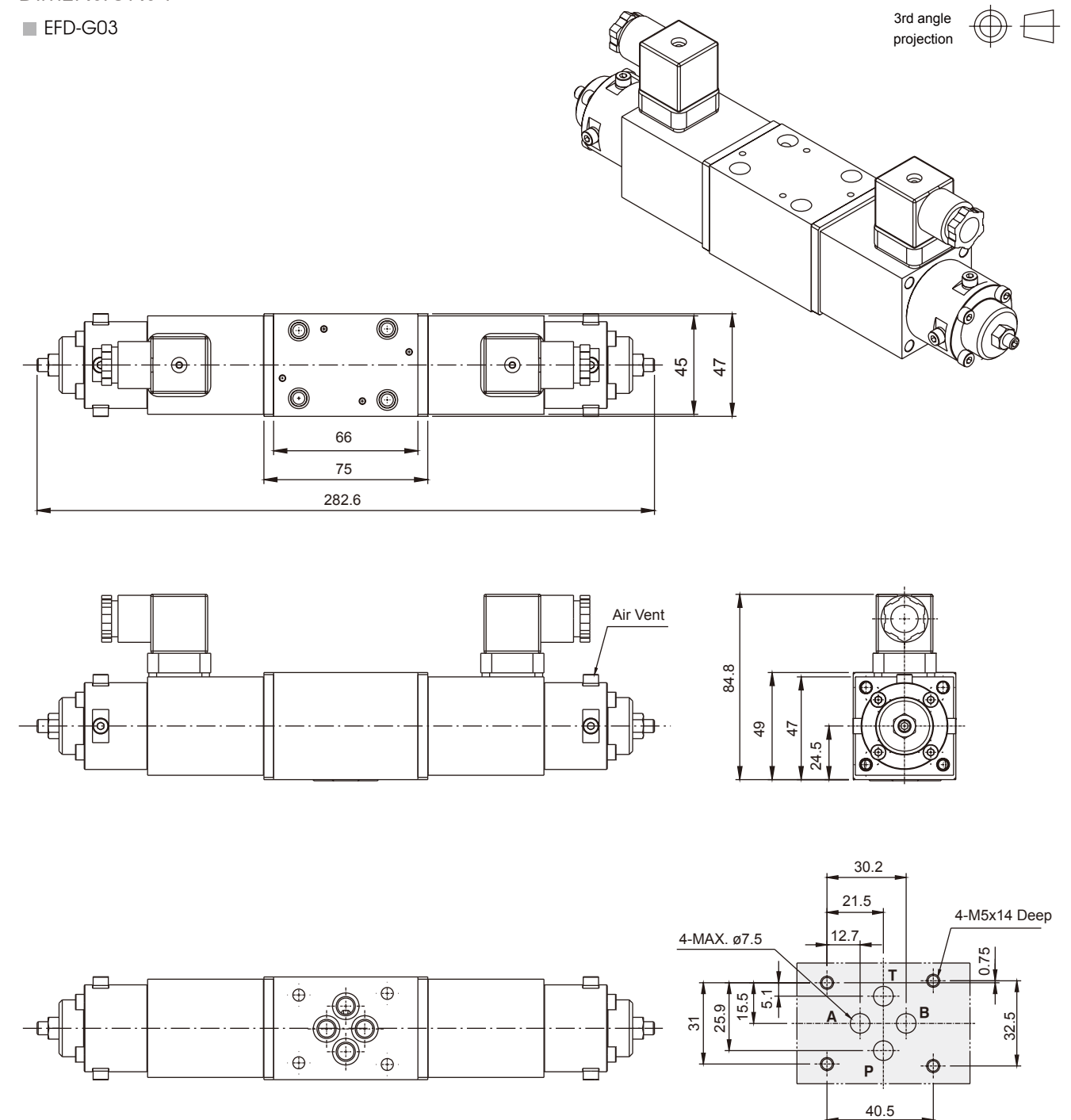
Flow v.s. Pressure



ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

DIMENSIONS :

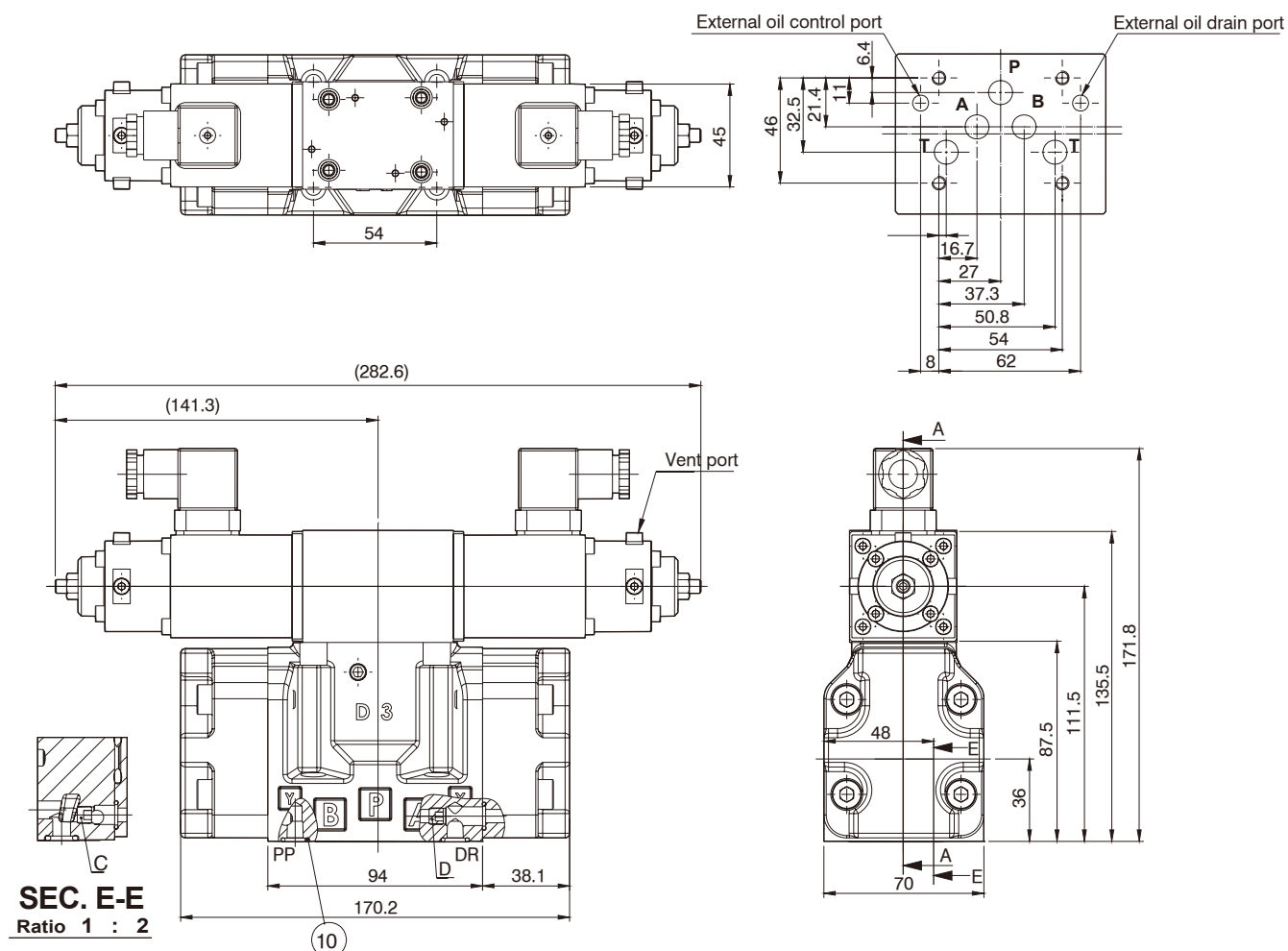
■ EFD-G03



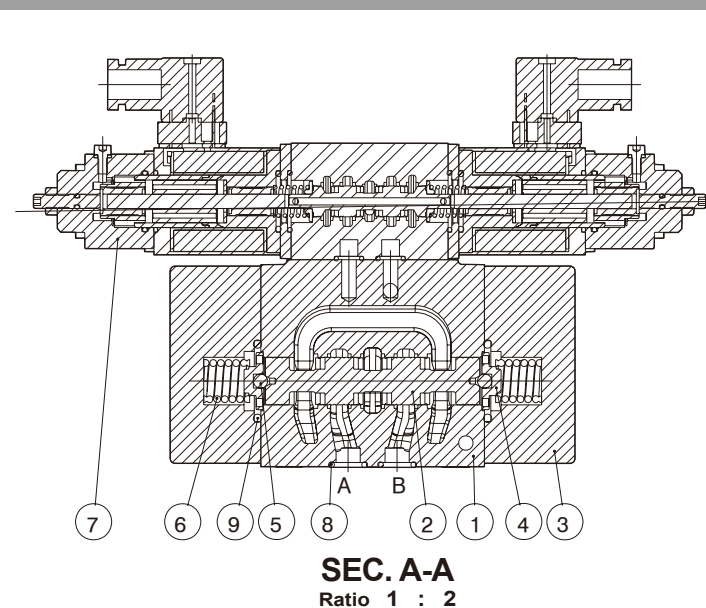
ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

DIMENSIONS :

EFD-G05



CROSS SECTION DRAWING :



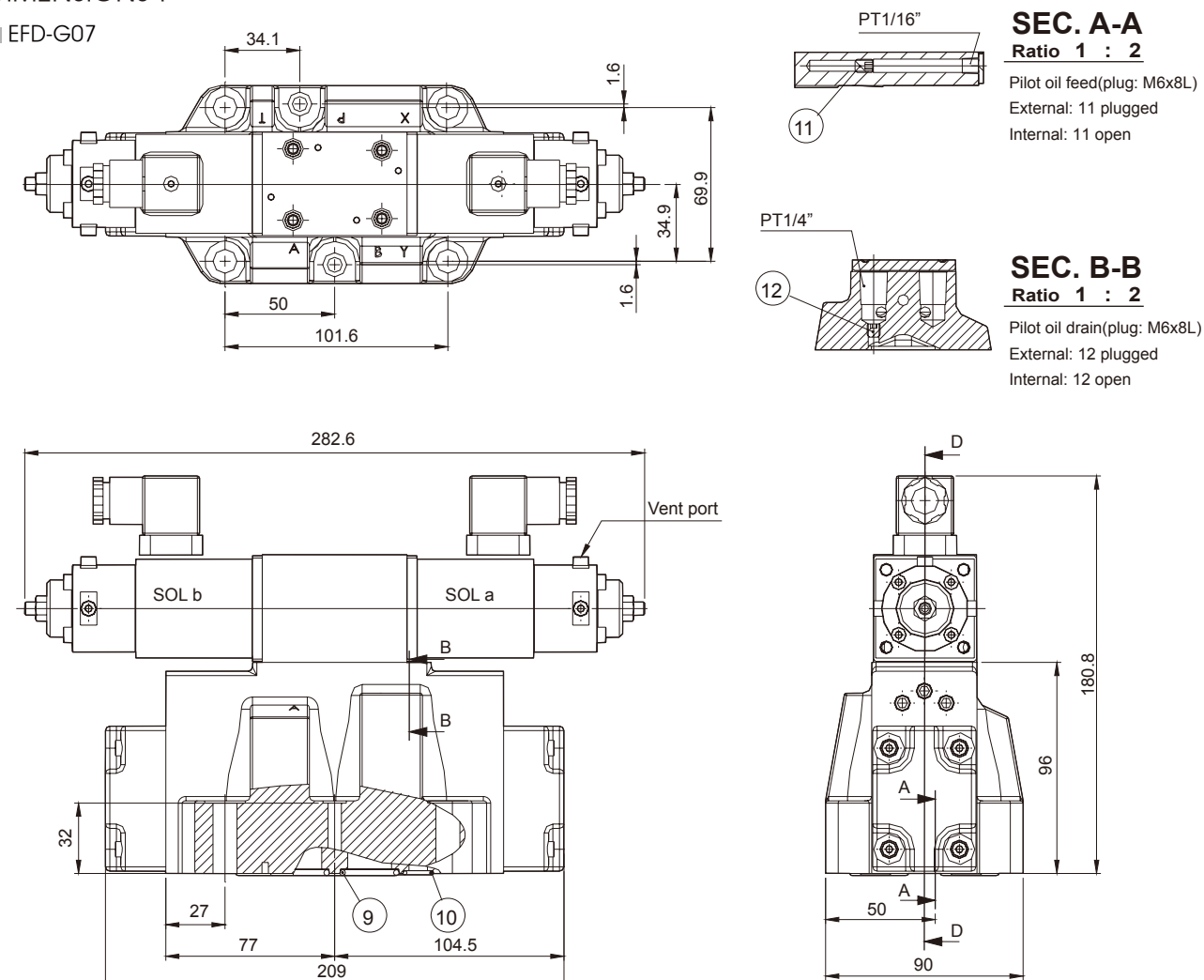
No.	Description	Q'ty
1	Baby	1
2	Spool	1
3	Cover	2
4	Spring Cup	2
5	Steel Ball	2
6	Spring	2
7	Coil	1
8	O-ring P12N90	5
9	O-ring P28N90	2
10	O-ring P9N90	8

Transformation Mode		Plug for each part	
Hydraulic control	Internal	C-Open	PP-Plugged
	External	PP-Open	C-Plugged
Drain control	Internal	D-Open	DR-Plugged
	External	DR-Open	D-Plugged

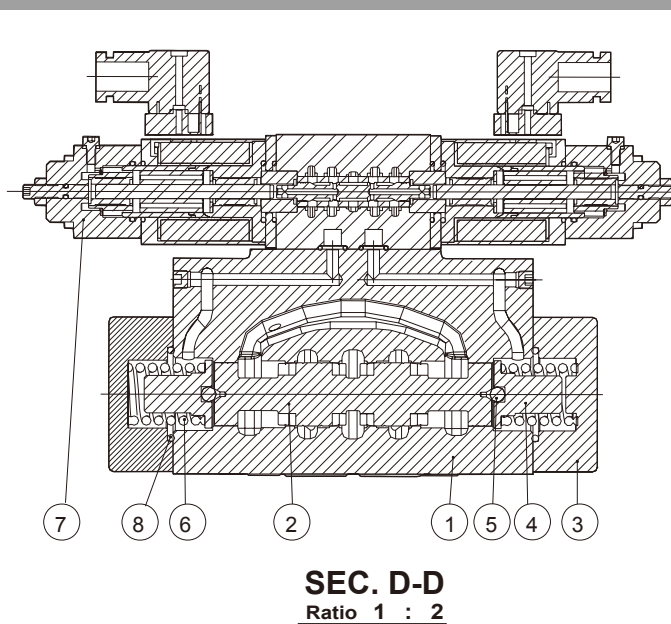
ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

DIMENSIONS :

EFD-G07



CROSS SECTION DRAWING :

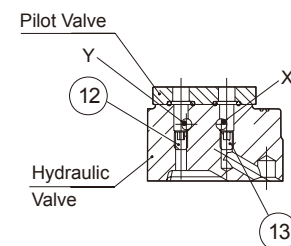
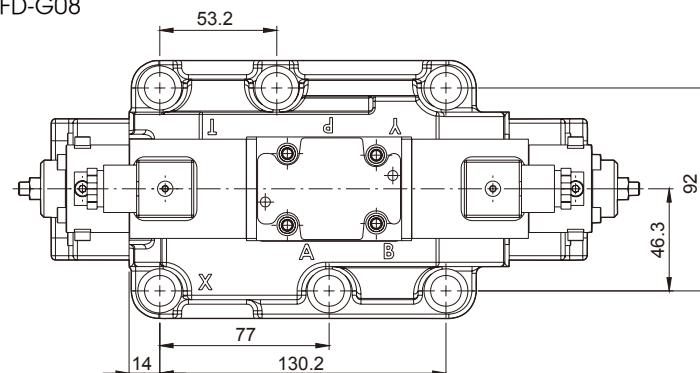


No.	Description	Qty
1	Baby	1
2	Spool	1
3	Cover	2
4	Spring Cup	2
5	Steel Ball	2
6	Spring	2
7	Coil	1
8	O-ring P1 2N90	2
9	O-ring P28N90	4
10	O-ring P9N90	2
11	Hex Socket Set Screws M6x8L	1
12	Hex Socket Set Screws M6x8L	1

ELECTRO-HYDRAULIC PROPORTIONAL FLOW & DIRECTION CONTROL VALVE

DIMENSIONS :

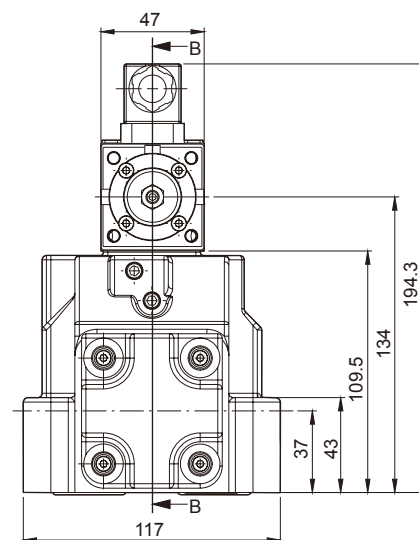
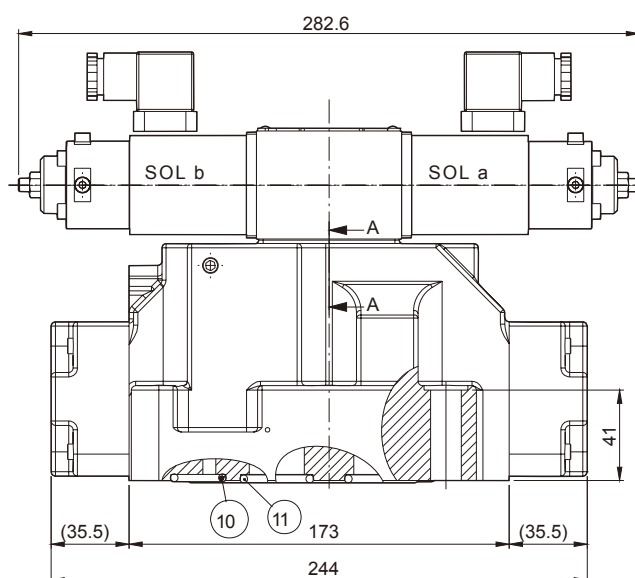
■ EFD-G08



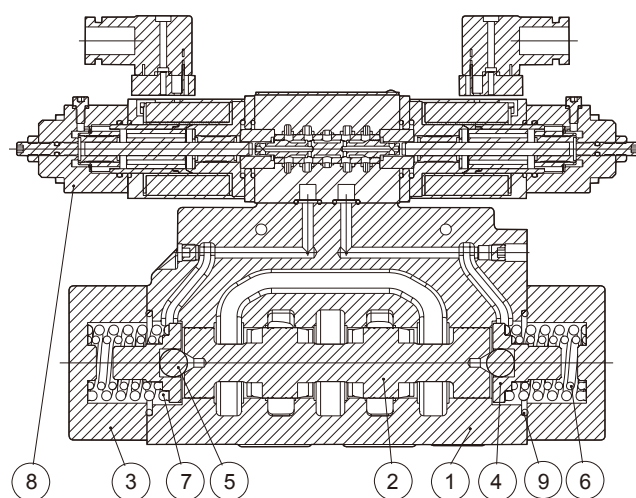
SEC. A-A Ratio 1 : 2

Pilot oil feed(plug: M6x8L)
External: 13 plugged
Internal: 13 open

Pilot oil drain(plug: M6x8L)
External: 12 plugged
Internal: 12 open



CROSS SECTION DRAWING :



SEC. B-B Ratio 1 : 2

No.	Description	Qty
1	Baby	1
2	Spool	1
3	Cover	2
4	Spring Cup	2
5	Steel Ball	2
6	Spring 1	2
7	Spring	2
8	Coil	1
9	O-ring P12N90	2
10	O-ring P28N90	2
11	O-ring P9N90	4
12	Hex Socket Set Screws M6x8L	1
13	Hex Socket Set Screws M6x8L	1

PROPORTIONAL CONTROL PILOT RELIEF VALVES (DIR. OPERATED TYPE)

FEATURES :

- Control the system pressure proportionally through a control input current from the amplifier.
- Accurate working circulation extend machine and parts endurance.
- Simplify the system design also eliminate any shocks in the hydraulic system.



Model: EDG-02-B-10

SPECIFICATION :

Max Operating Pressure	250 Bar (3571 PSI)
Max. Flow Rate	2 L/Min
Min. Flow Rate	0.3 L/Min
Rated Current	B: 800 mA
	C: 900 mA
	H: 950 mA
Coil Resistance	10 Ω
Hysteresis	Below 3 %
Repeatability	Below 1 %
Mounting Pattern	ISO 4401-01-AB-03-4-A
Mounting Bolts	M5 x 45L x 4 pcs
Approx. Weight	2.6 kg

ORDERING CODE :

ED G - 02 - C - S - 10
1 2 3 4 5 6

1 PROPORTIONAL ELECTRO-HYDRAULIC PILOT RELIEF VALVE

2 SUB-PLATE MOUNTING

3 NOMINAL VALVE SIZE:

ISO 4401 / CETOP 3 (NFFA-D03 / DIN 24340 NG6)

4 PRESSURE ADJ. RANGE

B : 5~70 Bar

C : 10~160 Bar

H : 12~250 Bar

5 SAFETY VALVE

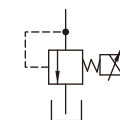
NONE: WITHOUT SAFETY VALVE

S: WITH SAFETY VALVE

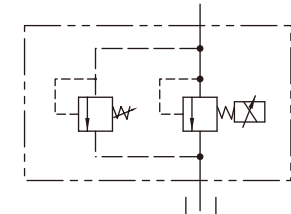
6 DESIGN NUMBER

GRAPHIC SYMBOLS :

WITHOUT SAFETY VALVE
■ EDG-02-* -10



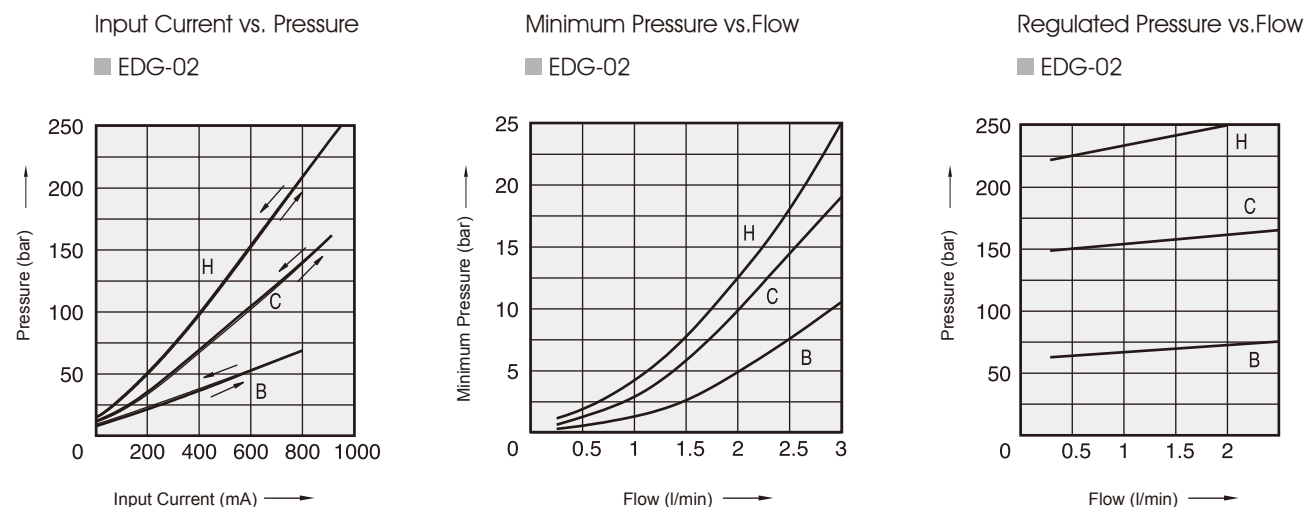
WITH SAFETY VALVE
■ EDG-02-* -S-10



PROPORTIONAL CONTROL PILOT RELIEF VALVES (DIR. OPERATED TYPE)

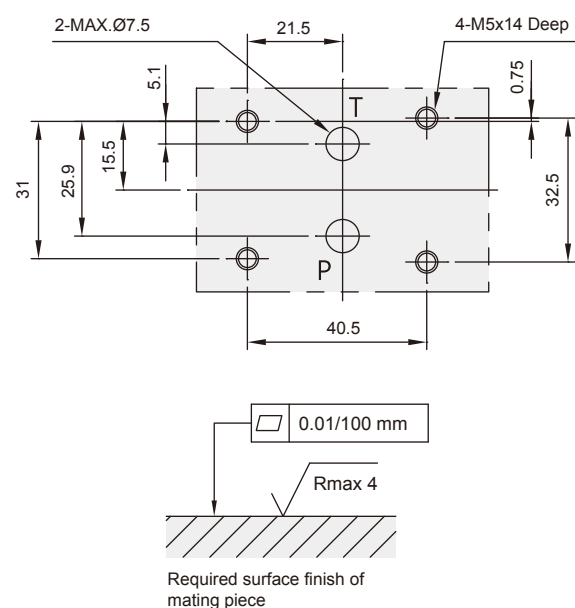
PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s



INSTALLATION DIMENSIONS:

(Mounting Pattern ISO 4401-AB-03-4-A)



INSTRUCTION :

1. MOUNTING: BE SURE THE AIR VENT FACE UP TO KEEP THE ACTION PROPERLY.
2. TANK & DRAIN PIPING: THE TANK-LINE BACK PRESSURE AND DRAIN BACK PRESSURE DIRECTLY AFFECT THE MIN. ADJUSTMENT PRESSURE. THEREFORE, DO NOT CONNECT THE TANK OR DRAIN PIPES TO OTHER LINES, BUT CONNECT THEM DIRECTLY TO THE RESERVOIR MAINTAININ G THE BACK PRESSURE AS LOW AS POSSIBLE. BE SURE THAT THE TANK AND DRAIN PIPE ENDS ARE IMMERSSED IN FLUID.
3. WHEN INITIAL ADJUSTMENTS ARE TO BE MADE OR WHEN NO CURRETN IS SUPPLIED TO THE VALVE DUE TO ELECTRICAL FALUIRE OR OTHER PROBLEMS, TURN THE MANUAL PRESSURE ADJUSTMENT SCREW TO TEMPO-RARILY SET THE VALVE PRESSURE. IN THAT SITUATION, TUREN THE MANUAL PRESSURE ADJUSTMENT SCREW CLOCKWISE, THE VLAVE PRESSURE GOES UP. UNDER NORMAL CONDITION, THEIS SCREW MUST BE KEPT IN ITS ORIGINAL POSITION.
4. AIR BLEEDING: TO ENSURE STABLE CONTROL, BLEED THE AIR FROM SOLENOID COMPLETELY, SET THE PRESSURE TO 20~40 BARS. BLEEDING CAN BE DONE BY SLOWLY LOOSENING ONE OF THE AIR VENTS AT THE END OF THE SOLENOID.
5. SAFETY VALVE: SAFETY VALVE PRESSURE = MAX. WORKING PRESSURE + 20BAR

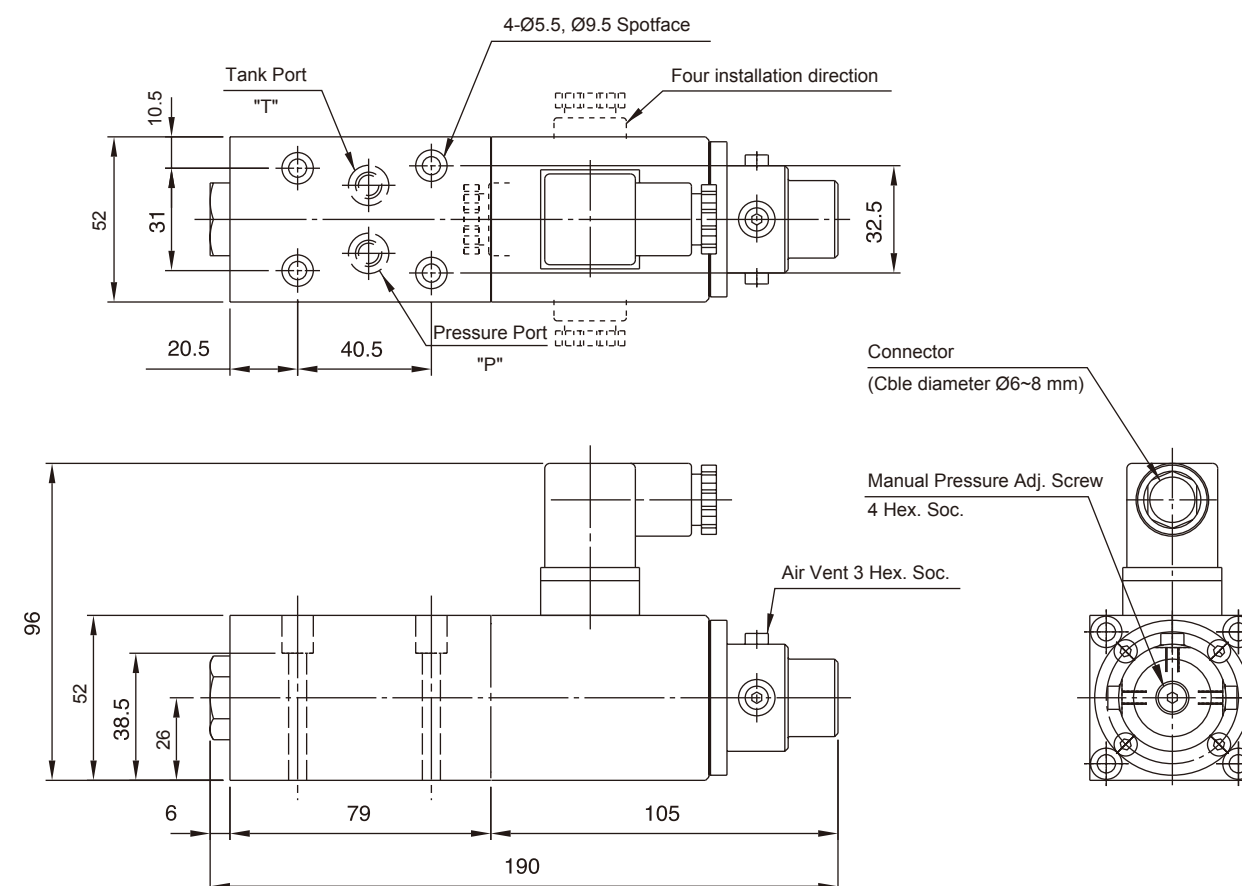
PROPORTIONAL CONTROL PILOT RELIEF VALVES (DIR. OPERATED TYPE)

DIMENSIONS :

Without Safety Valve

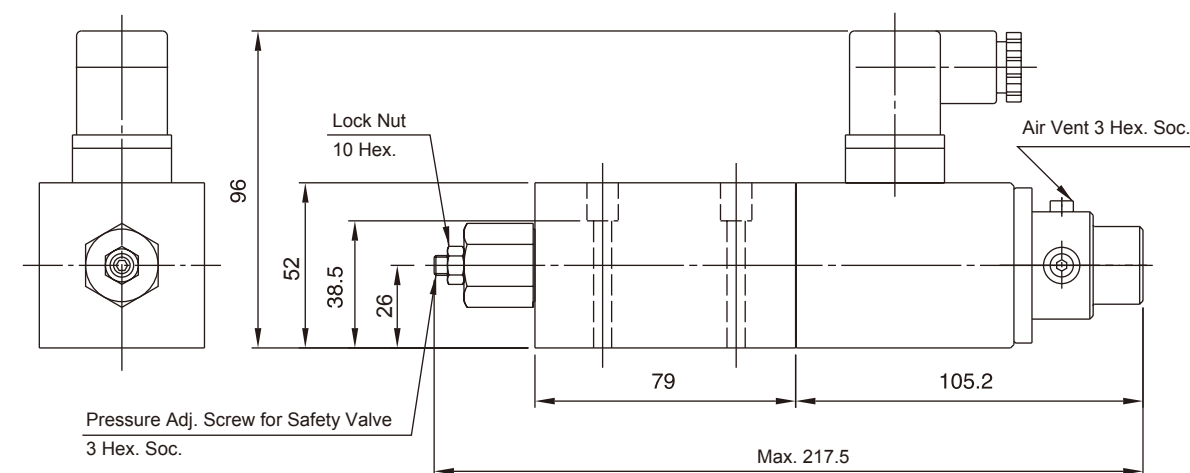
■ EDG-02-*-10

3rd angle projection



With Safety Valve

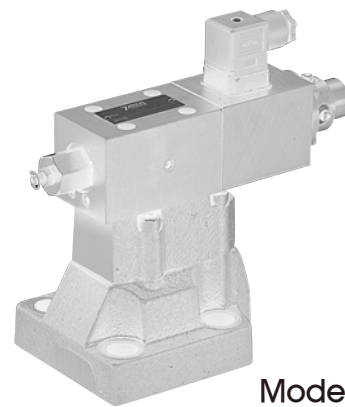
EDG-02-*-S-10



PROPORTIONAL CONTROL RELIEF VALVES

FEATURES :

- Combine the characteristics of proportional valve and relief valve.
- Precise and stable pressure control.
- In cooperate with the power amplifier, electro and hydraulic control can work together.



Model: EBG-02-B-10

SPECIFICATION :

Model	EBG-10-*. *-10	EBG-20-*. *-10	EBG-30-*. *-10
Max. Flow Rate	250 L/Min	500 L/Min	650 L/Min
Min. Flow Rate	3 L/Min	3 L/Min	3 L/Min
Pressure Adj. Range	C: 6~160 Bar	C: 9~160 Bar	C: 11~160 Bar
	H: 6~250 Bar	H: 9~250 Bar	H: 11~250 Bar
Rated Current	C: 770 mA	C: 750 mA	C: 730 mA
	H: 820 mA	H: 800 mA	H: 780 mA
Coil Resistance	10 Ω		
Hysteresis	Below 2 %		
Repeat ability	Below 1%		
Frequency (under -90°)	12 Hz	13 Hz	11 Hz
Mounting Pattern	ISO 6264-AR-06-2-A	ISO 6264-AS-08-2-A	ISO 6264-AT-10-2-A
Mounting Bolts	M12 x 45L x 4 pcs	M16 x 50L x 4 pcs	M18 x 50L x 4 pcs
Approx. Weight	5.2 kg	6.1 kg	7 kg

* () When EBG-30 has to apply to M20 screw, please order the screw separately.

ORDERING CODE :

EB G - 10 - C - S - 10
1 2 3 4 5 6

1 PROPORTIONAL CONTROL RELIEF VALVES

2 SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE

10: 3/8"

20: 3/4"

30 1-1/4"

4 PRESSURE ADJ. RANGE

C: 160 Bar

H: 250 Bar

5 SAFETY VALVE

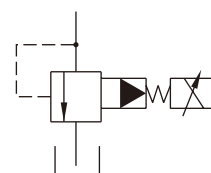
NONE: WITHOUT SAFETY VALVE

S: WITH SAFETY VALVE

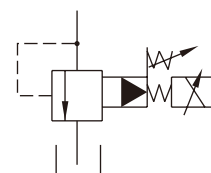
6 DESIGN NUMBER

GRAPHIC SYMBOLS :

WITHOUT SAFETY VALVE



WITH SAFETY VALVE

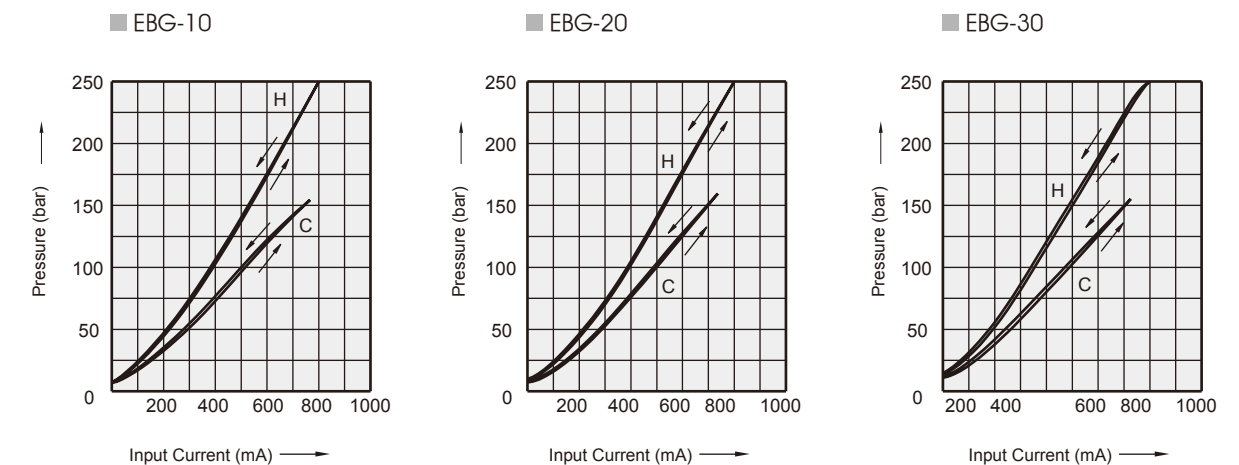


PROPORTIONAL CONTROL RELIEF VALVES

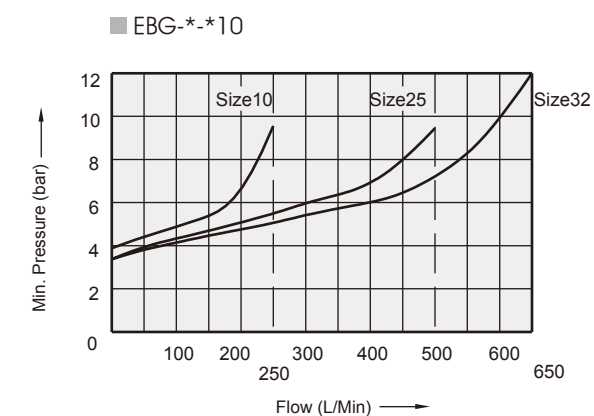
PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

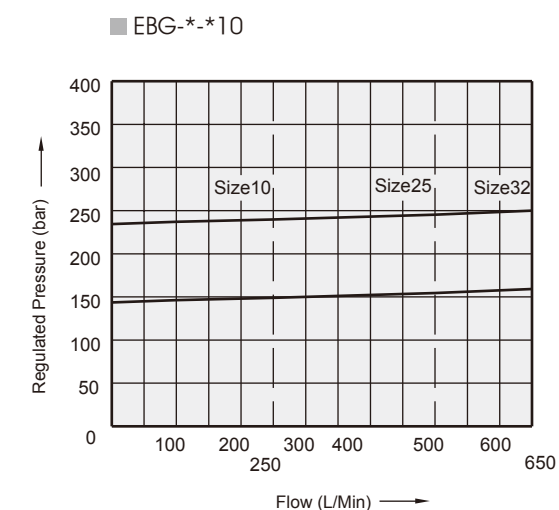
INPUT CURRENT vs. PRESSURE



Min. Adjustment Pressure VS. Flow



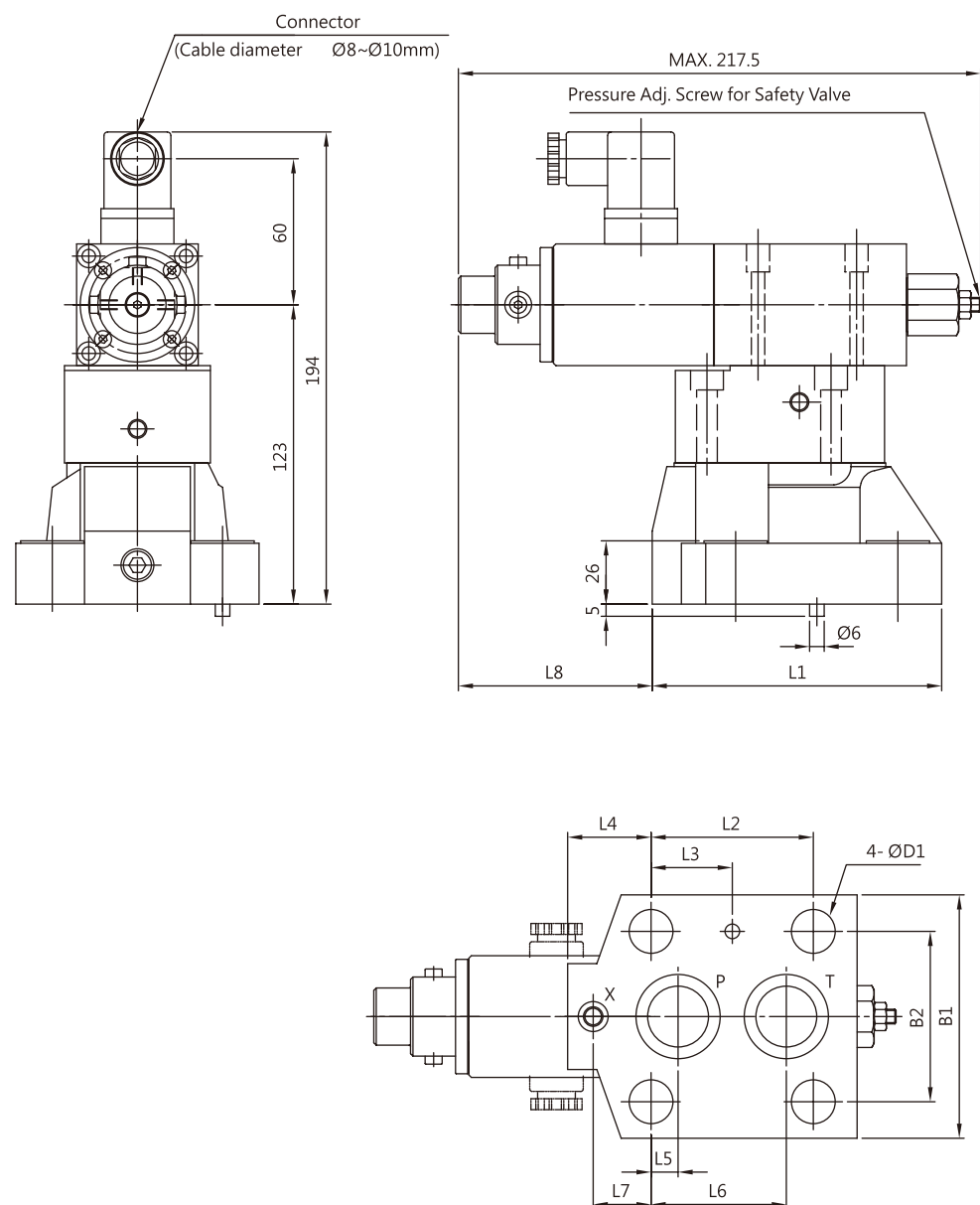
Regulated Pressure VS. Flow Diagram



PROPORTIONAL CONTROL RELIEF VALVES

DIMENSION:

■ EBG-**-10



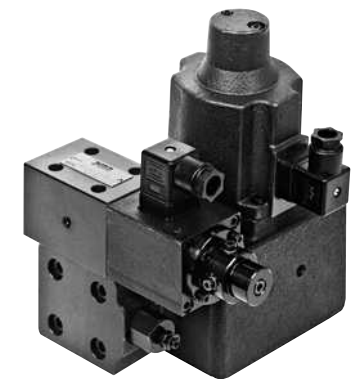
MOUNTING SURFACE & SCREW:

Model	L1	L2	L3	L4	L5	L6	L7	L8	B1	B2	D1	Mounting Bolt	Mounting Surface
EBG-10	93.5	53.8	22.1	27.7	22.1	47.5	0	89.3	78	53.8	14	M12 x 45 (4 pcs)	ISO 6264-AR-06-2-A
EBG-20	119	66.7	33.4	34.3	11.1	55.6	23.8	80	100	70	18	M16 x 50 (4 pcs)	ISO 6264-AS-08-2-A
EBG-30	149	88.9	44.5	41.5	12.7	76.2	31.8	70	115	82.6	20	M18 x 50 (4 pcs)	ISO 6264-AT-10-2-A

PROPORTIONAL ELECTRO-HYDRAULIC RELIEF & FLOW CONTROL VALVE

FEATURES :

- This valve can be used to shift the flow direction by depressing the spool with a cam.
- Can be applied to injection machine for safety control
- Resist high pressure
- Standard DIN, ISO, CETOP, NFPA interfaces.



Model: EFBG-03-125-C-10

SPECIFICATION :

Model	EFBG-03-125-*-10	EFBG-06-250-*-10	EFBG-10-500-*-10
Max Operating Pressure	250 Bar (3571 PSI)		
Max. Flow Rate	125 L/Min	250 L/Min	500 L/Min
Flow Control	Flow Rate	1~125 L/Min	2.5~250 L/Min
	Back Pressure	6 Bar {85.7PSI}	7 Bar {100PSI}
	Hysteresis	Below 7 %	Below 7 %
	Repeat ability	Below 1 %	Below 1 %
	AMPs	600 mA	580 mA
	Coil Resistance	43.5 Ω	43.5 Ω
Pressure Control	Pressure Range	C: 14~140 Bar	C: 15~140 Bar
		H: 14~210 Bar	H: 15~210 Bar
	Hysteresis	Below 3 %	Below 3 %
	Repeat ability	Below 1 %	Below 1 %
	AMPs	C: 800 mA	C: 700 mA
		H: 950 mA	H: 950 mA
	Coil Resistance	10 Ω	10 Ω
Mounting Bolts	M10 x 100L x 4 pcs	M16 x 130L x 4 pcs	M20 x 130L x 4 pcs
Approx. Weight	17 (15) kg	30 (28) kg	60 (58) kg

* () Stands for valve without EDG relief valve weight

ORDERING CODE :

EFB G - 03 - 125 - C - S - 10

1 2 3 4 5 6 7

1 PROPORTIONAL ELECTRO-HYDRAULIC RELIEF & FLOW CONTROL VALVE

2 SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

03: 3/8" 06: 3/4" 10: 1-1/4"

4 MAX. ADJUSTMENT FLOW

125: 125 L/Min 250: 250 L/Min 500: 500 L/Min

5 PRESSURE ADJ. RANGE

None: Without EDG

C: 140 Bar

H: 210 Bar

6 SAFETY VALVE

NONE: WITHOUT SAFETY VALVE

S: WITH SAFETY VALVE

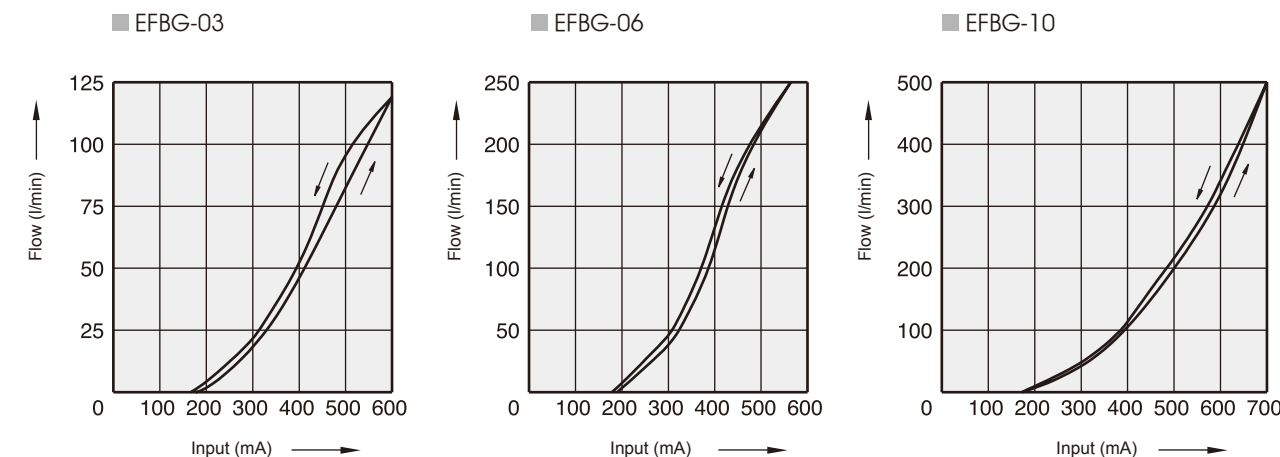
7 DESIGN NUMBER

PROPORTIONAL ELECTRO-HYDRAULIC RELIEF & FLOW CONTROL VALVE

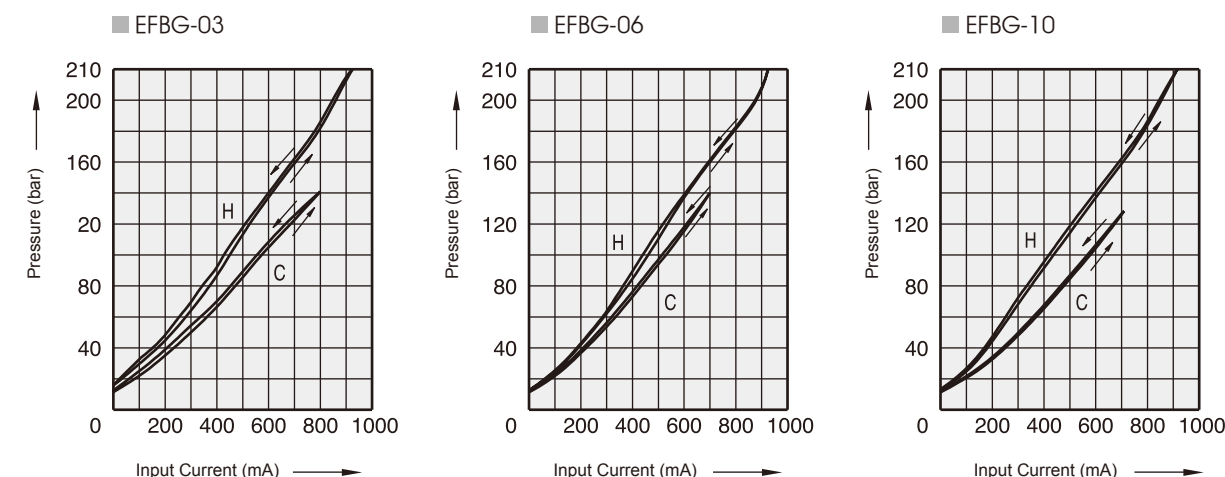
PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

INPUT CURRENT vs. FLOW

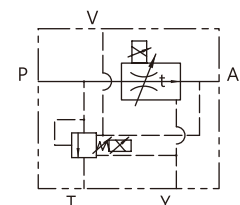


INPUT CURRENT vs. PRESSURE



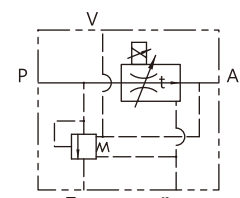
GRAPHIC SYMBOLS

WITH RELIEF VALVE



With Proportional Pilot Relief Valve

WITHOUT RELIEF VALVE



Without Proportional Pilot Relief Valve

INSTRUCTION :

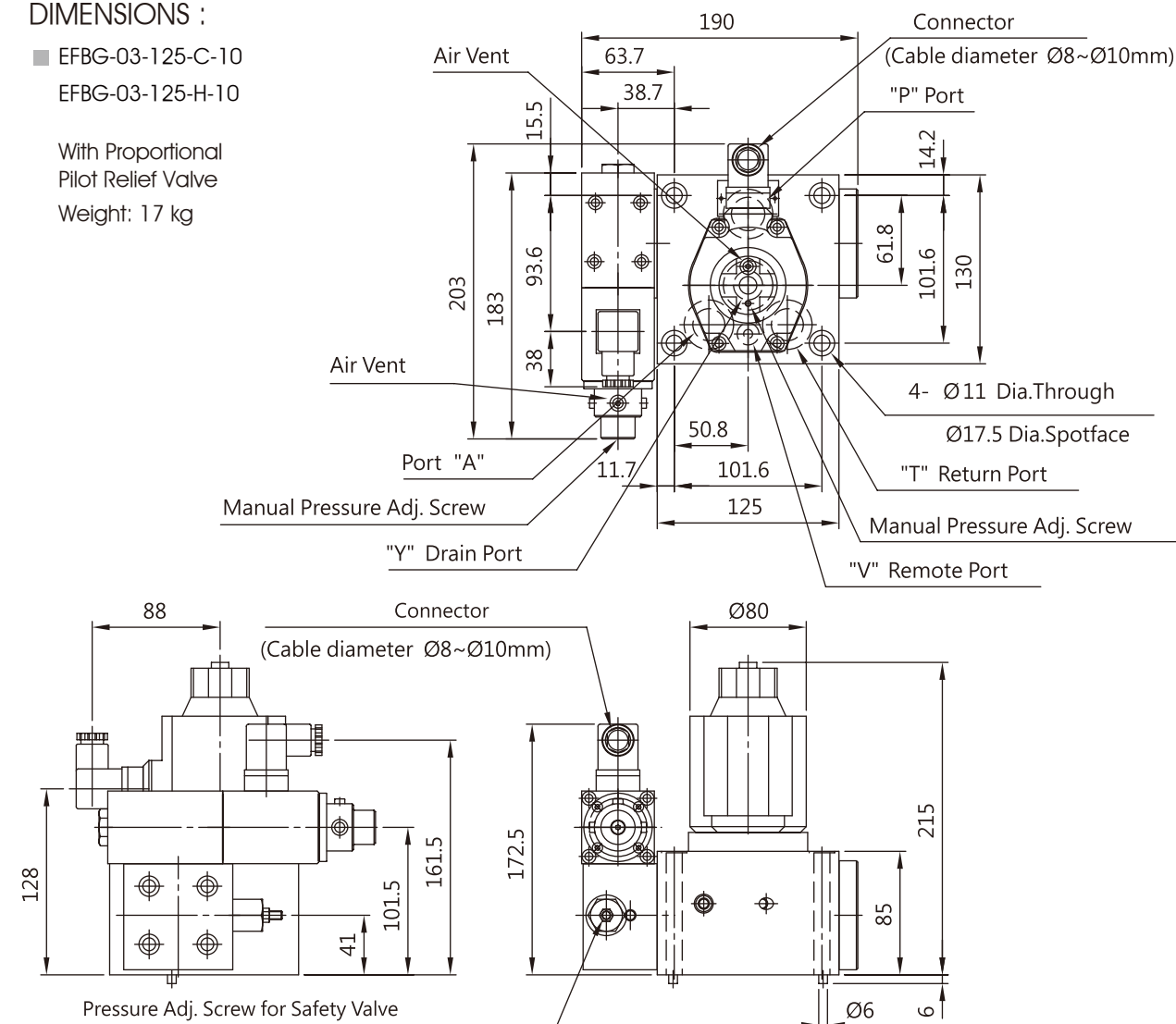
1. Mounting: Make sure the air vent face-up to keep proper & stable operation
2. Tank & drain pipe: the tank-line back pressure and drain back pressure directly affect the min. adj. pressure. Therefore, do not connect the tank or drain pipe to other lines, but connect them directly to the reservoir maintaining the back pressure as low as possible. Be sure that the tank and drain pipe are immersed in fluid. Do not use rubber pipe.
3. When initial adjustments are to be made or when no current supply to the valve due to electrical failure or other problems, turn the manual pressure adj. screw to set the valve pressure temporarily. Turn the manual pressure adj. screw clockwise, the valve pressure goes up. Under normal condition, the screw must keep in its original position.
4. Air Bleeding: to ensure the stable control, bleed the air from solenoid completely set the pressure to 20~40 Bars. Bleeding can be done by slowly loosening one of the air vent at the end of solenoid
5. Safety Valve: safety valve pressure = Max. working pressure + 20 Bars

PROPORTIONAL ELECTRO-HYDRAULIC RELIEF & FLOW CONTROL VALVE

DIMENSIONS :

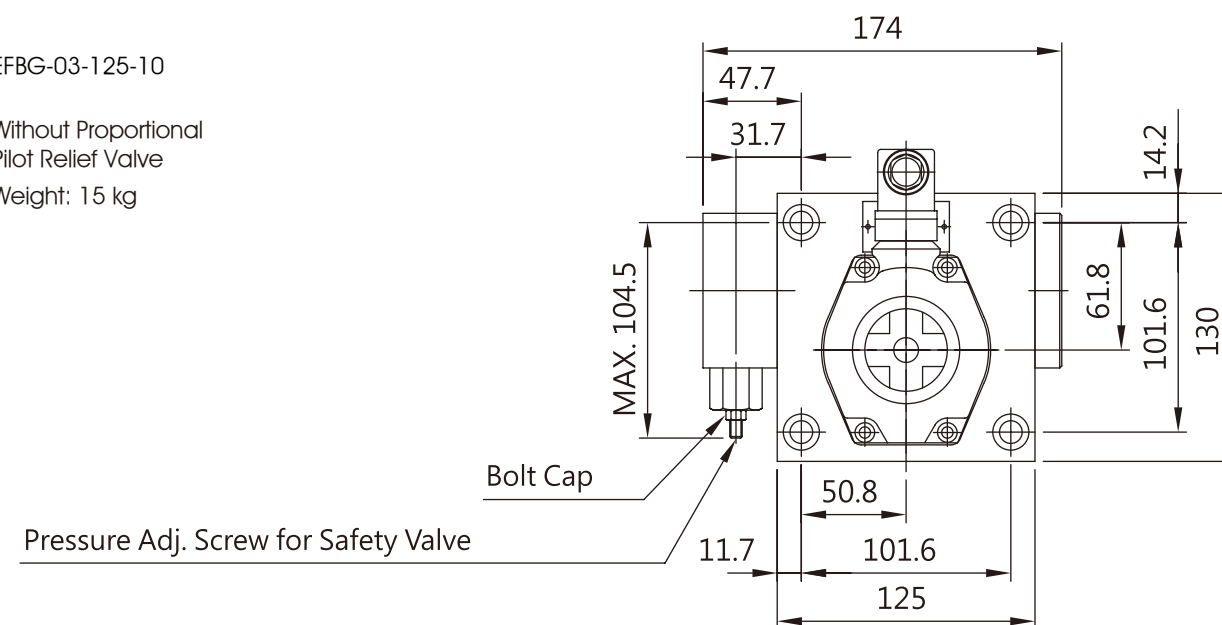
- EFBG-03-125-C-10
- EFBG-03-125-H-10

With Proportional Pilot Relief Valve
Weight: 17 kg



- EFBG-03-125-10

Without Proportional Pilot Relief Valve
Weight: 15 kg

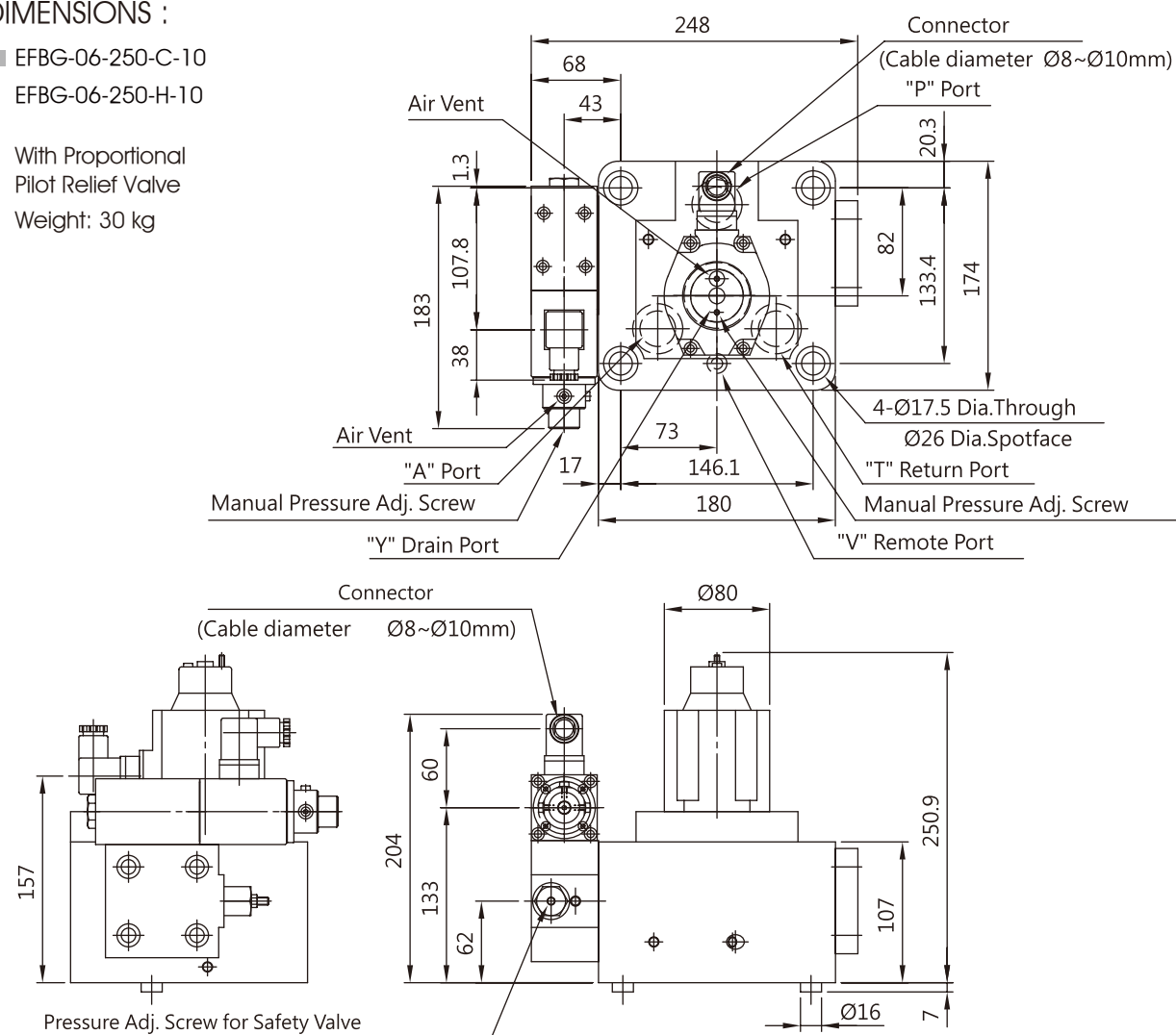


PROPORTIONAL ELECTRO-HYDRAULIC RELIEF & FLOW CONTROL VALVE

DIMENSIONS :

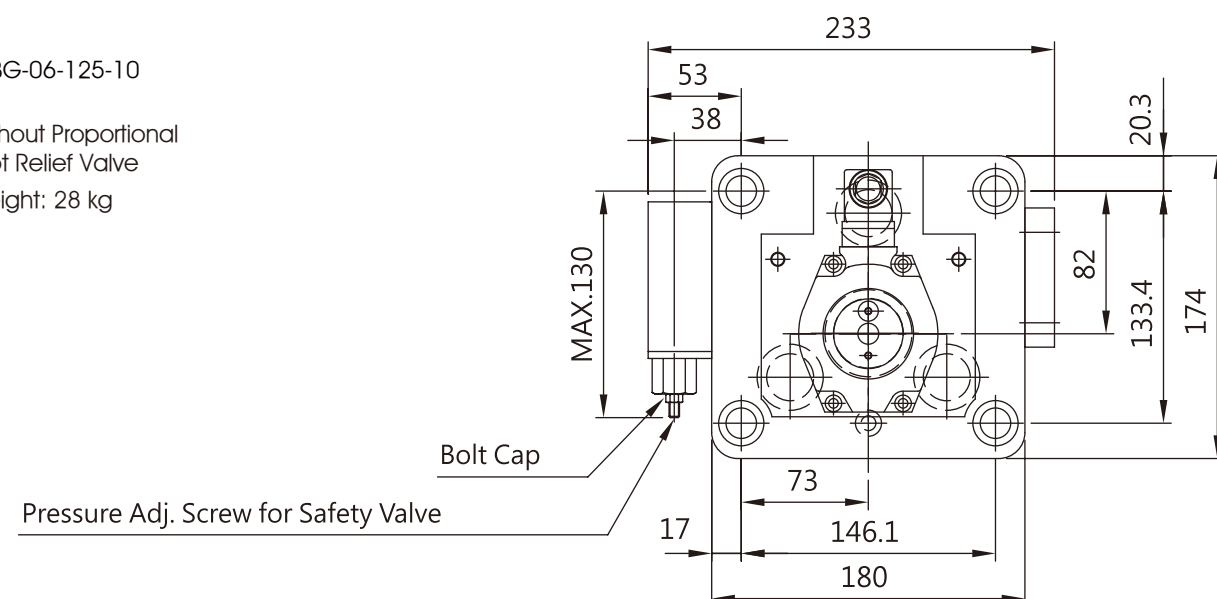
- EFBG-06-250-C-10
EFBG-06-250-H-10

With Proportional
Pilot Relief Valve
Weight: 30 kg



- EFBG-06-125-10

Without Proportional
Pilot Relief Valve
Weight: 28 kg

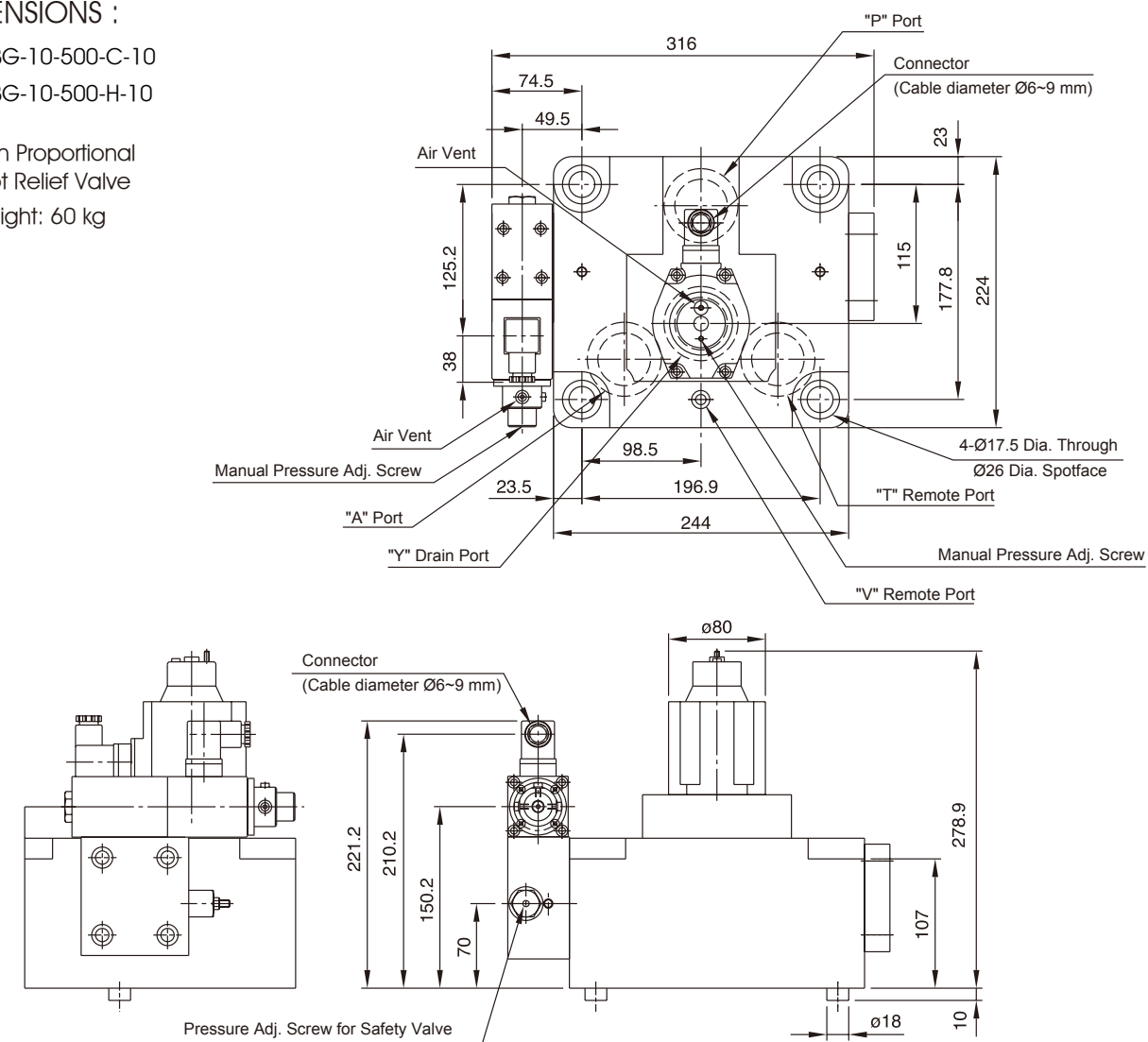


PROPORTIONAL ELECTRO-HYDRAULIC RELIEF & FLOW CONTROL VALVE

DIMENSIONS :

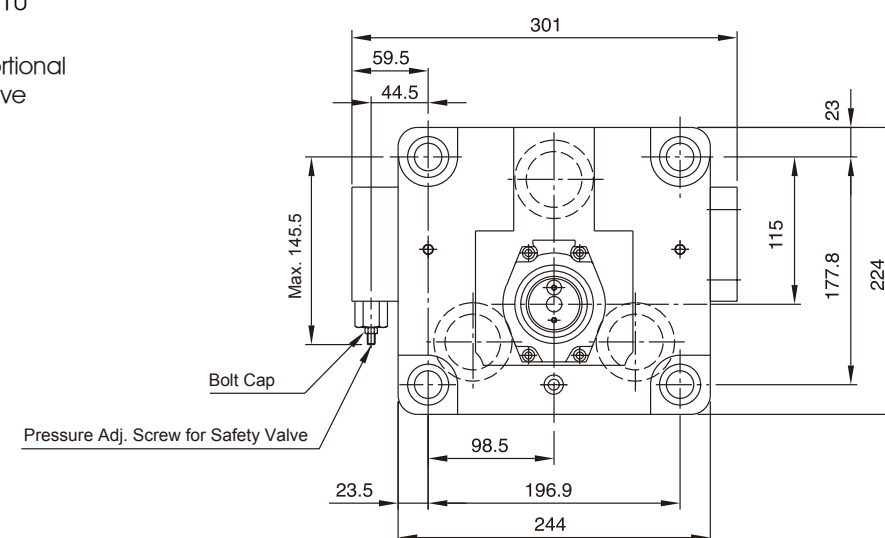
- EFBG-10-500-C-10
EFBG-10-500-H-10

With Proportional
Pilot Relief Valve
Weight: 60 kg



- EFBG-10-500-10

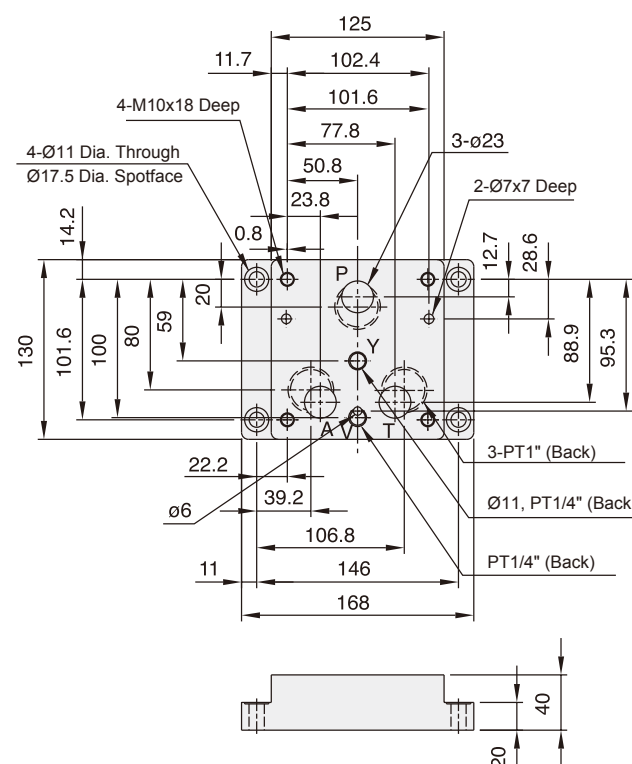
Without Proportional
Pilot Relief Valve
Weight: 58 kg



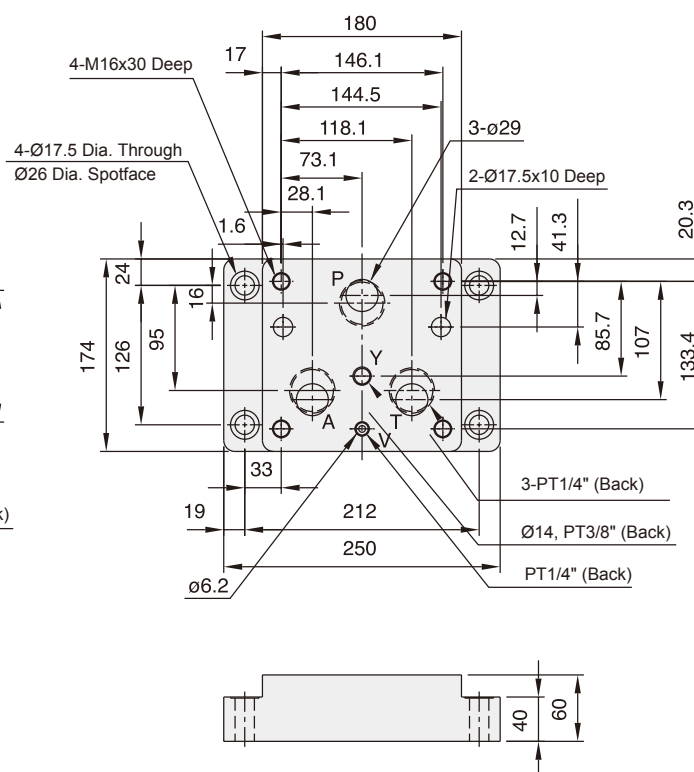
PROPORTIONAL ELECTRO-HYDRAULIC RELIEF & FLOW CONTROL VALVE

SUBNPLATE DIMENSIONS :

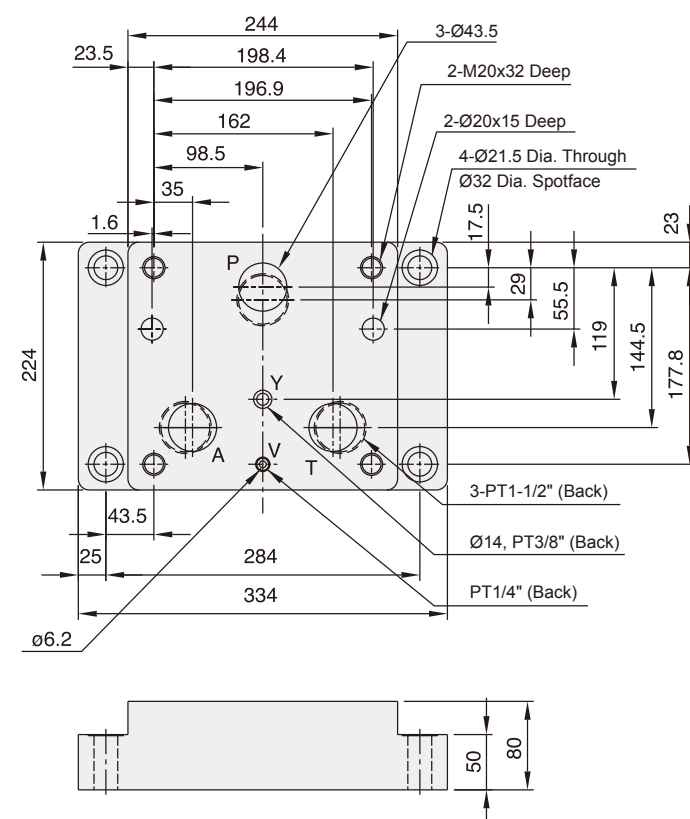
EFBGM-03-10



EFBGM-06-10



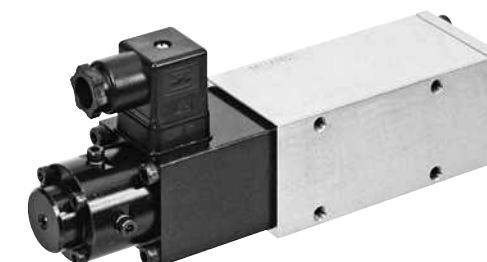
■ EFBGM-10-10



PROPORTIONAL FLOW CONTROL VALVE

FEATURES :

- Control the displacement of piston rod proportionally through an input current.
- Facilitate the throttle operation controlling the flow.
- Working with the power amplifier combines the electro-hydraulic feature.



Model: EFH-02-L-10

SPECIFICATION :

Max Operating Pressure	250 Bar (3571 PSI)
Max. Flow Rate	2 L/Min
Min. Flow Rate	0.3 L/Min
Rated Current	800 mA
Coil Resistance	20 Ω
Hysteresis	Below 3 %
Repeatability	Below 1 %
Approx. Weight	3.1 kg

ORDERING CODE :

EFH - 02 - L - 10

1 2 3 4

1 PROPORTIONAL FLOW CONTROL VALVE

2 NOMINAL VALVE SIZE

NG 6, CETOP 3 and ISO 4401-03 (NFPA-D03/DIN 24340)

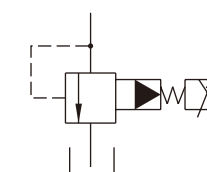
3 DISPLACEMENT ADJ. RANGE

L: 20 mm

4 DESIGN NUMBER

GRAPHIC SYMBOLS :

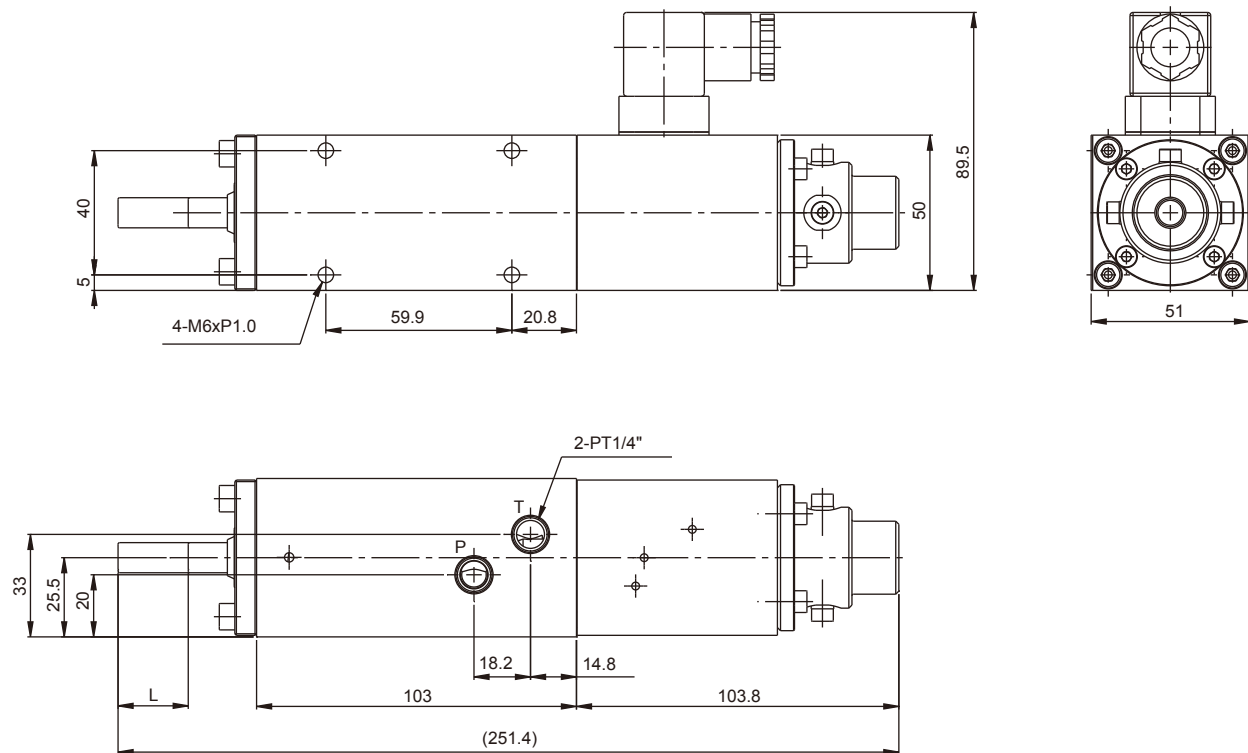
EFH-02-L-10



PROPORTIONAL FLOW CONTROL VALVE

DIMENSIONS :

■ EFH-02-L-10



INSTRUCTION :

1. Mounting: Be sure the air vent face up to keep the action properly.
2. Tank & drain piping: it has to be inset below the oil surface to reduce the back pressure. Don't use the rubber hose.
3. When initial adjustments are to be made or when no current is supplied to the valve due to electrical failure or other problems, turn the manual pressure adjustment screw to temporarily set the valve pressure. In that situation, turn the manual pressure adjustment screw clockwise, the valve pressure goes up. Under normal condition, this screw must be kept in its original position.
4. Air bleeding: to ensure stable control, bleed the air from solenoid completely, and set the pressure to 20~40 bars. Bleeding can be done by slowly loosening one of the air vents at the end of the solenoid.
5. Other setting parts can be inquired.

CARTRIDGE RELIEF VALVE

FEATURES :

- Cartridge relief valve are normally closed, pressure-limiting valves used to protect hydraulic components from pressure transients.
- The valves are smooth and quiet, essentially zero leak, dirtolerant, immune to silting.



Model: CRV-60-*-10

SPECIFICATION :

Model	CRV-60	CRVE-120
Max. Flow Rate	60 L/Min	120 L/Min
Fits Standard Cavity	T-11A	T-2A
Tightening Torque	45~50 Nm	60~65 Nm
Max. Limited Pressure	420 bar {6000 PSI}	
Max. Operating Pressure	340 bar {4850 PSI}	
Hydraulic Fluid Temperature	-15°C~+50°C	
Approx. Weight	0.2 kg	0.35 kg

ORDERING CODE :

CRV - 60 - A - 10

1 2 3 4

1 CARTRIDGE RELIEF VALVE

CRV: Flow Rate at 60 l/Min CRVE: Flow Rate at 120 l/Min

2 MAX. FLOW RATE

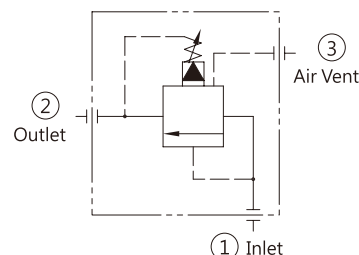
3 PRESSURE ADJ. RANGE

A: 7~210 Bar B: 3.5~105 Bar C: 10~420 Bar

4 DESIGN NUMBER

10: With handle 20: Without handle

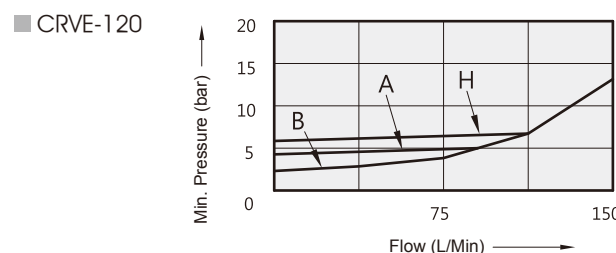
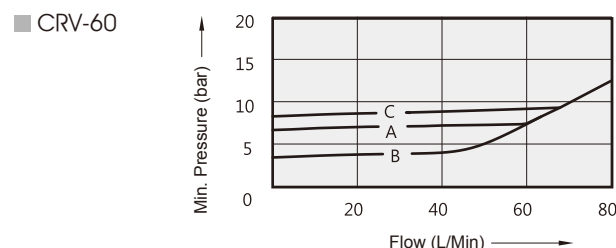
GRAPHIC SYMBOLS :



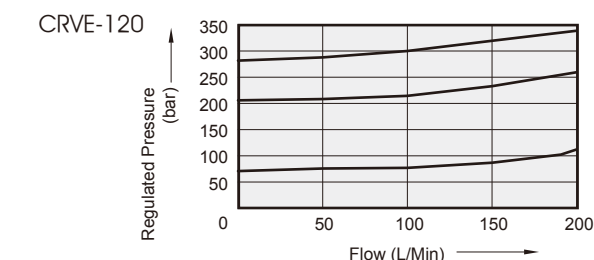
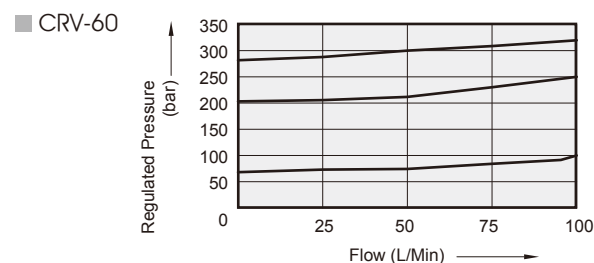
PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

REGULATED PRESSURE v.s. FLOW Minimum Pressure Versus Flow Diagrams



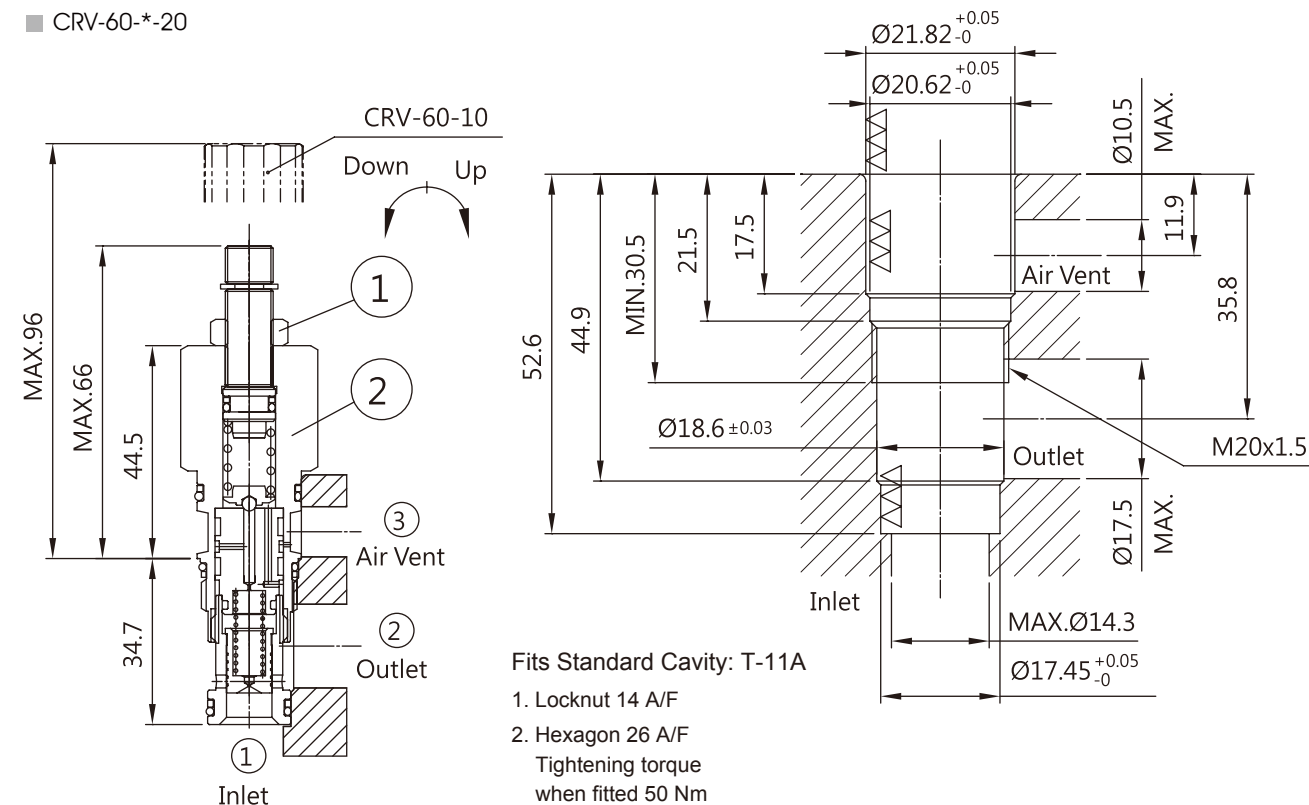
MIN. ADJ. PRESSURE v.s. FLOW RATE Regulated Pressure Versus Flow Diagrams



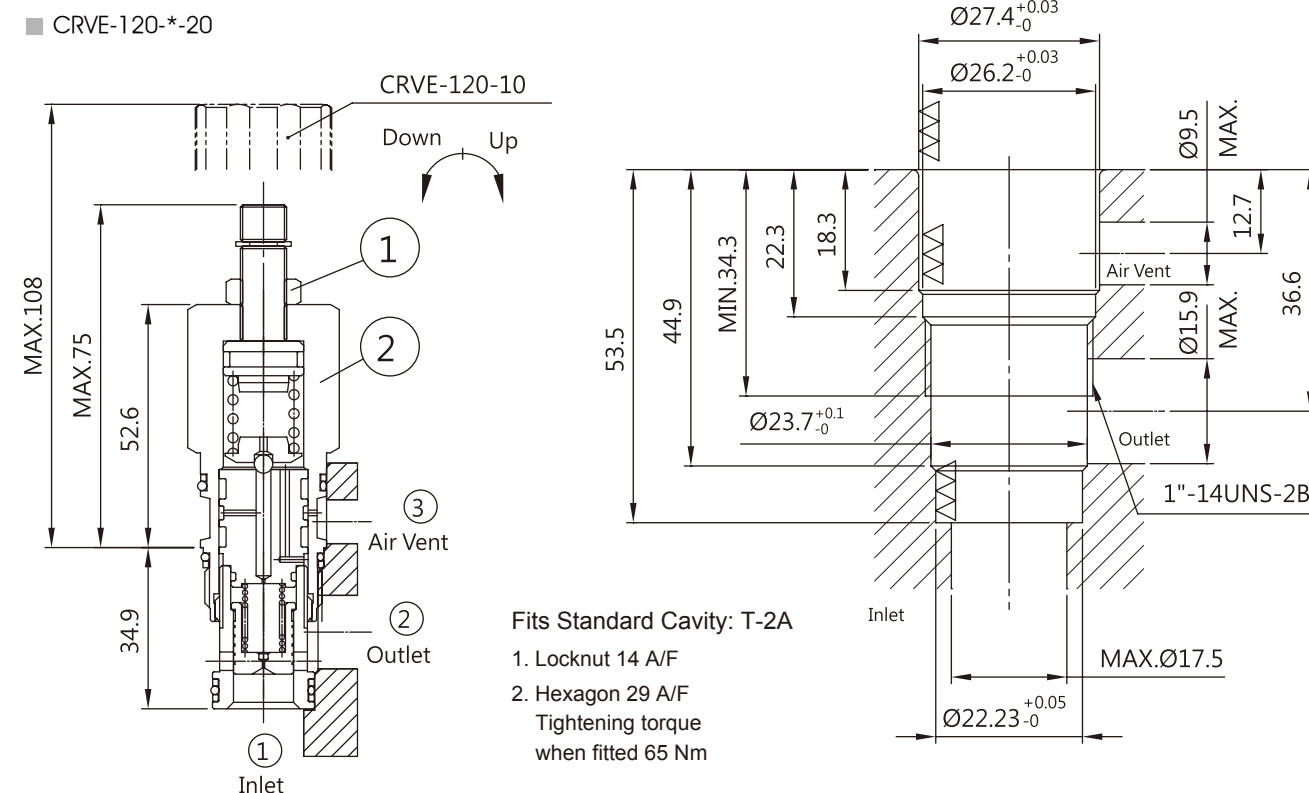
CARTRIDGE RELIEF VALVE

DIMENSIONS :

■ CRV-60-*-20



■ CRVE-120-*-20



CARTRIDGE COUNTER BALANCE VALVE

FEATURES :

- Counterbalance valves with pilot assist are meant to control an overrunning load
- Can be installed directly into a cavity machined in an actuator housing for added protection and improved stiffness in the circuit.



Model: CCB-60-*-10

SPECIFICATION :

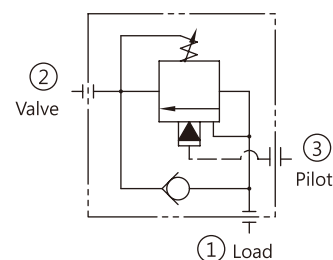
Model	CCB-60	CCBE-120
Max. Flow Rate	60 L/Min	120 L/Min
Fits Standard Cavity	T-11A	T-2A
Tightening Torque	45~50 Nm	60~65 Nm
Area Ratio	3 / 1 = 3	
Max. Limited Pressure	420 bar {6000 PSI}	
Max. Operating Pressure	340 bar {4850 PSI}	
Hydraulic Fluid Temperature	-15°C ~ +70°C	
Approx. Weight	0.23 kg	0.33 kg

ORDERING CODE :

CCB- 60 - B - 10

1 2 3 4

GRAPHIC SYMBOLS :



1 CARTRIDGE COUNTER BALANCE VALVE

CCB: Flow Rate at 60 L/Min CCBE: Flow Rate at 120 L/Min

2 MAX. FLOW RATE

3 PRESSURE ADJ. RANGE

H : 70~280 Bar (general type, cracking pressure 1.8 Bar)
 I : 30~105 Bar (general type, cracking pressure 1.8 Bar)
 A : 70~280 Bar (anti-pitting corrosion type, cracking pressure 0.3 Bar)
 B : 30~105 Bar (anti-pitting corrosion type, cracking pressure 0.3 Bar)

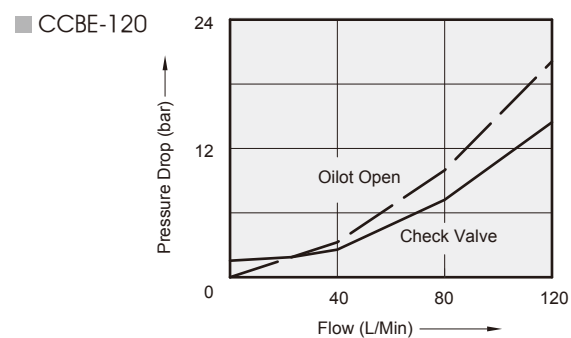
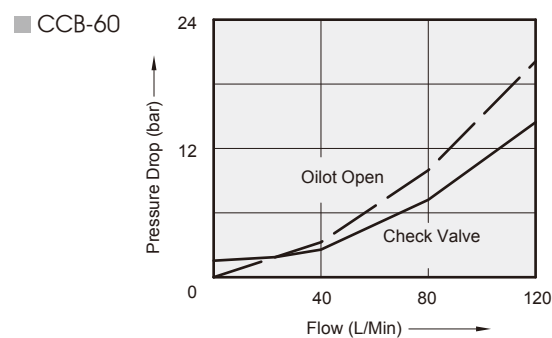
4 DESIGN NUMBER

10: With handle 20: Without handle

PERFORMANCE CURVES:

Viscosity of Hydraulic Fluid: 32 mm²/s

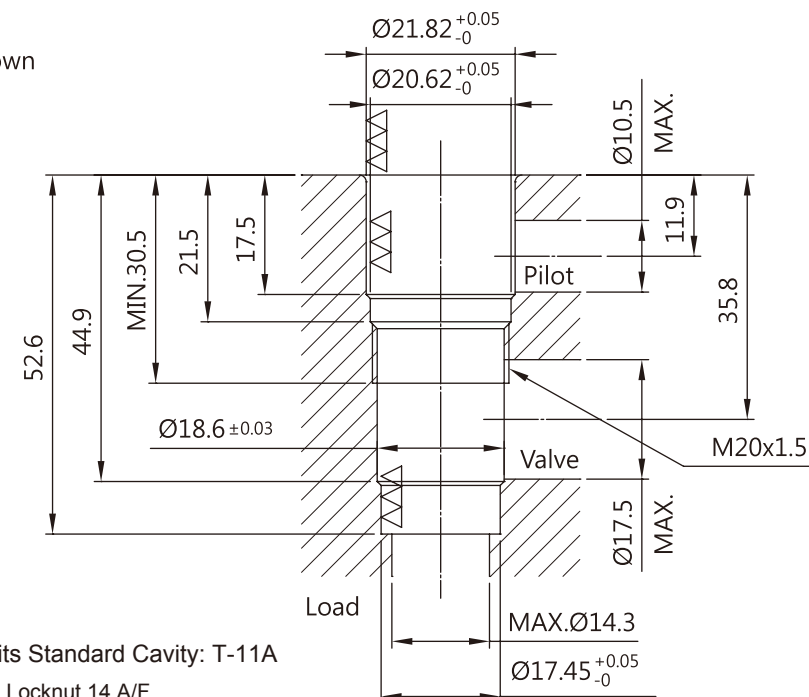
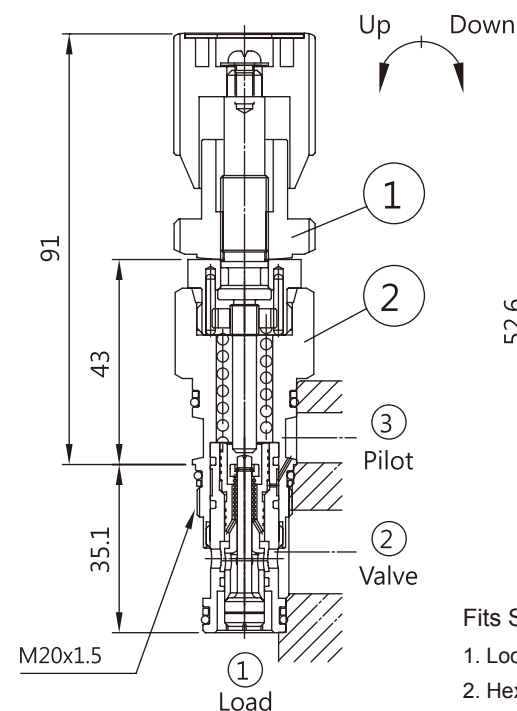
REGULATED PRESSURE v.s. FLOW



CARTRIDGE COUNTER BALANCE VALVE

DIMENSIONS :

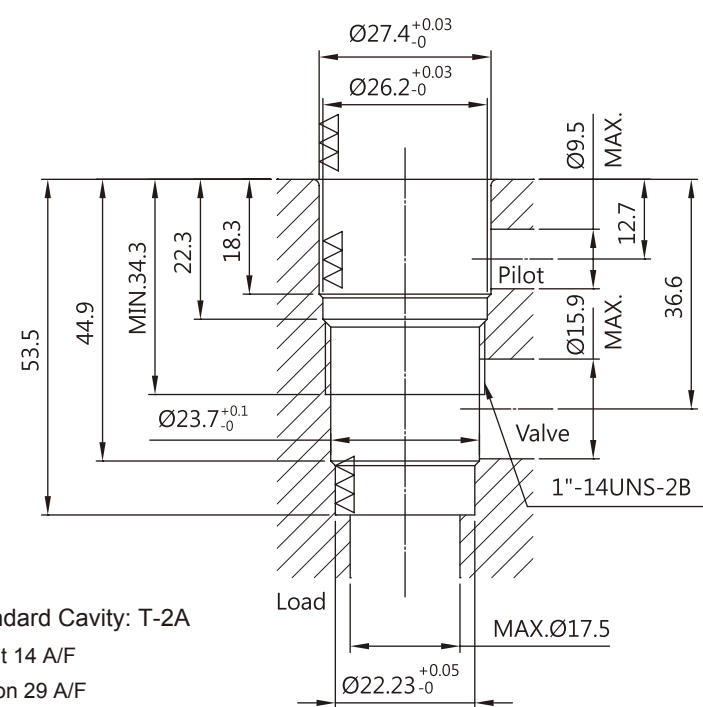
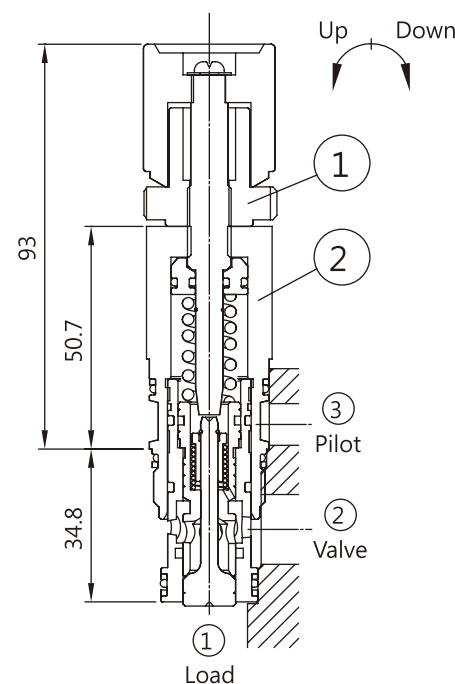
■ CCB-60*-10



Fits Standard Cavity: T-11A

1. Locknut 14 A/F
2. Hexagon 26 A/F
Tightening torque
when fitted 50 Nm

CCBE-120-* -10



Fits Standard Cavity: T-2A

1. Locknut 14 A/F
2. Hexagon 29 A/F
Tightening torque
when fitted 65 Nm

CARTRIDGE PILOT CHECK VALVE

FEATURES :

- This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented.
- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.



Model: CPC-60-*10

SPECIFICATION :

Model	CPC-60	CPCE-120
Max. Flow Rate	60 L/Min	120 L/Min
Fits Standard Cavity	T-11A	T-2A
Tightening Torque	45~50 Nm	60~65 Nm
Area Ratio	3 / 1 = 3	
Max. Limited Pressure	420 bar {6000 PSI}	
Max. Operating Pressure	340 bar {4850 PSI}	
Hydraulic Fluid Temperature	-15°C~+70°C	
Approx. Weight	0.14 kg	0.33 kg

ORDERING CODE :

CPC- 60 - C - 10

1 2 3 4

1 CARTRIDGE PILOT CHECK VALVE

CPC: Flow Rate at 60 L/Min CPCE: Flow Rate at 120 L/Min

2 MAX. FLOW RATE

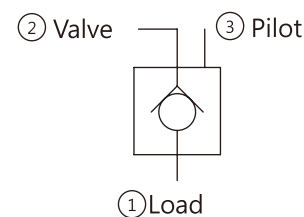
3 PRESSURE ADJ. RANGE

C: 2.0 Bar

E: 5.0 Bar

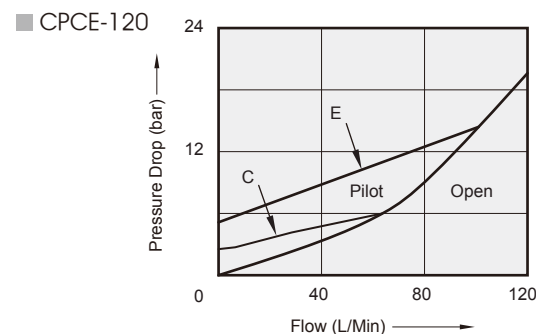
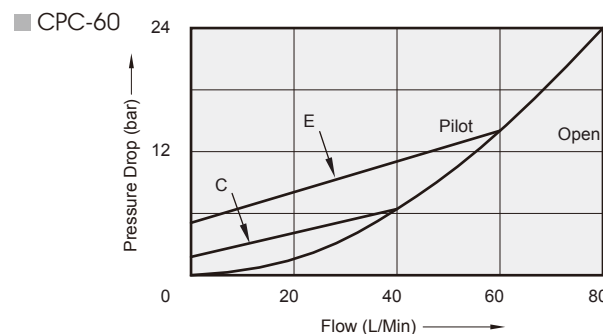
4 DESIGN NUMBER

GRAPHIC SYMBOLS :



PERFORMANCE CURVES:

Pressure Drop Characteristic

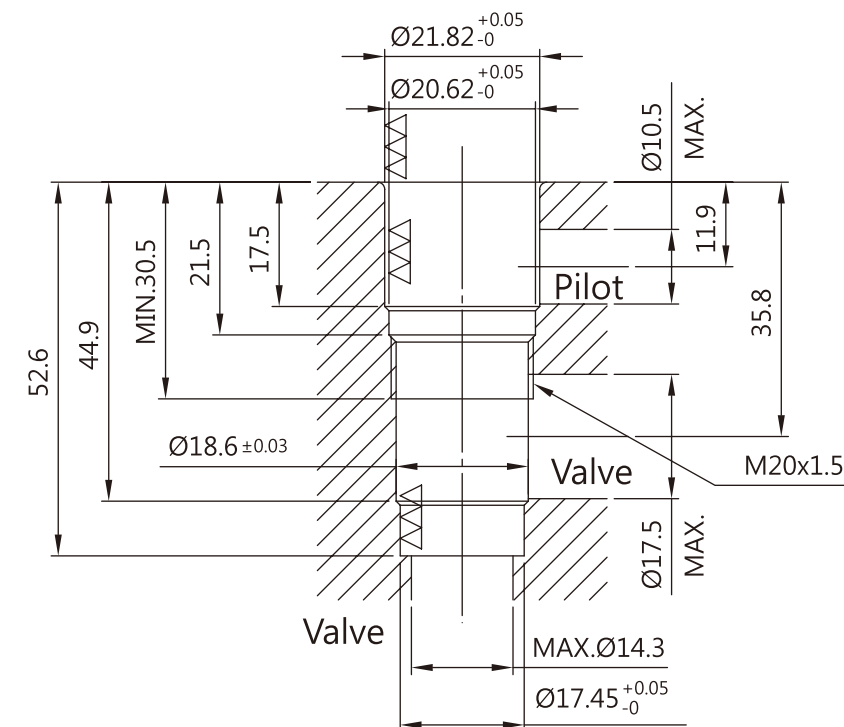
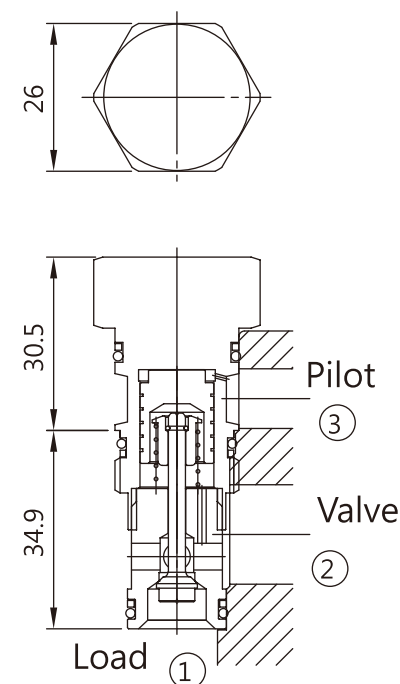


Viscosity of Hydraulic Fluid: 32 mm²/s

CARTRIDGE PILOT CHECK VALVE

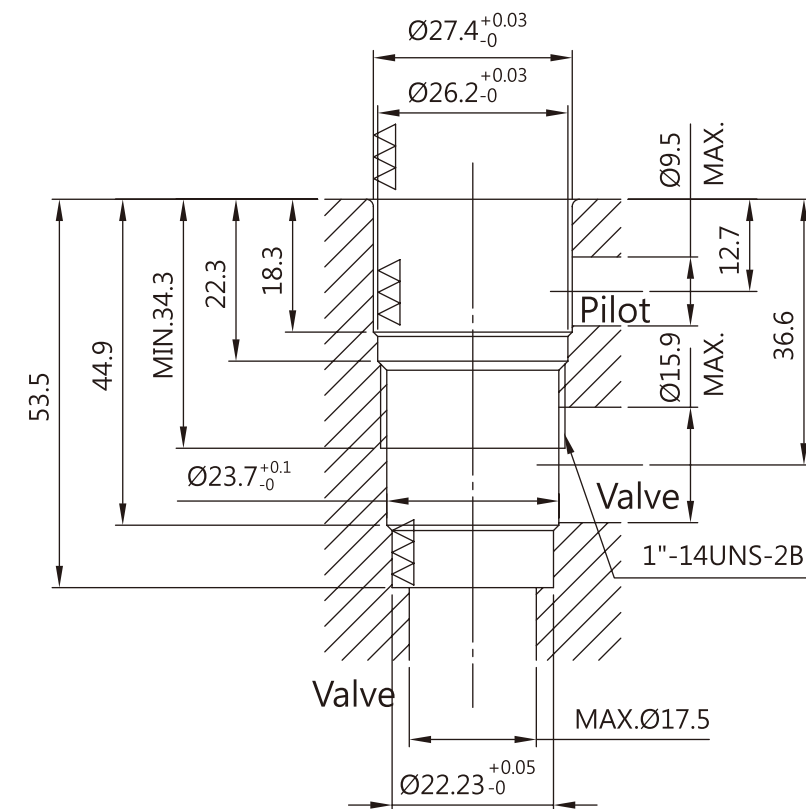
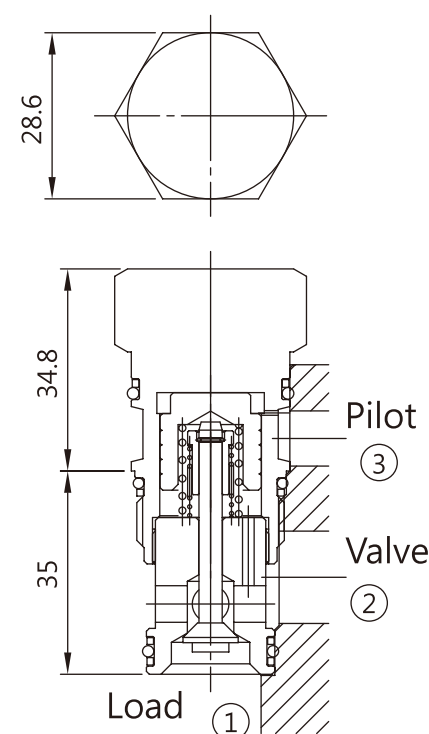
DIMENSIONS :

■ CPC-60-*10



Fits Standard Cavity: T-11A

■ CPCE-120-*10



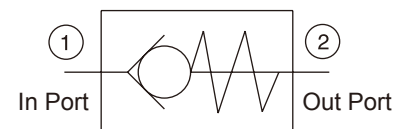
Fits Standard Cavity: T-2A

CARTRIDGE CHECK VALVE

SPECIFICATION :

Model	CCV-10
Max. Flow Rate	80 L/Min
Fits Standard Cavity	A3973
Tightening Torque	45~50Nm
Max. Limited Pressure	350 Bar (5000 PSI)
Hydraulic Fluid Temperature	-15°C~+70°C
Weight	0.14 kg

GRAPHIC SYMBOLS :



ORDERING CODE :

CCV - 10 - 1 - 10

1 2 3 4

1 CARTRIDGE CHECK VALVE

2 NOMINAL SIZE

3 CHECK VALVE CRACKING PRRESSURE

1: 0.4 Bar

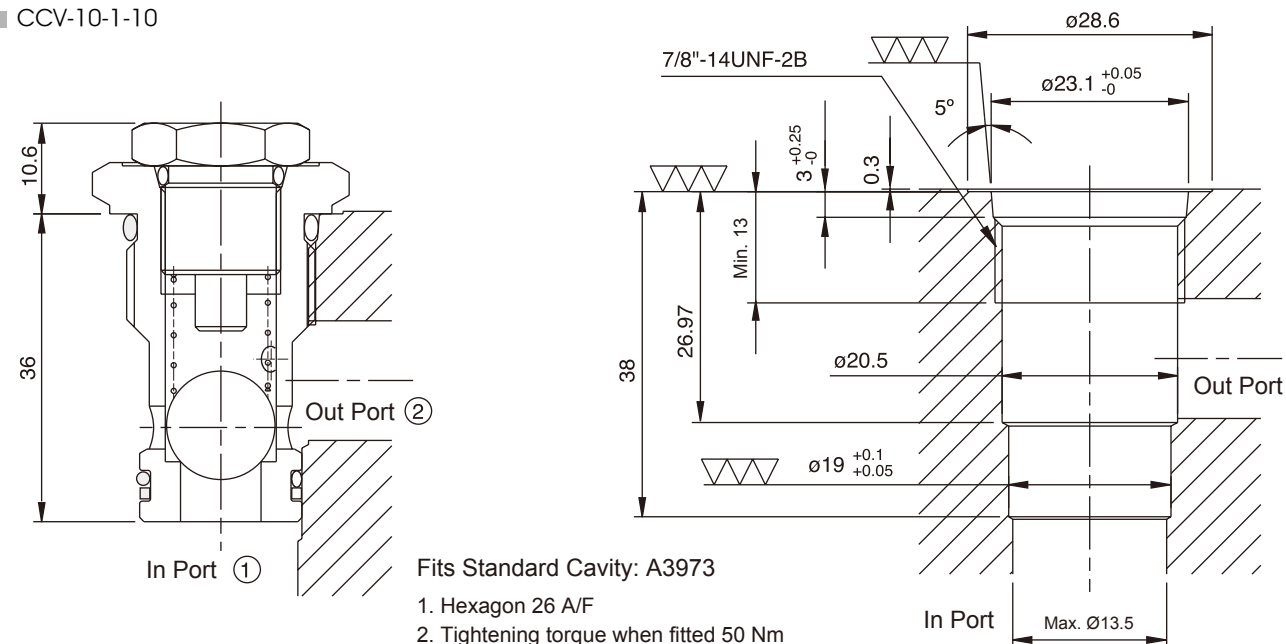
2: 3.5 Bar

3: 5.0 Bar

4 DESIGN NUMBER

DIMENSION:

CCV-10-1-10



Fits Standard Cavity: A3973

1. Hexagon 26 A/F
2. Tightening torque when fitted 50 Nm

CARTRIDGE RELIEF VALVE

SPECIFICATION :

Model	CRP-95
Max. Flow Rate	95 L/Min
Fits Standard Cavity	T-10A
Tightening Torque	45~50Nm
Max. Limited Pressure	420 Bar (6000 PSI)
Max. Operating Pressure	340 Bar (4850 PSI)
Hydraulic Fluid Temperature	-15°C~+70°C
Weight	0.2 kg

ORDERING CODE :

CRP - 95- A - 10

1 2 3 4

1 CARTRIDGE RELIEF VALVE

2 MAX. FLOW RATE (L/Min)

3 PRESSURE ADJ. RANGE

A : 7~210 Bar

B : 3.5~105 Bar

C: 10~420 Bar

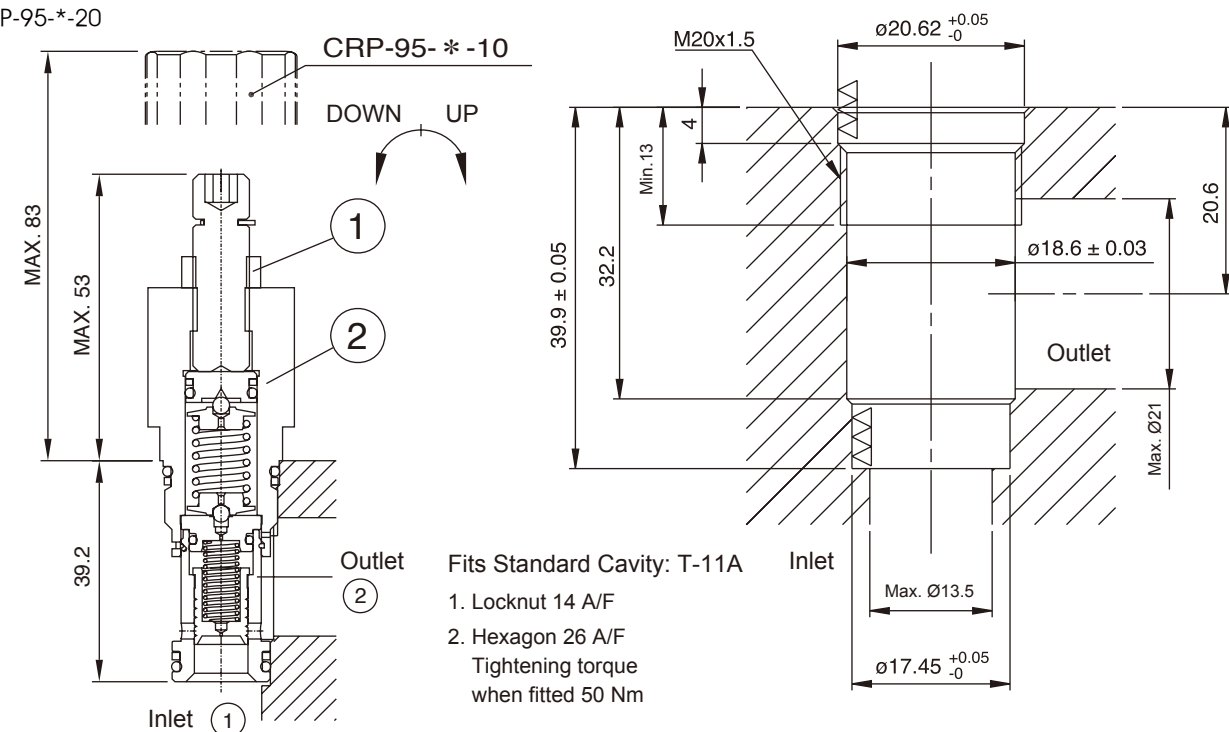
4 DESIGN NUMBER

10: with handle

20: without handle

DIMENSION:

■ CRP-95-* -20



Fits Standard Cavity: T-11A

1. Locknut 14 A/F
2. Hexagon 26 A/F
Tightening torque
when fitted 50 Nm

CYLINDRICAL GRINDER VALVE

SPECIFICATION :

Model	NTA-03
Max. Operating Pressure	70 Bar
Max. Flow Rate	30 L/Min
Piping Diameter	Rc 3/8"
Weight	15.6 kg

ORDERING CODE :

NTA - 03 - L - 10

1 2 3 4

1 CYLINDRICAL GRINDER VALVE

2 NOMINAL SIZE

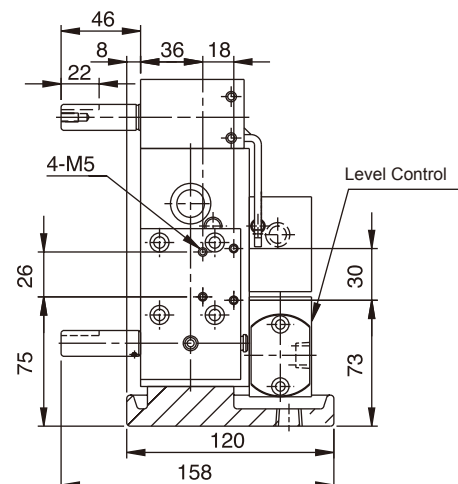
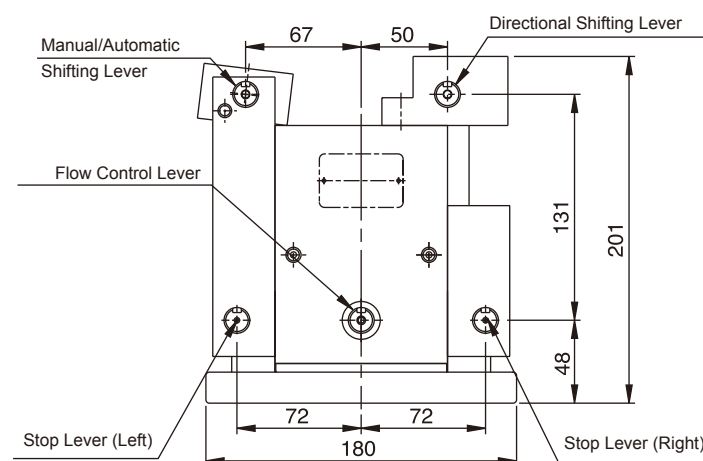
3 LEVEL CONTROL

No code: Without level control valve

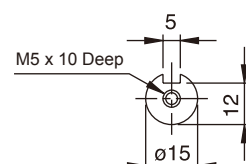
L: With level control valve

4 DESIGN NUMBER

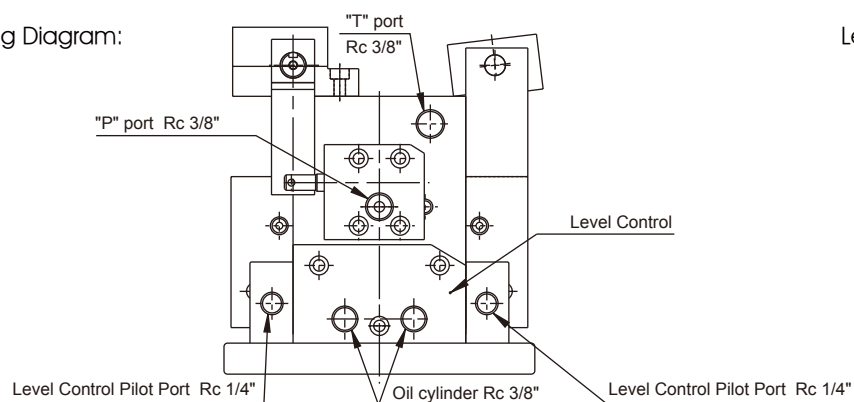
DIMENSION:



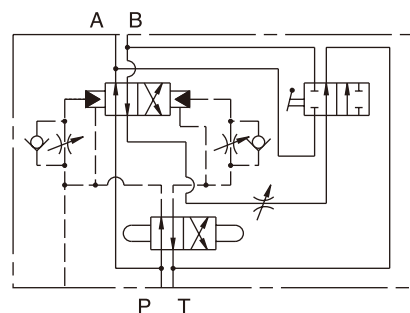
Lever Dimension:



Piping Diagram:



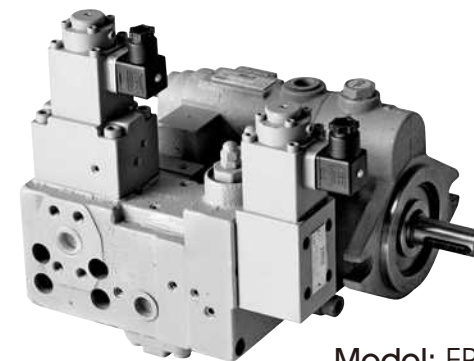
GRAPHIC SYMBOLS :



VARIABLE DISPLACEMENT PISTON PUMP

FEATURES :

- Combining the proportional valve attains the energy saving and simplify the piping arrangement.
- Low noise and high speed response.
- Efficient force feedback.



Model: EPZ-2B-36C-10

SPECIFICATION :

Model	Capacity cm ³ /rev	Max. Operating Pressure MPa(kgf/cm ²)	Flow Control Range L/Min	Pressure Control Range MPa(kgf/cm ²)	Turning Rate (min ⁻¹)		Weight kg
					Min.	Max.	
EPZ-2B-36H-10	36	21 (214)	1~63	2~21 (20.4~214)	500	2000	35
EPZ-2B-36C-10				2~14 (20.4~143)			
EPZ-2B-36B-10				2~7 (20.4~71.4)			
EPZ-2B-46H-10	46	21 (214)	1~80	2~21 (20.4~214)	500	2000	35
EPZ-2B-46C-10				2~14 (20.4~143)			
EPZ-2B-46B-10				2~7 (20.4~71.4)			

Pressure Control	Pressure Control Range	H: 2~21 MPa (20.4~214 kgf/cm ²) C: 2~14 MPa (20.4~143 kgf/cm ²) B: 2~7 MPa (20.4~71.4 kgf/cm ²)
	Rated Current	800 mA
	Coil Resistance	10 Ω (20°C)
	Hysteresis	3 %
Flow Control	Back Pressure	1 MPa (10 kgf/cm ²)
	Rated Current	800 mA
	Coil Resistance	10 Ω (20°C)
	Hysteresis	3 %

ORDERING CODE :

EPZ - 2 B - 36 B - 10

1 2 3 4 5 6

1 VARIABLE DISPLACEMENT PISTON PUMP

2 MANIFOLD OR SUBPLATE MOUNTING

3 NOMINAL VALVE SIZE:

A: Foot type B: Flange type

4 SPOOL TYPE

36: 36 cm³/rew

46: 46 cm³/rew

5 RATED CURRENT

B : 2~7 MPa (20.4~71.4 kgf/cm²)

C : 2~14 MPa (20.4~143 kgf/cm²)

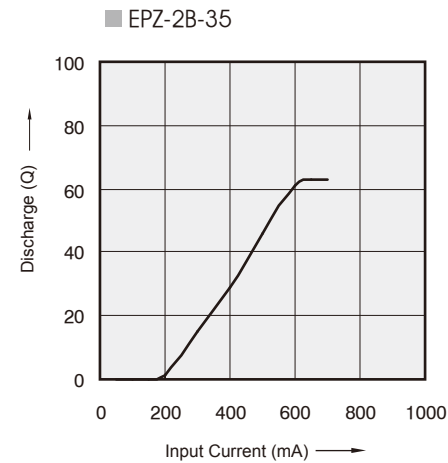
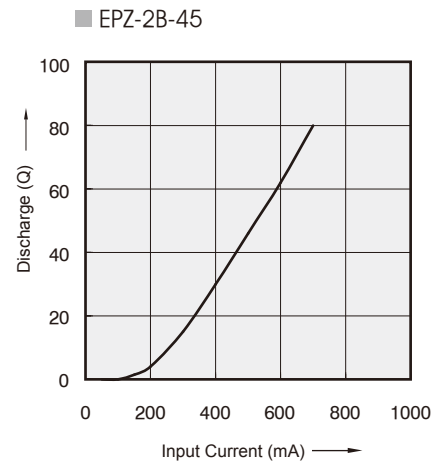
H : 2~21 MPa (20.4~214 kgf/cm²)

6 DESIGN NUMBER

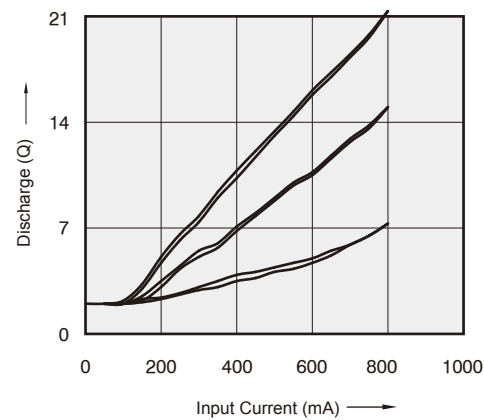
VARIABLE DISPLACEMENT PISTON PUMP

PERFORMANCE CURVES:

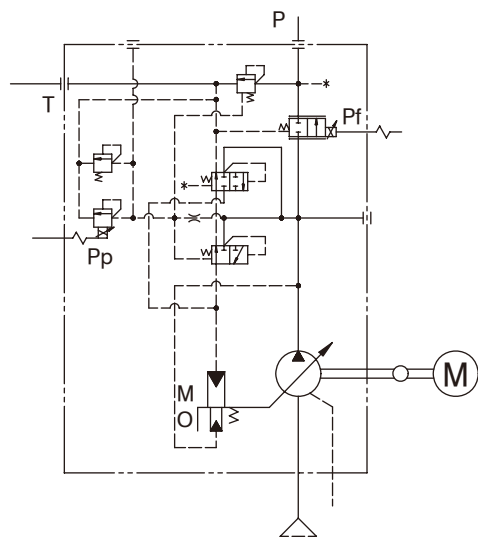
Input Current v.s. Discharge



Input Current v.s. Pressure



GRAPHIC SYMBOLS :

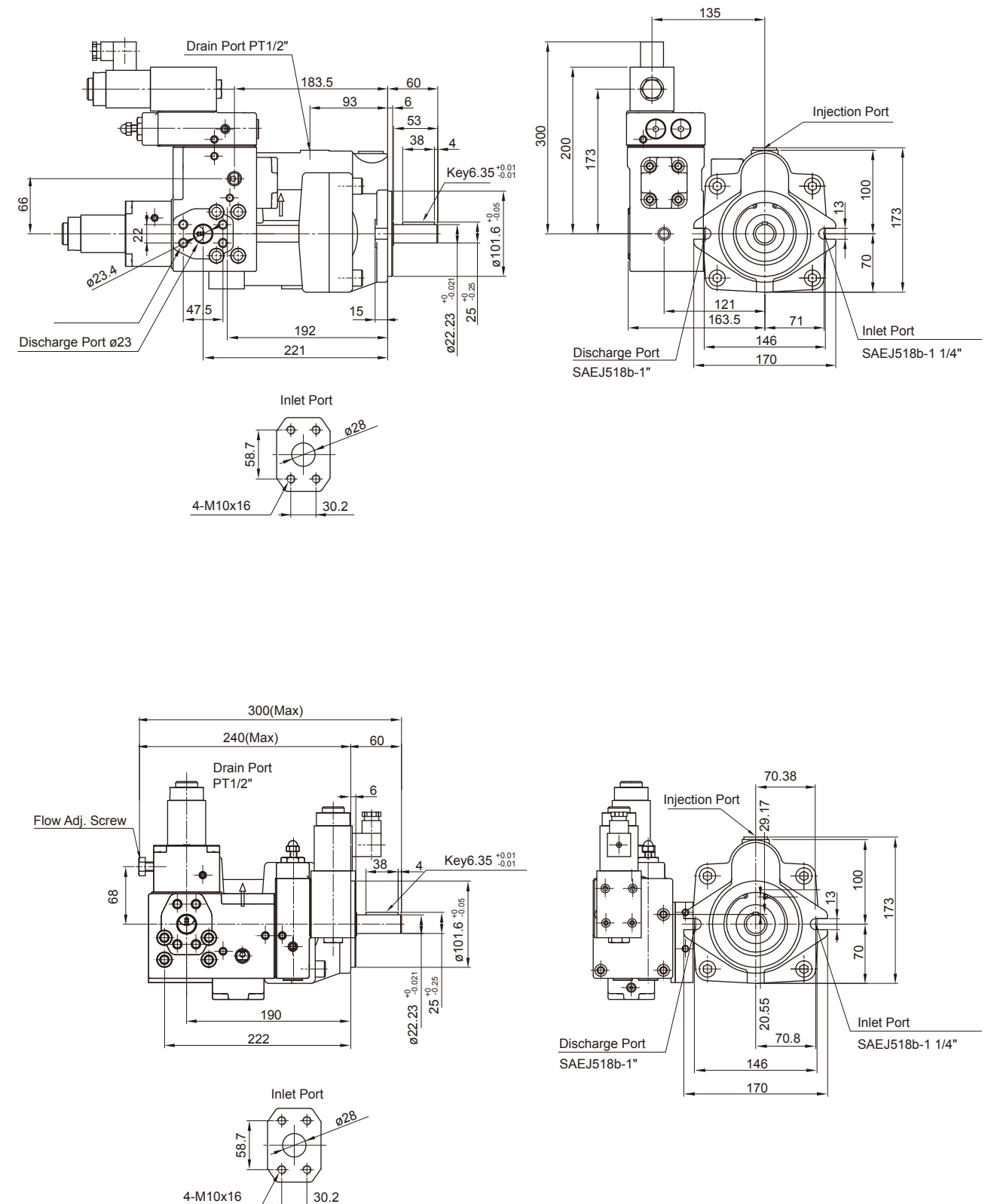


INSTRUCTION :

1. Before starting the pump, inject the clean hydraulic oil into it from the injection port.
2. Make sure the direction of pump rotation is same as that of the turning indicator.
3. As soon as the air comes into the pump and pipe, the noise and vibration will also come up. So before starting the pump, allow the pump to exhaust air through its outlet port under no-load condition.
4. Before using the pump, remove the screw of air vent to discharge the valve air. Then tighten the screw to ensure the stability of the pressure and flow.
5. In case of initial adjustment, breakdown, or no power input into the valve, the pump pressure and flow can be adjusted by means of manual screw. In normal condition, it is reset at the original point.

VARIABLE DISPLACEMENT PISTON PUMP

DIMENSIONS :



CONTROL VALVE

FEATURES :

- The inching valve could smooth the control of transmitter.
- The pressure accumulator could reduce the vibration and improve the movement of transmitter.
- Control valve is developed for the gear-box.
- Applied to engineering trucks with good control of the forward, backward and pausing movements.

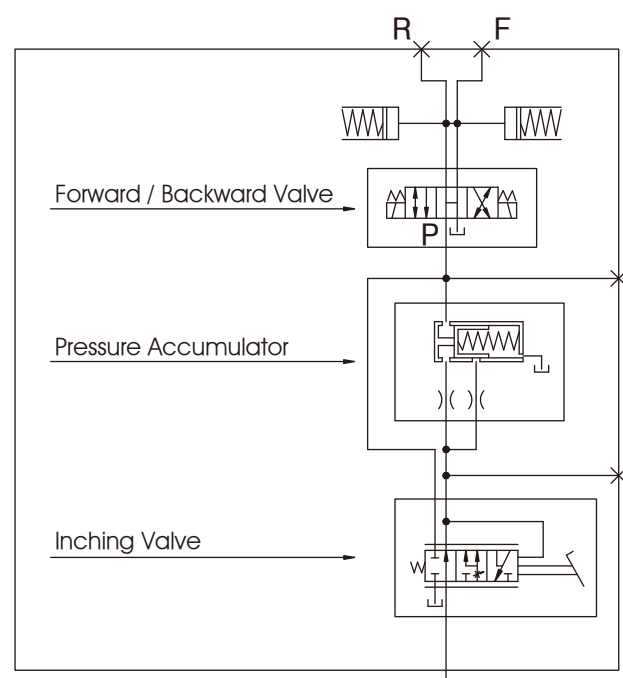


Model: FD20AE

SPECIFICATION :

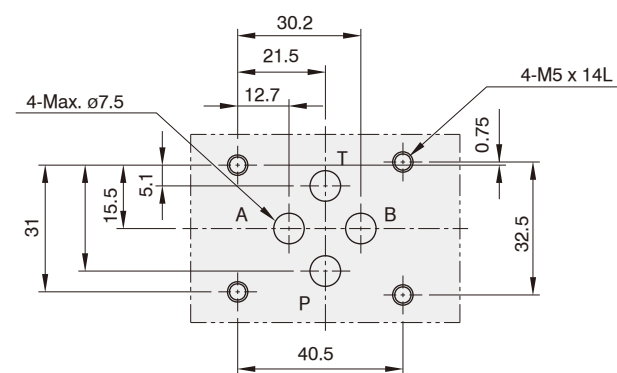
Max. Flow Rate	48 L/Min
Max Operating Pressure	11~13 Bar
Power Source	DC12 & DC24
Direction	Forward / Backward
Extra Subplate	

GRAPHIC SYMBOLS :



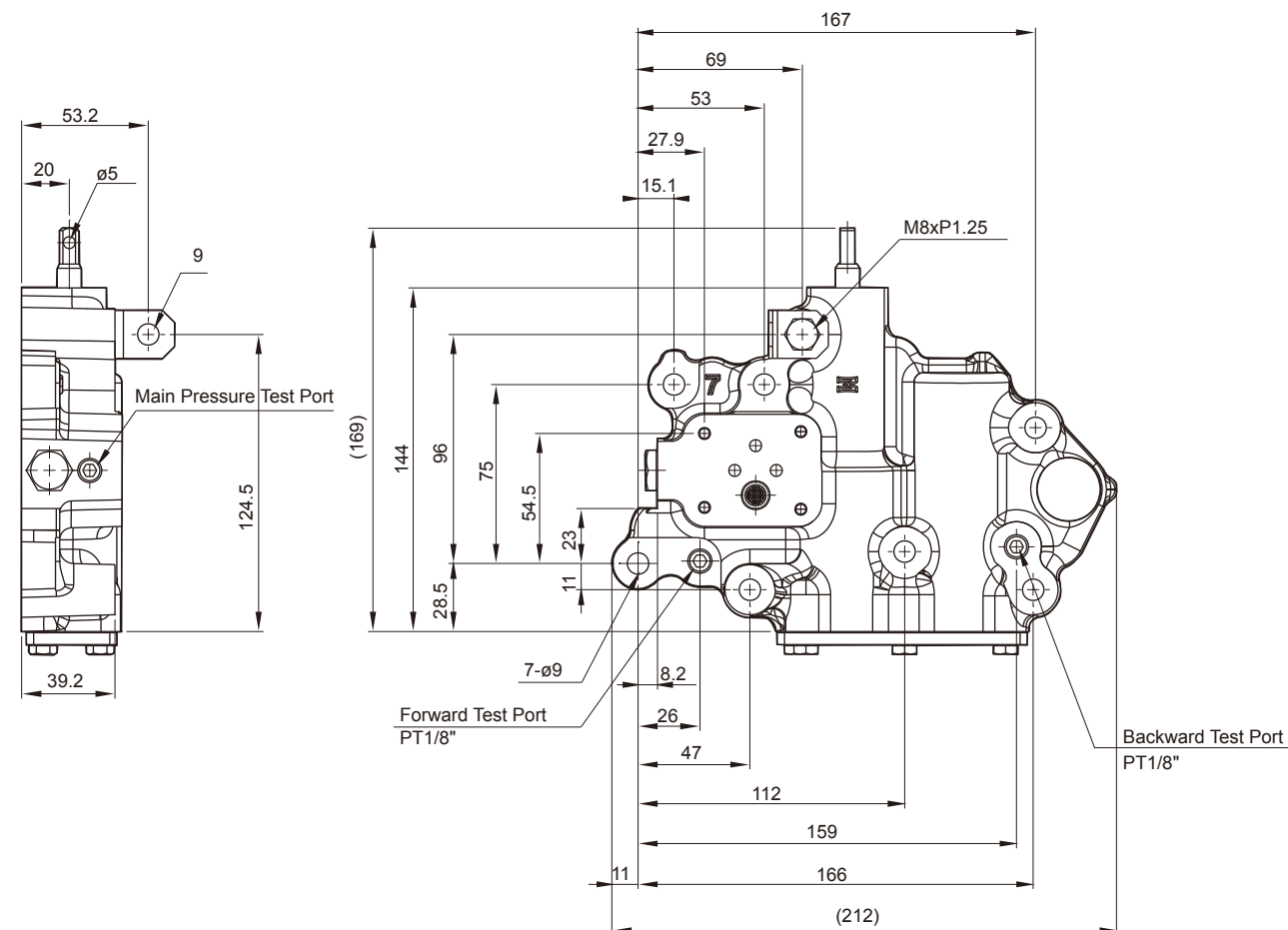
INSTALLATION DIMENSIONS:

Mounting Surface: ISO 4401-AB-03-4-A



CONTROL VALVE

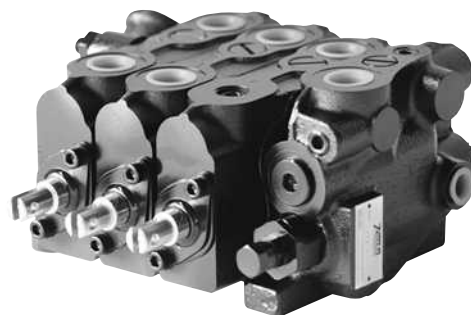
DIMENSIONS :



MULTI-WAY VALVE

FEATURES :

- According to customer's requirement, the parallel type manually operated direction control valve combination can be consisted of various units of multi-way valves for various functions.
- The multi-way valve is applicable for internal combustion forklift and battery powered forklift. Also, applicable for other engineering machinery depending on customer's requirement.
- The casting flow ways of the valve features low pressure loss. The valve body and spool are machined by CNC machines, featuring smooth motion of spool and dependable return to meet customer's requirement. Individual sale of flow distributing valve is available.

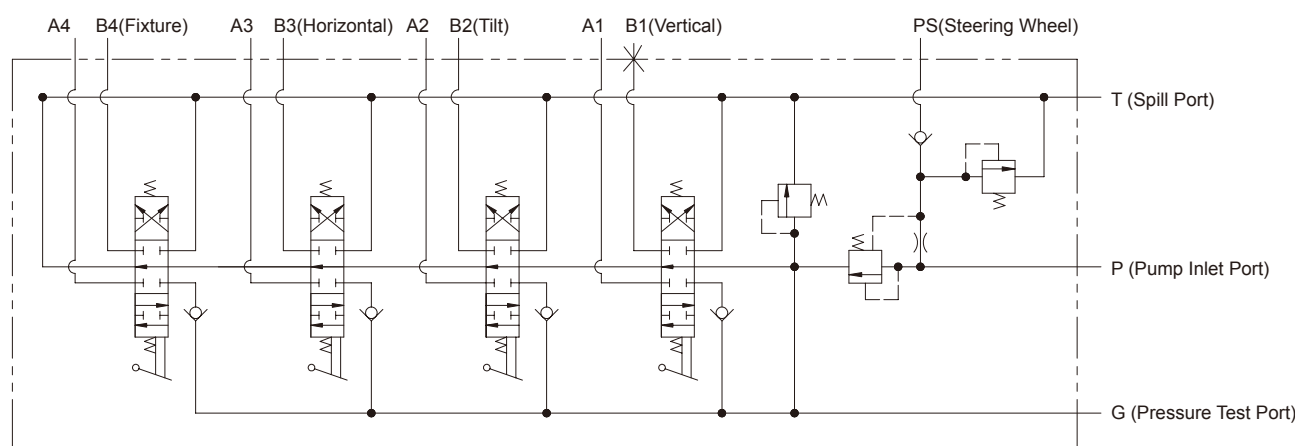


Model: STV-07

SPECIFICATION :

Model		STV-07
Rated Flow		70 L/Min
Number of Sections		1~4 (n)
Max Operating Pressure		20.6 MPa {210 kgf/cm ² }
Mass		3.4 kg + 3.2 n
Circuit		Parallel
Spool Thrust Force		194 N {19.8 kgf}
Spool Stroke		7 mm
Permissible Back Pressure		1.5 MPa {15 kgf/cm ² }
Standard Port	P Port	7/8-14 UNF
	A,B Port	G1/2

GRAPHIC SYMBOLS :



MULTI-WAY VALVE

ORDERING CODE :

STV - 07 - VTHG - 10 - 01
1 2 3 4 5

1 MULTI-WAY VALVE

2 NOMINAL VALVE SIZE

3 SECTIONS ARRANGEMENT:

VT: Vertical+Tilt
VTH: Vertical+Tilt+Horizontal
VTHG: Vertical+Tilt+Horizontal+Fixture

4 DESIGN NUMBER

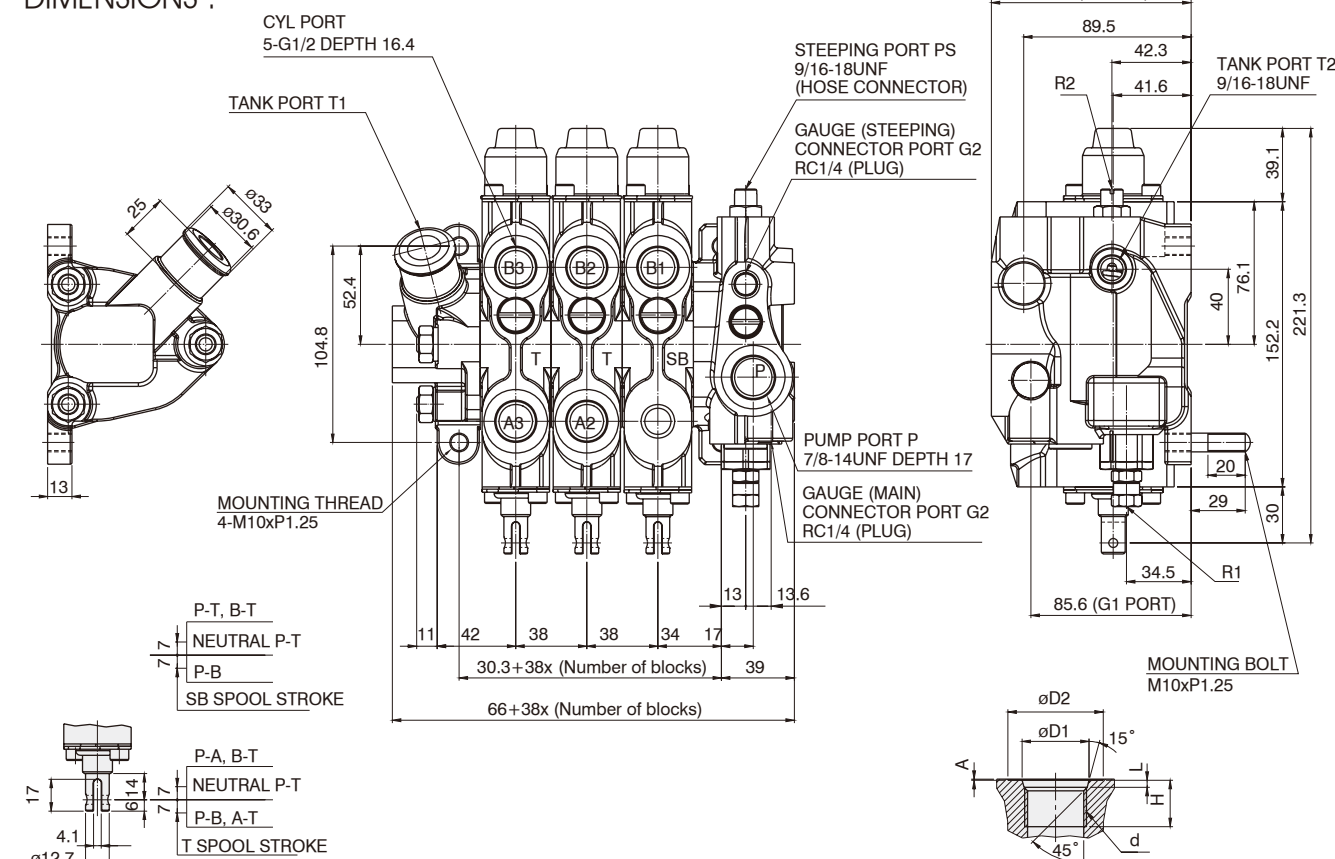
5 PRESSURE SET:

01: Safety Pressure 190 kgf/cm² ;
Steering Wheel Pressure 85 kgf/cm²

INSTRUCTION :

1. Check its pressure before using the multi-way valve to confirm the valve stem conforms to the system request.
2. Don't loosen or adjust the pressure of safety valve arbitrarily.
3. Don't remove the oil port plug to prevent the dirtiness.
4. L-HM32 GB7631.2-87 or its equivalent is recommended as the operating oil.
5. Appropriate oil temperature: 20~80°C.
6. The fastening bolts cannot be removed, tightened, or loosened arbitrarily to prevent valve jam and oil leakage.

DIMENSIONS :



SPOOL EXTENSION

d	D1	D2 ^{+0.1} ₀	A	L ^{+0.4} ₀	H
G 1/2	22.6	34	0.5	2.5	17
7/8-14UNF	23.9	34	0.4	2.5	17

Blank lined area for notes or specifications.