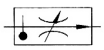
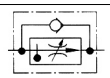
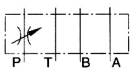
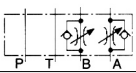
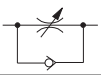
D

FLOW CONTROLS

Valve Type	KS Graphic Symbols	Maximum Operating Pressure MPa {kgf/cm²}	Maximum Flow L/min (1 2 3 5 10 20 30 50 100 200 300 500 1000 2000 3000 5000)	Page
Flow Control Valves		21{214}	01 02 03	D-3
Flow Control and Check Valves		21{214}	01 02 03	D-3
Restrictors		25{255}	03 06 (Rated flow)★	D-10
One Way Restrictors		25{255}	03 06 (Rated flow)★	D-14
Throttle Modules		25{255}	01 03	D-18
Throttle & Check Modules		25{255}	01 03	D-18
Needle Valves		35{357}	02	D-22
Flow Control and Check Valves		21{214}	400 600 800 1200 1600 2000	D-24

★Rated flow stands for approximate flow rate when the pressure drop between inlet and outlet ports of the valve in fully opened condition becomes 0.3MPa{kgf/cm²} maximum at fluid's specific gravity of 0.85 and kinematic viscosity of 20㎟/s(98SSU).

Hydraulic Fluid

1.Fluid Types

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

Types of fluids	Specifications
Petroleum base oils	Use fluids equivalent to ISO VG32 or VG46.
Synthetic fluids	Use phosphate ester or polyol ester fluid.When phosphate ester fluid is used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.
Water containing fluids	Use water-glycol fluid.

Note: For use with hydtaulic fluids other than those listed above, please consult your SEWON representatives in advande.
Water in oil emulsion type fluids can be used for restrictors and one way restrictors.

2.Recommended Viscosity and Oil Temperatures

Use hydraulic fluids which satisfy the recommended viscosity and oil temperatures given below.

Name	Viscosity	Temperature
Flow Control Valves Flow Control and Check Valves	20~200mm²/s{cSt}	-15℃~+70℃
Restrictors One Way Restrictors Throttle Modules Throttle and Check Modules Needle Valves	15~400mm²/s{cSt}	

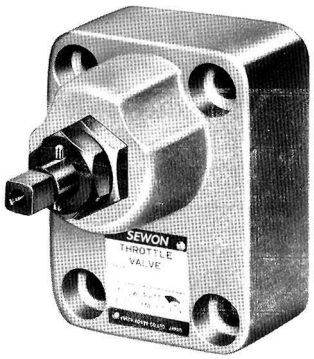
3.Control of Contamination

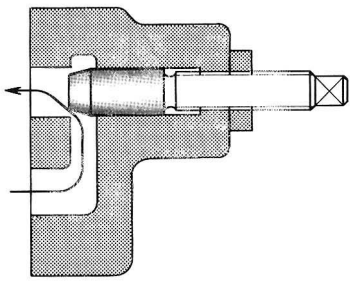
Due caution must be paid to maintaining control over contamination of the hydraulic fluids which may otherwise lead to breakdowns and shorten the life of the valves. Please maintain the degree of contamination within NAS 1638-Grade12. Use 25μm or finer line filter.

Restrictors

Throttle Valves

This valve is used to regulate an actuator speed in a circuit where line pressure is almost steady and small fluctuation of oil flow due to pressure changes is permitted.





Ratings

Model Numbers		Rated Flow★ L/min	Max.Operating Pres. MPa{kgf/cm²}	Approx. Mass kg	
Threaded Connection	Sub-plate Mounting			SRTtype	SRG type
SRT-03-※-4101	SRG-03-※-4101	30	21{214}	1.1	1.2
SRT-06-※-4101	SRG-06-※-4101	80		2.3	2.4

★Rated flow stands for approximate flow rate when the pressure drop between inlet and outlet ports of the valve in fully opened condition becomes 0.3MPa {3.1kgf/cm²} maximum at fluid's specific gravity of 0.85 and kinematic viscosity of 20㎟/s

Model Number Designation

SR	T	-03	-H	-4101
Series Number	Type of Mounting	Valve Size	Pressuer Using Range	Design Number
SR: Restrictor	T:Threaded Connection	03	H:Pressure Difference 5~21MPa {51~214kgf/cm²} L:Pressure Difference 0.5~5MPa {5~51kgf/cm²}	4101 (Attach the Handle)
		06		
	G: Sub-plate Mounting	03		
		06		

KS Grahic Symbols

Attachment

Mounting Bolts

Valve Model Numbers	Socket Head Cap Screw	Qty.
SRG-03	M8×35L	4
SRG-06	M10×45L	4

Instructions

Flow Adjustment

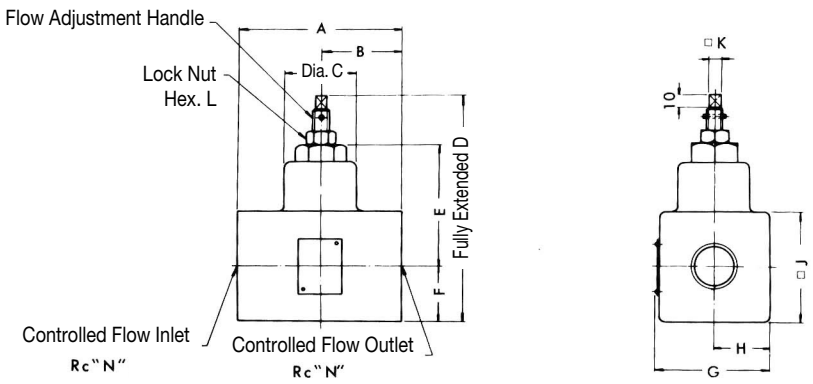
Slacken the lock nut and turn the flow adjustment handle anti-clockwise to throttle flow. After achieving satisfactory performance tighten the lock nut.

Sub-Plate

Valve Model Numbers	Sub-plate Model Numbers	Thread Size Rc	Approx. Mass kg
SRG-03	SRGM-03-40	Rc 3/8	1.2
SRG-06	SRGM-06-40	Rc 3/4	2.5

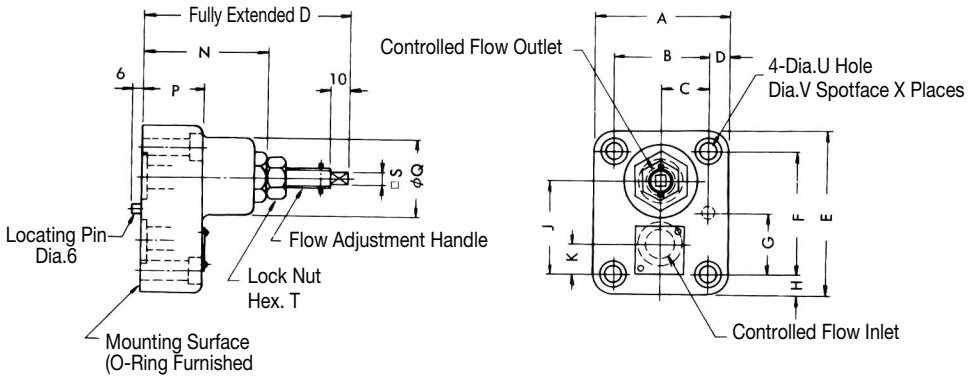
● Sub-plates are available. Specify the sub-plate model number from the left table. When sub-plates are not used, the mounting surface should have a good machined finish.

SRT-03,06



Model Numbers	A	B	C	D	E	F	G	H	J	K	L	N
SRT-03	70	35	40	116	54	23	42	20	40	8	19	3/8
SRT-06	100	50	40	136.5	62	30	62	30	60	8	19	3/4

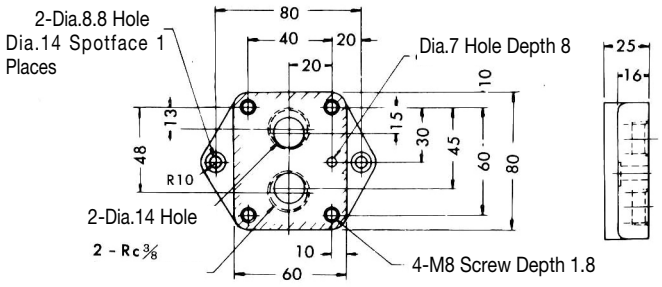
SRG-03,06



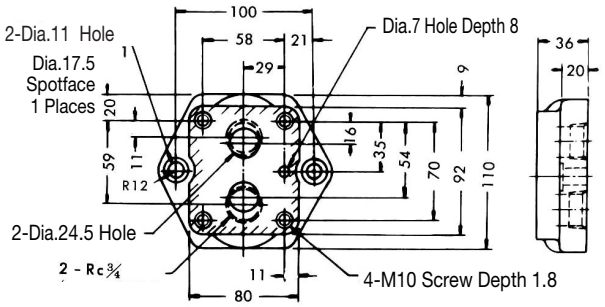
Model Numbers	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	S	T	U	V	X
SRG-03	60	40	20	10	80	60	30	10	45	15	100	61	30	40	8	19	8.8	14	8.6
SRG-06	80	58	29	11	92	70	35	11	54	16	117.5	73	42	40	8	19	11	17.5	10.8

Sub Plate

SRGM-03

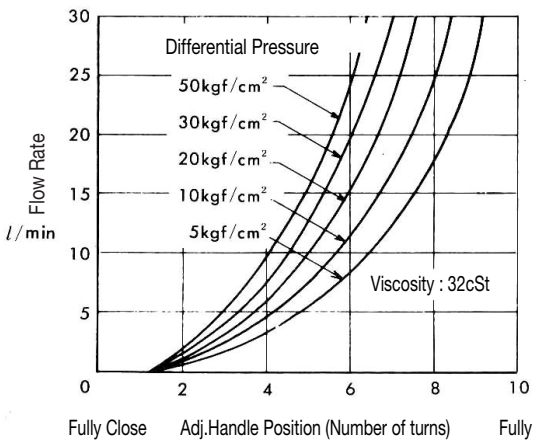


SRGM-06

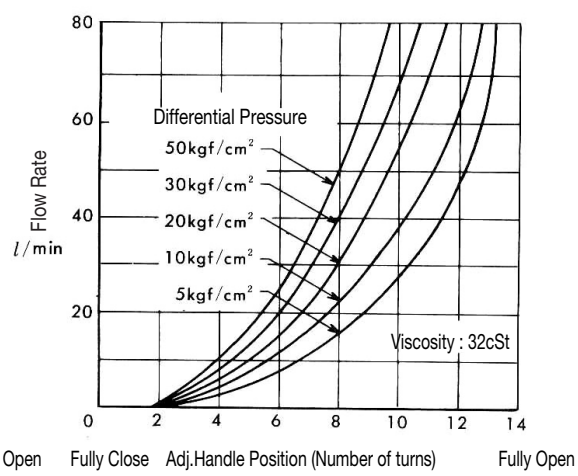


Metred Flow vs Adjustment Handle Revolutions

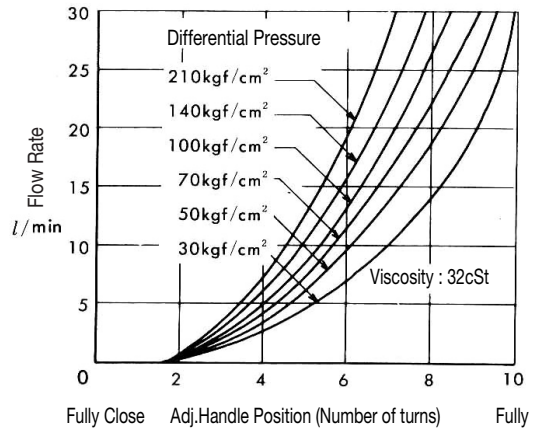
SRT-03-L
SRG-03-L



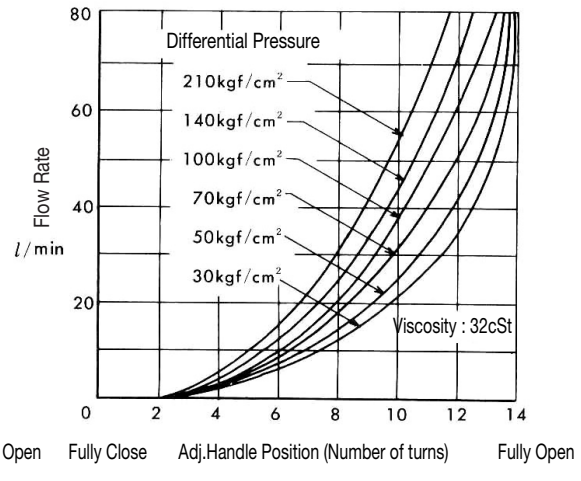
SRT-06-L
SRG-06-L



SRT-03-H
SRG-03-H

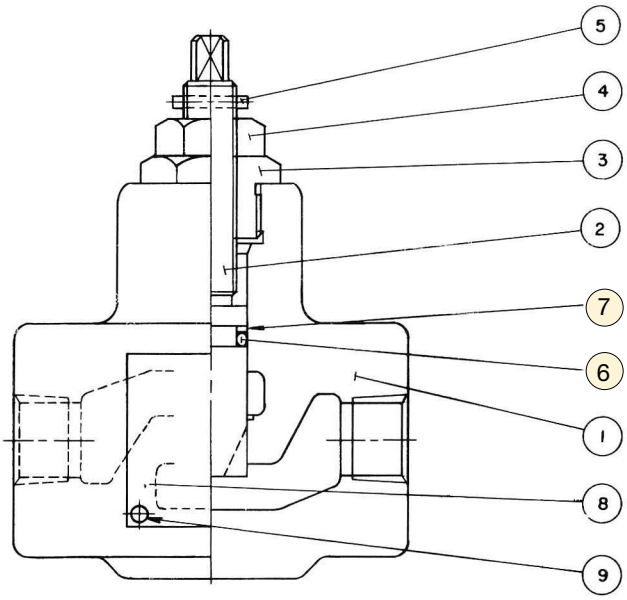


SRT-06-H
SRG-06-H



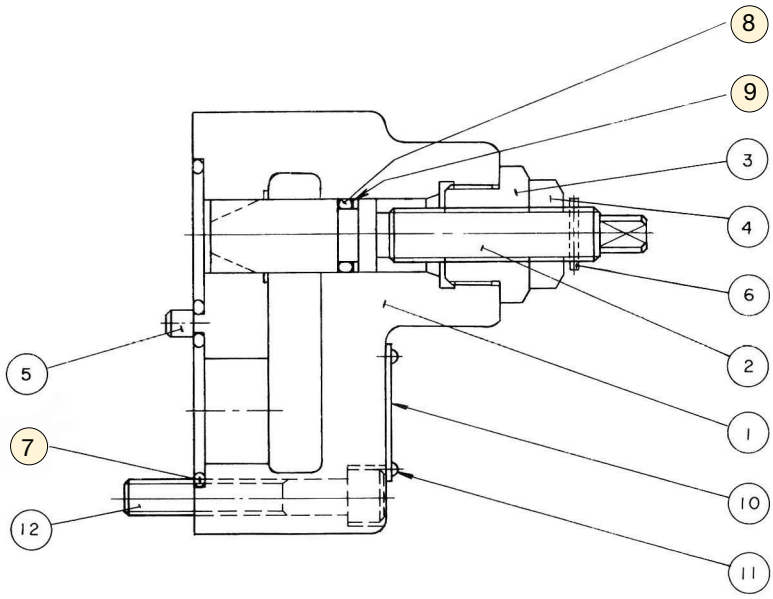
List of Seals

SRT-03, 06



Item	Name of Parts	Part Numbers			Qty.
		SRT-03	SRT-06	SRT-10	
6	O-Ring	JIS B 2401 -1A-P10A	JIS B 2401 -1A-P12	JIS B 2401 -1A-P16	1
7	Buck Up Ring	JIS B 2407 -T2-P10A	JIS B 2407 -T2-P12	JIS B 2407 -T2-P16	1

SRG-03, 06

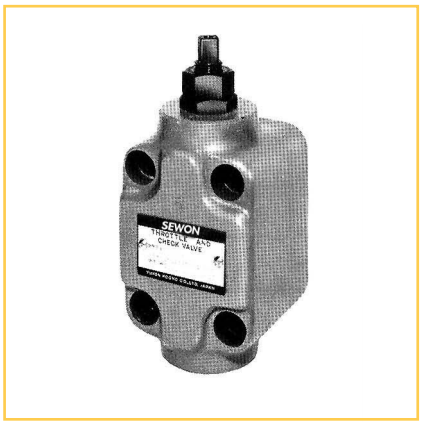


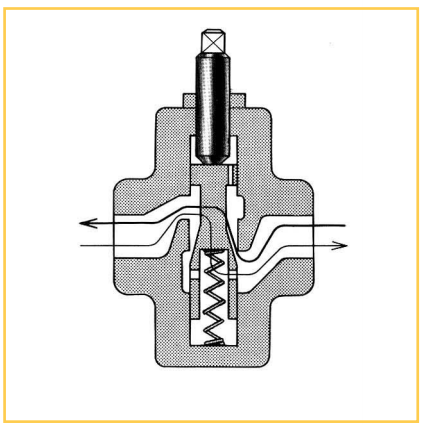
Item	Name of Parts	Part Numbers			Qty.
		SRG-03	SRG-06	SRG-10	
7	O-Ring	JIS B 2401 -1B-P18	JIS B 2401 -1B-P28	JIS B 2401 -1B-P34	2
8	O-Ring	JIS B 2401 -1A-P10A	JIS B 2401 -1A-P12	JIS B 2401 -1A-P16	1
9	Buck Up Ring	JIS B 2407 -T2-P10A	JIS B 2407 -T2-P12	JIS B 2407 -T2-P16	1

One Way Restrictors

Throttle and Check Valaes

This valve is used to regulate an actuator speed in a circuit where line pressure is almost steady and small fluctuation of oil flow due to pressure changes is permitted. Integrated check valve allows reversed free flow from outlet to inlet port. Pressure balanced construction provides less effort in adjustment at high pressure.





Ratings

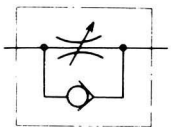
Model Numbers		Rated Flow★ L/min	Max.Operating Pres. MPa{kgf/cm²}	Approx. Mass kg	
Threaded Connection	Sub-plate Mounting			SRTtype	SRG type
SRCT-03-※-4101	SRCG-03-※-4101	30	21{214}	1.2	2.1
SRCT-06-※-4101	SRCG-06-※-4101	80		3.2	4.0

★Rated flow stands for approximate flow rate when the pressure drop between inlet and outlet ports of the valve in fully opened condition becomes 0.3MPa {3.1kgf/cm²} maximum at fluid's specific gravity of 0.85 and kinematic viscosity of 20㎟/s

Model Number Designation

SR	T	-03	-H	-4101
Series Number	Type of Mounting	Valve Size	Pressuer Using Range	Design Number
SRC: One Way Restrictor	T:Threaded Connection G:Sub-plate Mounting	03 06 03 06	H:Pressure Difference 5~21MPa {51~214kgf/cm²} L:Pressure Difference 0.5~5MPa {5~51kgf/cm²}	4101 (Attach the Handle)

KS Grahic Symbols



Attachment

Mounting Bolts

Valve Model Numbers	Socket Head Cap Screw
SRCG-03	M8 ×60L ····· 4 pcs
SRCG-06	M10× 70L ····· 4 pcs

Instructions

Flow Adjustment

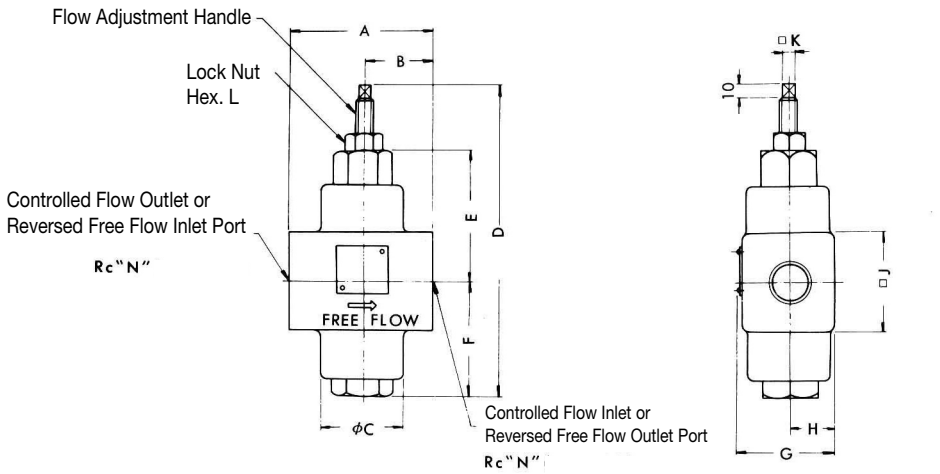
Slacken the lock nut and turn the flow adjustment handle anti-clockwise to throttle flow. After achieving satisfactory performance tighten the lock nut.

Sub-plate

Valve Model Numbers	Sub-plate Model Numbers	Thread Size Rc	Approx. Mass kg
SRCG-03	SRGM-03-40	Rc ⅜	1.2
SRCG-06	SRGM-06-40	Rc ¾	2.5

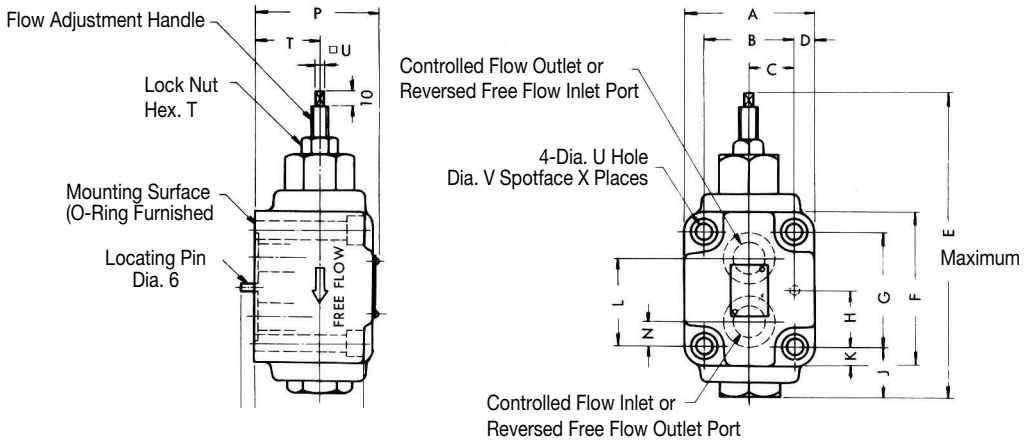
- Sub-plates are available. Specify the sub-plate model number from the left table. When sub-plates are not used, the mounting surface should have a good machined finish.
- Sub-plates used togeder Restrictor.
Please refer to the page D-12.

SRCT-03, 06



Model Numbers	A	B	C	D	E	F	G	H	J	K	L	N
SRCT-03	70	35	40	151	60	58	42	20	40	8	19	3/8
SRCT-06	100	50	56	186	83	65	62	30	60	8	19	3/4

SRCG-03, 06, 10

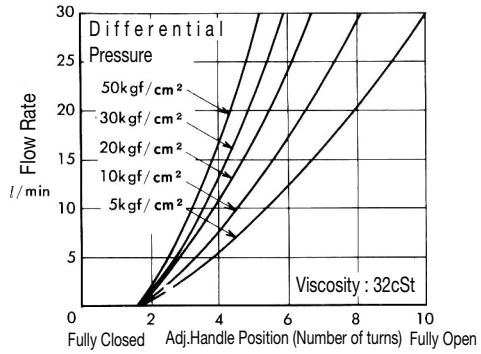


Model Numbers	A	B	C	D	E	F	G	H	J	K	L	N	P	Q	T	U	V	X	Y	Z
SRCG-03	60	40	20	10	151	80	60	30	28	10	45	15	62	55	35	8	19	8.8	14	8.6
SRCG-06	80	58	29	11	186	92	70	35	30	11	54	16	74	68	40	8	19	11	17.5	10.8

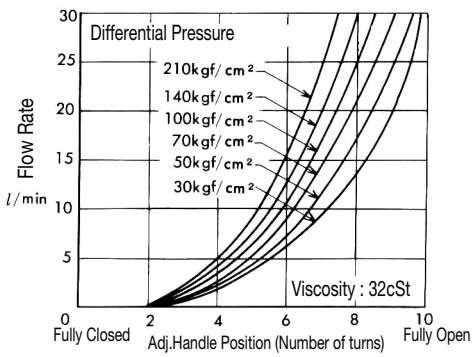
Note: For dimensions of the valve mounting surface, see the dimensional drawing(SRG) of the sub-plate used together.

Metred Flow vs Adjustment Handle Revolutions

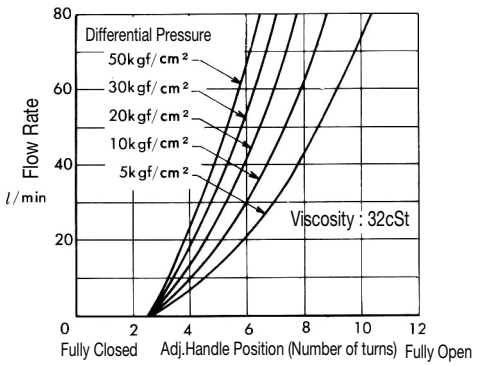
SRCT-03-L
SRCG-03-L



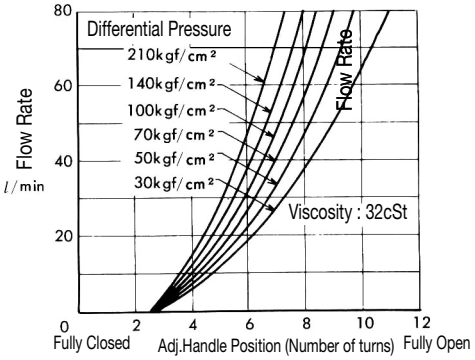
SRCT-03-H
SRCG-03-H



SRCT-06-L
SRCG-06-L

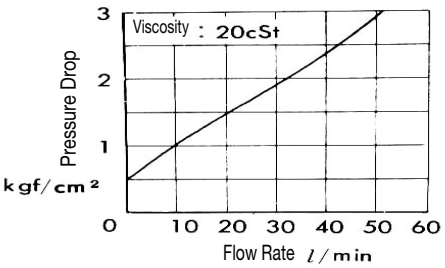


SRCT-06-H
SRCG-06-H

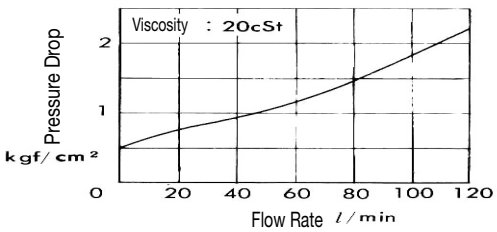


Pressure Drop

SRCT-03
SRCG-03

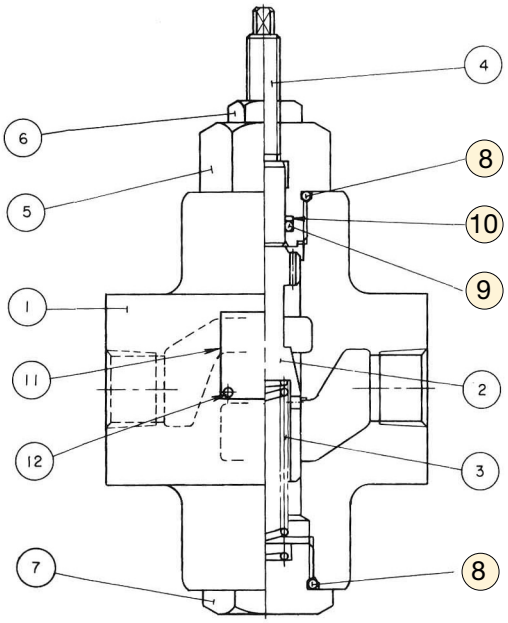


SRCT-06
SRCG-06



■씰 일람표

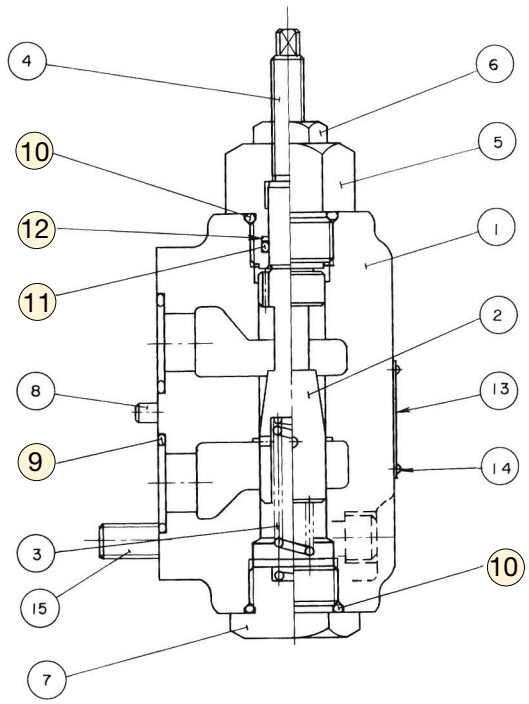
SRCT-03, 06



Item	Name of Parts	Part Numbers		Qty.
		SRCT-03	SRCT-06	
8	O-Ring	JIS B 2401 -1B-P18	JIS B 2401 -1B-P24	2★
9	O-Ring	JIS B 2401 -1A-P12	JIS B 2401 -1A-P14	1
10	Buck Up Ring	JIS B 2407 -T2-P12	JIS B 2407 -T2-P14	1

★O-Ring quantity of No.8 is 1pcs in the case of SRCT-03.

SRCG-03, 06

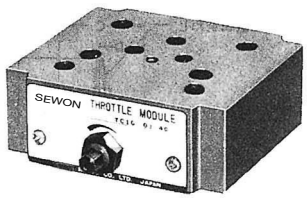


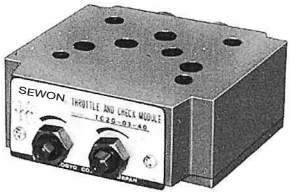
Item	Name of Parts	Part Numbers		Qty.
		SRCT-03	SRCT-06	
9	O-Ring	JIS B 2401 -1B-P18	JIS B 2401 -1B-P28	2
10	O-Ring	JIS B 2401 -1B-P18	JIS B 2401 -1B-P24	2
11	O-Ring	JIS B 2401 -1A-P12	JIS B 2401 -1A-P14	1
12	Buck Up Ring	JIS B 2407 -T2-P12	JIS B 2407 -T2-P14	1

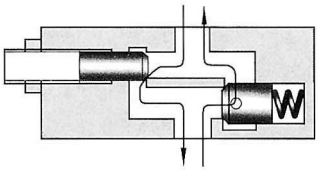
★O-Ring quantity of No.8 is 1pcs in the case of SRCT-03.

Throttle Modules/Throttle an Check Modules

Used as pilot choke valves for solenoid controlled pilot operated directional valves and pilot operated directional valves.







Specifications

Model Numbers	Nominal Flow L/min	Max. Operating Pressure MPa{kgf/cm²}	Approx. Madss kg
TC1G-01-40	30	25{255}	0.6
TC2G-01-40			0.65

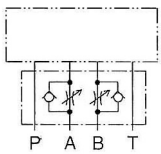
Model Number Designation

TC1	G	-03	C	-40
Series Number	Type of Mounting	Valve Size	Valve Type	Design Number
TC1 : Throttle Module TC2 : Throttle and Check Module	G : Gasket Mounting	01	—	40

KS Graphic Symbols

Valve Size 01

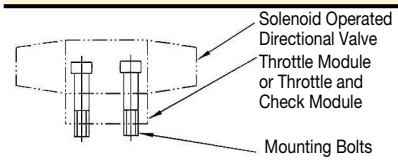
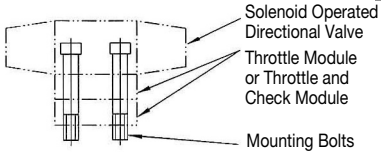
TC1G-01-40



TC2G-01-40
Solenoid Operated Directional Valve

Mounting Bolts

If mounting bolts are necessary, order suitable ones selected from the table below. If mounting bolts from other companies are used, their strength must be 8.8 or up ISO standards.

Solenoid Operated Directional Valve	Socket Head Cap Screw TC※G-01
	M5×70L (4pcs)
	M5×95L (4pcs)

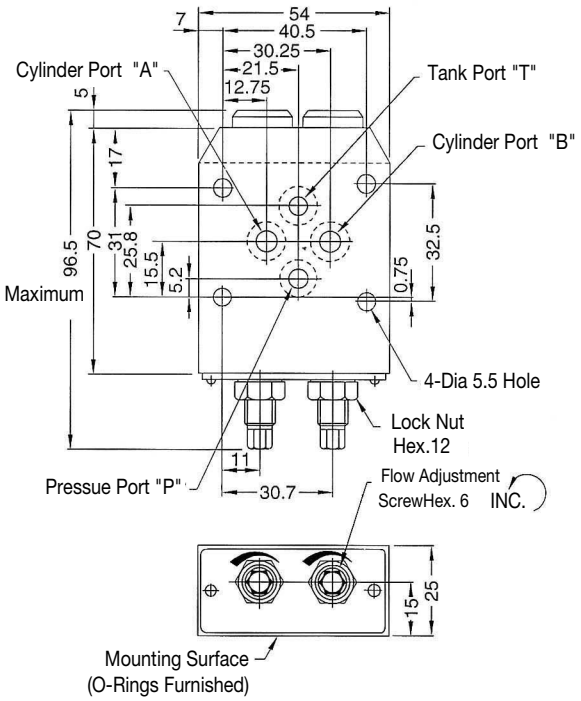
Instructions

Flow Adjustment

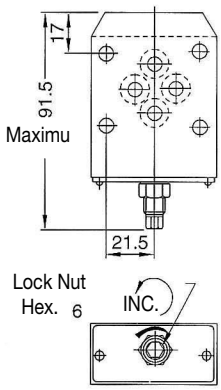
Slacken the lock nut and turn the flow adjustment screw clockwise caused the flow rate to decrease. After adjustment, be sure to tighten the lock nut.

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

TC2G-01



TC1G-01

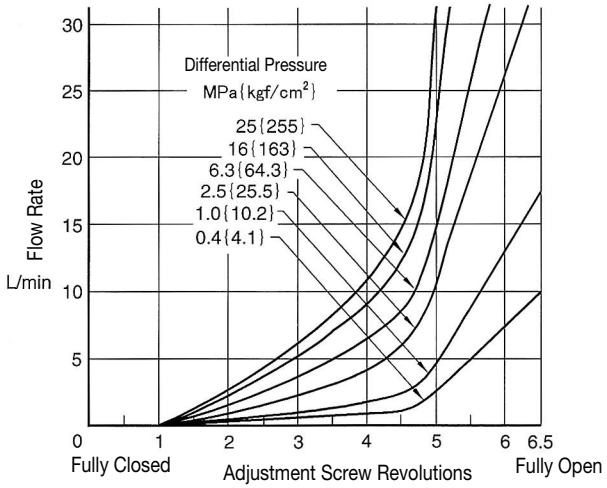


Note: For other dimensions, see the figures shown TC2G-01

Metred Flow vs.Adjustment Revolutions

Hydraulic Fluid:: Viscosity 32mm²/s

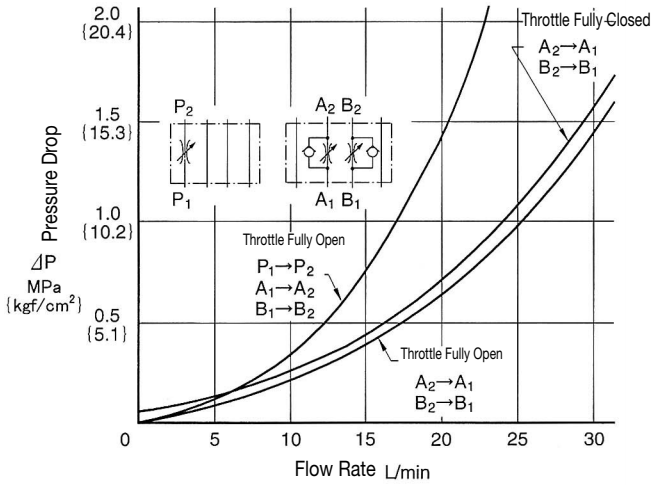
TC1G-01
TC2G-01



Pressure Drop

Hydraulic Fluid:: Viscosity 32mm²/s

TC1G-01
TC2G-01



● For any other viscosity, multiply the factors in the table below.

Viscosit	mm²/s{cSt}	15	20	30	40	50	60	70	80	90	100
	SSU	77	98	141	186	232	278	324	371	417	464
	Factor	0.81	0.87	0.96	1.03	1.09	1.14	1.19	1.23	1.27	1.30

● For any other specific gravity(G′), the pressure drop (ΔP') may be obtained from the formula below.

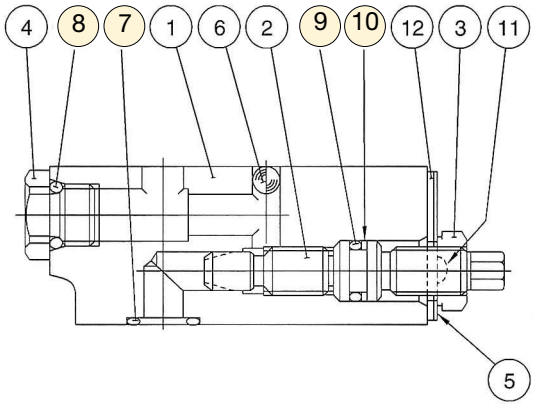
$\Delta P' = \Delta P(G' / 0.850)$

List of Seals

CAUTION

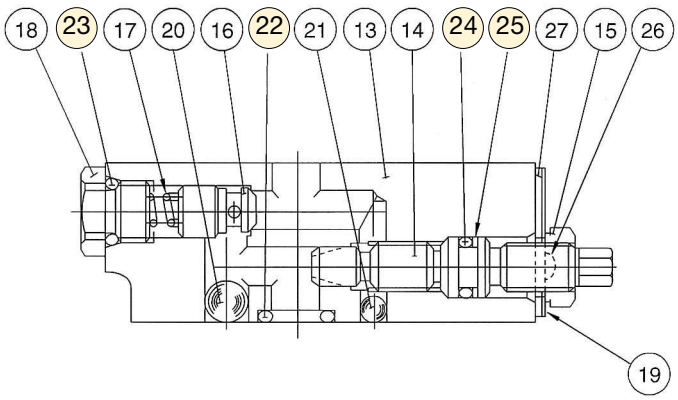
When making replacement of seals, please do it carefully after reading through the relevant instructions in the Operator's Manual.

TC1G-01,03



Item	Name of Parts	Part Numbers
		TC1G-01
7	O-Ring	JIS B 2401-1B-P9
8	O-Ring	———
9	O-Ring	JIS B 2401-1A-P7
10	Back Up Ring	JIS B 2407-T2-P7

TC2G-01,03



Item	Name of Parts	Part Numbers
		TC2G-01
22	O-Ring	JIS B 2401-1B-P9
23	O-Ring	JIS B 2401-1B-P10
24	O-Ring	JIS B 2401-1A-P7
25	Back Up Ring	JIS B 2407-T2-P7