



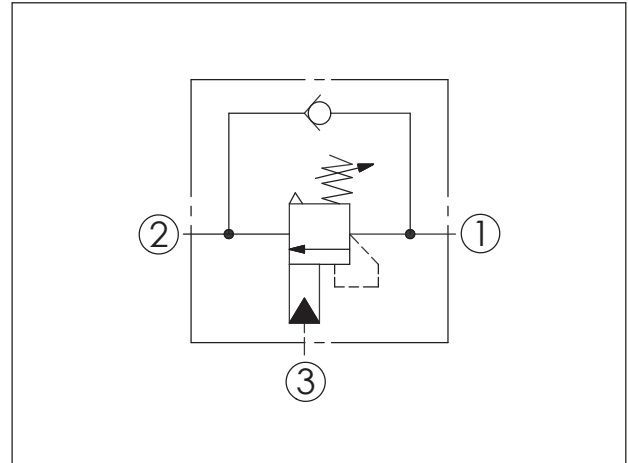
# ZAWORY NABOJOWE NIERDZEWNE

## COUNTERBALANCE VALVE (Stainless Steel All Metal Components)

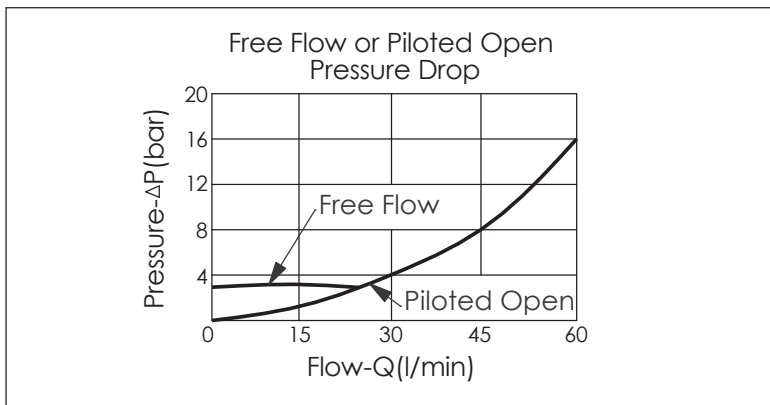
(Vented, Atmospherically Referenced, 280 Bar Maximum Setting)

Ordering Code: **CA-11A-X-Y-Z**

UNIT:mm



TECHNICAL DATA		
Max. Setting:	280	bar
Rated flow:	60	l/min
Cavity-Tooling:	11A-3	
Installation torque:	40-50	Nm
Weight:	0.20	kg
Pressure Setting:	Setting should be 1.3 times maximum load induced pressure.	



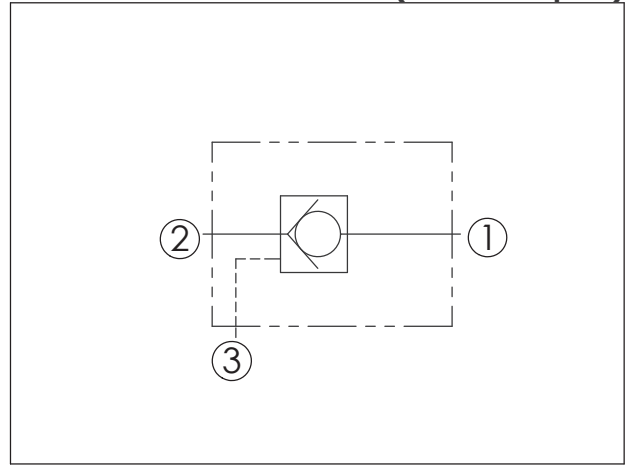
X	PILOT RATIO	
3A	1 : 1	(with sealed pilot)
3C	3 : 1	(with sealed pilot)

Z	OPTIONS	
LS	Leakproof hex. socket screw. With stainless steel all metal components	

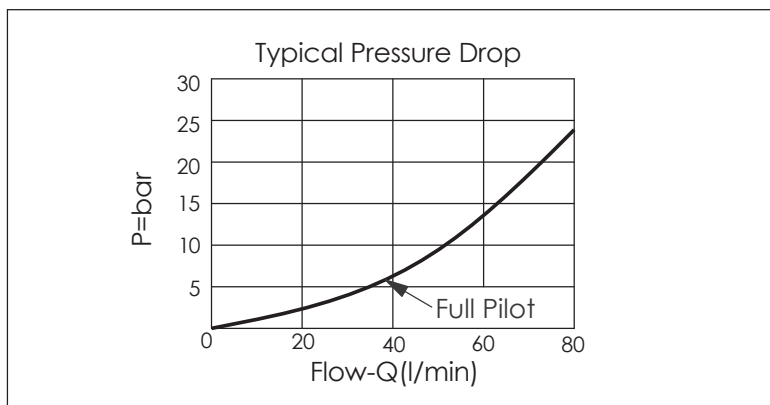
Y	SPRINGS	
	ADJUSTMENT RANGES(2.8 bar Cracking Pressure)	
H	70-280 bar	(210 bar Standard Setting)
I	25-105 bar	(70 bar Standard Setting)

Ordering Code: **CO-11A-X-Y-Z**

UNIT:mm



TECHNICAL DATA		
Max. pressure:	350	bar
Rated flow:	60	l/min
Cavity-Tooling:	11A-3	
Installation torque:	40-50	Nm
Weight:	0.13 (Z:N,NP)	kg
	0.16 (Z:L)	kg



X	OPERATION	
<b>30</b>	2 to 1 (Free Flow)	Pilot Ratio 3:1
<b>3C</b>	2 to 1 (Free Flow)	Sealed Pilot Piston Pilot Ratio 3:1
<b>3D</b>	2 to 1 (Free Flow)	Sealed Pilot Piston Pilot Ratio 4.2:1

Y	SPRINGS	
	Cracking pressure	
<b>01</b>	0.1 bar	
<b>03</b>	0.3 bar	
<b>10</b>	1.0 bar	
<b>20</b>	2.0 bar	
<b>35</b>	3.5 bar	
<b>50</b>	5.0 bar	
<b>70</b>	7.0 bar	

Z	OPTION	
<b>NS</b>	Non-adjustable With stainless steel all metal components (Buna-N Seal)	

## CHECK VALVE (Stainless Steel All Metal Components)

Ordering Code: **CV-13A-X-Y-Z**

Maximum Extension from Locating Shoulder.

22.2 Hex. (7/8 inch)

M20x1.5

19

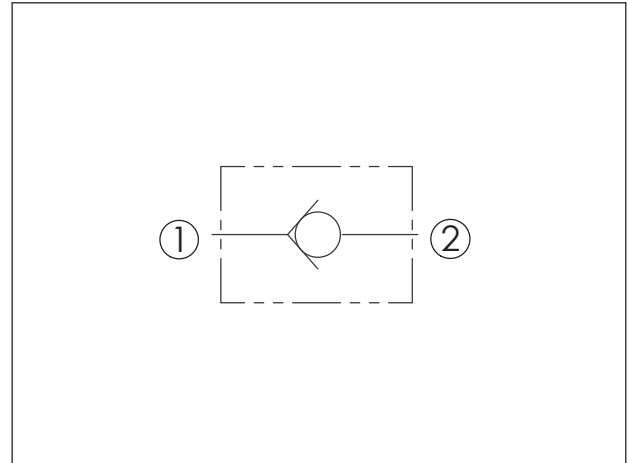
Locating Shoulder

35.1

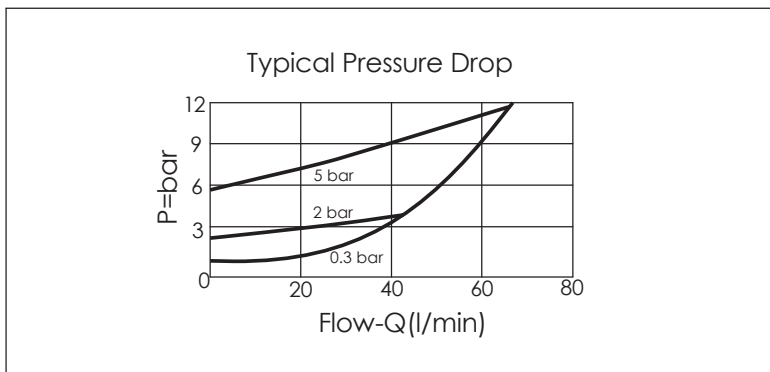
Out (2)

In (1)

UNIT:mm



TECHNICAL DATA		
Max. pressure:	350	bar
Rated flow:	80	l/min
Cavity-Tooling:	13A-2	
Installation torque:	40-50	Nm
Weight:	0.10	kg



Y	SPRINGS	
	Cracking pressure	
00	0 bar (without spring)	
015	0.15 bar	
03	0.3 bar	
10	1.0 bar	
20	2.0 bar	
35	3.5 bar	
50	5.0 bar	
70	7.0 bar	

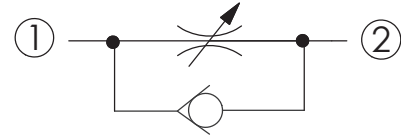
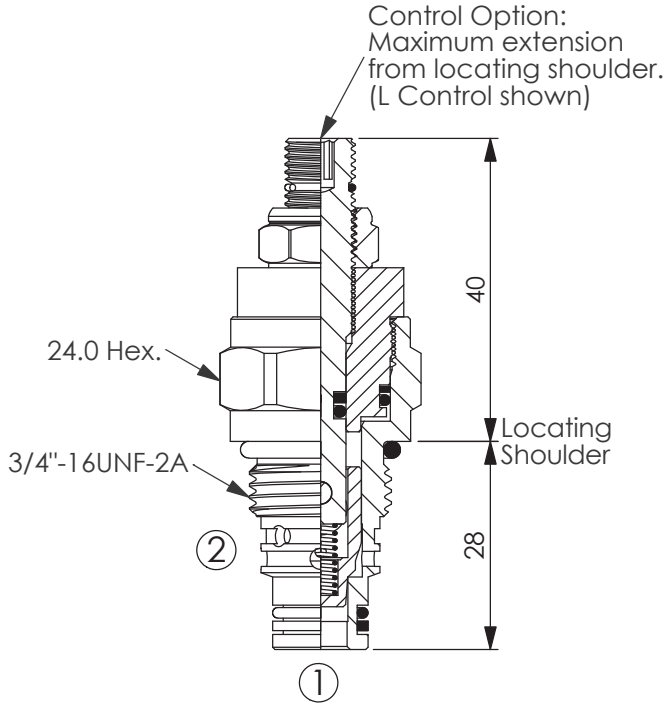
X	OPERATION	
20	1 to 2 (Free Flow)	

Z	OPTION	
NS	Non-adjustable With stainless steel all metal components (Buna-N Seal)	

## FLOW CONTROL VALVE (Stainless Steel All Metal Components)

(Fully Adjustable Needle with Reverse Flow Check)

Ordering Code: **NC-08W-X-Y-Z**



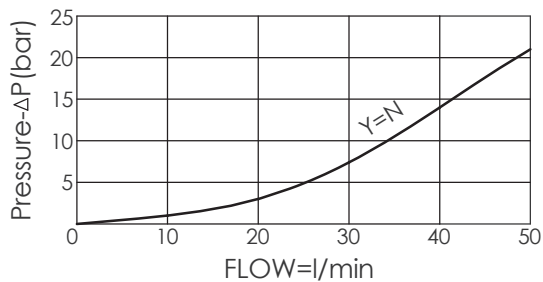
### TECHNICAL DATA

Max. operating pressure:	350 bar
(Refer To Performance Chart)	
Rated Flow:	35 l/min
(Refer To Performance Chart)	
Cavity-Tooling:	08W-2
Installation torque:	25-35 Nm
Weight:	0.12 kg

UNIT:mm

### Performance Chart

FULLY OPEN RESTRICTOR-FLOW IN BOTH DIRECTIONS



### X OPERATION

**20** 1 to 2 (Free Flow)

### Z OPTIONS

**LS** Leakproof hex. socket screw. With stainless steel all metal components



### Y MAXIMUM NOMINAL ORIFICE

**N**  $\phi$  5.0 mm  
(Port 2 To Port 1)

## FLOW CONTROL VALVE (Stainless Steel All Metal Components) (Fully Adjustable Needle)

Ordering Code: **NV-08W-X-Y-Z**

Control Option:  
Maximum extension  
from locating shoulder.  
(L Control shown)

24.0 hex.

3/4"-16UNF-2A

Locating Shoulder

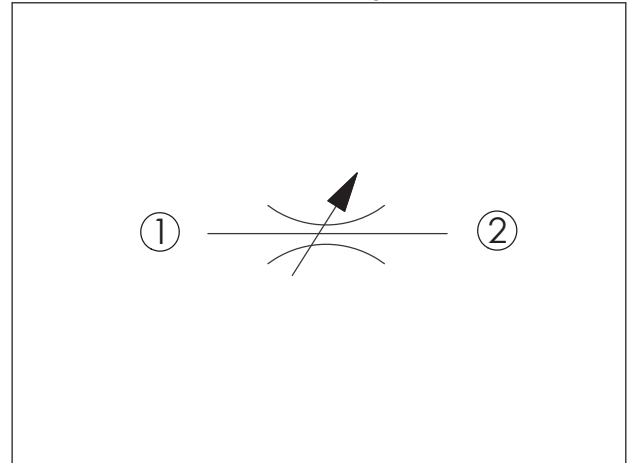
46

28

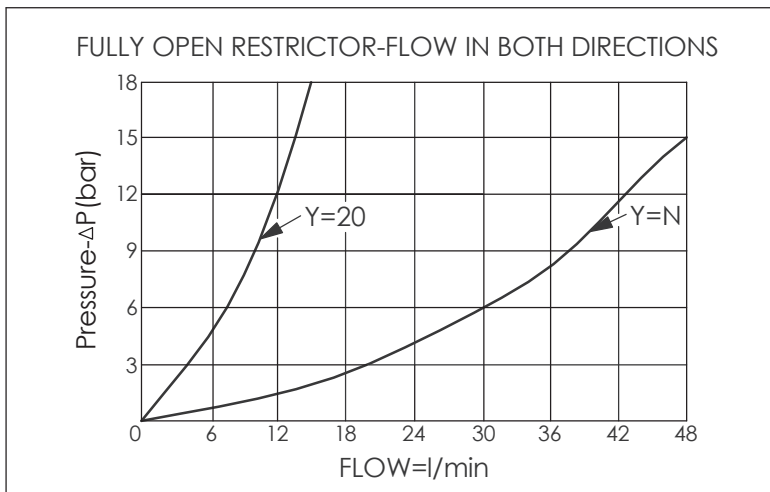
①

②

UNIT:mm



TECHNICAL DATA	
Max. operating pressure:	350 bar
Rated Flow:	36 l/min See Performance Chart
Cavity-Tooling:	08W-2
Installation torque:	25-35 Nm
Weight:	0.12 kg

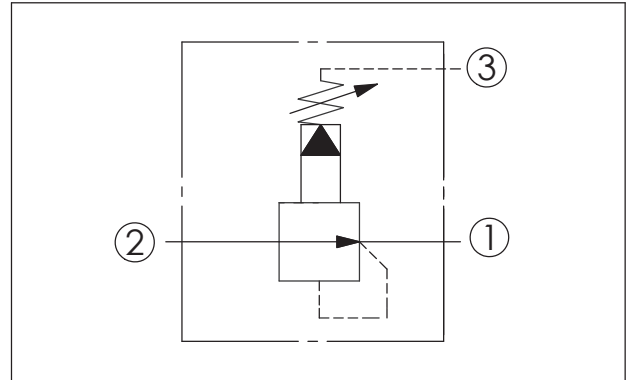
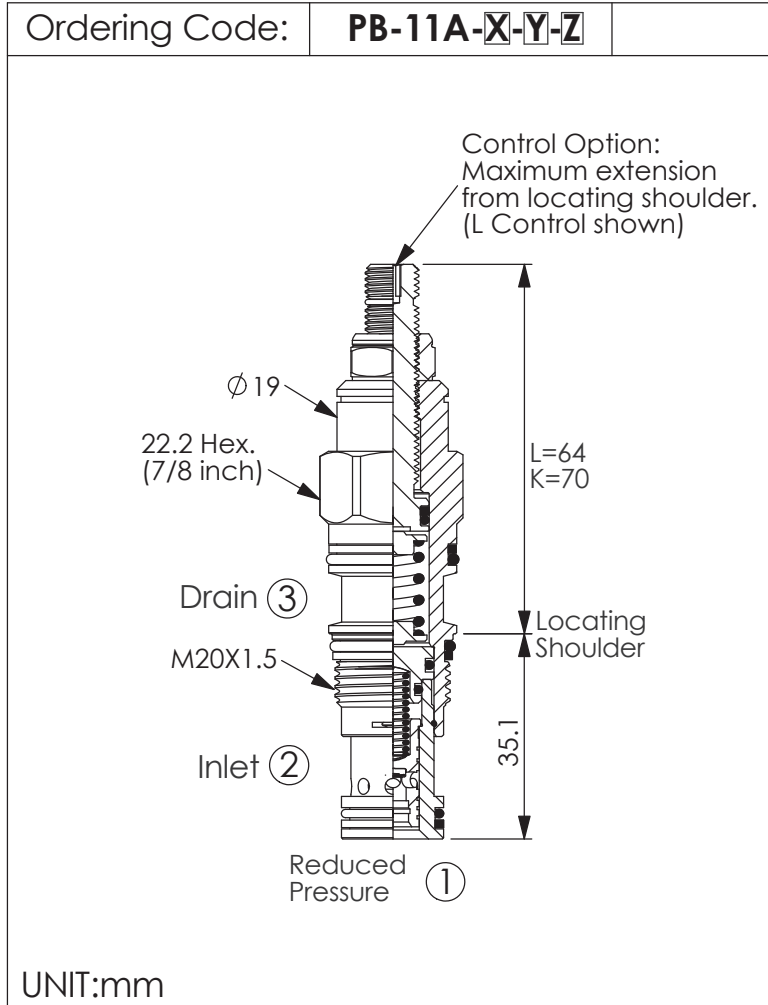


Y	MAXIMUM NOMINAL ORIFICE	
N	∅ 5.6 mm	
20	∅ 2.0 mm	

X	OPERATION	
20	Needle Valve	

Z	OPTIONS	
LS	Leakproof hex. socket screw. With stainless steel all metal components	

## REDUCING VALVE (Stainless Steel All Metal Components) (Pilot Operated Reducing)

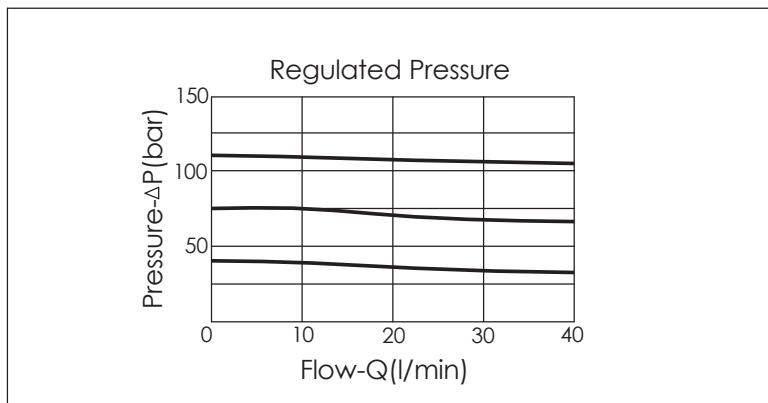


### TECHNICAL DATA

Max.Operating pressure:	350	bar
Rated flow:	40	l/min
Cavity-Tooling:	11A-3	
Installation torque:	40-50	Nm
Weight:	0.16	kg
Control Pilot Flow (0.11 ~0.16 L/min.)		

X	OPERATION	
30	Standard Type	

Z	OPTIONS	
LS	Leakproof hex. socket screw. With stainless steel all metal components	



Y	SPRINGS	
	ADJUSTMENT RANGES	
A	7 to 210 bar (14 bar Standard Setting)	Maximum Differential=210 bar
B	3.5 to 105 bar (14 bar Standard Setting)	Maximum Differential=210 bar
D	1.7 to 55 bar (14 bar Standard Setting)	Maximum Differential=140 bar
E	1.7 to 28 bar (14 bar Standard Setting)	Maximum Differential=140 bar
N	4 to 55 bar (14 bar Standard Setting)	Maximum Differential=140 bar
Q	4 to 28 bar (14 bar Standard Setting)	Maximum Differential=140 bar
W	10 to 315 bar (14 bar Standard Setting)	350 bar inlet pressure

Ordering Code: **RD-10A-X-Y-Z**

Control Option:  
Maximum extension  
from locating shoulder.  
(L Control shown)

Ø19

22.2 Hex.  
(7/8 inch)

M20x1.5

Locating  
Shoulder

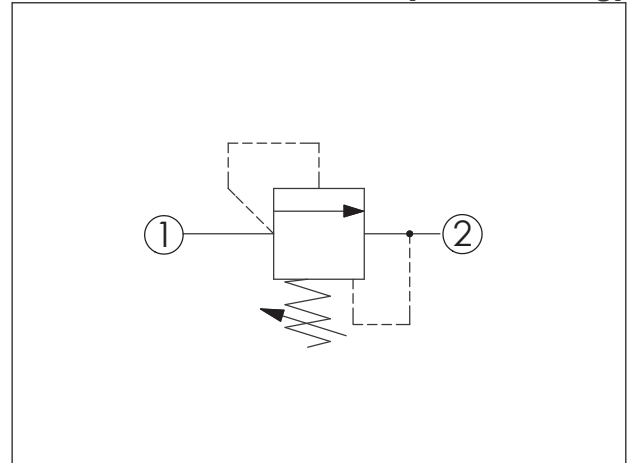
Outlet ②

Inlet ①

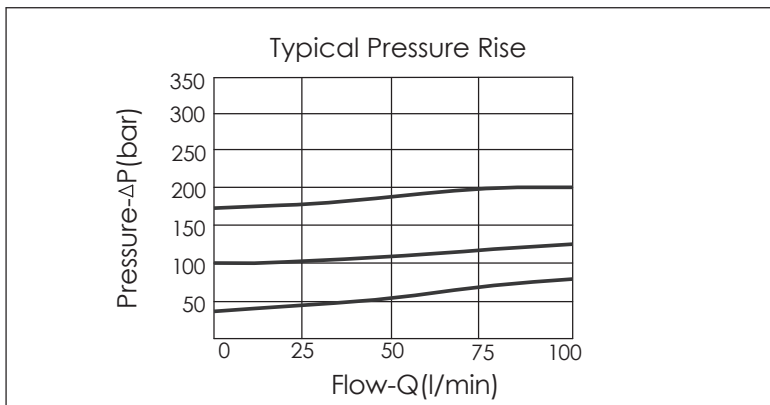
57

39

UNIT:mm



TECHNICAL DATA		
Max. pressure:	350	bar
Rated flow:	95	l/min
Cavity-Tooling:	10A-2	
Installation torque:	40-50	Nm
Weight:	0.17	kg
Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.		



Y PRESSURE SETTING		
<b>A</b>	35-210 bar (70 bar Standard Setting)	
<b>B</b>	20-105 bar (70 bar Standard Setting)	
<b>C</b>	70-420 bar (70 bar Standard Setting)	
<b>D</b>	14-55 bar (28 bar Standard Setting)	
<b>E</b>	10-28 bar (14 bar Standard Setting)	
<b>S</b>	3.5-14 bar (7 bar Standard Setting)	
<b>W</b>	55-315 bar (70 bar Standard Setting)	

X	OPERATION	
<b>25</b>	Direct Acting 1 to 2 (P to T)	
Response Time-Typical (2 ms) Maximum Leakage (0.7 cc/min.) Dirt tolerant		

Z	OPTION	
<b>LS</b>	Leakproof hex. socket screw. With stainless steel all metal components	



Ordering Code: **RD-13A-X-Y-Z**

Control Option:  
Maximum extension  
from locating shoulder.  
(L Control shown)

Ø19

22.2 Hex.  
(7/8 inch)

M20x1.5

Outlet ②

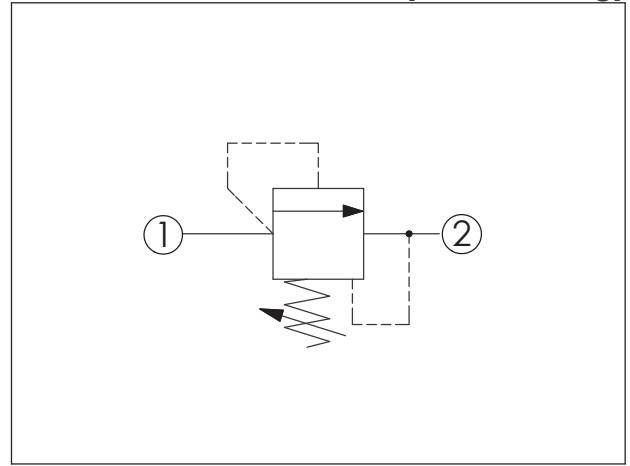
Inlet ①

50

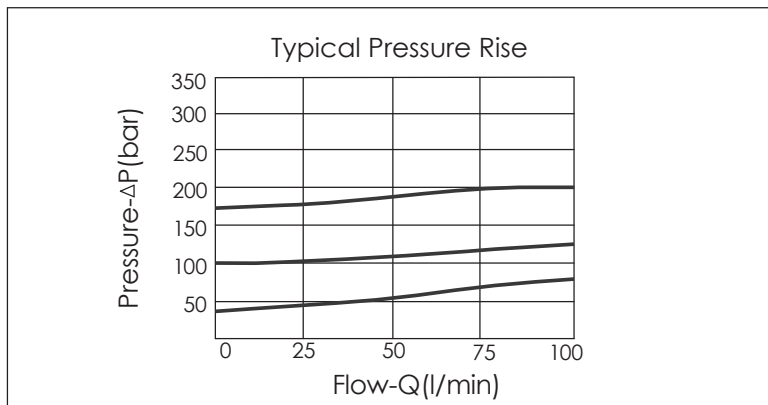
35.1

Locating  
Shoulder

UNIT:mm



TECHNICAL DATA		
Max. pressure:	350	bar
Rated flow:	95	l/min
Cavity-Tooling:	13A-2	
Installation torque:	40-50	Nm
Weight:	0.13	kg
Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.		



Y	PRESSURE SETTING	
A	35-210 bar	(70 bar Standard Setting)
B	20-105 bar	(70 bar Standard Setting)
C	70-420 bar	(70 bar Standard Setting)
D	14-55 bar	(28 bar Standard Setting)
E	10-28 bar	(14 bar Standard Setting)
S	3.5-14 bar	(7 bar Standard Setting)
W	55-315 bar	(70 bar Standard Setting)

X	OPERATION	
25	Direct Acting	1 to 2 (P to T)
Response Time-Typical (2 ms) Maximum Leakage (0.7 cc/min.) Dirt tolerant		

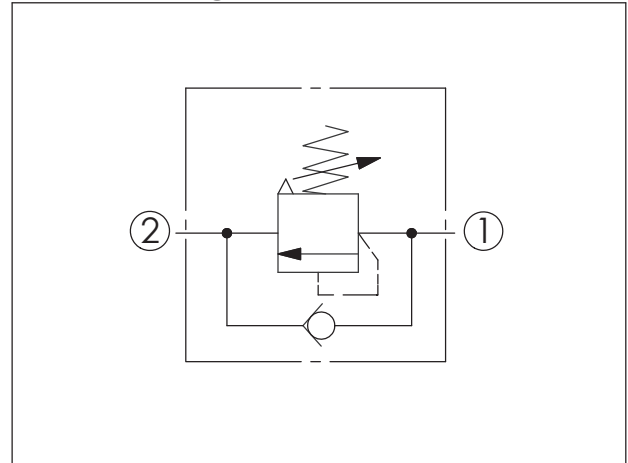
Z	OPTION	
LS	Leakproof hex. socket screw. With stainless steel all metal components	

## SEQUENCE VALVE (Stainless Steel All Metal Components)

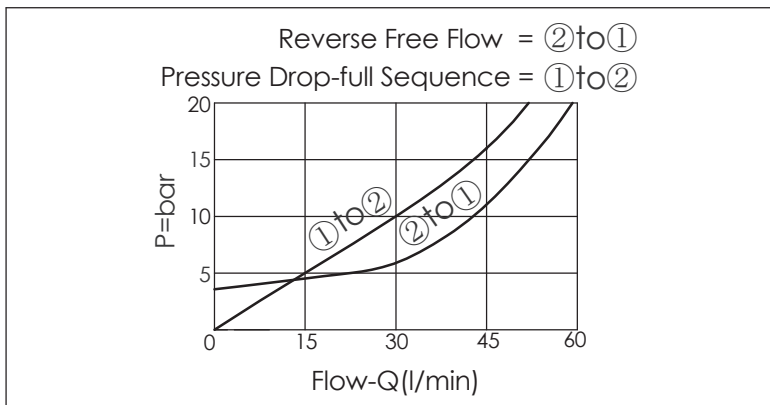
(Atmospherically Referenced Direct Acting with Reverse Flow Check)

Ordering Code: **SC-13A-X-Y-Z**

UNIT:mm



TECHNICAL DATA		
Max.Operating pressure:	350	bar
Rated flow:	60	l/min
Cavity-Tooling:	13A-2	
Installation torque:	40-50	Nm
Weight:	0.21	kg



X	OPERATION	
20	Standard Type	
	<ul style="list-style-type: none"> <li>Response Time-Typical (2 ms)</li> <li>Maximum Leakage (0.3 cc/min./70 bar) (46 cSt, 40°C)</li> </ul>	

Z	OPTIONS	
LS	Leakproof hex. socket screw. With Stainless Steel all metal components	

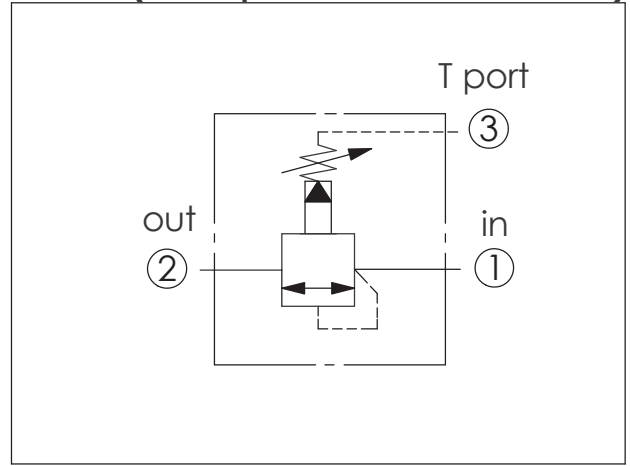
Y	SPRINGS	
	ADJUSTMENT RANGES	
A	35-210 bar	(70 bar Standard Setting)
B	20-105 bar	(70 bar Standard Setting)
C	140-420 bar	(140 bar Standard Setting)
D	14-55 bar	(28 bar Standard Setting)
E	7-28 bar	(14 bar Standard Setting)
W	55-315 bar	(70 bar Standard Setting)

※ Port ② to Port ① Check Valve Cracking Pressure 2.8 bar

## SEQUENCE VALVE (Stainless Steel All Metal Components) (Pilot Operated, Balanced Piston)

Ordering Code: **SP-11A-X-Y-Z**

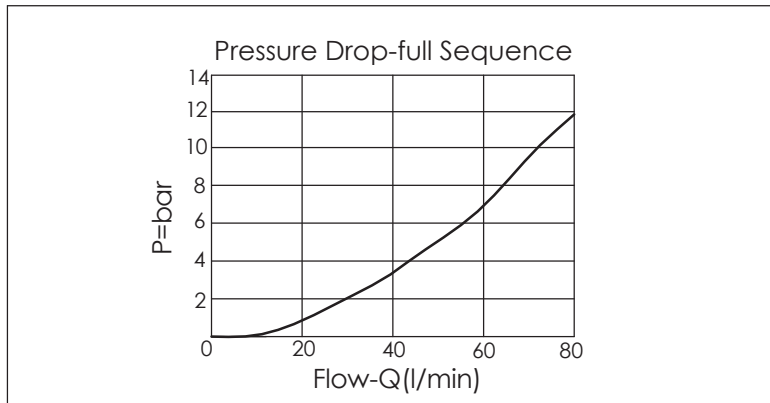
UNIT:mm



TECHNICAL DATA	
Max.Operating pressure:	350 bar
Rated flow:	60 l/min
Cavity-Tooling:	11A-3
Installation torque:	40-50 Nm
Weight:	0.15 kg
Maximum Leakage (33 cc/min./70 bar)	

X	OPERATION	
30	Standard Type	

Z	OPTIONS	
LS	Leakproof hex. socket screw. With stainless steel all metal components	



Y	SPRINGS	
	ADJUSTMENT RANGES	
A	7 to 210 bar	(70 bar Standard Setting)
B	3.5 to 105 bar	(70 bar Standard Setting)
C	10.5 to 420 bar	(70 bar Standard Setting)
D	1.7 to 55 bar	(28 bar Standard Setting)
E	1.7 to 28 bar	(14 bar Standard Setting)
N	4 to 55 bar	(28 bar Standard Setting)
Q	4 to 28 bar	(14 bar Standard Setting)
W	10.5 to 315 bar	(70 bar Standard Setting)

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