DAIKIN

CAT.7E

CENTRALIZED LUBRICATING SYSTEM

MJN.M.MX.MG

Single Line
Distributing Valves

DAIKIN LUBRICATION PRODUCTS & ENGINEERING CO.,LTD.

Distributing Valve

MJN(O)·M(O)·MX(O)·MG

■Overview

A total of seven types of distributing valves are available; MJN, M, MX, MJNO, MO, MXO and MG. The distributing valve comprise an inlet element, an end element, middle elements (minimum 3 - maximum 8) and gaskets.

■Explanation of Model Symbols (Example)

M−3−※※

- Cycle indicator
  - No symbol : w/o cycle indicator
  - ID : w/ cycle indicator
  - NCS : w/ NCS cycle indicator
- Number of middle elements
- Type of distribution valve

＊Detailed specifications, such as the combination of middle elements and the position of the cycle indicator, will be confirmed separately.

■Features

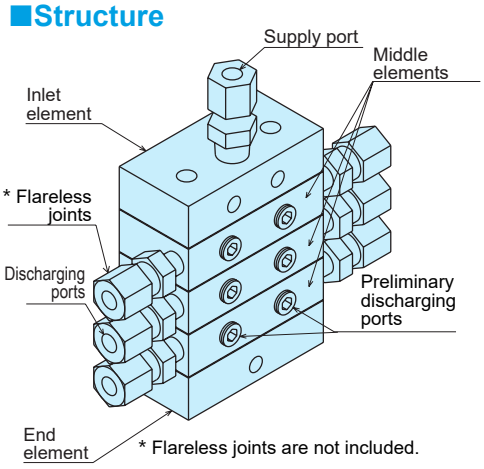
1. Progressive operation system
2. Piping is done by single line.
3. Alarm indicators can be installed.
4. Since operating parts are built-in, the valves are sturdy and resistant to water and dust.
5. You can select a wide range for the number of discharging ports, from a minimum of 2 ports to a maximum of 16 ports per distributing valve assembly.
6. Various piston sizes are available corresponding to the required amounts of grease or oil at the lubricating points, which enables appropriate amount of lubrication.

■Specifications

Size	Model	Number of middle elements	Number of discharging ports	Discharge quantity per port (cm^3/stroke)	Supply port diameter	Discharging port diameter	Built-in check valve	Application	Max. operating pressure (MPa)	
Small	MJN	Min. 3 to Max. 8	Min. 2 to Max. 16	0.082~0.492	Rc1/8	Rc1/8	Provided	Grease and oil for intermittent lubrication	14(grease)	10(oil)
Medium	M			0.164~1.148	Rc1/4	Rc1/8			21(grease)	10(oil)
Large	MX			0.410~4.920	Rc3/8	Rc1/4				
Small	MJNO	Min. 3 to Max. 8	Min. 3 to Max. 8	0.082~0.492	Rc1/8	Rc1/8	Not provided	Oil for continuous lubrication	10(oil)	
Medium	MO			0.164~1.148	Rc1/4	Rc1/8				
Large	MXO			0.410~4.920	Rc3/8	Rc1/4				
Extra-large	MG			2.460~19.680	Rc1/2	Rc3/8				

※The grease used is NLGI consistency #0 to #1 for centralized lubrication.

■Structure



The distributing valve consists of an inlet element, an end element and middle elements (minimum 3 - maximum 8). The joint surfaces of each middle element are separated by gaskets. Each middle element has check valves to prevent backflow of lubricant. Normally, the discharge ports are located on the side of the distributing valve as shown in the above figure, while preliminary discharging ports located on the front face of the distribution valve can be used due to the piping.

■ Type of discharging port

【Type T・ Type S・Type TC・Type SC・Type SCC】

【Type T】

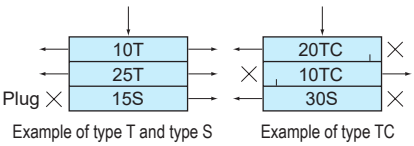
As you see the operation principle on the next page, a middle element usually has two discharging ports, indicated by the "T" (Twin) stamp.

【Type S】

In relation to the number of discharging ports and the discharge quantity, it can be possible that two discharging ports on the left and right of a middle element are connected inside, and the amount of lubricant to be discharged from both ports is combined to be discharged from one of the discharging ports. In this case, the middle element is stamped with "S" (Single) to indicate that it has one discharging port, and the unused port is plugged. Therefore, the discharge quantity of type S is twice that of type T.

【Type TC, Type SC, Type SCC】

In the same way, those that connect the internal passages of adjacent middle elements and use only one discharge port are stamped with "C" (cross-port), and the boundary between related middle elements is stamped with "I".



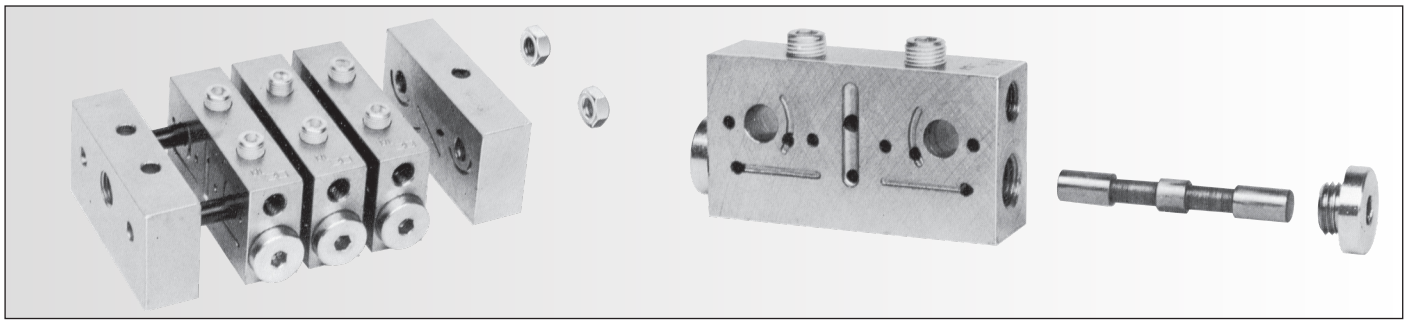
※Do not plug the discharging ports. Otherwise, the whole distributing valves will not work.

※Be sure to have two discharging ports for type T middle elements.

※Be sure to have one discharging port for type S middle elements.
(If both ports are used, the lubricant flows to the port with the lower resistance.)

※Distributing valves used for centralized lubricating system is classified as shown above in terms of dimension and structure, while basic structure and operation principle are common to seven types (MJN, M, MX, MJNO, MO, MX and MG)

■ Operating principle



① The lubricant transfered by the pump is always communicated from the inlet port to the center of the cylinders. Now, considering that the piston A, B and C are at the right end, the lubricant entering from the supply port is connected to the port A1, B1 and C2, but the piston A and B stay at the right end, while the piston C moves to the left.

② When the piston C moves to the left, the lubricant in the port C1 is discharged from the No. 1 discharging port, and at the same time the port C2 is filled with the lubricant. The discharge quantity at this time is determined by the volume of the port C1. When the piston C hits the left end, the supply port communicates with the port B2, and the piston B moves to the left.

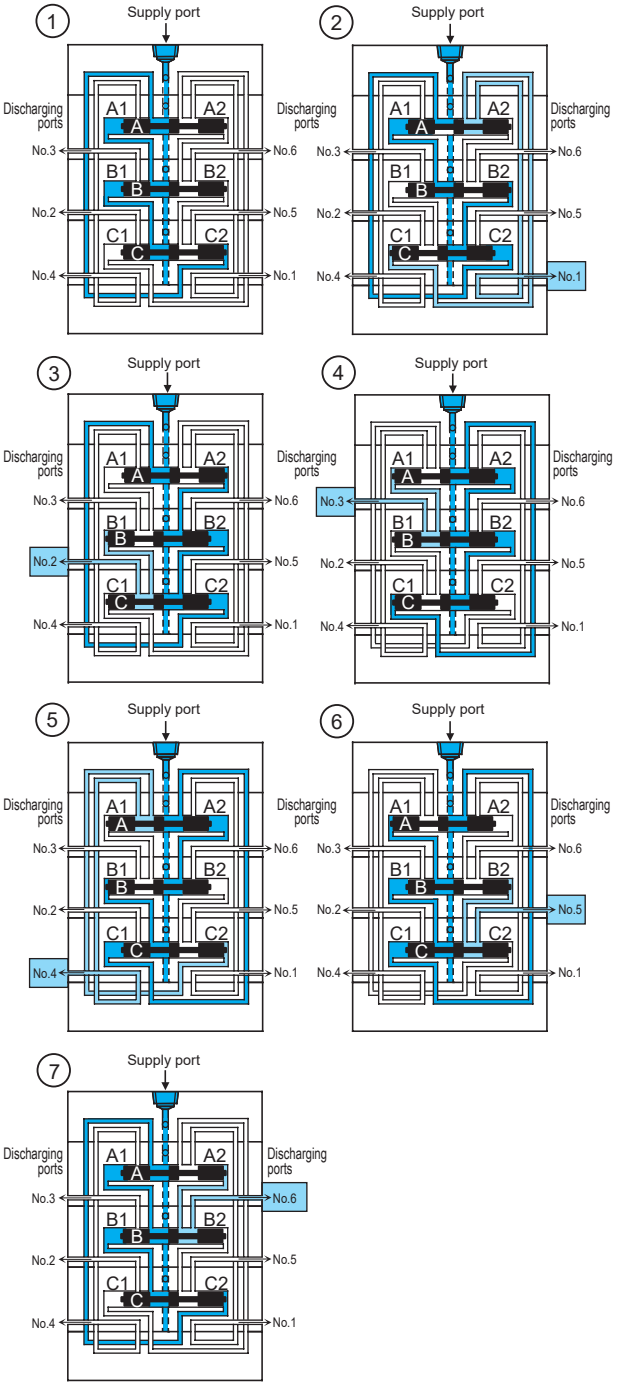
③ When the piston B moves to the left, the lubricant in the port B1 is discharged from the No. 2 discharging port, and at the same time the port B2 is filled with the lubricant. When the piston B hits the left end, the supply port communicates with the port A2, and the piston A moves to the left.

④ When the piston A moves to the left, the lubricant in the port A1 is discharged from the No. 3 discharging port, and at the same time the port A2 is filled with the lubricant. When the piston A hits the left end, the supply port and the port C1 are connected, and the piston C moves to the right.

⑤ When the piston C moves to the right, the lubricant in the port C2 is discharged from the No. 4 discharging port, and at the same time the port C1 is filled with the lubricant. When the piston C hits the right end, the supply port and the port B1 are connected, and the piston B moves to the right.

⑥ When the piston B moves to the right, the lubricant in the port B2 is discharged from No.5 discharging port, and the port B1 is filled with the lubricant at the same time. When the piston B hits the right end, the supply port and the port A1 are connected, and the piston A moves to the right.

⑦ When the piston A moves to the right, the lubricant that was in the port A2 is discharged from the No. 6 discharging port, and at the same time the port A1 is filled with the lubricant. When the piston A hits the right end, it returns to state ①. Continued to feed the lubricant, the above movements will be repeated continuously.

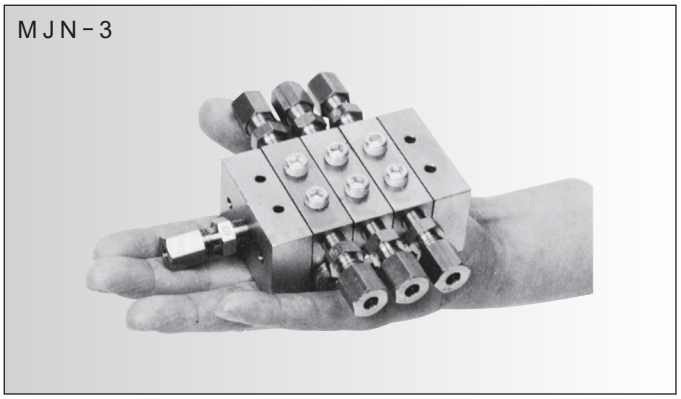


■ Type and discharging amount

The discharge quantity per stroke of the distributing valve varies depending on the piston diameter, and there are several piston sizes for each distributing valve type. Below are lists of piston sizes and discharge quantities for each type. Design the number of cycles per minute to be 120 or less without a cycle indicator, and 60 or less with a cycle indicator.

●MJN･MJNO type＜Compact series＞

MJN-3



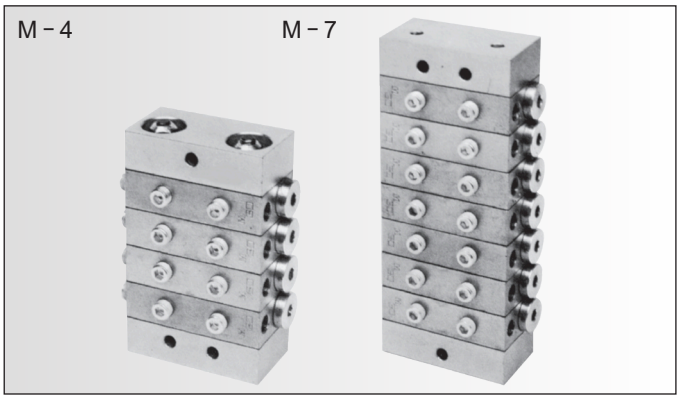
Piston size	Discharge quantity / stroke		Number of discharging ports
	Cu.IN	cm^3	
5T	0.005	0.082	2
5S	0.010	0.164	1
10T	0.010	0.164	2
10S	0.020	0.328	1
15T	0.015	0.246	2
15S	0.030	0.492	1

※Cycle indicators cannot be equipped to the piston of 5T and 5S.
※Discharge quantities described above indicate the theoretical discharge quantities.

Designation	A	B	C	Number of middle elements	Weight (kg)
MJN MJNO -3 distributing valve assy	67	87	88	3	1.0
MJN MJNO -4 distributing valve assy	84	104	106	4	1.3
MJN MJNO -5 distributing valve assy	101	122	123	5	1.5
MJN MJNO -6 distributing valve assy	119	139	141	6	1.7
MJN MJNO -7 distributing valve assy	136	156	158	7	1.9
MJN MJNO -8 distributing valve assy	154	174	175	8	2.1

●M･MO type＜Medium series＞

M-4 M-7



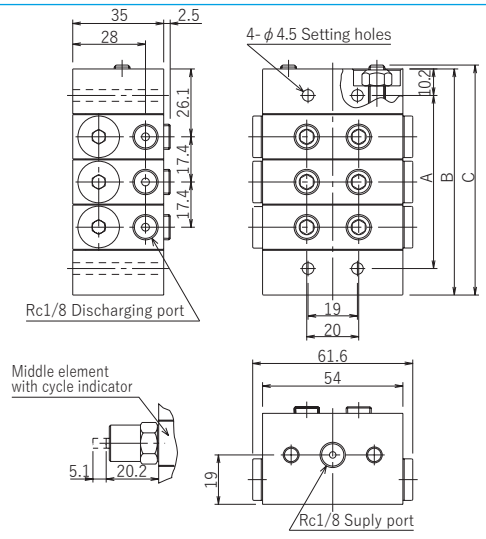
Piston size	Discharge quantity / stroke		Number of discharging ports
	Cu.IN	cm^3	
10T	0.010	0.164	2
10S	0.020	0.328	1
15T	0.015	0.246	2
15S	0.030	0.492	1
20T	0.020	0.328	2
20S	0.040	0.656	1
25T	0.025	0.410	2
25S	0.050	0.820	1
30T	0.030	0.492	2
30S	0.060	0.984	1
35T	0.035	0.574	2
35S	0.070	1.148	1

※Cycle indicators cannot be equipped to the piston of 10T and 10S.
※Discharge quantities described above indicate the theoretical discharge quantities.

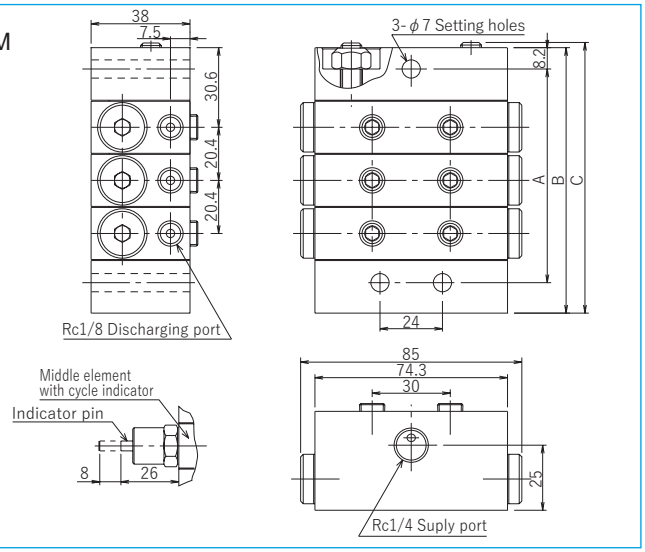
Designation	A	B	C	Number of middle elements	Weight (kg)
M MO -3 distributing valve assy	82	102	104	3	2.1
M MO -4 distributing valve assy	103	122	124	4	2.5
M MO -5 distributing valve assy	123	142	145	5	2.9
M MO -6 distributing valve assy	143	163	165	6	3.3
M MO -7 distributing valve assy	164	184	186	7	3.7
M MO -8 distributing valve assy	184	204	206	8	4.1

■Dimension Drawing

MJN



M



●MX･MXO type＜Large series＞

MX－3

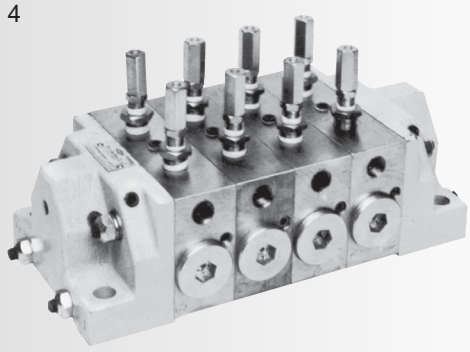
Piston size	Discharge quantity / stroke		Number of discharging ports
	Cu.IN	cm^3	
25T	0.025	0.41	2
25S	0.050	0.82	1
50T	0.050	0.82	2
50S	0.100	1.64	1
75T	0.075	1.23	2
75S	0.150	2.46	1
100T	0.100	1.64	2
100S	0.200	3.28	1
125T	0.125	2.05	2
125S	0.250	4.10	1
150T	0.150	2.46	2
150S	0.300	4.92	1

※Cycle indicators cannot be equipped to the piston of 25T and 25S.
※Discharge quantities described above indicate the theoretical discharge quantities.

Designation	A	B	C	Number of middle elements	Weight (kg)
MX MXO −3 distributing valve assy	126	142	168	3	9.4
MX MXO −4 distributing valve assy	154	170	196	4	11.3
MX MXO −5 distributing valve assy	182	199	225	5	13.2
MX MXO −6 distributing valve assy	211	227	253	6	15.1
MX MXO −7 distributing valve assy	239	256	282	7	17.0
MX MXO −8 distributing valve assy	268	284	310	8	18.9

●MG type＜Extra large series＞

MG－4



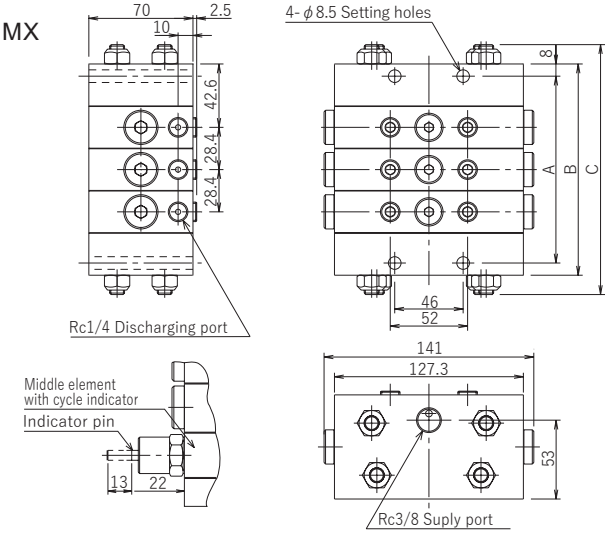
Piston size	Discharge quantity / stroke		Number of discharging ports
	Cu.IN	cm^3	
150T	0.150	2.46	2
150S	0.300	4.92	1
300T	0.300	4.92	2
300S	0.600	9.84	1
450T	0.450	7.38	2
450S	0.900	14.76	1
600T	0.600	9.84	2
600S	1.200	19.68	1

※Discharge quantities described above indicate the theoretical discharge quantities.

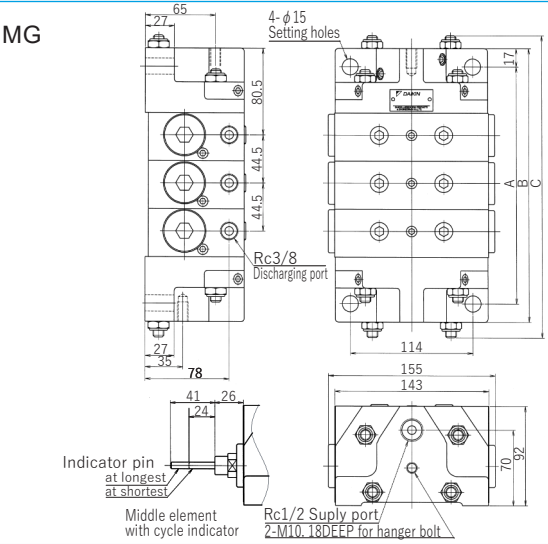
Designation	A	B	C	Number of middle elements	Weight (kg)
MG−3 distributing valve assy	219.5	253.5	280	3	20.3
MG−4 distributing valve assy	264.0	298.0	323	4	24.5
MG−5 distributing valve assy	308.5	342.5	368	5	28.8
MG−6 distributing valve assy	353.0	387.0	413	6	33.0
MG−7 distributing valve assy	397.5	431.5	458	7	37.3
MG−8 distributing valve assy	442.0	476.0	503	8	41.5

■Dimension Drawing

MX



MG



Optional Accessories ~Switches~

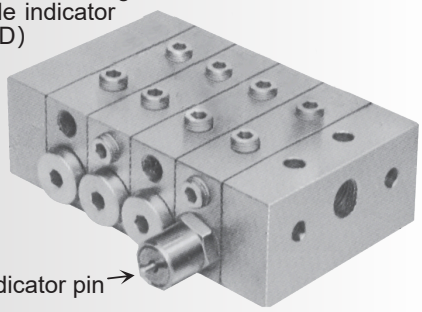
A switch can be attached to the middle element with cycle indicator to make sure the movement of the distribution valve.

The middle element with a cycle indicator has a pin connected to the piston of distributing valve to make sure the movement of the piston which can be checked from the outside. Usually the pin is mounted on one of the middle elements of the 1st stage (parent) distributing valve.

By attaching a switch to the indicator of this middle element, the switch detects the reciprocating motion of the indicator pin, converts it into an electric signal, and blinks the lamp to monitor and confirm the operating status of the distributing valve.

Furthermore, the counter can be used to stop the pump automatically after the specified cycle is completed.

M-4 type distributing valve with cycle indicator (M-4-ID)



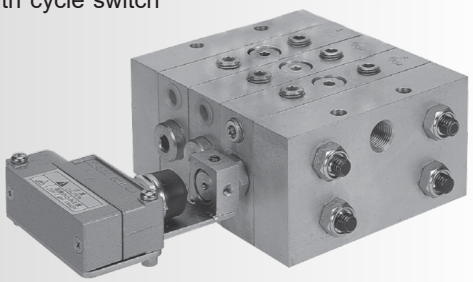
※Cycle indicator pin cannot be retrofitted to the middle element.

Cycle Switch

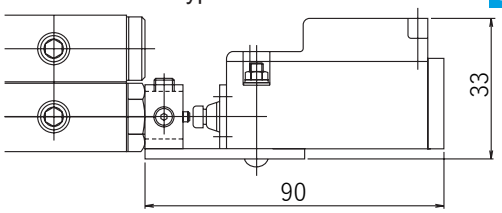
Model	Applicable distributing valve
JLS－O	MJN
CSW－LS－ZV2	M、MX

※Use a middle element with a cycle indicator (-ID).
※With bracket.
※There is no cycle switch for MG type distributing valve.

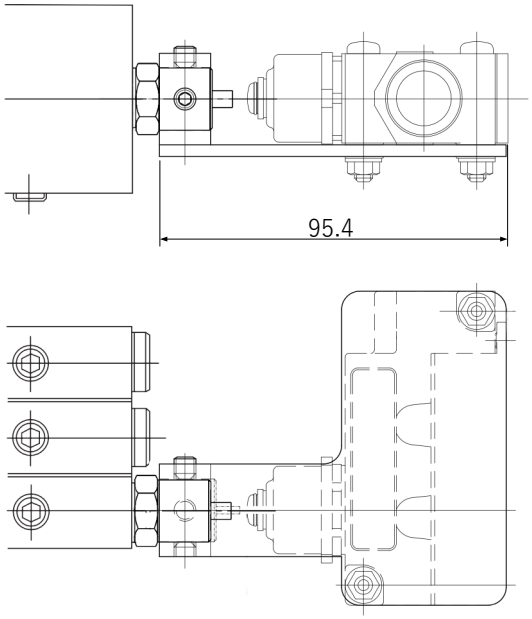
MX-3-ID type distributing valve with cycle switch



Cycle switch for MJN type **JLS-O**



Cycle switch for M and MX type **CSW-LS-ZV2**



※The number of cycles per lubrication of the cycle indicator affects the life of the switch contacts and the wear life of the indicator seal.

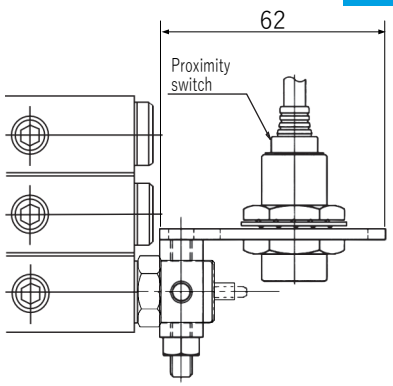
Proximity Switch

Model	Power supply Code length	Applicable distributing valve
(Non-standard)		MJN
PSW-A2	For AC / 2m	M、MX、MG
PSW-D2	For DC / 2m	

※Use a middle element with a cycle indicator (-ID).
※An optional bracket is required for installation.
(Product number 1147252)
※Regarding cord length, 5m is also available.
※The proximity switch for MJN is a non-standard product.
Please contact us.

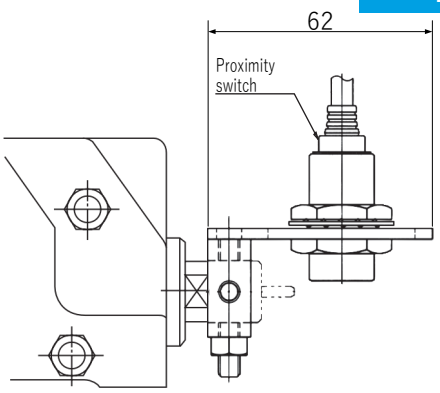
Proximity switch for M and MX type

PSW−A2 (for AC)
D2 (for DC)

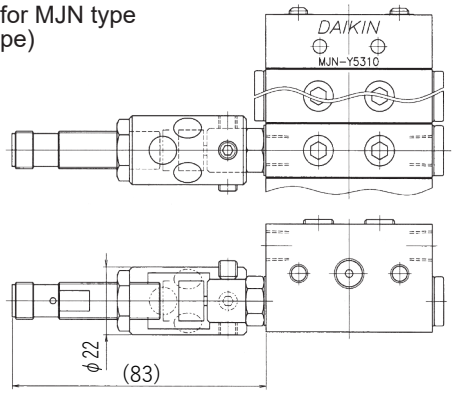


Proximity switch for MG type

PSW−A2 (for AC)
D2 (for DC)



Proximity switch for MJN type
(Non-standard type)



NCS Cycle Switch

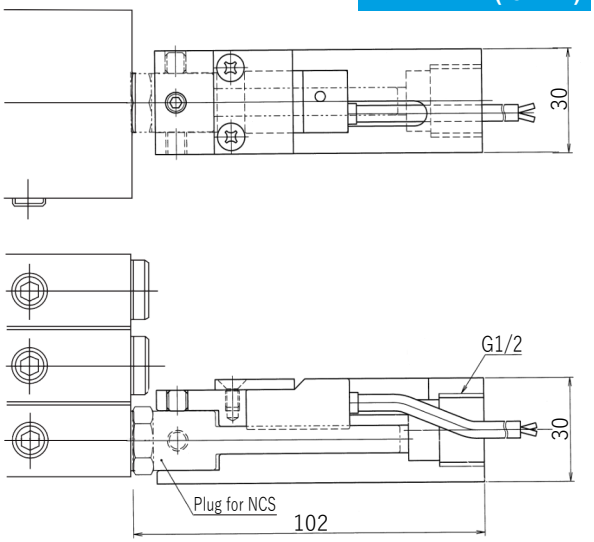
Model	Power supply Code length	Applicable distributing valve
NCSSW-A	For AC／1m	M、MX
NCSSW-D	For DC／1m	

※Use a middle element with a NCS indicator (-NCS).
※There is no NCS cycle switch for MJN and MG type distributing valve.

M−6−NCS type distributing valve
with NCS cycle switch

NCS cycle switch for M and MX type

NCSSW−A (for AC)
D (for DC)

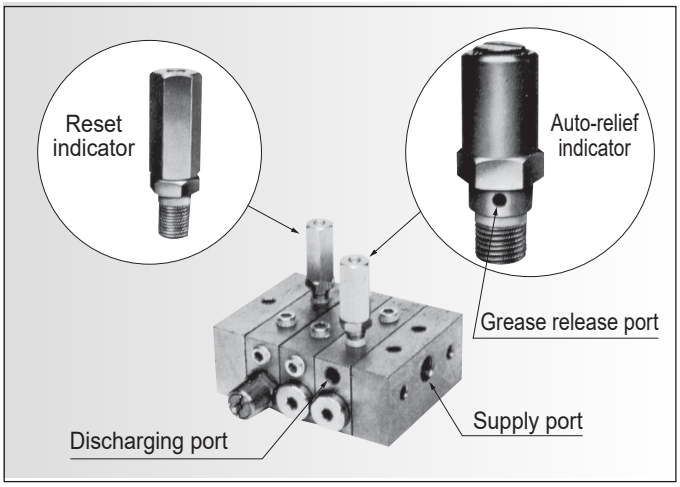


Optional Accessories ~Reset indicator and Auto-relief indicator~

Both the reset indicator and the auto-relief indicator are alarm indicators that indicate the blocked location when a blockage occurs on the discharge side, attached at each preliminary discharge port of the distribution valve.

Reset Indicator

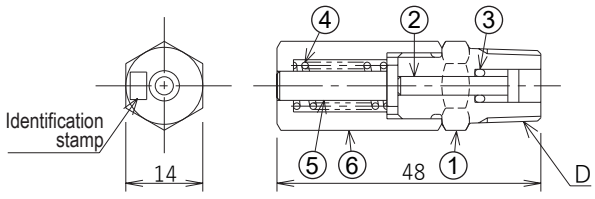
As for the reset indicator, when blocked condition occurs, the internal pressure of the corresponding line rises, and the pin jumps out overcoming the preset spring pressure, allowing you to know where the bearing or piping is blocked.



Auto-Relief Indicator

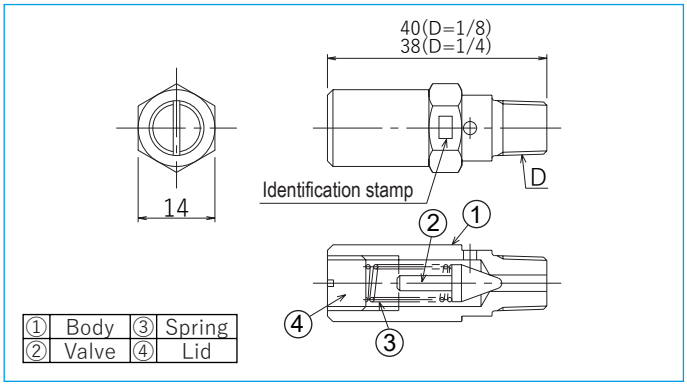
As for the Auto-relief indicator, when blocked condition occurs, the oil equivalent amount to the stroke of the distributing valve flows out at the preset pressure from the grease reliase port, indicating the location of the blockage. The auto-relief indicator differs from the reset indicator in that it can indicate the blocked position without stopping the operation of distributing valve.

■ Dimention drawing of Reset indicator



①	Body	③	O-ring	⑤	Indicator rod
②	Push rod	④	Spring	⑥	Cap

■ Dimention drawing of Auto-relief indicator



①	Body	③	Spring
②	Valve	④	Lid

Reset indicators and auto-relief indicators are available in the types shown in the table below, depending on the pressure of the incorporated spring and piping thread diameter.

Spring pressure	Identification stamp	D	Model	Remarks
1MPa	1	R1/8	RI-1010	
		R1/4	RI-2010	
1.5MPa	1.5	R1/8	RI-1015	Standard
		R1/4	RI-2015	Standard
2MPa	2	R1/8	RI-102	
		R1/4	RI-202	
3MPa	3	R1/8	RI-103	
		R1/4	RI-203	
5MPa	5	R1/8	RI-105	Standard
		R1/4	RI-205	Standard
7MPa	7	R1/8	RI-107	
		R1/4	RI-207	
10MPa	10	R1/8	RI-110	Standard
		R1/4	RI-210	Standard
17MPa	17	R1/8	RI-117	Standard
		R1/4	RI-217	Standard

Spring pressure	Identification stamp	D	Model	Remarks
5MPa	5	R1/8	AR-105	
		R1/4	AR-205	
7MPa	7	R1/8	AR-107	Standard
		R1/4	AR-207	Standard
10MPa	10	R1/8	AR-110	Standard
		R1/4	AR-210	Standard
12.5MPa	12	R1/8	AR-112	Standard
		R1/4	AR-212	Standard
15MPa	15	R1/8	AR-115	
		R1/4	AR-215	
18MPa	18	R1/8	AR-118	Standard
		R1/4	AR-218	Standard

Special reset indicator for MG

Spring pressure	Identification stamp	D	Remarks
10MPa	—	R1/4	for oil continuous lubrication

※For connecting MG distributing valve and reset indicator, an optional bushing is required.
(Product number 29464T0024201)

Memo

When Inquiring With Us

■ Please inform us of the following items when inquiring about lubricating equipment.

1. The overall drawing or a sketch including overall dimentions of the machine equipment
2. Quantity and location of lubrication points
   In particular, please specify the points to be lubricated on the drawing (sketch).
3. Types and characteristics of the above lubrication points
   (a) Types of bearings and sliding parts (flat bearings, ball bearings, etc.)
   (b) Dimensions and number of revolutions
   (c) Whether the lubrication ports are fixed, movable, or rotatable, the movement, and the number of revolutions
   (d) diameter of the lubrication ports' thread
   (e) Special attentions to be paid in determining the amount of lubrication
   (f) Types of lubricants (grease and oil)
4. In case the product will be exposed to high or low temperatures (50°C or higher, 0°C or lower), provide us the detailed information of the environment.
5. Whether it will be for outdoor or indoor, or particular status environment.
6. Planned pump type and control method.
   Pneumatic/hydraulic pump, fully automatic control, semi-automatic control, with/without control panel, with/without spare pump.
7. Plans or instructions for the location of pumps and main pipes.
8. Power supply for motor driven pump control panel (voltage, frequency)
9. Special requirements regarding the control panel (remote display, remote operation, etc.)
10. Specification of drive pneumatic source and hydraulic source
11. Other important points regarding quotations
    (If you do not specify about items 3, 4 and below, we will estimate based on our standards.)
12. Drawings, documents and their number of copies to be submitted for quotation.
    Note that, if construction is included, please specify the following items.
    1. Construction site
    2. Scope of construction (In príniciple we do not provide electricity or foundation work.)
    3. Supplies
       For example, electricity, water (if nearby), lubricants used, oxygen, acetylene, etc.

Safety Precautions

This section describes items that require special attention for the safety of the lubrication system before using this product.

The safety precautions listed here are intended to prevent injury or damage to the customer.
In addition, the precautions are divided into two categories, "Warning" and "Caution", according to what may occur if the product is handled incorrectly.
Be sure to follow all of these instructions as they include important safety information.

⚠Warning	In case where the product operation is mishandled ignoring this indication, a dangeours situation may occur leading to fatal or serious injuries.
⚠Caution	In case where the product operation is mishandled ignoring this indication, a dangeours situation may occur leading to injuries or property damage.

⚠Warning

1. Turn off the power switch on the control panel before installing, removing, or repairing the product. Otherwise, the pump will automatically operate, causing the grease to leak and stain the surroundings.
2. Do not step on the lubricating equipment, piping, etc. attached to the machine as a foothold or pull as a handrail. It may cause slips and falls or damage the lubrication system.
3. Do not disassemble or remodel the lubrication equipment. Please consult us if necessary.
   In the unlikely event that maintenance work is required at the site, it should be performed by a person with specialized knowledge (Hydraulic adjuster level 2).
4. Injury may occur when handling lubricating equipment, so wear protective equipment depending on the situation.

⚠ Caution

1. When venting air from the pump, protect it with a plastic bag and so on.
   Grease (oil) mixed with air may scatter and get into your eyes or stain the surroundings.
2. Use protective equipment when handling grease. If it gets in your eyes or touches your skin, it may cause visual impairment or inflammation.
3. Carry out periodic inspections of the lubrication system (grease/oil consumption control, operation check, etc.).
   If you forget inspections, it may cause machine failure due to seizure in bearings, etc.
4. Use the product within the rated specifications and the usable environmental conditions.
   Using the product outside of the rated specifications or in a special atmosphere (next to fire, explosive atmosphere, etc.) may cause mechanical failure or fire.

Point of contact

DAIKIN LUBRICATION PRODUCTS & ENGINEERING CO., LTD.
https://www.hyd.daikin.co.jp/dlp/en