

# Dual-line automatic Lubrication systems





**Cisolube**<sup>®</sup>  
LUBRICATION SYSTEM

## COMPANY PROFILES

Yantai CISO Lubrication Technology Co., Ltd. is a high-tech enterprise specializing in R&D, production and sales of centralized lubrication systems and hydraulic equipment. The centralized lubrication systems produced by our company have the characteristics of high stability, strong reliability, good sealing, and high output pressure. The products and services currently have covered petrochemical, wind power generation, construction machinery, agricultural machinery, rail transit, medicine and other industries, and it is a leading solution provider in the industry.

The company adheres to the concept of "integrity-based, quality first, and continuous innovation" to provide customers with A+ ideal solutions to meet the different needs of customers. Through years of research and development and production practice, from product design to accessories selection, product assembly, finished product testing and sales services, to ensure product quality.



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## System description:

CISO dual-line systems can be used on large systems with dispersed lubrication points that require varying lubrication quantities. These systems utilize two main lines that are supplied alternately with lubricant from a high-pressure pump via a change-over valve at up to 400 bar (5 800 psi). Branch lines, along the main lines, are connected with dual-line metering devices to supply a large volume of lubricant to the lubrication points. Within large dual-line systems, end-of-line pressure switches are used to control and monitor the system. These flexible systems are simple to design and can be

extended or reduced easily by installing additional metering devices or by removing them. A redesign of the system is not required. Dual-line metering devices can be combined with downstream progressive metering devices to increase the total number of lubrication points receiving small lubricant amounts. CISO offers dual-line systems that can dispense a precise, metered amount of lubricant to up to 2 000 lubrication points over long distances up to 120 m (131 yd) and more,

depending on case values. Even if one pair of outlets becomes blocked inside one metering device, CISO dual-line systems provide sufficient lubrication for the rest of the system's lubrication points. Lubricant volume can be metered individually for each pair of outlets and can be monitored visually or electrically.

The function principle of the dual-line systems consists of two half-cycles. In the first half-cycle, the lubricant is pumped into the main line (A) and the main line (B) is connected to the relief line. The lubricant, which is conducted by the change-over valve, is supplied to the metering devices. The pistons of the metering devices are moved into their adjusted end positions, thus dispensing an exact, metered quantity of grease. Once all metering devices have dispensed their lubricant to the consumption point, the system is hydraulically closed, which causes the pressure in main line (A) to rise until to the preset pressure at the end-of-line pressure switch is reached. This pressure switch then signals an electric pulse to the control unit, which turns the pump off and signals the change-over valve to relieve main line (A), and the pause time starts. At this stage, half of the lubrication points in the system have been lubricated.

In the second half-cycle, main line (B) is pressurized and the cycle continues as before.

### Attention:

- Do not install or remove the metering devices when the system is under pressure or the pump in operation.
- Always protect the lubrication pump with a safety valve.
- Incorrect operation may lead to damage resulting from insufficient or excessive lubrication of bearings or lubrication points.
- Your own alterations or modifications of an installed system should only be carried out if approved with the manufacturer or his appointed dealer.

### Operation, Maintenance and Repair

1. Repairs should be carried out only by qualified persons who have been charged with the repair work and are familiar with centralized lubrication systems.
2. Since the pistons in the metering devices are fit with the smallest tolerances, the metering device must be replaced when the pistons are worn.
3. When synthetic lubricants are used, bear in mind that they must be compatible with the sealing material of the metering devices (FKM or NBR).
4. Use only lubricants which are appropriate for centralized lubrication systems. If in doubt, ask the supplier.



### Installation:

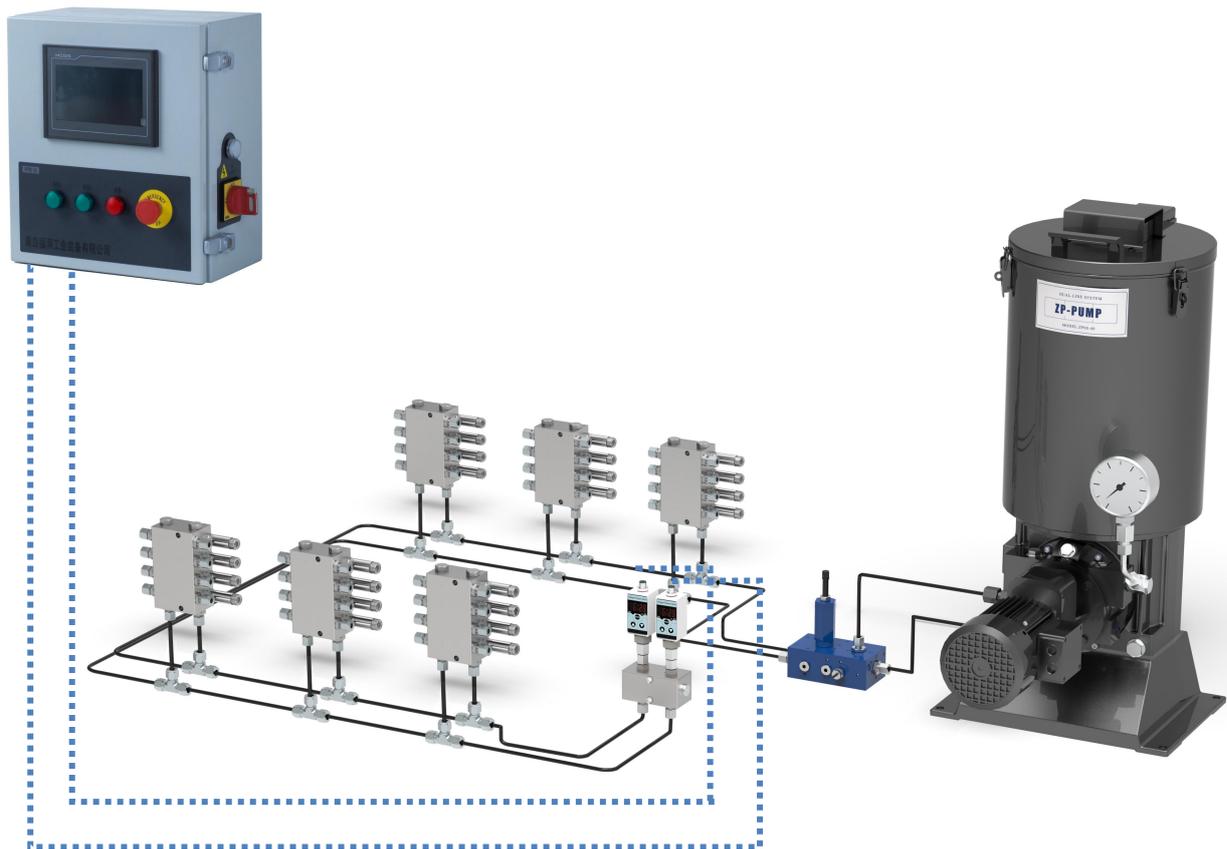
For all work at the metering device, observe extreme cleanliness.

- Attach the metering devices to even surfaces without tension.

when base plates are used, first weld the base plates without the metering devices and then attach the metering devices onto them.

- Protect the metering devices from dust and influences of heat (observe the maximum admissible operating temperatures).
- The metering devices must be easily accessible for . check and installation work.
- Before connecting the feed lines to the metering devices, fill them with lubricant.
- when connecting the main lines take care to always connect the same line (I or II) to the same metering device inlet.
- This makes it easier to check of the metering device because all indicator pins are either in or out after each cycle.

### Struture diagram:



The **ZP08/14/24** pumps are used primarily in dual-line systems or as supply pumps and have a maximum operating pressure of 400 bar (5 800 psi) Depending on the system layout, these electric pumps can supply lubricant at distances of up to 100 meters and more Available with a 40、 60 or 100 L reser voir, the pressure ZP08/14/24 pumps come standard with a pres sure relief valve, check valve, filter and a pressure gauge.

These robust units operate effectively at temperatures ranging from -40 to +80°C thanks to the integrated stirring device.

#### Features and benefits

- Reliable
- Simple to service
- Three options for high lubricant output
- Can be equipped with ultrasonic level control device
- Built-in lubricant filter

#### Applications

- Cement plants
- Steel mills
- Power plants
- Mining
- Large machines

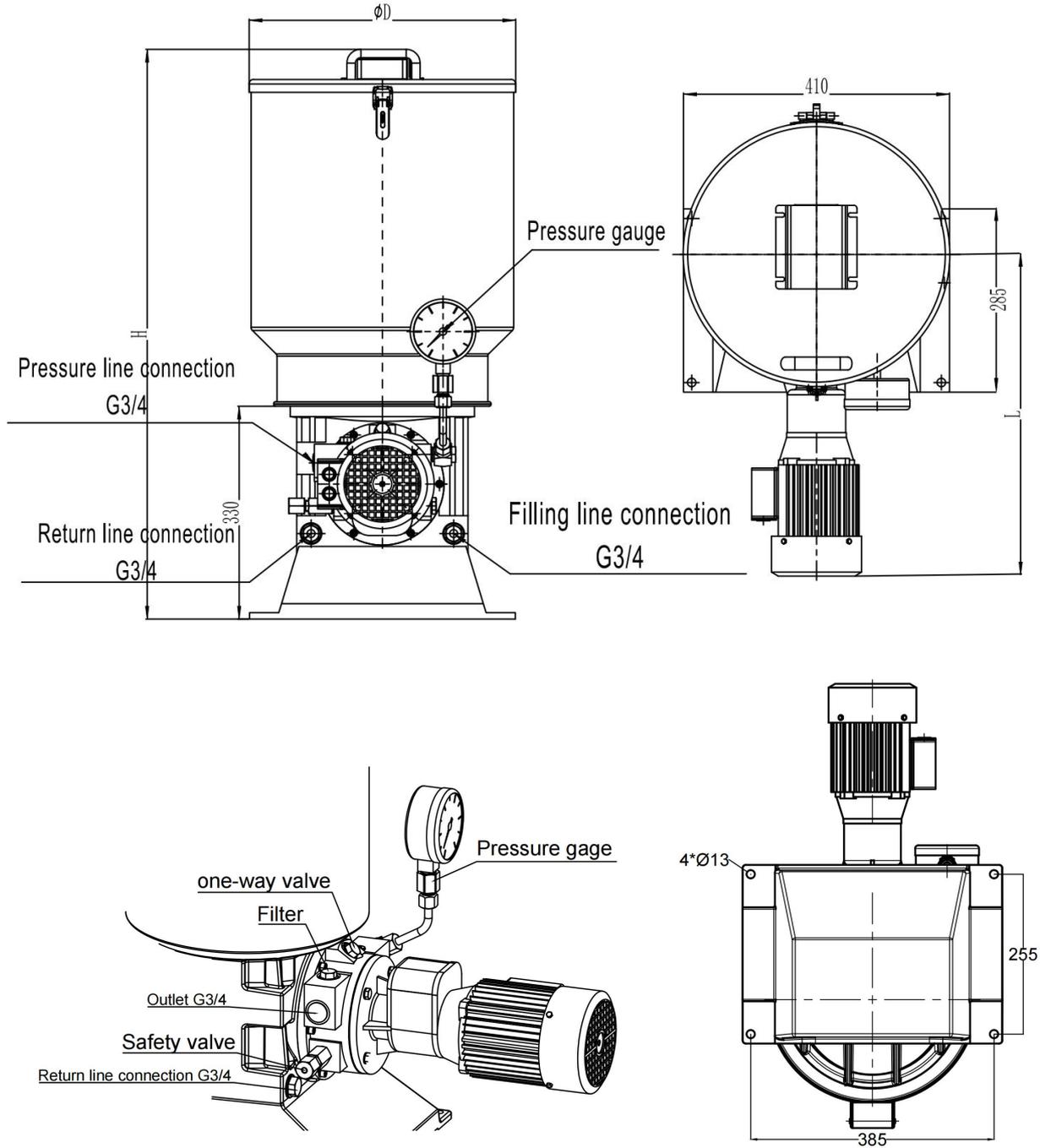


#### Technical parameters

Type	ZP08	ZP14	ZP24
Rated flow	8000ml/h	14000ml/h	24000ml/h
Actuating speed	60rpm	90rpm	90rpm
Operating preasure	Max. 40Mpa		
Thread	Pressure line connection G3/4; Return line connection G3/4; Filling line connection G3/4		
Reservoir	40L	60L	100L
Filter	Filter fineness 180µm		
Lubricant	NLGI 0#-2#		
Safety valve	Fixed setting pressure is 410 bar		
Noise grade	<70 dB(A)		
Operating temperature	-20°C to 80°C		
Motor power	0.75KW		
Voltage	380~415V		



Dimensions(mm):



Specification		$\phi D$	H	L
Reservoir	40L	325	760	510
	60L	410	890	530
	100L	510	1100	575



Ordering information:

ZP -



**Metering quantity**

- 08 = 8 000ml/h
- 14 = 14 000ml/h
- 24 = 24 000ml/h

**Reservoir capacity**

- 40 = 40L
- 60 = 60L
- 100 = 100L

**Ultrasonic Rangefinder**

- 0 = Without
- 4 =24VDC
- 6 =220V

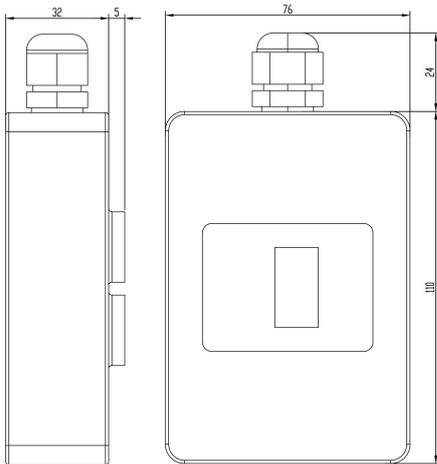


Parts ordering information

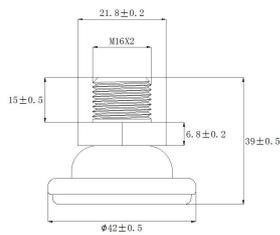
Ultrasonic Rangefinder



PN	Voltage
ZP01006	220V
ZP01024	24V



Vent cap



PN	Thread
ZP01001	M16*2

压力表



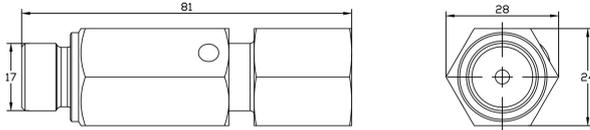
PN	Pressure range	Thread
PG600	0~600bar	G1/2



Parts ordering information

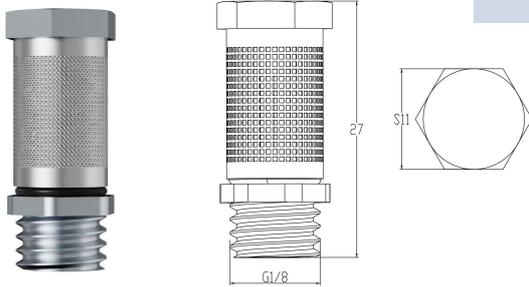
Safety valve

PN	Unloading pressure
ZP01003	410Bar



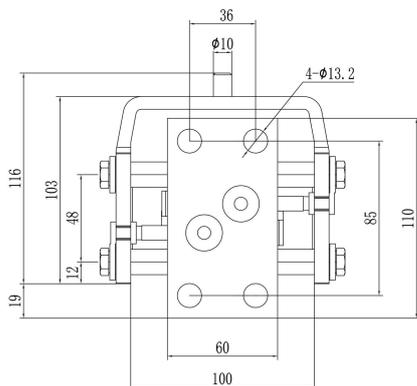
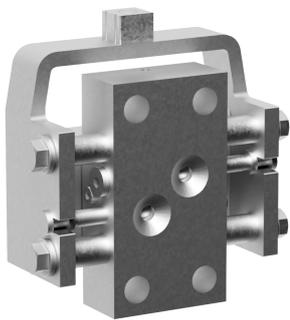
Filter

PN	Filter fineness	Thread
ZP01002	180µm	G1/8



Piston assembly

PN	Rated flow
ZP081001	8000ml/h
ZP141001	14000ml/h
ZP241001	24000ml/h



## DSG Dual-line distributor

The durable, galvanized steel DSG metering devices are designed for dual-line systems with pressures of up to 400 bar (5 800 psi) These metering devices are available with up to eight outlets, and each pair of outlets is equipped with an indicator pin for visual monitoring. Additional features include rust-resistant material.



### Characteristics

- Easy cross-porting with external screw to combine
- Solid-block construction for durability and error-free exchange
- Operates effectively in a wide range of temperatures
- Easy to monitor

### Applications

- Steel plants
- Cement plants
- Mining excavators

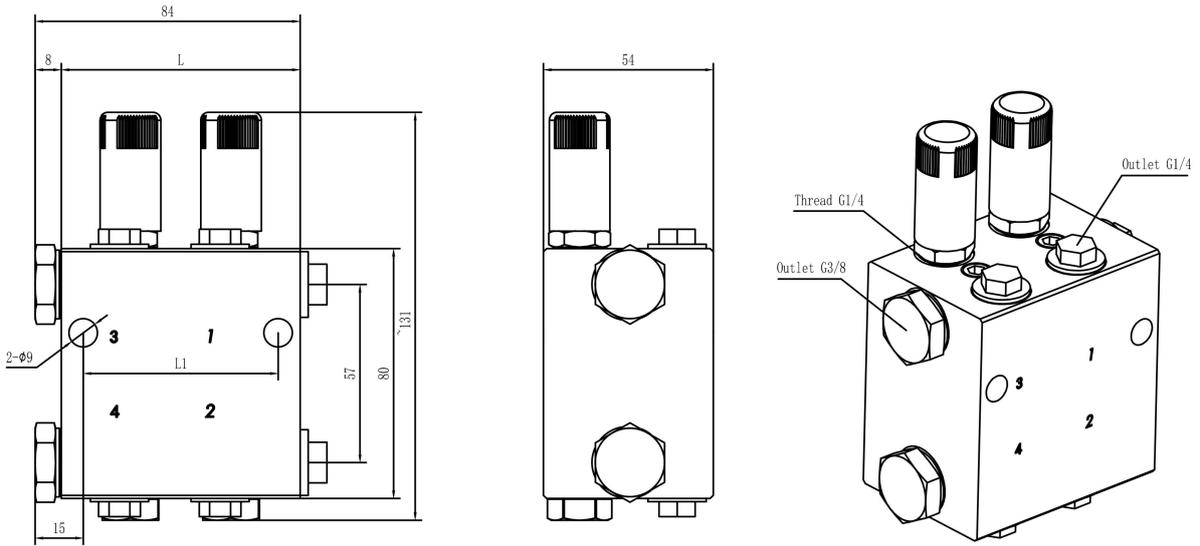
Technical data	
Outlets	2-8
Operating temperature *	NBR: -40~100°C FKM: -20~180°C
Operating pressure	Max. 400bar, 5800psi
Discharge	0~2.2ml/cyc (adjustable) fixed output: 0.55、1.1、1.65、2.2ml/cyc
Lubricant	NLGI 0#-3#
inlet thread	G3/8
Outlet thread	G1/4
Materials	steel galvanized

\* The conventional sealing material is NBR, if FKM material is required, please +F after the model.

For example: DSG-02AD2.2-F



Dimensions(mm):



Outlet Number	L1	L
2	30	44
4	62	76
6	94	108
8	126	140

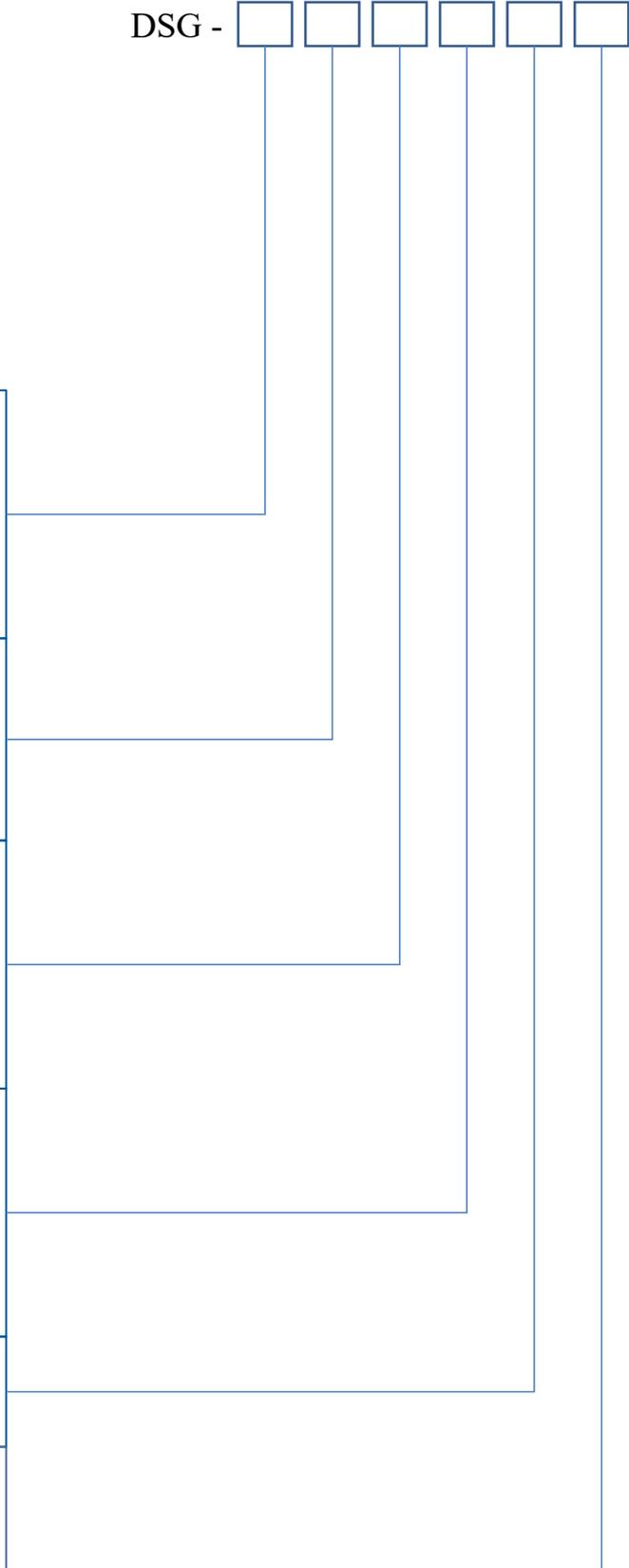


Ordering information:



DSG -

<p><b>Outlet Number</b></p> <p>02=2</p> <p>04=4</p> <p>06=6</p> <p>08=8</p>
<p><b>Inlet Connector shape</b></p> <p>A=Without inlet and outlet fittings</p> <p>D= Straight fitting assembly</p> <p>H= Angle fitting assembly</p>
<p><b>Inlet Connector</b></p> <p>12=Ø12</p> <p>16=Ø16</p> <p>18=Ø18</p> <p>20=Ø20</p>
<p><b>Type</b></p> <p>KR = With indicator pin and adjustment</p> <p>NP = piston detector</p> <p>D= with metering screw</p> <p>0.55、 1.1、 1.65、 2.2ml/cyc</p>
<p><b>Plug</b></p> <p>XD=3-8</p>
<p><b>Outlet Connetor</b></p> <p>D8=Ø8mm Straight fittings</p> <p>D10=Ø10mm Straight fittings</p> <p>D12=Ø12mm Straight fittings</p> <p>D16=Ø16mm Straight fittings</p>



## DSL Dual-line distributor

The durable, galvanized steel DSL metering devices are designed for dual-line systems with pressures of up to 400 bar (5 800 psi). These metering devices are available with up to eight outlets, and each pair of outlets is equipped with an indicator pin for visual monitoring. Additional features include rust-resistant material.



### Characteristics

- Easy cross-porting with external screw to combine
- Solid-block construction for durability and error-free exchange
- Operates effectively in a wide range of temperatures
- Easy to monitor

### Applications

- Steel plants
- Cement plants
- Mining excavators

### Technical data

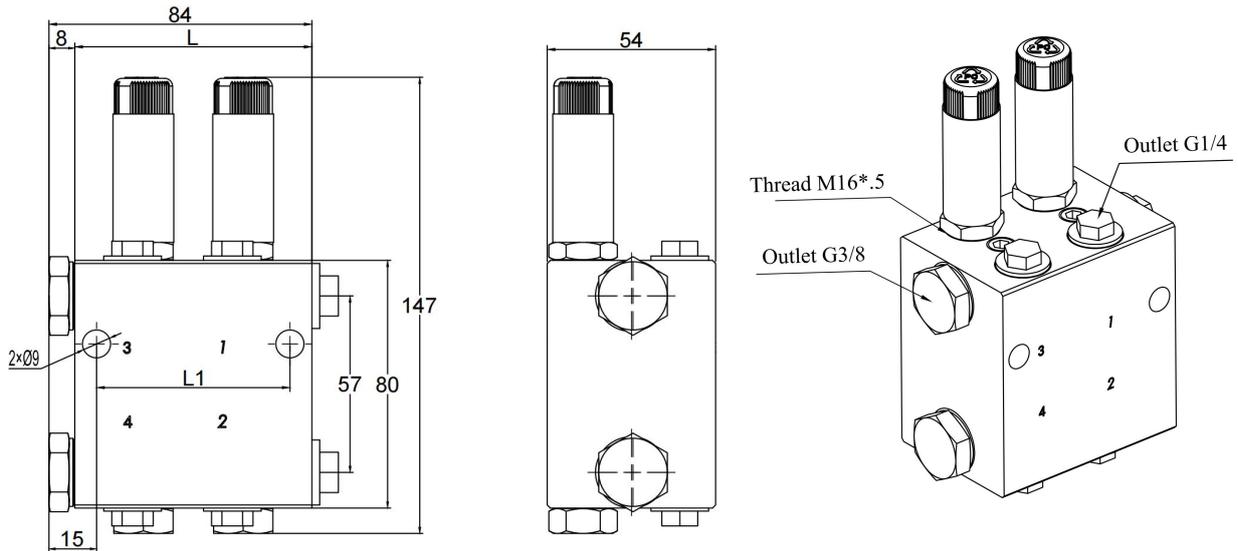
Outlets	2-8
Operating temperature *	NBR: -40~100°C FKM: -20~180°C
Operating pressure	Max. 400bar, 5800psi
Discharge	0~5ml/cyc (adjustable) fixed output: 1.25、2.5、3、3.75、5ml/cyc
Lubricant	NLGI0#-3#
inlet thread	G3/8
Outlet thread	G1/4
Materials	steel galvanized

\* The conventional sealing material is NBR, if FKM material is required, please +F after the model.

For example: DSL-02AD5-F



Dimensions(mm):



Outlet Number	L1	L
2	30	44
4	62	76
6	94	108
8	126	140

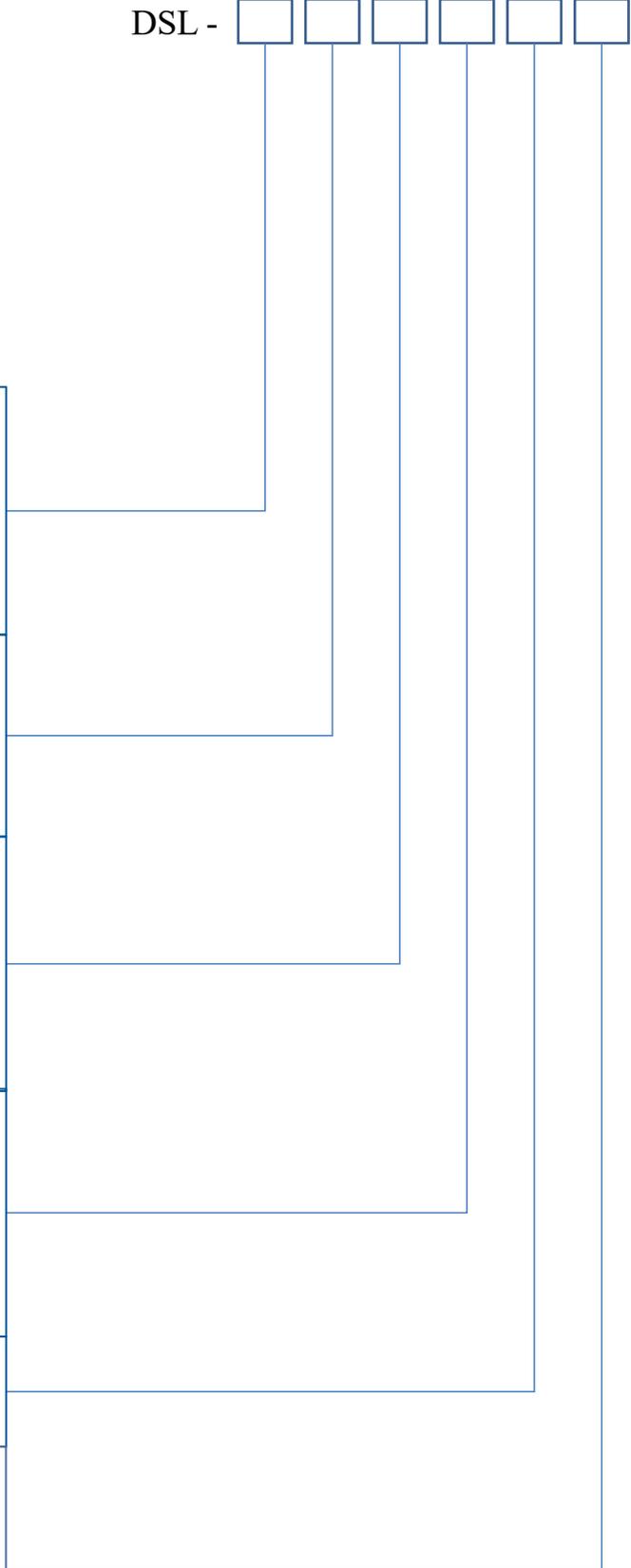


Ordering information:



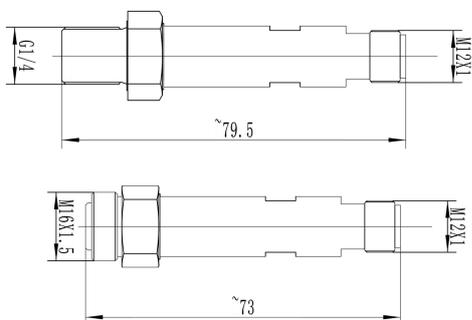
DSL -

<p><b>Outlet Number</b></p> <p>02=2</p> <p>04=4</p> <p>06=6</p> <p>08=8</p>
<p><b>Inlet Connector shape</b></p> <p>A=Without inlet and outlet fittings</p> <p>D= Straight fitting assembly</p> <p>H= Angle fitting assembly</p>
<p><b>Inlet Connector</b></p> <p>12=Ø12</p> <p>16=Ø16</p> <p>18=Ø18</p> <p>20=Ø20</p>
<p><b>Type</b></p> <p>KR = With indicator pin and adjustment</p> <p>NP = piston detector</p> <p>D= with metering screw</p> <p>1.25、 2.5、 3、 3.75、 5ml/cyc</p>
<p><b>Plug</b></p> <p>XD=3-8</p>
<p><b>Outlet Connector</b></p> <p>D8=Ø8mm Straight fittings</p> <p>D10=Ø10mm Straight fittings</p> <p>D12=Ø12mm Straight fittings</p> <p>D16=Ø16mm Straight fittings</p>



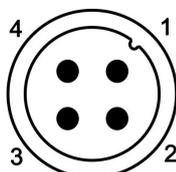
Distributor parts ordering information

Ultra sensor

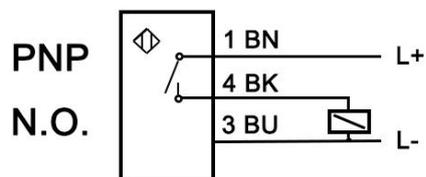


PN	Thread	Connecting thread	Description
125516	M16*1.5	M12*1, 4Core	PNP, for DSL
125504	G1/4	M12*1, 4Core	PNP, for DSG

Wiring



PNP  
 1: Brown  
 3: Blue  
 4: Black



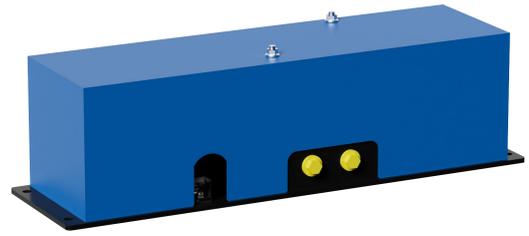
Ultra sensor cable



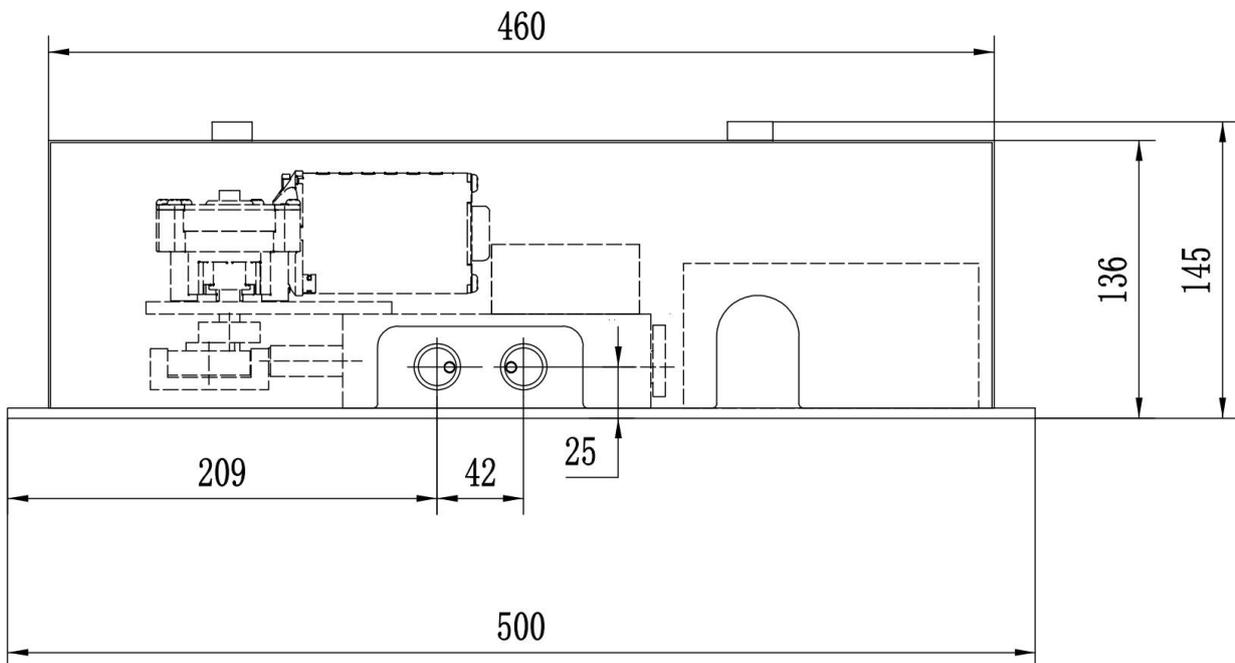
PN	Type	Description
124582	Straight	2m
124583	Elbow	2m



**WP-C** Electric change-over valve is an integrated detention control device which uses a large torque DC eceleration motor to drive the valve sliding core to move in order to open and close the oil supply pipeline or change the direction of oil supply. It is suitable for two position two-way, two position three-way and two position four-way directional valves in the main pipeline of lubrication system and hydraulic system with nominal pressure below 40Mpa.



#### Dimensions:



Part number	Pressure	Voltage	Power	Reversing time	Weight
24EJF46	40Mpa	AC220	40W	0.5s	13KG
24EJF424		DC24			11KG



## Ordering information:

Two-position	2	4	EJF	4	6
<b>Number of access</b> 4=four-way					
Transdirectional valve driven by the DC motor					
<b>Pressure grade code</b> 4=40Mpa					
<b>Voltage</b> 24=DC24V 6=AC220					

**Action specification:**

The valve is mainly composed of DC motor, limit switch, reversing valve body, rectifier transformer device and other parts installed in the same floor on the protective cover shell. The electric control box in the system sends a reversing signal (the differential pressure switch at the end of the system) causes the DC motor to rotate, and drives the sliding core through the eccentric wheel. When the sliding core reaches the required reversing position from one end to the other, the baffle at the end of the sliding core touches the limit switch, sends an electrical signal to the electric control box, and orders the DC motor to stop rotating and complete the reversing process.

**Direction for use :**

1. The valve is installed at the front end of the main and branch lines of the system, and is located in the ventilated, dry parts for inspection and no interference of the surrounding motion mechanism.
2. When used as two channels, the oil outlet "B" and "R" oil outlet shall be blocked.
3. When used as two positions and three links, the oil outlet "B" must be blocked.
4. The pressure oil end of the controlled line must be connected to the "P" port of the valve.
5. If the electrical signal valve does not work, first check whether the fuse is burned out, and then check whether the pin solder is off or the wire is loose.



**DU-C** are hydraulic change-over valves designed primarily for use in dual-line lubrication systems. These change-over valves alternately discharge lubricant, fed by the pump into one of the two main lines. The other line is connected to the return line connection of the pump. The switching pressure is adjustable.



#### Features and benefits

- Reliable, even for hard grease
- Change-over process initiated automatically once preset pressure is reached
- Maximum operating pressure of 35 Mpa (5 076 psi)
- Various mounting positions
- Works effectively in temperatures ranging from -20 to +80 °C

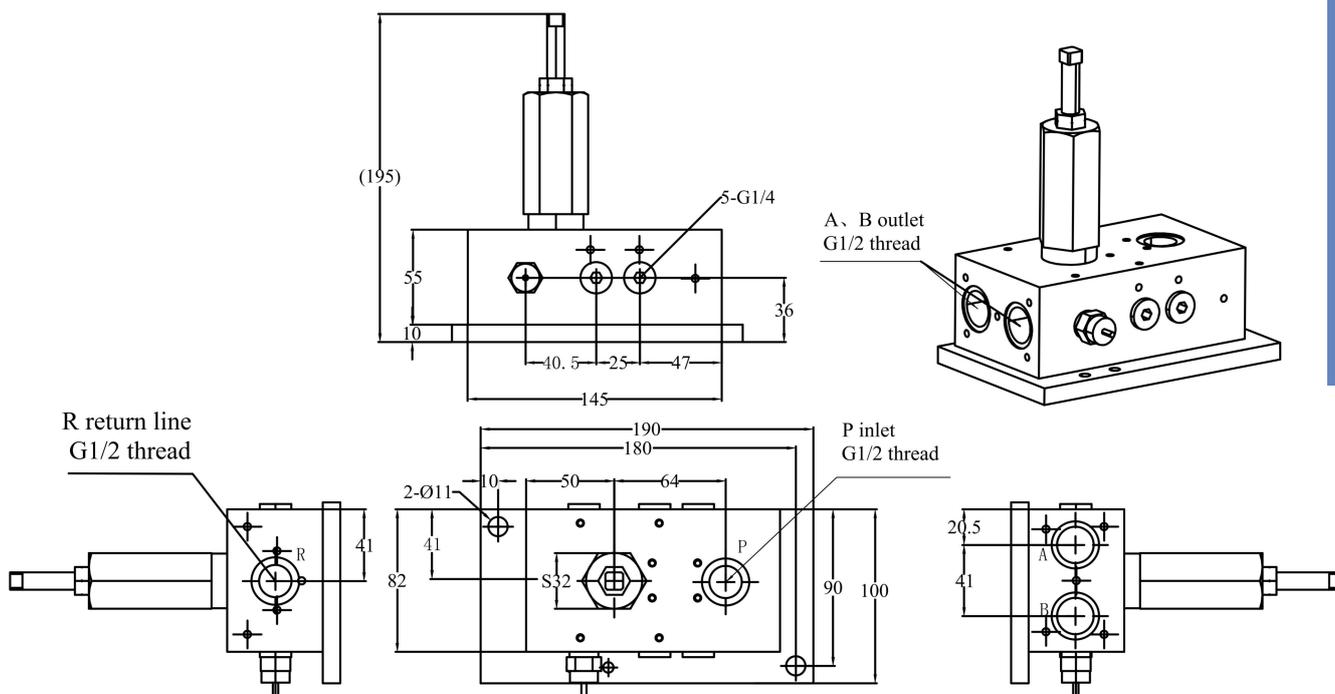
#### Applications

- Ideal for small, electrically driven dual-line systems that requires minimal monitoring

Technical data	
Function principle	change-over valve, hydraulic
Operating temperature	-20 to +80 °C
Lubricant	grease up to NLGI 3, oil with a viscosity of min 20 mm <sup>2</sup> /s
Operating pressure	max 35 Mpa, 5 075 psi
Change-over pressure	min 14 Mpa, max 35 Mpa,
Output thread	G1/2
Oil return port thread	G1/2
Input thread	G1/2



Dimensions(mm):

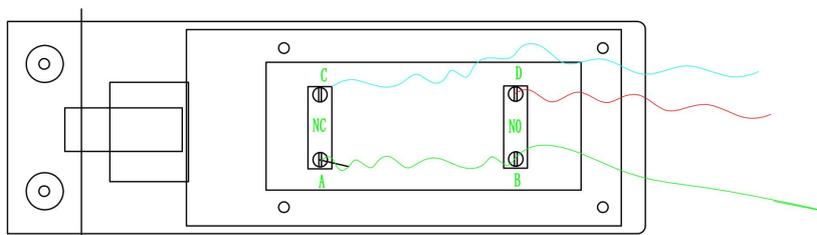


Ordering information:

DU-C-

C = with indicator pin  
E = with proximity switch

Wiring diagram with proximity switch



There are two sets of contacts, A, C for the normally closed point, B, D for the normally open point; wiring method: connect A, B points lead out as a common line, respectively, lead out C and D as a commutation signal line. Similarly, C and D can be combined as a common line, A and B respectively as a commutation line.



The **MC-I** control equipment is dedicated to the management and control of centralized lubrication system. The dedicated card installed inside controls the inlet and outlet signals of the whole system.

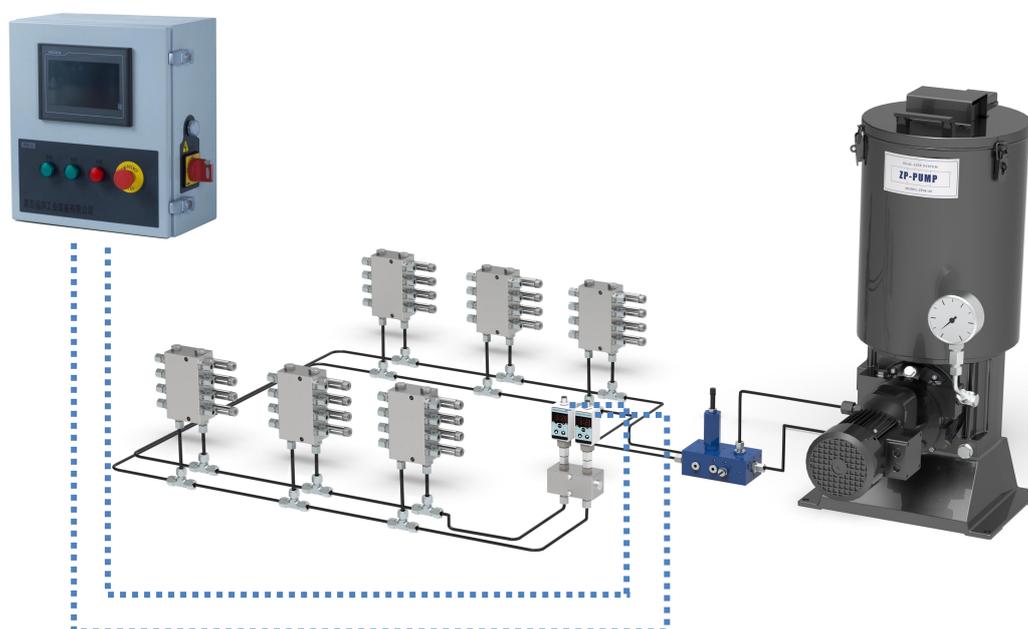


#### Features and benefits

- Super large LED LCD screen, simplicity of operator
- Chinese and English operating system
- Strong case for harsh environment
- Ability to customize the lubrication intervals, pause and the cycle count

#### Technical data

PN	MC-I
Input power	380VAC $\pm$ 10%
Operating temperature	-20°C - 60°C
Power	60W
Protection rating	IP55





**EPW** end-of-line pressure switches are key components in a dual-line lubrication system. Designed to monitor the system, these switches detect the pressure at the end of the respective main line and start the change-over procedure. If the pressure at the end of the line is not reached within a specific period of time, a fault signal will be generated at the electronic control unit.

**Features and benefits**

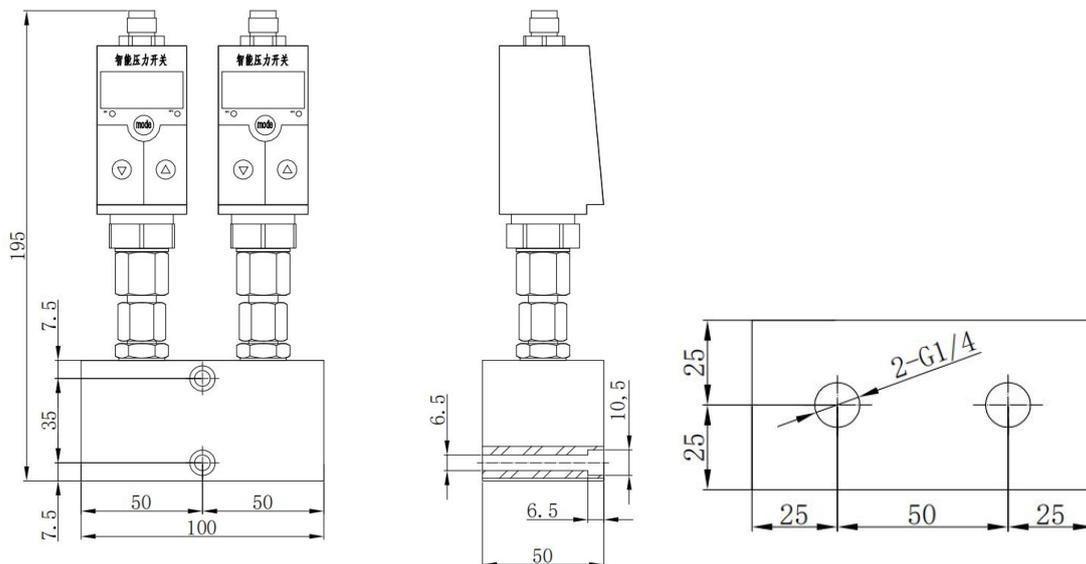
- Controls proper functioning of the pump and change-over unit
- Monitors for leaks in the tube line system
- Available with limit switches or with electronic pressure switches with LED display
- Proven, rigid design for tough conditions

**Applications**

- Large dual-line systems
- Steel mills
- Cement plants
- Minerals and mining

Technical data	
Function principle	Electronic pressure switch with
Operating temperature	-25 °C to +85 °C
Operating pressure	0-600 bar
Supply voltage	18-36 VDC
Accurate measurement	0.5%FS (default), 0.2%FS, 0.1%FS
Range	-100kpa~0~100mpa (Optional within the range)

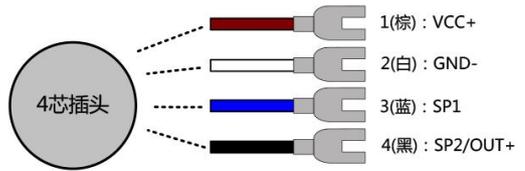
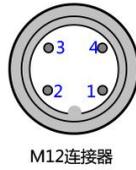
**Dimensions(mm):**



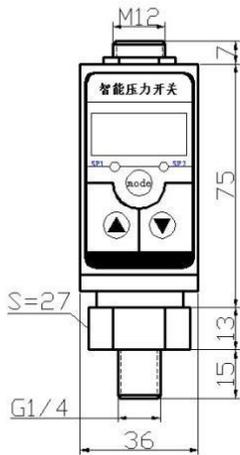
Pressure switch kits



PN
EPW

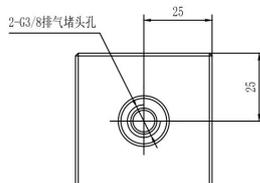
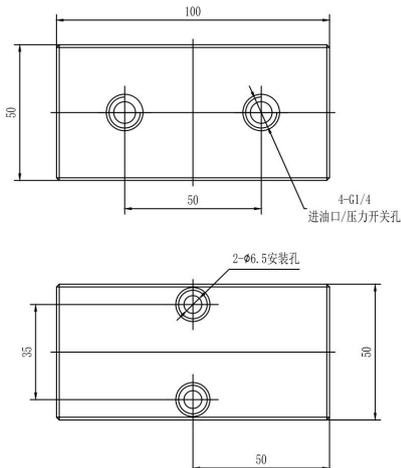


Single pressure switch



PN	Therad
EPW-S1	G1/4

Installation block

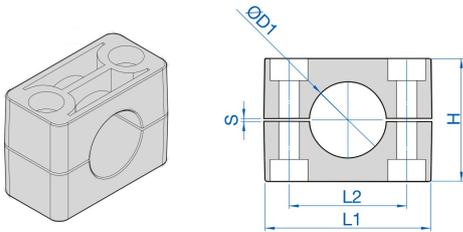


PN
EPW0B



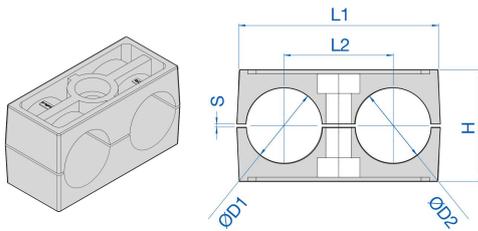
Accessories

Single pipe clip



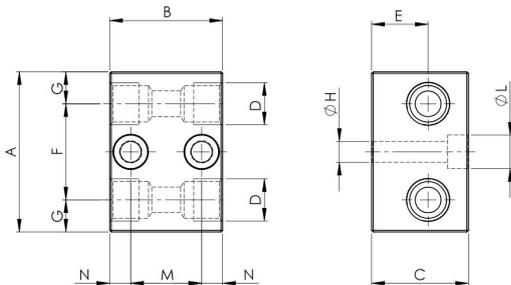
PN	ØD1	L1	H
SC06	Ø6	37	27
SC08	Ø8	37	27
SC10	Ø10	37	27
SC12	Ø12	37	27
SC16	Ø16	42	33

Twin pipe clip



PN	ØD1	L1	L2	H
TC1010	Ø10-Ø10	36	20	27
TC1212	Ø12-Ø12	36	20	27
TC1616	Ø16-Ø16	53	27	29
TC2020	Ø20-Ø20	67	36	37
TC2525	Ø25-Ø25	67	36	37
TC3030	Ø30-Ø30	81	45	42

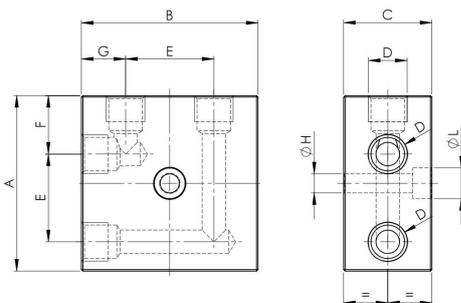
Straight dual line Junction blocks



PN	D	A	B	C	E	F	G	H	L	M	N
JDS04	G1/4"	50	35	30	17.5	30	10	6.5	10.5	22	6.5
JDS06	G3/8"	80	40	32	27	33	15	6.5	10.5	28	11

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JDS04-SS

90° dual line Junction blocks

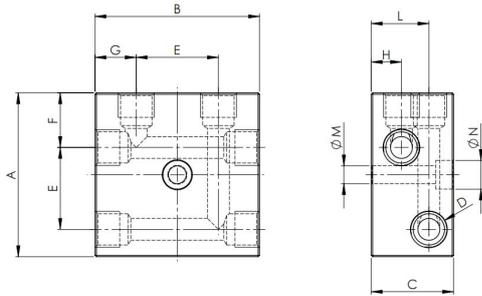


PN	D	A	B	C	E	F	G	H	L
JDA04	G1/4"	60	60	30	30	20	15	6.5	10.5
JDA06	G3/8"	80	96	50	50	19	23	8.5	13.5

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JDA04-SS



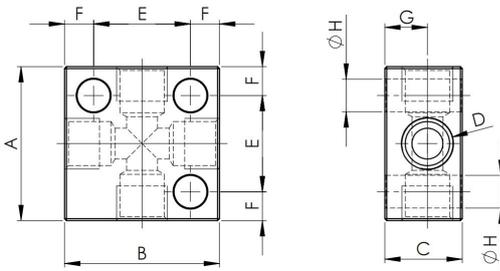
T dual line Junction blocks



PN	D	A	B	C	E	F	G	H	L	M	N
JDT04	G1/4"	60	60	30	30	20	15	11	21	6.5	10.5
JDT06	G3/8"	80	96	50	50	19	23	21.5	33.5	8.5	13.5

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JDT04-SS

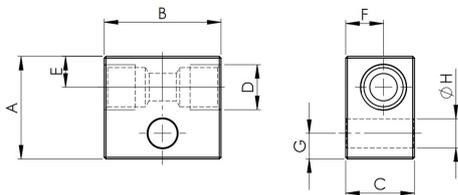
X dual line Junction blocks



PN	D	A	B	C	E	F	G	H	L	M	N
JDF04	G1/4"	60	70	30	30	15	20	11	21	6.5	10.5
JDF06	G3/8"	100	96	50	50	25	23	21.5	33.5	8.5	13.5

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JDF04-SS

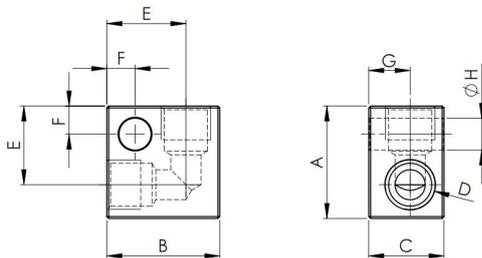
Straight single line Junction blocks



PN	D	A	B	C	E	F	G	H
JSS04	G1/4"	30	34	20	9	11	7.5	8.5
JSS06	G3/8"	40	45	25	15	12.5	7.5	8.5

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JSS04-SS

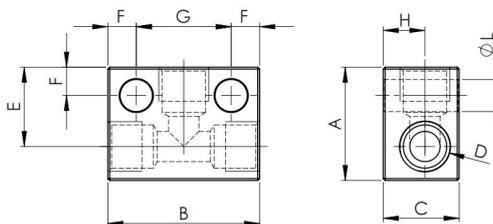
90° single line Junction blocks



PN	D	A	B	C	E	F	G	H
JSA04	G1/4"	30	30	20	21	7.5	11	8.5
JSA06	G3/8"	40	40	30	28	7.5	15	8.5

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JSA04-SS

T single line Junction blocks

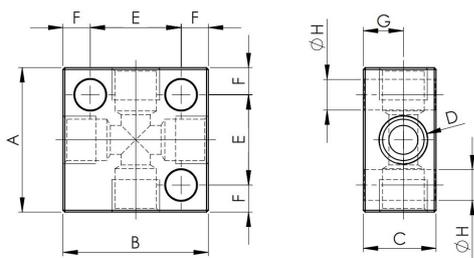


PN	D	A	B	C	E	F	G	H
JST04	G1/4"	40	40	20	25	7.5	11	8.5
JST06	G3/8"	50	50	30	35	7.5	15	8.5

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JST04-SS



X single line Junction blocks



PN	D	A	B	C	E	F	G	H	L
JSF04	G1/4"	30	40	20	21	7.5	25	11	8.5
JSF06	G3/8"	40	50	30	28	7.5	35	15	8.5

The standard material is steel, if you need to order stainless steel, please add -SS after PN, EG.: JSF04-SS

Stright fitting



Main line			
PN	Tube OD	Thread	Material
TW1206	Ø12	G3/8"	Carbon steel
TW1606	Ø16	G3/8"	Carbon steel

Outlet line			
PN	Tube OD	Thread	Material
TW0604	Ø6	G1/4"	Carbon steel
TW0804	Ø8	G1/4"	Carbon steel
TW1004	Ø10	G1/4"	Carbon steel

Junction fittings



Junction stright fitting		
PN	Tube OD	Material
5D0606	Ø6	Carbon steel
5D0808	Ø8	Carbon steel
5D1010	Ø10	Carbon steel
5D1212	Ø12	Carbon steel
5D1616	Ø16	Carbon steel
5D2020	Ø20	Carbon steel
5D2525	Ø25	Carbon steel
5D3030	Ø30	Carbon steel





Reduction fitting			
PN	Tube OD	Tube OD	Material
5D1612	Ø16	Ø12	Carbon steel
5D2012	Ø20	Ø12	Carbon steel
5D2016	Ø20	Ø16	Carbon steel
5D2516	Ø25	Ø16	Carbon steel
5D2520	Ø25	Ø20	Carbon steel
5D3020	Ø30	Ø20	Carbon steel
5D3025	Ø30	Ø25	Carbon steel

T junction fitting



PN	Tube OD	Material
TJ06	Ø6	Carbon steel
TJ08	Ø8	Carbon steel
TJ10	Ø10	Carbon steel
TJ12	Ø12	Carbon steel
TJ16	Ø16	Carbon steel
TJ20	Ø20	Carbon steel
TJ25	Ø25	Carbon steel
TJ30	Ø30	Carbon steel



PN	Tube OD T	Tube OD C	Material
TJ1612	Ø16	Ø12	Carbon steel
TJ2012	Ø20	Ø12	Carbon steel
TJ2016	Ø20	Ø16	Carbon steel
TJ2516	Ø25	Ø16	Carbon steel
TJ2520	Ø25	Ø20	Carbon steel



Accessories

Plug with seals



PN	Thread	Material
5PG06	G3/8"	Carbon steel
5PG04	G1/4"	Carbon steel

Elbow junction



PN	Tube OD	Material
EJ06	Ø6	Carbon steel
EJ08	Ø8	Carbon steel
EJ10	Ø10	Carbon steel
EJ12	Ø12	Carbon steel
EJ16	Ø16	Carbon steel
EJ20	Ø20	Carbon steel
EJ25	Ø25	Carbon steel
EJ30	Ø30	Carbon steel

Fitting for point



Stright			
PN	Tube OD	Thread	Material
TW0602	Ø6	G1/8"	Carbon steel
TW0802	Ø8	G1/8"	Carbon steel



90°			
PN	Tube OD	Thread	Material
HW0602	Ø6	G1/8"	Carbon steel
HW0802	Ø8	G1/8"	Carbon steel



## Steel tubing



PN	Outer diameter	Inside diameter
T-CP06	Ø6	Ø4
T-CP08	Ø8	Ø6
T-CP10	Ø10	Ø8
T-CP12	Ø12	Ø9
T-CP16	Ø16	Ø12
T-CP20	Ø20	Ø16
T-CP25	Ø25	Ø20
T-CP30	Ø30	Ø24

## PNP Ultra sensor



PN	Thread	Thread	Description
125516	M16*1.5	M12*1	4Core, To DSL
125504	G1/4	M12*1	4Core, To DSG



# CISO

LUBRICATION SYSTEM

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MADE IN CHINA



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