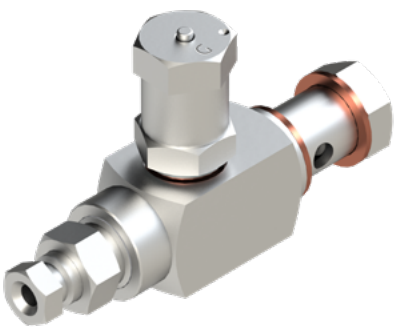
REV19012022

lubrication systems

CM-CL

VOLUMETRIC METERING VALVES

FOR OIL AND GREASE OPERATION



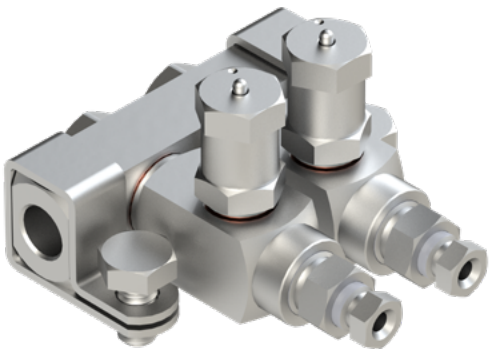


TABLE OF CONTENTS

CE

All ILC products must only be used for their intended purposes, as specified in this brochure and in all instructions. If the product is supplied together with user instructions, the user is required to read them and comply with them. Not all lubricants are suitable for centralised lubrication systems. ILC lubrication systems or relative components cannot be used together with gas, liquid gas, pressurised gas in solution and liquids with vapour pressure exceeding normal atmospheric pressure (1013 bar) by more than 0.5 bar, maximum temperature permitted. Any type of dangerous materials, namely those classified as such by European Community Directive (EC) 67/548/EEC, Article 2 (2), can only be used in ILC centralised lubrication systems or relative components upon consultation with ILC and after having received written approval from the company.

REV19012022

General information

CM-CL metering valves are used in centralised lubrication single-line systems operating with oil or grease. They are installed on 1-to-15-output distributor blocks: each single valve can be easily removed for inspection or replacement. Valves and distributor blocks are made of steel, with Viton seals, suitable for high temperature applications. The flow rate is externally adjustable and the valve is equipped with a visual indicator for checking operation.

Glass Processing | Plastic Processing | Metal Processing | Paper Processing | Packaging | Wood Processing | Food Processing

Technical data

Permitted lubricants	Oil 50 cSt – 2000 cSt	Grease up to NLGI 2
Temperature	from -30 °C to +150 °C	
Seals	VITON	
Materials	AVP Steel, VDSiCr EN10270-2 Steel, Oteva®70 SCs Steel, Anticorodal Aluminium, Viton, Copper, Brass.	

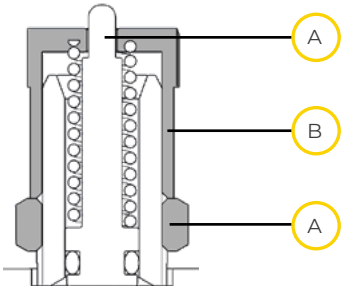
Adjustment

The flow rate of the valve is determined by adjusting nut F which limits the stroke of metering piston G.

To reach the minimum flow rate, screw counter nut E up to the valve body, screw the ring nut by hand up to the mechanical stop and then loosen by about ½ turn.

NOTE: any output set below ½ turn must be monitored to check the actual flow rate volume.
The maximum flow rate can be obtained by unscrewing the ring nut by one and a half turns. Beyond this position, the valve will not operate smoothly.

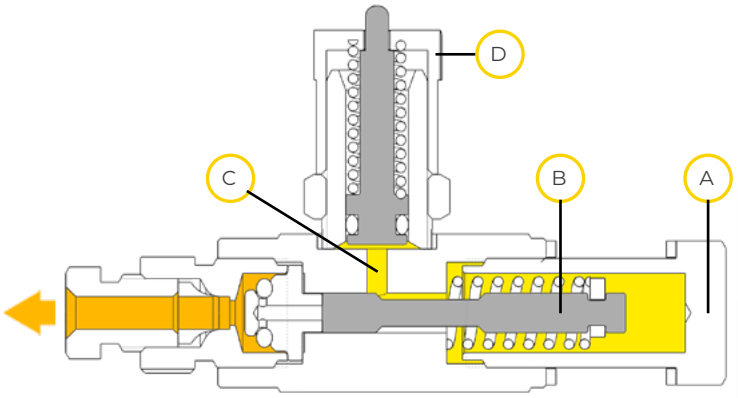
When the valve has been adjusted to the desired flow rate, tighten counter nut E against the adjusting nut.



A	Counter nut
B	Adjusting nut
C	Metering Piston

NOTE
The Position Of The Adjustment Ring Must Not Extend Beyond The Outside Of The Metering Piston

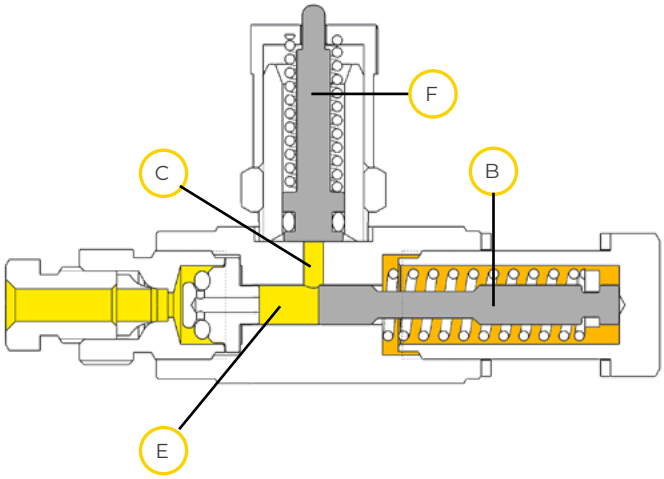
Operation



1

With the system purged, the oil delivery pressure from inlet **A** pushes piston **B** forward and opens communication with metering chamber **C**.

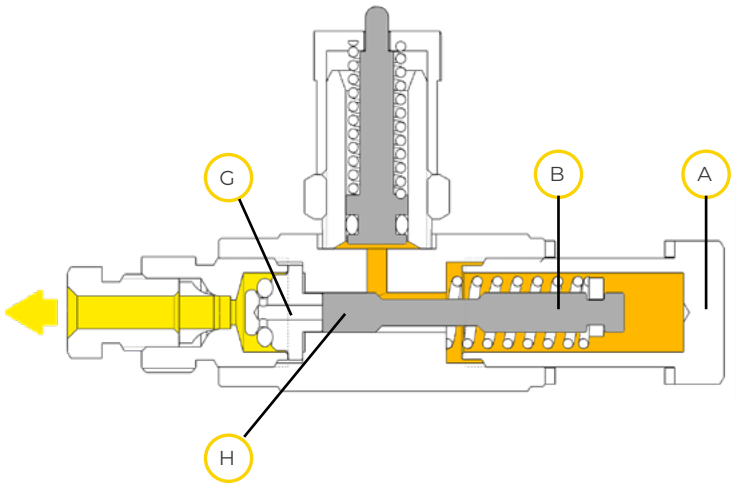
Metering chamber **C** fills up according to the quantity set with adjusting nut **D**.



2

The pump relieves the pressure of the discharge line. Piston **B** returns to the rest position and opens communication between Metering chamber **C** and Discharge chamber **E**.

Metering piston **F** returns to rest conditions by pushing the lubricant from metering chamber **C** and discharge chamber **E**.

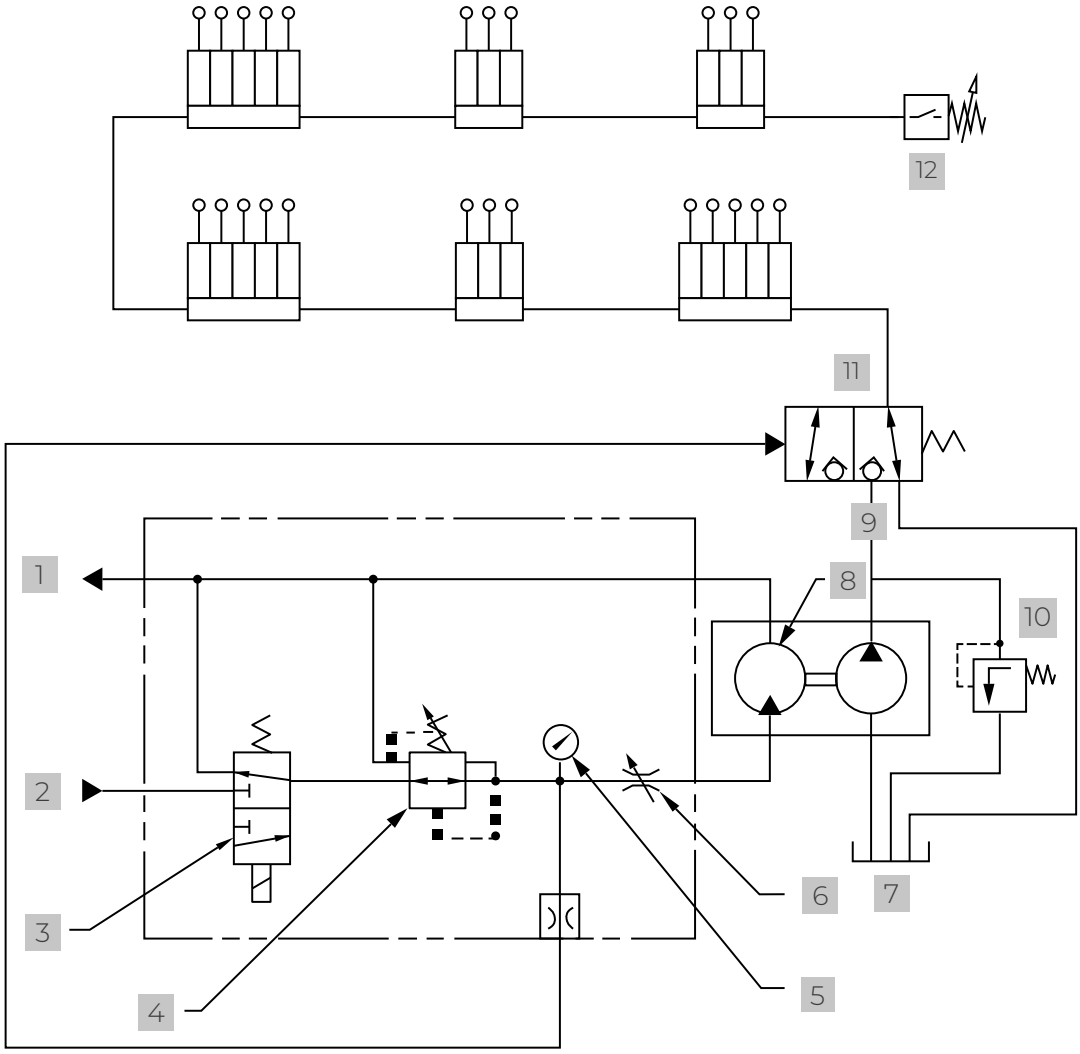


3

Delivery line **A** returns to be pressurised. Piston **B** moves forward pushing the lubricant accumulated in discharge chamber **H**, on the delivery line beyond non-return valve **G**.

The cycle restarts from step **1**.

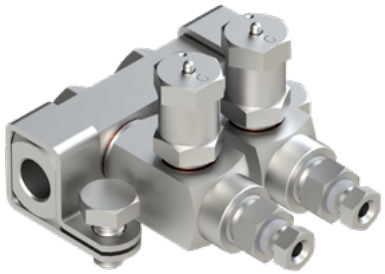
REV19012022

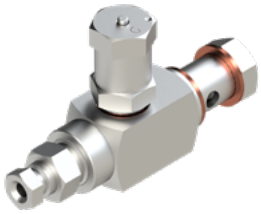


1	Return to hydraulic line
2	Hydraulic Oil Inlet
3	Solenoid valve
4	Pressure Reducing Valve
5	Pressure gauge
6	Flow Rate Adjustment Valve
7	Lubricant Tank
8	Hydraulic Motor
9	Lubricant output
10	Pressure Limiter Valve
11	Release Valve
12	End of line pressure switch

REV19012022

CL-32





Order Codes

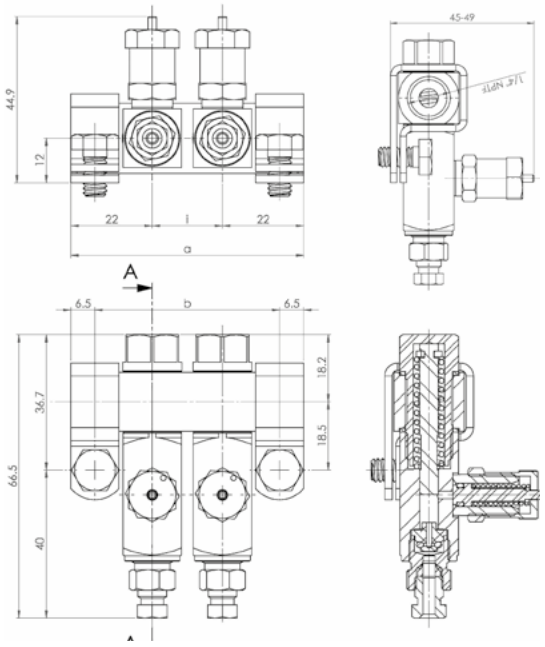
Single valve		
02.930.2.G		
Part No.		
Assembled	**Block**	**Outputs**
02.930.2.G.01	01.113.0.01	1
02.930.2.G.02	01.113.0.02	2
02.930.2.G.03	01.113.0.03	3
02.930.2.G.04	01.113.0.04	4
02.930.2.G.05	01.113.0.05	5
02.930.2.G.06	01.113.0.06	6
02.930.2.G.07	01.113.0.07	7
02.930.2.G.08	01.113.0.08	8
02.930.2.G.10	01.113.0.10	10
02.930.2.G.12	01.113.0.11	12
02.930.2.G.15	01.113.0.12	15

Operating pressure

Min	Max
83 bar (1200 psi)	241 bar (3500 psi)
Typical	**Release**
103 bar (1500 psi)	14 bar (200 psi)

Flow rate/Frequency/outputs

Min flow rate	Max flow rate
0.016 cc (0.001 cu. in.)	0.131 CC (0.008 cu. in.)
Working time	**Break time**
2"	2"
Inlet	**Output**
1/4" NPTF (F)	For pipes with 1/8" outer Ø

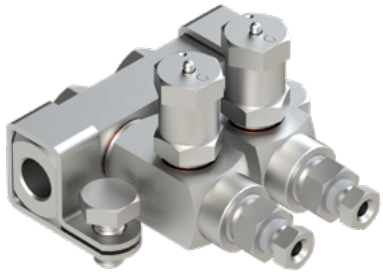


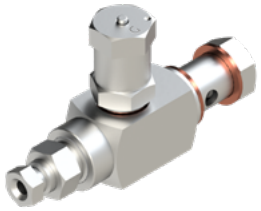
Dimensions (mm/in)

i	a	b	Outputs
-	41 (1 5/8")	31 (1 2/8")	1
19 (3/4")	60 (2 3/8")	50 (2")	2
19 (3/4")	79 (3 1/8")	69 (2 6/8")	3
19 (3/4")	98 (3 7/8")	88 (3 4/8")	4
19 (3/4")	117 (4 5/8")	107 (4 2/8")	5
19 (3/4")	136 (5 3/8")	126 (5")	6
19 (3/4")	155 (6 1/8")	145 (5 6/8")	7
19 (3/4")	174 (6 7/8")	164 (6 4/8")	8
19 (3/4")	212 (8 3/8")	202 (8")	10
19 (3/4")	250 (9 7/8")	240 (9 4/8")	12
19 (3/4")	307 (12 1/8")	297 (11 6/8")	15

REV19012022

CM-33





Order Codes

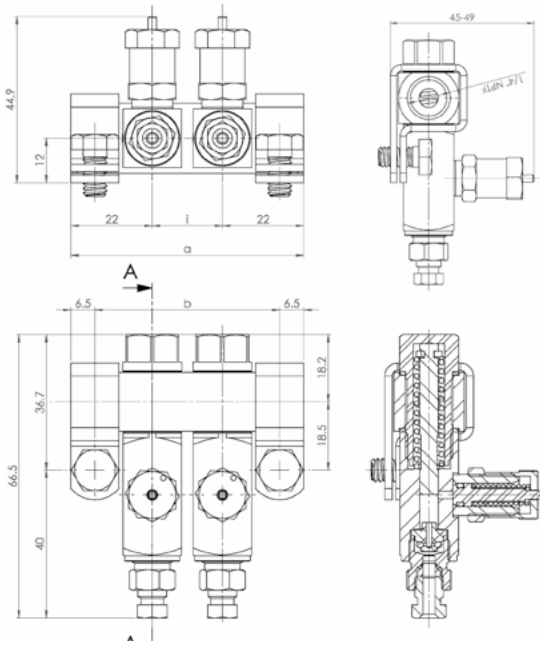
Single valve		
02.930.1.G		
Part No.		
Assembled	**Block**	**Outputs**
02.930.1.G.01	01.112.0.01	1
02.930.1.G.02	01.112.0.02	2
02.930.1.G.03	01.112.0.03	3
02.930.1.G.04	01.112.0.04	4
02.930.1.G.05	01.112.0.05	5
02.930.1.G.06	01.112.0.06	6
02.930.1.G.07	01.112.0.07	7
02.930.1.G.08	01.112.0.08	8
02.930.1.G.10	01.112.0.10	10
02.930.1.G.12	01.112.0.11	12
02.930.1.G.15	01.112.0.12	15

Operating pressure

Min	Max
83 bar (1200 psi)	241 bar (3500 psi)
Typical	**Release**
103 bar (1500 psi)	14 bar (200 psi)

Flow rate/Frequency/outputs

Min flow rate	Max flow rate
0.016 cc (0.001 cu. in.)	0.049 cc (0.003 cu. in.)
Working time	**Break time**
2"	2"
Inlet	**Output**
1/8" NPTF (F)	For pipes with 1/8" outer Ø

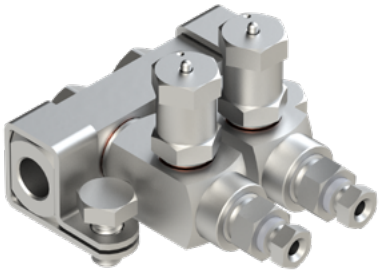


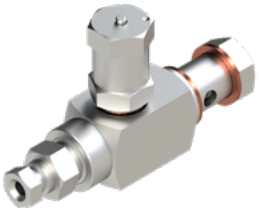
Dimensions (mm/in)

i	a	b	Outputs
-	41 (1 5/8")	30 (1 1/8")	1
19 (3/4")	60 (2 3/8")	49 (1 7/8")	2
19 (3/4")	79 (3 1/8")	68 (2 5/8")	3
19 (3/4")	98 (3 7/8")	87 (3 3/8")	4
19 (3/4")	117 (4 5/8")	106 (4 1/8")	5
19 (3/4")	136 (5 3/8")	125 (4 7/8")	6
19 (3/4")	155 (6 1/8")	144 (5 5/8")	7
19 (3/4")	174 (6 7/8")	163 (6 3/8")	8
19 (3/4")	212 (8 3/8")	201 (7 7/8")	10
19 (3/4")	250 (9 7/8")	239 (9 3/8")	12
19 (3/4")	307 (12 1/8")	296 (11 5/8")	15

REV19012022

CM-42





Order Codes

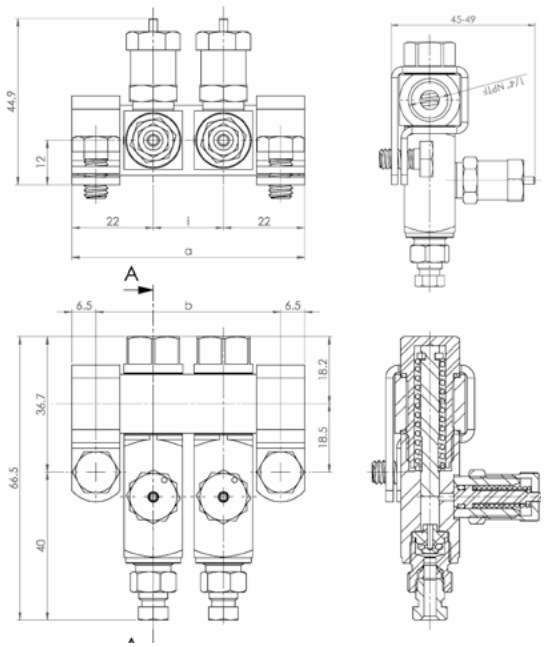
Single valve		
02.930.1		
Part No.		
Assembled	**Block**	**Outputs**
02.930.1.01	01.112.0.01	1
02.930.1.02	01.112.0.02	2
02.930.1.03	01.112.0.03	3
02.930.1.04	01.112.0.04	4
02.930.1.05	01.112.0.05	5
02.930.1.06	01.112.0.06	6
02.930.1.07	01.112.0.07	7
02.930.1.08	01.112.0.08	8
02.930.1.10	01.112.0.10	10
02.930.1.12	01.112.0.11	12
02.930.1.15	01.112.0.12	15

Operating pressure

Min	Max
52 bar (750 psi)	69 bar (1000 psi)
Typical	**Release**
59 bar (850 psi)	10 bar (150 psi)

Flow rate/Frequency/outputs

Min flow rate	Max flow rate
0.016 cc (0.001 cu. in.)	0.049 cc (0.003 cu. in.)
Working time	**Break time**
2"	2"
Inlet	**Output**
1/8" NPTF (F)	For pipes with 1/8" outer Ø



Dimensions (mm/in)

i	a	b	Outputs
-	41 (1 5/8")	30 (1 1/8")	1
19 (3/4")	60 (2 3/8")	49 (1 7/8")	2
19 (3/4")	79 (3 1/8")	68 (2 5/8")	3
19 (3/4")	98 (3 7/8")	87 (3 3/8")	4
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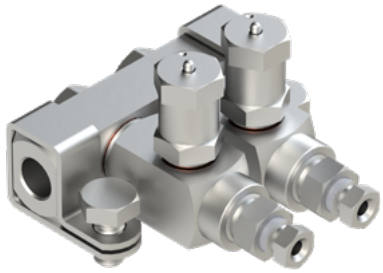
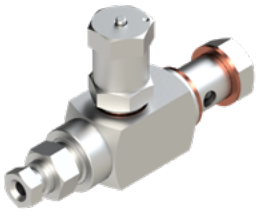
19 (3/4")	250 (9 7/8")	239 (9 3/8")	12
19 (3/4")	307 (12 1/8")	296 (11 5/8")	15

REV19012022

CL-43





Order Codes

Single valve
02.930.2

Part No.		
Assembled	**Block**	**Outputs**
02.930.2.01	01.113.0.01	1
02.930.2.02	01.113.0.02	2
02.930.2.03	01.113.0.03	3
02.930.2.04	01.113.0.04	4
02.930.2.05	01.113.0.05	5
02.930.2.06	01.113.0.06	6
02.930.2.07	01.113.0.07	7
02.930.2.08	01.113.0.08	8
02.930.2.10	01.113.0.10	10
02.930.2.12	01.113.0.11	12
02.930.2.15	01.113.0.12	15

Operating pressure

Min	Max
83 bar (1200 psi)	241 bar (3500 psi)

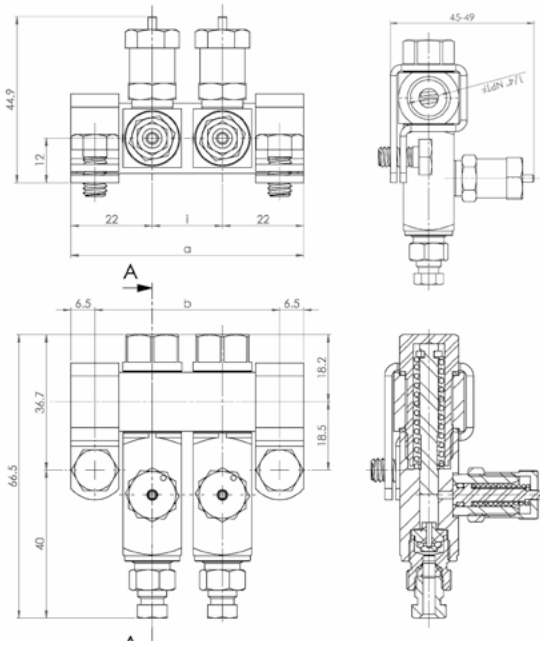
Typical	Release
103 bar (1500 psi)	14 bar (200 psi)

Flow rate/Frequency/outputs

Min flow rate	Max flow rate
0.016 cc (0.001 cu. in.)	0.049 cc (0.003 cu. in.)

Working time	Break time
2"	2"

Inlet	Output
1/4" NPTF (F)	For pipes with 1/8" outer Ø



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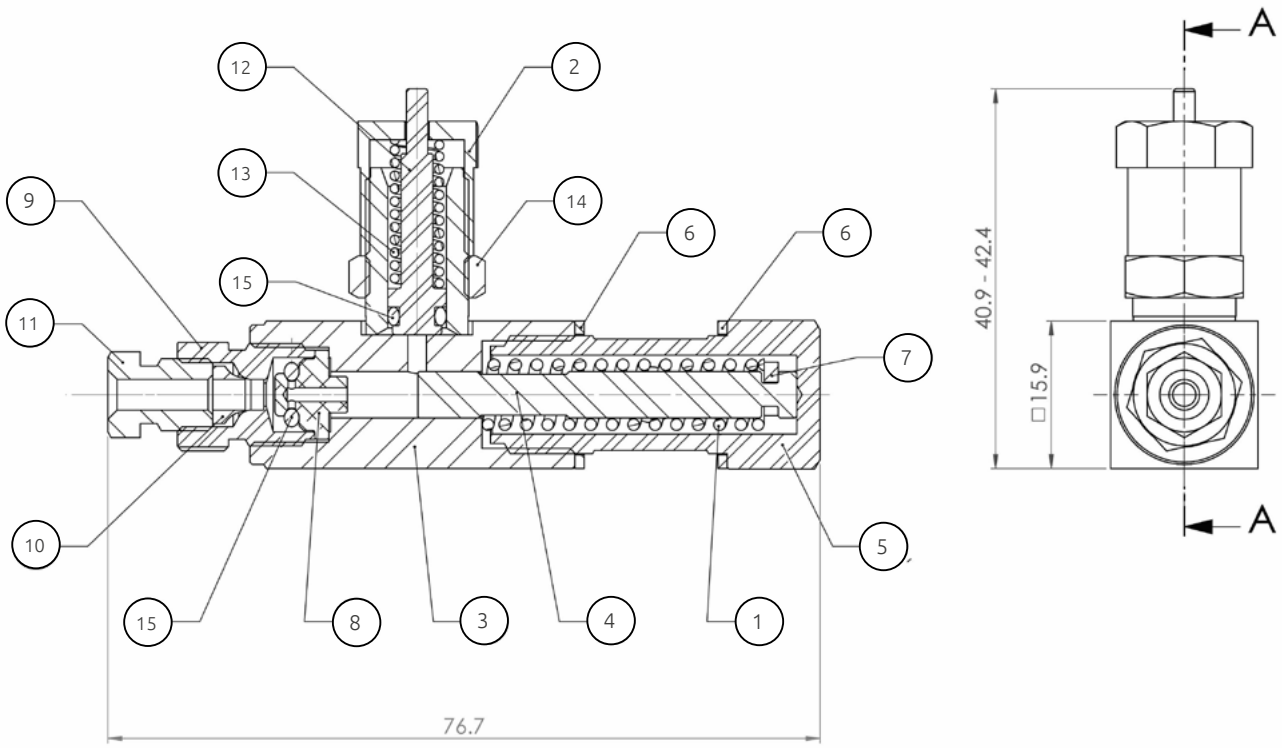
REV19012022

Spare parts ordering codes



Ref.	CL-32	CL-43	CM-42	CM-33	Description
1	A86.126149	A86.126147	A86.126145	A86.126148	Valve main piston spring
2	A51.087074-2 (7/16")	A51.087074-1 (7/16")	A51.087074-1 (7/16")	A51.087074-2 (7/16")	Adjustment cap
3	A51.084055		A51.084054		Welded valve body
4	A51.122743 (D5)		A51.122742 (D4)		Main piston
5	A51.106534 (1/2")		A51.106530 (7/16")		Hollow bolt
6	A52.131028 (16x13x1)		A52.131027 (11.5x14.5x1)		Copper washer
7	A51114089				Thrust washer
8	A53.090087				Delivery valve CM-CL
9	A51.106531 (7/16")				Ending fitting for single cone
10	06.002.6 (D1/8")				Single cone for pipe
11	04.061.0 (5/16"-D1/8")				Fitting for single cone
12	A51.122741 (D6,3)				Metering piston
13	A86.126146				CM-CL valve metering piston spring
14	A51.082162 (7/16")				Lock nut
15	A92.127103				2x O-Ring 2012 VITON