

lubrication systems



# CM-CL

VOLUMETRIC METERING VALVES  
FOR OIL AND GREASE OPERATION



General information	3
Operation	4
System structure	5
Grease volumetric valves	6
Grease volumetric valves	7
Oil volumetric valves	8
Oil volumetric valves	9
Spare parts	10



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.

## General information

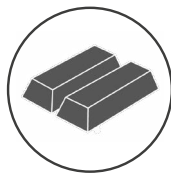
CM-CL metering valves are used in centralised lubrication single-line systems operating with oil or grease. They are installed on 1-to-15-output distributor blocks: each single valve can be easily removed for inspection or replacement. Valves and distributor blocks are made of steel, with Viton seals,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



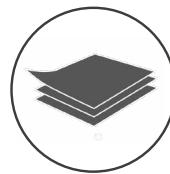
Glass Processing



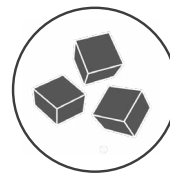
Plastic Processing



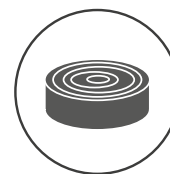
Metal Processing



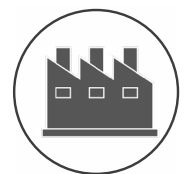
Paper Processing



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.

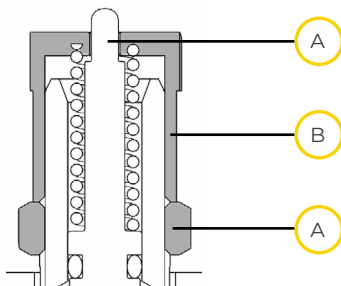
To reach the minimum flow rate, screw counter nut E up to the valve body, screw the ring nut by hand up to the mechanical stop and then loosen by about ½ turn.

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.

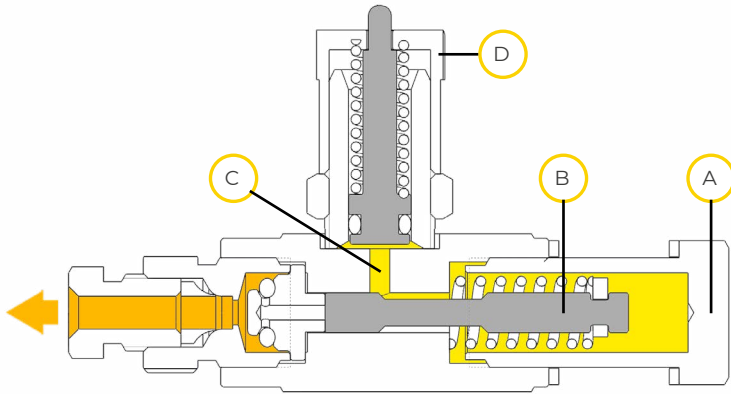


A	Counter nut
B	Adjusting nut
C	Metering Piston

### NOTE

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

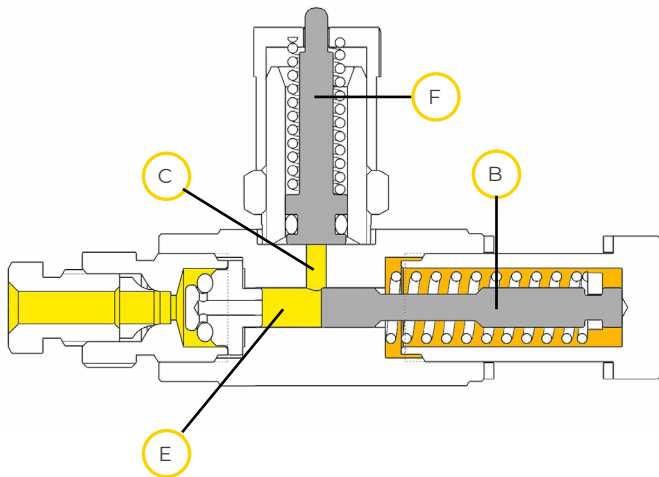
Operation



1

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

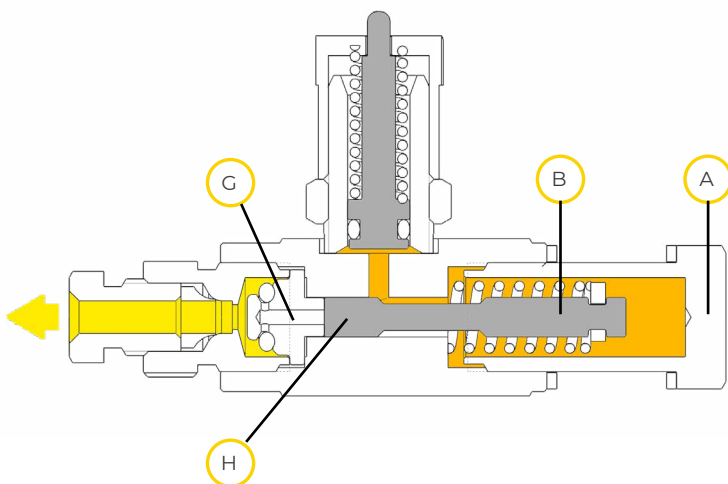
Metering chamber **C** fills up according to the quantity set with adjusting nut **D**.



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**.

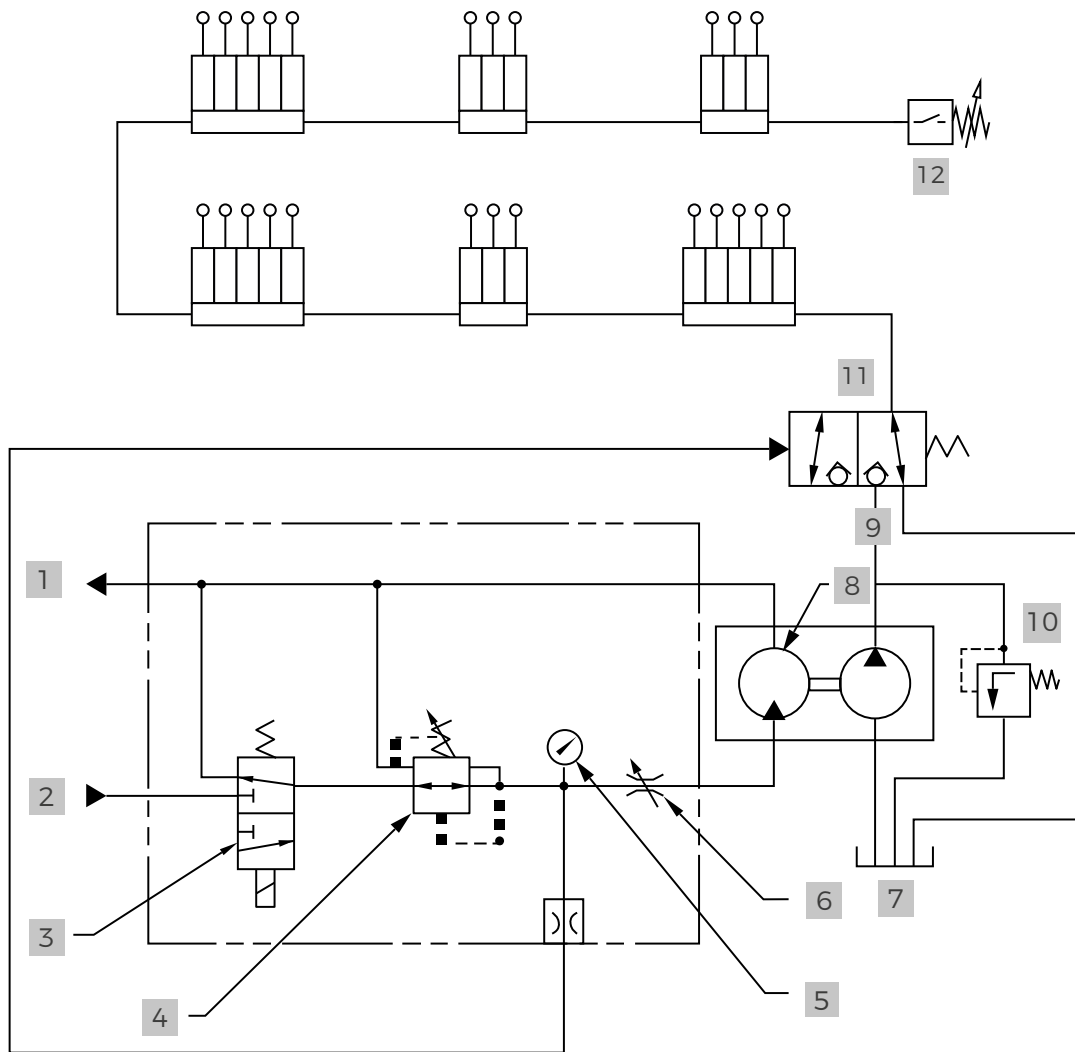
Metering piston **F** returns to rest conditions by pushing the lubricant from metering chamber **C** and discharge chamber **E**.



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**.



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

CL-32

Order Codes



Single valve

02.930.2.G

Part No.

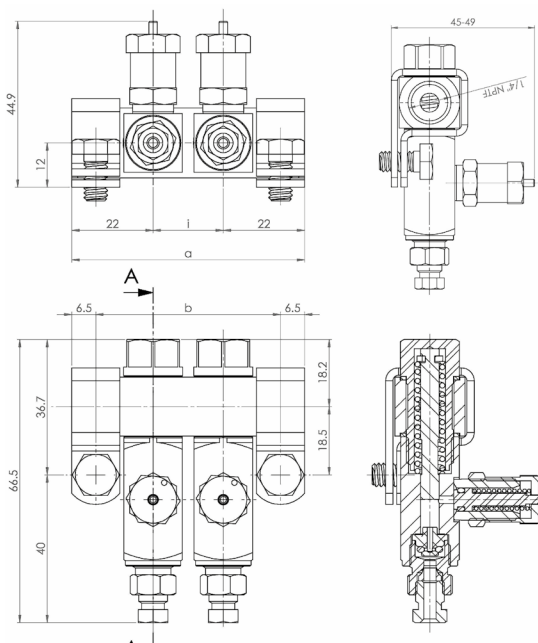
Assembled	Block	Outputs
02.930.2.G.01	01.113.0.01	1
02.930.2.G.02	01.113.0.02	2
02.930.2.G.03	01.113.0.03	3
02.930.2.G.04	01.113.0.04	4
02.930.2.G.05	01.113.0.05	5
02.930.2.G.06	01.113.0.06	6
02.930.2.G.07	01.113.0.07	7
02.930.2.G.08	01.113.0.08	8
02.930.2.G.10	01.113.0.10	10
02.930.2.G.12	01.113.0.11	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

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

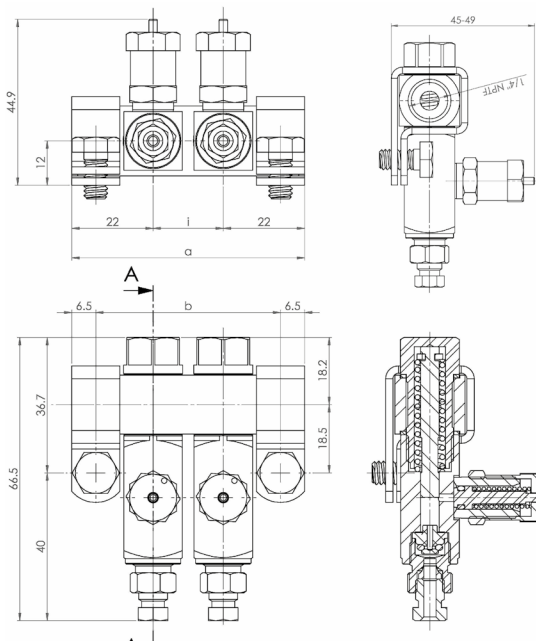
Operating pressure

Flow rate/Frequency/outputs

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

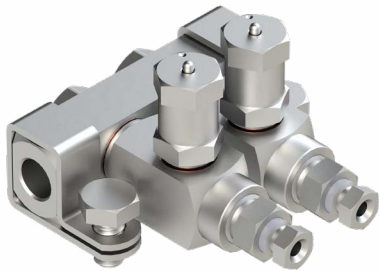
Min flow rate	Max flow rate
0.016 cc (0.001 cu. in.)	0.049 cc (0.003 cu. in.)
Working time	Break time
2"	2"

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

**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**

52 bar (750 psi)

**Max**

69 bar (1000 psi)

**Typical**

59 bar (850 psi)

**Release**

10 bar (150 psi)

**Flow rate/Frequency/outputs**
**Min flow rate**

0.016 cc (0.001 cu. in.)

**Max flow rate**

0.049 cc (0.003 cu. in.)

**Working time**

2"

**Break time**

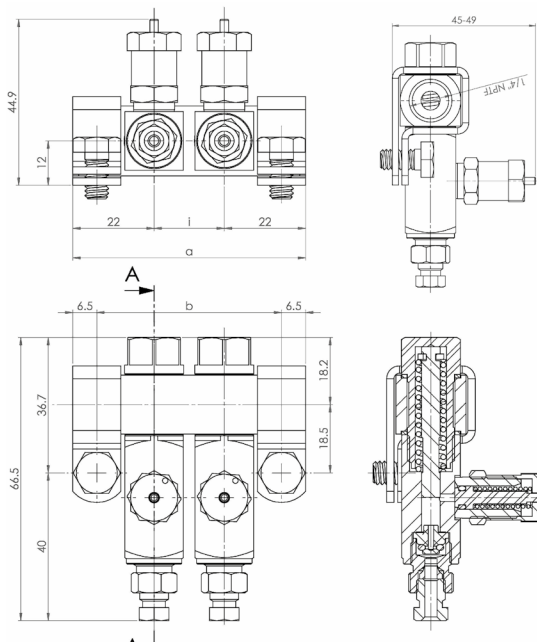
2"

**Inlet**

1/8" NPTF (F)

**Output**

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



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

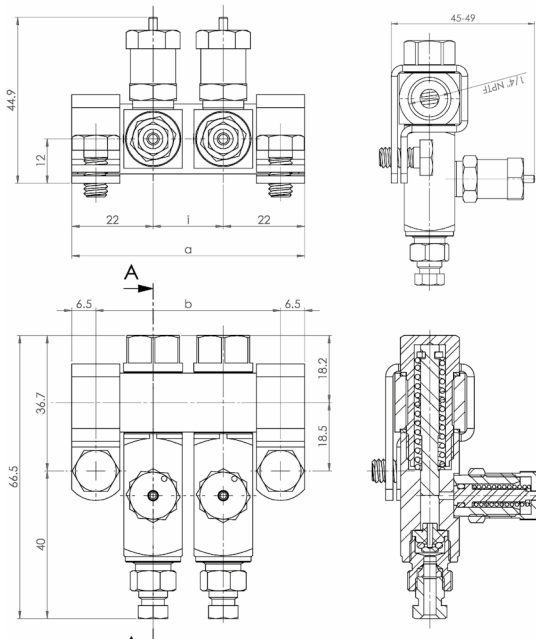
Operating pressure

Flow rate/Frequency/outputs

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

Min flow rate	Max flow rate
0.016 cc (0.001 cu. in.)	0.131 cc (0.003 cu. in.)
Working time	Break time
2"	2"

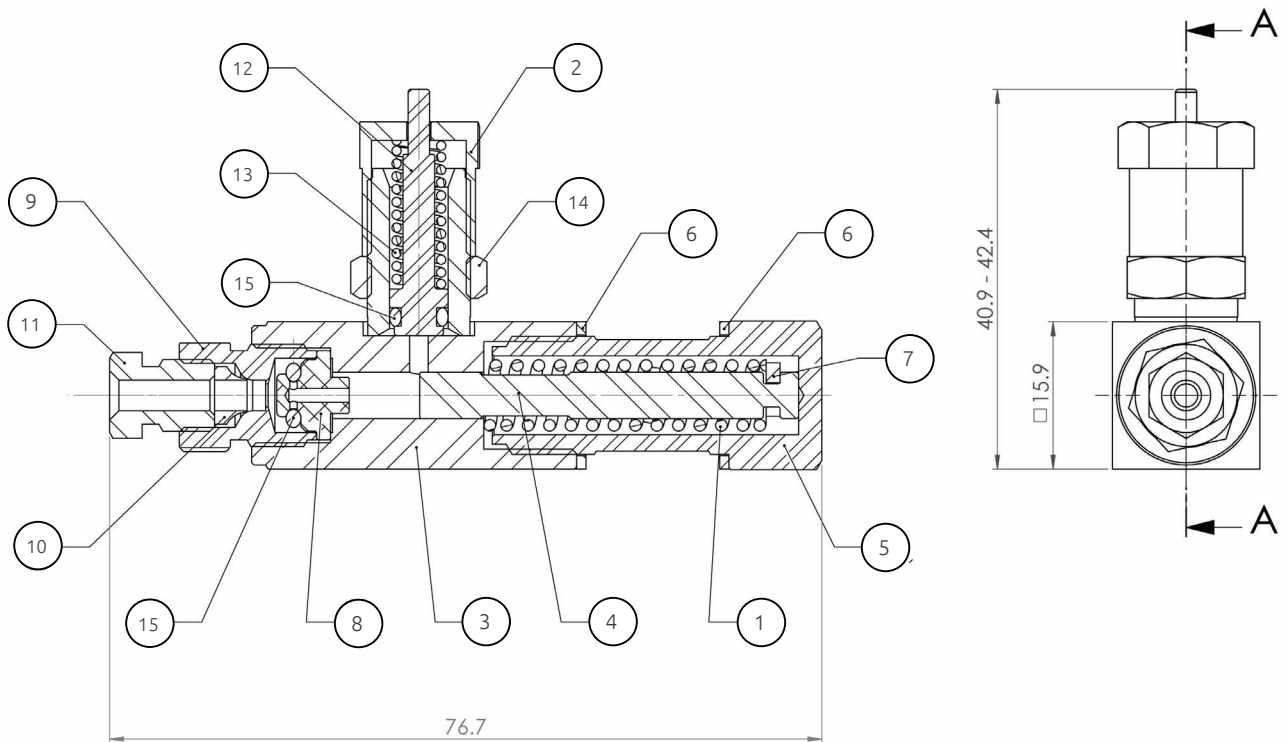
Inlet	Output
1/4" NPTF (F)	For pipes with 1/8" outer Ø



Dimensions (mm/in)

i	a	b	Outputs
-	41 (1 5/8")	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

## 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

**I.L.C. srl** - Via Garibaldi, 149 - 20155 Gorla Minore - Italy  
Phone +39 0331 601697 - Fax +39 0331 602001 - [www.ilclube.com](http://www.ilclube.com) - [info@ilclube.it](mailto:info@ilclube.it)

