

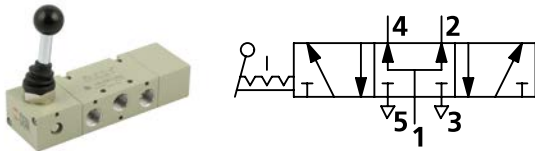
## 5/3-way valve

manually operated, series 70 low temperature

**PLUS** ||

Art. No. 149923

Type No. 70L2000700



Exemplary illustration

The series 70 low temperature valves in manually operated version with hand lever complement our range of traditional way valves of series 70. They represent a selection of the most commonly used manually operated way valves, which are manufactured with components for special low temperature applications. These valves are also suitable for use with vacuum.

### Technical data

|                                                   |                                               |
|---------------------------------------------------|-----------------------------------------------|
| Operation                                         | manually                                      |
| Function                                          | 5/3 mid-position pressurised                  |
| Version                                           | 90° lever                                     |
| Connection                                        | G 1/4 IT                                      |
| DN                                                | 7.5 mm                                        |
| Flow rate measurement 1                           | flow rate at 6 bar and $\Delta p$ 1 bar       |
| Flow rate 1                                       | 1100 NI/min                                   |
| Flow rate measurement 2                           | flow rate at 6 bar and $\Delta p$ 0.5 bar     |
| Flow rate 2                                       | 750 NI/min                                    |
| Medium                                            | filtered, dry and unlubricated compressed air |
| Required purity class in accordance w. ISO 8573-1 | 4.2.3                                         |
| Operating pressure                                | -0.99 - 10 bar                                |
| Temperature range                                 | -40 to 60 °C                                  |
| Valve body                                        | aluminium                                     |
| Piston                                            | nickel-plated aluminium                       |
| Sealant                                           | NBR                                           |
| Spring                                            | special steel                                 |
| Series                                            | series 70 low temperature                     |

## Commercial data

|                         |                  |
|-------------------------|------------------|
| Customs tariff number   | 84818079         |
| Country of origin       | IT               |
| eCl@ss 5.1.4            | 27291801         |
| eCl@ss 9.0              | 27291390         |
| UNSPSC_Code_v190501     | 40141603         |
| UNSPSC_CodeDesc_v190501 | Pneumatic valves |

**B1**

## VALVES SERIES 70

**VALVES**
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The Series 70 forms part of Metal Work's full range of traditional valves.

They are available in sizes 1/8", 1/4", 3/8" and 1/2", versions 3/2, 5/2, 5/3 and double 3/2, with mechanical, manual, pneumatic and electric drives.

They can be installed in line, onto a wall, on the cylinder (using a special bracket) or in series (on a multiple or modular base) to suit all possible applications.

A range of valves (Series 70 LT) designed using components for specific low-temperature applications is now available for the most commonly used types and sizes.

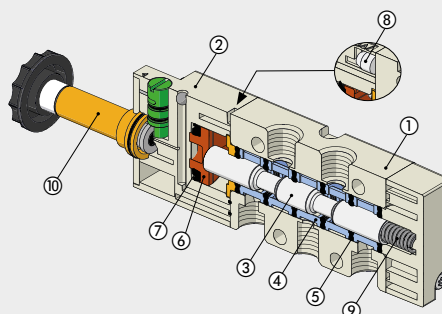
These highly reliable valves comply with the main applicable standards, including Atex, ISO 13489 and SIL, as stated in the documents and certificates available online.



| TECHNICAL DATA                                             |                    | 1/8"                                                                                                                   | 1/4"   | 3/8"   | 1/2"   |
|------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|
| Thread on the valve ports                                  |                    | 1/8"                                                                                                                   | 1/4"   | 3/8"   | 1/2"   |
| Operating pressure series 70 versions                      | bar                | 2.5 to 10                                                                                                              |        |        |        |
| monostable and bistable differential                       |                    | 1 to 10                                                                                                                |        |        |        |
| bistable                                                   |                    | vacuum to 10                                                                                                           |        |        |        |
| asserved                                                   |                    |                                                                                                                        |        |        |        |
| Operating pressure series 70 LT (low temperature) versions | bar                | vacuum to 10                                                                                                           |        |        |        |
| hand operated                                              |                    | 5 to 10                                                                                                                |        |        |        |
| pneumatic and solenoid/pneumatic                           | t = -40°C to -10°C | 3 to 10                                                                                                                |        |        |        |
|                                                            | t = -10°C to +60°C |                                                                                                                        |        |        |        |
| Minimum pilot pressure                                     | bar                | 2.5                                                                                                                    |        |        |        |
| Operating temperature range                                | °C                 | -10 to +60                                                                                                             |        |        |        |
| series 70 versions                                         |                    | -40 to +60                                                                                                             |        |        |        |
| series 70 LT (low temperature) versions                    |                    |                                                                                                                        |        |        |        |
| Nominal diameter                                           | mm                 | 5                                                                                                                      | 7.5    | 13.3   | 15     |
| Conductance C                                              | Nl/min · bar       | 121.43                                                                                                                 | 264.26 | 505.52 | 971.43 |
| Critical ratio b                                           | bar/bar            | 0.32                                                                                                                   | 0.27   | 0.32   | 0.43   |
| Flow rate at 6 bar ΔP 0.5 bar                              | Nl/min             | 400                                                                                                                    | 750    | 1560   | 3200   |
| Flow rate at 6 bar ΔP 1 bar                                | Nl/min             | 550                                                                                                                    | 1100   | 2150   | 4600   |
| Installation                                               |                    | In any position (vertical assembly is not recommended for bistable valves subjected to vibration)                      |        |        |        |
| Fluid                                                      |                    | Filtered air without lubrication; lubrication, if used, must be continuous.                                            |        |        |        |
| Recommended lubricant                                      |                    | For series 70 LT (low-temperature) versions, it is recommended to use of perfettamente dried air.<br>ISO and UNI FD 22 |        |        |        |
| Maximum coil nut torque                                    | Nm                 | For series 70 LT (low-temperature) it is not expected to be used with lubricated air.                                  |        |        |        |
| Compatibility with oils                                    |                    | See chapter Z1                                                                                                         |        |        |        |

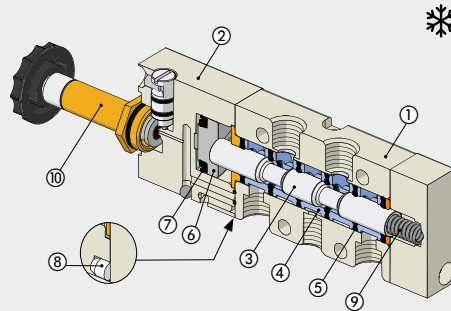
### COMPONENTS SERIES 70

- ① VALVE BODY: Aluminium
- ② CONTROL/END CAP: plastic
- ③ SPOOL: chemically nickel-plated aluminium
- ④ DISTANCE PLATES: plastic
- ⑤ GASKETS: NBR
- ⑥ PISTONS: Hostaform®
- ⑦ PISTON GASKET: NBR
- ⑧ FILTER: plastic
- ⑨ SPRINGS: special steel
- ⑩ OPERATOR: Brass pipe - Stainless steel core


**B1.12**

## COMPONENTS SERIES 70 LT (LOW TEMPERATURE)

- ① ALVE BODY: aluminium
- ② CONTROL/END CAP: aluminium
- ③ SPOOL: chemically nickel-plated aluminium
- ④ DISTANCE PLATES: plastic
- ⑤ GASKETS: HNBR
- ⑥ PISTONS: aluminium
- ⑦ PISTON GASKET: HNBR
- ⑧ FILTER: plastic
- ⑨ SPRINGS: special steel
- ⑩ OPERATOR: brass pipe - Stainless steel core  
(version specific for low-temperature applications)



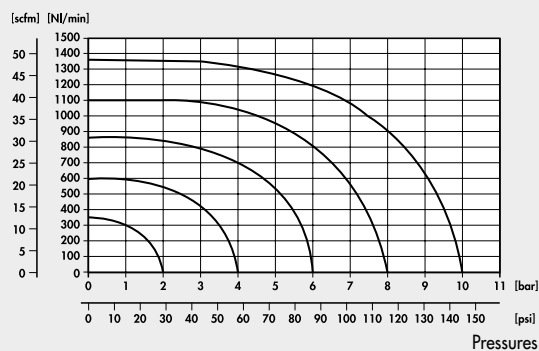
VALVES

VALVES SERIES 70

## FLOW CHARTS

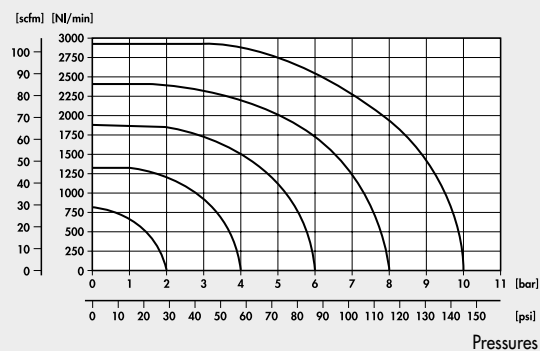
### VALVES SERIES 70 1/8"

Flow rates



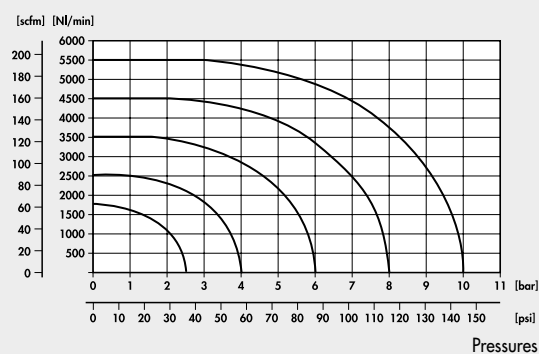
### VALVES SERIES 70 1/4"

Flow rates



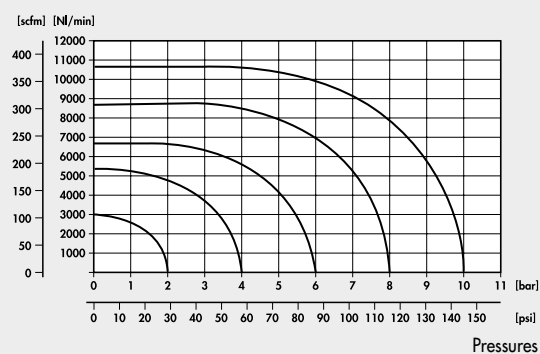
### VALVES SERIES 70 3/8"

Flow rates



### VALVES SERIES 70 1/2"

Flow rates





## VALVES SERIES 70 LT (LOW TEMPERATURE)

| TECHNICAL DATA                                                                                                                                      |                    | 1/8"                     | 1/4"         | 3/8"   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|--------------|--------|
| Operating pressure standard                                                                                                                         | bar                |                          |              |        |
| hand operated                                                                                                                                       |                    |                          | Vacuum to 10 |        |
| pneumatic and solenoid/pneumatic                                                                                                                    | t = -40°C to -10°C |                          | 5 to 10      |        |
|                                                                                                                                                     | t = -10°C to +60°C |                          | 3 to 10      |        |
| Operating temperature range                                                                                                                         | °C                 |                          | -40 to +60   |        |
| Nominal diameter                                                                                                                                    | mm                 | 5                        | 7.5          | 13.3   |
| Conductance C                                                                                                                                       | Nl/min · bar       | 121.43                   | 264.26       | 505.52 |
| Critical ratio b                                                                                                                                    | bar/bar            | 0.32                     | 0.27         | 0.32   |
| Flow rate at 6 bar ΔP 0.5 bar                                                                                                                       | Nl/min             | 400                      | 750          | 1560   |
| Flow rate at 6 bar ΔP 1 bar                                                                                                                         | Nl/min             | 550                      | 1100         | 2150   |
| <b>PNEUMATIC</b>                                                                                                                                    |                    |                          |              |        |
| Minimum pilot pressure                                                                                                                              | bar                |                          | 5            |        |
| t = -40°C to -10°C                                                                                                                                  |                    |                          | 3            |        |
| t = -10°C to +60°C                                                                                                                                  |                    |                          | 7            |        |
| TRA / TRR monostable at 6 bar (at 20°C)                                                                                                             | ms                 | 6/15                     | 7/15         | 5/28   |
| TRA / TRR bistable at 6 bar (at 20°C)                                                                                                               | ms                 | 7/7                      | 7/7          | 13/13  |
| <b>SOLENOID/PNEUMATIC</b>                                                                                                                           |                    |                          |              |        |
| TRA / TRR monostable at 6 bar (at 20°C)                                                                                                             | ms                 | 15/35                    | 19/45        | 21/72  |
| TRA / TRR bistable at 6 bar (at 20°C)                                                                                                               | ms                 | 20/20                    | 21/21        | 18/18  |
| Coil voltage values                                                                                                                                 |                    | 12; 24 VDC               |              |        |
|                                                                                                                                                     |                    | 24; 110; 220V AC 50/60Hz |              |        |
| Power                                                                                                                                               | t = -40°C to -10°C | 5 W (DC) - 5 VA (AC)     |              |        |
|                                                                                                                                                     | t = -10°C to +60°C | 2 W (DC) - 3.5 VA (AC)   |              |        |
| Voltage tolerance                                                                                                                                   | %                  | -10 to +15               |              |        |
| Insulation class                                                                                                                                    |                    | F 155                    |              |        |
| Maximum coil nut torque                                                                                                                             | Nm                 | 1                        |              |        |
| Hand operator                                                                                                                                       |                    | Bistable                 |              |        |
| Notes: after a long stop and with very low temperatures the movement of the first drives may be slower. It recommends the use of perfectly dry air. |                    |                          |              |        |



## VALVES

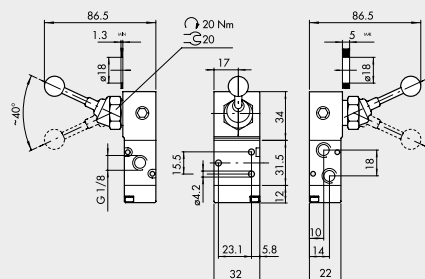
VALVES SERIES 70 LT (LOW TEMPERATURE)

## SYNOPTIC, SIZES AND VERSIONS

| P N V<br>FAMILY |                     | 2<br>DIMENSIONS | 3<br>FUNCTION | P N<br>OPERATORS 14 | S<br>RESETTING (12)  | OO<br>FURTHER DETAILS |                  | LT          |
|-----------------|---------------------|-----------------|---------------|---------------------|----------------------|-----------------------|------------------|-------------|
| MAV             | manual valves       | 2 1/8"          | 3 3/2         | LE leva 90°         | S mechanical springs | OO                    | no indication    | LT low      |
| PNV             | pneumatic valves    | 3 1/4"          | 5 5/2         | PN pneumatic        | B bistable           | NC                    | normally closed  | temperature |
| SOV             | solenoid/ pneumatic | C 3/8"          | 6 5/3         | SO solenoid         | O stable for 5/3     | NO                    | normally open    |             |
|                 |                     |                 |               |                     |                      | CC                    | closed centres   |             |
|                 |                     |                 |               |                     |                      | OC                    | open centres     |             |
|                 |                     |                 |               |                     |                      | PC                    | pressure centres |             |

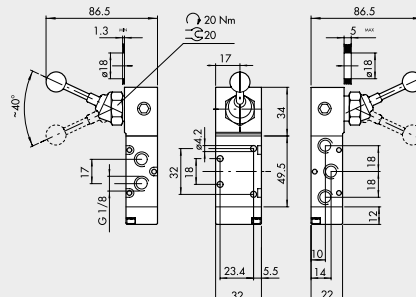
## VALVES SERIES 70 LT, HAND OPERATED (LOW TEMPERATURE)

**90° LEVER 3/2 1/8"**



| Symbol                                                                              | Code       | Abbrev.          | Weight [g] |
|-------------------------------------------------------------------------------------|------------|------------------|------------|
|  | 70L1000100 | MAV 23 LES NC LT | 184        |
|  | 70L1000200 | MAV 23 LEB OO LT | 187        |

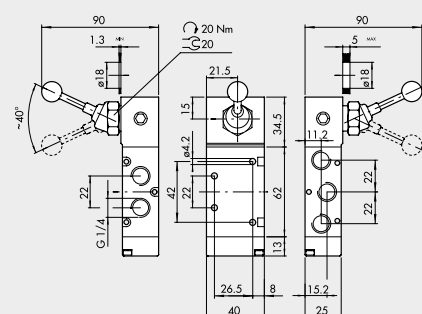
**90° LEVER 5/2 1/8"**



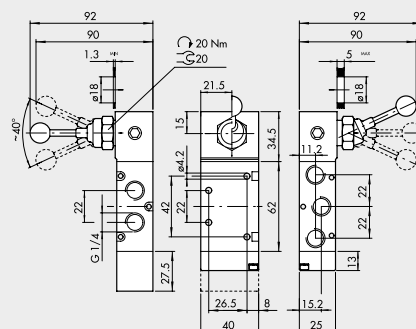
| Symbol | Code              | Abbrev.          | Weight [g] |
|--------|-------------------|------------------|------------|
|        | <b>70L1000300</b> | MAV 25 LES OO LT | 210        |
|        | <b>70L1000400</b> | MAV 25 LEB OO LT | 213        |

[illegible]

90° LEVER 5/2, 1/4"



90° LEVER 5/3, 1/4"



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