

Right Angle Flow Control Valves - BSP/Metric Series SCU, MCU, SVU, MVU, SCO, MCO

Unidirectional and bidirectional
banjo flow controllers
Ports M5, G1/8, G1/4, G3/8, G1/2

These unidirectional and bidirectional flow controllers have been designed as small as possible so as to be mounted directly on valves or cylinders.

The great variety of adjustable fittings makes it possible to complete the regulator with the most suitable system in relation to the available tube.

Only the G1/2 model is supplied complete with banjo flow controllers.

For the other models the banjo fitting is to be requested separately.



TECHNICAL SPECIFICATIONS

Construction	needle type, right angle banjo assembly
Valve group	unidirectional and bidirectional controller
Materials	OT58 nickel-plated brass body and threads - Buna-N seals, Nylon® gaskets.
Mounting	by male thread
Ports	M5 - G1/8 - G1/4 - G3/8 - G1/2
Installation	in any position
Operating temperature	from 0 to 80°C (with dry air -20°C) [32°F — 175°F (with dry air -4°F)]
Lubricant	compatible with Buna-N (3° — 10° E)

PNEUMATIC DATA

Operating pressure	from 1 to 10 bar [14.5 - 145 psi]		
Nominal pressure	6 bar [87 psi]		
Nominal flow	see graph		
Nominal diameter	M5 = 1.5 mm (.059")	G1/8 = 2 mm (.078")	G1/4 = 4 mm (.157")
	G3/8 = 7 mm (.275")	G1/2 = 12 mm (.472")	
Fluid	filtered air		

Nickel-Plated Brass Flow-Control Valves: BSPP & BSPT Threads



FEATURES

- All-Metal, Nickel-Plated body and Threads,
- Compact Brass bodies from Brass forgings
- Specialized O-ring choices for High-Temp, Low-Temp, Special Fluids, Food-Grade compatibility
- Multiple Thread sealant systems: BSPP & BSPT, or O-Ring Spot Face seals
- Broad Range of configurations, tube-thread combinations
- Removable Collet and tube o-rings
- Highly accurate Flow-rate repeatability & Higher Flow
- Manual Adjustment knob or Screw-Driver slot
- Hex Locking-nut
- Precise Manual knob, with Internal hex-key
- Full Swivel design, NPTF and Metric/BSP, with integrated Push-In Fittings or Female thread ports
- Alternate Non-Swivel design with Banjo Tube connections and thread adapters
- Meter-IN, Meter-OUT and Needle-Orifice flow designs for assembly on valves, cylinders or in-line use
- Alternate sintered bronze banjo for fully adjustable silencer/muffler with speed control for exhaust port mounting, (see Part No. 2905 to add to any banjo flow control body)

BENEFITS

Collet

- Won't break like plastic release rings and bodies; More Durable design
- Higher holding force, with easier release
- Won't scratch tubes like "bite-ring" designs
- Less chance of micro-leakage and bubble-leaks over time due to damaged tubing

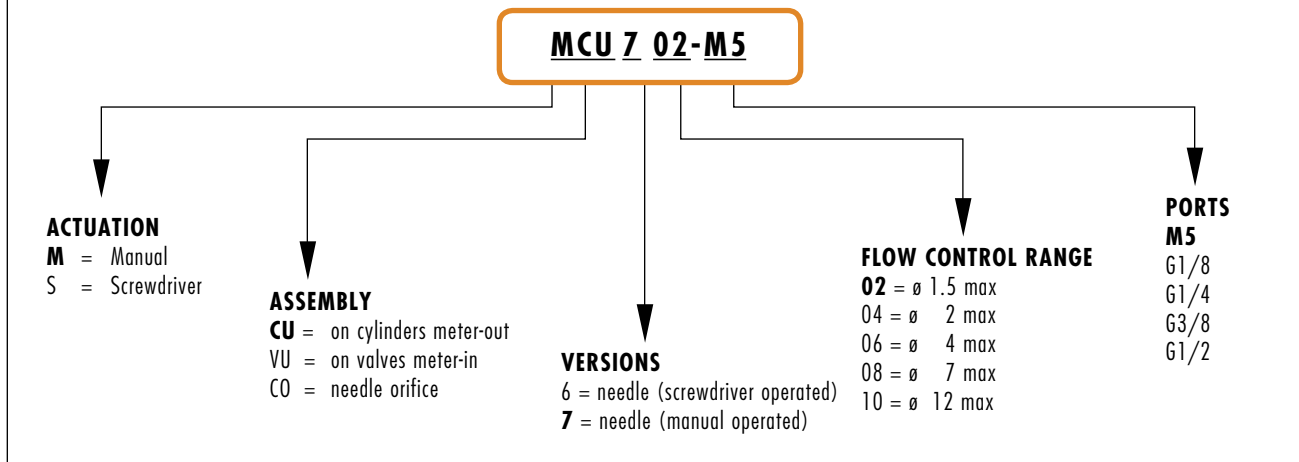
Body

- Resistant to UV exposure
- Better resistance to stress-cracking, abrasion, solvents, detergents, hydrocarbons and other fluid media
- FDA/NSF approved materials, (Including customized Nickel-Plating and o-ring options)
- Simplified manifold circuits with broader variety of fitting combinations and shapes to select
- Lighter weight for End-of-Arm tooling & Robotic handling,
- Compact design reduces overall dimensions for valve & cylinder assemblies, packaging applications and control cabinets

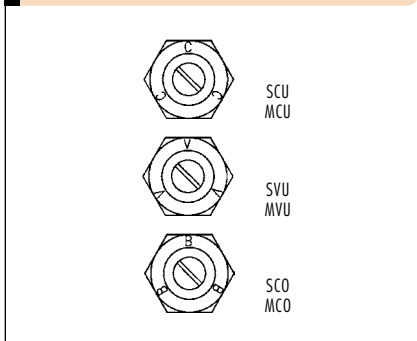
Design

- Accuracy and Repeatability of Flow-Control valves allows timing circuits to be design, faster OEM set-up and simplified MRO field installation and replacements
- Simplified manifold circuits with broader variety of Tube – Thread combinations to select
- Lighter weight for End-of-Arm tooling & Robotic handling
- Compact design reduces overall dimensions for valve assemblies, packaging applications and control cabinets
- More compact flow capacity reduces cylinder spacing with improved overall speed
- Fine tuning of flow with manual knob or screw-driver adjustment
- Convertible into "Tamper-Proof" by removing manual knob or sealing screw-driver slot
- Interchangeable Inch and Metric Tube O.D. banjo connections and thread adapters for "hybrid" Fittings and Flow-control valve requirements

CODING OF BANJO FLOW CONTROLLERS (STUD BODIES ONLY)



IDENTIFICATION OF DIFFERENT TYPES



AVAILABLE BANJO FLOW CONTROLLERS (see instructions on p. 113 or p. 140)



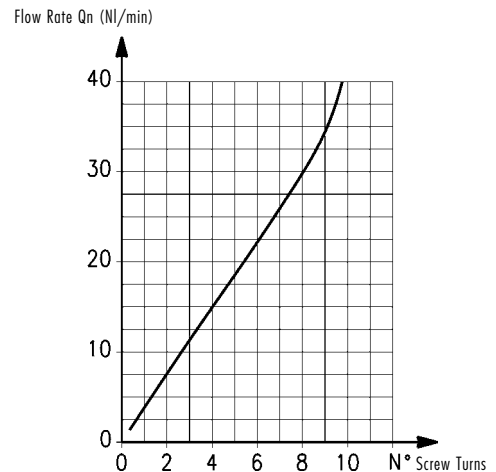
UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROLLERS

To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in NI/min (see cylinder Table); determine the stroke time of the cylinder; refer to graph to see which controller is the right type. In the case of bidirectional regulators, refer to the graph and check whether the flow control range is suitable for the work required.

M5 [10-32 UNF]

Flow Qn (NI/min.) from B → A with needle OPEN: 60
 Flow Qn (NI/min.) from B → A with needle CLOSED: 43

NB: Qn is determined with a supply pressure of 6 bar and with $\Delta P = 1$ bar at the outlet
 N° = number of screw turns.

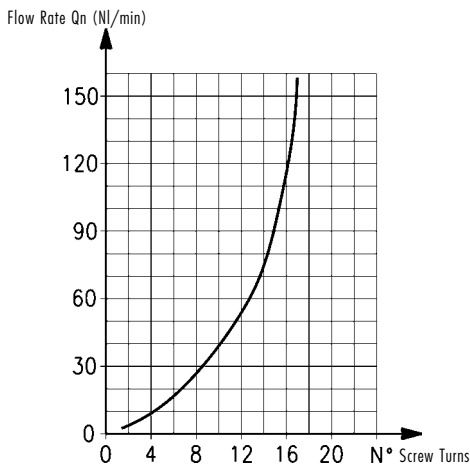


UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROLLERS

G1/8

Flow Qn (NI/min.) from B → A with needle OPEN: 200
 Flow Qn (NI/min.) from B → A with needle CLOSED: 70

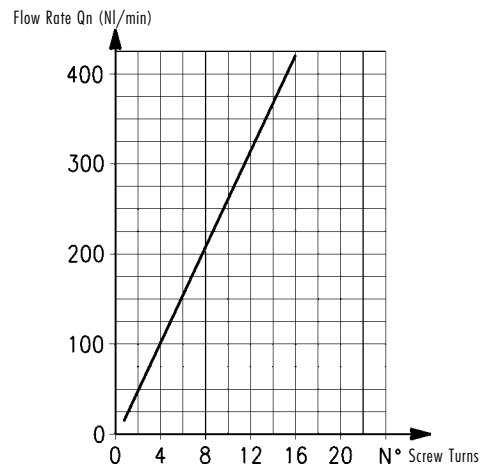
NB: Qn is determined with a supply pressure of 6 bar and with $\Delta P = 1$ bar at the outlet
 N° = number of screw turns.



G1/4

Flow Qn (NI/min.) from B → A with needle OPEN: 530
 Flow Qn (NI/min.) from B → A with needle CLOSED: 160

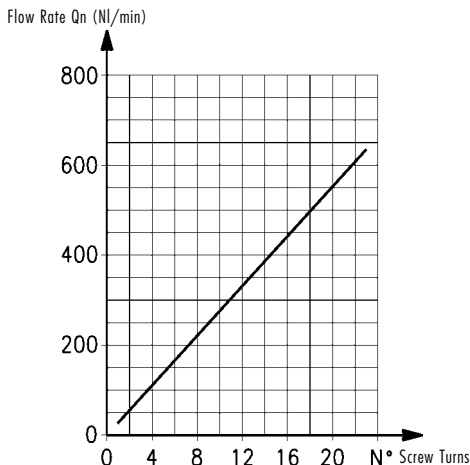
NB: Qn is determined with a supply pressure of 6 bar and with $\Delta P = 1$ bar at the outlet
 N° = number of screw turns.



G3/8

Flow Qn (NI/min.) from B → A with controller OPEN: 710
 Flow Qn (NI/min.) from B → A with controller CLOSED: 410

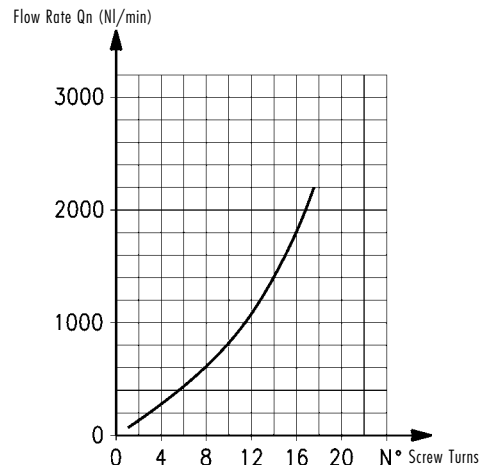
NB: Qn is determined with a supply pressure of 6 bar and with $\Delta P = 1$ bar at the outlet
 N° = number of screw turns.



G1/2

Flow Qn (NI/min.) from B → A with controller OPEN: 2570
 Flow Qn (NI/min.) from B → A with controller CLOSED: 1330

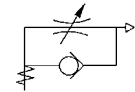
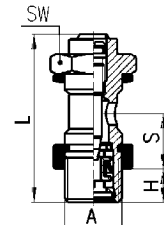
NB: Qn is determined with a supply pressure of 6 bar and with $\Delta P = 1$ bar at the outlet
 N° = number of screw turns.



Valves Series SCU (Meter Out)

Unidirectional flow controller for mounting on single-acting or double-acting cylinders. Adjustment of setting by a screwdriver.
Ports: M5, G1/8, G1/4, G3/8.

Note: M5 flow controllers must be used together with M6 banjo fittings.
Note: Stud only, banjos ordered separately.



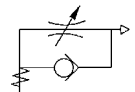
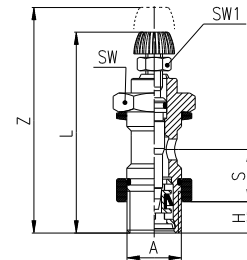
DIMENSIONS (MM)

Mod.	A	S	H	L	SW
SCU 602-M5	M5	5.5	3.5	21.5	8
SCU 604-1/8	G1/8	12.5	6	35.5	14
SCU 606-1/4	G1/4	12.5	8	37.5	17
SCU 608-3/8	G3/8	12.5	8	41.5	19

Valves Series MCU (Meter Out)

Unidirectional flow controller for mounting on valves and cylinders. Adjustment of setting by knurled screw.
Ports: M5, G1/8, G1/4.

Note: M5 flow controllers must be used together with M6 banjo fittings.
Note: Stud only, banjos ordered separately.



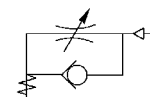
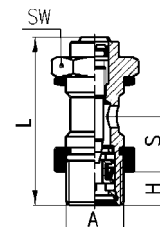
DIMENSIONS (MM)

Mod.	A	S	H	L	Z	SW	SW1
MCU 702-M5	M5	5.5	3.5	31	35	8	5.5
MCU 704-1/8	1/8	12.5	6	45	50	14	7
MCU 706-1/4	1/4	12.5	8	48	54	17	7
MCU 708-3/8	3/8	12.5	8	54.5	62.5	19	10

Valves Series SVU (Meter-In)

Unidirectional flow controller for mounting on valves and cylinders. Adjustment of setting by a screwdriver.
Ports: M5, G1/8, G1/4.

Note: M5 flow controllers must be used together with M6 banjo fittings.



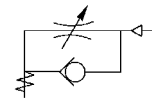
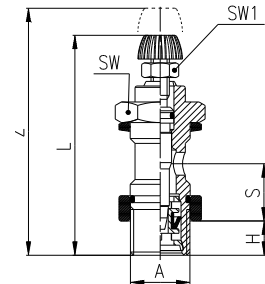
DIMENSIONS (MM)

Mod.	A	S	H	L	SW
SVU 602-M5	M5	5.5	3.5	21.5	8
SVU 604-1/8	G1/8	12.5	6	35.5	14
SVU 606-1/4	G1/4	12.5	8	37.5	17

Valves Series MVU (Meter-In)

Unidirectional flow controller for mounting on valves and cylinders.
Adjustment of setting by a manually operated knurled screw.
Ports: M5, G1/8, G1/4

Note: M5 flow controllers must be used together with M6 banjo fittings.
Note: Stud only, banjos ordered separately.



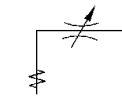
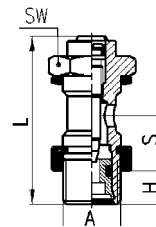
DIMENSIONS (MM)

Mod.	A	S	H	L	Z	SW	SW1
MVU 702 - M5	M5	5.5	3.5	31	35	8	5.5
MVU 704 - 1/8	G1/8	12.5	6	45	50	14	7
MVU 706 - 1/4	G1/4	12.5	8	48	54	17	7

Valves Series SCO (Needle Orifice)

Bidirectional flow controller.
Adjustment of setting by a screwdriver.
Ports: M5, G1/8, G1/4

Note: M5 flow controllers must be used together with M6 banjo fittings.
Note: Stud only, banjos ordered separately.



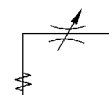
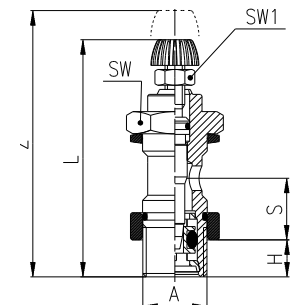
DIMENSIONS (MM)

Mod.	A	S	H	L	SW
SCO 602 - M5	M5	5.5	3.5	21.5	8
SCO 604 - 1/8	G1/8	12.5	6	35.5	14
SCO 606 - 1/4	G1/4	12.5	8	37.5	17

Valves Series MCO (Needle Orifice)

Bidirectional flow controller.
Adjustment of setting by a knurled screw.
Ports: M5, G1/8, G1/4

Note: M5 flow controllers must be used together with M6 banjo fittings.
Note: Stud only, banjos ordered separately.



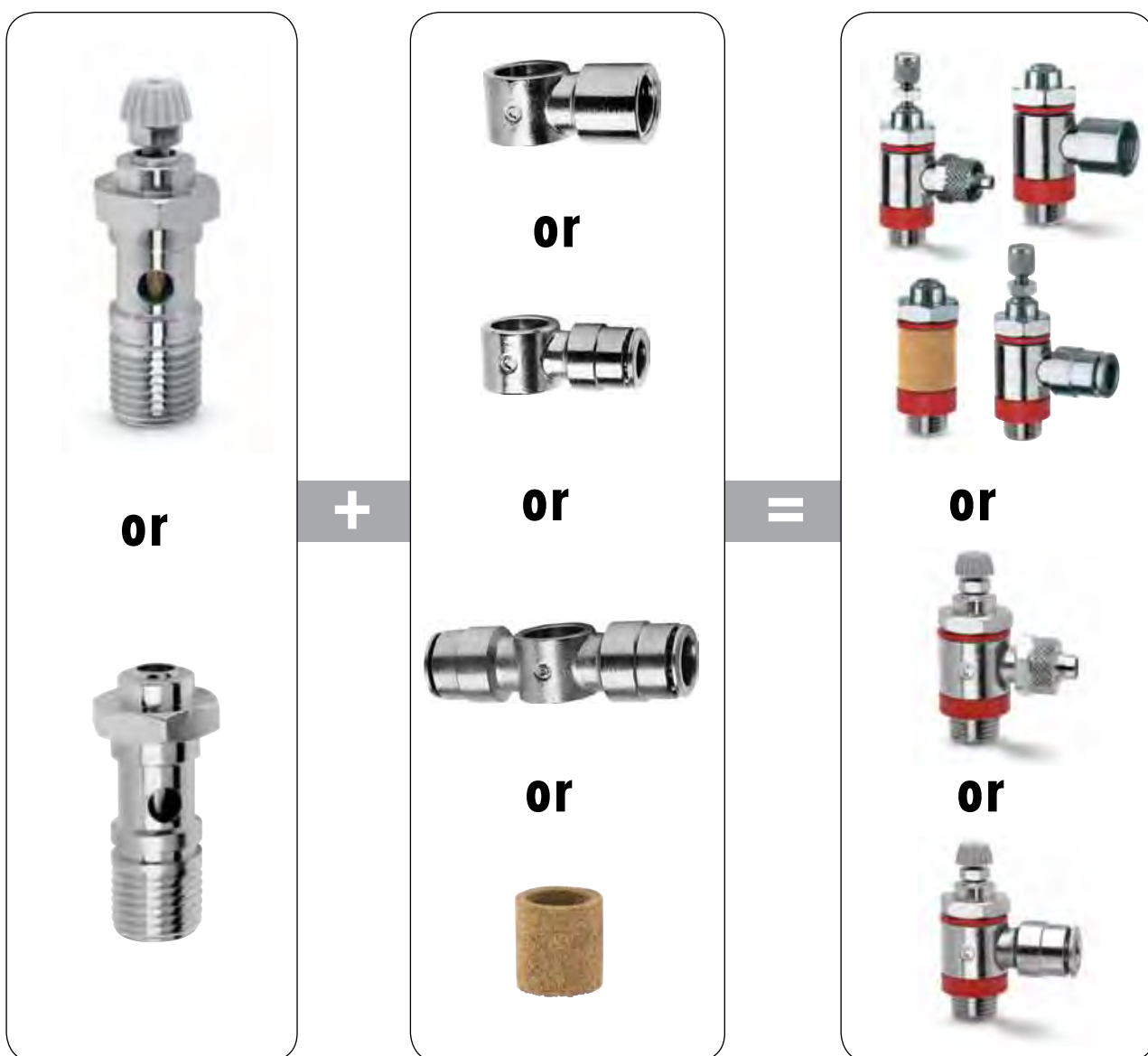
DIMENSIONS (MM)

Mod.	A	S	H	L	Z	SW	SW1
MCO 702 - M5	M5	5.5	3.5	31	35	8	5.5
MCO 704 - 1/8	G1/8	12.5	6	45	50	14	7
MCO 706 - 1/4	G1/4	12.5	8	48	54	17	7

Banjo-Style Flow Control Valve Assembly

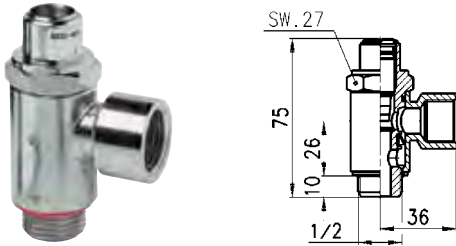
BSP Non-Swivel models and customized NPTF models not shown in catalog, or hybrids

1. Older style flow-control valves with banjo tube/thread connections and stud valve types may be assembled in a variety of combinations.
2. Select any stud valve flow-control type; Meter-In, Meter-Out, or Needle -Orifice with either Manual or Screwdriver adjustment, (i.e. MCU-, SCU-, MVU-, SVU-, MCO-, SCO- from BSP flow control body offering).
3. Select desired banjo connection, either inch OD, metric/mm OD, metric compression, female thread or silencer ring from banjo offerings in Fittings section of catalog , (i.e. 6610 04-02, 6610 6-1/8, 2023 02-02, 2023 ¼-1/4, 1610 6/4-1/8, 2905 ¼, etc.)
4. Select thread adapter to "close" the final assembly and hold banjo in place, (i.e. 2520 02-1/8, 2520 04-1/4, 2520 ¼-1/4, 2520 1/8-1/8), depending on final thread choice of BSP or NPTF threads.



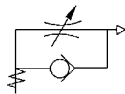
Valves Series SCU (Meter Out)

Unidirectional flow controller for mounting on single-acting or double-acting cylinders. Screwdriver adjustment.



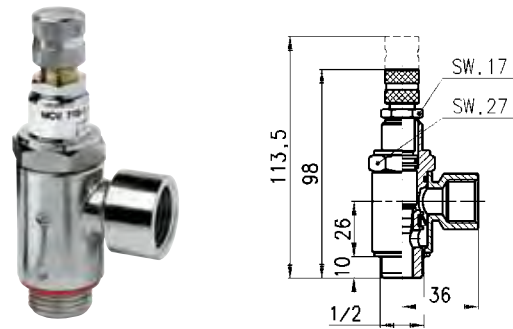
Mod.

SCU 610-1/2



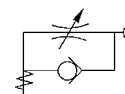
Valves Series MCU (Meter Out)

Unidirectional flow controller for mounting on single-acting or double-acting cylinders. Knurled screw adjustment.



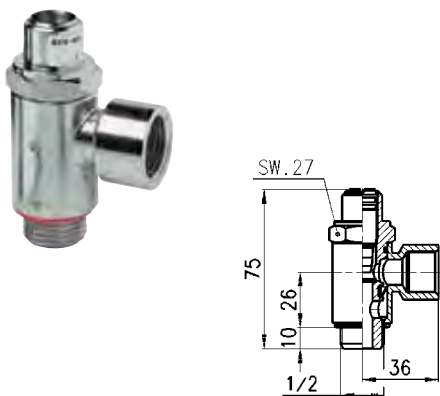
Mod.

MCU 610-1/2



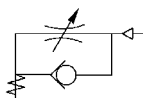
Valves Series SVU (Meter In)

Unidirectional flow controller for mounting on valves. Screwdriver adjustment.



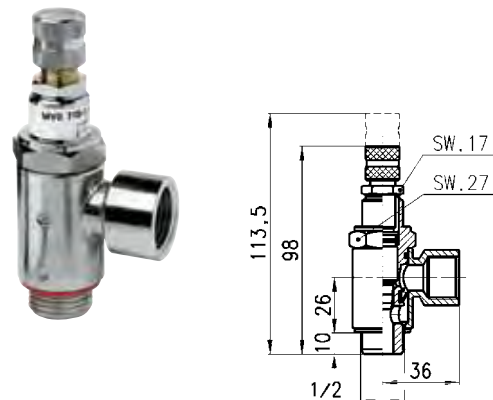
Mod.

SVU 610-1/2



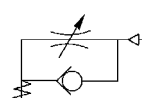
Valves Series MVU (Meter In)

Unidirectional flow controller for mounting on single-acting or double-acting cylinders. Knurled screw adjustment.



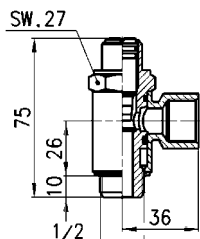
Mod.

MVU 710-1/2



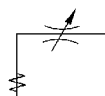
Valves Series SCO (Needle Orifice)

Bidirectional flow controller.
Screwdriver adjustment.



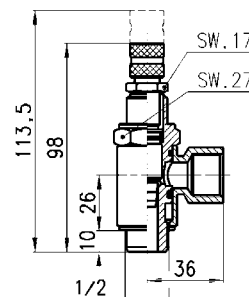
Mod.

SCO 610-1/2



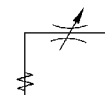
Valves Series MCO (Needle Orifice)

Bidirectional flow controller.
Knurled screw adjustment.



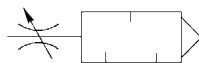
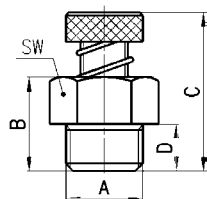
Mod.

MCO 710-1/2



Flow control valves with silencer Series RSW

Flow control valves with silencer.
Connections: G1/8, G1/4, G1/2

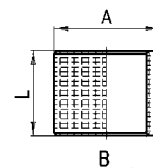


DIMENSIONS

Mod.	A	B	C	D	SW
RSW 1/8	G1/8	13	22	6	12
RSW 1/4	G1/4	16	27	8	16
RSW 1/2	G1/2	26	35	11	26

Silencer bushing Series 2905

Silencer bushing for Mod. SCO... or MCO...
Assemble onto Stud Controller



DIMENSIONS

Mod.	A	S	H
2905 1/8	14	10	14.5
2905 1/4	18	13.5	14.5
2905 3/8	21	16.8	14.5