Nickel-Plated Brass Right Angle Flow Control Valves NPTF/Inch Series GSCU, GMCU, GSVU, GMVU, GSCO, GMCO

Swivel Design: Meter-Out, Meter-In and Needle Orifice

Tube Diameter OD: 1/8", 5/32", 1/4", 5/16", 3/8"

Thread Type: 10-32 UNF, 1/8", 1/4", 3/8", 1/2" NPTF



These unidirectional and bidirectional flow controllers have been designed as small as possible to enable mounting directly on valves or cylinders.

The flow regulation range is wide and gradual, allowing the regulation to be very accurate either at minimum or maximum flow.

GENERAL DATA

Construction

Valve group Unidirectional and bidirectional controller (meter-in, meter-out, and needle valve)

Materials Nickel-plated brass body, Buna-N seals, Nylon gaskets

Mounting Right-angle male thread in any position

Operating temperature 32° - 175° F (dry air necessary down to - 4° F)

Operating pressure 1 - 10 bar (14.5 to 145 psi)

Nominal pressure 6 bar (87 psi) Nominal flow see graph

Nominal diameter M5 (10-32 UNF) = 1.5mm (.059"), 1/8" = 2 mm (.079")

1/4" = 4 mm (.157"), 3/8" = 7 mm (.275")

Fluid filtered ai

Lubricant Oil compatible with Buna-N (3° - 10° E)

*QN flowrate (SCFM) determined with a supply pressure of 6 bar (87 psi) and with a pressure drop of 1 bar (14.5 psi).

**Dimensions are in inches

Nickel-Plated Brass Flow-Control Valves: NPTF & Coated Threads (Optional)









Features

- Nickel-Plated, All-metal Collet and Release ring
- · 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: Vibra-Seal Coated (Optional), Std NPTF & O-Ring Spot Face seals
- · Broad Range of configurations
- · Removable Collet and tube o-rings
- Highly accurate Flow-rate repeatability & Higher Flow
- Manual Adjustment knob w/ internal hex-key slot or Screw-Driver slot
- · Hex Locking-nut
- Precise Manual knob, w/ 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
- 25 % Reduction in overall Body size, compared to previous Brass-Banjo line

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

CODII	NG EXAMPLE				
GM	CU	04	-	02	
GM	ACTUATION: GM = swivel body, manual adj GS = swivel body, screwdrive M = manual adjustment, non S = screwdriver adjustment,	r adjustment ı-swivel banjo			
CU	ASSEMBLY: CU = on cylinders (meter out) VU = on valves (meter in) CO = (needle orifice)				
04	ATTACHMENTS 32F = 10-32 UNF Female Thro 53 = 5/32" OD Tube 02 = 1/8" OD Tube 02F = 1/8" NPTF Female Thro 04 = 1/4" OD Tube 04F = 1/4" NPTF Female Thro 05 = 5/16" OD Tube 06 = 3/8" OD Tube 06F = 3/8" NPTF Female Thro 08 = 1/2" OD Tube	ead ead			
02	Thread 32 = 10-32 UNF 02 = 1/8" NPTF 04 = 1/4" NPTF 06 = 3/8" NPTF 08 = 1/2" NPTF				

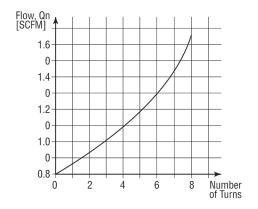
To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in NI/min (see cylinder Table); determine the stroke time of the cylinder; refer to graph to see which controller is the right type.

METER IN, METER OUT, NEEDLE ORIFICE FLOW CONTROLLERS

To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in NL/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. (NB: Qn is determined with a supply pressure of 6 bar and with DP = 1 bar at the outlet. N° = number of screw turns.)

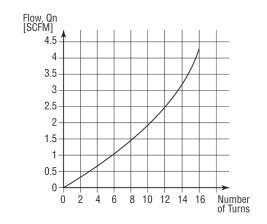
53-32

Flow Qn (NI/min.) from B \rightarrow A with needle OPEN: 60 NL/min. (2.12 SCFM) Flow Qn (NI/min.) from B \rightarrow A with needle CLOSED: 43 NL/min. (1.52 SCFM)



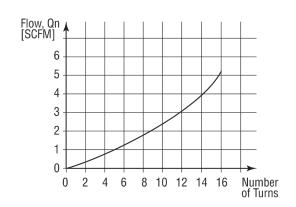
53-02

Flow Qn (NI/min.) from B \rightarrow A with needle OPEN: 107 NL/min (3.78 SCFM) Flow Qn (NI/min.) from B \rightarrow A with needle CLOSED: 28.3 NL/min. (1.0 SCFM)



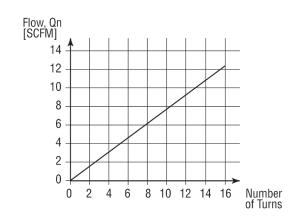
04-02

Flow Qn (NI/min.) from B \rightarrow A with needle OPEN: 164 NL/min. (5.79 SCFM) Flow Qn (NI/min.) from B \rightarrow A with needle CLOSED: 33.0 NL/min. (1.17 SCFM)



04-04

Flow Qn (Nl/min.) from B \rightarrow A with needle OPEN: 367 NL/min (12.96 SCFM) Flow Qn (Nl/min.) from B \rightarrow A with needle CLOSED: 133.0 NL/min (4.71 SCFM)

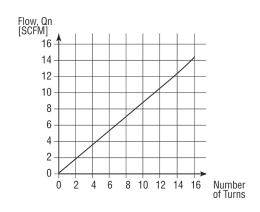


UNIDIRECTIONAL AND BIDIRECTIONAL FLOW CONTROLLERS

To ensure the right choice of unidirectional flow controller, proceed as follows: calculate the quantity of air in NL/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. (NB: Qn is determined with a supply pressure of 6 bar and with DP = 1 bar at the outlet. N° = number of screw turns.)

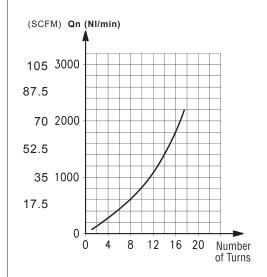
06-04

Flow Qn (NI/min.) from B \rightarrow A with needle OPEN: 466 NL/min. (16.45 SCFM) Flow Qn (NI/min.) from B \rightarrow A with needle CLOSED: 153 NL/min. (5.40 SCFM)



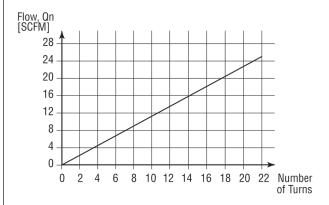
80-80

Flow Qn (NI/min.) from 2 \rightarrow 1 with needle OPEN: 2570 (90.75 SCFM) Flow Qn (NI/min.) from 2 \rightarrow 1 with needle CLOSED: 1330 (46.95 SCFM) 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.



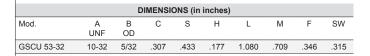
06-06

Flow Qn (NI/min.) from B \rightarrow A with needle OPEN: 875 NL/min. (30.90 SCFM) Flow Qn (NI/min.) from B \rightarrow A with needle CLOSED: 428 NL/min. (15.11 SCFM)

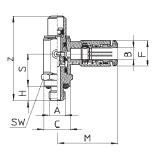


Meter-Out Valves Series GSCU

Meter-out unidirectional flow controller for mounting on cylinders or valves. It has a screwdriver adjustment with a right-angle push to connect tube fitting.

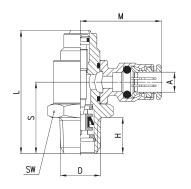






DIMENSIONS (in inches)											
Mod.	A OD	D NPTF	S	Н	L	М	SW				
GSCU 02-02	1/8	1/8	.781	.315	1.441	.846	.551				
GSCU 53-02	5/32	1/8	.781	.315	1.441	.885	.551				
GSCU 04-02	1/4	1/8	.781	.315	1.441	.984	.551				
GSCU 04-04	1/4	1/4	.939	.472	1.594	1.063	.748				
GSCU 05-02	5/16	1/8	.781	.315	1.441	1.004	.551				
GSCU 05-04	5/16	1/4	.939	.472	1.594	1.083	.748				
GSCU 05-06	5/16	3/8	.961	.472	1.791	1.122	.866				
GSCU 06-04	3/8	1/4	.939	.472	1.594	1.181	.748				
GSCU 06-06	3/8	3/8	.961	.472	1.791	1.240	.866				





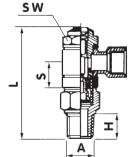
Meter-Out Valves Series GSCU

Meter-out unidirectional flow controller for mounting on cylinders or valves. It has screwdriver adjustment with right-angle female threads.



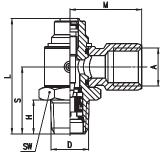
DIMENSIONS (in inches)										
Mod.	A UNF	BANJO UNF	S	Н	L	SW				
SCU 32F-32	10-32	10-32	.216	.177	1.141	.315				





DIMENSIONS (in inches)												
Mod. A D H S L M SW NPTF NPTF												
GSCU 02F-02	1/8	1/8	0.315	0.768	1.449	0.787	0.551					
GSCU 04F-04	1/4	1/4	0.472	0.925	1.614	1.004	0.748					
GSCU 06F-06	3/8	3/8	0.472	0.945	1.803	1.102	0.866					





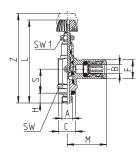
Meter-Out Valves Series GMCU

Meter-out unidirectional flow controller for mounting on cylinders or valves. It has a manual adjustment with a right-angle push to connect tube fitting.

DIMENSIONS (in inches)											
Mod.	A UNF	B OD	С	S	Н	L	Z	М	F	SW	SW1
GMCU 53-32	10-32	5/32	.307	.433	.177	1.448	1.614	.709	.346	.315	.217

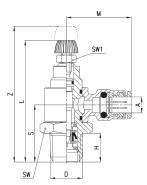






	DIMENSIONS (in inches)											
Mod.	A OD	D NPTF	S	Н	L	Z	М	SW	SW1			
GMCU 02-02	1/8	1/8	.781	.175	1.775	2.011	.846	.551	.275			
GMCU 53-02	5/32	1/8	.781	.315	1.775	2.011	.885	.551	.275			
GMCU 04-02	1/4	1/8	.781	.315	1.775	2.011	.984	.551	.275			
GMCU 04-04	1/4	1/4	.939	.472	1.994	2.227	1.063	.748	.275			
GMCU 05-02	5/16	1/8	.781	.315	1.775	2.011	1.004	.551	.275			
GMCU 05-04	5/16	1/4	.939	.472	1.994	2.227	1.083	.748	.275			
GMCU 05-06	5/16	3/8	.961	.472	2.223	2.538	1.122	.866	.393			
GMCU 06-04	3/8	1/4	.939	.472	1.994	2.227	1.181	.748	.275			
GMCU 06-06	3/8	3/8	.961	.472	2.223	2.538	1.240	.866	.393			





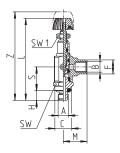
Meter-Out Valves Series GMCU

Meter-out unidirectional flow controller for mounting cylinders or valves. It has a manual adjustment with right-angle female threads.

	DIMENSIONS (in inches)											
Mod.	A UNF	B UNF	С	S	Н	L	Z	М	F	SW	SW1	
GMCU 32F-32	10-32	10-32	.307	.433	.177	1.448	1.614	.433	.256	.315	.217	

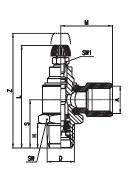




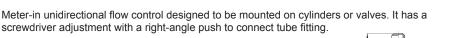


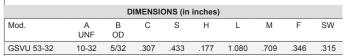
DIMENSIONS											
Mod.	A NPTF	D NPTF	Н	S	L	Z	М	SW	SW1		
GMCU 02F-02	1/8"	1/8"	0.315	0.768	2.031	1.815	0.787	0.551	0.276		
GMCU 04F-04	1/4"	1/4"	0.472	0.925	2.224	1.992	1.004	0.748	0.276		
GMCU 06F-06	3/8"	3/8"	0.472	0.945	2.610	2.291	1.102	0.866	0.394		



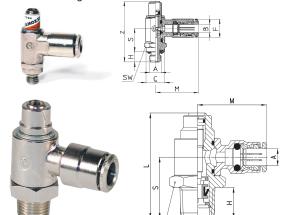


Meter-In Valves Series GSVU





DIMENSIONS											
Mod.	A OD	D NPTF	S	Н	L	М	SW				
GSVU 02-02	1/8	1/8	.781	.315	1.441	.846	.551				
GSVU 53-02	5/32	1/8	.781	.315	1.441	.885	.551				
GSVU 04-02	1/4	1/8	.781	.315	1.441	.984	.551				
GSVU 04-04	1/4	1/4	.939	.472	1.594	1.063	.748				
GSVU 05-02	5/16	1/8	.781	.315	1.441	1.004	.551				
GSVU 05-04	5/16	1/4	.939	.472	1.594	1.083	.748				
GSVU 05-06	5/16	3/8	.961	.472	1.791	1.122	.866				
GSVU 06-04	3/8	1/4	.939	.472	1.594	1.181	.748				
GSVU 06-06	3/8	3/8	.961	.472	1.791	1.240	.866				



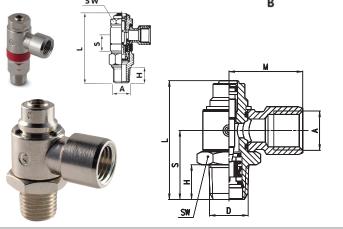
Meter-In Valves Series GSVU

Meter-in unidirectional flow control designed to be mounted on valves or cylinders. It has a screwdriver adjustment with right-angle female threads.



DIMENSIONS (in inches)										
Mod. A BANJO S H L SW										
SVU 32F-32	10-32	10-32	.216	.177	1.141	.315				

DIMENSIONS (in inches)											
Mod.	A NPTF	D NPTF	Н	S	L	M	SW				
GSVU 02F-02	1/8	1/8	0.315	0.768	1.449	0.787	0.551				
GSVU 04F-04	1/4	1/4	0.472	0.925	1.614	1.004	0.748				
GSCV 06F-06	3/8	3/8	0.472	0.945	1.803	1.102	0.866				



Meter-In Valves Series GMVU

Meter-in unidirectional flow control designed to be mounted on valves or cylinders. It has a manual adjustment with a right-angle push to connect tube fitting.

DIMENSIONS (in inches)											
Mod.	Tube OD	A UNF	S	Н	L	Z	SW	SW1			
MVU 53-32	5/32"	10-32	0.215	0 175	1.561	1 71	0.313	0.211			

	DIMENSIONS (in inches)										
Mod.	A OD	D NPTF	S	Н	L	Z	М	SW	SW1		
GMVU 02-02	1/8	1/8	.781	.175	1.775	2.011	.846	.551	.275		
GMVU 53-02	5/32	1/8	.781	.315	1.775	2.011	.885	.551	.275		
GMVU 04-02	1/4	1/8	.781	.315	1.775	2.011	.984	.551	.275		
GMVU 04-04	1/4	1/4	.939	.472	1.994	2.227	1.063	.748	.275		
GMVU 05-02	5/16	1/8	.781	.315	1.775	2.011	1.004	.551	.275		
GMVU 05-04	5/16	1/4	.939	.472	1.994	2.227	1.083	.748	.275		
GMVU 05-06	5/16	3/8	.961	.472	2.223	2.538	1.122	.866	.393		
GMVU 06-04	3/8	1/4	.939	.472	1.994	2.227	1.181	.748	.275		
GMVU 06-06	3/8	3/8	XXX	XXX	XXX	XXX	XXX	XXX	XXX		



Mod.

GMVU 02F-02

GMVU 04F-04

GMVU 06F-06

1/8

1/4

3/8

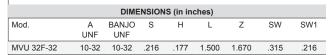
1/8

1/4

3/8

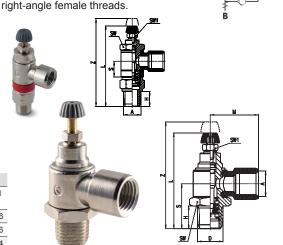
Meter-In Valves Series GMVU

Meter-in unidirectional flow control designed to be mounted on valves or cylinhders. It has a manual adjustment with right-angle female threads.



DIMENSIONS (in inche

ISIONS	(in inch	nes)				
Н	S	L	Z	М	SW	SW1
0.315	0.768	2.031	1.815	0.787	0.551	0.276
0.472	0.925	2.224	1.992	1.004	0.748	0.276
0.472	0.945	2.610	2.291	1.102	0.866	0.394



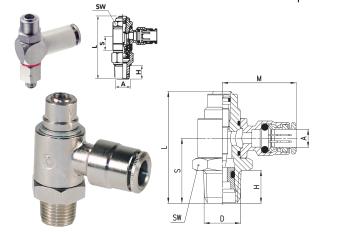
Needle Orifice Valves Series GSCO

This needle-orifice bidirectional flow control is designed with a needle orifice. It has a screwdriver adjustment with a right-angle push to connect tube fitting.



DIMENSIONS (in inches)										
Mod.	Tube OD	A UNF	S	Н	L	SW				
SCO 53-32	5/32	10-32	0.215	0.175	1.22	0.313				

DIMENSIONS (in inches)											
Mod.	A OD	D NPTF	S	Н	L	M	SW				
GSCO 02-02	1/8	1/8	.781	.315	1.441	.846	.551				
GSCO 53-02	5/32	1/8	.781	.315	1.441	.885	.551				
GSCO 04-02	1/4	1/8	.781	.315	1.441	.984	.551				
GSCO 04-04	1/4	1/4	.939	.472	1.594	1.063	.748				
GSCO 05-02	5/16	1/8	.781	.315	1.441	1.004	.551				
GSCO 05-04	5/16	1/4	.939	.472	1.594	1.083	.748				
GSCO 06-04	3/8	1/4	.939	.472	1.594	1.181	.748				



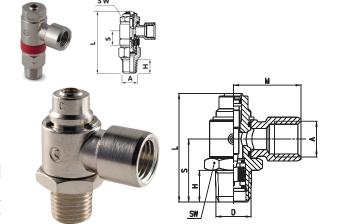
Needle Orifice Valves Series GSCO

This needle-orifice bidirectional flow control is designed with a needle orifice. It has a screwdriver adjustment with right-angle female threads.



DIMENSIONS (in inches)										
Mod.	Α	BANJO	S	Н	L	SW				
	UNF	UNF								
SCO 32F-32	10-32	10-32	.216	.177	1.141	.315				

DIMENSIONS (in inches)										
Part No.	A NPTF	D NPTF	Н	S	L	M	SW			
GSCO 02F-02	1/8	1/8	0.315	0.768	1.449	0.787	0.551			
GSCO 04F-04	1/4	1/4	0.472	0.925	1.614	1.004	0.748			

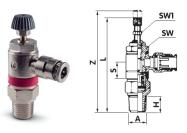


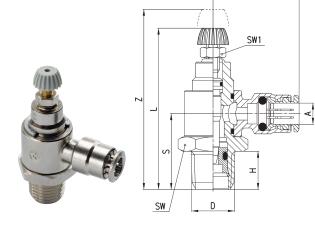
Needle Orifice Valves Series GMCO

This needle-orifice bidirectional flow control is designed with a needle orifice. It has a manual adjustment with a right-angle push to connect tube fitting.

	DIME	NSIONS	(in inch	nes)				
Mod.	Tube OD	A UNF	S	Н	L	Z	SW	SW1
MCO 53-32	5/32"	10-32	0.215	0.175	1.561	1.71	0.313	0.211
MCO 04-04	1/4"	1/4	0.767	0.472	2.413	2.649	0.588	0.275
MCO 05-04	5/16"	1/4	0.767	0.472	2.413	2.649	0.588	0.275
MCO 06-04	3/8"	1/4	0.767	0.472	2.413	2.649	0.588	0.275







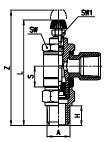
DIMENSIONS											
Mod.	A OD	D NPTF	S	Н	L	Z	M	SW	SW1		
GMCO 02-02	1/8	1/8	.781	.175	1.775	2.011	.846	.551	.275		
GMCO 53-02	5/32	1/8	.781	.315	1.775	2.011	.885	.551	.275		
GMCO 04-02	1/4	1/8	.781	.315	1.775	2.011	.984	.551	.275		
GMCO 05-02	5/16	1/8	.781	.315	1.775	2.011	1.004	.551	.275		

Needle Orifice Valves Series MCO

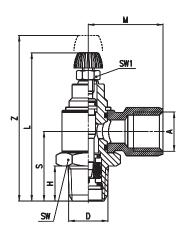
This needle-orifice bidirectional flow control is designed with a needle orifice. It has a manual adjustment with right-angle female threads.

DIMENSIONS (in inches)										
Mod.	A UNF	BANJO UNF	S	Н	L	Z	SW	SW1		
MCO 32F-32	10-32	10-32	.216	.177	1.500	1.670	.315	.216		
MCO 04F-04	1/4	1/4	.453	.511	2.844	3.090	.669	.275		







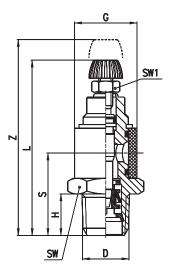


DIMENSIONS (in inches)										
Mod.	A NPTF	D NPTF	Н	S	L	Z	М	SW	SW1	
GMCO 02F-02	1/8	1/8	0.315	0.768	2.031	1.815	0.787	0.551	0.276	

Silenced exhaust controllers Mod. GMCU 2905

Meter-out unidirectional exhaust controller for mounting cylinders or valves. It has a manual adjustment with a sintered bronze banjo silencer.





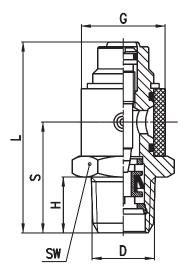


DIMENSIONS (in inches)										
Mod.	D NPTF	G	Н	S	L	Z	SW	SW		
GMCU 2905-02	1/8	0.551	0.315	0.768	2.031	1.815	0.551	0.276		
GMCU 2905-04	1/4	0.709	0.472	0.925	2.224	1.992	0.748	0.276		
GMCU 2905-06	3/8	0.827	0.472	0.945	2.610	2.291	0.866	0.394		

Silenced exhaust controllers Mod. GSCU 2905

Meter-out unidirectional exhaust controller for mounting cylinders or valves. It has a screwdriver adjustment with a sintered bronze banjo silencer.







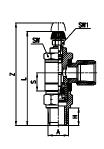
DIMENSIONS (in inches)										
Mod.	D NPTF	G	Н	S	L	SW				
GSCU 2905-02	1/8	0.551	0.315	0.768	1.449	0.551				
GSCU 2905-04	1/4	0.709	0.472	0.925	1.614	0.748				
GSCU 2905-06	3/8	0.827	0.472	0.945	1.803	0.866				

Unidirectional flow controllers Series MCU

For mounting on single-acting or double-acting cylinders.

Adjustment of setting by a manually operated knurled screw.





		RP02
₩ 1	√ ⊢ 2	
- 1		

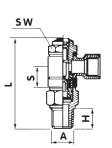
DIMENSIONS (in inches)										
Mod.	Banjo FemaleThread NPTF	A NPTF	S	Н	L	Z	SW	SW1		
MCU 08F-08	1/2"	1/2"	1.023	.610	4.685	5.295	1.063	.669		

Unidirectional flow controllers Series SCU

For mounting on single-acting or double-acting cylinders.

Screwdriver adjustment.





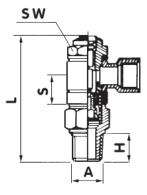
أممم	<u> </u>	RP02
1		2

DIMENSIONS (in inches)								
Mod.	Banjo Female Thread NPTF	A NPTF	S	Н	L	SW		
SCU 08F-08	1/2"	1/2"	1.023	.610	3.169	1.063		

Unidirectional flow controllers Series SVU

For mounting on valves. Screwdriver adjustment.





	 1	RP01
− ⊳	2	

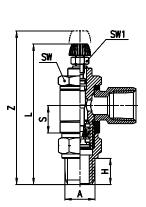
DIMENSIONS (in inches)								
Mod.	Banjo Female Thread NPTF	A NPTF	S	Н	L	SW		
SVU 08F-08	1/2"	1/2"	1.023	.610	3.169	1.036		



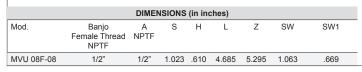
Unidirectional flow controllers Series MVU

For mounting on valve.
Adjustment of setting by a manually operated knurled screw.





_	. 4.	ا ا	RP01
1	\$	2	

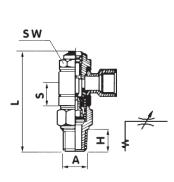




Bidirectional flow controllers Series SCO

Screwdriver adjustment.





DIMENSIONS (in inches)							
Part No.	Banjo Female Thread NPTF	A NPTF	S	Н	L	SW	
SCO 08F-08	1/2"	1/2"	1.023	.610	3.169	1.063	

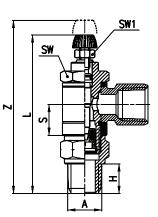




Bidirectional flow controllers Series MCO

Adjustment of setting by a manually operated knurled screw.







DIMENSIONS (in inches)								
Mod.	Banjo Female Thread NPTF	A NPTF	S	Н	L	Z	SW	SW1
MCO 08F-08	1/2"	1/2"	1.023	.610	4.685	5.295	1.063	.669