Flow control valves

Unidirectional and bidirectional banjo flow controllers
Series SCU, MCU, SVU, MVU, SCO, MCO
Ports M5 [10-32 UNF], 1/8”, 1/4”, 3/8”, NPTF

These bidirectional flow controllers have been designed as small as possible so as to be mounted directly on valves or cylinders. The MCU's and SCU's feature Camozzi's new design. This new design features a fully rotatable swivel design and is constructed with a lower profile.

General Data	
Valve group and needle valve]	Unidirectional and bidirectional controller, [meter-in, meter-out,
Construction	Needle type
Mounting	Right-angle male thread
Materials	Nickel-plated brass body, Buna-N seals, Nylon gaskets
Port sizes	10-32 UNF, 1/8", 1/4", 3/8" NPTF
Tube sizes	1/8", 5/32", 1/4", 3/8" [O.D.]
Installation	Any position
Operating temperature	32 - 175° F, [dry air necessary down to ⁻4° F]
Fluid	Filtered air
Lubricant	Oil compatible with Buna-N, [3 - 10 E]
Pneumatic Data	
Operating pressure	1.0 - 10 bar, [14.5 - 145 psi]
Nominal pressure	6 bar, [87 psi]
Nominal flow	See graphs below
Nominal diameter	10-32 UNF = 1.5mm [.059"], 1/8" = 2 mm [.079"], 1/4" = 4 mm [.157"], 3/8" = 7 mm[.275"]
*Qn flowrate [SCFM] determined with a supply pressure of 6 bar, [87 psi], and with a pressure drop of 1 bar, [14.5 psi].	
For regulated flow, A->B	See graphs below
**Dimensions are in inches	

Coding of Banjo flow controllers

M C U - 04 - 02 - N

Adjustment
M = Manual
S = Screwdriver

Assembly
C = on cylinders
V= on valves

Function
U = unidirectional (flow control)
O = bidirectional (needle valve)

Ports
N = NPTF

Thread
32 = 10-32 UNF
02 = 1/8" NPTF
04 = 1/4" NPTF
06 = 3/8" NPTF

Attachments
32F = 10-32 UNF Female Thread
53 = 5/32" O.D. Tube
02 = 1/8" O.D. Tube
02F = 1/8" NPTF Female Thread
04 = 1/4" O.D. Tube
04F = 1/4" NPTF Female Thread
06 = 3/8" O.D. Tube
06F = 3/8" NPTF Female Thread

Identification of different types (on hex of valve)

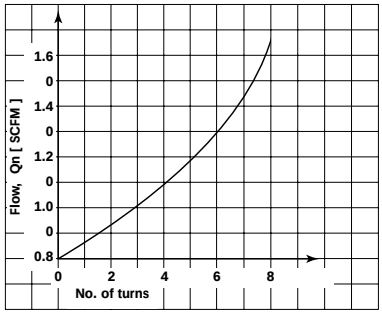
SCU
MCU

SVU
MVU

SCO
MCO

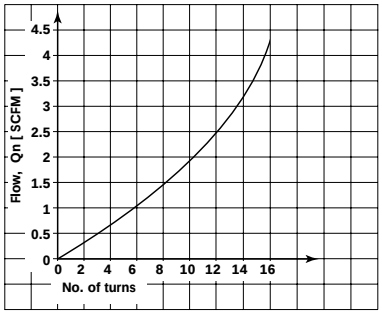
Unidirectional and Bidirectional flow control 53-32

Unregulated Flow B➔A with needle fully open - 60 NL/min. [2.12 SCFM]
Unregulated Flow B➔A with needle fully closed - 43 NL/min. [1.52 SCFM]



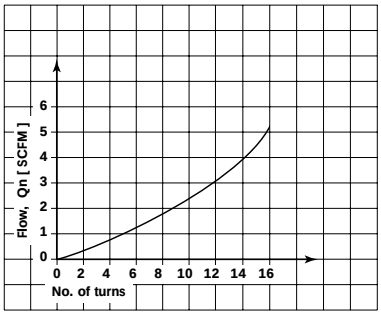
Unidirectional and Bidirectional flow control 53-02

Unregulated Flow B➔A with needle fully open - 107 NL/min. [3.78 SCFM]
Unregulated Flow B➔A with needle fully closed - 28.3 NL/min. [1.0 SCFM]



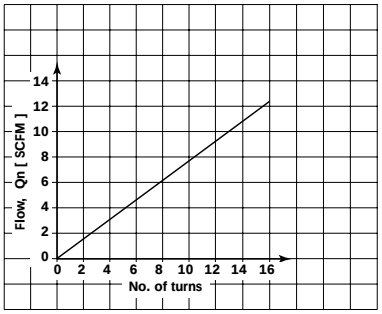
Unidirectional and Bidirectional flow control 04-02

Unregulated Flow B➔A with needle fully open - 164 NL/min. [5.79 SCFM]
Unregulated Flow B➔A with needle fully closed - 33.0 NL/min. [1.17 SCFM]



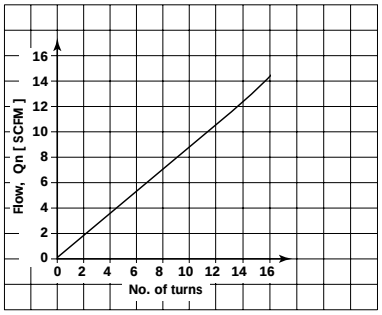
Unidirectional and Bidirectional flow control 04-04

Unregulated Flow B➔A with needle fully open - 367 NL/min. [12.96 SCFM]
Unregulated Flow B➔A with needle fully closed - 133.0 NL/min. [4.71 SCFM]



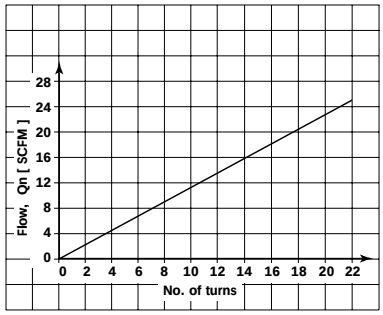
Unidirectional and Bidirectional flow control 06-04

Unregulated Flow B➔A with needle fully open - 466 NL/min. [16.45 SCFM]
Unregulated Flow B➔A with needle fully closed - 153 NL/min. [5.40 SCFM]

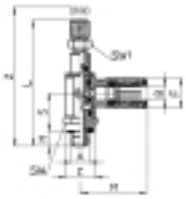


Unidirectional and Bidirectional flow control 06-06

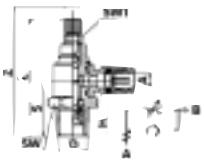
Unregulated Flow B➔A with needle fully open - 875 NL/min. [30.90 SCFM]
Unregulated Flow B➔A with needle fully closed - 428 NL/min. [15.11 SCFM]



This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a manual adjustment with a right-angle push to connect tube fitting.

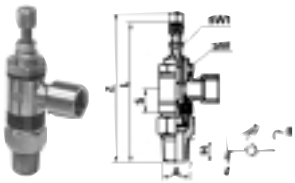


Part No.	TUBE O.D. A	B	C	S	H	L	Z	M	F	SW	SW1
	UNF										
MCU 53-32-N	10-32	5/32	.307	.433	.177	1.457	1.614	.709	.346	.315	.217



Part No.	TUBE O.D. A	D	S	H	L	Z	SW	SW1
		NPTF						
MCU 53-02-N	5/32”	1/8”	.840	.374	1.913	2.149	.551	.275
MCU 04-02-N	1/4”	1/8”	.840	.374	1.913	2.149	.551	.275
MCU 04-04-N	1/4”	1/4”	.978	.511	2.046	2.282	.748	.275
MCU 06-04-N	3/8”	1/4”	.978	.511	2.046	2.282	.748	.275
MCU 06-06-N	3/8”	3/8”	1.000	.511	2.322	2.637	.866	.393

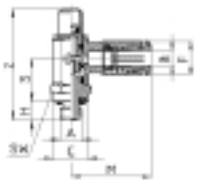
Part No.	A	B	C	S	H	L	Z	M	F	SW	SW1
	UNF	UNF									
MCU 32F-32-N	10-32	10-32	.307	.433	.177	1.457	1.770	.413	.256	.315	.217



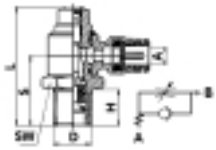
Part No.	Banjo Female Thread A	A	S	H	L	Z	SW	SW1
	NPTF	NPTF						
MCU 02F-02	1/8”	1/8”	.511	.374	2.375	2.564	.551	.275
MCU 04F-04	1/4”	1/4”	.453	.511	2.844	3.090	.669	.275
MCU 06F-06	3/8”	3/8”	.484	.511	2.950	3.252	.748	.393

This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a manual adjustment with right-angle female threads.

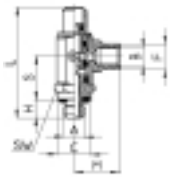
This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a screwdriver adjustment with a right-angle push to connect tube fitting.



Part No.	TUBE O.D. A	B	C	S	H	L	M	F	SW
	UNF								
SCU 53-32-N	10-32	5/32	.307	.433	.177	1.080	.709	.346	.315

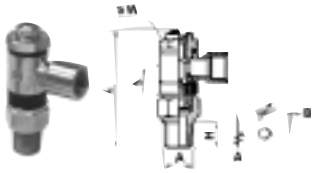


Part No.	TUBE O.D. A	D	S	H	L	SW
		NPTF				
SCU 53-02-N	5/32”	1/8”	.840	.374	1.500	.551
SCU 04-02-N	1/4”	1/8”	.840	.374	1.500	.551
SCU 04-04-N	1/4”	1/4”	.978	.511	1.633	.748
SCU 06-04-N	3/8”	1/4”	.978	.511	1.633	.748
SCU 06-06-N	3/8”	3/8”	1.000	.511	1.830	.866



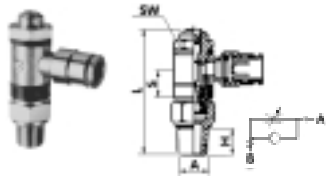
Part No.	A	B	C	S	H	L	M	F	SW
	UNF	UNF							
SCU 32F-32-N	10-32	10-32	.307	.433	.177	1.080	.413	.256	.315

This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a manual adjustment with right-angle female threads.

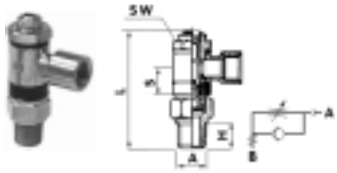


Part No.	Banjo Female Thread	A	S	H	L	SW
	NPTF	NPTF				
SCU 02F-02	1/8”	1/8”	.511	.374	2.000	.551
SCU 04F-04	1/4”	1/4”	.453	.511	2.250	.669
SCU 06F-06	3/8”	3/8”	.484	.511	2.440	.748

This unidirectional flow control is designed to be mounted on valves. It has a screwdriver adjustment with a right-angle push to connect tube fitting.



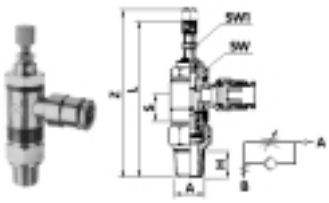
Part No.	TUBE O.D.	A	S	H	L	SW
		UNF				
SVU 53-32	5/32”	10-32	.216	.177	1.141	.315
		NPTF				
SVU 53-02	5/32”	1/8”	.511	.374	2.000	.551
SVU 04-02	1/4”	1/8”	.511	.374	2.000	.551
SVU 04-04	1/4”	1/4”	.453	.511	2.250	.669
SVU 06-04	3/8”	1/4”	.453	.511	2.250	.669



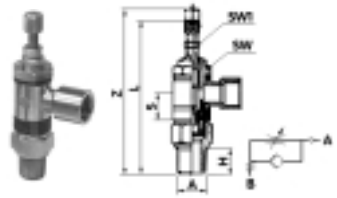
Part No.	Banjo Female Thread	A	S	H	L	SW
	UNF	UNF				
SVU 32F-32	10-32	10-32	.216	.177	1.141	.315
	NPTF	NPTF				
SVU 02F-02	1/8”	1/8”	.511	.374	2.000	.551
SVU 04F-04	1/4”	1/4”	.453	.511	2.250	.669

This unidirectional flow control is designed to be mounted on valves. It has a screwdriver adjustment with right-angle female threads.

This unidirectional flow control is designed to be mounted on valves. It has a manual adjustment with a right-angle push to connect tube fitting.



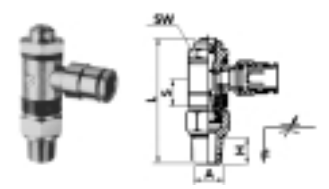
Part No.	TUBE O.D.	A	S	H	L	Z	SW	SW1
		UNF						
MVU 53-32	5/32”	10-32	.216	.177	1.500	1.670	.315	.216
		NPTF						
MVU 53-02	5/32”	1/8”	.511	.374	2.375	2.564	.551	.275
MVU 04-02	1/4”	1/8”	.511	.374	2.375	2.564	.551	.275
MVU 04-04	1/4”	1/4”	.453	.511	2.844	3.090	.669	.275
MVU 06-04	3/8”	1/4”	.453	.511	2.844	3.090	.669	.275



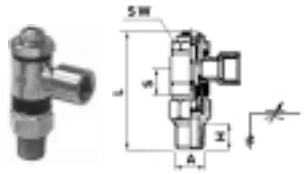
Part No.	Banjo Female Thread	A	S	H	L	Z	SW	SW1
	UNF	UNF						
MVU 32F-32	10-32	10-32	.216	.177	1.500	1.670	.315	.216
	NPTF	NPTF						
MVU 02F-02	1/8”	1/8”	.511	.374	2.375	2.564	.551	.275
MVU 04F-04	1/4”	1/4”	.453	.511	2.844	3.090	.669	.275

This unidirectional flow control is designed to be mounted on valves. It has a manual adjustment with right-angle female threads.

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



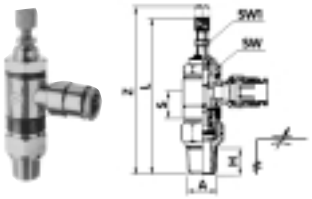
Part No.	TUBE O.D.	A	S	H	L	SW
		UNF				
SCO 53-32	5/32”	10-32	.216	.177	1.141	.315
		NPTF				
SCO 53-02	5/32”	1/8”	.511	.374	2.000	.551
SCO 04-02	1/4”	1/8”	.511	.374	2.000	.551
SCO 04-04	1/4”	1/4”	.453	.511	2.250	.669
SCO 06-04	3/8”	1/4”	.453	.511	2.250	.669



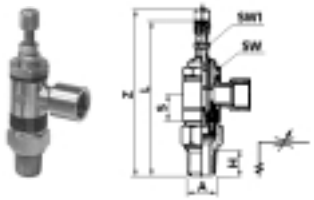
Part No.	Banjo Female Thread	A	S	H	L	SW
	UNF	UNF				
SCO 32F-32	10-32	10-32	.216	.177	1.141	.315
	NPTF	NPTF				
SCO 02F-02	5/32”	1/8”	.511	.374	2.000	.551
SCO 04F-04	1/4”	1/4”	.453	.511	2.250	.669

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

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



Part No.	TUBE O.D.	A	S	H	L	Z	SW	SW1
		UNF						
MCO 53-32	5/32”	10-32	.216	.177	1.500	1.670	.315	.216
		NPTF						
MCO 53-02	5/32”	1/8”	.511	.374	2.375	2.564	.551	.275
MCO 04-02	1/4”	1/8”	.511	.374	2.375	2.564	.551	.275
MCO 04-04	1/4”	1/4”	.453	.511	2.844	3.090	.669	.275
MCO 06-04	3/8”	1/4”	.453	.511	2.844	3.090	.669	.275



Part No.	Banjo Female Thread	A	S	H	L	Z	SW	SW1
	UNF	UNF						
MCO 32F-32	10-32	10-32	.216	.177	1.500	1.670	.315	.216
	NPTF	NPTF						
MCO 02F-02	1/8”	1/8”	.511	.374	2.375	2.564	.551	.275
MCO 04F-04	1/4”	1/4”	.453	.511	2.844	3.090	.669	.275

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

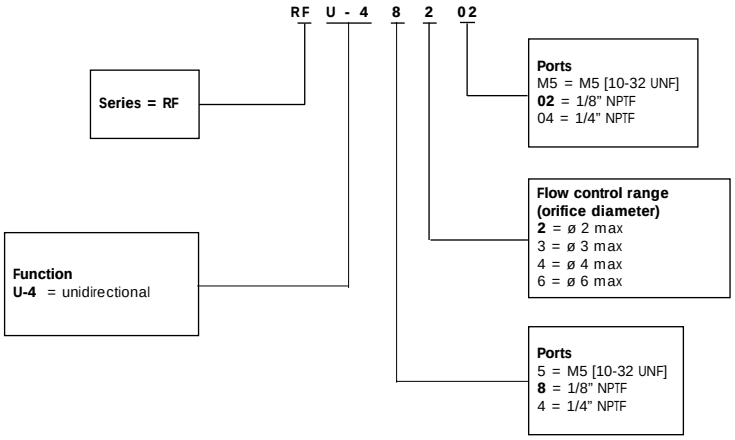
Flow control valves

Panel or wall-mounted flow controllers
Series RFU
Ports M5 [10-32 UNF], 1/8”, 1/4” NPTF

The unidirectional flow controllers are equipped with M5 [10-32 UNF], 1/8” and 1/4” ports, each of which is available with two different types of adjustment [see diagrams].
They are used mainly for controlling the speed of cylinders. They may be mounted on control panels or cylinders, as required.

General Data	
Valve group	Unidirectional controller, [meter-in, meter-out]
Construction	Needle type
Mounting	Through holes in body, or control panel
Materials	Aluminum body, Brass needle, Buna-N seals
Port sizes	M5 [10-32 UNF], 1/8”, 1/4”, NPTF
Installation	As required
Operating temperature	32 - 175° F, [dry air necessary down to ⁻4° F]
Fluid	Filtered air
Lubricant	Oil compatible with Buna-N, [3 - 10 E]
Pneumatic Data	
Operating pressure	1.0 - 10 bar, [14.5 - 145 psi]
Nominal pressure	6 bar, [87 psi]
Nominal flow	See graphs
Nominal diameter	1/8” = 2 mm [.079”], or 3 mm [.118”]
	1/4” = 4 mm [.157”], or 6 mm [.236”]
*Qn flowrate [SCFM] determined with a supply pressure of 6 bar, [87 psi], and with a pressure drop of 1 bar, [14.5 psi].	
For regulated flow, A -> B	See graphs below
**Dimensions are in inches	

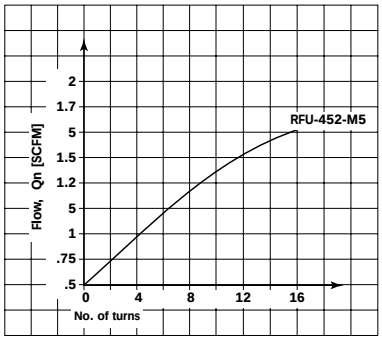
Coding of flow controllers



An example of assembling

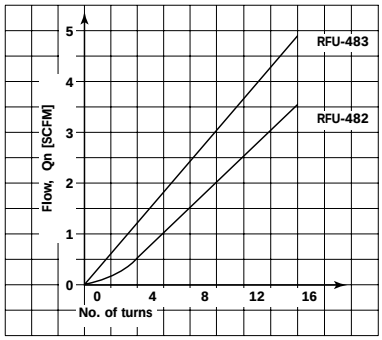
Unidirectional flow control M5 [10-32 UNF]

Unregulated Flow B➔A **RFU 452** needle fully open - 55 NL/min. [1.94 SCFM]
RFU 452 needle fully closed - 41 NL/min. [1.45 SCFM]



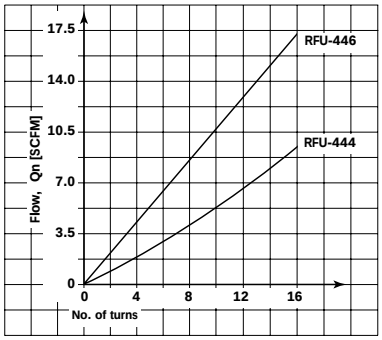
Unidirectional flow control [1/8”NPTF]

Unregulated Flow B➔A **RFU 482** needle fully open - 121 NL/min. [4.27 SCFM]
RFU 482 needle fully closed - 120 NL/min. [4.24 SCFM]
Unregulated Flow B➔A **RFU 483** needle fully open - 145 NL/min.[5.12 SCFM]
RFU 483 fully closed - 120 NL/min. [4.24 SCFM]



Unidirectional flow control [1/4” NPTF]

Unregulated Flow B➔A **RFU 444** needle fully open - 550 NL/min. [19.42 SCFM]
RFU 444 needle fully closed - 446 NL/min. [15.75 SCFM]
Unregulated Flow B➔A **RFU 446** needle fully open - 616 NL/min. [21.75 SCFM]
RFU 446 needle fully closed - 446 NL/min. [15.75 SCFM]



To regulate the speed of a cylinder, the air flow from the chamber which is being discharged must be regulated. For this reason, the unidirectional flow controller must be connected as follows: connect the threaded outlet marked “A” to the cylinder inlet and the threaded outlet marked “B” to the user port.

Part No.	A	B	H	D	F	G	L	M1	M2	M3	T	Z	SMax	SW	SW1	SW2
	METR.	UNF														
RFU-452-M5	M10x1	10-32	.256	.165	.551	.630	1.02	.728	.520	.280	1.54	1.750	.118	.472	.551	.315
		NPTF														
RFU-482-02	M12X1	1/8”	.354	.177	.629	.826	1.338	.964	.649	.315	1.811	2.007	.157	.551	.669	.354
RFU-483-02	M12X1	1/8”	.354	.177	.629	.826	1.338	.964	.649	.315	1.811	2.007	.157	.551	.669	.354
RFU-444-04	M20x1.5	1/4”	.492	.255	.984	1.181	2.047	1.377	.944	.472	2.362	2.716	.275	.866	.944	.551
RFU-446-04	M20x1.5	1/4”	.492	.255	.984	1.181	2.047	1.377	.944	.472	2.362	2.716	.275	.866	.944	.551