

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	Unidirectional and bidirectional controller, [meter-in, meter-out, and needle valve]
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"]

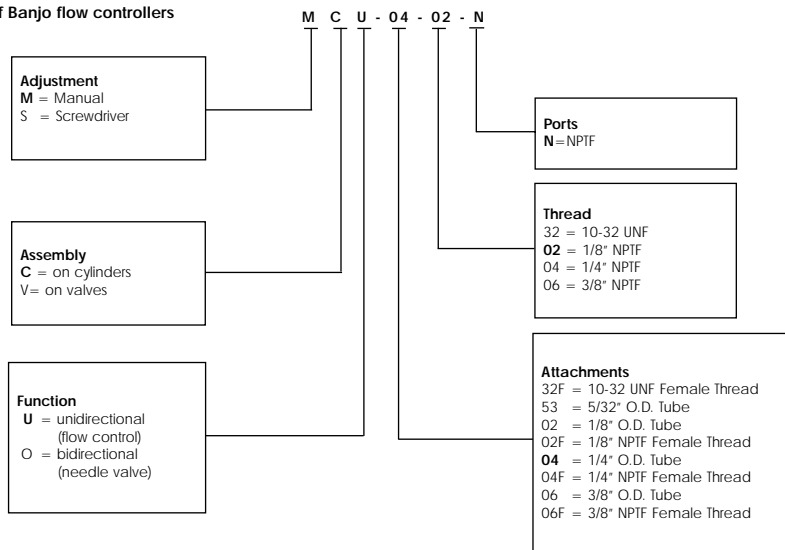
*Qn flowrate [SCFM] determined with a supply pressure of 6 bar, [87 psi], and with a pressure drop of 1 bar, [14.5 psi].

For regulated flow, A->B

See graphs below

**Dimensions are in inches

Coding of Banjo flow controllers

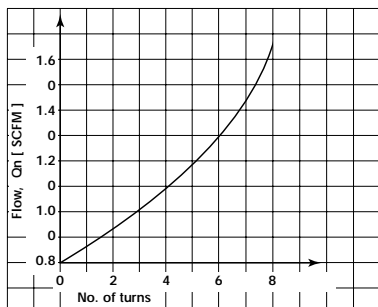


Identification of different types (on hex of valve)



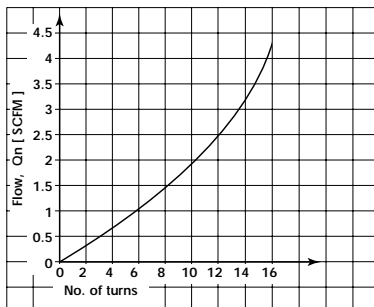
Unidirectional and Bidirectional flow control 53-32

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]



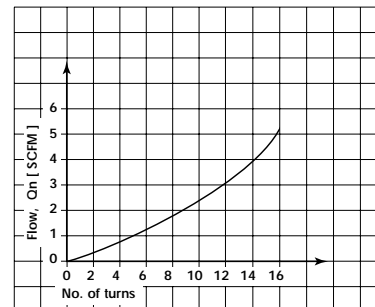
Unidirectional and Bidirectional flow control 53-02

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]



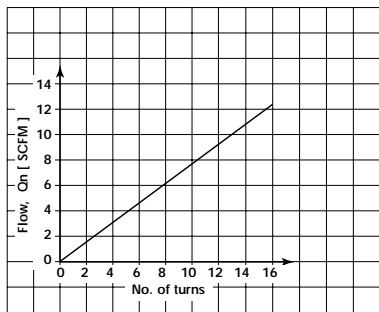
Unidirectional and Bidirectional flow control 04-02

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]



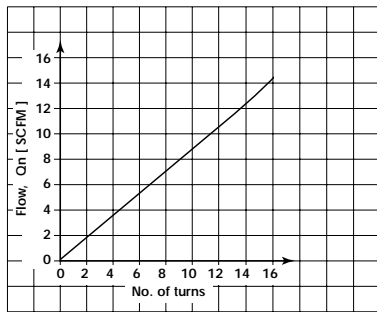
Unidirectional and Bidirectional flow control 04-04

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



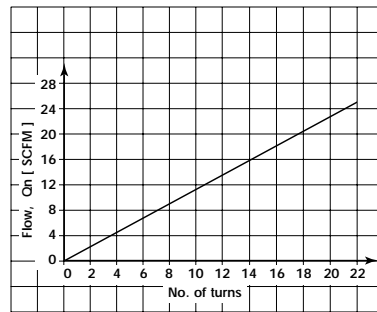
Unidirectional and Bidirectional flow control 06-04

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

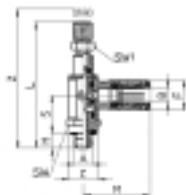


Unidirectional and Bidirectional flow control 06-06

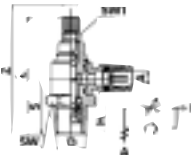
Unregulated Flow B→A with needle fully open - 875 NU/min. [30.90 SCFM]
 Unregulated Flow B→A with needle fully closed - 428 NU/min. [15.11 SCFM]



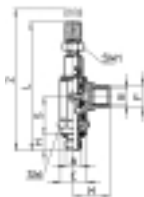
This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a manual adjustment with a right-angle push to connect tube fitting.



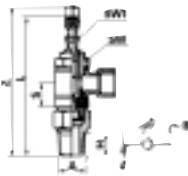
Part No.	TUBE O.D.									
	A	B	C	S	H	L	Z	M	F	SW SW1
MCU 53-32-N	10-32	5/32	.307	.433	.177	1.457	1.614	.709	.346	.315 .217



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



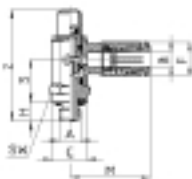
Part No.	TUBE O.D.									
	A	B	C	S	H	L	Z	M	F	SW SW1
MCU 32F-32-N	10-32	10-32	.307	.433	.177	1.457	1.770	.413	.256	.315 .217



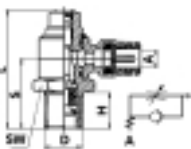
Part No.	Banjo Female Thread							
	NPTF	A	S	H	L	Z	SW	SW1
MCU 02F-02	1/8"	1/8"	.511	.374	2.375	2.564	.551	.275
MCU 04F-04	1/4"	1/4"	.453	.511	2.844	3.090	.669	.275
MCU 06F-06	3/8"	3/8"	.484	.511	2.950	3.252	.748	.393

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.

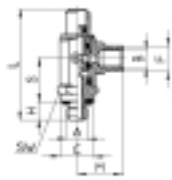
This unidirectional flow control is designed to be mounted on single-acting or double-acting cylinders. It has a screwdriver adjustment with a right-angle push to connect tube fitting.



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

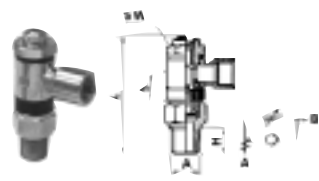


Part No.	TUBE O.D.					
	A	D	S	H	L	SW
	NPTF					
SCU 53-02-N	5/32"	1/8"	.840	.374	1.500	.551
SCU 04-02-N	1/4"	1/8"	.840	.374	1.500	.551
SCU 04-04-N	1/4"	1/4"	.978	.511	1.633	.748
SCU 06-04-N	3/8"	1/4"	.978	.511	1.633	.748
SCU 06-06-N	3/8"	3/8"	1.000	.511	1.830	.866



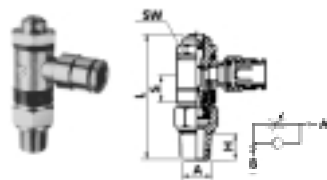
Part No.	A	B	C	S	H	L	M	F	SW
	UNF	UNF							
SCU 32F-32-N	10-32	10-32	.307	.433	.177	1.080	.413	.256	.315

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.

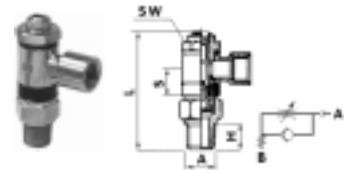


Part No.	Banjo Female Thread		A	S	H	L	SW
	NPTF	NPTF					
SCU 02F-02	1/8"	1/8"	.511	.374	2.000	.551	
SCU 04F-04	1/4"	1/4"	.453	.511	2.250	.669	
SCU 06F-06	3/8"	3/8"	.484	.511	2.440	.748	

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.



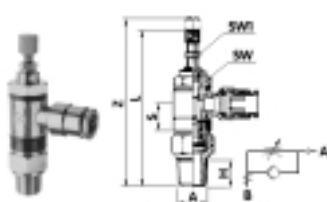
Part No.	TUBE O.D.					
		A	S	H	L	SW
		UNF				
SVU 53-32	5/32"	10-32	.216	.177	1.141	.315
		NPTF				
SVU 53-02	5/32"	1/8"	.511	.374	2.000	.551
SVU 04-02	1/4"	1/8"	.511	.374	2.000	.551
SVU 04-04	1/4"	1/4"	.453	.511	2.250	.669
SVU 06-04	3/8"	1/4"	.453	.511	2.250	.669



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	

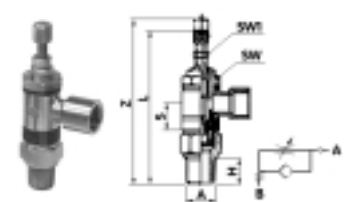
This unidirectional flow control is designed to be mounted on valves. It has a screwdriver adjustment with right-angle female threads.

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.



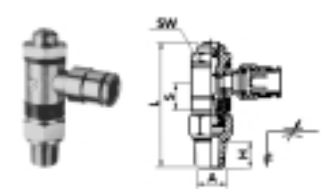
Part No.	TUBE O.D.							
		A	S	H	L	Z	SW	SW1
		UNF						
MVU 53-32	5/32"	10-32	.216	.177	1.500	1.670	.315	.216
		NPTF						
MVU 53-02	5/32"	1/8"	.511	.374	2.375	2.564	.551	.275
MVU 04-02	1/4"	1/8"	.511	.374	2.375	2.564	.551	.275
MVU 04-04	1/4"	1/4"	.453	.511	2.844	3.090	.669	.275
MVU 06-04	3/8"	1/4"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

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

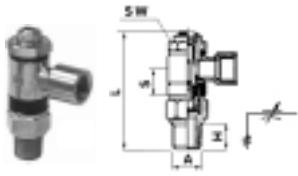


Part No.	Banjo Female Thread		A	S	H	L	Z	SW	SW1
	UNF	UNF							
MVU 32F-32	10-32	10-32	.216	.177	1.500	1.670	.315	.216	
	NPTF NPTF								
MVU 02F-02	1/8"	1/8"	.511	.374	2.375	2.564	.551	.275	
MVU 04F-04	1/4"	1/4"	.453	.511	2.844	3.090	.669	.275	

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



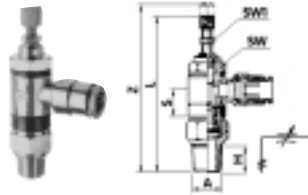
Part No.	TUBE O.D.					
		A	S	H	L	SW
		UNF				
SCO 53-32	5/32"	10-32	.216	.177	1.141	.315
		NPTF				
SCO 53-02	5/32"	1/8"	.511	.374	2.000	.551
SCO 04-02	1/4"	1/8"	.511	.374	2.000	.551
SCO 04-04	1/4"	1/4"	.453	.511	2.250	.669
SCO 06-04	3/8"	1/4"	.453	.511	2.250	.669



Banjo Female						
Part No.	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

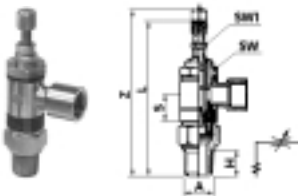
This bidirectional flow control is designed with a needle orifice. It has a screwdriver adjustment with right-angle female threads.

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



Banjo Female									
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	

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



Banjo Female									
Part No.	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	

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

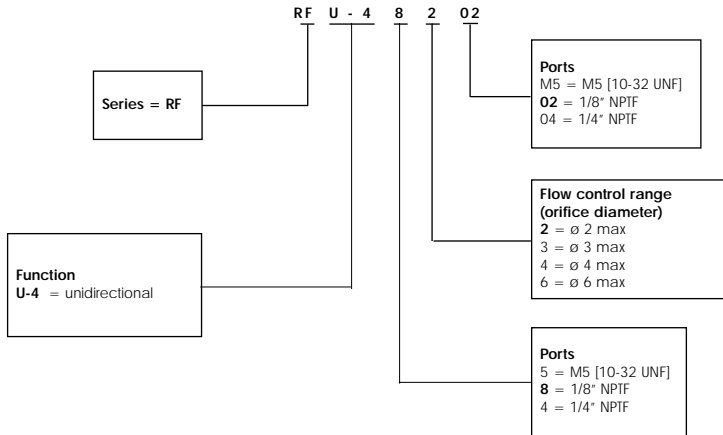
Valve group	Unidirectional controller, [meter-in, meter-out]
Construction	Needle type
Mounting	Through holes in body, or control panel
Materials	Aluminum body, Brass needle, Buna-N seals
Port sizes	M5 [10-32 UNF], 1/8", 1/4", NPTF
Installation	As required
Operating temperature	32 - 175° F, [dry air necessary 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"]

*On 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

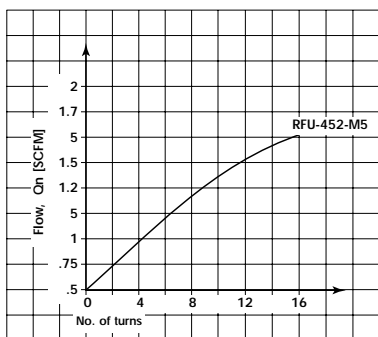


An example of assembling



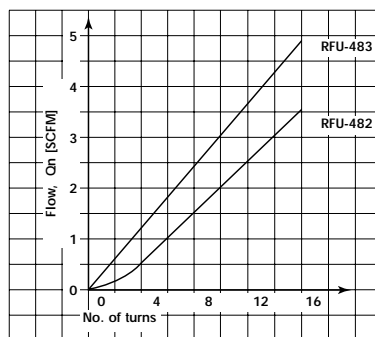
Unidirectional flow control M5 [10-32 UNF]

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]



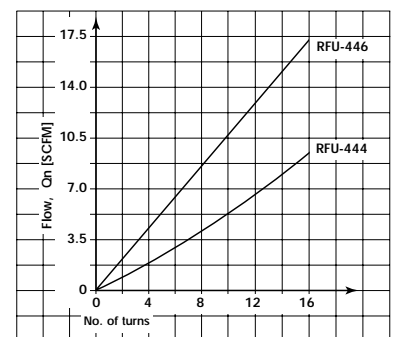
Unidirectional flow control [1/8"NPTF]

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

