

# Flow control valves

## Series RFU - RFO

Unidirectional and bidirectional flow control valves

Ports: M5, G1/8, G1/4, G3/8 and G1/2

Nominal diameter: M5 = 1,5 mm; G1/8 = 2 and 3 mm;

G1/4 = 4 and 6 mm; G3/8 and G1/2 = 7 mm



The unidirectional flow controllers are equipped with M5, G1/8, G1/4, G3/8 and G1/2 ports.

G1/8 and G1/4 ports are available with two different types of adjustment (see diagrams), whereas M5, G3/8 and G1/2 ports have just one type of adjustment. All models can be panel or wall mounted or they can be mounted on cylinders, as required.

To choose the most suitable model, it is recommended to:

1. calculate the quantity of air in NI/min (see the cylinders tables in the catalogue appendix);
2. determine the stroke time of the cylinder;
3. check the flow diagrams (see pages 2/7.20.03 and 2/7.20.04).

- » Series RFU: unidirectional flow control valves for the speed regulation of a cylinder
- » Series RFO: bidirectional flow control valves for the air flow regulation in both directions and for the pressurization or depressurization of a container.

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### GENERAL DATA

Construction	needle-type
Valve group	unidirectional and bidirectional controller
Materials	AL body - brass needle (not nickel-plated) - NBR seals
Mounting	with screws in the holes of the valve body or panel mounted
Threaded ports	M5 - G1/8 - G1/4 - G3/8 - G1/2
Installation	as required
Operating temperature	0°C ÷ 80°C (with dry air - 20°C)
Operating pressure	1 ÷ 10 bar (for models with M5 - G1/8 - G1/4 ports) 2 ÷ 10 bar (for models with G3/8 - G1/2 ports)
Nominal pressure	6 bar
Nominal flow	see graph
Nominal diameter	M5 = 1,5 - G1/8 = 2 or 3 mm - G1/4 = 4 or 6 mm - G3/8 and G1/2 = 7 mm
Fluid	filtered air

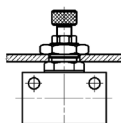
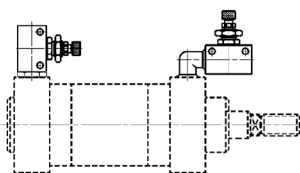
**CODING EXAMPLE**

<b>RF</b>	<b>U4</b>	<b>8</b>	<b>2</b>
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<b>RF</b>	SERIES: RF
<b>U4</b>	FUNCTION: U4 = unidirectional O3 = bidirectional
<b>8</b>	PORTS: 8 = G1/8 4 = G1/4 5 = M5 6 = G3/8 7 = G1/2
<b>2</b>	FLOW CONTROL RANGE: 2 = $\varnothing$ 2 max 3 = $\varnothing$ 3 max 4 = $\varnothing$ 4 max 6 = $\varnothing$ 6 max 7 = $\varnothing$ 7 max

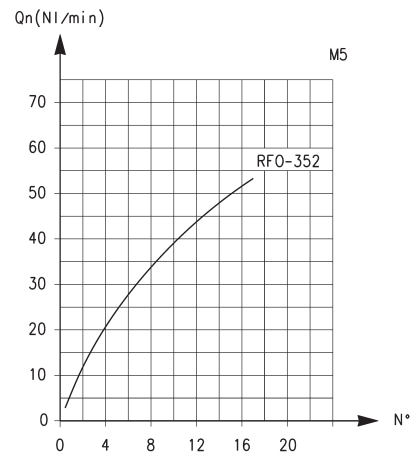
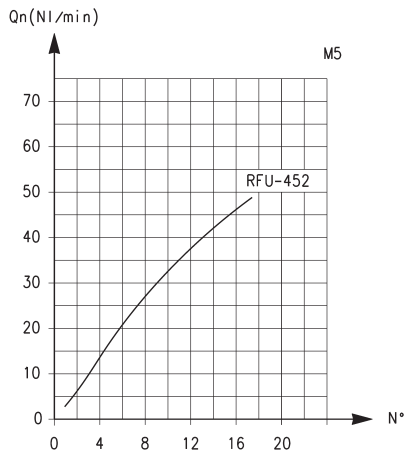
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**EXAMPLES OF VALVES SERIES RFO - RFU ASSEMBLY**


ASSEMBLY EXAMPLES

**FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - M5 PORTS**



RFU 452-M5: flow from 2 → 1 needle type OPEN = 55 NI/min  
CLOSED = 41 NI/min

RFO 352-M5

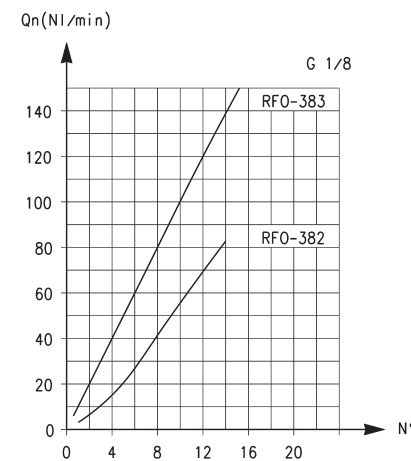
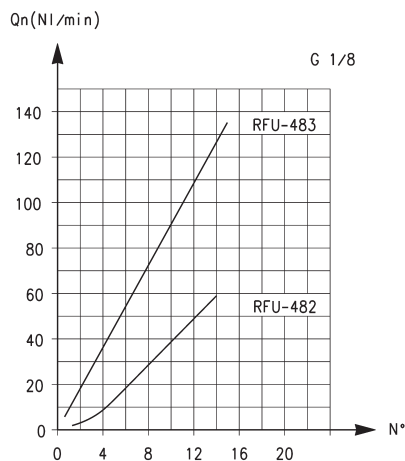
N° = number of screw turns

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Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

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**FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - G1/8 PORTS**



RFU 482-1/8: flow from 2 → 1 needle type OPEN = 149 NI/min  
CLOSED = 130,5 NI/min  
RFU 483-1/8: flow from 2 → 1 needle type OPEN = 180 NI/min  
CLOSED = 140 NI/min

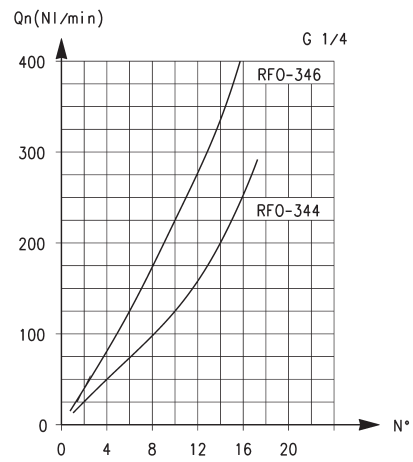
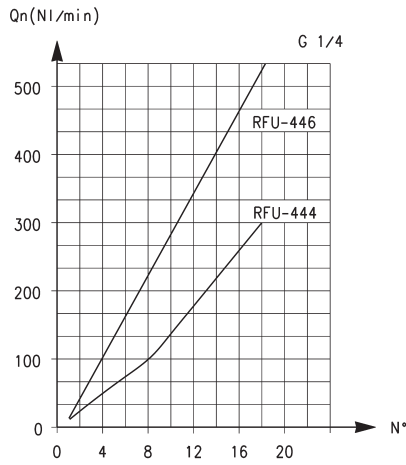
RFO 382-1/8 - RFO 383-1/8

N° = number of screw turns

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Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and ΔP = 1 bar at the outlet.

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**FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - G1/4 PORTS**


RFU 444-1/4: flow from 2 → 1 needle type OPEN = 680 NI/min  
 CLOSED = 534 NI/min  
 RFU 446-1/4: flow from 2 → 1 needle type OPEN = 680 NI/min  
 CLOSED = 534 NI/min

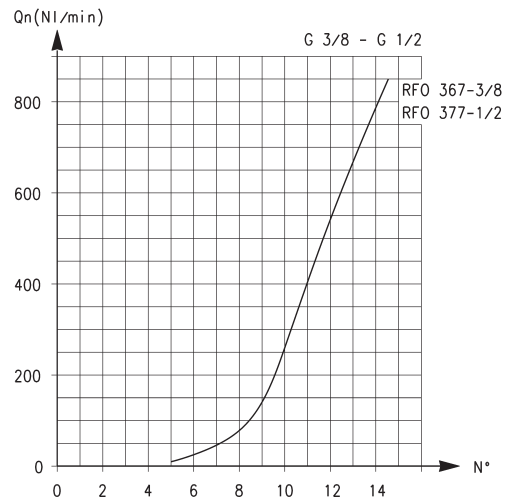
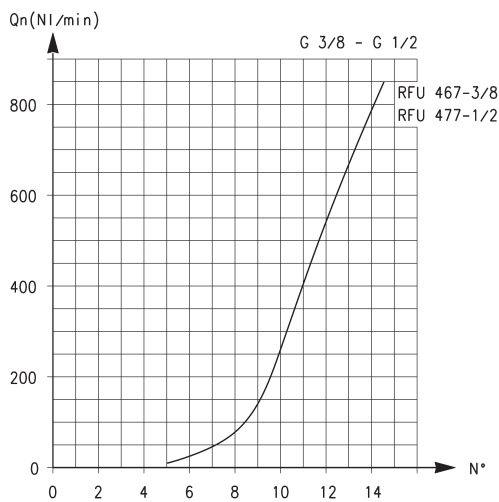
RFO 344-1/4 - RFO 346-1/4

N° = number of screw turns.

Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and  $\Delta P = 1$  bar at the outlet.

N° = number of screw turns

Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and  $\Delta P = 1$  bar at the outlet.

**FLOW DIAGRAMS (1 → 2) - VALVES SERIES RFU / RFO - G3/8, G1/2 PORTS**


RFU 467-3/8: flow from 2 → 1 needle type OPEN = 1700 NI/min  
 CLOSED = 1700 NI/min  
 RFU 477-1/2: flow from 2 → 1 needle type OPEN = 1700 NI/min  
 CLOSED = 1700 NI/min

RFO 367-3/8 - RFO 377-1/2

N° = number of screw turns

Note: the flow (Qn) is determined with a pressure of 6 bar at the inlet and  $\Delta P = 1$  bar at the outlet.

N° = number of screw turns

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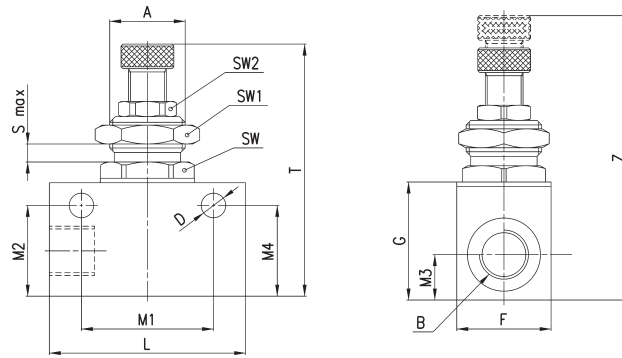
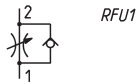
### Unidirectional flow control valves Series RFU

To regulate the cylinder speed, the discharging chamber air flow has to be controlled. Therefore, it is recommended to connect the valve threaded outlet 1 to the cylinder inlet and the outlet 2 to the valve user port.



TABLE NOTE:

\* knurled ring nut



DIMENSIONS

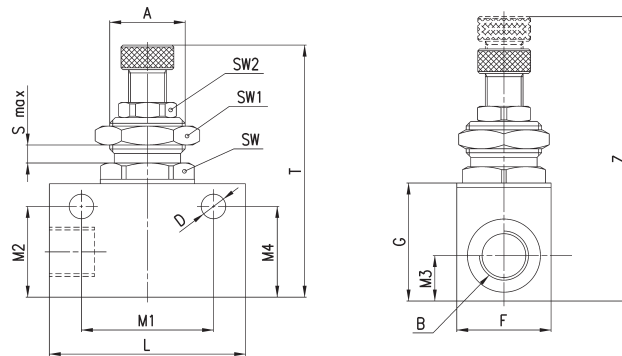
Mod.	øN	A	B	D	F	G	L	M1	M2	M3	M4	T	Z	S <sub>Max</sub>	SW	SW1	SW2
<b>RFU 452-M5</b>	1,5	M10x1	M5	4,2	14	16	26	18,5	13,2	7	13,2	39	44,5	3	12	14	8
<b>RFU 482-1/8</b>	2	M12x1	G1/8	4,5	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
<b>RFU 483-1/8</b>	3	M12x1	G1/8	4,5	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
<b>RFU 444-1/4</b>	4	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
<b>RFU 446-1/4</b>	6	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
<b>RFU 467-3/8</b>	7	M18x1	G3/8	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*
<b>RFU 477-1/2</b>	7	M18x1	G1/2	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*

### Bidirectional flow control valves Series RFO



TABLE NOTE:

\* knurled ring nut



DIMENSIONS

Mod.	øN	A	B	D	F	G	L	M1	M2	M3	M4	T	Z	S <sub>Max</sub>	SW	SW1	SW2
<b>RFO 352-M5</b>	1,5	M10x1	M5	4,2	14	16	26	18,5	13,2	7	13,2	39	44,5	3	12	14	8
<b>RFO 382-1/8</b>	2	M12x1	G1/8	4,2	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
<b>RFO 383-1/8</b>	3	M12x1	G1/8	4,5	16	21	34	24,5	16,5	8	16,5	46	51	4	14	17	9
<b>RFO 344-1/4</b>	4	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
<b>RFO 346-1/4</b>	6	M20x1,5	G1/4	6,5	25	30	52	35	24	12	24	60	69	7	22	24	14
<b>RFO 367-3/8</b>	7	M18x1	G3/8	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*
<b>RFO 377-1/2</b>	7	M18x1	G1/2	6,5	27	42	56	43	34,5	28	7,5	75	85	8	22	22	*