Series CLR micro pressure regulators

Ports G1/4, G1/8
With banjo stem with or without relieving
Available with or without banjo in technopolymer

- Extremely lightweight
- Compact
- In-line or console mounting

Series CLR micro pressure regulators are available with G1/8 and G1/4 connections. A piston with or without relieving and VS function (valve with fast draining) has been incorporated into its design.
The body is in brass, while the connection fitting is in technopolymer which guarantees maximum lightness. They can be supplied with or without banjo and can be console mounted.

With a threaded top part of the body both direct mounting to a valve outlet (1/8 and 1/4 threads) and console mounting are easily facilitated.
The pressure is precisely regulated simply by turning the polymer knob with a locking nut available to set the desired output.

GENERAL DATA

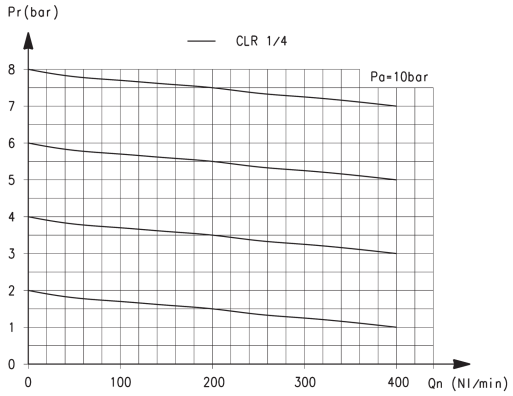
Construction	piston
Materials	brass body, technopolymer banjo, stainless steel spring; NBR O-ring
Ports	G1/8 - G1/4
Weight	Kg 0,035
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	2 ÷ 10 bar
Outlet pressure	0,5 ÷ 10 bar
Nominal flow	see graphs
Secondary pressure relieving	standard (all regulators are provided with high relief flow VS function)

CODING EXAMPLE

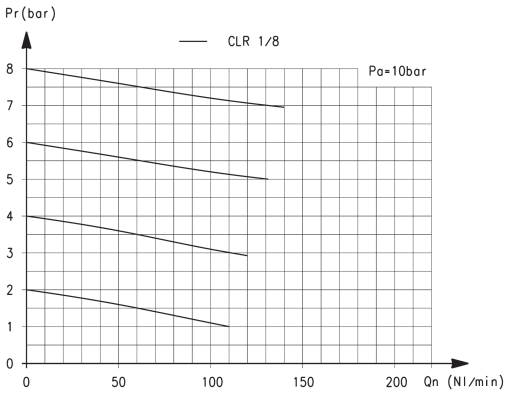
CL	R		1/8	-	01	-	4

CL	SERIES
R	R = REGULATOR
1/8	PORTS: 1/8 = G1/8 1/4 = G1/4
	DESIGN TYPE: = with relieving 01 = without relieving
4	TUBE: = without banjo 4 = Ø4 mm (G1/8 only) 6 = Ø6 mm 8 = Ø8 mm

FLOW DIAGRAMS at 6 bar with ΔP1

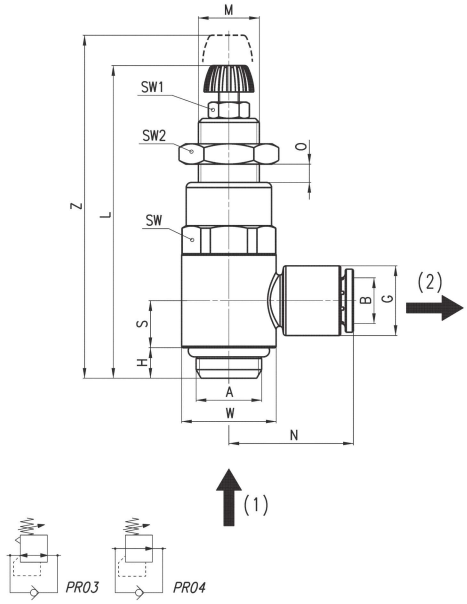


Pa = Inlet pressure - Pr = Regulated pressure
Qn = Flow
CLR 1/4-6 = 209 Nl/min
CLR 1/4-8 = 310 Nl/min



Pa = Inlet pressure - Pr = Regulated pressure
Qn = Flow
CLR 1/8-4 = 90 Nl/min; CLR 1/8-6 = 120 Nl/min - CLR 1/8-8 = 120 Nl/min

Series CLR Micro pressure regulators with banjo

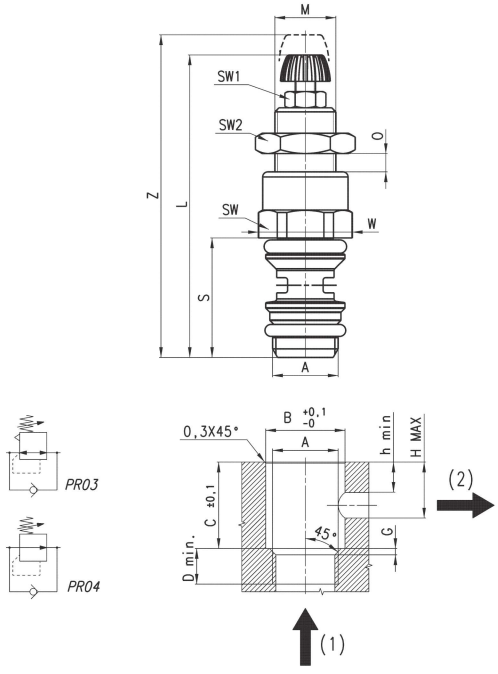


Mod.	A	B	G	H	L	M	N	O	S	W	SW	SW1	SW2	Z
CLR 1/8-4	G1/8	4	11,6	5	52	M11x1	21	0÷6,5	7,75	14	14	7	14	59
CLR 1/8-6	G1/8	6	11,6	5	52	M11x1	21	0÷6,5	7,75	14	14	7	14	59
CLR 1/8-8	G1/8	8	13,9	5	52	M11x1	22,5	0÷6,5	7,75	14	14	7	14	59
CLR 1/4-6	G1/4	6	13,9	6	59,5	M12x1	24,5	0÷8	9,25	18,6	17	7	17	68
CLR 1/4-8	G1/4	8	13,9	6	59,5	M12x1	24,5	0÷8	9,25	18,6	17	7	17	68

DRAWING NOTE
(1) = inlet pressure
(2) = regulated pressure

PR03 = Regulator with relieving and by-pass valve
PR04 = Regulator without relieving and with by-pass valve

Series CLR Micro pressure regulators without banjo



DIMENSIONS

Mod.	A	B	C	D min	G	h min	H MAX	L	M	O	S	W	SW	SW1	SW2	Z
CLR 1/8	G1/8	11	15.5	6	1	5.5	10	52	M11x1	0÷6.5	20.5	15.2	14	7	14	59
CLR 1/4	G1/4	15.65	18.5	7	1.25	7	12	59.5	M12x1	0÷8	24.5	18.5	17	7	17	68

DRAWING NOTE
(1) = inlet pressure
(2) = regulated pressure

PR03 = Regulator with relieving and by-pass valve
PR04 = Regulator without relieving and with by-pass valve

Series M pressure microregulators

Ports G1/8, G1/4

» Versions with calibrated or blocked regulators are available on request

» Versions with certified diaphragms and seals materials are available on request

Series M pressure regulator is available with G1/8 and G1/4 ports. Its design incorporates a diaphragm and relieving so as to allow decremental adjustments as well.
Microregulators are available with different regulation types: non-relieving, very sensitive self-relieving (through a light air leak) and VS (valve with fast draining).

The VS version is used when a regulator should be inserted between the valve and cylinder, or capacity, without any negative influence on the exhaust.

GENERAL DATA

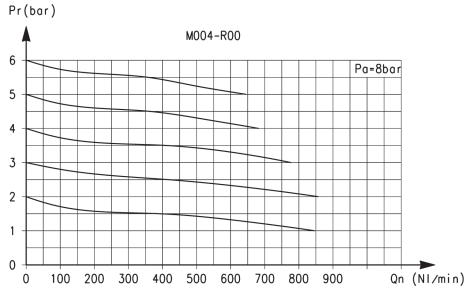
Construction	diaphragm type
Materials	brass body, stainless steel spring, NBR O-ring
Ports	G1/8 - G1/4
Weight	Kg 0.235
Pressure gauge ports	G1/8
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0.5 ÷ 10 bar
Nominal flow	see graphs
Secondary pressure relieving	standard

CODING EXAMPLE

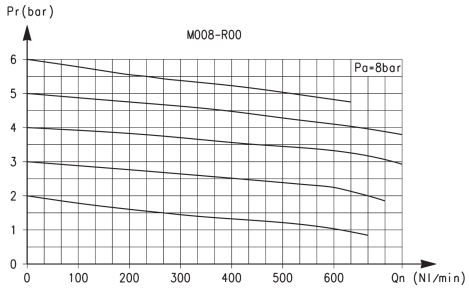
M	0	04	-	R	T	0	-	■	-	●

M	SERIES
0	SIZE
04	PORTS: 08 = G1/8 04 = G1/4
R	REGULATOR
T	OPERATING PRESSURE: 0 = 0.5 ÷ 10 bar (standard) 1 = 0 ÷ 4 bar 2 = 0 ÷ 2 bar 7 = 0.5 ÷ 7 bar T = calibrated * B = locked *
0	DESIGN TYPE: 0 = self relieving 1 = non relieving 5 = precise setting
	REGULATION TYPE: = without high relief flow (standard) VS = high relief flow
	* NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE REGULATION TYPE ADD THE INLET PRESSURE "■" AND THE OUTLET PRESSURE "●" INLET PRESSURE: ■ = enter the SUPPLY pressure value OUTLET PRESSURE: ● = enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: M04-RT0-6.3-4.5

FLOW DIAGRAMS

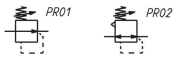


Flow diagram for models: M004-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow



Flow diagram for models: M008-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

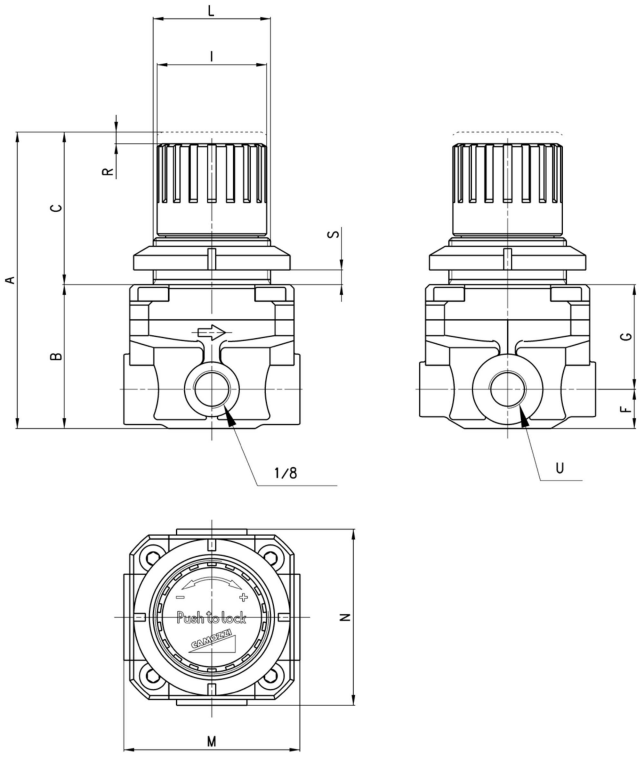
Series M pressure microregulator



PR01 = regulator without relieving

PR02 = regulator with relieving

PR03 = regulator with relieving and by-pass valve



DIMENSIONS

Mod.	A	B	C	F	G	I	L	M	N	R	S	U	
M008-R00	76	37	39	10	27	28	M30x1,5	45	45	3	0 ÷ 6	G1/8	*
M004-R00	76	37	39	10	27	28	M30x1,5	45	45	3	0 ÷ 6	G1/4	*

* = calibrated or blocked regulator available on request

Series T pressure microregulators

Ports G1/8 and G1/4

- Extremely lightweight
- Compact
- In-line or console mounting

Series T pressure regulators are available with G1/8 and G1/4 brass connections.
A self-relieving piston has been incorporated into the design to allow decreasing adjustments.
Non-relieving versions are also available.

All models are equipped with a valve enabling fast draining (VS) which is useful when a regulator should be inserted between the valve and cylinder (or capacity) without any negative influence on the exhaust.

GENERAL DATA

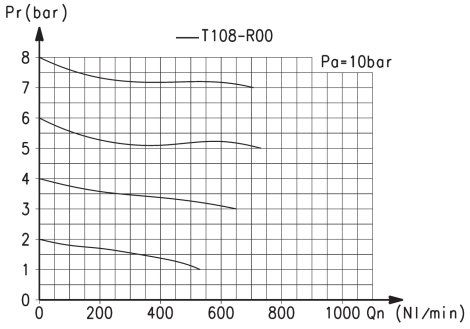
Construction	piston
Materials	technopolymer body and piston, stainless steel spring, brass inserts, NBR O-ring and poppet
Ports	G1/8 - G1/4
Weight	g 95
Pressure gauge ports	G1/8
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	0 ÷ 12 bar
Outlet pressure	0, 5 ÷ 10 bar
Nominal flow	see graphs
Secondary pressure relieving	standard
Type of fluid	air and water. Special versions for other types of gas are available upon request.

CODING EXAMPLE

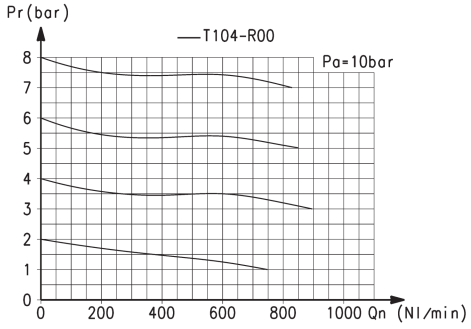
T	1	08	-	R	0	0

T	SERIES
1	SIZE
08	PORTS: 08 = G1/8 04 = G1/4
R	REGULATOR
0	OPERATING PRESSURE: 0 = 0,5 ÷ 10 1 = 0 ÷ 4 2 = 0 ÷ 2 7 = 0 ÷ 7 (standard)
0	DESIGN TYPE: 0 = self-relieving 1 = non relieving

FLOW DIAGRAMS

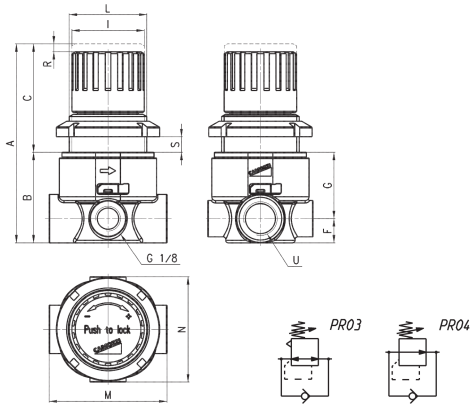


Flow diagram for model: T108-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow



Flow diagram for model: T104-R00
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

Series T pressure microregulator



DIMENSIONS

Mod.	A	B	C	F	G	I	L	M	N	R	S	U
T108-R00	77	35	42	9.5	25.5	28	M30X1.5	46	41	3	7	G1/8
T104-R00	77	35	42	9.5	25.5	28	M30X1.5	46	41	3	7	G1/4

PR03 = regulator with relieving and by-pass valve

PR04 = regulator without relieving and with by-pass valve

ACCESSORIES FOR SERIES M AND T MICROREGULATORS

Mounting bracket
Mod. C114-ST

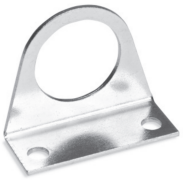
Mounting bracket
Mod. C114-ST/1

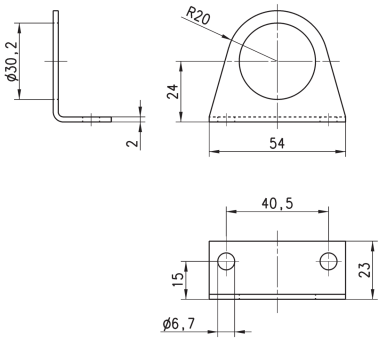
Mounting bracket
Mod. C114-ST/2

Systems of rapid connections designed to make mounting easier.

Mounting bracket Mod. C114-ST

The kit is supplied with:
1x zinc-plated steel bracket.

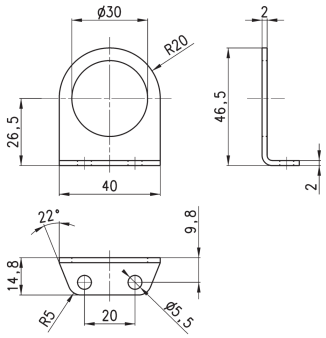




Mod.
C114-ST

Mounting bracket Mod. C114-ST/1

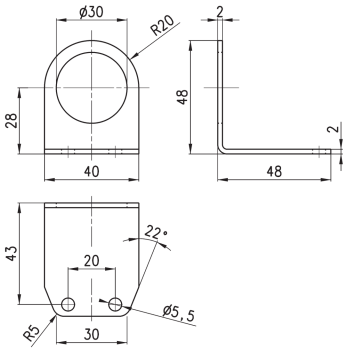
The kit is supplied with 1 zinc-plated steel bracket.



Mod.
C114-ST/1

Mounting bracket Mod. C114-ST/2

The kit is supplied with 1 zinc-plated steel bracket.



Mod.
C114-ST/2

Series PR precision regulators with manual override

Ports: G1/4

- » High precision
- » Triple diaphragm construction
- » Compact dimensions
- » Adjustment lock
- » Removable adjustment knob
- » Three ranges of pressure

Series PR precision pressure regulators work on a three diaphragms force-balance principle which allows them to react even to the smallest changes in pressure that can occur during operation.

GENERAL DATA

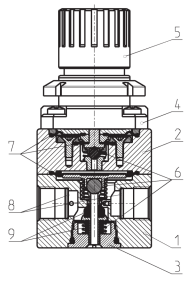
Construction	compact, diaphragm type
Materials	see the following page
Ports	G1/4
Mounting	vertical in-line, wall or panel mounting (in any position)
Working temperature	from 0°C to 50°C
Inlet pressure	0.1 ÷ 9 bar
Outlet pressure	0.05 ÷ 2 bar 0.05 ÷ 4 bar 0.05 ÷ 7 bar (standard)
Overpressure exhaust	with relieving (standard)
Nominal flow	see flow diagrams (following pages)
Media	filtered and not lubricated compressed air according to DIN ISO 8573-1 Classes 1-3-2
Hysteresis	20mbar
Repeatability	±0.2% FS
Bleed air consumption	≤ 5 l/min

CODING EXAMPLE

PR	1	04	-	M	07

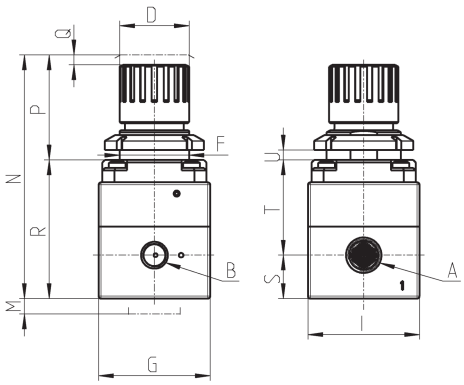
PR	SERIES
1	SIZE: 1 = Size 1
04	PORTS: 04 = G1/4
M	TYPE OF ADJUSTMENT: M = manual
07	OPERATING PRESSURE (1 bar = 14,5 psi): 02 = 0.05 ÷ 2 bar 04 = 0.05 ÷ 4 bar 07 = 0.05 ÷ 7 bar (standard)

Series PR precision regulators - materials



PARTS	MATERIALS
1 = Body	Anodized aluminium
2 = Intermediate body	Aluminium
3 = Valve holder plug	Brass
4 = Bell	Polyamide
5 = Regulator knob	Polyamide
6 = Springs	Stainless steel
7 = Diaphragms	NBR
8= Filters	Stainless steel
9 = Seals	NBR
O-ring	NBR

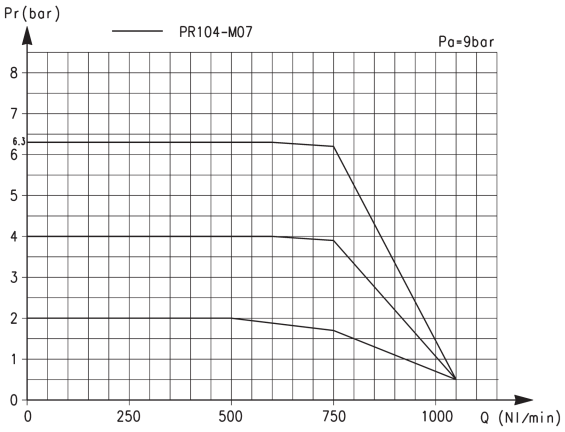
Series PR precision regulators - dimensions



DIMENSIONS

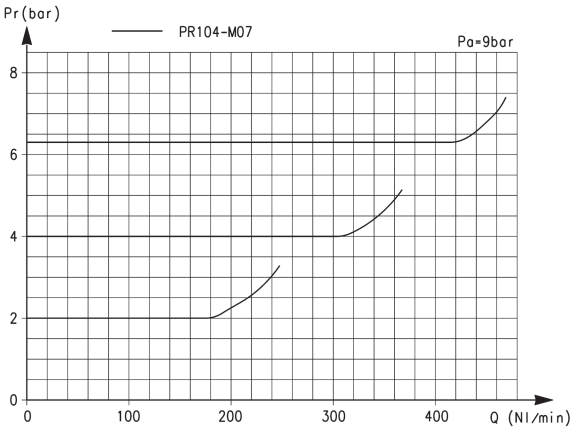
Mod.	A	B	D	F	G	I	M	N	P	Q	R	S	T	U	Weight (Kg)
PR104-M07	G1/4	G1/8	28	30	45	45	25	96	40	2	56	17.5	38.5	0-6	0.35

Mod. PR104-M07 FLOW DIAGRAMS (STANDARD VERSION)



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

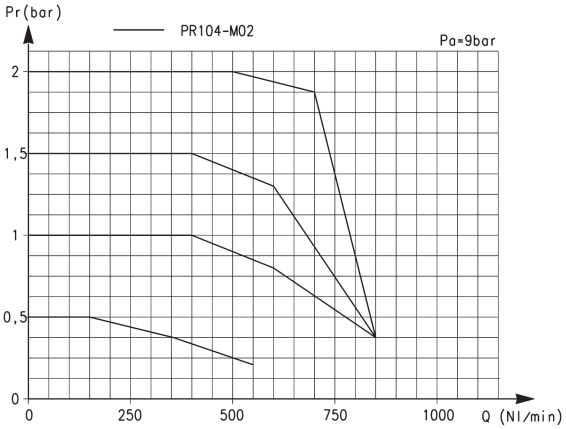


EXHAUST FLOW DIAGRAM

Pr = Regulated pressure
Q = Flow

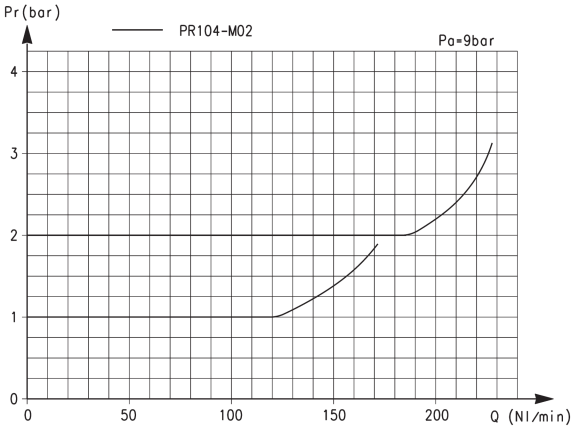
Pa = Inlet pressure

Mod. PR104-M02 FLOW DIAGRAMS



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

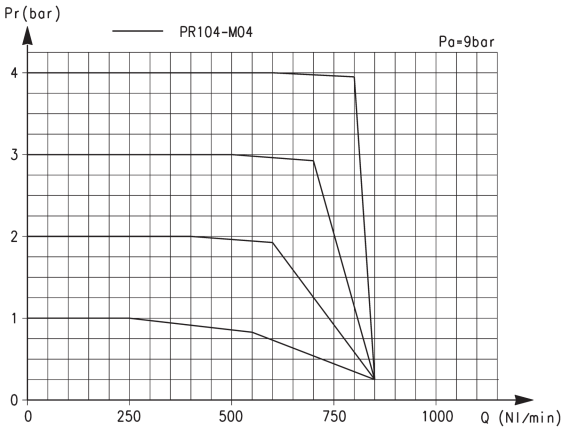


EXHAUST FLOW DIAGRAM

Pr = Regulated pressure
Q = Flow

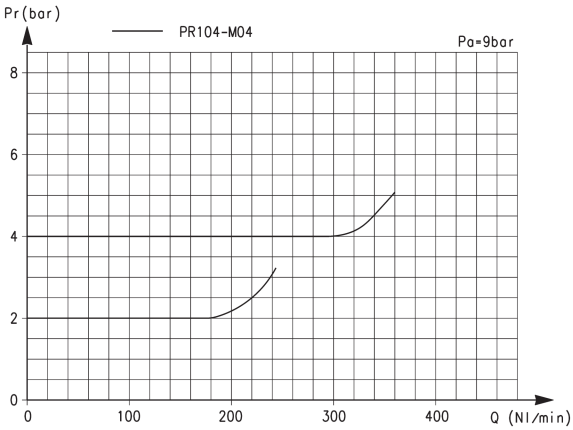
Pa = Inlet pressure

Mod. PR104-M04 FLOW DIAGRAMS



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure



EXHAUST FLOW DIAGRAM

Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

Series TC
pressure microregulators

New

For applications with oxygen, without relieving
Ports: cartridge construction, G1/8 and 1/8 NPTF

- Compact design
- High performance
- Easy to install
- Materials suitable with several gases

The new Series TC pressure regulator has been designed to be used for all the applications and equipment where it is needed to insert the single component in customized integrated pneumatic circuits (manifolds) or collectors.

The cartridge design and the compact size allow the regulator to be plugged in a proper seat, making the installation easier and reducing the assembly time. To produce the new TC regulator, materials have been analized and chosen on the basis of their suitability with the contact medium. The body in PPS and the seals in FKM ensure thus full compatibility with a wide range of gaseous fluids.

GENERAL DATA

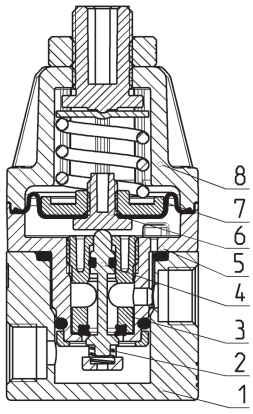
Construction	compact with pre-formed diaphragm
Materials	see the TABLE OF MATERIALS
Ports	cartridge construction in manifold - G1/8 or 1/8NPTF (aluminium body version only)
Mounting	in-line or cartridge (any position)
Operating temperature	-5°C ÷ 50°C
Inlet pressure	0 ÷ 10 bar
Outlet pressure	0 ÷ 0.5 bar 0 ÷ 2 bar 0 ÷ 3 bar 0 ÷ 4 bar
Overpressure exhaust	without relieving
Nominal flow	see the FLOW DIAGRAMS
Medium	air, inert and medical gases, OXYGEN
Repeatability	±0.2% FS

CODING EXAMPLE

TC	1	-	R	3	1	-	C	-	V	-	OX2

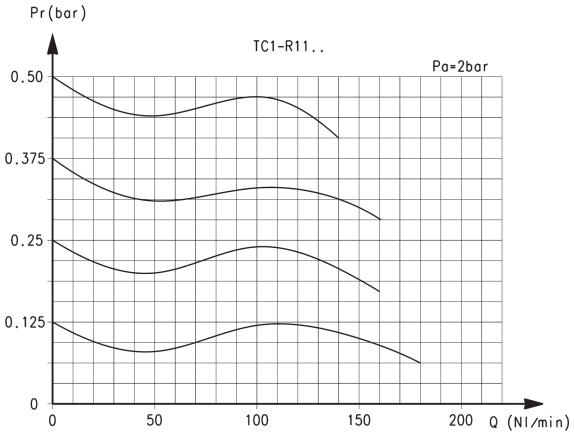
TC	SERIES
1	SIZE
R	REGULATOR
3	WORKING PRESSURE: 1 = 0 ÷ 0.5 bar 2 = 0 ÷ 2 bar 3 = 0 ÷ 3 bar 4 = 0 ÷ 4 bar
1	TYPE OF CONSTRUCTION: 1 = without relieving
C	PORTS: C = Cartridge 1/8 = G1/8 1/8TF = 1/8NPTF
V	SEALS MATERIAL: V = FKM
OX2	VERSIONS: OX1 = for oxygen (non-volatile residue lower than 550 mg/m²) OX2 = for oxygen (non-volatile residue lower than 33 mg/m²)

Series TC pressure microregulators - materials



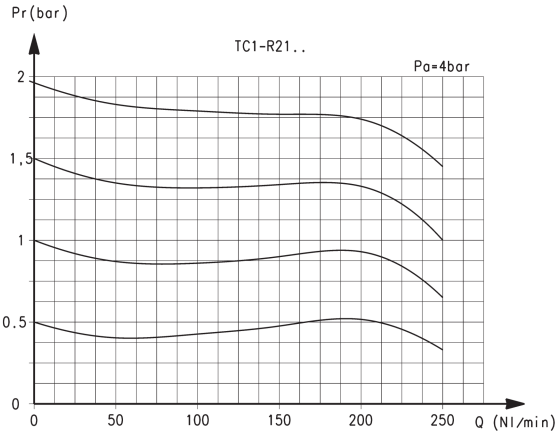
PARTS	MATERIALS
1. Base body	Anodized aluminium
2. Lower spring	Stainless steel
3. Insert	PPS
4. Poppet	Stainless steel
5. Body	PPS
6. Valve guide	PPS
7. Diaphragm	FKM
8. Bell	Polyamide
Seals	FKM

FLOW DIAGRAMS - 0.5 and 2 bar working pressure



Pr = Regulated pressure
Q = Flow

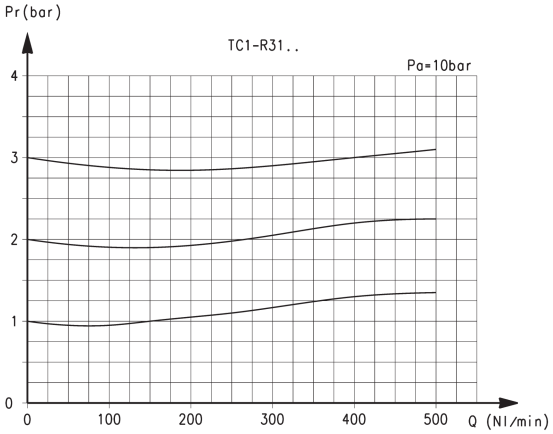
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

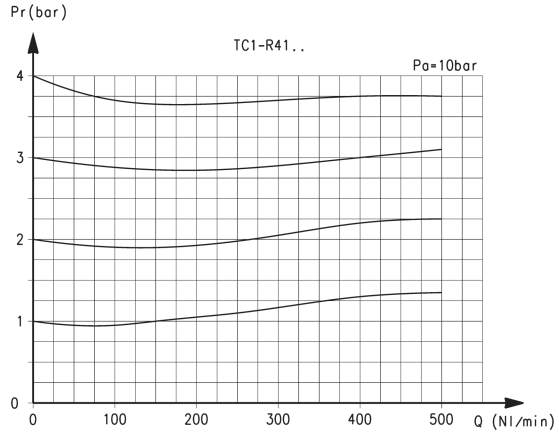
Pa = Inlet pressure

FLOW DIAGRAMS - 3 and 4 bar working pressure



Pr = Regulated pressure
Q = Flow

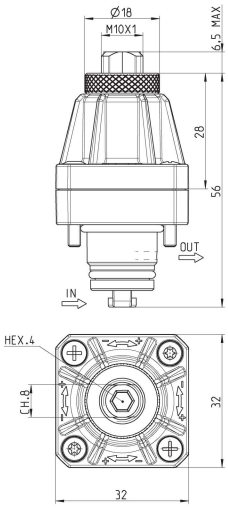
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

Series TC cartridge pressure microregulators

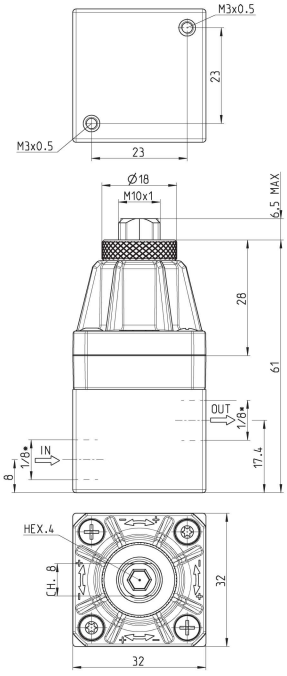


Mod.
TC1-R11-C-V-OX1
TC1-R11-C-V-OX2
TC1-R21-C-V-OX1
TC1-R21-C-V-OX2
TC1-R31-C-V-OX1
TC1-R31-C-V-OX2
TC1-R41-C-V-OX1
TC1-R41-C-V-OX2

PR01 = regulator without relieving

Series TC pressure microregulators with aluminium body

* to choose the type of thread (G1/8 or 1/8 NPTF) see the Coding example



Mod.
TC1-R11-*-V-OX1
TC1-R11-*-V-OX2
TC1-R21-*-V-OX1
TC1-R21-*-V-OX2
TC1-R31-*-V-OX1
TC1-R31-*-V-OX2
TC1-R41-*-V-OX1
TC1-R41-*-V-OX2

PR01 = regulator without relieving

Seat dimensions for cartridge version