

## 2-Way Flow-Control Cartridge, Size 10

$Q_{max} = 120 \text{ l/min}$ ,  $p_{max} = 350 \text{ bar}$

With fixed orifice, load compensated, adjustable compensator spring

Series MRPA-2-10...



- Load-independent flow rate
- Compact design for cavity type ER – M33 x 2 to ISO 7789-33-01-0-07
- Various flow-rate control ranges
- Optimum integration in system thanks to adjustable pressure-compensator spring
- Reliable operation over the whole pressure and flow range (even with high pressure differentials)
- Available with hand-knob or tamper-proof cap
- All exposed parts with zinc-nickel plating
- Can be fitted in a line-mounting body

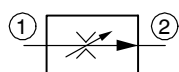
### 1 Description

Series MRPA... 2-way flow-control valves are size 10, high performance, load-compensated screw-in cartridges with an M33 x 2 mounting thread. By means of a fixed orifice and an integral pressure-compensator function, the flow rate to an actuator is kept constant regardless of load changes. The load compensation is done by the pressure-compensator piston, which maintains the pressure drop across the fixed orifice at a constant level. The flow-control cartridges can be supplied with various fixed orifices that determine the flow-control range. Using the adjustable pressure-compensator spring, the required flow rate (the range depends on the fixed orifice) is adjusted built in the system. The

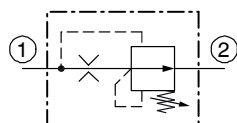
spring is adjusted by means of an adjusting screw or a hand-knob. To safeguard valve settings, the adjusting spindle can be sealed with a tamper-proof cap. These 2-way flow-control cartridges are used in in mobile and industrial applications where a constant flow rate must be maintained under conditions of varying load. All external parts of the cartridge are zinc-nickel plated to DIN 50 979 and are thus suitable for use in the harshest operating environments. If you intend to manufacture your own cavities or are designing a line-mounting installation, please refer to the section "Related data sheets".

### 2 Symbol

Simplified



Detailed



### 3 Technical data

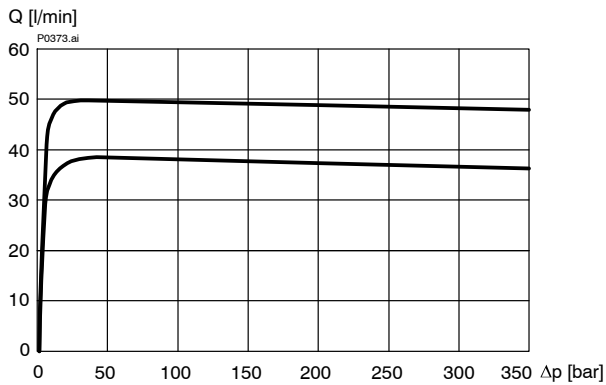
General characteristics	Description, value, unit
Designation	2-way flow-control
Design	with fixed orifice, load compensated, adjustable compensator spring, with mechanical operation
Mounting method	screw-in cartridge M33 x 2
Tightening torque	150 Nm ± 10 %
Size	nominal size 10 mm, cavity type ER to ISO 7789-33-01-0-07
Weight	0.55 kg
Mounting attitude	unrestricted

General characteristics	Description, value, unit
Ambient temperature range	-25 °C ... +80 °C
MTTF <sub>D</sub> values	150 years, see data sheet 400-P-010101-en
Hydraulic characteristics	Description, value, unit
Maximum operating pressure	350 bar
Maximum flow rate	120 l/min
Nominal flow rate Q <sub>N</sub>	120, 105, 85, 70, 60, 50 l/min
Flow direction	1 → 2, see symbols
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-25 °C ... +80 °C
Viscosity range	10...650 mm <sup>2</sup> /s (cSt), recommended 15...250 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

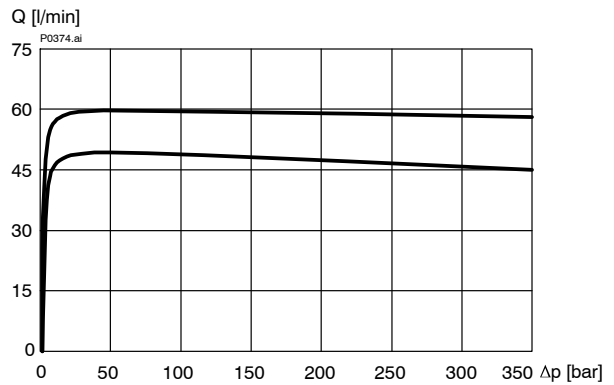
## 4 Performance graphs

measured with oil viscosity 33 mm<sup>2</sup>/s (cSt)

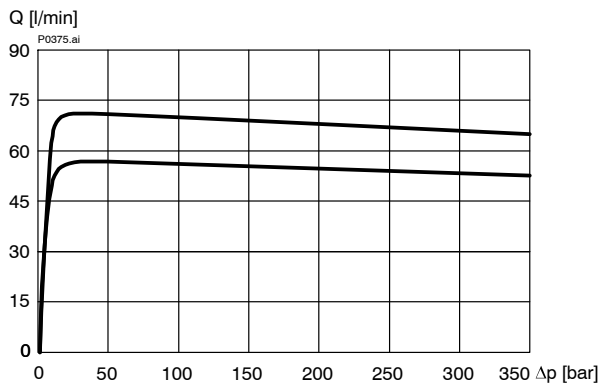
Q = f (Δp) Flow-rate adjust. characteristic [Q<sub>N</sub> = 50 l/min]



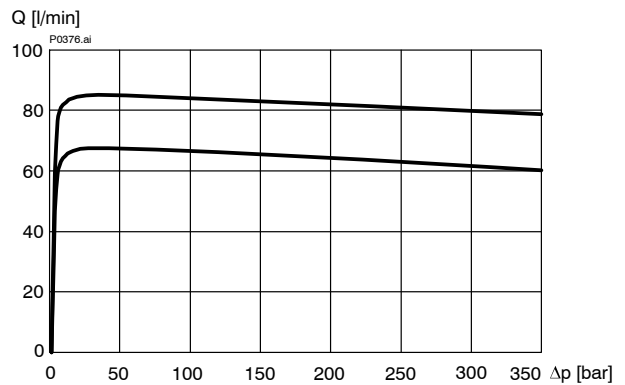
Q = f (Δp) Flow-rate adjust. characteristic [Q<sub>N</sub> = 60 l/min]



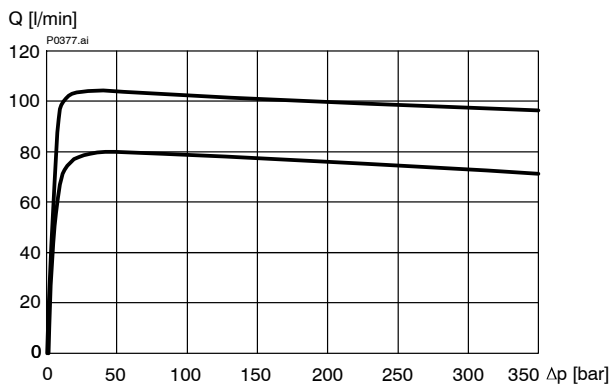
Q = f (Δp) Flow-rate adjust. characteristic [Q<sub>N</sub> = 70 l/min]



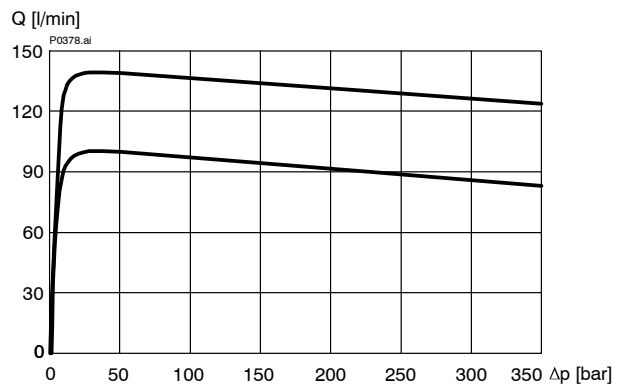
Q = f (Δp) Flow rate adjust. characteristic [Q<sub>N</sub> = 85 l/min]



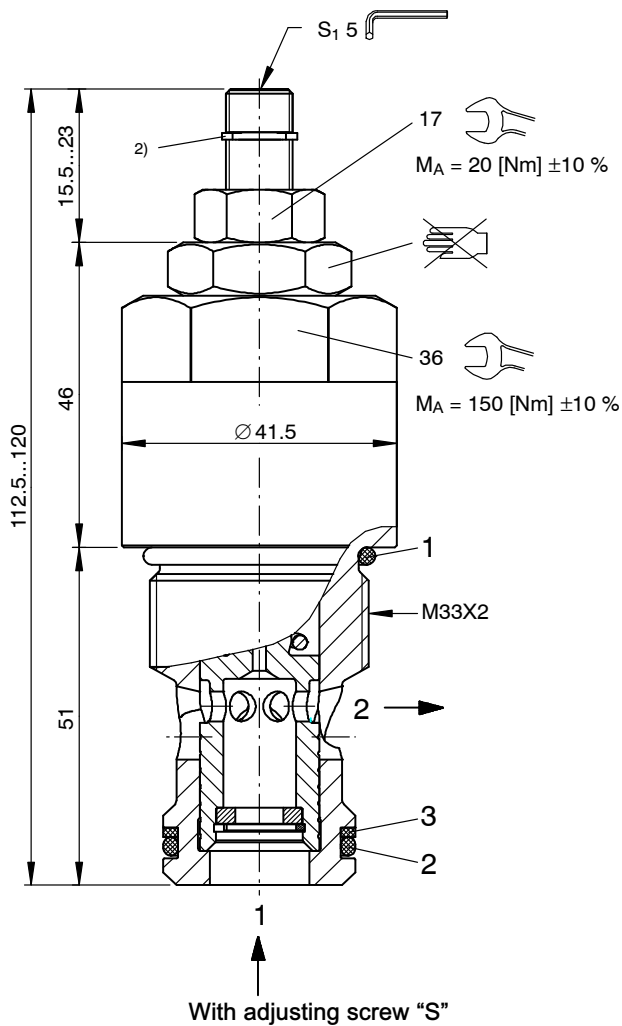
Q = f (Δp) Flow-rate adjust. characteristic [Q<sub>N</sub> = 105 l/min]



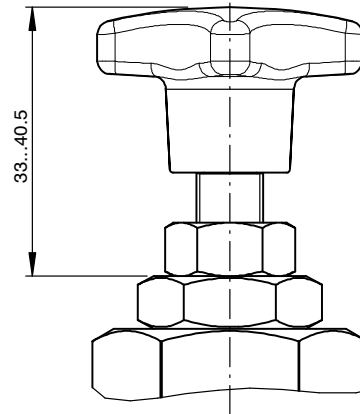
Q = f (Δp) Flow-rate adjust. characteristic [Q<sub>N</sub> = 120 l/min]



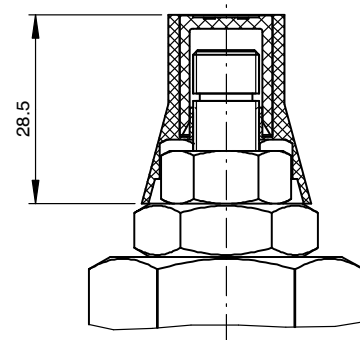
## 5 Dimensions & sectional view



With hand-knob adjuster "H"



Adjusting screw with tamper-proof cap  
(order separately in plain language)



## 6 Installation information



### IMPORTANT!

When fitting the cartridges, use the specified tightening torque. Set the required flow rate with the adjusting screw ( $s_1$ ). After you have set the valve, lock the adjusting screw with the lock nut.



### ATTENTION!

Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.



### IMPORTANT!

Valve settings can be sealed by fitting the tamper-proof cap. To fit the cap, the snap ring <sup>2)</sup> has to be removed. Subsequent adjustment is only possible by destroying the tamper-proof cap.

### Seal kit NBR no. DS-461-N <sup>1)</sup>

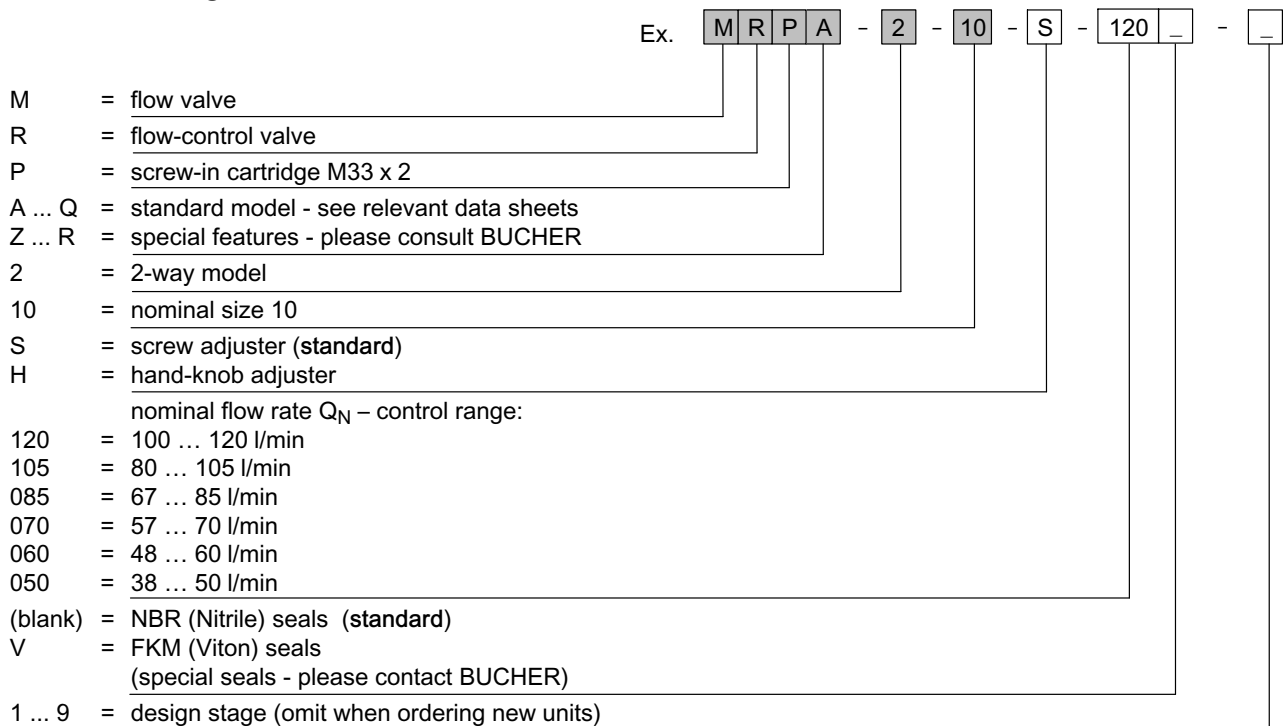
Item	Qty.	Description
1	1	O-ring no. 123 $\varnothing 29,82 \times 2,62$ N90
2	1	O-ring no. 119 $\varnothing 23,47 \times 2,62$ N90
3	1	Backup ring $\varnothing 22,0 \times 2,25 \times 1,4$ FI0751



### IMPORTANT!

<sup>1)</sup> Seal kit with FKM (Viton) seals, no. DS-461-V

## 7 Ordering code



### IMPORTANT!

When required, the tamper-proof cap (the adjustment seal) must be ordered separately in plain language.

## 8 Related data sheets

Reference	(старый номер)	Description
400-P-040011	(i-32)	The form-tool hire programme
400-P-080131		Cavity type ER to Bucher standards
400-P-750121		Line-mounting body, type GERA (G 3/4")
400-P-010101		MTTF <sub>D</sub> values for hydraulic valves

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Classification: 430.300.330.305.320