

# MRQA

## UNLOADING VALVE

(FOR CIRCUITS WITH ACCUMULATOR)

### SERIES 42

**SUBPLATE MOUNTING**  
**ISO 4401-03 (CETOP 03)**

**p** max **350** bar  
**Q** max **40** l/min

#### OPERATING PRINCIPLE

— MRQA is a pressure relief and safety valve with automatic unloading. Upon reaching the set value, the valve freely unloads the pump and puts it under pressure again when the pressure values descend in the circuit to correspond to 63% or 75% of the set value.

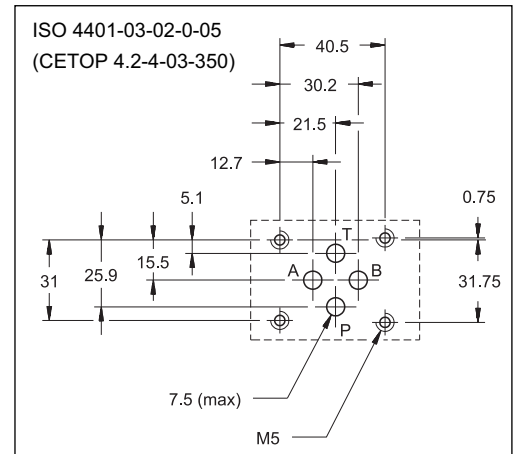
In order to assure this operation, it is necessary to use an accumulator (see hydraulic diagram) that guarantees pressure maintenance in the circuit. A check valve, incorporated in the panel or available as a plate under the valve MRQA/C, prevents the accumulator unloading through the open valve.

This system maintains the pressure in the hydraulic circuit, avoiding heating of the oil and reducing energy consumption.

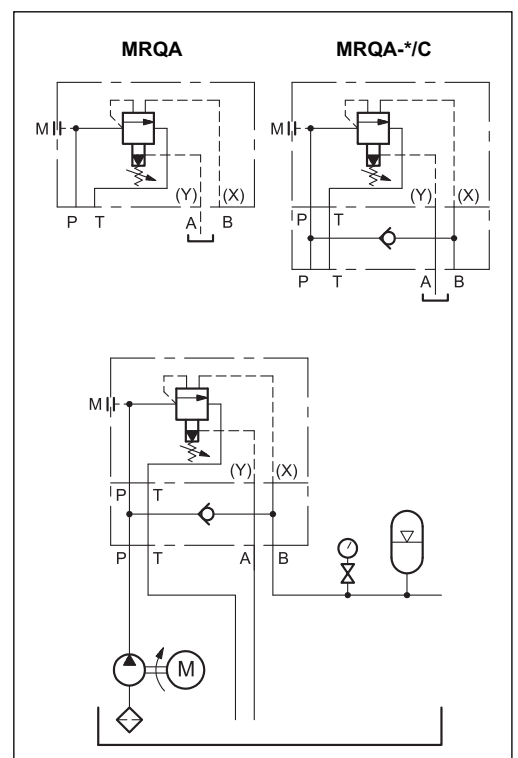
It is recommended to place the accumulator as close as possible to the MRQA, without reducing the connection size.

— The cycle time depends on the pump flow rate, the accumulator capacity and pre-charge, and the flow requirement of the system.

#### MOUNTING SURFACE



#### HYDRAULIC SYMBOLS & DIAGRAM



#### PERFORMANCE RATINGS (measured with mineral oil of viscosity 36 cSt at 50°C)

Maximum operating pressure	bar	350
Maximum flow rate	l/min	40
Ambient temperature range	°C	-20 / +50
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	According to ISO 4406:1999 class 21/19/16	
Recommended viscosity	cSt	25
Mass: MRQA	kg	3,3
MRQA*/C	kg	4,2

### 1 - IDENTIFICATION CODE

	<b>M</b>	<b>R</b>	<b>Q</b>	<b>A</b>	<b>-</b>	<b>/</b>	<b>/</b>	<b>/</b>	<b>/</b>	<b>42</b>	<b>/</b>	
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Size ISO 4401-03 (CETOP 03) —————

Unloading valve —————

Automatic unloading for circuits with accumulator —————

Pressure adjustment range: —————

3 = 25 ± 70 bar  
5 = 50 ± 210 bar  
6 = 100 ± 280 bar

Differential pressure (values ± 2.5%) —————

1 = pump switch on at 75% of adjustment value  
2 = pump switch on at 63% of adjustment value

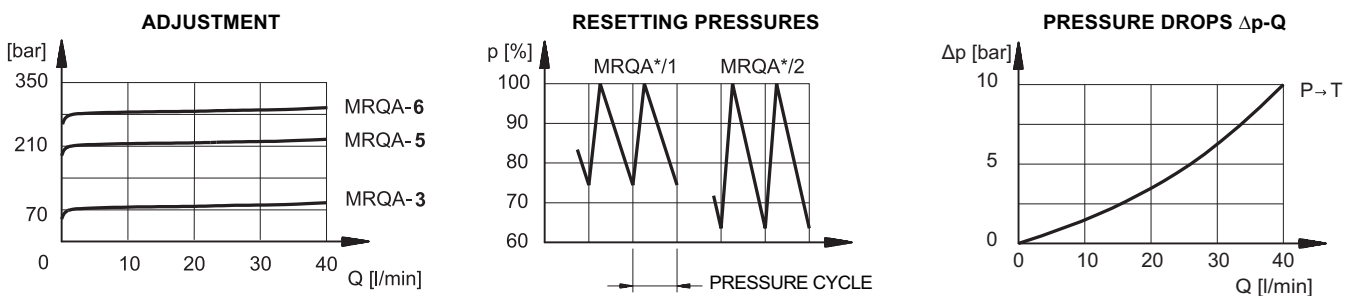
Seals: omit for mineral oils  
V = viton for special fluids

Series No. (the overall and mounting dimensions remain unchanged from 40 to 49)

C = Check valve (omit if not required)

M = Adjustment with SICBLOC knob (omit for adjustment with hexagonal head screw)

### 2 - CHARACTERISTIC CURVES (values obtained with viscosity of 36 cSt at 50°C)



### 3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid such as HFA, HFB, HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

### 4 - OVERALL AND MOUNTING DIMENSIONS

dimensions in mm

**FASTENING SCREWS:**  
**MRQA**  
 4 SHC screws ISO 4762 M5x95  
**MRQA/C**  
 4 SHC screws ISO 4762 M5x135  
 Tightening torque: 5 Nm

1	Mounting surface with sealing rings: 4 OR type 2037 (9.25x1.78) - 90 Shore
2	Hexagonal head adjustment screw. Spanner 13. Clockwise rotation to increase pressure
3	SICBLOC adjustment knob. To operate, push and rotate at the same time.
4	Pressure gauge port 1/4" BSP
5	Check valve for version /C



# RQM\*-P

## SOLENOID OPERATED PRESSURE RELIEF VALVES WITH UNLOADING AND PRESSURE SELECTION

### SERIES 60

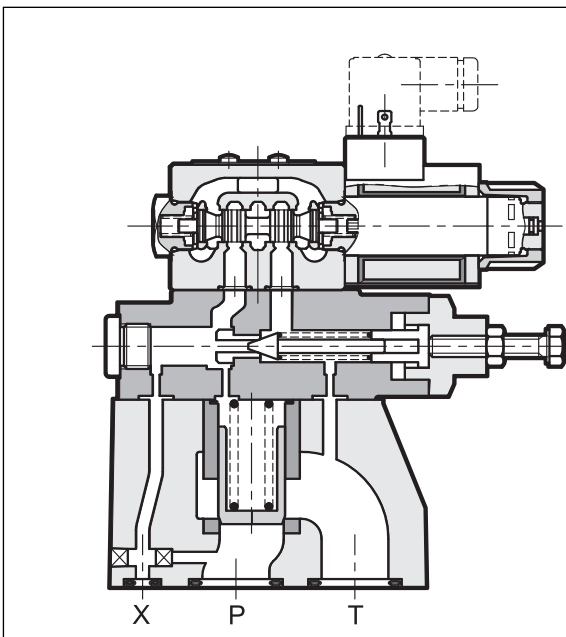
#### SUBPLATE MOUNTING

**RQM3-P ISO 6264-06 (CETOP R06)**

**RQM5-P ISO 6264-08 (CETOP R08)**

**RQM7-P ISO 6264-10 (CETOP R10)**

#### OPERATING PRINCIPLE



- The RQM\*-P valves are pressure relief valves available in three nominal sizes for flow up to 500 l/min.
- They are available in ISO 6264 (CETOP RP 121H) subplate mounting version.
- Available in five versions that allow, by means of a solenoid valve, unloading of the total flow and selection up to three pressure values (see table 2 Versions).
- The adjustment of the second and third pressure values is obtained by a pressure relief valve placed between the main stage and the solenoid valve.
- It is supplied with an hexagonal head adjustment screw. Upon request, it can be equipped with a SICBLOC adjustment knob on the main pressure control.

#### PERFORMANCES (measured with mineral oil of viscosity 36 cSt at 50°C)

		<b>RQM3-P</b>	<b>RQM5-P</b>	<b>RQM7-P</b>
Maximum operating pressure	bar	350		
Maximum flow rate	l/min	200	400	500
Ambient temperature range	°C	-20 / +50		
Fluid temperature range	°C	-20 / +80		
Fluid viscosity range	cSt	10 ÷ 400		
Fluid contamination degree	According to ISO 4406:1999 class 20/18/15			
Recommended viscosity	cSt	25		

**NOTE:** for the solenoid valve DS3 characteristics see catalogue 41 150

## 1 - IDENTIFICATION CODE

<b>R</b>	<b>Q</b>	<b>M</b>	<b>-</b>	<b>P</b>	<b>/</b>	<b>/</b>	<b>/</b>	<b>60</b>	<b>-</b>	<b>K1</b>	<b>/</b>
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pilot operated pressure relief valve

solenoid valve for unloading / pressure selection

Size: **3** = ISO 6264-06 (CETOP R06)  
**5** = ISO 6264-08 (CETOP R08)  
**7** = ISO 6264-10 (CETOP R10)

Subplate mounting

Pressure adjustment range:  
**3** = up to 70 bar    **6** = up to 350 bar  
**5** = up to 210 bar

Versions: **A** } see description  
**B** } in hydraulic symbols  
**C** } table  
**D** }  
**G** }

**M** = adjustment with SICBLOC knob available only on the main pressure control (Omit for adjustment with hexagonal head screw)

Series No. (the overall and mounting dimensions remain unchanged from 60 to 69)

Manual override: omit for override integrated in the tube (**standard**)  
**CM** = manual override, boot protected

Coil electrical connection: plug for connector type DIN 43650 (**standard**)

DC power supply  
**D12** = 12 V  
**D24** = 24 V  
**D48** = 48 V  
**D110** = 110 V  
**D220** = 220 V  
**D00** = valve without coils (see note)

AC power supply  
**A24** = 24 V - 50 Hz  
**A48** = 48 V - 50 Hz  
**A110** = 110 V - 50 Hz / 120 V - 60 Hz  
**A230** = 230 V - 50 Hz / 240 V - 60 Hz  
**A00** = valve without coils (see note)

**F110** = 110 V - 60 Hz  
**F220** = 220 V - 60 Hz

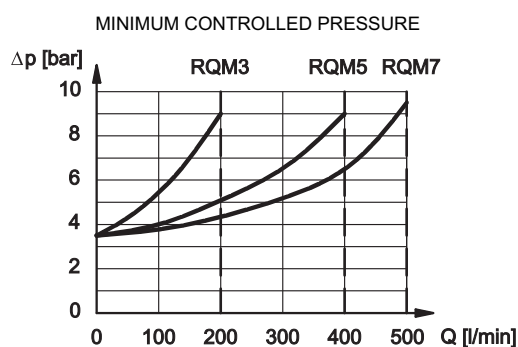
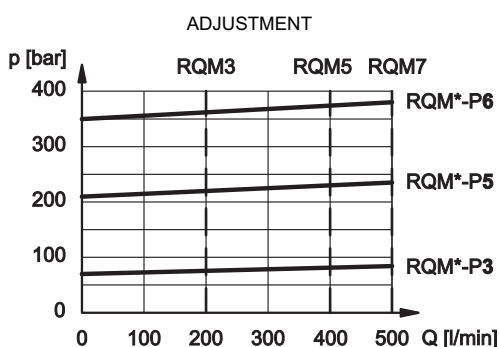
Seals:  
**N** = NBR seals for mineral oil (**standard**)  
**V** = FPM seals for special fluids

**NOTE:** The locking rings of the coils and the relevant O-Rings are supplied together with valves

## 2 - VERSIONS

RQM*-P*/A	RQM*-P*/B	RQM*-P*/C	RQM*-P*/D	RQM*-P*/G
<p><b>1 pressure setting and unloading with de-energized solenoid</b></p>	<p><b>1 pressure setting and unloading with energized solenoid</b></p>	<p><b>2 pressure settings</b> The highest setting is reached with energized solenoid</p>	<p><b>2 pressure settings and unloading with de-energized solenoids</b></p>	<p><b>3 pressure settings</b> The highest setting is reached with de-energized solenoids</p>

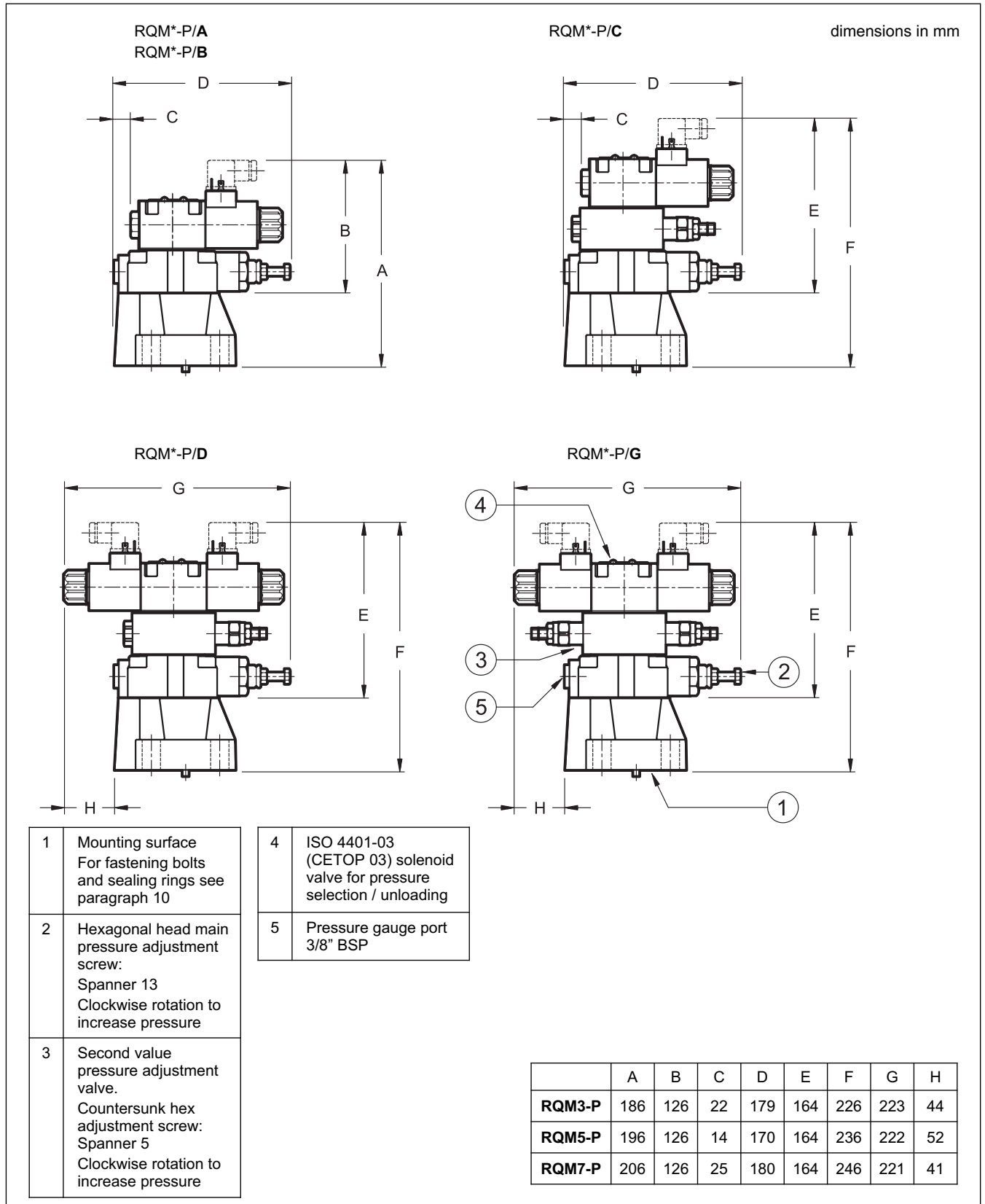
## 3 - CHARACTERISTIC CURVES (values obtained with viscosity of 36 cSt at 50°C)



### 4 - HYDRAULIC FLUIDS

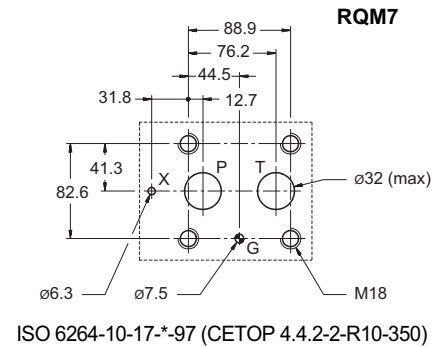
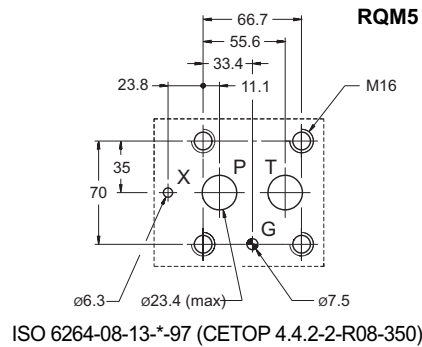
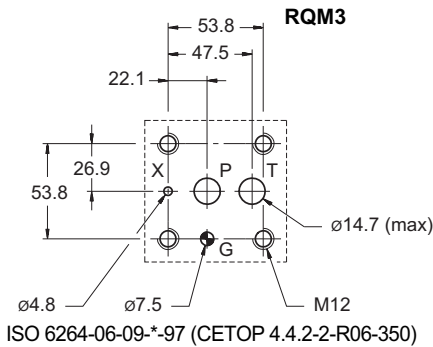
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### 5 - OVERALL AND MOUNTING DIMENSIONS



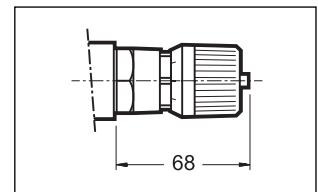


### 6 - MOUNTING SURFACES



### 7 - ADJUSTMENT KNOB

The valves can be equipped with a SICBLOC adjustment knob, only on the main pressure regulation. To operate it, push and rotate at the same time. To request this option, add: /M (see paragraph 1).



### 8 - ELECTRIC CONNECTORS

The solenoid valves are never supplied with connector. Connectors must be ordered separately. For the identification of the connector type to be ordered, please see catalogue 49 000.

### 9 - MANUAL OVERRIDE, BOOT PROTECTED: CM

Whenever the solenoid valve installation may involve exposure to atmospheric agents or utilization in tropical climates, use of the manual override boot protected is recommended.

Add the suffix **CM** to request this device (see paragraph 1). For overall dimensions see catalogue 41 150.

### 10 - FASTENING BOLTS AND SEALING RINGS

	RQM3-P	RQM5-P	RQM7-P
Fastening (4 SHC bolts ISO 4762)	M12 x 40	M16 x 50	M18 x 60
Torque	69 Nm	170 Nm	235 Nm
Sealing rings	N. 2 OR type 123 (17.86x2.62) 90 Shore N. 1 OR type 109 (9.13x2.62) 90 Shore	N. 2 OR type 3118 (29.82x2.62) 90 Shore N. 1 OR type 109 (9.13x2.62) 90 Shore	N. 2 OR type 4137 (34.52x3.53) 90 Shore N. 1 OR type 109 (9.13x2.62) 90 Shore

### 11 - SUBPLATES (see catalogue 51 000)

	RQM3-P	RQM5-P	RQM7-P
Type	PMRQ3-AI4G rear ports	PMRQ5-AI5G rear ports	PMRQ7-AI7G rear ports
P, T, U ports dimension	P: 1/2" BSP T: 3/4" BSP	1" BSP	1" 1/4 BSP
X port dimension	1/4" BSP	1/4" BSP	1/4" BSP



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