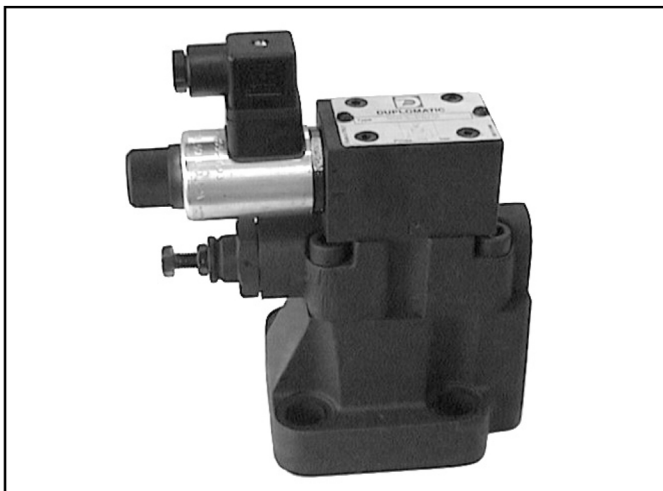


Part number:



# RQE\*-P

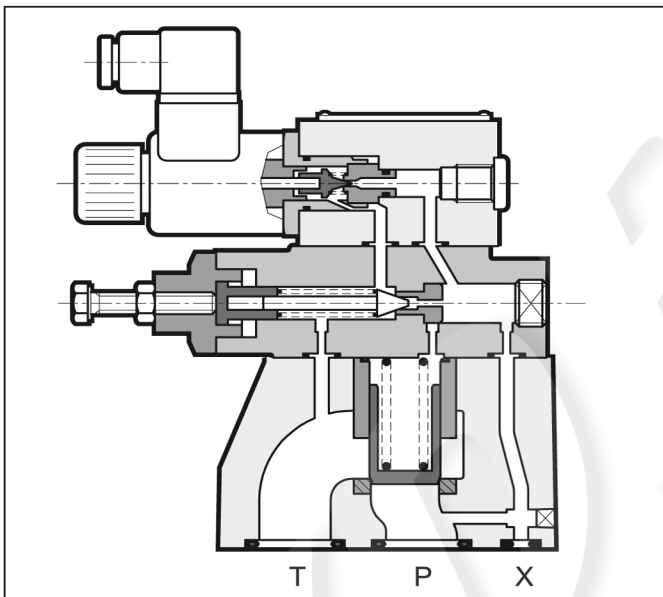
## PILOT OPERATED PRESSURE RELIEF VALVES WITH ELECTRIC PROPORTIONAL CONTROL SERIES 53

### SUBPLATE MOUNTING

**p** max 350 bar

**Q** max (see specification table)

### OPERATING PRINCIPLE



- RQE\*-P valves are pilot operated pressure relief valves with electric proportional control with mounting interface in compliance with CETOP standards.
- The valves are normally used to control hydraulic circuit pressure and enable the use of full pump flow rate with settings approaching calibrated values.
- The two-stage design and wide passages ensure reduced pressure drops thereby improving system energy performance.
- Pressure can be modulated continuously in proportion to the current supplied to the solenoid.
- The valve can be controlled directly by a current control supply unit or by means of the relative electronic control units to exploit valve performance to the full (see par. 10).
- The valves are fitted with a manual pressure relief valve which is factory set to  $\geq 15\%$  of the maximum value in the pressure control range.

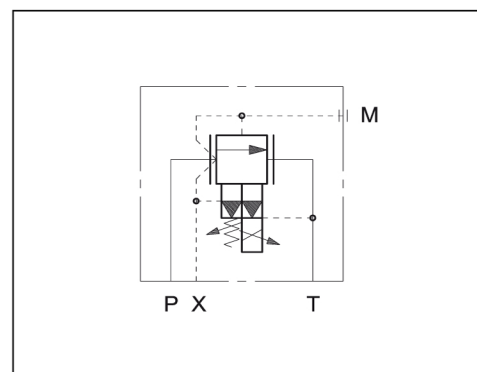
### SPECIFICATIONS

(obtained with mineral oil with viscosity of 36 cSt at 50°C in conjunction with UEIK-11 electronic control unit)

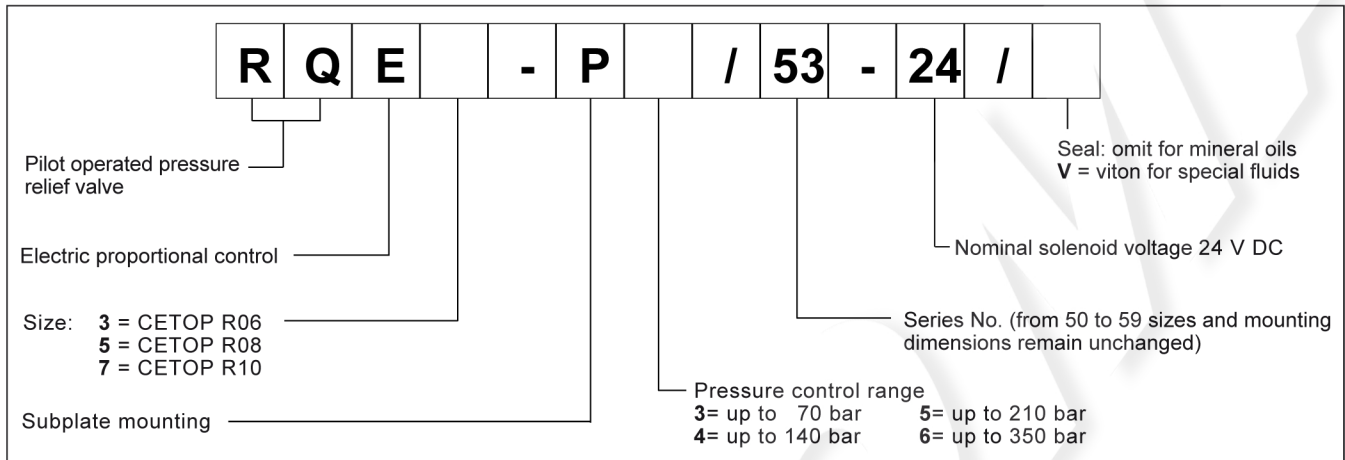
		RQE3	RQE5	RQE7
Maximum operating pressure	bar	350	350	350
Minimum controlled pressure	see diagram $\Delta p-Q$			
Maximum flow	l/min	200	400	500
Step response	see par. 8			
Hysteresis	% of p range	< 6%		
Repeatability	% of p range	< $\pm 2\%$		
Electrical characteristics	see par. 7			
Ambient temperature range	°C	-10 ÷ +50		
Fluid temperature range	°C	-20 ÷ +80		
Fluid viscosity range	cSt	10 ÷ 400		
Recommended viscosity	cSt	25		
Degree of fluid contamination	According to NAS 1638 class 7 ÷ 9			
Mass	kg	5	5,8	8

- Valves are available in three sizes for flow rates up to 500 l/min and in four pressure control ranges up to 350 bar.

### HYDRAULIC SYMBOL

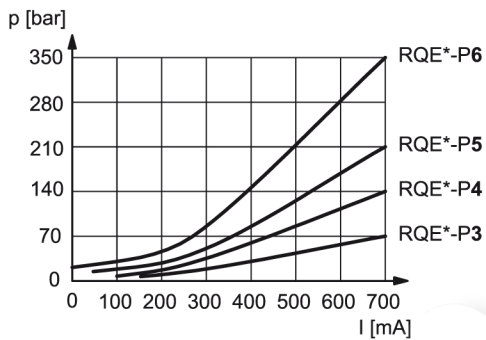


## 1 - IDENTIFICATION CODE



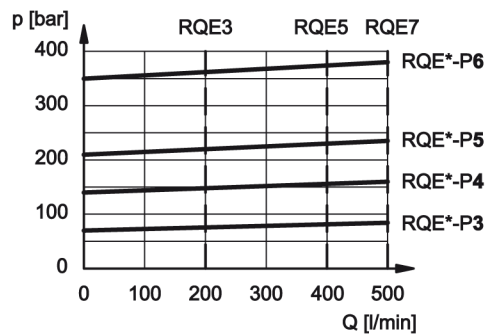
## 2 - CHARACTERISTIC CURVES (measured with viscosity of 36 cSt at 50°C)

### PRESSURE CONTROL $p=f(I)$



Typical control curves according to the current supplied to the solenoid for pressure control ranges: 3-4-5-6, measured with input flow rate  $Q=50$  L/min.

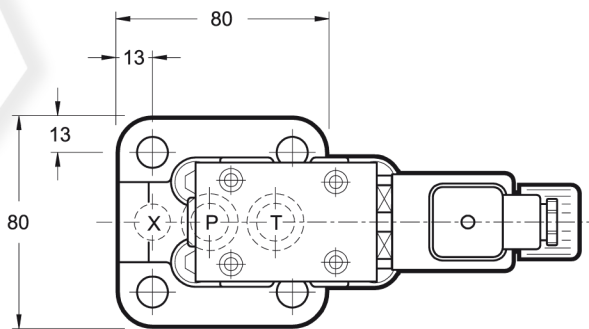
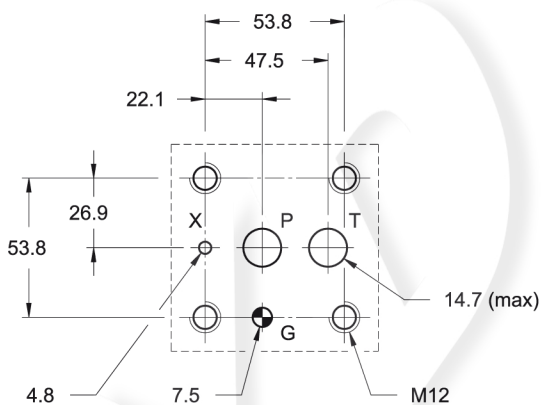
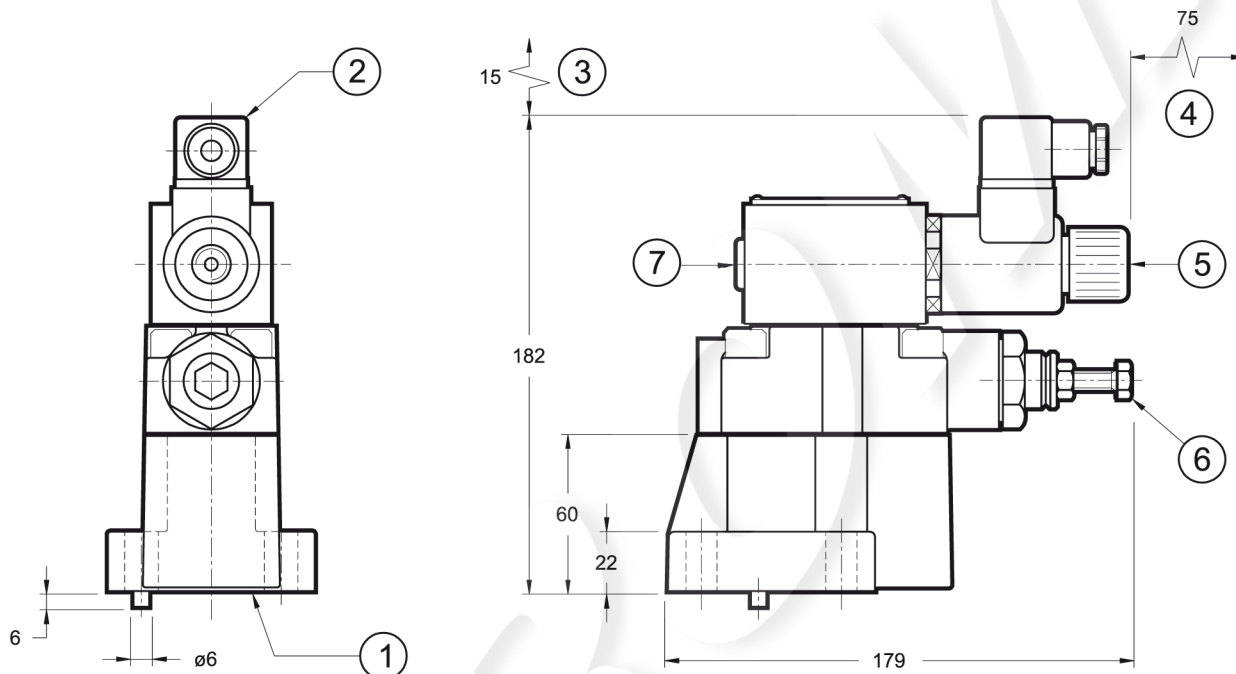
### PRESSURE CONTROL $p=f(Q)$



### PRESSURE DROP $\Delta p=f(Q)$



## 3 - RQE 3 OVERALL AND MOUNTING DIMENSIONS



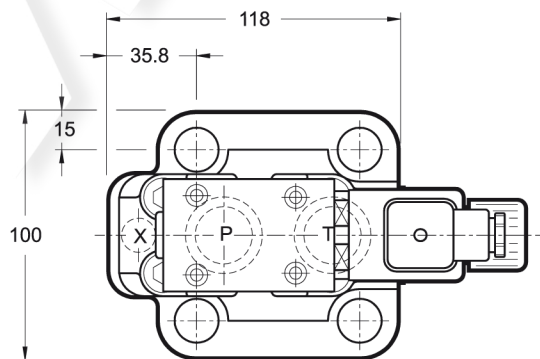
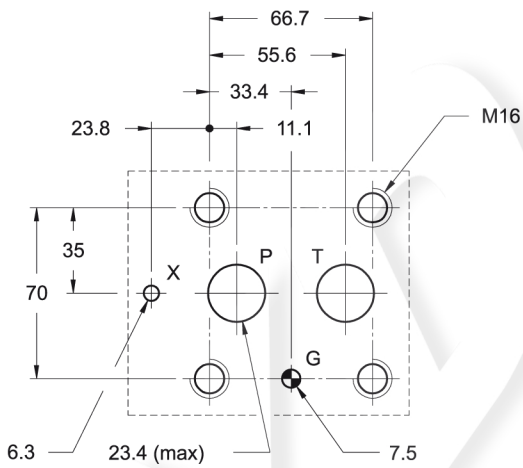
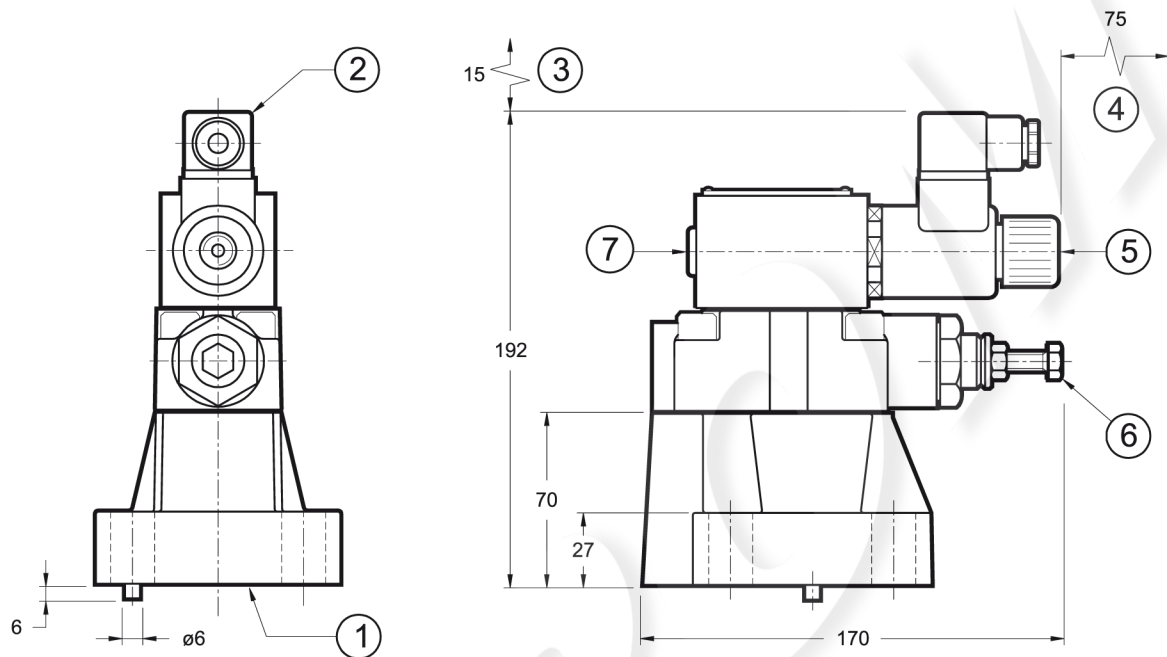
dimensions in mm

Mounting interface: CETOP 4.4.2-2-R06-350

Fastening bolts: N. 4 bolts M12x40  
Torque: 69 Nm

1	Mounting surface with sealing rings: 2 off OR type 123 1 off OR type 109
2	DIN 43650 electric connector
3	Connector removal space
4	Coil removal space
5	Manual emergency control
6	Pressure relief valve (factory set)
7	Pressure gauge coupling 1/4" BSP

## 4 - RQE 5 OVERALL AND MOUNTING DIMENSIONS



dimensions in mm

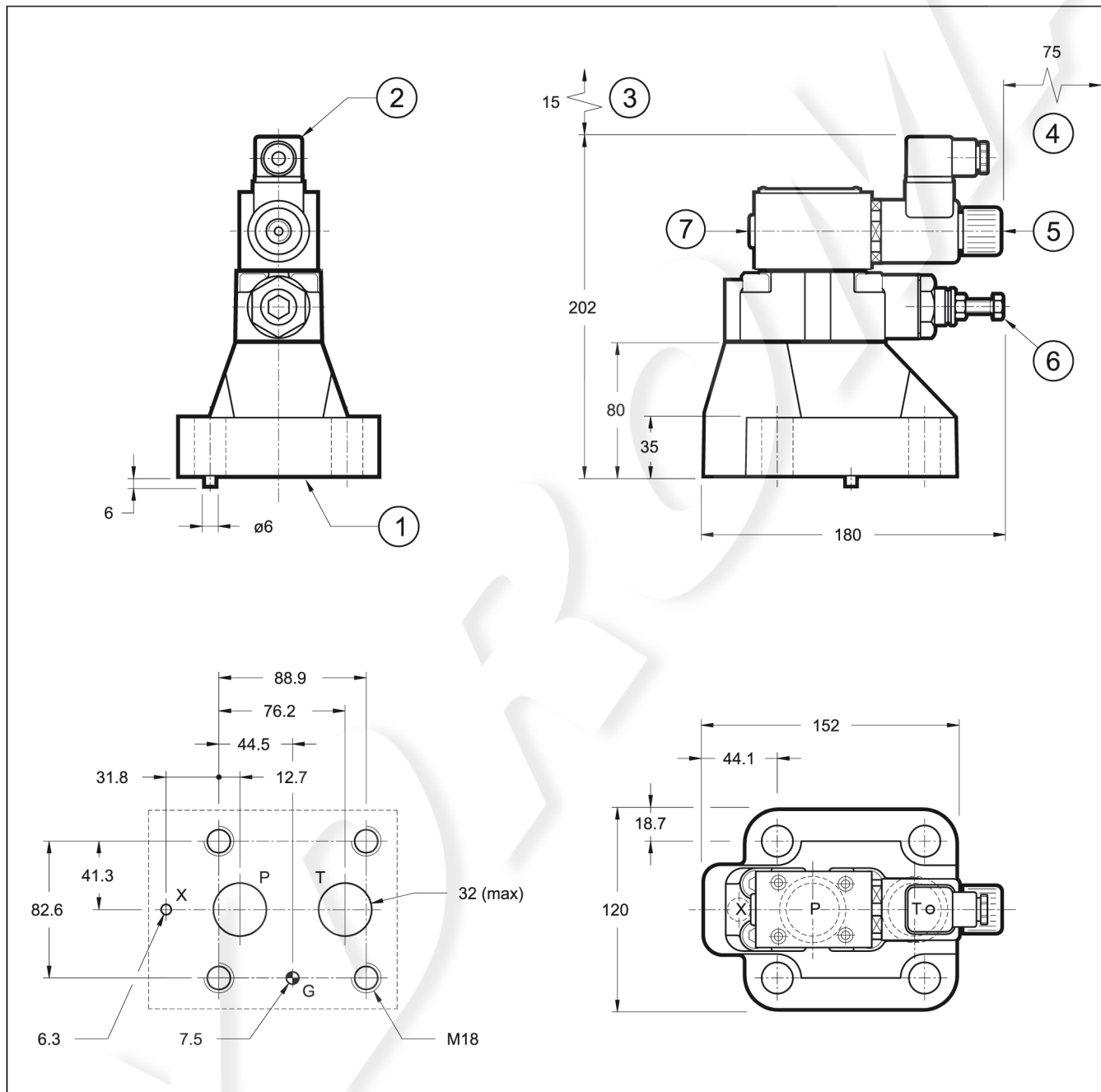
Mounting interface: CETOP 4.4.2-2-R08-350

Fastening bolts: N. 4 bolts M16x50  
Torque: 170 Nm

1	Mounting surface with sealing rings: 2 off OR type 3118 1 off OR type 109
2	DIN 43650 electrical connector
3	Connector removal space
4	Coil removal space
5	Manual emergency control
6	Pressure relief valve (factory set)
7	Pressure gauge coupling 1/4" BSP



## 5- RQE 7 OVERALL AND MOUNTING DIMENSIONS



Mounting interface: CETOP 4.4.2-2-R10-350

dimensions in mm

1	Mounting surface with sealing rings: 2 off OR type 4137 1 off OR type 109
2	DIN 43650 electric connector
3	Connector removal space
4	Coil removal space
5	Manual emergency control
6	Pressure relief valve (factory set)
7	Pressure gauge coupling 1/4" BSP

Fastening bolts: 4 bolts M18x60  
Torque: 235 Nm

## 6 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids with anti-foam and anti-oxidant additives. For use with other types of fluids (water glycol, phosphate esters and others) consult our technical department.

Operation with fluid temperature exceeding 70°C causes premature deterioration of the quality of the fluid and seals. The physical and chemical properties of the fluid must be maintained.

## 7 - ELECTRICAL CHARACTERISTICS

### Proportional solenoid

The proportional solenoid comprises two parts: tube and coil.

The tube, screwed to the valve body, contains the armature which is designed to maintain friction to a minimum thereby reducing hysteresis.

The coil is mounted on the tube secured by means of a lock nut and can be rotated through 360° depending on installation clearances.

<b>NOMINAL VOLTAGE</b>	V DC	20
<b>COIL RESISTANCE (at 20°C)</b>	Ω	18,5
<b>CURRENT</b>	<b>nominal</b> <b>maximum</b>	A 0,7 0,82
<b>DUTY CYCLE</b>	100%	
<b>ELECTROMAGNETIC COMPATIBILITY (EMC)</b>	in compliance with 89/336 EEC	
- EMISSIONS	EN 50081-1	
- IMMUNITY	EN 50082-2	
<b>PROTECTION TO ATMOSPHERIC AGENTS (according to IEC 144 standards)</b>	IP 65	

**8 - STEP RESPONSE** (with mineral oil with viscosity of 36 cSt at 50°C in conjunction with UEIK-11 electronic control unit)

Step response is the time taken for the valve to reach 90% of the set pressure value following a step change of reference signal.

The table illustrates typical step response times measured with input flow rate of Q = 50 l/min.

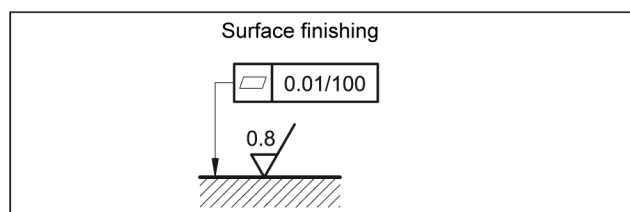
<b>REFERENCE SIGNAL STEP</b>	0→100%	100%→0	25→75%	75→25%
Step response [ms]	120	90	80	60

## 9 - INSTALLATION

RQE\*-P valves can be installed in any position without impairing correct operation. Ensure that there is no air in the hydraulic circuit.

Connect the T port on the valve directly to the tank. Add any backpressure value detected in the T line to the controlled pressure value. Maximum admissible backpressure in the T line, under operational conditions, is 2 bar.

Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed fluid can easily leak between the valve and support surface.



## 10 - ELECTRONIC CONTROL UNITS

EPC-110 plug version	(see cat. 89 110)
EPA-M110 rail mounting	DIN EN 50022 (see cat. 89 220)
UEIK-11 Eurocard type	(see cat. 89 300)

## 11 - SUBPLATES (see 51 000)

	RQE 3	RQE 5	RQE 7
Type	PMRQ3-AI4G rear ports	PMRQ5-AI5G rear ports	PMRQ7-AI7G rear ports
PT port dimensions	1/2" BSP	3/4" BSP	1" 1/4 BSP
X port dimensions	1/4" BSP	1/4" BSP	1/4" BSP