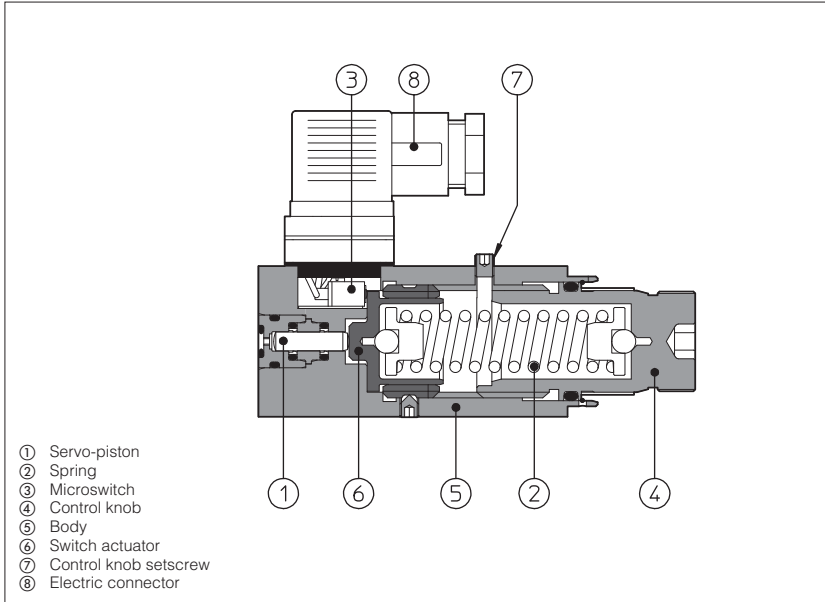


# Pressure switches type MAP

with fixed differential



MAP pressure switches produce an electrical make/break contact which is triggered when pressure in the hydraulic circuit reaches a given setting.

Fluid pressure in the circuit operates a piston ① flitted with adjustable spring bias ②; once the pressure setting is reached, the piston is urged forward so as to actuate a microswitch ③ and make or break its contacts.

The pressure setting is selected by turning a graduated control knob ④.

Clockwise rotation increases the setting pressure.

Pressure switches are designed to operate in hydraulic systems with hydraulic mineral oil or synthetic fluid having similar lubricating characteristics.

Max pressure = 650 bar

## 1 MODEL CODE

<b>MAP</b>	<b>- 160</b>	<b>/M</b>	<b>06</b>	<b>/E</b>	<b>**</b>	<b>/WG</b>
Fixed differential pressure switch						Synthetic fluids: <b>WG</b> = water-glycol <b>PE</b> = phosphate ester
Pressure range: <b>40</b> = 5 ÷ 40 bar <b>80</b> = 7 ÷ 80 bar <b>160</b> = 10 ÷ 160 bar <b>320</b> = 30 ÷ 320 bar <b>630</b> = 50 ÷ 630 bar					Options: <b>E</b> = Common electric contact connected to pin 1 (see section ③)	Series number
Type of adaptor (if required), see section ⑥ and ⑦					Threated connections for BMM and BFM adaptors, see section ⑦	
<b>/M</b> = BMM – adaptor - male fittings <b>/MF</b> = BMF – adaptor - female fittings <b>/F</b> = BFM – adaptor - in line mounting <b>/H</b> = BHM adaptor - modular mounting ISO 4401 size 06 <b>/K</b> = BKM adaptor - modular mounting ISO 4401 size 10					BMM <b>06</b> = G 1/4" <b>10</b> = G 3/8" <b>15</b> = G 1/2"	BFM <b>06</b> = G 1/4" <b>10</b> = G 3/8" <b>15</b> = G 1/2" <b>20</b> = G 3/4" <b>25</b> = G 1" <b>32</b> = G 1 1/4"
					Port to serve for BHM and BKM adaptors, see section ⑦	
					<b>11</b> = port P <b>12</b> = port A and B <b>13</b> = port A	<b>14</b> = port B <b>17</b> = port P and A <b>18</b> = port P and B

Note: special version with gold-plated microswitch contact available on request

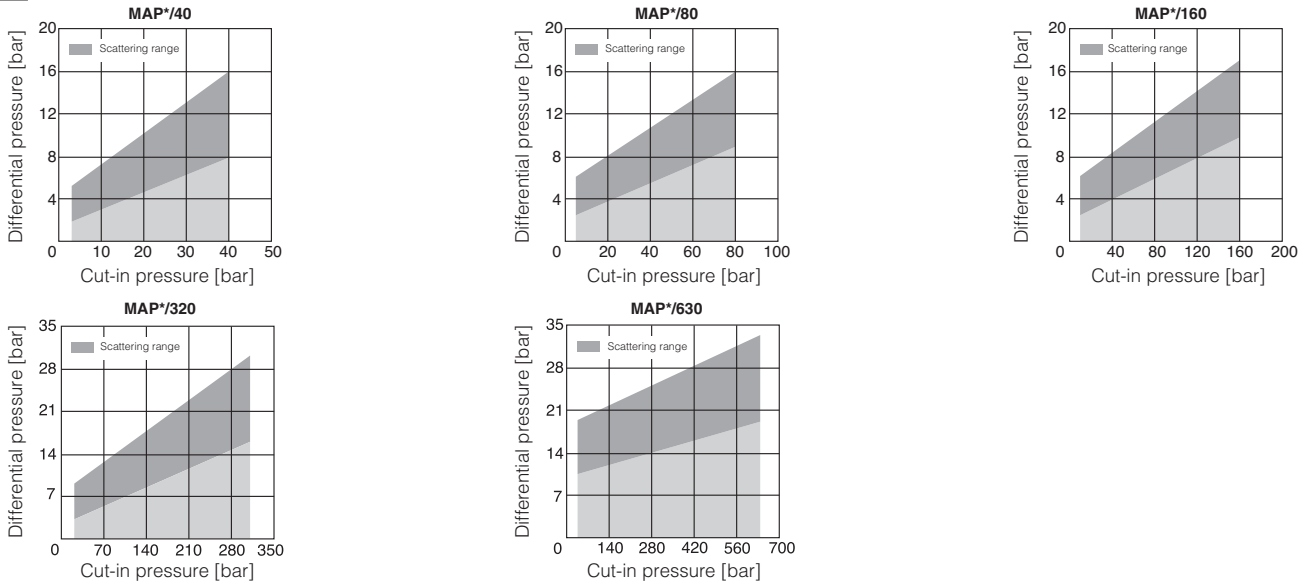
## 2 MAIN CHARACTERISTICS OF PRESSURE SWITCHES TYPE MAP

Assembly position / location	Any position
Subplate surface finishing	Roughness index $\sqrt{0.4}$ flatness ratio 0,01/100 (ISO 1101)
Ambient temperature	from -20°C to +70°C
Fluid	Hydraulic oil as per DIN 51524 .... 535; for other fluids see section ①
Recommended viscosity	15 ÷ 100 mm <sup>2</sup> /s at 40°C (ISO VG 15 ÷ 100)
Fluid contamination class	ISO 19/16, achieved with in line filters at 25 μ value and β <sub>25</sub> ≥ 75 (recommended)
Fluid temperature	T ≤ 80°C; if T ≤ 60°C select /PE seals

## 3 MAIN CHARACTERISTICS AND WIRING OF INTERNAL MICROSWITCH

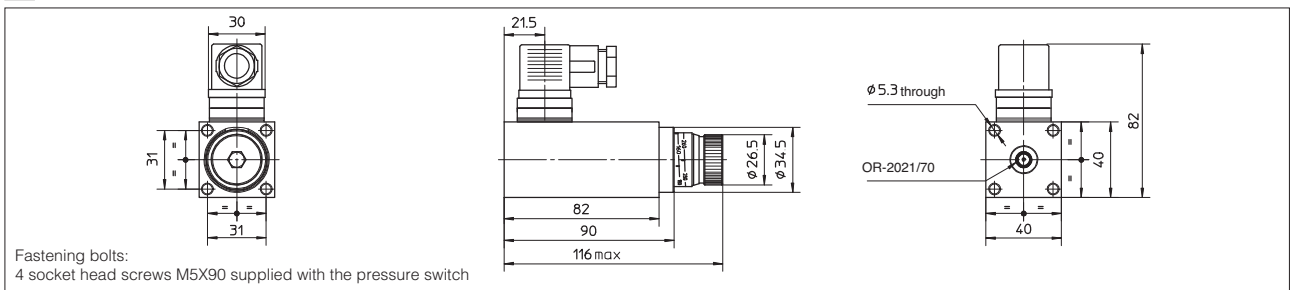
	Supply voltage [V]				STD	Resting position	Pressure operated position
	125 AC	250 AC	30 DC	250 DC			
Max current - resistive load - [A]	7	5	5	0,2			
Max current - inductive load (Cos φ = 0,4) - [A]	4	2	3	0,02			
Insulating resistance	≥ 100 MΩ						
Contact resistance	= 15 mΩ						
Electrical life-expectancy	≥ 1.000.000 switchings						
Mechanical life-expectancy	≥ 10.000.000 switchings						

#### 4 DIAGRAMS



The graphs show, according to the set cut-in pressure, the pressure difference between the insert and the at-rest positions of the pressure switch electric contacts.

#### 5 DIMENSIONS OF MAP WITHOUT ADAPTORS [mm]



Fastening bolts:  
4 socket head screws M5X90 supplied with the pressure switch

#### 6 MODEL CODE FOR ADAPTORS WHEN SUPPLIED SEPARATELY

##### BHM

Type of adaptor  
**BMM** = male  
**BMF** = female  
**BFM** = in-line  
**BHM** = ISO 4401 size 06  
**BKM** = ISO 4401 size 10

Threated connections for BMM and BFM adaptors, see section 7  
**BMM**  
**06** = G 1/4"  
**10** = G 3/8"  
**15** = G 1/2"  
**BMF**  
**06** = G 1/4"

**BFM**  
**06** = G 1/4"  
**10** = G 3/8"  
**15** = G 1/2"  
**20** = G 3/4"  
**25** = G 1"  
**32** = G 1 1/4"

Port to serve for BHM and BKM adaptors, see section 7  
**11** = port P  
**12** = port A and B  
**13** = port A  
**14** = port B  
**17** = port P and A  
**18** = port P and B

#### 7 DIMENSIONS OF ADAPTORS [mm]

**BMM - Male fittings:**

**BFM - In-line mounting:**

**BMF - Female fittings:**

Weight: 0,3 Kg

	A	B	C	Ø D	E	F
<b>BMM-06</b>	22,5	11	1,5	18	G 1/4"	20
<b>BMM-10</b>	23,5	11,5	2	22	G 3/8"	20
<b>BMM-15</b>	27,5	15	2,5	26	G 1/2"	20

**BFM - In-line mounting:**

Weight: 0,8 Kg

	A	B	Ø D	E	F	G	H
<b>BFM-06</b>	50	20	19	G 1/4"	22,5	1	12
<b>BFM-10</b>	50	20	23	G 3/8"	22,5	1	12
<b>BFM-15</b>	50	20	27	G 1/2"	22,5	1	15
<b>BFM-20</b>	50	20	33	G 3/4"	22,5	1,5	17
<b>BFM-25</b>	70	30	40	G 1"	30	1,5	19
<b>BFM-32</b>	70	30	50	G 1 1/4"	30	1,5	22

**BHM - Modular mounting surface ISO 4401-03-02-0-05**

Weight: 1,2 Kg

**BKM - Modular mounting surface ISO 4401-05-03-0-05**

Weight: 2 Kg

For versions 11 and 13 the pressure switch is mounted on side of port A. For version 14 the pressure switch is mounted on side of port B. For versions 12, 17, 18 the pressure switch is mounted on both sides.