## Pressure switches type MAP

with fixed differential


1 MODEL CODE


Pressure range
$40=5 \div 40$ bar
$80=7 \div 80 \mathrm{bar}$
$160=10 \div 160$ ba
$320=30 \div 320$ bar
$630=50 \div 630 \mathrm{bar}$

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

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 Ra 0,4 - flatness ratio 0,01/100 (ISO 1101) |
| Ambient temperature | from $-20^{\circ} \mathrm{C}$ to $+70^{\circ} \mathrm{C}$ |
| Fluid | Hydraulic oil as per DIN $51524 \ldots .535$; for other fluids see section $\square$ |
| Recommended viscosity | $15 \div 100 \mathrm{~mm} / \mathrm{s}$ at $40^{\circ} \mathrm{C}$ (ISO VG $15 \div 100$ ) |
| Fluid contamination class | ISO 4401 class $21 / 19 / 16$ NAS 1638 class 10 (filters at 25 um value with $\beta 25 \geq 75$ recommended) |
| Fluid temperature | $-20^{\circ} \mathrm{C}+60^{\circ} \mathrm{C}$ (standard seals and water glycol) $-20^{\circ} \mathrm{C}+80^{\circ} \mathrm{C}(/ \mathrm{PE}$ 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 - | 7 | 5 | 5 | 0,2 |  |  |  |
| Max current $[A]$ <br> - inductive load $(\operatorname{Cos} \varphi=0,4)$ -  | 4 | 2 | 3 | 0,02 |  |  |  |
| Insulating resistance | $\geq 100 \mathrm{M} \Omega$ |  |  |  |  | $2 \square$ | $2 \square$ |
| Contact resistance | $=15 \mathrm{~m} \Omega$ |  |  |  |  |  |  |
| Electrical life-expectancy | $\geq 1.000 .000$ | switchings |  |  | IE |  | H |
| Mechanical life-expectancy | $\geq 10.000 .000$ | switchings |  |  |  | $1 \mathrm{~L}$ | 1 L |



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]


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 | Port to serve for BHM and BKM adaptors, |
| :---: | :---: |
| BMM BFM | see section 7 |
|  | $11=$ port P |
| $\mathbf{1 0}=$ G 3/8" $\quad 10=$ G 3/8" | $12=$ port A and B |
| $15=$ G 1/2" $\quad 15=$ G 1/2" | $13=$ port A |
| 棫 20 G 3/4" | 14 = port B |
| BMF $\quad \mathbf{2 5}=$ G 1" ${ }^{\prime \prime}$ | $17=$ port P and $A$ |
| $\mathbf{0 6}=$ G 1/4" ${ }^{\prime \prime} \quad 32=$ G $1^{1} / 4^{\prime \prime}$ | $18=$ port P and B |

## 7 DIMENSIONS OF ADAPTORS [mm]



|  | A | B | C | $\boldsymbol{\varnothing} \mathbf{D}$ | $\mathbf{E}$ | F |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| BMM-06 | 22,5 | 11 | 1,5 | 18 | G 1/4" | 20 |
| BMM-10 | 23,5 | 11,5 | 2 | 22 | G 3/8" | 20 |
| BMM-15 | 27,5 | 15 | 2,5 | 26 | G $1 / 2^{\prime \prime}$ | 20 |

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


BFM - In-line mounting:



|  | A | B | Ø D | E | F | G | H |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BFM-06 | 50 | 20 | 19 | G 1/4" | 22,5 | 1 | 12 |
| BFM-10 | 50 | 20 | 23 | G 3/8" | 22,5 | 1 | 12 |
| BFM-15 | 50 | 20 | 27 | G 1/2" | 22,5 | 1 | 15 |
| BFM-20 | 50 | 20 | 33 | G 3/4" | 22,5 | 1,5 | 17 |
| BFM-25 | 70 | 30 | 40 | G 1 " | 30 | 1,5 | 19 |
| BFM-32 | 70 | 30 | 50 | G $11 / 44^{\prime \prime}$ | 30 | 1,5 | 22 |

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


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.

