MANNESMANN REXROTH

Brueninghaus Hydromatik

Pressure memory switch

RE 95000/01.82

replaces Z 1/9.74

Description

GERMAN PATENT No. 2 324 829

This electrical pressure memory switch is a device, with which, a momentary dropping of the load in closed loop hydraulic lifting circuits can be avoided. The effect is, that the mechanical holding brake is only released, when the pressure in the system is sufficient to maintain the load. This gives the simultaneous effect of a "pipe burst valve", in that the brake cannot be released until pressure is established.

Design characteristics

The electrical pressure memory switch consists of an electrical switch mounted on a lever and two pistons to operate the lever. The high pressure piston (port A) which is fed from the high (lift) pressure line, works against a "measuring" spring. The auxiliary pressure piston (port G) is fed from the brake line and resets the lever as the high pressure falls, if pressure is present at "G".
The electrical switch works together with the neutral position switch on the pump to control the directional valve for the lift brake.
As a load is raised, the switch is closed and the lever moved a distance proportional to the load pressure, where it is then held by means of a friction brake, in order to prevent any unwanted alteration of the switch position. As the load is stopped, the neutral position switch switches the auxiliary (brake) pressure off, which then falls faster than the high pressure can leak away. The brake is applied, and the lever remains in the "set" position. Restarting the lifting operation is then only possible, when the previously set pressure in the "lift" line is once more present to operate the switch and release the brake. Thus no momentary falling of the load is possible.
In order to lower the load from the holding position, operating pressure must first of all be built up in the "lift" line, in order to close the switch and release the brake. The pump is then swivelled over centre to lower the load. During this operation, the neutral position switch must be bridged, so that the brake is not applied (e_m in example). During lowering, the auxiliary piston resets the lever to suit the operating pressure.
As the load is set down, the auxiliary pressure sets the lever to the start point, thus erasing the pressure previously memorised.

Hydraulic Data

Operating pressure range (at port "A") — p_{min} approx. 50 bar; p_{max} approx. 385 bar

Auxiliary pressure range (at port "G") — p_G = 12 ... 20 bar; Normally 15 bar

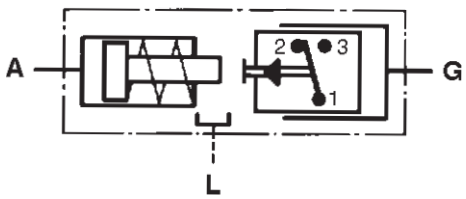
Case drain (port "L") — < 0,5 bar
If possible, do not combine this flow with other drain lines.

Installation position: optional

Electrical Data for the switch

Load capacity — AC 15 A, ~ 380 V; DC 0,2 A, = 250 V; 5 A, = 24 V

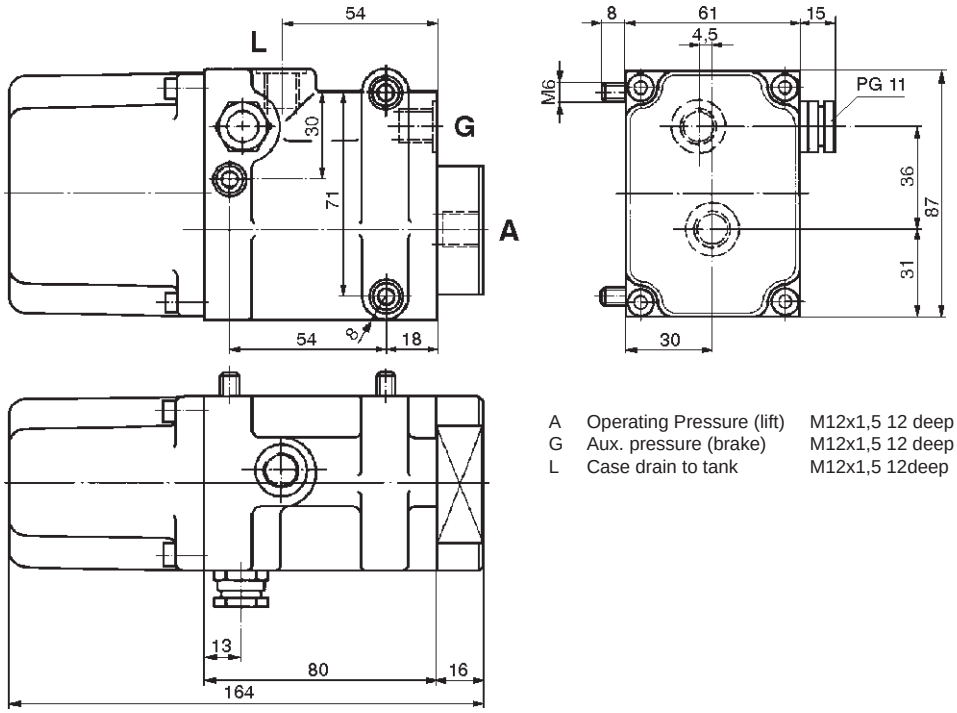
Symbol



Ordering Code: 70355 / 590.20.03.00

Pressure Memory Switch

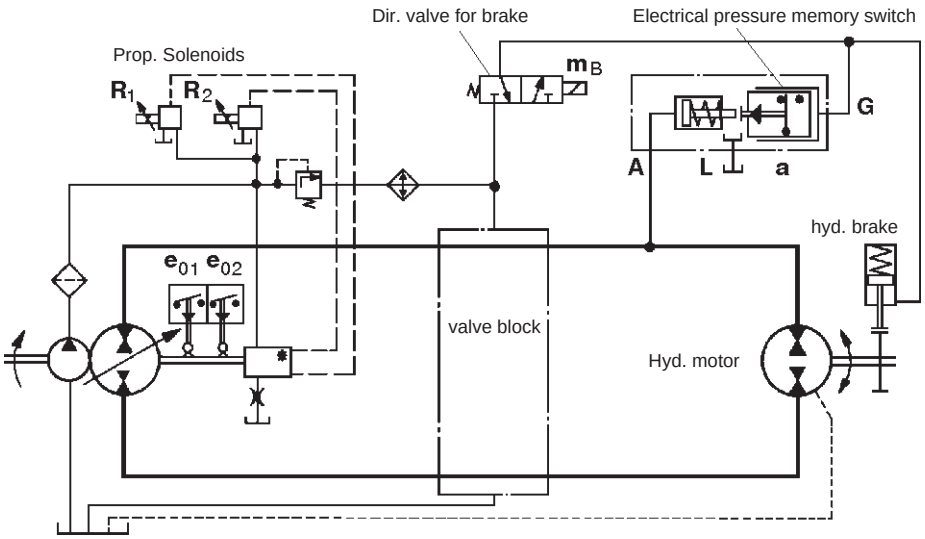
Unit Dimensions
(in mm)



A	Operating Pressure (lift)	M12x1,5 12 deep
G	Aux. pressure (brake)	M12x1,5 12 deep
L	Case drain to tank	M12x1,5 12deep

Hyd. Scheme for lift (crane) drive
(with prop. electrical control)

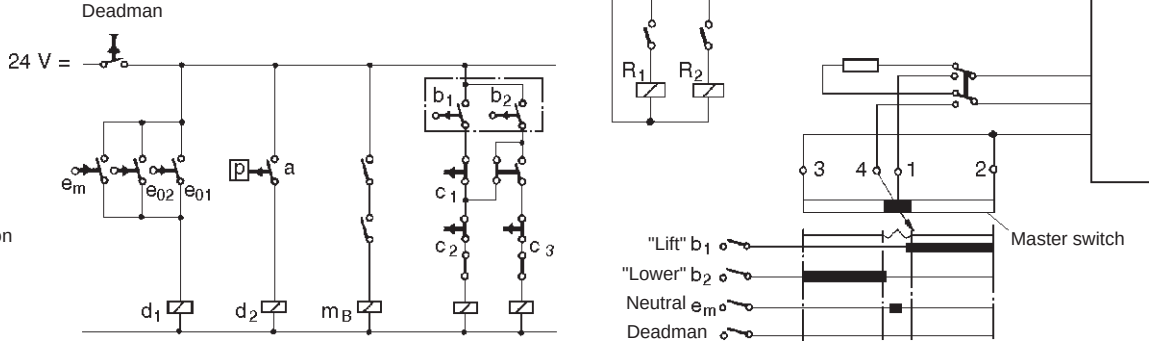
Example:



Pump Unit with
electro-hydraulic control

e_{01}, e_{02}	Neutral pos. switch (open in neutral pos.)
R_1, R_2	Control solenoid
m_B	Solenoid for brake valve
a	Switch in pressure memory device

Typical electrical circuit utilising a pressure memory switch
(Pump controlled by proportional solenoids)



R_1, R_2	Proportional Solenoids
m_B	Sol. for brake valve
a	elec. pressure memory switch
c_1	Hook end position
c_2	Overload
c_3	Rope end
e_{01},e_{02}	Pump neutral pos. switch

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