



Application

The electrohydraulic control and supply system H-C MWM-6 provides hydraulic control of pneumatically released disk brake of a winding machine. The systems allows for the control of winding machine disk brake actuators used to its mechanic braking. Because it is possible to generate to different safety braking pressures, it can be used in most of mine shaft winding machines.

System design

The electrohydraulic control and supply system H-C MWM-6 is constructed of the following basic elements:

- two identical independent hydraulic units (LA and LB) made in a form of steel cages, housing individual components, such as:
- oil tank together with sensors, oil heaters, which is equipped with a pumping assembly equipped with axial-piston pump of variable delivery,
- hydraulic units equipped with control and supply elements,
- hydraulic piston accumulator,
- by-pass filtering and cooling system together with oil purity control in the tank,
- hydraulic switch (LP), that allows for selecting unit to operate,
- electrical equipment cabinet (supply L1 as well as control and protection L2),
- control and measurement elements system that control operation of actuators and disks of the brakes.

Main features of the system

The systems allows:

- manoeuvring braking – in manual and automatic control, in remote start-up mode and after emergency stop using a drive,
- safety braking – using one of two different braking moment values, selected depending on the value and direction of overweight,
- advancing approximation of actuator callipers,
- performing functional test of the hydraulic unit,
- performing a test of settings of residual pressure,
- performing static brake test,
- testing the brake actuator hysteresis together with runs recording,
- testing the oil tank purity class in the tank,
- by-pass cooling and filtration of oil in the tank,
- performing circulation hydraulic network with two-sided actuators supply,
- performing any trials and tests from the level of device visualization.

Conditions of work and application parameters

Electrohydraulic brake control system H-C MWM-6 meets the requirements of the Decision of the Minister of Economy 1) of 20 December 2005 on essential requirements put before safety machines and elements, 2) introducing Directive 98/37/EC (Journal of Laws 05.259.2170).

supply voltage	500V AC 50 Hz; 230 V AC 50 Hz with UPS
ambient temperature	5 ÷ 40°C
working liquid	hydraulic oil – grade HL-P from 46 to 68
declared corrected level of acoustic pressure A	L < 85 dB
maximum total working volume of oil in the supplied brake actuators	approx. 800 cm ³

Specifications

oil tank volume	approx. 200 dm ³
hydraulic pump	axial – piston of variable delivery
delivery	0 ÷ 16.3 cm ³ /rotation
maximum working pressure	20 MPa
electrical motor of main pump	three-phase induction, 5.5 kW, 500 V, 50 Hz, 1450 rpm
electrical motor of pump of oil and air cooler	three-phase induction, 1,1 kW, 500 V, 50 Hz, 950 rpm
accuracy oil filtration in the tank	5 µm
panel heater	2x1.14 kW 500V
range of admissible oil working temperatures	30 ÷ 60°C
total weight of the system without oil (2 hydraulic units, 2 electrical cabinets)	approx. 2500 kg
overall dimensions (LA+LP+LB)	width: ≈ 3100 mm; depth: ≈ 1050 mm; height: ≈ 1800 mm
hydraulic connections	20 S