Operating Manual

Elektro-Hydraulic Control
- 14 Functions -

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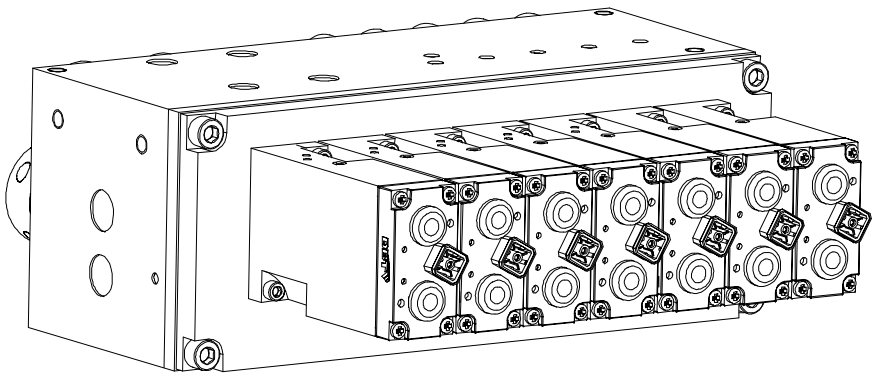


DBT GmbH
Industriestraße 1
D-44534 Lünen
Telefon: +49 (0) 23 06 / 709 - 0
Telefax: +49 (0) 23 06 / 709 - 421
Email: infodbt@dbt.de
Internet: www.dbt.de

Conditions of operation

Use in conformance with specifications

The electrohydraulic control has been designed and manufactured exclusively as part of the control system for shields. It is only allowed to be used in connection with an electronic control unit, such as for example a PM4.
Use the electrohydraulic control only as intended.

Intended uses are:

- The electrohydraulic control is combined with an electronic control unit - as for example a single control unit of type PM4. Together they form a control unit designed to operate the functions of a shield support. The two devices are part of an adjacent control system for electrohydraulic shield supports for use in underground mining. The electrohydraulic control is an essential component of this electrohydraulic shield control. Operation of the functions is not allowed to be made direct by pressing the buttons of the electrohydraulic control, but via the respective single control unit which must be located in one of the adjacent shields. By means of this control unit the pilot valves of the control block are actuated manually or program-controlled.
- Additionally, there are two exceptional circumstances under which the control block also serves as direct ”control unit”:
  - emergency operation and
  - repair operation.
  In these cases the individual functions of the electrohydraulic shield support are executed direct at the pilot valve of the electrohydraulic control. Thus, the functions of the shield can be operated even if the single control unit is locked out or has failed - but only in well-founded exceptions and under strict observance of the special safety regulations of the mine operator for these cases.

Unauthorized use

Uses which are not expressly stated as intended are regarded as unauthorized uses and are not permissible.

Unauthorized use::

- Use of the electrohydraulic control as ”control unit” to operate the functions of the shield in normal operation.
  Actuating the shields exclusively by pushing a button on the pilot valve block is unauthorized use since operation of the shield functions must be performed from an adjacent shield.

By unauthorized uses you endanger yourself and others. You could be severely injured or even killed. Therefore only use the electrohydraulic control as intended!

DBT does not accept any liability for the consequences of unauthorized uses.

Storage and transport

This chapter contains important information on the correct storage and transport of the elektrohydraulic control.
Observance of the instructions and tips will increase the service life of the elektrohydraulic control. You will also be able to carry out the transport work quicker and more safely.
Careful attention to the points in this chapter will help you to simplify your day-to-day work.

Storage

Storage of new equipment

corrosion protection

The surfaces of the equipment are provided with a temporary corrosion protection. If stored properly, the equipment parts will be protected for six months referred to the date of delivery.

Prior to delivery the hydraulically operated equipment will be tested and operated at the DBT site using the anti corrosive and anti freezing fluid HYDROCOR® CV50*). This fluid remains in the hydraulic system for transport and a following short-time storage period.
HYDROCOR ® CV50 is freeze-proof down to - 40 degrees Celsius and protects the metallic materials against corrosion.
HYDROCOR ® CV50 is equipped with a color indicator, which is responsive on the pH-value of the fluid. The color of the fluid will change from ”red” to ”yellow” in case the pH-value drops. A yellow colored fluid indicates insufficient corrosion protection.

For further particulars on the properties of HYDROCOR® CV50 please refer to the respective data sheet of the manufacturer.

exposure to sunlight

Protect the equipment against direct exposure to sunlight.
Store the electrical equipment, electronic components, spare parts of rubber or plastic - such as seals and hoses - and hydraulic fluids only in closed rooms at temperatures of 15 °C to 25 °C.

natural ageing

Even with proper storage, seals and hoses are subject to natural ageing. A storage period of approx. two years is therefore recommended for these parts.

moisture and dirt

Protect all hydraulic elements during storage in a suitable manner against the ingress of dirt and moisture. The connecting surfaces of the hydraulic components must be protected against corrosion and closed with blind plates. Hydraulic plug-type connections and the connectors of the electric cables must be closed with suitable caps or plugs.

short-term storage

During short-term storage (approx. 4 weeks) of equipment outdoors, but at temperatures **above** freezing, electrical components need not be removed. Such components must, however, be particularly protected against environmental influences, including high temperatures, for example by suitable covers or sheathings for the controls and by additionally covering the equipment.

long-term storage

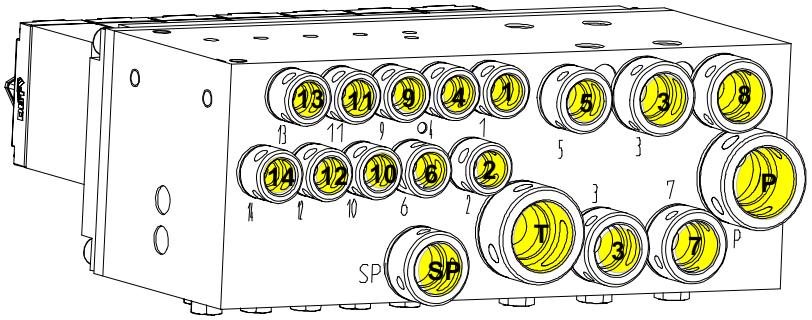
If the equipment is to be stored for more than 6 months, the cavities in the hydraulic components must be completely filled with a preserving fluid such as e.g. HYDROCOR® CV 50. This fluid must have corrosion-protection properties and should be frost-proof within the respective temperature range of the application. All ports must be

*) HYDROCOR ® CV50 is a trade name of Theunissen, Chemische Fabriken GmbH, Wuppertal / Germany

Connections

The connection ports for the hydraulic lines are located on the rear of the control valve block.

Fig. 15: Rear view of the electrohydraulic control



Hydraulic connections

large-volume consumers	connections:	5 x DN 20 socket, plug-type
	marking:	3, 3, 5, 7, 8
	flow rate:	max 400 l/min
	application:	large-volume consumers
low-volume consumers	connections:	10 x DN 10 socket, plug-type
	marking:	1, 2, 4, 6, 9, 10, 11, 12, 13, 14
	flow rate:	max 80 l/min
	application:	low-volume consumers
pressure supply, tank line and accumulator cartridge	connections:	2 x DN 25 socket, plug-type 1 x DN 20 socket, plug-type
	marking:	P - pressure supply, DN 25 T - tank line, DN 25 SP - accumulator cartridge socket, DN20
	application:	pressure supply to the system, return line to the tank socket for accumulator cartridge