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Coal mining machine hydraulic fluid power - General rules relating to system

煤矿机械液压系统通用技术条件

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Coal mining machine hydraulic fluid power - General rules relating to system

1 Scope

This standard specifies the general technical conditions for the design and manufacture of coal mining machinery hydraulic systems.

This standard is applicable to the hydraulic system of coal mining machinery and equipment with hydraulic oil (liquid) as working medium and nominal pressure not higher than 31.5 MPa.

2 Normative references

The provisions in following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard; however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 786.1-1993 Fluid power systems and components - Graphic symbols and circuit diagrams- Part 1: Graphic symbols (neq ISO 1219-1:1991)

GB/T 3766-2001 Hydraulic fluid power - General rules relating to systems (eqv ISO 4413:1998)

GB 3836.1-2000 Electrical apparatus for explosive gas atmospheres - Part 1: General requirements (eqv IEC 60079-0:1998)

GB 3836.2-2000 Electrical apparatus for explosive gas atmospheres - Part 2: Flameproof enclosure d (eqv IEC 60079-1:1990)

GB 3836.4-2000 Electrical apparatus for explosive gas atmospheres - Part 4: Intrinsic safety (eqv IEC 60079-11:1999)

ISO 1219-2:1995 Fluid power systems and components - Graphic symbols and circuit diagrams - Part 2: Circuit diagrams

GB/T 786.1-1993 and ISO 1219-2:1995. The circuit diagram shall express the system design principle, identify the components and meet the requirements of clause 3. The following information shall be included in the circuit diagram or provided together with the diagram:

- a) The name, part number, serial number or design number of all devices as well as the marking of the manufacturer or supplier name;
- b) The diameter, wall thickness and technical conditions of the hard pipe and the diameter and technical conditions of the hose assembly;
- c) The inner diameter of the hydraulic cylinder, the diameter of the piston rod, the stroke length, the working pressure and the speed;
- d) The rated working pressure, displacement, torque, speed and direction of rotation of the hydraulic motor;
- e) The rated working pressure, displacement, speed and direction of rotation of the hydraulic pump;
- f) The power, speed and model of the prime mover of the hydraulic pump;
- g) The pressure setting of the pressure control valve;
- h) The model of filter screen, filter and replacement filter;
- i) The fuel tank volume;
- j) The variety of working oil solutions;
- k) The schedule of the relationship between the ON/OFF of the electromagnet and the electrical communication device and the actuator action status;
- l) The outline (dotted line) of the circuit included in each oil circuit board;
- m) The clear indication of the function of each actuator in all directions;
- n) The inflation pressure and nominal volume of the accumulator;
- o) The diameter, type and position of the pressure test point, the hydraulic solution sampling point and the vent point in the circuit;
- p) The oil port identification of all components or oil blocks (consistent with those indicated on the component or the oil block);
- q) The expected flow rate, the heat exchange area, the highest and lowest pressures of the cooling device, the maximum input temperature, the highest and the lowest input pressure of the cooling medium;

set with the vent outlet.

9 Control system

9.1 The control system shall be set in accordance with the provisions of clause 10 of GB/T 3766 2001.

9.2 The servo valve and associated actuators shall be mounted as close as possible, to reduce the volume of liquid contained between the valve and the actuator.

10 Diagnosis and monitoring

Diagnostics and monitoring shall be in accordance with the provisions of clause 11 of GB/T 3766 2001.

11 Cleaning and painting

Cleaning and painting shall comply with the provisions of clause 12 of GB/T 3766-2001.

12 Transportation preparation

The transportation preparation shall comply with the provisions of clause 13 of GB/T 3766-2001.

13 Test

13.1 The system shall be tested in accordance with specifications or protocols to determine whether its performance meets the requirements of this standard and design.

13.2 For the hydraulic system used in underground coal mines, the “product certificate”, “explosion-proof certificate” and the “safety mark certificate for coal mine products” shall be provided for explosion-proof electrical equipment.

14 Marking instructions (when citing this standard)

When deciding to comply with this standard, the following instructions shall be used in the contract between the purchaser and the supplier and in the final data package:

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