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Graphical Symbols For Hydraulic Circuits

Basic symbols

- PRESSURE OR RETURN LINE
- PILOT LINE
- TWO OR MORE FUNCTIONS IN ONE UNIT
- FLEXIBLE HOSE
- UNION
- CROSS
- CLOSED CONNECTION
- DIRECTION OF MOVEMENT
- DIRECTION OF ROTATION
- REGULATION POSSIBLE
- ELECTRIC
- SOLENOIDS WORKING IN OPPOSITE DIRECTIONS
- DIRECTION OF ROTATION LOOKING AT SHAFT
- PNEUMATIC
- HYDRAULIC
- TEST POINT
- SPRING
- THROTTLE
- PLUGGED PORT
- ROTARY UNION
- DETENT
- RETURN ABOVE/BELOW FLUID LEVEL
- CHECK VALVE
- SHUT-OFF VALVE

Spool controls

- GENERAL SYMBOL
- PUSH KNOB
- PUSH-PULL KNOB
- LEVER
- SINGLE ACTING PEDAL
- DOUBLE ACTING PEDAL
- PLUNGER
- PLUNGER WITH STROKE LIMITATION
- SPRING
- ROLLER
- LEVER WITH ROLLER
- SINGLE SOLENOID
- PUSH/PULL SOLENOID
- DIRECT PILOT OPERATED
- PNEUMATIC / HYDRAULIC OPERATED
- ELECTRIC MOTOR
- OTHER CONTROL UNIT (NOT ELECTRIC MOTOR)
- INTERMEDIATE POSITION
- PROPORTIONAL SPOOL
- COUPLING
- INTERNAL PILOT
- EXTERNAL PILOT

Energy transformation

- FIXED DISPLACEMENT PUMP
- SINGLE-ACTING HAND PUMP (e.g. 376)
- DOUBLE ACTING HAND PUMP (e.g. 27906)
- FIXED DISPLACEMENT REVERSIBLE MOTOR WITHOUT DRAIN
- FIXED DISPLACEMENT REVERSIBLE PUMP WITH DRAIN
- FIXED DISPLACEMENT REVERSIBLE MOTOR WITH DRAIN
- ROTARY ACTUATOR (e.g. 1APA...)
- SINGLE ACTING CYLINDER
- DOUBLE ACTING CYLINDER
- DOUBLE ACTING CYLINDER WITH VARIABLE DAMPING AT ONE END
- DOUBLE ACTING CYLINDER WITH VARIABLE DAMPING AT BOTH ENDS
- DOUBLE ACTING TELESCOPIC CYLINDER
- SINGLE ACTING TELESCOPIC CYLINDER
- DOUBLE ACTING DOUBLE ROD CYLINDER
- ACCUMULATOR WITH GAS PRE-CHARGE

Energy control

- ADJUSTABLE 2-WAY FLOW CONTROL WITH REVERSE FLOW CHECK (e.g. 1VCR...D, 2VCR)
- ADJUSTABLE 3-WAY FLOW CONTROL WITH REVERSE FLOW CHECK (e.g. 1VCR...T, 3VCR)
- ADJUSTABLE 3-WAY FLOW CONTROL
- FLOW DIVIDER (e.g. RC...)
- SPOOL TYPE FLOW DIVIDER (e.g. DC03...)
- ROTARY FLOW DIVIDER (e.g. DSL9-9-9-9R)
- LOWERING VALVE WITH REVERSE FLOW CHECK (e.g. VF...)
- THROTTLE WITH REVERSE FLOW CHECK (e.g. EG...)
- PILOT OPERATED CHECK VALVE WITHOUT DRAIN (e.g. VRHS...03)
- PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)
- CHECK VALVE WITH SPRING
- SHUTTLE VALVE
- LOGIC ELEMENT (e.g. 1LX...)
- PRIORITY VALVE (e.g. VPD...)

STEERING UNITS

- OPEN CENTRE
- CLOSED CENTRE
- CLOSED CENTRE WITH LS (FOR USE WITH PRIORITY VALVE)

- DIRECT ACTING RELIEF VALVE (e.g. SGRA...)
- PILOT OPERATED RELIEF VALVE (e.g. 3RL...)
- SEQUENCE VALVE (e.g. 3RS...)
- LEAK-FREE SEQUENCE VALVE WITH EXTERNAL DRAIN (e.g. 9464)
- RELIEF / UNLOADING VALVE WITH EXTERNAL HYDRAULIC PILOT AND INTERNAL DRAIN (e.g. 3RD...)
- REDUCING VALVE (e.g. 3RR...)
- ELECTRICAL UNLOADING VALVE (e.g. 3RD...)
- ELECTRICAL PROPORTIONAL RELIEF VALVE (e.g. 3RP...)
- OVER CENTRE VALVE (e.g. 2VDF...)
- RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)
- NORMALLY OPEN SOLENOID CHECK VALVE (e.g. 9526)
- NORMALLY CLOSED SOLENOID CHECK VALVE (e.g. 9525)

- SOLENOID OPERATED 6 PORT DIVERTER/CHANGEOVER VALVE (e.g. M9278...)
- SOLENOID DIVERTER VALVE WITH EXTERNAL DRAIN (e.g. M9848...)
- DIRECT ACTING SOLENOID DIRECTIONAL VALVE (SPOOL FORM 1 e.g. 5EVP3D1...)
- DIRECT ACTING SOLENOID DIRECTIONAL VALVE (SPOOL FORM 2 e.g. 5EVP3D2...)
- PILOT OPERATED SOLENOID DIRECTIONAL VALVE (e.g. 5EVP3P2C06...)
- DIRECT ACTING SEATED SOLENOID DIRECTIONAL VALVE (e.g. ECP...)
- DIRECT ACTING PROPORTIONAL SOLENOID DIRECTIONAL VALVE (e.g. EP3D...)
- PILOT OPERATED PROPORTIONAL SOLENOID DIRECTIONAL VALVE (e.g. EP3P...)
- SERIES DIRECTIONAL CONTROL VALVE (e.g. 101..., 102..., 1102...)
- SERIES DIRECTIONAL CONTROL VALVE WITH NEGATIVE OVERLAP AND VALVES IN SPOOL (e.g. 101..., 102..., 1102... SPOOLS A AND B)
- PARALLEL DIRECTIONAL CONTROL VALVE (e.g. 402..., 1402..., 406..., 1406..., 1504...)
- PARALLEL DIRECTIONAL CONTROL VALVE (e.g. 407..., 1408...)
- PARALLEL DIRECTIONAL CONTROL VALVE FOR USE WITH LS PUMPS (e.g. 406L..., 1406L..., 1504L...)
- PARALLEL DIRECTIONAL CONTROL VALVE FOR USE WITH LS PUMPS WITH FLOW CONTROL FUNCTION (e.g. 1504L...X...)

Fluid treatment

- BREATHER WITH FILTER
- FILTER (e.g. 2FA...)
- FILTER WITH INDICATOR (e.g. 1FRF...+ 1FRI-D)
- WATER / OIL COOLER
- AIR / OIL COOLER
- HEATER
- TEMPERATURE CONTROLLER

Measuring instruments and indicators

- PRESSURE INDICATOR
- PRESSURE TRANSDUCER
- PRESSURE GAUGE (e.g. MGP...)
- DIFFERENTIAL PRESSURE GAUGE
- FLUID LEVEL GAUGE
- FLUID LEVEL TRANSDUCER
- THERMOMETER
- FLOW INDICATOR
- FLOW METER
- TACHOMETER
- TORQUE METER
- PRESSURE SWITCH
- MICRO SWITCH