

# Graphical Symbols For Hydraulic Circuits

Basic symbols		Spool controls		Energy transformation		Energy control		Fluid treatment					
	PRESSURE OR RETURN LINE		GENERAL SYMBOL		FIXED DISPLACEMENT PUMP		ADJUSTABLE 2-WAY FLOW CONTROL WITH REVERSE FLOW CHECK (e.g. 1VCR...D, 2VCR)		DIRECT ACTING RELIEF VALVE (e.g. SGRA...)		SOLENOID OPERATED 6 PORT DIVERTER/CHANGEOVER VALVE (e.g. M9278...)		BREATHER WITH FILTER
	PILOT LINE		PUSH KNOB		SINGLE-ACTING HAND PUMP (e.g. 376)		ADJUSTABLE 3-WAY FLOW CONTROL WITH REVERSE FLOW CHECK (e.g. 1VCR...T, 3VCR)		PILOT OPERATED RELIEF VALVE (e.g. 3RL...)		SOLENOID DIVERTER VALVE WITH EXTERNAL DRAIN (e.g. M9848...)		FILTER (e.g. 2FA...)
	TWO OR MORE FUNCTIONS IN ONE UNIT		PUSH-PULL KNOB		DOUBLE ACTING HAND PUMP (e.g. 27906)		ADJUSTABLE 3-WAY FLOW CONTROL		SEQUENCE VALVE (e.g. 3RS...)		DIRECT ACTING SOLENOID DIRECTIONAL VALVE (SPOOL FORM 1 e.g. 5EVP3D1...)		FILTER WITH INDICATOR (e.g. 1FRF...+ 1FRI-D)
	FLEXIBLE HOSE		LEVER		FIXED DISPLACEMENT REVERSIBLE MOTOR WITHOUT DRAIN		FLOW DIVIDER (e.g. RC...)		LEAK-FREE SEQUENCE VALVE WITH EXTERNAL DRAIN (e.g. 9464)		DIRECT ACTING SOLENOID DIRECTIONAL VALVE (SPOOL FORM 2 e.g. 5EVP3D2...)		WATER / OIL COOLER
	UNION		SINGLE ACTING PEDAL		FIXED DISPLACEMENT REVERSIBLE PUMP WITH DRAIN		SPOOL TYPE FLOW DIVIDER (e.g. DC03...)		RELIEF / UNLOADING VALVE WITH EXTERNAL HYDRAULIC PILOT AND INTERNAL DRAIN (e.g. 3RD...)		PILOT OPERATED SOLENOID DIRECTIONAL VALVE (e.g. 5EVP3D2C06...)		AIR / OIL COOLER
	CROSS		DOUBLE ACTING PEDAL		FIXED DISPLACEMENT REVERSIBLE MOTOR WITH DRAIN		ROTARY FLOW DIVIDER (e.g. DSL9-9-9-9R)		REDUCING VALVE (e.g. 3RR...)		DIRECT ACTING SEATED SOLENOID DIRECTIONAL VALVE (e.g. ECP...)		HEATER
	CLOSED CONNECTION		PLUNGER		FIXED DISPLACEMENT REVERSIBLE MOTOR WITH DRAIN		LOWERING VALVE WITH REVERSE FLOW CHECK (e.g. VF...)		ELECTRICAL UNLOADING VALVE (e.g. 3RD...)		PILOT OPERATED PROPORTIONAL SOLENOID DIRECTIONAL VALVE (e.g. EP3D...)		TEMPERATURE CONTROLLER
	DIRECTION OF MOVEMENT		PLUNGER WITH STROKE LIMITATION		ROTARY ACTUATOR (e.g. 1APA...)		THROTTLE WITH REVERSE FLOW CHECK (e.g. EG...)		ELECTRICAL PROPORTIONAL RELIEF VALVE (e.g. 3RP...)		SERIES DIRECTIONAL CONTROL VALVE (e.g. 101... 102... 1102...)	<b>Measuring instruments and indicators</b>	
	DIRECTION OF ROTATION		SPRING		DOUBLE ACTING CYLINDER		PILOT OPERATED CHECK VALVE WITHOUT DRAIN (e.g. VRHS...03)		OVER CENTRE VALVE (e.g. 2VDF...)		SERIES DIRECTIONAL CONTROL VALVE WITH NEGATIVE OVERLAP AND VALVES IN SPOOL (e.g. 101... 102... 1102... SPOOLS A AND B)		
	REGULATION POSSIBLE		ROLLER		DOUBLE ACTING CYLINDER WITH VARIABLE DAMPING AT ONE END		PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		PARALLEL DIRECTIONAL CONTROL VALVE (e.g. 402... 1402... 406... 1406... 1504...)		PRESSURE INDICATOR
	ELECTRIC		LEVER WITH ROLLER		DOUBLE ACTING CYLINDER WITH VARIABLE DAMPING AT BOTH ENDS		CHECK VALVE WITH SPRING		LOGIC ELEMENT (e.g. 1LX...)		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		PRESSURE TRANSDUCER
	SOLENOIDS WORKING IN OPPOSITE DIRECTIONS		SINGLE SOLENOID		DOUBLE ACTING TELESCOPIC CYLINDER		SHUTTLE VALVE		PRIORITY VALVE (e.g. VPD...)		NORMALLY OPEN SOLENOID CHECK VALVE (e.g. 9526)		PRESSURE GAUGE (e.g. MGP...)
	DIRECTION OF ROTATION LOOKING AT SHAFT		PUSH/PULL SOLENOID		SINGLE ACTING TELESCOPIC CYLINDER		STEERING UNITS		OPEN CENTRE		NORMALLY CLOSED SOLENOID CHECK VALVE (e.g. 9525)		DIFFERENTIAL PRESSURE GAUGE
	PNEUMATIC		DIRECT PILOT OPERATED		ACCUMULATOR WITH GAS PRE-CHARGE		OPEN CENTRE		CLOSED CENTRE		CLOSED CENTRE WITH LS (FOR USE WITH PRIORITY VALVE)		FLUID LEVEL GAUGE
	HYDRAULIC		PNEUMATIC / HYDRAULIC OPERATED				PILOT OPERATED CHECK VALVE WITHOUT DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		FLUID LEVEL TRANSDUCER
	TEST POINT		ELECTRIC MOTOR				PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		THERMOMETER
	SPRING		OTHER CONTROL UNIT (NOT ELECTRIC MOTOR)				PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		FLOW INDICATOR
	THROTTLE		INTERMEDIATE POSITION				PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		FLOW METER
	PLUGGED PORT		PROPORTIONAL SPOOL				PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		TACHOMETER
	ROTARY UNION		COUPLING				PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		TORQUE METER
	DETENT		INTERNAL PILOT				PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		PRESSURE SWITCH
	RETURN ABOVE/BELOW FLUID LEVEL		EXTERNAL PILOT				PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		MICRO SWITCH
	CHECK VALVE						PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		
	SHUT-OFF VALVE						PILOT OPERATED CHECK VALVE WITH DRAIN (e.g. VRHS...02)		SHUTTLE VALVE		RELIEF VALVE / ELECTRICAL LOWERING VALVE (e.g. 2MB...)		