MAGISTER HYDRAULICS

Monoblock Hydraulic Control Valve

2 Spool, 13 GPM, Tandem Center

MANUAL



In this supporting document, general information about the HCV 2×13-TC-J control valve was shown.

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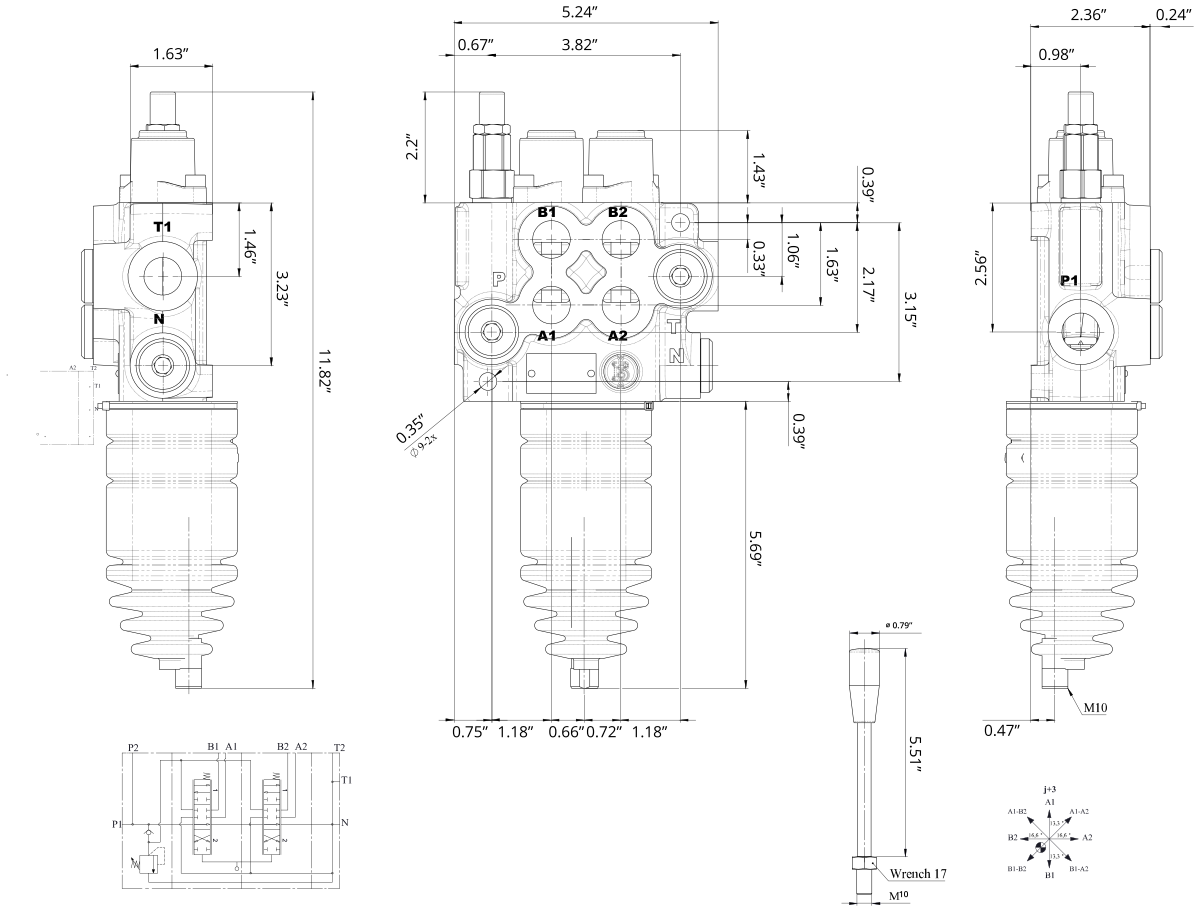


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The joystick operates two spring-centered spools, one for each actuator circuit. In tandem-center neutral, pump flow returns to tank and the work ports are blocked.



Connections and operating limits

Parameter	Specification
Flow	Nominal 50 L/min (13 GPM by conversion)
Pressure limits	Inlet 4,500 PSI maximum | Tank backpressure 500 PSI maximum
Fluid	Mineral-based hydraulic oil, 10 to 300 cSt
Temperature	Fluid −4 to 176 °F | Ambient −40 to 140 °F
Pump inlet	P1 / P2 SAE 10, 7/8–14 UNF
Tank return	T1 / T2 SAE 10, 7/8–14 UNF
Work ports	A1/B1 and A2/B2 SAE 8, 3/4–16 UNF
Control	Two joystick axes, each controlling a 4-way, 3-position spool

PRESSURE RELIEF

Relief valve about 2,600 PSI. Verify the installed setting against the machine specification before applying load. The 4,500 PSI is the valve pressure limit.

PORT DIMENSIONS (ISO 11926-1)

Tank port T	7/8 - 14UNF (SAE 10)
Inlet port P	7/8 - 14UNF (SAE 10)
Working ports A&B	3/4 - 16UNF (SAE 8)
Port N	BSP G1/2”

TECHNICAL SPECIFICATION

Nominal Flow	13 GPM
Max Pressure	4,500 PSI
Operating Pressure	3,600 PSI
Max. Backpressure	500 PSI
Viscosity Range	10 - 300 cSt
Max Level of Contamination	10 (NAS 1638) - /19/16 (ISO 4406-1999)
Internal Leakage	0.4 ci/min at 1,450 PSI, 104 F & 46 cSt
Fluid Temp	-4F to 176F
Ambient Temp	-40 F to 140 F
Seal Material	NRB
Fluid	Mineral Based Oil

INSTALLATION AND OPERATION

Before opening the circuit

Lower or mechanically support suspended loads. Lock out the power source, discharge accumulators by the machine procedure and verify zero pressure on both sides of the valve. Check for spray from a protected position. Keep hands away from leaks. Suspected fluid injection requires immediate emergency medical care.

1. Mount the body on a flat support without twisting it. Clean and inspect the SAE O-ring boss fittings. Support hoses so they do not pull on the casting.

2. Trace the selected P inlet, T return and each numbered A/B pair. Keep unused alternative ports sealed with the specified plugs. Verify the N port configuration against the machine circuit before connecting any downstream valve.

3. Fit and secure the joystick lever. With power isolated, check that each axis moves freely and returns to center without interference.

4. Secure the load and clear the travel area. Start with the valve centered at reduced flow and pressure. Confirm the return path is open. Move one joystick axis at a time. Identify and label the actuator and direction for each axis before checking combined motion.

5. Release the command and verify the spool centers. Stop if travel continues, direction is unexpected, or the return line overheats. Mechanically secure raised equipment before approaching it.

INSPECTION AND TROUBLESHOOTING

If one axis fails to respond, inspect the joystick linkage and trace that spool's work-port pair. If both directions are slow, check pump delivery, oil condition and return restrictions. Internal leakage can allow actuator drift in neutral. Use the machine's specified load-holding equipment.