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HYDRAULIC DIRECTIONAL CONTROL VALVES, 3000 PSI MAXIMUM

1. **Scope**—This SAE Recommended Practice has been set up by Subcommittee 4 of the Off-Road Machinery Technical Committee and is primarily for directional control valves on construction and industrial machinery equipment as referenced in SAE J1116. The purpose is to establish port area to flow relationship and match valve spool eye ends in relation to rated capacity.

Port connections are optional for either the 4-bolt split flange connection or the internal straight thread "O" ring connection.

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TABLE 1—HYDRAULIC DIRECTIONAL CONTROL VALVES, 3000 PSI MAX

Valve Port Sizes		Valve Spool Connection Eye End (For use with SAE Standard, Rod Ends and Clevis Pins—SAE J493.)						Valve Port Sizes			
GPM, Max	Port	SAE 4-Bolt Split Flange Con- nec- tion ^{b, c} in.	SAE Internal Straight Thread "O" Ring Boss (Tube OD Size) in.	Hole Dia., in. A	Eye Width, in. B	Hole Dia., in. A	Eye Width, in. B	GPM, Max	Port	SAE 4-Bolt Split Flange Con- nec- tion ^{b, c} in.	SAE Internal Straight Thread "O" Ring Boss (Tube OD Size) in.
5	Pressure Tank	—	1/2 5/8 ^a	0.381 0.374	0.437 0.427	0.631 0.624	0.687 0.677	100	Pressure Tank	1-1/2 2 ^a	—
10	Pressure Tank	1/2 3/4 ^a	5/8 3/4 ^a	0.381 0.374	0.437 0.427	0.756 0.749	0.812 0.802	150	Pressure Tank	2 2-1/2 ^a	—
25	Pressure Tank	3/4 1 ^a	7/8 1 ^a	0.506 0.499	0.562 0.552	1.006 0.999	1.062 1.052	225	Pressure Tank	2 2-1/2 ^a	—
35	Pressure Tank	1 1-1/4 ^a	1 1-1/4 ^a	0.506 0.499	0.562 0.552	1.006 0.999	1.062 1.052	300	Pressure Tank	2-1/2 3 ^a	—
65	Pressure Tank	1-1/4 1-1/2 ^a	1-1/2 2 ^a	0.631 0.624	0.687 0.677						

^a Minimum recommended size for double-acting units only. For single-acting and float unit select size according to maximum system flow based on expected cylinder speed and allowable back pressure.

^b The 2-1/2-in. 4-bolt split flange is only recommended up to 2500 psi.

^c The 3-in. 4-bolt split flange is only recommended up to 2000 psi.

2. References

2.1 Applicable Publications

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1116—Categories of Off-Road Self-Propelled Work Machines

PREPARED BY THE SAE SUBCOMMITTEE 4—HYDRAULIC FLUID POWER
SYSTEMS AND COMPONENTS OF THE
SAE OFF-ROAD MACHINERY TECHNICAL COMMITTEE

REAFFIRMED BY THE COMMON TESTS TECHNICAL COMMITTEE SC1—
HYDRAULIC SYSTEMS

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