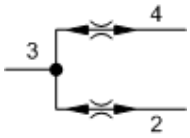
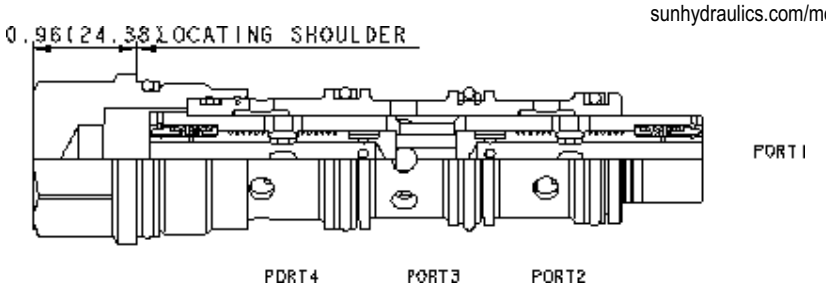
MODEL
FSEA

Closed center, flow divider-combiner valve
SERIES 3 / CAPACITY: 6 - 30 gpm / CAVITY: T-33A

sunhydraulics.com/model/FSEA





CONFIGURATION

X	Control	Not Adjustable
A	Flow Split	50/50
N	Seal Material	Buna-N

Closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Cavity	T-33A
Series	3
Capacity	6 - 30 gpm
Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Valve Hex Size	1 1/4 in.
Valve Installation Torque	150 - 160 lbf ft
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006
Model Weight	1.45 lb.

CONFIGURATION OPTIONS

Model Code Example: FSEAXAN

CONTROL (X)	FLOW SPLIT (A)	SEAL MATERIAL (N)
X Not Adjustable	**A** 50/50	**N** Buna-N
		V Viton

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TECHNICAL FEATURES

- All flow divider and divider/combiner cartridges are physically interchangeable (i.e. same flow path, same cavity for a given frame size).
- Operating characteristics cause the leg of the circuit with the greatest load to receive the higher percentage of flow in dividing mode. If a rigid mechanism is used to tie actuators together, the lead actuator may pull the lagging actuator and cause it to cavitate.
- In combining mode, compensating characteristics will cause the leg of the circuit with the lowest load to receive the higher percentage of flow. If a synchronization feature is not included, an additive accuracy error will be experienced with each full stroke of the actuator.
- In applications involving rigid mechanisms between multiple actuators, operating inaccuracy will cause the eventual lock-up of the system. If the mechanical structure is not designed to allow for the operating inaccuracy inherent in the valve, damage may occur.
- In motor circuits, rigid frames or mechanisms that tie motors together, and/or complete mechanical synchronized motion of the output shaft of the motors, either by wheels to the pavement or sprockets to conveyors, will contribute to cavitation, lock-up and/or pressure intensification.
- Variations in speed and lock-up can be attributed to differences in motor displacement, motor leakage, wheel diameter variance and friction of wheels on the driving surface.
- Extreme pressure intensification can occur on multiple wheel drive vehicles.
- Flow between ports is limited to spool leakage. This does not provide leak proof holding capability, but can be useful in minimizing cross flow and drift.
- Divisional and combining accuracy are equal.
- Below the minimum flow rating there is not enough flow for the valve to modulate. It is effectively a tee. If flow starts at zero and rises, there will be no dividing or combining control until the flow reaches the minimum rating.
- Incorporates the Sun floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

PERFORMANCE CURVES

Split	Input Flow		Rated Accuracy	Maximum Possible Flow Variation
50:50	Max Rated	30 gpm	±2.5%	14.2 - 15.8 gpm
		120 L/min		53,7 - 59,5 L/min
	Min rated	6 gpm	±4.5%	2.7 - 3.3 gpm
		23 L/min		10,2 - 12,4 L/min

The maximum possible variation is at 5000 psi (350 bar) differential between legs with the high pressure leg being the higher flow in dividing mode and the lower flow in combining mode.

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