

New Product Announcement!

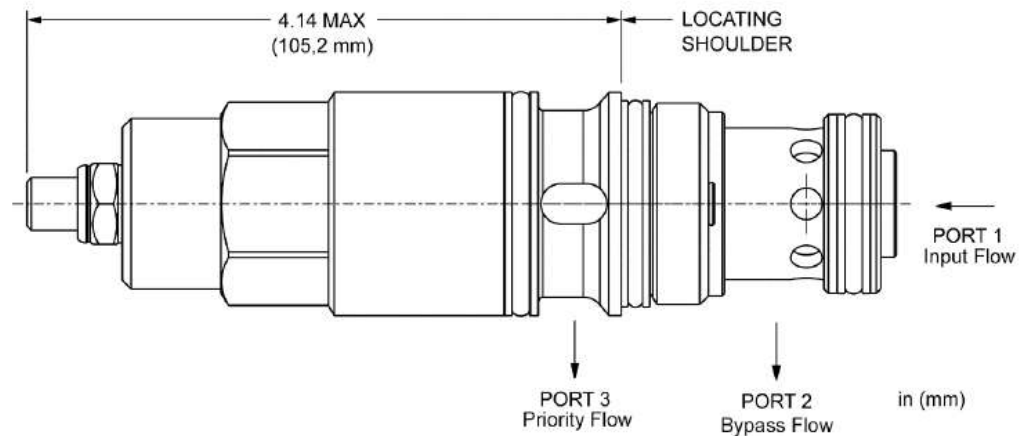
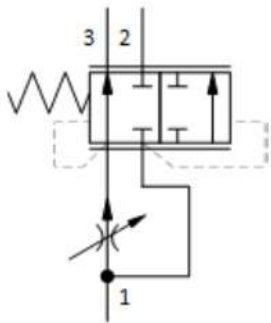
For detailed specifications visit www.sunhydraulics.com



3-way,
Fully Adjustable,
Bypass/Restrictive
Priority Flow Control
Valve

Model: FREL

Functional Symbol and Cartridge Dimensional Drawing



Product Description

This valve is a fully adjustable, bypass/restrictive, priority flow control valve. The valve takes an input flow at port 1 and uses it to satisfy the priority flow at port 3. If the input flow exceeds the priority requirement, the excess is bypassed out port 2. The valve pressure compensates the priority flow for precise flow regulation for applications where there may be wide pressure fluctuations. Port 2 may also be completely blocked so that the valve can be used as a 2-way, pressure compensated flow control from 1 to 3.



FREL

Technical Features

- 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.
- Both priority and bypass flow are usable up to the system operating pressure.
- Priority flow remains relatively constant regardless of variation in input flow.
- Bypass flow is not available until priority flow requirements are satisfied.
- Pressure at the bypass port (port 2) may exceed pressure at the priority port (port 3).
- In applications where the priority flow will be completely blocked, bypass pressure drop will increase over time unless a leak path is provided for the priority flow.
- Exceeds NFPA test standard T2.6.1 R2014 for fatigue and burst pressure ratings.
- Designed using CFD fluid simulation for optimized geometries.

Technical Data

Cavity	T-17A	
Series	3	
Capacity	30 gpm	120 L/min.
Rated Maximum Priority	Adjustable up to 17.6 gpm (66,5 L/min.)	
Maximum Operating Pressure	5000 psi	350 bar
Filtration	Minimum cleanliness (ISO 4406 1999, 4/6/14 µm) 19/17/14	
Viscosity Range	35-2000 SUS	2,8 – 380 cSt
Response Time – Typical	50 ms (open & close)	
Typical Internal Leakage at 110 SUS (24 cSt) from port 1 to port 3 @ 5000 psi (350 bar)	75 mL/min. @ 5000 psi (350 bar)	
Number of counterclockwise turns from fully closed to fully open	5	
Valve Hex Size	1 ¼ in.	31,8 mm
Valve Installation Torque	150 – 160 lbf ft	203 – 217 Nm
Model Weight	1.20 lb.	0,55 kg.
Seal Kit – Cartridge (Buna)	990-017-007	
Seal Kit – Cartridge (Viton)	990-017-006	

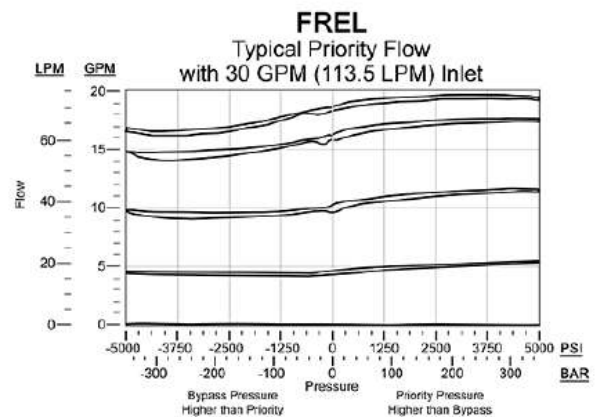
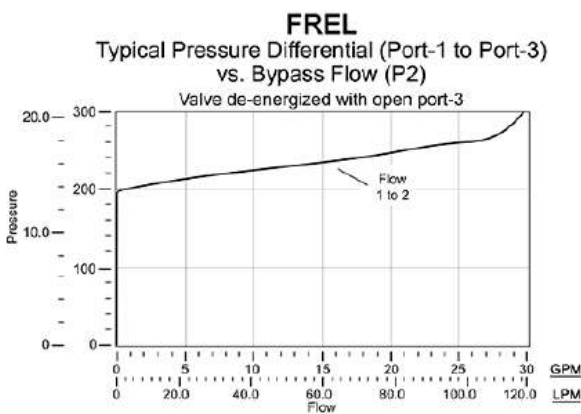
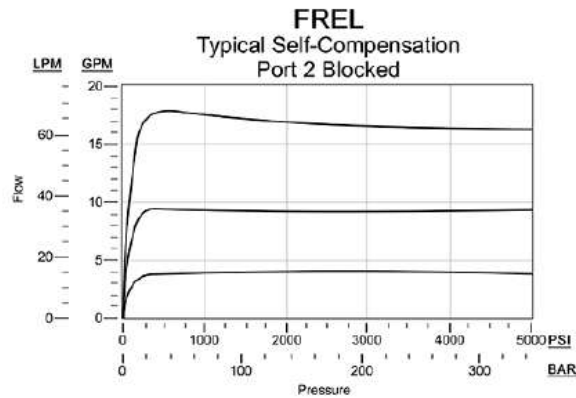


FREL

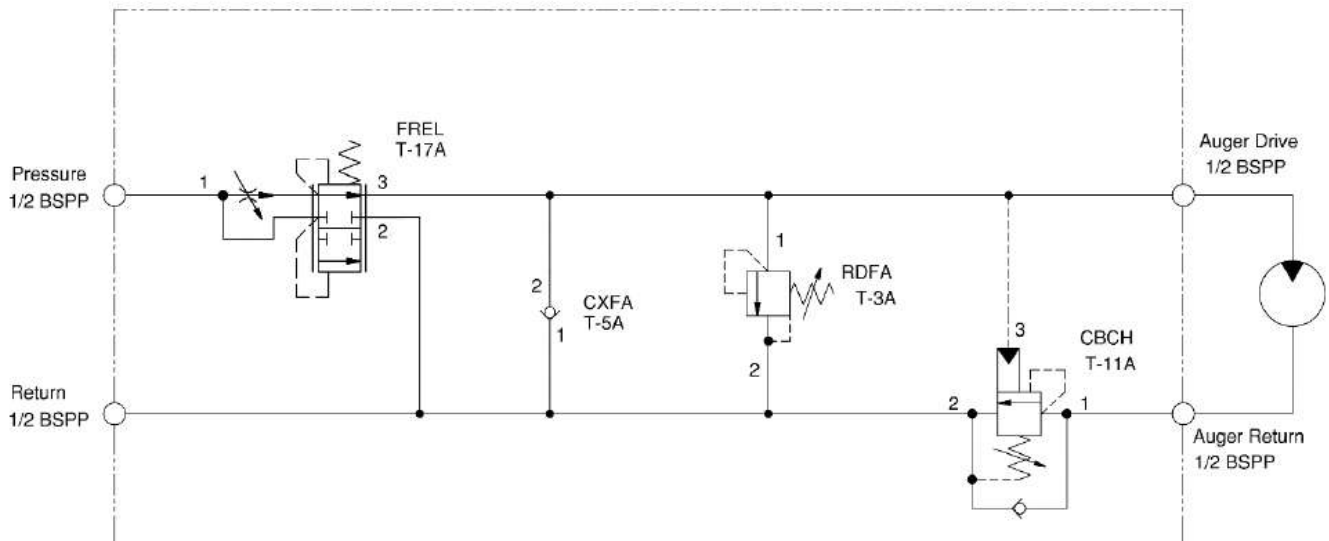
Performance Data



Model Code Options



Application Example



Applications such as mowers, cutters, shears, and augers for example, reap the benefits of this valve. Typically used for drilling methods, the auger screws into soil and material is driven up the shaft of the rotation mechanism.

As illustrated in the above circuit, the FREL provides a fixed priority flow rate for the auger that will remain the same regardless of soil conditions or encountered resistances.

Excess flow will be bypassed out of port 2 of the FREL instead of the system relief. This results in a more efficient system.

Features of the circuit include the FREL's integral compensator which is used to regulate the speed of the auger regardless of pressure levels in the system. This supports consistent RPM of the auger. There is an anti-cavitation check, cross port relief, and counterbalance valve in the circuit. This is to provide cavitation and spike protection of the motor. The counterbalance cartridge acts as a braking valve to prevent the auger from turning when the system is shutdown.



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