

# **VFD120 Series**

# **Variable Priority Flow Dividers**

Aimed at mobile and industrial applications the VFD120 can be used for controlling hydraulic motor and cylinder speeds by manually adjusting the flow rate.

Variable priority flow dividers split a single input (P) flow into a priority (REG) flow and an excess or by-pass (BP) flow which can be returned directly to the oil reservoir or used to power a second system. This is possible due to the valve's adaptive pressure compensation characteristics meaning both the priority and by-pass flows can be used to drive separate circuits, even under varying loads. In many instances this dispenses with the need for another pump to operate a second system.

The VFD120 design has also been optimised to reduce energy wastage by minimising the pressure losses across the valve, resulting in a significant reduction in running costs.

#### **Specifications**

Maximum Rated Pressure: Total Flow: Maximum Priority (REG) Flow:

Maximum Priority (REG) Flow: Fluid Temperature Range: Ambient Temperature Range:

Porting: Material:

Weight: Mounting:

Up to 420 bar, 6000 psi Up to 120 L/min, 32 US gpm Up to 95 L/min, 25 US gpm -30 to 120 °C, -22 to 248 °F -30 to 50 °C, -22 to 122 °F BSPP, SAE, NPT, METRIC

Steel components in cast Ductile Iron body painted black

Aluminium knob Typically 2.0 kg, 4.4 lb 2 Bolts - M8 or 5/16"



# **Features**

- Clearly marked single-turn hand dial permits fast visual adjustments to predetermined 'Priority' flow.
- Pressure compensated permitting both 'Priority' and 'By-Pass' to be used simultaneously at varying pressures without affecting the 'Priority' flow rate.
- Anti-tamper locknut option available. Contact Sales Office for more information.
- Reverse flow capable (Depending upon control knob position) Contact Sales office for more information.





## **Sales Order Code**

Please contact our technical sales team to discuss any special order requirements.

TYPICAL CODE	DESCRIPTION	SEE TABLE	YOUR CODE
VFD120	Basic Valve	-	
RD	Valve Type	Table 1	
120	Priority (REG) Flow Capacity	Table 2	
J	Porting	Table 3	

Table 1: Valve Type

CODE	DESCRIPTION
RD	Standard
LN	Lock Nut Version

Table 2: Priority (REG) Flow Capacity\*

CODE	FLOW SIZE			
	L/min	US GPM		
030	0 -11	0 - 3		
050	0 - 19	0 - 5		
080	0 - 30	0 - 8		
120	0 - 45	0 - 12		
160	0 - 60	0 - 16		
200	0 - 76	0 - 20		
250	0 - 95	0 - 25		
Use for Lock Nut Version Only				
X??**	?? L/min			

#### Notes:

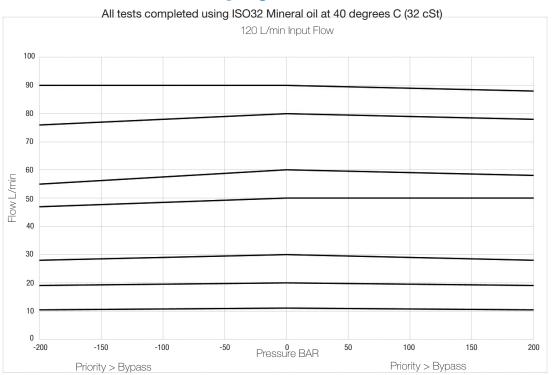
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Table 3: Porting

CODE	PORT THREAD TYPE
Н	1/2" BSPP ***
J	3/4" BSPP
G	1-1/16" -12UN # 12 SAE ORB
А	3/4" NPTF ****
М	M22 X 1.5 ***

#### Notes:

# **Priority (Reg) Flow vs. Load**



<sup>\*</sup> Input flow will affect the maximum seen priority flow capacity. To achieve the given flow capacity, the input flow needs to be greater.

\*\* Unless otherwise stated, factory set to 47 L/

min (CODE X47).

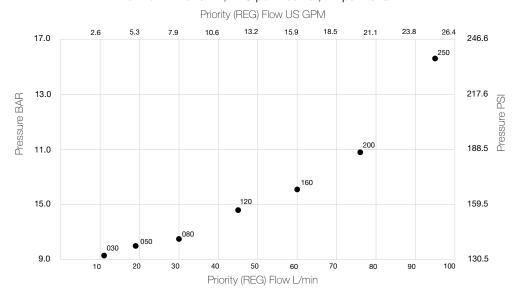
<sup>\*\*\*</sup> M22 and 1/2" BSPP threads only available in flow codes 030 to 120.
\*\*\*\* All NPTF threads are to ANSI B1.20.3 -1976 Class

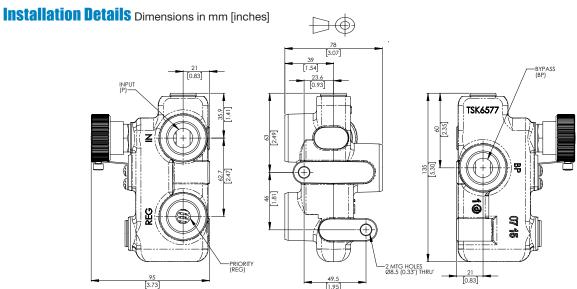
<sup>1.</sup> As stated in the standard it is recommended that "sealing is accomplished by the means of a sealant applied to the thread". NPT fittings may also be used to connect to NPTF ports (also with a sealant applied to the thread).



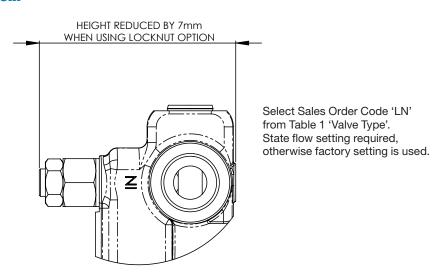
# Max Pressure Drop Between Inlet (P) and priority (REG) port

All tests completed using ISO32 Mineral oil at 40 degrees C (32 cSt) Inlet Flow - 120 L/min, REG port 100 Bar, BP port to tank





# **LN (Anti-Tamper Locknut Option)**



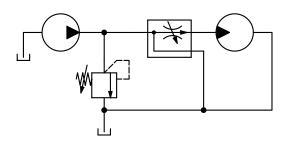


# **Circuit Suggestions**

#### 1. Variable Speed of Hydraulic Motor Drive on Agricultural Tractor

This circuit gives the capability to vary the speed of a hydraulic motor as required. Also, for a given control knob setting, the hydraulic motor speed stays constant regardless of the tractor speed.

#### **Circuit 1**

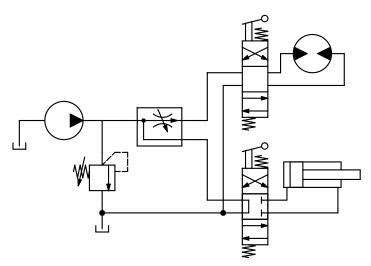


#### **Circuit Suggestions**

#### 2. Two Circuits From a Single Pump

Using only one pump, this circuit gives speed control of the hydraulic motor and powers a hydraulic cylinder. Each function can be used either simultaneously or independently because pressure variations between priority (REG) and By-Pass (BP) flows do not effect the flow on the priority (REG) circuit.

#### Circuit 2

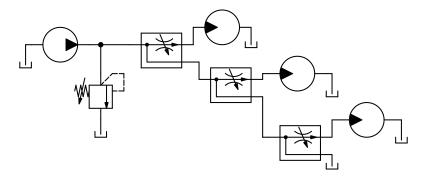


# **Circuit Suggestions**

3. Multiple Circuits From a Single Pump

Using one pump, this circuit gives independently variable speed drive from three hydraulic motors. Motors can be used simultaneously or independently.

## **Circuit 3**



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