Vickers<sup>®</sup> Valves

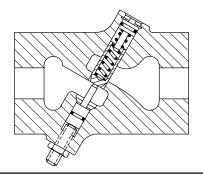
# Flow Controls, One Way Restrictor Type

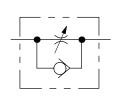
# FN-03; EFN-06 and EFN-10

## **Typical Section**

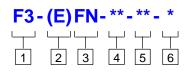
**Functional Symbol** 

All models





# **Model Code**



1 Special seals

For use with phosphate ester type fluids Omit if not required

FAT•N

2 European product Omit for FN-03

3 Flow control, one-way restrictor type

4 Nominal size 03 = 3/8''

- $03 = \frac{3}{8}$  $06 = \frac{3}{4}$
- $10 = 1^{1}/4^{"}$

5 **Design number** 

- 11 = EFN-10
- 20 = FN-03
- 21 = EFN-06

6 System connections

- B = G (BSPF)
- F = SAE 4-bolt flange (EFN-06/10 only)

# **Basic Characteristics**

Туре	. Restrictor valve
Mounting	Thread or flange
Maximum	
pressure Up to 2	10 bar (3000 psi)
Maximum flow	. Up to 190 L/min
	(50 USgpm)
Method of Adjustment	Manual

# **General Description**

The FN-03 and EFN-06/10 adjustable one-way restrictors are designed for applications where fluid oil flow regulation without pressure compensation is required. They can be used whenever the working load remains relatively constant.

Flow regulation is for one direction only. When the flow is reversed the valve opens against a spring and flow passes through at near zero pressure. These valves therefore cannot be used as isolating valves.

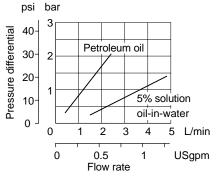


### Maximum Pressure bar (psi)

Hydraulic petroleum oils and	
common FR fluids	210 (3000)
5% – 95% oil-in-water	
emulsion	140 (2000)

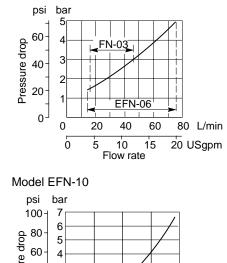
### Flow/Pressure Data

### **Minimum Controlled Flow**



### Pressure Drop for Free-Flow and Maximum Controlled Flow

### Models FN-03 and EFN-06



# <sup>6</sup>/<sub>9</sub> <sup>80</sup>/<sub>9</sub> <sup>6</sup>/<sub>9</sub> <sup>60</sup>/<sub>9</sub> <sup>6</sup>

### **Hydraulic Fluids**

All models can be used with hydraulic oils, water-in-oil emulsions and water glycols. Add prefix "F3" to model designation when phosphate ester (not alkyl-based) to be used. EFN-06 and 10 models can also be used with a 5-10% concentration of soluble oil in clean water.

The extreme operating viscosity range is from 13 to 860 cSt (70 to 4000 SUS) but the recommended running range for all but soluble-oil-in-water emulsions is 13 to 54 cSt (70 to 245 SUS).

For further information about fluids see leaflet 920.

### **Contamination Control Requirements**

Recommendations on contamination control methods and the selection of products to control fluid condition are included in Vickers publication 9132 or 561, "Vickers Guide to Systemic Contamination Control". The book also includes information on the Vickers concept of "ProActive Maintenance". The following recommendations are based on ISO cleanliness levels at 2  $\mu$ m, 5  $\mu$ m and 15  $\mu$ m. For products in this catalog the recommended levels are:

Up to 210 bar (3000 psi) ..... 19/17/14

### **Temperature Limits**

Ambient	
Min	–20°C (–4°F)
Max	+40°C (+104°F)

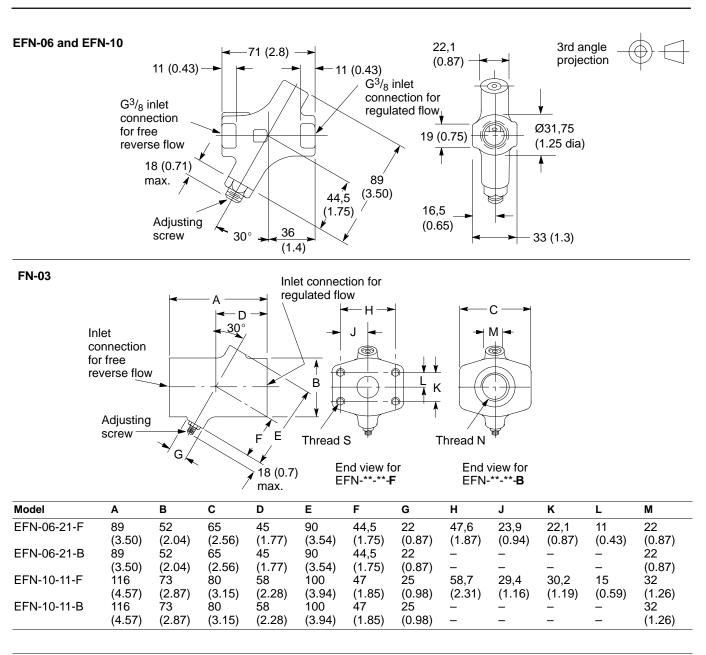
### **Fluid Temperature**

	Petroleum oil	Water- containing
Min.	–20°C	+10°C
	(–4°F)	(+50°F)
Max.*	+80°C	+54°C
	(+176°F)	(+130°F)

To obtain optimum service life from both fluid and hydraulic system 65° C (150° F) normally is the maximum temperature except for water-containing fluids.

For synthetic fluids consult manufacturer or Vickers representative where limits are outside those for petroleum use. Whatever the actual temperature range, ensure that viscosities stay within the limits specified in the "Hydraulic Fluids" section.

# Installation Dimensions in mm (inches)



Model	Thread N	SAE flange s Nom. bore	izes Pipe O.D.	Thread S	
EFN-06-21-F	-	<sup>3</sup> / <sub>4</sub> ″	25	<sup>3</sup> / <sub>8</sub> "-16 UNC-2B x 19 (0.75) deep	
EFN-10-11-F	_	1 <sup>1</sup> / <sub>4</sub> ″	38	<sup>7</sup> / <sub>16</sub> "-14 UNC x 19 (0.75) deep	

# Mass, kg (lb)

FN-03-20	0,6 (1.3)
EFN-06-21	1,7 (3.7)
EFN-10-11	3,7 (8.1)

# Ordering Procedure

SAE 4-bolt flanges for the appropriate valves are available from Vickers and must be ordered as, and are supplied as, separate items.

# **Mounting Attitude**

Optional.