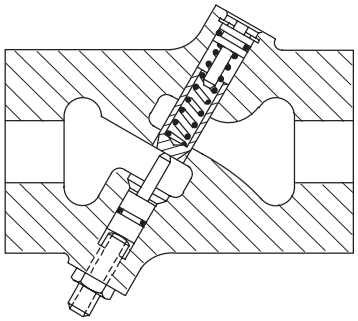
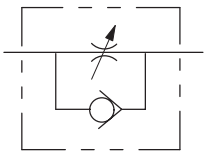
Flow Controls, One Way Restrictor Type

FN-03; EFN-06 and EFN-10
Typical Section



Functional Symbol

All models



Model Code

F3 -(E)FN ** -**- *

1	2	3	4	5	6

1 Special seals
For use with phosphate ester type fluids
Omit if not required

2 European product
Omit for FN-03

3 Flow control, one-way restrictor type

4 Nominal size
03 = 3/8″
06 = 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

Type	Restrictor valve
Mounting	Thread or flange
Maximum pressure	Up to 210 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.

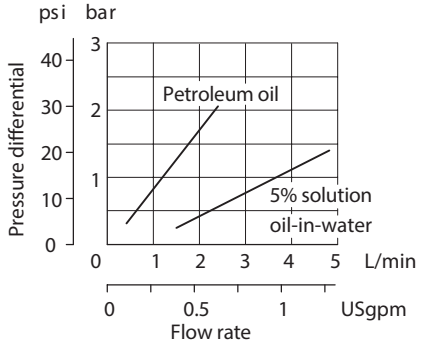
Flow regulation is for one direction only. When the flow is reversed the valve opens against a spring and flow passes through at near zero pressure. These valves therefore cannot be used as isolating valves.

Operating Data

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

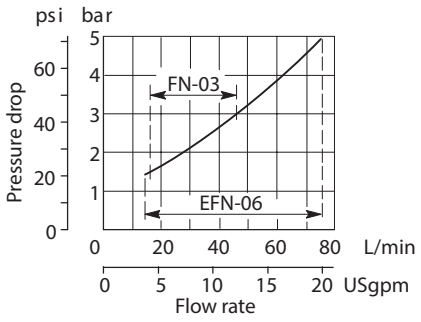
Flow/Pressure Data
Maximum recommended controlled flow, L/min (USgpm), with good regulation.
FN-03 ..... 38 (10)
EFN-06 ..... 76 (20)
EFN-10 ..... 189 (50)

Minimum Controlled Flow

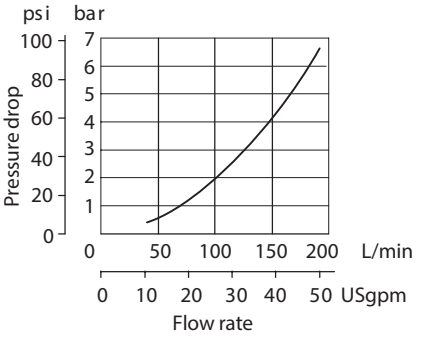


Pressure Drop for Free-Flow and Maximum Controlled Flow

Models FN-03 and EFN-06



Model EFN-10



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 μm, 5 μm and 15 μm. 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

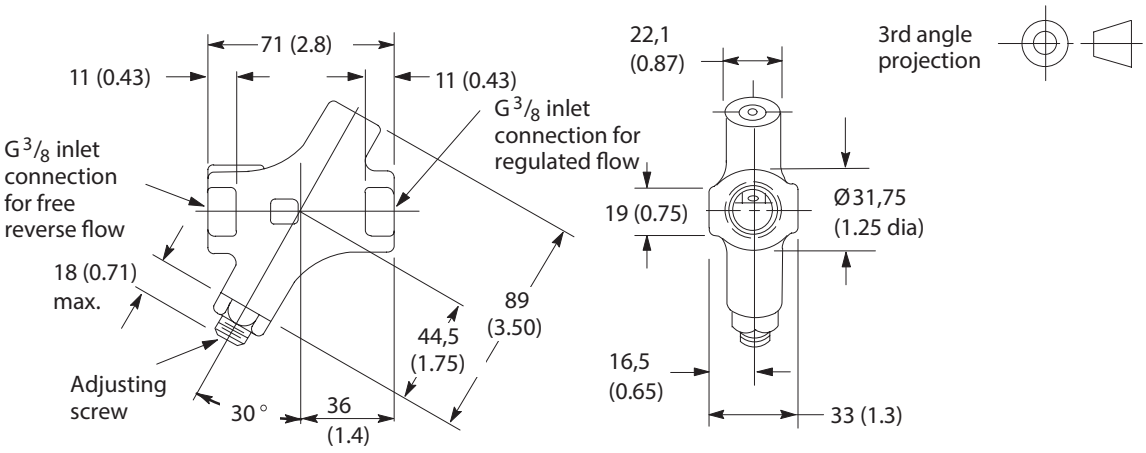
	Petroleum oil	Water-containing
Min.	–20 °C (–4 °F)	+10 °C (+50 °F)
Max.*	+80 °C (+176 °F)	+54 °C (+130 °F)

* 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.

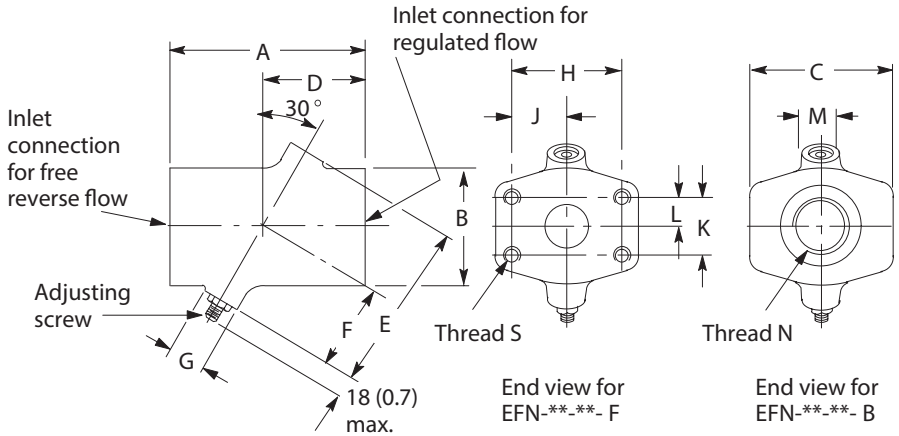
For synthetic fluids consult manufacturer or Vickers representative where limits are outside those for petroleum use. Whatever the actual temperature range, ensure that viscosities stay within the limits specified in the "Hydraulic Fluids" section.

Installation Dimensions in mm (inches)

EFN-06 and EFN-10



FN-03



Model	A	B	C	D	E	F	G	H	J	K	L	M
EFN-06-21-F	89 (3.50)	52 (2.04)	65 (2.56)	45 (1.77)	90 (3.54)	44,5 (1.75)	22 (0.87)	47,6 (1.87)	23,9 (0.94)	22,1 (0.87)	11 (0.43)	22 (0.87)
EFN-06-21-B	89 (3.50)	52 (2.04)	65 (2.56)	45 (1.77)	90 (3.54)	44,5 (1.75)	22 (0.87)	– –	– –	– –	– –	22 (0.87)
EFN-10-11-F	116 (4.57)	73 (2.87)	80 (3.15)	58 (2.28)	100 (3.94)	47 (1.85)	25 (0.98)	58,7 (2.31)	29,4 (1.16)	30,2 (1.19)	15 (0.59)	32 (1.26)
EFN-10-11-B	116 (4.57)	73 (2.87)	80 (3.15)	58 (2.28)	100 (3.94)	47 (1.85)	25 (0.98)	– –	– –	– –	– –	32 (1.26)

Model	Thread N	SAE flange sizes Nom. bore	Pipe O.D.	Thread S
EFN-06-21-F	–	$^3/_4$″	25	$^3/_8$″-16 UNC-2B x 19 (0.75) deep
EFN-10-11-F	–	$1^1/_4$″	38	$^7/_{16}$″-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.

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