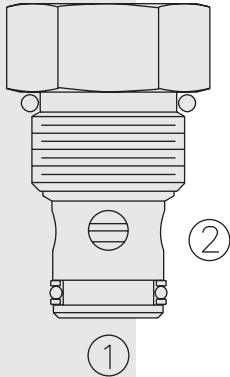# FR50-20F   Regulator, Pressure-Compensated,

## DESCRIPTION

A screw-in, cartridge-style, fixed orifice, pressure compensated, hydraulic flow regulating valve (restrictive type) for operation up to 345 bar (5000 psi).

## OPERATION

The **FR50-20F** maintains a constant flow rate from ① to ② regardless of load pressure changes in the circuit downstream of ②.

The fixed control orifice is factory preset to customer flow specification. The valve begins to respond to load changes when the flow through the valve creates a pressure differential across the control orifice greater than 5.5 bar (80 psi), with accurate flow maintenance from 7.6 to 345 bar (110 to 5000 psi). Reverse flow (② to ①) returns through the control orifice and is non-compensated.

## FEATURES

• Hardened parts for long life.
• Quiet, modulated response.
• Industry common cavity.

## RATINGS

**Operating Pressure:** 345 bar (5000 psi)

**Flow Settings:** 0.8 lpm (0.2 gpm) minimum; 22.7 lpm (6.0 gpm) maximum

**Flow Maintenance:** 0.37 to 1.85 lpm (0.1 to 0.49 gpm) settings ±20%
1.89 to 5.63 lpm (0.5 to 1.49 gpm) settings ± 15%
5.68 to 22.71 lpm (1.5 to 6.00 gpm) settings ± 10%

**Temperature:** -40 to 120°C

**Filtration:** See page 9.010.1

**Fluids:** Mineral-based or synthetics with lubricating properties at viscosities of 7.4 to 420 cSt (50 to 2000 sus); See Temperature and Oil Viscosity, page 9.060.1

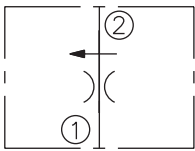**Installation:** No restrictions; See page 9.020.1

**Cavity:** VC10-2; See page 9.110.1
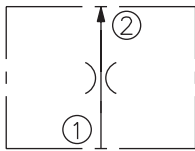
**Cavity Tool:** CT10-2XX; See page 8.600.1
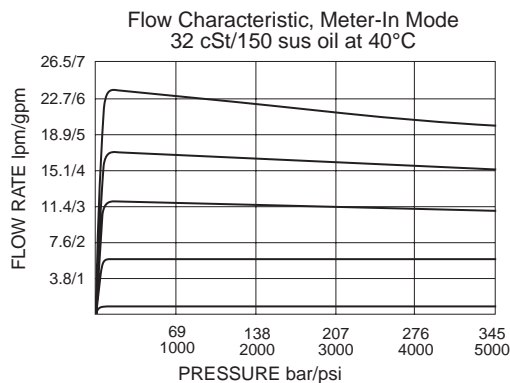
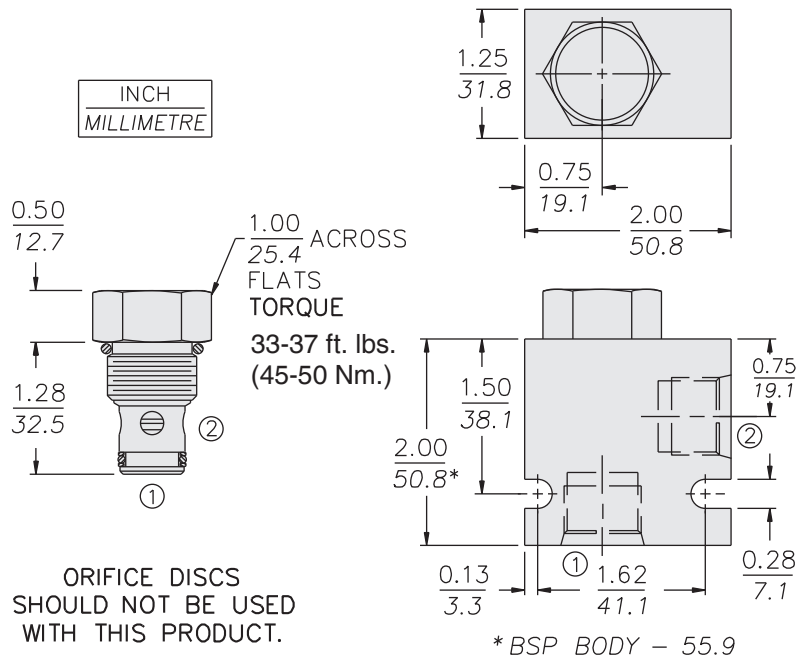**Seal Kit:** SK10-2X-M; See page 8.650.1

## SYMBOLS

**USASI:**

**ISO:**

## PERFORMANCE (Cartridge Only)

Flow Characteristic, Meter-In Mode
32 cSt/150 sus oil at 40°C

## High Pressure                    FR50-20F

### DIMENSIONS



INCH
*MILLIMETRE*

$\frac{0.50}{12.7}$

$\frac{1.00}{25.4}$ ACROSS FLATS
TORQUE
**33-37 ft. lbs.
(45-50 Nm.)**

$\frac{1.28}{32.5}$

②

①

ORIFICE DISCS
SHOULD NOT BE USED
WITH THIS PRODUCT.

$\frac{1.25}{31.8}$

$\frac{0.75}{19.1}$   $\frac{2.00}{50.8}$

$\frac{1.50}{38.1}$

$\frac{2.00}{50.8}$*

$\frac{0.75}{19.1}$
②

$\frac{0.13}{3.3}$   ① $\frac{1.62}{41.1}$   $\frac{0.28}{7.1}$

*BSP BODY — 55.9*

### MATERIALS

**Cartridge:** Weight: 0.1 kg. (0.21 lbs.)
Steel with hardened work surfaces.
Zinc-plated exposed surfaces.
Buna N O-rings and polyester
elastomer back-ups standard.

**Standard Ported Body:** Weight:
0.16 kg. (0.35 lbs.) Anodized high-
strength 6061 T6 aluminum alloy,
rated to 207 bar (3000 psi) Ductile
iron bodies available; dimensions
may differ. See page 8.010.1.

### TO ORDER

**FR50-20F** - ___ ___ ___ - ___ - / ___ ___ ___ ___

**Porting**
| | |
|---|---|
| Cartridge Only | **0** |
| SAE 6 | **6T** |
| SAE 8 | **8T** |
| 1/4 in. BSP* | **2B** |
| 3/8 in. BSP* | **3B** |
| 1/2 in. BSP* | **4B** |

*BSP Body; U.K. Mfr. Only

**Seals**
| | |
|---|---|
| Buna N (Std.) | **N** |
| Fluorocarbon | **V** |
| Polyurethane | **P** |

Polyurethane seals are required for
operation over 241 bar (3500 psi)

**Setting in lpm**
Range: 0.8 to 22.7 lpm
Specify, for example:
**M1.8**  1.8 lpm
**M5.0**  5.0 lpm
etc.

**Setting in gpm**
Range: 0.2 to 6.0 gpm
Specify, for example:
**1.3**  1.3 gpm
**5.0**  5.0 gpm
etc.

**Drill Size Method**
Dia. in thousandths of an inch.
Range is 0.021 to 0.154 in.
Specify, for example:
**D030**  0.030 in. control orifice hole
etc.