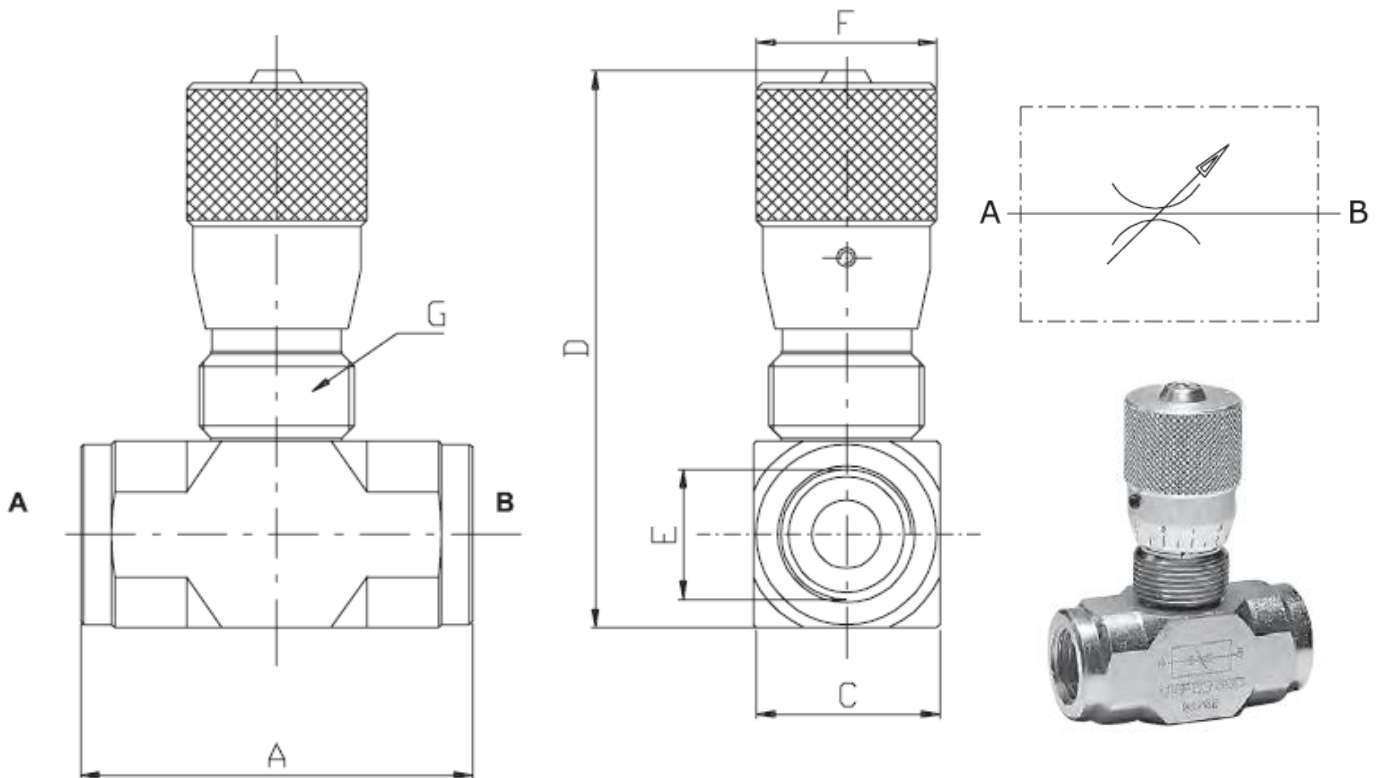


### Additional Data/Spec Sheet

VRFB90 Series Bidirectional Flow Regulator – Needle Valve  
Female BSP Thread

#### EXTERNAL DIMENSIONS AND WEIGHTS



Dimensione/Dimension	A	C	D	E GAS	E NPT	E SAE	F	G	Peso Weight kg
<b>005</b>	58	25	82			7/16-20	30	25x1.5	0.35
<b>01</b>	58	25	82	1/4	1/4		30	25x1.5	0.34
<b>015</b>	58	25	82			9/16-18	30	25x1.5	0.34
<b>02</b>	58	25	82	3/8	3/8	3/4-16	30	25x1.5	0.34
<b>03</b>	64	30	88	1/2	1/2	7/8-14	30	25x1.5	0.43
<b>04</b>	89	40	116	3/4	3/4	1 1/16-12	42	35x1.5	1.13
<b>05</b>	89	40	116	1	1	1 5/16-12	42	35x1.5	1.00

#### HYDRAULIC FEATURES

Dimensione/Dimension		005	01	015	02	03	04	05
Portata max/Max Flow	l/min	10	30	30	40	50	80	110
Pressione max/Max Pressure	bar	350	350	350	350	350	320	300

### APPLICATION

This valve is used to adjust flow speed in both direction. Good quality graduated adjustment.

### INSTALLATION

Connect actuator port to control with valve port.

### OPERATION

Pressure flow goes into A valve port and goes out from B valve port and vice versa. To adjust the flow screw out the stop socket screw and turn the handknob in the desired direction slowly. Screw down the stop socket screw to maintain the settings also in case vibrations occur.

### OPTIONAL

Black zinc plated - Metric thread - Panel mounting nut

### FEATURES

**Steel body - Zinc plated steel body - No leakage.**

### HYDRAULIC FLUIDS

Mineral oil based hydraulic fluids suitable for hydraulic systems can be used; they should have physical lubricating and chemical properties as specified by:

- MINERAL OIL BASED HYDRAULIC FLUIDS HL (DIN 51524 part 1)
- MINERAL OIL BASED HYDRAULIC FLUIDS HLP (DIN 51524 part 2).

For use of environmentally friendly fluids (vegetable or polyglycol base), or other fluids, please consult our technicians.

### Fluid viscosity

When not differently specified in the individual data sheet, the fluid viscosity should remain within the range 3 to 400 cSt (centistokes).

Hydraulic fluids are available in different viscosity classes identified by the ISO VG number, which corresponds to the kinematic viscosity at 40°C (104°F). Here is a table showing typical viscosity changes between 0°C and 100°C (32°F and 212°F) for mineral oil based fluids having various viscosity classes. The fluid should be selected with the aim to achieve an appropriate operating viscosity at the expected working temperatures.

Viscosity class	Kinematic viscosity - (cSt)		
	MAX at 0°C (32°F)	MED at 40°C (104°F)	MIN at 100°C (212°F)
ISO VG 10	90	10	2.4
ISO VG 22	300	22	4.1
ISO VG 32	420	32	5
ISO VG 46	780	46	6.1
ISO VG 68	1400	68	7.8
ISO VG 100	2560	100	9.9

Note: all main specifications shown in our technical literature are obtained using mineral based fluid ISO VG 46, i.e. 46 cSt at 40°C (104°F), with an oil temperature of 30-40°C (86-104°F). More detailed technical characteristics are available on demand.

### Fluid temperature recommendation

MTC valves components are generally equipped with BUNA-N seals and, for this reason, the fluid temperature should remain within the -30°C and +100°C range (-22°F and +212°F). In case of temperatures outside this range, consult our technicians.

### Fluid cleanliness requirements

The cause of malfunctions in hydraulic systems and components is often found to be excessive fluid contamination. The hard contaminant particles in the fluid wear the hydraulic components and prevent the poppets from re-seating, with consequent internal leakage and system inefficiency. For the correct operation of our valves components it is necessary to adopt filtration methods which guarantee for life the specified fluid cleanliness level. It is important to ensure that hydraulic fluids are brought to the appropriate cleanliness level prior filling up the systems, and, when in doubt, also to flush the hydraulic components prior to installation.

Fluid filtration must comply with the specifications given by the following table, where different cleanliness measuring standards are mentioned.

**ISO 4406:1999** presently is the preferred standard; it defines the fluid cleanliness by three numbers respectively representing the maximum number of particles larger than **4µm, 6µm and 14µm** contained in one ml of fluid.

Type of system Type of valve	Oil filtration recommendations		
	Cleanliness class recommended		Absolute filtration (micron rating) (**)
	ISO 4406:1999	NAS 1638 (*)	
Systems / components operating at HIGH PRESSURE > 250 bar (3600 psi) HIGH DUTY CYCLE APPLICATIONS Systems / components with LOW dirt tolerance	18 / 16 / 13	7 - 8	5
Systems / components operating at MEDIUM HIGH PRESSURE Systems / components with moderate dirt tolerance	19 / 17 / 14	9	10
Systems / components operating at LOW PRESSURE < 100 bar (1500 psi) LOW DUTY CYCLE APPLICATIONS Systems / components with GOOD dirt tolerance	20 / 18 / 15	10 - 11	20

(\*) Contamination class NAS 1638 (National Aerospace Standard, conceived in the early 60's, officially superseded since June 2001): it is still followed and it is determined by counting the total particles of different size ranges contained in 100 ml of fluid.

(\*\*) Absolute filtration: is a characteristic of each type of filter; approximately, it refers to the size (expressed in microns) of the largest spherical particle which may pass through the filter.

### **INTERNAL LEAKAGE**

Please contact our technicians for the all specifications required.

### **PRESSURE SETTING**

MTC valves are supplied pre-set at a standard pressure setting. Whenever the application requires a re-adjustment, please ensure that the limits of the indicated pressure range and maximum working pressure are never exceeded.

### **SEALING OF VALVE ADJUSTERS**

Special sealing caps for service are available for most MTC valves and cartridges. Upon request, valves can be supplied factory sealed.

### **STORAGE OF NEW COMPONENTS**

The components shall not be exposed to direct sun light nor to sources of heat or ozone (like electric motors running), and should be stored in their original, protective packing at ambient temperature within the range -20°C and +50°C (-4°F and 122°F).

### **PORTS**

G type ports (ISO 228-1) are often standard on components with body for line connection; SAE sizes (straight thread), NPT, JIS or metric ports can be manufactured upon request.

### **BODY MATERIALS**

Valves and integrated manifolds for high pressure and/or heavy duty applications are manufactured with high quality leaded steel, zinc plated with yellow trivalent chrome treatment.

Valves and integrated manifolds for medium working pressure (up to 210 bar) can be made of high strength wrought aluminium, black anodized upon request.

Housings for modular, solenoid operated directional valves and flow diverters are made of high strength cast iron, zinc plated with yellow trivalent chrome treatment.

### **SEALS**

O-Rings: Buna N (acrylonitrile butadiene), also named NBR (according to ASTM), compatible with fluids having mineral oil base, water-in-oil emulsions, and water-glycol fluids. These seals are standard for temperatures within the range -30°C and +100°C (-22°F and +212°F).

Back-up rings and Slide rings: strengthened PTFE (Politetrafluoroethylene like Teflon®, Lubriflon®, Ecoflon®, or similar).

Special FPM (Viton®) seals are available on request.

Note: the seal materials are compatible with the fluids normally used in hydraulic systems; in case of special fluids, if you suspect incompatibility between the fluid used and the standard seals, contact the MTC service network.