

# Actuators

## Micro-Metering Needle Valve Electric Flow Control

Pressure to 60,000 psi (4137 bar)



### Principle of Operation:

The Parker Autoclave Engineers Micro-Metering Flow Control Valves are designed for modulating flow or pressure control in industrial and research applications at temperatures of 600°F (315°C) or below. Using our standard Micro-Metering valves configured for many different pressures and tube connection sizes, these valves are capable of very fine flow control with pressures up to 60,000 psi using an electric, multi-turn microprocessor controlled actuator. The combination of these two precision, high quality components, provide a superior low flow, high pressure control valve for use with either liquid or gas.

### Electric Flow Control Valve Features:

The microprocess controlled motor guarantees optimum voltage, current and torque control when starting, running or stopping valve rotation. The microprocessor also assures accurate stem location and repeatability.

- Power Requirement: 24 VDC/50 Watt Minimum
- Control Input: 4-20 mA (200 ohm) or 0-10 VDC (18K ohm)
- Rotation Speed: 10 RPM (6 turn maximum)
- Operating Temperature: -20°F (-30°C) to 185°F (85°C)
- Two (2) foot lead cable supplied
- Anodized Aluminum Housing, Satin Anodized, IP65 (NEMA 4) Weatherproof

### Note:

Minimum Flow is factory set and occurs at “0” position. Do Not Operate the valve below the zero position or damage WILL result. (Valve is only for metering flow and cannot be used to shut OFF flow.)



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# Electric Flow Control: Pressures to 60,000 psi (4137 bar)



| Part Number | Tube Outside Diameter Size (inches) | Connection Type | Orifice Size Inches (mm) | Rated $C_v^*$ | Pressure Rating psi (bar) @Room Temperature** |
|-------------|-------------------------------------|-----------------|--------------------------|---------------|---|
| 10VRMM      | 1/8                                 | W125            | 0.062 (1.57)             | 0.004         | 15,000 (1034)                                 |
| 15PVRMM     | 1/4                                 | NPT             | 0.062 (1.57)             | 0.004         | 15,000 (1034)                                 |
| 30VRMM      | 1/4                                 | F250C           | 0.062 (1.57)             | 0.004         | 30,000 (2069)                                 |
| 60VRMM      | 1/4                                 | F250C           | 0.062 (1.57)             | 0.004         | 60,000 (4137)                                 |
| 60VRMM      | 3/8                                 | F375C           | 0.062 (1.57)             | 0.004         | 60,000 (4137)                                 |

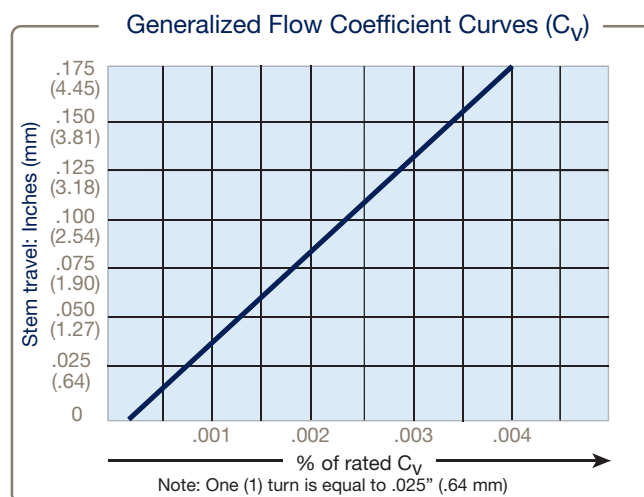
Notes

\*\* For complete temperature ratings see pressure/temperature rating guide in Technical Information section.

## Micro-Metering Needle Valve Feature:

For detailed product description see VRMM MicroMetering Series brochure.

- Barrel and Thimble provided visual feedback of position
- 25 Thimble divisions each representing 0.001" of stem travel
- One revolution = 0.025" stem travel
- UNS S31600/S31603, 316/316L Stainless Steel body material
- Connection types, pressure and sizes change by model type
- Temperature Range: -100°F to 600°F (-73° to 315°C) with options
- Replaceable Seat has two seat sides 180° apart



10V2 and SW Series Flow Curve for Vee and Regulating Stem Valves

## Ordering Information:

| Model           | Control Input | Number Rotations | Controller RPMs | See Figure |
|-----------------|---------------|------------------|-----------------|------------|
| 10VRMM2812-C4   | 4-20 mA       | 6                | 10              | 1          |
| 10VRMM2812-C10  | 0-10 VDC      | 6                | 10              | 1          |
| 15PVRMM4812-C4  | 4-20 mA       | 6                | 10              | 2          |
| 15PVRMM4812-C10 | 0-10 VDC      | 6                | 10              | 2          |
| 30VRMM4812-C4   | 4-20 mA       | 6                | 10              | 2          |
| 30VRMM4812-C10  | 0-10 VDC      | 6                | 10              | 2          |
| 60VRMM4812-C4   | 4-20 mA       | 6                | 10              | 2          |
| 60VRMM4812-C10  | 0-10 VDC      | 6                | 10              | 2          |
| 60VRMM6812-C4   | 4-20 mA       | 6                | 10              | 2          |
| 60VRMM6812-C10  | 0-10 VDC      | 6                | 10              | 2          |

Note: For micrometering valve details see needle valve section.

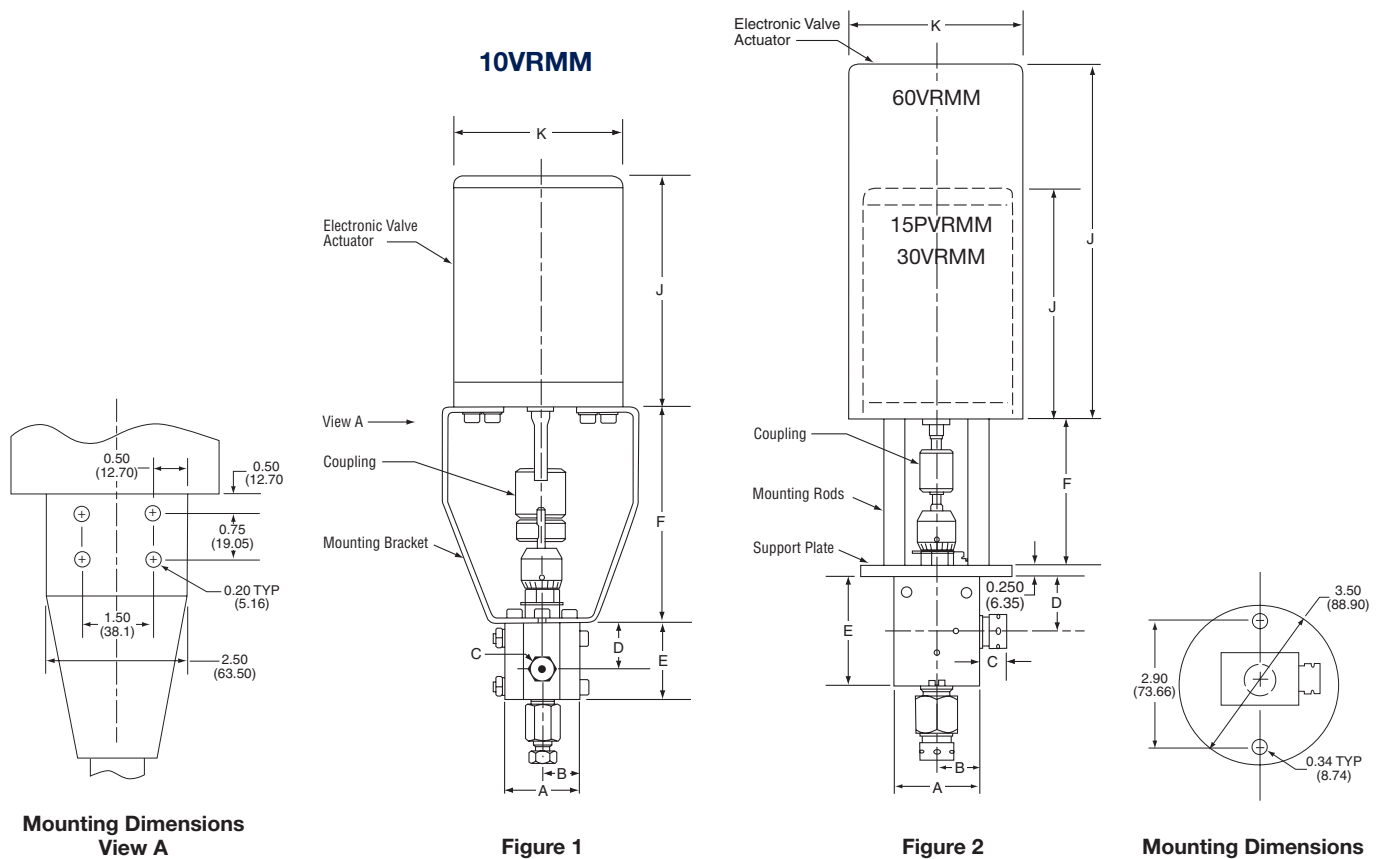
# Electric Flow Control Pressures to 60,000 psi (4137 bar)

## Dimensional Information:

| Catalog Number  | Outside Diameter Tube | Orifice Diameter | Dimension Data - Inches (mm) |      |      |      |      |       |       |       | Block Thickness | See Figure |
|-----------------|-----------------------|------------------|------------------------------|------|------|------|------|-------|-------|-------|-----------------|------------|
|                 |                       |                  | A                            | B    | C    | D    | E    | F     | J     | K     |                 |            |
| 10VRMM2812-C4   | 1/8                   | .062             | 1.50                         | .88  | .31  | .94  | 1.56 | 4.50  | 4.75  | .75   | .75             | 1          |
| 10VRMM2812-C10  | (3)                   | (2)              | (38)                         | (22) | (8)  | (24) | (39) | (114) | (121) | (19)  | (19)            |            |
| 15PVRMM4812-C4  | 1/4 Pipe              | .062             | 2.00                         | 1.00 | NA   | 1.12 | 2.16 | 3.50  | 4.75  | 3.50  | 1.00            | 2          |
| 15PVRMM4812-C10 |                       | (2)              | (51)                         | (25) |      | (28) | (55) | (89)  | (121) | (89)  | (25)            |            |
| 30VRMM4812-C4   | 1/4                   | .062             | 2.00                         | 1.00 | *.50 | 1.12 | 2.00 | 3.50  | 4.75  | 3.50  | 1.00            | 2          |
| 30VRMM4812-C10  | (6)                   | (2)              | (51)                         | (25) | (13) | (28) | (51) | (89)  | (121) | (89)  | (25)            |            |
| 60VRMM4812-C4   | 1/4                   | .062             | 2.00                         | 1.00 | .50  | 1.31 | 2.63 | 3.50  | 8.30  | 4.10  | 1.00            | 2          |
| 60VRMM4812-C10  | (6)                   | (2)              | (51)                         | (25) | (13) | (33) | (67) | (89)  | (211) | (104) | (25)            |            |
| 60VRMM6812-C4   | 3/8                   | .062             | 2.00                         | 1.00 | .53  | 1.31 | 2.63 | 3.50  | 8.30  | 4.10  | 1.00            | 2          |
| 60VRMM6812-C10  | (10)                  | (2)              | (51)                         | (25) | (13) | (33) | (67) | (89)  | (211) | (104) | (25)            |            |

\* Distance gland extends

### 15PVRMM/30VRMM/60VRMM



**Note:** Minimum Flow is factory set and occurs at "0" position. Do Not Operate the valve below the zero position or damage WILL result.

# Electric Flow Control: Pressures to 60,000 psi (4137 bar)

## Valve Packing Options:

Standard Parker Autoclave Engineers 10VRMM, 15PVRMM, and 30VRMM series valves with PTFE packing may be operated from 0° to 450°F (-18° to 232°C). 60VRMM series has nylon/leather/nylon packing and may be operated from 40° F (4°C) to 230°F (110°C). Optional packing or trim material available by adding the following suffixes to catalog order number.†

Suffix: **TG** for standard valve with PTFE glass packing, 0° to 600°F (-18° to 316°C).

**B** for standard valve with cryogenic trim materials and PTFE packing for temperatures below 0°F (-18°C) to -100°F (-73°C).

† Parker Autoclave Engineers does not recommend compression sleeve connections below 0°F (-18°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.

**Note:** See Needle Valve options for stem and seat coatings for erosive service. Metering valve not to be used as a shutoff valve.

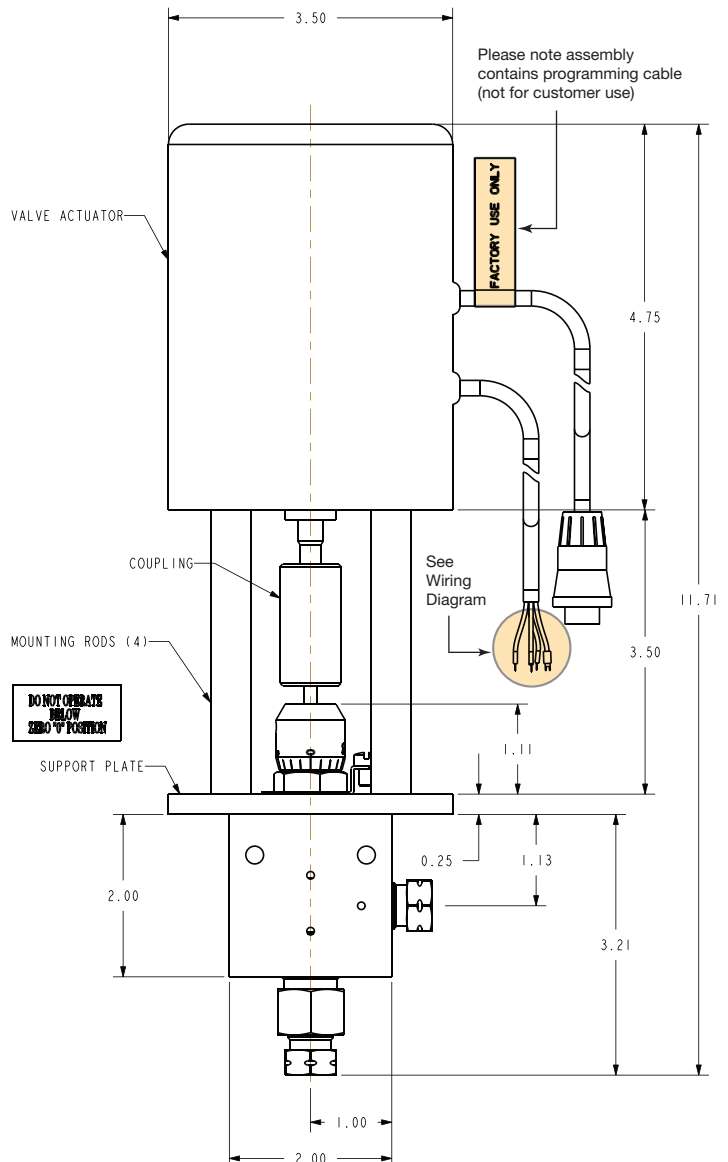
Minimum Flow is factory set and occurs at "0" position. Do Not Operate the valve below the zero position or damage WILL result.

## Valve Maintenance:

VRMM Valve & Electric actuator is not user serviceable and must be returned to factory for repair. (Contact Repair Department at IPDAECRR@parker.com for ATR prior to shipment.)

## Electric Flow Control Actuator Assembly/Wiring:

(Drawing is typical and varies in size across different models)

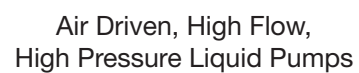
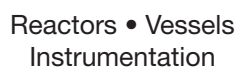
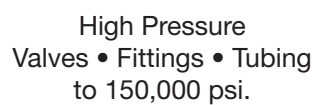


## Wiring Diagram:

| Description   |                                    | Wire Color |
|---------------|------------------------------------|------------|
| Power:        | +24 VDC                            | Red        |
| Signal Input: | + Positive (4-20mA or 0-10 VDC)    | Brown      |
| Return:       | - Negative                         | Black      |
| Earth Ground: | Connected to Actuator Chassis Only | Green      |

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## This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



# THIS IS PARKER

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