

**183 Microtrol Valve on a Dual-Fuel™ burner.** Valve is used for setting ratio when burner is on oil; it is shut off when burning gas.

**183 Microtrol Oil Valves** are precision built, factory-calibrated valves for manual or motorized control of oil flow to industrial burners.

**183 Microtrol** are manual valves used as limiting orifices in setting oil/air ratio and as tight shutoff valves to prevent oil dribbling into burners during shutdown. An additional shutoff valve in the line which permits shutting off the burner without disturbing the microtrol's ratio setting position is recommended.

These valves have an adjustable detent mechanism that provides memory for desired valve operating position. A spring-loaded steel ball fits into a hollow in an adjustable collar, whose position is secured by a setscrew.

The handle can be pushed past the detent position easily to open the valve wide temporarily for light-off or clean-out.

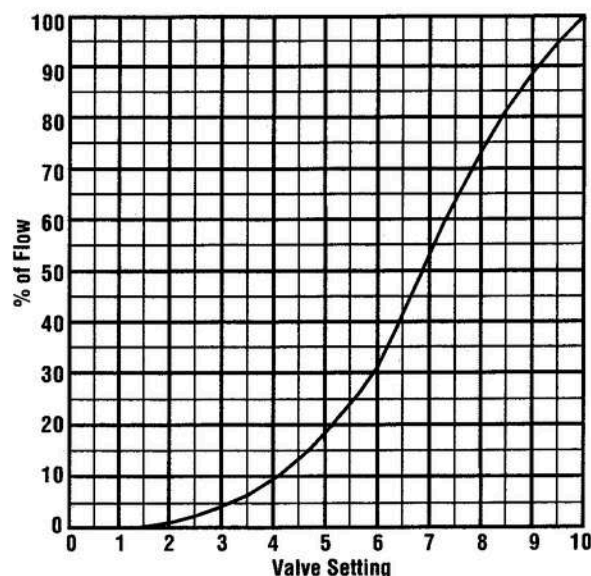
**183 -K Manual** microtrols have cutdown handles to lessen chances of accidental changes in valve setting.

**183 M Motorized** microtrols, for automatic control of oil flow, are available with brackets and linkage for most standard control motors. Although these valves have ten dial positions, linkage geometry limits valve travel to seven positions (e.g., 0-7, 2-9, or 3-10).

## CONSTRUCTION

**183 -03 and -02 Valves** have forged brass bodies, Viton U-cup, and precision ground, hardened stainless steel port seats. A V-port in the upper, rotating disc exposes varying areas of a circular port in the lower seat. The triangular opening is highly resistant to clogging or fouling.

**183 -01 and 183 M-01 Valves** have cast brass bodies and precision ground, lapped conical seats that form a clog-resistant triangular opening.



**Figure 1.** Typical oil flow vs. valve handle position at constant pressure drop. This generalized curve will not predict exact flow rates at handle positions other than #7, so do not use chart to set burner ratios.

## CAPACITY

**183 Valves** are factory calibrated for rated flow at No. 7 indicator position and can be used for metering at that setting only.

### Microtrol Valve Capacities at #7 Indicator Position 10 psi Pressure Drop

	Valve Size Designation					
	-03	-02-A	-02-B	-02-C	-02-D	-01
gph #2 Oil (40 SSU) at 10 psi ΔP	3	8	17	33	55	140
C <sub>v</sub> Rating	0.013	0.037	0.077	0.16	0.26	0.66
Dial Color	Black	Red	Blue	Green	Brown	White
UL Dial Color	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow

Flow at #10 (wide open) position is about twice the #7 position capacity. Shutoff occurs between positions #1 and #2 (see Figure 1).

To size Microtrol for best control, determine oil flow rate required and available pressure drop. Using square root flow law, correct flow to 10 psi pressure drop. From Table above, select the valve with a capacity, at #7 position, closest to the corrected flow.

#### Example:

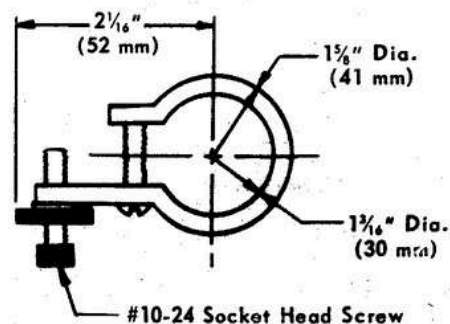
Select valve for 25 gph at 30 psi pressure drop (high fire).

$$25 \text{ gph at } 30 \text{ psi} = 25 \times \sqrt{\frac{10}{30}} = 14.4 \text{ gph at } 10 \text{ psi.}$$

**183 -02-B** (17 gph at 10 psi) is closest size.

Capacities are listed for 40 SSU #2 oil. They are somewhat less for higher viscosity oils but well within suitable ranges for oil burners (varying less than 10% from figures shown).

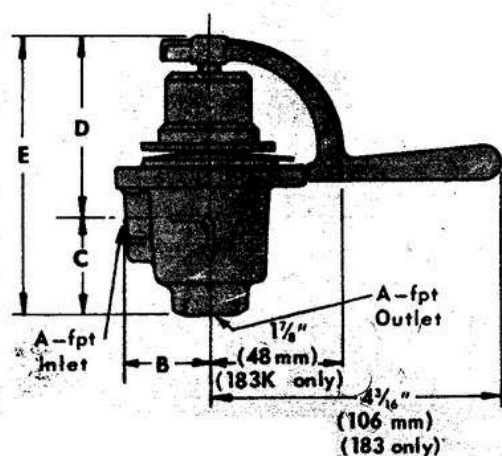
**Micro-Stop.** PN2-5342-1 Micro-Stop Assemblies (Fig. 1), available for 183- -K and 183-03 and -02 Microtrols (but not for -01 size), simplify returning the valve handle exactly to a preset position. They also permit micrometer-like adjustment of the handle. For example, to increase oil flow 5% with the handle at #7 position, the handle must be rotated 2°. A manual adjustment this sensitive is almost impossible to make accurately. With the Micro-Stop, however, it's simple—rotating the Micro-Stop adjusting screw 500° (about 1.4 turns) advances the handle 2°. The ability to make such precise adjustments is a great convenience to operators of multi-burner furnaces and tunnel kilns.



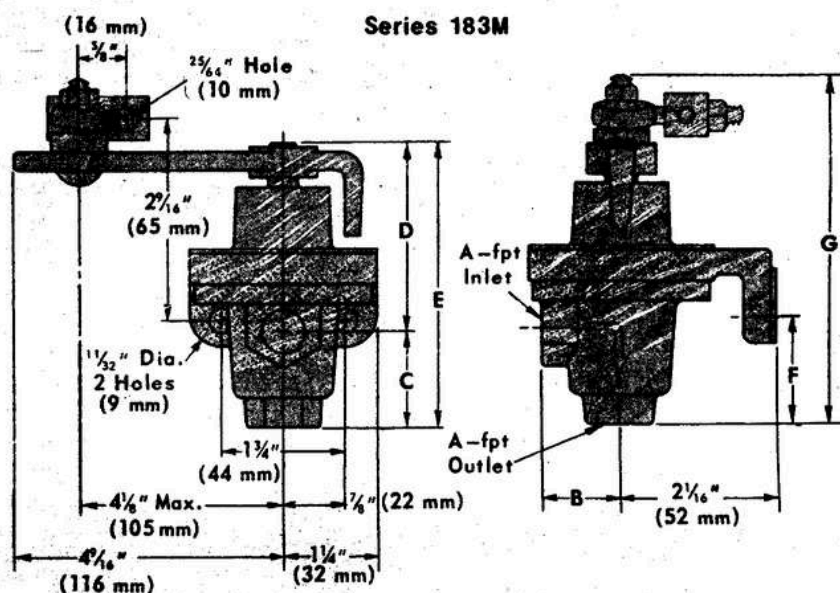
Use of the Micro-Stop is simple. Determine the approximate desired valve handle position, then locate the Micro-Stop, with its adjusting screw at mid-position, so it just touches the valve handle. Make fine adjustments by turning the Micro-Stop screw with a  $\frac{5}{32}$ " Allen wrench, and then lock the screw in place with the knurled nut.

#### Dimensions in Inches (and Millimetres)

##### Series 183, 183- -K



##### Series 183M



Valve Designation	Dimensions in inches (and millimetres)								weight,	
	A	B	C	D	E	F	G	lb	kg	
183-03, 183-03-K	1/4	1 1/8 (29)	1 5/16 (33)	2 9/16 (65)	3 7/8 (98)	—	—	1 1/2	0.68	
183M-03	1/4	1 1/8 (29)	1 5/16 (33)	2 9/16 (65)	3 7/8 (98)	1 9/16 (40)	4 3/4 (121)	2 3/4	1.25	
183-02, 183-02-K	A thru D	3/8	1 1/8 (29)	1 5/16 (33)	2 9/16 (65)	3 7/8 (98)	—	1 1/2	0.68	
183M-02		3/8	1 1/8 (29)	1 5/16 (33)	2 9/16 (65)	3 7/8 (98)	1 9/16 (40)	4 3/4 (121)	2 3/4	1.25
183-01	A thru D	1/2	1 5/8 (41)	1 5/8 (41)	3 1/16 (78)	4 11/16 (119)	—	3 3/4	1.47	
183M-01		1/2	1 5/8 (41)	1 5/8 (41)	3 1/16 (78)	4 11/16 (119)	2 1/16 (52)	5 3/8 (137)	3 3/4	1.70

Indicator Dial Color	Valve Designation, 183-, 183K-, or 183M-					
	-03	-02-A	-02-B	-02-C	-02-D	-01
	Black	Red	Blue	Green	Brown	White

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