

9400 Series

0 to 3000 psig Miniature Shutoff Valves



Features

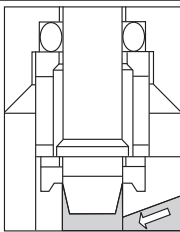
- Leak-proof shutoff
- No stem leakage
- Minimum pressure drop
- Color-coded handles
- Effortless opening & closing
- Knob or toggle handle
- Panel mount
- Metering stem
- Compact size
- Pipe and instrument tube fittings

Technical Data

| | |
|------------------------------------|---|
| Body Construction Materials | Brass or 316 stainless steel |
| Seat Materials | Buna N, Neoprene, PTFE or Viton® |
| Operating Pressure | 0 to 3000 psig (207 bar) |
| Proof Pressure | 0 to 4500 psig (310 bar) |
| Burst Pressure | Over 12,000 psig (828 bar) |
| Temperature Range | -80° F to +350° F (-62° C to +177° C) <i>Based on o-ring material, see "How to Order".</i> |
| Connection Sizes | 1/8"–3/8" |

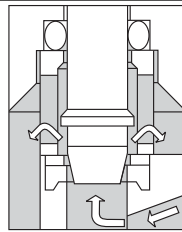
Note: Proper filtration is recommended to prevent damage to sealing surfaces.

How it Works



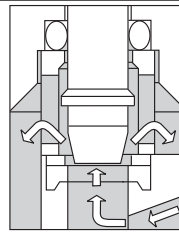
Closed

Leakproof sealing is achieved by engaging a precision-machined stem into a captive nylon seat. The seat cannot be damaged by back pressure. The shoulder, on a stainless steel stem, seats on a metal washer, which in turn is forced against a resilient, non-galling nylon seat to affect a leak-tight seal against the stem.



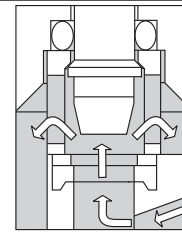
Fine Flow Control

No flow occurs during the first fractional turn of the handle. Precise flow control begins as the stem is withdrawn and continues across the 2° tapered portion of the stem until the handle has been rotated approximately two turns in the opening direction.



Non-critical Flow Control

As the stem is withdrawn further, flow continues across the 10° taper of the stem until full opening is reached.



Full Open

Stem travel past full open position is prevented by a solid, positive metal stop. The handle cannot inadvertently be unscrewed. The o-ring surrounding the stem prevents external leakage. Stem threads are isolated from the flow path to permit lifetime lubrication and to avoid contamination of the fluid.

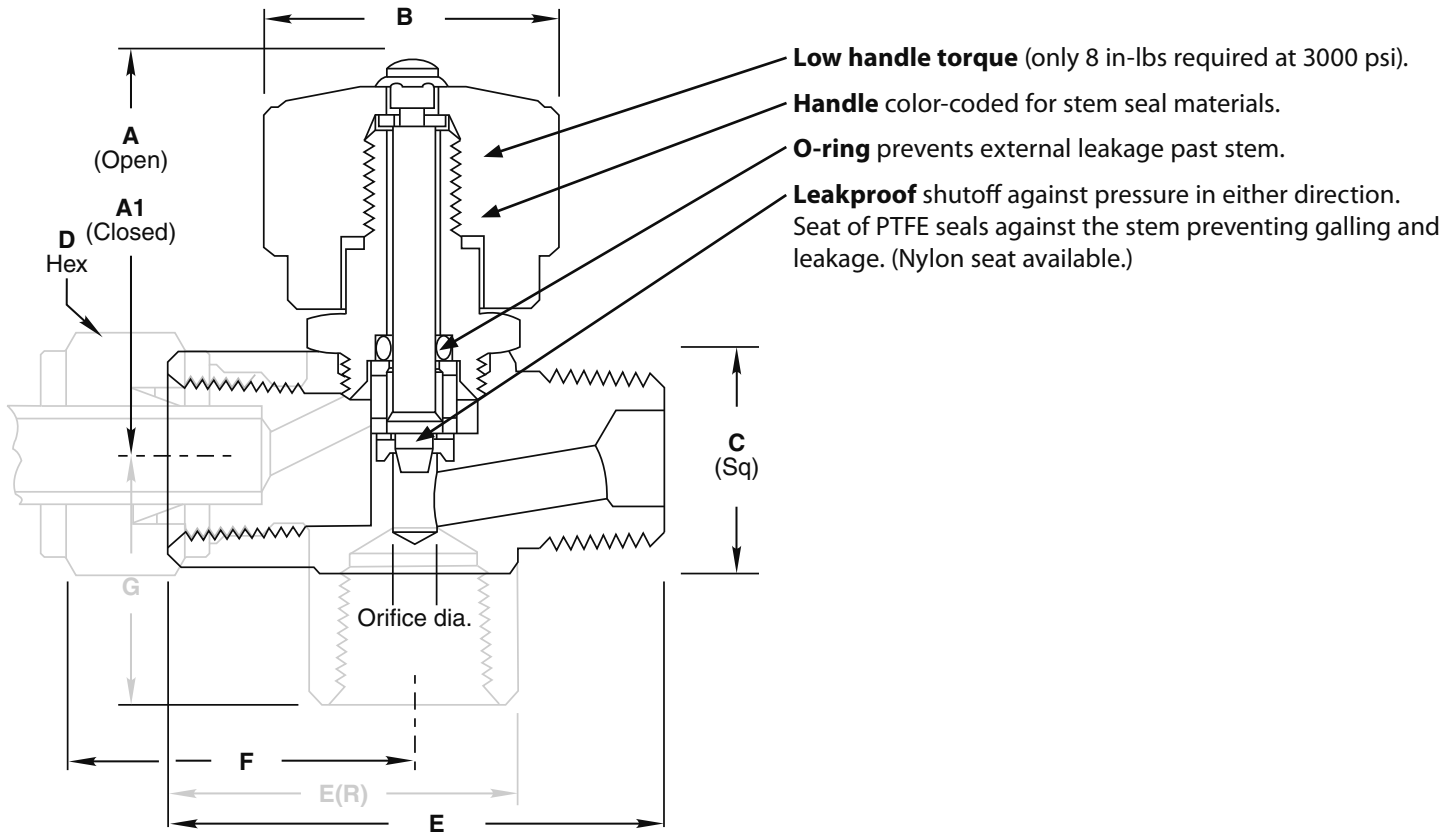
Shutoff valves

Circle Seal Controls

2301 Wardlow Circle • Corona, CA 92880
Phone (951) 270-6200 • Fax (951) 270-6201
www.circlesealcontrols.com

9400 Series

9400/R9400 Series Dimensions & Performance Data



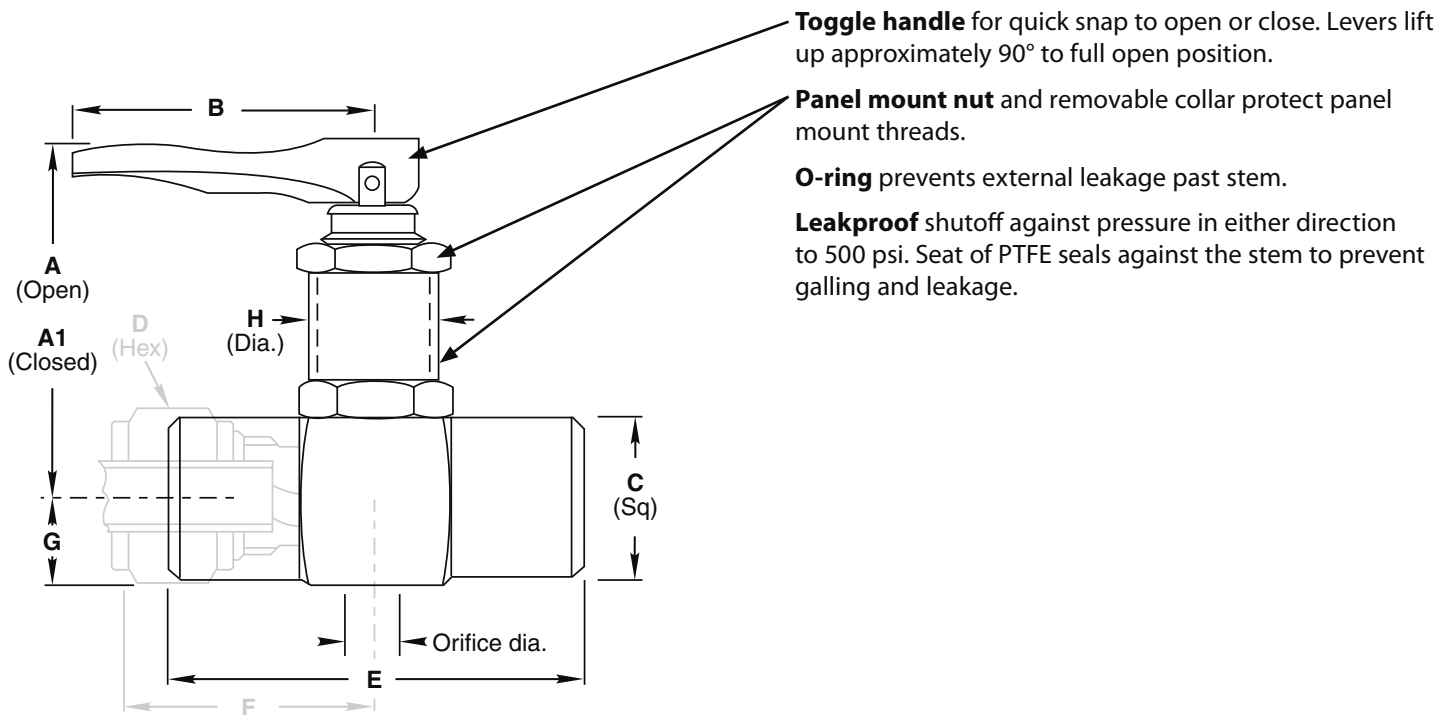
9400/R9400 Series Dimensions (inches)

| Dash No. | Size | Connections | Orifice Dia. | Cv | A | A1 | B | C | E E(R) | D | F | G |
|---------------------|------|------------------|--------------|-----|-------|-------|------|-----|--------|------|-------|-----|
| 9400 Series | | | | | | | | | | | | |
| 2MM | ¼" | Male pipe | .156 | .32 | 1.610 | 1.400 | 1.00 | .75 | 1.68 | — | — | — |
| 2MP | ¼" | Male/Female pipe | .156 | .32 | 1.675 | 1.465 | 1.00 | .88 | 1.68 | — | — | — |
| 2PP | ¼" | Female pipe | .156 | .32 | 1.675 | 1.465 | 1.00 | .88 | 1.86 | — | — | — |
| 2CC | ⅜" | Tube fittings | .156 | .32 | 1.613 | 1.303 | 1.00 | .75 | — | .437 | 1.010 | — |
| 4CC | ¼" | Tube fittings | .156 | .32 | 1.675 | 1.465 | 1.00 | .88 | — | .562 | 1.040 | — |
| 6CC | ⅜" | Tube fittings | .156 | .32 | 1.675 | 1.465 | 1.00 | .88 | — | .687 | 1.125 | — |
| R9400 Series | | | | | | | | | | | | |
| 2MP | ¼" | Male/Female pipe | .156 | .32 | 1.590 | 1.380 | 1.00 | .75 | 1.25 | — | — | .88 |
| 2PP | ¼" | Female pipe | .156 | .32 | 1.590 | 1.380 | 1.00 | .75 | 1.25 | — | — | .88 |

| | |
|---------------------------|--|
| Operating pressure | <ul style="list-style-type: none"> 9400, R9400 Series, PTFE seat: 0–2,200 psig (152 bar) N9400 Series, nylon seat: 0–3000 psig (207 bar) |
| Proof Pressure | <ul style="list-style-type: none"> 9400, R9400 Series, PTFE seat: 3,300 psig (228 bar) N9400 Series, nylon seat: 4500 psig (310 bar) |
| Burst Pressure | 12,000 psig (828 bar) minimum |
| Leakage | Zero—internal and external |

9400 Series

T9400 Series Dimensions & Performance Data



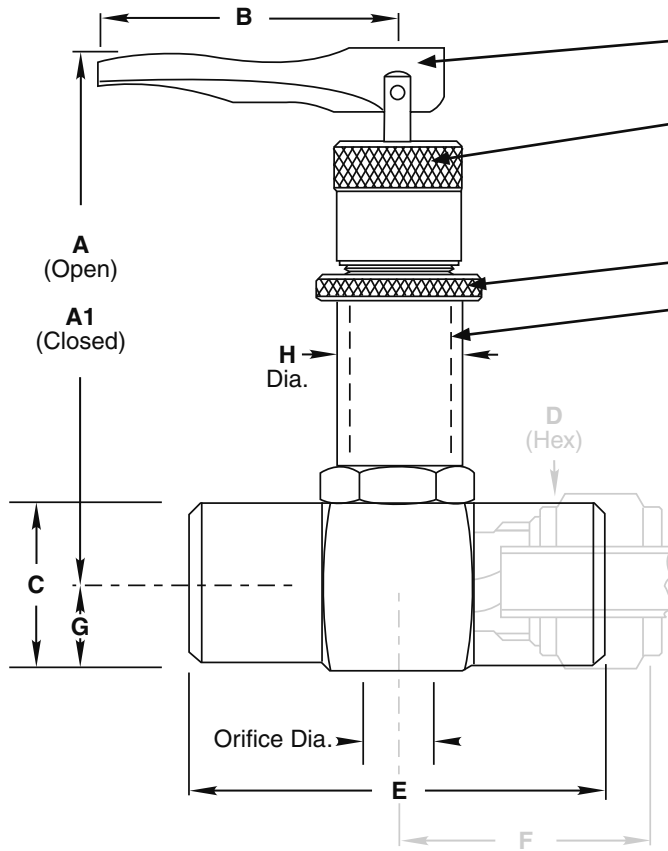
T9400 Series Dimensions (inches)

| Dash No. | Size | Connections | Orifice Dia. | Cv | A | A1 | B | C | D | E | F | G | H |
|----------|------|---------------|--------------|------|------|------|------|-----|------|------|-------|------|------|
| 2MM | ¼" | Male pipe | 0.156 | 0.32 | 2.90 | .62 | 1.39 | .75 | — | 1.68 | — | .375 | .438 |
| 2PP | ¼" | Female pipe | 0.156 | 0.32 | 2.96 | 1.68 | 1.39 | .88 | — | 1.86 | — | .438 | .438 |
| 2CC | ⅜" | Tube fittings | 0.156 | 0.32 | 2.84 | 1.62 | 1.39 | .75 | .437 | — | 1.010 | .375 | .438 |
| 4CC | ¼" | Tube fittings | 0.156 | 0.32 | 3.46 | 1.67 | 1.39 | .88 | .562 | — | 1.040 | .438 | .438 |
| 6CC | ⅜" | Tube fittings | 0.156 | 0.32 | 3.46 | 1.67 | 1.39 | .88 | .687 | — | 1.125 | .438 | .438 |

| | |
|------------------------------|--|
| Operating pressure | 0–500 psig (34 bar) |
| Proof Pressure | 750 psig (52 bar) |
| Burst Pressure | 2000 psig (138 bar) minimum |
| Leakage | Zero—internal and external |
| Operating Temperature | 250° F maximum (plastic handle limitation) |

9400 Series

TM9400 Series Dimensions & Performance Data



Toggle handle for quick snap to open or close. Levers up approximately 90° to full open position.

Adjustment nut for metering desired flow. May be set and locked to limit valve opening to any point between closed and full open. Adjustable when valve is open or closed.

Locked ring locks adjustment nut in position.

Panel mount thread protector (removable).

O-ring prevents external leakage past stem.

Nylon seat provides leakproof shutoff without galling. (PTFE seat available.)

Tapered stem offers excellent metering characteristics. (See "Typical Flow Curves", next page.)

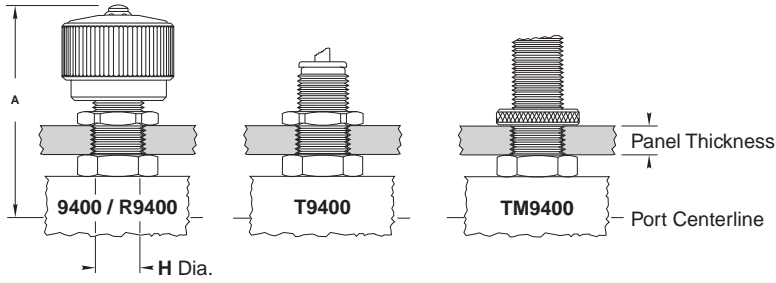
TM9400 Series Dimensions (inches)

| Dash No. | Size | Connections | Orifice Dia. | Cv | A | A1 | B | C | D | E | F | G | H |
|----------|------|---------------|--------------|------|------|------|------|-----|------|------|-------|------|------|
| 2MM | ¼" | Male pipe | 0.156 | 0.32 | 4.00 | 2.67 | 1.39 | .75 | — | 1.68 | — | .375 | .563 |
| 2PP | ¼" | Female pipe | 0.156 | 0.32 | 4.06 | 2.73 | 1.39 | .88 | — | 1.86 | — | .438 | .563 |
| 2CC | ⅛" | Tube fittings | 0.156 | 0.32 | 3.45 | 2.61 | 1.39 | .75 | .437 | — | 1.035 | .375 | .563 |
| 4CC | ¼" | Tube fittings | 0.156 | 0.32 | 4.00 | 2.67 | 1.39 | .88 | .562 | — | 1.040 | .438 | .563 |
| 6CC | ⅜" | Tube fittings | 0.156 | 0.32 | 4.00 | 2.67 | 1.39 | .88 | .687 | — | 1.045 | .438 | .563 |

| | |
|------------------------------|--|
| Operating pressure | <ul style="list-style-type: none"> Nylon seal: vacuum to 3000 psig (207 bar) PTFE seal: vacuum to 1000 psig (69 bar) |
| Proof Pressure | <ul style="list-style-type: none"> Nylon seal: 4500 psig (310 bar) PTFE seal: 1500 psig (103 bar) |
| Burst Pressure | <ul style="list-style-type: none"> Nylon seal: 12,000 psig (828 bar) minimum PTFE seal: 4000 psig (276 bar) minimum |
| Leakage | Zero—internal and external |
| Operating Temperature | 250° F maximum (plastic handle limitation) |

9400 Series

9400 Series Panel Mounted



Dimensions (inches)

9400 Series

| Type | A | | H |
|------|------|--------|------|
| | Open | Closed | |
| 2MM | 2.07 | 1.86 | .438 |
| 2PP | 2.13 | 1.92 | .438 |
| 2MP | 2.13 | 1.92 | .438 |
| 2CC | 2.07 | 1.86 | .438 |
| 4CC | 2.13 | 1.92 | .438 |
| 6CC | 2.13 | 1.92 | .438 |

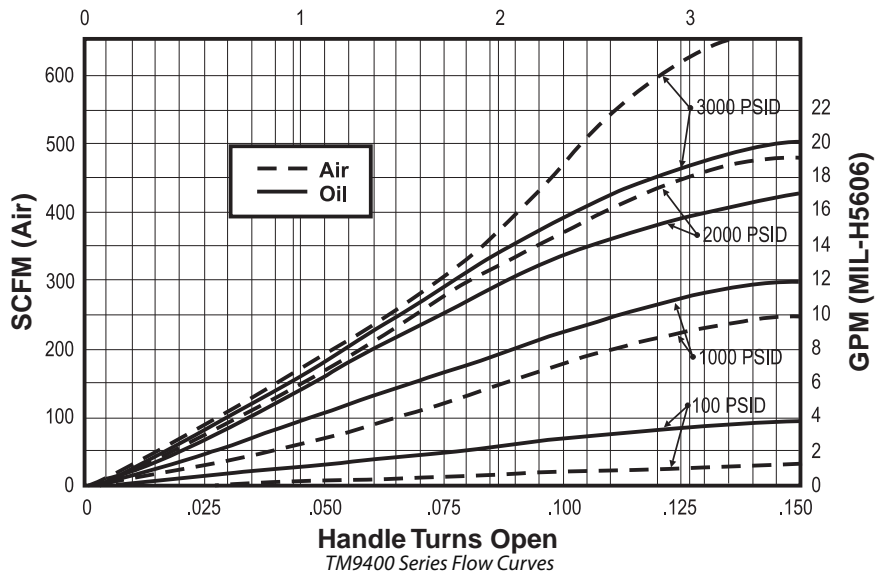
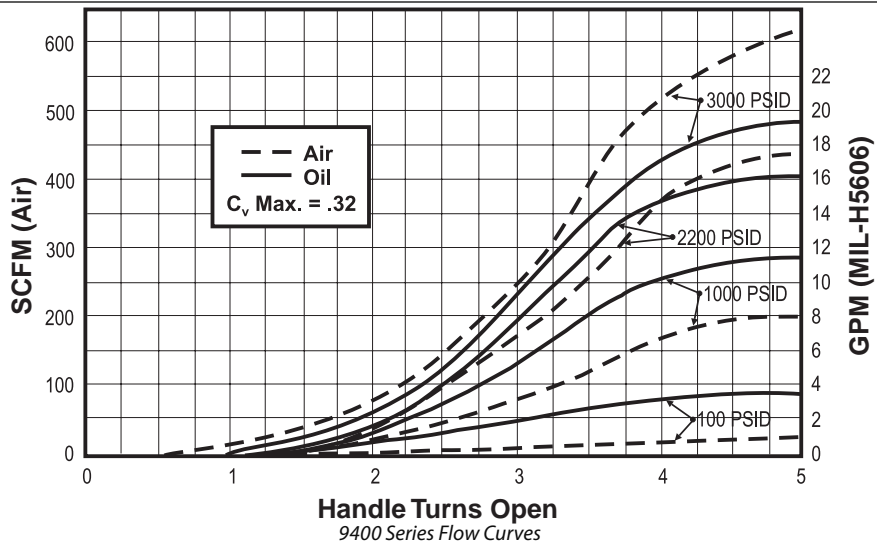
R9400 Series

| Type | A | | H |
|------|------|--------|------|
| | Open | Closed | |
| 2MP | 2.05 | 1.84 | .438 |
| 2PP | 2.05 | 1.84 | .438 |

Panel thickness (inches)

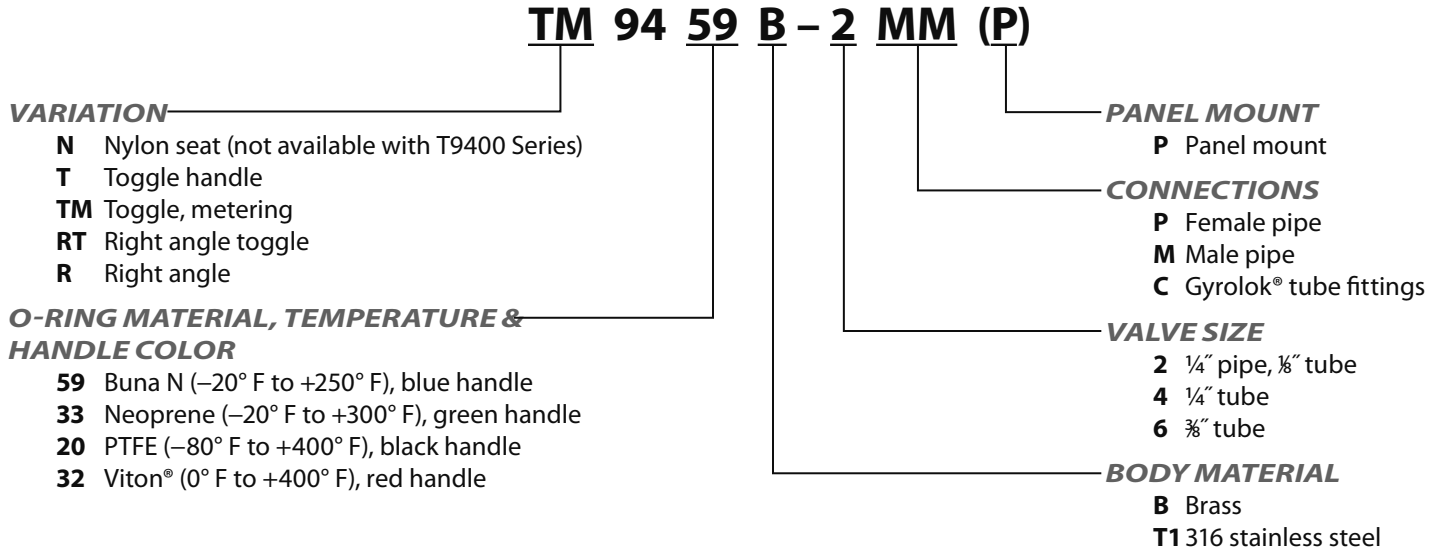
| | |
|--------------------|----------------|
| 9400, R9400 Series | 0.060 to 0.340 |
| 9400-CC Series | 0.100 to 0.340 |
| T9400 Series | 0.060 to 0.530 |
| T9400-CC Series | 0.060 to 0.440 |
| TM9400 Series | 0.060 to 0.810 |

Typical Flow Curves



9400 Series

How to Order



Please consult your Circle Seal Controls distributor or our factory for information on special connections, materials, larger sizes, o-rings, operating pressures and temperature ranges.

Repair Kits

In normal service, the only part(s) which may require replacement is(are) the seal(s). A repair kit may be ordered by placing a "K/" in front of the complete part number (i.e. K/9459B-2MM).

For Your Safety

It is solely the responsibility of the system designer and user to select products suitable for their specific application requirements and to ensure proper installation, operation, and maintenance of these products. Material compatibility, product ratings and application details should be considered in the selection. Improper selection or use of products described herein can cause personal injury or property damage.

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