

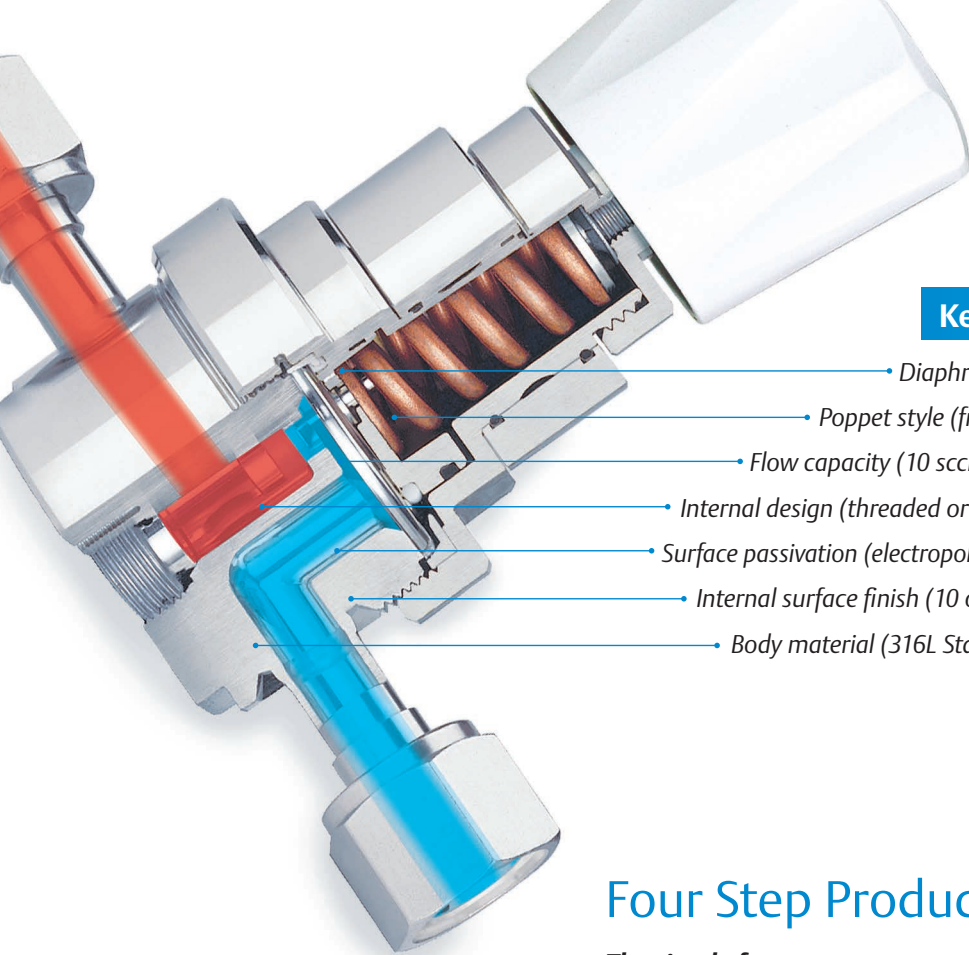
# High Purity Regulators



## Product Selection Guide

TESCOM™

  
**EMERSON™**  
Process Management



## Key Feature Considerations

- Diaphragm seals (metal to metal)
- Poppet style (free poppet or tied diaphragm)
- Flow capacity (10 sccm to 42,000 slpm)
- Internal design (threaded or internally threadless & springless)
- Surface passivation (electropolish, internal electropolish or Precision Electro-Polish)
- Internal surface finish (10 or 25  $R_a$  microinch)
- Body material (316L Stainless or 316L VAR Stainless Steel)

## Four Step Product Selection Process

*The simple four step process outlined below will help you use this guide to find the product that meets your specific application requirements.*

**1 Semiconductor Application:** Choose from one of the five semiconductor application tables that follow on pages 1-5. Specific applications, e.g., gas trays, gas jungles, and valve manifold boxes are listed at the very top of each table.

As an example, a regulator that is located at the process tool and used to deliver a specialty gas is likely a 1/4" Point of Use Regulator. Gas Cabinet Regulators are used to deliver compressed or liquefied cylinder gases.

**2 Pressures & Flow Rates:** Narrow your search by referencing your required source pressure, outlet pressure and flow rate. Leak rate and body materials are provided in the tables as a further reference point.

**3 Features:** Check the bullet points under the regulator model name for a short list of key features.

**4 Poppet Types:** Free poppet regulators are recommended for inert gases and point of use process gases.

Tied diaphragm regulators offer a mechanically assisted shutoff to prevent leakage across the seat. The tied diaphragm regulators are recommended for high pressure toxic, corrosive and flammable gases.

### **To place an order:**

Once you have selected a product, you may call the number below for your local distributor or go to [www.tescom.com](http://www.tescom.com) and click on **Locate a Sales Office**.

### **Need assistance or further specifications?**

- Visit us online at [www.tescom.com](http://www.tescom.com). Click on a product line under PRODUCTS to begin your search and download a PDF file of the relevant data sheet.
- Refer to Regulator Recommendations for Semiconductor Gases in our catalog or on our website.
- Call the number below for a factory application specialist or the number of a TESCOM distributor near you: **1-877-4TESCOM** or **877-483-7266**.

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### 1/4" Point of use pressure regulators

For process tools, gas trays, gas jungles, valve manifold boxes & tool hook-ups



64-2600 Series



74-2400 Series



12 Series Miniature

PRODUCT SERIES & FEATURES	SOURCE PRESSURE	DELIVERY PRESSURE	CERTIFIED INBOARD LEAK RATE*	FLOW RANGE	BODY MATERIAL
<b>64-2600 Single Stage, Ultra-High Purity</b>					
<ul style="list-style-type: none"> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• Internal electropolish</li> <li>• Free poppet design</li> <li>• Hastelloy® trim available</li> <li>• C<sub>v</sub> = .15</li> </ul>	600 PSIG [41 bar]	30, 60, 100, 250 PSIG [2, 4, 7, 17 bar]	<1 x 10 <sup>-9</sup>	0-100 SLPM	316L SST or 316L SST VAR
<b>64-2800 Single Stage, Ultra-High Purity, Tied Diaphragm</b>					
<ul style="list-style-type: none"> <li>• Tied diaphragm design</li> <li>• Internal electropolish</li> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• C<sub>v</sub> = .15</li> </ul>	1000 PSIG [70 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	0-100 SLPM	316L SST or 316L SST VAR
<b>64-3600 Single Stage, Ultra-High Purity, Low Droop</b>					
<ul style="list-style-type: none"> <li>• 10 R<sub>a</sub> microinch finishes</li> <li>• Internal electropolish</li> <li>• Free poppet design</li> <li>• Hastelloy® trim available</li> <li>• C<sub>v</sub> = .15</li> </ul>	600 PSIG [41 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	0-100 SLPM	316L SST or 316L SST VAR
<b>64-5000 Single Stage, Ultra-High Purity, Absolute Pressure</b>					
<ul style="list-style-type: none"> <li>• Subatmospheric to positive pressures</li> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• Internal electropolish</li> <li>• C<sub>v</sub> = .24</li> </ul>	120 PSIG [8 bar]	28" Hg-15, 30, 60, 100 PSIG [28" Hg-1, 2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	0-5 SLPM	316L SST or 316L SST VAR
<b>74-2400 Single Stage, Ultra-High Purity</b>					
<ul style="list-style-type: none"> <li>• Tied diaphragm design</li> <li>• Internally springless &amp; threadless</li> <li>• Precision Electro-Polish</li> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• C<sub>v</sub> = .15</li> </ul>	600 PSIG [41 bar]	30, 60, 100 PSIG [2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	0-100 SLPM	316L SST VAR
<b>12 Single Stage, Ultra-High Purity, Miniature</b>					
<ul style="list-style-type: none"> <li>• Tied diaphragm design</li> <li>• 5 R<sub>a</sub> or 10 R<sub>a</sub> microinch finishes</li> <li>• Internally springless &amp; threadless</li> <li>• Precision Electro-Polish</li> <li>• 12F Series features integrated outlet filter</li> <li>• Available with inlet &amp; outlet filter</li> <li>• 1-1/2", 1-1/8" "C" or "W" seal, VCR®</li> </ul>	150 PSIG [10 bar]	20" Hg-15, 30, 60, 100 PSIG [20" Hg-1, 2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	50 SLPM & 120 SLPM	316L SST VAR

\*units are expressed in atm cc/sec. He

## 1/2" Point of use pressure regulators

For process tools, gas trays, gas jungles, valve manifold boxes & tool hook-ups



74-3800 Series



64-5400 Series

PRODUCT SERIES & FEATURES	SOURCE PRESSURE	DELIVERY PRESSURE	CERTIFIED INBOARD LEAK RATE*	FLOW RANGE	BODY MATERIAL
<b>44-3200 Single Stage, High Flow</b>					
<ul style="list-style-type: none"> <li>10 R<sub>a</sub> microinch finish</li> <li>C<sub>v</sub> = 1.0 or 1.8</li> </ul>	500 PSIG [35 bar]	25, 50, 100, 150, 200 PSIG [1.7, 3.5, 7, 10, 14 bar]	<2 x 10 <sup>-8</sup>	0-550, 900 SLPM (0-19, 32 SCFM)	316L SST
<b>64-3200 Single Stage, Ultra-High Purity, High Flow</b>					
<ul style="list-style-type: none"> <li>Tied diaphragm design</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Hastelloy® trim available</li> <li>C<sub>v</sub> = 1.2</li> </ul>	150 PSIG [10 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	0-900 SLPM (0-32 SCFM)	316L SST or 316L SST VAR
<b>64-5400 Single Stage, Ultra-High Purity, High Flow</b>					
<ul style="list-style-type: none"> <li>Free poppet design</li> <li>10 R<sub>a</sub> microinch finish</li> <li>C<sub>v</sub> = 1.0</li> </ul>	600 PSIG [41 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	550 SLPM (0-19 SCFM)	316L SST
<b>74-3000 Single Stage, Ultra-High Purity, High Flow</b>					
<ul style="list-style-type: none"> <li>Internally threadless</li> <li>Precision Electro-Polish</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Free poppet design</li> <li>C<sub>v</sub> = .5</li> </ul>	600, 1000 PSIG [41, 70 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	0-500 SLPM (0-18 SCFM)	316L SST VAR
<b>74-3800 Single Stage, Ultra-High Purity, High Flow</b>					
<ul style="list-style-type: none"> <li>Internally springless &amp; threadless</li> <li>Precision Electro-Polish</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Tied diaphragm design</li> <li>C<sub>v</sub> = .5</li> </ul>	600 PSIG [41 bar]	30, 60, 100 PSIG [2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	0-500 SLPM (0-18 SCFM)	316L SST VAR
<b>23 Single Stage, Ultra-High Purity, High Flow</b>					
<ul style="list-style-type: none"> <li>Internally springless &amp; threadless</li> <li>Precision Electro-Polish</li> <li>10 R<sub>a</sub> microinch finish</li> <li>C<sub>v</sub> = 1.8</li> </ul>	250, 150 PSIG [17, 10 bar]	30, 60, 100 PSIG [2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	0-950 SLPM (0-34 SCFM)	316L SST VAR

\*units are expressed in atm cc/sec. He

## Gas cabinet pressure regulators



64-3200 Series

PRODUCT SERIES & FEATURES	SOURCE PRESSURE	DELIVERY PRESSURE	CERTIFIED INBOARD LEAK RATE*	FLOW RANGE	BODY MATERIAL
<b>64-2600 Single Stage, Ultra-High Purity</b>					
<ul style="list-style-type: none"> <li>10 R<sub>a</sub> microinch finish</li> <li>Free poppet design</li> <li>Internal electropolish</li> <li>C<sub>v</sub> = .06</li> </ul>	3500 PSIG [241 bar]	30, 60, 100, 250, 500 PSIG [2, 4, 7, 17, 35 bar]	<1 x 10 <sup>-9</sup>	0-100 SLPM	316L SST or 316L SST VAR
<b>64-2800 Single Stage, Ultra-High Purity, Tied Diaphragm</b>					
<ul style="list-style-type: none"> <li>Tied diaphragm design</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Hastelloy® trim available</li> <li>C<sub>v</sub> = .06 (3500 PSIG max. inlet)</li> <li>C<sub>v</sub> = .15 (1000 PSIG max. inlet)</li> </ul>	3500, 1000 PSIG [241, 70 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	0-100 SLPM	316L SST or 316L SST VAR
<b>64-3200 Single Stage, Ultra-High Purity, High Flow, BSGS</b>					
<ul style="list-style-type: none"> <li>Tied diaphragm design</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Hastelloy® trim available</li> <li>C<sub>v</sub> = 1.2</li> </ul>	1500, 1000 PSIG [103, 70 bar]	30, 60, 100, 150, 200 PSIG [2, 4, 7, 10, 14 bar]	<1 x 10 <sup>-9</sup>	0-900 SLPM	316L SST or 316L SST VAR

\*units are expressed in atm cc/sec. He

## Gas cabinet pressure regulators - continued



64-3400 Series



64-3600 Series



64-5000 Series



449-254 Series

PRODUCT SERIES & FEATURES	SOURCE PRESSURE	DELIVERY PRESSURE	CERTIFIED INBOARD LEAK RATE*	FLOW RANGE	BODY MATERIAL
<b>64-3400 Dual Stage, Ultra-High Purity</b>					
<ul style="list-style-type: none"> <li>Dual stage pressure reduction</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Free poppet or tied diaphragm</li> <li>Hastelloy® trim available</li> <li>C<sub>v</sub> = .06 or .15</li> </ul>	3500 PSIG [241 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	0-80 SLPM	316L SST or 316L SST VAR
<b>64-3600 Single Stage, Ultra-High Purity, Low Droop</b>					
<ul style="list-style-type: none"> <li>High sensitivity</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Free poppet or tied diaphragm</li> <li>Hastelloy® trim available</li> <li>C<sub>v</sub> = .06 or .15</li> </ul>	3500 PSIG [241 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-9</sup>	0-100 SLPM	316L SST or 316L SST VAR
<b>64-5000 Single Stage, Ultra-High Purity, Absolute Pressure</b>					
<ul style="list-style-type: none"> <li>Subatmospheric to positive pressures</li> <li>10 R<sub>a</sub> microinch finish</li> <li>C<sub>v</sub> = .06 (3500 PSIG max. inlet)</li> <li>C<sub>v</sub> = .15 (600 PSIG max. inlet)</li> <li>C<sub>v</sub> = .24 (120 PSIG max. inlet)</li> </ul>	3500, 600, 120 PSIG [241, 41, 8 bar]	28" Hg-15, 30, 60, 100 PSIG [28" Hg-1, 2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	0-5 SLPM	316L SST or 316L SST VAR
<b>74-300A Single Stage, Ultra-High Purity, Absolute Pressure</b>					
<ul style="list-style-type: none"> <li>Free poppet design</li> <li>Internally threadless</li> <li>10 R<sub>a</sub> microinch finish</li> <li>C<sub>v</sub> = .5</li> </ul>	300 PSIG [21 bar]	28" Hg-15 PSIG [28" Hg-1 bar]	<1 x 10 <sup>-9</sup>	0-20 SLPM	316L SST VAR
<b>74-2400 Single Stage, Ultra-High Purity</b>					
<ul style="list-style-type: none"> <li>Tied diaphragm design</li> <li>Internally springless &amp; threadless</li> <li>10 R<sub>a</sub> microinch finishes</li> <li>Precision Electro-Polish</li> <li>C<sub>v</sub> = .06</li> </ul>	3500 PSIG [241 bar]	30, 60, 100 PSIG [2, 4, 7 bar]	<1 x 10 <sup>-10</sup>	0-100 SLPM	316L SST VAR
<b>74-3800 Single Stage, Ultra-High Purity, High Flow</b>					
<ul style="list-style-type: none"> <li>Tied diaphragm design</li> <li>Internally springless &amp; threadless</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Precision Electro-Polish</li> <li>C<sub>v</sub> = .5</li> </ul>	3500, 1000, 600 PSIG [241, 70, 41 bar]	30, 60, 100 PSIG [2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	0-500 SLPM	316L SST VAR
<b>449-254 Single Stage, High Pressure, BSGS</b>					
<ul style="list-style-type: none"> <li>Free poppet design</li> <li>10 R<sub>a</sub> microinch finish</li> <li>Hastelloy® trim</li> <li>C<sub>v</sub> = 1.0</li> </ul>	1500 PSIG [103 bar]	400 PSIG [28 bar]	<1 x 10 <sup>-9</sup>	0-900 SLPM	316L SST VAR

\*units are expressed in atm cc/sec. He

## Facility pressure regulators



22-2200 BA Grade



22-5400 BA Grade



15 Series

PRODUCT SERIES & FEATURES	SOURCE PRESSURE	DELIVERY PRESSURE	CERTIFIED INBOARD LEAK RATE*	FLOW RATE	BODY MATERIAL
<b>22-2200 BA Grade</b>					
<ul style="list-style-type: none"> <li>• Metal to metal diaphragm seals</li> <li>• 25 R<sub>a</sub> microinch finish</li> <li>• C<sub>v</sub> = .24</li> </ul>	250 PSIG [17 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<2 x 10 <sup>-8</sup>	0-100 SLPM	316 SST
<b>22-5400 Single Stage, BA Grade, High Flow</b>					
<ul style="list-style-type: none"> <li>• Free poppet design</li> <li>• 25 R<sub>a</sub> microinch finish</li> <li>• C<sub>v</sub> = 1.0</li> </ul>	600 PSIG [41 bar]	30, 60, 100, 150 PSIG [2, 4, 7, 10 bar]	<1 x 10 <sup>-8</sup>	550 SLPM	316L SST
<b>44-2200 Single Stage, Low Flow</b>					
<ul style="list-style-type: none"> <li>• Metal to metal diaphragm seals</li> <li>• NPT porting</li> <li>• C<sub>v</sub> = 0.15</li> </ul>	400 PSIG [28 bar]	25, 50, 100, 250 PSIG [1.7, 3.5, 7, 17 bar]	≤2 x 10 <sup>-8</sup>	0-100 SLPM	316 SST or brass
<b>44-3200 Single Stage, Ultra-High Flow</b>					
<ul style="list-style-type: none"> <li>• Metal to metal diaphragm seals</li> <li>• NPT porting</li> <li>• C<sub>v</sub> = 1.0 &amp; 1.8</li> </ul>	500 PSIG [35 bar]	25, 50, 100, 150, 200 PSIG [1.7, 3.5, 7, 10, 14 bar]	<2 x 10 <sup>-8</sup>	1000 SLPM (35 SCFM)	316 SST or brass
<b>449-260 High Flow</b>					
<ul style="list-style-type: none"> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• C<sub>v</sub> = 2.8</li> </ul>	500 PSIG [35 bar]	25, 50, 100, 150, 200 PSIG [1.7, 3.5, 7, 10, 14 bar]	<2 x 10 <sup>-8</sup>	1700 SLPM (60 SCFM)	316L SST
<b>DH-16 BA Grade, Single Stage, High Flow</b>					
<ul style="list-style-type: none"> <li>• 25 R<sub>a</sub> microinch finish</li> <li>• C<sub>v</sub> = 5.0</li> </ul>	300 PSIG [21 bar]	50, 100, 150 PSIG [3.5, 7, 10 bar]	N/A	7075 SLPM (250 SCFM)	316 SST
<b>15 Series High Purity, Ultra-High Flow</b>					
<ul style="list-style-type: none"> <li>• Internally threadless</li> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• Spring load: C<sub>v</sub> = 8</li> <li>• Bellows dome load: C<sub>v</sub> = 20</li> </ul>	300 PSIG [21 bar]	130 PSIG [9 bar]	<1 x 10 <sup>-9</sup>	11,300 SLPM (400 SCFM) 28,300 SLPM (1000 SCFM)	316L SST

\*units are expressed in atm cc/sec. He

## μ-Stik™ miniature pressure controls



M1 MicroStik



M4 MicroStik

PRODUCT & FEATURES	SOURCE PRESSURE	DELIVERY PRESSURE	CERTIFIED INBOARD LEAK RATE*	FLOW RANGE	BODY MATERIAL
<b>M1 MicroStik Regulator &amp; Valve Manifold</b>					
<ul style="list-style-type: none"> <li>• 12 Series regulator &amp; 14 Series valve</li> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• Internally springless &amp; threadless</li> <li>• Internal filter available - 12F</li> </ul>	150 PSIG [10 bar]	20" Hg-15, 30, 60, 100 PSIG [20" Hg-1, 2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	50 or 120 SLPM	316L SST VAR
<b>M4 MicroStik Regulator &amp; Valve Manifold with Gauge Tee Assembly</b>					
<ul style="list-style-type: none"> <li>• 12 Series regulator &amp; 14 Series valve</li> <li>• 10 R<sub>a</sub> microinch finish</li> <li>• Internally springless &amp; threadless</li> <li>• Internal filter available - 12F</li> </ul>	150 PSIG [10 bar]	20" Hg-15, 30, 60, 100 PSIG [20" Hg-1, 2, 4, 7 bar]	<1 x 10 <sup>-9</sup>	50 or 120 SLPM	316L SST VAR

\*units are expressed in atm cc/sec. He



*A wide range of standard and custom industrial regulators, valves and systems are available. These products cover pressure control applications in a wide range of industries.*

## TESCOM Manufacturing & Distributor Network ... ***a worldwide presence!***



**NORTH AMERICA**  
*Elk River, Minnesota USA*



**EUROPE**  
*Selmsdorf, Germany*



**ASIA PACIFIC**  
*Pudong Shanghai, China*

TESCOM designs and manufactures a wide range of standard and custom engineered pressure control solutions for a diverse world market. Whether your needs are components like regulators and valves or pressure systems and assemblies, TESCO provides expert application and customer support from simple industrial applications to high tech complex projects. Market application know-how includes Aerospace & Defense, Alternative Fuels, Diving & Life Support, Laboratory & Research, Life Sciences, Medical, Oil & Gas and Microelectronics to name just a few. Close collaboration between worldwide design and manufacturing groups ensure the usage of state-of-the-art production technologies to provide the innovation and highest quality product that TESCO customers have come to expect.

TESCOM distributor support centers are located in most major cities worldwide. More than 100 locations provide application assistance and quality TESCO product.

TESCOM sales offices are located in California and New Jersey USA, United Kingdom, Germany, Singapore, South Korea and United Arab Emirates.

For a distributor or sales office near you, visit [www.tescom.com](http://www.tescom.com) and click on the **Locate a Sales Office** link.

## Additional Items

Manifolds

Dome loaded regulators

Porting styles and configurations

Automated pressure and flow control with TESCO's Electronic Control Systems

Special testing, leak rate certification, particle counts

## We are your worldwide partner in precision pressure control.

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