

## Life Sciences



*Pressure control solutions for your industry.*

**TESCOM™**

  
**EMERSON™**  
Process Management

## Ultra-clean hygienic pressure control: *a cost-effective solution!*

From process air and clean steam to specialty gas control, you'll find TESCO<sup>™</sup> products in all facets of R&D and manufacturing. We specialize in precision, hygienic control that is very cost-effective. By using barstock bodies, TESCO minimizes additional finishing processes, which at the same time, allows for flexible porting.

Only TESCO delivers full integration of precision pressure regulators and electronic controllers for process automation.

What we can do for you:

- Provide a wide array of low pressure, high flow regulators
- Offer flexibility with low flow models providing flows as low as **2 cc/min**, high flow models with flows in excess of **1400 scfm**
- Deliver ultra-precise control or process **automation** with fully tunable, closed loop electronic pressure controls. Achieve control within **+/- .1 psig!**

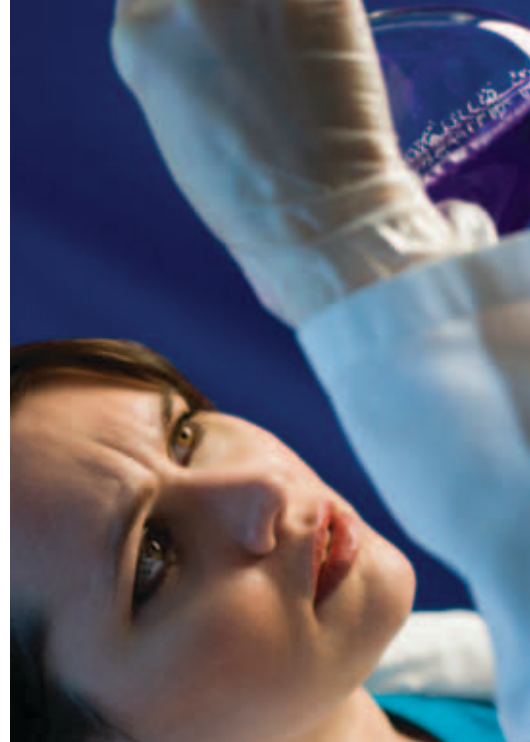


### Typical product features






- Designs compliant with ASME BPE-2009
- Compact bar stock body designs standard
- USP Class VI soft goods available
- ANSI Class Six shutoff
- Electropolished 316L stainless steel construction available
- Integral and/or welded gauge ports - available on most models
- All regulators cleaned for O<sub>2</sub> service per ASTM G93 & CGA 4.1
- Very low internal volumes
- Simple trim designs - easy to service
- Models are available with sanitary, tube, NPT and compression fittings

### Typical applications for TESCO hygienic products





- Pressure control for utilities and instrumentation
- Clean steam for bioreactors and fermenters
- Sparge gas control for bioreactors and fermenters
- APR regulators
- Differential pressure control of agitator seals
- Differential pressure control for add-can options
- Gas manifold systems (automatic changeover systems) for specialty gas and breathing air
- Tank blanketing & pressurization systems
- Cylinder and wall-mount regulator stations
- Point-of-use laboratory specialty gas regulators
- Bulk gas pressure control
- Pressure control for packaging test stations & product integrity test stands
- Automation of crucial pressure processes
- CE marking available for 15 Series Ultra-High Flow Regulators



## Ultra-Clean Pharmpure™ Hygienic Regulators for Life Sciences

PRODUCT SERIES & FEATURES		INLET PRESSURE (max.)	OUTLET PRESSURE (max.)	C <sub>v</sub>	BODY & FINISHES
<b>PH-1600 Series: Low Pressure, High Flow</b> <ul style="list-style-type: none"> <li>Flows to 400 SCFM for N<sub>2</sub></li> <li>Gas and clean steam versions</li> <li>Ports to 1.5" - sanitary, tube</li> <li>USP Class VI compliant</li> </ul>		300 psig 21 bar	20, 50, 100, 150 psig 1.5, 3.5, 7, 10 bar	5.0	316L SST 20 R <sub>a</sub> finish (SFV-1) standard
<b>PH-1800 Series: Low Pressure, Very High Flow</b> <ul style="list-style-type: none"> <li>Flows to 1400 SCFM for N<sub>2</sub></li> <li>Gas and clean steam versions</li> <li>Ports to 2" - sanitary, tube</li> <li>USP Class VI compliant</li> </ul>		300 psig 21 bar	20, 50, 100, 150 psig 1.5, 3.5, 7, 10 bar	10.0	316L SST 20 R <sub>a</sub> finish (SFV-1) standard
<b>PH-2200 Series: Compact, Low Pressure, Low Flow</b> <ul style="list-style-type: none"> <li>Flows to 5 SCFM for N<sub>2</sub> &amp; clean air applications</li> <li>Ports are 3/8", 1/2" - sanitary, tube</li> <li>USP Class VI compliant</li> </ul>		150 psig 10 bar	10, 25, 50, 100 psig 1, 2, 3.5, 7 bar	.06 .15 .24	316L SST 32 R <sub>a</sub> finish (SFV-3) standard 15 R <sub>a</sub> finish (SFV-4) available
<b>PH-2600 Series: Compact, Low Pressure, Low Flow</b> <ul style="list-style-type: none"> <li>Flows to 10 SCFM for N<sub>2</sub></li> <li>Minimal droop</li> <li>Ports are 3/8" tube, 1/2" - sanitary, tube</li> <li>USP Class VI compliant</li> </ul>		150 psig 10 bar	10, 25, 50, 100 psig 1, 2, 3.5, 7 bar	.02 .06 .15 .24	316L SST 32 R <sub>a</sub> finish (SFV-3) standard 15 R <sub>a</sub> finish (SFV-4) available
<b>PH-3200 Series: Compact, Low Pressure, Medium Flow</b> <ul style="list-style-type: none"> <li>Flows to 50 SCFM for N<sub>2</sub></li> <li>Gas and clean steam versions</li> <li>Ports to 1" tube - sanitary, tube</li> <li>USP Class VI compliant</li> </ul>		500 psig 34.5 bar	25, 50, 100 psig 2, 3.5, 7 bar	1.0 1.8	316L SST 32 R <sub>a</sub> finish (SFV-3) standard 15 R <sub>a</sub> finish (SFV-4) available





## General Purpose Regulators for Life Sciences

PRODUCT SERIES & FEATURES		INLET PRESSURE (max.)	OUTLET PRESSURE (max.)	C <sub>v</sub>	BODY & FINISHES
<b>DG Series: Low Pressure, Very High Flow</b> <ul style="list-style-type: none"> <li>Flows to 1400 SCFM for N<sub>2</sub></li> <li>Gas and clean steam versions</li> <li>Ports to 2" - sanitary, tube, NPT</li> </ul>		300 psig 21 bar	20, 50, 100, 150, 300 psig 1.5, 3.5, 7, 10, 21 bar	10.0	316 SST
<b>DH Series: Low Pressure, High Flow</b> <ul style="list-style-type: none"> <li>Excellent repeatability</li> <li>Very high flows at low pressures</li> <li>Ports to 1" - NPT</li> </ul>		500 psig 35 bar	20, 50, 100, 150 psig 1.5, 3.5, 7, 10 bar	5.0	316 SST
<b>ER3100 Series: High Flow Control</b> <ul style="list-style-type: none"> <li>Integrates with 44-4000 venting regulator</li> </ul>		4500 psig 310 bar	400, 900 psig 28, 62 bar	0.7 2.0	Integrated digital electropneumatic pressure control
<b>15-001 Series: Ultra-High Flow</b> <ul style="list-style-type: none"> <li>Internally threadless</li> <li>10 R<sub>a</sub> microinch finishes</li> <li>Spring load: C<sub>v</sub> = 8</li> <li>Dome load: C<sub>v</sub> = 20</li> </ul>		300 psig 21 bar	130 psig 9 bar	8.0 20.0	316L SST 10 R <sub>a</sub> finish standard





Most TESCOM regulators are SIP-capable. Please inquire.

All Pharmpure™ regulators are available with sanitary or tube ends. All General Purpose regulators are available with NPT threads, tube ends, sanitary or compression fittings. Gauge ports are available on most models.

## General Purpose Regulators for Life Sciences - continued

PRODUCT SERIES & FEATURES		INLET PRESSURE (max.)	OUTLET PRESSURE (max.)	C <sub>v</sub>	BODY & FINISHES
<b>26-2500 Series: High Flow, Back Pressure</b> <ul style="list-style-type: none"> <li>Large Gylon® diaphragm for excellent sensitivity</li> <li>Bubble-tight shutoff at all reseating pressures</li> <li>Ports to 1" - NPT, tube, sanitary</li> </ul>		20, 50, 125, 200 psig 1.5, 3.5, 8.5, 14 bar	NA	5.0	316 SST
<b>44-2200: Compact/General Purpose</b> <ul style="list-style-type: none"> <li>Diaphragm sensed - highly sensitive</li> <li>Various trim options available</li> <li>Ports are 1/4" - NPT</li> </ul>		400, 3500 psig 27.5, 241 bar	25, 50, 100, 150, 200 psig 2, 3.5, 7, 10, 14 bar	.02 .06 .15 .24	316L SST
<b>44-3200 Series: High Flow/Purge</b> <ul style="list-style-type: none"> <li>Ideal purge regulator</li> <li>High pressure inlet version available</li> </ul>		500, 3000 psig 34.5, 207 bar	25, 50, 100, 150, 200 psig 2, 3.5, 7, 10, 14 bar	1.0 1.8	316L SST
<b>44-4700 Series: Subatmospheric, Back Pressure</b> <ul style="list-style-type: none"> <li>Absolute pressure control</li> <li>Negative spring bias</li> <li>Controls subatmospheric to positive pressures</li> </ul>		28" Hg vac to 15, 50, 100, 150 psig 28" Hg vac to 1, 3.5, 7, 10 bar	NA	.04 .3	316L SST

## Changeover Regulator Systems - *for continuous gas flow from compressed gas sources*

PRODUCT SERIES & FEATURES		INLET PRESSURE (max.)	OUTLET PRESSURE (max.)	C <sub>v</sub>	BODY & FINISHES
<b>ACS012 Series: Automatic Changeover</b> <ul style="list-style-type: none"> <li>Eliminates downtime caused by depleted gas supplies</li> <li>Incorporated 44-2200 regulators</li> </ul>		400, 3500 psig 27.5, 241 bar	0-100, 0-150, 0-200, 0-250 psig 0-7, 0-10, 0-14, 0-17 bar	.06	Brass or 316L SST
<b>ACS3200 Series: High Flow Changeover</b> <ul style="list-style-type: none"> <li>High flow capacity: 50 scfm</li> <li>Based on TESCOM's field-proven 44-3200 Series regulator</li> <li>Eliminates downtime caused by depleted gas supplies</li> </ul>		3000 psig 207 bar	160-200 psig 11-14 bar	1.2	Brass or 316L SST
<b>CS2200: Changeover System</b> <ul style="list-style-type: none"> <li>Eliminates downtime caused by depleted gas supplies</li> <li>Single body changeover regulator plus a point-of-use regulator</li> <li>Incorporated 44-2200 regulators</li> </ul>		3500 psig 241 bar	0-25, 0-50, 0-100, 0-150 psig 0-2, 0-3.5, 0-7, 0-10 bar	.06	Brass or 316L SST
<b>NA-4 Series: Changeover System</b> <ul style="list-style-type: none"> <li>Complete systems can include CGA connections, hoses, check valves, purge valves, pressure switches &amp; alarms</li> <li>Supports up to eight cylinders per side - 16 total</li> <li>Brass or SST regulators and valves</li> <li>Flexibility in shutoff valve type and location for increased customizing</li> </ul>		3000 psig 207 bar	Multiple Ranges: 0-30 to 0-1500 psig 0-2 to 0-103 bar	.06	316L SST

## Ultra-clean Pharmpure™ regulators *for the Life Sciences*

TESCOM offers you the Pharmpure™ line of hygienic ultra-clean pressure regulators for bioprocess applications that are highly sensitive to extractables and leachables. Like all of our regulators, Pharmpure™ regulators are made from barstock bodies and trim parts, eliminating the need for mechanical polishing to achieve surface flatness. All wetted soft goods are **USP Class Six-compliant**, ensuring the most inert flow path available. Additionally, Pharmpure™ regulators are compliant with the **MJ and SF sections of BPE-2009**. By ensuring compliance with these specifications, you are assured of using non-contaminating pressure regulators in your most sensitive processes.

TESCOM offers a **Clean Service C of C** documentation package that includes a list of all wetted parts by part number and their respective

material of construction.

We supply you with the actual mill certs for the body and ferrules, ASTM material specs for metal trim parts, and the USP Class VI certification for all soft goods. Each weld is numbered, and detailed weld records are provided to you along with a gas purity certification from our gas supplier.

**Each TESCOM regulator is serial numbered** for traceability. No other regulator manufacturer provides you with such a detailed level of traceability. Such thorough documentation **speeds up the 21 CFR Part 211.65 IQ/OQ process**, making regulator validation *ultra pain-free!*



## Automate your pressure control and *achieve surprising accuracy!*

An electronic pressure controller in conjunction with a dome-loaded pressure regulator provides **closed-loop pressure control**. The pressure controller senses downstream pressure changes and automatically compensates by adjusting the dome pressure of the mechanical regulator. Factors such as droop, decaying inlet, and changes due

to shifts in ambient temperature are **virtually eliminated!** With the use of a closed-loop controller, pressures can be controlled **within .1 psig!**

Additionally, the use of a pressure controller enables the user to **automate process pressure control**, permitting pressure changes as part of a process control scheme. Gas pressures can be precisely controlled

in applications like add-can systems. Pressure controllers also permit accurate control in tank blanketing and time/pressure liquid filling operations by maintaining a precise head pressure in a pressurized product tank.

TESCOM offers several pressure controllers for **use with any of our pressure regulators**. The ER3000 provides digital and analog communications with computers, PLCs, and process controllers, and is available in NEMA 4 or NEMA 7 enclosures. Pressure accuracy of .1% of the control range is possible with the ER3000. The ER3100 features an ER3000 pressure controller integrated with any one of several mechanical regulators. *Ask your TESCOM representative for more details.*





**We are your global partner in precision pressure control.**



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