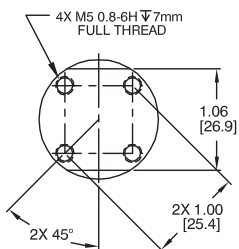
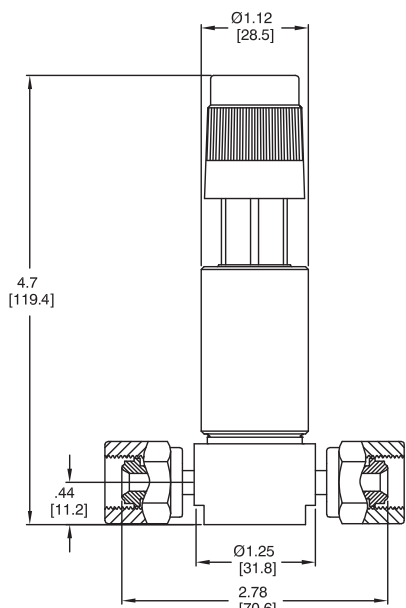
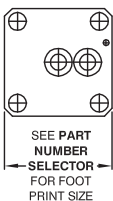
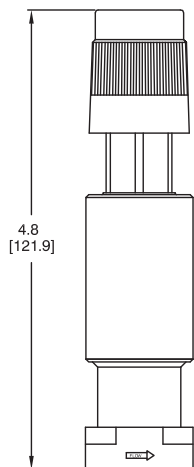


12 Series Micro, 1/4" Point of Use

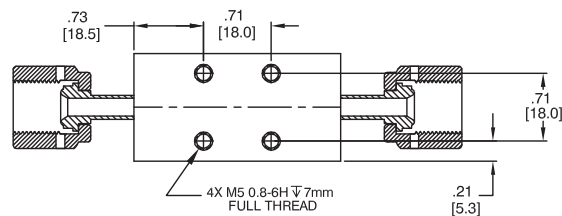
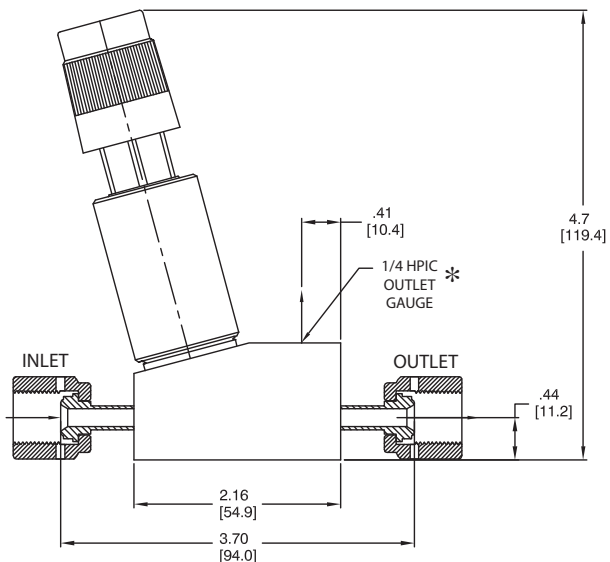
VCR® MODEL



IGS MODEL



A-STYLE MODEL



All dimensions are reference & nominal
Metric (millimeter) equivalents are in brackets

* **High Purity Internal Connections (H.P.I.C):** Tescom High Purity Internal Connections. These are machined inside the regulator body and are designed to be compatible with VCR® (or equivalent) male fittings - swivel only.

Part Number Selector

example part number:

12 - 1 A 1 1 AADM6DM6 Z

BASIC SERIES	FLOW OPTION	TYPE	MATERIAL				OUTLET PRESSURE	HAND KNOB COLOR	PORTING CONFIGURATION (END-TO-END DIMENSIONS)	OPTIONS (Choose only 1)
			body	trim	seat	internal finish				
12	- Standard Flow Model H - High Flow Model	1 - Non-captured bonnet	A - 316 L VAR SST	Hastelloy®	PCTFE	10 Ra	0 - 20" Hg Vac - 15 PSIG 1 - 3-30 PSIG 2 - 3-60 PSIG 3 - 3-100 PSIG	1 - Black 5 - White	IGS2C1.5 - 1.5" C-Seal IGS2C1.1 - 1.125" C-Seal IGS21.5W - 1.5" W Seal IGS2W1.1 - 1.125" W Seal AADM6DM6 - 1/4" Female VCR® (2.78" ETE*) AAEM6EM6 - 1/4" Fixed Male VCR® (2.78" ETE*) AABM5BM5 - 1/4" Tube Stubs (2.00" ETE*)	Z - Precision Electropolish 4 - Standard Electropolish (available with 12-1A only) T - Test report - typical (includes Helium Leak and Particle Count Certification) C - Certification of Conformance
			B - 316 L VAR SST	Hastelloy®	PCTFE	5 Ra				

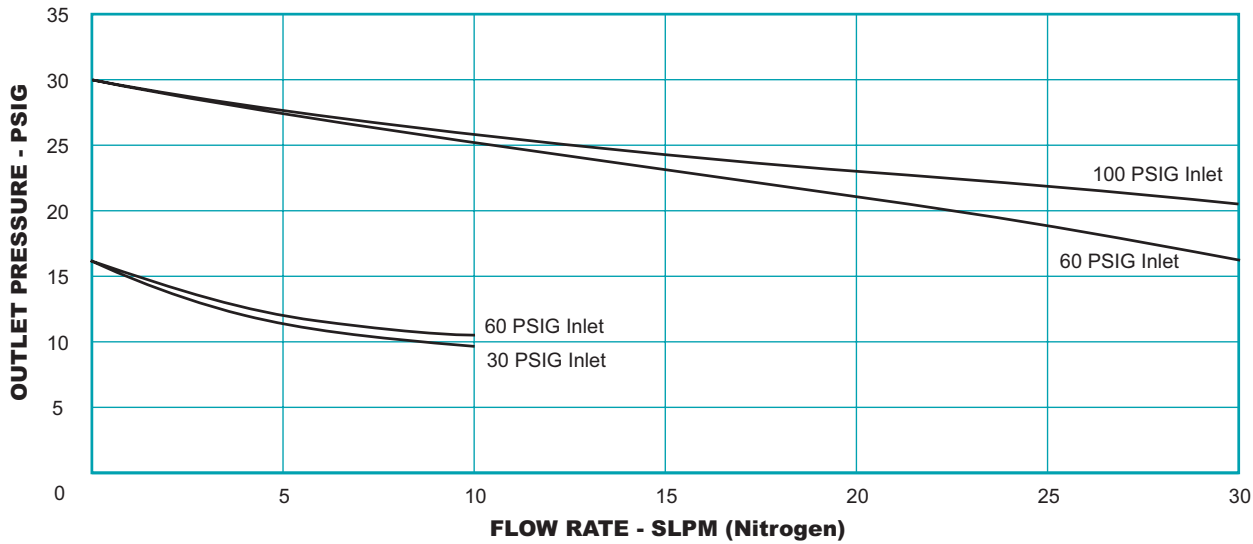
* ETE = End To End dimension

Repair Kits, Accessories or Modifications may be available for this product. Please contact TESCO for more information.

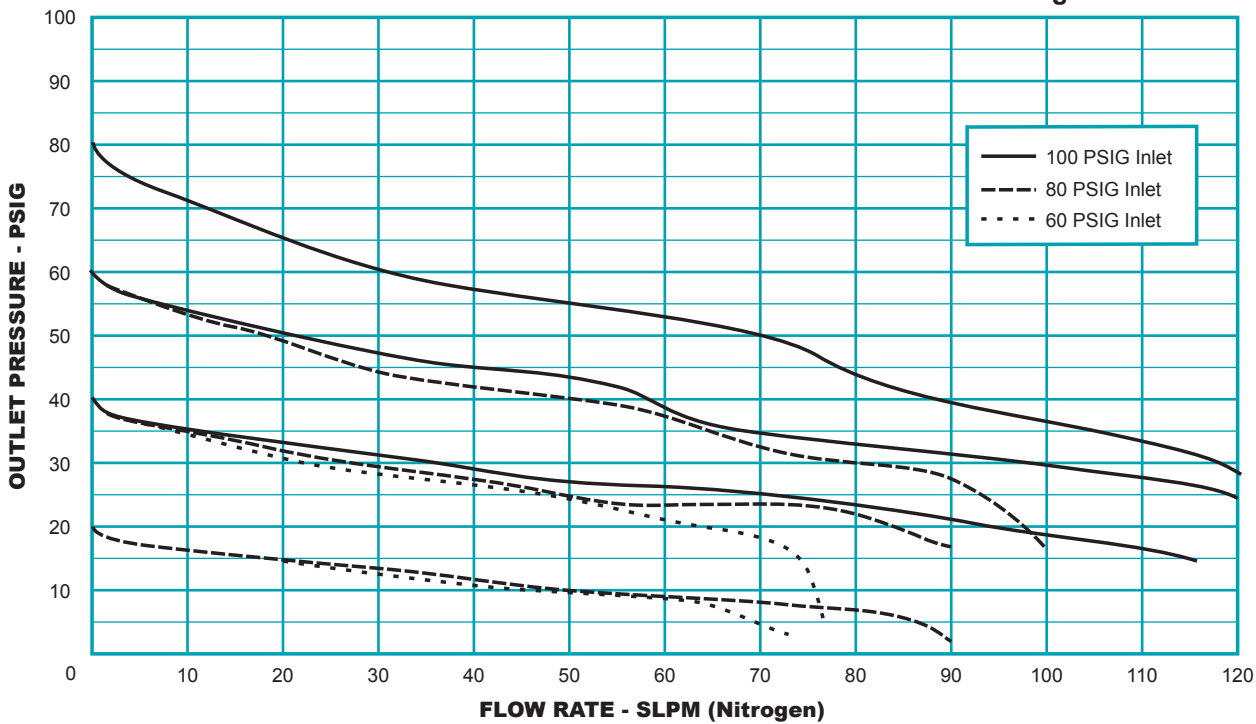
Flow Charts see reverse side

Flow Charts

Standard Flow Model



High Flow Model



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For information contact:

TESCOM

www.TESCOM.com

TESCOM High Purity Controls

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Form No. 1890 Rev. 9/07 Printed 9/07 3M Printed in the U.S.A.



EMERSON
 Process Management



Ultra-High Flow

maximum 300 PSIG in/maximum 150 PSIG out
ultra-high purity/pressure reducing/bulk gas

15 Series

Specifications

❑ Operating Parameters

- pressure rating per criteria of ANSI/ASME B31.3
- maximum rated inlet pressure 300 PSIG
(21.1 kg/cm²)
- outlet pressure ranges 130 PSIG (9.1 kg/cm²)
150 PSIG (10.6 kg/cm²)
- design proof pressure 150% of maximum
rated pressure
- design burst pressure 400% of maximum
operating pressure
- certified maximum inboard leak rate:
- diaphragm 1 x 10⁻⁹ atm cc/sec He
- seat 1 x 10⁻⁶ atm cc/sec He
- operating temperature -20° F to +150° F
(-29° C to +65° C)
- flow capacity
- diaphragm C_v = 8.0
- bellows C_v = 14.0

❑ Media Contact Materials

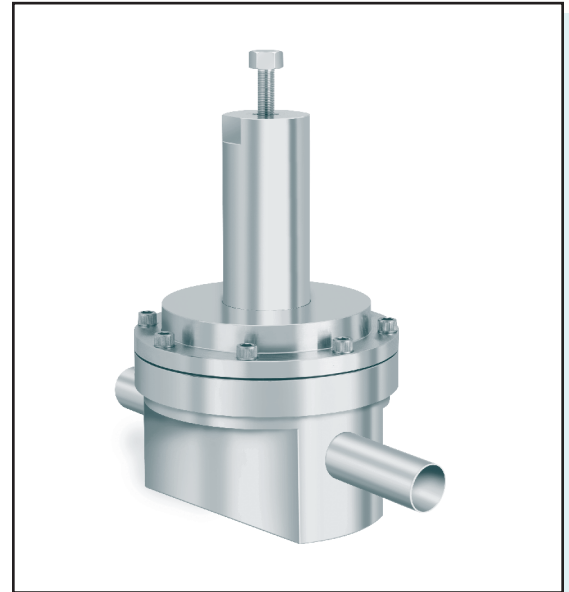
- body 316L Stainless Steel
 - diaphragm or bellows 316L Stainless Steel
 - seat PCTFE or Teflon®
 - seal Viton®
 - remaining parts 316L Stainless Steel
- For other materials, consult factory.*

❑ Connections Tube extensions

❑ Cleaning DI water electronic grade cleaned

❑ Weight 55 lbs. (24.9 kg)

Teflon® and Viton-A® are a registered trademarks of Du Pont.



Advantages

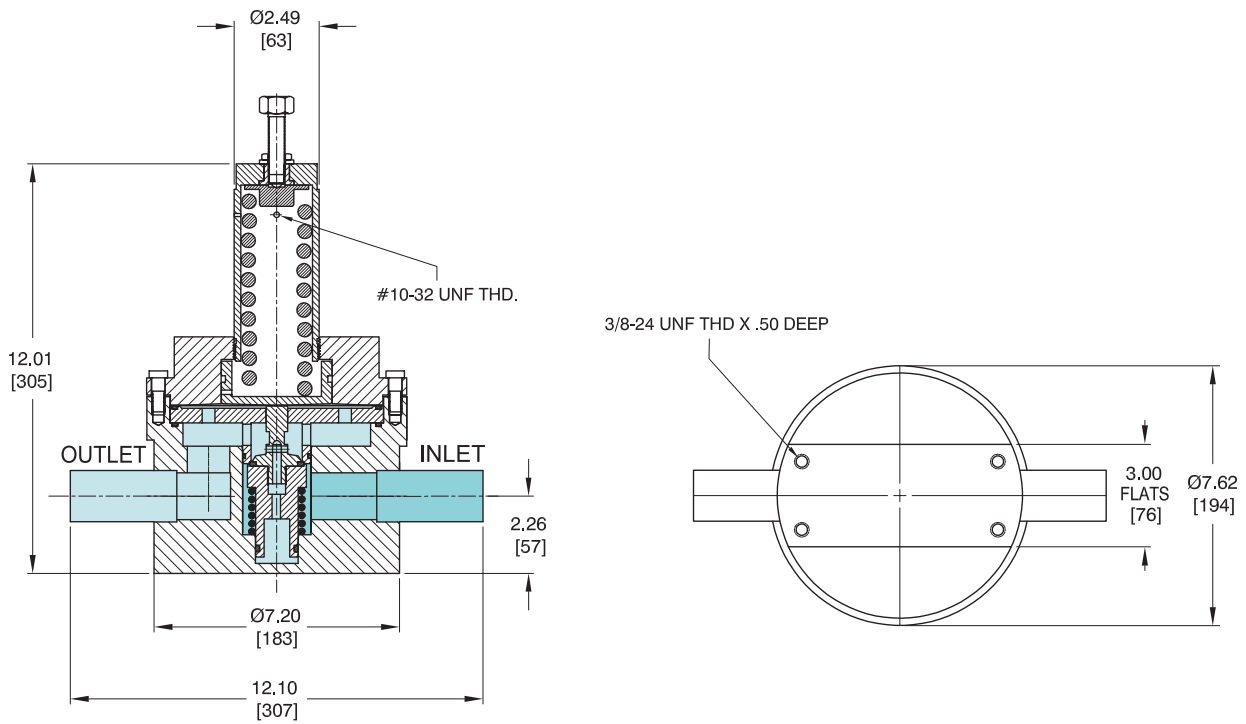
- Diaphragm sensing element maintains very accurate downstream pressure
- 10 R_a microinch internal surface finishes with full internal electropolish
- 316L Stainless Steel bar stock construction
- Two loading options available: Spring/wrench-adjust and air-actuated
- Two sensing options available: Diaphragm and bellows (bellows sensing element expands flow capability beyond 1200 SCFM)
- Compatible with ER3000 Electronic Controller

Supplied mounting holes must be used for attachment of regulator to a support structure. Support structure for tube extensions, components or accessories attached to regulator is the responsibility of the system integrator.



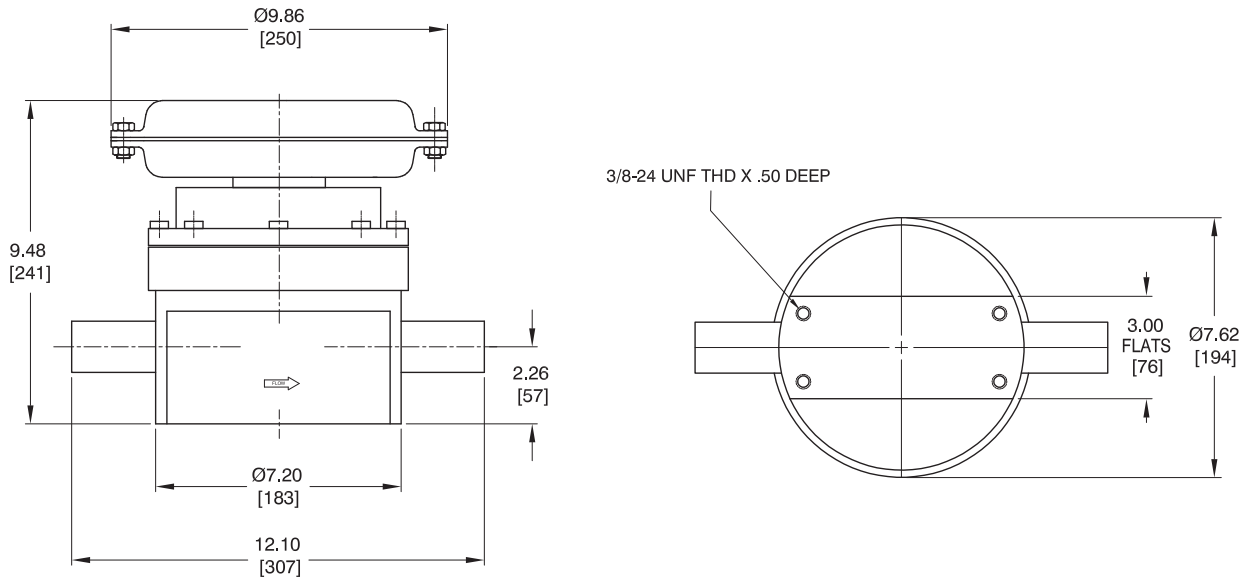
15 Series Ultra-High Flow

Spring Loaded - Diaphragm Sensed



All dimensions are reference & nominal
Metric (millimeter) equivalents are in brackets

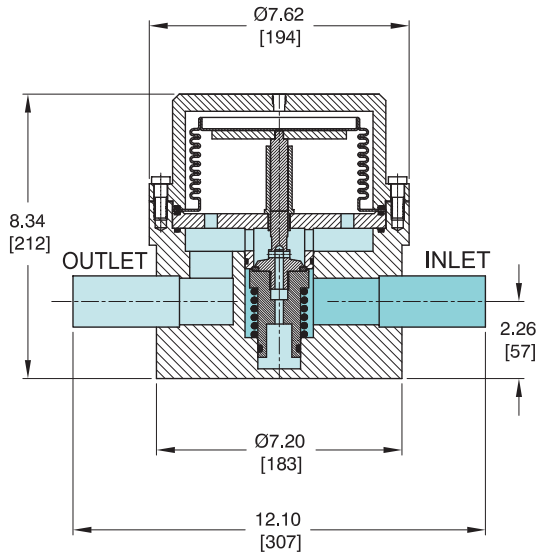
Air Actuated - Diaphragm Sensed



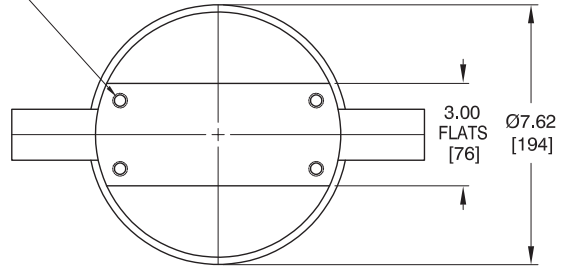
Suggested loading media for air actuated - diaphragm sensed regulator: N_2 and CDA.

All dimensions are reference & nominal
Metric (millimeter) equivalents are in brackets

Air Actuated - Bellows Sensed



3/8-24 UNF THD X .50 DEEP



Suggested loading media for air actuated - bellows sensed regulator: N₂ and CDA.

All dimensions are reference & nominal
Metric (millimeter) equivalents are in brackets

Part Number Selector

example part number:

15 - 1 2 T V 1 66 Z

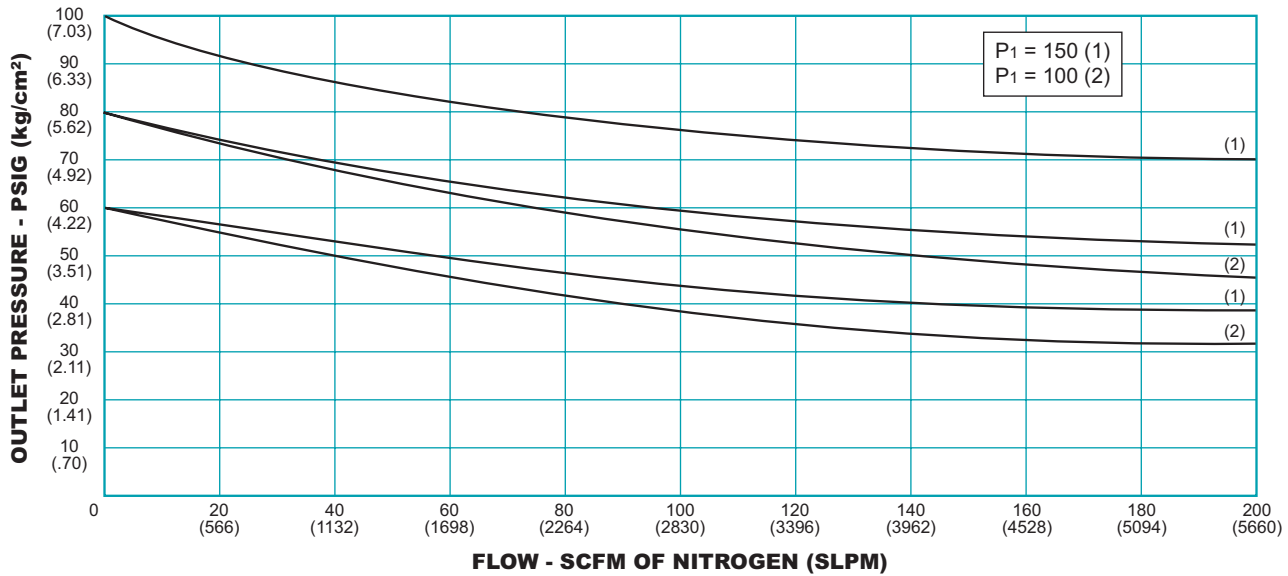
BASIC SERIES	INLET PRESSURE	OUTLET PRESSURE	SEAT MATERIAL	SEAL MATERIAL	ADJUSTMENT METHOD	INLET & OUTLET PORT SIZE & TYPE	END-TO-END DIMENSIONS	OPTIONS (choose only one)
15	1 - 300 PSIG	1 - 150 PSIG	K - PCTFE	V - Viton®	1 - Spring Loaded Diaphragm Sensed	UU - 3/4" Tubes	12.10"	Z - None
		2 - 130 PSIG	T - Teflon®		2 - Air Actuated Diaphragm Sensed	VV - 1" Tubes	12.10"	T - Test Report (typical)
					3 - Air Actuated Bellows Sensed	SS - 2" Tubes	12.10"	C - Certification of Conformance
					BB - 25A	12.10"		
					CC - 50A	12.10"		

Flow Charts see reverse side

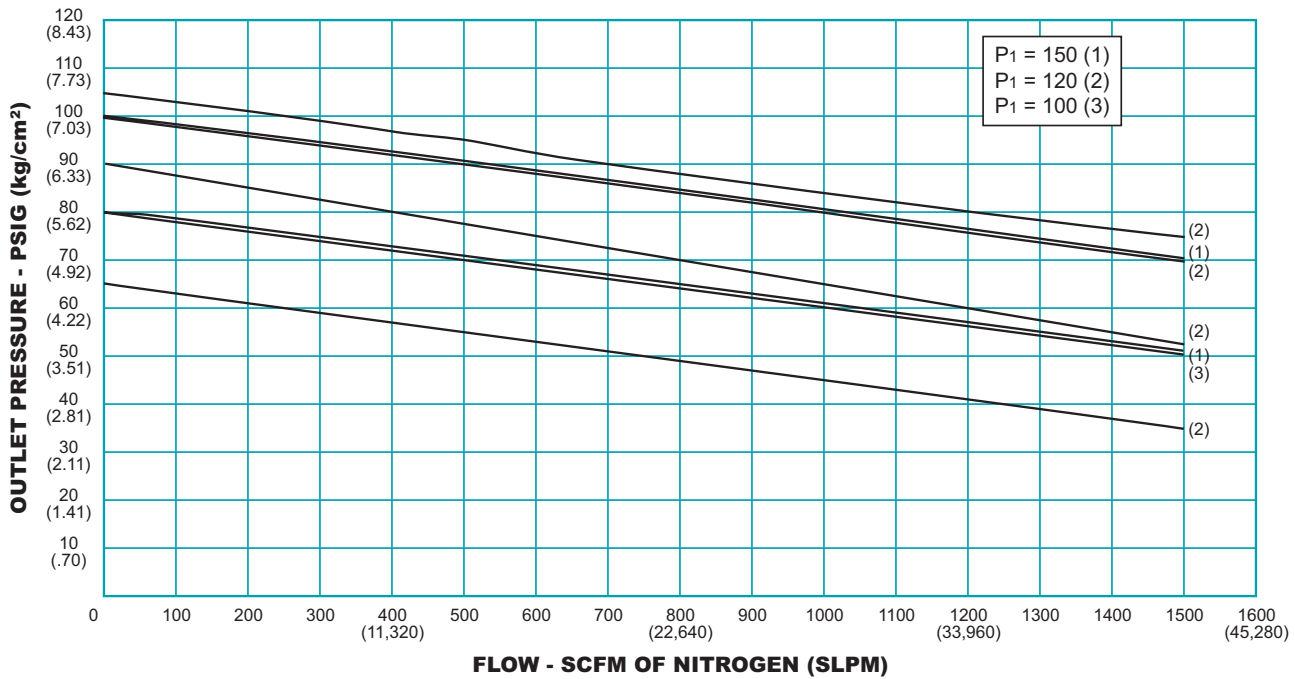
15 Series Ultra-High Flow

Flow Charts

Spring Loaded - Diaphragm Sensed and Air Actuated - Diaphragm Sensed



Air Actuated - Bellows Sensed



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HIGH PURITY CONTROLS DIVISION

19111 Industrial Boulevard • Elk River, MN 55330 USA

Pressure Reducing/BA Grade

maximum 250 PSIG in/150 PSIG out
spring loaded/hand operated

22-2200 Series

Specifications

Operating Parameters

- pressure rating per criteria of ANSI/ASME B31.3
- maximum rated inlet pressure 250 PSIG
(17.6 kg/cm²)
- outlet pressure ranges 1-30, 1-60, 1-100,
1-150 PSIG (.1-2, .1-4, .1-7, .1-10.5 kg/cm²)
- design proof
- pressure 150% of maximum rated pressure
- design burst pressure 400% of rated inlet
- certified maximum inboard
- leak rate. . . 2 x 10⁻⁸ atm cc/sec PER ASTM E449
- operating temperature: -40° F to +140° F
(-40° C to +60° C)
- flow capacity 100 slpm

Media Contact Materials

- body 316L Stainless Steel
- diaphragm 316 Stainless Steel
- seat PCTFE or Teflon®
- trim 316 Stainless Steel
- valve 316 Stainless Steel

Internal Body Surface Finish 25 Ra microinch (.63 micrometer)

Connections

- Welded female, male VCR®
- Tube stubs or compression type
- High Purity Internal Connections (H.P.I.C.)
- Internal style of VCR®, compatible with male swivel VCR®.

Cleaning DI water electronic grade cleaned

Weight (without gauges) 2.0 lbs. (.9 kg)



Advantages

- Metal to metal sealed diaphragm
- 100 slpm flow capacity
- Welded VCR®, tube stubs and compression fittings available
- Enhanced cleanliness and reduced leak rates - a substantial improvement over the conventional NPT product

Teflon® is a registered trademark of DuPont.
VCR® is a registered trademark of Cajon Co.

Pressure Reducing/BA Grade
maximum 600 PSIG in/150 PSIG out
high flow/purge/free poppet

22-5400 Series

Specifications

- ❑ **Operating Parameters**
 - pressure rating per criteria of ANSI/ASME B31.3
 - maximum rated inlet pressure . . . 600 PSIG (42 kg/cm²)
 - outlet pressure ranges 1-30, 1-60, 1-100 &
1-150 PSIG (.1-2, .1-4, .1-7 & .1-10 kg/cm²)
 - design proof pressure . . . 150% of maximum rated pressure
 - design burst pressure . . . 400% of maximum rated pressure
 - certified maximum
 - inboard leak rate < 2 x 10⁻⁸ atm cc/sec He
 - operating temperature:
 - PCTFE seat -40° F to +200° F
 (-40° C to +93° C)
 - Teflon PFA® seat -40° F to +160° F
 (-40° C to +71° C)
 - flow capacity C_v = 1.0
 - decaying inlet characteristic 2.7 PSIG/100 PSIG
- ❑ **Media Contact Materials**
 - body 316L SST with electropolish
 - diaphragm Hastelloy C-276®
 - valve seat PCTFE or Teflon PFA®
 - seat retainer Nitronic 60 SST
 - stem, seal & remaining parts 316 Stainless Steel

For other materials or modifications, please consult TESCO.
- ❑ **Internal Surface Finish** 25 R_a microinch
(.63 micrometer)
- ❑ **Connections**
 - Welded female or male VCR®
 - Tube stubs
 - Compression Fittings
- ❑ **Cleaning** DI water electronic grade cleaned
- ❑ **Weight (without gauges)** 3.5 lbs. (1.588 kg)



Advantages

- Compact, hand-loaded & pressure reducing
- Low internal volume
- Excellent leak integrity is created by metal to metal diaphragm to body seal
- Welded VCR, tube stubs and compression fittings available
- 1.3 C_v available - consult TESCO

Teflon® is a registered trademark of DuPont.
 VCR® is a registered trademark of Cajon Co.
 Hastelloy® is a registered trademark of Haynes International, Inc.



Ultra-High Purity/ Ultra-High Flow

maximum 150 or 250 PSIG in/ ranges of 0-30, 0-60 & 0-100 PSIG out
free poppet or tied diaphragm

23 Series

Specifications

- ❑ **Operating Parameters**
 - pressure rating per criteria of ANSI/ASME B31.3
 - maximum rated inlet pressure 150 or 250 PSIG
(10.5 or 17.6 kg/cm²)
 - outlet pressure ranges 0-30, 0-60, & 0-100 PSIG
(0-2.1, 0-4.2 & 0-7.0 kg/cm²)
 - design proof pressure . . . 150% of maximum rated pressure
 - certified maximum
 - inboard leak rate <1 x 10⁻⁹ atm cc/sec He
 - operating temperature:
 - Teflon® seat . . . -40° F to +160° F (-40° C to +71° C)
 - PCTFE seat . . . -40° F to +200° F (-40° C to +93° C)
 - flow capacity C_v = 1.8
- ❑ **Media Contact Materials**
 - body 316L VAR SST with Electropolish or
316L VAR SST with Precision Electro-Polish (P.E.P)
 - valve seat Teflon® or PCTFE
 - diaphragm 316L Stainless Steel
 - stem 316L Stainless Steel
 - seal 316 Stainless Steel
 - remaining parts 316 Stainless Steel
- ❑ **Internal Surface Finish** . . 5 R_a or 10 R_a microinch
(.13 or .25 micrometer)
- ❑ **Connections**
 - Welded female or male VCR®
 - Tube stubs
 - High Purity Internal Connections (H.P.I.C.)
 - Internal style of VCR®, compatible with male swivel VCR®.
- ❑ **Cleaning** DI water electronic grade cleaned,
ES500 Particle Certified for regulators
with Precision Electro-Polish (P.E.P.)
- ❑ **Internal Volume** 18.5 cc with 1/2" VCR
- ❑ **Weight** 3.2 lbs. (1.5 kg)



Advantages

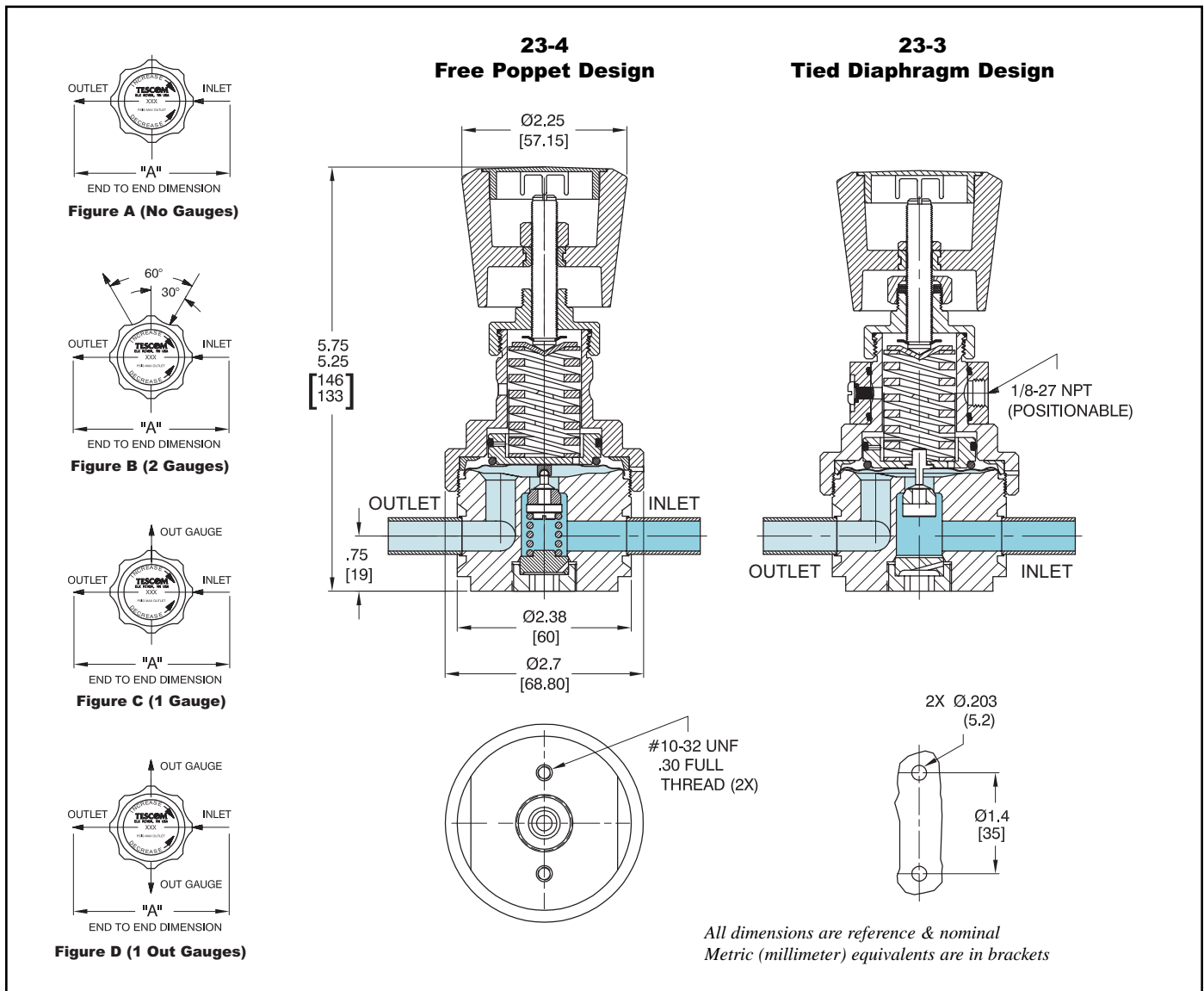
- Smooth unobstructed flow path for complete purging
- Threadless construction (23-4 Series)
- Springless & threadless construction (23-3 Series)
- Tescom's Precision Electro-Polishing (P.E.P.) available
- Positive shut-off seal with positionable bonnet or free poppet design
- Excellent leak integrity is created by metal to metal diaphragm to body seal

Teflon® is a registered trademark of Du Pont.
VCR® is a registered trademark of Cajon Co.

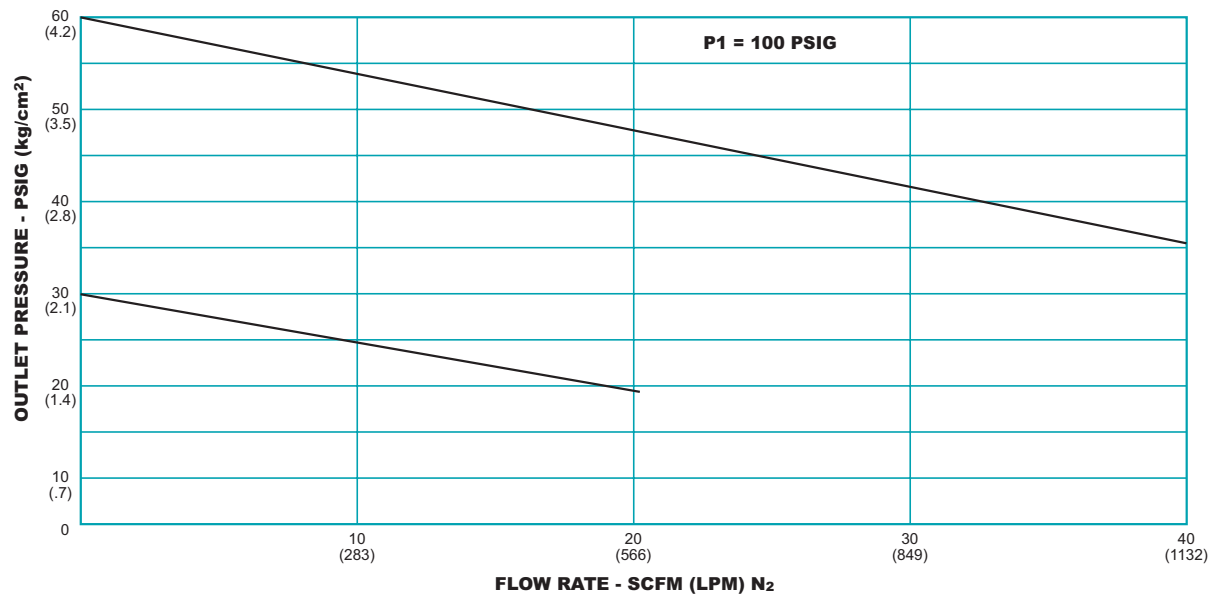


23 Series

Ultra-High Purity/ Ultra-High Flow




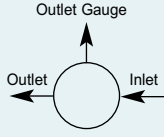
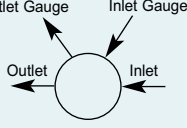
Flow Chart



Part Number Selector

example part number:

23-3 B 1 5 AA GF4GF4 Z

BASIC SERIES	INLET PRESSURE INTERNAL SURFACE FINISHES & BODY/TRIM/ SEAT MATERIAL	OUTLET PRESSURE	ADJUSTMENT METHOD & COLOR	PORTING CONFIGURATION - TYPE & SIZE*		OPTIONS CHOOSE ONE ONLY
				GAUGE PORT OPTIONS	INLET & OUTLET PORT END-TO-END DIMENSION 'A'	
23-3 Tied diaphragm/ positive shut-off 23-4 Free-poppet	B 250 PSIG - 10 Ra finishes - 316L VAR SST body w/Precision Electro-Polish (P.E.P.) ¹ - 316 SST trim - PCTFE seat C 150 PSIG - 10 Ra finishes - 316L VAR SST body w/Precision Electro-Polish (P.E.P.) ¹ - 316 SST trim - Teflon® seat E 250 PSIG - 5 Ra finishes - 316L VAR SST body w/Precision Electro-Polish (P.E.P.) ² - 316 SST trim - PCTFE seat F 150 PSIG - 5 Ra finishes - 316L VAR SST body w/Precision Electro-Polish (P.E.P.) ² - 316 SST trim - Teflon® seat	0 30 PSIG 1 60 PSIG 2 100 PSIG	5 Handknob – White		EN7EN7 1/4" MVCR, fixed 3.97"	Z None T Test Report (typical) (Includes Helium Leak Certification & Particle Count Certification) C Certification of Conformance E Centerline to bottom (.680") 4 Electropolished only (no P.E.P.) (available with 23-XB and 23-XC only) ^{1, 2}
				AA No gauge ports	HF4HF4 1/2" FVCR 5.59"	
					GF4GF4 1/2" MVCR 5.59"	
				AB 1/4" H.P.I.C. AC 1/4" FVCR AE 1/4" MVCR, fixed AD 1/4" MVCR, swivel	FB7FB7 1/2" Tube 3.70"	
					UR2UR2 3/4" Tube 5.75"	
				AM 1/4" H.P.I.C. AN 1/4" FVCR AR 1/4" MVCR, fixed AP 1/4" MVCR, swivel		
* Consult factory for other porting configurations, type and size.						

1- 23-X Regulators are available with Electropolish only (10 Ra microinch finishes), select '4' from the OPTIONS section when ordering a 23-XB or 23-XC to forfeit the Precision Electro-Polish (P.E.P.) process.
 2- 23-X Regulators with 5 Ra microinch finishes are available with Precision Electro-Polish (P.E.P.) only. Do not select a '4' in the OPTIONS section when ordering a 23-XE or 23-XF.



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General Purpose Back Pressure

four relief pressure ranges up to 250 PSIG
economical/corrosion resistant

44-2300 Series

Specifications

- ❑ Operating Parameters
 - pressure rating per criteria of ANSI/ASME B31.3
 - controlled pressure ranges 0-25, 0-50
0-100, 0-250 PSIG
 - design proof pressure 150% maximum
rated pressure
 - leakage *internal*: bubble-tight
external: design to meet $< 2 \times 10^{-8}$ atm cc/sec He
 - operating temperature -40° F to +165° F
(-40° C to +74° C)
 - flow capacity $C_V = .08$
 - maximum operating torque . . . 30 in.-lbs. (3.4 Nm)
 - ❑ Media Contact Materials
 - body 316 SST, brass or Monel
 - bonnet 300 Series SST, Brass
 - seat CTFE
 - diaphragm 316 SST or Elgiloy®
 - remaining parts . . . 316 SST, Monel (for Monel body)
- For other materials and modifications, please consult Tescom.*
- ❑ Cleaning CGA 4.1 and ASTM G93
 - ❑ Weight (without gauges) 2 lbs. (.90 kg)

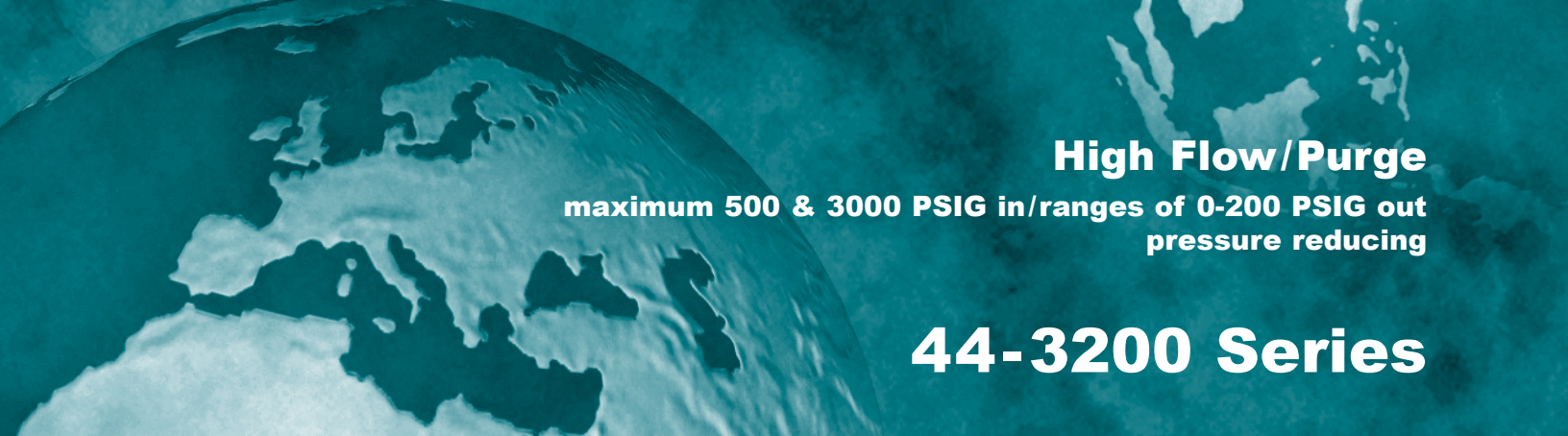
Pressure Conversion 14.5 PSIG = 1 bar 145 PSIG = 1 MPa

Elgiloy® is a registered trademark of Elgiloy Specialty Metals.



Advantages

- Reduces contamination and provides accurate regulation of any corrosive or non-corrosive gas
- Convolute metal to metal sealed diaphragm
- Close pressure differential between crack and reseal
- Economically priced
- Dome loading optional
- Panel mounting available



High Flow/Purge

maximum 500 & 3000 PSIG in/ranges of 0-200 PSIG out
pressure reducing

44-3200 Series

Specifications

Operating Parameters

pressure rating per criteria of ANSI/ASME B31.3
 maximum rated inlet pressure . . . 500, 3000 PSIG
 outlet pressure ranges 0-25, 0-50, 0-100,
 0-150 & 0-200 PSIG
 design proof pressure . . . 150% of rated pressure
 leakage:
 internal bubble-tight
 external $< 2 \times 10^{-8}$ atm cc/sec He
 operating temperature -40° F to +165° F
 (-40° C to +74° C)
 flow capacity $C_V = 1.0$
 (optional $C_V = 1.8$)

Media Contact Materials

body brass, 316 Stainless Steel
 bonnet nickel plated brass
 diaphragm 316 Stainless Steel
 seat: 3000 PSIG inlet CTFE
 500 PSIG inlet Teflon®
 retainer, seat Nitronic 60
 seal Teflon®
 remaining parts 316 Stainless Steel

For other materials and modifications, please consult Tescom.

Cleaning CGA 4.1 and ASTM G93

Weight (without gauges) 3.5 lbs. (1.6 kg)

Pressure Conversion 14.5 PSIG = 1 bar 145 PSIG = 1 MPa

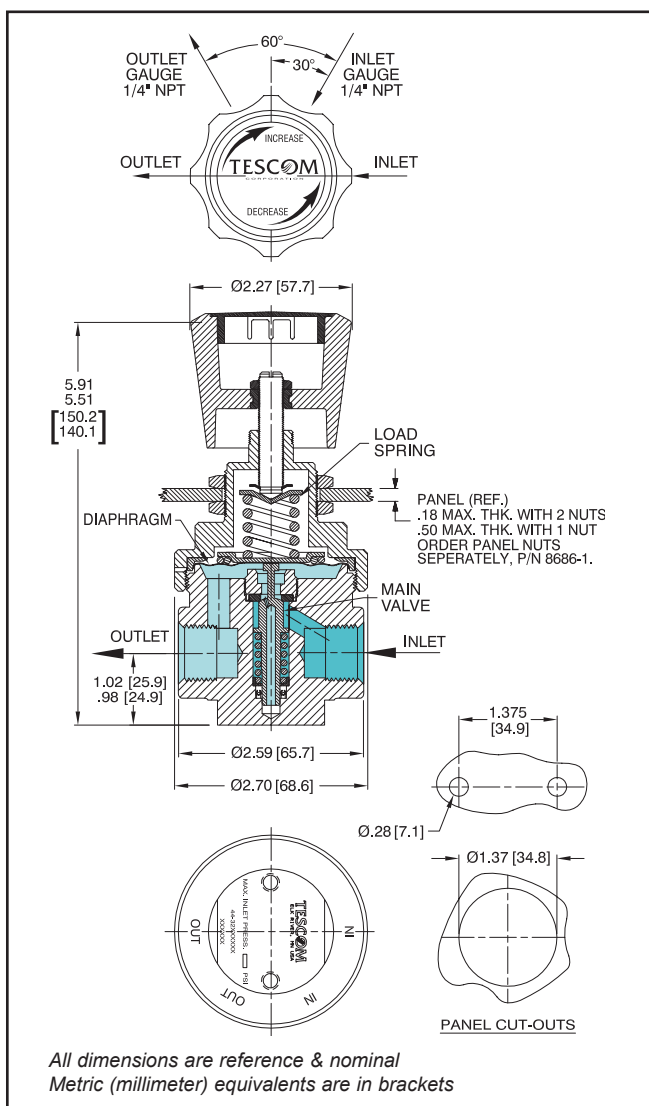
Teflon® is a registered trademark of Du Pont.



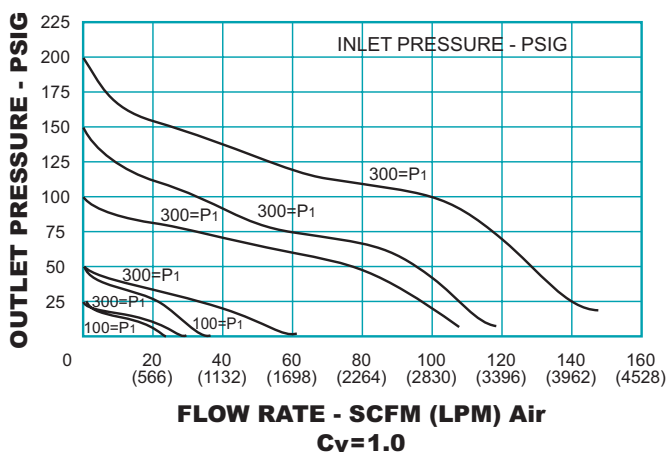
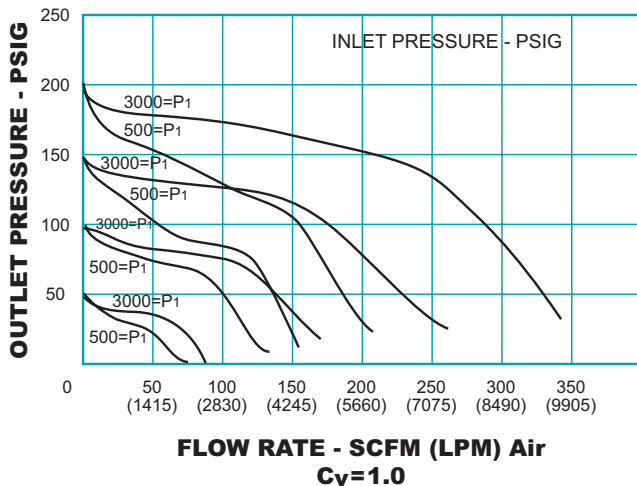
Advantages

- Available in 316 Stainless Steel or brass
- Choice of inlet pressure ratings: 500 or 3000 PSIG maximum
- Five outlet pressure ranges available
- Gauge ports standard
- Optional High Flow model ($C_V=1.8$) available
- Panel mounting option
- Non-venting standard

44-3200 Series High Flow/Purge



Flow Charts



OPTIONS	
001	One 1/4" gauge port @ 90°, Cv = 1.0
296	One 1/4" gauge port @ 90°, Cv = 1.8

Part Number Selector

example part number:

44-32 6 1 J 2 8 1 -

BASIC SERIES	BODY MATERIAL	OUTLET PRESSURE RANGES	SOFT GOODS		INLET & OUTLET PORT TYPE	INLET & OUTLET PORT SIZE	MAXIMUM INLET PRESSURE
			SEAT	SEAL			
44-32	1 - Brass	0 - 0-25 PSIG	H - Teflon®	Teflon®, o-ring	2 - NPT	6 - 3/8" 8 - 1/2"	1 - 3000 PSIG 3 - 500 PSIG
	6 - 316 Stainless Steel	1 - 0-50 PSIG	J - CTFE	Teflon®, spring energized lip seal			
		2 - 0-100 PSIG					
		3 - 0-150 PSIG					
		4 - 0-200 PSIG					

Repair Kits, Accessories & Modifications may be available for this product. Please contact Tescom for more information.



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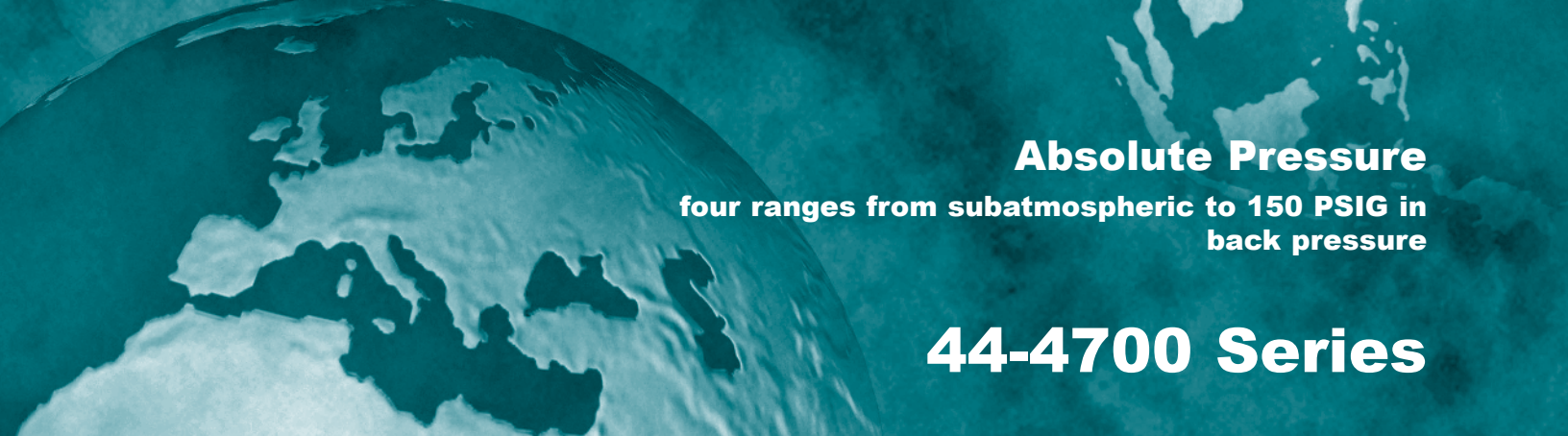
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Absolute Pressure

four ranges from subatmospheric to 150 PSIG in back pressure

44-4700 Series

Specifications

- ❑ Operating Parameters
 - pressure rating per criteria of ANSI/ASME B31.3
 - maximum inlet pressure . . . 28 in. Hg Vac - 15 PSIG, 0-50, 0-100 & 0-150 PSIG
 - design proof pressure 150% of maximum rated pressure
 - leakage internal: bubble-tight
external: $\leq 2 \times 10^{-8}$ atm cc/sec HE
 - ambient operating temperature . . . -40° F to +165° F (-40° C to +74° C)
 - flow capacity $C_v = .04$
 - maximum operating torque . . . 25 in.-lbs. (2.8 Nm)
- ❑ Media Contact Materials
 - body 316 Stainless Steel
 - bonnet Electroless nickel plated brass
 - seat Teflon®
 - spring *main valve & bias* . . . 316 Stainless Steel
 - diaphragm 316 Stainless Steel
 - remaining parts 316 Stainless Steel

For other materials and modifications, please consult Tescom.

- ❑ Cleaning CGA 4.1 and ASTM G93
- ❑ Weight (without gauges) 2.75 lbs. (1.25 kg)

Pressure Conversion 14.5 PSIG = 1 bar 145 PSIG = 1 MPa

Teflon® is a registered trademark of Du Pont.

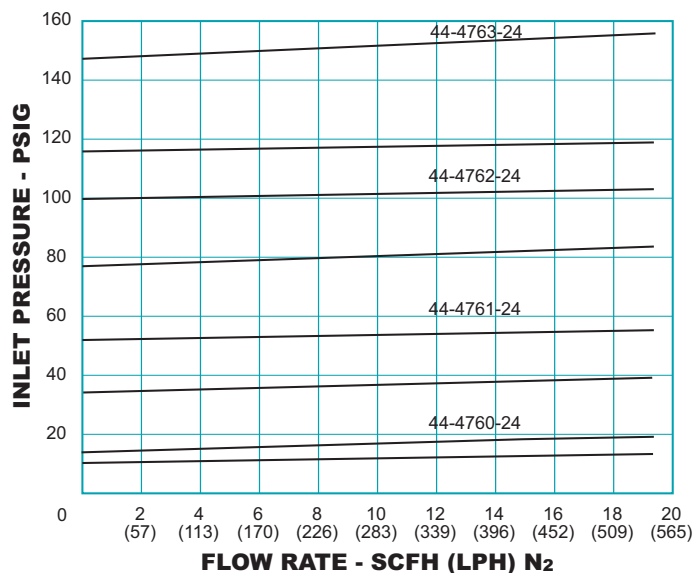
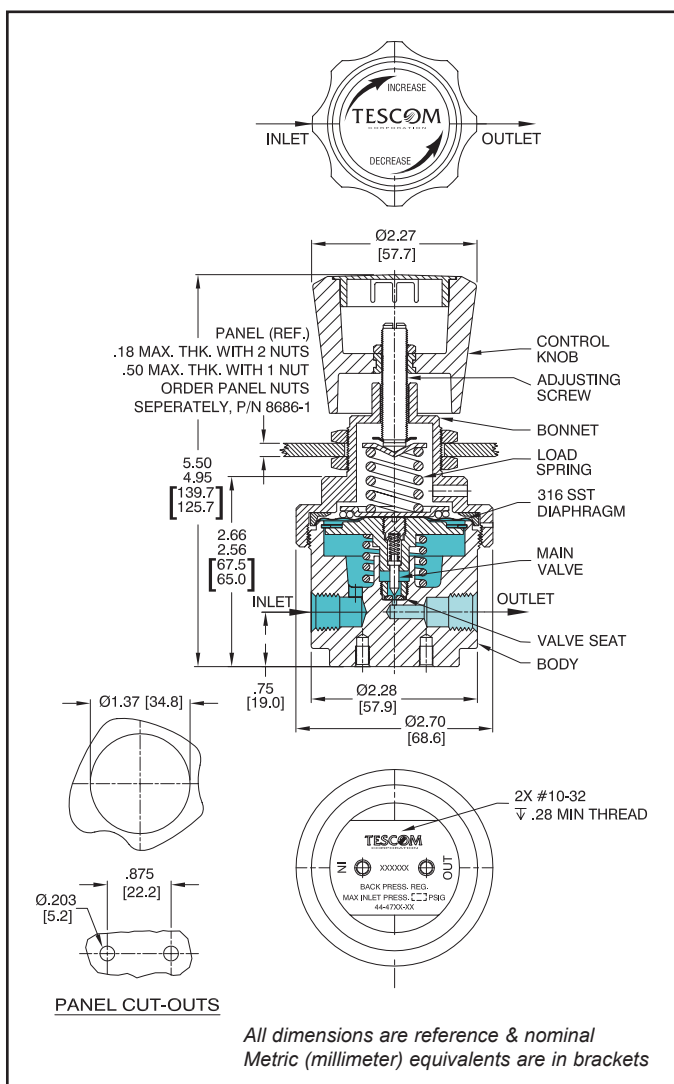


Advantages

- 316 stainless steel diaphragm provides metal to metal sealing integrity and good sensitivity
- Large sensing seat area ratio provides a low crack to reseal pressure differential and excellent repeatability
- Negative spring bias for vacuum systems
- Adjustable stop limits maximum outlet pressure
- Compatible with Tescom's ER3000 Electropneumatic PID controllers

44-4700 Series Absolute Pressure

Flow Chart



Part Number Selector

example part number:

44-47 6 0 - 2 4 -

BASIC SERIES	BODY MATERIAL	INLET PRESSURE RANGES	INLET & OUTLET PORT TYPE	INLET & OUTLET PORT SIZE	OPTIONS
44-47	6 - 316 Stainless Steel	0 - 28" Hg Vac - 15 PSIG 1 - 0 - 50 PSIG 2 - 0 - 100 PSIG 3 - 0 - 150 PSIG	1 - SAE 2 - NPT 3 - MS33649	4 - 1/4" 6 - 3/8"	- 501 - C _v = .30

Repair Kits, Accessories & Modifications may be available for this product. Please contact Tescom for more information.



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EMERSON
Process Management



Ultra-High Purity

maximum 600 or 3500 PSIG in/ranges up 250 PSIG out
economical/pressure reducing

64-2600 Series

Specifications

- ❑ **Operating Parameters**
 - pressure rating per criteria of ANSI/ASME B31.3
 - maximum rated inlet pressure 600 or 3500 PSIG
 - outlet pressure ranges . . . 0-30, 0-60, 0-100, 0-150 & 250 PSIG
 - design proof pressure . . . 150% of maximum rated pressure
 - inboard leak rate 1×10^{-9} atm cc/sec He
 - operating temperature:
 - PTCFE seat -40° F to +140° F
(-40° C to +60° C)
 - Teflon® seat -40° F to +160° F
(-40° C to +71° C)
 - VespeI® seat -40° F to +350° F
(-40° C to +177° C)
 - flow capacity $C_V = .06$ (3500 PSIG model)
 $C_V = .15$ (600 PSIG model)
 - decaying inlet characteristic
 $C_V = .06$ 0.7 change/100 PSIG inlet
- ❑ **Media Contact Materials**
 - body 316L SST Electropolish,
316L SST Internal Electropolish,
316L VAR SST Precision Electro-Polish (P.E.P)
 - diaphragm 316L SST or Hastelloy®
 - seat PCTFE or Teflon®
(VespeI® optional for 3500 PSIG model only)
 - spring 316 SST or Elgiloy®
 - stem, seat retainer, valve guide . . 316 SST or Hastelloy®
 - For other materials or modifications, please consult TESCO.*
- ❑ **Internal Surface Finish** . . 10 R_a or 5 R_a microinch
(.25 or .13 micrometer)
- ❑ **Connections**
 - Welded female or male VCR®
 - Tube stubs
 - High Purity Internal Connections (H.P.I.C.)
(Internal style of VCR®, compatible with male swivel VCR®)
- ❑ **Internal Volume** 5.75 cc
- ❑ **Weight (without gauges)** 2.0 lbs. (.9 kg)

Pressure Conversion 14.2 PSIG = 1 kg/cm² 145 PSIG = 1 MPa

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Hastelloy® is a registered trademark of Haynes International, Inc.
Elgiloy® is a registered trademark of Elgiloy Specialty Metals.
VCR® is a registered trademark of Cajon Co.



Advantages

- Optimum performance and cleanliness at a great value
- Internal surface finished to 10 R_a or 5 R_a , ensures minimal particle generation or entrapment
- True metal to metal body diaphragm seal provides enhanced leak integrity
- No bias spring or friction device in flow stream
- Adjustable stop to limit outlet pressure
- Positionable ported bonnet ring is available



Ultra-High Purity

maximum 1000 or 3500 PSIG in/ranges up to 150 PSIG out
economical/positive seal

64-2800 Series

Specifications

Operating Parameters

pressure rating per criteria of ANSI/ASME B31.3
 maximum rated inlet pressure 1000 or 3500 PSIG
 (70 or 246 kg/cm²)
 outlet pressure ranges . . . 1-30, 1-60, 1-100 & 1-150 PSIG
 (.1-2, .1-4, .1-7 & .1-10 kg/cm²)
 design proof pressure . . . 150% of maximum rated pressure
 design burst pressure . . . 400% of maximum rated pressure
 certified maximum inboard leak rate
 internal Bubble-tight
 external . . . 1 x 10⁻⁹ atm cc/sec He (ASTM test E499)
 operating temperature:
 PCTFE -40°F to +140°F (-40°C to +60°C)
 Vespel® -40°F to +350°F (-40°C to +176°C)
 flow capacity: 3500 PSIG model C_v = .06
 1000 PSIG model C_v = .15
 decaying inlet characteristic
 C_v = .06 0.8 change/100 PSIG
 C_v = .15 1.6 change/100 PSIG

Media Contact Materials

body 316L SST Electropolish, 316L SST Internal
 Electropolish, 316L VAR SST with Precision
 Electro-Polish (P.E.P.) or Hastelloy®
 valve seat PCTFE
 diaphragm, stem, spring . . . 316 Stainless Steel, Hastelloy®

For other materials or modifications, please consult TESCO.

Internal Surface Finish 5 or 10 R_a microinch
 (.13 or .25 micrometer)

Connections

Welded female or male VCR®
 Tube stubs
 High Purity Internal Connections (H.P.I.C.)
 (Internal style of VCR®, compatible with male swivel VCR®)

Cleaning . . . DI water electronic grade cleaned & ES500
 Particle Certified for internal electropolish or P.E.P. models

Internal Volume 5.75 cc

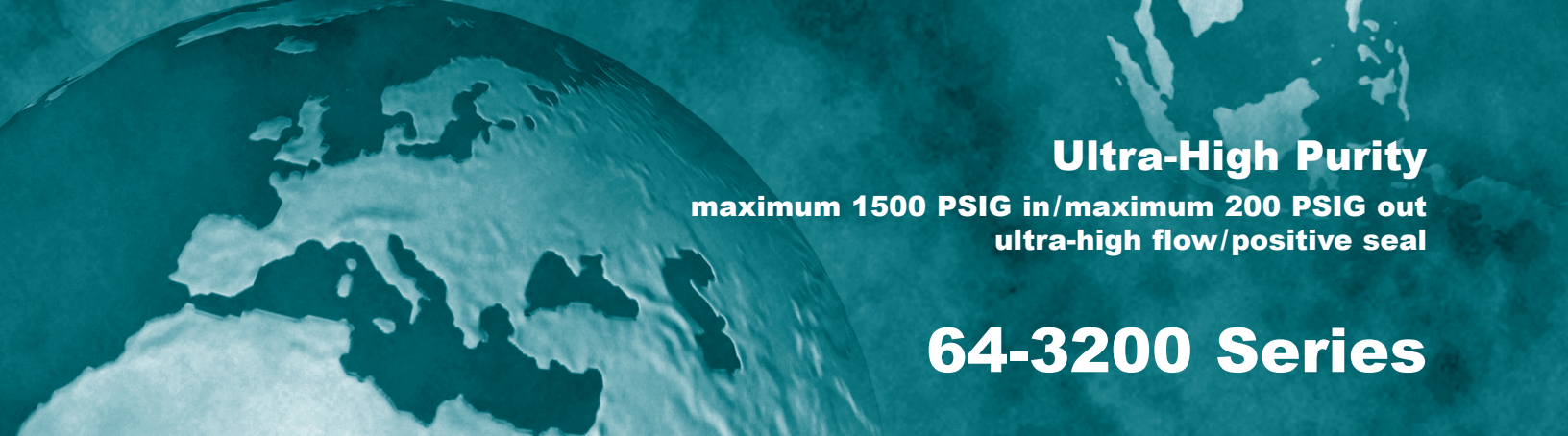
Weight (without gauges) 2 lbs. (.91 kg)



Advantages

- Positive shut-off minimizes 'creep'
- True metal-to-metal diaphragm to body seal
- 10 R_a or 5 R_a microinch internal surface finishes available
- Precision Electro-Polish (P.E.P.) available
- Dome loaded option available
- Hastelloy® trim optional

Vespe® is a registered trademark of DuPont.
 Hastelloy® is a registered trademark of Haynes International, Inc.
 VCR® is a registered trademark of Cajon Co.



Ultra-High Purity

maximum 1500 PSIG in/maximum 200 PSIG out
ultra-high flow/positive seal

64-3200 Series

Specifications

- ❑ **Operating Parameters**
 - pressure rating per criteria of ANSI/ASME B31.3
 - maximum rated inlet pressure . . . 150, 1000, 1500 PSIG
 - outlet pressure ranges 0-30, 0-60, 0-100, 0-150, 0-200 PSIG
 - design proof pressure. . . 150% of maximum rated pressure
 - inboard leak rate $<1 \times 10^{-9}$ atm cc/sec He
 - operating temperature:
 - Teflon® seat -40°F to +160°F (-40°C to +71°C)
 - PCTFE seat -40°F to +140°F (-40°C to +60°C)
 - flow capacity $C_v = 1.2$
- ❑ **Media Contact Materials**
 - body 316L SST with Electropolish or 316L SST with Internal Electropolish
 - diaphragm Hastelloy®
 - seat retainer 316 SST
 - poppet 316 SST or Hastelloy®
 - valve seat Teflon®, Vespel®, PCTFE
 - remaining parts 316 SST

For other materials or modifications, please consult TESCO.
- ❑ **Internal Surface Finish** 10 Ra microinch (.25 micrometer)
- ❑ **Connections**
 - Welded female or male VCR®
 - Tube stubs
 - High Purity Internal Connections (H.P.I.C.) (Internal style of VCR®, compatible with male swivel VCR®)
- ❑ **Internal Volume** (1/2" fitting) 32 cc
- ❑ **Weight (without gauges)** 3.5 lbs. (1.6 kg)

Pressure Conversion 14.2 PSIG = 1 kg/cm² 145 PSIG = 1 MPa

Teflon® and Vespel® is a registered trademark of DuPont.
Hastelloy-C® is a registered trademark of Haynes International, Inc.
VCR® is a registered trademark of Swagelok Company.



Advantages

- Designed for high flow bulk speciality gas
- Hastelloy® trim option available
- Positive shut-off seal, tied diaphragm design
- Excellent leak integrity is created by a metal-to-metal diaphragm to body seal

Ultra-High Purity, Two-Stage
maximum 3500 PSIG in/4 ranges up to 150 PSIG out
economical/accurate/pressure reducing

64-3400 Series

Specifications

Operating Parameters

pressure rating per criteria of ANSI/ASME B31.3
 maximum rated inlet pressure . . . 3500 PSIG (246 kg/cm²)
 outlet pressure ranges . . . 1-30, 1-60, 1-100 & 1-150 PSIG
 (.1-2, .1-4, .1-7 & .1-10.5 kg/cm²)
 design proof pressure . . . 150% of maximum rated pressure
 certified maximum inboard leak rate:
 seat < 4 x 10⁻⁹ atm cc/sec He
 diaphragm < 1 x 10⁻⁹ atm cc/sec He
 operating temperature:
 PCTFE seat -40° F to +140° F
 (-40° C to +60° C)
 Teflon PFA® seat -40° F to +160° F
 (-40° C to +71° C)
 flow capacity see Part Number Selector
 decaying inlet characteristic04 change/100 PSIG inlet

Media Contact Materials

body 316L SST Electropolish,
 316L SST Internal Electropolish
 diaphragm 316L Stainless Steel
 valve seat PCTFE or Teflon PFA®
 valve spring 316 SST
 valve stem & remaining parts 316 SST
 (Hastelloy® optional)

For other materials and modifications, please consult Tescom.

- Internal Surface Finish 10 Ra microinch
 (.25 micrometer)
- Connections
 Welded female or male VCR®
 Tube stubs
 High Purity Internal Connections (H.P.I.C.)
 (Internal style of VCR®, compatible with male swivel VCR®)
- Cleaning DI water electronic grade cleaned
- Internal Volume 10 cc
- Weight 3.0 lbs. (1.35 kg)

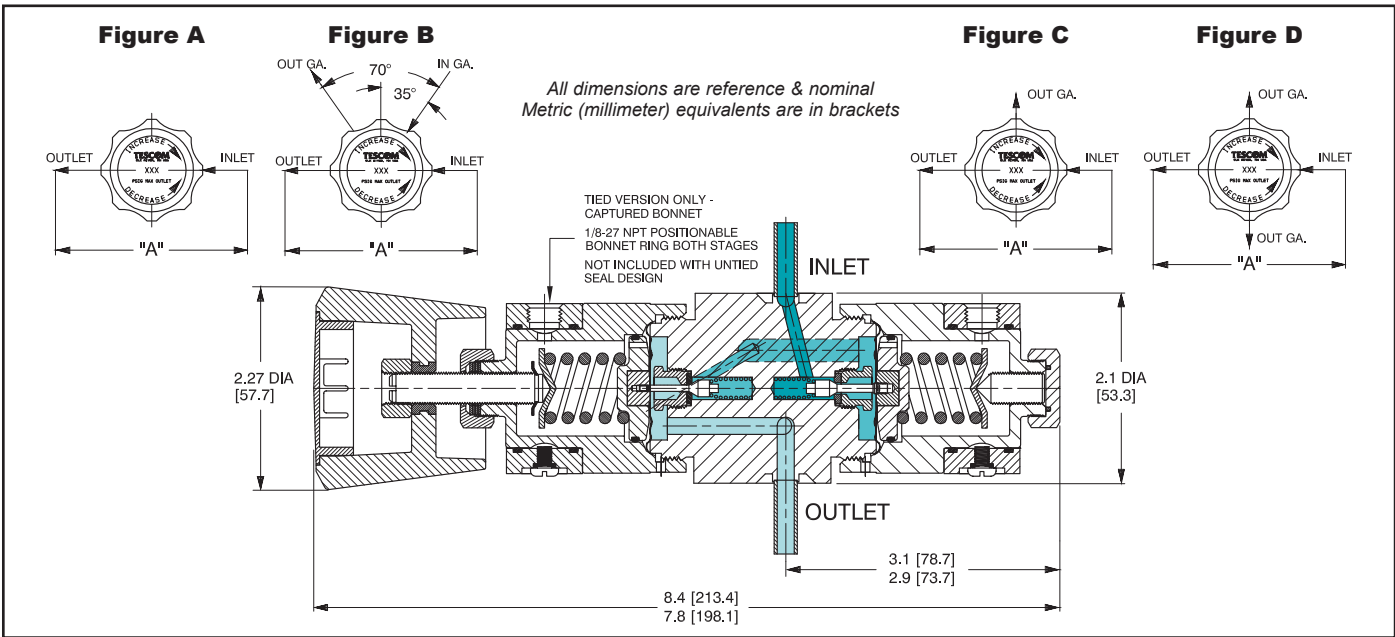


Advantages

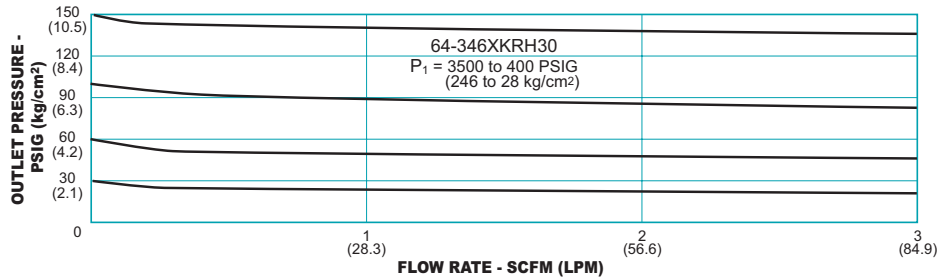
- 10 Ra microinch internal surfaces
- Full internal electropolish available
- True metal to metal body to diaphragm seal
- Choice of free poppet or tied diaphragm

Teflon® is a registered trademark of DuPont.
 Hastelloy® is a registered trademark of Haynes International, Inc.
 VCR® is a registered trademark of Cajon Co.

64-3400 Series Ultra-High Purity, Two-Stage



Flow Chart



Part Number Selector

example part number:

64-34 6 2 K A4 2 0

BASIC SERIES	BODY MATERIAL	OUTLET PRESSURE RANGES	SEAT MATERIAL	INLET & OUTLET PORT SIZE & TYPE 'A' ± .06"	SEAL DESIGN	C _v	GAUGE PORT OPTIONS NO. OF GAUGE PORTS (FIGURE)
64-34	4 - 316L Electropolish	0 - 1-30 PSIG (.1-2 kg/cm ²)	K - PCTFE T - Teflon PFA® (untied models only)	A4 - 1/4" H.P.I.C. (see text above)	1 - Untied . . . C _v = .06	0 - None 0 (fig. A) 1 - 1/4" H.P.I.C. 1 (fig. C) 2 - 1/4" H.P.I.C. 2 (fig. B) 3 - 1/4" H.P.I.C. 2 (fig. D) 4 - 1/4" Male Swivel 2 (fig. D) 5 - 1/4" Male Swivel 1 (fig. C) 6 - 1/4" Male Swivel 2 (fig. D) 7 - 1/4" Female Swivel . . . 2 (fig. D) 8 - 1/4" Female Swivel . . . 1 (fig. C) 9 - 1/4" Female Swivel . . . 2 (fig. B) S - 1/4" Fixed Male 2 (fig. B) T - 1/4" Fixed Male 1 (fig. C) U - 1/4" Fixed Male 2 (fig. D)	
		1 - 1-60 PSIG (.1-4 kg/cm ²)		RK - 1/2" Male Swivel 4.92"	2 - Tied . . . C _v = .06		
	2 - 1-100 PSIG (.1-7 kg/cm ²)	RL - 1/2" Female Swivel 4.92"		3 - Tied . . . C _v = .15			
	3 - 1-150 PSIG (.1-10.5 kg/cm ²)	RM - 1/4" Male Swivel 3.70"		4 - Tied . . . C _v = .15 (Hastelloy® Trim)			
	6 - 316L Internal Electropolish			RT - 1/4" Female Swivel 3.70"			
				RU - IN Port: 1/4" Male; OUT Port: 1/4" Female . . . 3.70"			
				RV - IN Port: 1/4" Female; OUT Port: 1/4" Male 3.70"			
				T4 - 1/4" Tube Stubs 3.00"			

Repair Kits, Accessories & Modifications may be available for this product. Please contact Tescom for more information.

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Ultra-High Purity/Highly Sensitive

maximum 600 or 3500 PSIG in/1-30, 1-60, 1-100 & 1-150 PSIG out
low droop/tied or untied main valve

64-3600 Series

Specifications

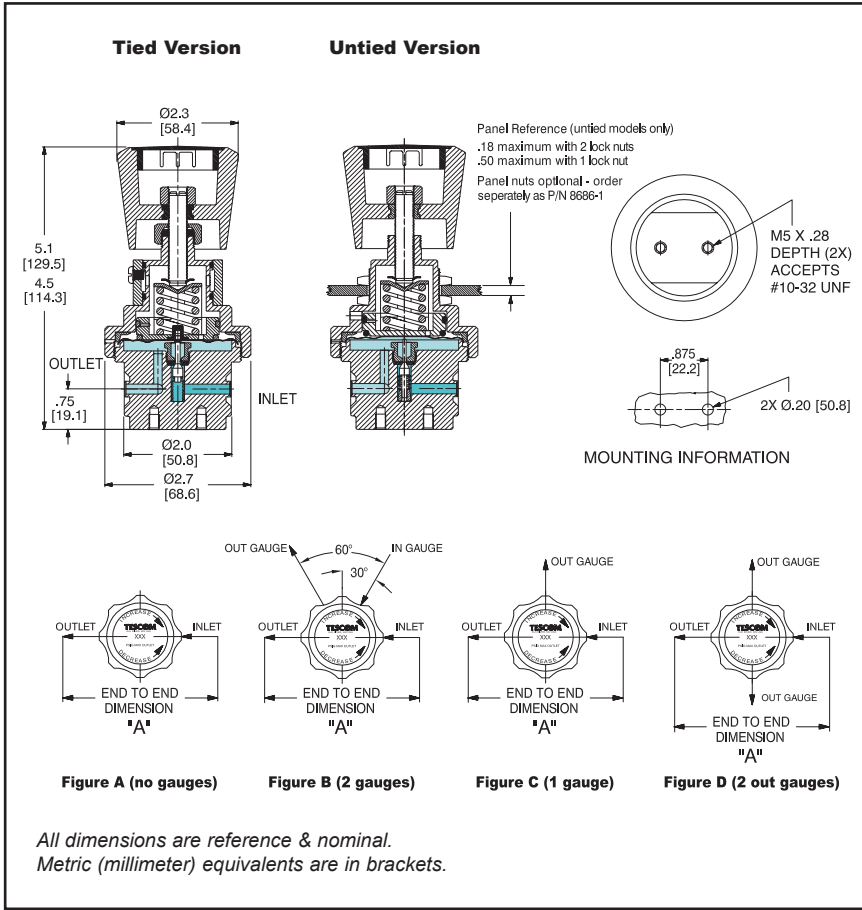
- ❑ Operating Parameters
 - pressure rating per criteria of ANSI/ASME B31.3
 - maximum rated inlet pressure . . . 600 or 3500 PSIG
(42.2 or 246.1 kg/cm²)
 - outlet pressure ranges 1-30, 1-60, 1-100 &
1-150 PSIG (.1-2.1, .1-4.2, .1-7.0 & .1-10.5 kg/cm²)
 - design proof pressure 150% of maximum rated pressure
 - certified maximum
 - inboard leak rate 1 x 10⁻⁹ atm cc/sec He
 - operating temperature:
 - PCTFE seat -40°F to +140°F (-40°C to +60°C)
 - Teflon® seat -40°F to +160°F (-40°C to +71°C)
 - VespeI® seat -40°F to +350°F (-40°C to +176°C)
 - flow capacity C_v = .15 or .06
 - decaying inlet characteristic:
 - C_v = .15 0.4 change/100 PSIG (.28/7000 mbar) inlet
 - C_v = .06 0.2 change/100 PSIG (.14/7000 mbar) inlet
- ❑ Media Contact Materials
 - body 316L Stainless Steel Electropolish or
316L Stainless Steel Internal Electropolish
 - diaphragm Hastelloy®
 - valve seat PCTFE, Teflon® or VespeI®
 - stem and valve spring 316 Stainless Steel
 - remaining parts 316 Stainless Steel or Hastelloy®
 - For other materials or modifications, please consult Tescom.*
- ❑ Internal Surface Finish 10 R_a microinch
(.25 micrometer)
- ❑ Connections
 - Welded female or male VCR®
 - Tube stubs
 - High Purity Internal Connections (H.P.I.C.)
 - Internal style of VCR®, compatible with male swivel VCR®.
- ❑ Cleaning . . . DI water electronic grade cleaned & ES500
Particle Certified for internal electropolish models
- ❑ Internal Volume 12 cc
- ❑ Weight 2.0 lbs. (.9 kg)



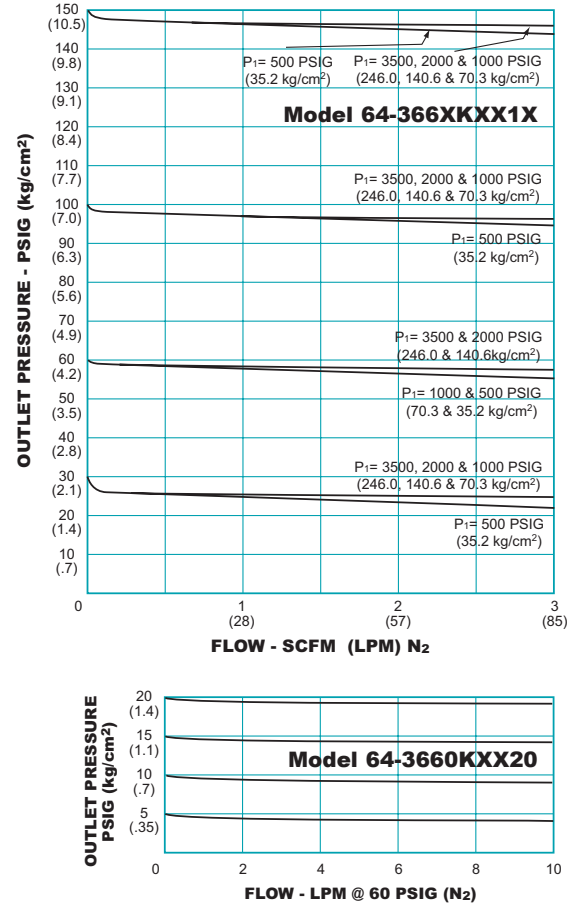
Advantages

- 10 R_a microinch internal surface finishes
- True metal to metal seal (body to diaphragm)
- Full internal electropolish available
- 0.1 micron particle certification available
- Designed to reduced pressure fluctuations in semiconductor gas systems
- Meets the stringent semiconductor requirements of both point of use and cylinder applications

Teflon® and VespeI® are registered trademarks of Du Pont.
VCR® is a registered trademark of Cajon Co.
Hastelloy® is a registered trademark of Haynes International, Inc.



Flow Charts



Part Number Selector

example part number:

64-36 6 2 K A 4 2 0

BASIC SERIES	BODY MATERIAL	OUTLET PRESSURE RANGES	SEAT MATERIAL	INLET & OUTLET PORT SIZE & TYPE	SEAL, FLOW (C _v) MAXIMUM INLET PRESSURE	GAUGE PORT OPTIONS	NUMBER OF GAUGE PORTS
64-36	4 - 316L SST Electropolish	0 - 1-30 PSIG (.1-2.1 kg/cm ²)	K - PCTFE T - Teflon® (untied model only) V - Vespel®	A4 - 1/4" H.P.I.C. 1.11"	1 - Untied, C _v = .06 3500 PSIG (246 kg/cm ²)	0 - None 0 (fig. A)	0 (fig. A)
	6 - 316L SST Internal Electropolish	1 - 1-60 PSIG (.1-4.2 kg/cm ²)		RG - 1/4" Male Swivel 4.50"		2 - Untied, C _v = .15 600 PSIG (42 kg/cm ²)	
		2 - 1-100 PSIG (.1-7.0 kg/cm ²)		RK - 1/2" Male Swivel 4.75"	3 - Tied, C _v = .06 3500 PSIG (246 kg/cm ²)	2 - 1/4" H.P.I.C. 2 (fig. B)	2 (fig. B)
		3 - 1-150 PSIG (.1-10.5 kg/cm ²)		RL - 1/2" Female Swivel 4.75"		3 - 1/4" H.P.I.C. 2 (fig. D)	
				RA - 1/4" Male Fixed 3.51"	4 - Tied, C _v = .15 3500 PSIG (246 kg/cm ²)	4 - 1/4" Male Swivel 2 (fig. D)	2 (fig. D)
				RM - 1/4" Male Fixed 3.70"		5 - 1/4" Male Swivel 1 (fig. C)	
				RT - 1/4" Female Swivel 3.70"	5 - Tied, C _v = .15 3500 PSIG (246 kg/cm ²) (Hastelloy® trim)	6 - 1/4" Male Swivel 2 (fig. D)	2 (fig. D)
				RU - IN Port: 1/4" Male Fixed; OUT Port: 1/4" Female Swivel . . . 3.70"		7 - 1/4" Female Swivel . . . 2 (fig. D)	
				RV - IN Port: 1/4" Female Swivel; OUT Port: 1/4" Male Fixed 3.70"		8 - 1/4" Female Swivel . . . 1 (fig. C)	1 (fig. C)
				T4 - 1/4" Tube Stubs 3.70"		9 - 1/4" Female Swivel . . . 2 (fig. B)	
						S - 1/4" Fixed Male 2 (fig. B)	2 (fig. B)
						T - 1/4" Fixed Male 1 (fig. C)	
						U - 1/4" Fixed Male 2 (fig. D)	2 (fig. D)

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 Fax: 763-241-3209 • email: hpc@tescom.com
 19111 Industrial Boulevard • Elk River, MN 55330 USA



Ultra-High Purity
maximum 3500, 1000, 600 or 300 PSIG in
ranges of 28" Hg Vac - 15 PSIG, 3-30, 3-60, 4-100 & 4-150 PSIG out
high flow/internally threadless

74-3000 Series

Specifications

❑ Operating Parameters

pressure rating per criteria of ANSI/ASME B31.3
 maximum rated inlet pressure . . . 300, 600, 1000 or 3500 PSIG
 (21, 42, 70 or 246 kg/cm²)
 outlet pressure ranges 28" Hg Vac - 15 PSIG, 3-30
 3-60, 4-100 & 4-150 PSIG (28" Hg Vac - 1 kg/cm²,
 .2-2, .2-4, .3-7 & .3-10 kg/cm²)
 design proof pressure 150% of rated pressure
 design burst pressure 400% of rated pressure
 certified maximum
 inboard leak rate <1 x 10⁻⁹ atm cc/sec He
 operating temperature:
 Vespel® seat -40° F to +300° F (-40° C to +149° C)
 PCTFE seat -40° F to +200° F (-40° C to +93° C)
 Teflon PFA® seat . . . -40° F to +160° F (-40° C to +71° C)
 flow capacity C_v = .5
 decaying inlet characteristic 1.3 PSIG/100 PSIG

❑ Media Contact Materials

body 316L VAR SST with electropolish or
 316L VAR SST with Precision Electro-Polish (P.E.P.)
 diaphragm Hastelloy®
 stem, seal & remaining parts 316 Stainless Steel
 valve seat:
 3500 PSIG Vespel®
 1000 PSIG PCTFE
 600 PSIG Teflon PFA®

❑ Internal Surface Finish . . . 5 R_a or 10 R_a microinch (.13 or .25 micrometer)

❑ Connections

Welded female or male VCR®
 Tube stubs
 High Purity Internal Connections (H.P.I.C.)
 (internal style of VCR®, compatible with male swivel VCR®)

❑ Cleaning DI water electronic grade cleaned & additionally ES500 Particle Certified for internal Precision Electro-Polished (P.E.P.) models

❑ Internal Volume 14 cc with 1/2" VCR®

❑ Weight 3.2 lbs. (1.5 kg)



Advantages

- Compact, hand-loaded & pressure reducing
- Low internal volume
- Smooth unobstructed flow path for complete purging
- Tescom's Precision Electro-Polish (P.E.P.) available
- Internally threadless
- Absolute pressure range model available
- Excellent leak integrity is created by metal to metal diaphragm to body seal

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 VCR® is a registered trademark of Cajon Co.
 Hastelloy® is a registered trademark of Haynes International, Inc.





Ultra-High Purity

maximum 3500 PSIG in/4 ranges up to 150 PSIG out
high flow/positive seal

74-3800 Series

Specifications

- ❑ **Operating Parameters**
 - pressure rating per criteria of ANSI/ASME B31.3
 - maximum rated inlet pressure . . . 600, 1000, 3500 PSIG
 - outlet pressure ranges . . . 0-30, 0-60, 0-100 & 0-150 PSIG
 - design proof pressure . . . 150% of maximum rated pressure
 - inboard leak rate $< 1 \times 10^{-9}$ atm cc/sec He
 - operating temperature:
 - Vespe^l® -40°F to +350°F (-40°C to +177°C)
 - PCTFE -40°F to +160°F (-40°C to +71°C)
 - Teflon PFA® -40°F to +160°F (-40°C to +71°C)
 - flow capacity $C_v = .5$
 - decaying inlet characteristic 1.3 PSIG/100 PSIG
- ❑ **Media Contact Materials**
 - body . . . 316L VAR SST with electropolish or 316L VAR SST with Precision Eletro-Polish (10 or 5 Ra microinch finish)
 - diaphragm 316 SST or Hastelloy®
 - valve seat Vespe^l® (3500 PSIG Inlet)
PCTFE (600, 1000 PSIG Inlet)
Teflon PFA® (600 PSIG Inlet)
 - remaining parts 316 Stainless Steel
- ❑ **Internal Surface Finish** . . 10 R_a or 5 R_a microinch (.25 or .13 micrometer)
- ❑ **Connections**
 - Welded female or male VCR®
 - Tube stubs
 - Compression
 - High Purity Internal Connections (H.P.I.C.)
(Internal style of VCR®, compatible with male swivel VCR®)
- ❑ **Internal Volume** 15 cc
- ❑ **Weight (without gauges)**. 3.2 lbs. (1.5 kg)

Pressure Conversion 14.2 PSIG = 1 kg/cm² 145 PSIG = 1 MPa

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VCR® is a registered trademark of Cajon Co.
Hastelloy® is a registered trademark of Haynes International, Inc.



Advantages

- Internal surface chemistry is enhanced by TESCO^M's Precision Electro-Polish (P.E.P.) process
- Internally springless & threadless design
- Excellent leak integrity is created by a metal to metal diaphragm to body seal
- Smooth unobstructed flow path allows for complete purging.
- Positive shut-off seal, tied diaphragm design with positionable captured vent bonnet
- Hastelloy C® trim option available

Pressure Reducing
maximum 300 PSIG in/ranges up to 300 PSIG out
spring loaded/dome loaded

DH-16 Series

Specifications

- ❑ **Operating Parameters**
 pressure rating per criteria of ANSI/ASME B31.3
 maximum rated inlet pressure 300 PSIG
 outlet pressure ranges . . . 0-20, 0-50, 0-100, 0-150,
 0-250 or 0-300 (dome loaded only) PSIG
 design proof pressure 150% of rated pressure
 leakage bubble-tight
 operating temperature -20° F to +165° F
 (-28° C to +73° C)
 flow capacity $C_v = 5.0$
- ❑ **Media Contact Materials**
 body, bonnet, back cap 316 Stainless Steel
 diaphragm Gylon®
 seat, vent. CTFE, Vespel®, Peek
 seat, main valve Buna-N 90, E.P. 80,
 Chemraz 75®, Viton®
 o-rings Buna-N, E.P., Chemraz®, Viton®
 remaining parts 300 Series SST/Nitronic 60
- For other materials and modifications, please consult TESCO.*
- ❑ **Internal Surface Finish** 20 Ra microinch
 (.63 micrometer)
- ❑ **Connections - Inlet & Outlets**
 Welded female or male VCR®, tube stubs, sanitary
- ❑ **Connections - Gauges**
 NPT
 High Purity Internal Connections (H.P.I.C.)
 (internal style of VCR®, compatible with male swivel VCR®)
- ❑ **Cleaning** CGA 4.1 and ASTM G93
- ❑ **Weight** 15 lbs. (6.8 kg)

Pressure Conversion 14.5 PSIG = 1 bar 145 PSIG = 1 MPa



SHOWN WITH SANITARY CONNECTIONS

Advantages

- $C_v=5.0$ flow capacity
- Gylon® diaphragm
- Low droop, high flow
- Five outlet pressure ranges
- Accurately regulates pressures up to 250 PSIG (300 PSIG for dome loaded)
- Welded sanitary connections, tube stubs and VCR® fittings available

VCR® is a registered trademark of Cajon Co. Vespel® and Viton® are registered trademarks of DuPont.
 Gylon® is a registered trademark of Garlock, Inc. Chemraz® is a registered trademark of Greentweed.

Electronic Pressure Controller

Digital, PID Control

ER3000 Series

Description

The ER3000 Electronic Pressure Controller, combined with a wide range of pressure regulators and an external transducer, provides true distributed control of liquids or gases from vacuum to 20,000 PSIG. As a stand alone unit, the ER3000 can control the pressure of dry, clean inert gases from 0 to 100 PSIG. It will give your system closed loop feedback control with exceptional accuracy and response time.

ER3000SI - Standard ER3000 Features:

- Precise accuracy
- Compatible pressure regulators available from vacuum to 20,000 PSIG with flow capacities of $C_V = .02$ to 45
- Control algorithms for I/P, external feedback or cascade control modes
- Selectable setpoint signal source
 - External analog: 4-20 mA or 1-5 VDC
 - Digital RS485 (no A/D or D/A boards necessary)
 - Downloaded profile (runs independent of PC)
- Selectable feedback signal source
 - Internal 0-100 PSIG sensor
 - External analog: 4-20 mA or 1-5 VDC
- Selectable failsafe features
 - Programmable limits for analog setpoint, feedback, and error signals
 - Failsafe states: hold last pressure, vent, or full open
- Non-interacting zero and span
- Watertight, corrosion resistant NEMA 4X enclosure
- Windows® 95/98/NT/2000/XP and MS-DOS® software provided for data acquisition, PID tuning (real time graphic display of setpoint and feedback), debugging, and pressure profiles
- Protocol software provided for easy customization as a DLL in Windows® 95/98/NT/2000/XP, 'C' library in MS-DOS®
- May be used with UI4000
- Software examples are provided for LabVIEW™, Visual Basic®, LabWindows/CVI™, and Visual C++® in Windows® 95/98/NT/2000/XP and 'C' in MS-DOS®
- As many as 32 ER3000 Controllers can be networked at a distance up to 4000 feet away via a 2-wire RS485 link
- Vacuum may be controlled by using just the ER3000 and a subatmospheric transducer

ER3000SV - Standard ER3000 Features:

- All features of the ER3000SI except analog setpoint and feedback signals are 0-10 VDC



ER3000FI & ER3000FV - Enhanced ER3000 Features:

- All features of the ER3000SI and ER3000SV are included
- Two additional analog/digital inputs allow the user to:
 - Monitor an external signal in addition to feedback (e.g. flow, temperature)
 - Start/stop (or resume/stop) and pause pressure profiles
 - Alternate between two separate external feedback sources
 - Wait for an event to occur before proceeding to the next step in a downloaded profile (digital input)
 - Indicate that a step has occurred in a downloaded profile (digital output)
- Analog sensor output

ER3000EX, ER3000GX & ER3000H - Explosion Proof Features:

- Explosion proof versions of ER3000SX, ER3000FX and ER3000U have Factory Mutual (FM) approval for use in Class I, Division I, Groups B, C, and D areas
- Approvals: FM, CSA and CE*

ER3000MX, ER3000NX & ER3000P - KEMA Explosion Proof Features:

- Explosion proof versions of ER3000SX, ER3000FX and ER3000U have KEMA approval for use in areas per ATEX marking: II 2 G Eex d IIB + H₂ T4
- Approvals: KEMA/CENELEC and CE*

*All ER30XX-X Series units have CE approval when wired per CE approved wiring instructions in the manual.

Specifications

□ Electrical

1. Power Requirement 20.5 to 28.5 VDC, 340 mA maximum, 180 mA nominal
2. Turn-on Time <240 milliseconds
3. Restart from Power Interruption <1.9 seconds

□ Supply Requirement

1. Media Type Clean, dry inert gas or shop air
2. Pressure Minimum: Output Pressure + 1 PSIG, Maximum: 120 PSIG, Nominal: 110 PSIG
3. Temperature* -20° F to 170° F (-30° C to 75° C) (dry media required below 32° F)
4. Filter In line 40 micron filter recommended

□ Input Signal

1. Setpoint 4-20 mA, 1-5 VDC or Digital RS 485 (0-10 VDC for ER3000XV)
2. Feedback (*external*) 4-20 mA or 1-5 VDC (0-10 VDC for ER3000XV)

□ Performance

1. Accuracy
 - Linearity ±0.05% Full Scale Output (FSO)
 - Hysteresis ±0.05% (FSO)
 - Repeatability ±0.05% (FSO)
 - Resolution Sensitivity ±0.03% (FSO)
 - Measured Reference Accuracy (*total accuracy all effects including Zero and Span Error*) ±0.10% (FSO)
 - Temperature Effect ±0.002% / degrees F of FSO (-20° F to +170° F)
±.0036%/ degrees C of FSO (-30° C to 75° C)
- Low Pressure Capability with External Transducer ±0.25 inches water (.635 g /sq. cm) into 2 liter volume
2. Response Time
 - Lift Off <70 milliseconds
 - Rise Time [10-90 PSIG (.69- 6.21)] 350 milliseconds [1 cubic inch volume (32.8 cc)]
 - Fall Time [90-10 PSIG (6.21-.69)] 650 milliseconds [1 cubic inch volume (32.8 cc)]
 - Frequency Response
 - Amplitude Attenuation -3db @ 2 Hz
 - Phase Shift -90 degrees @ 2 Hz
3. Flow Capacity C_v=0.01 (Maximum Flow = 18 lpm)
4. Solenoid Valve Rated Cycle Life >150 million cycles

□ Physical

1. Size
 - Gas Ports (*Inlet, Exhaust & Gauge*) 1/8 inch - 27 NPT
 - Controlled Outlet Port 1/4 inch - 18 NPT
 - Internal Volume 16.3 cubic inches (267 cc)
 - Length 4.2 inches (106.7 mm)
 - Diameter 3.72 inches (94.5 mm)
 - Conduit Openings Two, 1/2 inch NPT
2. Weight 34.8 oz. (1.0 kg)
3. Housing Rating
 - Standard NEMA 4X (cast aluminum & epoxy polyester paint)
 - Explosion Proof Version CSA and FM approval for Class I, Division 1, Groups B, C and D locations
 - European Explosion Proof Version KEMA approval per (Ex d IIB + H₂ T4)
4. Flow Stream Materials
 - Solenoids nickel plated brass, Viton® seat and o-rings
 - Sensor glass, ceramic, silicon, RTV, nickel
 - Manifold glass filled PET
 - Tubing polyurethane
 - Plug brass
 - O-rings Silicone, Buna-N, Viton®
5. Mounting Four 8-32 UNC holes
6. Mounting Orientation Effect None

□ Environment

1. Temperature Range* -20° F to +170° F (-30° C to +76° C)
2. Relative Humidity* 98% @ 65° C (cover off - no effect)
3. Vibration
 - Resonance Sweep 5 Hz to 2000 Hz @ .5 g constant acceleration
 - Resonance Dwell 5 minutes at each resonance point (3 axis)
 - Sine Sweep5 octaves / minute, 5 Hz to 2000 Hz (3 axis)
5 Hz to 10 Hz @ 10 mm constant displacement
10 Hz to 2000 Hz @ 2.0 g constant acceleration (No effect)
4. Storage Temperature* -58° F to 200° F (-50° C to +95° C)

* All temperature conditions for Explosion Proof versions must satisfy: -4° F ≤ T ≤ 140° F (-20° C ≤ T ≤ 60° C)

ER3000 Basics

ER3000 Basics

All ER3000 Controllers require 24 VDC with a minimum of 250 mAmps, up to 120 PSIG shop air supply and a setpoint signal. The ER3000 is shipped configured to accept an analog setpoint, either 1-5 volts or 4-20 mAmps (0-10 VDC for ER3000XV). This can be changed to accept a digital setpoint from a computer over the RS485 network using the provided software. This software also allows the user to tune and monitor the system and acquire data. If the ER3000 is used in External or Cascade mode, an analog 1-5 volt or 4-20 mAmp (0-10 VDC for ER3000XV) feedback signal is also required.

ER3000 Tuning

Since PID parameters need to change between static (dead-ended) and dynamic (flowing) pressure states, the ER3000 has the flexibility to be tuned for different system conditions. The Proportional, Integral and Derivative (PID) variables are adjustable to:

- achieve the quickest response to a setpoint change without overshoot or oscillation
- achieve the best performance for a non-changing setpoint

TESCOM presets PID variables as standard, or customized for a specific TESCOM regulator. The user can then optimize the PID parameters after installation for best possible static and/or dynamic results to satisfy the user's system requirements using communication software provided in Windows® or MS-DOS®.

ER3000 Communication

The ER3000 communicates using an RS485 based protocol developed at TESCOM. The protocol is nonproprietary, allowing users to develop their own software to interface with a device, such as a PLC, that is not MS-DOS® or Windows® based.

ER3000 Software

The ER3000 protocol software is provided to assist in developing process control software that communicates with the ER3000. The protocol is available as a DLL for Windows® 95/98/NT/2000/XP, and a 'C' library for MS-DOS®. The protocol software uses six functions to communicate to the ER3000. The functions are: StartUp, ReadNetVar, WriteNetVar, ReadProfileSegment, WriteProfileSegment, and Shutdown.

MS-DOS® Programs Provided

TUNE, ERTALK, DEBUG, PROFILE, PROFILE2 AND DATA_LOG.

ER3000 Modifications

ER3020X-1 Integrated Pressure Control Systems

The base of the ER3020X-1 is designed to integrate with either a 26-102XXXXA-568 Double Piston Regulator or a 269-529-04IM and 269-529-06IM Flow Boosters. See Modification Table in the Part Number Selector section for details.

ER3000X-2 Low Flow Controller

Designed for use in slow response applications such as analyzers, temperature control or flow control. The ER3000X-2 is equipped with low flow solenoid valves that match the ER response to the system response.

ER3000X-4 High Flow Controller

Designed for use in high flow applications, this ER3000 may be used to deliver up to 5 SCFM ($C_v=0.09$).

ER3000SI-1W Prewired Controller

The ER3000SI-1W is designed to provide a 'turnkey system' for the customer. The unit comes complete with the power supply and converter kit wired directly to the ER3000SI-1.

ER3100 Series High Pressure Controller

See ER3100 Series catalog sheet (Form #1923) for information.