# UHP REGULATORS

U Series



#### 100% Helium Leak Test

#### **Connection Point**

Connection points at the pressure gauge and body, inlet/outlet connection and body, are arc welded using advanced automated welding machines, effectively preventing leakage, enhancing seal characteristics

## **Pressure Gauge**

- 316L stainless steel case provides durability
- German imported Bourdon tubes provide high accuracy and stability

## Inlet/Outlet Connection

- ► Fabricated from 316L stainless steel
- Multiple connection styles available:
   Face Seal Male FSR(M), Face Seal
   Female FSR(F) as well as swivel face
   seal fittings and tube weld connections

## Body

- ► Fabricated from high-strength corrosion-resistant 316L stainless steel bar stocks
- Fabricated with advanced CNC machines to produce the highest quality of parts
- Wetted area are electropolished, Surface Finish of 10µin is optional
- 316L & Hastelloy diaphragms produce a metal to metal, leak-proof seal
- Multiple Port Configurations and inlet/outlet connections to satisfy all requirements

## UHP Regulators

#### U21 Series

GENTEC U21 Series single-stage regulators are hand adjustable, pressure reducing regulators for applications ranging from non-corrosive, corrosive, and toxic gases. Our metal-to-metal diaphragm to body seal is designed to minimize leakage and to provide excellent accuracy and longevity.



#### Features

- 316L stainless steel body
- Metal to metal diaphragm to body seal
- Easy front panel and rear bracket mounting
- Gauge ports are standard with 1/4" face seal male. Internal 1/4" face seal female is also available
- Fully internal electropolished
- Cleaned, assembled and packaged for high purity semiconductor applications
- High-cycle life
- 100% Helium-leak tested

#### **Operating Conditions**

Maximum inlet pressure: 500 psi (35 bar),

3000 psi (206 bar)

Outlet pressure: 0-25 psi (1.7 bar), 0-50 psi (3 bar),

0-100 psi (7 bar), 0-250 psi (17 bar),

0-500 psi (35 bar)

Temperature: -40°F to 165°F (-40°C to 74°C)

#### Materials

Body: 316L stainless steel

Seat: PCTFE\*, Vespel®

Diaphragm: 316L stainless steel

Poppet: 304 stainless steel

Remaining part: 316 stainless steel

#### Surface Finish

- Standard Ra: 20 μin
- Optional Ra (EP): 10 μin

#### Internal Volume

▶ 4.6 cc

#### **Functional Performance**

Flow capacity: Cv=0.14

Maximum leak Rate:

Inboard leakage: 2 x 10<sup>-8</sup> atm cc/sec He Across seat leakage: 4 x 10<sup>-8</sup> atm cc/sec He

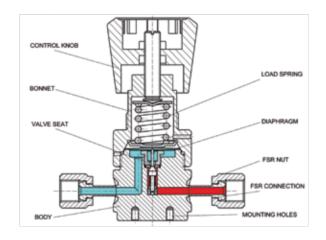
Proof pressure: 150% of maximum rated pressure

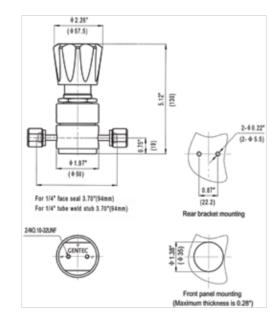
Burst pressure: 400% of maximum rated pressure

<sup>\*:</sup> Standard Material

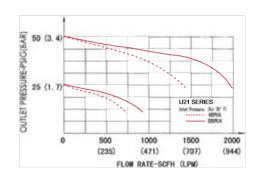
## ■ U21 Series

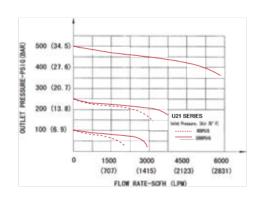
## **Dimensions**





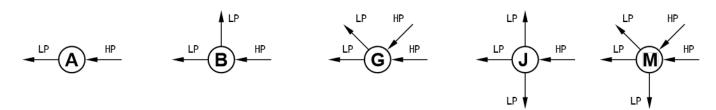
## Flow Data





## Ordering Information

EX:	U21	SL	В	K	- D	F	P -	91 - 92	- P
	Series	Body	Ports	Seat	Inlet Pressure	Outlet Pressure	Gauge	Inlet / Outlet Connection	Options
	U21	SL: 316L	A B G J M	K: PCTFE V: Vespel®	D: 3000 psi F: 500 psi	F: 0~500 psi G: 0~250 psi I: 0~100 psi K: 0~50 psi L: 0~25 psi	W: Without Gauge P: with psi / bar gauge	90: 1/4" internal female FSR 91: 1/4" swivel female FSR 92: 1/4" swivel male FSR 41: 1/4" weld stub	E: Ra 10 µin P: Panel Mounting H: Hastelloy® Diaphragm



#### U22 Series

GENTEC U22 Series single-stage regulators are purge gas, pressure reducing regulators. Applicable to gas system for non-corrosive, corrosive, and toxic gases. Our metal-to-metal diaphragm to body seal is designed to minimize leakage and to provide excellent accuracy and longevity.



#### Features

- 316L stainless steel body
- Metal to metal diaphragm to body seal
- Easy front panel and rear bracket mounting
- Gauge ports are standard with 1/4" face seal male. Internal 1/4" face seal female is also available
- Fully internal electropolished
- Cleaned, assembled and packaged for high purity semiconductor applications
- High-cycle life
- 100% Helium-leak tested

#### Operating Conditions

- Maximum inlet pressure: 500 psi (35 bar), 3000 psi (206 bar)
- Outlet pressure: 0-25 psi (1.7 bar), 0-50 psi (3 bar), 0-100 psi (7 bar), 0-150 psi (10 bar), 0-250 psi (17 bar)
- Temperature: -40°F to 165°F (-40°C to 74°C)

#### Materials

- Body: 316L stainless steel
- Seat: PCTFE\*, Vespel®
- Diaphragm: 316L stainless steel
- Poppet: brass ( nickel plated)
- Remaining part: 316 stainless steel

#### Surface Finish

- Standard Ra: 20 μin
- Optional Ra (EP): 10 μin

#### Internal Volume

≥ 22.6 cc

## **Functional Performance**

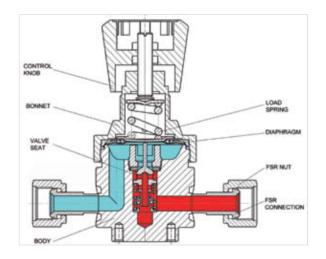
- Flow capacity: Cv=1.1
- Maximum leak rate:

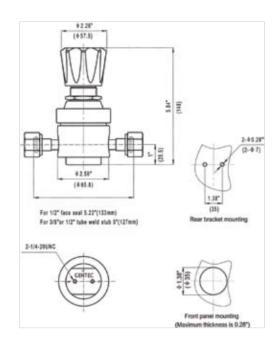
Inboard leakage: 2 x 10-8 atm cc/sec He
Across seat leakage: 4 x 10-8 atm cc/sec He

- Proof pressure: 150% of maximum rated pressure
- ▶ Burst pressure: 400% of maximum rated pressure

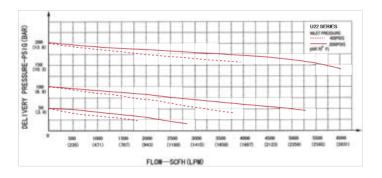
## ■ U22 Series

## **Dimensions**



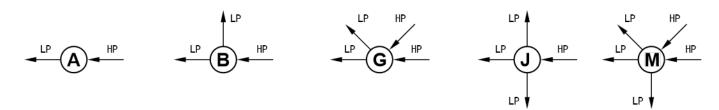


## Flow Data



## Ordering Information

Series Body	Ports Seat	Inlet	Outlet			
		Pressure	Pressure	Gauge	Inlet / Outlet Connection	Options
B G J:	A: 2 port K: PCTFE B: 3 port V: Vespel® G: 4 port J: 4 port M: 5 port	D: 3000 psi F: 500 psi	G: 0~250 psi H: 0-150 psi I: 0~100 psi K: 0~50 psi L: 0~25 psi	W: without gauge P: with psi / bar gauge	95: 1/2" FSR(F) 96: 1/2" FSR(M)	E: 10 µin P: Panel mounting H: Hastelloy® Diaphragm



#### U23 Series

GENTEC U23 Series single-stage regulators are ideal purge regulators for low pressure and high purity systems, especially for heavy duty gas flow applications. Our metal-to-metal diaphragm to body seal is designed to minimize leakage and to provide excellent accuracy and longevity.



#### Features

- 316L stainless steel body
- Metal to metal diaphragm to body seal
- Easy front panel and rear bracket mounting
- Gauge ports are standard with 1/4" face seal male. Internal 1/4" face seal female is also available
- Fully internal electropolished
- Cleaned, assembled and packaged for high purity semiconductor applications
- High-cycle life
- 100% Helium-leak tested

#### Operating Conditions

- Maximum inlet pressure: 500 psi (35 bar), 3000 psi (206 bar)
- Outlet pressure: 0-25 psi (1.7 bar), 0-50 psi (3 bar),

0-100 psi (7 bar), 0-150 psi (10 bar)

Temperature: -40°F to 165°F (-40°C to 74°C)

#### Materials

Body: 316L stainless steel

Seat: PCTFE\*, Vespel®

Diaphragm: 316L stainless steel

Poppet: 316 stainless steel

Remaining part: 316 stainless steel

#### Surface Finish

- Standard Ra: 20 μin
- Optional Ra (EP): 10 μin

#### Internal Volume

▶ 59.9 cc

## **Functional Performance**

Flow capacity: Cv=1.8

Maximum leak rate:

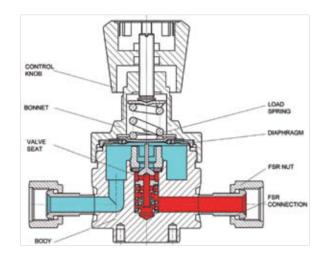
Inboard leakage: 2 x 10-8 atm cc/sec He
Across seat leakage: 4 x 10-8 atm cc/sec He

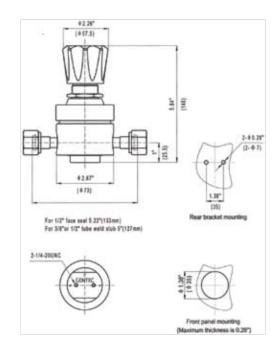
Proof pressure: 150% of maximum rated pressure

Burst pressure: 400% of maximum rated pressure

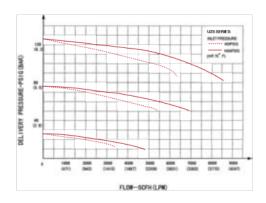
## ■ U23 Series

## **Dimensions**



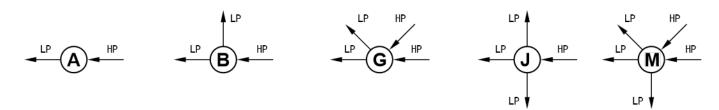


## Flow Data



## Ordering Information

EX:	U23	SL	В	K	- D	Н	P -	95 - 95	- P
	Series	Body	Ports	Seat	Inlet Pressure	Outlet Pressure	Gauge	Inlet / Outlet Connection	Options
	U23	SL: 316L	A B G J M	K: PCTFE V: Vespel®	D: 3000 psi F: 500 psi	H: 0-150 psi I: 0~100 psi K: 0~50 psi L: 0~25 psi	W: without gauge P: with psi / bar gauge	95: 1/2" FSR(F) 96: 1/2" FSR(M)	E: 10 µin P: Panel mounting H: Hastelloy <sup>®</sup> Diaphragm



#### U53 Series

GENTEC U53 Series single-stage regulators are a threadless, high purity, non-tied diaphragm design. Our metal-to-metal diaphragm to body seal is designed to minimize leakage and to provide excellent accuracy and longevity.



#### Operating Conditions

- Maximum inlet pressure: 300 psi (20 bar)
- Outlet pressure: 0-30 psi (2 bar)
- Temperature: 0°F to 140°F (-18°C to 60°C)

## Surface Finish

Standard Ra (EP): 10 μin

#### Internal Volume

▶ 9.3 cc

#### Features

- 316L body
- Metal to metal diaphragm to body seal
- Easy front panel and rear bracket mounting
- Gauge ports are standard with 1/4" face seal male. Internal 1/4" face seal female is also available
- Internally threadless nozzle assembly
- Standard fully internal electropolished
- Designed for very low particle generation
- Cleaned, assembled and packaged for high purity semiconductor applications
- High-cycle life
- 100% Helium-leak tested

#### Materials

- Body: 316L stainless steel
- Seat: PCTFE
- Diaphragm: Elgiloy®, Hastelloy®
- Poppet: 316 stainless steel, Hastelloy®
- Compression member: 316 stainless steel, Hastelloy®
- Remaining part: 316 stainless steel, Hastelloy®

## **Functional Performance**

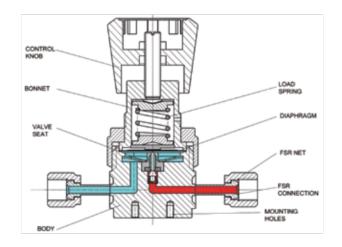
- Flow capacity: Cv=0.054
- Maximum leak rate:

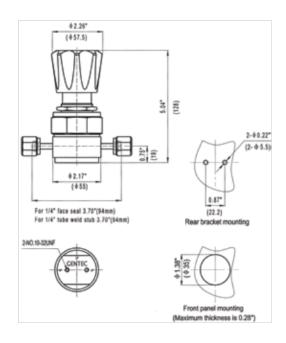
Inboard leakage: 0.5 x 10<sup>-9</sup> atm cc/sec He Across seat leakage: 1 x 10<sup>-9</sup> atm cc/sec He

- Proof pressure: 150% of maximum rated pressure
- Burst pressure: 400% of maximum rated pressure

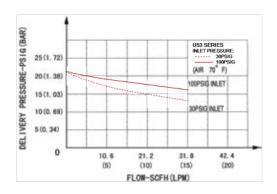
## ■ U53 Series

## **Dimensions**





## Flow Data



## Ordering Information

EX:	U53	SL	В	K	- G	L	P -	91 - 92	- P
	Series	Body	Ports	Seat	Inlet Pressure	Outlet Pressure	Gauge	Inlet / Outlet Connection	Options
	U23	SL: 316L	A B G J	K: PCTFE	G: 300 psi	L: 0~30 psi	W: without gauge P: with psi / bar gauge	90: 1/4" internal female FSR 91: 1/4" swivel female FSR 92: 1/4" swivel male FSR 41: 1/4" weld stub	P: Panel mounting H: Hastelloy <sup>®</sup> Diaphragm

