

# CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

## INTRODUCING CARTEN'S RG REGULATOR SERIES

ULTRA-HIGH PURITY  
REGULATORS



## RG Regulator Series

### Ultra-High Purity Regulators

Carten regulators now used with every equipment manufacturer and chip-maker in the world, available in multiple flow rate and pressure ranges for all gas types

#### Key Features

Available in line sizes up to 1"

Metal-to-metal external seals

Multiple inlet and outlet pressure ranges

Meets all hysteresis and droop standards

#### Typical Applications

High performance and precise pressure control in point-of-use and medium flow gas systems, gas-mixing systems, valve manifold boxes (VMB), gas mixing panels, high durability vacuum service, tool hook-up pressure control and stage-down, ultra-high-purity gas control for point-of-use service, gas sticks, and critical application containment functionality.

#### Key Specifications

Materials of Construction	Cleanliness	Specifications	Options
316L stainless body	Manufactured in Class 100 Cleanroom	Leak tested using Mass spectrometer $<1 \times 10^{-9}$ mbar.l/s	Gauges – upstream, downstream
316L poppet and components	Zero particles @0.1 $\mu$ m	<10Ra micro-inch surface roughness	PFA / PI seat high temperature
Bar 316L material	<10ppb O <sub>2</sub> /H <sub>2</sub> O outgassing	Vacuum and pressure tested 100% production control	Multiple inlet and outlet pressure ranges
PCTFE standard seat (minimal volume)	Cleaned using 18.2M $\Omega$ ·cm DI water	250/150p.s.i. operating pressure	Multiple inlet and outlet flow rate ranges

## SINGLE STAGE REGULATORS - LOW PRESSURE

Model	Size	Material	Hastelloy Internal	Tied Diaphragm	Inlet Pressure	Outlet Pressure	Leak Rate (atm cc/sec)	Cv	Grade
RG1	1/4"	S SH DH	○		600 PSIG	1~250 PSIG	1x10 <sup>-9</sup>	0.2	BA EP
RG2	3/8" 1/2"	S D	○		1000 PSIG 600 PSIG	1~150 PSIG	1x10 <sup>-9</sup>	0.5	BA EP
RG3	1/4"	S SH DH	○	●	1000 PSIG 600 PSIG	1~250 PSIG	1x10 <sup>-9</sup>	0.2	BA EP
RG4	3/8" 1/2"	S SH DH	○	●	1000 PSIG 600 PSIG	1~150 PSIG	1x10 <sup>-9</sup>	0.5	BA EP

## SINGLE STAGE REGULATORS - HIGH PRESSURE

Model	Size	Material	Hastelloy Internal	Tied Diaphragm	Inlet Pressure	Outlet Pressure	Leak Rate (atm cc/sec)	Cv	Grade
RG1	1/4"	S SH DH	○		3500 PSIG	1~250 PSIG	1x10 <sup>-9</sup>	0.06	BA EP
RG2	3/8" 1/2"	S D	○		3500 PSIG	1~150 PSIG	1x10 <sup>-9</sup>	0.5	BA EP
RG3	1/4"	S SH DH	○	●	3500 PSIG	1~250 PSIG	1x10 <sup>-9</sup>	0.2	BA EP
RG4	3/8" 1/2"	S SH DH	○	●	3500 PSIG	1~150 PSIG	1x10 <sup>-9</sup>	0.5	BA EP

## SINGLE STAGE REGULATORS - MICRO REGULATORS

Model	Size	Material	Hastelloy Internal	Tied Diaphragm	Inlet Pressure	Outlet Pressure	Leak Rate (atm cc/sec)	Cv	Grade
MRG3	1/4" 3/8"	S SH DH	○		150 PSIG	1~100 PSIG	1x10 <sup>-9</sup>	0.06	BA EP
MRG5	1/4"	S SH DH	○		500 PSIG	1~100 PSIG	1x10 <sup>-9</sup>	0.1	BA EP
MRG7	1/4"	S SH DH	○	●	500 PSIG	1~100 PSIG	1x10 <sup>-9</sup>	0.1	BA EP

## SINGLE STAGE REGULATORS - HIGH FLOW

Model	Size	Material	Hastelloy Internal	Tied Diaphragm	Inlet Pressure	Outlet Pressure	Leak Rate (atm cc/sec)	Cv	Grade
HFRG	1/4"~1/2"	S D			500 PSIG	1~150 PSIG	1x10 <sup>-9</sup>	0.85	BA EP
HFRG2	1/4"~3/4"	S D			250 PSIG	1~100 PSIG	1x10 <sup>-9</sup>	1.6	BA EP
HFRG3	3/8"~1" 15A~25A	S D			500 PSIG	1~100 PSIG	1x10 <sup>-9</sup>	1.0	BA EP
HFRG4	1/2" 3/4" 1"	S			300 PSIG	1~150 PSIG	1x10 <sup>-9</sup>	5.0	BA EP
AHFRG	15A~50A	S			300 PSIG	1~130 PSIG	1x10 <sup>-9</sup>	8.0	BA EP

### LEGEND

○	Standard
●	Optional

### GRADE

BA	10 RA μinch
EP	Electropolishing 5 RA μinch

### MATERIAL

Division	Body	Wetted parts	Valve spring	Seat	Diaphragm
S	316L Stainless Steel	316L Stainless Steel	SUS316L-WPA	PCTFE PFA PI	HASTELLOY C-22
SH	316L Stainless Steel	HASTELLOY C-22	INCONEL 750		
D	316L Stainless Steel VAR	316L Stainless Steel VAR	SUS316L-WPA		
DH	316L Stainless Steel VAR	HASTELLOY C-22	INCONEL 750		

## SELECTION GUIDE

No.	GAS		REGULATOR						
			BODY		SEAT				
			SUS	HAS	PCTFE	PFA	PI	FKM	PTFE
1	Argone	Ar	○	○	○	○	○	○	○
2	Arsine	AsH <sub>3</sub>	○	X	○	○	-	-	○
3	Diborane	B <sub>2</sub> H <sub>6</sub>	○	○	○	○	○	-	○
4	Boron Trichlorede	BCl <sub>3</sub>	○	○	○	-	X	-	○
5	Halocarbon-TIG Hexafluoroethane	C <sub>2</sub> F <sub>6</sub>	○	○	○	○	-	-	○
6	Ethene, Ethylene	C <sub>2</sub> H <sub>4</sub>	○	○	○	-	○	○	○
7	Perfluoropropane	C <sub>3</sub> F <sub>8</sub>	○	○	○	-	-	-	○
8	Sifrn®46 Hexafluorobutadiene	C <sub>4</sub> F <sub>6</sub>	-	○	-	-	-	-	○
9	Octafluorocyclobutane	C <sub>4</sub> F <sub>8</sub>	○	○	-	-	-	-	○
10	Octafluorocyclopentene	C <sub>5</sub> F <sub>8</sub>	-	○	-	-	-	-	○
11	Tetrafluoromethane	CF <sub>4</sub>	○	○	-	○	○	-	○
12	Difluoromethane	CHF <sub>2</sub>	-	○	-	○	-	-	○
13	Methyl Fluoride	CHF <sub>3</sub>	○	○	-	-	-	-	○
14	Methane	CH <sub>4</sub>	○	○	○	○	○	○	○
15	Trifluoromethane	CHF <sub>3</sub>	○	○	-	○	○	-	○
16	Chlorine	Cl <sub>2</sub>	○	○	○	○	○	○	○
17	Chlorotrifluoromethane	ClF <sub>3</sub>	-	○	-	-	-	-	○
18	Carbon Monoxide	CO	○	○	-	○	-	-	○
19	Carbon Dioxide	CO <sub>2</sub>	○	○	○	○	○	-	○
20	Deuterium	D <sub>2</sub>	○	○	○	-	-	-	○
21	≤20%Fluorine	≤20%F <sub>2</sub>	-	○	-	-	-	-	○
22	Germane	GeH <sub>4</sub>	○	○	-	-	-	○	○
23	Hydrogen Bromine	HBr	○	○	-	-	X	X	○
24	Hydrogen Chloride	HCl	X	○	○	○	X	-	○
25	Helium	He	○	○	○	○	○	○	○
26	Ammonia	NH <sub>3</sub>	○	○	○	○	X	X	○
27	Nitrogen	N <sub>2</sub>	○	○	○	○	○	○	○
28	Nitrous Oxide	N <sub>2</sub> O	○	○	○	○	○	○	○
29	Nitrogen Trifluoride	NF <sub>3</sub>	○	○	-	○	X	X	○
30	Nitrogen Monoxide	NO	○	○	-	-	X	X	○
31	Oxygen	O <sub>2</sub>	○	○	○	○	○	○	○
32	Phosphine	PH <sub>3</sub>	○	○	○	-	X	-	○
33	Sulfur Hexafluoride	SF <sub>6</sub>	○	○	○	-	○	○	○
34	Disilane	Si <sub>2</sub> H <sub>6</sub>	○	○	-	-	○	X	○
35	Silicon Tetrafluoride	SiF <sub>4</sub>	X	○	○	-	-	X	○
36	Dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub>	X	○	○	○	X	X	○
37	Silane	SiH <sub>4</sub>	○	○	○	○	○	○	○
38	Trichlorosilane	SiHCl <sub>3</sub>	○	○	○	○	-	-	○
39	Sulfur Dioxide	SO <sub>2</sub>	○	○	○	○	-	-	○
40	Tungsten Hexafluoride	WF <sub>6</sub>	X	○	○	○	X	X	○
41	Xenon	Xe	○	○	○	○	○	○	○

## RG1 SERIES

### ULTRA HIGH PURITY REGULATOR

- Designed for point-of-use medium flow to be used in process gas cabinets for gas companies, equipment manufactures and semiconductor manufacturers.
- Precise control of gas pressure at or near the process tool for flow rates of up to 250 SLPM at 300 PSIG inlet.
- All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

### SPECIFICATIONS

#### Fluid Media

All gases corrosive or non-corrosive or those requiring high purity regulation compatible with materials of construction. For other media, consult with factory.

#### Pressure Rating (Per criteria of ANSI / ASME B31.3.)

Max. rated inlet pressure	3500 or 600 PSIG (241 or 41 bar)
Outlet pressure ranges	1-30, 1-60, 1-100, 1-150 or 1-250 PSIG (.1-2.1, .1-4.1, .1-6.9, .1-10.3 or .1-17.3bar)
Design proof pressure	150% of Maximum rated pressure

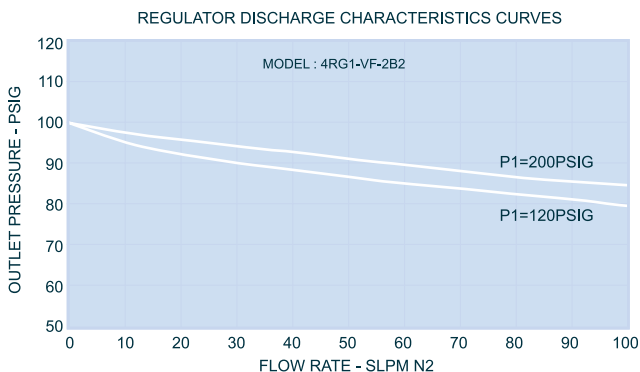
#### Materials in Contact with Media

Body	316L Stainless Steel with BA, Electropolish
Seat	PCTFE (PI optional for 3500 PSIG model only)
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel / Hastelloy C-22 / Inconel 750

#### Other Parameters

Flow coefficient	Cv = 0.06 (3500 PSIG model), Cv = 0.2 (600 PSIG model)	
Certified maximum inboard leak rate	$1 \times 10^{-9}$ atm cc / sec He	
Internal surface finish	10Ra or 5Ra microinch (.25 or .13 micrometer)	
Operating temperature	PCTFE seat	-15°F to +176°F (-26°C to +80°C)
	PI seat	-15°F to +350°F (-26°C to +177°C)
Weight (w/o gauges)	2.0lbs. (0.9kg)	

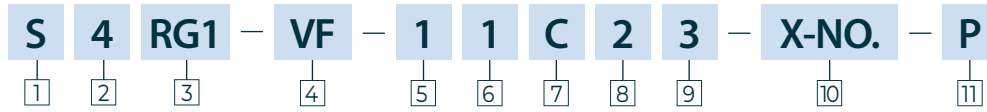
### FLOW CURVES



### MATERIAL

Wetted Parts	RG1 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel Hastelloy C-22
Main Valve	316L Stainless Steel Hastelloy C-22
Valve Spring	316L Stainless Steel Inconel 750
Valve Bush	316L Stainless Steel Hastelloy C-22
Seat	PCTFE (Option : PI)
Diaphragm	Hastelloy C-22

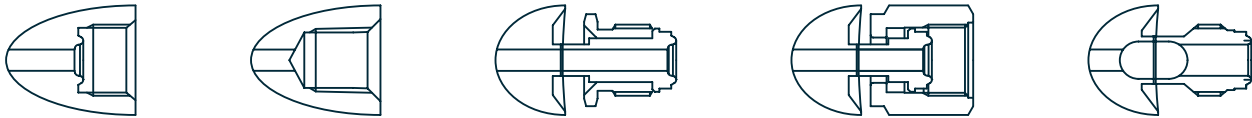
## Order Information



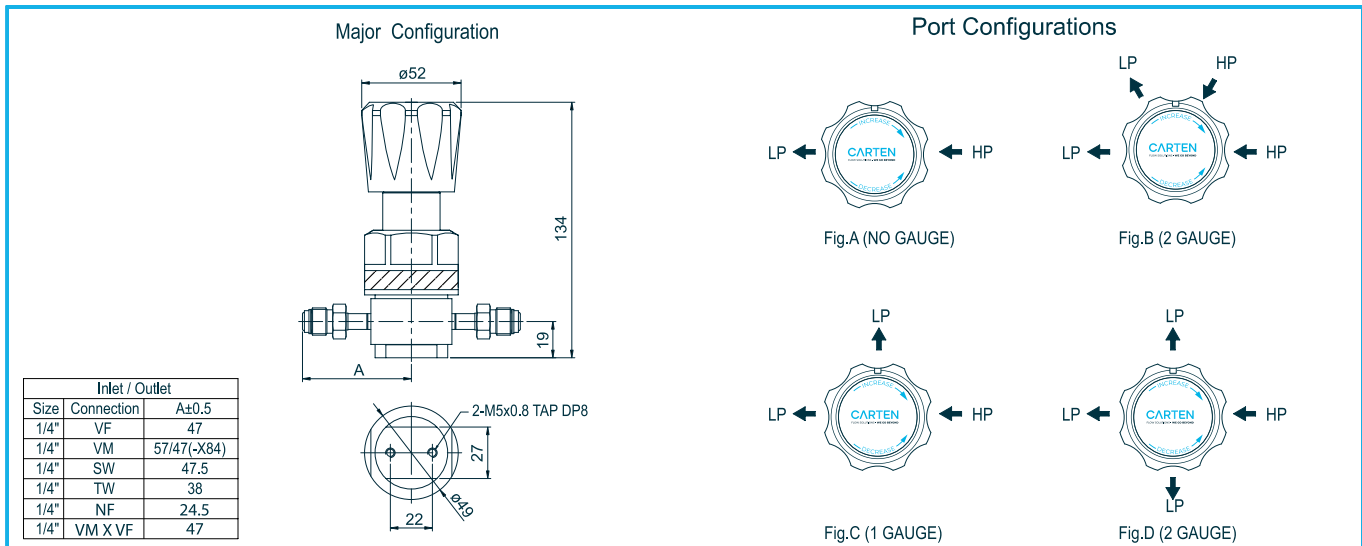
<b>1</b> Material	S = 316L Stainless steel	SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
<b>2</b> Connection Size	4 = 1/4"	
<b>3</b> Product	RG1 Series	
<b>4</b> Connection Type	NF = Female NPT Thread SW = Compression Lok Fitting TW = Tube Butt Weld	VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed Male Type Face Seal
<b>5</b> Maximum Inlet Pressure	1 = 3500 PSIG	2 = 600 PSIG
<b>6</b> Maximum Range of Inlet Gauge	1 = 600 PSIG 2 = 1000 PSIG 3 = 3500 PSIG	4 = 4000 PSIG Blank = No Gauge
<b>7</b> Gauge Port Configuration	A = No Gauge Port (Fig. A) B = 1/4" Internal Face Seal (Fig. C) C = 1/4" Internal Face Seal (Fig. B) D = 1/4" Internal Face Seal (Fig. D) E = 1/4" Male Face Seal (Fig. D) F = 1/4" Male Face Seal (Fig. C) G = 1/4" Male Face Seal (Fig. B) H = 1/4" Female Face Seal (Fig. D)	I = 1/4" Female Face Seal (Fig. C) J = 1/4" Female Face Seal (Fig. B) K = 1/4" Fixed Male Face Seal (Fig. B) L = 1/4" Fixed Male Face Seal (Fig. C) M = 1/4" Fixed Male Face Seal (Fig. D) N = 1/4" Female NPT Thread (Fig. B) O = 1/4" Female NPT Thread (Fig. C) P = 1/4" Female NPT Thread (Fig. D)
<b>8</b> Outlet Pressure Range	0 = 1 ~ 30 PSIG 1 = 1 ~ 60 PSIG 2 = 1 ~ 100 PSIG	3 = 1 ~ 250 PSIG 4 = 1 ~ 150 PSIG
<b>9</b> Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG 3 = 160 PSIG	4 = 200 PSIG 5 = 300 PSIG Blank = No Gauge
<b>10</b> User Option	Customization (※ Standard : Blank)	
<b>11</b> Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)	

## GAUGE PORT INFORMATION

1/4" INTERNAL FACE SEAL    1/4" FEMALE NPT THREAD    1/4" MALE FACE SEAL    1/4" FEMALE FACE SEAL    1/4" FIXED MALE FACE SEAL



## PORT CONFIGURATION



## RG2 SERIES

### ULTRA HIGH PURITY REGULATOR

- Designed for point-of-use high flow to be used in process gas cabinets for gas companies, equipment manufactures and semiconductor manufacturers.
- The RG2 provides precise control of process gas pressure at or near the tool for flow rates of up to 600 SLPM at 300 PSIG inlet.
- All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

### SPECIFICATIONS

#### Fluid Media

All gases corrosive or non-corrosive or those requiring high purity regulation compatible with materials of construction. For other media, consult with factory.

#### Pressure Rating (Per criteria of ANSI / ASME B31.3.)

Max. rated inlet pressure	600, 1000, 3500 PSIG (41, 69, 241 bar)
Outlet pressure ranges	1-30, 1-60, 1-100 and 1-150 PSIG (.1-2.1, .1-4.1, .1-6.9 and .1-10.3bar)
Design proof pressure	150% of Maximum rated pressure

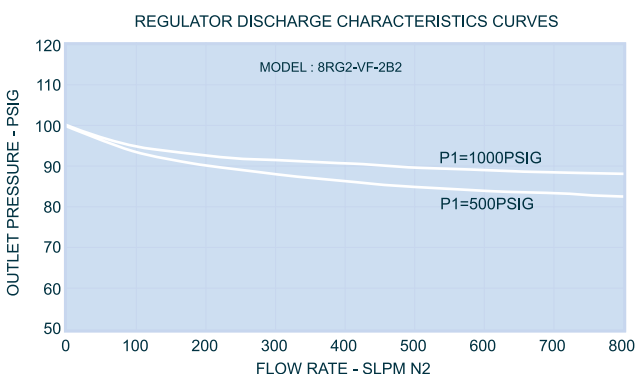
#### Materials in Contact with Media

Body	316L Stainless Steel with BA, Electropolish
Seat	3500PSIG - PI / 1000PSIG - PCTFE / 600PSIG - PFA
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel

#### Other Parameters

Flow coefficient	Cv = 0.5	
Certified maximum inboard leak rate	$1 \times 10^{-9}$ atm cc / sec He	
Internal surface finish	10Ra or 5Ra microinch (.25 or .13 micrometer)	
Operating temperature	PFA seat	-15°F to + 159.8°F (-26°C to +71°C)
	PCTFE seat	-15°F to + 200°F (-26°C to +93°C)
	PI seat	-15°F to + 350°F (-26°C to +149°C)
Weight (w/o gauges)	3.5lbs. (1.6kg)	

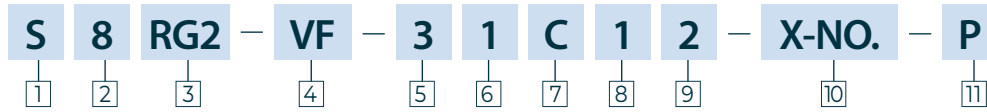
### FLOW CURVES



### MATERIAL

Wetted Parts	RG2 Series
Body	316L Stainless Steel
Main Valve	316L Stainless Steel
Valve Spring	316 Stainless Steel Inconel 750
Seat	PFA PCTFE PI
Diaphragm	Hastelloy C-22

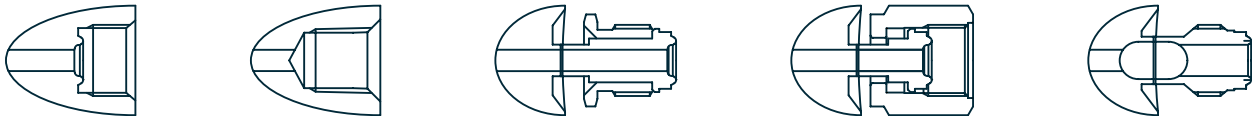
## Order Information



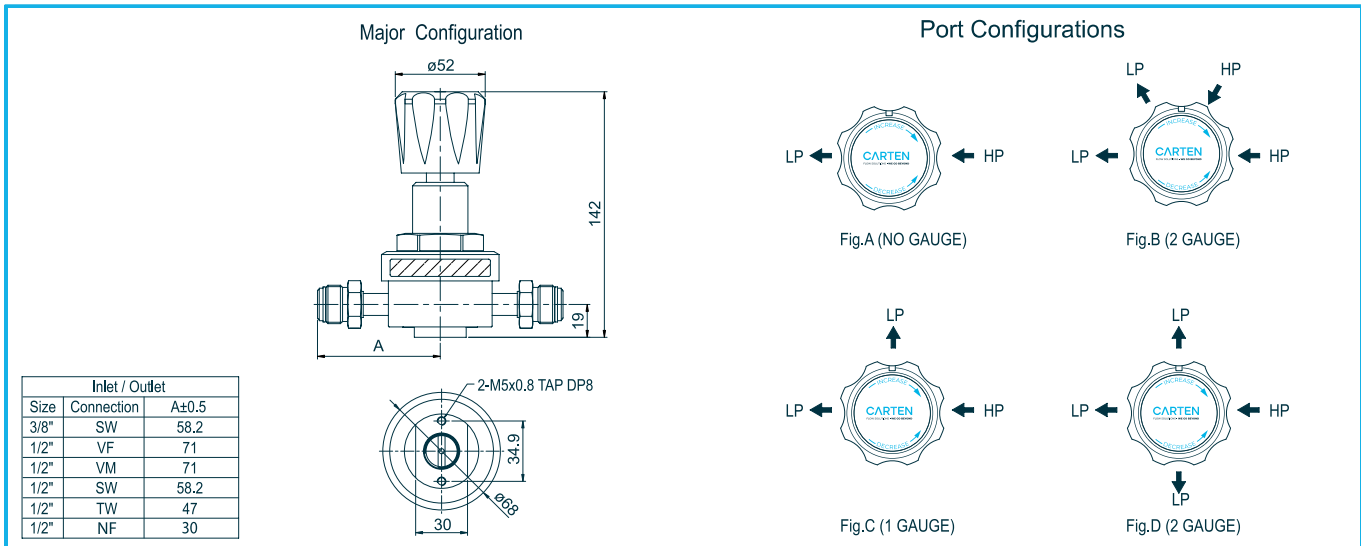
<b>1 Material</b>	S = 316L Stainless steel D = 316L Stainless steel VAR	
<b>2 Connection Size</b>	6 = 3/8" 8 = 1/2"	
<b>3 Product</b>	RG2 Series	
<b>4 Connection Type</b>	NF = Female NPT Thread SW = Compression Lok Fitting TW = Tube Butt Weld	VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed Male Type Face Seal
<b>5 Maximum Inlet Pressure</b>	1 = 3500 PSIG 2 = 1000 PSIG	3 = 600 PSIG
<b>6 Maximum Range of Inlet Gauge</b>	1 = 600 PSIG 2 = 1000 PSIG 3 = 3500 PSIG	4 = 4000 PSIG Blank = No Gauge
<b>7 Gauge Port Configuration</b>	A = No Gauge Port (Fig. A) B = 1/4" Internal Face Seal (Fig. C) C = 1/4" Internal Face Seal (Fig. B) D = 1/4" Internal Face Seal (Fig. D) E = 1/4" Male Face Seal (Fig. D) F = 1/4" Male Face Seal (Fig. C) G = 1/4" Male Face Seal (Fig. B) H = 1/4" Female Face Seal (Fig. D)	I = 1/4" Female Face Seal (Fig. C) J = 1/4" Female Face Seal (Fig. B) K = 1/4" Fixed Male Face Seal (Fig. B) L = 1/4" Fixed Male Face Seal (Fig. C) M = 1/4" Fixed Male Face Seal (Fig. D) N = 1/4" Female NPT Thread (Fig. B) O = 1/4" Female NPT Thread (Fig. C) P = 1/4" Female NPT Thread (Fig. D)
<b>8 Outlet Pressure Range</b>	0 = 1 ~ 30 PSIG 1 = 1 ~ 60 PSIG	2 = 1 ~ 100 PSIG 3 = 1 ~ 150 PSIG
<b>9 Maximum Range of Outlet Gauge</b>	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG	3 = 160 PSIG 4 = 200 PSIG Blank = No Gauge
<b>10 User Option</b>	Customization (* Standard : Blank)	
<b>11 Grade</b>	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)	

### GAUGE PORT INFORMATION

1/4" INTERNAL FACE SEAL    1/4" FEMALE NPT THREAD    1/4" MALE FACE SEAL    1/4" FEMALE FACE SEAL    1/4" FIXED MALE FACE SEAL



### PORT CONFIGURATION





## RG3 SERIES

### TIED DIAPHRAGM TYPE REGULATOR

- Internal springless and added internal mesh are designed to minimize particle entrapment areas. particle entrapment areas.
- Designed for point-of-use midium flow to be used in process gas cabinets for gas companies, equipment manufactures and semiconductor manufacturers.
- All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 cleanrooms.

### SPECIFICATIONS

#### Fluid Media

All gases corrosive or non-corrosive or those requiring high purity regulation compatible with materials of construction. For other media, consult with factory.

#### Pressure Rating

#### Per criteria of ANSI / ASME B31.3.

Max. rated inlet pressure	3500 or 600 PSIG (241 or 41 bar)
Outlet pressure ranges	1-30, 1-60, 1-100, 1-150 or 1-250 psig (.1-2.1, .1-4.1, .1-6.9, .1-10.3 or .1-17.2 bar)
Design proof pressure	150% of Maximum rated pressure

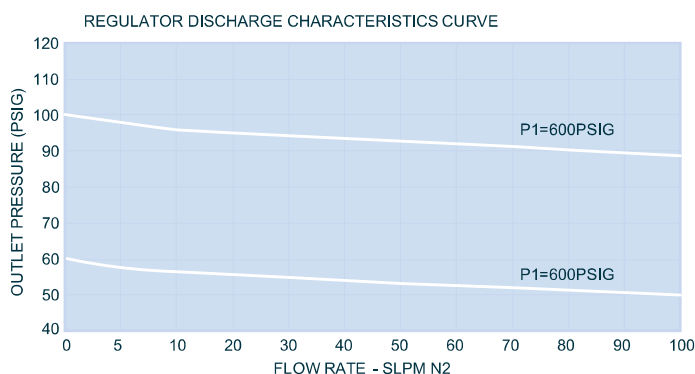
#### Materials in Contact with Media

Body	316L Stainless Steel with BA, Electropolish
Seat	3500 PSIG - PCTFE / 600 PSIG - PFA
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel / Hastelloy C-22

#### Other Parameters

Flow coefficient	Cv = 0.2
Certified maximum inboard leak rate	$1 \times 10^{-9}$ atm cc / sec He
Internal surface finish	10Ra or 5Ra microinch (.25 or .13 micrometer)
Operating temperature	PCTFE seat -15°F to +140°F (-26°C to +60°C)
	PFA seat -15°F to +160°F (-26°C to +71°C)
Weight (w/o gauges)	2.2lbs. (1.0kg)

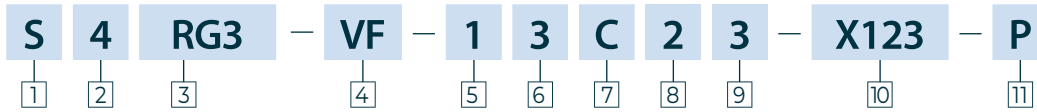
### FLOW CURVES



### MATERIAL

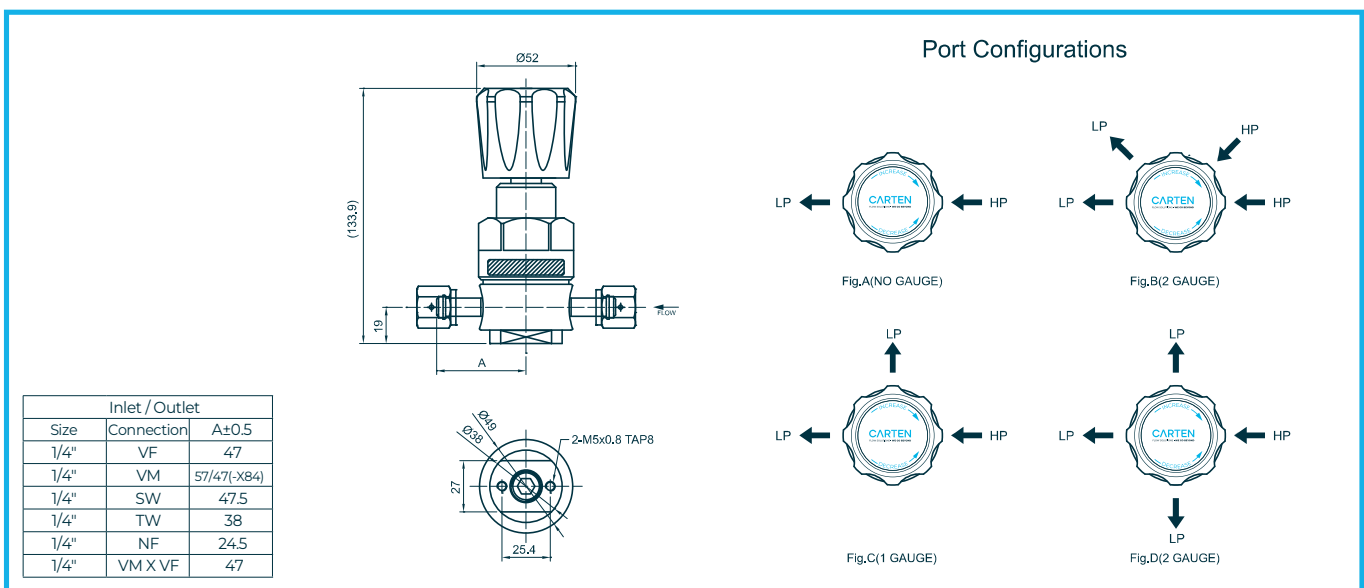
Wetted Parts	RG3 Series
Body	316L Stainless Steel
Main Valve	316L Stainless Steel Hastelloy C-22
Seat	PCTFE (Option : PI)
Diaphragm	Hastelloy C-22

## Order Information



<b>1 Material</b>	S = 316L Stainless steel	SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
<b>2 Connection Size</b>	4 = 1/4"	
<b>3 Product</b>	RG3 Series	
<b>4 Connection Type</b>	NF = Female NPT Thread VF = Female Type Face Seal SW = Compression Lok Fitting	VM = Male Type Face Seal TW = Tube Butt Weld VMF = Fixed Male Type Face Seal
<b>5 Maximum Inlet Pressure</b>	1 = 3500 PSIG	2 = 600 PSIG
<b>6 Maximum Range of Inlet Gauge</b>	1 = 600 PSIG 2 = 1000 PSIG 3 = 3500 PSIG	4 = 4000 PSIG Blank = No Gauge
<b>7 Gauge Port Configuration</b>	A = No Gauge Port (Fig. A) B = 1/4" Internal Face Seal (Fig. C) C = 1/4" Internal Face Seal (Fig. B) D = 1/4" Internal Face Seal (Fig. D) E = 1/4" Male Face Seal (Fig. D) F = 1/4" Male Face Seal (Fig. C) H = 1/4" Female Face Seal (Fig. D)	I = 1/4" Female Face Seal (Fig. C) L = 1/4" Fixed Male Face Seal (Fig. C) M = 1/4" Fixed Male Face Seal (Fig. D) N = 1/4" Female NPT Thread (Fig.B) O = 1/4" Female NPT Thread (Fig.C) P = 1/4" Female NPT Thread (Fig.D)
<b>8 Outlet Pressure Range</b>	0 = 1 ~ 30 PSIG 1 = 1 ~ 60 PSIG 2 = 1 ~ 100 PSIG	3 = 1 ~ 150 PSIG 4 = 1 ~ 250 PSIG
<b>9 Maximum Range of Outlet Gauge</b>	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG 3 = 160 PSIG	4 = 200 PSIG 5 = 300 PSIG Blank = No Gauge
<b>10 User Option</b>	Customization (*Standard : Blank)	
<b>11 Grade</b>	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)	

## PORT CONFIGURATION



## RG4 SERIES

### TIED DIAPHRAGM TYPE REGULATOR

- Internal springless and added internal mesh are designed to minimize particle entrapment areas.
- Designed for point-of-use medium flow to be used in process gas cabinets for gas companies, equipment manufacturers and semiconductor manufacturers.
- All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 cleanrooms.

### SPECIFICATIONS

#### Fluid Media

All gases corrosive or non-corrosive or those requiring high purity regulation compatible with materials of construction. For other media, consult with factory.

#### Pressure Rating

#### Per criteria of ANSI / ASME B31.3.

Max. rated inlet pressure	3500 or 1000, 600 PSIG (241 or 69, 41 bar)
Outlet pressure ranges	1-30, 1-60, 1-100, 1-150 psig (.1-2.1, .1-4.1, .1-6.9, .1-10.3 bar)
Design proof pressure	150% of Maximum rated pressure

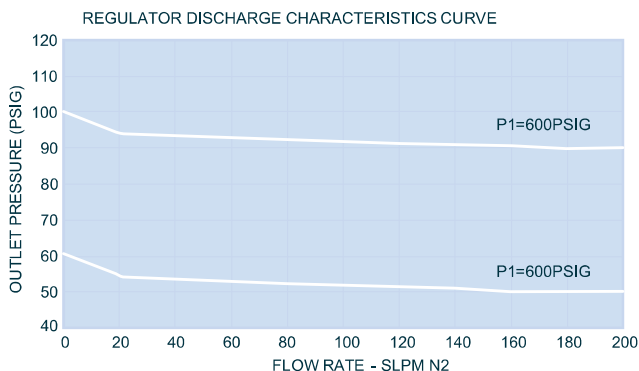
#### Materials in Contact with Media

Body	316L Stainless Steel with BA, Electropolish
Seat	3500 PSIG - PI / 1000 PSIG - PCTFE / 600 PSIG - PFA
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel / Hastelloy C-22

#### Other Parameters

Flow coefficient	Cv = 0.5
Certified maximum inboard leak rate	1 X 10 <sup>-9</sup> atm cc / sec He
Internal surface finish	10Ra or 5Ra microinch (.25 or .13 micrometer)
Operating temperature	PCTFE seat -15°F to +140°F (-26°C to +60°C)
	PFA seat -15°F to +160°F (-26°C to +71°C)
	PI seat -15°F to +300°F (-26°C to +149°C)
Weight (w/o gauges)	30lbs. (1.4kg)

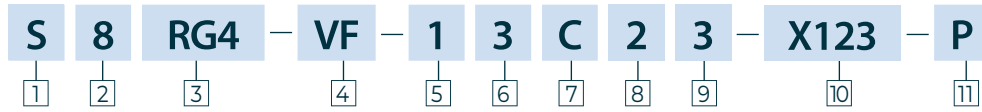
### FLOW CURVES



### MATERIAL

Wetted Parts	RG4 Series
Body	316L Stainless Steel
Main Valve	316L Stainless Steel Hastelloy C-22
Seat	PFA PCTFE PI
Diaphragm	Hastelloy C-22

## Order Information



1 Material	S = 316L Stainless steel D = 316L Stainless Steel VAR	SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
2 Connection Size	6 = 3/8"	8 = 1/2"
3 Product	RG4 Series	
4 Connection Type	NF = Female NPT Thread VF = Female Type Face Seal SW = Compression Lok Fitting	VM = Male Type Face Seal TW = Tube Butt Weld
5 Maximum Inlet Pressure	1 = 3500 PSIG 2 = 1000 PSIG	3 = 600 PSIG
6 Maximum Range of Inlet Gauge	1 = 600 PSIG 2 = 1000 PSIG 3 = 3500 PSIG	4 = 4000 PSIG Blank = No Gauge
7 Gauge Port Configuration	A = No Gauge Port (Fig. A) B = 1/4" Internal Face Seal (Fig. C) C = 1/4" Internal Face Seal (Fig. B) D = 1/4" Internal Face Seal (Fig. D) E = 1/4" Male Face Seal (Fig. D) F = 1/4" Male Face Seal (Fig. C) H = 1/4" Female Face Seal (Fig. D)	I = 1/4" Female Face Seal (Fig. C) L = 1/4" Fixed Male Face Seal (Fig. C) M = 1/4" Fixed Male Face Seal (Fig. D) N = 1/4" Female NPT Thread (Fig. B) O = 1/4" Female NPT Thread (Fig. C) P = 1/4" Female NPT Thread (Fig. D)
8 Outlet Pressure Range	0 = 1 ~ 30 PSIG 1 = 1 ~ 60 PSIG	2 = 1 ~ 100 PSIG 3 = 1 ~ 150 PSIG
9 Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG	3 = 160 PSIG 4 = 200 PSIG Blank = No Gauge
10 User Option	Customization ( *Standard : Blank)	
11 Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)	

## PORT CONFIGURATION

### Port Configurations

Inlet / Outlet		
Size	Connection	A±0.5
3/8"	SW	58.2
1/2"	VF	71
1/2"	VM	71
1/2"	SW	58.2
1/2"	TW	47
1/2"	NF	30

## MRG3 SERIES

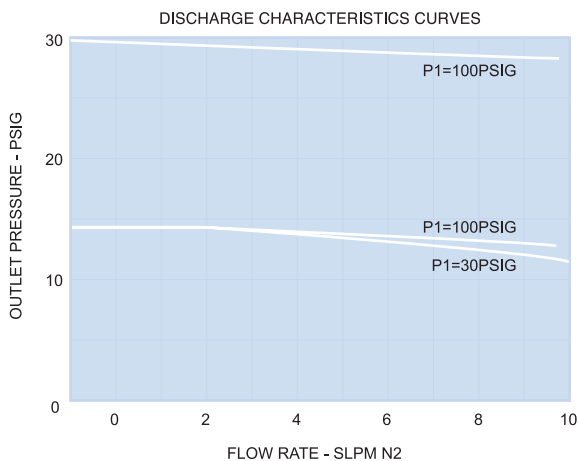
### MIRCRO REGULATOR

- Compact size
- High performance with low hysteresis.
- All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

### SPECIFICATIONS

Pressure Rating	
Max. rated inlet pressure	150 PSIG
Outlet pressure	1-30, 1-60, 1-100 PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	PCTFE
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel / Hastelloy C-22 / Inconel 750
Other Parameters	
Flow coefficient	Cv = 0.06 (1/8" Connection & Bellow 30psi : Cv = 0.04)
Temperature	-40°C to +71°C
Inboard leak rate	1 x 10 <sup>-9</sup> atm cc / sec He
Weight (w/o gauges)	0.82lbs. (370g)

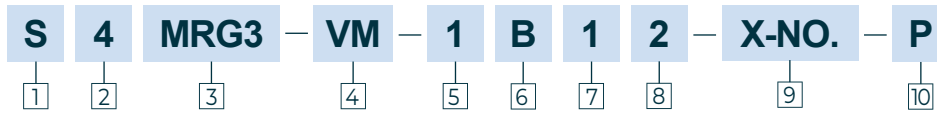
### FLOW CURVES



### MATERIAL

Wetted Parts	MRG3 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel Hastelloy C-22
Main Valve	316L Stainless Steel Hastelloy C-22
Valve Spring	316 Stainless Steel Inconel 750
Seat	PCTFE
Diaphragm	Hastelloy C-22

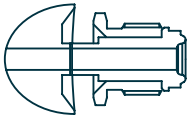
## Order Information



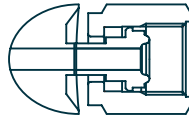
1 Material	S = 316L Stainless steel SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
2 Connection Size	4 = 1/4" 6 = 3/8"
3 Product	MRG3 Series
4 Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed Male Type Face Seal
5 Maximum Inlet Pressure	1 = 150 PSIG
6 Gauge Port Configuration	A = No Gauge Port (Fig. A) B = 1/4" Male Face Seal (Fig. B) C = 1/4" Female Face Seal (Fig. B) D = 1/4" Fixed Male Face Seal (Fig. B)
7 Outlet Pressure Range	0 = 1 ~ 30 PSIG 1 = 1 ~ 60 PSIG 2 = 1 ~ 100 PSIG
8 Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG Blank = No Gauge
9 User Option	Customization (※Standard : Blank)
10 Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)

### GAUGE PORT INFORMATION

1/4" MALE FACE SEAL



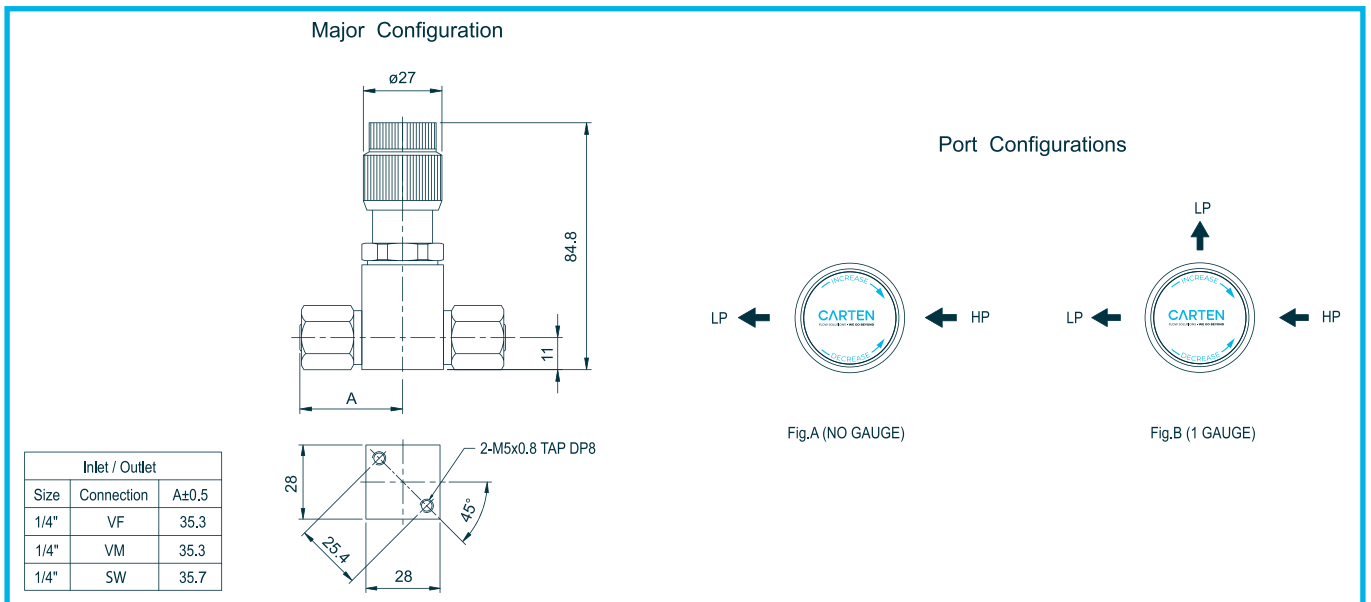
1/4" FEMALE FACE SEAL



1/4" FIXED MALE FACE SEAL



### PORT CONFIGURATION



## MRG5 SERIES

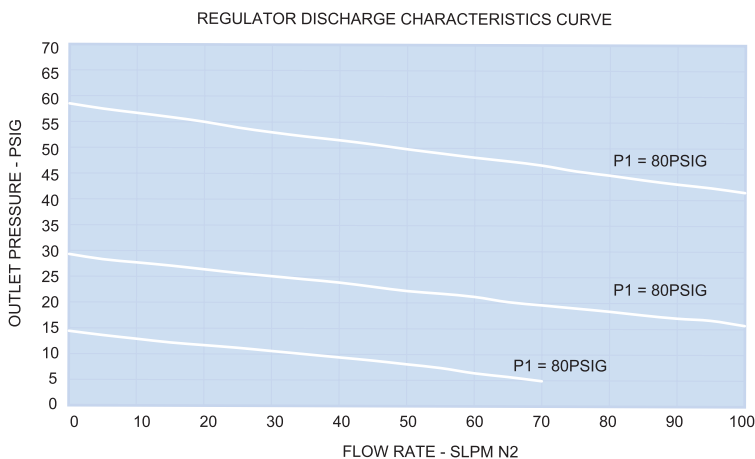
### MIRCRO REGULATOR

- Compact size
- High performance with low hysteresis.
- All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

## SPECIFICATIONS

Pressure Rating	
Max. rated inlet pressure	500 PSIG
Outlet pressure	1-30, 1-60, 1-100 PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	PFA
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel / Hastelloy C-22
Other Parameters	
Flow coefficient	Cv = 0.1
Temperature	-40°C to +71°C
Inboard leak rate	1 x 10 <sup>-9</sup> atm cc / sec He
Weight (w/o gauges)	0.82lbs. (370g)

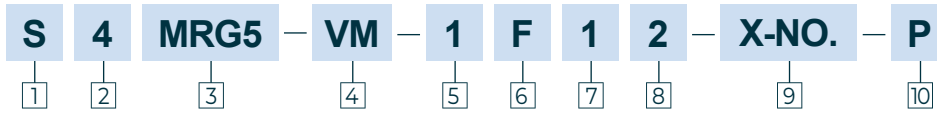
## FLOW CURVES



## MATERIAL

Wetted Parts	MRG5 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel Hastelloy C-22
Main Valve	316L Stainless Steel Hastelloy C-22
Valve Spring	316 Stainless Steel Inconel 750
Seat	PFA
Diaphragm	Hastelloy C-22

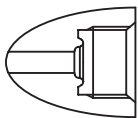
## Order Information



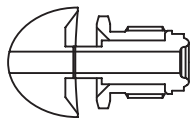
① Material	S = 316L Stainless steel SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
② Connection Size	4 = 1/4"
③ Product	MRG5 Series
④ Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed Male Type Face Seal
⑤ Maximum Inlet Pressure	1 = 500 PSIG
⑥ Gauge Port Configuration	A = No Gauge Port (Fig. A) B = 1/4" Male Face Seal (Fig. B) C = 1/4" Female Face Seal (Fig. B) D = 1/4" Fixed Male Face Seal (Fig. B) E = 1/4" Internal Face Seal (Fig. C) F = 1/4" Male Face Seal (Fig. C) G = 1/4" Female Face Seal (Fig. C) H = 1/4" Fixed Male Face Seal (Fig. C)
⑦ Outlet Pressure Range	0 = 1~ 30 PSIG 1 = 1~ 60 PSIG 2 = 1~100 PSIG
⑧ Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG Blank = No Gauge
⑨ User Option	Customization (※Standard : Blank)
⑩ Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)

### GAUGE PORT INFORMATION

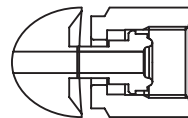
1/4" INTERNAL FACE SEAL



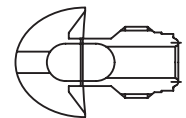
1/4" MALE FACE SEAL



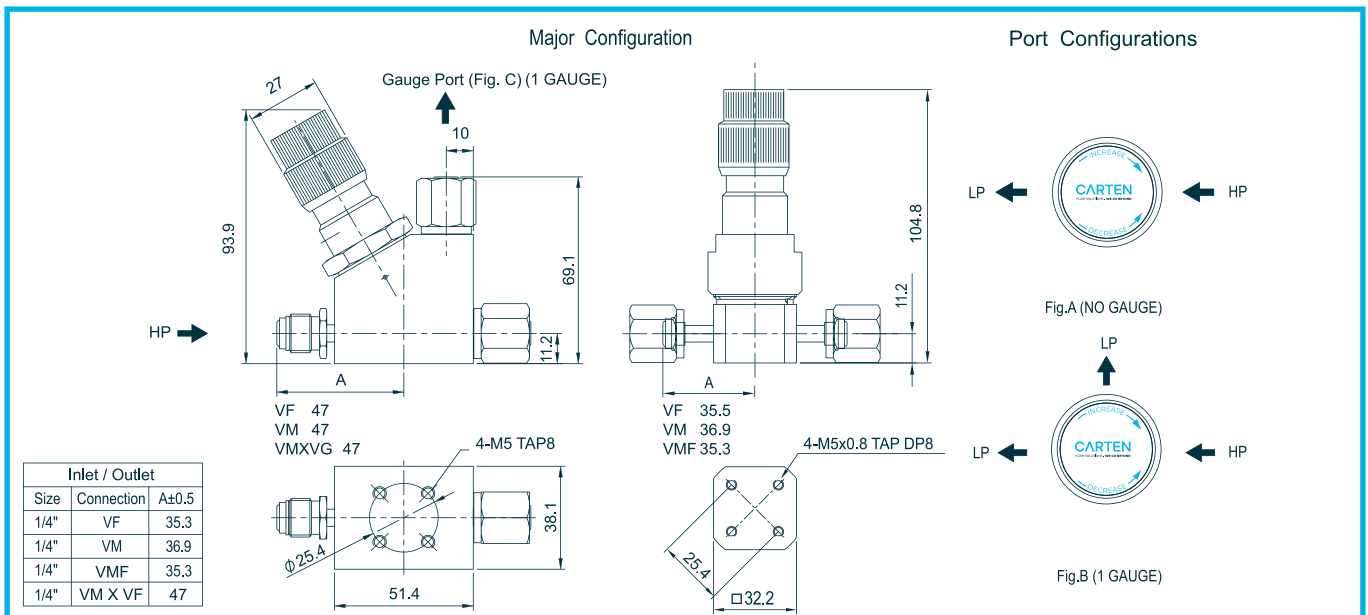
1/4" FEMALE FACE SEAL



1/4" FIXED MALE FACE SEAL



### PORT CONFIGURATION





## MRG7 SERIES

### MIRCRO REGULATOR

- Compact size
- High performance with low hysteresis.
- All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.
- No spring or threads are exposed to the wetted area.

### SPECIFICATIONS

#### Fluid Media

All gases corrosive or non-corrosive or those requiring high purity regulation compatible with materials of construction. For other media, consult with factory.

#### Pressure Rating

#### Per criteria of ANSI / ASME B31.3.

Max. rated inlet pressure	500 PSIG
Outlet pressure	-10-30, -10-60, -10-100 PSIG
Design proof pressure	150% of Maximum rated pressure

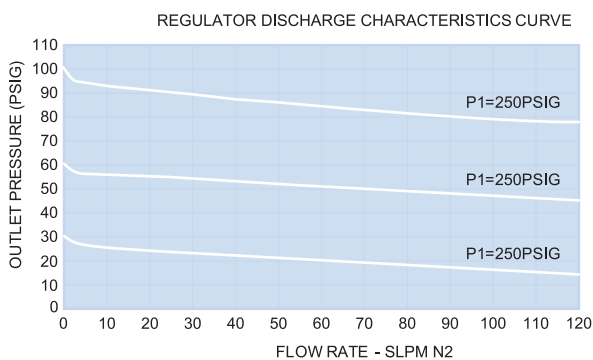
#### Materials in Contact with Media

Body	316L Stainless Steel with BA, Electropolish
Seat	PFA
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel / Hastelloy C-22

#### Other Parameters

Flow coefficient	Cv = 0.1
Temperature	1 x 10 <sup>-9</sup> atm cc / sec He
Inboard leak rate	10Ra or 5Ra microinch (.25 or .13 micrometer)
Operating temperature PCTFE seat	-40°F to +160°F (-40°C to +71°C)
Weight (w/o gauges)	0.87lbs. (369g)

### FLOW CURVES



### MATERIAL

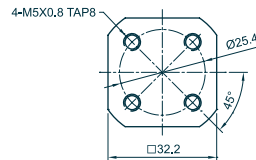
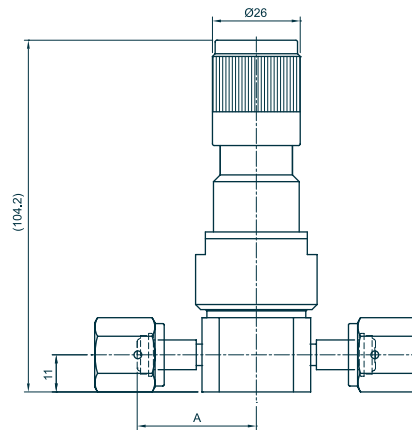
Wetted Parts	MRG7 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel Hastelloy C-22
Main Valve	316L Stainless Steel Hastelloy C-22
Valve Spring	316 Stainless Steel Inconel 750
Seat	PFA
Diaphragm	Hastelloy C-22

## Order Information



1 Material	S = 316L Stainless steel	SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
2 Connection Size	4 = 1/4"	
3 Product	MRG7 Series	
4 Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VMF = Fixed Male Type Face Seal	
5 Outlet Pressure Range	1A0= -10- 30psig 1A1= -10- 60psig 1A2= -10-100psig	
6 User Option	Customization	
7 Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)	

## PORT CONFIGURATION



Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VF	35.3
	VM	
	TW	

## HFRG SERIES

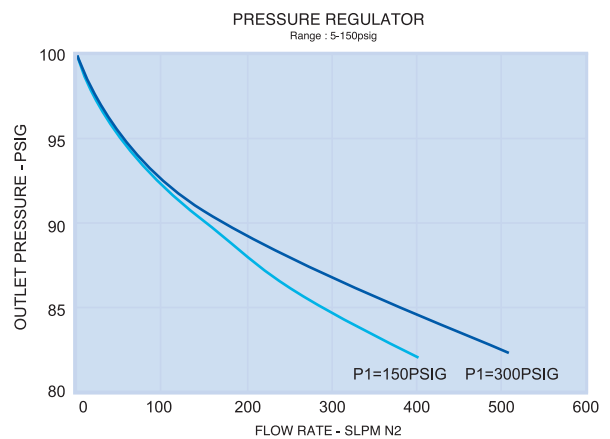
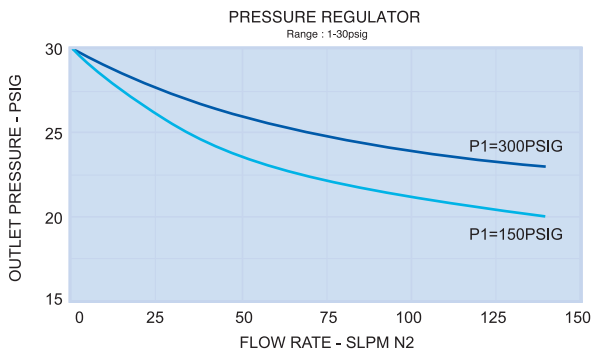
### HIGH FLOW REGULATOR

- A regulator for the control of high purity, corrosive, toxic, flammable and inert gases at high flow rate and low pressure.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

### SPECIFICATIONS

Pressure Rating (Per criteria of ANSI / ASME B31.3.)	
Max. rated inlet pressure	200, 500 PSIG
Outlet pressure ranges	1-30, 2-75 and 5-150 PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	FKM (Contact manufacturer for the use of toxic gas)
Diaphragm	PTFE
Gas contact parts	316L Stainless Steel with BA, Electropolish
Other Parameters	
Flow coefficient	Cv = 0.85
Inboard leak rate	$2 \times 10^{-8}$ scc / sec He
Temperature	-15°F to +165°F (-26°C to +73°C)

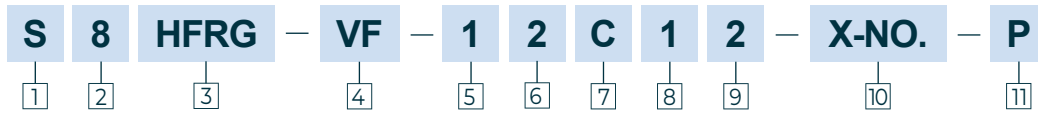
### FLOW CURVES



### MATERIAL

Wetted Parts	HFRG Series
Body	316L Stainless Steel
Main Valve	316L Stainless Steel
Valve Spring	316 Stainless Steel
Seat	FKM
Diaphragm	PTFE

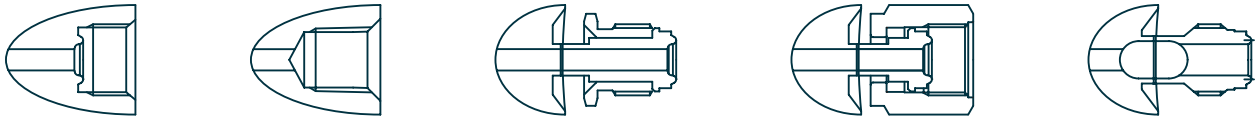
## Order Information



① Material	S = 316L Stainless steel D = 316L Stainless steel VAR	
② Connection Size	4 = 1/4" 6 = 3/8" 8 = 1/2"	
③ Product	HFRG SERIES	
④ Connection Type	NF = Female NPT Thread SW = Compression Lok Fitting TW = Tube Butt Weld	VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed Male Type Face Seal
⑤ Maximum Inlet Pressure	1 = 500 PSIG 2 = 200 PSIG	
⑥ Maximum Range of Inlet Gauge	1 = 300 PSIG 2 = 600 PSIG Blank = No Gauge	
⑦ Gauge Port Configuration	A = NONE (fig. A) B = 1/4" Internal Face Seal (fig. C) C = 1/4" Internal Face Seal (fig. B) D = 1/4" Internal Face Seal (fig. D) E = 1/4" Male Face Seal (fig. D) F = 1/4" Male Face Seal (fig. C) H = 1/4" Female Face Seal (fig. D)	I = 1/4" Female Face Seal (fig. C) L = 1/4" Fixed Male Face Seal (fig. C) M = 1/4" Fixed Male Face Seal (fig. D) N = 1/4" Female NPT Thread (fig. B) O = 1/4" Female NPT Thread (fig. C) P = 1/4" Female NPT Thread (fig. D)
⑧ Outlet Pressure Range	0 = 1 ~ 30 PSIG 1 = 2 ~ 75 PSIG 2 = 5 ~ 150 PSIG	
⑨ Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 100 PSIG 2 = 160 PSIG 3 = 60 PSIG Blank = No Gauge	
⑩ User Option	Customization (※Standard:Blank)	
⑪ Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch)	

## GAUGE PORT INFORMATION

1/4" INTERNAL FACE SEAL    1/4" FEMALE NPT THREAD    1/4" MALE FACE SEAL    1/4" FEMALE FACE SEAL    1/4" FIXED MALE FACE SEAL



## PORT CONFIGURATION

**Major Configuration**

Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VM	54.5
1/4"	VF	54.5
1/4"	SW	52.5
1/4"	TW	47.5
1/4"	NF	30
3/8"	TW	63.5
3/8"	SW	58.2
1/2"	VF	64.5
1/2"	VM	63.5
1/2"	SW	58.2
1/2"	TW	63.5
1/2"	NF	35

**Port Configurations**

Fig.A (NO GAUGE)

Fig.B (2 GAUGE)

Fig.C (1 GAUGE)

Fig.D (2 GAUGE)

## HFRG2 SERIES

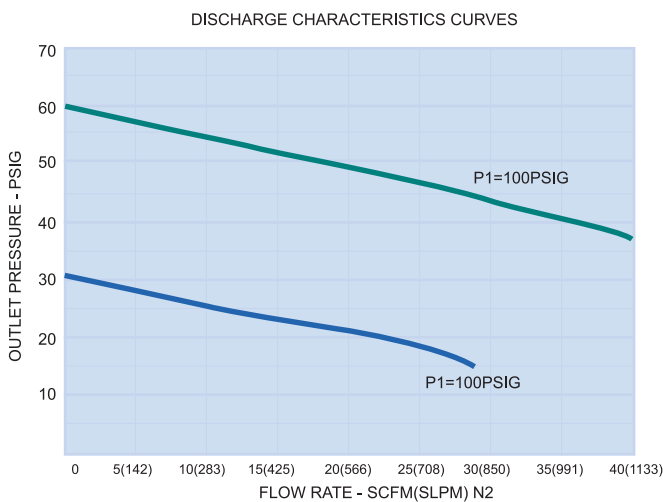
### HIGH FLOW REGULATOR

- A regulator for the control of high purity, corrosive, toxic, flammable and inert gases at high flow rate and low pressure.
- Metal to metal diaphragm seals provide enhances leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

### SPECIFICATIONS

Pressure Rating	
Max. rated inlet pressure	150 or 250 PSIG
Outlet pressure ranges	1-30, 1-60, 1-100 PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	PFA
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel
Other Parameters	
Flow coefficient	Cv = 1.6
Certified maximum inboard leak rate	$1 \times 10^{-9}$ atm cc / sec He
Internal Surface Finish	5 Ra or 10 Ra microinch
Operating temperature	-15°F to 200°F (-26°C to 93°C)
Weight (w/o gauges)	3.5lbs. (1.6kg)

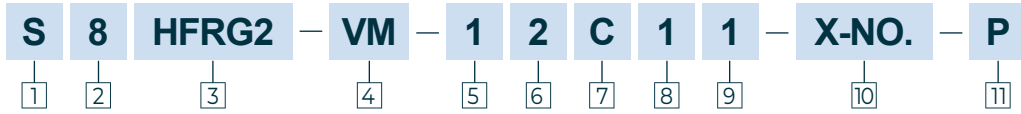
### FLOW CURVES



### MATERIAL

Wetted Parts	HFRG2 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel
Main Valve	316L Stainless Steel
Valve Spring	316 Stainless Steel
Seat	PFA
Diaphragm	Hastelloy C-22

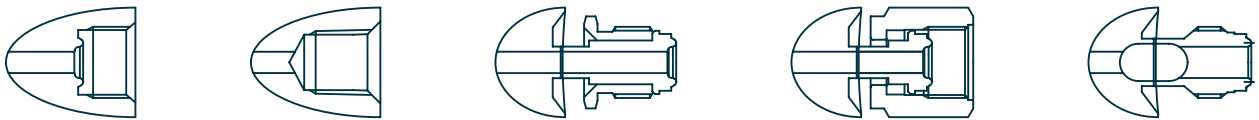
## Order Information



1 Material	S = 316L Stainless steel D = 316L Stainless steel VAR	
2 Connection Size	4 = 1/4" 6 = 3/8" 8 = 1/2" 12 = 3/4"	
3 Product	HFRG2 SERIES	
4 Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VM = Male Type Face Seal	VMF = Fixed Male Type Face Seal SW = Compression Lok Fitting VCO = VCO Type Face Seal
5 Maximum Inlet Pressure	1 = 250 PSIG 2 = 150 PSIG	
6 Maximum Range of Inlet Gauge	1 = 200 PSIG 2 = 300 PSIG Blank = No Gauge	
7 Gauge Port Configuration	A = NONE (fig. A) B = 1/4" Internal Face Seal (fig. C) C = 1/4" Internal Face Seal (fig. B) D = 1/4" Internal Face Seal (fig. D) E = 1/4" Male Face Seal (fig. D) F = 1/4" Male Face Seal (fig. C) H = 1/4" Female Face Seal (fig. D)	
8 Outlet Pressure Range	0 = 1 ~ 30 PSIG 1 = 1 ~ 60 PSIG 2 = 1 ~ 100 PSIG	
9 Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG	3 = 160 PSIG Blank = No Gauge
10 User Option	Customization (※Standard:Blank)	
11 Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch)	

### GAUGE PORT INFORMATION

1/4" INTERNAL FACE SEAL    1/4" FEMALE NPT THREAD    1/4" MALE FACE SEAL    1/4" FEMALE FACE SEAL    1/4" FIXED MALE FACE SEAL



### PORT CONFIGURATION

**Major Configuration**

Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VMF	50.4
1/4"	VF	52
1/4"	VM	52
1/4"	SW	52.5
1/2"	VF	71
1/2"	VM	71
1/2"	SW	58.2
1/2"	TW	47
1/2"	VCO	57
3/4"	TW	71
3/4"	VM	71
3/4"	VF	71
3/4"	SW	65

**Port Configurations**

Fig.A (NO GAUGE)                      Fig.B (2 GAUGE)  
 Fig.C (1 GAUGE)                        Fig.D (2 GAUGE)

## HFRG3 SERIES

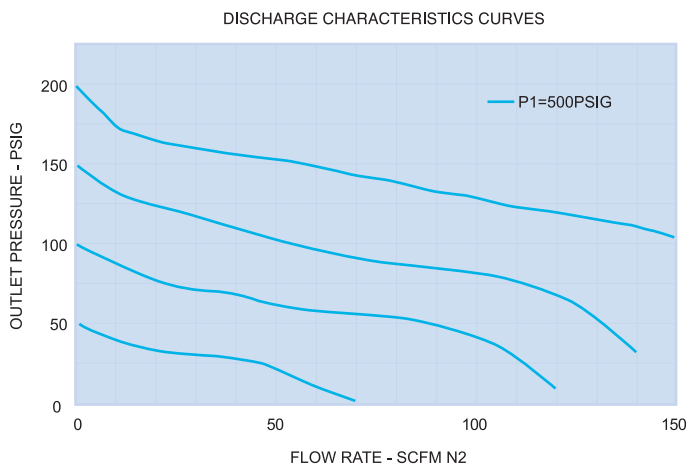
### HIGH FLOW REGULATOR

- A regulator for the control of high purity, corrosive, toxic, flammable and inert gases at high flow rate.
- Metal to metal diaphragm seals provide enhances leak tight integrity.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

### SPECIFICATIONS

Pressure (Rating per criteria of ANSI/ASME B31.3)	
Max. rated inlet pressure	500 PSIG
Outlet pressure ranges	1-25, 1-50, 1-100, 1-150 & 1-200 PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	PFA
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel, PTFE
Other Parameters	
Flow coefficient	Cv = 1.0
Certified maximum inboard leak rate	$1 \times 10^{-9}$ atm cc / sec He
Internal Surface Finish	5 Ra or 10 Ra microinch
Operating temperature	-15°F to 165°F (-26°C to 74°C)
Weight (w/o gauges)	3.7lbs. (1.7kg)

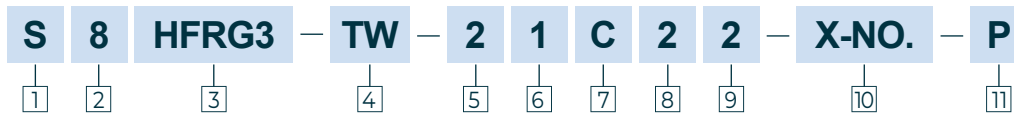
### FLOW CURVES



### MATERIAL

Wetted Parts	HFRG3 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel
Main Valve	316L Stainless Steel
Valve Spring	316 Stainless Steel
Seat	PFA
Diaphragm	Hastelloy C-22

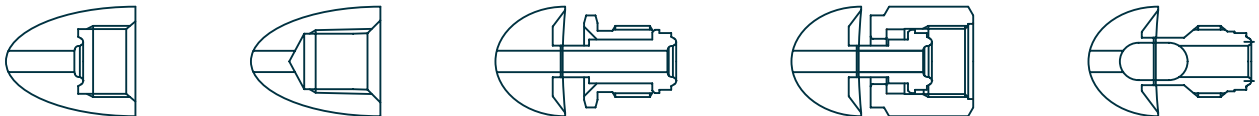
## Order Information



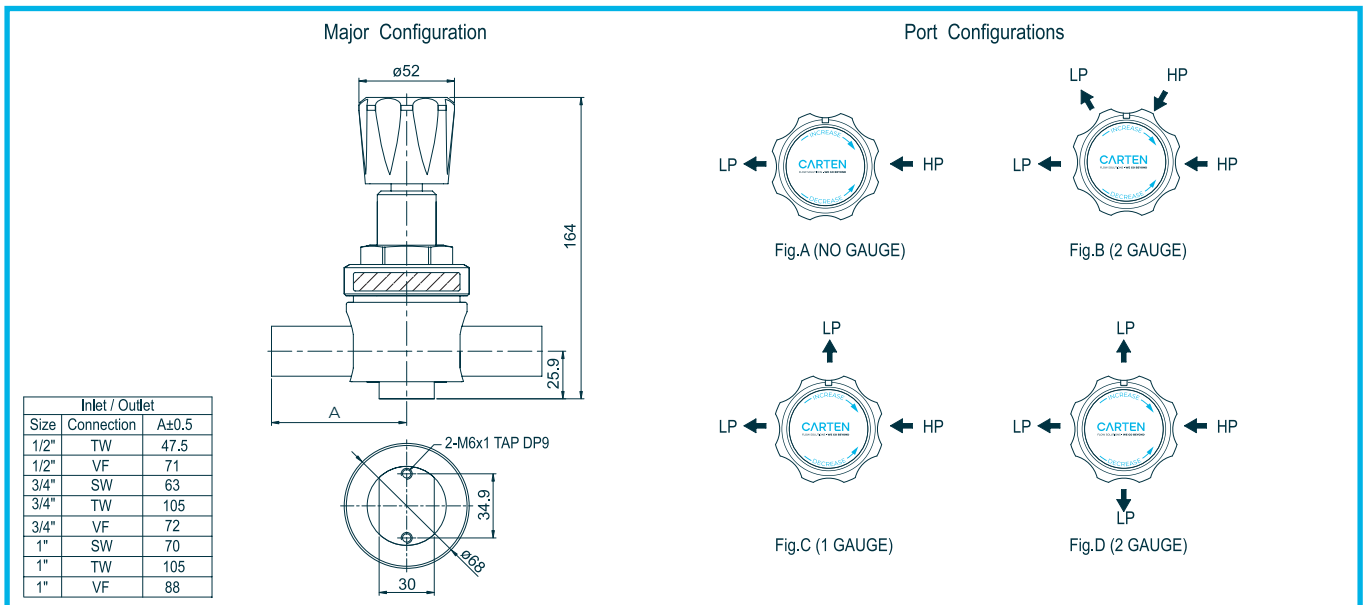
1 Material	S = 316L Stainless steel	D = 316L Stainless steel VAR
2 Connection Size	6 = 3/8" 8 = 1/2" 12 = 3/4" 16 = 1"	15A 20A 25A
3 Product	HFRG3 SERIES	
4 Connection Type	NF = Female NPT Thread TW = Tube Butt Weld VF = Female Type Face Seal	VM = Male Type Face Seal SW = Compression Lok Fitting
5 Maximum Inlet Pressure	2 = 500PSIG	
6 Maximum Range of Inlet Gauge	1 = 600 PSIG	Blank = No Gauge
7 Gauge Port Configuration	A = NONE (fig. A) B = 1/4" Internal Face Seal (fig. C) C = 1/4" Internal Face Seal (fig. B) D = 1/4" Internal Face Seal (fig. D) E = 1/4" Male Face Seal (fig. D) F = 1/4" Male Face Seal (fig. C) H = 1/4" Female Face Seal (fig. D)	I = 1/4" Female Face Seal (fig. C) L = 1/4" Fixed Male Face Seal (fig. C) M = 1/4" Fixed Male Face Seal (fig. D) N = 1/4" Female NPT Thread (fig. B) O = 1/4" Female NPT Thread (fig. C) P = 1/4" Female NPT Thread (fig. D)
8 Outlet Pressure Range	0 = 1 ~ 25PSIG 1 = 1 ~ 50PSIG 2 = 1 ~ 100PSI	3 = 1 ~ 150PSIG 4 = 1 ~ 200PSIG
9 Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 60 PSIG 2 = 160 PSIG 3 = 200 PSIG	4 = 300 PSIG 5 = 100 PSIG Blank = No Gauge
10 User Option	Customization (※Standard:Blank)	
11 Grade	Blank = BA Standard (10 Ra μinch)	P = Electropolishing (5 Ra μinch)

### GAUGE PORT INFORMATION

1/4" INTERNAL FACE SEAL    1/4" FEMALE NPT THREAD    1/4" MALE FACE SEAL    1/4" FEMALE FACE SEAL    1/4" FIXED MALE FACE SEAL



### PORT CONFIGURATION





## HFRG4 SERIES

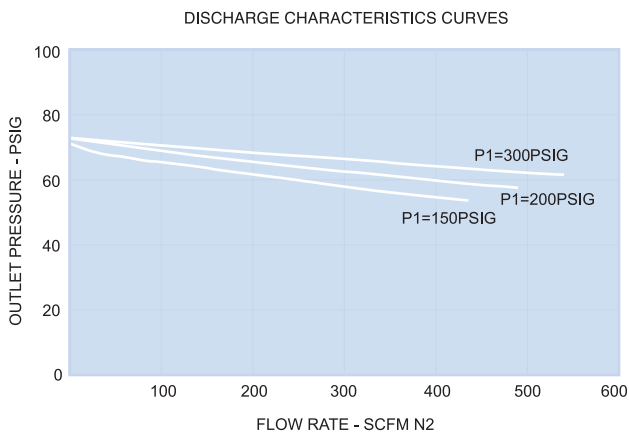
### HIGH FLOW REGULATOR

- A regulator for the control of high purity, corrosive, toxic, flammable and inert gases at high flow rate and low pressure.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.
- Low droop and High flow.

### SPECIFICATIONS

Pressure Rating	
Max. rated inlet pressure	300 PSIG
Outlet pressure	1-30, 1-60, 1-100 or 1-150 PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	FKM(Contact manufacturer for the use of toxic gas)
Diaphragm	PTFE
Gas contact parts	316L Stainless Steel
Other Parameters	
Flow coefficient	1/2" = Cv2.0, 3/4" = Cv3.0, 1" = Cv5.0
Temperature	PTFE : -44°C ~ +71°C
Inboard leak rate	2 x 10 <sup>-8</sup> atm cc / sec He
Weight (w/o gauges)	15lbs. (6.8kg)

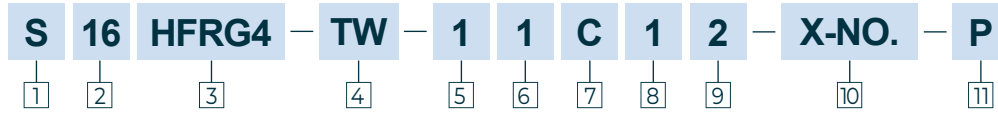
### FLOW CURVES



### MATERIAL

Wetted Parts	HFRG4 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel
Main Valve	316L Stainless Steel FKM
Valve Spring	316 Stainless Steel
Seat	FKM
Diaphragm	PTFE

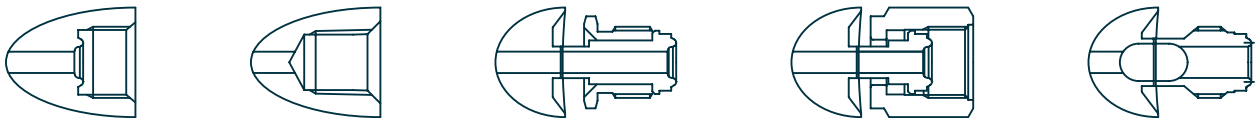
## Order Information



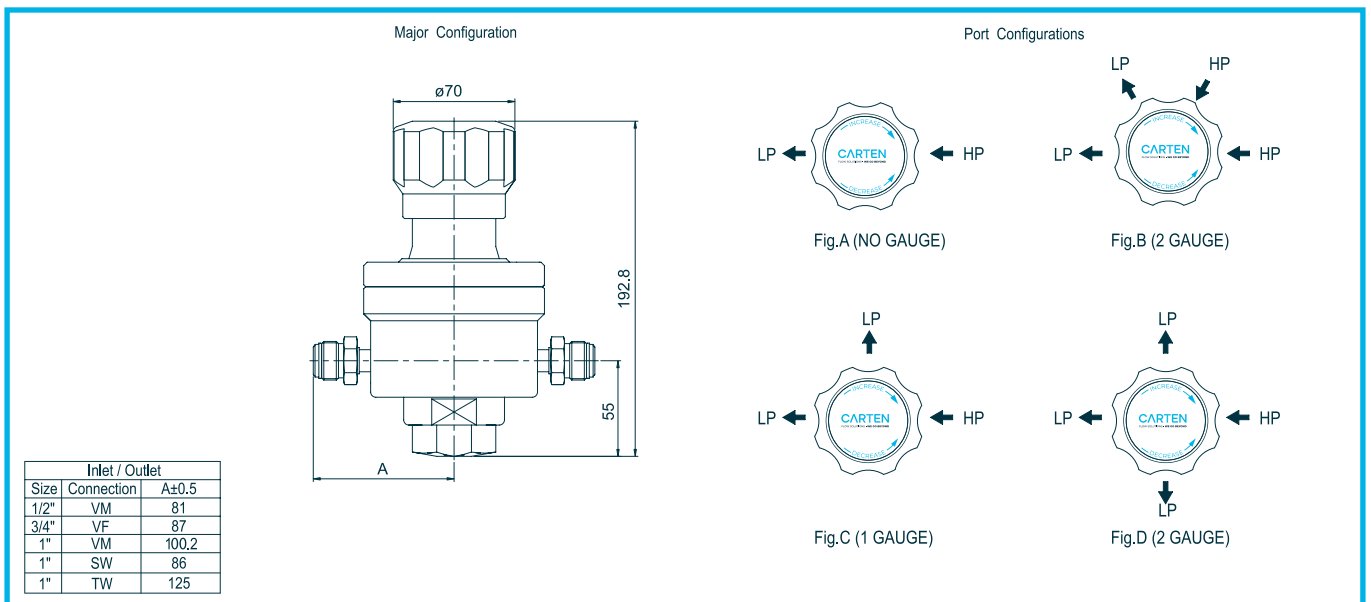
① Material	S = 316L Stainless steel D = 316L Stainless steel VAR	
② Connection Size	8 = 1/2" 12 = 3/4" 16 = 1"	
③ Product	HFRG4 SERIES	
④ Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VM=Male Type Face Seal	
⑤ Maximum Inlet Pressure	1 = 300 PSIG	
⑥ Maximum Range of Inlet Gauge	1 = 300 PSIG Blank = No Gauge	
⑦ Gauge Port Configuration	A = No Gauge Port (Fig. A) B = 1/4" Internal Face Seal (Fig. C) C = 1/4" Internal Face Seal (Fig. B) D = 1/4" Internal Face Seal (Fig. D) E = 1/4" Male Face Seal (Fig. D) F = 1/4" Male Face Seal (Fig. C) H = 1/4" Female Face Seal (Fig. D)	
⑧ Outlet Pressure Range	0 = 1 ~ 30 PSIG 1 = 1 ~ 60 PSIG	2 = 1 ~ 100 PSIG 3 = 1 ~ 150 PSIG
⑨ Maximum Range of Outlet Gauge	0 = 30 PSIG 1 = 60 PSIG 2 = 100 PSIG	3 = 160 PSIG Blank = No Gauge
⑩ User Option	Customization (※Standard : Blank)	
⑪ Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch)	

## GAUGE PORT INFORMATION

1/4" INTERNAL FACE SEAL    1/4" FEMALE NPT THREAD    1/4" MALE FACE SEAL    1/4" FEMALE FACE SEAL    1/4" FIXED MALE FACE SEAL



## PORT CONFIGURATION



## AHFRG SERIES

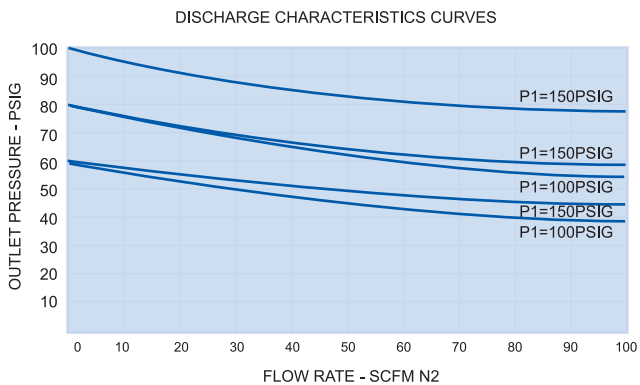
### A SIZE HIGH FLOW REGULATOR

- Internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment.
- Every step of assembly, welding, testing and final cleaning finished in class 100 cleanrooms.
- High flow.

### SPECIFICATIONS

Pressure Rating	
Pressure rating per criteria of ANSI/ASME B31.3 Maximum rated inlet pressure	300 PSIG (21.1 kg/cm <sup>2</sup> )
Maximum outlet pressure	130 PSIG (9.1 kg/cm <sup>2</sup> )
Design proof pressure	150% of maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	PTFE (Contact manufacturer for the use of toxic gas)
Diaphragm	316L Stainless Steel
Gas contact parts	316L Stainless Steel, FKM
Other Parameters	
Inboard leak rate	$2 \times 10^{-8}$ atm cc / sec He
Operating temperature	-20°F to +150°F (-29°C to +65°C)
Flow coefficient	Cv = 8.0

### FLOW CURVES



### MATERIAL

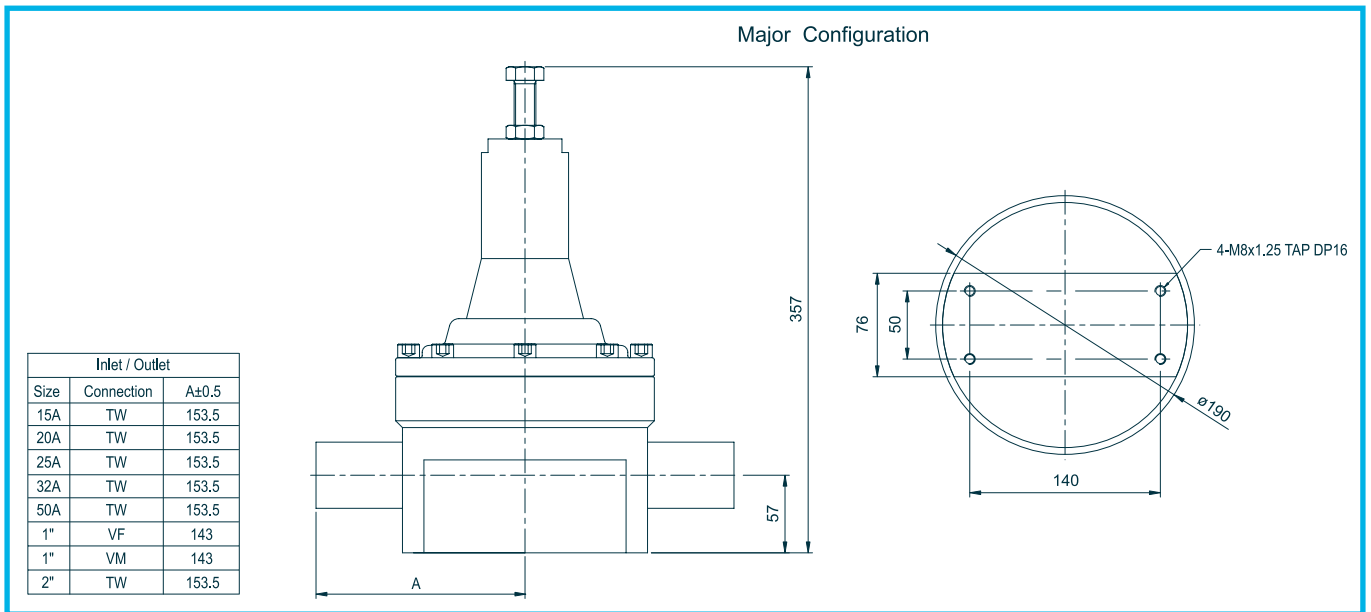
Wetted Parts	AHFRG Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel
Main Valve	316L Stainless Steel, FKM
Valve Spring	316 Stainless Steel
Seat	PTFE
Diaphragm	316L Stainless Steel

## Order Information



1 Material	S = 316L Stainless steel
2 Connection Size	15 = 15A 20 = 20A 25 = 25A 40 = 40A 50 = 50A T24 = 1-1/2" T32 = 2" For other sizes, please consult factory.
3 Product	AHFRG Series
4 Connection Type	TW = Tube Butt Weld
5 Outlet Pressure Range	Customization (※Standard : Blank)
6 Gauge	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch)

## PORT CONFIGURATION



# CARTEN

FLOW SOLUTIONS - **WE GO BEYOND**

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