TKSCT

High Purity Gas Pressure Regulator

Features

- 100% Helium leak tested
- 100% Clean room welded and assembled
- 100% DI water Cleaned
- Full line of high to low and low to high pressure control features.

TKSCT corporation
http://www.tksct.com

High Pressure

RG1

RG1 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4	3500 / 30,60,100,150,250	300	1.0E-9	0.06	BA, P

* Flow rate : N2 gas, at inlet pressure 1000psig and outlet pressure 100psig

RG2

RG2 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
3/8, 1/2	3500 / 30,60,100,150	800	1.0E-9	0.5	BA, P

* Flow rate : N2 gas, at inlet pressure 1000psig and outlet pressure 100psig

RG3

RG3 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4	3500 / 25,50,100,250,500	300	2.0E-8	0.06	BA, P

* Flow rate : N2 gas, at inlet pressure 1000psig and outlet pressure 100psig

PRG1

PRG1 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4~1/2	3500 / 30,60,100,150	300	1.0E-9	0.06	BA, P

* Flow rate : N2 gas, at inlet pressure 1000psig and outlet pressure 100psig

PRG2

PRG2 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4~1/2	3500 / 30,60,100,150	500	1.0E-9	0.5	BA, P

* Flow rate : N2 gas, at inlet pressure 1000psig and outlet pressure 100psig

HFRG3

HFRG3 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
3/8 ~ 1	3000 / 25,50,100,150,200	1500	2.0E-8	1.0	BA, P

* Flow rate : N2 gas, at inlet pressure 1000psig and outlet pressure 100psig

Low Pressure

RG1

RG1 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4	600 / 30,60,100,150,250	200	1.0E-9	0.2	BA, P

* Flow rate : N2 gas, at inlet pressure 500psig and outlet pressure 100psig

RG2

RG2 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
3/8, 1/2	600,1000 / 30,60,100,150	500	1.0E-9	0.5	BA, P

* Flow rate : N2 gas, at inlet pressure 500psig and outlet pressure 100psig

PRG1

PRG1 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4~1/2	600,1000 / 30,60,100,150	200	1.0E-9	0.15	BA, P

* Flow rate : N2 gas, at inlet pressure 500psig and outlet pressure 100psig

PRG2

PRG2 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4~1/2	600,1000 / 30,60,100,150	500	1.0E-9	0.5	BA, P

* Flow rate : N2 gas, at inlet pressure 500psig and outlet pressure 100psig

MRG3

MRG3 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4, 3/8	150 / 30,60,100	80	1.0E-9	0.06	BA, P

* Flow rate : N2 gas, at inlet pressure 80psig and outlet pressure 40psig

MRG4

MRG4 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4	150 / 30,60,100	80	1.0E-9	0.08	BA, P

* Flow rate : N2 gas, at inlet pressure 80psig and outlet pressure 40psig

MRG5

MRG5 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4	500 / 30,60,100	100	1.0E-9	0.1	BA, P

* Flow rate : N2 gas, at inlet pressure 80psig and outlet pressure 40psig

BRG3

BRG3 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4, 3/8	150 / 30,60,100	80	1.0E-9	0.06	BA, P

* Flow rate : N2 gas, at inlet pressure 80psig and outlet pressure 40psig

HFRG

HFRG Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4~1/2	200,500 / 30,75,150	500	2.0E-8	0.85	BA, P

* Flow rate : N2 gas, at inlet pressure 500psig and outlet pressure 100psig

HFRG2

HFRG2 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/4~3/4	250,150 / 30,60,100	800	1.0E-9	1.6	BA, P

* Flow rate : N2 gas, at inlet pressure 200psig and outlet pressure 100psig

HFRG3

HFRG3 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/2 ~1	500 / 25,50,100,150,200	1000	2.0E-8	1	BA, P

* Flow rate : N2 gas, at inlet pressure 500psig and outlet pressure 100psig

HFRG4

HFRG4 Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
1/2 ~1	300 / 30,60,100,150	5000	2.0E-8	5	BA, P

* Flow rate : N2 gas, at inlet pressure 200psig and outlet pressure 100psig

AHFRG

AHFRG Series

Size (in)	Inlet / Outlet Pressure (psig)	Flow Rate (slpm)	Leak Rate (atm cc/sec)	Cv	Grade
3/4~50A	300 / 130	8000	1.0E-9	8	BA, P

* Flow rate : N2 gas, at inlet pressure 200psig and outlet pressure 100psig

RG1 Series

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.

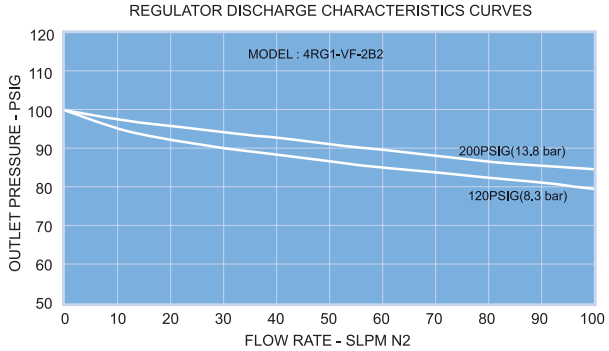
All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.

Every step of assembly, welding, testing and final cleaning finished in Class 100 or 10 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 (Vespel® optional for 3500 PSIG model only)
• Diaphragm :	Hastelloy C-22
• Spring, valve stem and valve bush :	316L Stainless Steel
Other Parameters	
• Flow coefficient :	Cv=0.06(3500 PSIG model), Cv=0.2(600 PSIG model)
• Certified maximum inboard leak rate :	1×10^{-9} atm cc/sec He
• Internal surface finish :	10Ra or 5Ra microinch(.25 or .13 micrometer)
• Operating temperature :	
PCTFE seat	-15℉ to + 176℉(-26℃ to +80℃)
Vespel® seat	-15℉ to + 350℉(-26℃ to +177℃)
• Weight (w/o gauges) :	2.0lbs.(.9kg)

Flow Curves

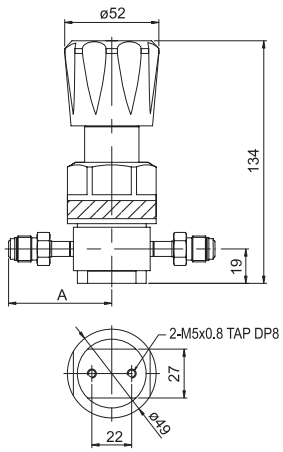


Ordering Information

S	4	RG1	–	VF	–	1	1	C	2	3	–	X123	–	P
[1]	[2]	[3]		[4]		[5]	[6]	[7]	[8]	[9]		[10]		[11]

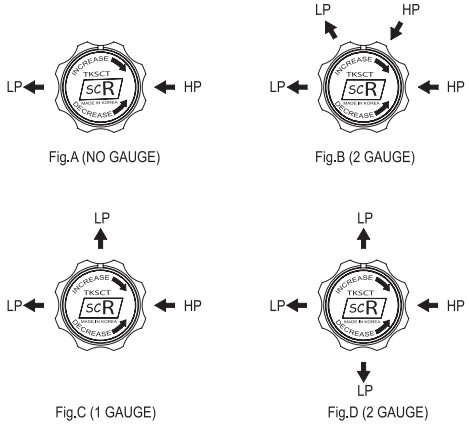
[1] Material	H = 1/4″ Female Face Seal (Fig. D)
S = 316L Stainless Steel Single Melted	I = 1/4″ Female Face Seal (Fig. C)
D = 316L Stainless Steel Double Melted	J = 1/4″ Female Face Seal (Fig. B)
[2] Connection Size	K = 1/4″ Fixed Male Face Seal (Fig. B)
4 = 1/4″	L = 1/4″ Fixed Male Face Seal (Fig. C)
[3] Product	M = 1/4″ Fixed Male Face Seal (Fig. D)
RG1 Series	N = 1/4″ Female NPT Thread (Fig.B)
[4] Connection Type	O = 1/4″ Female NPT Thread (Fig.C)
NF = Female NPT Thread	P = 1/4″ Female NPT Thread (Fig.D)
SW = Compression Lok Fitting	**[8] Outlet Pressure Range**
TW = Tube Butt Weld	0 = 1~ 30 psig
VF = Female Type Face Seal	1 = 1~ 60 psig
VM = Male Type Face Seal	2 = 1~100 psig
VMF = Fixed Male Type Face Seal	3 = 1~250 psig
[5] Maximum Inlet Pressure	4 = 1~150 psig
1 = 3500 psig	**[9] Maximum Range of Outlet Gauge**
2 = 600 psig	0 = 30 psig
[6] Maximum Range of Inlet Gauge	1 = 60 psig
1 = 600 psig 2 = 1000 psig	2 = 100 psig
3 = 3500 psig 4 = 4000 psig	3 = 160 psig
Blank = No Gauge	4 = 200 psig
[7] Gauge Port Configuration	5 = 300 psig
A = No Gauge Port (Fig. A)	Blank = No Gauge
B = 1/4″ Internal Face Seal (Fig. C)	**[10] User Option**
C = 1/4″ Internal Face Seal (Fig. B)	Customization
D = 1/4″ Internal Face Seal (Fig. D)	**[11] Grade**
E = 1/4″ Male Face Seal (Fig. D)	Blank = BA Standard (10 Ra μin)
F = 1/4″ Male Face Seal (Fig. C)	P = Electropolishing (5 Ra μin)
G = 1/4″ Male Face Seal (Fig. B)	

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VF	47
1/4"	VM	57/47(-X84)
1/4"	SW	47.5
1/4"	TW	38

Port Configurations



RG2 Series

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.

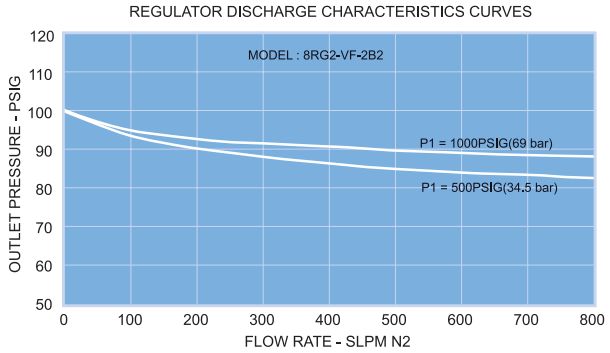
All internal surfaces are finished with 10Ra or 5Ra to ensure minimal particle generation and entrapment. Metal-to-metal diaphragm seals provide enhanced leak tight integrity.

Every step of assembly, welding, testing and final cleaning finished in Class 100 or 10 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 :	3500 PSIG - Vespel®/ 1000 PSIG & 600 PSIG - PCTFE
• Diaphragm :	Hastelloy C-22
• Spring, valve stem and valve bush :	316L Stainless Steel
Other Parameters	
• Flow coefficient :	Cv=0.5
• Certified maximum inboard leak rate :	1×10^{-9} atm cc/sec He
• Internal surface finish :	10Ra or 5Ra microinch(.25 or .13 micrometer)
• Operating temperature	
PCTFE seat	-15℉ to + 200℉(-26℃ to +93℃)
Vespel® seat	-15℉ to + 300℉(-26℃ to +149℃)
• Weight (w/o gauges) :	3.5lbs.(1.6kg)

Flow Curves



Ordering Information

S	8	RG2	–	VF	–	3	1	G	1	2	–	X123	–	P
1	2	3		4		5	6	7	8	9		10		11

1 Material
S = 316L Stainless Steel Single Melted
D = 316L Stainless Steel Double Melted

2 Connection Size
6 = 3/8″
8 = 1/2″

3 Product
RG2 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 = 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)
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)

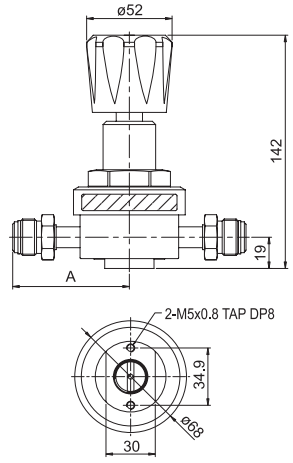
8 Outlet Pressure Range
0 = 1~ 30 psig
1 = 1~ 60 psig
2 = 1~100 psig
3 = 1~150 psig

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

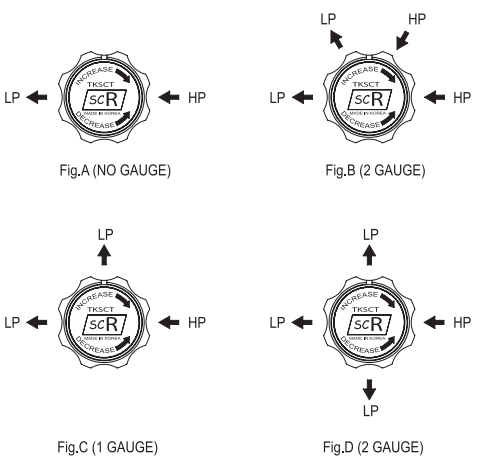
11 Grade
Blank = BA Standard (10 Ra μin)
P = Electropolishing (5 Ra μin)

Major Configuration



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

Port Configurations



RG3 Series

- Compact size
- Designed to minimize contamination and provide accurate regulation of gas
- Metal to metal diaphragm to body seal assures minimum in and outboard leakage
- Convoluted diaphragm gives excellent accuracy and long life
- Panel mounting available

Specifications

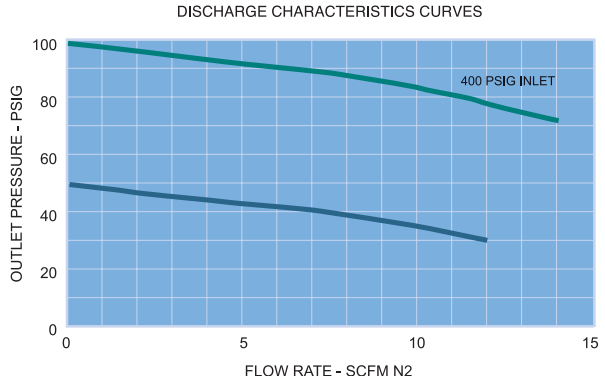
Operating Parameters	
• Pressure rating per criteria of ANSI/ASME B31.3 maximum rated inlet pressure :	400 PSIG, 3500 PSIG
• Outlet pressure ranges :	1-25, 1-50, 1-100, 1-250 & 1-500 PSIG
• Design proof pressure :	150% maximum rated pressure
• Max. inboard leak :	seat : bubble-tight seal : design to meet $\leq 2 \times 10^{-8}$ atm cc/sec He
• Operating temperature :	-15℉ to +165℉(-26℃ to +74℃)
• Flow coefficient :	3500 PSIG inlet : Cv=0.06 400 PSIG inlet : Cv=0.15
Media Contact Materials	
• Body :	316L Stainless Steel
• Diaphragm :	Hastelloy C-22
• Seat :	Teflon®/ PCTFE
• Remaining parts :	316 Stainless Steel / Brass
Weight (W/O Gauges)	
	2.0 lbs. (0.9 kg)

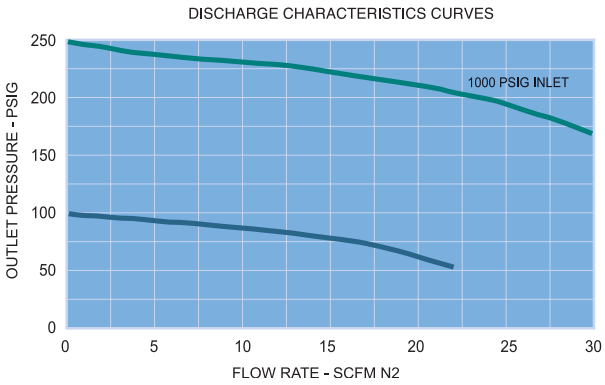
Ordering Information

S	4	RG3	–	NF	–	1	2	N	1	1	–	X123	–	P
[1]	[2]	[3]		[4]		[5]	[6]	[7]	[8]	[9]		[10]		[11]

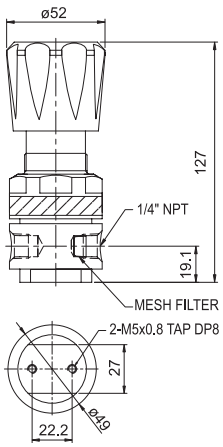
[1] Material	[8] Outlet Pressure Range
S = 316L Stainless Steel Single Melted	0 = 1~ 25 PSIG
D = 316L Stainless Steel Double Melted	1 = 1~ 50 PSIG
[2] Connection Size	2 = 1~100 PSIG
4 = 1/4″	3 = 1~250 PSIG
[3] Product	4 = 1~500 PSIG
RG3 Series	**[9] Maximum Range of Outlet Gauge**
[4] Connection Type	0 = 30 psig
NF = Female NPT Thread	1 = 60 psig
[5] Maximum Inlet Pressure	2 = 100 psig
1 = 3500 psig	3 = 300 psig
2 = 400 psig	4 = 600 psig
[6] Maximum Range of Inlet Gauge	Blank = No Gauge
1 = 600 psig	**[10] User Option**
2 = 3500 psig	Customization
Blank = No Gauge	**[11] Grade**
[7] Gauge Port Configuration	Blank = BA Standard (10 Ra μin)
A = No Gauge Port (Fig. A)	P = Electropolishing (5 Ra μin)
N = 1/4″ Female NPT Thread (Fig. B)	

Flow Curves





Major Configuration



Port Configurations

Fig.A (NO GAUGE)

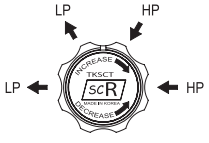


Fig.B (2 GAUGE)

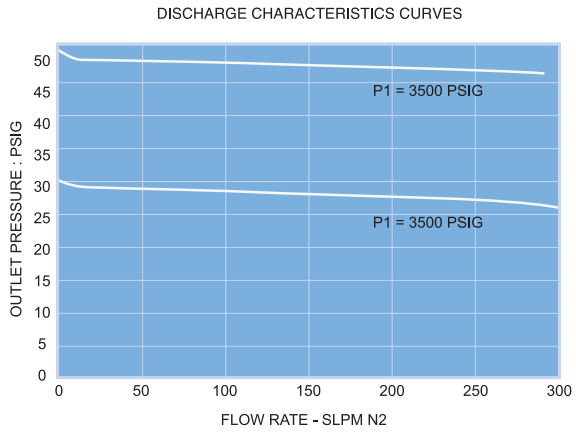
PRG1 Series

- No internal springs and threadless design to minimize particle entrapment areas.
- Positive shutoff seal reduces pressure creep.
- Metal to metal diaphragm seal enhances leak tight integrity.

Specifications

Pressure Rating	
• Maximum. inlet pressure :	600, 1000, 3500 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 / Hastelloy C-22
• Seat :	PCTFE (Vespel®optional for 3,500 PSIG model only)
• Diaphragm :	Hastelloy C-22
• Valve stem :	316L / Hastelloy C-22
Other Parameters	
• Flow coefficient :	3500 PSIG Inlet : Cv=0.06
	600, 1000 PSIG Inlet : Cv=0.15
• Operating temperature :	
PCTFE seat	-40°C to + 65°C
Vespel® seat	-26°C to + 149°C
• Inboard leak rate :	1×10^{-9} atm cc/sec He
• Weight (w/o gauges) :	2.0 lbs (0.9kg)

Flow Curves



Ordering Information

S	4	PRG1	–	VM	–	1	1	C	1	2	–	X123	–	P
[1]	[2]	[3]		[4]		[5]	[6]	[7]	[8]	[9]		[10]		[11]

[1] Material
S = 316L Stainless Steel Single Melted
D = 316L Stainless Steel Double Melted
H = Hastelloy

[2] Connection Size
4 = 1/4″
6 = 3/8″
8 = 1/2″

[3] Product
PRG1 Series

[4] Connection Type
NF = Female NPT Thread
TW = Tube Butt Weld
VF = Female Type Face Seal
VM = Male Type Face Seal

[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
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)
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)

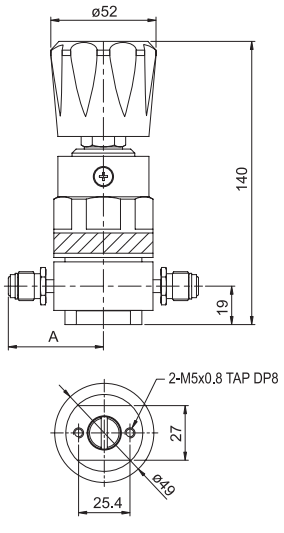
[8] Outlet Pressure Range
0 = 1~ 30 psig
1 = 1~ 60 psig
2 = 1~100 psig
3 = 1~150 psig

[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

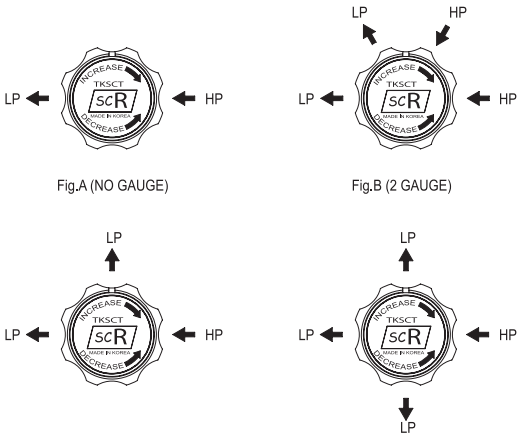
[11] Grade
Blank = BA Standard (10 Ra μin)
P = Electropolishing (5 Ra μin)

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VF	47
1/4"	VM	47
1/4"	TW	38
1/2"	VF	60.3
1/2"	VM	60.3

Port Configurations



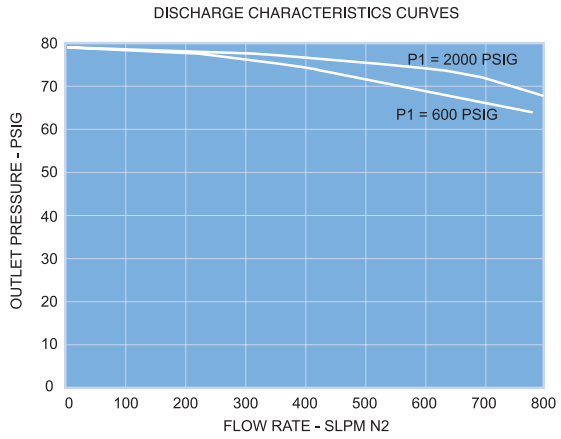
PRG2 Series

- No internal springs and threadless design to minimize particle entrapment areas.
- Metal to metal diaphragm seal enhances leak tight integrity.
- A strong mechanical link between the diaphragm and the valve stem prevents pressure creep.

Specifications

Pressure Rating	
• Maximum. inlet pressure :	600, 1000, 3500 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 :	3500 PSIG - Vespel® / 1000 PSIG & 600 PSIG - PCTFE
• Diaphragm :	Hastelloy C-22
• Valve stem :	316L / Hastelloy C-22
Other Parameters	
• Flow coefficient :	Cv=0.5
• Operating temperature :	
PCTFE seat	-44°C to + 71°C
Vespel® seat	-26°C to + 149°C
• Inboard leak rate :	1×10^{-9} atm cc/sec He
• Weight (w/o gauges) :	2.7 lbs (1.2kg)

Flow Curves



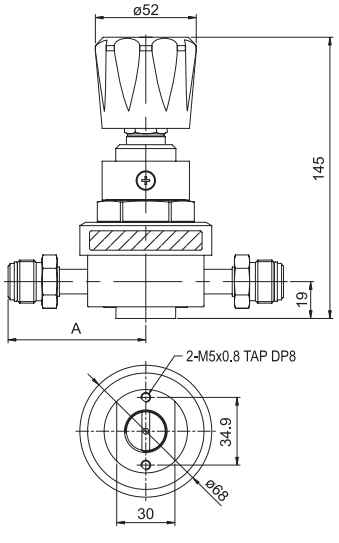
Ordering Information

S 4 PRG2 – VM – 1 1 C 1 2 – X123 – P

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

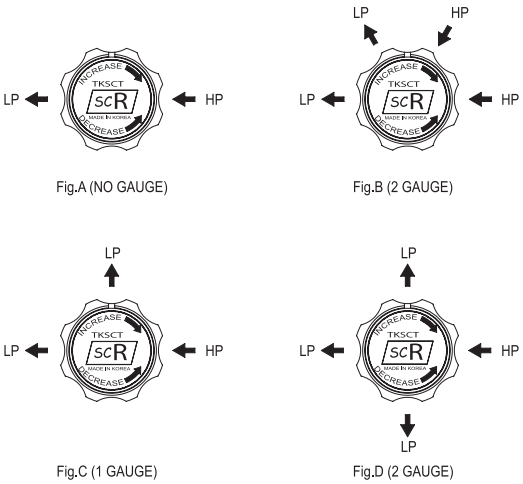
[1] Material	E = 1/4″ Male Face Seal (Fig. D)
S = 316L Stainless Steel Single Melted	F = 1/4″ Male Face Seal (Fig. C)
D = 316L Stainless Steel Double Melted	G = 1/4″ Male Face Seal (Fig. B)
[2] Connection Size	H = 1/4″ Female Face Seal (Fig. D)
4 = 1/4″	I = 1/4″ Female Face Seal (Fig. C)
6 = 3/8″	J = 1/4″ Female Face Seal (Fig. B)
8 = 1/2″	K = 1/4″ Fixed Male Face Seal (Fig. B)
[3] Product	L = 1/4″ Fixed Male Face Seal (Fig. C)
PRG2 Series	M = 1/4″ Fixed Male Face Seal (Fig. D)
[4] Connection Type	N = 1/4″ Female NPT Thread (Fig.B)
NF = Female NPT Thread	O = 1/4″ Female NPT Thread (Fig.C)
TW = Tube Butt Weld	P = 1/4″ Female NPT Thread (Fig.D)
VF = Female Type Face Seal	**[8] Outlet Pressure Range**
VM = Male Type Face Seal	0 = 1~ 30 psig
[5] Maximum Inlet Pressure	1 = 1~ 60 psig
1 = 3500 psig	2 = 1~100 psig
2 = 1000 psig	3 = 1~150 psig
3 = 600 psig	**[9] Maximum Range of Outlet Gauge**
[6] Maximum Range of Inlet Gauge	0 = 30 psig
1 = 600 psig	1 = 60 psig
2 = 1000 psig	2 = 100 psig
3 = 3500 psig	3 = 160 psig
Blank = No Gauge	Blank = No Gauge
[7] Gauge Port Configuration	**[10] User Option**
A = No Gauge Port (Fig. A)	Customization
B = 1/4″ Internal Face Seal (Fig. C)	**[11] Grade**
C = 1/4″ Internal Face Seal (Fig. B)	Blank = BA Standard (10 Ra μin)
D = 1/4″ Internal Face Seal (Fig. D)	P = Electropolishing (5 Ra μin)

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VF	47
1/4"	VM	47
3/8"	TW	47
1/2"	VF	71
1/2"	VM	71
1/2"	TW	47

Port Configurations



MRG3 Series

- Compact size
- High performance with low hysteresis.

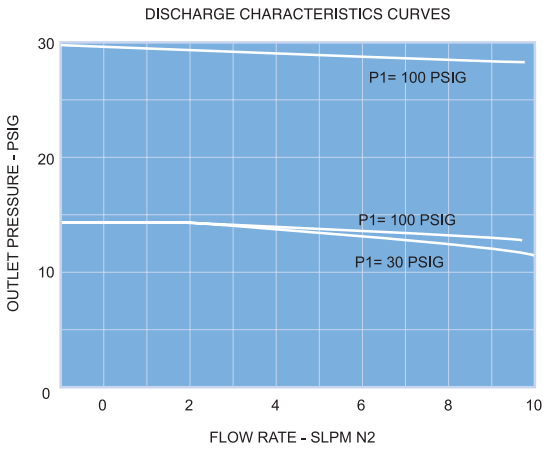
Specifications

Pressure Rating	
• Maximum. 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
• Valve stem, spring :	316L Stainless Steel
Other Parameters	
• Flow coefficient :	Cv=0.06
• Temperature :	-40℃ to + 71℃
• Inboard leak rate :	1×10^{-9} atm cc/sec He
• Weight(w/o gauge)	0.82 lbs (370g)

Ordering Information

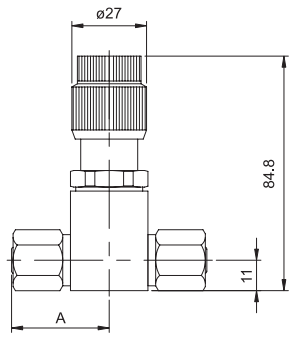
S	4	MRG3	–	VM	–	1	F	1	2	–	X123	–	P
1	2	3		4		5	6	7	8		9		10

Flow Curves



1 Material	B = 1/4″ Male Face Seal (Fig. B)
S = 316L Stainless Steel Single Melted	C = 1/4″ Female Face Seal (Fig. B)
D = 316L Stainless Steel Double Melted	D = 1/4″ Fixed Male Face Seal (Fig. B)
2 Connection Size	**7 Outlet Pressure Range**
4 = 1/4″	0 = 1~ 30 psig
6= 3/8″	1 = 1~ 60 psig
3 Product	2 = 1~100 psig
MRG3 Series	**8 Maximum Range of Outlet Gauge**
4 Connection Type	0 = 30 psig
TW = Tube Butt Weld	1 = 60 psig
VF = Female Type Face Seal	2 = 100 psig
VM = Male Type Face Seal	Blank = No Gauge
VMF = Fixed Male Type Face Seal	**9 User Option**
5 Maximum Inlet Pressure	Customization
1 = 150 psig	**10 Grade**
6 Gauge Port Configuration	Blank = BA Standard (10 Ra μin)
A = No Gauge Port (Fig. A)	P = Electropolishing (5 Ra μin)

Major Configuration



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

Port Configurations

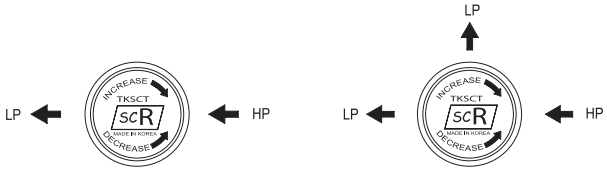


Fig.A (NO GAUGE) Fig.B (1 GAUGE)

MRG4 Series

- Compact size
- High performance with low hysteresis.

Specifications

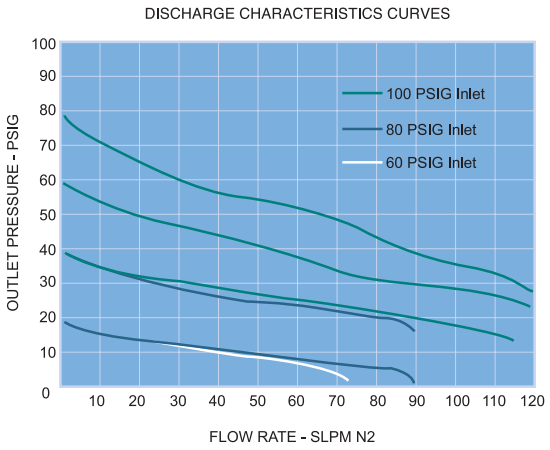
Pressure Rating	
• Maximum. inlet pressure :	150 PSIG
• Outlet pressure :	3-30, 3-60, 3-100 PSIG
• Design proof pressure :	150% of Maximum rated pressure
Materials in Contact with Media	
• Body :	316L Stainless Steel
• Seat :	PCTFE
• Diaphragm :	Hastelloy C-22
Other Parameters	
• Flow coefficient :	Cv=0.08
• Temperature :	-40℃ to + 71℃
• Inboard leak rate :	1×10^{-9} atm cc/sec He

Ordering Information

D | **11** | **MRG4** | – **2W** | – **1A1** | – **PX**

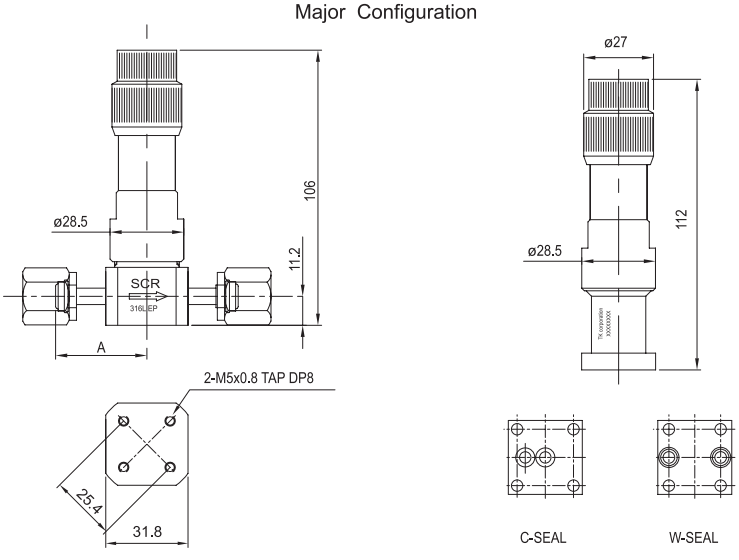
1 2 3 4 5 6

Flow Curves



1 **Material**	D = 316L Stainless Steel Double Melted
	DH = SS with Hastelloy internals
	H = Hastelloy
2 **Size**	11 = 1.125″
	15 = 1.5″
	4 = 1/4″
3 **Product**	MRG4 Series
4 **Connection Type**	2W = W-SEAL(2PORT)
	2C = C-SEAL(2PORT)
	VM = Male Type Face Seal
	VF = Female Type Face Seal
	TW = Tube Butt Weld
5 **Outlet Pressure Range**	1A0 = 3-30PSIG
	1A1 = 3-60PSIG
	1A2 = 3-100PSIG
6 **Grade**	Blank = BA Standard (10 Ra μin)
	P = Electropolishing (5 Ra μin)

Major Configuration



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

MRG5 Series

- Compact size
- High performance with low hysteresis.

Specifications

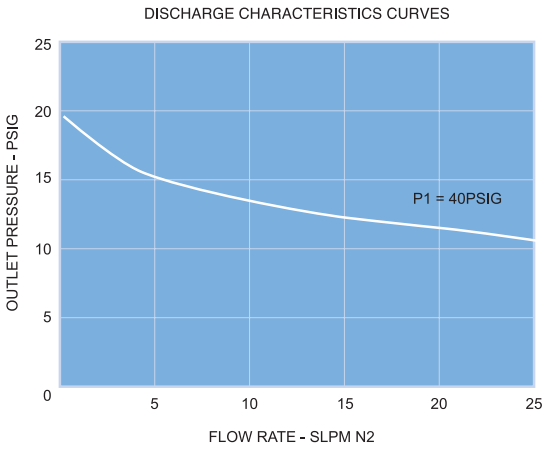
Pressure Rating	
• Maximum. inlet pressure :	500 PSIG
• Outlet pressure :	1-30, 1-60, 1-100 PSIG
• Design proof pressure :	150% of Maximum rated pressure
Materials in Contact with Media	
• Body :	316L Stainless Steel
• Seat :	PCTFE
• Diaphragm :	Hastelloy C-22
• Valve stem, spring :	316L Stainless Steel
Other Parameters	
• Flow coefficient :	Cv=0.1
• Temperature :	-40℃ to + 71℃
• Inboard leak rate :	1×10^{-9} atm cc/sec He
• Weight(w/o gauge)	0.82 lbs (370g)

Ordering Information

S 4 MRG5 – VM – 1 F 1 2 – X123 – P

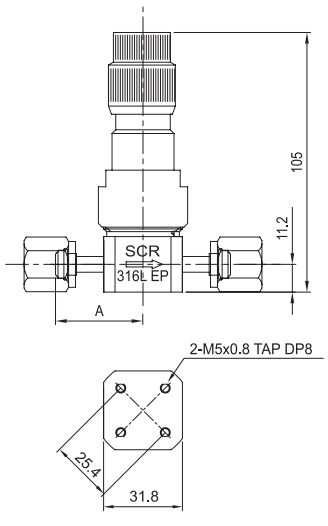
1 2 3 4 5 6 7 8 9 10

Flow Curves



1 Material	C = 1/4〞 Female Face Seal (Fig. B)
S = 316L Stainless Steel Single Melted	D = 1/4〞 Fixed Male Face Seal (Fig. B)
D = 316L Stainless Steel Double Melted	**7 Outlet Pressure Range**
2 Connection Size	0 = 1~ 30 psig
4 = 1/4〞	1 = 1~ 60 psig
3 Product	2 = 1~100 psig
MRG5 Series	**8 Maximum Range of Outlet Gauge**
4 Connection Type	0 = 30 psig
TW = Tube Butt Weld	1 = 60 psig
VF = Female Type Face Seal	2 = 100 psig
VM = Male Type Face Seal	Blank = No Gauge
VMF = Fixed Male Type Face Seal	**9 User Option**
5 Maximum Inlet Pressure	Customization
1 = 500 psig	**10 Grade**
6 Gauge Port Configuration	Blank = BA Standard (10 Ra μin)
A = No Gauge Port (Fig. A)	P = Electropolishing (5 Ra μin)
B = 1/4〞 Male Face Seal (Fig. B)	

Major Configuration



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

Port Configurations

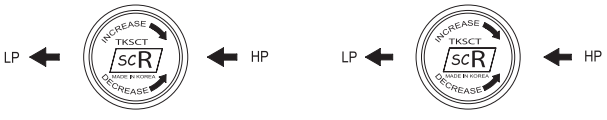


Fig.A (NO GAUGE)

Fig.B (1 GAUGE)

BRG3 Series

- Compact size
- High performance with low hysteresis.

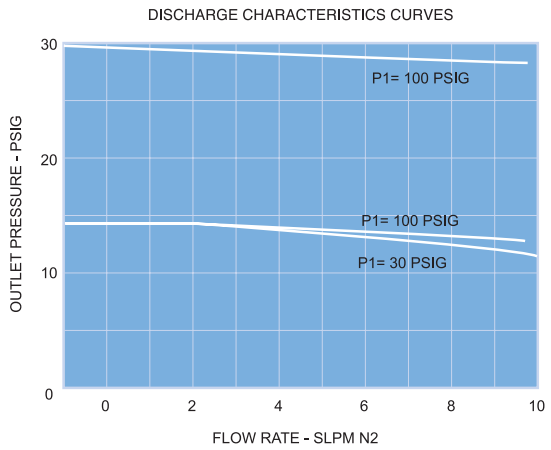
Specifications

Pressure Rating	
. Maximum. 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
. Valve stem, spring :	316L Stainless Steel
Other Parameters	
. Flow coefficient :	Cv=0.06
. Temperature :	-40℃ to + 71℃
. Inboard leak rate :	1×10^{-9} atm cc/sec He
. Weight (w/o gauges) :	1.2 lbs (530g)

Ordering Information

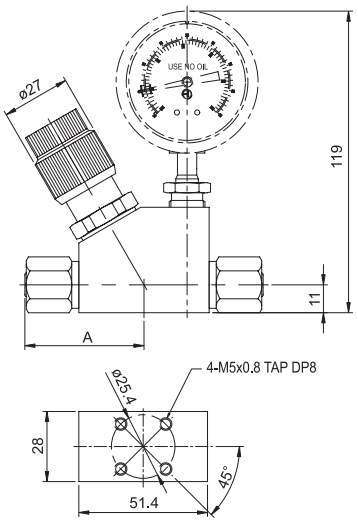
S	4	BRG3	–	VM	–	1	F	1	2	–	X123	–	P
1	2	3		4		5	6	7	8		9		10

Flow Curves



1 Material	C = 1/4″ Male Face Seal
S = 316L Stainless Steel Single Melted	D = 1/4″ Female Face Seal
D = 316L Stainless Steel Double Melted	E = 1/4″ Fixed Male Face Seal
2 Connection Size	**7 Outlet Pressure Range**
4 = 1/4″	0 = 1~ 30 psig
6= 3/8″	1 = 1~ 60 psig
3 Product	2 = 1~100 psig
BRG3 Series	**8 Maximum Range of Outlet Gauge**
4 Connection Type	0 = 30 psig
TW = Tube Butt Weld	1 = 60 psig
VF = Female Type Face Seal	2 = 100 psig
VM = Male Type Face Seal	Blank = No Gauge
VMF = Fixed Male Type Face Seal	**9 User Option**
5 Maximum Inlet Pressure	Customization
1 = 150 psig	**10 Grade**
6 Gauge Port Configuration	Blank = BA Standard (10 Ra μin)
A = No Gauge Port	P = Electropolishing (5 Ra μin)
B = 1/4″ Internal Face Seal	

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VF	47
1/4"	VM	47
1/4"	TW	47

HFRG Series

Specifications

Fluid Media	
A regulator for the control of high purity, corrosive, toxic, flammable and inert gases at high flow rate and low pressure.	
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
• Temperature :	-15℉ to 165℉(-26℃ to 73℃)
Materials in Contact with Media	
• Body :	316L Stainless Steel
• Diaphragm :	PTFE
• Seat :	Teflon®/ Viton®
Functional Performance	
• Flow coefficient :	Cv= 0.85
• Inboard leak rate :	2×10^{-9} scc/sec He
• Supply Pressure Effect :	4psi(.3bar)per 100psi

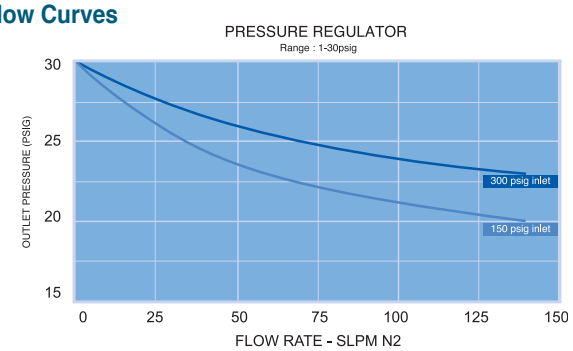
Ordering Information

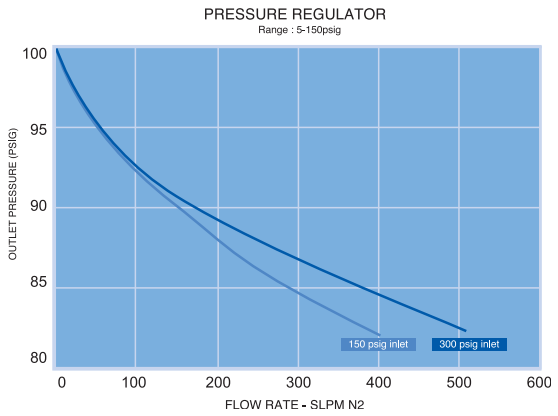
S 8 HFRG – VF – 1 1 C 1 2 – X123 – P

1 2 3 4 5 6 7 8 9 10 11

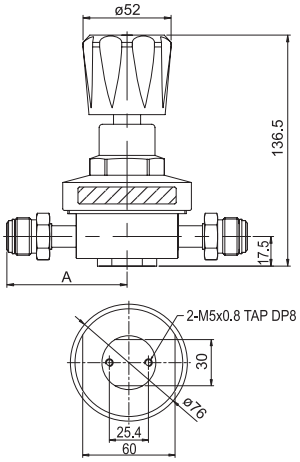
1 Material	E = 1/4″ Male Face Seal (fig. D)
S = 316L Stainless Steel Single Melted	F = 1/4″ Male Face Seal (fig. C)
D = 316L Stainless Steel Double Melted	G = 1/4″ Male Face Seal (fig. B)
2 Connection Size	H = 1/4″ Female Face Seal (fig. D)
4 = 1/4″	I = 1/4″ Female Face Seal (fig. C)
6 = 3/8″	J = 1/4″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

Flow Curves



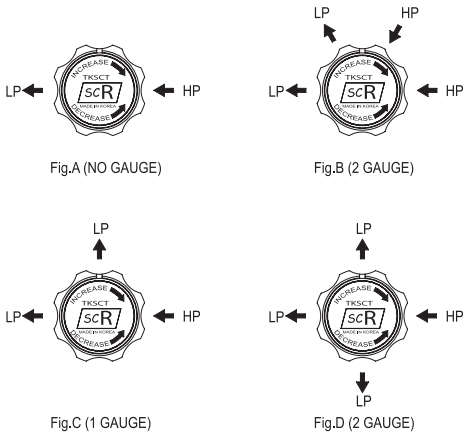


Major Configuration



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
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

Port Configurations

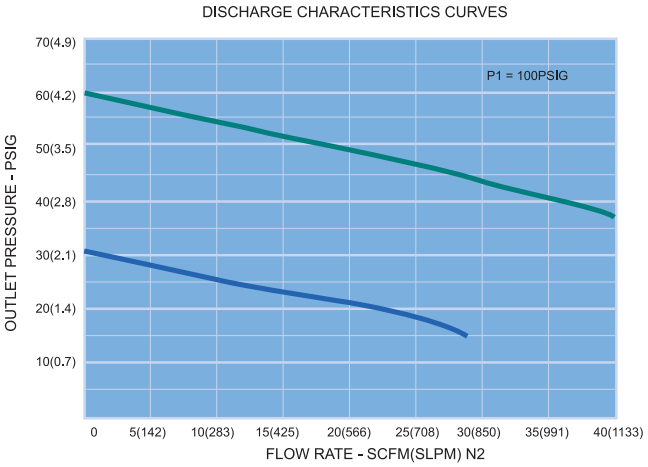


HFRG2 Series

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 :	1-30, 1-60, & 1-100 PSIG (1-2.1, 1-4.1 & 1-6.9 kg/cm²)
• Design proof pressure :	150% of maximum rated pressure
• Certified maximum inboard leak rate :	$<1\times10^{-9}$ atm cc/sec He
• Operating temperature :	Teflon® seat : -15℉ to 160℉ (-26℃ to 71℃) PCTFE seat : -15℉ to 200℉ (-26℃ to 93℃)
• Flow coefficient :	Cv = 1.6
Media Contact Materials	
• Body :	316L Stainless Steel
• Valve seat :	Teflon® or PCTFE
• Diaphragm :	Hastelloy C-22
• Stem :	316L Stainless Steel
Internal Surface Finish	
	5 Ra or 10 Ra microinch (.13 or .25 micrometer)
Connections	
	Welded female or male MFS® Tube stubs Internal style of MFS®, compatible with male Face Seal
Weight (W/O Gauges)	
	3.5 lbs. (1.6 kg)

Flow Curves

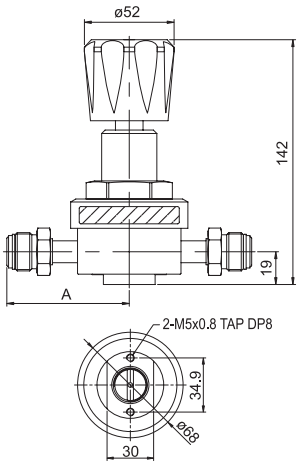


Ordering Information

S	8	HFRG2	–	VF	–	1	1	C	1	1	–	X123	–	P
[1]	[2]	[3]		[4]		[5]	[6]	[7]	[8]	[9]		[10]		[11]

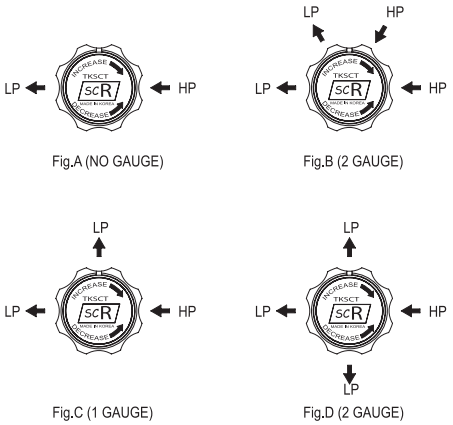
[1] Material	E = 1/4″ Male Face Seal (fig. D)
S = 316L Stainless Steel Single Melted	F = 1/4″ Male Face Seal (fig. C)
D = 316L Stainless Steel Double Melted	G = 1/4″ Male Face Seal (fig. B)
[2] Connection Size	H = 1/4″ Female Face Seal (fig. D)
4 = 1/4″	I = 1/4″ Female Face Seal (fig. C)
6 = 3/8″	J = 1/4″ Female Face Seal (fig. B)
8 = 1/2″	K = 1/4″ Fixed Male Face Seal (fig. B)
12 = 3/4″	L = 1/4″ Fixed Male Face Seal (fig. C)
[3] Product	M = 1/4″ Fixed Male Face Seal (fig. D)
HFRG2 SERIES	N = 1/4″ Female NPT Thread (fig. B)
[4] Connection Type	O = 1/4″ Female NPT Thread (fig. C)
TW = Tube Butt Weld	P = 1/4″ Female NPT Thread (fig. D)
VF = Female Type Face Seal	**[8] Outlet Pressure Range**
VM = Male Type Face Seal	0 = 1~ 30 psig
VMF = Fixed Male Type Face Seal	1 = 1~ 60 psig
[5] Maximum Inlet Pressure	2 = 1~100 psig
1 = 250 psig	**[9] Maximum Range of Outlet Gauge**
2 = 150 psig	0 = 30 psig
[6] Maximum Range of Inlet Gauge	1 = 60 psig
1 = 200 psig	2 = 100 psig
2 = 300 psig	3 = 160 psig
Blank = No Gauge	Blank = No Gauge
[7] Gauge Port Configuration	**[10] User Option**
A = NONE (fig. A)	Customization
B = 1/4″ Internal Face Seal (fig. C)	**[11] Grade**
C = 1/4″ Internal Face Seal (fig. B)	Blank = BA Standard (10 Ra μin)
D = 1/4″ Internal Face Seal (fig. D)	P = Electropolishing (5 Ra μin)

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VMF	50.4
1/4"	VF	52
1/4"	VM	52
1/2"	VF	71
1/2"	VM	71
1/2"	SW	58.2
1/2"	TW	47
3/4"	TW	73

Port Configurations

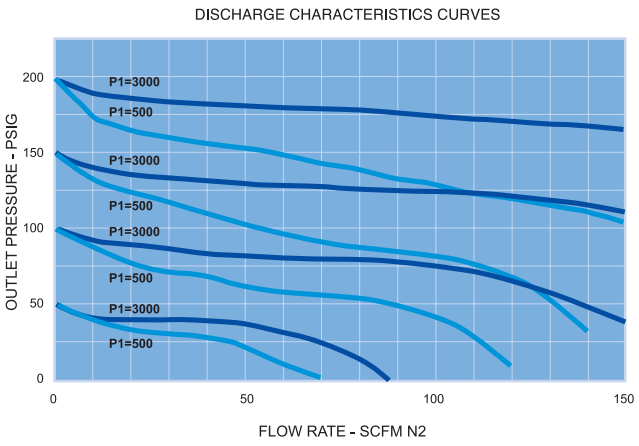


HFRG3 Series

Specifications

Operating Parameters	
• Pressure rating per criteria of ANSI/ASME B31.3 maximum rated inlet pressure :	500, 3000 PSIG
• Outlet pressure ranges :	1-25, 1-50, 1-100, 1-150 & 1-200 PSIG
• Design proof pressure :	150% of maximum rated pressure
• Leakage :	Internal : bubble-tight External : 2×10^{-8} atm cc/sec He
• Operating temperature :	-15℉ to 165℉ (-26℃ to 74℃)
• Flow coefficient :	Cv = 1.0
Media Contact Materials	
• Body :	316L Stainless Steel
• Bonnet :	304 Stainless Steel
• Diaphragm :	Hastelloy C-22
• Seat :	3000 PSIG inlet : PCTFE 500 PSIG inlet : Teflon®PFA
Weight (W/O Gauges)	
	3.7 lbs. (1.7 kg)

Flow Curves

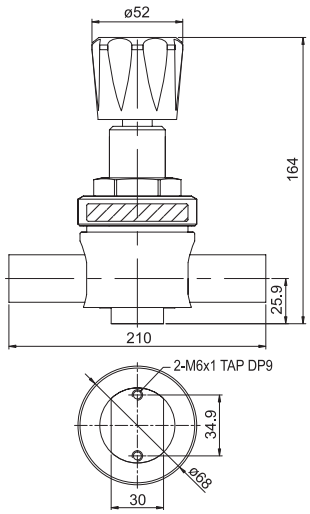


Ordering Information

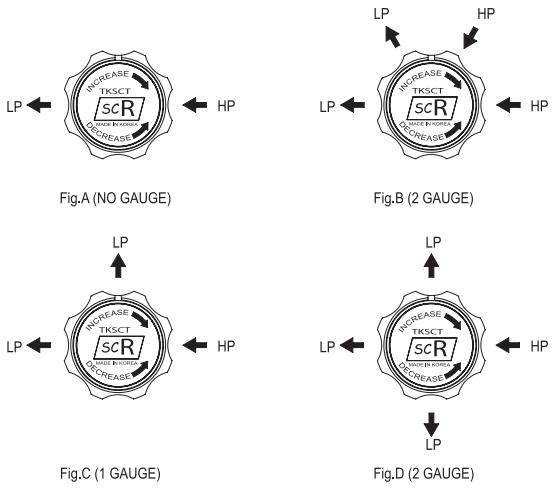
S	8	HFRG3	–	NF	–	1	1	C	2	2	–	X123	–	P
1	2	3		4		5	6	7	8	9		10		11

1 Material	F = 1/4″ Male Face Seal (fig. C)
S = 316L Single Melted	G = 1/4″ Male Face Seal (fig. B)
D = 316L Stainless Steel Double Melted	H = 1/4″ Female Face Seal (fig. D)
2 Connection Size	I = 1/4″ Female Face Seal (fig. C)
6 = 3/8″(NPT)	J = 1/4″ Female Face Seal (fig. B)
8 = 1/2″(NPT)	K = 1/4″ Fixed Male Face Seal (fig. B)
12 = 3/4″(TUBE)	L = 1/4″ Fixed Male Face Seal (fig. C)
8 = 1/2″(TUBE)	M = 1/4″ Fixed Male Face Seal (fig. D)
16 = 1″(TUBE)	N = 1/4″ Female NPT Thread (fig. B)
15A	O = 1/4″ Female NPT Thread (fig. C)
20A	P = 1/4″ Female NPT Thread (fig. D)
25A	**8 Outlet Pressure Range**
3 Product	0 = 1 ~ 25PSIG
HFRG3 SERIES	1 = 1 ~ 50PSIG
4 Connection Type	2 = 1 ~ 100PSIG
NF = Female NPT Thread	3 = 1 ~ 150PSIG
TW = Tube Butt Weld	4 = 1 ~ 200PSIG
5 Maximum Inlet Pressure	**9 Maximum Range of Outlet Gauge**
1 = 3000PSIG	0 = 30 psig
2 = 500PSIG	1 = 60 psig
6 Maximum Range of Inlet Gauge	2 = 160 psig
1 = 600 psig	3 = 200 psig
2 = 3500 psig	4 = 300 psig
Blank = No Gauge	5 = 100 psig
7 Gauge Port Configuration	Blank = No Gauge
A = NONE (fig. A)	**10 User Option**
B = 1/4″ Internal Face Seal (fig. C)	Customization
C = 1/4″ Internal Face Seal (fig. B)	**11 Grade**
D = 1/4″ Internal Face Seal (fig. D)	Blank = BA Standard (10 Ra μin)
E = 1/4″ Male Face Seal (fig. D)	P = Electropolishing (5 Ra μin)

Major Configuration



Port Configurations

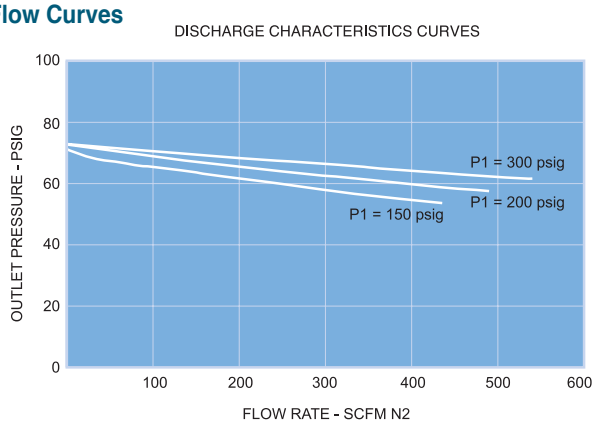


HFRG4 Series

Specifications

Pressure Rating	
• Maximum. inlet pressure :	300 PSIG
• Outlet pressure :	1-30, 1-60, 1-100, 1-150PSIG
• Design proof pressure :	150% of Maximum rated pressure
Materials in Contact with Media	
• Body :	316L Stainless Steel
• Seat :	Viton
• Diaphragm :	PCTFE
• Valve spring :	316L Stainless Steel
Other Parameters	
• Flow coefficient :	Cv=5
• Temperature :	-44℃ to + 71℃
• Inboard leak rate :	2×10^{-8} atm cc/sec He
• Weight (w/o gauges) :	15 lbs (6.8kg)

Flow Curves

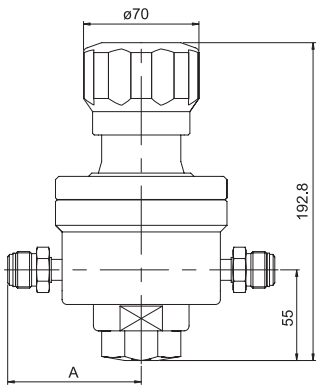


Ordering Information

S	16	HFRG4	–	TW	–	1	1	C	1	2	–	X123	–	P
1	2	3		4		5	6	7	8	9		10		11

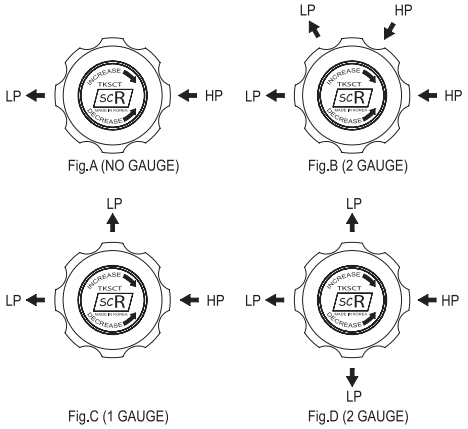
1 Material	H = 1/4″ Female Face Seal (Fig. D)
S = 316L Stainless Steel Single Melted	I = 1/4″ Female Face Seal (Fig. C)
D = 316L Stainless Steel Double Melted	J = 1/4″ Female Face Seal (Fig. B)
2 Connection Size	K = 1/4″ Fixed Male Face Seal (Fig. B)
8 = 1/2″	L = 1/4″ Fixed Male Face Seal (Fig. C)
12 = 3/4″	M = 1/4″ Fixed Male Face Seal (Fig. D)
16 = 1″	N = 1/4″ Female NPT Thread (fig. B)
3 Product	O = 1/4″ Female NPT Thread (fig. C)
HFRG4 Series	P = 1/4″ Female NPT Thread (fig. D)
4 Connection Type	**8 Outlet Pressure Range**
TW = Tube Butt Weld	0 = 1~ 30 psig
VF = Female Type Face Seal	1 = 1~ 60 psig
VM=Male Type Face Seal	2 = 1~100 psig
5 Maximum Inlet Pressure	3 = 1~150 psig
1 = 300 psig	**9 Maximum Range of Outlet Gauge**
6 Maximum Range of Inlet Gauge	0 = 30 psig
1 = 300 psig	1 = 60 psig
Blank = No Gauge	2 = 100 psig
7 Gauge Port Configuration	3 = 160 psig
A = No Gauge Port (Fig. A)	Blank = No Gauge
B = 1/4″ Internal Face Seal (Fig. C)	**10 User Option**
C = 1/4″ Internal Face Seal (Fig. B)	Customization
D = 1/4″ Internal Face Seal (Fig. D)	**11 Grade**
E = 1/4″ Male Face Seal (Fig. D)	Blank = BA Standard (10 Ra μin)
F = 1/4″ Male Face Seal (Fig. C)	P = Electropolishing (5 Ra μin)
G = 1/4″ Male Face Seal (Fig. B)	

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
1/2"	VM	81
3/4"	VF	87
1"	TW	125

Port Configurations



AHFRG Series

Specifications

Operating Parameters	
• Pressure rating per criteria of ANSI/ASME B31.3	
maximum rated inlet pressure :	300 PSIG(21.1 kg/㎠)
• Maximum outlet pressure :	130 PSIG(9.1 kg/㎠)
• Design proof pressure :	150% of maximum rated pressure
• Design burst pressure :	400% of maximum operating pressure
• Certified maximum inboard leak rate :	
External	1 x 10^{-9} atm cc/sec He
Internal	1 x 10^{-6} atm cc/sec He
• Operating temperature :	-20℉ to +150℉ (-29℃ to +65℃)
• Flow coefficient :	Cv = 8.0
Materials in Contact with Media	
• Body :	316L Stainless Steel
• Seat :	PTFE
• Diaphragm :	316L Stainless Steel

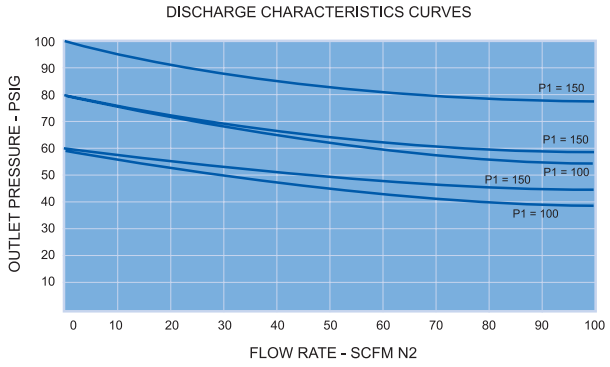
Ordering Information

S 40 AHFRG – TW – X123 – P

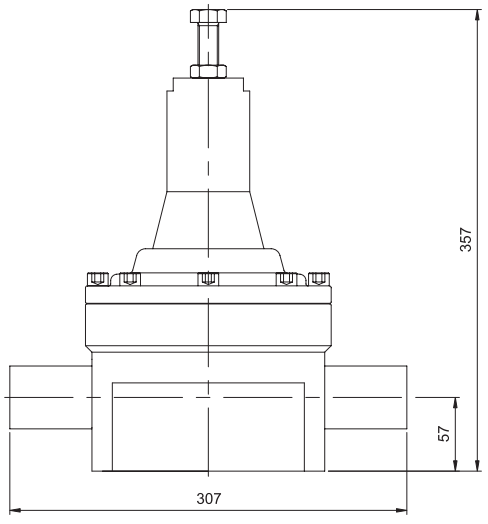
1 2 3 4 5 6

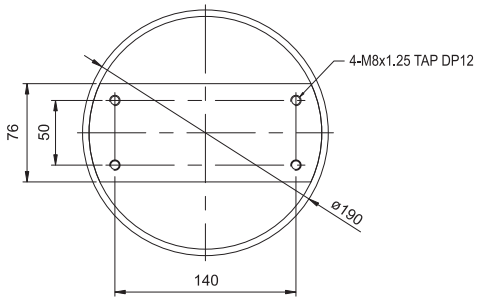
1 Material	S = 316L Stainless Steel Single Melted
	D = 316L Stainless Steel Double Melted
2 Connection Size	15 = 15A
	20 = 20A
	25 = 25A
	40 = 40A
	50 = 50A
	T24 = 1-1/2″
	T32 = 2″
	For other sizes, please consult factory.
3 Product	AHFRG SERIES
4 Connection Type	TW = Tube Butt Weld
5 User Option	Customization
6 Grade	Blank = BA Standard (10 Ra μin)
	P = Electropolishing (5 Ra μin)

Flow Curves



Major Configuration





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