Regulators

High Purity Gas Pressure

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.





TK-FUJIKIN CORPORATION

Fujikin Carp Group

REGULATORS |

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	1.0E-9	0.2	BA EP
RG2	3/8" 1/2"	S D	○		1000 PSIG 600 PSIG	1~150 PSIG	1.0E-9	0.5	BA EP
RG3	1/4"	S SH DH	○	•	1000 PSIG 600 PSIG	1~250 PSIG	1.0E-9	0.2	BA EP
RG4	3/8" 1/2"	S SH DH	○	•	1000 PSIG 600 PSIG	1~150 PSIG	1.0E-9	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	1.0E-9	0.06	BA EP
RG2	3/8" 1/2"	S D	○		3500 PSIG	1~150 PSIG	1.0E-9	0.5	BA EP
RG3	1/4"	S SH DH	○	•	3500 PSIG	1~250 PSIG	1.0E-9	0.2	BA EP
RG4	3/8" 1/2"	S SH DH	○	•	3500 PSIG	1~150 PSIG	1.0E-9	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	1.0E-9	0.06	BA EP
BRG3	1/4" 3/8"	S SH DH	○		150 PSIG	1~100 PSIG	1.0E-9	0.06	BA EP
MRG4	1/4" 1.125" 1.5"	S SH DH HH	○		150 PSIG	1~100 PSIG	1.0E-9	0.08	BA EP
MRG6	1/4" 1.125" 1.5"	S SH DH HH	○	•	150 PSIG	1~100 PSIG	1.0E-9	0.08	BA EP
MRG5	1/4"	S SH DH	○		500 PSIG	1~100 PSIG	1.0E-9	0.1	BA EP
MRG7	1/4"	S SH DH	○	•	500 PSIG	1~100 PSIG	1.0E-9	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	2.0E-8	0.85	BA EP
HFRG2	1/4"~3/4"	S D			250 PSIG	1~100 PSIG	1.0E-9	1.6	BA EP
HFRG3	3/8"~1" 15A~25A	S D			500 PSIG	1~100 PSIG	1.0E-9	1.0	BA EP
HFRG4	1/2" 3/4" 1"	S			300 PSIG	1~150 PSIG	2.0E-8	5.0	BA EP
AHFRG	15A~50A	S			300 PSIG	1~130 PSIG	2.0E-8	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		TK-FUJIKIN REGULATOR						
			BODY		SEAT				
			SUS	HAS	PCTFE	PFA	PI	FKM	PTFE
1	Argone	Ar	O	O	O	O	O	O	O
2	Arsine	AsH_3	O	X	O	O	-	-	O
3	Diborane	B_2H_6	O	O	O	O	O	-	O
4	Boron Trichlorede	BCl_3	O	O	O	-	X	-	O
5	Halocarbon-116 Hexafluoroethane	C_2F_6	O	O	O	O	-	-	O
6	Ethene, Ethylene	C_2H_4	O	O	O	-	O	O	O
7	Perfluoropropane	C_3F_8	O	O	O	-	-	-	O
8	Sifrn®46 Hexafluorobutadiene	C_4F_6	-	O	-	-	-	-	O
9	Octafluorocyclobutane	C_4F_8	O	O	-	-	-	-	O
10	Octafluorocyclopentene	C_5F_8	-	O	-	-	-	-	O
11	Tetrafluoromethane	CF_4	O	O	-	O	O	-	O
12	Difluoromethane	CH_2F_2	-	O	-	O	-	-	O
13	Methyl Fluoride	CH_3F	O	O	-	-	-	-	O
14	Methane	CH_4	O	O	O	O	O	O	O
15	Trifluoromethane	CHF_3	O	O	-	O	O	-	O
16	Chlorine	Cl_2	O	O	O	O	O	O	O
17	Chlorotrifluoromethane	ClF_3	-	O	-	-	-	-	O
18	Carbon Monoxide	CO	O	O	-	O	-	-	O
19	Carbon Dioxide	CO_2	O	O	O	O	O	-	O
20	Deuterium	D_2	O	O	O	-	-	-	O
21	≤20%Fluorine	≤20%F_2	-	O	-	-	-	-	O
22	Germane	GeH_4	O	O	-	-	-	O	O
23	Hydrogen Bromine	HBr	O	O	-	-	X	X	O
24	Hydrogen Chloride	HCl	X	O	O	O	X	-	O
25	Helium	He	O	O	O	O	O	O	O
26	Ammonia	NH_3	O	O	O	O	X	X	O
27	Nitrogen	N_2	O	O	O	O	O	O	O
28	Nitrous Oxide	N_2O	O	O	O	O	O	O	O
29	Nitrogen Trifluoride	NF_3	O	O	-	O	X	X	O
30	Nitrogen Monoxide	NO	O	O	-	-	X	X	O
31	Oxygen	O_2	O	O	O	O	O	O	O
32	Phosphine	PH_3	O	O	O	-	X	-	O
33	Sulfur Hexafluoride	SF_6	O	O	O	-	O	O	O
34	Disilane	Si_2H_6	O	O	-	-	O	X	O
35	Silicon Tetrafluoride	SiF_4	X	O	O	-	-	X	O
36	Dichlorosilane	SiH_2Cl_2	X	O	O	O	X	X	O
37	Silane	SiH_4	O	O	O	O	O	O	O
38	Trichlorosilane	$SiHCl_3$	O	O	O	O	-	-	O
39	Sulfur Dioxide	SO_2	O	O	O	O	-	-	O
40	Tungsten Hexafluoride	WF_6	X	O	O	O	X	X	O
41	Xenon	Xe	O	O	O	O	O	O	O

O : 사용가능 X : 사용불가 – : 사용검토

RG1 SERIES

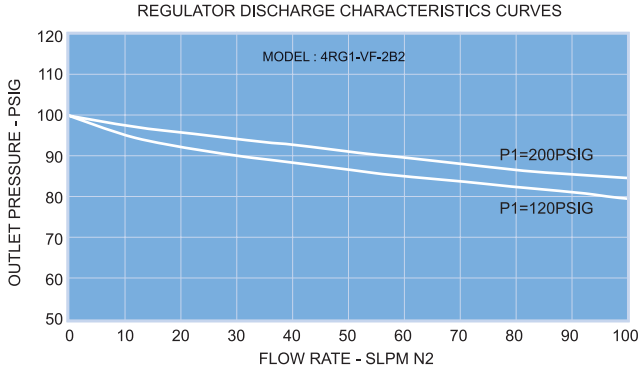
ULTRA HIGH PURITY REGULATOR

- 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 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 x 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	316 Stainless Steel Inconel 750
Valve Bush	316L Stainless Steel Hastelloy C-22
Seat	PCTFE (Option : PI)
Diaphragm	Hastelloy C-22

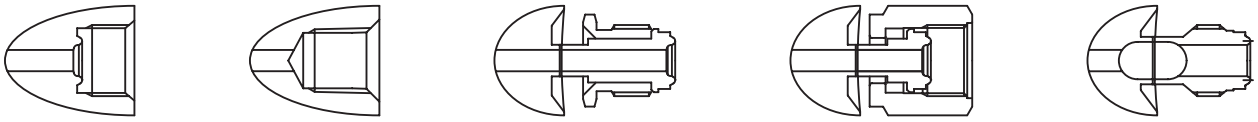
ORDERING INFORMATION

S	4	RG1	–	VF	–	1	3	C	2	3	–	X-NO.	–	P
1	2	3		4		5	6	7	8	9		10		11

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	RG1 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 = 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 ~ 250 PSIG 4 = 1 ~ 150 PSIG
9 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
10 User Option	Customization (※Standard : Blank)	
11 Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)	

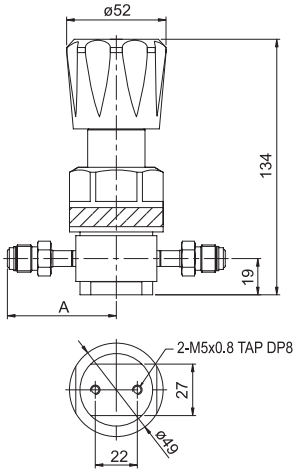
GAUGE PORT INFORMAITON

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"	VF	47
1/4"	VM	57/47(-X84)
1/4"	SW	47.5
1/4"	TW	38
1/4"	NF	24.5
1/4"	VM X VF	47

Port Configurations

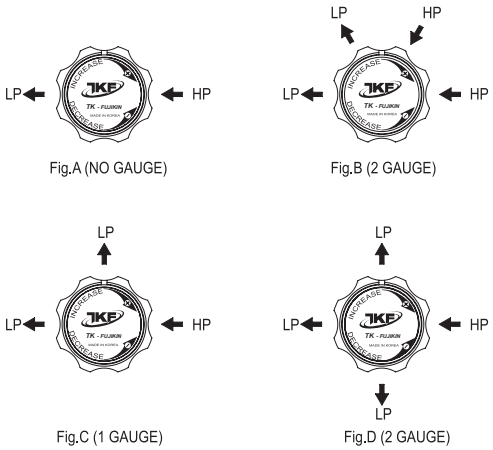


Fig.A (NO GAUGE)

Fig.B (2 GAUGE)

Fig.C (1 GAUGE)

Fig.D (2 GAUGE)

RG2 SERIES

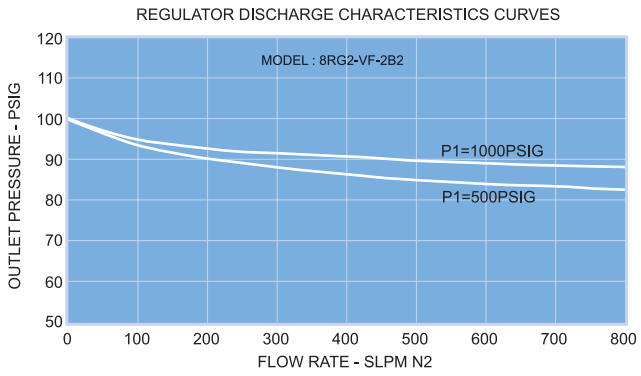
ULTRA HIGH PURITY REGULATOR

- 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		3500 PSIG - PI / 1000 PSIG - PCTFE / 600 PSIG - PFA
Diaphragm		Hastelloy C-22
Gas contact parts		316L Stainless Steel
Other Parameters		
Flow coefficient		Cv = 0.5
Certified maximum inboard leak rate		1 x 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

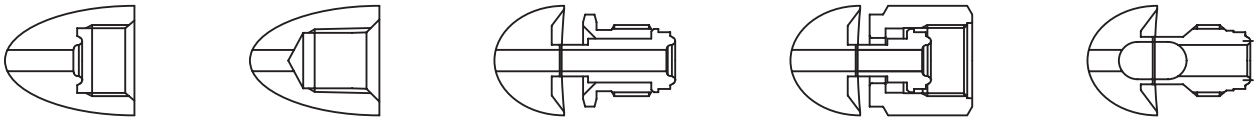
ORDERING INFORMATION

S	8	RG2	–	VF	–	3	1	C	1	2	–	X-NO.	–	P
[1]	[2]	[3]		[4]		[5]	[6]	[7]	[8]	[9]		[10]		[11]

[1] Material	S = 316L Stainless steel D = 316L Stainless steel VAR	
[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 (※Standard : Blank)	
[11] Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch) PX = Electropolishing (5 Ra μinch)	

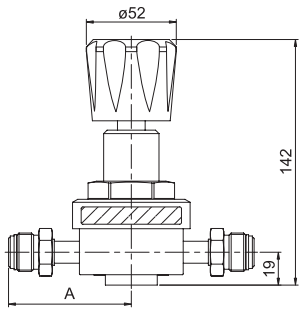
GAUGE PORT INFORMAITON

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

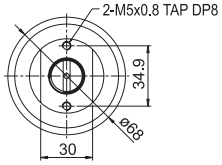


PORT CONFIGURATION

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
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



Port Configurations

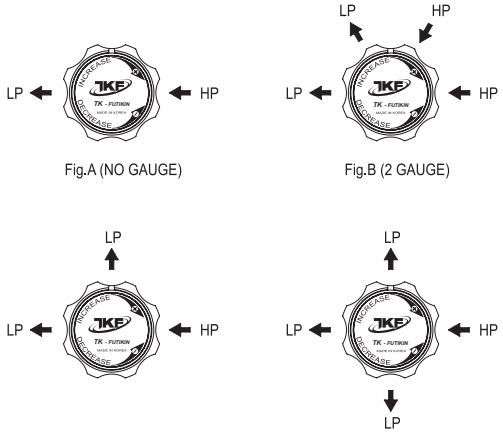


Fig.A (NO GAUGE) | Fig.B (2 GAUGE) | Fig.C (1 GAUGE) | Fig.D (2 GAUGE)

RG1A SERIES

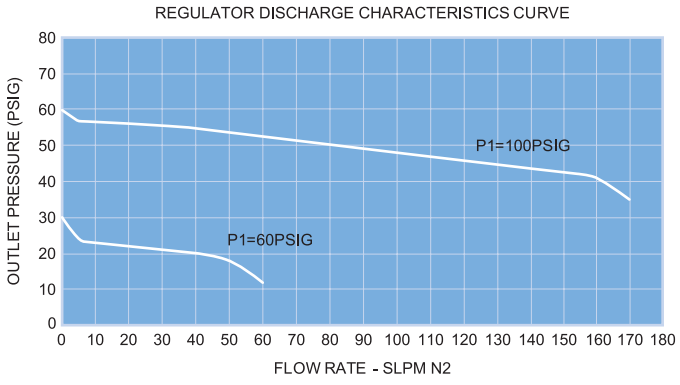
ULTRA HIGH PURITY REGULATOR

- Designed for point-of-use medium flow to be used in process gas cabinets for gas companies, equipment manufactures and semiconductor manufacturers.
- 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 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 psig (241 bar)
Outlet pressure ranges	1-30, 1-60, 1-100, 1-150 psig (.1-2.1, .1-4.1, .1-16.9, .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	PCTFE
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel / Hastelloy C-22 / Inconel X-750
Other Parameters	
Flow coefficient	Cv = 0.2
Certified maximum inboard leak rate	1 x 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)
Weight (w/o gauges)	2.8lbs. (1.26kg)

FLOW CURVES



MATERIAL

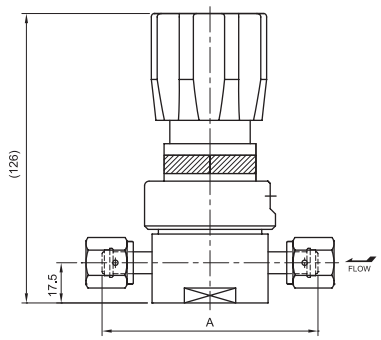
Wetted Parts	RG1A Series
Body	316L Stainless Steel
Seat	PCTFE
Diaphragm	Hastelloy C-22
Gas Contact Parts	316L SS / Hastelloy C-22 / Inconel X-750

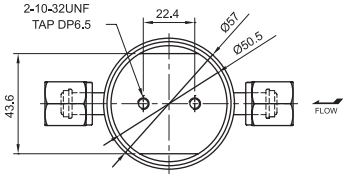
ORDERING INFORMATION

S	4	RG1A	–	VF	–	1	3	C	2	3	–	X123	–	P
1	2	3		4		5	6	7	8	9		10		11

1 Material	S = 316L Stainless steel
2 Connection Size	4 = 1/4"
3 Product	RG1A Series
4 Connection Type	NF = Female NPT Thread VF = Female Type Face Seal NSW = Female NPT Thread + Compression Lok Fitting
5 Maximum Inlet Pressure	1 = 3500 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) 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 = 150 PSIG 4 = 200 PSIG Blank = No Gauge
10 User Option	Customization
11 Grade	Blank = BA Standard (10 Ra µinch) P = Electropolishing (5 Ra µinch) PX = Electropolishing (5 Ra µinch)

PORT CONFIGURATION





Inlet / Outlet		
Size	Connection	A
1/4"	VF	94
1/4"	NF	50.5
1/4"	NSW	91.1

Port Configurations

Fig.A(NO GAUGE)

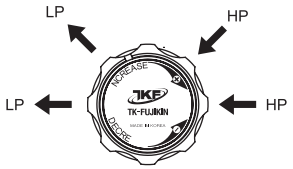


Fig.B(2 GAUGE)

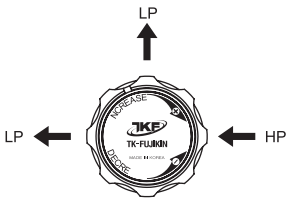


Fig.C(1 GAUGE)

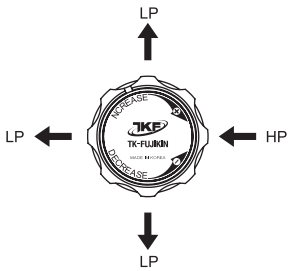


Fig.D(2 GAUGE)

RG2A SERIES

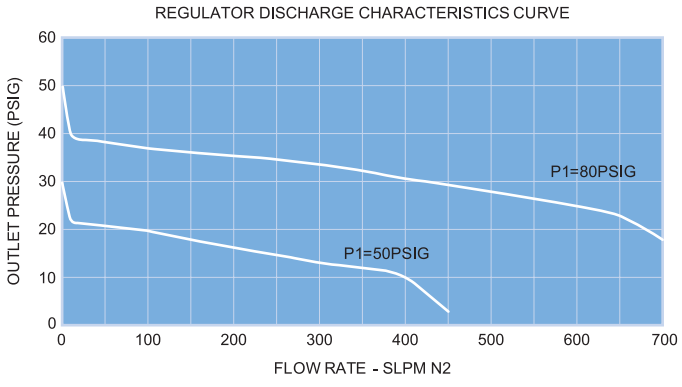
ULTRA HIGH PURITY REGULATOR

- Designed for point-of-use high flow to be used in process gas cabinets for gas companies, equipment manufactures and semiconductor manufacturers.
- 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 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	1700 psig (117 bar)
Outlet pressure ranges	1-30, 1-60, 1-100, 1-150 psig (.1-2.1, .1-4.1, .1-16.9, .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	PCTFE
Diaphragm	Hastelloy C-22
Gas contact parts	316L Stainless Steel
Other Parameters	
Flow coefficient	Cv = 1.2
Certified maximum inboard leak rate	1 x 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)
Weight (w/o gauges)	4.1lbs. (1.87kg)

FLOW CURVES



MATERIAL

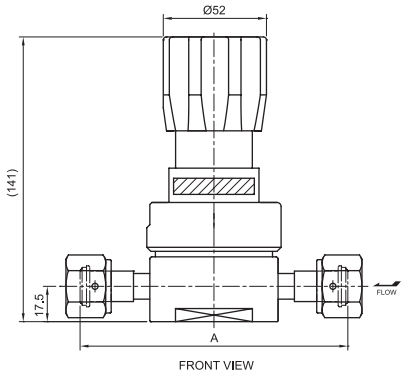
Wetted Parts	RG2A Series
Body	316L Stainless Steel
Seat	PCTFE
Diaphragm	Hastelloy C-22
Gas Contact Parts	316L SS

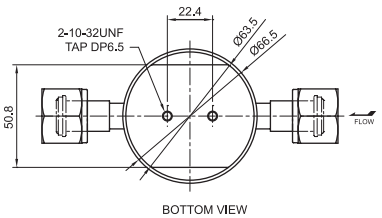
ORDERING INFORMATION

S	8	RG2A	–	VF	–	1	1	C	2	3	–	X123	–	P
1	2	3		4		5	6	7	8	9		10		11

1 Material	S = 316L Stainless steel
2 Connection Size	8 = 1/2"
3 Product	RG2A Series
4 Connection Type	NF = Female NPT Thread VF = Female Type Face Seal NSW = Female NPT Thread + Compression Lok Fitting
5 Maximum Inlet Pressure	1 = 1700 psig
6 Maximum Range of Inlet Gauge	1 = 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) H = 1/4" Female Face Seal (Fig. D) I = 1/4" Female Face Seal (Fig. C) 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 = 150 PSIG 4 = 200 PSIG Blank = No Gauge
10 User Option	Customization
11 Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch)

PORT CONFIGURATION





Inlet / Outlet		
Size	Connection	A
1/2"	VF	132.6
1/2"	NF	63.5
1/2"	NSW	114.2

Port Configurations

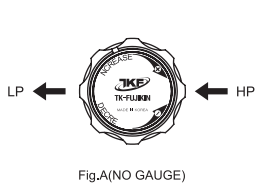


Fig.A(NO GAUGE)

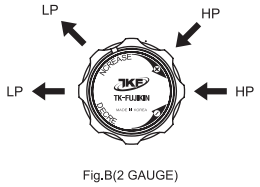


Fig.B(2 GAUGE)

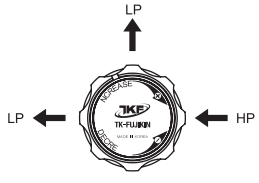


Fig.C(1 GAUGE)

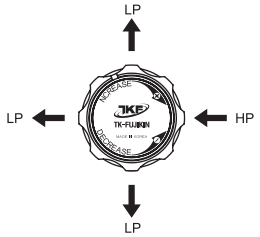


Fig.D(2 GAUGE)

RG3 SERIES

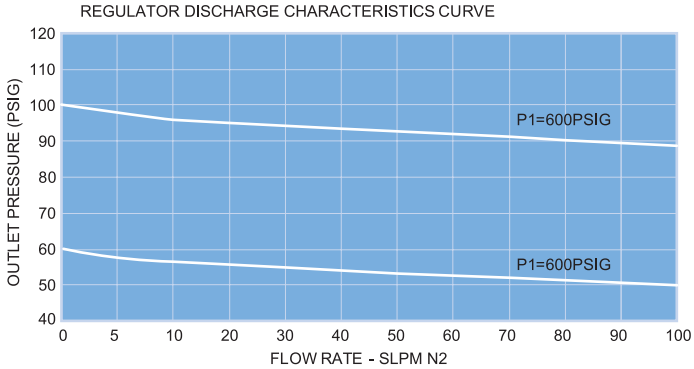
TIED DIAPHRAGM TYPE REGULATOR

- Internal springless and added internal mesh are designed to minimize 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 x 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

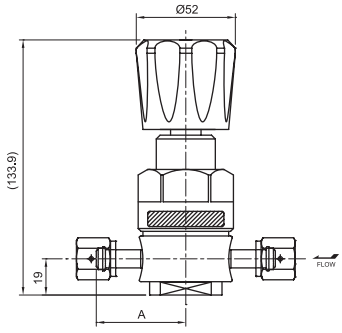
Wetted Parts	RG3 Series
Body	316L Stainless Steel
Main Valve	316L Stainless Steel Hastelloy C-22
Seat	PCTFE (Option : PI)
Diaphragm	Hastelloy C-22

ORDERING INFORMATION

S	4	RG3	–	VF	–	1	3	C	2	3	–	X123	–	P
1	2	3		4		5	6	7	8	9		10		11

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	RG3 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 VMF = Fixed Male Type Face Seal
5 Maximum Inlet Pressure	1 = 3500 PSIG	2 = 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 4 = 1~ 250 PSIG
9 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
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



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
1/4"	NF	24.5
1/4"	VM X VF	47

Port Configurations

Fig.A(NO GAUGE)

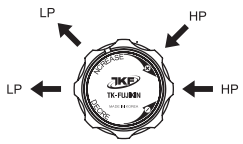


Fig.B(2 GAUGE)

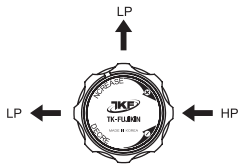


Fig.C(1 GAUGE)

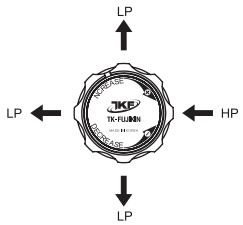


Fig.D(2 GAUGE)

RG4 SERIES

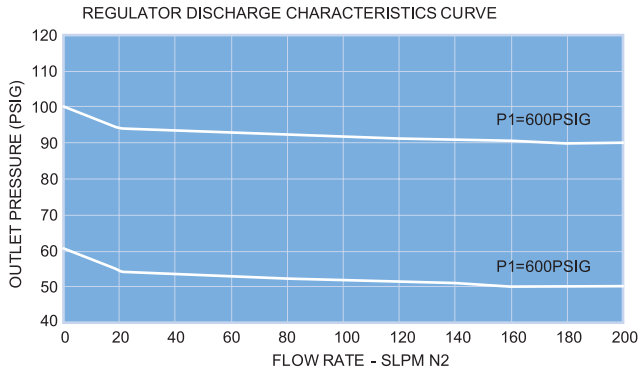
TIED DIAPHRAGM TYPE REGULATOR

- Internal springless and added internal mesh are designed to minimize 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 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^{-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)
	PI seat	-15°F to +300°F (-26°C to +149°C)
Weight (w/o gauges)		301lbs. (1.4kg)

FLOW CURVES



MATERIAL

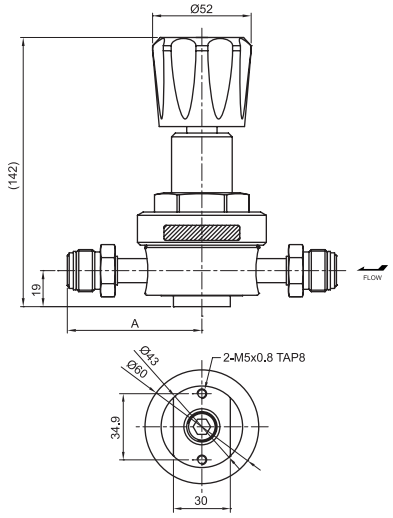
Wetted Parts	RG4 Series
Body	316L Stainless Steel
Main Valve	316L Stainless Steel Hastelloy C-22
Seat	PFA PCTFE PI
Diaphragm	Hastelloy C-22

ORDERING INFORMATION

S	8	RG4	–	VF	–	1	3	C	2	3	–	X123	–	P
1	2	3		4		5	6	7	8	9		10		11

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



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

Port Configurations

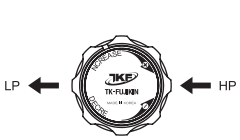


Fig.A(NO GAUGE)

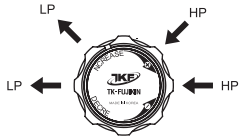


Fig.B(2 GAUGE)

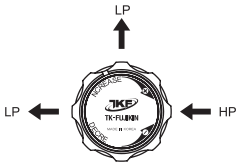


Fig.C(1 GAUGE)

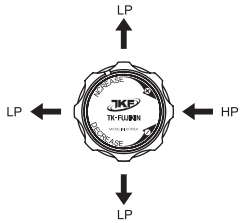


Fig.D(2 GAUGE)

BRG3 SERIES

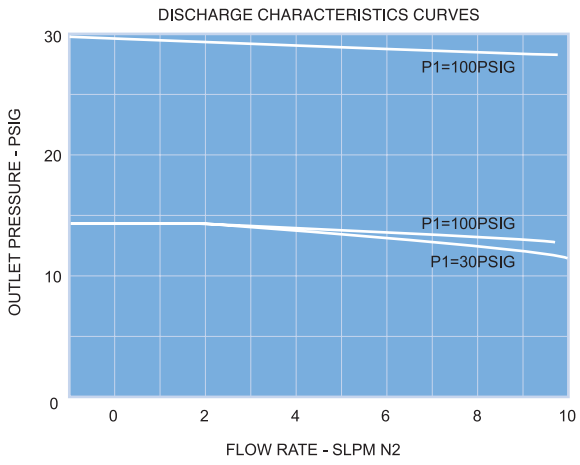
MIRCRO BLOCK REGULATOR

- 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	Per criteria of ANSI / ASME B31.3.
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)
PCTFE seat	-40°C to +71°C
Inboard leak rate	1 x 10^{-9} atm cc / sec He
Weight (w/o gauges)	1.2lbs. (530kg)

FLOW CURVES



MATERIAL

Wetted Parts	BRG3 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

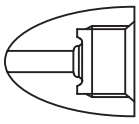
ORDERING INFORMATION

S	4	BRG3	—	VM	—	1	B	1	2	—	X-NO.	—	P
1	2	3		4		5	6	7	8		9		10

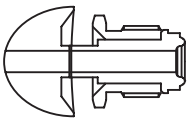
1 Material	S = 316L Stainless steel SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
2 Connection Size	4 = 1/4" 6= 3/8"
3 Product	BRG3 Series
4 Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed Male Type Face Seal
5 Maximum Inlet Pressure	1 = 150 PSIG
6 Gauge Port Configuration	A = No Gauge Port B = 1/4" Internal Face Seal C = 1/4" Male Face Seal D = 1/4" Female Face Seal E = 1/4" Fixed Male Face Seal
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 INFORMAITON

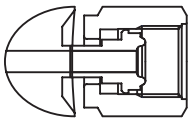
1/4" INTERNAL FACE SEAL



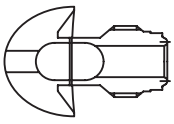
1/4" MALE FACE SEAL



1/4" FEMALE FACE SEAL

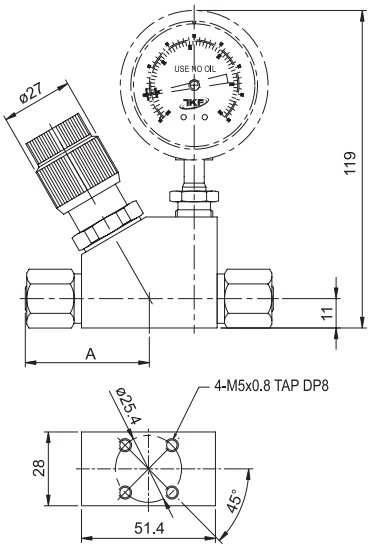


1/4" FIXED MALE FACE SEAL



PORT CONFIGURATION

Major Configuration



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

MRG3 SERIES

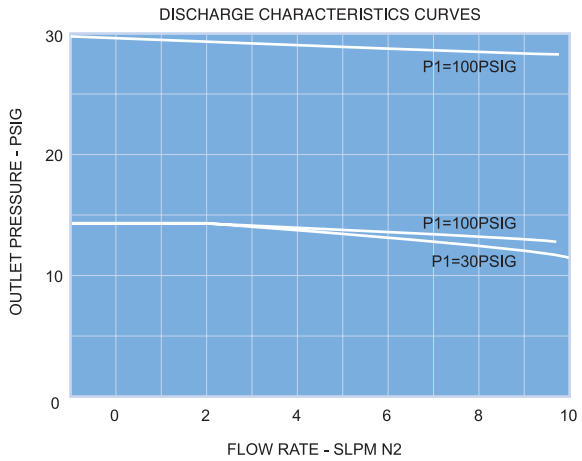
MIRCRO REGULATOR

- 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^{-9} 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

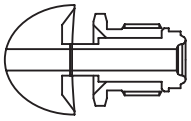
ORDERING INFORMATION

S	4	MRG3	—	VM	—	1	B	1	2	—	X-NO.	—	P
1	2	3		4		5	6	7	8		9		10

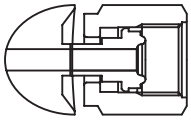
1 Material	S = 316L Stainless steel SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
2 Connection Size	4 = 1/4" 6= 3/8"
3 Product	MRG3 Series
4 Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed 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 INFORMAITON

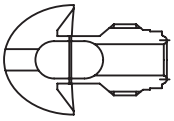
1/4" MALE FACE SEAL



1/4" FEMALE FACE SEAL

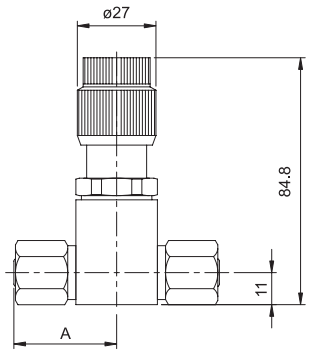


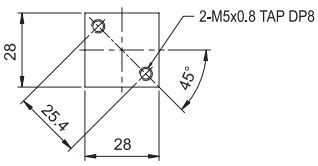
1/4" FIXED MALE FACE SEAL



PORT CONFIGURATION

Major Configuration





Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VF	35.3
1/4"	VM	35.3
1/4"	SW	35.7

Port Configurations

Fig.A (NO GAUGE)

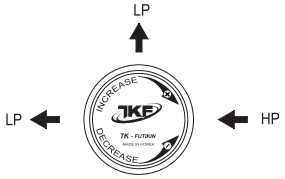


Fig.B (1 GAUGE)

MRG4 SERIES

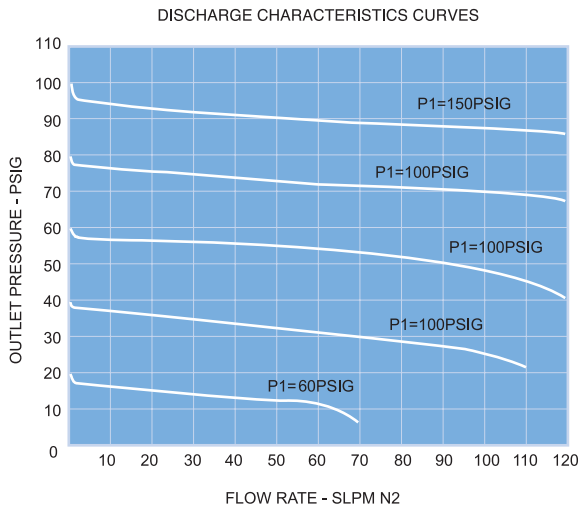
MIRCRO REGULATOR

- 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	3-30, 3-60, 3-100 PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel with BA, Electropolish
Seat	PCTFE, PFA
Diaphragm	Hastelloy C-22
Gas contact parts	Hastelloy C-22 / Inconel 750
Other Parameters	
Flow coefficient	Cv = 0.08
Temperature	-40°C to +71°C
Inboard leak rate	1 x 10^{-9} atm cc / sec He

FLOW CURVES



MATERIAL

Wetted Parts	MRG4 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel Hastelloy C-22
Main Valve	316L Stainless Steel Hastelloy C-22
Valve Spring	Inconel 750
Seat	PCTFE PFA
Diaphragm	Hastelloy C-22

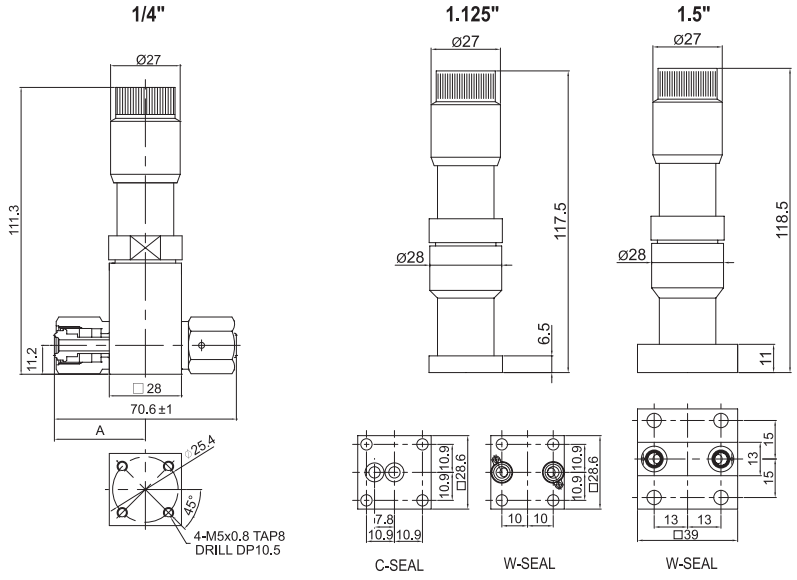
ORDERING INFORMATION

DH	4	MRG4	—	VF	—	1A1	—	X-NO.	—	PX
1	2	3		4		5		6		7

1 Material	DH = 316L Stainless steel VAR with Hastelloy internals
2 Size	4 = 1/4" 11 = 1.125" 15 = 1.5"
3 Product	MRG4 Series
4 Connection Type	VM = Male Type Face Seal VF = Female Type Face Seal TW = Tube Butt Weld 2W = W-Seal 2C = C-Seal
5 Outlet Pressure Range	1A0 = 3-30PSIG 1A1 = 3-60PSIG 1A2 = 3-100PSIG
6 User Option	Customization (※Standard : Blank)
7 Grade	Blank = BA Standard (10 Ra µinch) P = Electropolishing (5 Ra µinch) PX = Electropolishing (5 Ra µinch)

PORT CONFIGURATION

Major Configuration



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

MRG6 SERIES

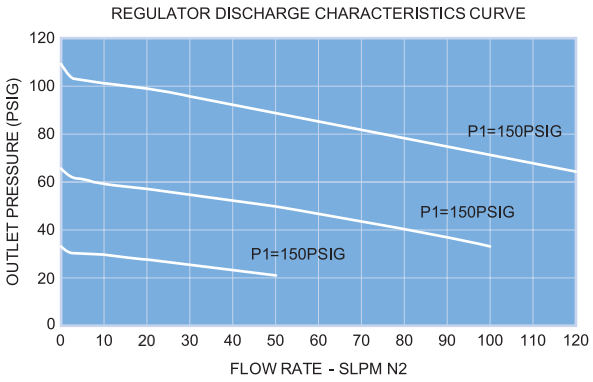
MIRCRO REGULATOR

- 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	150 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 = 0.08
Certified maximum inboard leak rate	1 x 10^{-9} atm cc / sec He
Internal surface finish	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)	0.54lbs. (244g)

FLOW CURVES



MATERIAL

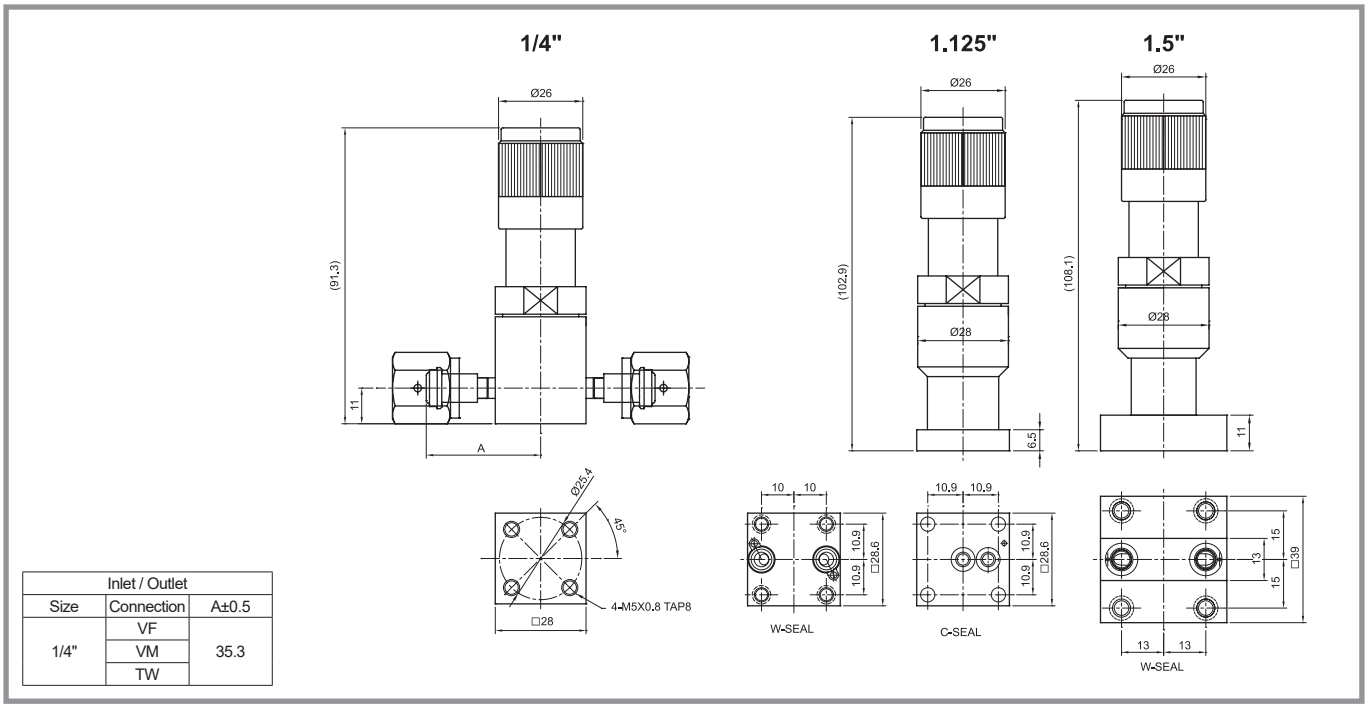
Wetted Parts	MRG6 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel Hastelloy C-22
Main Valve	316L Stainless Steel Hastelloy C-22
Valve Spring	316 Stainless Steel Inconel 750
Seat	PFA
Diaphragm	Hastelloy C-22

ORDERING INFORMATION

DH	4	MRG6	—	VF	—	1	A	1	—	X-NO.	—	PX
1	2	3		4		5				6		7

1 Material	S = 316L Stainless steel HH = Hastelloy DH = 316L Stainless steel VAR with Hastelloy internals
2 Size	4 = 1/4" 11 = 1.125" 15 = 1.5"
3 Product	MRG6 Series
4 Connection Type	VM = Male Type Face Seal VF = Female Type Face Seal TW = Tube Butt Weld 2W = W-Seal 2C = C-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	

MRG5 SERIES

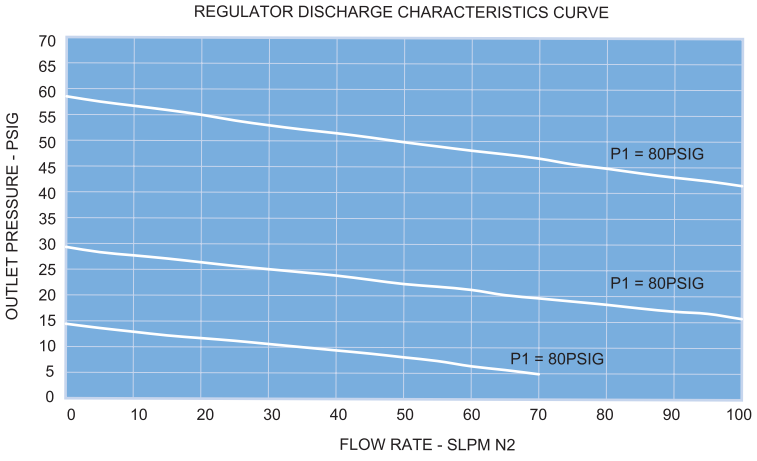
MIRCRO REGULATOR

- 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^{-9} 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

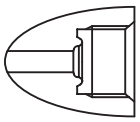
ORDERING INFORMATION

S	4	MRG5	—	VM	—	1	F	1	2	—	X-NO.	—	P
1	2	3		4		5	6	7	8		9		10

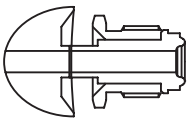
1 Material	S = 316L Stainless steel	SH = 316L Stainless steel with Hastelloy internals DH = 316L Stainless steel VAR with Hastelloy internals
2 Connection Size	4 = 1/4"	
3 Product	MRG5 Series	
4 Connection Type	TW = Tube Butt Weld VF = Female Type Face Seal VM = Male Type Face Seal VMF = Fixed Male Type 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 INFORMAITON

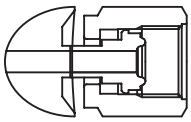
1/4" INTERNAL FACE SEAL



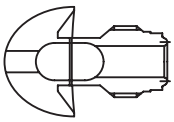
1/4" MALE FACE SEAL



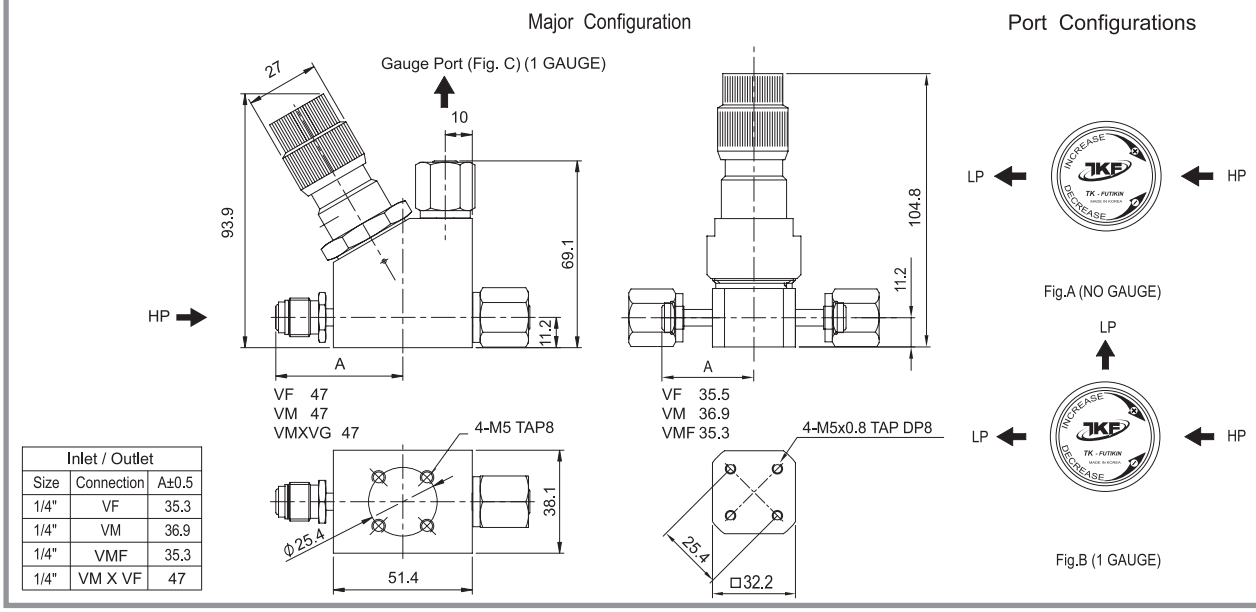
1/4" FEMALE FACE SEAL



1/4" FIXED MALE FACE SEAL



PORT CONFIGURATION



Inlet / Outlet		
Size	Connection	A±0.5
1/4"	VF	35.3
1/4"	VM	36.9
1/4"	VMF	35.3
1/4"	VM X VF	47

MRG7 SERIES

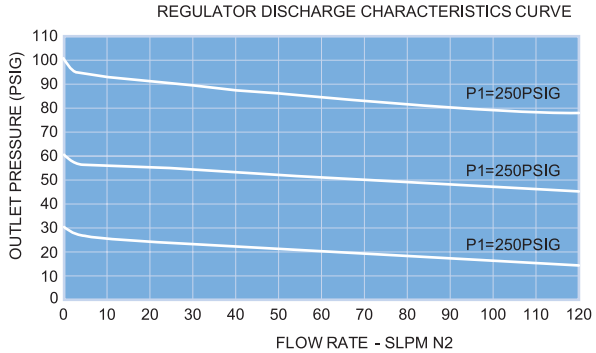
MIRCRO REGULATOR

- 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^{-9} 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

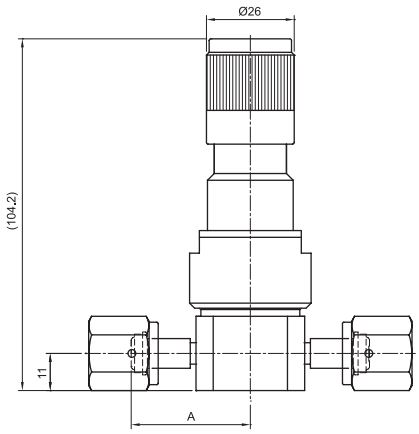
Wetted Parts	MRG7 Series
Body	316L Stainless Steel
Seat Holder	316L Stainless Steel Hastelloy C-22
Main Valve	316L Stainless Steel Hastelloy C-22
Valve Spring	316 Stainless Steel Inconel 750
Seat	PFA
Diaphragm	Hastelloy C-22

ORDERING INFORMATION

DH	4	MRG7	—	VM	—	1	A	1	—	X123	—	PX
1	2	3		4		5				6		7

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

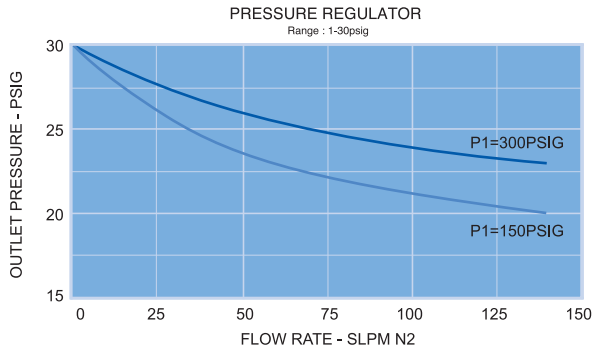
HIGH FLOW REGULATOR

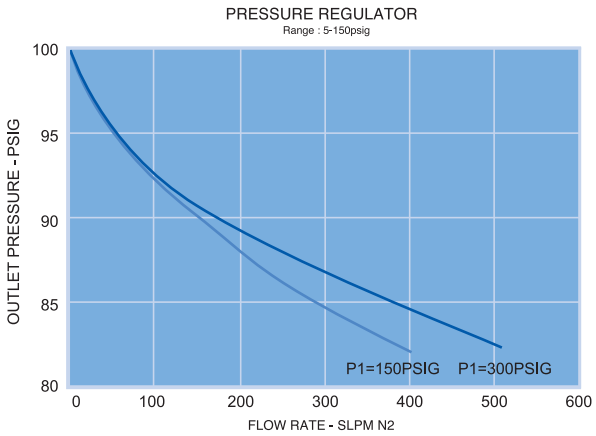
- A regulator for the control of high purity, corrosive, toxic, flammable and inert gases at high flow rate and low pressure.
- Every step of assembly, welding, testing and final cleaning finished in Class 100 Cleanrooms.

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 x 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

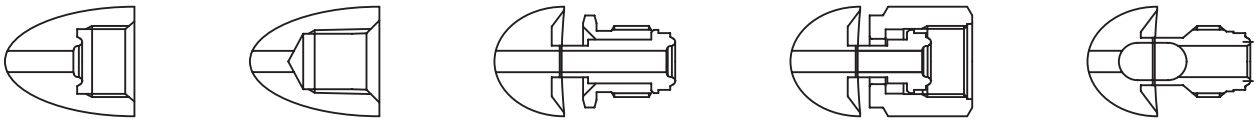
ORDERING INFORMATION

S	8	HFRG	–	VF	–	1	2	C	1	2	–	X-NO.	–	P
1	2	3		4		5	6	7	8	9		10		11

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)	

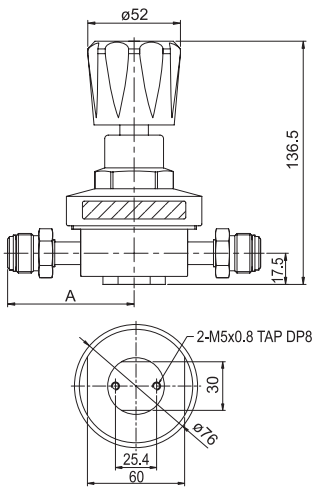
GAUGE PORT INFORMAITON

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

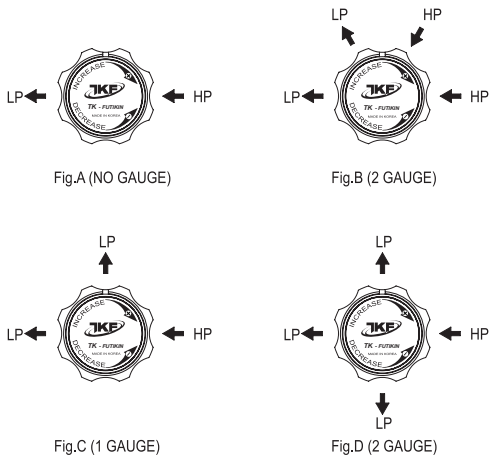


Fig.A (NO GAUGE)
Fig.B (2 GAUGE)
Fig.C (1 GAUGE)
Fig.D (2 GAUGE)

HFRG2 SERIES

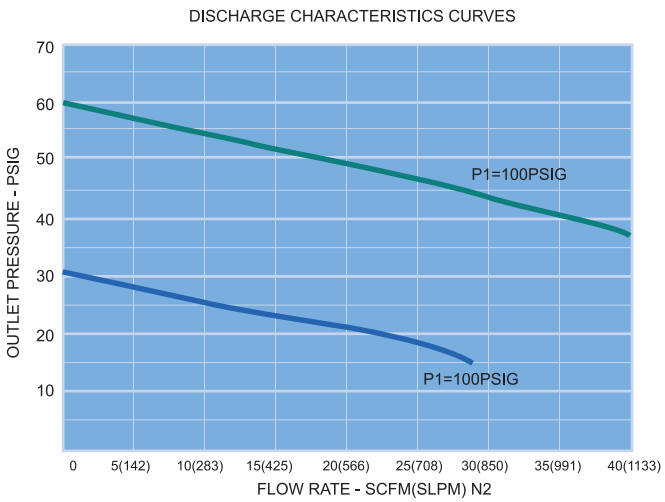
HIGH FLOW REGULATOR

- 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 inbord leak rate	1 x 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

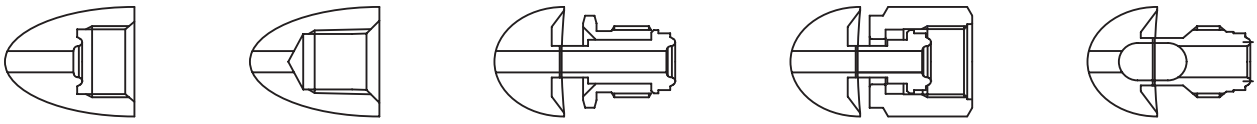
ORDERING INFORMATION

S	8	HFRG2	–	VM	–	1	2	C	1	1	–	X-NO.	–	P
1	2	3		4		5	6	7	8	9		10		11

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 = Compnession 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)	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	
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)	

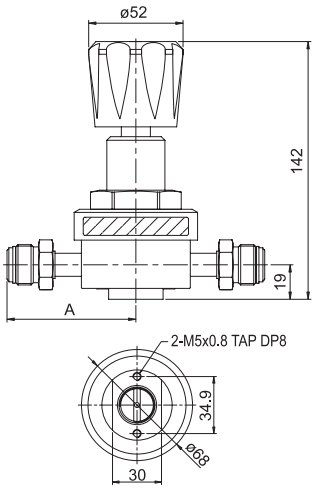
GAUGE PORT INFORMAITON

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

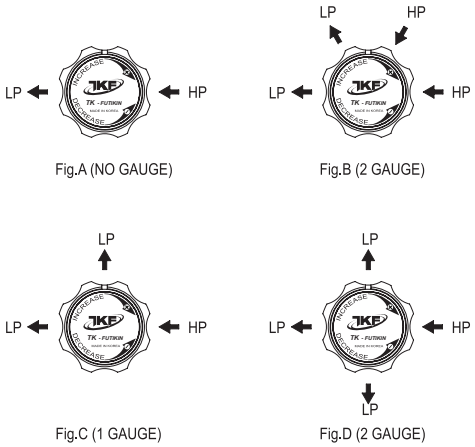


Fig.A (NO GAUGE) Fig.B (2 GAUGE)

Fig.C (1 GAUGE) Fig.D (2 GAUGE)

HFRG3 SERIES

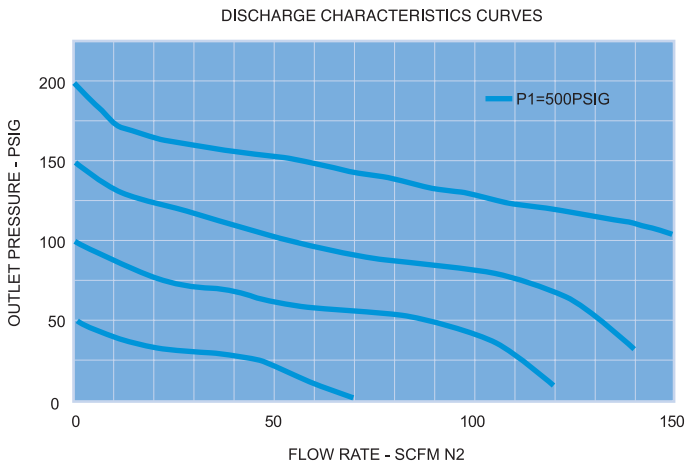
HIGH FLOW REGULATOR

- 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 inbord leak rate	1 x 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

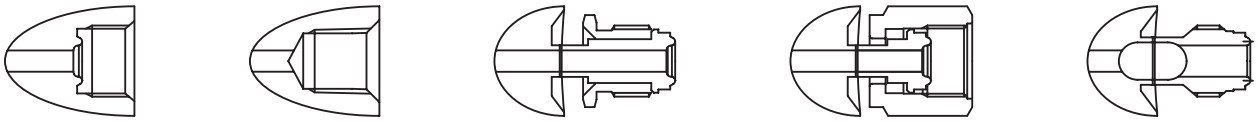
ORDERING INFORMATION

S	8	HFRG3	–	TW	–	2	1	C	2	2	–	X-NO.	–	P
1	2	3		4		5	6	7	8	9		10		11

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)

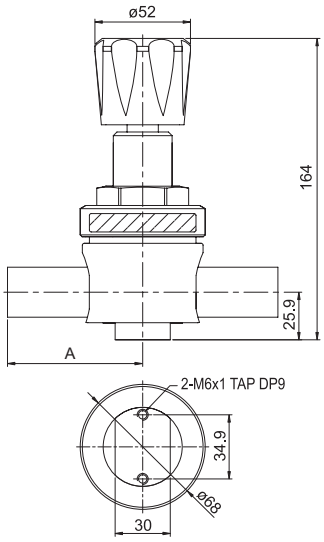
GAUGE PORT INFORMAITON

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
1/2"	TW	47.5
1/2"	VF	71
3/4"	SW	63
3/4"	TW	105
3/4"	VF	72
1"	SW	70
1"	TW	105
1"	VF	88

Port Configurations

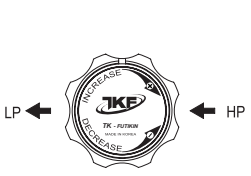


Fig.A (NO GAUGE)

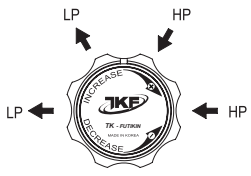


Fig.B (2 GAUGE)

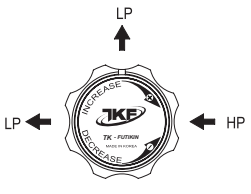


Fig.C (1 GAUGE)

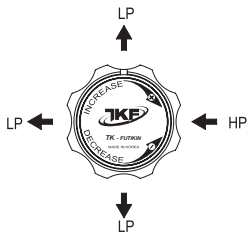


Fig.D (2 GAUGE)

HFRG4 SERIES

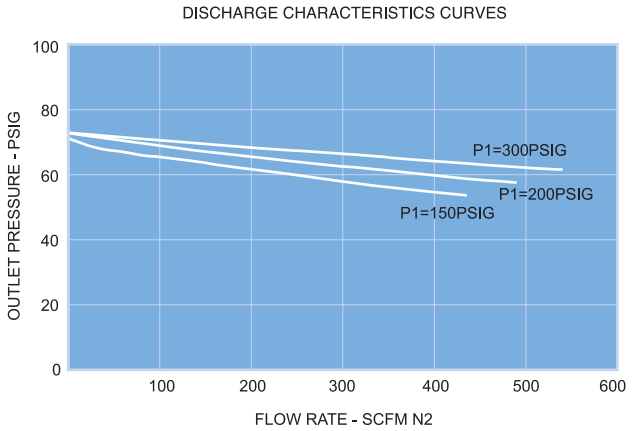
HIGH FLOW REGULATOR

- 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^{-8} 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

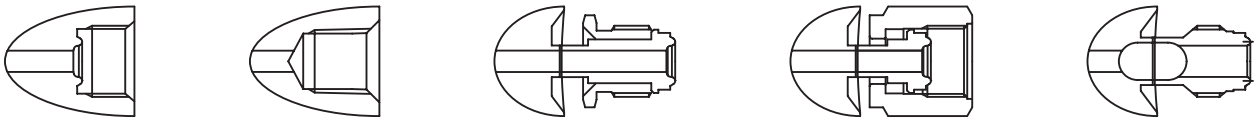
ORDERING INFORMATION

S	16	HFRG4	–	TW	–	1	1	C	1	2	–	X-NO.	–	P
1	2	3		4		5	6	7	8	9		10		11

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)	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 Blank = No Gauge
10 User Option	Customization (※Standard : Blank)	
11 Grade	Blank = BA Standard (10 Ra μinch) P = Electropolishing (5 Ra μinch)	

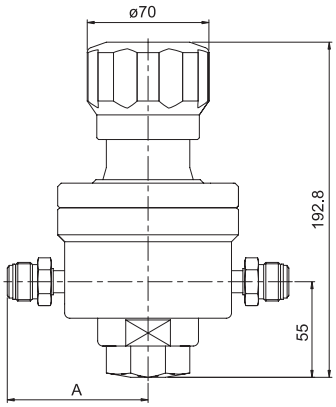
GAUGE PORT INFORMAITON

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



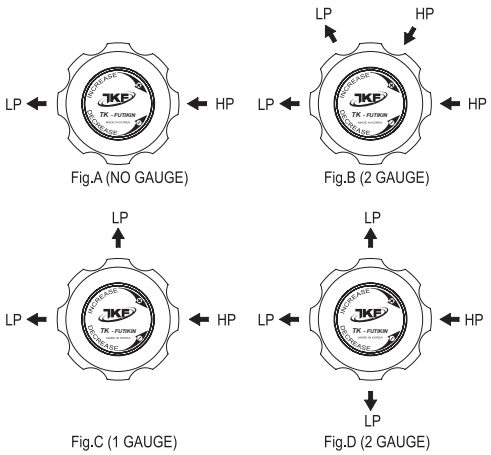
PORT CONFIGURATION

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
1/2"	VM	81
3/4"	VF	87
1"	VM	100.2
1"	SW	86
1"	TW	125

Port Configurations



AHFRG SERIES

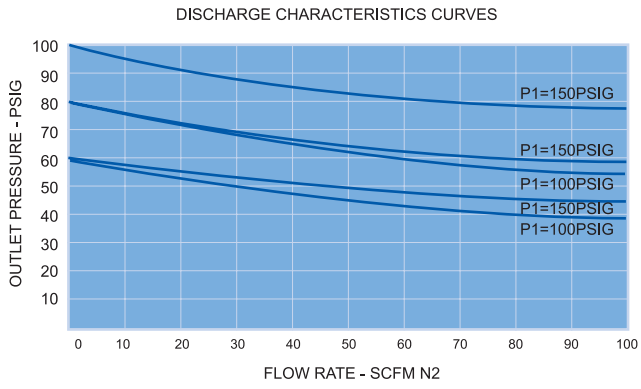
A SIZE HIGH FLOW REGULATOR

- 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/cm²)
Maximum outlet pressure	130 PSIG (9.1 kg/cm²)
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 x 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

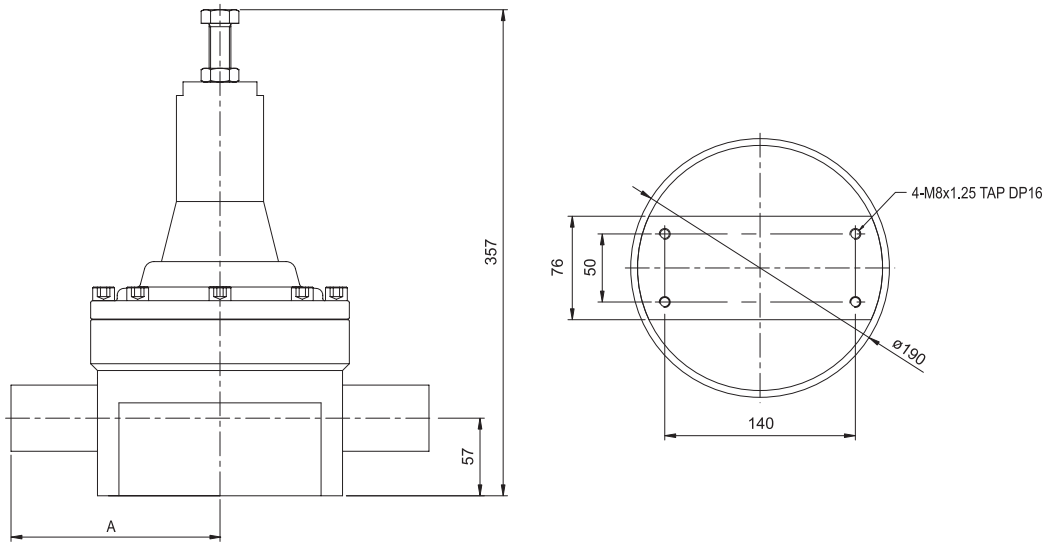
ORDERING INFORMATION

S	40	AHFRG	—	TW	—	X-NO.	—	P
1	2	3		4		5		6

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

Major Configuration



Inlet / Outlet		
Size	Connection	A±0.5
15A	TW	153.5
20A	TW	153.5
25A	TW	153.5
32A	TW	153.5
50A	TW	153.5
1"	VF	143
1"	VM	143
2"	TW	153.5

MGC1 SERIES

- Compact size
- High performance with low hysteresis

SPECIFICATIONS

Pressure Rating	
Maximum rated inlet pressure	150 PSIG
Outlet pressure ranges	1-30, 1-60, 1-100PSIG
Design proof pressure	150% of Maximum rated pressure
Materials in Contact with Media	
Body	316L Stainless Steel
Seat	PFA
Regulator diaphragm	Hastelloy C-22
Valve stem, Spring	316L Stainless Steel
Valve diaphragm	Phynox
Other Parameters	
Flow coefficient	Cv = 0.1
Temperature	-40°F to +71°F (-26°C to +74°C)
Inboard leak rate	1 x 10^{-9} atm cc / sec He
Operating temperature	-15°F to +165°F (-26°C to +74°C)
Weight (w/o gauges)	1.5lbs. (0.68kg)

FLOW CURVES