

PART NUMBER								
Example :	M4.1V	MT	2V1	I	/	K	A/B : B1/4	MS
	1	2	3	4		5	6	7

1 - Valve Series and Surface Finish	
M4.1U	Ra 0,15µm EP (6 µin Ra)
M4.1V	Ra 0,25µm EP (10 µin Ra)
M4.1S	Ra 0,4µm nonEP (15 µin Ra)

2 - Valve Actuation (Standard: Normally Closed=NC)	
QT	Manually actuated - Quarter Turn
MT	Manually actuated - Multi Turn
LP	Pneumatically actuated - Low Pressure
HP	Pneumatically actuated - High Pressure
	(Add - NO - for Normally Open version)
	(Add - NF - for Normally Close version)

3 - Valve Configurations	
2V1	2 ports in line
See below for other configurations	

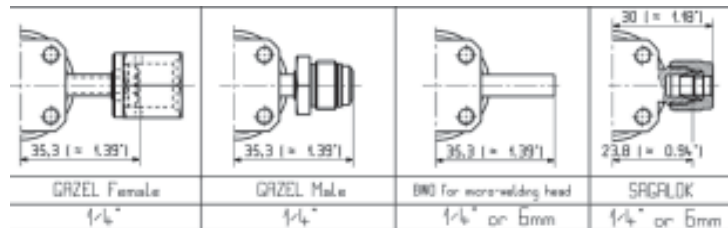
Standard colour:
for handles: white (other colours on request)
for LP actuators: NO=green NF=blue
for HP actuators: NO/NF=white

5 - Seat Material	
K	PCTFE (Kel-F®)
V	PI (VespeI®)
P	PVDF
M	Metal (on request)

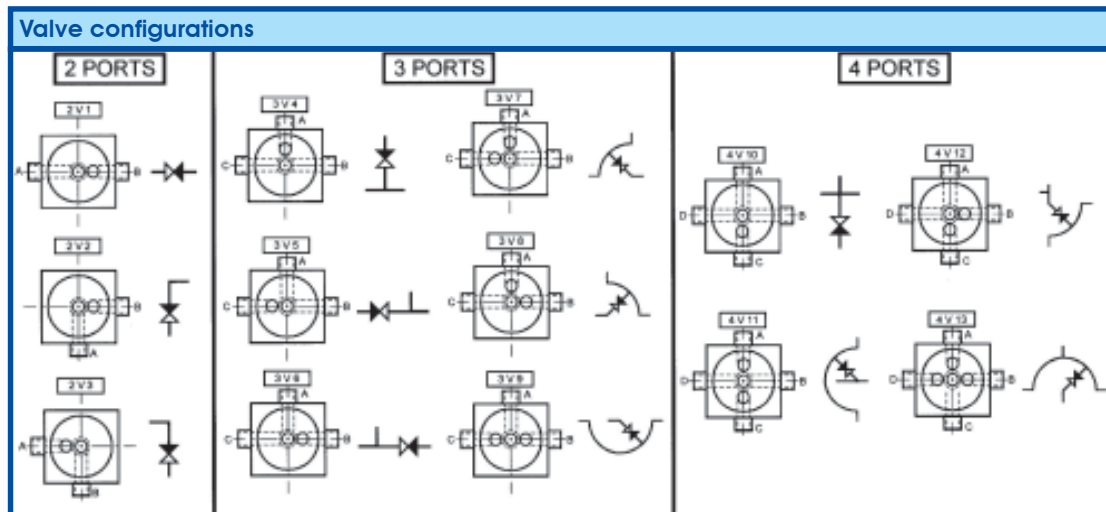
4 - Body Material (others on request)	
A	AISI 316L, VAR
I	AISI 316L
H	Hastelloy® (on request)

7 - Options	
MS	Valve fitted with locking service
FT	Panel mounting
—	Back mounting
CI	Electric limit switch (LP actuators only)

6 - End Connections	
V1/4-F	GAZEL® 1/4" - Female (Face Seal)*
V1/4-M	GAZEL® 1/4" - Male (Face Seal)*
B1/4	BWO 1/4" - Standard (Orbital Weld)
B6	BWO 6 mm (Orbital Weld)
RDB 6	SAGALOK Double ring Fittings: 6 mm
RDB 1/4	SAGALOK Double ring Fitting: 1/4"



GAZEL® -Female (face seal)* GAZEL® -Male (face seal)* BWO for standard welding heads SAGALOK Double ring Fitting



*All GAZEL® Face Seals are VCR® compatible. VCR® is a registered trade mark of CAJON CO., HASTELLOY® is a registered trade mark of CABOT Corp., Kel-F® is a registered trade mark of DUPONT, ELGILOY® is a registered trade mark of ELGILOY Company.

SELFA

Valves & Fittings

A total component solution, from source to process

M4.1

SPRINGLESS DIAPHRAGM VALVES FOR HP AND UHP APPLICATIONS (STANDARD AND GAS SPECIFIC)



FEATURE a unique proven design

M4.1

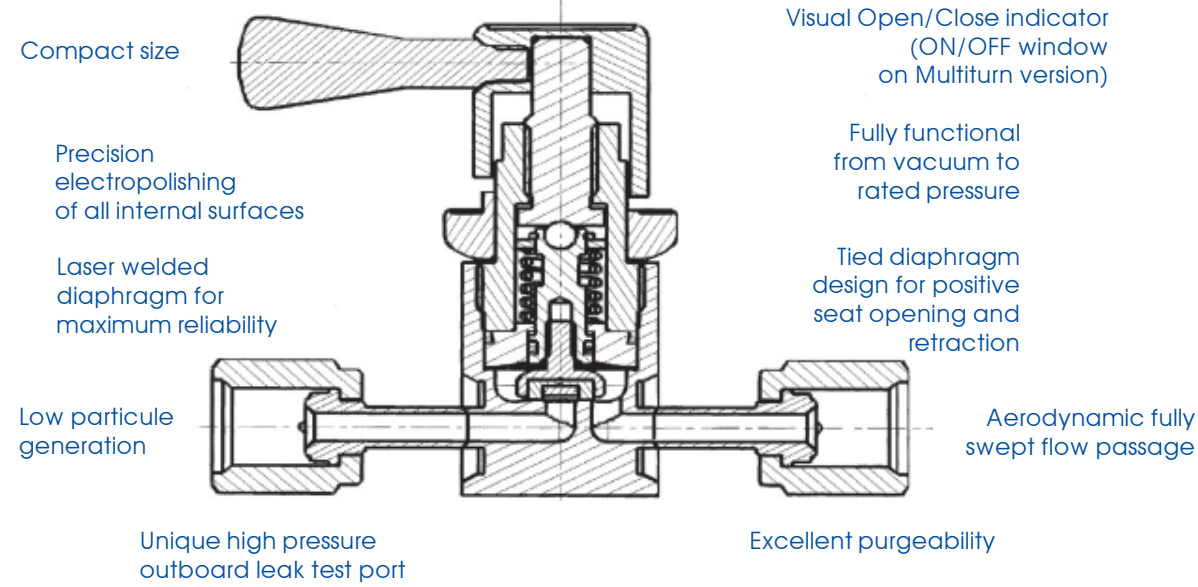
TECHNICAL DATA

M4.1

Individual Serial number, for full traceability

Selected Stainless Steels for low sulfur content as well as optimized impurity levels

Assembling, testing & Packaging in cleanroom Cl. 10



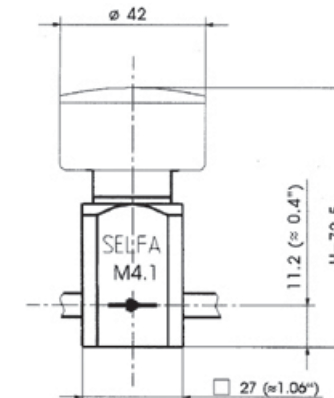
Manufactured to the **THREE STAR PROCESS** •

TECHNICAL DATA		
Fluid Media		Standard, High and Ultra High Purity, corrosive and non-corrosive gases
Max working pressure	M4.1 Manual	vacuum to 240 bar (3500 PSI)
	M4.1 Pneumatic - Low Pressure	17 bar (250 PSI)
	M4.1 Pneumatic - High Pressure	200 bar (2900 PSI)
Pneumatic actuator opening pressure		5 - 7 bar (75 - 105 PSI)
Temperature range		-20°C to + 80°C (-4° F to 176°F)
Burst Pressure		850 bar (12500 PSI)
Flow Capacity (C _v)	M4.1 Manual	C _v = 0.26
	M4.1 Pneumatic	C _v = 0.26
Certified max. Helium inboard leak rate		< 1.10 ⁻⁹ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)		< 1.10 ⁻⁹ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)		< 1.10 ⁻⁹ mbar.l/sec
Wetted volume		< 1.2 cc
Mounting		Panel or back mounting
Nominal seat Diameter		4 mm (0,16")

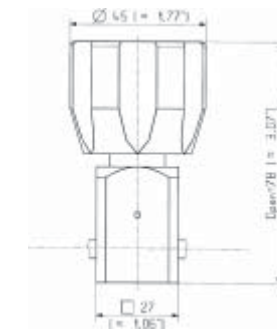
CONSTRUCTION MATERIALS

DIMENSIONS

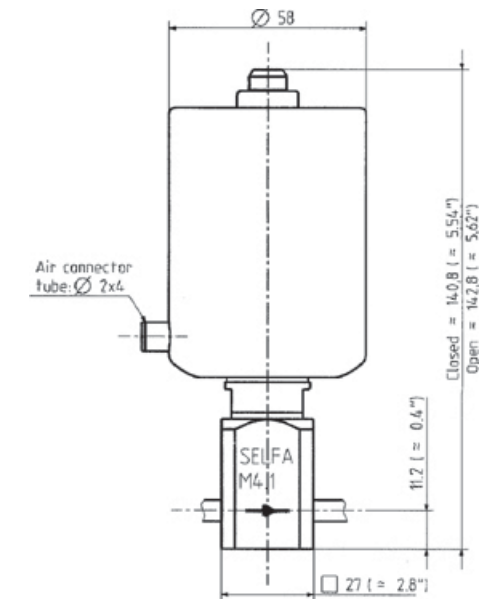
		Valve Grade & Materials		
Parts		M4.1S	M4.1V	M4.1U
Wetted parts	Body	SS 316L	SS 316L	SS 316L VAR
	Surface Finish	< 0,4 µm non EP (15µin Ra)	< 0,25 µm EP (10µin Ra)	< 0,15 µm EP (6µin Ra)
	Diaphragm	Hastelloy®		
	Seat Material	Kel-F® (VespeI®, PVDF, metal on request)		
Non-wetted parts	Backup diaphragms	Elgiloy®		
	all others	Stainless Steel or alloys		



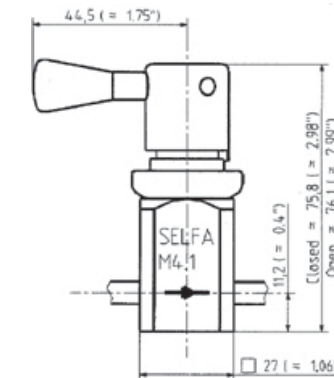
M4.1 - Pneumatic Valve Low Pressure



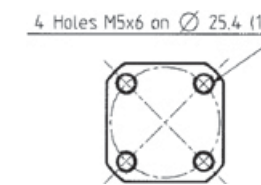
M4.1 Multiturn valve (MT) with open/close window



M4.1 - Pneumatic valve High Pressure



M4.1 - Quarter turn (QT) valve



M4.1 bottom view

Manual Actuation

Pneumatic Actuation

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminum or Extruded Plastic
All others	Stainless Steel or Alloys

Parts	Low Pressure	High Pressure
Actuator Body	SS 316 L	Aluminum
Piston	Aluminum	
O-rings	NBR - PC 851	
All others	Stainless Steel or Alloys	

PART NUMBER								
Example :	U4 U	MT	2V1	1	/	K	A/B:B1/4	FT
	1	2	3	4		5	6	7

1 - Valve Series and Surface Finish	
U4-U6 U	UHP - Ra 0,15µm EP (6µin Ra)
U4-U6 V	HP - Ra 0,25µm EP (10µin Ra)
U4-U6 S	Standard - Ra 0,4µm (15 µin Ra)

3 - Valve Configurations	
2V1	2 ports in line
Refer to the selection guide for other configurations	

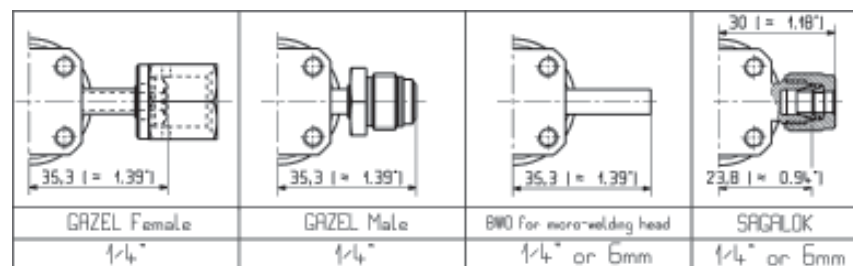
5 - Seat Material	
K	PCTFE (Kel-F®)
V	PI (Vespe®)
M	AISI 316L Metal seat* *not available for HP applications

7 - Options	
FT	Panel mounting
—	Back mounting
MRE1	Electric limit switch (LP/HP actuators)
MRE2	Electric limit switches (LP/HP actuators)
S	Security Bonnet in case of bellows failure

2 - Valve Actuation (Standard: Normally closed)	
MT	Multi-turn handwheel
3QT	3 Quarter-turn handwheel
MS	Multi-turn security handwheel with lock
LP	Pneumatically actuated - Low Pressure
HP	Pneumatically actuated - High Pressure
(Add - NO - for Normally Open version)	
(Add - NF - for normally close version)	

4 - Body Material	
I	AISI 316L

6 - End Connections	
V1/4-F	GAZEL® 1/4" - Female (Face Seal)*
V1/4-M	GAZEL® 1/4" - Male (Face Seal)*
B1/4	BWO 1/4" - Standard (Butt Weld Orbital)
B1/4-S	BWO 1/4" - Short (Butt Weld Orbital)
B6	BWO 6 mm (Butt Weld Orbital)
B12	BWO 12 mm (Orbital Weld)
RDB 1/4	SAGALOK Double ring fitting: 1/4"
RDB 6	SAGALOK Double ring fitting: 6 mm
SW 1/4	SW 1/4" (Socket Weld)
SW 6	SW 6 mm (Socket Weld)

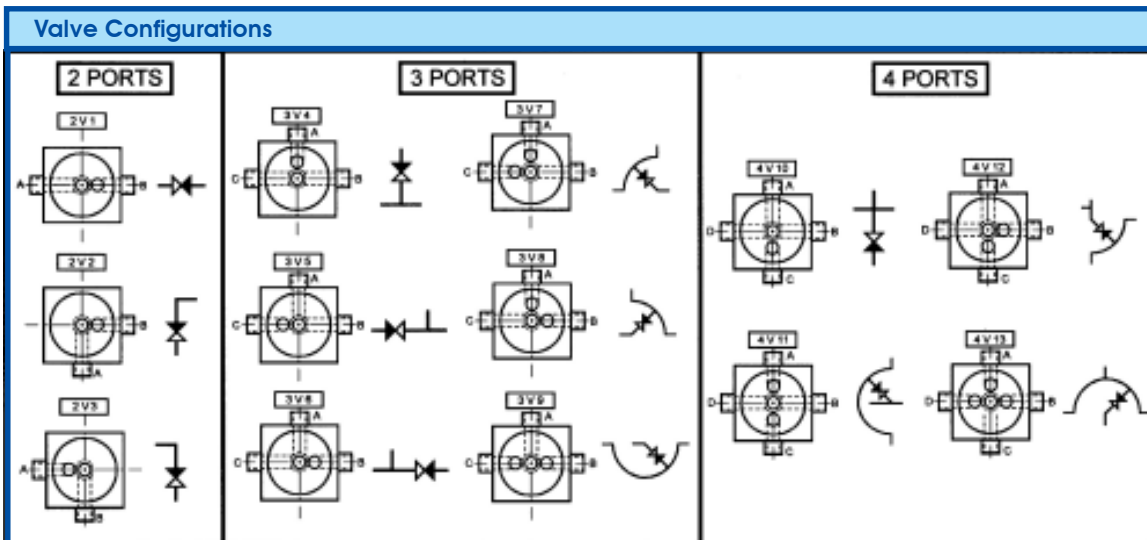


GAZEL® -Male (face seal)*

GAZEL® -Female (face seal)*

BWO for micro-welding heads

SAGALOK Double ring fitting



*All GAZEL® Face Seals are VCR® compatible. VCR® is a registered trade mark of CAJON CO., HASTELLO® is a registered trade mark of CABOT Corp., Kel-F® is a registered trade mark of DUPONT, ELGILOY® is a registered trade mark of ELGILOY Company.



SELFA

Valves & Fittings

A total component solution, from source to process

U4-U6

BELLOWS SEALED VALVES FOR HP AND UHP APPLICATIONS (STANDARD AND GAS SPECIFIC)

4/6



FEATURE a unique proven design

U4-U6

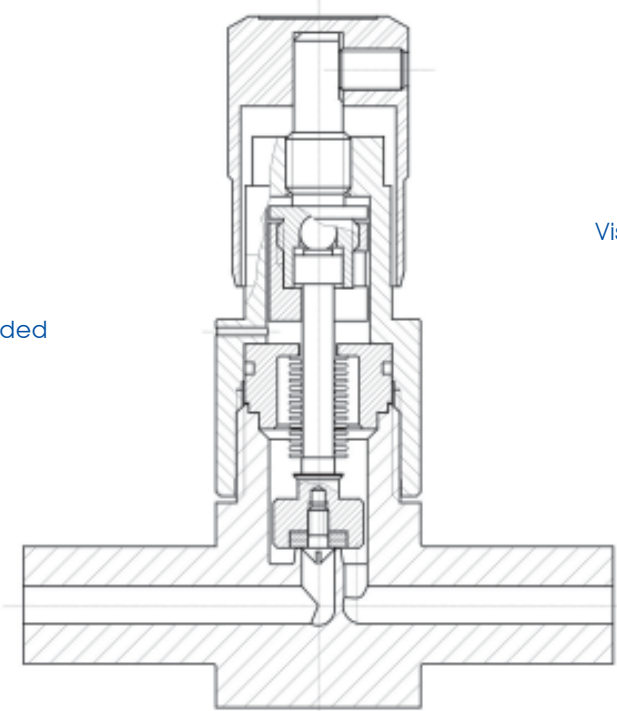
TECHNICAL DATA

U4-U6

Small gas absorption and desorption from seat material

Laser or electron beam welded bellows ensure high leak tightness integrity

Metal to metal sealing to the atmosphere



Fully contained seat

Visual indication of valve position (open / closed)

Unique high pressure outboard leak test port

High leak integrity

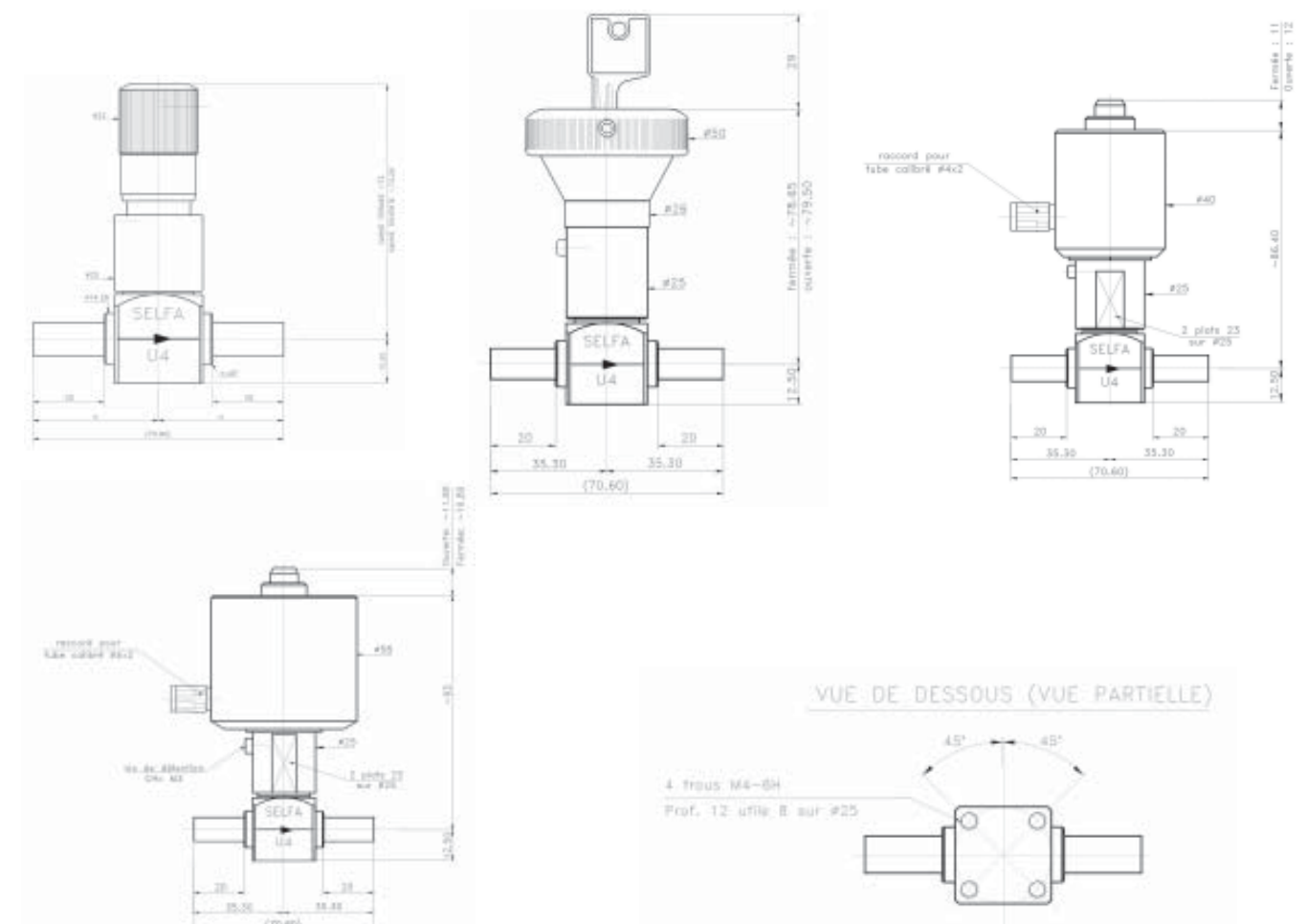
Manufactured to the **THREE STAR PROCESS®**

TECHNICAL DATA		
Fluid Media		Standard, High and Ultra High Purity, corrosive and non-corrosive gases
Max working pressure	U4/U6 Manual	240 bar (3500 PSI)
	U4/U6 Pneumatic - Low Pressure	30 bar (435 PSI)
	U4/U6 Pneumatic - High Pressure	200 bar (2900 PSI)
Min. operating pressure		Vacuum
Pneumatic actuator opening pressure		5 to 7 bar (75 to 100 PSI)
Temperature range		-20°C to +80°C (-2°F to 176°F)
Flow coefficient	U4	$C_v = 0.3$
	U6	$C_v = 0.7$
Certified max. Helium inboard leak rate (at max. pressure)		$< 1.10^{-9}$ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)		$< 1.10^{-9}$ mbar.l/sec
Nominal seat diameter	U4	4 mm (0.16")
	U6	6 mm (0.23")
Weight	U4/U6 Manual	0,250 kg
	U4/U6 Pneumatic - Low Pressure	0,500 kg
	U4/U6 Pneumatic - High Pressure	0,750 kg

CONSTRUCTION MATERIALS

DIMENSIONS

Parts	Valve Grade & Materials		
	S	V	U
Body	Stainless Steel 316L		
Body Surface Finish	$< 0,4 \mu\text{m non EP (15}\mu\text{in Ra)}$	$< 0,25 \mu\text{m EP (10}\mu\text{in Ra)}$	$< 0,15 \mu\text{m EP (6}\mu\text{in Ra)}$
Bellows and gas wetted parts	Stainless Steel 316L		
Non-wetted parts	Stainless Steel or alloys		
Seat material	PCTFE (Kel-F®)		



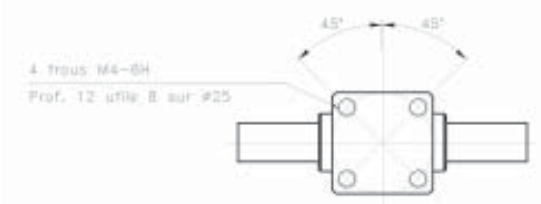
Manual Actuation

Pneumatic Actuation

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminum or Extruded Plastic
All others	Stainless Steel or Alloys

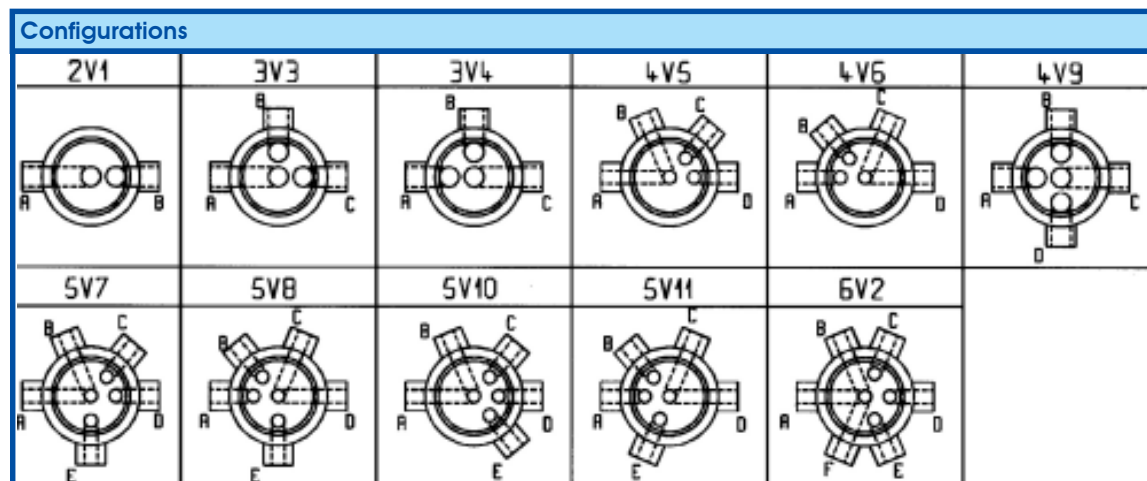
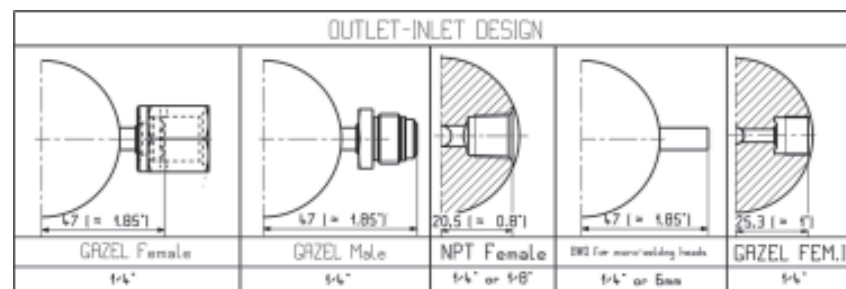
Parts	Low Pressure	High Pressure
Bellows	Stainless Steel 316L	
Seat	PCTFE / PI (Vespel®)	
Actuator body	Anodized aluminum (white-painted for U grade)	

VUE DE DESSOUS (VUE PARTIELLE)



PART NUMBER							
Example :	SIR 100 U	2V1	A	/	K	7b	A/B:V1/4M
	1	2	3		4	5	6

1 - Series & Surface finish		2 - Ports configurations	
SIR 100 U - Ra 0.15µm Ep. (6µin Ra) SIR 100 V - Ra 0.25µm Ep. (10µin Ra) SIR 100 S - Ra 0.4µm non Ep. (15µin Ra)		2V1 2 ports in line See below for other ports configurations	
3 - Body Material (others on request)		4 - Seat Material	
A AISI 316L, VAR I AISI 316L H Hastelloy® on request		K PCTFE (Kel-F®) V PI (VespeI®) P PVDF	
5 - Outlet regulated pressure		6 - End Connections	
2b 2 bar - 30 psig 4b 4 bar - 60 psig 7b 7 bar - 100 psig Inlet pressure upto 50 bar (725 psig)		V 1/4-F GAZEL® 1/4" - Female (Face Seal*) V 1/4-M GAZEL® 1/4" - Male (Face Seal*) V 1/4-FI GAZEL® 1/4" - Internal (Face Seal*) B 1/4 BWO 1/4" - Standard (Orbital Weld) B 6 BWO 6 mm (Orbital Weld) NPT FI 1/4 NPT - Inlet threads	



*All GAZEL® Face Seals are VCR® compatible. VCR® is a registered trade mark of CAJON CO., HASTELLO® is a registered trade mark of CABOT Corp., Kel-F® is a registered trade mark of 3M company. VespeI® is a registered trade mark of DUPONT, ELGILOY® is a registered trade mark of ELGILOY Company.

A total component solution, from source to process

SIR 100
DIAPHRAGM PRESSURE REGULATOR
FOR HP & UHP APPLICATIONS



FEATURE a unique proven design

SIR100

TECHNICAL DATA

SIR100

The **SIR 100 Regulator** was created in response to the industry's needs for a **low pressure non tied diaphragm regulator** for specialty source gas service, i.e. gas cabinets. The design and material of construction, plus some unique features make it an ideal choice for gas source applications with the reactive and hazardous gases the Semiconductor and Allied Industries use.

Individual Serial number, for full traceability

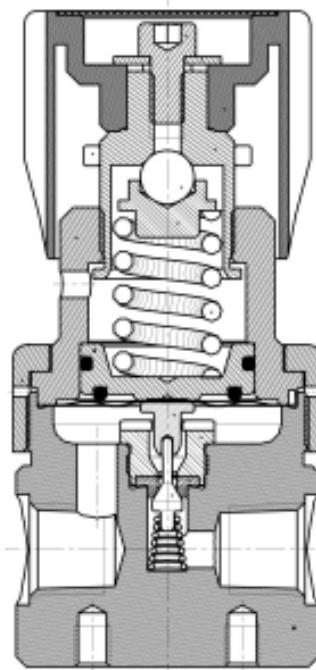
Ergonomic Design

Spherical ball for ultra smooth control

Metal to metal seal to atmosphere

Minimal wetted surfaces for optimal purging

Gas specific solutions (Body and seat materials)



Assembling, testing & Packaging in cleanroom Cl. 10

Controlled (PC) electropolishing for better corrosion resistance

2,3,4,5, or 6 ports options available

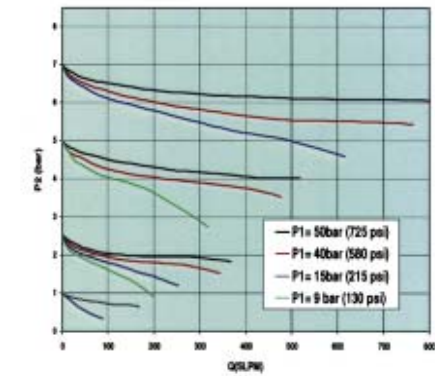
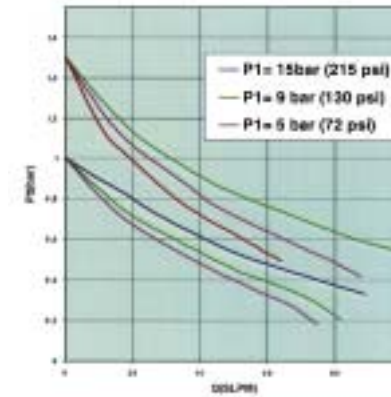
diaphragm counter balance springs

Excellent response at low pressures (droop, hysteresis, creep)

Manufactured to the **THREE STAR PROCESS®**

TECHNICAL DATA	
Fluid Media	Standard, HP, UHP, corrosive and non-corrosive gases
Inlet pressure	50 bar (725 PSI)
Outlet pressure	2 - 4 - 7 bar (30 - 60 - 100 PSI)
Temperature range	-20°C to + 65°C (-4°F to 150°F)
Flow Coefficient	C _v = 0.2
Certified max. Helium inboard leak rate (at max. pressure)	< 1.10 ⁻⁹ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)	< 1.10 ⁻⁹ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)	< 1.10 ⁻⁹ mbar.l/sec
Number of ports	2, 3, 4, 5 or 6

FLOW CURVES

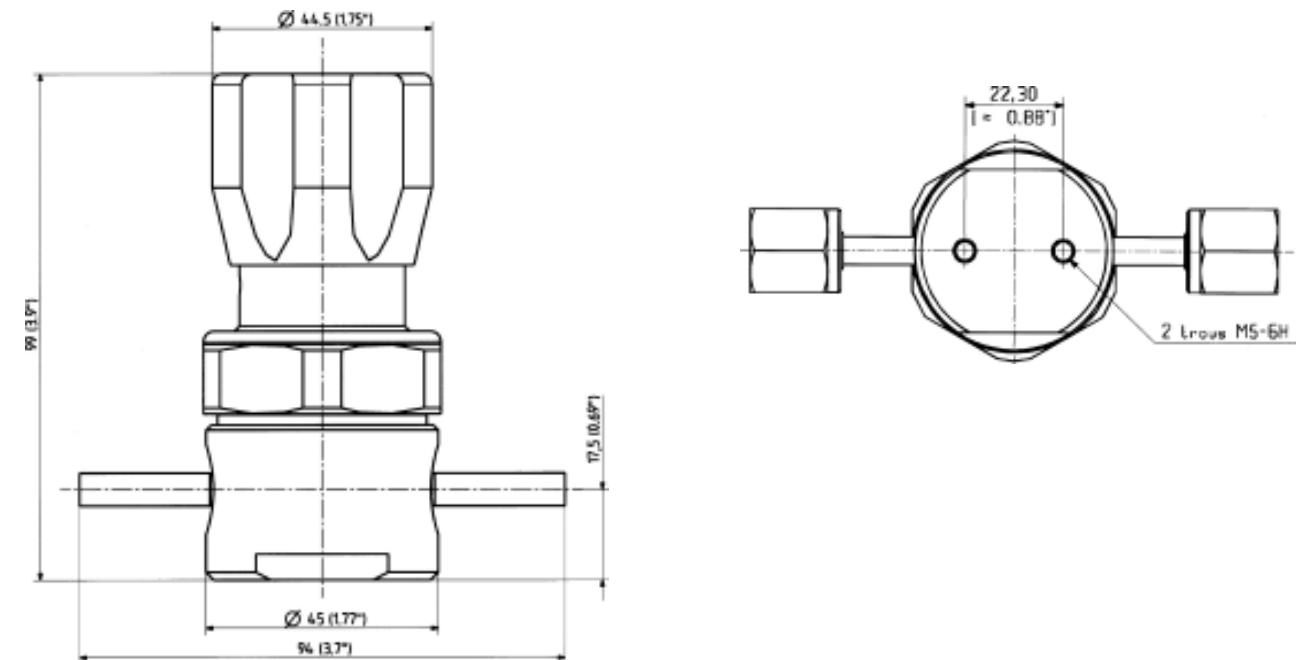


CONSTRUCTION MATERIALS

	Parts	Materials
Wetted Parts	Body	AISI 316L, VAR
	Diaphragm	Hastelloy®
	Seat	PCTFE (Kel-F®) / PI (VespeI®) / PVDF
	Poppet	AISI 316L, VAR
Non-wetted parts	Bonnet	Nickel Plated Brass
	Handle	Extruded Plastic
	Others	Stainless Steel or alloys

SURFACE FINISH		
U: <Ra 0.15µm Ep. (6µin Ra)	V: <Ra 0.25µm Ep. (10µin Ra)	S: <Ra 0.4µm non Ep. (15µin Ra)

DIMENSIONS



PART NUMBER							
Example :	SI 240 U	2V1	A	/	K	7b	A/B : V-M
	1	2	3		4	5	6

1 - Serie & Surface Finish
SI 240/260 U Ra 0,15µm Ep. (6µin Ra)
SI 240/260 V Ra 0,25µm Ep. (10µin Ra)
SI 240/260 S Ra 0,4µm nonEP(15µin Ra)

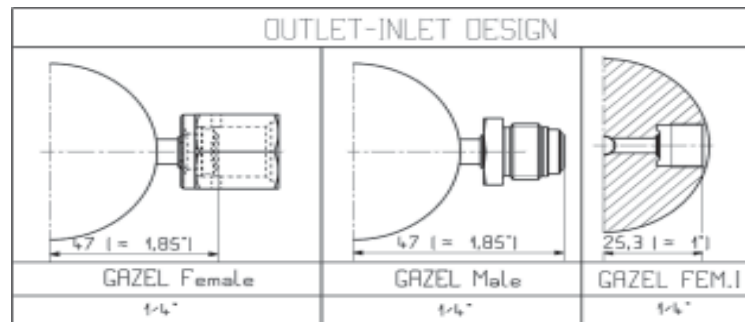
2 - Ports Configurations
2V1 2 ports in line
See below for other ports configurations

3 - Body Material (others on request)
A AISI 316L, VAR
I AISI 316L
H Hastelloy® (on request)

4 - Seat Material
K PCTFE (Kel-F®)
V PI (VespeI®)
P PVDF

5 - Outlet regulated Pressure
2b 2 bar - 30 PSI
4b 4 bar - 60 PSI
7b 7 bar - 100 PSI
Note : Inlet Pressure: upto 240 bar (3500 PSI)

6 - End Connections
V-F GAZEL® 1/4" - Female (face seal)*
V-M GAZEL® 1/4" - Male (face seal)*
V-FI GAZEL® 1/4" - Internal (face seal)*



Configurations					
2V1	3V3	3V4	4V5	4V6	4V9
5V7	5V8	5V10	5V11	6V2	

*All GAZEL® Face Seals are VCR® compatible. VCR® is a registered trade mark of CAJON CO., HASTELLOY® is a registered trade mark of CABOT Corp., Kel-F® is a registered trade mark of DUPONT, ELGILOY® is a registered trade mark of ELGILOY Company.



SELFA

Valves & Fittings

A total component solution, from source to process

SI 240 / 260
SPRINGLESS TIED DIAPHRAGM
PRESSURE REGULATOR
FOR UHP APPLICATIONS

SI 240
SI 260



FEATURE a unique proven design

SI 240 / 260

TECHNICAL DATA

SI 240 / 260

The **SI 240 Regulator** was created in response to the industry's need for a **High Pressure, Springless, Tied Diaphragm Regulator** and the **SI 260 Regulator** for a **High Flow, High Pressure, Springless, Tied Diaphragm Regulator** for specialty source gas service, i.e. gas cabinets. The design and materials of construction, plus some unique features make it an ideal choice for gas source applications with reactive and hazardous gases the Semiconductor and Allied Industries use.

- Unique features include a special leak test port that enables the diaphragm seal to be outboard leak tested 10^{-9} mbar.l./sec range at high pressure.
- Precise control of the gas discharge with minimum deviation caused by the supply pressure effect.
- Counter balance springs outside the gas stream to ensure the unit functions correctly with downstream vacuum and upstream high pressure
- A unique spherical ball pressure pad to give ultra smooth delivery pressure adjustment
- Choice of delivery pressure: 2, 4 or 7 bar / 30, 60 or 100 psi

The **SI 240** regulator is designed with minimum face to face dimensions, to meet the requirements of all gas system manufacturers. The **SI 260** regulator is designed for high flow rates of HCl and N₂O etc.

Individual Serial number, for full traceability

Ergonomic Design

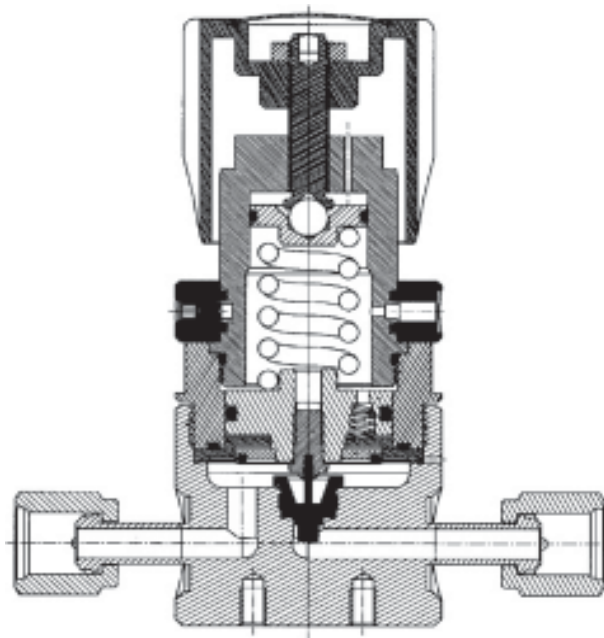
Metal to metal seal to atmosphere

Spherical ball for ultra smooth control

Sealed bonnet for extra protection

Minimal wetted surfaces for optimal purging

Gas specific solutions (Body and Seat Materials)



Assembling, testing & Packaging in cleanroom Cl. 10

Controlled (PC) electropolishing for better corrosion resistance

No spring in the wetted area for zero particle emission

2,3,4 or 6 ports options available

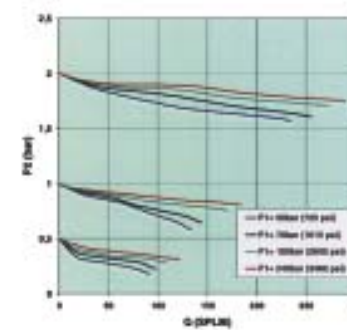
diaphragm counter balance springs

Excellent response at high and low pressures (droop, hysteresis, creep)

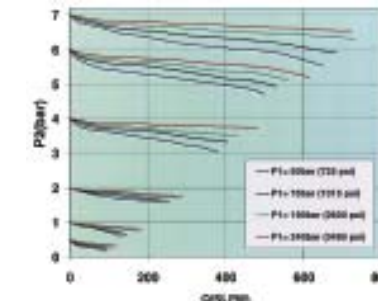
Manufactured to the **THREE STAR PROCESS®**

TECHNICAL DATA	
Fluid Media	Standard, High and Ultra High Purity, corrosive and non-corrosive gases
Inlet pressure	240 bar (3500 PSI)
Outlet pressure	2 - 4 - 7 bar (30 - 60 - 100 PSI)
Temperature range	-20°C to + 80°C (-2F to 176F)
Nominal Flow	150 slpm (N ₂)
Flow Coefficient (C _v)	SI 240: C _v = 0,09 / SI 260: C _v = 0,2
Certified max. Helium inboard leak rate	< 1.10 ⁻⁹ mbar.l./sec
Certified max. Helium outboard leak rate (at max. pressure)	< 1.10 ⁻⁹ mbar.l./sec
Certified max. Helium across the seat leak rate (at max. pressure)	< 1.10 ⁻⁹ mbar.l./sec
Number of ports	2, 3, 4, 5 or 6

FLOW CURVES



SI 240



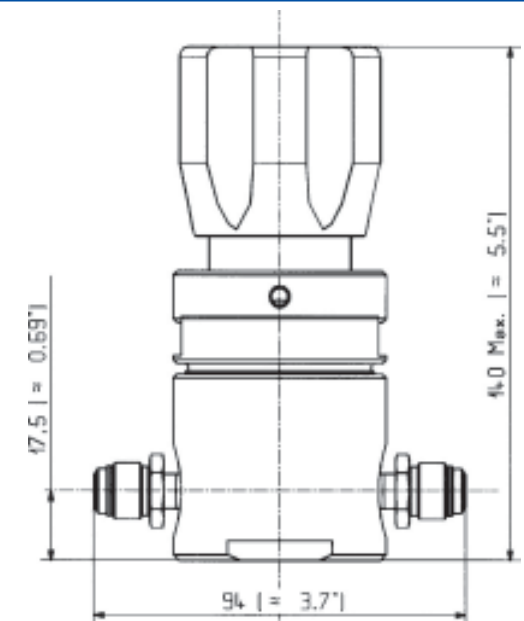
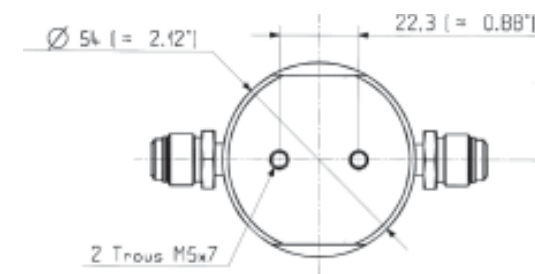
SI 260

CONSTRUCTION MATERIALS

DIMENSIONS

	Parts	Materials
Wetted parts	Body	AISI 316L, VAR, Hastelloy®
	Diaphragm	Hastelloy®
	Seat	PCTFE (Kel-F®) / PI (Vespel®) / PVDF
	Poppet	AISI 316L, VAR, Hastelloy®
Non-wetted parts	Bonnet	Nickel Plated Brass
	Handle	Extruded Plastic
	Others	Stainless Steel or others

SURFACE FINISH		
U: < Ra 0,15µm Ep. (6µin Ra)	V: < Ra 0,25µm Ep. (10µin Ra)	S: < Ra 0,4µm nonEP(15µin Ra)



PART NUMBER						
Example :	SI 220U	2V1	A	/	K	10 b A/B : V-3/8 F
	1	2	3	4	5	6

1 - Serie & Surface Finish	
SI 220 U	Ra 0,15µm Ep. (6µin Ra)
SI 220 V	Ra 0,25µm Ep. (10µin Ra)
SI 220 S	Ra 0,4µm nonEP(15µin Ra)

3 - Body Material (others on request)	
A	AISI 316L, VAR
I	AISI 316L
H	Hastelloy® (on request)

5 - Outlet regulated Pressure	
3b	3 bar - 45 PSI
8b	8 bar - 116 PSI
10b	10 bar - 145 PSI
15b	15 bar - 217 PSI
25b	25 bar - 365 PSI
50b	50 bar - 725 PSI

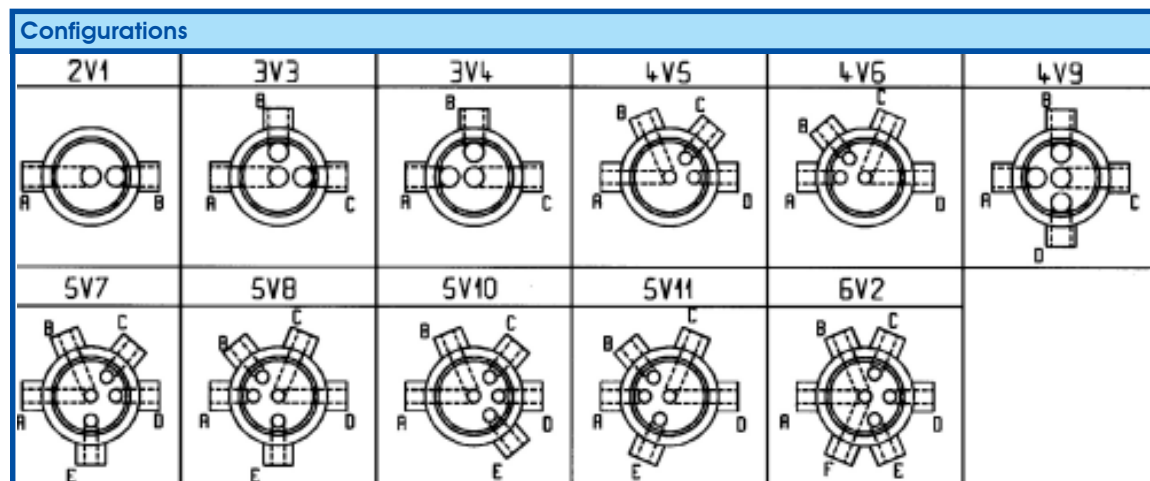
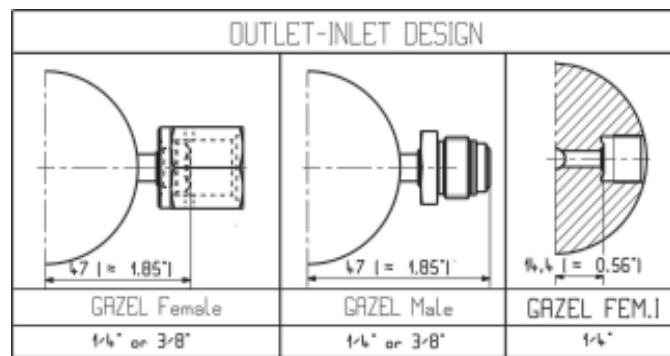
Note : Inlet Pressure: upto 240 bar (3500 PSI)

2 - Ports Configurations	
2V1	2 ports in line

See below for other ports configurations

4 - Seat Material	
K	PCTFE (Kel-F®)

6 - End Connections	
V-1/4 F	GAZEL® 1/4" - Female (face seal)
V-3/8 F	GAZEL® 3/8" - Female (face seal)
V 1/4 M	GAZEL® 1/4" - Male (face seal)
V-3/8 M	GAZEL® 3/8" - Male (face seal)
V-FI	GAZEL® 1/4" - Internal Female (face seal)



SELFA

Valves & Fittings

A total component solution, from source to process

SI 220
DIAPHRAGM
PRESSURE REGULATOR
FOR HP & UHP APPLICATIONS



SI 220

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FEATURE a unique proven design

SI 220

TECHNICAL DATA

SI 220

The **SI 220 Regulator** was created in response to the industry's need for a **Highflow, High Pressure, Springless, Tied Diaphragm Regulator** for specialty source gas service, i.e. gas cabinets. The design and materials of construction, plus some unique features make it an ideal choice for gas source applications with reactive and hazardous gases the Semiconductor and Allied Industries use.

- Unique features include a special leak test port that enables the diaphragm seal to be outboard leak tested 10^{-9} mbar.l/sec range at high pressure.
- Precise control of the gas discharge with minimum deviation caused by the supply pressure effect.
- Counter balance springs outside the gas stream to ensure the unit functions correctly with downstream vacuum and upstream high pressure
- A unique spherical ball pressure pad to give ultra smooth delivery pressure adjustment
- Choice of delivery pressure: 3, 8, 10, 15, 25 or 50 bar / 45, 116, 145, 217, 365 or 725 psi

Individual Serial number, for full traceability

Ergonomic Design

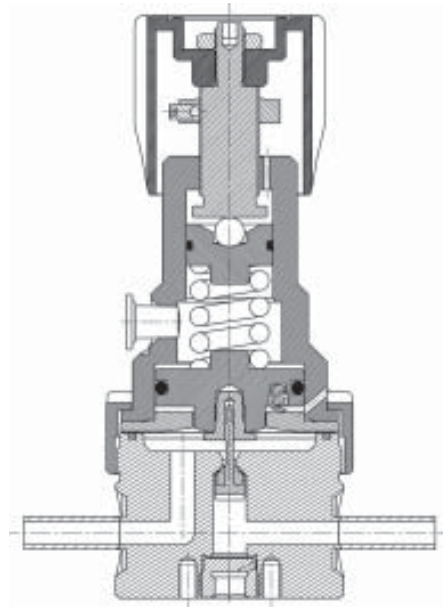
Spherical ball for ultra smooth control

Metal to metal seal to Atmosphere

Sealed bonnet for extra protection

Minimal wetted surfaces for optimal purging

Gas specific solutions (Body and Seat Materials)



Assembling, testing & Packaging in cleanroom Cl. 10

Controlled (PC) electropolishing for better corrosion resistance

No spring in the wetted area for zero particle emission

2,3,4 or 6 ports options available

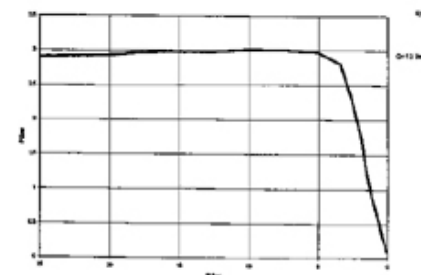
diaphragm counter balance springs

Excellent response at high and low pressures (droop, hysteresis, creep)

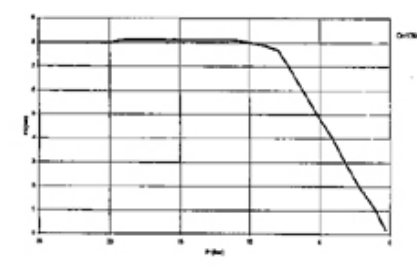
TECHNICAL DATA	
Fluid Media	Standard, High and Ultra High Purity, corrosive and non-corrosive gases
Inlet pressure	240 bar (3500 PSI)
Outlet pressure	3 - 8 - 10 - 15 - 25 - 50 bar (45-116-145-217-365-725 PSI)
Temperature range	-20°C to + 60°C (-2F to 140F)
Nominal Flow	170 slpm (N ₂)
Flow Coefficient (C _v)	C _v = 0,2
Certified max. Helium inboard leak rate	$1 \cdot 10^{-9}$ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)	$1 \cdot 10^{-9}$ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)	$1 \cdot 10^{-9}$ mbar.l/sec
Number of ports	2, 3, 4, 5 or 6

FLOW CURVES

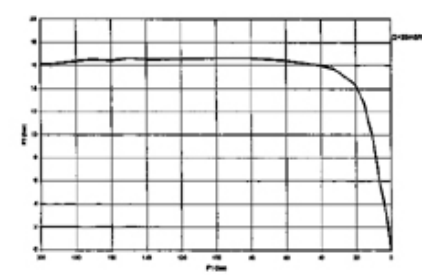
SI 220-3



SI 220-8



SI 220-15



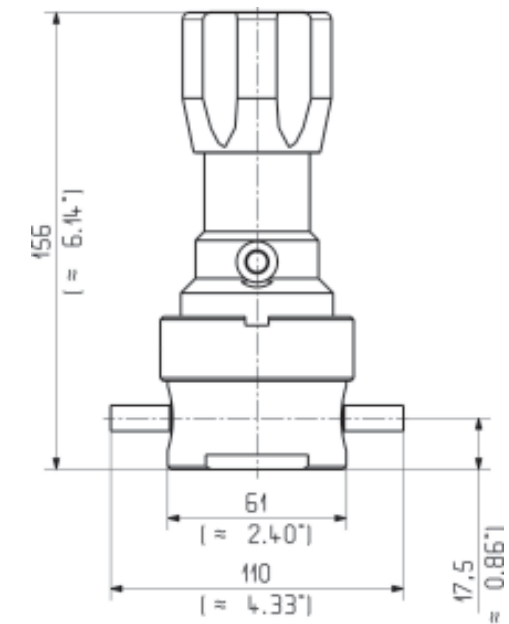
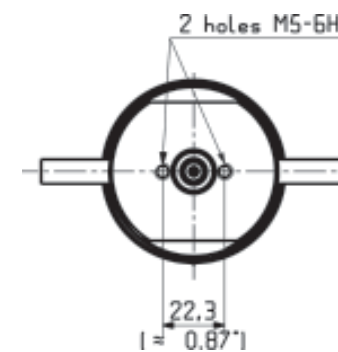
Manufactured to the **THREE STAR PROCESS®**

CONSTRUCTION MATERIALS

DIMENSIONS

	Parts	Materials
Wetted parts	Body	AISI 316L, VAR, Hastelloy®
	Diaphragm	Hastelloy®
	Seat	PCTFE (Kel-F®)
	Poppet	AISI 316L, VAR, Hastelloy®
Non-wetted parts	Bonnet	Nickel Plated Brass
	Handle	Extruded Plastic
	Others	Stainless Steel or others

SURFACE FINISH		
U: $Ra 0,15\mu m$ Ep. (6µin Ra)	V: $Ra 0,25\mu m$ Ep. (10µin Ra)	S: $Ra 0,4\mu m$ nonEP(15µin Ra)



PART NUMBER							
Example :	SI 15U	2V1	A	/	K	8b	A/B : V-M
	1	2	3		4	5	6

1 - Serie & Surface Finish	
SI 15 U	Ra 0,15µm Ep. (6µin Ra)
SI 15 V	Ra 0,25µm Ep. (10µin Ra)
SI 15 S	Ra 0,4µm nonEP(15µin Ra)

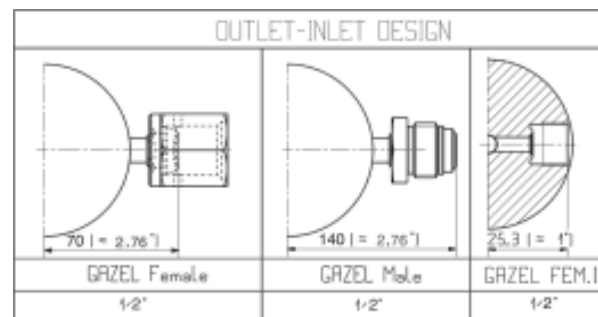
2 - Ports Configurations	
2V1	2 ports in line
See below for other ports configurations	

3 - Body Material (others on request)	
A	AISI 316L, VAR (on request)
I	AISI 316L
H	Hastelloy® (on request)

4 - Seat Material	
N	NBR

5 - Outlet Regulated Pressure	
8b	8 bar - 120 psi
Note: Inlet Pressure = upto 25 bar (360 psi)	

6 - End Connections	
V-F	GAZEL® 1/2" - Female (face seal)*
V-M	GAZEL® 1/2" - Male (face seal)*
V-FI	GAZEL® 1/2" - Internal (face seal)*



Configurations					
2V1	3V3	3V4	4V5	4V6	4V9
5V7	5V8	5V10	5V11	6V2	

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SELFA

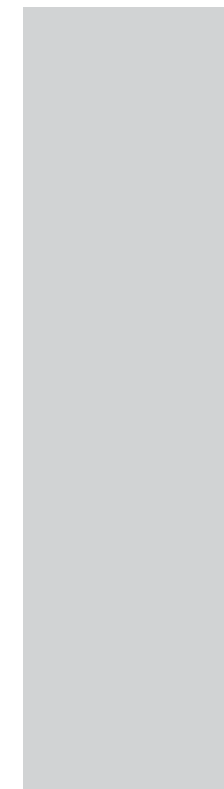
Valves & Fittings

A total component solution, from source to process

SI 15
HIGH FLOW DIAPHRAGM
PRESSURE REGULATOR
FOR HP & UHP APPLICATIONS



SI 15



FEATURE a unique proven design

SI 15

TECHNICAL DATA

SI 15

The **SI 15 Regulator** was created in response to the industry's needs for **High Flow Applications** (typically 1/2") for specialty source gas service, i.e. gas cabinets.

- The balanced valve minimizes the effect of inlet pressure fluctuations on outlet pressure and reduces the efforts on the seat to increase life time of the regulator
- Precise control of the gas discharge with minimum deviation caused by the supply pressure effect.
- Excellent performance characteristics
- A unique spherical ball pressure pad to give ultra smooth delivery pressure adjustment
- Delivery pressure of 8 bar (120 psi)

Individual Serial number, for full traceability

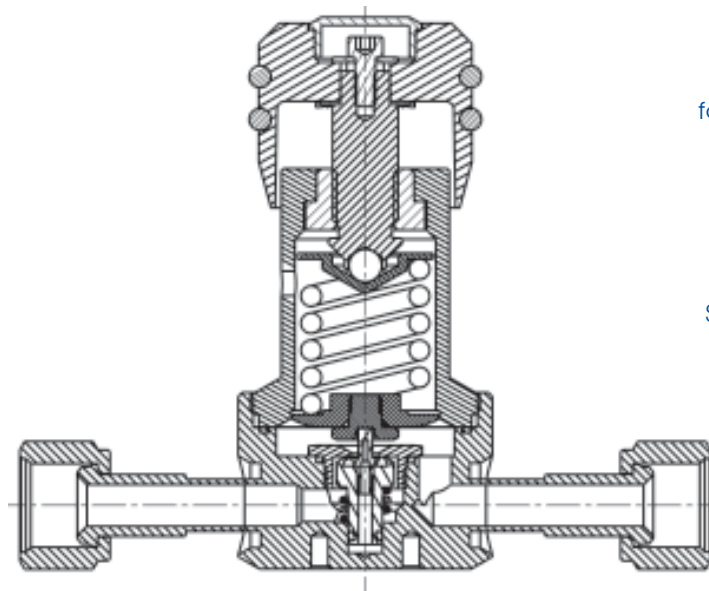
Assembling, testing & Packaging in cleanroom Cl. 10

Ergonomic Design

Spherical ball for ultra smooth control

Sealed bonnet for extra protection

Minimal wetted surfaces for optimal purging



Controlled (PC) electropolishing for better corrosion resistance

2,3,4 or 6 ports options available

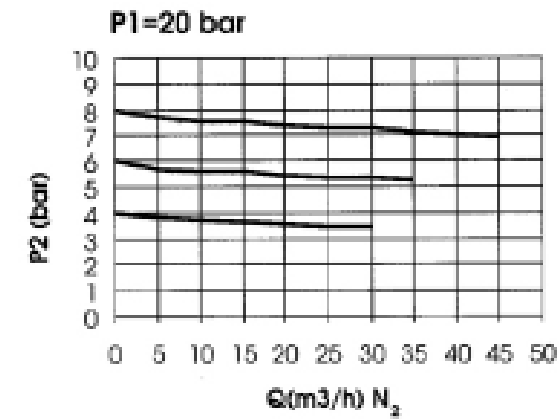
Seat design for high flow uses

Excellent response (droop, hysteresis, creep)

Manufactured to the **THREE STAR PROCESS®**

TECHNICAL DATA	
Fluid Media	Standard, High and Ultra High Purity, corrosive and non-corrosive gases
Inlet pressure	25 bar (360 PSI)
Outlet pressure	8 bar (120 PSI)
Temperature range	-20°C to + 60°C (-2F to 140F)
Nominal Flow	840 slpm (N ₂)
Certified max. Helium inboard leak rate	< 1.10 ⁻⁸ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)	< 1.10 ⁻⁸ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)	< 1.10 ⁻⁸ mbar.l/sec
Number of ports	2, 3, 4, 5 or 6

FLOW CURVES

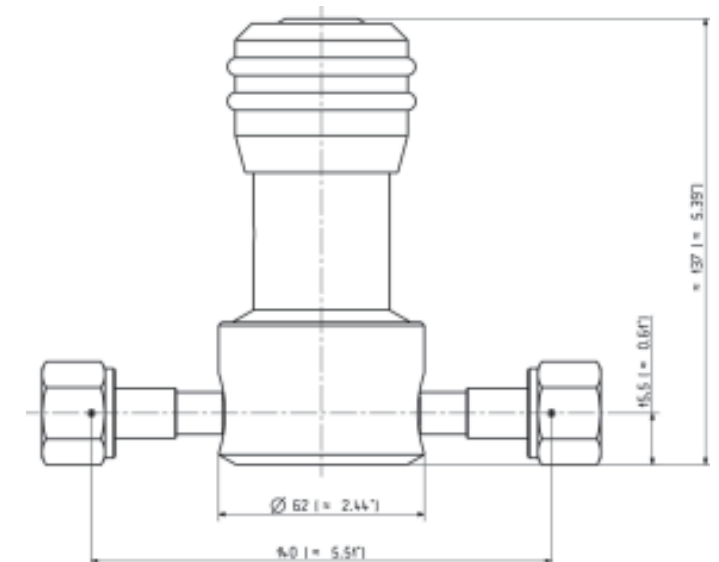
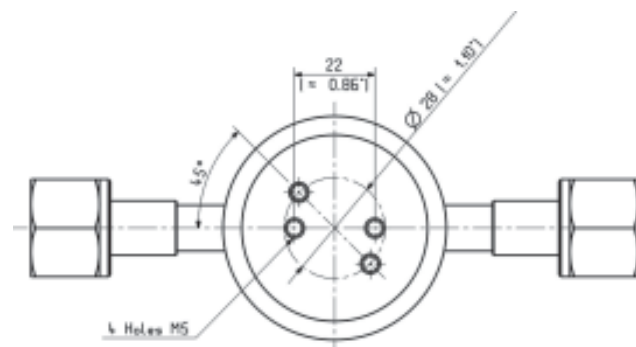


CONSTRUCTION MATERIALS

DIMENSIONS

	Parts	Materials
Wetted parts	Body	AISI 316L, VAR, Hastelloy®
	Diaphragm	AISI 304
	Seat	NBR
	Poppet	AISI 316L, VAR, Hastelloy®
Non-wetted parts	Bonnet	Nickel Plated Brass
	Handle	Extruded Plastic
	Others	Stainless Steel or others

SURFACE FINISH		
U: < Ra 0,15µm Ep. (6µin Ra)	V: < Ra 0,25µm Ep. (10µin Ra)	S: < Ra 0,4µm nonEP(15µin Ra)



PART NUMBER								
Example :	M8.1S	MT	2V1	I	/	K	A/B:B3/8	MS
	1	2	3	4		5	6	7

1 - Valve Series and Surface Finish	
M8.1U	Ra 0,15µm EP (6 µin Ra)
M8.1V	Ra 0,25µm EP (10 µin Ra)
M8.1S	Ra 0,4µm nonEP (15 µin Ra)

3 - Valve Configurations	
2V1	2 ports in line
See below for other configurations	

5 - Seat Material	
K	PCTFE (Kel-F®)
V	PI (VespeI®)
P	PVDF
M	Metal (on request)

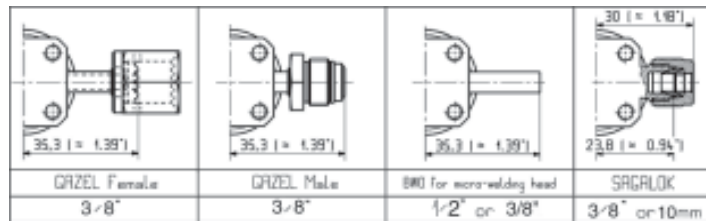
7 - Options	
MS	Valve fitted with locking device (manual)
FT	Panel mounting
—	Back mounting
CI	Electric limit switch (LP actuators only)

2 - Valve Actuation (Standard: Normally closed)	
QT	Manually actuated - Quarter Turn
MT	Manually actuated - Multi Turn
LP	Pneumatically actuated - Low Pressure
HP	Pneumatically actuated - High Pressure (Add - NO - for Normally Open version) (Add - NF - for normally close version)

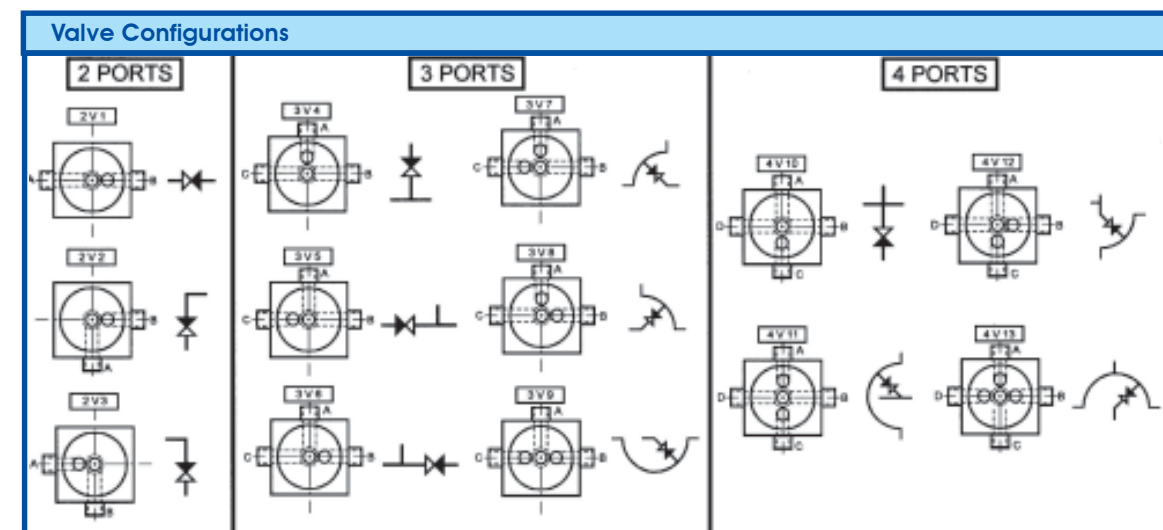
Standard colour:
for handles: white (other colours on request)
for LP actuators: NO=green NF=blue
for HP actuators: NO/NF=white

4 - Body Material (others on request)	
A	AISI 316L, VAR
I	AISI 316L
H	Hastelloy® (on request)

6 - End Connections	
V3/8-F	GAZEL® 3/8 - Female (Face Seal)*
V3/8-M	GAZEL® 3/8 - Male (Face Seal)*
B3/8	BWO 3/8" - Standard (Orbital Weld)
B1/2	BWO 1/2" - (Orbital Weld)
B10	BWO 10 mm (Orbital Weld)
B12	BWO 12 mm (Orbital Weld)
RDB 10	SAGALOK Double ring fitting: 10 mm
RDB 12	SAGALOK Double ring fitting: 12 mm
RDB 1/2	SAGALOK Double ring fitting: 1/2"
RDB 3/8	SAGALOK Double ring fitting: 3/8"



GAZEL® -Female (face seal)* GAZEL® -Male (face seal)* BWO for standard welding heads SAGALOK Double ring fitting



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SELFA

Valves & Fittings

A total component solution, from source to process

M8.1

SPRINGLESS DIAPHRAGM VALVES FOR HP AND UHP APPLICATIONS (STANDARD AND GAS SPECIFIC)



FEATURE a unique proven design

M8.1

TECHNICAL DATA

M8.1

The M8-1 was designed in response to the industry's needs for a compact HIGH FLOW high/low pressure valve dedicated to gas distribution techniques that require high flow rates. This valve is ideal for handling high flow gases such as HCl, N₂O, etc. upstream and downstream of the source regulator. Its compact size and standard panel mount holes enable it to be integrated into gas supply systems where previously only standard valves with low Cv's could be used.

Individual Serial number, for full traceability

Selected Stainless Steels for low sulfur content as well as optimized impurity levels

Assembling, testing & Packaging in cleanroom Cl. 10

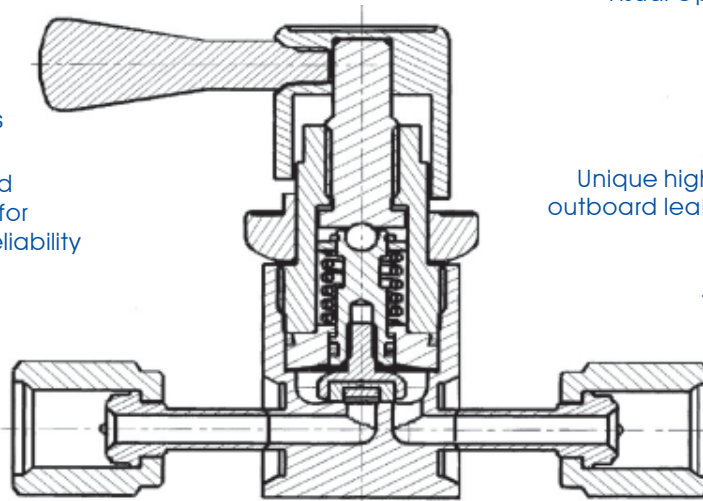
Compact size

Precision electropolishing of all internal surfaces

Laser welded diaphragm for maximum reliability

Low particule generation

Excellent purgeability



Visual Open/Close indicator

Fully functional from vacuum to rated pressure

Unique high pressure outboard leak test port

Tied diaphragm design for positive seat opening and retraction

Aerodynamic fully swept flow passage

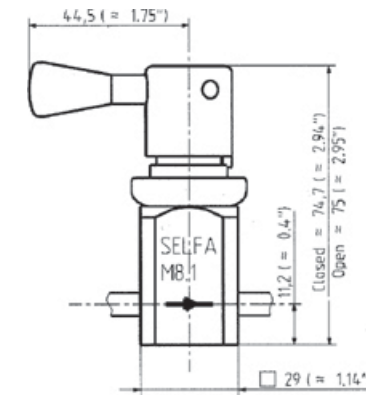
Manufactured to the **THREE STAR PROCESS** •

TECHNICAL DATA		
Fluid Media		Standard, High and Ultra High Purity, corrosive and non-corrosive gases
Max working pressure	M8.1 Manual	vacuum to 240 bar (3500 PSI)
	M8.1 Pneumatic - Low Pressure	17 bar (250 PSI)
	M8.1 Pneumatic - High Pressure	200 bar (2900 PSI)
Pneumatic actuator operating pressure		5 - 7 bar (75 - 105 PSI)
Temperature range		-20°C to + 80°C (-2°F to 176°F)
Burst Pressure		850 bar (12500 PSI)
Flow Capacity (C _v)	M8.1 Manual	C _v = 0.53
	M8.1 Pneumatic	C _v = 0.53
Certified max. Helium inboard leak rate		< 1.10 ⁹ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)		< 1.10 ⁹ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)		< 1.10 ⁹ mbar.l/sec
Wetted volume		< 1.6 cc
Mounting		Front or back mounting
Nominal seat Diameter		8 mm (0,32")

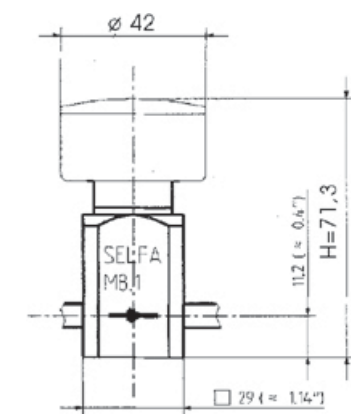
CONSTRUCTION MATERIALS

DIMENSIONS

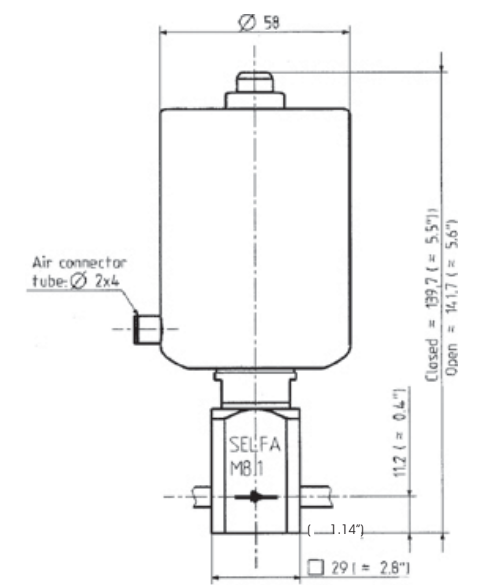
		Valve Grade & Materials		
Parts		M8.1S	M8.1V	M8.1U
Wetted parts	Body	SS 316L	SS 316L	SS 316L VAR
	Surface Finish	< 0,4 μm non EP (15μin Ra)	< 0,25 μm EP (10μin Ra)	< 0,15 μm EP (6μin Ra)
	Diaphragm	Hastelloy®		
	Seat Material	Kel-F® (VespeI®, PVDF, metal on request)		
Non-wetted parts	Backup diaphragms	Elgiloy®		
	all others	Stainless Steel or alloys		



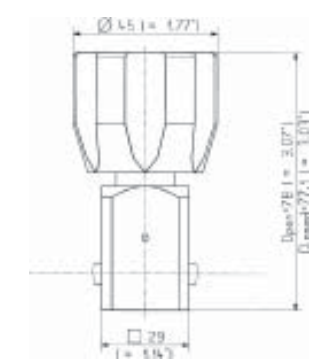
M8.1 Quarter turn (QT) valve



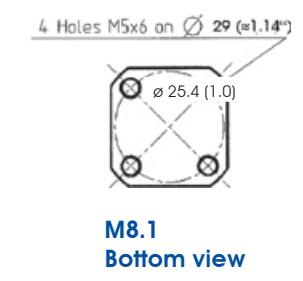
M8.1- Pneumatic valve Low Pressure



M8.1- High Pressure Pneumatic valve



M8.1 Multi turn valve (MT) with on/off window



M8.1 Bottom view

Manual Actuation

Pneumatic Actuation

Parts for all valve grades	
Upper spindle	Brass
Handle	Aluminum or Extruded Plastic
All others	Stainless Steel or Alloys

Parts	Low Pressure	High Pressure
Actuator Body	SS 316 L	Aluminum
Piston	Aluminum	
O-rings	NBR - PC 851	
All others	Stainless Steel or Alloys	

PART NUMBER					
Example : M4.1VB U	MT/MT	A	K	A/B:B ₁ / ₄ C:V1/4MMS	
1	2/2	3	4	5	6

1 - Valve Series and Surface Finish

M4.1/M8.1VB U	Ra 0,15µm EP (6 µin Ra)
M4.1/M8.1VB V	Ra 0,25µm EP (10 µin Ra)
M4.1/M8.1VB S	Ra 0,4µm nonEP (15 µin Ra)

VB= Standard vertical purge block
VT= Vee-Block with transverse purge port
VTD= Vee-Block with right-hand purge port
VTG= Vee-Block with left-hand purge port

5 - M4.1 VB - End Connections - Port A-B-C-D

V 1/4-F	GAZEL 1/4" - Female (face seal)*
V 1/4-M	GAZEL 1/4" - Male (face seal)*
B 1/4	BWO 1/4" - Standard (Butt Weld Orbital)
B 6	BWO 6 mm - Butt Weld Orbital

5 - M8.1 VB - End Connections - Port A-B-C-D

V 3/8-F	GAZEL 3/8" - Female (face seal)*
V 3/8-M	GAZEL 3/8" - Male (face seal)*
B 1/2	BWO 1/2" - Standard (Butt Weld Orbital)
B 3/8	BWO 3/8" - Butt Weld Orbital

SAGALOK Double ring fitting on request

A= Inlet Connection
B= Outlet Connection
C= Vertical Purge (right-hand purge for VT versions)
D= Left-hand Purge (when applicable)

2 - Valve Actuation (Standard: Normally closed)

MT	Manually actuated - Multi Turn
QT	Manually actuated - Quarter Turn
LP	Pneumatically actuated - Low Pressure
HP	Pneumatically actuated - High Pressure (Add - NO - for Normally Open version) (Add - NF - for normally close version)

3 - Body Material (others on request)

I	AISI 316L
A	AISI 316L, VAR
H	Hastelloy® (on request)


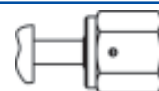

4 - Seat Material

K	PCTFE (Kel-F®)
V	PI (VespeI®)
P	PVDF
M	Metal (on request)

6 - Options

MS	Valve fitted with locking device (manual)
FT	Panel mounting
—	Back mounting
CI	Electric limit switch (LP actuators only)

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End Connection	Dimensions mm (inches)				
	L1	L2	L3	L3VT	
 GAZEL® -Male (face seal)*	M4.1VB	61	61	91	35,3
	M8.1VB	54,5 (2.14")	54,5 (2.14")	91 (3.58")	35,3 (1.39")
 GAZEL® -Female (face seal)*	M4.1VB	52	52	75	35,3
	M8.1VB	54,5 (2.14")	54,5 (2.14")	75 (2.95")	35,3 (1.39")
 BWO 1/4" (orbital weld)		46 (1.81")	46 (1.81")	83,2 (3.27")	35,3 (1.39")

Note: All purge ports in 1/4"



A total component solution, from source to process

M4.1 / M8.1 VB
IN LINE VALVE VEE BLOCK

4.1 VB
8.1 VB



FEATURE a unique proven design M4.1/ M8.1VB

TECHNICAL DATA

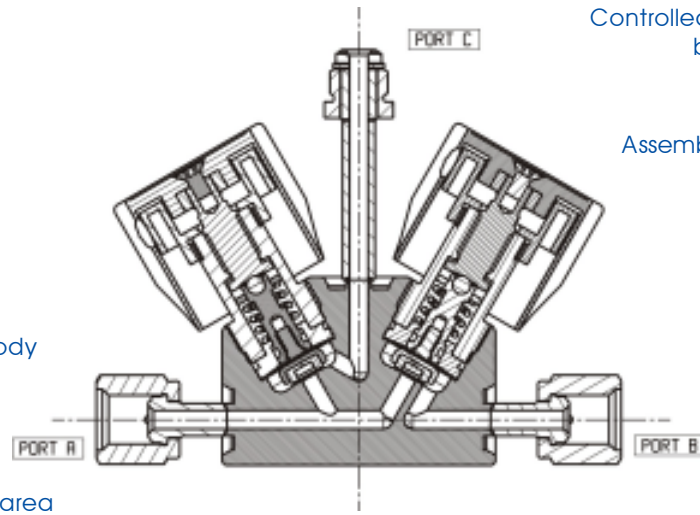
M 4.1/ M8.1VB

Individual Serial number, for full traceability

Developed from proven M4.1/m8.1 valve technology

Gas specific solutions (body and seat materials)

No spring in the wetted area for zero particle emission



Controlled (PC) electropolishing for better corrosion resistance

Assembling, testing & Packaging in cleanroom Class 10

Pneumatic and manual actuation available

Unique high pressure leak test port

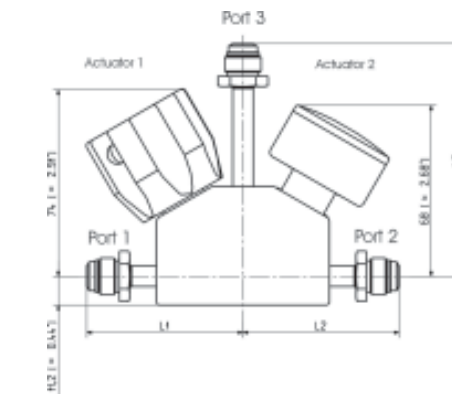
Manufactured to the **THREE STAR PROCESS** °

TECHNICAL DATA		
Fluid Media		Standard, High and Ultra High Purity, corrosive and non-corrosive gases
Max working pressure	M4.1/ M8.1VB Manual-Multi-turn -1/4 Turn	240 bar (3500 PSI)
	M4.1/ M8.1VB Pneumatic - Low Pressure	17 bar (250 PSI)
Pneumatic actuator operating pressure		5 - 7 bar (75 - 105 PSI)
Temperature range		-20°C to + 80°C (-2°F to 176°F)
Burst Pressure		850 bar (12500 PSI)
Flow Capacity (C _v)	M4.1/ M8.1VB Manual	M4.1VB:C _v = 0.26 / M8.1VB:C _v = 0.53
	M4.1/ M8.1VB Pneumatic	M4.1VB:C _v = 0.26 / M8.1VB:C _v = 0.53
Certified max. Helium inboard leak rate		< 1.10 ⁹ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)		< 1.10 ⁹ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)		< 1.10 ⁹ mbar.l/sec

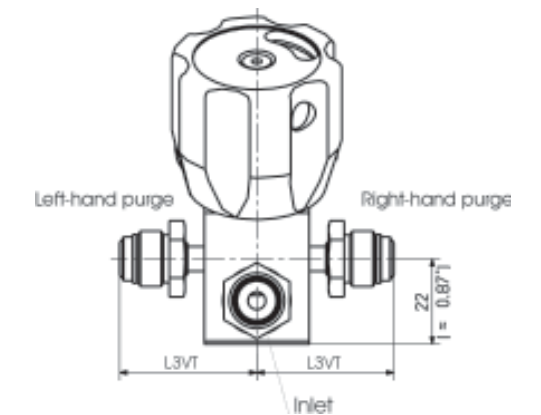
CONSTRUCTION MATERIALS

DIMENSIONS

		Valve Grade & Materials		
Parts		M4.1/ M8.1 VB S	M4.1/ M8.1 VB V	M4.1/ M8.1 VB U
Wetted parts	Body	SS 316L	SS 316L	SS 316L VAR
	Surface Finish	< 0,4 μm non EP (15μin Ra)	< 0,25 μm EP (10μin Ra)	< 0,15 μm EP (6μin Ra)
	Diaphragm	Hastelloy®		
	Seat Material	Kel-F® (Vespel®, PVDF, metal on request)		
Non-wetted parts	Backup diaphragms	Elgiloy®		
	all others	Stainless Steel or alloys		



Refer to last page for L1, L2, L3 and L3VT



For right-hand purge only: please order under ref. M4.1-M8.1 VTD

For left-hand purge only: please order under ref. M4.1-M8.1 VTG

Manual Actuation

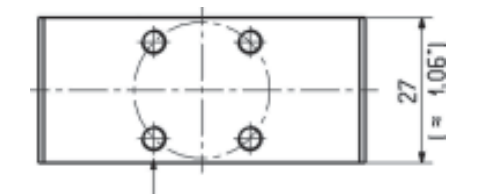
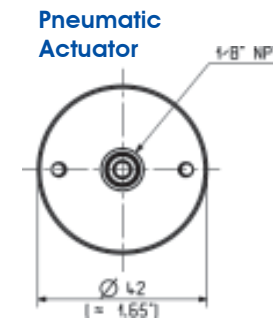
Pneumatic Actuation

Parts for all valve grades	
Upper spindle	Stainless Steel
Handle	Aluminum or Extruded Plastic
All others	Stainless Steel or Alloys

Parts	Low Pressure	High Pressure
Actuator Body	SS 316 L	Aluminum
Piston	Aluminum	
O-rings	NBR - PC 851	
All others	Stainless Steel or Alloys	



Handwheel with on/off window



4 mounting holes M5 thread located 45° from center line on a 1.00 (25.4) circle

PART NUMBER								
Example :	M20 U	MT	2V1	I	/	K	A/B : B3/4	FT
	1	2	3	4		5	6	7

1 - Valve Series	
M20-U	UHP - Ra 0.15µm Ep. (6µin Ra)
M20-V	HP/UHP - Ra 0.25µm Ep. (10µin Ra)
M20-S	HP Version - Ra 0.4µm (15µin Ra) non EP

3 - Valve Configurations	
2V1	2 ports in line
2VPEG	2 Ports in line, upstream purge port - left side
2VPSG	2 Ports in line, downstream purge port - left side
2V1P2	2 Ports in line, 2 purge ports upstream/downstream/left side
For "Tee" configurations please refer to M12	

5 - Seat Material	
K	PCTFE (Kel-F®)
V	PI (Vespel®)
P	PVDF

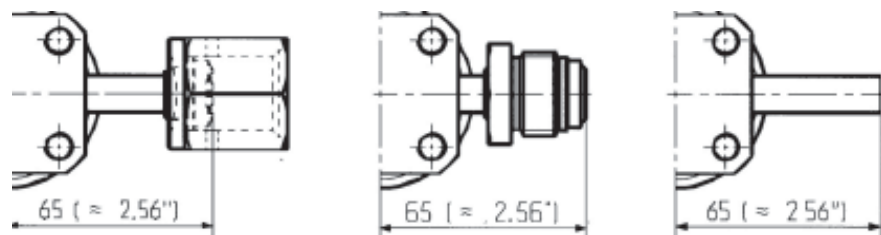
7 - Options	
FT	Panel Mounting
—	Back Mounting
CI	Electric Limit Switch (PP2 actuators)

2 - Valve Actuation	
MT	Multi-Turn Handwheel
PP2	Pneumatically actuated (Normally close version)
Standard colour for handles: white (other colours on request) for pneumatic actuators: blue	

4 - Body Material (others on request)	
I	AISI 316 L
H	Hastelloy (on request)

6 - End Connections for 2VPEG/2VPSG/2V1P2/2V1	
V 3/4-F	GAZEL® 3/4" - Female (Face Seal*)
V 3/4-M	GAZEL® 3/4" - Male (Face Seal*)
B 3/4	BWO 3/4" (Butt Orbital Weld)
B1	BWO 1" (Butt Orbital Weld)
V1-M	GAZEL® 1" - Male (Face Seal*)
SAGALOK Double Ring Fittings on request	
Metric BWO available on request	
Purge port available as GAZEL® 1/4" male	

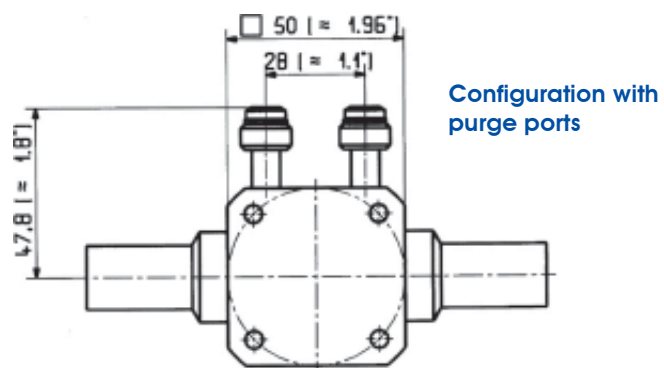
*All GAZEL® Face Seals are VCR® compatible. VCR® is a registered trade mark of CAJON CO., HASTELLO® is a registered trade mark of CABOT Corp., Kel-F® is a registered trade mark of 3M company, Vespel® is a registered trade mark of DUPONT, ELGILOY® is a registered trade mark of ELGILOY Company.



GAZEL® -Female (face seal)*

GAZEL® -Male (face seal)*

BWO for standard welding heads



Configuration with purge ports



SELFA

Valves & Fittings

A total component solution, from source to process

M20

SPRINGLESS DIAPHRAGM VALVES FOR HP AND UHP APPLICATIONS (STANDARD AND GAS SPECIFIC)



FEATURE a unique proven design

M20

TECHNICAL DATA

M20

Tied diaphragm design for positive seat opening and retraction

Individual serial number for full traceability

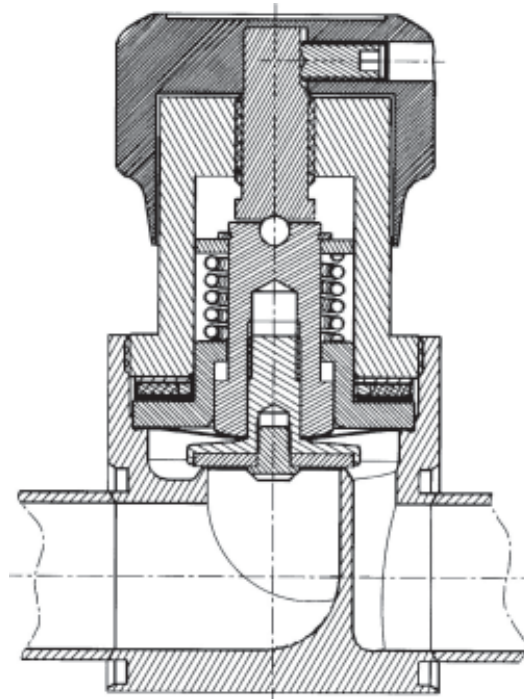
Low particle emission

Fully swept flow path

Reduced gas absorption and desorption from seat material

Clean operation, no rubbing

Fully contained Seat



Assembling, testing and packaging in cleanroom class 10

Small internal volume

Easy purgeability

Selected Stainless Steels for low sulfur content as well as optimized impurity levels

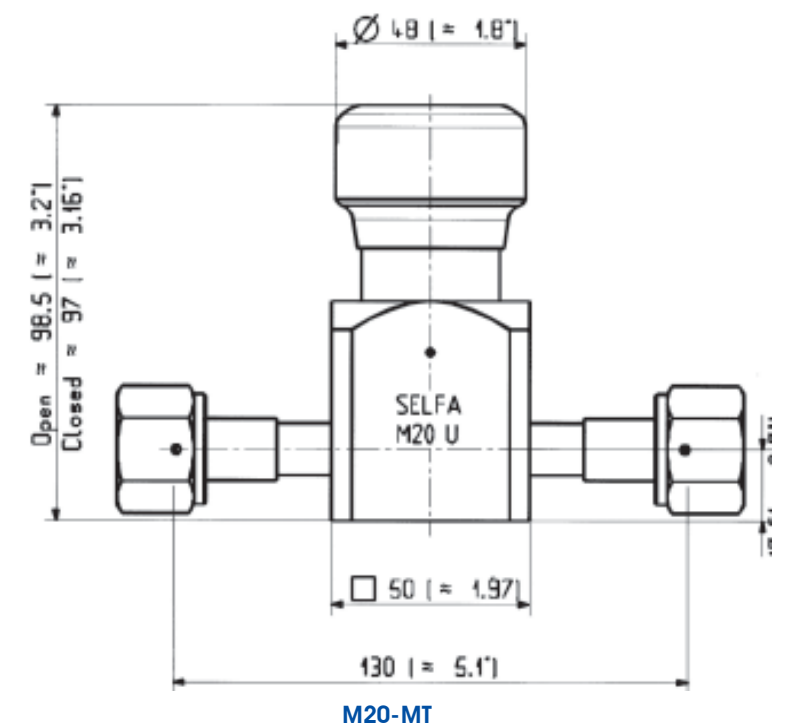
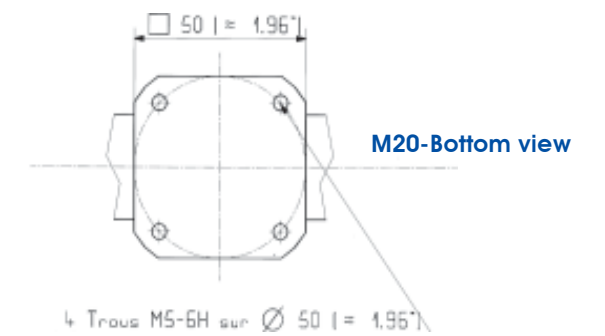
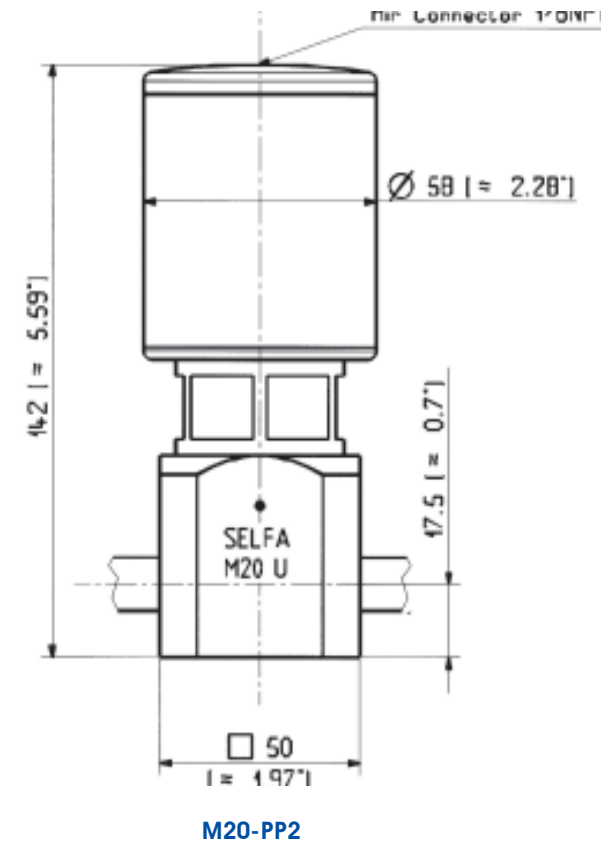
Excellent flow coefficient

Metal to Metal sealing to atmosphere

Manufactured to the **THREE STAR PROCESS**

TECHNICAL DATA		
Fluid Media		High and Ultra High Purity, corrosive and non-corrosive gases
Max operating pressure	M20 MT manual	15 bar (215 PSI)
	M20 PP2 pneumatic	15 bar (215 PSI)
Min. operating pressure		Vacuum (for manual only)
Actuator opening pressure		5 to 7 bar (75 to 105 PSI)
Temperature range		-20°C to + 80°C (-4°F to 176°F)
Flow Coefficient		Cv = 3,5
Certified max. Helium inboard leak rate (at max. pressure)		< 10 ⁻⁹ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)		< 10 ⁻⁹ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)		< 1.10 ⁻⁹ mbar.l/sec
Nominal Seat Diameter		20 mm (0.79")

DIMENSIONS



CONSTRUCTION MATERIALS

		Valve Grade & Materials		
Parts		S	V	U
Wetted parts	Body	Stainless Steel 316L		
	Body Surface Finish	<0,4µm (15µin Ra) nonEP	< 0,25 µm (10µin Ra) EP	< 0,15 µm (6µin Ra) EP
	Diaphragms	Elgiloy®		
	Seat material	PCTFE (Kel-F®) / PVDF or Vespel® (on request)		
Non-wetted parts	Backup diaphragm	Elgiloy®		
	All others	Stainless Steel or alloys		

Manual Actuation

Upper Spindle	Stainless Steel
Handle	Aluminum
All others	Stainless Steel or Alloys

Pneumatic Actuation

Parts	PP2
O-ring	NBR
Actuator Body	Aluminum Anodized



A total component solution, from source to process

M12
SPRINGLESS DIAPHRAGM VALVES
FOR HP AND UHP APPLICATIONS
(STANDARD AND GAS SPECIFIC)



PART NUMBER								
Example :	M12 U	MT	2V1	I	/	K	A/B : B1/2	FT
	1	2	3	4		5	6	7

1 - Valve Series	
M12-U	UHP - Ra 0.15 µm Ep. (6 µin Ra)
M12-V	HP/UHP - Ra 0.25 µm Ep. (10 µin Ra)
M12-S	HP Version - Ra 0.4 µm non EP (15 µin Ra)

2 - Valve Actuation	
MT	Multi-Turn Handwheel
PP2	Pneumatically actuated (Normally close version)

Standard colour:
for handles: white (other colours on request)
for pneumatic actuators: blue

3 - Valve Configuration	
2V1	2 ports in line
2VPEG	2 Ports in line, upstream purge port - left side
2VPSG	2 Ports in line, downstream purge port - left side
2V1P2	2 Ports in line, 2 purge ports upstream/ downstream/left side
3VT	2 ports in line, full passage, downstream branch ("Te" Valve)
3VTPS	2 ports in line, full passage, downstream branch, downstream purge port

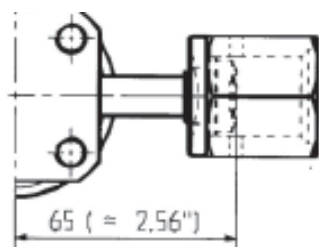
4 - Body Material (others on request)	
I	AISI 316 L
H	Hastelloy® (on request)

6a - End Connections for 2VPEG/2VPSG/2V1P2/2V1	
V 1/2-F	GAZEL® 1/2" - Female (Face Seal*)
V 1/2-M	GAZEL® 1/2" - Male (Face Seal*)
B 1/2	BWO 1/2" - (Butt Orbital Weld)
B 3/4	BWO 3/4" (Butt Orbital Weld)
SAGALOK (Double Ring Fittings on request) Metric BWO available on request Purge port available as BWO 1/4" or GAZEL® 1/4" male	

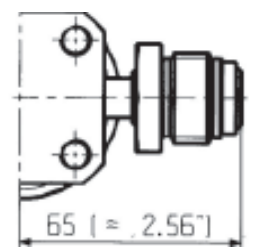
5 - Seat Material	
K	PCTFE (Kel-F®)
V	PI (VespeI®)
P	PVDF

6b - End Connections for 3VT/3VTPS	
B 1/2	BWO 1/2" - (Butt Orbital Weld)
B 3/4	BWO 3/4" (Butt Orbital Weld)
B1	BWO 1" (Butt Orbital Weld)
V1/2-F	GAZEL® 1/2" - Female (Face Seal*)
V1/2-M	GAZEL® 1/2" - Male (Face Seal*)
V3/4-M	GAZEL® 3/4" - Male (Face Seal*)
V3/4-F	GAZEL® 3/4" - Female (Face Seal*)
SAGALOK (Double Ring Fittings on request) Branch available as GAZEL® 1/4" or BWO 1/4" or 1/2" Metric BWO available on request Purge port available as GAZEL® 1/4" male	

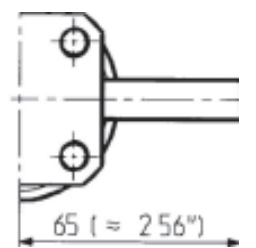
7 - Options	
FT	Panel Mounting
—	Back Mounting
CI	Electric Limit Switch (PP2 actuators)



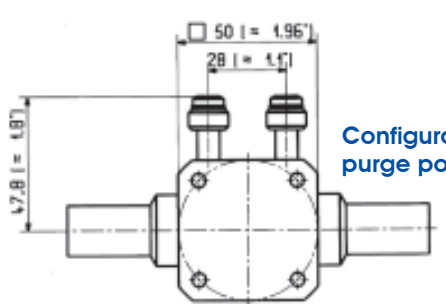
GAZEL® -Female
(face seal)*



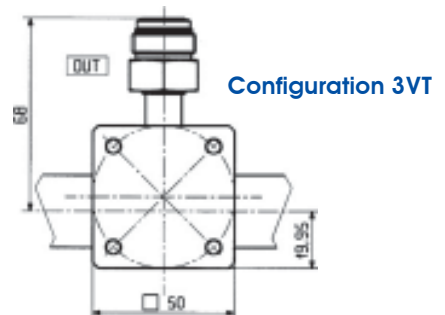
GAZEL® -Male
(face seal)*



BWO for standard
welding heads



Configuration with
purge ports



Configuration 3VT

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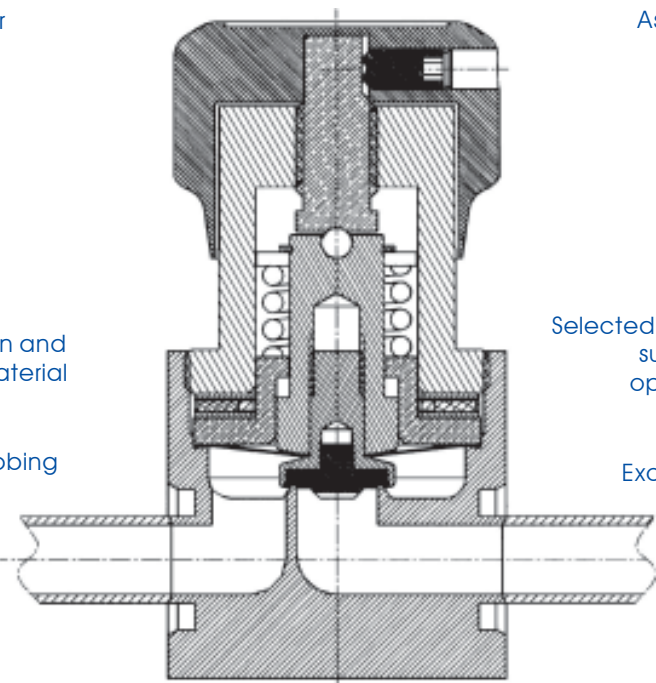
FEATURE a unique proven design

M12

TECHNICAL DATA

M12

Tied diaphragm design for positive seat opening and retraction



Individual serial number for full traceability

Low particle emission

Fully swept flow path

Reduced gas absorption and desorption from seat material

Clean operation, no rubbing

Fully contained Seat

Assembling, testing and packaging in cleanroom class 10

Small internal volume

Easy purgeability

Selected Stainless Steels for low sulfur content as well as optimized impurity levels

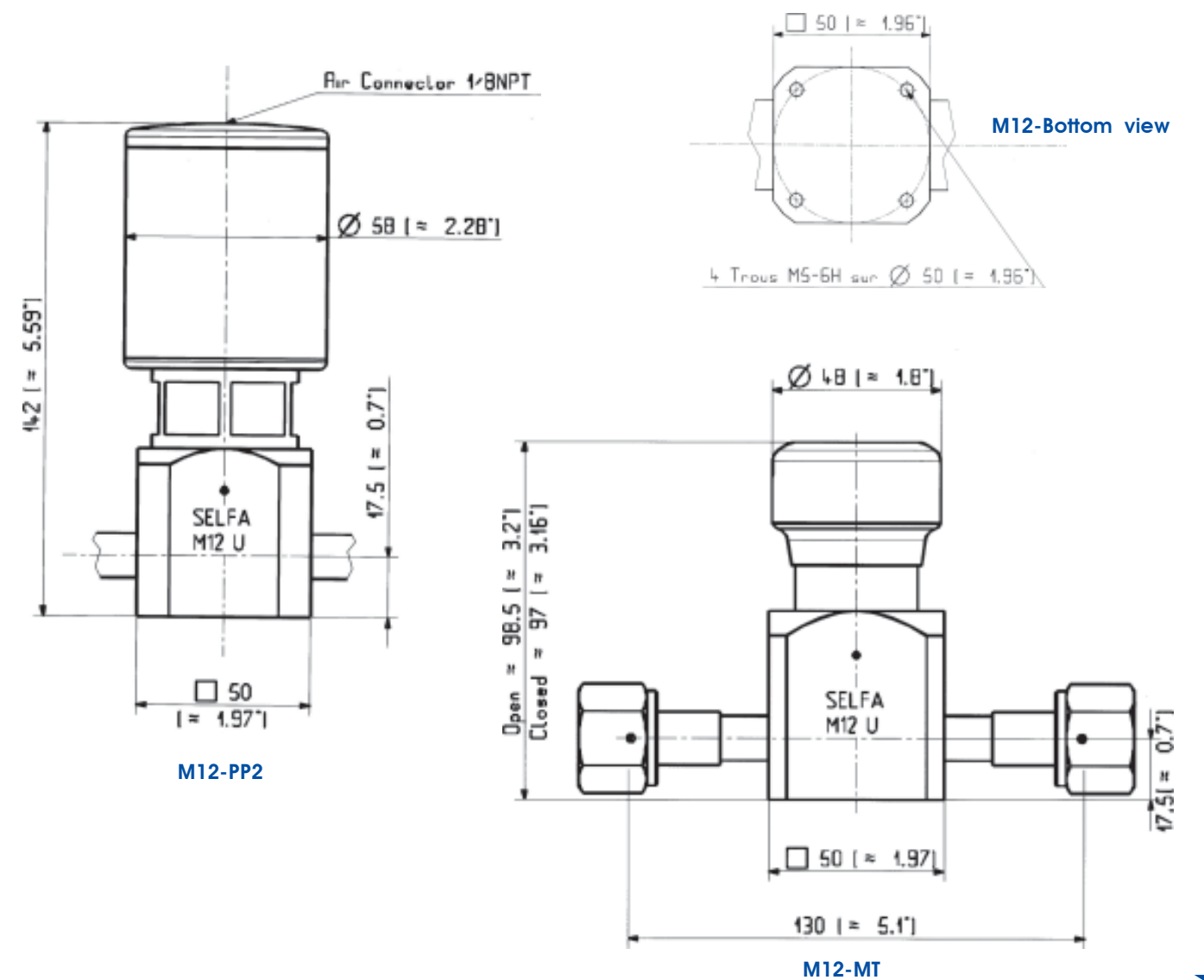
Excellent flow coefficient

Metal to Metal sealing to atmosphere

Manufactured to the **THREE STAR PROCESS®**

TECHNICAL DATA		
Fluid Media		High Purity and UHP, corrosive and non-corrosive gases
Max operating pressure	M12 MT manual	15 bar (215 PSI)
	M12 PP2 pneumatic	15 bar (215 PSI)
Min. operating pressure		Vacuum (for manual only)
Actuator opening pressure		5 to 7 bar (75 to 105 PSI)
Temperature range		-20°C to +80°C (-4°F to 176°F)
Flow coefficient		Cv = 1,75
Certified max. Helium inboard leak rate (at max. pressure)		<10 ⁻⁹ mbar.l/sec
Certified max. Helium outboard leak rate (at max. pressure)		<10 ⁻⁹ mbar.l/sec
Certified max. Helium leak rate across the seat (at max. pressure)		<1.10 ⁻⁹ mbar.l/sec
Nominal Seat Diameter		12 mm (0.47")
Weight	M12 MT	1,4 kg
	M12 PP2	3,1 kg

DIMENSIONS



Front view dimensions: Total height 142 [≈ 5.59"], Body diameter Ø 58 [≈ 2.28"], Air Connector 1/8NPT, SELFA M12 U, Bottom diameter 50 [≈ 1.97"], Actuator height 17.5 [≈ 0.7"]

Bottom view dimensions: Body diameter Ø 50 [≈ 1.96"], 4 Trous M5-6H sur Ø 50 [≈ 1.96"]

Side view dimensions: Open height 98.5 [≈ 3.21"], Closed height 97 [≈ 3.16"], Body diameter Ø 48 [≈ 1.87"], SELFA M12 U, Bottom diameter 50 [≈ 1.97"], Total width 130 [≈ 5.1"], Actuator height 17.5 [≈ 0.7"]

Labels: M12-PP2, M12-MT

CONSTRUCTION MATERIALS

	Parts	Valve Grade & Materials		
		S	V	U
Wetted parts	Body	Stainless Steel 316L		
	Body Surface Finish	< 0,4 µm (15µin Ra) non EP	< 0,25 µm (10µin Ra) EP	< 0,15 µm (6µin Ra) EP
	Diaphragms	Elgiloy®		
	Seat material	PCTFE (Kel-F®) / PVDF or Vespel® (on request)		
Non-wetted parts	Backup diaphragm	Elgiloy®		
	All others	Stainless Steel or alloys		

Manual Actuation

Upper Spindle	Stainless Steel
Handle	Aluminum
All others	Stainless Steel or Alloys

Pneumatic Actuation

Parts	PP2
O-ring	NBR
Actuator Body	Aluminum Anodized

PART NUMBER							
Example :	L16V	MT	2V1	I	/	K	A/B:1/2
	1	2	3	4		5	6 7

1 - Valve Series & Surface finish	
L16 V - Ra 0.25µm Ep. (10 µin Ra)	

3 - Valve Configurations	
2V1	2 ports in line
3VT	2 ports in Line « Full passage » ; downstream branch « Tee valve »

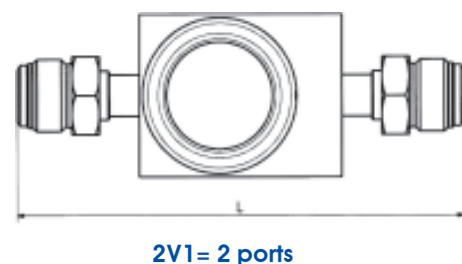
5 - Seat Material	
K	PCTFE (Kel-F®)

7 - Options	
FT	Panel Mounting
—	Back Mounting
CI	Electric Limit Switch (LP Actuator)

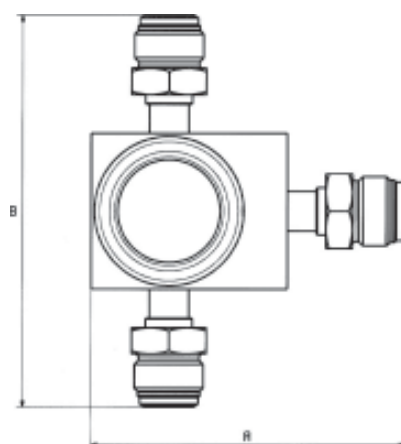
2 - Valve Actuation (Standard Normally closed = NF)	
MT	Multi-Turn Handwheel
LP	Pneumatically actuated - normally close
Standard Colour: for handles: white (other colours on request) for LP actuators: NF=blue	

4 - Body Material (others on request)	
I	AISI 316L

6 - End Connections	
V 1/2-F	GAZEL® 1/2" - Female (Face Seal*)
V 1/2-M	GAZEL® 1/2" - Male (Face Seal*)
B 1/2	BWO 1/2" - (Butt Orbital Weld)
B 3/4	BWO 3/4" - (Butt Orbital Weld)
SAGALOK Double Ring Fittings and metric Butt Orbital Weld available on request	



2V1= 2 ports



3VT= Tee Valve

Dimensions	L	A	B
Connection 1/2"	138,7 (5,46")	100,85 (3,97")	125,7 (4,95")
Connection 3/4"	157,5 (6,20")	110,25 (4,34")	144,5 (5,69")

Same dimensions for : GAZEL® Male or Female (Face seal), and BWO (for Butt Orbital Weld)).

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SELFA

Valves & Fittings

A total component solution, from source to process

L 16

DIAPHRAGM LINE VALVE FOR HIGH PURITY LIQUID APPLICATIONS

16



FEATURE a unique proven design

L16

TECHNICAL DATA

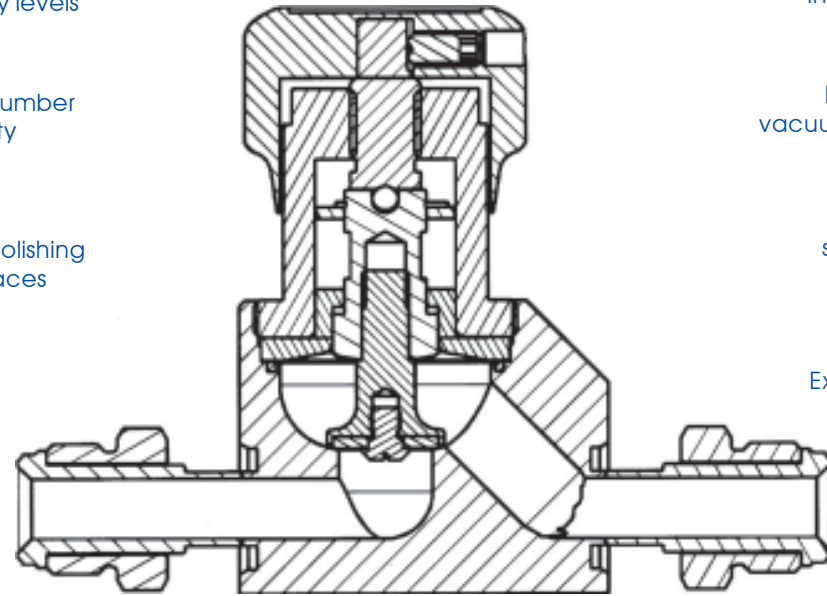
L16

Selected Stainless Steels for low sulfur content as well as optimized impurity levels

Individual serial number for full traceability

Precision electropolishing of all internal surfaces

Low particule generation



Assembling, testing and packaging in cleanroom class 10

Fully functional from vacuum to rated pressure

Aerodynamic fully swept flow passage

Excellent purgeability

Manufactured to the **THREE STAR PROCESS®**

TECHNICAL DATA		
Fluid Media		Standard, HP, High purity, corrosive and non-corrosive fluid
Max working pressure	Manual	87 PSI (6 bar)
	Pneumatic - Low pressure	87 PSI (6 bar)
Actuator operating pressure		75 - 100 PSI (5-7 bar)
Temperature range		-20°C to + 65°C (-4°F to 150°F)
Flow capacity	L16 manual	Cv = 3
	L16 pneumatic	Cv = 3
Certified max. Helium outboard leak rate (at max. pressure)		<10 ⁻⁷ mbar.l/sec
Certified max. Helium across the seat leak rate (at max. pressure)		<10 ⁻⁷ mbar.l/sec
Wetted volume		< 21.6 cc
Mounting		Panel or back mounting

CONSTRUCTION MATERIALS

DIMENSIONS

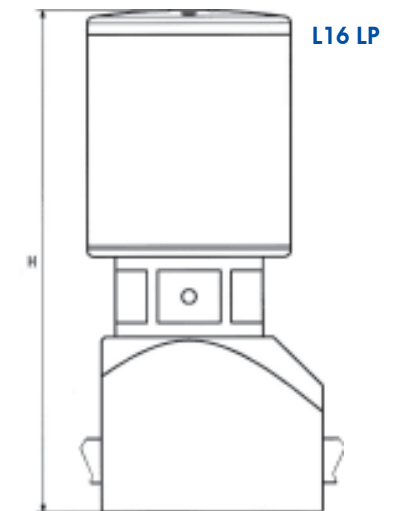
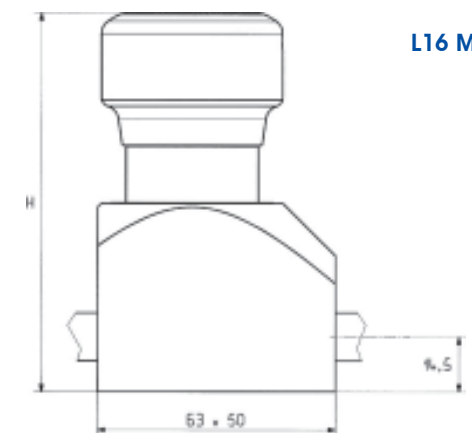
		Valve Grade & Materials
Wetted Parts	Parts	L16V
	Body	SS 316L
	Surface Finish	< 0.25 µm EP (10 µin Ra)
	Diaphragm	Elgiloy®
Non-wetted Parts	Seat material	PCTFE (Kel-F®)
	Backup diaphragm	Elgiloy®
	All others	Brass, Stainless Steel or alloys

Manual Actuation

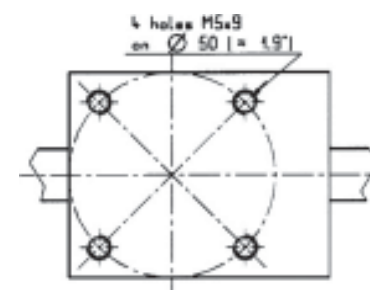
Pneumatic Actuation

Parts for all valve grades	
Upper spindel	Brass
Handle	Aluminium
All others	Stainless Steel 316L

Parts	
Actuator Body	Aluminium
Piston	Aluminium
Upper spindel	Brass
O-rings	Nbr-PC 851
All others	Stainless steel 316L



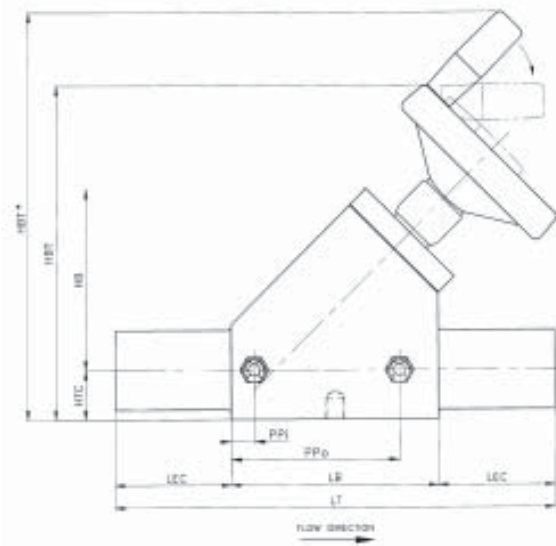
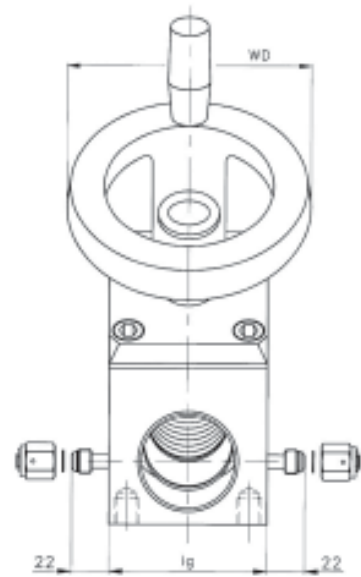
L16 Button-view



Dimensions	H	
	Open	Close
Manual MT	103 (4,06")	100,5 (3,96")
Pneumatic LP	141,5 (5,57")	

KD full flow Valves - Outline dimensions													
Valve Serie	Flow Coefficient CV	Length Body LB	Length End Conn. LEC	Length Total LT	Height Body HB	Height Total HBT	Height Total+Grip HBT*	Diameter Handle WD	Dim. Ppi to Conn Ppi	Dim. Ppo to Conn Ppo	Body Width lg	Height to tub. center HTC	Aprox. Weight Kg
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg
KD12	2,5	74	100	274	73	140	-	80	4,5	62	44	11	1,6
KD20	13	90	100	290	88	190	227	125	9,5	75	62	27	4,2
KD25	25	90	100	290	88	190	227	125	9,5	75	62	27	4,3

KY high flow Valves - Outline dimensions													
Valve Serie	Flow Coefficient CV	Length Body LB	Length End Conn. LEC	Length Total LT	Height Body HB	Height Total HBT	Height Total+Grip HBT*	Diameter Handle WD	Dimension PPI to Conn. Ppi	Dimension PP to PP Ppo	Body Width lg	Height to tube center HTC	Aprox. Weight Kg
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg
KY32	38	94	100	294	92	195	231	125	15	79	62	27	4,3
KY50	79	125	100	325	115	223	260	125	20	105	80	35	6,5
KY80	182	198,5	100	398,5	184	376	435	250	26	172	124	48	24
KY100	328	241	100	441	220	442	499	300	40	201	164	70	48



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A total component solution, from source to process

KD/KY
BELLOWS SEALED SHUT OFF LINE VALVES FOR
UHP AND HP BULK GAS APPLICATIONS

KD/KY



FEATURE a unique proven design

KD/KY

CONSTRUCTION MATERIALS

KD/KY

The KD and KY valves are bellows sealed shut off line valves designed for UHP and HP Piping systems. The high integrity makes these valves suitable for a wide range of toxic hazardous, corrosive or flammable fluid applications: bulk gas distribution systems, indoors gas distribution systems, vacuum piping systems, centralized distribution systems for solvents

High resolution spindle

Easy grip handle

Very smooth operation even at 30 bar

End connections in various tube sizes (metric and imperial)

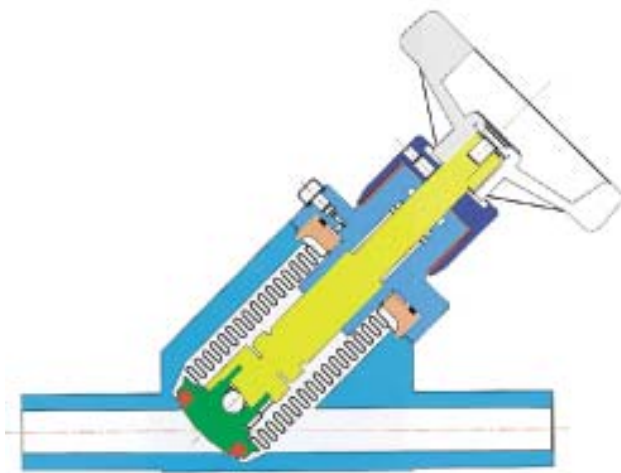
Positive shut off to prevent over torquing of over stressing the bellows

Very high Cv Values

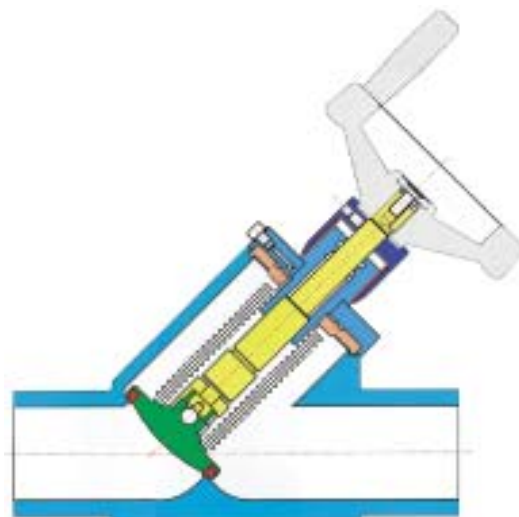
Compact design

Electro-polished wetted surfaces down to Ra<10 μ inch (0,25 μ m)

Limited KEL-F surface exposed to the fluid to prevent from permeation



Full flow bellow sealed Valve from 1/2" up to 1"



High Flow bellow sealed valve 1 1/2" up to 4"

Integrated versions available

Tube extensions, purge connections or fittings available

No internal particle shedding components

Individual serial number for full traceability

Assembled, testing & packaging in Class 10 Cleanroom

Double bag packaging with Nitrogen supplied from liquid source

Cleaned for high purity service

Upstream, downstream and bellows purge ports (Purge valves on request)

Materials		
Wetted	Bellows	316L Stainless Steel
	Body	316L Stainless Steel
	Sealing disc	PCTFE (KEL-F®)
Non-Wetted	Spindel	Brass
	Handle	Plastic
	Other	SSt or Alloy

Surface finish			
Process	Ra. μ inch	Ra. μ m	Serie
Passivated	Ra<15 μ inch	Ra<0,4 μ m	KD12, KD20, KD25, KY32
	Ra<30 μ inch	Ra<0,8 μ m	KY50
	Ra<40 μ inch	Ra<1 μ m	KY80, KY100
Electro-polished	Ra<15 μ inch	Ra<0,4 μ m	KD12, KD20, KD25, KY32
	Ra<30 μ inch	Ra<0,8 μ m	KY50
	Ra<40 μ inch	Ra<1 μ m	KY80, KY100
CMP & Electro-polished	Ra<10 μ inch	Ra<0,25 μ m	KD12, KD20, KD25, KY32
	Ra<12 μ inch	Ra<0,3 μ m	KY50
	Ra<30 μ inch	Ra<0,8 μ m	KY80, KY100

TECHNICAL DATA

Operating Specifications		
Max operating pressure	30 bar	435 psi
Max operating T° (closed)	-20°C<T°<80°C	-4°F<T°<176°F
Max operating T° (open)	-20°C<T°<80°C	-4°F<T°<176°F

Leak tests	
Inboard/Outboard	1x10 ⁻⁹ mbar.l/s He max
Across the seat	1x10 ⁻⁹ mbar.l/s He max.

Optional	
Purging	Purge ports- Purge Valves
Sealing disc	Vespel, Tenic , other under request
Special tests	Particule, Moisture, THC
Analysis	SEM, Esca and Auger Analysis

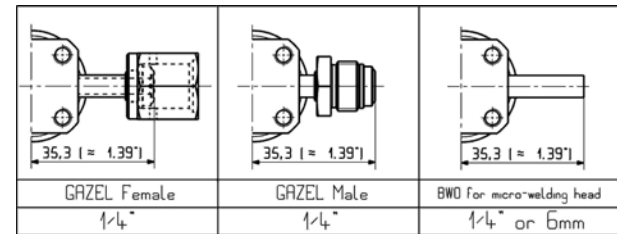
KD full flow & KY high flow Valves - Tube connections							
	KD12	KD20	KD25	KY32	KY50	KY80	KY100
Nominal Diameter	9,4 mm	15,75 mm	22,1 mm	29,7 mm	47,5 mm	72,1 mm	97,38 mm
Stroke	14	20	20	20	25	45	55
Min. Dia. tube conn.	12 mm	19 mm	25,4 mm	33,7 mm	50,8 mm	76,1 mm	101,6 mm
Max. Dia. tube conn.	19,05 mm	29 mm	48,3 mm	48,3 mm	63,5 mm	88,9 mm	114,3 mm
Max. Conn. with adpater	38,1 mm	60,30 mm	88,9 mm	88,9 mm	114,3 mm	114,3 mm	-

PART NUMBER						
Example :	M4SI V	BP	2V1	K	A/B:B1/4	
	1	2	3	4	5	6

1 - Valve Series, Surface finish & Body material	
M4-SI V - Ra 0.25 µm EP (10 µin Ra)-316 L VAR	
M4-SI S - Ra 0.4 µm (15 µin Ra)-316 L low sulf.	

2 - Valve Actuation	
BM	Multi-Turn Handwheel (8,6bar)
LM	Multi-Turn Handwheel (20bar)
HM	Multi-Turn Handwheel (240bar)
BPNF	Pneumatically actuated (8,6bar)
LPNF/LPNO*	Pneumatically actuated (20bar)
HPNF/HPNO*	Pneumatically actuated (240bar)
BQ	Quarter-Turn Handwheel (8,6bar)
LQ	Quarter-Turn Handwheel (20bar)
*NF=normally closed /NO=normally open	

3 - Valve Configurations	
2V1	2 ports in line
See below for other configurations	



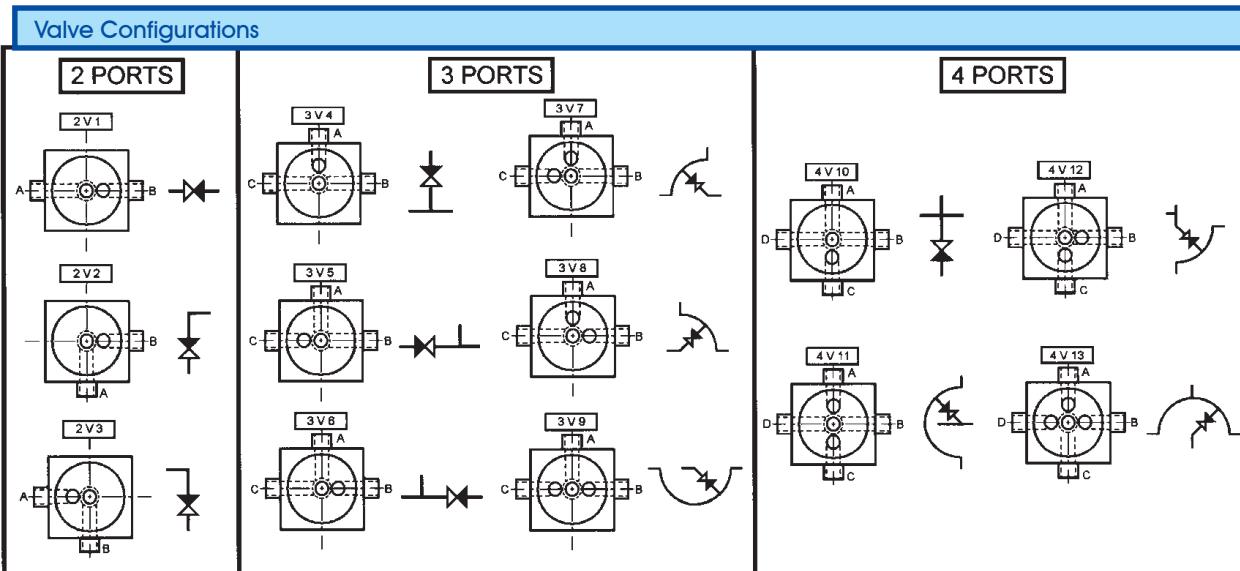
GAZEL® -Female (face seal)* GAZEL® -Male (face seal)* BWO for standard welding heads

4 - Seat Material	
K	PCTFE (Kel-F®)
V	Pi (VespeI®) (optional)
P	PVDF (optional)

5 - End Connections	
V 1/4 F	GAZEL® 1/4" - Female (Face Seal*)
V 1/4 M	GAZEL® 1/4" - Male (Face Seal*)
B 1/4	BWO 1/4" (Butt Orbital Weld)
B 6	BWO 6 mm (Butt Orbital Weld)

6 - Options	
FT	Panel Mounting
CI	Electric limit switch

Standard Colors	
BM,LM,HM :	Blue
BPNF	Blue
LPNF	Blue
LPNO	Green
HPNF/HPNO	White
BQ,LQ	Black



SELFA

Valves & Fittings

A total component solution, from source to process

M4-SI (Reverse seat)
DIAPHRAGM LINE VALVES
FOR HP AND UHP APPLICATIONS
(STANDARD AND GAS SPECIFIC)

4-SI



*All GAZEL® Face Seals are VCR® compatible. VCR® is a registered trade mark of CAJON CO., Kel-F® is a registered trade mark of 3M company. VespeI® is a registered trade mark of DuPont. All rights of change reserved.

FEATURE a unique proven design

M4-SI

TECHNICAL DATA

M4-SI

Individual Serial number, for full traceability

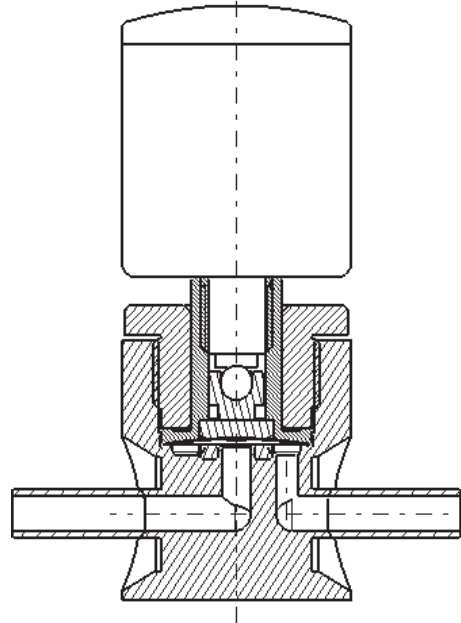
Compact size

Precision electropolishing of all internal surfaces

Long life technology

Low particule generation

Selected Stainless Steels for low sulfur content as well as optimized impurity levels



Assembling, testing & Packaging in cleanroom Cl. 10

Visual Open/Close Indicator (ON/OFF window on Multiturn version)

Fully functional from vacuum to rated pressure

Aerodynamic fully swept flow passage

Excellent purgeability

Manufactured to the **THREE STAR PROCESS®**

Fluid Media		Standard, HP, UHP, corrosive and non-corrosive gases
Max working pressure	M4-SI manual multiturn MT	3500 PSI (240 bar) or 290 PSI (20 bar) or 125 PSI (8.6bar)
	M4-SI pneumatic BPNF	125 PSI (8.6 bar)
	M4-SI pneumatic LPNF - LPNO	290 PSI (20 bar)
	M4-SI 1/4 turn QT	125 PSI (8.6 bar) or 290 PSI (20 bar)
	M4-SI pneumatic HPNF - HPNO	3500 PSI (240 bar)
Pneumatic actuator opening pressure		5 - 7 bar (75 to 105 PSI)
Temperature range		-20°C to +65°C (-4°F to 149°F) (VespeI® seat to: 155°C/311°F)
Burst pressure		12500 PSI (850 bar)
Flow Capacity		Cv = 0.2
Certified max. Helium inboard leak rate		< 1.10 ⁻⁹ mbar.l./sec
Certified max. Helium outboard leak rate (at max. pressure)		< 1.10 ⁻⁹ mbar.l./sec
Certified max. Helium across the seat leak rate (at max. pressure)		< 1.10 ⁻⁹ mbar.l./sec
Wetted volume		< 1.2 cc
Mounting		Back mounting or optional Panel mounting
Nominal seat diameter		4 mm (0.16")

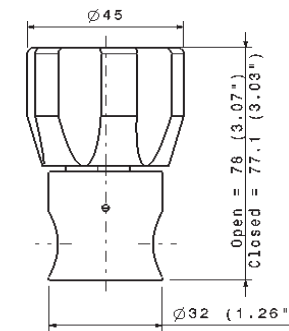
		Valve Grade & Materials	
Parts		M4-SI S	M4-SI V
Wetted Parts	Body	SS 316 L	SS 316 L VAR
	Surface Finish	< 0,4 µm (15µin Ra)	< 0,25 µm EP (10µin Ra)
	Diaphragm	Polished Nickel Alloy	
Non-wetted parts	Seat material	Kel-F® (PVDF or Vespel® on request)	
	Backup diaphragms	Nickel Alloy	
	All others	Stainless Steel or alloys	

Manual Actuation

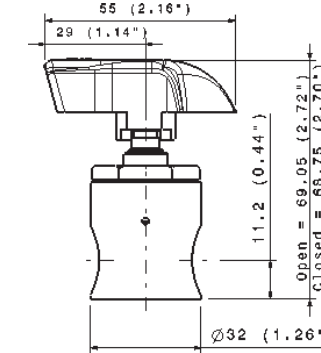
Pneumatic Actuation

Parts for all valve grades	
Upper Spindel	Brass
Handle	Plastic(Alu.optional for MT)
All others	Stainless Steel

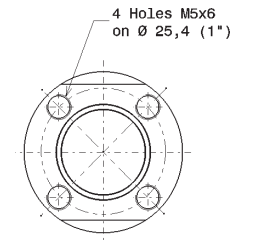
Parts	
Actuator Body	Aluminium
Piston	Brass
O-rings	NBR-PC 851
All others	Stainless Steel



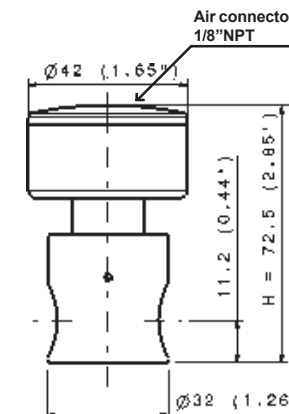
M4-SI Multiturn valve (MT) with open/close window



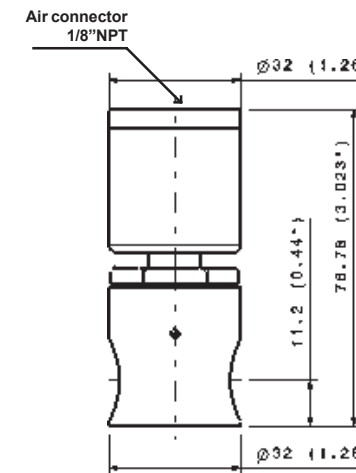
M4-SI - Quarter turn (QT) valve



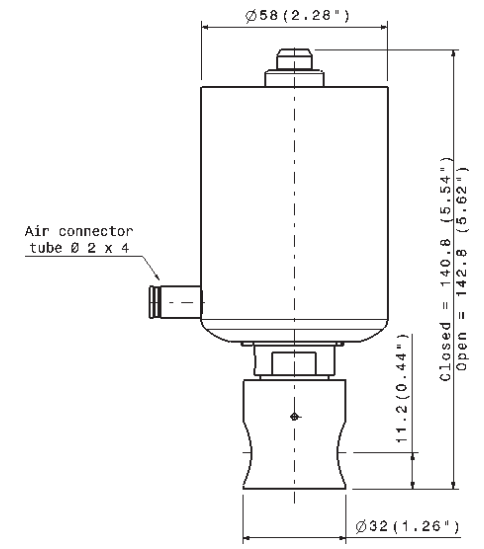
M4-SI bottom view



M4-SI - Pneumatic valve Medium Pressure (LPNF, LPNO)



M4-SI Pneumatic valve Low pressure (BPNF)



M4-SI Pneumatic valve High Pressure (HPNF, HPNO)

PART NUMBER						
Example :	RS	MT	I	/	K	A/B : 4F
	1	2	3		5	6

1 - Valve Series	
RS-	Reversed seat diaphragm valve

2 - Valve Actuation	
MT	Multi-turn handwheel
QT	1/4 turn lever
Standard colour: for handles: black (other colours on request)	

3 - Seat Material	
K	PCTFE (Kel-F®)
V	PI (VespeI®)
P	PVDF

4 - Body Material	
I	AISI 316L Stainless steel
B	Brass

5 - End connections	
1/4M	1/4"NPT male
1/4F	1/4"NPT female
RDB1/4	1/4"compression

6 - Options	
FT	Panel mounting
FP	Back mounting
CP	Chrome plated

*All GAZEL® Face Seals are VCR® compatible. VCR® is a registered trade mark of CAJON CO., HASTELLOY® is a registered trade mark of CABOT Corp., Kel-F® is a registered trade mark of 3M company VespeI® is a registered trade mark of DUPONT, ELGILOY® is a registered trade mark of ELGILOY Company.



SELFA

Valves & Fittings

A total component solution, from source to process

DS4
Direct seal
Diaphragm line valve

4 DS



FEATURE a unique proven design

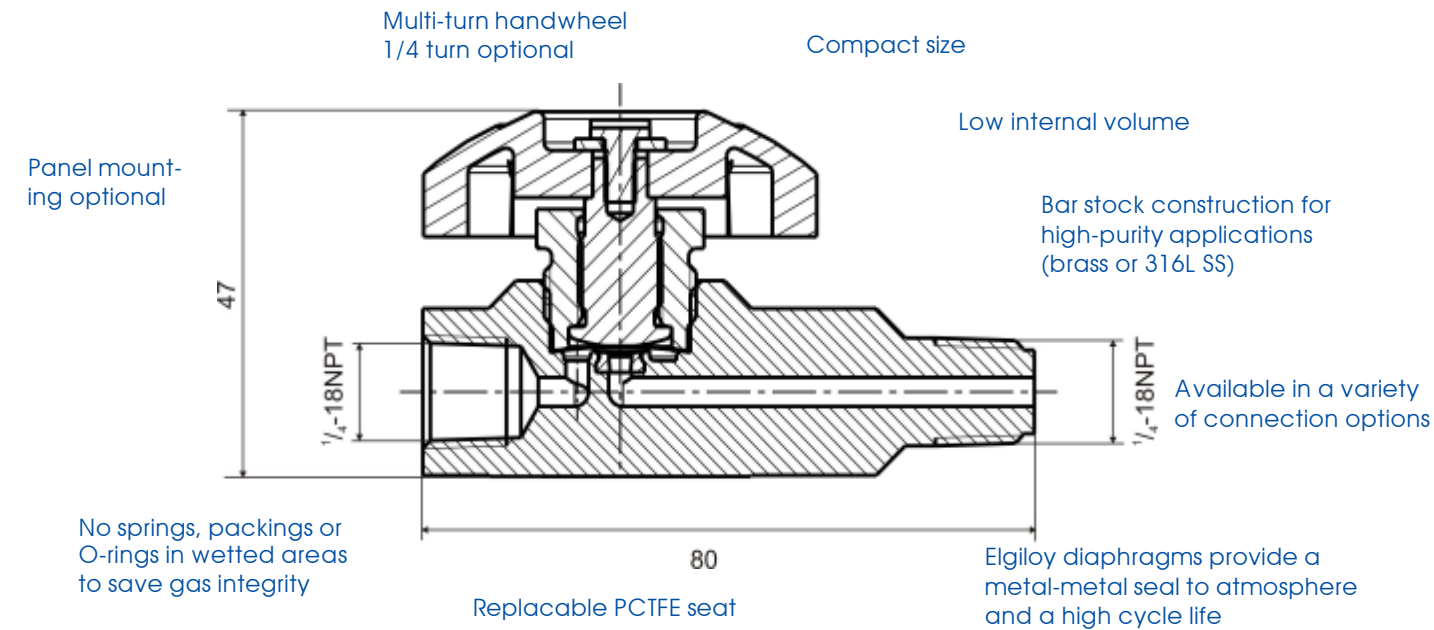
DS4

TECHNICAL DATA

DS4

Individual Serial number,
for full traceability

Assembling, testing & Packaging
in cleanroom Cl. 10



Manufactured to the **THREE STAR PROCESS**®

TECHNICAL DATA		
Max. working pressure		207 bar / 3000 psi
He Leak rates	Inboard	1×10^{-9} mbar.l./sec
	Outboard	1×10^{-9} mbar.l./sec
	Across the seat	1×10^{-9} mbar.l./sec
Operation torque		2-3 Nm (1.5 - 2.2 ft.lbs)
Flow coefficient		max. Cv = 0.18
Seat orifice size		3mm
Approx. weight		0.26 kg
Standard connections		1/4" NPT male and female / double ring fittings Sagana
Connections on request		BWO

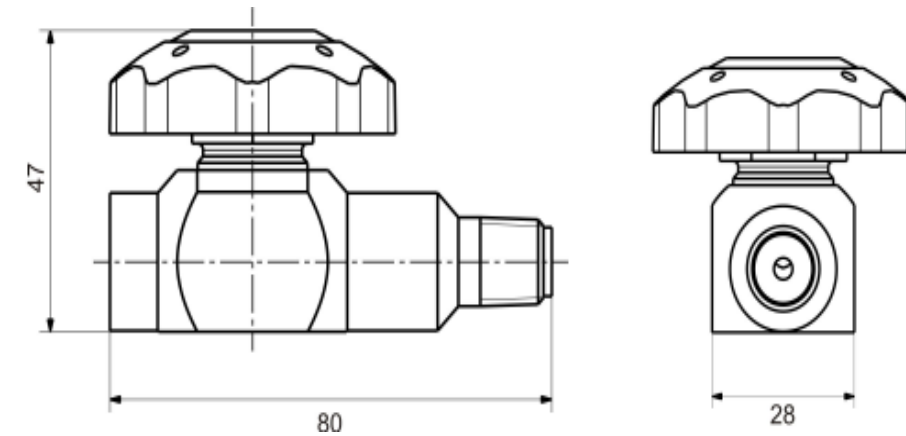
CONSTRUCTION MATERIALS

DIMENSIONS

Valve Grade & Materials	
Parts	DS4
Body	Brass or SS 316L
Seat Material	PCTFE (PI or PVDF on request)
Seals	Metal to metal (Elgiloy® diaphragms) with Viton O-ring backup

Options

optional configurations
Back mounting
Panel mounting
Chromium plating
1/4 turn handwheel



DS4 - Multi-turn (MT) handwheel

DS4
front view