V900

HAND VALVES

ABAC SRL

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Reliable solutions for high requirement applications

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Introduction

General information

The **ABAC** hand valves are suitable for instrumentation and small process lines. With their different configurations our valves can fullfill a wide range of applications.

Main characteristics of ABAC valves:

- Stainless steel stems with laminated thread that provide more strength than conventional cut threads
- Adjustable gland and mirrored finish stem surface to obtain a bigger lifetime of the packing.
- Carbon steel bodies are zinc silver plated,10-12 µ. thickness
- Designed, manufactured & inspected under ISO 9001:2000 quality system standards.
- Body, packing & shutt off 100% tested in factory.
- Complete traceability of bulk materials assured with an unerasable batch number engraved in the body.
- Cleaned for oxigen service (optional).
- Requirements of NACE MR-01-75 standards (optional).
- Operating maximum pressures up to 10.000 psi (*).

(*) for higher pressures, consult the H200 catalog or call our Technical Department

Limitations:
Stainless steel valves with wet thread bonnet and standard plug are not recommended for use in steam or dry gases. For those cases it is recommended to select stem tip V1 or V4 (see pag. 3)

Flow capacity calculation

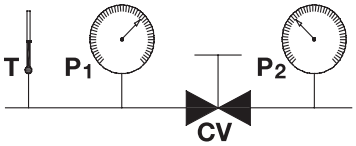
The **CV** factor of the valve is a coefficient wich express the flow in gallons per minute of water at 60 °F that run through the valve with a pressure drop of 1 psi.

If the flow that must run through the valve is known, the CV can be determined to select the adequate valve for the application.
Or if the valve model is known, with its CV, the flow that will run through can be determined.
To do the calculations, the following formulas have to be used:

For liquids:

$$Q = 14{,}42\ CV \sqrt{\frac{\Delta P}{Del}}$$

Where:
Q: flow in lt/min for liquids and Std lt minute for gases
ΔP:difference between inlet and outlet pressure , bar
P1: inlet pressure , bar
P2: outlet pressure, bar
Del: Specific gravity where wáter = 1.00 @ 60°F
Deg: Specific gravity where air= 1.00 @ 70°F and 1 bar
T: temperature in °K



For gases:

If $P_1 \geq 2\ P_2$

$$Q = 3273\ CV\ P_1 \sqrt{\frac{1}{Deg\ T}}$$

If $P_1 < 2\ P_2$

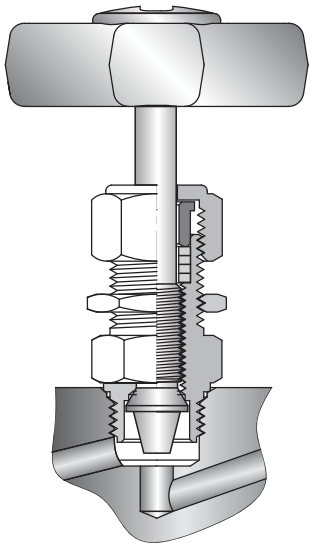
$$Q = 6950\ CV\ P_1 \left(1 - \frac{2\ \Delta P}{3\ P_1}\right) \sqrt{\frac{\Delta P}{P_1\ Deg\ T}}$$

Bonnet Design

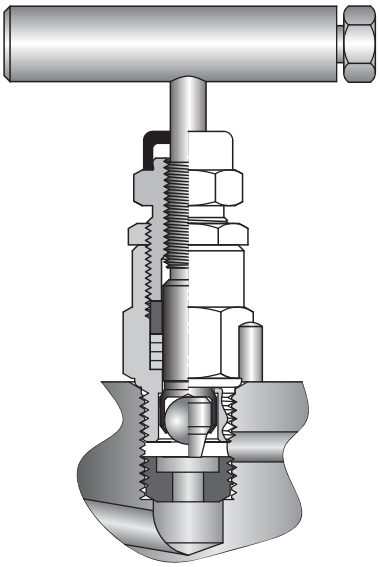
- Threaded bonnets without joint ring and with latch against accidental unscrewing.
- Stainless steel stem in all cases.
- Bonnet with blow out proof stem design which also isolates packing from the process pressure.
- Laminated and lubricated stem thread to avoid galling and to reduce operating torque.

TYPE:

WET THREAD BONNET

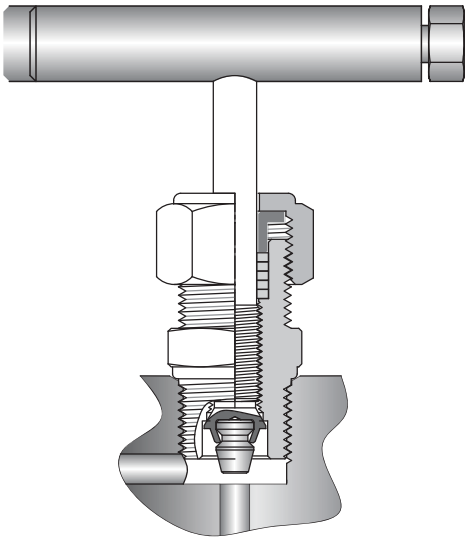


DRY THREAD BONNET



6.000 psi close system

10.000 psi

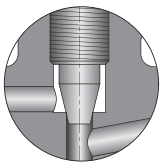


10.000 psi close system

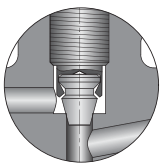
WET THREAD BONNET
- Repacking under pressure
- Different types of plug
  - One piece stem
  - **V1** Hard, non rotating point.
    Recommended for dry gases, steam or when looking for longer life
  - **V4** Soft tip stem. **Recommended for a tight seal with lower torque.**

DRY THREAD BONNET:
- Packing under stern thread wich keeps it isolated from the process fluid. Adjustable in service
- Plastic cap to retain lubricant and to prevent contaminant access.
- Non rotating plug.

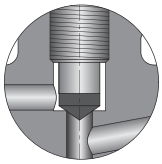
WET THREAD BONNET 10.000 psi:
- Reinforced housing thread
- Non-rotating hard tip stem that ensures long service life even in extreme conditions.
- Available in some valve versions.



One piece stem



Hard, non rotating point (V1)



Soft tip stem (V4)

CAUTION: All technical data contained in this publication is valid at the time of its release, and **ABAC** reserves the right to modify them at any time without notice. This data offers options on products and/or systems to give more information to trained users with technical expertise. Due to the different operative conditions and applications of these products, it will be the dseigner's and/or user's responsibility to choose the appropriate model for its specific use, as well as to ensure correct mounting, operation and maintenance process.

VA1 Block needle valve

Rugged shut-off valves for general applications in instrumentation and small process lines that combine a leak-proof needle configuration with a large flow capacity.

Characteristics

- Threaded bonnet, without seal washer.
- Back seated stem to avoid blow out risk.
- Straight handle for more comfortable operation.
- Available in carbon steel and stainless steel AISI 316.
- Designed for ON/OFF operation.

Specifications

Maximum working pressure @ 70°F:

Standard	6000 PSI
Optional	10000 PSI

Maximum temperatures:

PTFE packing	500 °F
Graphoil packing	940 °F
V4 tip	280 °F

Flow capacity:

Orifice [mm]	Maximum CV Coefficient
5	0.45
8	1.20
11	2.20

Standard materials (*):

Version	Body & Bonnet	Stem	Seat	Packing
Carbon steel	Carbon steel	AISI 420	integral	PTFE/Graphoil
Stainless steel	AISI 316	AISI 316	integral	PTFE/Graphoil

(*) other materials on demand.

Ordering information

VA1 75 C G -

Model

Connections
(see dimensions table)

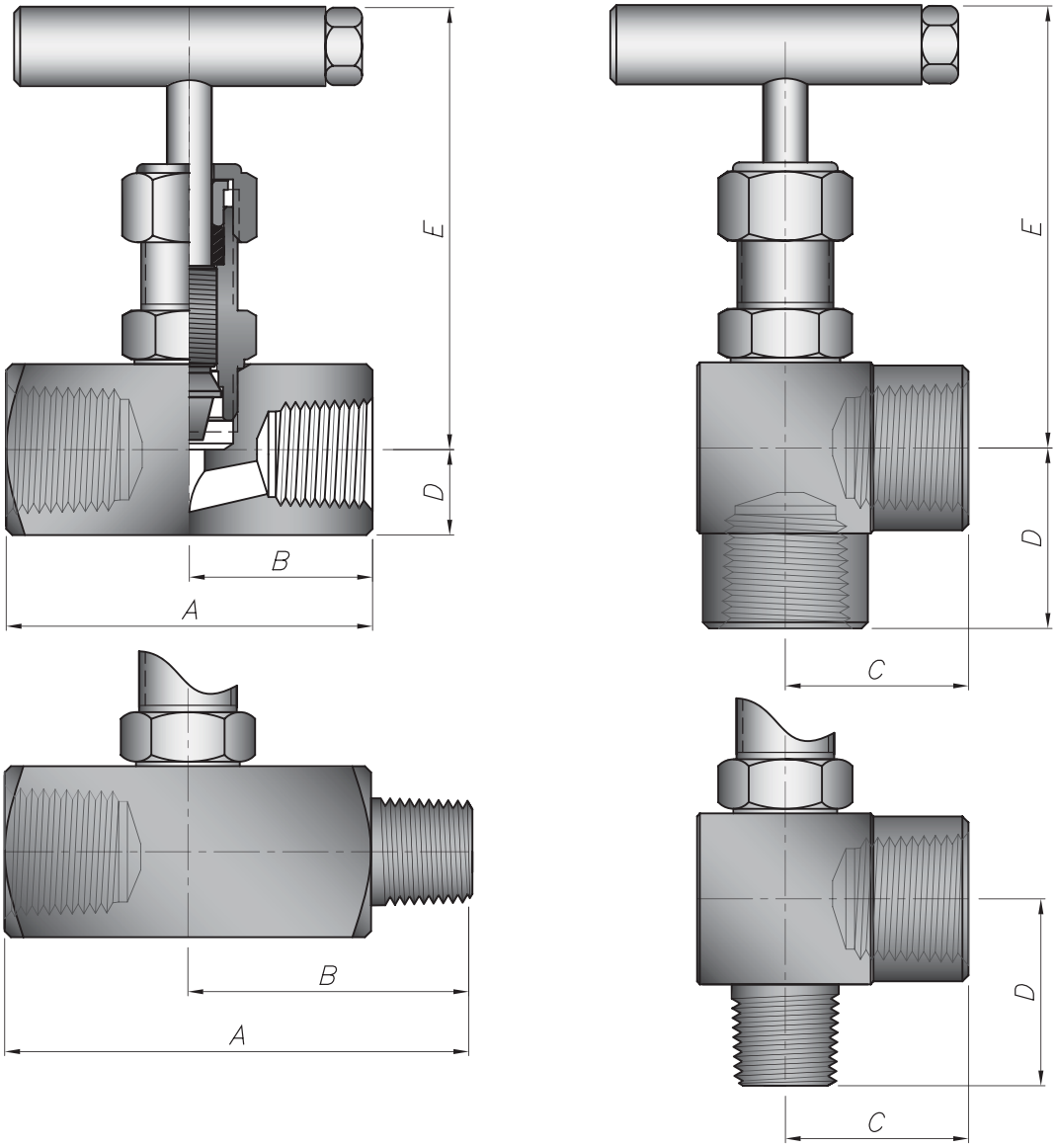
Angle configuration option
Add letter **A**

Options
HS: MWP 10.000 PSI
PC: Strapping option
OX: Oxygen applications
SG: For sour gas
V1: non rotating point
V4: soft tip stem

Packing
T: PTFE
G: Graphoil

Material
C: Carbon steel
I: Stainless steel

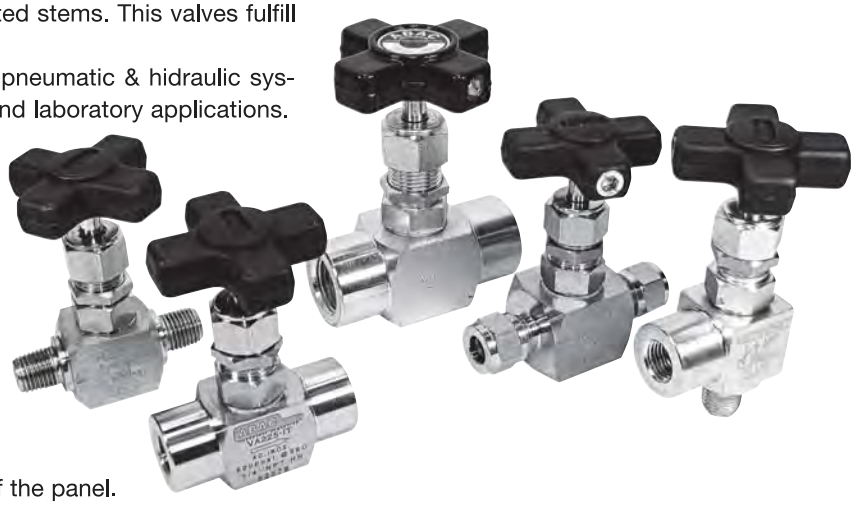
Installment required measures



Connections		Model	P max.		Orifice [mm]	Dimensions [mm]						
									Straight		Angle	
Inlet	Outlet		Bar	Psi		A	B	C	D	E open	D	E open
1/4 F	1/4 F	**VA125**	414	6000	5	60	30	32	13	72	32	71
1/4 M	1/4 F	**VA125M**	414	6000	5	78	48	32	13	72	32	71
1/4 F	1/4 F	**VA125 -HS**	690	10000	5	68	34	-	16	72	-	-
1/4 M	1/4 F	**VA125M -HS**	690	10000	5	92	58	39	16	72	34	79
3/8 F	3/8 F	**VA138**	414	6000	5	60	30	32	14	73	32	71
3/8 M	3/8 F	**VA138M**	414	6000	5	77	46	32	14	73	32	71
3/8 F	3/8 F	**VA138 -HS**	690	10000	5	85	49	-	19	75	-	-
3/8 M	3/8 F	**VA138M -HS**	690	10000	5	95	55	32	19	75	34	79
1/2 F	1/2 F	**VA150**	414	6000	8	74	37	41	16	88	39	92
1/2 M	1/2 F	**VA150M**	414	6000	8	93	58	41	16	88	39	92
1/2 F	1/2 F	**VA150 -HS**	690	10000	5	72	36	-	19	75	-	-
1/2 M	1/2 F	**VA150M -HS**	690	10000	5	95	59	39	19	75	45	84
3/4 F	3/4 F	**VA175**	414	6000	11	95	47	43	26	123	45	122
3/4 M	3/4 F	**VA175M**	414	6000	11	115	67	43	26	123	45	122

VA2 Needle valves with screwed bonnet

The **VA2** line is integrated by needle valves with barstock or forged bodies, screwed bonnets and back seated stems. This valves fulfill shut off or regulation requirements.
This valves are used in sampling lines, pneumatic & hidraulic systems, test benches, panels, manifolds and laboratory applications.



Characteristics

- Threaded bonnet, without seal washer.
- Back seated stems for blocking or regulation applications.
- Different materials and packings.
- Straight or angle pattern.
- Threaded or tube connections.
- Panel nut to allow an easy mounting.
- Packing adjustable from the outside of the panel.
- Plastic metalic inserted handle for a comfortable operation.

Specifications

Maximum working pressure @ 70ºF:

Carbon steel / S.Steel	6000 PSI
Brass	3000 PSI

Maximum temperatures:

PTFE packing	500 ºF
Graphoil packing	940 ºF (*)
V4 tip	280 ºF

(*) In high temperature applications, the plastic handle is replaced by a metalic one.

Standard materials (*)

Version	Body & bonnet	Stem	Packing
Carbon steel	Carbon steel	AISI 420	PTFE/Graphoil
Stainless steel	AISI 316	AISI 316	PTFE/Graphoil
Brass	Brass	AISI 316	PTFE

(*) Other materials on demand.

Flow capacity:

Orifice [mm]	Maximum CV coefficient
5.0	0.45
8.0	1.20

Ordering information:

VA2 50T C G-

Model

Connections
(see dimensions table)

Angle configuration option
Add letter **A**

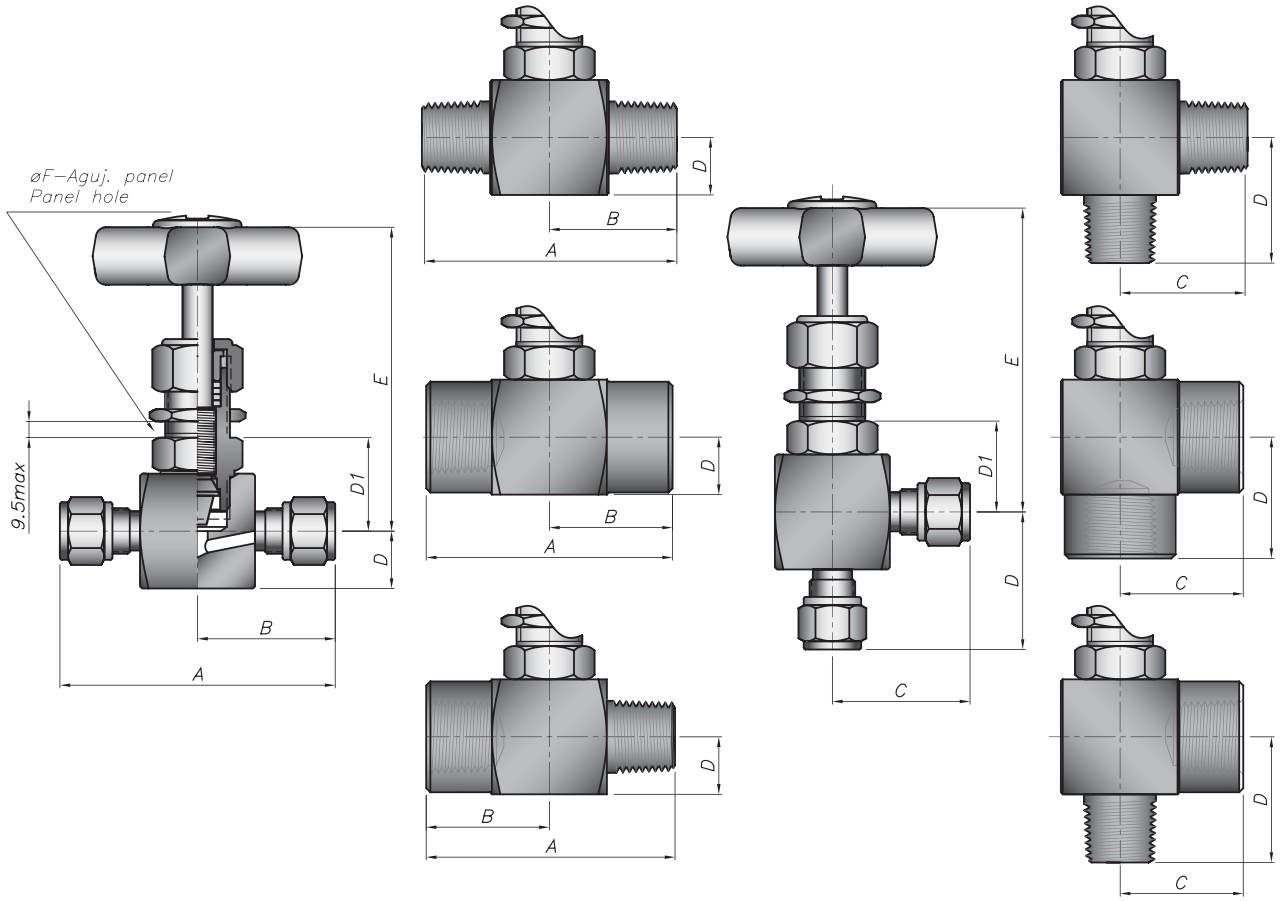
Regulation stem option
Add letter **R**

Material
C : Carbon steel
I : Stainless steel
B : Brass

Empaquetadura
T : PTFE
G : Graphoil

Options
OX : oxygen applications
V1 : non rotating point
V4 : soft tip stem
SG: for sour gas

Installment required measures



Connections		Model	Orifice [mm]	Dimensions [mm]									
								Straight			Angle		
Inlet	Outlet			A	B	C	F	D	D1	E open	D	D1	E open
1/4 NPT F	1/4 NPT F	**VA225**	5	60	30	32	16	13	22	73	32	22	72
1/4 NPT M	1/4 NPT M	**VA225M**	5	63	31	32	16	13	22	73	32	22	72
1/4 NPT F	1/4 NPT F	**VA225M25**	5	78	48	32	16	13	22	73	32	22	72
1/4 Tube	1/4 Tube	**VA225T**	3.75	74	37	40	16	13	22	73	40	22	72
3/8 NPT F	3/8 NPT F	**VA238**	5	60	30	32	16	14	23	74	32	22	72
3/8 NPT M	3/8 NPT M	**VA238M**	5	63	31	32	16	14	23	74	32	22	72
3/8 Tube	3/8 Tube	**VA238T**	5	76	38	41	16	14	23	74	41	22	72
1/2 NPT F	1/2 NPT F	**VA250**	8	74	37	40	20	16	28	86	40	35	92
1/2 NPT M	1/2 NPT M	**VA250M**	8	82	41	40	20	16	28	86	40	35	92
1/2 NPT M	1/2 NPT M	**VA250M50**	8	93	56	40	20	16	28	86	40	35	92
1/2 Tube	1/2 Tube	**VA250T**	8	104	52	52	20	16	28	86	52	35	92

VF2 Needle valves with integral bonnet

Its forged body and its integral bonnet construction provide great resistance and reduce possibilities of leak points. Also its stainless steel stem offers accurate flow control combined with a leak-tight shut off.
A Peek or Acetal resin obturator is recommended for lower operating torque in service conditions where this can be allowed.
This valves are used in instrumentation air lines, chromatography, panels and many other applications.

Characteristics

- Block and regulation stem. With soft tip option.
- Different materials & packings.
- Straight or angle pattern.
- Threaded or ABALOK tubing connections.
- Panel mountable.
- Adjustable packing gland to obtain a better life cycle.

Specifications

Maximum working pressure @ 70°F:

Carbon steel / S.Steel	5000 PSI
Brass	3000 PSI

Maximum temperatures:

PTFE packing	500 °F
Graphoil packing	940 °F (*)
Fluorocarbon packing	200 °F
Soft tip stem	200 °F

(*) In high temperature applications, the plastic handle is replaced by a metalic one.

Pneumatic test:
Every Integral bonnet valve is factory tested with nitrogen at 1000 psi. Leak points in body, seat and packing are not accepted. Packing is adjusted for zero leak at this pressure. Packing nut must be tightened to achieve higher pressures .

Standard materials (*)

Version	Body & Bonnet	Stem	Packing
Carbon steel	Carbon steel	AISI 420	PTFE / Graphoil / Fluorocarbon
Stainless steel	AISI 316	AISI 316	
Brass	Brass	AISI 316	

Flow capacity:

Orifice [mm]	Maximum CV coefficient
2.5	0.10
4.0	0.35
5.0	0.45

Ordering information:

VF2 25 C G -

Model

Connections
(see dimensions table)

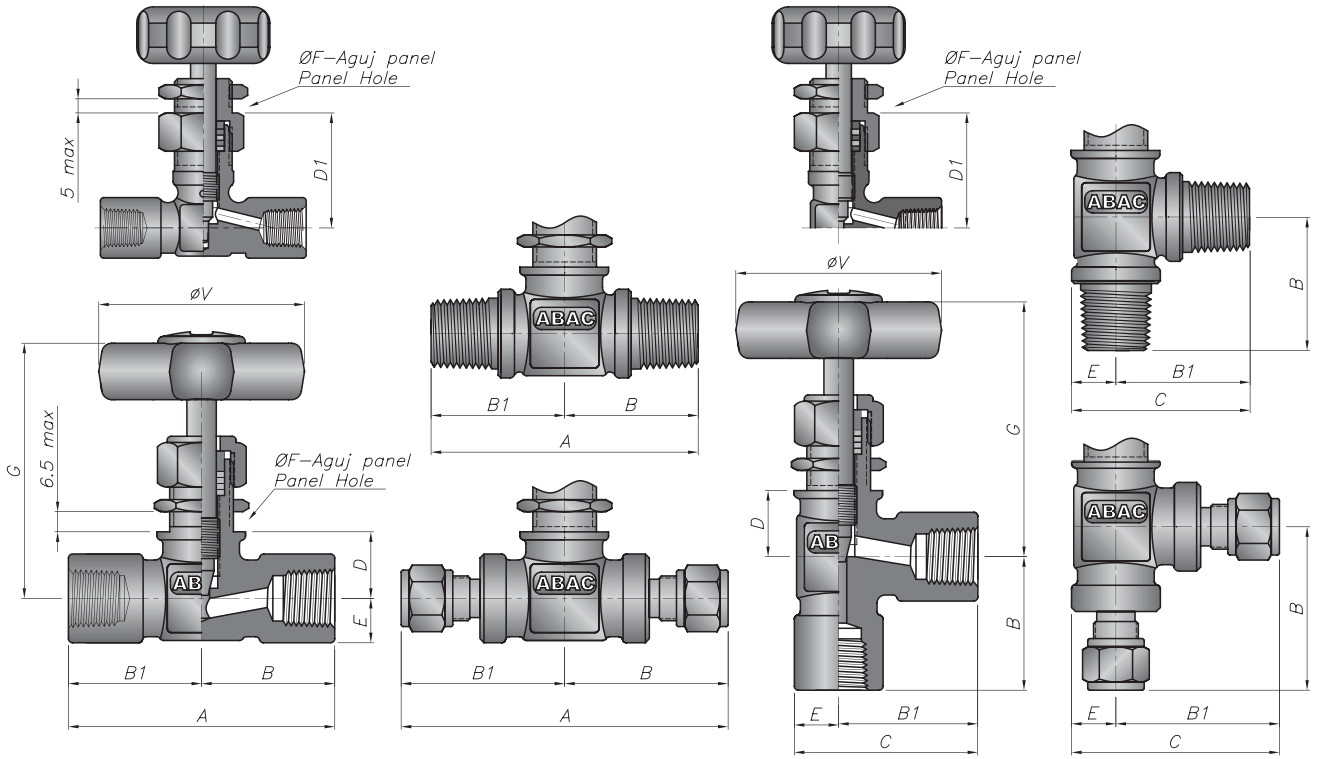
Angle configuration option
Add letter **A**

Options
OX: oxygen applications
V1 : non rotating point
V4 : Soft tip stem

Packing
T : PTFE
G : Graphoil
V : Fluorocarbon

Material
C : Carbon steel
I : Stainless steel
B : Brass

Installment required measures



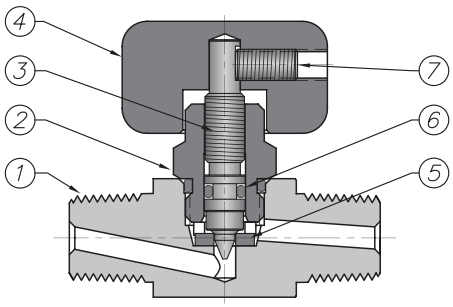
Connections		Model	Orifice [mm]	Dimensions [mm]									
Inlet	Outlet			A	B	B1	C	D	D1	E	F	G	ØV
1/8 NPT F	1/8 NPT F	**VF212**	4	48	24	24	32		28	8	15	60	33
1/8 NPT M	1/8 NPT M	**VF212 M**	4	50	25	25	33		28	8	15	60	33
1/8 NPT M	1/8 NPT F	**VF212 M 12**	4	50	25	25	33		28	8	15	60	33
1/8 NPT M	1/8 Tube	**VF212 M 12 T**	2.5	48	25	23	31		28	8	15	60	33
1/8 Tube	1/8 Tube	**VF212 T**	2.5	46	23	23	31		28	8	15	60	33
1/4 NPT F	1/4 NPT F	**VF225**	5	63	32	32	43	17		11	17	63	50
1/4 NPT M	1/4 NPT M	**VF225 M**	4	50	25	25	33		28	8	15	60	33
1/4 NPT M	1/4 NPT F	**VF225 M 25**	5	63	32	32	43	17		11	17	63	50
1/4 NPT M	1/4 Tube	**VF225 M 25 T**	4	59	25	34	42		28	8	15	60	33
1/4 Tube	1/4 Tube	**VF225 T**	4	68	34	34	42		28	8	15	60	33
3/8 NPT M	3/8 NPT M	**VF238 M**	5	63	32	32	43	17		11	17	63	50
3/8 NPT M	3/8 Tube	**VF238 M 38 T**	5	71	31	40	51	17		11	17	63	50
3/8 Tube	3/8 Tube	**VF238 T**	5	81	41	41	52	17		11	17	63	50

VTM Sampling cylinders valve

Needle valve specially designed to be employed in sampling cylinders where a gas-tight sealing, low torque operation and reliability against repeated operations with no leakage are essentials. Its robust design tolerates high torque operation, and its polymer soft seat can be replaced easily

Characteristics

- Soft, replaceable seat seal ensures low operating torque and long life. In case of damage due to presence of solids or excessive operating torque, its simple replacement process can recover the initial conditions of use.
- Fluoroelastomer O-ring seal below the stem threads, which keeps it isolated from the process fluid and prevents contamination of the stem lubrication. Provides low torque operation and requires no maintenance
- Silver coated stem thread prevents galling, extends life of the valve and assures low torque operation
- Red anodized aluminum handle that protects stem against shock and bends.
- Ultra low profile, prevents handle protrude outside cylinder
- PCTFE seat assures high chemical compatibility
- Wet metal part made of AISI 316



Specifications

Maximum working pressure @70°F: 3000 PSI

Maximum temperature: see ordering information.

Standard Materials

	Part	Material	Specification
1	Body	SS 316	A276/A479
2	Bonnet	SS 316	A276/A479
3	Stem	SS 316	A276/A479 Thread silver plated
4	Handle	Aluminium	Anodized
5	Seat	PCTFE	(Kel-F) Opt. PEEK
6	O´Ring Seal	FKM	Fluoroelastomer
7	Set Screw	Carbon Steel	Dorrltech

How to Order

VTM 25M -

Model

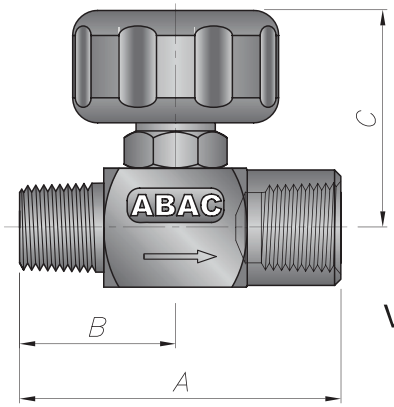
Connections
25M : 1/4 NPT MM
25MH : 1/4 NPT MF

Opcionales
OX : Oxygen applications
PC: strapping option

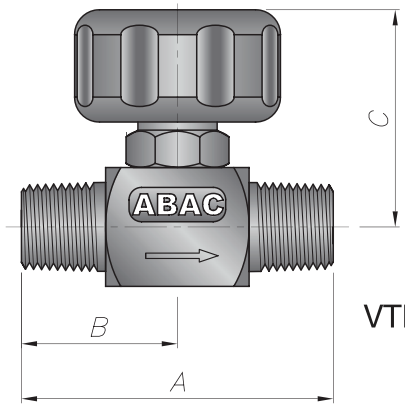
Sellos

Empty:	fluorocarbon	(-29°C a 204°C)
B	: Buna N	(-40°F a 250°F)
E	: Ethylene Propylene	(-65°F a 300°F)
S	: Silicone	(-70°F a 450°F)

Installment required measures



VTM 25MH



VTM 25M

Connections		Model	Orifice (mm)	Dimensions [mm]		
Inlet	Oulet			A	B	C open
1/4 NPT M	1/4 NPT M	**VTM25M**	3	53	26	38
1/4 NPT M	1/4 NPT F	**VTM25MH**	3	53	26	38

VM1 Gauge valve

The **VM1** series is the best choice when a compact and unexpensive installation of a gauge is required.
It is manufactured with a needle block valve and an atmosphere venting purge machined in a built in channel.

Characteristics

- Threaded bonnet with backseat that allows repacking under pressure.
- Stainless steel stem and bleed plug.
- 0.20" orifice.
- 1/2" NPT M-F connections.

Specifications

Maximum temperature:

PTFE packing	500 °F
Graphoil packing	930 °F

Maximum working pressure @70°F: 6000 PSI

Standard materials (*)

Version	Body & bonnet	Stem	Seat	Bleed obturator	Packing
Carbon steel	Carbon steel	AISI 420	integral	AISI 316	PTFE/Graphoil
Stainless steel	AISI 316	AISI 316	integral	AISI 316	PTFE/Graphoil
Nace standard	AISI 316	Monel	integral	Monel	PTFE/Graphoil

(*) other materials only on demand.

Ordering information

VM1 50M C G

Model

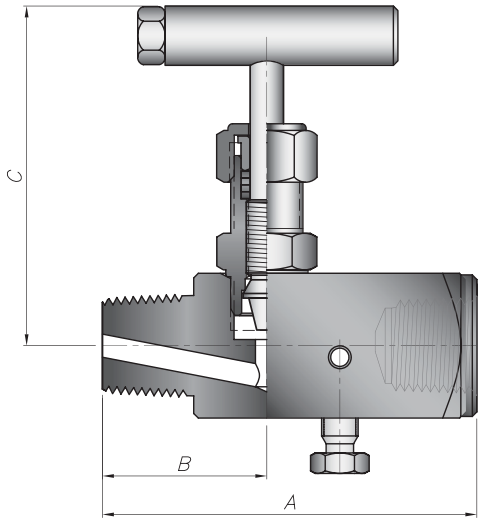
Connections
(see dimensions table)

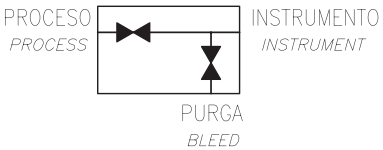
Options
PC: strapping option
SG: for sour gas
V1: non rotating point

Packing
T : PTFE
G : Graphoil

Material
C : Carbon steel
I : Stainless steel

Installment required measures





Connections		Model	Dimensions [mm]		
Inlet	Oulet		A	B	C open
1/2 NPT M	1/2 NPT F	**VM150M**	82	36	74
3/4 NPT M	1/2 NPT F	**VM175M**	82	36	74

VA3 Multi-port block valves

The **VA3** is a block valve designed for installing pressure gauges, pressure transmitters and other special instruments, wichever the piping disposition.

Characteristics

- Threaded bonnet, with back seat.
- Packing below the stern thread in object to protect it from the flow area.
- Replaceable seat in the carbon steel version.
- Male or female process connection.
- Bleed plug option with blow out proff stern design.
- Available with 2 or 3 outlets.

The standard model has two outlets at 90 degrees.
There is also a three outlets model. This models allow simultaneous calibration gauges installament, use of a purge valve or bleed plug (as the photo show), a sample line connection, etc.

Specifications

Maximun temperature

PTFE packing	500 ºF
Graphoil packing	930 ºF

Maximun working pressure @70ºF

6000 psi

Standard materials

Version	Body & bonnet	Stem	Stem tip	Seat	Packing
Carbon steel	Carbon steel	AISI 420	AISI 420 ball	AISI 420 (removable)	PTFE/Graphoil
Stainless steel	AISI 316	AISI 316	AISI 316 conic tip	integral	PTFE/Graphoil
NACE standard	AISI 316	AISI 316	Monel	integral	PTFE/Graphoil

Ordering information

VA3 50 C G -

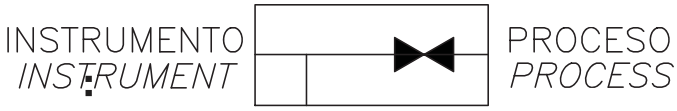
Model

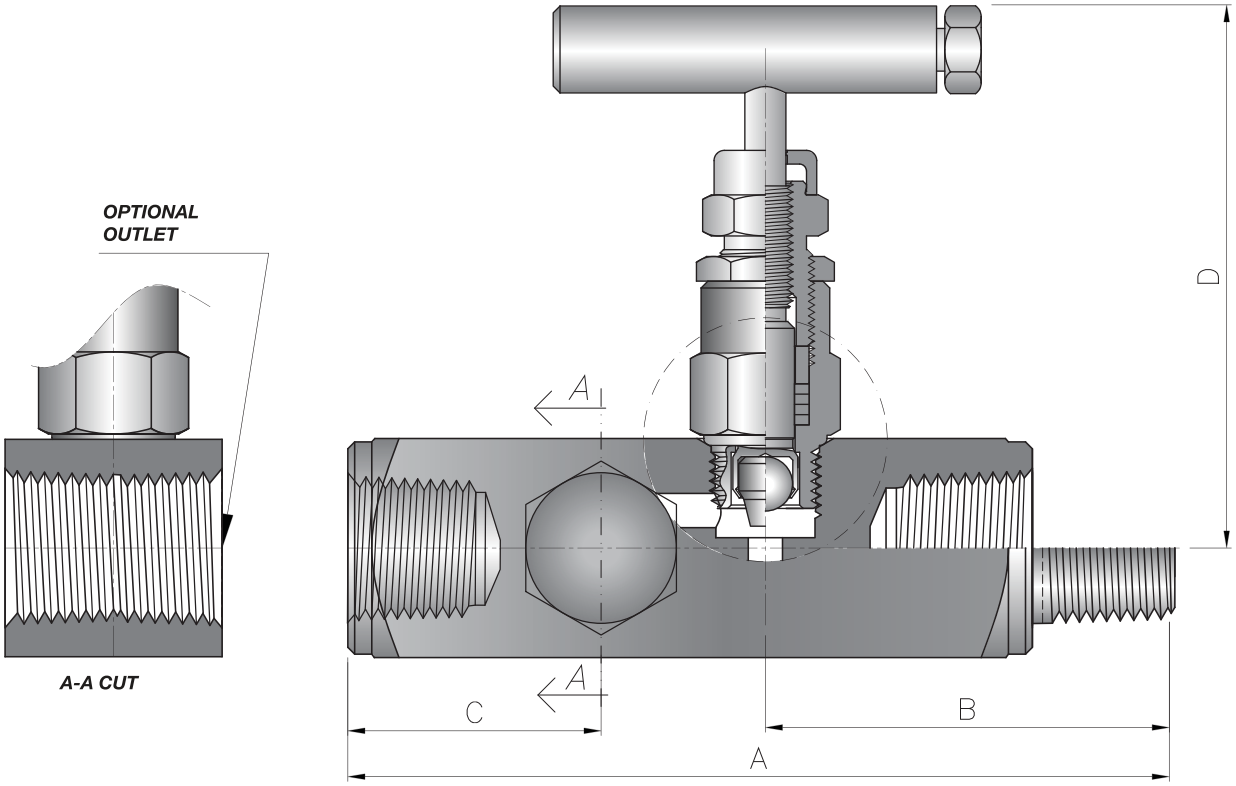
Connections
(see dimensions table)

Material
C : Carbon steel
I : Stainless steel
:

Options
PC : Strapping option
3S : three outlets
TP/TPM: bleed plug
SG : for sour gas

Packing
T : PTFE
G : Graphoil





Installment required measures:

Connections		Model	Dimensions [mm]			
Inlet	Outlet		A	B	C	D open
1/4 NPT F	1/4 NPT F	**VA325**	90	40	29	78
1/4 NPT M	1/4 NPT F	**VA325M**	95	47	29	78
1/2 NPT F	1/2 NPT F	**VA350**	100	39	35	80
1/2 NPT M	1/2 NPT F	**VA350M**	110	54	35	80
3/4 NPT F	1/2 NPT F	**VA375**	105	41	37	92
3/4 NPT M	1/2 NPT F	**VA375M**	120	54	37	80

Other types of threads on demand.

VI5 Block and bleed valve

The **VI5** valve series provides a safe, simple and unexpensive way for installing gauges, pressure switches, pressure transmitters and indicators.
It combines blocking and purge effects in a single unit, this features are essential for the correct instalation of this kind of instruments.
In normal operation, the block valve is open and the bleed one is closed. To unmount the instrument or check the zero, the block valve has to be closed and the bleed open to expel the remaining pressure.
Also the threaded purge can be used for contrasting the instrument without unmounting it, with the block valve closed.
Its several threaded outlets allows one or two simultaneous instrument tight connection, whichever be the piping process disposition.
Its studied design is used to obtain less leak risks in the installations with lower labour costs and prices.

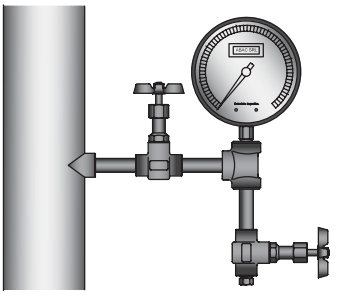
MPR

if it is required to mount the instrument on a 2“ pipe stand, the VI5 can be replaced by the MP / MPR manifold (see catalog M800)

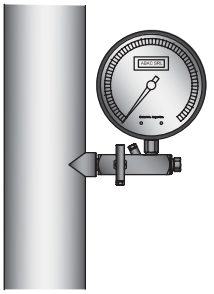
Characteristics

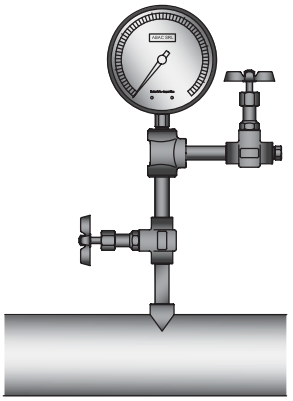
- Threaded bonnets for blocking and purge. Its “dry thread” system has the packing below the thread to keep it away from the process fluid.
- Back seated stem to prevent blow out risk and to isolate the packing from the process fluid.
- Non rotating tips of different materials and designs.
- Bonnet lock pin to prevent accidental disassembly.
- Male or female process connections
- Replaceable seat on the carbon steel models.
- Available with 2 or 3 outlets.

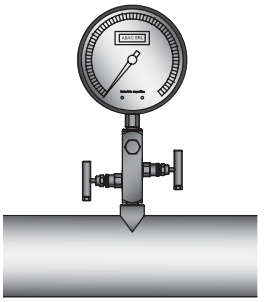
Obsolet



With VI5







Specifications

Maximum temperature:

PTFE packing	500 °F
Graphoil packing	930 °F

Maximum working pressure @70°F:

Standard	6.000 PSI
Optional	10.000 PSI

Standard materials:

Version	Body & bonnet	Stem	Stem tip	Seat	Packing
Carbon steel	Carbon steel	AISI 420	AISI 420 ball	AISI 420 (recambiable)	PTFE/Graphoil
Stainless steel	AISI 316	AISI 316	AISI 316 Conic tip	integral	PTFE/Graphoil
Nace standard	AISI 316	AISI 316	Monel	integral	PTFE/Graphoil

Ordering information

VI5 50M C G -

Model

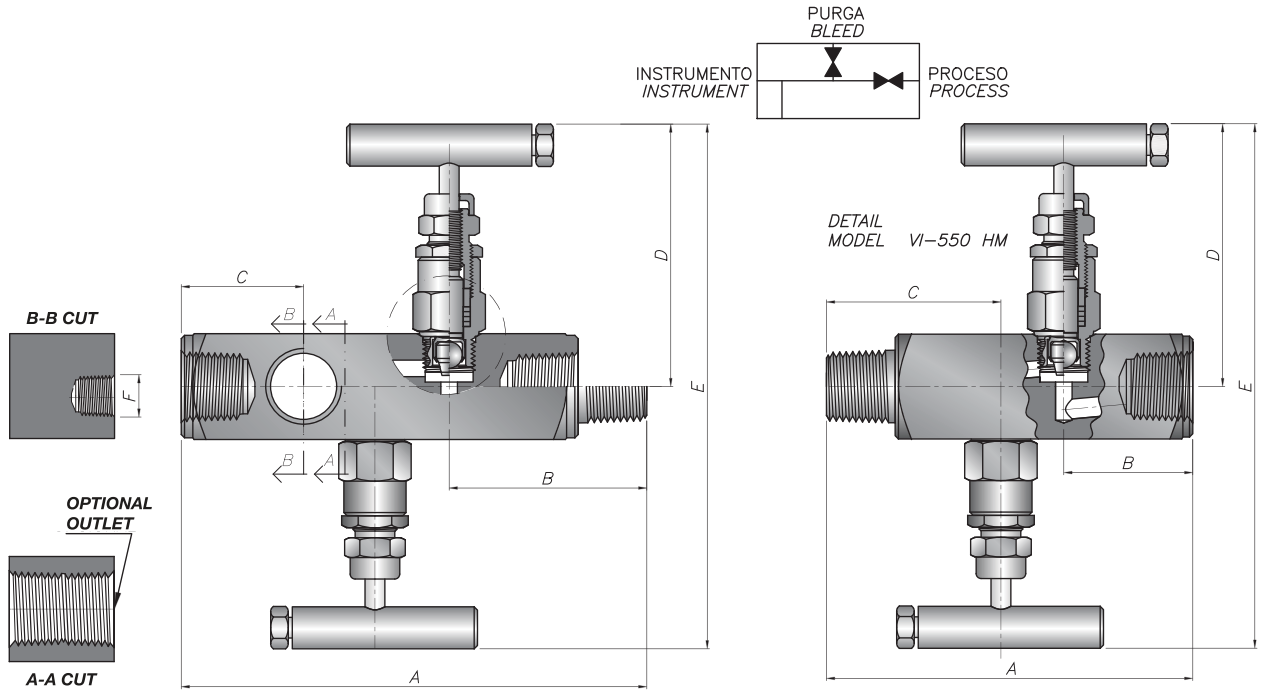
Connections
(see dimensions table)

Material
C: Carbon steel
I: Stainless steel

Options
PC : Strapping option
3S : three outlets
SG : for sour gas
OX : oxigen clean
HS : MWP 10.000 psi
PT : plugged bleed

Packing
T: PTFE
G: Graphoil

Installment required measures:



Connections		Model	Dimensions [mm]					Purge F
Inlet	Outlet		A	B	C	D open	E open	
1/4 NPT F	1/4 NPT F	**VI525**	105	40	27	78	156	1/8NPT
1/4 NPT M	1/4 NPT F	**VI525M**	113	48	26	78	156	1/8NPT
1/2 NPT F	1/2 NPT F	**VI550**	120	38	33	80	160	1/4NPT
1/2 NPT M	1/2 NPT F	**VI550M**	135	53	33	80	160	1/4NPT
1/2 NPT F	1/2 NPT M	**VI550HM**	110	39	52	80	160	1/4NPT
3/4 NPT F	1/2 NPT F	**VI575**	125	41	35	82	164	1/4NPT
3/4 NPT M	1/2 NPT F	**VI575M**	135	53	33	80	160	1/4NPT

Other types of threads on demand.

The widest variety of pressure, flow and fluid control components:

- *Needle valves*
- *Instrument manifolds*
- *Fluid control components*
- *Ball valves*
- *Tube and pipe fittings*
- *Thermic insulation systems*
- *High pressure components and units*

• For more information about these products please contact us, visit our web site or call to our Sales & Service authorized Reps.

ABAC SRL

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