



Sanitary
flow
equipment

Quality System
Certified ISO 9001



VPA Operating and Maintenance Instruction Rev.2.doc
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ASEPTIC SAMPLING VALVE model VPA

Operating and Maintenance instruction manual

LEGEND

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- 1.1 Technical data
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- 5.1 VPA-Silicone Diaphragm
- 6.0 CE declaration of conformity
- 6.1 ATEX declaration of conformity

Please read all of this information.

If you are unsure about any aspect of this information please ask



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1.0 Sampling Valve VPA

Developed for taking samples in a sterile way; manufactured from AISI 316L stainless steel bar. Special configuration assures effective cleaning (CIP) and sterilization (with saturated steam) of product contact surfaces of valve and seating plug with the valve in closed position.

Once installed, the sealing plug shuts off flush with the inlet port connection with a zero dead leg.

Applications

The VPA sampling valve range has been designed for sterile sampling application in Chemical and Pharmaceutical Industries.

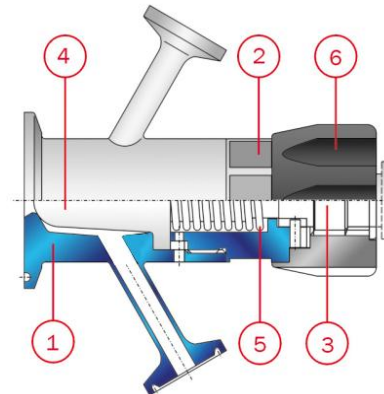
It's compact design allows easy installation on small vessels or process lines where is necessary FDA compliance.

1.1 Technical data

Size	from 3/4" @ 1"
Diaphragm	Silicone - TFM
Connection	Clamp, butt weld BS/OD @
Material	AISI 316L (EN 1.4404)
Handle	termoplastic material
Maximum working pressure	10 barg (#)
Working temperature	from -10°C to 150°C
Option	pneumatic actuator @
	completely in stainless steel (single effect)
@	refer to pag. 4.3 general catalogue for Size valve
(#)	10 barg (hole 7,0mm silicone diaphragm only)
	10 barg (hole 9,4mm TFM diaphragm)
	8 barg (hole 13,0mm TFM diaphragm)

Specials Execution

On request, we can realize drawing of specials execution: butt weld, thread, rubberhose.



Materials

1	body valve	AISI 316L stainless steel
2	header	AISI 316L stainless steel
3	spindle o	AISI 316L stainless steel
4	diaphragm	Silopren LSR2670 / TFM1600 PTFE
5	spring	AISI 304 stainless steel
6	autoclavable handle	Delrin

Surface Finish standard

Standard surface internal finish	0,4 @ 0,6 µm Ra
Standard surface external finish	mirror polish

Marking

To guarantee full traceability, following information will permanently be marked on the valve body:

- logo AR (manufacturer identification);
- size and code valve;
- material grade;
- max. working pressure (10 barg);
- our internal code es. 0310 1623 where 0310 denote year and month manufacture, and other 1623 denote a number of internal work order.

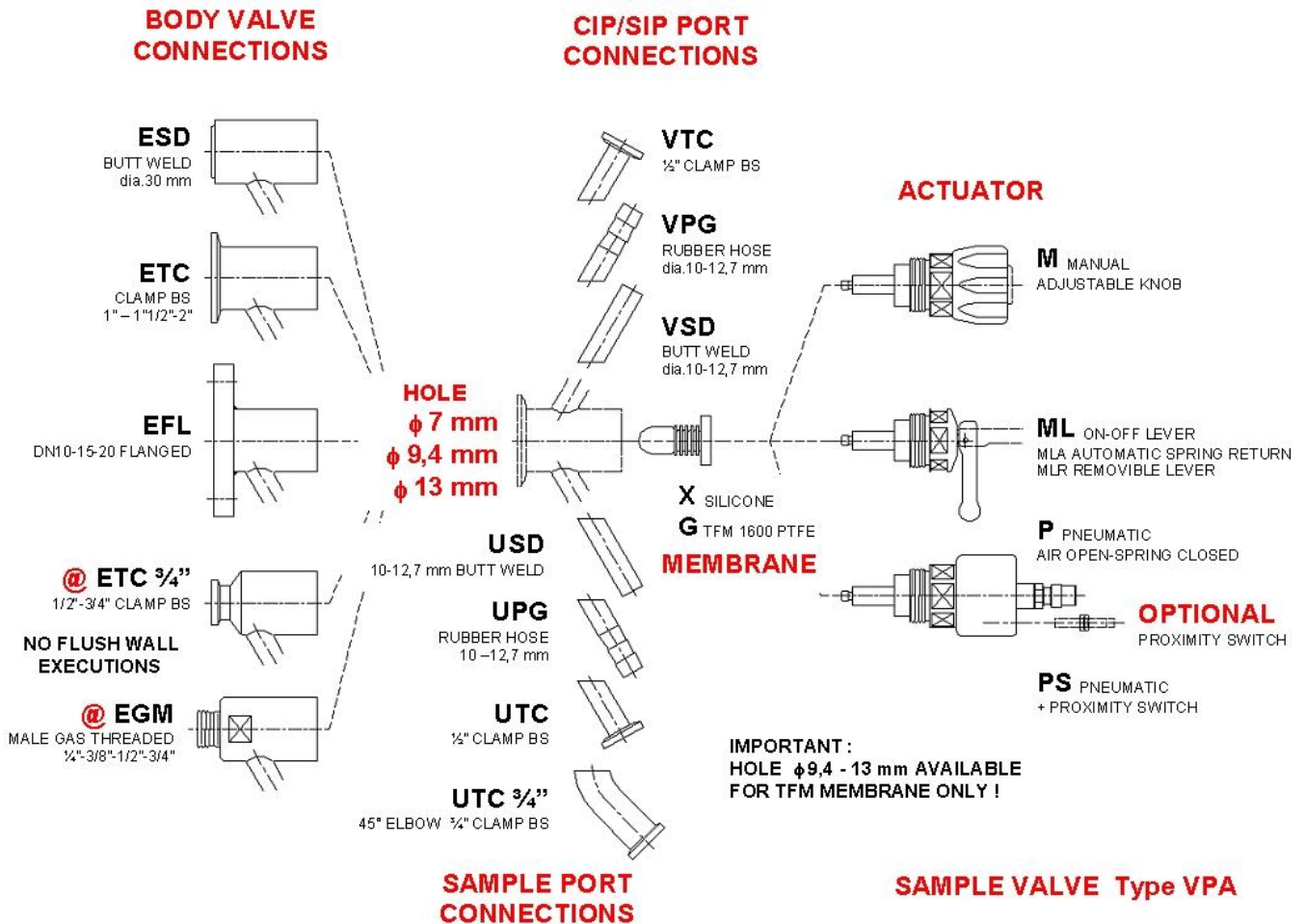
Documentation and certificates

On request, Aerrex can supply the following validation document:

- EN 10204 3.1B material certificate
- Inside surfaces Ra Roughness certificates
- FDA certificate of conformity – CFR under title 21, paragraph 177.2600 for Silicone and paragraph 177.1550 for TFM 1600 PTFE
- PED 97/23/EC certificate of conformity
- ATEX 94/9/CE certificate **CE Ex II 2 GD T3**

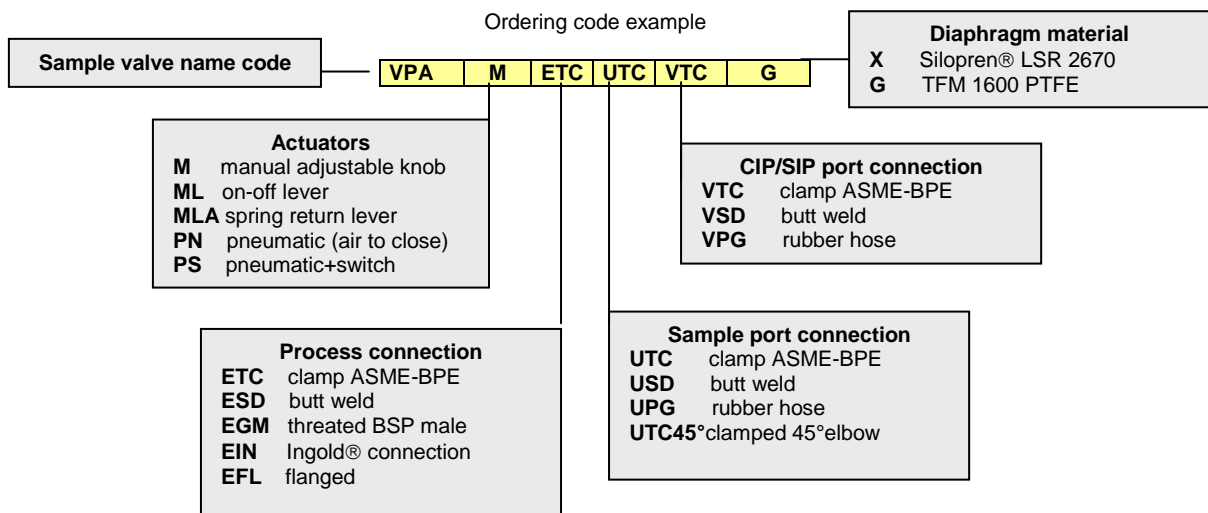
Subject to change without Aerrex prior notice.

1.2 Available Configuration



1.3 Ordering information

To specify the part completely, start with the product description and select the additional options as shown below :

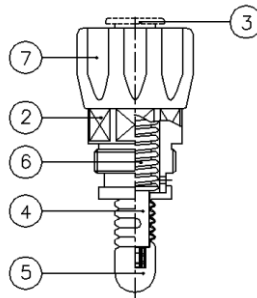


2.1 Manual Actuator



**ATTENTION:
VALVE WITH SPRING
SHUTTING !**

ONCE CLOSE VALVE (CAN BE FELT BY CLICK ON HANDWHEEL) DON'T FORCE ON HANDWHEEL AGAIN, OTHERWISE YOU DAMAGE INTERNAL PARTS.



GENERAL INSTRUCTION

Manual actuator have a little wheel used to open and close the valve

- OPEN : turn anticlockwise direction
- CLOSE : turn clockwise direction

Manual actuator is equipped by stainless steel indicator.

POSITION INDICATOR

The stainless steel position indicator shows the valve position: when the indicator is out of handle the valve is open.

MATERIAL

The handwheel is realized by thermoplastic material (DELRIN)

AUTOCLAVABLE

cup/sip autoclavable (max. period recommended 1h 30 min at 121°C)

LEGEND:

02	HEADER	AISI 316L
03	SPINDLE (indicator)	AISI 316L
04	PLUG	AISI 316L
05	DIAPHRAGM	SILICONE-TFM
06	SPRING	AISI 301
07	HANDWHEEL	DELRIN
	RUBBING WEAR PARTS	

2.2 Pneumatic Actuator

Pneumatic actuator simple effect (NORMALLY COLSE) use strength spring to colse the valve and air pressure to open; than, if air break off the valve automatically close.

Pneumatic actuator supplied lubricated, don't need futher greasing for a long time, but it's a good practice do periodically check to ensure it's working correctly because some parts are wear subject (displayed in legend).

MATERIAL

Actuator is completely realized in AISI 316L but you can't put it in a autoclave.

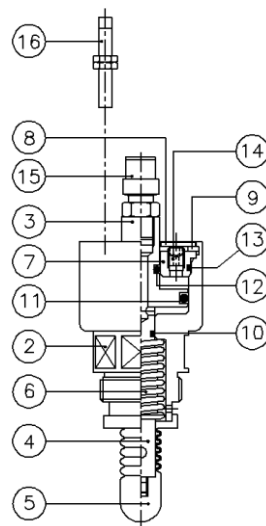
TECHNICAL DATA

Dry compressed air, without oil, from 4 to 6 bar.

Air connection Ø1/8" gas for "rilsan" tube Ø6 mm.

OPTIONAL

Actuator can be supplied with proximity endstop PNP12/24V dc



LEGEND:

02	BODY ACTUATOR	AISI 316L
03	PLUNGER	AISI 316L
04	PLUG	AISI 316L
05	DIAPHRAGM	SILICONE-TFM
06	SPRING	AISI 301
07	SEALING DISC	AISI 316L
08	SHUTTER WASHER	AISI 316L
09	SEEGER	AISI 302
10	O-RING	SILICONE
11	O-RING	SILICONE
12	O-RING	SILICONE
13	O-RING	SILICONE
14	GRAIN	A2
15	AIR CONNECTION	OT58 Ni
16	PROXIMITY	OPTIONAL
	RUBBING WEAR PARTS	



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3.0 Operating Condition

The VPA valve isn't a safety valve and you can't use it like that.

The VPA valve should only be used within its design specifications, especially regards with temperature and pressure. Incorrect use of VPA valve may result in personal injury or damage to valuable equipment.



MAX OPERATING PRESSURE: 10 bar (marked on body valve)
OPERATING TEMPERATURE: -10°C / + 150°C

The valve can't intercept unstable fluids.

3.1 Safety Information

Before installing VPA valve, read these instructions carefully, emerged from the risk analysis.

VPA valve properly work at the condition described in 2.0 section.

Operator must know instruction in this guide, and during the installation, if it's necessary, wear protective equipment and take appropriate precautions to safeguard against injury caused by discharge of trapped fluids. Restrict the valve access (only if it's absolutely necessary) when line is pressurized. When operating $T_{max} > 100^{\circ}\text{C}$, put this symbol nearby the valve:

CEI 3-27:1995 REGULATION 5041
"ATTENTION HOT SURFACE"



to indicate that surface could be hot.

3.2 Installation

Every install operation must be done from suitable skilled personnel, in extreme cleanness surroundings.

Before installing a Sampling valve, clean and then drain the process lines, and if hot, allow the pipes and equipment to cool to room temperature. During sterilization with steam the valve will become hot, and care should thus be taken when handling the valve.

Ensure that all liquids that will contact the valve are compatible with the Construction Materials

The valve should always be located with its center line in a horizontal position, and with the two hose pieces in a vertical position. The leak hole close to sample port must be always located on the bottom directed on the floor. The valve will then be self-draining.

Restriction

the diaphragms are available in two different qualities : Silicone and TFM 1600 PTFE

the valve cannot be used for vacuum application with the silicone diaphragm that will be sucked into the seat

- 1) For clamp connection valve use pipe-line and fittings with operating features not less than the valve.
- 2) For butt weld connection valve, like described in par.3.4 and 3.5

3.3 Use and Maintenance



ATTENTION ! VALVE WITH SPRING SHUTTING !
ONCE CLOSE VALVE DON'T FORCE ON HANDWHEEL AGAIN.
DON'T USE PLIERS OR OTHERS DEVICES.

VPA valve works only in "open" or "close" position. To open or close valve use only handweel (lever) or pneumatic (electric) actuator, supplied and applied from Aerrexinox. Aerrexinox don't accept liability for any changes on valve made from third parties.

3.4 Welding Guidelines

Please read all of this information.

If you are unsure about any aspect of this information please ask

Warning ! Before to weld, remember to disassemble the valve body and head.

Valve disassembly is needed prior to welding to prevent welding heat from damaging the seats or seal. Silicone safety plugs and diaphragm must be removed from the valve body, as otherwise heat the welding process will damage them. If disassembly is impractical, provide external cooling (chills) between the heat source and the seats and seals of the valve to prevent exceeding dangerous temperatures. Ensure that no other equipment will interfere with the outgoing piping. Also make sure that there is enough space to attach/remove for maintenance the connected piece .

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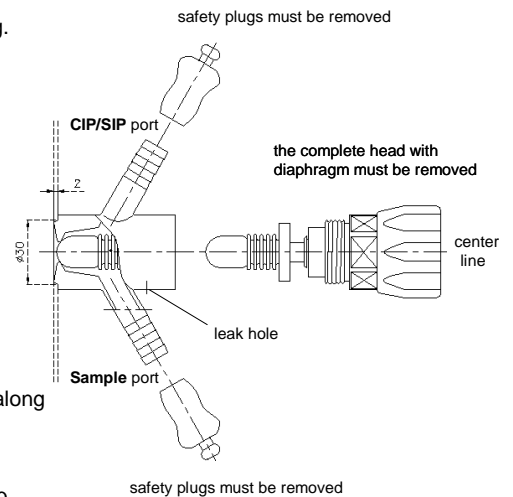
3.5 Welding

- First of all, it is necessary to drill a hole of 30,1 mm and then fit the valve body into this hole flush with the inside of the tank / pipe
- Welding should be carried out as a penetration welding, but we suggest to weld from both outside and inside. The valve body will not be damaged by penetration welding. However, the use of purge Argon gas is recommended in order to give the best result.
- When the welding is finished, leave the shell and sample valve body to self cool. The only allowable cooling media is air.
- After cooling, the welds are ground and polished to the finish required by the applicable specifications. Important : when grinding/polishing the internal weld, the valve seat must not be touched

In addition to the welding procedure described above, we would like to stress a few other points:

- 1) The welder must be familiar with this type of welding operation.
- 2) Much care should be taken when the dimensions of the filler material and the electrical current is selected.
- 3) It is most important that the applied heat is well balanced and as evenly spread along the weld seam as possible.
- 4) Welding can take place with the purge gas continually flowing in the system
- 5) The gas remains in the system until the item is handwarm, after which the set-up can be dismantled.

The final step in the welding operation should be to check the sample valve body for deformation. This check can be done by accurate measure

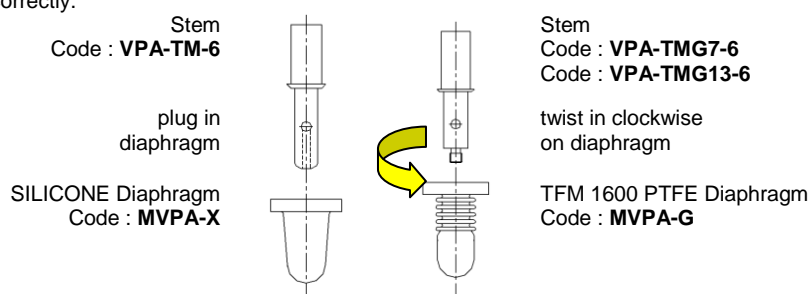


4.1 Diaphragm replacement on Manual Actuator

- 1) Turn handwheel in anticlockwise to open valve.
- 2) With hexagonal spanner (CH32) twist off manual actuator, turn on anticlockwise, and extract it from body.
- 3) Only with hands remove old diaphragm and replace it with a new (silicone diaphragm is plugged on stem, TFM 1600 PTFE diaphragm is thread on stem see .dwg).
- 4) Before reassembling, be sure that all sealing areas are perfectly clean to avoid damage at new diaphragm. Pay careful attention during maintenance.
- 5) Put the manual actuator in open position to avoid damage during re-assembling.
- 6) With hexagonal spanner (CH32) turn on clockwise manual actuator until tighten.
- 7) Restore service flow and check the valve.
- 8) The valve can work correctly.

4.2 Diaphragm replacement on Pneumatic Actuator

- 1) Put on air inside pneumatic actuator to open the valve.
- 2) With hexagonal spanner (CH32) twist off pneumatic actuator, turn on anticlockwise, and extract it from body.
- 3) Only with hands remove old diaphragm and replace it with a new (silicone diaphragm is plugged on stem, TFM 1600 PTFE diaphragm is thread on stem see .dwg).
- 4) Before reassembling, be sure that all sealing areas are perfectly clean to avoid damage at new diaphragm. Pay careful attention during maintenance.
- 5) Put on air to set pneumatic actuator in open position to avoid damage during re-assembling.
- 6) With hexagonal spanner (CH32) turn on clockwise pneumatic actuator until tighten.
- 7) Restore service flow and check the valve.
- 8) The valve can work correctly.



5.0 VPA - PTFE Diaphragm

Technical specification

TFM 1600 PTFE diaphragm are obtained, by means of machining on CCN, from **TFM™ 1600 PTFE** bar, Poly-Tetra-Fluor-Ethylene from Dyneon™- 3M. compound are manufactured conforming to the following norms :

- FDA Code of Federal Regulation
- CFR under title 21, paragraph 177.1550
- U.S.Pharmacopoeia Class VI

Maintenance :

TFM 1600 PTFE diaphragm must be replaced once every year, but in the event of intensive use, sterilisation and cleaning it may be necessary to replace it more frequently.

AR-Inox guaranties one year of lasting by normal use means (silicone has to be changed approx every 4-5 months)

Temperature.....121°C (150°C for short period only)

Steam pressure.....1,5 up to 2 bar max.

At higher pressures the membrane can be damaged

Remember ! use saturated steam without condensation only

Process pressure.....10 bar max (9,4mm hole)

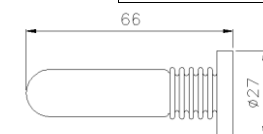
Process pressure.....8 bar max (13mm hole)

Sample.....1-5 a day

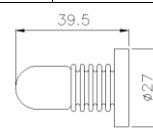
Chemical resistance : Is not attacked by common chemicals



TFM 1600 PTFE			
Ordering code	MVPA-G		
Material	TFM 1600 PTFE		
Colour	White		
Powder compound properties			
Property	Value	Unit	Test Method
Bulk density	830	g/l	ASTM D 4894-98a
Average particle size	450	µ	ASTM D 4894-98a
Mechanical properties, measured at 23°C (73°F)			
Tensile Strength	4600	psi	ASTM D 4894-98a
Elongation at break	450	%	ASTM D 4894-98a
Specific gravity	2.16	g/cc	ASTM D 4894-98a
Shrinkage	3.5	%	ASTM D 4894-98a
Tensile Modulus	94,250	psi	ASTM D 638
Deformation under Load		%	ASTM D 621
2175 psi – 24 hrs	8		
2175 psi – 100 hrs	9		
2175 psi – permanent	4		
Thermal properties			
Flammability	V-0		UL94
Melt point (initial)	342 ±10	°C	ASTM D 4894-98a



code **MVPA-G-ING**



code **MVPA-G**

5.1 VPA - SILICONE Diaphragm

Technical specification

Build by **Silopren® LSR 2670** a silicone elastomer composed from two components, it is supplied by GE Bayer Silicones and it is obtained with a modern system of injection molding.

After molding, they under go a heat treatment (post-cured) of 4 hours at 200°C inside a furnace with forced ventilation.

All diaphragms are manufactured in 100% silicone of medical grade conforming to the following norms:

- FDA Code of Federal Regulation
- CFR 177.2600
- U.S. Pharmacopoeia Class VI

Maintenance :

Average live of a silicone diaphragm is 4-5 months of lasting by normal use means

Temperature max.....121°C

Steam pressure.....1,5 up to 2 bar max.

Process pressure.....10 bar max.

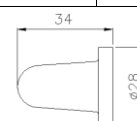
Sample.....1-5 a day

not recommended for use with alcool, solvent, glicerina

Silopren LSR 2670	
Ordering code	MVPA-X
Material	Silopren® LSR 2670
Colour	White
Hardness	60 Shore
Tensile strength	10,5 MPa
Wear resistance	Less suitable
Tear resistance	Very good
Resistance to Weather and Ozone	Excellent
Resistance to Hydrolysis (water and steam)	Good
Resistance to Chemicals (acids / bases)	Suitable
Resistance to mineral oil and gas	Less suitable
Air and Gas density	Not suitable



code **MVPA-X**



WARNING !

THE INSPECTION CHECK AND MAINTENANCE INTERVALS CAN DEPENDS FROM OPERATING CONDITIONS AS TEMPERATURE, PRESSURE AND FLUID TYPE HOWEVER, ALWAYS REMAIN TO THE USER, THE RESPONSABILITY TO FIX A SUITABLE PROCEDURE WITH THE INTERVALS AND FORMALITY IN ORDER TO REPLACE THE DIAPHRAGM BASED ON OWN EXPERIENCE.



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6.0 EC Declaration of Conformity

Pressure Equipment Directive 97/23/EC

Sound Engineering Practice

This Statement of SEP Compliance is expressly reserved for product that by definition of the Pressure Equipment Directive (Directive 97/23/EC)

may not be CE Marked

Product supplied with this certificate has been manufactured to "Sound Engineering practice" (Article 3 – Paragraph 3)

the type designation(s)

Aseptic Sample Valves

code **VPA - VPAK**

this two size are covered by the above statement

manufactured by

Aerre Inox s.r.l.
26010 Fiesco (CR) Italy

is found to comply with the relevant provisions of the Pressure Equipment Directive (Directive 97/23/EC) and the National Laws and Regulations adopting this directive.

Conformity assessment procedure(s) used : **Module A**

Applications Restrictions

Equipment category : **Article 3 - Paragraph 3**
Design Pressure min/max : **0 @ + 10 bar (g)**
Design Temperature range : **-10° / +150°C**
Medium : **Fluids group 1**

Further details of the product and conditions for the certifications are given in enclosure

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6.1 ATEX Declaration of Conformity


BUREAU VERITAS

B.V. Italia
Divisione Industria

To: AERRE INOX Srl
c.c. Bureau Veritas Milano – Ing. Raggi
Milano, 5 Febbraio 2004

Oggetto / Subject:

Avviso di Ricezione vs file tecnico / Notification of Receipt of your technical file
DIRETTIVA 94/9/EC (ATEX)

RICEVUTA NUMERO / RECEIPT NUMBER : ATEX/ITA/04/009

Con la presente si dichiara che in data 5 Febbraio 2004 Bureau Veritas Italia ha ricevuto una copia del seguente file tecnico in forma sigillata:
Herewith, Bureau Veritas Italia declare that on 5th February 2004 has received a copy of the following sealed technical files:

Numero fascicolo / File number
VPA VPAK-001-04

Descrizione Prodotto / Product description
Valvola di presa campione aseptica

Nome e indirizzo del fabbricante / Name and address of the manufacturer
Aerre Inox Srl
Via delle Arti, 26
26010 Fiesco (CR)


BUREAU VERITAS ITALIA s.r.l.
 Viale Monza 261
 20126 Milano (Italia)

per nome e conto di
on behalf of


ATEX notified body n. 0081
LCIE (Laboratoire Central des Industries Electriques)
 33, av du Général Leclerc
 92266 Fontenay-aux-Roses cedex (France)

custodirà il file per il periodo imposto dalla direttiva.
will store the technical file for the period imposed by the directive.

Unità Coordinamento ATEX  

Il presente documento non può essere parzialmente riprodotto senza autorizzazione scritta di BVI.

Dtd 15/12/03
chrono N2068 /04/PC/er

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PO/ATEX 001 "Archiviazione Fascicoli Tecnici"
Appendice 4 rev.0 del 7/1/2004

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