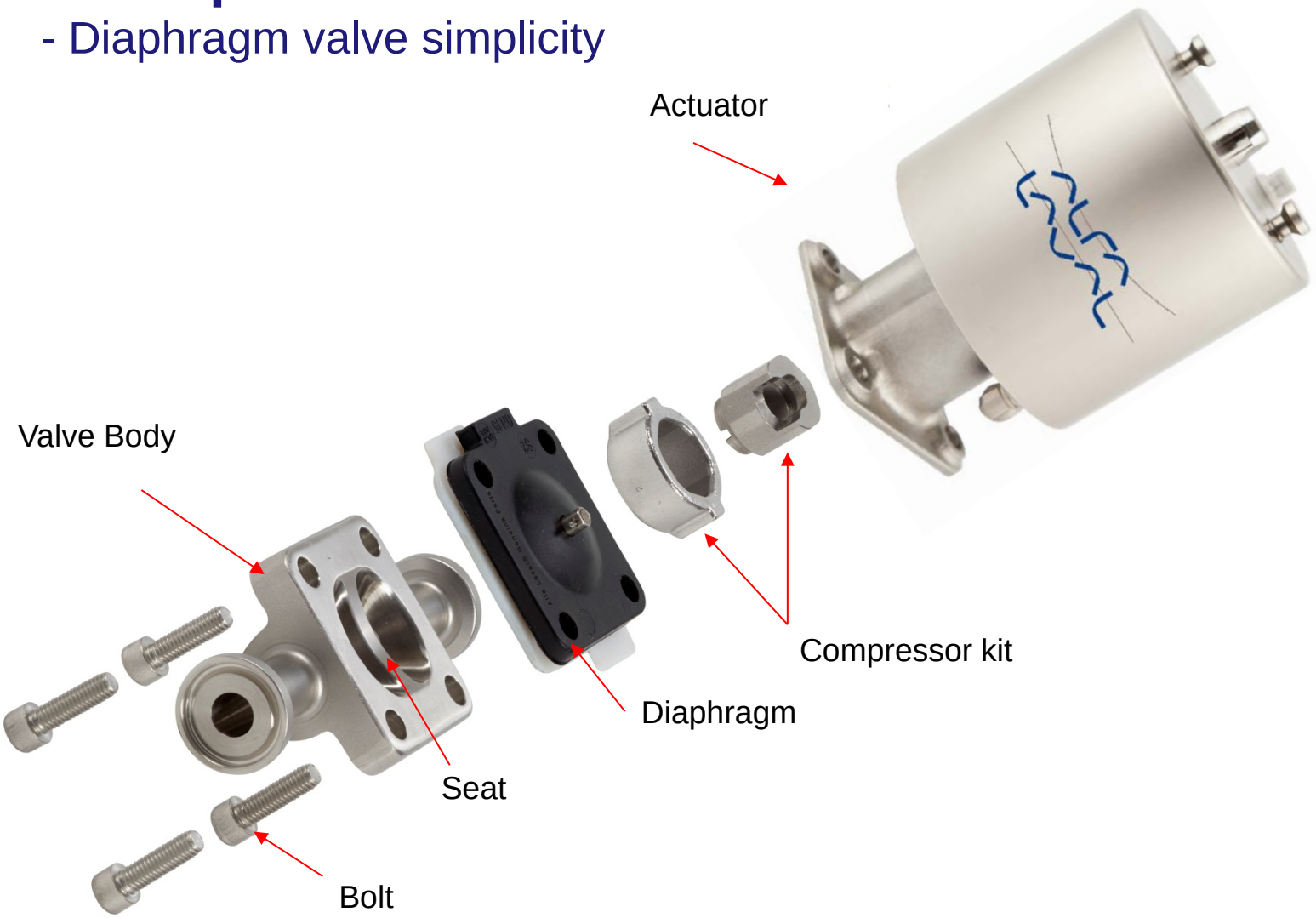
# Unique DV-ST UltraPure

Product Management Valves & Automation
Business Unit Hygienic Fluid Handling

# Unique DV-ST

## - Diaphragm valve simplicity



# Diaphragm Valves

- Modularity

The selection overview illustrates the many combinations of features and equipment available with the Unique DV-ST diaphragm valve concept. As a result, you can always find a combinations to meet any specific requirement.

# Valve Body

## - Configurations

| | 2-Way valve | T-Valve | Tank Outlet Valve | Tandem Valve | Multiport Valve |
|---|---|---|---|---|---|
| | | | | | |
| Cast CF3M (316L) | ✓ | | | | |
| Forged 1.4435 (316L) | ✓ | ✓ | ✓ | ✓ | |
| Block 1.4435 (316L) | | ✓ | ✓ | ✓ | ✓ |

All valve body configurations can be supplied with either weld, clamp or mixed connections

# Valve Body

## - 2 Way

- 2-way bodies are the standard configuration for shut off and regulating functions

- The 2-way bodies are available from forged or cast material

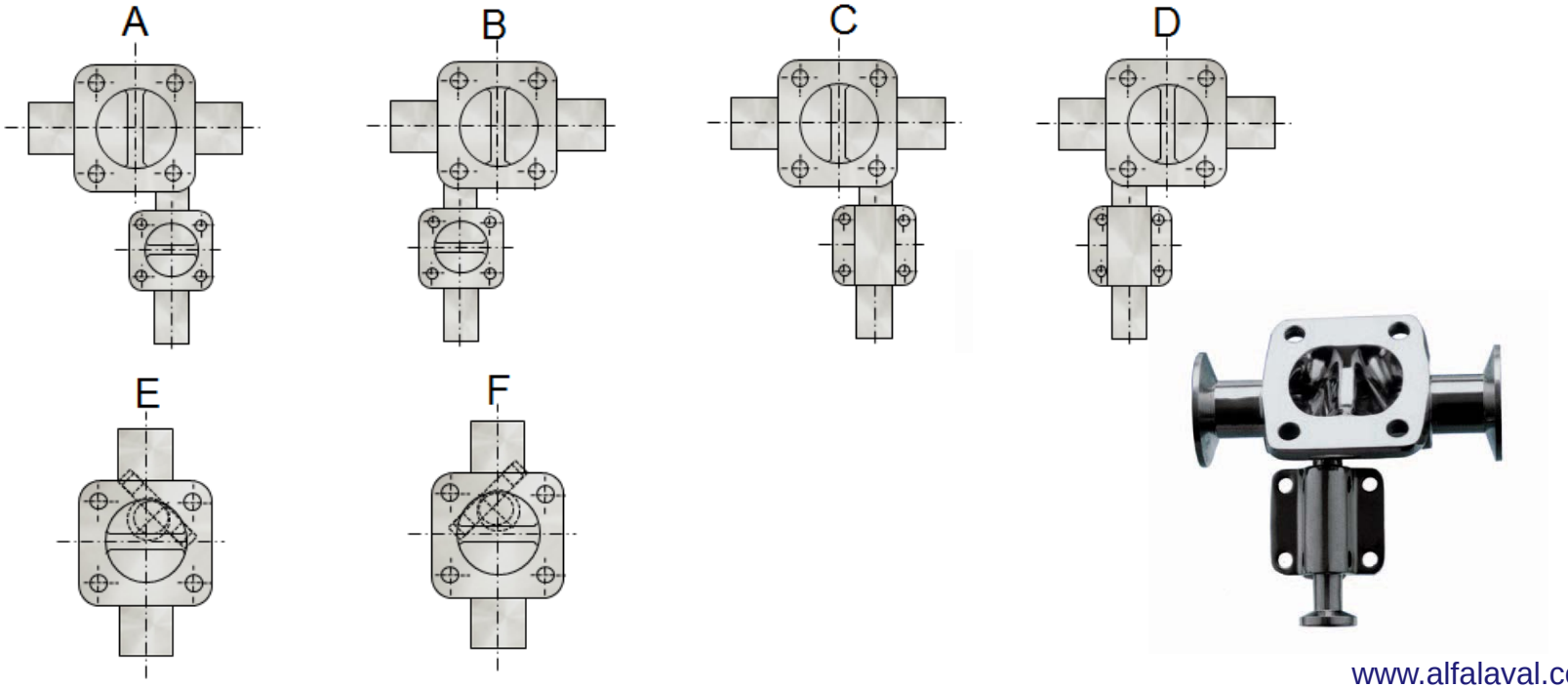
| Type | Cast | Forged & Block |
|---|---|---|
| Material | CF3M (316L) | 1.4435 (316L) |
| Delta Ferrite | < 2.0% | < 0.5% |
| Sulphur Content | < 0.04% | 0.005 - 0.017% |
| Internal Surface Finish | Ra<0.5 µm (20 µ inch)<br>Ra<0.4 µm EP (15 µ inch) | Ra<0.5 µm (20 µ inch)<br>Ra<0.4 µm EP (15 µ inch) |
| External Surface Finish | Blasted | Blasted |

Surface Finish according to ASME BPE

# Valve Body

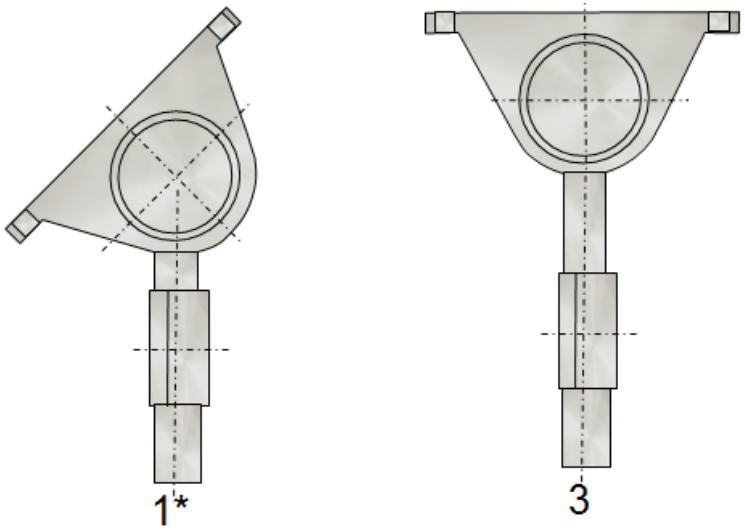
## - Tandem bodies - positions

- Tandem bodies are available in a wide variety of angles and positions for sampling or steam purposes
- The Tandem bodies are available from forged material



# Valve Body

## - Tandem bodies - angles

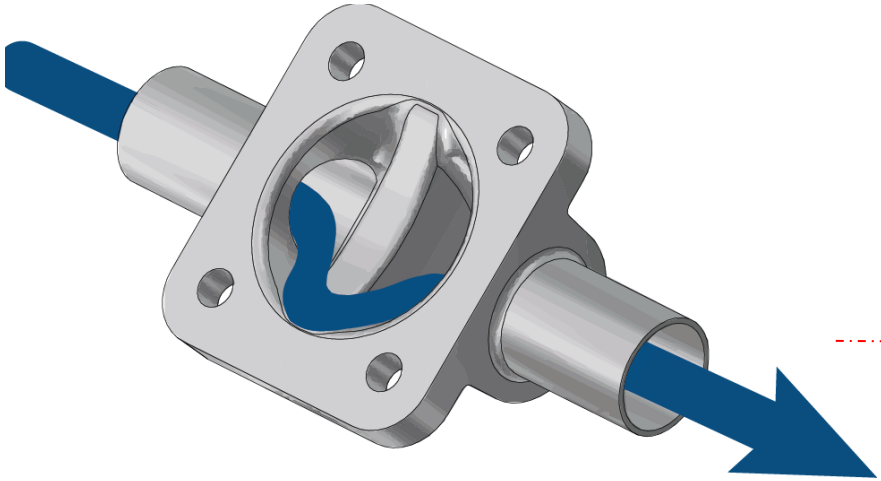


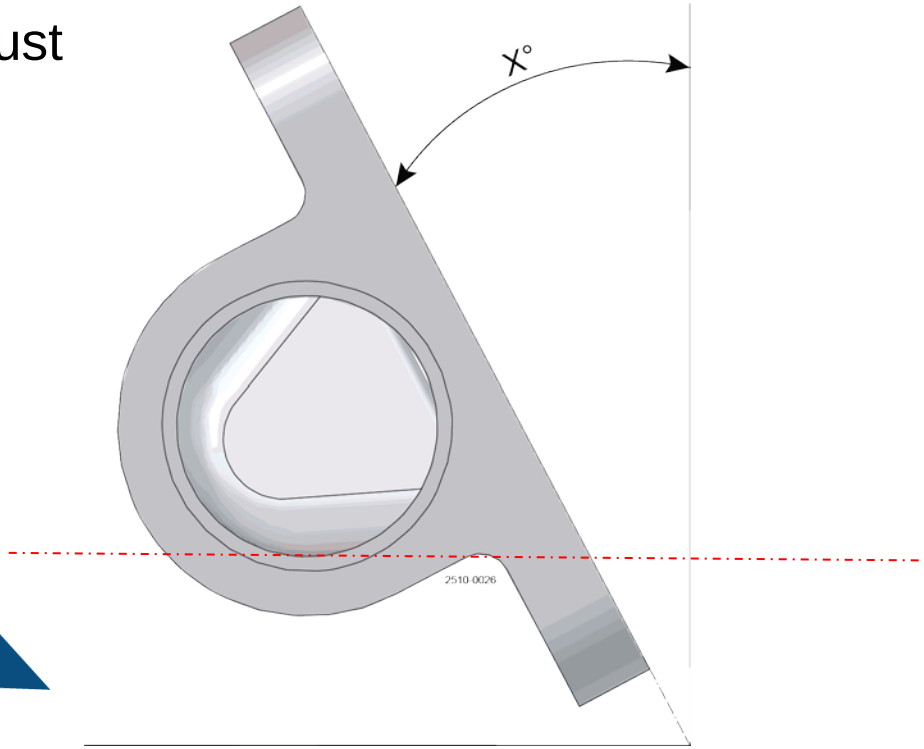

* Self Draining Position

# Valve Body

## - Drain angle X

For full drainability the valve must be installed in correct angle



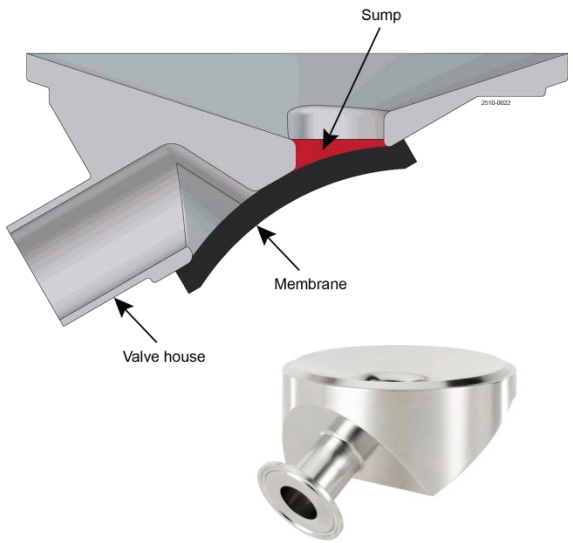


# Valve Body

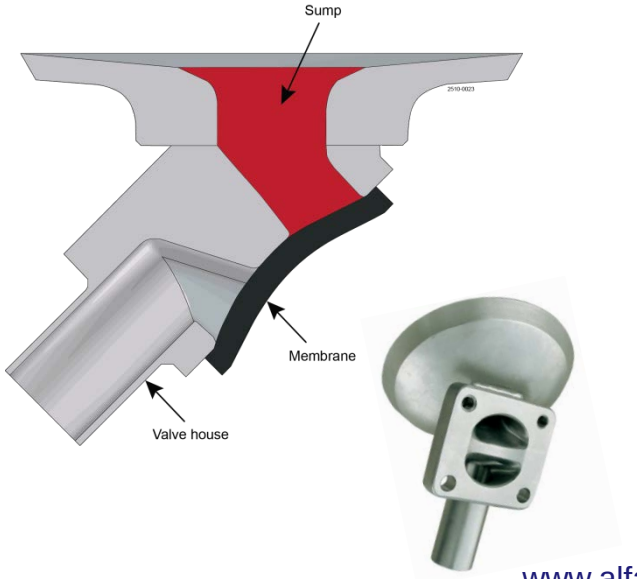
## - Tank outlet bodies

- Tank outlet bodies with minimized dead leg and complete drainability
- Tank outlet valve bodies are available as machined from block or from forged material

Tank outlet - Block




Tank outlet - Forged



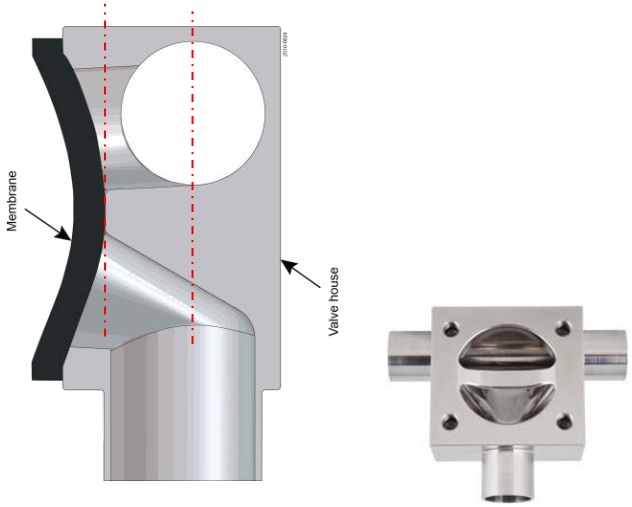
# Valve Body

## - T bodies

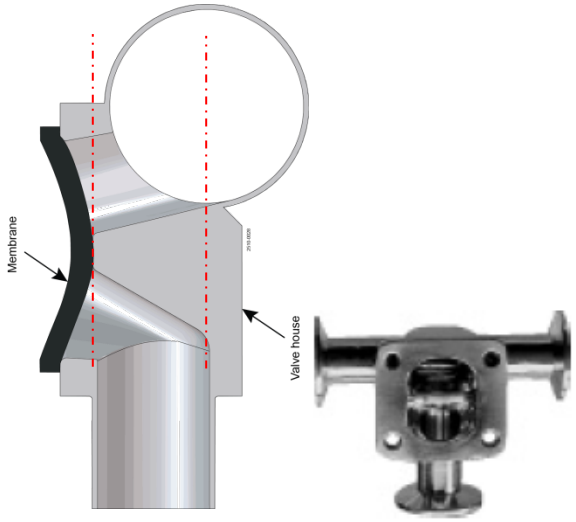
- T- bodies are constructed with weir as close as possible to the internal contour of the main tube thereby minimizing potential dead leg

- The T- bodies are available as machined from block or from forged material

T – Block




T - Forged



# Valve Body

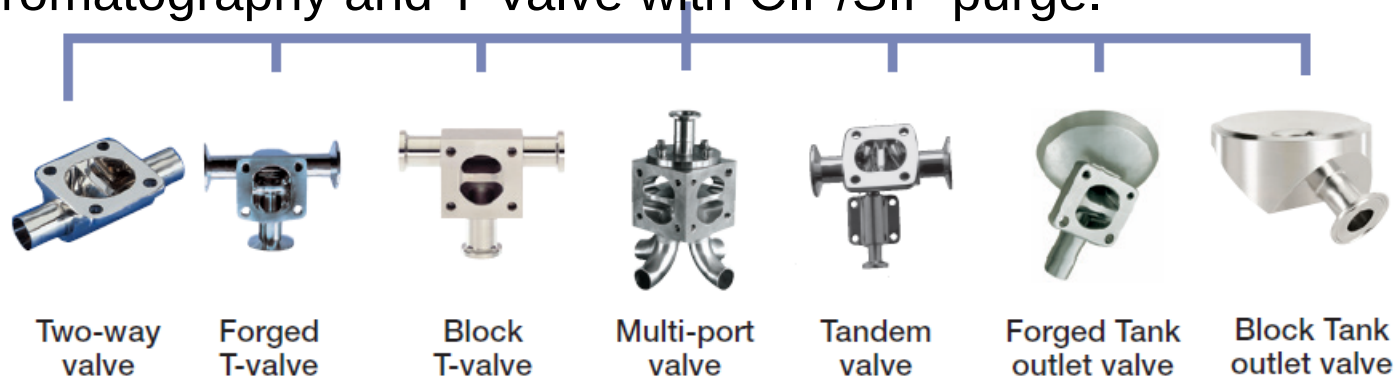
## - Multiport valves

DV-ST Multiport template

Alfa Laval offers tailor-made solutions for your process system.

Configurations are on request – See template

Configurations like side-by-side, back-to-back T-Valve, chromatography and T-Valve with CIP/SIP purge.



# Valve Body

## - Summary

- BPE sulphur content and low delta ferrite content – secure safe welding
- All weldings are dye penetrant tested
- Forged and machined from block T and Tank bottom valves
- Forged valves gives lower weight, quicker steaming and lower price vs. Block valves (T-valves around 40% lower weight)
- Block TO valves come with minimized sump
- Castings with Electro polished surface finish
- Clamp version (no welding – One Piece)

# Actuation

## - Manual Handles

| Model | SS/SS | SS/SS | C/SS |
|---|---|---|---|
| Sizes | DN 8 - 50<br>¼" - 2" | DN 65 - 80<br>2½" - 3" | DN 8 - 80<br>¼" - 3" |
| Max. Product pressure | 10 bar | 10 bar | 10 bar |
| Full Vacuum | ✓ | ✓ | ✓ |
| Over Closure protection | ✓ | ✓ | ✓ |
| Optical positioner | ✓ | ✓ | ✓ |
| Autoclaveable | ✓ | ✓ | ✓ |

# Actuation

## - Pneumatic actuators

| Model | SS/SS |
|---|---|
| Sizes | DN8 – 80<br>¼" – 3" |
| Max. Working pressure EPDM & PTFE/EPDM* | 10 bar |
| Max. Working pressure TFM/EPDM* | 6 bar |
| Full vacuum | ✓ |
| All parts made of stainless steel | ✓ |
| ATEX II 2 GD c | ✓ |
| Autoclavable at 121°C (250°F) for 60 minutes | ✓ |
| Standard Non Maintainable – 5 year warranty | ✓ |
| Available in NC, NO or A/A | ✓ |



* 0% Pressure drop

# Actuation

## - Pneumatic actuators

The range has been optimized to contain 4 actuator groups, covering:

Grp 1 DN8*,10 and 15

Grp2 DN20 and 25

Grp3 DN40 and 50

Grp4 DN65 and 80

*DN is available in to versions. For 2-way and Block

# Actuation

## - Pneumatic actuators

- One type fits all
- Well proven Alfa Laval design
- Stainless steel durable solution compatible to heat (autoclave) and chemicals providing long life time and performance
- Mushrooms implemented for Alfa Laval Sensing and Control
- Easy and reliable selection with fixed working pressure conditions of either 10 or 6 bar depending on diaphragm material.*
- Non Maintainable with 5 year warranty



* 0% Pressure drop

# Diaphragms

## - Overview

| Description | Temperature Recommendations $^0$C | | | Documentation | | | Available Sizes | Diaphragm connection type | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | Max Liquid | Max Steam | FDA | USP Class VI | TSE /ADI | | Button | Thread | Bayonet |
| EPDM | -40˚C (-40°F) | 150°C (302°F) | 150°C*** (302°F) | ✓ | ✓ | ✓ | DN 8 - 80 | DN 8 -20 | DN 25 – 80* | |
| PTFE/EPDM | -5°C (23°F) | 175°C (347°F) | 150°C**** (302°F) | ✓ | ✓ | ✓ | DN 15 - 80 | | | DN 15 - 80 |
| TFM/EPDM | -5°C (23°F) | 175°C (347°F) | 150°C **** (302°F) | ✓ | ✓ | ✓ | DN 8 - 80 | DN 8-10 | ** | DN 15 - 80 |

FDA - Declaration of conformity to FDA (CFR 21: 177.2600 or 177.1550)
USP - Certificate of conformity to USP Class VI (<88>, Biological Reactivity Test, in Vivo, USP 30-NF 25, 121°C)
TSE/ADI Declaration (Transmissible Spongiform Encephalopathy /Animal Derived Ingredients)
*EPDM ½" & ¾" available as optional
**TFM/EPDM with thread connection available as optional.

*** Continuous temperature
**** 40 min. steam sterilisation

# Diaphragms

## - Summary

- Wide range, well proven diaphragms – one diaphragm for every need
- Compressor kit enables change of diaphragms (soft/hard)
- EPDM – specially developed for steam up to150°C (302°F) continuous operation (extends life time of diaphragm)
- PTFE/EPDM 2-piece design to allow for different expansion coefficients during temperature changes
- Documentation meeting the demand in pharmaceutical industry
- Interchangeable with Saunders diaphragms

# Sensing and Control

## - Portfolio overview

IndiTop

ThinkTop D30

ThinkTop Basic

Type 8697

Type 8692 / 94 Positioner

Type 8695 Control

Type 8691 Control

Automation Unique DV-ST UltraPure

Diaphragms

# Sensing and Control

## - Portfolio overview

The Alfa Laval range of Sensing and Control provides several solutions from simple feedback of valve position to controlling the valve function (open/close) with a control top.

Furthermore are positioners available for regulating duties in applications which require precision control of pressure, flow, temperature, level in tanks etc.

**Unique DV-ST**
Aseptic diaphragm valve mounted with digital electro-pneumatic positioner for use as regulating valve.

**Unique DV-ST**
Aseptic diaphragm valve mounted with IndiTop, D30 and a ThinkTop Basic.

# Complete documentation package

## - Q-doc

- Valve bodies:
  - 3.1 / MTR traceability certificate
  - Surface finish conformity declaration
- Diaphragms:
  - FDA compliance
  - USP Class VI compliance
  - TSE compliance
- Others certificates on request
  - Surface finish certificate (Ra test results)
  - ATEX certificate

# References

User/reference list,
Alfa Laval Diaphragm Valves

Aan de Stegge B.V., Netherlands
AKZO Nobel, Netherlands
Algist Bruggeman N.V., Belgium
Aventis Behring, Austria
AVR Avira, Netherlands
Barry Callebaut Belgium N.V., Belgium
Baxter Healthcare, Mayo, Ireland
Baxter Vaccine, Austria
BAYER AG, Wuppertal, Germanyl
Beiersdorf, Hamburg, Germany
Bio Lafitte, France
Biochrom, Berlin, Germany
BioNiche, Galway, Ireland
Biotec System Machinery, Japan
Boehringer Ingelheim, Austria
Boehringer, Mannheim, Germany
Braun, Melsunge, Germany
Budelco, Netherlands
Chema-Balcke Dürr, Rudisleben, Germany
Coatex Netherlands B.V., Netherlands
Cosmed, Berlin, Germany
D&F Techniek, Netherlands
DDS Filtration, Stapelfeld, Germany
Degussa-Asta-Werke, Bielefeld, Germany
Delta Bio, England
Delta N.V., Netherlands
Dista Product-WFI, England
DSM, Netherlands
Epenhuysen Chemie NV., Netherlands
Filtron, Karlstein, Germany
Fournier, Cork, Ireland
Fraunhofer Institut, Stuttgart
Fujisawa, Killorglin, Ireland
Gambro, Hechingen, Germany
GlaxoSmithKline Biologicals, Hungary
GlaxoSmithKline, England & Ireland
GlaxoSmithKline, Pakistan
GSK Beecham Pharmaceuticals, Singapore
Prime Biologics, Singapore
Goldschmidt, Essen, Germany
Groninger & Co. GmbH, Crailsheim, Germany
HanMi Pharmaceuticals, South. Korea
Changshang Bio-pharma, China
Tianjing Hongri Pharmaceutical, China
Chongqing Huabang Bio-pharma, China
Chongqing southwest pharmaceutical, China
Shanxi Kangbao Plasma, China
Nibong Shuangcheng pharmaceutical, China
Lanzhou Zhongnong Weite Pharma, China
Amherst Pharmaceutical (Unilab), Philippines

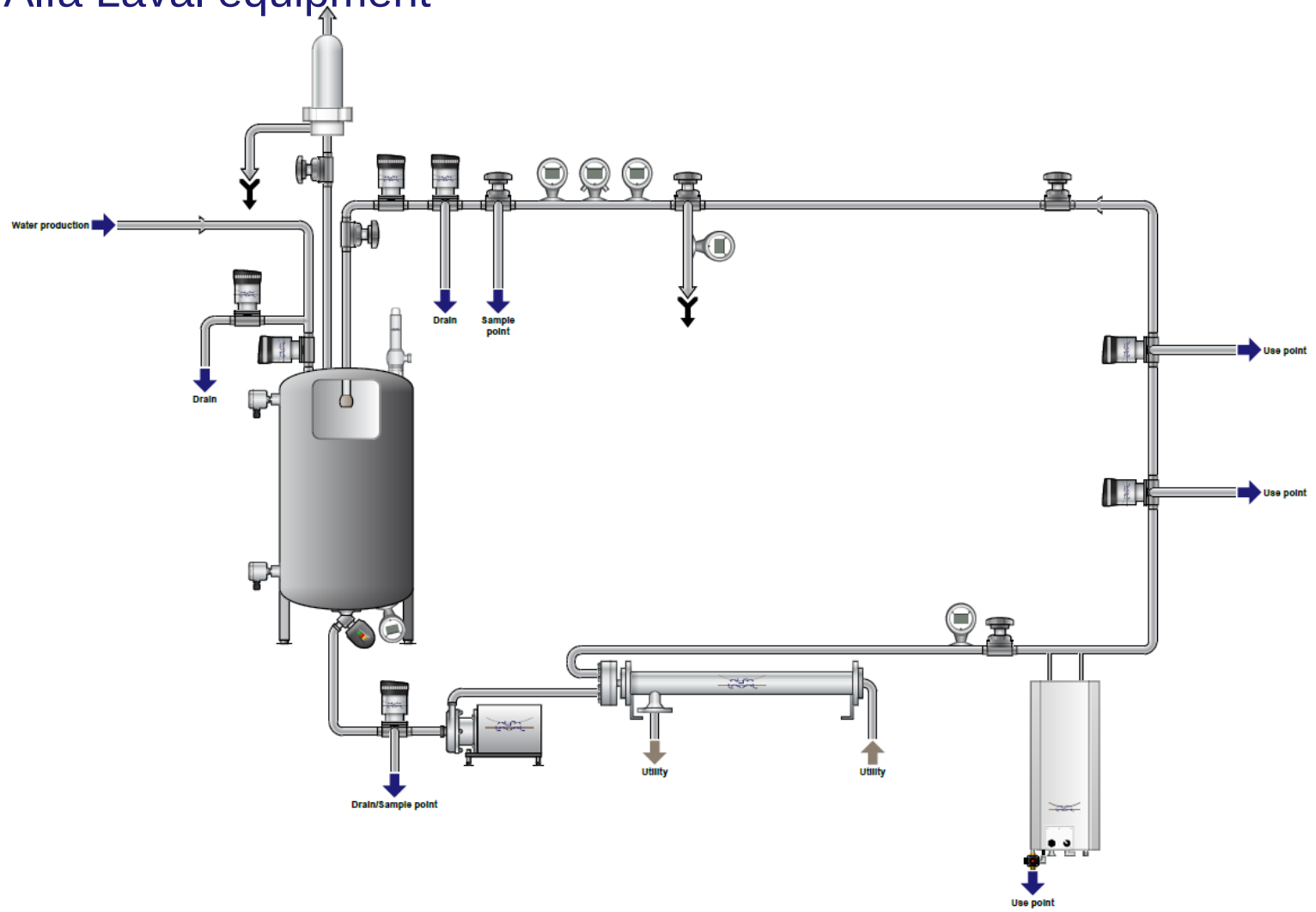
Hacos N.V., Belgium
Hoffman-La Roche, Grenzach-Whylen,Germany
ICI Pharmaceuticals, England
Indaver, Belgium
ITM Primary Div. B.V., Netherlands
Jacobs Kaffee, Bremen
Janssen Pharmaceuticals, Belgium
John Brown Engineering, England
Leo Pharma, Dublin, Ireland
LH Fermentation Ltd., England
Millipore, Cork, Ireland
Nizet Entreprise S.A., Belgium
Pall, Dreieich, Germany
PCI Membrane Systems, England
Pfizer, Belgium, England & Ireland
Pharma-Technik Smeja, Straelen-Herongen, Germany
Prolion, Netherlands
Raton B.V., Netherlands
RIVM, Bilthoven, Netherlands
Sartorius, Austria
Sartorius, Göttingen, Germany
Schering Plough, Avondale, Ireland
Schering, Bergkamen & Berlin, Germany
Servier, Arklow, Ireland
Smit Gas Systems B.V., Netherlands
SmithKline Beecham, England
Solvay, Deutschland, Belgium, NL & England
Solvic, Belgium
Sturge Biochem, England
Sulzer-MBR, Schweiz
Sun Chemical O+R, Netherlands
Südzucker, Groß-Gerau, Germany
Systemtechnik Linnemann, Dettenhausen
UCB, Belgium
Uniferm, Monheim
Verdugt B.V., Netherlands
Wellcome Foundation, England
Drug House of Australia, Singapore
MP Biomedicals, Singapore
Westland Energie Beheer B.V., Netherlands
Genencor Dupont, USA
Chongqing Yaoyou Pharmaceutical, China
Harbing Shengtai Pharmaceutical, China
Shanghai Zhangjian Fudan Bio-pharma, China
Shiyao Group, China
Chendu Zhongchen Pharmaceutical, China
Shanxi Yinghu pharmaceutical, China
Zhuhai Lianbang pharmaceutical, China
Lanzhou Zhongmu Bio-pharma, China

Pharma

Pfizer, Baxter, Boehringer, Bayer, Lilly and more....

Cosmetics

Beiersdorf, Cosmed, Procter & Gamble and more...

# Water Systems

## - Alfa Laval equipment