

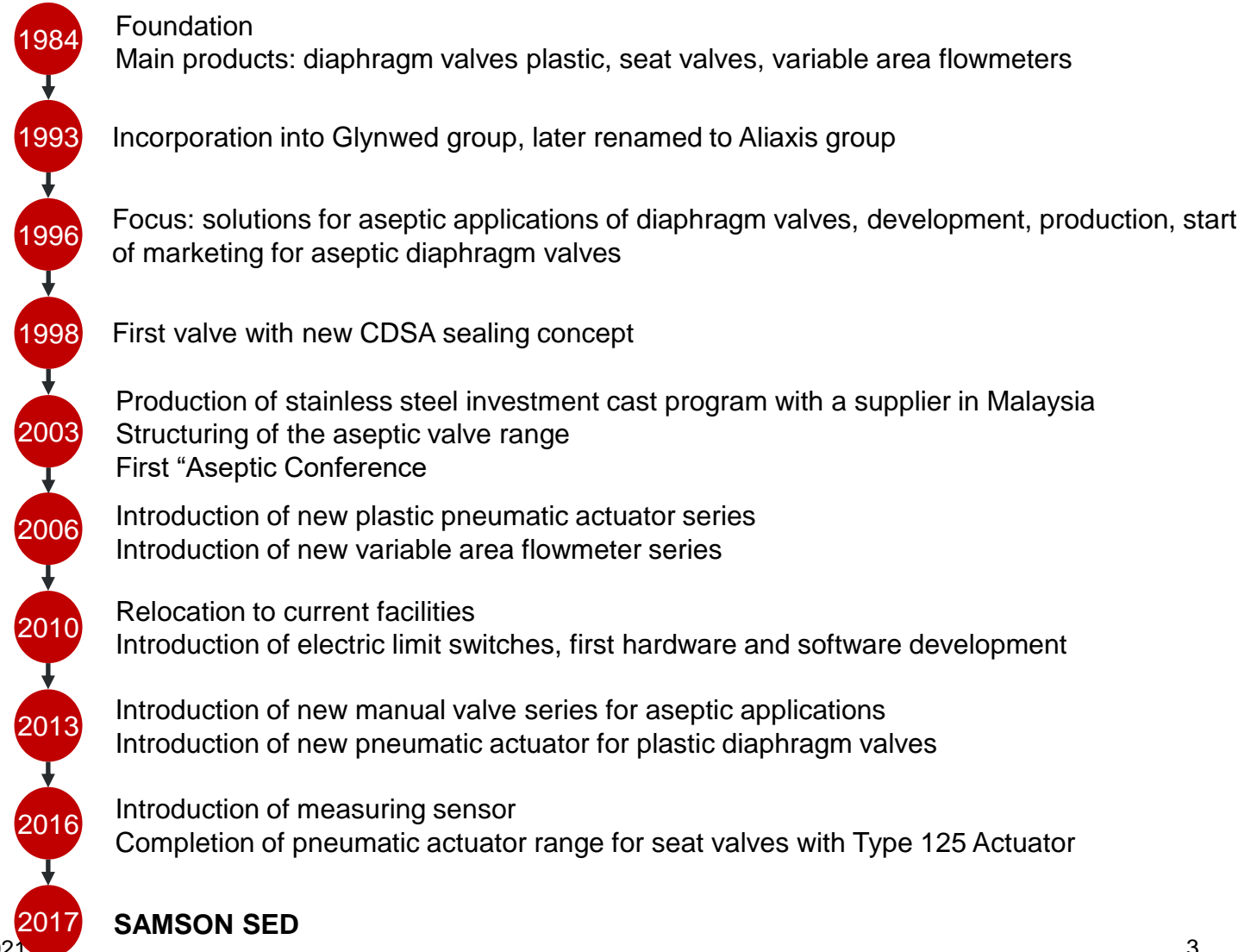
Overview of SED Products

SAMSON SED FLOW CONTROL



- **Founded** 1984
- **Location** Bad Rappenau, Germany
- **Facilities** 5000 m² (Manufacturing, Warehouse and Office)
- **Employees** 110 + 7 Trainee
- **Ownership Structure** 100% SAMSON

COMPANY HISTORY AND MILESTONES



SOLUTIONS FOR FOOD, PHARMA AND BIOTECH



- **Founded** 1907
- **Headquarter** Frankfurt am Main, Germany
- **Employees** > 4400 worldwide
- **Global Presence** > 40 Countries, > 200 Locations, 18 Production Sites
- **Ownership Structure** AG (family-owned, not listed), ~60 Shareholders

COMPANY

CNC Machining Centers, operated by CAD-CAM



COMPANY

Valve bodies



Spectrometer and RFA material analysis



Borescope inspection of the interior surface and weld seams of valves for aseptic applications



Delta Ferrite measurement of stainless steel valve bodies

COMPANY

Inspections

100%

- Assembly check acc. Check list
- Pressure/Leakage test
- Surface visually
- Weld seam inspection

On Request

- Material analysis Spectrometer
- Material analysis Delta Ferrit
- X-Ray
- Dimension check and -record

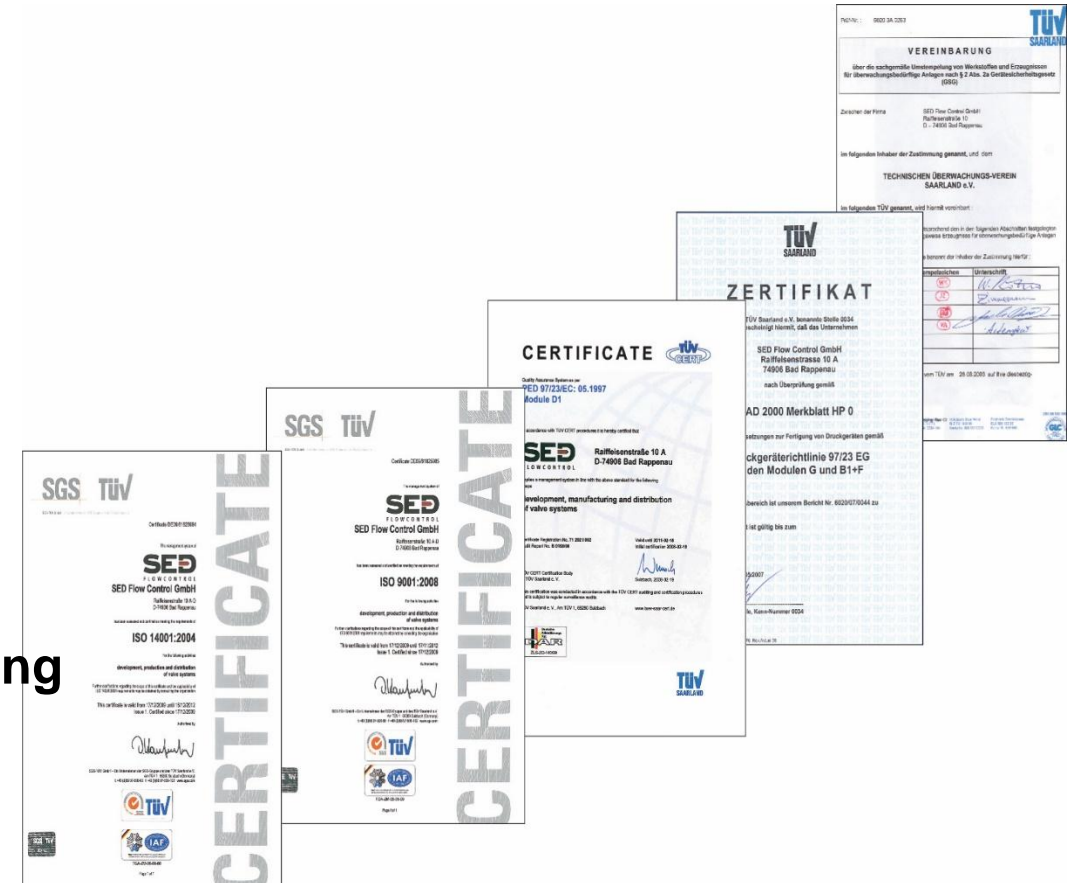


Automated leakage testing

QUALIFICATION

Certified Process Qualification

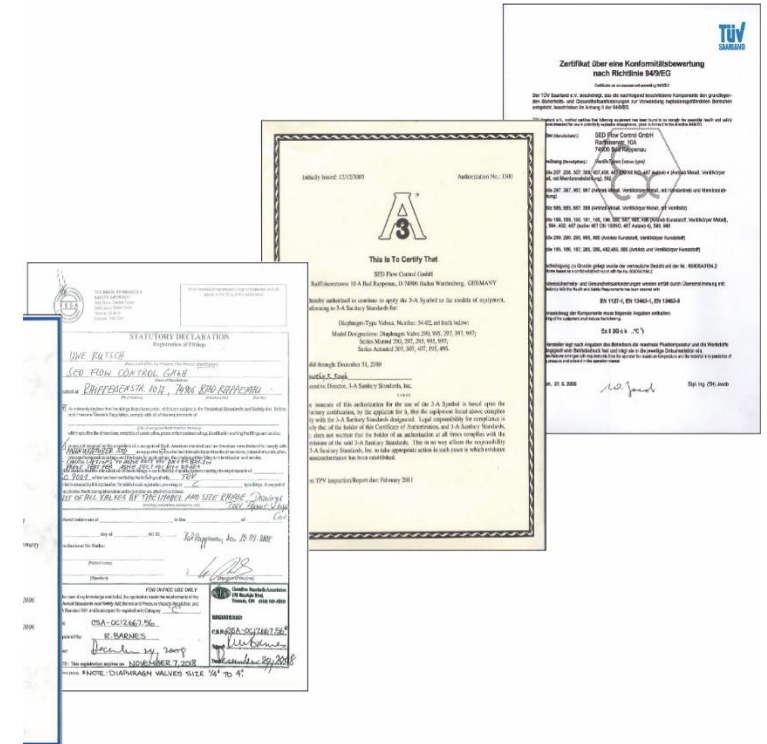
- Quality Management System ISO 9001
- Environment Management System ISO 14001
- Energy Management System ISO 50001
- Manufacturing Process AD2000 Merkblatt HP0
- Pressure Equipment Directive 2014/68/EU
- Specialised Company for Welding ISO 3834-2
- Qualified Personnel for Material Traceability according §2 Abs.2a Gerätesicherungsgesetz
- ATEX Directive 2014/34/EU



VALIDATION

Validation for the aseptic diaphragm valve

- Compliance to 3-A Standard Section 54-02
- Equipment Design Criteria Document No.8SED CDSA
- Compliance to CRN Canadian Standards Association
- Certification of Compliance according to EN 10204 2.2
- Certification of Compliance according to EN 10204 3.1
- Certification of an assessment according 94/9/EC
- TA-Luft / VDI 2440 / VDI 3479



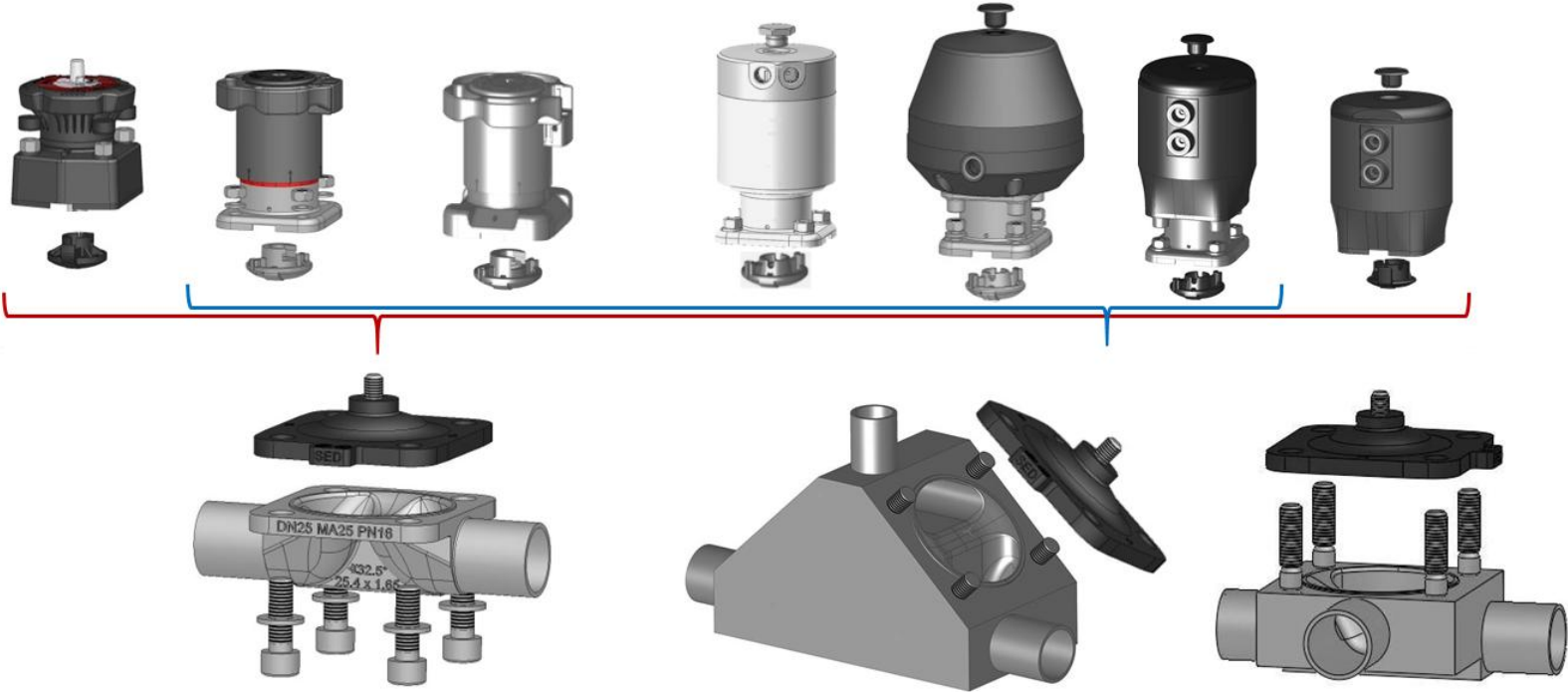
PRODUCT RANGE

Modular System

– **Actuators**
Interchangeable without Modification

– **One Diaphragm**
material variations possible

– **One Valvebody**
variations concerning
material, connections, design



PRODUCT RANGE ASEPTIC DIAPHRAGM VALVES

Steripur

- Bottom and top entry
- Suitable up to 160° C
- Ideal for chemical aggressive ambient
- Compact piston actuator for multiport valves
- Shiny

KMA

- Bottom and top entry
- Suitable up to 160° C
- Compact piston actuator for multiport valves
- Most known version
- Competitive pricing

KMD

- Compact design
- Suitable up to 150° C working temperature
- Bottom entry, less tools needed
- Smooth exterior design
- Low weight
- Cost effective

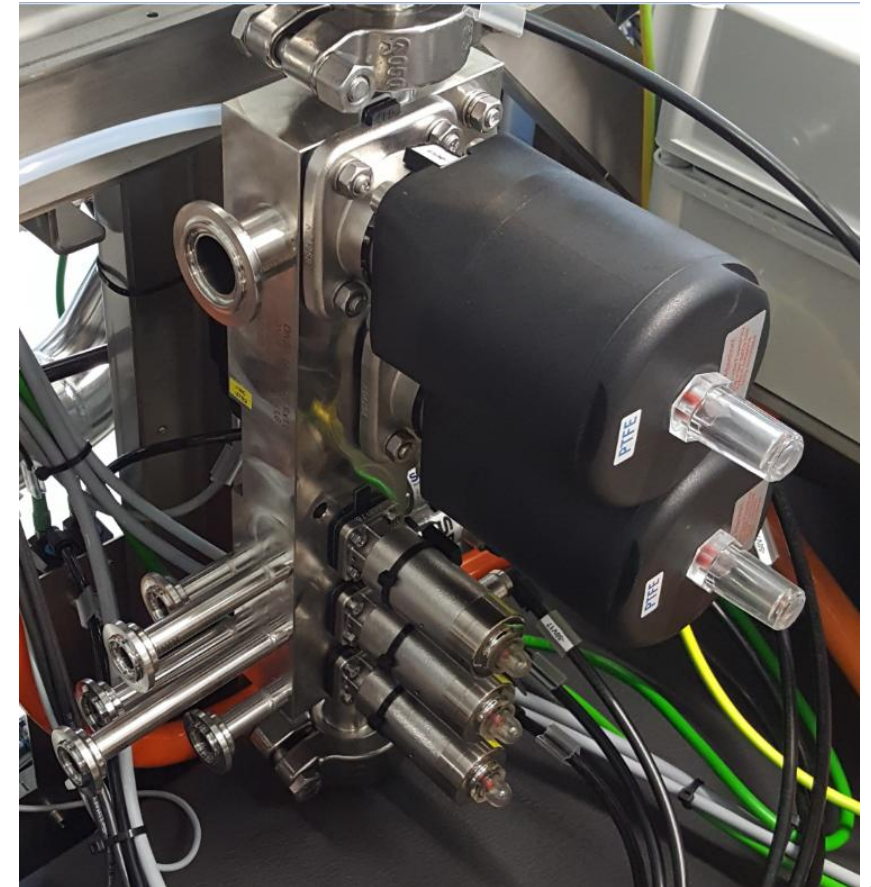
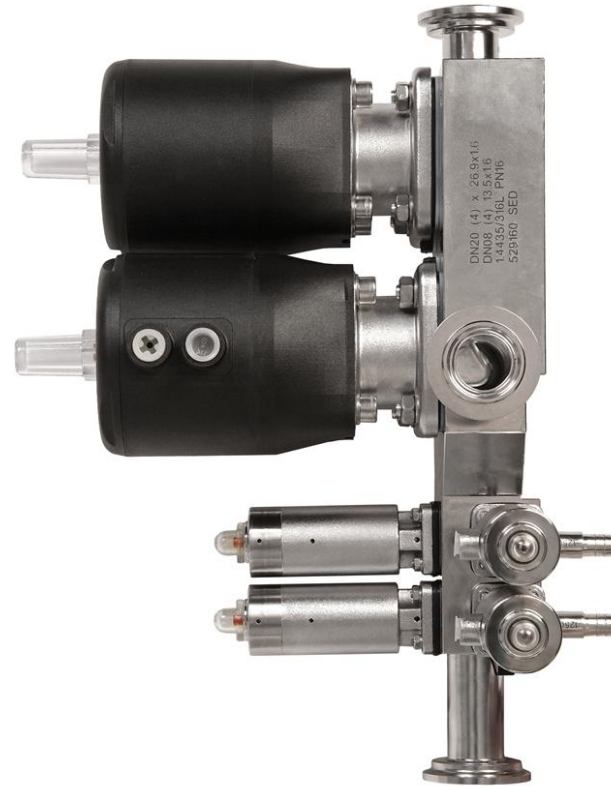
Series	Description	Specification				Specification					Series
		Manual				Pneumatically operated					
		MA 8	MA 10	MA 25 - 50	MA 80 - 100	NO, DA	NC	MA 10	MA 25 - 50	MA 80 100	
Steripur	Control function available	Manual				Pneumatically operated					Steripur
	Diaphragm size	MA 8	MA 10	MA 25 - 50	MA 80 - 100	Pneumatically operated					
	Diameter in mm (inch)	4 - 15 (1/4 - 1/2)	8 - 20 (3/8 - 3/4)	15 - 50 (3/4 - 2 1/2)	65 - 100 (2 1/2 - 4)	Pneumatically operated					
	Type	206	397	907	997	Pneumatically operated					
	Image										
	Max. working pressure with	DN 100				Pneumatically operated					
	- diaphragm EPDM in bar (psi)	10 (150)	10 (150)	10 (150)	10 (150)	Pneumatically operated					
	- diaphragm PTFE in bar (psi)	10 (150)	10 (150)	10 (150)	8 (115)	Pneumatically operated					
	Max. working temperature °C (°F) ²	160 (320)				Pneumatically operated					
	Details see page	34	36, 37	39	40	Pneumatically operated					

Series	Description	Specification				Specification				Series
		Manual				Pneumatically operated				
		MA 8	MA 10	MA 25 - 50	MA 80 - 100	MA 8	MA 10	MA 25 - 50	MA 25 - 50 80 100	
KMA	Control function available	Manual				Pneumatically operated				KMA
	Diaphragm size	MA 8	MA 10	MA 25 - 50	MA 80 - 100	Pneumatically operated				
	Diameter in mm (inch)	4 - 15 (1/4 - 1/2)	8 - 20 (3/8 - 3/4)	15 - 50 (3/4 - 2 1/2)	65 - 100 (2 1/2 - 4)	Pneumatically operated				
	Type	205	295	905	995	Pneumatically operated				
	Image									
	Max. working pressure with	DN 80				Pneumatically operated				
	- diaphragm EPDM in bar (psi)	10 (150)	10 (150)	10 (150)	10 (150)	Pneumatically operated				
	- diaphragm PTFE in bar (psi)	10 (150)	10 (150)	10 (150)	8 (115)	Pneumatically operated				
	Max. working temperature °C (°F) ²	160 (320)				Pneumatically operated				
	Details see page	35	36, 37	38, 39	41	Pneumatically operated				

Series	Description	Specification			Specification			Series
		Manual			Pneumatically operated			
		MA 10	MA 25 - 50	MA 80 - 100	MA 10	MA 25 - 50	MA 25 - 50 80	
KMD	Control function available	Manual			Pneumatically operated			KMD
	Diaphragm size	MA 10	MA 25 - 50	MA 80 - 100	Pneumatically operated			
	Diameter in mm (inch)	8 - 20 (3/8 - 3/4)	15 - 50 (3/4 - 2 1/2)	65 - 100 (2 1/2 - 4)	Pneumatically operated			
	Type	289	982	985	Pneumatically operated			
	Image							
	Max. working pressure with	DN 100			Pneumatically operated			
	- diaphragm EPDM in bar (psi)	6 (87)	10 (150)	10 (150)	Pneumatically operated			
	- diaphragm PTFE in bar (psi)	6 (87)	10 (150)	8 (115)	Pneumatically operated			
	Max. working temperature °C (°F), design HS ²	150 (300)	NA	NA	Pneumatically operated			
	Max. working temperature °C (°F), design S ²	80 (176)			Pneumatically operated			

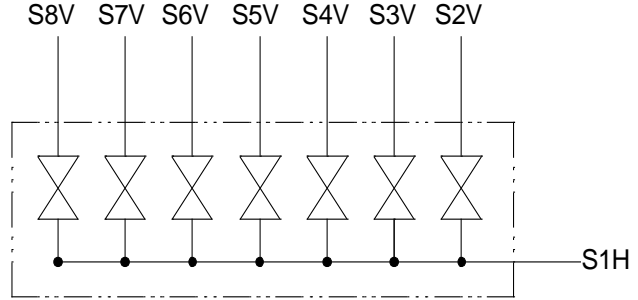
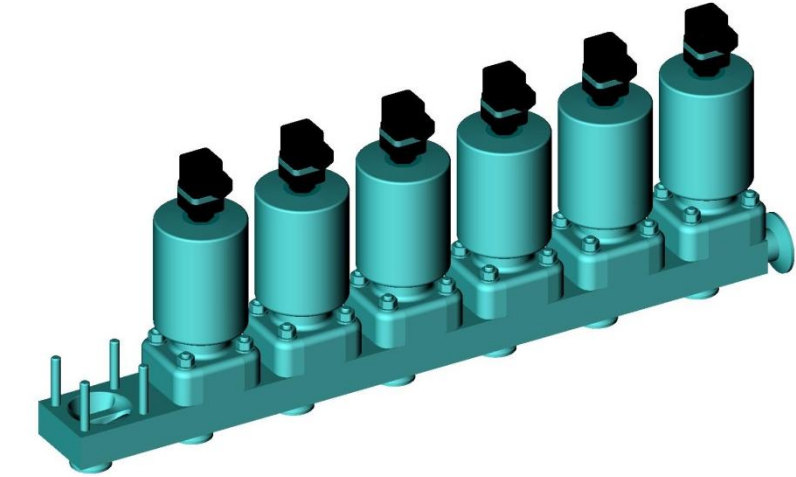
PRODUCT RANGE ASEPTIC DIAPHRAGM VALVES

Compact Piston Actuator, KMA



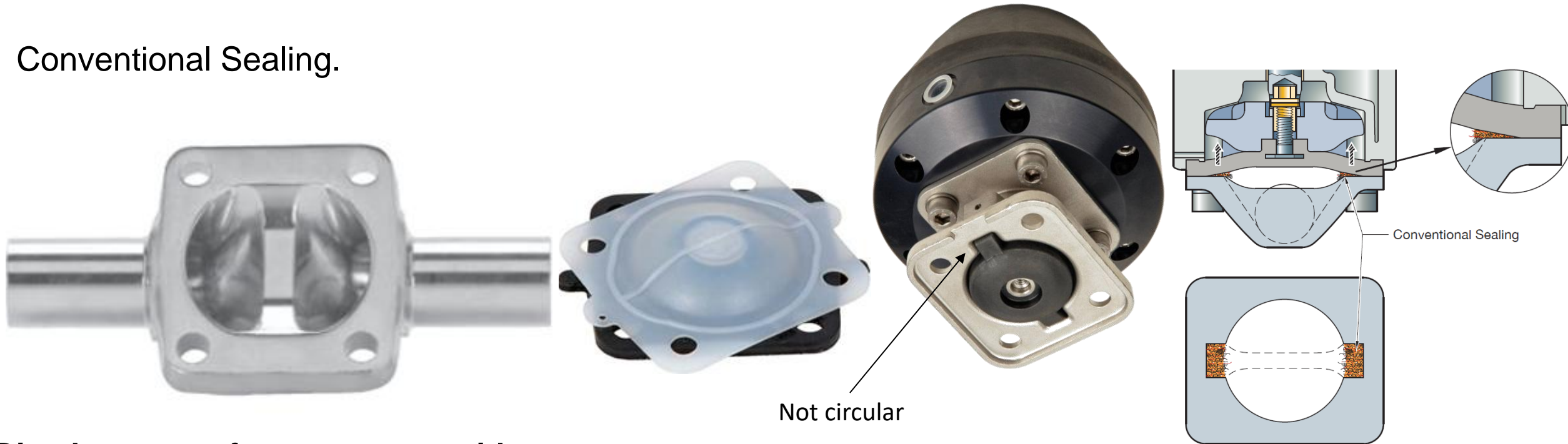
PRODUCT RANGE ASEPTIC DIAPHRAGM VALVES

Compact Piston Actuator, STERIPUR



TECHNICAL DETAILS OF OUR ASEPTIC DIAPHRAGM VALVES

Conventional Sealing.



Disadvantage of compressor guidance cut out e.g.:

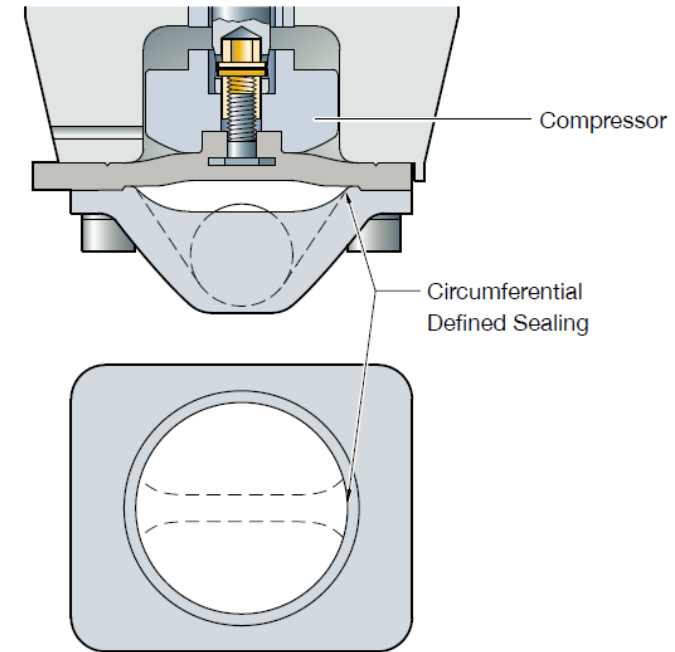
- Product entrapment
- Less efficiency of closing force
- Restriction in diaphragm and body flange design

Design applied by Some of the competitors

TECHNICAL DETAILS OF OUR ASEPTIC DIAPHRAGM VALVES

CDSA (Circumferential Defined Sealing Angle)

SED Innovation – CDSA (Circumferential defined sealing angle)

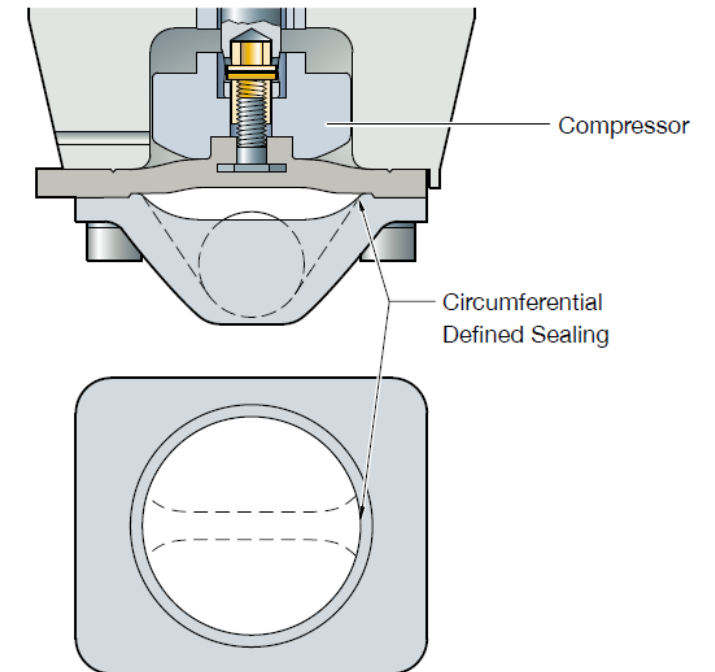


TECHNICAL DETAILS OF OUR ASEPTIC DIAPHRAGM VALVES

Optimised internal cleaning because of CDSA

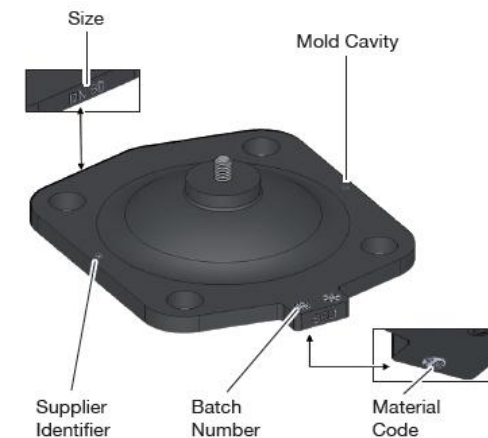
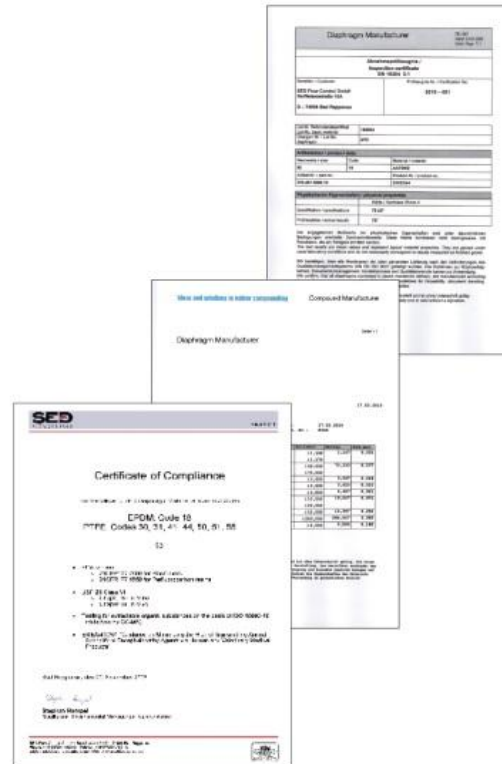
The effects of this design have the following advantages

- Product entrapment reduced or eliminated on the body bonnet flange.
 - Reduced cleaning time of SIP systems.
 - Reduced use of chemicals and solutions in CIP systems.
 - Improves valve drainability.
 - Better sealing performance and evenly distributed closing force.
 - Diaphragm lifetime is extended.
-
- The same selection of diaphragms may be used for all SED series and versions of actuators.



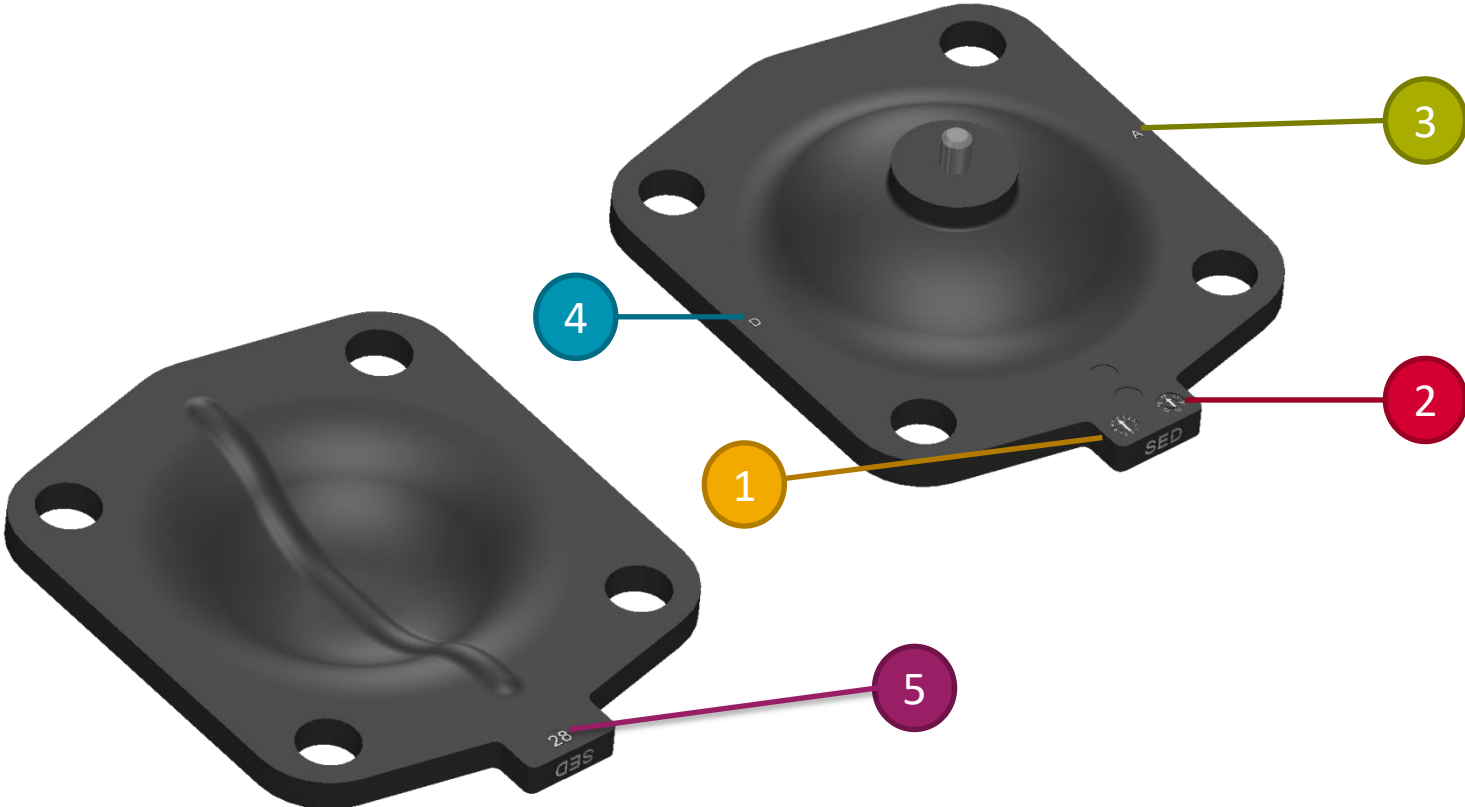
DIAPHRAGMS

- Own Development
- Steam- and cycle tests
- Well proven
- Continuous Improvement
- Traceable
- Approval/Certificates



EPDM DIAPHRAGM CODE 28 AND CODE 20

- 1 Batch Number
- 2 Year
- 3 Mold Cavity
- 4 Internal Identifier
- 5 Material Code



ACTUATORS

Fixing on the valve body

- **2/2-Way-Valves**

Bottom Entry
Top Entry



- **T-Valves and Multiport valve**

Bolts
Drilled



TYPE 402 / 317 / 417 / 495

Features

- Controls air connection in flow direction or 90° to flow direction
- Autoclavable *
- Compact design
- Clean and polished exterior design ideal for sterile wash downs.

Compared to Type 307 / 407

- Controls air connection on top
- Internal PVDF-bushing
- Working pressure as before, while control pressure is reduced

*Steripur version



MA25 – MA50



MA25 – M100



MA25 – MA50



MA10

ACTUATORS

High Performance Actuator

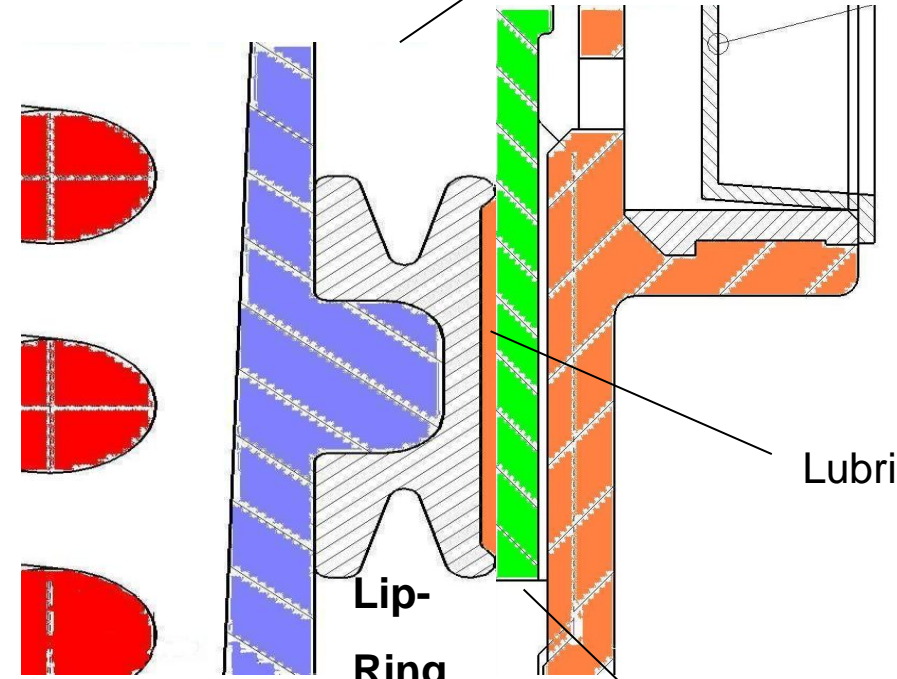
- **With all the benefits of**
 - maintenance free actuators
 - low weight
 - energy efficiency



Spring

Piston

Upper Chamber



Lubrication

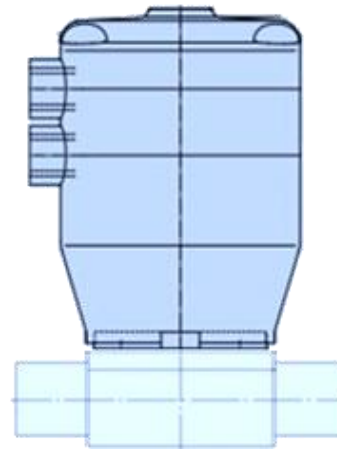
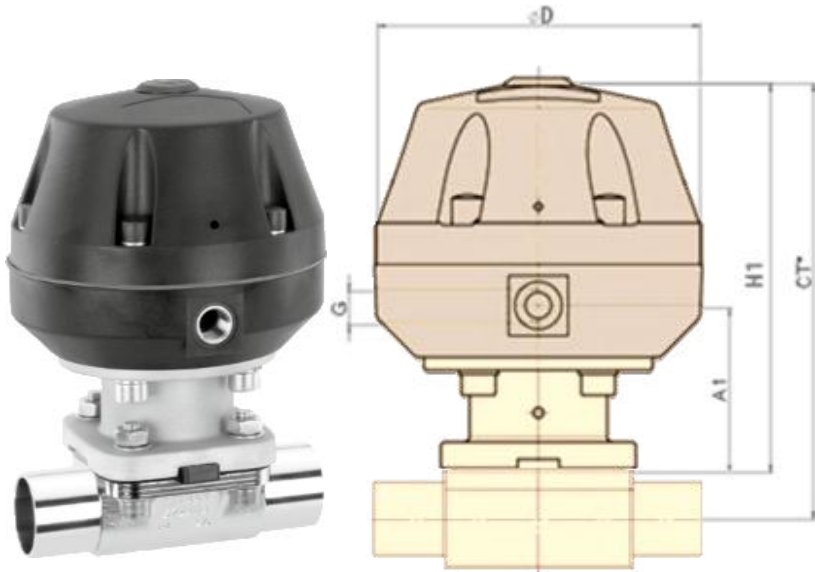
Lip-Ring

Lower Chamber

ACTUATORS

Directly mounted high temperature plastic actuator

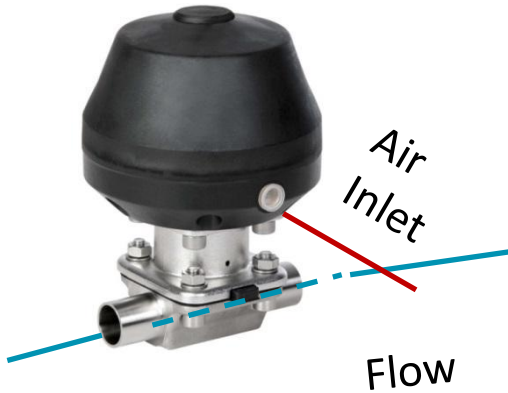
C1 vs. **SED 402**



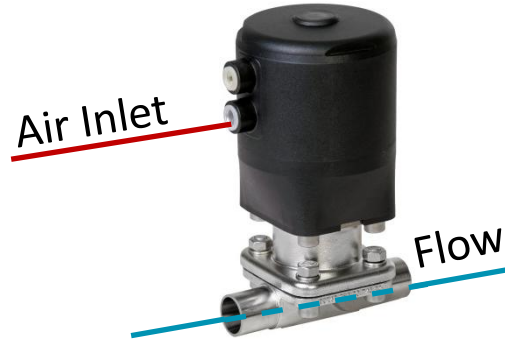
ACTUATORS

Optional orientation of the air inlet port

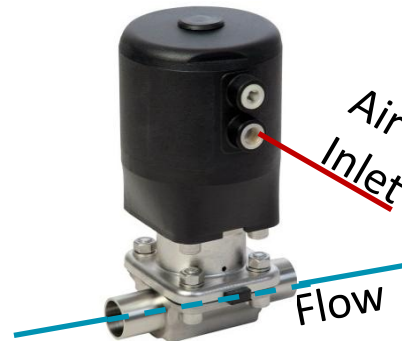
SED 495



SED 402

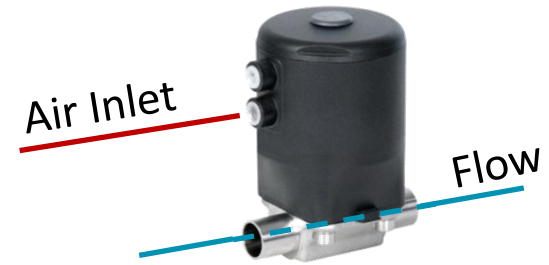


- Control Air Inlet in flow direction

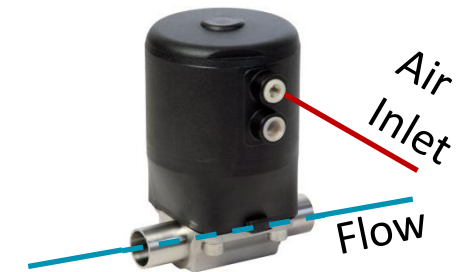


- alternatively 90° to flow

SED 395



- Control Air Inlet in flow direction

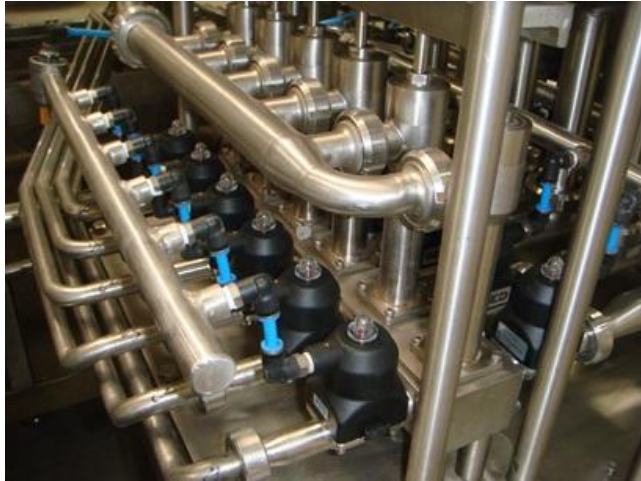


- alternatively 90° to flow

ACTUATORS

Optional orientation of the air inlet port

Allows compact and optimised assembly



Filling Joghurt



Air Inlet Port 90°
to flow direction



Air Inlet Port in flow
direction

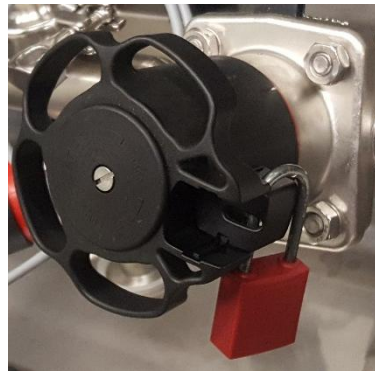


Blood Separation

ACTUATORS

Manually operated

- Rising hand wheel
- Stroke limiter
- Internal travel stop
- Sealed bonnet
- Locking device (optional U-Lock)
- Proximity switches possible
- Autoclavable*
- Encapsulated diaphragm
- *KMA for a limited number of cycles



VALVE BODY CONNECTIONS

Spigot standards

Standard, on stock:

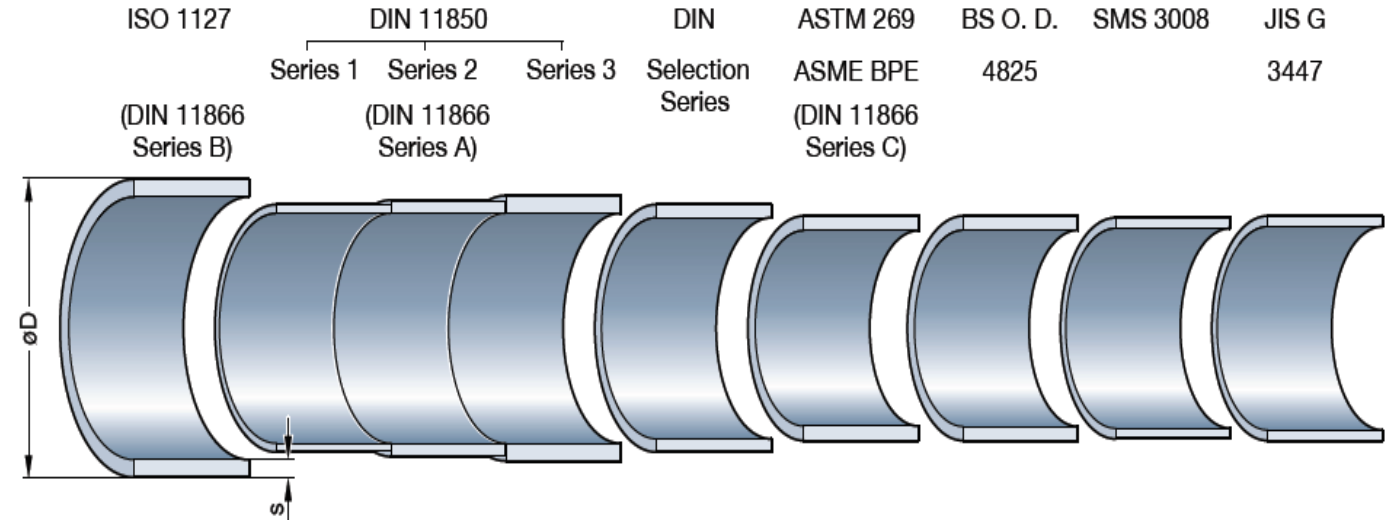
- DIN 11850 R2 (DIN 11866-A)
- ISO 1127 (DIN 11866-B)
- ASME BPE (DIN 11866-C)

Machining :

- DIN 11850 R1
- DIN Selection Series
- BS O.D. 4825
- SMS 3008
- JIS G 3447

Aseptic Connections (mainly welded)

- Clamps
- Asepti clamps
- Aseptic flange
- Aseptic threads



VALVE BODIES: 2/2 WAY VALVE

Production

- Forged
 - Forging
 - Block or bar
- Investment cast body
 - Lost wax technique



Materials

- 1.4435
- 316L
- C22/2.4602 (Hastelloy)
- 1.4529
- 1.4539
- 1.4435 Basler Norm (Delta Ferrit)
- ...



VALVE BODIES: 2/2 WAY VALVE

T-Valves in investment cast

- Unique feature, only SED has
- Big price advantage
- Optimised design
- Less weight, Less weight → Energy saving (SIP) faster heating up and cooling down
- Energy saving (SIP)

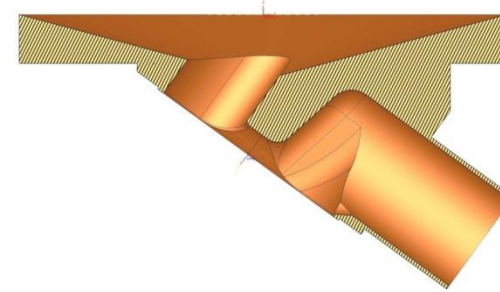


VALVE BODIES: TANK BOTTOM VALVES

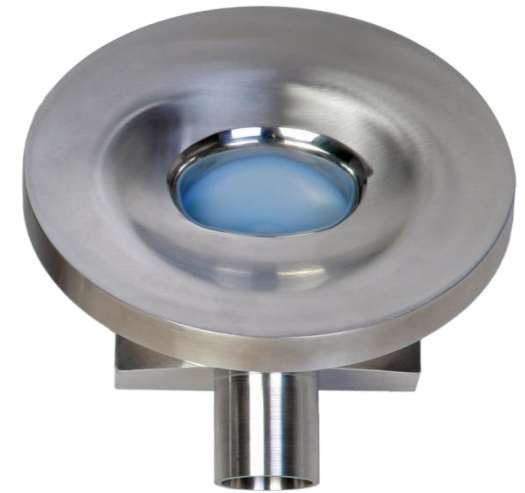
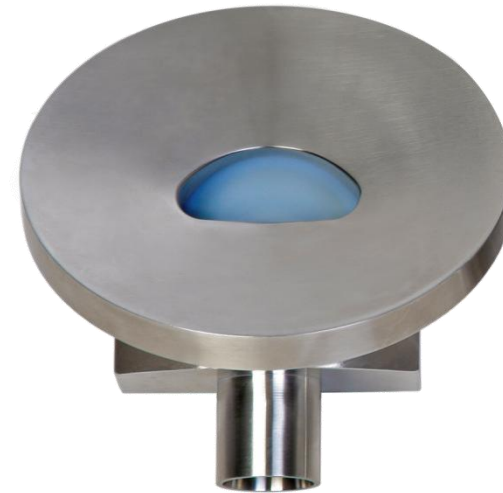
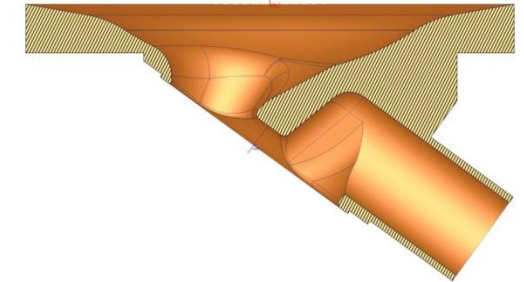
- Innovative design für Better mixability of media
 - Available in Block Material and Investment cast
 - 1.4435 / 316L or other material on request
 - Tank wall and Tank bottom
-
- Special solution possible
 - Excentric Tank bottom valve



Old design



New design



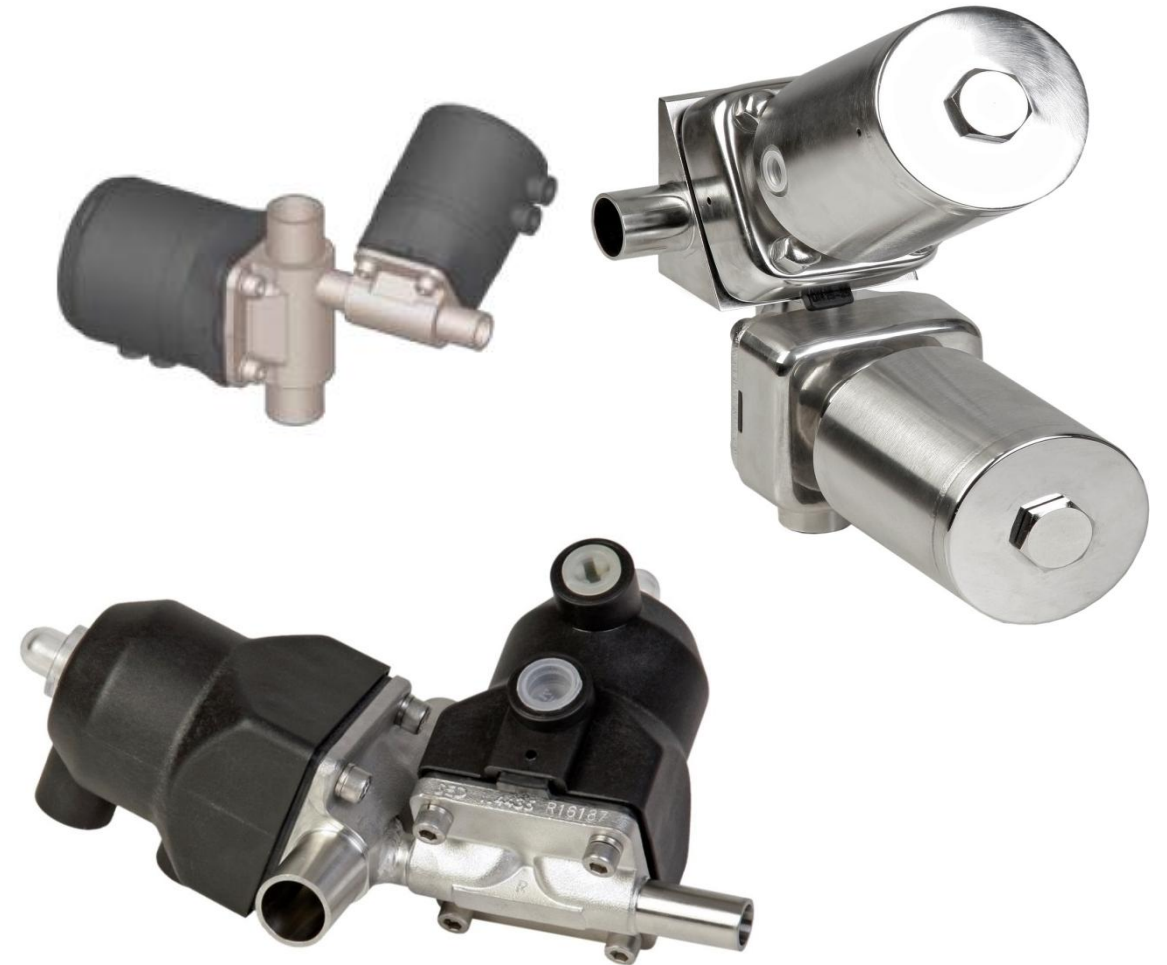
VALVE BODIES: WELDED VALVE CONFIGURATION

Type

- SL – configuration
- Assembly in vertical piping system
- SA – configuration
- Assembly in horizontal piping system

Restriction / Disadvantages

- Dead leg between both valves
- 3-D-Rule cannot be achieved in every size



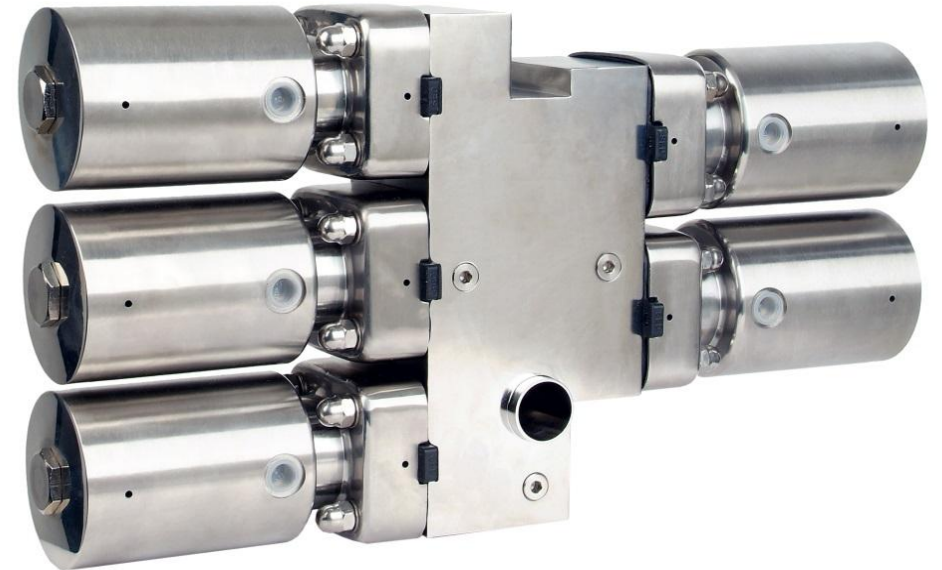
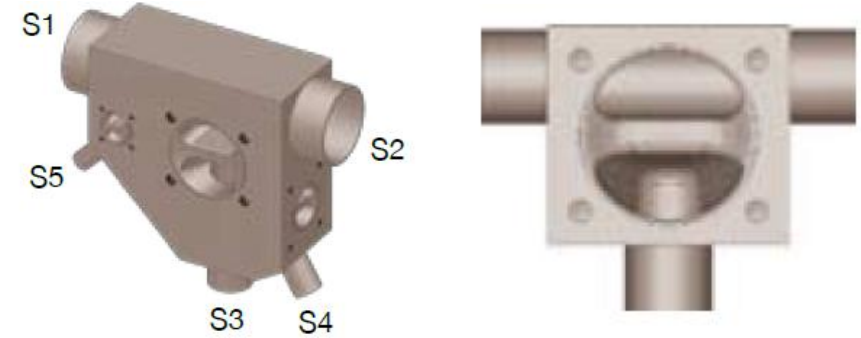
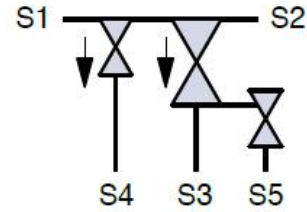
VALVE BODIES: MULTIPOINT VALVES

Types

- Main line open (POU)
- All lines and valve ports able to close

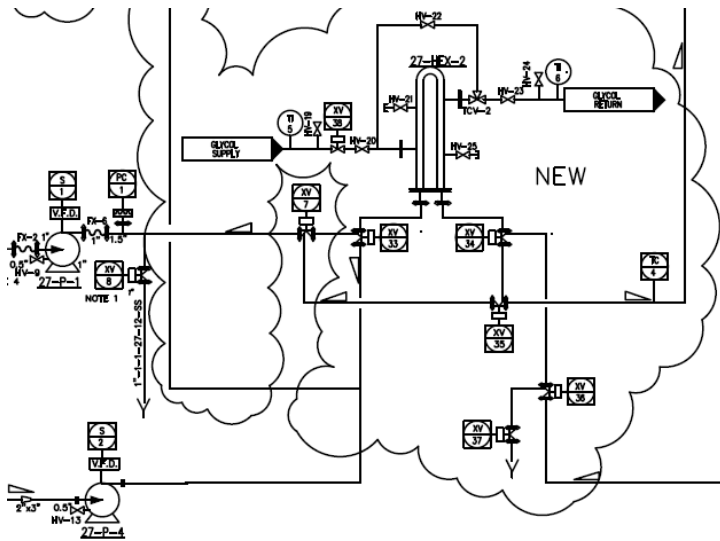
Advantages of a Multiport Valve

- Compact
- Minimized surface contact
- Minimized dead leg
- TCO (SIP, CIP)
- Customized solution/design
- Reduction of fittings, tubing, and field welds in the system
- Easier Validation (documentation)
- Optimized drainability

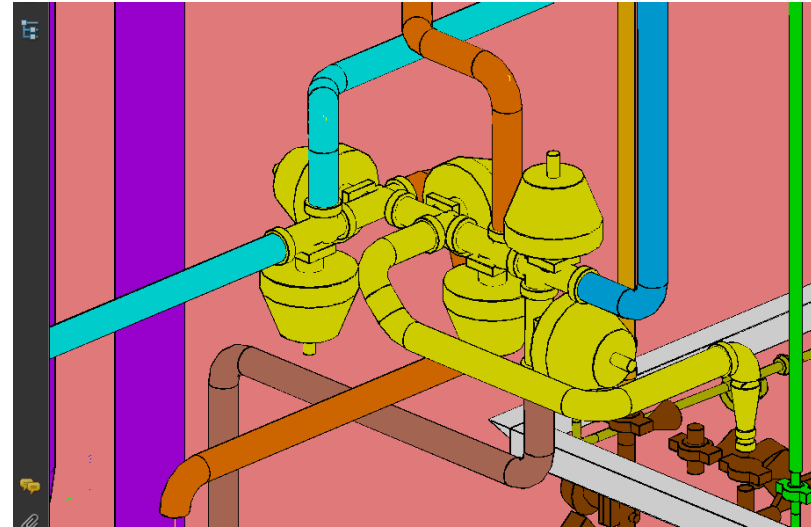


MULTIPOINT VALVES

- **Challenge:** Combine 6 individual valves to one block valve to have better efficiency in the process.



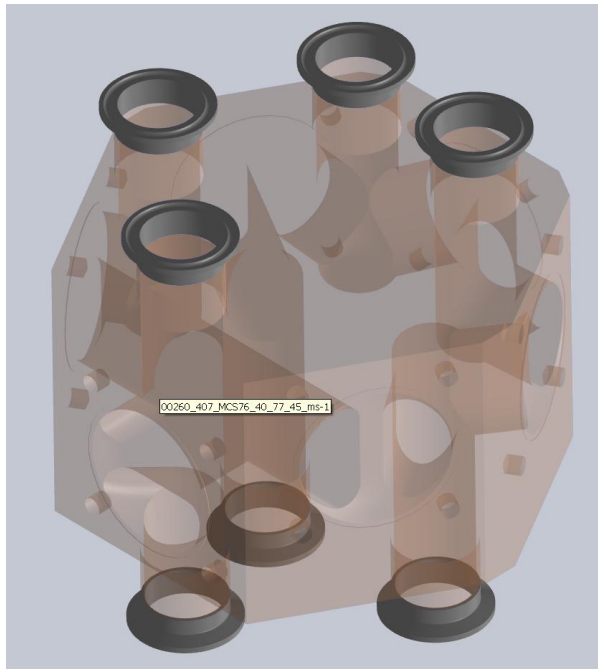
P&ID



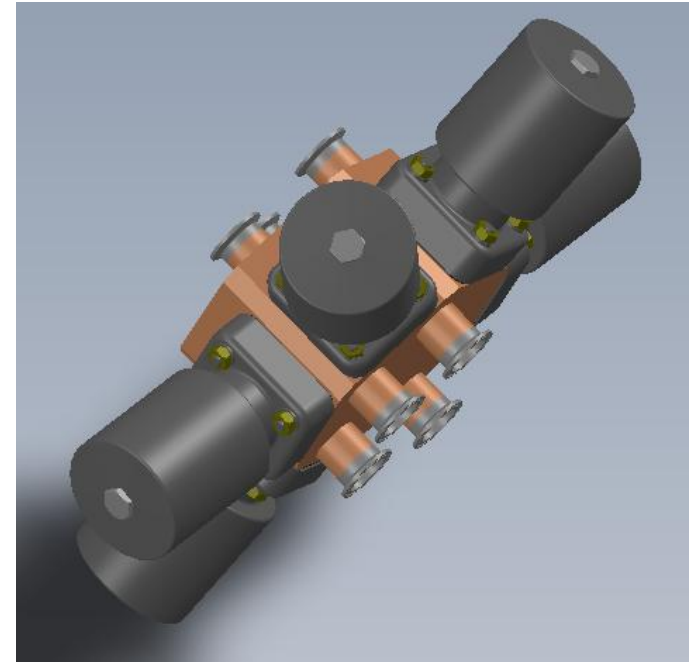
Customer's idea Old Installation

MULTIPOINT VALVES

- **Proposal:** SED provided consulting and technical support, together with customer best solution was selected



Proposed Solution



CAD File Solution

MULTI-PORT VALVES

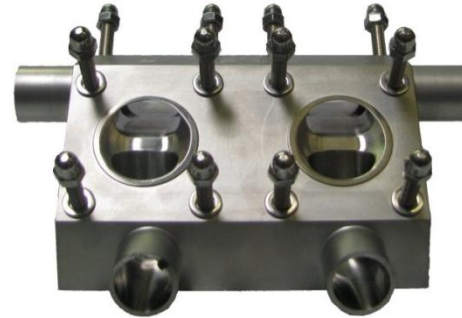
- **Result:** Successful installation at customer's production, provided block-solution offer savings in energy, space and weight, reduced risks of contamination and a much better efficiency for the process, weldings



MULTI-PORT VALVES

Details:

Weight Reduced Valve block



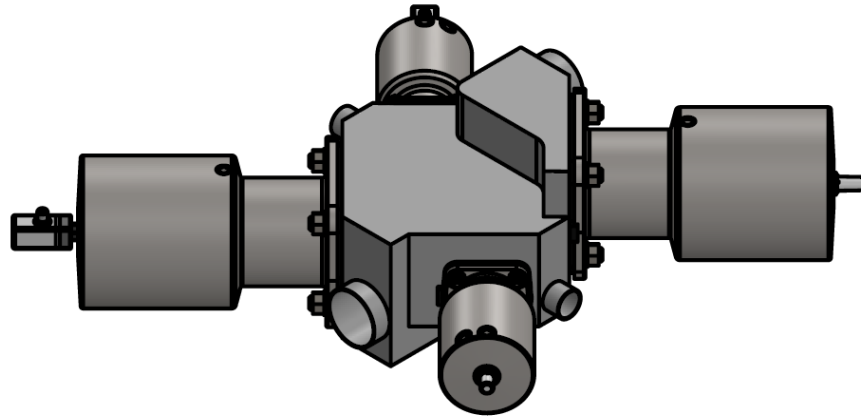
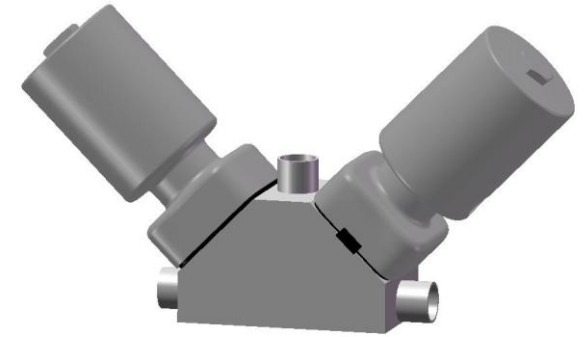
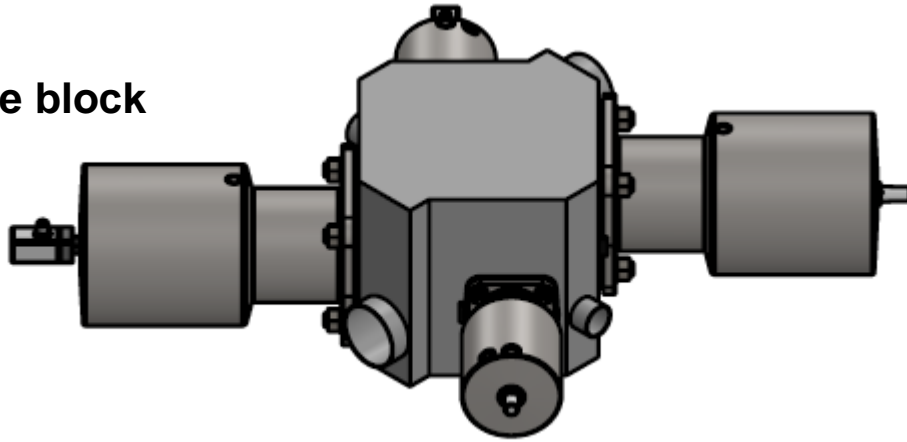
Weight reduction over 50%
Quicker Sterilisation / Cooling



MULTIPOINT VALVES

Details:

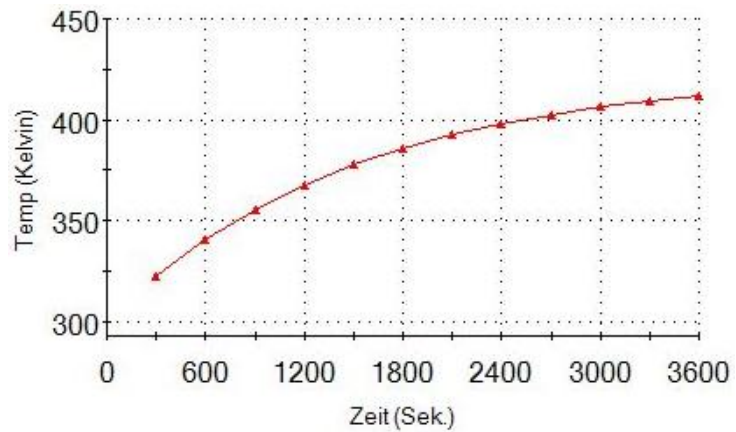
Weight Reduced Valve block



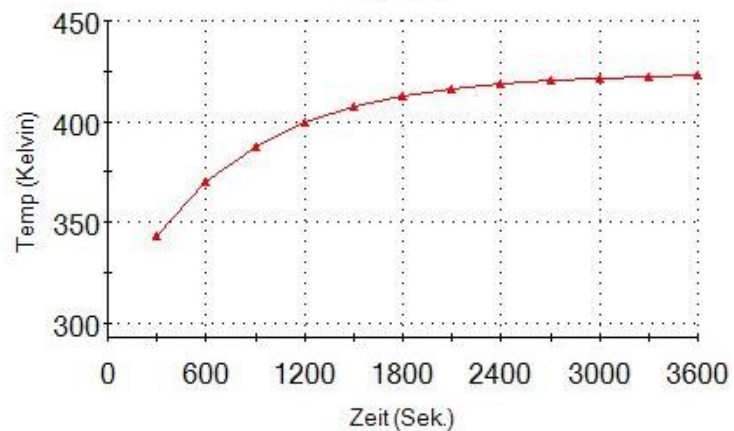
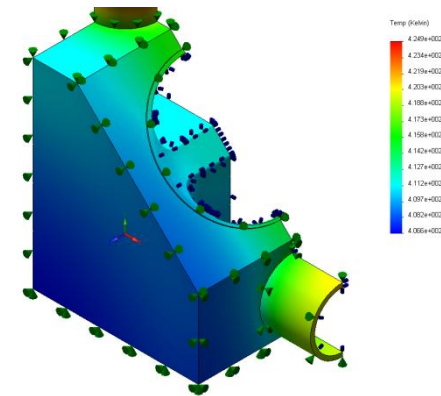
MULTIPOINT VALVES

Details:

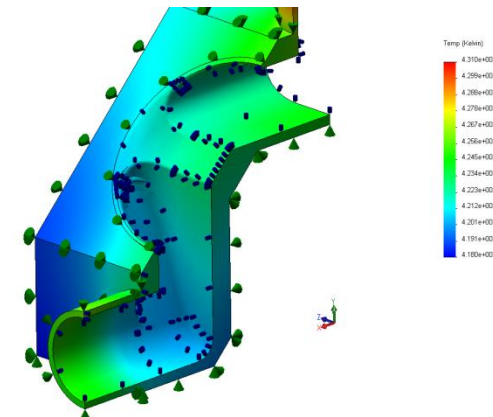
Weight Reduced Valve block



Without mass reduction

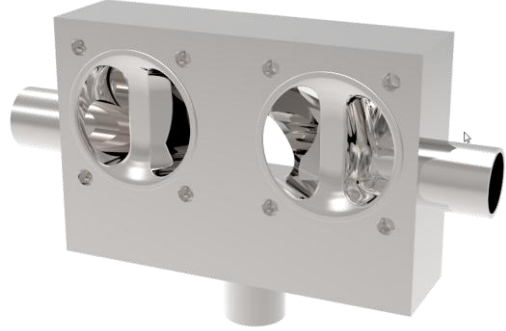


With mass reduction

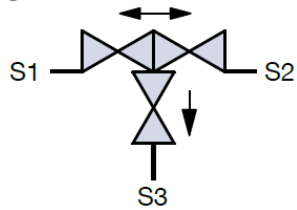


MULTIPOINT VALVES

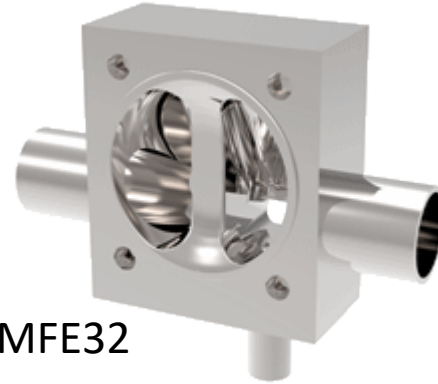
Trend is going to back to back



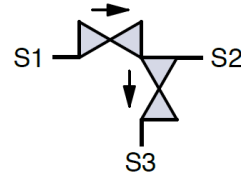
MFE33



MCE33



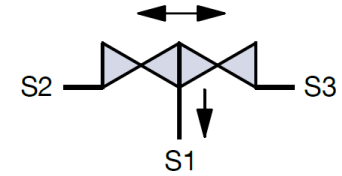
MFE32



GBE32



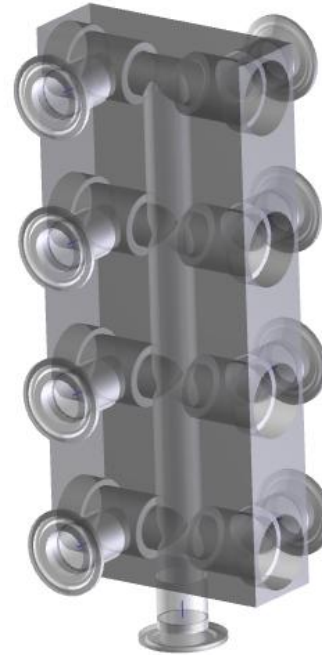
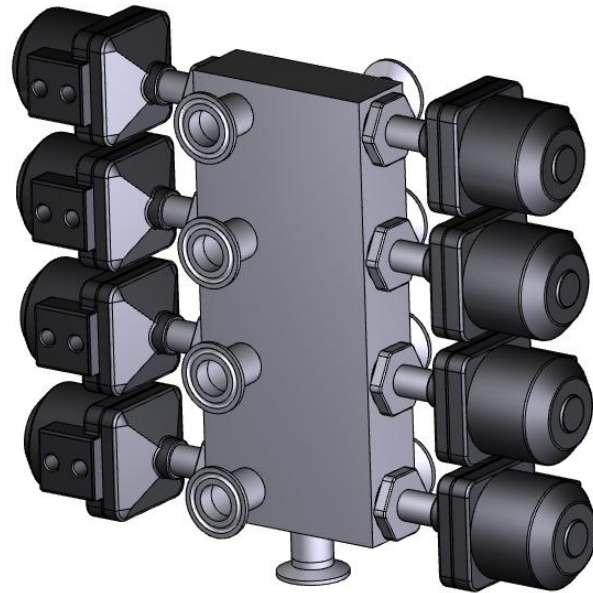
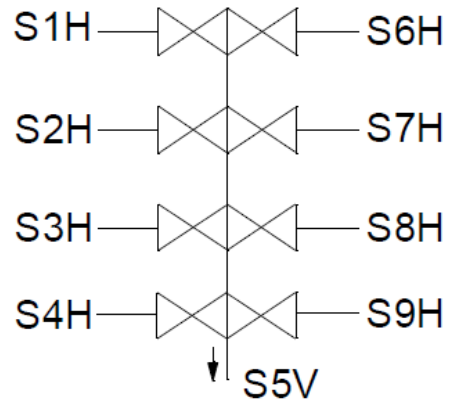
MFE32



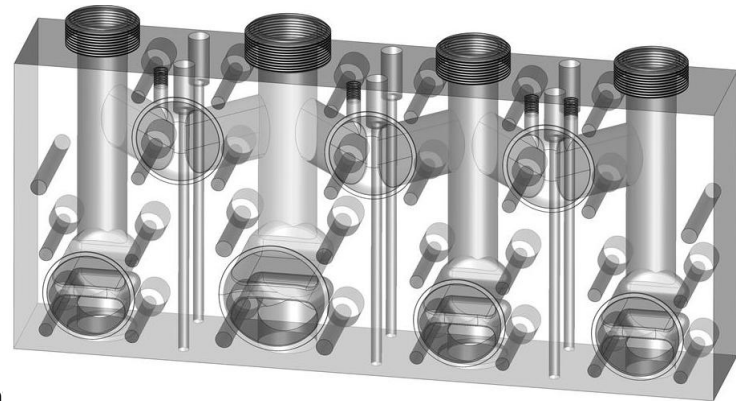
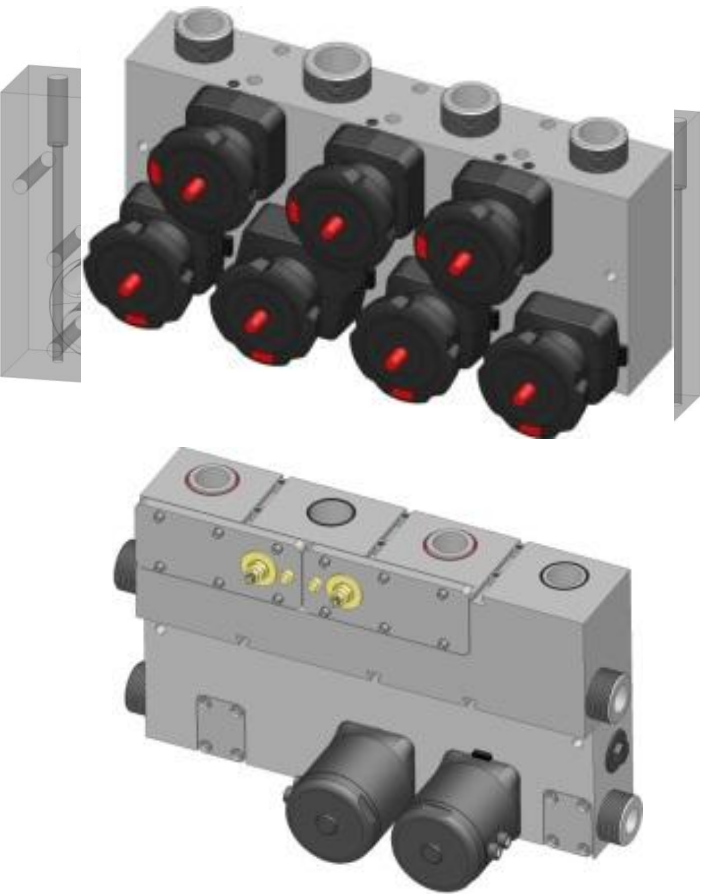
MCE32

MULTIPOINT VALVES

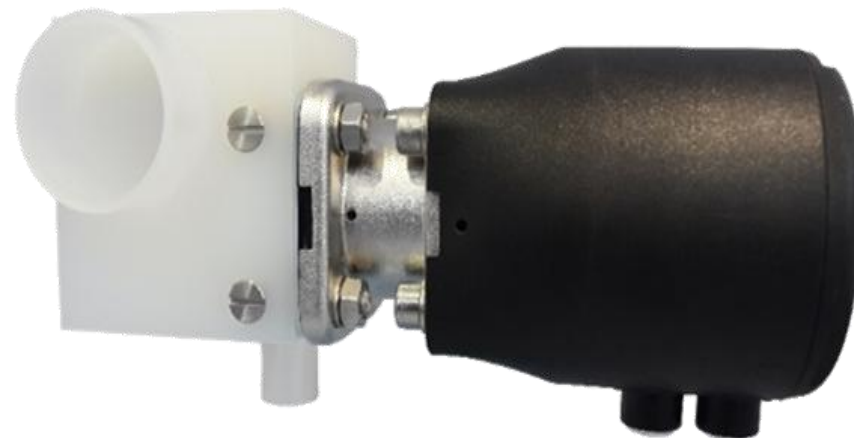
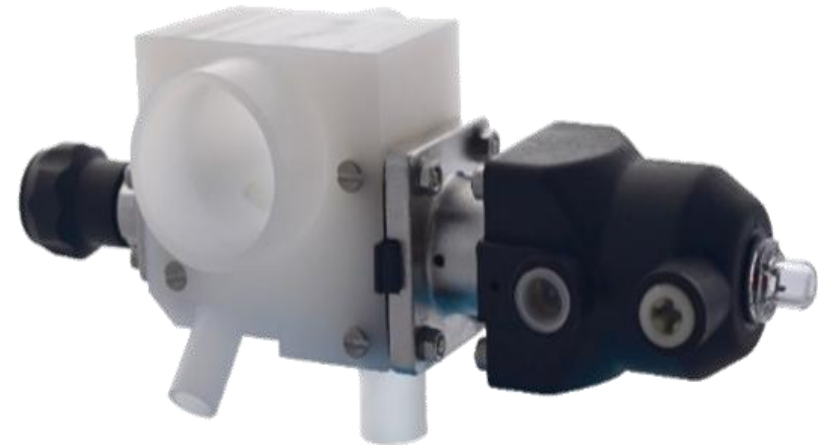
Multipoint Seat Valves



MULTI-PORT BLOCK VALVES IN PLASTIC (PP, PVC, PVDF, PEEK...)



MULTI-PORT BLOCK VALVES IN PLASTIC (PP, PVC, PVDF, PEEK...)



SYSTEM COMPONENTS AND PROCESS AUTOMATION

Manual Adjustment – Optical Indication

024.11.
Stroke Limiter



024.12.
Stroke Limiter with
Optical Position
Indicator



024.13
Manual Override with
optical position
indicator



024.10.
Optical Position
Indicator



024.98.
Optical Position Indicator
with Seal Adjuster



SYSTEM COMPONENTS AND PROCESS AUTOMATION

Electrical Switch Boxes – Pilot Control



SED Flowcontrol are supported locally by Flexachem who have over 40 years experience supplying into all market sectors including Pharmaceutical, Bio-technology, Life Sciences, Food and Beverage, Dairy, Semi-Conductor, General Industries and Wastewater Treatment Sector.

Flexachem locally support via inhouse technical specialists, external specialists & business development. In addition, with our client base we offer inventory / consignment support as needed.

Contacts are:

- Internal Specialist Shauna O Connor shauna.oconnor@flexachem.com
- External Specialist Brendan Merrigan Brendan.Merrigan@flexachem.com