

# & Environment



Servinox, through its dynamic R&D and experience in multiple industrial sectors, can provide process equipment that will enable you to achieve your efficacy objectives while reducing the impact of your activity on the environment.

The range of eco-efficient equipment offers extensive possibilities and customisations for pigging, cleaning in place and multi-function tank dome adapters.

Servinox will assist you in the choice and installation of its equipment and provides a 12 month guarantee after delivery with a commitment on the results of its equipment.



An **effective pigging** system means:

more product recovered security and traceability for your products CIP cycles that are shorter or even eliminated savings in water and energy during the CIP cycles fewer cleaning agents consumed and less effluent discharge.

An increase in productivity, An eco-responsible approach.



Servinox makes every effort to update its documents in line with improvements to its products.



# ... and **efficiency** serving **ecology**.



A well designed multi-function tank dome adapter is:

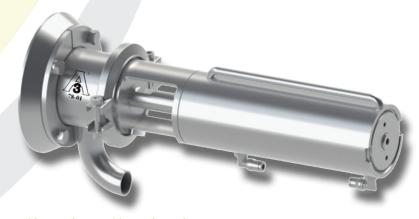
the concentration of several functions in one point less bulk and more space in the tank dome sécurity and hygiene guaranteed for your products a set and components that are lighter equipment that is easier to maintain and more time spent on production.

An increase in productivity,
An eco-responsible approach.

A well-thought washing valve means:

cip cycle times cut by 30 %
elimination of all human intervention in the tank
up to 40 % of water save during the washing cycles
less effluent discharge
and more time spent on production.

An increase in productivity,
An eco-responsible approach.







#### **OVERVIEW:**

Designed to integrate transfer lines perfectly, the Servinox pigging system is intended to recover the residual mass in the piping using a pig. The pig is positioned upstream of the zone to be evacuated, then sent in the piping by a thrusting fluid (gas or liquid).

The standard equipment comprises a launching station, a receiving station and a pig. It can be completed by full flow multi-way valves (MV), which can be used to adapt the lines in order to optimise the pigging phases. Pigging control can be manual or automatic with a pig speed control unit (RVO).

#### **KEY BENEFITS:**

- Reduction in product losses (recovery above 99.5%)
- ✓ Pigging of all products transported in piping (viscous, solid bearing, solidifying, etc.)
- ✓ Enhanced line use flexibility by limiting the risks of cross-contamination
- Elimination of the dilution phenomenon induced by water thrust without a pig
- Reduction in the volumes of effluent to be treated
- ✓ Reduction in the consumption of cleaning agents and washing cycles.
- Reduction in the operating costs and return on investment as of the first year of use
- ✓ Customised system that adapts to all types of requirements and constraints

- Transfer line pigging for all types of liquids
- Equipment especially adapted to the lines distributing viscous, solid bearing and/or solidifying liquids (creams, chocolate, caramel, etc.)

#### TECHNICAL SPECIFICATIONS: PIGGING SYSTEM

Backbone of the pigging system, the launching and receiving stations exist in different versions to adapt to the configuration adopted (see next page).

#### Sizes:

• **SMS/OD**: 25 mm (1"), 38 mm (1.1/2"), 51 mm (2"), 63.5 mm (2.1/2"), 76.1 mm (3"), 104 mm (4")

• **DIN 11850**: DN 40, DN 50, DN 65, DN 80, DN 100, DN 125, DN 150

**Connection:** Male

Maximum permitted pressure: 10 bar up to DN 100, 8 bar in DN 125 and 6 bar in DN

150 (group 2 fluids: art. 9, 97/23/CE)

Service temperature: From 1 °C to 120 °C

Thrusting fluid: Gas or liquid

Materials:

• Parts in contact with the product: 1.4404 (316L) stainless steel

• Other parts: 1.4301 (304L) stainless steel

Sealing: EPDM (Ethylene Propylene Diene Monomer)

#### TECHNICAL SPECIFICATIONS: PIG

The Servinox patented pig is two-way. Its asymmetrical shape is designed to optimise its operation when it is subjected to counter pressure from the product to thrust.

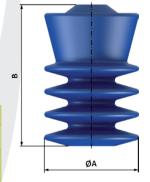
#### Materials:

• Elastomer matter and colour: VMQ (Silicone) [blue]

Elastomer hardness: 50 shoreMagnetic insert: Neodynium

#### Pig dimensions (mm):

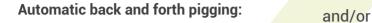
Sizes	25 mm	38 mm	51 mm	63,5 mm	76,1 mm	104 mm
Tubes	25x1.25	38x1.25	51x1,25	63,5x1,6	76,1x1,6	104x2
Ø A Tolérance	23 ±0,35	36,7 ±0,4	49,6 ±0,4	61,7 ±0,5	74,3 ±0,5	102 ±0,7
В	40	65	74	91	110	146



Sizes	DN 25	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150
Tubes	Ø29x1,5	40x1,5	52x1	70x2	85x2	104x2	129x2	154x2
Ø A Tolérance	Ø26,5 ±0,35	37,7 ±0,4	51 ±0,4	67,3 ±0,5	82,6 ±0,5	102 ±0,5	127,5 ±0,7	153 ±0,7
В	42	65	76	97	120	146	183	225



#### **POSSIBLE CONFIGURATIONS:**





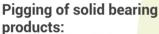
Multi-way isolation valves

Intermediate receiving station



Pigging with integrated CIP.













Manual one-way pigging:





Manual back and forth pigging:





#### **OPTIONS:**

- Pigging use security in automatic condition
- Launching station heating element (jacketed piping): Heating fluid flow to avoid the process fluid solidifying in the stations
- Station orientation: horizontal or vertical
- CIP connection/power tap on station
- Process fluid launching station isolation: see sheet ref. MV
- Pig speed control unit: see sheet RVO
- Intermediary station or distribution valve
- Surface state less than 0.8 µm
- Compliant with «ATEX 2014/34/UE zones 1 & 2, gas and dust» on request
- Other gaskets: VMQ (Silicone), FKM (Fluorocarbon rubber, eq. Viton®) or NBR (Nitrile rubber)
- Other pig qualities: EPDM (Ethylene Propylene Diene Monomer), NBR, FKM, PTFE filled VMQ, special mixes on request
- Other connections: Female, clamp, flange
- Customised equipment: please contact us

#### **GUARANTEE:**

12 months from the date of shipment (except in the case of special conditions)

#### **COMPLIANCE:**

- Elastomer gaskets compliant with FDA CFR 21.177.2600 and 1935/2004/EC ruling
- Optional: Compliant with «ATEX 2014/34/EC zones 1 & 2, gas and dust»

SERVINOX follows the recommendations of international guidelines and standards relative to hygienic design and construction, in particular those of the EHEDG and 3-A.



#### Multi-way ball valve

for process or transfer line and all types of fluids















#### **OVERVIEW:**

The multi-way ball valve is designed to close one or more circuits or distribute the pressurised fluids to one or more ways. The MV valve comprises a body with 2 or 4 ways and a key (cylindrical ball) which directs the fluid circulation. Its hygienic design ensures there is no retention zone while providing maximum cleanability by hammering during the CIP cycles.

This valve is intended for circuits carrying group 2 clear or viscous liquids (Article 13 of the European directive 2014/34/CE) and solid bearing liquids.

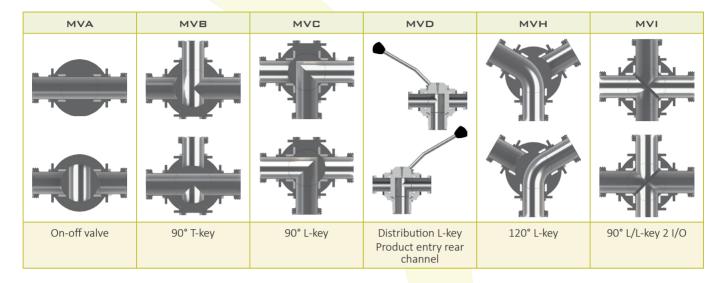
#### **KEY BENEFITS:**

- Full flow (pigging version)
- Minimisation of pressure losses
- ∠ 2 to 5 ways enabling line pooling for several products.
- Hygienic design
- ✓ Numerous options to meet all types of requirements

- ✓ Equipment adapted to the lines distributing all types of fluids, including viscous, solid bearing and/or solidifying fluids (creams, chocolate, caramel,
- Equipment especially adapted to lines with pigging systems: may be used as a distribution or isolation valve or as intermediary station (pigging receiving version)

#### **AVAILABLE VERSIONS:**

The valve body can have 2 to 4 ways, as well as a key (cylindrical ball) which directs the fluid flow:



#### **TECHNICAL SPECIFICATIONS:**

#### Sizes:

- **SMS:** 25mm (1"), 38mm (1.1/2"), 51mm (2"), 63.5mm (2.1/2"), 76.1mm (3"), 104mm (4")
- **DIN 11851:** DN10, DN15, DN20, DN25, DN32, DN40, DN50, DN65, DN80, DN100, DN125, DN150

**Connection:** Male

**Product pressure:** Empty 10 bar

**Service temperature:** From 1 °C to 120 °C

Materials:

- Parts in contact with the product: 1.4404 (316L) stainless steel
- Other parts: 1.4301 (304L) stainless steel
- Sealing: Rings PTFE (Polytetrafluoroethylene, eq. Teflon®) and EPDM (Ethylene Propylene Diene Monomer) gaskets

Standard Ra of the valves is 0.8 µm interior.

The DN10 to DN65 standard valves have an operating lever. Models DN80 and DN100 have a double operating lever. As of DN80, we recommend a pneumatic or electric actuator.

All the valves are marked on the lower part of the key; this indicates the exact position of the ways.

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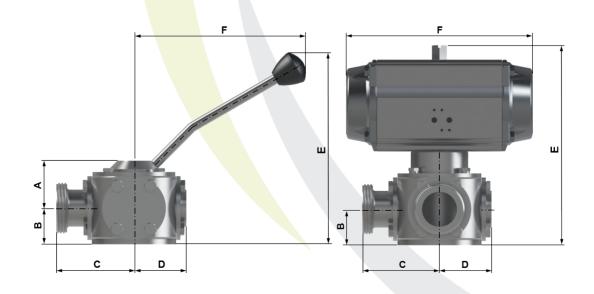
#### STANDARD DIMENSIONS IN MM:

SIZES	DN10	DN15	DN20	DN25 SMS25	DN32
Α	25	28.5	31.5	34	40.5
В	20	24.5	26	29.5	35.5
С	55	63.6	78.1	78	78
Е	64	55	98	115	101
F	71	71	110	135	146

SIZES	DN40 SMS38	DN50 SMS51	SMS63.5	DN65	DN80 SMS76.1
Α	49	57.5	65.5	65.5	78.5
В	43	50	58	58	67.5
С	96.2	107	123	117	139
Е	155	155	198	198	250
F	160	205	265	265	295

SIZES	DN100 SMS104	DN125	DN150
Α	89	-	-
В	81.5	110	134
С	160	292	390
E	265	-	-
F	295	-	-

**Note:** The MVH model is only available from DN25



Non contractual document and pictures, subject to change with no prior notice.

Only the commercial offer and the technical manual supplied with the equipment may be used for technical and legal purposes.

#### OPTIONS:

- Compliant with « ATEX 2014/34/UE zones 1 & 2, gas and dust»
- Handle operating stop: avoid any risk of fluid mix and uncontrolled operations
- Position detection for controller (inductive sensors)
- Automatic version
- Accessories (EV, ED, detection, etc.)
- Pigging distribution or receiving versions
- Heating element
- Intensive cleaning version
- Other connections: To weld, clamp, female, flange
- Sealing other materials available for rings: Polyethylene, PTFE glass-filled, PTFE filled
- Stainless steel
- Sealing other materials available for gaskets: NBR (Nitrile rubber), FKM (Fluorocarbon rubber, eq. Viton®), VMQ (Silicone), VMQ PTFE encapsulated (Polytetrafluoroethylene, eq. Teflon®), FFKM (Perfluoroelastomer, eq. Kalrez®)
- Sealing USP Class VI compliant
- Specific surface state
- Other construction materials nuances
- Customised equipment: please contact us

#### **GUARANTEE:**

12 months from the date of shipment (except in the case of special conditions)

#### **CONFORMITÉS:**

- Elastomer gaskets compliant with FDA CFR 21.177.2600 and 1935/2004/EC ruling
- Optional: Gaskets **USP Class VI** compliant
- Optional: Compliant with « ATEX 2014/34/UE, zones 1 & 2, gas and dust»

SERVINOX follows the recommendations of international guidelines and standards relative to hygienic design and construction, in particular those of the EHEDG and 3-A.



### Flush washing valve 3-A

for stirred tank

DA \_ A ©













#### **OVERVIEW:**

The LPA-A washing valve is designed to carry out intensive cleaning of the tank during CIP cycles: it can reach the «shadow zones» generated by the components including agitators and their shafts, anchors and pigs.

Each LPA-A valve is unique: SERVINOX studies the impact zones according to tank and component characteristics, for optimal washing efficacy and reduced cycle time. Attached to the shell of the tank, its flush design does not interfere with wall scrapers and does not damage them.

#### **KEY BENEFITS:**

- ✓ Washing valve certified 3-A 58-01
- ✓ Efficacy: Intensive cleaning of the tank using the customised design of the spraying grid on which the number, size and orientation of the holes is calculated according to valve positioning and the zones impacted inside the tank
- ✓ Return: Reduction in CIP cycle costs
- ✓ Productivity: Better availability of the installations through the reduction in CIP times
- ✓ Environment: Savings in water and washing products.
- Dual control of the valve with spring loading and closure maintained in the event of air motor cut-off

- For reinforced sanitising of process tanks stirred with scraper blades or proximity scrapers
- All types of products

#### **TECHNICAL SPECIFICATIONS:**

Sizes: DN 25

Intake connection: To weld, clamp

Connection on tanks: Flush flange to weld

Service pressure: Up to 6 bar

**Sealing:** Up to 3 bar in the tank with no air in the cylinder

Service temperature: From 0 °C to 140 °C

Washing rate: 6 m<sup>3</sup>/h at 2 bar

CIP liquid pressure on closed valve: 3 bar (air control cylinder 6 bar)

Materials:

• Parts in contact with the product: 1.4404 (316L) stainless steel

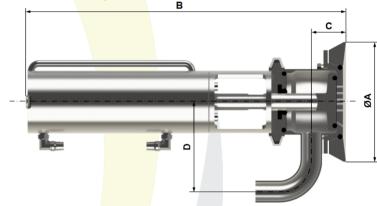
• Other metal parts: 1.4307 (304L) stainless steel

Cylinder body: Ground-glass cylinder tube Stainless steel 1.4307 (304L)

• Gaskets in contact with the product: <a href="mailto:EPDM">EPDM</a> (Ethylene Propylene Diene Monomer) or FKM (Fluorocarbon rubber, <a href="mailto:eq.Viton">eq. Viton</a>)

#### **DIMENSIONS IN MM (standard version):**

SIZES	DN 25 (1")
ØA	139
В	370
С	40
D	96



#### OPTIONS:

- ATEX 2014/34/UE zones 1 & 2, gas and dust oversion possible
- Control unit
- Position detector
- Other gaskets

#### **GUARANTEE:**

12 months from the date of shipment (except in the case of special conditions)

#### **COMPLIANCE:**

- Valve certified 3-A 53-06
- Elastomer gaskets compliant with FDA CFR 21.177.2600, 3-A Class I and ruling 1935/2004/EC
- Optional: compliant with ATEX 2014/34/UE, zones 1 & 2, gas and dust» directive

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The XCHE is a device placed on the dome of a tank. At a single point, it can be fitted with equipment for pressure (SHP safety valve) and vacuum protection (BOG or HSV-A vacuum break valves depending on diameters), for washing the tank, the XCHE and all its components, and for pressurising and recovering fermentation gases (CHE washing check valve). The XCHE is also equipped with additional taps, for stainless steel rupture disc and/or for pressure sensor.

#### **KEY BENEFITS:**

- ✓ Smaller size of the all-in-one device to facilitate installation on new or reconditioned tanks
- Reduced installation costs, in particular because of the small number and diameters of connections, and by using the same tubing for all the features described above
- ✓ Total protection of the tank, in particular against thermal and chemical shocks
- Continued operation assured during process phases (recovery of fermentation gases, pressurizing, rendering the interior inert, etc.), including when the washing ball is immersed
- ✓ Product quality preserved as a result of a design complying with the most stringent international hygiene standards and of reinforced sanitising (CIP/SIP)

- Manufacture and storage of alcoholic carbonated beverages (beer, sparkling wine, cider, etc.) and non-alcoholic drinks (water and other sodas)
- ✓ This equipment is designed for fermentation tanks, filtered beer tanks, yeast propagating apparatus, yeast storage tanks, conditioning tanks, manufacturing tanks, storage tanks and other buffer tanks

#### **TECHNICAL SPECIFICATIONS:**

Pressure: Up to 6 bars depending on diameter

**Working temperature**: Up to 120 °C depending on tightness **Sizes**: ND 100, ND 125, ND 150, ND 250 and ND 320

**Connection to tank**: Flange up to DN150, to weld above that CIP/Gas connection: Male, clamp, DIN/SMS/ND 40 to 76

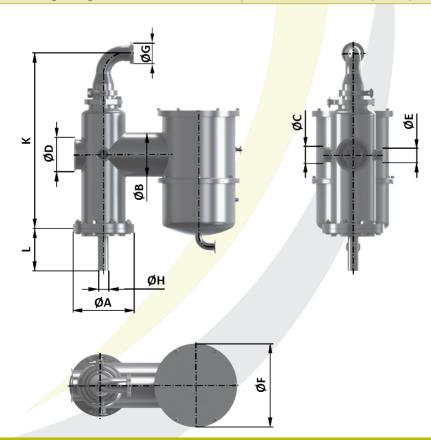
Washing ball connection: Smooth, 25 or 38 mm

Materials:

- Parts in contact with the product: 1.4307 (304L) or 1.4404 (316L) according to size & PTFE (Polytetrafluoroethylene, eq. Teflon®)
- Other parts: 1.4307 (314L)
- Tightness: EPDM (Ethylene Propylene Diene Monomer) gaskets

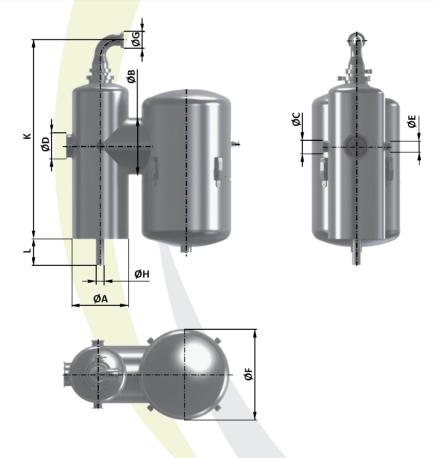
#### **DIMENSIONS IN MM (standard version):**

SIZES	1	2	3
ØA : Connection to tank	104*2	154*2	154*2
ØB : Connection to vacuum valve	65	100	154
ØC : Connection to pressure valve	50,5	50,5	64
ØD : Connection for rupture disc (option)	50,5	77,5	119
ØE: Connection for pressure measurement (option)	50,5	50,5	50,5
ØF : Dimension plan of vacuum valve	109 183 284		284
ØG : Washing input/CO2 input or output	Between 40 and 76		
ØH: Washing tubing	38		
K : Height above the tank	630		
L : Length of washing tubing inside tank	Available upon request		





SIZES	4	5	
ØA : Connection to tank	254*2	324*2	
ØB : Connection to vacuum valve	250	320	
ØC : Connection to pressure valve	77,5	77,5	
ØD : Connection for rupture disc (option)	119	119	
ØE : Connection for pressure measurement (option)	50,5	50,5	
ØF : Dimension plan of vacuum valve	400	500	
ØG : Washing input/CO2 input or output	Between 40 and 76		
ØH: Washing tubing 38			
K : Height above the tank	50		
L : Length of washing tubing inside tank	Available up	oon request	



#### OPTIONS:

- Tap with ferrule clamp for installing the stainless steel rupture disc
- Tap for installing the pressure sensor
- Other materials and designs available upon request
- Other connections on tank (up to DN150): Male, female, clamp
- Sealing: FKM (Fluorocarbon Rubber, eq. Viton®), VMQ (Silicon), NBR (Nitrile rubber), FFKM (Perfluoroelastomer, eq. Kalrez®)
- Forced opening of vent valves
- Version for installing on buffer tank for additional accessories
- Customised equipment: please contact us

#### **GUARANTEE:**

12 months after shipment (except for special conditions)

#### **COMPLIANCE:**

- Gaskets compliant with FDA CFR 21.177.2600 and European regulation 1935/2004/EC
- Ducting and tank accessories compliant with PED, European Pressure Equipment DESP 2014/68/UE, §4.3
- ATEX Directive « ATEX 2014/34/UE, zones 1 & 2, gas and dust »
  Internal washing: equipment tested by the IFBM (French Institute of Brewery and Malthouse Beverages)
- Compliance of SHP, BOG, HSV-A equipment: see individual data sheets

SERVINOX follows the recommendations of international guidelines and standards relative to hygienic design and construction, in particular those of the EHEDG and 3-A.















#### **OVERVIEW:**

Resulting from the process expertise of our teams and their extensive experience in numerous sectors (agri-food, chemical industry, cosmetology, pharmaceuticals, etc.), the RT valve illustrates the capacity and willingness of Servinox to develop solutions to improve and secure the production processes.

The RT valve is a check valve allowing vacuum powder introduction via the tank bottom. Its flush design guarantees there is no retention zone (an ideal place for bacteria and moist powder plugs to develop). The full clearance of the disc coupled with its massive design (the piston rod has the same diameter as the disc itself) guarantee the total absence of powder retention inside the valve.

SERVINOX possesses simulation tools to dimension an RT valve with respect to the characteristics of the tank, product and quantities of powder to add.

#### **KEY BENEFITS:**

- ✓ Productivity: study and simulations prior to sizing for enhanced effectiveness
- ✓ Quality: the flush design preserves product hygiene and integrity
- → Reliability of the production process: quality of the dispersals, control of the quantities of powder added and repeatability of the production recipes
- ✓ Protection of the operators in the production phase: prevention of the risks associated with exposure to stress and health risks at work (handling loads, exposure to emanations, etc.)
- Maintenance: the tank bottom position makes for easier accessibility

- ✓ Installation on process tank bottom and vacuum production reactor.
- ✓ We recommend completing the installation with a rotor-stator type disperser to ensure powder propagation and homogeneous mix in all the liquid

#### TECHNICAL SPECIFICATIONS:

**Sizes:** DN 15, DN 25, DN 40, DN 50

Connection: To weld

Service pressure: From -1.0 to 6.0 bar Service temperature: From 1 °C to 120 °C

**Materials:** 

- Parts in contact with the product: 1.4404 (316L) stainless steel Other parts: 1.4301 (304L) stainless steel
- Tightness in contact with the product: FKM (Fluorocarbon ru-
- bber, eq. Viton®), PU (Polyurethane)
- Other gaskets: Perbunan®

The valve is equipped with position detection by magnetic inductive sensors mounted on the control cylinder rail.

#### **DIMENSIONS IN MM:**

Sizes	DN 15 (17.2x1.6)	<b>DN 25</b> (25x1.25)	DN 40 (38x1.25)	<b>DN 50</b> (51x1.25)
A°	45°	45°	30°	30°
ØВ	60	83	100	138
ØС	90	109	123	148
D	62	104	165	195
L	251	370	410	554

#### OPTIONS:

- Compliant with "ATEX 94/9/CE zones 1 & 2, gas and dust"
- Control unit (with solenoid valve, standard, ATEX zone 2 or ASi)
- Other connections: Clamp, Male, flange, etc.
- Tightness: other materials available
- Other construction material types and finishes on request
- Customized equipment: please contact us

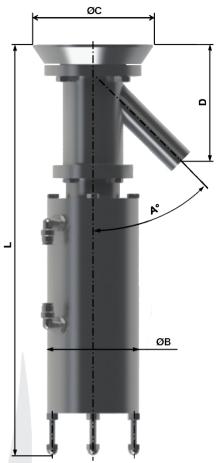
#### **GUARANTEE:**

12 months from the date of shipment (except in the case of special conditions)

#### **COMPLIANCE:**

- Tank accessories compliant with European PED 2014/68/UE, §4.3
- Optional: Compliant with "ATEX 2014/34/UE zones 1 & 2, gas and dust"
- Elastomer gaskets compliant with FDA CFR 21.177.2600 and 1935/2004/EC ruling

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# SERVINOX

#### 3 RANGES FOR 3 PRIORITIES...

Servinox, through its 3 main areas of expertise, invites the players in all sectors of industry to embark on a real momentum for progress:



#### ... AND SOLUTIONS FOR SPECIFIC PROBLEMS.

Because the demands of industry players have evolved and shall continue to do so, Servinox is pleased to make available its research for enhancing performance.

## « Tailor-made solutions engineered for you »

The dynamism of our company is reflected by our teams and their ongoing research for solutions, each one of which can be adjusted to a specific activity (agrifood, cosmetology, pharmaceuticals, etc.) and using regularly updated modelling, design, manufacturing, control and testing tools.

This ensures we have the skills and capacity to work on your specific problems, regardless of the momentum or phase of your activity.