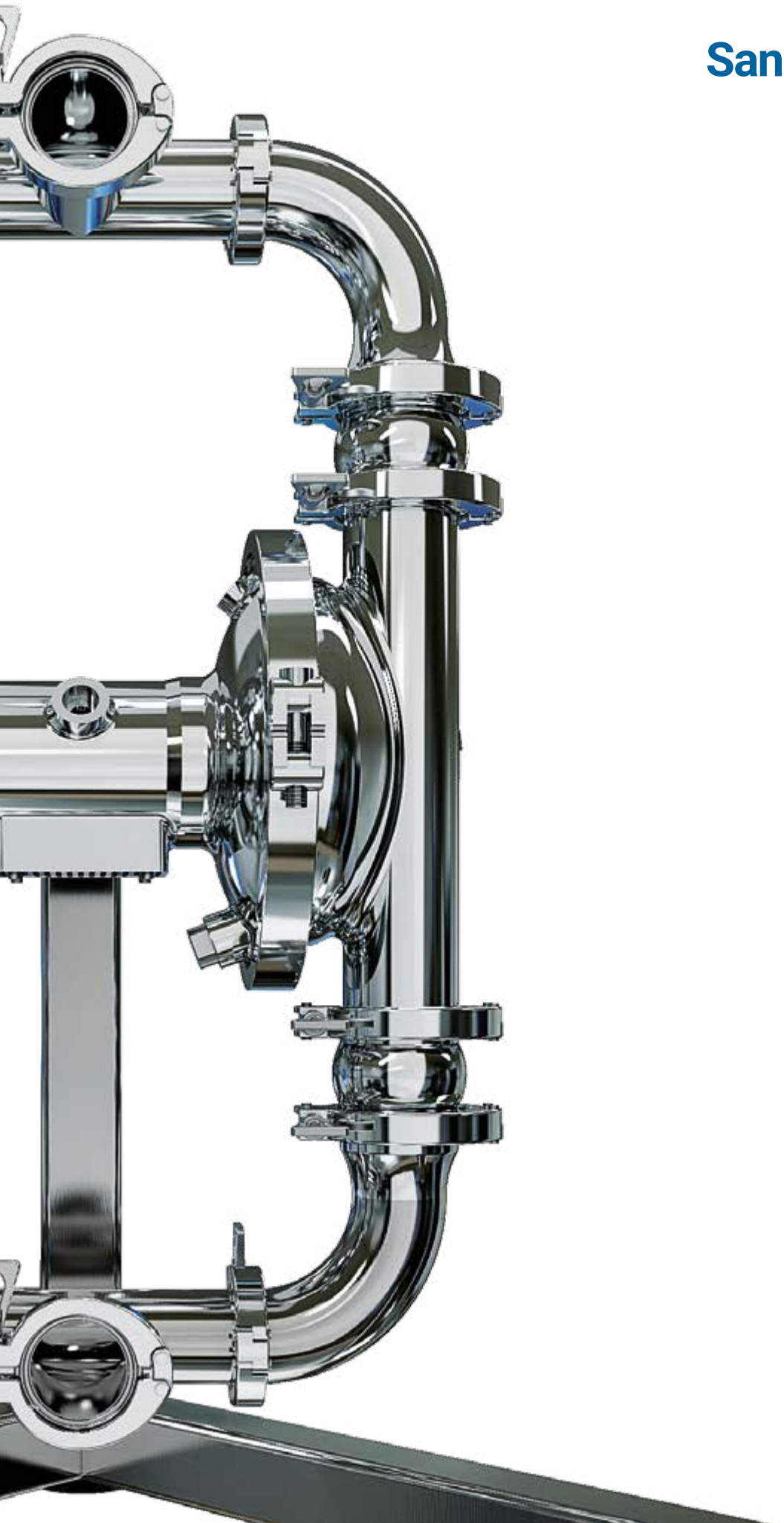


Sanitary and Food Pumps

DEBEM
HYGIENIC SOLUTIONS

DEBEM
MADE IN ITALY

YAMAHA FACTORY RACING
OFFICIAL SPONSOR
MotoGP Team 2022

Officially engaged with technology.


ENEOS
20
MONSTER

DEBEM
MADE IN ITALY

YAMAHA
OFFICIAL SPONSOR
MotoGP Team 2022

Debem is Official Sponsor of

Monster Energy Yamaha MotoGP

Debem Srl has chosen to become **Official Sponsor of Monster Energy Yamaha MotoGP**. Debem is proud to be part of the **MotoGP World Champion Team**, sharing founding values such as **performance, technology, precision and efficiency**.

The three-year contract that joins Debem to the currently MotoGP World Champion Team represents a clear declaration of intent on how the company is projected to the challenges of the future.

Officially engaged with technology.

Our President, Marco De Bernardi, thus illustrates the reasons that led Debem to this choice:

The idea of a connection between Debem and Monster Energy Yamaha MotoGP is the epitome of our common goals, sharing founding values such as performance, technology, precision and efficiency. Values on which the Yamaha MotoGP team delivers big time in his sporting activity, with the recently conquered World Title being just one of its many achievements. Our obsession with research and development of new solutions in the industrial sector, combined with the worldwide extension of our market, perfectly combine with the evolved, dynamic and winning image of Yamaha Factory Racing.

Index

THE COMPANY

Debem Srl

The company specialises in pumping solutions for the distribution of fluids in the food and beverage, pharmaceutical, cosmetic and hair care industries.

Our pumps

Our pumps are manufactured using high quality materials sourced in Italy (AISI316 L and Food grade PTFE) and are designed and built to industry standards, including: 3A, MOCA and FDA.
They are also ATEX certified.

Sectors and Applications

The "'HYGIENIC" series range includes different types of **safe and versatile air-operated** double diaphragm pumps ideal for pumping liquids with variable viscosity, even if containing suspended particles.

Pumps suitable for the following sectors:

Food and beverage

Meat and Poultry

Pharma-ceuticals

Cosmetics and Hair care

Advantages of Debem Sanitary and Food Pumps

Special Diaphragms

Special ANTI-DEPOSIT surface

The unique surface of Debem diaphragms prevents the formation of product deposits and at the same time improves flow to facilitate fluid movement.

Integrated plate

The diaphragms don't use fastening "caps"; the diaphragm holding plate is integrated, which prevents the deposit of product residues.

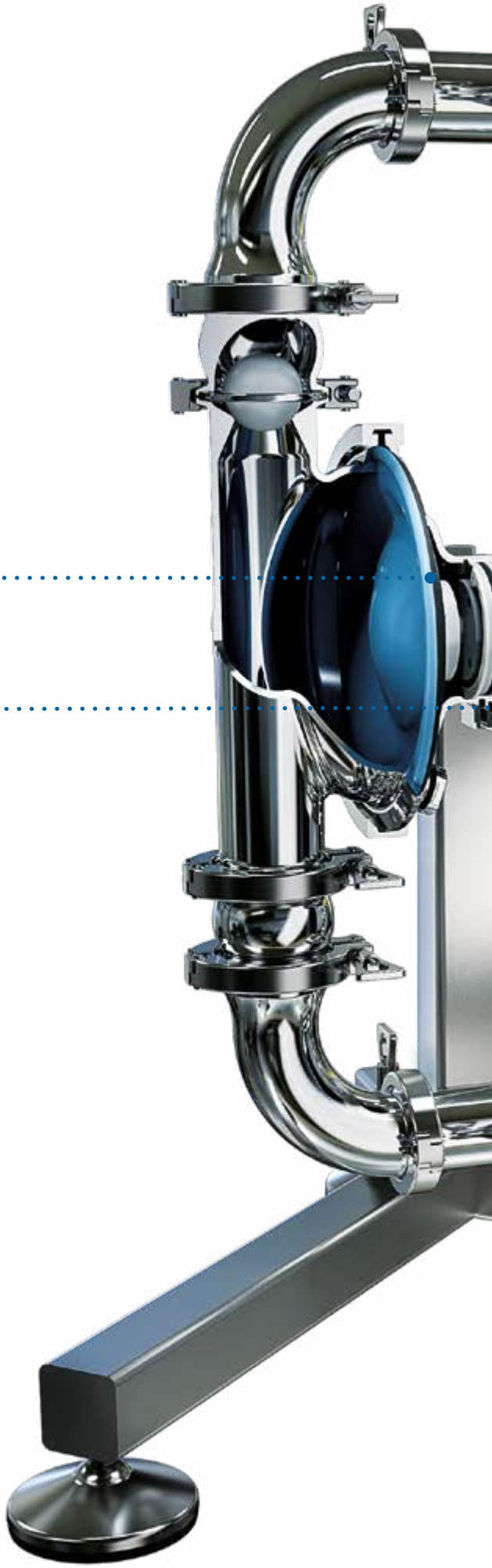
Coupled materials PTFE + EPDM

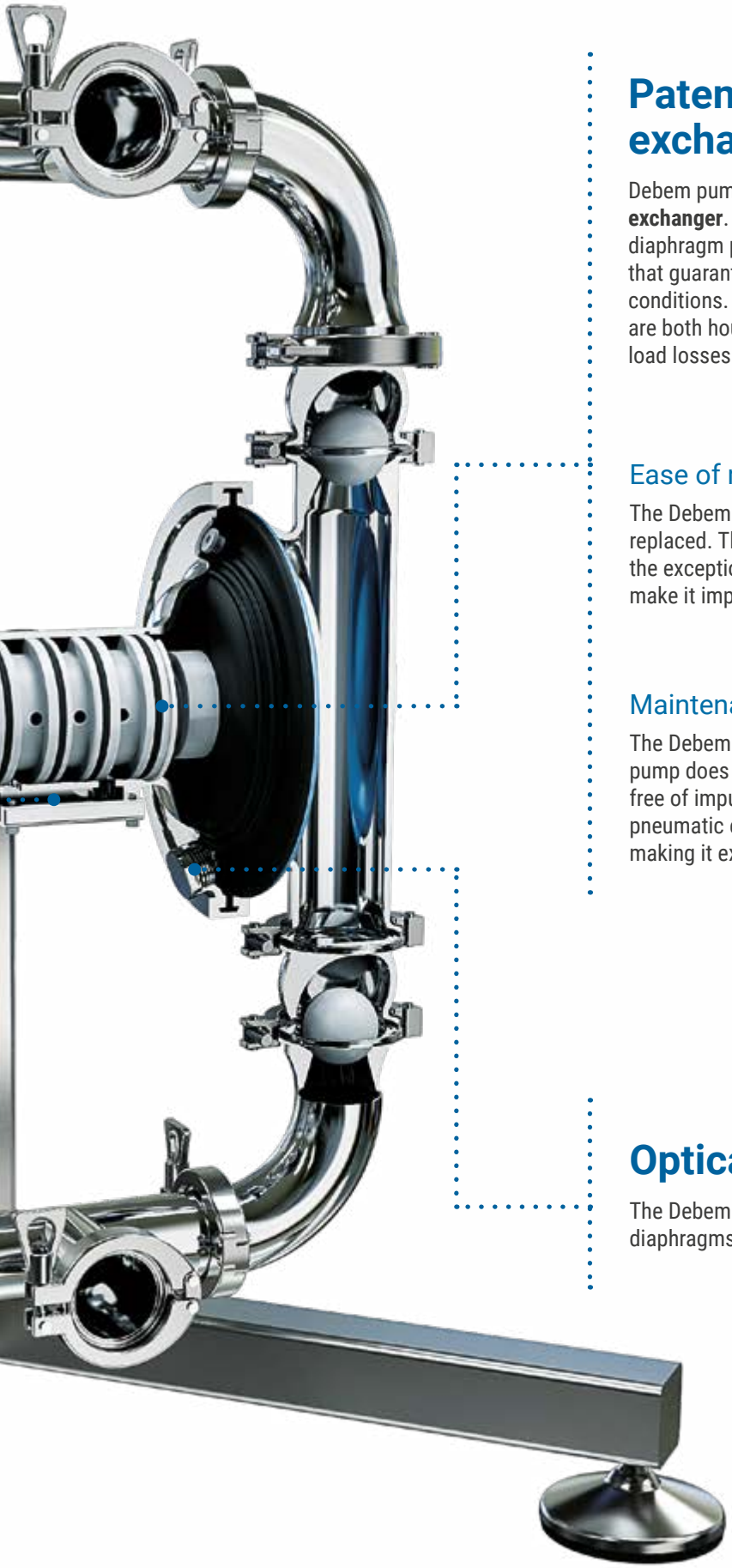
Debem diaphragms are built using a food-grade PTFE cover and a support layer of food-grade EPDM. This type of diaphragm is durable and highly resistant to mechanical stress.

Main block

The main block is a fundamental part of the pump housing the operating mechanism.

The main block of the AISIBOXER and SANIBOXER pumps consists of a single (mould cast) piece in AISI316 L finished to match the casings and manifolds (mechanically polished and RA <0.8 µm).





Patented pneumatic exchanger

Debem pumps use a patented **stall-prevention coaxial pneumatic exchanger**. This device introduces compressed air to change the diaphragm pressure equilibrium, assisted by a stall-prevention circuit that guarantees optimal performance, even in the most critical conditions. The control part (spool) and the power part (exchanger) are both housed inside the pump in a **single block**, which limits further load losses when compressed air flows in the pump.

Ease of repair

The Debem pneumatic exchanger can be easily repaired and/or replaced. The internal exchanger consists entirely of plastic parts (with the exception of the shaft connecting the two diaphragms), which make it impervious to corrosive fluids and vapours.

Maintenance

The Debem exchanger is self-lubricated and the supply air feeding the pump does not require lubrication (on the contrary, it must be dry and free of impurities such as oil, dust and condensation). The Debem pneumatic exchanger has (uniquely) very few component pieces, making it extremely easy to replace and maintain.

Optical Sensors

The Debem fibre optic sensor is designed to detect any rupture of the diaphragms and to automatically stop pump operation.

3A®

FDA

ATEX

ISO 9001

CE

AISIBOXER and SANIBOXER

Air-operated double diaphragm volumetric pumps, MOCA - FDA and ATEX certified. The pumps in the SANIBOXER version are also certified 3A.
The pumps are manufactured in mechanically polished AISI 316 L with a surface finish of less than <0.8 µm.

The pumps are suitable for handling fluids in sectors such as the food, beverage, pharmaceutical, cosmetic and hair care.

They are able to handle liquids and fluids with high apparent viscosity, even with the presence of suspended solid parts. The pumps, in the SANIBOXER version, are equipped with sensors to detect the rupture of the membranes in order to avoid contamination during transfer processes.

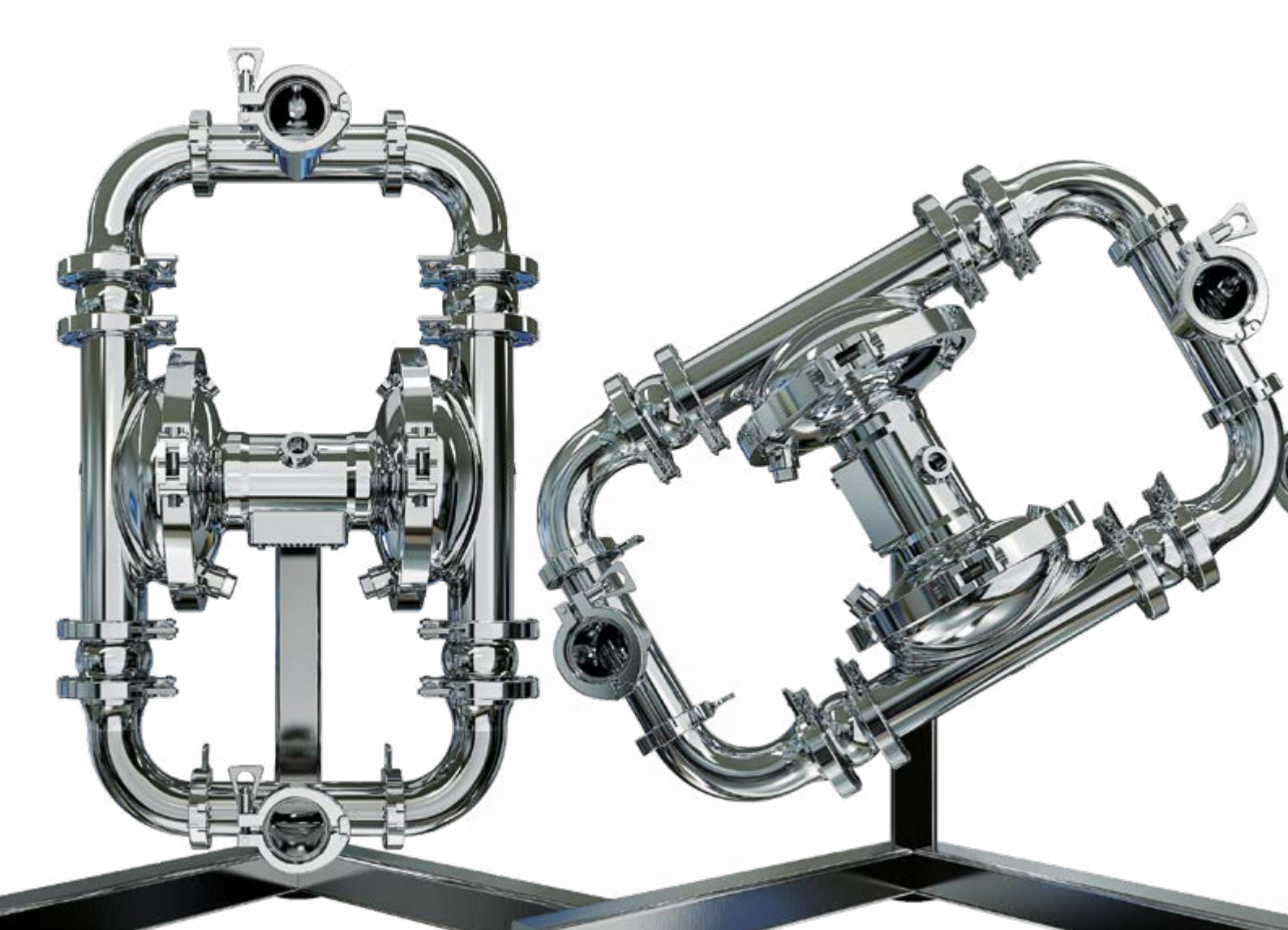
- Special Diaphragms with ANTI-DEPOSIT surface
- Mould cast main block consists on a single piece
- Patented stall-prevention coaxial pneumatic exchanger
- Stainless steel stand for quick emptying operations
- Anti-vibration feet (3A-certified for SANIBOXER version)
- Eccentric valves (in AISIBOXER – SANIBOXER-03 pumps)
- Rotating connections
- Sensors to detect diaphragm rupture (standard in SANIBOXER version)

Quick emptying system

The Quick Emptying System allows the **complete emptying** of fluid present inside the pump chambers.

The operation can be carried out comfortably by hand without the use of tools or special equipment.

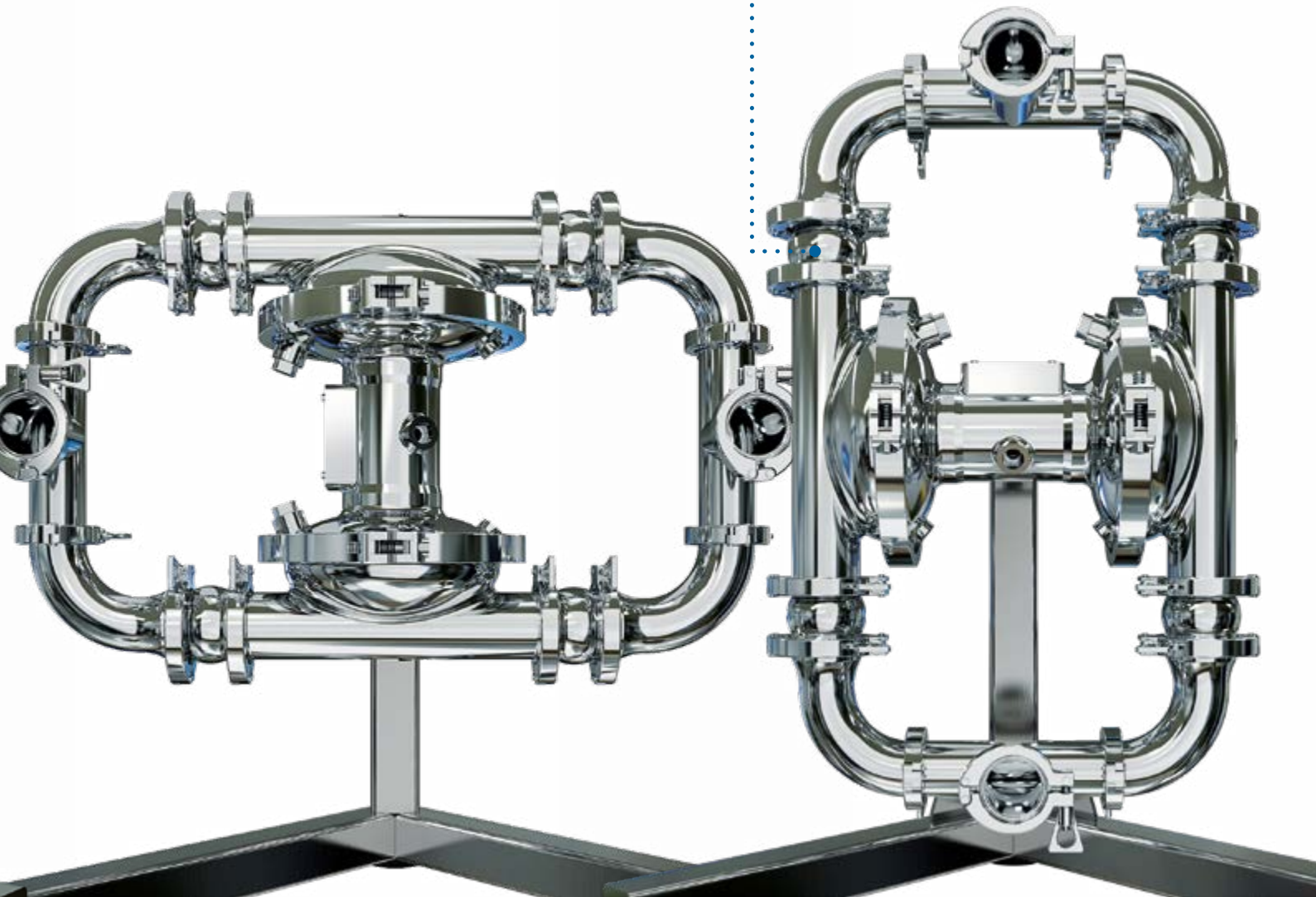
The pump is then **free of internal impurities** and ready to be washed and sanitised.



Eccentric ball valves

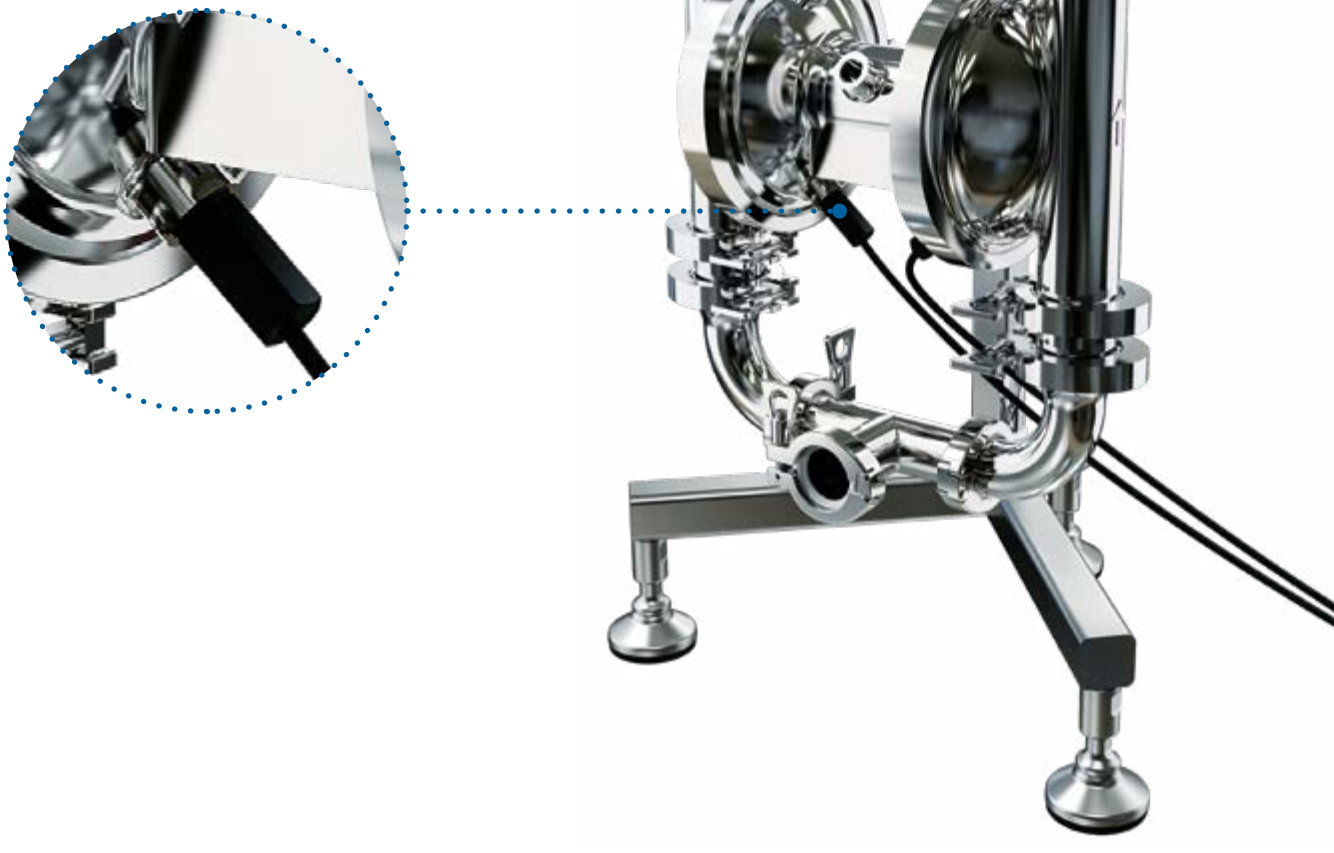
The AISIBOXER and SANIBOXER pumps are equipped with fluid ball valves. The construction is unique: the valve's **eccentric design** allows for the distribution of fluids with large suspended particles.

The eccentricity of the valve body prevents the ball from locking during pumping operations. The balls are available in both AISI 316 and PTFE.



Optical sensors to detect diaphragm rupture

SANIBOXER pumps are equipped with two optical sensors to detect any diaphragm ruptures.
The sensors are **installed on the lower part** of the pump just behind the diaphragm back.
In case of rupture, the sensors warn the operator and **automatically stop pump operation** via a solenoid valve.
The control unit also allows the operator to instantly stop pump operation at the touch of a button.



Optical sensors work by emitting an IR (infrared) beam inside a prism and measuring the amount of light received. If the fluid reaches the sensor head, the amount of light received instantly decreases, activating the contacts.

When the sensor is dry, the transmitted light is reflected from the prism to the receiver (Fig. 1).

When the sensor is wetted by liquid, only a part of the light is reflected while the rest is blocked by the liquid (Fig. 2).

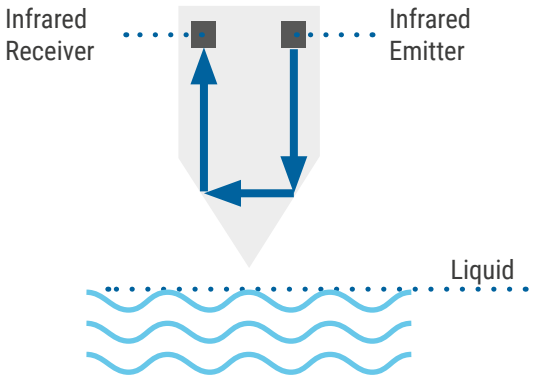
The difference in intensity activates the alarm and switches off the pump.

SANIBOXER

Operation of optical sensors

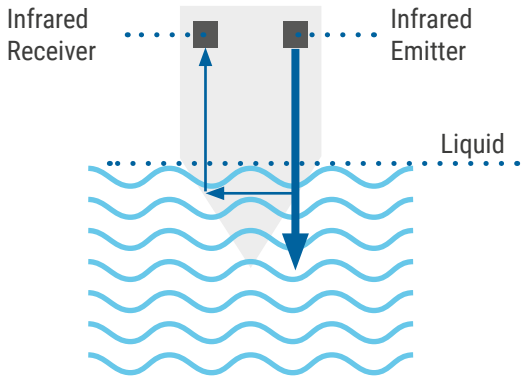
Dry sensor

Fig. 1



Wet sensor

Fig. 2



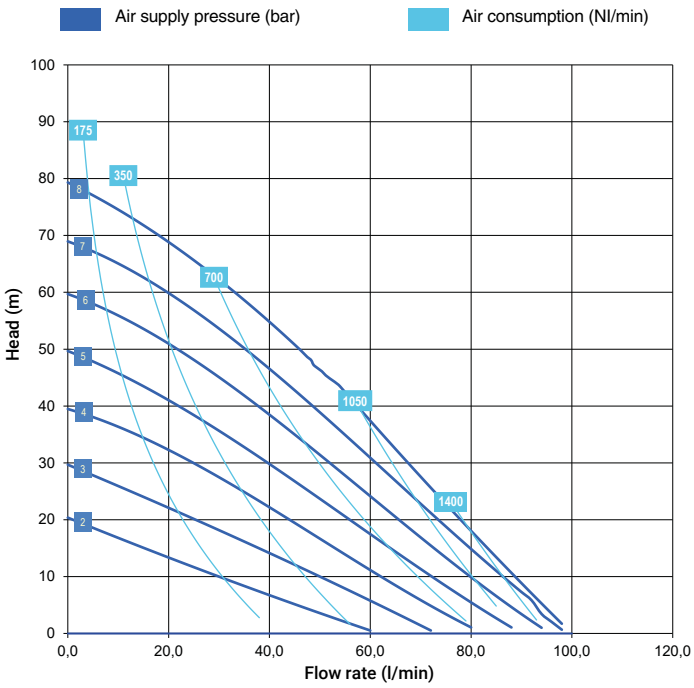
AISIBOXER 01

Specifications and types

1/2” PUMP

Suction/delivery connections	BS 4825 1” Clamp
Air fitting	3/8” f BSPP
Max flow rate*	100 l/min
Max air supply pressure	8 bar
Max head*	80 m
Max suction from negative head - dry running*	2,5 m
Max suction from negative head - with pump on	9,5 m
Max diameter of suspended solids	5 mm

* The value depends on the pump configuration.



* The curves and performances refer to pumps with submerged suction and free delivery outlet, with water at 20°C and vary according to the composition materials.

AISI 316 L | **AISIBOXER-01**

Maximum Dimensions	
Height	618 mm
Width	436 mm
Depth	352 mm

Construction materials (casing and manifolds) and net weight	
AISI 316 L*	16 Kg
	Temp. 3°C min.
	95°C max

* Mechanically polished - surface finish <0.8 µm

Certifications:

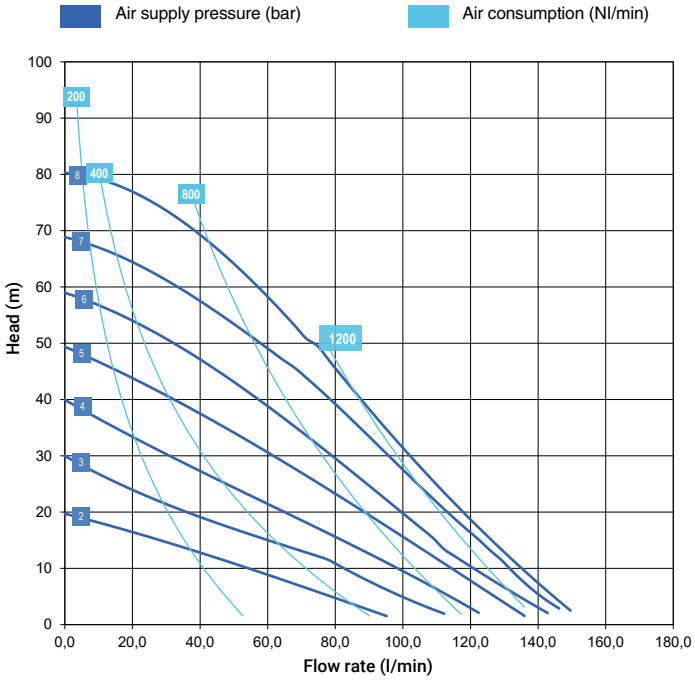
AISIBOXER 02

Specifications and types

1” PUMP

Suction/delivery connections	BS 4825 1”1/2 Clamp
Air fitting	3/8” f BSPP
Max flow rate*	160 l/min
Max air supply pressure	8 bar
Max head*	80 m
Max suction from negative head - dry running*	2,5 m
Max suction from negative head - with pump on	9,5 m
Max diameter of suspended solids	7 mm

* The value depends on the pump configuration.



* The curves and performances refer to pumps with submerged suction and free delivery outlet, with water at 20°C and vary according to the composition materials.

AISI 316 L | **AISIBOXER-02**

Maximum Dimensions	
Height	669 mm
Width	436 mm
Depth	370 mm

Construction materials (casing and manifolds) and net weight	
AISI 316 L*	22 Kg
	Temp. 3°C min.
	95°C max

* Mechanically polished - surface finish <0.8 µm

Certifications:

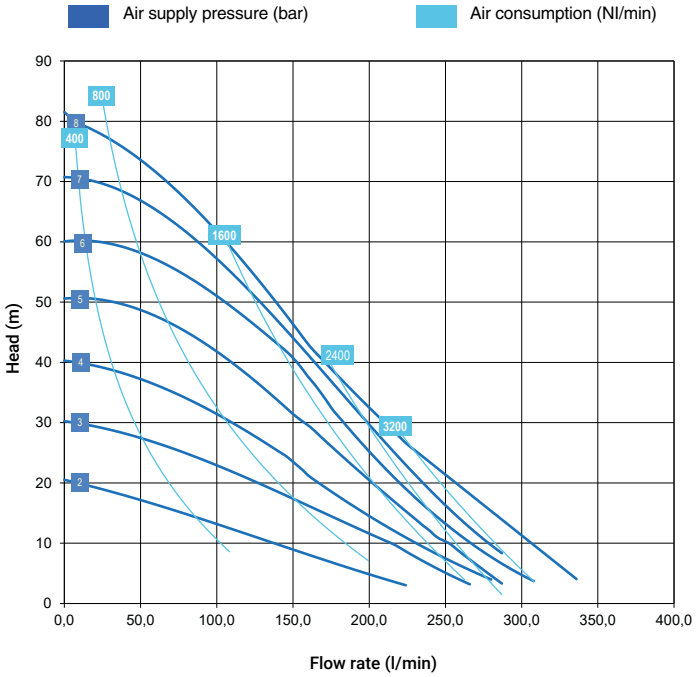
AISIBOXER 03

Specifications and types

1“1/2 PUMP

Suction/delivery connections	BS 4825 2” Clamp
Air fitting	1/2” f BSPP
Max flow rate*	340 l/min
Max air supply pressure	8 bar
Max head*	80 m
Max suction from negative head - dry running*	2,5 m
Max suction from negative head - with pump on	9,5 m
Max diameter of suspended solids	15 mm

* The value depends on the pump configuration.



* The curves and performances refer to pumps with submerged suction and free delivery outlet, with water at 20°C and vary according to the composition materials.

AISI 316 L | **AISIBOXER-03**

Maximum Dimensions	
Height	832 mm
Width	713 mm
Depth	569 mm

Construction materials (casing and manifolds) and net weight	
AISI 316 L*	38 Kg
	Temp. 3°C min.
	95°C max

* Mechanically polished - surface finish <0.8 µm

Certifications:

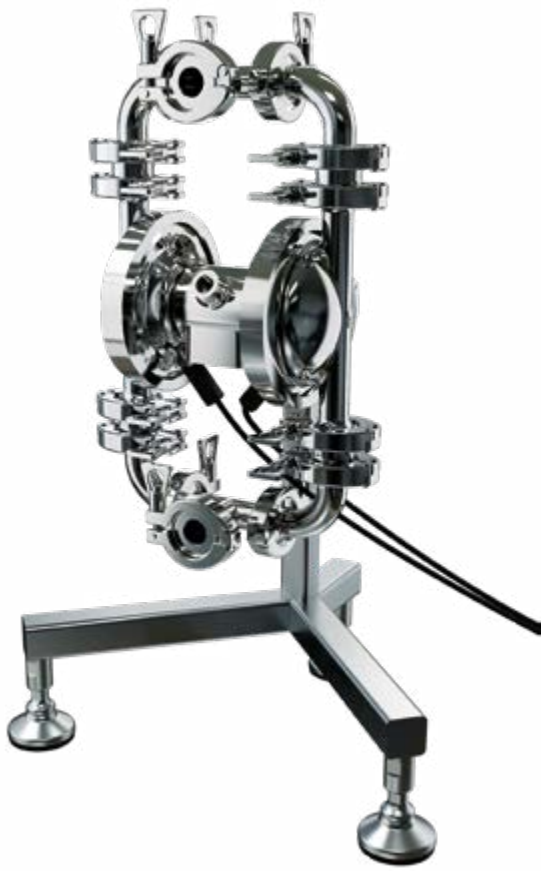
SANIBOXER 01

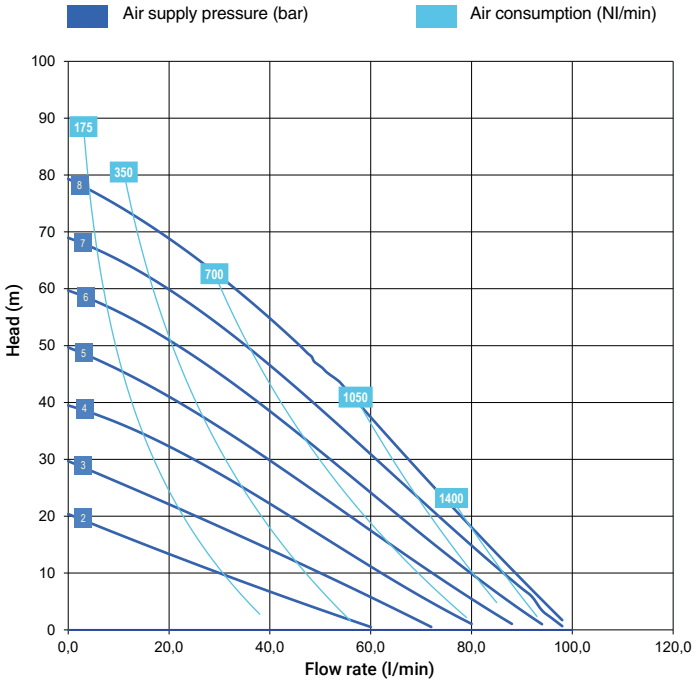
Specifications and types

1/2” PUMP

Suction/delivery connections	BS 4825 1” Clamp
Air fitting	3/8” f BSPP
Max flow rate*	100 l/min
Max air supply pressure	8 bar
Max head*	80 m
Max suction from negative head - dry running*	2,5 m
Max suction from negative head - with pump on	9,5 m
Max diameter of suspended solids	5 mm

* The value depends on the pump configuration.





* The curves and performances refer to pumps with submerged suction and free delivery outlet, with water at 20°C and vary according to the composition materials.

AISI 316 L | **SANIBOXER-01**

Maximum Dimensions	
Height	663 mm
Width	436 mm
Depth	352 mm

Construction materials (casing and manifolds) and net weight	
AISI 316 L*	16 Kg
	Temp. 3°C min.
	95°C max

* Mechanically polished - surface finish <0.8 µm

Certifications:

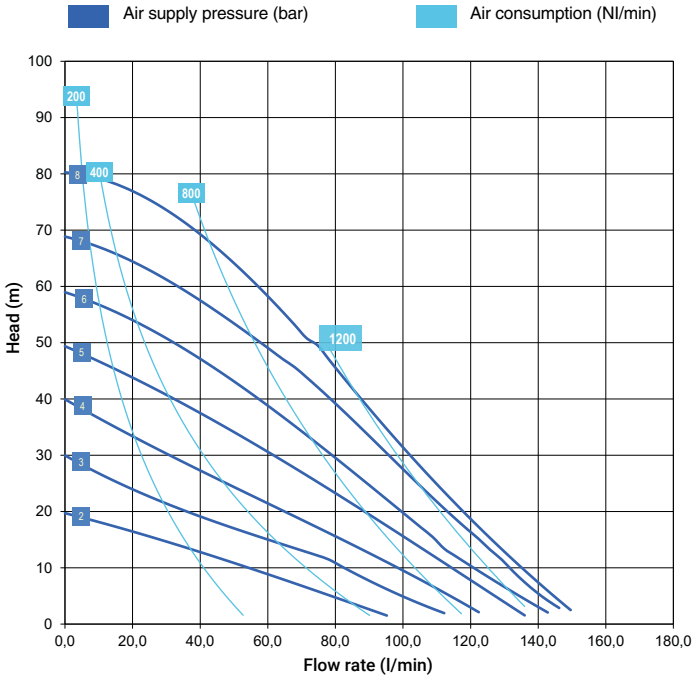
SANIBOXER 02

Specifications and types

1“ PUMP

Suction/delivery connections	BS 4825 1”1/2 Clamp
Air fitting	3/8” f BSPP
Max flow rate*	160 l/min
Max air supply pressure	8 bar
Max head*	80 m
Max suction from negative head - dry running*	2,5 m
Max suction from negative head - with pump on	9,5 m
Max diameter of suspended solids	7 mm

* The value depends on the pump configuration.



* The curves and performances refer to pumps with submerged suction and free delivery outlet, with water at 20°C and vary according to the composition materials.

AISI 316 L | **SANIBOXER-02**

Maximum Dimensions	
Height	714 mm
Width	436 mm
Depth	370 mm

Construction materials (casing and manifolds) and net weight	
AISI 316 L*	22 Kg
	Temp. 3°C min.
	95°C max

* Mechanically polished - surface finish <0.8 µm

Certifications:

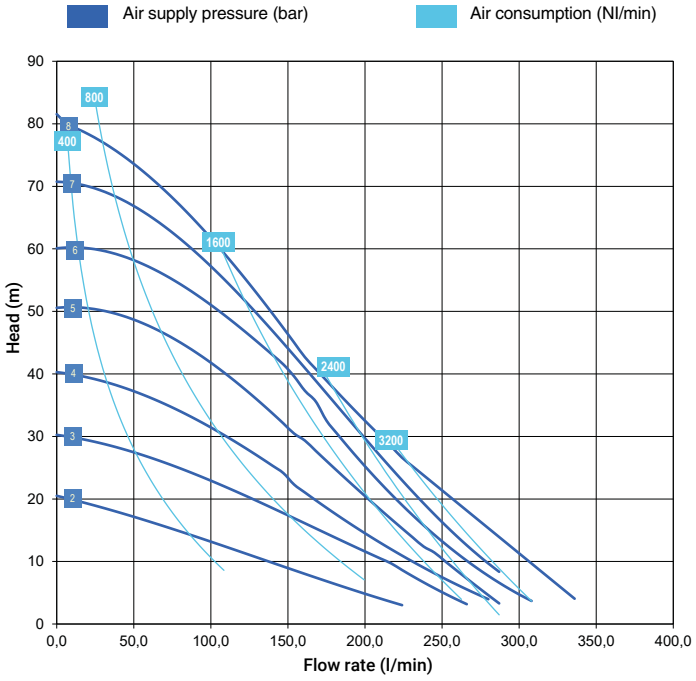
SANIBOXER 03

Specifications and types

1“1/2 PUMP

Suction/delivery connections	BS 4825 2” Clamp
Air fitting	1/2” f BSPP
Max flow rate*	340 l/min
Max air supply pressure	8 bar
Max head*	80 m
Max suction from negative head - dry running*	2,5 m
Max suction from negative head - with pump on	9,5 m
Max diameter of suspended solids	15 mm

* The value depends on the pump configuration.



* The curves and performances refer to pumps with submerged suction and free delivery outlet, with water at 20°C and vary according to the composition materials.

AISI 316 L | **SANIBOXER-03**

Maximum Dimensions	
Height	873 mm
Width	673 mm
Depth	529 mm

Construction materials (casing and manifolds) and net weight	
AISI 316 L*	38 Kg
	Temp. 3°C min.
	95°C max

* Mechanically polished - surface finish <0.8 µm

Certifications:

FDA

ATEX

ISO 9001

CE

FULLFLOW

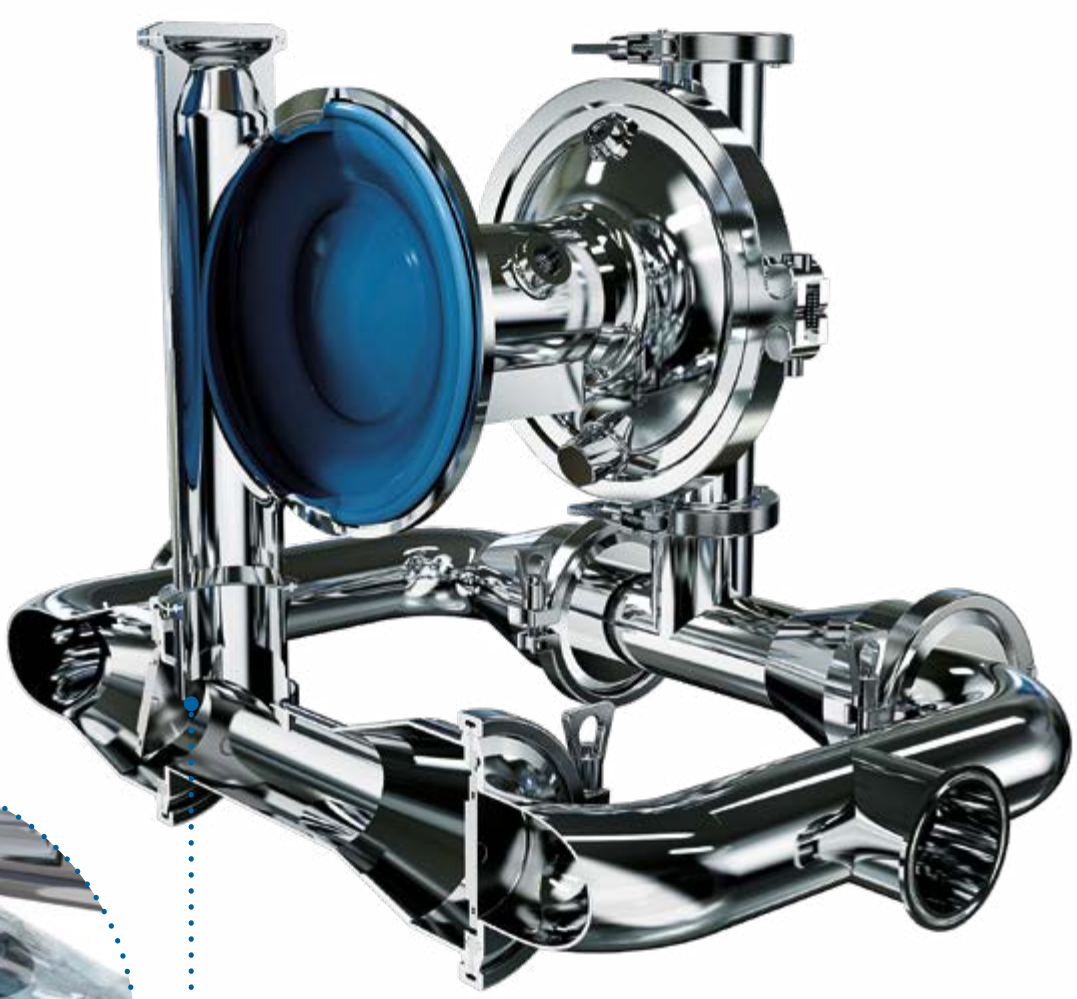
Volumetric double diaphragm pump, operated by compressed air, built in mechanically polished **AISI 316 L** with a surface finish lower than <0.8 µm. The pump is certified according to MOCA, FDA and ATEX.

The pump is ideal for food sector distribution of fluids with suspended particles up to Ø 45 mm and length 600 mm. The pump is equipped with **special large bore clapet valves** located on a horizontal hydraulic circuit, unlike all models on the market featuring a vertical hydraulic circuit. This design feature ensures that solids do not come into contact with the membranes, avoiding shear or rubbing wear problems and greatly increasing their life.

- Patented horizontal fluid circuit
- Special flap valves in food-grade EPDM
- Mould cast main block consists on a single piece
- Patented stall-prevention coaxial pneumatic exchanger
- Special Diaphragms with ANTI-DEPOSIT surface
- Sensors to detect diaphragm rupture (on demand)

Horizontal fluid circuit

The fluid conveyance circuit has therefore been modified and we have moved from a classic vertical concept to a **horizontal circuit**, where the solids (under the force of gravity) are unable to rise to the pumping chamber and come into contact with the diaphragms. Instead, they remain floating in the pipeline until they are ejected from the pump.



Clapet valves

Clapet valves open and close allowing **complete passage** of the suspended particles and (obviously) the non-return of the fluid itself due to the forced movement position.

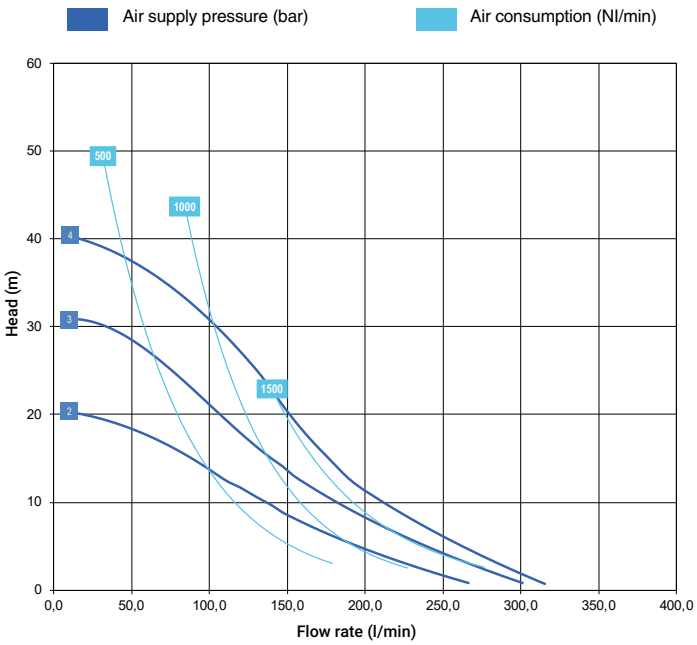
FULLFLOW

FULLFLOW 251

Specifications and types

Suction/delivery connections	BS 4825 2”1/2 Clamp
Max flow rate*	320 l/min
Max air supply pressure	4 bar
Max head*	40 m
Max suction from negative head - dry running*	3,5 m
Max diameter of suspended particles	45 mm
Max particle length	600 mm

* The value depends on the pump configuration.



* The curves and performances refer to pumps with submerged suction and free delivery outlet, with water at 20°C and vary according to the composition materials.

Certifications:

AISI 316 L	FULLFLOW 251

Maximum Dimensions	
Height	433,2 mm
Width	650,5 mm
Depth	650,9 mm

Construction materials (casing and manifolds) and net weight	
AISI 316 L*	30 Kg
	Temp. 3°C min.
	95°C max

* Mechanically polished - surface finish <0.8 µm

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