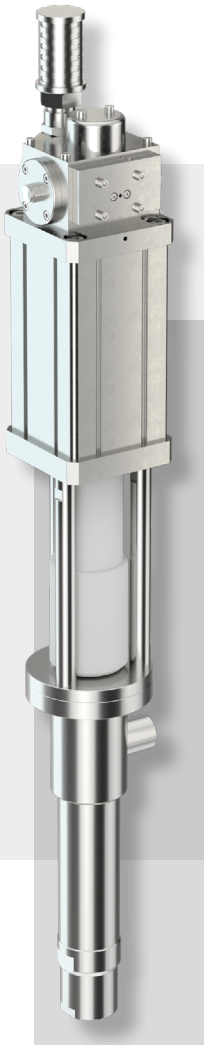


PISTON PUMPS

EN-2025

PISTON PUMPS

FOX 3:1

Piston Pump, Air-Operated, for Medium-Viscosity Liquid Transfer. Designed with a suction tube sized for 200-liter drums or 1000-liter IBC tanks, this pump features a robust construction, ensuring long-lasting performance and easy maintenance.

- Extremely durable and long-lasting
- Fluid-side structure in stainless steel
- PTFE seals
- Sized for 200-liter drums or 1000-liter IBC tanks

Fox 3:1
Wall

Fox 3:1
Drum/IBC Tank

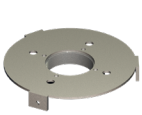
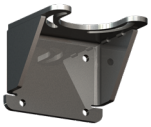
Discover the Piston Pumps range:

MAIN APPLICATION SECTORS
Chemical – Oils and Lubricants – Food – Glues and Adhesives – Tannery – Pharmaceutical – Inks – Cosmetic – Water Treatment – Automotive

WETTED MATERIALS
Stainless Steel - PTFE + pump configuration

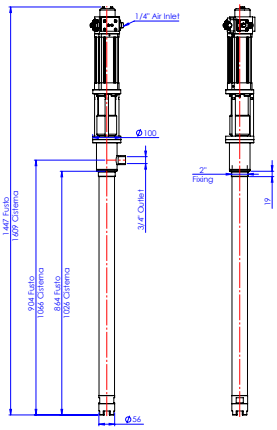
TECHNICAL SPECIFICATIONS	DRUM	IBC TANK	WALL
Pressure ratio	3 : 1		
Type	Double Effect		
Self Priming	Yes		
Flow Rate*	30 [l/min]		
Outlet Port	3/4” [Gas]		
Inlet Port	Fluid Immersed		1/4”[Gas]
Max cycles per minute*	75		
Air volume per cycle	0,33 [dm^3]		
Air consumption at maximum cycles	25 [Nl/min]		
Air Inlet Port	1/4” [Gas]		
Air Inlet Pressure	Min 1 Max 7 [bar]		
Fluid Side Valves	Ball		

TECHNICAL SPECIFICATIONS	DRUM	IBC TANK	WALL
Noise Level**	<78 db [A]		
Maximum fluid pressure delivered with admitted maximum pneumatic pressure	20 [bar]		
Weight	14 [Kg]	15 [Kg]	14 [Kg]

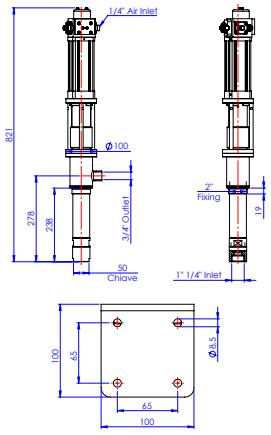
ACCESSORIES			
IBC TANK ADAPTER	WALL MOUNTING BRACKET	TANK	AIR TREATMENT UNITS
			

DIMENSIONS

FOX DRUM VERSION – FOX IBC TANK VERSION



FOX WALL-MOUNTED VERSION



* Tests performed by processing water at free discharge with the pump powered at a pressure of 6 bar.
Flow rate adjustment through a flow valve on the liquid outlet, a flow valve, and a pressure regulator on the pneumatic supply and/or integrated air exhaust regulators.
** The indicated noise level is measured under a specific operating condition.

OPERATING PRINCIPLE

The operating principle of a piston pump driven by compressed air is based on the reciprocating linear movement of the pumping unit (A), which is mechanically connected to and driven by a pneumatic actuator (motor) (D). This movement consists of two distinct phases, referred to as “upstroke” and “downstroke,” whose combination constitutes a “cycle.”

During each cycle, the liquid to be transferred is drawn in through the suction port (B) during the upstroke phase and expelled through the discharge port (C) during the downstroke phase, thereby creating a continuous fluid transfer cycle.

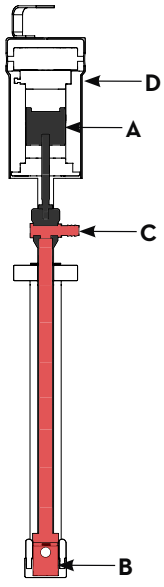
The pneumatic motor (D), an integral part of the pump, is powered by compressed air and is responsible for controlling the movement of the pumping unit. The pump's output flow rate is directly proportional to the number of cycles performed. The number of cycles primarily depends on the pressure and flow rate of the air supply, the physical characteristics of the liquid being transferred, and the circuit conditions, such as pressure losses in the discharge pipeline.

It is essential to consider the viscosity of the liquid being transferred when selecting the correct pressure ratio for the pump. The type of liquid also influences the choice of pump and its configuration, determining the construction materials and the type of seals used.

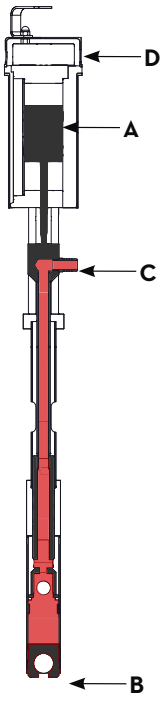
SINGLE-ACTING AND DOUBLE-ACTING PUMPS

Compressed air-driven piston pumps are classified into two main categories:

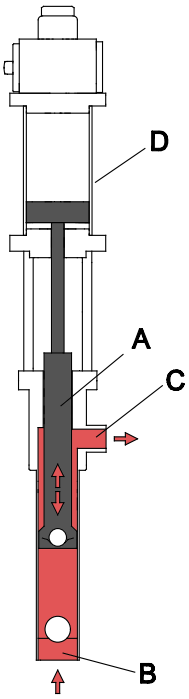
- **Single-acting pumps:** Generate flow only during the downstroke phase of the pumping unit (A).
- **Double-acting pumps:** Generate flow during both the upstroke and downstroke phases of the pumping unit (A), ensuring a more continuous and uniform liquid flow



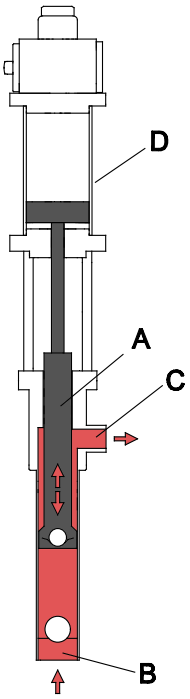
SERIES ALKO



SERIES PF



SERIES OIL



SERIES FOX

ADVANTAGES

VERSATILE AND MULTI-APPLICATION

SELF-PRIMING

ELEVATED PREVALENCE

EASILY ADJUSTABLE OPERATING SPEED
With pressure reducers and a valve (tap) on the liquid outlet.

ISTANT START AND STOP

CONFIGURABLE SEALING SYSTEM

REMOVABLE FLUID SIDE

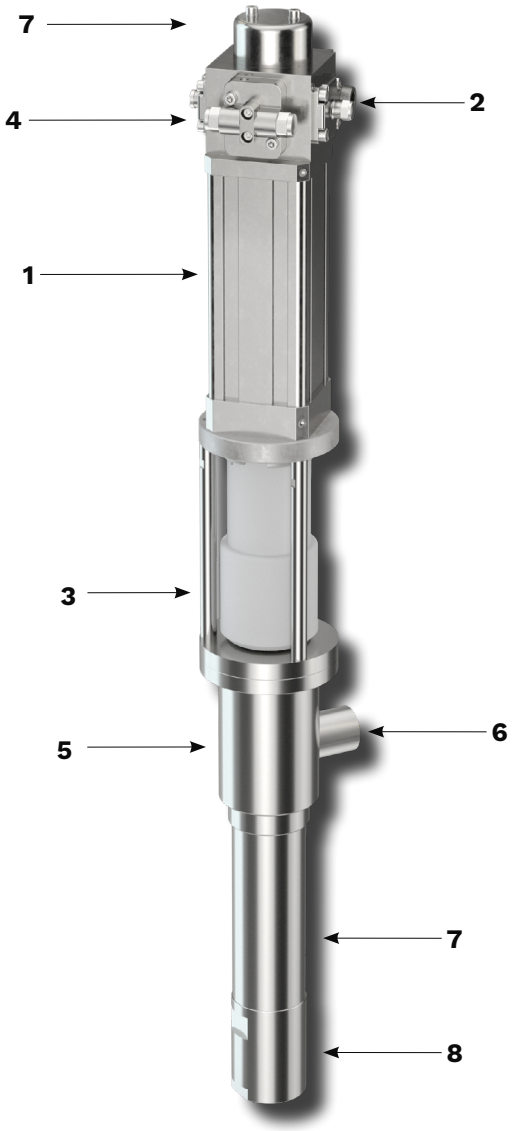
CONFIGURABLE ACCORDING TO THE TRANSFERRED FLUID

NO ELECTRICAL OR ELECTRONIC COMPONENTS
No motor, inverter, or components that could be damaged by sudden blockages.

VERSIONS
- ATEX 2G
- ATEX 3G

- **PORTABLE**
- **EASY TO INSTALL**
- **LOW-COST AND EASY MAINTENANCE**

MAIN COMPONENTS



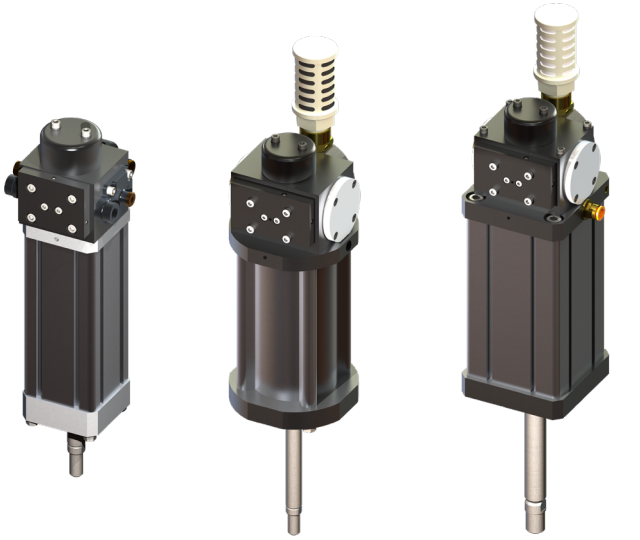
1	Anti-stall pneumatic motor
2	Air Inlet
3	Plunger guard and tank for optional lubricant
4	Air exhaust
5	Gaskets installed on a removable cartridge and configurable according to the transferred fluid
6	Fluid outlet
7	Fluid side in stainless steel AISI 304 or AISI 316
8	Fluid inlet

PNEUMATIC MOTOR

The pneumatic motor is an actuator designed to drive the pumping section of the pump.

The MxN motor, which powers FOX pumps, represents the state-of-the-art in continuous-cycle reciprocating actuators.

Characterized by a robust construction, it is equipped with proprietary pneumatic anti-stall valves.
The entire pneumatic motor is removable and fully serviceable.



Motore M63N **Motore M80N** **Motore M100N**

FEATURES

RELIABLE AND DURABLE
PCHEM heat exchangers are statistically the most reliable and long-lasting exchangers on the market. This achievement has been made possible through the selection of simple and innovative technical solutions, free from complex mechanisms or delicate components.

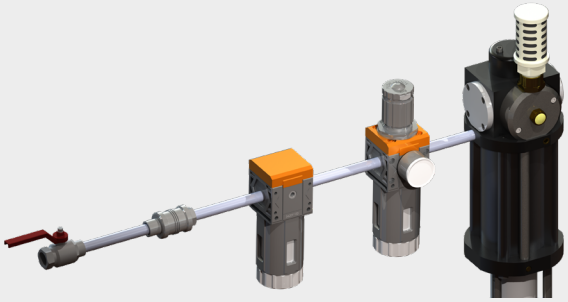
ANTI-STALL
The exchangers do not stall. Therefore, the pump can operate even at very low working speeds. The anti-stall feature is ensured pneumatically and not through mechanical methods that wear over time, such as springs or snap components.

HIGH-QUALITY MATERIALS
From simple stainless steel fasteners to aluminum alloys, technopolymers, and elastomers, there is no compromise when it comes to the quality of the raw materials used. Every transformation process is exclusively Made in Italy to ensure excellence.

“DRY” COMPRESSED AIR OPERATION
All components of the pneumatic motor are lubricated with special lubricants during assembly, ensuring lifelong lubrication. It is recommended to operate the pump with dry compressed air. If lubricated air is used, proper lubrication must be maintained

EASILY MAINTAINABLE
Complex solutions or watch-like components are not suitable for a pneumatic motor used in industrial pumps. PCHEM pneumatic motors are designed for durability and easy maintenance. Every single component can be replaced.

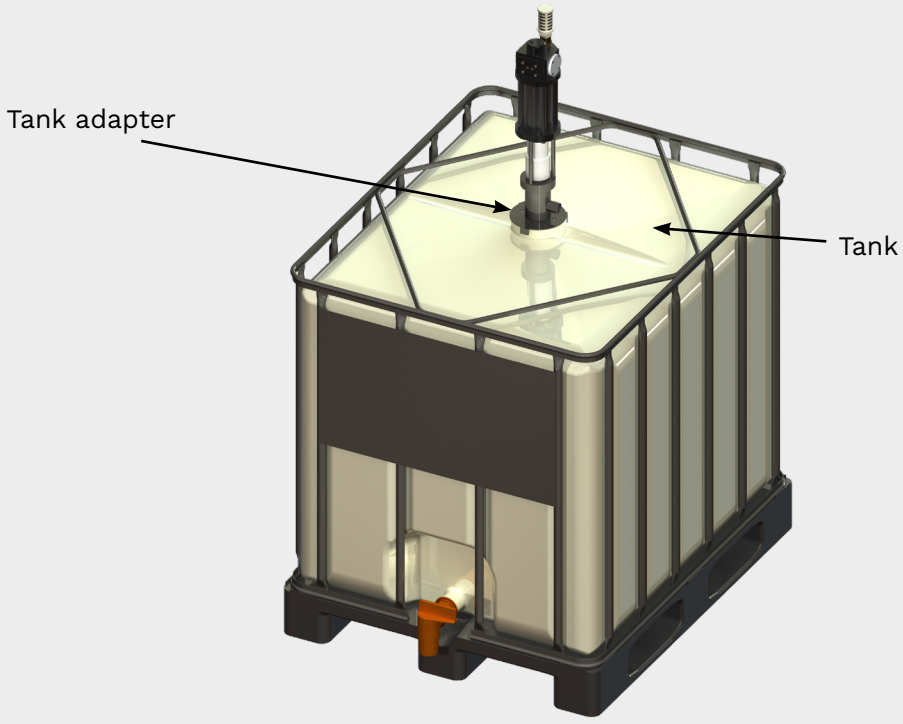
TYPES OF INSTALLATION



PNEUMATIC SUPPLY LINE
- Pressure regulator with gauge
- Air filter
- 3-way valve
- Shut-off valv

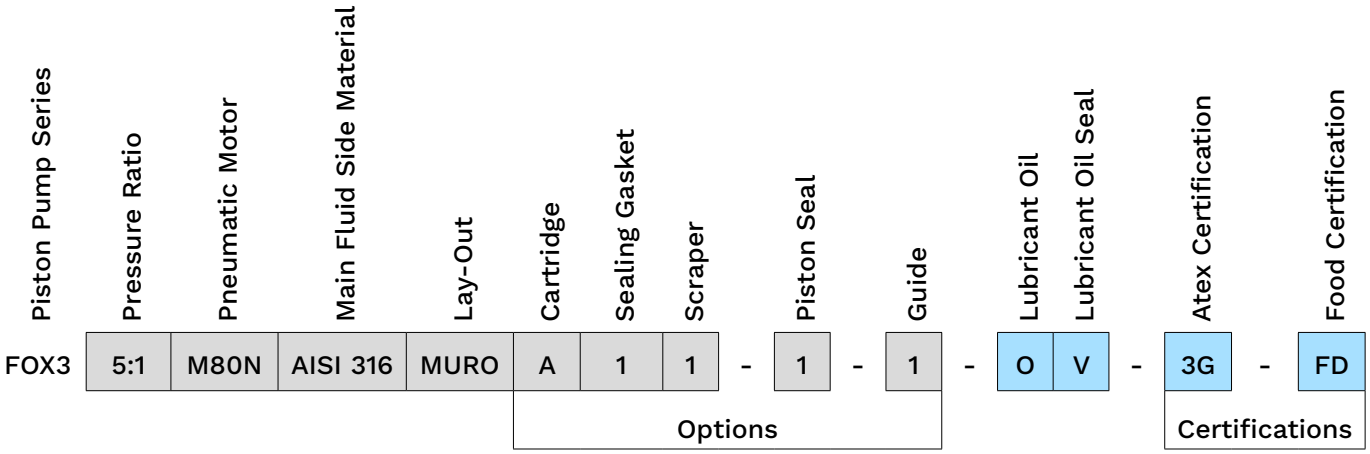
200 liters drum FOX installation

“On wall” FOX installation



IBC 1000 liters tank FOX installation

FOX SERIES CONFIGURATOR



Rapporto di pressione	Motore Pneumatico	Materiale principale lato fluido	Lay-Out
3 : 1	M63N	AISI 304	MURO
5 : 1	M80N	AISI 316	FUSTO
8 : 1	M100N		CISTERNA

OPTIONS

Cartridge	
A	Single Stage Sealing
B	Double Stage Sealing

Sealing Gasket	
1	PTFE Coil Spring
2	PE Coil Spring
3	PU
4	PTFE V-Spring
5	PTFE with Scraping Ring
6	PTFE Encapsulates Spring

Scraper	
1	Food Grade PTFE Energized with Viton O-Ring
2	PE Energized with Viton O-Ring
3	PU Energized with Viton O-Ring

Piston Seal	
1	PTFE Carbographite Slide + Viton OR
2	PTFE Slide + Epdm OR
3	PTFE Carbographite Slide + Kalrez OR

Guides	
1	Carbographite filled PTFE
2	PTFE

SPECIAL OPTIONS

CERTIFICATIONS

Atex Certification	
-	None
3G	3G
2G	2G

Food Certification	
-	None
FD	3.1 Certification for fluid-side stainless steel, FDA Compliance for seals in contact with the liquid

Olio Lubrificante	
OV	Oil + Viton OR
X	None

Other materials avaible on request

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