

AIRPISTON

AIRDRAIN



EU product
Made in Italy

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AIR-METERING PISTON PUMPS
WELL PUMPS
ATEX COMPLIANCE



SINCE 1975

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AIRPISTON

The AIRPISTON piston pumps family addresses the problems inherent to metering products with high viscosity up to 1,000,000 cPs.

These pumps are **made combining synthetic materials for the body with stainless steel AISI 316** for most of the wet parts.

AIRPISTON range complies with **the requirements of ATEX** Class 3: Zone 2 (Serie II 3/3GD IIB T 275°F). AIRPISTON pumps are offered in inline or submerged versions:

- **In-line pumps**, meant for “passing through” installation with suction pipe and delivery pipe connected to the system.
- **Submerged pumps**, with casing submerged in the liquid and delivery pipe connected to the system.



MAIN

APPLICATIONS

- **Mechanics:** Lubricants and lubro-refrigerants
- **Energy:** Gas odorization
- **Ecology:** Coagulant, flocculent, deodorization
- **Surface Treatment:** Colorant liquids, varnish
- **Cosmetics:** Essences, pastes, lotions, soaps, shampoos
- **Textile:** Basic resins preparation and mix of additive.



PISTON METERING PUMPS

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Both versions share the pneumatic motor which is the most sophisticated and important part of the device and is responsible for:

- **Actuating the piston to the required stroke length;** adjustable by ergonomic handle command from 0 to 100%
- **controlling the piston speed** movement as well as the frequency drive **from a minimum of 3 pumping per minute to 100 pumping per minute;**
- regulating one of the two lengths without affecting the other (frequency/cycles);
- **accepting external inputs** to execute single stroke metering or **batch dosing;**
- generating outputs to **command external devices** for a total dosing control.

Motor is provided with control connection.

External pneumatic devices can be added (e.s. pilot-operated valve) and the piston pump does not require additional piping.

APL IN-LINE PUMPS - HIGH VISCOSITY

APL pumps operate with viscosity up to **1,000,000 cPs**.

The volume of liquid delivered by each single pump stroke and its **frequency per minute** are controlled.

The pump **generates a signal** at the end of the **metering cycle** as an integrated characteristic.

The frequency is controlled by **pneumatically operated unstable oscillator** or external pneumatic or electric devices (**remote control**).

APS SUBMERGED PUMPS - VERY HIGH VISCOSITY

This version is deployed to pump liquids of high-level of viscosity.

The casing is immersed in the fluid to minimise risks of cavitation and consequent erosion and premature wear of parts which is the main cause of failure of pumps to address this service.

The neat design of APS pumps simplifies installation and integrates:

- Suction valve integrated within the casing.
- Delivery valve integrated within the pumping piston.
- Sealed pumping piston.
- 2 spheres within its valves.

The motor actuates the piston by means of a metallic stem hosted within the dual purpose metallic (or synthetic) tube.

The liquid pumped by the piston passes through the dual purpose pipe and is delivered from its hydraulic connection.

The length of the dual purpose tube can be customised to match as much as possible the required dive depth.



APL



APS



ACL

IN-LINE OR SUBMERGED METERING BASE PUMPS (ABL - ABS - ACL) ARE PERFECT FOR METERING HIGH AND VERY HIGH-LEVEL OF VISCOSITY.

The volume regulator control is integrated while the metering command is provided by an external unit.

The ABL and the ABS are realised in two different typologies: "In-line" (ABL) or "Submerged" (ABS)

ACL- The ACL realised "in-line" are ideal for metering high-viscosity fluids (<3000 cPs). Control devices can be assembled on to the ACL pump on pre-set positions thanks to its parallelepiped shape.

Liquid connections can be oriented in many positions.

All the BASE pumps models are in fact metering pumps that can regulate the dosed fluid volume.

Though, they are not equipped with an autonomous control as the metering command is provided by an external unit (on ACL model, a working frequency control can be added for example).

Pumps can be deployed in batteries (of 2 or more units) and a be run simultaneously with single command.



ABS



CDS

COMMAND DEVICES

- "Main" APS or APL piston metering pumps
- Frequency generator with pneumatic output
- Transducer with pneumatic output operated by the system cycle (where the pump is installed).

In **CDS system**, pumps have a flow rate equal or inferior to the main pump's one.

PISTON METERING PUMPS

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CDS COMBINED METERING SYSTEM

It smartly combines one main metering pump with one minor metering pump to deliver a single modular device to precisely mix two products of different physical characteristics. It is a standard feature of main pump models APL and APS 2.

SPECIFIC APPLICATIONS:

MECHANICS:

Lubro-refrigerants metering
Automatic refill with lubro-refrigerants

ECOLOGY AND ENVIRONMENT:

Dilution and dosage of flocculent liquids, dilution and metering of deodorizers.

It requires the addition of static auto-lube system **SMX** if the products have various viscosity.

SMX STATIC BLENDER

This device is built in 2 lengths and is used for blending two products with different physical characteristics to obtain one homogeneous compound.

The cylindrical construction made of synthetic materials encases the calibrated internal casing of the blending element.

The two outputs are equipped with non return valves.

ACCESSORIES SHARED BY ALL AIRPISTON

AIRPISTON pumps share a list of accessories to match different scenarios and satisfy different requirements:

- External timer (to set time lapse between metering cycles from 0 to many minutes).
- Cycle counter (presettable).
- Cycle counter (to actuate dosing batch).
- Solenoid valve (for remote electric command).
- Transducer (to convert the “end of cycle” signal from pneumatic to electric).
- Static blender (to instantly meter and blend meter products).
- Combined metering system kit consisting of: APL pump support, SMX static blender, water main supply adaptor, ABS pumps connexions.

PISTON METERING PUMPS

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AIRPISTON METERING PUMPS MAIN CHARACTERISTICS

MODEL	FLOW RATE l/min min-max	MAX volume per cycle in CC	MAX frequency (cycle per min')	MAX delivery pressure (bar)
ABL/ABS/ACL 1	0,003 - 1	0,18	100	30
ABL/ABS /ACL 4,5	0,013 - 4,5	0,75	100	30
ABL/ABS/ACL 12 APL/APS 12	0,036 - 12	2	100	30
ACL17	0,054 - 17	3	100	30
ABL/ABS 27 APL/APS 27	0,08 - 27	4,5	100	30
ABL/ABS 54 APL/APS 54	0,16 - 54	9	100	30
ABL/ABS 75 APL/APS 75	0,22 - 75	12,5	100	30
ABL/ABS 120 APL/APS 120	0,36 - 120	20	100	30
APL/APS 160	0,80 - 160	45	60	16
APL/APS 320	1,60 - 320	90	60	16
APL/APS 450	2,20 - 450	125	60	16

ADJUSTABLE CYCLE VOLUME: from 10 to 100%
ADJUSTABLE FREQUENCY: from 3 to 60/100 CYCLE per MIN'
INLET PRESSURE: from 2 to 8 BAR

MATERIALS: MAIN CONFIGURATIONS (Custom layouts available on request).

VERSION	CASING	PUMPING PISTON	GASKET	DRUM/STEM
DL S N DL S D	POMc	AISI 316	NBR EPDM	AISI 316
WW U D WW U T	PP	CER	EPDM PTFE	PP/AISI 316
SS S D SS S T	AISI 316	AISI 316	EPDM PTFE	AISI 316

WELL PUMPS

AIRDRAIN

AIRDRAIN series was designed to operate in wells. The main applications are reclaimed areas drainage, ground level control, supernatant and leachate from municipal solid waste collecting areas.

AIRDRAIN is composed of 4 models with different operating system:

- **BSD** BASIC STATIC DRAIN
- **ASD** AUTOMATIC STATIC DRAIN
- **ADD** AUTOMATIC DIAPHRAGM DRAIN
- **ABD** AUTOMATIC BELLOW DRAIN

BSD - BASIC STATIC DRAIN is the most reliable pump of AIRDRAIN series. The pump casing consisting of a hollow vessel is fitted with one intake and one evacuation liquid valve. An airline connects the pump casing with the pneumatic operating central block located at the top of the well. Once submerged, the pump casing is flooded till filled up through the intake valve because of the liquid's hydrostatic pressure and the air contained inside is displaced through the airline connected to the control unit.

ASD - AUTOMATIC STATIC DRAIN is similar in operating principle to BSD pumps. ASD differ from BSD pumps as for BSD pumps do not require the external pneumatic operating central block. The replenishment and the evacuation phases of the BSD pumps are controlled by its internal air compressor control device assisted by a floating probe to detect the liquid level. ASD pumps evacuate exhausted air through a dedicated pipe. ASD pumps do not need the bathymetric probe to monitor the level of the liquid pumped for the function is delivered by the mentioned floating probe. BSD and ASD pump comply with the requirements of ATEX Class 3.

ADD - AUTOMATIC DIAPHRAGM DRAIN These automatic pumps do not require external controls. ADD model delivers the pumping effect by a flexible diaphragm coupled to suction and delivery valves. It can be supplied with liquid level detection to stop once the liquid is missing. The pump does not fail if run dry. This design is advantageous for the pump that can operate properly till the liquid is completely run out even if the pump is not entirely submerged. As an additional bonus, these pumps are extremely short which reduces the risk for the pump to be abandoned inside the well if it deforms.

ABD - AUTOMATIC BELLOW DRAIN is similar to ADD with the difference that the element responsible for delivering the liquid flow is not a flexible diaphragm but a bellow. Thanks to the reduced diameter of the bellow and the diameter of the diaphragm, the ABD pumps are more compact than ADD pumps hence easier to install into minor-size wells.



ADD and ABD pumps are special for they comply with the requirements of ATEX Class 2 zone 1, as such pumps can be safely operated into wells and ideal for extracting percolate from municipal solid waste collecting areas with biogas presence and consequent risk of explosion.

Options for all AIRDRAIN Pumps:

- Installation kit for wells (pressure reducer, suspension cable, air compressed and liquid pipes).
- Lamellar filter on the intake.
- Level control probe for liquid collection tanks, with min. max.
- Only for BSD pumps: level control bathymetric probe.
- Only for ADD and ABD pumps: level control device.

AIRDRAIN PUMPS MAIN CHARACTERISTICS

MODEL	PUMP DIAMETER mm	FLOW RATE l/min min-max	MAX volume per cycle in CC	MAX frequency (cycle per min')	MAX delivery pressure (bar)
BSD / ASD	63	6	0,18	10	8
BSD / ASD	90	20	0,75	10	8
ADD	125	18	2	150	8
ABD	70	10	4,5	100	8
ABD	90	18	9	100	8

MATERIALS: MAIN CONFIGURATIONS

VERSION	HEAD/CASING	DISCHARGE VALVE	INTAKE VALVE	GASKETS	DIAPHRAGM BELLOW
BSD / ASD WS	PP • AISI 316	AISI 316	PTFE • AISI 316	FKM	-
ADD WW M	PP	AISI 316	PTFE • AISI 316	FKM	SANTOPRENE®
ABD 70 WS T	PP • AISI 316	AISI 316	PTFE • AISI 316	FKM	PTFE
ABD 90 WS T	PP • AISI 316	AISI 316	PTFE • AISI 316	FKM	PTFE

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