

# AIR OPERATED PUMPS

FOR THE  
**OIL & GAS**  
INDUSTRY




# SAMOA: LEADING THROUGH INNOVATION

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SAMOA, a privately owned company, is a **leading European manufacturer of Lubrication and Fluid Handling Equipment**. SAMOA products are used for transferring, dispensing, dosing, and recovering different types of fluids in multiple industries and applications. SAMOA designs and manufactures **a wide program that includes air operated piston and double diaphragm pumps**, volume flow meters, delivery guns, electronic components for inventory control systems, hose reels, hand pumps and accessories for these products.

**Product research and development** is a fundamental part of SAMOA's philosophy. We are in permanent contact with the market to identify new customer needs, that we satisfy with existing product improvement and new product development.

SAMOA's headquarters have been in Gijón, on the Spanish North Coast, for over 60 years. SAMOA's manufacturing facilities are modern and equipped with the latest state-of-the-art production equipment and technology. We are **committed to design and manufacturing excellence, environmental sustainability and a healthy and safe workplace**; our work processes and facilities are consequently ISO 9001, ISO 14001 and ISO 45001 certified.



Headquarters Offices and  
Technical Centre in Gijón (Spain)

Our products are available through a network of **fully owned subsidiaries and knowledgeable distributors**. This global network provides a sales and consulting service, to identify the products that best meet each customer's needs, and when required offers after sales service to ensure the long and satisfactory use of our equipment.

A continuous product improvement process ensures that **our products meet customer requirements worldwide**, including in even the most demanding applications and environments. As a result, we are proud to say that SAMOA products are reliably working away, night and day, in more than 100 countries.



**OIL AND GAS  
PETROCHEMICAL**



**CHEMICAL PLANT  
PROCESSING**



**MINING AND  
CONSTRUCTION**



**PAINTS AND COATINGS**



**PULP AND PAPER**



**TEXTILES, LEATHER &  
GARMENTS**



**PLANT AND MECHANICAL  
ENGINEERING**



**MARINE**



**TANK FARMS / BULK  
TRANSFER**



**ELECTRONICS**



**CERAMICS**



**POWER STATIONS (ENERGY)**



**WASTEWATER AND WATER  
TREATMENT**



# AIR OPERATED DOUBLE

AODD pumps are positive displacement reciprocating pumps. They are the most versatile pumps for low to medium viscosity fluid transfer. SAMOA manufactures a wide range of AODD pumps for a wide variety of applications in the Oil & Gas industry.

Tank cleaning.

Tertiary well control.

Fuel transfer & stripping.

Seawater and mud make up.

Oil spill response and clean-up.

Glycol recirculation – heat trace.

Condensate produced water recirculation.

Utility chemical drain, pit, sump, slurry transfer.

Cellar pump-out.

General utility transfer.

Chemical and fuel flushing.

Tank bottom recirculation.

Flare knock-out drum pumping.

Chemical tote and drum unloading.

Well stimulation - acidization and coiled tubing.

Rapid filling pumps for well integrity pressure test units.



## SAMOA AODD PUMPS ADVANTAGES

### INTRINSICALLY SAFE

Compressed air drive, no electric hazards. CE and ATEX certified.

### EFFICIENT

Industry leading air efficiency.

### SEAL-LESS PUMPS

No mechanical seals or gland packings.

### LEAK FREE

Bolted construction ensures leak free reliable operation.

### RELIABLE

Non-stalling, non-freezing air motor with reliable low pressure start up.

### EXTERNALLY SERVICEABLE

Modular Cartridge style air valve design ensures easy maintenance.

### MINIMAL VIBRATION AND PULSATION

Thanks to the fast action Frictionless Pivot air valve.

### UNIVERSAL PUMPS

Matches relative dimension of main competitive brands, direct replacement for existing installed pumps.

### SUPERB ABRASION RESISTANCE

Optimized design manifolds and fluid paths reduce fluid speed and minimize wear caused by abrasion.

### VERSATILITY

Adjustable flow rates, speed, discharge pressure.

# DIAPHRAGM (AODD) PUMPS

## FRICITIONLESS PIVOT AIR VALVE: THE KEY FOR A SUPERIOR PERFORMANCE

The air valve in an AODD pump makes the difference. SAMOA pumps incorporate a very simple and reliable air valve that features only one moving part: a pivoting rod with two drum-pads at each end. The reciprocating action of this patented Pivot Valve alternatively fills one of pump's air chambers while empties the opposite one.

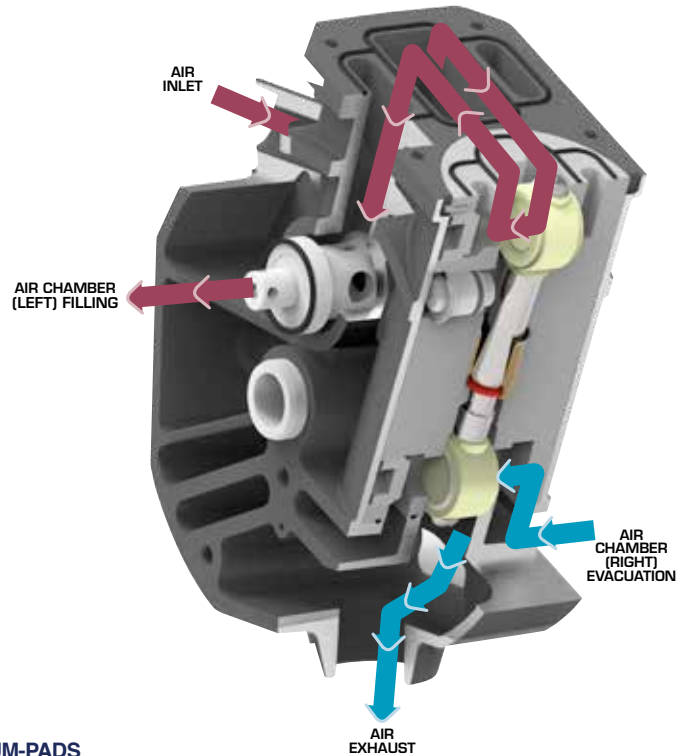
Two diaphragm end of stroke sensors detect when each diaphragm reaches its end position and instantaneously sends a pneumatic signal to create the reciprocation valve motion.

This pivot valve has no O-rings or sliding spools that create friction. The friction absence and the immediate pneumatic signal to change direction, provide this valve with the fastest reciprocation action in the industry. This contributes to increase efficiency, reduce compressed air consumption and minimize vibrations when compared with other AODD pumps.

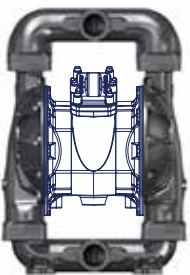
Additionally, the patented air motor incorporates an actuator that prevents stalling and increases pump performance reliability, even with very low air pressure.

The central block design, with generous air flow paths and a direct air exhaust, eliminates the possibility of ice formation, assuring a continuous operation even with the longest pump runs.

- RUNS WITH DRY, DIRTY, OR DAMP AIR
- LONG LIFE PIVOT DRUM-PADS
- LUBE-FREE OPERATION
- NO ICE FORMATION



## OPTIMIZED PUMP DESIGN FOR LONGER LIFE & INCREASED RELIABILITY

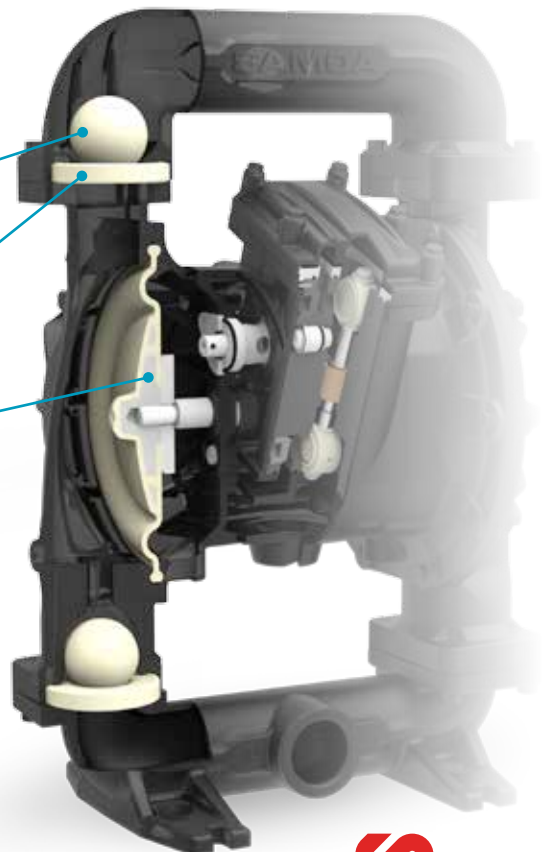


### PUMP HOUSING

- All bolted construction for enhanced safety, sealing capacity, reliability and easy assembly and disassembly. Four bolts pattern per union.
- Optimized fluid path and cross section for minimum internal friction.
- Designed to drop-in as a pump fit-replacement for existing systems which incorporate competitor's pumps.

### WET PARTS

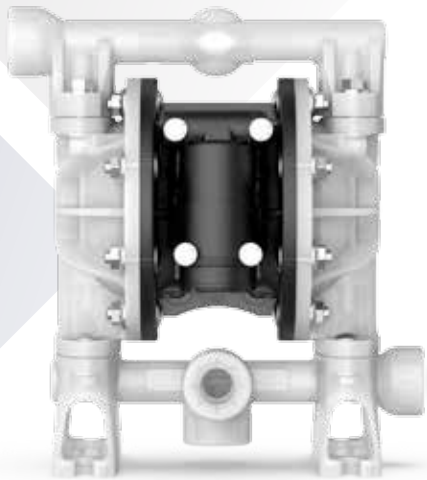
1. Perfect spherical balls, grinded and well balanced to guarantee a good performance.
2. Long life valve-seats design that facilitates preventive maintenance.
3. Conventional or overmolded (one piece) diaphragms.
  - Annular Vault shape design for extended diaphragm life in overmolded TPE and conventional PTFE / Elastomer, TPE and Rubber diaphragms.
  - Dome shape design with back-up concentric ribs for extra flexibility in over molded Rubber and PTFE – Rubber (bonded) diaphragms.



# 1/2" NON-METALLIC PUMP - UPO5 SERIES

54 L/MIN - 14.3 GAL/MIN

The 1/2" (13 mm) AODD pumps made of injected moulded plastic parts can reach a flow rate up to 53 l/min - 14.3 gal/min. They offer a wide range of construction materials and multiple porting configurations.

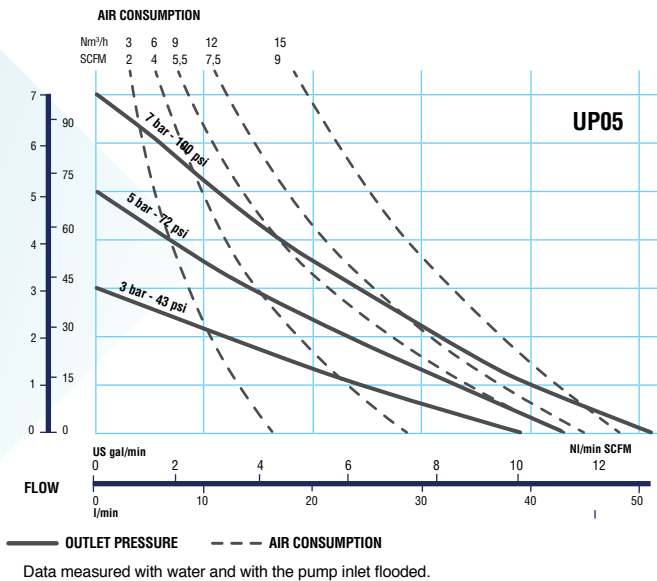


## UPO5 PUMP DESIGN ADVANTAGES:

- Higher efficiency. Maximum fluid flow with reduced air consumption.
- Full bolted construction for better seal and no leaks. Same bolt size facilitates maintenance.
- Universal pump, matches relative dimensions of main competitive brands.
- Multiport BSP or NPT threaded manifolds for maximum installation versatility.
- Frictionless Air Pivot Valve.

Pumps in conductive polypropylene (black) are ATEX certified Ex II 2 GD IIB/IIC 95 °C.

## PERFORMANCE CHART



TECHNICAL DATA	UPO5 NON-METAL PUMPS
Pressure ratio	1:1
Maximum free delivery	54 l/min (14,3 US gal/min)
Air pressure range	1,5 to 7 bar (20 to 100 psi)
Ball valve maximum clearance	2,5 mm (3/32")
Max. dry suction lift	5 m (16')
Max. wet suction lift	8 m (26')
Pump delivery per cycle*	0,15 l (0,04 gal)
Fluid inlet / outlet ports	1/2" BSP (F) Threaded 1/2" NPT (F) Threaded
Air inlet port	1/4" NPSM (F)
Air exhaust port	1/2" NPT (F)
Sound level	75 dB (A) @ 50 cycles/min @ 70 psi
Weight	Polypropylene pump 2,7 kg (6 lb) Conductive Polypropylene pump 3 kg (6.6 lb) PVDF pump 3,7 kg (8.2 lb) Conductive Acetal pump 3,3 kg (7.3 lb)

\* Delivery per cycle depends on the diaphragms material, air inlet pressure and fluid viscosity.

## PUMP NOMENCLATURE

Example: **UPO5B-XXX-XXX**

PUMP TYPE	AIR BODY	HOUSINGS			WETTED PARTS		
Pump Type & Size	Central Body & Air Chambers	Fluid Ports / Location	Fluid Chambers & Manifolds	Hardware Bolts	Valve Seats	Valve Balls	Diaphragms Type & Material
<b>UPO5</b> Universal Pump (Bolted)	<b>ATEX Certified</b> <b>B*</b> = Conductive Polypropylene (black)	<b>B</b> = 1/2" BSP threaded ports <b>N</b> = 1/2" NPT threaded ports	<b>P</b> = Polypropylene (white) <b>W</b> = PVDF (Kynar®) (white)  <b>ATEX Certified</b> <b>B*</b> = Conductive Polypropylene (black) <b>D*</b> = Conductive Acetal (black)	<b>S</b> = Stainless Steel	<b>C</b> = Acetal <b>P</b> = Polypropylene <b>S</b> = AISI 316 Stainless Steel <b>T</b> = PTFE (Teflon®) <b>V</b> = FKM (Viton®)	<b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna-N) <b>S</b> = AISI 316 Stainless Steel <b>T</b> = PTFE (Teflon®) <b>V</b> = FKM (Viton®)	<b>Conventional</b> <b>A</b> = Santoprene® <b>C</b> = Hytrel® <b>G</b> = Nitrile (Buna-N) <b>V</b> = FKM (Viton®)  <b>Two-piece</b> <b>Z</b> = PTFE (Teflon® with Santoprene backer)

\* **ATEX Certified** pumps for use in hazardous locations ATEX Group II 2GDx.

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# 1" METALLIC PUMP - UP10 SERIES

200 L/MIN - 53 GAL/MIN

The 1" (25 mm) AODD pumps made of cast metal can reach a flow rate of up to 200 l/min - 53 gal/min. They offer a wide range of construction materials and porting configurations.

## UP10 PUMP DESIGN ADVANTAGES:

- Higher efficiency. Maximum fluid flow with reduced air consumption.
- Full bolted construction for better seal and no leaks. Same bolt size facilitates maintenance.
- Universal pump, matches relative dimensions of main competitive brands.
- Multiport BSP or NPT threaded manifolds for maximum installation versatility.
- Frictionless Air Pivot Valve.

Pumps available in Aluminium and Stainless Steel and they are ATEX certified Ex II2 GD IIB/IIC 95 °C.



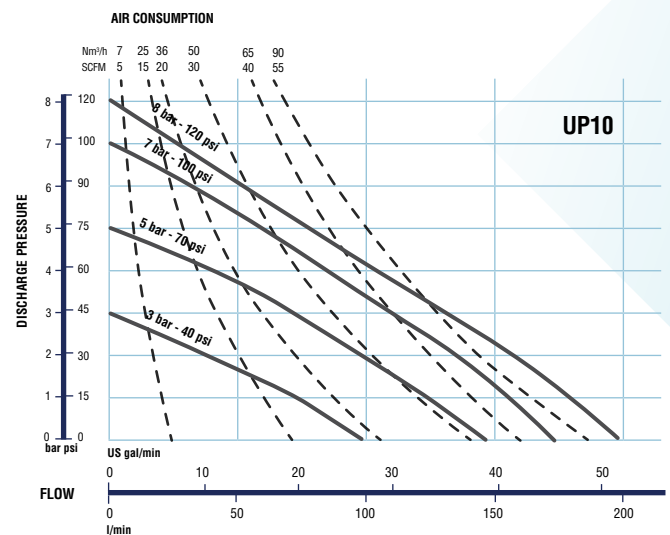
Stainless Steel version

Aluminium version

TECHNICAL DATA	UP10 METAL PUMPS
Pressure ratio	1:1
Maximum free delivery	200 l/min (53 gal/min)
Air pressure range	1,5 to 8 bar (20 to 120 psi)
Ball valve maximum clearance	6,4 mm (1/4")
Max. dry suction lift	5 m (16')
Max. wet suction lift	8 m (26')
Pump delivery per cycle*	0,85 l (0.2 gal)
Fluid inlet / outlet ports	1" BSP (F) threads 1" NPT (F) threads
Air inlet port	1/2" NPT (F)
Air exhaust port	1" NPT (F)
Sound level	75 dB (A) @ 50 cycles/min @ 70 psi
Weight	
Aluminium pump	11,5 kg (25 lb)
Stainless steel pump	17,5 kg (38.6 lb)

\* Delivery per cycle depends on the diaphragms material, air inlet pressure and fluid viscosity.

## PERFORMANCE CHART



Data measured with water and with the pump inlet flooded.

## PUMP NOMENCLATURE

Example: **UP10X-XXX-XXX**

PUMP TYPE	AIR BODY	HOUSINGS			WETTED PARTS		
		Fluid Ports / Location	Fluid Chambers & Manifolds	Hardware Bolts	Valve Seats	Valve Balls	Diaphragms Type & Material
<b>UP10</b> Universal Pump (Bolted)	<b>ATEX Certified</b> A* = Aluminium B* = Conductive Polypropylene (black)	<b>B</b> = 1" BSP Threaded Ports <b>N</b> = 1" NPT Threaded Ports	<b>ATEX Certified</b> A* = Aluminium S* = AISI 316 Stainless Steel	<b>C</b> = Carbon Steel <b>S</b> = Stainless Steel	<b>A</b> = Aluminium <b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna-N) <b>S</b> = AISI 316 Stainless Steel <b>V</b> = FKM (Viton®)	<b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna-N) <b>T</b> = PTFE (Teflon®) <b>S</b> = AISI 316 Stainless Steel <b>V</b> = FKM (Viton®)	<b>Conventional</b> <b>A</b> = Santoprene® <b>C</b> = Hytrel® <b>G</b> = Nitrile (Buna-N) <b>V</b> = FKM (Viton®) <b>Two-piece</b> <b>Z</b> = PTFE (Teflon® with Santoprene backer)

**ATEX Certified pumps** for use in hazardous locations ATEX Group II 2GDx.

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# 1" NON-METALLIC PUMP - UPO5 SERIES

200 L/MIN - 53 GAL/MIN

The 1" (25 mm) AODP pumps made of injected moulded plastic parts can reach a flow rate up to 200 l/min - 53 gal/min. They offer a wide range of construction materials and multiple porting configurations.

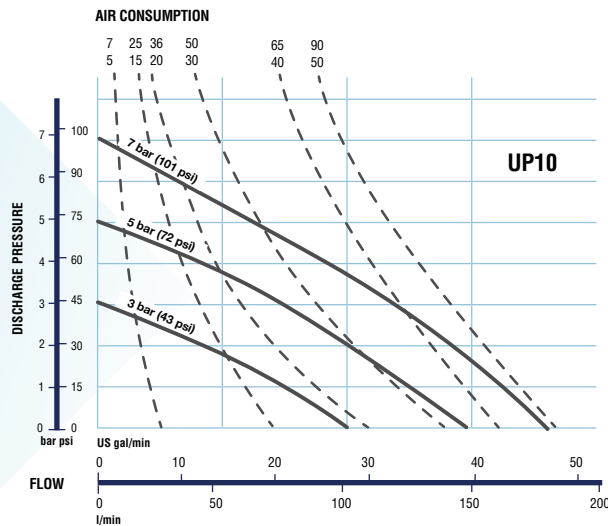


## UP10 PUMP DESIGN ADVANTAGES:

- Higher efficiency. Maximum fluid flow with reduced air consumption.
- Full bolted construction for better seal and no leaks. Same bolt size facilitates maintenance.
- Universal pump, matches relative dimensions of main competitive brands.
- BSP or NPT lateral and central threaded ports or ANSI / DIN lateral and central ports available.
- Frictionless Air Pivot Valve.

Pumps in conductive polypropylene (black) are ATEX certified Ex II2 GD IIB/IIC 95 °C.

## PERFORMANCE CHART



Data measured with water and with the pump inlet flooded.

TECHNICAL DATA	UP10 NON-METAL PUMPS	
Pressure ratio	1:1	
Maximum free delivery	200 l/min (53 gal/min)	
Air pressure range	1,5 to 7 bar (20 to 100 psi)	
Ball valve maximum clearance	6,4 mm (1/4")	
Max. dry suction lift	5 m (16')	
Max. wet suction lift	8 m (26')	
Pump delivery per cycle*	0,85 l (0.2 gal)	
Fluid inlet / outlet ports	1" BSP or NPT (F) Threaded FLANGE DIN DN25 / ANSI 1"	
Air inlet port	1/2" NPT (F)	
Air exhaust port	1" NPT (F)	
Sound level	75 dB (A) @ 50 cycles/min @ 70 psi	
Weight	<b>Threaded</b>	<b>Flanged</b>
Polypropylene pump	10,2 kg (22.5 lb)	10,5 kg (23.1 lb)
Conductive Polypropylene pump	11,6 kg (25.6 lb)	12 kg (26.4 lb)
PVDF pump	13,5 kg (29.8 lb)	14,1 kg (31.1 lb)

\* Delivery per cycle depends on the diaphragms material, air inlet pressure and fluid viscosity.

## PUMP NOMENCLATURE

Example: **UP10B-XXX-XXX**

PUMP TYPE	AIR BODY		HOUSINGS			WETTED PARTS	
Pump Type & Size	Central Body & Air Chambers	Fluid Ports / Location	Fluid Chambers & Manifolds	Hardware Bolts	Valve Seats	Valve Balls	Diaphragms Type & Material
<b>UPO5</b> Universal Pump (Bolted)	<b>ATEX Certified</b> B* = Conductive Polypropylene (black)	<b>Central ports</b> C = 1" ANSI/DIN flanged ports B = 1" BSP threaded ports N = 1" NPT threaded ports  <b>Lateral ports</b> F = 1" ANSI/DIN flanged ports P = 1" BSP threaded ports T = 1" NPT threaded ports	P = Polypropylene (white) W = PVDF (Kynar®) (white)  <b>ATEX Certified</b> B* = Conductive Polypropylene (black)	S = Stainless Steel	P = Polypropylene T = PTFE (Teflon®) V = FKM (Viton®)	H = Hytrel® M = Santoprene® N = Nitrile (Buna-N) T = PTFE (Teflon®) V = FKM (Viton®)	<b>Conventional</b> A = Santoprene® C = Hytrel® G = Nitrile (Buna-N) V = FKM (Viton®)  <b>Two-piece</b> Z = PTFE (Teflon®) with Santoprene backer

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# 2" METALLIC PUMP - UP20

650 L/MIN - 172 GAL/MIN

The 2" (51 mm) AODD pumps made of cast metal can reach a flow rate up to 650 l/min – 172 gal/min. They offer a wide range of construction materials and porting configurations.

## UP20 PUMP DESIGN ADVANTAGES:

- Higher efficiency. Maximum fluid flow with reduced air consumption.
- Full bolted construction for better seal and no leaks. Same size bolts facilitates maintenance.
- Universal pump, matches relative dimension of main competitive brands.
- Pump design ensures high abrasion resistance when pumping abrasive media.
- BSP or NPT threaded inlet and outlet ports or central ANSI / DIN Flanges.
- Frictionless Air Pivot Valve.

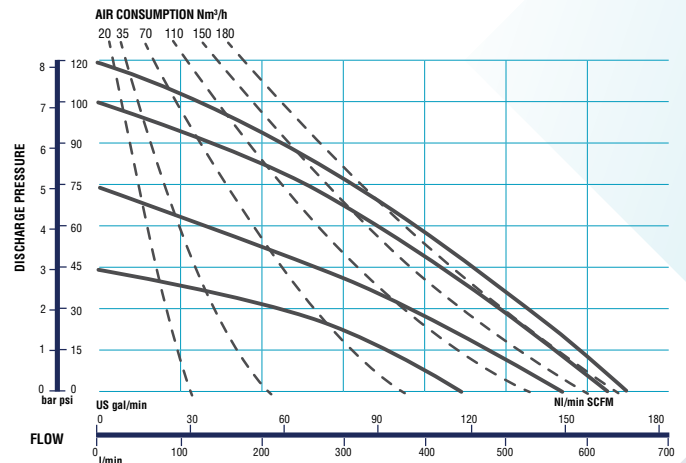
Pumps available in Aluminium, Ductile Iron and Stainless Steel and they are ATEX certified Ex II2 GD IIB/IIC 95 °C.



TECHNICAL DATA	DP200 METAL PUMPS	
Pressure ratio	1:1	
Maximum free delivery	650 l/min (172 gal/min)	
Air pressure range	1,5 to 8 bar (20 to 120 psi)	
Ball valve maximum clearance	6,4 mm (1/4")	
Max. dry suction lift	5 m (16')	
Max. wet suction lift	8 m (26')	
Pump delivery per cycle*	5,1 l (1.35 gal)	
Fluid inlet / outlet ports	2" BSP (F) threads 2" NPT (F) threads 2" ANSI / DIN flange	
Air inlet port	3/4" NPT (F)	
Air exhaust port	1-1/2" NPT (F)	
Sound level	85 dB (A) @ 50 cycles/min @ 70 psi	
<b>Weight</b> Aluminium pump Ductile Iron pump Stainless Steel (Central body: Stainless Steel) Stainless Steel (Central body: Conductive PP) Stainless Steel (Central body: Aluminium)	<b>Threaded</b>	<b>Flanged</b>
	46 kg (101 lb)	48 kg (106 lb)
	74 kg (163 lb)	78 kg (172 lb)
	98 kg (168 lb)	102 kg (181 lb)
	85 kg (168 lb)	90 kg (168 lb)
	76 kg (168 lb)	82 kg (168 lb)

\* Delivery per cycle depends on the diaphragms material, air inlet pressure and fluid viscosity.

## PERFORMANCE CHART



Data measured with water and with the pump inlet flooded.

## PUMP NOMENCLATURE

Example: **UP20A-BSS-TTZ**

PUMP TYPE	AIR BODY	HOUSINGS			WETTED PARTS		
Pump Type & Size	Central Body & Air Chambers	Fluid Ports / Location	Fluid Chambers & Manifolds	Hardware Bolts	Valve Seats	Valve Balls	Diaphragms Type & Material
<b>UP20</b> Universal Pump (Bolted)	<b>ATEX Certified</b> <b>A*</b> = Aluminium <b>L*</b> = Conductive polypropylene with Stainless Steel air chambers <b>S*</b> = Aluminium	<b>B</b> = 2" BSP Threaded Ports / Centre horizontal <b>C</b> = 2" ANSI/ DIN Flanged Ports / Centre Horizontal <b>N</b> = 2" NPTF Threaded Ports / Centre Horizontal	<b>ATEX Certified</b> <b>A*</b> = Aluminium <b>F*</b> = Ductile Iron <b>S*</b> = Stainless Steel	<b>C</b> = Carbon Steel <b>S</b> = Stainless Steel	<b>A</b> = Aluminium <b>D</b> = AISI 440 Hardened Stainless Steel <b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna-N) <b>S</b> = AISI 316 Stainless Steel <b>T</b> = PTFE (Teflon®) <b>V</b> = FKM (Viton®)	<b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna-N) <b>S</b> = AISI 316 Stainless Steel <b>T</b> = PTFE (Teflon®) <b>V</b> = FKM (Viton®)	<b>Conventional</b> <b>A</b> = Santoprene® <b>C</b> = Hytrel® <b>G</b> = Nitrile (Buna-N) <b>V</b> = FKM (Viton®) <b>Two-piece</b> <b>Z</b> = PTFE (Teflon® with Santoprene backer) <b>Overmolded</b> <b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna N) <b>T</b> = PTFE / EPDM (Bonded)

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# 2" NON-METALLIC PUMP - UP20

650 L/MIN - 172 GAL/MIN

The 2" (51 mm) AODD pumps made of injected molded plastic parts can reach a flow rate up to 650 l/min – 172 gal/min. They are available in natural or conductive polypropylene and PVDF for optimum fluid compatibility and corrosion resistance.

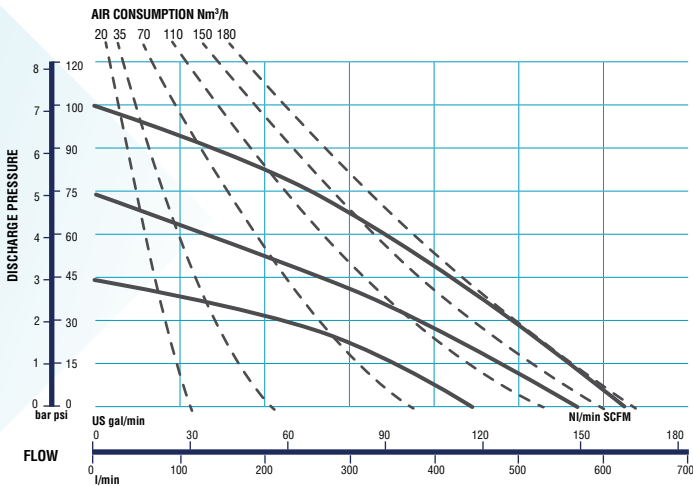


## UP20 PUMP DESIGN ADVANTAGES:

- Higher efficiency. Maximum fluid flow with reduced air consumption.
- Full bolted construction for better seal and no leaks. Same size bolts facilitates maintenance.
- Universal pump, matches relative dimensions of main competitive brands.
- Side offset flanged ports to avoid fluid leaks onto the pump footprint. ANSI / DIN Flanges.
- Frictionless Air Pivot Valve.

Pumps in conductive polypropylene (black) are ATEX certified Ex II2 GD IIB/IIC 95 °C.

## PERFORMANCE CHART



Data measured with water and with the pump inlet flooded.

TECHNICAL DATA	UP20 METAL PUMPS
Pressure ratio	1:1
Maximum free delivery	650 l/min (172 gal/min)
Air pressure range	1,5 to 7 bar (20 to 120 psi)
Ball valve maximum clearance	6,4 mm (1/4")
Max. dry suction lift	5 m (16')
Max. wet suction lift	8 m (26')
Pump delivery per cycle*	4,5 l (1.2 gal)
Fluid inlet / outlet ports	2" DIN / ANSI lateral flanges.
Air inlet port	3/4" NPT (F)
Air exhaust port	1-1/2" NPT (F)
Sound level	85 dB (A) @ 50 cycles/min @ 70 psi
Weight	
Polypropylene pump	42 kg (92 lb)
Conductive Polypropylene pump	46 kg (102 lb)
PVDF pump	54 kg (119 lb)

\* Delivery per cycle depends on the diaphragms material, air inlet pressure and fluid viscosity.

## PUMP NOMENCLATURE

Example: UP20B-FPS-PMA

PUMP TYPE	AIR BODY	HOUSINGS			WETTED PARTS		
Pump Type & Size	Central Body & Air Chambers	Fluid Ports / Location	Fluid Chambers & Manifolds	Hardware Bolts	Valve Seats	Valve Balls	Diaphragms Type & Material
UP20 Universal Pump (Bolted)	ATEX Certified B* = Conductive Polypropylene (black)	F = 2" ANSI/DIN Flanged Ports / Side Ends.	P = Polypropylene (white) W = PVDF (Kynar®) (graphite)	S = Stainless Steel	P = Polypropylene T = PTFE (Teflon®)	H = Hytrel® M = Santoprene® N = Nitrile (Buna-N) T = PTFE (Teflon®) V = FKM (Viton®)	<b>Conventional</b> A = Santoprene® C = Hytrel® G = Nitrile (Buna-N) V = FKM (Viton®)
			ATEX Certified B* = Conductive Polypropylene (black)				<b>Two-piece</b> Z = PTFE (Teflon® with Santoprene backer)
							<b>Overmolded</b> N = Nitrile (Buna N) H = Hytrel® M = Santoprene® T = PTFE / EPDM (Bonded)

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# 3" METALLIC PUMP - UP30

1.000 L/MIN - 264 GAL/MIN

The 3" (76 mm) AODD pumps made of cast metal can reach a flow rate up to 1.000 l/min – 264 gal/min. They offer a wide range of construction materials and porting configurations.

## UP30 PUMP DESIGN ADVANTAGES:

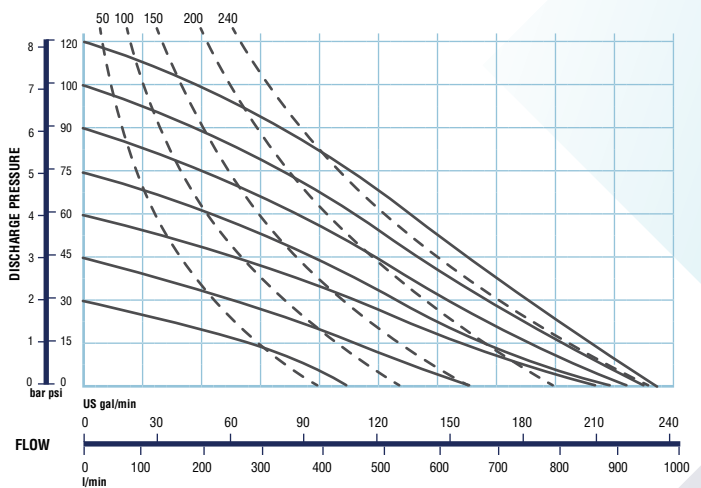
- Higher efficiency. Maximum fluid flow with reduced air consumption.
- Full bolted construction for better seal and no leaks. Same size bolts facilitates maintenance.
- Universal pump, matches relative dimension of main competitive brands.
- Pump design ensures high abrasion resistance when pumping abrasive media.
- BSP or NPT threaded inlet and outlet ports or central ANSI / DIN Flanges.
- Frictionless Air Pivot Valve.

Pumps available in Aluminium and Stainless Steel and they are ATEX certified Ex II2 GD IIB/IIC 95 °C.



TECHNICAL DATA	UP30 METAL PUMPS	
Pressure ratio	1:1	
Maximum free delivery	1.000 l/min (264 gal/min)	
Air pressure range	1,5 to 8 bar (20 to 120 psi)	
Ball valve maximum clearance	12,7 mm (1/2")	
Max. dry suction lift	6 m (19.7')	
Max. wet suction lift	8 m (26')	
Pump delivery per cycle*	10,2 l (2.6 gal)	
Fluid inlet / outlet ports	3" BSP (F) threads 3" NPT (F) threads 3" ANSI / DIN flange	
Air inlet port	3/4" NPT (F)	
Air exhaust port	1-1/2" NPT (F)	
Sound level	83 dB (A) @ 50 cycles/min @ 70 psi	
Weight	<b>Threaded</b>	<b>Flanged</b>
Aluminium pump	68 kg (163 lb)	71 kg (156 lb)
Stainless steel pump	120 kg (270 lb)	125 kg (276 lb)

## PERFORMANCE CHART



Data measured with water and with the pump inlet flooded.

\* Delivery per cycle depends on the diaphragms material, air inlet pressure and fluid viscosity.

## PUMP NOMENCLATURE

Example: **UP30A-BAC-NNG**

PUMP TYPE	AIR BODY	HOUSINGS			WETTED PARTS		
Pump Type & Size	Central Body & Air Chambers	Fluid Ports / Location	Fluid Chambers & Manifolds	Hardware Bolts	Valve Seats	Valve Balls	Diaphragms Type & Material
<b>UP30</b> Universal Pump (Bolted)	<b>ATEX Certified</b> A* = Aluminium	<b>B</b> = 3" BSP Threaded Ports / Centre Horizontal <b>C</b> = 3" ANSI/DIN Flanged Ports / Centre Horizontal <b>N</b> = 3" NPT Threaded Ports / Centre Horizontal	<b>ATEX Certified</b> A* = Aluminium S* = Stainless Steel	<b>C</b> = Carbon Steel <b>S</b> = Stainless Steel	<b>A</b> = Aluminium <b>D</b> = AISI 440 Hardened Stainless Steel <b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna-N) <b>S</b> = AISI 316 Stainless Steel <b>T</b> = PTFE (Teflon®)	<b>H</b> = Hytrel® <b>M</b> = Santoprene® <b>N</b> = Nitrile (Buna-N) <b>S</b> = AISI 316 Stainless Steel <b>T</b> = PTFE (Teflon®) <b>V</b> = FKM (Viton®)	<b>Conventional</b> <b>A</b> = Santoprene® <b>C</b> = Hytrel® <b>G</b> = Nitrile (Buna-N) <b>V</b> = FKM (Viton®) <b>Two-piece</b> <b>Z</b> = PTFE (Teflon® with Santoprene backer)

**ATEX Certified pumps** for use in hazardous locations ATEX Group II 2GDx.

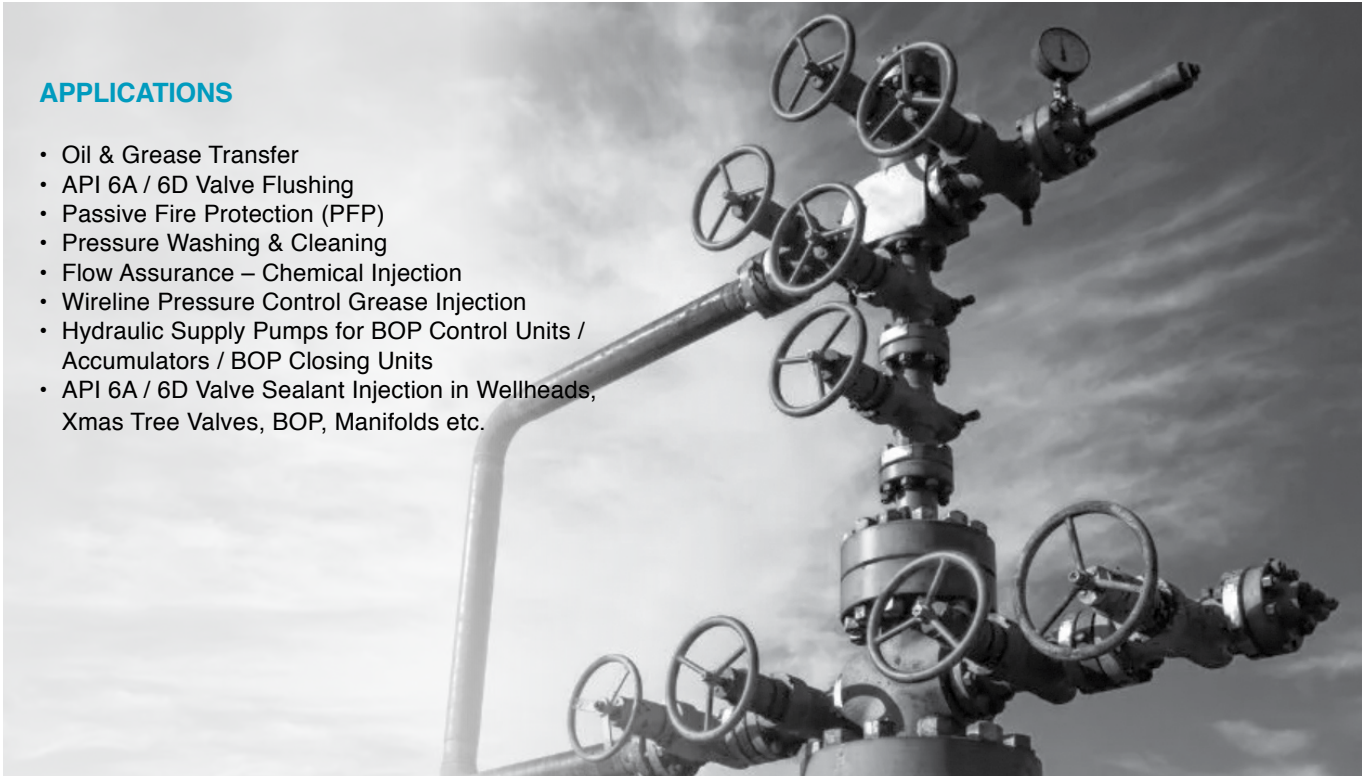
Hytrel® is a registered trademark of the DuPont Company, Viton® & Teflon® of the Chemours Company and Santoprene® of the Monsanto Company, licensed for Advanced Elastomer Systems, L.P. Kynar® is a registered trademark of Arkema, Inc.

# AIR OPERATED

Air Operated Piston Pumps are positive-displacement reciprocating pumps. They are the ideal choice for transferring medium to high viscosity clean fluids. The availability of various discharge pressure ratios makes that these pumps can be used in a wide variety of applications including transfer, extrusion, circulation, injection, metered dispensing, lubrication, high pressure cleaning etc.

## APPLICATIONS

- Oil & Grease Transfer
- API 6A / 6D Valve Flushing
- Passive Fire Protection (PFP)
- Pressure Washing & Cleaning
- Flow Assurance – Chemical Injection
- Wireline Pressure Control Grease Injection
- Hydraulic Supply Pumps for BOP Control Units / Accumulators / BOP Closing Units
- API 6A / 6D Valve Sealant Injection in Wellheads, Xmas Tree Valves, BOP, Manifolds etc.



## FEATURES & BENEFITS

### INTRINSICALLY SAFE

Compressed air driven pumps with CE ATEX certification – suitable for hazardous zones and inflammable liquids.

### RELIABLE

Proven non-stalling, non-freezing air motor with quick changeover and recovery design.

### HEAVY-DUTY

Suitable for intensive or intermittent duty applications

### RUGGED CONSTRUCTION

Suitable for dry, hot, humid, wet, damp and cold conditions.

### BROAD RANGE

Wide range of discharge pressure ratios and fluid displacement rates

### VERSATILITY

Adjustable flowrates, speed and fluid discharge pressure.

### LOW DOWNTIME

Modular construction, reduced parts count and simple to use various repair kit options minimizes repair time and cost.

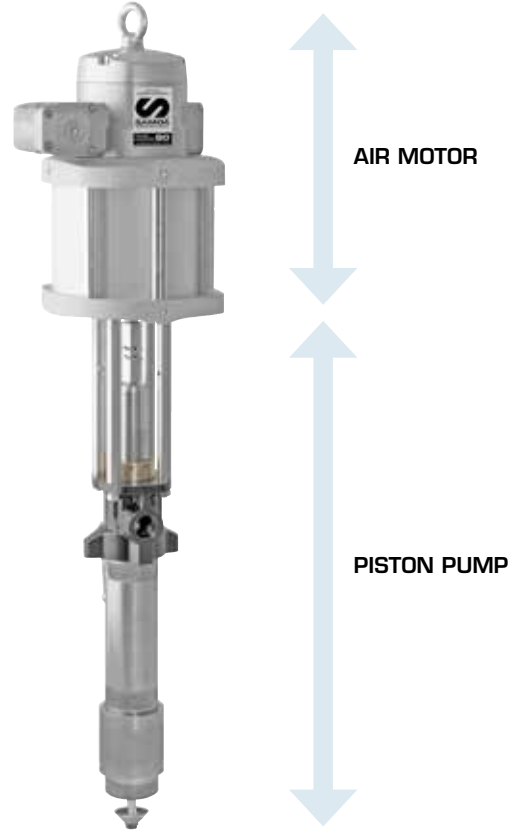
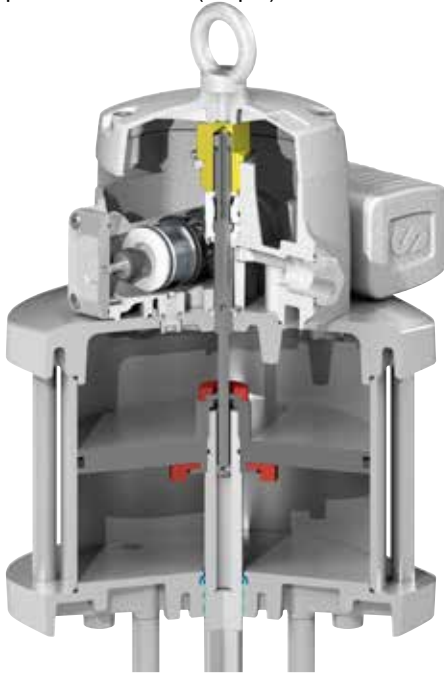
# PISTON PUMPS

**AN AIR OPERATED PUMP HAS TWO WELL DIFFERENTIATED COMPONENTS:**

## **THE AIR MOTOR AND THE PISTON PUMP**

The Air Motor has an air valve that creates a reciprocating motion to the air motor piston. This piston is fixed to the pump piston using a rigid rod that transmits this reciprocation motion and the force created by the air pressure on the air motor piston.

The relation between the air piston and the pump piston effective areas is known as PUMP RATIO. The Pump Ratio corresponds to a multiplying factor for the air inlet pressure, and it indicates the maximum pressure the pump can develop in stall condition: a pump with a 45:1 pressure ratio can develop up to 225 bar (3,375 psi) in stall conditions when the air inlet pressure is 5 bar (75 psi).



## **RELIABLE AIR MOTORS**

SAMOA air motors provide the reliability and dependability required for assuring a no stalling operation and superb performance under every working condition. The very simple air valve has no energy consuming springs that could fail due to material fatigue or pneumatic end of stroke sensors that could get blocked because of dirty air.

All SAMOA air motors include a well dimensioned air exhaust manufactured in Aluminium for an efficient heat transfer to avoid icing. The air exhaust includes a muffler to reduce noise level, to meet or exceed OSHA requirements.

## **SAMOA PISTON PUMP TYPES**

### **DYNAMIC-PRIMER PUMPS**

The primer rod extends below pump cylinder to penetrate and work the material as well as to provide positive priming of the heaviest pumpable materials.



### **DOUBLE-BALL PUMPS**

They have a large porting for positive priming and pumping of light to medium viscosity fluids.



# HYDRAULIC OIL SUPPLY PUMP

45:1 PRESSURE RATIO - 125 CC PER PUMP CYCLE

**PM80**  
AIR MOTOR


Pump designed for hydraulic oil supply in accumulators in oil rig Blow-Out Prevention (BOP) or Wireline Valve systems.

These systems consist in a series of safety valves, which can be opened and closed to control the uncontrolled flow of formation liquids into the wellhead. These are large heavy equipment, and in the event of kick, these pumps are used to supply hydraulic oil to close the valves, preventing the combustible formation liquids escaping to atmosphere through the wellhead.

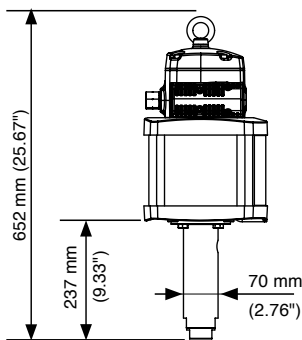
High pressure hydraulic fluids (3,000 psi nominal pressure) are used for closing these valves in a fast and safe mode.



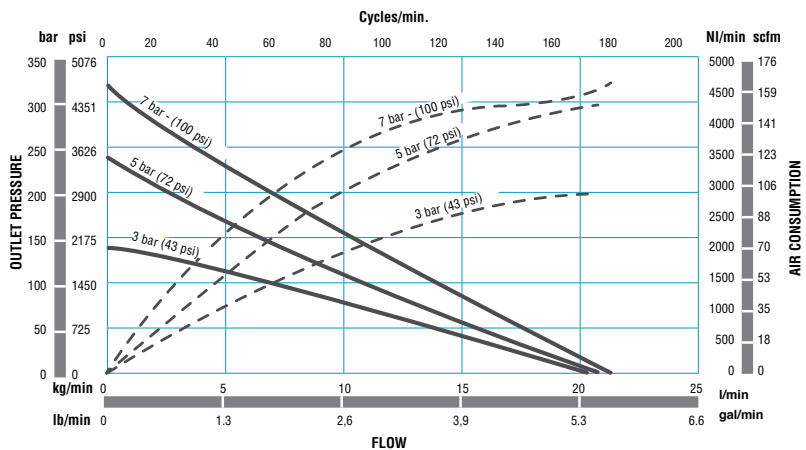
TECHNICAL DATA	
Pump Ratio	45:1
Pump delivery per cycle	125 cc
Air pressure range	1,5 to 7 bar (20 to 100 psi)
Maximum fluid pressure	315 bar (4,500 psi)
Air motor piston effective diameter	200 mm (8")
Air motor piston stroke	100 mm (4")
Air inlet thread	3/4" NPT (F)
Fluid outlet thread	3/4" NPT (F)
Fluid inlet thread	1" NPT (F)
Fluid outlet thread (gauge / bleeding)	-
Wetted parts materials	Zinc plated steel/ Hard chromed steel/ carbon steel/ PU.
Pump type	Double ball stub pump

ATEX certified pump  II 2G Ex h IIB T4 Gb.

## DIMENSIONS



## PERFORMANCE CHART



NLGI-2 GREASE 21 °C (70 °F)

— Outlet pressure  
- - - Air consumption

## ORDER INFORMATION

MODEL	DESCRIPTION
DB-45-125-CSA-N	HYDRAULIC OIL SUPPLY PUMP, 45:1, 125 CC, STUB.

# HIGH PRESSURE PUMP


100:1 PRESSURE RATIO - 34 CC PER PUMP CYCLE

# PM60 AIR MOTOR

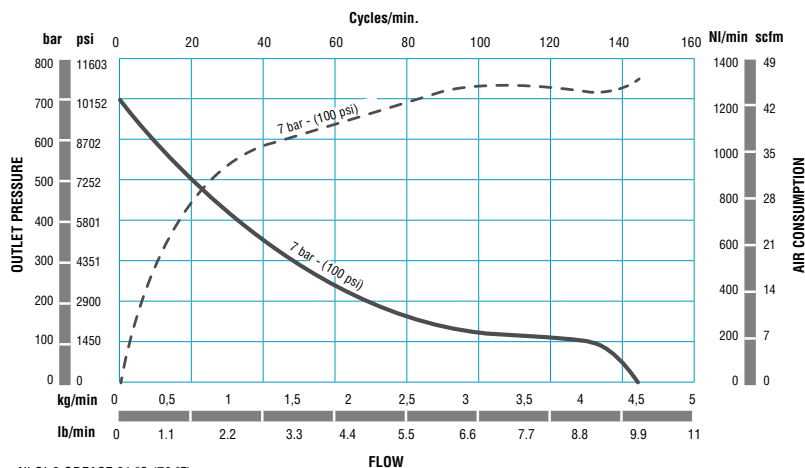
High pressure pumps used for wellhead valve integrity services such as lubrication and sealant injection in API 6A / 6D valves in wellheads, Christmas trees, BOP systems and manifolds.



TECHNICAL DATA	
Pump Ratio	100:1
Pump delivery per cycle	34 cc
Air pressure range	1,5 to 7 bar (20 to 100 psi)
Maximum fluid pressure	700 bar (10,000 psi)
Air motor piston effective diameter	150 mm (6")
Air motor piston stroke	100 mm (4")
Air inlet thread	1/2" NPT (F)
Fluid outlet thread	3/4" NPT (F)
Fluid inlet thread	-
Fluid outlet thread (gauge / bleeding)	1/4" NPT (F)
Wetted parts materials	Ductile iron/ Hard chromed steel/ Carbon steel/ Viton/ Zinc plated steel/ Buna-N/ PTFE/ POM Flanged
Pump type	Dynamic primer pump

ATEX certified pump  II 2D Ex h IIB T6...T5 Gb.  
II 2D Ex h IIIB T70°C...T95°C Db.

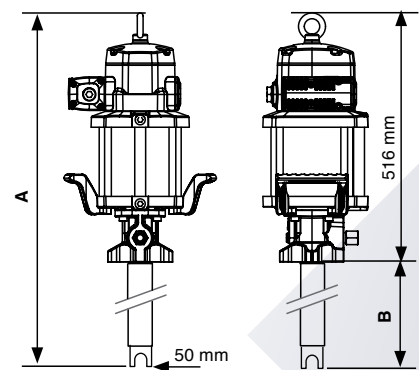
## PERFORMANCE CHART



NLGI-2 GREASE 21 °C (70 °F)

— Outlet pressure  
- - - Air consumption

## DIMENSIONS



## ORDER INFORMATION

MODEL	DESCRIPTION
PD-100-34-CSA-N	HIGH PRESSURE PUMP, 100:1, 34 CC, 30 KG / 35 LB PAILS
PD-100-34-CSB-N	HIGH PRESSURE PUMP, 100:1, 34 CC, 50 KG / 120 LB DRUMS
PD-100-34-CSC-N	HIGH PRESSURE PUMP, 100:1, 34 CC, 180 KG / 400 LB DRUMS

DIMENSIONS		
MODEL	A (mm)	B (mm)
30 kg / 35 lb pumps	1.006	490
50 kg / 120 lb pumps	1.166	650
180 kg / 400 lb pumps	1.371	855

# ULTRA-HIGH PRESSURE PUMPS

168:1 PRESSURE RATIO - 34 CC PER CYCLE

200:1 PRESSURE RATIO - 28 CC PER CYCLE

# PM80 AIR MOTOR



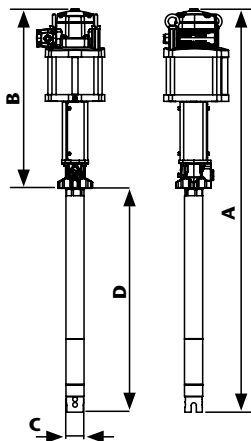
Ultra-High pressure pumps designed for grease injection in wireline pressure control equipment. Can also be used for wellhead sealant injection for valve integrity services.

In wireline pressure control equipment, the high-pressure grease / sealant seals the well pressure while the wirelines are operated (lowering/raising tools and equipment, logging, data collection etc.)

TECHNICAL DATA		
Pump Ratio	168:1	200:1
Pump delivery per cycle	34 cc	28 cc
Air pressure range	1,5 to 7 bar (20 to 100 psi)	1,5 to 7 bar (20 to 100 psi)
Maximum fluid pressure	1.180 bar (16,900 psi)	1.400 bar (20,000 psi)
Air motor piston effective diameter	200 mm (8")	200 mm (8")
Air motor piston stroke	100 mm (4")	100 mm (4")
Air inlet thread	3/4" NPT (F)	3/4" NPT (F)
Fluid outlet thread	13/16 -16 UNF, for coned and threaded 9/16" tube.	13/16 -16 UNF, for coned and threaded 9/16" tube.
Fluid inlet thread	-	-
Fluid outlet thread (gauge / bleeding)	7/16-20 UNF, for coned and threaded 1/4" tube.	7/16-20 UNF, for coned and threaded 1/4" tube.
Wetted parts materials	Ductile iron/ Carbon steel/ Bronze/ PEEK/ PTFE	Ductile iron/ Carbon steel/ Bronze/ PEEK/ PTFE
Pump type	Dynamic primer pump	Dynamic primer pump

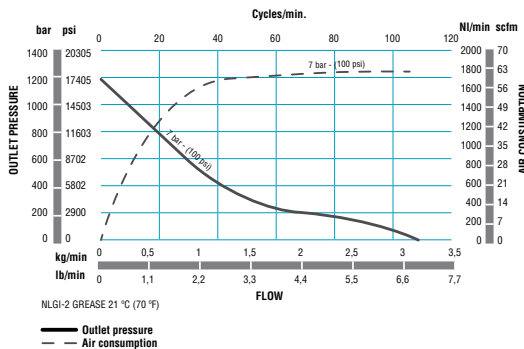
ATEX certified pump II 2D Ex h IIB T6...T5 Gb.  
II 2D Ex h IIB T70 °C...T95 °C Db.

## DIMENSIONS

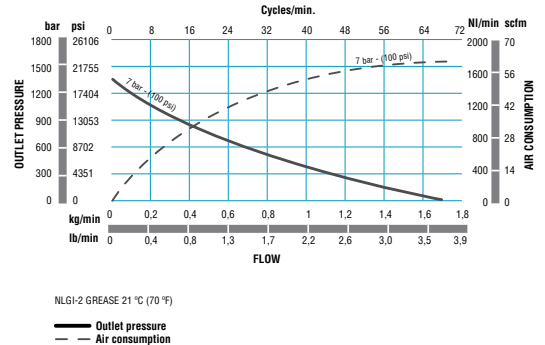


## PERFORMANCE CHARTS

168:1 PUMP



200:1 PUMP



## ORDER INFORMATION

MODEL	DIMENSIONS	
	180 KG / 400 LB DRUMS	50 KG / 120 LB DRUMS
A (mm)	1.540	1.390
B (mm)	684	684
C (mm)	70	70
D (mm)	855	700

MODEL	DESCRIPTION
PD-168-34-CSB-A	ULTRA HIGH PRESSURE PUMP, 168:1, 34 CC, 50 KG / 120 LB PAILS
PD-168-34-CSC-A	ULTRA HIGH PRESSURE PUMP, 168:1, 34 CC, 180 KG / 400 LB DRUMS
PD-200-28-CSB-A	ULTRA HIGH PRESSURE PUMP, 200:1, 28 CC, 50 KG / 120 LB DRUMS
PD-200-28-CSC-A	ULTRA HIGH PRESSURE PUMP, 200:1, 28 CC, 180 KG / 400 LB drum



# ULTRA-HIGH PRESSURE PUMP


240:1 PRESSURE RATIO - 52 CC PER CYCLE

# PM100 AIR MOTOR

Ultra-High pressure grease pump designed for grease injection in wireline pressure control equipment.

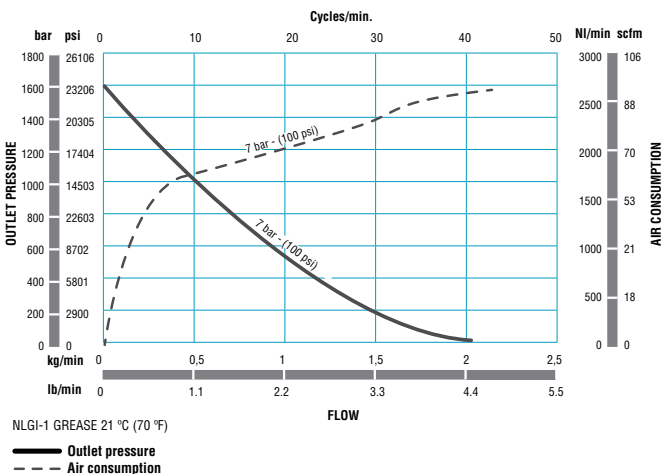
The grease / sealant injected at very high pressure seals the well pressure while the wirelines are operated (lowering/raising of tools & equipment, logging, data collection etc.)

TECHNICAL DATA	
Pump Ratio	240:1
Pump delivery per cycle	52 cc
Air pressure range	1,5 to 7 bar (20 to 100 psi)
Maximum fluid pressure	1.780 bar (24,000 psi)
Air motor piston effective diameter	250 mm (10")
Air motor piston stroke	150 mm (6")
Air inlet thread	3/4" NPT (F)
Fluid outlet thread	13/16 -16 UNF, for coned and threaded 9/16" tube.
Fluid inlet thread	3/4" NPT. Includes suction filter.
Wetted parts materials	Carbon steel/ Copper/ Hard chromed steel/ PEEK/ PTFE/ PU
Pump type	Double ball stub pump

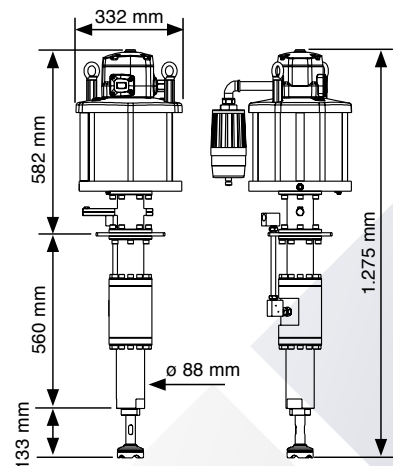
ATEX certified pump  II 2G Ex h IIB T4 Gb.



## PERFORMANCE CHARTS



## DIMENSIONS



## ORDER INFORMATION

MODEL	DESCRIPTION
DB-240-52-CSA-A	ULTRA HIGH PRESSURE PUMP, 240:1; 52 CC; STUB

# GREASE PUMPS

## GREASE TRANSFER PUMPS

### 12:1 PRESSURE RATIO 300 CC DELIVERY PER CYCLE

High delivery grease pump for fast and efficient grease transfer from totes, bins, fluid bags, etc. fitted with a 3" Cam-Lock adaptor.



TECHNICAL DATA	
Pump ratio	12:1
Delivery per cycle	300 cc
Max. delivery at 60 cycle/min	18 l/min (4.75 gal/min)
Max. air pressure	7 bar (100 psi)
Max. fluid pressure	84 bar (1,200 psi)
Air motor	PM60
Fluid outlet thread	3/4" NPT (F)
Fluid Inlet	Priming disc
Air inlet thread	1/2" NPT (F)
ORDER INFORMATION	
<b>PD-12-300-CSA-N</b>	Stub pump, with 3" Cam-Lock adaptor

### 35:1 PRESSURE RATIO 156 CC DELIVERY PER CYCLE

High delivery grease pumps for transferring large volumes of grease from drums to smaller containers.

Large air motor and large pressure ratio allows moving big amounts of grease efficiently.



TECHNICAL DATA	
Pump ratio	35:1
Delivery per cycle	156 cc
Max. delivery at 60 cycle/min	9,4 l/min (2.5 gal/min)
Max. air pressure	7 bar (100 psi)
Max. fluid pressure	245 bar (3,500 psi)
Air motor	PM80
Fluid outlet thread	1" NPT(F)
Fluid Inlet	Priming disc
Air inlet thread	3/4" NPT (F)
ORDER INFORMATION	
<b>PD-35-156-CSB-N</b>	Pump for use with 50 kg (120 lb) drum.
<b>PD-35-156-CSA-N</b>	Pump for use with 180 kg (400 lb) drum

## GREASE LUBRICATION PUMPS

### 60:1 PRESSURE RATIO 14 CC DELIVERY PER CYCLE

High pressure lubrication pumps for use with 180 kg (400 lb) drums, 50 kg (120 lb) drums and 18 kg (35 lb) pails. Available as loose pumps or complete kits including pump, drum cover, grease hose and grease gun with Z-swivel and hydraulic type nozzle.



TECHNICAL DATA	
Pump ratio	60:1
Delivery per cycle	14 cc
Max. delivery at 80 cycle/min	1,1 l/min (0.3 gal/min)
Max. air pressure	7 bar (100 psi)
Max. fluid pressure	420 bar (6,000 psi)
Air motor	PM35
Fluid outlet thread	3/8" NPT (F)
Fluid Inlet	Priming disc
Air inlet thread	3/8" NPT (F)
ORDER INFORMATION	
<b>PD-60-14-CSA-N</b>	Pump for 18 kg (35 lb) pails.
<b>PD-60-14-CSB-N</b>	Pump for 50 kg (120 lb) drums
<b>PD-60-14-CSC-N</b>	Pump for 180 kg (400 lb) drum

## LUBRICATION PUMP KITS

### PART NO. 423021

#### PM35 60:1 GREASE PUMP KIT FOR 18 KG – 35 LB. PAILS.

Includes pump PD-60-16-CSA, drum cover with carrying handle, follower plate, 2 m x 3/8" high pressure hose and grease gun with Z-swivel and hydraulic type coupler.



### PART NO. 423160

#### PM35 60:1 GREASE PUMP KIT FOR 50 KG – 120 LB. DRUMS.

Includes pump PD-60-16-CSB, drum cover, trolley, 3 m x 3/8" high pressure hose and grease gun with Z-swivel and hydraulic type coupler.



### PART NO. 426244

#### PM35 60:1 GREASE PUMP KIT FOR 180 KG – 400 LB. DRUMS.

Includes pump PD-60-16-CSC, drum cover, follower plate, trolley, 4 m x 3/8" high pressure hose and grease gun with Z-swivel and hydraulic type coupler.







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