

# AIR OPERATED DOUBLE DIAPHRAGM PUMPS



# TECHNOLOGY EXCELLENCE

## ENVIRONMENT Concerned

Metal die-casting and thermoplastic materials moulding are optimally industrialized and produced using energy efficient and reliable resources.



## STATE-OF-THE-ART Machinery

We produce all components in-house, using the most advanced equipment.



## QUALITY First

Automated measuring of parts for consistent quality assurance.





SAMOA Headquarters and  
Technical Centre in Gijón (Spain)

# SAMOA: LEADING THROUGH INNOVATION

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.

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.

Our 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.



**CONSISTENT  
ASSEMBLY**

**PERFECTLY  
Tested**

All pumps are dry, wet, vacuum,  
and dead-head verified.

# DIRECTFLO® PUMPS

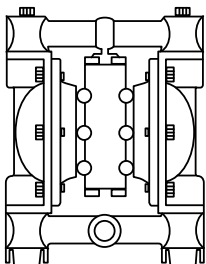
## ADVANTAGES OF AIR OPERATED DOUBLE DIAPHRAGM PUMPS

- Dry-running capacity and dry self-priming.
- Can pump clean fluids or fluids with suspended solids.
- Best pump for abrasive, corrosive and shear sensitive fluids.
- Air driven pump, no electricity required, no electrical hazard.
- On-demand operation. Pump stops when fluid outlet closes and automatically starts when the fluid outlet opens.
- Adjustable flow and head pressure with only an air pressure regulator.
- No dynamic mechanical seals or packings.

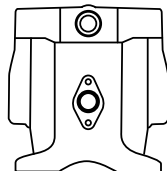
## ADDITIONAL DIRECTFLO® PUMPS ADVANTAGES:

### INNOVATIVE DESIGN

- One piece fluid section guarantees no leakage.
- Fast and easy maintenance
- No manifolds, very compact design.



TRADITIONAL  
1/2" PUMP



DIRECTFLO®  
DF50 PUMP

Directflo® pumps are more compact allowing easy and economical installation in applications with:

- OEMs
- Hard to access places
- Congested areas with many pipes and other equipment.

While producing equal to higher flow rates with reduced air consumption.

## REVOLUTIONARY DIRECTFLO® TECHNOLOGY

Directflo® pumps are based in an "inside-out" technology: the fluid is pumped through the centre of the pump while the compressed air acts on the external face of the diaphragms.

## EXTREMELY FAST CHANGEOVER FRICTIONLESS PIVOT VALVE DESIGN

Very reliable and fast action air valve that reduces air consumption and minimizes pulsation.

## SHORT STROKE DIAPHRAGMS GREATLY EXTENDS LIFE



### PROVEN SUPERIOR PERFORMANCE

- Superior dry suction.
- Non icing, no stalling.
- Superior start-up reliability.
- Tolerates dry, damp, dirty and oily air.
- Gentle pumping, reduced pulsations and vibration.

### INCREASED DURABILITY

- First quality materials.
- Long diaphragm life.
- Short diaphragm stroke.

### MORE EFFICIENT PUMP

- Reduced air consumption.
- Reduced internal pressure drop.

## AODD PUMPS VS. OTHER PUMP TECHNOLOGIES



**AODD Diaphragm**



**Piston / Plunger**



**Peristaltic Hose**



**Lobe**



**Vane**



**Gear**



**Centrifugal**

### PUMP TYPES

Pump Classification PD = Positive Displacement Pump	PD Reciprocating	PD Reciprocating	PD Rotary	PD Rotary	PD Rotary	PD Rotary	Kinetic

### PUMPED FLUID CHARACTERISTICS

SUSPENDED SOLIDS No pump or product damage	▲	▼	▬	▼	▲	▬	▬
ABRASIVE SLUDGE & SLURRIES Low internal velocities-No damage	▲	▼	▲	▼	▼	▼	▲
CORROSIVE FLUIDS Compatible pump materials	▲	▼	▲	▬	▼	▼	▼
SHEAR SENSITIVITY Low shear and product separation	▲	▼	▼	▲	▼	▼	▼

### PUMP OPERATION

DRY-RUNNING CAPABILITY No pump or system damage	▲	▲	▲	▼	▬	▼	▼
DRY SELF-PRIMING High suction-lift	▲	▬	▼	▼	▼	▼	▼
PORTABLE & SUBMERSIBLE Integral pump with air motor	▲	▼	▼	▼	▼	▼	▬
COOL OPERATION No heat build-up during transfer	▲	▬	▬	▬	▬	▬	▬
SAFETY (ATEX models) Air Driven. No electrical hazard	▲	▬	▬	▬	▬	▬	▬

### PUMP COST ADVANTAGES

ON-DEMAND OPERATION Bypass and relief valves cost savings	▲	▲	▬	▬	▬	▬	▬
ADJUSTABLE FLOW & PRESSURE Additional regulation costs savings	▲	▬	▬	▬	▬	▬	▬
DYNAMIC & MECHANICAL SEALS Replacement and maintenance cost savings	▲	▼	▼	▼	▼	▼	▼
NO ELECTRICAL INSTALLATION Intrinsically safe, cost savings	▲	▼	▼	▼	▼	▼	▼
INITIAL PURCHASE PRICE Compared to other pump types	▲	▼	▼	▼	▼	▼	▼

▲ = Excellent

▬ = With limitations

▼ = Not recommended

## APPLICATIONS AND INDUSTRIES

### PROCESS INDUSTRY



### MINING



### WATER/WASTE WATER



### ENERGY INDUSTRY



# DIRECTFLO® PUMPS RANGE

## PLASTIC PUMPS

Plastic Directflo® pumps fluid bodies are compatible with even the most aggressive chemicals. Polypropylene air sections (air chamber covers and air valve module) are suitable for use in corrosive environments.



### PLASTIC

	DC20	DF30	DF30T	DF50
<b>Pressure ratio</b>	1:1	1:1	1:1	1:1
<b>Maximum free delivery <sup>(1)</sup></b>	20 l/min (5 US gal/min)	38 l/min (10 US gal/min)	38 l/min (10 US gal/min)	50 l/min (14 US gal/min)
<b>Delivery per stroke approx. <sup>(1)(2)</sup></b>	0,03 litres (0.008 US gal)	0,07 litres (0.02 US gal)	0,07 litres (0.02 US gal)	0,1 litres (0.026 US gal)
<b>Delivery per cycle (2 x strokes) <sup>(1)(2)</sup></b>	0,06 litres (0.016 US gal)	0,14 litres (0.04 US gal)	0,14 litres (0.04 US gal)	0,2 litres (0.05 US gal)
<b>Air pressure operating range</b>	1,5 to 7 bar (20 to 100 psi)	1,5 to 8 bar (20 to 120 psi)	1,5 to 8 bar (20 to 120 psi)	1,5 to 7 bar (20 to 120 psi)
<b>Solids in suspension max. size</b>	2 mm (3/32")	3 mm (1/8")	3 mm (1/8")	3 mm (1/8")
<b>Maximum dry suction lift <sup>(1)</sup></b>	2 m (6 1/2')	4 m (13')	4 m (13')	6 m (20')
<b>Maximum wet suction lift <sup>(1)</sup></b>	7 m (23')	8 m (26')	8 m (26')	8 m (26')
<b>Weight</b>	1,2 kg (2,65 lb)	1,9 kg (4.19 lb)	1,9 kg (4.19 lb)	2,2 kg (4.85 lb)
<b>Fluid inlet port</b>	Int.: 1/4" BSP/NPT (F) Ext.: 3/4" NPT (M)	1/2" BSP/NPT (F)	2 x 3/8" BSP/NPT (F)	1/2" BSP/NPT (F)
<b>Fluid outlet port</b>	Int.: 1/4" BSP/NPT (F) Ext.: 3/4" NPT (M)	1/2" BSP/NPT (F)	1/2" BSP/NPT (F)	1/2" BSP/NPT (F)
<b>Air inlet port</b>	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)
<b>Wetted part materials</b>	See pump nomenclature on next pages.			



### PLASTIC

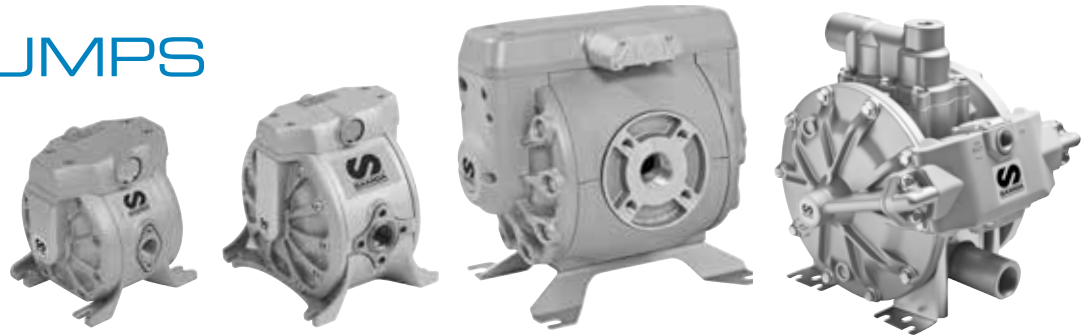
	DF50T	DF100	DP200
<b>Pressure ratio</b>	1:1	1:1	1:1
<b>Maximum free delivery <sup>(1)</sup></b>	50 l/min (14 US gal/min)	100 l/min (28 US gal/min)	200 l/min (53 gal/min)
<b>Delivery per stroke approx. <sup>(1)(2)</sup></b>	0,1 litres (0.026 US gal)	0,25 litres (0.07 US gal)	0,5 litres (0.13 US gal)
<b>Delivery per cycle (2 x strokes) <sup>(1)(2)</sup></b>	0,2 litres (0.05 US gal)	0,50 litres (0.13 US gal)	1 litre (0.26 US gal)
<b>Air pressure operating range</b>	1,5 to 8 bar (20 to 120 psi)	1,5 to 8 bar (20 to 120 psi)	1,5 to 8 bar (20 to 120 psi)
<b>Solids in suspension max. size</b>	3 mm (1/8")	4 mm (3/16")	6 mm (1/4")
<b>Maximum dry suction lift <sup>(1)</sup></b>	6 m (20')	4,5 m (15')	5 m (16')
<b>Maximum wet suction lift <sup>(1)</sup></b>	8 m (26')	7 m (23')	8 m (26')
<b>Weight</b>	2,2 kg (4.85 lb)	5,1 kg (11.24 lb)	10,5 kg (23.15 lb)
<b>Fluid inlet port</b>	2 x 3/8" BSP/NPT (F)	1" BSP/NPT (F)	1" DIN PN-10 DN25 flange and ANSI B16.5 1" 150 lb flange
<b>Fluid outlet port</b>	1/2" BSP/NPT (F)	1" BSP/NPT (F)	1" DIN PN-10 DN25 flange and ANSI B16.5 1" 150 lb flange
<b>Air inlet port</b>	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)
<b>Wetted part materials</b>	See pump nomenclature on next pages.		

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F) and flooded fluid inlet.

(2) Approximate value; real value may vary depending on working conditions, fluid pumped and pump materials.

# METAL PUMPS

**Metal Directflo® pumps** are very robust. They are available with Aluminium and AISI316 Stainless steel fluid bodies and they can handle a wide range of materials.



## METAL

	DF50	DF100	DF250	DP200
<b>Pressure ratio</b>	1:1	1:1	1:1	1:1
<b>Maximum free delivery<sup>(1)</sup></b>	50 l/min (14 US gal/min)	100 l/min (28 US gal/min)	250 l/min (66 US gal/min)	200 l/min (53 gal/min)
<b>Delivery per stroke approx.<sup>(1)(2)</sup></b>	0,1 litres (0.026 US gal)	0,25 litres (0.07 US gal)	0,6 litres (0.16 US gal)	0,5 litres (0.13 US gal)
<b>Delivery per cycle (2 x strokes)<sup>(1)(2)</sup></b>	0,2 litres (0.05 US gal)	0,5 litres (0.13 US gal)	1,2 litres (0.32 US gal)	1 litre (0.26 US gal)
<b>Air pressure operating range</b>	1,5 to 8 bar (20 to 120 psi)	1,5 to 8 bar (20 to 120 psi)	1,5 to 8 bar (20 to 120 psi)	1,5 to 8 bar (20 to 120 psi)
<b>Solids in suspension max. size</b>	3 mm (1/8" )	4 mm (3/16" )	6 mm (1/4" )	6 mm (1/4" )
<b>Maximum dry suction lift<sup>(1)</sup></b>	6 m (20')	4,5 m (15')	5 m (16.4')	5 m (16')
<b>Maximum wet suction lift<sup>(1)</sup></b>	8 m (26')	7 m (23')	8 m (26')	8 m (26')
<b>Weight</b>	3,5 kg (7.72 lb)	7,2 kg (16 lb)	20 kg (45 lb)	11,5 kg (25.35 lb)
<b>Fluid inlet port</b>	1/2" NPSM (F)	1" BSP/NPT (F)	1 1/2" BSP (F) and DIN PN-10 DN40 flange or 1 1/2" NPT (F) and ANSI 1" B16.5 150 lb flange	1" BSP/NPT (F)
<b>Fluid outlet port</b>	1/2" NPSM (F)	1" BSP/NPT (F)	1 1/2" BSP (F) and DIN PN-10 DN40 flange or 1 1/2" NPT (F) and ANSI 1" B16.5 150 lb flange	1" BSP/NPT (F)
<b>Air inlet port</b>	3/8" NPSM (F)	3/8" NPSM (F)	1/2" NPSM (F)	3/8" NPSM (F)
<b>Wetted part materials</b>	See pump nomenclature on next pages.			

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F) and flooded fluid inlet.  
 (2) Approximate value; real value may vary depending on working conditions, fluid pumped and pump materials.

## DIAPHRAGM PUMP OPTIONS



EXTERNALLY DRIVEN PUMP.

### EXTERNALLY DRIVEN PUMP

DF pumps without air motor can be controlled with an external control device such as a PLC for use in dosing applications.

### REMOTE AIR EXHAUST

A threaded connection replaces the standard stainless steel sintered air exhaust muffler for connecting a hose for remote air exhaust. 3/8" NPSM connection for DF30, DF50, DF100 and DC20 pumps; 3/4" NPT for DP200 pumps and 1" BSP for DF250 pumps.

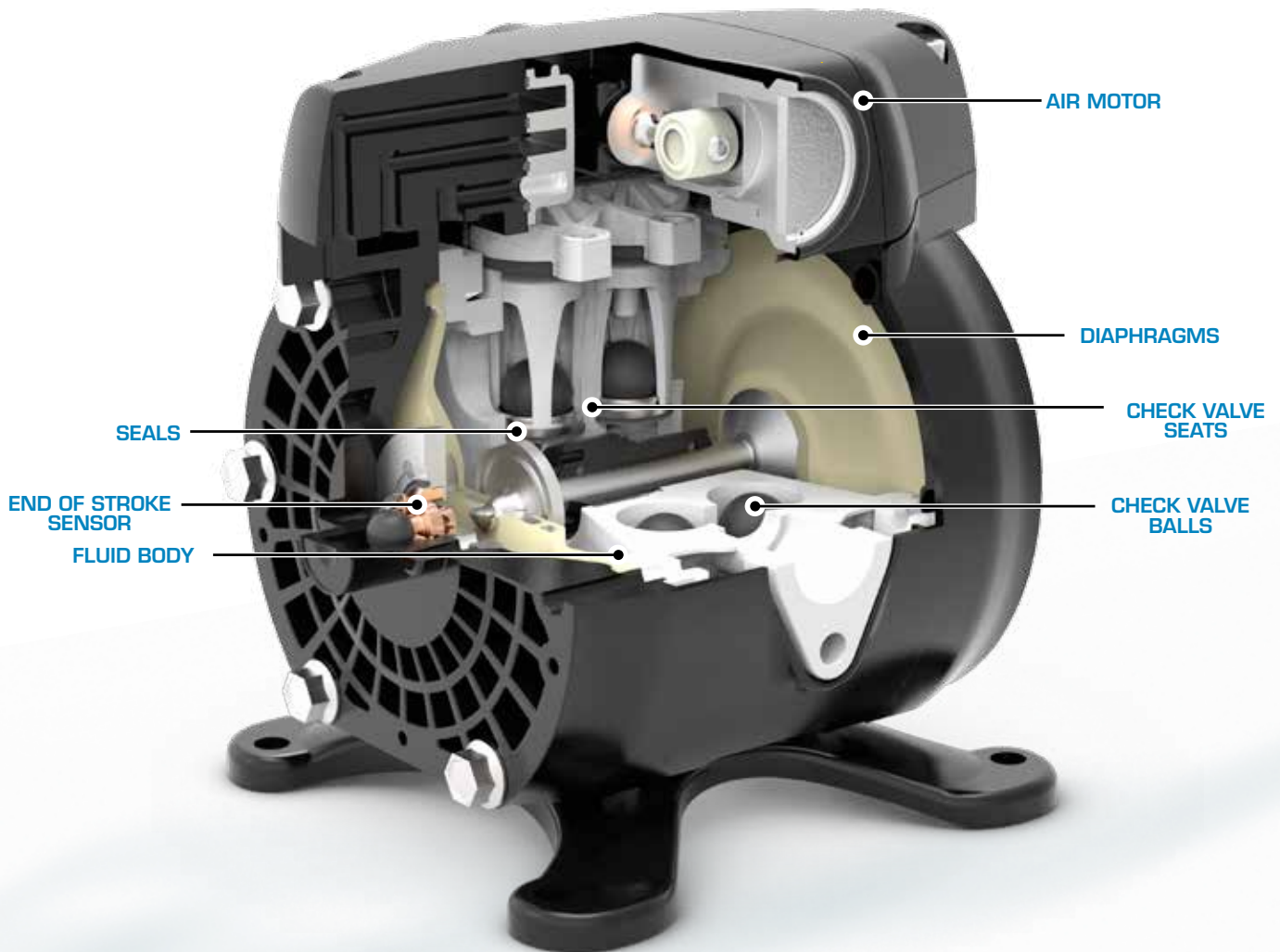
### REDUCED NOISE MUFFLER

Replaces the standard sintered stainless steel disc muffler to further reduce the noise produced by compressed air expansion.



REDUCED NOISE MUFFLER.

# CONSTRUCTION MATERIALS



## ALUMINIUM

- Versatile material with good overall properties. Ideal for general purpose applications.
- Used in metal pumps for fluid bodies, air motors housings and valve seats in DP pumps.
- Not for use with halogenated hydrocarbons.

## AISI 316 STAINLESS STEEL

- High corrosion resistance, mostly used in the chemical industry. High tensile resistance.
- Used in metal pumps for fluid bodies, valve seats and valve balls.

## POLYPROPYLENE

- General purpose material. Good with water-soluble acids and caustics.
- Used in plastic pumps for fluid bodies, air motor housings and valve seats (DC and DP pumps).
- Also available as conductive Polypropylene (black colour) for groundable pumps (ATEX).

## ACETAL

- Material with good mechanical properties. Compatible with most solvents.
- Used for valve balls and for valve seats in DC and DP pumps.
- Also available as conductive Acetal in fluid bodies for groundable pumps (ATEX).

## PVDF

- A fluoroplastic, durable and with excellent chemical resistance.
- High tensile strength and impact resistance. Excellent temperature resistance.
- Used in plastic pumps for fluid bodies and valve seats.

## PTFE (TEFLON®)

- Excellent chemical resistance and good resistance to high temperatures.
- Used in diaphragms and valve balls.



## DIAPHRAGM MATERIALS



Hytre® diaphragms



PTFE diaphragms



NBR (Buna-N) diaphragms



Santoprene® diaphragms

## PUMP BODY MATERIALS



PVDF pump body



Polypropylene pump body



Stainless Steel pump body



Aluminum pump body



Acetal pump body

### SANTOPRENE®

- Good compatibility with mild acids and alkalis. Ideal for abrasive fluids.
- Used in diaphragms and valve seats in DP pumps.

### TPE (HYTREL®)

- Excellent for general purpose. Good for abrasive but non corrosive fluids.
- Used in diaphragms and valve seats in DP pumps.

### NBR (BUNA-N)

- Excellent resistance to lubricants. Good resistance to flexion and abrasion.
- Used for diaphragms, valve balls and seals and in DP pumps also for valve seats.

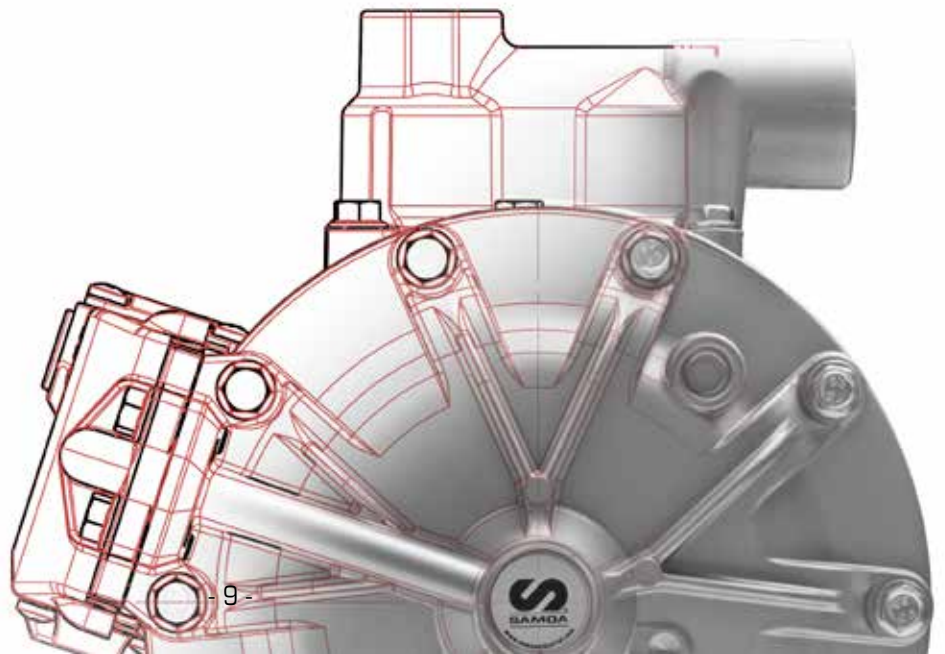
### HASTELLOY®

- Excellent corrosion resistance to strong acids and alkalis.
- Used in the diaphragm connecting rods.

### AISI 420 STAINLESS STEEL

- Hard material with good corrosion resistance.
- Used in diaphragm connecting rod.

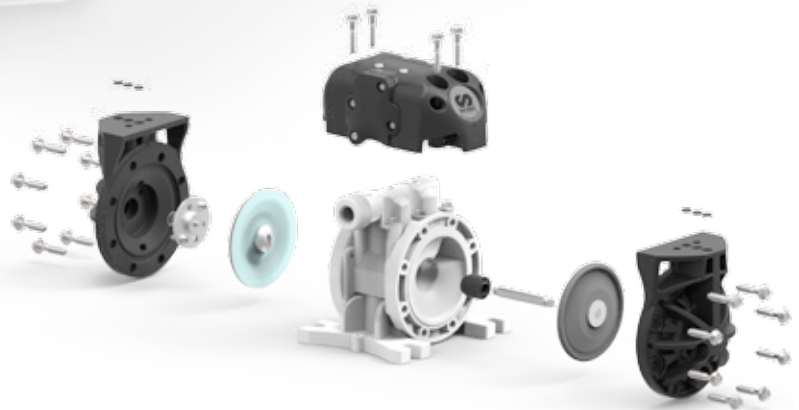
## SEAT MATERIALS



# DC PUMPS

## RELIABLE COMPACT DESIGN

CUSTOM



Air operated double diaphragm pumps for use with a wide variety of fluids.

Their compact design makes them ideal for OEM applications and industrial processes.

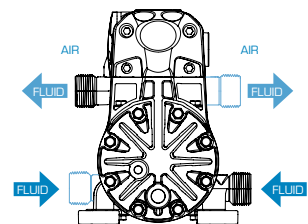
With high reliability start-up at low air pressures thanks to its air motor with an unbalanced spool valve, more precise flow rate adjustment is possible by simply regulating the air pressure.

Pump wetted materials are compatible with the most aggressive fluids and are suitable for use in corrosive environments. Air motor (directional air valve and air chamber covers) is made of conductive acetal.

The pumps have a built-in air exhaust, with the possibility of connecting a hose for remote exhaust or including a reduced noise muffler.

**Fully groundable ATEX certified pumps are available for use in potentially explosive atmospheres.**

 ATEX Certified versions available Ex II2 GD IIB/IIC 95 °C



**The inlet and outlet ports are orientable, offering greater versatility during pump installation.**

# DF PUMPS

## ORIGINAL DIRECTFLO® TECHNOLOGY

FUNCTION



The DF range of pumps, available in a wide variety of sizes, are ideal for dosing, transferring, evacuation and spraying.

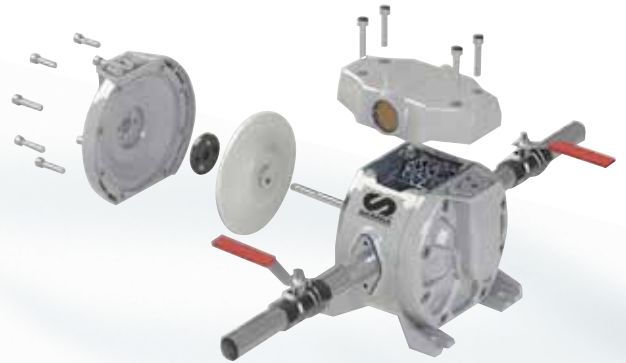
They are easy, fast and economical to maintain, as it is possible to perform in line full pump service.

In the plastic pumps the air motor (directional air valve and air chamber covers) is made of conductive polypropylene.

Pump fluid bodies are compatible even with the most aggressive fluids and are suitable for use in corrosive environments.

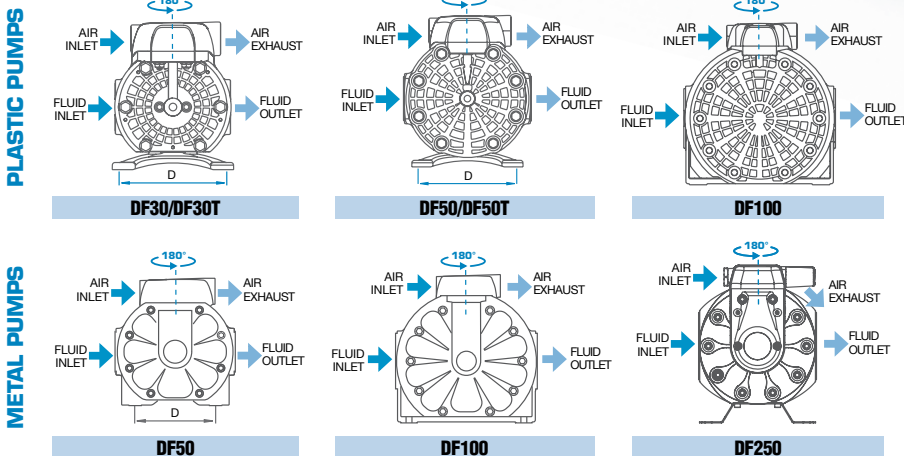
DF30T and DF50T are dual inlet pumps for 1:1 ratio mixing of fluids with similar viscosity. Both, the initial fluid and the resulting mixture, must be compatible with the pump's wetted materials.

Metal pumps, with their more robust construction, are designed to meet the most demanding applications.



**ATEX certified pumps for use in potentially explosive atmospheres (plastic pumps are available with ATEX certification).**

 ATEX Certified versions available Ex II2 GD IIB/IIC 95 °C



The air inlet port can be rotated 180°

# DP PUMPS

## MAXIMUM PERFORMANCE FOR HIGH FLOW RATES

PERFORMER



Air operated double diaphragm pumps for dosing, spraying, transferring and evacuating a wide variety of fluids.

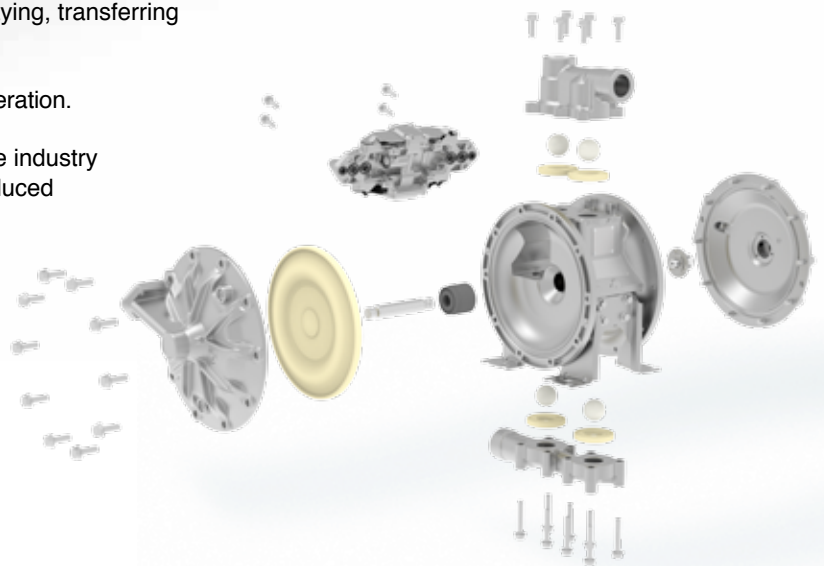
Enhanced Pivoting air valve, no stalling and no icing operation.

Air valve provides the fastest reciprocating action in the industry for increased performance, minimum pulsation and reduced air consumption.

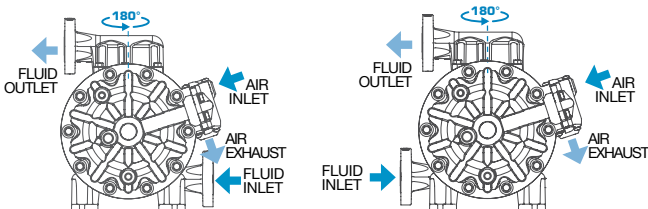
Orientable inlet and outlet manifolds provide maximum installation versatility.

**Fully groundable ATEX certified pumps for use in potentially explosive atmospheres.**

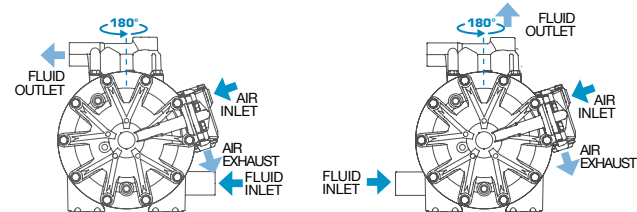
 ATEX Certified versions available Ex II2 GD IIB/IIC 95 °C.



PLASTIC PUMPS



METAL PUMPS



The inlet and outlet port are orientable, offering greater versatility during pump installation.

# DC20 PLASTIC PUMPS

## 20 L/MIN (5 US GAL/MIN) - 1/4"

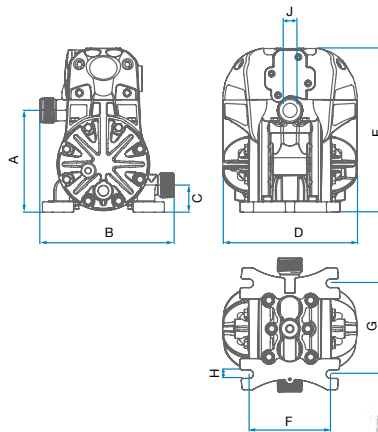
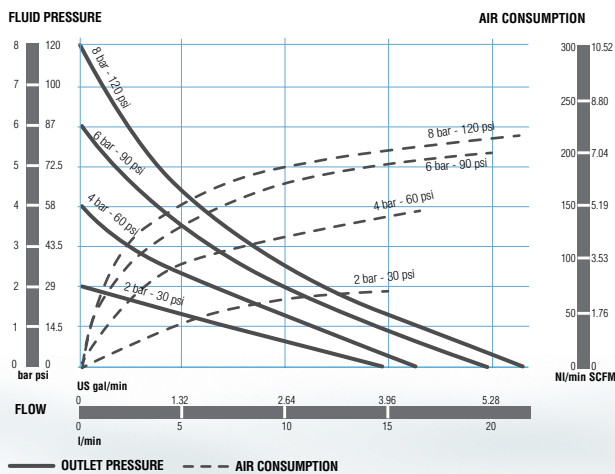
TECHNICAL DATA	DC20 PLASTIC PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	20 l/min (5 US gal/min)
Displacement per cycle (2 x strokes) (1)	0,06 litres (0.016 US gal)
Air pressure operating range	1,5 to 7 bar (20 to 100 psi)
Solids in suspension max. size	2 mm (3/32")
Maximum dry suction lift (1)	2 m (6 1/2')
Maximum wet suction lift (1)	7 m (23')
Weight	1,2 kg (2.65 lb)
Fluid inlet port	Int.: 1/4" BSP/NPT (F) Ext.: 3/4" NPT (M)
Fluid outlet port	Int.: 1/4" BSP/NPT (F) Ext.: 3/4" NPT (M)
Air inlet port	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).



## PERFORMANCE CHART

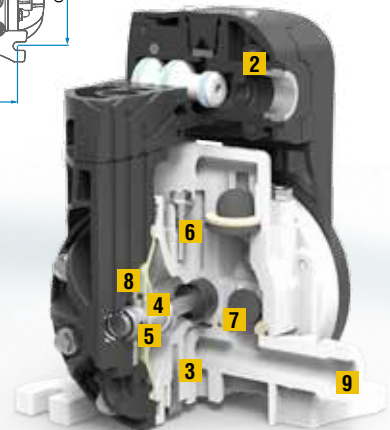
Tested at room temperature, with water and flooded pump with 800 mm (31 1/2") height of water above the pump inlet.



Dimensions (mm)

A	B	C	D	E
108	142	29	142	173
F	G	H*	J	
86	96	9	1/4" - 3/4" (F)	

\* Diameter of the holes for fasteners in each of the four pump feet.



## PUMP NOMENCLATURE

### DC20P - PSE - PTM- BAS

DC20X		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
DC20	 ATEX Certified* P = Conductive plastic material**	P = Polypropylene W = PVDF  ATEX Certified* D = Conductive Acetal B = Conductive Polypropylene	S = Stainless Steel AISI 420 Y = Hastelloy® C	E = EPDM T = PTFE (Teflon®) V = FKM (Viton®)	C = Acetal P = Polypropylene W = PVDF	C = Acetal T = PTFE (Teflon®)	H = TPE (Hytrel®) M = Santoprene® T = PTFE (Teflon®)	B = BSP N = NPT	AS = Standard ES = Externally driven

\* ATEX Certified versions available Ex II 2 GD IIB/II C 95 °C.  
 Not all possible material combinations are available.  
 \*\* Conductive Acetal for DC20 pump.

# DF30 PLASTIC PUMPS

## 38 L/MIN (10 US GAL/MIN) - 1/2"

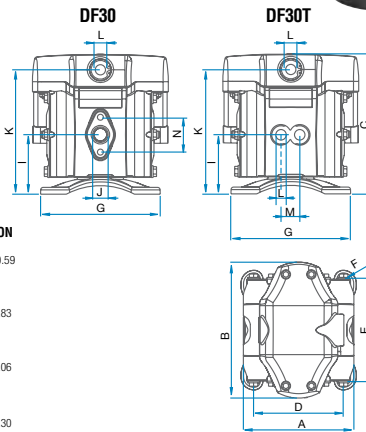
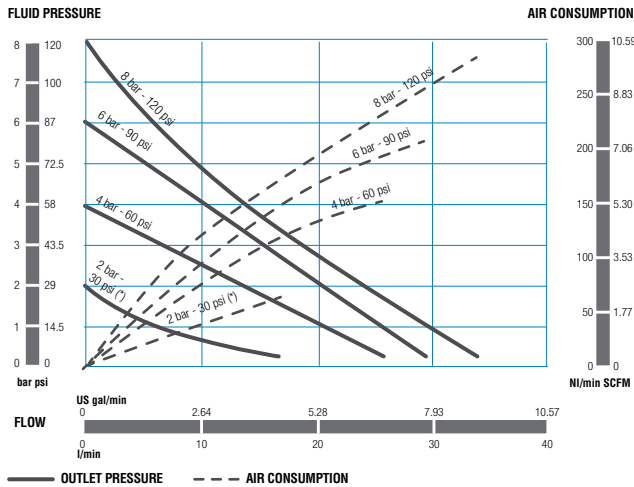
TECHNICAL DATA	DF30 & DF30T PLASTIC PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	38 l/min (10 US gal/min)
Displacement per cycle (2 x strokes) (1)	0,14 litres (0.04 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	3 mm (1/8")
Maximum dry suction lift (1)	4 m (13')
Maximum wet suction lift (1)	8 m (26')
Weight	1,9 kg (4.19 lb)
Fluid inlet port	1/2" BSP/NPT (F) 2 x 3/8" BSP/NPT (F) (DF30T)
Fluid outlet port	1/2" BSP/NPT (F)
Air inlet port	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).



## PERFORMANCE CHART

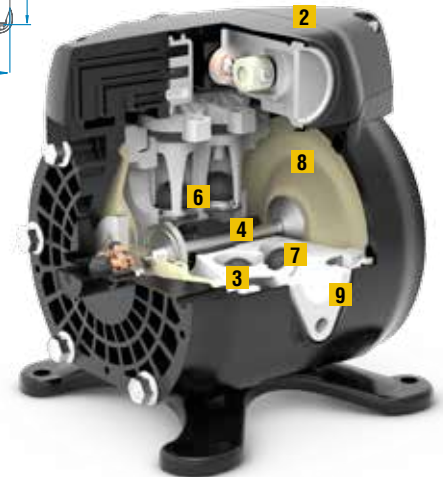
(\* ) 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.



Dimensions (mm)

A	B	C	D	E	F*	G
130	160	165	105	122	8	140,7
I	J	K	L	M	N	
70	1/2"(F)	146	3/8"(F)	24	41**	

\*Diameter of the holes for fasteners in each of the four pump feet.  
\*\*Connection: 2 bolts - M6



## PUMP NOMENCLATURE

### DF30X - PST - STT- BAS

DF30X - DF30TX		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
DF30 DF30T Dual inlet	⊕ ATEX Certified* P = Conductive plastic material**	P = Polypropylene ⊕ ATEX Certified* D = Conductive Acetal B = Conductive Polypropylene	S = Stainless Steel AISI 420 Y = Hastelloy® C	E = EPDM T = PTFE (Teflon®) V = FKM (Viton®)	S = Stainless Steel AISI 316 W = PVDF	C = Acetal S = Stainless Steel AISI 316 T = PTFE (Teflon®)	H = TPE (Hytrel®) M = Santoprene® T = PTFE (Teflon®)	B = BSP N = NPT	AS = Standard BS = Remote air exhaust ES = Externally driven FS = Quiet exhaust

\*⊕ ATEX Certified versions available Ex II 2 GD IIB/II C 95 °C.  
Not all possible material combinations are available.  
\*\* Conductive Polypropylene for DF30 pumps.

# DF50 PLASTIC PUMPS

## 50 L/MIN (14 US GAL/MIN) - 1/2"

TECHNICAL DATA	DF50 & DF50T PLASTIC PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	50 l/min (14 US gal/min)
Displacement per cycle (2 x strokes) (1)	0,2 litres (0.05 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	3 mm (1/8")
Maximum dry suction lift (1)	6 m (20')
Maximum wet suction lift (1)	8 m (26')
Weight	2,2 kg (4.85 lb)
Fluid inlet port	1/2" BSP/NPT (F) 2 x 3/8" BSP/NPT DF50T
Fluid outlet port	1/2" BSP/NPT (F)
Air inlet port	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

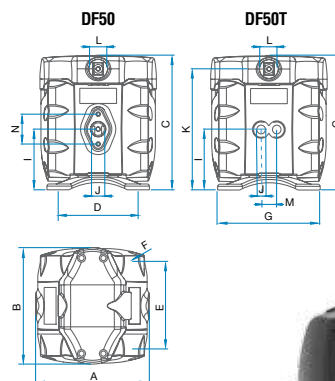
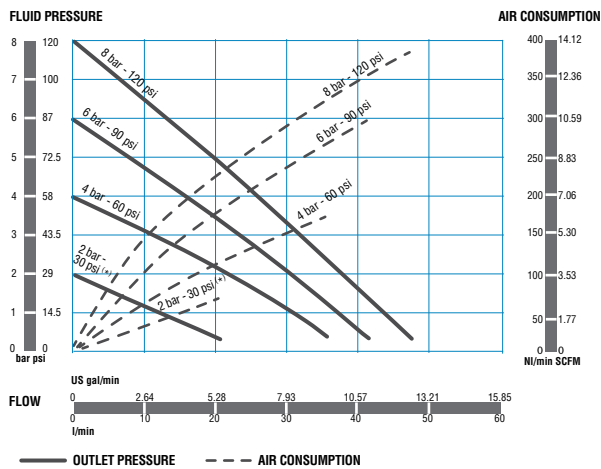
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).



VERSIONS & OPTIONS

## PERFORMANCE CHART

(\* ) 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.

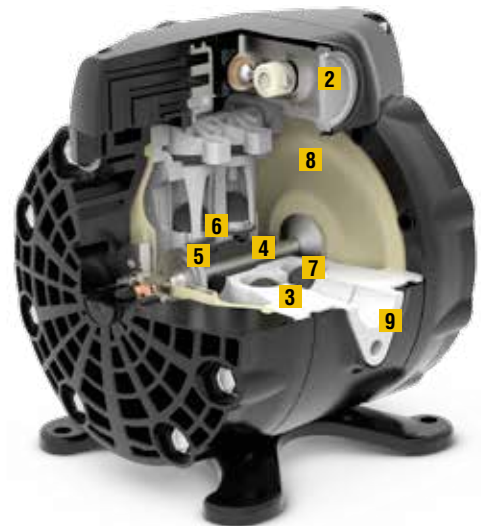


### Dimensions (mm)

A	B	C	D	E	F*	G
156	160	185	105	122	8	140,7

I	J	K	L	M	N
83	1/2" (F)	166	3/8" (F)	24	41**

\* Diameter of the holes for fasteners in each of the four pump feet.  
\*\* Connection: 2 bolts - M6.



## PUMP NOMENCLATURE

### DF50P - PST - STT - BAS

DF50X - DF50TX		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
<b>DF50</b> <b>DF50T</b> Dual inlet	<b>ATEX Certified*</b> P = Conductive plastic material**	<b>ATEX Certified*</b> D = Conductive Acetal B = Conductive Polypropylene	<b>S</b> = Stainless Steel AISI 420 <b>Y</b> = Hastelloy® C	<b>E</b> = EPDM <b>T</b> = PTFE (Teflon®) <b>V</b> = FKM (Viton®)	<b>S</b> = Stainless Steel AISI 316 <b>W</b> = PVDF	<b>C</b> = Acetal <b>S</b> = Stainless Steel AISI 316 <b>T</b> = PTFE (Teflon®)	<b>H</b> = TPE (Hytrel®) <b>M</b> = Santoprene® <b>T</b> = PTFE (Teflon®)	<b>B</b> = BSP <b>N</b> = NPT	<b>AS</b> = Standard <b>BS</b> = Remote air exhaust <b>ES</b> = Externally driven <b>FS</b> = Quiet exhaust

\* **ATEX Certified versions available** Ex II 2 GD IIB/II C 95 °C.  
Not all possible material combinations are available.  
\*\* Conductive Polypropylene for DF50 pumps.

# DF50 METAL PUMPS

## 50 L/MIN (14 US GAL/MIN) - 1/2"

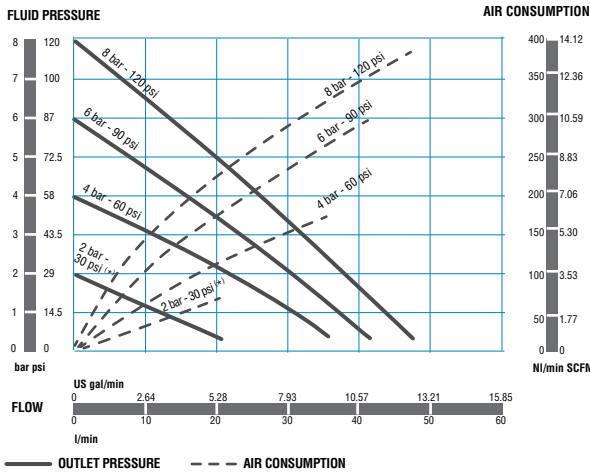
TECHNICAL DATA	DF50 METAL PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	50 l/min (14 US gal/min)
Displacement per cycle (2 x strokes) (1)	0,2 litres (0.05 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	3 mm (1/8")
Maximum dry suction lift (1)	6 m (20')
Maximum wet suction lift (1)	8 m (26')
Weight	3,5 kg (7.72 lb)
Fluid inlet port	1/2" NPSM (F)
Fluid outlet port	1/2" NPSM (F)
Air inlet port	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).



## PERFORMANCE CHART

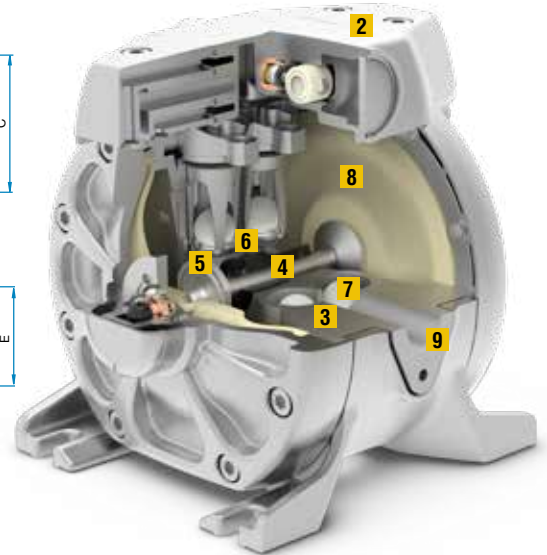
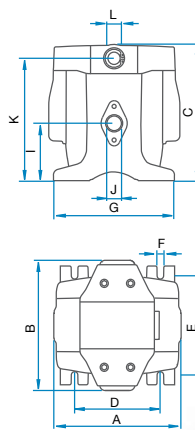
(\* ) 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.



### Dimensions (mm)

A	B	C	D	E	F*
156	160	167	105	122	8
G	I	J	K	L	
146	70	1/2" (F)	150	3/8" (F)	

\* Diameter of the holes for fasteners in each of the four pump feet.



## PUMP NOMENCLATURE

### DF50A - ASN - SNT - BAS

DF50X		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
<b>DF50</b>	ATEX Certified* A = Aluminum	ATEX Certified* A = Aluminum S = Stainless Steel AISI 316	S = Stainless Steel AISI 420	E = EPDM N = Buna-N T = PTFE (Teflon®) V = FKM (Viton®)	S = Stainless Steel AISI 316	C = Acetal N = Buna-N S = Stainless Steel AISI 316 T = PTFE (Teflon®)	H = TPE (Hytre®) M = Santoprene® T = PTFE (Teflon®) N = Buna-N	B = BSP N = NPT	AS = Standard BS = Remote air exhaust ES = Externally driven FS = Quiet exhaust

\* ATEX Certified versions available Ex II2 GD IIB/IIIC 95 °C.  
Not all possible material combinations are available.



# DF100 PLASTIC PUMPS

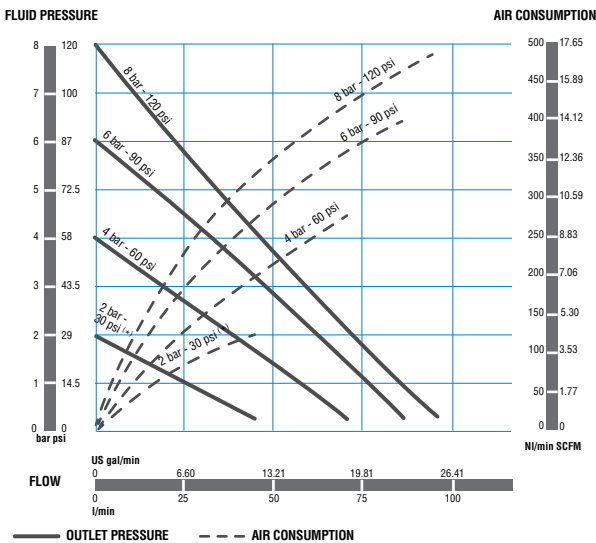
## 100 L/MIN (28 US GAL/MIN) - 1"

TECHNICAL DATA	DF100 PLASTIC PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	100 l/min (28 US gal/min)
Displacement per cycle (2 x strokes) (1)	0,5 litres (0.13 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	4 mm (3/16")
Maximum dry suction lift (1)	4,5 m (15')
Maximum wet suction lift (1)	7 m (23')
Weight	5,1 kg (11.24 lb)
Fluid inlet port	1" BSP/NPT (F)
Fluid outlet port	1" BSP/NPT (F)
Air inlet port	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).

## PERFORMANCE CHART

(\* ) 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.



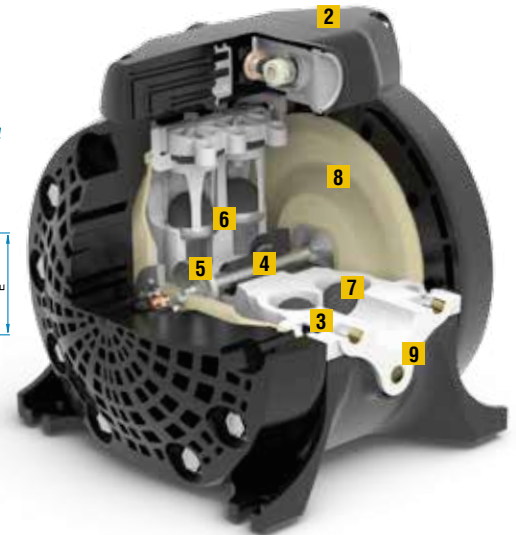
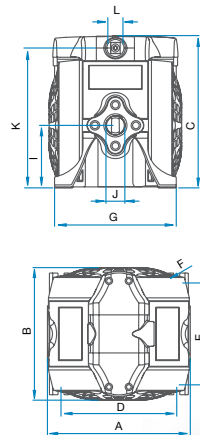
## Dimensions (mm)

A	B	C	D	E	F*
216	218	230	175	154	8

G	I	J	K	L
184	94,5	1" (F)	211,5	3/8" (F)

\* Diameter of the holes for fasteners in each of the four pump feet.



## PUMP NOMENCLATURE

### DF100P - PST - STM- BAS

DF100X		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
<b>DF100</b>	 ATEX Certified* P = Conductive plastic material**	P = Polypropylene  ATEX Certified* D = Conductive Acetal B = Conductive Polypropylene	S = Stainless Steel AISI 420 Y = Hastelloy® C	E = EPDM T = PTFE (Teflon®) V = FKM (Viton®)	S = Stainless Steel AISI 316 W = PVDF	C = Acetal S = Stainless Steel AISI 316 T = PTFE (Teflon®)	H = TPE (Hytrel®) M = Santoprene® T = PTFE (Teflon®)	B = BSP N = NPT	AS = Standard BS = Remote air exhaust ES = Externally driven FS = Quiet exhaust

\* ATEX Certified versions available Ex II2 GD IIB/IIc 95 °C.  
Not all possible material combinations are available.  
\*\* Conductive Polypropylene for DF100 pumps.

# DF100 METAL PUMPS

## 100 L/MIN (28 US GAL/MIN) - 1"

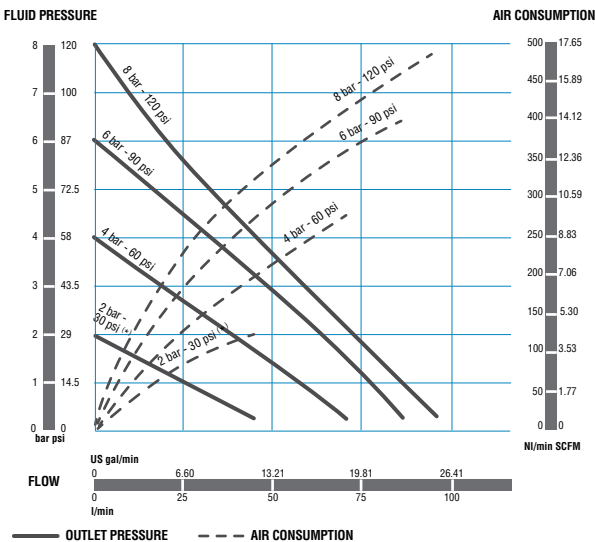
TECHNICAL DATA	DF100 METAL PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	100 l/min (28 US gal/min)
Displacement per cycle (2 x strokes) (1)	0,5 litres (0.13 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	4 mm (3/16")
Maximum dry suction lift (1)	4,5 m (15')
Maximum wet suction lift (1)	7 m (23')
Weight	7,2 kg (16 lb)
Fluid inlet port	1" BSP/NPT (F)
Fluid outlet port	1" BSP/NPT (F)
Air inlet port	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).



## PERFORMANCE CHART

(\*) 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.



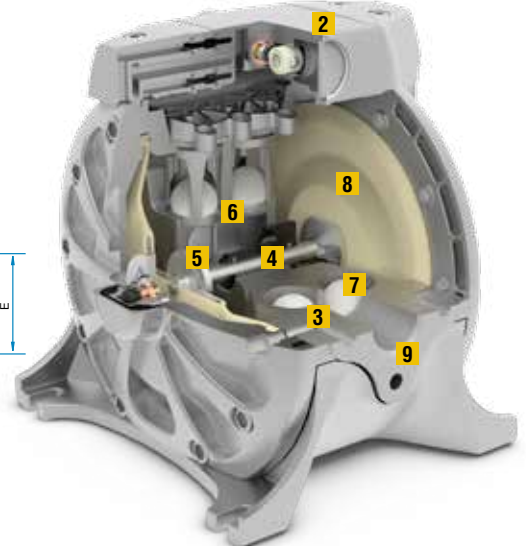
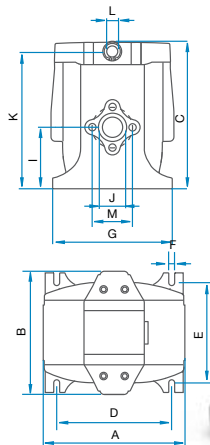
## Dimensions (mm)

A	B	C	D	E	F*
216	189	227	175	154	9

G	I	J	K	L	M
184	94,5	1" (F)	210	3/8" (F)	62**

\* Diameter of the holes for fasteners in each of the four pump feet.  
 \*\* Connection: 4 bolts - M10



## PUMP NOMENCLATURE

### DF100A - ASN - SNN- BAS

DF100X		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
DF100	ATEX Certified* A = Aluminum	ATEX Certified* A = Aluminum S = Stainless Steel AISI 316	S = Stainless Steel AISI 420	E = EPDM N = Buna-N T = PTFE (Teflon®) V = FKM (Viton®)	S = Stainless Steel AISI 316	C = Acetal N = Buna-N S = Stainless Steel AISI 316 T = PTFE (Teflon®)	H = TPE (Hytrel®) M = Santoprene® N = Buna-N T = PTFE (Teflon®)	B = BSP N = NPT	ES = Externally driven FS = Quiet exhaust

\* ATEX Certified versions available Ex II/2 GD IIB/IIIC 95 °C.  
 Not all possible material combinations are available.

# DF250 METAL PUMPS

## 250 L/MIN (66 US GAL/MIN) - 1 1/2"

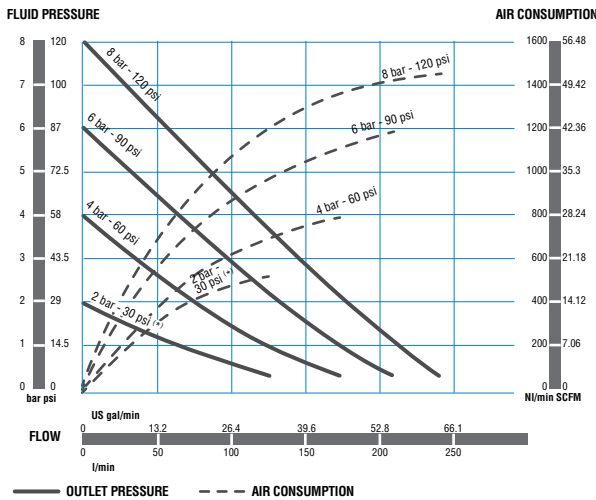


TECHNICAL DATA	DF250 METAL PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	250 l/min (66 US gal/min)
Displacement per cycle (2 x strokes) (1)	1,2 litres (0.32 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	6 mm (1/4")
Maximum dry suction lift (1)	5 m (16')
Maximum wet suction lift (1)	8 m (26')
Weight	20 kg (45 lb)
Fluid inlet port	1 1/2" BSP (F) and DIN PN-10 DN40 flange or 1 1/2" NPT (F) and ANSI 1" B16.5 150 lb flange
Fluid outlet port	1 1/2" BSP (F) and DIN PN-10 DN40 flange or 1 1/2" NPT (F) and ANSI 1" B16.5 150 lb flange
Air inlet port	1/2" NPSM (F)
Wetted part materials	See pump nomenclature

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).

### PERFORMANCE CHART

(\* ) 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.



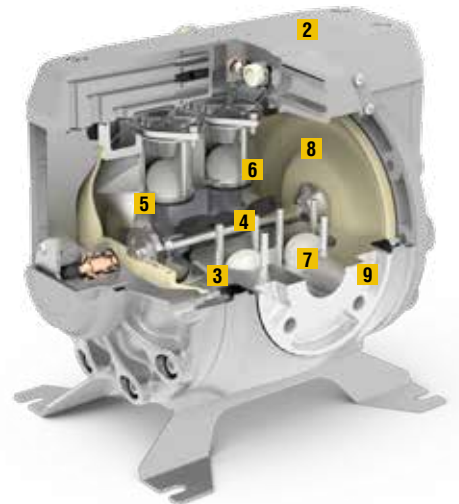
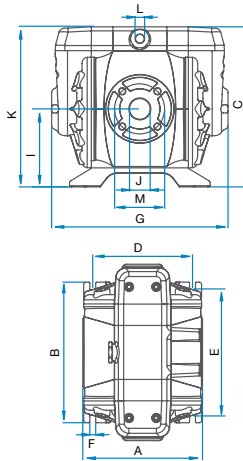
### Dimensions (mm)

A	B	C	D	E	F*
216	310	353	220	280	13

G	I	J	K	L	M
390	172	1 1/2" (F)	327	1/2" (F)	110**

\* Diameter of the holes for fasteners in each of the four pump feet.  
 \*\* DIN PN-10 flange connection: 4 bolts - M 16 (110 mm between centres).  
 \*\*\* ANSI B16.5 150 lb flange connection: 4 bolts - UNC 1/2" - 13 (98,4 mm between centres).



### PUMP NOMENCLATURE

#### DF250A - ASN - SNN- BAS

DF250X		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
<b>DF250</b>	<b>A</b> TEX Certified* <b>A</b> = Aluminum	<b>A</b> TEX Certified* <b>A</b> = Aluminum	<b>S</b> = Stainless Steel AISI 420	<b>E</b> = EPDM <b>N</b> = Buna-N <b>T</b> = PTFE (Teflon®) <b>V</b> = FKM (Viton®)	<b>S</b> = Stainless Steel AISI 316	<b>C</b> = Acetal <b>N</b> = Buna-N <b>S</b> = Stainless Steel AISI 316 <b>T</b> = PTFE (Teflon®)	<b>H</b> = TPE (Hytrel®) <b>M</b> = Santoprene® <b>N</b> = Buna-N <b>T</b> = PTFE (Teflon®)	<b>B</b> = BSP <b>N</b> = NPT	<b>AS</b> = Standard <b>BS</b> = Remote air exhaust*

\* **ATEX Certified versions available** Ex II/2 GD IIB/IIIC 95 °C.  
 Not all possible material combinations are available.

# DP200 PLASTIC PUMPS

## 200 L/MIN (53 US GAL/MIN) - 1"

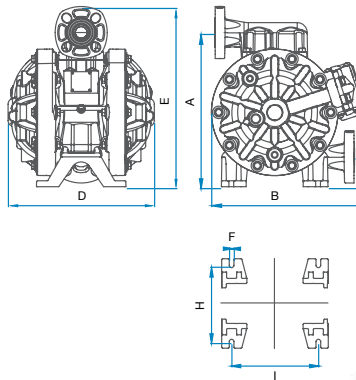
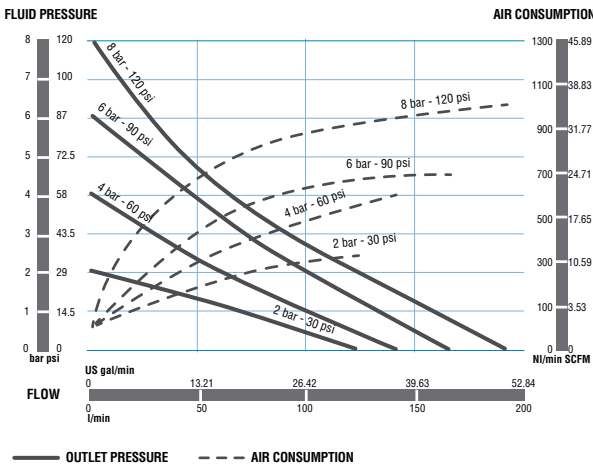
TECHNICAL DATA	DP200 PLASTIC PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	200 l/min (53 US gal/min)
Displacement per cycle (2 x strokes) (1)	1 litre (0.26 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	6 mm (1/4")
Maximum dry suction lift (1)	5 m (16')
Maximum wet suction lift (1)	8 m (26')
Weight	10,5 kg (23.15 lb)
Fluid inlet connection	1" DIN PN-10 DN25 flange and ANSI B16.5 1" 150 lb flange
Fluid outlet connection	1" DIN PN-10 DN25 flange and ANSI B16.5 1" 150 lb flange
Air inlet connection	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).



## PERFORMANCE CHART

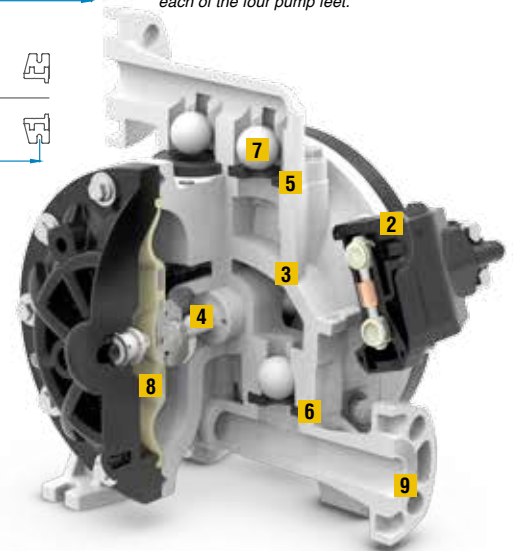
(\* 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.



Dimensions (mm)

A	B	C	D
311	320	60	295
E	F*	H	I
364	9	154	175

\* Diameter of the holes for fasteners in each of the four pump feet.



## PUMP NOMENCLATURE

### DP200P - PSE - MTM- FAS

DP200X		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
DP200	ATEX Certified* P = Conductive plastic material**	P = Polypropylene W = PVDF ATEX Certified* D = Conductive Acetal B = Conductive Polypropylene	S = Stainless Steel AISI 420 Y = Hastelloy® C	E = EPDM N = Buna-N T = PTFE (Teflon®) V = FKM (Viton®)	C = Acetal H = TPE (Hytrel®) M = Santoprene® N = Buna-N P = Polypropylene	C = Acetal N = Buna-N S = Stainless Steel AISI 316 T = PTFE (Teflon®)	H = TPE (Hytrel®) M = Santoprene® N = Buna-N T = PTFE (Teflon®)	F = Flange	AS = Standard BS = Remote air exhaust

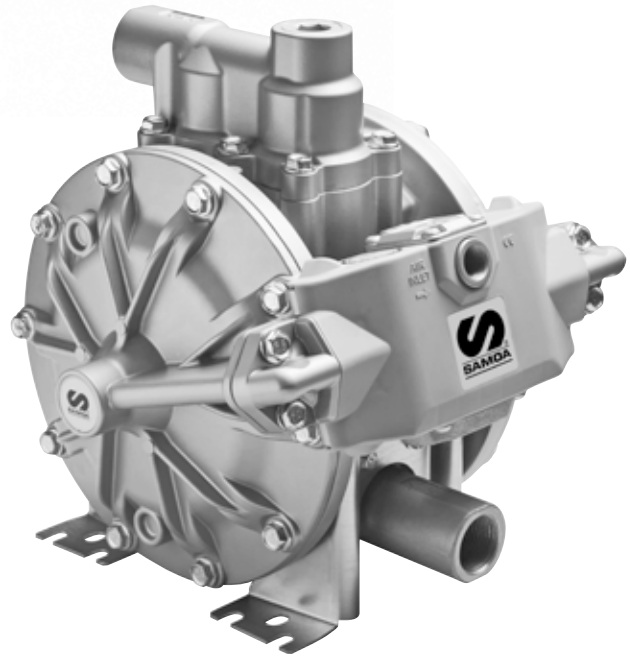
\* ATEX Certified versions available Ex II/2 GD IIB/IIc 95 °C.  
 Not all possible material combinations are available.  
 \*\* Conductive Polypropylene for DP200 pumps.

# DP200 METAL PUMPS

100 L/MIN (28 US GAL/MIN) - 1"

TECHNICAL DATA	DP200 METAL PUMPS
Pressure ratio	1:1
Maximum free delivery (1)	200 l/min (53 US gal/min)
Displacement per cycle (2 x strokes) (1)	1 litre (0.26 US gal)
Air pressure operating range	1,5 to 8 bar (20 to 120 psi)
Solids in suspension max. size	6 mm (1/4")
Maximum dry suction lift (1)	5 m (16')
Maximum wet suction lift (1)	8 m (26')
Weight	11,5 kg (23.35 lb)
Fluid inlet connection	1" BSP/NPT (F)
Fluid outlet connection	1" BSP/NPT (F)
Air inlet connection	3/8" NPSM (F)
Wetted part materials	See pump nomenclature

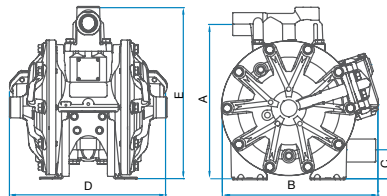
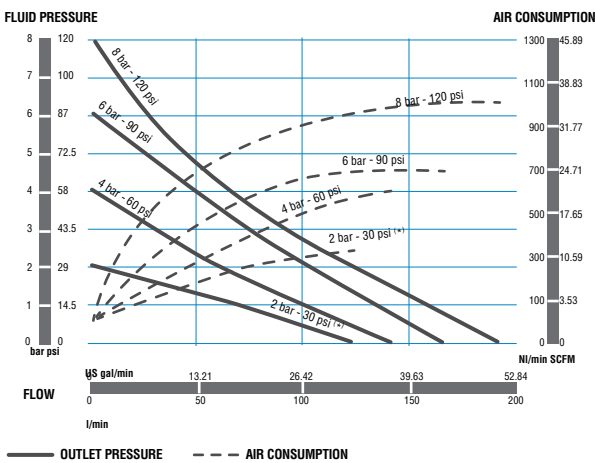
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 °C (68 °F).



VERSIONS & OPTIONS

## PERFORMANCE CHART

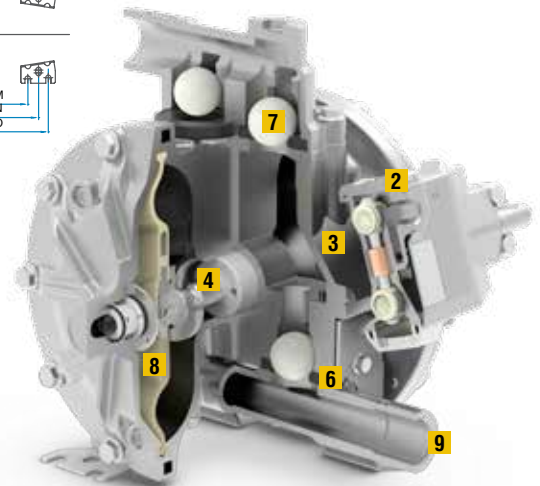
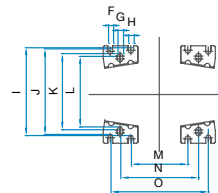
(\* ) 30 psi test with a PTFE (Teflon®) diaphragm pump at room temperature, with water and flooded pump with 31 1/2" (800 mm) height of water above the pump inlet.



Dimensions (mm)

A	B	C	D	E	F*	G*/H*
278	280	52	281	308	9	10
I	J	K	L	M	N	O
158	154	137	127	102	140	175

\* Diameter of the holes for fasteners in each of the four pump feet.



## PUMP NOMENCLATURE

DP200A - ASN - ANN - BAS

DP200X		XXX			XXX			XXX	
1 Pump Size	2 Air motor	3 Fluid Body	4 Diaphragm Connecting Rod	5 Seals	6 Seats	7 Balls	8 Diaphragms	9 Fluid Connection Threads	10 Options
DP200	ATEX Certified* A = Aluminum	ATEX Certified* A = Aluminum S = Stainless Steel AISI 316	S = Stainless Steel AISI 420	E = EPDM N = Buna-N T = PTFE (Teflon®) V = FKM (Viton®)	A = Aluminum H = TPE (Hytrel®) M = Santoprene® N = Buna-N S = Stainless Steel AISI 316	C = Acetal N = Buna-N S = Stainless Steel AISI 316 T = PTFE (Teflon®)	H = TPE (Hytrel®) M = Santoprene® N = Buna-N T = PTFE (Teflon®)	B = BSP N = NPT	AS = Standard BS = Remote air exhaust*

\* ATEX Certified versions available Ex II2 GD IIB/IIIC 95 °C.  
Not all possible material combinations are available.

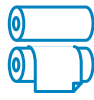
# DIRECTFLO® PUMPS APPLICATIONS



**CHEMICAL,  
PETROCHEMICAL  
AND REFINERIES**



**CERAMIC**



**PRINTING AND  
PACKAGING**



**WATER PROCESS**



**VEHICLE  
PRODUCTION  
AND MAINTENANCE**



**SURFACE  
TREATMENTS**

**FLUID DISTRIBUTION**



**DETERGENT AND SOAP DISPENSING**



**USED FLUIDS DISPOSAL**



**LEATHER INDUSTRY**



**CHEMICAL INDUSTRY**



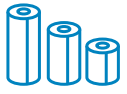
**CUTTING OIL TRANSFER**



## ▶ APPLICATIONS

FLUID TRANSFER AND DISPENSING  
FLUID EVACUATION  
DOSING / BLENDING / FORMULATION  
FLUID RECIRCULATION  
LOW PRESSURE SPRAY

FLUID FLUSHING  
PUMPING SAMPLES  
FILTER & FILTER PRESS FEEDING  
SLURRY HANDLING  
TANK / BARREL FILLING & EMPTYING



**PULP AND PAPER CONVERTERS**



**WASTEWATER**



**CONSTRUCTION AND MINING**



**PAINT AND COATINGS**



**HYGIENIC-SANITARY APPLICATIONS**



**METALWORKING**

**CHEMICAL INDUSTRY**



**PAINT ADDITIVES DOSING**



**CEMENT ADDITIVE DOSING**



**WOOD VARNISH SPRAYING**



**FLEXOGRAPHIC INK DOSING**



**SOLVENT DOSING AND RECOVERY**



**▶ FLUIDS**

ACIDS  
ALKALIS  
ALCOHOLS  
SOLVENTS  
WATER BASED FLUIDS

CHEMICALS  
FUELS & OILS  
INKS, PAINTS & VARNISHES  
ADDITIVES  
ETC.

ABRASIVE  
CORROSIVE  
HAZARDOUS  
FLAMMABLE  
SOLIDS IN SUSPENSION

SHEAR SENSITIVE  
MEDIUM VISCOSITY



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