SAMOA®

LEADING THROUGH INNOVATION

directflo®

Central flow technology

AIR OPERATED DOUBLE DIAPHRAGM PUMPS

Innovative | Unique | Simple | Reliable | Durable | Compact | Efficient | Quiet | Versatile

Headquarters Offices and Technical Centre in Gijón (Spain)

FLUID HANDLING TECHNOLOGY

SAMOA, a privately owned company, is a leading European manufacturer of equipment for fluid transfer, dispensing, dosing, recovery and inventory control. SAMOA designs and manufactures volume flow meters, hose reels, air operated piston pumps and air operated diaphragm pumps, including innovative Directflo® diaphragm pumps.

PRODUCT DEVELOPMENT

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 product improvements and new products.

MANUFACTURING

SAMOA's headquarters have been in Gijón, on the Spanish North Coast, for over 55 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 OHSAS 18001 certified.

DISTRIBUTION

Our products are available through a network of 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.

GLOBALLY COMPETITIVE

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.

Research & Development and Manufacturing facility in Gijón (Spain)

SAMOA QUALITY AND LEADERSHIP

RESEARCH & DEVELOPMENT

SAMOA's R&D Department are at the cutting edge of air operated pump developments and feed the product development programme with innovative technology concepts.

PRODUCT DESIGN & ENGINEERING

Attractive product designs are created and robust product engineering is ensured by using 3D CAD.

PRODUCT PROTOTYPING & TESTING

CAD-CAM manufacturing equipment dedicated to prototyping, and a well equipped test laboratory, allow fast product evolution and the release to market of optimized and fully proven products.

ROBOTISED CNC MANUFACTURING

High volume CNC manufacturing equipment is fed by robots. The robotised material handling processes incorporate part cleaning and 100% automated part inspection.

QUALITY CONTROL INCLUDING FUNCTIONAL TESTING

Components are inspected following SPC standards, many sub-assemblies are 100% functionally tested and every finished pump must pass an automated functional test. Pumps are run wet and taken through a carefully defined test procedure, to ensure zero defects on shipment.

RAPID & RELIABLE ORDER FULFILLMENT

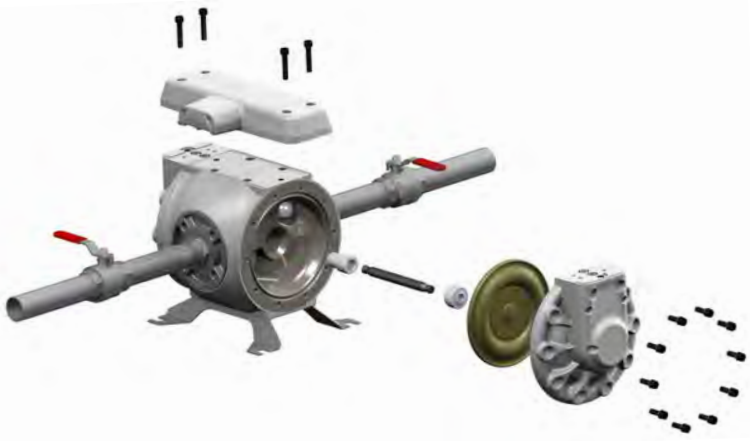
SAMOA's experienced customer service staff and worldwide distributors can recommend the pump that best meets each application's needs.
After order entry, the ERP system drives the work flow through to shipment. Low rotation products are built to order; a generous inventory of finished parts allows fast delivery times. High rotation products are stored in an automated warehouse integrated with the ERP system and so can be shipped almost immediately after order entry.

EFFICIENT AFTER-SALES SERVICE

Prompt after-sales service and immediate spare parts availability ensure a long and trouble-free pump life.

directflo
Central flow technology

DIRECTFLO®, BETTER BY DESIGN



Stainless steel DF50 & DF100.

SUPERIOR ALL-ROUND PUMPING PERFORMANCE

- Significant dry suction lift eliminates self-priming issues
- Discharge fluids at up to 7 bar (100 psi), to pump even medium viscosity fluids over long pipe runs and up to significant heights
- Efficient compressed air usage

SIMPLE, RELIABLE & DURABLE

- Few parts
- Start up every time
- Easy operation, for example: variable flow rate and pressure by adjusting the air pressure
- Inline servicing possible without disconnecting the fluid lines
- Quick error free non-expert maintenance
- Short stroke and robust construction long life diaphragms

ROBUST

- Compact design
- No protuding manifolds
- Integrated muffler
- Metal fluid connections and external parts for noncorrosive applications
- Tough plastic external parts for corrosive applications

SMOOTH RUNNING

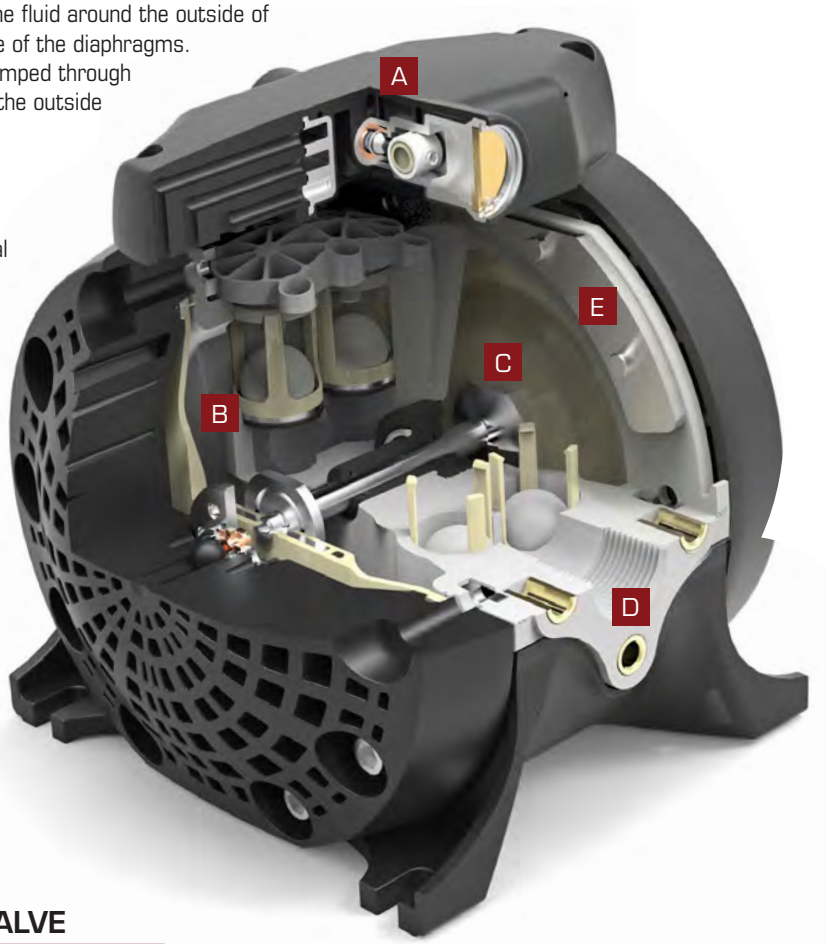
- Gentle pumping suitable for fluids that may form emulsions or shear sensitive fluids
- Reduced pulsation: greater accuracy during dosing and less splashing when dispensing
- Fewer vibrations and lower noise level

INNOVATIVE SAMOA TECHNOLOGIES INSIDE

Conventional air operated diaphragm pumps pump the fluid around the outside of the pump and compressed air acts on the inside face of the diaphragms. Directflo pumps are inside out pumps, the fluid is pumped through the centre of the pump and compressed air acts on the outside face of the diaphragms.

Important innovations were necessary to realise the central flow concept and, whilst developing Directflo, further inventions were made that built on the central flow concept. A few highlights are described below.

PATENTED WORLDWIDE



A FRICTIONLESS PIVOTING AIR VALVE

- High operational reliability
- Variable flow rate and pressure by adjusting the air pressure
- Non stalling
- Non icing
- Self-cleaning
- Extremely fast switching between strokes reduces air consumption and minimizes pulsations
- Enables a short stroke pump design, for long diaphragm life
- Tolerates dry, damp, dirty or oily air

B BALL CHECK VALVES ADJACENT TO DIAPHRAGMS

- Very fast valve action, even with viscous fluids. Together with the high speed frictionless pivoting air valve, this enables a short stroke pump design, for long diaphragm life
- Enables superior pump suction and thus improves overall pump performance

C STRESS FREE DIAPHRAGM COUPLINGS

- Non-rigid sliding couplings between push rod and diaphragms prevent diaphragm and push rod stress
- Long leak free diaphragm life
- Fast and easy diaphragm service

D SINGLE PART MOULDED PUMP BODY

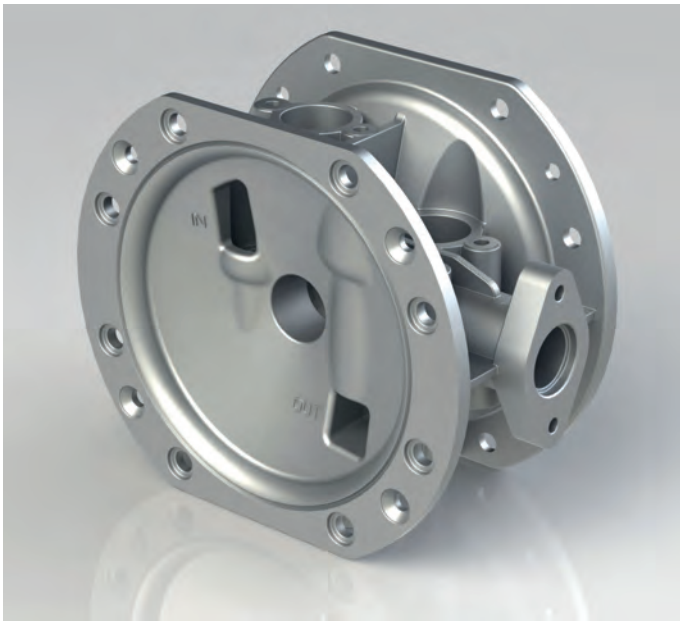
- Minimizes energy losses within the pump
- No leaks
- Compact

E FLANGE FASTENING PLATES

- Pumps with plastic central bodies are fitted with load spreading stainless steel flange fastening plates
- Reduces the risk of damage to plastic bodies when flange bolts are over tightened
- Enhances sealing in the areas between flange bolts and so reduces the risk of flange leaks

Directflo® pumps are also available without the directional air valve and without the end of stroke sensors, to be externally driven. These special pumps are used, for example, in dosing applications.

WIDE CHOICE OF MATERIALS



SINGLE PART MOULDED PUMP BODY

PP - Polypropylene: good chemical compatibility resisting harsh fluids such as strong acids and alkalis.

AC - Acetal: tough, impact resistant with good abrasion resistance and a low friction surface. Generally good chemical resistance except for strong acids, alkalis and oxidizing agents.

PVDF (Kynar® or Solef®) - Polyvinylidene Fluoride: excellent chemical compatibility. PVDF can be used with many very chemically aggressive fluids, including hot concentrated acids. Not recommended for some strong alkalis.

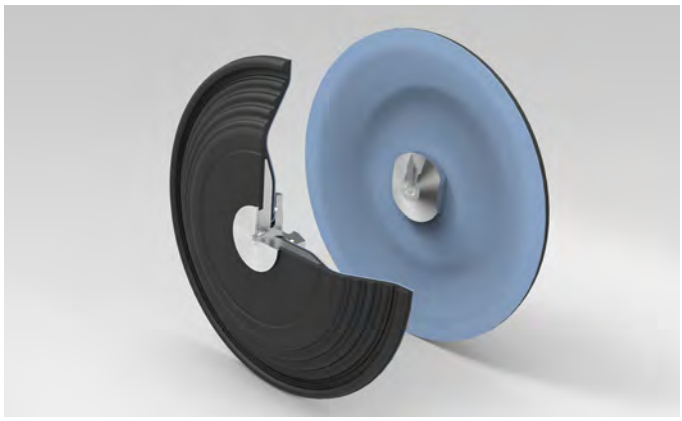
AL - Aluminium: robust lightweight material used in many pH neutral applications. Optionally can be electroless nickel plated for use with highly abrasive fluids.

SS - Stainless Steel: robust, excellent compatibility with solvents and many chemicals.

PP (EX) - Conductive Polypropylene: good chemical compatibility, as with nonconductive PP, and also enables pump earthing, to eliminate the risk of static electricity build up.

AC (EX) - Conductive Acetal: good compatibility with solvents and enables pump earthing, to eliminate the risk of static electricity build up.

PVDF (Kynar® or Solef®) (EX) - Conductive Polyvinylidene Fluoride: excellent chemical compatibility, as with nonconductive PVDF, and also enables pump earthing, to eliminate the risk of static electricity build up.



LONG LIFE DIAPHRAGMS

PTFE (Teflon®) - Polytetrafluoroethylene: all Directflo® PTFE diphragms are composite diaphragms with a PTFE fluid-side diaphragm bonded to a textile reinforced EPDM diaphragm. The EPDM diaphragm supports the PTFE diaphragm to ensure a long life. Excellent fluid compatibility, including with chemically highly aggressive fluids.

Hytrel® - Durable with excellent abrasion resistance. Offers long life with chemically non aggressive fluids.

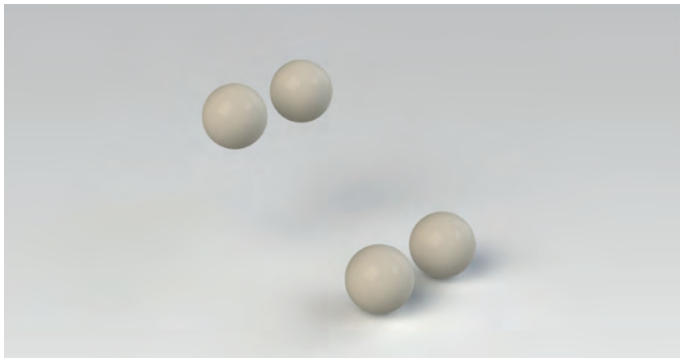
Santoprene® - Very good resistance to abrasion and long flex life. Good resistance to chemicals, but not recommended for solvents. Higher operating temperatures than Hytrel®.

DIRECTIONAL AIR VALVE AND AIR CHAMBER COVERS

AL - Aluminium: robust lightweight material for use in noncorrosive environments.

PP - Polypropylene: good chemical compatibility and so suitable for use in corrosive environments.

PP (EX) - Conductive Polypropylene: good chemical compatibility, as with nonconductive PP, and so suitable for use in corrosive environments, also enables pump earthing, to eliminate the risk of static electricity build up.



BALL CHECK VALVES

PTFE (Teflon®) - Polytetrafluoroethylene: excellent chemical compatibility.

AC - Acetal: good resistance against abrasion and wide fluid compatibility.

SS - Stainless Steel: optionally for use with high viscosity fluids.

A BALL VALVE SEATS

SS - Stainless Steel: good resistance against corrosion and abrasion.

PVDF (Kynar® or Solef®) - Polyvinylidene Fluoride: for fluids which are not compatible with stainless steel, PVDF can be used with many very chemically aggressive fluids. Not recommended for some strong alkalis.

B BALL VALVE GUIDES

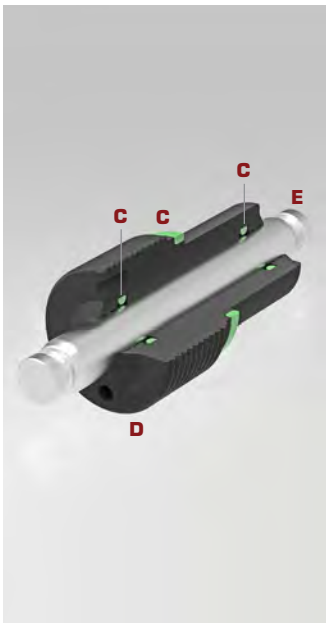
AC - Acetal: good resistance against abrasion and wide fluid compatibility.

PP - Polypropylene: good chemical compatibility resisting harsh fluids such as strong acids and alkalis.

PVDF (Kynar® or Solef®) - Polyvinylidene Fluoride: PVDF can be used with many very chemically aggressive fluids. Not recommended for some strong alkalis.

PTFE (Teflon®) - Polytetrafluoroethylene: excellent chemical compatibility.

SS - Stainless Steel: good resistance against corrosion and abrasion.



C SEALS

EPDM - Ethylene Propylene Diene Monomer Rubber: wide chemical compatibility, good abrasion resistance.

FKM (Viton®) - Fluoroelastomer: good chemical compatibility, good abrasion resistance.

FFKM (Isolast® or Kalrez®) - Perfluoroelastomer: compatible with most chemicals, even at high temperatures. Not recommended with concentrated nitric acid. Good abrasion resistance.

PTFE (Teflon®) - Polytetrafluoroethylene: excellent fluid compatibility, including with chemically highly aggressive fluids.

NBR - Nitrile Butadiene Rubber: often used in industrial applications with chemically non aggressive fluids. Very good abrasion resistance.

D BUSHING

PTFE (Teflon®) - Polytetrafluoroethylene: excellent fluid compatibility and minimum friction.

PTFE (Teflon®) (EX) - Conductive Polytetrafluoroethylene: excellent fluid compatibility and minimum friction, as with nonconductive PTFE, and also enables pump earthing, to eliminate the risk of static electricity build up.

AC - Acetal: offers good resistance to a broad range of chemicals, good abrasion resistance and a low friction surface.

E PUSH ROD

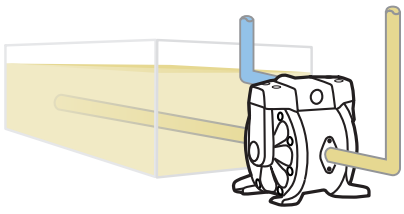
SS - Stainless Steel: good resistance against corrosion and abrasion.

HASTELLOY® - Hastelloy: excellent chemical compatibility, including with many fluids that attack stainless steel such as hydrochloric acid and sodium hypochlorite.

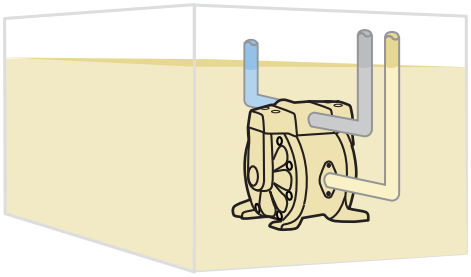
SAMOA

INSTALLATION OPTIONS

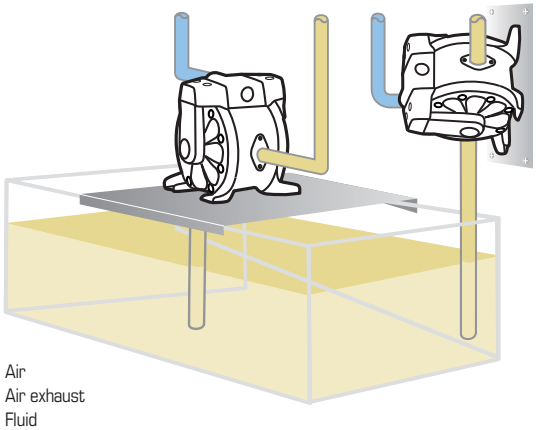
Flooded Suction



Submerged

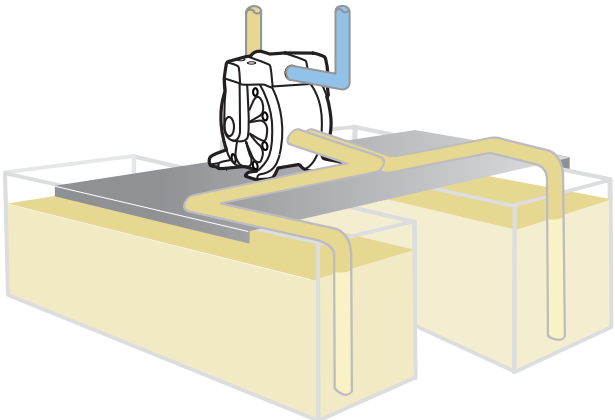


Self Priming



Air
Air exhaust
Fluid

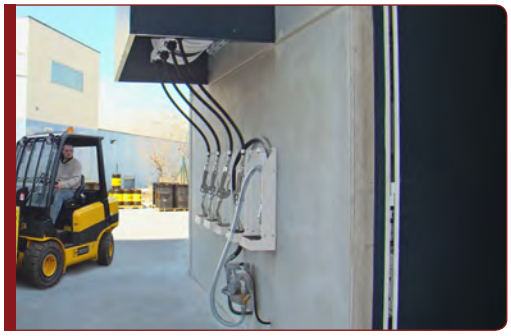
Mixing Pump (50/50)



MARKETS SERVED

APPLICATIONS

- FLUID TRANSFER AND DISPENSING
- FLUID EVACUATION
- DOSING/BLENDING/ FORMULATION
- FLUID RECIRCULATION
- SUPPLY FOR LOW PRESSURE SPRAY
- FLUID FLUSHING/ CLEAN IN PLACE (CIP)
- PUMPING SAMPLES
- FILTER & FILTER PRESS FEEDING
- SLURRY HANDLING
- TANK/BARREL FILLING & EMPTYING



VEHICLE PRODUCTION & MAINTENANCE

CONSTRUCTION & MINING

PRINT & PACKAGING / PULP & PAPER CONVERTERS

PAINT & COATINGS

PROCESS WATER / SURFACE TREATMENTS / WASTEWATER

METALWORKING

CHEMICAL, PETROCHEMICAL & REFINERIES

HYGIENIC APPLICATIONS

CERAMIC SLIP & GLAZE

FLUIDS

Acids	Abrasive
Alkalis	Corrosive
Alcohols	Hazardous
Solvents	Flammable
Water based fluids	Solids in suspension
Chemicals	Shear sensitive
Fuels & oils	Medium viscosity
Inks, paints & varnishes	
Additives	
Etc.	

For further details of markets served and applications please see page 23.

Directflo® PUMP RANGE

PLASTIC PUMPS

Plastic Directflo® pump wetted bodies are compatible with even the most aggressive chemicals, and the plastic directional air valve and air chamber covers are suitable for use in corrosive environments.

DF PUMPS	DF30	DF30T	DF50	DF50T	DF100
Pressure ratio	1:1	1:1	1:1	1:1	1:1
Maximum free delivery (1)	38 l/min (10 US gal/min)	38 l/min (10 US gal/min)	50 l/min (14 US gal/min)	50 l/min (14 US gal/min)	100 l/min (28 US gal/min)
Delivery per stroke approx. (1)	0,07 litres (0.02 US gal)	0,07 litres (0.02 US gal)	0,1 litres (0.026 US gal)	0,1 litres (0.026 US gal)	0,25 l (0.07 US gal)
Delivery per cycle (2 x strokes) (1)	0,14 litres (0.04 US gal)	0,14 litres (0.04 US gal)	0,2 litres (0.05 US gal)	0,2 litres (0.05 US gal)	0,50 l (0.13 US gal)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)	1,5 to 7 bar (22 to 102 psi)	1,5 to 7 bar (22 to 102 psi)	1,5 to 7 bar (22 to 102 psi)	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	3 mm (1/8")	3 mm (1/8")	3 mm (1/8")	3 mm (1/8")	4 mm (3/16")
Maximum dry suction lift (1)	4 m (13')	4 m (13')	6 m (20')	6 m (20')	4,5 m (15')
Maximum wet suction lift (1)	8 m (26')	8 m (26')	8 m (26')	8 m (26')	7 m (23')
Weight	1,9 kg (4.19 lb)	1,9 kg (4.19 lb)	2,2 kg (4.85 lb)	2,2 kg (4.85 lb)	5,1 kg (11.24 lb)
Fluid inlet connection	1/2" BSP/NPT (F) and flange	2 x 3/8" BSP/NPT (F) and flange	1/2" BSP/NPT (F) and flange	2 x 3/8" BSP/NPT (F) and flange	1" BSP/NPT (F) and flange
Fluid outlet connection	1/2" BSP/NPT (F) and flange	1/2" BSP/NPT (F) and flange	1/2" BSP/NPT (F) and flange	1/2" BSP/NPT (F) and flange	1" BSP/NPT (F) and flange
Air inlet connection	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)
Wetted part materials	See recommended models in corresponding pump page				

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

METAL PUMPS

Metal Directflo® pumps are extremely robust and thanks to a wide range of wetted materials are compatible with many fluids.

DF PUMPS	DF50	DF50T	DF100	DF250
Pressure ratio	1:1	1:1	1:1	1:1
Maximum free delivery (1)	50 l/min (14 US gal/min)	50 l/min (14 US gal/min)	100 l/min (28 US gal/min)	250 l/min (66 US gal/min)
Delivery per stroke approx. (1)	0,1 litres (0.026 US gal)	0,1 litres (0.026 US gal)	0,25 l (0.07 US gal)	0,6 l (0.16 US gal)
Delivery per cycle (2 x strokes) (1)	0,2 litres (0.05 US gal)	0,2 litres (0.05 US gal)	0,5 l (0.13 US gal)	1,2 l (0.32 US gal)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)	1,5 to 7 bar (22 to 102 psi)	1,5 to 7 bar (22 to 102 psi)	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	3 mm (1/8")	3 mm (1/8")	4 mm (3/16")	6 mm (1/4")
Maximum dry suction lift (1)	6 m (20')	6 m (20')	4,5 m (15')	5 m (16.4')
Maximum wet suction lift (1)	8 m (26')	8 m (26')	7 m (23')	8 m (26')
Weight	3,5 kg (7.72 lb)	3,5 kg (7.72 lb)	7,2 kg (16 lb)	20 kg (45 lb)
Fluid inlet connection	1/2" NPSM (F) and flange	2 x 3/8" NPSM (F) and flange	1" BSP/NPT (F) and flange	1 1/2" BSP (F) and DIN PN-10 flange or 1 1/2" NPT (F) and ANSI B16.5 150 lb flange
Fluid outlet connection	1/2" NPSM (F) and flange	1/2" NPSM (F) and flange	1" BSP/NPT (F) and flange	1 1/2" BSP (F) and DIN PN-10 flange or 1 1/2" NPT (F) and ANSI B16.5 150 lb flange
Air inlet connection	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)	1/2" NPSM (F)
Wetted part materials	See recommended models in corresponding pump page			

(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

DF30 PLASTIC PUMPS

directflo
Central flow technology

AIR OPERATED DOUBLE DIAPHRAGM PUMPS

1/2"
38 l/min
10 US gal/min

DF30 & DF30T PLASTIC PUMPS

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

The pumps' wetted materials are even compatible with aggressive chemicals and the pumps are suitable for use in corrosive environments. Maximum free delivery of 38 l/min (10 US gal/min), with 1/2" fluid inlet and outlet connections.

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

Fully groundable ATEX certified pumps are available, for use in potentially explosive atmospheres. These pumps are marked Ex II2 GD IIB/IIC 95 °C.

RECOMMENDED MODELS

MODEL	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED MATERIALS	RECOMMENDED APPLICATIONS	
DF30PPP88TSBAS	Polypropylene	Santoprene®	PTFE	EPDM, SS	Water based fluids and adhesives, diluted alkalis and acids, alcohols. Water based coatings and adhesives.	
DF30PPP23THBAS	Polypropylene	Hytrel®	PTFE	FKM, SS	Water and some aqueous chemicals. General application pump for lubricants.	
DF30PPP45TWBAS	Polypropylene	PTFE + PVDF	PTFE	FKM, PVDF, Hastelloy®	For CIPs, chlorinated cleaning agents and home & industrial cleaning agents.	
DF30PPP23TTBAS	Polypropylene	PTFE + SS	PTFE	FKM, SS	Wide chemical compatibility. Good with acids and alkalis.	
DF30PPPKGTWBAS	Polypropylene	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	Many chemicals, including acids and alkalis, water treatment chemicals and polymers.	
DF30PWPKFTWBAS	PVDF	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	Almost universal chemical pump, including strong acids and acids above room temperature. Not recommended for some strong alkalis or concentrated nitric acid.	
DF30BDN76TTBAS	Conductive Acetal	PTFE + SS	PTFE	EPDM, SS	ATEX pump. Solvents (ketones, acetates and aldehydes) and solvent based fluids. Solvent and water based flexo and gravure inks and paints.	Ex
DF30BDN62TTBAS	Conductive Acetal	PTFE + SS	PTFE	FKM, SS	ATEX pump. Solvents (aromatic and chlorinated hydrocarbons, toluene) and solvent based fluids, varnishes, fuels.	Ex
DF30BKNKFTWBAS	Conductive PVDF	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	ATEX pump. Almost universal chemical pump, including for strong acids and acids above room temperature. Not recommended for some strong alkalis or concentrated nitric acid.	Ex

DF30 & DF30T PLASTIC PUMPS

1/2"
38 l/min
10 US gal/min

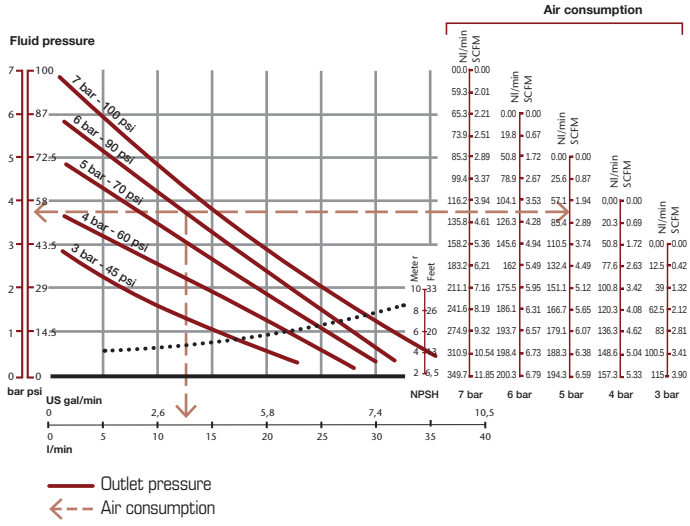
TECHNICAL DATA

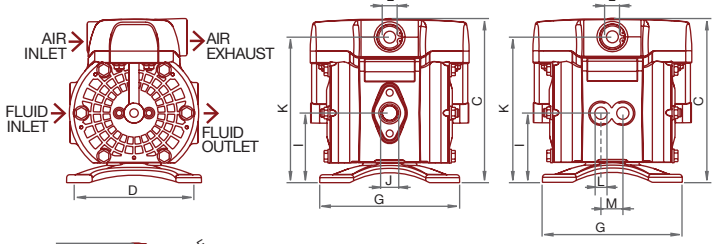
Pressure ratio	1:1
Maximum free delivery (1)	38 l/min (10 US gal/min)
Delivery per stroke approx. (1)	0,07 litres (0.02 US gallons)
Delivery per cycle (2 x strokes) (1)	0,14 litres (0.04 US gallons)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	3 mm (1/8")
Maximum dry suction lift (1)	4 m (13')
Maximum wet suction lift (1)	8 m (26')
Weight	1,9 kg (4,19 lb)
Fluid inlet connection	1/2" BSP/NPT (F) and flange (DF30) 2 x 3/8" BSP/NPT (F) and flange (DF30T)
Fluid outlet connection	1/2" BSP/NPT (F) and flange
Air inlet connection	3/8" NPSM (F)
Wetted part materials	See recommended models

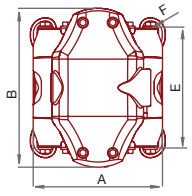
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

PERFORMANCE CURVES

Tested at room temperature, with water and flooded pump with 800 mm (31.5 inches) height of water above the pump inlet.





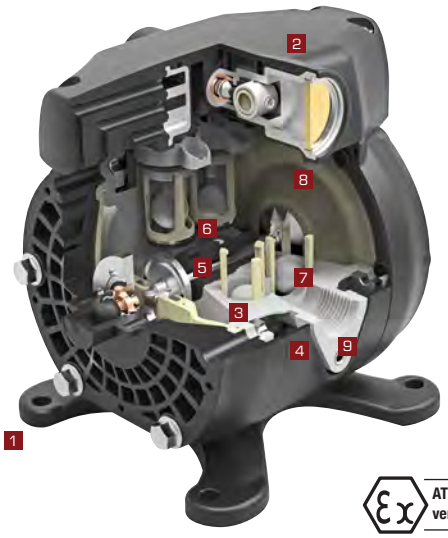


DIMENSIONS (MM)

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

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

Flange connection: 2 bolts - M 5 (41 mm between centres)



ATEX certified versions available

DF30 & DF30T PLASTIC PUMP CODING SYSTEM

DF30	P	P	P	8	8	T	S	BAS
1	2	3	4	5	6	7	8	9

1 PUMP SIZE
DF30
DF30T

2 DIRECTIONAL AIR VALVE & AIR CHAMBER COVERS
P = Polypropylene
B = Conductive Polypropylene

3 WETTED PUMP BODY
B = Conductive Polypropylene
D = Conductive Acetal
P = Polypropylene
W = PVDF (DF30T not available)
K = Conductive PVDF (DF30T not available)

4 TRIMS OVER FLUID CONNECTIONS
P = Polypropylene
N = No trims over fluid connections

5 BUSHING / SEALS / PUSH ROD
1 = PTFE/NBR/SS
2 = PTFE/FKM/SS
3 = PTFE/PTFE/SS
4 = Conductive PTFE/FKM Hastelloy® (DF30T not available)
5 = Conductive PTFE/PTFE/SS
6 = Conductive PTFE/FKM/SS
7 = Conductive PTFE/EPDM/SS
8 = PTFE/EPDM/SS
K = Conductive PTFE/NONE/ Hastelloy® (DF30T not available)

6 BALL VALVE SEATS / O-RINGS / BALL VALVE GUIDES
1 = SS/NBR/Acetal
2 = SS/FKM/Acetal
3 = SS/FKM/Polypropylene
4 = SS/FKM/PTFE
5 = PVDF/FKM/Polypropylene (DF30T not available)
6 = SS/EPDM/Acetal
7 = SS/EPDM/PTFE
8 = SS/EPDM/Polypropylene
F = PVDF/*FFKM-FEP®/PVDF (DF30T not available)
G = PVDF/*FFKM-FEP®/Polypropylene (DF30T not available)

*(*FFKM ball valve lid o-rings and FEP® ball valve seat o-rings.)*

7 BALL CHECK VALVES
C = Acetal
T = PTFE

8 DIAPHRAGMS
H = Hytrel®
T = PTFE + SS push rod fitting
S = Santoprene®
W = PTFE + PVDF push rod fitting (DF30T not available)

9 FLUID CONNECTIONS
BAS = BSP
NAS = NPT

See page 22 for the key to the abbreviations used above.

For other configurations please consult us.

DF50 PLASTIC PUMPS

directflo
Central flow technology

AIR OPERATED DOUBLE DIAPHRAGM PUMPS

1/2"
50 l/min
14 US gal/min

DF50 & DF50T PLASTIC PUMPS

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

The pumps' wetted materials are even compatible with aggressive chemicals and the pumps are suitable for use in corrosive environments. Maximum free delivery of 50 l/min (14 US gal/min), with 1/2" fluid inlet and outlet connections.

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

Fully groundable ATEX certified pumps are available, for use in potentially explosive atmospheres. These pumps are marked Ex II2 GD IIB/IIC 95 °C.

RECOMMENDED MODELS

MODEL	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED MATERIALS	RECOMMENDED APPLICATIONS	
DF50PPP88TSBAS	Polypropylene	Santoprene®	PTFE	EPDM, SS	Water based fluids and adhesives, diluted alkalis and acids, alcohols. Water based coatings and adhesives.	
DF50PPP23TTBAS	Polypropylene	PTFE + SS	PTFE	FKM, SS	Wide chemical compatibility. Good with acids and alkalis.	
DF50PPPKGTWBAS	Polypropylene	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	Many chemicals, including acids and alkalis, water treatment chemicals and polymers.	
DF50PWPKFTWBAS	PVDF	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	Almost universal chemical pump, including strong acids and acids above room temperature. Not recommended for some strong alkalis or concentrated nitric acid.	
DF50BDN76TTBAS	Conductive Acetal	PTFE + SS	PTFE	Conductive PTFE, EPDM, SS	ATEX pump. Solvents (ketones, acetates and aldehydes) and solvent based fluids. Solvent and water based flexo and gravure inks and paints.	Ex
DF50BKNKFTWBAS	Conductive PVDF	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	ATEX pump. Almost universal chemical pump, including for strong acids and acids above room temperature. Not recommended for some strong alkalis or concentrated nitric acid.	Ex
DF50BDN62TTBAS	Conductive Acetal	PTFE + SS	PTFE	FKM, SS	ATEX pump. Solvents (aromatic and chlorinated hydrocarbons, toluene) and solvent based fluids, varnishes, fuels.	Ex

DF50 & DF50T PLASTIC PUMPS

SAMOA
1/2"
50 l/min
14 US gal/min

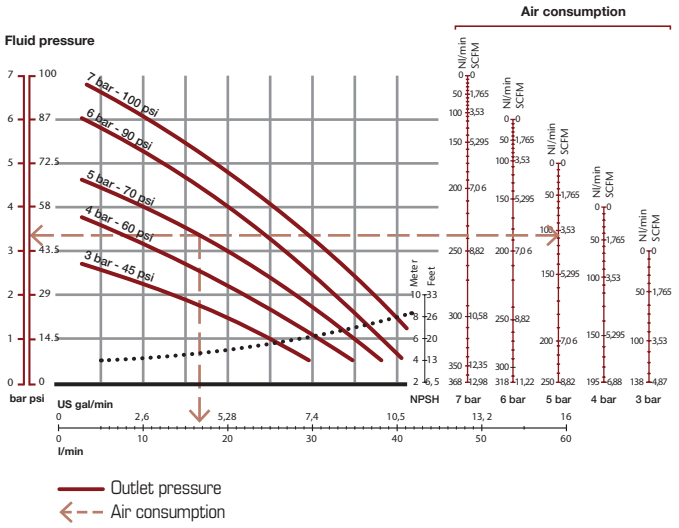
TECHNICAL DATA

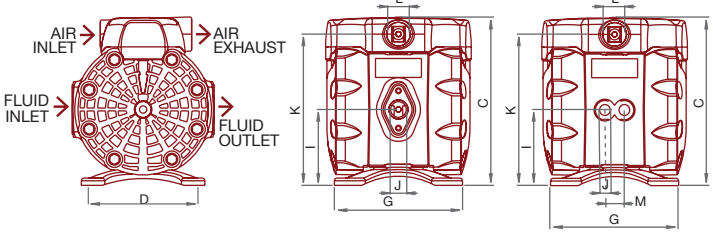
Pressure ratio	1:1
Maximum free delivery (1)	50 l/min (14 US gal/min)
Delivery per stroke approx. (1)	0,1 litres (0.026 US gallons)
Delivery per cycle (2 x strokes) (1)	0,2 litres (0.05 US gallons)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	3 mm (1/8")
Maximum dry suction lift (1)	6 m (20')
Maximum wet suction lift (1)	8 m (26')
Weight	2,2 kg (4,85 lb)
Fluid inlet connection	1/2" BSP/NPT (F) and flange (DF50) 2 x 3/8" BSP/NPT (F) and flange (DF50T)
Fluid outlet connection	1/2" BSP/NPT (F) and flange
Air inlet connection	3/8" NPSM (F)
Wetted part materials	See recommended models

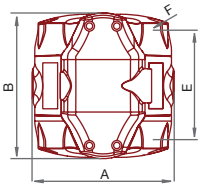
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

PERFORMANCE CURVES

Tested at room temperature, with water and flooded pump with 800 mm (31.5 inches) height of water above the pump inlet.





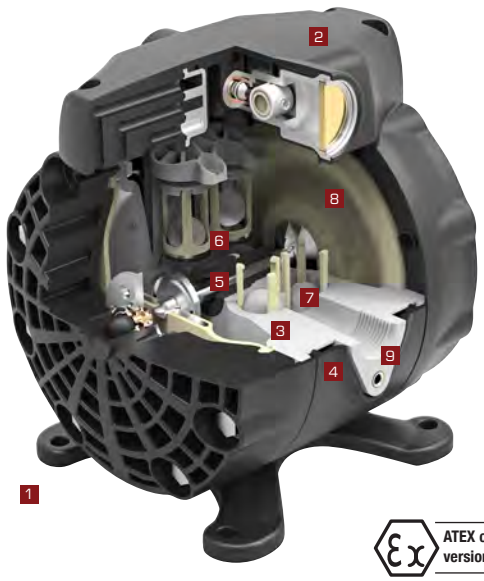


DIMENSIONS (MM)

A	B	C	D	E	F*
156	160	185	105	122	8
G	**I**	**J**	**K**	**L**	**M**
140,7	83	1/2" (F)	166	3/8" (F)	24

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

Flange connection: 2 bolts - M 5 (41 mm between centres)



ATEX certified versions available

DF50 & DF50T PLASTIC PUMP CODING SYSTEM

DF50	P	P	P	8	8	T	S	BAS
1	2	3	4	5	6	7	8	9

1 PUMP SIZE
DF50
DF50T

2 DIRECTIONAL AIR VALVE & AIR CHAMBER COVERS
P = Polypropylene
B = Conductive Polypropylene

3 WETTED PUMP BODY
B = Conductive Polypropylene
C = Acetal
D = Conductive Acetal
P = Polypropylene
S = SS (DF50T not available)
W = PVDF (DF50T not available)
K = Conductive PVDF (DF50T not available)

4 TRIMS OVER FLUID CONNECTIONS
P = Polypropylene
N = No trims over fluid connections

5 BUSHING / SEALS / PUSH ROD
1 = PTFE/NBR/SS
2 = PTFE/FKM/SS
3 = PTFE/PTFE/SS
4 = Conductive PTFE/FKM/Hastelloy® (DF50T not available)
5 = Conductive PTFE/PTFE/SS
6 = Conductive PTFE/FKM/SS
7 = Conductive PTFE/EPDM/SS
8 = PTFE/EPDM/SS
K = Conductive PTFE/NONE/Hastelloy® (DF50T not available)

6 BALL VALVE SEATS / O-RINGS / BALL VALVE GUIDES
1 = SS/NBR/Acetal
2 = SS/FKM/Acetal
3 = SS/FKM/Polypropylene
4 = SS/FKM/PTFE
5 = PVDF/FKM/Polypropylene (DF50T not available)
6 = SS/EPDM/Acetal
7 = SS/EPDM/PTFE
8 = SS/EPDM/Polypropylene
9 = SS/PTFE/SS (DF50T not available)
F = PVDF/*FFKM-FEP®/PVDF (DF50T not available)
G = PVDF/*FFKM-FEP®/Polypropylene (DF50T not available)

*(*FFKM ball valve lid o-rings and FEP® ball valve seat o-rings.)*

7 BALL CHECK VALVES
C = Acetal
T = PTFE
S = SS (DF50T not available)

8 DIAPHRAGMS
H = Hytrel®
T = PTFE + SS push rod fitting
S = Santoprene®
W = PTFE + PVDF push rod fitting (DF50T not available)

9 FLUID CONNECTIONS
BAS = BSP
NAS = NPT

See page 22 for the key to the abbreviations used above.
For other configurations please consult us.

DF100 PLASTIC PUMPS

directflo
Central flow technology

AIR OPERATED DOUBLE DIAPHRAGM PUMPS

1"
100 l/min
28 US gal/min

DF100 PLASTIC PUMPS

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

The pumps' wetted materials are even compatible with aggressive chemicals and the pumps are suitable for use in corrosive environments. Maximum free delivery of 100 l/min (28 US gal/min), with 1" fluid inlet and outlet connections.

Fully groundable ATEX certified pumps are available, for use in potentially explosive atmospheres. These pumps are marked Ex II2 GD IIB/IIC 95 °C.

RECOMMENDED MODELS

MODEL	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED MATERIALS	RECOMMENDED APPLICATIONS	
DF100PPP88TSBAS	Polypropylene	Santoprene®	PTFE	EPDM, SS	Water based fluids and adhesives, diluted alkalis and acids, alcohols. Water based coatings and adhesives.	
DF100PPP23TTBAS	Polypropylene	PTFE + SS	PTFE	FKM, SS	Wide chemical compatibility. Good with acids and alkalis.	
DF100PPPKGTWBAS	Polypropylene	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	Many chemicals, including acids and alkalis, water treatment chemicals and polymers.	
DF100PWPKFTWBAS	PVDF	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	Almost universal chemical pump, including strong acids and acids above room temperature. Not recommended for some strong alkalis or concentrated nitric acid.	
DF100BDB76TTBAS	Conductive Acetal	PTFE + SS	PTFE	EPDM, SS	ATEX pump. Solvents (ketones, acetates and aldehydes) and solvent based fluids. Solvent and water based flexo and gravure inks and paints.	Ex
DF100BKBKFTWBAS	Conductive PVDF	PTFE + PVDF	PTFE	FFKM-FEP®, Hastelloy®	ATEX pump. Almost universal chemical pump, including for strong acids and acids above room temperature. Not recommended for some strong alkalis or concentrated nitric acid.	Ex
DF100BDN62TTBAS	Conductive Acetal	PTFE + SS	PTFE	FKM, SS	ATEX pump. Solvents (aromatic and chlorinated hydrocarbons, toluene) and solvent based fluids, varnishes, fuels.	Ex

DF100 PLASTIC PUMPS

SAMOA
1"
100 l/min
28 US gal/min

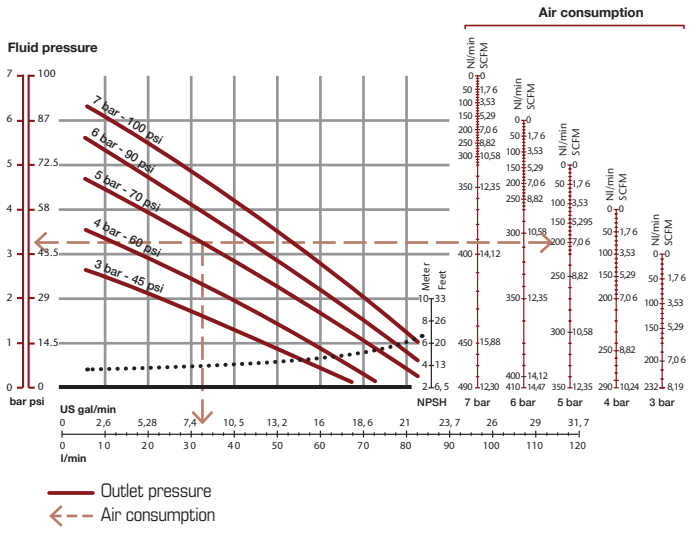
TECHNICAL DATA

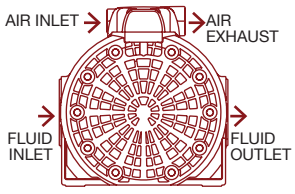
Pressure ratio	1:1
Maximum free delivery (1)	100 l/min (28 US gal/min)
Delivery per stroke approx. (1)	0,25 l (0.07 US gallons
Delivery per cycle (2 x strokes) (1)	0,5 l (0.13 US gallons)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	4 mm (3/16")
Maximum dry suction lift (1)	4,5 m (15')
Maximum wet suction lift (1)	7 m (23')
Weight	5,1 kg (11.24 lb)
Fluid inlet connection	1" BSP/NPT (F) and flange
Fluid outlet connection	1" BSP/NPT (F) and flange
Air inlet connection	3/8" NPSM (F)
Wetted part materials	See recommended models

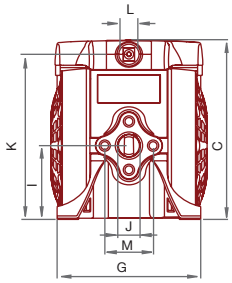
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

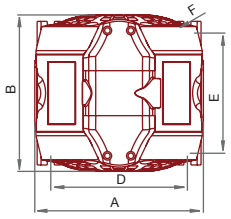
PERFORMANCE CURVES

Tested at room temperature, with water and flooded pump with 800 mm (31.5 inches) height of water above the pump inlet.







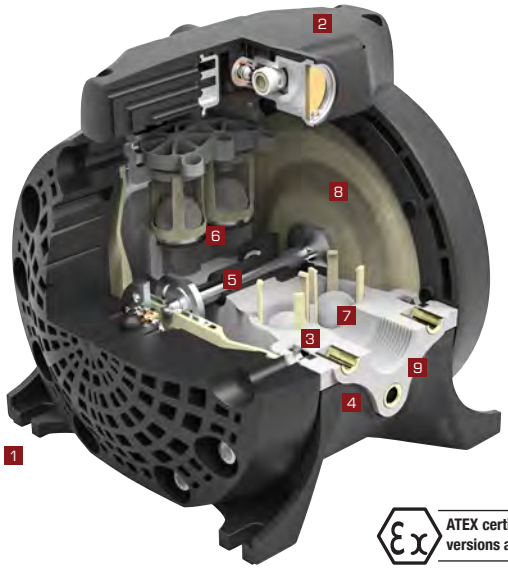


DIMENSIONS (MM)

A	B	C	D	E	F*
216	218	230	175	154	8
G	**I**	**J**	**K**	**L**	**M**
184	94,5	1" (F)	211,5	3/8" (F)	62**

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

***Flange connection: 4 bolts - M 10 (62 mm between centres)*



ATEX certified versions available

DF100 PLASTIC PUMP CODING SYSTEM

DF100	P	P	P	8	8	T	S	BAS
1	2	3	4	5	6	7	8	9

1 PUMP SIZE
DF100

2 DIRECTIONAL AIR VALVE & AIR CHAMBER COVERS
P = Polypropylene
B = Conductive Polypropylene

3 WETTED PUMP BODY
B = Conductive Polypropylene
D = Conductive Acetal
P = Polypropylene
S = SS
W = PVDF
K = Conductive PVDF

4 TRIMS OVER FLUID CONNECTIONS
B = Conductive Polypropylene
P = Polypropylene

5 BUSHING / SEALS / PUSH ROD
1 = PTFE/NBR/SS
2 = PTFE/FKM/SS
3 = PTFE/PTFE/SS
4 = Conductive PTFE/FKM/Hastelloy®
5 = Conductive PTFE/PTFE/SS
6 = Conductive PTFE/FKM/SS
7 = Conductive PTFE/EPDM/SS
8 = PTFE/EPDM/SS
K = Conductive PTFE/NONE/Hastelloy®

6 BALL VALVE SEATS / O-RINGS / BALL VALVE GUIDES
1 = SS/NBR/Acetal
2 = SS/FKM/Acetal
3 = SS/FKM/Polypropylene
4 = SS/FKM/PTFE
5 = PVDF/FKM/Polypropylene
6 = SS/EPDM/Acetal
7 = SS/EPDM/PTFE
8 = SS/EPDM/Polypropylene
9 = SS/PTFE/SS
F = PVDF/ *FFKM-FEP®/PVDF
G = PVDF/ *FFKM-FEP®/Polypropylene

*[*FFKM ball valve lid o-rings and FEP® ball valve seat o-rings.]*

7 BALL CHECK VALVES
C = Acetal
T = PTFE
S = SS

8 DIAPHRAGMS
H = Hytrel®
T = PTFE + SS push rod fitting
S = Santoprene®
W = PTFE + PVDF push rod fitting

9 FLUID CONNECTIONS
BAS = BSP
NAS = NPT

See page 22 for the key to the abbreviations used above.

For other configurations please consult us.

DF50 METAL PUMPS

directflo
Central flow technology

AIR OPERATED DOUBLE DIAPHRAGM PUMPS

1/2"
50 l/min
14 US gal/min

DF50 & DF50T METAL PUMPS

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

These pumps are very robust, since both their main wetted components and their main air side components are made of metal. Maximum free delivery of 50 l/min (14 US gal/min), with 1/2" fluid inlet and outlet connections.

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

Fully groundable ATEX certified pumps are available, for use in potentially explosive atmospheres. These pumps are marked Ex II2 GD IIB/IIC 95 °C.

RECOMMENDED MODELS

MODEL	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED MATERIALS	RECOMMENDED APPLICATIONS	
DF50AAA62THBAS	Aluminium*	Hytrel®	PTFE	Acetal, FKM, SS	ATEX pump. Coolant, new and waste oil, cutting fluids. Water and some pH neutral aqueous solutions. Bilge water.	Ex
DF50AAA76TTBAS	Aluminium*	PTFE + SS	PTFE	Acetal, EPDM, SS	ATEX pump. Solvents (ketones, acetates and aldehydes) and solvent based fluids. Solvent based flexo and gravure ink. Solvent based paint.	Ex
DF50ASN59TTBAS	Stainless Steel	PTFE + SS	PTFE	All wetted parts SS or PTFE	ATEX pump. Chemicals compatible with stainless steel. Solvents and solvent based fluids. Solvent and water based flexo and gravure ink. Solvent and water based paint. Glue.	Ex
DF50AAA52TTBAS	Aluminium	PTFE + SS	PTFE	Acetal, FKM, SS	ATEX pump. Aliphatic and aromatic hydrocarbons, petroleum oils, vegetable oils and silicone oils. Fuels (biodiesel, diesel).	Ex
DF50AAA56TTBAS	Aluminium	PTFE + SS	PTFE	Acetal, EPDM, SS	ATEX pump for solvent (ketones, acetates, aldehydes) based fluids like inks, lacquers, paints.	Ex
DF50ASN39STBAS	Stainless Steel	PTFE + SS	SS	All wetted parts SS or PTFE	Wide range of chemical compatibility. Recommended for use with high viscosity fluids.	

** DO NOT USE aluminium body pumps with halogenated hydrocarbon solvents.*

DF50 & DF50T METAL PUMPS

SAMOA
1/2"
50 l/min
14 US gal/min

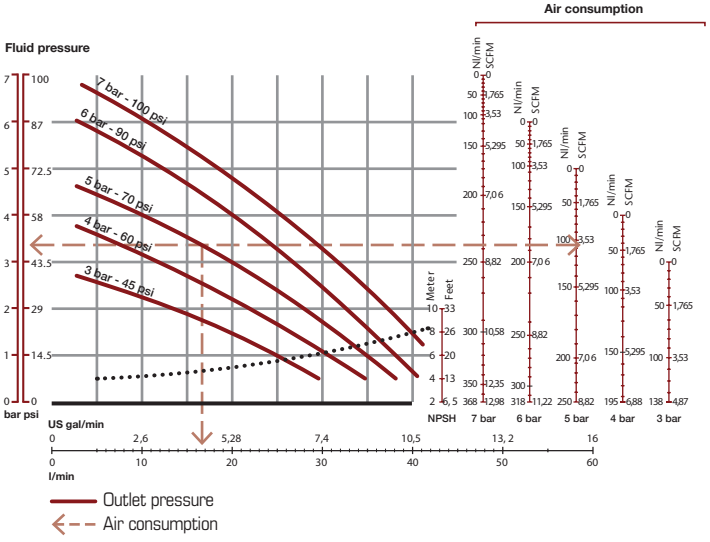
TECHNICAL DATA

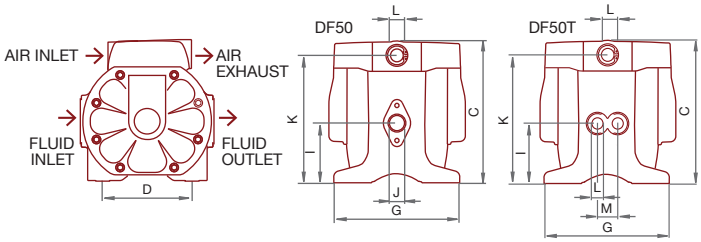
Pressure ratio	1:1
Maximum free delivery (1)	50 l/min (14 US gal/min)
Delivery per stroke approx. (1)	0,1 litres (0.026 US gallons)
Delivery per cycle (2 x strokes) (1)	0,25 litres (0.05 US gallons)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	3 mm (1/8")
Maximum dry suction lift (1)	6 m (20')
Maximum wet suction lift (1)	8 m (26')
Weight	3,5 kg (7.72 lb)
Fluid inlet connection	1/2" NPSM (F) and flange (DF50) 2 x 3/8" NPSM (F) and flange (DF50T)
Fluid outlet connection	1/2" NPSM (F) and flange
Air inlet connection	3/8" NPSM (F)
Wetted part materials	See recommended models

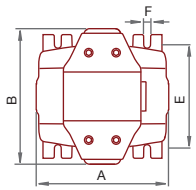
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

PERFORMANCE CURVES

Tested at room temperature, with water and flooded pump with 800 mm (31.5 inches) height of water above the pump inlet.





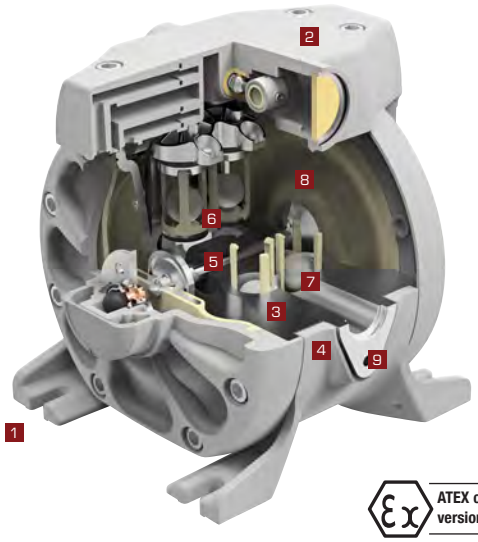


DIMENSIONS (MM)

A	B	C	D	E	F*
156	160	167	105	122	8
G	**I**	**J**	**K**	**L**	**M**
146	70	1/2" (F)	150	3/8" (F)	24

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

Flange connection: 2 bolts - M 5 (41 mm between centres)



ATEX certified versions available

DF50 & DF50T METAL PUMP CODING SYSTEM

DF50	A	A	A	6	2	T	H	BAS
1	2	3	4	5	6	7	8	9

1 PUMP SIZE
DF50
DF50T

2 DIRECTIONAL AIR VALVE & AIR CHAMBER COVERS
A = Aluminium
E = Externally Driven (Aluminium)

3 WETTED PUMP BODY
A = Aluminium
N = Electroless Nickel Plated Aluminum
S = SS (DF50T not available)

4 TRIMS OVER FLUID CONNECTIONS
A = Aluminium

5 BUSHING /SEALS / PUSH ROD
1 = PTFE/NBR/SS
2 = PTFE/FKM/SS
3 = PTFE/PTFE/SS
4 = Conductive PTFE/FKM/ Hastelloy® (DF50T not available)
5 = Conductive PTFE/PTFE/SS
6 = Conductive PTFE/FKM/SS
7 = Conductive PTFE/EPDM/SS
8 = PTFE/EPDM/SS
K = Conductive PTFE/NONE/ Hastelloy® (DF50T not available)

6 BALL VALVE SEATS / O-RINGS / BALL VALVE GUIDES
1 = SS/NBR/Acetal
2 = SS/FKM/Acetal
3 = SS/FKM/Polypropylene
4 = SS/FKM/PTFE
5 = PVDF/FKM/Polypropylene (DF50T not available)
6 = SS/EPDM/Acetal
7 = SS/EPDM/PTFE
8 = SS/EPDM/Polypropylene
9 = SS/PTFE/SS (DF50T not available)
F = PVDF/ *FFKM-FEP®/PVDF (DF50T not available)
G = PVDF/ *FFKM-FEP®/Polypropylene (DF50T not available)

*(*FFKM ball valve lid o-rings and FEP® ball valve seat o-rings.)*

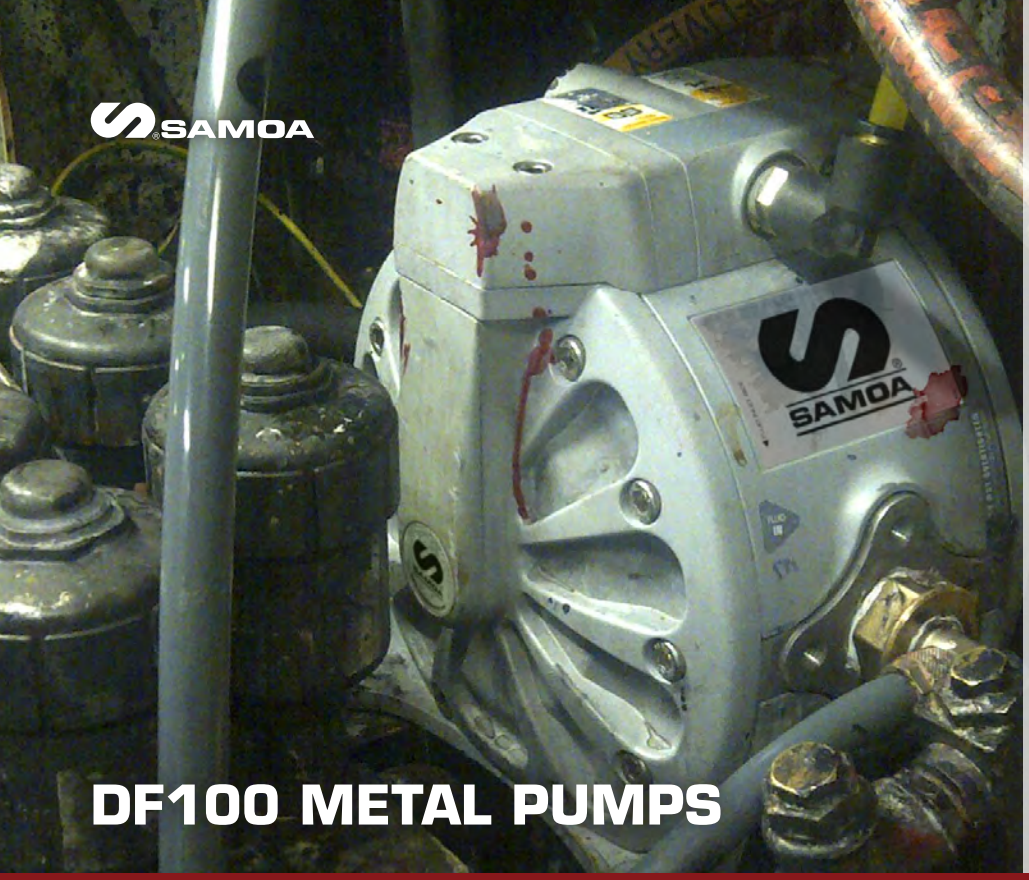
7 BALL CHECK VALVES
C = Acetal
T = PTFE
S = SS (DF50T not available)

8 DIAPHRAGMS
H = Hytrel®
T = PTFE + SS push rod fitting
S = Santoprene®
W = PTFE + PVDF push rod fitting (DF50T not available)

9 FLUID CONNECTIONS
BAS = BSP
NAS = NPT

See page 22 for the key to the abbreviations used above.

For other configurations please consult us.



DF100 METAL PUMPS

directflo
Central flow technology

AIR OPERATED DOUBLE DIAPHRAGM PUMPS

1"
100 l/min
28 US gal/min

DF100 METAL PUMPS

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

These pumps are very robust, since both their main wetted components and their main air side components are made of metal. Maximum free delivery of 100 l/min (28 US gal/min), with 1" fluid inlet and outlet connections.

Fully groundable ATEX certified pumps are available, for use in potentially explosive atmospheres. These pumps are marked Ex II2 GD IIB/IIC 95 °C.

RECOMMENDED MODELS

MODEL	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED MATERIALS	RECOMMENDED APPLICATIONS	
DF100AAA62THBAS	Aluminium*	Hytrel®	PTFE	Acetal, FKM, SS	ATEX pump. Coolant, new and waste oil, cutting fluids. Water and some pH neutral aqueous solutions. Bilge water.	Ex
DF100AAA76TTBAS	Aluminium*	PTFE + SS	PTFE	Acetal, EPDM, SS	ATEX pump. Solvents (ketones, acetates and aldehydes) and solvent based fluids. Solvent based flexo and gravure ink. Solvent based paint.	Ex
DF100ASA59TTBAS	Stainless Steel	PTFE + SS	PTFE	All wetted parts SS or PTFE	ATEX pump. Chemicals compatible with stainless steel. Solvents and solvent based fluids. Solvent and water based flexo and gravure ink. Solvent and water based paint. Glue.	Ex
DF100AAA52TTBAS	Aluminium	PTFE + SS	PTFE	Acetal, FKM, SS	ATEX pump. Aliphatic and aromatic hydrocarbons, petroleum oils, vegetable oils and silicone oils. Fuels (biodiesel, diesel).	Ex
DF100ASA39STBAS	Stainless Steel	PTFE + SS	SS	All wetted parts SS or PTFE	Wide range of chemical compatibility. Recommended for use with high viscosity fluids.	

** DO NOT USE aluminium body pumps with halogenated hydrocarbon solvents.*

DF100 METAL PUMPS

SAMOA
1"
100 l/min
28 US gal/min

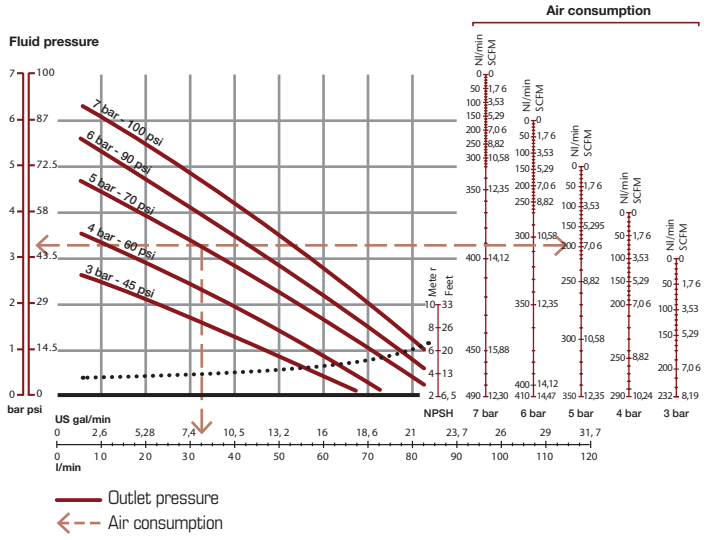
TECHNICAL DATA

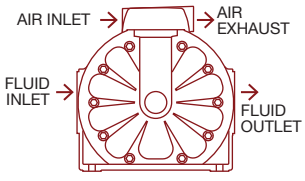
Pressure ratio	1:1
Maximum free delivery (1)	100 l/min (28 US gal/min)
Delivery per stroke approx. (1)	0,25 l (0.07 US gallons)
Delivery per cycle (2 x strokes) (1)	0,5 l (0.13 US gallons)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	4 mm (3/16")
Maximum dry suction lift (1)	4,5 m (15')
Maximum wet suction lift (1)	7 m (23')
Weight	7,2 kg (16 lb)
Fluid inlet connection	1" BSP/NPT (F) and flange
Fluid outlet connection	1" BSP/NPT (F) and flange
Air inlet connection	3/8" NPSM (F)
Wetted part materials	See recommended models

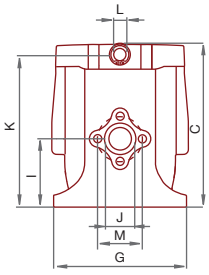
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

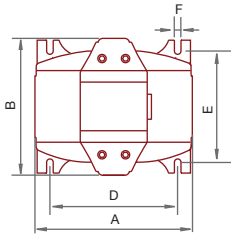
PERFORMANCE CURVES

Tested at room temperature, with water and flooded pump with 800 mm (31.5 inches) height of water above the pump inlet.







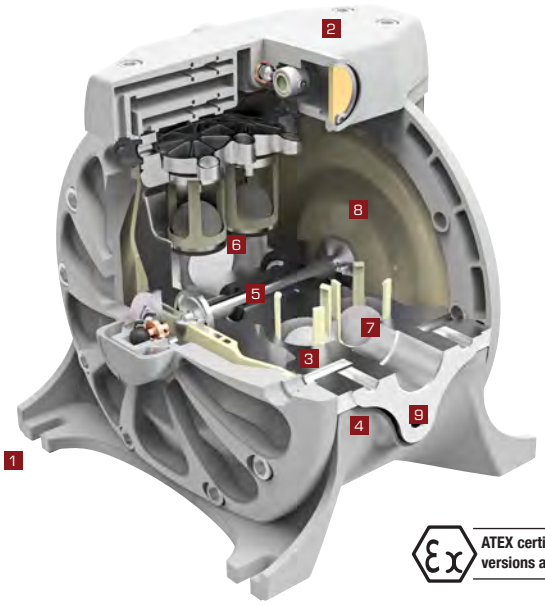


DIMENSIONS (MM)

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.*

***Flange connection: 4 bolts - M 10 (62 mm between centres)*



ATEX certified versions available

DF100 METAL PUMP CODING SYSTEM

DF100	A	A	A	6	2	T	H	BAS
1	2	3	4	5	6	7	8	9

1 PUMP SIZE
DF100

2 DIRECTIONAL AIR VALVE & AIR CHAMBER COVERS
A = Aluminium
E = Externally Driven (Aluminium)

3 WETTED PUMP BODY
A = Aluminium
N = Electroless Nickel Plated Aluminum
S = SS

4 TRIMS OVER FLUID CONNECTIONS
A = Aluminium

5 BUSHING / SEALS / PUSH ROD
1 = PTFE/NBR/SS
2 = PTFE/FKM/SS
3 = PTFE/PTFE/SS
4 = Conductive Acetal/FKM/Hastelloy®
5 = Conductive PTFE/PTFE/SS
6 = Conductive PTFE/FKM/SS
7 = Conductive PTFE/EPDM/SS
8 = PTFE/EPDM/SS
K = Conductive PTFE/NONE/Hastelloy®

6 BALL VALVE SEATS / O-RINGS / BALL VALVE GUIDES
1 = SS/NBR/Acetal
2 = SS/FKM/Acetal
3 = SS/FKM/Polypropylene
4 = SS/FKM/PTFE
5 = PVDF/FKM/Polypropylene
6 = SS/EPDM/Acetal
7 = SS/EPDM/PTFE
8 = SS/EPDM/Polypropylene
9 = SS/PTFE/SS
F = PVDF/*FFKM-FEP®/PVDF
G = PVDF/*FFKM-FEP®/Polypropylene

*[*FFKM ball valve lid o-rings and FEP® ball valve seat o-rings.]*

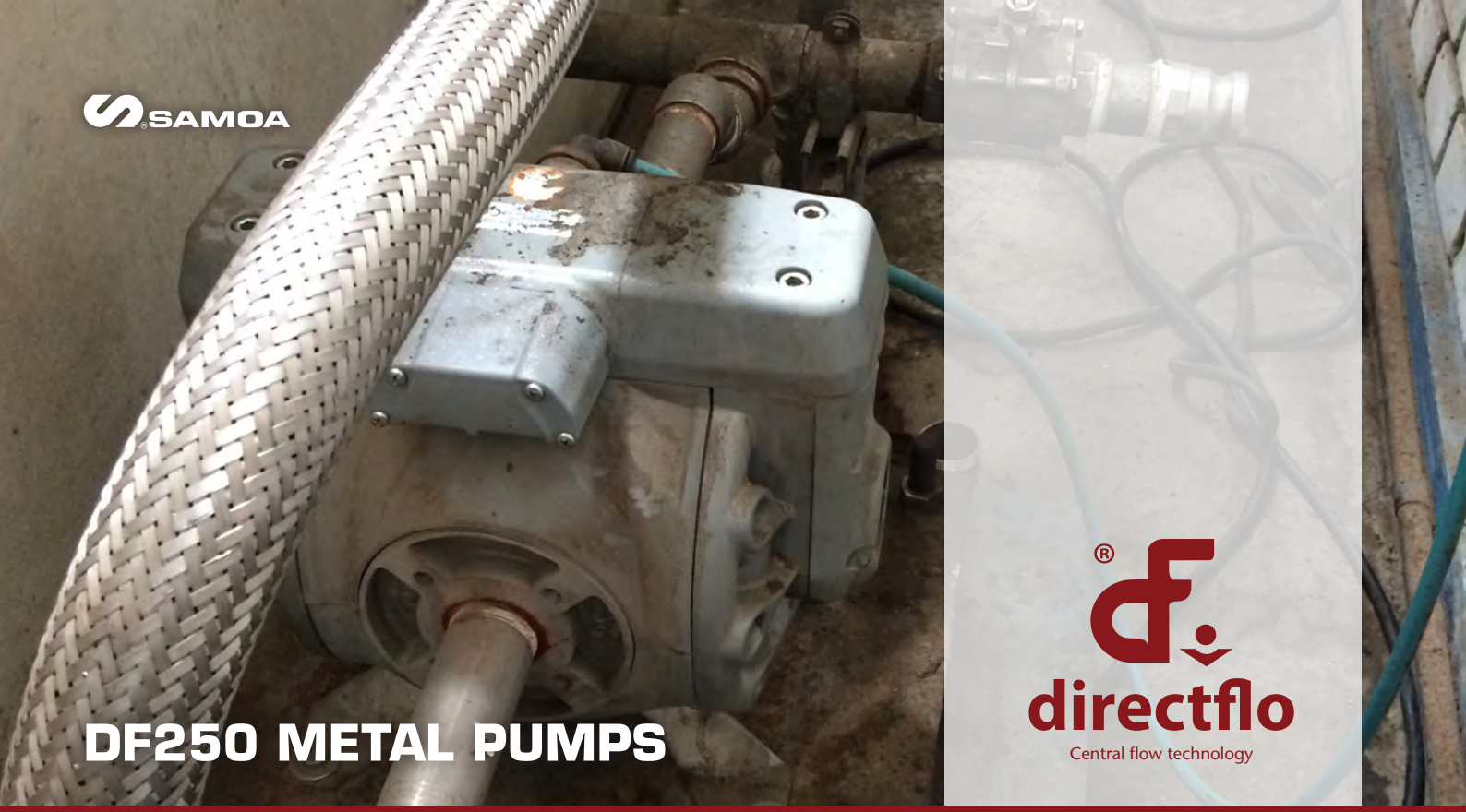
7 BALL CHECK VALVES
C = Acetal
T = PTFE
S = SS

8 DIAPHRAGMS
H = Hytrel®
T = PTFE + SS push rod fitting
S = Santoprene®
W = PTFE + PVDF push rod fitting

9 FLUID CONNECTIONS
BAS = BSP
NAS = NPT

See page 22 for the key to the abbreviations used above.

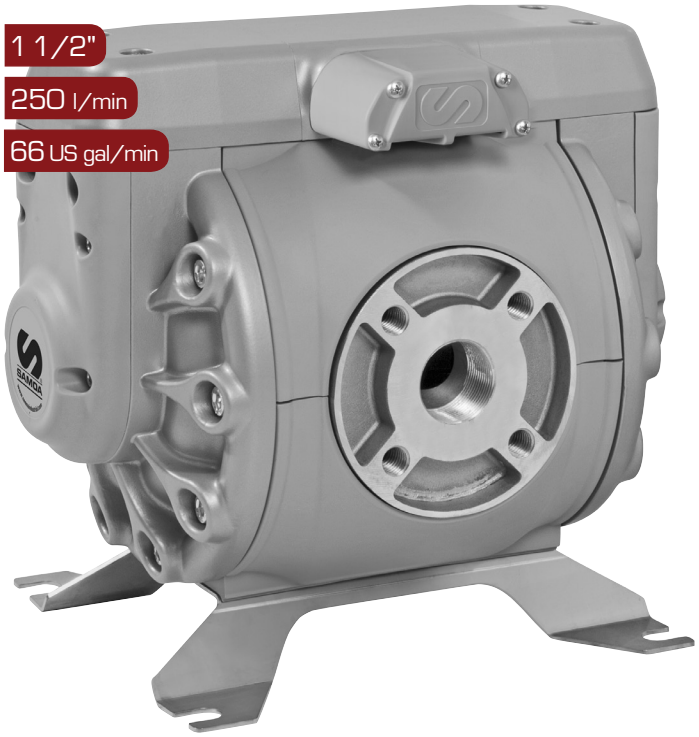
For other configurations please consult us.



DF250 METAL PUMPS

directflo
Central flow technology

AIR OPERATED DOUBLE DIAPHRAGM PUMPS



DF250 METAL PUMPS

High flow air operated double diaphragm pumps for dosing, spraying, transferring, evacuating and distributing a wide variety of fluids.

These pumps are very robust, since both their main wetted components and their main air side components are made of metal. Maximum free delivery of 250 l/min (70 US gal/min), with 1 1/2" fluid inlet and outlet connections.

Fully groundable ATEX certified pumps are available, for use in potentially explosive atmospheres. These pumps are marked Ex II2 GD IIB/IIC 95 °C.

RECOMMENDED MODELS

MODEL	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED MATERIALS	RECOMMENDED APPLICATIONS	
DF250AAN62THBAS	Aluminium*	Hytrel®	PTFE	FKM, SS	ATEX pump. Coolant, new and waste oil, cutting fluids. Water and some pH neutral aqueous solutions. Bilge water.	Ex
DF250AAN78TSBAS	Aluminium*	Santoprene®	PTFE	EPDM, SS	ATEX pump. Water based flexo and gravure inks. Water based paint. Some types of glue.	Ex
DF250AAN76TTBAS	Aluminium*	PTFE + SS	PTFE	EPDM, SS	ATEX pump. Solvents (ketones, acetates and aldehydes) and solvent based fluids. Solvent and water based flexo and gravure ink. Solvent and water based paint. Many types of glue.	Ex
DF250AAN59TTBAS	Aluminium*	PTFE + SS	PTFE	SS	ATEX pump. Alcohols, pH neutral water based fluids, fuels, hydraulic fluids, oils, detergents, ketones, aromatic hydrocarbons, ester based fluids, aliphatic hydrocarbons.	Ex

** DO NOT USE aluminium body pumps with halogenated hydrocarbon solvents.*

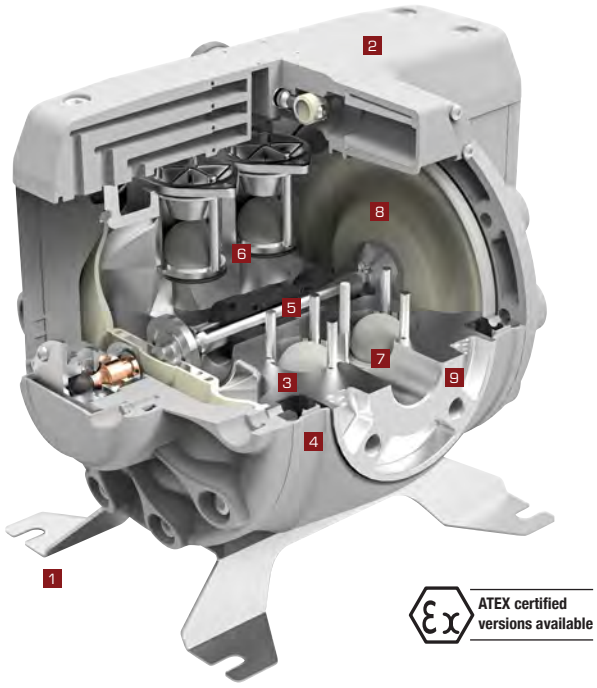
DF250 METAL PUMPS

SAMOA
1 1/2"
250 l/min
66 US gal/min

TECHNICAL DATA

Pressure ratio	1:1
Maximum free delivery (1)	250 l/min (66 US gal/min)
Delivery per stroke approx. (1)	0,6 l (0.16 US gallons)
Delivery per cycle (2 x strokes) (1)	1,2 l (0.32 US gallons)
Air pressure operating range	1,5 to 7 bar (22 to 102 psi)
Solids in suspension max. size	6 mm (1/4")
Maximum dry suction lift (1)	5 m (16.4')
Maximum wet suction lift (1)	8 m (26')
Weight	20 kg (45 lb)
Fluid inlet connection	1 1/2" BSP (F) and DIN PN-10 flange or 1 1/2" NPT (F) and ANSI B16.5 150 lb flange
Fluid outlet connection	1 1/2" BSP (F) and DIN PN-10 flange or 1 1/2" NPT (F) and ANSI B16.5 150 lb flange
Air inlet connection	1/2" NPSM (F)
Wetted part materials	See recommended models

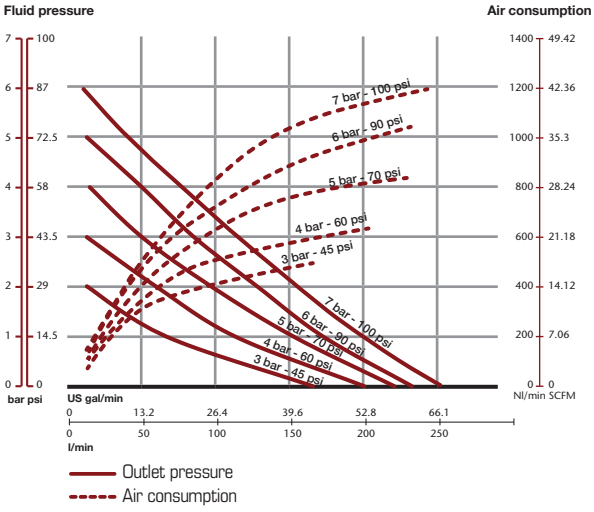
(1) Data measured with water, air inlet pressure 7 bar (100 psi), 20 ºC (68 ºF).

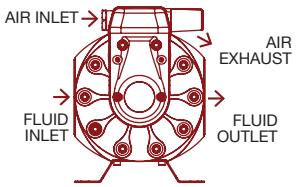


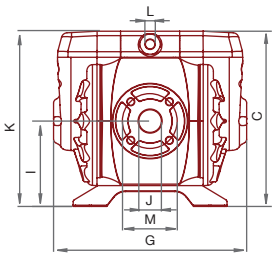
ATEX certified versions available

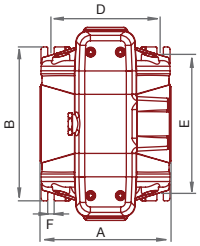
PERFORMANCE CURVES

Tested at room temperature, with water and flooded pump with 800 mm (31.5 inches) height of water above the pump inlet.









DIMENSIONS (MM)

A	B	C	D	E	F*
264	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)*

DF250 METAL PUMP CODING SYSTEM

DF250	A	A	N	6	2	T	H	BAS
1	2	3	4	5	6	7	8	9

1 PUMP SIZE
DF250

2 DIRECTIONAL AIR VALVE & AIR CHAMBER COVERS
A = Aluminium

3 WETTED PUMP BODY
A = Aluminium

4 TRIMS OVER FLUID CONNECTIONS
P = Polypropylene
N = No trims over fluid connections

5 BUSHING / SEALS / PUSH ROD
1 = Acetal/NBR/SS
2 = PTFE/FKM/SS
3 = PTFE/PTFE/SS
5 = Conductive PTFE/PTFE/SS
6 = Conductive PTFE/FKM/SS
7 = Conductive PTFE/EPDM/SS
8 = PTFE/EPDM/SS

6 BALL VALVE SEATS / O-RINGS / BALL VALVE GUIDES
1 = SS/NBR/Acetal
2 = SS/FKM/Acetal
3 = SS/FKM/Polypropylene
4 = SS/FKM/PTFE
6 = SS/EPDM/Acetal
7 = SS/EPDM/PTFE
8 = SS/EPDM/Polypropylene
9 = SS/PTFE/SS

7 BALL CHECK VALVES
C = Acetal
T = PTFE
S = SS

8 DIAPHRAGMS
H = Hytrel®
T = PTFE + SS push rod fitting
S = Santoprene®

9 FLUID CONNECTIONS
BAS = BSP
NAS = NPT

See page 22 for the key to the abbreviations used above.

For other configurations please consult us.

DIRECTFLO® PUMP CODING SYSTEM

1 PUMP SIZE

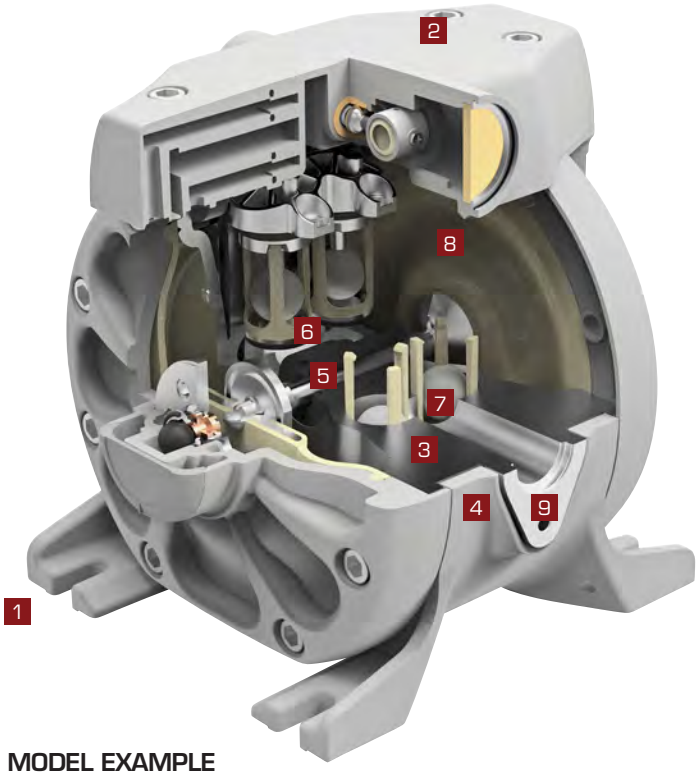
DF30	1/2"	38 l/min (10 US gal/min) pump
DF30T	1/2"	38 l/min (10 US gal/min) dual inlet pump
DF50	1/2"	50 l/min (14 US gal/min) pump
DF50T	1/2"	50 l/min (14 US gal/min) dual inlet pump
DF100	1"	100 l/min pump (28 US gal/min)
DF250	1 1/2"	250 l/min pump (66 US gal/min)

2 DIRECTIONAL AIR VALVE & AIR CHAMBER COVERS

	DF30	DF30T	DF50	DF50T	DF100	DF250
A = Aluminium			■	■	■	■
P = Polypropylene	■	■	■	■	■	
B = Conductive Polypropylene	■	■	■	■	■	
E = Externally driven	■	■	■	■	■	

3 WETTED PUMP BODY

	DF30	DF30T	DF50	DF50T	DF100	DF250
A = Aluminium			■	■	■	■
B = Conductive Polypropylene	■	■	■	■	■	
C = Acetal			■	■		
D = Conductive Acetal	■	■	■	■	■	
N = Electroless Nickel Plated Aluminium			■	■	■	
P = Polypropylene	■	■	■	■	■	
S = Stainless Steel			■		■	
W = PVDF	■		■		■	
K = Conductive PVDF	■		■		■	



MODEL EXAMPLE

DF50	A	A	A	6	2	T	H	BAS
1	2	3	4	5	6	7	8	9

For other configurations please consult us.

4 TRIMS OVER FLUID CONNECTIONS

	DF30	DF30T	DF50	DF50T	DF100	DF250
A = Aluminium			■	■	■	
B = Conductive Polypropylene					■	
P = Polypropylene	■	■	■	■	■	■
N = No trims over fluid connections	■	■	■	■		■

5 BUSHING / SEALS / PUSH ROD

	DF30	DF30T	DF50	DF50T	DF100	DF250
1 = PTFE/NBR/SS (*)	■	■	■	■	■	■
2 = PTFE/FKM/SS	■	■	■	■	■	■
3 = PTFE/PTFE/SS	■	■	■	■	■	■
4 = Conductive PTFE/FKM/Hastelloy®	■		■		■	
5 = Conductive PTFE/PTFE/SS	■	■	■	■	■	■
6 = Conductive PTFE/FKM/SS	■	■	■	■	■	■
7 = Conductive PTFE/EPDM/SS	■	■	■	■	■	■
8 = PTFE/EPDM/SS	■	■	■	■	■	■
K = Conductive PTFE/None/Hastelloy®	■		■		■	

**For DF250 pumps: Acetal/NBR/SS*

6 BALL VALVE SEATS / O-RINGS / BALL VALVE GUIDES

	DF30	DF30T	DF50	DF50T	DF100	DF250
1 = SS/NBR/Acetal	■	■	■	■	■	■
2 = SS/FKM/Acetal	■	■	■	■	■	■
3 = SS/FKM/Polypropylene	■	■	■	■	■	■
4 = SS/FKM/PTFE	■	■	■	■	■	■
5 = PVDF/FKM/Polypropylene	■		■		■	
6 = SS/EPDM/Acetal	■	■	■	■	■	■
7 = SS/EPDM/PTFE	■	■	■	■	■	■
8 = SS/EPDM/Polypropylene	■	■	■	■	■	■
9 = SS/PTFE/SS			■		■	■
F = PVDF/*FFKM-FEP®/PVDF	■		■		■	
G = PVDF/*FFKM-FEP®/Polypropylene	■		■		■	

**FFKM ball valve lid o-rings and FEP® ball valve seat o-rings.*

7 BALL CHECK VALVES

	DF30	DF30T	DF50	DF50T	DF100	DF250
C = Acetal	■	■	■	■	■	■
T = PTFE	■	■	■	■	■	■
S = Stainless Steel			■		■	■

8 DIAPHRAGMS

	DF30	DF30T	DF50	DF50T	DF100	DF250
H = Hytrel®	■	■	■	■	■	■
T = PTFE + SS push rod fitting	■	■	■	■	■	■
S = Santoprene®	■	■	■	■	■	■
W = PTFE + PVDF push rod fitting	■		■		■	

9 FLUID CONNECTIONS

	DF30	DF30T	DF50	DF50T	DF100	DF250
BAS = BSP	■	■	■	■	■	■
NAS = NPT	■	■	■	■	■	■

EPDM = Ethylene Propylene Diene Monomer Rubber
FEP® = Perfluorinated Ethylene-Propylene
FFKM = Perfluoroelastomer (Isolast® or Kalrez®)
FKM = Fluoroelastomer (Viton®)
NBR = Nitrile Butadiene Rubber
PTFE = Polytetrafluoroethylene (Teflon®)
PVDF = Polyvinylidene Fluoride (Kynar® or Solef®)
SS = Stainless Steel

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THERE'S A DIRECTFLO® PUMP FOR ALMOST EVERY APPLICATION

	MARKETS SERVED	1 FLUID TRANSFER AND DISPENSING	2 FLUID EVACUATION	3 DOSING/BLENDING/ FORMULATION	4 FLUID RECIRCULATION	5 SUPPLY FOR LOW PRESSURE SPRAY	6 FLUID FLUSHING/ CLEAN IN PLACE (CIP)	7 PUMPING SAMPLES	8 FILTER & FILTER PRESS FEEDING	9 SLURRY HANDLING	10 TANK/BARREL FILLING & EMPTYING
A	**VEHICLE PRODUCTION & MAINTENANCE** • Cars, motorbikes & trucks • Construction, mining & agriculture • Ships & airplanes • Railway	O, AF, WS, HF, BF, BL, D, U, W	WO, WA								
B	**CONSTRUCTION & MINING** • Concrete batching plants • Pit dewatering	CA, CS	W	CA, AA, CS	CS					CS	
C	**PRINT & PACKAGING** • Printing presses • Ink dispensers & blenders • Cylinder cleaning • Solvent recovery	FI, GI, GL, S, WC	WC, WW	FI, GI	FI, GI, S, W	S, W	S, W, CF				
D	**PULP & PAPER CONVERTERS** • Paper plants	CO, BC, GL	WW					SW			
E	**PAINT & COATINGS** • Paint & varnish lines • Paint formulation • Colour mixers • Paint gun washers	P, C, S, V, R, ST	WC	P, C, V, R	P, C, V, R	P, C, V, R	S		MO	CS	
F	**PROCESS WATER** • Commercial laundries • Car washes • Power stations	DT, WX, CF, W, WW	WW	SA, DG, BC, FS		DT, WX, CF					
G	**SURFACE TREATMENTS** • Plating lines • Degreasing & treatment lines • Pickling lines	AC, AK, AT, S, DG	WC, WW								AC, AK, S, DG
H	**WASTEWATER TREATMENT** • Industrial water treatment plants • Municipal sewage works	FC, CG, BC, AC, AK	WC, WW	FC, CG, BO, DI				SW	WW		
I	**METALWORKING** • Lathes & machining centres • Waste fluid recovery • Part washing • Corrosion protection	MC, MO, S, CF, DG, W	MC, MO, WW, WC		MC, W, DG, S	O, DG, S, W					
J	**CHEMICAL, PETROCHEMICAL & REFINERIES**	AC, AK, AL, S, LX, CH	WC, W, CH	FA, CH, OA				CH			CH
K	**HYGIENIC** • Food & beverage • Food processing plants • Biotechnology • Pharmaceutical	AC, AK				CF	CF, AC, AK				
L	**CERAMIC SLIP & GLAZE** • Ink manufacturers • Enamel manufacturers	EN, BB, W	WW							EN, BB	

AA: Asphalt Additive
AC: Acid
AK: Alkali
AL: Alcohol
AT: Acetone
AF: Antifreeze, coolant
BB: Barbotine
BC: Bleach
BF: Brake Fluid
BL: Battery Liquid
BO: Biocide
C: Coating
CA: Concrete Admix
CF: Cleaning Fluid
CG: Coagulant
CH: Chemicals
CO: Colour
CS: Colour Slurry
D: Diesel
DG: Degreaser
DI: Disinfectant
DT: Detergent
EM: Emulsions
EN: Enamel (ceramic)
FA: Fuel Additive
FC: Flocculent
FI: Flexo Ink
FS: Fabric Softener
GI: Gravure Ink
GL: Glue
HF: Hydraulic Fluid / Skydrol (airplane)
LX: Latex
MC: Machine Coolant
MO: Machining (cutting) Oil
O: Oil
OA: Oil Additive
P: Paint
R: Resin
S: Solvent
SA: Soap
ST: Wood Stain
SW: Water based Solution
U: Urea solution (DEF)
V: Varnish
W: Water
WA: Waste Antifreeze
WC: Waste Chemical
WO: Waste Oil
WS: Windshield Washer
WX: Wax
WW: Waste Water

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