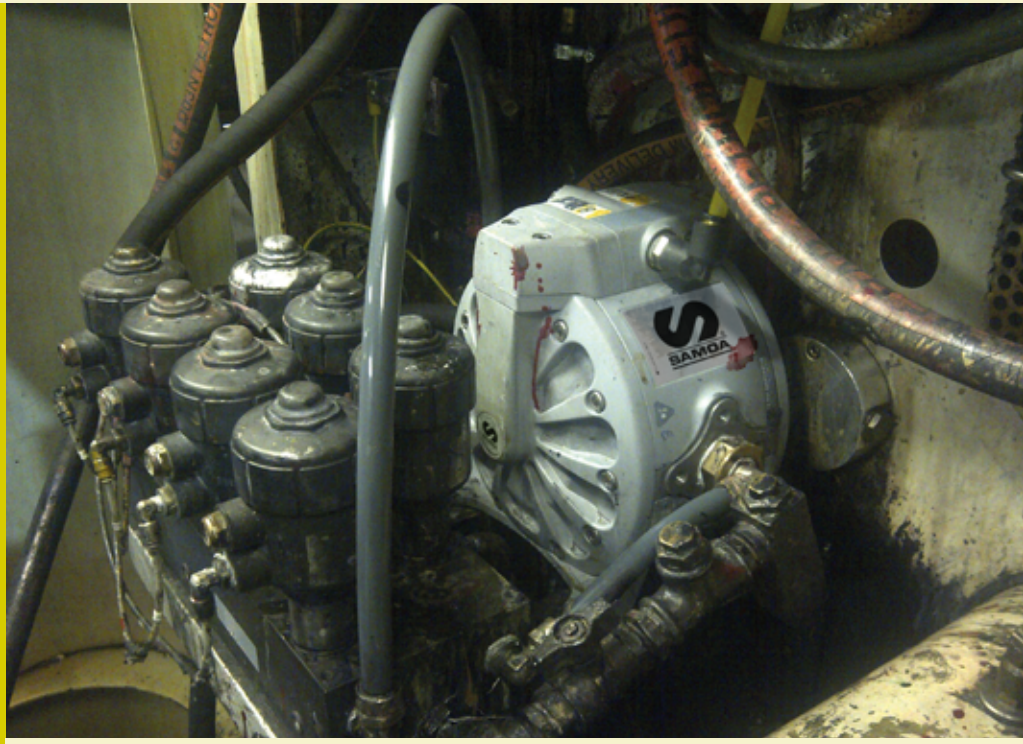


AIR OPERATED DIAPHRAGM PUMPS	48
DIAPHRAGM PUMPS ACCESSORIES	53
AIR OPERATED PISTON PUMPS FOR FLUIDS	54

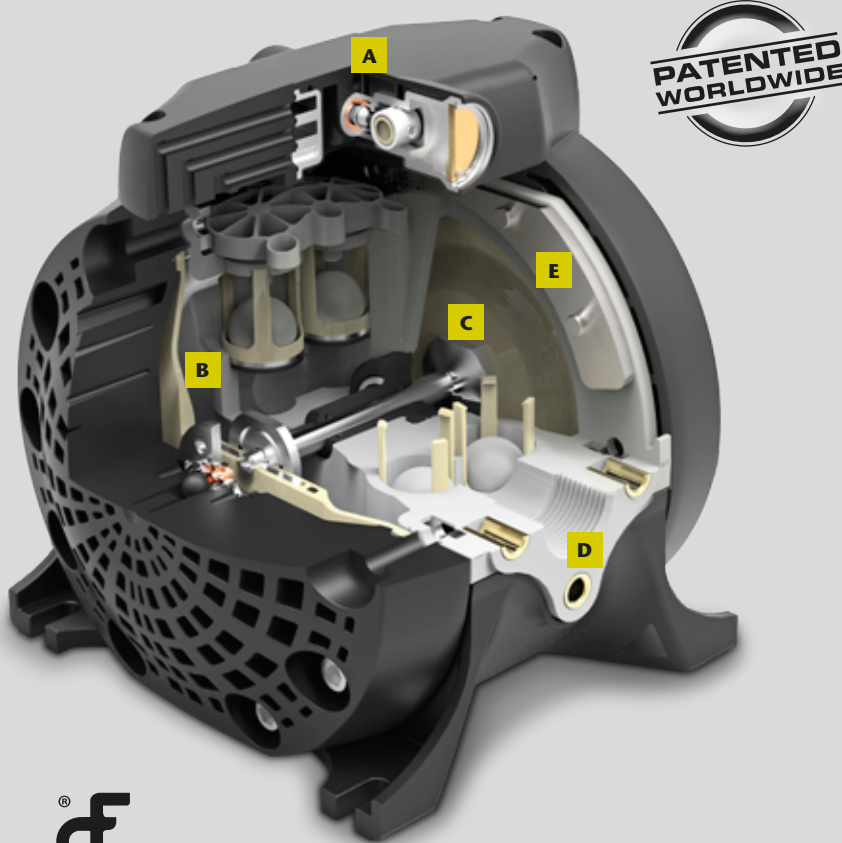


INNOVATIVE TECHNOLOGIES CREATE THE DIFFERENCE

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. In Directflo® pumps the fluid is pumped through the centre of the pump and compressed air acts on the outside face of the diaphragms.

03

OTHER FLUIDS PUMPS



SUPERIOR ALL-ROUND PUMPING PERFORMANCE

- Significant dry suction lift eliminates self-priming issues.
- Discharge fluids at up to 8 bar (115 psi), to pump medium viscosity fluids even over long pipe runs and up to significant heights.
- Efficient compressed air usage.

- A**
FRICTIONLESS PIVOTING AIR VALVE
- High operational reliability.
 - Variable flow rate and pressure by adjusting the air pressure.
 - No stalling.
 - No 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
- Nonrigid 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® PUMP RANGE COMPARATIVE CHART

FLUIDS HANDLED

- Oils.
- Antifreeze, coolant.
- Windshield wash.
- Hydraulic fluids.
- Diesel.

- AdBlue® / DEF.
- Water.
- Waste oil.
- Waste antifreeze.

MARKETS SERVED

- Car and truck dealers.
- Construction, mining.
- Rail way and mass transit.
- Lube trucks.
- Fleets.

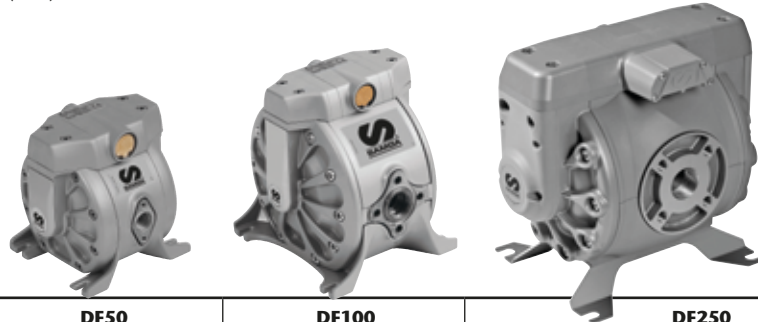
- In-plant.
- Quick lubes.



PLASTIC PUMPS

DF SERIES	DF30	DF50	DF100
PUMP PRESSURE RATIO	1:1	1:1	1:1
MAXIMUM FREE DELIVERY⁽¹⁾	38 l/min (10 US gpm)	50 l/min (13.2 US gpm)	100 l/min (26.4 US gpm)
DELIVERY PER STROKE APPROX.⁽¹⁾	0,07 litres (0.02 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)	0,2 litres (0.05 US gal)	0,50 l (0.13 US gal)
AIR PRESSURE OPERATING RANGE	1,5 to 8 bar (22 to 115 psi)	1,5 to 8 bar (22 to 115 psi)	1,5 to 8 bar (22 to 115 psi)
SOLIDS IN SUSPENSION MAXIMUM SIZE	3 mm (0.12")	3 mm (1/8")	4 mm (3/16")
MAXIMUM DRY SUCTION HEAD⁽¹⁾	4 m (13')	6 m (20')	4,5 m (15')
MAXIMUM WET SUCTION HEAD⁽¹⁾	8 m (26')	8 m (26')	7 m (23')
WEIGHT	1,9 kg (4.19 lb)	2,2 kg (4.85 lb)	5,1 kg (11.24 lb)
FLUID INLET CONNECTION	1/2" BSP (F)	1/2" BSP (F)	1" BSP (F)
FLUID OUTLET CONNECTION	1/2" BSP (F)	1/2" BSP (F)	1" BSP (F)
AIR INLET CONNECTION	3/8" NPSM (F)	3/8" NPSM (F)	3/8" NPSM (F)

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



METAL PUMPS

DF SERIES	DF50	DF100	DF250
PUMP PRESSURE RATIO	1:1	1:1	1:1
MAXIMUM FREE DELIVERY⁽¹⁾	50 l/min (13.2 US gpm)	100 l/min (26.4 US gpm)	250 l/min (66 US gpm)
DELIVERY PER STROKE APPROX.⁽¹⁾	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)	0,5 l (0.13 US gal)	1,2 l (0.32 US gal)
AIR PRESSURE OPERATING RANGE	1,5 to 8 bar (22 to 115 psi)	1,5 to 8 bar (22 to 115 psi)	1,5 to 8 bar (22 to 115 psi)
SOLIDS IN SUSPENSION MAXIMUM SIZE	3 mm (1/8")	4 mm (3/16")	6 mm (1/4")
MAXIMUM DRY SUCTION HEAD⁽¹⁾	6 m (20')	4,5 m (15')	5 m (16.4')
MAXIMUM WET SUCTION HEAD⁽¹⁾	8 m (26')	7 m (23')	8 m (26')
WEIGHT	3,5 kg (7.72 lb)	7,2 kg (16 lb)	20 kg (45 lb)
FLUID INLET CONNECTION	1/2" BSP (F)	1" BSP (F)	1 1/2" BSP (F) and DIN PN-10 flange
FLUID OUTLET CONNECTION	1/2" BSP (F)	1" BSP (F)	1 1/2" BSP (F) and DIN PN-10 flange
AIR INLET CONNECTION	3/8" NPSM (F)	3/8" NPSM (F)	1/2" NPSM (F)

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

PLASTIC PUMPS



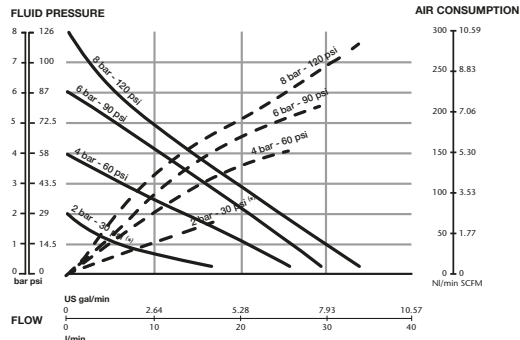
Plastic pumps are adequate for indoor use and they can handle a wide range of fluids used for vehicle service. Pump air valve module and lateral pump covers are manufactured in polypropylene or conductive polypropylene depending on models.

Typical applications are transferring and dispensing of windshield wash and antifreeze solutions, pure windshield wash and AdBlue® / DEF. They can be used as stand-alone pumps for transfer applications or as systems pumps in distribution systems that include hose reels. ATEX approved pumps are available for use in potential explosive environments and with flammable fluids like pure ethanol.

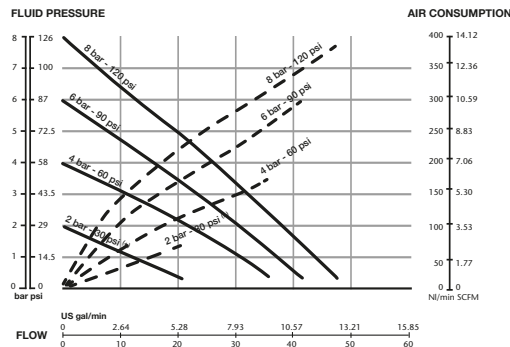
PUMP SIZE	PART NUMBER	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED PARTS	APPLICATIONS
DF30 (38 l/min)	553 164	Polypropylene	TPE	PTFE	FKM, Stainless steel	Antifreeze and windshield wash solutions, AdBlue® / DEF
	553 162	Conductive Polypropylene	PTFE	PTFE	FKM, Stainless steel	⊕ ATEX pump for pure ethanol, pure windshield wash
DF50 (50 l/min)	552 164	Polypropylene	TPE	PTFE	FKM, Stainless steel	Antifreeze and windshield wash solutions, AdBlue® / DEF
	552 162	Conductive Polypropylene	PTFE	PTFE	FKM, Stainless steel	⊕ ATEX pump for pure ethanol, pure windshield wash
DF100 (100 l/min)	551 164	Polypropylene	TPE	PTFE	FKM, Stainless steel	Antifreeze and windshield wash solutions, AdBlue® / DEF
	551 162	Conductive Polypropylene	PTFE	PTFE	FKM, Stainless steel	⊕ ATEX pump for pure ethanol, pure windshield wash

03 OTHER FLUIDS PUMPS

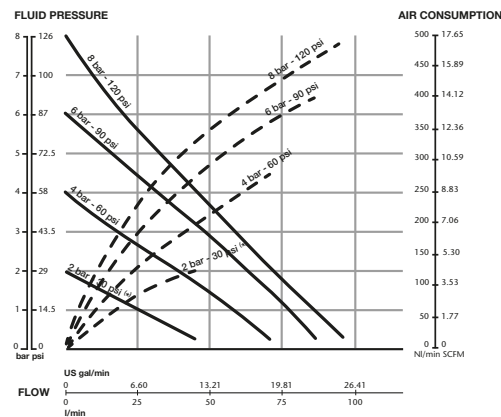
553 164



552 164



551 164





METAL PUMPS

Metal pumps are adequate for indoor and outdoor use and they can handle a wide range of fluids used for vehicle service. Pump air valve module and lateral pump covers are manufactured in aluminium.

Typical applications are transferring and dispensing of windshield wash, antifreeze solutions, lubricants and diesel, and for waste oil evacuation. They can be used as stand-alone pumps for transfer applications or as systems pumps in distribution systems that include hose reels.

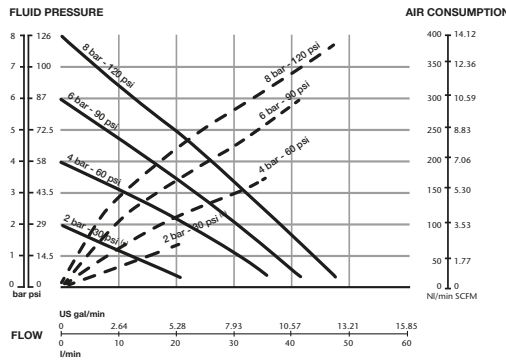
PUMP SIZE	PART NUMBER	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED PARTS	APPLICATIONS
DF50 (50 l/min)	552 010	Aluminium	TPE	Acetal	PTFE, NBR, Stainless steel	Antifreeze and windshield wash solutions, lubricants
DF100 (100 l/min)	551 010	Aluminium	TPE	Acetal	PTFE, NBR, Stainless steel	Antifreeze and windshield wash solutions, lubricants, waste oil evacuation, diesel
	551 020	Aluminium	PTFE	Acetal	FKM, Stainless steel	Diesel (1)
DF250 (250 l/min)	554 010	Aluminium	TPE	Acetal	NBR, Stainless steel	Antifreeze and windshield wash solutions, lubricants, waste oil evacuation, diesel.
	554 020	Aluminium	PTFE	Acetal	FKM, Stainless steel	Diesel (1)

03

OTHER FLUIDS PUMPS

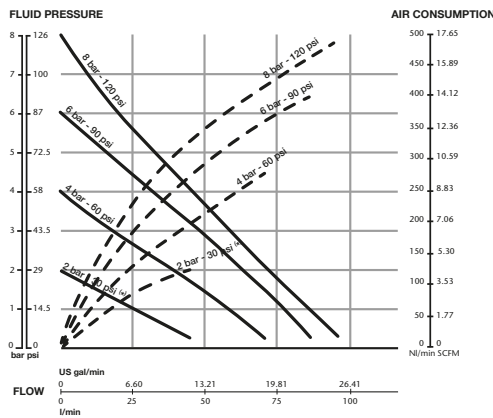
(1) Some types of diesel include additives in their formulation that might not be compatible with TPE. PTFE diaphragms are recommended in this case.

552 010

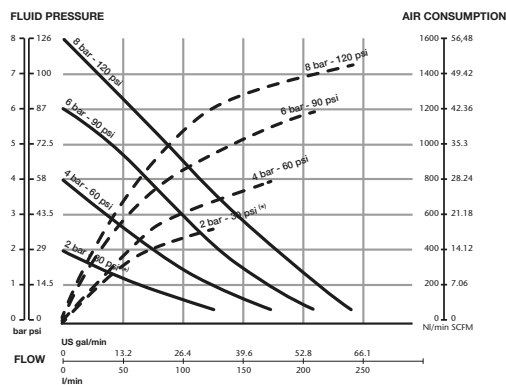


(*) 2 bar test with a PTFE (Teflon®) diaphragms pump. DF250 pump with a Hytrel® diaphragms.

551 010



554 010



PLASTIC MIX PUMPS



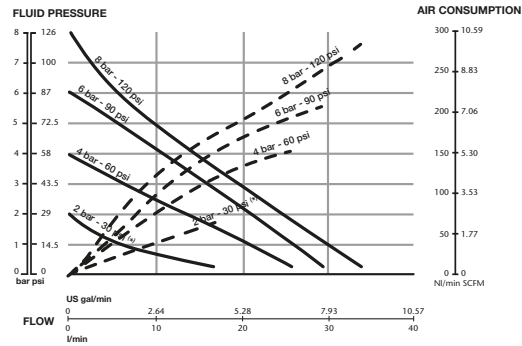
DF30T and DF50T plastic diaphragm pumps with a dual inlet for 1:1 ratio mixing of fluids with similar viscosities, like windshield wash or antifreeze with water. All dual inlet pumps have 2 x 3/8" BSP (F) inlet. All other technical features of these pumps are the same as the ones for the DF30 and DF50 pumps.

PUMP SIZE	PART NUMBER	PUMP BODY	DIAPHRAGMS	BALLS	OTHER WETTED PARTS	APPLICATIONS
DF30T (38 l/min)	553 124	Polypropylene	TPE	PTFE	FKM, Stainless steel	1:1 ratio water / windshield or antifreeze solutions
DF50T (50 l/min)	552 124	Polypropylene	TPE	PTFE	FKM, Stainless steel	1:1 ratio water / windshield or antifreeze solutions

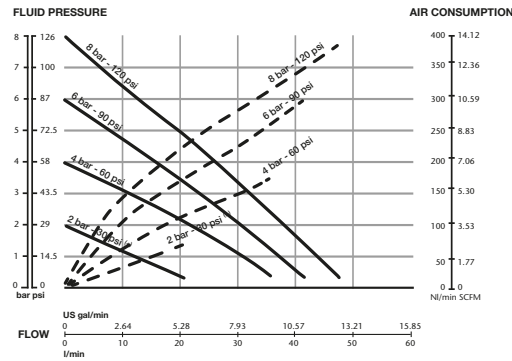
03

OTHER FLUIDS PUMPS

553 124



552 124



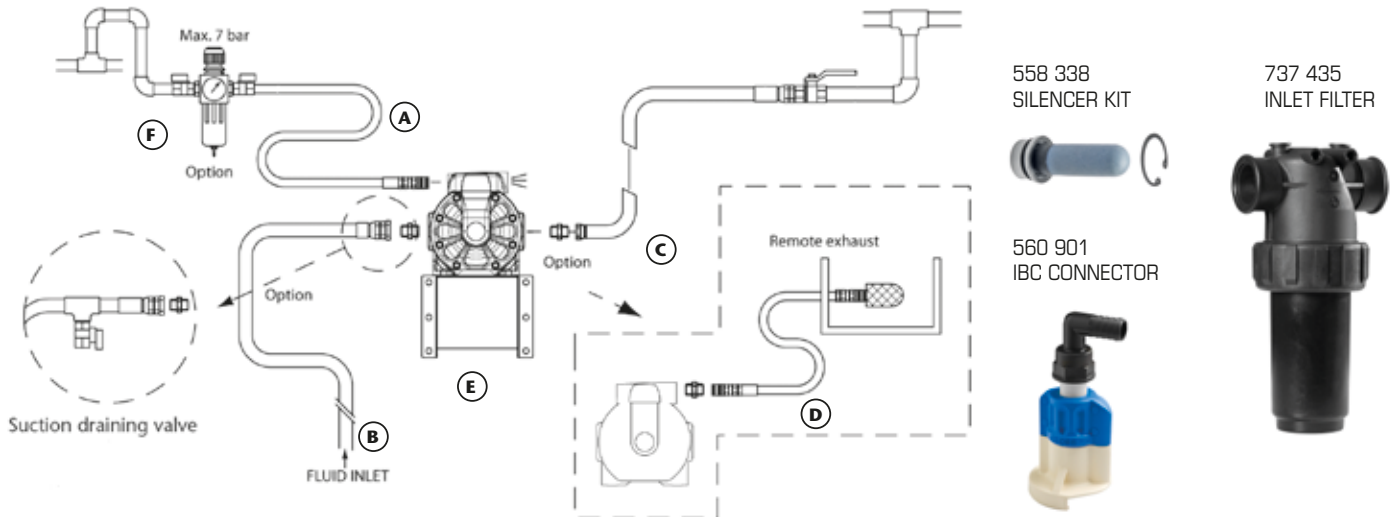
DF PUMP MOUNTING SPECIFICATIONS

DF SERIES	DF30	DF50 (1)	DF100 (1)	DF250
(A) AIR CONNECTION HOSE	3/8" - 9,5 mm	3/8" - 9,5 mm	3/8" - 9,5 mm	1/2" - 12,5 mm
(B) FLUID SUCTION HOSE	1/2" - 12,5 mm	1/2" - 12,5 mm	1" - 25 mm	1-1/2" - 38 mm
(C) FLUID DELIVERY HOSE	1/2" - 12,5 mm	1/2" - 12,5 mm	3/4" - 19 mm / 1" - 25 mm	1-1/2" - 38 mm
(D) AIR EXHAUST VENT HOSE	3/8" - 9,5 mm Requires adapter 855 432	3/8" - 9,5 mm Requires adapter 855 432	3/8" - 9,5 mm Requires adapter 855 432	1" - 25,4 mm
(E) WALL BRACKET	360 100	360 100	360 101	N/A (2)
DRUM / TOTE BRACKET	360 137	360 137	360 137	N/A
(F) AIR FILTER AND PRESSURE REGULATOR⁽³⁾	240 500	240 500	241 501	241 501
AIR PRESSURE REGULATOR⁽³⁾	240 300	240 300	241 201	241 201
QUICK AIR COUPLER	253 138	253 138	253 138	251 412
ADDITIONAL SILENCER KIT	558 338	558 338	558 338	N/A
IBC CONNECTOR	560 901	560 901	560 901	N/A

(1) Metal and plastic pumps.

(2) Pump to be floor or tank mounted.

(3) Always place the air treatment element close to the air pipe. Connect air nipple to the pump.



CARBON STEEL FITTINGS		POLYPROPYLENE FITTINGS		CARBON STEEL LOW PRESSURE SHUT-OFF VALVES	
945 593	1/2" BSP(MM)	689 059	1/2" BSP (MM)	950 300	1/2" BSP (FF)
945 551	3/4" BSP (MM)	689 061	1/2" BSP (F) - 3/4" BSP (F)	950 303	3/4" BSP (FF)
945 555	1" BSP (MM)	689 062	1/2" BSP (M) - 3/4" BSP (F)	950 306	1" BSP (FF)
945 567	2" - 1-1/2" BSP (MM)	689 056	3/4" BSP(F) - 1" BSP (F)	950 312	1-1/2" BSP (FF)
945 681	1-1/2" - 1" BSP (MM)	689 055	1" BSP (FF)	950 320	3/8" BSP (FF) - AIR
945 552	1" - 3/4" BSP (MM)	689 060	1" BSP (MM)	POLYPROPYLENE INLET FILTERS	
945 554	3/4" -1/2" BSP (MM)	689 079	1-1/4" BSP (M) - 3/4" BSP (F)	737 435	1-1/4" BSP (FF)
945 565	2" - 1" BSP (MF)	689 054	19 mm hose tail - 1/2" BSP (M)		
945 670	1" - 3/4" BSP (MF)	689 058	19 mm hose tail - 3/4" BSP (F) L elbow		
369 900	3/4" - 1/2" BSP (MF)	945 580	19 mm hose tail - 3/4" BSP (M)		
		689 045	19 mm hose tail - 1" (M)		
		689 072	19 mm hose tail - 1" (F)		
		689 046	25 mm hose tail - 1" (M)		
		689 073	25 mm hose tail - 1" (F)		

Use hoses and accessories compatible with the pumped fluid.



PUMP MASTER®



	PUMPMASER 2		PUMPMASER 4
	NICKEL PROTECTED PUMP	STAINLESS STEEL PUMP	STAINLESS STEEL PUMP
PART NO.	601 202	331 120	333 120
PUMP TYPE	Universal stub pump	Universal stub pump; divorced	Universal stub pump; divorced
PUMP PRESSURE RATIO	1:1	1:1	3:1
EFFECTIVE AIR PISTON DIAMETER	35 mm (1 1/2")	35 mm (1 1/2")	60 mm (2 1/2")
PISTON STROKE	75 mm (3")	75 mm (3")	75 mm (3")
AIR PRESSURE OPERATING RANGE	1,5 to 10 bar (20 to 145 psi)	1,5 to 10 bar (20 to 145 psi)	1,5 to 10 bar (20 to 145 psi)
AIR INLET	1/4" BSP (F)	1/4" BSP (F)	3/8" BSP (F)
FLUID INLET	1" BSP (F)	1" BSP (F)	1" BSP (F)
FLUID OUTLET	3/4" BSP (F)	3/4" BSP (F)	3/4" BSP (F)
DELIVERY AT 100 CYCLES PER MINUTE	13,5 l/min - 3.6 gal/min	25 l/min - 6.6 gal/min	25 l/min - 6.6 gal/min
MAXIMUM FREE DELIVERY	55 l/min - 14.5 gal/min	38 l/min - 10 gal/min	40 l/min - 10.6 gal/min
WETTED MATERIALS	Nickel coated aluminium and steel, stainless steel, acetal, NBR, polyurethane	PTFE, Viton®, stainless steel	PTFE, Viton®, stainless steel
HEIGHT ADJUSTABLE BUNG ADAPTOR	Included	Included	Included

Air Operated Piston Pumps for Fluids accessory:
P.N. **331 110.002**, PVC suction tube for 205 l drums.

351 121



SPECIALITY PUMP

351 121 PumpMaster 2, 1:1 pressure ratio suction pump

PumpMaster pump with 1:1 ratio with a modified air valve to allow a lower upward movement of the piston to improve pump suction capacity and avoid pump cavitation when suctioning fluids like waste oil through small diameter suction canes.