

airPUMP

AIR OPERATED DIAPHRAGM PUMPS



INSPIRED. SOLUTIONS. FOR CUSTOMERS.

AIR OPERATED DIAPHRAGM PUMPS

BENEFITS

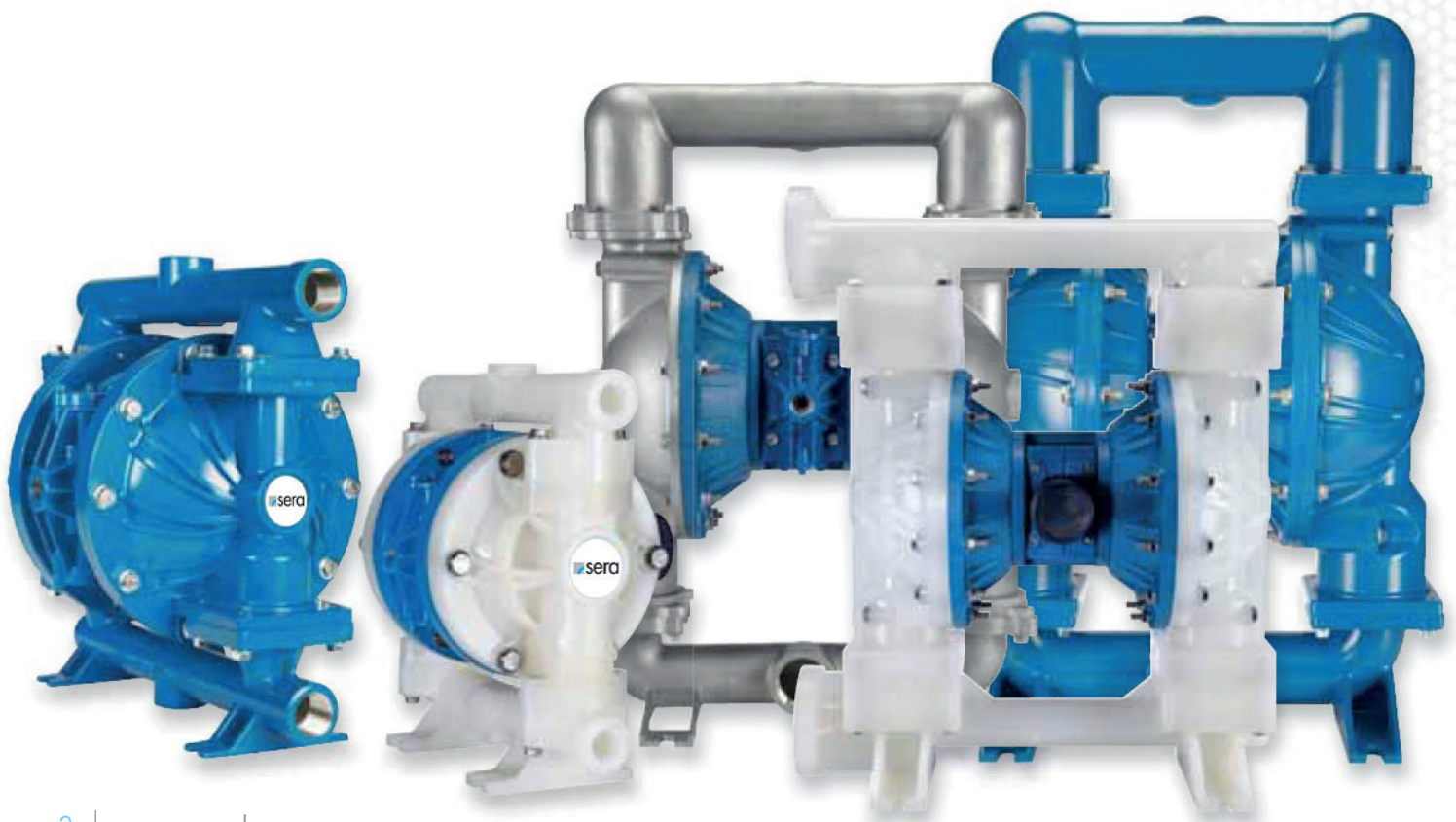
Air-operated diaphragm pumps have many benefits over other pump technologies:

- Easy to install
- Simple to operate
- Portable
- Self-priming
- Submersible
- Dry running
- Solids handling
- Abrasive handling
- Viscosity fluid handling
- Shear sensitive
- Economical compared to other positive displacement technologies
- Various applications
- Low maintenance cost

The **sera** airPUMP has its own additional unique features. It features a lube-free, non-stalling air valve, ideal for various applications and environments. The air valve contains very few parts compared to other air valves in the market, reducing maintenance time, costs and downtime. And **sera** airPUMP is backed by a strong 5 year warranty.

TYPICAL INDUSTRIES

- Mining
- Paints and Coatings
- Ceramics
- Pulp and Paper
- Electroplating and Anodizing
- Wastewater
- Marine
- OEM's
- Chemical Manufacturing and Distribution



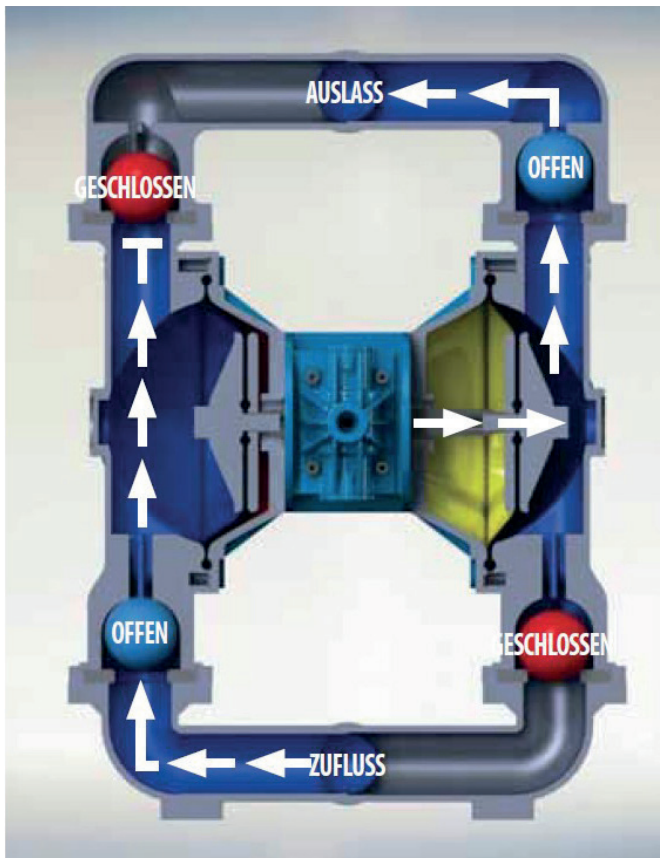
TECHNICAL DATA (OVERVIEW)

Type	Suction-/ Pressure- connection	max. Flow rate	Displace- ment per stroke	Control air connection		Control air pressure	max. size of solids	Schall- druck- pegel	Material	Weight
	NPT	[l/min.]	Liter	Inlet FNPT	Outlet FNPT	min/max [bar]	[mm]	[dB(A)]		[kg]
AP05	1/2"	0 - 77	0,08	1/4"	1/2"	0,7/8,3	4,7	72,1	PP	3,8
									PVDF	5,4
									Aluminium	5,3
									Stainless steel	7,0
AP10	1"	0 - 212	0,32	1/2"	1/2"	0,7/8,3	6,4	73,6	PP	10,9
									PVDF	15,5
									Aluminium	15,5
									Stainless steel	22,1
AP15	1 1/2"	0 - 500	1,20	3/4"	3/4"	0,7/8,3	8,9	77,0	PP	29,9
									PVDF	43,1
									Aluminium	36,4
									Stainless steel	57,6
AP20	2"	0 - 590	1,20	3/4"	3/4"	0,7/8,3	8,9	77,0	PP	30,4
									PVDF	44,2
									Aluminium	39,5
									Stainless steel	59,9
AP30	3"	0 - 908	3,70	3/4"	3/4"	0,7/8,3	12,7	86,5	Aluminium	70,3
									Stainless steel	107

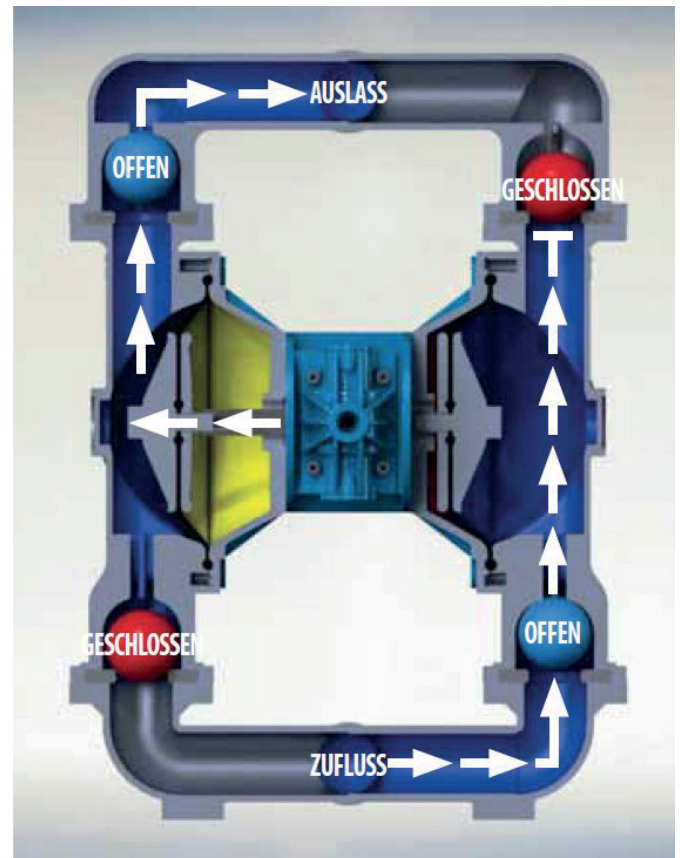
GENERAL FUNCTIONALITY

Air operated double diaphragm pumps are positive displacement pumps that use a combination of the reciprocating action of two flexible diaphragms, two inlet and two outlet ball check valves to pump a fluid. There are two pump chambers which are divided by the diaphragms into air and fluid regions. The two diaphragms are connected to a common shaft located in the center section. This creates the effect that during a cycle one side is pumping fluid while the other side is filling.

SUCTION SEQUENCE



DISCHARGE SEQUENCE



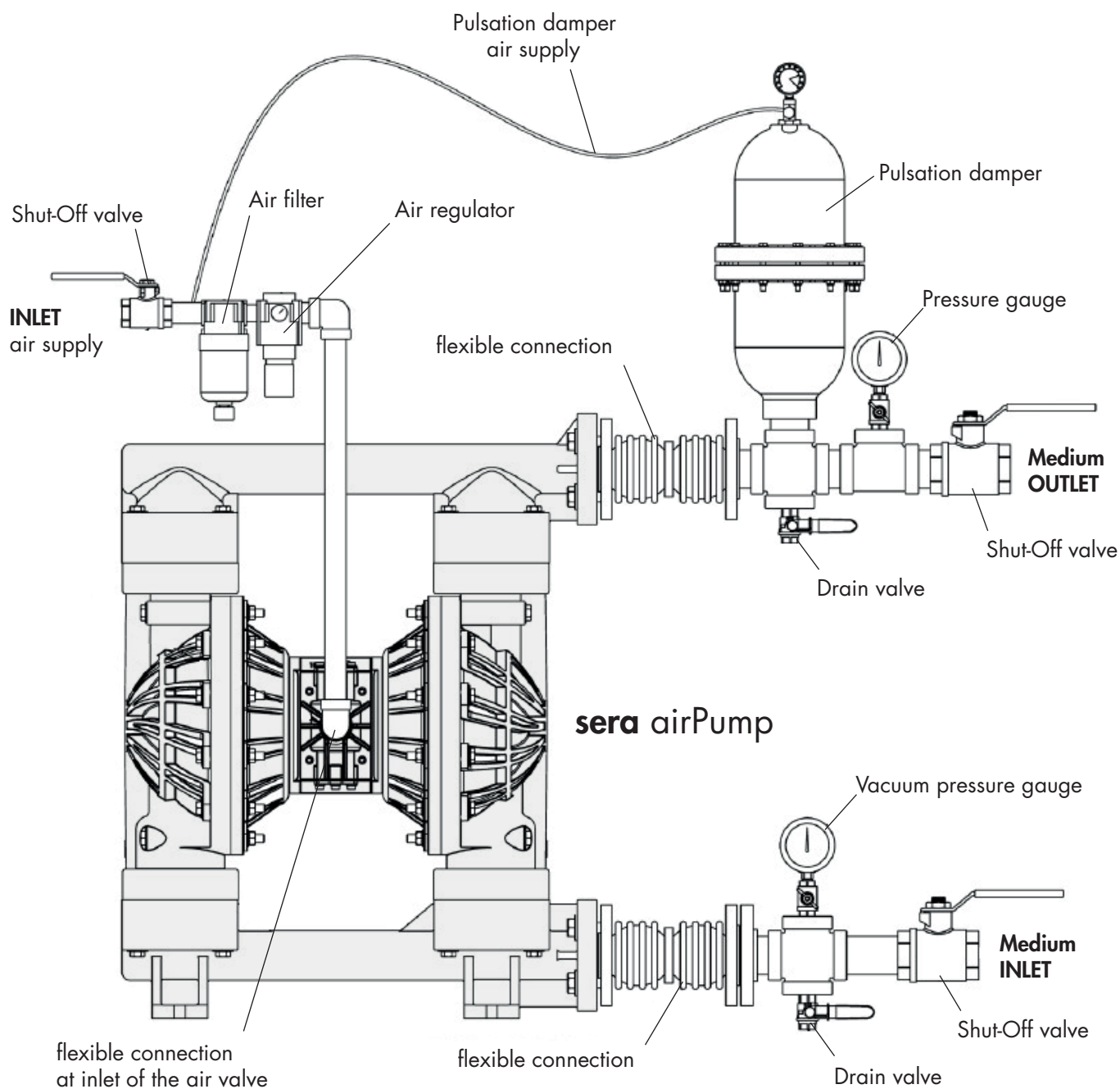
As the common shaft located in the center section moves to the right, the diaphragm in the left chamber moves towards the center section.

This movement creates a vacuum on the liquid side of the left diaphragm, lifting the lower ball check valve, allowing liquid to flow through the suction manifold into the liquid chamber. At the same time, any fluid in the right chamber is discharged.

The air distribution system senses that the diaphragm in the right chamber reaches the end of its discharge stroke and causes the common shaft to shift.

This moves the diaphragm to the left pressurizing the liquid, lifting the upper ball check valve, allowing fluid to flow through the discharge manifold and out of the pump.

INSTALLATION RECOMMENDATION



DESIGN

Suction-/Discharge connection	½" Thread
Porting location	lateral (end)
Connection types	NPT, BSP
Air inlet	¼" FNPT
Air exhaust	½" FNPT

Optional NPT or BSP threaded center port location in either horizontal or vertical position.

MATERIALS

Housing	PP, PVDF, Aluminium, Stainless steel
Diaphragms	Santoprene, Santoprene+PTFE
Valve balls	PTFE, Santoprene
Valve seats	PP, PVDF, Aluminium, Stainless steel
Sealings	Santoprene, PTFE, FEP-covered
Air control valve	PP-FRP, Aluminium



TYPICAL APPLICATIONS

Acids	Solvents
Bases	Lubricants
Plating solutions	Oils
Wastewater	Ceramic slip
Paints and Inks	Glaze

TYPICAL INDUSTRIES

Mining	Wastewater
Paints and Coatings	Marine
Ceramics	Chemical manufacturing
Pulp and Paper	OEM's
Electroplating and Anodizing	

PERFORMANCE DATA

Air operated diaphragm pump **AP05 (plastic)**

max. Flow rate	72 Liter/min. (19 gal/m)
Displacement per stroke	0,10 Liter (0.026 gal)
max. Operating pressure	6,9 bar (100 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	6,9 bar (100 psig)
max. Suction height (water)	dry: 2,7 mWS (9 ft.) wet: 8,8 mWS (29 ft.)

Suction/Discharge connection: ½" BSP (i) or FNPT

Air Inlet/Exhaust connection: ¼" FNPT / ½" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 4,7 mm (0.19")

Noise level: 72,1 dB(A)

Weight: PP: 3,8 kg (8.3 lb)
PVDF: 5,4 kg (11.9 lb)

Air operated diaphragm pump **AP05 (metal)**

max. Flow rate	76 Liter/min. (20 gal/m)
Displacement per stroke	0,10 Liter (0.026 gal)
max. Operating pressure	8,3 bar (120 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	8,3 bar (120 psig)
max. Suction height (water)	dry: 2,7 mWS (9 ft.) wet: 8,8 mWS (29 ft.)

Suction/Discharge connection: ½" BSP (i) or FNPT

Air Inlet/Exhaust connection: ¼" FNPT / ½" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 4,7 mm (0.19")

Noise level: 72,1 dB(A)

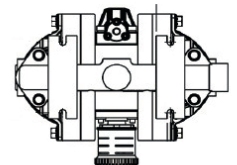
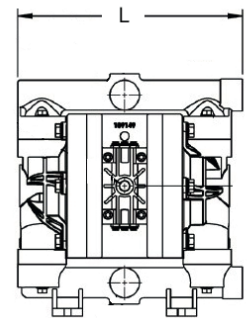
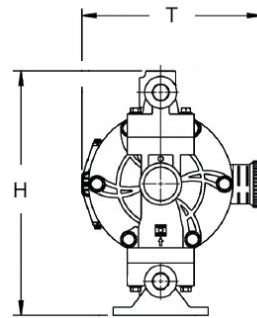
Weight: Aluminium: 5,3 kg (11.7 lb)
Stainl.steel: 7,0 kg (15.5 lb)

DIMENSIONS

AP05

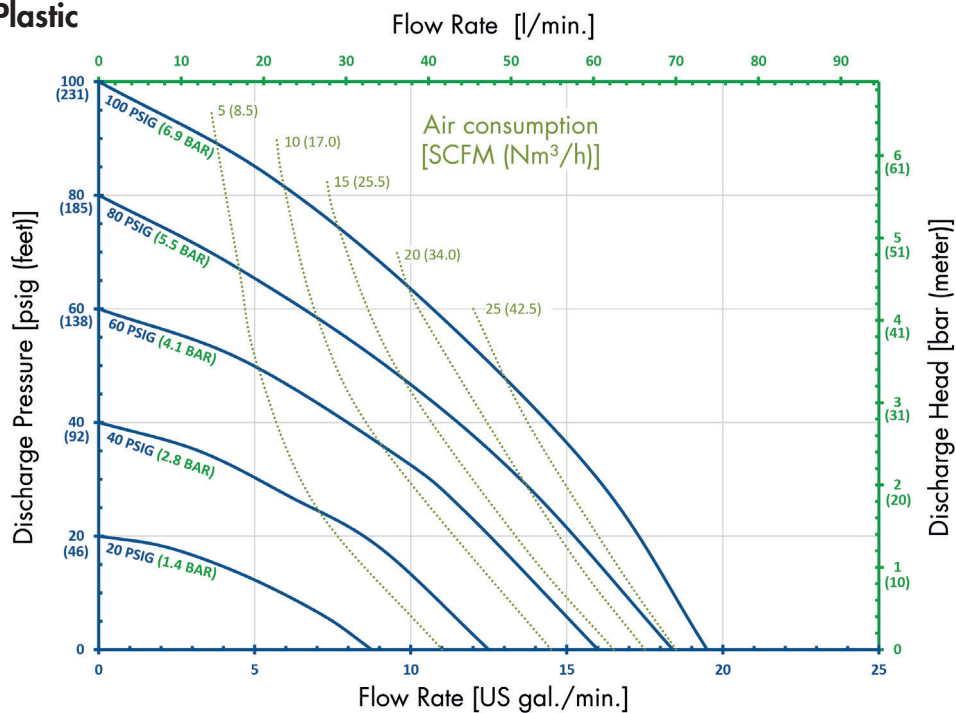
AP05

	(plastic)	(metal)
max. Length (L)	259mm (10-3/16")	246mm (9-5/8")
max. Height (H)	276mm (10-27/32")	250mm (9-27/32")
max. Width (T)	204mm (8-1/16")	204mm (8-1/16")

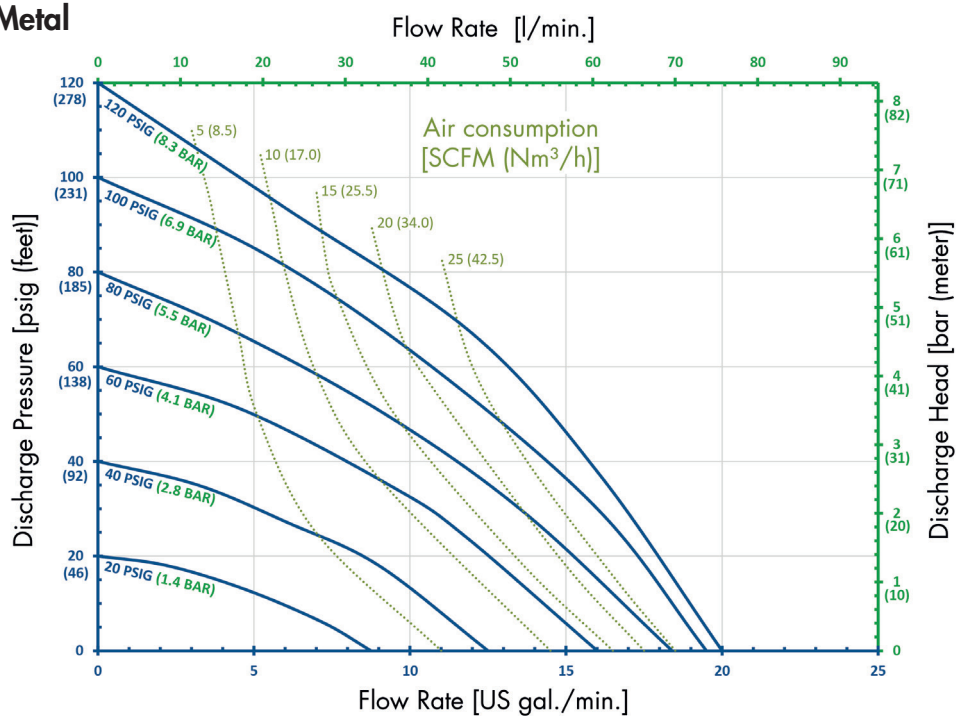


CHARACTERISTIC CURVES

Plastic



Metal



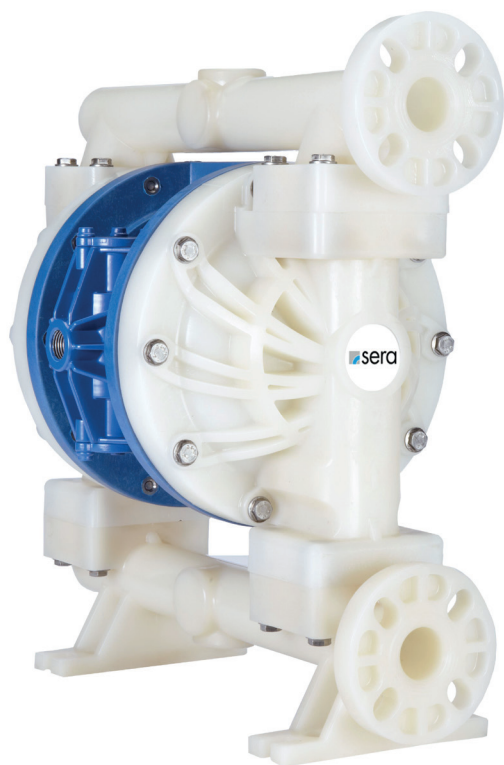
DESIGN

Suction-/Discharge cct.	1"
Porting location	lateral (end)
Connection types	NPT, BSP, ANSI, DIN, ISO-Flange
Air inlet	½" FNPT
Air exhaust	½" FNPT

Optional FNPT or FBSPT threaded center port location in either horizontal or vertical position.

MATERIALS

Housing	PP, PVDF, Aluminium, Stainless steel
Diaphragms	Santoprene, Santoprene+PTFE
Valve balls	PTFE, Santoprene
Valve seats	PP, PVDF, Aluminium, Stainless steel
Sealings	Santoprene, PTFE, FEP-covered
Air control valve	PP-FRP, Aluminium



TYPICAL APPLICATIONS

Acids	Solvents
Bases	Lubricants
Plating solutions	Oils
Wastewater	Ceramic slip
Paints and Inks	Glaze

TYPICAL INDUSTRIES

Mining	Wastewater
Paints and Coatings	Marine
Ceramics	Chemical manufacturing
Pulp and Paper	OEM's
Electroplating and Anodizing	

PERFORMANCE DATA

Air operated diaphragm pump **AP10 (plastic)**

max. Flow rate	185 Liter/min. (49 gal/m)
Displacement per stroke	0,32 Liter (0.084 gal)
max. Operating pressure	6,9 bar (100 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	6,9 bar (100 psig)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)

Suction/Discharge connection: 1" BSP (i) or FNPT

Air Inlet/Exhaust connection: ½" FNPT / ½" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 6,4 mm (0.25")

Noise level: 73,6 dB(A)

Weight: PP: 10,9 kg (24.0 lb)
PVDF: 15,5 kg (34.1 lb)

Air operated diaphragm pump **AP10 (metal)**

max. Flow rate	Aluminium: 193 L/min. (51 gal/m) Stainl.steel: 212 L/min. (56 gal/m)
Displacement per stroke	0,32 Liter (0.084 gal)
max. Operating pressure	8,3 bar (120 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	8,3 bar (120 psig)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)

Suction/Discharge connection: 1" BSP (i) or FNPT

Air Inlet/Exhaust connection: ½" FNPT / ½" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 6,4 mm (0.25")

Noise level: 73,6 dB(A)

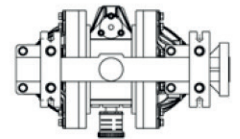
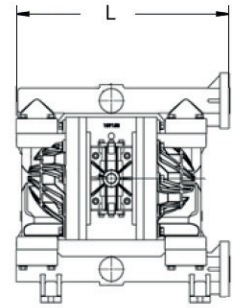
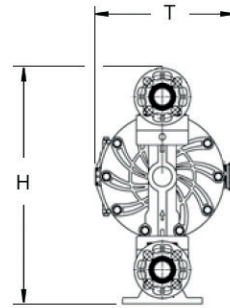
Weight: Aluminium: 15,5 kg (34.2 lb)
Stainl.steel: 22,1 kg (48.7 lb)

DIMENSIONS

AP10

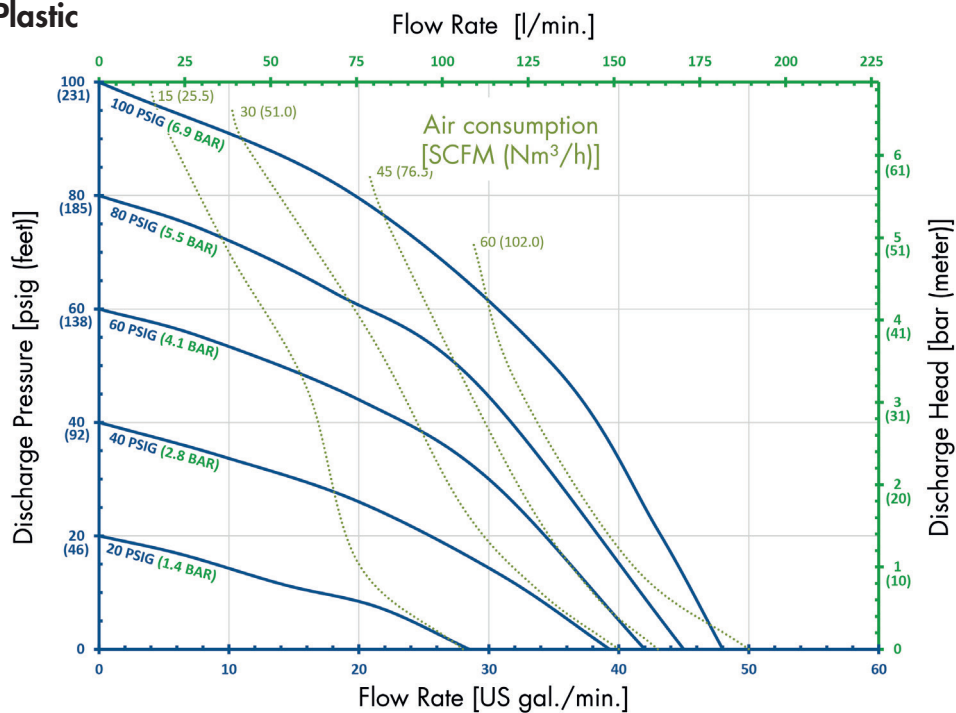
AP10

	(plastic)	(metal)
max. Length (L)	427mm (16-13/16")	Aluminium: 375mm (14-3/4") Stainless steel: 364mm (14-5/16")
max. Height (H)	454mm (17-7/8")	Aluminium: 366mm (14-13/32") Stainless steel: 360mm (14-3/16")
max. Width (T)	271mm (10-11/16")	Aluminium: 271mm (10-11/16") Stainless steel: 271mm (10-11/16")

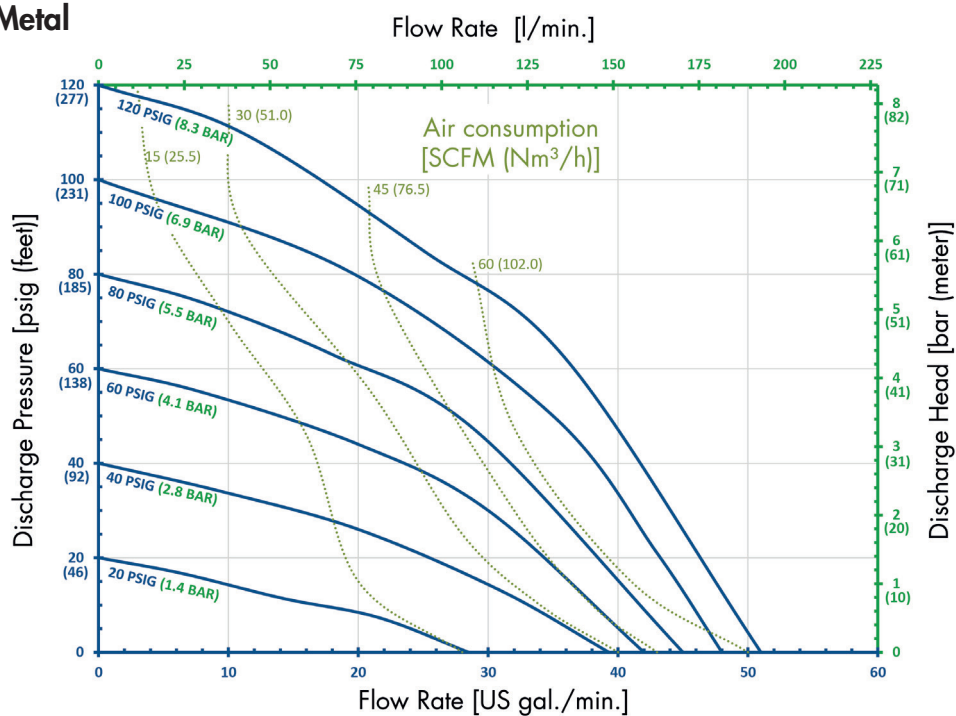


CHARACTERISTIC CURVES

Plastic



Metal





DESIGN

AP15

Suction-/Discharge cct.	1 1/2 "
Porting location	lateral (end), centered
Connection types	NPT, BSP, ANSI-/DIN-/ISO-Flange
Air inlet	3/4" FNPT
Air exhaust	3/4" FNPT

Plastic pumps feature end ports, metal pumps feature center ports. Optional NPT or BSP threaded center port location in either horizontal (plastic pumps) or vertical position (plastic and metal pumps). Optional ANSI/DIN/ISO flange (Stainless steel pumps only) or 2" tri-clamp connection upgrade available upon request (Stainless steel pumps only)

MATERIALS

Housing	PP, PVDF, Aluminium, Stainless steel
Diaphragms	Santoprene, Santoprene+PTFE
Valve balls	PTFE, Santoprene
Valve seats	PP, PVDF, Aluminium, Stainless steel
Sealings	Santoprene, PTFE, FEP-covered
Air control valve	PP-FRP, Aluminium

TYPICAL APPLICATIONS

Acids	Solvents
Bases	Lubricants
Plating solutions	Oils
Wastewater	Ceramic slip
Paints and Inks	Glaze

TYPICAL INDUSTRIES

Mining	Wastewater
Paints and Coatings	Marine
Ceramics	Chemical manufacturing
Pulp and Paper	OEM's
Electroplating and Anodizing	

PERFORMANCE DATA

Air operated diaphragm pump **AP15 (plastic)**

max. Flow rate	473 Liter/min. (125 gal/m)
Displacement per stroke	0,91 Liter (0.24 gal)
max. Operating pressure	6,9 bar (100 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	6,9 bar (100 psig)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)

Suction/Discharge connection: 1 1/2 " Flanges, BSP (i) or FNPT

Air Inlet/Exhaust connection: 1/2" FNPT / 3/4" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 9,7 mm (0.38")

Noise level: 77,0 dB(A)

Weight: PP: 18,6 kg (41.0 lb)
PVDF: 27,2 kg (60.0 lb)

Air operated diaphragm pump **AP15 (metal)**

max. Flow rate	Aluminium: 503 L/min. (133 gal/m) Stainl.steel: 503 L/min. (133 gal/m)
Displacement per stroke	0,91 Liter (0.23 gal)
max. Operating pressure	8,3 bar (120 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	8,3 bar (120 psig)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)

Suction/Discharge connection: 1 1/2" BSP (i) or FNPT; (centered)

Air Inlet/Exhaust connection: 1/2" FNPT / 3/4" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 9,7 mm (0.38")

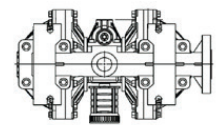
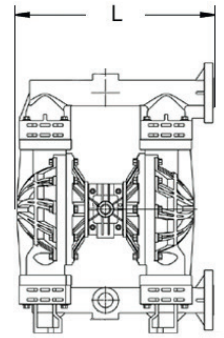
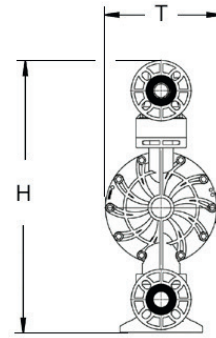
Noise level: 77,0 dB(A)

Weight: Aluminium: 23,6 kg (52.0 lb)
Stainl.steel: 44,5 kg (98.0 lb)

DIMENSIONS

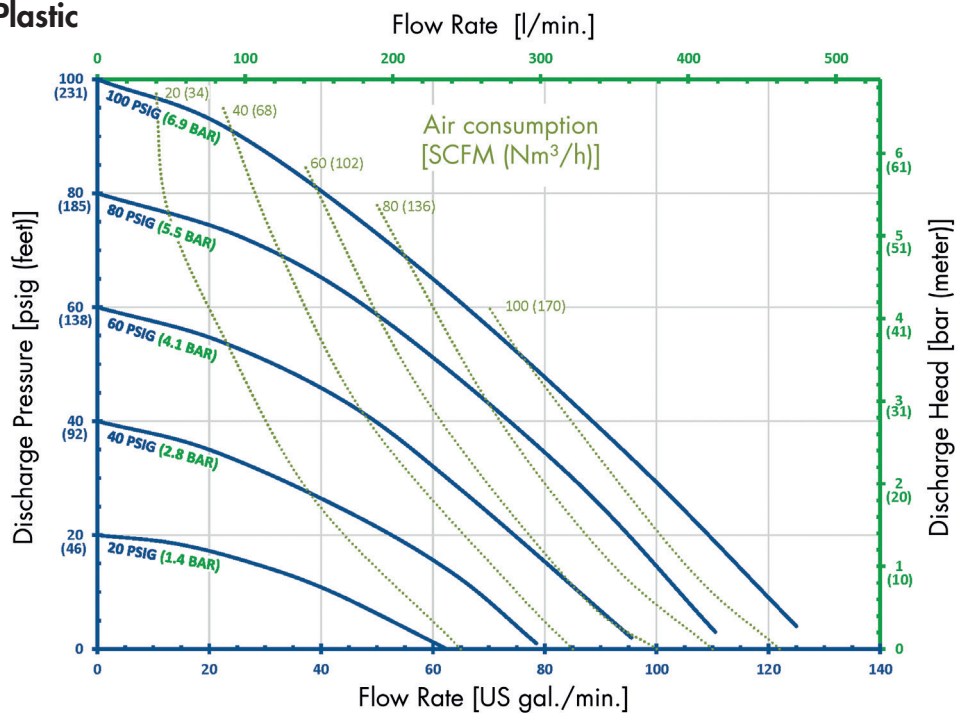
AP15

AP15	(plastic)	(metal)
max. Length (L)	475mm (18-11/16")	Aluminium: 494mm (19-7/16") Stainless steel: 494mm (19-7/16")
max. Height (H)	677mm (26-5/8")	Aluminium: 445mm (17-1/2") Stainless steel: 482mm (18-31/32")
max. Width (T)	290mm (11-13/32")	Aluminium: 290mm (11-13/32") Stainless steel: 290mm (11-13/32")

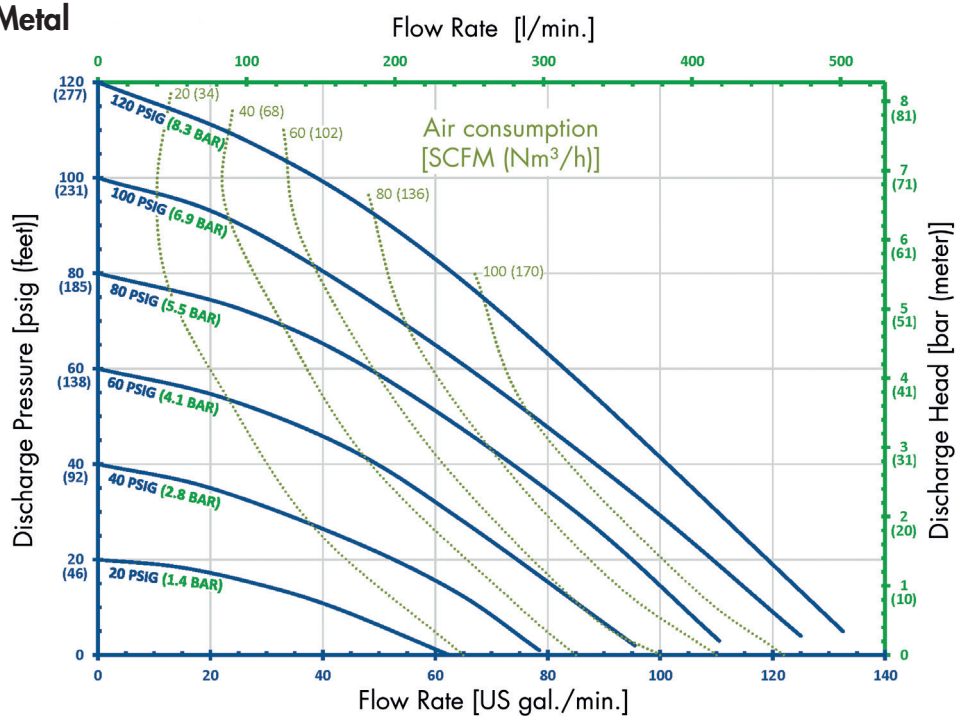


CHARACTERISTIC CURVES

Plastic



Metal





DESIGN

AP20

Suction-/Discharge cct.	2"
Porting location	lateral (end), centered
Connection types	NPT, BSP, ANSI-/DIN-/ISO-Flange
Air inlet	¾" FNPT
Air exhaust	¾" FNPT

Plastic pumps feature end ports, metal pumps feature center ports Optional ANSI/DIN/ISO Vanstone flange option for center port location (available on stainless steel pumps only)

MATERIALS

Housing	PP, PVDF, Aluminium, Stainless steel
Diaphragms	Santoprene, Santoprene+PTFE
Valve balls	PTFE, Santoprene
Valve seats	PP, PVDF, Aluminium, Stainless steel
Sealings	Santoprene, PTFE, FEP-covered
Air control valve	PP-FRP, Aluminium

TYPICAL APPLICATIONS

Acids	Solvents
Bases	Lubricants
Plating solutions	Oils
Wastewater	Ceramic slip
Paints and Inks	Glaze

TYPICAL INDUSTRIES

Mining	Wastewater
Paints and Coatings	Marine
Ceramics	Chemical manufacturing
Pulp and Paper	OEM's
Electroplating and Anodizing	

PERFORMANCE DATA

Air operated diaphragm pump **AP20 (plastic)**

max. Flow rate	583 Liter/min. (154 gal/m)
Displacement per stroke	1,2 Liter (0.31 gal)
max. Operating pressure	6,9 bar (100 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	6,9 bar (100 psig)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)

Suction/Discharge connection: 2" ANSI/DIN/ISO-Flanges

Air Inlet/Exhaust connection: ¾" FNPT / ¾" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 8,9 mm (0.35")

Noise level: 77,0 dB(A)

Weight: PP: 30,4 kg (67.0 lb)
PVDF: 44,2 kg (97.5 lb)

Air operated diaphragm pump **AP20 (metal)**

max. Flow rate	Aluminium: 590 L/min. (156 gal/m) Stainl.steel: 503 L/min. (133 gal/m)
Displacement per stroke	1,2 Liter (0.31 gal)
max. Operating pressure	8,3 bar (120 psig)
min. Air inlet pressure:	0,7 bar (10 psig)
max. Control air pressure:	8,3 bar (120 psig)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)

Suction/Discharge connection: 2" BSP (i) od. FNPT; (centered)

Air Inlet/Exhaust connection: ¾" FNPT / ¾" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 9,7 mm (0.38")

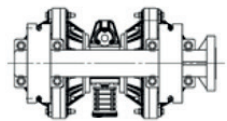
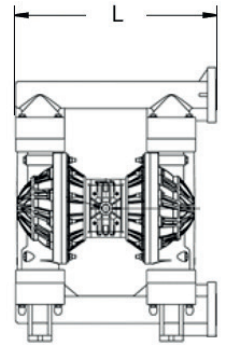
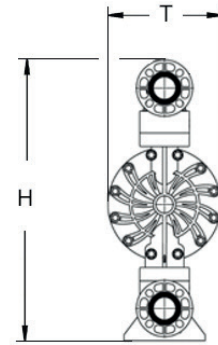
Noise level: 77,0 dB(A)

Weight: Aluminium: 39,5 kg (87.0 lb)
Stainl.steel: 59,9 kg (130.0 lb)

DIMENSIONS

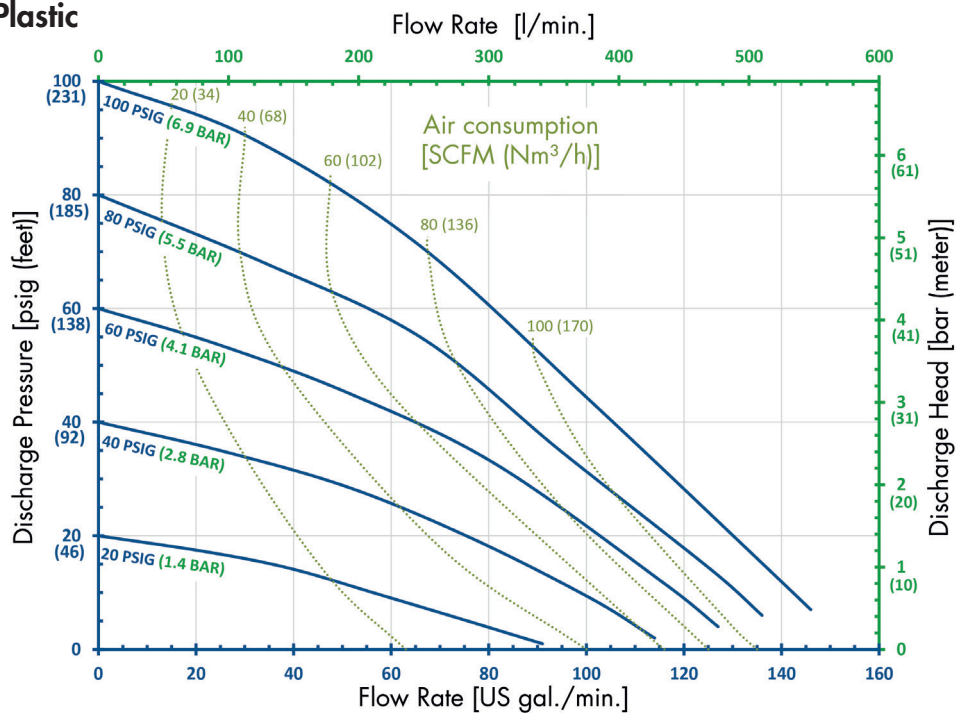
AP20

AP20	(plastic)	(metal)
max. Length (L)	600mm (23-19/32")	Aluminium: 530mm (20-7/8") Stainless steel: 520mm (20-15/32")
max. Height (H)	805mm (31-11/16")	Aluminium: 733mm (28-7/8") Stainless steel: 765mm (30-3/32")
max. Width (T)	326mm (12-27/32")	Aluminium: 326mm (12-27/32") Stainless steel: 326mm (12-27/32")

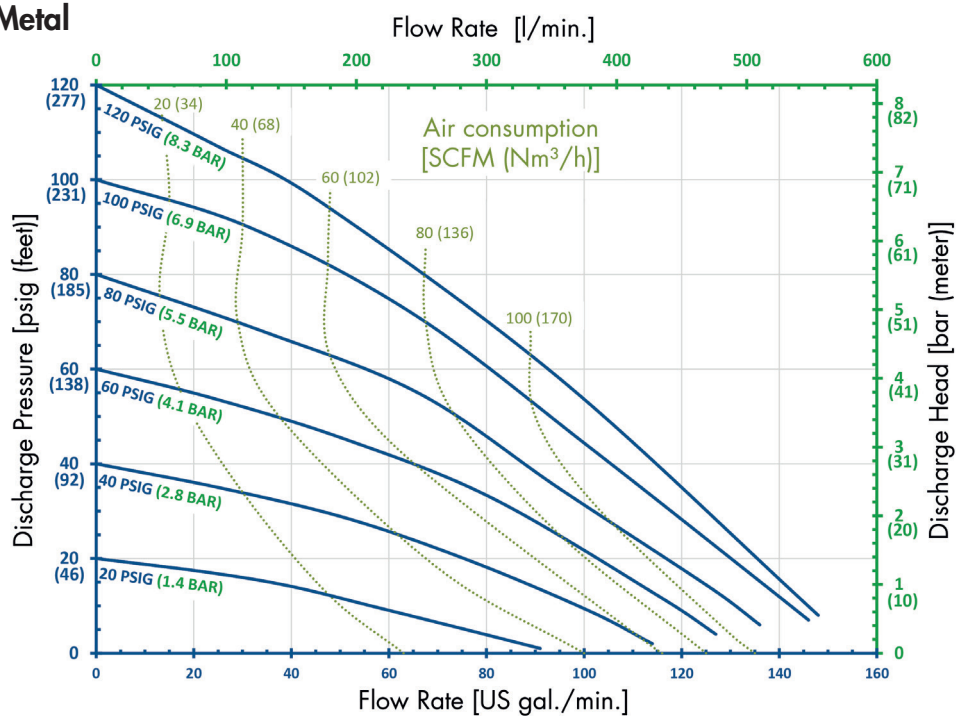


CHARACTERISTIC CURVES

Plastic



Metal





DESIGN

AP30

Suction-/Discharge connection	3"
Porting location	centered
Connection types	NPT, BSP
Air inlet	¾" FNPT
Air exhaust	¾" FNPT

Optional ANSI/DIN/ISO Vanstone flange option for center port location (available on stainless steel pumps only).

MATERIALS

Housing	Aluminium, Stainless steel
Diaphragms	Santoprene, Santoprene+PTFE
Valve balls	PTFE, Santoprene
Valve seats	Aluminium, Stainless steel
Sealings	PTFE
Air control valve	Aluminium

TYPICAL APPLICATIONS

Acids	Solvents
Bases	Lubricants
Plating solutions	Oils
Wastewater	Ceramic slip
Paints and Inks	Glaze

TYPICAL INDUSTRIES

Mining	Wastewater
Paints and Coatings	Marine
Ceramics	Chemical manufacturing
Pulp and Paper	OEM's
Electroplating and Anodizing	

PERFORMANCE DATA

Air operated diaphragm pump **AP30** (metal)

max. Flow rate 908 L/min. (240 gal/m)

Displacement per stroke 3,7 Liter (0.98 gal)

max. Operating pressure 8,3 bar (120 psig)

min. Air inlet pressure: 0,7 bar (10 psig)

max. Control air pressure: 8,3 bar (120 psig)

max. Suction height (water) dry: 2,7 mWC (9 ft.)
wet: 8,8 mWC (29 ft.)

Suction/Discharge connection: 3" BSP (i) od. FNPT; (centered)
(Stainl.steel: additional flanges)

Air Inlet/Exhaust connection: ¾" FNPT / ¾" FNPT

Air consumption: see Characteristic curves

max. Size of solids: 12,7 mm (0.50")

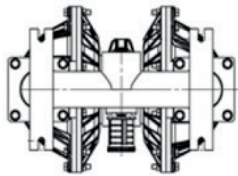
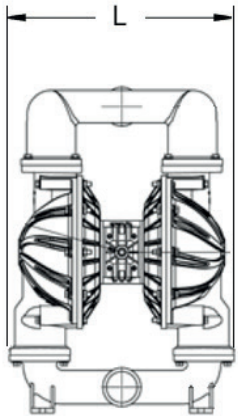
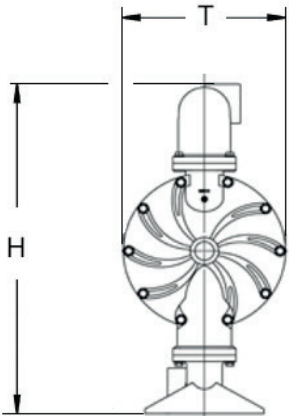
Noise level: 86,5 dB(A)

Weight: Aluminium: 70,3 kg (155 lb)
Stainl.steel: 107 kg (235 lb)

DIMENSIONS

AP30

AP30	(metal)		
max. Length (L)	Aluminium:	617mm	(16-3/8")
	Stainless steel:	617mm	(16-3/8")
max. Height (H)	Aluminium:	884mm	(34-13/16")
	Stainless steel:	924mm	(36-3/8")
max. Width (T)	Aluminium:	416mm	(16-3/8")
	Stainless steel:	416mm	(16-3/8")



CHARACTERISTIC CURVES

Metal

