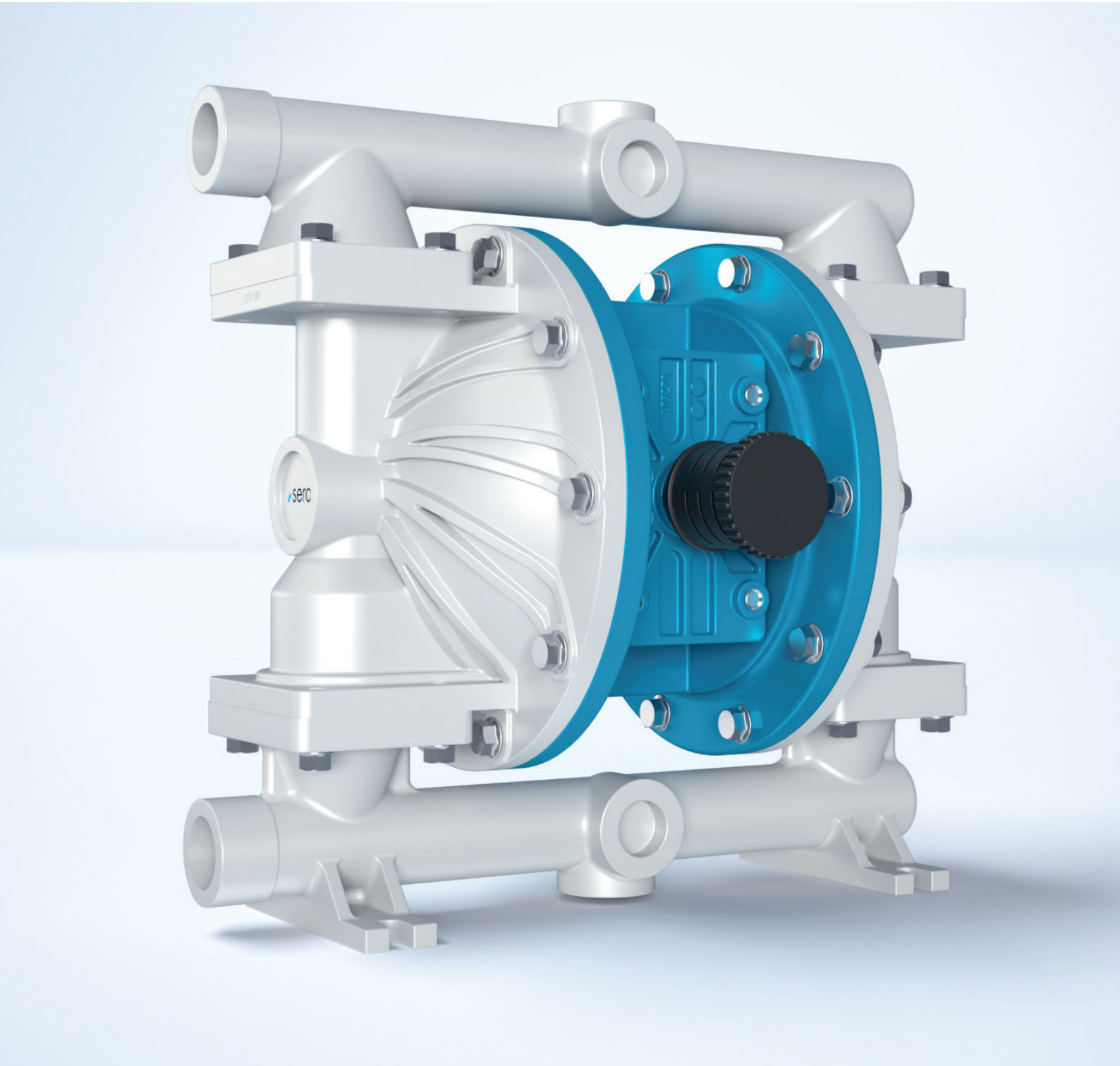
PRODUCT INFORMATION

AIR OPERATED DIAPHRAGM PUMPS
airPUMP



INSPIRED. SOLUTIONS. FOR CUSTOMERS.

AIR OPERATED DIAPHRAGM PUMPS

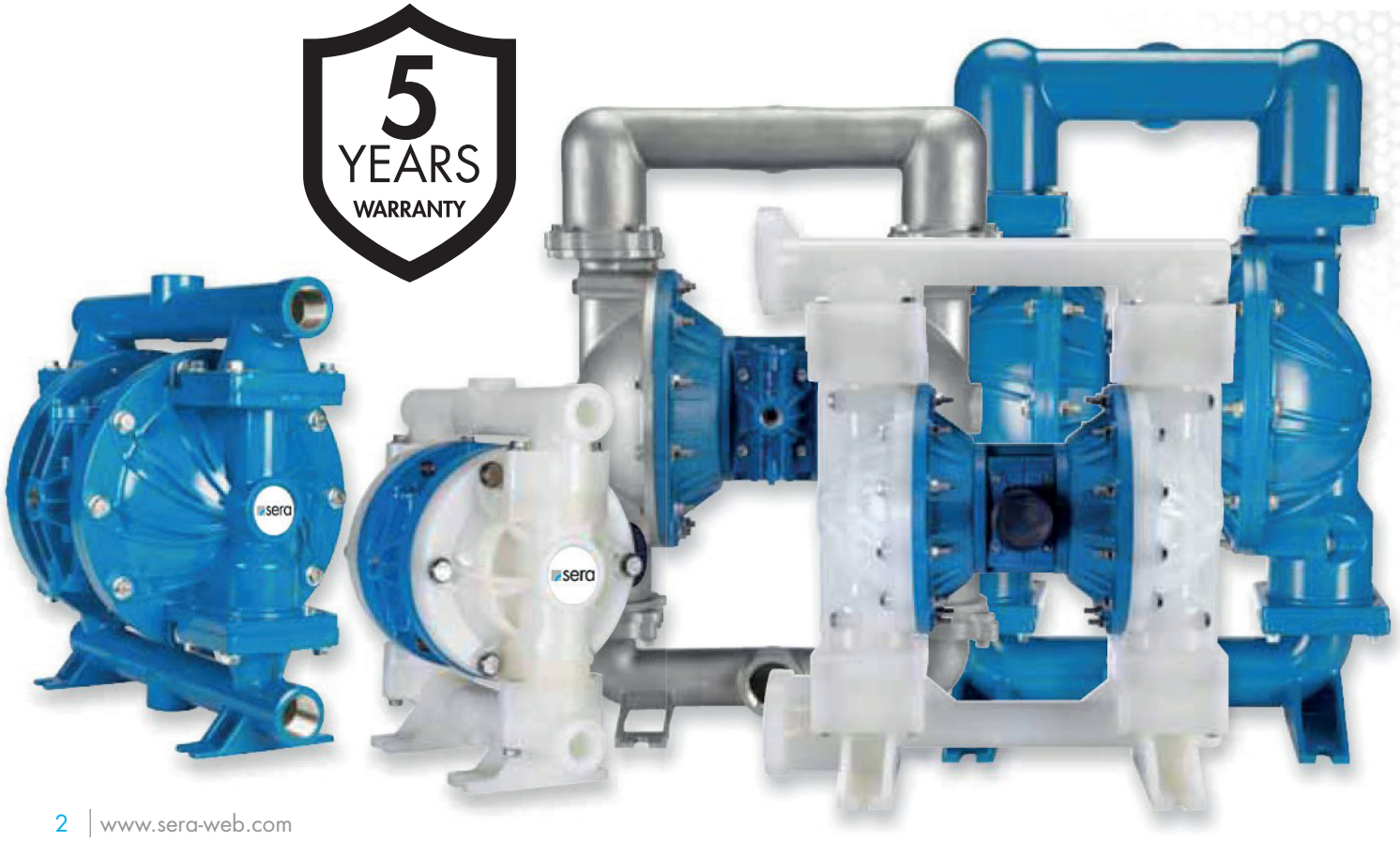
BENEFITS
Air-operated diaphragm pumps have many benefits over other pump technologies:

- 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



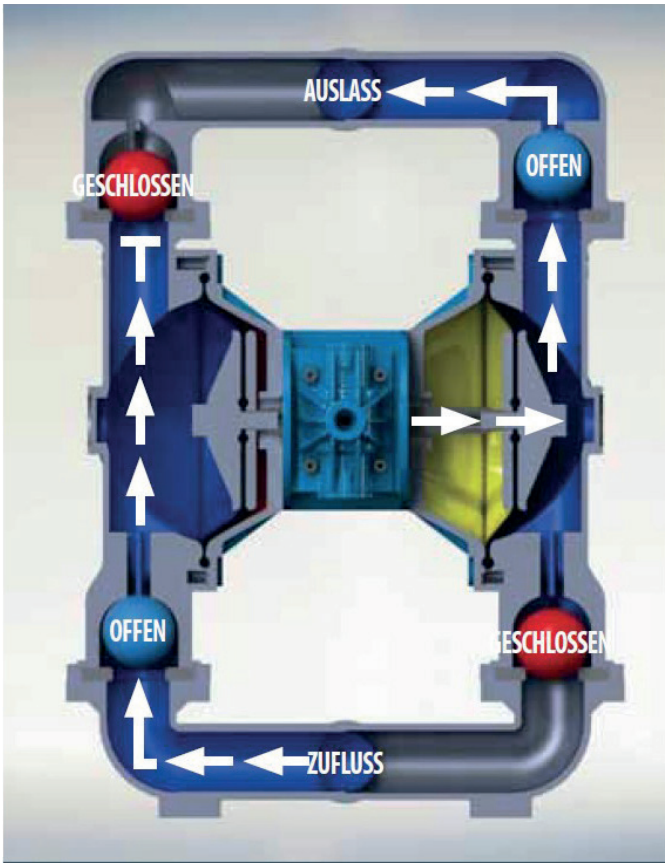
TECHNICAL DATA (OVERVIEW)

Type	Suction-/ Pressure-connection	max. Flow rate	Displacement per stroke	Control air connection		Control air pressure	max. size of solids	Noise level	Material	Weight
				Inlet	Outlet	min/max				
	NPT	[l/min.]	Litres	FNPT	FNPT	[bar]	[mm]	[dB(A)]		[kg]
AP025	¼"	0 - 22	0,02	1/8"	1/8"	0,7/8,3	1,8	65,3	PP, CFPP	1,0
									PVDF	1,4
AP05	½"	0 - 77	0,08	¼"	½"	0,7/8,3	4,7	72,1	PP	3,8
									PVDF	5,4
									Aluminium	5,3
									Acier inoxydable	7,0
AP10	1"	0 - 212	0,32	½"	½"	0,7/8,3	6,4	73,6	PP	10,9
									PVDF	15,5
									Aluminium	15,5
									Acier inoxydable	22,1
AP15	1½"	0 - 500	1,20	¾"	¾"	0,7/8,3	8,9	77,0	PP	29,9
									PVDF	43,1
									Aluminium	36,4
									Acier inoxydable	57,6
AP20	2"	0 - 590	1,20	¾"	¾"	0,7/8,3	8,9	77,0	PP	30,4
									PVDF	44,2
									Aluminium	39,5
									Acier inoxydable	59,9
AP30	3"	0 - 908	3,70	¾"	¾"	0,7/8,3	12,7	86,5	Aluminium	70,3
									Acier inoxydable	107

GENERAL FUNCTIONALITY

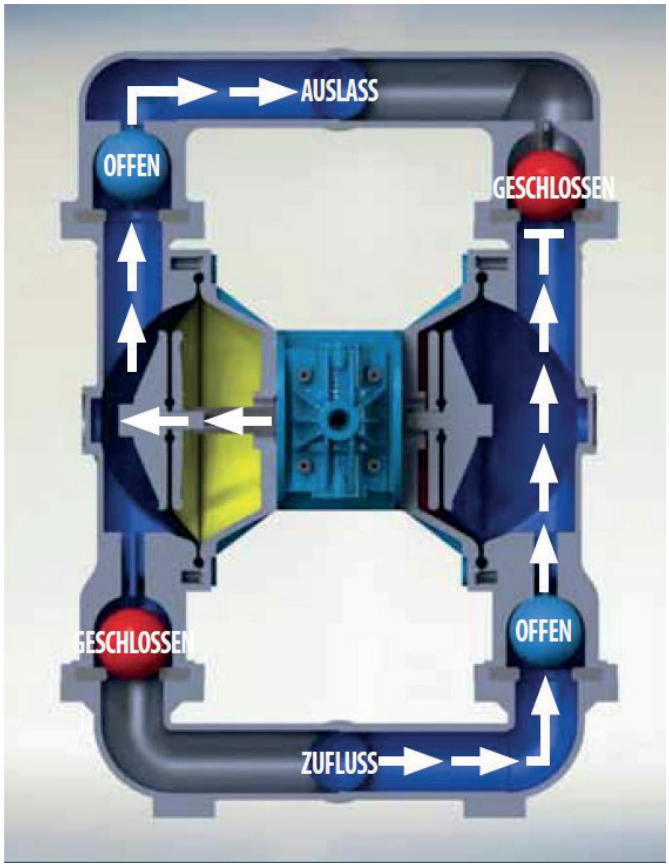
Air operated double diaphragm pumps are positive displacement pumps that use a combination of the reciprocating action of two flexible diaphragms, two inlet and two outlet ball check valves to pump a fluid. There are two pump chambers which are divided by the diaphragms into air and fluid regions. The 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



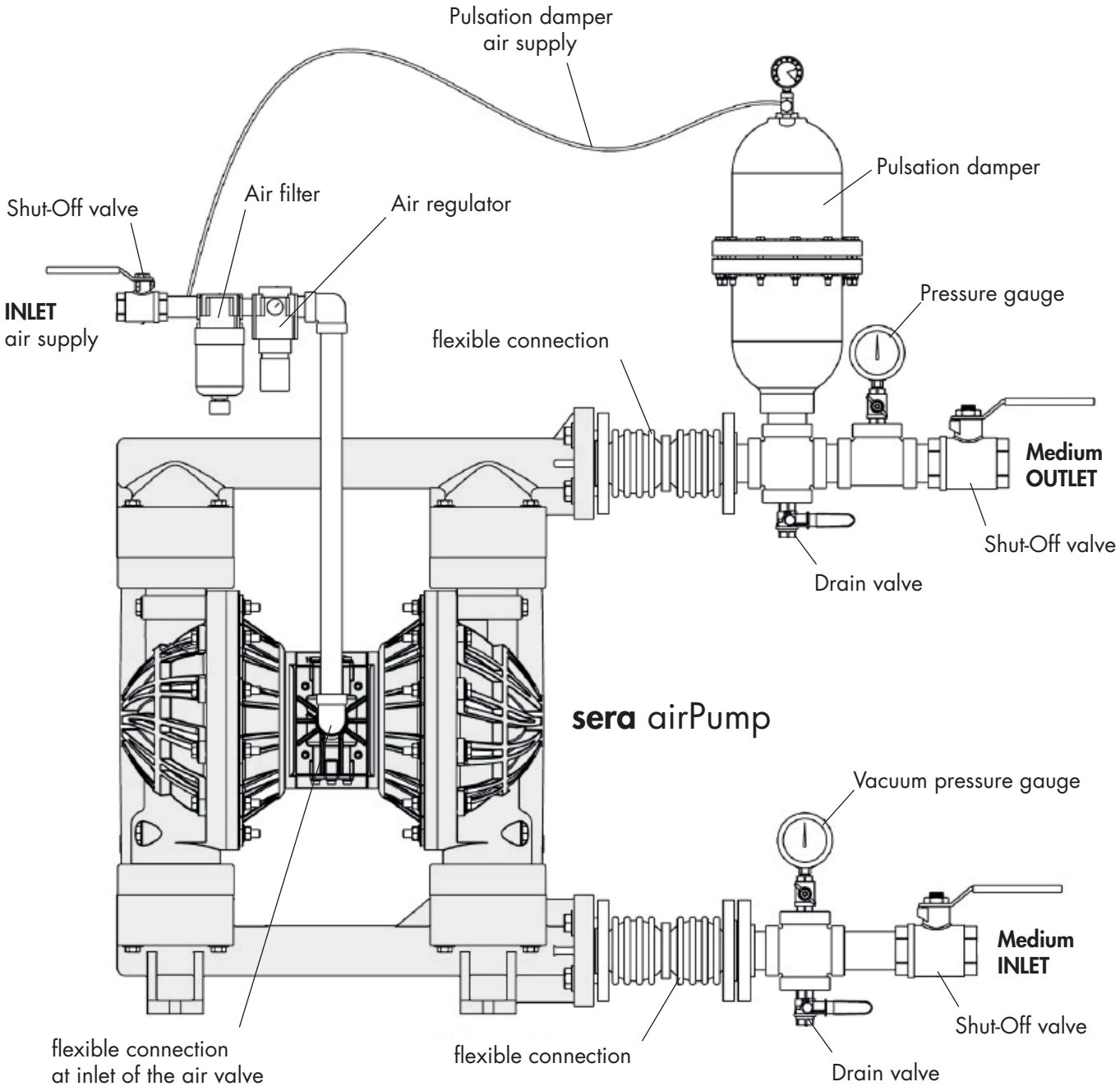
As the common shaft located in the center section moves to the right, the diaphragm in the left chamber moves towards the center section.
This movement creates a vacuum on the liquid side of the left diaphragm, lifting the lower ball check valve, allowing liquid to flow through the suction manifold into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

DISCHARGE SEQUENCE



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 though the discharge manifold and out of the pump.

INSTALLATION RECOMMENDATION



DESIGN

AP025

Suction-/Discharge connection	1/4" female thread (FNPT/FBSPT) 3/4" male thread (MNPT/MBSPT)
Porting location	lateral (end)
Connection types	NPT, BSP
Air inlet	1/8" FBSP

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

MATERIALS

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

TYPICAL APPLICATIONS

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

TYPICAL INDUSTRIES

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

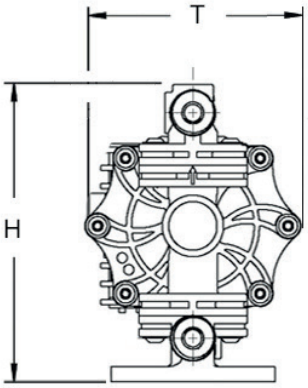
PERFORMANCE DATA

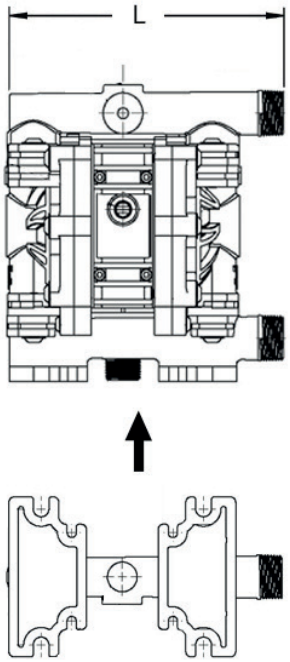
Air operated diaphragm pump **AP025** (plastic)

max. Flow rate	22 Liter/min. (5.8 gal/m)		Suction/Discharge connection:	1/4" FNPT od. FBSBT	
Displacement per stroke	0,02 Liter (0.005 gal)		Air Inlet/Exhaust connection:	1/8" FNPT	
max. Operating pressure	8,3 bar (120 psig)		Air consumption:	see Characteristic curves	
min. Air inlet pressure:	1,4 bar (20 psig)		max. Size of solids:	1,8 mm (0.06")	
max. Control air pressure:	8,3 bar (120 psig)		Noise level:	65,3 dB(A)	
max. Suction height (water)	dry: wet:	2,7 mWS (9 ft.) 8,8 mWS (29 ft.)	Weight:	PP: PVDF:	1,0 kg (2.3 lb) 1,4 kg (3.1 lb)

DIMENSIONS

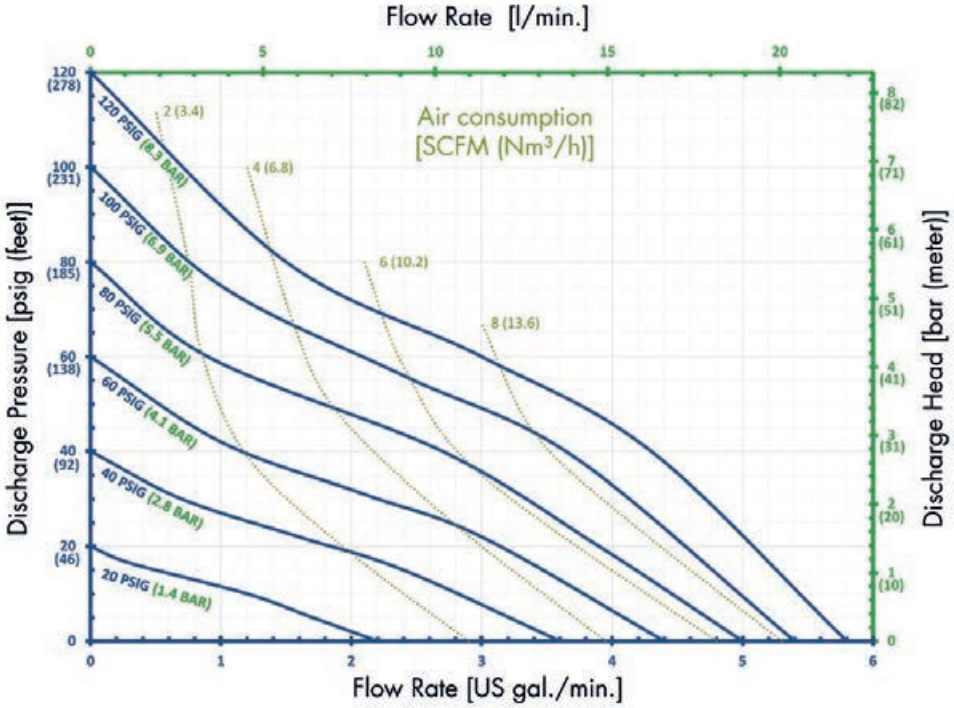
AP025	(plastic)
max. Length (**L**)	168mm (6–5/8″)
max. Height (**H**)	174mm (6–7/8″)
max. Width (**T**)	127mm (5″)





CHARACTERISTIC CURVES

Plastic



AP05

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

TYPICAL INDUSTRIES

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

PERFORMANCE DATA

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

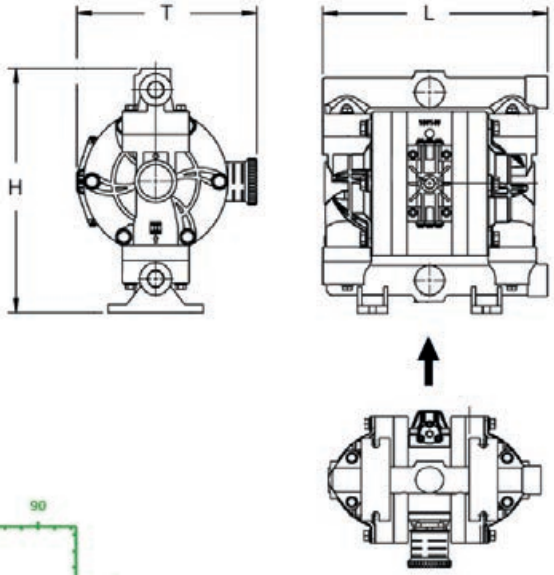
max. Flow rate	72 Liter/min. (19 gal/m)	Suction/Discharge connection:	½" BSP (i) or FNPT
Displacement per stroke	0,10 Liter (0.026 gal)	Air Inlet/Exhaust connection:	¼" FNPT / ½" FNPT
max. Operating pressure	6,9 bar (100 psig)	Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)	max. Size of solids:	4,7 mm (0.19")
max. Control air pressure:	6,9 bar (100 psig)	Noise level:	72,1 dB(A)
max. Suction height (water)	dry: 2,7 mWS (9 ft.) wet: 8,8 mWS (29 ft.)	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)	Suction/Discharge connection:	½" BSP (i) or FNPT
Displacement per stroke	0,10 Liter (0.026 gal)	Air Inlet/Exhaust connection:	¼" FNPT / ½" FNPT
max. Operating pressure	8,3 bar (120 psig)	Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)	max. Size of solids:	4,7 mm (0.19")
max. Control air pressure:	8,3 bar (120 psig)	Noise level:	72,1 dB(A)
max. Suction height (water)	dry: 2,7 mWS (9 ft.) wet: 8,8 mWS (29 ft.)	Weight:	Aluminium: 5,3 kg (11.7 lb) Stainl.steel: 7,0 kg (15.5 lb)

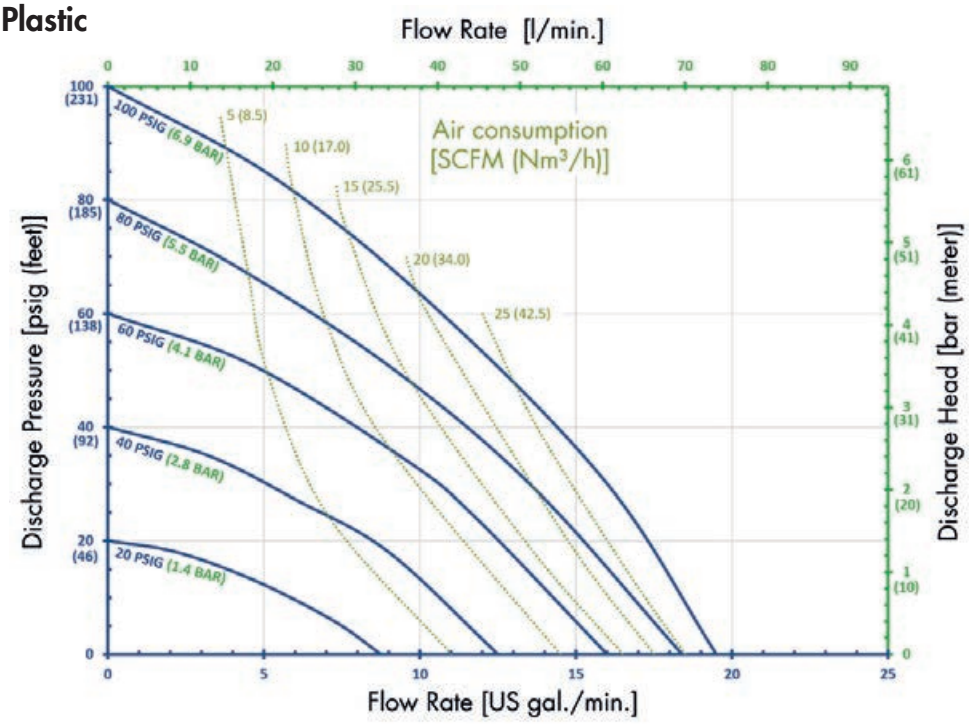
DIMENSIONS

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“)

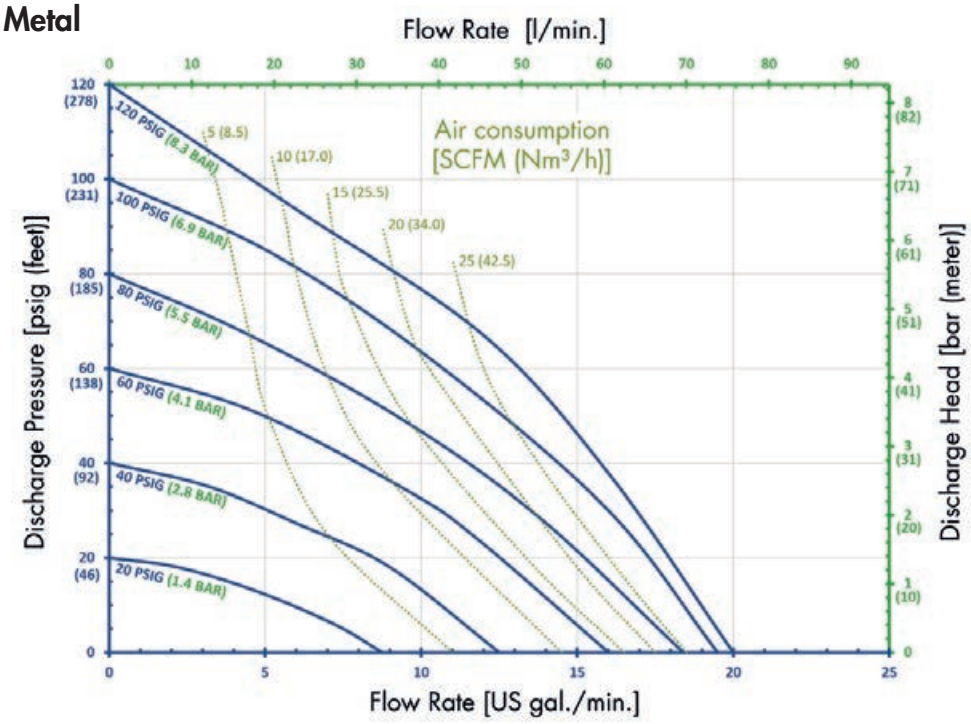


CHARACTERISTIC CURVES

Plastic



Metal



AP10

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

TYPICAL INDUSTRIES

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

PERFORMANCE DATA

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

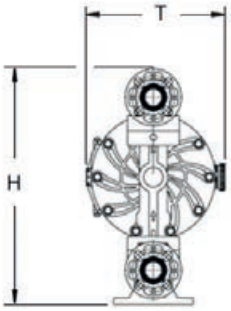
max. Flow rate	185 Liter/min. (49 gal/m)		Suction/Discharge connection:	1" BSP (i) or FNPT
Displacement per stroke	0,32 Liter (0.084 gal)		Air Inlet/Exhaust connection:	½" FNPT / ½" FNPT
max. Operating pressure	6,9 bar (100 psig)		Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)		max. Size of solids:	6,4 mm (0.25")
max. Control air pressure:	6,9 bar (100 psig)		Noise level:	73,6 dB(A)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)		Weight:	PP: 10,9 kg (24.0 lb) PVDF: 15,5 kg (34.1 lb)

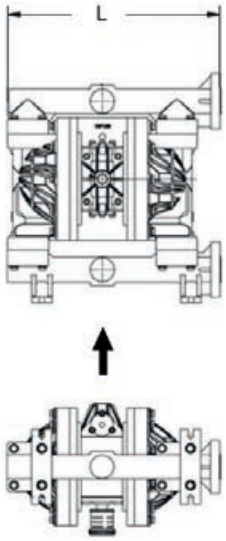
Air operated diaphragm pump **AP10** (metal)

max. Flow rate	Aluminium: 193 L/min. (51gal/m) Stainl.steel: 212 L/min. (56 gal/m)		Suction/Discharge connection:	1" BSP (i) or FNPT
Displacement per stroke	0,32 Liter (0.084 gal)		Air Inlet/Exhaust connection:	½" FNPT / ½" FNPT
max. Operating pressure	8,3 bar (120 psig)		Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)		max. Size of solids:	6,4 mm (0.25")
max. Control air pressure:	8,3 bar (120 psig)		Noise level:	73,6 dB(A)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)		Weight:	Aluminium: 15,5 kg (34.2 lb) Stainl.steel: 22,1 kg (48.7 lb)

DIMENSIONS

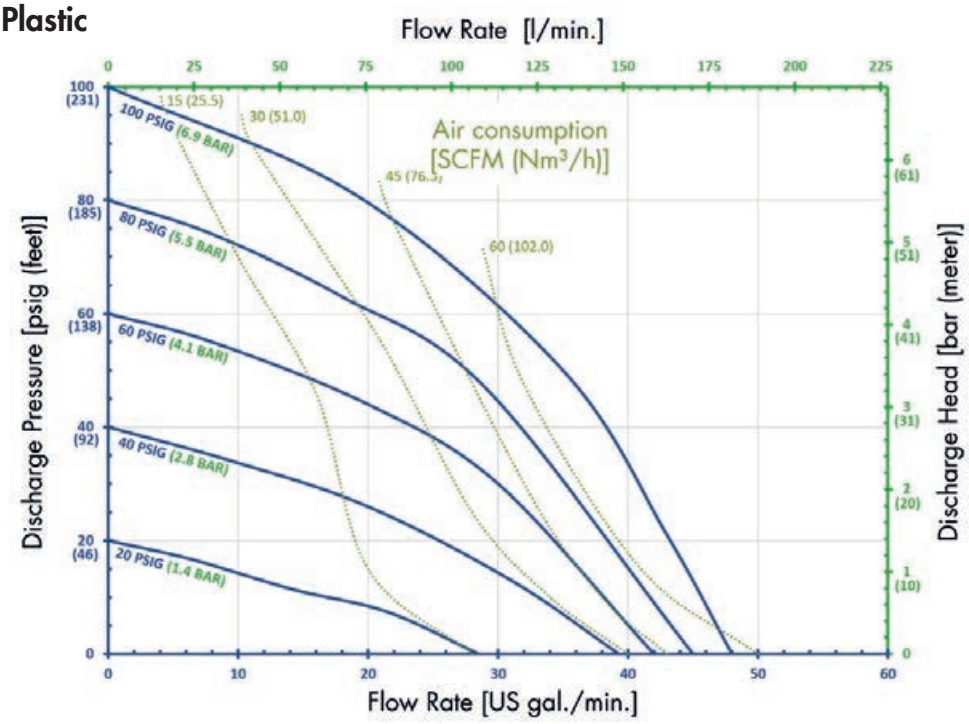
AP10	(plastic)		(metal)		
max. Length (**L**)	427mm	(16–13/16“)	Aluminium:	375mm	(14–3/4“)
			Stainless steel:	364mm	(14–5/16“)
max. Height (**H**)	454mm	(17– 7/8“)	Aluminium:	366mm	(14–13/32“)
			Stainless steel:	360mm	(14–3/16“)
max. Width (**T**)	271mm	(10–11/16“)	Aluminium:	271mm	(10–11/16“)
			Stainless steel:	271mm	(10–11/16“)



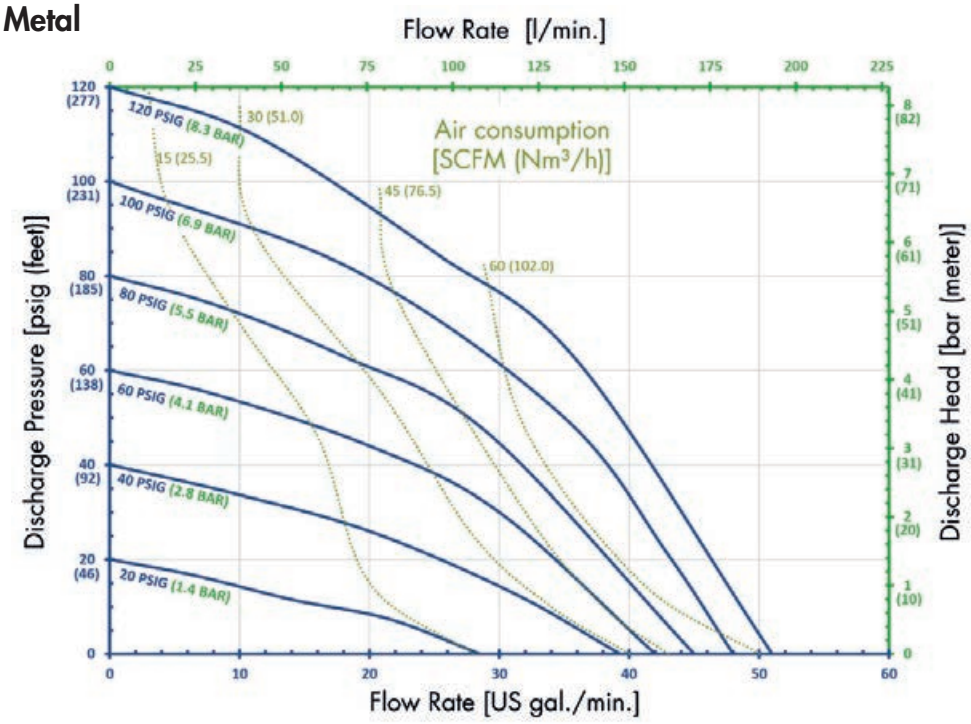


CHARACTERISTIC CURVES

Plastic



Metal



AP15

DESIGN

Suction-/Discharge cct.	1½ "
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 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
- Bases
- Plating solutions
- Wastewater
- Paints and Inks
- Solvents
- Lubricants
- Oils
- Ceramic slip
- Glaze

TYPICAL INDUSTRIES

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

PERFORMANCE DATA

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

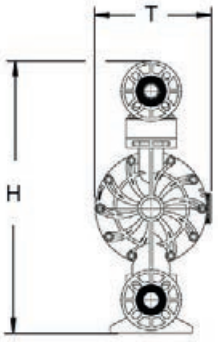
max. Flow rate	473 Liter/min. (125 gal/m)		Suction/Discharge connection:	1½ " Flanges, BSP (i) or FNPT
Displacement per stroke	0,91 Liter (0.24 gal)		Air Inlet/Exhaust connection:	½" FNPT / ¾" FNPT
max. Operating pressure	6,9 bar (100 psig)		Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)		max. Size of solids:	9,7 mm (0.38")
max. Control air pressure:	6,9 bar (100 psig)		Noise level:	77,0 dB(A)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)		Weight:	PP: 18,6 kg (41.0 lb) PVDF: 27,2 kg (60.0 lb)

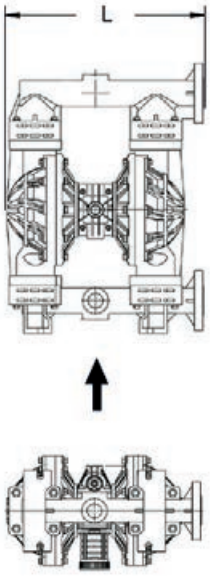
Air operated diaphragm pump **AP15** (metal)

max. Flow rate	Aluminium: 503 L/min. (133 gal/m) Stainl.steel: 503 L/min. (133 gal/m)		Suction/Discharge connection:	1½" BSP (i) or FNPT; (centered)
Displacement per stroke	0,91 Liter (0.23 gal)		Air Inlet/Exhaust connection:	½" FNPT / ¾" FNPT
max. Operating pressure	8,3 bar (120 psig)		Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)		max. Size of solids:	9,7 mm (0.38")
max. Control air pressure:	8,3 bar (120 psig)		Noise level:	77,0 dB(A)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)		Weight:	Aluminium: 23,6 kg (52.0 lb) Stainl.steel: 44,5 kg (98.0 lb)

DIMENSIONS

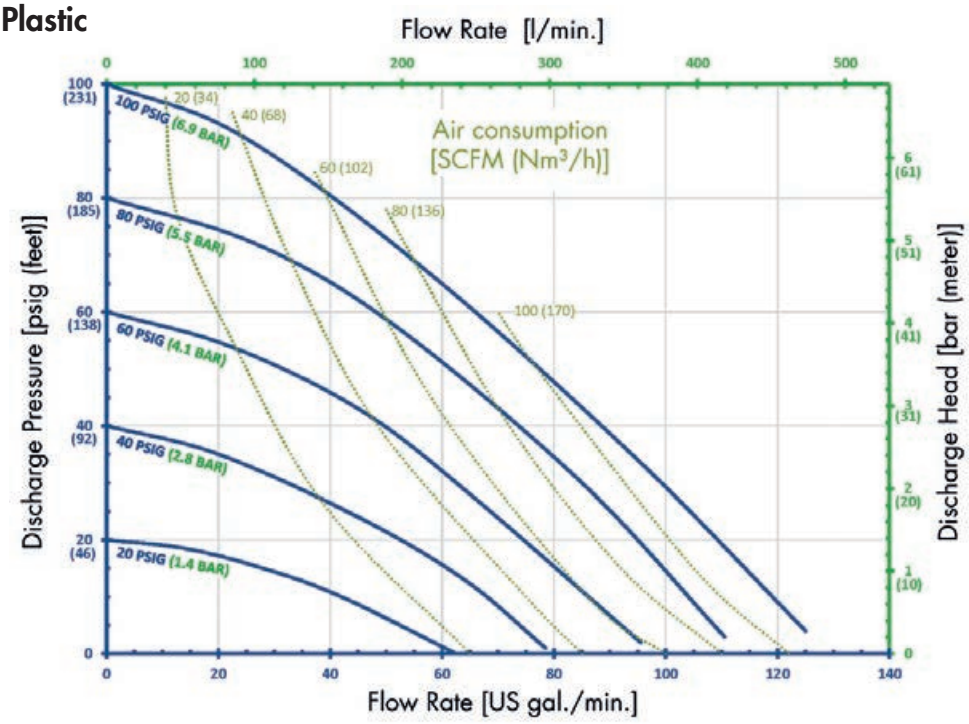
AP15	(plastic)		(metal)		
max. Length (**L**)	475mm	(18–11/16″)	Aluminium:	494mm	(19–7/16″)
			Stainless steel:	494mm	(19–7/16″)
max. Height (**H**)	677mm	(26–5/8″)	Aluminium:	445mm	(17–1/2″)
			Stainless steel:	482mm	(18–31/32″)
max. Width (**T**)	290mm	(11–13/32″)	Aluminium:	290mm	(11–13/32″)
			Stainless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



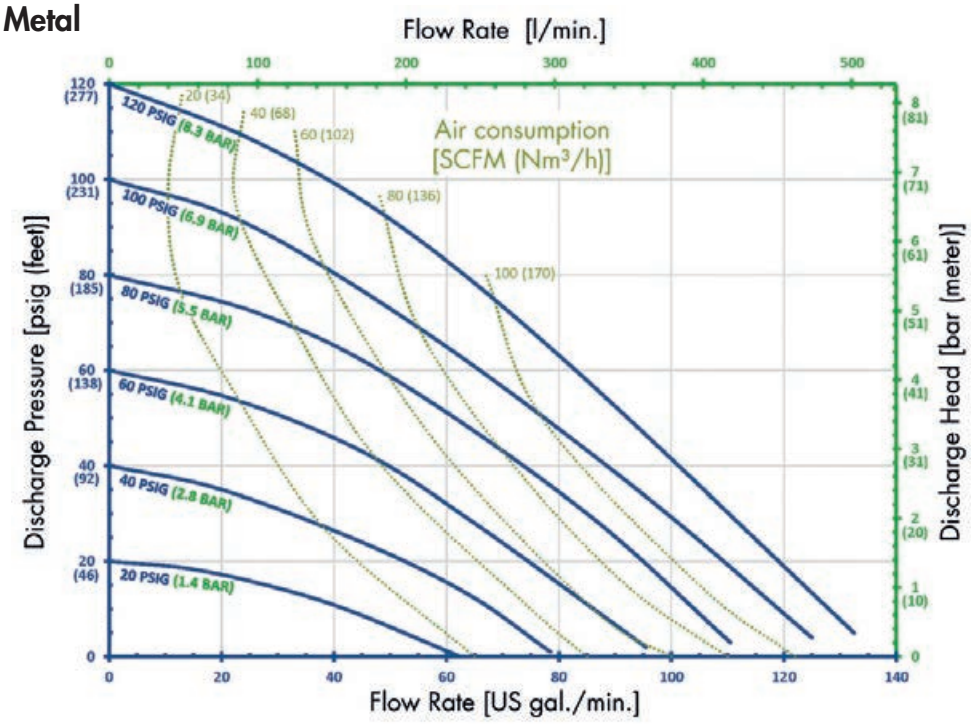


CHARACTERISTIC CURVES

Plastic



Metal



AP20

DESIGN

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

TYPICAL INDUSTRIES

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

PERFORMANCE DATA

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

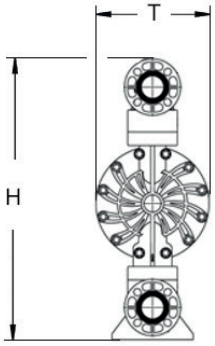
max. Flow rate	583 Liter/min. (154 gal/m)		Suction/Discharge connection:	2“ ANSI/DIN/ISO-Flanges
Displacement per stroke	1,2 Liter (0.31 gal)		Air Inlet/Exhaust connection:	¾“ FNPT / ¾“ FNPT
max. Operating pressure	6,9 bar (100 psig)		Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)		max. Size of solids:	8,9 mm (0.35“)
max. Control air pressure:	6,9 bar (100 psig)		Noise level:	77,0 dB(A)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)		Weight:	PP: 30,4 kg (67.0 lb) PVDF: 44,2 kg (97.5 lb)

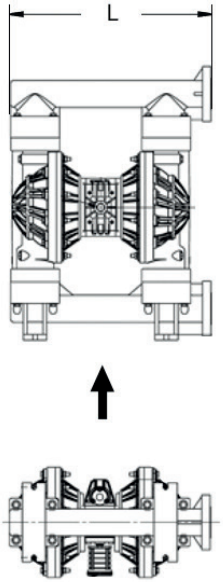
Air operated diaphragm pump **AP20** (metal)

max. Flow rate	Aluminium: 590 L/min. (156 gal/m) Stainl.steel: 503 L/min. (133 gal/m)		Suction/Discharge connection:	2“ BSP (i) od. FNPT; (centered)
Displacement per stroke	1,2 Liter (0.31 gal)		Air Inlet/Exhaust connection:	¾“ FNPT / ¾“ FNPT
max. Operating pressure	8,3 bar (120 psig)		Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)		max. Size of solids:	9,7 mm (0.38“)
max. Control air pressure:	8,3 bar (120 psig)		Noise level:	77,0 dB(A)
max. Suction height (water)	dry: 2,7 mWC (9 ft.) wet: 8,8 mWC (29 ft.)		Weight:	Aluminium: 39,5 kg (87.0 lb) Stainl.steel: 59,9 kg (130.0 lb)

DIMENSIONS

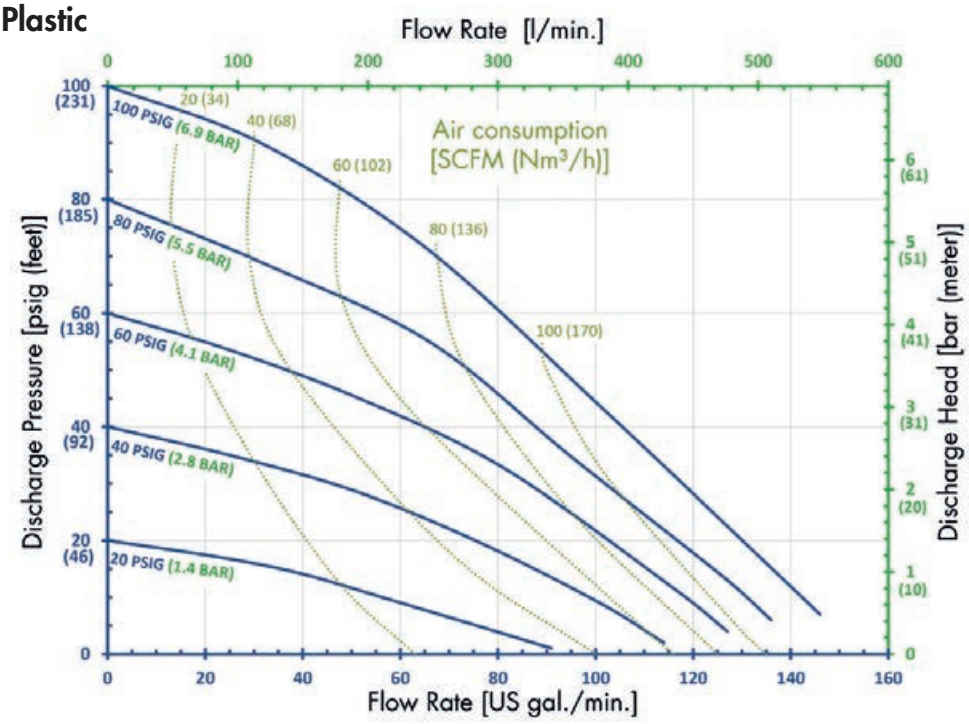
AP20	(plastic)		(metal)		
max. Length (L)	600mm	(23–19/32")	Aluminium:	530mm	(20–7/8")
			Stainless steel:	520mm	(20–15/32")
max. Height (H)	805mm	(31–11/16")	Aluminium:	733mm	(28–7/8")
			Stainless steel:	765mm	(30–3/32")
max. Width (T)	326mm	(12–27/32")	Aluminium:	326mm	(12–27/32")
			Stainless steel: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



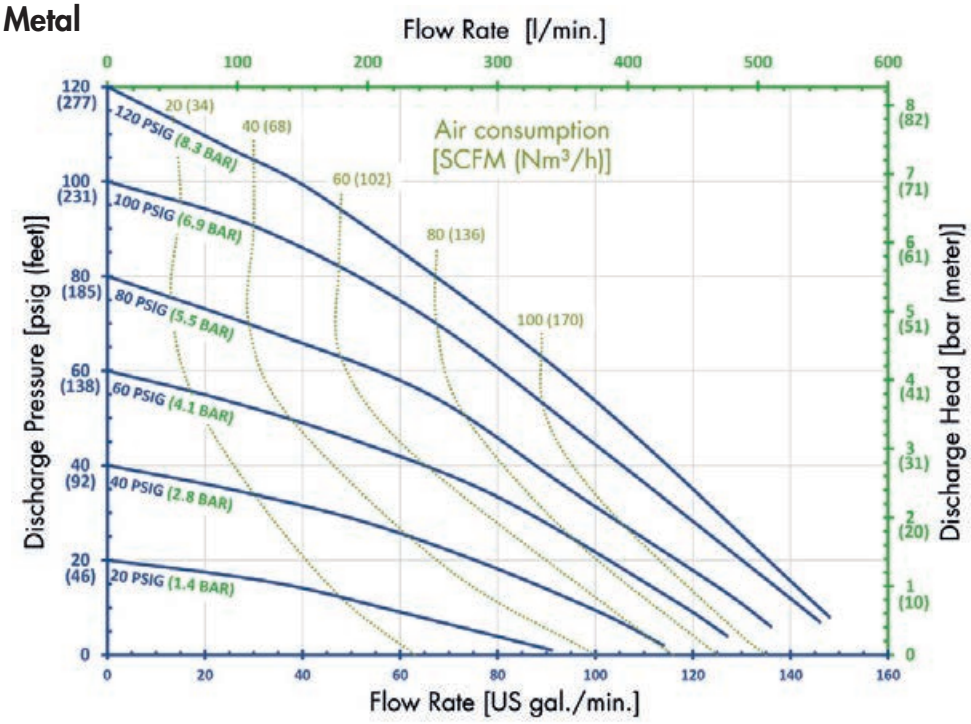


CHARACTERISTIC CURVES

Plastic



Metal



AP30

DESIGN

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

TYPICAL INDUSTRIES

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

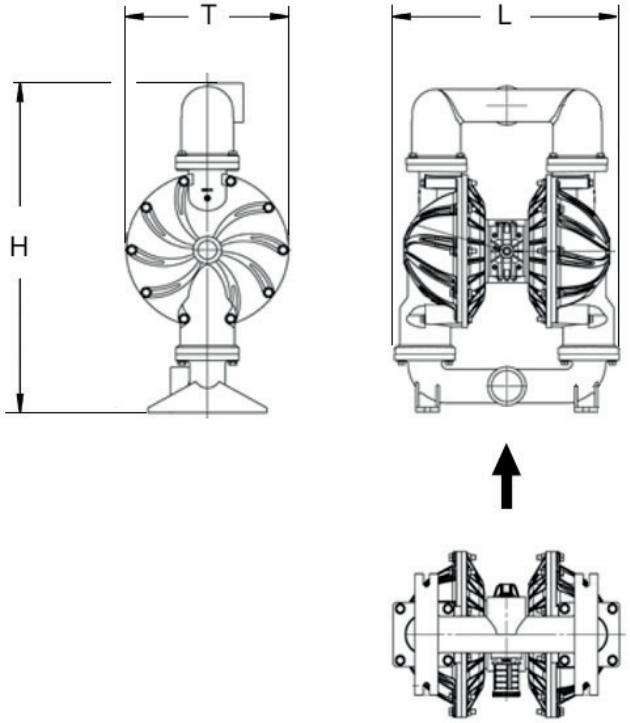
PERFORMANCE DATA

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

max. Flow rate	908 L/min. (240 gal/m)		Suction/Discharge connection:	3“ BSP (i) od. FNPT; (centered) (Stainl.steel: additional flanges)
Displacement per stroke	3,7 Liter (0.98 gal)		Air Inlet/Exhaust connection:	¾“ FNPT / ¾“ FNPT
max. Operating pressure	8,3 bar (120 psig)		Air consumption:	see Characteristic curves
min. Air inlet pressure:	0,7 bar (10 psig)		max. Size of solids:	12,7 mm (0.50“)
max. Control air pressure:	8,3 bar (120 psig)		Noise level:	86,5 dB(A)
max. Suction height (water)	dry: wet:	2,7 mWC (9 ft.) 8,8 mWC (29 ft.)	Weight:	Aluminium: 70,3 kg (155 lb) Stainl.steel: 107 kg (235 lb)

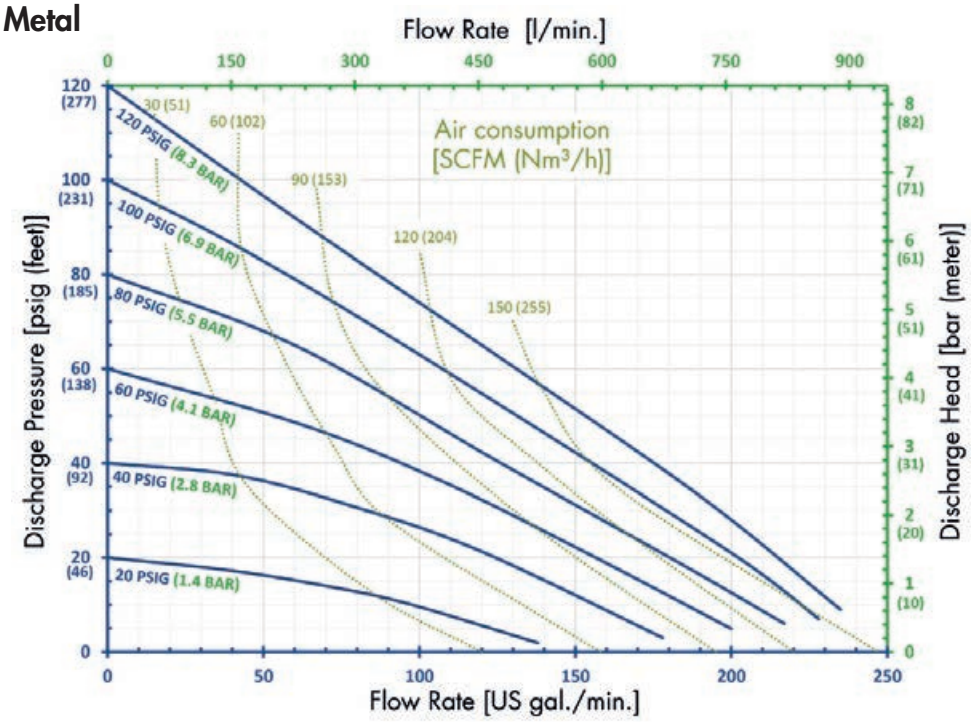
DIMENSIONS

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



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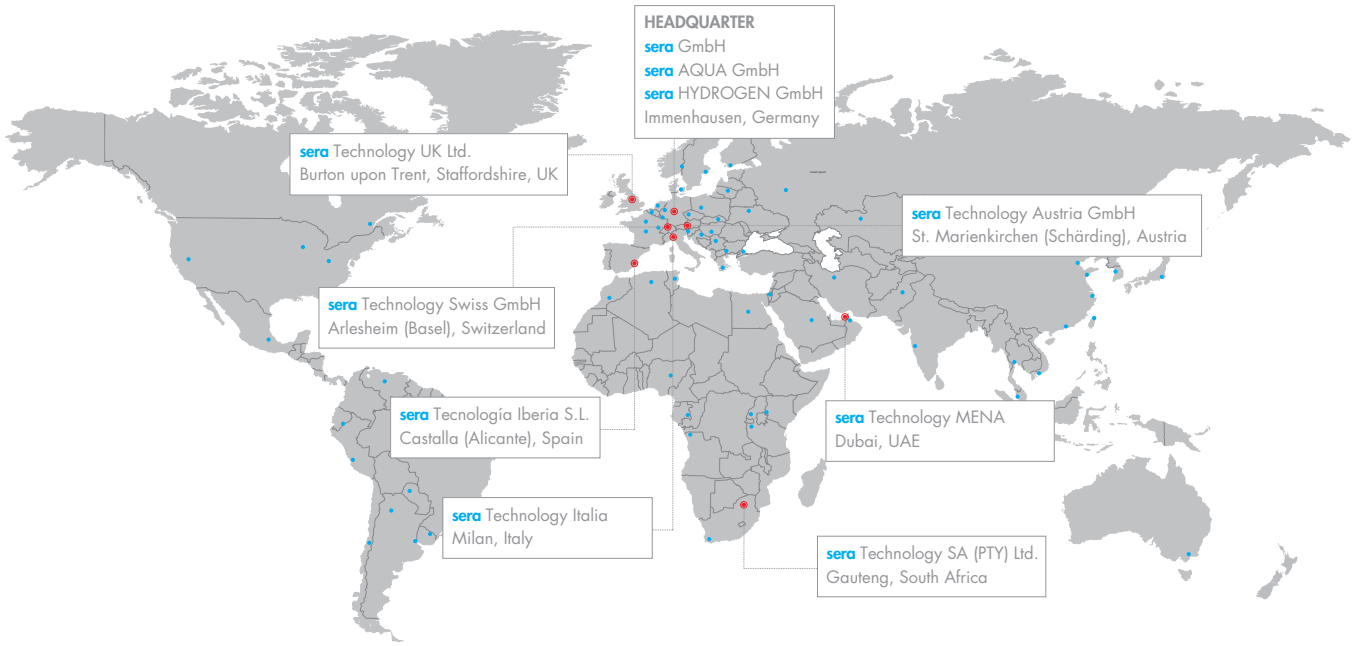

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