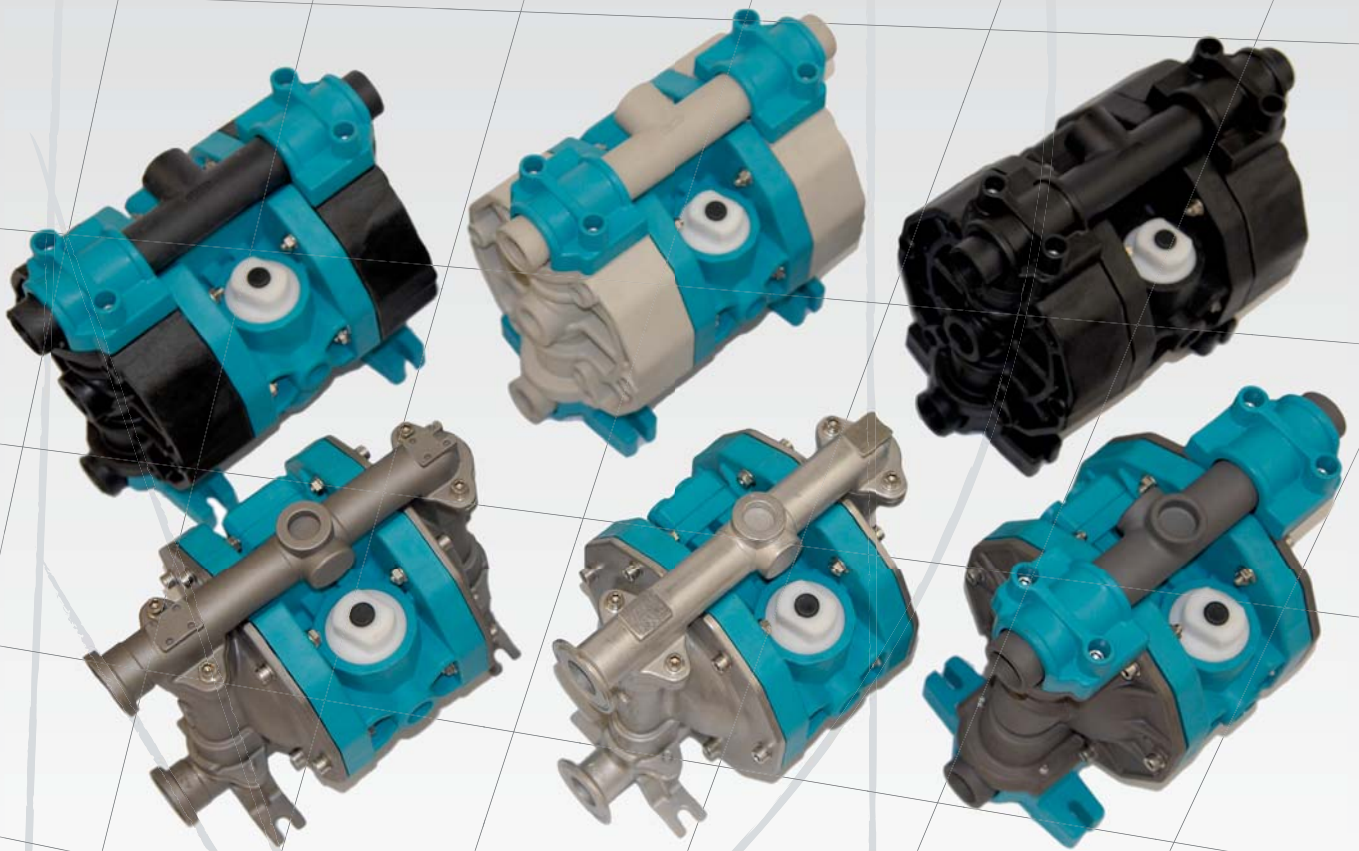


# ARGAL

## CHEMICAL PUMPS

*ASTRA range*  
*Air operated double*  
*diaphragm pumps*



**PERFORMING AND EQUIPPED**

# ASTRA

## the new Argal's AODD pumps range

The development of the new air operated double diaphragm AODD pumps pivots around the improved design of the air distributor system (ADS), the optimised geometries of the diaphragms, and the shape of the air and liquid chambers and targets

to broaden the traditional range of application from transfer to transfer / metering.

A mix of conventional and innovative solutions obtains the targeted goal.

### PUMPS CONFIGURATION

#### Main characteristics:

- Pump with reciprocating coaxial chambers (H) with inbuilt valve chambers (A) and manifolds (B - C) located above and below of the chambers.
- Un balanced air distributor system (D) with air spring assisted differential air distributor spool.
- Separate pilot spool (F) coaxial to the diaphragms' shaft.
- Air distributor command reversed only at the end of each run of the shaft
- Pump is absolutely stall free.

Air supply and air exhaust passages optimises the efficiency of the pump by fine tuning its performances to the characteristics of the liquid, (viscosity and content of solids in suspension) smoothes pulsations and reduces the overall air consumption.



### RANGES

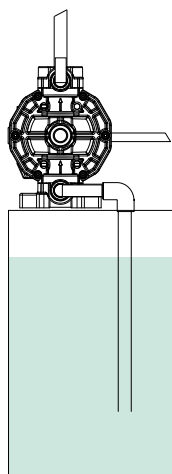
This new AODD pumps are divided in five ranges each including two sizes.

Each size of each range is obtained from chambers and manifolds of same exterior dimensions and valves, inner sections of liquid, connections and air passages of specific dimensions.

Specific air passages are obtained customising a part of the air distributor system.

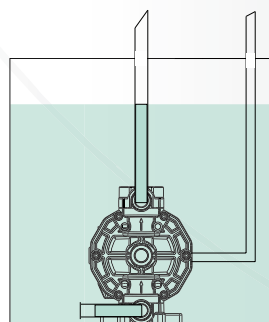
The solutions offered for the most sophisticate uses as dosing or supply of dosing lines or fine flow tuning of the pumped product foreseen in this project are implemented in all ranges.

### INSTALLATIONS

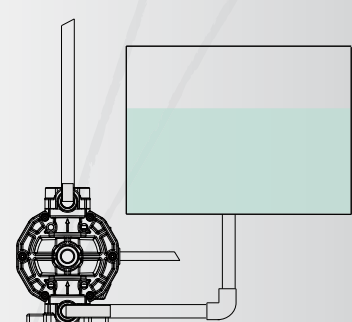


*Self-priming*

*Submerged operation*



*Filling / Injection / Dosing*



### THE STANDARD FEATURES AND OPTIONS

- Choice of materials for chambers, diaphragms valves and o-rings.
- Choice valves design (Ball Valve / Duck beak valves).
- Choice of the kind of standards for air feed side and liquid side connections. (BSP NPT).
- Split manifold kit to pump different fluids.
- Configuration for submerged applications (also for plastic pumps).
- Flow rate control and/or performances limiter.
- Two in one delivery manifolds.
- Diaphragm position detection signals.
- Extremely low pressure operation.
- ATEX version.
- FDA version in Polished SS 316.

Some of the mentioned solutions are standard, others optional, others can be retrofitted even on site by the end user with minimal modifications of existent parts of the pump or replacement of those parts with replacements delivered by factory. For a further customisation of the pump for specific uses is available a choice of accessories as:

- Adaptor to feed the air chambers from a external source than the standard air distributor
- ATEX compliant probe to detect the pumping cycles
- Electric transducer to detect the position of the diaphragms
- Automatic flow stabiliser (pulsation damper)
- Air filter / pressure reducer with adapters
- Programmable electronic flow controller
- Pneumatic cycle counter for batch dosing process
- Air distributor exhausts cover with connections to plumb the exhaust air to the atmosphere and to collect pneumatic signals that tracks the positions of the diaphragms.

### PUMP IDENTIFICATION:



	MODEL	MATERIAL						CONNECTIONS																
		CHAMBERS (1)		CODICE	DIAPHRAGM	VALVE		O-Rings	TYPE	SCHEME														
						BALLS	SEATS																	
PLASTIC	DDA	25C	1/4"	WR	GFR-PP	10	Polyurethane	EPDM	PE-UHMW	E V N T	EPDM FPM NBR PTFE	G N I	BSP Parallel Threa NPT thread (2) ISO ANSI flanges	2	standard (1IN-1OUT) (2) mixing (2IN-1OUT) (2) parallel (2IN-2OUT)									
		38C	3/8"			11	PTFE	EPDM	PE-UHMW					3										
		50C	1/2"			12	Santoprene®	PTFE	PE-UHMW					4										
		50	1/2"			13	PTFE	PTFE	PE-UHMW															
		75	3/4"			14	PTFE	AISI 316	PE-UHMW															
		100C	1"			15	Santoprene®	AISI 316	PE-UHMW															
		100	1"			16	Santoprene®	EPDM	AISI 316															
		125	1 1/4"			17	PTFE	AISI 316	AISI 316															
		150	1 1/2"			18	Santoprene®	AISI 316	AISI 316															
		200	2"			19	PTFE	PTFE	PVDF															
						CF	CF-PVDF	18	Santoprene®					AISI 316		AISI 316								
						DF	PVDF	19	PTFE					PTFE		PVDF								
		METALLIC	DDA			50	1/2"	SS	AISI 316					17		PTFE	AISI 316	AISI 316	N V E T	NBR FPM EPDM PTFE	G N I	BSP Parallel Threa NPT thread (2) ISO ANSI flanges	2	standard (1IN-1OUT) (2) mixing (2IN-1OUT) (2) parallel (2IN-2OUT)
						75	3/4"							18		Santoprene®	AISI 316	AISI 316					3	
						100	1"							19		PTFE	PTFE	PVDF					4	
						125	1 1/4"							20		PTFE	PTFE	AISI 316						
						150	1 1/2"							10		Polyurethane	EPDM	PE-UHMW						
200	2"			17	PTFE	AISI 316	AISI 316																	
				21	PTFE	PTFE	Aluminium																	
				22	Keyflex®	PTFE	Aluminium																	
50	1/2"			SP	Polished AISI 316	23	PTFE			PTFE	Polished AISI 316	T	PTFE	C	Clamp	2	standard (1IN-1OUT) (2) mixing (2IN-1OUT) (2) parallel (2IN-2OUT)							
100	1"					24	PTFE			SS 316	Polished AISI 316	T	PTFE	C	Clamp	3								
150	1 1/2"															4								
200	2"																							

1) to configure the pump for ZONE 1 add a 'X' after chambers material (e.g. WR becomes WRX)

(2) not available for 25C -38C -50C models



# 25 C

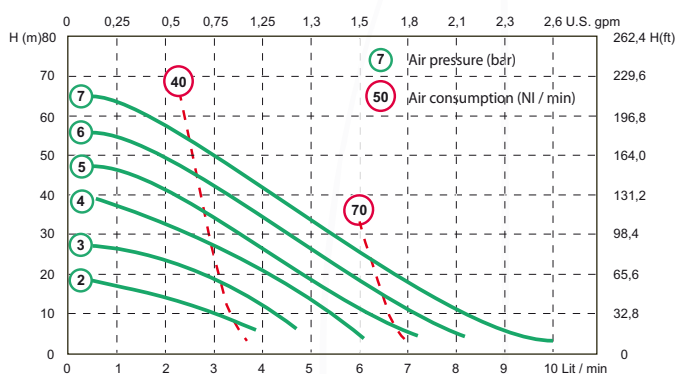
## Technical Data

Max. Delivery	10 l/min
Max. Head	70 m
Air Inlet	1/4" BSP
Suction Lift	5 m
Solid Pass	3 mm

### Chambers material

Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)

### Performance Curve



# 38 C

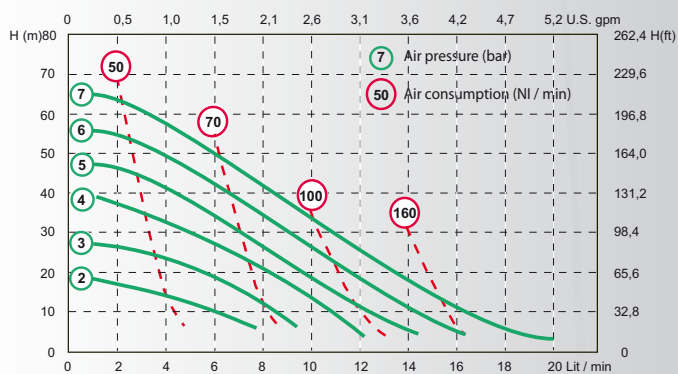
## Technical Data

Max. Delivery	20 l/min
Max. Head	70 m
Air Inlet	1/4" BSP
Suction Lift	6 m
Solid Pass	3 mm

### Chambers material

Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)

### Performance Curve



# 50 C

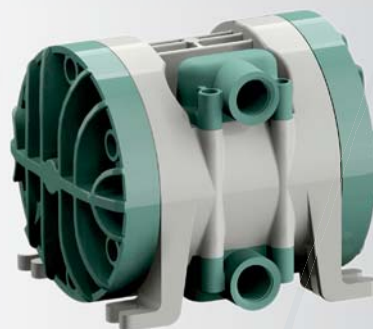
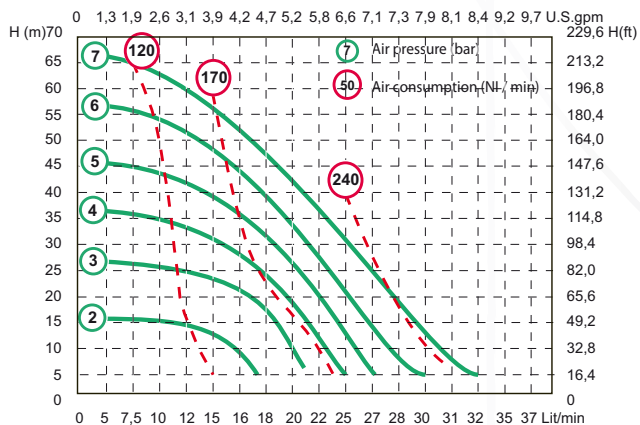
## Technical Data

Max. Delivery	32 l/min
Max. Head	70 m
Air Inlet	1/4" BSP
Suction Lift	5 m
Solid Pass	3 mm

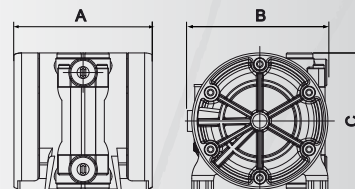
### Chambers material

Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)

### Performance Curve



### Dimension



### Thermoplastic

### Metallic

	Thermoplastic			Metallic				
	PP		PVDF	Al	AISI 316			
	25C	38C	50C	25C	38C	50C		
A [mm]	155			155		na	na	
B [mm]	135			135		na	na	
C [mm]	125			125		na	na	
Weight [kg]	1			1,5		na	na	
Connections	1/4"	3/8"	1/2"	1/4"	3/8"	1/2"	na	na

# 50

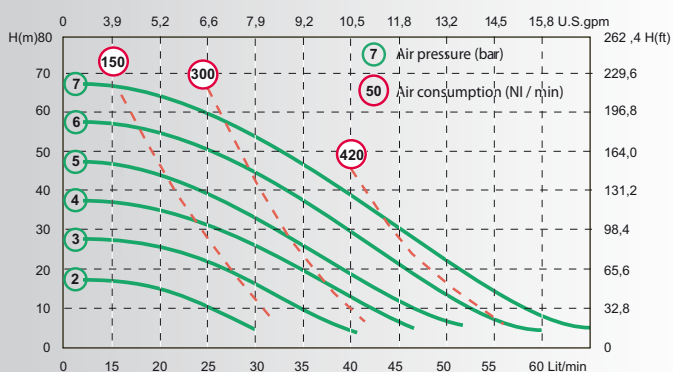
## Technical Data

Max. Delivery	65 l/min
Max. Head	70 m
Air Inlet	3/8" BSP
Suction Lift	6 m
Solid Pass	3,5 mm

### Chambers material

Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)
AISI 316
Aluminium (Al)

### Performance Curve



# 75

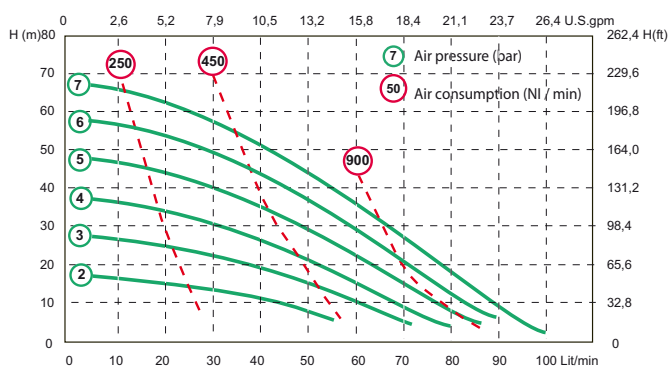
## Technical Data

Max. Delivery	100 l/min
Max. Head	70 m
Air Inlet	3/8" BSP
Suction Lift	6 m
Solid Pass	3,5 mm

### Chambers material

Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)
AISI 316
Aluminium (Al)

### Performance Curve



# 100 C

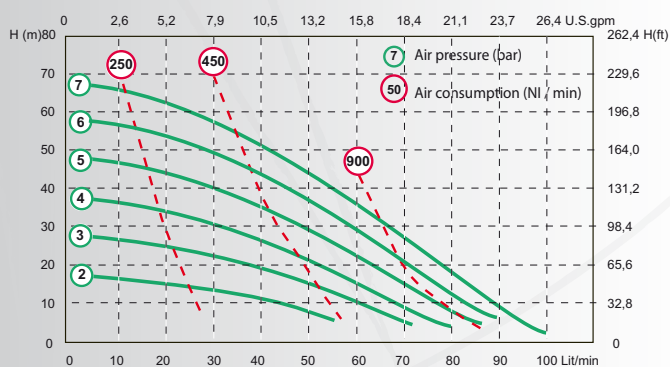
## Technical Data

Max. Delivery	100 l/min
Max. Head	70 m
Air Inlet	3/8" BSP
Suction Lift	6 m
Solid Pass	3,5 mm

### Chambers material

Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)

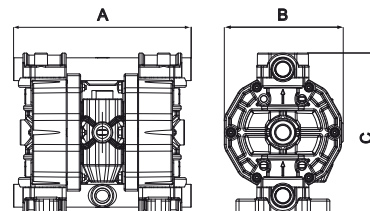
### Performance Curve



FDA



### Dimension



### Thermoplastic

### Metallic

	PP			PVDF			Al		AISI 316	
	50	75	100C	50	75	100C	50	75	50	75
A [mm]	265	290	290	265	290	290	265	250	265	250
B [mm]	175	175	175	175	175	175	175	175	175	175
C [mm]	245	245	245	245	245	245	245	245	245	250
Weight [kg]	6,5	7	7	7	7	7	7	7	9	9
Connections	1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1/2"	3/4"

Upon request: ISO-ANSI flanged connections

# 100

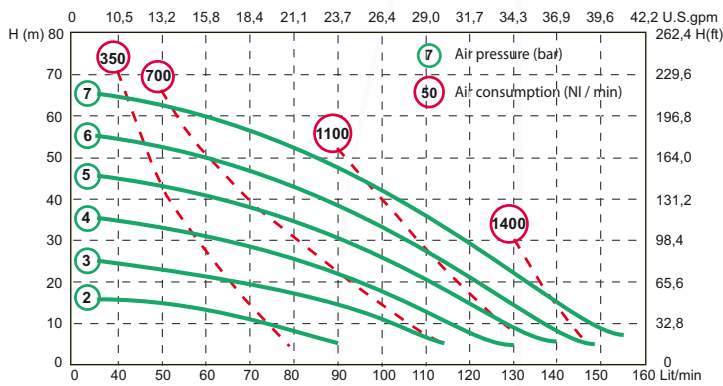
## Technical Data

Max. Delivery	160 l/min
Max. Head	70 m
Air Inlet	1/2" BSP
Suction Lift	6 m
Solid Pass	7,5 mm

### Chambers material

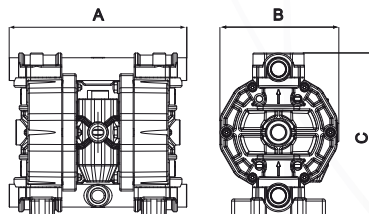
Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)
AISI 316
Aluminium (Al)

### Performance Curve



**FDA**

### Dimension



#### Thermoplastic

#### Metallic

	PP	PVDF	Al	AISI 316
A [mm]	370	370	370	360
B [mm]	220	220	220	220
C [mm]	364	364	364	350
Weight [kg]	15	16	16	20
Connections	1" BSP-NPT			1" BSP-NPT CLAMP 1 1/2"

Upon request: ISO-ANSI flanged connections

# 125

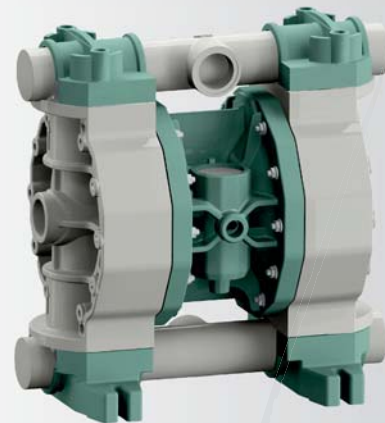
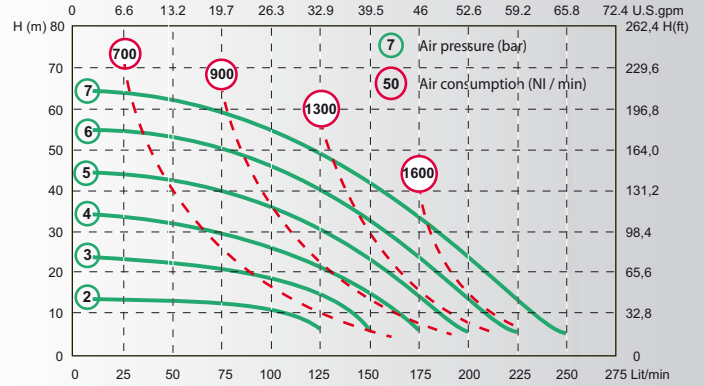
## Technical Data

Max. Delivery	250 l/min
Max. Head	70 m
Air Inlet	1/2" BSP
Suction Lift	6 m
Solid Pass	7,5 mm

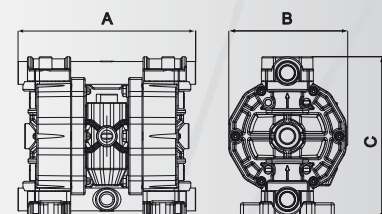
### Chambers material

Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)
AISI 316
Aluminium (Al)

### Performance Curve



### Dimension



#### Thermoplastic

#### Metallic

	PP	PVDF	Al	AISI 316
A [mm]	595	595	595	
B [mm]	340	340	340	340
C [mm]	572	572	572	
Weight [kg]	31	36	36	60
Connections	1 1/4" BSP - NPT			

Upon request: ISO-ANSI flanged connections

# 150

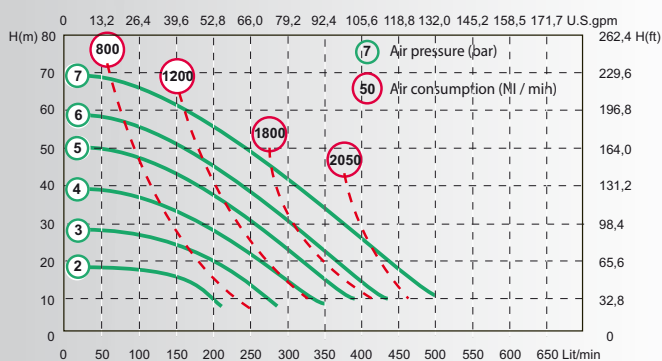
## Technical Data

Max. Delivery	500 l/min
Max. Head	70 m
Air Inlet	3/4" BSP
Suction Lift	6 m
Solid Pass	8,5 mm

### Chambers material

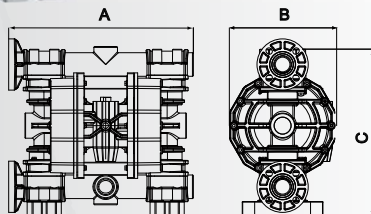
Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)
AISI 316
Aluminium (Al)

### Performance Curve



FDA

### Dimension



#### Thermoplastic

#### Metallic

	PP	PVDF	Al	AISI 316
A [mm]	595	595	595	
B [mm]	340	340	340	340
C [mm]	565	565	245	
Weight [kg]	30	35	35	58
Connections	FLANGE (*) 1 1/2" ANSI - DN 40 ISO			1 1/2" BSP-NPT CLAMP 2"

(\*) Upon request: Threaded connections

# 200

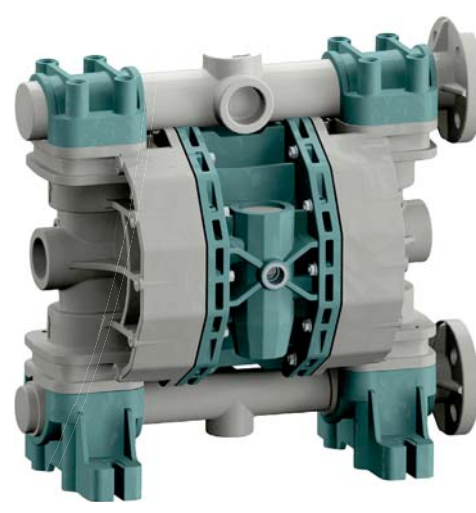
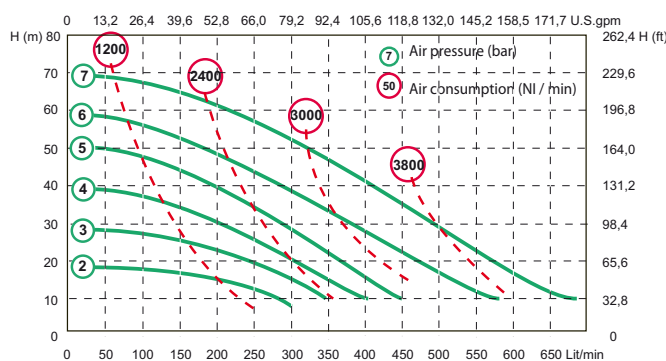
## Technical Data

Max. Delivery	680 l/min
Max. Head	70 m
Air Inlet	3/4" BSP
Suction Lift	6 m
Solid Pass	8,5 mm

### Chambers material

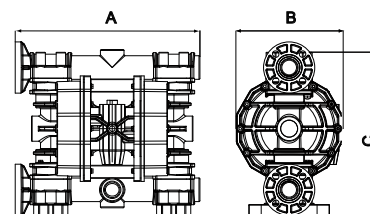
Polypropylene + glass fibre (PP)
Polyvinylidene fluoride + carbon fibre (PVDF)
Polyvinylidene fluoride (PVDF)
AISI 316
Aluminium (Al)

### Performance Curve



FDA

### Dimension



#### Thermoplastic

#### Metallic

	PP	PVDF	Al	AISI 316
A [mm]	595	595	595	580
B [mm]	340	340	340	340
C [mm]	572	572	572	570
Peso [kg]	31	36	36	60
Conessioni	FLANGE (*) 2" ANSI - DN 50 ISO			2" BSP-NPT CLAMP 2 1/2"

(\*) Upon request: Threaded connections





rev. 07 - EN



Member of AIB  
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Bresciana

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