

Made in Italy

DEBEM industrial pumps

INDUSTRIAL PUMPS

petrochemical, food, mechanical, environmental, printing, chemical, painting, galvanic, textile and ceramic industry



DEBEM general catalogue



www.debem.it



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Explosion proof



Air supply



Electric supply

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CUBIC and BOXER DIAPHRAGM PUMPS

Air-operated diaphragm pumps feature **strength, power, self-priming operation** (can run dry and with negative suction heads) even under exacting conditions and the ability to handle high viscosity fluids containing suspended particles.



9

Materials: **PP - PVDF/ECTFE**
ALU - Aisi 316
Self-priming capacity: **max 6m**
Max. head: **70m**
Max. flow rate: **5 - 900 l/min**
Viscosity: **up to 50000 cps**

EQUAFLUX PULSATION DAMPENERS

Air-operated automatic diaphragm pulsation dampeners are installed on discharge lines with variations in fluid pressure in order to **reduce pulsations** and consequent vibrations or water hammer, thus protecting process equipment.



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Materials:
PP, PVDF, PPS-V, AISI 316
Air supply: **2 - 7 bar**

MB HORIZONTAL CENTRIFUGAL PUMPS

Resin-encased horizontal centrifugal pumps that operate with a **direct-drive electric motor** and are particularly suitable for **fixed positive suction head installations** with the pump outside the tank, high flow rate and fast transfer speed of corrosive liquids;



39

Materials: **PP - PVDF**
Max. head: **7.2 - 38 m**
Max. flow rate: **6 - 75 m³/h**
Viscosity: **up to 500 cps**
European voltage motors:
IP 55 F class

IM VERTICAL CENTRIFUGAL PUMPS

Resin-encased vertical centrifugal pumps coupled with an **electric motor designed for fixed installations with pump immersed in the tank**, high flow rate and fast transfer speed of extremely dirty liquids.



55

Materials: **PP - PVDF**
Max. head: **7.2 - 38 m**
Max. flow rate: **6 - 75 m³/h**
Viscosity: **up to 500 cps**
European voltage motors:
IP 55 F class
Column lenght:
500/800/1000/1250 mm

TR TRANSFER PUMPS

Drum transfer pumps coupled with a **compressed-air or electric motor** (see models). Being portable, they are ideal for **fast transfer of clean corrosive liquids from drums**.



71

Materials: **PP - PVDF - Aisi 316**
Max. head: **up to 16 m**
Max. flow rate: **up to 90 l/min**
Viscosity: **up to 900 cps**
European voltage motors:
IP 54 F class
Colum lenght:
900 mm - 1200 mm

ABOUT US



AN IDEAL

A clear idea in mind:
to design **innovative high-tech pumps** with components and **materials capable of withstanding** even the most testing and aggressive conditions.
Easy-to-install, high-performance pumps.
Reliable, long-lasting operation.



MORE THAN 30 YEARS AT YOUR SERVICE

Debem has been operating in the liquid transfer sector for more than 30 years.

A pioneering business specialising in industrial pumps for highly corrosive and aggressive applications. The entire company philosophy hinges on close **cooperation** with the **end user** and **customer feedback**, thus establishing a **highly-effective technological design and development system** for products and services that has gained the approval of an increasing number of leading players in various sectors.





Debem offers a new range of effective services, **supplying customers with technical and sales information** that helps to select the **right product for every type of use**.



SALES INFORMATION AND TECHNICAL SUPPORT CALL CENTRE

Customers can phone for advice in making the right **choice of product** and **chemical compatibility**.

THE TECHNICAL SUPPORT AND SALES SERVICE

You can **phone** or **e-mail** in order to receive advice on **technical specifications**, pump and system **installation** and **optimisation** or the **fluid pumping process**.

info@debem.it



THE WEBSITE

At the **Debem website** you can **request the dimensional drawing** of every single pump, available in **dwg, dxf or PDF** formats, and the **chemical compatibility tables**. Registering enables you to receive the latest product updates.

www.debem.it

THE QUALITY MANAGEMENT SYSTEM

The **certified Quality Management System** is the basic tool used by Management in establishing the **Corporate Quality Policy**, aimed at **complete Customer satisfaction** and demonstrable ability to provide products/services that meet Customer and applicable regulatory requirements.

The quality management system is certified to **UNI EN ISO 9001** and for DEBEM represents a point of both arrival and departure:

ARRIVAL: because the corporate quality system is an organisational and management tool developed in-house.

DEPARTURE: because designing the quality system has stimulated a phase of analysis that will lead to the establishment of new improvement and growth targets.

Corporate quality is therefore considered an **invitation to provide objective evidence**, both internally and externally, **of the company's ongoing progress**, as well as solid **guarantees of reliability, precision and quality** for the public at large

DEBEM's aim is to help and encourage its staff to work together for customer satisfaction.

Its mission is to obtain customer satisfaction.

The objectives are to **consolidate and strengthen its relationship with existing customers and acquire new ones** by offering systems designed to offer what the market actually wants.

The combined efforts of our various departments aim to ensure that the customer wants **DEBEM** products. In addition to ongoing technological breakthroughs, the improvement achieved day by day embraces changes to corporate mentality and organisation.

This strong motivation to obtain continual improvement stems from the knowledge that survival and success are dependent on recording better performance than the competition.





ENGINEERING DEPARTMENT

The entire range of pumps is designed, developed and manufactured by Debem that also owns the patents.

The Debem engineering department, and in particular the **research and development department**, is continually involved in **new projects** and product **innovation**.

The **primary objective** of **customer satisfaction** has led to the introduction of **modular pump design** allowing **tailor-made assembly** with **suitable components** and **materials** for the intended use.



WAREHOUSE AND ASSEMBLY

A **management system** that **controls** the **minimum stock** of every **component** and **preassembled part** of all pumps in the catalogue means that when receiving an order Debem can advise **product availability** in real time with **fast assembly** and certain delivery times.



TESTING AND INSPECTION

Quality certification procedures specify the tests and inspections to be carried out on each and every pump, therefore **no random sampling**, either during **assembly whilst dry** or operation when filled with fluid. The data obtained is used to **check compliance** with the **required parameters**.





ATEX COMPLIANCE



Debem has filed with the **TÜV NORD** certification body the documentation certifying **ATEX** compliance pursuant to Directive 94/9/EC for its ranges of **BOXER** and **CUBIC** pneumatic diaphragm pumps and **EQUAFLUX** automatic pulsation dampeners, as described in the following table.

They are manufactured in a **STANDARD**, class **3/3 GD c IIB T 135°C** version or - upon request - with special construction materials in a **CONDUCT**, class **2/2 GD c IIB T 135°C** version.

The equipment user is responsible for classifying its area of use. On the other hand, the manufacturer shall identify and affix the certification class of the manufactured equipment.

PRODUCT SERIES	DESCRIPTION	CERTIFICATION CLASS
STANDARD version - CUBIC - BOXER - EQUAFLUX	Made from non-conductive plastic and/or with non-conductive centre casing or from metal with non-conductive centre casing.	 II 3/3G D IIB T 135°C (for zone 2)
CONDUCT version - CUBIC - BOXER - EQUAFLUX	Built with pump casings and/or manifolds (PP + carbon fibre, ECTFE/PVDF + carbon fibre), made from conductive plastic and metal materials (aluminium, stainless steel).	 II 2/2GD c IIB T 135°C (for zone 1)



Safety symbols in accordance with DIN 40012 Annex A

II 2/2 GD: Surface equipment for use in zones in which gases, vapours or mists and clouds of combustible dust in air occur in normal operation occasionally (EN 1127-1 subclause 6.3) in both the external and internal zone.

II 3/3 GD: Surface equipment for use in zones in which gases, vapours or mists and clouds of combustible dust in air are not likely to occur in normal operation or may occur rarely for a short period only in both the external and internal zone.

c: Equipment protected by constructional safety (EN 13463-5).

IIB: Exclusion of the following products: Hydrogen, acetylene, carbon disulphide.

T 135°: Allowed temperature class. The user shall process fluids in accordance with the corresponding temperature classification, bearing in mind the instructions in the manual and the provisions of current legislation. The user shall also consider the ignition temperatures of gases, vapours or mists and clouds of combustible dust in air in the area of use.



MODULAR DESIGN, RESEARCH AND QUALITY*



I met **Pietro Vaglivello** - company general manager and partner - who explained the company's various lines of business to me. "Our entire range of pumps is **exclusively designed, developed and manufactured by our technical staff** and we own the patents. Our flagship is a modular pump design that allows **custom assembly using components and materials that suit individual customer requirements**. We can advise availability in real time thanks to a system that manages and controls the minimum stock of every component and preassembled part of all pumps in the catalogue. **All our diaphragm pumps are available** ready-assembled **for immediate delivery**. It requires just a few minutes for them to be configured to customer specifications and then shipped. Likewise **all spares are kept**

in our warehouse ready for immediate shipment, whilst the customer has the option of purchasing individual spares or complete kits."

"We are certified to ISO 9001 and our quality procedure stipulates the tests and inspections to be performed on every pump we manufacture and not randomly - Vaglivello added - we have developed a highly-effective technological design and development system for products and services as a result of close cooperation with the end user".

FOCUS ON DIAPHRAGMS

"Diaphragms are the element subjected to **greatest wear and stress** during suction and pumping, a process in which they must also withstand chemical attack - our guide explains, getting to the root of an essential technical aspect - **correct assessment and choice** is therefore of crucial importance to the life of a diaphragm, as well as to investment decisions and maintenance costs. Thanks to a **modern design process, destructive tests and in-depth analysis of the results**, we have developed a **new generation of long-life diaphragms** whose shape and size offer a greater working surface and improved load redistribution that **reduces material stress and yield to a minimum**".

Debem diaphragm pumps have been issued with ATEX certification by **TÜV Hanover** in accordance with **Directive 94/9/EC** and can therefore be used in explosive or potentially-explosive atmospheres according to the construction materials.

PRODUCTION RANGE

Debem offers **five extensive product ranges** designed for specific applications:

- **Cubic and Boxer pumps:** air-operated diaphragm pumps feature **strength, power, self-priming operation** (can run dry and with negative suction heads) even under exacting conditions and the ability to handle high viscosity fluids containing suspended particles;



- **MB pumps:** resin-encased horizontal centrifugal pumps that operate with a **direct-drive electric motor** and are particularly suitable for **fixed positive suction head installations** with the pump outside the tank, high flow rate and fast transfer speed of corrosive liquids;
- **IM pumps:** resin-encased vertical centrifugal pumps coupled with an **electric motor designed for fixed installations with pump immersed in the tank**, high flow rate and fast transfer speed of extremely dirty liquids;
- **TR pumps:** drum transfer pumps coupled with a **compressed-air or electric motor** (see models). Being portable, they are **ideal for fast transfer of clean corrosive liquids from drums**;
- **Equaflux dampeners:** **air-operated** automatic diaphragm pulsation dampeners are installed on discharge lines with variations in fluid pressure in order to **reduce pulsations** and consequent vibrations or water hammer, thus protecting process equipment.

"The **Boxer and Cubic series** are both fitted with a **special pneumatic exchanger to the shaft** and **without external components** - advises Pietro Vaglivello - this is a unique piece of engineering, offering excellent protection against the formation of ice and something you will still **not find in other pumps currently on the market**. **Polypropylene, ECTFE, PVDF, aluminium and AISI 316 stainless-steel** versions are available. All pumps in these two series are tested to ensure **maximum safety under difficult conditions** (i.e. in the presence of particularly aggressive and viscous fluids), they can run whilst dry without suffering damage, do not require an air lubricant and are self-priming. **Components are easily replaceable**, whilst unskilled staff can perform maintenance without problems".

Debem introduced its range for the painting and general surface treatment sector at the "Saloni della Verniciatura: Polveri, Cleantech, Ecocoating 2007" Trade Show held in Verona from the 14th to 16th June, offering advice on fluid transfer systems, in particular paints.



FIELD OF USE

Mechanical industry



Biodiesel production and storage



Chemical industry



Food industry



Ceramic industry



Naval and petrochemical industry



Painting industry



Textile industry



... graphic, ecological, galvanic,
pharmaceutical, tanning, paper industry
and more ...

CUBIC and BOXER

DIAPHRAGM PUMPS



Cubic mini diaphragm pumps and **Boxer** diaphragm pumps provide exceptional performance, power and strength, making them ideal for pumping liquids with very high apparent viscosity of up to **50000 cps (at 20°C)**, even if containing suspended solids.

self-priming capacity even with considerable suction head, fine tuning of speed without pressure loss and the possibility of dry operation without suffering damage mean that these pumps offer unrivalled versatility. In addition, the huge choice of construction materials allows selection of optimum chemical compatibility with the fluid and/or environment without neglecting the temperature range. They are specifically designed for **demanding applications with high humidity or in potentially explosive atmospheres (ATEX certification)**.



DEBEM



II 2/2GD c IIB T135°C (zone1)
II 3/3GD c IIB T135°C (zone2)

www.debem.it



CUBIC and BOXER

Available in PP, PVDF/ECTFE, ALUMINIUM and AISI 316 STAINLESS STEEL;

Use in potentially-explosive atmospheres (ATEX zone 1-2 certification);

Suitable for demanding applications and high-humidity environments;

Dry operation;

Dry self-priming;

Actuated using non-lubricated air;

Adjustable flow rate and head;

Fine tuning of motor speed at constant pressure;

Twin-manifold option (two suction and two delivery);

Bench or ceiling installation;

Three suction and delivery positions;

User-friendly maintenance and parts replacement;

Excellent performance and value for money.

DESCRIPTION OF THE PUMP

Debem diaphragm pumps consist of a **centrally-housed pneumatic exchangers**. The new **generation diaphragms** (Long Life profile) are fitted to its shaft. At the two ends, the two pump casings house the ball valves and seats of the product suction and delivery duct.

A = ball valves

B = pumping chamber

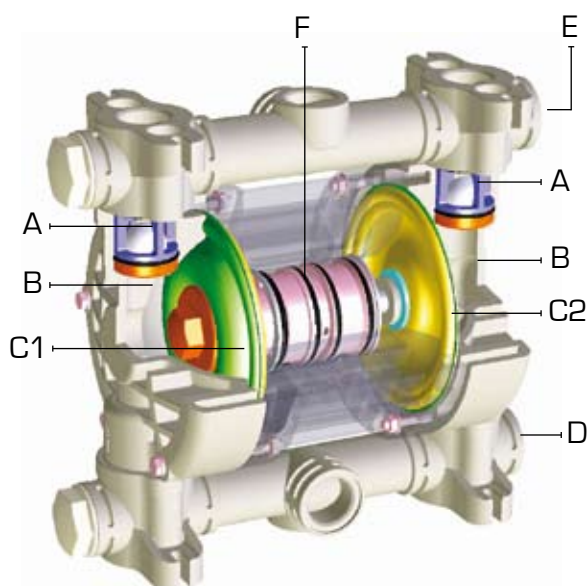
C1 = product-side diaphragm

C2 = air-side diaphragm

D = suction manifold

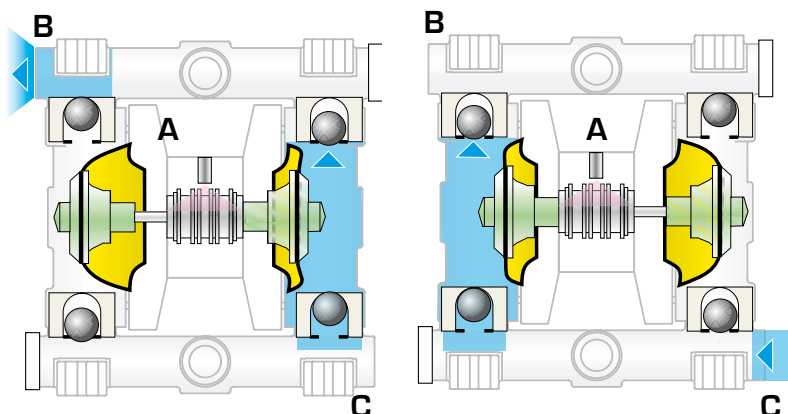
E = delivery manifold

F = pneumatic exchangers



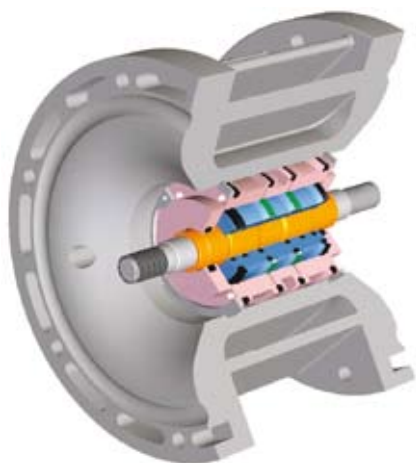
HOW IT WORKS

The compressed air introduced by the pneumatic exchanger (A) behind one of the two diaphragms generates compression and pushes the product into the delivery duct (B), at the same time the opposing diaphragm that is integral with the exchanger shaft creates a vacuum and intakes the fluid (C). Once the stroke has been completed, the pneumatic exchanger diverts the compressed air behind the opposing diaphragm and the cycle is reversed.



For further information regarding operation, please visit our website:

www.debem.it/ing/animazione.html



PNEUMATIC EXCHANGERS

The heart of an air-operated diaphragm pump consists of the pneumatic exchanger that DEBEM has succeeded in developing and innovating in a revolutionary manner, patenting the most durable and reliable system the market currently has to offer. This device introduces compressed air to alter the pressure balance of the diaphragms assisted by a stall-prevention circuit that ensures optimum performance even under the most critical conditions.



THE COMPONENTS

It has an extremely compact footprint and the small number of components ensures exceptional sturdiness and service life even under the most exacting conditions.

The air passages are carefully designed and optimised to prevent the formation of ice even in low-temperature and high-head applications.

The DEBEM pneumatic exchanger is an integrated system with a single central cartridge that does not require additional external components.



OPERATION

The range of DEBEM diaphragm pumps features a pneumatic exchanger that guarantees faultless operation even with low-pressure compressed air supplies (min 2 bar).

Air-chamber volumes and airways are carefully designed to optimise consumption.

Speed and flow rate can be easily adjusted by regulating air flow, whilst head can be adjusted as a function of compressed air supply pressure.

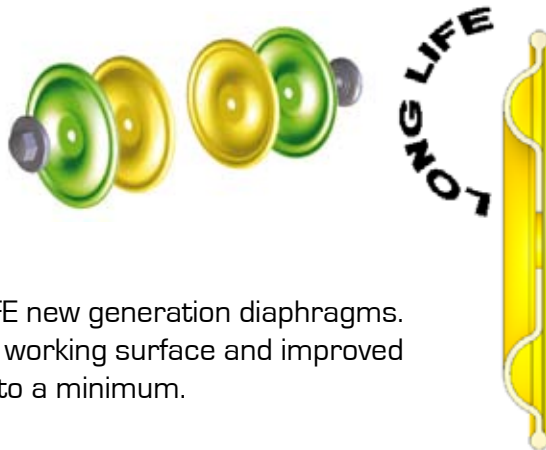


CUBIC and BOXER

DEBEM DIAPHRAGMS

Diaphragms are the components subjected to greatest stress during suction and pumping, when they must also withstand the liquid's chemical attack and temperature. Correct assessment and selection is therefore crucial for diaphragm service life, investment decisions and maintenance costs.

A modern process of design, destructive testing and careful analysis of results has enabled DEBEM to develop LONG LIFE new generation diaphragms. The shape and profile of these products provides a greater working surface and improved load redistribution, thus reducing material stress and yield to a minimum.

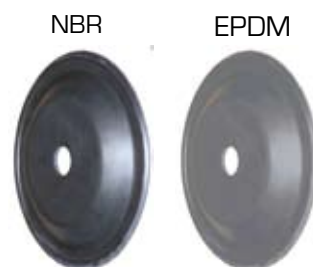


RUBBER DIAPHRAGMS

They are made from rubber compounds with special additives that improve chemical properties as well as mechanical bending and strength characteristics. These diaphragms have a nylon backing cloth that improves stress distribution:

NBR: inexpensive and particularly suited to petroleum- and oil-based liquids;

EPDM: good acid, alkaline and abrasion resistance, as well as good flexibility even at low temperatures.



THERMOPLASTIC DIAPHRAGM

They are made from thermoplastic polymers that provide high mechanical stress resistance and distribution.

POLYURETHANE: excellent abrasion resistance and ideal for general use;

HYTREL: good abrasion resistance and suitable for food processing.

SANTOPRENE®: excellent acid and alkaline resistance, high flexural strength and good abrasion resistance;



PTFE DIAPHRAGM

This material is noted for its excellent resistance to high temperatures, chemicals and corrosive agents. DEBEM PTFE diaphragms are subjected to a double heat treatment in order to increase elasticity and service life. Each batch undergoes random destructive testing in order to verify its performance.

This diaphragm can be fitted together with one of those previously mentioned in order to increase resistance to the liquid's corrosive chemicals and temperature.



CUBIC and BOXER



INSTALLATION

Diaphragm pumps **should be bolted horizontally** to the feet or holes provided with the exchanger shaft **positioned horizontally**.

Installations:

drum transfer (with max. viscosity 10000 cps at 20° C)

self-priming (with max. viscosity 10000 cps at 20° C)

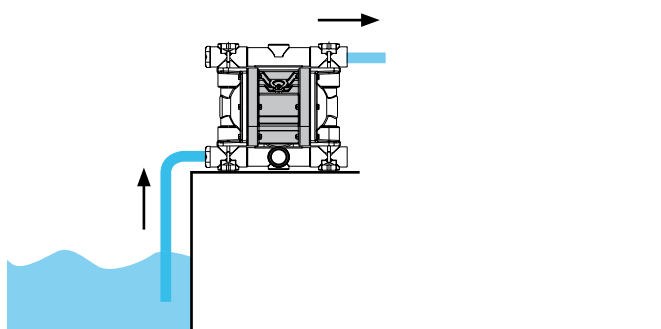
under head (with max. viscosity 50000 cps at 20° C)

immersed (with max. viscosity 50000 cps at 20° C)

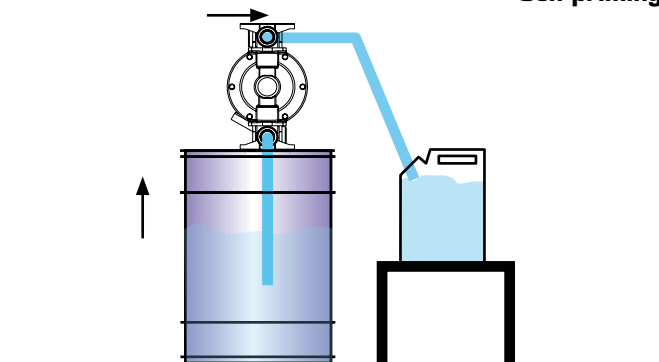
twin suction and delivery manifold (with max. viscosity 50000 cps at 20° C)

twin delivery manifold (with max. viscosity 50000 cps at 20° C)

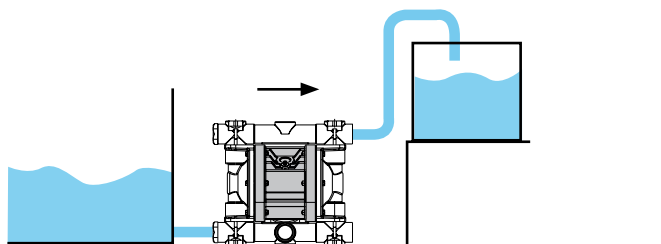
Drum transfer



Self-priming



Positive suction head

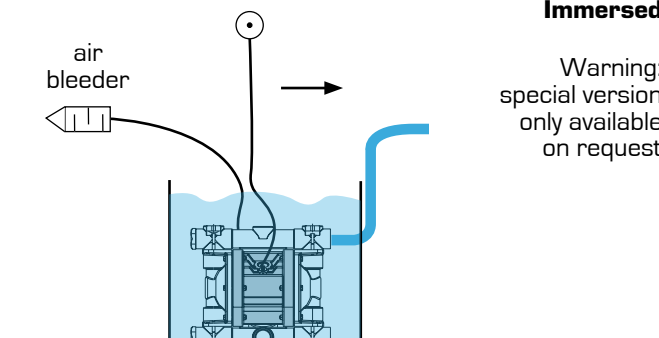


air connection

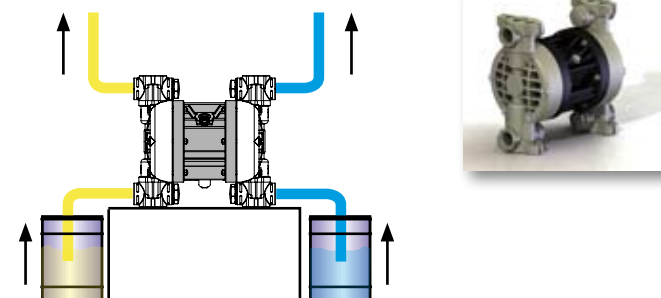
air
bleeder

Immersed

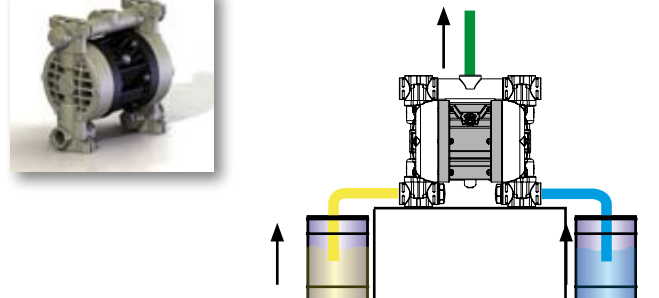
Warning:
special version
only available
on request



Twin suction and delivery manifold

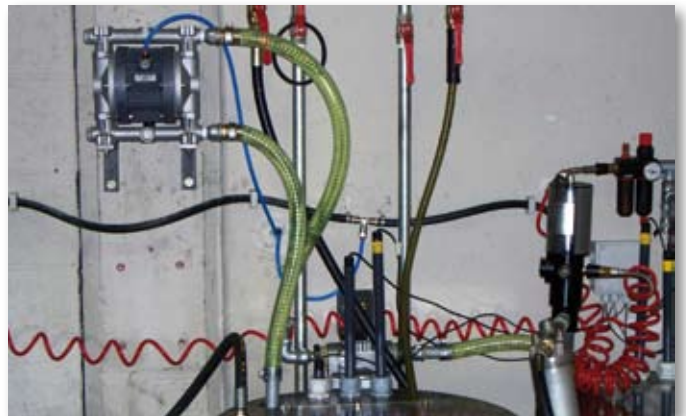
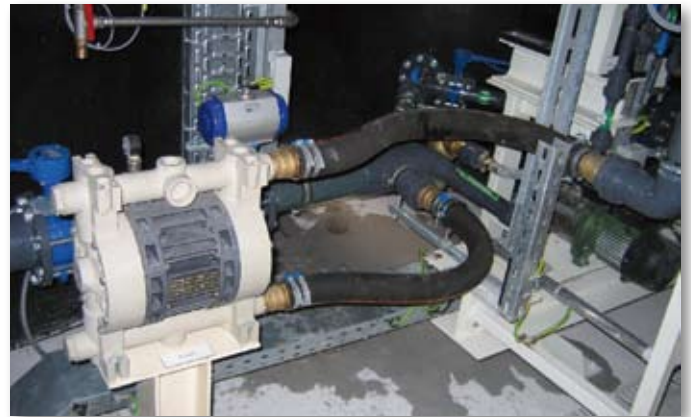
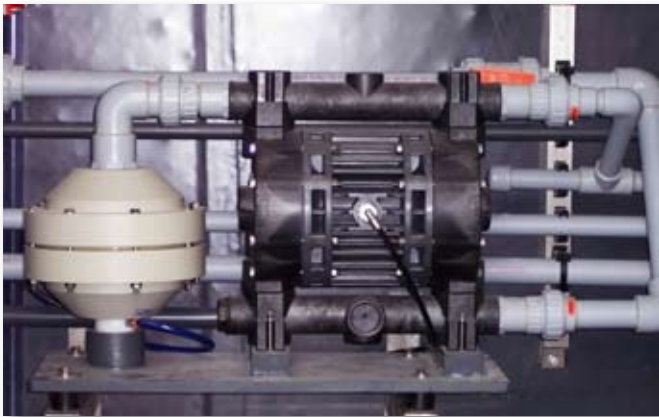


Twin suction manifold





CUBIC and BOXER



CUBIC and BOXER



CHEMICAL COMPATIBILITY

The type of liquid, temperature and working environment are factors to be considered when deciding on the best choice of construction materials for the pump and its **correct chemical compatibility**. Some examples are given in the following table:

SUBSTANCE	Polypropylene	PVDF ECTFE (Halar®)	Aluminium	Stainless Steel AISI 316	NBR (Perbunan®)	EPDM (Dutral®)	Polyurethane	PTFE (Teflon®)	PPS-V (Ryton®)	FPM (Viton®)	Santoprene®	PE-UHMW (Poleszene®)
Acetaldehyde	A1	D	B	A	D	A	-	A	A	D	-	B
Acetamide	A1	C	A	A	A	A	-	A	A	B	-	-
Vinyl acetate	B1	A2	A1	B	D	B2	-	A2	-	A1	-	D
Acetylene	A1	A	A	A	B	A	D	A	A	A	-	-
Vinegar	A	B	D	A	B	A	D	A	A	A	-	A
Acetone	A	D	A	A	D	A	D	A	A	D	A1	A2
Fatty acids	A	A	A	A	B	D	D	A	-	A	D	A

A = very good

B = good

C = poor, not recommended

D = severe etching, not recommended

- = information not available

1 = satisfactory up to 22°C (72°F)

2 = satisfactory up to 48°C (120°F)

For further information, please do not hesitate to contact DEBEM's technical service department.

BOXER PUMPS COMPOSITION CODES

ex. **B81PDTAPDXC**

Boxer 81 in PP + diaphragm EPDM + diaphragm PTFE + balls Aisi 316 + ball seats PP + O rings EPDM + twin manifold + conduct

B81_	P_	D	I	A	P	D	X	C
Pump model	Pump body	Air side diaphragm	Fluid side diaphragm	Balls	Ball seats	O Rings	Twin manifold	Conduct version
Mid - Midgetbox Cu15 - Cubic 15 MICR - Microboxer Min - Miniboxer B50 - Boxer 50 B80 - Boxer 80 B81 - Boxer 81 B100 - Boxer 100 B150 - Boxer 150 B250 - Boxer 250 B251 - Boxer 251 B502 - Boxer 502 B503 - Boxer 503	P - Polypropylene F - PVDF E - ECTFE (Halar) AL - Aluminium A - AISI 316	N - NBR D - EPDM U - Polyurethane H - Hytrel M - Santoprene	T - PTFE	T - PTFE A - AISI 316 D - EPDM *C - Ceramic *G - Glass * Components on request available up the size B80	P - Polypropylene F - PVDF A - AISI 316 I - PE-UHMW R - PPS-V E - ECTFE	D - EPDM V - Viton S - Silicone N - NBR T - PTFE	X if requested	(zone 1) II 2/2GD c IIB T135°C C if requested



BOXER

FLANGED PUMPS

BOXER pumps are also available with a flange coupling



Model	flange	stub-end material	size
MINIBOXER PP	PN 16 in PVC	PP	DN 15
BOXER 81 PP	PN 16 in PVC	PP	DN 25
BOXER 100 PP	PN 16 in PVC	PP	DN 25
BOXER 150 PP	PN 16 in PVC	PP	DN 32
BOXER 250 PP	PN 16 in PVC	PP	DN 40
BOXER 502 PP	PN 16 in PVC	PP	DN 50
BOXER 503 PP	PN 16 in PVC	PP	DN 80
MINIBOXER PVDF	PN 16 in PVC	PVDF	DN 15
BOXER 81 PVDF	PN 16 in PVC	PVDF	DN 25
BOXER 100 PVDF	PN 16 in PVC	PVDF	DN 25
BOXER 150 PVDF	PN 16 in PVC	PVDF	DN 32
BOXER 250 PVDF	PN 16 in PVC	PVDF	DN 40
BOXER 502 PVDF	PN 16 in PVC	PVDF	DN 50
BOXER 503 PVDF	PN 16 in PVC	PVDF	DN 80
MINIBOXER AISI 316	PN 10 in AISI 304	AISI 316	DN 15
BOXER 80 AISI 316	PN 10 in AISI 304	AISI 316	DN 25
BOXER 100 AISI316	PN 10 in AISI 304	AISI 316	DN 25
BOXER 150 AISI 316	PN 10 in AISI 304	AISI 316	DN 32
BOXER 251 AISI 316	PN 10 in AISI 304	AISI 316	DN 40
BOXER 502 AISI 316	PN 10 in AISI 304	AISI 316	DN 50

Intake/delivery connections 1/4" - flow rate 5 l/min

MIDGETBOX

construction materials: PP



PP

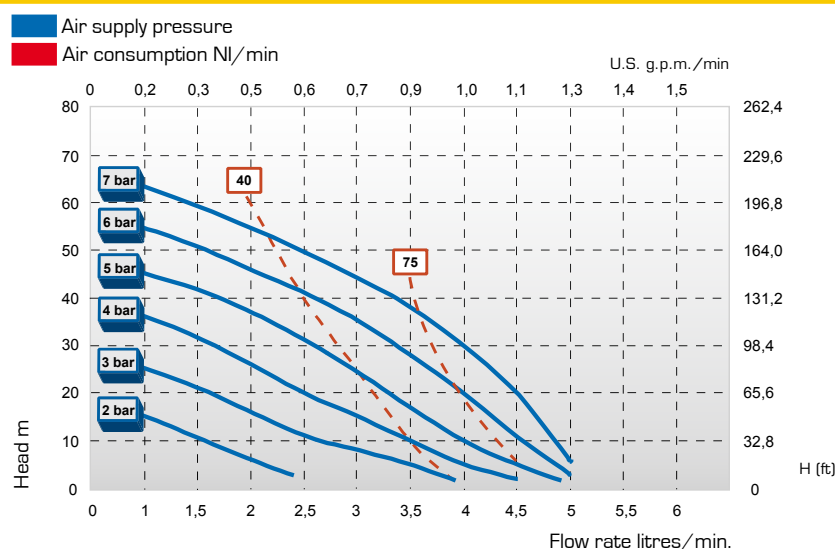
Intake/delivery connections	G 1/4"
Air connection	G 1/8"
Max. self-priming capacity*	3 m
Max. flow rate*	5 l/min
Max. head*	70 m
Max. air supply pressure	7 bar
Max. diameter of passing solids (spherical particles)	0 mm

Net weight PP 0,5 Kg (zone 2) 60°C Max. temp.

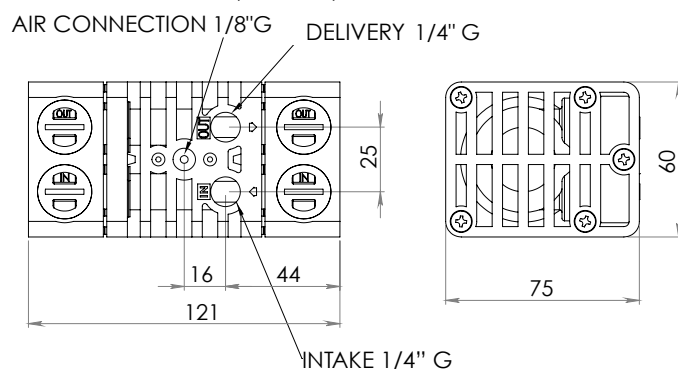
*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

TECHNICAL DATA

PERFORMANCE



DIMENSIONS



The dimensions shown are in mm

All the values shown are approximate and not binding



Intake/delivery connections 3/8" flow rate 17 l/min

CUBIC 15

construction materials: PP - ECTFE

Intake/delivery connections	G 3/8"		
Air connection	G 3/8"		
Max. self-priming capacity*	3 m		
Max. flow rate*	17 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	0,5 mm		

Net weight	PP	1 Kg	(zone 2) 60°C Max. temp.
	ECTFE	1.5 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

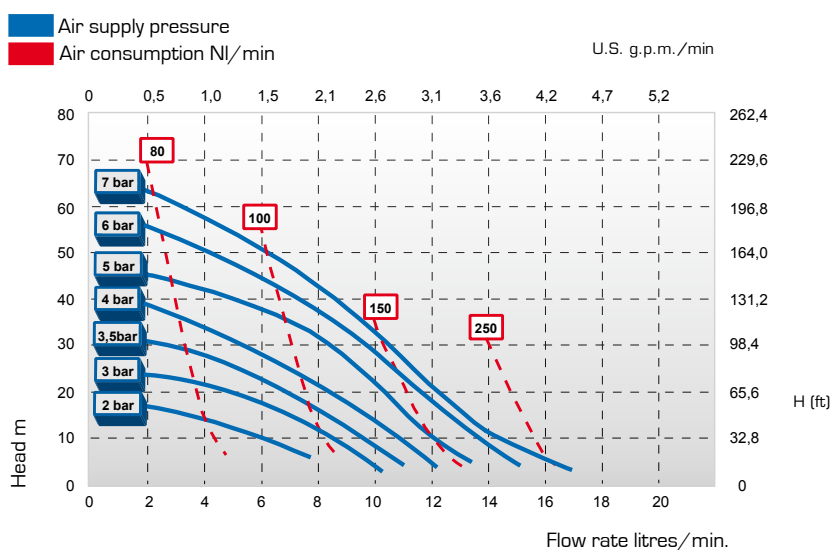


PP

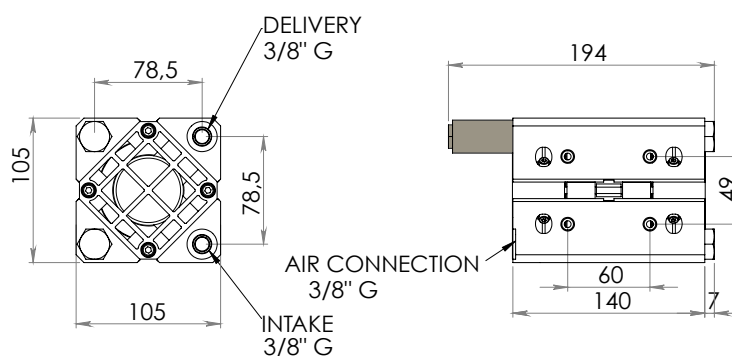
TECHNICAL DATA



ECTFE



PERFORMANCE



The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

Intake/delivery connections 1/2" - flow rate 30 l/min

MICROBOXER

construction materials: PP - PVDF - ALU - Aisi 316



PP

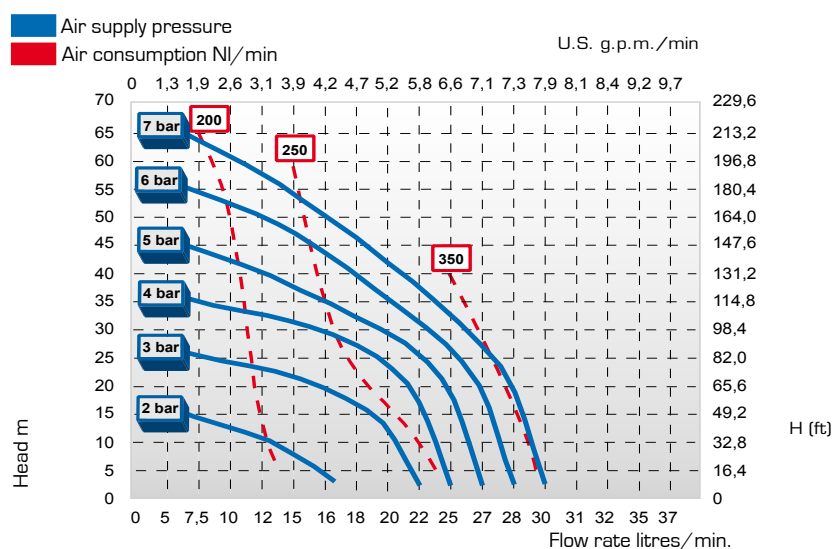
Intake/delivery connections	G 1/2"
Air connection	G 1/4"
Max. self-priming capacity*	6 m
Max. flow rate*	30 l/min
Max. head*	70 m
Max. air supply pressure	7 bar
Max. diameter of passing solids (spherical particles)	2 mm

Net weight	PP	1.6 Kg	[zone 2] 60°C Max. temp.
	PVDF	1.9 Kg	[zone 2] 95°C Max. temp.
	Alu	2 Kg	[zone 2] 95°C Max. temp.
	Aisi 316	3.8 Kg	[zone 2] 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

TECHNICAL DATA

PERFORMANCE



PVDF

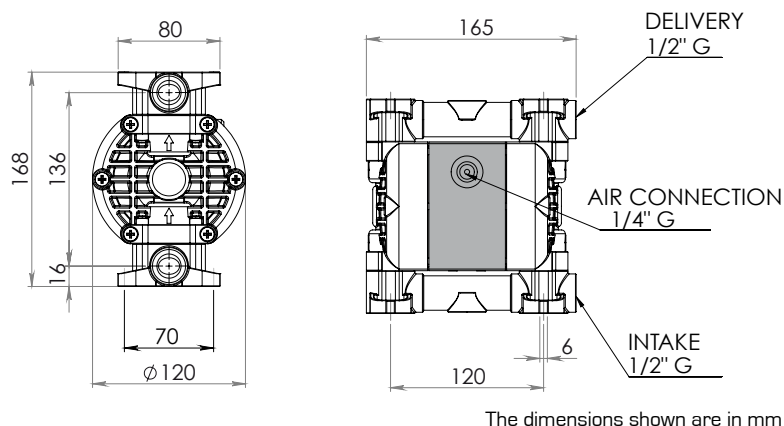


ALU



AISI 316

DIMENSIONS



The dimensions shown are in mm

All the values shown are approximate and not binding



Intake/delivery connections 1/2" - flow rate 50 l/min

MINIBOXER

construction materials: PP - PVDF - Aisi 316

Intake/delivery connections	G 1/2"		
Air connection	G 3/8"		
Max. self-priming capacity*	5 m		
Max. flow rate*	50 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	3 mm		

Net weight	PP	3.6 Kg	(zone 2) 60°C Max. temp.
	PVDF	4.2 Kg	(zone 2) 95°C Max. temp.
	Aisi 316	6.5 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.



Aisi 316

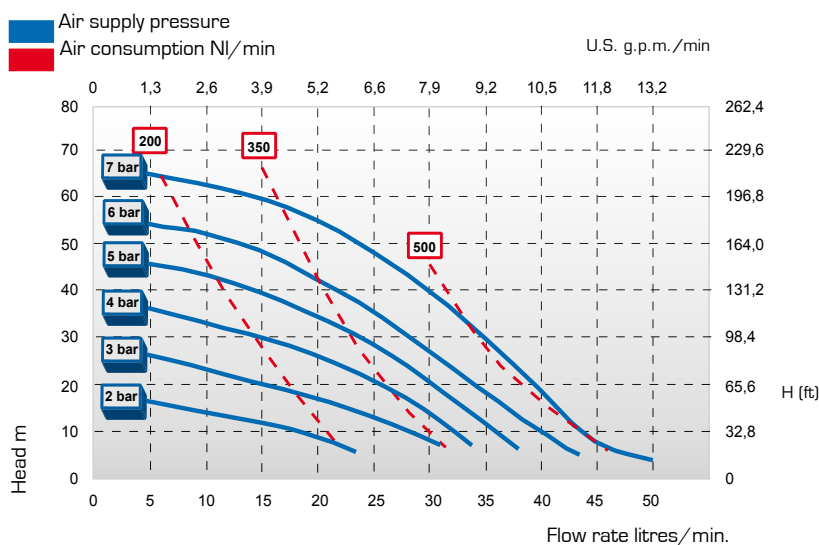
TECHNICAL DATA



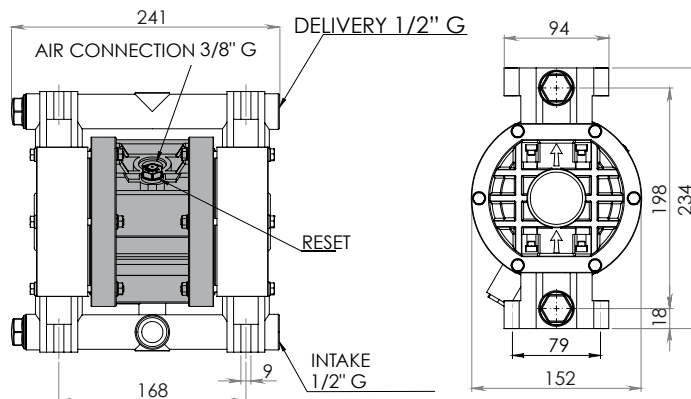
PP



PVDF



PERFORMANCE



The dimensions shown are in mm. The drawing refers to the plastic pump

DIMENSIONS

All the values shown are approximate and not binding

Intake/delivery connections 1/2" - flow rate 50 l/min

BOXER 50

construction materials: ALU



ALU

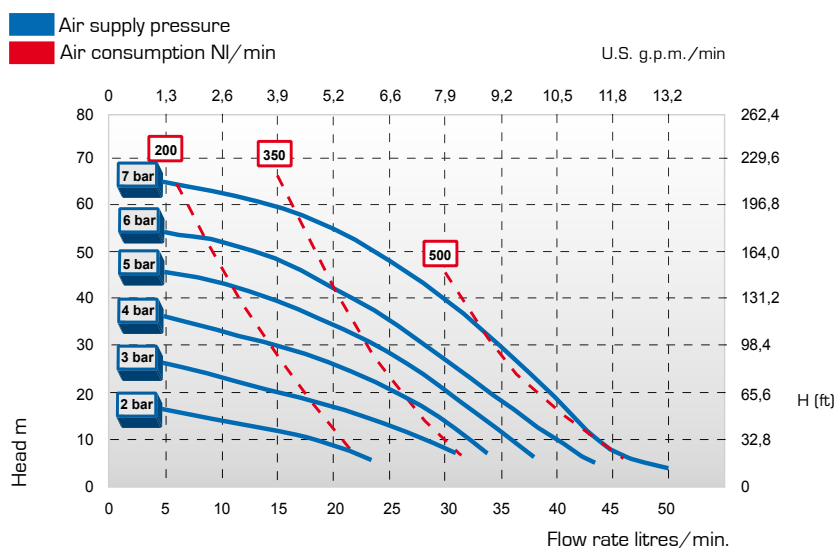
Intake/delivery connections	G 1/2"
Air connection	G 3/8"
Max. self-priming capacity*	5 m
Max. flow rate *	50 l/min
Max. head*	70 m
Max. air supply pressure	7 bar
Max. diameter of passing solids (spherical particles)	4 mm

Net weight Alu 4 Kg (zone 2) 95°C Max. temp.

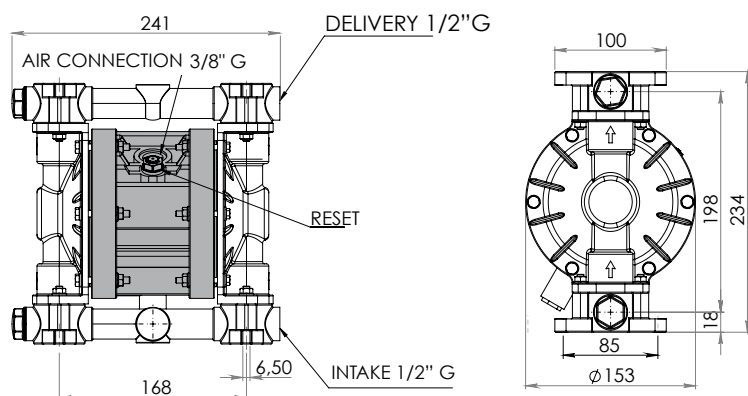
*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

TECHNICAL DATA

PERFORMANCE



DIMENSIONS



The dimensions shown are in mm

All the values shown are approximate and not binding



Intake/delivery connections 1" - flow rate 90 l/min

BOXER 80

construction materials: Aisi 316

Intake/delivery connections	G 1"
Air connection	G 3/8"
Max. self-priming capacity*	5 m
Max. flow rate *	90 l/min
Max. head *	70 m
Max. air supply pressure	7 bar
Max. diameter of passing solids (spherical particles)	4 mm

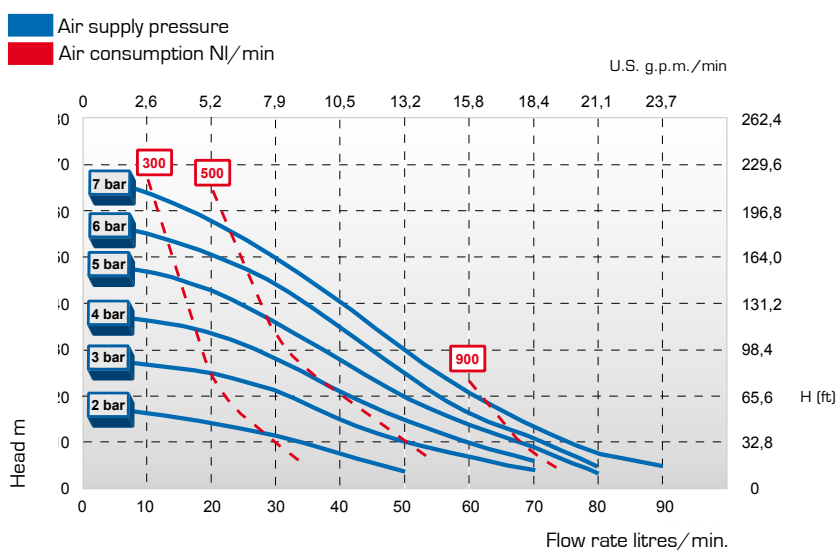
Net weight Aisi 316 10.5 Kg [zone 2] 95°C Max. temp.



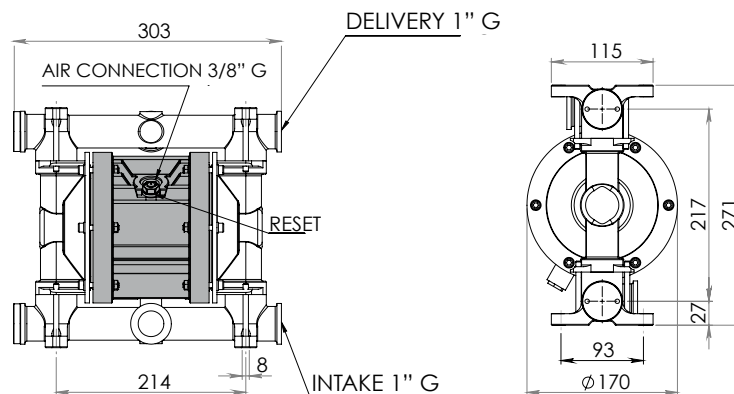
Aisi 316

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

TECHNICAL DATA



PERFORMANCE



The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

Intake/delivery connections 1" - flow rate 100 l/min

BOXER 81

construction materials: PP - PVDF - ALU



PP

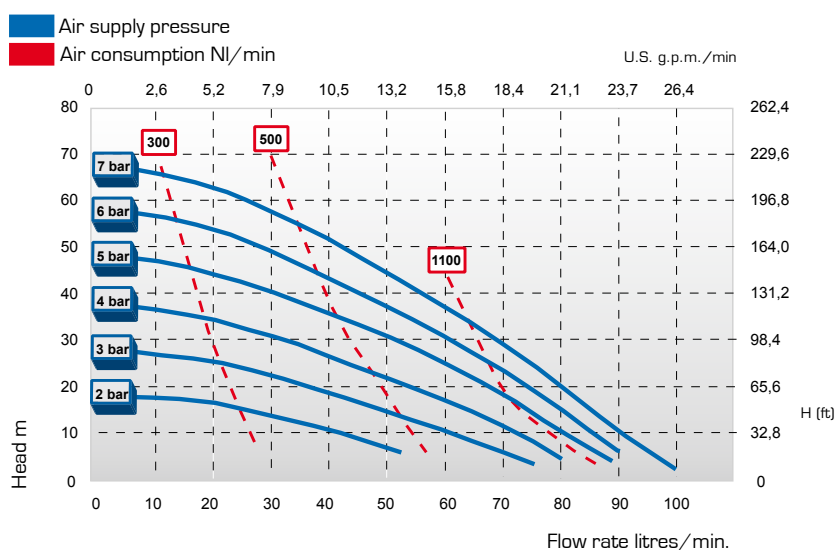
Intake/delivery connections	G 1"
Air connection	G 3/8"
Max. self-priming capacity*	6 m
Max. flow rate*	100 l/min
Max. head*	70 m
Max. air supply pressure	7 bar
Max. diameter of passing solids (spherical particles)	4 mm

Net weight	PP	5 Kg	(zone 2) 60°C Max. temp.
	PVDF	6.5 Kg	(zone 2) 95°C Max. temp.
	Alu	6.5 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

TECHNICAL DATA

PERFORMANCE

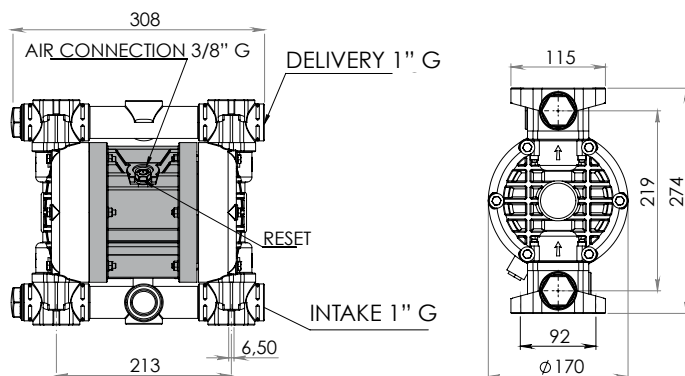


PVDF



ALU

DIMENSIONS



The dimensions shown are in mm. The drawing refers to the plastic pump

All the values shown are approximate and not binding



Intake/delivery connections 1" - flow rate 150 l/min

BOXER 100

construction materials: PP - PVDF - ALU - Aisi 316

Intake/delivery connections	G 1"		
Air connection	G 1/2"		
Max. self-priming capacity*	5 m		
Max. flow rate*	150 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	4 mm		

Net weight	PP	7.5 Kg	(zone 2) 60°C Max. temp.
	PVDF	8.5 Kg	(zone 2) 95°C Max. temp.
	Alu	8.2 Kg	(zone 2) 95°C Max. temp.
	Aisi 316	11 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.



ALU

TECHNICAL DATA



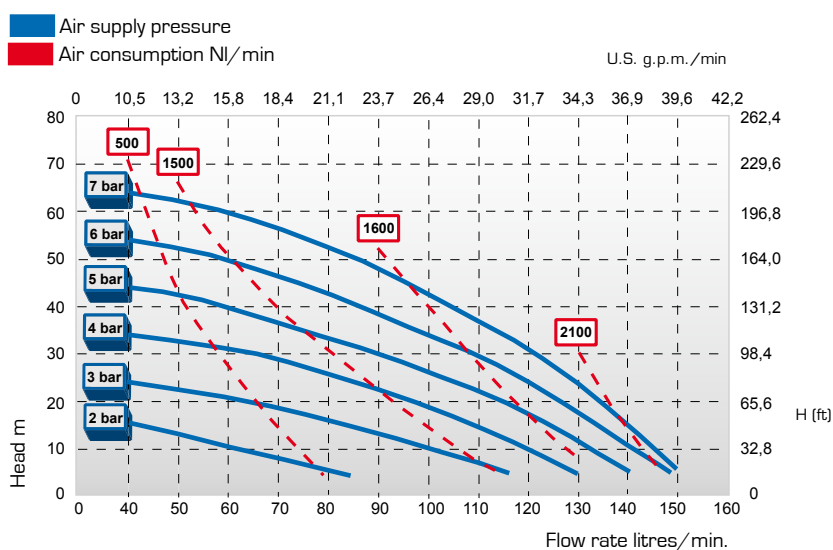
PP



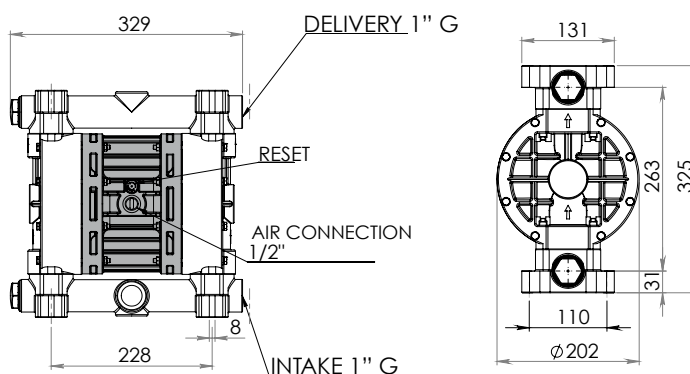
PVDF



Aisi 316



PERFORMANCE



The dimensions shown are in mm. The drawing refers to the plastic pump

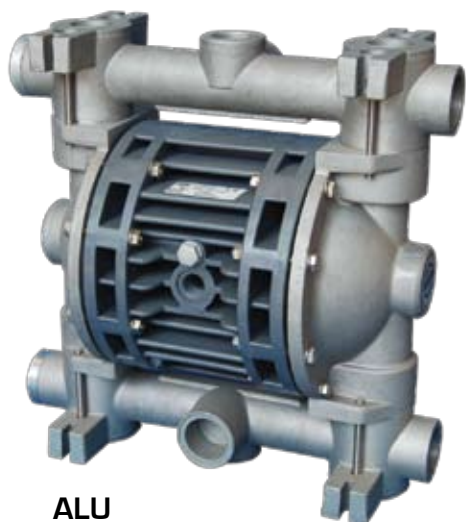
DIMENSIONS

All the values shown are approximate and not binding

Intake/delivery connections 1" 1/4 - flow rate 220 l/min

BOXER 150

construction materials: PP - PVDF - ALU - Aisi 316



ALU

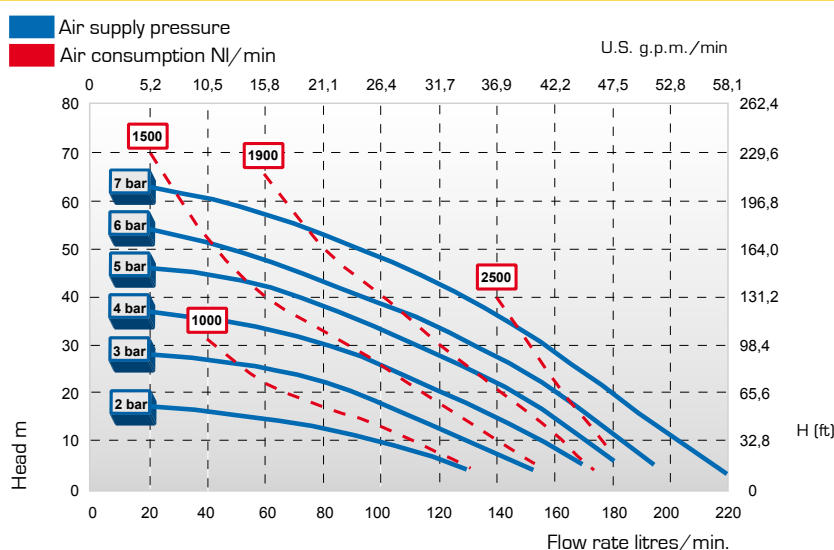
Intake/delivery connections	G 1" 1/4		
Air connection	G 1/2"		
Max. self-priming capacity*	5 m		
Max. flow rate *	220 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	5 mm		

Net weight	PP	12 Kg	(zone 2) 60°C Max. temp.
	PVDF	14 Kg	(zone 2) 95°C Max. temp.
	Alu	16 Kg	(zone 2) 95°C Max. temp.
	Aisi 316	21 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

TECHNICAL DATA

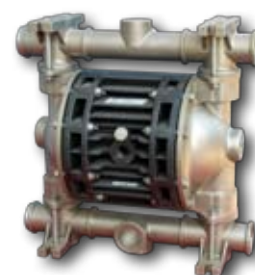
PERFORMANCE



PP

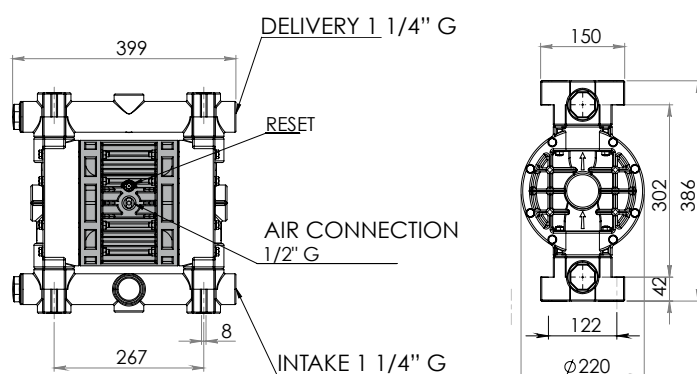


PVDF



AISI 316

DIMENSIONS



The dimensions shown are in mm. The drawing refers to the plastic pump

All the values shown are approximate and not binding



Intake/delivery connections 1" 1/2 - flow rate 340 l/min

BOXER 250

construction materials: PP - PVDF

Intake/delivery connections	G 1" 1/2		
Air connection	G 1/2"		
Max. self-priming capacity*	5 m		
Max. flow rate*	340 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	6 mm		

Net weight	PP	16 Kg	(zone 2) 60°C Max. temp.
	PVDF	20 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

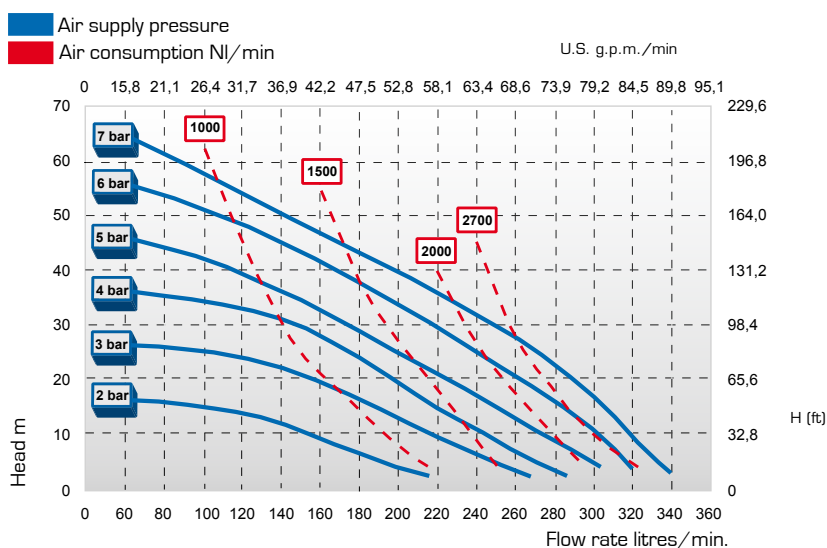


PP

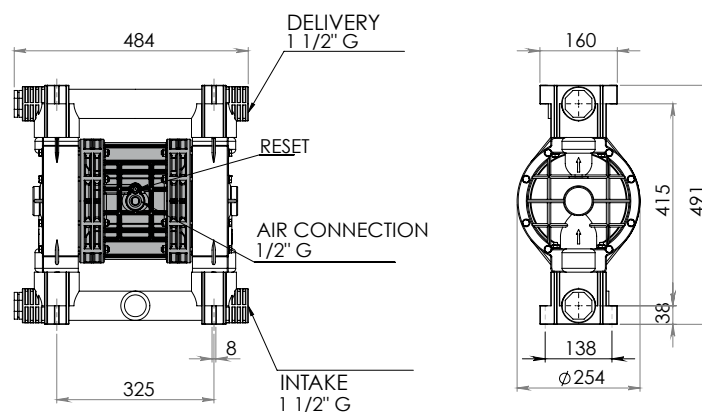
TECHNICAL DATA



PVDF



PERFORMANCE



The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

Intake/delivery connections 1" 1/2 - flow rate 340 l/min

BOXER 251

construction materials: ALU - Aisi 316



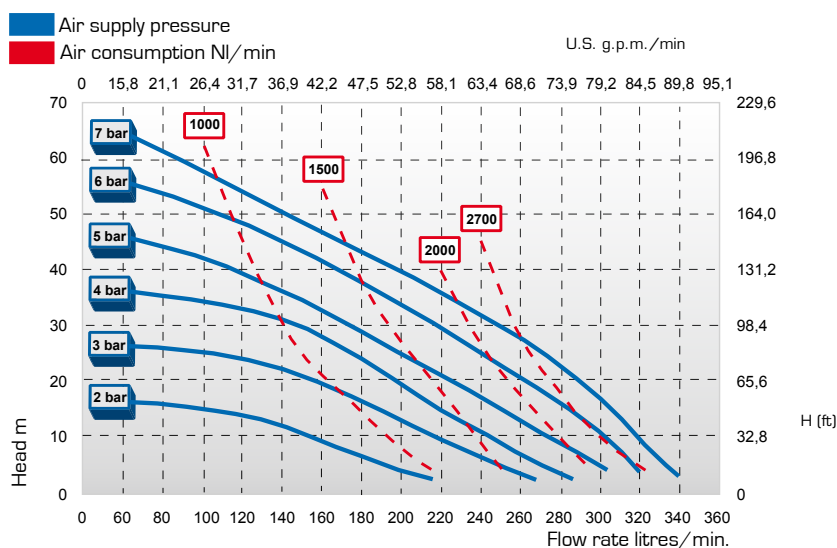
ALU

Intake/delivery connections	G 1" 1/2		
Air connection	G 1/2"		
Max. self-priming capacity*	6 m		
Max. flow rate*	340 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	6 mm		
Net weight	Alu	21 Kg	(zone 2) 95°C Max. temp.
	Aisi 316	32 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

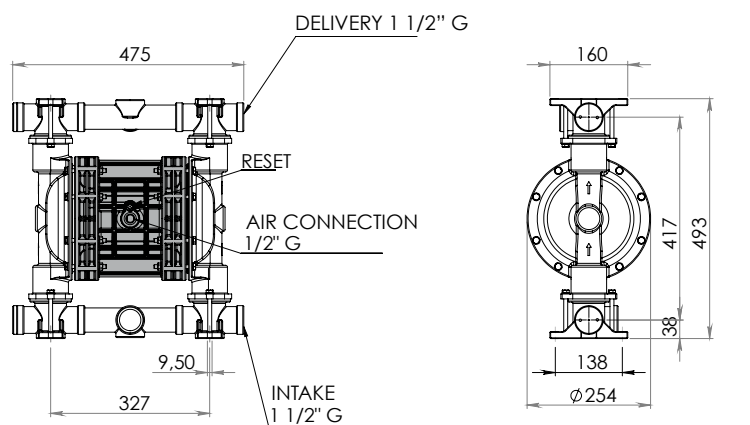
TECHNICAL DATA

PERFORMANCE



AISI 316

DIMENSIONS



The dimensions shown are in mm

All the values shown are approximate and not binding



Intake/delivery connections 2" - flow rate 650 l/min

BOXER 502

construction materials: PP - PVDF

Intake/delivery connections	G 2"		
Air connection	G 1/2"		
Max. self-priming capacity*	4 m		
Max. flow rate*	650 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	8 mm		

Net weight	PP	54 Kg	(zone 2) 60°C Max. temp.
	PVDF	65 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

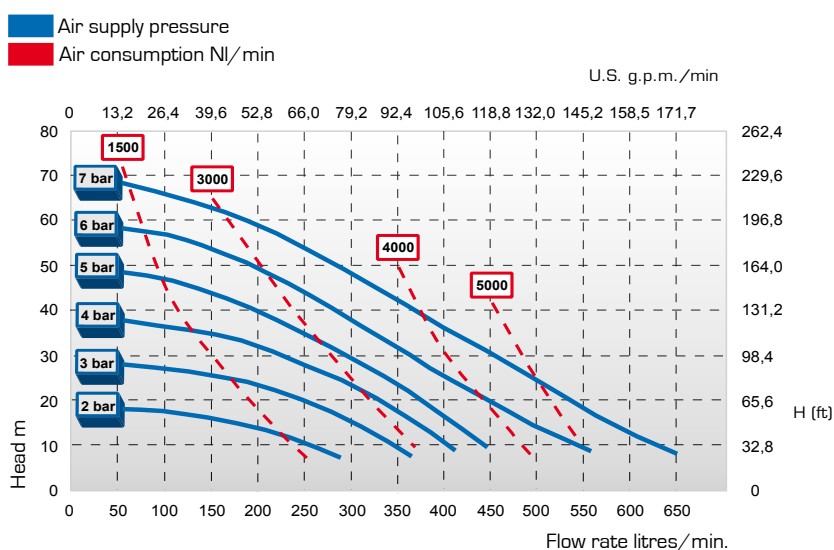


PP

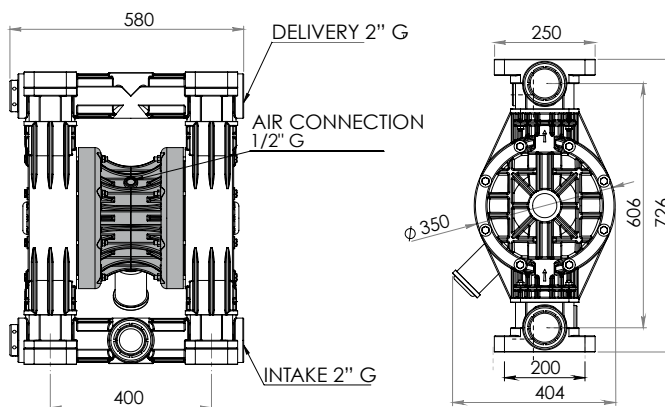
TECHNICAL DATA



PVDF



PERFORMANCE



The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

Intake/delivery connections 2" - flow rate 650 l/min

BOXER 502

construction materials: Aisi 316



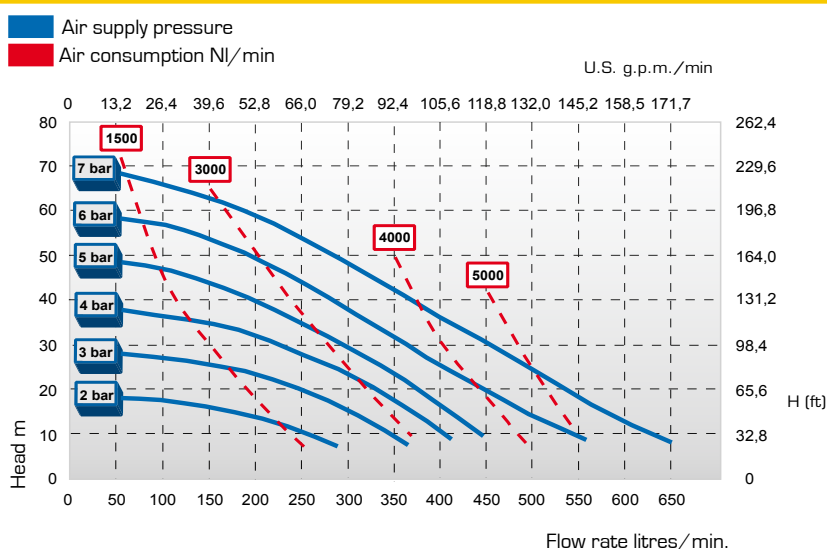
Aisi 316

Intake/delivery connections	G 2"
Air connection	G 1 1/2"
Max. self-priming capacity*	4 m
Max. flow rate *	650 l/min
Max. head*	70 m
Max. air supply pressure	7 bar
Max. diameter of passing solids (spherical particles)	8 mm
Net weight	Aisi 316 49 Kg (zone 2) 95°C Max. temp.

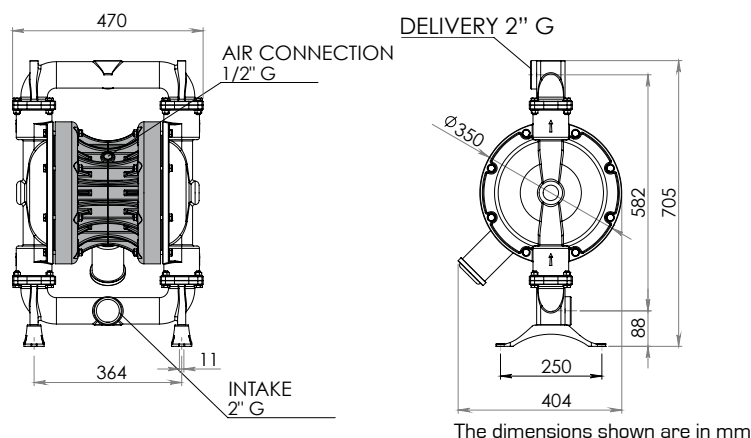
*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

TECHNICAL DATA

PERFORMANCE



DIMENSIONS



All the values shown are approximate and not binding



Intake/delivery connections 3" - flow rate 900 l/min

BOXER 503

construction materials: PP - PVDF

Intake/delivery connections	G 3"		
Air connection	G 3/4"		
Max. self-priming capacity*	5 m		
Max. flow rate*	900 l/min		
Max. head*	70 m		
Max. air supply pressure	7 bar		
Max. diameter of passing solids (spherical particles)	10 mm		

Net weight	PP	56 Kg	(zone 2) 60°C Max. temp.
	PVDF	67 Kg	(zone 2) 95°C Max. temp.

*The curves and performance values refer to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.

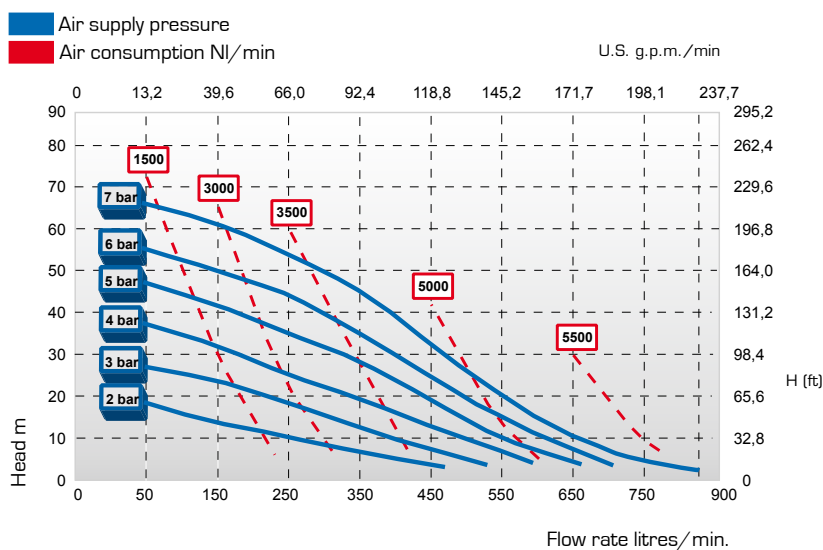


PVDF

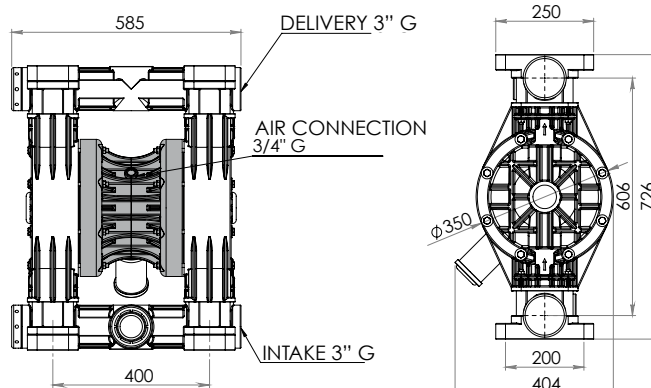
TECHNICAL DATA



PP



PERFORMANCE



The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

EQUAFLUX

PULSATION DAMPENERS



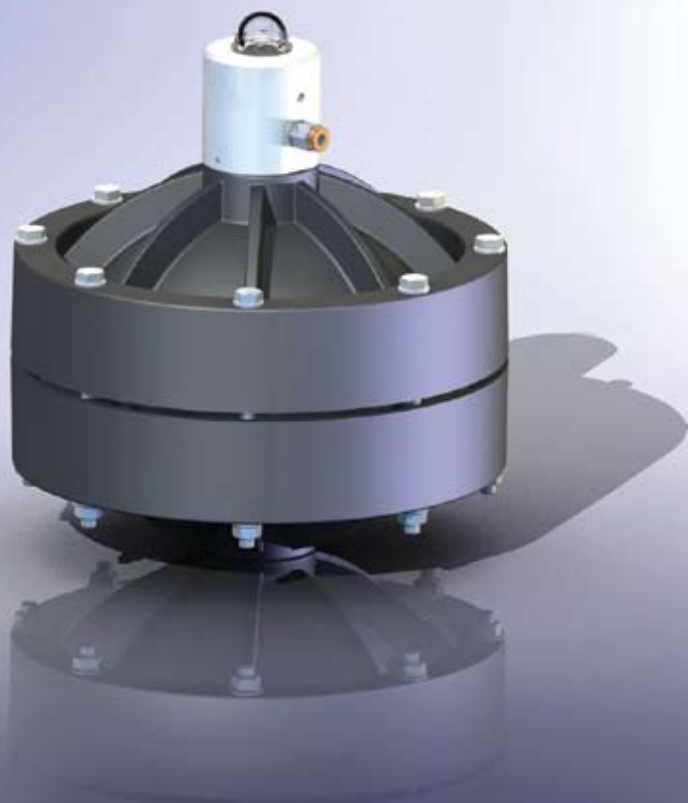
EQUAFLUX automatic diaphragm pulsation dampeners feature solid build and high performance. They are fitted to the discharge line of diaphragm pumps in order to smooth pulsating flows and can be used with liquids having apparent viscosity of up to **50000 cps (at 20°C)** even if containing suspended solids of considerable size.

EQUAFLUX dampeners automatically adapt to system conditions without the need for manual adjustment or calibration.

The ability to minimise pulsations, vibrations and water hammer means that this component provides excellent protection and smooth system flow.

The huge choice of construction materials allows selection of optimum chemical compatibility with the fluid and/or environment without neglecting the temperature range.

Dampeners are also available for use in potentially explosive atmospheres (ATEX certification).



DEBEM



II 2/2GD c IIB T135°C (zone1)
II 3/3GD c IIB T135°C (zone2)

www.debem.it



EQUAFLUX

Available in PP, PVDF, PPS-V, AISI 316

Automatic dampening control;

Suitable for demanding applications;

Use in potentially-explosive atmospheres;
[ATEX certifications]

Use in environments subject to high
humidity and condensation;

Dry operation;

Actuated using non lubricated air;

Range of construction materials ensures
correct fluid compatibility;

User-friendly parts replacement and
maintenance;

Excellent performance and value for money.

DESCRIPTION OF THE DAMPENER

Diaphragm pulsation dampeners consist of a **pneumatic actuator** connected to the **new generation diaphragm** (Long Life profile). The sturdy outer body forms the actuator's compressed-air chamber for suppressing pressure surges on one side of the diaphragm and the chamber through which the fluid flows on the other.

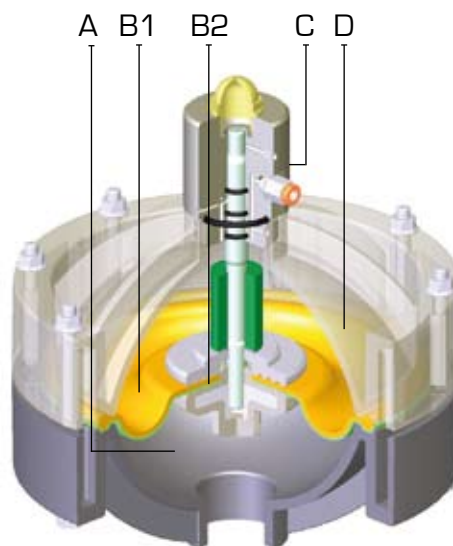
A = expansion opening

B1 = air-side diaphragm

B2 = fluid-side diaphragm

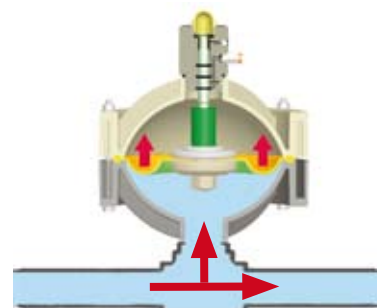
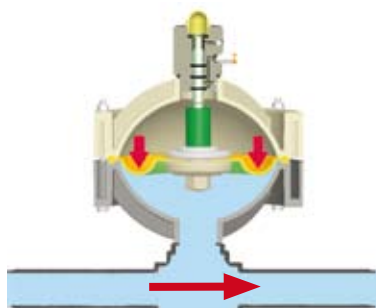
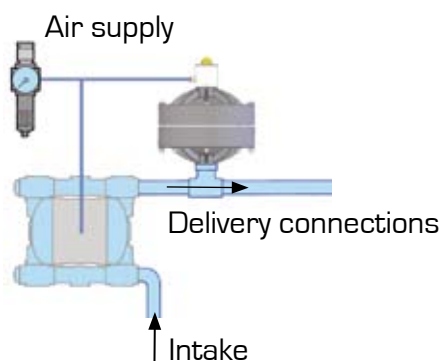
C = automatic pneumatic valve

D = compressed-air chamber



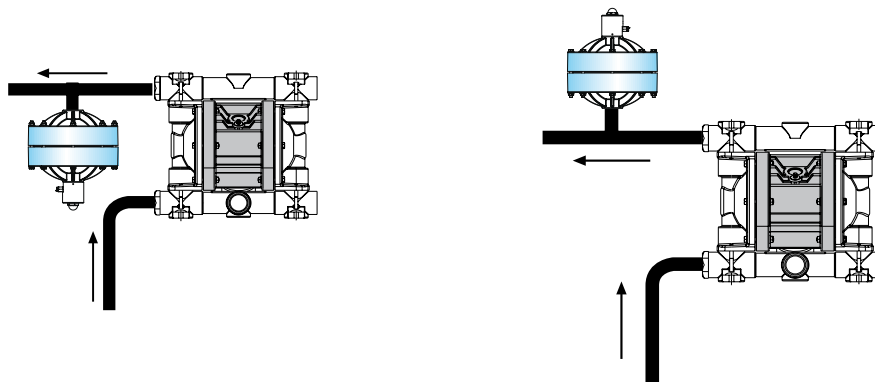
HOW IT WORKS

The compressed air entering the back-pressure chamber behind the diaphragm creates a pneumatic cushion that adjusts automatically to compensate the shock produced by the pressure pulse of the fluid generated by the pump.



INSTALLATION

Diaphragm dampeners **should be installed on the discharge side of pneumatic pumps** or where pressure surges in the fluid occur.



CHEMICAL COMPATIBILITY

The **type of liquid, temperature and working environment** are factors to be considered when deciding on the **best choice of construction materials** for the pump and its **correct chemical compatibility**. The table below gives some examples of the most commonly-used substances:

SUBSTANCE	Polypropylene	ECTFE (Halar®)	PTFE (Teflon®)	PPSV (Ryton®)	FPM (Viton®)	Santoprene®
Acetaldehyde	A1	D	A	D	A	-
Acetamide	A1	C	A	B	A	-
Vinyl acetate	B1	A2	A2	A1	B2	-
Acetylene	A1	A	A	A	A	-
Vinegar	A	B	A	A	A	-
Acetone	A	D	A	D	A	A1
Fatty acids	A	A	A	A	D	D

A = very good

B = good

C = poor, not recommended

D = severe etching, not recommended

- = information not available

1 = satisfactory up to 22°C (72°F)


2 = satisfactory up to 48°C (120°F)

For further information, please do not hesitate to contact DEBEM's technical service department.

EQUAFLUX COMPOSITION CODES

ex. **EQ100PHTC**

Equaflux 100 in PP + Hytrel diaphragm + PTFE diaphragm + conduct

EQ100	P	H	I	C
Dampener model	Dampener body	Air side diaphragm	Product side diaphragm	Conduct version
EQ 51 - Equaflux 51 EQ 100 - Equaflux 100 EQ 200 - Equaflux 200 EQ 300 - Equaflux 300 EQ 302 - Equaflux 302 EQ 303 - Equaflux 302	P - Polypropylene F - PVDF R - PPS-V A - Aisi 316	H - Hytrel M - Santoprene	T - PTFE	(zone 1)  II 2/2GD c IIB T135°C C - if requested



EQUAFLUX 51

construction materials: PP - PVDF - PPS-V

Product connection	G 3/4"
Air connection	Ø 6 mm
Max. air supply pressure	7 bar

For pumps:

MIDGETBOX, CUBIC 15, MICROBOXER

Net weight	PP	0.5 Kg	(zone 2) 60°C Max. temp.
	PVDF	0.5 Kg	(zone 2) 95°C Max. temp.
	PPS-V	0.6 Kg	(zone 2) 95°C Max. temp.

The values shown depend on the construction materials



PVDF

TECHNICAL DATA



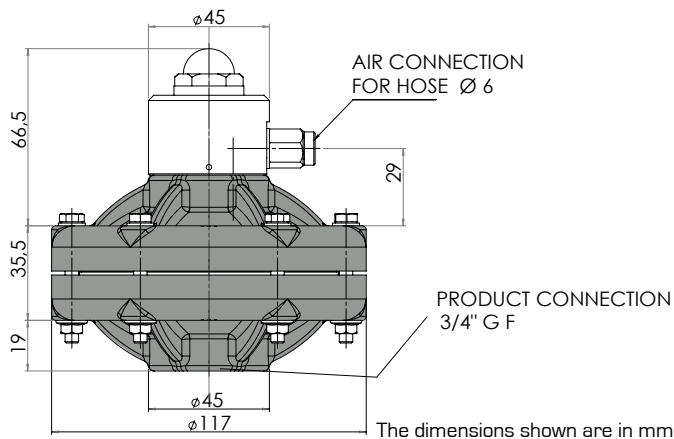
PP



PPS-V

Dampener	Pump	Material
EQUAFLUX 51 PP	MIDGETBOX CUBIC 15 MICROBOXER	PP PP PP
EQUAFLUX 51 PVDF	CUBIC 15 MICROBOXER MICROBOXER	ECTFE PVDF Aisi 316
EQUAFLUX 51 PPS-V	MICROBOXER	ALU

APPLICABILITY



DIMENSIONS

All the values shown are approximate and not binding

EQUAFLUX 100

construction materials: PP - PVDF - PPS-V



PP

Product connection	G 1"
Air connection	ø 6 mm
Max. air supply pressure	7 bar

For pumps:

MINIBOXER, BOXER 50 BOXER 80, BOXER 81 and BOXER 100

Net weight	PP	1.5 Kg	[zone 2] 60°C Max. temp.
	PVDF	1.7 Kg	[zone 2] 95°C Max. temp.
	PPS-V	1.7 Kg	[zone 2] 95°C Max. temp.

The values shown depend on the construction materials

TECHNICAL DATA

APPLICABILITY

Dampener	Pump	Material
EQUAFLUX 100 PP	MINIBOXER	PP
	BOXER 81	PP
	BOXER 100	PP
EQUAFLUX 100 PVDF	MINIBOXER	PVDF
	MINIBOXER	Aisi 316
	BOXER 80	Aisi 316
	BOXER 81	PVDF
	BOXER 100	PVDF
	BOXER 100	AISI 316
EQUAFLUX 100 PPS-V	BOXER 50	ALU
	BOXER 81	ALU
	BOXER 100	ALU

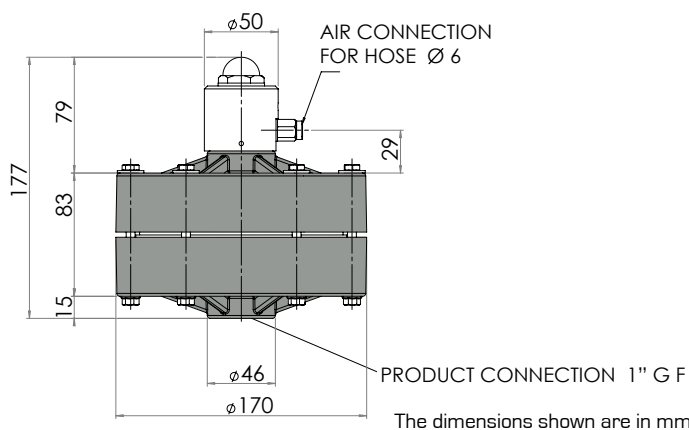


PVDF



PPS-V

DIMENSIONS



The dimensions shown are in mm

All the values shown are approximate and not binding



EQUAFLUX 200

construction materials: PP - PVDF - PPS-V

Product connection	G 1" 1/2
Air connection	Ø 6 mm
Max. air supply pressure	7 bar

For pumps:

BOXER 150, BOXER 250 e BOXER 251

Net weight	PP	3.8 Kg	(zone 2) 60°C Max. temp.
	PVDF	4.5 Kg	(zone 2) 95°C Max. temp.
	PPS-V	4.5 Kg	(zone 2) 95°C Max. temp.

The values shown depend on the construction materials



PPS-V

TECHNICAL DATA



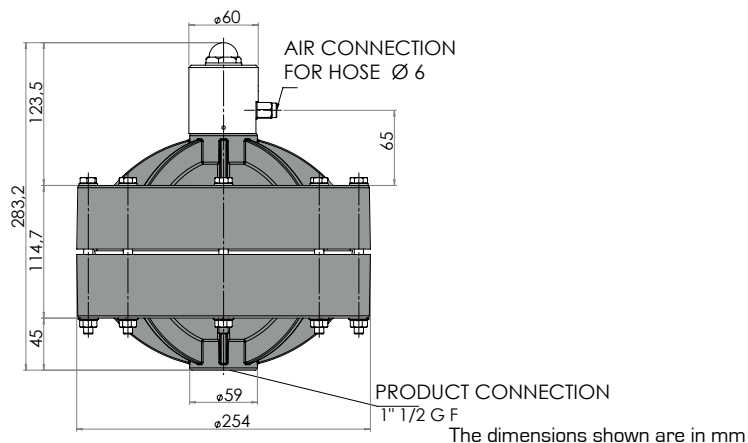
PP



PVDF

Dampener	Pump	Material
EQUAFLUX 200 PP	BOXER 150 BOXER 250	PP PP
EQUAFLUX 200 PVDF	BOXER 150 BOXER 150 BOXER 250 BOXER 251	PVDF Aisi 316 PVDF Aisi 316
EQUAFLUX 200 PPS-V	BOXER 150 BOXER 251	ALU ALU

APPLICABILITY



DIMENSIONS

All the values shown are approximate and not binding

EQUAFLUX 302

construction materials: PP - PVDF - Aisi 316



PP

Product connection	G 2"
Air connection	Ø 8 mm
Max. air supply pressure	7 bar

For pumps:

BOXER 502

Net weight	PP	23 Kg	(zone 2) 60°C Max. temp.
	PVDF	28.5 Kg	(zone 2) 95°C Max. temp.
	Aisi 316	26 Kg	(zone 2) 95°C Max. temp.

The values shown depend on the construction materials

TECHNICAL DATA

APPLICABILITY

Dampener	Pump	Material
EQUAFLUX 302 PP	BOXER 502	PP
EQUAFLUX 302 PVDF	BOXER 502	PVDF
EQUAFLUX 302 Aisi 316	BOXER 502	Aisi 316

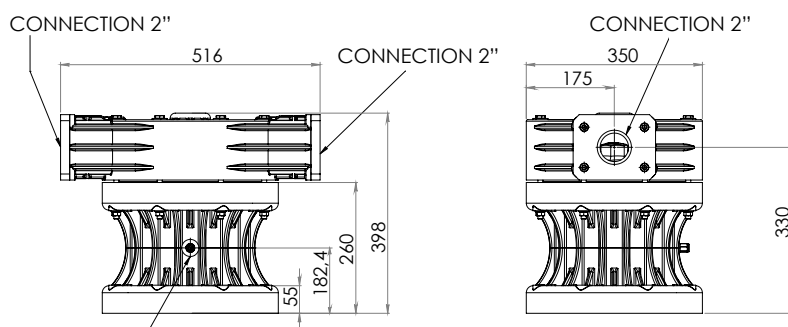


PVDF



Aisi 316

DIMENSIONS



AIR CONNECTION 8 mm

The dimensions shown are in mm

All the values shown are approximate and not binding



EQUAFLUX 303

construction materials: PP - PVDF

Product connection	G 3"
Air connection	Ø 8 mm
Max. air supply pressure	7 bar

For pumps:

BOXER 503

Net weight	PP	23 Kg	(zone 2) 60°C Max. temp.
	PVDF	28.5 Kg	(zone 2) 95°C Max. temp.

The values shown depend on the construction materials



PP

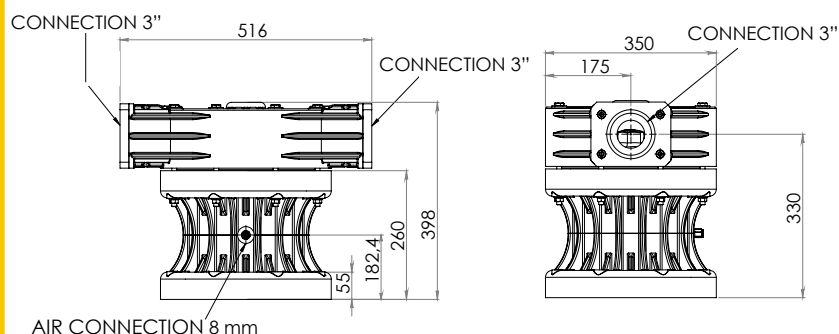
TECHNICAL DATA



PVDF

Dampener	Pump	Material
EQUAFLUX 303 PP	BOXER 503	PP
EQUAFLUX 303 PVDF	BOXER 503	PVDF

APPLICABILITY



The dimensions shown are in mm

DIMENSIONS

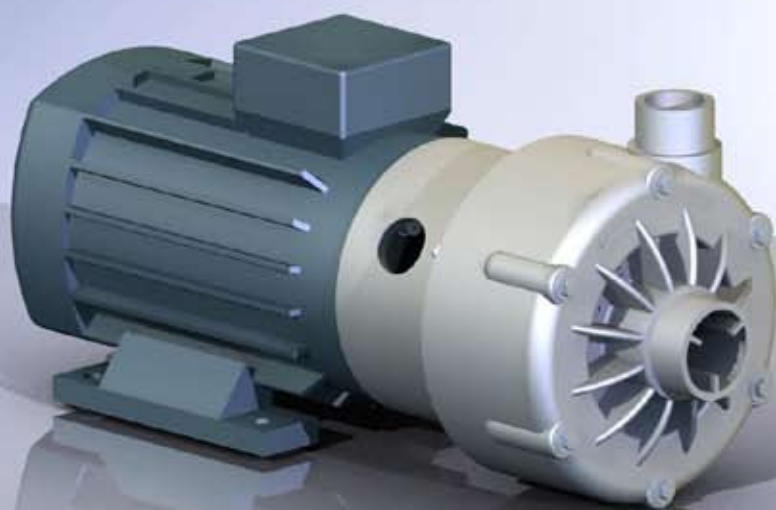
All the values shown are approximate and not binding

MB

HORIZONTAL CENTRIFUGAL PUMPS



Debem-manufactured resin-encased horizontal centrifugal pumps are high-performance pumps operated by a direct-drive motor (**max 3000 rpm**) for fast fluid transfer and/or drainage with **flow rates ranging from 6 to 75 m³/hour**. Their special open-impeller design allows continuous pumping even with very dirty liquids having **apparent viscosity of up to 500 cps (at 20°C)** and small suspended solids. There are two versions available with different internal mechanical seal depending on use, **TL (lip seal)** and **TS (bellows seal)**.



DEBEM

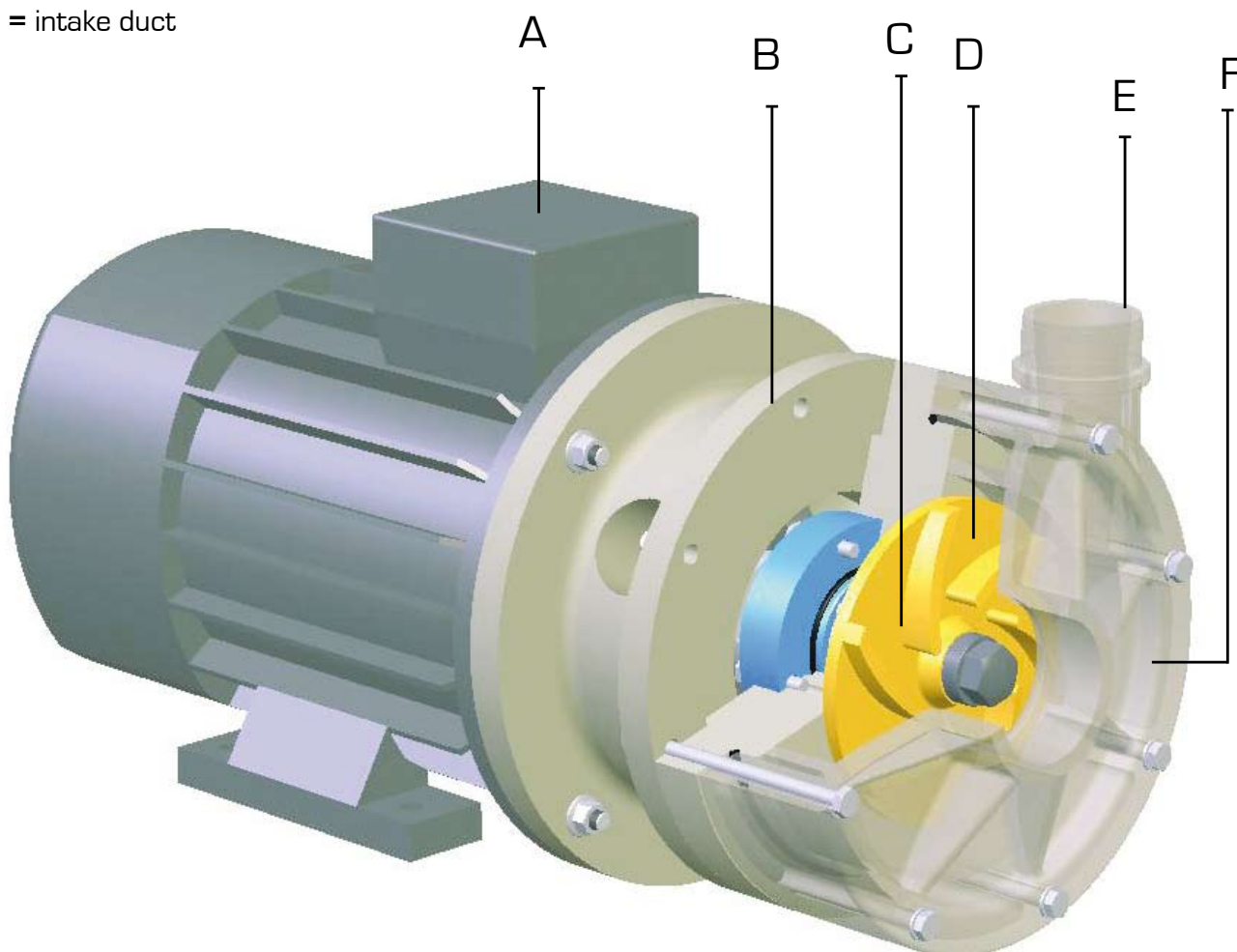
Available in polypropylene, PVDF;
Positive suction head operation;
Weldless;
Mechanical lip or bellows seal;

Usable even with extremely dirty liquids (TS seal);
High flow rates: from 6 to 75 m³/hour;
Quick and easy maintenance;
Inexpensive spares.

DESCRIPTION OF THE PUMP

Resin-encased **horizontal centrifugal pumps** feature a **solid pump casing** and a lantern for connecting the electric motor and inspection of the mechanical seal. The **open impeller** is fitted to the pump shaft that is integral with the drive **shaft** of the **electric motor**. The **shaft mechanical seal** is housed at the rear of the impeller.

- A = electric motor
- B = inspection lantern
- C = mechanical seal
- D = impeller
- E = delivery duct
- F = intake duct

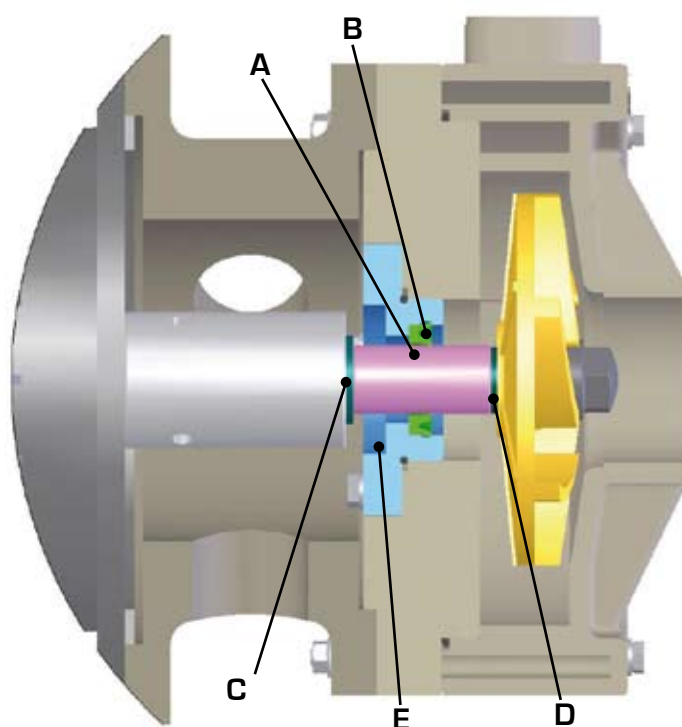


HOW IT WORKS

The impeller is integral with the shaft and direct-drive electric motor and is rotated at a preset speed with the centrifugal effect producing suction on the intake side and discharge on the delivery side.

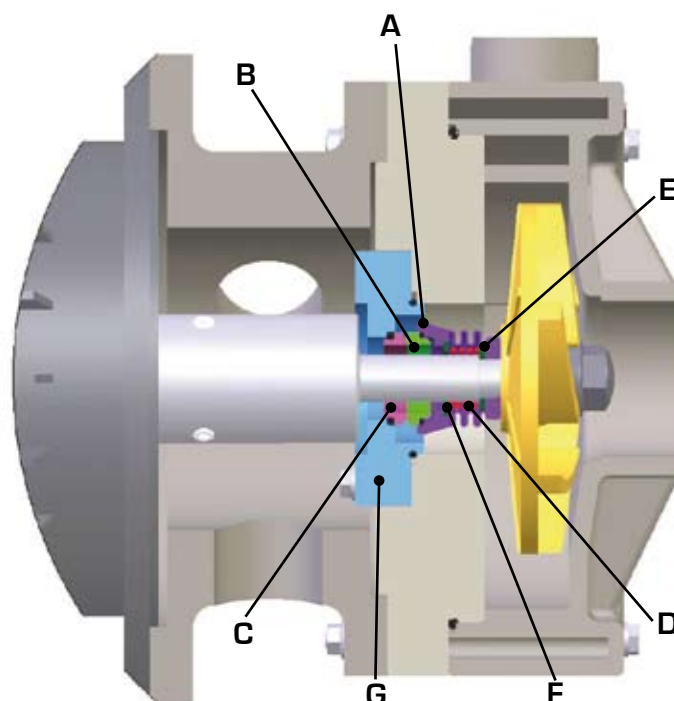
TL = lip seal

- A - Ceramic bushing
- B - O-ring
- C - Bushing spacer
- D - Gasket
- E - Seal-holding flange



TS = bellows seal

- A - Bellows
- B - Dynamic seal ring
- C - Static seal ring
- D - Spring
- E - Washer
- F - Circlip
- G - Seal-holding flange

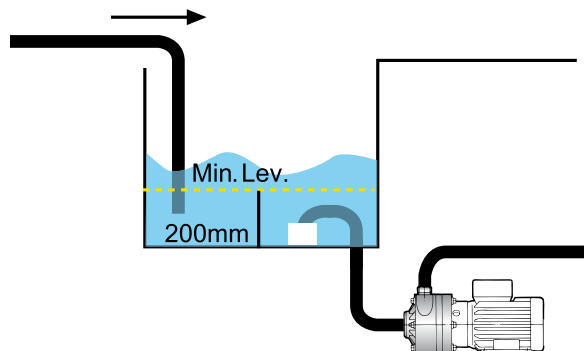




MB

INSTALLATION

MB horizontal centrifugal pumps **should only be installed with the shaft positioned horizontally in a positive suction head arrangement**. Suitable devices should be fitted to prevent dry running and the formation of a vortex and possible air suction. Horizontal centrifugal pumps **should only operate WHILST FILLED**. Running dry or with air bubbles can cause damage to the mechanical seal.



CHEMICAL COMPATIBILITY

The **type of liquid, temperature and working environment** are factors to be considered when deciding on the **best choice of construction materials** for the pump and its **correct chemical compatibility**. The table below gives some examples of the most commonly-used substances:

SUBSTANCE	Polypropylene	PVDF (Halair®)	EPDM (Dutral®)	FPM (Viton®)
Acetaldehyde	A1	D	A	D
Acetamide	A1	C	A	B
Vinyl acetate	B1	A2	B2	A1
Acetylene	A1	A	A	A
Vinegar	A	B	A	A
Acetone	A	D	A	D
Fatty acids	A	A	D	A

A = very good
 B = good
 C = poor, not recommended
 D = severe etching, not recommended
 - = information not available
 1 = satisfactory up to 22°C (72°F)
 2 = satisfactory up to 48°C (120°F)

For further information, please do not hesitate to contact DEBEM's technical service department.

MB PUMPS COMPOSITION CODES

ex. **MB80PTLVN**

MB 80 in PP +Viton lip seal + Three-phase motor

MB80	P	TLV	N
Pump model	Pump material	Type of seal	Motor
MB 80 - MB 80 MB 100 - MB 100 MB 110 - MB 110 MB 120 - MB 120 MB 130 - MB 130 MB 140 - MB 140 MB 150 - MB 150 MB 155 - MB 155 MB 160 - MB 160 MB 180 - MB 180	P - Polypropylene F - PVDF	TLV - Viton lip seal TLD - EPDM lip seal TSV - Viton bellow seal TSD - EPDM bellow seal	N* - Three-phase motor M - Single-phase motor A - ATEX motor

* Standard motor is the three-phase induction type with European voltage (2-pole) 50Hz

FLANGED PUMPS

MB pumps are also available with a flange coupling



Model	flange	stub-end material	size
MB 80 PP	PN 16 in PVC	PP	INTAKE DN 40 - DEL. DN 25
MB 100 PP	PN 16 in PVC	PP	INTAKE DN 40 - DEL. DN 25
MB 110 PP	PN 16 in PVC	PP	INTAKE DN 50 - DEL. DN 40
MB 120 PP	PN 16 in PVC	PP	INTAKE DN 50 - DEL. DN 40
MB 130 PP	PN 16 in PVC	PP	INTAKE DN 50 - DEL. DN 40
MB 140 PP	PN 16 in PVC	PP	INTAKE DN 50 - DEL. DN 40
MB 150 PP	PN 16 in PVC	PP	INTAKE DN 65 - DEL. DN 50
MB 155 PP	PN 16 in PVC	PP	INTAKE DN 65 - DEL. DN 50
MB 160 PP	PN 16 in PVC	PP	INTAKE DN 65 - DEL. DN 50
MB 180 PP	PN 16 in PVC	PP	INTAKE DN 65 - DEL. DN 50
MB 80 PVDF	PN 16 in PVC	PVDF	INTAKE DN 40 - DEL. DN 25
MB 100 PVDF	PN 16 in PVC	PVDF	INTAKE DN 40 - DEL. DN 25
MB 110 PVDF	PN 16 in PVC	PVDF	INTAKE DN 50 - DEL. DN 40
MB 120 PVDF	PN 16 in PVC	PVDF	INTAKE DN 50 - DEL. DN 40
MB 130 PVDF	PN 16 in PVC	PVDF	INTAKE DN 50 - DEL. DN 40
MB 140 PVDF	PN 16 in PVC	PVDF	INTAKE DN 50 - DEL. DN 40
MB 150 PVDF	PN 16 in PVC	PVDF	INTAKE DN 65 - DEL. DN 50
MB 155 PVDF	PN 16 in PVC	PVDF	INTAKE DN 65 - DEL. DN 50
MB 160 PVDF	PN 16 in PVC	PVDF	INTAKE DN 65 - DEL. DN 50
MB 180 PVDF	PN 16 in PVC	PVDF	INTAKE DN 65 - DEL. DN 50



MB 80

construction materials: PP - PVDF

Intake connection	G 1" 1/2 f		
Delivery connections	G 1" m		
Max. flow rate*	6 m ³ /h		
Max. head*	7,2 m		
Seal	TL - TS		
Motor power	0.37 kW - 0.5 HP		
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	5 mm		
Max. viscosity	500 cps		
Net weight	PP	8.5 Kg	60°C Max. temp.
	PVDF	9.5 Kg	90°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

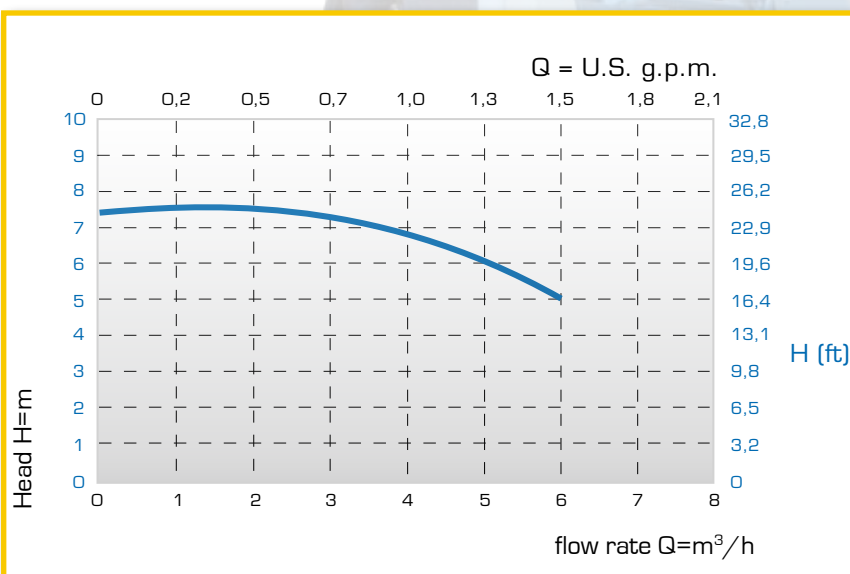


PVDF

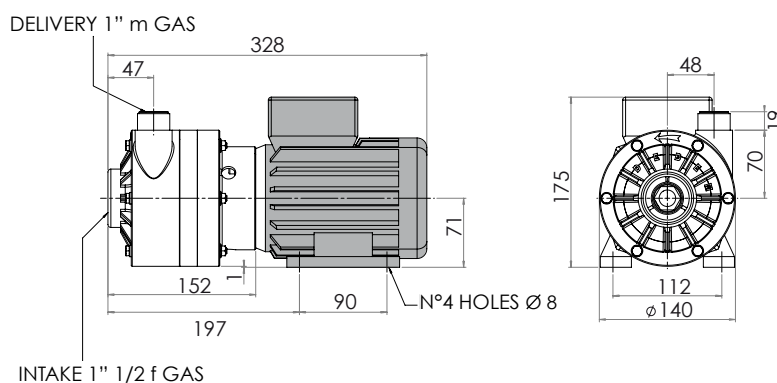
TECHNICAL DATA



PP



PERFORMANCE



m = male - f = female

The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

MB 100

construction materials: PP - PVDF



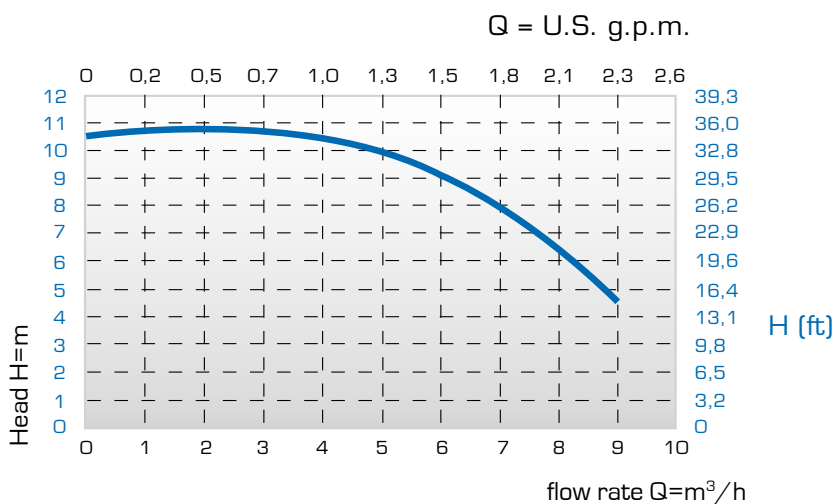
PVDF

Intake connection	G 1" 1/2 f		
Delivery connections	G 1" m		
Max. flow rate*	9 m ³ /h		
Max. head*	10.5 m		
Seal	TL - TS		
Motor power	0.55 kW - 0.75 HP		
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	7 mm		
Max. viscosity	500 cps		
Net weight	PP	8.5 Kg	60°C Max. temp.
	PVDF	9.5 Kg	90°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

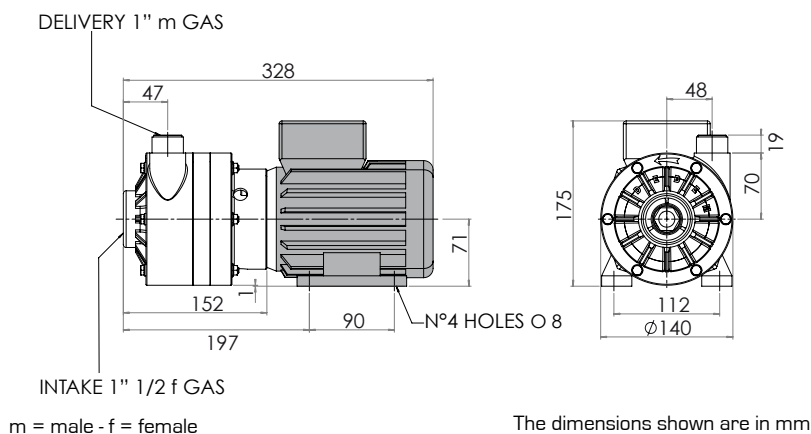
TECHNICAL DATA

PERFORMANCE



PP

DIMENSIONS



All the values shown are approximate and not binding



MB 110

construction materials: PP - PVDF

Intake connection	G 2" m		
Delivery connections	G 1" 1/2 m		
Max. flow rate *	20 m ³ /h		
Max. head *	15 m		
Seal	TL - TS		
Motor power	1.1 kW - 1.5 HP		
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	2 mm		
Max. viscosity	500 cps		
Net weight	PP	16 Kg	60°C Max. temp.
	PVDF	17 Kg	90°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.



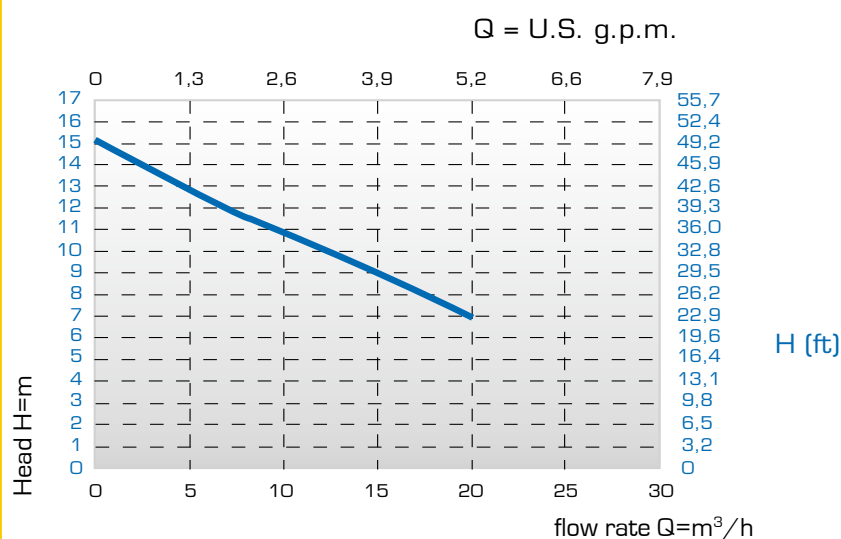
PP



TECHNICAL DATA

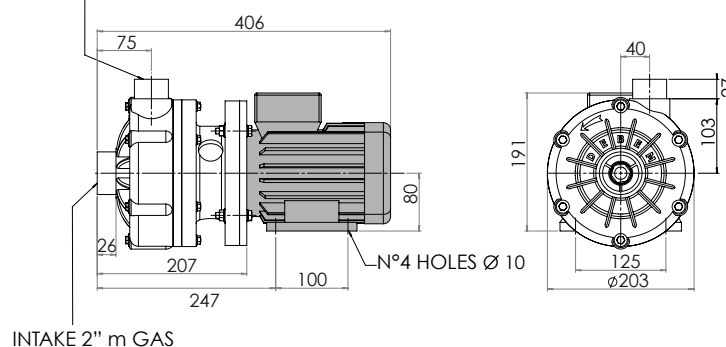


PVDF



PERFORMANCE

DELIVERY 1" 1/2 m GAS



m = male

The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

MB 120

construction materials: PP - PVDF



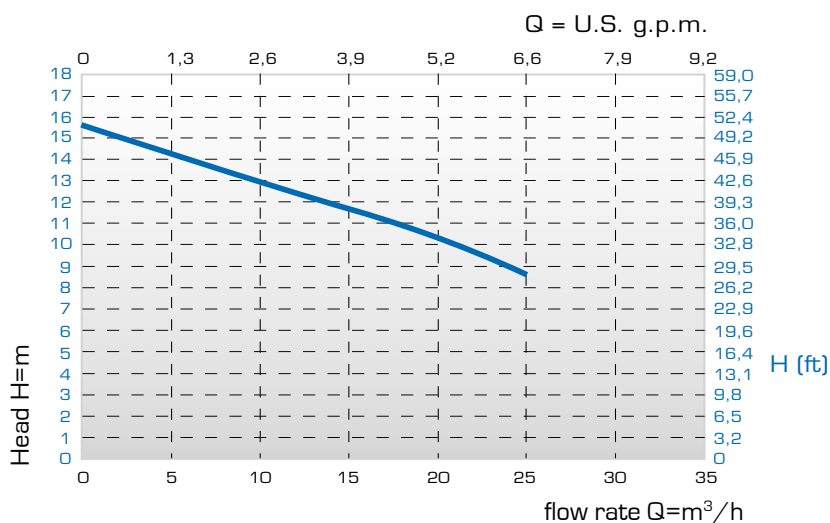
PP

Intake connection	G 2" m
Delivery connections	G 1" 1/2 m
Max. flow rate*	25 m ³ /h
Max. head*	16 m
Seal	TL - TS
Motor power	1.5 kW - 2 HP
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Diameter of passing solids	6 mm
Max. viscosity	500 cps
Net weight	PP 20 Kg 60°C Max. temp. PVDF 21 Kg 90°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

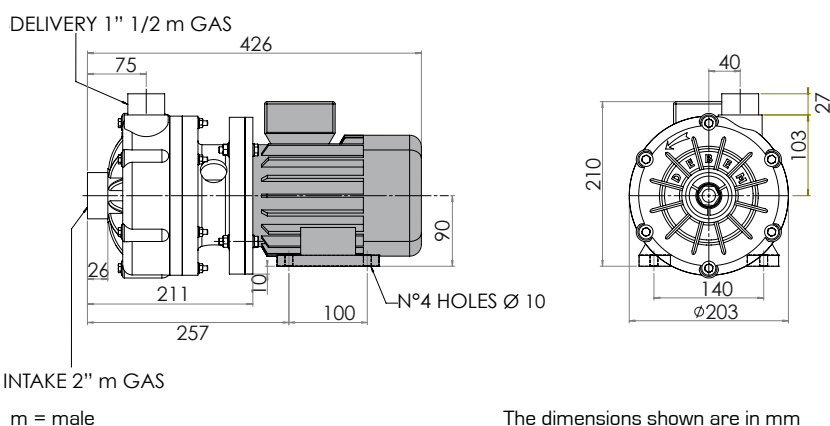
TECHNICAL DATA

PERFORMANCE



PVDF

DIMENSIONS



All the values shown are approximate and not binding



MB 130

construction materials: PP - PVDF

Intake connection	G 2" m		
Delivery connections	G 1 1/2" m		
Max. flow rate *	30 m ³ /h		
Max. head *	20 m		
Seal	TL - TS		
Motor power	2.2 kW - 3 HP		
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	6 mm		
Max. viscosity	500 cps		
Net weight	PP	22.5 Kg	60°C Max. temp.
	PVDF	23.5 Kg	90°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

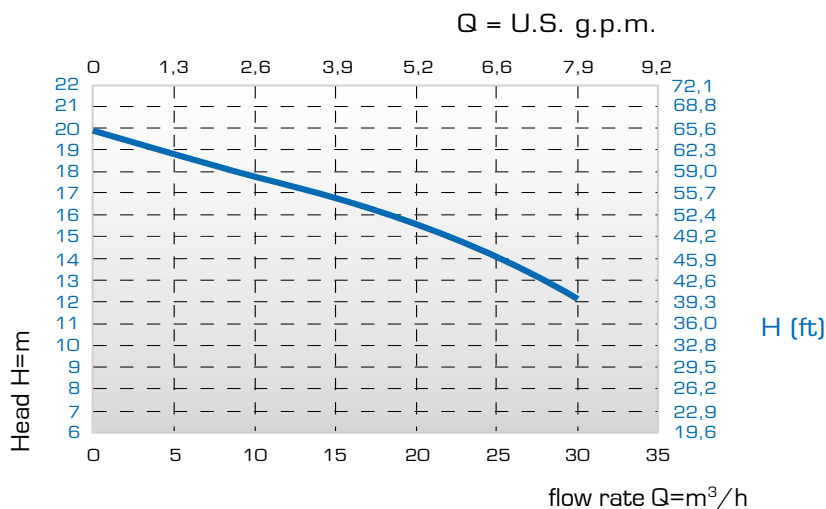


PVDF

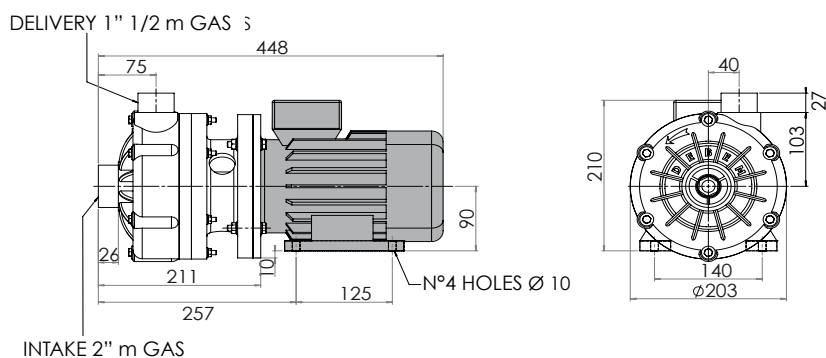
TECHNICAL DATA



PVDF



PERFORMANCE

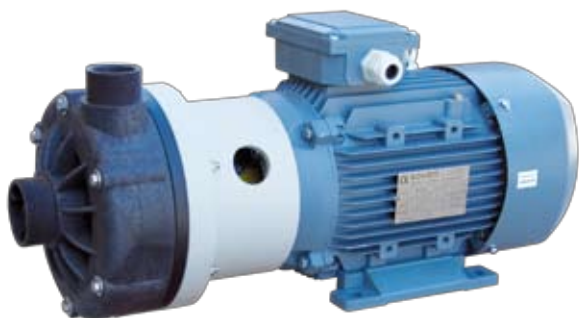


DIMENSIONS

All the values shown are approximate and not binding

MB 140

construction materials: PP - PVDF



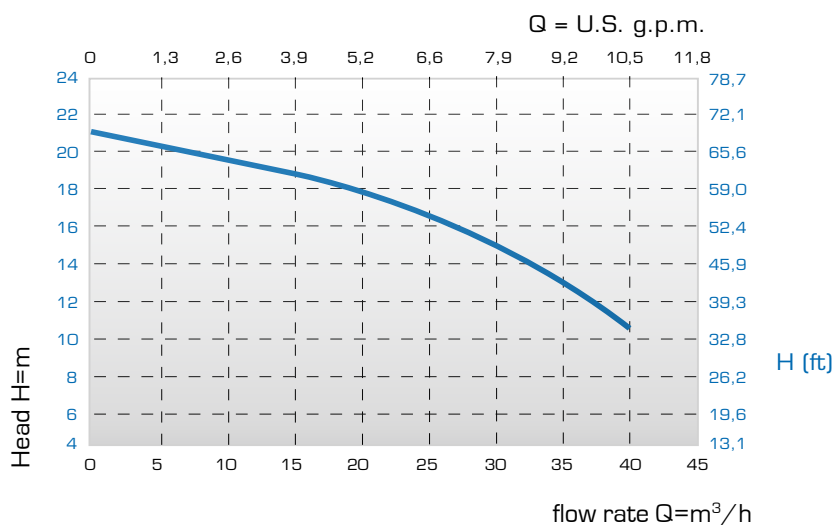
PVDF

Intake connection	G 2" m		
Delivery connections	G 1 1/2" m		
Max. flow rate*	40 m ³ /h		
Max. head*	21 m		
Seal	TL - TS		
Motor power	3 kW - 4 HP		
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	12 mm		
Max. viscosity	500 cps		
Net weight	PP	29 Kg	60°C Max. temp.
	PVDF	30 Kg	90°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

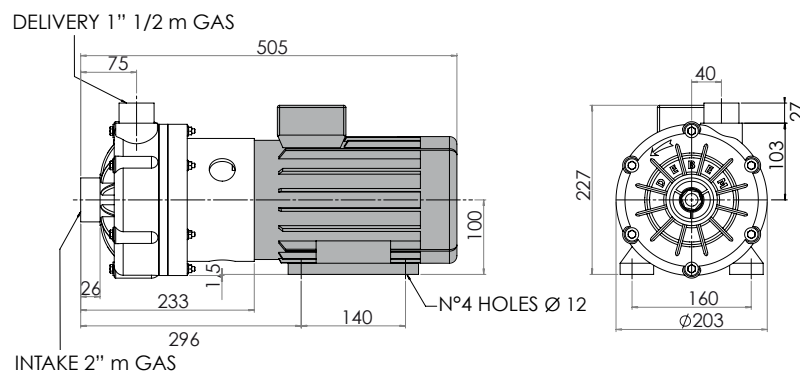
TECHNICAL DATA

PERFORMANCE



PP

DIMENSIONS



m = male

The dimensions shown are in mm

All the values shown are approximate and not binding



MB 150

construction materials: PP - PVDF

Intake connection	G 2" 1/2 f		
Delivery connections	G 2" m		
Max. flow rate *	42 m ³ /h		
Max. head *	25 m		
Seal	TL - TS		
Motor power	4 kW - 5.5 HP		
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	2 mm		
Max. viscosity	500 cps		
Net weight	PP	8.5 Kg	60°C Max. temp.
	PVDF	9.5 Kg	95°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

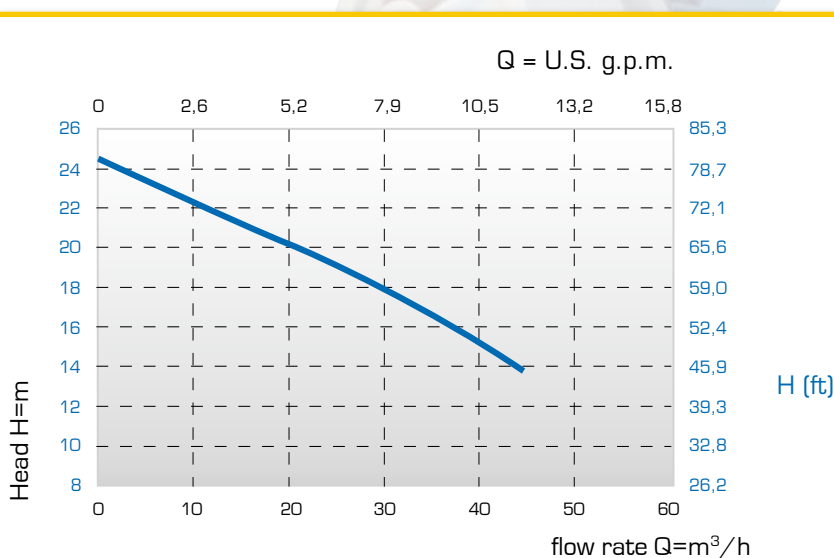


PP

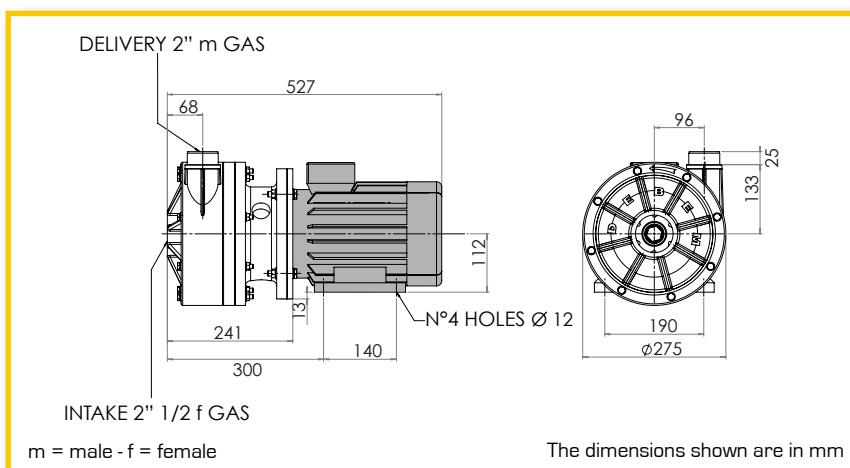


PVDF

TECHNICAL DATA



PERFORMANCE



DIMENSIONS

All the values shown are approximate and not binding

MB 155

construction materials: PP - PVDF



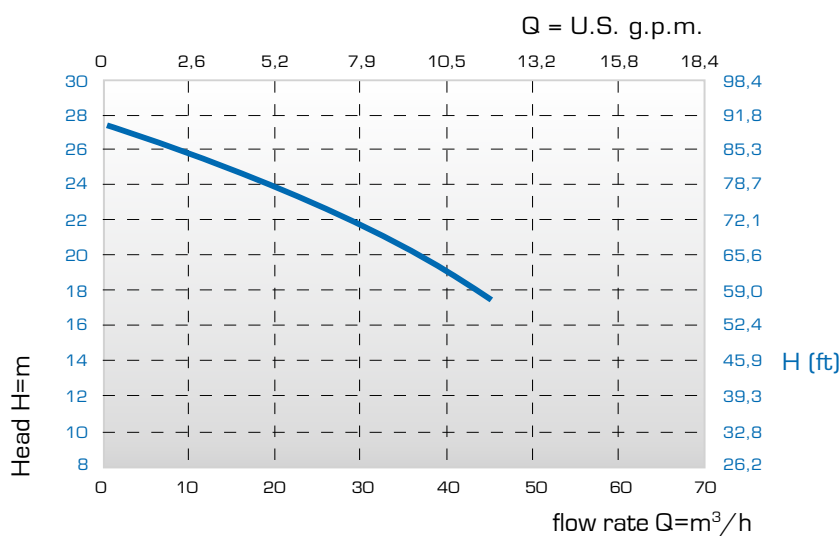
PP

Intake connection	G 2" 1/2 f		
Delivery connections	G 2" m		
Max. flow rate *	45 m ³ /h		
Max. head *	28 m		
Seal	TL - TS		
Motor power	5.5 kW - 7.5 HP		
Motor	IP55 - F Class - 2-pole - 400/690 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	3 mm		
Max. viscosity	500 cps		
Net weight	PP	60 Kg	60°C Max. temp.
	PVDF	63 Kg	95°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

TECHNICAL DATA

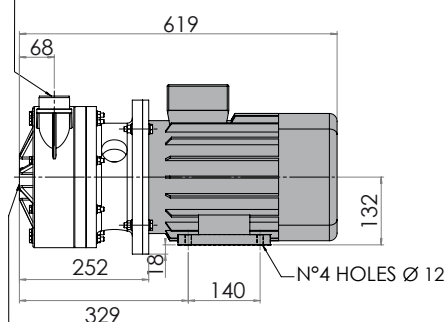
PERFORMANCE



PVDF

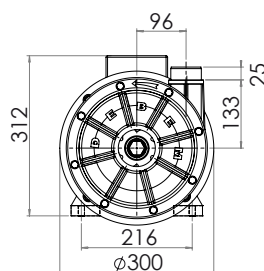
DIMENSIONS

DELIVERY 2" m GAS



INTAKE 2" 1/2 f GAS

m = male - f = female



The dimensions shown are in mm

All the values shown are approximate and not binding



MB 160

construction materials: PP - PVDF

Intake connection	G 2" 1/2 f		
Delivery connections	G 2" m		
Max. flow rate*	55 m ³ /h		
Max. head*	32 m		
Seal	TL - TS		
Motor power	7.5 kW - HP 10		
Motor	IP55 - F Class - 2-pole - 400/690 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	9 mm		
Max. viscosity	500 cps		
Net weight	PP	70 Kg	60°C Max. temp.
	PVDF	73 Kg	90°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

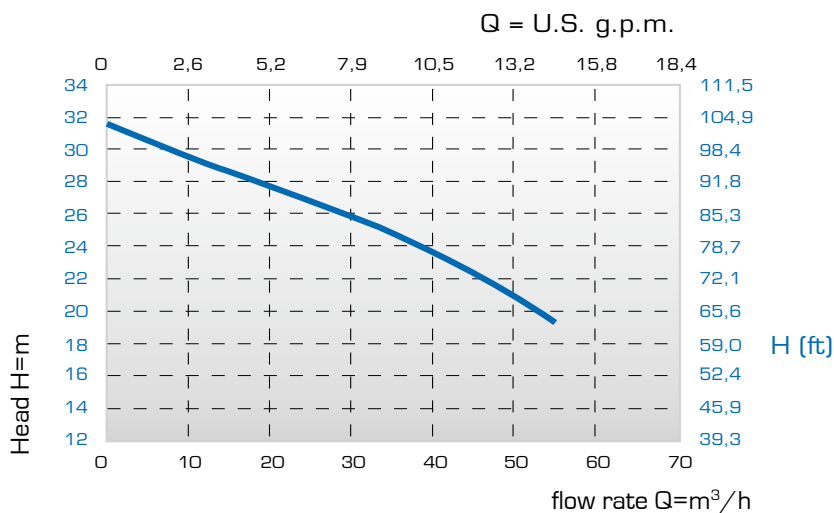


PVDF

TECHNICAL DATA

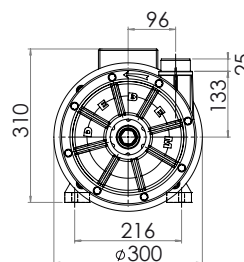
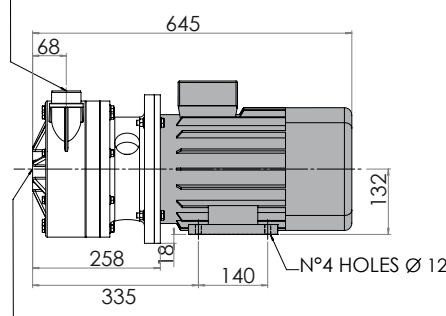


PP



PERFORMANCE

DELIVERY 2" m GAS



m = male - f = female

The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

MB 180

construction materials: PP - PVDF



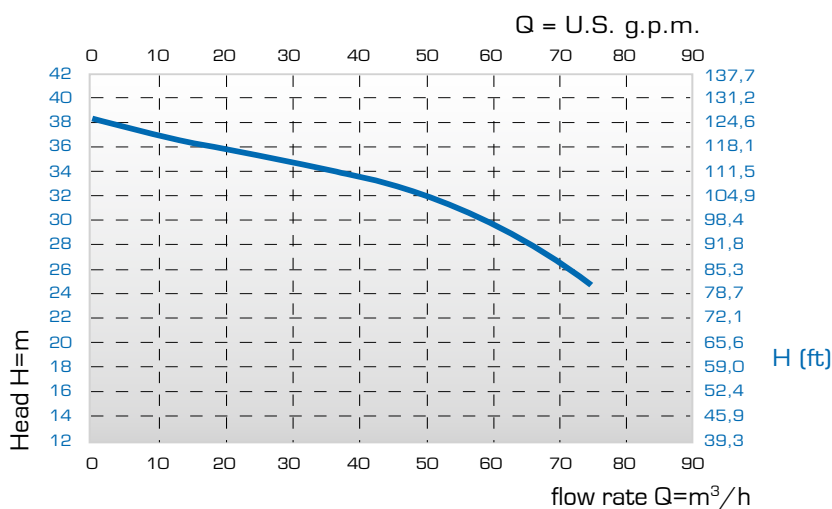
PP

Intake connection	G 2" 1/2 f		
Delivery connections	G 2 m		
Max. flow rate *	75 m ³ /h		
Max. head *	38 m		
Seal	TL-TS		
Motor power	11 kW - HP 15		
Motor	IP55 - F Class - 2-pole - 400/690 V 50 Hz - three-phase - 2900 RPM		
Diameter of passing solids	9 mm		
Max. viscosity	500 cps		
Net weight	PP	96 Kg	60°C Max. temp.
	PVDF	99 Kg	95°C Max. temp.

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

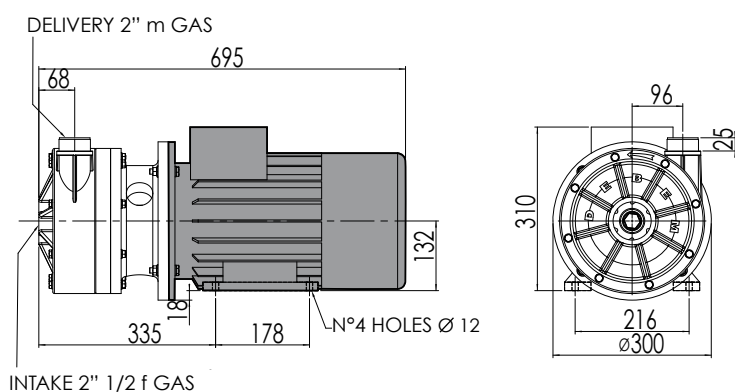
TECHNICAL DATA

PERFORMANCE



PVDF

DIMENSIONS



m = male - f = female

The dimensions shown are in mm

All the values shown are approximate and not binding



IM



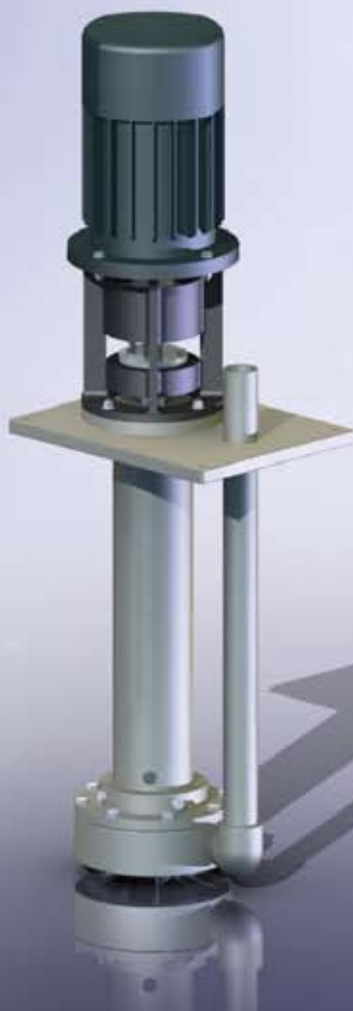
VERTICAL CENTRIFUGAL PUMPS

The **IM** series of resin-encased vertical centrifugal pumps features high-performance pumps for fixed installations with pump immersed directly in the tank and operated by a direct-drive electric motor (**max 3000 rpm**) for fast fluid drainage with **flow rates ranging from 6 to 75 m³/hour**.

The special design of this type of pump avoids the use of internal mechanical seals (subject to heavy wear) and ensures that any accidental spillages are collected in the tank.

The open impeller allows continuous pumping even with very dirty liquids having **apparent viscosity of up to 500 cps (at 20°C) and small suspended solids**.

The choice of pump construction materials allows selection of optimum chemical compatibility with the fluid and/or environment without neglecting the temperature range.



DEBEM

Construction materials: PP, PVDF;

Pump immersed in the tank;

Motor removable even with pump installed;

Weldless;

Usable even with extremely dirty liquids;

High flow rates: from 6 to 75 m³/hour;

Motor replaceable without dismantling pump;

User-friendly bushing replacement;

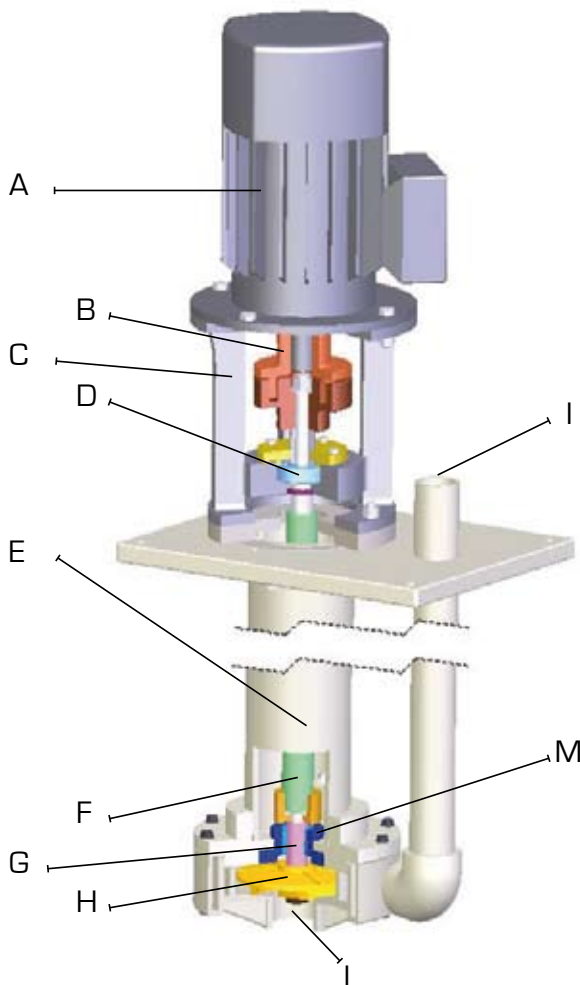
Quick and easy maintenance;

Fully-removable;

Also available without motor.

DESCRIPTION OF THE PUMP

Debem **resin-encased vertical centrifugal pumps** consist of a **solid pump casing** and a **column** fitted to the baseplate supporting the **lantern** that in turn supports the electric motor. **The direct-drive motor is connected** by a flexible coupling on the pump shaft. The **open impeller** is fitted to the other end of the shaft that is supported by a **radial bearing**. This pump's special design allows the **motor** to be **stripped without the need to disconnect the pump** from the system.



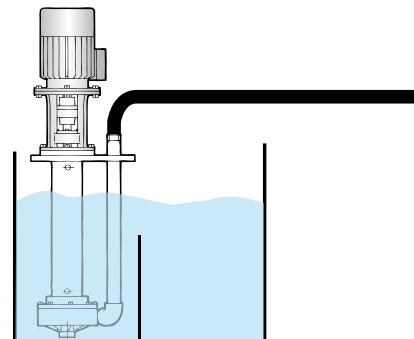
- A = electric motor
- B = drive coupling
- C = lantern
- D = radial bearing
- E = outer column
- F = shaft sleeve
- G = ceramic bushing
- H = impeller
- I = delivery duct
- L = intake duct
- M = bushing

HOW IT WORKS

The impeller is integral with the shaft and direct-drive electric motor and is rotated at a preset speed with the centrifugal effect producing suction on the intake side and discharge on the delivery side.

INSTALLATION

IM vertical centrifugal pumps should only be **installed with the shaft positioned vertically and the pump immersed in the tank**. Suitable devices should be fitted to prevent dry running and/or the formation of a vortex and possible air suction. These pumps **should only operate WHILST FILLED**; running dry or with air bubbles can cause damage to the internal bushing.



CHEMICAL COMPATIBILITY

The **type of liquid, temperature** and working environment are factors to be considered when deciding on the best choice of **construction materials for the pump and its correct chemical compatibility**. The table below gives some examples of the most commonly-used substances:

SUBSTANCE	Polypropylene	PVDF (Halar®)	EPDM (Dutral®)	PTFE (Teflon®)	FPM (Viton®)
Acetaldehyde	A1	D	A	A	D
Acetamide	A1	C	A	A	B
Vinyl acetate	B1	A2	B2	A2	A1
Acetylene	A1	A	A	A	A
Vinegar	A	B	A	A	A
Acetone	A	D	A	A	D
Fatty acids	A	A	D	A	A

A = very good

B = good

C = poor, not recommended

D = severe etching, not recommended

- = information not available

1 = satisfactory up to 22°C (72°F)

2 = satisfactory up to 48°C (120°F)

For further information, please do not hesitate to contact DEBEM's technical service department.

IM PUMPS COMPOSITION CODES

ex. **IM95PV0800N**

IM95 in PP + O RING Viton + column length 800 + Three-phase motor

IM95	P	V	0800	N
Pump model	Pump material	O RING	Column length	Motor
IM 80 - IM 80 IM 90 - IM 90 IM 95 - IM 95 IM 110 - IM 110 IM 120 - IM 120 IM 130 - IM 130 IM 140 - IM 140 IM 150 - IM 150 IM 155 - IM 155 IM 160 - IM 160 IM 180 - IM 180	P - Polypropylene F - PVDF	D - EPDM V - Viton	0250 - 250 mm ** 0500 - 500 mm 0800 - 800 mm 1000 - 1000 mm 1250 - 1250 mm	N* - Three-phase motor M - Single-phase motor A - ATEX motor

* Standard motor is the three-phase induction type with European voltage (2-pole) 50Hz - ** only available for IM 80/90 pumps

FLANGED PUMPS

IM pumps are also available with a flange coupling



model	flange	stub-end material	size
IM 80 PP	PN 16 in PVC	PP	DEL. DN 25
IM 90 PP	PN 16 in PVC	PP	DEL. DN 25
IM 95 PP	PN 16 in PVC	PP	DEL. DN 40
IM 110 PP	PN 16 in PVC	PP	DEL. DN 40
IM 120 PP	PN 16 in PVC	PP	DEL. DN 40
IM 130 PP	PN 16 in PVC	PP	DEL. DN 40
IM 140 PP	PN 16 in PVC	PP	DEL. DN 40
IM 150 PP	PN 16 in PVC	PP	DEL. DN 50
IM 155 PP	PN 16 in PVC	PP	DEL. DN 50
IM 160 PP	PN 16 in PVC	PP	DEL. DN 50
IM 180 PP	PN 16 in PVC	PP	DEL. DN 50
IM 80 PVDF	PN 16 in PVC	PVDF	DEL. DN 25
IM 90 PVDF	PN 16 in PVC	PVDF	DEL. DN 25
IM 95 PVDF	PN 16 in PVC	PVDF	DEL. DN 40
IM 110 PVDF	PN 16 in PVC	PVDF	DEL. DN 40
IM 120 PVDF	PN 16 in PVC	PVDF	DEL. DN 40
IM 130 PVDF	PN 16 in PVC	PVDF	DEL. DN 40
IM 140 PVDF	PN 16 in PVC	PVDF	DEL. DN 40
IM 150 PVDF	PN 16 in PVC	PVDF	DEL. DN 50
IM 155 PVDF	PN 16 in PVC	PVDF	DEL. DN 50
IM 160 PVDF	PN 16 in PVC	PVDF	DEL. DN 50
IM 180 PVDF	PN 16 in PVC	PVDF	DEL. DN 50

IM 80



construction materials: PP - PVDF

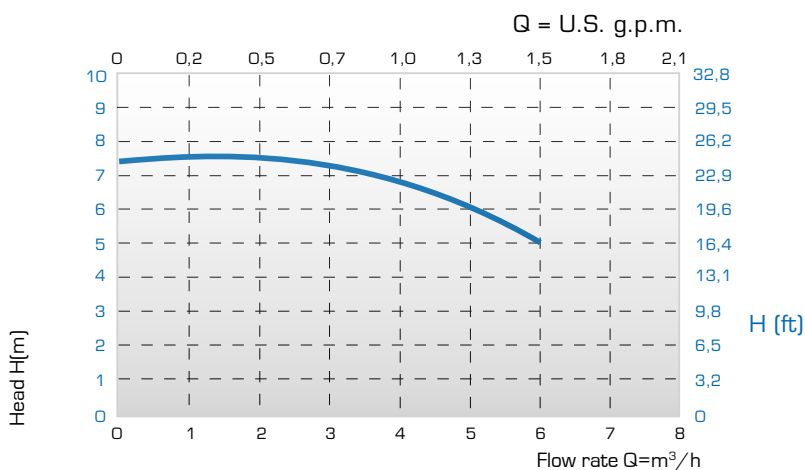
TECHNICAL DATA

Intake	G 1" 1/2 f
Delivery connections	G 1" m
Max. flow rate*	6 m ³ /h
Max. head*	7.5 m
Motor power	0.37 kW - 0.5 HP
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60° - PVDF 95°
Diam. of passing solids	7 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
250	14.5 Kg	15 Kg
500	15.5 Kg	16 Kg
800	18.5 Kg	19 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

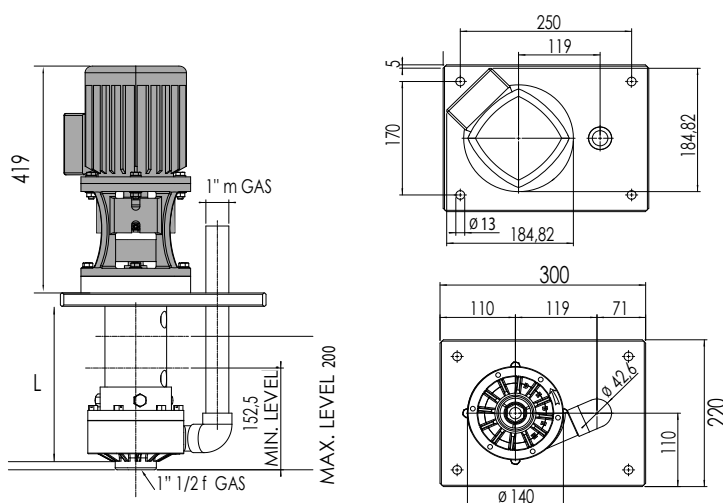
PERFORMANCE



PP

DIMENSIONS

m = male - f = female - Available L 250-500-800



The dimensions shown are in mm



PVDF

All the values shown are approximate and not binding



IM 90

construction materials: PP - PVDF

TECHNICAL DATA

PERFORMANCE

DIMENSIONS

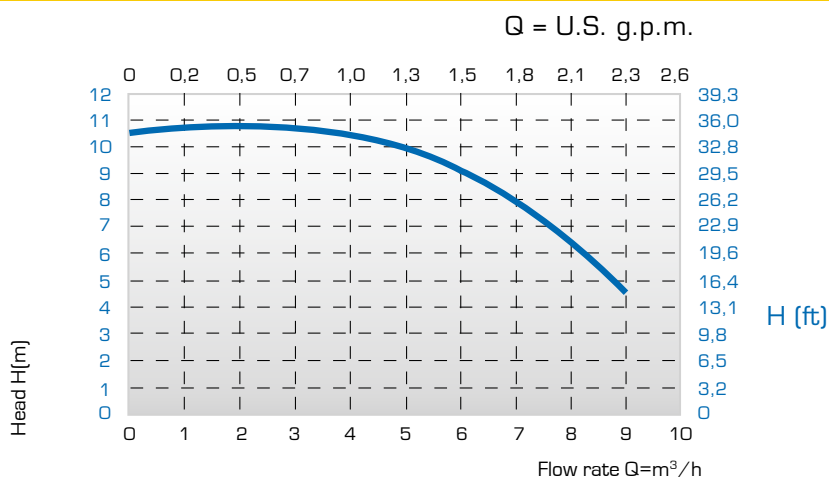
Intake	G 1" 1/2 f
Delivery connections	G 1" m
Max. flow rate *	9 m ³ /h
Max. head *	10,5 m
Motor power	0.55 kW - 0.75 HP
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60° - PVDF 95°
Diam. of passing solids	10 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
250	14.5 Kg	15 Kg
500	15.5 Kg	16 Kg
800	18.5 Kg	19 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

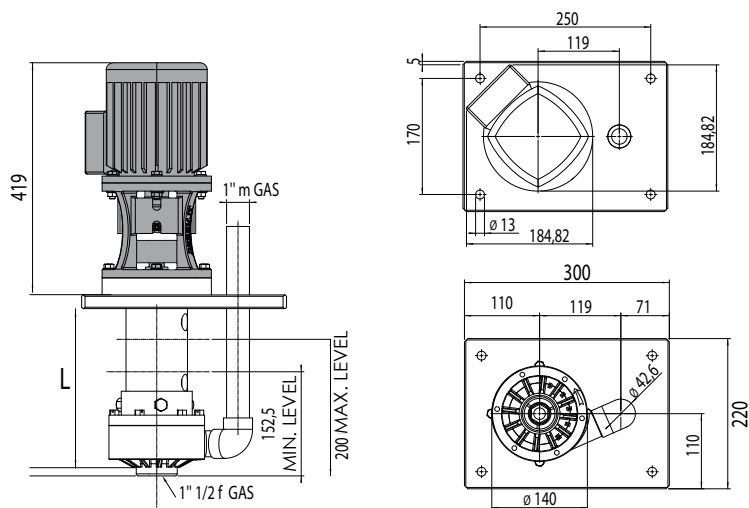


PP



PVDF

m = male - f = female - Available L 250-500-800



The dimensions shown are in mm

All the values shown are approximate and not binding

IM 95

construction materials: PP - PVDF



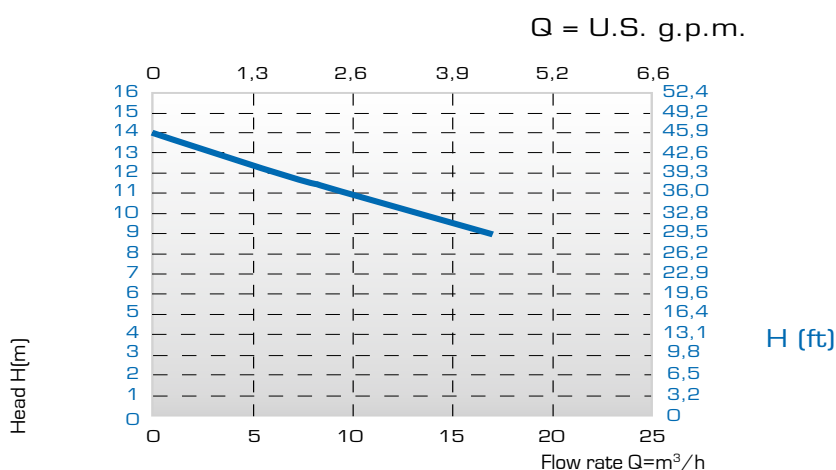
TECHNICAL DATA

Intake	G 2" m
Delivery connections	G 1" 1/2 m
Max. flow rate*	16 m ³ /h
Max. head*	14 m
Motor power	0.75 kW - HP 1
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 90°C
Diam. of passing solids	6 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
500	27 Kg	28 Kg
800	31 Kg	32 Kg
1000	34 Kg	35 Kg
1250	36 Kg	37 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

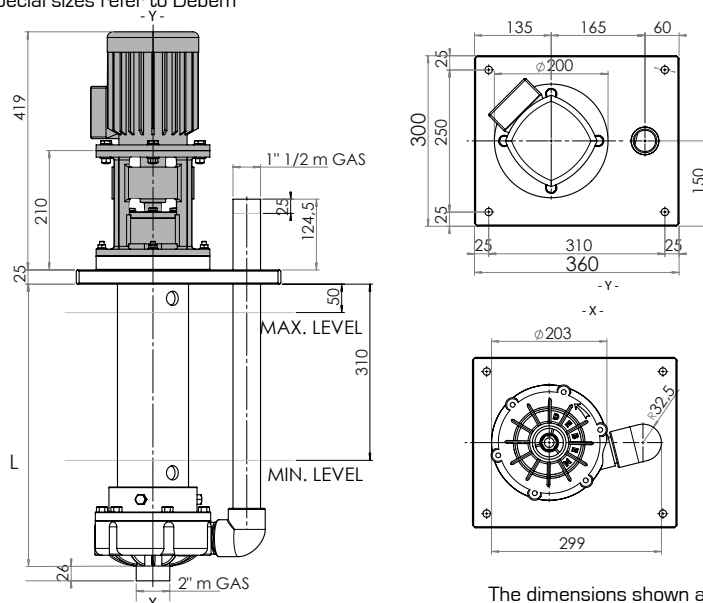
PERFORMANCE



PP

DIMENSIONS

m = male - f = female - Available L 500-800-1000-1250, for special sizes refer to Debem



PVDF

All the values shown are approximate and not binding



IM 110

construction materials: PP - PVDF

TECHNICAL DATA

PERFORMANCE

DIMENSIONS

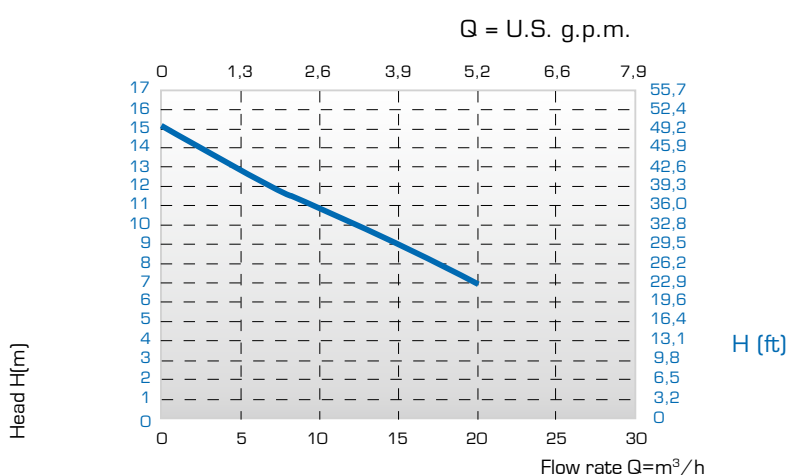
Intake	G 2" m
Delivery connections	G 1" 1/2 m
Max. flow rate*	20 m ³ /h
Max. head*	15 m
Motor power	1.1 kW - 1.5 HP
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 95°
Diam. of passing solids	6 mm
Max. viscosity	500 cps

Lenght	Weight	Weight
column	column (PP)	column (PVDF)
	+ Motor	+ Motor
500	28 Kg	29 Kg
800	32 Kg	33 Kg
1000	35 Kg	36 Kg
1250	37 Kg	38 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

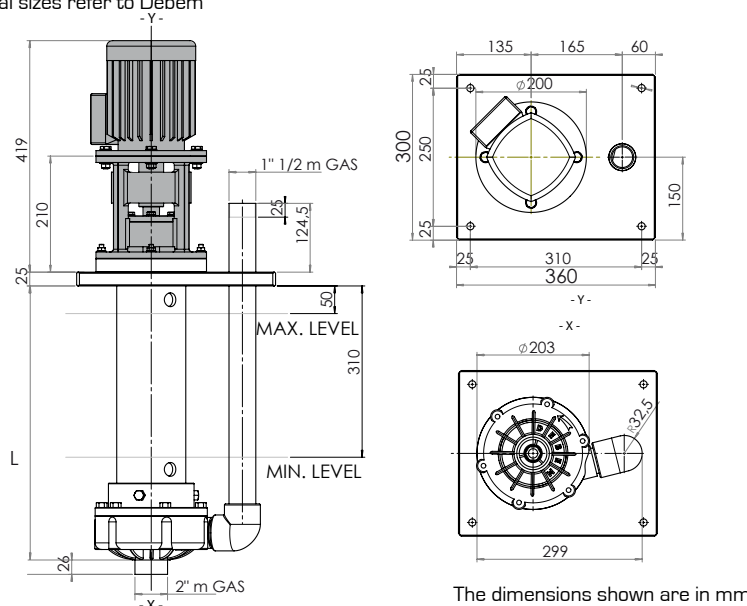


PP



PVDF

m = male - f = female - Available L 500-800-1000-1250, for special sizes refer to Debern



All the values shown are approximate and not binding

IM 120



construction materials: PP - PVDF

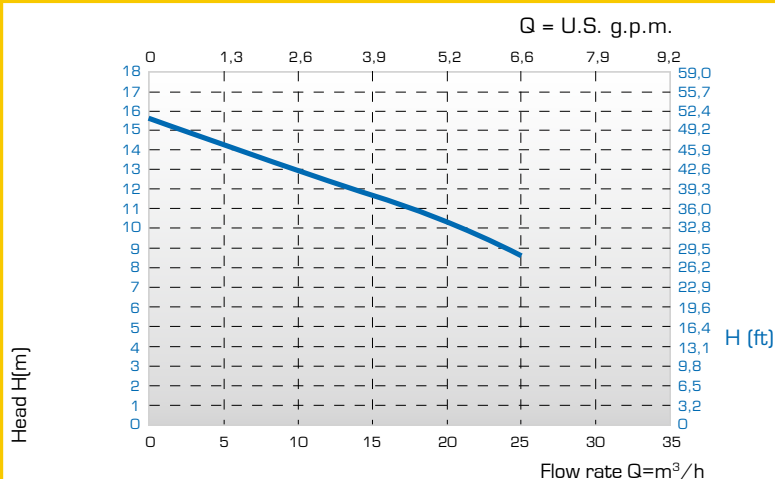
TECHNICAL DATA

Intake	G 2" m
Delivery connections	G 1" 1/2 m
Max. flow rate *	25 m ³ /h
Max. head *	16 m
Motor power	1.5 kW - 2 HP
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 95°C
Diam. of passing solids	6 mm
Max. viscosity	500 cps

Lenght	Weight	Weight
column	column (PP)	column (PVDF)
	+ Motor	+ Motor
500	32 Kg	33 Kg
800	36 Kg	37 Kg
1000	39 Kg	40 Kg
1250	41 Kg	42 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

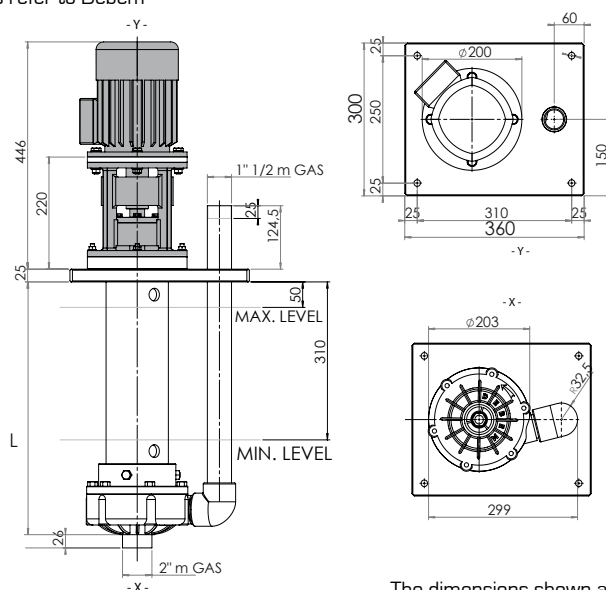
PERFORMANCE



PP

DIMENSIONS

m = male - f = female - Available L 500-800-1000-1250,
for special sizes refer to Debern



The dimensions shown are in mm



PVDF

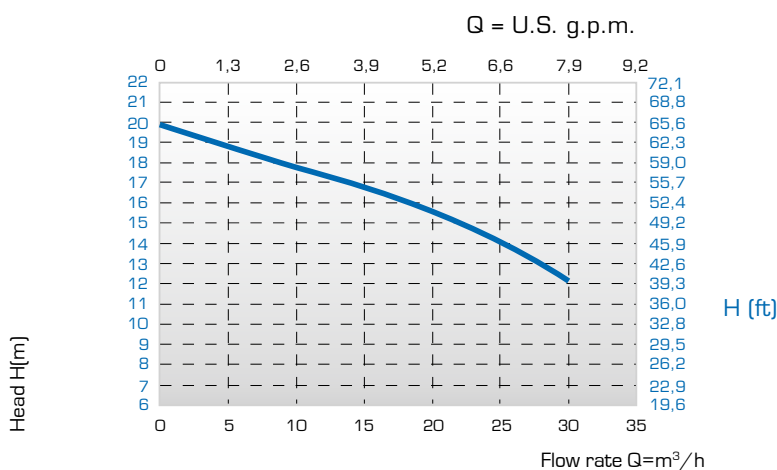
All the values shown are approximate and not binding



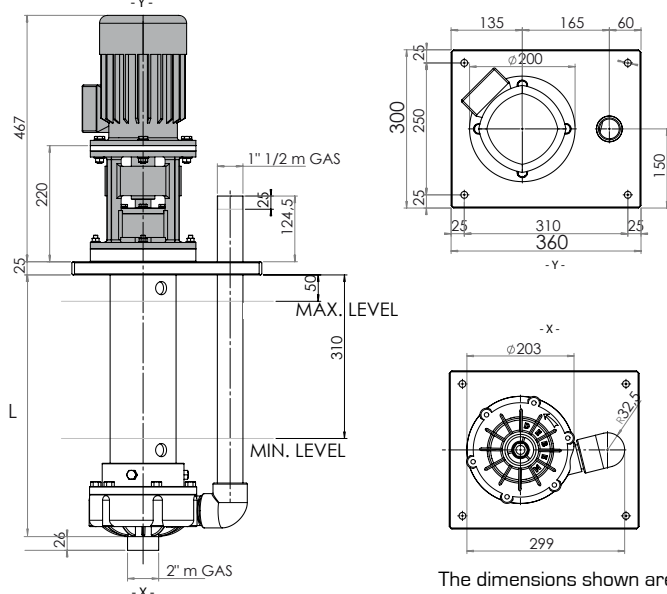
TECHNICAL DATA

Lenght	Weight	Weight
column	column (PP)	column (PVDF)
	+ Motor	+ Motor
500	35 Kg	36 Kg
800	39 Kg	40 Kg
1000	42 Kg	43 Kg
1250	44 Kg	45 Kg

PERFORMANCE



m = male - f = female - Available L 500-800-1000-1250,
for special sizes refer to Debern



The dimensions shown are in mm

DIMENSIONS

All the values shown are approximate and not binding

IM 140



construction materials: PP - PVDF

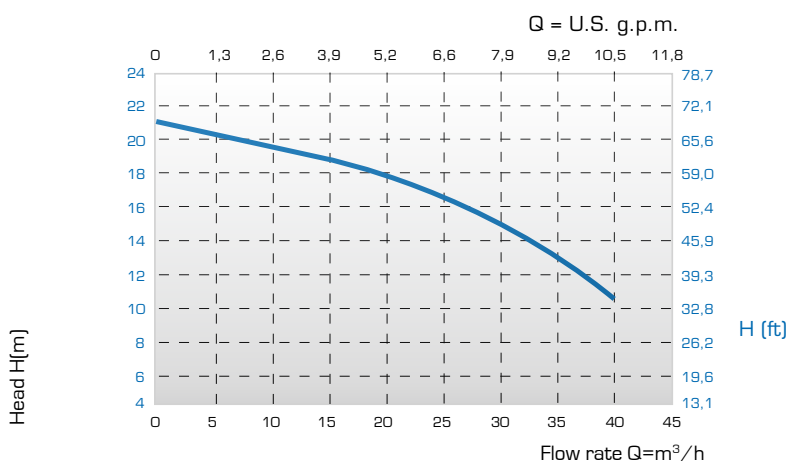
TECHNICAL DATA

Intake	G 2" m
Delivery connections	G 1" 1/2 m
Max. flow rate*	40 m ³ /h
Max. head*	21 m
Motor power	3 kW - 4 HP
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 95°C
Diam. of passing solids	12 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
500	49 Kg	50 Kg
800	53 Kg	54 Kg
1000	56 Kg	57 Kg
1250	58 Kg	59 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

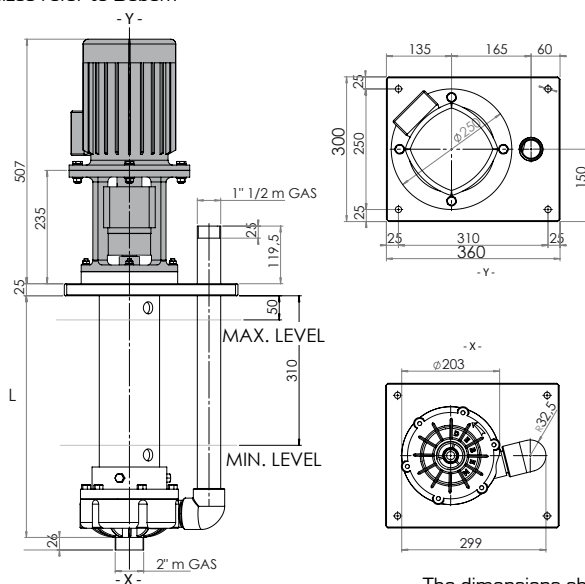
PERFORMANCE



PP

DIMENSIONS

m = male - f = female - Available L 500-800-1000-1250, for special sizes refer to Debem



PVDF

All the values shown are approximate and not binding



IM 150

construction materials: PP - PVDF

TECHNICAL DATA

PERFORMANCE

DIMENSIONS

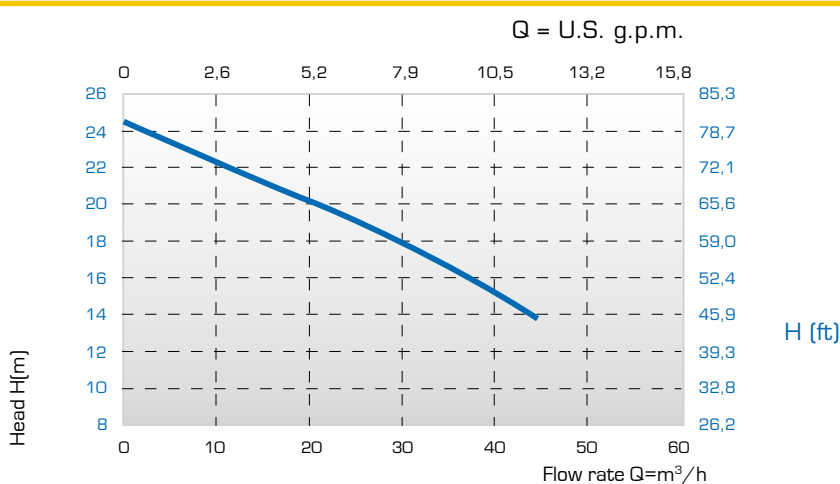
Intake	G 2" 1/2 f
Delivery connections	G 2" m
Max. flow rate *	42 m ³ /h
Max. head *	25 m
Motor power	4 kW - 5.5 HP
Motor	IP55 - F Class - 2-pole - 230/400 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 90°C
Diam. of passing solids	2 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
500	64 Kg	66 Kg
800	67 Kg	69 Kg
1000	69 Kg	71 Kg
1250	72 Kg	73 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

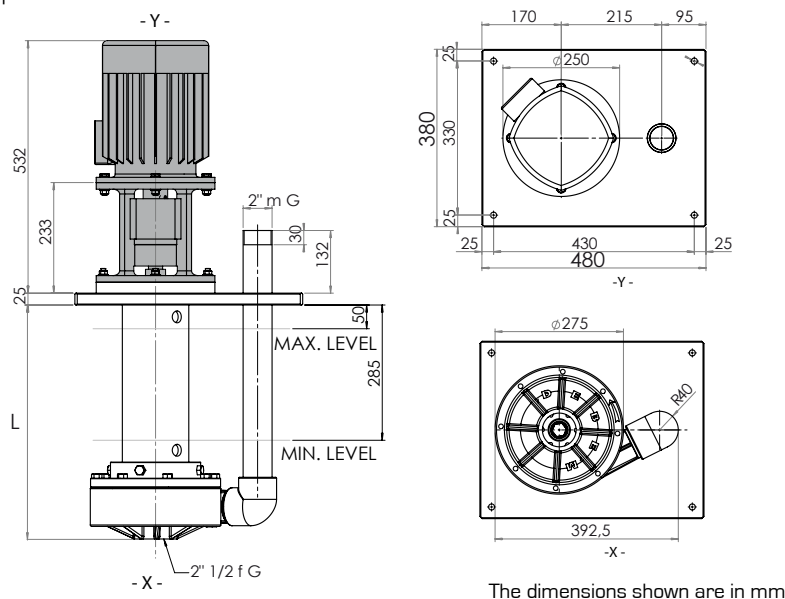


PP



PVDF

m = male - f = female - Available L 500-800-1000-1250, for special sizes refer to Debem



All the values shown are approximate and not binding

IM 155

construction materials: PP - PVDF



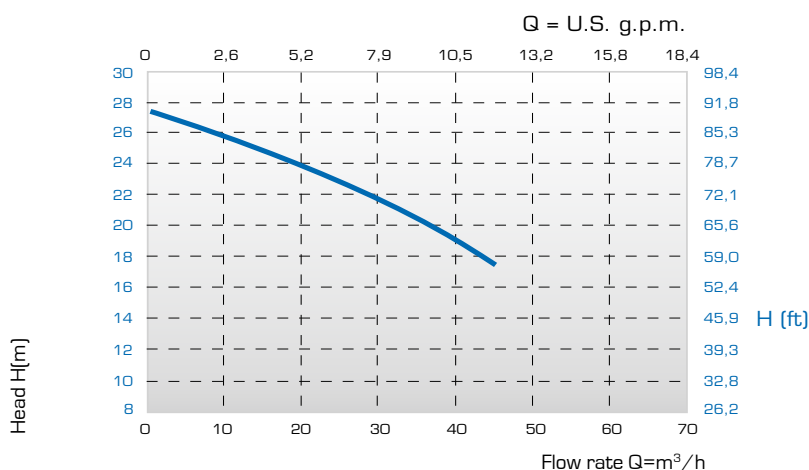
TECHNICAL DATA

Intake	G 2" 1/2 f
Delivery connections	G 2" m
Max. flow rate*	45 m ³ /h
Max. head*	28 m
Motor power	5.5 kW - 7.5 HP
Motor	IP55 - F Class - 2-pole - 400/690 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 95° C
Diam. of passing solids	2 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
500	82 Kg	84 Kg
800	85 Kg	87 Kg
1000	87 Kg	89 Kg
1250	90 Kg	92 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

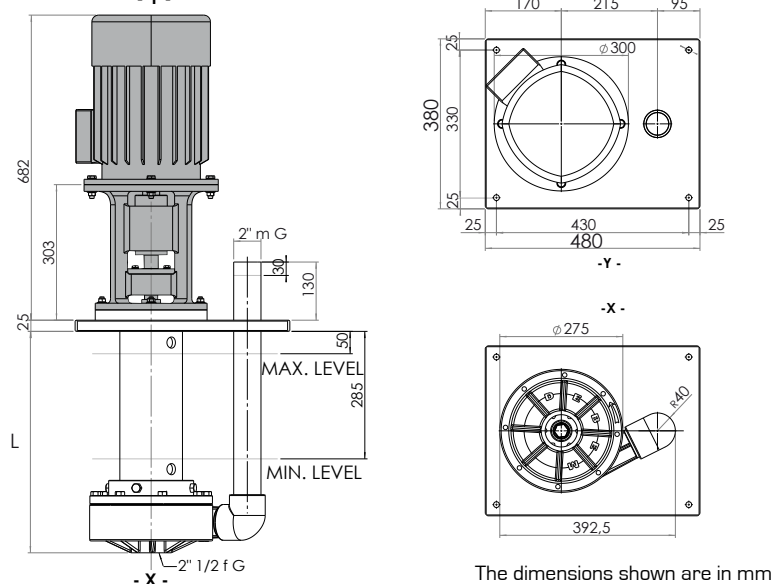
PERFORMANCE



PP

DIMENSIONS

m = male - f = female - Available L 500-800-1000-1250, for special sizes refer to Debem



PVDF

All the values shown are approximate and not binding



IM 160

construction materials: PP - PVDF

TECHNICAL DATA

PERFORMANCE

DIMENSIONS

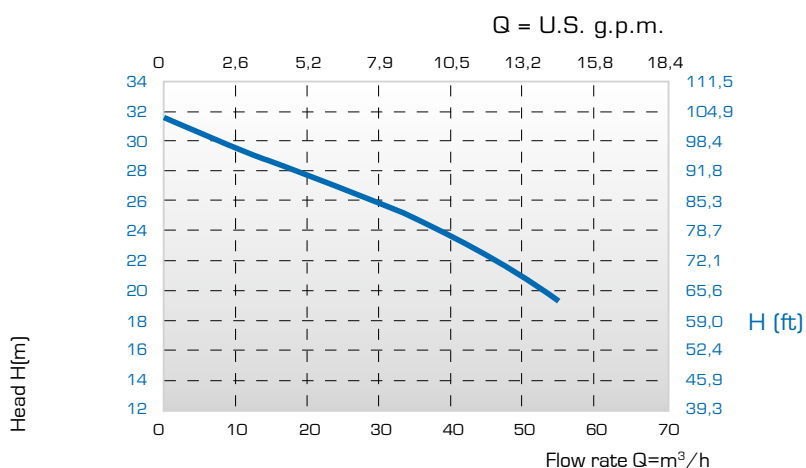
Intake	G 2" 1/2 f
Delivery connections	G 2" m
Max. flow rate *	55 m ³ /h
Max. head *	32 m
Motor power	7.5 kW - 10 HP
Motor	IP55 - F Class - 2-pole - 400/690 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 95°C
Diam. of passing solids	9 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
500	92 Kg	94 Kg
800	95 Kg	97 Kg
1000	97 Kg	99 Kg
1250	100 Kg	102 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

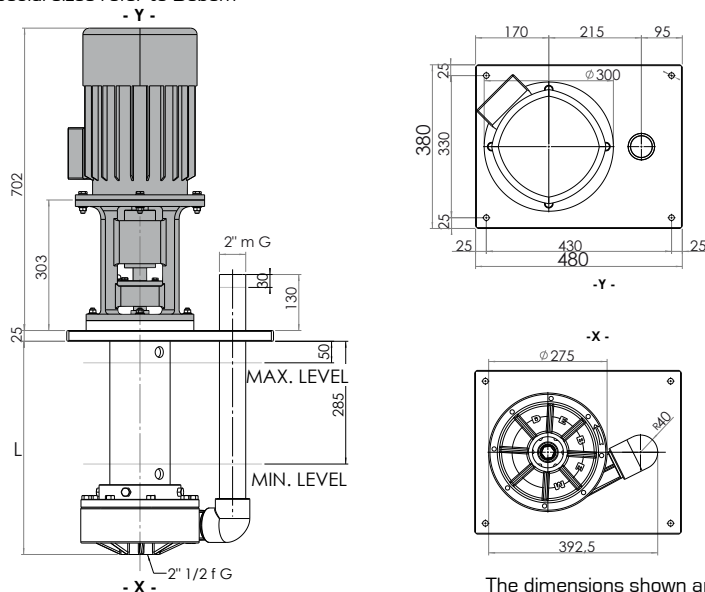


PP



PVDF

m = male - f = female - Available L 500-800-1000-1250, for special sizes refer to Debem



All the values shown are approximate and not binding

IM 180

construction materials: PP - PVDF



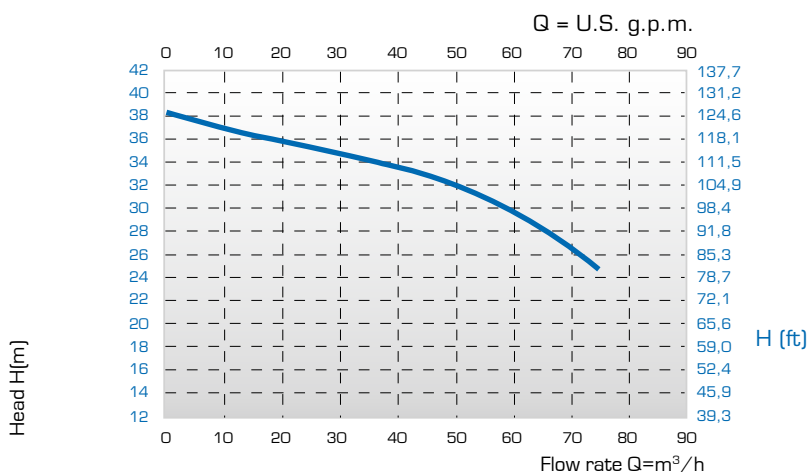
TECHNICAL DATA

Intake	G 2" 1/2 f
Delivery connections	G 2" m
Max. flow rate*	75 m ³ /h
Max. head*	38 m
Motor power	11 kW - 15 HP
Motor	IP55 - F Class - 2-pole - 400/690 V 50 Hz - three-phase - 2900 RPM
Max. temperature	PP 60°C - PVDF 90°C
Diam. of passing solids	11 mm
Max. viscosity	500 cps

Lenght column	Weight column (PP) + Motor	Weight column (PVDF) + Motor
500	92 Kg	94 Kg
800	95 Kg	97 Kg
1000	97 Kg	99 Kg
1250	100 Kg	102 Kg

* The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

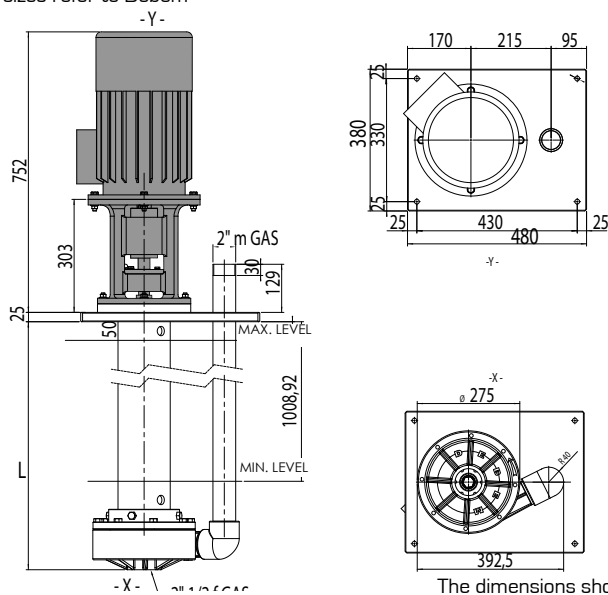
PERFORMANCE



PP

DIMENSIONS

m = male - f = female - Available L 500-800-1000-1250, for special sizes refer to Debem



PVDF

All the values shown are approximate and not binding



TR

TRANSFER PUMPS



These **portable** drum-transfer immersion pumps are designed to pump corrosive liquids and have no internal mechanical seals. Their special shape ensures that any spillages are collected in the drum.

Available with fully-interchangeable **electric or pneumatic motor**, these pumps have an open impeller that allows continuous pumping of clean corrosive liquids having **apparent viscosity of up to 600 cps with 500-watt electric and pneumatic motor (at 20°C) and 900 cps with 800-watt electric motor (at 20°C)**. TR-EL series pumps driven by an electric motor are also fitted with a safety cut-out switch that prevents accidental restart after a power outage.



DEBEM



TR

Available in PP, PVDF e Aisi 316

Inexpensive;

Portable;

Handles corrosive liquids;

Viscosity up to 900 cps;

Available with either electric or pneumatic motor;

Adjustable flow rate
(pneumatic version);

No internal seals;

Easily dismantled;

Dip tube length = 900 mm o 1200 mm;

Flow rate up to 90 l/min.

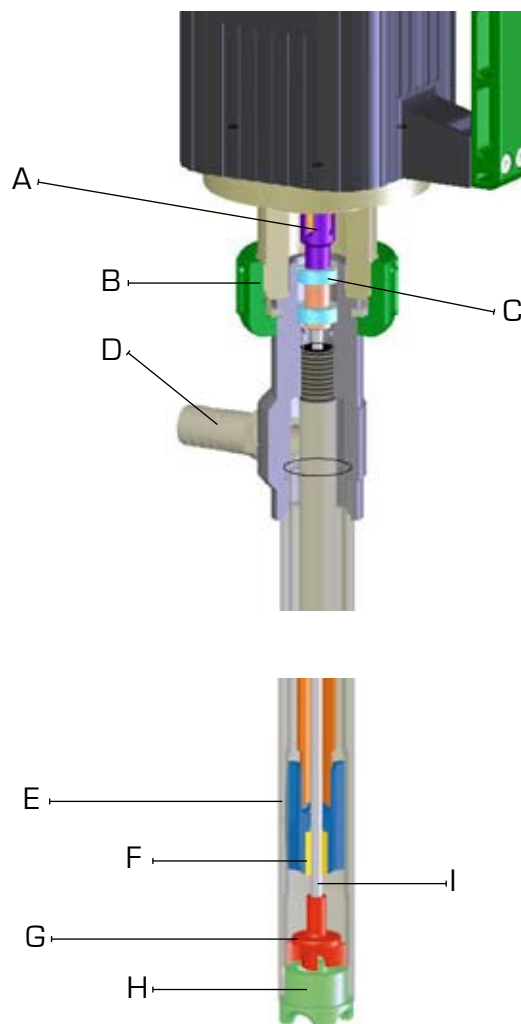
DESCRIPTION OF THE PUMPS

These drum transfer pumps consist of a dip tube the end of which houses the open impeller that is secured to the driveshaft connected to the pump by means of a convenient ring nut, whilst transmission is provided by a shaft coupling.

TR-PN



TR-EL



HOW IT WORKS

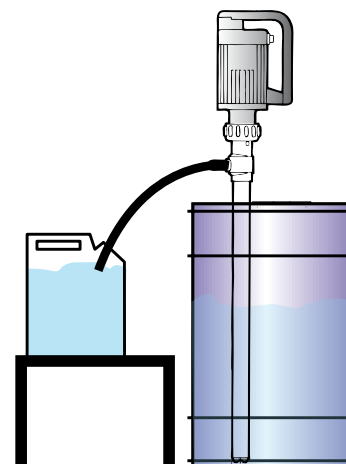
The impeller is integral with the shaft and coupled to the electric or pneumatic motor that makes it rotate, thus creating the centrifugal effect.

A = drive coupling
B = motor ring nut
C = bearing
D = delivery duct
E = dip tube

F = PTFE bushing
G = impeller
H = suction port
I = shaft

INSTALLATION

TR drum transfer pumps should only be used with the shaft positioned vertically and the pump immersed in the drum, whilst liquid must be present. Running dry or with air bubbles can cause damage to the internal bushing.



CHEMICAL COMPATIBILITY

The type of liquid, temperature and working environment are factors to be considered when deciding on the best choice of construction materials for the pump and its correct chemical compatibility. The table below gives some examples of the most commonly-used substances:

SUBSTANCE	Polypropylene	PVDF (Halair®)	Acciaio INOX Aisi 316	PTFE (Teflon®)	PPSV	FPM (Viton®)
Acetaldehyde	A1	D	A	A	A	D
Acetamide	A1	C	A	A	A	B
Vinyl acetate	B1	A2	B	A2	-	A1
Acetylene	A1	A	A	A	A	A
Vinegar	A	B	A	A	A	A
Acetone	A	D	A	A	A	D
Fatty acids	A	A	A	A	-	A

A = very good

B = good

C = poor, not recommended

D = severe etching, not recommended

- = information not available

1 = satisfactory up to 22°C (72°F)

2 = satisfactory up to 48°C (120°F)

For further information, please do not hesitate to contact DEBEM's technical service department.

TR PUMPS COMPOSITION CODES

ex. **TRP1200EL**

TR in PP + Suction hose length 1200 + Electric motor

TR	P	1200	EL
Pump model	Material Pump	Suction hose length	Motor
TR - TRANSFER PUMPS	P - Polypropylene F - PVDF A - Aisi 316	0900 (900 mm) 1200 (1200 mm)	EL * - Electric motor PN - Pneumatic motor

* Standard electric motor is single-phase 50/60Hz



Motor power 500/800 Watt - flow rate 80/90 l/min

TR - EL

construction materials: PP - PVDF - Aisi 316

PUMP	TR P - EL	TR F - EL	TR A - EL
Suction hose	ø 42 mm	ø 40 mm	ø 42,5 mm
Hose clamp	ø 25 mm	ø 25 mm	ø 25 mm
Max. temp.	60°C	95°C	95°C
Motor power	500/800 Watt		
Motor voltage	230 V 50/60HZ		
Motor protection	IP 54	IP 54	IP 54
Motor class	F	F	F
Flow rate	500 W 80 l/min - 800 W 90 l/min		

PUMP	TR P - EL	TR F - EL	TR A - EL
Total Weight Kg	5.1 - 5.4	5.4 - 5.6	8.0 - 9.0
Suct. hose mat.	PP	PVDF	Aisi 316
Shaft material	HASTELLOY	HASTELLOY	HASTELLOY
Bushing material	PTFE	PTFE	PTFE
Rotor material	ECTFE	ECTFE	ECTFE
Intake port. mat.	PP	ECTFE	ECTFE
Internal parts	PP + PTFE	PVDF + PTFE	PTFE + PPSV
Viscosity	500 W 600 cps - 800 W 900 cps		

TECHNICAL DATA

TRP - EL



body PP

TRF - EL

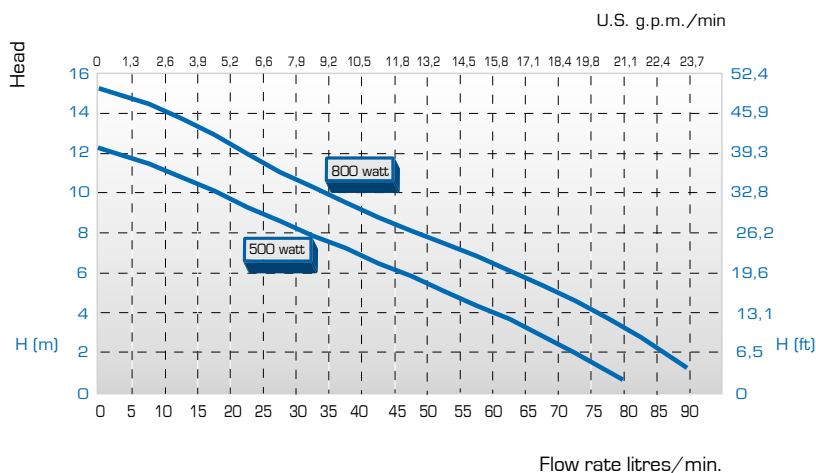


body PVDF

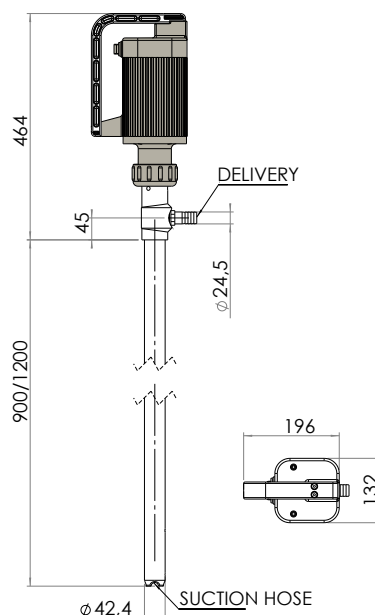
TRA - EL



body Aisi 316



The curves and performance values refer to pumps spare delivery outlet and water at 20°C.



PERFORMANCE

DIMENSIONS

All the values shown are approximate and not binding

Motor power 0,33 HP a 7bar - flow rate 80 l/min

TR - PN

construction materials: PP - PVDF - Aisi 316

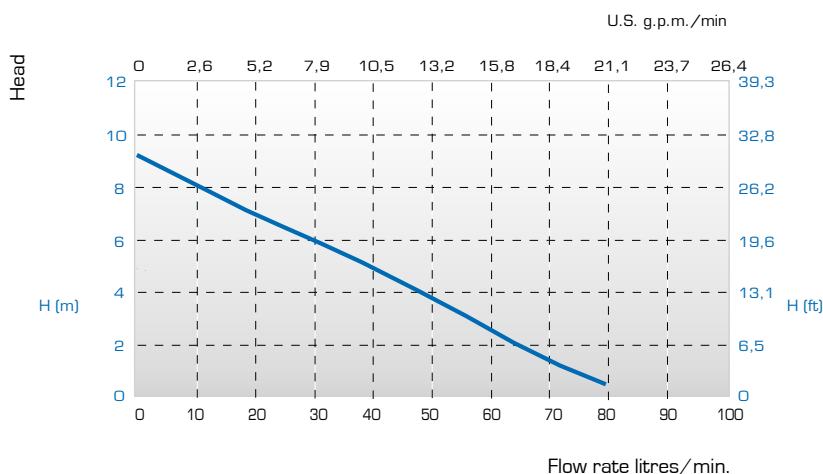


TECHNICAL DATA

PUMP	TR P - PN	TR F - PN	TR A - PN
Suction hose	ø 42 mm	ø 40 mm	ø 42,5 mm
Hose clamp	ø 25 mm	ø 25 mm	ø 25 mm
Max. temp.	60°C	95°C	95°C
Motor power	0,33HP a 7bar	0,33HP a 7bar	0,33HP a 7bar
Total Weight Kg	2,5 - 2,8	2,8 - 3,0	5,4 - 5,5
Suct. hose mat.	PP	PVDF	Aisi 316
Flow rate	80 l/min		

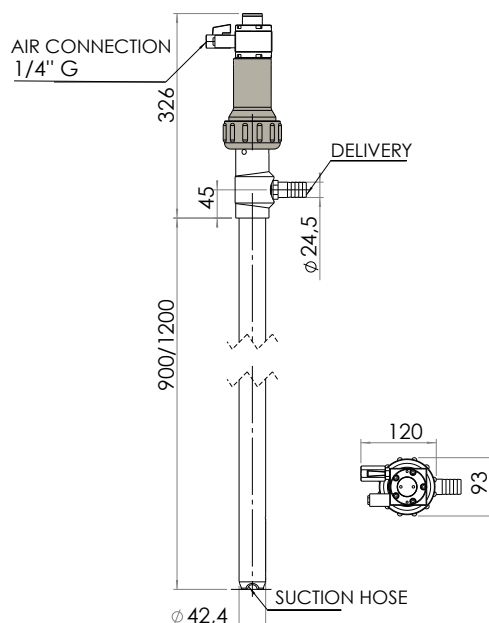
PUMP	TR P - PN	TR F - PN	TR A - PN
Shaft material	HASTELLOY	HASTELLOY	Aisi 316
Bushing material	PTFE	PTFE	PTFE
Rotor material	ECTFE	ECTFE	ECTFE
Intake port. mat.	PP	ECTFE	ECTFE
Internal parts	PP + PTFE	PVDF + PTFE	PTFE + PPSV
Viscosity	600 cps		

PERFORMANCE



The curves and performance values refer to pumps spare delivery outlet and water at 20°C.

DIMENSIONS



TRP - PN



body PP

TRF - PN



body in PVDF

TRA - PN



body Aisi 316

All the values shown are approximate and not binding



ACCESSORY

for diaphragm, centrifugal and transfer pumps



AIR REGULATOR KIT

FOR CUBIC E BOXER DIAPHRAGM PUMPS

It is composed of a compressed air filter regulator, fixing bracket, gauge, Elaston tube (5 m) cock and fittings.



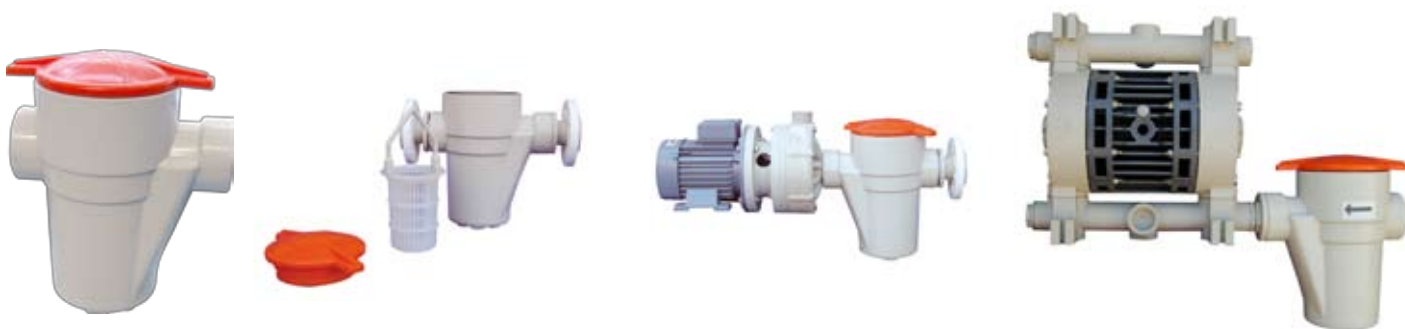
PUMP-PROTECTING BASKET STRAINERS

Polypropylene build, no metal parts and low head loss make them ideal for installation on a pump suction port, providing protection from suspended solids, filaments, algae, etc. The strainer can be easily removed by unscrewing the lid without the need for tools.

max. operating pressure 7 bar

For chemical sector, water treatment plants, fish farming, the galvanising, tanning, textile, paper and printing industries and a host of other applications.

Available in five different connection sizes: 1", 1 1/2", 2", 2 1/2", 3"

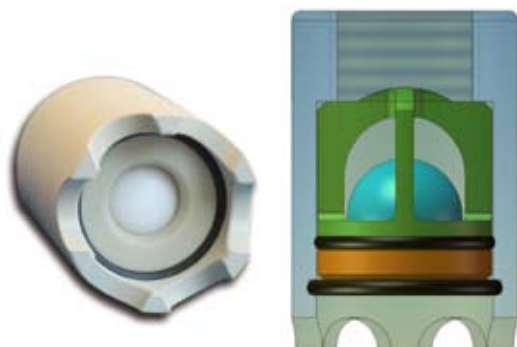


FOOT VALVES

Check valves designed for vertical fitting at the bottom end of the suction pipe on both centrifugal and pneumatic pumps. These non-return valves prevent water from flowing out of the suction pipe so that the pump remains primed at all times.

Sizes available: 1", 1 1/4", 1 1/2", 2", 3".

Construction materials: PP and PVDF





STROKE COUNTER

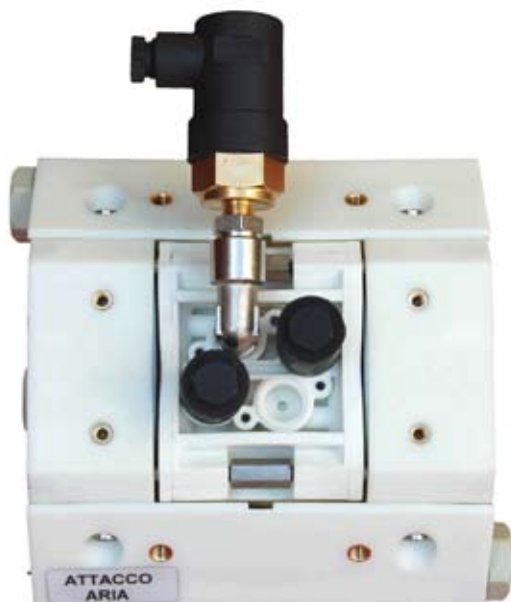
For switching pump on and off from a remote position.

ALSO AVAILABLE WITH PNEUMATIC OPERATION



STROKE COUNTER

Devices that are fitted to the pneumatic circuit of diaphragm pumps. They can count the number of strokes made by the diaphragms and therefore the number of cycles. This device allows various types of monitoring, e.g. litres of liquid delivered by the pump as a function of its displacement capacity.

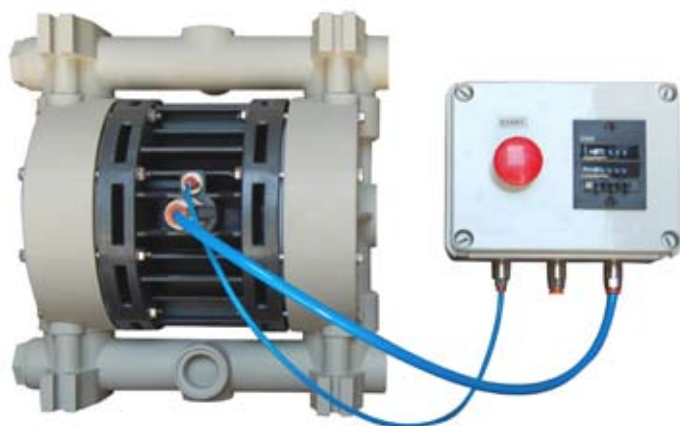


BATCH CONTROLLER

Mechanical batch controller with 5-digit display and start/stop button. Pneumatic operation, no electrical connection required. Designed for CUBIC and BOXER series.

HOW IT WORKS:

Set the required number of cycles and push the start button. the stroke counter monitors the preset number of cycles and stops the pump automatically upon completion.





MICROVALVES

For manual regulation of pump air supply flow rate.



HINGES - PP

Polypropylene construction
high chemical resistance.



POLYETHYLENE HOSE

High density, spiral-wound rubber-covered, crushproof flexible suction/discharge hose complete with swivel fittings and plate-type clamp, high chemical resistance.



All the values shown are approximate and not binding



FLOW METERS

Flow meters are fitted exclusively to centrifugal or drum-transfer pumps and can measure either the pump's instantaneous flow rate or the total number of litres of liquid delivered. The reading appears on the incorporated display.



DISPENSER

Made in polypropylene, aluminium alloy, stainless steel and equipped with delivery trigger.



QUICK COUPLINGS

For the chemical industry, high resistance, suitable for reinforced hoses. Max. pressure 13 bar.



T-BOLT CLAMPS

High-strength clamps for spiralled hose



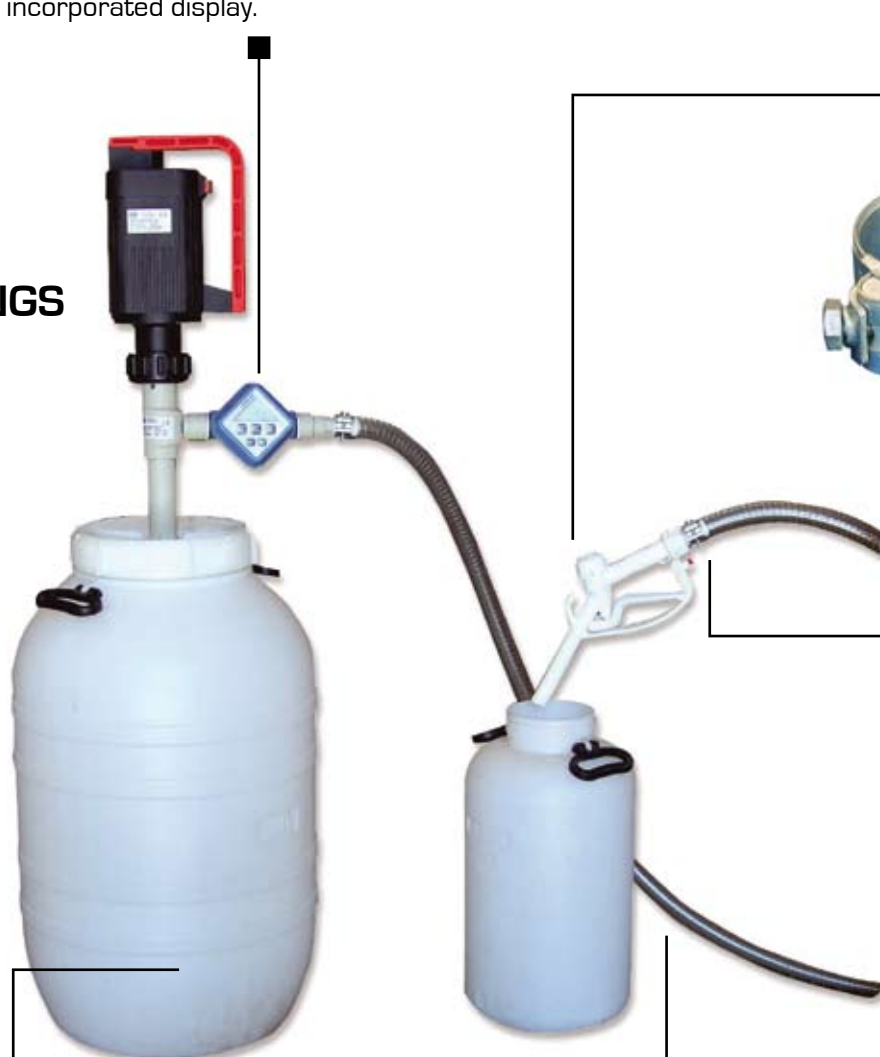
DIP TUBE FILTER

It is made in polypropylene and inox and allows fluids to be filtered at the intake. For TR pumps only.



REINFORCED HOSE

Food-grade pvc construction with metal reinforcement for suction/discharge.



INDUSTRIAL PUMPS

petrochemical, food, mechanical, environmental, printing, chemical, painting, galvanic, textile and ceramic industry



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DEBEM

DEBEM s.r.l.

via Del Bosco 41 - 21052 Busto Arsizio (Va) - Italy

GPS: latitude 45°36'8.25"N - longitude 8°52'24.11"E

tel. +39 0331 074034 - fax +39 0331 074036

www.debem.it - info@debem.it

