DEBEM

MADE IN ITALY

INDUSTRIAL PUMPS

General Catalogue

Contents

Who we are

Debem has been active in the liquid transfer sector for over 30 years.
A cutting edge company, specialised in pumps for numerous industries and for highly demanding environments.
Our close collaboration with the end user and our customer's feedback have been the key factors of the company's philosophy. We have developed a virtuous system of research and development of the product and service, which has garnered growing appreciation from leading companies in different sectors.

Debem's impressive growth is reflected in the difference between the original small premises and the current large warehouse. Debem offers its customers new and effective services, providing them with technical and commercial information to make it easier to choose the most suitable product and meet every operating requirement.

Our customers can count on a call centre able to resolve questions tied to product selection and the most suitable chemical compatibility for their requirements.
Moreover we also provide a technical support service that can respond to any queries of a technical nature, about the installation, pump optimisation, system or about the fluid pumping process.

DEBEM: TRADITION AND INNOVATION

Debem, 1980

Debem Srl traces its roots to 1975, when its founder, Marco De Bernardi, thanks to the theoretical and practical experience garnered in the field, decided to tackle his first independent project: an industrial pump and in particular a 1.5 HP plastic centrifugal pump. The prototype was an immediate success, so much so that he decided to risk everything and go it alone, creating his own line of industrial pumps. The main sectors that he focused on were the chemical industry, in all its variants, and the textile industry. At the time the latter was particularly successful in Italy and Varese was in many ways its beating heart.
As the demand for pumps continued growing, Debem increased its product range, always striving to be ahead of the times and looking for new solutions to overcome the difficulties of the production process. The continuous technical research and industrial innovation led to the first patent in 1987, which covered the engineering study of the air-operated system of the distributor.
This design is still in use in Debem's air-operated double diaphragm pumps and has even been copied by various Italian and international competitors.

The new design, utterly unique for the time, met with immediate and extensive success. This triggered an exponential growth that over the years confirmed Debem's role as one of Italy's points of excellence in the production of pumps, and especially air-operated double diaphragm pumps.

Debem's technical office, alongside the research and development department, is constantly developing new projects and innovating current products. Our primary objective of customer satisfaction has led to the development of a modular design of the pumps, which allows for tailor-made and custom assemblies with components and materials that are ideally suited for their use. One of our company's strengths is the development of our in-house R&D department, which is quite unusual for a small company, but something that has certainly borne its fruits. Initially introduced to improve our existing products (by researching the use of new materials, rationalising the spaces used, optimising the existing technology) and reducing costs without affecting the already high quality standards, the research project has allowed us to develop highly innovative products, such as the BOXER and CUBIC series, which represent the pinnacle of our research.

CERTIFICATIONS

ATEX:
All the BOXER air operated pumps are ATEX certified and are explosion proof protected, in compliance with the directive 2014/34/EU and the harmonised European standards **EN-60079-10 and EN 1127-1**.

IECEx:
The BOXER air operated pumps are IECEx certified and are explosion proof protected, in compliance with the international IECEx standards and the standards
IEC 60079-10 and EN 1127-1.
The BOXER air operated pumps are produced in compliance with IECEx, with class **Ex h IIB T4 Gb and Ex h IIIB T135° Db** for uses in the presence of flammable gases and dust.

ISO 9001:2015 certification

DEBEM has decided to use 100% Zero Impact® certified renewable energy.

Pumps for the chemical, textile, food, graphic, leather, ceramic, electronic, galvanic, paint, oil and sanitary industry.

Why choose us

Our strengths

Choosing DEBEM means putting your trust in a company driven by passion that has built a business based on values, tradition, innovation, people, experience and professionalism.

Innovative and technologically advanced pumps built with materials and components resistant to aggressive conditions

History
Over 30 years of innovation, research, quality and excellence.

Made in Italy Patents
The products are entirely designed, patented and built in Italy by Debem.

International distribution
Debem's products can count on an extensive global distribution (see network).

Materials and Technologies
Debem's products are constructed with the finest quality, certified Italian materials. We use the latest generation technologies in line with the industry 4.0 standards.

Service and consultancy
A call centre able to resolve questions tied to product selection and the most suitable chemical compatibility for their requirements. Support service that responds to technical, installation and pump optimisation queries.

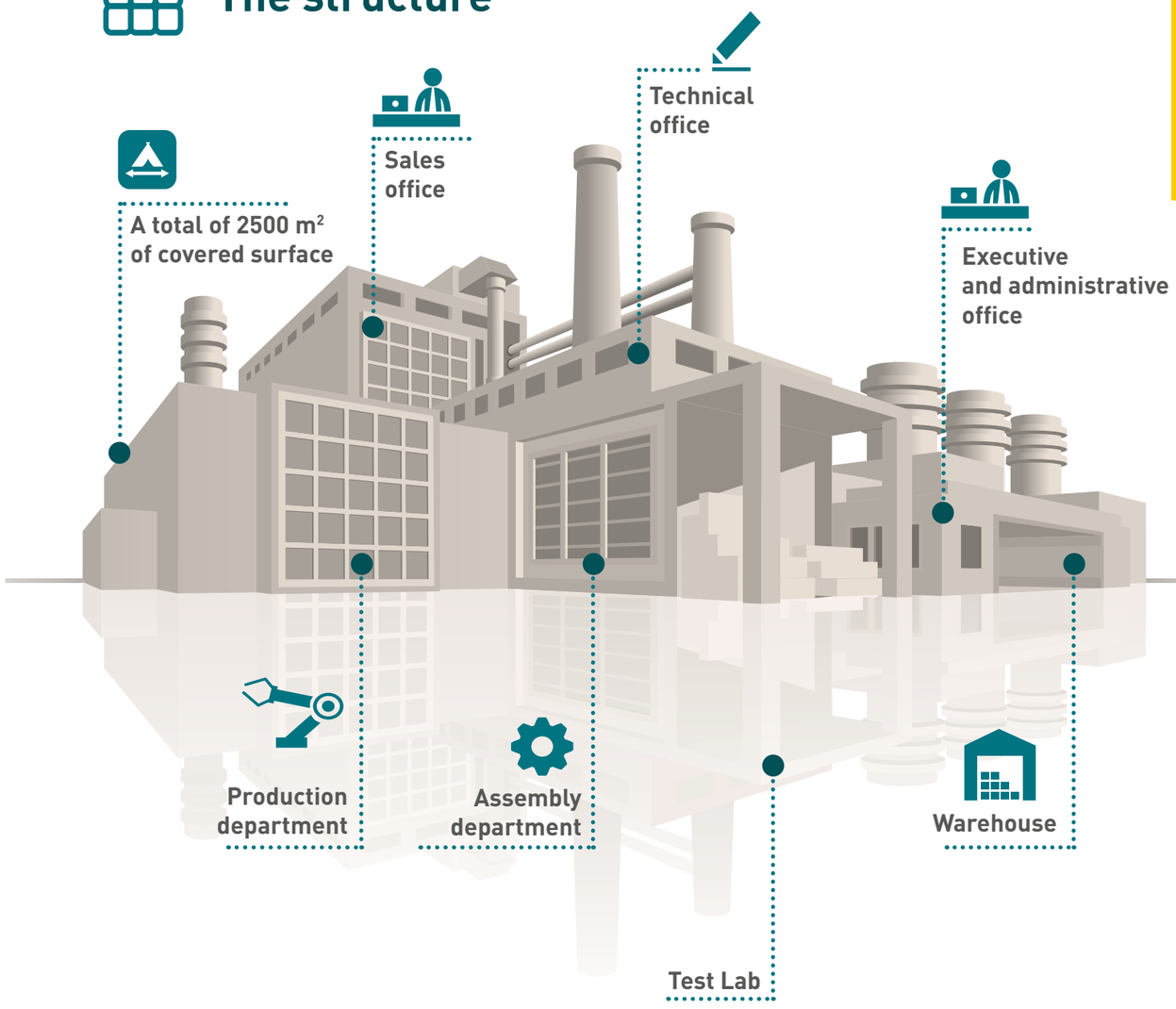
Custom solutions
Debem's air-operated double diaphragm pumps can be customised based on the customer's requirements and application needs.

Research&Development - Innovation
Debem's technical office, alongside the research and development department, is constantly developing new projects and innovating current products.

Optimal emergency management
Extremely quick deliveries of finished products and of spare parts for every pump model in the catalogue.

Quality
All the products that leave the company are stamped with a code that includes the production data entered into a database, to ensure utmost quality through every stage of the production process.

The structure



We are very happy to present the new DEBEM TEST-LAB, an internal analysis and product refinement laboratory. Open to the public for technical courses and certified tests for customers, it is Italy's first IECEx certified laboratory for air-operated pumps. Consisting of a 4000-litre polypropylene anti-cavitation tank with a compartmentalised structure, the TEST-LAB features two air lines to supply the pumps up to 6000 NL/min and three fluid lines to provide up to 3000 L/min. The technical equipment includes digital instruments certified to analyse air consumption, flow rate and hydraulic head, with a centralised data collection and graphics for issuing test certificates.

Global network

NORTH AND CENTRAL AMERICA

- MEXICO
- PANAMA
- USA

SOUTH AMERICA:

- ARGENTINA
- BRAZIL
- CHILE
- COLUMBIA
- ECUADOR
- PERU
- VENEZUELA

NORTHERN AFRICA:

- ALGERIA
- EGYPT
- MOROCCO
- TUNISIA

SOUTHERN AFRICA:

- SOUTH AFRICA

MIDDLE EAST:

- SAUDI ARABIA
- BAHRAIN
- UNITED ARAB EMIRATES
- ISRAEL
- OMAN
- QATAR
- SYRIA

ASIA:

- CHINA
- KOREA
- INDIA
- INDONESIA
- MALAYSIA
- SINGAPORE
- TAIWAN
- THAILAND
- VIETNAM

OCEANIA:

- AUSTRALIA

EUROPE:

- AUSTRIA
- BELGIUM
- BELARUS
- BULGARIA
- CYPRUS
- DENMARK
- FRANCE
- GEORGIA
- GERMANY
- UNITED KINGDOM
- GREECE
- IRELAND
- ITALY
- LITHUANIA
- NORWAY
- NETHERLANDS
- POLAND
- PORTUGAL
- CZECH REPUBLIC
- ROMANIA
- RUSSIA
- SPAIN
- SWEDEN
- SWITZERLAND
- TURKEY
- HUNGARY
- UKRAINE

Our products

Air-operated double diaphragm pumps

CUBIC

BOXER

REMOTE CONTROL

FULLFLOW

Our air-operated diaphragm pumps are sturdy and powerful, self-priming (dry negative vacuum), also in demanding conditions. They can transfer liquids with high viscosity and/or with suspended solids.

Pulsation dampers

EQUAFLUX

Automatic diaphragm pulsation dampers. Compressed air-driven devices that are installed on the delivery side of air-operated pumps. They minimise the pulsations of the fluid and the consequent vibrations, or water hammer, to protect the process equipment.

Electric centrifugal pumps

DM
HORIZONTAL MAGNETIC DRIVE

KM
HORIZONTAL MAGNETIC DRIVE

MB
HORIZONTAL WITH MECHANICAL SEALS

IM
VERTICAL CENTRIFUGAL PUMPS

Resin centrifugal pumps with horizontal axis mechanical seal, with magnetic drive and vertical axis centrifugal pumps.

Drum transfer pumps

TR
DRUM TRANSFER PUMPS

- Compressed air motor
- Electric motor

Compressed air or electrical motor driven drum transfer pumps, with the motor installed in direct drive or with a drive coupling. Their portable design renders them ideally suited to quickly transfer clean corrosive liquids from drums.

THE MAIN APPLICATION SECTORS

- AUTOMOTIVE
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY
- GRAPHIC INDUSTRY
- TEXTILE AND LEATHER INDUSTRY
- PRODUCTION AND STORAGE OF BIODIESEL
- CHEMICAL INDUSTRY
- PACKING, GLUE, PAPER AND PAPER MILLS
- MECHANICAL AND METALLURGIC INDUSTRY
- WATER AND SLUDGE TREATMENT
- PAINT INDUSTRY
- OIL & GAS
- GOLD PROCESSING INDUSTRY


DEBEM
MADE IN ITALY

ATEX CONFORMITY

All the BOXER air operated pumps are ATEX certified and are explosion proof protected, in compliance with the directive 2014/34/EU and the harmonised European standards EN-60079-10 and EN 1127-1.

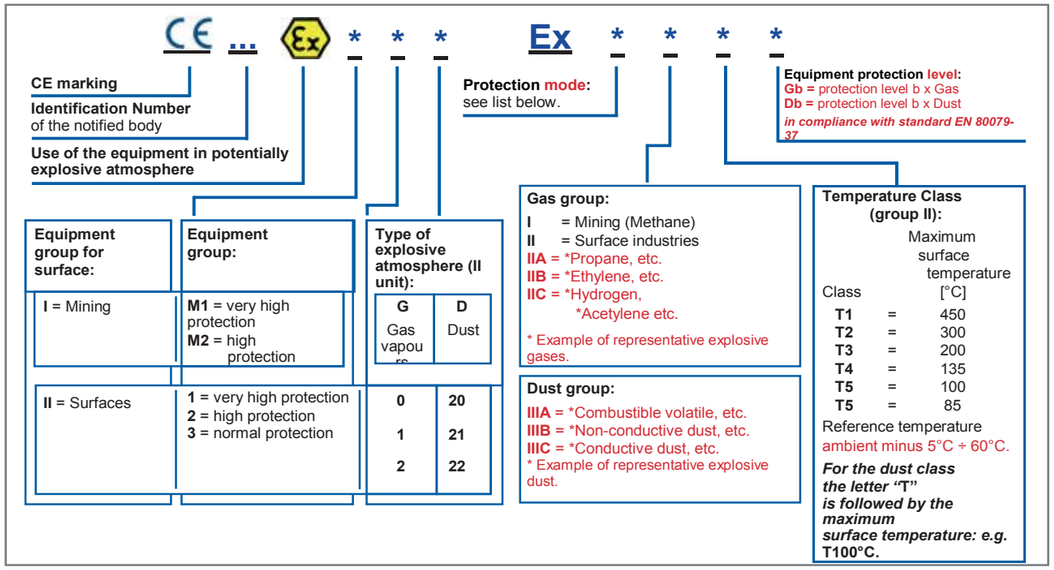
They are constructed in compliance with ATEX **II 3 G Ex h IIB T4 Gb** and **II 3 D Ex h IIIB T135° Db** for use in *"Zone 2- Zone 22"* (in the presence of flammable gases and dust).

On specific request during the order, the pumps can be supplied in CONDUCT version in compliance with ATEX **II 2 G Ex h IIB T4 Gb** and **II 2 D Ex h IIIB T135° Db** for use in *"Zone 1 - Zone 21"*.

ATTENTION

The identification plate of the pump includes the ATEX marking and the equipment category. **Before the installation always check the compliance with the classification of the installation "zone". The equipment user is responsible for classifying their installation zone.**

See below for the definition of the ATEX marking of each execution.



: safety symbol in agreement with DIN 40012 appendix A.

II3G/II3D : surface equipment for use in zones where the presence of combustible gases, fumes or fogs, as well as dust, in the air is improbable or rare and for short periods, during the operation in the external and internal zone (Zone 2 - Zone 22).

II2G/II2D: surface equipment for use in zones with the occasional presence of combustible gases, fumes or fogs, as well as dust, in the air during the normal operation (EN 1127-1 par. 6.3), in the external and internal zone (Zone 1- Zone 21).

Ex h : equipment in protection mode «c», or «b», or «k», in agreement with standard EN 80079-37.

IIB : except for the following gases: hydrogen, acetylene, carbon sulphide.

IIIB : except for the following dust: conductive dust

T4/T135°C : temperature class admitted. The user must process fluids in temperature in compliance with this classification, taking into account the indications of this manual and the applicable legislative requirements. The user must also take into account the explosive temperature of the combustible gases, fumes, fog or dust in the air present in the zone of use.

The technical file is deposited with the certifying body, TÜV NORD CERT in Hanover.

IECEx CONFORMITY

All the BOXER air operated pumps are IECEx certified and are explosion proof protected, in compliance with the international IECEx standards in compliance with standards EN-60079-10 and EN 1127-1.

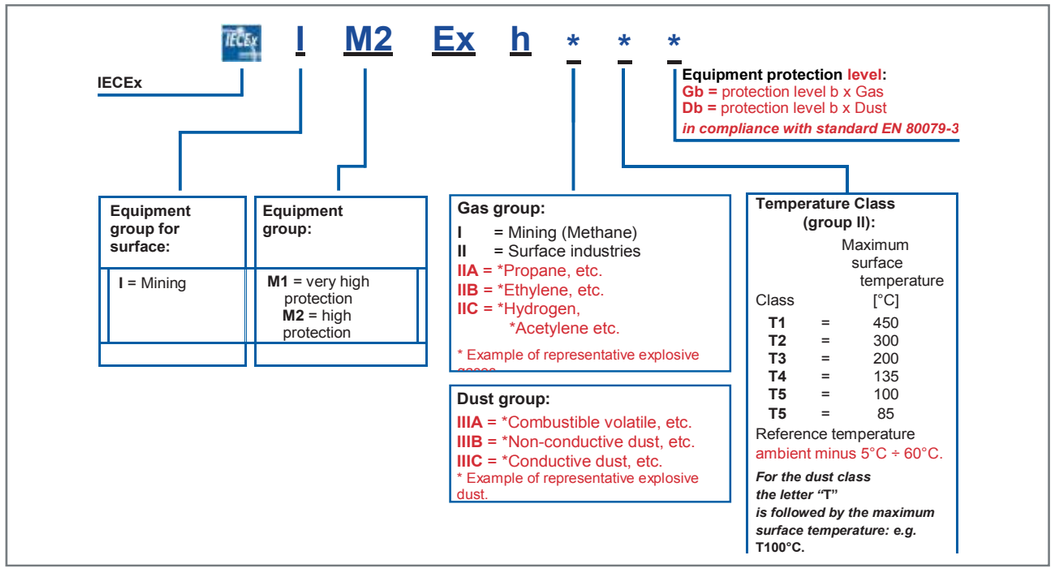
The BOXER air operated pumps are constructed in the CONDUCT version, in compliance with IECEx, with class **Ex h IIB T4 Gb** and **Ex h IIIB T135° Db**.

ATTENTION

The identification plate of the pump includes the IECEx marking and the equipment category. **Before the installation always check the compliance with the classification of the installation "zone". The equipment user is responsible for classifying their installation zone.**

The IECEx compliant pumps are not available with Hytrel components and do not have a different usage specification in relation to the ambient temperature indicated on the plate.

See below for the definition of the IECEx marking of each execution.



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T4/T135°C : temperature class admitted. The user must process fluids in temperature in compliance with this classification, taking into account the indications of this manual and the applicable legislative requirements. The user must also take into account the explosive temperature of the combustible gases, fumes, fog or dust in the air present in the zone of use.

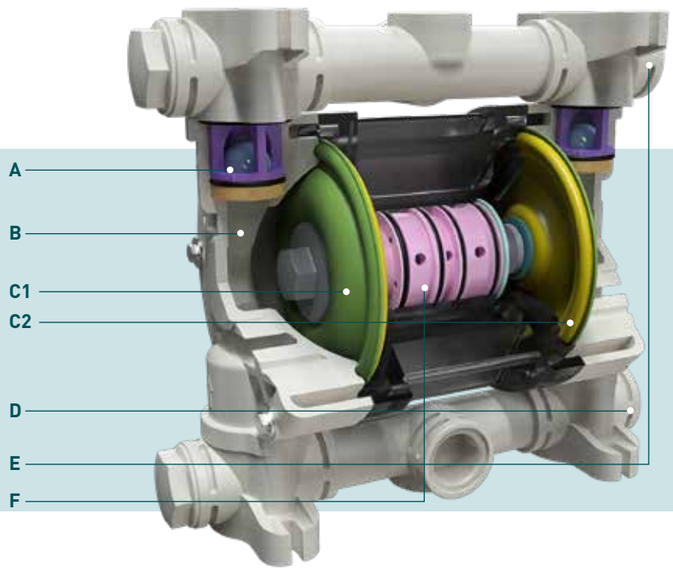
The technical file is deposited with the certifying body IEC EUROFINS (Certificate EX-3935).

Main advantages

The CUBIC diaphragm mini pumps and the BOXER diaphragm pumps feature high levels of performance. Their considerable power and sturdiness render them ideal for pumping highly viscous liquids, even with suspended solids The pneumatic stall-prevention circuit guarantees a safe operation, without requiring lubricated air.
These pumps have achieved unprecedented levels of versatility due to their dry self-priming capacity with a considerable suction head, the ability to fine-tune the speed without losses of pressure as well as the possibility of empty-running without suffering damage. The vast range of construction materials allows us to select the best chemical compatibility with the fluid and/or the environment, without neglecting the operating temperature range. **Their construction principle makes them ideally suited for demanding applications with high levels of humidity or in potentially explosive atmospheres** (ATEX and IECEx certification).

- **Constructed in PP, PP+CF, PVDF, ECTFE, PTFE, ALUMINIUM, AISI 316 STAINLESS STEEL, AISI 316 L STAINLESS STEEL**
- **Use in explosive atmospheres (ATEX certification zone 1 – 2, IECEx certification)**
- **Suitable for demanding applications and in atmospheres with high levels of humidity**
- **Dry-running**
- **Dry self-priming**
- **Supply with non-lubricated air**
- **Patented stall-prevention pneumatic circuit**
- **Adjustable flow rate and head**
- **Fine adjustment of the speed at constant pressure**
- **Possibility of split manifolds (two suctions and two deliveries)**
- **Bench or ceiling installation**
- **Customisable positions**
- **Easy maintenance and parts replacement**
- **Excellent ratio between performance and costs**
- **Operating temperature:**
  - **PP / PP+CF from +3°C to +65°C**
  - **PVDF / ECTFE from +3°C to +95°C**
  - **AISI 316 / AISI 316 L / Aluminium from +3°C to 95°C**

A = ball valves
B = pumping chamber
C1 = product-side diaphragm
C2 = air-side diaphragm
D = suction manifold
E = delivery manifold
F = pneumatic exchanger



PLASTIC BOXER

- ATEX ZONE 1 - AVAILABLE ON REQUEST
II 2G Ex h IIb T4 Gb
II 2D Ex h IIIB T135°C Db X
Ex h IIB T4 Gb
Ex h IIIB T135°C Db
- ATEX ZONE 2 - STANDARD ON ALL MODELS
II 3G Ex h IIB T4 Gc
II 3D Ex h IIIB T135°C Dc X
I M2 Ex h I Mb X

IECEx

The plastic BOXER range is designed for demanding uses,
for very aggressive and acid liquids, in the numerous applications of the chemical industry.

MATERIALS PP, PP+CF, PVDF, ECTFE, PTFE
Max dry suction 5m

METAL BOXER

- ATEX ZONE 1 - AVAILABLE ON REQUEST
II 2G Ex h IIb T4 Gb
II 2D Ex h IIIB T135°C Db X
Ex h IIB T4 Gb
Ex h IIIB T135°C Db
- ATEX ZONE 2 - STANDARD ON ALL MODELS
II 3G Ex h IIB T4 Gc
II 3D Ex h IIIB T135°C Dc X
I M2 Ex h I Mb X

IECEx

The metal BOXER range is designed for demanding uses,
for solvent-based liquids and for numerous uses in the paint industry.

MATERIALS ALUMINIUM, AISI 316 STAINLESS STEEL, AISI 316 L STAINLESS STEEL
Max dry suction 5m

CUBIC

- ATEX ZONE 1 - AVAILABLE ON REQUEST
II 2G Ex h IIb T4 Gb
II 2D Ex h IIIB T135°C Db X
- ATEX ZONE 2 - STANDARD ON ALL MODELS
II 3G Ex h IIB T4 Gc
II 3D Ex h IIIB T135°C Dc X

This range of pumps, with their unique design and
compact dimensions, can be used in series in small spaces.

MATERIALS PP, PP+CF, ECTFE
Max dry suction 3m

Patented exchanger

PATENTED STALL-PREVENTION COAXIAL PNEUMATIC EXCHANGER

Debem pumps use a patented stall-prevention coaxial pneumatic exchanger. This device introduces compressed air to change the equilibrium of the pressure of the diaphragms, assisted by a stall-prevention circuit, that guarantees optimal performance, even in the most critical conditions. The control part (spool) and the power part (exchanger) are both housed inside the pump in a single block, which limits further losses of load when compressed air flows in the pump. The Debem pneumatic exchanger is easy to repair and/or replace. The internal exchanger is built entirely with plastic parts (except for the shaft connecting the two diaphragms), rendering it resistant to corrosive fluids and fumes.

The Debem exchanger is pre-lubricated, therefore the supply air for the pump does not require lubrication, quite the opposite, it must be dried and free of impurities, such as oil, dust or condensation. Debem's pneumatic exchanger (unique in its kind) is built with an extremely low number of parts, making parts replacement and maintenance extremely easy.

- **Low cost of spare parts (single or kit)**
- **Easy installation**
- **Self-lubricated system**
- **No metal parts (only the shaft)**
- **Stall-prevention system**
- **Long life of the device: more than 50,000,000 cycles**

Amongst the lowest air consumptions on the market

The air consumption data (expressed in NL/minute) of Debem's pumps are real and checked, with certified state of the art instruments and are amongst the lowest available on the market today. Debem's pumps have been specifically designed to optimise the space on the back of the diaphragms. The volumetric space profiles are developed to guarantee the total dilation of the diaphragms with very small air volumes. Debem's pumps are designed to optimise the consumption of air, regardless of whether electronic control systems are used. Our competitors sell this option as an accessory but certain misleading advertising would have you believe that this is a production standard. Be suspicious of all companies that claim technical data without having the instruments necessary to determine their veracity.

Debem can count on its own new-concept test bench, with state of the art certified instruments, designed to test and certify the parameters of its own products and the efficiency of the pumps, in compliance with the latest applicable standards and in line with the new European project for INDUSTRIA 4.0.

Long life diaphragms

The diaphragms are the parts subjected to the greatest stresses during suction and pumping, whilst also having to resist the chemical attack and temperature of the liquid and the mechanical fatigue. Their correct assessment and selection is therefore of fundamental importance for the life of the diaphragm, as well as for the investment decisions and maintenance costs.
A modern design process, destructing testing, as well as an in-depth analysis of the results have allowed Debem to develop the **new generation LONG LIFE diaphragms**. Thanks to their profile and construction shape, these products offer a larger working surface and improved redistribution of the load, reducing the stress and yield of the material to a minimum.

BOXER / CUBIC FAMILY

RUBBER DIAPHRAGMS

NBR EPDM

They are produced with rubber mixtures and special additives that improve their chemical characteristics as well as their mechanical flexural and resistance characteristics. These diaphragms have a nylon cloth reinforcement that improves stress distribution.

NBR
Inexpensive and particularly suited for petroleum-based liquids, oil and abrasive fluids.

EPDM
Good resistance to acids, alkaline and abrasion as well as a good flexibility also at low temperatures.

BOXER FAMILY

THERMOPLASTIC DIAPHRAGMS

HYTREL SANTOPRENE®

Made with thermoplastic polymers, these diaphragms provide a high level of mechanical resistance and stress distribution.

HYTREL®
Exceptionally tough and elastic return: a high resistance to impact, flex fatigue and creep: excellent flexibility at low temperatures and at high temperatures it maintains most of its properties. It is also resistant to the attack of many industrial chemicals, oils and solvents.

SANTOPRENE®
Excellent resistance to acid and alkaline fluids, high flexural resistance and good abrasion resistance.

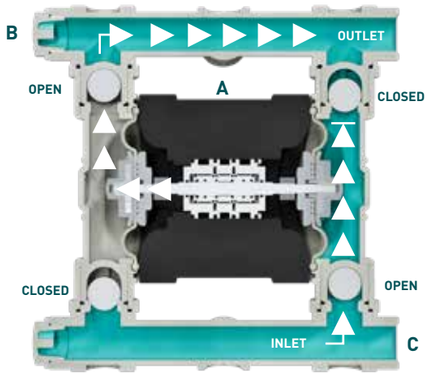
BOXER / CUBIC FAMILY

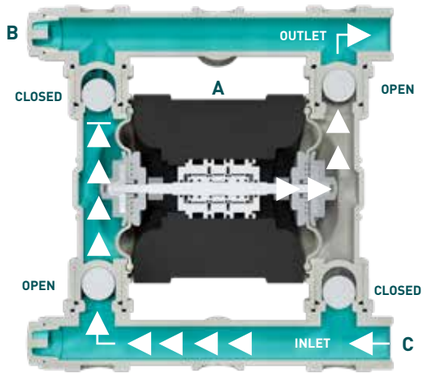
PTFE DIAPHRAGMS

This material is known for its considerable resistance to temperature and chemical and corrosive agents. Diaphragms in Debem PTFE undergo a double heat treatment to increase their elasticity and service life. A sample of each batch is subject to destructive tests to check their compliance with the technical requirements. This diaphragm can be installed combined with one of the ones examined earlier, in order to increase the resistance to the corrosive chemical agents and temperature of the fluid.

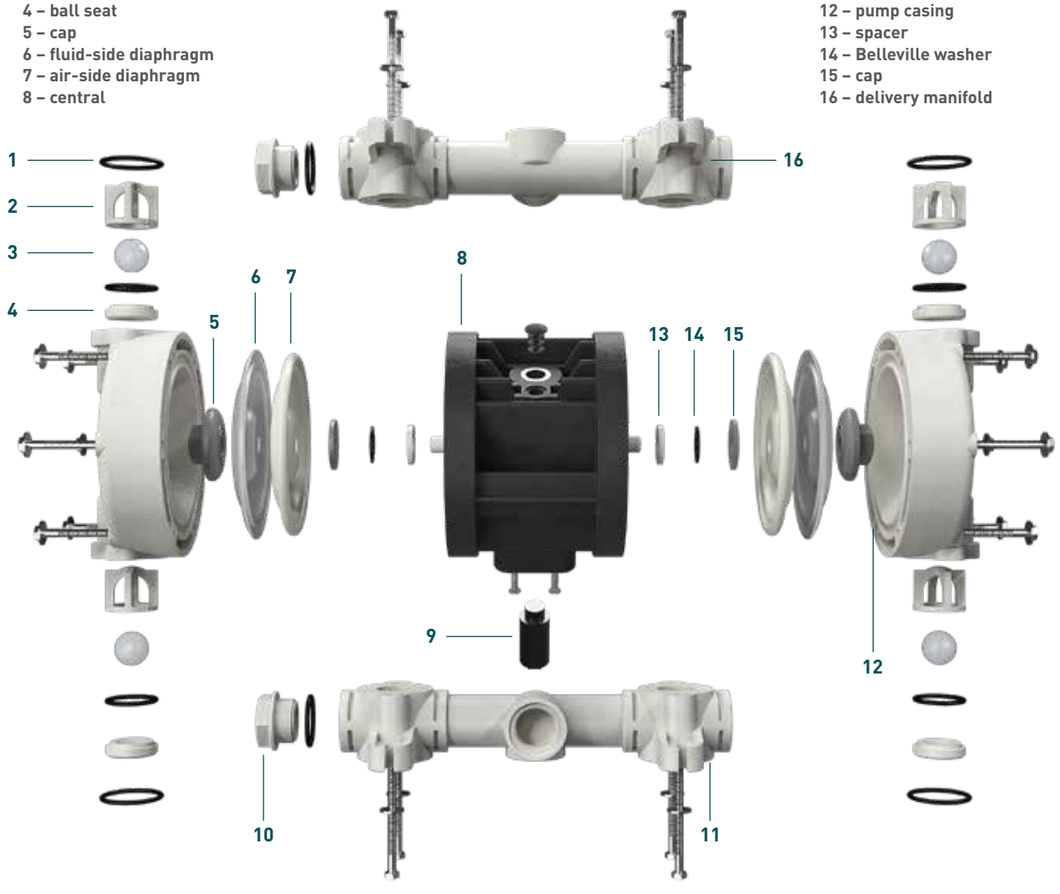
How does it work?

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





1 – o-ring
2 – cage
3 – ball
4 – ball seat
5 – cap
6 – fluid-side diaphragm
7 – air-side diaphragm
8 – central
9 – silencer filter
10 – cap
11 – vacuum manifold
12 – pump casing
13 – spacer
14 – Belleville washer
15 – cap
16 – delivery manifold



Installations

SELF-PRIMING

BOXER / CUBIC FAMILY

SPLIT SUCTION and DELIVERY

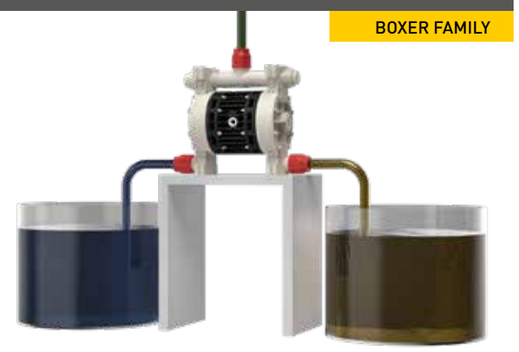
BOXER FAMILY

UNDER HEAD

BOXER / CUBIC FAMILY

SPLIT SUCTION

BOXER FAMILY



IMMERSED

BOXER / CUBIC FAMILY

DRUM TRANSFER

BOXER / CUBIC FAMILY

Cubic MIDGETBOX

Debem's CUBIC diaphragm pumps are fitted with a centrally-positioned coaxial pneumatic motor.

The ATEX - IECEx certified air-operated double diaphragm pumps, with their unique design and limited size, are ideally suited to be installed directly on industrial equipment for the chemical sector, to pump ink and paint, on printing machines, in oil circulation and in applications where moderate quantities of fluid must be pumped in small spaces. The CUBIC range includes the MIDGETBOX pump which is currently the smallest and highest performing pump on the market for the chemical sector.

- **Product designed and constructed in Italy**
- **PATENTED stall-prevention pneumatic circuit**
- **Operates with non-lubricated air**
- **Self-priming**
- **Dry operation**
- **ATEX certification for ZONE 1 - ZONE 2**
- **IECEx certification**
- **Adjustable operating speed**
- **Extremely versatile**
- **Suitable for pumping fluids in demanding applications**
- **Suitable for continuous use**

CUBIC PUMPS CODES ENCODING

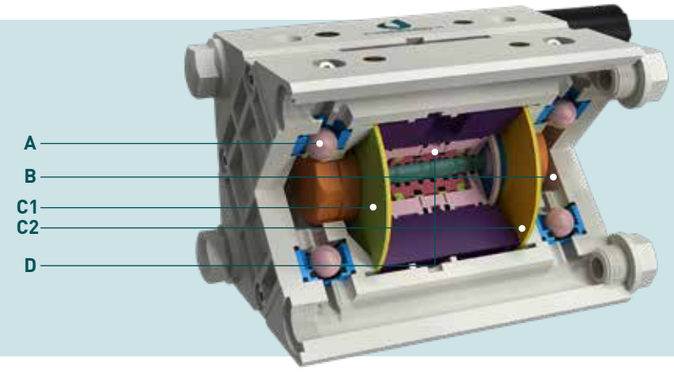
ex. ICU15P-NTTPV- -
Internal distributor, Cubic 15, PP casing, NBR air side diaphragm, PTFE product side diaphragm, PTFE balls, PP ball seats, Viton® o-ring.

I	CU15	P	N	T	T	P	V	-	-
INTERNAL DISTRIBUTOR	**PUMP MODEL**	**PUMP CASING**	**AIR-SIDE DIAPHRAGM**	**FLUID-SIDE DIAPHRAGM**	**BALLS**	**BALL SEATS**	**O-RING***	**SPLIT MANIFOLD**	**CONDUCT VERSION**
I	**MID** - Midgetbox (available only in PP/PP+CF) **CU15** - Cubic 15	**P** - Polypropylene **EC** - ECTFE (Halar) **PC** - PP+CF	**N** - NBR	**T** - PTFE	**G** - Pyrex®1 **A** - AISI 316 **T** - PTFE	**R** - PPS-V **K** - PEEK1 **P** - PP **EC** - ECTFE **A** - AISI 316 **I** - PE-UHMW	**D** - EPDM **V** - Viton® **N** - NBR **T** - PTFE	**X** Split manifold **Y** NPT thread **J** Spacer on shaft	**C***

1) Only for MIDGETBOX

*C version CONDUCT for standard ATEX ZONE 1Ex II 2/2GD c IIB T135°C

A = ball valves
B = pumping chamber
C1 = product-side diaphragm
C2 = air-side diaphragm
D = pneumatic exchanger



Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X

Suction / delivery connections	G 1/4" f (*)
Air fitting	G 1/8" f
Max flow rate*	6 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	3 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	0 mm
Noise level	60 dB
Volume per stroke	3.2 cc

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Midgetbox

Maximum Dimensions

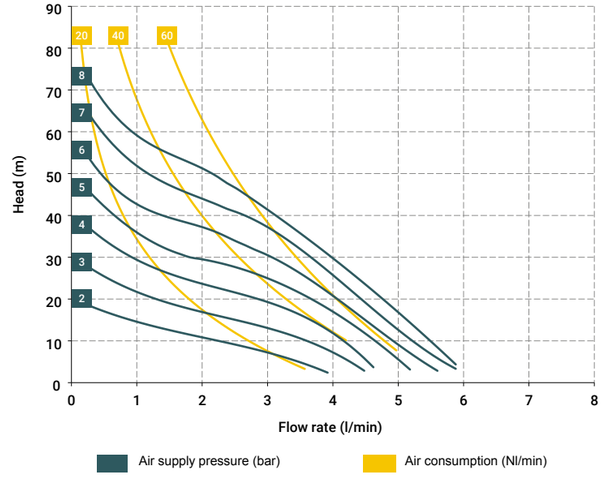
Height	75 mm
Width	121 mm
Depth	60 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	0.52 Kg Temp. 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	0.52 Kg Temp. 3°C min. 65°C max

MAIN APPLICATION SECTORS

- GRAPHIC INDUSTRY
- WATER AND SLUDGE TREATMENT
- CHEMICAL INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY

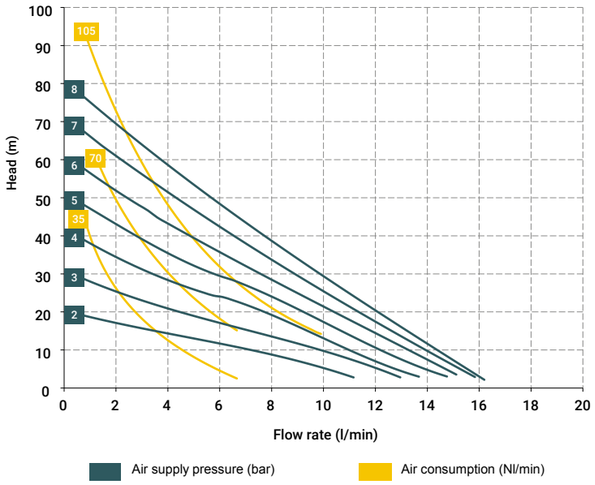


CUBIC 15

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X

Suction / delivery connections	G 3/8" f (*)
Air fitting	G 3/8" f
Max flow rate*	17 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	3 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	0.5 mm
Noise level	65 dB
Volume per stroke	10.3 cc



Cubic diaphragm pumps: high performance levels, excellent power and sturdiness, ideal for pumping liquids with high apparent viscosity, even if containing suspended solids. Particularly suited for small spaces.

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

MAIN APPLICATION SECTORS

- WATER AND SLUDGE TREATMENT
- PACKING, GLUE, PAPER AND PAPER MILLS
- CERAMIC, STONE, MARBLE GLASS AND MINING INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY
- CHEMICAL INDUSTRY
- GRAPHIC INDUSTRY

PP — Cubic 15

Maximum Dimensions

Height	105 mm
Width	201 mm
Depth	105 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	1.35 Kg Temp. 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	1.35 Kg Temp. 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

ECTFE — Cubic 15

Maximum Dimensions

Height	105 mm
Width	201 mm
Depth	105 mm

Construction materials (casing and manifolds) and net weight

ECTFE	1. Kg Temp. 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

BOXER

Line introduction

Air-operated double diaphragm volumetric pumps, ATEX – IECEx certified, constructed in polypropylene or PVDF in the plastic version or in aluminium or AISI 316 L for the metal versions. BOXER pumps are ideal for pumping liquids with high apparent viscosity, even if containing suspended solids. The vast range of materials available for the parts in contact with the fluid, such as pump casings and manifolds, diaphragms, balls, ball seats and o-rings, makes them compatible with any type of fluid present on the market. They can be used in numerous applications such as the following industries: chemical, graphic, paint, galvanic, ceramic, naval, textile, leather, mechanical, oil and many more.

- **Product designed and constructed in Italy**
- **PATENTED stall-prevention pneumatic circuit**
- **Operates with non-lubricated air**
- **Self-priming**
- **Dry operation**
- **ATEX certification for ZONE 1 - ZONE 2**
- **IECEx certification**
- **Adjustable operating speed**
- **Extremely versatile**
- **Suitable for pumping liquids with high viscosity and demanding applications**
- **Possibility of pumping fluids containing suspended solids**
- **Possibility of suspended installation**
- **Manifolds can be supplied with stainless steel reinforcement rings for pumps in PP – PP+CF – PVDF**
- **Nozzles available with clamp connections and DIN 11851 (only pumps in AISI 316)**
- **LONG LIFE profile diaphragms (available in different elastomers) for greater resistance and longer life**
- **Suitable for continuous use**

BOXER PUMPS CODES ENCODING

ex. IB50-P-HTTPV--
Internal distributor, Boxer 50, PP casing, Hytrel® air side diaphragm, PTFE product side diaphragm, PTFE balls, PP ball seats, Viton® o-ring.

I	B50-	P	H	T	T	P	V	-	-
INTERNAL DISTRIBUTOR	PUMP MODEL	PUMP CASING	AIR-SIDE DIAPHRAGM	FLUID-SIDE DIAPHRAGM	BALLS	BALL SEATS	O-RING	SPLIT MANIFOLD	CONDUCT VERSION
I	**B7** Boxer 7 **B15** Boxer 15 **MICR** Microboxer **MIN** Miniboxer **B35** Boxer 35 **B50** Boxer 50 **B81** Boxer 81 **B90** Boxer90 **B100** Boxer 100 **B150** Boxer 150 **B251** Boxer 251 **B252** Boxer 252 **B502** Boxer 502 **B522** Boxer 522 **B503** Boxer 503	**P** - Polypropylene **FC** - PVDF+CF **PC** - PP+CF **AL** - Aluminium **A** - AISI 316	**N** - NBR **D** - EPDM **H** - Hytrel **M** - Santoprene	**T** - PTFE	**T** - PTFE **A** - AISI 316 **D** - EPDM **N** - NBR	**P** - Polypropylene **F** - PVDF **A** - AISI 316 **I** - PE-UHMW **R** - PPS-V **L** - Aluminium	**D** - EPDM **V** - Viton® **N** - NBR **T** - PTFE **S** - Silicone	**X*** **3*** **Y*** **J*** **W***	**C*** **Z***

*X = split manifold
*3 = 3° central hole on manifold
*Y = "NPT" thread
*J = spacer on shaft
*W = clamp manifold
(all only on request)

C = version CONDUCT for standard ATEX ZONE 1 Ex II 2/2GD c IIB T135°C
Z = version for standard IECEx
(both only on request)

BOXER 7

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 1/4" f (*)
Air fitting	G 1/8" f
Max flow rate*	9 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	0.5 mm
Noise level	65 dB
Volume per stroke	3.2 cc

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

MAIN APPLICATION SECTORS

WATER AND SLUDGE TREATMENT
PACKING, GLUE, PAPER AND PAPER MILLS
CERAMIC, STONE, MARBLE GLASS AND MINING INDUSTRY
AUTOMOTIVE
PAINT INDUSTRY
GALVANIC AND ELECTRONIC INDUSTRY
CHEMICAL INDUSTRY
GRAPHIC INDUSTRY

PP — Boxer 7

Maximum Dimensions

Height	120 mm
Width	138 mm
Depth	68 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	0.7 Kg Temp. 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	- Temp. 3°C min. 65°C max

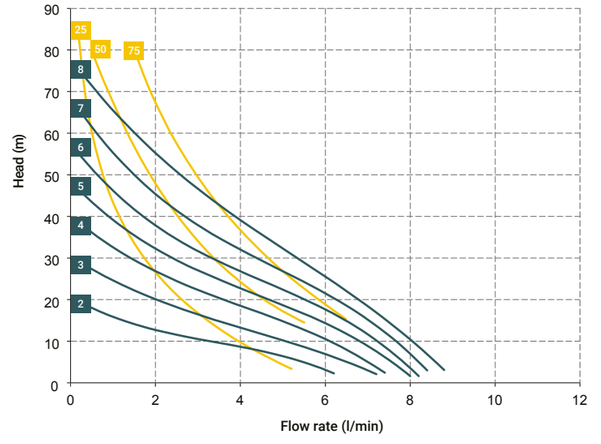
PVDF — Boxer 7

Maximum Dimensions

Height	120 mm
Width	138 mm
Depth	68 mm

Construction materials (casing and manifolds) and net weight

PVDF	- Temp. 3°C min. 95°C max

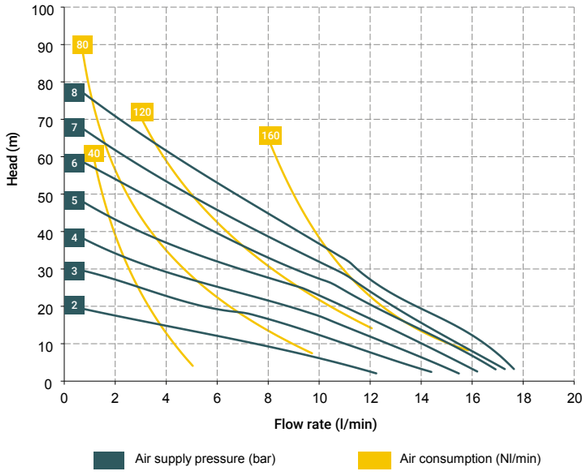


BOXER 15

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 3/8" f (*)
Air fitting	G 3/8" f
Max flow rate*	17 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	3 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	0.5 mm
Noise level	65 dB
Volume per stroke	10.3 cc



MAIN APPLICATION SECTORS

- WATER AND SLUDGE TREATMENT
- PACKING, GLUE, PAPER AND PAPER MILLS
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY
- CHEMICAL INDUSTRY
- GRAPHIC INDUSTRY

(*) Available with Clamp or NPT connections (only on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 15

Maximum Dimensions

Height	151 mm
Width	148 mm
Depth	80 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	1.1 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	1.1 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

PVDF — Boxer 15

Maximum Dimensions

Height	151 mm
Width	148 mm
Depth	80 mm

Construction materials (casing and manifolds) and net weight

PVDF	1.38 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

ALU — Boxer 15

Maximum Dimensions

Height	141 mm
Width	153 mm
Depth	80 mm

Construction materials (casing and manifolds) and net weight

ALU	1.9 Kg Max 3°C min. 95°C max

AISI 316 L steel — Boxer 15

Maximum Dimensions

Height	141 mm
Width	153 mm
Depth	80 mm

Construction materials (casing and manifolds) and net weight

AISI 316 L	2.4 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

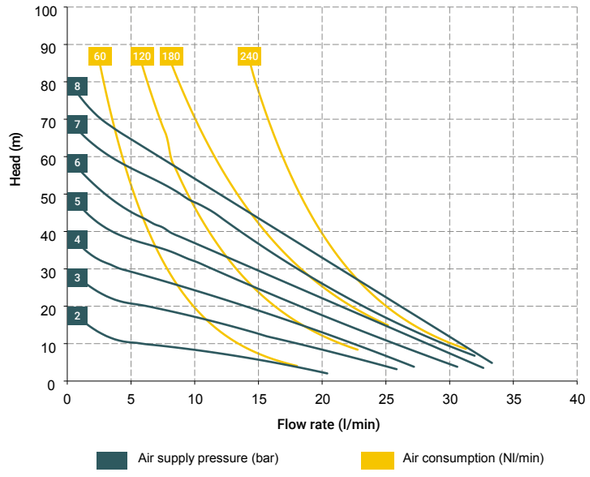
DUPLEX/W.DUPLEX

MICROBOXER

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 1/2" f (*)
Air fitting	G 1/4" f
Max flow rate*	35 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	2 mm
Noise level	65 dB
Volume per stroke	30 cc



MAIN APPLICATION SECTORS

- PRODUCTION AND STORAGE OF BIODIESEL
- CHEMICAL INDUSTRY
- PAINT INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY
- GOLD PROCESSING INDUSTRY
- GRAPHIC INDUSTRY

(*) Available with Clamp or NPT connections (only on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Microboxer

Maximum Dimensions

Height	168 mm
Width	165 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	1.6 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	1.6 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

PVDF — Microboxer

Maximum Dimensions

Height	168 mm
Width	165 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

PVDF	1.98 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

ALU — Microboxer

Maximum Dimensions

Height	172 mm
Width	164 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

ALU	2.1 Kg Max 3°C min. 95°C max

AISI 316 L steel — Microboxer

Maximum Dimensions

Height	171 mm
Width	177 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

AISI 316 L	3.75 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

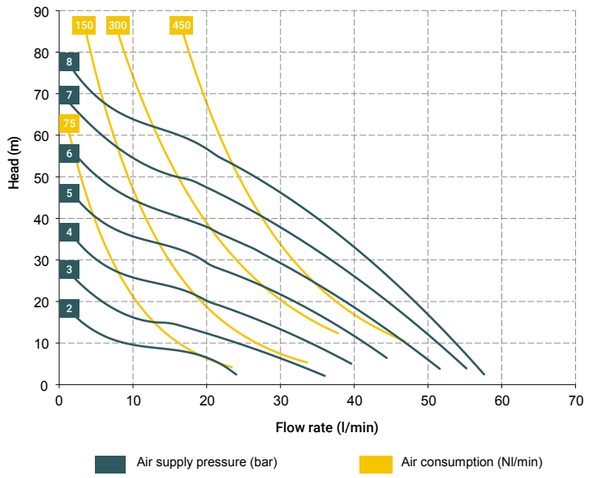
DUPLEX/W.DUPLEX

BOXER 50 / MINIBOXER

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 1/2" or DN 15 (*)
Air fitting	G 3/8" f
Max flow rate*	60 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	4 mm
Noise level	70 dB
Volume per stroke	67 cc



MAIN APPLICATION SECTORS

- AUTOMOTIVE
- PRODUCTION AND STORAGE OF BIODIESEL
- PAINT INDUSTRY
- CHEMICAL INDUSTRY
- GRAPHIC OIL & GAS
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY
- INDUSTRY
- GOLD PROCESSING INDUSTRY
- MECHANICAL AND METALLURGIC INDUSTRY
- PACKING, GLUE, PAPER AND PAPER MILLS

BOXER 50 · MINIBOXER

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 50

Maximum Dimensions

Height	241 mm
Width	247 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	3.75 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	3.75 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc

UHMWPE

PVDF — Boxer 50

Maximum Dimensions

Height	241 mm
Width	247 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

PVDF	4.25 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc

UHMWPE

ALU — Boxer 50

Maximum Dimensions

Height	234 mm
Width	241 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

ALU	4.07 Kg Max 3°C min. 95°C max

MINIBOXER

AISI 316 L steel

Maximum Dimensions

Height	232 mm
Width	230 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

AISI 316 L	6.3 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

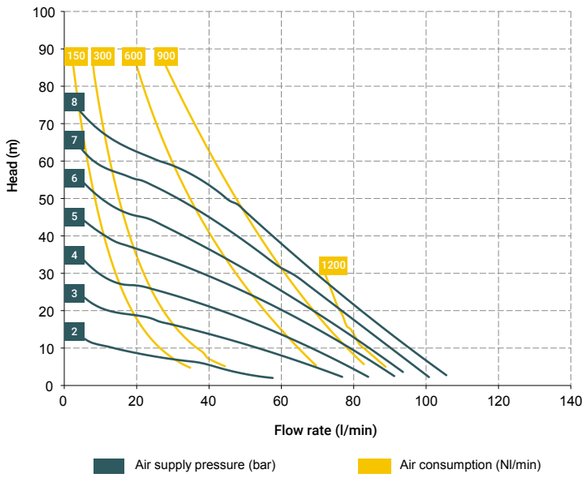
DUPLEX/W.DUPLEX

BOXER 81 / BOXER 90

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 1" or DN 25 (*)
Air fitting	G 3/8" f
Max flow rate*	110 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	4 mm
Noise level	70 dB
Volume per stroke	100 cc



MAIN APPLICATION SECTORS

- AUTOMOTIVE
- PRODUCTION AND STORAGE OF BIODIESEL
- WATER AND SLUDGE TREATMENT
- CHEMICAL INDUSTRY
- GRAPHIC INDUSTRY
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- PAINT INDUSTRY
- OIL & GAS
- GOLD PROCESSING INDUSTRY
- TEXTILE AND LEATHER INDUSTRY
- PACKING, GLUE, PAPER AND PAPER MILLS
- MECHANICAL AND METALLURGIC INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 81

Maximum Dimensions

Height	274 mm
Width	308 mm
Depth	170 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	5 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	5 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

PVDF — Boxer 81

Maximum Dimensions

Height	274 mm
Width	308 mm
Depth	170 mm

Construction materials (casing and manifolds) and net weight

PVDF	6 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

ElectropolishedAISI 316 steel — Boxer 81

Maximum Dimensions

Height	275 mm
Width	305 mm
Depth	170 mm

Construction materials (casing and manifolds) and net weight

Electropolished AISI 316	10.6 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

DUPLEX/W.DUPLEX

BOXER 90

ALU

Maximum Dimensions

Height	291 mm
Width	293 mm
Depth	170 mm

Construction materials (casing and manifolds) and net weight

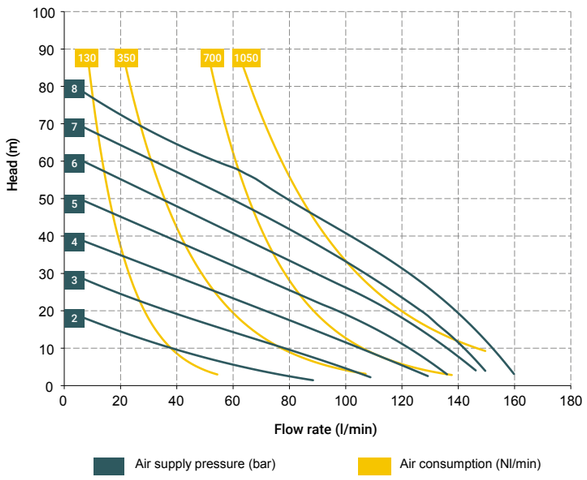
ALU	7 Kg Max 3°C min. 95°C max

BOXER 100

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 1" or DN 25 (*)
Air fitting	G 3/8" f
Max flow rate*	160 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	4 mm
Noise level	75 dB
Volume per stroke	222 cc



MAIN APPLICATION SECTORS

- AUTOMOTIVE
- PRODUCTION AND STORAGE OF BIODIESEL
- WATER AND SLUDGE TREATMENT
- CHEMICAL INDUSTRY
- GRAPHIC INDUSTRY
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- PAINT INDUSTRY
- OIL & GAS
- GOLD PROCESSING INDUSTRY
- TEXTILE AND LEATHER INDUSTRY
- PACKING, GLUE, PAPER AND PAPER MILLS
- MECHANICAL AND METALLURGIC INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 100

Maximum Dimensions

Height	325 mm
Width	329 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	7.6 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	7.6 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

PVDF — Boxer 100

Maximum Dimensions

Height	325 mm
Width	329 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

PVDF	9.6 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

ALU — Boxer 100

Maximum Dimensions

Height	324 mm
Width	315 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

ALU	8.5 Kg Max 3°C min. 95°C max

Electropolished AISI 316 steel — Boxer 100

Maximum Dimensions

Height	327 mm
Width	308 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

Electropolished AISI 316	11.7 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

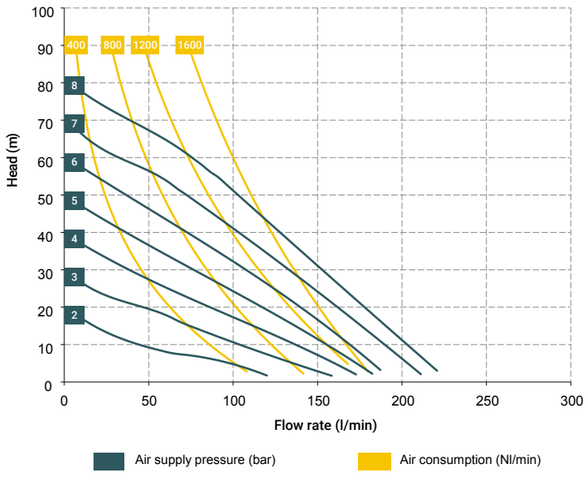
DUPLEX/W.DUPLEX

BOXER 150

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 1"1/4 or DN 32 (*)
Air fitting	G 1/2" f
Max flow rate*	220 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	5 mm
Noise level	75 dB
Volume per stroke	340 cc



MAIN APPLICATION SECTORS

- AUTOMOTIVE
- PRODUCTION AND STORAGE OF BIODIESEL
- WATER AND SLUDGE TREATMENT
- GRAPHIC INDUSTRY
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- PAINT INDUSTRY
- CHEMICAL INDUSTRY
- OIL & GAS
- PACKING, GLUE, PAPER AND PAPER MILLS
- MECHANICAL AND METALLURGIC INDUSTRY
- TEXTILE AND LEATHER INDUSTRY
- GALVANIC AND ELECTRONIC INDUSTRY

(*) Available with Clamp or NPT connections (only on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 150

Maximum Dimensions

Height	386 mm
Width	399 mm
Depth	220 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	12 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	12 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

PVDF — Boxer 150

Maximum Dimensions

Height	386 mm
Width	399 mm
Depth	220 mm

Construction materials (casing and manifolds) and net weight

PVDF	14 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

ALU — Boxer 150

Maximum Dimensions

Height	388 mm
Width	394 mm
Depth	220 mm

Construction materials (casing and manifolds) and net weight

ALU	15 Kg Max 3°C min. 95°C max

ElectropolishedAISI 316 steel — Boxer 150

Maximum Dimensions

Height	390 mm
Width	388 mm
Depth	220 mm

Construction materials (casing and manifolds) and net weight

Electropolished AISI 316	23 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

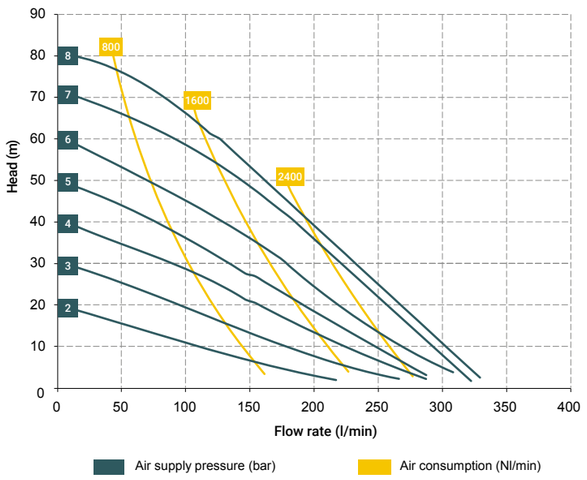
DUPLEX/W.DUPLEX

BOXER 251 / BOXER 252

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 1 1/2" f or DN 40 (*)
Air fitting	G 1/2" f
Max flow rate*	340 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	6 mm
Noise level	80 dB
Volume per stroke	552 cc



MAIN APPLICATION SECTORS

- AUTOMOTIVE
- PRODUCTION AND STORAGE OF BIODIESEL
- PAINT INDUSTRY
- CHEMICAL INDUSTRY
- TEXTILE AND LEATHER INDUSTRY
- WATER AND SLUDGE TREATMENT
- GALVANIC AND ELECTRONIC INDUSTRY
- OIL & GAS
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- MECHANICAL AND METALLURGIC INDUSTRY
- PACKING, GLUE, PAPER AND PAPER MILLS

BOXER 251 BOXER 252

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 251

Maximum Dimensions

Height	492 mm
Width	493 mm
Depth	254 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	17.5 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	20 Kg Max 3°C min. 65°C max

PVDF — Boxer 251

Maximum Dimensions

Height	492 mm
Width	493 mm
Depth	254 mm

Construction materials (casing and manifolds) and net weight

PVDF	20 Kg Max 3°C min. 95°C max

ALU — Boxer 251

Maximum Dimensions

Height	491 mm
Width	490 mm
Depth	254 mm

Construction materials (casing and manifolds) and net weight

ALU	19 Kg Max 3°C min. 95°C max

BOXER 252

Electropolished AISI 316 steel

Maximum Dimensions

Height	538 mm
Width	417 mm
Depth	254 mm

Construction materials (casing and manifolds) and net weight

Electropolished AISI 316	26.2 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

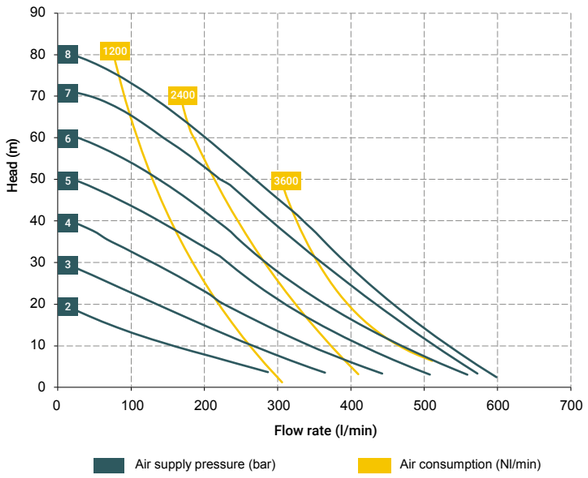
DUPLEX/W.DUPLEX

BOXER 522 / BOXER 502

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 2" f or DN 50 (*)
Air fitting	G 1/2" f
Max flow rate*	600 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	5 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	8 mm
Noise level	80 dB
Volume per stroke	1825 cc



MAIN APPLICATION SECTORS

- TEXTILE AND LEATHER INDUSTRY
- PRODUCTION AND STORAGE OF BIODIESEL
- PAINT INDUSTRY
- CHEMICAL INDUSTRY
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- WATER AND SLUDGE TREATMENT
- GALVANIC AND ELECTRONIC INDUSTRY
- OIL & GAS
- MECHANICAL AND METALLURGIC INDUSTRY
- PACKING, GLUE, PAPER AND PAPER MILLS

BOXER 522 BOXER 502

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 522

Maximum Dimensions

Height	650 mm
Width	590 mm
Depth	404 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	38 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	34.5 Kg Max 3°C min. 65°C max

PVDF — Boxer 522

Maximum Dimensions

Height	650 mm
Width	590 mm
Depth	404 mm

Construction materials (casing and manifolds) and net weight

PVDF	45 Kg Max 3°C min. 95°C max

BOXER 502 — ALU

Maximum Dimensions

Height	621 mm
Width	566 mm
Depth	404 mm

Construction materials (casing and manifolds) and net weight

ALU	37 Kg Max 3°C min. 95°C max

BOXER 502 — Electropolished AISI 316 steel

Maximum Dimensions

Height	705 mm
Width	470 mm
Depth	404 mm

Construction materials (casing and manifolds) and net weight

Electropolished AISI 316	54 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

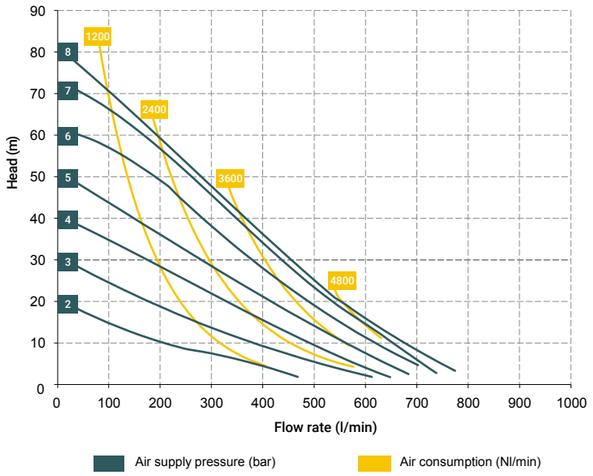
DUPLEX/W.DUPLEX

BOXER 503

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc - II 3D Ex h IIIB T135°C Dc X - I M2 Ex h I Mb X
CONDUCT: II 2G Ex h IIb T4 Gb - II 2D Ex h IIIB T135°C Db X - Ex h IIB T4 Gb - Ex h IIIB T135°C Db

Suction / delivery connections	G 3" f or DN 80 (*)
Air fitting	G 3/4" f
Max flow rate*	800 l/min
Max supply air pressure	8 bar
Max head*	80 m
Max negative suction head - dry-running**	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	10 mm
Noise level	80 dB
Volume per stroke	1825 cc



MAIN APPLICATION SECTORS

- TEXTILE AND LEATHER INDUSTRY
- PRODUCTION AND STORAGE OF BIODIESEL
- PAINT INDUSTRY
- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- WATER AND SLUDGE TREATMENT
- PACKING, GLUE, PAPER AND PAPER MILLS
- CHEMICAL INDUSTRY
- MECHANICAL AND METALLURGIC INDUSTRY
- OIL & GAS

(*) Available with NPT connections (on request)

*The curves and performance are referred to pumps with submerged suction and a free delivery outlet with water at 20°C, and vary according to the construction material.
** The value depends on the confi guration of the pump.

PP — Boxer 503

Maximum Dimensions

Height	726 mm
Width	585 mm
Depth	403 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	50 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	50 Kg Max 3°C min. 65°C max

PVDF — Boxer 503

Maximum Dimensions

Height	726 mm
Width	585 mm
Depth	403 mm

Construction materials (casing and manifolds) and net weight

PVDF	67 Kg Max 3°C min. 95°C max

ALU — Boxer 503

Maximum Dimensions

Height	806 mm
Width	580 mm
Depth	404 mm

Construction materials (casing and manifolds) and net weight

ALU	66 Kg Max 3°C min. 95°C max

Electropolished AISI 316 steel — Boxer 503

Maximum Dimensions

Height	826 mm
Width	546 mm
Depth	404 mm

Construction materials (casing and manifolds) and net weight

Electropolished AISI 316	71 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

DUPLEX/W.DUPLEX

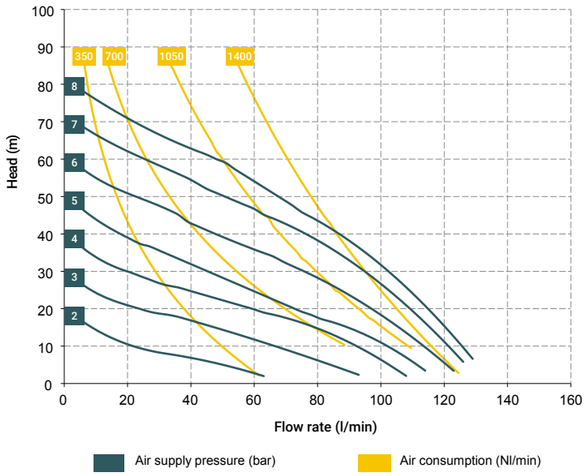
BOXER FPC 100

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Suction / delivery connections	G 1" flanged ANSI - DN 25
Air fitting	G 3/8" f
Max flow rate	130 l/min
Max supply air pressure	8 bar
Max head	80 m
Max negative suction head - dry-running	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	4 mm
Noise level	75 dB
Volume per stroke	250 cc

- Product designed and constructed in Italy
- PATENTED stall-prevention pneumatic circuit
- Operates with non-lubricated air
- Self-priming
- Dry operation
- Adjustable operating speed
- Extremely versatile
- Suitable for pumping liquids with high viscosity and demanding applications
- Possibility of pumping fluids containing suspended solids
- LONG LIFE profile diaphragms for greater resistance and longer life
- Suitable for continuous use
- Pump made from a solid piece of PTFE
- Non-deformable structure in AISI 316 stainless steel



MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C.

PTFE — FPC 100

Maximum Dimensions

Height	300 mm
Width	230 mm
Depth	360 mm

Construction materials (casing and manifolds) and net weight

PTFE	21.6 Kg Max 3°C min. 95°C max

The Debem FPC100 double diaphragm pump is constructed entirely from a solid piece of PTFE machined with a numeric control machine tool. The pump casing is reinforced with a non-deformable AISI 316 stainless steel structure. All parts in contact with the liquid are made exclusively of PTFE and pump produces a flow rate of 130 l/min.

DEBEM

MADE IN ITALY

RC Remote Control

Line introduction

DEBEM's double diaphragm pumps of the RC line have been designed for all applications that require the pump to be controlled remotely or directly by the machine on which the pump is installed, for example, when measuring or dosing the product.

The RC pumps are always operated with compressed air.
All the pumps of the RC line are ATEX – IECEx certified, constructed in polypropylene or PVDF in the plastic version or in aluminium or AISI 316 L for the metal versions. **BOXER pumps are ideal for pumping liquids with high apparent viscosity, even if containing suspended solids.** The vast range of materials available for the parts in contact with the fluid, such as pump casings and manifolds, diaphragms, balls, ball seats and o-rings, makes them compatible with any type of fluid present on the market. They can be used in numerous applications.

- **Product designed and constructed in Italy**
- **Air operation**
- **Self-priming**
- **Dry operation**
- **ATEX certification for ZONE 1 - ZONE 2**
- **IECEx certification**
- **Adjustable operating speed**
- **Extremely versatile**
- **Suitable for pumping liquids with high viscosity and demanding applications**
- **Possibility of pumping fluids containing suspended solids**
- **Possibility of suspended installation**
- **Manifolds can be supplied with stainless steel reinforcement rings for pumps in PP – PP+CF – PVDF**
- **LONG LIFE profile diaphragms (available in different elastomers) for greater resistance and longer life**
- **Suitable for continuous use**

SCUBIC

AIR-OPERATED DOUBLE DIAPHRAGM PUMPS
WITHOUT DISTRIBUTOR

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Suction / delivery connections	G 3/8" f
Air fitting	G 3/8" f Max flow
rate	17 l/min
Max supply air pressure	8 bar
Max negative suction head - dry-running	3 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	0.5 mm
Noise level	65 dB
Volume per stroke	10.3 cc

PP — Scubic 15

Maximum Dimensions

Height	105 mm
Width	201 mm
Depth	105 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	1.35 Kg Temp. 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	1.35 Kg Temp. 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

- **POMc**
- **UHMWPE**

MAIN APPLICATION SECTORS

- CHEMICAL INDUSTRY
- GRAPHIC INDUSTRY

ECTFE — Scubic 15

Maximum Dimensions

Height	105 mm
Width	201 mm
Depth	105 mm

Construction materials (casing and manifolds) and net weight

ECTFE	1.35 Kg Temp. 3°C min. 95°C max

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Suction / delivery connections	G 1/2" f
Air fitting	G 1/4" f
Max flow rate	35 l/min
Max supply air pressure	8 bar
Max negative suction head - dry-running	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	2 mm
Noise level	65 dB
Volume per stroke	30 cc

MAIN APPLICATION SECTORS

- CHEMICAL INDUSTRY
- GRAPHIC INDUSTRY

PP — Smicro

Maximum Dimensions

Height	168 mm
Width	165 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	1.6 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	1.6 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

PVDF — Smicro

Maximum Dimensions

Height	168 mm
Width	165 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

PVDF	1.9 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc
UHMWPE

ALU — Smicro

Maximum Dimensions

Height	172 mm
Width	164 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

ALU	2 Kg Max 3°C min. 95°C max

AISI 316 L steel — Smicro

Maximum Dimensions

Height	171 mm
Width	177 mm
Depth	120 mm

Construction materials (casing and manifolds) and net weight

AISI 316 L	3.8 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

DUPLEX/W.DUPLEX

SBOXER 50 / SMINI

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Suction / delivery connections	G 1/2" f or DN 15 - Clamp or NPT on request
Air fitting	G 3/8" f
Max flow rate	60 l/min
Max supply air pressure	8 bar
Max negative suction head - dry-running	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	4 mm
Noise level	70 dB
Volume per stroke	67 cc

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

GRAPHIC INDUSTRY

PP

Sboxer 50

Maximum Dimensions

Height	241 mm
Width	247 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	1.6 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	1.6 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc

UHMWPE

PVDF

Sboxer 50

Maximum Dimensions

Height	241 mm
Width	247 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

PVDF	1.9 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc

UHMWPE

ALU

Sboxer 50

Maximum Dimensions

Height	234 mm
Width	241 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

ALU	2 Kg Max 3°C min. 95°C max

SMINI

AISI 316 L steel

Maximum Dimensions

Height	232 mm
Width	230 mm
Depth	153 mm

Construction materials (casing and manifolds) and net weight

AISI 316 L	3.8 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

DUPLEX/W.DUPLEX

SBOXER 100

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Suction / delivery connections	G 1" f or DN 25 - NPT on request
Air fitting	G 3/8" f
Max flow rate	160 l/min
Max supply air pressure	8 bar
Max negative suction head - dry-running	4 m
Max negative suction head - pump primed	9.5 m
Max diameter of suspended solids	4 mm
Noise level	75 dB
Volume per stroke	222 cc

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

GRAPHIC INDUSTRY

PP — Sboxer 100

Maximum Dimensions

Height	325 mm
Width	329 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	7.5 Kg Max 3°C min. 65°C max
Conductive polypropylene (with carbon additive)	7.5 Kg Max 3°C min. 65°C max

Construction materials (casing and manifolds) available on request

POMc

UHMWPE

PVDF — Sboxer 100

Maximum Dimensions

Height	325mm
Width	329 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

PVDF	8.5 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

POMc

UHMWPE

ALU — Sboxer 100

Maximum Dimensions

Height	324 mm
Width	315 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

ALU	8.2 Kg Max 3°C min. 95°C max

Electropolished AISI 316 steel — Sboxer 100

Maximum Dimensions

Height	327 mm
Width	308 mm
Depth	202 mm

Construction materials (casing and manifolds) and net weight

Electropolished AISI 316	11 Kg Max 3°C min. 95°C max

Construction materials (casing and manifolds) available on request

DUPLEX/W.DUPLEX

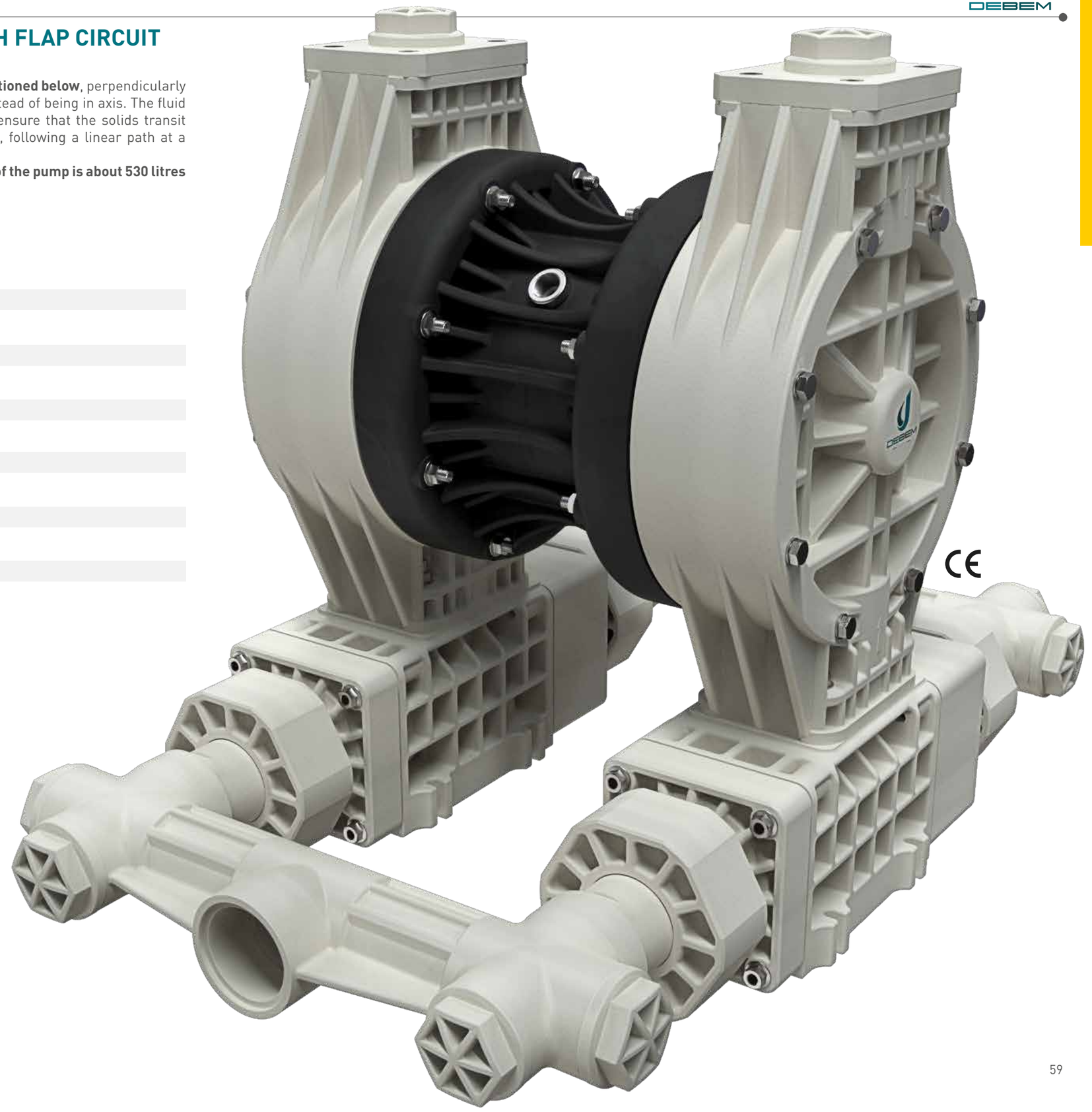
FULLFLOW 502

AIR-OPERATED DOUBLE DIAPHRAGM PUMPS WITH FLAP CIRCUIT

The new FULLFLOW 502 pump is fitted with flaps instead of balls, which allow the passage of large-sized solids, reducing at the same time the crushing normally associated to the passage through balls and cages. Even though the maximum diameter for the passage of solids of 45 mm is not exclusive, the uniqueness for this type of pumps lies in the maximum length of the solids: 600 mm. Similarly, **the pump features an exclusive patented flap circuit positioned below**, perpendicularly to the fluid chambers instead of being in axis. The fluid dynamics of this choice ensure that the solids transit outside the pump casing, following a linear path at a lower level to the pump.
The maximum flow rate of the pump is about 530 litres per minute.

- **Polypropylene casing**
- **Flap in EPDM and NBR, core in AISI 316 steel, always in contact with the fluid**
- **Can be split in suction and delivery**
- **Fittings: G 2”1/2 f or DN 65**
- **Air fitting: ½”**
- **Supply: min. 2 bar – max 4 bar**
- **Max. flow rate: 530 l/min**
- **Max. head: 40 m**
- **Max. dry suction: 3.5 m**
- **Max. flooded negative suction: 8 m**
- **Max. solids diameter: 45 mm**
- **Max. solid filaments length: 600 mm***
  *On request it can be configured for greater lengths. Consult the sales office.

The new FULLFLOW 502 pump is fitted with flaps instead of balls, that allow the passage of large-sized solids

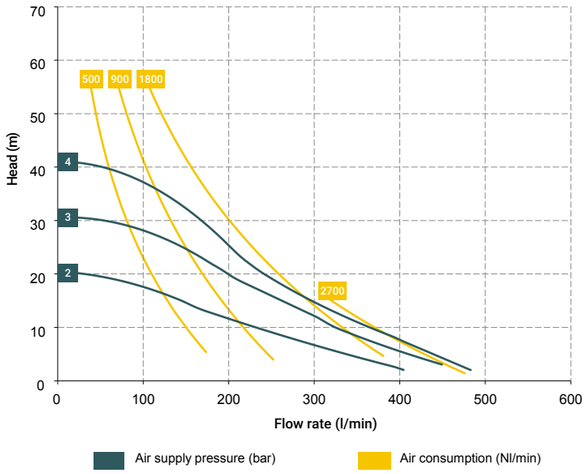


FULLFLOW 502

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h Iib T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Suction / delivery connections	G 2"1/2 or DN 65
Air fitting	G 1/2" f
Max flow rate*	530 l/min
Max supply air pressure	4 bar
Max head*	40 m
Max negative suction head - dry-running**	3.5 m
Max diameter of suspended solids	45 mm
Max length of solids	600 mm



MAIN APPLICATION SECTORS

- CERAMIC, STONE, MARBLE, GLASS AND MINING INDUSTRY
- WATER AND SLUDGE TREATMENT
- TEXTILE AND LEATHER INDUSTRY
- PACKING, GLUE, PAPER AND PAPER MILLS
- GALVANIC ADN ELECTRONIC INDUSTRY

* The performance values refer to primed pumps (with water at 20°C) with open outlet and vary based on the construction materials.
** Attention: average values of the different materials configurations for ball and ball seat.

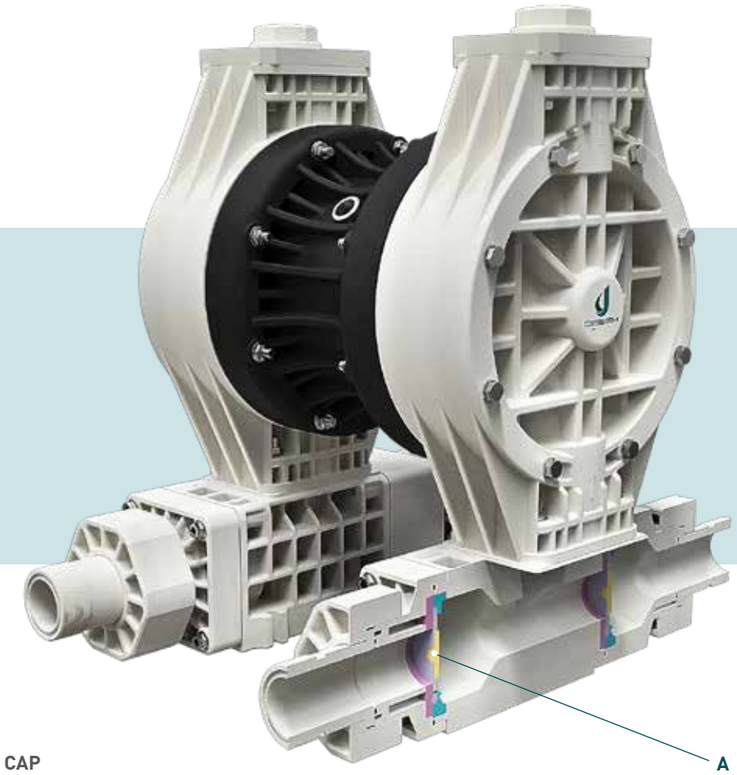
PP

Maximum Dimensions

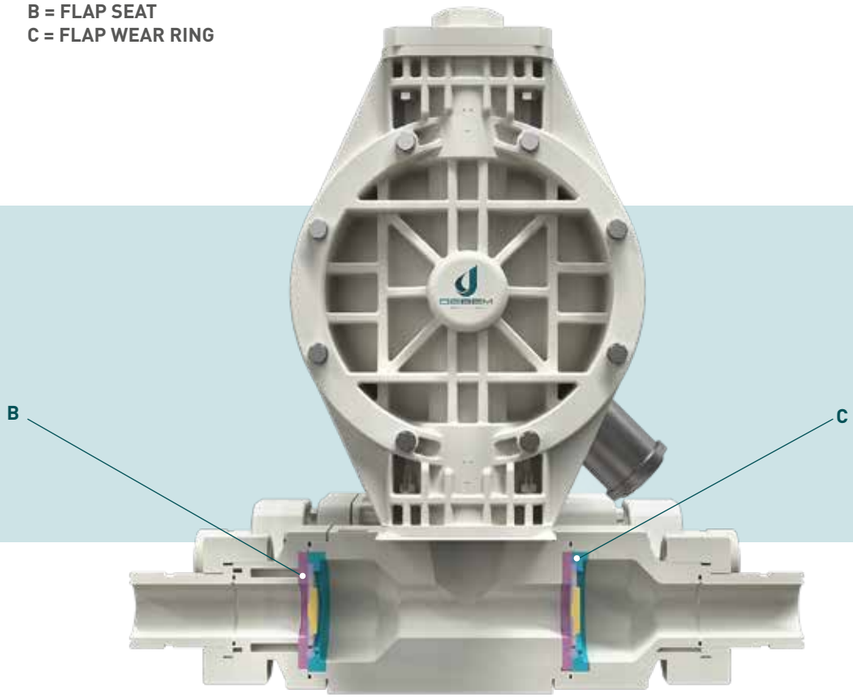
Height	691 mm
Width	580 mm
Depth	952 mm

Construction materials (casing and manifolds) and net weight

Polypropylene (with glass additive)	55 Kg Max 3°C min. 65°C max



A = CAP
B = FLAP SEAT
C = FLAP WEAR RING



Chemical compatibility

The type of fluid, the temperature and the operating environment are the factors that influence the selection of the pump materials and its correct chemical compatibility.

The table below is included by way of example.
For more information don't hesitate to contact the Debem technical support. We have collected the information from reliable sources. Debem, not having carried any verification of the data, cannot be held responsible for the correctness of the information. The table refers to pure polypropylene and PVDF. Our plastic materials contain glass and carbon additives that could influence the chemical compatibility of the pump.
The user, with their in-depth knowledge of their product, can make the most accurate decision regarding the chemical compatibility.

WARNING
The information in this table has been supplied to Debem from other reliable sources and must be used EXCLUSIVELY as a guide in selecting the materials for the pump parts in contact with the fluid, such as: Pump casing and manifolds, diaphragms, balls, ball seats and o-rings.
The assessment of the chemical reaction listed in this table refers to an exposure period of 48 hours. Debem has no knowledge of the possible effects after this period. Debem does not guarantee (neither expressly nor implicitly) that the information contained in this table is accurate or complete or that any material is suitable for any use.

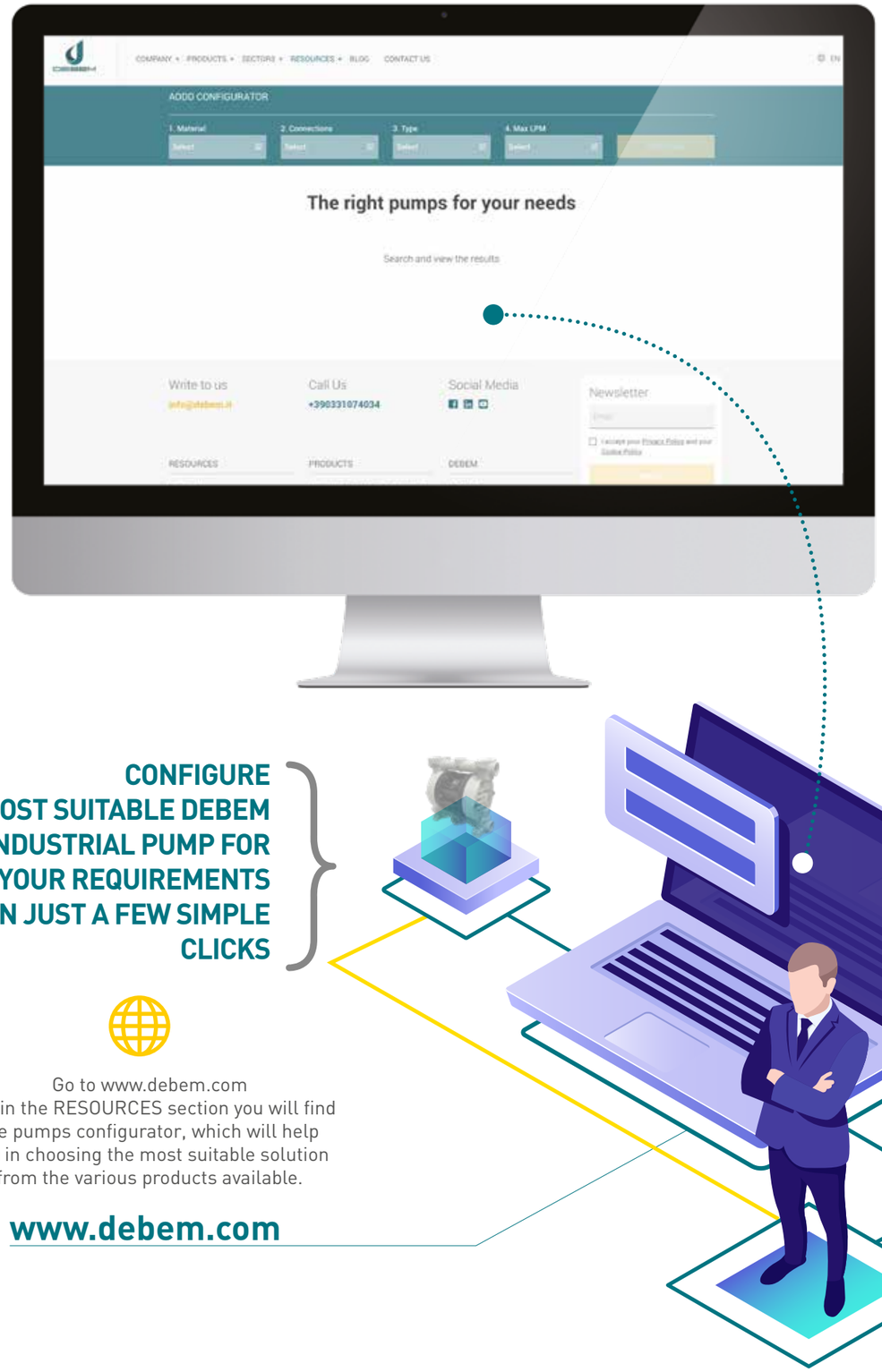
DANGER
Changes in the chemical behaviour during handling, due to factors such as temperature, pressure and concentrations, could trigger issues in the pump.
Use adequate protections and/or personal protection equipment when installing the pump in the circuit or when performing maintenance on the pump. Read the use and maintenance manual before any operation on the pump.

SUBSTANCE	Polypropylene	PVDF ECTFE (Halair®)	Aluminium	Stainless steel AISI 316 steel	NBR (Perbunan®)	EPDM (Dutral®)	PTFE (Teflon®)	PPS-V (Ryton®)	FPM (Vitron®)	Santoprene®	PE-UHMW (Polyzen®)
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	A	A	A	-	-
Vinegar	A	B	D	A	B	A	A	A	A	-	A
Acetone	A	D	A	A	D	A	A	A	D	A1	A2
Fatty acids	A	A	A	A	B	D	A	-	A	D	A

A = Excellent
B = Good
C = Poor (not recommended)
D = Serious attack (not recommended)
- = Information not available
1 = Satisfactory up to 22°C (72°F)
2 = Satisfactory up to 48°C (120°F)

For more information don't hesitate to contact the Debem technical support. We have collected the information from reliable sources. Debem, not having carried any verification of the data, cannot be held responsible for the correctness of the information.

Online configurator



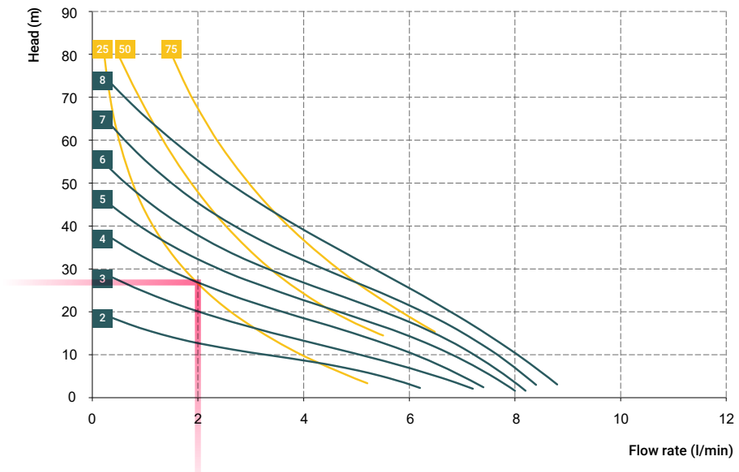
CONFIGURE THE MOST SUITABLE DEBEM INDUSTRIAL PUMP FOR YOUR REQUIREMENTS IN JUST A FEW SIMPLE CLICKS

Go to www.debem.com
and in the RESOURCES section you will find the pumps configurator, which will help you in choosing the most suitable solution from the various products available.

www.debem.com

Technical specifications

EXAMPLE ILLUSTRATING THE GRAPHIC READING OF THE PERFORMANCE

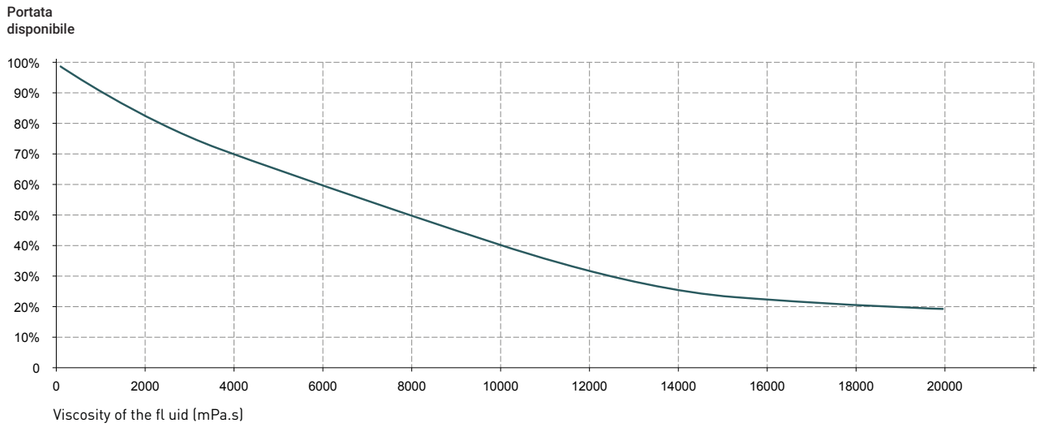


air supply pressure

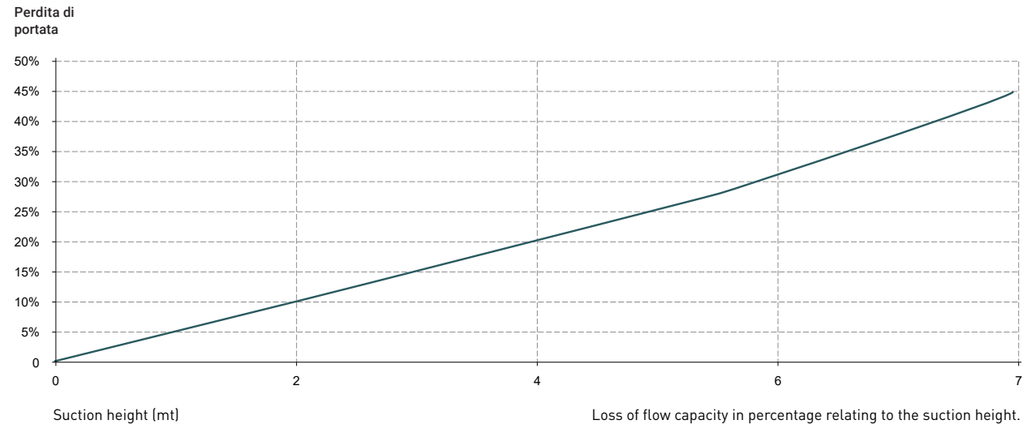
air consumption (Nl/min)

for example:
Flow rate 16 l/min
Pump head 30 m/ca
Supply pressure: 4 bar
Air consumption: 170 Nl/min

DECREASE IN THE FLOW RATE RELATING TO THE VISCOSITY



BOXER PUMPS - LOSS OF FLOW CAPACITY ON THE SUCTION HEIGHT



COMPRESSORS TABLE	
Air consumption	**Compressor approximate power**
Nl/min	**HP**
50	0.5
100	1
200	2
250	2.5
350	3.5
450	4.5
550	5.5
850	8.5
1000	10
1500	15
2000	20
3500	30
4000	40

The power effectively absorbed by the compressor is about =70% of the value indicated in the table. We recommend using a compressor with a tank.

DISPLACEMENT CAPACITY TABLE	
Pump type	**Displacement**
BOXER 7	**3.2 cc**
BOXER 15	10.3 cc
MICROBOXER	30 cc
MINIBOXER/B50	67 cc
BOXER 81/90	100 cc
BOXER 100	222 cc
BOXER 150	340 cc
BOXER 251/252	522 cc
BOXER 502/522	1,825 cc
BOXER 503	1,852 cc

Attention: when operating with an OPEN OUTLET, the actual flow rate is much higher than the ratio between number of cycles measured and displacement, due to the quantity of movement.

AUTOMATIC PULSATION DAMPERS

The EQUAFLUX dampers are used with fluids with a high apparent viscosity, also with large suspended solids..
They adapt automatically to the system conditions, without any manual adjustments or calibrations. **The high capacity of minimising pulsations, vibrations and water hammer renders this component ideal for protecting the system, providing a regular outlet flow**.
The vast range of construction materials allows us to select the best chemical compatibility with the fluid and/or the environment, without neglecting the correct temperature range. The dampers are also available for use in potentially explosive atmospheres (ATEX certification).

The EQUAFLUX is operated by the same compressed air that drives the pump. The compressed air, introduced in the counter-pressure chamber (behind the diaphragm), creates a self-adjusting pneumatic damping cushion based on the pressure exerted by the pump.

- **Product designed and constructed in Italy**
- **Operates with non-lubricated air**
- **High performance and strength**
- **Suitable for minimising pulsating flows**
- **Suitable for minimising vibrations during the operation of the pump**

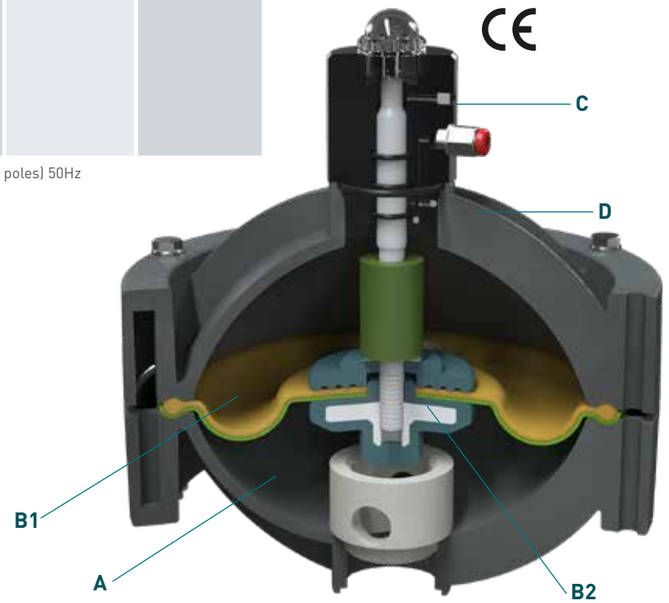
EQUAFLUX DAMPERS CODES ENCODING

ex. EQ100PCHTC
Equaflux 100 PP+CF, Hytrel®, air side diaphragm, PTFE product side diaphragm, conduct.

EQ100	PC	H	T	C
DAMPER MODEL	DAMPER CASING	AIR-SIDE DIAPHRAGM	PRODUCT-SIDE DIAPHRAGM	CONDUCT VERSION
EQ 51 - Equaflux 51 **EQ 100** - Equaflux 100 **EQ 200** - Equaflux 200 **EQ 302** - Equaflux 302 **EQ 303** - Equaflux 303	**P** - Polypropylene **FC** - PVDF+CF **R** - PPS-V **A** - AISI 316 (excluded EQ 303) **AL** - Aluminium **PC** - PP + CF	**H** - Hytrel® **M** - Santoprene® **D** - EPDM **N** - NBR	**T** - PTFE	(zone 1) II 2/2GD c IIB T135°C **C** - on request

* Three-phase asynchronous eurotension motor fitted as standard (2 poles) 50Hz
** Available only for IM 80/90 pumps

A = expansion chamber
B2 = air-side diaphragm
B2 = fluid-side diaphragm
C = automatic pneumatic valve
D = pneumatic chamber



Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Fitting Product	Air fitting	Operating pressure	Application	Material* (half-casing in contact with the fluid)	Weight	Operating time	Dim. (mm)
G 3/4"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Midgetbox, Cubic15 Boxer7, Boxer15 Microboxer, Boxer35	Polypropylene	0.5 Kg	from +3°C to +65°C	121x117
G 3/4"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Midgetbox, Cubic15 Boxer7, Boxer15 Microboxer, Boxer35	PP + CF	0.5 Kg	from +3°C to +65°C	121x117
G 3/4"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Cubic15, Boxer7, Boxer15 Microboxer, Boxer35	PVDF	0.5 Kg	from +3°C to +95°C	121x117
G 3/4"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer7, Boxer15 Microboxer, Boxer35	PPS	0.6 Kg	from +3°C to +95°C	121x117
G 1/2"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer7, Boxer15 Microboxer, Boxer35	AISI 316 L steel	1.33 Kg	from +3°C to +95°C	133x117

*Material on request: • UHMWPE • POMc • DUPLEX/S.DUPLEX

AIR SIDE HALF-CASING MATERIAL

- PP
- PP+CF
- ALUMINIUM

DIAPHRAGM MATERIALS

- NBR
- EPDM
- Hytrel
- Santoprene
- PTFE

CAPS MATERIALS

- Polypropylene (with glass additive)
- Conductive polypropylene (with carbon additive)
- PVDF
- PPS
- Natural ECTFE
- AISI 316 L

EQUAFLUX 100

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

PP

PPS

PVDF

Electropolished AISI 316 steel

Fitting Product	Air fitting	Operating pressure	Application	Material* (half-casing in contact with the fluid)	Weight	Operating time	Dim. (mm)
G 1"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer50, Boxer81	Polypropylene	1.5 Kg	from +3°C to +65°C	177x170
G 1"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer50, Boxer81	PP+CF	1.5 Kg	from +3°C to +65°C	177x170
G 1"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer50, Boxer81	PVDF	1.7 Kg	from +3°C to +95°C	177x170
G 1"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer50, Boxer90	PPS	1.7 Kg	from +3°C to +95°C	177x170
G 1"	Ø 6 mm	Min 2 Bar - Max 8 Bar	Miniboxer, Boxer81	Electropolished AISI 316 steel	2.56 Kg	from +3°C to +95°C	183.2x151

*Material on request: • UHMWPE • POMc • DUPLEX/S.DUPLEX

AIR SIDE HALF-CASING MATERIAL

- PP
- PP+CF

DIAPHRAGM MATERIALS

- NBR
- EPDM
- Hytrel
- Santoprene
- PTFE

CAPS MATERIALS

- Polypropylene (with glass additive)
- Conductive polypropylene (with carbon additive)
- PVDF
- PPS
- Natural ECTFE
- AISI 316 L

EQUAFLUX 200

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

PP

PPS

PVDF

Electropolished AISI 316 steel

Fitting Product	Air fitting	Operating pressure	Application	Material* (half-casing in contact with the fluid)	Weight	Operating time	Dim. (mm)
G 1"1/2	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer100, Boxer150 Boxer251	Polypropylene	3.8 Kg	from +3°C to +65°C	283.2x254
G 1"1/2	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer100, Boxer150 Boxer251	PP+CF	3.8 Kg	from +3°C to +65°C	283.2x254
G 1"1/2	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer100, Boxer150 Boxer251	PVDF	4.5 Kg	from +3°C to +95°C	283.2x254
G 1"1/2	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer100, Boxer150 Boxer251	PPS	4.5 Kg	from +3°C to +95°C	283.2x254
G 1"1/2	Ø 6 mm	Min 2 Bar - Max 8 Bar	Boxer100, Boxer150 Boxer252	Electropolished AISI 316 steel	7.45 Kg	from +3°C to +95°C	264.7x254

*Material on request: • UHMWPE • POMc • DUPLEX/S.DUPLEX

AIR SIDE HALF-CASING MATERIAL

- PP
- PP+CF

DIAPHRAGM MATERIALS

- NBR
- EPDM
- Hytrel
- Santoprene
- PTFE

CAPS MATERIALS

- Polypropylene (with glass additive)
- Conductive polypropylene (with carbon additive)
- PVDF
- Natural ECTFE
- AISI 316 L
- Alluminio

EQUAFLUX 302

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Fitting Product	Air fitting	Operating pressure	Application	Material* (half-casing in contact with the fluid)	Weight	Operating time	Dim. (mm)
G 2"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer522	Polypropylene	23 Kg	from +3°C to +65°C	398x516
G 2"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer522	PP + CF	23 Kg	from +3°C to +65°C	398x516
G 2"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer522	PVDF	28.5 Kg	from +3°C to +95°C	398x516
G 2"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer502	ALU	26 Kg	from +3°C to +95°C	356x352
G 2"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer502	Electropolished AISI 316 steel	32 Kg	from +3°C to +95°C	356x352

*Material on request: • DUPLEX/S.DUPLEX

AIR SIDE HALF-CASING MATERIAL

• Central boxer 502/503 (PP)

DIAPHRAGM MATERIALS

• NBR
• EPDM
• Hytrel
• Santoprene
• PTFE

CAPS MATERIALS

• Polypropylene (with glass additive)
• Conductive polypropylene (with carbon additive)
• PVDF
• Aluminium
• AISI 316 L

EQUAFLUX 303

Specifications and types

STANDARD: II 3G Ex h IIB T4 Gc, II 3D Ex h IIIB T135°C Dc (zone 2)
CONDUCT: II 2G Ex h IIb T4 Gb, II 2D Ex h IIIB T135°C Db (zone 1)

Fitting Product	Air fitting	Operating pressure	Application	Material* (half-casing in contact with the fluid)	Weight	Operating time	Dim. (mm)
G 3"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer503	Polypropylene	23 Kg	from +3°C to +65°C	398x516
G 3"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer503	PP + CF	23 Kg	from +3°C to +65°C	398x516
G 3"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer503	PVDF	28.5 Kg	from +3°C to +95°C	398x516
G 3"	Ø 8 mm	Min 2 Bar - Max 8 Bar	Boxer503	ALU	29 Kg	from +3°C to +95°C	356X352

*Material on request: • DUPLEX/S.DUPLEX

AIR SIDE HALF-CASING MATERIAL

• Central boxer 502/503 (PP)

DIAPHRAGM MATERIALS

• NBR
• EPDM
• Hytrel
• Santoprene
• PTFE

CAPS MATERIALS

• Polypropylene (with glass additive)
• Conductive polypropylene (with carbon additive)
• PVDF
• AISI 316 L
• Alluminio

DEBEM

MADE IN ITALY

MAGNETIC DRIVE CENTRIFUGAL PUMPS

Debem's magnetic drive centrifugal pumps are the ideal solution for numerous applications: laboratory machines, medical equipment, photographic developing machines, X-ray processes, silver recovery systems, graphics industry, heat exchangers, aquariums, water treatment, filtering systems, galvanic and chemical industry and the transfer of acids and corrosive fluids.
The DM pumps must be installed exclusively with the axis horizontal under head. Suitable devices must be included to avoid the dry-operation and the formation of vortexes and the possible suction of air.
The DM pumps must operate exclusively with the PUMP FLOODED

The pumps are driven by a pair of magnets: the outer magnet is positioned on the motor shaft and transmits the motion to the inner magnet integrated with the hermetically sealed impeller. The pump impeller is not physically fixed to the motor shaft, thereby eliminating the need for seals and consequently any leaks of the liquid being pumped due to wear. The pumping unit is constructed with a low number of components, rendering maintenance extremely easy. The materials used as standard are polypropylene (PP) and polyvinylidene fluoride (PVDF). The pumps cannot operate dry. Dirty liquids can reduce their life.

- **Product designed and constructed in Italy**
- **Constructed in polypropylene or PVDF**
- **Under head use**
- **Extremely easy to maintain**
- **Suitable for continuous use**

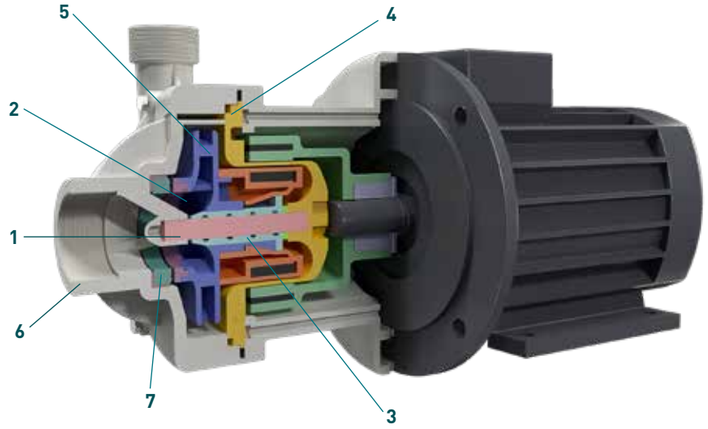
MAIN APPLICATION SECTORS

DM PUMPS CODES ENCODING

ex. DM10P-SD1BE071
DM10 PP, standard thrust bearing, EPDM o-ring, Ø 98 mm impeller, BSP fitting, MEC motor flange, 071 casing.

DM10	P	S	D	1	B	E	071
PUMP MODEL	PUMP CASING	THRUST BEARING	O-RING	IMPELLER	FITTING	MOTOR FLANGE	CASING
DM06 **DM10** **DM15** **DM30**	**P** - Polypropylene **FC** - PVDF+CF	**S** - Standard (ceramic + PTFE Graphite)	**D** - EPDM **V** - Viton®	**DM06** 1=Ø 81 2=Ø 70 3=Ø 65 **DM10** 1=Ø 98 2=Ø 85 3=Ø 70 **DM15** 1=Ø 123 2=Ø 108 3=Ø 90 **DM30** 1=Ø 134 2=Ø 122 3=Ø 110	**N** - NPT **B** - BSP	**E** - MEC **U*** - NEMA	**DM06** 063 071 **DM10** 071 080 **DM15** 090 **DM30** 090 100 112

* Only the pump can be supplied, with American flange, for coupling with NEMA motor



	Components	Materials
1	Shaft	Alumina ceramic 99.7%
2	Impeller thrust bearing	PTFE + 30% Graphite
3	Bushing	PTFE + 30% Graphite
4	O-Ring	Viton®/EPDM
5	Impeller	PP/PVDF+CF
6	Pump casing	PP/PVDF+CF
7	Head thrust bearing	Alumina ceramic 99.7%

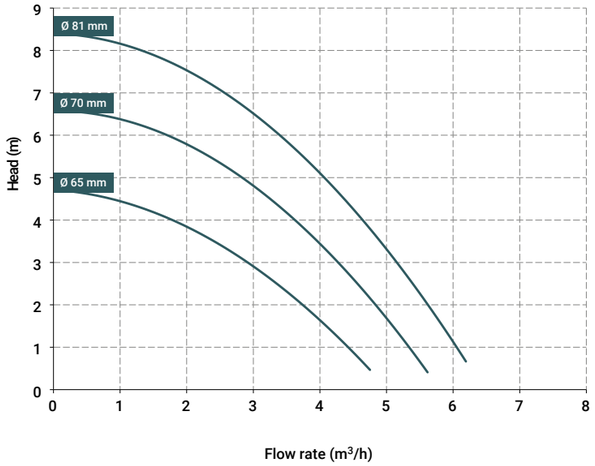
DM 06

Specifications and types

Suction fittings	G 1" f or DN 25 - NPT
Delivery fittings	G 3/4" m or DN 20 - NPT
Max flow rate	7 m3/h
Max head	8.5 m
Viscosity up to	150 cps

PP

PVDF



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

IMPELLER	Motor 0.25 Kw (0.35 HP) so PP*	Motor 0.37 Kw (0.5 HP)
Ø 81 mm (Standard)	up to 1.2 g/cm3	up to 1.8 g/cm3
Ø 70 mm	up to 1.5 g/cm3	up to 2 g/cm3
Ø 65 mm	up to 1.8 g/cm3	up to 2 g/cm3

Operating temperature:	
PP	from +3°C to +65°C, 2 Kg
PVDF	from +3°C to +95°C, 2.25 Kg

Standard electric motor:

Kw 0.25 HP 0.35

Casing B3+B5 RPM 2900
Three-phase 230/400 V
50/60 HZ
2 Poles IE1 Protection IP55
Ambient temperature -30°C + 45°C

Kw 0.37 HP 0.5

Casing B3+B5 RPM 2900
Three-phase 230/400 V
50/60 HZ
2 Poles IE1 Protection IP55
Ambient temperature -30°C + 45°C

Kw 0.25 HP 0.35

Casing B3+B5 RPM 2900
Single-phase
Ambient temperature -30°C + 45°C

Kw 0.37 HP 0.5

Casing B3+B5 RPM 2900
Single-phase
Ambient temperature -30°C + 45°C

Electric motors available on request:

SINGLE-PHASE
ATEX
NEMA 56C*
*(only pump available, with American flange, for coupling with NEMA motor - the motor is not available in our standard)

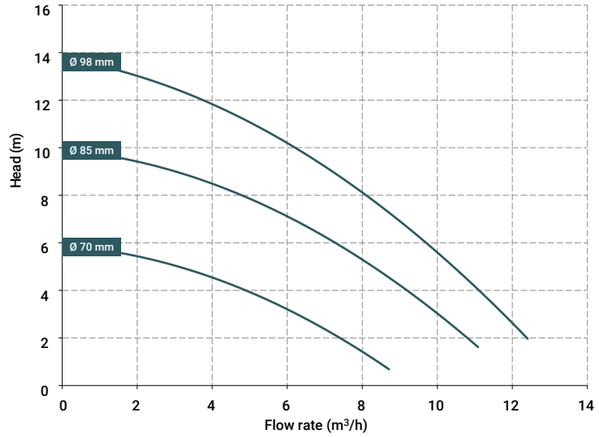
DM 10

Specifications and types

Suction fittings	G 1"1/2 f or DN 40 - NPT
Delivery fittings	G 1" m or DN 25 - NPT
Max flow rate	13 m3/h
Max head	14 m
Viscosity up to	150 cps

PP

PVDF



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

IMPELLER	Motor 0.55 Kw (3 HP)	Motor 0.75 Kw (4 HP)
Ø 98 mm (Standard)	up to 1.1 g/cm3	up to 1.5 g/cm3
Ø 85 mm	up to 1.6 g/cm3	up to 2 g/cm3
Ø 70 mm	up to 2 g/cm3	up to 2 g/cm3

Operating temperature and weights:	
PP	from + 3°C to + 65°C, 2.2 Kg
PVDF	from + 3°C to + 95°C, 2.5 Kg

Standard electric motor:

Kw 0.55 HP 0.75

Casing B3+B5 RPM 2900
Three-phase 230/400 V - 50/60 HZ
2 Poles IE1 Protection IP55
Ambient temperature -30°C + 45°C

Kw 0.75 HP 1

Casing B3+B5 RPM 2900
Three-phase 230/400 V - 50/60 HZ
2 Poles IE3 Protection IP55
Ambient temperature -30°C + 45°C

Kw 0.55 HP 0.75

Casing B3+B5 RPM 2900
Single-phase
Ambient temperature -30°C + 45°C

Kw 0.75 HP 1

Casing B3+B5 RPM 2900
Single-phase
Ambient temperature -30°C + 45°C

Electric motors available on request:

SINGLE-PHASE
ATEX
NEMA 56C* / 143TC
*(only pump available, with American flange, for coupling with NEMA motor - the motor is not available in our standard)

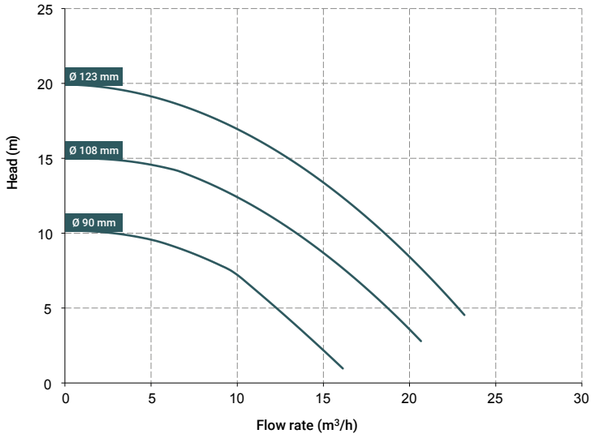
DM 15

Specifications and types

Suction fittings	G 1"1/2 f or DN 40 - NPT
Delivery fittings	G 1"1/4 m or DN 32 - NPT
Max flow rate	23.5 m3/h
Max head	20 m
Viscosity up to	150 cps

PP

PVDF



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

IMPELLER	Motor 1.5 Kw (2 HP)	Motor 2.2 Kw (3 HP)
Ø 123 mm (Standard)	up to 1.1 g/cm3	up to 1.8 g/cm3
Ø 108 mm	up to 1.6 g/cm3	up to 2 g/cm3
Ø 90 mm	up to 2 g/cm3	up to 2 g/cm3

Operating temperature and weights:

PP	from + 3°C to + 65°C, 4.5 Kg
PVDF	from + 3°C to + 95°C, 5.2 Kg

Standard electric motor:

Kw 1.5 HP 2

Casing B3+B5 RPM 2900
Three-phase 230/400 V - 50/60 HZ
2 Poles IE3 Protection IP55
Ambient temperature -30°C + 45°C

Kw 2.2 HP 3

Casing B3+B5 RPM 2900
Three-phase 230/400 V - 50/60 HZ
2 Poles IE3 Protection IP55
Ambient temperature -30°C + 45°C

Kw 1.5 HP 2

Casing B3+B5 RPM 2900
Single-phase
Ambient temperature -30°C + 45°C

Kw 2.2 HP 3

Casing B3+B5 RPM 2900
Single-phase
Ambient temperature -30°C + 45°C

Electric motors available on request:

SINGLE-PHASE
ATEX
NEMA 145TC
*(only pump available, with American flange, for coupling with NEMA motor - the motor is not available in our standard)

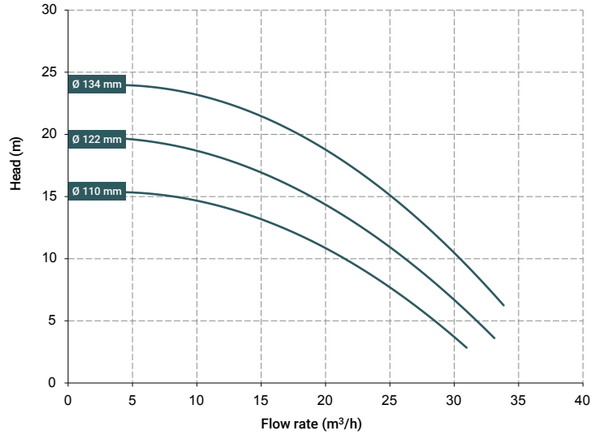
DM 30

Specifications and types

Suction fittings	G 2" f or DN 50 - NPT
Delivery fittings	G 1"1/2 m or DN 40 - NPT
Max flow rate	35 m3/h
Max head	8.5 m
Viscosity up to	150 cps

PP

PVDF



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

IMPELLER	Motor 2.2 Kw (3 HP)	Motor 3 Kw (4 HP)	Motor 4 Kw (5.5 HP)
Ø 134 mm (Standard)	up to 1.1 g/cm3	up to 1.5 g/cm3	up to 1.8 g/cm3
Ø 122 mm	up to 1.4 g/cm3	up to 2 g/cm3	up to 2 g/cm3
Ø 110 mm	up to 1.8 g/cm3	up to 2 g/cm3	up to 2 g/cm3

Operating temperature and weights:

PP	from + 3°C to + 65°C, 6 Kg
PVDF	from + 3°C to + 95°C, 7 Kg

Electric motors available on request:

SINGLE-PHASE
ATEX
NEMA 145TC* / 184TC*

*(only pump available, with American flange, for coupling with NEMA motor - the motor is not available in our standard)

Standard electric motor:

Kw 2.2 HP 3

Casing B3+B5 RPM 2900
Three-phase 230/400 V - 50/60 HZ
2 Poles IE3 Protection IP55
Ambient temperature -30°C + 45°C

Kw 3 HP 4

Casing B3+B5 RPM 2900
Three-phase 230/400 V - 50/60 HZ
2 Poles IE3 Protection IP55
Ambient temperature -30°C + 45°C

Kw 4 HP 5.5

Casing B3+B5 RPM 2900
Three-phase 230/400 V - 50/60 HZ
2 Poles IE3 Protection IP55
Ambient temperature -30°C + 45°C

Kw 2,2 HP 3

Casing B3+B5 RPM 2900
Single-phase
Temperatura ambiente -30°C + 45°C

Kw 3 HP 4

Casing B3+B5 RPM 2900
Single-phase
Ambient temperature -30°C + 45°C

KM 70

Specifications and types

Suction fittings	G 3" f or DN 80 - NPT on request
Delivery fittings	G 2"1/2 m or DN 65 - NPT on request
Max flow rate	65 m3/h
Max head	29 m
Viscosity up to	150 cps

PP

PVDF

Operating temperature and weights:

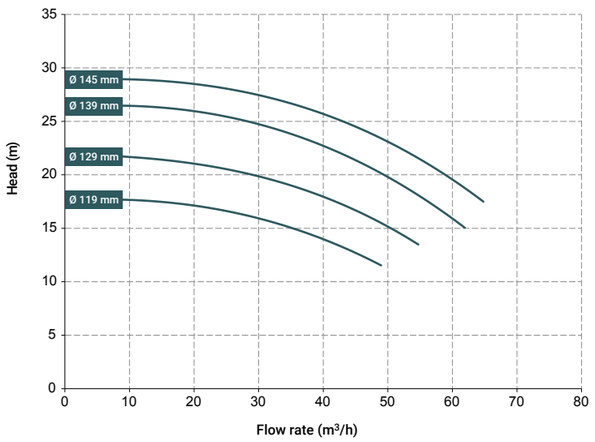
PP	from + 3°C to + 65°C, 33 Kg
PVDF	from + 3°C to + 95°C, 34,5 Kg

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

WATER AND SLUDGE TREATMENT

GALVANIC AND ELECTRONIC INDUSTRY



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:

Kw 4 HP 5.5

Casing B3+B5 RPM 2900

Three-phase 230/400 V - 50/60 HZ

ATEX available on request

Kw 5.5 HP 7.5

Casing B3+B5 RPM 2900

Three-phase 400/690 V - 50/60 HZ

ATEX available on request

Kw 7.5 HP 10

Casing B3+B5 RPM 2900

Three-phase 400/690 V - 50/60 HZ

ATEX available on request

IMPELLER

Ø 145 mm (Standard)

Ø 139 mm

Ø 129 mm

Ø 119 mm

HORIZONTAL CENTRIFUGAL PUMPS

The horizontal centrifugal pumps with a resin casing, are driven by a direct drive electric motor (max 3000 RPM) to transfer and/or empty liquids quickly, with flow rates from 6 to 75 m3/hour.

Their unique open impeller design allows them to pump even very dirty fluids with an apparent viscosity up to 500 cps (at 20°C) and small-sized suspended solids.

They are available in two version with different internal mechanical seal, based on their use, TL (lip seal) and TS (bellows seal).

They are driven by the impeller that, integrated with the shaft and the electric motor (direct drive), is rotated creating, due to centrifugal effect, a suction on the central duct and a delivery on the peripheral duct.

- **Product designed and constructed in Italy**
- **Constructed in polypropylene or PVDF**
- **Under head use**
- **Weld-free**
- **Usable with fluids containing suspended solids**
- **Extremely easy to maintain**
- **Suitable for continuous use**
- **Available with:**
  - Mechanical bellows seal (new generation "Self-locking" system)

    Aisi 304 spring - Seal ring in SILICON CARBIDE + CERAMIC / SILICON CARBIDE + SILICON CARBIDE
  - Lip seal: VITON® or EPDM

MB PUMPS CODES ENCODING

ex. MB080--P-TLVN
MB 80 PP, Viton® lip seal, three-phase motor.

MB80	P	TLV	N
PUMP MODEL	MATERIAL CASING	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 **FC** - PVDF+CF	**TLV** - Viton® lip seal **TLD** - EPDM lip seal **TSV** - Viton® bellows seal **TSD** - EPDM bellows seal	**N*** - Three-phase motor **M** - Single-phase motor **A** - ATEX motor

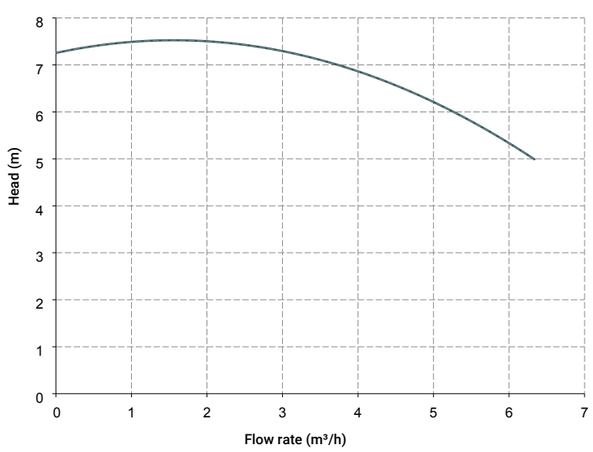
* Three-phase asynchronous eurotension motor fitted as standard (2 poles) 50Hz

CE

Specifications and types

Suction fittings	G 1"1/2 f or DN 40
Delivery fittings	G 1" m or DN 25
Max flow rate	6 m3/h
Max head	7.5 m
Viscosity up to	500 cps
Standard open impeller	Ø 85 mm H 9 mm *
Passing solids	Ø max 5 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight	
Polypropylene (with glass additive)	1.7 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	2.2 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:	
Kw	0.37
HP	0.5
Box	B3 + B14
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE1 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

MAIN APPLICATION SECTORS

AUTOMOTIVE

CHEMICAL INDUSTRY

WATER AND SLUDGE TREATMENT

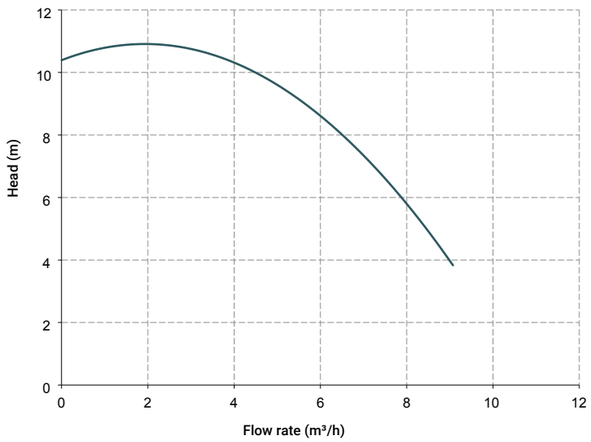
GALVANIC AND ELECTRONIC INDUSTRY

MB 100

Specifications and types

Suction fittings	G 1"1/2 f or DN 40
Delivery fittings	G 1" m or DN 25
Max flow rate	9 m3/h
Max head	10.5 m
Viscosity up to	500 cps
Standard open impeller	Ø 97 mm H 12 mm *
Passing solids	Ø max 7 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight

Polypropylene (with glass additive)	1.7 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	2.2 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:

Kw	0.55
HP	0.75
Box	B3 + B14
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE1 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

MAIN APPLICATION SECTORS

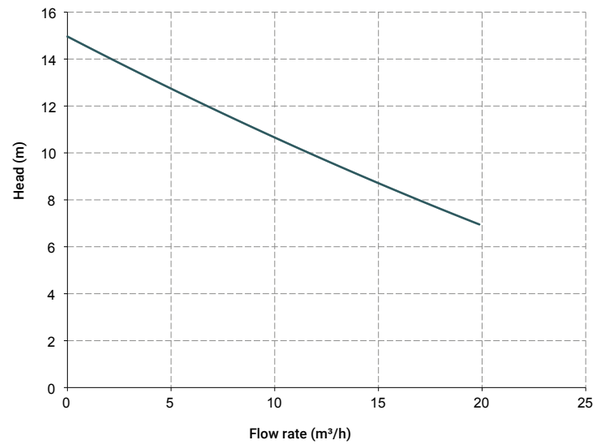
AUTOMOTIVE · CHEMICAL INDUSTRY · WATER AND SLUDGE TREATMENT · GALVANIC AND ELECTRONIC INDUSTRY

MB 110

Specifications and types

Suction fittings	G 2" m or DN 50
Delivery fittings	G 1"1/2 m or DN 40
Max flow rate	20 m3/h
Max head	15 m
Viscosity up to	500 cps
Standard open impeller	Ø 130 mm H 4 mm *
Passing solids	Ø max 2 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight

Polypropylene (with glass additive)	3.4 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	4.3 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:

Kw	1.1
HP	1.5
Box	B3 + B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

MAIN APPLICATION SECTORS

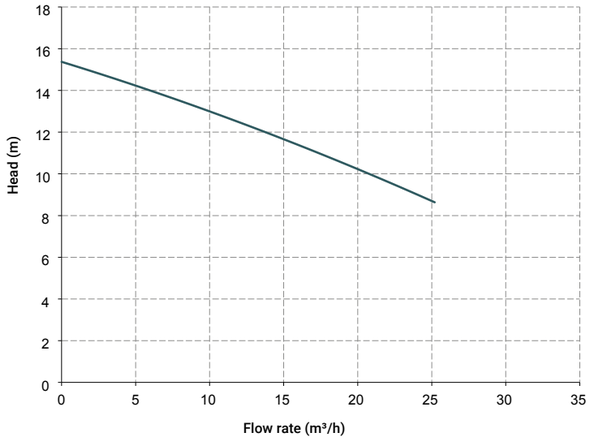
AUTOMOTIVE · CHEMICAL INDUSTRY · WATER AND SLUDGE TREATMENT · GALVANIC AND ELECTRONIC INDUSTRY

MB 120

Specifications and types

Suction fittings	G 2" m or DN 50
Delivery fittings	G 1"1/2 m or DN 40
Max flow rate	25 m3/h
Max head	15 m
Viscosity up to	500 cps
Standard open impeller	Ø 120 mm H 8 mm *
Passing solids	Ø max 6 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight

Polypropylene (with glass additive)	3.8 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	4.9 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:

Kw	1.5
HP	2
Box	B3 + B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

MAIN APPLICATION SECTORS

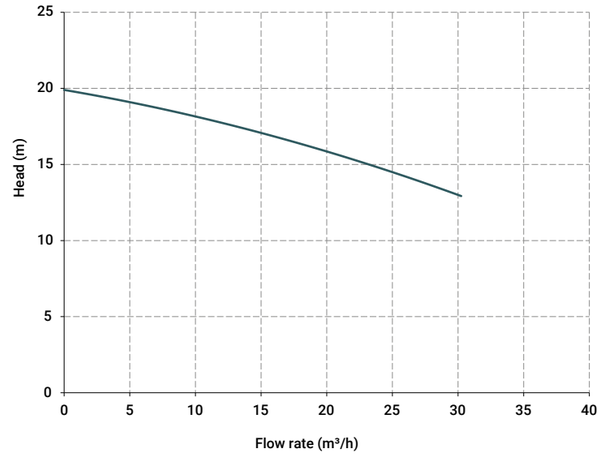
AUTOMOTIVE · CHEMICAL INDUSTRY · WATER AND SLUDGE TREATMENT · GALVANIC AND ELECTRONIC INDUSTRY

MB 130

Specifications and types

Suction fittings	G 2" m or DN 50
Delivery fittings	G 1"1/2 m or DN 40
Max flow rate	30 m3/h
Max head	20 m
Viscosity up to	500 cps
Standard open impeller	Ø 130 mm H 8 mm *
Passing solids	Ø max 6 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight

Polypropylene (with glass additive)	3.8 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	4.9 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:

Kw	2.2
HP	3
Box	B3 + B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

MAIN APPLICATION SECTORS

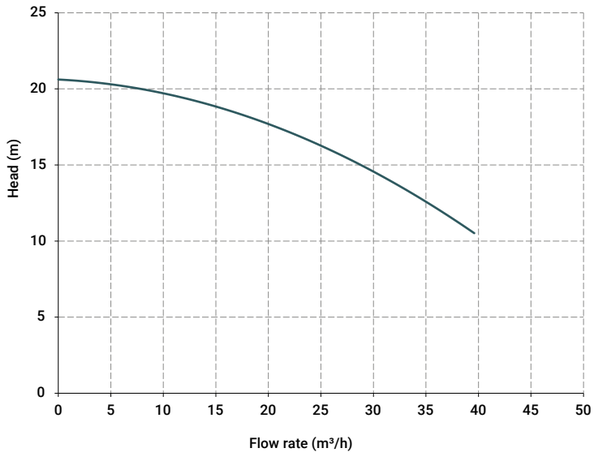
CHEMICAL INDUSTRY · WATER AND SLUDGE TREATMENT · GALVANIC AND ELECTRONIC INDUSTRY

MB 140

Specifications and types

Suction fittings	G 2" m or DN 50
Delivery fittings	G 1"1/2 m or DN 40
Max flow rate	40 m3/h
Max head	21 m
Viscosity up to	500 cps
Standard open impeller	Ø 130 mm H 14 mm *
Passing solids	Ø max 12 mm

* Special versions are available on request for the fluid pumped



PP

PVDF

The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Pump casing construction material, operating temperature and net weight	
Polypropylene (with glass additive)	4 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	5 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:	
Kw	3
HP	4
Box	B3 + B14
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

MAIN APPLICATION SECTORS

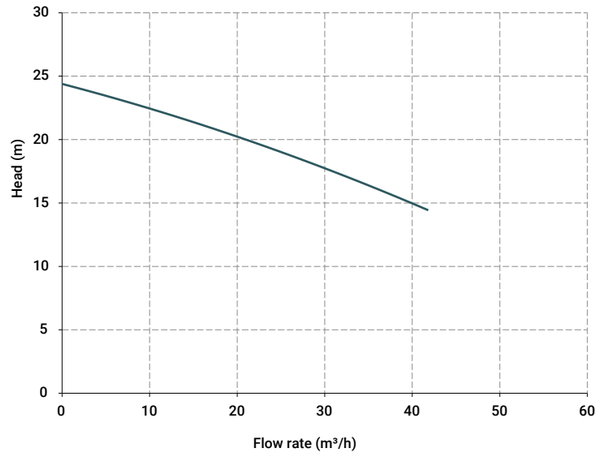
AUTOMOTIVE · CHEMICAL INDUSTRY · WATER AND SLUDGE TREATMENT · GALVANIC AND ELECTRONIC INDUSTRY

MB 150

Specifications and types

Suction fittings	G 2"1/2 f or DN 65
Delivery fittings	G 2" m or DN 50
Max flow rate	42 m3/h
Max head	24 m
Viscosity up to	500 cps
Standard open impeller	Ø 160 mm H 5.5 mm -10° *
Passing solids	Ø max 2 mm

* Special versions are available on request for the fluid pumped



PP

PVDF

The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Pump casing construction material, operating temperature and net weight	
Polypropylene (with glass additive)	8.1 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	11 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:	
Kw	4
HP	5.5
Box	B3 + B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
ATEX	on request

MAIN APPLICATION SECTORS

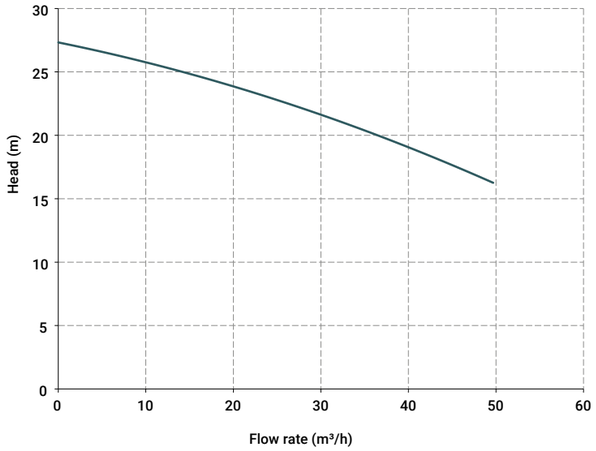
CHEMICAL INDUSTRY · WATER AND SLUDGE TREATMENT · GALVANIC AND ELECTRONIC INDUSTRY

MB 155

Specifications and types

Suction fittings	G 2"1/2 f or DN 65
Delivery fittings	G 2" m or DN 50
Max flow rate	50 m3/h
Max head	27 m
Viscosity up to	500 cps
Standard open impeller	Ø 162 mm H 4 mm -10 ° *
Passing solids	Ø max 3 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight

Polypropylene (with glass additive)	9.5 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	12.4 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:

Kw	5.5
HP	7.5
Box	B3 + B5
RPM	2900
THREE-PHASE 400/690 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
ATEX	on request

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

WATER AND SLUDGE TREATMENT

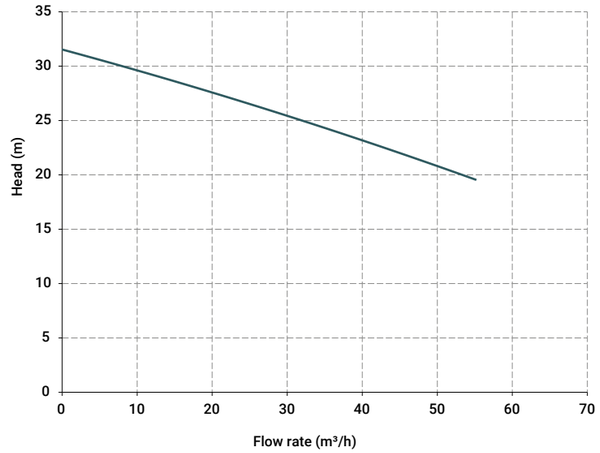
GALVANIC AND ELECTRONIC INDUSTRY

MB 160

Specifications and types

Suction fittings	G 2"1/2 f or DN 65
Delivery fittings	G 2" m or DN 50
Max flow rate	55 m3/h
Max head	32 m
Viscosity up to	500 cps
Standard open impeller	Ø 162 mm H 11 mm -10° *
Passing solids	Ø max 9 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight

Polypropylene (with glass additive)	9.8 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	12.2 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:

Kw	7.5
HP	10
Box	B3 + B5
RPM	2900
THREE-PHASE 400/690 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
ATEX	on request

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

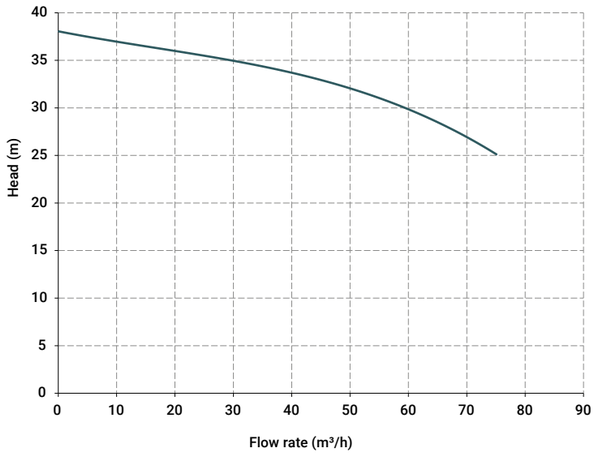
WATER AND SLUDGE TREATMENT

GALVANIC AND ELECTRONIC INDUSTRY

Specifications and types

Suction fittings	G 2"1/2 f or DN 65
Delivery fittings	G 2" m or DN 50
Max flow rate	75 m3/h
Max head	38 m
Viscosity up to	500 cps
Standard open impeller	Ø 176mm H 15 mm -10 ° *
Passing solids	Ø max 9 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

PP

PVDF

Pump casing construction material, operating temperature and net weight	
Polypropylene (with glass additive)	9.9 Kg*
	Max 3°C min.
	65°C max
PVDF (with carbon additive)	12.2 Kg*
	Max 3°C min.
	95°C max

* The weights refer to the pump without the motor

Standard electric motor:	
Kw	11
HP	15
Box	B3 + B5
RPM	2900
THREE-PHASE 400/690 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
ATEX	on request

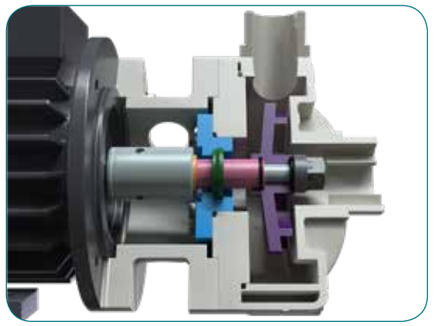
MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

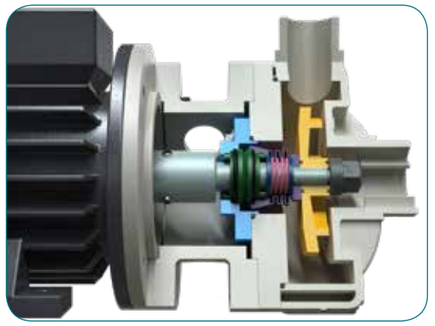
WATER AND SLUDGE TREATMENT

GALVANIC AND ELECTRONIC INDUSTRY

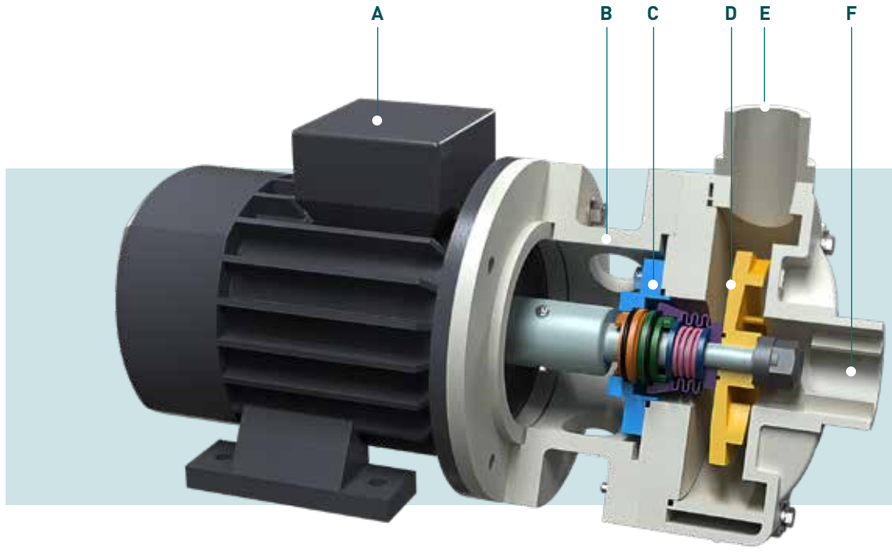
TL = lip seal



TS = bellows seal



Pump	Motor power
MB 80	0.37 Kw - 0.5 HP
MB 100	0.55 Kw - 0.75 HP
MB 110	1.1 Kw - 1.5 HP
MB 120	1.5 Kw - 2 HP
MB 130	2.2 Kw - 3 HP
MB 140	3 Kw - 4 HP
MB 150	4 Kw - 5.5 HP
MB 155	5.5 Kw - 7.5 HP
MB 160	7.5 Kw - 10 HP
MB 180	11 Kw - 15 HP



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

VERTICAL CENTRIFUGAL PUMPS

The IM series vertical centrifugal pumps with a resin casing, are high performance pumps for fixed installations with the pump immersed directly in the tank. They are driven by a direct drive electric motor (max 3000 RPM) to quickly empty the fluid, with flow rates from 6 to 170 m3/hour and head up to 40 m.

The unique construction shape of this type of pump, as well as not using internal mechanical seals (subject to considerable wear), guarantees the collection in the tank of any accidental spillages of fluid. The open impeller design allows them to pump (in continuous flow) even very dirty fluids with an apparent viscosity up to 500 cps (at 20°C) and small-sized suspended solids. The vast range of construction materials available for the pump allows us to select the best chemical compatibility with the fluid and/or the environment, without neglecting the correct temperature range.

They are driven by the impeller that, integrated with the shaft and the electric motor (direct drive), is rotated at a set speed creating, due to centrifugal effect, a suction on the central duct and a delivery on the peripheral duct.

- **Product designed and constructed in Italy**
- **Constructed in polypropylene or PVDF**
- **Normalised electric motor**
- **Support lantern and connection between pump and motor with a flexible coupling**
- **Usable with fluids containing suspended solids**
- **Suitable for continuous use**

CE

IM PUMPS CODES ENCODING

ex.IM140P-V-0800-N
IM140 PP, O-Ring Viton®, altezza colonna 800 mm, motore trifase

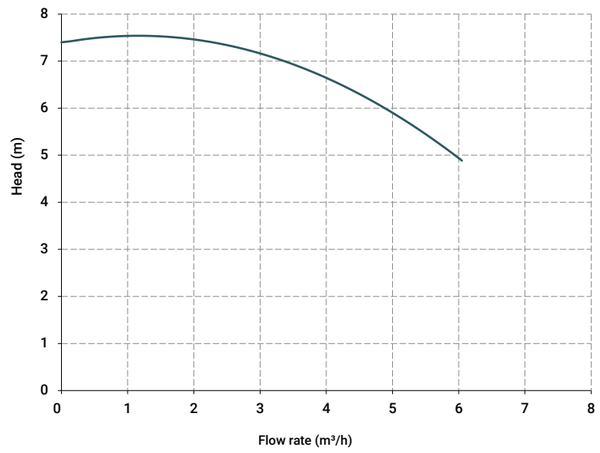
IM140	P	V	0800	N
PUMP MODEL	PUMP MATERIAL	O-RING	COLUMN HEIGHT	MOTOR
IM 80 - IM 80 **IM 90** - IM 90 **IM 95** - IM 95 **IM 110** - IM 110 **IM 120** - IM 120 **IM 130** - IM 130 **IM 140** - IM 140 **IM 150** - IM 150 **IM 155** - IM 155 **IM 160** - IM 160 **IM 180** - IM 180 **IM 200** - IM 200	**P** - Polypropylene **FC** - PVDF+CF	**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

* Three-phase asynchronous eurotension motor fitted as standard (2 poles) 50Hz
** Available only for IM 80/90 pumps

Specifications and types

Suction fittings	G 1"1/2 f or DN 40
Delivery fittings	G 1" m or DN 25
Max flow rate	6 m3/h
Max head	7.5 m
Viscosity up to	500 cps
Standard open impeller	Ø 85 mm H 9 mm *
Passing solids	Ø max 7 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	0.37
HP	0.5
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE1 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

Column length	PP* weight	PVDF* weight
250	6.5 Kg	7 Kg
500	7.5 Kg	8 Kg
800	10.5 Kg	11 Kg
1000**		

* The weights refer to the pump without the motor
** Special version

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

PP

PVDF

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

WATER AND SLUDGE TREATMENT

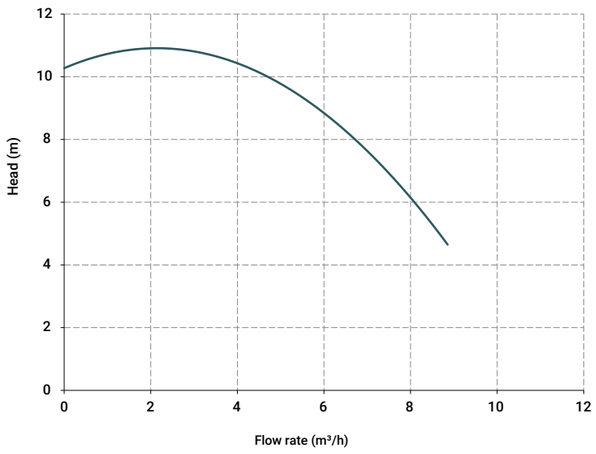
GALVANIC AND ELECTRONIC INDUSTRY

IM 90

Specifications and types

Suction fittings	G 1"1/2 f or DN 40 on request
Delivery fittings	G 1" m or DN 25 on request
Max flow rate	9 m3/h
Max head	10.5 m
Viscosity up to	500 cps
Standard open impeller	Ø 97 mm H 12 mm *
Passing solids	Ø max 10 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	0.55
HP	0.75
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

Column length	PP* weight	PVDF* weight
250	6.5 Kg	7 Kg
500	7.5 Kg	8 Kg
800	10.5 Kg	11 Kg
1000**		

* The weights refer to the pump without the motor
** Special version

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

PP

PVDF

MAIN APPLICATION SECTORS

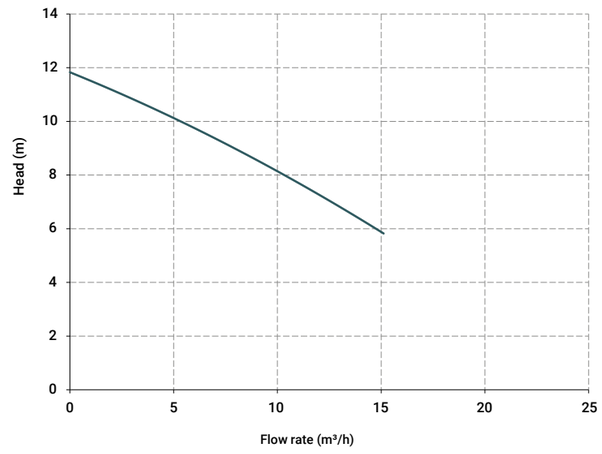
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY
GOLD PROCESSING INDUSTRY

IM 95

Specifications and types

Suction fittings	G 2" m or DN 50 on request
Delivery fittings	G 1"1/2 m or DN 40 on request
Max flow rate	13 m3/h
Max head	12 m
Viscosity up to	500 cps
Standard open impeller	Ø 100 mm H 7 mm *
Passing solids	Ø max 6 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	0.75
HP	1
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

Column length	PP* weight	PVDF* weight
500	15 Kg	16 Kg
800	19 Kg	20 Kg
1000	22 Kg	23 Kg
1250	24 Kg	25 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

PP

PVDF

MAIN APPLICATION SECTORS

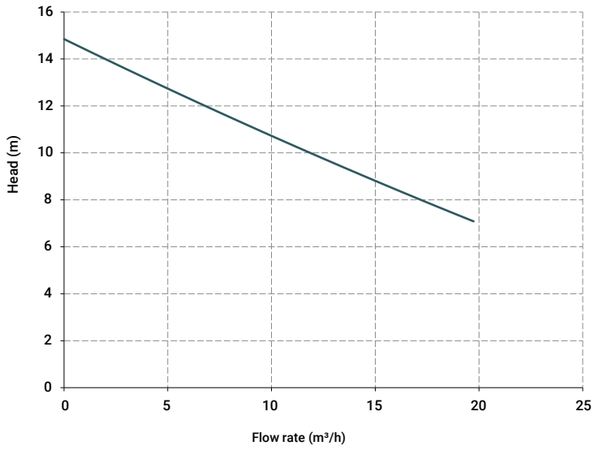
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY
GOLD PROCESSING INDUSTRY

IM 110

Specifications and types

Suction fittings	G 2" m or DN 50 on request
Delivery fittings	G 1"1/2 m or DN 40 on request
Max flow rate	20 m3/h
Max head	15 m
Viscosity up to	500 cps
Standard open impeller	Ø 120 mm H 8 mm *
Passing solids	Ø max 6 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	1.1
HP	1.5
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

Column length	PP* weight	PVDF* weight
500	15 Kg	16 Kg
800	19 Kg	20 Kg
1000	22 Kg	23 Kg
1250	24 Kg	25 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

PP

PVDF

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

MAIN APPLICATION SECTORS

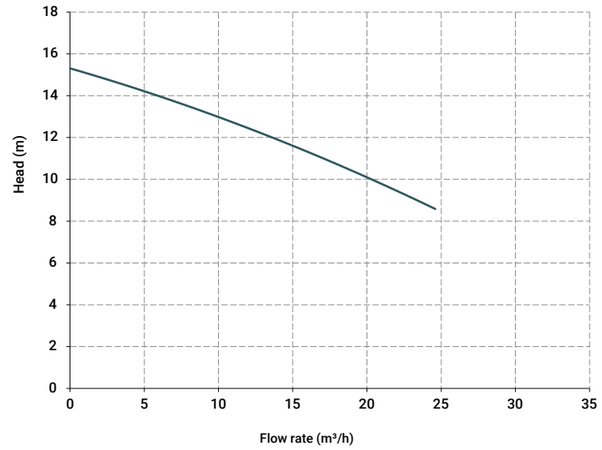
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY
GOLD PROCESSING INDUSTRY

IM 120

Specifications and types

Suction fittings	G 2" m or DN 50 on request
Delivery fittings	G 1"1/2 m or DN 40 on request
Max flow rate	25 m3/h
Max head	15.5 m
Viscosity up to	500 cps
Standard open impeller	Ø 125 mm H 8 mm *
Passing solids	Ø max 6 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	1.5
HP	2
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

Column length	PP* weight	PVDF* weight
500	15 Kg	16 Kg
800	19 Kg	20 Kg
1000	22 Kg	23 Kg
1250	24 Kg	25 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

PP

PVDF

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

MAIN APPLICATION SECTORS

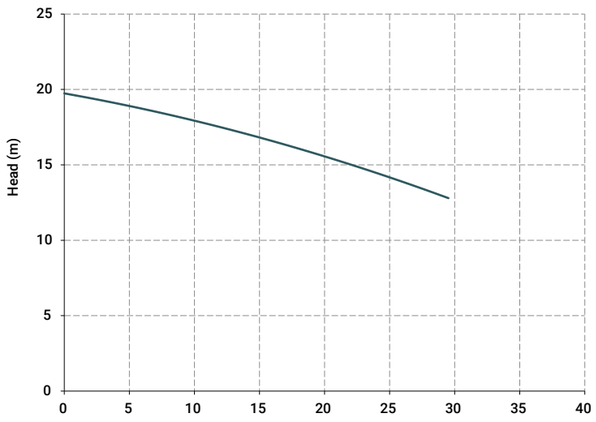
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY
GOLD PROCESSING INDUSTRY

IM 130

Specifications and types

Suction fittings	G 2" m or DN 50 on request
Delivery fittings	G 1"1/2 m or DN 40 on request
Max flow rate	30 m3/h
Max head	20 m
Viscosity up to	500 cps
Standard open impeller	Ø 130 mm H 8 mm *
Passing solids	Ø max 6 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	2.2
HP	3
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

Column length	PP* weight	PVDF* weight
500	15 Kg	16 Kg
800	19 Kg	20 Kg
1000	22 Kg	23 Kg
1250	24 Kg	25 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

PP

PVDF

MAIN APPLICATION SECTORS

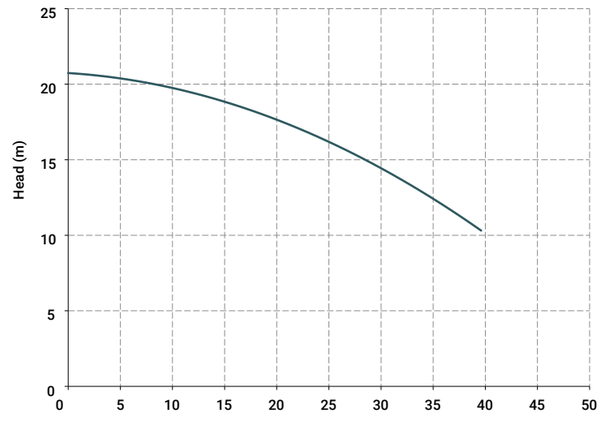
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY
GOLD PROCESSING INDUSTRY

IM 140

Specifications and types

Suction fittings	G 2" m or DN 50 on request
Delivery fittings	G 1"1/2 m or DN 40 on request
Max flow rate	40 m3/h
Max head	21 m
Viscosity up to	500 cps
Standard open impeller	Ø 130 mm H 14 mm *
Passing solids	Ø max 12 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	3
HP	4
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
SINGLE-PHASE	on request
ATEX	on request

Column length	PP* weight	PVDF* weight
500	15 Kg	16 Kg
800	19 Kg	20 Kg
1000	22 Kg	23 Kg
1250	24 Kg	25 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

PP

PVDF

MAIN APPLICATION SECTORS

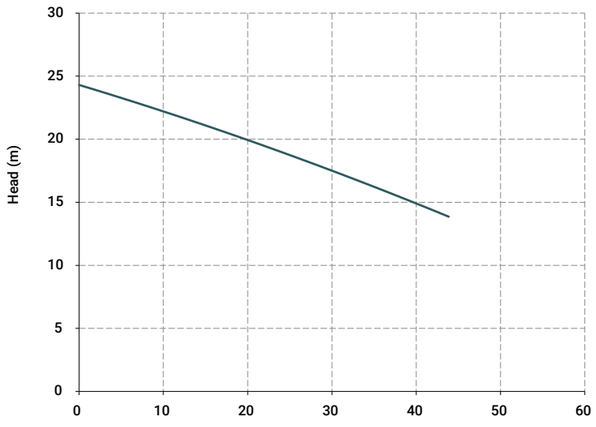
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY

IM 150

Specifications and types

Suction fittings	G 2"1/2 f or DN 65 on request
Delivery fittings	G 2" m or DN 50 on request
Max flow rate	42 m3/h
Max head	24 m
Viscosity up to	500 cps
Standard open impeller	Ø 160 mm H 4 mm -10° *
Passing solids	Ø max 2 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	4
HP	5.5
Box	B5
RPM	2900
THREE-PHASE 230/400 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C	
+ 45°C	
Aluminium/Cast iron	on request
ATEX	

Column length	PP* weight	PVDF* weight
500	28 Kg	30 Kg
800	31 Kg	33 Kg
1000	33 Kg	35 Kg
1250	36 Kg	38 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

PP

PVDF

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

WATER AND SLUDGE TREATMENT

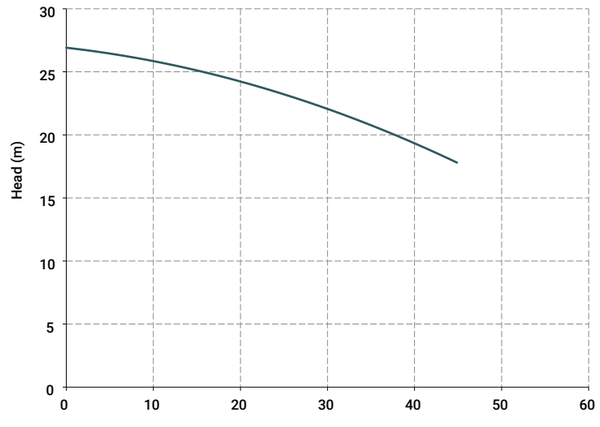
GALVANIC AND ELECTRONIC INDUSTRY

IM 155

Specifications and types

Suction fittings	G 2"1/2 f or DN 65 on request
Delivery fittings	G 2" m or DN 50 on request
Max flow rate	42 m3/h
Max head	27 m
Viscosity up to	500 cps
Standard open impeller	Ø 162 mm H 4 mm -10° *
Passing solids	Ø max 2 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	5.5
HP	7.5
Box	B5
RPM	2900
THREE-PHASE 400/690 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C	
+ 45°C	
Aluminium/Cast iron	on request
ATEX	

Column length	PP* weight	PVDF* weight
500	28 Kg	30 Kg
800	31 Kg	33 Kg
1000	33 Kg	35 Kg
1250	36 Kg	38 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

PP

PVDF

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

MAIN APPLICATION SECTORS

CHEMICAL INDUSTRY

WATER AND SLUDGE TREATMENT

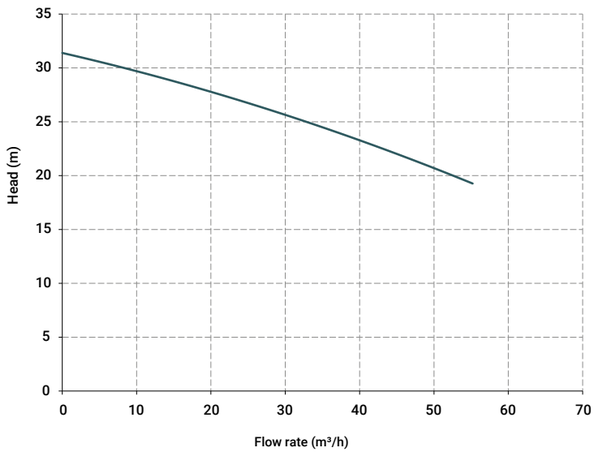
GALVANIC AND ELECTRONIC INDUSTRY

IM 160

Specifications and types

Suction fittings	G 2"1/2 f or DN 65 on request
Delivery fittings	G 2" m or DN 50 on request
Max flow rate	55 m3/h
Max head	32 m
Viscosity up to	500 cps
Standard open impeller	Ø 162 mm H 11 mm -10° *
Passing solids	Ø max 9 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	7.5
HP	10
Box	B5
RPM	2900
THREE-PHASE 400/690 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
ATEX	on request

Column length	PP* weight	PVDF* weight
500	31 Kg	33 Kg
800	34 Kg	36 Kg
1000	36 Kg	38 Kg
1250	39 Kg	41 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

PP

PVDF

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

MAIN APPLICATION SECTORS

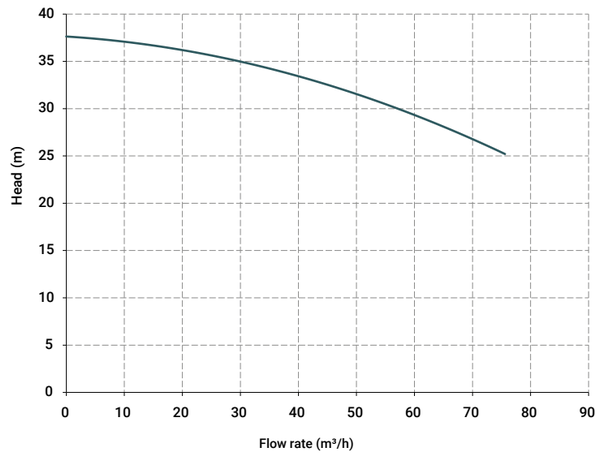
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY
MECHANICAL AND METALLURGIC INDUSTRY

IM 180

Specifications and types

Suction fittings	G 2"1/2 f or DN 65 on request
Delivery fittings	G 2" m or DN 50 on request
Max flow rate	75 m3/h
Max head	38 m
Viscosity up to	500 cps
Standard open impeller	Ø 176 mm H 13 mm -10° *
Passing solids	Ø max 11 mm

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	11
HP	15
Box	B5
RPM	2900
THREE-PHASE 400/690 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C + 45°C	
Aluminium/Cast iron	
ATEX	on request

Column length	PP* weight	PVDF* weight
500	31 Kg	33 Kg
800	34 Kg	36 Kg
1000	36 Kg	38 Kg
1250	39 Kg	41 Kg
1400**		

* The weights refer to the pump without the motor
** Special version

PP

PVDF

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

MAIN APPLICATION SECTORS

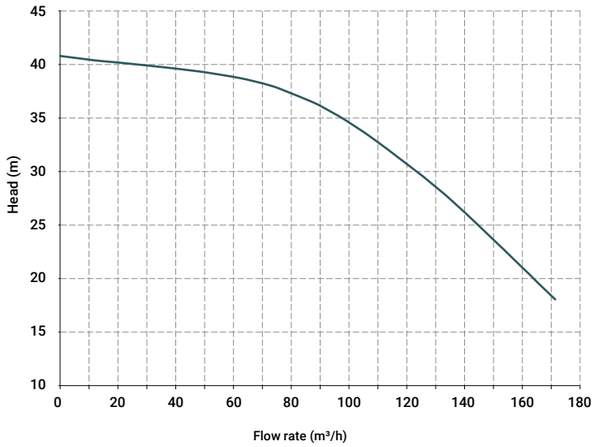
CHEMICAL INDUSTRY
WATER AND SLUDGE TREATMENT
GALVANIC AND ELECTRONIC INDUSTRY
MECHANICAL AND METALLURGIC INDUSTRY

IM 200

Specifications and types

Suction fittings	G 3"1/2 f or DN 90 on request
Delivery fittings	G 3" m or DN 80 on request
Max flow rate	170 m3/h
Max head	41 m
Viscosity up to	500 cps
Standard open impeller	Ø 175 mm H 18.4 mm *
Passing solids	Ø max 15 mm
Available column length (mm)	800 / 1000 / 1250

* Special versions are available on request for the fluid pumped



The curves and the performances refer to pumps with immersed suction and open delivery outlet, with water at 20°C and vary based on the composition materials and 50 Hz two-pole motor (2900 rpm).

Standard electric motor:	
Kw	18.5
HP	25
Box	B5
RPM	2900
THREE-PHASE 400/690 V	
50/60 Hz	
2 poles	
IE3 efficiency class	
IP55 protection rating	
Ambient temperature -30°C +	
45°C	
Aluminium/Cast iron	on request
ATEX	

Operating temperature:	
PP	from +3°C to +65°C
PVDF	from +3°C to +95°C

PP

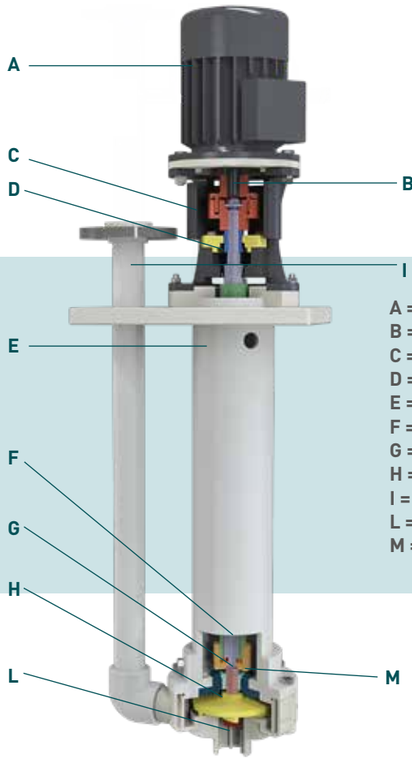
PVDF

MAIN APPLICATION SECTORS

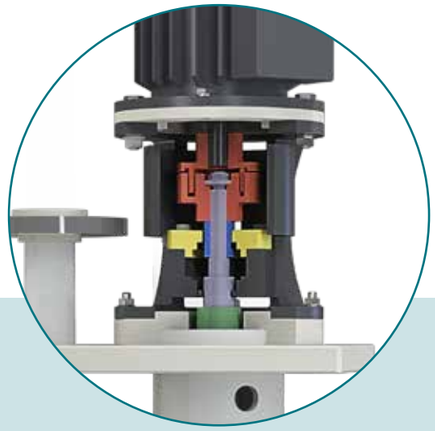
CHEMICAL INDUSTRY

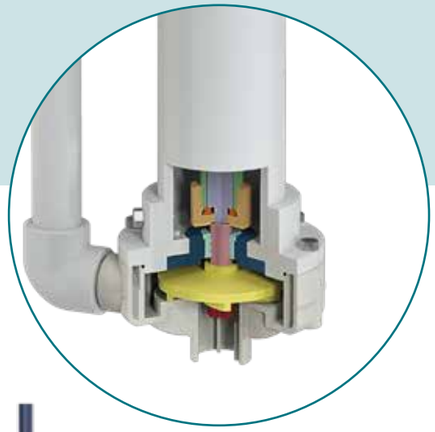
WATER AND SLUDGE TREATMENT

GALVANIC AND ELECTRONIC INDUSTRY



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





Pump	Motor power
IM 80	0.37 Kw - 0.5 HP
IM 90	0.55 Kw - 0.75 HP
IM 95	0.75 Kw - 1 HP
IM 110	1.1 Kw - 1.5 HP
IM 120	1.5 Kw - 2 HP
IM 130	2.2 Kw - 3 HP
IM 140	3 Kw - 4 HP
IM 150	4 Kw - 5.5 HP
IM 155	5.5 Kw - 7.5 HP
IM 160	7.5 Kw - 10 HP
IM 180	11 Kw - 15 HP
IM 200	18.5 Kw - 25 HP

DEBEM
MADE IN ITALY

DRUM TRANSFER PUMPS

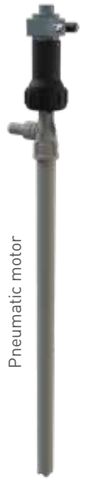
The drum transfer pumps consist of a dip tube, at the end of which the open impeller is fitted. It is secured to the drive shaft, connected to the pump with a ring nut.
The operation consists of an impeller integrated with the shaft, connected to the electric or pneumatic motor with a coupling joint.
The transfer pumps must be used exclusively vertically and with the pump immersed in the fluid. Dry-running or the presence of air bubbles could damage the shaft guide internal bushing. These portable drum transfer pumps are ideally suited for pumping corrosive fluids and work by being immersed in the liquid. Their construction shape has been designed to collect any product spillages in the drum.

- **Product designed and constructed in Italy**
- **Portable**
- **Suitable for corrosive fluids**
- **Possibility of adjusting the flow rate (in the version with pneumatic motor)**
- **No mechanical seals**
- **Easy to disassemble**
- **Viscosity up to 900 cps**
- **Max flow rate 90 l/minute**

TR PUMPS CODES ENCODING

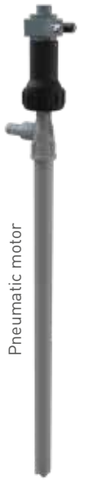
ex. TRPH1200
TR PP, Hastelloy shaft, dip tube length 1200 mm

TR	P	H	1200
PUMP MODEL	MATERIAL PUMP	MATERIAL SHAFT	LENGTH HOSE
TR - Drum transfer	**P** - Polypropylene **F** - PVDF **A** - AISI 316	**H** - Hastelloy **A** - AISI 316	**0900**- 900 mm **1200** - 1200 mm



TRP - Polypropylene casing

Dip tube	Ø 42 mm
Hose holder	Ø 25 mm
Max Operating temp.	65° C
Total weight in Kg	1.4 for length of 900 mm / 1.7 for length of 1200 mm
Material Dip tube	Polypropylene
Material Shaft	HASTELLOY or AISI 316
Material Impeller	ECTFE
Material Suction outlet	Polypropylene
Material Seal gasket in contact with the fluid - MIM	Viton®
Length mm	900 or 1200
Max Operating temp.	from 3°C to 65°C



TRP - PVDF casing

Dip tube	Ø 40 mm
Hose holder	Ø 25 mm
Max Operating temp.	95° C
Total weight in Kg	1.6 for length of 900 mm / 1.9 for length of 1200 mm
Material Dip tube	PVDF
Material Shaft	HASTELLOY
Material Impeller	ECTFE
Material Suction outlet	ECTFE
Material Seal gasket in contact with the fluid - MIM	Viton®
Length mm	900 or 1200
Max Operating temp.	from 3°C to 95°C

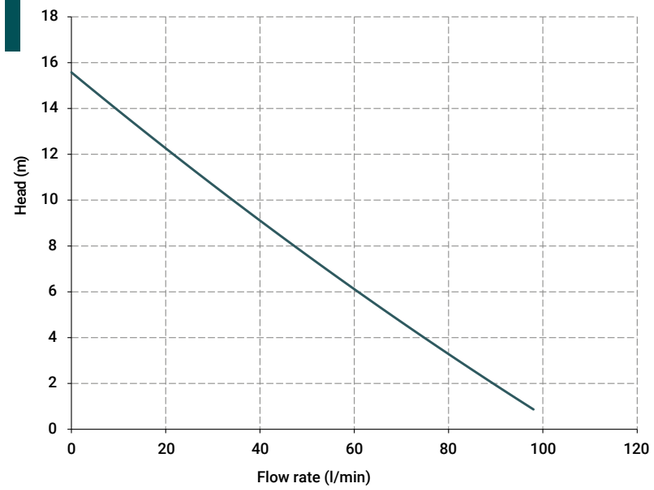
TRA - AISI 316 casing

Dip tube	Ø 42.5 mm
Hose holder	Ø 25 mm
Max Operating temp.	95° C
Total weight in Kg	4.3 for length of 900 mm / 5.3 for length of 1200 mm
Material Dip tube	AISI 316 steel
Material Shaft	AISI 316 steel
Material Impeller	ECTFE
Material Suction outlet	ECTFE
Material Seal gasket in contact with the fluid - MIM	Viton®
Length mm	900 or 1200
Max Operating temp.	from 3°C to 95°C

TR - Drum transfer pumps

TR-EL SERIES - Electric motor

Drum transfer pumps with 800 Watt electric motor and open impeller that allows the continuous pumping of clean corrosive fluids with apparent viscosity up to 900 cps. The pump s fitted with a safety switch to prevent any accidental restarts after a drop in the power supply.

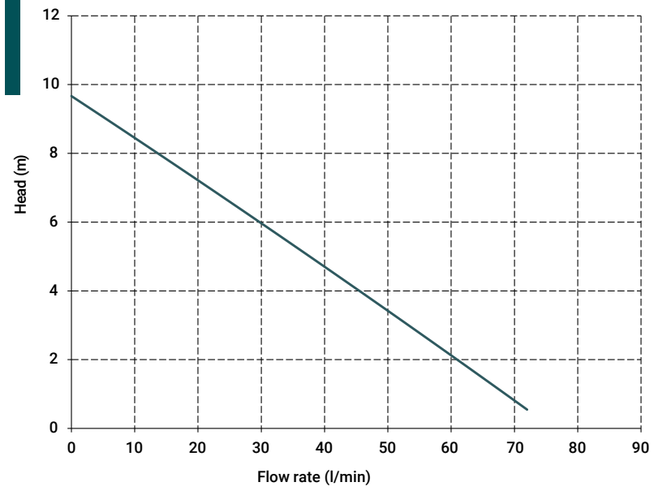


Electric motors technical specifications	
Power	800 Watt
Voltage	230 V sin-
gle-phase	
IP54	protection rating
Class	F
Flow rate	90 l/minute
Viscosity	900 cps
Density	1.6 g/cm3
Weight in Kg	3.8
ATEX motor	on request

(NB: The electric cable is supplied without socket)
Contact the sales office for information on the ATEX motor

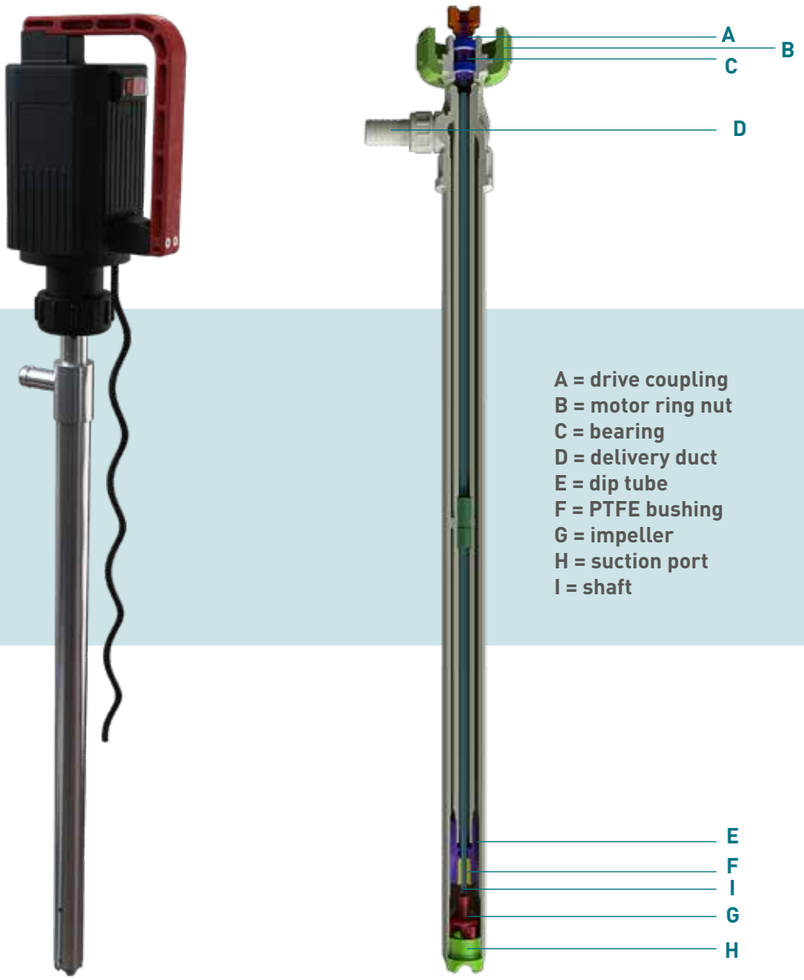
TR-PM SERIES - Pneumatic motor

Drum transfer pumps with pneumatic motor and open impeller that allows the continuous pumping of clean corrosive fluids with apparent viscosity up to 600 cps. The pump allows the flow rate adjustment.



Pneumatic motors technical specifications	
Pneumatic motor	Standard
Power	0.42 HP (300 Watt)
Flow rate	70 l/minute
Viscosity	600 cps
Density	1.2 g/cm3
Weight in Kg	1.1
ATEX motor	on request

Contact the sales office for information on the ATEX motor



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

MAIN APPLICATION SECTORS	AUTOMOTIVE	CHEMICAL INDUSTRY	OIL & GAS	GALVANIC AND ELECTRONIC INDUSTRY
TRA - ELECTRIC MOTOR	●	●	●	
TRA - PNEUMATIC MOTOR	●	●	●	
TRF - ELECTRIC MOTOR	●	●	●	●
TRF - PNEUMATIC MOTOR	●	●	●	●
TRP - ELECTRIC MOTOR	●	●	●	●
TRP - PNEUMATIC MOTOR	●	●	●	●

ACCESSORIES

Debem offers a wide range of accessories for all the types of pumps in its catalogue. Accessories from other manufacturers or designed and built directly by the company, which are the result of our technical experience and specific research in pump applications.

DUST PUMPS

BOXER FAMILY

The special DUST KIT lets you transform a normal BOXER double diaphragm pump (normally used to pump fluids), into a pump that can aspirate various types of dust.

FOOT VALVES

BOXER FAMILY

Check valves are designed to be installed vertically at the end of the suction pipes of centrifugal and pneumatic pumps. They function as check valves that prevent the suction hose from emptying so that the pumps remain always primed. Sizes available: 1", 1" ¼, 1" ½, 2", 3". Construction material: PP and PVDF.

TRUCK FOR BOXER PUMPS

BOXER FAMILY

Equipment used to move the pump. The pump is blocked with the fixing holes.

CYCLE COUNTER

BOXER FAMILY

Device that is installed on the pneumatic circuit of diaphragm pumps. It measures the number of strokes performed by the diaphragms and therefore the number of cycles. This device can be used to activate various types of controls, such as for example, the litres of liquid delivered by the pump, according to its displacement capacity, and to remotely control its operation.

PRESSURE BOOSTER

BOXER FAMILY

In certain applications the pump has to push the product with a higher pressure than the operating pressure (which normally in a system does not exceed 6-7 bar). For these situations we have designed pressure boosters with different compression ratios, according to their use. The component uses the same compressed air that feeds the pump as driving fluid.

REINFORCEMENT RINGS

BOXER FAMILY

Steel rings press-fitted on the manifolds of the PP and PVDF pumps prevent them from breaking or being damaged when connecting the pump to the circuit.

BATCH CONTROLLER

BOXER FAMILY

Mechanical batch controller with 5-digit display and start/stop button. Pneumatically driven it doesn't require any electrical connection. Designed to control Debem's air-operated double diaphragm pumps.

AIR REGULATION KIT

BOXER FAMILY

The kit is designed to regulate and/or set the pressure of the compressed air. It consists of: compressed air reduction filter, fixing bracket, reducer, pressure gauge, Elaston hose (5 m), tap and fittings.

ACCESSORIES

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MICROVALVES

BOXER FAMILY

These valves are used to manually regulate the pump air supply flow rate.

ANTI-VIBRATION FEET KIT

BOXER FAMILY

These help to decrease the vibrations produced by the pump during its operation.

ELECTRICALLY OR PNEUMATICALLY DRIVEN THREE WAY VALVES

BOXER FAMILY

They are used to remotely switch the pump on or off.

VALVES, FITTINGS AND PIPES

BOXER - CUBIC - MB - DM - IM - TR FAMILY

Valves and fittings in polypropylene, PVC and stainless steel. High-resistance clamps for spiral hoses. Reinforced hoses made with food-grade PVC with metal reinforcement, designed to be installed on the delivery/suction side of pumps with hose holders and locking clamps.
Hose made with polyethylene, a high density material, with a spiral, covered in rubber, to be applied on the delivery/suction side of the pump. Flexible and crushproof the hose is supplied complete with swivel fittings and plate type clamps. High chemical resistance.

FLANGE KIT

BOXER - MB - DM - IM - FAMILY

Device that is installed on the pneumatic circuit of diaphragm pumps. It measures the number of strokes performed by the diaphragms and therefore the number of cycles. This device can be used to activate various types of controls, such as for example, the litres of liquid delivered by the pump, according to its displacement capacity, and to remotely control its operation.

QUICK FITTINGS

BOXER FAMILY

Designed for the chemical sector, they provide a high level of resistance and can be used with reinforced hoses. Max operating pressure 13 bar.

IM FILTER

IM FAMILY

Filters the suction fluid. For pumps in the IM series Construction material polypropylene and PVDF.

DISPENSERS

TR FAMILY

Built with Polypropylene, aluminium, stainless steel or PVDF. They include a lever used to control the delivery.

FLOW METERS

TR FAMILY

The flow meters are installed exclusively on drum transfer pumps and are used to measure the pump's instantaneous flow rate, or the total number of litres delivered. They include a display for the reading. They are built in polypropylene or PVDF.

DIP TUBE FILTER

TR FAMILY

Filters the suction fluid. For TR series drum transfer pumps. Construction material polypropylene and stainless steel.

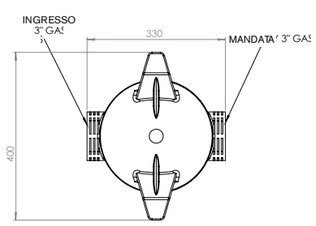
PUMP PROTECTION BASKET STRAINER

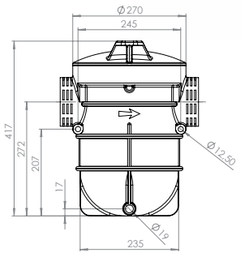
Thanks to the large total passage surface of the basket, pump protection filters are **ideally suited to be installed on the suction side of the pump, to protect them from suspended solids, filaments, algae and foreign bodies**, without causing excessive drops in capacity. They can be used in **industrial** applications such as the **chemical industry**, **water treatment**, **fish farming**, **galvanic industry**, **leather** and **textile industry**, **paper industry**, **graphic industry** and many more.
Built in **PP** or **PVDF** No metal parts, Basket is easy to inspect and remove, Operating pressure 1 bar. Available with the following fittings: 1" ½ f, 2" f, 2" ½ f, 3" f.

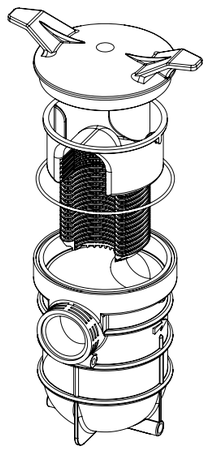
- **Product designed and constructed in Italy**
- **No metal parts**
- **Basket is easy to inspect and remove**
- **Built in PP and PVDF**
- **Operating pressure 1 bar**

MAIN APPLICATION SECTORS

BOXER - MB FAMILY







MIXERS and PERISTALTIC PUMPS

MIXERS: E/EH/F/FR/H/J/RV

The compact submerged mixers are designed for a wide range of applications, regardless of the shape and size of the basin. Uses: water treatment plants, biogas plants, production of liquid feedstuffs, transport vehicles, etc.

- **Product designed and constructed in Italy**
- **Built in PP, PVDF, AISI 316**
- **Great versatility**

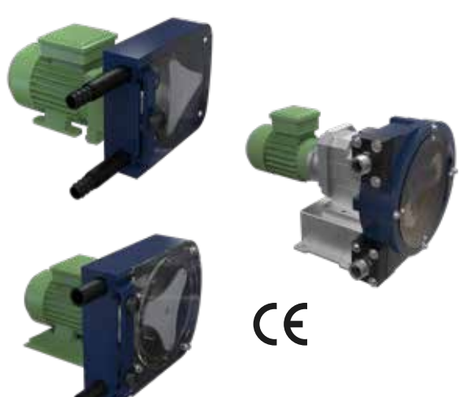
MAIN APPLICATION SECTORS

PERISTALTIC PUMPS:

Peristaltic pumps operate with a '**flowing pressure**' exerted on a flexible hose with rollers, rotating parallel to an axis, and supported by a rollers holder.

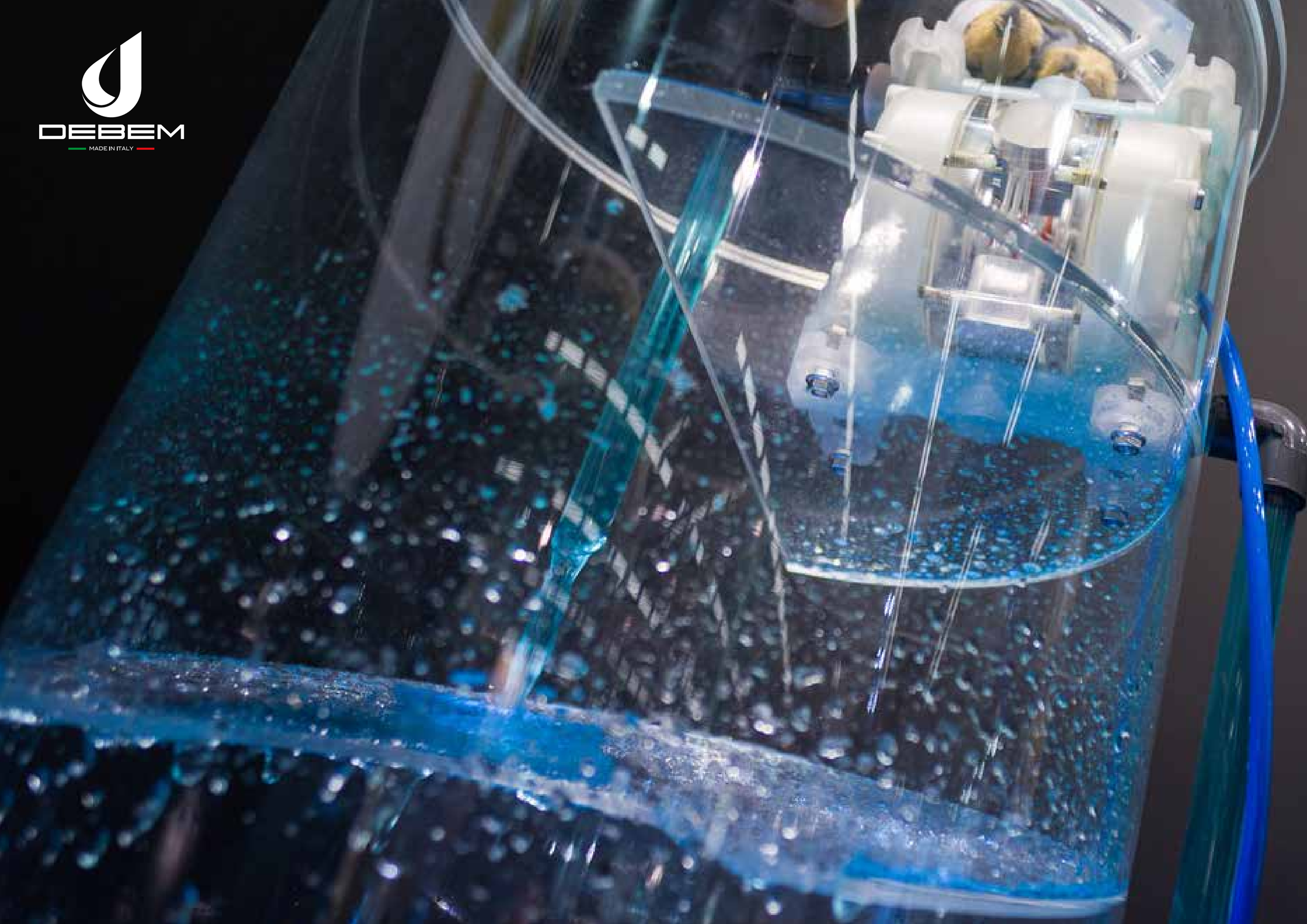
These types of pumps are ideal in sectors such as **water treatment**, **chemical industry**, **food** and **cosmetics industry**, **mining**, **ceramic** and **building industries** and in **paper mills**.

MAIN APPLICATION SECTORS



DEBEM

MADE IN ITALY



Web

www.debem.com

Visit **debem.com** to keep in contact with us, discover all the latest news and find out technical details of all our products.

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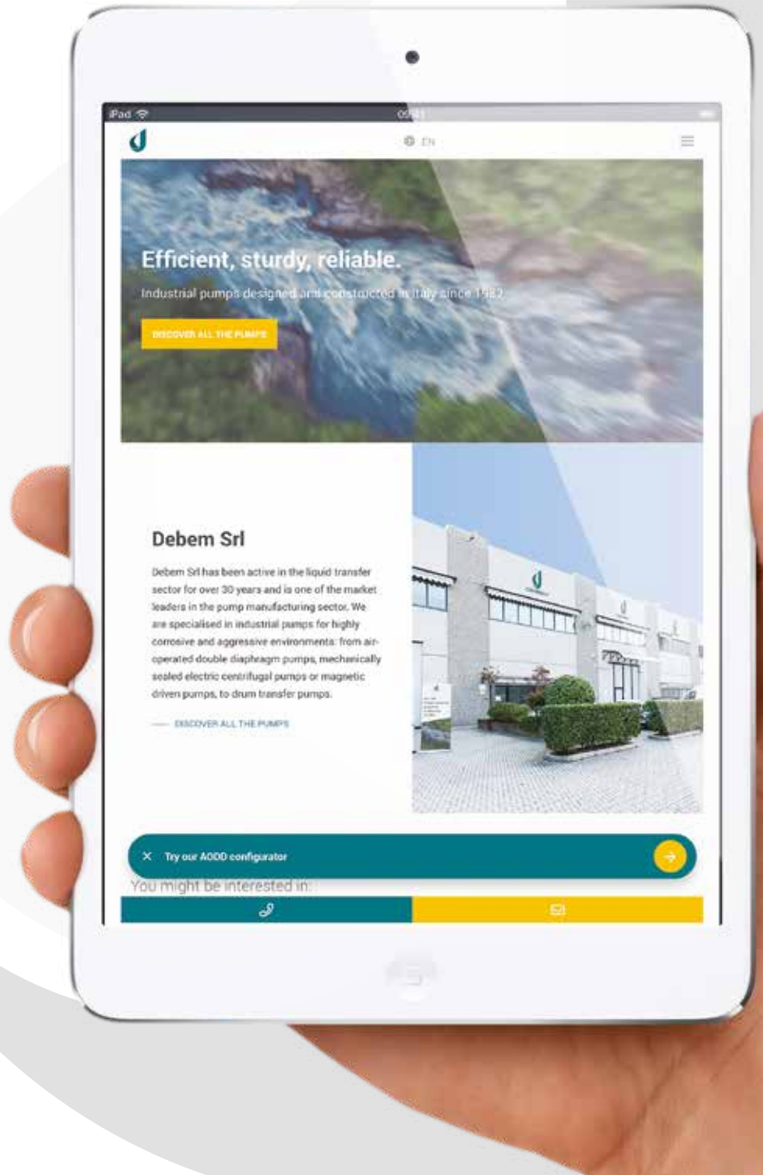

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