DE 0001-GB-09.01/GP

DEPA

Air Operated Diaphragm Pumps

CRANE

DEPA-Air Operated Diaphragm Pu

Innovative Technology with Tradition

For over 30 years the range of DEPA air operated diaphragm pumps have been established as high quality positive displacement pumps for all types of industry.

Every day these pumps prove their reliability and efficiency all over the world in harsh operations and under toughest application conditions.

Through the years this range of air operated diaphragm pumps has been continuously updated and improved by intensive research, development and the use of new materials.

The Quality demands of different industries as well as ease of operation and maintenance are always uppermost during the manufacture of these products.

The latest production methods, inspection and testing systems for quality assurance, together with documented process sequences in accordance with DIN EN ISO 9001 ensure the high quality of the DEPA products.

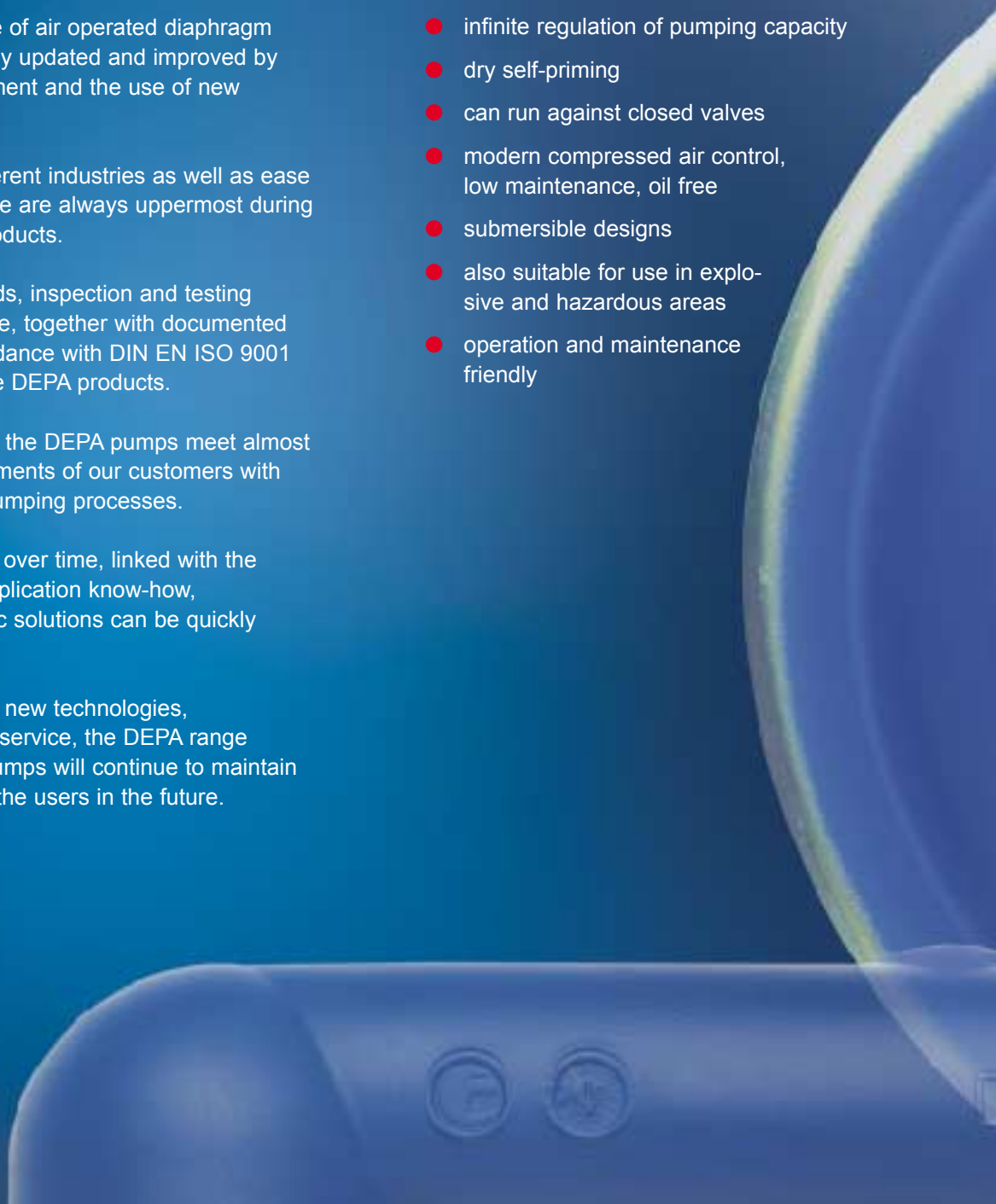
With this wide product range the DEPA pumps meet almost all the demands and requirements of our customers with their increasingly complex pumping processes.

Using the knowledge gained over time, linked with the experience gained, pump application know-how, customer and market specific solutions can be quickly resolved.

With targeted investments in new technologies, manufacturing methods and service, the DEPA range of air operated diaphragm pumps will continue to maintain their first class position with the users in the future.

Benefits at a glance:

- gentle conveyance of liquid or viscous products
- ideal for abrasive, viscous, and shear sensitive media
- can handle media with entrained solids
- tolerant of dry running
- no dynamic or pressure loaded seals
- mobile, easy to transport units
- infinite regulation of pumping capacity
- dry self-priming
- can run against closed valves
- modern compressed air control, low maintenance, oil free
- submersible designs
- also suitable for use in explo-sive and hazardous areas
- operation and maintenance friendly



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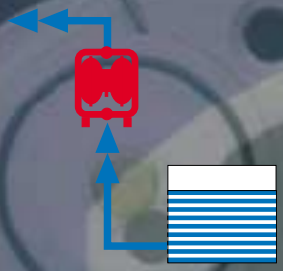
Installation

DEPA air operated diaphragm pumps are suitable for a vast variety of applications and are not dedicated to just one type of installation.
Fixed installation into the process flow is possible as is use as a portable or mobile unit that can be transported to various places of use.

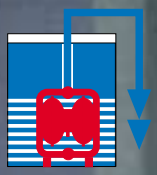


Pump, self-priming

DEPA air operated diaphragm pumps are dry self-priming. Depending on the pump specification a suction lift of up to 9 m WC can be achieved with a filled suction pipe.

Pump with positive suction

Depending on the pump type the suction side inlet pressure must be limited to max. 0.7 bar. In this case a valve is required to isolate the suction pipe.



Pump, sub-merged

DEPA air operated diaphragm pumps can be totally submerged in the pumped medium. The chemical compatibility of the pump material must be checked beforehand. The exhaust outlet must remain above the fluid level.

Pump for drums

DEPA air operated diaphragm pumps of type DF 25 can be directly mounted on drums or containers. For ease of use the pump is mounted on the container complete with adapter. The suction pipe is supplied with the pump.

Flexible, modular design

DEPA air operated diaphragm pumps were developed as a flexible and modular design covering all product ranges and pump sizes.

This modular design reduces both the spare parts holding as well as the number of individual parts used per pump. This means: low maintenance costs and short downtimes.

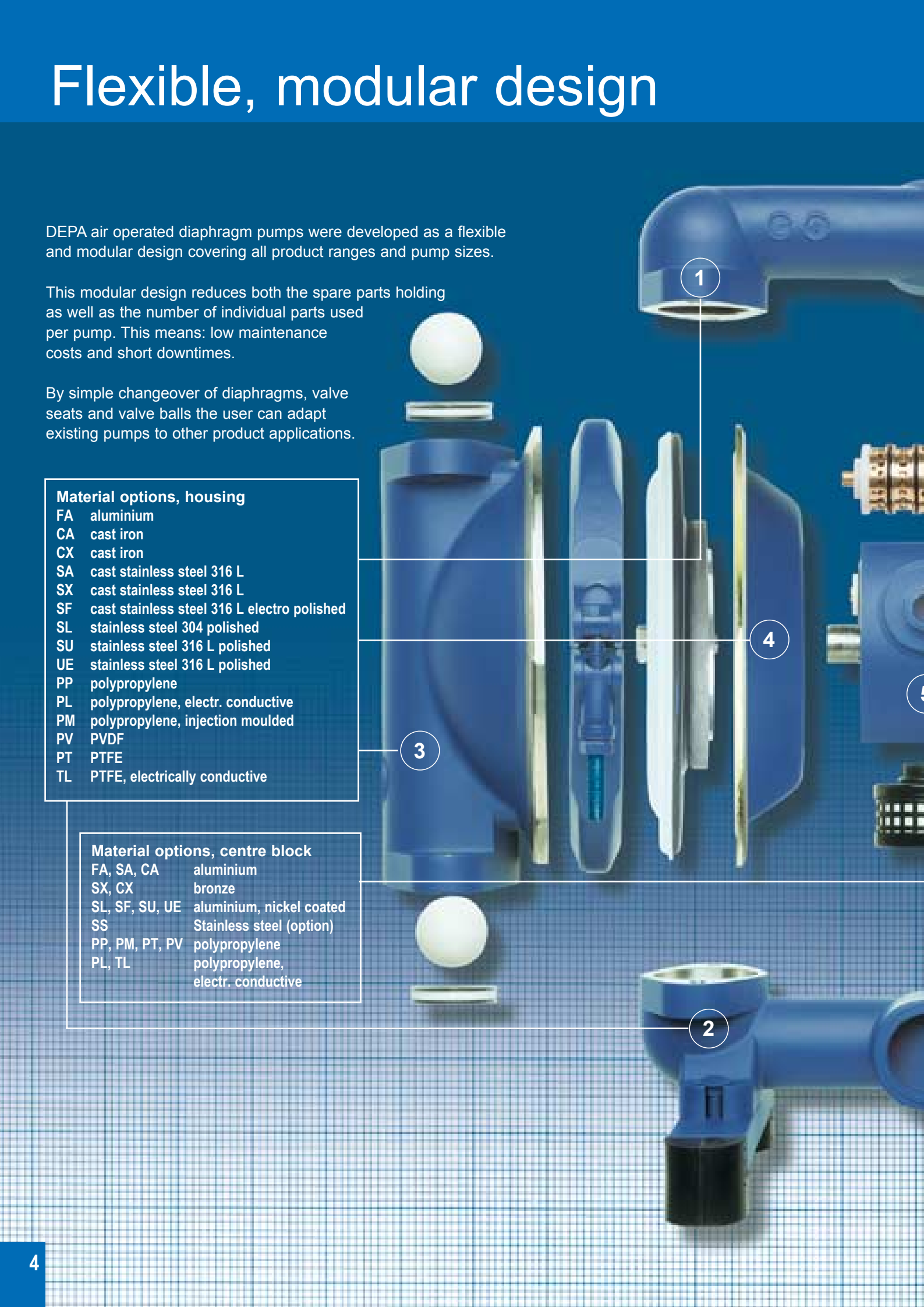
By simple changeover of diaphragms, valve seats and valve balls the user can adapt existing pumps to other product applications.

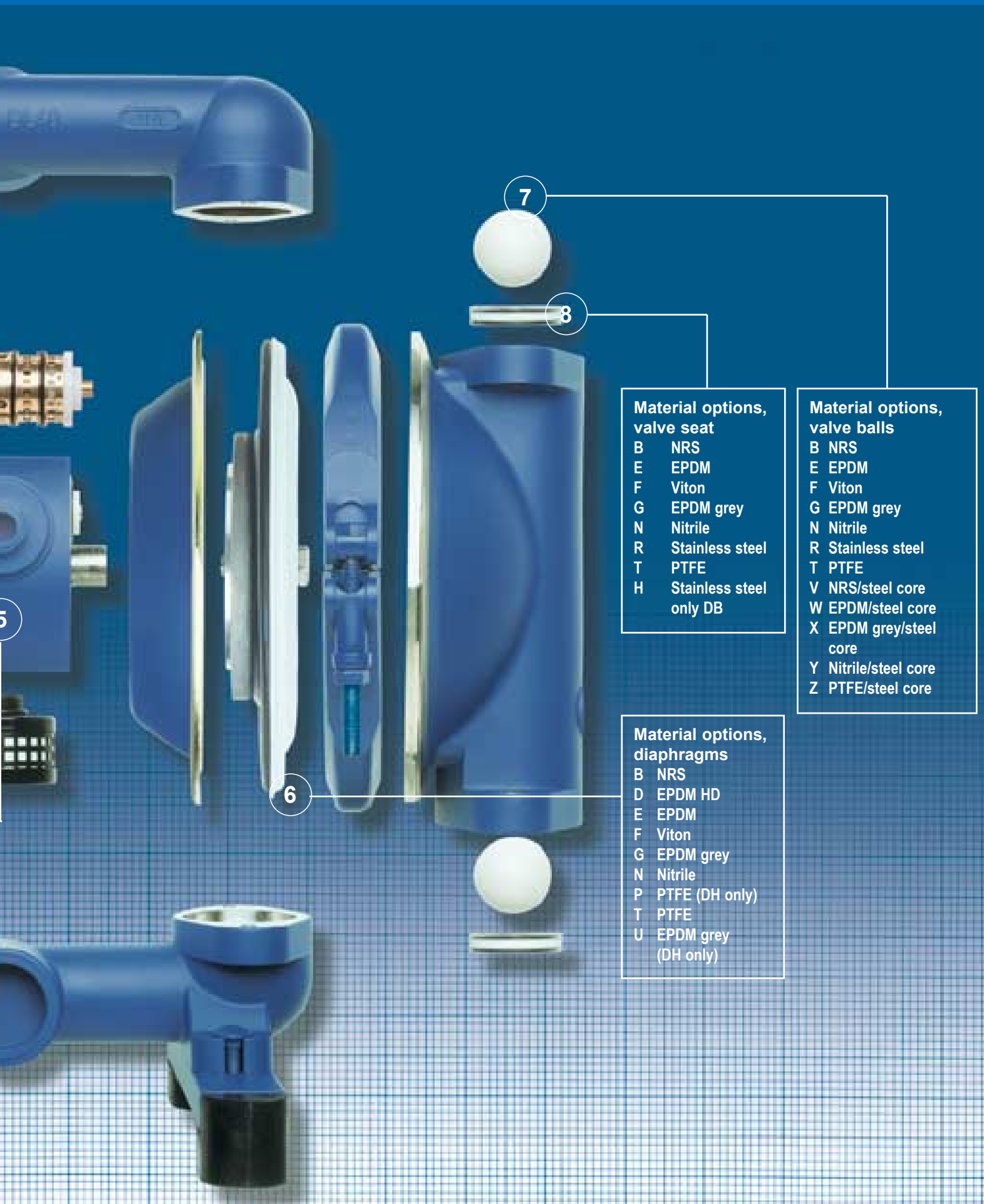
Material options, housing

FA	aluminium
CA	cast iron
CX	cast iron
SA	cast stainless steel 316 L
SX	cast stainless steel 316 L
SF	cast stainless steel 316 L electro polished
SL	stainless steel 304 polished
SU	stainless steel 316 L polished
UE	stainless steel 316 L polished
PP	polypropylene
PL	polypropylene, electr. conductive
PM	polypropylene, injection moulded
PV	PVDF
PT	PTFE
TL	PTFE, electrically conductive

Material options, centre block

FA, SA, CA	aluminium
SX, CX	bronze
SL, SF, SU, UE	aluminium, nickel coated
SS	Stainless steel (option)
PP, PM, PT, PV	polypropylene
PL, TL	polypropylene, electr. conductive





Material options, valve seat

B	NRS
E	EPDM
F	Viton
G	EPDM grey
N	Nitrile
R	Stainless steel
T	PTFE
H	Stainless steel only DB

Material options, valve balls

B	NRS
E	EPDM
F	Viton
G	EPDM grey
N	Nitrile
R	Stainless steel
T	PTFE
V	NRS/steel core
W	EPDM/steel core
X	EPDM grey/steel core
Y	Nitrile/steel core
Z	PTFE/steel core

Material options, diaphragms

B	NRS
D	EPDM HD
E	EPDM
F	Viton
G	EPDM grey
N	Nitrile
P	PTFE (DH only)
T	PTFE
U	EPDM grey (DH only)

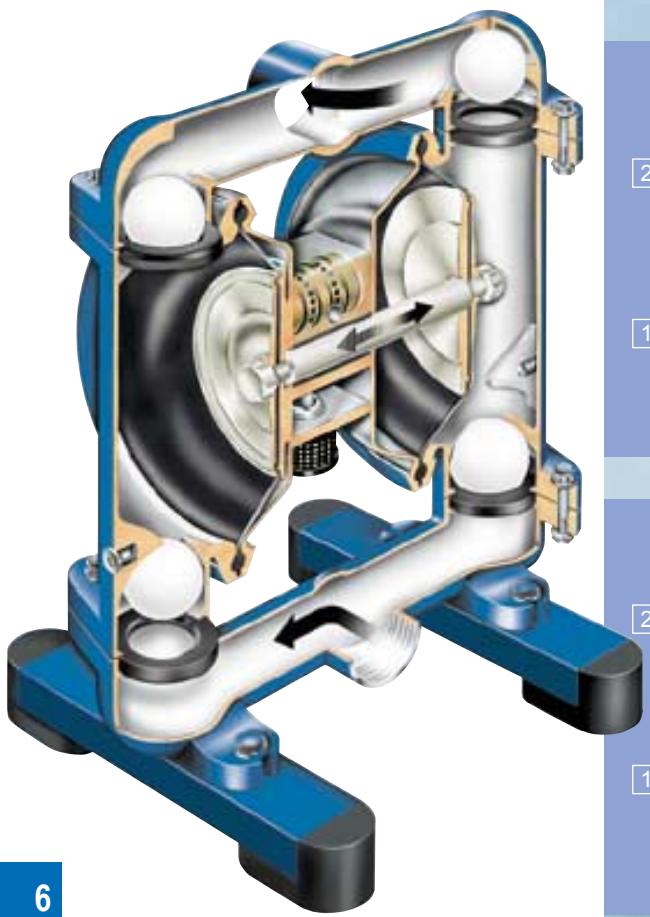
Operation

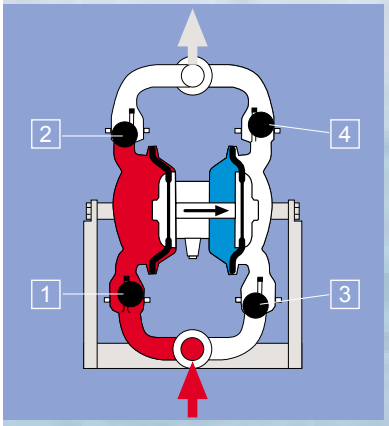
DEPA air operated diaphragm pumps are oscillating positive displacement pumps with two back to back pump chambers. These are each divided by a diaphragm into an air and a fluid area.

Both diaphragms are connected by a piston rod, with the effect that during one pumping stroke medium is pressed out of the one pump chamber, while medium is being drawn into the other pump chamber.

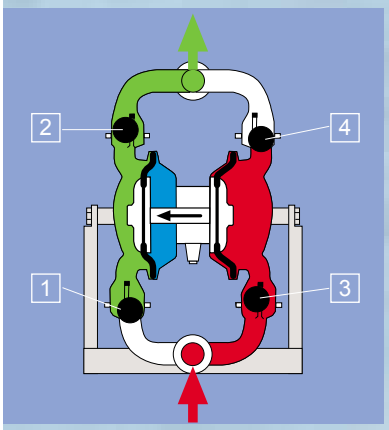
The four adjacent drawings describe the sequence of a complete cycle consisting of a suction and pressure strokes of an empty and filled air operated diaphragm pump.

In order to help explain the process the medium to be pumped is coloured (red/green).

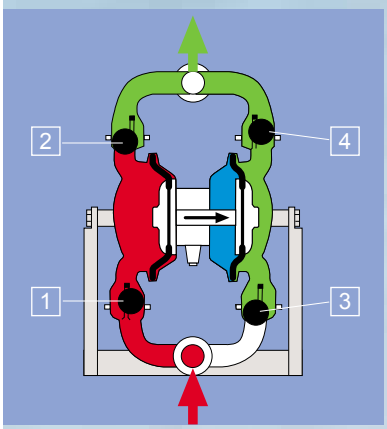




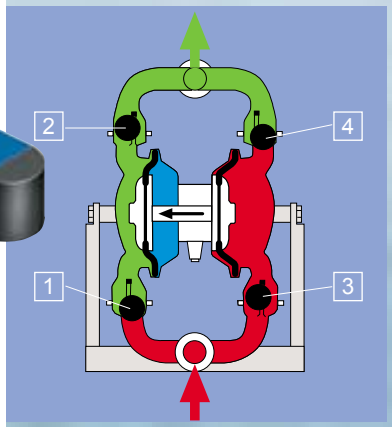
A By filling the right hand air chamber with air (blue) the right-hand diaphragm is pushed outwards. This pulls the piston rod on the left-hand diaphragm to the initial position. The valve ball (1) is drawn out of its position, the medium (red) flows into the left-hand pump chamber. At the same time valve ball (2) is seated in a closed position by the vacuum. The left-hand pump chamber fills up with medium (red).



B The control valve switches over the air flow into the left-hand air chamber (blue), the right hand air chamber is exhausted. The suction process (see A) now takes place in the right hand pump chamber. Medium (red) is drawn in. Medium (green) is pressed out of the left-hand pump chamber. Valve ball (1) is pressed down and closes, whereas valve ball (2) opens allowing the medium to flow to the outlet.



C Suction process "A" is repeated with the difference that the right-hand pump chamber is already filled with medium (green). When the control valve switches over the right-hand air chamber (blue) is filled, medium (red) is draw into the left-hand pump chamber and pressed out of the right-hand pump chamber (green).



D This sequence is repeated in reverse order to illustration C. The left-hand air chamber (blue) is filled, medium (red) is drawn into the right- hand pump chamber by vacuum, at the same time the medium (green) is displaced from the left-hand pump chamber into the discharge pipe.

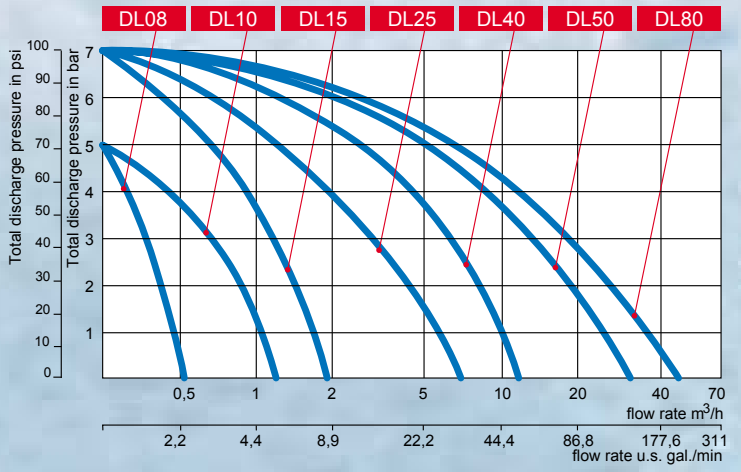
Selection

Pump capacity

When selecting air operated diaphragm pumps the following operational factors should generally be considered in order to achieve a long lifetime and low maintenance costs:

- medium to be pumped, viscosity, proportion of solids
- pumping capacity in relation to the operating period per day
- suction and pressure conditions

An optimal size is achieved when, after consideration of these parameters, the performance range of the pump is in the middle section of the curves.

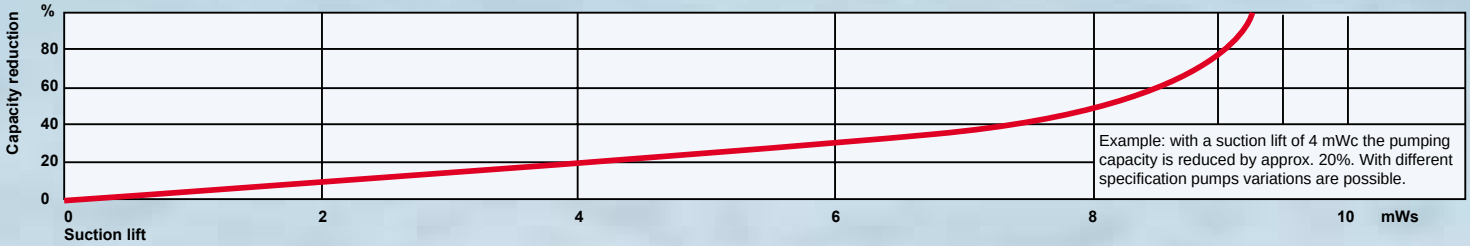


The graph serves as reference.
Exact data can be found on the respective data sheets.

Capacity reduction with specified suction lift

All DEPA air operated diaphragm pumps are self-priming. There is a difference between "dry" (without medium) and "wet" (with medium) priming. When calculating the pumping capacity the specific gravity of the product and the respective suction lift must be taken into consideration. In addition to this the losses caused by piping or hoses on the suction side and the specific properties of housing and diaphragm materials must also be included.

Capacity reduction with specified suction lift

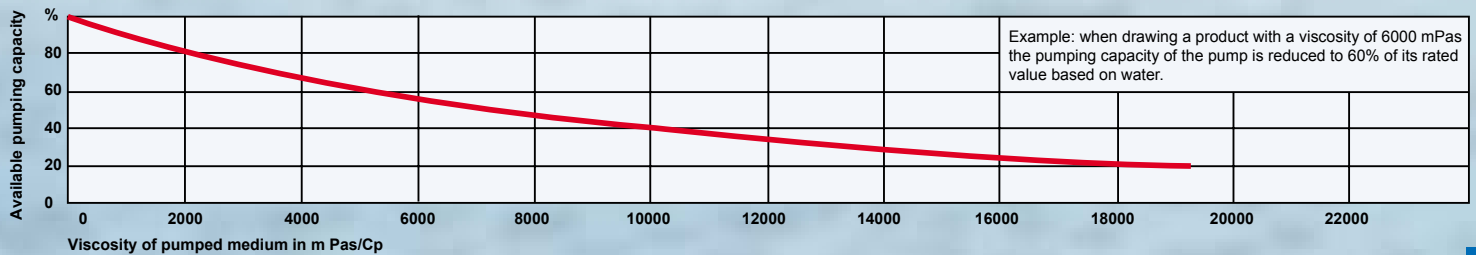


Capacity reduction with viscous fluids

All capacity curves shown in the diagram are related to water (1 mPas).

In order to determine the exact pump capacity for viscous media, the reductions shown in the diagram must be considered in dependence on the viscosity. In addition, the factors such as product flow properties, length and cross-section of piping or hoses on suction and discharge side, valves and pump sizes with their specific characteristics must be taken into consideration.

Capacity reduction with viscous fluids



DEPA-Air Operated Diaphragm Pu

Air control unit

For trouble free operation of an air operated diaphragm pump the control valve is of major significance. The control valve is responsible for the distribution of air in the individual chambers and thereby determines the operation of the pump.

Around the world DEPA air operated diaphragm pumps are subjected to a vast variety of temperatures, pressure fluctuations, full load and intermittent operating conditions. This places high demands on the air control unit.

In order to meet the requirements of industry, intensive research and development work has been performed over the last three decades. Functional safety and low maintenance requirements were major objectives.

DEPA air operated diaphragm pumps can be equipped with either internal or external air control unit. These long-term field-proven air control units are chosen for each specific application or by request of the customer.

Internal air control unit

- freezing virtually eleminated
- no dead centre
- low maintenance, oil free operation
- suitable for outside applications
- economical
- insensitive against slightly contaminated compressed air
- durable

External air control unit

- quickly replaceable
- low start-up pressure
- no dead centre
- low maintenance, oil free operation
- economical, suitable for all pumps
- simple handling
- durable

Elastomer materials

The base products for elastomer production are natural and synthetic rubbers. The different temperature, flexibility and durability properties of elastomer materials are mainly dependent on the type of rubber base, the respective mixture composition and the manufacturing process.

The advantages of the various elastomer compounds are utilised in the manufacturing of diaphragms.

The specific design of the DEPA diaphragm has been continuously developed over the years. Moreover, the manufacturing process is of utmost importance for the lifetime of the diaphragm. During the forming process an additional fabric is integrated into this type of diaphragm, which enhances the stability. The vast variety of applications for air operated diaphragm pumps calls for a wide product range of diaphragm materials.

NRS
versatile multi-purpose diaphragm with very good wear characteristics, high tensile strength and elasticity.
Applications: abrasive media, highly diluted acids and alkalies
Application temperature range:
-15°C - +70°C (+5°F - +158°F)

EPDM (Nordel©) *
versatile multi-purpose diaphragm for chemicals with high durability, FDA-approved
Applications: chemicals, hot water and steam, solvents and alcohols
Application temperature range:
-25°C - +90°C (-13°F - +194°F)

EPDM grey (Nordel©) *
Food approval (FDA)
Applications: food, pharmaceutical, beverage industry
Application temperature range:
-25°C - +90°C (-13°F - +194°F)

NBR (Buna-N) *
versatile multi-purpose diaphragm for oil containing slurries,
Applications: good chemical resistance against mineral oils, grease and fuels
Application temperature range:
-15°C - +90°C (+5°F - +194°F)

Viton© (FKM) *
special diaphragm for chemicals and high temperatures.
Applications: outstanding resistance against high temperatures, aromatic hydrocarbons
Application temperature range:
-15°C - +120°C (+5°F - +248°F)

Teflon© (PTFE) *
Applications: highest chemical resistance against aggressive media
Application temperature range:
-5°C - +130°C (+23°F - +266°F)

For information on the chemical resistance please refer to the separate compatibility list. Temperatures are for continous operation refer to your supplier for other conditions.

* *Buna-N, Nordel and Viton are registered trademarks of DuPont Dow Elastomers. Teflon is a registerd trademark of DuPont*

Housing materials

Aluminium
versatile housing material with good allround properties
Temperature range:
-10°C - +100°C (+14°F - +212°F)

Cast iron
housing material used in mining or for particularly abrasive materials
Temperature range:
-10°C - +100°C (+14°F - +212°F)

Stainless steel 316 L
high level of chemical resistance, preferably used in chemical industry and, as a highly polished version, in the food and pharmaceutical industry
Temperature range:
-25°C - +130°C (-13°F - +212°F)

Polypropylene
is characterised by its high resistance against acids and many water soluble, inorganic acids and alkalies. Also available as electrically conductive housing material.
Temperature range:
0°C - +60°C (+32°F - +176°F)

PTFE
excellent chemical and temperature resistance with aggressive media and chemicals, also available as electrically conductive housing material.
Temperature range:
-20°C - +100°C (+4°F - +212°F)

Pump coding

DL 25 - SA - E E T

Pump type	Pump size	Material combination housing/control block	Diaphragms	Valve seat	Valve balls
DL Standard pump	08 1/4“	FA Aluminium	B NRS	B NRS	B NRS
DF Drum pump	10 3/8“	CA Cast iron	D EPDM HD	E EPDM	E EPDM
DZ Dual Action pump	15 1/2“	CX Cast iron/bronze	E EPDM	F Viton	F Viton
DP Powder pump	25 1“	SA cast stainl. steel	F Viton	G EPDM grey	G EPDM grey
DB High pressure pump	40 1 1/2“	SX cast stainless steel/bronze	G EPDM grey	N Nirile	N Nitrile
DH Stainless steel pump	50 2“	HC Hastelloy	N Nitrile	R Stainless steel	R Stainless steel
	80 3“	SL Stainl. steel 304 polished	P PTFE only HD	T PTFE	T PTFE
	125 5“	SU Stainl. steel 316 L polished	T PTFE	H Stainless steel only DB	V NRS / steel core
		UE Stainl. steel 316 L electro polished	U EPDM grey only DH		W EPDM / steel core
		PP Polypropylene			X EPDM grey / steel core
		PL Polypropylene electr. conductive			Y Nitrile / steel core
		PM Polypropylene inject. moulded			Z PTFE / steel core
		PV PVDF			
		PT PTFE			
		TL PTFE electr. conductive			

DEPA-Air Operated Diaphragm Pu

Metal pumps, series M

DEPA air operated diaphragm pumps made of cast metal have established themselves over decades in various industrial areas. World-wide installations on ships, well-known ceramic manufacturers, in spray painting systems in the automobile industry and in mining are amongst our many varied applications.

In the range of cast metal pumps more than 20 models with different sizes and designs are available to serve almost any type of application.

The sturdy cast metal construction ensures high abrasion resistance when pumping abrasive media, a low flow resistance due to the high surface finish, availability throughout a wide temperature range, excellent corrosion resistance and a long lifetime.

- **Type FA – Aluminium**
- **Type CA – Cast iron**
- **Type CX – Cast iron / bronze**
- **Type SA – Cast stainless steel 316L**
- **Type SX – Cast stainless steel 316L / bronze**
- **Type HC – Hastelloy (C22-2.4602)**

Type	DL 15 (1/2“)	DL 25 (1“)	DL 40 (1 1/2“)	DL 50 (2“)	DL 80 (3“)
FA	●	●	●	●	●
CA	-	●	●	●	●
CX	-	●	●	●	●
SA	●	●	●	●	●
SX	-	●	●	●	●
HC	-	●	●	-	-

In combination with the well-established air control system these compact and powerful cast metal pumps are easy to transport and are therefore used as mobile units or stationary equipment.

During the development of the pumps great attention was paid to ease of maintenance in order to minimise downtimes.

Due to the use of stainless steel clamp bands DEPA air operated diaphragm pumps are clearly distinguished from other air operated diaphragm pumps. They can be easily disassembled without any special tools and keep the diaphragms evenly clamped.

Main applications:

- Paint and varnish industry
- Automobile industry
- Waste water industry
- Ceramic and porcelain industry
- Mining, building industry
- Chemical industry

Special emphasis must be made on the modular design, which leads to a reduction of spare parts to be stocked. DEPA cast metal pumps can be fitted with a vast variety of accessories, depending on the applications they are used for.

As standard all cast metal pumps are equipped with aluminium air centre blocks.

DEPA air operated diaphragm pumps can also be used in industrial applications and for applications in which the environment or the media is not suitable for aluminium.

These applications are covered by centre block types CX and SX (bronze or stainless steel).

Applications

Automobile industry

Chemical industry

Waste water industry

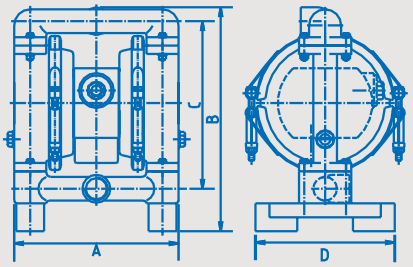
Porcelain industry

Paint and varnish industry

Building sites

Dimensions (inch)

Type	A	B	C	D
DL 15	7,5	8,9	7,1	4,8
DL 25	9,3	12,7	9,5	7,9
DL 40	12,2	16,1	12,1	10,0
DL 50	16,2	21,3	16,3	13,4
DL 80	20,1	26,8	20,6	16,5



Dimensions (mm)

Type	A	B	C	D
DL 15	190	225	180	122
DL 25	236	322	241	200
DL 40	310	407	306	255
DL 50	412	540	415	340
DL 80	510	680	522	420

DEPA-Air Operated Diaphragm Pu

Plastic pumps, series P

Series P made of mechanically manufactured or specially injection moulded plastic parts was designed for problem free pumping of corrosive and abrasive products in galvanic applications, in the chemical industry and in mechanical engineering.

Technically usable metals not always posess the required chemical resistance when being used with corrosive media. DEPA air operated diaphragm pumps were consequently developed, for which the individual parts are made of plastic material.

- **Type PP – Polypropylene, solid**
- **Type PM – Polypropylene, injection moulded**
- **Type PL – Polypropylene, conductive**
- **Type PV – PVDF**
- **Type PT – PTFE**
- **Type TL – PTFE conductive**

Type	DL 08 (1/4“)	DL 10 (3/8“)	DL 15 (1/2“)	DL 25 (1“)	DL 40 (1 1/2“)	DL 50 (2“)	DL 80 (3“)
PP	–	–	●	●	●	●	●
PM	–	–	●	●	●	–	–
PV	–	–	●	●	●	●	–
PL	–	–	●	●	●	●	●
PT	●	●	●	●	●	●	–
TL	●	●	●	●	●	●	–

When developing series P the objective was not to introduce any pumping pressure reduction in contrast to the cast metal pumps. These pumps can also be used up to max. pressure of 7 bar.

DEPA air operated diaphragm pumps of type PM are further developments of the well established and successful range of polypropylene pumps. With these pumps modern industrial design is combined with the every day requirements these pumps must meet, such as temperature and chemical resistance as well as low wear.

By using a computer aided injection moulding methods a uniform, high quality surface finish is achieved, which ensures low flow losses and excellent abrasion resistance.

Main applications:

- Galvanic and coating
- Paper and timber industry
- Paint and varnish industry
- Pharmaceutical industry
- Chemical industry
- Plant and mechanical engineering
- Power stations, waste disposal technology

Despite the compact construction the result of this design offers high mechanical stability. Pumps constructed of electrically conductive plastic materials enhance the product range. These enable the conveyance of non-conductive products in explosion endangered environments.

Depending on the application there are 5 types of electrically conductive polypropylene or PTFE models available.

The wide range of materials of construction enables the universal use of these pumps. A choice can be made between internal or external mounted air control valves. ANSI, DIN and JIS flanges as well as threaded connections are alternatively available. Product contact parts (diaphragms, valve seats and balls) are available in a selection of materials to ensure compatibility with a wide range of pumped media.

Applications

Galvanic

Chemical industry

Coating

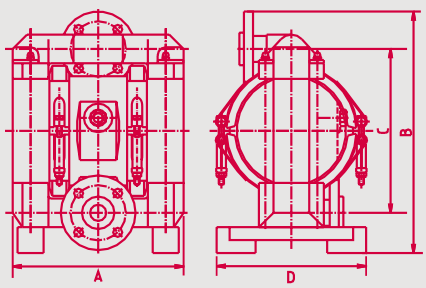
Paper and timber industry

Paint and varnish industry

Waste disposal technology

Dimensions (inch)

Type	A	B	C	D
DL 15	8,4	11,5	7,3	7,7
DL 25	10,4	14,7	9,9	9,1
DL 40	13,9	19,3	13,2	10,1
DL 50	17,7	24,5	17,6	13,4
DL 80	22,0	30,9	22,8	16,5

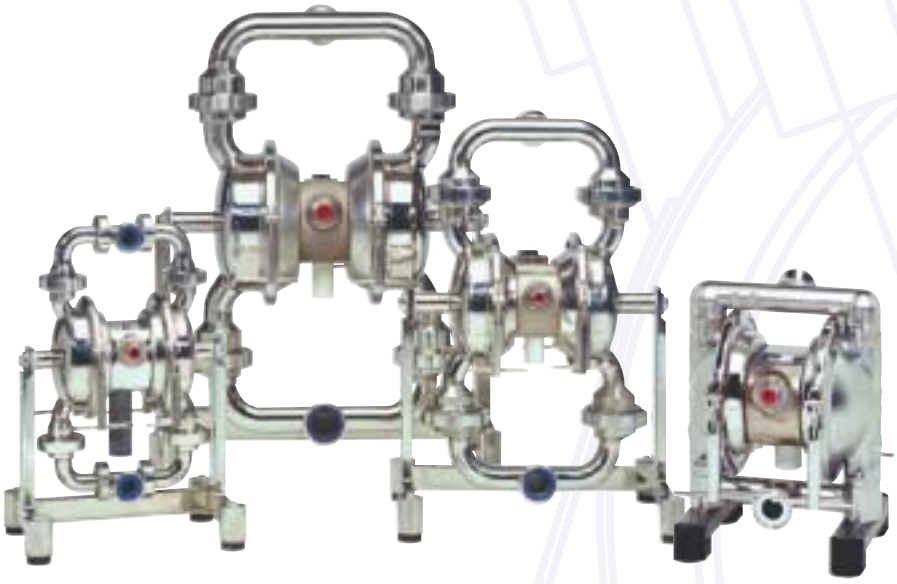


Dimensions (mm)

Type	A	B	C	D
DL 15	212	293	185	195
DL 25	263	372	252	230
DL 40	353	489	334	255
DL 50	450	622	448	340
DL 80	558	785	578	420

DEPA-Air Operated Diaphragm Pu

Stainless steel pumps, series L



Series L are made of extra-bright polished stainless steel developed for applications in the food, pharmaceutical, cosmetic and beverage industries.

In these industries stainless steel pumps have been an indispensable standard for many years, used for process and transfer duties.

The high demands placed on pumps with respect to housing materials (stainless steel 304 or 316 L), surface quality (up to 0.5 µm available) and approved elastomer materials (FDA) can be met with this versatile range.

- **Type DL-SF – Cast stainless steel 316 L electrically polished**
- **Type DL-SL – Stainless steel 304 polished**
- **Type DL-SU – Stainless steel 316 L polished**
- **Type DL-UE – Stainless steel 316 L, Ra<0,8µm electrically polished**
- **Type DH-UE – Stainless steel 316 L, Ra<0,8µm electrically polished (flanged design)**

Type	DL 15 (1/2“)	DL 25 (1“)	DL 40 (1 1/2“)	DL 50 (2“)	DL 80 (3“)
DL-SF	–	●	●	●	–
DL-SL	●	●	●	●	●
DL-SU	●	●	●	●	●
DL-UE	●	●	●	●	●
DH-UE	●	●	●	●	–

This range can be supplied with the option of internal or external lubricant free air control valves. Contamination of the pumped medium and the surrounding environment is therefore eliminated. Cleaning methods and ability to sterilise i.e. CIP (Clean in place) and SIP (Sterilise in place), which have varying standards throughout the world, were also focal points during the design of these pumps. Polished stainless steel pumps are therefore available as SL (304) or UE (316 L) versions with extra-bright tightening clamp bands and as DH-UE version in a flanged construction design.

Pumps can be supplied with optional fluid connections, such as dairy tube fitting, Aseptic DIN 11864, Triclamp or Neumo, as required for the application.

Applications

Main applications:

- Chemical industry
- Pharmaceutical industry
- Biotechnology
- Medical applications
- Cosmetic industry
- Food industry
- Dairies
- Beverage industry

Due to the large ball valve clearances these pumps are can handle media containing solids, such as pieces of fruit, meat or vegetable. Solid Size is dependent on the pump size. These sensitive products are transferred through the pump without damage.

All polished stainless steel pumps are delivered with an extra-bright polished frame, which, on some models, is adjustable in height.

Various types of mobile units can be supplied to meet customer's requirements.

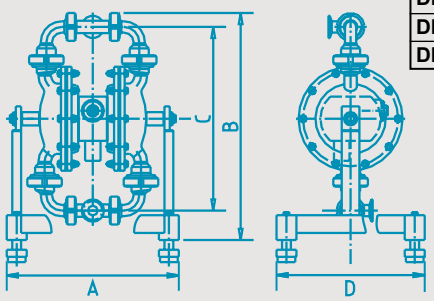
Chemical industry

Beverage industry

Pharmaceutical industry

Cosmetic industry

Type DH-UE



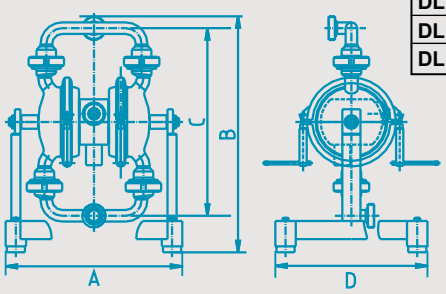
Dimensions (inch)

Type	A	B	C	D
DH 15	11,2	16,0	12,2	7,1
DH 25	15,4	21,3	16,3	13,2
DH 40	18,3	27,6	22,6	13,2
DH 50	24,7	33,9	28,1	13,2

Dimensions (mm)

Type	A	B	C	D
DH 15	285	396	310	180
DH 25	390	513	415	335
DH 40	465	671	575	335
DH 50	627	833	714	335

Type DL-SL



Dimensions (inch)

Type	A	B	C	D
DL 15	11,2	15,8	12,2	7,1
DL 25	15,3	20,5	16,3	13,2
DL 40	18,3	26,7	22,6	13,2
DL 50	24,7	33,0	28,1	13,2
DL 80	30,3	42,8	26,6	19,5

Dimensions (mm)

Type	A	B	C	D
DL 15	285	401	310	180
DL 25	389	520	413	335
DL 40	465	678	575	335
DL 50	627	839	714	335
DL 80	770	1086	676	495

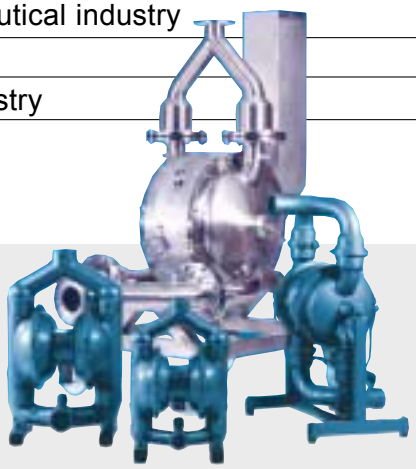
DEPA-Air Operated Diaphragm Pu

Special Designs

Powder pumps
Type DP

Main applications:

- Manufacturing of plastic products
- Basic chemistry
- Pharmaceutical industry
- Breweries
- Food industry



DEPA air operated diaphragm pumps type DP can transfer easy to fluidise powders economically and almost dust-free. The world's largest air operated diaphragm pump (DP 125) was developed in co-operation with industry and has been successfully used over several years on special applications providing high capacity and gentle pumping of powder.

In many industrial areas powder pumps are used for rapid unloading of re-usable containers or vehicles, for which both mobility and transfer time are essential cost factors.

For the transfer of powder the pumps are, depending on type, equipped with Y-shaped suction and discharge manifolds as standard, in order to significantly improve the powder flow. Laboratory tests revealed that this kind of transfer did not cause any damage or product changes to the powder.

Pumps of type DP are equipped with an additional aeration valve on the suction side inlet, to enable infinite regulation of the required vacuum. On request the powder pumps can be delivered with a complete fluidisation facility.

Type	DP 50 (2“)	DP 80 (3“)	DP 125 (5“)
FA (Aluminium)	●	●	●
CA (Cast iron)	●	●	-
SA (Stainless steel 316L)	-	-	●
SL (Stainless steel)	-	●	-

High pressure pumps
Type DB

Main applications:

- Ceramic industry
- Automobile industry
- Waste water industry
- Chemical industry
- Environmental technology

DEPA air operated diaphragm pumps type DB is the latest generation of high-pressure pumps. Industry's requirements for various pressure ranges (13, 16 or 21 bar versions) and high pumping capacities in the low pressure range (up to 7 bar) were taken into consideration during the development of these pumps.

These high-pressure pumps are available in three different sizes made of stainless steel or cast iron. Because of the high pressures occurring during operation these pumps are designed with flanged clamping. DB models are fitted with appropriate safety valves to avoid any pressure increase above the design discharge pressures.

All high pressure pumps are fitted with a separate booster unit, which can be directly mounted to the pump or installed separately. If compressed air at a suitable pressure is available, the pumps can, of course, also be operated without the booster.

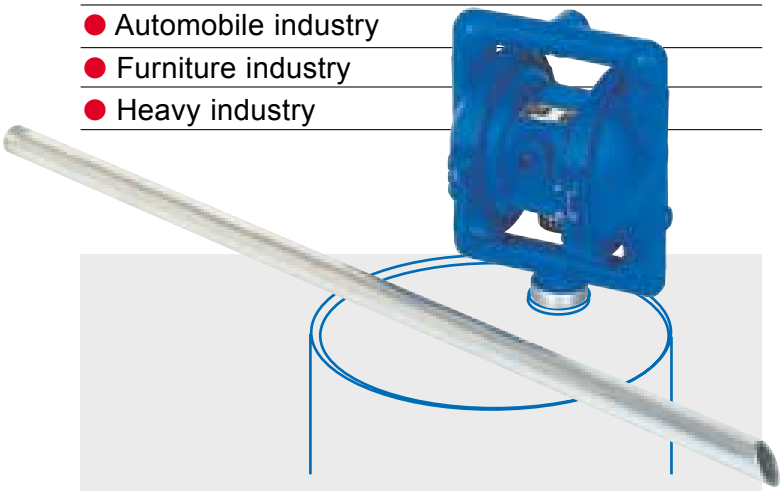
These pumps achieve the same pumping performance. as standard pumps from a max. supply pressure of 7 bar. The booster increases the pressure up to a 3:1 ratio.

Type	DB 25 (1“)	DB 40 (1 1/2“)	DB 50 (2“)
CA (Cast iron)	●	●	●
SA (Stainless steel 316L)	●	●	●

Drum pumps
Type DF

Main applications:

- Chemical industry
- Waste disposal technology
- Automobile industry
- Furniture industry
- Heavy industry



DEPA air operated diaphragm pumps type DF for the emptying of drums and containers provide an economical and wear resistant alternative to other pumping systems.

In order to handle a wide range of fluids the type DF 25 pumps, are available in three different fluid housing material options i.e. aluminium, stainless steel and polypropylene.

The drum pump can be quickly mounted on the drum to be emptied. The required drum adapter is supplied with the pump.

Drums can be completely emptied by using the supplied suction pipe. All DEPA pumps are resistant against dry running and infinitely adjustable within their performance envelope.

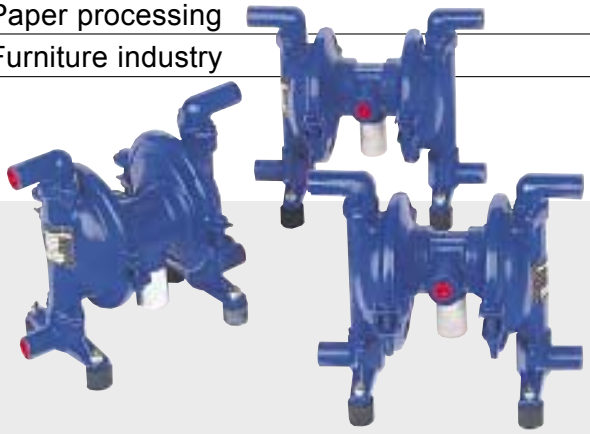
Many drum pumps can be combined with DEPA special accessories and are used by the industry as dosing or filling stations.

Type	**DF 25** (1“)
FA (Aluminium)	●
SA (Stainless steel 316L)	●
PP (Polypropylene)	●

Dual action pumps
Type DZ

Main applications:

- Surface treatment technology
- Waste water technology
- Printing industry
- Paper processing
- Furniture industry



DEPA air operated diaphragm pumps type DZ are mainly used in the textile and paper processing industry.

These dual action pumps are able to transfer two different media independently and simultaneously.

Due to separate connections on the suction and discharge ports the two pumped media are isolated from each other and therefore will not mix.

A typical application in the printing and paint industry is the simultaneous supply of different viscous media to the production line. Amongst the benefits achieved are economy and environmental protection.

All these pumps can be combined with DEPA accessories.

Type	**DZ 15** (1/2“)	**DZ 25** (1“)	**DZ 40** (1 1/2“)	**DZ 50** (2“)	**DZ 80** (3“)
FA (Aluminium)	●	●	●	●	●
SA (Stainless steel 316L)	●	●	●	●	●

DEPA-Air Operated Diaphragm Pu

Accessories / Automation

Pulsation dampner

Active

DEPA air operated diaphragm pumps can be equipped with an active pulsation dampner installed immediately after the pump. This reduces any remaining pulsations to a minimum.

Active pulsation dampners are particularly suitable for intermittent operating conditions and, due to their integrated control, they automatically adjust to the optimal degree of dampning. A separate air supply is required.

As with the air operated diaphragm pumps one of the focal points during development of the pulsation dampners was the modular use of common components.

Pulsation dampners require minimum maintenance and are, depending on the application of the pump, available in the same housing and diaphragm materials as the pump.

Type	DL 15	DL 25	DL 40	DL 50	DL 80
FA	●	●	●	●	●
CA	-	●	●	●	●
SA	-	●	●	●	●
SL	●	●	●	●	●
UL	●	●	●	●	-
PP	●	●	●	●	●
PL	●	●	●	●	-
PT	●	●	●	●	-
TL	●	●	●	●	-

Passive

As an alternative to the active pulsation dampner DEPA air operated diaphragm pumps can also be supplied with a passive pulsation dampner installed directly after the pump. This type is particularly suitable for continuous operating conditions.

Passive pulsation dampners are available with different housing material, painted steel, polypropylene or stainless steel and, depending on the design, are fitted with an internal diaphragm. Subject to the pump size, the most suitable pulsation dampner can be selected, to minimise pulsations.

Filling control

DEPA air operated diaphragm pumps can be used with an automatic filling control. The required pumped volume can be programmed in litres. The pump delivers medium until the set quantity is reached and is then shut down.

Mobile units

DEPA air operated diaphragm pumps can be supplied as mobile units. Trolleys are of paint finished steel or extra-bright stainless steel construction.

They can be fitted with a handle, two or four castors, and collecting basin etc., as required by the customer.

Diaphragm monitoring system

DEPA air operated diaphragm pumps can be equipped with a diaphragm monitoring system. This option is recommended wherever chemically aggressive, environmentally hazardous or toxic media are transferred.

The diaphragm monitoring system is available for conductive and non-conductive media as well as for Ex-areas.

Flanges, fittings, quick couplings

For DEPA air operated diaphragm pumps a wide range of suitable couplings, flanges and fittings are available.

Depending on the type of pump these can be supplied in aluminium, brass, stainless steel or plastic.

Suction filters

DEPA air operated diaphragm pumps series M can be fitted with a suction filter connected to the inlet side for operation in slurry. Filters are available made of steel or stainless steel for all pumps sizes.

Suction pipes

DEPA air operated diaphragm pumps can be fitted with a suction hose and various types of suction pipes to handle liquid or powder media.

Depending on the application suction pipes are available with or without aeration, in various lengths in steel or stainless steel.

Suction and discharge hoses

DEPA air operated diaphragm pumps can be fitted with suitable suction and discharge hoses. These are available in nominal size ranging from 1” to 4” diameter. They can be connected with quick couplings etc. All hoses are pressure tested before despatch.

The product range includes standard spiral hoses with plastic or steel reinforcement, hoses for chemical applications and hoses approved for food applications.

Slow start up air valve

For pumps, which are not primed, the un-throttled opening of the compressed air supply can cause extreme loads on housing materials and diaphragms resulting in a high wear rate. These pressure shocks can be reduced to a minimum by a slow and gradually adjustable pressure increase. The slow start air valve can be used with all DEPA pumps.

Air Service units

If only poorly treated compressed air is available DEPA air operated diaphragm pumps should be fitted with an upstream service unit. The special filter in service unit almost completely cleans the compressed air from residues of water and oil droplets. The integrated pressure regulator maintains the working pressure at an almost constant level, independently from pressure fluctuations in the mains air supply.

For the complete accessories range separate data sheets are available.

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