

VERDERAIR

Almatec

Air operated diaphragm pumps
for any application



Solutions in Pumping Technology



Verderair Almatec

Diaphragm pumps for any application

Verderair Almatec pumps are well designed pumps for fluids, such as sludge, acids, alkalis, solvents, slurries, emulsions, mixtures of liquids and solids, resins and powders. Whether the medium is of high or low viscosity, abrasive, thixotrope, hazardous, toxic, non-lubricating, hot or cold, coagulating, shear-sensitive, pasty or corrosive, Almatec pumps can handle it.



Model overview

Verderair Almatec A full-PTFE and PE diaphragm pumps for heavy duty applications with low noise levels; conductive versions also available

Verderair Almatec AD stainless steel and polished stainless steel diaphragm pumps

Verderair Almatec AH PE high pressure diaphragm pumps for filter-press feeding

Verderair Almatec CX the universal diaphragm pump for industrial applications

Verderair Almatec Futur advanced technology diaphragm pumps for high purity applications and temperatures up to 200°C

Verderair Almatec AD6 sump pump for sample handling applications

Verderair Almatec Biocor EHEDG-certified diaphragm pump for pharmaceuticals, bio-technology and food-industry

Features and advantages

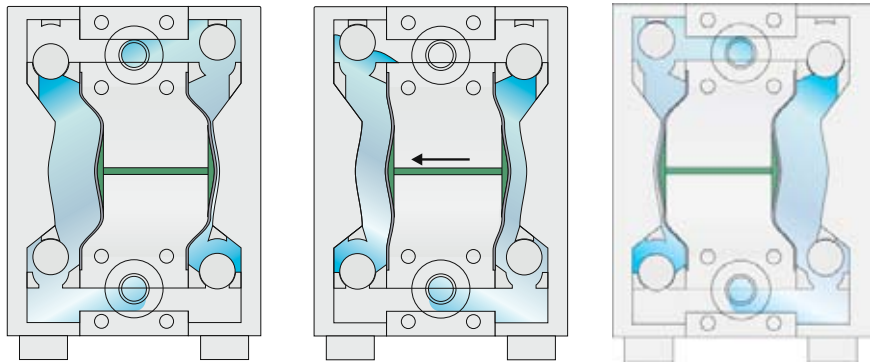
- Easy installation
- Easy to use
- Self-priming
- Gentle displacement
- Integrated muffler
- Compact solid design
- Patented maintenance-free air control system
- Low noise levels

Working principle

Standard models consist of two side casings on the outside with a central block between them. The pump chambers are situated inside both side casings and are separated from the central block by a diaphragm. A connecting rod links both diaphragms to each other and is moved back and forth by the changes in pressure of the compressed air. While the first diaphragm sucks in, the other expels the medium that has been sucked into the pump chamber.

When the end of the stroke is reached it then automatically switches over and the cycle repeats in the reverse order. This switchover takes place purely pneumatically with the patented, completely metal-free Perswing P® air control system.

Since the medium is displaced and delivered by compressed air, the diaphragms serve merely as barriers and are not pressurized. This is a fact of fundamental importance to the service life of the diaphragms. The pumps are equipped with either ball or cylinder valves.

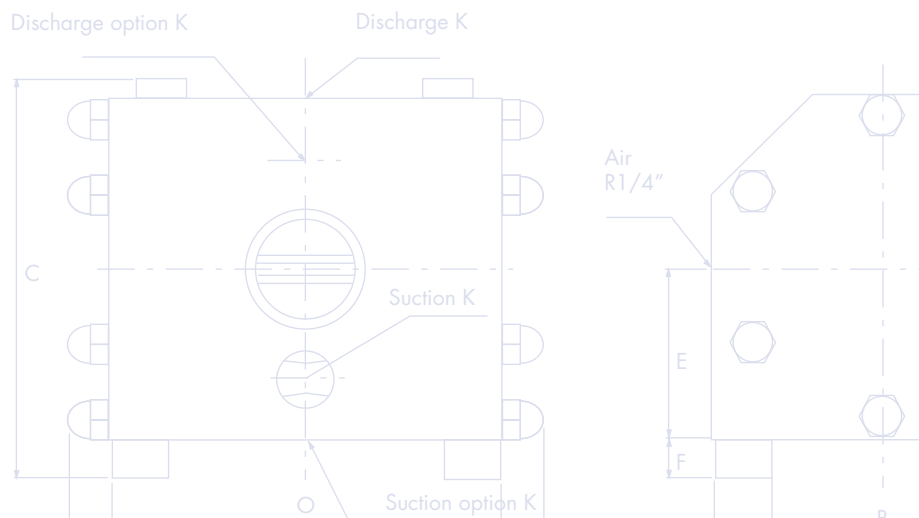


Perswing P® air control system

The purpose of the air control system is to ensure automatic operation indirectly controlled by the movement of the diaphragms. Reaching its final point, the stroke reverses automatically and the cycle of medium being drawn in by one diaphragm and being displaced by the other is repeated vice versa.

Perswing P® consists of only two moving parts, so that the air slide valve does not get stuck in the middle.

The medium to be pumped is squeezed behind the diaphragm by the compressed air and thus pumped, whereby the diaphragm serves only as a separator. The diaphragms are always equally loaded and are free of any pressure differences. This is of decisive importance to the life span of the diaphragm. The suction and discharge valves can be manufactured as ball or cylindrical valves.





Diaphragms

The surface of the diaphragms is smooth and not interrupted by any seals. Due to the integrated metal core, they do not require diaphragm discs which frequently gives rise to leaks and attracts dirt at traditional other design. The diaphragms are produced in priming position; this simplifies assembly and almost completely eliminates the dead space on the air side, since the inner side of the diaphragms rests against the central housing in the limit position, thus optimizing the efficiency and reducing the air consumption.

Since the medium is delivered by the compressed air, the diaphragms merely serve as barriers and are not pressurized. This is a fact of decisive importance for the service life of the diaphragms.

All diaphragms have been designed from the 'PTFE-point-of-view'. The result is diaphragms which have a large diameter and short stroke with low flexural load. This ensures uniform delivery regardless of the material used for the diaphragms.

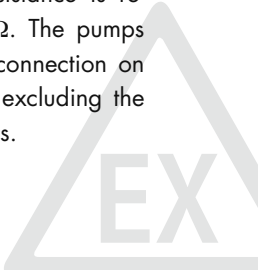
Valves

Verderair Almatec diaphragm pumps are equipped with either ball or cylinder valves in the side housings. The interior design of the housings is identical, regardless of the type of valve used. This makes it easier to change over to a different valve type at a later date, for everything to be replaced are the valve bodies themselves.

Ball valves are robust and insensitive to media containing solids since they only form a linear seal with the valve seat. Cylinder valves have a surface sealing and consequently very good dry priming values. They close gently and uniformly, and permit accurate delivery.

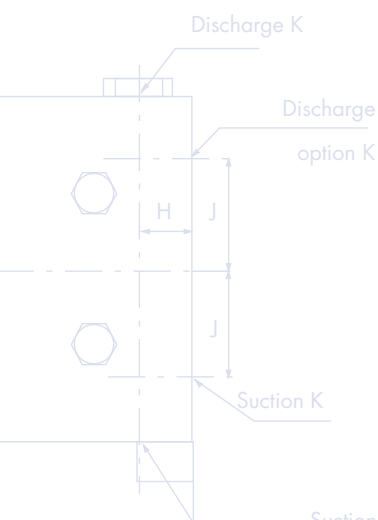
Atex

Most Almatec diaphragm pumps can be supplied in conductive versions, which enable applications within Ex-areas and the transport of flammable fluids to be safely addressed. The pump housing and/or internals are made of PE or PTFE filled with conductive pigments, which always remains below the limits set by the FDA. The surface resistance is reduced to less than $10^5 \Omega$. The pumps can be grounded via a connection on the central housing, thus excluding the risk of electrostatic charges.



Application areas

- Chemical industry
- Pharmaceuticals
- Cosmetics
- Ceramics
- Surface treatment
- Emergency services
- Power plants
- Refineries
- Mechanical engineering
- Textile industry
- Water processing
- Waste disposals
- Paper industry
- Bio-technology
- Food industry
- Electronics



VERDEAIR ALMATEC A

The diaphragm pumps of series A are available in seven different sizes (DN 8 – DN 80). The following examples illustrate just a few of the possible applications for the various sizes:

Sizes A 08 and A 10 are specially designed for pumping small volumes. They can be used as circulating or sampling pumps in laboratories, small productions and pilot plants.

Size A 15 is a highly versatile pump installed quickly and easily. In addition to being used in the chemical industry, it is also an important unit for mechanical and plant engineering.

Size A 25 is typically used to supply distribution systems for acids, alkalis and solvents, as well as for mass and glazes in the ceramics industry. It can also be used to deliver high-viscosity media in small quantities.

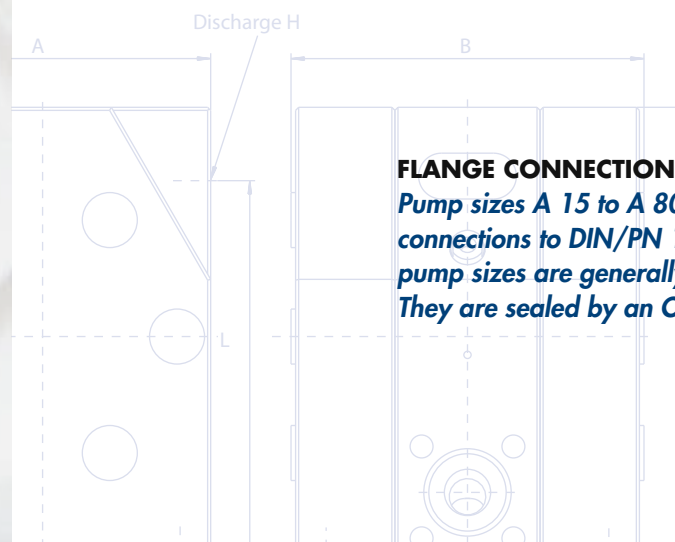
The main application for size A 40 is the supply and disposal of chemicals, as well as the processing of industrial water; its excellent capacity makes this a cost-efficient conveying and circulating pump.

Sizes A 50 and A 80 are the largest diaphragm pumps made of polymer material for high delivery volumes and extreme viscosities.

The optimum overall efficiency is a common feature of all sizes. Short air passes, a hermetic air control system and the avoidance of dead space behind the diaphragms are basic preconditions for economical and technically feasible concepts.

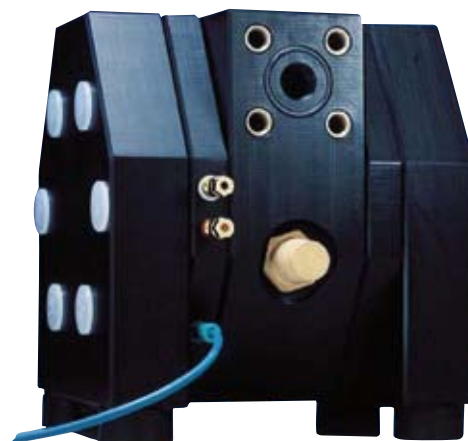
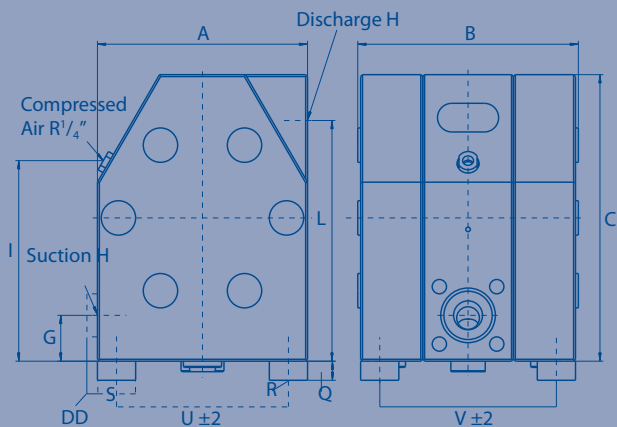
Materials

The pump housing materials are available in; PE-conductive, PTFE, PTFE-conductive, diaphragms in EPDM, PTFE/EPDM-compound, the ball valves in EPDM, PTFE or stainless steel and cylinder valves in PE, PTFE.



FLANGE CONNECTIONS

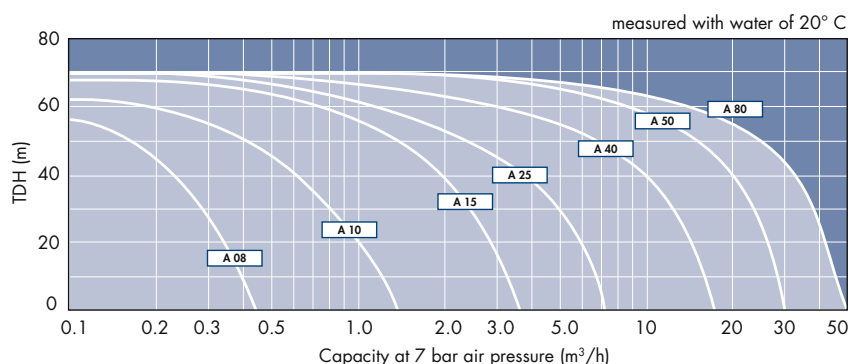
Pump sizes A 15 to A 80 can be equipped with flange connections to DIN/PN 10. The central housing of these pump sizes are generally prepared for such connections. They are sealed by an O-ring for flanges.



Model A	A	B	C	G	H	I	L	Q	R	S	U	V	DD
A 08	90	113	113	15	NPT 1/4"	58	101	13	M 6	25	50	84	-
A 10	110	127	156	17	NPT 3/8"	78	139	13	M 6	25	85	97	7
A 15	166	176	220	40	NPT 1/2"	152	180	20	M 8	40	126	130	9
A 25	220	231	300	48	NPT 1"	207	252	20	M 8	40	180	185	11
A 40	280	326	412	65	NPT 1 1/2"	206	347	20	M 10	50	230	270	13
A 50	360	396	532	80	NPT 2"	266	452	20	M 10	50	310	340	15
A 80	500	627	824	110	DN80	412	714	20	M 10	50	450	570	20

Application areas

- Pharmaceuticals
- Ceramics
- Surface treatment
- Machine equipment
- Textile industry
- Water treatment
- Refineries
- Electronic industry



Technical Data		A08	A10	A15	A25	A40	A50	A80
Nominal port size (NPT)		1/4"	3/8"	1/2"	1"	1 1/2"	2"	DN80
Air connection		R 3/8	R 3/8	R 1/4	R 1/4	R 1/2	R 1/2	R 3/4
Weight (kg)	PE	-	-	5	13	29	58	180
	PTFE	2	4	10	25	60	120	-
Max. particle size of solids (mm) for pumps with ball valves		2	3	4	6	9	11	15
Suction lift, dry (mwc)	Cylinder valves	1	2	3	4	5	6	-
	Ball valves	0.5	1.5	2	3	4	4	4
Suction lift, wet (mwc)		9	9	9.5	9.5	9.5	9.5	9.5
Max. operating temperature (°C)	PE	-	70	70	70	70	-	70
	PTFE	100	100	120	120	120	120	-
Max. viscosity (mPa.s)		1,000	5,000	10,000	15,000	20,000	25,000	30,000

VERDERAIR ALMATEC AD

When developing the Verderair Almatec diaphragm pumps made of metal, particular attention was paid to the shape of the product chambers. The result: soft changes of direction, smooth flows and no dead corners. Two vertical joint faces in the entire construction minimize the number of seals and joints.

Unlike the clamping bands which are difficult and time-consuming to adjust, the Verderair Almatec metal pumps are secured by only 6 or 8 tie rods.

These stainless steel diaphragm pumps are an excellent choice for the pumping of slurries, powders, pastes and glue. The polished model is not only often used for the transfer of high purity media in the electronic and semiconductor industries, but is also applied in the food and pharmaceutical industries.

Hygienic connections

The AD-series pumps can be equipped with hygienic connections like sanitary thread (DIN 11851, Naue or Neumo or Tri-clamp).

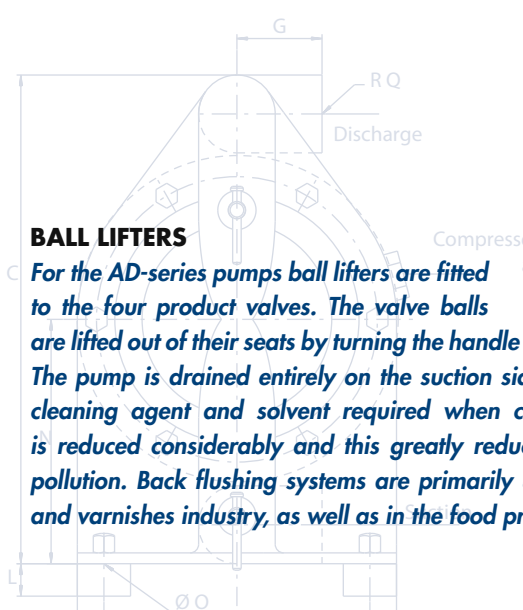
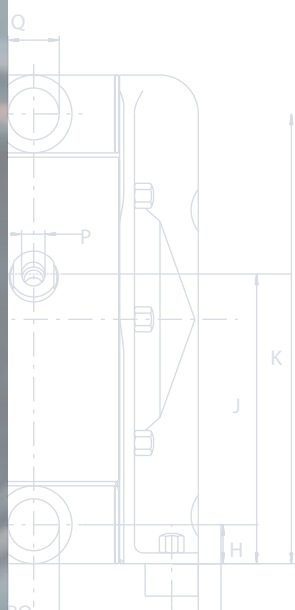
Materials

Pump housing materials for the AD pump series are stainless steel precision casting 1.4408 or 1.4408 polished, for the diaphragms there is a choice between EPDM and PTFE/EPDM, and the ball valves are available in either EPDM or PTFE.

Center block made of PE conductive: ATEX conformity

For inflammable liquids as well as for applications in explosion protected areas (ATEX 100 A), only pumps of the AD-series with a center block made of PE conductive instead of the routinely PA one may be used.

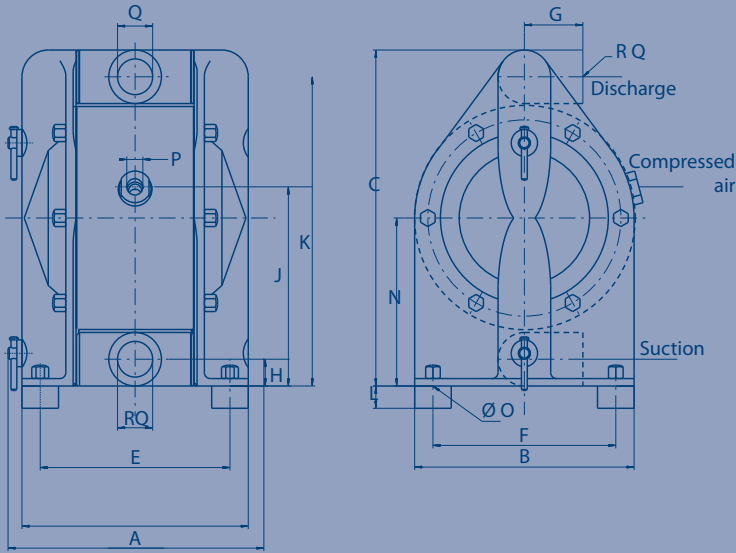
The maximum operating temperature for pumps with a center block made of PE is 80 °C.



BALL LIFTERS

For the AD-series pumps ball lifters are fitted to the four product valves. The valve balls are lifted out of their seats by turning the handle upwards by 180°. The pump is drained entirely on the suction side. The amount of cleaning agent and solvent required when changing products is reduced considerably and this greatly reduces environmental pollution. Back flushing systems are primarily used in the paints and varnishes industry, as well as in the food processing industry.

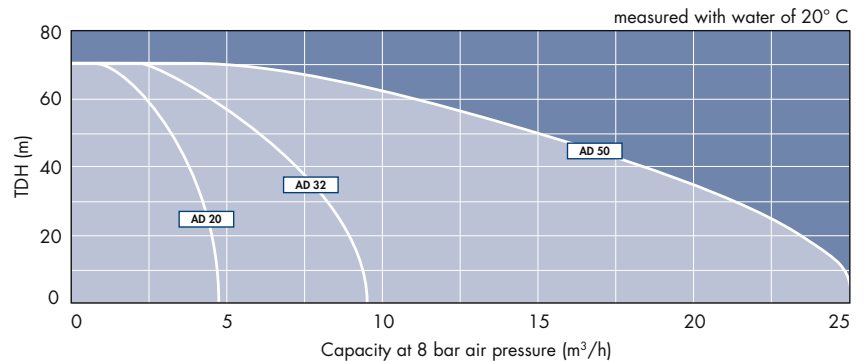




Series AD	A	B	C	D	E	F	G	H	J	K	L	N	O	P	Q
AD 20	177	150	227	154	129	125	40	19	135	209	17	114	6.5	R ¼"	R ¾"
AD 32	228	200	311	203	178	175	52	27	184	285	17	156	6.5	R ¼"	R 1 ¼"
AD 50	318	270	422	278	238	230	70	38	212	386	20	141	8.5	R ½"	R ½"

Application areas

- Thixotropic media
- Dangerous and toxic media
- Fluid-powder mixtures
- Solvents
- Drinking water purification:
dosing of polymers
- Ultra-pure fluids



Technical Data	AD20	AD32	AD50
Nominal port size (NPT)	R¾	R¼	R2
Air connection	R¼	R¼	R½
Weight (kg)	6	13	29
Max. particle size of solids (mm) for pumps with ball valves	9	12	14
Suction lift, dry (mwc)	EPDM ball valves	2	3
	PTFE ball valves	1	1.5
Suction lift, wet (mwc)	9	9	9
Max. operating temperature (°C)	130	130	130
	PE conductive center block	80	80
Max. viscosity (mPa.s)	5,000	12,000	20,000

VERDERAIR ALMATEC CX

Verderair Almatec diaphragm pumps of the CX series are available in four different sizes: CX 10 (max. capacity 0.6 m³/h), CX 20 (1.2 m³/h), CX 50 (3 m³/h), and CX 130 (8 m³/h).

They are widely used as universal pumps of the low to middle performance range, e.g. as drum pumps. CX pumps are self priming and proof against dry running. They ensure that containers can be fully emptied down to the very last drop, even without supervision.

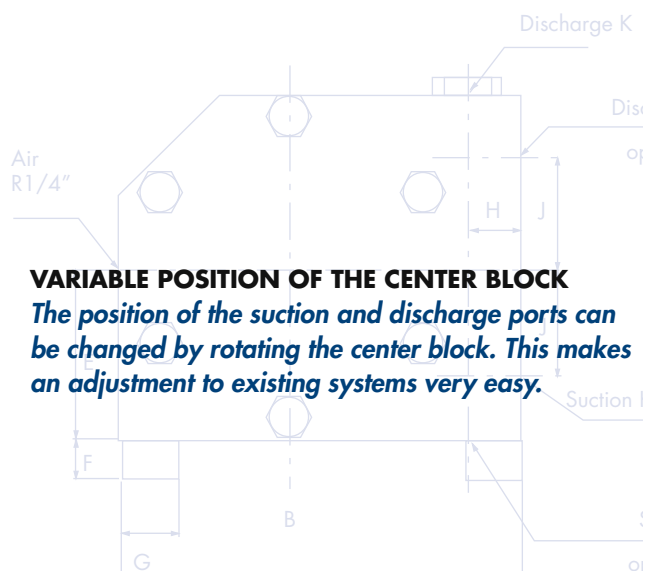
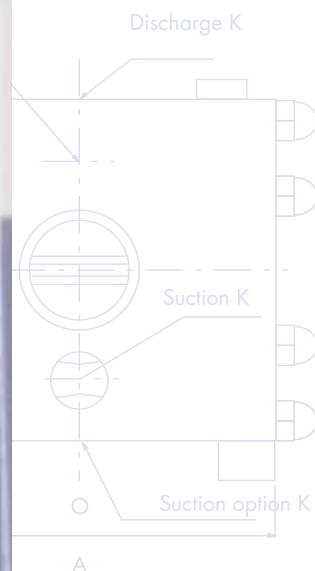
The housings are made of conductive PE, machined from solid blocks, which have a good overall chemical resistance. CX pumps can be operated within explosion-proof areas and can handle flammable liquids because they are driven by compressed air and do not need any electric motors or electrical connections.

The design of the CX pump allows best possible flexibility for different applications: all pumps can be changed from ball to cylinder valves and vice versa. Ball valves are ideal for liquids containing particles, cylinder valves for a good suction lift. The diaphragms are made from only one part and they are designed for a long life.

Materials

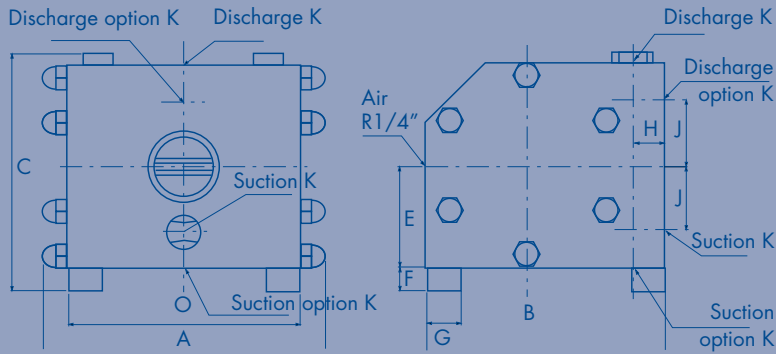
Pump housing material of the CX series is PE-conductive. For the diaphragm there is a choice out of EPDM, NBR or PTFE/EPDM composite.

Ball valves are available in EPDM, NBR, PTFE and stainless steel and the cylinder valves are made of PE.



VARIABLE POSITION OF THE CENTER BLOCK

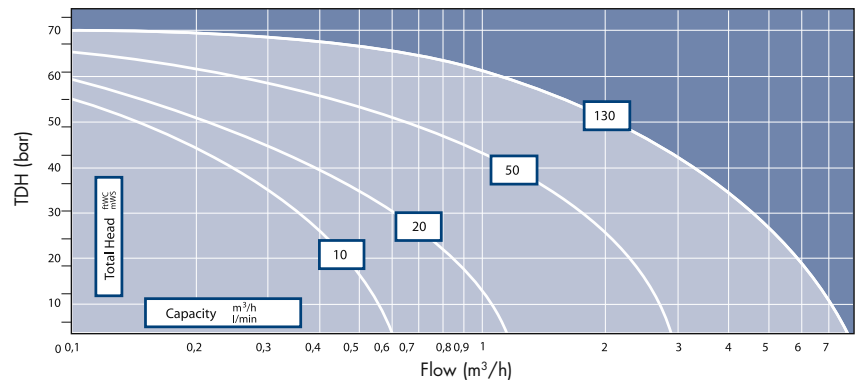
The position of the suction and discharge ports can be changed by rotating the center block. This makes an adjustment to existing systems very easy.



Model CONTEX CX	A	B	C	D	E	F	G	H	J	K
CX 10	137	86	96	113	41	8	15	15	27	NPT 3/8"
CX 20	155	124	128	125	53	17	25	19	34	NPT 1/2"
CX 50	206	175	173	170	75	17	25	22	48	NPT 3/4"
CX 130	269	240	225	225	100	17	25	33	63	NPT 1 1/4"

Applications

- Barrel pump
- Dosing pump
- Sampling pump
- Transfer pump
- Alkali dosing



Technical Data		CX10	CX20	CX50	CX130
Nominal port size (NPT)		3/8"	1/2"	3/4"	1 1/4"
Air connection		R1/4	R1/4	R1/4	R1/4
Weight (kg)		1.2	2	4.5	10
Max. particle size of solids (mm) for pumps with ball valves		1.5	2	3	4
Suction lift, dry (mwc)	Cylinder valves	1.5	2	3	4
	EPDM ball valves	0.5	0.5	1	2
	PTFE ball valves	0.5	0.5	1.5	2.5
	Stainless steel ball valves	1	1	1.5	3
Suction lift, wet (mwc)		8	8	9	9
Max. operating temperature (°C)		70	70	70	70
Max. viscosity (mPa.s)		3,000	6,000	10,000	15,000

VERDERAIR ALMATEC AH

The series AH has been specially developed for feeding filter presses with chemical wastes and special sludge. With a maximum drive pressure of 7 bar, they can build up discharge pressures of up to 16 bar as a result of the internal booster. This yields a ratio of drive pressure/discharge pressure of more than 1:2.

As genuine double-acting air-driven diaphragm pumps, the three sizes achieve maximum capacities of 4 m³/h (AH 15), 10 m³/h (AH 25), and 20 m³/h (AH 40). The following values can be quoted as a rough guide to the filter area of the press: AH 15 up to 12 m², AH 25 up to 30 m², and AH 40 up to 60 m². Verderair Almatec high-pressure diaphragm pumps of series AH can be ideally combined with filter presses, as the automatic pressure/volume adjustment clearly shows. At the beginning the low filter resistance causes delivery of a large volume, so that the empty filter press is rapidly filled.

The rising filling level causes the volume to reduce automatically until the required standstill is reached (= volume 0) at the maximum permitted pressure without any control elements or safety elements protecting against dry running and excess pressure or speed control.

Unlike mechanically driven diaphragm pumps, the AH pumps then stop and do not consume any more energy. This built-in control feature permits operation over the complete range of delivery volumes without any risk of excess pressure.

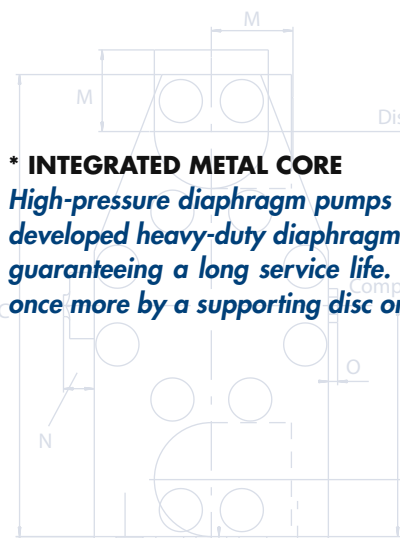
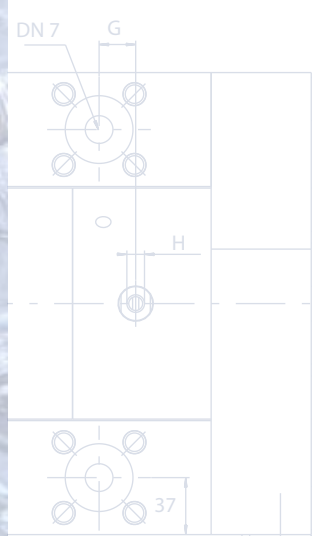
Materials

Pump housing materials for the AH series are available in PE UHMW. Diaphragms* are available in EPDM, NBR and PTFE/EPDM-compound; For the ball valves there is a choice out of EPDM, NBR or PTFE.

Now also available:

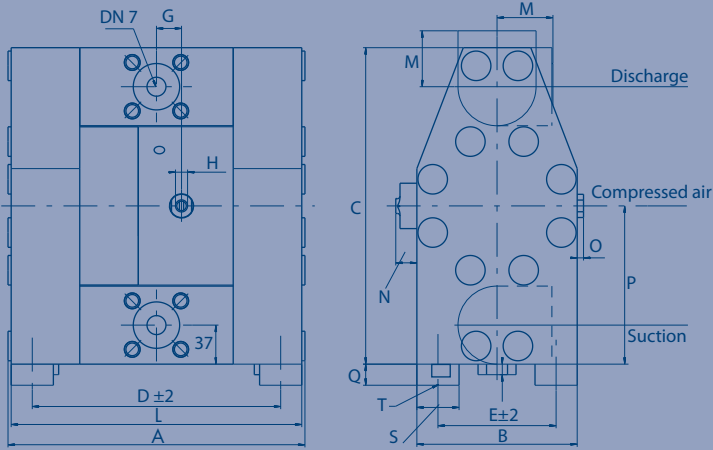
Metallic High Pressure pump

- Wetted housing parts of SS 1.4408
- Non wetted housing parts of PE conductive (ATEX conformity)
- Free turnable suction & discharge ports
- Ball valves of PTFE for solids containing
- Heavy duty diaphragms of PTFE/EPDM
- Max. flow 8 m³/h
- Discharge pressure up to 15 bar
- Wide range of application areas (especially e.g. coating facilities)



* INTEGRATED METAL CORE

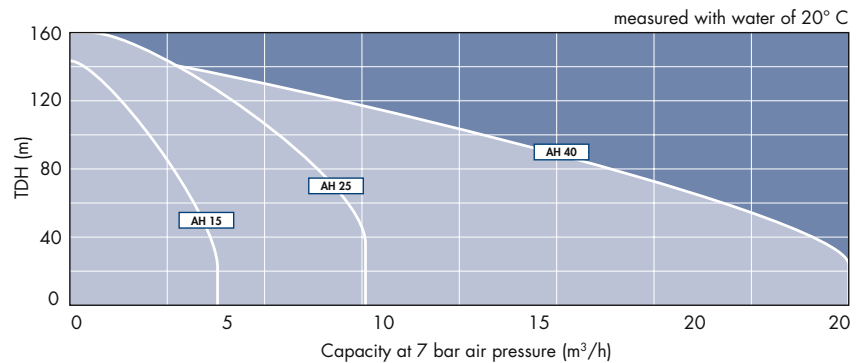
High-pressure diaphragm pumps are equipped with specially developed heavy-duty diaphragms with integrated metal core guaranteeing a long service life. The service life is extended once more by a supporting disc on the air side.



Series AH	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q	R	S	T
AH 15	282	152	300	235	112	DN15	24	R ¼"	263	37	276	53	21	6	150	20	10	40	M 8
AH 25	382	200	380	335	160	DN25	36	R ½"	336	44	376	56	48	8	190	20	12	40	M 8
AH 40	490	270	514	433	220	DN40	47	R ½"	454	60	484	70	18	8	257	20	12	50	M 10

Application areas

- Filter press feed pumps
- High pressure dosing



Technical Data	AH15	AH25	AH40
Nominal port size (NPT)	½"	1"	1½"
Air connection	R¼	R½	R½
Weight (kg)	11	30	58
Max. particle size of solids (mm) for pumps with ball valves	4	5	8
Suction lift, dry (mwc)	EPDM/NBR ball valves	3	5
	PTFE ball valves	1.5	2
Suction lift, wet (mwc)	9.5	9.5	9.5
Max. operating temperature (°C)	70	70	70
Max. viscosity (mPa.s)	5,000	10,000	15,000

VERDEAIR ALMATEC FUTUR

The pumps of the Futur series are self-priming pneumatic diaphragm pumps which can run dry. The liquid flows straight through the product chambers of the center housing, while the air control system and the air chambers are located in the side housing.

This design ensures that only one part of the housing comes in contact with the liquid, reduces the number of flow bends to only two, minimizes the surface area, no sliding parts in the product chambers, and makes it possible to dispense with gaskets. There are no fastening elements, such as tie rods, clamps, or nuts. The patented, contact-less cascade sealing between the product chambers is a major structural element.

The liquids handled in the semiconductor industry set different demands to the pumps. Therefore the Futur-series is available in four types with different materials. See technical data at the next page.

Models

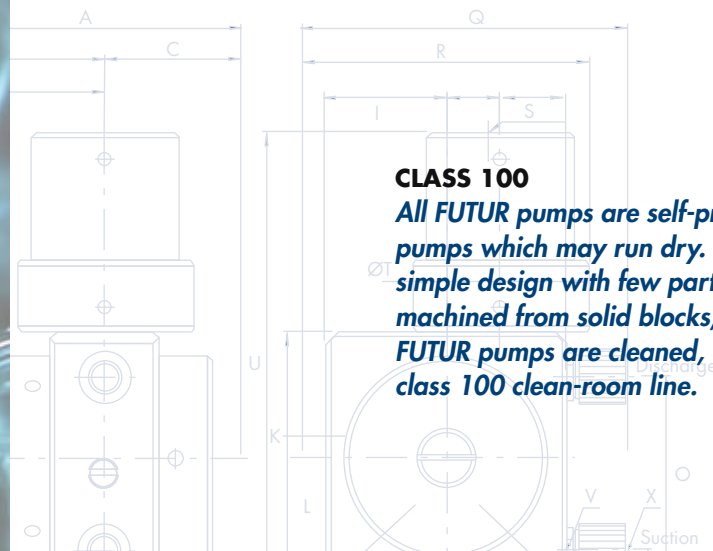
FUTUR T consist of four sizes made of PTFE/UPPE for acids and caustics up to 130°C. **FUTUR H** consist of two sizes made of PTFE for hot applications with acids and caustics up to 200°C. **FUTUR E** consist of four sizes made of UPPE for slurries. **FUTUR S** consist of two sizes made of stainless steel (SS 316 L) for solvents.

Model FUTUR	A	B	C	D	E	F
FUTUR 10	185	112	73	35.5	10.5	93
FUTUR 20	201	119	82	35.5	10.5	105
FUTUR 50	246	148	98	41.5	10.5	125
FUTUR 100	303	184	119	51	10.5	149
FUTUR 200	374	215	159	51	10.5	227
FUTUR 20S	201	119	82	35.5	10.5	93
FUTUR 50S	246	148	98	41.5	10.5	105

Few parts only

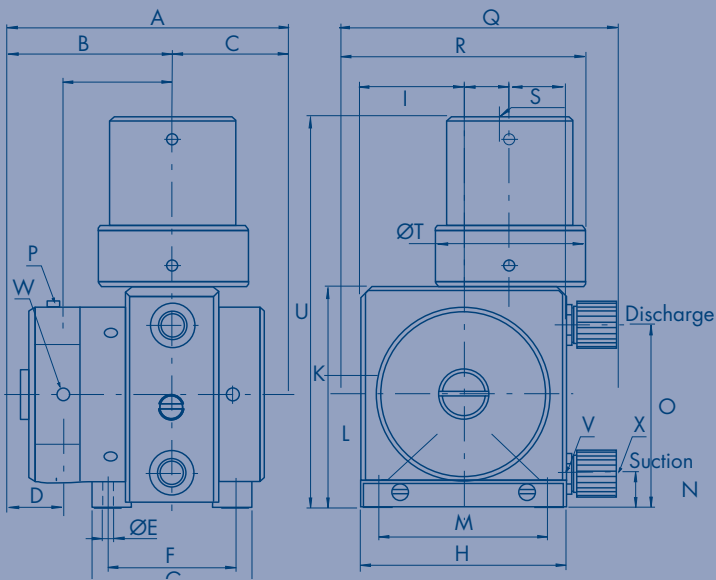
Futur pumps have a compact, simple design with few parts only. The housing parts are machined from solid blocks; the basis for a long life time.

Suction and discharge ports are located at the front, thus simplifying installation in confined spaces. Compared with the predecessor series there is no change of the port sizes and location. The location of the air connection and the muffler is clearly defined. In the wetted area of the Futur pumps there is no O-ring sealing. The pumps can be easily controlled via the air volume.



CLASS 100

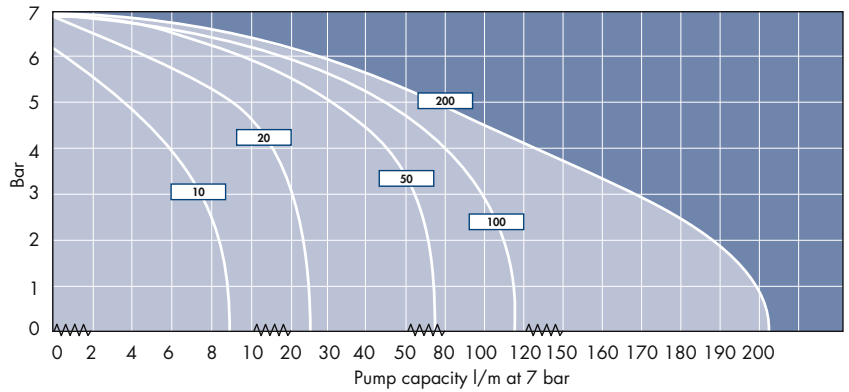
All FUTUR pumps are self-priming pneumatic diaphragm pumps which may run dry. The pumps have a compact, simple design with few parts only. The housing parts are machined from solid blocks, the basis for a long life time. FUTUR pumps are cleaned, assembled, and tested in a class 100 clean-room line.



G	H	I	K	L	M	N	O	P(c9)	Q	R	S	T	U	V	W(air supply)	X
143	114	57	131	72	79	35	104	NPT 1/4"	~155	136	33	110	246	NPT 3/8"	NPT 1/4"	1/2" pipe outside dia
160	150	75	168	88	115	33	140	NPT 1/4"	~196	161	44	110	283	NPT 1/2"	NPT 1/4"	3/4" pipe outside dia
194	200	100	216	111	165	34	178	NPT 1/4"	~251	215	55	140	348	NPT 1"	NPT 1/4"	1" pipe outside dia
236	260	130	266	136	225	39	223	NPT 1/4"	~313	286	74	200	429	NPT 1 1/4"	NPT 1/4"	1 1/4" pipe outside dia
314	330	165	346	181	290	61	281	NPT 1/4"	-	345	95	220	578	NPT 1 1/2"	NPT 3/8"	-
160	124	59	154	80	89	29	126	NPT 1/4"	~152	140	34	100	266	NPT 1/2"	NPT 1/4"	1/2" (VCR)
194	170	80	196	101	125	33	159	NPT 1/4"	~209	190	45	130	318	NPT 1"	NPT 1/4"	1" (VCR)

Application area

- Semiconductor industry



Technical Data		Futur T	Futur H	Futur E	Futur S
Materials	Center housing	PTFE-TFM	PTFE-TFM	UPPE	SS 316 L
	Side housings	UPPE	PTFE-conductive	UPPE	PTFE-conductive
	Diaphragms	PTFE	PTFE	UPPE	PTFE
	Cylinder valves	PTFE-TFM	PTFE-TFM	PTFE-TFM	PTFE-TFM
Available sizes		10, 20, 50, 100	10, 20	20, 50, 100, 200	20, 50
Liquids		Acids, caustics	Acids, caustics	Slurries	Solvents
Max. operating temperature (°C)		130	200	70	130

VERDERAIR ALMATEC AD6

Verderair Almatec diaphragm pumps of type AD 6 are a special development for laboratory applications and for sampling water from wells for continuous monitoring of the groundwater under landfills.

They have a maximum delivery volume of 250 l/h which can be infinitely varied by adjusting the air flow. AD 6 pumps are equipped with spring-loaded valves and can therefore be installed in any position. The housing is made of solid PTFE conductive. This material is resistant to corrosion by virtually all media. Its conductivity permits use of the pump in explosion-hazard areas as well as for inflammable liquids. AD 6 pumps meet the ATEX requirements of the directive 94/9/EG.

Applications

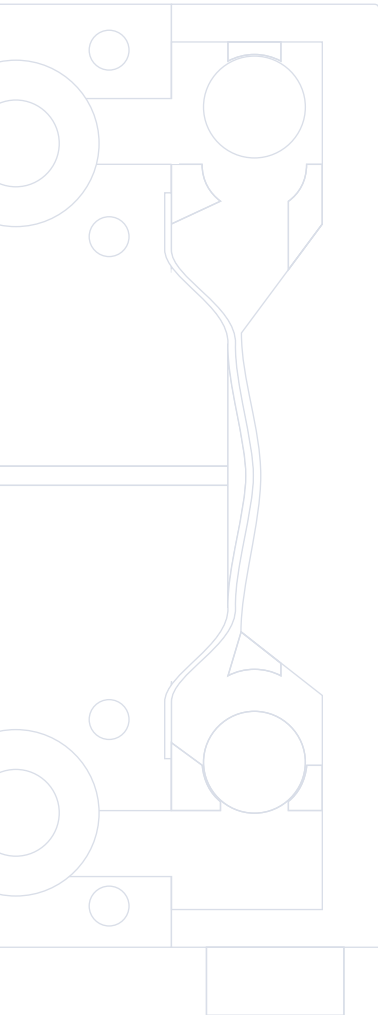
- Laboratory pump
- Sampling pump



Technical Data		AD6
Nominal port sizes	suction port	R $\frac{1}{2}$
	discharge port	R $\frac{1}{4}$
	air inlet	R
	air exhaust	R $\frac{1}{4}$
Weight (kg)		1.2
Max. particle size of solids (mm) for pumps with ball valves		1
Suction lift, dry (mwc)		3
Suction lift, wet (mwc)		9
Max. operating temperature (°C)		100
Max. viscosity (mPa.s)		1,000

VERDEAIR ALMATEC BIOCOR

The Aseptic pumps of the BIOCOR series are built in compliance with the corresponding hygienics standards (EHEDG, FDA, Class VI etcetera).



The special design with the integrated cleaning-system enables the CIP (clean in place) and SIP (sterilization in place) capability. In addition the pumps are ATEX conform according to 94/9/EG directive.

Materials

Pump housing materials for the Biocor series are available in electro polished SS 316 L (surface roughness 0.4 µm). The frame is made out of 1.4301. The center block is made out of PE-conductive. Diaphragms* are available in PTFE, EPDM (FDA); ball valves* in PTFE, EPDM (FDA) and O-rings in PTFE or EPDM (FDA).

**other materials on request*

Application areas

- Food industry
- Cosmetics
- Pharmaceuticals
- Bio-technology



ASEPTIC

The two pump sizes B 20 and B 32 achieve max. capacities of 3.5 and 7.5 m³/h resp. a max. discharge pressure up to 7 bar The material for the wetted housing parts is electro polished SS 316 L (1.4435, according to Basel Standard II, ferrite content < 1%) with a surface roughness of < 0.4 µm.

Technical Data	Biocor 20	Biocor 320
Nominal port size (NPT)	DN20	DN32
Air connection	R¼	R¼
Weight (kg)	12	26
Max. particle size of solids (mm) for pumps with ball valves	3	5
Suction lift, dry (mwc)	2	2.5
Suction lift, wet (mwc)	9	9
Max. operating temperature (°C)	100	100
Max. viscosity (mPa.s)	7,000	12,000

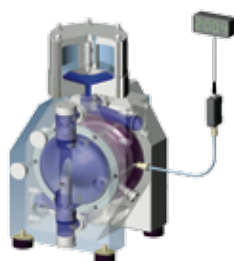
Optional features

Verderair Almatec diaphragm pumps can, depending on the model, be equipped with several optional features. Because of these optional features it is possible to make the pump ideally suitable for your specific application.

Stroke counter

A sensor is installed in the central pump housing to count the strokes. The diaphragm movement is scanned without contact by this sensor: a safe form of monitoring totally independent of external influences and the pump's mode of operation. The issued sensor pulses can be output to existing detectors or to a stroke counter (can also be supplied). When the preset value is reached, the stroke counter outputs a signal which can then be processed further, for instance in order to shut down the pump via a solenoid valve. Another possibility is the pneumatic stroke counter.

A PE-converter registers the changes in pressure within the air chamber behind one of the diaphragms.



Pulsation damper

The Verderair Almatec pulsation dampers represent the latest generation of active pulsation dampers. It is simply screwed on to the pump. Additional connecting elements are not required. A pulsation damper of appropriate size is available for every pump.

Installed pumps can be retrofitted without difficulty if the product inlet and outlet are horizontal. The dampers are self-regulating. They have their own compressed air port which must be supplied via the pump connection so that pump and pulsation damper always operate with the same air pressure.

The pulsation can already be damped optimally with a minimum back pressure of only approximately 1 bar.



Diaphragm monitoring

Although diaphragms with integrated metal core are designed for an optimum service life, the diaphragm remains a wear part. If it breaks, medium can leak into the central pump housing and possibly emerge through the muffler. This can be prevented simply and effectively with the Verderair Almatec diaphragm monitor. A capacitive sensor installed in the pump muffler detects all liquids regardless of their conductivity and outputs a corresponding signal to a controller (can also be supplied) which then triggers an alarm or disconnects the pump via a solenoid valve.

Barrier chamber system

The barrier chamber system meets further safety requirements. The individual dia-



phragm is replaced by two diaphragms arranged in tandem with a barrier chamber of conductive PE between them and filled with a neutral liquid.

The barrier chambers must always be filled entirely to transmit the air pressure to the medium consequently monitored by a level sensor. If the diaphragm on the product side breaks, medium merely enters the barrier chamber and the neutral barrier liquid flows into the medium. The change in conductivity of the barrier liquid is detected by sensors and signalled to a controller which triggers an alarm or disconnects the pump.



Back flushing system (CIP)

The back flushing system is an excellent solution for applications where it is necessary to drain both pump and piping. With the Verderair Almatec system it is possible to drain both pump and piping without having to be dismantled. The A-series pumps of sizes 15 to 50 are the only polymer pumps to be available with a special back flushing system consisting of a bypass system in the side housings which can be activated easily via hand operated valves or pneumatically.

Optional features	A	AD	AH	CX	Futur	AD6	Biocor
Stroke counter	•	•	•		•		•
Pulsation damper	•	•			•		•
Diaphragm monitoring	•	•	•		•		•
Barrier chamber system	•	•					•
Back flushing system	•	•					standard

VERDER GROUP • VERDEAIR PRODUCTS

Utrechtseweg 4A NL-3451 GG Vleuten PO Box 1 NL-3450 AA Vleuten
T +31 (0)30 677 92 11 F +31 (0)30 677 14 02 E info@verder.com I www.verdeair.com

AT Wien **BE** Aartselaar **CN** Shanghai **CZ** Praha **DE** Haan **FR** Eragny s/Oise **GB** Leeds **HU** Budapest **JP** Tokyo
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