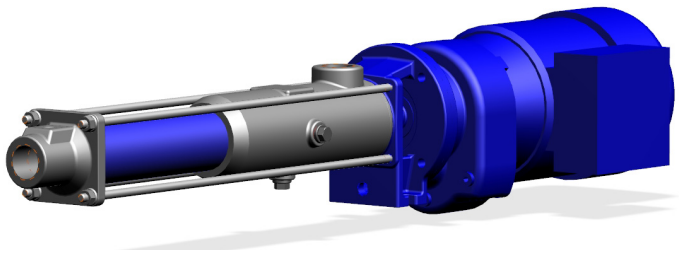
Progressing cavity pumps
Dosing pumps
SERIES AEB 2N
SERIES AEB 3N

Construction type DE in block-design



Main fields of use
Suitable for pumping and dosing of thin to viscous liquids, neutral or aggressive liquids, undiluted or abrasive liquids, liquids containing gases, liquids prone to foaming, including liquids with fibrous or solid particles.

Primary fields of use in wastewater, water clarification, environmental engineering, chemical and petrochemical industry, the pulp and paper industry, soap and grease, paint and varnish industry, food and beverage industry, plastics- and ceramics industry, agriculture, sugar industry and shipbuilding.

Function
Self-priming rotating displacement pump. Pumping elements are the rotating screw (rotor) and the stationary stator. These two parts contact each other at two points in their cross-section. Viewed along the length of the pumping elements, these points form two sealing lines. As the rotor turns, sealed chambers are created. The content of the chambers is moved continuously in the axial direction from the suction side to the discharge side of the pump. Despite rotation of the rotor, no turbulence results. The consistent chamber volumes eliminate crushing forces and ensure an extremely gentle, almost pulsation-free pumping action.

These pumps achieve a high dosing accuracy, because of their special conveying geometry.

Structural design
The pump and drive are flanged together via a bearing bracket to create a block unit.

Discharge casing, stator, suction casing and bearing bracket are held together with external casing connection screws (tie rods).
The suction casing is designed for optimal flow. The stator is vulcanized into a pipe and is equipped on both ends with vulcanized external collars that provide reliable sealing with the suction and discharge casing and protect the stator casing from corrosion.
The exchangeable mechanical seal or stuffing box casing (can be retrofitted to another seal type) is located between the bearing bracket and suction casing.

Dosing pumps of series AEB-DE are designed modular. Discharge casing, suction casing, joint parts, shaft sealing and bearing bracket are the same at every size. By using / eliminating the reducers and by replacing the rotor and stator, the pump can be easily converted to another size while maintaining the above-mentioned components.

Drive torque is transferred over a stub shaft and a joint shaft to the rotor. Both ends of the joint shaft end in liquid-sealed encapsulated pin joints that are designed to be very simple and robust and absorb the rotor's eccentric movement without disturbances.

The sense of rotation is reversible.

Shaft seal
Uncooled, maintenance-free, unbalanced, single-acting mechanical seal according DIN EN 12756 or stuffing box.
Material pairing and construction are adapted to the respective operating conditions.

Technical data
Please refer to the performance curve on page 3 or the separate individual curves for data on pump capacities, permissible speed ranges and required drive output.

				AEB2N	AEB3N
Capacity	Q	l/min	up to	33	14
Pump liquid temperature	t	°C ①	up to	100	
Discharge pressure					
two-stage	Δ p	bar ③	up to	12	-
three-stage	Δ p	bar ③	up to	-	24
Outlet pressure	p_d	bar ③	up to	25	
Achievable under pressure	p_s	bar ②	up to	0,9	
Viscosity	η	mPa·s ②	up to	28.000	
Permissible proportion of solids	vol	% ②	up to	60	

The performance specifications are intended only as a product / performance overview. Refer to the quotation and order confirmation for precise operational limits.

Maximum permissible grain sizes and fiber lengths

Size		1.3	2.3	5.3	12.2
max. grain size	mm	1	1	1,8	2
max. fiber length	mm	10	18	17	35

Pump speed must be reduced as the proportion of solids and the grain size increase.

① Depends on pumped liquid and selected elastomers.

② Depends on pump size / design type, speed, pumped liquid.

③ Depends on rotational direction, inlet pressure.

Bearing
The bearing of the drive/stub shaft is provided in the reinforced bearings of the gear- or electric motors, which simultaneously absorb any axial forces.

Drive
The drive can take the form of non-explosion-proof or explosion-proof drive motors, gear motors or adjustable gears.

For specifications and dimensions, see the separate sales documentation, sheet 19-85-0000-009-4.

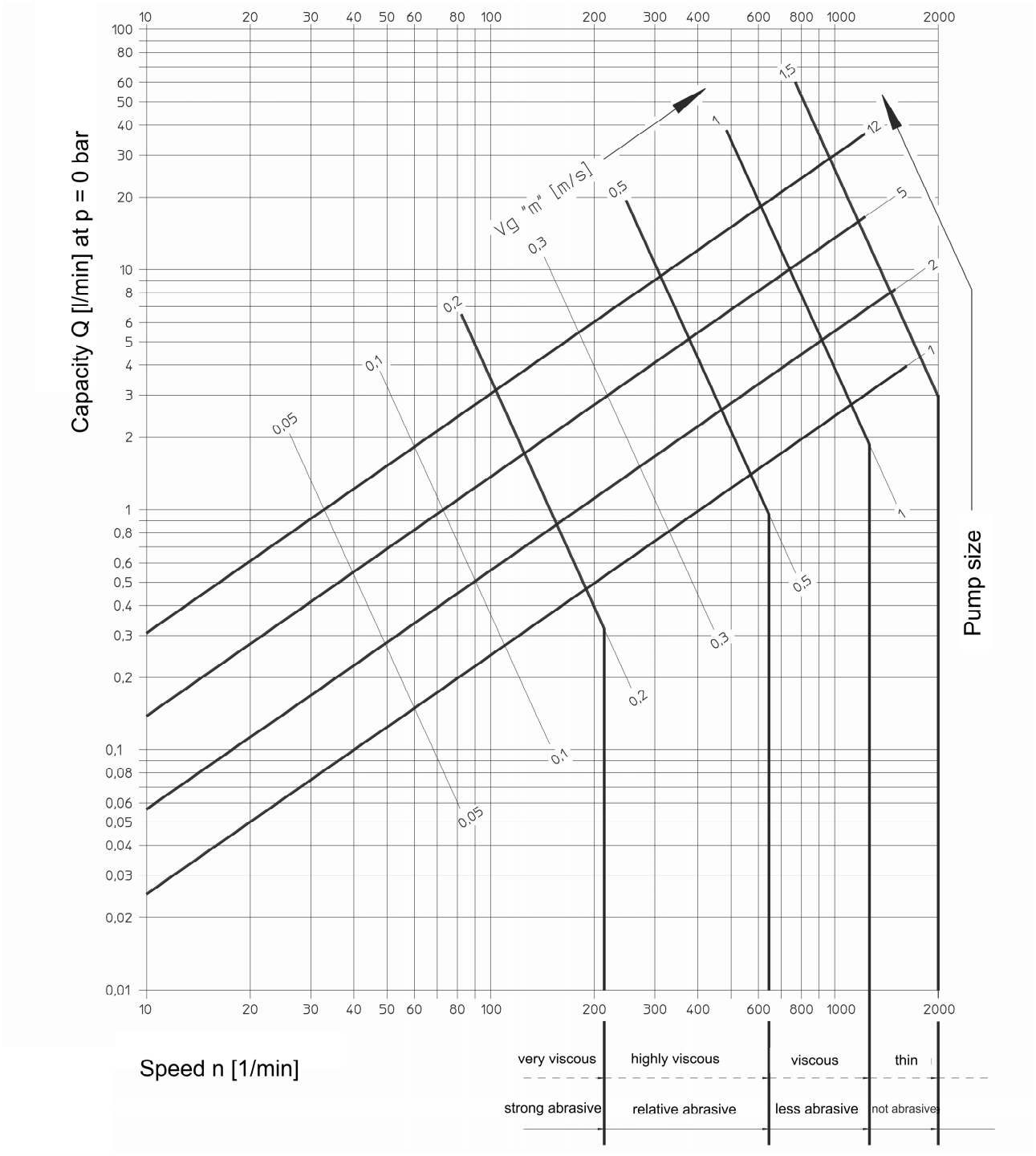
A major benefit is that connection dimensions are consistent for all drive types and pump sizes. That makes it very easy to convert to a new drive type or pump size at later time.

Installation
AEB-DE dosing pumps can be installed horizontally or vertically. When installed vertically, a “motor down” arrangement is not permitted.

Exchangeability of parts
The components of all progressing cavity pumps are designed to be modular. As a result, a customer who employs several pumps of various series and designs will be able to maintain a simple and cost-effective stock of reserve parts.

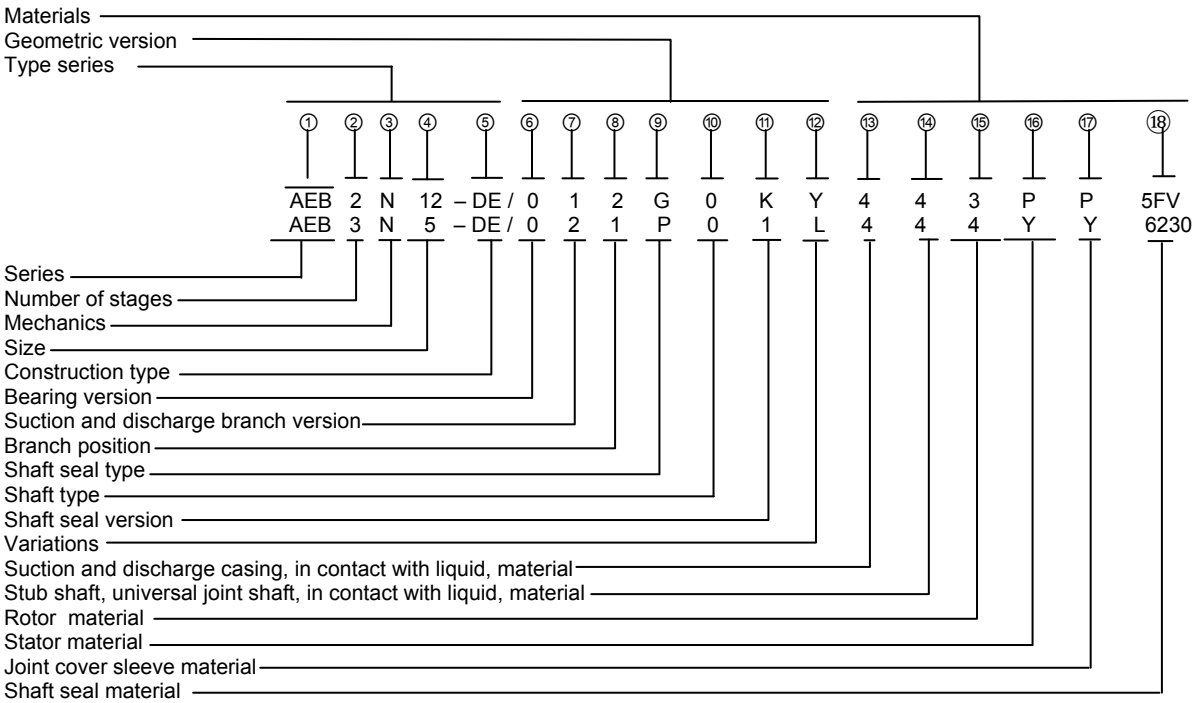
Performance curve

Used for rough selection of the pump size and rotational speed for a particular desired flow rate and the type of liquid being pumped. V_g „m“ = current average sliding speed of the rotor in the stator.



Sizes of series AEB DE. Refer to the separate individual characteristic curves for specifications on the performance range which are not covered by AEB DE series and for more detailed performance data.

Type key



Explanations for type key:

Position in type key	Designation	Design
①	Series	ALLWEILER progressing cavity pump in block design
②	Number of stages	2 = two-stage up to discharge pressure Δp =12 bar (for size 12) 3 = three-stage up to discharge pressure Δp = 24 bar (for size 1, 2, 5)
③	Mechanics	N = sized for discharge pressure Δp = 12 bar / 24 bar, depending on size
④	Size	two-stage: 12.2 three-stage: 1.3, 2.3, 5.3 The figures indicate theroetical capacity in l/min at n = 400 1/min and Δp = 0 bar.
⑤	Construction type	DE = Dosing with external bearing
⑥	Bearing version	0 = external bearing in drive unit
⑦	Suction and discharge branch version	1 = DIN-flange – DIN EN 1092 PN25 DN25 2 = Thread connections – DIN EN 10226-1 – Rp 1 (Internal thread) 3 = Thread connections with screwed-in ANSI B16.5 Cl150 NPS 1 – threaded flanges 4 = Thread connections with screwed-in NPT 1“ – adapter (Internal thread)
⑧	Branch position	1, 2, 3, 4 – See diagram on page 7 + 8 for arrangement. Arrangement 3 not possible with flanges.
⑨	Shaft seal type	G = Mechanical shaft seal P = Stuffing box
⑩	Shaft type	0 = Shaft without shaft sleeve
⑪	Shaft seal version	Mechanical seal: G0K = Single-acting mechnical seal, DIN EN 12756, K version, U shape; G0Q = Single-acting mechnical seal, DIN EN 12756, K version, U shape with Quench Stuffing box: P01 = Stuffing box in normal version (without seal chamber ring / without flush ring) Shaft diameter at location of shaft seal: 25 mm
⑫	Variations	Stators with non-uniform elastomer wall thickness (all qualities) N, M, H, T: Rotor with temp. Tolerance that depends on liquid temperature Y = Hard-chromed ductile rotor L = Stator for thermal dry-running protection

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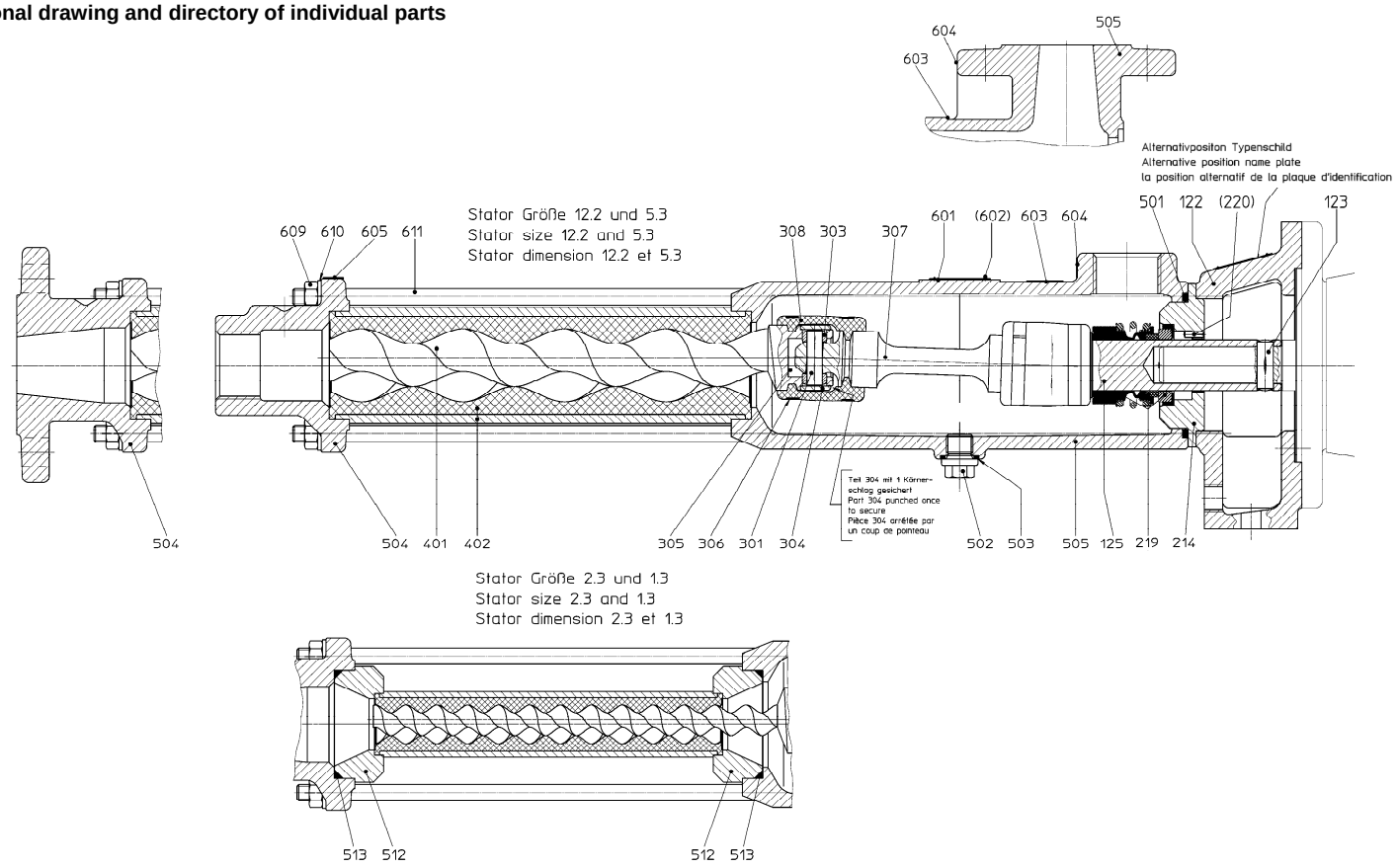
<table>
<tr><td>⑬</td><td>Suction and discharge casing, in contact with liquid, material</td><td colspan="3">4 = 1.4408</td></tr>
<tr><td>⑭</td><td>Stub shaft, universal joint shaft, in contact with liquid, material</td><td colspan="3">4 = 1.4404/1.4408</td></tr>
<tr><td>⑮</td><td>Rotor material</td><td colspan="3">3 = 1.2436 (only for size 12.2 and 5.3)
4 = 1.4404</td></tr>
<tr><td>⑯</td><td>Stator material</td><td>P = Perbunan N
Y = Hypalon
V = Viton
B = Butyl</td><td>E = EPDM
A = ALLDUR
PL = Perbunan light</td><td>PA = Perbunan
HP = Perbunan/hydrogenated
EL = EPDM light</td></tr>
<tr><td>⑰</td><td>Joint cover sleeve material</td><td>P = Perbunan N
V = Viton</td><td>Y = Hypalon
E = EPDM</td><td>PL = Perbunan light
B = Butyl</td></tr>
<tr><td>⑱</td><td>Shaft seal material</td><td colspan="3">Mechanical Seal:
Pairing of sliding materials | Springs and construction material | Secondary seals
1. position when single seal | 2. position | 3. position when single seal
5 = Carbide/carbide highly wear resistant
X = Special material | F = 1.4571 / 1.4404
X = Special material | V = Viton
X = Special material

Stuffing box:
5846 = Ramie fiber with PTFE impregnation, asbestos-free
6426 = Aramide endless fiber with PTFE impregnation, asbestos-free
6230 = Graphite-incorporated PTFE with lubricant, asbestos-free</td></tr>
</table>

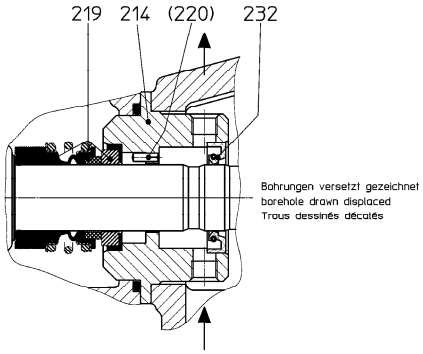
Sectional drawing and directory of individual parts



Bearing **0:** External reinforced bearings in drive unit
Shaft seal **G0K:** Permitted pressure at shaft seal p = -0,5 to 12 bar (16 bar)

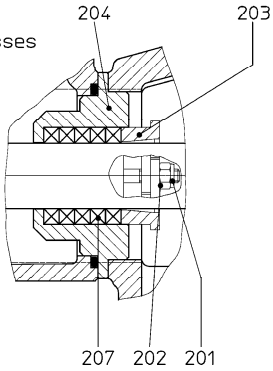
Gleitringdichtung G0Q
Mechanical seal G0Q
Garniture mécanique G0Q

einfachwirkend, nicht entlastet, drehrichtungsunabhängig, Quench
single acting non-balanced, either direction of rotation, quench
simple non équilibrée, à double sens de rotation, montée en cul de sac, quench



Permitted pressure at shaft seal p = -0,5 bis 12 bar (16bar)

Packungsstopfbuchse
Stuffing box
Garniture à tresses



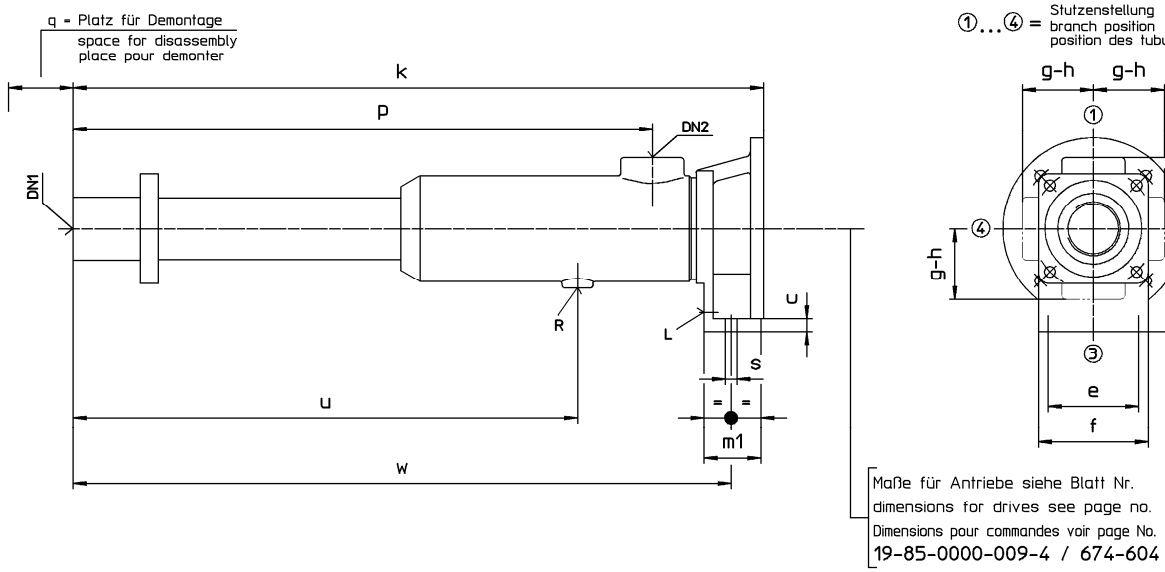
Permitted pressure at shaft seal p = -0,7 bis 16 bar.

Part No.	Part name
122	Bearing bracket
123	Retainer pin
125	Stub shaft
201	Stud bolt
202	Self-locking nut
203	Gland
204	Stuffing box casing
207	Gland packing
214	Mechanical seal housing
219	Mechanical seal
220	Locking pin
232	shaft sealing ring

Part No.	Part name
301	Joint pin
303	Bush for joint pin
304	Joint sleeve
305	Joint oil
306	Joint clamps
307	Joint shaft
308	Joint cover sleeve
401	Rotor
402	Stator
501	O-Ring
502	Screw plug
503	Gasket
504	Discharge casing
505	Suction casing

Part No.	Part name
512	Reducer for Stator
513	O-Ring
601	Nameplate
602	Round head grooved pin
603	Information plate “Start-up”
604	Information plate “Suction”
605	Information plate „Discharge“
609	Hexagon nut
610	Washer
611	Tie Rod

Pump dimensions, possible connection positions, weights
Casings with threaded connections



Dimensions in mm
Subject to change.

Direction of rotation: normally left when viewed from drive side,
whereby DN_1 = discharge branch, DN_2 = suction branch,
change of direction possible, then
DN_1 = suction branch, DN_2 = discharge branch

Series Size	Pump dimensions Casing connections: Internal thread DIN EN 10226-1															max. mass kg
	c	e	f	h	m_1	q	s	DN1	DN2	R ①	L ②	g	k	p	u	w	
AEB 3N 0001-DE	10	70	85	80	46	180	9	Rp 1		G 1/4	Rp 1/4	135	535	449	366,5	510	11,5
AEB 3N 0002-DE																	
AEB 3N 0005-DE																	
AEB 2N 0012-DE																	

① DIN EN ISO 228-1 ② DIN EN 10226-1

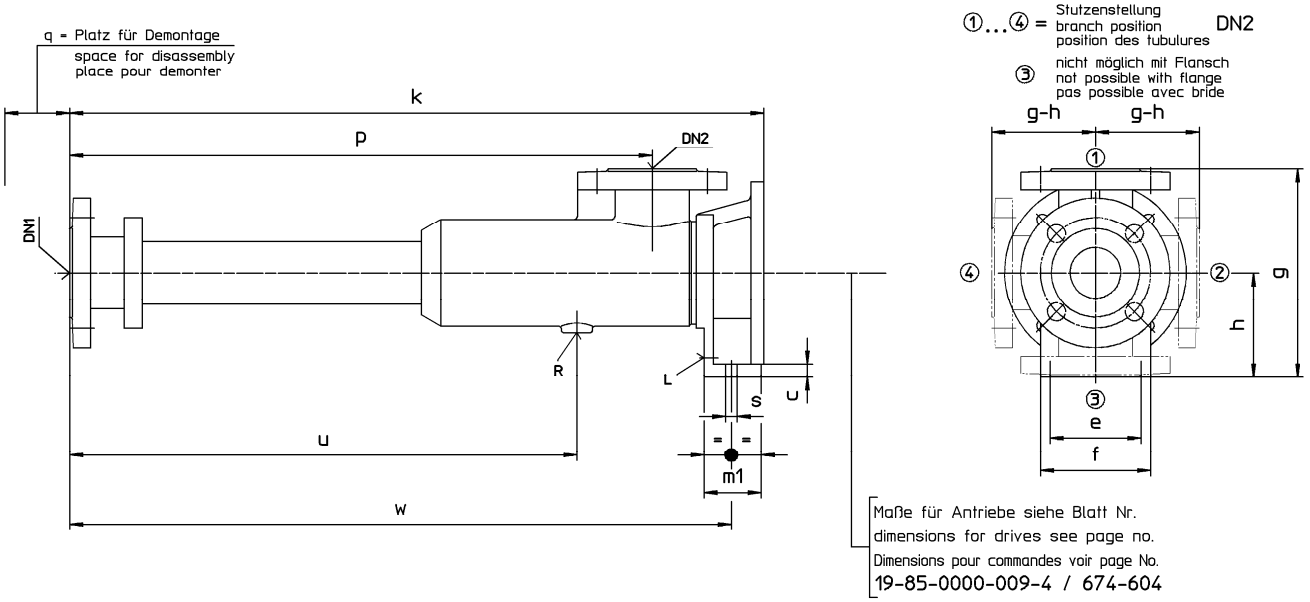
Max. allowable flange loads acc. EN ISO 14847			
Forces		Moments	
$F_{(x, y, z)}$ max.	$F_{(total)}$ max.	$M_{(x, y, z)}$ max.	$M_{(total)}$ max.
190 N	270 N	-	-

Series Size	Pump dimensions Casing connections: Internal thread ASME B1.20.1 (with screw-in adapter)															max. mass kg
	c	e	f	h	m_1	q	s	DN1	DN2	R ①	L ②	g	k	p	u	w	
AEB 3N 0001-DE	10	70	85	80	46	180	9	NPT 1		G 1/4	Rp 1/4	177 ±10	577 ±10	491 ±10	408,5 ±10	552 ±10	11,5
AEB 3N 0002-DE																	
AEB 3N 0005-DE																	
AEB 2N 0012-DE																	

① DIN EN ISO 228-1 ② DIN EN 10226-1

Max. allowable flange loads acc. EN ISO 14847			
Forces		Moments	
$F_{(x, y, z)}$ max.	$F_{(total)}$ max.	$M_{(x, y, z)}$ max.	$M_{(total)}$ max.
190 N	270 N	-	-

Pump dimensions, possible connection positions, weights
Casings with flange connections



Dimensions in mm
Subject to change.

Direction of rotation: normally left when viewed from drive side,
whereby DN_1 = discharge branch, DN_2 = suction branch,
change of direction possible, then
DN_1 = suction branch, DN_2 = discharge branch

Series Size	Pump dimensions Casing connections: Flange DIN EN 1092 PN25 DN25																max. Masse kg
	c	e	f	h	m_1	q	s	DN1	DN2	R ①	L ②	g	k	p	u	w	
AEB 3N 0001-DE	10	70	85	80	46	180	9	25		G 1/4	Rp 1/4	160	535	449	366,5	510	14,5
AEB 3N 0002-DE																	
AEB 3N 0005-DE																	
AEB 2N 0012-DE																	

① DIN EN ISO 228-1 ② DIN EN 10226-1

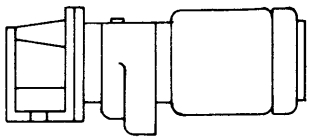
Max. allowable flange loads acc. EN ISO 14847			
Forces		Moments	
$F_{(x, y, z)}$ max.	$F_{(total)}$ max.	$M_{(x, y, z)}$ max.	$M_{(total)}$ max.
190 N	270 N	85 Nm	125 Nm

Series Size	Pump dimensions Casing connections: Flange ANSI B16.5 Cl150 NPS 1 (Threaded flange)																max. mass kg
	c	e	f	h	m_1	q	s	DN1	DN2	R ①	L ②	g	k	p	u	w	
AEB 3N 0001-DE	10	70	85	80	46	180	9	25		G 1/4	Rp 1/4	171 ±10	571 ±10	485 ±10	402,5 ±10	546 ±10	14,5
AEB 3N 0002-DE																	
AEB 3N 0005-DE																	
AEB 2N 0012-DE																	

① DIN EN ISO 228-1 ② DIN EN 10226-1

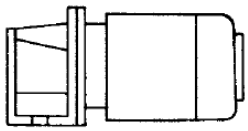
Max. allowable flange loads acc. EN ISO 14847			
Forces		Moments	
$F_{(x, y, z)}$ max.	$F_{(total)}$ max.	$M_{(x, y, z)}$ max.	$M_{(total)}$ max.
190 N	270 N	-	-

Drive options

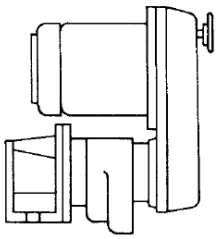


AEB-DE with gear motor

Optional: gear motor and frequency converter
IEC gearbox with and without motor



AEB-DE with electric motor



AEB-DE with infinitely adjustable gear box

Subject to technical changes.

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