

# Eccentric screw pumps of the block type

## Series ADBP



### Application

For pumping and metering liquids of low or high viscosity, neutral or corrosive liquids, uncontaminated or abrasive liquids, liquids containing gases or which tend to froth, including liquids containing fibrous and solid materials.

### Principal fields of application

Waste water and waste water treatment engineering, the chemical and petrochemical industries, the paper and cellulose industries, the soap and fats industry, the paint industry, the food and beverage industry, the plastics industry, the ceramics industry, the sugar industry etc.

### Operation

Rotary self-priming, positive displacement pump whose pumping elements are formed by the rotating eccentric screw (rotor) and the fixed stator. In any cross-sectional plane, these two elements are in contact with each other at two points which form two sealing lines over the length of the pumping elements. The material contained in the sealed enclosed cavities which are formed as the rotor turns is displaced axially and with complete continuity from the suction to the delivery end of the pump. Despite the fact that the rotor rotates, no turbulence is produced. The constant volume of the enclosed cavities excludes squeezing thus guaranteeing an extremely gentle low-surge pumping action.

### Structural design

The suction casing, shaft seal and coupling rod are identical for all three sizes.

Depending on the size, the stator is screwed directly into the suction casing or via a reducing ring.

By using/omitting the reducing ring (between suction casing and stator) and by changing the rotor and stator, the basic pump can easily be converted to a different size, while retaining the above-mentioned components/sub-assemblies of the basic pump.

The pumps are basically of a three-stage design. Extremely high metering accuracy is obtained due to the long sealing line between the rotor and stator.

The suction casing with integrally cast lantern and integral seal housing is bolted directly to the drive unit.

The torque from the drive unit is transmitted via a stub shaft and a coupling rod to the rotor. The coupling rod terminates at both ends in encapsulated universal joints which are of a particularly simple rugged design able to withstand the eccentric movement of the rotor without any difficulty.

### Shaft seal

By uncooled stuffing box or by uncooled, maintenance-free non-balanced single-acting mechanical seal.

On request, shaft seal rings can be used for shaft sealing (special design).

Material pairing and type are adapted to suit the respective operating conditions. For further details see page 3.

### Bearing

The bearing of the driving/stub shaft is in reinforced bearings of the electric motors or variable speed gears which, at the same time, absorb the axial forces incurred.

**As all drive units are only supplied with reinforced bearing, it is ensured that the allocated pumps can always be fully operated within their admissible application limits.**

### Drive

For the drive, non-explosion-proof and explosion-proof electric motors or variable-speed gears can be provided (in special cases, drive is also possible by geared motors, please inquire). For driving possibilities, see page 6. For technical data and dimensions, please refer to the separate sales document, sheets 19-52-0000-008-4 and 19-52-0000-009-4.

### Installation

ADBP pumps can be installed horizontally or vertically. In case of vertical design, the arrangement with „drive downwards“ is not admissible.

### Technical data

Deliveries, admissible speed ranges and required driving performances can be taken from the performance graph page 4 and/or the separate individual characteristics.

Flow rate	Q	l/min	up to	10
Temperature of liquid pumped	t	°C ①	up to	100
Differential pressure three stage	$\Delta p$	bar	up to	12
Pump discharge pressure	$p_d$	bar ②	up to	22
Suction obtainable	$p_s$	bar ③	up to	0.7
Viscosity	$\eta$	mPa s ③	up to	20.000
Permissible solids content	Vol%	③	up to	60

The stated performance data are to be understood only as an outline of performance of our products. For exact limits of application please refer to the quotation and acceptance of order.

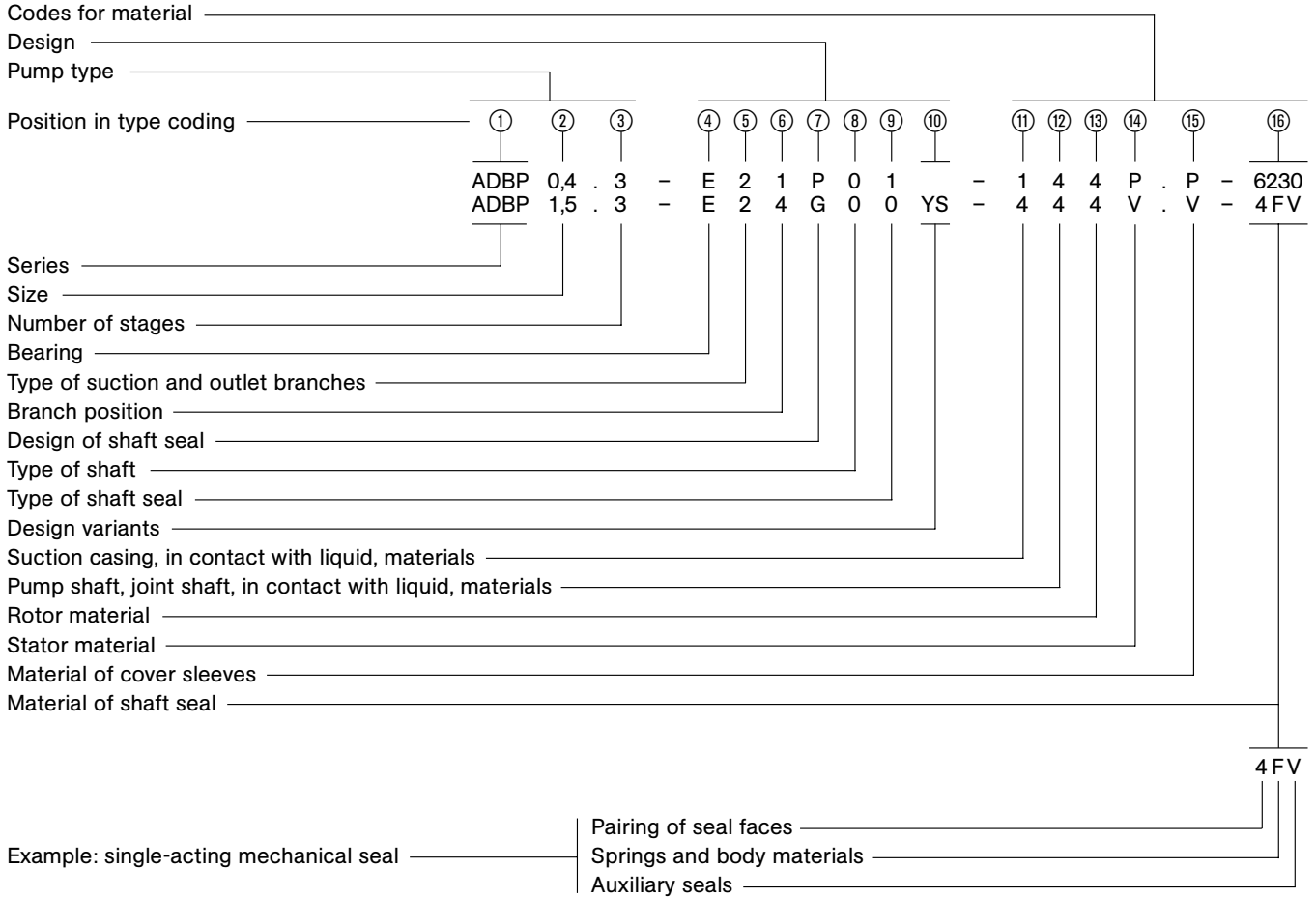
Maximum permissible grain sizes and fibre lengths:

Size	0.4	0.8	1.5
max. grain size mm	0.6	0.8	0.9
max. fibre length mm	25	25	30

Increasing solid contents and grain size require reduction of the pump speed.

- ① Depending on the liquid pumped and the elastomers used.
- ② Depending on sense of rotation, inlet pressure.
- ③ Depending on pump size/design, speed, liquid pumped.

**Type coding**

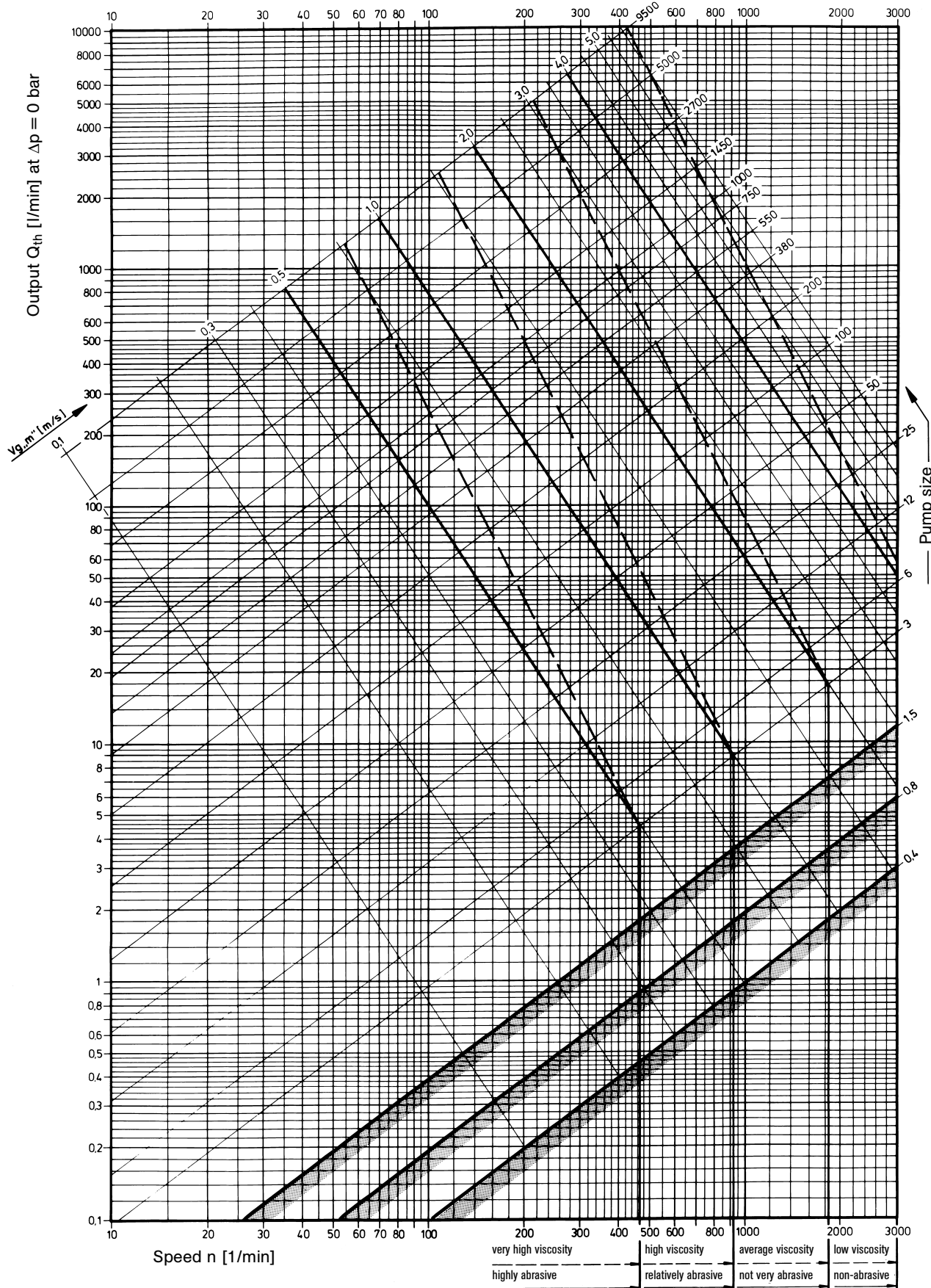


Explanatory notes on the type coding:

Position in type coding	Designation	Explanation									
①	Series	ALLWEILER eccentric screw pump of block type									
②	Size	Possible sizes: 0.4; 0.8; 1.5 The numbers indicate the theoretical delivery in l/min at n = 400 1/min and Δp = 0 bar									
③	Number of stages	3 = three-stage up to 12 bar									
④	Bearing	E = external bearing in the driving unit									
⑤	Type of suction and outlet branches	2 = Thread connections acc. to dimensional drawing page 6 X = Suction and/or outlet branches of special design									
⑥	Branch position	1, 2, 3, 4 – Arrangement see drawing page 6									
⑦	Design of shaft seal	P = Stuffing box or other non-mechanical shaft seal G = Mechanical seal (mechanical shaft seal)									
⑧	Shaft type	0 = Shaft without protective shaft sleeve									
⑨	Shaft seal type	P.01 = Stuffing box of normal design (without lantern ring/without flushing ring) P.0X = Special-type non-mechanical shaft seal G.00 = Mechanical seal, single-acting, non-balanced, either direction of rotation, with single spring, auxiliary seals of elastomer G.0X = Special-type mechanical seal									
⑩	Design variants	S = Auger on coupling rod Y = Rotor ductile hard-chrome-plated X = Other types									
⑪	Suction casing, in contact with liquid, materials	1 = EN-GJL-250 4 = 1.4408 X = Special materials									
⑫	Pump shaft, joint shaft, in contact with liquid, materials	4 = 1.4571 X = Special materials, e.g. also for universal joints									
⑬	Rotor material	4 = 1.4571 X = Special materials, e.g. other metals, plastic materials									
⑭	Stator material	P = Perbunan N Y = Hypalon V = Viton X = Special materials									
⑮	Cover sleeve material	P = Perbunan N V = Viton O = No cover sleeves X = Special materials									
⑯	Shaft seal material	<p>Stuffing box: 5846 = Ramie fibre with PTFE impregnation, asbestos-free 6230 = Graphite-incorporated PTFE with sliding means, asbestos-free X = Other packing materials</p> <p>Mechanical seal:</p> <table border="1" data-bbox="427 1982 1513 2121"> <thead> <tr> <th>Pairing of seal faces</th> <th>Springs and body materials</th> <th>Auxiliary seals</th> </tr> <tr> <th>1st figure</th> <th>2nd figure</th> <th>3rd figure</th> </tr> </thead> <tbody> <tr> <td>4 = Silicone carbide/hard carbon 7 = Silicone carbide/silicone carbide X = Special materials</td> <td>X = Special materials F = 1.4401</td> <td>V = Viton X = Special materials</td> </tr> </tbody> </table>	Pairing of seal faces	Springs and body materials	Auxiliary seals	1st figure	2nd figure	3rd figure	4 = Silicone carbide/hard carbon 7 = Silicone carbide/silicone carbide X = Special materials	X = Special materials F = 1.4401	V = Viton X = Special materials
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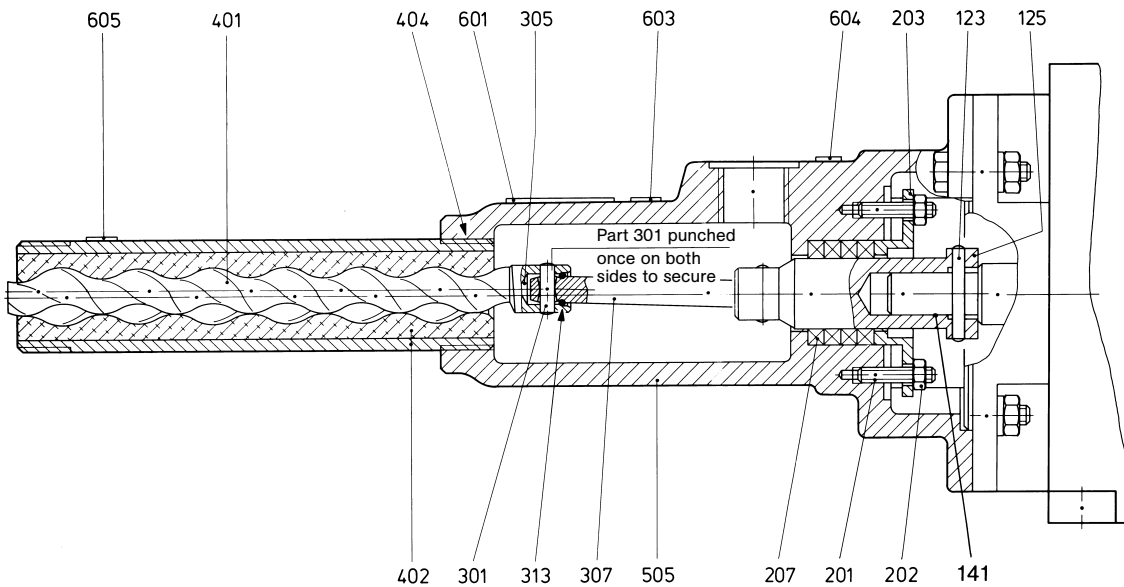
**Performance chart**

To give a rough indication of the appropriate pump size and speed as a function of the required output and the nature of the liquid to be pumped.  $v_{g,m}$  = mean running speed of rotor in stator.

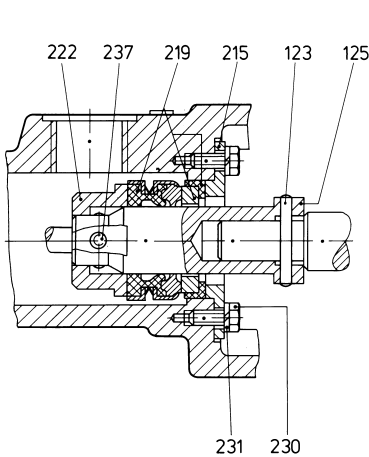


Sizes of ADBP series. Information on performance ranges not covered by the ADBP series can be found on the back cover of this brochure or in the separate brochures dealing with the other series. For exact performance data, see the individual pump characteristics.

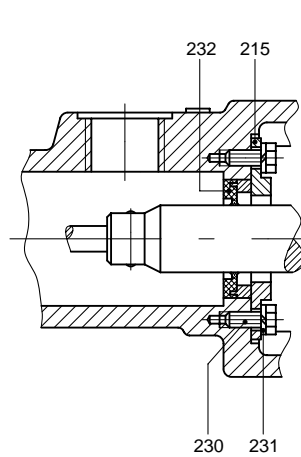
Sectional drawing and parts list



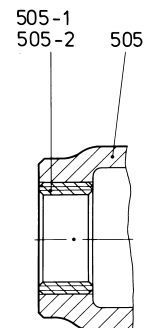
Bearing: **E** (external bearing in the drive unit)  
 Shaft seal: **P01** Stuffing box of standard type (without lantern ring/without flushing ring).  
 Particularly high-grade packing quality allows a wide variety of applications.  
 Admissible pressure at the shaft seal  $p = -0.7$  to  $3.0$  bar



**G00** Mechanical seal, single-acting, non-balanced, either direction of rotation.  
 Application on consultation  $p = -0.5$  to  $10$  bar



**POX** Lip seal  
 Application on consultation  $p = -0.7$  to  $5$  bar



Reducing ring in the suction casing (only with sizes 0.4 and 0.8)

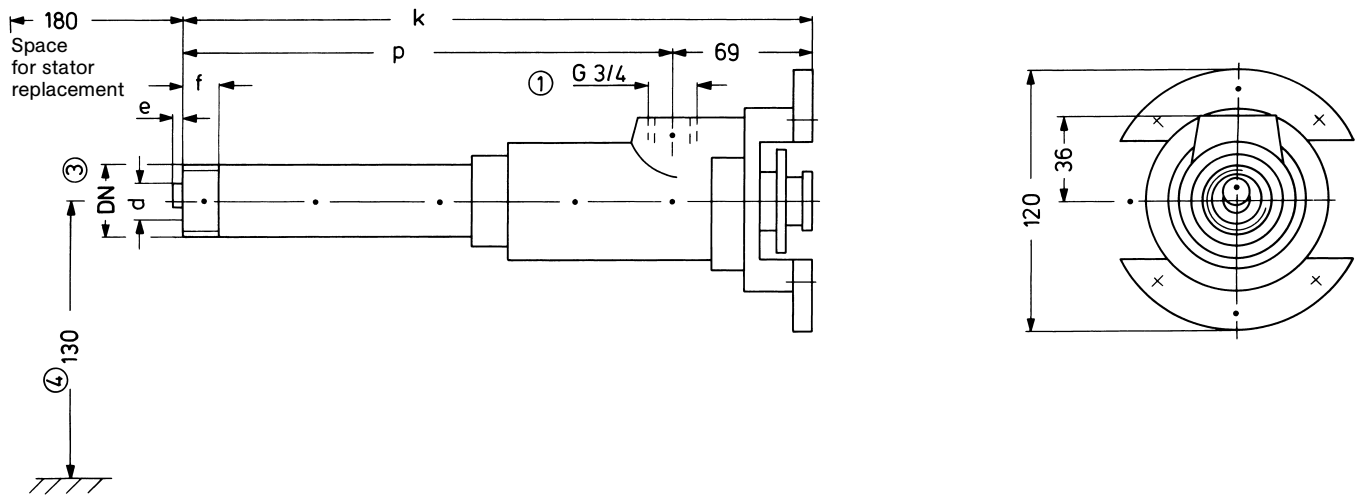
Part No.	Description
123	Drive pin
125	Stub shaft
141	Lubricating paste
201	Stud bolt
202	Hexagon nut
203	Gland
207	Stuffing box packing
215	Mechanical seal cover
219	Mechanical seal
222	Spacer sleeve
230	Hexagon screw
231	Spring ring
232	Lip seal
237	Hexagon socket with cup point

Part No.	Description
301	Coupling rod pin
305	Joint grease
307	Coupling rod
313	O-ring
401	Rotor
402	Stator
404	Stator seal (Teflon tape)
505	Suction casing
505-1	Reducing ring for size 0.4 ②
505-2	Reducing ring for size 0.8 ②
601	Name plate

Part No.	Description
603	Instruction plate for commissioning
604 ①	Suction label
605 ①	Discharge label

① applies to normal direction of rotation (counter-clockwise as seen from the driving side).  
 In case of change of the sense of rotation, the labels are exchanged according to the branch change.  
 ② Seal with Loctite.

**Pump dimensions, weights**



Dimensions in mm.  
Nominal widths of the suction and discharge connections in inches. Subject to alterations.

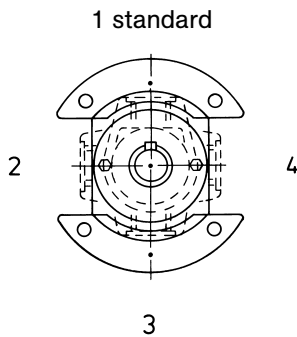
Sense of rotation:  
Normally, counter-clockwise as seen from the driving side, in which case DN = outlet branch, G 3/4 = suction branch. Change of sense of rotation possible, then, DN = suction branch, G 3/4 = outlet branch.

Size	Pump dimensions						Weight approx. kg
	DN ③	d ②	e	f	k	p	
0.4	R 1/2	13	3	13	259	190	2.4
0.8	R 3/4	16	4	15	283	214	2.9
1.5	R 1	20	4	17	311	242	2.8

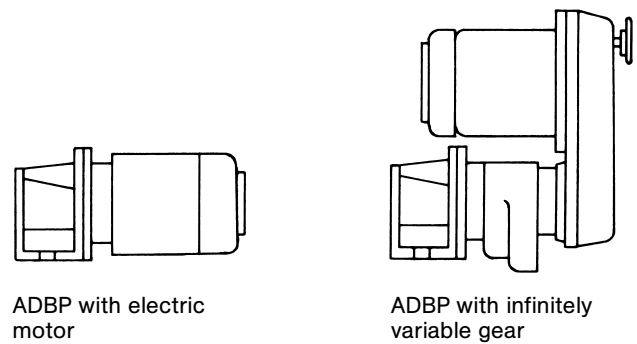
- ① Cylindrical female thread with sealing surface according to ISO 228, Part 1
- ② Pitch circle (rotor)
- ③ Tapered male thread according to DIN 2999
- ④ Required minimum ground clearance with stuffing box design, if branch G 3/4 laterally (branch position 2 or 4)

For technical data and dimensions on the drives, see separate sales document sheets 19-52-0000-008-4 and 19-52-0000-009-4

**Possible branch positions**  
as seen from the driving side



**Drive possibilities**





Range of eccentric screw pumps	Series	Number of stages	Maximum output at $\Delta p = 0$ bar		Maximum del. pressure bar	Maximum viscosity mPa·s
			m <sup>3</sup> /h	l/min		
	AE.E-ID	1,2	450	7500	10	300.000
	AE.N-ID	1,2	290	4850	12	270.000
	AEB.E-IE	1,2	174	2900	6	300.000
	AEB.N-IE	1,2	111	1850	12	270.000
	AED.E-ID	1	720	12000	8	250.000
	AED.N-ID	2	450	7500	16	225.000
	AEDB.E-IE	1	258	4300	6	250.000
	AEDB.N-IE	2	174	2900	12	225.000
	AE.N...-RG	1,2,4	30	500	20	1.000.000
	TECFLOW	1	186	3100	4	200.000
	SEZP	1,2	21	250	10	1.000.000
	SHP	2,4	110	1830	24	270.000
	SNZP	1,2	45	750	12	1.000.000
	SNZBP	1,2	45	750	12	1.000.000
	SSP	1,2	48	800	12	150.000
	SSBP	1,2	48	800	12	150.000
	SETP ①	1,2	140	2350	10	300.000
	SETBP	1,2	40	670	10	150.000
	SEFBP	1	40	670	6	150.000
	SMP	1	40	670	6	150.000
	SMP2	1	5,5	92	6	11.500
	AFP	1	2,8	47	6	50.000
	ANP	2	2,5	42	12	20.000
	ANBP	2	2,5	42	12	20.000
	ASP	2	2,5	42	12	20.000
	ASBP	2	2,5	42	12	20.000
	ADP	3	0,6	10	12	20.000
	ADBP	3	0,6	10	12	20.000
	ACNP	1,2	29	480	12	150.000
	ACNBP	1,2	29	480	12	150.000

① Special versions for higher pressures available.

Peristaltic range	Series	Maximum output		Maximum del. pressure bar	Maximum viscosity mPa·s
		m <sup>3</sup> /h	l/min		
	ASL	2,4	40	4	100.000
	ASH	60	1000	15	100.000

Macerator range	Series	Maximum throughput m <sup>3</sup> /h	Generated delivery head
			m
	AM ... S-1	80 at 3 % solids	3
	ABM ... S-1	80 at 3 % solids	3
	AM ... I-1	160 at 3 % solids	-
	ABM ... I-1	80 at 3 % solids	-

**Accessories**

Pump accessories: Stator setting devices, electrical heaters, bridge breakers.

Drivers: Electric motors, geared motors, variable speed transmissions, reduction gearboxes, internal combustion engines, pneumatic and hydraulic drives.

Transmission components: Couplings, V-belt transmissions, toothed belt transmissions, other types of transmission.

Base plates: Standard and special versions, wheeled trolleys, mounting flanges.

Safety arrangements: Bypass lines with safety or regulating valves, systems to guard against dry running (conductive, capacitive, thermal etc.).

Other accessories: Electrical, hydraulic and pneumatic control arrangements, filter systems, metering equipment, seal liquid and circulating systems for shaft seals, valves, flanges, flexible pipes.

Subject to technical alterations.



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