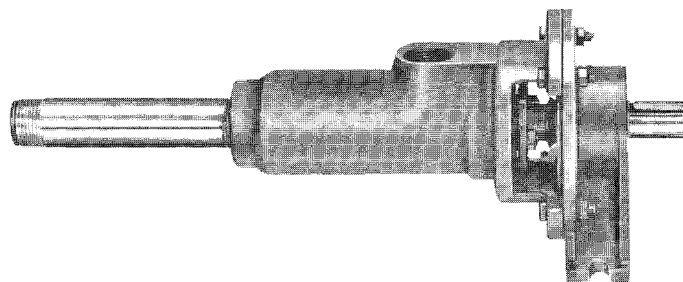


Eccentric screw pumps Series ADP



Applications

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 material.

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 drinks industry, the plastics industry, the ceramics industry, the sugar industry, etc.

Operation

Rotary self-priming, positive-displacement pump whose pumping elements are formed by a rotating eccentric screw (the rotor) and a 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 means that there are no pressurising forces and thus guarantees a low-surge pumping action which is not at all severe on the material being pumped.

Design features

The suction casing, bearing, shaft seal and coupling rod are the same for all three sizes.

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

By using/omitting the reduction ring (between the 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/subassemblies 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 onto the bearing housing.

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

Shaft seals

Shafts are sealed by uncooled stuffing boxes or by uncooled non-balanced single-acting mechanical seals which require no maintenance.

On request, lip seals can be used to seal the shaft.

The material pairings and type of seal are adapted to suit the particular operating conditions. For further details see page 3.

Bearings

These consist of two deep groove ball bearings which are lubricated for life and absorb all radial and axial forces arising.

For further details, see pages 3 and 5.

Drivers

Drivers of any make can be used. The technical characteristics and dimensions can be found in the manufacturers literature.

For possible types of drive see page 7.

Installation

ADP pumps can be installed horizontally or vertically. The manufacturer should be consulted where vertical installation with the drive down is proposed.

The pump and driver are connected together via a flexible coupling or an intermediate transmission (generally a V-belt drive) and are mounted on a common baseplate. Dimensions of assemblies available on request.

Technical characteristics

The output, permitted speed ranges and drive power required can be taken from the selection chart on page 4 or from the individual pump characteristics.

Delivery	Q	l/min	up to	10
Temperature of fluid pumped	t	°C [ⓐ]	up to	150
Delivery pressure	Δp	bar	up to	12
Pump outlet pressure	P _d	bar [ⓑ]	up to	12
Attainable underpressure	p _s	bar [ⓐ]	up to	0.7
Viscosity	η	mPa s	up to	20.000 [ⓐ]
Admissible solids content	Vol%	ⓐ	up to	60

The mentioned performance data are to be considered as a product and performance abstract only. The particular operating limits can be taken from the quotation or order acknowledgement.

Maximum permitted grain sizes and fibre lengths:

Pump size	0.4	0.8	1.5
Max grain size in mm	0.6	0.8	0.9
Max. fibre length in mm	25	25	30

Increases in solid content and grain size mean that the speed of the pump must be reduced.

ⓐ Note also the permitted pressure for the shaft seal (see page 5).

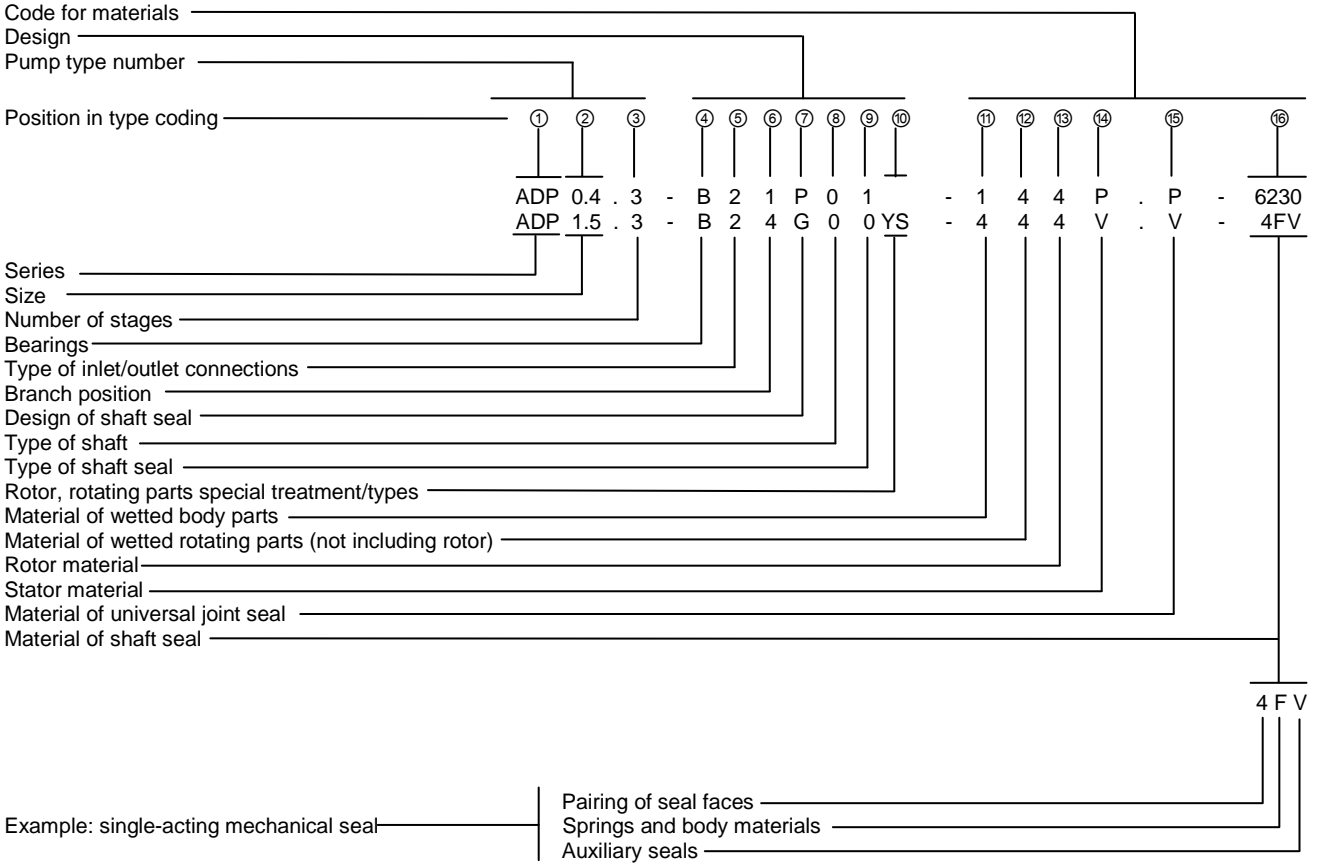
ⓑ Depending on operating conditions, direction of rotation and type of shaft seal.

ⓒ Depending on the liquid being pumped, and the elastomers used.

ⓓ Depending on the liquid being pumped, the speed and the pump size.

ⓔ Depending on pump size and nature and size of solids.

Type coding

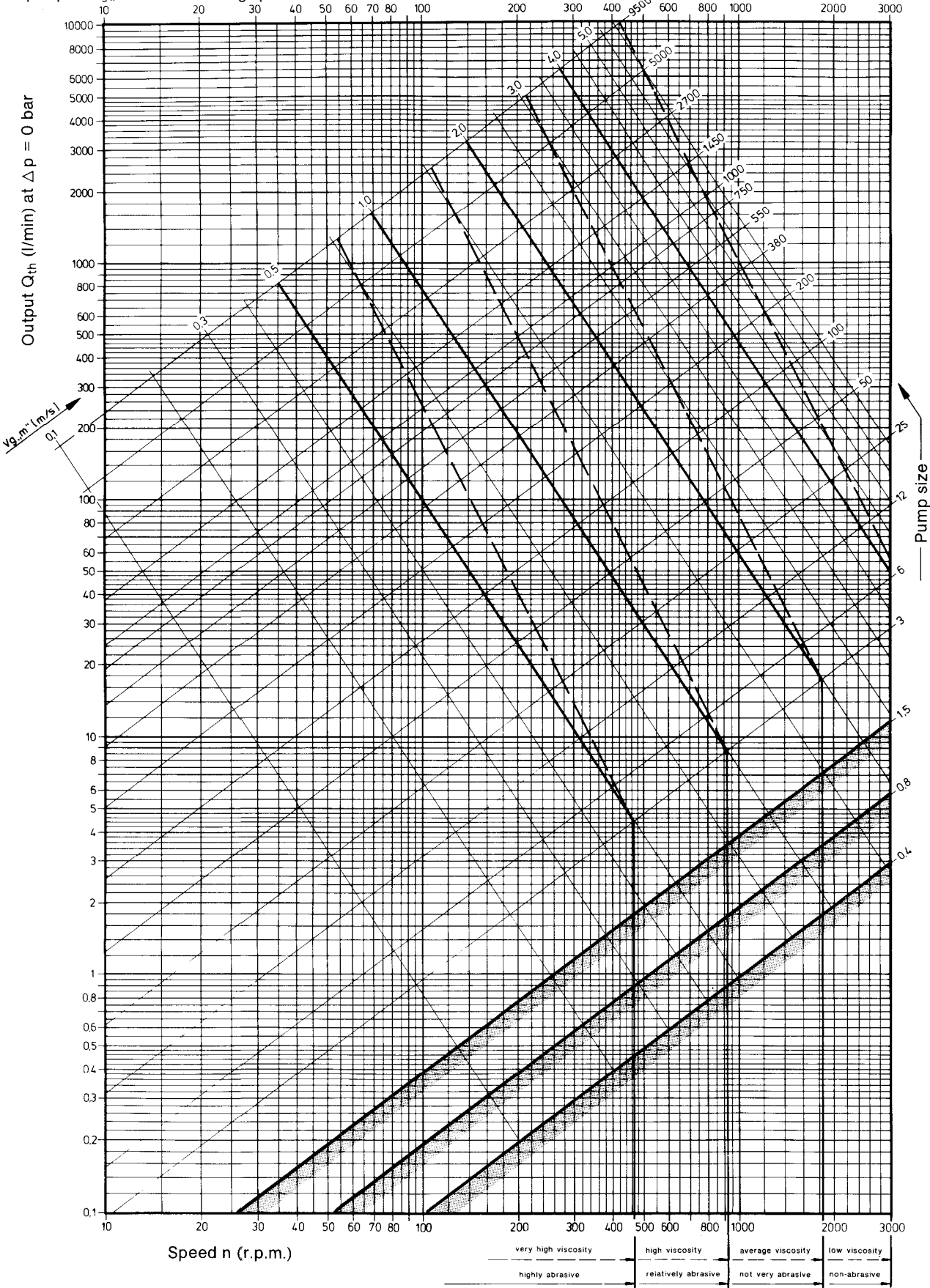



Explanatory notes on the type coding:

Position in type coding	Designation	Explanation		
①	Series	ALLWEILER eccentric screw pump		
②	Size	Possible sizes: 0.4; 0.8; 1.5 The numbers indicate the theoretical output in l/min at n=400 1/min and Δp = 0 bar		
③	Number of stages	3 = Three-stage up to 12 bar		
④	Bearings	B = Two deep groove ball bearings with grease retaining shields on both sides X = Special-type bearings		
⑤	Type of inlet-/outlet connections	2 = Threaded connections acc. To dimensional drawing on page 6 X = Special-type connections		
⑥	Branch position	1, 2, 3, 4 see drawing on page 6		
⑦	Design of shaft seal	P = Stuffing box or other non-mechanical shaft seal G = Mechanical seal		
⑧	Type of shaft	0 = No wear sleeve on shaft		
⑨	Type of shaft seal	P.01 = Standard stuffing box (no lantern ring/no flushing ring) P.OX = Special-type of non-mechanical shaft seal G.00 = Mechanical seal, single-acting, non-balanced, either direction of rotation, single spring, elastomer O-rings G.OX = Special-type mechanical seal		
⑩	Rotor/rotating parts special treatment/types	S = Auger on coupling rod Y = Rotor ductile hard-chrome-plated X = Other types		
⑪	Material of wetted body parts	1 = EN-GJL-250 (cast iron) 4 = 1.4410 (similar to 316 SS) X = Special material		
⑫	Material of wetted rotating parts (not including rotor)	4 = 1.4571 (similar to 316 Ti SS) X = Special material		
⑬	Rotor material	4 = 1.4571 (similar to 316 Ti SS) X = Special material		
⑭	Stator material	P = Acrylonitrile-butadiene rubbers (NBR) Y = Chlorosulfonated polyethylene (CSM) V = Fluoroelastomer (FPM) X = Special materials, e.g. metal plastics, elastomers		
⑮	Material of universal joint seal	P = Acrylonitrile-butadiene rubbers (NBR) V = Fluoroelastomer (FPM) O = No joints seal fitted X = Special materials		
⑯	Material of shaft seal	Stuffing boxes: 5846 = Ramie fibre with PTFE impregnation 6230 = Graphite-incorporated PTFE X = Other packing materials		
		Mechanical seals:		
		Seal faces	Springs and body material	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 = Fluoroelastomer (FPM) X = Special materials	

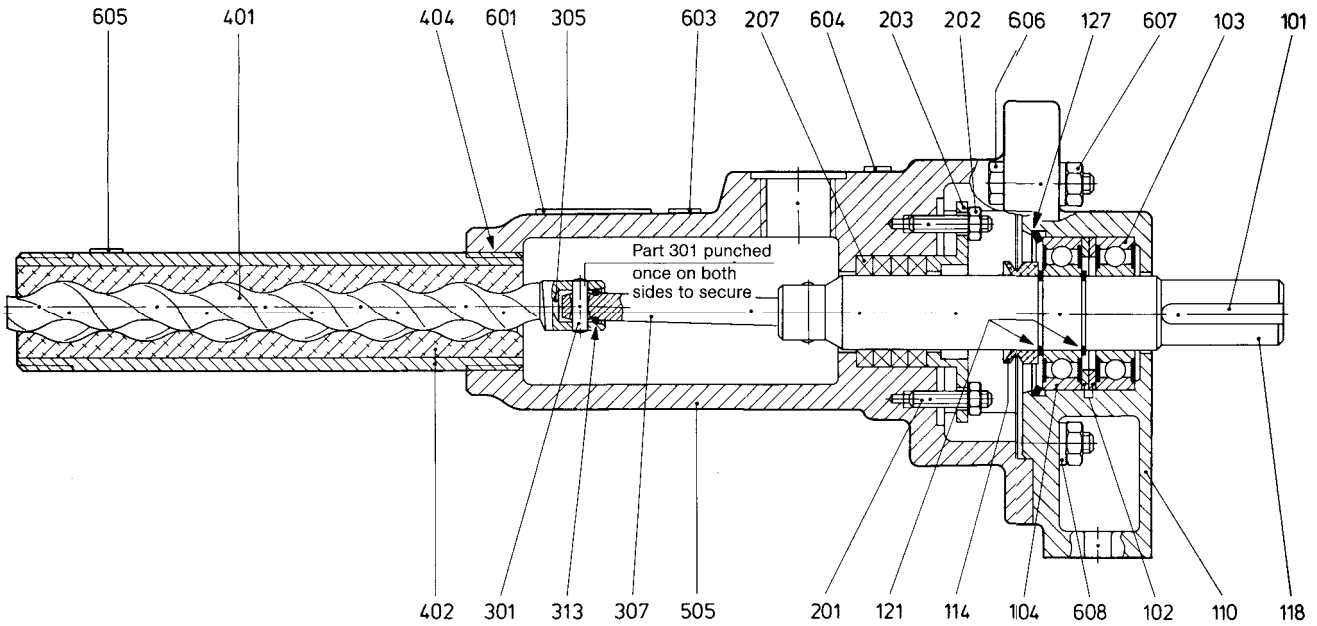
Performance Chart

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 rubbing speed of rotor in stator.

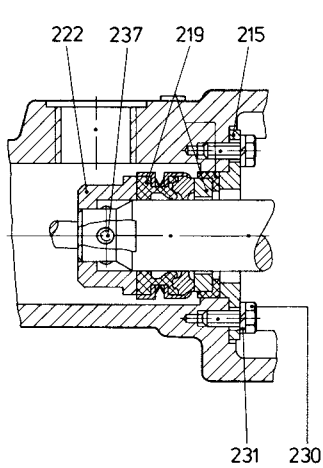


 Sizes in ADP Series. Information on performance ranges not covered by the ADP Series can be found on the back cover of this brochure or in the separate brochures dealing with the other series. For exact performance data, see the individual pump characteristics.

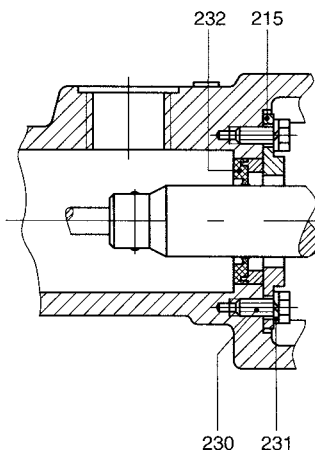
Sectional drawing and parts list



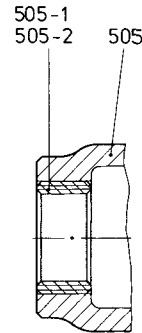
Bearing: **B** (lubricated for life)
 Shaft seal: **P01** Stuffing box of standard type (no lantern ring/no flushing ring).
 High quality packing materials allows a wide variety of applications. Permitted pressure at shaft seal
 $p = -0.7$ to 3.0 bar



G 00 Mechanical seal,
 single-acting non-balanced,
 either direction of rotation.
 For pressures of
 $p = -0.5$ to 10 (15) bar
 - consult manufacturers.



P 0X Lip seal
 For pressures of
 $p = -0.7$ to 5 bar
 - consult manufacturers.

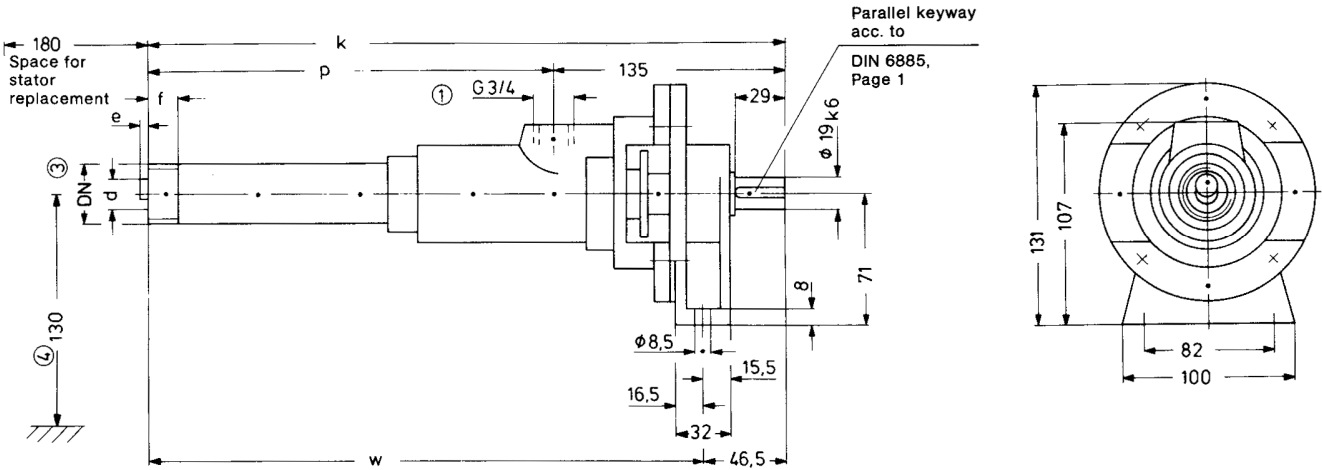


Reducing ring for
 suction casing (only with
 sizes 0.4 and 0.8)

Part No.	Description	Part No.	Description	Part No.	Description
101	Parallel key	230	Hexagon-head bolt	601	Name plate
102	Spacer sleeve	231	Locking washer	603	Instruction label for commissioning
103	Radial bearing	232	Lip seal	604 ①	Suction label
104	Axial bearing	237	Grub screw	605 ①	Discharge label
110	Bearing housing	301	Coupling rod pin	606	Hexagon-head bolt
114	Flinger ring	305	Joint grease	607	Hexagon nut
118	Drive shaft	307	Coupling rod	608	Locking washer
121	Retaining circlip	313	O-ring		
127	Retaining circlip	401	Rotor		
201	Stud	402	Stator		
202	Hexagon nut	404	Stator seal (Teflon-tape or similar)		
203	Packing gland	505	Suction casing		
207	Stuffing box packing	505-1	Reducing ring for size 0.4②		
215	Mechanical seal cover	505-2	Reducing ring for size 0.8②		
219	Mechanical seal				
222	Spacer sleeve				

① So positioned for normal direction of rotation (counter-clockwise looking from drive end). For clockwise rotation the labels change places to match the change in the function of the connections.
 ② Seal with Loctite

Pump dimensions, possible branch positions, weights



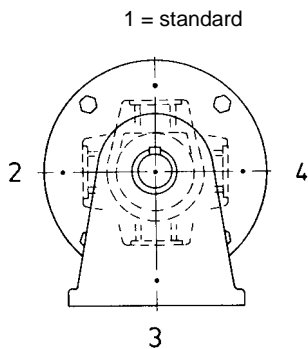
Dimensions in mm.
Nominal diameters of suction and discharge connections in inches.
The manufacturer reserves the right to make technical modifications without prior notice.

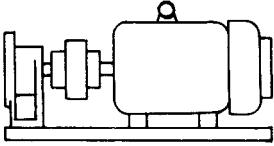
Direction of rotation:
Counterclockwise looking from the drive end is standard, in which case DN=delivery connection, G 3/4=suction connection.
Opposite direction of rotation is possible in which case DN=suction connection, G 3/4 =delivery connection.

Pump	DN ^②	d ^②	Pump dimensions					Weight approx. kg
			e	f	k	p	w	
0.4	R 1/2	13	3	13	325	190	278.5	3.3
0.8	R 3/4	16	4	15	349	214	302.5	3.5
1.5	R 1	20	4	17	377	242	330.5	3.8

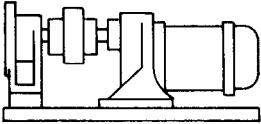
- ① Cylindrical female thread with sealing surface acc. to ISO 228, Part 1
- ② Cycloid circle (rotor)
- ③ Tapered male thread acc. to DIN 2999
- ④ Minimum space to mounting surface with stuffing box versions, when connection G 3/4 horizontally (branch position 2 or 4)

Possible branch positions looking from drive end

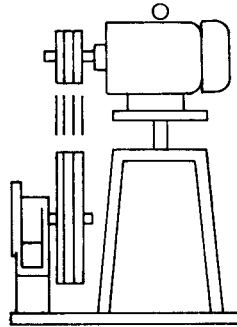




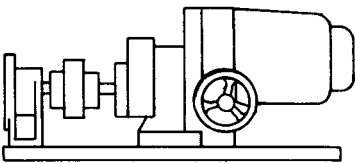
1 ADP with flexible coupling and electric motor



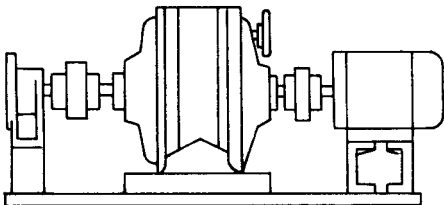
2 ADP with flexible coupling and geared motor



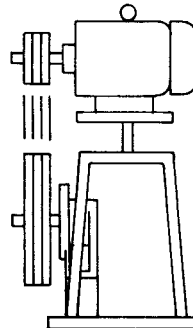
3 ADP with V-belt-drive, adjustable motor platform and motor situated behind the pump



5 ADP with flexible coupling and infinitely variable speed drive



6 ADP with flexible coupling, gearbox or variable speed gear, flexible coupling and motor



4 ADP with V-belt-drive, adjustable motor platform and motor situated above the pump

Other types or drives can be used (consult manufacturer).



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 ³ /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 [Ⓞ]	1,2	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

Ⓞ Special versions for higher pressures available.

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

Macerator range	Series	Maximum throughput m ³ /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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