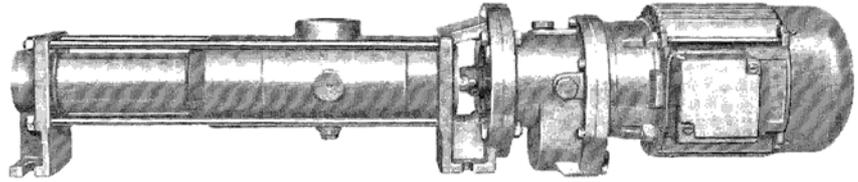


Eccentric Screw Pumps of the Block Type Series ANBP



Applications

For pumping neutral or corrosive liquids, uncontaminated or abrasive liquids, liquids containing gases or which tend to froth, and liquids of high or low viscosity, 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, ceramics, agriculture, the sugar industry, shipbuilding etc.

Operation

Rotary self-priming, positive-displacement pumps whose pumping elements are formed by a rotating eccentric screw (the rotor) and a fixed stator. In any cross-sectional plane, the elements are in contact with one another at two points and along the length of the elements these points form two lines of seal. 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 pump and drive are flanged together to a block unit by means of a lantern.

The outlet section, stator, suction casing and lantern are held together by external tie rods.

The suction casing is designed to have a particularly large flow section. The stator, which is vulcanised into a tubular casing is provided at both ends with external collars vulcanised to it. These provide a safe seal from the suction casing and outlet section and also protect the stator casing against corrosion.

Between the lantern and the suction casing is situated an interchangeable housing for a stuffing box or mechanical seal (pumps can be converted retrospectively to a different type of seal). The drive torque is transmitted to the rotor via hollow shaft and a coupling rod. The coupling rod terminates at both ends in universal joints which are encapsulated to form a liquid-tight seal. These pin-type universal joints are of particularly simple and rugged design and are able to withstand the eccentric movement of the rotor without and difficulty.

Shaft seals

Shafts are sealed by uncooled stuffing boxes or uncooled, non-balanced single-acting mechanical seals which require no maintenance. The mechanical seal chambers are manufactured to accept any seals which conform to DIN 24 960.

The type of seal and the material pairings are adapted to suit the particular operating conditions which exist in any given case.

For further details see page 2, 3 and 5.

Bearings

The drive shaft/hollow shaft is supported in special heavy duty bearings in the electric motor, geared motor or variable speed gear. The bearings are designed to withstand the appearing-thrust loads.

All block-pump drive units are fitted with special bearings. This allows unrestricted use of the associated pumps within their permissible operation limits.

Drivers

Electric motors, geared motors or variable speed gears, either TEFC or flame proof, can be supplied. For possible types of drives see page 7. For the corresponding technical characteristics and dimensions see separate information sheet 19-46.0000-007-4 and 19-46.0000-001/4.

The connecting flanges of all types of drives supplied are interchangeable with one another within on pump size. The possibility to convert an existing pump to a different type of drive is a significant advantage.

Installation

ANBP-pumps can be installed horizontally or vertically. If installed vertically the motor must be uppermost.

Replaceability of parts

The components for all our eccentric screw pumps are produced to a modular system. It is thus simple and inexpensive to maintain a stock of spares even where pumps of different designs belonging to different series are used in one and the same installation.

Technical characteristics

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

Flow rate	Q	l/min	up to	42
Temperature of liquid pumped	t	°C ^①	up to	100
Differential pressure two-stage	Δp	bar	up to	12
Pump discharge pressure	p _d	bar ^②	up to	16
Suction obtainable	p _s	bar ^③	up to	0.9
Viscosity	η	mPa·s ^③	up to	20.000
Permissible solids content	Vol	% ^③	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	3	6	12
Max. grain size in mm	1	1.5	2
Max. fibre length in mm	35	35	35

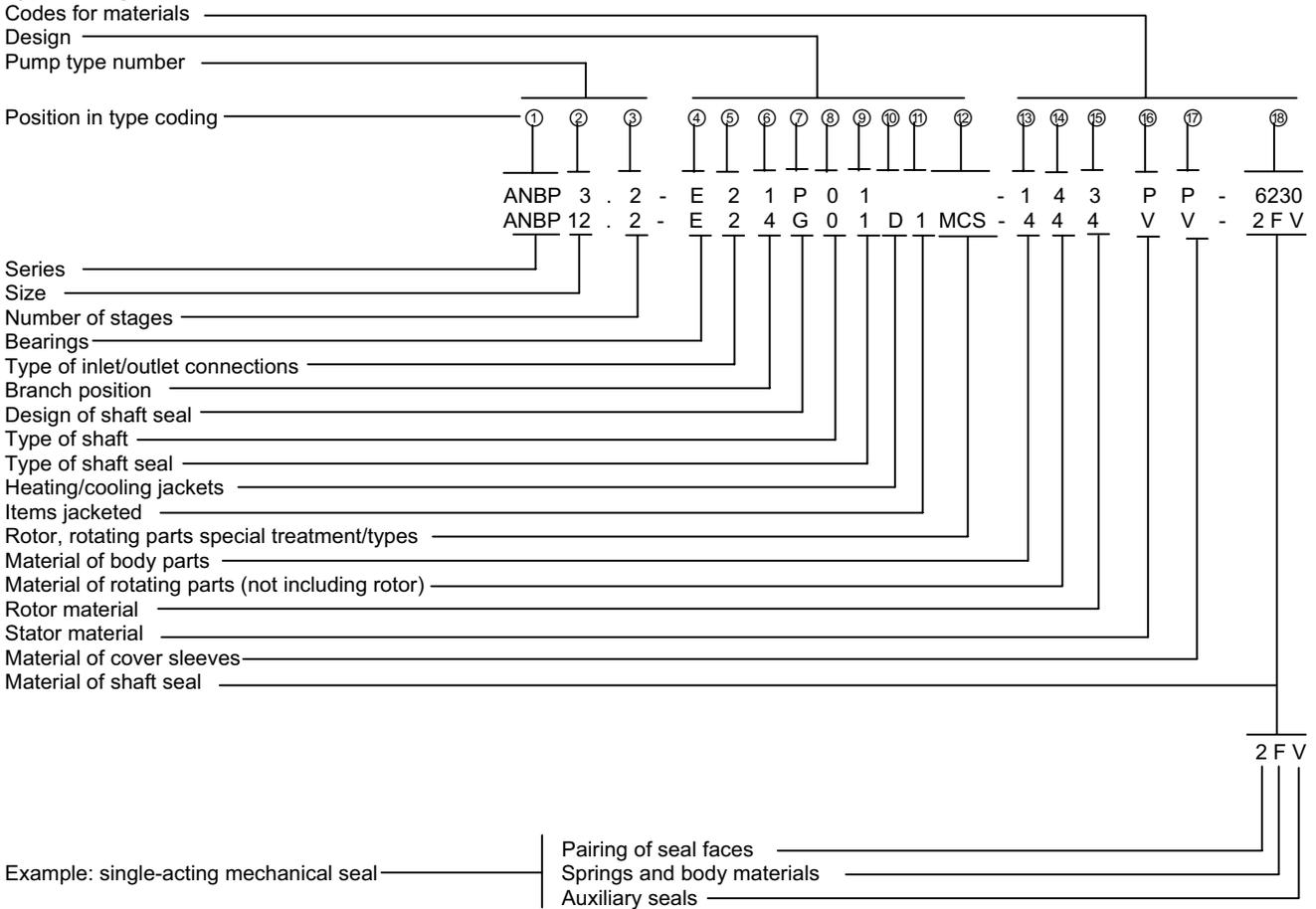
Increases in solid content and grain size mean that the speed of the pump must be reduced.

① Depending on the liquid pumped and the elastomers used.

② Depending on the sense of rotation and inlet pressure.

③ Depending on liquid being pumped, pump speed and pump size.

Type coding



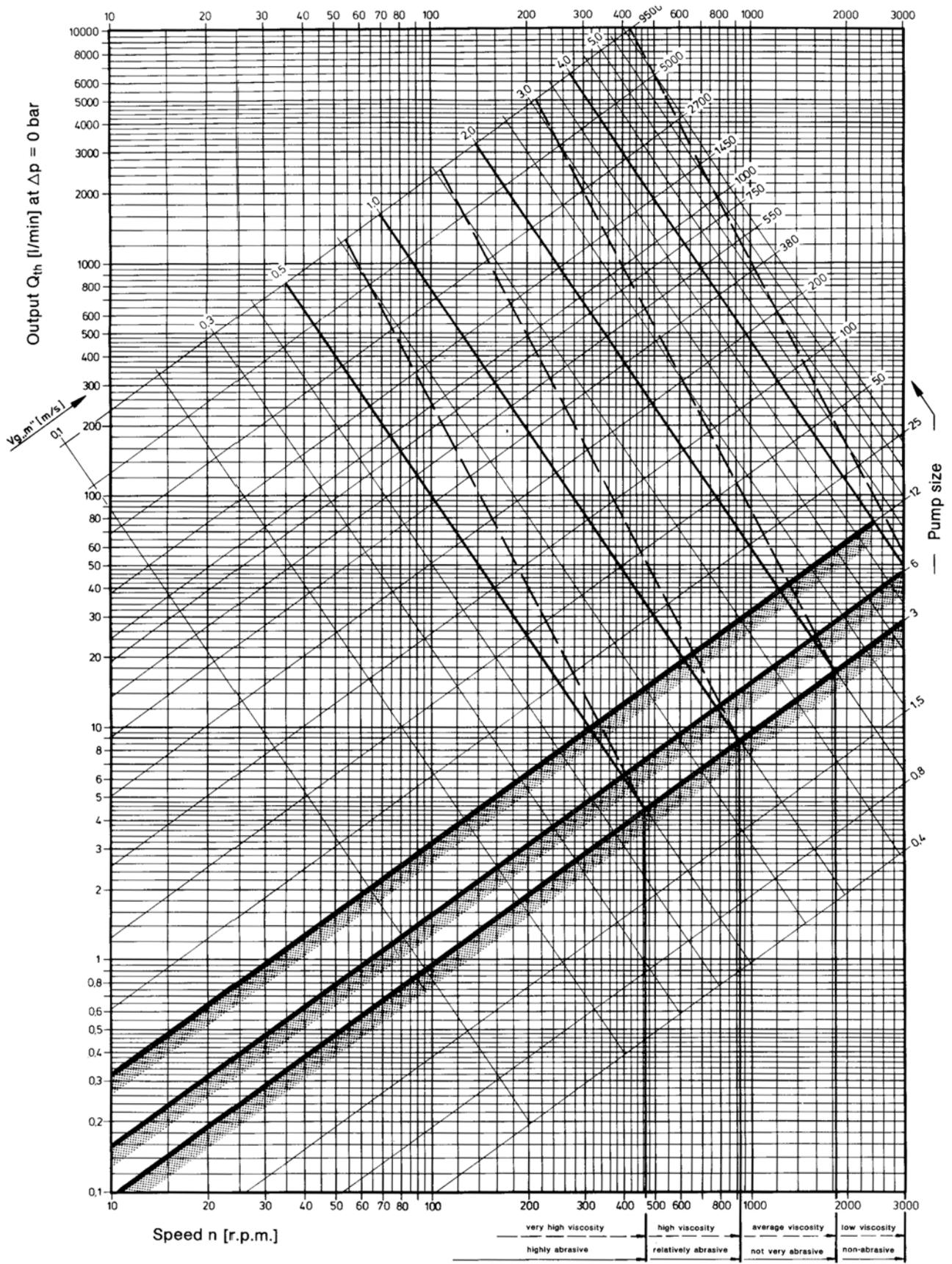
Explanatory notes on the type coding:

Position In type Coding	Name	Explanation
①	Series	ALLWEILER eccentric screw pump in block-construction
②	Size	Possible sizes: 3, 6, 12 The numbers indicate the theoretical outlet in l/min at n = 400 1/min and Δp = 0 bar
③	Number of stages	2 = two-stage up to 12 bar
④	Bearings	E = External bearings
⑤	Type of inlet-/outlet connections	2 = Threaded connections acc. to dimensional drawing on page 6 X = Special type of inlet and/or outlet connections
⑥	Branch position	For 1, 2 and 4 see drawing on page 7
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.1 = Standard stuffing box (no lantern ring/no flushing ring) P.2 = Stuffing box with flushing ring P.3 = Stuffing box with internal lantern ring P.4 = Stuffing box with external lantern ring P.X = Special type of non-mechanical shaft seal G.0 = Mechanical seal, single acting, non-balanced, either direction of rotation, single spring elastomer O-rings G.1 = As for G.0 but with multiple springs G.2 = As for G.0 but O-rings with double PTFE sheathing G.3 = As for G.1 but O-rings with double PTFE sheathing G.X = Special-type mechanical seal		
⑩	Heating/cooling jacket	D = Jacket for heating or cooling. Only available with stainless steel versions		
⑪	Items jacketed	1 = Suction casing X = Special version for extra jacketing		
⑫	Rotor/rotating parts special treatments/ types	C = Hard-chromed rotor S = Auger on coupling rod W = Coupling rod with large diameter sleeve (to minimise rag build-up) Y = Rotor ductile hard-chrome-plated X = Other types	N M H T	Rotor with thermal expansion clearance as a function of the temperature of the fluid pumped
⑬	Material of body parts	1 = EN-GJL-250 4 = 1.4408	X = Special material	
⑭	Material of rotating parts (not including rotor)	4 = 1.4571 X = Special materials, e.g. also for joint components		
⑮	Rotor material	3 = 1.2436 4 = 1.4571	X = Special materials, e.g. other metals, plastics	
⑯	Stator material	WB = Soft natural rubber P = Acrylonitrile-butadiene rubbers (NBR) PL = Light-coloured acrylonitrile-Butadiene rubbers (NBR) N = Polychloroprene (N)	Y = Chlorosulfonated polyethylene (CSM) V = Chlorosulfonated polyethylene (CSM) HP = Acrylonitrile-butadiene rubbers, hydrated (HNBR) SL = Silicon light	X = Special materials, e.g. metal plastics, elastomers
⑰	Material of universal joint sleeve	P = Acrylonitrile-butadiene rubbers (NBR) PL = Light-coloured acrylonitrile-butadiene rubbers (NBR) N = Polychloroprene (N)	Y = Chlorosulfonated polyethylene (CSM) V = Fluoroelastomer (FPM) B = Butyl rubber	O = No sleeves fitted X = Special materials
⑱	Materials of shaft seal	Stuffing box: 5846 = Ramie fibre with PTFE impregnation, asbestos-free 6426 = Aramid endless fibre with PTFE impregnation, asbestos-free 6230 = Graphite-incorporated PTFE with sliding agent, asbestos-free		
Mechanical seal:				
Sliding material pairing		Spring and con. materials	Auxiliary gaskets	
1st figure for single seals		2nd figure	3rd figure for single seals	
2 = CrMo cast iron/hard carbon 4 = Ceramics/hard carbon 5 = hard metal/hard metal, highly wear-resistant 6 = silicon carbide/silicon carbide highly wear-resistant, corrosion-resistant 7 = silicon carbide/silicon carbide highly wear-resistant, highly corrosion-resistant X = special materials		A = 1.4300 F = 1.4571 L = Hastelloy B M = Hastelloy C4 X = special materials	P = Acrylonitrile-butadiene rubbers (NBR) ① double E = EP rubber PTFE-coated S = Silicon caoutchouc coated N = Polychloroprene (N) V = Fluoroelastomer (FPM) TTE = EP rubber ① TTV = Fluoroelastomer (FPM) ① TTS = Silicon rubber ① X = Special materials	

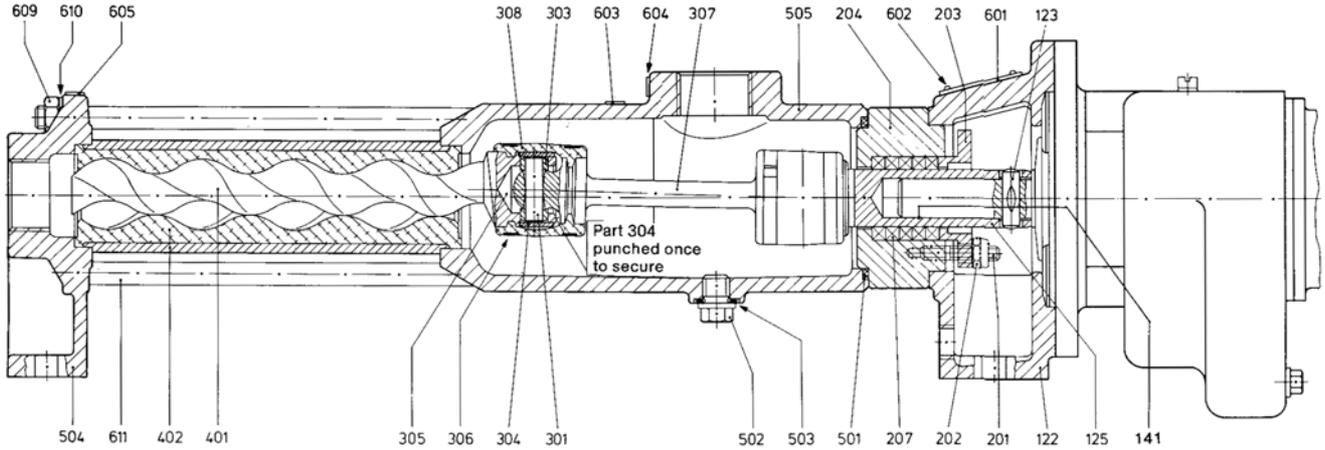
Performance Chart

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 ANBP Series. Information on performance ranges not covered by the ANBP 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.

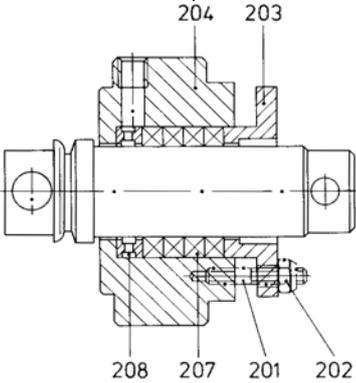
Sectional drawing and parts list



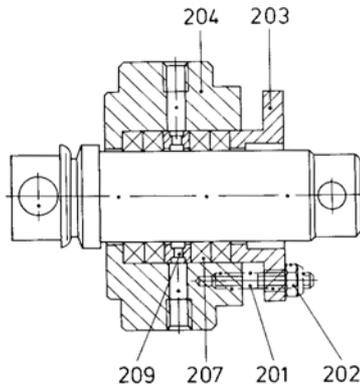
Bearings = **E** External (reinforced bearings in drive unit)

Shaft seal: **P01** Stuffing box of standard type (no lantern ring/no flushing ring).

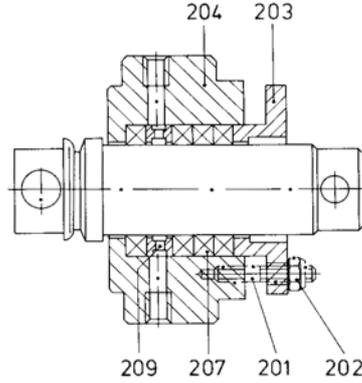
Particularly long packing allows pump to be used in a wide variety of applications. Permitted pressure at shaft seal $p = -0.7$ to 3.0 bar.



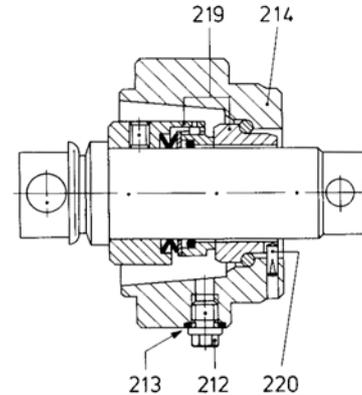
P02 Stuffing box with flushing ring. Suitable for highly abrasive pumped liquids with external flushing. $p = -0.7$ to 8 bar



P04 Stuffing box with external lantern ring. For use where external sealing liquid incompatible with pumped liquid or where the ingress of air is to be prevented. $p = -0.9$ to 4.0 bar



P03 Stuffing box with internal lantern ring. Suitable for uncontaminated pumped liquids with internal liquid sealing, or for abrasive pumped liquids with external liquid sealing. $p = -0.8$ to 6 bar

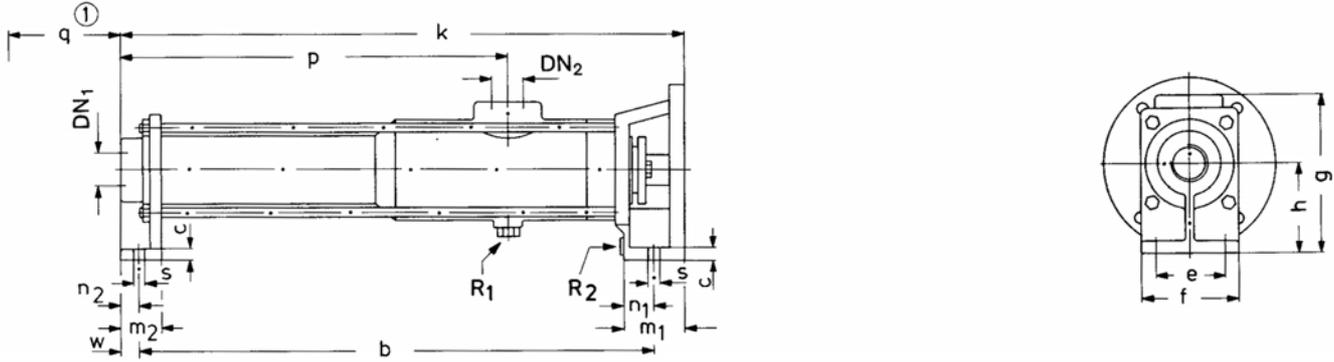


G00 to G03 mechanical seal, single acting non-balanced can be used for pressures of $p = -0.5$ to 10 bar consult manufacturers.

Part No.	Description
122	Lantern
123	Drive Pin
125	Hollow Shaft
141	Lubricating paste
201	T-head bolt
202	Self-locking nut
203	Packing gland
204	Stuffing box housing
207	Stuffing box packing
208	Flushing ring
209	Lantern ring
212	Screwed plug
213	Washer
214	Mechanical seal housing
219	Mechanical seal
220	Retaining pin
301	Coupling rod pin
303	Guide bush
304	Retaining sleeve
305	Joint lubricant
306	Clamping band
307	Coupling rod
308	Cover sleeve
401	Rotor
402	Stator
501	O-ring for suction casing
502	Screwed plug
503	Washer
504	Discharge casing
505	Suction casing
601	Name plate
602	Dome headed grooved pin
603	Instruction label for commissioning
604⓪	Suction label
605⓪	Discharge label
609	Hexagon nut
610	Washer
611	Tie rod

⓪ So positioned for normal direction of rotation (counter-clockwise looking from drive end). For clockwise rotation the labels change places

Pump dimensions, auxiliary connections, weights

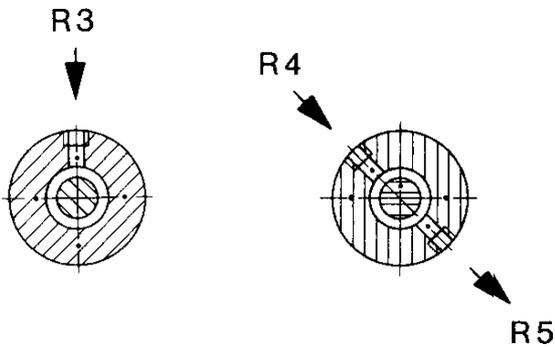


Dimensions in mm.
Internal diameters of suction, discharge and auxiliary connections in inch.
The manufacturer reserves the right to make technical modifications without prior notice.

Direction of rotation:
Counterclockwise looking from the drive end is standard, in which case DN₁ = delivery connection, DN₂ = suction connection.
Opposite direction of rotation is possible in which case DN₁ = suction connection, DN₂ = delivery connection.

Pump size	Pump dimensions														Suction/Discharge connections DN ₂ /DN ₁ ⊗	Approx. weight in kg	
	b	c	e	f	g	h	k	m ₁	m ₂	n ₁	n ₂	p	q ^①	s			w
3.2	372						414	46	35	23	17	270	160			R 1	11,0
6.2	412	10	70	85	135	80	454					310	160	9	17	R 1	11,3
12.2	448						490					346	190			R 1 1/4	11,6

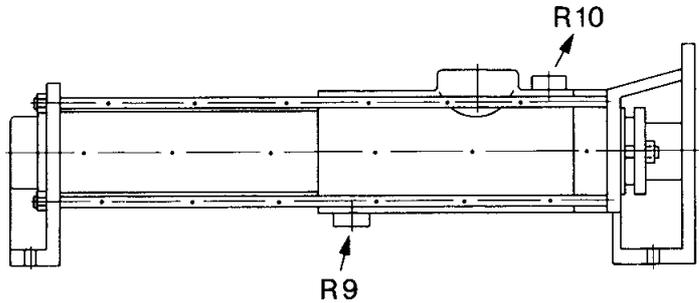
Positions of auxiliary connections to shaft seals (looking from drive end)



Stuffing box P 02

Stuffing box P 03 and P 04

Auxiliary connections where jacket fitted for heating or cooling (only available with stainless steel versions)^④



Sizes/Tappings of auxiliary connections

Drain opening ③ R1	Outlet for gland leakage ② R2	Flushing connection ③ R3	Gland seal connection ③ R4/R5	Heating/cooling connections ③ R9/R10
G 1/4	G 1/4	G 1/8	G 1/8	G 3/8

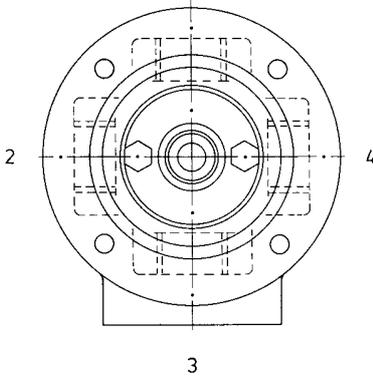
- ① Space required for stator replacement
- ② Straight internal threaded to DIN 2999, part 1
- ③ Straight internal threaded to ISO 228
- ④ Heating or cooling liquid:
max. permissible pressure 10 bar
max. permissible temperature 100°C

All auxiliary connections can, on request also be supplied in the same nominal bore with NPT-thread

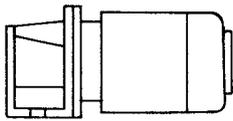
For technical characteristics of the drives see separate information sheet 19-46.0000-001-4 and 19-46.0000-007-4

Possible branch positions
looking from drive end

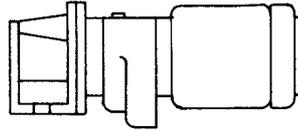
1 = Standard



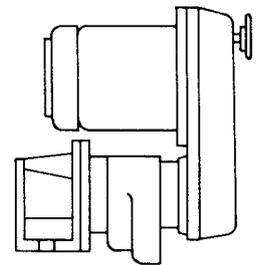
Possible drive arrangements



ANBP with electric motor



ANBP with geared motor



ANBP with infinitely variable speed gear

Series ANBP

ALLWEILER



Stand: 03.02GB

Range of eccentric screw pumps	Series	Number of stages	Maximum output $\Delta p = 0$ bar		Maximum del. pressure bar	Maximum viscosity mPa·s
			m ³ /h	l/min		
	AE1L-ID	1	162	2700	4	200.000
	AE.E-ID	1,2	450	7500	10	300.000
	AE.N-ID	1,2	290	4850	16	270.000
	AE.H-ID	2,4	174	2900	24	270.000
	AEB1L-IE	1	162	2700	4	200.000
	AEB.E-IE	1,2	174	2900	6	300.000
	AEB.N-IE	1,2	111	1850	12	270.000
	AEB4H-IE	4	12	200	24	270.000
	AE.N...-RG	1,2,4	30	500	20	1.000.000
	TECFLOW	1	162	2700	4	200.000
	SEZP	1,2	21	350	10	1.000.000
	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 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.

ALLWEILER



A Member of the
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