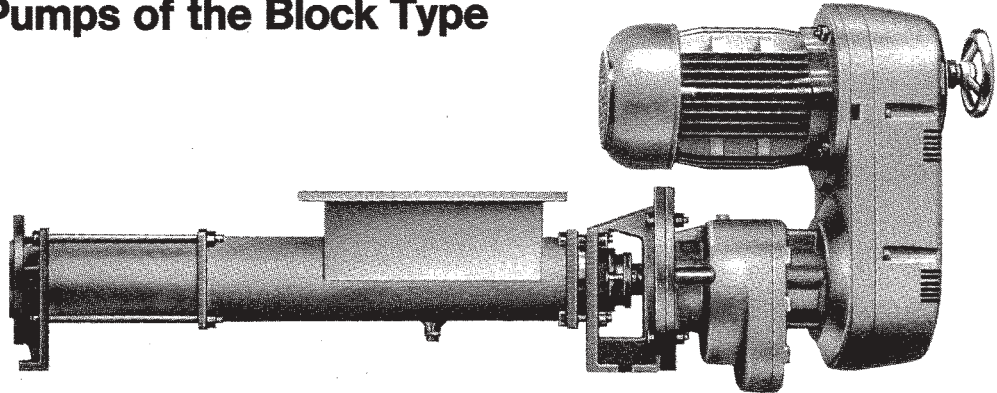


Eccentric Screw Pumps of the Block Type Series SNZBP



Application

For pumping highly viscous or non-flowable, neutral or corrosive liquids, pure or abrasive liquids, liquids containing gases including those with fibrous and solids content.

Principal fields of application

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

Operation

Rotary self-priming, positive displacement pumps whose pumping elements are the rotating eccentric screw (the rotor), the fixed stator and the auger-type inlet conveyor. In any cross-sectional plane, rotor and stator are in contact with one another at two points, and along the length of the conveying elements, these points form two sealing lines. 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 discharge side of the pump. Despite the fact that the rotor rotates, no turbulence is produced. The constant chamber volume of the enclosed cavities excludes any pressurizing forces thus assuring an extremely gentle low-surge pumping action.

Design features

The pump and drive are flanged together into a block unit by means of a motor lantern. The suction casings of all sizes have a trough-shaped inlet fitted with a rectangular flange for attachment of feed hoppers. The auger-type inlet conveyor arranged on the coupling rod in the suction casing conveys the pumped medium from the trough through a stuffing chamber into the conveying elements of the pump.

The stator which is vulcanized into a tubular or shell casing (uniform elastomer wall thickness) is provided with external collars vulcanized to both ends. These provide a safe seal of the suction casing and discharge casing and also protect the stator casing against corrosion.

The exchangeable stuffing box or mechanical seal housing is arranged between motor lantern and suction casing (pumps can retroactively be converted to a different type of seal).

The drive torque is transmitted to the rotor via a hollow shaft and a coupling rod. The coupling rod terminates at both ends in liquid-sealed pin-type universal joints which are of particularly simple and rugged design and readily absorb the eccentric movement of the rotor.

Shaft seal

By means of uncooled stuffing boxes or uncooled maintenance-free non-balanced single-acting mechanical seal. Mounting chambers for mechanical seals according to DIN 24960 - KU.

Seal faces and types are adapted to the respective operating conditions.

For further details, see pages 3 and 5

Bearing

The drive shaft/hollow shaft is supported in the special heavy-duty bearings of the electric motors, geared motors or variable-speed gears which, at the same time, absorb the axial forces occurring.

As all drives are only supplied with reinforced bearings, it is assured that the allocated pumps can always be fully run within their permissible operation limits.

Drive

Non-explosion-proof or explosion-proof three-phase motors, geared motors or variable-speed gears can be provided for the drive. For possible types of drives, see page 7. For the corresponding technical characteristics and dimensions, see separate information sheets 1-32-08 and 1-32-10.

The fact that the mating dimensions of all types of drives are identical within one pump size is of a material advantage. As a result hereof, subsequent conversion to a different type or size of drive is easily possible.

Installation

SNZBP pumps are installed horizontally.

Interchangeability of parts

The components of all eccentric screw pumps are produced to a modular system. Thus, easy and inexpensive stockkeeping of spare parts is assured even when using pumps of different series and designs in one and the same installation.

Technical characteristics

Flow rates, permissible speed ranges and drive powers required can be taken from the performance chart on page 4 or from the separate individual pump characteristics.

		single-stage	two-stage
Flow rate	Q l/min up to	750	
Temperature of liquid pumped	t °C ① up to	100	
Differential pressure	single-stage	6 ②	-
	two-stage	-	12
Pump discharge pressure	p _d bar up to	13	
Suction obtainable	p _s bar up to	0.5 ③	
Viscosity	η mPa s up to	1.000.000 ④	
Permissible solids content	% by vol. up to	95 ⑤	

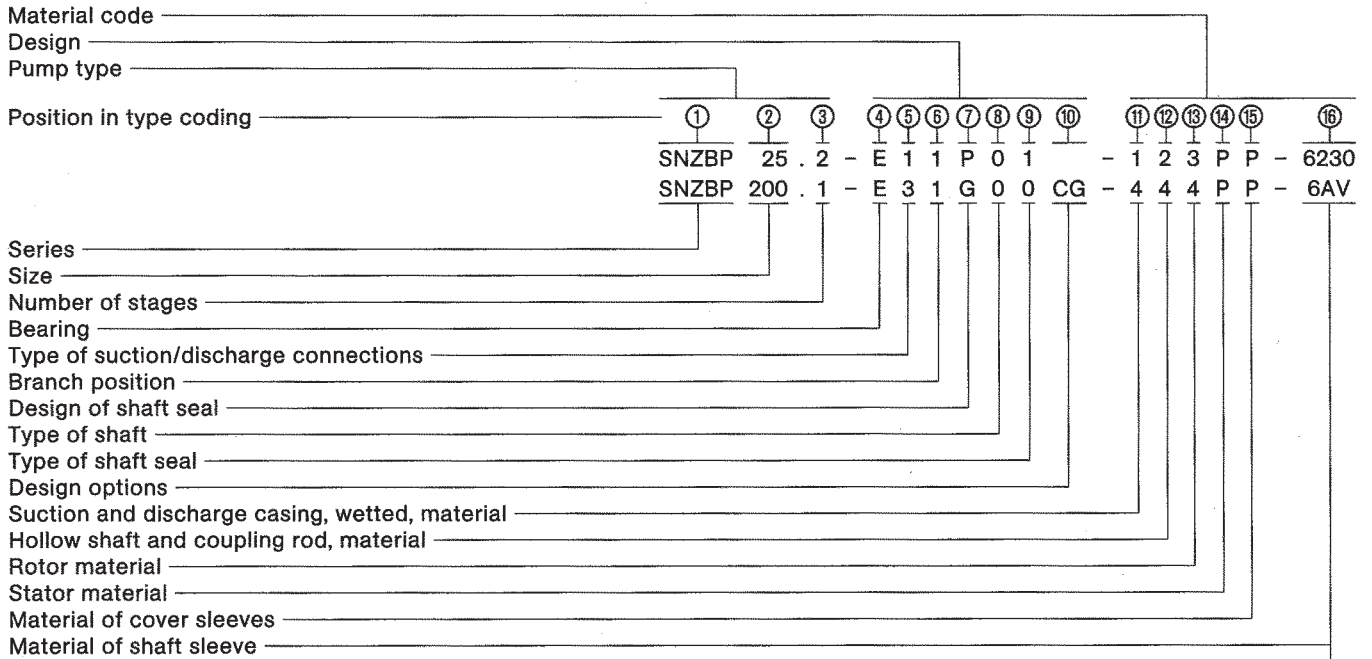
Max. permissible particle sizes and fibre lengths

Pump size	25	50	100	200	380	750	1450
max. particle size mm	2,5	3	3,8	5	6,8	9,5	14
max. fibre length mm	42	42	48	60	79	98	130

Increases in the solids content and particle size require a reduction of the pump speed.

- ① Depending on the liquid pumped and the elastomers used.
- ② 12 bar for stator with uniform elastomer wall thickness.
- ③ Depending on operating conditions, stage number and shaft seal type.
- ④ Depending on liquid pumped, speed and pump size.
- ⑤ Depending on pump size as well as kind and size of solids.

Type coding



① SNZBP ② 25 ③ . 2 ④ - E ⑤ 1 ⑥ 1 ⑦ P ⑧ 0 ⑨ 1 ⑩ - ⑪ 1 ⑫ 2 ⑬ 3 ⑭ P ⑮ P ⑯ - ⑰ 6230
 SNZBP 200 . 1 - E 3 1 G 0 0 CG - 4 4 4 P P - 6AV

Example: single-acting mechanical seal — Seal faces —
 Springs and construction materials —
 Auxiliary seals —

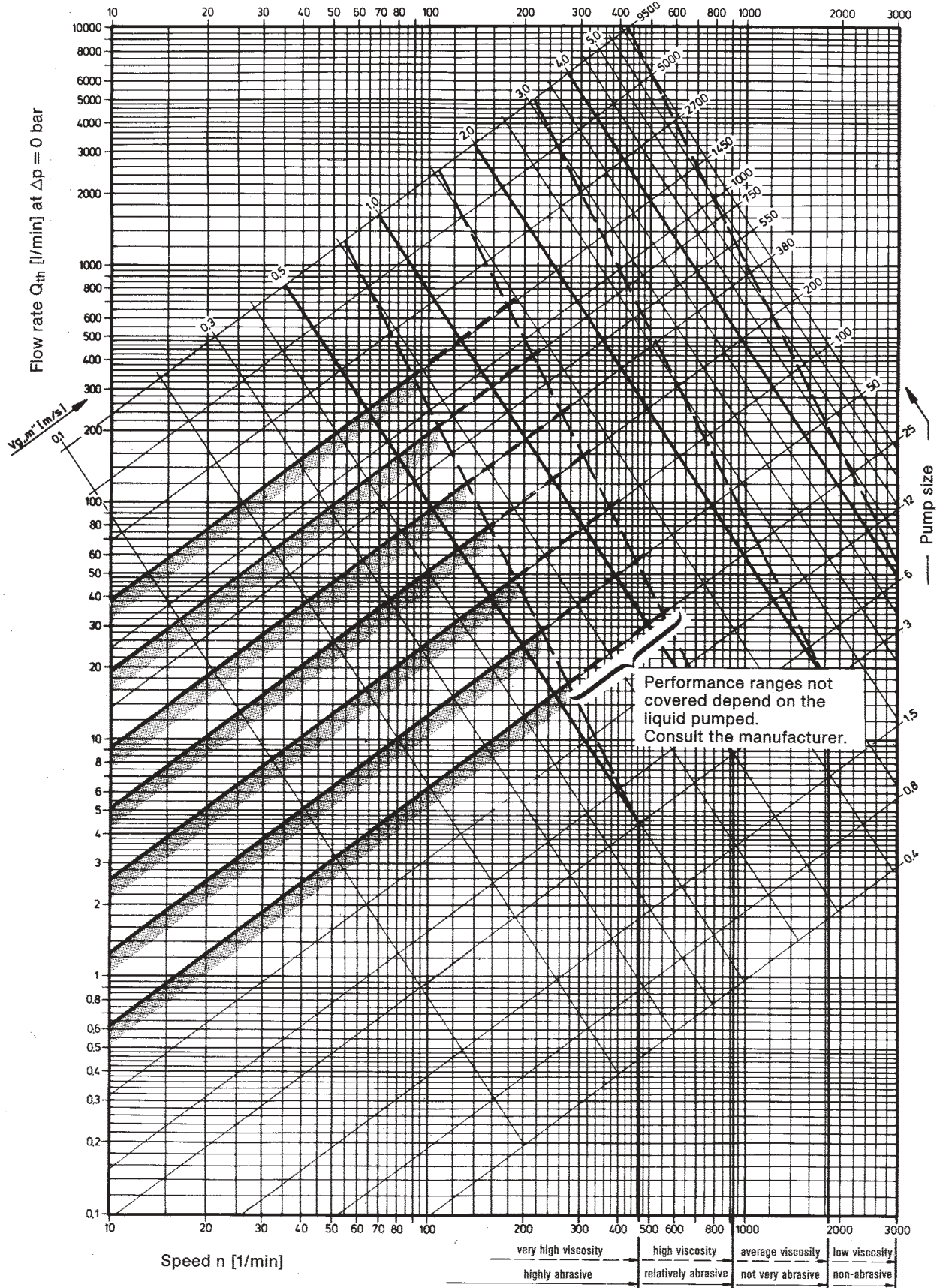
Explanatory notes on the type coding:

Position in type coding	Designation	Design
①	Series	ALLWEILER eccentric screw pump of the block type
②	Size	Possible sizes: 25, 50, 100, 200, 380, 750, 1450. The numbers indicate the theoretical flow rate in l/min at n = 400 r.p.m. and Δp = 0 bar
③	Number of stages	1 = single-stage up to Δp 6 bar (Δp 12 bar for stator with uniform elastomer wall thickness) 2 = two-stage up to Δp 12 bar (size 25 only available as 2-stage pump)
④	Bearing	E = external bearing in the drive aggregate
⑤	Type of suction/discharge connections	Suction casing connection according to dimensional drawing, page 6 Discharge connection type: 1 = DIN flanges 2 = Threaded connections 3 = ANSI flanges X = Special-type suction and/or outlet connection — according to dimensional drawing pages 6 and 7
⑥	Branch position	1 = Arrangement see drawing on page 7
⑦	Design of shaft seal	P = Stuffing box or other non-mechanical seal G = Mechanical seal
⑧	Type of shaft	0 = Shaft without wear sleeve

⑨	Type of shaft seal	<p>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 sense of rotation, single spring, auxiliary seals of elastomer G.1 = As for G.0, but with multiple springs G.2 = As for G.0, but auxiliary seals double PTFE-coated G.3 = As for G.1, but auxiliary seals double PTFE-coated G.X = Special-type mechanical seals</p>											
⑩	Design options	<p>Stators with non-uniform elastomer wall thickness (all qualities)</p> <p>N } Rotor with thermal expansion M } clearance as a function of the H } temperature of the liquid pumped T }</p> <p>C = Rotor hard-chrome plated Y = Rotor ductile hard-chrome plated Z = Rotor metal-coated</p>	<p>Stators with uniform elastomer wall thickness (all qualities)</p> <p>D } Rotor with thermal expansion E } clearance as a function of the F } temperature of the liquid pumped R }</p> <p>J = Rotor hollow-pressed G = Stator with uniform elastomer wall thickness X = Other designs</p>										
⑪	Suction and discharge casing, wetted, material	<p>1 = cast iron GG-25/St 2 = 1.4308/1.4301 4 = 1.4408/1.4571 X = Special materials</p>											
⑫	Hollow shaft and coupling rod, material	<p>2 = 1.4301/1.4571 4 = 1.4571 X = Special materials, e.g. also for joint parts</p>											
⑬	Rotor materials	<p>2 = 1.4301 3 = 1.2436/1.2379</p>	<p>4 = 1.4571 X = Special materials, e.g. other metals, plastic materials</p>										
⑭	Stator materials	<p>WB = Soft natural rubber P = Perbunan N PL = Perbunan light N = Neoprene Y = Hypalon</p>	<p>YL = Hypalon light V = Viton HP = Perbunan hydrogenated SL = Silicon light VU = Vulcollan</p>										
⑮	Materials of cover sleeves	<p>P = Perbunan N PL = Perbunan light N = Neoprene</p>	<p>Y = Hypalon V = Viton B = Butyl rubber</p>										
⑯	Shaft seal materials	<p>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 X = Other packing materials</p> <p>Mechanical seal:</p> <table border="1" data-bbox="418 1598 1490 1881"> <thead> <tr> <th data-bbox="418 1598 764 1629">Seal faces</th> <th data-bbox="764 1598 1154 1629">Springs and construction materials</th> <th data-bbox="1154 1598 1490 1629">Auxiliary seals</th> </tr> <tr> <th data-bbox="418 1629 764 1661">1st figure</th> <th data-bbox="764 1629 1154 1661">2nd figure</th> <th data-bbox="1154 1629 1490 1661">3rd figure</th> </tr> </thead> <tbody> <tr> <td data-bbox="418 1661 764 1881"> 2 = CrMo cast iron/hard carbon 4 = Ceramics/hard carbon 5 = Carbide/carbide, 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 </td> <td data-bbox="764 1661 1154 1881"> A = 1.4300 F = 1.4571 L = Hastelloy B M = Hastelloy C4 X = Special materials </td> <td data-bbox="1154 1661 1490 1881"> P = Perbunan E = EP rubber S = Silicon caoutchouc N = Neoprene V = Viton TTE = EP rubber ① TTV = Viton ① TTS = Silicon rubber ① X = Special materials </td> </tr> </tbody> </table>			Seal faces	Springs and construction materials	Auxiliary seals	1st figure	2nd figure	3rd figure	2 = CrMo cast iron/hard carbon 4 = Ceramics/hard carbon 5 = Carbide/carbide, 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 = Perbunan E = EP rubber S = Silicon caoutchouc N = Neoprene V = Viton TTE = EP rubber ① TTV = Viton ① TTS = Silicon rubber ① X = Special materials
Seal faces	Springs and construction materials	Auxiliary seals											
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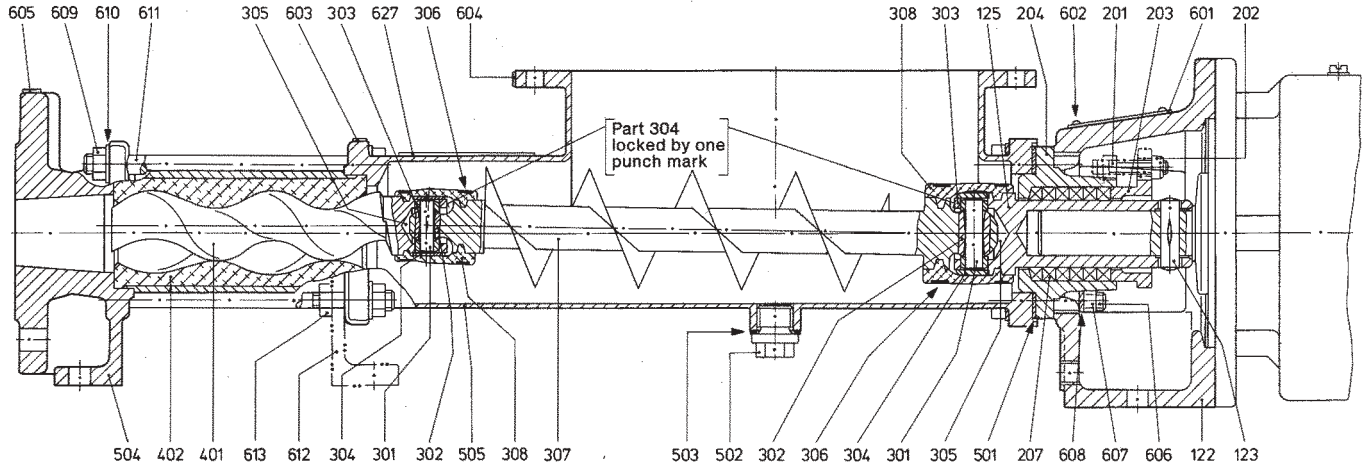
Performance chart

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



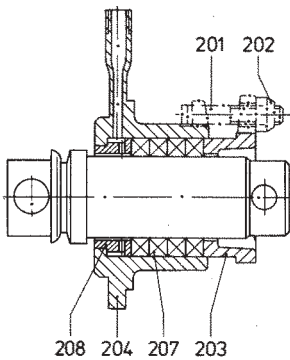
Sizes of SNZBP series. Information on performance ranges not covered by the SNZBP series can be found on the back cover of this brochure or in the separate brochures dealing with the other series. For exact performance data, see the individual pump characteristics.

Sectional drawing and parts list

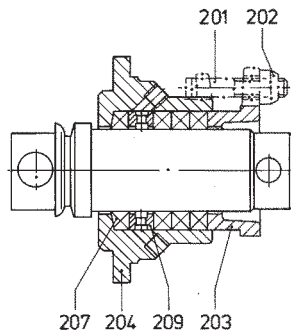


Bearing: **E** (external bearing in the drive unit)

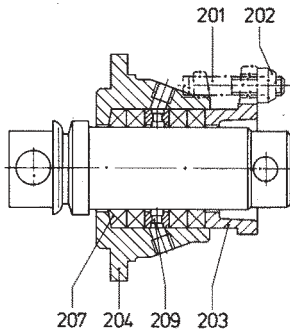
Shaft seal: **P01** Stuffing box of standard type (no lantern ring/no flushing ring). Particularly long packing allows pump to be used in a wide variety of applications. Permitted pressure at shaft seal $p = -0.5$ to 1.0 bar



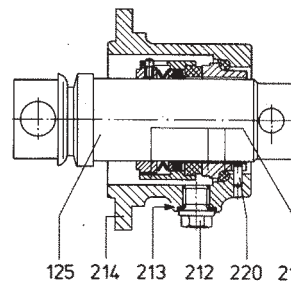
P02 Stuffing box with flushing ring
Suitable for highly abrasive liquids, with external flushing
 $p = -0.5$ to 1.0 bar



P03 Stuffing box with internal lantern ring
Suitable for pure liquids with internal liquid sealing or for abrasive liquids
 $p = -0.5$ to 1.0 bar



P04 Stuffing box with external lantern ring
For use where the external flushing liquid is not compatible with the pumped liquid or where the ingress of air is to be prevented
 $p = -0.5$ to 1.0 bar

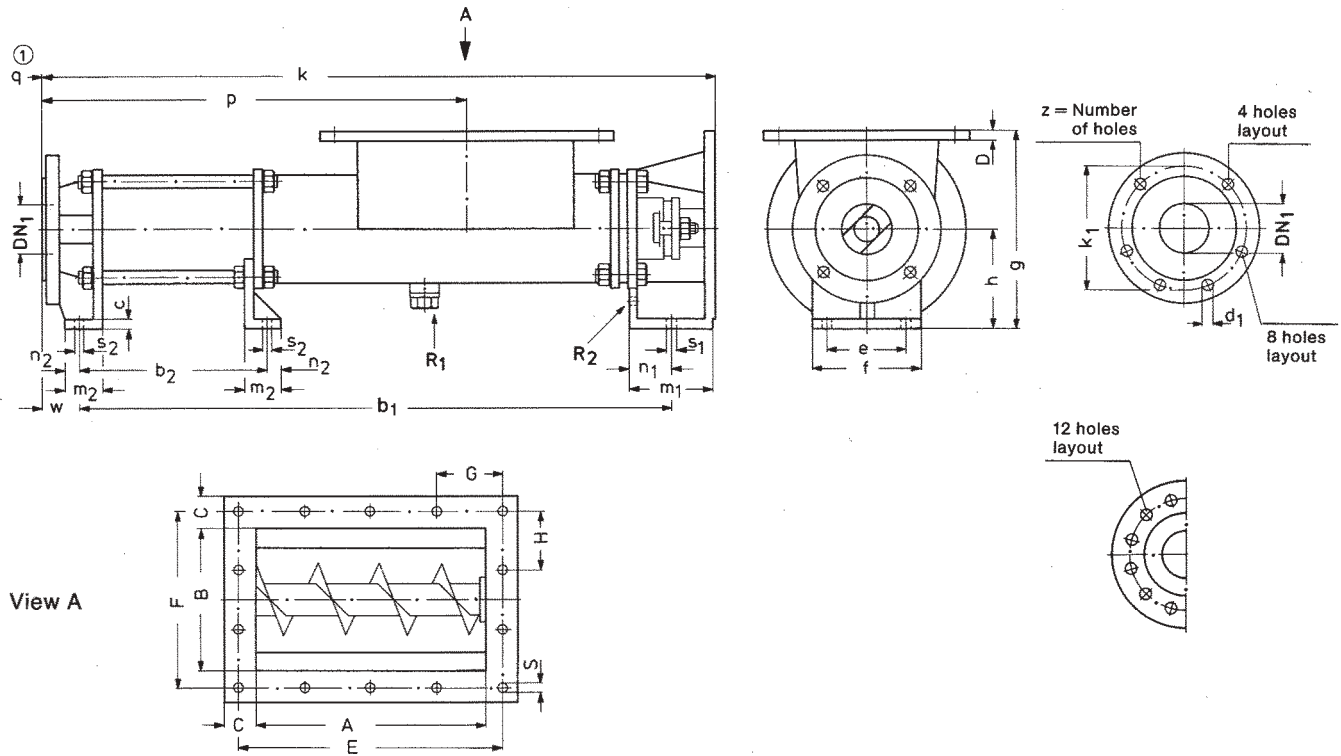


G00 to G03 Mechanical seal, single-acting, non-balanced
For application details, consult manufacturer
 $p = -0.5$ to 1.0 bar

Part No.	Denomination
122	Motor lantern
123	Drive pin
125	Hollow shaft
201	T-head bolt
202	Self-locking nut
203	Gland
204	Stuffing box housing
207	Stuffing box packing
208	Flushing ring
209	Lantern ring
212	Screwed plug
213	Sealing ring
214	Mechanical seal housing
219	Mechanical seal
220	Retaining pin
301	Coupling rod pin
302	Coupling rod bush
303	Guide bush
304	Retaining sleeve
305	Joint grease
306	Clamping band
307	Coupling rod
308	Cover sleeve
401	Rotor
402	Stator
501	Suction casing gasket
502	Screwed plug
503	Sealing ring
504	Discharge casing
505	Suction casing
601	Name plate
602	Dome-headed grooved pin
603	Instruction label for commissioning
604	Suction label
605	Discharge label
606	Hexagon screw
607	Hexagon nut
608	Serrated lock washer
609	Hexagon nut
610	Washer
611	Tie rod
612	Ⓢ Support
613	Ⓢ Hexagon nut
627	Caution label

Ⓢ only for sizes 750.2 and 1450.2

Pump dimensions, auxiliary connections, possible branch positions, weights



Dimensions in mm, nominal widths of ANSI flanges (DN) and pitch of round threads in inches. Subject to alterations without prior notice.

Sense of rotation: Counterclockwise looking from the drive end

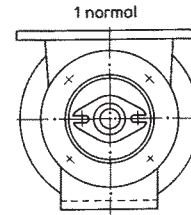
Size	Pump dimensions														Mating dimensions for inlet aperture										Max. weight kg
	b ₁	b ₂	c	e	f	g	h	m ₁	m ₂	n ₁	n ₂	q ^①	s ₁	s ₂	A	B	C	D	E	F	G	H	S		
25.2	674	-	11	78	103	180	90	72	38	36	14	330	12	12	200	125	33	10	246	170	82	85	11,5	22	
50.1	685	-	11	95	120	200	100	86	40	43	15	380	12	12	244	145	33	10	288	189	72	63	11,5	27	
50.2	845	-	11	95	120	200	100	86	40	43	15	380	12	12	244	145	33	10	288	189	72	63	11,5	31	
100.1	818	-	13	105	137	240	125	95	45	48	18	490	14	14	290	170	33	10	335	216	67	72	11,5	43	
100.2	1018	-	13	105	137	240	125	95	45	48	18	490	14	14	290	170	33	10	335	216	67	72	11,5	50	
200.1	1000	-	14	120	155	270	140	118	50	39	20	590	14	14	350	200	44	12	410	258	82	86	14	58	
200.2	1252	-	14	120	155	270	140	118	50	39	20	590	14	14	350	200	44	12	410	258	82	86	14	71	
380.1	1166	-	15	145	185	310	160	127	55	33	20	730	18	18	410	260	44	12	470	320	94	80	14	-	
380.2	1472	-	15	145	185	310	160	127	55	33	20	730	18	18	410	260	44	12	470	320	94	80	14	-	
750.1	1455	-	17	170	215	350	180	146	65	35	25	920	18	18	522	300	44	12	581	360	83	90	14	-	
750.2	1855	860	17	170	215	350	180	146	65	35	25	920	18	18	522	300	44	12	581	360	83	90	14	-	
1450.1	1809	-	20	200	250	420	225	165	85	41	35	1100	23	23	630	370	44	12	688	430	86	86	14	-	
1450.2	2314	1090	20	200	250	420	225	165	85	41	35	1100	23	23	630	370	44	12	688	430	86	86	14	-	

Size	Mating dimensions for suction and discharge connections															
	Flanges DIN 2501, PN 16 ^②				Threaded connectors DIN 11887-A				Flanges ANSI B 16.1 Class 125 ^③				Flanges ANSI B 16.5 Class 150 ^③			
	DN ₁	k	p	w	DN ₁	k	p	w	DN ₁	k	p	w	DN ₁	k	p	w
25.2	40	746	520	32	40	746	520	32	1 1/2	745	519	31	1 1/2	745	519	31
50.1	50	767	495	36	50	767	495	36	2	765	493	34	2	765	493	34
50.2	50	927	655	36	50	927	655	36	2	925	653	34	2	925	653	34
100.1	65	909	596	40	65	909	596	40	2 1/2	909	596	40	2 1/2	909	596	40
100.2	65	1109	796	40	65	1109	796	40	2 1/2	1109	796	40	2 1/2	1109	796	40
200.1	80	1124	743	42	80	1124	743	42	3	1124	743	42	3	1124	743	42
200.2	80	1376	995	42	80	1376	995	42	3	1376	995	42	3	1376	995	42
380.1	100	1309	863	46	-	-	-	-	4	1313	867	50	4	1313	867	50
380.2	100	1615	1169	46	-	-	-	-	4	1619	1173	50	4	1619	1173	50
750.1	150	1613,5	1064	45	-	-	-	-	6	1617,5	1068	49	6	1617,5	1068	49
750.2	150	2013,5	1464	45	-	-	-	-	6	2017,5	1468	49	6	2017,5	1468	49
1450.1	200	1997	1337	60	-	-	-	-	8	2002	1342	65	8	2002	1342	65
1450.2	200	2502	1842	60	-	-	-	-	8	2507	1847	65	8	2507	1847	65

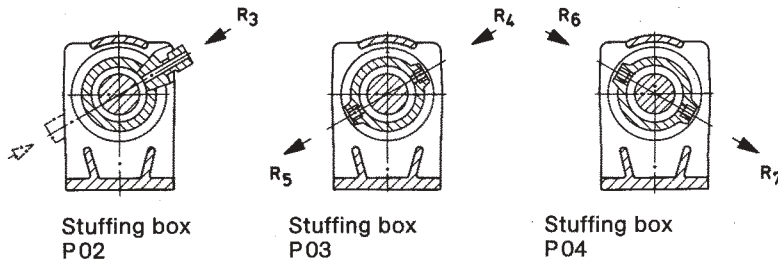
① Space required for stator replacement
 ② Sealing surface DIN 2526, shape C, machined acc. to shape A
 ③ Sealing surface: stock finish

Dimensions of flanges and threaded connections									
Flanges								Threaded connections	
DIN 2501, PN 16				ANSI B16.1/16.5, Class 125/150				DIN 11 887-A	
DN ₁	k ₁	d ₁	z	DN ₁	k ₁	d ₁	z	DN ₁	Thread
40	110	18	4	1 1/2	98,4	15	4	40	Rd 65 x 1/6
50	125	18	4	2	120,7	19	4	50	Rd 78 x 1/6
65	145	18	4	2 1/2	139,7	19	4	65	Rd 95 x 1/6
80	160	18	8	3	152,4	19	4	80	Rd 110 x 1/4
100	180	18	8	4	190,5	19	8	-	-
150	240	22	8	6	241,3	22	8	-	-
200	295	22	12	8	298,5	22	8	-	-

Possible branch positions looking from drive end



Arrangement of auxiliary connections at the shaft seals (looking from drive end)



Nominal diameters of auxiliary connections

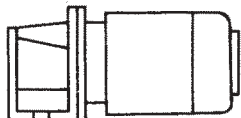
Size	Drain opening	Outlet for gland leakage	Flushing	Sealing	
	R ₁ ①	R ₂ ①		R ₄ / R ₅ ③	R ₆ / R ₇ ③
25.2	R _p 1/2	R _p 3/8	R 1/8 ②	M 8 x 1	M 8 x 1
50.1	R _p 1/2	R _p 3/8	R 1/8 ②	M 8 x 1	R _p 1/8
50.2	R _p 1/2	R _p 3/8	R 1/8 ②	M 8 x 1	R _p 1/8
100.1	R _p 1/2	R _p 1/2	R 1/8 ②	M 8 x 1	R _p 1/8
100.2	R _p 1/2	R _p 1/2	R 1/8 ②	M 8 x 1	R _p 1/8
200.1	R _p 1/2	R _p 3/4	R 1/8 ②	R _p 1/8	R _p 1/8
200.2	R _p 1/2	R _p 3/4	R 1/8 ②	R _p 1/8	R _p 1/8
380.1	R _p 1/2	R _p 3/4	R _p 1/8 ③	R _p 1/4	R _p 1/4
380.2	R _p 1/2	R _p 3/4	R _p 1/8 ③	R _p 1/4	R _p 1/4
750.1	R _p 1/2	R _p 3/4	R _p 1/8 ③	R _p 1/4	R _p 1/4
750.2	R _p 1/2	R _p 3/4	R _p 1/8 ③	R _p 1/4	R _p 1/4
1450.1	R _p 1/2	R _p 1	R _p 1/8 ③	R _p 1/4	R _p 1/4
1450.2	R _p 1/2	R _p 1	R _p 1/8 ③	R _p 1/4	R _p 1/4

- ① Pipe thread according to DIN 2999; Part 1 (female)
- ② Pipe thread according to DIN 2999; Part 1 (male)
- ③ Tapped hole DIN 3852, shape Z

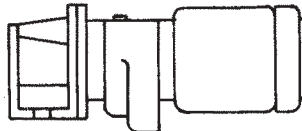
Tappings for pressure gauges can be provided, if required, at extra cost.

On request, auxiliary connections R1 to R7 are also available with NPT threads (same I.D.).

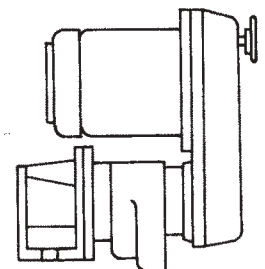
Possible drive arrangements



SNZBP with electric motor



SNZBP with geared motor



SNZBP with infinitely variable-speed drive

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
	AED.E-ID	1	720	12000	8	250.000
	AE.N...RG	1,2,4	21	350	20	1.000.000
	AED.N-ID	2	450	7500	16	225.000
	SLBP	1	90	1500	5	75.000
	SEBP	1,2	174	2900	6	300.000
	SEDBP	1	258	4300	6	250.000
	SEZP	1,2	21	350	10	1.000.000
	SNBP	1,2	111	1850	12	300.000
	SNDBP	2	174	2900	12	225.000
	SHP	2,4	110	1830	24	270.000
	SHBP	4	21	350	24	85.000
	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	23.000
	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	0,09	1,5	12	20.000
	ADBP	3	0,09	1,5	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	4,2	70	4	100.000
	ASH	60	1000	15	100.000

Macerator range	Series	Maximum throughput m ³ /h	Generated delivery head m
	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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