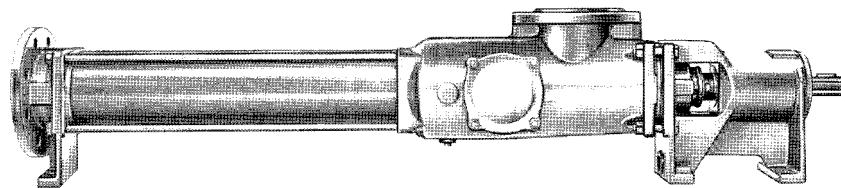


Eccentric Screw Pumps

Series AE1N, AE2N Design ID



Application

For handling liquid to highly viscous, neutral or aggressive, uncontaminated or abrasive liquids, liquids containing gases or which tend to froth, also containing fibres and solid matter.

In waste water and waste water treatment engineering, chemical and petrochemical industry, paper and cellulose industry, soap and fats industry, paint and lacquer industry, food and beverage industry, plastics industry, ceramics industry, agriculture, sugar industry and in shipbuilding.

Function

Self-priming, single or two-stage, rotary positive displacement pump. Conveying elements are the rotating eccentric screw (rotor) and the fixed stator. In the cross-sectional plane, both are in contact with one another at two points forming two sealing lines along the length of the conveying elements. The contents of the sealed chambers which are formed as the rotor turns are displaced axially and with complete continuity from the suction to the delivery end of the pump. Despite rotor rotation, there is no turbulence. The constant chamber volume excludes squeezing, thus ensuring an extremely gentle low-pulsating delivery.

Structural design

By external casing connecting screws (clamping screws), the pressure casing, stator and suction casing are interconnected. The suction casings are designed particularly favourable to flow. The pump sizes 100 to 5000 in cast iron design are provided with staggered holes for cleaning. The stator vulcanized into a tube or shell casing (even elastomer wall thickness) is provided with external collars vulcanized to it on both sides reliably sealing towards the suction casing and delivery casing and protecting the stator shell from corrosion.

Stators are supplied:

with uneven wall thickness:

- single-stage for all sizes,
- two-stage not for size 5000

with even wall thickness:

- single-stage not for sizes 25, 50
- two-stage only for sizes 100, 200, 380, 750, 1450

The exchangeable shaft sealing housing or mechanical seal housing (subsequent conversion to another sealing variant is possible) are arranged between the suction casing and bearing bracket. The sealing housings (shaft seals) are easily accessible as the complete bearing unit can be withdrawn from the driving shaft without any further pump dismounting.

Bearing of the driving spindle is effected in the bearing bracket. The torque of the drive is transmitted over the driving shaft and the joint shaft onto the rotor. On both sides, the joint shaft ends in liquid-tight encapsulated bolt joints, which are designed particularly simple and sturdy properly taking the eccentric movement of the rotor.

Shaft seal

By uncooled, cooled or heated stuffing box or by uncooled or cooled maintenance-free unbalanced, single or double-acting mechanical seal.

Material pairing and design are adapted to the respective operating conditions. For further data, refer to pages 4, 5.

The stuffing box or mechanical seal housings of the various shaft sealing types are interchangeable within one size. The various mechanical seal housing parts form a modular construction system and, in case of conversion to a different mechanical seal design, can be easily combined with one another.

Installation spaces for mechanical seals according to DIN 24 960 (except for double mechanical seal).

For further data, refer to pages 4, 5, 6 and 7.

Technical data

Deliveries, admissible speed ranges and required drive powers are to be taken from the performance graph on page 3 and/or the separate individual characteristic curves.

			AE1N	AE2N
Delivery	Q	l/min	up to	4800 2900
Temperature of fluid pumped	t	°C①	up to	150
Delivery pressure				
single-stage	Δp	bar	up to	6 ②
two-stage	Δp	bar⑦	up to	— 12 (16⑧)
Pump outlet pressure	p _d	bar④	up to	16 16 (25⑨)
Attainable underpressure	p _s	bar③	up to	0,95
Viscosity	η	mPa·s⑩	up to	270.000
Admissible solids content	Vol%⑪		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.

Max. admissible grain sizes and fibre lengths

Size	25	50	100	200	380
max. grain size mm	2,5	3	3,8	5	6,8
max. fibre length mm	42	42	48	60	79
Size	750	1450	2700	5000	
max. grain size mm	9,5	14	20	25	
max. fibre length mm	98	130	210	250	

Increasing solids content and increasing grain size require a reduction of the pump speed:

- ① depending upon the fluid to be pumped and the elastomers employed.
- ② 12 bar in the case of the stator with even elastomer wall thickness.
- ③ depending upon the pump size/design, speed, fluid to be pumped.
- ④ depending on direction of rotation, inlet pressure.
- ⑤ 16 bar for stator with even elastomer wall thickness – up to 24 bar please consult the manufacturer.
- ⑥ for sizes 100, 200, 380, 750, 1450 possible.
- ⑦ 12 bar for shaft with shaft sleeve.

Drive

Driving possibilities see page 12.

Drives of any manufacturers can be employed. For the technical data and dimensions, please refer to the documents of the manufacturers.

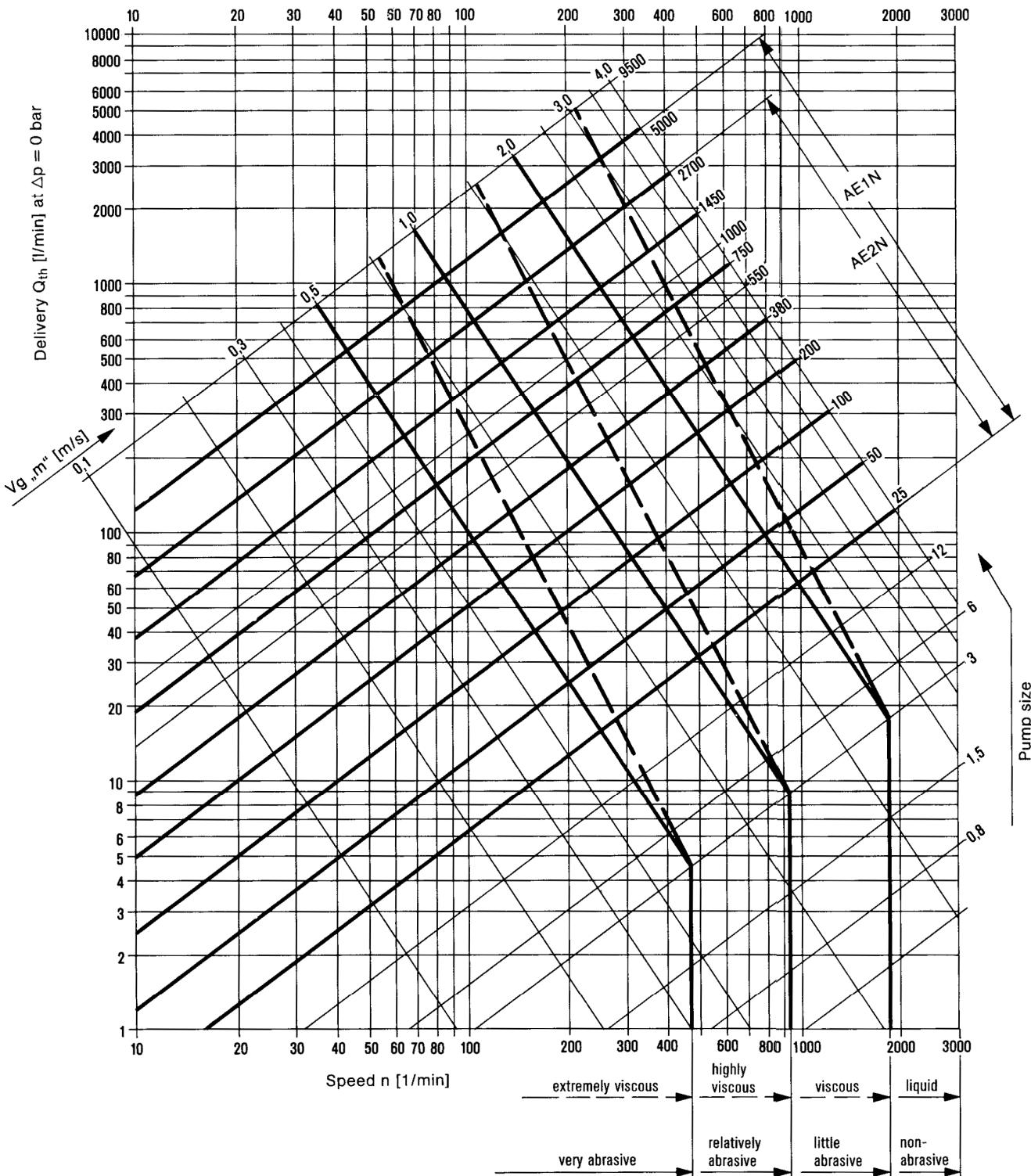
Installation

AE pumps may be installed horizontally or vertically. In case of vertical arrangement, "shaft shank downwards" is not admissible.

By means of a flexible coupling or via a gear (as a rule, V-belt drive), the pump and drive are connected with one another and mounted on a common base plate. For aggregate dimensions, please inquire.

Performance graph

For a rough selection of the pump size and speed as a function of the requested delivery and kind of fluid to be pumped. $v_{g,m}$ = available, mean sliding speed of the rotor in the stator.



Sizes of series AE1N, AE2N. Data on the performance range not covered by AE series are to be taken from the rear side of this brochure and/or the individual brochures of the other series.

For exact performance data, please refer to the individual characteristics.

Series AE1N, AE2N

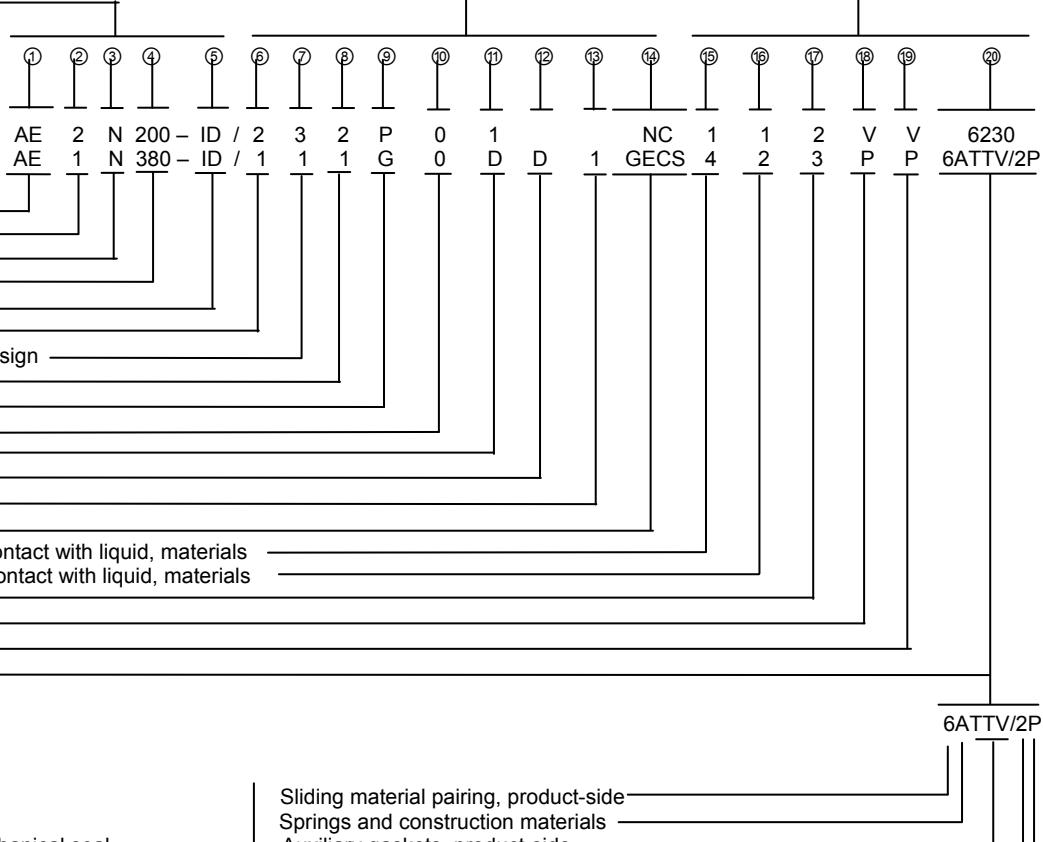
Design ID

Type code

Material design

Geometric design

Type series

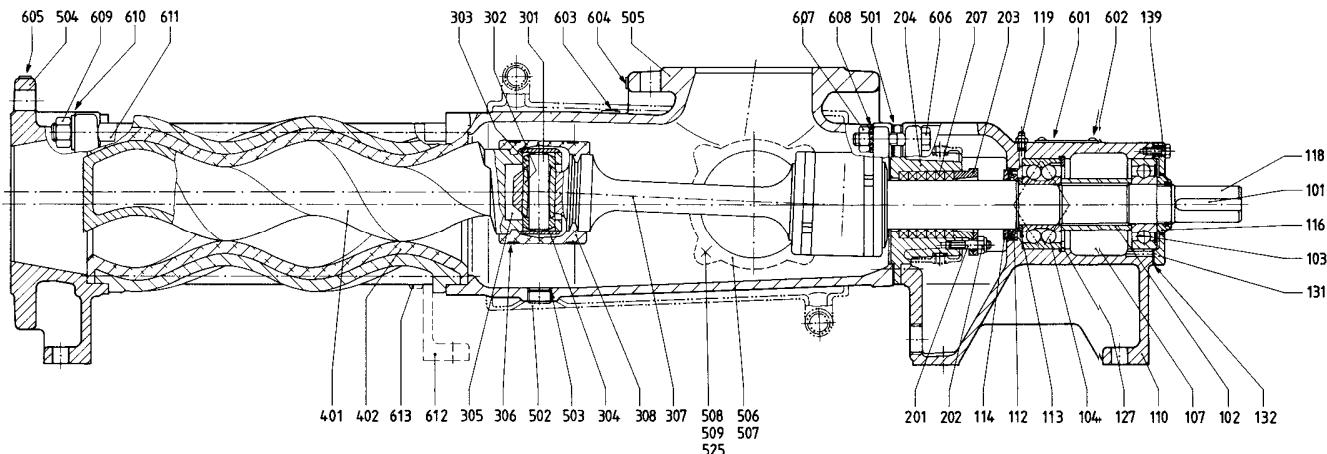


Example: double-acting mechanical seal

Position In type code	Designation	Design
①	Product	ALLWEILER eccentric screw pumps
②	Number of stages	1 = single-stage up to delivery pressure Δp 6 bar (sizes 25 to 5000) (Δp 12 bar for stator with even elastomer wall thickness) 2 = two-stage up to Δp = 12 bar (size 5000 only single-stage) up to Δp = 16 bar for stator with even elastomer wall thickness (up to Δp = 24 bar please consult the manufacturer)
③	Mechanical system	N = rated for delivery pressure Δp 16 bar (up to Δp 24 bar please consult the manufacturer)
④	Size	possible sizes: 25, 50, 100, 200, 380, 750, 1450, 2700, 5000. The numbers indicate the theoretic delivery in l/min with n = 400 1/min and Δp = 0 bar
⑤	Design	ID = Industrial design with external bearing
⑥	Bearing design	1 = hose-proof, radial bearing drive-side with sealing washer, axial bearing pump-side with shaft seal ring. Both bearings regreasable. For horizontal installation 2 = hose-proof, radial bearing on both sides with sealing washer, axial bearing pump-side with shaft seal-ring. Axial bearing regreasable, radial bearing lifetime-lubricated. For vertical installation with shaft shank upwards.
⑦	Suction and outlet branch design	1 = DIN flanges 3 = ANSI flanges] according to dimensional sheet, pages 9 and 10 X = Delivery branch DIN 2501, PN; ANSI B 16,1 Class 250; suction and/or branch of special design
⑧	Branch position	1, 2, 3, 4 – For the arrangement, please refer to the representation, page 9. Arrangement 3 for size 25 not possible.
⑨	Shaft seal type	P = Stuffing box or other non-mechanical shaft seal G = Mechanical seal (mechanical shaft seal)
⑩	Shaft design	0 = Shaft without shaft sleeve 1 = Shaft with shaft sleeve (not possible with pump size 25)
⑪	Shaft seal design	Stuffing boxes P01/P11 = Stuffing box of normal design (without sealing chamber ring/without flushing ring) P02/P12 = Stuffing box with flushing ring P03/P13 = Stuffing box with internal sealing chamber ring P04/P14 = Stuffing box with external sealing chamber ring P0X/P1X = Non-mechanical shaft seal of special design

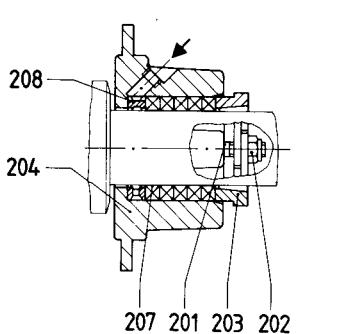
⑪	Shaft seal design (continued) X = design possible	Mechanical seals for pump sizes	25 50 100 200 380 750 1450 2700 5000
		Shaft diameter at the location of the shaft seal	25 30 35 43 53 60 75 90 110
		G0K/G1K = individual mechanical seal, DIN 24 960, design K, shape U	①X X X X X X X X X ②
		G0N/G1N = as above, however design N	X X X X X X X X X -
		G0S/G1S = individual mechanical seal, DIN 24 960, design K, shape U, rotating part with integrated locking device and pump-sided throttling ring	①X X X X X X X X X ②
		G0T/G1T = as above, however design N	①X X X X - X X - -
		G0Q/G1Q = individual mechanical seal, DIN 24 960, design K, shape U with quench	①X X X X X X X X X ②
		G0D/G1D = double mechanical seal	①② ② ② ② ② ② ② ② ②
		G0X/G1X = mechanical seal of special design	①② ② ② ② ② ② ② ② ②
		① not available with shaft sleeve	② for gasket design, please inquire.
⑫	Double shell	D = Double shell for heating/cooling, available in stainless steel only. Connections as threaded nipples for liquid media. Maximum heating/cooling pressure 6 bar, maximum heating temperature + 150°C, maximum cooling temperature -40°C	
⑬	Double shell Design	1 = Suction casing with double shell 2 = Stuffing box for P01/P11 with double shell 12 = Suction and shaft sealing housing P01/P11 with double shell X = Special design for other double shells	
⑭	Design variants	Stators with uneven elastomer wall thickness (all qualities) N [] Rotor with temperature play M [] as a function of the temperature H [] of the fluid pumped T [] of the fluid pumped	Stators with even elastomer wall thickness (all qualities) D [] Rotor with temperature play E [] as a function of the temperature F [] of the fluid pumped R []
		C = Rotor hard-chromium-plated Y = Rotor ductile hard chromium-plated Z = Rotor metallically coated S = Worm on joint shaft	W = Winding protection on joint shaft G = Stator with even elastomer wall thickness X = other designs
⑮	Suction and delivery casing in contact with fluid, materials	1 = gray cast iron EN-GJL-250/EN-GJL-400-15 3 = gray cast iron EN-GJL-250/EN-GJL-400-15, inside H-rubberized 4 = 1.4408 A = 1.4462 X = Special materials	
⑯	Driving shaft, joint shaft in contact with liquid, materials	1 = 1.4021/1.4571/1.1191 2 = 1.4301/1.4571 4 = 1.4571 A = 1.4462 X = Special materials, e.g. also for joint parts	
⑰	Rotor materials	2 = 1.4301 3 = 1.2436/1.2379	4 = 1.4571 A = 1.4462 X = Special materials, e.g. other metals, plastic materials
⑱	Stator materials	WB = Caoutchouc soft P = Acrylonitrile-butadiene rubbers (NBR) PL = Acrylonitrile-butadiene rubbers (NBR) bright N = Polychloroprene (N) Y = Chlorosulfonated polyethylene (CSM)	YL = Chlorosulfonated polyethylene (CSM) bright V = Fluoroelastomer (FPM) HP = Acrylonitrile-butadiene rubbers hydrated (HNBR), E = EPDM SL = Silicon bright PU = Polyurethan
⑲	Joint sleeve materials	P = Acrylonitrile-butadiene rubbers (NBR) V = Fluoroelastomer (FPM) N = Polychloroprene (N)	Y = Chlorosulfonated polyethylene (CSM) B = Butyl caoutchouc
⑳	Shaft seal materials	Stuffing box: 5846 = Ramie fiber with PTFE impregnation, asbestos-free 6426 = Aramid endless fiber with PTFE impregnation, asbestos-free 6230 = Graphite-incorporated PTFE with sliding means, asbestos-free	Mechanical seal: Sliding material pairing
		Mechanical seal: 1st point for single gasket 1st + 4th points for double gasket	Spring and constr. materials
		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	Auxiliary gaskets
			2nd point
			3rd point for single gasket 3rd + 5th points for double gasket
			A = 1.4300 F = 1.4571 L = Hastelloy B M = Hastelloy C4 X = Special materials
			P = Acrylonitrile-butadiene ① double rubbers (NBR) E = EP caoutchouc S = Silicon caoutchouc N = Polychloroprene (N) V = Fluoroelastomer (FPM) TTE = EP caoutchouc ① TTV = Fluoroelastomer (FPM) ① TTS = Silicon caoutchouc ① X = Special materials

Sectional drawing and component list



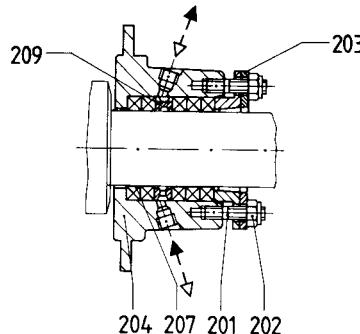
Bearing 1: Hose-proof, radial bearing drive-side with sealing washer; axial bearing pump-side with shaft seal ring.
Both bearings regreasable. Only for horizontal installation.

Shaft seal P01: Due to particularly great packing length, versatile, admissible pressure at the shaft seal $p = -0,7$ to 16 bar.



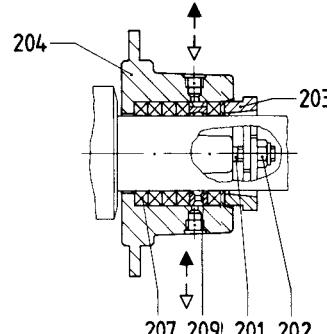
P02 Stuffing box with flushing ring

To be employed for very abrasive fluids pumped with external flushing
 $p = -0,7$ to 12 bars



P03 Stuffing box with internal sealing chamber ring

To be employed for pure fluids with internal sealing or for abrasive fluids with external sealing
 $p = -0,8$ to 6,0 bar



P04 Stuffing box with internal sealing chamber ring

To be employed in case of incompatibility of the external sealing liquid with the fluid pumped or if air inlet is to be avoided
 $p = -0,9$ to 12 bar

Part No. Denomination

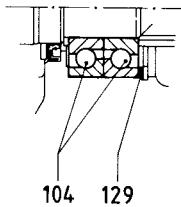
101	Key
102	Spacer sleeve
103	Groove ball bearing
104	Angular contact ball bearing
107	Bearing grease
110	Bearing bracket
112	Shaft seal ring
113	Spacer ring
114	Thrower
115	O-ring
116	Bearing nut
118	Driving shaft
119	Lubricating nipple

Part No. Denomination

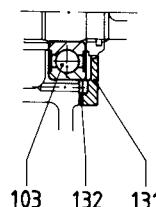
127	Circlip
129	Shim ring
131	Bearing cover
132	Gasket
139	Hexagon screw
201	Stud bolt
202	Self-locking nut
203	Gland half
204	Shaft sealing housing
206	Shaft sleeve
207	Stuffing box
208	Flushing ring
209	Sealing chamber ring

Part No. Denomination

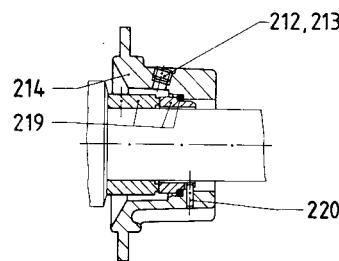
212	Screw plug
213	Joint tape
214	Mechanical seal housing
215	Mechanical seal cover
218	O-ring
219	Mechanical seal
220	Locking pin
232	Shaft seal ring
234	Throttling ring
235	O-ring
236	Locking pin
245	Hexagon screw
251	Sealing compound



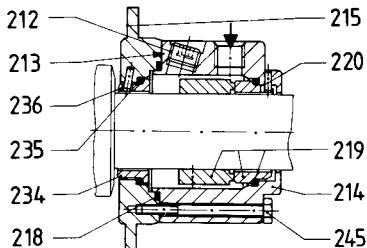
Bearing 1 for size 750 and above
Axial bearing with two single-row angular contact ball bearings



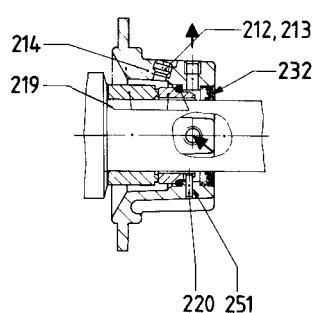
Radial bearing in case of bearing 2 (only for vertical installation with shaft shank upwards)



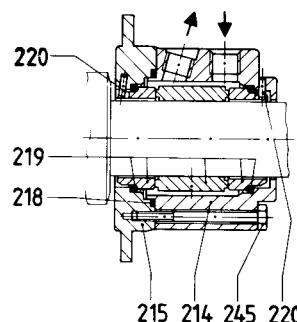
G0K/G0N Single mechanical seal, DIN 24 960, K/N design, U shape. For employment, please inquire. $p = -0,5$ to 16 bar



G0S/G0T Single mechanical seal, DIN 24 960, K/N design, U shape, rotating part with integrated locking device, with flushing liquid connection and pump-side throttling ring.
For employment, please inquire, $p = -0,5$ to 16 bar



G0Q Single mechanical seal, DIN 24 960, K design, U shape, with quench.
For employment, please inquire, $p = -0,5$ to 16 bar

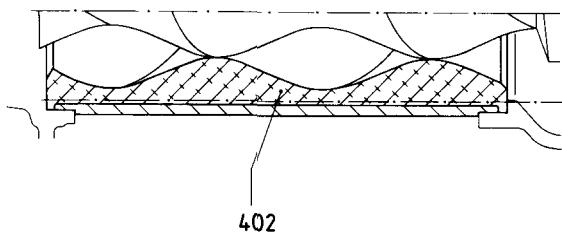


G0D Double mechanical seal, with sealing liquid connection.
For employment, please inquire, $p = -0,95$ to 16 bar

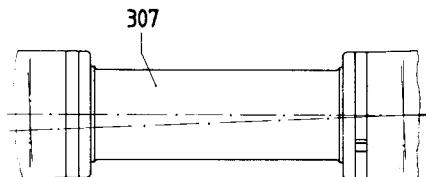
Part No.	Denomination
301	Joint bolt
302	Joint bush
303	Bush for joint bolt
304	Joint sleeve
305	Joint lubricant
306	Joint clamp
307	Joint shaft
308	Joint collar
401	Rotor
402	Stator
403	Stator gasket delivery-side
404	Stator gasket suction-side
501	Gasket for suction casing

Part No.	Denomination
502	Screw plug
503	Joint tape
504	Delivery casing
505	Suction casing
506	Suction casing cover
507	Gasket
508	Stud bolt
509	Hexagon nut
510	Fan-type lock washer
525	Washer
601	Type plate
602	Round head grooved pin
603	Information plate commissioning

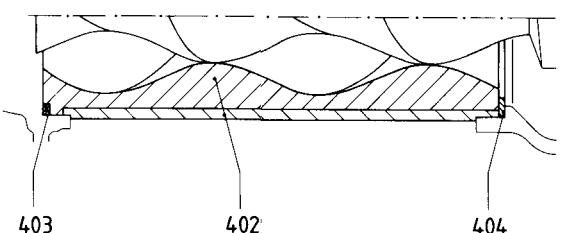
Part No.	Denomination
604	Information plate suction
605	Information plate pressure
606	Hexagon screw
607	Hexagon nut
608	Fan-type lock washer
609	Hexagon nut
610	Washer
611	Clamp bolt
612	Support
613	Hexagon screw



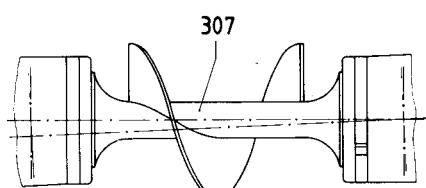
Stator with uneven elastomer wall thickness



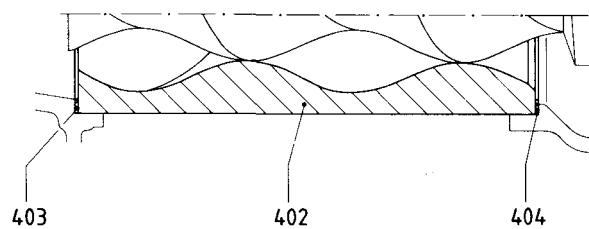
Winding protection on joint shaft



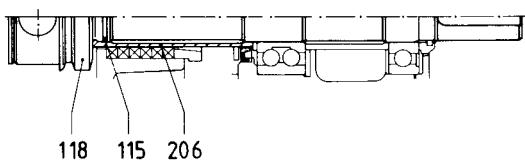
Stator of plastic material



Worm on joint shaft

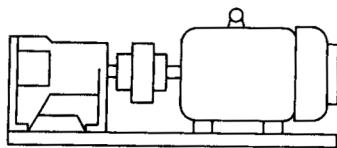


Stator of metal

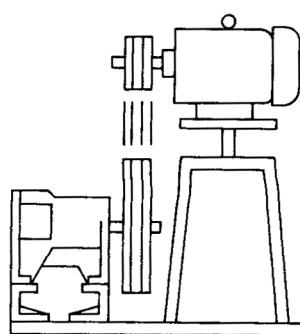


Shaft with shaft sleeve from size 50
and above for all gasket designs possible

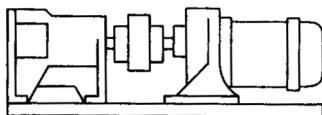
Driving possibilities



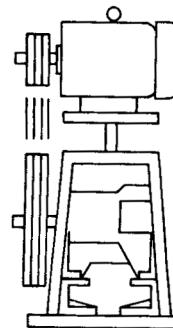
1 AE-ID with flexible coupling and motor



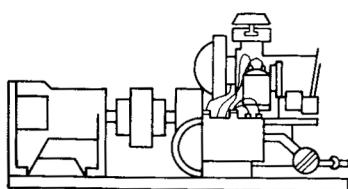
4 AE-ID with V-belt drive, rocker and motor arranged behind the pump



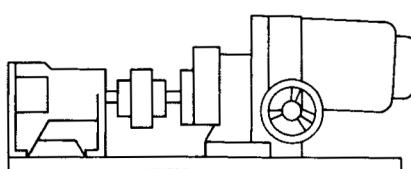
2 AE-ID with flexible coupling and geared motor



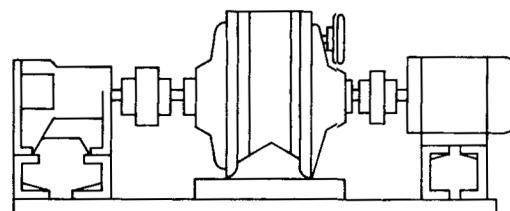
5 AE-ID with V-belt drive, rocker and motor arranged above the pump



3 AE-ID with flexible coupling and combustion engine



6 AE-ID with flexible coupling and infinitely variable gear



7 AE-ID with flexible coupling, gear or variable speed gear, flexible coupling and motor

Further driving variants (e.g. hydraulic or pneumatic drives) are possible.

Series AE1N, AE2N

Design ID



ALLWEILER®

Range of eccentric screw pumps	Series	Number of stages	Maximum output at $\Delta p = 0$ bar m³/h	Maximum del. pressure bar l/min	Maximum viscosity mPa·s
	AE1L-ID	1	162	2700	4
	AE.E-ID	1,2	450	7500	10
	AE.N-ID	1,2	290	4850	16
	AE.H-ID	2,4	174	2900	24
	AEB1L-IE	1	162	2700	4
	AEB.E-IE	1,2	174	2900	6
	AEB.N-IE	1,2	111	1850	12
	AEB4H-IE	4	12	200	24
	AE.N...RG	1,2,4	30	500	20
	TECFLOW	1	162	2700	4
	SEZP	1,2	21	350	10
	SNZP	1,2	45	750	12
	SNZBP	1,2	45	750	12
	SSP	1,2	48	800	12
	SSBP	1,2	48	800	12
	SETP①	1,2	140	2350	10
	SETBP	1,2	40	670	10
	SEFBP	1	40	670	6
	SMP	1	40	670	6
	SMP2	1	5,5	92	6
	AFP	1	2,8	47	6
	ANP	2	2,5	42	12
	ANBP	2	2,5	42	12
	ASP	2	2,5	42	12
	ASBP	2	2,5	42	12
	ADP	3	0,6	10	12
	ADB	3	0,6	10	12
	ACNP	1,2	29	480	12
	ACNBP	1,2	29	480	12

① Special versions for higher pressures available.

Peristaltic range	Series	Maximum output m³/h	Maximum del. Pressure bar l/min	Maximum viscosity mPa·s
	ASL	2,4	40	4
	ASH	60	1000	15
Macerator range	Series	Maximum throughput m³/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.

Transmissions 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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