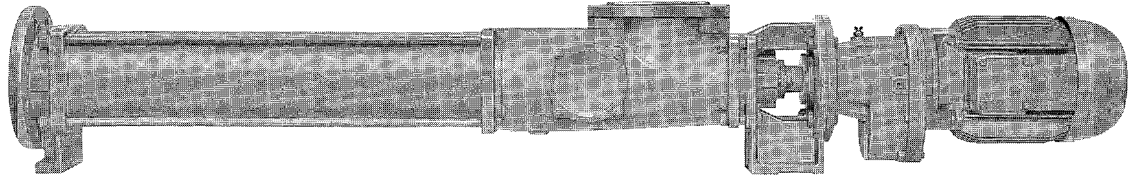


# Eccentric Screw Pumps in Block-Design

## Series AEB4H Design IE



### Application

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

### Operating

Self-priming, four-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 prevents squeezing, thus ensuring an extremely gentle low-pulsating delivery.

### Design features

The pump and drive are held together by the bearing bracket to form a modular unit.

By means of external casing connecting screws (clamping screws), the pressure casing, stator and suction casing are interconnected. The suction casings are designed particularly favorable to flow. The pump sizes 50 is supplied in cast iron and is provided with staggered holes for cleaning. The stator vulcanized into a tube is provided with external collars vulcanized to it on both sides, reliably sealing towards the suction casing and protecting the stator shell from corrosion.

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 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 of particularly simple and sturdy design and easily absorb the eccentric movement of the rotor.

### Shaft seal

By uncooled 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 24960 (except for double mechanical seal).

For further information, 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.

				AEB4H
Delivery	Q	l/min	up to	200
Temperature of fluid pumped	t	°C ①	up to	100
Delivery pressure	$\Delta p$	bar	up to	24
Pump outlet pressure	$p_d$	bar ③	up to	25
Attainable underpressure	$p_s$	bar ②	up to	0,95
Viscosity	$\eta_1$	mPa·s ②	up to	270.000
Admissible solids content	Vol% ②		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 fiber length

Size	12	25	50
max. grain size mm	2	2,5	3
max. fiber length mm	35	42	42

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

- ① depending on the fluid to be pumped and the elastomers employed.
- ② depending on the pump size/design, speed and fluid to be pumped.
- ③ depending on the direction of rotation, inlet pressure.

### Bearings

The driving/joint shaft are situated in the reinforced bearings of the electric motors, gear motors or control gear which also absorb the generated axial forces.

**As all drives are only supplied with reinforced bearings it must be assured that the assigned pumps can be run at full capacity within their permissible application limits.**

#### Drive

The drive can be provided by non-explosion-proof or explosion-proof three-phase motors, gear motors or control gear. For drive options see page 12. For technical data and dimensions, please refer to the separate sales documentation, data sheet 19-00-0000-111-3.

**A considerable advantage is the fact that within a pump size the connection dimensions for all drive types are the same. This facilitates a later change to a different drive type or size.**

#### Installation

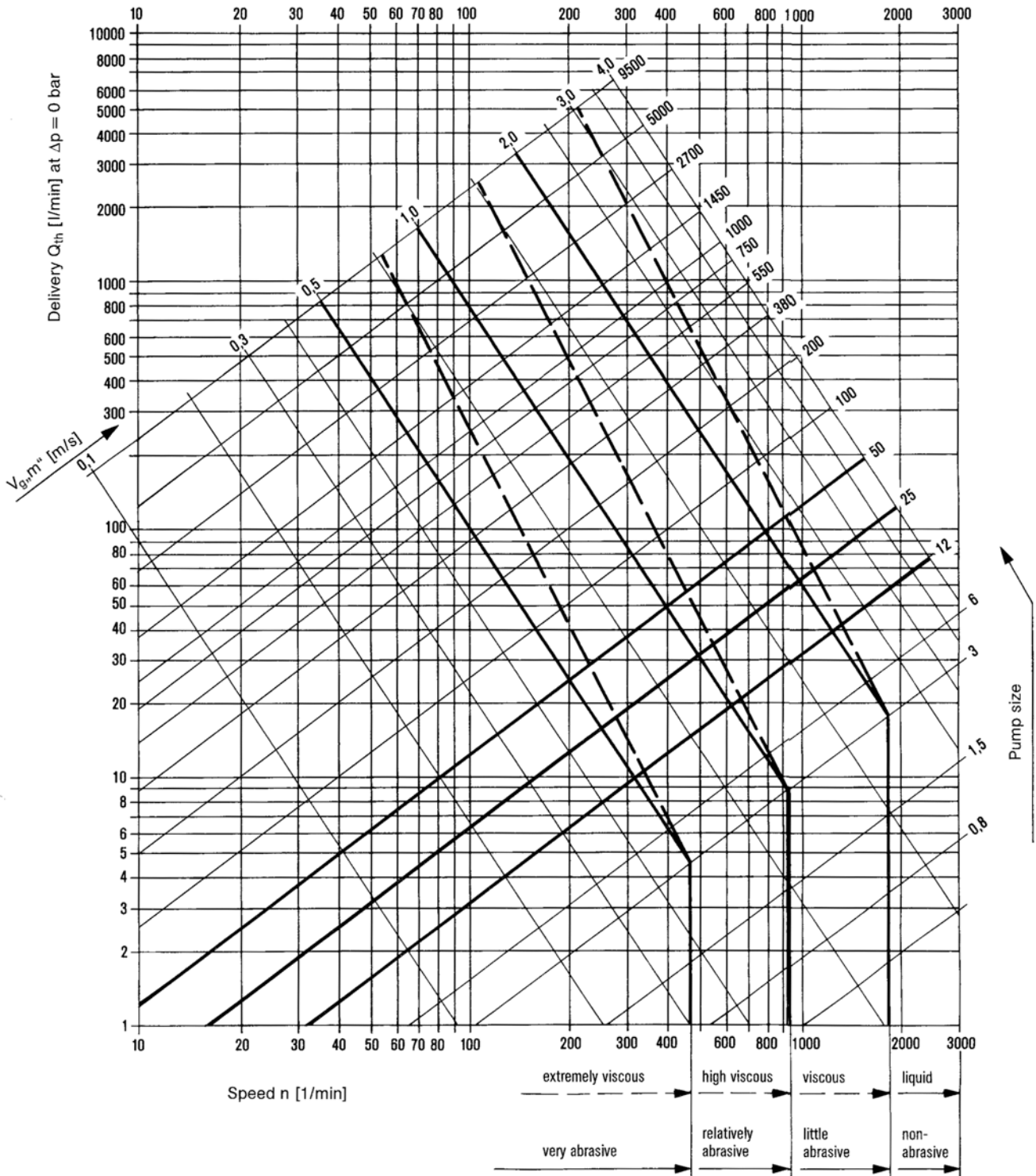
AE pumps may be installed horizontally or vertically. In case of vertical arrangement, "shaft shank downwards" is not admissible.

#### Exchangeability of components

The components of all eccentric screw pumps are of a modular design. This allows a simple and cost-effective spare parts management even if different series and designs of pumps are used.

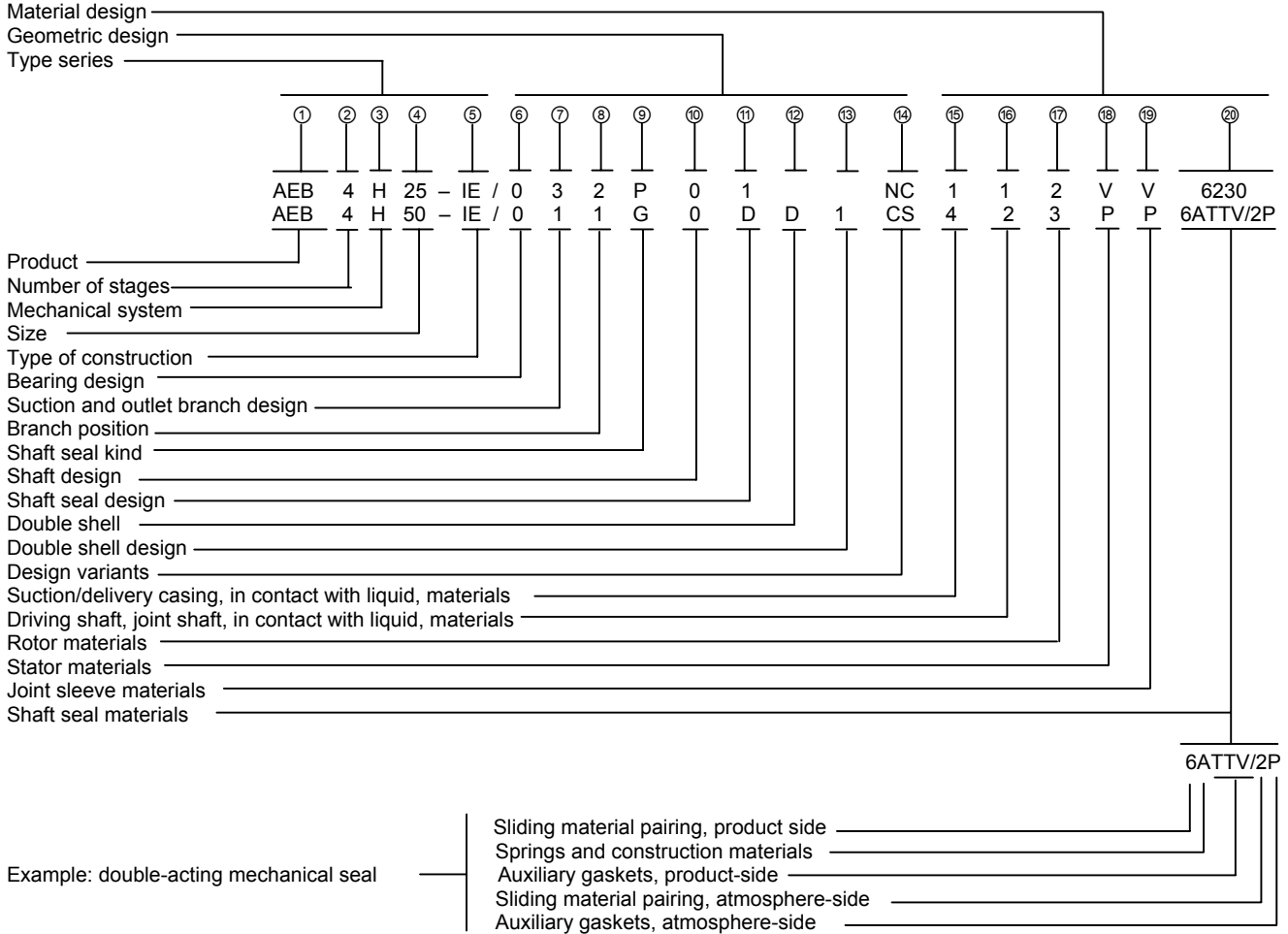
**Performance graph**

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 the series AEB4H. Data on the performance range not covered by AEB series are to be taken from the last page of this brochure and/or the individual brochures of the other series. For exact performance data, please refer to the individual characteristics.

Type code

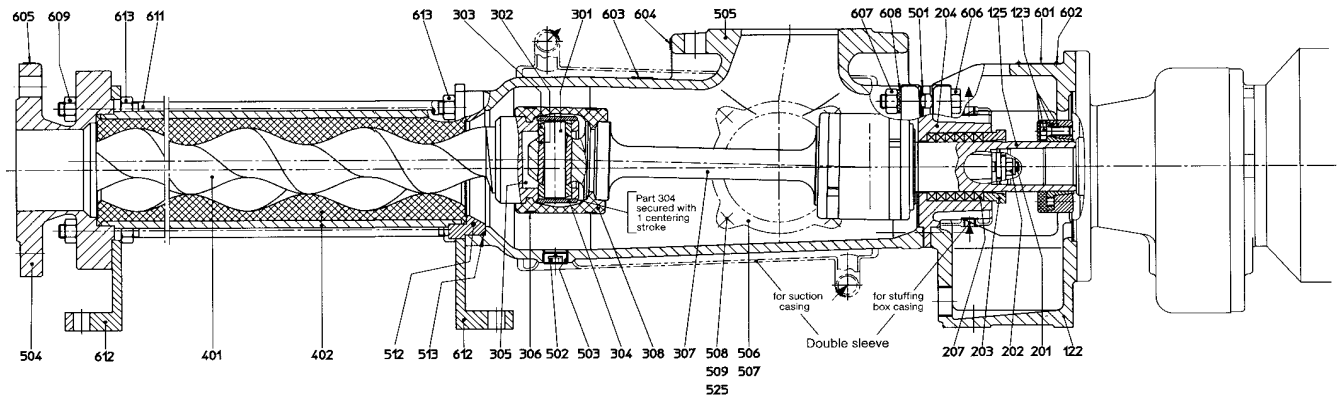


Explanations to the type code:

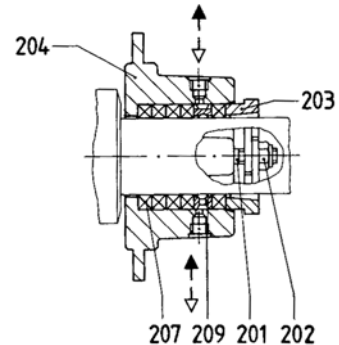
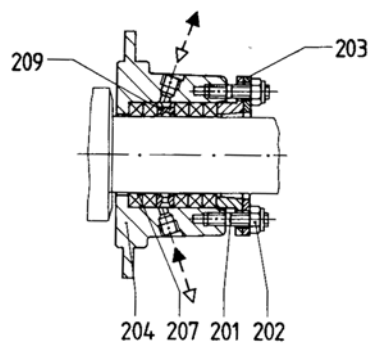
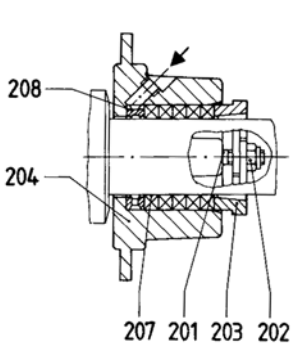
Position In type code	Designation	Design
①	Product	ALLWEILER eccentric screw pumps
②	Number of stages	4 = four-stage up to delivery pressure $\Delta p$ 24 bar
③	Mechanical system	H = rated for delivery pressure $\Delta p$ 24 bar
④	Size	Possible sizes: 12, 25, 50. The numbers indicate the theoretic delivery in 1/min with $n = 400$ 1/min and $\Delta p = 0$ bar
⑤	Design	IE = Industrial design with external bearing
⑥	Bearing design	0 = external bearing in drive unit
⑦	Suction and outlet branch design	1 = DIN flanges 2 = ANSI flanges } according to dimensional sheet, pages 9 and 10 X = Suction and/or delivery branch of special design
⑧	Branch position	1, 2, 3, 4 - For arrangement please refer to the representation, page 9. Arrangement 3 is not possible for size 12.
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
⑪	Shaft seal design	Stuffing boxes P01 = Stuffing box of normal design (without sealing chamber ring/without flushing ring) P02 = Stuffing box with flushing ring P03 = Stuffing box with internal sealing chamber ring P04 = Stuffing box with external sealing chamber ring POX = Non-mechanical shaft seal of special design

⑪	Shaft seal design (continued) X = design possible	Mechanical seals					
		for pump sizes	12	25	50		
		Shaft diameter at the location of the shaft seal	25	30	35		
		G0K = individual mechanical seal, DIN 24 960, design K, shape U	X	X	X		
		G0N = as above, however design N	X	X	X		
		G0S = individual mechanical seal, DIN 24 960, design K, shape U, rotating part with integrated locking device and pump-sided throttling ring	X	X	X		
		G0T = as above, however design N	X	X	X		
		G0Q = individual mechanical seal, DIN 24 960, design K, shape U with quench	X	X	X		
		G0D = double mechanical seal	①	①	①		
G0X = Mechanical seal of special design							
① design available on request							
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 +100°C, maximum cooling temperature -40°C					
⑬	Double shell design	1 = Suction case with double shell 2 = Stuffing box for P01 with double shell 12 = Suction and shaft sealing housing P01 with double shell X = Special design for other double shells					
⑭	Design variants	Stators with uneven elastomer wall thickness (all qualities)					
		<table border="0"> <tr> <td>N</td> <td rowspan="5">} Rotor with temperature play as a function of the temperature of the fluid pumped</td> </tr> <tr> <td>M</td> </tr> <tr> <td>H</td> </tr> <tr> <td>T</td> </tr> </table>			N	} Rotor with temperature play as a function of the temperature of the fluid pumped	M
N	} Rotor with temperature play as a function of the temperature of the fluid pumped						
M							
H							
T							
		C = Rotor hard chromium-plated	W = Winding protection on joint shaft				
		Y = Rotor ductile hard chromium-plated	X = other designs				
		Z = Rotor metallic coated					
		S = Worm on joint shaft					
⑮	Suction and delivery casing in contact with fluid, materials	1 = grey cast iron EN-GJL-250/St					
		2 = grey cast iron EN-GJL-250/inside H-rubberized					
		4 = 1.4408/1.4571					
		A = 1.4462					
		X = Special materials					
⑯	Driving shaft, Joint shaft casing in contact with fluid, materials	1 = 1.4021					
		2 = 1.4301/1.4571/1.4462					
		4 = 1.4571/1.4462					
		A = 1.4462					
		X = Special materials, e.g. also for articulated components					
⑰	Rotor materials	2 = 1.4301	4 = 1.4571	A = 1.4462			
		3 = 1.2436/1.2379	X = Special materials, e.g. other metals, plastic materials				
⑱	Stator materials	WB = Natural rubber soft	YL = Chlorosulfonated polyethylene (CSM) bright	PE = Polyethylene			
		P = Acrylonitrile-butadiene rubbers (NBR)	V = Fluoroelastomer (FPM)	PT = Teflon glass-fiber reinforced			
		PL = Acrylonitrile-butadiene rubbers (NBR) bright	HP = Acrylonitrile-butadiene rubbers hydrated (HNBR)	E = EPDM			
		N = Polychloroprene (N)	SL = Silicon bright	X = Special materials			
		Y = Chlorosulfonated polyethylene (CSM)	PU = Polyurethan				
⑲	Joint sleeve materials	P = Acrylonitrile-butadiene rubbers (NBR) -	Y = Chlorosulfonated polyethylene (CSM)	X = Special materials			
		PL = Acrylonitrile-butadiene rubbers (NBR) bright	V = Fluoroelastomer (FPM)				
		N = Polychloroprene (N)	B = Butyl rubber				
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		Spring and constr. materials	Auxiliary gaskets		
		1st point for single gaskets		2nd point	3rd point for single gasket		
		1st + 4th points for double gasket			3rd + 5th points for double gasket		
		2 = CrMo cast iron/hard carbon		A = 1.4300	P = Acrylonitrile-butadiene rubbers (NBR) ① double		
		4 = Ceramics/hard carbon		F = 1.4571	E = EP rubber PTFE-		
5 = Hard metal/hard metal, highly wear-resistant		L = Hastelloy B	S = Silicon rubber coated				
6 = Silicon carbide/silicon carbide highly wear-resistant, corrosion-resistant		M = Hastelloy C4	N = Polychloroprene (N)				
7 = Silicon carbide/silicon carbide highly wear-resistant, highly corrosion-resistant		X = Special materials	V = Fluoroelastomer (FPM)				
X = Special materials			TTE = EP rubber ①				
			TTV = Fluoroelastomer (FPM) ①				
			TTS = Silicon rubber ①				
			X = Special materials				

Sectional drawing and components list



**Bearing 0:** External bearing in drive unit  
**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 bar

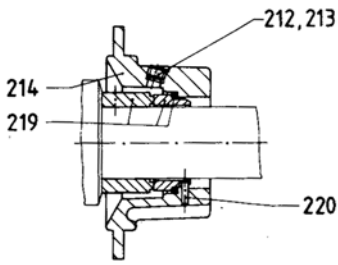
**P03** Stuffing box with internal sealing chamber ring  
 To be employed for pure fluids with internal sealing or for abrasive fluids with external sealing  
 $p = -0.8$  to 6 bar

**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

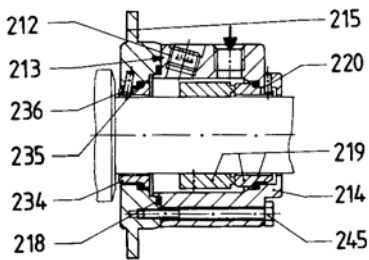
Part No.	Denomination
122	Bearing bracket
123	Tensioning set
125	Driving shaft
201	Stud bolt
202	Self-locking nut
203	Gland half
204	Shaft sealing housing
207	Stuffing box
208	Flushing ring
209	Sealing chamber ring
212	Screw plug
213	Joint tape

Part No.	Denomination
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
301	Joint bolt

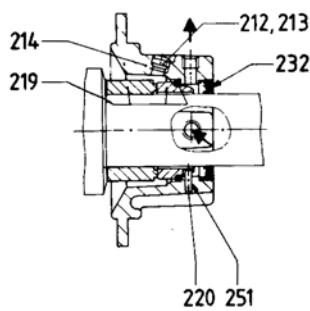
Part No.	Denomination
302	Joint bush
303	Bush for joint bolt
304	Joint sleeve
305	Joint lubricant
306	Joint clamp
307	Joint shaft
308	Joint collar
401	Rotor
402	Stator
403	Stator gasket delivery-side
404	Stator gasket suction-side
501	Gasket for suction casing



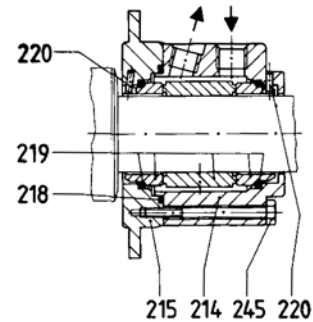
**GOK/GON** Single mechanical seal, DIN 24 960, K/N design, U shape. For employment, please inquire p = -0.5 to 16 bar



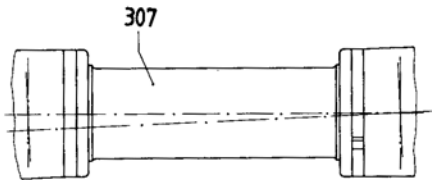
**GOS/GOT** Single mechanical seal, DIN 24 960, K/N design, U shape. Integrated locking device with flushing liquid connection and pump-side throttling ring. For employment, please inquire, p = -0.5 to 16 bar



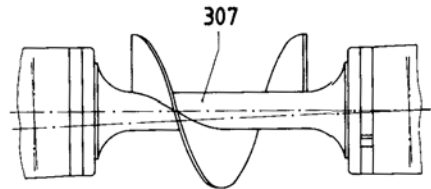
**GOQ** Single mechanical seal, DIN 24 960, K design, U shape, with quench. For employment, please inquire, p = -0.5 to 16 bar



**GOD** Double mechanical seal, with sealing liquid connection. For employment, please inquire, p = -0.95 to 16 bar



Winding protection on joint shaft

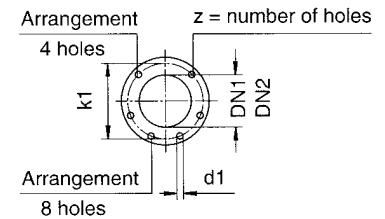
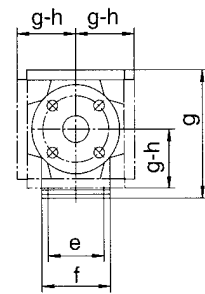
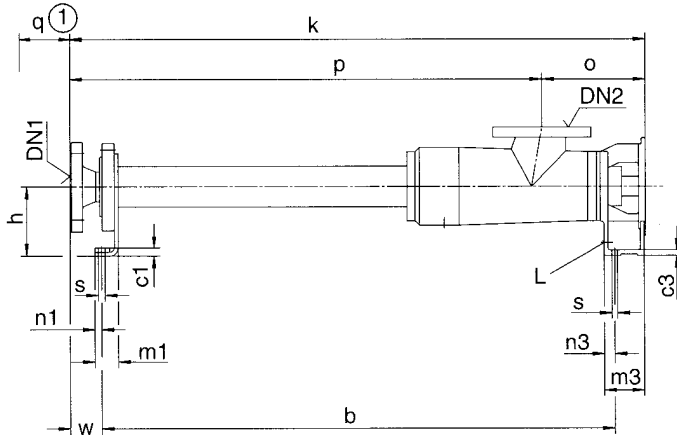


Worm on joint shaft

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
512	Reduction flange
513	O-Ring
525	Washer
601	Type plate

Part No.	Denomination
602	Round head grooved pin
603	Information plate commissioning
604	Information plate suction
605	Information plate pressure
606	Hexagon screw
607	Hexagon nut
608	Fan-type lock washer
609	Hexagon nut
611	Clamp bolt
612	Support
613	Hexagon screw

Pump dimensions, auxiliary connections, possible branch positions, weights



Dimensions in mm, nominal width of ANSI flanges (DN) in inches. Subject to alteration.

Sense of rotation: counter-clockwise as seen from driving side with DN<sub>1</sub> = outlet branch, DN<sub>2</sub> = suction branch

Series Size	Pump dimensions														Max. mass kg
	b	c <sub>1</sub>	c <sub>3</sub>	e	f	h	m <sub>1</sub>	m <sub>3</sub>	n <sub>1</sub>	n <sub>3</sub>	o	① q	s	L	
AEB4H 12-IE	668	8	10	75	95	90	42	84	11	19	162	360	9	Rp ¾	
AEB4H 25-IE	814	8	10	85	105	100	42	93	11	19	185	465	9	Rp ¾	
AEB4H 50-IE	1032	13	13	100	125	125	48	106	13	25	220	605	11,5	Rp ½	

Series Size	Connection dimensions/Flange dimensions for outlet branch														
	Flanges DIN 2501, PN 25 ③							Flanges ANSI B16.5 RF, Class 300 ④							
	DN <sub>1</sub>	d <sub>1</sub>	⑤ k	k <sub>1</sub>	⑤ p	⑤ w	z	DN <sub>1</sub>	d <sub>1</sub>	⑤ k	k <sub>1</sub>	⑤ p	⑤ w	⑤ z	
AEB4H 12-IE	32	18	775	100	613	39	4	1¼	19	797	98,4	635	61	4	
AEB4H 25-IE	40	18	938	110	753	47	4	1½	22,2	960	114,3	775	69	4	
AEB4H 50-IE	50	18	1164	125	944	48	4	2	19	1185,5	127	965,5	69,5	8	

Series Size	Connection dimensions/Flange dimensions for suction branch														
	Flanges DIN 2501, PN 16 ⑥					Flanges ANSI B16.1, Class 125 ④					Flanges ANSI B16.5, Class 150 ④				
	DN <sub>2</sub>	d <sub>1</sub>	⑤ g	k <sub>1</sub>	z	DN <sub>2</sub>	d <sub>1</sub>	⑤ g	k <sub>1</sub>	z	DN <sub>2</sub>	d <sub>1</sub>	⑤ g	k <sub>1</sub>	z
AEB4H 12-IE	40	18	175	110	4	1½	15,9	172	98,4	4	1½	15,9	175	98,4	4
AEB4H 25-IE	50	18	190	125	4	2	19	186	120,6	4	2	19	190	120,6	4
AEB4H 50-IE	65	18	230	145	4	2½	19	229	139,7	4	2½	19	234	139,7	4

① Stator dismantling dimension

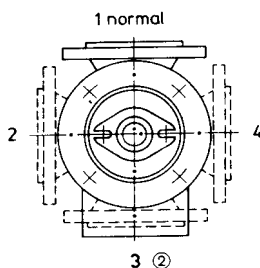
③ Sealing surface DIN 2526 shape C

④ Sealing surface: stock finish

⑤ for rubber-coating + 3mm

⑥ up to DN 100 sealing surface DIN 2526 shape C, machined as shape A from DN 125 sealing surface DIN 2526 shape A

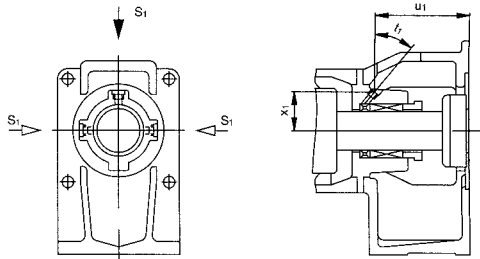
Possible branch positions as seen from the drive



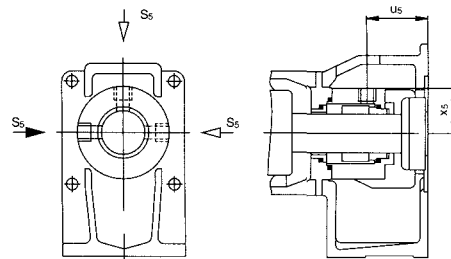
② not for size 12



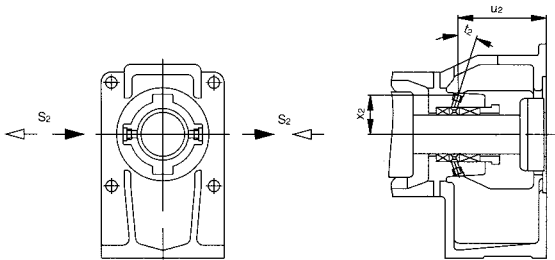
Arrangement of auxiliary connections for shaft seals



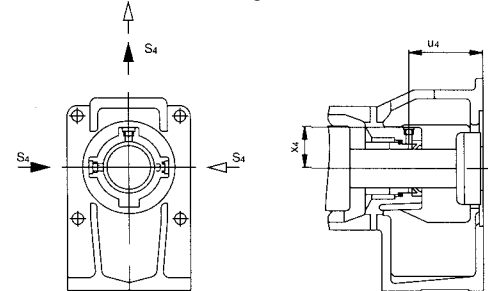
P02 with flushing rod



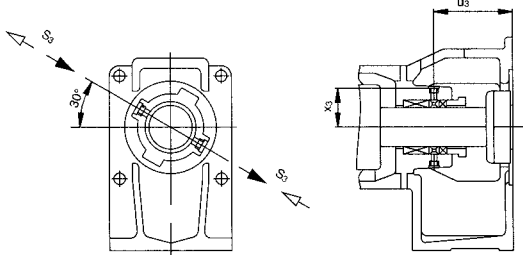
G0S/G0T with flushing connection



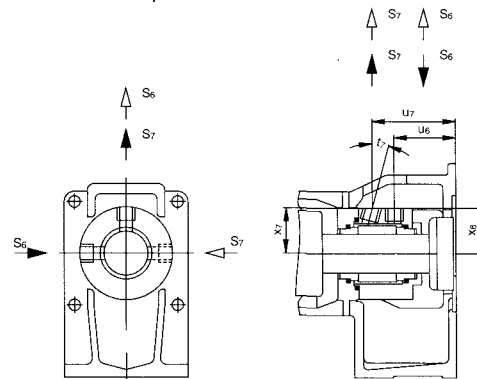
P03 with internal sealing chamber ring



G0Q with quench connection



P04 with external sealing chamber ring



G0D with sealing connection

Series Size	Connection dimensions for auxiliary connections for shaft seals										
	P02 with flushing ring				P03 with internal sealing chamber ring				P04 with external sealing chamber ring		
	S <sub>1</sub> ⊙	u <sub>1</sub>	x <sub>1</sub>	t <sub>1</sub>	S <sub>2</sub> ⊙	u <sub>2</sub>	x <sub>2</sub>	t <sub>2</sub>	S <sub>3</sub> ⊙	u <sub>3</sub>	x <sub>3</sub>
AEB4H 12-IE	M 8 x 1	84	28	42°	M 8 x 1	77	30	20°	M 8 x 1	69	30,5
AEB4H 25-IE	M 8 x 1	93	31,5	40°	M 8 x 1	87	32	20°	M 8 x 1	78,5	33,5
AEB4H 50-IE	Rp 1/8	104,5	38	42°	Rp 1/8	97	40	17°	Rp 1/8	85	39,5

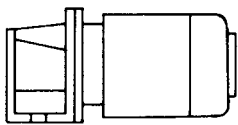
Series Size	Connection dimensions for auxiliary connections for shaft seals												
	G0S/G0T with flushing connection			G0Q with quench connection			G0D with sealing connection						
	S <sub>5</sub> ⊙	u <sub>5</sub>	x <sub>5</sub>	S <sub>4</sub> ⊙	u <sub>4</sub>	x <sub>4</sub>	S <sub>6</sub> ⊙	S <sub>7</sub> ⊙	u <sub>6</sub>	u <sub>7</sub>	x <sub>6</sub>	x <sub>7</sub>	t <sub>7</sub>
AEB4H 12-IE	Rp 1/4	46,5	34	Rp 1/8	56	30,5	Rp 1/4	RP 1/4	46,5	71,5	34	33	15°
AEB4H 25-IE	RP 1/4	55	38	Rp 1/8	63,5	30,5	Rp 1/4	RP 1/4	55	79	38	36,5	15°
AEB4H 50-IE	Rp 1/4	69,5	41,5	Rp 1/8	74	33,5	Rp 1/4	RP 1/4	69,5	95	41,5	40	15°

⊙ Threaded connection DIN 3852, shape Z

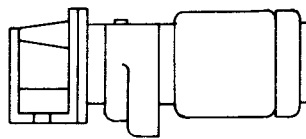
► Standard supply

▷ Possible supply, for these purposes, the sealing housing must be turned in case of designs P02, G0S, G0T, G0Q, G0D.

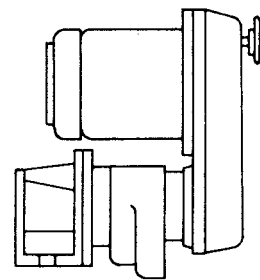
Driving possibilities



AEB4H-IE with electric motor



AEB4H-IE with gear motor



AEB4H-IE with  
infinitely variable gear



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		
	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 <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	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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