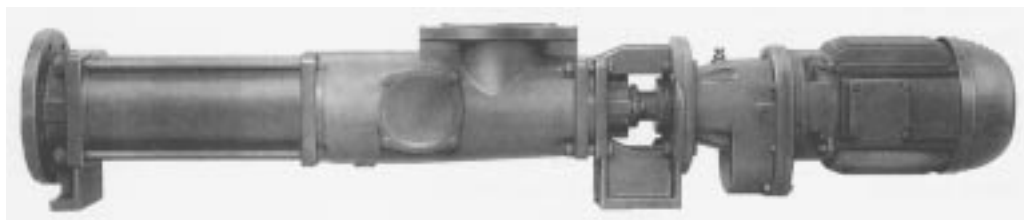


# Progressive Cavity Pumps in Block Design

## TECFLOW Series



### Applications

In waste water and waste water treatment engineering and in environmental industries for pumping low and high viscous liquids, neutral, clean or abrasive liquids, liquids containing gases or which tend to froth, including liquids containing fibrous and solid material.

### Operation

Rotary self-priming positive displacement pump with new 2/3 lobe geometry of the pumping elements. The pumping elements are formed by a rotating eccentric screw (the rotor) and the fixed stator. In any cross-sectional plane, the elements are in contact with one another at three points and along the length of the elements these points form three 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 outlet section, stator and suction casing are held together by external tie-rods. The suction casings are of particularly favourable hydro-dynamical design. The sizes 381 to 5001 are supplied with staggered cleaning ports as a standard. The stator, which is vulcanized into a tubular casing, is provided at both ends with external collars vulcanized 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 easily accessible interchangeable housing for a gland packing or mechanical 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 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 any difficulty.

The power is transmitted from the drive shaft to the hollow shaft via a self-sealing, backlash-free clamp set (Patent applied for).

### Shaft seal

Shafts are sealed by uncooled gland packings or uncooled, non-balanced single acting mechanical seals which require no maintenance. The mechanical seal housings are manufactured to accept seals which conform to DIN 24960.

For further details please see page 2, 3, 5 and 7.

### Bearings

The drive shaft/hollow shaft is carried in reinforced bearings of the electric motors, geared motors and variable speed gears. These bearings are designed to absorb the occurring thrust loads.

### Drivers

Electric motors, geared motors or variable speed gears, either TEFC or flame proof can be supplied. For possible types of drive please see page 7. For the corresponding technical details and the dimensions please see the separate information sheet 19-00-0000-112-3.

**It is a significant advantage that the mounting flanges of all types of drive are interchangeable with one another within one pump size. It is possible to convert an existing pump to a different type of drive without any problem.**

### 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	3100
Temperature of liquid pumped	t	°C	up to	40
Differential pressure	$\Delta p$	bar	up to	4
Discharge pressure	$p_d$	bar ①	up to	16
Suction obtainable	$p_s$	bar ②	up to	0,9
Viscosity	$\eta$	mPa s ②	up to	200.000
Permissible solids content	TS	% ②	up to	10

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 fiber lengths:

Pump size	51	101	201	381	751	1451	2701	5001
Max. grain size in mm	3	4	5	6,3	8	10	12,5	16
Max. fiber lengths in mm	35	42	42	48	60	79	98	130

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

① Depending on the suction pressure and the type of shaft seal

② Depending on pump size and execution, speed and liquid pumped

### Installation

TECFLOW pumps can be installed horizontally or vertically. Vertical installation with the motor down is not permitted.

### Sense of rotation

The sense of rotation of the pump is counterclockwise (ccw) looking from the drive.

**Replaceability of parts**

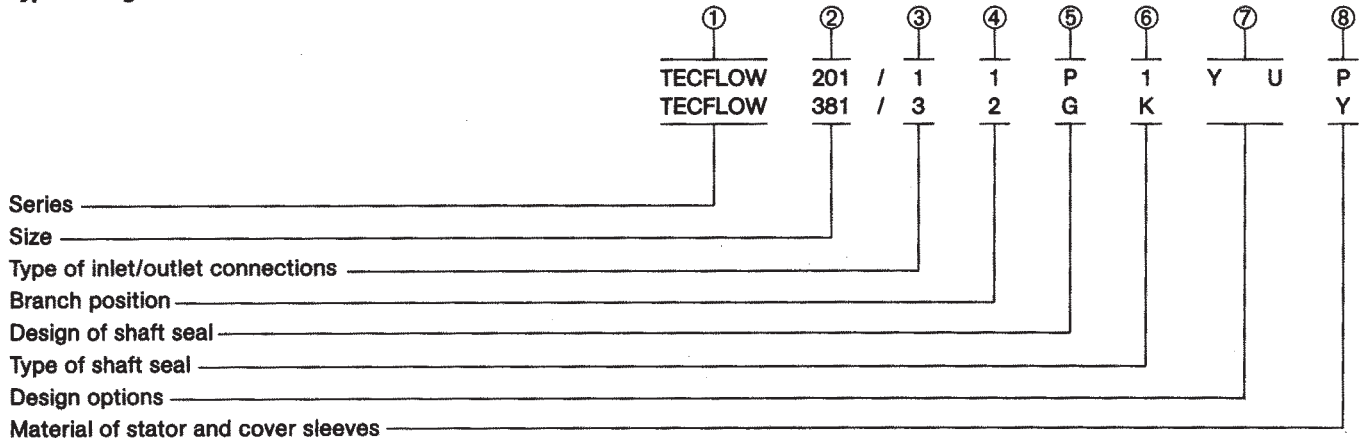
The components for our progressive cavity pumps are produced to a modular system. It is thus simple and inexpensive to maintain a stock of spares even where pumps of different designs belonging to different series are used in one and the same installation.

**Materials**

Denomination	Part No.	Material
Suction casing	505	GG-25 (Cast iron)
Discharge casing	504	GG-25 (Cast iron)
Hollow shaft	125	1.4021 (420 SS)
Coupling rod	307	1.4021 (420 SS)
Rotor	401	1.2436/1.2379 (Hardened tool steel)
Gland packing	207	5846 = Asbestos-free Ramie fiber PTFE impregnated
Mechanical seal	219	Seal faces: SiC vs. SiC Springs and metallic parts: 1.4571 (316 TiSS) Auxilliary seals: Viton

For further explanations concerning the material options please see the type coding on Page 3.

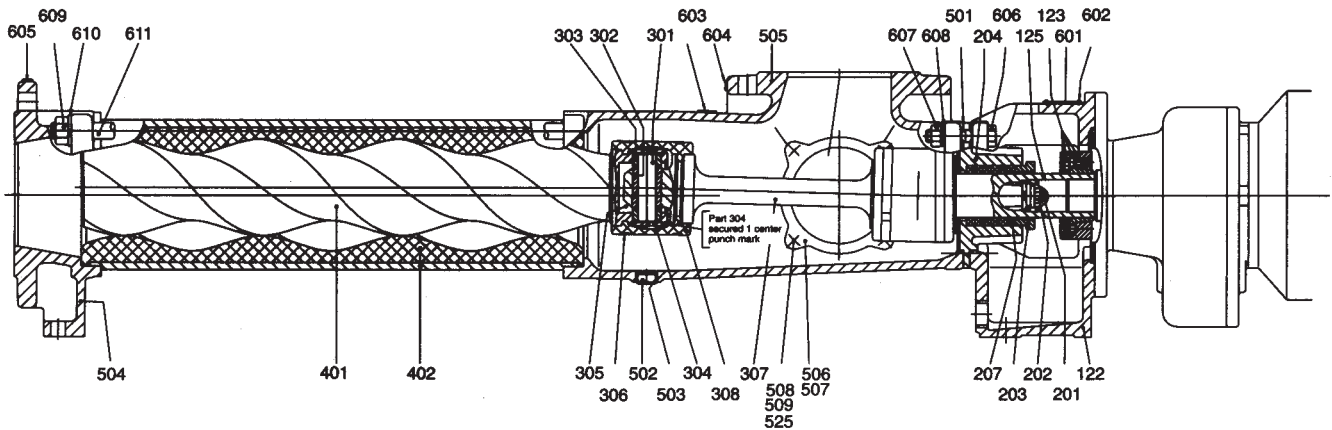
**Type coding**



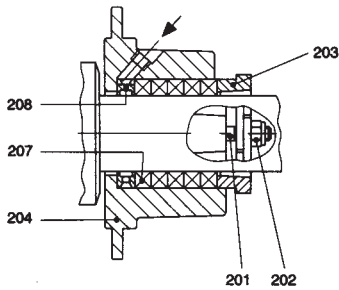
Explanatory notes on the type coding:

Position in type coding	Designation	Design
①	Series	ALLWEILER TECFLOW progressive cavity pump
②	Size	Possible sizes: 51, 101, 201, 381, 751, 1451, 2701, 5001 The numbers indicate the theoretical flow rate in l/min at n = 400 rpm and $\Delta p = 0$ bar
③	Type of inlet/outlet connections	1 = DIN-flanges 3 = ANSI-flanges } according to dimensional drawing page 6
④	Branch position	1, 2, 3, 4 - For arrangement please refer to the scetch on page 6. Position 3 not possible for size 51 and 101
⑤	Design of shaft seal	P = Gland packing G = Mechanical seal
⑥	Type of shaft seal	1 = Standard gland packing (no lantern/no flushing ring) 2 = Gland packing with flushing ring 3 = Gland packing with internal lantern ring 4 = Gland packing with external lantern ring K = Single mechanical seal acc. to DIN 24 960, design K, style U, with secondary rubber bellows seal
⑦	Design options	Y = Rotor high density chrome plated (Duktil) U = Stator adjustable (not possible with size 51 and 101)
⑧	Material of stator and cover sleeves	P = Perbunan N (NBR) Y = Hypalon (CSM)

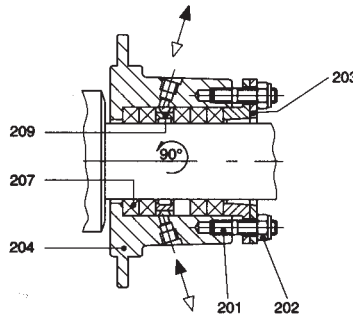
Sectional drawing and parts list



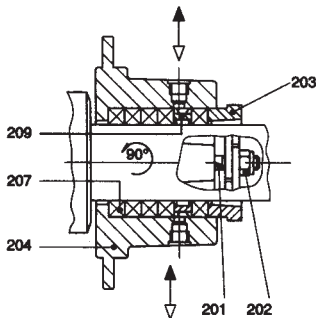
Shaft seal: **P1** Standard gland packing (no lantern ring/no flushing ring). Large variety of applications due to particularly long packing. Permissible pressure at the shaft seal  $p = -0,7 \dots 16$  bar



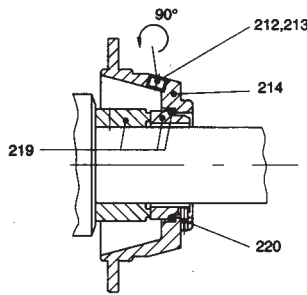
**P2** Gland packing with flushing ring  
External flushing, for highly abrasive liquids  
 $p = -0,7 \dots 12$  bar



**P3** Gland packing with internal lantern ring  
For clean liquids with internal flushing or abrasive liquids with external flushing  
 $p = -0,8 \dots 6,0$  bar



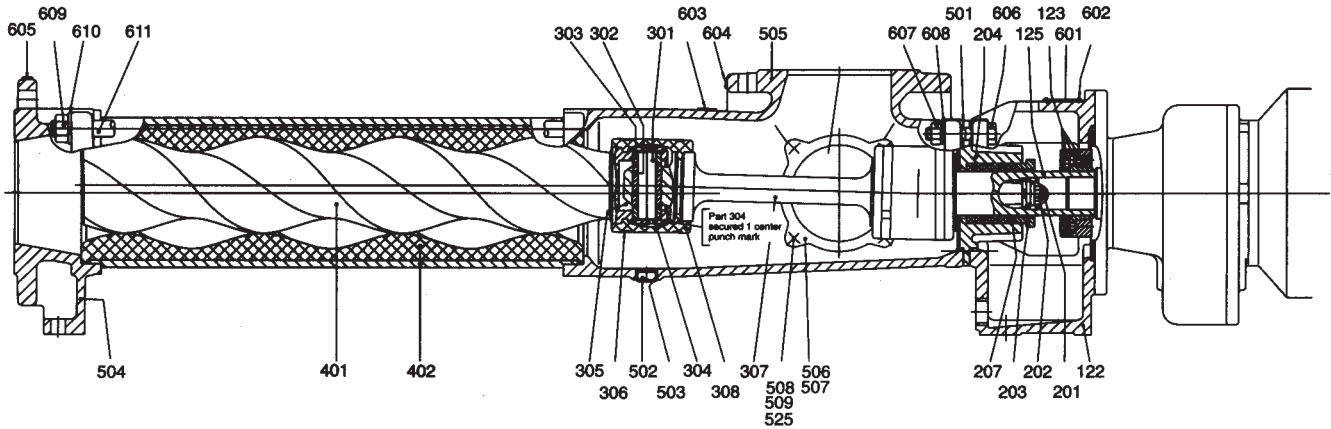
**P4** Gland packing with external lantern ring  
For sealing liquids incompatible with the liquid pumped or to prevent the ingress of air  
 $p = -0,9 \dots 12$  bar



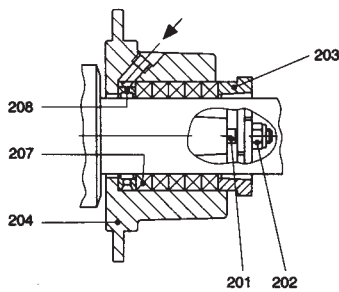
**GK** Single mechanical seal according to DIN 24960, design K, style U.  
Please consult manufacturer for application assistance  
 $p = -0,5 \dots 12$  bar

Part No.	Denomination
122	Motor bracket
123	Clamp set
125	Hollow shaft
201	T-head-bolt
202	Self locking nut
203	Gland
204	Gland housing
207	Gland packing
208	Flushing ring
209	Lantern ring
212	Plug
213	Sealing tape
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 oil
306	Clamping band
307	Coupling rod
308	Cover sleeve
401	Rotor
402	Stator
501	Suction casing gasket
502	Plug
503	Sealing tape
504	Discharge casing
505	Suction casing
506	Cleaning port cover
507	Gasket
508	Stud
509	Hexagon nut
525	Washer
601	Name plate
602	Dome headed grooved pin
603	Instruction label "COMMISSIONING"
604	Instruction label "SUCTION"
605	Instruction label "DISCHARGE"
606	Hexagon head bolt
607	Hexagon nut
608	Serrated lock washer
609	Hexagon nut
610	Washer
611	Tie rod

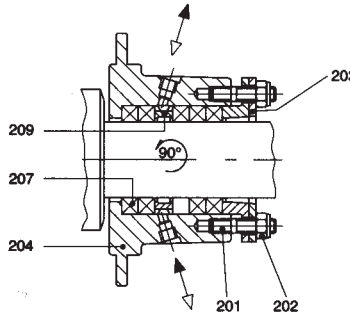
Sectional drawing and parts list



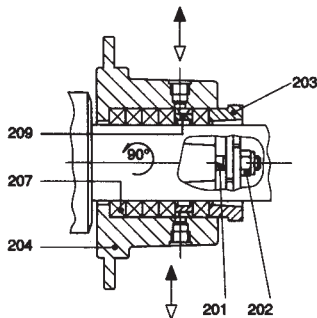
Shaft seal: **P1** Standard gland packing (no lantern ring/no flushing ring). Large variety of applications due to particularly long packing. Permissible pressure at the shaft seal  
 $p = -0,7 \dots 16 \text{ bar}$



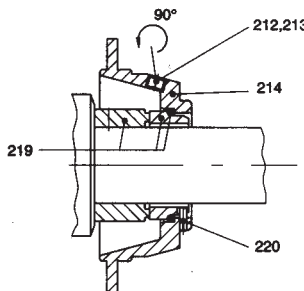
**P2** Gland packing with flushing ring  
 External flushing, for highly abrasive liquids  
 $p = -0,7 \dots 12 \text{ bar}$



**P3** Gland packing with internal lantern ring  
 For clean liquids with internal flushing or abrasive liquids with external flushing  
 $p = -0,8 \dots 6,0 \text{ bar}$



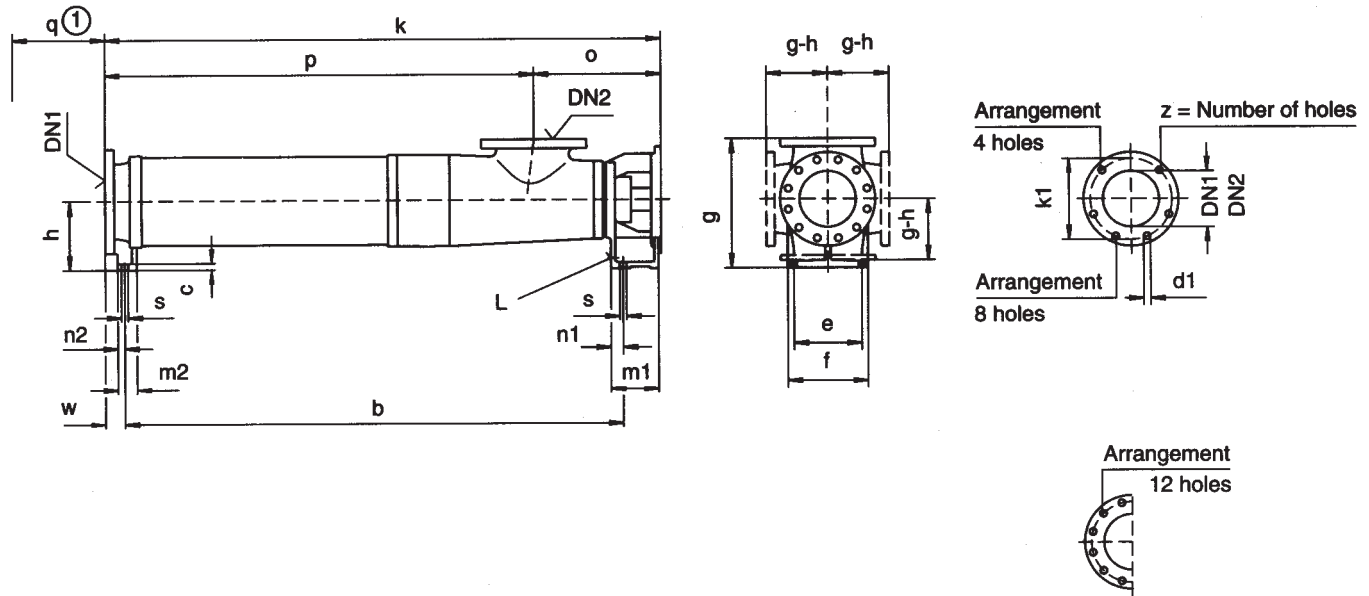
**P4** Gland packing with external lantern ring  
 For sealing liquids incompatible with the liquid pumped or to prevent the ingress of air  
 $p = -0,9 \dots 12 \text{ bar}$



**GK** Single mechanical seal according to DIN 24960, design K, style U.  
 Please consult manufacturer for application assistance  
 $p = -0,5 \dots 12 \text{ bar}$

Part No.	Denomination
122	Motor bracket
123	Clamp set
125	Hollow shaft
201	T-head-bolt
202	Self locking nut
203	Gland
204	Gland housing
207	Gland packing
208	Flushing ring
209	Lantern ring
212	Plug
213	Sealing tape
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 oil
306	Clamping band
307	Coupling rod
308	Cover sleeve
401	Rotor
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501	Suction casing gasket
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504	Discharge casing
505	Suction casing
506	Cleaning port cover
507	Gasket
508	Stud
509	Hexagon nut
525	Washer
601	Name plate
602	Dome headed grooved pin
603	Instruction label "COMMISSIONING"
604	Instruction label "SUCTION"
605	Instruction label "DISCHARGE"
606	Hexagon head bolt
607	Hexagon nut
608	Serrated lock washer
609	Hexagon nut
610	Washer
611	Tie rod

Pump dimensions, auxiliary connections, possible branch positions, weights



Dimensions in mm. internal dimensions of ANSI flanges (DN) in inches. The manufacturer reserves the right to technical modifications without prior notice.

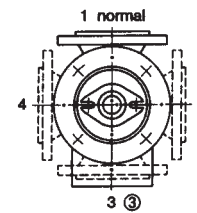
Sense to rotation: Counter clockwise looking from the drive end in which case DN<sub>1</sub> = Discharge connection and DN<sub>2</sub> = Suction connection

Pump size	Pump dimensions													Approx. weight in. kg
	b	c	e	f	h	m <sub>1</sub>	m <sub>2</sub>	n <sub>1</sub>	n <sub>2</sub>	o	q ①	s	L	
51														
101	506	10	75	95	90	84	30	19	11	167	210	9	Rp 3/8	
201	606	10	85	105	100	93	30	19	11	192	260	9	Rp 3/8	
381	748	13	100	125	125	106	38	25	13	227	325	11,5	Rp 1/2	
751	931	15	114	140	140	110	40	26	14	252	435	14	Rp 3/4	
1451	1117,5	16	132	168	160	128	50	31	19	304	540	18	Rp 3/4	
2701	1329,5	16	164	200	180	131	50	31	19	330	630	18	Rp 3/4	
5001	1625,5	21	200	245	225	153	63	40	23	407,5	775	22	Rp 1	

For technical details and dimensions of the drive please see the separate information sheet 19-00-000-112-3

Pump size	Mating dimensions for suction and delivery connections												
	Flanges DIN 2501, PN 16 ④						ANSI B16.1 Class 125 ②						
	DN <sub>1</sub>	DN <sub>2</sub>	k	p	w	g	DN <sub>1</sub>	DN <sub>2</sub>	k	p	w	g	
51													
101	50	50	617	450	43	175	2	2	613	446	39	171	
201	65	65	729	537	46	190	2 1/2	2 1/2	728	536	45	189	
381	80	80	877	650	45	230	3	3	875	648	43	228	
751	100	100	1062	810	43,5	260	4	4	1064	812	45,5	262	
1451	125	125	1263	959	44	300	5	5	1263	959	44	300	
2701	150	150	1492	1162	59	350	6	6	1492	1162	59	350	
5001	200	200	1806,5	1399	64	425	8	8	1806,5	1399	64	425	

Possible branch positions looking from drive end



③ not with series/size TECFLOW 51 and 101

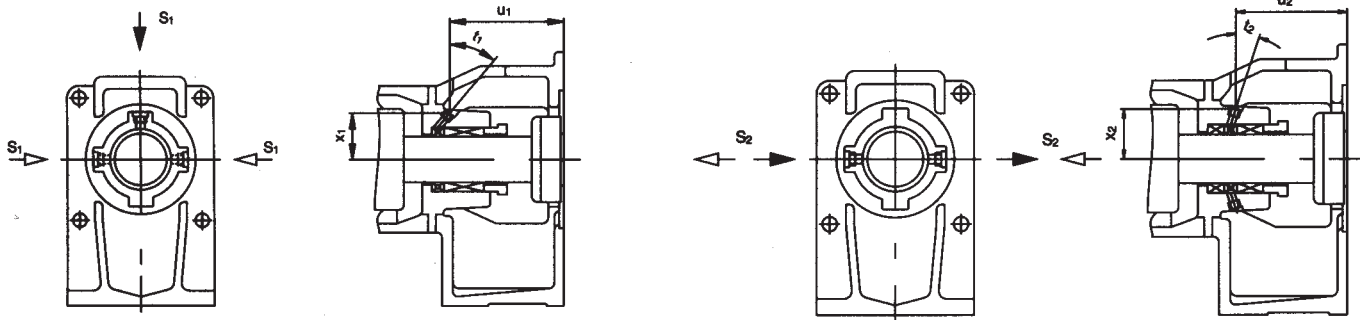
Flange dimensions

DIN 2501, PN 16 ④				ANSI B16.1 Class 125 ②			
DN <sub>1</sub> /DN <sub>2</sub>	k <sub>1</sub>	d <sub>1</sub>	z	DN <sub>1</sub> /DN <sub>2</sub>	k <sub>1</sub>	d <sub>1</sub>	z
50	125	18	4	2	120,6	19	4
65	145	18	4	2 1/2	139,7	19	4
80	160	18	8	3	152,4	19	4
100	180	18	8	4	190,5	19	8
125	210	18	8	5	215,9	22,2	8
150	240	22	8	6	241,3	22,2	8
200	295	22	12	8	298,4	22,2	8

- ① Space required for stator replacement
- ② Sealing surface: stock finish
- ④ up to DN 100 sealing surface DIN 2526, shape C, machined to shape A  
From DN 125 sealing surface DIN 2526 shape A

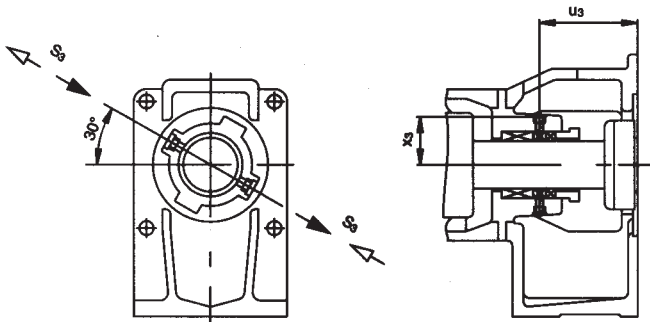


Positions of auxilliary connections to shaft seal



P2 with flushing ring

P3 with inside lantern ring



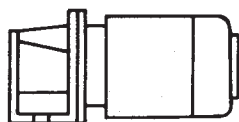
→ Standard flow direction  
 ⇨ Possible flow direction. In case of a P2 type shaft seal, the seal housing must be turned.

P4 with outside lantern ring

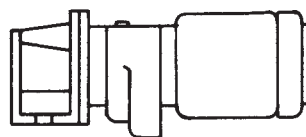
Size	Mating dimensions of auxilliary connections for shaft seals										
	P2 with flushing ring				P3 with inside lantern ring				P4 with outside lantern ring		
	S <sub>1</sub> ⑤	u <sub>1</sub>	x <sub>1</sub>	t <sub>1</sub>	S <sub>2</sub> ⑤	u <sub>2</sub>	x <sub>2</sub>	t <sub>2</sub>	S <sub>3</sub> ⑤	u <sub>3</sub>	x <sub>3</sub>
51											
101	M 8 x 1	84	28	42°	M 8 x 1	77	30	20°	M 8 x 1	69	30,5
201	M 8 x 1	93	31,5	40°	M 8 x 1	87	32	20°	M 8 x 1	78,5	33,5
381	Rp 1/8	104,5	38	42°	Rp 1/8	97	40	17°	Rp 1/8	85	39,5
751	Rp 1/8	109,5	42	42°	Rp 1/8	102	44	17°	Rp 1/8	91,5	43,5
1451	Rp 1/8	128,5	52	42°	Rp 1/8	119,5	54	17°	Rp 1/8	105	54,5
2701	Rp 1/8	133	56	35°	Rp 1/8	122,5	57	13°	Rp 1/8	106	58
5001	Rp 1/4	155	67	35°	Rp 1/4	142	68,5	13°	Rp 1/4	122	69,5

⑤ Taped hole DIN 3852, shape Z

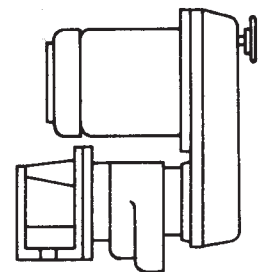
Possible drive arrangements



TECFLOW with electric motor



TECFLOW with geared motor



TECFLOW 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 <sup>3</sup> /h	l/min		
	AE.E-ID	1,2	450	7500	10	300.000
	AE.N-ID	1,2	290	4850	12	270.000
	AEB.E-IE	1,2	174	2900	6	300.000
	AEB.N-IE	1,2	111	1850	12	270.000
	AED.E-ID	1	720	12000	8	250.000
	AED.N-ID	2	450	7500	16	225.000
	AEDB.E-IE	1	258	4300	6	250.000
	AEDB.N-IE	2	174	2900	12	225.000
	AE.N...RG	1,2,4	21	350	20	1.000.000
	TECFLOW	1	186	3100	4	200.000
	SEZP	1,2	21	350	10	1.000.000
	SHP	2,4	110	1830	24	270.000
	SNZP	1,2	45	750	12	1.000.000
	SNZBP	1,2	45	750	12	1.000.000
	SSP	1,2	48	800	12	150.000
	SSBP	1,2	48	800	12	150.000
	SETP <sup>①</sup>	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
	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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