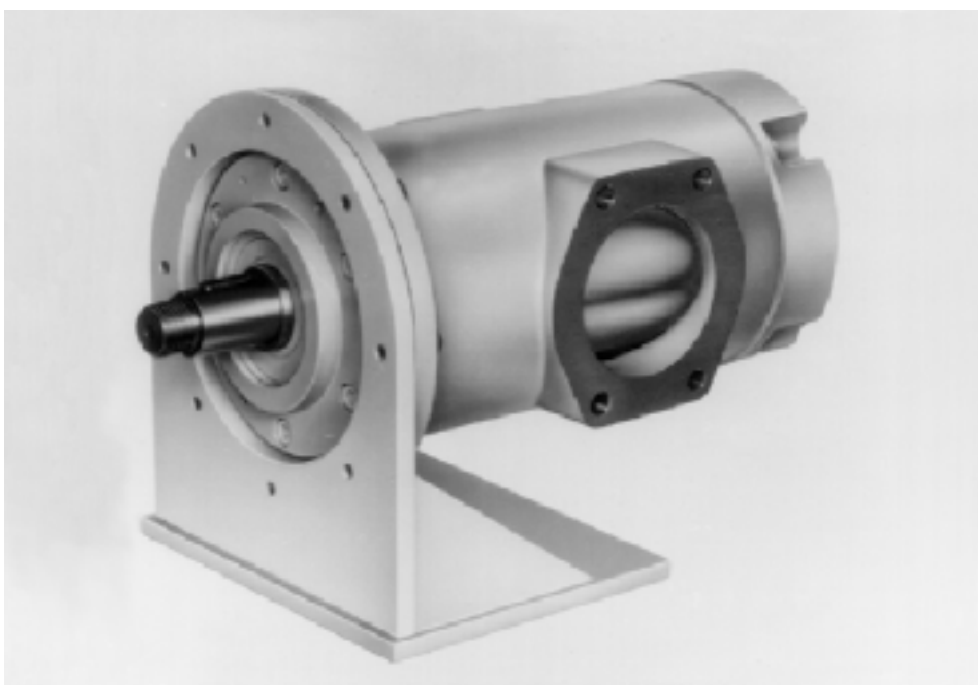




# SIGMA PUMPY HRANICE



## THREE-SCREW LOW-PRESSURE PUMPS

## EAB, EAD

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# Three-screw low-pressure pumps EAB EAD

## Application

Three-screw pumps EAB and EAD are intended for clean oils forced pumping in various lubricating, cooling and low-pressure oil hydraulic systems of machinery and further equipments. They may also deliver further self-lubricating non-corrosive liquids without mechanical impurities. Those pumps are available for gearboxes, diesel engines, gas turbines, compressors, machine tools, and so on.

Max. delivery pressure ..... 10 bar  
Max. temperature of a pumped liquid ..... 80 °C  
Kinematic viscosity  
of a pumped liquid ranging ..... from 21,5 to 385 mm<sup>2</sup>.s<sup>-1</sup>

## Workmanships

According to a drive version and their application those low-pressure three-screw pumps are available in following workmanships:

**Workmanship EAB** is intended for so-called „derived“ drive, direct from the respective machine or equipment with the aid of a gear drive. That pump is of glandless type, so that penetrated oil may flow back to the machine on which that pump has been fitted. The pump shaft drive end is of a tapered type.

**Workmanship EAD** - it is direct driven by its own electric motor, with transmission of a torque onto the pump shaft through a flexible coupling. Pump seal is formed by a radial lip seal. On a special request there a mechanical seal may be used. Oil from the seal space may be removed through a relief valve back to the suction side. The whole pump-set shall be seated on a foundation with its feet on the foot mounted lantern bracket placed between the pump and an electric motor.

## Construction

Pumps EAB and EAD are of positive-displacement rotary three-screw type, with circular fixing flange. As the pump basic functional part there are three screws, the middle of which is the driving one, two lateral screws are driven by mutual engagements. Axial force of driven screws is taken up by rolling-contact bearings. Lubrication of all friction areas is with a pumped liquid.

## Pump model key

65 - EAD - 52 N - 10 - LO - 020

65 Discharge branch I.D.

EAD Series designation

52 Driving screw adendum circle dia. in mm

N Screw lead designation

10 Tenfold of max. manometric pressure on the pump discharge side in bar

LO Material option number

020 Number of alteration, pump clockwise version, seal - radial lip seal ring „gufero“

Number of alteration 080 - counterclockwise pump version, sealing - radial lip seal ring „gufero“

Number of alteration 010 - clockwise pump version, sealing - soft gland packing

Number of alteration 030 - clockwise pump version, mechanical seal

## Working positions

Pumps may work reliably in both vertical and horizontal positions. With the EAD workmanship with an electric motor, that is, as a pump-set, there horizontal working position may be considered to be the standard one. Provided, that pump-set is supplied in its vertical arrangement, it is intended for attachment to a foundation or mounting on a tank with the lower flange of the lantern bracket.

To make arrangement of pump branches in various positions possible, it is recommended to turn the pump to the left and/or to the right (always through an angle of 90 °C) with suction piping and delivery one right positioning or doing further measures (as installation of non-return organs) to prevent the pump spontaneous draining and to ensure its continuous flooding with a pumped liquid even in its stillstand.

## Material options

Pump main parts are of following constructional materials:  
Pump casing is of special cast iron or aluminium alloy.  
Suction and discharge shields are of grey cast iron.  
Screws are of heat-treated carbon steel.

## Sense of rotation

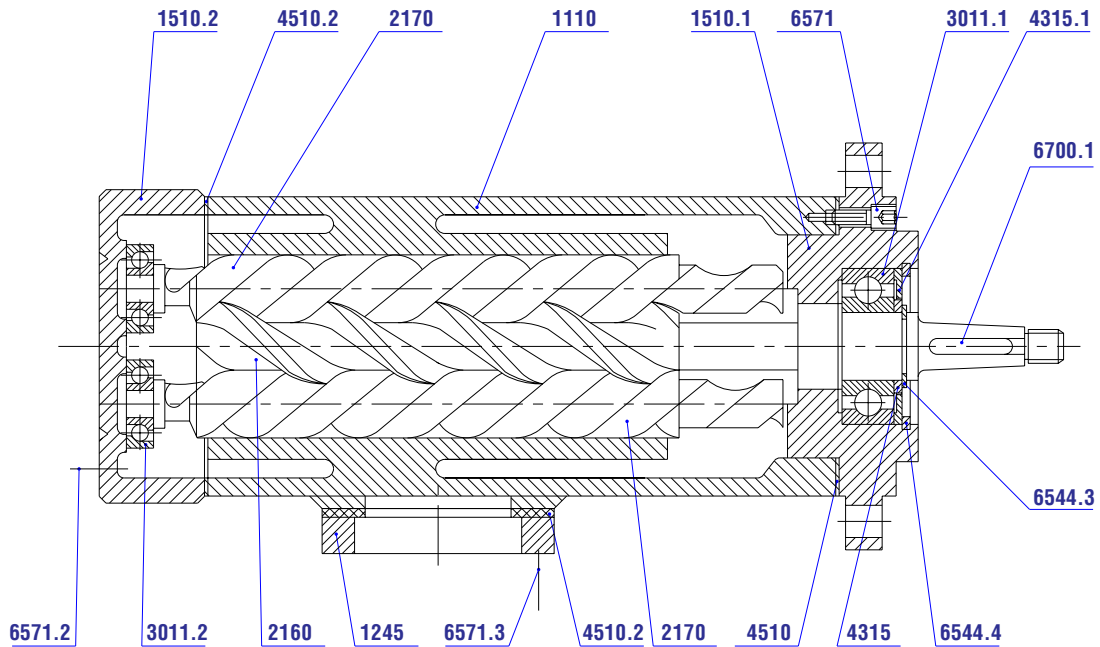
Pumps EAB and EAD may rotate both clockwise and counterclockwise with unchanged arrangement of suction and discharge branches, considering direction of a pumped liquid flow. Sense of rotation shall be determined from the drive side. That pump may be used for the only one sense of rotation - for reverse sense of rotation it is necessary to use any other screws with reverse lead of an helix.

## Locking organs

Those pump are not provided with their own locking organs. To prevent hazardous overloading due to pressure rise in an existing hydraulic system and its possible damage it is inevitable to protect the pump with the aid of a relief by-pass valve mounted into delivery piping close behind the pump but without any locking device being installed between a valve and the pump.

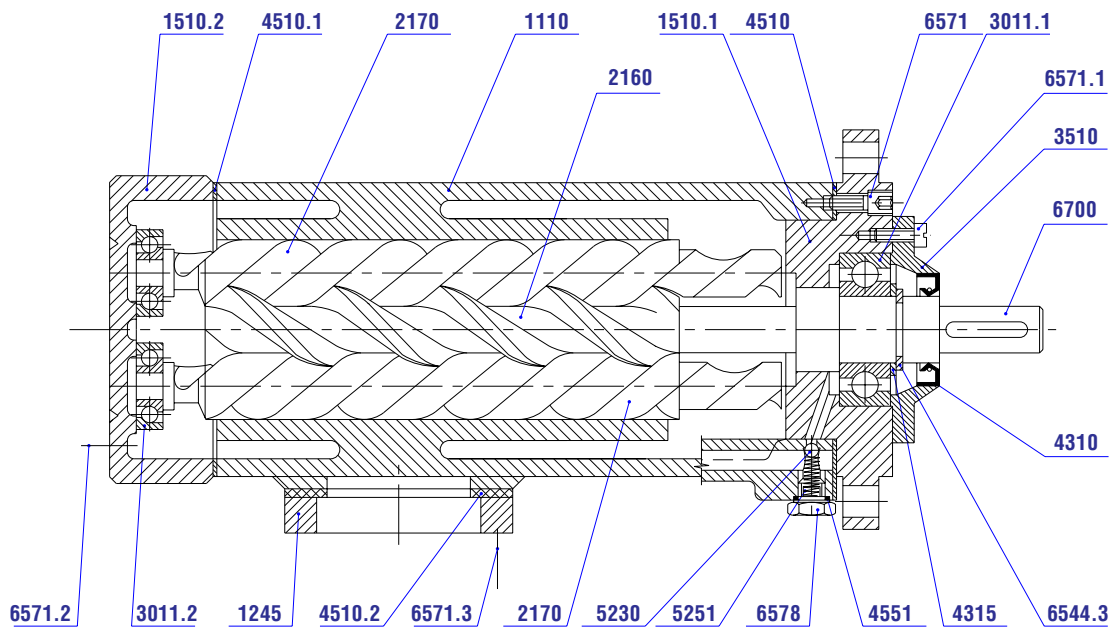
# Three-screw low-pressure pumps EAB EAD

## Informatory section through pump 32-EAB



1110	Casing	2170	Driven screw	4315.1	Bearing guard	6544.4	Circlip
1245	Counterflange	2170	Driven screw	4510	Sealing	6571	Bolt
1510.1	Discharge shield	3011.1	Bearing	4510.1	Sealing	6571.2	Bolt
1510.2	Suction shield	3011.2	Bearing	4510.2	Sealing	6571.3	Bolt
2160	Driving screw	4315	Bearing ring	6544.3	Circlip	6700.1	Key

## Informatory section through pump 32-EAD



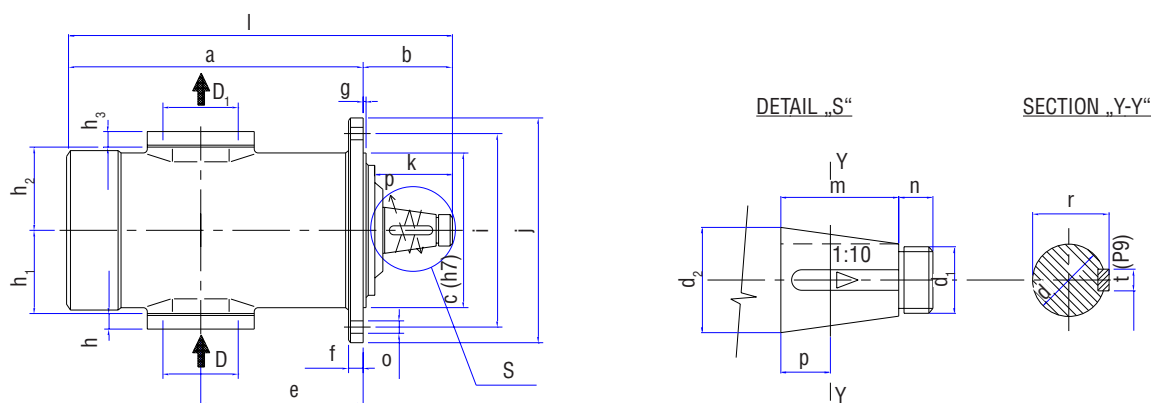
1110	Casing	3011.1	Bearing	4510.2	Sealing	6571.2	Bolt
1245	Counterflange	3011.2	Bearing	4551	Wear ring	6571.3	Bolt
1510.1	Discharge shield	3510	Bearing cap	5230	Sphere	6578	Plug
1510.2	Suction shield	4310	Radial lip seal „gufero“	5251	Spring	6700	Key
2160	Driving screw	4315	Bearing ring	6544.3	Circlip		
2170	Driven screw	4510	Sealing	6571	Bolt		
2170	Driven screw	4510.1	Sealing	6571.1	Bolt		

# Three-screw low-pressure pumps EAB EAD

## Dimensions of pumps EAB

Pump model	Pump						Welding flanges				Fixing flange					Shaft end									
	a	b	e	h <sub>1</sub>	h <sub>2</sub>	l	suction		discharge		∅c	f	g	∅i	∅j	∅o	∅d	∅d <sub>1</sub>	∅d <sub>2</sub>	k	m	n	p	r	t
							∅D	h	∅D <sub>1</sub>	h <sub>3</sub>															
32-EAB-32N-10	209	51	122	55	55	260	38,5	12	38,5	12	100	13	4	115	135	4x9,5	17,2	M10x1,25	18	39	16	12	8	18,7	4
50-EAB-38N-10	240	65	139	68	68	305	76,5	15	57,5	15	130	15	4	150	175	4x11	23,8	M16x1,5	25	55	24	18	12	24,8	5
50-EAB-45N-10	275	80	152	75	75	355	76,5	15	57,5	15	150	15	4	185	220	4x15	26,8	M16x1,5	28	67	24	18	12	28,8	5
65-EAB-52N-10	309	85	169,5	85	85	394	90	18	76,5	15	160	16	4	195	230	4x15	33,2	M20x1,5	35	67	36	22	18	35,7	6
100-EAB-80N-10	447	113	229	125	125	560	134	20	109	18	215	20	5	265	300	4x15	47,3	M36x3	50	90	54	28	27	50,3	12

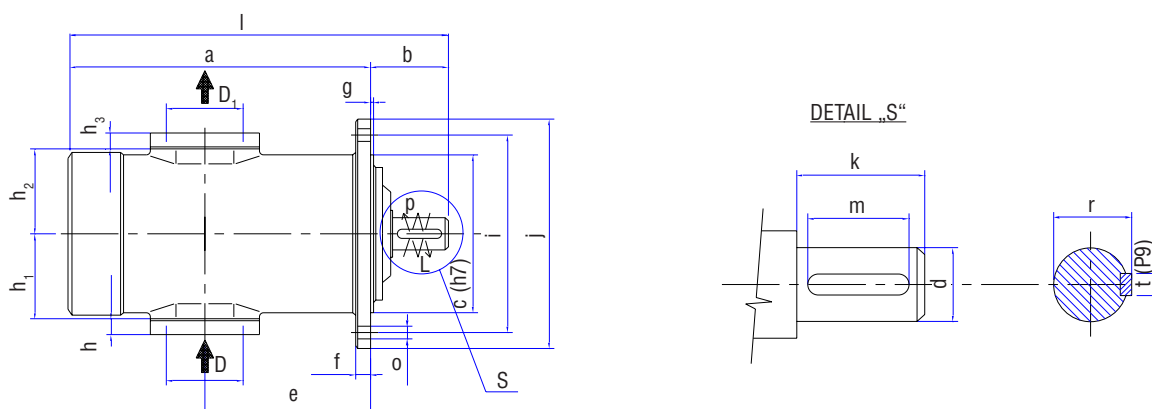
Suction and discharge welding flanges inclusive of sealing and flanged screws are included in the scope of the pump supply. Flanges of suction and discharge branches are provided according to SAE Standards.



## Dimensions of pumps EAD

Pump model	Pump						Welding flanges				Fixing flange					Shaft end					
	a	b	e	h <sub>1</sub>	h <sub>2</sub>	l	suction		discharge		∅c	f	g	∅i	∅j	∅o	∅d	k	m	r	t
							∅D	h	∅D <sub>1</sub>	h <sub>3</sub>											
32-EAD-32N-10	201	54	122	55	55	255	38,5	12	38,5	12	100	13	4	115	135	4x9,5	16	32	25	18,1	5
50-EAD-38N-10	242	73	139	68	68	315	76,5	15	57,5	15	130	15	4	150	175	4x11	25	50	40	27,9	8
50-EAD-45N-10	274	86	152	75	75	360	76,5	15	57,5	15	150	15	4	185	220	4x15	28	60	50	30,9	8
65-EAD-52N-10	304	96	169,5	85	85	400	90	18	76,5	15	160	16	4	195	230	4x15	32	63	50	35,5	10
100-EAD-80N-10	445	125	229	125	125	570	134	20	109	18	215	20	5	265	300	4x15	50	82	63	53,5	14

Suction and discharge welding flanges inclusive of sealing and flanged screws are included in the scope of the pump supply. Flanges of suction and discharge branches are provided according to SAE Standards.



# Three-screw low-pressure pumps EAB EAD

## Survey of pump models and performance data

Pump model	Speed n min <sup>-1</sup>	Delivery pressure P <sub>do</sub> bar	Performance data with various viscosity values (mm <sup>2</sup> ·s <sup>-1</sup> )													
			12		28		37		76		150		230		380	
			Q l.s <sup>-1</sup>	P kW	Q l.s <sup>-1</sup>	P kW	Q l.s <sup>-1</sup>	P kW	Q l.s <sup>-1</sup>	P kW	Q l.s <sup>-1</sup>	P kW	Q l.s <sup>-1</sup>	P kW	Q l.s <sup>-1</sup>	P kW
32 <sup>EAB</sup> EAD <sup>32N-10</sup>	720	2	0,34	0,08	0,35	0,08	0,35	0,09	0,36	0,10	0,36	0,12	0,36	0,14	0,36	0,19
		4	0,32	0,15	0,33	0,16	0,34	0,16	0,34	0,17	0,35	0,20	0,35	0,22	0,35	0,26
		6	0,30	0,23	0,32	0,23	0,32	0,24	0,33	0,25	0,34	0,27	0,35	0,29	0,35	0,34
		8	0,28	0,31	0,30	0,31	0,31	0,31	0,32	0,32	0,33	0,35	0,34	0,37	0,34	0,42
		10	(0,26)	(0,38)	0,29	0,39	0,29	0,39	0,31	0,40	0,32	0,42	0,33	0,45	0,33	0,49
	920	2	0,45	0,10	0,45	0,11	0,45	0,11	0,46	0,13	0,46	0,17	0,46	0,21	0,46	0,28
		4	0,42	0,20	0,44	0,21	0,44	0,21	0,45	0,23	0,45	0,27	0,45	0,30	0,46	0,38
		6	0,40	0,30	0,42	0,30	0,42	0,31	0,43	0,33	0,44	0,36	0,45	0,40	0,45	0,47
		8	0,38	0,39	0,40	0,40	0,41	0,40	0,42	0,42	0,43	0,46	0,44	0,50	0,44	0,57
		10	0,36	0,49	0,39	0,50	0,40	0,50	0,41	0,52	0,42	0,56	0,43	0,59	0,44	0,67
	1450	2	0,72	0,17	0,72	0,19	0,72	0,20	0,73	0,24	0,73	0,33	0,73	0,43	0,73	0,61
		4	0,69	0,32	0,71	0,34	0,71	0,35	0,72	0,40	0,72	0,48	0,72	0,58	0,73	0,76
		6	0,67	0,47	0,69	0,49	0,69	0,50	0,70	0,55	0,71	0,64	0,72	0,73	0,72	0,91
		8	0,65	0,62	0,68	0,64	0,68	0,65	0,69	0,70	0,70	0,79	0,71	0,89	0,71	1,07
		10	0,63	0,78	0,66	0,80	0,67	0,81	0,68	0,85	0,70	0,94	0,70	1,04	0,71	1,22
	2900	2	1,41	0,36	1,42	0,44	1,42	0,48	1,42	0,67	1,47	1,03	1,47	1,41	1,48	2,13
		4	1,37	0,67	1,38	0,74	1,39	0,79	1,40	0,97	1,46	1,33	1,47	1,71	1,47	2,44
		6	1,33	0,97	1,35	1,05	1,35	1,09	1,37	1,28	1,45	1,63	1,46	2,02	1,46	2,74
		8	1,29	1,28	1,31	1,35	1,32	1,40	1,30	1,58	1,45	1,94	1,45	2,32	1,46	3,05
		10	1,26	1,58	1,28	1,66	1,29	1,70	1,31	1,89	1,44	2,25	1,44	2,63	1,45	3,35
50 <sup>EAB</sup> EAD <sup>38N-10</sup>	720	2	0,58	0,13	0,59	0,14	0,59	0,14	0,59	0,16	0,60	0,20	0,60	0,24	0,60	0,31
		4	0,54	0,26	0,56	0,27	0,56	0,27	0,57	0,29	0,58	0,33	0,59	0,37	0,59	0,44
		6	0,50	0,39	0,53	0,39	0,54	0,40	0,55	0,42	0,57	0,45	0,57	0,49	0,58	0,57
		8	0,47	0,51	0,51	0,52	0,52	0,52	0,54	0,54	0,55	0,58	0,56	0,62	0,57	0,70
		10	(0,44)	(0,64)	0,48	0,65	0,49	0,65	0,52	0,67	0,54	0,71	0,55	0,75	0,56	0,82
	920	2	0,75	0,17	0,76	0,18	0,76	0,19	0,77	0,22	0,77	0,28	0,77	0,35	0,78	0,47
		4	0,71	0,33	0,73	0,35	0,73	0,35	0,75	0,38	0,75	0,44	0,76	0,51	0,76	0,63
		6	0,67	0,49	0,70	0,51	0,71	0,51	0,73	0,55	0,74	0,61	0,75	0,67	0,75	0,79
		8	0,64	0,66	0,68	0,67	0,69	0,68	0,71	0,71	0,72	0,77	0,73	0,83	0,74	0,96
		10	0,61	0,82	0,65	0,83	0,66	0,84	0,69	0,87	0,71	0,93	0,72	1,00	0,73	1,12
	1450	2	1,20	0,28	1,21	0,31	1,21	0,33	1,22	0,41	1,22	0,56	1,23	0,72	1,23	1,02
		4	1,16	0,53	1,18	0,57	1,19	0,58	1,20	0,66	1,21	0,81	1,21	0,97	1,22	1,27
		6	1,13	0,79	1,16	0,82	1,16	0,84	1,18	0,92	1,19	1,07	1,20	1,23	1,21	1,53
		8	1,09	1,04	1,13	1,08	1,14	1,09	1,16	1,17	1,18	1,32	1,19	1,48	1,20	1,79
		10	1,06	1,30	1,11	1,33	1,12	1,35	1,15	1,43	1,16	1,58	1,18	1,74	1,19	2,04
	2900	2	2,44	0,61	2,45	0,73	2,46	0,81	2,46	1,12	2,47	1,72	2,47	2,36	2,47	3,57
		4	2,41	1,11	2,43	1,24	2,43	1,32	2,44	1,63	2,45	2,23	2,46	2,87	2,46	4,08
		6	2,37	1,63	2,40	1,75	2,41	1,83	2,42	2,14	2,44	2,74	2,44	3,38	2,45	4,59
		8	2,34	2,14	2,37	2,27	2,38	2,34	2,40	2,65	2,42	3,25	2,43	3,89	2,44	5,10
		10	2,31	2,65	2,35	2,78	2,36	2,85	2,39	3,16	2,41	3,76	2,42	4,41	2,43	5,61
50 <sup>EAB</sup> EAD <sup>45N-10</sup>	720	2	0,93	0,22	0,96	0,23	0,96	0,24	0,98	0,27	0,99	0,33	0,99	0,40	1,00	0,52
		4	0,85	0,43	0,89	0,44	0,91	0,45	0,93	0,48	0,95	0,54	0,96	0,61	0,97	0,73
		6	0,77	0,64	0,84	0,65	0,85	0,66	0,89	0,69	0,92	0,75	0,93	0,82	0,95	0,94
		8	0,70	0,85	0,78	0,86	0,80	0,87	0,85	0,90	0,88	0,96	0,90	1,03	0,92	1,15
		10	(0,63)	(1,06)	0,73	1,08	0,75	1,08	0,81	1,12	0,85	1,18	0,88	1,24	0,90	1,37
	920	2	1,22	0,28	1,24	0,31	1,25	0,32	1,26	0,37	1,27	0,47	1,28	0,58	1,28	0,78
		4	1,14	0,55	1,18	0,57	1,19	0,59	1,22	0,64	1,23	0,74	1,24	0,85	1,25	1,05
		6	1,06	0,82	1,12	0,84	1,14	0,86	1,17	0,91	1,20	1,01	1,22	1,12	1,23	1,32
		8	0,98	1,09	1,06	1,11	1,09	1,12	1,13	1,18	1,17	1,28	1,19	1,38	1,21	1,59
		10	0,91	1,36	1,01	1,38	1,04	1,39	1,10	1,45	1,14	1,55	1,16	1,65	1,18	1,86
	1450	2	1,97	0,46	2,00	0,52	2,00	0,55	2,01	0,68	2,02	0,92	2,03	1,19	2,03	1,69
		4	1,89	0,89	1,93	0,94	1,94	0,97	1,97	1,10	1,99	1,35	2,00	1,61	2,01	2,12
		6	1,81	1,31	1,87	1,36	1,89	1,39	1,93	1,52	1,96	1,77	1,97	2,04	1,98	2,54
		8	1,74	1,73	1,82	1,79	1,84	1,82	1,89	1,95	1,92	2,20	1,94	2,46	1,96	2,96
		10	1,67	2,16	1,77	2,21	1,79	2,24	1,85	2,37	1,89	2,62	1,92	2,89	1,94	3,39
	2900	2	3,83	1,01	3,83	1,22	3,85	1,34	3,88	1,86	4,09	2,85	4,09	3,92	4,10	5,93
		4	3,75	1,85	3,80	2,07	3,81	2,19	3,85	2,71	4,05	3,70	4,06	4,77	4,07	6,77
		6	3,65	2,70	3,75	2,91	3,77	3,03	3,81	3,56	4,02	4,55	4,03	5,62	4,05	7,62
		8	3,62	3,55	3,70	3,76	3,72	3,88	3,78	4,40	3,99	5,39	4,01	6,47	4,02	8,47
		10	3,55	4,40	3,65	4,61	3,69	4,73	3,75	5,26	3,96	6,25	3,98	7,32	4,00	9,32

# Three-screw low-pressure pumps EAB EAD

## Survey of pump models and performance data

Pump model	Speed $n$ $\text{min}^{-1}$	Delivery pressure $p_{do}$ bar	Performance data with various viscosity values ( $\text{mm}^2 \cdot \text{s}^{-1}$ )													
			12		28		37		76		150		230		380	
			Q $\text{l} \cdot \text{s}^{-1}$	P kW	Q $\text{l} \cdot \text{s}^{-1}$	P kW	Q $\text{l} \cdot \text{s}^{-1}$	P kW	Q $\text{l} \cdot \text{s}^{-1}$	P kW	Q $\text{l} \cdot \text{s}^{-1}$	P kW	Q $\text{l} \cdot \text{s}^{-1}$	P kW	Q $\text{l} \cdot \text{s}^{-1}$	P kW
65-EAB EAD-52N-10	720	2	1,47	0,34	1,50	0,36	1,51	0,37	1,52	0,42	1,54	0,51	1,54	0,62	1,55	0,81
		4	1,38	0,66	1,43	0,68	1,44	0,69	1,47	0,74	1,49	0,84	1,50	0,94	1,52	1,13
		6	1,29	0,99	1,36	1,01	1,38	1,02	1,42	1,07	1,45	1,16	1,47	1,27	1,49	1,46
		8	1,20	1,31	1,29	1,33	1,32	1,34	1,38	1,39	1,42	1,49	1,44	1,59	1,46	1,78
		10	(1,12)	(1,64)	1,23	1,66	1,26	1,67	1,33	1,72	1,38	1,81	1,41	1,92	1,44	2,11
	920	2	1,91	0,44	1,94	0,47	1,95	0,49	1,96	0,57	1,97	0,73	1,98	0,89	1,99	1,20
		4	1,82	0,85	1,87	0,89	1,88	0,90	1,91	0,99	1,93	1,14	1,94	1,31	1,96	1,62
		6	1,73	1,27	1,80	1,30	1,82	1,32	1,86	1,40	1,89	1,55	1,91	1,72	1,93	2,03
		8	1,64	1,68	1,73	1,72	1,76	1,74	1,82	1,82	1,86	1,97	1,88	2,14	1,90	2,45
		10	1,56	2,10	1,67	2,13	1,70	2,15	1,77	2,23	1,82	2,39	1,85	2,55	1,87	2,86
	1450	2	3,08	0,71	3,10	0,80	3,11	0,84	3,13	1,04	3,14	1,43	3,14	1,84	3,15	2,61
		4	2,98	1,37	3,03	1,45	3,04	1,50	3,07	1,70	3,10	2,08	3,11	2,49	3,12	3,27
		6	2,89	2,02	2,96	2,10	2,98	2,15	3,03	2,35	3,06	2,73	3,07	3,15	3,09	3,92
		8	2,80	2,68	2,90	2,76	2,92	2,80	2,98	3,01	3,02	3,39	3,04	3,80	3,06	4,57
		10	2,72	3,33	2,84	3,41	2,87	3,46	2,93	3,66	2,99	4,04	3,01	4,46	3,04	5,23
	2900	2	6,26	1,55	6,27	1,88	6,28	2,07	6,30	2,87	6,32	4,40	6,33	6,06	6,33	9,15
		4	6,12	2,86	6,17	3,19	6,18	3,37	6,22	4,18	6,28	5,71	6,29	7,36	6,30	10,45
		6	6,00	4,16	6,07	4,49	6,09	4,68	6,13	5,49	6,24	7,01	6,26	8,67	6,27	11,76
		8	5,88	5,48	5,97	5,81	5,99	5,99	6,05	6,80	6,20	8,32	6,23	9,98	6,25	13,07
		10	5,75	6,79	5,87	7,12	5,90	7,30	5,97	8,11	6,17	9,64	6,20	11,29	6,22	14,39
100-EAB EAD-80N-10	720	2	5,52	1,23	5,58	1,31	5,60	1,35	5,63	1,53	5,66	1,87	5,67	2,24	5,68	2,94
		4	5,31	2,41	5,42	2,49	5,45	2,53	5,52	2,71	5,56	3,05	5,59	3,42	5,62	4,12
		6	5,11	3,60	5,27	3,67	5,31	3,71	5,41	3,89	5,48	4,24	5,52	4,61	5,55	5,30
		8	4,93	4,78	5,13	4,86	5,19	4,90	5,31	5,08	5,40	5,42	5,45	5,79	5,49	6,49
		10	4,75	5,97	5,00	6,04	5,06	6,08	5,21	6,27	5,32	6,61	5,38	6,98	5,44	7,67
	920	2	7,12	1,60	7,18	1,72	7,19	1,79	7,23	2,08	7,25	2,64	7,27	3,25	7,28	4,38
		4	6,91	3,10	7,02	3,23	7,05	3,29	7,11	3,59	7,16	4,15	7,19	4,75	7,21	5,89
		6	6,71	4,62	6,87	4,74	6,91	4,80	7,01	5,10	7,08	5,66	7,12	6,26	7,15	7,40
		8	6,53	6,13	6,73	6,25	6,79	6,32	6,91	6,61	7,00	7,17	7,05	7,78	7,09	8,91
		10	6,35	7,65	6,60	7,77	6,66	7,84	6,81	8,13	6,92	8,69	6,98	9,30	7,04	10,43
	1450	2	11,06	2,60	11,12	2,90	11,12	3,07	11,16	3,80	11,49	5,19	11,51	6,70	11,52	9,51
		4	10,93	4,98	10,99	5,28	11,03	5,45	11,10	6,18	11,40	7,57	11,43	9,07	11,45	11,89
		6	10,79	7,36	10,89	7,66	10,94	7,83	11,03	8,56	11,32	9,95	11,35	11,45	11,39	14,27
		8	10,65	9,74	10,78	10,04	10,84	10,21	10,96	10,95	11,24	12,34	11,28	13,84	11,33	16,66
		10	10,52	12,13	10,68	12,43	10,75	12,60	10,90	13,34	11,16	14,73	11,22	16,23	11,27	19,05
	2900	2	22,95	5,65	23,01	6,85	23,03	7,53	23,06	10,46	23,09	16,02	23,10	22,04	23,11	33,31
		4	22,74	10,40	22,85	11,60	22,88	12,28	22,95	15,21	22,99	20,78	23,02	26,79	23,05	38,07
		6	22,54	15,16	22,70	16,37	22,74	17,04	22,84	19,98	22,91	25,54	22,95	31,55	22,98	42,83
		8	22,36	19,94	22,56	21,14	22,62	21,82	22,74	24,75	22,83	30,31	22,88	36,32	22,92	47,60
		10	22,18	24,72	22,43	25,92	22,49	26,60	22,64	29,53	22,75	35,09	22,81	41,11	22,87	52,38

Performance data mentioned above are valid for  $p_{s \text{ man}} = 0 \text{ bar}$

Q ..... Pump capacity

P ..... Pump power input

It is necessary to select a driving motor power output with corresponding capacity reserve according to the pump running-in conditions and its operating conditions, e.g. higher initial viscosity, long-run and/or continuous operations, and so on.

Permissible underpressure within speed range from 720 to 1,700  $\text{min}^{-1}$  and with kinematic viscosities from 21.5 to 380  $\text{mm}^2 \cdot \text{s}^{-1}$  shall be -0.5 bar with models from 32- to 50-EAB, EAD, or possibly -0.4 bar with models 65- and 100-EAB, EAD. With further speed ranges that value should be solved individually.

Max. inflow (positive suction head) for a pump in its standard model shall be 0.5 bar. With its special workmanship it may be  $p_{s \text{ man}} = 6 \text{ bar}$ .

Viscosity of a pumped liquid may range within values from 21.5 to 380  $\text{mm}^2 \cdot \text{s}^{-1}$ . Within certain values of suction and discharge pressures and speed there viscosity values may range from 2.5 to 3,800  $\text{mm}^2 \cdot \text{s}^{-1}$ .

Pump speed may be selected in accordance with viscosity and lubricating capacity of a pumped liquid working pressure and the pump size. It is possible to increase speed values mentioned in the Table - according to working conditions and by agreement with the manufacturer.