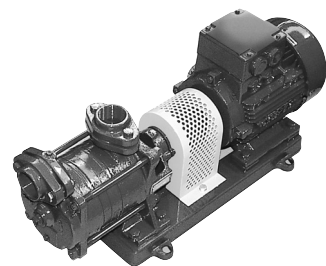


KRACHT



Self-priming
Centrifugal Pumps

ACL

Description

Series ACL, ACLD and ACLDR pumps are horizontal, self-priming segmental-type side-channel pumps. They are manufactured single and multiple staged.

In type ACL, the shaft runs on the drive side in an external roller bearing and on the cover side in a plain bearing that is lubricated by the pumping material; in types ACLD and ACLDR, in two external roller bearings.

The shafts are sealed by single-acting mechanical shaft seals.

After being filled one time with the carrier fluid, these pumps draw by themselves. They are capable of conveying air at the same time and reliably draw even under unfavourable suction conditions, e. g. over a "mountain".

The pumping material should not contain rough or strongly abrasive impurities.

Due to the strong dependence, especially of the lifting height and the input power on the speed, please check

with us if any changes are made. Another direction of rotation is feasible.

The power requirements of side-channel pumps increase with increasing lifting heights. Consequently, the pump must not exceed the lifting height specified for the electric motor design.

The performance data are based on conveying pure water with specific weight = 1 and a viscosity of 1 mm²/s (cSt) at 20 °C. Performance tolerance ± 10 %.

When conveying fluids with a specific weight other than 1.0, the power requirement changes corresponding to the specific weight.

The pumps are suitable e.g., for waterworks, water supply plants, pressure booster stations, as boiler feeds and as condensate pumps. They are also used where normal centrifugal pumps fail due to gas occlusions and gas inrushes.

General Characteristics

Suitable fluids	Water, coolant emulsions, low-viscosity oils, fuels, acids, lyes and similar media	Direction of rotation	right (viewed from the shaft end) left-hand rotation in special design
Medium temperature	-20 ° tp +140 °C	Connections	Page 4
Discharge flow	... 600 l/min	Version A	Pump with free shaft end
Lifting height	... 229 m	AK	Pump with coupling
Viscosity	230 mm ² /s (cSt)	D	Pump with coupling and base plate, without electric motor
Suction lift	... 8.5 m (H _{geod.} +H _v)	DM	Pump with electric motor, coupling and protection guard for coupling mounted on a mutual base plate
Speed	1450 rpm at 50 Hz 1750 rpm at 60 Hz		

Materials

	1	2	3	4
Housing	GG	GG	G-SnBz 10	1.4581
Impeller	CuZnAl 1	1.4059	1.4059	1.4581
Shaft	1.4021	1.4021	1.4571	1.4571
Plain bearing bush	Coal	Coal	Coal	Coal
Gasket ring	Thermoflon K	Thermoflon K	Thermoflon K	Thermoflon K

Mechanical shaft seal materials

	Carbon	Carbon	Silicon carbide
Slip ring			
Stationary seal ring	1.4122	Al-oxide	Carbon
Auxiliary seal	Teflon	Teflon	Teflon

Explanations on material numbers

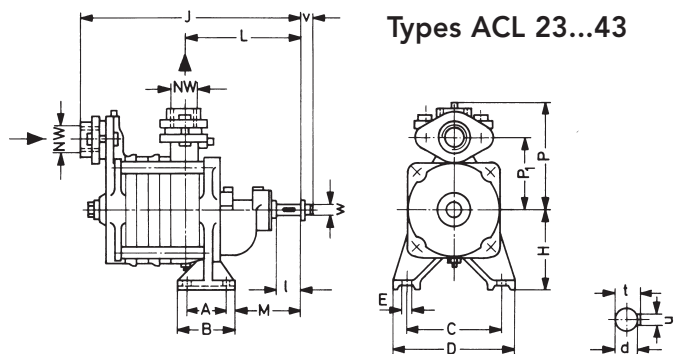
(Material no. Designation according to DIN 17006)

GG	Cast iron with a tensile strength of at least 220 N/mm ²
1.4021	X 20 Cr 13
1.4059	G - X 22 Cr Ni 17
1.4571	X 10 Cr Ni Mo Ti 18 10
1.4581	G - X 7 Cr Ni Mo Nb 18 10

Lifting height H m	Stage number 1			Stage number 2			Stage number 3			Stage number 4			Stage number 5			Stage number 6				
	Discharge flow Q l/min	Power require- ment P kW	Intended motor n=1450 kW	Lifting height H m	Discharge flow Q l/min	Power require- ment P kW	Intended motor n=1450 kW	Lifting height H m	Discharge flow Q l/min	Power require- ment P kW	Intended motor n=1450 kW	Lifting height H m	Discharge flow Q l/min	Power require- ment P kW	Intended motor n=1450 kW	Lifting height H m	Discharge flow Q l/min	Power require- ment P kW	Intended motor n=1450 kW	
ACL ACLD 23 ACLDR	5 13 14 20 20 25 26 31 31 36 36	30 25 20 20 15 10 5	0.15 0.22 0.25 0.37 0.45 0.60 0.75 0.95 1.1 1.5	26 27 30 36 40 46 52 61 71	38 39 40 40 40 40 40 40 40 40	0.35 0.45 0.50 0.60 0.75 0.95 1.1 1.5	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0	49 51 51 51 51 51 51 51 51 51	30 25 20 15 10 5	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0	51 51 51 51 51 51 51 51 51 51	30 25 20 15 10 5	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0	49 51 51 51 51 51 51 51 51 51	30 25 20 15 10 5	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0	0.75 1.1 1.5 2.0 2.5 3.0 3.0 3.0 3.0
ACL	12 10 18 23	80 70 60	0.45 0.50 0.55 0.75	33 33 44	70 60 50	1.0 1.2 1.5	1.5 2.2 3.0	65 65 65	60 50 40	1.8 2.2 3.0	2.2 3.0 3.0	86 106 114	60 50 40	2.4 3.0 3.0	3 4 4	60 50 40	2.4 3.0 3.0	3 4 4	2.2 3.0 3.0	
ACL ACLD 33 ACLDR	21 29 32 34 34 36 37 38 40 41	50 45 35 30 25 20	0.25 0.30 0.37 0.55 0.75 0.95 1.1 1.5 2.0	39 48 58 67 74	40 35 30 25 20	0.8 0.9 1.1 1.5 1.5	1.1 1.5 2.2 3.0 3.0	57 58 67 74	38 39 40 40 40	1.2 1.4 1.5 2.2 3.0	1.5 2.2 3.0 3.0 3.0	76 94 114 131	40 35 30 25 20	1.6 1.9 2.2 2.7 3.3	3 4 4 4 4	40 35 30 25 20	1.6 1.9 2.2 2.7 3.3	3 4 4 4 4	1.5 2.2 3.0 3.0 3.0	
ACL ACLD 43 ACLDR	5 7 13 15 19 22 24 25 27 32 36 36	125 110 100 90 80 70 60	0.5 0.6 0.7 0.8 0.9 1.1 1.5	26 28 36 42 45 53 63 71	110 100 90 80 70 60 50	1.3 1.5 2.2 2.2 2.2 3.0 3.0	1.5 2.2 3.0 3.0 3.0 3.0 3.0	39 40 52 66 73 83 92 105	110 100 90 80 70 60 50	1.9 2.2 3.0 3.0 3.0 3.0 3.0 3.5	2.2 3.0 3.0 3.0 3.0 3.0 3.0 4.0	51 52 63 73 83 92 105	110 100 90 80 70 60 50	2.6 3.0 3.0 3.0 3.0 3.0 3.0 4.0	3 4 4 4 4 4 4 5	110 100 90 80 70 60 50	2.6 3.0 3.0 3.0 3.0 3.0 3.0 4.0	3 4 4 4 4 4 4 5	2.2 3.0 3.0 3.0 3.0 3.0 3.0 4.0	
ACLDR 53	8 9 15 22 28 30 32 36	200 175 150 125 110 100 80	1.1 1.3 1.5 2.2 3.0 3.0 3.0	28 29 44 53 63 68	175 150 125 110 100	2.5 2.9 3.3 3.5 3.5	3 4 4 4 4	42 44 65 86 101	175 150 125 110 100	3.7 4.9 5.5 5.5 5.5	5.5 5.5 5.5 5.5 5.5	56 59 86 108 123 132	175 150 125 110 100	4.9 5.5 5.5 5.5 5.5	6.1 7.5 8.7 9.1 9.1	70 73 83 102 111 111 111	175 150 125 110 100	4.9 5.5 5.5 5.5 5.5	6.1 7.5 8.7 9.1 9.1	7.5 8.7 9.1 9.1 9.1
ACLDR 53 S	16 23 34 40	300 250 200 175	1.7 2.5 3.0 3.7	31 44 65 76	300 250 200 175	5.5 6.4 7.0 7.5	7.5 11 11 11	46 62 88 101	300 250 200 175	6.3 7.9 8.8 9.1	8.4 9.8 10.5 11.1	58 67 87 108	300 250 200 175	8.4 10.5 11.1 11.1	8.4 10.5 11.1 11.1	58 67 87 108	300 250 200 175	8.4 10.5 11.1 11.1	8.4 10.5 11.1 11.1	8.4 10.5 11.1 11.1
ACLDR 63	13 16 24 28 30 32	500 450 400 350	3.0 3.3 4.0 4.5 5.5 6.0	25 32 46 58 64	500 450 400 350	6.6 7.5 8.8 9.5 10.6	11 11 15 15 15	27 32 46 58 64	500 450 400 350	8.8 9.8 11.2 12.2 13.2	11 12 14 15 15	37 46 68 84	500 450 400 350	9.8 11.2 12.2 13.2	11 11 15 15	37 46 68 84	500 450 400 350	9.8 11.2 12.2 13.2	11 11 15 15	11 11 15 15

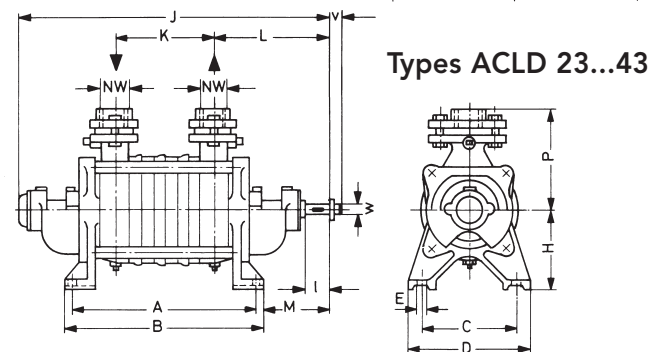
Pump mounting types ACL and ACLD are only possible above the stepped line.
 Data on the left side of the column = Pumps in standard, iron or bronze material versions
 Data on the right side of the column = Pumps in stainless steel material version
Ordering example: ACLDR 33/4 - 1 U (Version: DM with 3 kW DS motor, 220/380 V, 50 Hz, 1450 rpm, IP 44)

Pump type Material Shaft seal

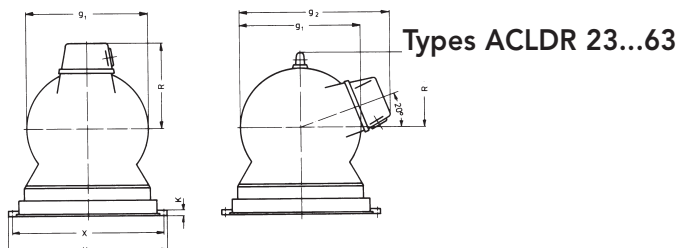


Types ACL 23...43

Type ACL and ACLD oval flange ND 16
 Type ACLDR
 Round flange according to DIN 2502 ND 25
 Counter flange according to DIN 2655 ND 25
 (Counter flange can be supplied for the ACLDR version on request)



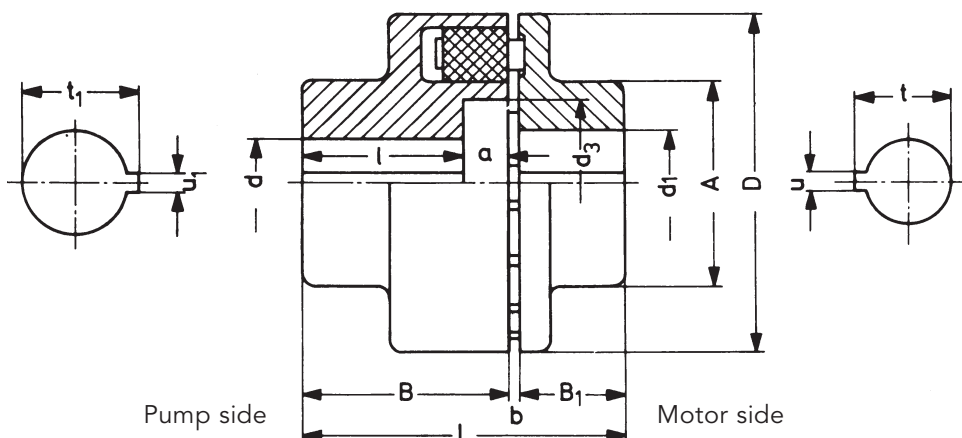
Types ACLD 23...43



Types ACLDR 23...63

Type	Stage number	Suction and pressure flange					A	B	C	D	φ E	H	J		K	L	M	P		P ₁	Shaft end					ca. wt. kg															
		RW	External dia.	Bore dia.	Number of bores	Bore-φ							ACL	ACLD				ACL	ACLD		ACL	ACLD	ACL	ACLD	ACL	ACLD	ACL	ACLD	φ d	h ₆	l	t	u	V	W	ACL	ACLD				
ACL ACLD 23	1	R 1"	-	-	-	-	161	185	110	140	11,5	90	229	296	70	125	67	120	112	75	14	30	16	5	10	M12x1,5	10	11													
	56						193	80	217				110	262													328	102	112												
	225						250	115	294				135	125													67	120	112	75	14	30	16	5	10	11	12	12	13		
ACLDR 23	4	25	115	85	4	14	258	282	110	140	11,5	90	393	167	125	67	90	-	14	30	16	5	10	M12x1,5	16																
ACL ACLD 33	1	R 1"	-	-	-	-	60	193	90	155	190	14	112	280	362	81	151	80	150	134	100	16	30	18	5	10	M14x1,5	17	18												
	230						267	223	260					155	317													399	118	151	80	150	134	100	16	30	18	5	10	19	20
	267						297	297	297					155	361													443	155	158	87	150	134	100	16	30	18	5	10	21	22
ACLDR 33	4	32	140	100	4	18	304	334	155	190	14	112	480	192	192	160	89	110	-	19	37	21,4	6	13	M16x1,5	29															
	341						371	155					517	229												160	89	110	-	19	37	21,4	6	13	32						
	378						408	155					554	266												160	89	110	-	19	37	21,4	6	13	35						
ACL ACLD 33 S	1	R 1 1/4"	-	-	-	-	193	223	155	190	14	112	284	362	81	151	80	150	138	100	16	30	18	5	10	M14x1,5	17	18													
	230						267	223					260	155													321	399	118	151	80	150	138	100	16	30	18	5	10	19	20
	267						297	297					297	155													365	443	155	158	87	150	138	100	16	30	18	5	10	21	22
ACLDR 33 S	4	32	140	100	4	18	304	334	155	190	14	112	480	192	192	160	89	110	-	19	37	21,4	6	13	M16x1,5	29															
	341						371	155					517	229												160	89	110	-	19	37	21,4	6	13	32						
	378						408	155					554	266												160	89	110	-	19	37	21,4	6	13	35						
ACL ACLD 43	1	R 1 1/2"	-	-	-	-	199	229	155	190	14	112	300	375	87	158	87	150	141	100	16	37	18	5	10	M14x1,5	17	18													
	242						285	90					272	155													343	418	130	158	87	150	141	100	16	37	18	5	10	19	20
	285						315	155					386	461													173	158	87	150	141	100	16	37	18	5	10	21	22		
ACLDR 43	4	32	140	100	4	18	328	358	155	190	14	112	504	216	216	160	89	110	-	19	37	21,4	6	13	M16x1,5	30															
	371						401	155					547	259												160	89	110	-	19	37	21,4	6	13	33						
	414						444	155					590	302												160	89	110	-	19	37	21,4	6	13	36						
ACLDR 53	1	40	150	110	4	18	245	278	160	200	15	132	465	159	159	164	104	128	-	19	37	21,4	6	13	M16x1,5	28															
	2						297	331					159	211																											
	3						350	383					164	264																											
	4						402	436					164	316																											
	5						455	488					164	369																											
	6						507	540					164	421																											
ACLDR 53 S	1	50	165	125	4	18	293	327	175	220	15	150	521	187	187	182	112	140	-	24	44	26,8	8	17	M22x2	36															
	2						369	403					187	211																											
	3						446	480					187	263																											
	4						522	556					187	340																											
ACLDR 63	1	65	185	145	4	18	346	372	200	250	15	150	593	192	192	214	124	150	-	28	43	30,8	8	18	M24x2	52															
	2						437	463					192	283																											
	3						528	554					192	374																											

Couplings



Ordering example:

S 2 a

-

Z 45/16

-

Z 30/28

Coupling size

Coupling hub length
and hub borePump side
cylindricalCoupling hub length
and hub boreMotor side
cylindrical

Coupling size	Transferable continuous output	a	b	ϕd	ϕd_1	ϕd_3	ϕA	B	B_1	ϕD	L	I	t	u	t_1	u_1	ca. wt. kg
S 1 - Z 39/14 - Z 39/16	1,5	8	2	14	14	19	32	40	39	20	68	61	31				1
Z 20/14 - Z 20/19 Z 20/14				16	24												
S 2 - Z 39/14 - Z 39/16	4	8	2	14	28	35	50	39	30	80	71	31					1
Z 30/28																	
S 2a - Z 45/16	4	8	2	16	19	24	35	50	46	30	80	78	31	acc. to DIN 6885 p. 1			1
Z 30/19 - Z 30/24 Z 30/28					28												
S 2b - Z 49/19	4	11	2	19	24	28	35	50	49	30	80	81	38				1
Z 30/24 - Z 30/28																	
S 3a - Z 49/19	7,5	11	2	19	38	45	62	49	35	95	86	38					2
Z 35/38																	
S 3b - Z 60/24 - Z 60/28	7,5	15	2	24	28	38	45	62	50	35	95	97	45	acc. to DIN 6885 p. 1			2
Z 35/38																	
S 4 - Z 49/19	11	11	3	19	42	58	75	49	40	110	92	38		acc. to DIN 6885 p. 1			4
Z 40/42																	
S 4a - Z 60/24 - Z 60/28	11	15	3	24	28	42	58	75	60	40	110	103	45	acc. to DIN 6885 p. 1			4
Z 40/42																	
S 5 - Z 49/19	18,5	11	3	19	42	58	90	49	50	125	102	38		acc. to DIN 6885 p. 1			5
Z 50/42																	
S 5a - Z 60/24 - Z 60/28	22	15	3	24	28	42	58	90	60	50	125	113	45	acc. to DIN 6885 p. 1			5
Z 50/48 Z 50/48					48												

Product Portfolio

Transfer Pumps

Transfer pumps for lubricating oil supply equipment, low pressure filling and feed systems, dosing and mixing systems.

Mobile Hydraulics

Single and multistage high pressure gear pumps, hydraulic motors and valves for construction machinery, vehicle-mounted machines.

Flow Measurement

Gear and turbine flow meters and electronics for volume and flow metering technology in hydraulics, processing and laquering technology.

Industrial Hydraulics / Test Bench Construction

Cetop directional control and proportional valves, hydraulic cylinders, pressure, quantity and stop valves for pipe and slab construction, hydraulic accessories for industrial hydraulics (mobile and stationary use).

Technology Test benches / Fluid Test benches.



ACL centrifugal pumps/GB/02.08

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