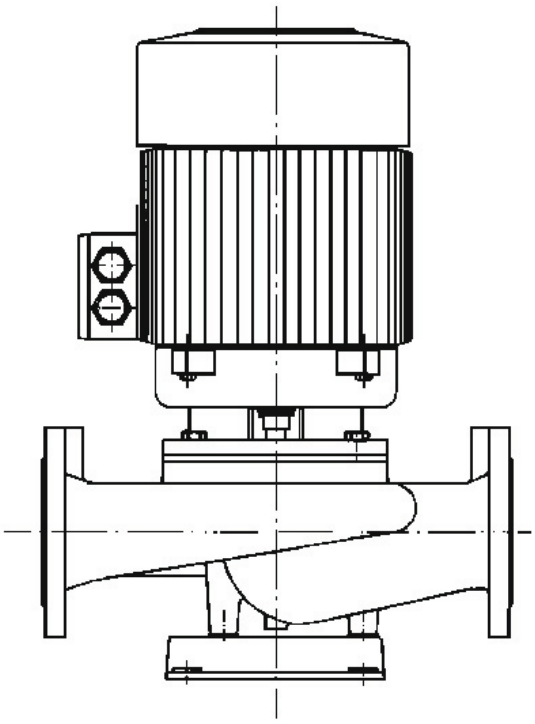
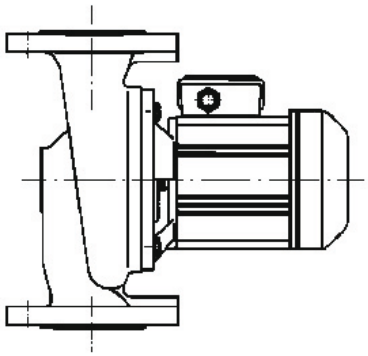
KOLMEKS

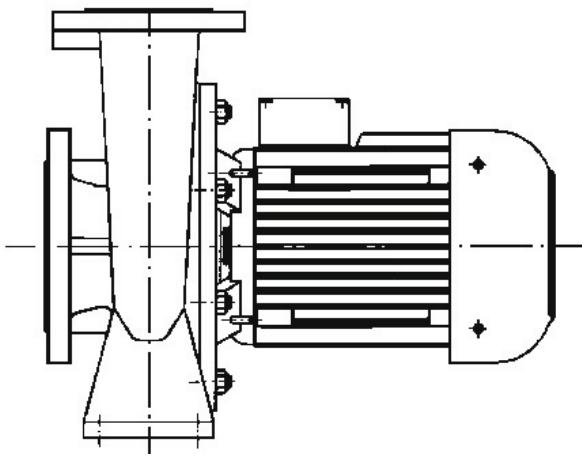
CENTRIFUGAL PUMPS

SERIES

L_
AL_
T
AT
AKN_
AS_
KL
KN_
N_







INSTRUCTION MANUAL

TECHNICAL DATA

TYPE L_/T	r/min	kW	A (400V)	L	kg T	dB(A) 1m
32A/4	1500	0.05	0.21	17	28	32
	1500	0.08	0.28	17	28	32
/2	3000	0.25	0.70	18	30	52
	3000	0.65	1.80	21	36	53
40A/4	1500	0.2	0.60	21	38	42
	1500	0.37	1.15	25	46	45
/2	3000	1.1	2.80	27	50	55
	3000	1.5	3.30	33	62	60
1032/4	1500	0.2	0.65	22		
/2	3000	1.1	2.8	27		
	3000	1.5	3.3	39		
50A/6	1000	0.11	0.50	24	46	38
/4	1500	0.2	0.65	24	46	42
	1500	0.25	0.82	24	47	42
	1500	0.37	1.15	30	58	45
50B/4	1500	0.2	0.65	24	46	42
	1500	0.25	0.82	24	47	42
/2	3000	1.1	2.80	32	62	55
50C/2	3000	1.5	3.30	37	72	60
	3000	2.2	4.70	43	78	62
50S/4	1500	1.1	2.6	69	92	53
	1500	1.5	3.5	71	96	54
	1500	2.2	5.1	77	102	55
	1500	3.0	6.60	83	108	
56						
/2	3000	5.5	11.00	105	130	74
	3000	7.5	15.00	113	138	74
	3000	11	22.00	159	184	76
	3000	15	30.50	164	189	76
65A/6	1000	0.18	0.95	44	92	45
	1000	0.37	1.20	44	92	45
/4	1500	0.2	0.75	37	76	45
	1500	0.37	1.00	37	76	45
	1500	0.55	1.40	44	92	51
	1500	0.75	2.00	44	92	51
	1500	1.1	2.60	48	102	52
	1500	1.5	3.50	52	107	53
65B/6	1000	0.18	0.95	44	92	45
	1000	0.37	1.20	44	92	45
/4	1500	0.2	0.75	37	76	45
	1500	0.37	1.0	37	76	45
	1500	0.55	1.4	44	92	51
	1500	0.75	2.0	44	92	51
	1500	1.1	2.60	48	102	52
/2	3000	1.5	3.30	52	107	62
	3000	2.2	4.70	52	108	62
	3000	3	6.40	58	120	65
	3000	4	8.20	62	128	65
	3000	5.5	11.00	86	177	74
	3000	7.5	15.00	94	193	74
80A/6	1000	0.18	0.95	48	95	45
	1000	0.37	1.20	48	95	45
	1000	0.55	1.75	52	105	47
/4	1500	0.37	1.00	41	79	45
	1500	0.55	1.40	48	95	51
	1500	0.75	2.00	48	95	51
	1500	1.1	2.60	52	105	
52						
	1500	1.5	3.50	56	110	
53						
/2	3000	2.2	4.70	56	111	62
	3000	3	6.40	62	123	65
	3000	4	8.20	66	131	65
	3000	5.5	11.00	90	180	74
	3000	7.5	15.00	98	196	74
80S/4	1500	1.1	2.60	92	171	52
	1500	1.5	3.50	96	179	54
	1500	2.2	5.10	102	191	55
	1500	3	6.60	108	203	55
	1500	4.0	8.70	128	243	64
	1500	5.5	11.90	138	263	64
100S/4	1500	3	6.6	150		56
	1500	4.0	8.70	170		64
	1500	5.5	11.90	180		64
	1500	7.5	15.7	195		65
	1500	11	22.6	215		68
	1500	15	31.0	230		69

TYPE L_/T	r/min	kW	A (400V)	L	kg T	dB(A) 1m
/2	3000	15	30.5	200		74
	3000	18.5	34	245		74
	3000	22	38	275		76
	3000	30	53	345		78
	3000	37	64	365		80
	3000	45	77.5	405		80
125S/4	1500	18.5	34.00	375		70
	1500	22.0	42.00	390		71
	1500	30.0	55.00	450		72
	1500	37.0	69.00	510		74
	1500	45.0	81.00	550		78

TYPE AL_/AT	r/min	kW	A (400V)	AL_	kg AT	dB(A) 1m
1065/6	1000	0.18	0.95	44	84	45
/4	1500	0.2	0.75	37	70	45
	1500	0.37	1.0	37	70	45
	1500	0.55	1.4	44	84	51
	1500	0.75	2.0	44	84	51
	1500	1.1	2.60	48	92	52
/2	3000	1.5	3.30	51	92	62
	3000	2.2	4.70	52	100	62
	3000	3	6.40	58	112	65
	3000	4	8.20	62	120	65
	3000	5.5	11.00	86	168	74
	3000	7.5	15.00	94	184	74
1066/6	1000	0.37	1.20	44	84	45
/4	1500	0.2	0.75	37	70	45
	1500	0.37	1.00	37	70	45
	1500	0.55	1.40	44	84	51
	1500	0.75	2.00	44	84	51
	1500	1.1	2.60	48	92	52
	1500	1.5	3.50	52	100	53
1081/6	1000	0.18	0.95	51	113	45
	1000	0.37	1.20	51	113	45
	1000	0.55	1.75	54	119	47
/4	1500	0.37	1.00	44	99	45
	1500	0.55	1.40	51	113	51
	1500	0.75	2.00	51	113	51
	1500	1.1	2.60	54	119	52
	1500	1.5	3.50	58	127	53
/2	3000	2.2	4.70	57	106	62
	3000	3	6.40	63	118	65
	3000	4	8.20	67	126	65
	3000	5.5	11.00	91	174	74
	3000	7.5	15.00	99	190	74
1082/6	1000	0.37	1.20	64	127	45
	1000	0.55	1.75	67	133	47
	1000	0.75	2.40	69	141	48
	1000	1.1	3.50	69	141	48
/4	1500	1.1	3.50	69	141	53
	1500	1.5	3.50	71	141	54
	1500	2.2	5.10	77	153	55
	1500	3	6.50	83	165	55
1102/6	1000	0.37	1.20	59	111	45
	1000	0.55	1.75	62	117	47
	1000	0.75	2.40	66	125	48
/4	1500	0.55	1.40	59	111	51
	1500	0.75	2.00	59	111	51
	1500	1.1	2.60	62	117	53
	1500	1.5	3.50	66	125	54
	1500	2.2	5.10	72	137	55
/2	3000	4.0	8.20	75	141	65
	3000	5.5	11.00	99	189	74
	3000	7.5	15.00	109	209	74
1106/4	1500	3.0	6.60	145	280	56
	1500	4.0	8.70	165	320	64
	1500	5.5	11.90	175	330	64
	1500	7.5	15.70	190	360	65
/2	3000	15	30.50	195	370	74
	3000	18.5	33.00	240	460	74
	3000	22	40.00	270	520	76
	3000	30	52.00	340	660	78
	3000	37	67.00	360	700	80
1129/4	1500	3.0	6.60	150	310	56
	1500	4.0	8.70	170	350	64
	1500	5.5	11.90	180	365	64
	1500	7.5	15.70	195	395	65
	1500	11	22.60	215	435	68
	1500	15	31.00	230	465	69
/2	3000	18.5	33.00	250	505	74
	3000	22	40.00	280	565	76
	3000	30	52.00	350	705	78
	3000	37	67.00	370	745	80

TYPE AL_/AT	r/min	kW	A (400V)	kg AL_	kg AT	dB(A) 1m
1154/6	1000	5.5	12.70	220	415	64
/4	1500	4.0	8.7	195	375	64
	1500	5.5	11.90	205	385	64
	1500	7.5	15.70	220	415	65
	1500	11	22.60	240	455	68
	1500	15	31.00	255	485	69
	1500	18.5	34.00	270	515	70
1155/2	3000	30,0	52,00	375		78
	3000	37,0	67,00	395		80
	3000	45,0	83,00	435		80
	3000	55,0	98,00	465		82
1202/6	1000	5.5	12.70	295	580	64
	1000	7.5	17	345	680	68
	1000	11	22	345	680	68
1202/4	1500	11	22.60	315	620	68
	1500	15	31.00	330	650	69
	1500	18.5	34.00	365	720	70
	1500	22	42.00	380	750	71
	1500	30	55.00	460	910	72
	1500	37	69.00	500	990	72
/2	3000	45	84.00	500		88
	3000	55	103	570		90
	3000	75	139	700		93
1250/6	1000	11	22.00	385	720	68
	1000	15	30.50	430	810	69
	1000	18.5	35.50	505	960	70
	1000	22	43.5	515	980	71
	1000	30	55.00	580	1110	72
/4	1500	37	69.00	610	1170	74
	1500	45	82.00	650	1250	78
	1500	55	100	730	1410	82
	1500	75	134	870	1690	82
	1500	90	160	950	1850	82
1300/4	1500	110	195	1250		83
	1500	130	231	1350		83
	1500	160	279	1500		84

TYPE AKN_	r/min	kW	A (400V)	kg	dB(A) 1m
100/6	1000	0.75	2.40	71	48
	1000	1.1	3.50	71	49
/4	1500	1.5	3.50	73	54
	1500	2.2	5.10	79	55
	1500	3	6.60	84	55
/2	3000	7.5	15.00	114	74
	3000	11	22.00	160	74
	3000	15	30.50	165	74
	3000	18.5	32	240	74
	3000	22	38	240	76
127/4	1500	4.0	8.70	126	64
	1500	5.5	11.90	133	64
/2	3000	11	22.00	190	74
	3000	15	30.50	195	74
	3000	18.5	32	270	74
	3000	22	38	270	76

TYPE AS_/KN_	r/min	kW	A (400V)	kg	dB(A) 1m
32 B	1500	0.55	1.40	38	51
	1500	0.75	2.00	38	51
H	3000	1.5	3.30	43	62
	3000	2.2	4.70	46	62
	3000	3	6.40	53	65
	3000	4	8.20	57	65
50 B	1500	0.55	1.40	41	51
	1500	0.75	2.00	41	51
	1500	1.1	2.60	46	52
50 H	3000	4	8.20	60	65
	3000	5.5	11.00	83	74
	3000	7.5	15.00	90	74
65/4	1500	2.2	5.10	64	55
	1500	3	6.50	69	55
/2	3000	5.5	11.00	93	74
	3000	7.5	15.00	100	74
	3000	11	22.00	150	76
	3000	15	30.50	155	76

TYPE KL	r/min	kW	A (400V)	kg	dB(A) 1m
32-160/2	3000	1.5	3.30	39	62
	3000	2.2	4.70	41	62
32-200/2	3000	3	6.40	49	65
	3000	4	8.20	53	65
	3000	5.5	11.00	68	74
40-160/2	3000	3	6.40	53	65
	3000	4	8.20	57	65
40-200/2	3000	5.5	11.00	72	74
	3000	7.5	15.00	80	74
	3000	11	22.00	125	76
50-160/2	3000	5.5	11.00	76	74
	3000	7.5	15.00	84	74
50-200/2	3000	11	22.00	130	76

TYPE N_	r/min	kW	A (400V)	dB(A) 1m
32-200A/4	1500	0.55	1.40	51
	1500	0.75	2.00	51
/2	3000	3.0	6.40	65
	3000	4.0	8.20	65
	3000	5.5	11.00	74
32-250B/4	1500	1.1	2.60	52
	1500	1.5	3.50	52
	1500	2.2	5.10	55
/2	3000	7.5	15.00	74
	3000	11	22.00	76
	3000	15	30.50	76
40-200A/4	1500	0.55	1.40	51
	1500	0.75	2.00	51
	1500	1.1	2.60	52
/2	3000	4.0	8.20	65
	3000	5.5	11.00	74
	3000	11	22.00	76
40-250A/4	1500	1.1	2.60	52
	1500	1.5	3.50	52
	1500	2.2	5.10	55
/2	3000	11	22.00	76
	3000	15	30.50	76
50-250A/4	1500	2.2	5.10	55
	1500	3.0	6.60	55
	1500	4.0	8.70	64
/2	3000	15	30.50	76
	3000	18.5	33.00	77
	3000	22	40.00	77
50-315B/4	1500	5.5	11.90	64
	1500	7.5	15.7	65
65-200A/4	1500	1.5	3.50	54
	1500	2.2	5.10	55
	1500	3.0	6.60	55
/2	3000	15	30.50	76
	3000	18.5	33.00	77
	3000	22	40.00	77
65-315B/4	1500	5.5	11.90	64
	1500	7.5	15.70	65
	1500	11	22.60	68
	1500	15	31.00	69
80-315B/4	1500	11	11.90	68
	1500	15	31.00	69
	1500	18.5	34.00	70
	1500	22	42.00	71
100-315B/4	1500	11	22.60	68
	1500	15	31.00	69
	1500	18.5	34.00	70
	1500	22	42.00	71

DESIGN AND FUNCTION

The pump and motor constitute a unit, where the rotating parts of both the pump and the motor are on the same shaft (mono-block construction). The motor is of a dry construction and its bearings work at the same time as bearings for the whole pump.

Motor: Fully-enclosed A.C. motor
Protection form IP 54
IP 55
– 4 kW and up (1000, 1500 r/min)
– 5,5 kW and up (3000 r/min)
Insulating class F
Max. temperature of environment + 45 °C

SAFETY SYMBOLS


Sign of danger to persons


Sign of voltage danger

ATTN Sign of danger to safe operation of the pump and/or protection of the pump itself

FIELDS AND LIMITS OF APPLICATION AND USE

L, AL
AT, T
AKN
AS
KN
N

Clean, thin, non-aggressive liquids
- circulating water for heating and cooling
- water-glycol mixtures, recommendation:
propylenglycol max. 40 %
Nominal pressure 10 bar
Max. temperature + 120°C (+ 100°C with plastic impeller)

LH
ALH

Clean, thin, non-aggressive liquids
- like AL-serie pumps, but also for higher temperature liquids
Nominal pressure 16 bar
Max. temperature + 120°C normal
+ 150°C with special seal
+ 180 °C with quench and special seal

LP
ALP
ASP
KNP
NP

Clean, thin, slightly aggressive liquids
- domestic water, oxygen rich waters

Nominal pressure 10 bar
Max. temperature + 120°C

KL

Agressive, thin, no particles containing liquids
- in addition to above mentioned liquids various acids, salts, oxidizing and chemically active organic fluids
Nominal pressure 10 bar
Max. temperature + 120°C

LS
ALS

Agressive, thin, not bigger solid particles containing liquids
- in addition to above mentioned liquids various acids, salts, oxidizing and chemically active organic fluids
Nominal pressure 16 bar
Max. temperature + 120 - 180 °C depending on seal construction/materials used

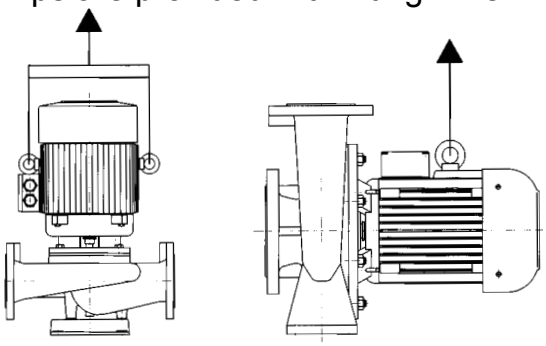
ATTN Suitability of materials and seals for pumped liquid shall be always checked between purchaser and supplier.

The nominal pressure and the max. temperature of pumped liquid are stamped on the pump data plate.

Never use the pump in any other application or conditions without manufacturer's acceptance. In the case of damage there may be danger to persons by having poisoning, burns, wounds etc. depending on the pumped liquid and it's temperature and pressure. The pump surface temperature may cause danger depending on the working conditions.

HANDLING, TRANSPORT AND STORAGE OF THE PUMPS

The heavier pumps are provided with lifting links.



Pumps shall be stored in a dry and cool place protected from dust.

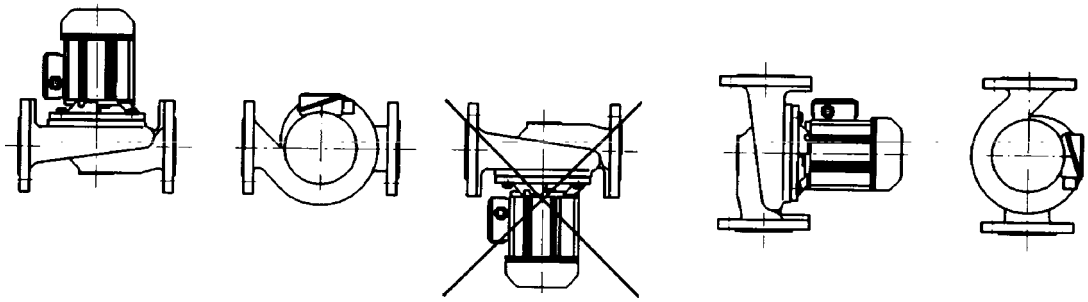
In the case of longer storage time it is recommended to rotate the pump manually f.ex. from the motor fan at least once a month.When the pump serves as a stand-by or is stopped for longer time for some reason, it is necessary to start it for a while after two weeks stoppage.

INSTALLATION AND START-UP

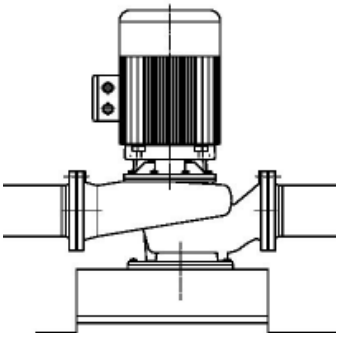
When installating the pump pay attention to the following:

- space enough for service and inspection of the pump
- possibility to use lifting mechanism if needed
- shut-off valves on the both sides of the pump

The smaller pumps (below 15 kW) can be mounted without the foot.



The heavier pumps should be fastened to a foundation of concrete which is isolated from the floor f.ex. with 20 mm thick gum or cork plate(s). The weight of the concrete foundation must be about 1.5 times the weight of the pump.

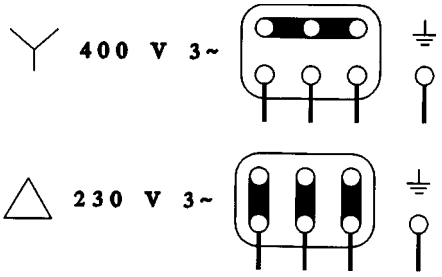


The position of the motor unit and the terminal box can be changed by removing the motor unit from the pump housing and setting it to the desired position (not in ALH- and LH-serie).

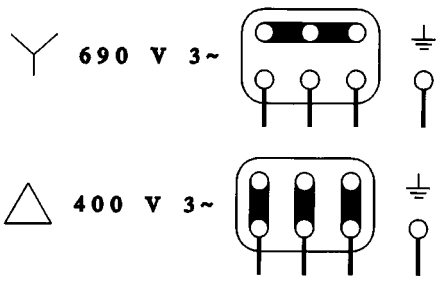
All electrical work shall be carried out by an electrician approved by the power supplier.

Check, that the voltage on the pump data plate corresponds to the mains voltage.
Standard connections:

Smaller motors (below 4 kW)



Bigger motors



ATTN A starter must always be used and should be an ordinary motor protection breaker. Make sure that the overload protection is set no higher than the rated current specified on the pump data plate. Connect the two twin pump (AT-and T-serie) motors to separate fuse groups.

Check the direction of rotation of the pump during start-up and always after re-connection. The flow direction is indicated by an arrow on the pump housing. Depending on pump type the twin pump motors may rotate to opposite directions.

Before starting the pump fill and vent the system. Make sure that the pump rotates freely by rotating it manually f.ex. from the motor fan.

ATTN Never start or let the pump run dry.

After starting make sure that there is no extra noise coming from the pump and that no leakages appear.

ATTN An inventer can be used for regulating the speed of rotation of the pump. An inverter must be adjusted to prevent the overload of the motor. The current switch-off is to be adjusted according to rated current. **Note.** The use of over 50 Hz frequency may cause the overload of the motor.

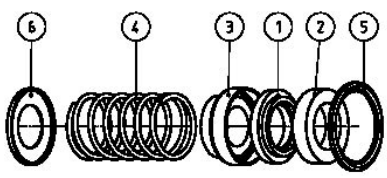
In the twin pump installation both units should operate alternately. An appropriate duty period is about two weeks.

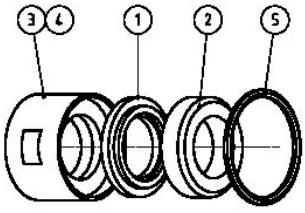
MAINTENANCE AND REPAIR

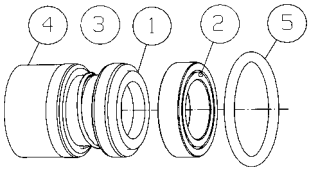
The pump doesn't need any regular servicing.

As a shaft seal is used an adjustment free mechanical seal. It is a wearing part which has to be replaced if it starts to leak. Note that few drops leakage per hour can be quite normal especially when coolants
(f.ex. glycol) are pumped.

Shaft seal, type constructions:

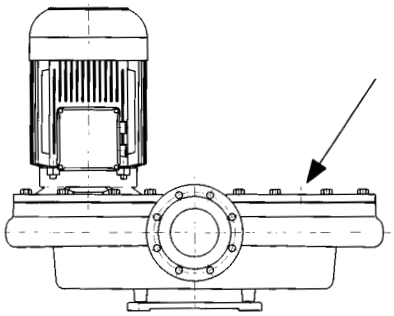






1 Rotating ring
2 Stationary ring
3 Body/bellows
4 Spring
5 O-ring

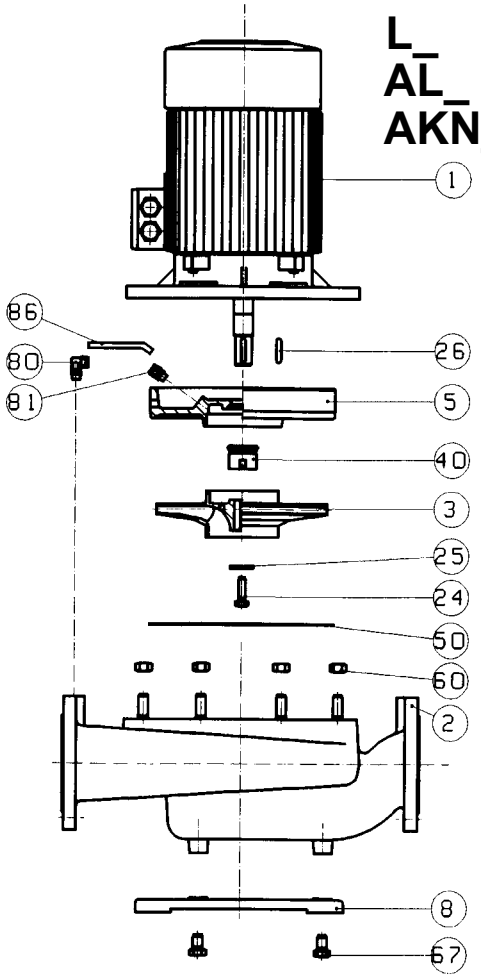
The motor is equipped with ball bearings which are lubricated for life and therefore do not need any service. In the case of any motor malfunction it is recommended to replace the whole motor unit.



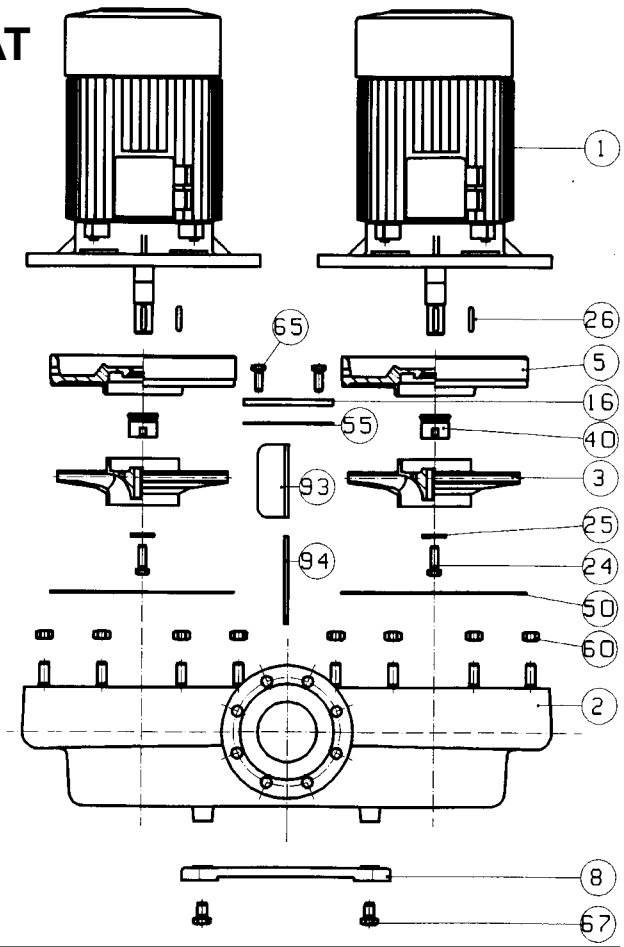
In the twin pump installation it is possible to substitute the damaged unit by a blind cap (to be ordered separately). The other unit can be driven then normally.

WHEN ORDERING SPARE PARTS, PLEASE SPECIFY THE TYPE IDENTIFICATION, SERIAL NUMBER, THE SIZE OF THE IMPELLER, THE MOTOR TYPE AND POWER AND THE POSITION NUMBER OF THE SPARE PART.

L_
AL_
AKN_

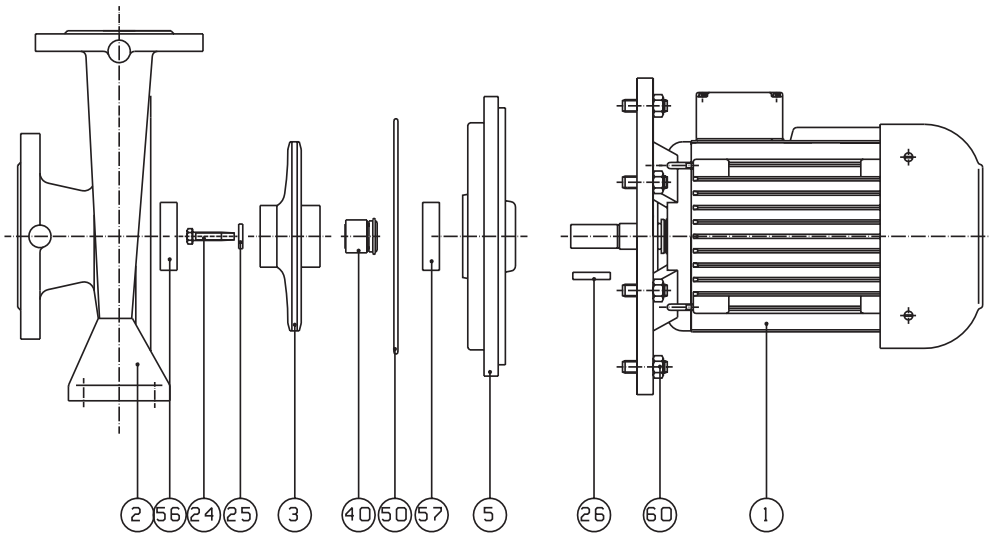


T
AT



POS.NO.	DESCRIPTION		POS.NO.	DESCRIPTION	
1	ELECTRICAL MOTOR		50	O-RING	(GASKET)
2	PUMP HOUSING		55	GASKET	(T- and AT-serie)
3	IMPELLER		60	SCREW OR NUT	
5	SEALING FLANGE		65	SCREW	(T- and AT-serie)
8	FOOT	(not always)	67	SCREW	
16	COVER	(T- and AT-serie)	80	PIPE UNION	(LH- and ALH-serie)
24	SCREW OR NUR		81	PIPE UNION	(LH- and ALH-serie)
25	WASHER		86	COOLING PIPE	(LH- and ALH-serie)
26	KEY		93	FLAP	(T- and AT-serie)
40	SHAFT SEAL		94	CYLINDICAL PIN	(T- and AT-serie)

AS_
KL
KN_
N_



POS.NO.	*DESCRIPTION*	*POS.NO.*	*DESCRIPTION*
1	ELECTRICAL MOTOR	26	KEY
2	PUMP HOUSING	40	SHAFT SEAL
3	IMPELLER	50	O-RING
5	SEALING FLANGE	56-57	WEARING RING (N_-SERIE)
24	SCREW	60	SCREW OR NUT
25	WASHER		

DECLARATION OF CONFORMITY

We, OY KOLMEKS AB P.O.Box 27 FI-14201 Turenki

declare under our sole responsibility that the products

L_ - SERIE
AL_ - SERIE
T - SERIE
AT - SERIE
AKN_ - SERIE
AS_ - SERIE
KN_ - SERIE
KL_ - SERIE
N_ - SERIE

to which this declaration relates, are in conformity with the

– Council Directive 98/37/EC on the approximation of the laws of the Member States relating to machinery
– EMC-directive 89/336/EEC article 10.2
– Low voltage directive 73/23/EEC
– Pumps and pump units for liquids. Common safety requirements. EN 809.

Turenki 15.04.2007

Kari Mörsky
Managing Director

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