

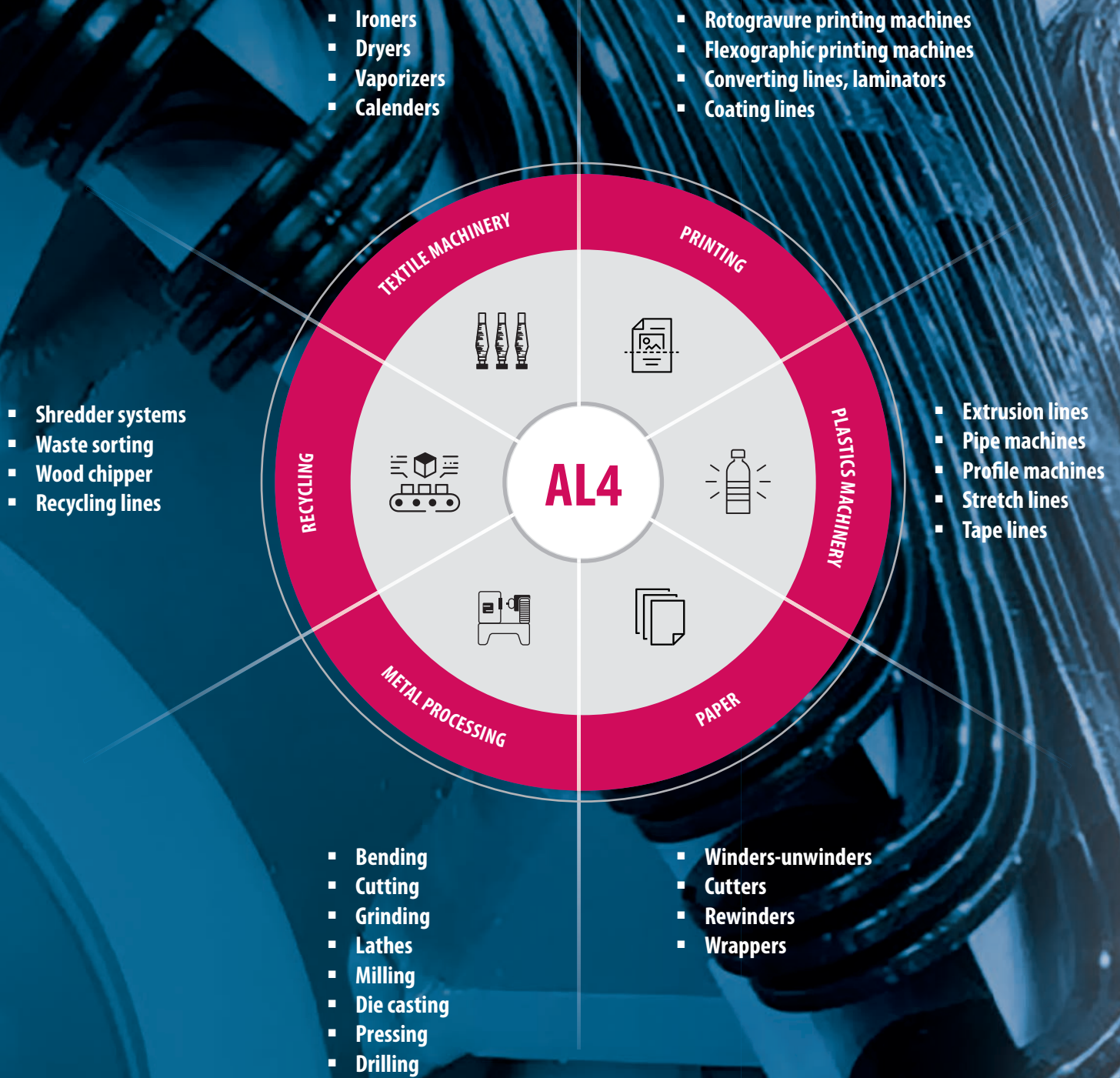


AC SERVO MOTOR **SERIES AL4**

ASYNCHRONOUS MOTOR FOR INVERTER OPERATION

EN

APPLICATION



ABOUT

KEB offers with the AL4 series an asynchronous, square-case motor series, developed for the operation as variable frequency drives. AL4 motors are 3-phase 4-pole asynchronous motors with squirrel-cage winding and available in IP23 and IP54 protection. Five mechanical sizes (71 - 80 - 90 - 100 - 132) meet a power range from 0.37 kW to 55 kW.

SPECIFICATIONS AND STRENGTHS

AL4 series asynchronous servomotors are designed to be powered by frequency converter in accordance with IEC 60034-25 and to provide the highest performance of induction motors.

The high power-to-size ratio, accompanied by excellent dynamic response to speed variations, make these motors suitable for a wide variety of applications. Their overall dimensions and power outputs make them also suitable for replacing DC motors.

AL4 motors are particularly used in industrial applications where **high speeds** and **high performances** are required. They are available in a wide variety of configurations and can be customized upon customer request.

**SERVO SYSTEMS**

In combination with the servo inverter series KEB COMBIVERT F6, as well as assembled encoder / motor cables, powerful Drive systems are created, that perfectly match optimal properties of speed and torque characteristics, as well as provide high efficiency and easy startup. More details of the DRIVE CONTROLLER portfolio have a look into the catalogue [COMBIVERT F6](#).



FEATURES

MOTOR STANDARDS

Design	IM B5 for 71 / 80 / 90 IM B35 for 100 / 132
Cooling	IC 416 (IP54); IC 06 (IP23) acc. IEC EN 60034-6
Shaft	with keyway
Balancing grade	G 2.5 acc. ISO 1940-1 with half key CEI 2-23
Protection	IP54 for 71 / 80 / 90 / 100 / 132 IP23 for 132
Winding insulation	class H acc. CEI EN 60034-1
Thermal rating	class F acc. CEI EN 60034-1
Thermal protection	closed contact 140 + / -5°C max. 250Vac/ 6Aac
Ambient temperature	+5°C to +40°C
Storage temperature	-20°C to +70°C
Operating position	any
Colour	black RAL 9005

MOTOR OPTIONS

IM B3 / B35 / B14 for 71 / 80 / 90
Keyless shaft
Roller bearing for 100 / 132
Parking brake
Special winding - voltage / frequency
Oil seal ring
Incremental encoder, programable
Sinusoidal encoder 1Vpp – 1024 ppr
Single- or multiturn absolute encoder
Resolver 2-pole, 7 Vrms, ratio 0.5

PART NUMBER AC SERVO MOTORS

11 DIGIT CODE

C	M	A	4	A	1	5	4	1	0	0
Size	Lengths	Type	Version	Construction form + shaft	Mechanic	Box Thermal	Encoder	Option		
D	L			1	1	1	1	0	00	
E	S			⋮	⋮	⋮	⋮	⋮	⋮	
G	P			G	3	7	5	9	03	
H	X			A	A	A	A	A		
	A			⋮	⋮	⋮	⋮	⋮		
				X	X	X	X	X		

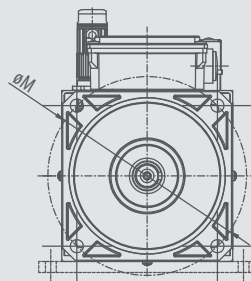
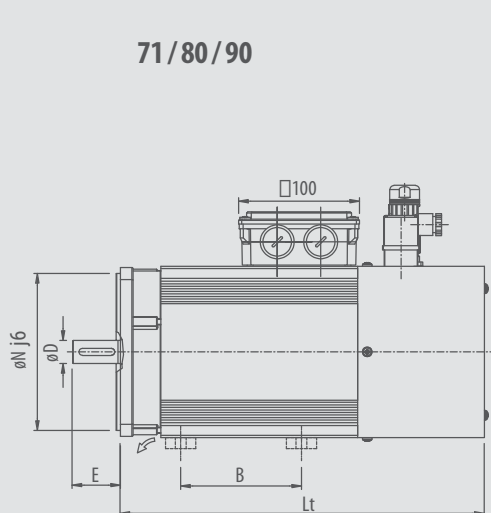
TECHNICAL DATA AL 4

HEIGHT / SIZE			71 / C		80 / D		90 / E		
LENGTHS			M	L	S	L	S	L	
UL / CSA			YES**						
n_{nom}	[rpm]	1342 / 2508 / 2907	1500 / 2670 / 3000	1349 / 2515 / 2910	1349 / 2520 / 2910	1327 / 2530 / 3000	1336 / 2487 / 3000	1345 / 2496 / 3000	
MOTOR DATA									
P_n	[kW]	0.37 / 0.64 / 0.76	0.63 / 1.09 / 1.10	0.75 / 1.30 / 1.50	1.10 / 1.91 / 2.20	1.50 / 2.60 / 3.15	2.20 / 3.90 / 4.74	2.90 / 5.00 / 6.30	
T_n	[Nm]	2.66 / 2.5 / 2.5	4 / 4 / 4	5.3 / 5 / 5	7.79 / 7.5 / 7.5	10.77 / 10 / 10	15.36 / 15 / 15	20.96 / 20 / 20	
V_n	[V]	376 / 400* / 400	356 / 356* / 380	372 / 380* / 380	382 / 400* / 400	390 / 400* / 400	390 / 400* / 400	390 / 400* / 400	
I_n	[A]	1.16 / 1.86* / 2.45	2.16 / 3.75 / 2.85	2.13 / 3.37* / 4.33	2.79 / 5.22* / 5.84	3.8 / 5.9* / 7.1	5.15 / 8.8* / 10.3	6.90 / 11.0* / 13.9	
n_{max}	[rpm]	2800 / 5000 / 5500	4500 / 7000 / 5500	2500 / 4400 / 5000	2600 / 4400 / 5000	2500 / 4350 / 6000	2500 / 4350 / 5500	3000 / 5500 / 6000	
T_{max}	[Nm]	5	8	10	15	25	29	35	
J	[kgm²]	0.001	0.001	0.002	0.002	0.002	0.003	0.004	
DIMENSIONS									
B	[mm]	90		100		100	125	140	
Lt (B5 / B14)		270 / 281	270 / 281	285	285	294	345	396	
with brake: + 40 mm						with brake: + 40 mm			
D x E standard / option		14 x 30 / 19 x 40			19 x 40 / 24 x 50		24 x 50 / 28 x 60		
P (B5 / B14)		160 / 105			200 / 120		250 / 150		
N _{j6} (B5 / B14)		110 / 70			130 / 80		160 / 100		
M (B5 / B14)		130 / 85		165 / 100		200 / 125			

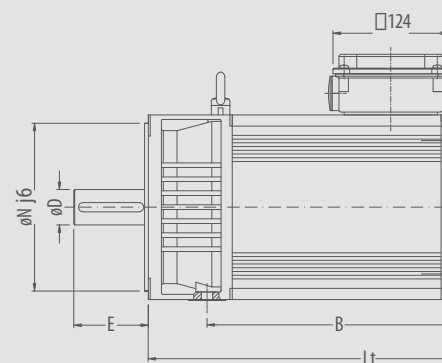
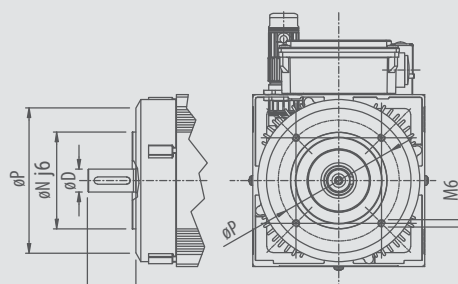
* Delta motor connection

**Available only for the winding insulation (OBJY 2/8)

71 / 80 / 90

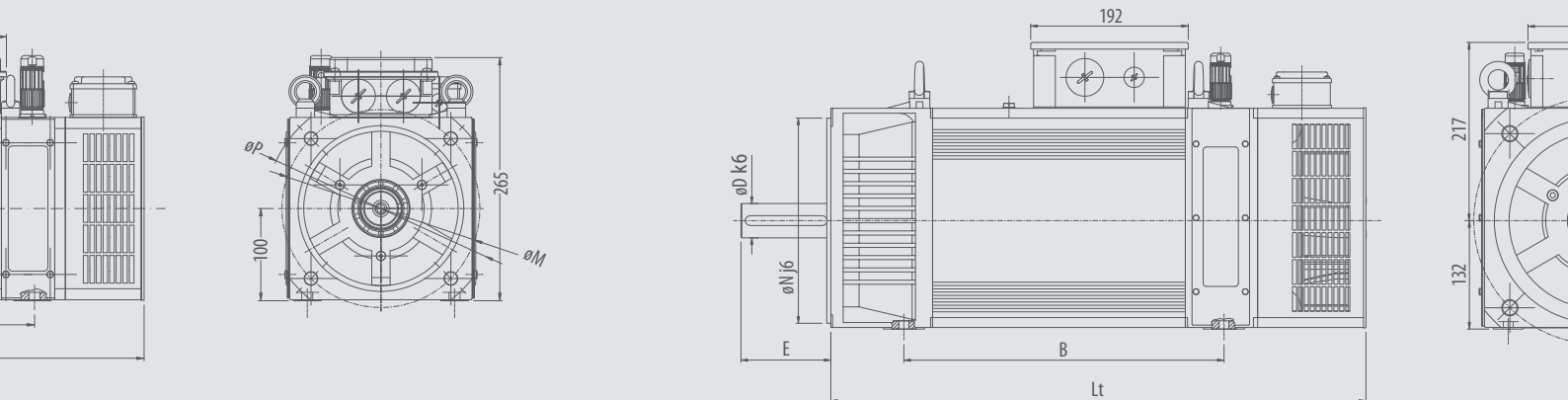


100

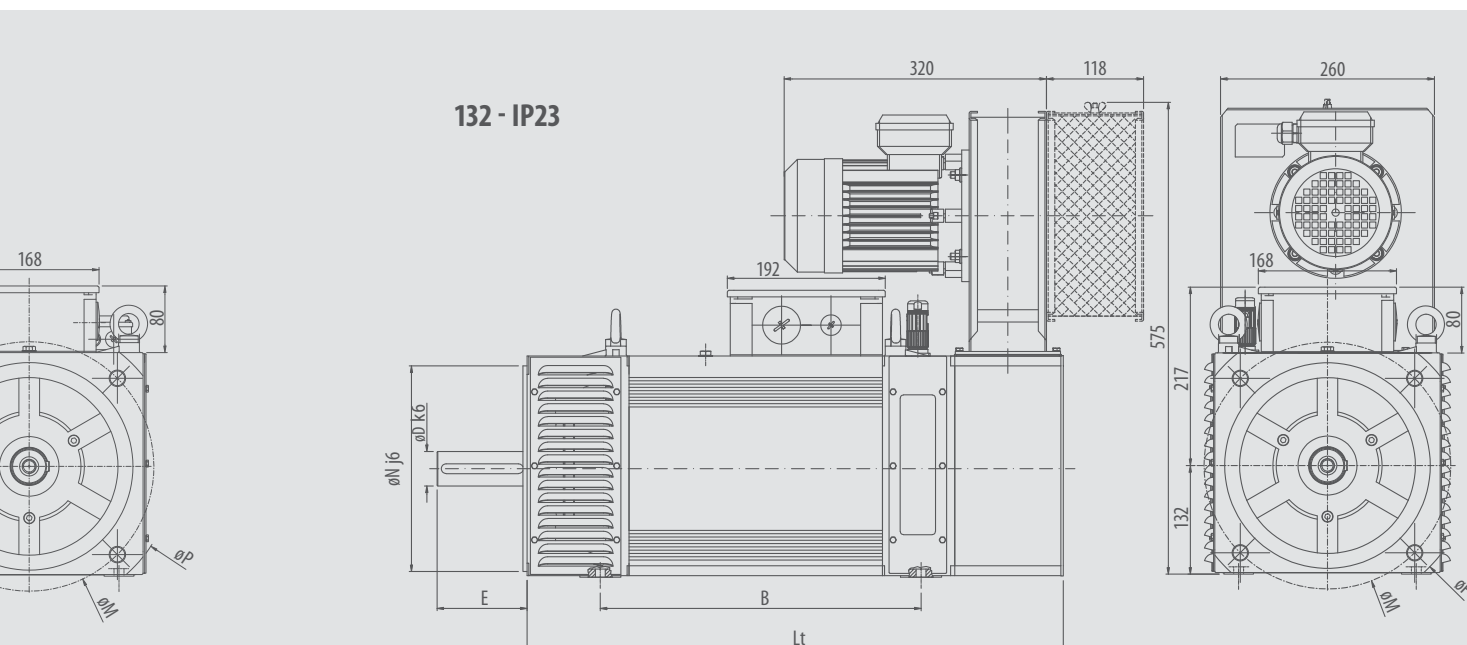


		100/G						
P	X	A	S	M	L	P	S	
		NO	YES					
324/2505/2898	1336/2535/2820	1000/1362/ 2020/2540/2938	607/1015/1498/ 2013/2520/3000	604/1022/1508/ 2018/2524/3003	603/1014/1513/ 2026/2504/3010	609/1020/1519/ 2000/2502/3010	1066/1581/2104/ 2654/3167	1
3/5.20/6	4/7/8	2.6/4/5.3/ 6.5/7.5	2.6/4.3/6/ 7.8/9/10.2	3.1/5.2/7.2/9.1/ 10.5/11.8	3.8/6.2/8.5/ 10.8/12.2/13.3	4.6/7.3/10/12.5/ 14/15.5	8/12/17/ 20/24	
21.6/20/20	28.7/27/27	24.8/27.4/25/ 24.6/24.5	40.9/40.5/38.2/ 37/34.1/32.5	49/48.6/45.6/ 43.1/39.7/37.5	60.2/58.4/53.6/ 50.9/46.5/42.2	72.1/68.3/62.9/59.7/ 53.4/49.2	71.7/72.5/77.2/ 72/72.4	
372/400*/400	392/400*/400	380/392/380/ 380*/380	380					
6.77/11*/13.2	9.3/15.7*/19	5.81/9.09/10.6/ 14.5*/15.9	7/9.7/10/ 16.4/18.5/20.7	7.9/12.1/16.4/ 20/21.6/24	10.3/14.9/19.1/ 23.3/25.2/27.1	11.8/17/22/ 28.5/29.1/32.3	18.1/25.7/36.4/ 42.2/50.7	2
500/4000/5000	2700/4800/5400	2000/2800/4200/ 5000/5500	1200/2250/3750/ 5400/6500/7000	1300/2500/4150/ 5750/6750/7000	1350/2250/4500/ 6450/7000/7000	1450/2900/4850/ 6650/6700/6700	2800/4200/6000/ 6400/6400	20
35	40	50/53/50/49/49	80/90/95/ 100/90/85	105/115/120/ 120/105/100	135/130/160/ 160/140/120	175/195/200/ 200/160/140	190/195/220/ 210/220	
0.004	0.006	0.009	0.013	0.016	0.020	0.025	0.052	
125	185	240	290	320	365	420	320	
385	455	422	472	502	547	602	585	
50 mm	with brake: + 84 mm							
3 x 60	38 x 80 / 28 x 60							
140	250							
95	180							
115	215							

132 - IP54



132 - IP54/H			132 - IP23/H			
M	L	P	S	M	L	P
YES			YES			
059/1581/2101/ 2652/3150	1062/1581/2101/ 2651/3152	1060/1584/2102/ 2653/3153	1055/1575/2100/ 2651/3162	1048/1578/2094/ 2647/3146	1058/1581/2101/ 2646/3147	1057/1585/2103/ 2658/3160
12/17/22/ 28/33	17/24/32/ 38/44	20/28/37/ 44/50	11/15.5/22/ 27/31	17/24/30/ 37/44	22/31/38/ 44/50	27/38/44/ 50/55
108/103/100/ 101/100	153/145/145/ 137/133	180/169/168/ 158/151	100/94/100/ 97/94	155/145/137/ 133/134	199/187/173/ 159/152	244/229/200/ 180/166
380			380			
26.3/35.2/46.2/ 57.8/67.9	36.4/49.2/65.2/ 80.4/90.2	42.5/57.3/74.6/ 88.7/99.7	24.9/33.6/49.5/ 60.3/66.3	37.7/52.1/62.9/ 77/92.1	49/66.2/79.2/ 90.9/101	60.2/82.6/91.2/ 107/118
800/3900/6400/ 6400/6400	2800/4100/5600/ 6400/6400	2800/4200/5400/ 5400/5400	2300/3800/5800/ 6400/6400	2300/4100/5400/ 6400/6400	2700/4400/6000/ 6400/6400	2900/4800/5400/ 5400/5400
290/250/300/ 300/300	410/370/390/ 480/420	500/450/450/ 460/430	220/220/270/ 280/260	340/370/350/ 350/380	510/520/500/ 470/420	680/700/590/ 640/620
0.073	0.099	0.122	0.052	0.073	0.099	0.122
390	480	560	320	390	480	560
655	745	825	585	655	745	825
with brake: + 120 mm						
42 x 110 / 48 x 110 / 38 x 80			42 x 110 / 48 x 110 / 38 x 80			
350 / 350 / 300			350 / 350 / 300			
250 / 250 / 230			250 / 250 / 230			
300 / 300 / 265			300 / 300 / 265			





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Automation with Drive

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