DYNAMIC LINE

SERVO MOTORS

EN

KEB

CONTENTS PAGE

SYSTEM OVERVIEW

Automation with Drive
Drive is movement, dynamics, precision, endurance, continuity and much more.

Whether managing formulations, an optimized operator interface or the controlled movement of axes – it all requires a clear overview combined with logic and is based essentially on the selection of the right technology.

The integrated KEB system offers the best basis for high performance and economics in the application as well as excellent efficiency in the practical implementation.

KEB provides the right solutions!

IIOT


IIoT & Edge-Platform


Analytics


Monitoring


Management


Service

CONTROL HARDWARE

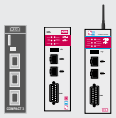
Visualisation


HMI

Engineering


Control Software

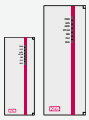
Remote Control


Router

CONTROL HARDWARE


Web HMI


Embedded Control


IPC


I/O


Safety PLC

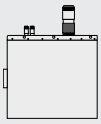
DRIVES


Inverter


Servo Drive

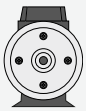

Drive Controller

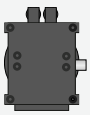

Pitch Drive


eMobility Drive

MOTORS


PM Motor


AC Motor


PM Gear Motor


AC Gear Motor

BRAKES & CLUTCHES


Permanent Magnet Brake


Spring Applied Brake


Electromagnetic Brake


Electromagnetic Clutch

SERVO MOTORS IN THE COMPLETE SYSTEM

OPTIMALLY COORDINATED FEATURES – THE KEY TO SUCCESS

From the user interface to the rotating movement – it is our goal to make sure: we provide all the tasks you require from a single supplier. KEB drive controllers have proven themselves in the market for many years. Now we have expanded our range to provide an all-in-one package. The core control function is provided with IPC based control technology, along with software tools, a flexible range for visualisation, and remote maintenance.

Optimum rotating movement is provided by the servo motors, which are available in three series, each with specific benefits. With energy efficiency ratings significantly above IE4 (three-phase asynchronous motors) there is a strong argument in favour of synchronous drive systems. Real time process control is also possible in combination with the COMBIVERT Drive Controller.

The package is complimented with pre-fabricated motor and encoder cables. This allows easy installation, fast start-up and safe operation. Select the right motor for your optimum drive solution from a portfolio that is tailored to meet your specific requirements.

DYNAMIC LINE DL3
economical, durable, powerful

VERSION STEEL IT
efficient surface protection

TA SERIES
optimized for the geared motor solution

DYNAMIC LINE DL4
for special requirements

DYNAMIC LINE DL3

With seven physical design sizes and three alternative lengths, this new series covers application areas from the infeed axis to the main drive.

A high degree of density gives excellent peak torques in compact dimensions, whilst built-in modularity offers a flexible solution for the widest verity of tasks.
The broad speed range provides the basis for minimal variation and universal use.

Dynamic Line DL 3 series motors create an excellent base for high-performance machines and systems, capable of handling dynamic applications and high loads.

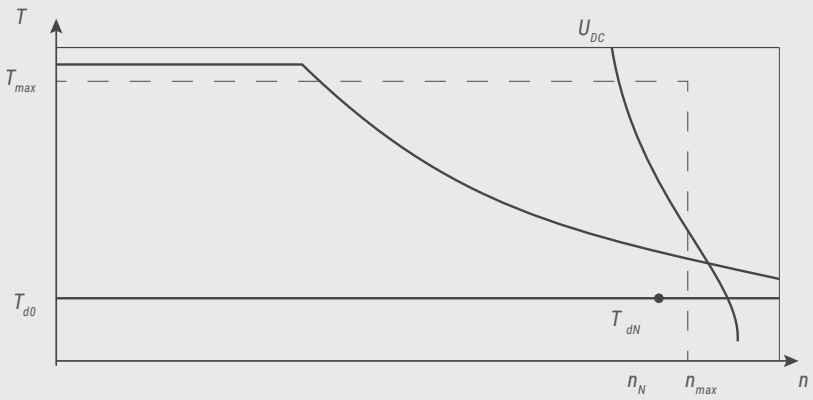
0_SMH	**0.2 – 0.5**
A_SMH	**0.5 – 1.2**
B_SMH	**1.4 – 3.2**
C_SMH	**2.5 – 5.7**
D_SMH	**4.9 – 11.4**
E_SMH	**12.8 – 29.0**
F_SMH	**31,8 – 72,6**

Stall torque in Nm

SPEED-TORQUE CHARACTERISTIC

DEFINITION

T_{d0}	Stall torque (n=0)
T_{max}	max. torque
T_{dN}	Rated torque
n_N	Rated speed
n_{max}	max. speed
U_{DC}	DC link voltage

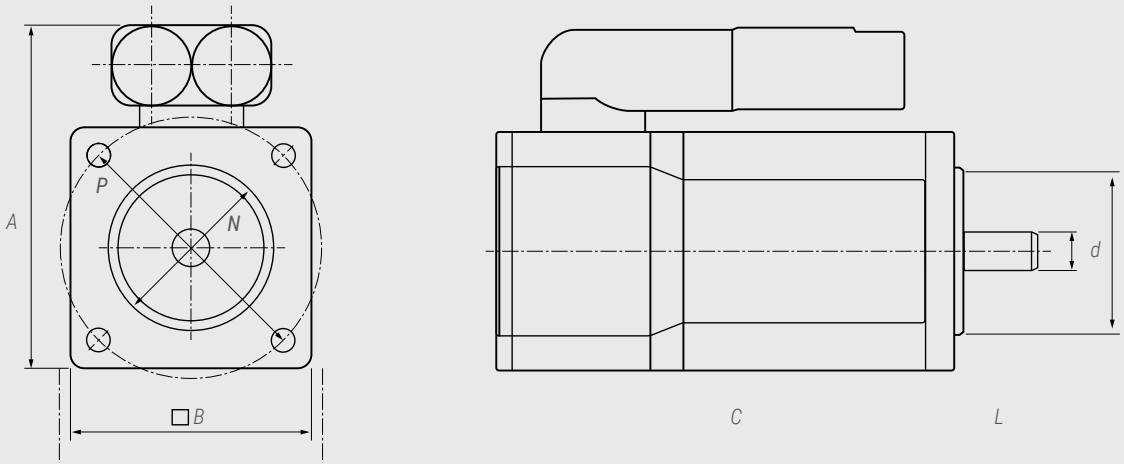


DYNAMIC LINE DL3

MOTOR	U_n [V]	T_{dN} [Nm]	T_{d0} [Nm]	T_{max} [Nm]	n_N [rpm]	J_L [kgcm²]	A [mm]	B □ [mm]	C (without brake) [mm]	C (with brake) [mm]	d_{k6} Ø [mm]	L [mm]	N_{j6} Ø [mm]	P Ø [mm]	T_{Brake} [Nm]
01SMH		0.18	0.2	0.68		0.029			97	129					
02SMH	230	0.33	0.38	1.37	8,000	0.048	65.4	40	117	149	8	22,5	30	46	0.6
03SMH		0.45	0.52	2.04		0.067			137	169					
A1SMH		0.5	0.5	2.69		0.134			111.5	146					
A2SMH		0.7	0.8	4.18	8,000	0.253	82.5	58	133.5	168	9	20	40	63	2.0
A3SMH		1.0	1.2	6.36		0.373			155.5	190					
B1SMH		1.33	1.38	6.07		0.462			129	168					2.0
B2SMH		2.2	2.37	11.6	6,000	0.842	96.5	72	154	194	14	30	60	75	
B3SMH		2.7	3.22	17.71		1.22			180	229					3.5
C1SMH		2.31	2.45	9.14	6,000	1.08			132	179.5					
C2SMH		3.7	4.1	18.9	5,000	1.98	128.5	87	162	209.5	19	40	80	100	9.0
C3SMH		4.9	5.65	29.25	5,000	2.87			192	239.5					
D1SMH	400	4.4	4.9	17.76	5,000	2.23			136.5	183.5					9.0
D2SMH		6.9	8.2	35.34	4,000	4.06	145.5	104	169.5	216.5	24	50	95	115	
D3SMH		8.35	11.4	53.13	4,000	5.88			202.5	251.5					13.0
E1SMH		11.0	12.8	37.08		13.4			176	228					20.0
E2SMH		15.2	21.1	74.16	3,000	22.3	183.5	142	216	268	32	58	130	165	
E3SMH		13.2	29.0	110.8		34.9			256	315					30.0
F1SMH		19.5	31.8	79.81	3,000	49.6			212	284.5					
F2SMH		38.2	54.8	172.5	2,000	92.3	256	194	269	341.5	38	80	180	215	70.0
F3SMH		38.8	72.6	275.3	2,000	134.9			326	398.5					

Features:
right angle plug, shaft without keyway,
KTY-Sensor, protection IP 54 (A … E)

Options:
permanent magnet brake,
shaft with keyway, protection IP65 (A … E)
increased surface protection / STEEL IT

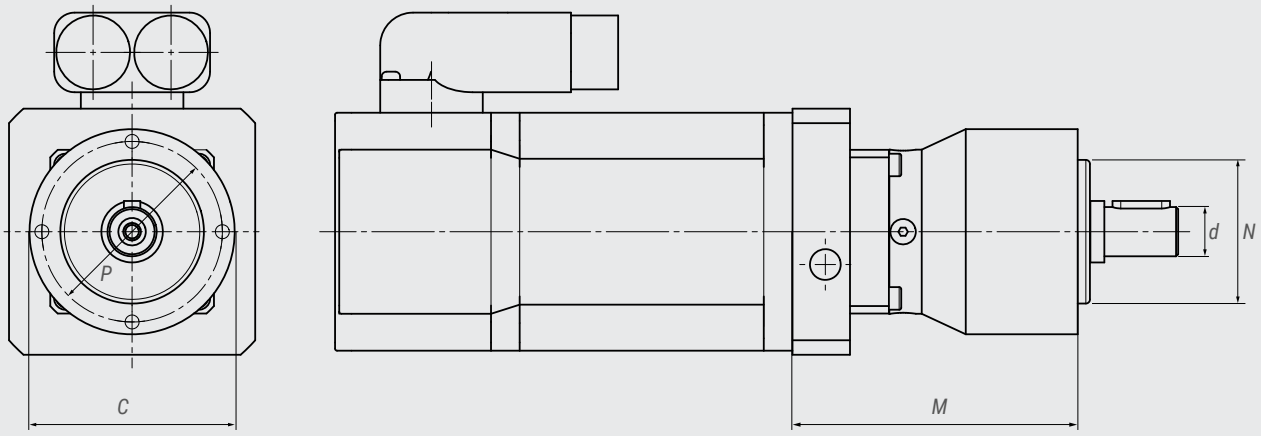


THE PERFECT CONNECTION

PLANETARY GEARS SGPP BUNDLED WITH DYNAMIC LINE DL3:

- Low backlash
- High torque
- High efficiency (97%)
- Ratio i=5 up to 40
- Low noise
- Lifetime lubrication
- **Option:** surface protection/STEEL IT

SIZE	C Ø [MM]	T_{2N} [Nm]	T_{2max} [Nm]	n_{max} [min^{-1}]	i 1stufig	i 2stufig	backlash arcmin 1stufig	backlash arcmin 2stufig	d_{k6} Ø [mm]	N_{j6} Ø [mm]	P Ø [mm]	M 1stufig [mm]	M 2stufig [mm]	DL3 motor size
1	50	5 ... 15	8 ... 24	5,000		15,25	< 10	< 12	12	35	44	74.5	87	A
2	70	15 ... 33	24 ... 53	4,500		15, 25, 40	< 10	< 12	16	52	62	75	88	A
						15, 25						75	95	B
						-						92	-	C
3	90	38 ... 90	61 ... 144	4,000	5, 10	40	< 7	< 9	22	68	80	101	119	B
						15						111	129	C
						15, 25						121	139	D
4	120	95 ... 195	152 ... 312	3,000		15, 25, 40	< 7	< 9	32	90	108	124	151.5	C
						15, 25						134	161.5	D
						15, 25						149.5	177	E
5	155	210 ... 460	336 ... 736	2,800		25, 40,25	< 8	< 10	40	120	140	178.5	223	D
												188.5	233	E



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TYPE **TA**

In combination with the KEB drive controllers COMBIVERT F6 and servo drives S6, the TA motors provide powerful drive systems including pre-assembled cables. Another advantage of the robust permanent magnet synchronous motors: with the direct input into the gear unit, very compact and space-saving servo geared motors are created.

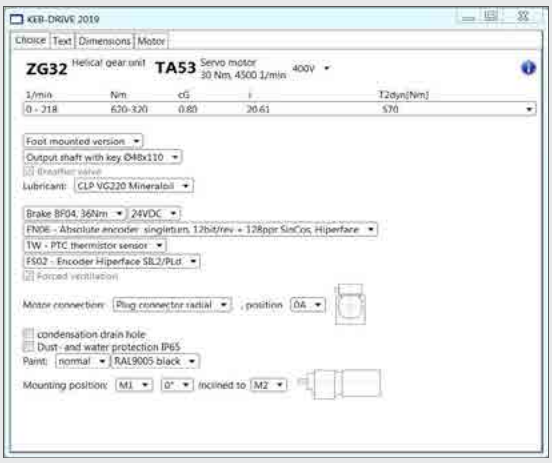
- Spur,
- shaft-mounted helical
- helical worm
- helical bevel

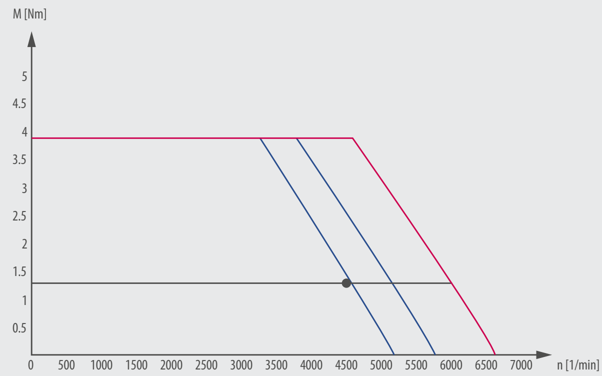
TA 1_	**0.5 – 0.9**
TA 2_	**1.3 – 3.1**
TA 3_	**2.9 – 6.4**
TA 4_	**6.9 – 11.7**
TA 5_	**11.5 – 30.0**
TA 6_	**34.5 – 90.0**

Stall torque in Nm

KEB DRIVE

is our perfect software tool for geared motor selections, based on a combination of continuous torque and peak current dependent on the nominal torque. It also provides technical data sheets, 2D and 3D engineering files as well as the ability to allocate a matching controller.



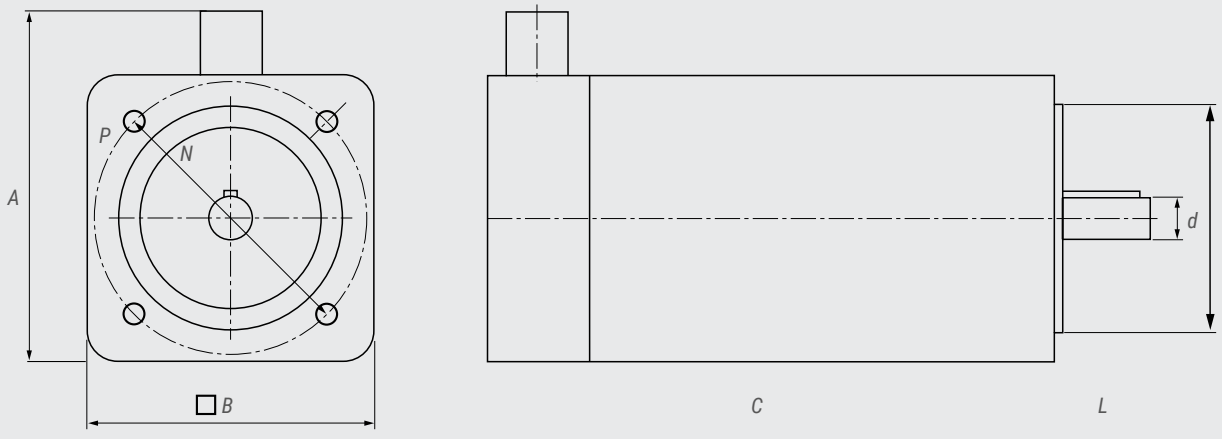


MOTOR	T_N	T_0	T_{MAX}	N_N	J_L	A	B	C		C		d_{K6}	L	N_{J6}	P	GEAR (available)				
								resolver	brake + resolver	absolute encoder	brake + absolute encoder					G	F	S	K	P
	[Nm]	[Nm]	[Nm]	[rpm]	[kgcm²]	[mm]	□ [mm]	[mm]				Ø[mm]	[mm]	Ø[mm]	Ø[mm]					
TA 1S	0.49/0.48	0.5	1.5	4,500/ 6,000	0.136	104.5	58	134	169	161	196	9	20	40	63	■	-	■	■	■
TA 1M	0.89/0.88	0.9	2.7		0.2			164	199	191	226									
TA 2S	1.29/1.28	1.3	3.9	4,500/ 6,000	0.391	117.5	75	153	178	180	205	11	23	60	75	■	-	■	■	■
TA 2M	2.2/2	2.4	7.2		0.66			193	218	220	245									
TA 2L	2.8	3.1	9.3		0.927			233	258	260	285									
TA 3S	2.6/2.45/2.25	2.9	8.7	3,000/ 4,500/ 6,000	1.13	132.5	90	166	216	193	243	14	30	80	100	■	■	■	■	■
TA 3M	4.2/3.8/3.4	4.8	14.4		1.95			216	266	243	293									
TA 3L	5.3/4.2/3.9	6.4	19.2		2.76			266	316	293	343									
TA 41	5.7/6.3/6.6	6.9	20.7	2,000/ 3,000/ 4,500	5.65	160	116	241	276	261	296	19	40	110	130	■	■	■	■	■
TA 42	7.1/8.1/8.6	9.2	27.6		8.15			276	311	296	331									
TA 43	8.6/10.1/10.8	11.7	35.1		10.65			311	346	331	366									
TA 51	9/10.1/10.8	11.5	34.5	2,000/ 3,000/ 4,500	14.9	188	145	273	308	293	328	24	50	130	165	■	■	■	■	-
TA 52	11.3/13.5/14.7	16.1	48.3		21.53			308	343	328	363									
TA 53	10.4/17.7	20	60		28.15			343	378	363	398									
TA 53F	27/24/15.5	30	60		28.15	194.5		473	528	473	528									
TA 61	26/30/31.5	34.5	103.5	1,500/ 2,000/ 3,000	77.71	252	188	367	407	387	427	32	58	180	215	■	■	■	■	-
TA 62	33/41/44	50	150		113.7			445	485	465	505									
TA 63	37/50/55	64	192		149.7			515	555	535	575									
TA 63F	55/75/82	90	192		149.7	257		690	730	690	730									

Features:
straight plug, shaft with keyway,
PTC-Sensor, protection IP 54

Options:
permanent magnet brake, right angle plug,
KTY-Sensor, Protection IP65

Prepared for the operation with **COMBIVERT S6** **COMBIVERT F6**

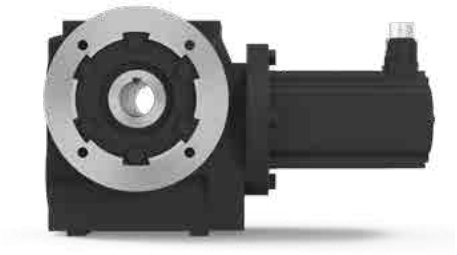


OPTIMISED FOR **MODULAR GEARBOX**

With the TA series, KEB offers permanent magnet synchronous motors that are available in six different sizes.

Individually or integrated in the gearbox system, the motors impress with their high power density and excellent dynamics.

HELICAL GEAR G



HELICAL WORM GEAR S

PLANETARY GEAR (P)

HELICAL BEVEL GEAR K

SHAFT MOUNTED HELICAL GEAR F

ENCODER SYSTEMS

Resolver	resolution 12 bit/revolution	(SAFETY READY)
Hiperface	Singleturn - 17 bit/revolution*	
Hiperface	Multiturn - 12 bit/revolution – 17 bit revolution*	
BISS	Singleturn - 19 bit/revolution**	
BISS	Multiturn - 12 bit/revolution – 19 bit/revolution**	

** DL3 upon housing A ** only TA*

Prepared for operation with: **COMBIVERT S6 COMBIVERT F6**

MOTOR CABLES

MOTOR DL3	DRIVE CONTROLLER	PART-NO	AVAILABLE LENGTH [M]
0, A ,B SMH	S6/F6	00H6L10-0xxx	1 ... 30/35 ... 50
C ... F SMH		00S4519-0xxx	
MOTOR TA			
TA 1 ... 5			

ENCODER CABLES

MOTOR DL3	ENCODER	DRIVE CONTROLLER	PART-NO	AVAILABLE LENGTH [M]
A ... F SMH	Resolver	S6/F6	00S6L50-0xxx	1 ... 30/35 ... 50
	Hiperface SKS/SKM	S6/F6	00S6L55-0xxx	1 ... 30/35 ... 50
MOTOR TA	**ENCODER**	**DRIVE CONTROLLER**	**PART-NO**	**AVAILABLE LENGTH [M]**
TA 1 ... 5	Resolver	S6/F6	00S6L50-1xxx	1 ... 30/35 ... 50
	BISS	S6/F6	00S6L51-2xxx	1 ... 30/35 ... 50
	Hiperface SKS/SKM	S6/F6	00S6L55-1xxx	1 ... 30/35 ... 50

INDUSTRY SEGMENTS

- Machine tools
- Metal forming
- Packaging technology
- Food technology
- Wood working systems
- General automation devices

APPLICATION EXAMPLES

- Revolving tables
- Tool changer
- Roboter and handling devices
- Linear positioning
- Conveyor drives
- Winder

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