



# COMBIVERT S6

COMPACT SERVO DRIVES

EN



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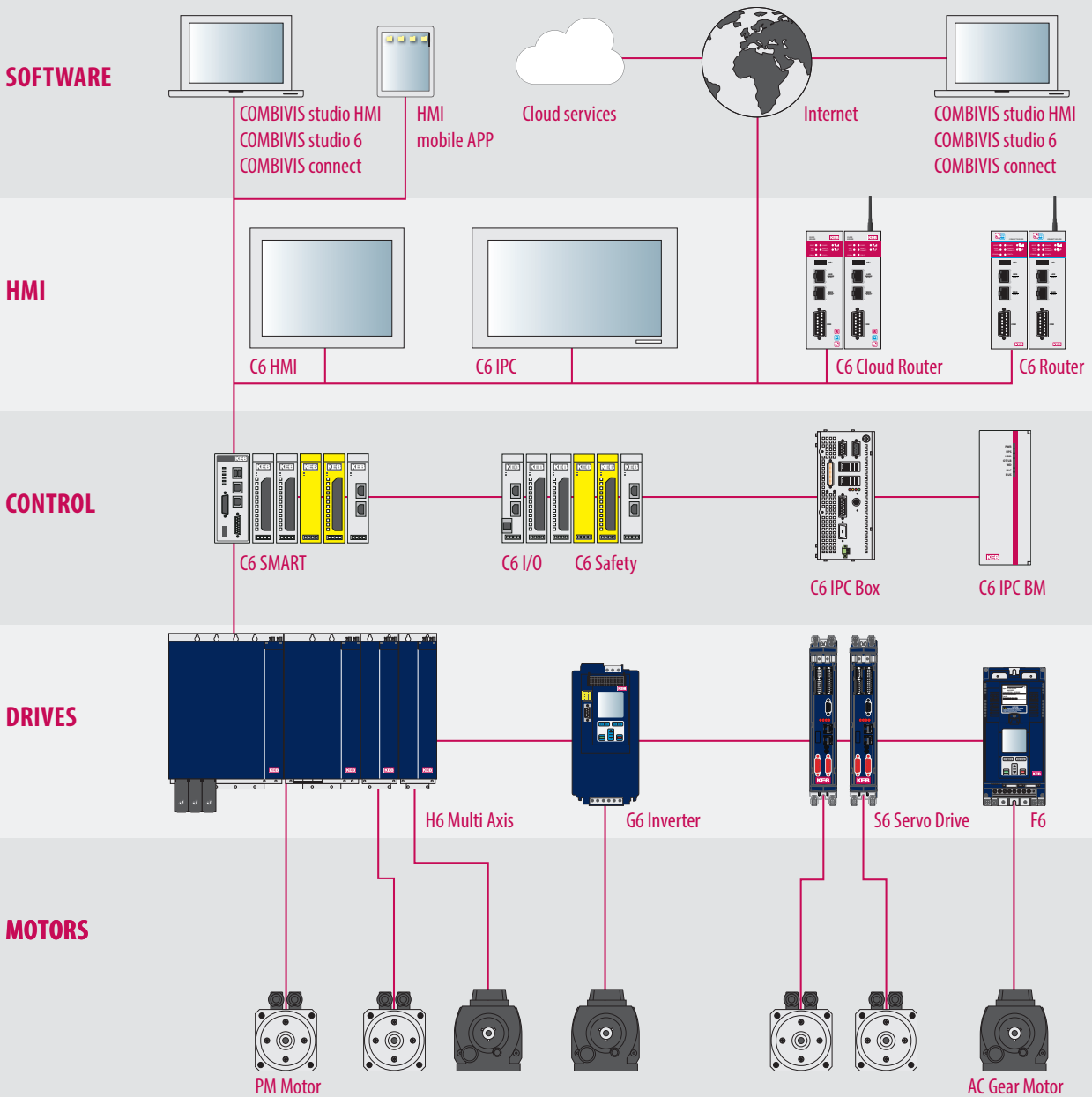
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# SYSTEM OVERVIEW

## Automation with Drive

stands as a synonym for optimally selected combinations of control and automation solution. With the drive level at the end it is the key to successful machine concepts.

Let the following pages inspire you with regards to the diversity and performance of the COMBIVERT S6 servo system, and help you to find a solution that reliably meets your requirements.



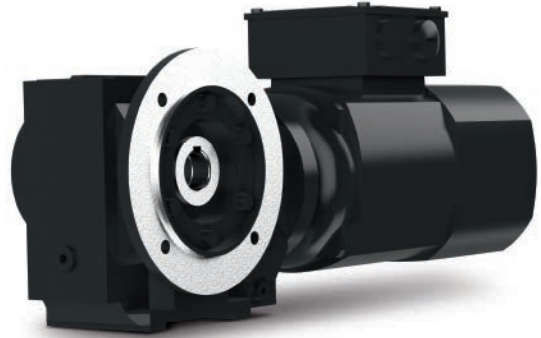
### OPTIMALLY SELECTED COMPONENTS

The COMBIVERT S6 servo system adds a compact, flexible and powerful drive module to the KEB product portfolio for highly dynamic servo applications. The optimally selected KEB components are the key to this successful drive concept.

At the heart, the innovative S6 servo drive is offered in an attractive book-style format and offers real-time performance. The S6 drives can be matched with the robust DL3 servo motors which are available in five sizes. Additionally, the DL3 servo motors may be paired with planetary gearheads with low rotational backlash.

The TA series combines in direct connection the servo motor and industrial gears in the designs helical, helical bevel, helical worm and flat. You can now design the complete servo drive system that is best suited to your application.

The package is made complete with pre-fabricated motor and encoder cables, which create the ideal conditions for easy installation, quick start-up and problem-free operation. For the upper power range the new COMBIVERT F6 drive controller completes the drive line with 1:1 features up to 400 kW.



### POSSIBLE SELECTION: S6 SERVODRIVE AVAILABLE WITH OR WITHOUT INTEGRATED EMC FILTER

- 2.6 ... 16.5 A in two enclosures with six electrical sizes
- Book format for space-saving control cabinet configuration
- Direct connection to the mains for 230 V and 400-480 V grids, DC-input is also available, 260 ... 375/750 V
- Low leakage current mains filter (<5 mA) integrated, optional without filter
- High overload for excellent dynamics (250% / 3 s, 200% / 60 s)



### HIGHLIGHTS

- Uncompromising integration, highest performance
- Modern realtime communication standards
- Integrated functional safety
- Particular compact size
- Modular design, flexible cooling systems



### DRIVE BASED SAFETY

- Integrated Safety functionality
- Basic function STO in Compact version
- Additional modular High level Safety in Application version

### REAL-TIME COMMUNICATION

- Real-time Ethernet-based interfaces
  - CAN
- or simply serial:
- RS232/485 for diagnostics or display

### ANALOG & DIGITAL I/O

supports actual machine concepts with:

- 8 digital and 2 analog inputs
- 2 digital and 1 relay output
- 1 analog output 0 ... 10 V

### ALL IN ONE - UNIVERSAL MOTOR OPERATIONS

- Control for asynchronous, synchronous, IPM or synchronous reluctance motors
- Motor operation with encoder feedback or encoderless ASCL/SCL for precise speed control
- Motor temperature monitoring with PTC, KTY or PT1000 sensors
- Two-channel multi-encoder interface
- Integrated brake transistor
- Integrated brake control and brake supply

# COMBIVERT S6 - VERSIONS

## COMPACT

### HIGHLY INTEGRATED AND ECONOMICAL

Highest integration, best performance and a good price/power ratio. These are the benefits of the S6-compact version.

In addition the integrated Safety function STO as per ISO 13849-Performance Level e/IEC 62061-SIL3 is available.

### REALTIME ETHERNET INTEGRATED

#### EtherCAT or VARAN

and as communication interface (standard feature)

#### CAN

#### DIAGNOSTIC RS232/485

#### MAINS CONNECTIONS

with pluggable terminals

#### FUNCTIONAL SAFETY

#### INTERFACE

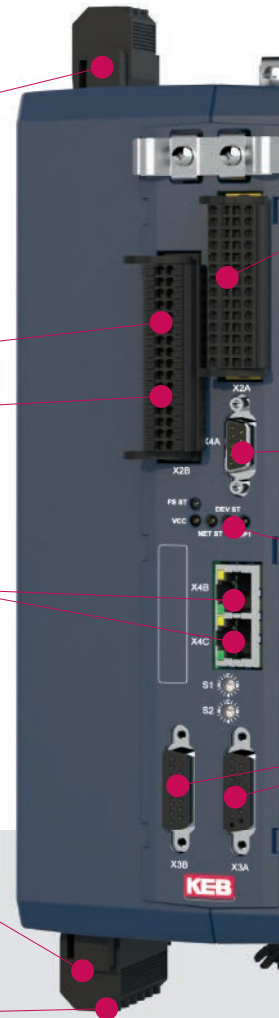
CAN interface

#### REALTIME ETHERNET

#### DC SUPPLY TERMINALS

and braking resistor

#### MOTOR TERMINALS



### HIGHLIGHTS

- Uncompromising integration, maximum performance
- Optimum price/performance relationship
- Safety function STO according to ISO 13849 Performance Level e / IEC 62061- SIL 3
- Integrated Real-time EtherCAT and as communication interface CAN
- Diagnosis interface



## APPLICATION

### MODULAR AND FLEXIBLE

Modular and flexibility are the summarized characteristics of the S6-Application version.

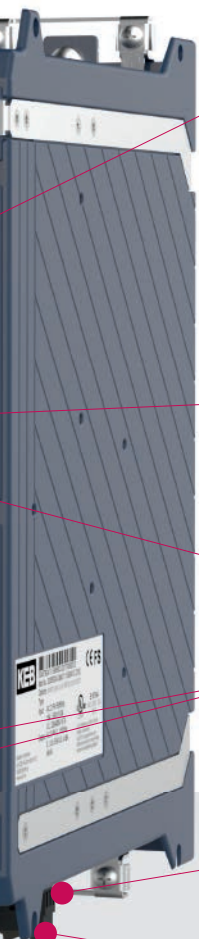
STO and speed/position related safety functions as per ISO 13849.

### REALTIME ETHERNET INTEGRATED

**EtherCAT**  
**PROFINET**  
**POWERLINK**  
**EtherNet/IP**

and communication interfaces as standard  
**CAN**

### DIAGNOSTIC RS 232/485



#### I/O

8 digital inputs  
2 digital outputs  
1 relay  
2 analog inputs  
1 analog output  
24V DC supply

#### DIAGNOSTIC INTERFACE

#### STATUS LEDS

#### MULTI ENCODER INTERFACES

Resolver, EnDAT, Hiperface, BISS, SSI,  
Incremental HTL/TTL,  
Incremental output

#### KTY/PTC/PT1000 EVALUATION

#### BRAKE CONTROL 24 V / 2 A

ETHERNET  
**POWERLINK**

**PROFI**  
**NET**

*EtherNet/IP*<sup>™</sup>

Safety over  
**EtherCAT**



## HIGHLIGHTS

- Flexible adaption in usage
- High Level Safety Function STO and SBC „Safe Brake Control“ according to ISO 13849 Performance Level e / IEC 62061- SIL 3
- Optionally version Safety Module 3 with up to three additional functions including SS1, SS2, SEL, SLI, SLP, SOS, SLA, SDI, SLS, SSM, SMS, SAR, SSR
- Real-time safety communication FSoE (Safety over EtherCAT)

# KEB

**EC Type-Examination Certificate**



**Reg.-Nr.No.: 01/205/5517.00/16**

<b>Prüfgegenstand Product tested</b>	Sicherheitsfunktion STO auf der Steuerkarte des COMBIVERT 76-K Umrichter Safety function STO on control board within the COMBIVERT 76-K inverter	<b>Zertifizierungsstelle Certificate holder</b>	KEB Karl E. Bleisemann GmbH Friedenweg 30-38 52085 Bornhofen Germany
<b>Typbezeichnung Type designation</b>	Steuerkarte / Control board 3K76-00-010, 3K76-00-001 zur Verwendung in den Umrichtern 70 bei Verwendung auf K5000xxx		
<b>Prüfgrundlagen Codes and standards</b>	EN 61800-5-2:2007 EN 61800-5-1:2007 EN 62061:2005 + AC:2010 + A1:2013 + A2:2015	EN 60204-1:2015 EN 60204-1:2004 + A1:2009 + AC:2010 (in withdrawal) IEC 61386 Parts 1-7:2010	
<b>Bestimmungsgröße Verwendung Intended application</b>	Die Sicherheitsfunktion "Safe Torque Off" (STO) erfüllt die Anforderungen der Prüfgrundlagen (vgl. 4. Pkt.) nach EN 60204-1, SS. 3 / SS. G1, 2 nach EN 61800-5-2 / EN 62061 / IEC 61800-5-1 und kann in Anwendungen bis zu dieser Sicherheitsniveau eingesetzt werden. The safety function "Safe Torque Off" (STO) complies with the requirements of the relevant standards (see 4. Pkt. in sec. 3) EN 60204-1, SS. 3 / SS. G1, 2 acc. to EN 61800-5-2 / EN 62061 / IEC 61800-5-1 and can be used in applications up to these safety levels.		
<b>Besondere Bedingungen Specific requirements</b>	Die Hinweise in der zugehörigen Installations- und Betriebsanleitung sind zu beachten. The instructions of the associated installation and Operating Manual shall be considered. Es wird bestätigt, dass der Prüfgegenstand mit den Anforderungen nach Anhang I der Richtlinie 2006/42/EG über Maschinen übereinstimmt. It is confirmed that the product under test complies with the requirements for machines defined Annex I of the EC Directive 2006/42/EC. Gültig bis / Valid until 2021-06-01		

Der Ausstellung dieses Zertifikates liegt eine Prüfung zugrunde, deren Ergebnisse im Bericht Nr. 366AM 303.01/16 vom 01.06.2016 dokumentiert sind.  
Dieses Zertifikat ist nur gültig für Erzeugnisse, die mit dem Prüfgegenstand übereinstimmen. Es wird ungültig bei jeglicher Änderung der Prüfgrundlagen für den angegebenen Verwendungszweck.  
The issue of this certificate is based upon an examination, whose results are documented in Report No. 366AM 303.01/16 dated 01/06/2016.  
This certificate is valid only for products which are identical with the product tested. It becomes invalid at any change of the codes and standards forming the basis of eligibility for examination applications.

Berlin, 2016-06-01

Notified Body for Machinery, NB 0030

Dipl.-Ing. Eberhard Frejno

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## HIGHLIGHTS

- Possible download of encrypted data packets through machine controllers modular safety concept
- Dual channel ripple interface for cascading functional safety over multiple KEB drives
- Dual OSSD outputs for supply of the safe digital inputs (detection of wire break, shortcut and external supply)
- Safe parameterization through COMBIVIS 6 with protected operation levels

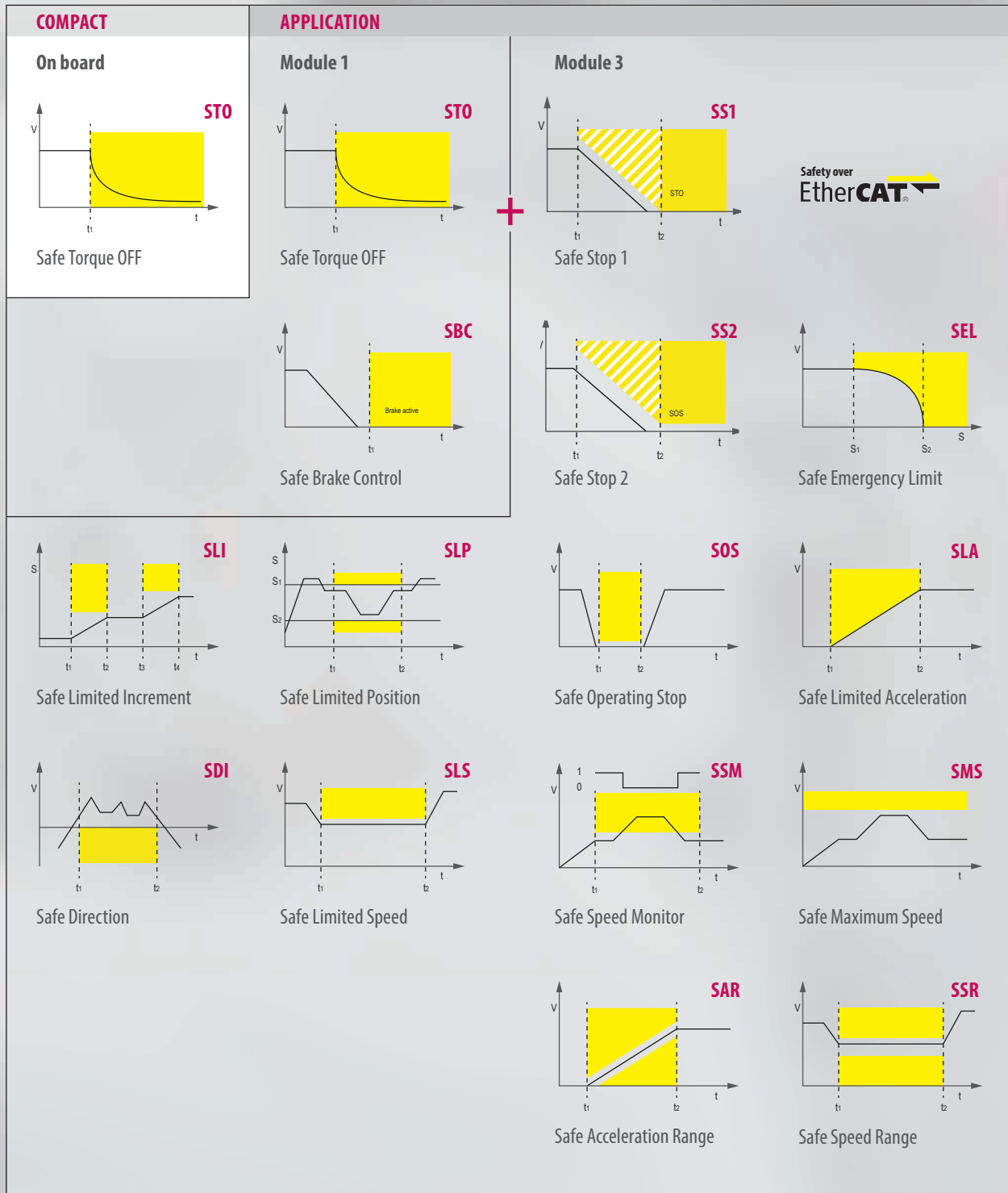


## SAFETY FUNCTIONS ACCORDING TO IEC 61508–SIL3, ISO 13849–PL e

With drive-based-safety, safety functions are shifted into the drive platform and the costs of separate safety devices are reduced. The drive controllers COMBIVERT S6 are prepared for the different requirements in their modular structure.

In the compact version S6-K, STO is an „on board“ integrated function. The application version S6-A can be equipped with different safety modules. Depending on the requirement, basic functions with the Module 1 and a wide range of functions are available with the Module 3, which are addressed via safe inputs and outputs and FSoE communication.

The full Safety System results in the interaction of the drive controllers with the KEB C6 Safety PLC and the C6 Safety I/O's.



# COMBIVERT S6

## ELECTRICAL PROPERTIES

HOUSING			2				4			
Device size			07	09	07	09	10	12	13	14
Mains phases			1		3					
<b>Output rated current</b>	$I_N$	[A]	<b>4</b>	<b>7</b>	<b>2.6</b>	<b>4.1</b>	<b>5.8</b>	<b>9.5</b>	<b>12.0</b>	<b>16.5</b>
Short maximum current (3 s / 60 s) <sup>1)</sup>	$J_{SMC}$	[%]	200/150		250/200					180/150
Output rated power *	$S_A$	[kVA]	1.8	2.8	1.8	2.8	4	6.6	8.3	11.4
Typical rated motor power	$P_{mot}$	[kW]	0.75	1.5	0.75	1.5	2.2	4.0	5.5	7.5
			230 V			400 V				
Max. current 0 Hz / cutoff frequency at $f_s = 4$ kHz <sup>1)</sup>	$I_0$	[%]	175/240	157/240	215/300	193/300	155/284	273/300	283/300	133/216
Max. current 0 Hz / cutoff frequency at $f_s = 8$ kHz <sup>1)</sup>	$I_0$	[%]	150/240	114/228	162/292	132/234	103/206	189/294	183/293	109/212
Max. current 0 Hz / cutoff frequency at $f_s = 16$ kHz <sup>1)</sup>	$I_0$	[%]	100/200	85/200	92/200	73/146	50/120	105/189	116/175	60/127
Cutoff frequency point	$f_d$	[Hz]	6							
Input rated current	$I_{IN}$	[A]	8	14	3.6	6	8	13	17	21
Max. permissible mains fuses	Typ gG	[A]	15	20	6	10	10	15	20	25
Rated switching frequency	$f_{SN}$	[kHz]	8							
Max. switching frequency	$f_{Smax}$	[kHz]	16							
Rated losses	$P_D$	[W]	60	95	50	57	80	155	185	250
Standby losses	$P_{Dnop}$	[W]	8							
Min. brake resistance	$R_{Bmin}$	[Ω]	56	33	160	110	82	33	25	25
Max. braking current	$I_{Bmax}$	[A]	7.5	12.7	5.5	8	11	28	34	34
Input rated voltage (AC)	$U_N$	[V]	1-phase 230			3-phase 400 (UL: 480)				
Input voltage range (AC) <sup>2)</sup>	$U_{in}$	[V]	184 ... 265			184 ... 550 ±0				
Input voltage range (DC)	$U_{indc}$	[V]	260 ... 375			260 ... 750 ±0				
Mains frequency	$f_N$	[Hz]	50/60			50/60 ±2				
Output voltage	$U_A$	[V]	3 x 0 ... $U_{IN}$							
Output frequency	$f_A$	[Hz]	0 ... 599 optional 0 ... 2000							

\* At rated voltage 400 V AC

<sup>1)</sup> The figures relate to the output rated current  $I_N$  on a percentage basis

<sup>2)</sup> In the case of rated voltage  $\geq 460$  V, multiply rated current with a factor of 0.86

## MECHANICAL DATA, OPERATING TYPES, STANDARDS

### OPERATING MODES

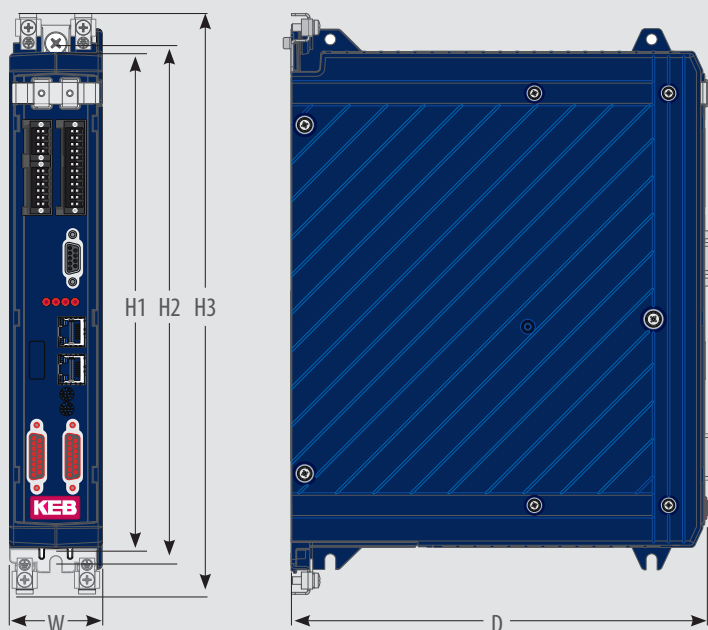
Motor control mode	<b>PMSM:</b> field-oriented with encoder, S.C.L. encoderless <b>IPMSM:</b> field-oriented with encoder, S.C.L. encoderless <b>SyncRM:</b> field-oriented with encoder, S.C.L. encoderless <b>ASM:</b> V/F, field-oriented with encoder, A.S.C.L. encoderless
Application profile	CiA 402
Control mode	Velocity Mode Cyclic Synchronous Velocity Mode Cyclic Synchronous Position Velocity Mode Profile Position Mode Homing Mode

### GENERAL

Product standard	EN 61800-2, -5-1
Power part with integrated EMC filter - EMC transient emissions	
Grid-bound disturbance	EN 61800-3, C1 - 30 m / C2 - 50 m motor cable
Emitted disturbances	EN 61000-6 -1...4, C2
Protection class	IP 20 / VBG 4
Environment	EN 60721-3-3 Operating temperature -10 ... 45 °C Storage temperature -25 ... 55 °C Humidity 3K3 - 5 ... 85% (no condensation)
Site altitude	Rated to 1000 m (1% derate per 100m above 1000m). max. 2000m above sea level.

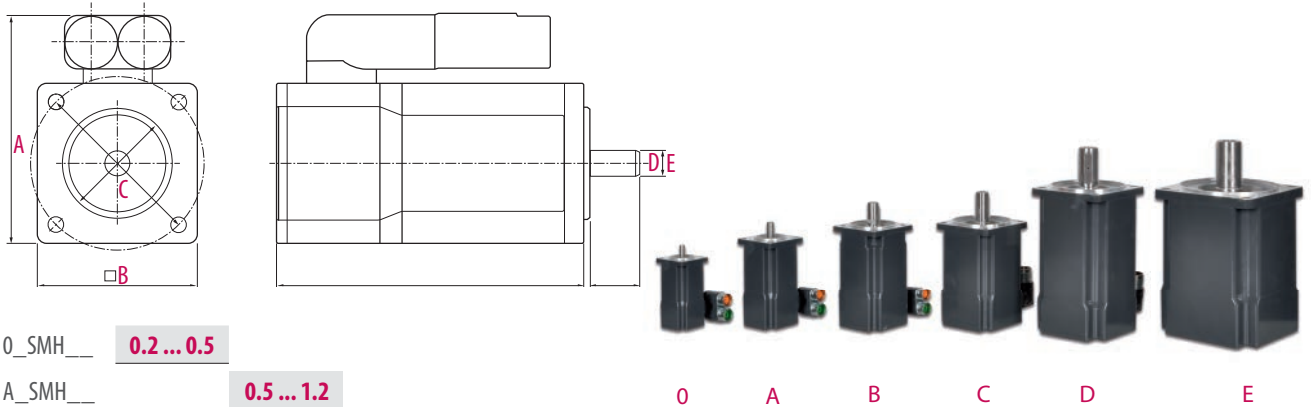
HOUSING	2	4
H1	265	265
H2	275	275
H3	310	310
D	220	220
W	50	90

All dimensions in mm



# SERVO MOTORS

## SERVOMOTORS DYNAMIC LINE 3



O_SMH__	<b>0.2 ... 0.5</b>	
A_SMH__	<b>0.5 ... 1.2</b>	
B_SMH__	<b>1.38 ... 3.22</b>	
C_SMH__	<b>2.45 ... 5.65</b>	
D_SMH__	<b>4.9 ... 11.4</b>	
E_SMH__	<b>12.8 ... 29.0</b>	Stalltorque in Nm

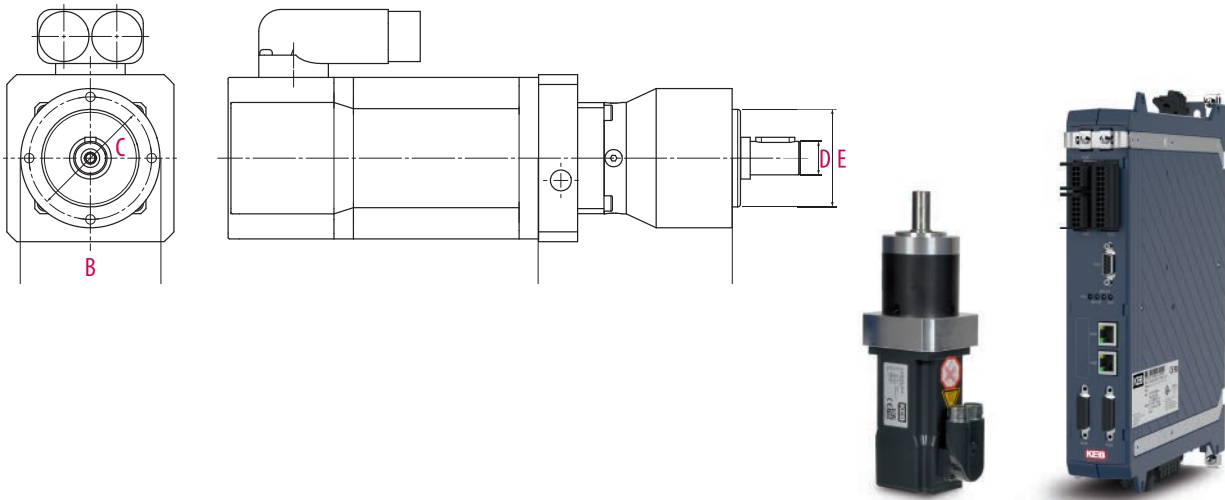
MOTOR	$T_0$ [Nm]	$T_N$ [Nm]	$U_N$ [V]	$I_{d0}/I_N$ [A]	$N_N$ [min <sup>-1</sup> ]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	OPTION BRAKE $T_n$ [Nm]	INERTIA $J_M / J_{MwBr}$ [kgcm <sup>2</sup> ]
01	0.2	0.18		0.76 / 0.73								0.0294 / 0.0521
02SMHF_	0.38	0.33	230	1.3 / 1.2	8000	65.4	40	46	8	30	0.6	0.0482 / 0.0709
03	0.52	0.45		1.65 / 1.3								0.0670 / 0.0897
A1	0.5	0.5		0.85								0.134 / 0.205
A2SMHF_	0.8	0.7		1.30 / 1.50	8000	82.4	58	63	9	40	0.8	0.253 / 0.324
A3	1.2	1.0		1.85 / 2.20								0.373 / 0.444
B1	1.4	1.3		1.90 / 1.95								0.462 / 0.541
B2SMHF_	2.4	2.2		2.75 / 2.95	6000	96.4	72	75	14	60	2	0.842 / 0.921
B3	3.2	2.7		3.60 / 4.10							3.5	1.22 / 1.46
C1	2.5	2.3		2.90 / 3.00	6000							1.08 / 1.74
C2SMHF_	4.1	3.7	400	3.80 / 4.10	5000	128.5	87	100	19	80	9	1.98 / 2.63
C3	5.7	4.9		4.75 / 5.40	5000							2.87 / 3.52
D1	4.9	4.4		4.20 / 4.75	5000						9	2.23 / 2.89
D2SMHF_	8.2	6.9		5.20 / 6.30	4000	145.5	104	115	24	95	9	4.06 / 4.72
D3	11.4	8.4		6.30 / 8.80	4000						13	5.88 / 7
E1	12.8	11.0		6.80 / 7.80							20	11.1 / 1.34
E2SMHF_	21.1	15.2		9.40 / 12.4	3000	183.5	142	165	32	130	20	20 / 22.3
E3	29.0	13.2		8.10 / 17.2							30	29 / 34.9



### HIGHLIGHTS

- 0.2 ... 29 Nm in six frame sizes
- Low inertia—high impulse torque
- Resolver or absolute rotary encoder, HIPERFACE single or multi-turn
- High degree of total efficiency
- Lifetime lubricated
- Universal installation positions
- Robust mechanics (optional: COMBIPERM holding brake, keyway with key, IP65 shaft sealing)

**PLANETARY GEAR SG PAIRED WITH DYNAMIC LINE 3:**



GEAR SIZE	T <sub>2N</sub> [Nm]	T <sub>2MAX</sub> [Nm]	N <sub>MAX</sub> [rpm]	I	BACKLASH arc <sub>min</sub>	B Ø [mm]	C Ø [mm]	D Ø [mm]	E Ø [mm]	DL3-MOTOR recommended
1	5 ... 11	8 ... 17.5	5000	5 ... 40	15	50	44	12	35	A
2	15 ... 28	24 ... 45	4500		10	70	62	16	52	A B C
3	38 ... 85	61 ... 136	4000		7	90	80	22	68	A B C D
5	95 ... 115	152 ... 136	3000		7	120	108	32	90	B C D E
7	210 ... 460	336 ... 736	2800		8	155	140	40	120	C D E

**SIMPLE SELECTION AND ORDERING BY SYSTEM CONFIGURATION IN COMBIVIS 6**

- Output torque and speed
- Gear ratio
- Motor size



**HIGHLIGHTS**

- Low backlash
- High output torque
- High efficiency (97 %)
- Gear ratios i = 5 to 40
- Low audible noise
- Lifetime lubricated



# SERVO GEAR MOTORS

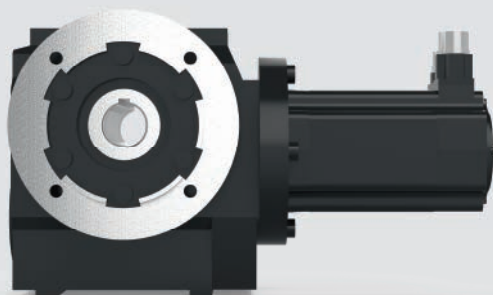
## INTEGRAL SERVO DESIGN

Based on the industrial standard with AC motors the portfolio of COMBIGEAR series offers a full basket of servo gear solutions. The dynamic and efficient TA servo motors are direct connected in the first gear stage—best choice for minimum lengths, nearly zero wear and small inertia of the gear motor system.

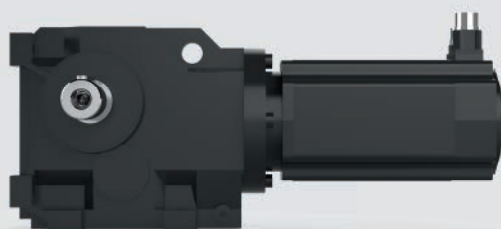
Flexible designs for flange-, foot-, or combined flange/foot— mounting and a wide range of options secure individual needs in the machine. Ultra-fine speed ratio range, adjustable down to speed 0, enables optimum adaptation of torque and speed on output. Life-time lubrication, high overload and low torsional backlash ensure a long service life.

TYPE	SIZE	DESIGN	$T_N$ [Nm]	I	TA1	TA2	TA3	TA4	TA5
G	0 ... 7	Helical gear	60 ... 4880	3.37 ... 250.97	■	■	■	■	■
F	2 ... 7	Shaft mounted helical gear	245 ... 4880	3.20 ... 274.23		■	■	■	■
K	0 ... 7	Helical bevel gear	58 ... 4880	3.38 ... 183.21	■	■	■	■	■
S	0 ... 4	Helical worm gear	55 ... 1160	5.09 ... 247.58	■	■	■	■	■

HELICAL GEAR

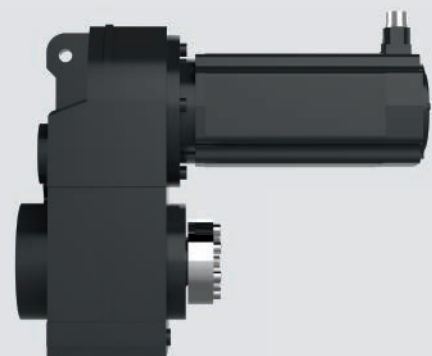


HELICAL WORM GEAR

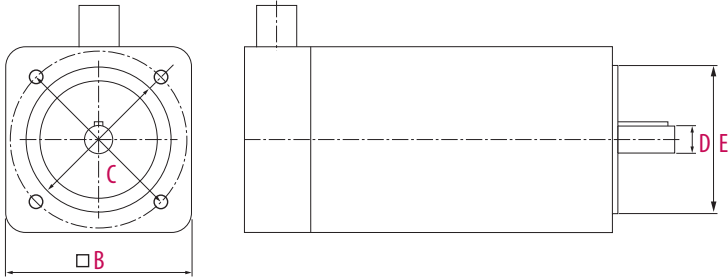


HELICAL BEVEL GEAR

SHAFT MOUNTED HELICAL GEAR



TA SERIES



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 ... 20.0

Stalltorque in Nm

MOTOR	T <sub>0</sub> [Nm]	U <sub>N</sub> [V]	I <sub>do</sub> [A]	N <sub>N</sub> [min <sup>-1</sup> ]	B [mm]	C [mm]	D [mm]	E [mm]	OPTION BRAKE T <sub>n</sub> [Nm]	INERTIA J <sub>M</sub> / J <sub>MwBr</sub> [kgcm <sup>2</sup> ]
TA1S	0.5	400	0.95 / 0.72	6000 / 4500	58	63	9	40	2	0.14 / 0.2
TA1M	0.9		1.11 / 0.84							0.2 / 0.27
TA2S	1.3		1.6 / 1.1	6000 / 4500	75	75	11	60	2	0.39 / 0.46
TA2M	2.4		2.75 / 2							0.66 / 0.73
TA2L	3.1		3.9 / 2.8							0.93 / 0.99
TA3S	2.9		3.4 / 2.5 / 1.82	6000 / 4500 / 3000	90	100	14	80	4,5	1.13 / 1.32
TA3M	4.8		6.2 / 4.1 / 2.55							1.95 / 2.13
TA3L	6.4		7.3 / 5.6 / 3.8							2.76 / 2.94
TA41	6.9		6.5 / 4.45 / 3.15	4500 / 3000 / 2000	116	115	19	95	9	5.65 / 5.83
TA42	9.2		8.5 / 5.9 / 4							8.15 / 8.69
TA43	11.7		11.2 / 7.3 / 5							10.65 / 11.19
TA51	11.5		11 / 7.4 / 5	4500 / 3000 / 2000	145	165	24	130	18	14.97 / 16.63
TA52	16.1	15.8 / 10.3 / 6.9	21.53 / 23.19							
TA53	20	19.2 / 12.8 / 8.7	28.15 / 29.81							

for further technical data and motor sizes see KEB-Drive product configuration



HIGHLIGHTS

- 0.5 ... 20 Nm in five frame sizes
- Low inertia–high impulse torque
- Easy plug connection, straight or angled (360° rotatable)
- Compact size - directly integrated in the gear modules
- High total efficiency, lifetime lubricated, universal installation positions and robust mechanics
- Resolver or absolute rotary encoder, BiSS single and multi-turn
- Optionally with COMBIPERM holding brake

# SERVO MOTORS

## DL3 CABLES FEEDBACK AND POWER CABLES

Pre-fabricated motor and encoder cables ensure the easy commissioning and simplify the final installation. General performance is the high-quality and flexible design for all cables, made for drag chains. Quick and tool-less installation with Speedtec plug connectors guarantees an optimal connection and EMC shielding.



### RESOLVER FEEDBACK CABLES

- motor side connector - series 615
- drive side connector D-sub 26 pin

### 00S6L50-00

cable length	1...30 m	in 1m steps
	35...50 m	in 5 m steps

### HIPERFACE FEEDBACK CABLES

for single and multi turn encoders

- motor side connector - series 615
- drive side connector D-sub 26 pin

### 00S6L55-00

cable length	1...30 m	in 1m steps
	35...50 m	in 5 m steps

### POWER CABLES

- motor side connector - series 615 motor size A...B
- drive side open end with 0.3m open shielding

### 00H6L10-00

cable length	1...30 m	in 1m steps
	35...50 m	in 5 m steps

- motor side connector - M23 speedtec motor size C - E

### 00S4519-00

cable length	1...30 m	in 1m steps
	35...50 m	in 5 m steps

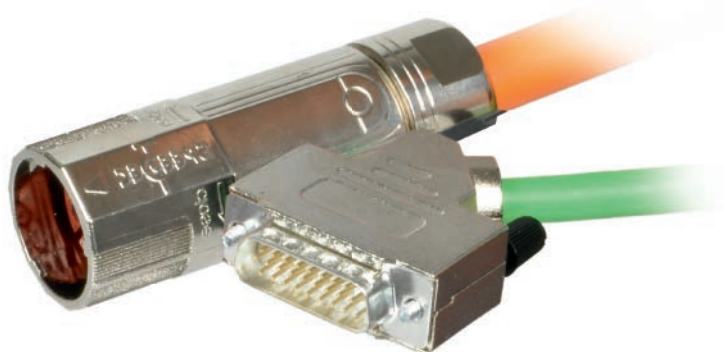


## HIGHLIGHTS

- Pre-fabricated motor and encoder cables for easy installation
- High-quality and flexible design for cable drag chains
- Quick and tool-less installation with Speedtec plug connectors
- Optimally integrated shield connection
- Available in lengths up to 50 metres

## TA CABLES FEEDBACK AND POWER CABLES

Prepared for the direct connection:



### RESOLVER FEEDBACK CABLES

- motor side connector - 16 pin M23 - Speedtec
- drive side connector D-sub 26 pin

#### 00S6L50-10\_\_

cable length	1...30 m	in 1m steps
	35 .. 50 m	in 5 m steps

### BISS FEEDBACK CABLES

for multi turn encoders

- motor side connector - 16 pin M23 - Speedtec
- drive side connector D-sub 26 pin

#### 00S6L51-20\_\_

cable length	1...30 m	in 1m steps
	35 .. 50 m	in 5 m steps

### HIPERFACE GEBERKABEL

for single and multi turn encoders

- motor side connector - series 615
- drive side connector D-sub 26 pin

#### 00S6L55-10\_\_

cable length	1...30 m	in 1m steps
	35...50 m	in 5 m steps

### POWER CABLES

- motor side connector - M23 - speedtec for motor size TA2...TA5
- drive side open end with 0.3 m open shielding

#### 00S4519-00\_\_

cable length	1...30 m	in 1m steps
	35...50 m	in 5 m steps

# ACCESSORIES

## MAINS CHOKE

Reduce the input peak current draw and the mains distortion. By smoothing the input current draw, the lifetime of the drive is enhanced, in particular at constantly high utilization.

### Mains choke 3-phases 400 V AC ( $U_{\max} = 550 \text{ V}$ ), 50/60 Hz

Part-No.	$I_N$ [A]	$P_V$ [W]	$f_{\text{Main}}$ [Hz]	B [mm]	H [mm]	T [mm]	Weight m [kg]
07Z1B04-1000	2.7	19	45-65	100	55	121	0.9
09Z1B04-1000	4.3	23	45-65	100	55	121	1.1
10Z1B04-1000	6.1	24	45-65	100	64	121	1.5
12Z1B04-1000	10	37	45-65	148	68	145	2.1
13Z1B04-1000	12.6	48	45-65	148	78	145	2.6



## BRAKING RESISTOR

Braking resistors can be connected to the series terminals of the brake transistor, and ensure that energy peaks are absorbed and discharged. The compact design require only small space and they are intrinsically safe; without additional temperature sensors.

To protect against overheating and fire hazards, the brake resistors feature thermal monitoring which can be integrated into the external circuit.

### BRAKING RESISTORS - „INTRINSICALLY SAFE“

10G6A90-4300	wire 0.2 m	200 W; 160 Ohm; IP40
13G6B90-4300	wire 0.2 m	250 W; 110 Ohm; IP40
15G6C90-4300	wire 0.2 m	300 W; 56 Ohm; IP40





In addition to the defined base versions compact and application the COMBIVERT S6 unit offers specific application adjustments and customization.

## HIGH SPEED SPINDLE DRIVES

- Maximum output frequency 2000 Hz



## SPECIFIC FIRMWARE

- Fixed software versions according tested application specification

### Software version

SW S6-K EtherCAT Version 2.2.0.0  
 S6K\_MAIN\_ETC\_020200F\_20170705\_1751  
 S6K\_FPGA\_ETC\_02020034\_20170509  
 OSS6K30\_02000001\_70\_2014\_09\_03  
 DWS6KD0000\_2014\_10\_09

## APPLICATION READY TO START

- Customer specific parameter lists stored on the drives internal file server ex works

## CUSTOMER LABELLING

- Specific name plate for series OEM with first line service concept

#	GRd	Grnd	Adress	Sw.	Setp.	R/W	BDT	Name	Offline-Wert	Online-Wert	Bemerkung
1	0	Media_1	0x3001	8	-	VR	VR01	password	0	application	
4	0	Media_1	0x2011	8	-	RO	rv01	exception state	0: no exception	0: no exception	
5	0	Media_1	0x2002	8	-	RO	rv02	overring state	0: no overring	0: no overring	
6	0	Media_1	0x2003	8	-	RO	rv03	swering state	0: no swerping	0: no swerping	
7	0	Media_1	0x2004	8	-	RO	rv04	supply volt. error	% (u)	% (u)	
8	0	Media_1	0x2005	8	-	RO	rv05	act. value display	0.0000 line	0.0000 line	
9	0	Media_1	0x2006	8	-	RO	rv06	temp-out display	0.0000 line	0.0000 line	
10	0	Media_1	0x2007	8	-	RO	rv07	act. frequency	0.0000 Hz	0.0000 Hz	
11	0	Media_1	0x2008	8	-	RO	rv08	act. value	0.0000 line	0.0000 line	
12	0	Media_1	0x2009	8	-	RO	rv09	act. encoder speed	0.0000 line	0.0000 line	
13	0	Media_1	0x200A	8	-	RO	rv10	act. apparent current	0.00 A	0.00 A	
14	0	Media_1	0x200B	8	-	RO	rv11	act. active current	0.00 A	0.00 A	
15	0	Media_1	0x200C	8	-	RO	rv12	act. machine current	0.00 A	0.00 A	
16	0	Media_1	0x200D	8	-	RO	rv13	peak apparent current	0.00 A	0.00 A	
17	0	Media_1	0x200E	8	-	RO	rv14	act. dc-voltage	230.0 V	230.0 V	
18	0	Media_1	0x200F	8	-	RO	rv15	200V AC-voltage	325.4 V	325.4 V	
19	0	Media_1	0x2010	8	-	RO	rv16	act. output voltage	0.0 V	0.0 V	
20	0	Media_1	0x2011	8	-	RO	rv17	modulation grade	0.0 %	0.0 %	
21	0	Media_1	0x2012	8	-	RO	rv18	slip input state	0: no input	0: no input	
22	0	Media_1	0x2013	8	-	RO	rv19	internal output state	0: no output	0: no output	
23	0	Media_1	0x2014	8	-	RO	rv20	slip output state	0: no output	0: no output	
24	0	Media_1	0x2015	8	-	RO	rv21	slip output flag	0: no flag	0: no flag	
25	0	Media_1	0x2016	8	-	RO	rv22	reference torque	0.0 %	0.0 %	
26	0	Media_1	0x2017	8	-	RO	rv23	actual torque	0.0 %	0.0 %	
27	0	Media_1	0x2018	8	-	RO	rv24	feedback temperature	26.6 °C	26.7 °C	
28	0	Media_1	0x2019	8	-	RO	rv25	internal temperature	-40.0 °C	40.3 °C	
29	0	Media_1	0x201A	8	-	RO	rv26	32.0 counter	0.0 %	0.0 %	
30	0	Media_1	0x201B	8	-	RO	rv27	motor temperature	17°C open	17°C open	
31	0	Media_1	0x201C	8	-	RO	rv28	OL-counter	0.0 %	0.0 %	
32	0	Media_1	0x201D	8	-	RO	rv29	ON/OFF counter state	2000: no input comm...	2000: no input comm...	
33	0	Media_1	0x201E	8	-	RO	rv30	actual speed	40000: 27100 + STD:11...	40000: 27100 + STD:11...	
34	0	Media_1	0x201F	8	-	RO	rv31	FOVW drv. counter	0.0 %	0.0 %	
35	0	Media_1	0x2020	8	-	RO	rv32	position actual value	0	0	

## EXTENDED WARRANTY

- 24 months warranty
- 36 months warranty

## CONNECTOR SHIELDING SET

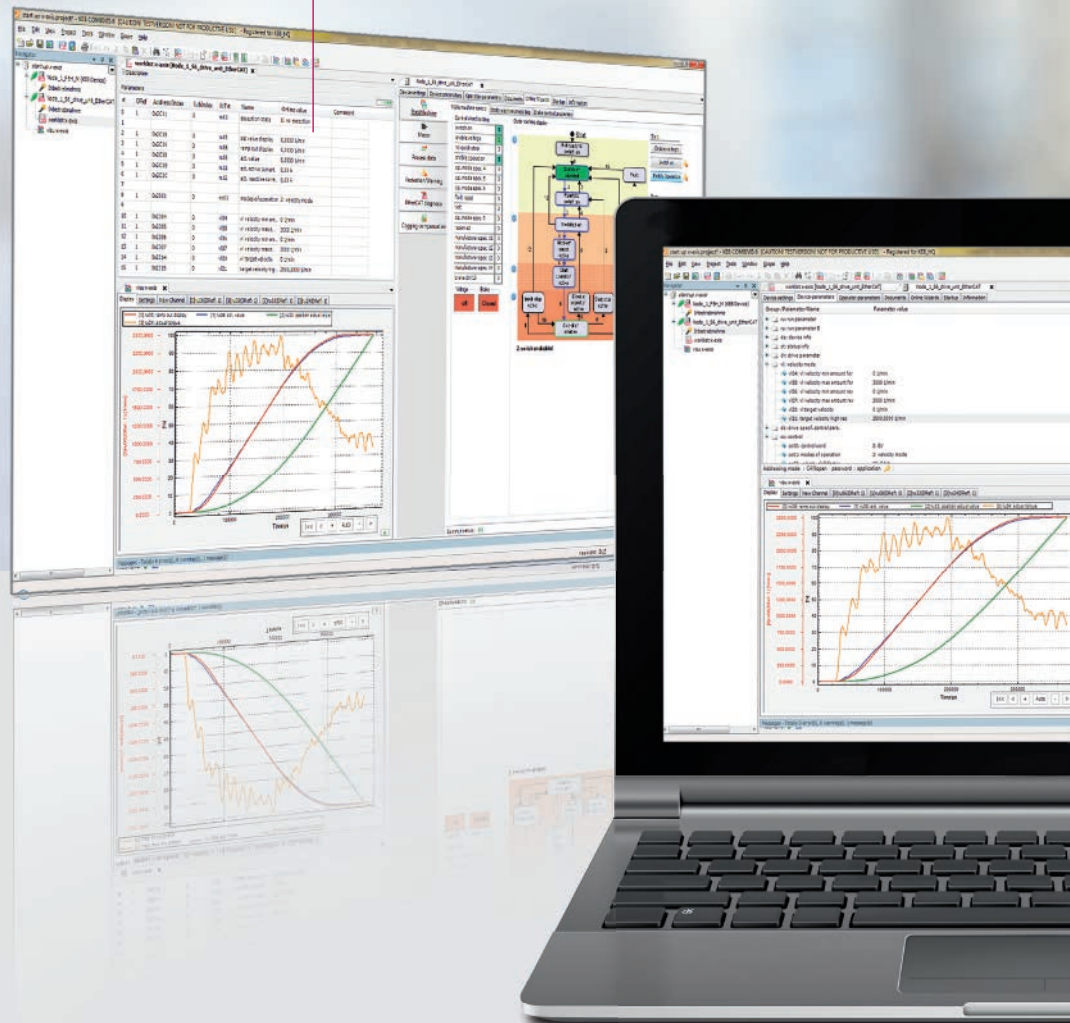
- Drive controller with connector and shielding set



# COMBIVIS 6 - THE TOOL FOR ALL TASKS

## COMBIVIS 6

- Free and easy-to-use software for startup, administration and analysis
- Integrated start-up assistants (Wizards) for quick and easy configuration
- Direct access to device documentation
- 16 channel oscilloscope for extensive analysis
- Online parameter list comparison
- Parameterisation of key safety indicators and functions



## COMBIVIS studio 6

The intelligent automation suite from KEB combines an assistant-guided component selection, fieldbus configuration, drive parameterisation, IEC 61131-3 project generation and motion control. Throughout the planning and layout phase, implementation of control sequences and multi-axis movement profiles, to start-up and fine tuning, the user is supported by a tool developed by experienced application engineers.

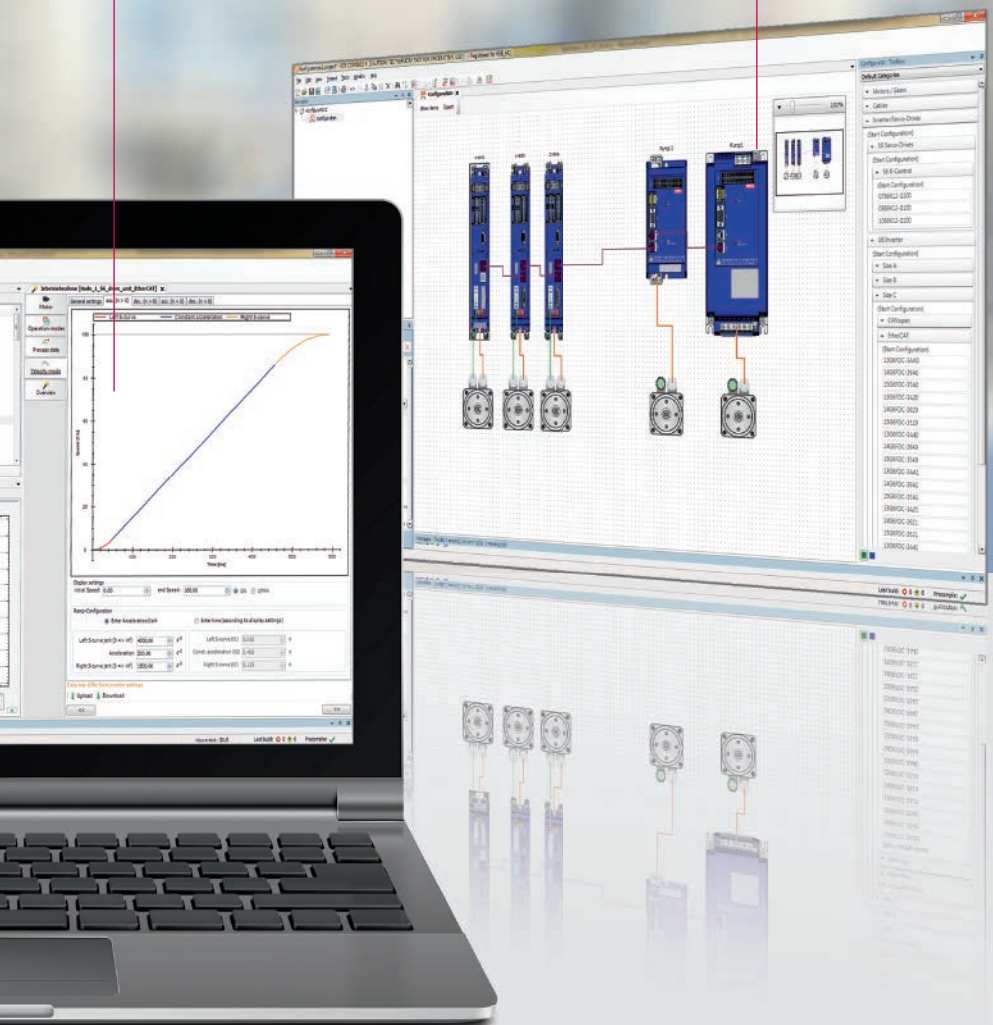
With a foundation built on libraries, devices and template databases, rapid and simple solutions can be generated for a wide range of applications.

**COMMISSIONING ASSISTANT**

- Complete user guidance through the commissioning process
- KEB Motor database, free for extensions
- Anti cogging
- Fieldbus diagnostic and optimisation

**SYSTEM CONFIGURATION AS A NEW COMPONENT OF COMBIVIS**

- Access to complete KEB product database
- Intuitive gear component selection and system configuration using drag and drop
- Selection assistant with display of compatible components
- Display of all interfaces and connection components
- Material number generator
- Extensive export function for quote list, Combivis Project, Excel ...



**HIGHLIGHTS**

- IEC 61131-3 Applications development
- Device and library database
- Product configuration
- Start-up and diagnosis assistant
- COMBIVIS studio HMI integration
- Document database

# KEB SERVICE

## PERFORMANCE AND COMPETENCE

### AFTER-SALES CUSTOMER SUPPORT

- Start-up support
- EMC service
- Mains analysis
- Insulation, heat or vibration measurements
- Conversion of old product series

### MAINTENANCE AND REPAIRS

- Rush or standard service

### COMPONENT AND SPACE PART SUPPLY

- Used and new parts for the exchange

### PREVENTIVE MAINTENANCE

- Forming and cleaning, inspection, functional analysis

### CUSTOMER SPECIFIC SERVICE

- Individual service support
- System optimisation





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