

LIFT DRIVES

APPLICATION
V-1.0 EN



KEB



LIFT AND SOLUTIONS

- Drive controller
- Regen units
- Brakes

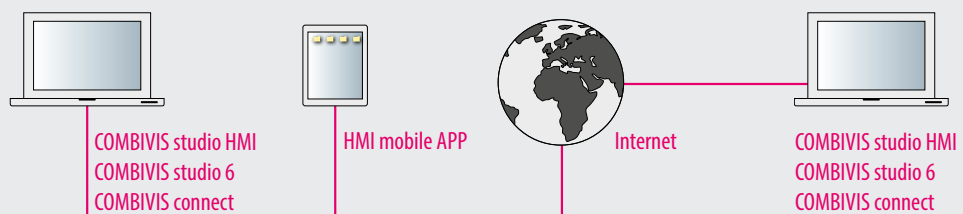
KEB AUTOMATION SYSTEM SOLUTIONS - SYSTEM OVERVIEW

Automation **with Drive**

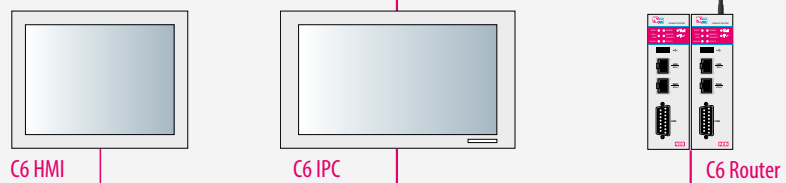
stands as a synonym for optimally selected combinations of control and automation solutions with the drive level - at the end it is the key to successful machine concepts.

Let the following pages inspire you with regards to the diversity and performance of the KEB Lift features and let us helping you to find a solution that reliably meets your requirements.

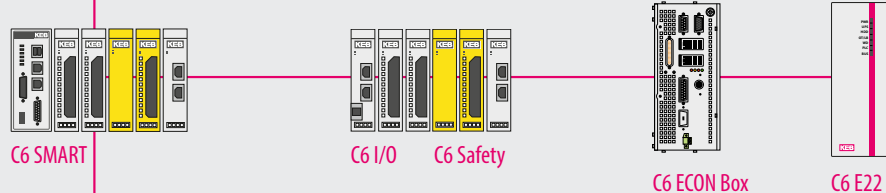
SOFTWARE



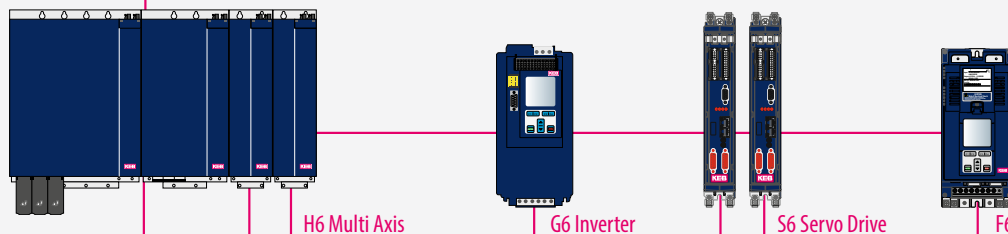
HMI



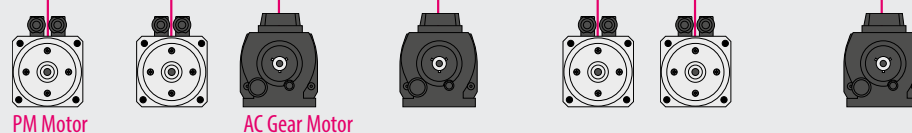
CONTROL



DRIVES



MOTORS



PARTNERSHIP - EXPERIENCE

SYSTEM PARTNER FOR SOLUTIONS, DRIVES & COMPONENTS

Since 1986 KEB is working and developing for the lift industry. KEB offers its entire product range from its own 'in-house' production facilities. Large series providers can be served by KEB with manufacturer-specific hardware and software.

In addition KEB also offers components for customised solutions and open, flexible systems.



HIGHLIGHTS

- Universal drive controller
- 230 V & 480 V class, AC & DC supply available
- Wide Power range 0.75 ... 900 kW
- All motors possible
- Regen solutions
- Filter & accessories

LATEST DEVELOPMENTS ARE

- New plain text LCD operator with CANopen Lift DS417 & diagnosis interface
- Certification for NMC (No Motor Contactors)
- New inverter series COMBIVERT G6; made for open loop drive systems
- New high frequency EMC Filters COMBILINE E6 with extra low leakage current
- New Lift software in LCD operator with plain text in english, french, italian, spanish, portuguese & german. Units (speed, torque, distance, jerk, acceleration ...) switchable in imperial or metric
- AFE (Active Front End) series for energy feed back into the mains and boosted DC bus voltage
- Power limitation functions

COMING UP NEXT

- Direct approach with floor levels stored inside the inverter
- 4-Q-inverters (combination of motor driver and regenerative unit)
- UCM compliant brake monitoring
- Energy storage & backup solutions



HIGHLIGHTS

- The Open loop G6 drive controller
- 0.75 kW ... 30 kW
- 3ph. 400 VAC or DC input
- Integrated low leafage filter

HARDWARE - FLEXIBILITY

COMBIVERT F5 - THE UNIVERSAL LIFT DRIVE CONTROLLER

- For retrofit and new lift
- Open / closed loop
- For every 3ph. motor
- Various encoder interfaces for: TTL, HTL, SinCos, Hiperface, Resolver, EnDat, SSI, BISS, UVW
- Simple autotuning
- Internal positioning controller
- Ogival run

NEW NMC-FUNCTIONALITY (NO MOTOR CONTACTORS)

- Motor contactors can be replaced by Functional Safety inside of the F5-K drive controller. Certificated according to EN81; ASME A17; ISO 13849; IEC 61508
- No wear and tear
- Noiseless operation
- Less installation costs, time and space
- Improved EMC emissions

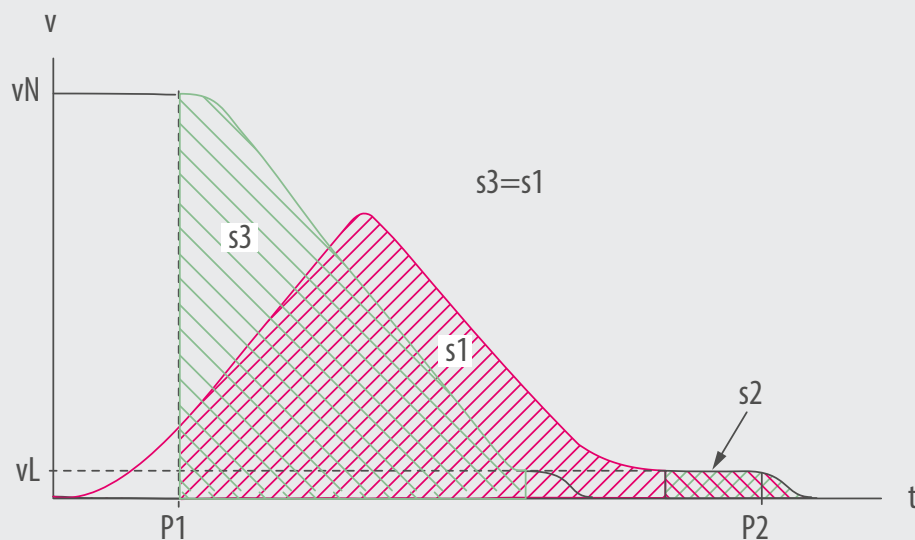
PLUGGABLE LIFT OPERATOR

LCD - CLEAR TEXT MENU

I/O

8 programmable digital inputs
2 programmable analog inputs
2 programmable digital outputs
2 programmable relay outputs
2 programmable analog outputs
2 x STO Terminals for NMC

CAN & SERIAL INTERFACE



SIMPLIFIED HANDLING

SERIAL DIAGNOSTIC INTERFACE

CONNECTION TERMINAL

connection 1-/3-phase 230 V
and 3-phase 400 / 480 V,
AC or DC supply in one unit
integrated brake chopper GTR7

- Protection against environmental influences with varnished boards
- Low noise operation
- Perfect load transfer when brake opens
- Wide power range from 0.37 kW up to 900 kW with common user interface
- Thermostatic controlled fan: no noise, low wear, low stand-by-power
- Single phase 230 V AC supply possible for emergency run with UPS
- Detection of „easy direction“ for undersized UPS
- Wide power range 0.75 ... 900 kW / 400 VAC
and 0.37 ... 75 kW / 230 VAC
- Switching frequencies up to 16 kHz
- All motors possible
- Motor temperature monitoring KTY / PTC / PT 1000
- Optional integrated EMC filter



HIGHLIGHTS

- LCD keypad operator with CAN & serial interface
- CANopen Lift DS417 protocol
- Serial DIN 66019 protocol

SOFTWARE & ACCESSORIES - SAFETY & DIAGNOSIS

SPECIAL SAFETY FEATURES

- Encoder check
- Output phase check
- Speed deviation check
- Brake check & monitoring
- Main contactor check
- Speed limitation
- Acceleration prevention for: inspection, crawling and releveling
- Unintended movement check
- Protection against: over-current, over-load, under-voltage, over-voltage, over-speed
- Event memory with date-time-stamp

COMBICONTROL C6 ROUTER

The C6 ROUTER offers secure remote maintenance using VPN with different password levels. The Ethernet and serial connection gives easy access to single or multiple drives as well as many other supported equipment like other drive or door controllers, control panel, etc.

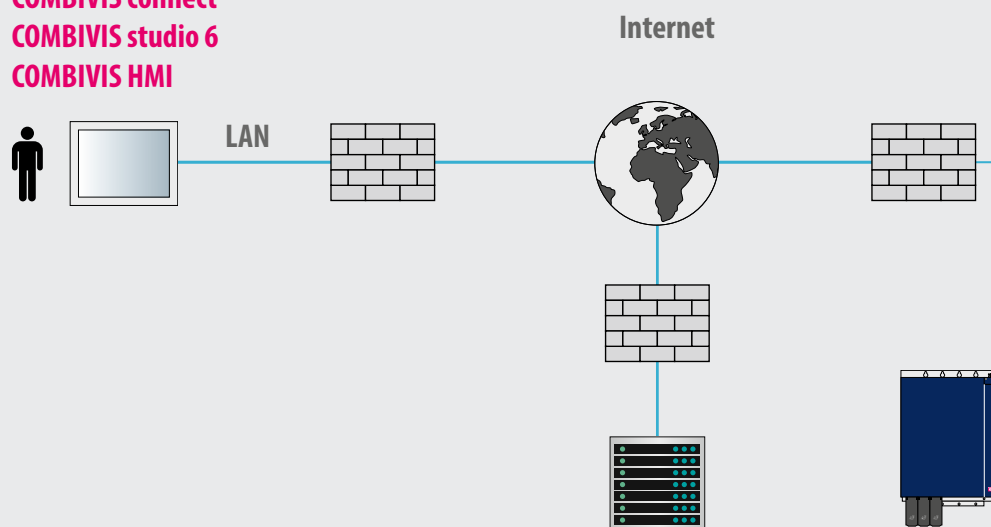
The C6 ROUTER is available with 2G/3G/3G+ modem and can also be extended with the COMBIVIS HMI function. The extension turns the router e.g. into a data logger. This open and flexible system offers many additional options, such as sending e-mails / SMS in the case of a fault in the drive.

DIAGNOSTIC SCREEN #1	
Inverter Status	Motor Current
no operation	0.0 A
DC Bus Voltage	Peak Motor Current
328 V	0.0 A
Peak DC BUS Voltage	Magnetizing Current
333 V	0.0 A
Home Prev Next Reset	

DIAGNOSTIC SCREEN #4	
Inverter Status	Parameter Set
no operation	0
Input Status	
☐ I1 ☐ I2 ☒ I3 ☐ I4 ☐ I5 ☐ I6 ☐ I7 ☐ I8	
Output Status	
☐ O1 ☐ O2 ☐ RLY1 ☐ RLY2	
Home Prev Next	

DIAGNOSTIC SCREEN LOG	
09/28/2011 17:07:42	
ERROR encoder 1	
09/28/2011 17:04:14	
ERROR Under Voltage	
09/28/2011 16:59:40	
ERROR Under Voltage	
Home Prev Next File	

COMBIVIS connect
COMBIVIS studio 6
COMBIVIS HMI



COMBIVIS connect
Server infrastructure

COMBICONTROL HMI

C6 HMI provides the user a high quality Human Machine Interface for multi purpose use. These can be used for diagnosis, setup and maintenance as well as user display for general information, floor overview, advertising...

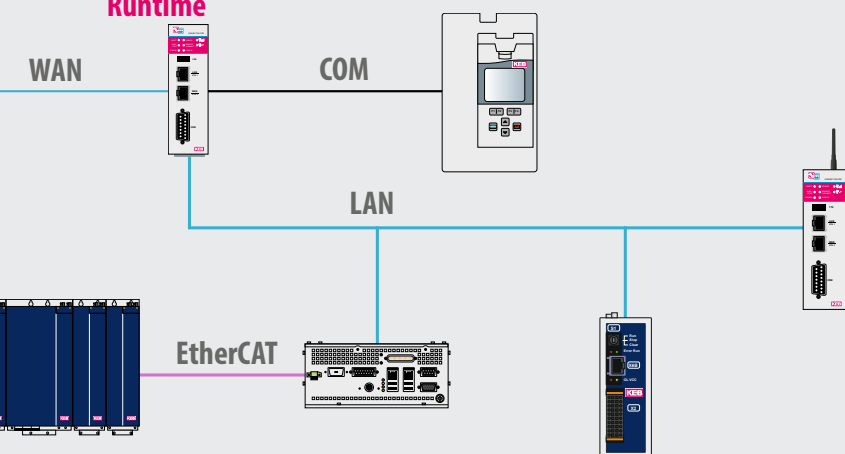
DIAGNOSIS

With the COMBIVIS software adjustment and diagnosis becomes easy

- Monitoring and programming
- 16 channel storage oscilloscope
- Up- and download of complete parameter lists



COMBIVIS connect Runtime



ENERGY SAVING

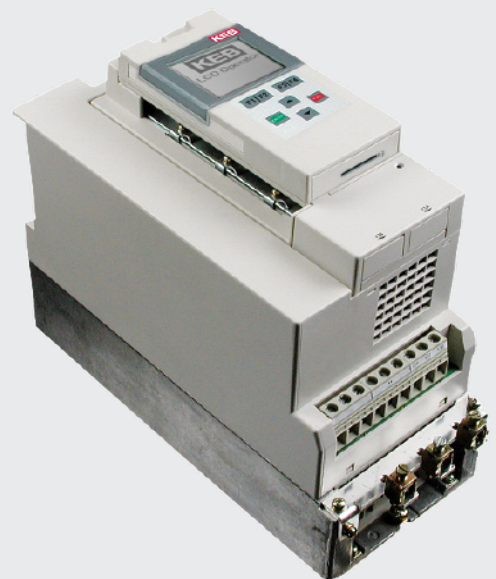


REGENERATIVE UNITS

The physical principle of all lift is to change electrical energy into potential energy which is stored in the load which was lifted up. In 50 % of all rides the motor works as a generator and gives back the potential energy. Typically this energy is changed into heat with braking resistors.

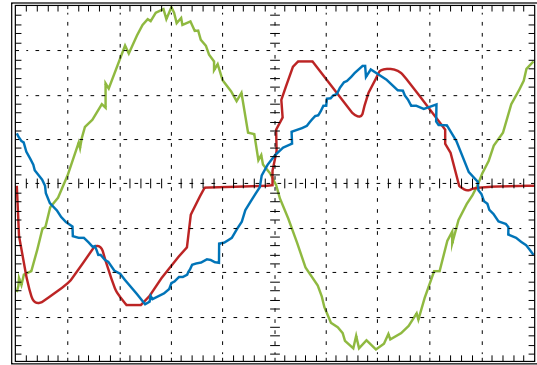
The heat is wasted in the machinery room and often needs additionally energy for air - condition.

With the KEB regeneration units this energy can be fed back into the mains and reused by other consumers instead of being wasted.



SUPPLY- AND REGENERATION UNITS COMBIVERT R6 & AFE

- Central power supply & regeneration units for single drive controller or group of inverters
- Energy saving – generative energy is fed back into the mains
- Low noise operation
- Modular sizes for optimal initial costs and fast return of investment
- Elimination of the braking resistor
- Reduced HVAC (heating ventilation air conditioning)
- Usable also for inverters from competitors
- Easy to install
- User interface display and keypad for diagnostic, COMBIVIS software also can be used
- Energy counter for consumed and regenerated energy
- AFE (Active Front End) special features:
 - Boosted DC voltage can increase motor voltage → smaller motors
 - Active power factor correction for low harmonics and near-unity power factor ($\cos \Phi = 1$)



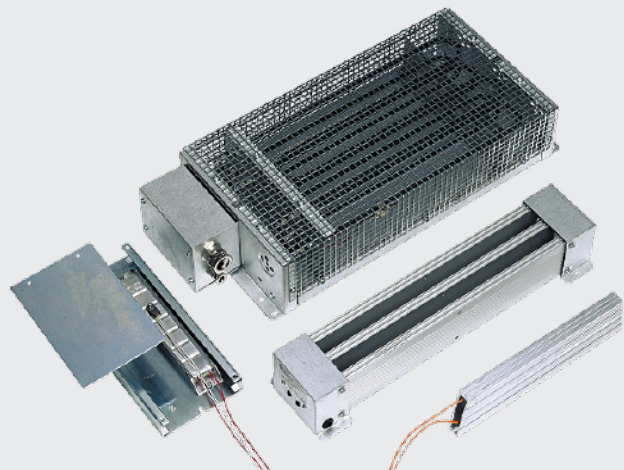
— Voltage

— Current with main choke

— Current with harmonic filter

BRAKING RESISTORS

- Noiseless
- Low radiation
- With temperature sensor



HIGHLIGHTS

- Universal supply and regen solution
- 230 V class up to 75 kVA
- 400 V class up to 1000 kVA



SUPPORT - PARTNERSHIP

WORLD WIDE SUPPORT

- Support by experienced application engineers
- Training, seminars
- Trouble shooting, service
- Companionship for EMC-certification
- Development of customized solutions
- Engineering, sizing of drives
- Complete solutions for retrofit jobs

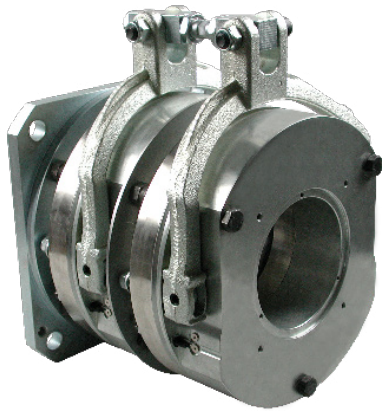
Please also ask for escalator drives !



BRAKE SOLUTION

Type 38.DDN – **DOUBLE BRAKE**

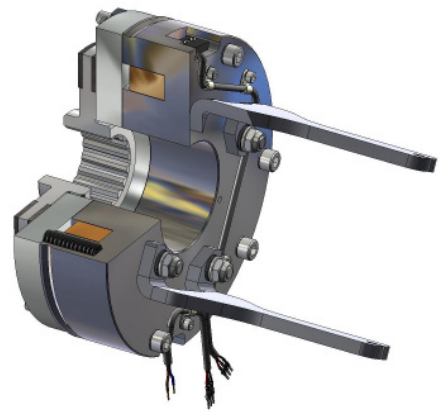
- Double safety solution with fully independent electrical and mechanical circles



Type 38.DEN - **SINGLE BRAKE**

Type D8 - redundant single brake

- Electromagnetic spring applied brakes for lift and hoisting drives



HIGHLIGHTS

- Safety device for lift and hoist applications; TÜV-certificate according EN 81 possible
- To avoid safety gear in up direction together with gearless motors
- Low noise operation: less than 60 dB!
- Energy saving: much less inertia as a conventional drum brake
- IP40 - standard, IP 65 / IP 66 on request, coil IP 66
- Springs are corrosion protected, refined, steady stroke consistent > 10,000,000 strokes
- Options: flange, hand release, dust protection, terminal box, encoder adapter
- Micro switches for function check and wear check

The image shows the interior of an EMC chamber. The walls are covered with white, pyramidal-shaped electromagnetic absorbers designed to eliminate reflections. In the center, a test rig is mounted on a vertical column, featuring several horizontal arms with probes or sensors. The floor is covered with a dense layer of blue, conical-shaped absorbers. A red banner with the text "EMC COMPONENTS" is overlaid at the top of the image.

EMC-SERVICE

- This is the support we give to lift producers to fulfill the demands of EU-guidelines 90/336/EEG. To carry out the installation of electrical plants according to EMC-regulation EN 12015/EN 12016.

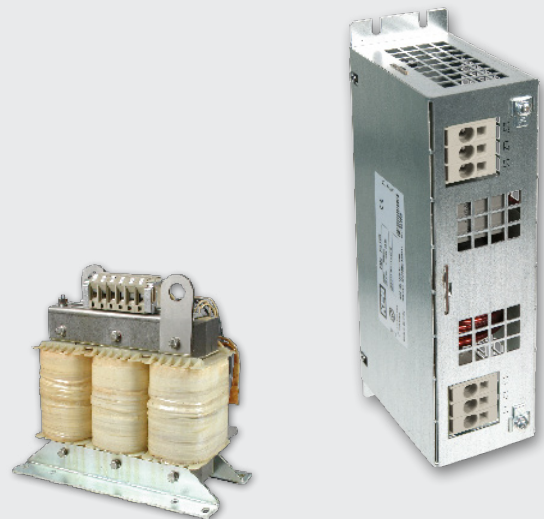
Input

Output

Voltage and current inverter side

Ct 100.00V 10.00V 0.5V/div
 C2 100.00V 10.00V 0.5V/div
 C3 150.00V 10.00V 1.0V/div
 C4 100.00V 10.00V 1.0V/div
 Zettis 16.00ms 1.00ms
 Trigger 16.00ms 1.00ms
 C5 0.00V 0.00V 0.00V/div
 C6 0.00V 0.00V 0.00V/div

Voltage
 Voltage
 current
 current



KEB WORLDWIDE

Austria | KEB Antriebstechnik Austria GmbH
Ritzstraße 8 4614 Marchtrenk Austria
Tel: +43 7243 53586-0 Fax: +43 7243 53586-21
E-Mail: info@keb.at Internet: www.keb.at

Belgium | KEB Automation KG
Herenveld 2 9500 Geraardsbergen Belgium
Tel: +32 544 37860 Fax: +32 544 37898
E-Mail: vb.belgien@keb.de Internet: www.keb.de

Brazil | KEB South America – Regional Manager
Rua Dr. Omar Pacheco Souza Riberio, 70
BR-CEP 13569-430 Portal do Sol, São Carlos Brazil
Tel: +55 16 31161294 E-Mail: roberto.arias@keb.de

France | Société Française KEB SASU
Z.I. de la Croix St. Nicolas 14, rue Gustave Eiffel
94510 La Queue en Brie France
Tel: +33 149620101 Fax: +33 145767495
E-Mail: info@keb.fr Internet: www.keb.fr

Germany | Headquarters
KEB Automation KG
Südstraße 38 32683 Barntrop Germany
Telefon +49 5263 401-0 Fax +49 5263 401-116
E-Mail: info@keb.de Internet: www.keb.de

Germany | Geared Motors
KEB Antriebstechnik GmbH
Wildbacher Straße 5 08289 Schneeberg Germany
Telefon +49 3772 67-0 Fax +49 3772 67-281
E-Mail: info@keb-drive.de Internet: www.keb-drive.de

Italy | KEB Italia S.r.l. Unipersonale
Via Newton, 2 20019 Settimo Milanese (Milano) Italia
Tel: +39 02 3353531 Fax: +39 02 33500790
E-Mail: info@keb.it Internet: www.keb.it

Japan | KEB Japan Ltd.
15 - 16, 2 - Chome, Takanawa Minato-ku
Tokyo 108 - 0074 Japan
Tel: +81 33 445-8515 Fax: +81 33 445-8215
E-Mail: info@keb.jp Internet: www.keb.jp

P. R. China | KEB Power Transmission Technology (Shanghai) Co. Ltd.
No. 435 QianPu Road Chedun Town Songjiang District
201611 Shanghai P. R. China
Tel: +86 21 37746688 Fax: +86 21 37746600
E-Mail: info@keb.cn Internet: www.keb.cn

Republic of Korea | KEB Automation KG
Room 1709, 415 Missy 2000 725 Su Seo Dong
Gangnam Gu 135- 757 Seoul Republic of Korea
Tel: +82 2 6253 6771 Fax: +82 2 6253 6770
E-Mail: vb.korea@keb.de Internet: www.keb.de

Russian Federation | KEB RUS Ltd.
Lesnaya str, house 30 Dzerzhinsky MO
140091 Moscow region Russian Federation
Tel: +7 495 6320217 Fax: +7 495 6320217
E-Mail: info@keb.ru Internet: www.keb.ru

Spain | KEB Automation KG
c / Mitjer, Nave 8 - Pol. Ind. LA MASIA
08798 Sant Cugat Sesgarrigues (Barcelona) Spain
Tel: +34 93 8970268 Fax: +34 93 8992035
E-Mail: vb.espana@keb.de Internet: www.keb.de

United Kingdom | KEB (UK) Ltd.
5 Morris Close Park Farm Industrial Estate
Wellingborough, Northants, NN8 6 XF United Kingdom
Tel: +44 1933 402220 Fax: +44 1933 400724
E-Mail: info@keb.co.uk Internet: www.keb.co.uk

United States | KEB America, Inc.
5100 Valley Industrial Blvd. South
Shakopee, MN 55379 United States
Tel: +1 952 2241400 Fax: +1 952 2241499
E-Mail: info@kebamerica.com Internet: www.kebamerica.com



KEB PARTNERS WORLDWIDE

... www.keb.de/contact/contact-worldwide



CronaTech Drives AB

www.cronatech.se info@cronatech.se

Tel +46 31 961520



Automation with Drive

www.keb.de

KEB Automation KG Suedstrasse 38 32683 Barntrup Germany Tel. +49 5263 401-0 E-Mail: info@keb.de