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Bharat Bijlee

PRODUCT AND APPLICATION OVERVIEW

Today's plants and machines across applications demand superior precision, productivity and energy efficiency.

This places ever increasing demand on drive and control technologies: for precise starting, stopping, positioning, controlling and regulation.

Our wide range of AC variable speed drives and servo drive solutions-in partnership with KEB of Germany-leverages expertise gained over 70 years in the field of rotating machines.

KEB drives, designed and manufactured at Barntrup in Germany, cater to a variety of challenging applications that demand high performance with superior accuracy and dynamic response.

The KEB F5 Combivert drive series is a powerful program for controlled and regulated applications-with both synchronous and asynchronous motor technology-in demanding applications up to 900 kW.

The KEB COMBICONTROL C6 is an automation platform that focuses on dynamic and drive-oriented applications with motion control in the machine and equipment building sector.

COMBIVERT F5 DRIVE

	(kW)	Housing	I_N (A)	I_{max} (A)	Model
3-ph. 230 V (180 ...260 V)	0.37	A	2.3	4.6	05F5A1A-#
	0.75	D	4	8.6	07F5A1D-#
	1.5	D	7	15.1	09F5A1D-#
	2.2	D	10	21.6	10F5A1D-#
	4	D	16.5	35.6	12F5A1D-#
	5.5	E	24	43	13F5A1E-#
	7.5	E	33	59	14F5A1E-#
	11	G	48	86	15F5A1G-#
	15	H	66	119	16F5AXH-#
	18.5	H	84	151	17F5AXH-#
	22	R	100	180	18F5AXR-#
	30	R	115	206	19F5AXR-#
	37	R	145	261	20F5AXR-#
	45	R	180	324	21F5AXR-#

- PLEASE REFER UNIT IDENTIFICATION TABLE

F5 DRIVE

	(kW)	Housing	I_N(A)	I_{max}(A)	Model
3-ph. 400 V (305 ...500 V)	0.75	D	2.6	5.6	07F5A1D-#
	1.5	D	4.1	7.4	09F5A1D-#
	2.2	D	5.8	10.4	10F5A1D-#
	4	D	9.5	17	12F5A1D-#
	5.5	D	12	21.6	13F5A1D-#
	7.5	D	16	29.7	14F5A1D-#
	11	E	24	36	15F5A1E-#
	15	G	33	49.5	16F5A1G-#
	18.5	G	42	63	17F5A1G-#
	22	G	50	75	18F5A1G-#
	30	H	60	90	19F5AXH-#
	37	H	75	112	20F5AXH-#
	37	R	75	112	20F5AXR-#
	45	R	90	135	21F5AXR-#
	55	R	115	172	22F5AXR-#
	75	R	150	225	23F5AXR-#
	90	R	180	270	24F5AXR-#
	110	U	210	263	25F5AXU-#
	132	U	250	313	26F5AXU-#
	160	U	300	375	27F5AXU-#
	200	P	370	463	28F5AXP-#
	250	P	460	575	29F5AXP-#
	315	W	570	713	30F5AXW-#
	355	W	630	787	31F5AXW-#
	400	W	710	887	32F5AXW-#
	450	2 X P	800	1000	33F5AXP-#
	500	2 X P	890	1112	34F5AXP-#
	560	2 X P	1000	1250	35F5AXP-#
	630	3 X P	1150	1435	36F5AXP-#
	710	3 X P	1330	1660	37F5AXP-#

	(kW)	Housing	I_N(A)	I_{max}(A)	Model
3-ph. 660/690 V (600 ...760 V)	160	1 X P	185	231	27F5AXP-#
	200	1X P	225	281	28F5AXP-#
	250	1 X P	280	350	29F5AXP-#
	315	1 X P	345	438	30F5AXP-#
	400	2 X P	430	538	32F5AXP-#
	450	2 X P	500	613	33F5AXP-#
	500	2 X P	550	688	34F5AXP-#
	560	2 X P	620	763	35F5AXP-#
	630	3 X P	710	875	36F5AXP-#
	710	3 X P	820	1013	37F5AXP-#
	800	3 X P	900	1100	38F5AXP-#
	900	3 X P	1015	1250	39F5AXP-#

X - WITH BRAKING MODULE IS “1", WITHOUT BRAKING MODULE IS "0"

- PLEASE REFER UNIT IDENTIFICATION TABLE

Drive model Selection for 415 V Motor

	F5 Model	Light Duty 110% OIL for 60 sec.		Medium Duty 150% OIL for 30 sec.		Heavy Duty 150% OIL for 60 Sec.	
		KW rating	Current rating	KW rating	Current rating	KW rating	Current rating
3-ph. 400 V (305 ...500 V)	07F5A1D-#	1.1	2.8At	0.75	2.6A•	0.75	3A
	09F5A1D-#	2.2	4.5At	1.5	4.1A*	1.5	4A
	10F5A1D-#	4	6.3At	2.2	5.8A•	2.2	6A
	12F5A1D-#	5.5	10.4At	4	9.5A•	4	10A
	13F5A1D-#	7.5	13At	5.5	12A•	5.5	12A
	14F5A1D-#	11	18At	7.5	16.5A[11]	7.5	16A
	15F5A1E-#	15	26At	11	24A	11	23.2A
	16F5A1G-#	18.5	36At	15	33A	15	31.9A
	17F5A1G-#	22	48At	18.5	42A	18.5	41A
	18F5A1G-#	30	55At	22	50A	22	48A
	19F5AXH-#	37	66At	30	60A	30	58A
	20F5AXH-#	45	83At	37	75A	37	73A
	21F5AXR-#	55	99At	45	90A	45	87A
	22F5AXR-#	75	127At	55	115A	55	111A
	23F5AXR-#	90	165At	75	150A	75	145A
	24F5AXR-#	110	198At	90	180A	90	174A
	25F5AXU-#	132	232A	110	210A•	90	165A
	26F5AXU-#	160	276A	132	250A•	110	197A
	27F5AXU-#	200	331A	160	300A•	132	236A
	28F5AXP-#	250	408A	200	370A•	160	291A
	29F5AXP-#	315	507A	250	460A•	200	362A
	30F5AXW-#	355	628A	315	570A•	250	44BA
	31F5AXW-#	400	695A	355	630A•	285	496A
	32F5AXW-#	450	783A	400	710A•	315	559A
	33F5AXP-#	500	882A	450	SODA•	355	629A
	34F5AXP-#	560	981A	500	890A•	400	700A
	35F5AXP-#	630	1103A	560	1000A•	450	787A
	36F5AXP-#	710	1268A	630	1150A•	500	905A
	37F5AXP-#	850	1466A	710	1330A•	630	1046A
	¥38.F5AOP-#	900	1599A	800	1450A•	710	1141A

Note:
¥ - Liquid cooled version only
t - Overload 110% for 200sec. Applicable
* - Overload 180% for 30sec. Applicable
• - Overload 120% for 30sec. Applicable

1) Above ratings are up to ambient temp. of 45^{0}C and altitude of 1000 met. For higher Temperature up to 55^{0}C deration of 1% per degree temp. rise is applicable.

Unit Identification Table for Combivert F5 Drive

18 F5 C 1 R G 7 0 A

at frequency inverter: Cooling / at servos: motor cooling

at frequency inverter: Cooling		at servos: motor cooling	
0, 5, A, F	heat sink (standard)	0	self-cooling
1, B, G	Flat rear	1	separate cooling
2, C, H	Water cooling		
3, D, I	convection		

Encoder interface

0:none

at frequency inverter: Switching frequency; short time current limit; overcurrent limit

0	2 kHz; 125 %; 150 %	5	4 kHz; 150 %; 180 %	A	8 kHz; 180 %; 216 %	F	16 kHz; 200 %; 240 %
1	4 kHz; 125 %; 150 %	6	8 kHz; 150 %; 180 %	B	16 kHz; 180 %; 216 %	G	2 kHz; 400 %; 480 %
2	8 kHz; 125 %; 150 %	7	16 kHz; 150 %; 180 %	C	2 kHz; 200 %; 240 %	H	4 kHz; 400 %; 480 %
3	16 kHz; 125 %; 150 %	8	2 kHz; 180 %; 216 %	G	4 kHz; 200 %; 240 %	I	8 kHz; 400 %; 480 %
4	2 kHz; 150 %; 180 %	9	4 kHz; 180 %; 216 %	E	8 kHz; 200 %; 240 %	K	16 kHz; 400 %; 480 %

Input identification

KEB Plant								BBL India	
0	1ph 230V AC/DC	5	400V DC class	A	6ph 400V AC	Z	200V AC or AC/DC	G	3ph 230V AC or AC/DC
1	3ph 230V AC/DC	6	1ph 230V AC	B	3ph 600V AC	Y	400V AC or AC/DC	H	3ph 400V AC or AC/DC
2	1/3ph 230V AC/DC	7	3ph 230V AC	C	6ph 600V DC	X	600V AC or AC/DC	I	3ph 690V AC
3	3ph 400V AC/DC	8	1/3ph 230V AC	D	600V DC	W	200V DC	J	400V DC
4	230V DC class	9	3ph 400V AC			V	400V DC	U	400V AC or AC/DC

Housing type A, B, D, E, G, H, R, U, W, P

Accessories (A...D with safety relay)

0, A	none
1, B	Braking transistor
2, C	integrated filter
3, D	Braking transistor and integrated filter

Control type

A	APPLICATION	K	like A with safety technology
B	BASIC (controlled frequency inverter)		
C	COMPACT (controlled frequency inverter)		
E	SCL	P	like E with safety technology
G	GENERAL (controlled frequency inverter)		
H	ASCL	L	like H with safety technology
M	MULTI (regulated, field-oriented frequency inverter for three-phase asynchronous motors)		
S	SERVO (regulated frequency inverter for synchronous motors)		

Series F5

at frequency inverter: Inverter size

AFE (Active Front End)

	KVA rating	Housing	IoutN (Adc)	Ioutmax (Adc)	Model No.
3-ph. 340 ...480 V	11	E	16.5	29.7	14F5R0E-Y01_
	23	G	33	49.5	16F5R0G-Y01_
	35	H	50	75	18F5R0H-Y01_
	52	R	75	112	20F5R0R-Y01_
	80	R	115	172	22F5R0R-Y01_
	125	U	180	270	24F5R0U-Y01_
	173	U	250	313	26F5R0U-Y01_
	208	U	300	375	27F5R0U-Y01_
	256	P	370	462	28F5R0P-Y01_
	319	P	460	575	29F5R0P-Y01_
	395	P	570	712	30F5R0P-Y01_
	554	P	800	1000	33F5R0P-Y01_
	616	P	890	1112	34F5R0P-Y01_
	1005	P	1450	1813	38F5R0P-Y01_

BBVERT BL 51 Drive

	(kW)	Frame	Output Current	Model:BL51
1-ph. : 200 ...240 V (+10% -15%), 50/60 HZ	0.75	FR1	4.3	20P75-H1F-P
	1.5	FR2	7.5	201P5-H1F-P
	2.2	FR2	10.5	202P2-H1F-P
3-ph. : 380 ...480 V (+10% -15%), 50/60 HZ	0.75	FR2	2.3	40P75-H3F-P
	1.5	FR2	3.8	401P5-H3F-P
	2.2	FR2	5.2	402P2-H3F-P
	3.7	FR3	9.2	403P7-H3F-P
	5.5	FR3	13	405P5-H3F-P
	7.5	FR4	17.5	407P5-H3F-P
	11	FR4	24	4011P-H3F-P

Key Features: AC Drives

- Sensor-less motor management algorithm
- 8 programmable parameter sets
- Compact size optimizing panel design
- Wide input operating voltage
- Ambient temperature 45°C

The wide input operating voltage band is ideally suited to Indian conditions

- 230V Class -180V to 260V
- 400V Class - 305V to 500V
- 690V Class - 600V to 760V

Optional plug-in interface feedback cards

- Incremental encoder
- Absolute encoder
- Sine-Cosine encoder
- Resolver
- Hiperface encoder
- Tachometer

Drive Networking

KEB drives offer an extensive range of networking options.

CANopen | DeviceNet | MODBUS | INTERBUS

SERCOS interface | PROFIBUS | KEB-HSP 5 / DIN 66019-II

Ethernet TCP/IP | EtherCAT | ETHERNET POWERLINK | PROFINET

DC Drive

(kW)	Chassis Size	Output Current	Model PL-2Q PLX-4Q	
5	1	12	PL and PLX	5
10	1	24	PL and PLX	10
15	1	36	PL and PLX	15
20	1	51	PL and PLX	20
30	1	72	PL and PLX	30
40	1	99	PL and PLX	40
50	1	123	PL and PLX	50
65	2	155	PL and PLX	65
85	2	205	PL and PLX	85
115	2	270	PL and PLX	115
145	2	330	PL and PLX	145
185	3	430	PL and PLX	185
225	3	530	PL and PLX	225
275	4	650	PL and PLX	275
315	4	750	PL and PLX	315
360	4	850	PL and PLX	360
400	4	950	PL and PLX	400
440	4	1050	PL and PLX	440
520	5	1250	PL and PLX	520
600	5	1450	PL and PLX	600
700	5	1650	PL and PLX	700
800	5	1850	PL and PLX	800
900	5	2050	PL and PLX	900
980	5	2250	PL and PLX	980

DC Drives

DC drives continue to offer advantages in specific applications. We cater to this need by engineering and supplying a wide range of 2Q and 4Q DC drives in partnership with Sprint Electric, UK.

Model PL / PLX - digital DC motor control up to 980kW/1320hp and Model PLX-D for external power stack control

The PL/X drive controls DC motors up to 2250 amps. Higher ratings are possible with integrated thyristor stacks interfaced to the PLX-D drive controller. High voltage models are available for supplies up to 690VAC.

A 4-button keypad and large alpha-numeric display enable quick navigation through an extensive range of software functions. The PL/X is fully configurable by the user, and a comprehensive suite of application blocks is a standard feature.

Centre-winding macros, spindle orientation and a semi controllable field allow DC motors to be controlled in a wide range of industrial applications. The PL/X also includes PL Pilot: a Windows® based configuration and monitoring software package. The PL/X drive offers better uptime by auto changeover to armature feedback in the event of tacho feedback failure.

An extensive range of motor protection features improves productivity by reducing downtime, and the unique configuration checker quickly detects any conflicts in user-generated configurations.

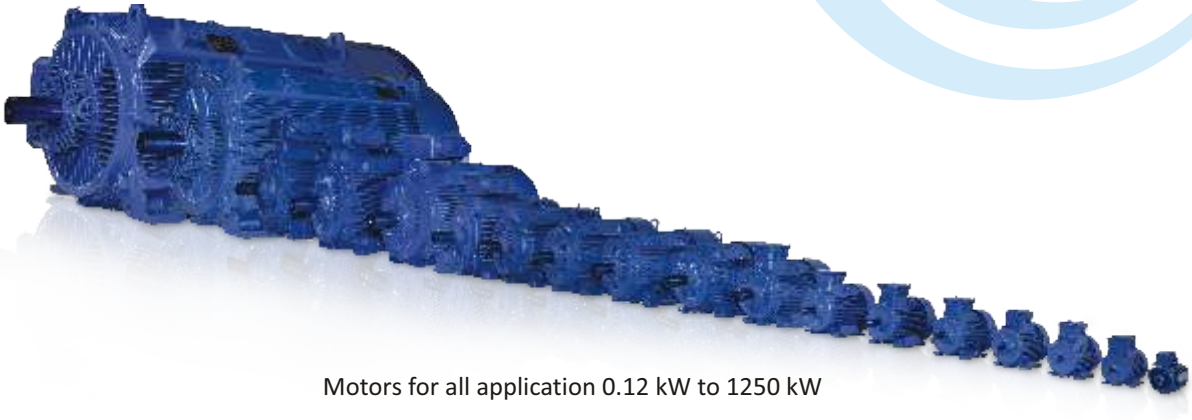
Fieldbus communications options include:
Profibus, DeviceNet, CC-Link, EtherNet/IP, Modbus and CANopen.

Engineered Systems and Panels

We engineer and supply complete engineered drive solutions that incorporate electricals and automation. The scope comprises: application study, system design, motor, drive and automation device selection, panel design and assembly, engineering and procurement, system integration and software, and combined testing with motors.

The system may also include HMIs, PLCs, network hardware, sensors, consoles and other electrical and automation components with software. Commissioning of the drive system at site to meet machine performance, and customer support during and post-warranty are part of our services.

Induction motor



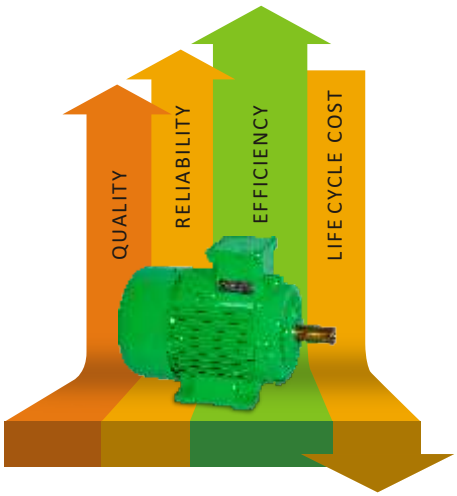
Motors for all application 0.12 kW to 1250 kW

AC Synchronous (PM) and Asynchronous Servo motor

Servo motor Range from 5 NM to 800 NM

Super Premium Efficiency SynchroVERT™ IE4 motors

SynchroVERT®



We have always been front-runners in providing energy efficient motors that help our customers reduce life-cycle energy costs of their motor-driven systems. Our motors are used across industries and applications and are designed to operate reliably, with low life cycle costs, no matter how challenging the process or application.

The new SynchroVERT™ IE4 range combines high efficiency with a host of technologically superior features.

- Super Premium IE4 efficiency class as per IEC 60034-30-1-2014 and IS:12615-2011
- Line Start Permanent Magnet Synchronous Motor Technology
- Smooth starting with VFD
- Remarkably short payback
- High power factor at all loads
- Suitable for applications with constant torque below rated speed and constant HP above rated speed
- Multi-motor operation with VFDs runs all motors at the same speed without encoder feedback
- Starting currents are lower than in IE2 motors; starting torque values are similar to IE2 motors

Product Range

Type	Frame Size	kW range
IE4 Super Premium efficiency-4H	112M TO 180L	2.2 TO 22

AUTOMATION PRODUCT
C6 HMI

Product Name	CPU	Mass Memory	Interfaces	Display Size
C6 HMI	ARM Cortex A8 at 1GHZ RAM 1GB	Flash 256 MB SSD - 4 GB for use	**Ethernet:** 1X100 Mbps 1X10/100 Mbps **USB:** 2XUSB 2.0 **Serial:** 1 X RS232/422/485 SD/SDHC Card slot	15.6"W Maximum Resolution: 1366X768
C6 HMI LC with built in PLC	ARM Cortex A8 at 1GHZ RAM 1GB	Flash 256 MB SSD - 4 GB for use	**Ethernet / EtherCAT :** 1X100 Mbps 1X10/100 Mbps **USB:** 2XUSB 2.0 **Serial:** 1 X RS232/422/485	15.6"W Maximum Resolution: 1366X768

CPU (Motion controllers and Remote Diagnostics Device)

Product Name	CPU	Mass Memory/Onboard I/O's	Interfaces	Display Size
C6 SMART	ARM iMX6 Dual core Cortex A9 at 1GHZ RAM 1GB	System 4 GB Application 8 GB Retain 512 KB	**Ethernet:** 1X10/100/1000 Mbps **EtherCAT:** 1XEtherCAT Master 1XE-BUS port (C6 IO Module) **USB :** 2XUSB 2.0 **Monitor Output:** 1XDVI-D **OPTIONAL:** **Serial :** 1 X RS232/485 opto isolated **CAN :** CAN Master/Slave with limit switch	NA
C6 COMPACT II	SH7269-32-bit, Floating point	Flash 256MB Retain 32KB On board I/O's 4 X Digital Input 4 X Digital Output	**Ethernet:** 1X10/100 Mbps **EtherCAT:** 1XEtherCAT Master **HSP5:** 4 X KEB HSP5 **Serial:** 1 X RS232/485 **OPTIONAL:** **Profibus Slave** **Profinet Slave** **EtherCAT Slave** **CAN Master/ Slave** **Interbus Slave** **Powerlink Slave**	NA
C6 ROUTER	ARM Cortex A8 at 1GHZ	RAM 512 MB Flash 256 MB SSD 2GB / 4GB free use On board I/O's 2 X Digital Input 2 X Digital Output	**WAN:** 1X 10/100 Mbps **LAN:** 1X100 Mbps **USB:** 1XUSB 2.0 **Serial:** 1 X RS232/422/485	NA

Industrial PC (IPC)

Product Name	CPU	Mass Memory	Interfaces	Display Size
IPC C6 E22	Intel Celeron J1900, 2.00GHZ, 2MB L2 Cache, 4 cores, 4 threads	RAM 2GB/4GB/8GB Intel HD Graphics mSATA 16 GB for OS Cflash - 16GB or expandable	**2 Ethernet / EtherCAT:** 10X100/100 Mbps **USB front:** 1XUSB 2.0 **USB back:** 1XUSB 3.0 2 X USB 2.0 **Serial:** 1 X RS232 **Monitor Output:** 1 X DVI-I	19" Maximum Resolution: 1280 X 1024
IPC C6 P30	1. Intel Core I3-3120ME, 2.4 GHZ, 3MB Smart Cache, 2 cores, 4 threads 2. Intel Core I5-3610ME, 2.70 GHZ, 3MB Smart Cache, 2 cores, 4 threads 3. Intel Core I7-3612QE, 2.10 GHZ, 6MB Smart Cache, 4 cores, 8 threads	RAM 2GB/4GB/8GB/16GB Intel HD Graphics mSATA 16 GB for OS SATA 3.6 GB/s Cflash - 16GB or expandable	**3 Ethernet / EtherCAT** 10X100/100 Mbps **USB front:** 1XUSB 2.0 **USB back:** 2 XUSB 3.0 2 X USB 2.0 **Serial:** 1 X RS232 1 X PS/2 K/M **Monitor Output:** 1 X DVI-I	19" Maximum Resolution: 1280 X 1024
C6 ECON BM	1. Intel Celeron 373 M ULV, 1.00GHZ, 512KB Cache, System memory 1GB 2. Intel Pentium M 760, 2.00 GHZ, 2MB Cache, System Memory 2 GB	Compact Flash 2 GB **OPTIONS:** NV RAM 512 KB HDD 320GB or 500GB SSD 16GB/34GB/64GB	**2 Ethernet / EtherCAT** 10X100/1000 Mbps **USB back:** 4 X USB 2.0 **Serial:** 1 X RS232 1 X PS/2 K/M **Monitor Output:** 1 X VGA **OPTIONS:** **Dual CAN Master Card**	NA

Field bus I/O's

Type	DI Channel	DO Channel	AI Channel	AO Channel	Encoder (A,B,Ref)	Range
Digital I/P	32					Sinkiing type
Digital I/P	16					Sinkiing type
Digital O/P		16				0.5A, PNP type
Digital O/P		8				1A, PNP type
Mix DI/DO	16	16				PNP, 0.5A (per output)
Mix DI/DO	16	8				PNP, 1A (per output)
Analog I/P			8 single ended 4 Differential			0-10V/±10V
Analog I/P			4			0-20mA/4-20mA
Analog I/P			16 single ended 8 Differential			0-10V/±10V
Analog I/P			8			0-20mA/4-20mA
Analog O/P				4		0-10V/+10V/0-20mA/±20mA
Analog I/P			4 / 8			Type K (Thermo)
Analog I/P			4 / 8			PT / NI 100
Analog I/P			4 / 8			PT / NI 1000
MIX 02	4	24	4			Sinkiing type (DI), 0.5A Per Digital output, 0-10V(AI)
Double counter	8	2			2	TTL type encoder, 2A per digital output
Double counter/Posi	8	2		2	2	TTL type encoder, 2A per digital output
Bus Cooupler						

Manufacturing of Drives

A range of KEB drives is assembled and tested under KEB license at our Airoli Works, The manufacturing range is presently 15kW to 900kW. The plant and its systems and processes were designed under KEB's guidance to deliver KEB's stringent standards of product quality.

A world class product with customized application engineering and quick, responsive service.

Testing Facility
- Pre test
- Functional test
- Laod test

Manufacturing setup
- Manufacturing and Testing equipment and processes audited by KEB
- ISO 9001:2008

Personnel and Quality
- Production, Quality and Testing personnel trained by KEB, Germany

Service Centre Facility

- Fully equipped repair and Load test facilities
- Load testing of repaired drives
- Service Centres located near major industrial clusters
- Spares stocking and logistics
- Service call monitoring through SAP service module
- Customer Training

Service Center Locations

REGIONAL OFFICES

Delhi
Mumbai
Pune
Ahmedabad
Kolkata
Chennai
Bengaluru
Hyderabad

Application Expertise

KEB drives find application in a variety of sophisticated manufacturing machinery such as motion control in discrete manufacturing, printing and packaging, plastic injection moulding, vertical motion, metal and board processing and finishing, sugar machinery and compressors. Our engineering team has developed and commissioned projects in each of these application segments:

High speed block-type wire drawing machine

Integrated drive and automation system with F5 drive, C6 multi-axis controller and HMI. This enables perfect speed synchronisation, easy machine set up and fast communication.

Key Benefits

- High speed synchronization
- Reduced wire breakage during voltage fluctuations
- Complete package with our inverter duty induction motors

Continuous shear control for CTL in rolling mill

A high accuracy, integrated multi-drive system with position synchronisation for blade motor, servo drive with motor for divert or tube, C6 for axis control, touch screen HMI and bar front-end sensor.

Key Benefits

- Shear blade synchronization with shifter servo motor
- Front end tracking for blade positioning
- Integrated solution with bar mill automation

Crane

Drives for all three axes of crane control with sensor-less operation ensure zero load slippage without encoder. This enables fine positioning and position teaching. Extensively used for elevators, gantries, construction cranes, and storage and retrieval systems.

Key Benefits

- Zero load slippage in open loop
- Brake failsafe function
- Anti-sway and Tandem functionality

Plastics machinery

All-electric and hybrid injection moulding machines, extruders, shredders; an integrated solution for hybrids with servo pump, motor and drive results in significant energy savings.

All-electric with position control: servo drive with mould positioning, motor with absolute encoder for all four axes. A special cooling option enhances ruggedness in adverse conditions.

Key Benefits

- Long Pressure Holding capability
- Easy adaptability to varying mould; material and cycle time
- Accurate flow and pressure control for minimum rejection of article and improvement in product quality
- Ability to provide customised solutions

Application Expertise

High speed CTL for corrugated board and paper cutting machine

Incorporates a feeder motor and drive, cutter servo motor and drive, C6 multi-axis controller, touch screen HMI and console. Fine edge cutting is ensured by matching the terminal cutter speed with the board line speed.

Key Benefits

- Cutting accuracy better than +/- 1 mm up to 150 MPM
- Reduced material wastage
- Less maintenance due to dual operation philosophy

Textile machinery

For Ring Frames, KEB drives provide proper synchronisation between the main spindle drive and auxiliary ring frame, drafting unit and doffers, and offers the unique feature of no thread breakage during power outage. Carding, clothes-making and OE spinning machines also use KEB drives.

Key Benefits

- Wide voltage range from 305 V to 500 V
- Power Off Function preventing thread breakages loss
- Various cooling options

Pipe Cutting Machine

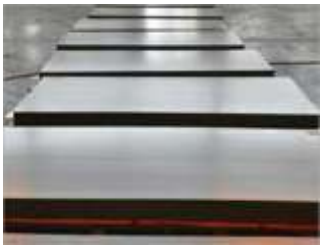
Carriage type "Flying Shear" used for cutting pipes to the required set length. The synchronization of carriage with mounting pipe coming for production is vital for length accuracy. Using the KEB F5 drive for carriage movement permits fast and accurate synchronization with the pipe Our solution comprises HMI, C6 Controller and F5 multi drive.

Key Benefits

- Accuracy better than +/- 1 mm up to 20 MPM
- Scrape cut provision for defective pipe
- Complete solution with AC asynchronous servo motors

Slitter for Steel

The Slitting process involves slitting the HR or CR coil into required sheet widths after straightening and levelling The re-winder maintains uniform tension in the finished sheet. Our F5 drive solutions with HMI and C6 controller have been proven and supplied for uncoiler, Pinch roll, Leveler, recoiler Conveyer 1 and Conveyer 2.



Key Benefits

- Precise speed and torque control
- Packaged solution with our induction motors
- Slitting up to 12 mm cold rolled sheet

Application Expertise

Motor Test Bench

The closed loop regenerative dynamometer based system minimises energy consumption; energy is drawn from the grid only to compensate for losses of the system.

This solution comprises variable frequency drive, regenerative drive, controller and SCADA system; it includes integration of measuring instrumentation.

Key Benefits

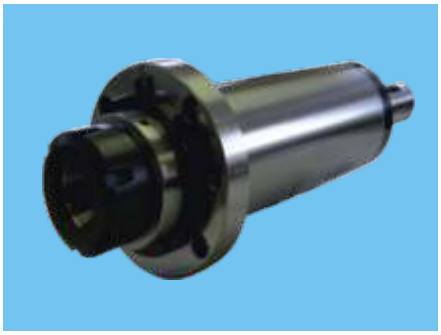
- Automatic recording of test results
- Testing on different supply conditions as per IEC standards
- Power saving regenerative system

High Speed Spindle

High speed spindles for SPMs can be handled by KEB high frequency drives with the special sensor-less feedback system (SCL/ASCL) it can easily operate at high speeds with total protection for the spindle motor.

Key Benefits

- Output Frequency up to 1600Hz
- Filters for spindle motor protection
- Compatible with any open loop spindle motor



Hydraulic Press

A hydraulic press typically uses hydraulic forces to bend or cut a specific sheet metal job. Our engineered retrofit package installed in an existing or new Hydraulic press, can yield energy savings to the extent of 20% to 50%.

The stroke length can be easily adjusted for various drawing programs through the HMI. Throttling losses can be eliminated, and the hydraulic circuit is greatly simplified.

Our automation solution consists of servo motor, F5 drive, internal gear pump, PLC, HMI and panel.

Key Benefits

- Energy saving servo solution
- Adjustable stroke length
- Silent operation

Notes

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