

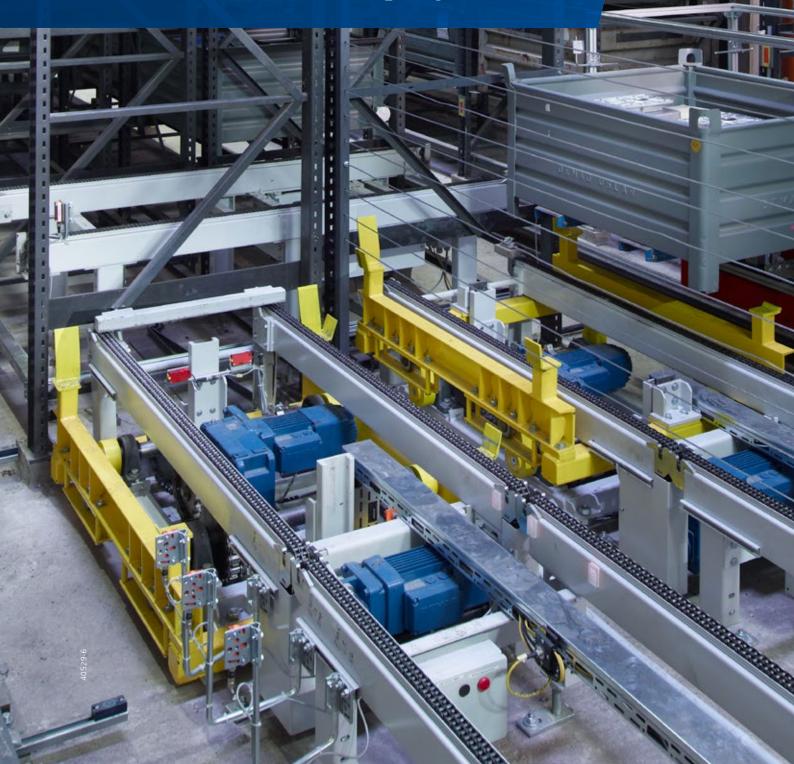
Keeping your business on the move

**Demag drives** 





We provide material flow, logistics and drive solutions of the highest standard and at peak performance rates – for all sectors and sizes of company.



# From sub-assemblies to complete systems:

Demag drives keep your business on the move in many applications – reliably, safely and proven all over the world.

- Cranes and handling equipment
- Transport logistics

792

\$60755

NAMES OF TAXABLE PARTY

- Mechanical engineering
- Mobile architecture

#### AS A LEADING SUPPLIER OF INDUSTRIAL DRIVES, WE OFFER A COMPLETE RANGE OF PRODUCTS:

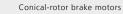
- Motors, gearboxes and geared motors
- Wheel systems
- Complete travel units
- Frequency inverters
- Power supply systems

All components are designed to match precisely, resulting in efficient integrated systems.

Our modular system enables you to implement solutions tailored to meet your needs quickly and cost-effectively using standardised sub-assemblies. This can save you valuable project engineering time and give you the certainty of reliable product configurations.

## Demag modular drives – a perfect blend of proven components







Cylindrical-rotor brake motors

Microspeed drives



#### **DCL-PRO POWER SUPPLY LINE**

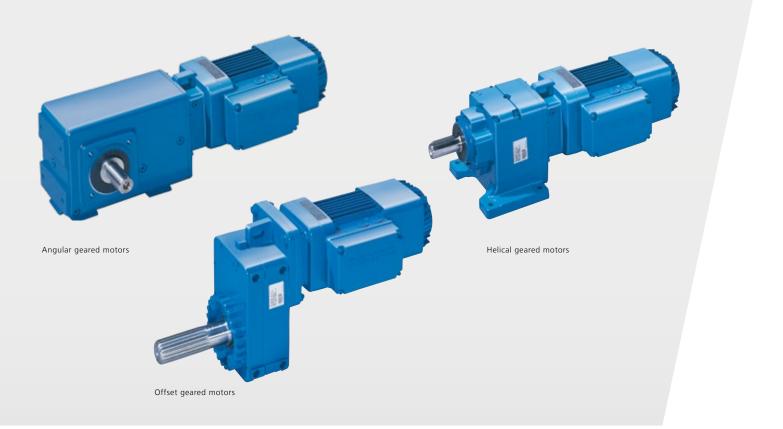
- Up to 200 A at 100% CDF
- Up to seven conductors

#### **FREQUENCY INVERTERS**

- Dedrive Compact STO for motor outputs up to 110 kW
- Dedrive Pro 880 for motor outputs up to 560 kW

#### **PROJECT DRAFTING TOOLS**

- Design software
- Online configuration
- Online ordering system





DRS wheel block system



LRS travel wheel system



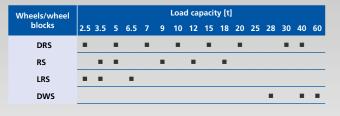
RS wheel block system



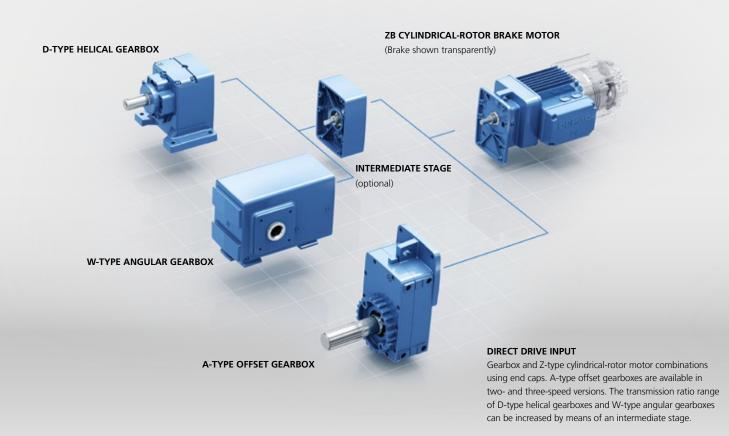
DWS wheel set

#### **TRAVEL UNIT COMPONENTS**

- Wheel loads up to 60 t
- For universal connection



# **Geared motors – combined benefits**



#### If you are looking for perfectly matched motors and gearboxes, our modular range of geared motors has been designed to meet your requirements:

Offset gearboxes	Α
Angular gearboxes	W
Helical gearboxes	D

# YOU CAN COMBINE THESE GEARBOXES WITH A NUMBER OF MOTOR UNITS:

ZB
ZBA
ZBF
ZBE/ZBP
KB
KBA
KBF

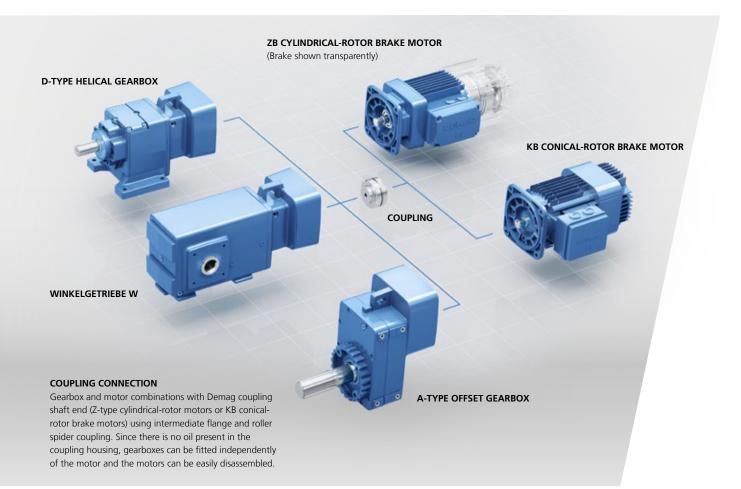
#### CHOOSE THE RIGHT BRAKE FOR THE JOB

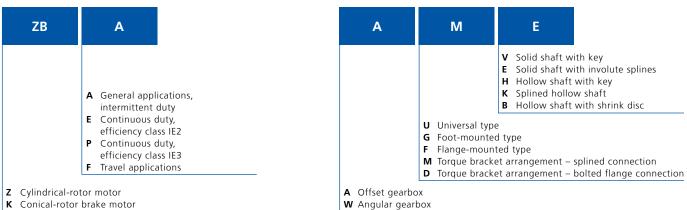
To allow you to match the braking torque to the specific application, we have a number of versions to meet your requirements:

- ZB cylindrical-rotor brake motors offering a choice of two different brake sizes
- Additional fine-tuning by combining different numbers and types of brake springs
- KB conical-rotor brake motors for cases involving extremely high braking energy and start-stop frequency

#### HIGHEST PRECISION THANKS TO FG MICROSPEED DRIVES

With our microspeed drives, you can achieve large mechanical speed ratios of up to 500:1 between main and positioning speeds.





D Helical gearbox

- Conical-rotor brake motor к
- B Fitted with a brake (ZB, KB)

#### SIMPLY ADAPT OUR TECHNOLOGY TO YOUR NEEDS

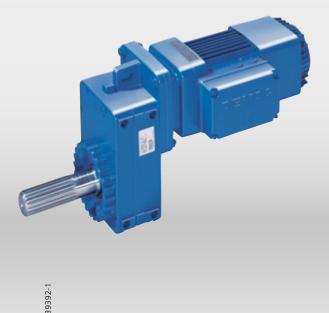
Our modular system enables a wide range of combinations in the standard versions. A wide choice of options and accessories rounds off the range. Mounting variants simplify the task of optimising the design solution. Rotary encoders and temperature detectors enable additional functions to be integrated.

#### YOU CAN COUNT ON OUR SUPPORT

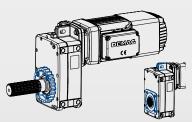
In addition to offering our modular system, we support our customers with these tools:

- An extensive catalogue of detailed information
- Software for calculating drives
- An online tool for configuring your drive solution
- Highly dedicated staff to advise you

# A-type offset gearboxes space-saving alternative

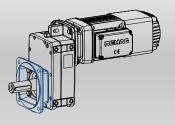


#### **MAXIMUM FLEXIBILITY: FIVE HOUSING DESIGNS**



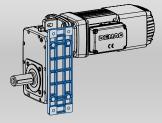


AM 10-40 torque bracket type



AF 20-90 flange-mounted type

AU 20-90 universal type



AG 30 - 90 foot-mounted type

If you are looking for space-saving drive units, our A-type offset gearboxes have been designed specifically for that purpose:

- Wide range of transmission ratios
- Cost-effective solutions with high efficiency
- Practically orientated design

Thanks to these characteristics, they are the ideal choice for many travel applications.

#### **VARIABLE: THE DRIVE**

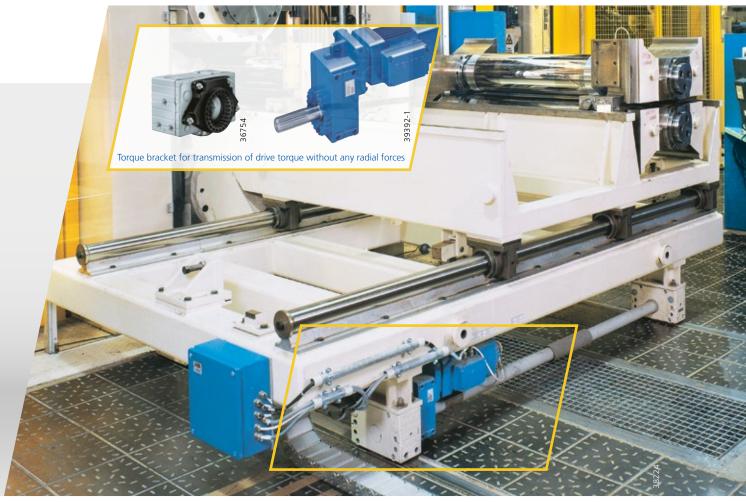
The following drive shafts are available:

- Solid shaft
  - With a key
  - With involute splines (one or both sides)
- Hollow shaft
  - With a key
  - With involute splines
  - With shrink disc

Gearbox size	Output	Transmission ratio (i)	
	torque [Nm]	2-stage	3-stage
A10	160	8.32-52.5	_
A20	250	6.21-28.0	31.7-123
A30	460	7.78-55.7	65.3-156
A40	820	8.78-61.6	73.8–256
A50	1,450	8.69-56.4	61.2-218
A60	2,600	8.91-54.7	62.6-297
A70	4,600	9.23-68.1	78.9–267
A80	8,200	9.89-68.9	80.3-281
A90	13,800	10.2-69.7	76.3–274
A10-A40 <sup>.</sup>	Aluminium housir	na	

AD 40-80

A10-A40: Aluminium housing A50-A90:



Offset geared motors: as a central drive arrangement with large ground clearance fitted to a tool-changing carriage. These systems are particularly efficient in connection with Demag wheel blocks and corresponding torque brackets.

#### **ADVANTAGEOUS: THE DESIGN**

Demag offset gearboxes feature large shaft centre distances, which benefits:

- Ground-level travel units with large ground clearance
- Central drive arrangements with shaft ends on both sides

#### **PROVEN: TORQUE TRANSMISSION**

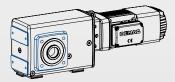
The AM torque bracket arrangement has been designed as a hollow-shaft gearbox with a torque ring integrated in the housing cover (AM 10-40). This torque ring transmits the drive torque without any radial forces to Demag DRS wheel blocks via a specially designed torque bracket. This sophisticated combination for travel drives with reversing operation is a preferred choice.

- Nine gearbox sizes
- Torques from 160 to 13,800 Nm
- Direct input or coupling connection
- Five housing designs
- Five shaft types
- Many more options and accessories (see page 18)

# W-type angular gearboxes – compact solutions



#### MAXIMUM FLEXIBILITY: FOUR HOUSING DESIGNS





WU universal type



1 WG foot-mounted type – bottom connection



WF flange-mounted type

2 WG foot-mounted type - end connection

Our angular gearboxes are the ideal solution for compact designs. They enable travel motions to be provided, even when the distance from the rail is very restricted:

Large torque range

39389-1

Wide range of transmission ratios

#### QUIET RUNNING: THE HYPOID GEARBOXES

Sizes W10 to W50 are designed as hypoid gearboxes:

- Very smooth running
- High transmission ratio in the hypoid stage

#### **EFFICIENT: BEVEL GEARS**

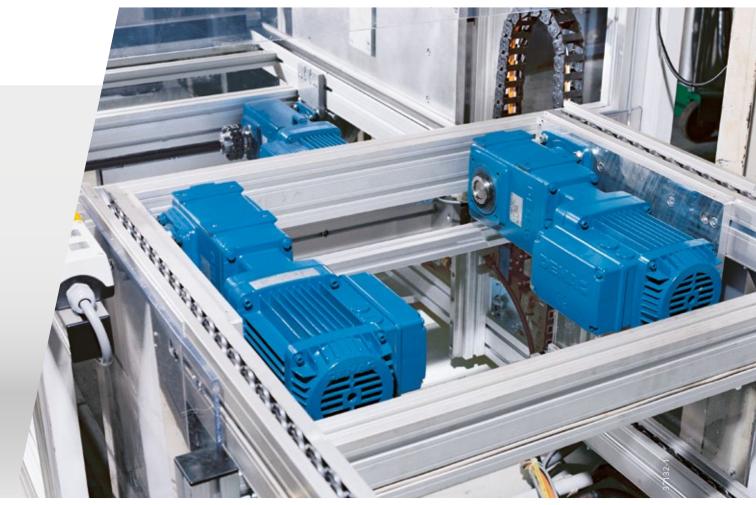
W60 to W100 gearboxes are bevel-wheel gearboxes:

- Excellent efficiency
- High transmission ratio thanks to three stages already in the basic design

Gearbox	Output torque	Transmission ratio (i)		
size	[Nm]	2-stage	3-stage	4-stage
W10	120	5.34-100	-	-
W20	200	5.45-90.1	97.1-369	-
W30	330	3.73-90.1	107-369	-
W40	500	3.87-90.8	99.6-371	-
W50	800	4.94-94.3	99.9-386	-
W60	1,350	-	12.6-95.1	113-388
W70	2,500	-	13.7-102	113-399
W80	4,000	-	15.3–113	126-441
W90	7,000	-	15.9-111	126-434
W100	12,000	-	16.5–113	121-485

W10 – W40: Aluminium housing

W50 - W100: Grey cast housing



Angular geared motors for compact drive solutions.

#### VARIABLE: THE DRIVE

The following drive shafts are available:

- Solid shaft
  - With a key (on right/left/both sides)
  - With involute splines (on right/left/both sides)
- Hollow shaft
  - With a key
  - With involute splines
  - With shrink disc

Versions with shaft ends on one or both sides: In combination with the Demag DRS wheel block system, these options make it possible to create solutions with single or central drive arrangements.

- Ten gearbox sizes
- Torques from 120 to 12,000 Nm
- W10 W50 hypoid gearboxes for specially smooth running characteristics
- W60 W100 bevel-wheel gearboxes, high efficiency rating
- Direct input or coupling connection
- Four housing types
- Five shaft types
- Many more options and accessories (see page 18)

# D-type helical gearboxes – robust design



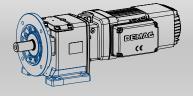
#### MAXIMUM FLEXIBILITY: THREE HOUSING DESIGNS





DG foot-mounted type

DF flange-mounted type



DU 11 – 41 foot or flange-mounted type

If you are looking for tough drive solutions, Demag D-type helical gearboxes are known for their resilience:

- Torques from 90 to 550 Nm
- Excellent efficiency rating thanks to helical gears
- High radial forces can be applied through the output shaft.

#### MADE PERFECTLY TO MEASURE: THE OUTPUT DRIVE

The output shaft is a solid shaft with a key, due to the coaxial design of the helical gearbox.

Gearbox	Output torque [Nm]	Transmission ratio (i)	
size		2-stage	3-stage
D11	90	2.88-66.5	-
D21	130	2.88-66.5	-
D31	200	3.23-61.6	66.4-253
D41	330	3.23-58.6	49.5-240
D50	550	2.78-61.4	71.9-251

D11 - D41: Aluminium housing D50: Grey cast housing

39381



D-type helical gearbox with coaxial design as a drive solution for a suspended conveyor system: the drive variant of choice for the suspended conveyor system shown here.

#### TAILORED TO YOUR NEEDS: HOUSING DESIGN

With sizes D11 to D41, it is possible to attach either flanges with internal threads or flanges with throughholes. A further special feature of this size is the combined foot/flange mounting.

- Five gearbox sizes
- Torques from 90 to 550 Nm
- Direct input or coupling connection
- Three housing designs
- Output via solid shaft with a key
- Many more options and accessories (see page 18)

# Z-type cylindrical-rotor motors for universal applications



If you are looking for motors that are able to meet the most varied drive technology needs reliably and efficiently, our Z-type cylindrical-rotor motors offer many advantages:

- Perfectly matched to our range of gearboxes
- Simple project engineering
- Best possible drive efficiency

#### THE RIGHT SOLUTION FOR EVERY TASK

- Our cylindrical-rotor motors with power ratings up to 45 kW are specially designed for
  - travel applications with inverter or direct line-fed drives.
  - Continuous duty, motor efficiency classes IE2 and IE3
- 2, 4, 6 and 8 pole (motor efficiency in line with IEC ratings)
- Pole-changing with two speeds
- Braked version (cylindrical-rotor brake motor)

### 41913

For outputs up to 45 kW: four-pole ZBA motors

Designation ZBA = braked	Output [kW] 60% CDF Temp. 60°C
ZBA 63 B4	0.18
ZBA 71 A4	0.25
ZBA 71 B4	0.37
ZBA 80 A4	0.55
ZBA 80 B4	0.75
ZBA 90 A4	1.1
ZBA 90 B4	1.5
ZBA 100 AL4	2.2
ZBA 100 B4	3
ZBA 112 A4	4
ZBA 132 AL4	5.5
ZBA 132 B4	7.5
ZBA 132 C4	9.5
ZBA 160 AL4	11
ZBA 160 B4	15
ZBA 180 A4	18.5
ZBA 180 B4	22
ZBA 200 A4	30
ZBA225 AL4	37
ZBA 225 B4	45

## Efficiency ratings in line with IE2: four-pole ZBE motors

Designation	Designation Output [kW]		ciency	[%]
ZBE = braked	100% CDF Temp. 40°C	η <sub>50</sub>	η <sub>75</sub>	$\eta_{100}$
ZBE 63 B4	0.18	66.5	71.2	72.1
ZBE 71 B4	0.25	69.5	74.0	74.9
ZBE 80 A4	0.55	78.0	78.3	78.1
ZBE 80 B4	0.75	79.3	82.2	79.6
ZBE 90 A4	1.1	79.8	82.3	81.4
ZBE 90 B4	1.5	82.1	83.4	82.8
ZBE 100 A4	2.2	83.8	84.9	84.3
ZBE 100 B4	3	83.6	86.4	85.5
ZBE 112 A4	4	86	87.4	86.6
ZBE 132 A4	5.5	87.2	88.3	87.7
ZBE 132 B4	7.5	87.5	90.3	88.7
ZBE 160 A4	11	89	90.8	89.8
ZBE 160 B4	15	89.2	91.8	90.6
ZBE 180 A4	18.5	89.3	92.4	91.2
ZBE 180 B4	22	89.2	92.3	91.6
ZBE 200 A4	30	88.4	92.8	92.3
ZBE 225 A4	37	90.8	93.2	92.7
ZBE 225 B4	45	92.2	93.5	93.1

## Efficiency ratings in line with IE3: four-pole ZBP motors

Designation	Output [kW]	Eff	iciency	[%]
ZBP = braked	100% CDF Temp. 40°C	η <sub>50</sub>	η <sub>75</sub>	η <sub>100</sub>
ZBP 80 B4	0.55	76.6	81.1	80.8
ZBP 90 A4	0.75	80.5	82.9	82.5
ZBP 90 B4	1.1	82.5	85.6	84.1
ZBP 100 A4	1.5	84.8	86.2	85.3
ZBP 100 B4	2.2	83.5	85.6	86.7
ZBP 112 A4	3	85.1	87.7	87.7
ZBP 132 A4	4	84.4	87.9	88.6
ZBP 132 B4	5.5	87.3	89.4	89.6
ZBP 160 A4	7.5	89.5	90.5	90.4
ZBP 160 B4	11	89.0	91.1	91.4
ZBP 180 A4	15	90.2	91.5	92.1

#### YOUR BRAKING NEEDS – CONFIGURED TO MATCH

Demag ZB cylindrical-rotor brake motors are equipped with disc brakes. When no voltage is applied, the DC brakes are automatically applied by spring tension.

#### **OPTIMUM ADAPTATION TO YOUR APPLICATION:**

- Choice of two brake sizes for each motor size
- Even finer setting of the brake torque by combining differing brake spring quantities and strengths
- Various control modules for switching times to match application requirements

Braking torque can be configured from 0.9 Nm (brake size B003) to 680 Nm (brake size B680).



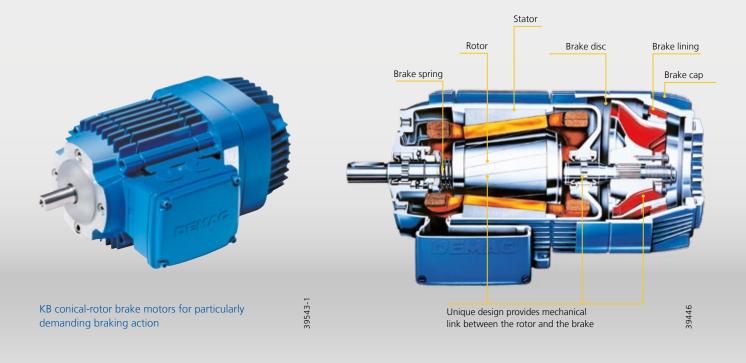
ZB cylindrical-rotor motor: Excellent braking characteristics with specifically configurable brake

#### Line-fed travel applications: 8/2-pole ZBF motors

Designation	Output [kW] 40/40% CDF Temp. 40°C
ZBF 63 A 8/2	0.06 / 0.25
ZBF 71 A 8/2	0.09 / 0.34
ZBF 80 A 8/2	0.13 / 0.5
ZBF 90 B 8/2	0.2 / 0.8
ZBF 100 A 8/2	0.29 / 1.2
ZBF 112 A 8/2	0.46 / 1.9
ZBF 132 A 8/2	0.72 / 2.9
ZBF 132 B 8/2	0.88/ 3.5

- Motor outputs up to 45 kW
- Number of poles: 2, 4, 6, 8 (depending on application)
- Pole-changing motors with two speeds
- With or without a brake
- Braking torques can be configured from 0.9 to 680 Nm
- ZBA/ZNA for travel applications with inverters
   ZBF for line-fed travel applications
   ZBE for inverter operation in energy efficiency class IE2
   ZBF for continuous duty in energy efficiency class IE3
- Many more options and accessories (see page 18)

# KB conical-rotor brake motors – reliable partners



Demag KB conical-rotor brake motors with outputs up to 55 kW and a cyclic duration factor of 40% operate on a unique braking principle:

- Simple
- Robust
- Reliable

#### SIMPLY BRILLIANT – BRILLIANTLY SIMPLE

The brake is mechanically linked to the rotor. When the motor is switched on, the conical design causes force to be applied in an axial direction, which pulls the rotor towards the drive end together with the brake disc.

#### THE ADVANTAGE OF SIMPLICITY

- No switching elements required for the brake: separate controller not needed
- Long brake lining service life: heat generated by the brake is effectively dissipated via the large surface area of the brake cover
- The brake disc is, at the same time, the fan: reduced housing length, good heat dissipation
- Two brake disc designs: light for KBA motors, heavy and with increased moment of inertia for KBF motors

# ALWAYS THE RIGHT CONICAL ROTOR FOR YOUR APPLICATION

Alongside the 2, 4, 6 and 8 pole and the pole-changing versions, there are two special KB series:

- KBA for starting/stopping applications with short cycle times
- KBF for line-fed travel motions

In addition, there is the KBS motor, a version with special windings for standstill operation

#### SYNCHRONISED OPERATION

The brake is released at exactly the same moment as the motor begins to rotate. When the motor is switched off, the brake is immediately applied again by spring force.

#### **SUPERIOR BRAKING**

Our KB motors are the superior choice wherever the highest demands are made on the brake:

- Designed for heavy-duty braking work
- Extremely high start-stop frequencies permitted
- Resistant to temporary overloads



#### FOR OUTPUTS UP TO 55 KW: FOUR-POLE KBA MOTORS

Designation	Output [kW] 40% CDF	Brake torque [Nm]
KBA 71 A4	0.48	6.7
KBA 71 B4	0.72	8.7
KBA 80 A4	1.05	14.5
KBA 80 B4	1.3	17.5
KBA 90 A4	1.65	23
KBA 90 B4	2.0	29
KBA 100 A4	2.4	38
KBA 100 B4	3	48
KBA 112 B4 A	3.6	56
KBA 112 B4	4.5	68
KBA 125 B4 A	6	82
KBA 125 B4	7.4	94
KBA 140 B4 A	9.6	130
KBA 140 B4	11.5	166
KBA 160 B4	20	215
KBA 180 A4	30	335
KBA 200 B4	40	430
KBA 225 B4	55	610

# LINE-FED TRAVEL APPLICATIONS: 8/2-POLE KBF MOTORS

Output	Brake torque
40/40% CDF	[Nm]
0.04 / 0.2	1.4
0.06 / 0.3	1.6
0.13 / 0.5	3.2
0.2 / 0.8	5.2
0.26 / 1.2	7.0
0.42 / 1.9	11.8
0.65 / 2.9	17
1.1 / 4.5	24.3
	[kW] 40/40% CDF 0.04 / 0.2 0.06 / 0.3 0.13 / 0.5 0.2 / 0.8 0.26 / 1.2 0.42 / 1.9 0.65 / 2.9

- Motor output up to 55 kW at 40% CDF
- Number of poles: 2, 4, 6, 8
- Pole-changing motors with two speeds
- KBA drives for starting and stopping, KBF for line-fed travel operations
- Many more options and accessories (see page 18)

# **Comprehensive set of features** and accessories

If you have a demanding application that needs more, even the standard versions of Demag drive technology products provide the opportunity to tailor functionality to meet your specific needs.

And, if you need a really individual solution, optional features and accessories enable you to match Demag products more closely to your task-specific operating conditions.

#### MOTORS

Options	Z cylindrical-rotor motor	KB conical rotor- brake motor
Winding protection		
- PTC thermistor		
- Temperature detector		
Rotary encoder		
- Integrated pulse generator		
- External pulse generator		
- Integrated external pulse generator		
Electric plug connection		
Increased ingress protection		
Anti condensation heating		
- Heating tape		
- Via motor winding		
External fan		
- Built-in separately driven fan		
- External separately driven fan		
- Heavy fan		
Heavy brake disc		
Protective canopy/plate		

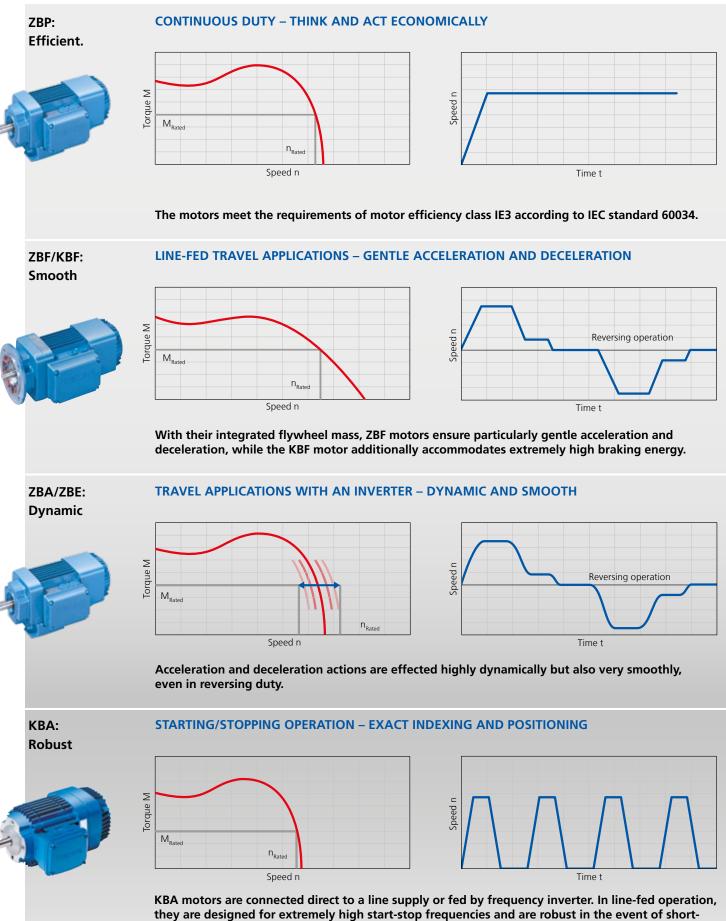
#### **GEARBOX**

Options	A-type offset gearboxes	W-type angular gearboxes	D-type helical gearboxes
Torque brackets			
Foot rails/plates			
Mounting flange			*
Extended temperature range			
Special paint finish			
Special lubricants			
Gearbox venting**			
Combined gearbox***			
* for sizes D11 – D41		** Standard fro	om size 50

\*\*\* for particularly low speeds

#### BRAKES

Options	Z cylindrical-rotor motor	KB conical rotor- brake motor
Manual brake release		
Brake function monitoring		
Brake adjustment monitoring		
Sealed/increased ingress protection		
Various control modules		
Enclosed brake compartment		
Emergency-stop brake lining		

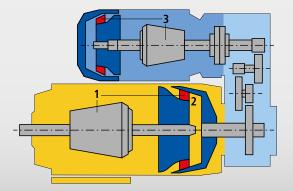


term overloads.

# FG microspeed drives – a special case



#### FG MICROSPEED UNIT – SIMPLY A GOOD CHOICE



#### **MICROSPEED OPERATION**

- Main motor in braked position
- 2 Main motor clutch
- engaged3 Microspeed motor in running position
- Main motor
   Microspeed drives
   Gearbox
- Brake/clutch
- Brake disc/cover

FG microspeed drives permit a broad range of speed ratios in a robust, simple and efficient package

#### **THE ALTERNATIVE**

Demag FG microspeed drives enable:

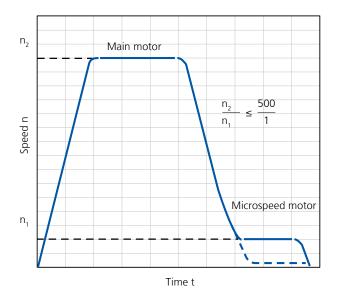
- Very high positioning accuracy
- High number of starts and stops
- Movement of large masses with short cycle times

Compared to pole-changing motors, Demag FG microspeed drives make it possible to achieve a significantly larger mechanical difference between the main and the positioning speeds. In this simple but effective way, speed ratios up to 500:1 can be achieved.

#### **BENEFITS**

FG drives are much less susceptible to vibrations, higher ambient temperatures and other influences than drives featuring electronic equipment. For many applications, this makes them the simple, robust and economical alternative to inverter-fed AC motors.

#### **EXTREMELY FLEXIBLE: SPEED RATIOS UP TO 500:1**



By selecting the motor and gear unit, the speed ratio can be set over a wide range.



FG microspeed drives: rugged, powerful, precise

#### THE DESIGN PRINCIPLE

FG microspeed drives consist of one main and one positioning motor linked together by a mechanical microspeed gearbox. The drive shaft runs either at the speed of the main motor or at the speed of the microspeed motor reduced by the transmission ratio of the intermediate gearbox.

The main motor is a conical-rotor brake motor – due to the axial motion of the rotor. The brake of the main motor also has the function of a clutch. The microspeed motor can be a KB or a Z motor – also for inverter operation.

The transmission ratios of the microspeed gearbox are available at fine increments from 4 to 125. So by selecting the right combination of motor speeds, you can determine the overall transmission ratios.

#### MAIN AND MICROSPEED MOTOR COMBINATION

Micro-	Main	Microspeed motor							
speed gearbox	motor	КВ	71	80	90	100	112	125	140
		z	63 71	80 90 A	-	90 B 100	-	-	112 132
FG 06	KB 71								
	KB 80								
	KB 90								
	KB 100			0					
FG 08	KB 112 *)								
	KB 125								
	KB 140					ο			
FG 10	KB 160								
	KB 180								
	KB 200								
	KB 225		•	•	•	•	•	•	0

U or Z mounting arrangement
 \*) Only as self-ventilated version

**o** = Z mounting arrangement

# Tools and services – to meet your needs



If you are looking for a partner to provide you with advice and assistance – whichever drive solution you develop, we will support you. From your desk, you can access the tools we have made available.

#### **GEARED MOTOR CATALOGUE – OPEN FOR YOUR NEEDS**

This catalogue presents our entire range of geared motors in detail on over 350 pages.

Take advantage of the selection tables to find detailed technical data and add optional equipment and accessories.

Our specialised sales engineers in your region are available for further project consulting. Your direct contact:

#### info@demagcranes.com



3D product geometries

#### **DRIVE DESIGNER – OPEN FOR YOUR IDEAS**

Use Drive Designer to configure geared motors and wheel systems online. You can quickly:

- Select and configure drives
- Transfer drawings to your design
- View electrical circuit diagrams
- Download the drives' technical data

Drive Designer provides a high degree of convenience:

- Design support by means of 2D and 3D geometries in all standard file formats
- Rapid access to technical specifications
- Circuit diagrams for the motors you select
- Display of delivery times
- Transfer of your selection to the Demag Shop system

www.drives.demag-designer.com

#### **DEMAG SHOP – OPEN FOR BUSINESS**

After registering online, you will be sent the access details for the Demag Shop system. In our Shop system, you can find any necessary

- prices
- stock availability and
- delivery times

relating to the products you need. Order direct and arrange delivery times and shipping method – provided the parts are in stock. You are immediately sent an order confirmation with our order number.

You can, of course, also use the parcel tracking system online in our Demag Shop system even if you order the conventional way.

www.demag-shop.com

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Drive calculation with CalDrive

#### **CALDRIVE – OPEN FOR YOUR REQUIREMENTS**

You can use CalDrive software to specify suitable drives from the physical parameters you enter. The basic characteristics and data of Demag geared motors and wheel blocks are included in CalDrive.

Based on these details, CalDrive will suggest a number of possible solutions for combining the components. The CalDrive software is available at no charge from the internet.



Single product selection



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