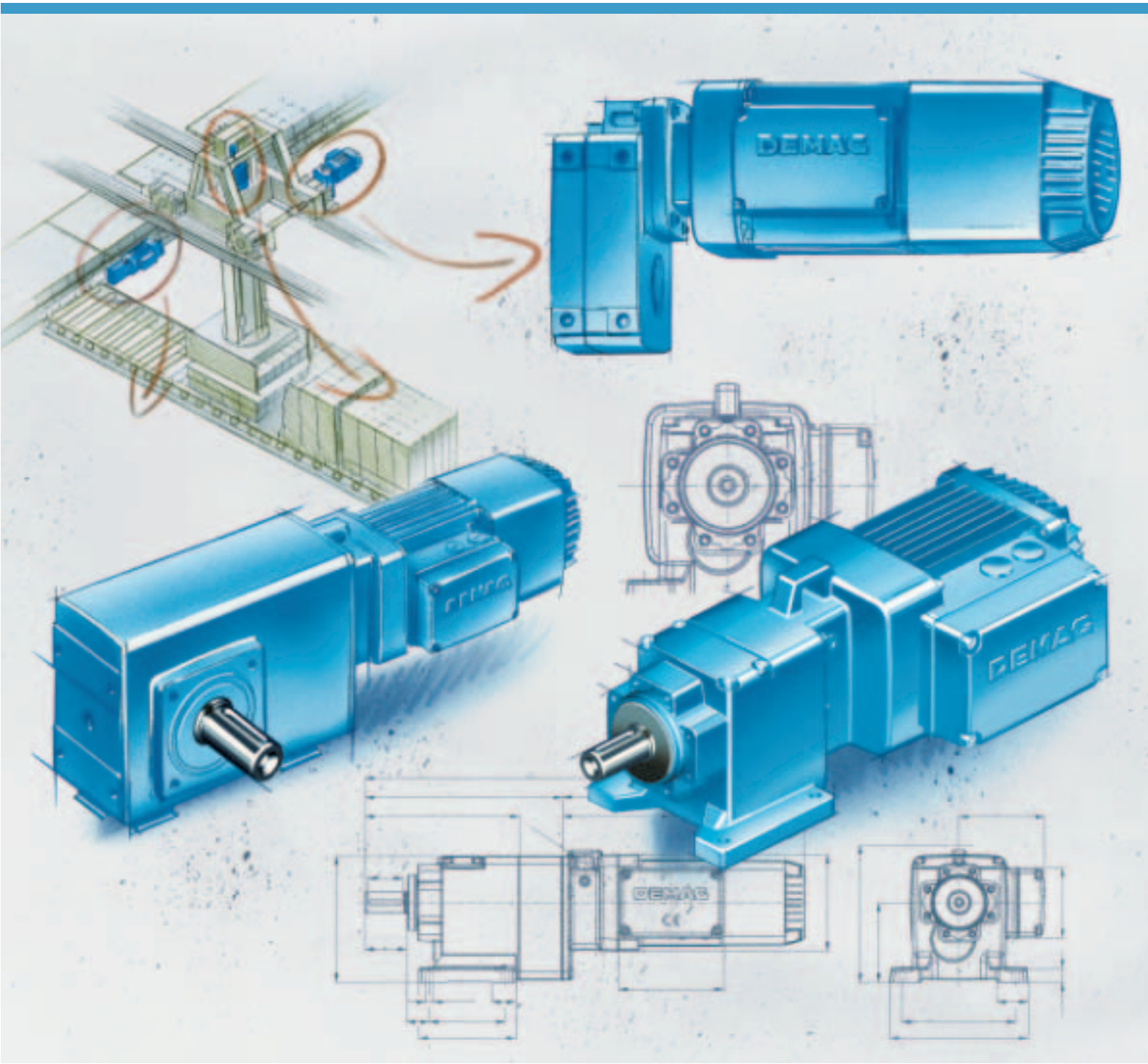
DEMAG
Cranes & Components

# Demag geared motors for general drive applications

D, W and A ranges with Z motors



# Your machinery and installations benefit from the expertise of the materials handling market leader

**Drives for materials handling applications for more than 180 years**
With ever new ideas and more efficient technology, we have contributed significantly towards progress in conveying and material flow engineering in the more than 180 years of our company's history. Innovation and performance have made us the leading world manufacturer offering the most comprehensive range of products in the industry.
The decisive advantage of our installations and systems is that we implement both standardised as well as individual solutions to meet your requirements. Fast and cost effective using components designed on the modular principle, each compatible with the next, developed and manufactured in-house in large series of first class quality and with maximum precision.

**Innovative and market oriented**
With our range of motors, gearboxes and frequency inverters, we not only meet the widest variety of market requirements in the drive sector.
We set standards for function and design.
And our developments in the materials handling sector also lead to constant improvements and innovations for our drive products.

We have not simply developed a series of geared motors for the Demag geared motor range, but a modular system to provide tailored solutions. Take a step with us towards implementing new solutions for drive and braking requirements in your machinery and installations.

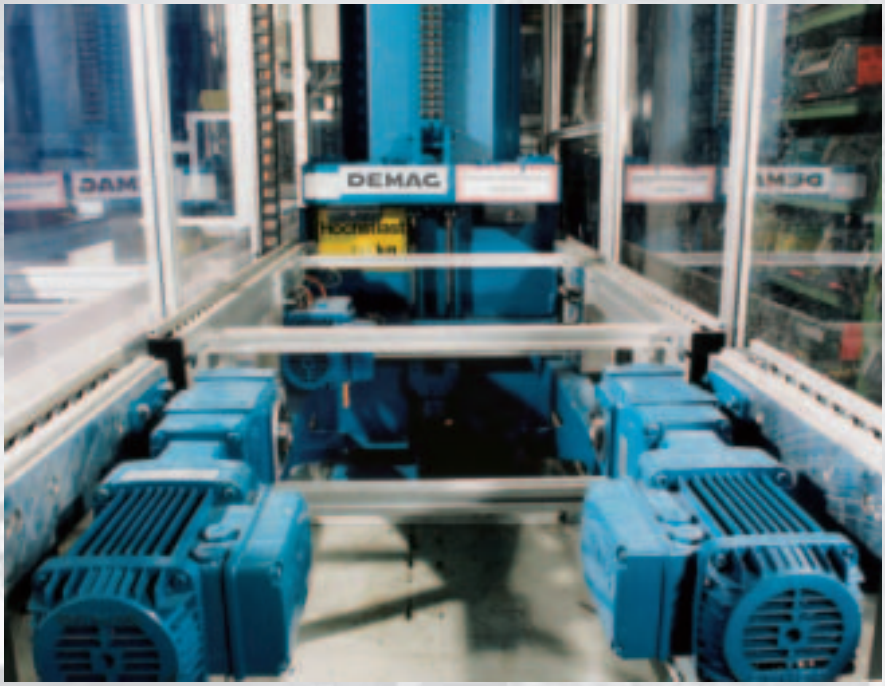



Photo courtesy of Keller

# Modular geared motors: as varied as your needs, with the performance for your drive concepts

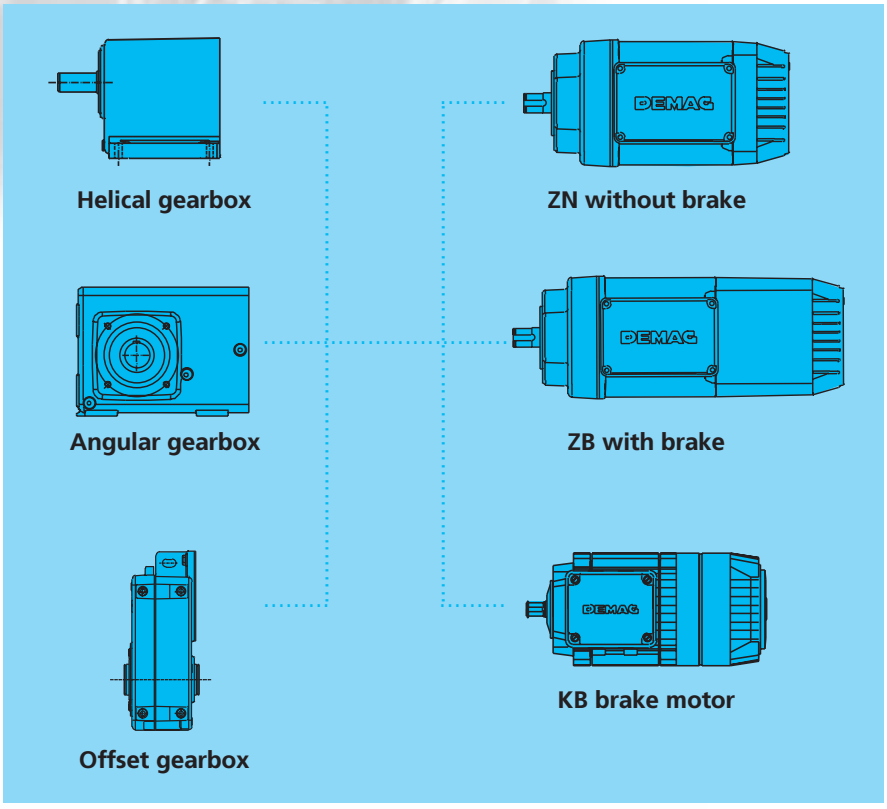
**The tailored solution for all drive requirements**
The Demag geared motor range is of modular design and mainly comprises
- helical geared motors
- angular geared motors
- offset geared motors

We offer a choice of
- basic cylindrical-rotor motors
- cylindrical-rotor brake motors
- sliding-rotor brake motors

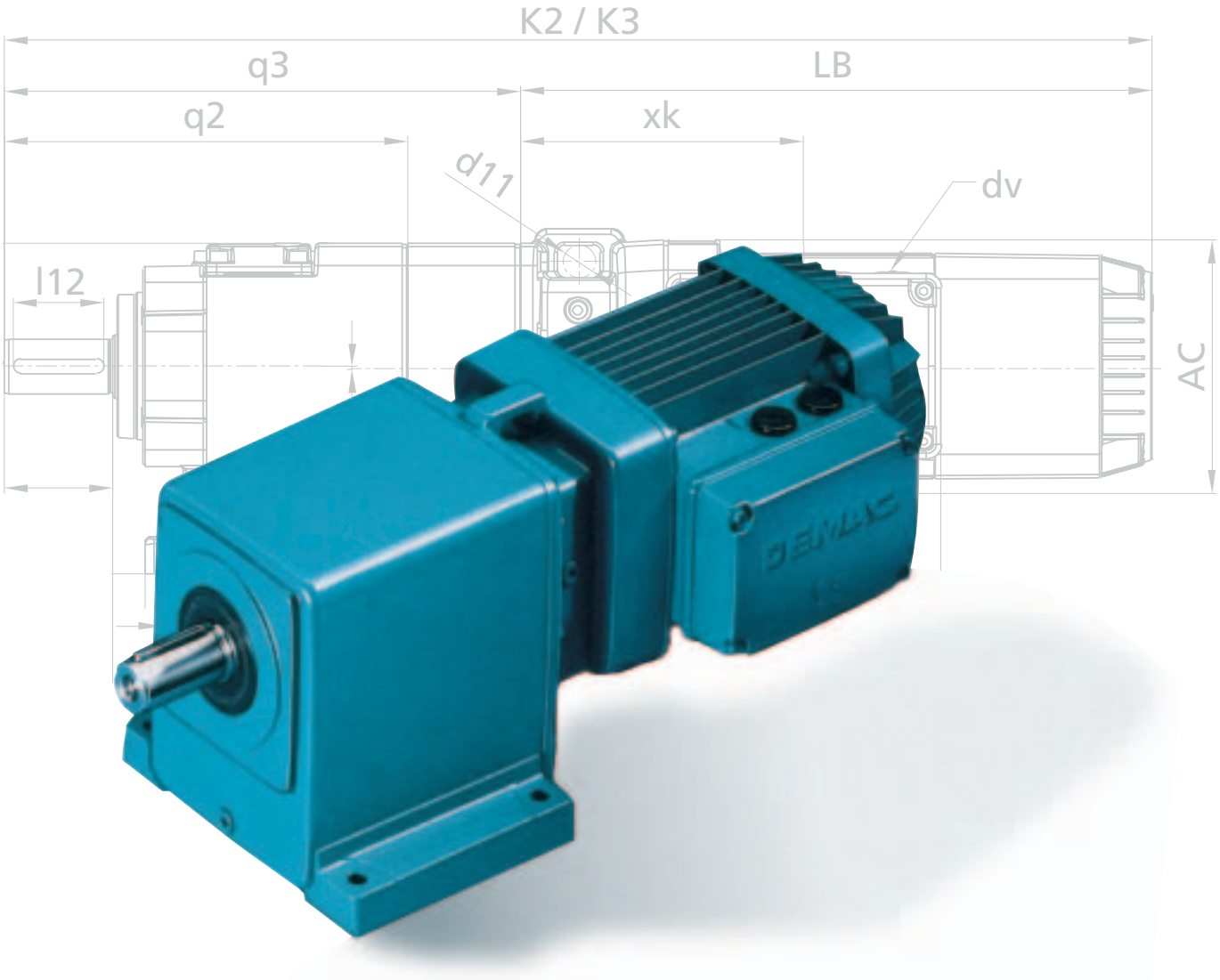
In addition, there are many optional features which can be used to extend the extremely versatile operating possibilities of the standard designs. The options range from various housing designs, PTC thermistors and speed encoders to special lubricants.

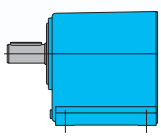
**From basic motors to maximum brake torques**
Features you will not find elsewhere – we offer as standard: almost any brake torque conceivable from basic motors to the almost legendary braking capabilities of our sliding-rotor brake motors. And our cylindrical-rotor brake motors not only feature different brake spring strengths, but also two different brake sizes for each motor frame size so that you can specify your drives with finely graded brake torques. In addition, KB sliding-rotor brake motors are also available.

**With the quality edge of products manufactured in our own facilities**
Whether it is a question of motors, gearboxes, brakes, couplings or flanges – we have the expertise to manufacture quality geared motors.
A quality management system certified to DIN EN ISO 9001 guarantee maximum precision, outstanding reliability and unbeatable service lives.

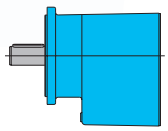


# Helical geared motors:
# 90 to 5800 Nm



Foot-mounted type

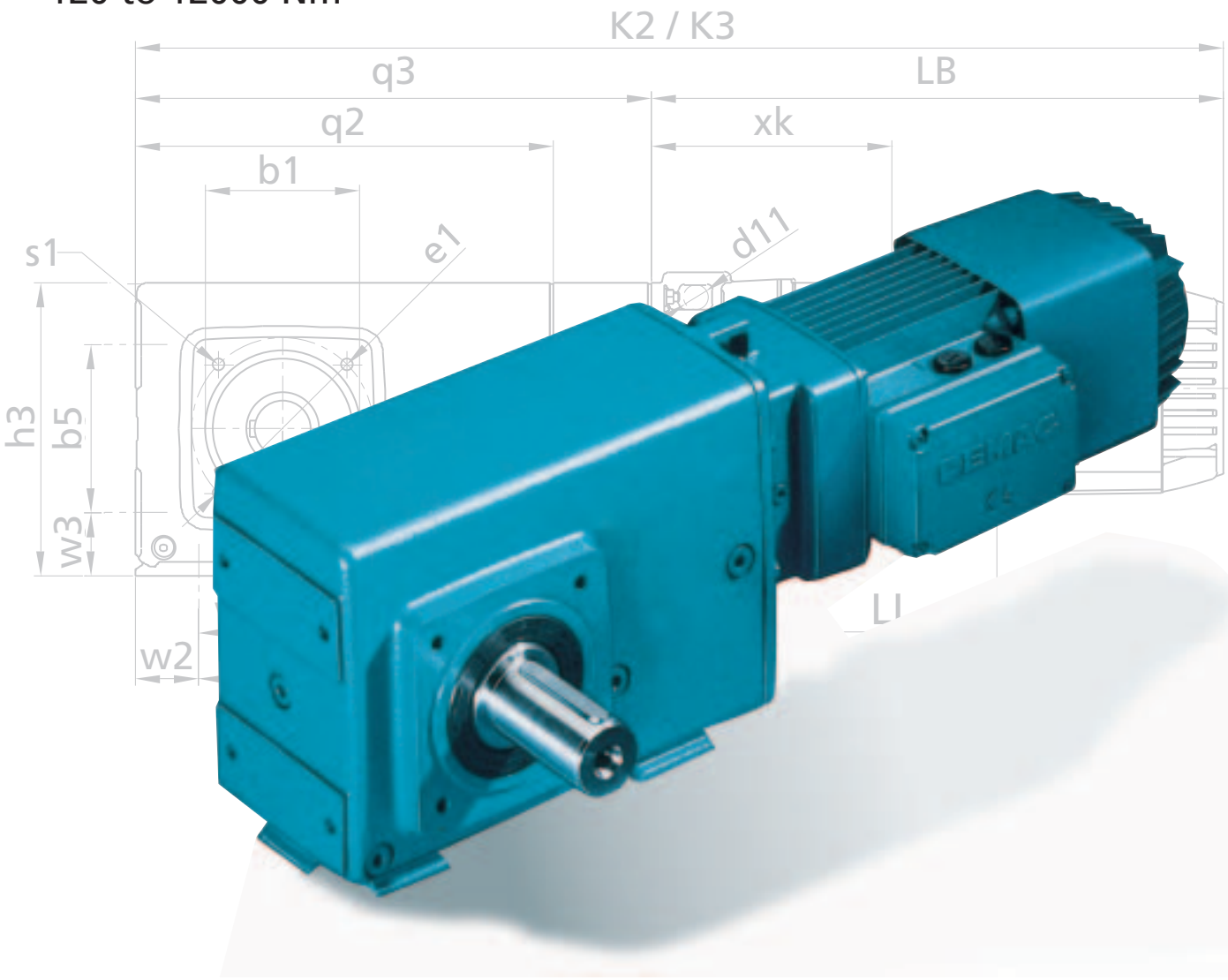


Flange-mounted type

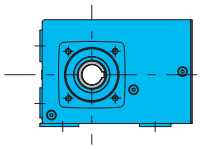
Demag type D helical geared motors are available in 9 sizes, as foot and flange-mounted units.
The transmission ratio of the basic two-stage gearbox is already very high. It can also be significantly increased by means of a third stage.
Sizes D11 to D41 feature a housing of high-quality die-cast aluminium, which guarantees high stability for a low deadweight. Gearbox sizes D50 to D90 feature a grey cast iron housing.

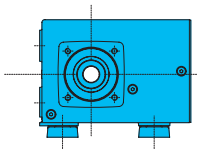
| D helical geared motors | | |
|---|---|---|
| Gearbox size | Output torque (Nm) | Transmission ratio range (i) |
| D11 | 90 | 2,80 – 63 |
| D21 | 130 | 2,80 – 63 |
| D31 | 200 | 3,15 – 250 |
| D41 | 330 | 3,15 – 250 |
| D50 | 550 | 2,78 – 251 |
| D60 | 1000 | 6,44 – 197 |
| D70 | 1800 | 6,89 – 201 |
| D80 | 3200 | 7,03 – 193 |
| D90 | 5800 | 7,49 – 220 |

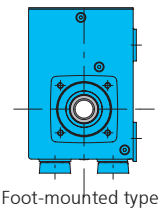
# Angular geared motors:
# 120 to 12000 Nm

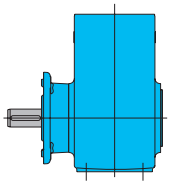



Demag type W angular geared motors are available in 10 sizes. They are fitted with output flanges, foot rails or torque brackets to meet your requirements.
Angular gearbox sizes W10 to W50 feature a hypoid wheel pair, offering good efficiency in the lower power range for quiet running characteristics and a large transmission ratio range.
Angular gearbox sizes W60 to W100 feature bevel gear wheels.
The basic hypoid gearboxes are of two-stage design. The basic bevel gearboxes are of three-stage design. The transmission ratio range of all gearboxes from size W20 can be significantly increased by means of an intermediate stage.
Gearbox sizes W10 to W40 feature a housing of high-quality gravity die-cast aluminium, which guarantees high stability for a low deadweight. Sizes W50 to W100 feature a grey cast iron housing.


Universal type

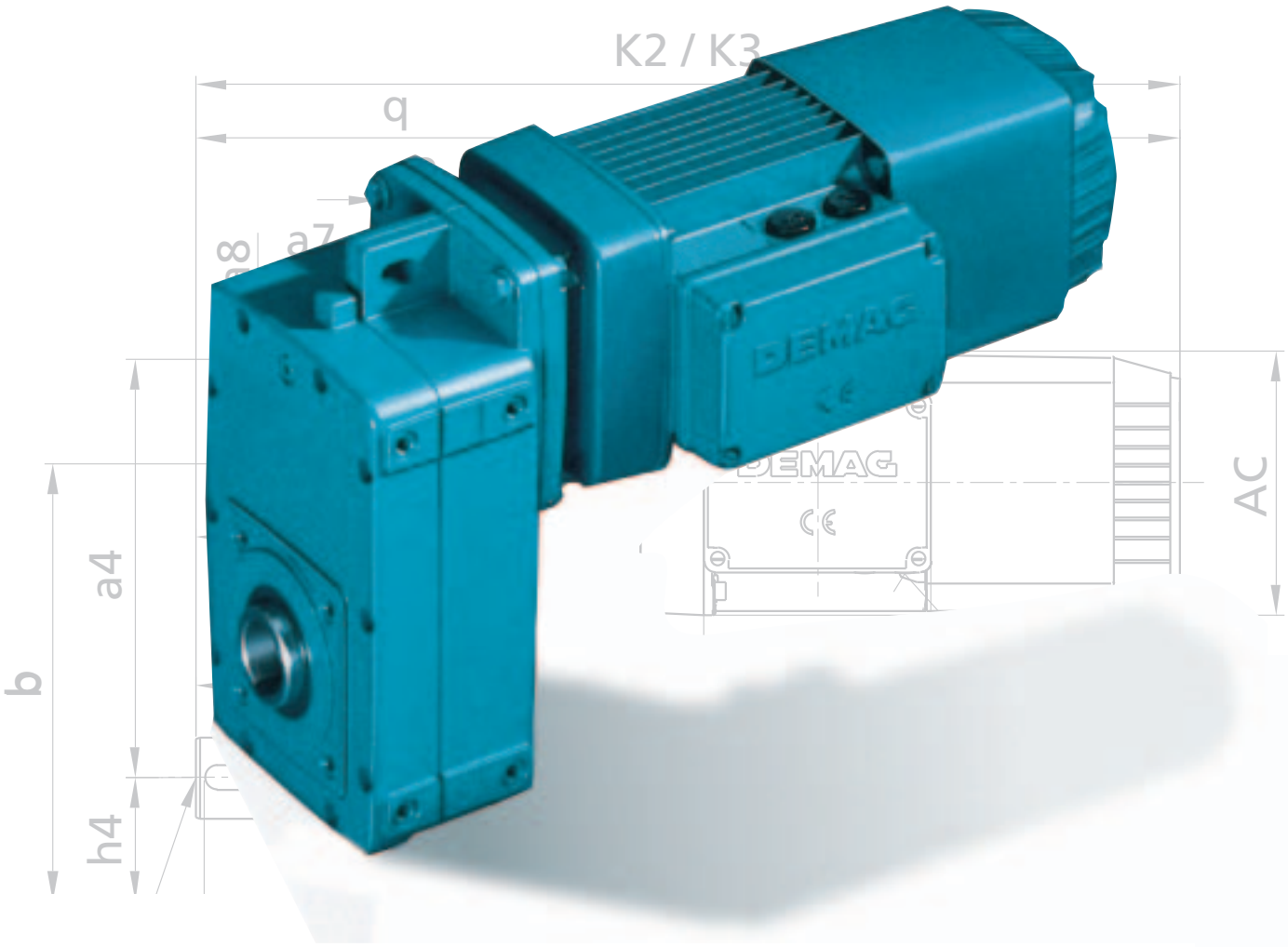

Foot-mounted type

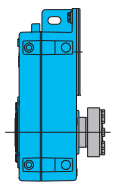

Foot-mounted type

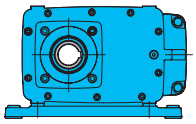

Flange-mounted type

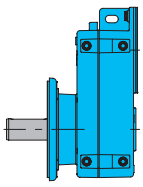
| W angular geared motors | | |
|---|---|---|
| Gearbox size | Output torque (Nm) | Transmission ratio range (i) |
| W10 | 120 | 5,34 - 100 |
| W20 | 200 | 5,45 - 369 |
| W30 | 330 | 4,85 - 371 |
| W40 | 500 | 4,85 - 371 |
| W50 | 800 | 4,94 - 386 |
| W60 | 1350 | 12,6 - 388 |
| W70 | 2500 | 13,8 - 399 |
| W80 | 4000 | 15,0 - 441 |
| W90 | 7000 | 15,9 - 434 |
| W100 | 12000 | 16,5 - 485 |

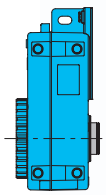
# Offset geared motors:
# 130 to 11500 Nm





Universal type


Foot-mounted type


Flange-mounted type


Integrated torque bracket design

Demag type A offset geared motors are available in 9 sizes with shaft-mounted gearboxes and torque bracket and foot or flange-mounted configuration. They offer the optimum solution for space-saving drive requirements owing to the compact design.
Gearbox size A10 is a two-stage unit, all other units are two or three-stage depending on the transmission ratio range.
Sizes A10 to A40 feature a vertically split housing of high-quality die-cast aluminium, which guarantees high stability for a low deadweight.
Gearbox sizes A50 to A90 feature a grey cast iron housing.

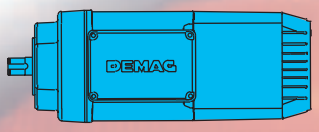
| A offset geared motors | | |
|---|---|---|
| Gearbox size | Output torque (Nm) | Transmission ratio range (i) |
| A10 | 130 | 8,32 – 52,5 |
| A20 | 205 | 6,21 – 124 |
| A30 | 370 | 3,85 – 156 |
| A40 | 660 | 3,69 – 256 |
| A50 | 1150 | 8,69 – 218 |
| A60 | 2100 | 8,91 – 297 |
| A70 | 3700 | 9,23 –267 |
| A80 | 6600 | 9,89 – 281 |
| A90 | 11500 | 10,2 – 274 |

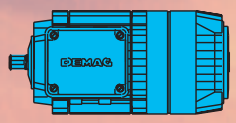
# Motors to meet your needs – from basic units and versatile cylindrical-rotor brake motors to the classic Demag brake motors

**Cylindrical-rotor motors**
With a completely new construction concept, we have designed the Demag Z type cylindrical-rotor motors for optimum combination with our gearbox system. The output ratings of the 2, 4, 6 and 8-pole motors are graded according to the IEC classification. The motor range includes pole-changing designs and motors with integrated flywheel for particularly smooth motions.
The housings of motor frame sizes Z63 to Z132 are of high-quality aluminium alloy, guaranteeing high stability for a low deadweight. Motor frame sizes Z160 to Z180 feature a grey cast iron housing.

**Cylindrical-rotor brake motors**
Demag ZB cylindrical-rotor brake motors are fitted with double-surface disc brakes which are spring-activated when no voltage is applied. Various control modules are available for electrical brake release to provide operating times in line with application requirements.
A specific brake is assigned to each ZB cylindrical-rotor brake motor as standard. A larger or smaller brake can be fitted for each motor frame size if a different brake torque is required for the application. In addition, the torque range of each brake size can be further adjusted using various brake spring combinations.

**Sliding-rotor brake motors**
Our classic Demag brake motors with sliding rotors can also be connected to our new gearboxes. They are available with various numbers of poles in frame sizes KB 71 to KB 225 of single-speed design or as pole-changing motors. Transmission ratios up to 1:500 and three or four speeds can be implemented by fitting a microspeed drive.
Demag KB brake motors are fitted with a sliding rotor. When no voltage is applied, the rotor is in the brake position. When the motor is switched on, the brake is automatically released by movement of the rotor without the need for any additional brake control elements and is automatically applied when the motor is switched off.
KB sliding-rotor brake motors are ideally suited for high starting frequencies and demanding braking operations or as particularly smooth line-controlled travel drives.



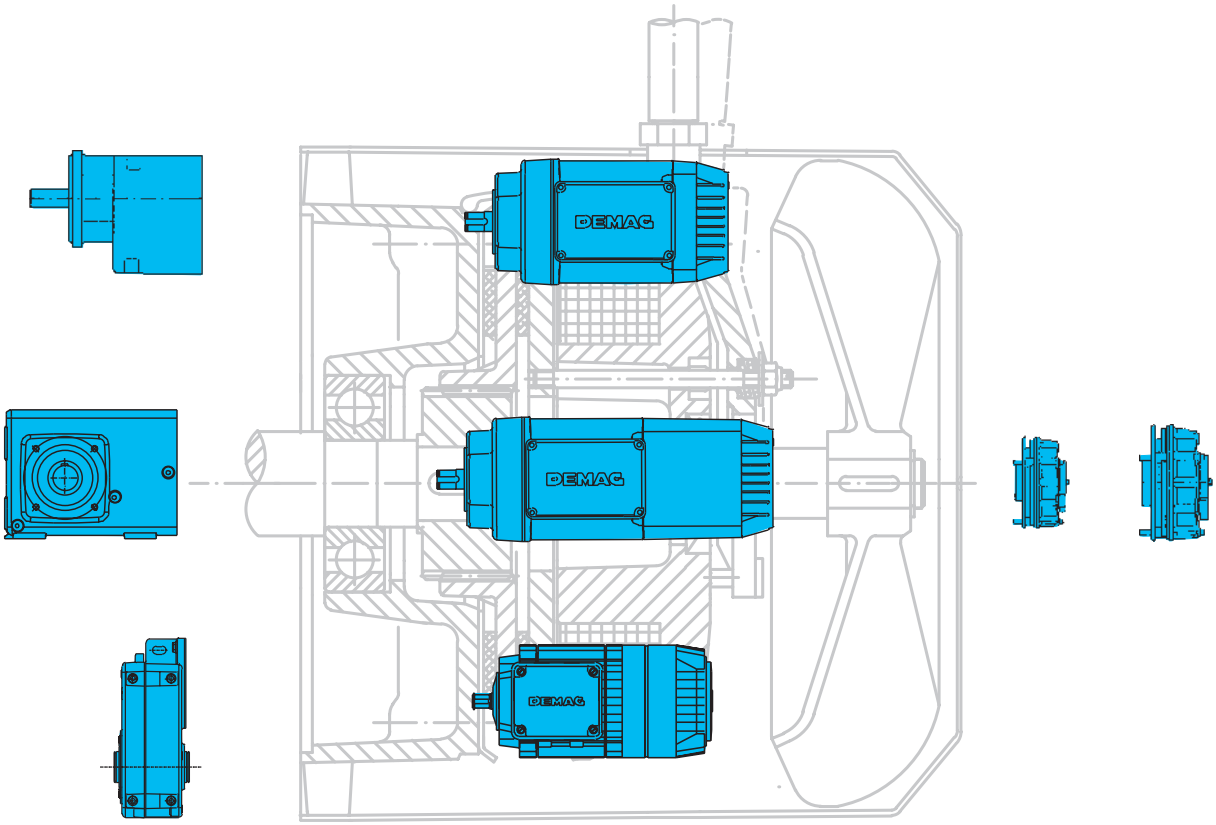

| Z motors | | Large brake | | Small brake | |
|---|---|---|---|---|---|
| Output (kW) 100 % CDF | Designation ZBA: with brake ZNA: without brake | Size | Brake torques (Nm) | Size | Brake torques (Nm) |
| 0,18 | Z . A 63 B4 | B007 | 1,3 – 7,9 | B003 | 0,9 – 2,3 |
| 0,25 | Z . A 71 A4 | | | | |
| 0,37 | Z . A 71 B4 | | | | |
| 0,55 | Z . A 80 A4 | B020 | 3,3 – 20 | B007 | 1,3 – 7,9 |
| 0,75 | Z . A 80 B4 | | | | |
| 1,1 | Z . A 90 A4 | | | | |
| 1,5 | Z . A 90 B4 | B050 | 8,3 – 50 | B020 | 3,3 – 20 |
| 2,2 | Z . A 100 AL4 | | | | |
| 3 | Z . A 100 B4 | | | | |
| 4 | Z . A 112 AK4 | | | | |
| 5,5 | Z . A 132 AL4 | B140 | 23 – 140 | B050 | 8,3 – 50 |
| 7,5 | Z . A 132 B4 | | | | |
| 9,5 | Z . A 132 C4 | | | | |
| 11 | Z . A 160 AL4 | B280 | 46 – 280 | B140 | 23 – 140 |
| 15 | Z . A 160 B4 | | | | |
| 18,5 | Z . A 180 A4 | | | | |
| 22 | Z . A 180 B4 | B680 | 113 – 680 | B280 | 46 – 280 |
| 30 | Z . A 200 A4 | | | | |
| 37 | Z . A 225 AL4 | B680 | 113 – 680 | – | – |
| 45 | Z . A 225 B4 | | | | |

| KB brake motors | |
|---|---|
| Output (kW) 100 % CDF | Designation |
| 0,37 | KBA 71 A4 |
| 0,55 | KBA 71 B4 |
| 0,83 | KBA 80 A4 |
| 1 | KBA 80 B4 |
| 1,25 | KBA 90 A4 |
| 1,55 | KBA 90 B4 |
| 1,9 | KBA 100 A4 |
| 2,3 | KBA 100 B4 |
| 2,8 | KBA 112 B4 A |
| 3,5 | KBA 112 B4 |
| 4,6 | KBA 125 B4 A |
| 5,7 | KBA 125 B4 |
| 7,4 | KBA 140 B4 A |
| 8,8 | KBA 140 B4 |
| 15 | KBA 160 B4 |
| 22 | KBA 180 A4 |
| 30 | KBA 200 B4 |
| 42 | KBA 225 B4 |

# The options:
# as comprehensive as your applications, as specific as your needs

Standard Demag geared motors already offer you an extremely wide variety of possibilities with functions tailored to meet a large range of requirements.

Numerous options enable you to adapt them even further to specific application features and your individual operating conditions.




**Gearboxes**

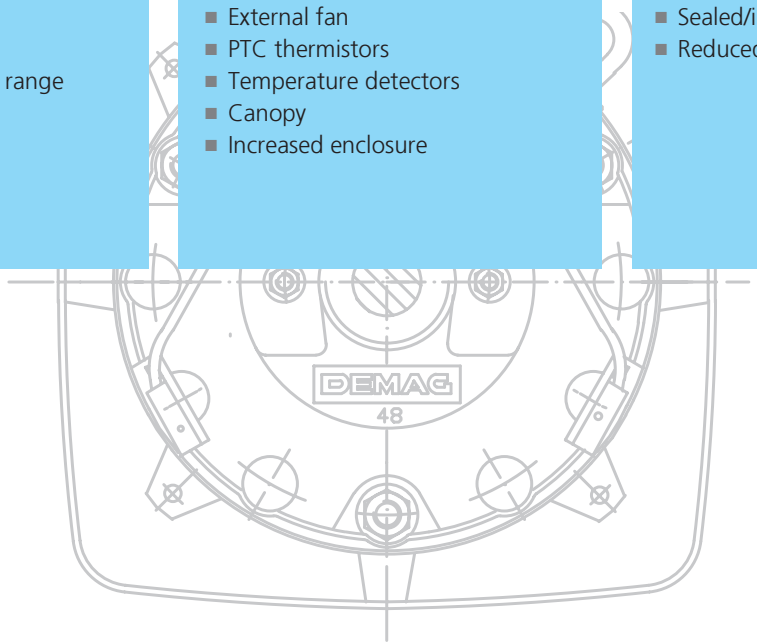
- Foot plates
- Flange mounting
- Torque brackets
- Special lubricants
- Oil level gauge
- Extended temperature range
- Special paint finish
- Special shafts

**Motors**

- Couplings
- Rotary encoders
- Heavy fan
- External fan
- PTC thermistors
- Temperature detectors
- Canopy
- Increased enclosure

**Brakes**

- Manual brake release
- Function check
- Adjustment monitoring
- Sealed/increased enclosure
- Reduced noise level design



# The right solution for the innovative design engineer: more technology, more information, more service

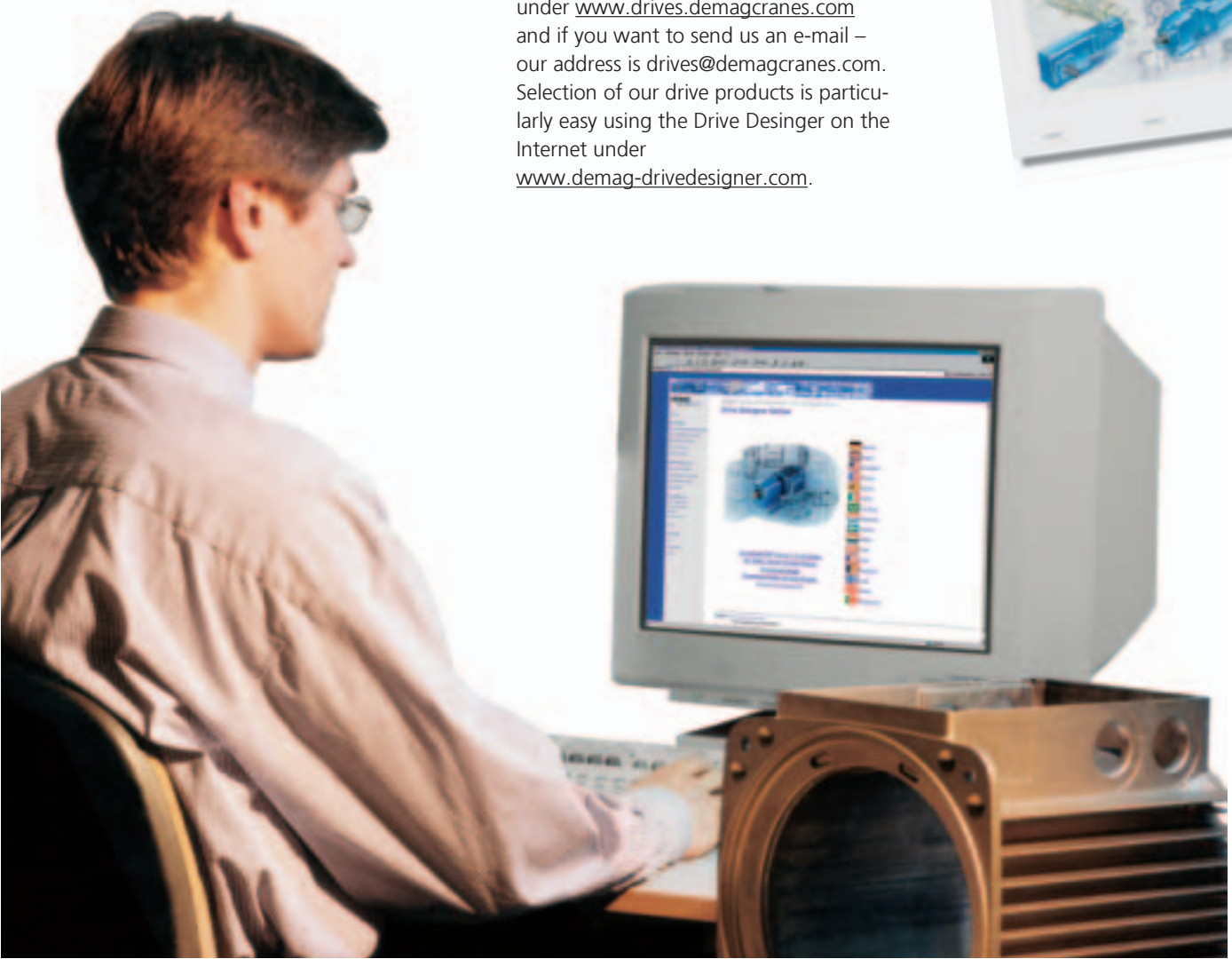
**With the expertise of the leading brake motor manufacturer**
Backed up by decades of experience in developing, manufacturing and using brake motors, we have re-designed both the gearboxes and motors of our geared motor range to match perfectly.
With the wide range of standard brake torques available, we offer everything you need for optimum implementation of your design. And we will also supply the right geared motor without an integral brake, if required.

Typical features of our innovative geared motor design are

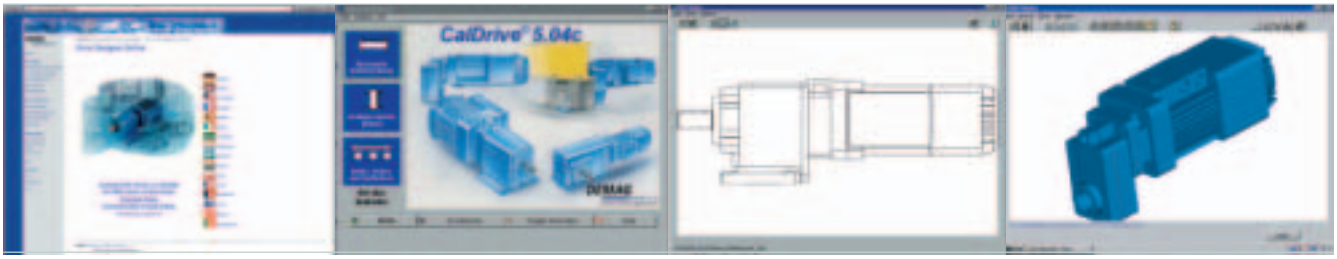
- high transmission ratio ranges
- many housing designs
- wide range of output shafts
- three motor types with many possible variants
- two brake sizes for each motor frame size for the cylindrical-rotor motors and KB sliding-rotor brake motors
- finely graded brake torques for each motor frame size

Visit our homepage on the Internet under www.drives.demagcranes.com and if you want to send us an e-mail – our address is drives@demagcranes.com. Selection of our drive products is particularly easy using the Drive Desinger on the Internet under www.demag-drivedesigner.com.

Our approx. 500 page catalogue includes all the information you need on our three geared motor types – helical, angular and offset geared motors – with selection tables relating to the various geared motor types, structured according to output ratings and providing information on the relevant dimension diagrams and price information. Here, you can also find all the data you need concerning options and special designs.



# Even easier selection and faster calculation using the Drive Designer under www.demag-drivedesigner.com




Whatever you develop and design – everything is easier, faster and safer with Drive Designer for geared motors and wheel blocks.
In a matter of minutes, you can

- specify drives
- determine dimensions
- transfer drawings to your design
- produce circuit diagrams
- specify enquiry and order data
- select and assess variants

**Specify geared motors**
When you already know the technical details of your drive, simply enter the corresponding data. Drive Designer will list all the suitable variants.
If you prefer to specify your drives yourself – use "CalDrive", the integrated calculation program, to "click" through the data menus for all the information you need.

**Select wheel blocks**
To help you select Demag wheel blocks, the program determines the optimum size based on the mass, number of travel wheels, travel distance and travel speed. The travel wheel shape, rail type, the application temperatures and the operating time can also be included in the selection criteria.

**All you need**
Drive Designer generates the individual dimension diagrams for the specific geared motors and wheel blocks you select.
The DFX file includes all the components of your drive – in a ready made file.
You can enter your own company's layer definitions and, with AutoCAD, insert the drawing directly into your design.

Drive Designer online makes it possible to generate 3D models for motors, gearboxes, geared motors, wheel blocks, travel drives and even complete sub-assemblies.

The models correspond exactly to the actual requirements of the practical application. We offer drive components in two different levels of detail:

- Low level of detail results in small files and very fast download times.
- High level of detail results in exact volume models to check for collisions with exact interfaces to other components such as shafts, flanges, threaded holes, foot plates, for example.

Drive Designer online supports the following conventional 3D CAD formats regardless of the platform: STEP, IGES, STL and VDA.

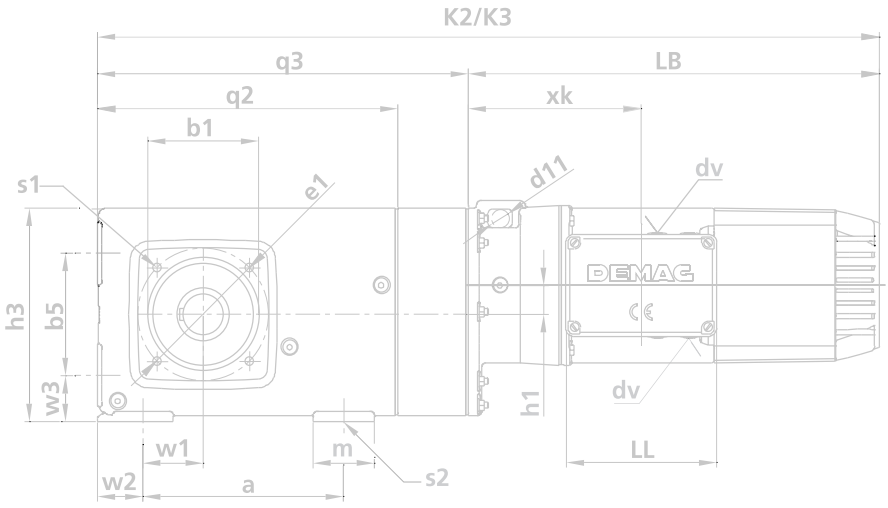
The data can also be exported in VRML format for rapid visualisation of the models using conventional viewers.

Drive Designer also provides circuit diagrams for the geared motors or driven wheel blocks you select.

All the technical data, such as weight, rated current, wheel load, brake torque, etc. are immediately available to you with the corresponding type code.

Drive Designer is available online at www.demag-drivedesigner.com.
Decisive benefits:

- Requires no installation and no hard disk space
- Latest technical data and dimensions
- All information available round the clock worldwide



# Make the new geared motor range your driving force!

**Demag Cranes & Components GmbH**
Dept. 1402 Drives
P.O. Box 67 · D-58286 Wetter/Germany
Telephone (+49/2335) 925550
E-mail drives@demagcranes.com
www.drives.demagcranes.com

**Fax (+49/2335)927298**

**Sender**

Company _____

P.O. Box/Street _____

Town/Post code _____

Contact _____

Telephone/Extension _____

Telefax _____

E-mail _____

## Anfragedaten

☐ Geared motors
☐ Solo gearboxes
☐ Solo motors
☐ with brake

Output _____ kW and/or required torque _____ Nm
Speed approx. _____ rpm

Shaft type
Solid shaft ☐ with key ☐ with splining (DIN 5480)
Hollow shaft ☐ with key ☐ with splining ☐ shrink disk
Other _____

Gearbox type
☐ helical
☐ offset
☐ angular

Housing type
☐ foot
☐ flange
☐ universal
☐ torque bracket design

Duty factor _____ or switching cycles per hour _____ c/h
☐ 1- ☐ 2- ☐ 3-shift operation
☐ light ☐ medium ☐ heavy impact

Line voltage _____ V
Line frequency _____ Hz ☐ for inverter operation max. frequency _____ Hz
CDF _____ S / _____ % CDF

Brief description of installation, e.g. lifting, travel application, conveyor system, etc.
_____
_____
_____

## Required options

☐ Manual brake release ☐ Pulse generator
☐ Forced-air cooling fan ☐ Plug connection
☐ Thermistor Other _____

## Special ambient conditions

☐ Outdoor operation Ambient temperature range from approx. _____ to _____ °C
☐ Secial paint finish (other than RAL 5009)
Other _____

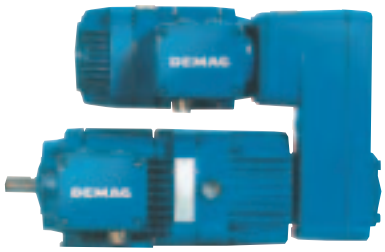
## Other

Delivery required _____
Quantity required _____
☐ Request visit by Demag Cranes & Components sales engineer
☐ Request for documentation to be sent

# Complete industrial drive solutions from wheels to inverters


21564

**Demag conical-rotor brake motors –** for increased requirements such as extremely high switching frequencies and braking operation for line-controlled drives; outputs ranging from 0.37 to 42 kW




21568-1

**Demag microspeed units –** with conical-rotor brake motors; for high speed stages and positioning with high stopping accuracy; speed ratios up to 500:1

38881-1

38956-2-1-1

**Demag Dedrive Compact and Dedrive Pro frequency inverters –** for infinitely variable speed control of series three-phase motors as single or groups drive for stopping and starting applications; motor shaft outputs up to 500 kW, current load from 2.4 to 40 A or from 4.2 to 544 A.

36633

**Demag geared motors with cylindrical-rotor motors –** for general drive applications; outputs ranging from 0.18 to 45 kW; as D helical geared motors for 90 to 5800 Nm, as W angular geared motors for 120 to 12000 Nm and as A offset geared motors for torques from 130 to 11500 Nm

37429

**Demag travel unit components –** modular systems for integration into materials handling and general engineering installations and devices featuring complete travel units without the need for any additional design work and production; for wheel sets, wheel blocks, travel drives and travel units ready for installation for wheel loads up to 60 t, with many possible connections


37371-1

**Demag Compact Line DCL –** designed for currents up to 200 A; fitted with up to 7 conductors, as required; both for supplying mobile consumers with power as well as for transferring control signals

**Demag Cranes & Components GmbH**
Drives
P.O. Box 67 · D-58286 Wetter/Germany
Telephone (+49/2335) 92-0
Telefax (+49/2335) 92-72 98
E-Mail drives@demagcranes.com
www.demagcranes.com