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# *Strong, Flexible, Innovative*

*Your Customer- and Industry-specific Systems Supplier*

Motors

Gearboxes

Inverters

Partner



## Our Motivation

There are no Problems,  
just Opportunities



*Gear surface quality assessment  
by digital microscope*

Tradition, passion and progress: Historically grown company culture with a future. Founded in 1927, ABM Greiffenberger evolved to one of the leading systems suppliers for motors, gearboxes and inverters. With a dedicated workforce, global sales and production subsidiaries with an output capacity of 330,000 units we never lose sight of what made us who we are: Customer focus and innovative systems solutions in best quality – then our customers are second to none to us.

Our focus is not only manufacturing to global standards but also development of new products. With our application specific know-how, own manufacturing sites, modular and wide-ranging product spectrum and professional supply chain, we can effectively support our customers from conception to realization phases. Service and after-sales support are of utmost significance and an essential element of our quality philosophy.

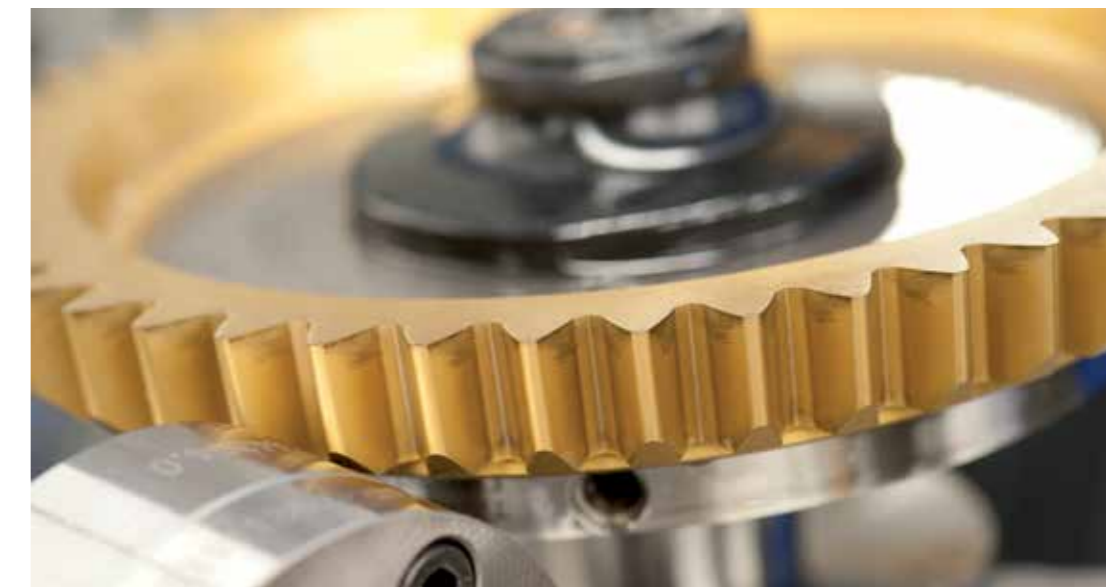
## Your Drive

Move Forward Together

Individual, flexible and demanding: The best drive solutions engineered in Germany. We believe that game-changing innovations can only be developed jointly. Therefore, we are not only a supplier to our customers but an active and passionate partner in implementation of demanding, groundbreaking and individual projects. With our products the optimum in performance and efficiency can be achieved. Our product spectrum is modular and wide-ranging and configurable in virtually unlimited variations. The drive units adapt to the application instead of the other way around. The perfect symbiosis with the goal of achieving the maximum benefit for our customer and their projects.

That our drive units exclusively exhibit outstanding properties is self-explanatory. Reliability, durability and safety are essential conditions to our competency as are dynamic behavior, quiet and maintenance free operation, and compactness. Hence we guarantee energy efficient, industry- and customer specific drive solutions and offer our customers cooperative services. All from a single source: from development to series deliveries.

That quality, on-time delivery and innovative performance are being honored by our customers confirm several awards. ABM Greiffenberger has been awarded multiple times the supplier award in category "hydraulic and e-drive trains" from Jungheinrich AG, one of the global leading forklift OEM and also for example by the Weihua-group, a Chinese hoisting technology manufacturer. Awards that fill us with pride and stimulate us to continue providing perfect efforts in the future.



*High quality gearing guarantees minimal wear  
and quiet operation – even at high loads*

## Robust & Durable End Shield AC Motors

### Advantages

This special design without a housing features high peak powers and an optimum price-to-performance ratio. Typical uses are applications with high peak loads and low continuous outputs, e.g. **traction motors** (stop & go operation) and **hydraulic pumps** (power on demand) in battery-operated vehicles. External drive controllers assume the power supply and the speed / torque control.

- High peak torque
- Compact design
- Various options available



### Technical Data

Frame Size	80	90	100	112	132	160
Output S2-60 min @ 4500 RPM (traction) [kW]	1.6	2.2	3.3	5.6	10.5	18
Output S3-15% @ 2500 RPM (pumping) [kW]	1.8	3.9	7.1	12.5	22	30
Torque S2-5 min [Nm]	10	18	28	90	160	260
Peak torque [Nm]	12.5	24	65	140	180	300
Battery voltage [VDC]	24	48		72		80
Max. output speed [RPM]	6000		7250		7000	6000
Protection Class	IP54 (connections IP00)					

Data are typical size-dependent values for non-cooled motors with different overall stack lengths. Additional detailed information and characteristic curves available upon request.

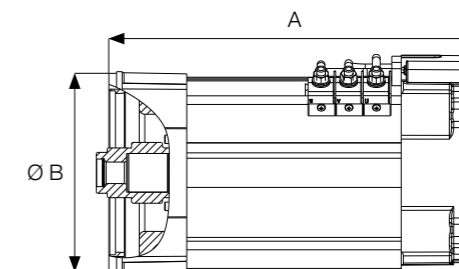
### Special Features

- Application-specific **winding design**
- Temperature monitoring via **PT1000 temperature sensor**
- **Motor speed recording** via incremental encoder with up to 64 pulses per revolution

### Options

- **Flange and output shaft** for customer-specific gearbox interfaces
- Higher **maximum speeds / torques** available upon request
- Electromechanical **holding brake**
- **UL version**

### Dimension Table



Frame Size	80	90	100	112	132	160
Length A [mm]	165 – 225	185 – 270	205 – 300	255 – 335	300 – 420	320 – 420
Diameter B [mm]	120	138	155	175	215	310
Weight [kg]	8 – 12	14 – 20	22 – 30	31 – 40	54 – 70	92 – 110

All dimensions and weights are estimates and for reference only.

### Application Examples

- **Traction motors** for electric vehicles, industrial trucks, aerial work platforms, scooters, golf carts, construction and agricultural machinery and much more
- **Boat drives** (e.g. propulsion and bow thruster)
- **Auxiliary units** in trucks, buses and work machinery (e.g. hydraulic pumps, compressors and blowers)



## Modular & Reliable TDB Bevel Gear Drives

### Advantages

The latest-generation bevel gears generate up to 15% more output torque. The „**TDB230/254 Kombi**“ version is perfect for building vehicle platforms with **differing wheel sizes**. Manual or electric steering can optionally be selected. This gearbox can also be supplied in fully integrated form in combination with a steering drive and redundant steering monitoring.

- Compact and quiet
- Small outside circle radius
- Series with various options
- Plug & Play



### Technical Data

Type	TDB230L	TDB230	TDB230/254 Kombi	TDB254
<i>Driving</i>				
Output S2-60 min [kW]	1.5	2.3	3.0	3.2
Max. wheel torque [Nm]	435	615	750	650
Static wheel load [N]	11250	12000	16000	16000
Gear Reduction Ratios	18 – 30		18.4 – 25.5	15.6 – 24
<i>Steering</i>				
Output (S3-40%) [kW]	0.63			
Steering wheel torque [Nm]	400			
Reduction Ratios	1:175			

Data are typical size-dependent values for non-ventilated motors with different overall stack lengths. Additional detailed information and characteristic curves available upon request.

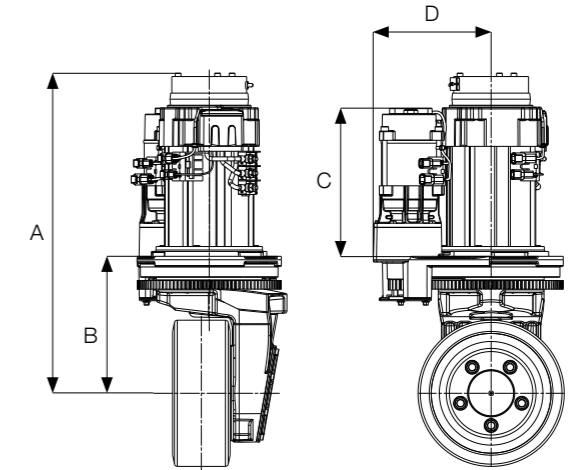
### Driving

- Special application-specific **motor sizes – vertically mounted, available in rotating and fixed versions**
- Temperature monitoring via **PT1000 temperature sensor**
- **Motor speed recording** via incremental encoder with up to 64 pulses per revolution
- Regeneration capable **AC technology**
- **Electromechanical holding brake** mounted motor-side for parking and emergency stopping

### Steering

- Optionally integrated electric **steering drive**
- Diverse **sensor** options (potentiometer, sensor bearing, PIN sensor)
- **Home switch sensor** (M12) possible
- Temperature monitoring via **PT1000 temperature sensor**
- **Redundant monitoring of steering motion** (retrofit possible)

### Dimension Table



Type	TDB230L	TDB230	TDB230/254 Kombi	TDB254
Wheel size Ø x Wheel width [mm]	230 x 70	230 x 70	230 x 102   254 x 102	254 x 100
Outside circle radius [mm]	125	125	132	135
A [mm] max.	399	477	546	562
B [mm]	204	204	221.5	238
C [mm]	258	258	258	258
D [mm]	205	205	205	205

All dimensions are approximate.

### Application Examples

- Pallet jacks
- Order pickers
- Stackers
- Reach trucks
- Driverless transport systems
- Assembly platforms



## Functional & Quiet TDF Parallel Shaft Gears

### Advantages

The **high-contact-ratio helical gear technology** guarantees maximum efficiency and quiet running. With aluminium **die casting technology** a customer-oriented solution with an outstanding price-to-performance ratio can be developed. The design and the **aluminium alloy specially** selected for a given application combine light weight and stability, particularly with sizes 200 mm and 230 mm.

- Maximum efficiency for low energy consumption
- Robust and durable
- Compact, light and quiet



### Technical Data

Type	TDF200 (upon request)	TDF230	TDF254	TDF471
Output S2-60 min [kW]	1.2	2.0	2.0	4.7
Max. wheel torque [Nm]	435	660	660	1400
Static wheel load [N]	7750	10000	11000	17000
Reduction	27	18.2 – 30	29,7	31.3

Data represent typical values. Additional detailed information and characteristic curves available upon request.

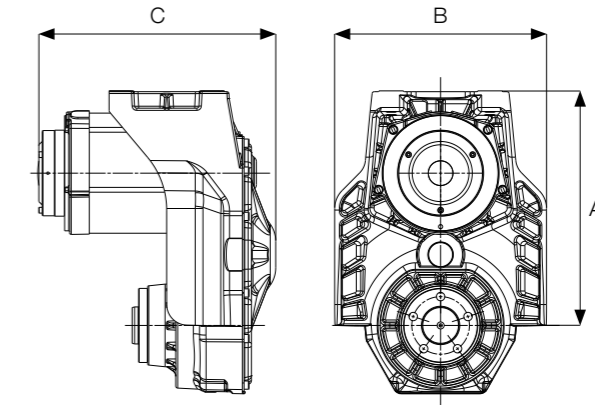
### Special Features

- Special application-specific **motor sizes – horizontally mounted**
- Sizes 254 and 471 in ductile iron
- Sizes 200 and 230 in die-cast aluminium
- **Motor speed recording** via incremental encoder with up to 64 pulses per revolution

### Options

- **Development of customer-specific housings** possible for fleet covering platform designs or large vehicle volumes
- Mounting of customer-supplied motors possible

### Dimension Table



Type	TDF200	TDF230	TDF254	TDF471
Wheel Diameter Ø x wheel width [mm]	200 x 70	230 x 70	254 x 100	471 x 183
Swing radius [mm]	125	170	168	195
A [mm] max.	235	300	292	504 (Four-point bearing)
B [mm]	228	211	236	260
C [mm]	233	211	236	260

All dimensions are estimates and for reference only.

### Application Examples

- Pallet trucks
- Autonomous transport systems
- Three-wheel sit down forklift trucks
- Sweeper/Scrubbers
- Aerial work platforms



## Robust & Powerful TDH Hub Wheel Drives

### Advantages

Hub wheel drives are characterised by a **compact design** with drive components integrated into the drive wheel. The particularly robust design permits **high static and dynamic wheel loads**. The **high wheel torques** at low rotational speeds facilitate travelling on inclines and precise maneuvering.

- Robust construction
- High maximum torque
- Various options available



### Technical Data

Type	TDH230	TDH280	TDH405	TDH450
Output S2-60 min [kW]	0.6	1.2	0.85	2.0
Max. wheel torque [Nm]	360	525	900	2000
Static wheel load [N]	7000	8000	12000	15000
Gear Reduction Ratios	36	42	67	69

Data represent typical values. Additional detailed information and characteristic curves available upon request.

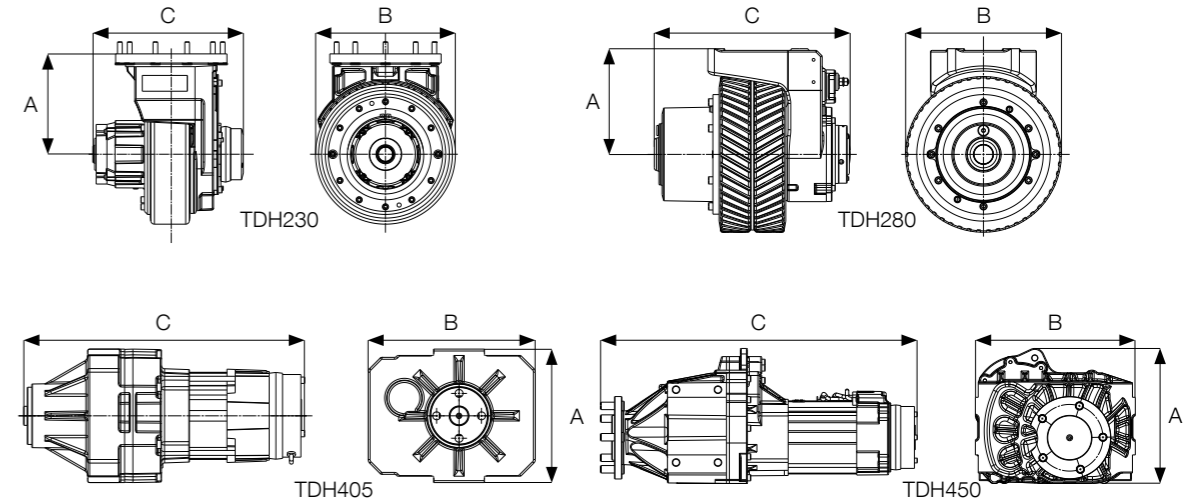
### Special Features

- Application-specific **winding design**
- Temperature monitoring via **PT1000 temperature sensor**
- **Motor speed recording** via incremental encoder with up to 64 pulses per revolution

### Options

- **Wheels and wheel flange** according to customer specification
- Integration of a **turntable bearing** for TDH230
- **UL version**

### Dimension Table



Type	TDH230	TDH280	TDH405	TDH450
Wheel diameter Ø x wheel width [mm]	230 x 65	280 x 120	typical 406 x 127	typical 450 x 178
Height A [mm]	165	190	210	284
Width B [mm]	230	353	263	336
Length C [mm]	248	280	435	637
Swing radius [mm]	135	180	-	-

All dimensions are estimates and for reference only.

### Application Examples

- Pallet trucks
- Aerial work platforms
- Autonomous transport systems
- Sweeper/Scrubbers



## Compact & All-Purpose AC Motors with Housings

### Advantages

This special model with motor **housing** has optimised cooling for higher continuous outputs. Typical uses are applications with high peak loads and high continuous outputs, e.g. **traction motors** in battery-operated vehicles in rugged **environmental conditions**. External drive controllers assume the power supply and the speed / torque control.

- Energy-efficient
- High power density
- High peak torque
- Series with various available options



### Technical Data

Frame Size	100	112	160
Output S2-30 min [kW]	3.0 – 5.0	15 – 19	20 – 30
Rated speed [RPM]	3900	5140	2600
Torque S2-5 min [Nm]	45	130	260
Battery voltage [VDC]	48	72	80
Max. output speed [RPM]	7250		6000
Protection Class	IP54 (terminal connections IP00)		

Data are typical size-dependent values for non-ventilated motors with different overall stack lengths. Additional detailed information and characteristic curves available upon request.

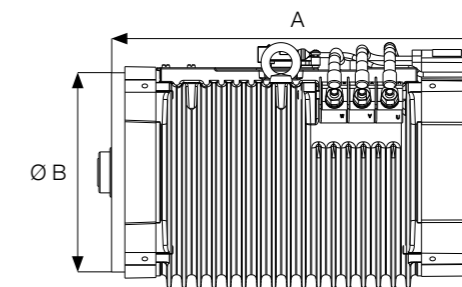
### Special Features

- Application-specific **winding design**
- Temperature monitoring via **PT1000 temperature sensor**
- **Motor speed recording** via incremental encoder with up to 64 pulses per revolution

### Options

- **Flange and output shaft** for various gearbox makes and with bearings available
- Higher **maximum speeds / torques** available upon request
- Electromechanical **holding brake**
- **UL version**

### Dimension Table



Frame Size	100	112	160
Length A [mm]	190 – 273	337	520
Diameter B [mm]	180	218	310
Weight [kg]	17 – 27	43	114

All dimensions are estimates and for reference only.

### Application Examples

- **Traction motors** for electric vehicles and Ground Support Equipment GSE such as baggage tow tractors, pushback tractors, belt loaders and airport ground vehicles as well as construction and agricultural machinery
- **Auxiliary units** such as hydraulic pumps, compressors, blowers, e.g. in lorries, buses and work machinery
- Drive Units for **electric boats**

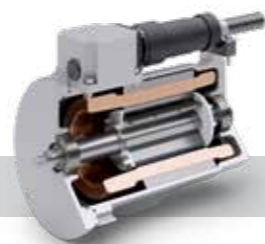


## Dynamic & Efficient SINOCHRON® Motors

### Advantages

The ABM SINOCHRON® Motor is a **permanently excited synchronous motor** with internal magnets. The specific rotor shape generates a **sinusoidal** distribution of the magnetic flux. This yields special properties enabling, apart from a virtually nonexistent cogging torque, reliably **regulated operation with no sensors**.

- High power density
- Highest efficiencies in partial load mode
- Several sizes and lengths
- Various models



### Technical Data

Frame Size	63	80	100
Output S1 @ 3000 RPM [kW]	0.4 – 1.4	1.4 – 3.6	6.5 – 13.0
Peak torque [Nm]	2.3 – 8.0	8.0 – 20.6	37.8 – 51.5
Output S3-15% @ 2500 RPM (pumps) [kW]	0.5 – 1.6	1.6 – 4.0	7.5 – 15.0
Battery voltage [VDC]	from 24		
Max. output speed [RPM]	6000		
Protection Class	IP54 (terminal connections IP00)		

Data are typical size-dependent values for non-ventilated motors with different overall stack lengths. Additional detailed information and characteristic curves available upon request.

### Special Features

- Application-specific **winding design**
- **Sensorless operation** possible due to the special rotor design
- Ventilated, non-ventilated and electric fan cooled versions available
- Temperature monitoring via **PT1000 temperature sensor**

### Options

- **End shield, housing or special motor** versions
- **Rotor position encoders** (resolvers, sin/cos encoders, Hall sensors)
- Electromechanical **holding brake**
- **UL version**
- Special version in **IP6K9K**

## Compact & Sensorless Drive Controllers

### Advantages

#### Converters and sensorless control

ABM provides drive controllers with or without encoder feedback operation for the asynchronous and SINOCHRON® series. Drive controllers as standalone or add-on devices are available for mains voltages or battery supply. The modular drive controllers can be configured for numerous interfaces, fieldbus systems and user interfaces.



### Technical Data

Frame Size	a	A	B	C	D	
Recommended motor output [kW]	0.25 – 0.75	0.37 – 1.1	0.55 – 1.5	2.2 – 4.0	5.5 – 7.5	11 – 22
Overload	150% for 60 s					
Supply AC voltage	1 x 100 – 230 V   50 – 60 Hz		3 x 200 – 480 V   50 – 60 Hz			
Battery DC voltage	140 – 320 V		280 – 680 V			
Output frequency	0 – 400 Hz					
Protection Class	IP 65				IP 55	

Data represent typical size-dependent values. Additional detailed information available upon request. We would be happy to offer customer-specific board solutions for direct integration into motor terminal boxes or in specific applications or machines with the corresponding volumes of mass-produced parts.

### Application Examples

- **Auxiliary units** in trucks, buses and work machinery (e.g. hydraulic pumps, compressors and blowers)
- **Steering drives** (e.g. steer-by-wire) in industrial trucks
- **Boat drives** (e.g. propulsion and bow thruster)
- **Traction motors** for electric vehicles, industrial trucks, aerial work platforms, scooters, golf carts, construction and agricultural machinery and many more
- **Positioning drives** (e.g. stair lifts)





## Individual & Solution Optimized Application Specific Drive Systems

### Advantages

Our core strengths include innovative and efficient drive systems for mobile applications. ABM Greiffenberger has been developing and manufacturing drives for industrial trucks for more than 30 years and has comprehensive know-how in this area. In close collaboration with our clients and under permanent observation of the market, we develop space- and cost-optimised drive systems that integrate all aspects of the planned use. In the process we proactively pursue the goal of continuous improvement on all levels to make the end result ever more dynamic and profitable.

Out of a broad technology platform for motors and gearboxes, an ultra-modern aluminium die casting foundry, in-house component manufacturing facilities for motor windings and gear teeth, and automated manufacturing and assembly lines arise high-grade products and system solutions – always with first-class quality.

### Application Examples



Steering unit for counterweight stackers



Main and levelling drives for stair lifts



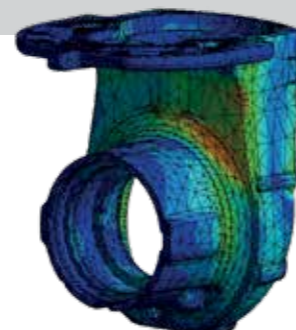
Electric differential axle for forklift trucks and transport systems



Integrated steering gear motor with control for order pickers

### Development Expertise

Comprehensive experience, application-specific knowledge and a joint development and engineering expertise portfolio are required for turning ideas into innovative solutions. At ABM Greiffenberger each project is completed by highly qualified specialists working as a team over the entire process duration. All ABM Greiffenberger products are developed using state-of-the-art simulation technologies and design tools and are validated through intensive tests. This guarantees that they meet all technical requirements.

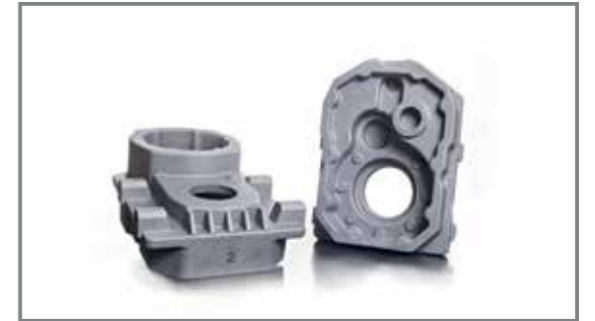


### Manufacturing Expertise

All products are designed in-house. Components which represent core competencies are manufactured by ABM Greiffenberger in state-of-the-art in-house manufacturing facilities with reliable processes.

#### From idea to innovative solution

With additive manufacturing even complex prototypes can be quickly provided for customer-side tests – thus eliminating the costs of mass production moulds for the customer.



#### Passion for Perfection

State-of-the-art testing technologies support our experienced colleagues in their daily work. Apart from various performance test benches (type testing / service life testing), both an environmental chamber for thermal investigations and an acoustic test chamber are available. A test laboratory for materials analysis ensures quality in the design and engineering already at the development stage.



#### Competence that Moves more

With its state-of-the-art in-house aluminium die-casting foundry, ABM Greiffenberger has attained a prominent position in the production of gearbox housings. Our customers benefit from this by receiving complex, lightweight housings with maximum stability and strength. Another core competency is in-house mould and jig construction for making the required die casting moulds and jigs for series shipments.



#### Precision Work in Series

State of the art also in production: The required parts are manufactured using innovative, automated and nevertheless flexible manufacturing machines and cells. Robotcontrolled manufacturing cells as well as winding lines guarantee uniform series quality. Fast setup times permit fast adjustments.



#### Highest Quality is our Standard

Quality down to the tiniest detail is the top priority at ABM Greiffenberger from the first planning step to the final product check. For this reason we pursue a consistent zero-defects strategy in connection with an enterprisewide continuous improvement process. Besides test benches at the end of the line, there are high-precision measuring machines for individual processes along the entire production path.



#### Service and Support

Of course service and support are also valued highly at ABM Greiffenberger and are permanent elements of our ambitious quality philosophy.

## Hoisting Technology

### Hoist and Traction Drive Units for Cranes and Hoists



*Safety without Compromises – More than one million traction and hoist drive units of ABM Greiffenberger are used all over the world.*



Longevity, flawless function and safety even in rough conditions: Those are the core requirements for industrial cranes. At high throughput as well as frequent starts and reversals delicate positioning has to be assured.

ABM Greiffenberger has developed and manufactured hoist drive units for more than 40 years and offers a broad range of hoist and traction drive units especially for the hoisting industry.

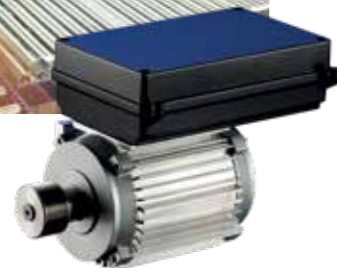
More than one million travel and hoist drive units have been delivered for cranes all over the world – at the same time, our highly qualified engineers consistently optimize them for best quality and customer benefit.

## Intralogistics

### Transport, Hoist and Roll Drive Units for Warehouse Logistics



*SINOCHRON® Motors of ABM achieve the maximum efficiency in the partial load range and, thus, save energy.*



Manufacturers of warehouse and commissioning systems of any kind require energy-efficient motors and gearboxes. All the components must be maintenance-free, durable and easy to integrate.

ABM SINOCHRON® drive units offer maximum efficiency and power density in compact format. The compact design makes angular geared motors ideal for use in confined spaces. The 2-stage helical gearboxes, which are used in curved belts, stand for absolute robustness, high quality and long life.

The ABM drive controllers, which achieve optimal performance for every application by individual customization, complete our portfolio. The decentralized structure reduces wiring costs and increases the flexibility.

## Renewable Energies

### Drive Units for Pellet and Woodchip Heating Systems



*The extremely high efficiency of the ABM geared motors reduces the energy demand of the equipment and helps to reduce operating costs*



Biomass heating systems require well thought-out drive unit technology in many areas: Stored woodchips or pellets in a silo need to be conveyed by a removal system and transported to the boiler by an auger. Additionally, there is continuous cleaning of heat exchangers and ash removal.

ABM Greiffenberger offers an ideally designed drive unit solution with absolutely exemplary energy efficiency for each of these applications. The high overall efficiency of helical and parallel shaft gears reduces the energy intake drastically and helps to save energy.

The agitator gearbox, which has been developed especially for the use in agitators for woodchip conveying, with its patented material combination provides for low wear and more than 10,000 hours of operation.

## Renewable Energies

### Pitch Drives for Wind Turbines



*Pitch drives guarantee a high load-bearing capability and meet all the safety requirements.*



Drive systems for wind turbines should run undisturbed for 20 years and longer with a minimum of maintenance. Pitch drives as well as motors from ABM Greiffenberger meet the tough demands on reliability and durability of wind turbine OEM's.

They are characterized by silent running, high overload capacity and best efficiency. Furthermore, they are designed for easy oil changes even in adverse conditions at the high altitudes of a wind turbine tower and they operate in temperatures as low as – 40° C. Naturally, the drive units are also available for on- and offshore applications.



# We Drive the World

A dense network of international subsidiaries and sales offices in all major industrial countries ensure close contact with our customers around the world – and guarantee an excellent standard of service.

Please contact us for further detailed information.

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