

Motors and Gearboxes for Material Handling

Innovative
Energy efficient
Reliable



Reliability In All Areas

ABM Greiffenberger develops and manufactures cutting edge drive solutions in highest quality. Individual components, such as motors and gearboxes, for our system solutions are from one single source and precisely tuned to each other already during the development phase. This is how industry specific and optimized solutions for well-known manufacturers of lifting technology, warehouse logistics, pallet trucks, wind turbines, biomass heating systems, electric vehicles and other markets are developed.

Innovation, sustainability, partnership and maximum flexibility are the dictums of our actions. That is how highly qualified personnel develops and produces more than 300,000 drive units annually. International subsidiaries as well as partners in all important industrial nations assure close contact to our customers world-wide.



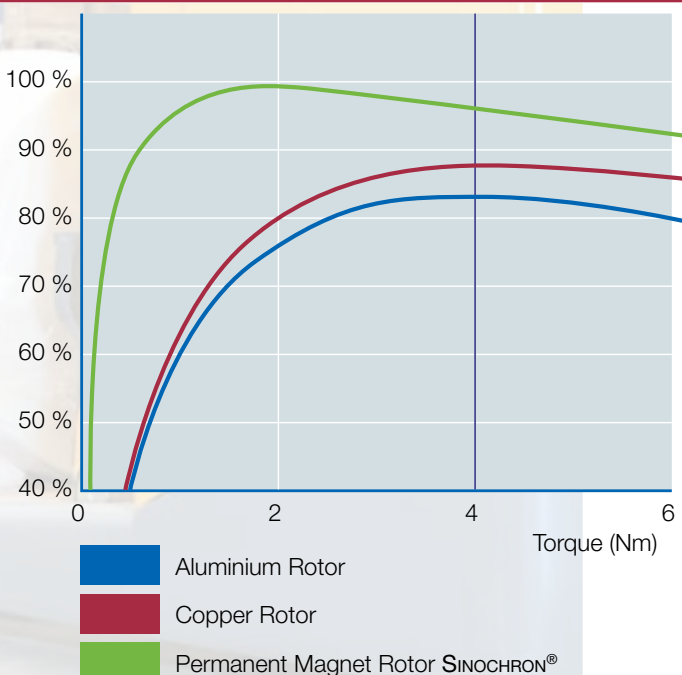
Material Handling Know-how

Since 1995 ABM Greiffenberger manufactures AC motors for material handling applications and hence can bank on comprehensive know-how as systems supplier for the pallet truck industry. No matter if for traction, lifting or steering our customers always receive the optimal drive solution for their application. We closely collaborate with you from development phase to production start.

Perfect Efficiency

Use of the latest gear- and motor technology demonstrates our commitment to energy efficiency. Regardless if your tailor-made drive is coming from our modular design or has been specifically designed for you – the energy efficiency of your drive is always industry leading.

Efficiency



Traction and Steering Drives



ABM **traction drive systems** solutions are available as bevel gearboxes (TDB), helical gearboxes (TDF) and hub wheel drives (TDH). All drives excel with outstanding efficiencies and quietness, high static wheel loads of the compact design gearboxes. **Steering Drives** from ABM Greiffenberger with outputs up to 1.2 kW excel especially with their small, compact design but still offer high steering forces and dynamic steering movement.

Integrated solutions reduce complexity of number and accuracy of interface parts and assembly times. Regardless if sourced as an individual component or integrated into an ABM gearbox system, maintenance free ABM induction and SINOCHRON® motors provide high power density and outstanding reliability. ABM **traction motors** are available in outputs of up to 18 kW (duty cycle S2-60 min.).



Lifting / Pump Motors

To power **hydraulic pumps AC induction motors** with outputs up to 30 kW (duty cycle S3-15 %) or SINOCHRON® motors are available. We design customer specific mechanical and electrical interfaces to your hydraulic pump. This guarantees, as is the case with traction motors, that already during the development phase of your drive solution power density and reliability are being built in on a highest standard.



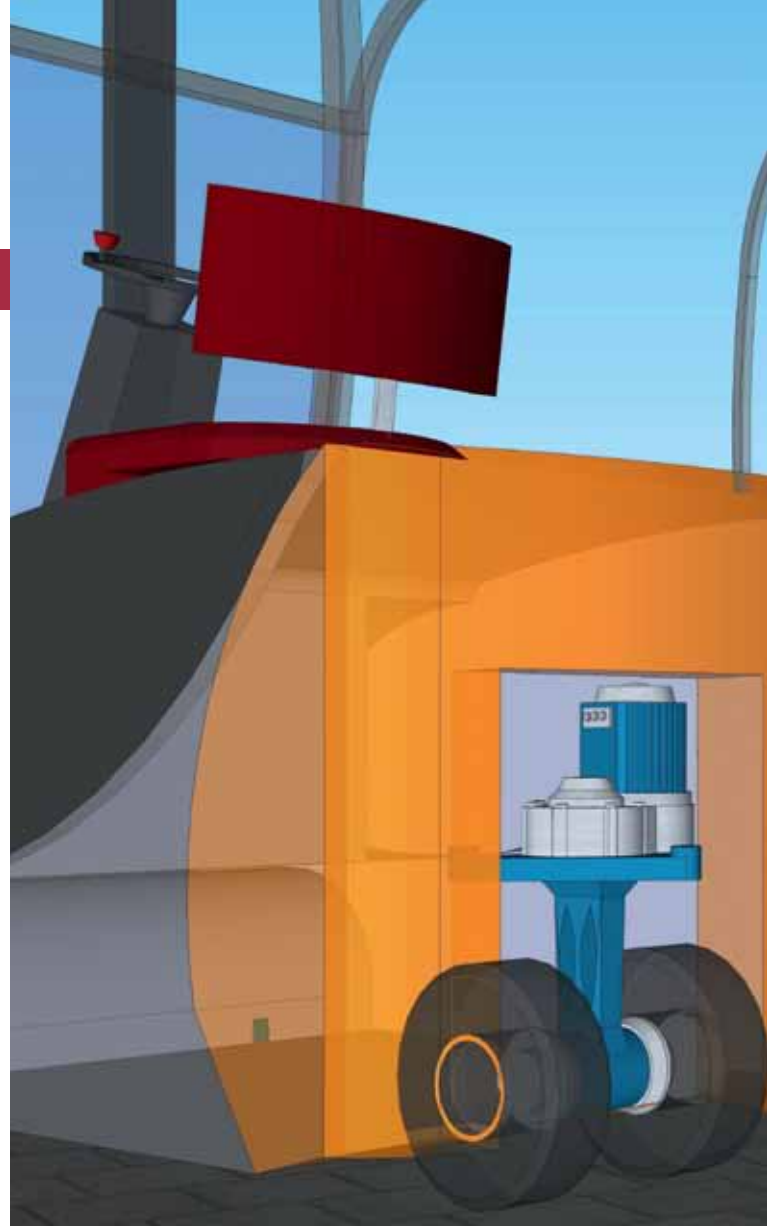
Customized Drive Units

ABM Greiffenberger also offers customized drives for mobile applications that are specially tuned to individual vehicle requirements. For example ABM builds the type SDH steering gearbox for 3-wheel sitdown forklifts or the type TDH 280 specially designed for sweeper / scrubber vehicles.

For customers with especially tough demands for compact design and driving dynamics, ABM can offer on mid size and large volumes steering drives with the ABM SINOCHRON® technology.

High Grade Drive Solutions for the Material Handling Industry

Efficient Systems Solutions
from a **Single Source**
with **Low Energy Consumption**



Manufacturers and users of forklifts and electrical vehicles, electrical pallet trucks and even sweeper/scrubbers expect sophisticated drive technology:

- high output at optimum energy consumption
- low maintenance cost
- long life without unexpected down times
- compact design
- ease of integration into the vehicle

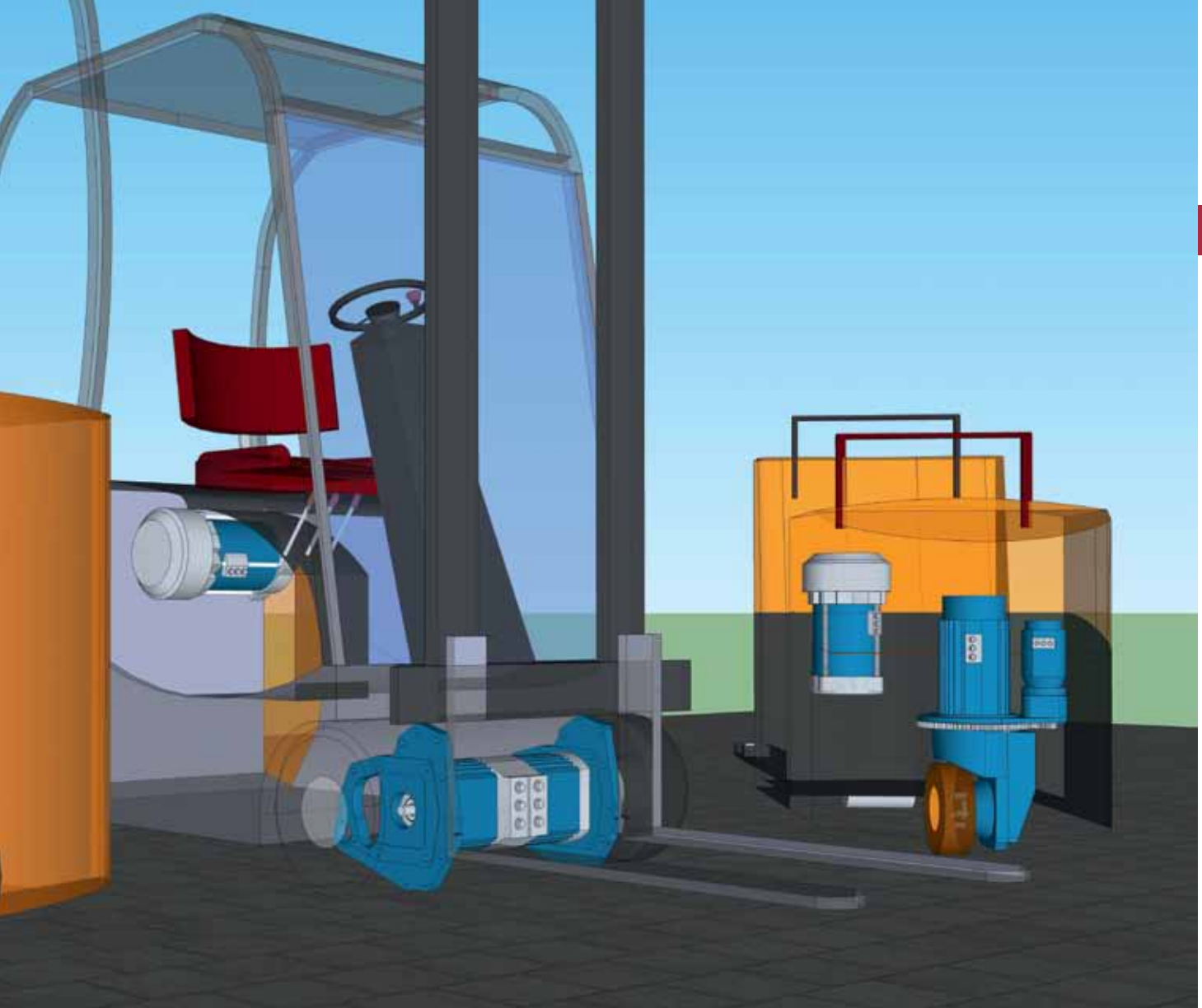
ABM Greiffenberger offers you systems solutions that meet all the demands for traction, lifting and steering – all from a single source.

Exemplary Energy Efficiency

In our gearboxes, made in house, only highest grades of gears are being used. They excel with high efficiency and minimal torsional backlash. This is not only the base for exemplary energy efficiency but also quiet operation. The excellent efficiencies of our AC- and SINOCHRON® motors care for economical use of your battery capacity.

Long Life and Reliable

When it comes to long life and reliability experiences made in other industries such as hoist technologies and wind turbines influenced the development. ABM also supplies complete drive systems to these very demanding industries.



Technology and Integration

With our own aluminium die cast department and tool room we are one of the leaders in developing and manufacturing of aluminium gearbox housings.

Combined with in-house manufacturing of high value electrical motors this builds the foundation for optimum tuning and integration of components for compact and innovative drive systems.

Benefit for our customers: minimal mounting space for the drive units offer more design freedom to the vehicle designer for placement of other components and the overall construction of the chassis. Our traction drive with integrated steering is a perfect example for this concept.

Plug-and-Play

Besides the technical features of the drives, ABM's actual drive program also offers economical advantages: For vehicle

OEM's represent the purchase of complete traction- and steering unit with perfectly tuned components lower design effort and a reduction of interfaces. Not to forget the reduced assembly time and lower parts inventory - ideal conditions for optimum design and smooth production.

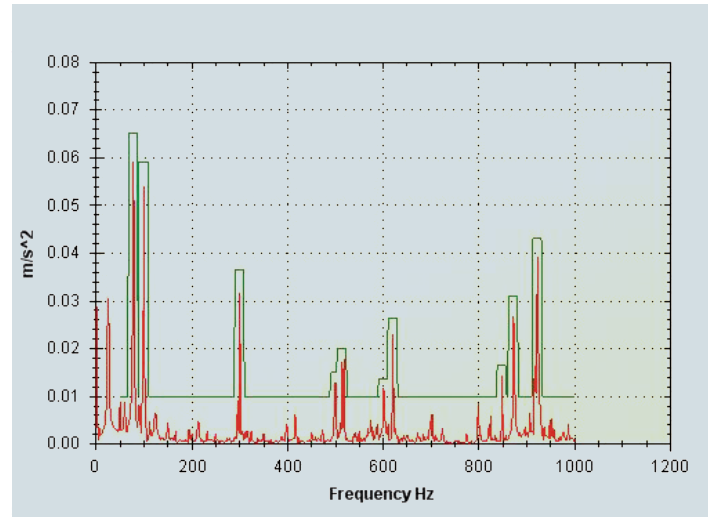
Competence by Vertical Integration

Typical for all ABM drives is the high vertical integration: Gearing, available on each platform in different ratios and types of gearing, are manufactured completely just like the electrical motors in house.

This makes ABM Greiffenberger a partner that provides the competency in the necessary technologies. Our know-how in all facets of manufacturing build an ideal foundation for optimal drive solutions for your vehicle and company.



Measurement of Sounds and Quality and Objective Evaluation



Quality from the Start

Development and manufacturing of high value electrical motors is also part of the core competencies of a systems supplier that operates with the motto „The Single Source for all Your Drive Needs“ and „Made in Germany“. This is the foundation for the high quality and reliability of ABM Drive Systems.

For the development of the gearboxes the latest CAD programs and simulation tools, e.g. Ansys 12 for FEM analyses and KissSoft as well as FVA Work Bench for gearing calculations, were used. Design and installation space drawings and layouts required for vehicle integration are available from ABM to OEM's in different 3D formats.

For final inspections of complete production drive units, high-precision measuring machines and a test bench are available allowing 100 % inspection of the most complex drive units. ISO 9001 certification is a matter of course as well as the environmental and energy management system which is certified according to ISO 14001 and ISO 50001.





Bevel Gearbox Drive Units Type TDB

Type	TDB230L	TDB230	TDB230/254 Combi	TDB254
Traction				
Power (S2 - 60 min) [kW]	1.5	2.3	3.0	3.2
Max. wheel torque [Nm]	435	615	750	650
Wheel load stat. [N]	11250	12000	16000	16000
Ratio	18 - 30		18.4 - 25.5	15.6 - 24
Steering				
Power (S3 - 40%) [kW]	0,63			
Steering torque at wheel [Nm]	400			
Ratio	1:175			



Helical Gearbox Drive Units Type TDF

Type	TDF200 (on request)	TDF230	TDF254	TDF471
Power (S2 - 60 min) [kW]	1.2	2.0	2.0	4.7
Max. wheel torque [Nm]	435	660	660	1400
Wheel load stat. [N]	7750	10000	11000	17000
Ratio	27	18.2 - 30	29.7	31.3



Hub-Wheel Drive Units Type TDH

Type	TDH230	TDH280	TDH400	TDH450
Wheel load stat. [N]	7000	8000	12000	25000
Max. wheel torque [Nm]	360	525	900	2000
Power (S2 - 60 min) [kW]	0.6	1.2	0.85	2.0
Ratio	36	42	67	69



AC Induction Motors

Type	AC Pump Motors	AC Traction Motors
Motor type	Maintenance free AC induction motors	
Protection class	up to IP 55	up to IP 55
IEC frame size	56 up to 160	56 up to 160
Motor Output up to [kW]	30 (S3 - 15%)	18 (S2 - 60 min)

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.

Kindly contact us for further detailed information.

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