

Less Energy Consumption and Even More Compact

A new Drive Concept for Electrical Material Handling Vehicles

ABM Greiffenberger introduces with SINOCHRON[®]-Drives a completely new drive system for electrical material handling vehicles. This new drive option combines the advantages of servo- and induction motors. By eliminating speed sensors SINOCHRON[®]-Drives are even more reliable than conventional induction motors and consume up to 20 % less energy

As one of the first manufacturers of induction motors for material handling vehicles, ABM Greiffenberger made major contributions so today's latest generation of fork lifts are more powerful, comfortable and energy efficient. These developments have not reached its pinnacle: At the CeMAT ABM will introduce a new drive concept conserving even more energy.

New Motor Design



ABM Traction Motor as SINOCHRON[®]Design

SINOCHRON[®]-Motors developed by ABM Greiffenberger use high performance, permanent-magnets with sinusoidal magnetic field and even flux distributions. This allows speed sensors to be eliminated.

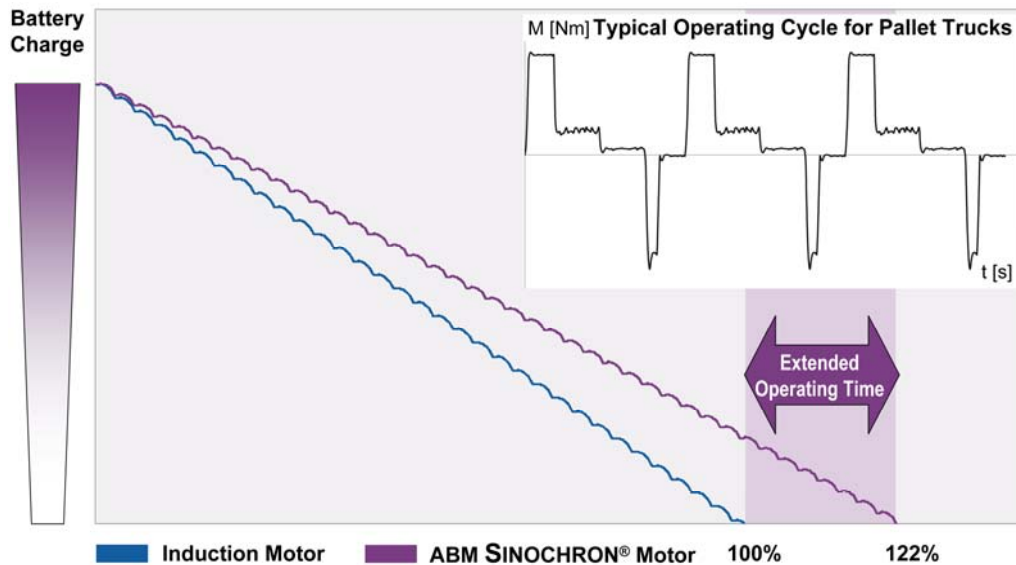
Actual values for rotor position and speed are no longer picked up by motor integrated sensors but calculated from electrical values.

Features of this compact motor design are smooth, torque ripple-free rotation, outstanding efficiency and control behavior. Compared to induction motors short term overload capacity is double – allowing in many applications to select a smaller motor frame size. Compared to servo motors they excel with encoder-free operation made possible by the sinusoidal back-EMF signal. Additionally motor hook-up is simplified and reliability increased because speed sensors including their wiring are eliminated.

Energy Reduction of over 20%

In regard of energy efficiency of drive systems **SINOCHRON**[®] motors are exemplary: They even exceed the guidelines of the highest efficiency class “Premium Class”, whose introduction is eminent and specifications go beyond the current class EFF1. Even in partial load operational range the motors run with high efficiency. Exemplary efficiency guarantees the end user energy cost savings and contributing to conserving resources.

In the real world typical energy consumption measurements on material handling vehicles equipped with **SINOCHRON**[®]-Drives are up to 20% lower. Battery life is extended accordingly. Special is that fork lift operators cannot tell a difference because these drives are working particularly powerful. And their employers still enjoy the same low repair and operating cost they got used to from fork lifts equipped with induction motors.



Battery Charge over Time during a Typical Work Cycle of a Pallet Truck

Complete Systems from a Single Source – for different Material Handling Vehicles

ABM Greiffenberger developed a platform program with **SINOCHRON®**-Drives for the fork lift industry suited for different truck types and load capacities. For traction applications complete systems with outputs up to 5 kW are available, **SINOCHRON®**-lift motors cover pump outputs of up to 16 kW und steer motors are well suited for servo steering systems of fork lifts. Add the electronic controller line SDC (Sensor-Free Drive Controller), specifically designed for the new motor type, and ABM Greiffenberger becomes a complete systems supplier with a comprehensive program.

More design freedom thanks to compact outside dimensions compared to conventional induction motors is just one benefit of **SINOCHRON®**-Motors to fork lift OEM's. This allows for reduced vehicle dimensions because of tighter swing radii at the same motor output.



Size Comparison
Asynchron- vs. **SINOCHRON**[®]-Motor:
SINOCHRON[®]-Motors are 30 % more compact.

Furthermore, he can spec from ABM Greiffenberger a perfectly matched, modular drive system fully compatible to the rest of the ABM drive components.

This compatibility allows fork lift OEM's to upgrade existing series vehicles to **SINOCHRON**[®]-Technology – offering their customers powerful pallet trucks with high productivity and exemplary energy efficiency.

Visit us at the CeMAT in Hannover (May 27 – 31, 2008):
Hall 26, Booth K28

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