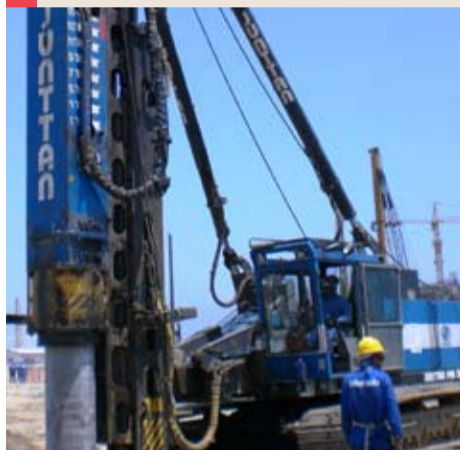


Automatic
air film Movers for
the assembly of piling
machines. Page 2.



New trolley
developed for use in
factories and offshore.
Page 2.



Cable drums
manoeuvred on Solving
air film Movers in
Russia. Page 4.

Customised transportation



Solving has installed AGVs and air film Movers at Moventas for handling wind power gearboxes and components in their production facilities. Page 3.

Axle handling carriers for Scania

In their factory in Södertälje, Sweden, Scania manufactures axles for all buses and lorries produced in their factories around Europe.

Prior to their move to Södertälje, Scania used three different assembly carriers to accommodate the various types of axles. With the help of Solving, Scania was able to meet their goal of using a single, customised carrier suitable for the assembly of all axle types.

The five carriers installed by Solving are used as stand-on platforms, enabling the operator to ride with the axle and move it to the next station. A specially designed integral lifting device allows the axles to be raised, lowered and turned during assembly to provide good ergonomics.

The clean, quiet operation of these electric devices adds to the pleasant manufacturing environment provided by Scania.



All axle types are assembled at Scania using five customised stand-on Movers from Solving.

Tough times...

▣ Nobody could have predicted the speed and extent of the worldwide economic recession we have been experiencing since autumn 2008. Almost every industry has been affected in one way or another and it is still hard to tell how the situation will develop.

Solving provides material handling systems to a variety of industries in a global market and a degree of prudence is being applied by customers almost everywhere. We are nevertheless privileged to be receiving orders from those sectors, such as the heavy electrical industry, willing to invest in supplying products to improve their country's infrastructure.

We also see this quieter period as an opportunity to develop our products and processes in preparation for the economic recovery, so that we may be able to provide our customers with even better handling systems to suit a greater variety of applications and industries.

Peter Björk, MD



Solving in brief

▣ Solving has specialised in the design and manufacture of customised handling systems for over 30 years. Our products, Solving Movers, now range from simple, manual trucks to highly sophisticated automated handling systems, using air bearings or wheels and sometimes a combination of them both.

At Solving we take pride in our close relationship with our customers and our ability to tailor our systems to suit each customer's specific requirements. Our Movers can be found today in over 50 countries world-wide, mainly in the paper and graphic, heavy electrical, engine and steel industries.

Contact your nearest Solving office to discuss your material handling requirements; we will be happy to create a solution for you.

CREATING | MOVEMENT

Piling machines on air film AGVs

▣ Junttan Oy specialises in the design, manufacture and marketing of hydraulic piling equipment. Ever since they invented the concept of fully hydraulic piling machines in 1976 Junttan has been the leading company in this sector. Today Junttan piling equipment is used in 45 countries.

A new factory featuring new technology and assembly methods was built recently in Kuopio in eastern Finland. Although they manufacture a variety of models of piling equipment Junttan wanted one single handling system to be used for moving the upper wagons of all their

piling machines along a final assembly line. Detailed discussions between Solving and Junttan resulted in a customised solution that met their requirements and heavy air film based AGVs (automated guided vehicles) were installed at their new factory.

Each system consisting of two wagons (master + slave) is equipped with a load carrying beam that can be adjusted in length to suit the dimensions of the machine parts to be assembled and thus the same Movers can be used for loads with varying length and width. The AGVs are semi-automatic, i.e. automatically

controlled but moved forward manually through assembly. Empty wagons return automatically to the beginning of the line.

Although being small and low-profile the Movers are capable of handling loads weighing up to 30 tonnes. The air film based Movers ensure that the assembly height of the heavy machine parts can be adjusted to achieve good ergonomics. The Movers are connected to the compressed air system in the building while moving forwards along the assembly line, but use wheels for returning to the beginning of the line.

Solving also installed lifting equipment with a capacity of 30-tonnes at each station where the upper wagons are lifted to allow the fitters to carry out assembly tasks under the machines.



Air film based AGVs have not only made the assembly of piling machines more efficient but also improved the fitters' working conditions.

New motorised trolley developed for offshore and workshop use

▣ Solving has developed a new type of heavy duty trolley to exchange large and heavy components during maintenance in the offshore industry, and to move large and heavy products or components within the normal workshop environment.

The trolley is particularly suited to offshore environments by being completely pneumatic and approved according to ATEX for an EX environment in zones 1 and 2. Several oil and gas companies have already invested in Solving's new trolleys.

Compact in design the newly developed trolleys can be manoeuvred in very tight spaces and are capable of moving loads weighing up to 20 tonnes.



Solving Movers for a variety of loads - paper, paint and car body panels are moved with the same ease.



M-Real, Finland

M-Real has extended their AGV system by a third Solving Mover to handle palletised sheets between the carton sheet cutter and the packaging line.



Teknos, Finland

This Finnish paint manufacturer has expanded their AGV system with two wagons to be used during powder measurement.



Wayand, Germany

Wayand has installed a Solving air film Mover to handle tools for body panels produced for car manufacturers and other customers.

Safe handling of wind power gearboxes

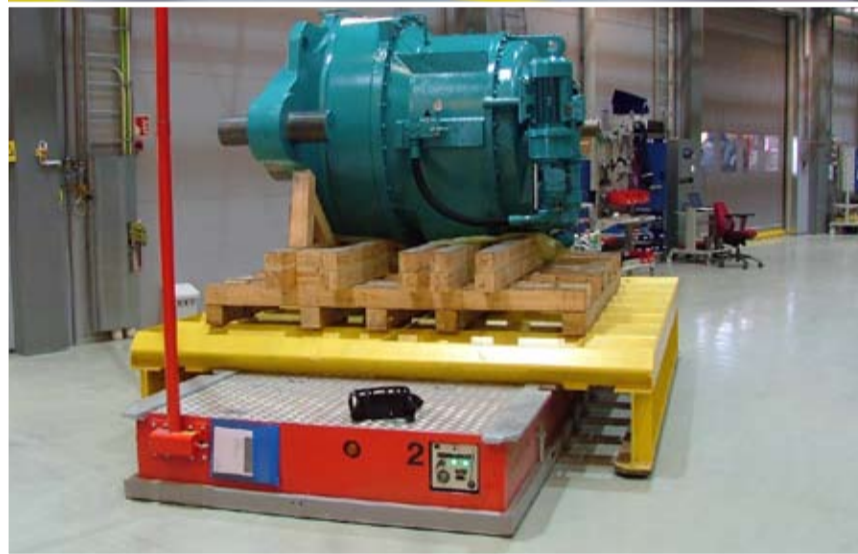
■ Moventas manufactures wind power gearboxes at their new factory in Jyväskylä, Finland.

Solving has installed a handling system incorporating automated guided vehicles (AGVs) and air film Movers to move gearboxes throughout the production process – from handling raw material for the gear wheels upon arrival at the factory until the gearboxes have been completed. At the final assembly Solving's assembly jigs have also been installed.

Fork shaped AGVs are customised to suit Moventas' requirements for handling the raw material for the gear wheels to a buffer stock and, upon receipt of despatch orders, the AGVs then proceed through the production process.

Equipped with appropriate safety devices the laser guided vehicles are safe to personnel and loads. Loads weighing up to 3 tonnes are moved continuously by the driverless vehicles whereas at the final assembly station, where the weight of the gears may be up to 40 tonnes, transportation takes place on Solving air film Movers. Other air film Movers supplied to Moventas are designed to handle 150-tonne test equipment, and they are all controlled by radio remote control to provide easy and safe movement in all horizontal directions. The 40-tonne Movers are also used to move gearboxes from the final assembly station to surface treatment and then to shipment.

Moventas has also chosen Solving to provide heavy assembly jigs to enable large gearbox housings to be lifted, lowered and rotated as necessary. These jigs ensure both an ergonomic working position and efficient assembly.



Air film Movers are installed to move heavy assembled gearboxes, whilst laser guided AGVs are used at the beginning of the production process for handling raw material.

- We chose these handling systems from Solving because they specifically customise them to suit our requirements, says Production Planner Juha-Matti Pesonen.

Temsa's buses assembled on Solving air film Movers



■ The Turkish bus manufacturer Temsa has installed various types of Solving air film Movers to move engines, axles, front wheels and complete buses during production. All Movers are customised to suit Temsa's specific handling requirements.

Fitted with integrated lift devices carrying both operators and engines the Movers provide good ergonomics and accessibility during the assembly of engines. Placed on Solving air film Movers both axles and front wheels are positioned with great accuracy during assembly and complete bus bodies are moved smoothly throughout production by only a few operators.

Seating on air bearings



Air bearings facilitate the movement of seatings in multipurpose halls.

New orders.....New orders.....New orders.....New orders.....

Swisslog, Malaysia

Swisslog has ordered two heavy duty automatic trucks that are able to transport 40 t silos during production.

Stora Enso, Finland

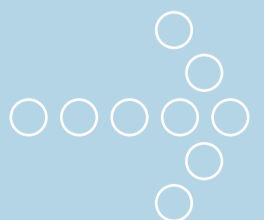
An automated laser-guided vehicle will be installed at Stora Enso to handle palletised paper sheets at their paper mill in Imatra, Finland.

Matador, Slovakia

Matador Automotive manufactures parts for cars, and will use an air film Mover from Solving to move 32-tonne tools in their production facilities.

Etra 33, Slovenia

10-tonne transformers will be moved smoothly throughout production using a battery-powered wheeled Solving Mover.



240-tonne diesel engines assembled on air

■ MAN Diesel is the world's leading provider of large-bore diesel engines for marine and power plant applications.

The majority of the four-stroke engines for use in ships or power plants are manufactured in the company's main production facility in Augsburg, Germany. To increase productivity MAN Diesel adopted a line-based assembly system as a new production method for their diesel engines.

MAN Diesel chose an air film based Mover from Solving to move their diesel engines along the new line. At the beginning of the line the diesel engines, weighing up to 240 tonnes when finished, are placed by overhead crane on steel pallets where they remain throughout assembly. The air film Mover drives under the steel pallet, the ten air bearings are activated and the diesel engine is then floated on a thin air film between the stations in the assembly line.

A remote control unit gives the operator full control of the Solving



Mover and these heavy loads can be manoeuvred with great safety and accuracy.

240-tonne diesel engines are assembled on an air film based Solving Mover.

The Areva group chooses Solving Movers

■ Transformer manufacturer Areva has chosen Solving as their supplier of air film Movers for moving heavy transformers and other components at their production facilities in the UK, Turkey, Brazil, India, China and Indonesia.



35-tonne windings are moved smoothly on a Solving air film Mover.



Air bearings provide safe handling in test laboratory

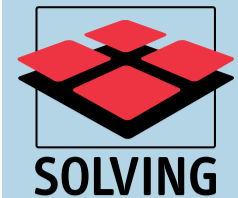
■ Kamskiy Kabel is a leading Russian manufacturer of cable, wire and conductors located in the city of Perm where they produce a wide range of products - more than 15,000 varieties of cable and wire, manufactured to international standards. In 2008 the company established a new and unique production workshop for the manufacture of high voltage power cables up to 220 kV

Solving's U-shaped cable reel Mover handles cable drums weighing up to 20 tonnes in a modern newly-constructed test laboratory within the production facility. Fitted with adjustable forks, the Mover is capable of handling reels with different diameters and is used regularly during

three production shifts. Two powered rollers allow rotation of the cable reel in both directions using a built-in pneumatic drive unit, allowing easy access to cable-ends.

Being controlled completely pneumatically and containing no electrical components, Solving's air bearing-based spark-free Mover meets the explosion-proof requirements of a high voltage test laboratory.

Using a Solving air film Mover cable drums are moved safely in a high voltage test laboratory.



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