

SOLVINGNEWS⁰⁶

SOLVING CUSTOMER MAGAZINE 2006

www.solving.fi

Palletised sheets

moved safely and automatically at the M-Real Simpele mill. Page 3.



Dust free

handling of transformers provided by a new concept from Solving. Page 4.



Electrical

Solving Movers for the motor industry. Page 4.

Solving expands headquarters

Expanded product range requires larger facilities



Only a year after inception the new facility is ready for occupation, doubling the floor area to provide for future expansion in line with Solving's strategy and sales forecasts. Page 2.

Airbus floats through production

■ Airbus in Germany has installed a Solving air film based handling system for moving fuselages between the fuselage and wing assembly areas during final assembly of their A318, A319 and A321 aircraft.

A tape-guided handling system has been installed in conjunction with Wilhelm Kohne, Germany, to achieve shorter production times and safer control.

The system consists of two connectable movers, each equipped with a lifting table and fixtures for collecting the fuselages, which weigh up to 18 tonnes.

Manoeuvred from a portable radio control unit, the movers can be driven manually or instructed to follow the tape in the floor.

The movers are driven separately to the fuselage assembly area; upon arrival each mover stops at the correct position in front of the fuselage. The movers then drive the fuselage to the wing assembly area and return in tandem.

Equipped with removable pneumatic and electric boxes for easy and rapid removal, the module-built movers are very maintenance-friendly. The maximum down time for maintenance is only two hours.



Airbus installed a new tape-guided Solving handling system to achieve shorter production times during the assembly of fuselages and wings for A318, A319 and A321 aircraft.



A variety of solutions



Whilst our products have evolved and developed technically over almost 30 years of Solving business the highest level of activity has been in automation. From the original predominance of manual devices in the early days, many of the systems we are now installing are highly automated and AGVs (automated guided vehicles) are becoming more frequently specified. In parallel with this move towards automation our traditional air-film base has expanded to include wheeled products, which now form about half of our manufacturing output. Our project base is therefore continuously increasing and much of our output is being exported to new international markets.

A necessary result of this considerable increase in activity has been the expansion of our headquarters in Jakobstad, Finland, to provide appropriate design, manufacturing, sales and administration facilities, and to accommodate our expanding workforce.

Although development moves towards a higher level of automation, our future product range will continue to cover a mix of both sophisticated automated systems and simpler vehicles. Solving is able to use its expertise to develop the right system, using wheels or air bearings, remote controlled to ride-on, automated or manually operated, to suit specific handling requirements. This enables us to provide our customers with a unique solution to enhance their competitiveness followed with a high standard of aftersales service and support.

We are pleased to present some of our most recent projects in this year's Solving News, and hope that some of the featured solutions catch your interest.

Peter Björk, MD



CREATING | MOVEMENT

NEW ORDERS

Aermec, Italy

■ Aermec has placed an order for another radio controlled Solving Air Film Mover for handling air conditioning units weighing up to 5 tonnes. A Solving AGV Mover is already in operation at Aermec.

Ajasto, Finland

■ At the Ajasto printing house Solving is to upgrade three AGVs by replacing wire guidance with laser navigation and the old analogue systems with digital control.

SCA, Sweden

■ Solving has received an order for the complete renovation of four inductively guided AGVs for reel handling at SCA. A special program ensures a smooth transition, because one wagon at a time can be tested using the existing wires without interfering with the other wagons.

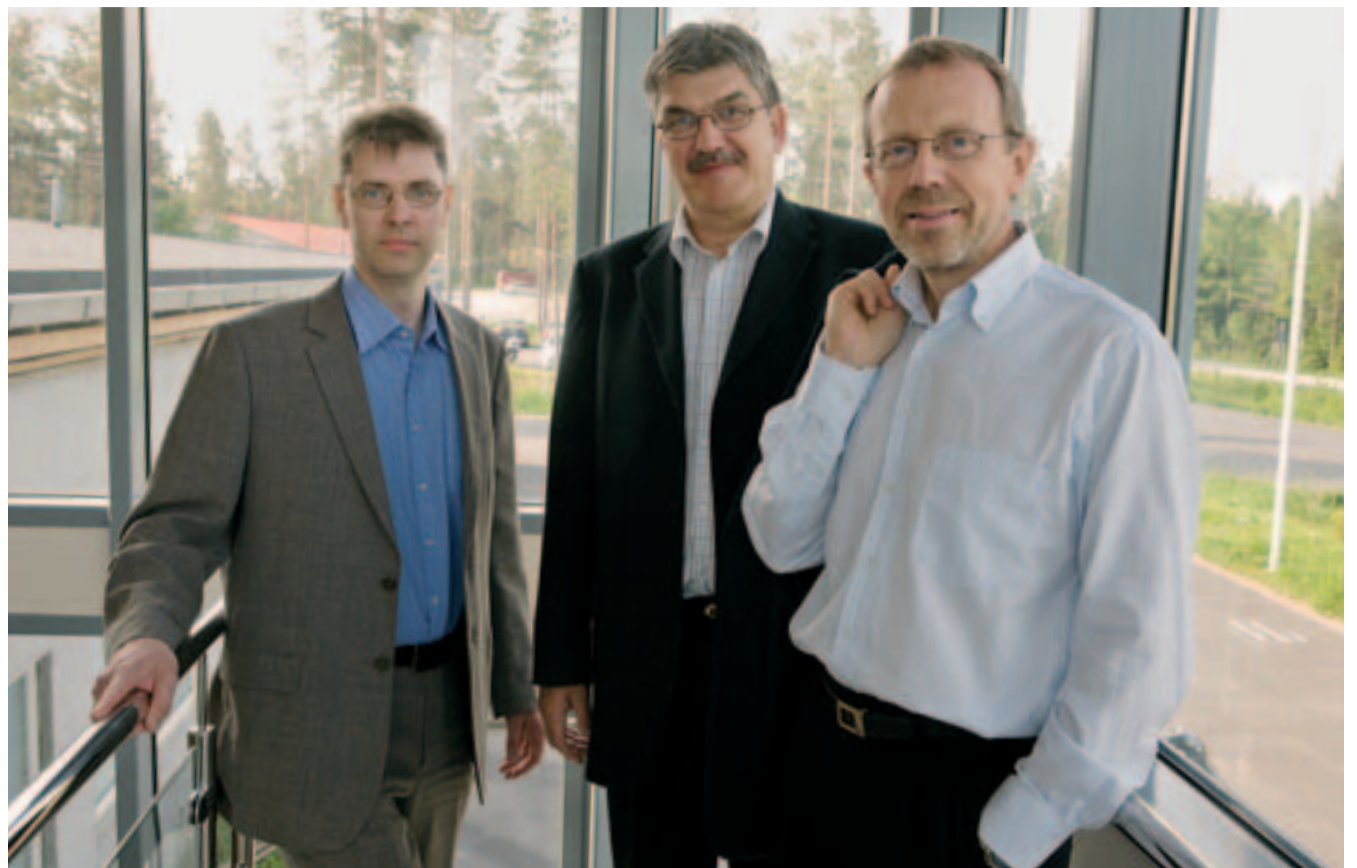
Wärtsilä, Italy

■ Two 300-tonne Air Film Movers have been ordered to handle large diesel engines for two new assembly lines at Wärtsilä.

Sisu Diesel, Finland

■ Sisu Diesel has ordered ten wire guided AGVs for the final assembly of diesel engines and three automated laser guided fork lift wagons for moving completed diesel engines to test.

Expansion with opportunities



Dick Edström, Peter Björk and Bo-Göran Eriksson believe that Solving's new, light and airy facilities contribute to improve the comfort among the company's employees.

A larger assembly shop providing a cleaner working environment and better facilities for customer demonstration are just two of the many improvements achieved as a result of Solving's factory extension in Jakobstad, Finland. A new conference room, larger offices and air-conditioning will provide a very attractive working environment for staff and visitors alike.

Only a year after inception the new facility is ready for occupation, doubling the floor area to provide for future expansion in line with Solving's strategy and sales forecasts.

"The new factory is able to accommodate more simultaneous manufacturing

activities and we are now able to carry out more extensive pre-delivery testing than before. As our Movers and systems become more automated quite a lot of space is required for testing and simulation", says Production Manager Dick Edström.

"Larger storage and personnel accommodation enables Solving to substantially improve its after sales service and support", promises Solving's Managing Director Peter Björk. "We are also improving our storage, retrieval and logistics functions to provide a faster spares delivery service."

"The new offices and conference facilities provide Solving's customers with every opportunity to meet with our sales, engineering and production staff, and we

can now offer more pleasant surroundings for training and other presentations" says Sales Manager Bo-Göran Eriksson. "We can also accommodate overseas visitors from our subsidiaries and dealerships who need to work during their visits to Jakobstad", Eriksson concludes.

Upgrading of AGV controls



Upgrading older AGV control systems is an alternative to investing in completely new automated guided vehicles and extends the life of existing AGVs by ten years or more.

By upgrading the controls of old Automated Guided Vehicles the life of existing systems can be extended by up to ten years.

As a manufacturer of automated guided vehicles Solving also provides upgrading

of control systems as an alternative to investing in completely new systems. This is a cost-effective solution, because much of the old system can be reused. Solving also provides the opportunity to replace the navigation system if required - from

inductive to laser guidance for instance.

Due to the rapid development of electronics in recent years, spare components for control systems and software used ten years ago are difficult to obtain. This development affects older AGVs, because their control systems contain microchips no longer available. In the future it will become increasingly difficult to modify the software in such control systems.

Upgrading alternative

For these reasons it will be very difficult and time consuming, or even impossible, to replace and repair control systems in older AGVs. Upgrading is often an attractive option.

The working life of components such as wheels, drive units, hydraulics, batteries and chargers in AGVs is normally longer than that of control systems. A major service of these components is therefore enough to extend the AGVs' life by another ten years.

Finally an upgrade involves more user-friendly graphic PC displays, which are used in today's modern control systems.

Automated paper handling

Large paper rolls and sheet pallets are handled unmanned 24 hours a day using Solving's AGV system at Stora Enso Paperboard in Kvarnsveden, Sweden, and M-Real Simpele mill in Finland.

A wire-guided automated guided vehicle, AGV, handles paper rolls weighing 10000 kg approximately 250 meters from packing to despatch at Stora Enso paperboard.

The paper rolls are collected from a floor level elevator with intergrated lifting forks modified for roll handling to prevent the rolls from being damaged.

The vehicle's NiCd rapid-recharge batteries ensure 20 operating hours a day.

M-Real has invested in two laser guided AGVs moving sheet pallets between the carton sheet cutter and the packaging line or placing them in buffer stocks if necessary. The same AGVs are also used to supply empty pallets into the sheet cutter.

The AGVs at M-Real are also equipped with automatically adjustable lift forks and an automated upper load support to ensure handling of all sizes of pallets and to clamp unstable sheet stacks during transportation.

Fitted with lead batteries and automated battery chargers at "home" positions the new AGVs contribute to a more efficient production line.

High safety levels

At both paper board companies the AGVs use wireless communication via a radio modem to the control system. The most common status and error messages are displayed clearly on a graphic display panel.

Safety is virtually guaranteed by laser and electromechanic bumpers, emergency stop buttons, photo cells, audible signals and warning lights.



Carrying out monotonous tasks unmanned in an area with a lot of intersecting traffic, the AGV solution turned out to be the best alternative for reel handling at Stora Enso in Kvarnsveden.

Customised ride-on vehicles



Solving has supplied an electric ride-on truck to Iggesund Paperboard in the UK. Similar trucks have been supplied to Stora Enso and UPM.

Solving has introduced a range of customised stand-on and sit-on electric vehicles for loads of up to 10 tonnes.

Developed initially for the paper industry, Solving identified the common requirement for handling larger reels which are becoming more prevalent due to economies of scale. Whilst there are many mass-produced electric vehicles available for lighter weights and regular sizes, there

are few manufacturers willing to custom-design and supply specialist products for larger and heavier loads.

Solving's latest range of vehicles provides a rugged construction combining ease of use with ease of maintenance, long shift usage and user-friendly controls. Accessories such as fast charging systems, gel batteries, blind-spot cameras and other features combine to offer customers



A blind-spot camera enhances safety at Iggesund Paperboard.

a unique vehicle designed specifically for their larger, heavier loads.

A ride on truck with a capacity of 5,000 kgs was recently supplied to Iggesund Paperboard in the UK. Capable of handling reels of up to 3,000 in length and 1,800 diameter, this truck is able to lift reels up to 750 mm off the floor.

Paper reels moved on air



The air film Mover at Bauer Druck's printing house straddles a lifting device for automatically positioning the roll at the correct height for the supporting arms.

At Bauer Druck's printing house in Poland a Solving Air Film Mover collects 10-tonne paper reels directly from the floor and transports them to the roll changer. The paper reel is then driven by the Mover into the reel changer and positioned on top of a lift table mounted in the floor. The lift table is raised between the Mover forks to collect the paper reel and position it in the reel changer.

The lifting device ensures that reels of various diameters are positioned automatically at the correct height for the supporting arms. An integrated rotating device is used for removing the reel wrappers.

Solving has installed more than 50 similar reel handling systems in companies such as KBA, Bauer Druck, Cerrutti and Quebecor.

Solving in the motor industry

■ By installing automatic assembly wagons, or more precisely Solving AGV Movers, the Finnish harvester manufacturer Ponsse has automated their assembly of harvesters. This new handling system has resulted in a significant increase in their production capacity.

The AGV system includes several wagon combinations, each consisting of a master wagon with a tractive and guiding function, and a simple slave wagon which is connected at the stage when the front and rear parts of the harvester are assembled. At the first station the frame is lowered onto the AGV, which is then moved along the work stations using a hand control, and the wagons are then guided and stopped automatically when reaching a stop plate in the floor at each station. The AGVs are equipped with safety bumpers for automated driving, and transmitters to identify possible wagons in the queue ahead of them. The new line also ensures easy access to components along the centre of the line.

The AGVs are automatically guided by an electric cable in the floor. At the last station the assembled harvester with its AGV is raised for wheel assembly, and the harvester then drives off the line on its own wheels.

Solving has also installed electrical Movers at Sisu Diesel for the assembly of diesel engines.



The installation of automated guided vehicles has enabled Ponsse to considerably increase their production capacity.



Ab Solving Oy
Jakobstad/Pietarsaari, Finland
Tel +358 6 781 7500
info@solving.fi
www.solving.fi

Solving Sweden AB
Västerås, Sweden
Tel +46 21 81 10 95
info@solvingsweden.se

Solving Transportsystemer A/S
Stavern, Norway
Tel +47 33 18 56 00
so-tran@online.no

Solving Deutschland GmbH
Burgwedel, Germany
Tel +49 5139 6443
info@solving-gmbh.de
www.solving-gmbh.de

Solving Ltd
Newbury, United Kingdom
tel. +44 (0)1635 814488
sales@solving.co.uk
www.solving.co.uk

Solving Italia S.r.l.
Lesna (NO), Italy
Tel +39 0322 765 76
solving@solvingitalia.com
www.solvingitalia.com

Solving Danmark
Præstø, Denmark
Tel +45 70 25 01 31
preben-a@petersen.tdcadsl.dk

American Solving Inc.
Brook Park, Ohio, USA
Tel +1 440 234 7373
solvinginc@aol.com
www.solvinginc.com

LKS AG
Neuenhof, Switzerland
Tel +41 56 406 65 86
info@lks.ch
www.lks.ch

I.M.S.
Bonneval, France
Tel +33 2 37 47 78 10
imsmanut@wanadoo.fr
www.imsmanut.com

IDQ S.A.
S.S. de los Reyes (Madrid), Spain
Tel +34 916 591 901
idqsa@idqsa.net
www.idqsa.net

Solving Asia
Taipei, Taiwan, R.O.C.
Tel +886 2 8751 9667
runhigh@seed.net.tw
www.rh-solving.com.tw

Solving do Brasil Ltda - ME
São Paulo, Brasil
Tel +55 11 4487 1986
vendas@solvingdobrasil.com.br
www.solvingdobrasil.com.br

Solving Korea
Kyunggi, Korea
Tel +82 31 492-1691
info@solving-korea.com
www.solving-korea.com

SOLVINGNEWS.

Editor-in-Chief
Peter Björk
Editorial Secretary
Ullamay Borgmästars
Graphic design and layout
Studio PAP
Print
Forsberg
Jakobstad/Pietarsaari 2006

Cable handling on air

■ Developed in close cooperation with several cable manufacturers the fork-shaped Solving cable handling Mover on air bearings has proved to satisfy an important demand in the cable industry.

This Solving Mover moves smoothly in all directions and lifts cable drums of varying diameters straight off the floor. It is easily manoeuvred from a portable remote control unit and handles the cable drum safely without damaging the load, which makes it an efficient tool especially in narrow areas.

The Solving Mover enables cable drums to be placed anywhere on the floor to maximise efficient use of all available space.

Solving's Cable Mover is manufactured for drums of varying sizes weighing up to 60 tonnes, and on-board powered



rotation enables the cable-end to be accessed for production or testing requirements. Evaluation and testing of the cable mover has resulted in many repeat orders because air film technology provides manoeuvrability unmatched by any other products. Handling heavy loads on air through production bays and door openings, for example, provides access to areas otherwise unused.

Specialised Movers for moving larger loads through production and despatch areas, such as cable baskets weighing several hundred tonnes, are also available from Solving.

At Nexans, Norway, cable baskets are easily moved on a Solving air film Mover from a carousel to storage using a remote control unit.

Dust free handling concept

■ Several manufacturers of transformers have used Solving's Air Film Movers for many years to assemble windings, cores and active parts and to move them into vacuum ovens. Air film technology provides all the necessary freedom for moving components weighing up to 50 tonnes and completed transformers up to 500 tonnes, but clean room requirements have resulted in the development of a new handling concept in addition to the Air Film Movers.

In their planning of a new production line for transformers designed to meet future environmental demands, ABB in Vasa considered a clean and dust free environment as an important criterion.

In close co-operation with the customer Solving has developed an electric wheeled Mover receiving its



power supply from onboard batteries, therefore being completely independent of hoses and cables. The battery is sized for normal driving in one shift work without charging; lifted directly off the floor the load pallet carrying a winding or core is moved to the required position. A specially-designed wheel construction divides the load evenly between the wheels and thus minimises the loading and wear to the floor.

The operator can either stand onboard the Mover or manoeuvre it from a wireless remote control unit. The Mover is capable of driving long distances, over joints in the floor and into the vacuum oven with ease and precision.

The Solving Mover installed at ABB in Vasa, Finland.