

SOLVINGNEWS⁰⁸

SOLVING CUSTOMER MAGAZINE 2008

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Railway cars

for the Beijing Olympics manufactured on Solving Movers. Page 4.



Steel coils

are transported on automated Solving Movers. Page 3.



Paint

moved automatically on pallets. Page 4.

Automated roll handling

AGVs handle plastic rolls weighing up to 2000kg



Laser guided Solving AGV Movers handle plastic rolls from production to storage. Page 3.

Movers for heavy diesel engines

Solving has been installing air film Movers for several years in many of the world's largest diesel engine manufacturing plants.

A Mover has now been developed by Solving to handle diesel engines weighing up to 100 tonnes. Being both remote- and tape guided this Mover is able to move and position engines through production with millimetre accuracy, controlled and supervised by one single operator.

Depending on the length of the engines they are placed on one or more load pallets. Wheels are used for no-load transportation, whilst air bearings are activated when the Mover is loaded with a diesel engine. The Mover is also fitted with a built-in hose reel and electrical drive units.

Wärtsilä is an important customer of Solving's in this field of business.



A 100-tonne diesel engine is floated smoothly on air bearings through production.

Editorial

After more than 30 years in the material handling business Solving has created quite a few references, as you might expect. Many of the applications described in this year's magazine represent repeat deliveries to old customers: in some cases new Movers have been delivered to existing customers, and in other cases we have delivered existing designs to new factories within the same group.

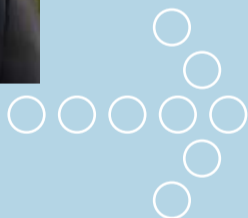
Stora Enso, Wärtsilä and Metso are some of the companies described in this magazine that belong to the growing group of customers repeatedly investing in more Solving equipment. Air film or wheeled Movers - manual or automated - have been installed at several of their production facilities around the world.

Solving is not a large-scale producer of standard equipment, but instead we provide tailored systems combining our own flexibility with a well developed supplier network. We appreciate the responsibility we are given by our customers, and we will ensure the results will serve as good references for those potential customers who haven't found us yet!

The articles in this year's Solving News are examples of some of our latest installations and we hope they will be of interest to you.



Peter Björk, MD



Solving in brief

Since Solving was founded 30 years ago it has specialised in the design and manufacture of customised handling systems. 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.

Solving's handling systems can be designed to cater for almost any load, regardless of size, weight or frequency of movement. Contact your nearest Solving office to discuss your material handling requirements; we will be happy to create a solution for you.

CREATING | MOVEMENT

Stora Enso chooses Solving



Solving AGV Movers handle 4000 kg cardboard rolls from storage to further processing in Forshaga, Sweden.

For several years Solving has been supplying air film, railed and automatic Movers to various paper mills belonging to the Stora Enso group. The first, an air film manual roll Mover, was installed as early as 1990 at the Kemi paper mill in Finland. The latest installation at the same paper mill took place this year - two automatic Solving Movers were installed to move paper rolls between the unwrapper and the sheet cutter.

One of Solving's most recent installations at Stora Enso is an AGV-system consisting of four laser guided Movers at Forshaga PE coating unit in Sweden. This system replaced an old wire guided system from the late 80s.

Railed Movers at Stora Enso's paper mill in Oulu, Finland.



The new AGVs are fitted with modern laser guidance, with the AGV taking triangular measurements by detecting reflectors placed in the building, and also incorporate radio communication and laser based safety equipment. Rapid battery charging allows the Movers to

be in operation 24 hours a day 7 days a week with high capacity and availability. Using this new battery technology a large number of old AGVs could be replaced by a smaller number of new AGVs.

New Solving representatives

Visan Vinç, Istanbul, Turkey

The Turkish company Visan Vinç was appointed as Solving's representative in Turkey last year and, with many years of experience in selling cranes and lifting equipment, Visan Vinç is very familiar with the needs of Turkish industry. The company handles

marketing, sales and after sales of Solving products in Turkey, technically supported by our headquarters in Finland.

Solving is represented by Visan Vinç in Turkey.



Solving Russia, Saint-Petersburg, Russia

Solving is now represented in Russia by our newly-formed sales office, 'Solving Russia'. Mr. Vitaly Tolmachov, who has several years of experience in selling heavy load handling systems behind him, will be in charge of marketing and sales of Solving's

entire product range in Russia and he will be supported by the Solving team in Finland.

Solving Russia is run by Vitaly Tolmachov.



Plastic rolls are handled automatically

■ KWH Plast in Jakobstad, Finland, is one of Europe's leading producers of plastic films. The films are used for stationery, food packaging and labels as well as high quality printing material.

To live up to their motto "Plast on time" a well functioning handling system is required to handle plastic film rolls throughout the production process, and thus a system consisting of two laser guided AGVs was chosen.

"Solving was in charge of the AGV installations as part of the demanding but successful automation of our high-bay storage system", says Reijo Liimatainen, Project Manager at KWH Plast.

These automatic Movers are customised to suit the requirements of their Jakobstad facility, and they serve about 20 automatic load handling stations in the factory.

The automatic Movers collect the plastic film rolls from specified positions in the production hall and transport them to an automatic storage area. Placed on load pallets the rolls can weigh up to 2000 kg.



The AGVs are also used for transportation in the opposite direction, i.e. for moving empty load pallets from the automatic storage area to production.

"We are very satisfied with the AGV system Solving installed, and their technical capability made the integration of the project very smooth and efficient", Liimatainen summarizes.

The material flow from production to the automatic storage areas and vice versa is handled by two laser guided AGVs.



Steel coils on Solving Movers

■ The Swedish steel company SSAB is one of the world's leading manufacturers of high-grade steel. Their unit for rolling and surfacing of thin plate is located in Borlänge and around 200 railway wagons and 100 trucks leave the Borlänge steelworks every day, carrying steel sheet to customers mainly in the engineering industry and the building trade.

Handling such a large amount of steel requires safe and efficient handling as the largest steel coils weigh 28 tonnes with a diameter of up to 2200 mm. To handle these SSAB in Borlänge has chosen both

automated guided vehicles (AGVs) and automatic rail Movers from Solving for their unit for Coated Products (zinc-coated or prepainted plates). Three laser-guided AGVs are used to move the coils from various production lines to storage and dispatch areas, whilst two railed Movers have been installed to move the coils between various storage locations.

Solving is one of the few suppliers able to offer SSAB a complete package consisting of both AGVs and railed Movers including an overhead control system. Even the saddles, on which rolls

are placed and from which they are picked up, are included in the scope of Solving's supply.

"One of our goals with automation was to minimise damage to the coils, and this has been achieved", explains Christopher Gluch, Project Leader at SSAB. "The availability requirement is high because the AGVs are required to collect coils from continuous lines and the equipment from Solving meets this requirement", he adds.

Automatic Movers are used to move steel coils between production lines and storage halls.



400 t ship propulsion units on air



ABB chose to upgrade their existing Solving air film Mover for smooth and precise handling of their Azipod-propulsion units.

■ The Azipod®-system (AZImuthing electric PODded Drive) is an electric propulsion unit developed by ABB. It ensures superior manoeuvrability and reduces noise and vibration substantially. Considerable savings in fuel consumption are achieved by the Azipod-system - a safe and environmentally-friendly solution used in a wide variety of ships.

ABB has already used an air film Mover from Solving for many years to handle their Azipod-units through production. New premises were built and at the same time it was necessary to upgrade their existing air film equipment to a 400-tonne capacity Mover.

The remote-controlled air film Mover allows ABB to move the propulsion units through production and between the different parts of the assembly hall smoothly and with great precision without using cranes or other external lifting

devices.

"The safety risk has been reduced by the air film Mover because cranes are now used to a lesser extent", says Production Manager Jyrki Ritalahti. "Moving the units is now also more flexible, since the air film Mover can be operated in places out of reach for cranes".

Snowcross and Viktor Hertén

Solving has signed a sponsorship agreement with one of Finland's most successful snowcross drivers. Viktor Hertén, who finished fourth in the World Championship this year, is also a fitter at our manufacturing base in Jakobstad.



SOLVING GALLERY

ABB Monselice, Italy

Air film Mover for handling transformer cores and components. 48 tonnes.

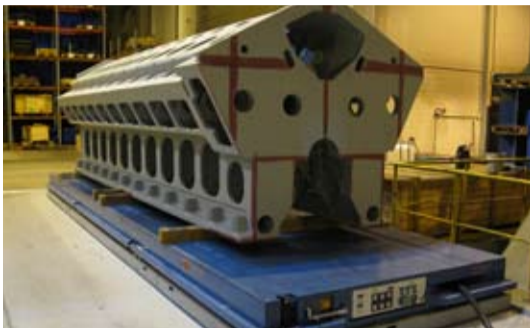


ABB Hefei, China

Remote-controlled air film Mover for handling windings. 10 tonnes.

Konepaja Häkkinen, Finland

Handling of diesel engine blocks in production with an air film Mover. 160 tonnes.



H2X, France

Modular Air Bearing System for moving a boat. 65 tonnes.

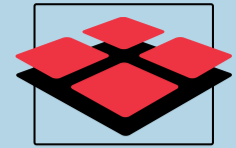
Iljin Heavy Industries, Korea

Air film Mover for handling transformers between assembly stations. 100 tonnes.



Kabelwerk Brugg, Switzerland

Cable drum Mover on air bearings. 50 tonnes.



SOLVING

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

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 51 39 6443
info@solving-gmbh.de
www.solving-gmbh.de

Solving Ltd
Newbury, UK
Tel. +44 (0)1635 814488
sales@solving.co.uk
www.solving.com

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

Solving Danmark
Præstø, Denmark
Tel. +45 70 25 01 31
pap@teliamail.dk

American Solving Inc.
Ohio, U S A
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. +34 911 859 190
idqsa@idqsa.net
www.idqsa.net

Visan Vinç ve Hareket Sistemleri San. Tic. Ltd Şti.
Istanbul, Turkey
Tel. +90 212 549 84 57
visan@visan.com.tr
www.visan.com.tr

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
Sao 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

Solving Russia
Saint-Petersburg, Russia
Tel. +7 812 448 6540
info@solvingrussia.com
www.solvingrussia.com

SOLVINGNEWS.

Editor-in-Chief
Peter Björk
Secretary & Layout
Ullamay Borgmästars
Printing
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Industrial coatings moved automatically



■ As one of Scandinavia's leading manufacturers of industrial coatings, Teknos Oy has invested in five new laser guided AGV Movers for their recently extended production facilities at Rajamäki in southern Finland.

Two automated Movers pick up coating products placed on load pallets and transport them from production to an automatic storage area, and a third Mover moves pallets from production to the dispatch area. The transport orders can be activated

A Solving AGV Mover automatically handles pallets of powder-coating products at Teknos.

by operators via press buttons or automatically via PLC controls initiated by the production system.

All the Movers are equipped with NiCd batteries and automatic battery charging, providing many hours of continuous operation.

About a year after the installation of the first three automated guided vehicles Teknos ordered another two AGVs to be used in the same plant. These two new Movers will be used during measurement of the powder in the coating facilities.

Railway cars assembled on air bearings and rails



■ CNR (China Northern Locomotive & Rolling Stock Industry Corporation) is a Chinese manufacturer of high-speed and other railway vehicles. Solving has installed a variety of Movers and Carriers to handle cars and components at their assembly factory in Tangshan.

In their final assembly line for high-speed railway cars CNR uses two pairs of 60-tonne assembly Movers operated both on air bearings and rails. Rails are used when empty railway cars are picked up and brought to the assembly line and also

The first high-speed trains will be introduced prior to the opening ceremony of the Olympic Games in Beijing 2008.

when assembled cars leave the line, whilst air bearings are used when operating between different assembly cells. To achieve precise positioning a metal tape in the floor is detected by onboard sensors controlling the steering functions.

In one of the cells an air-film based Mover handles and positions doors and windows, which are lifted with vacuum suction pads onto the railway cars. An integrated lifting device incorporating a custom-designed fixture always ensures a correct working height for the fitters, and the fixture can be rotated 90° or tilted 20° to enable assembly at different angles.