



**PSI**  
Technics

Application Report >> Industrial Positioning Systems >> Positioning Solution System

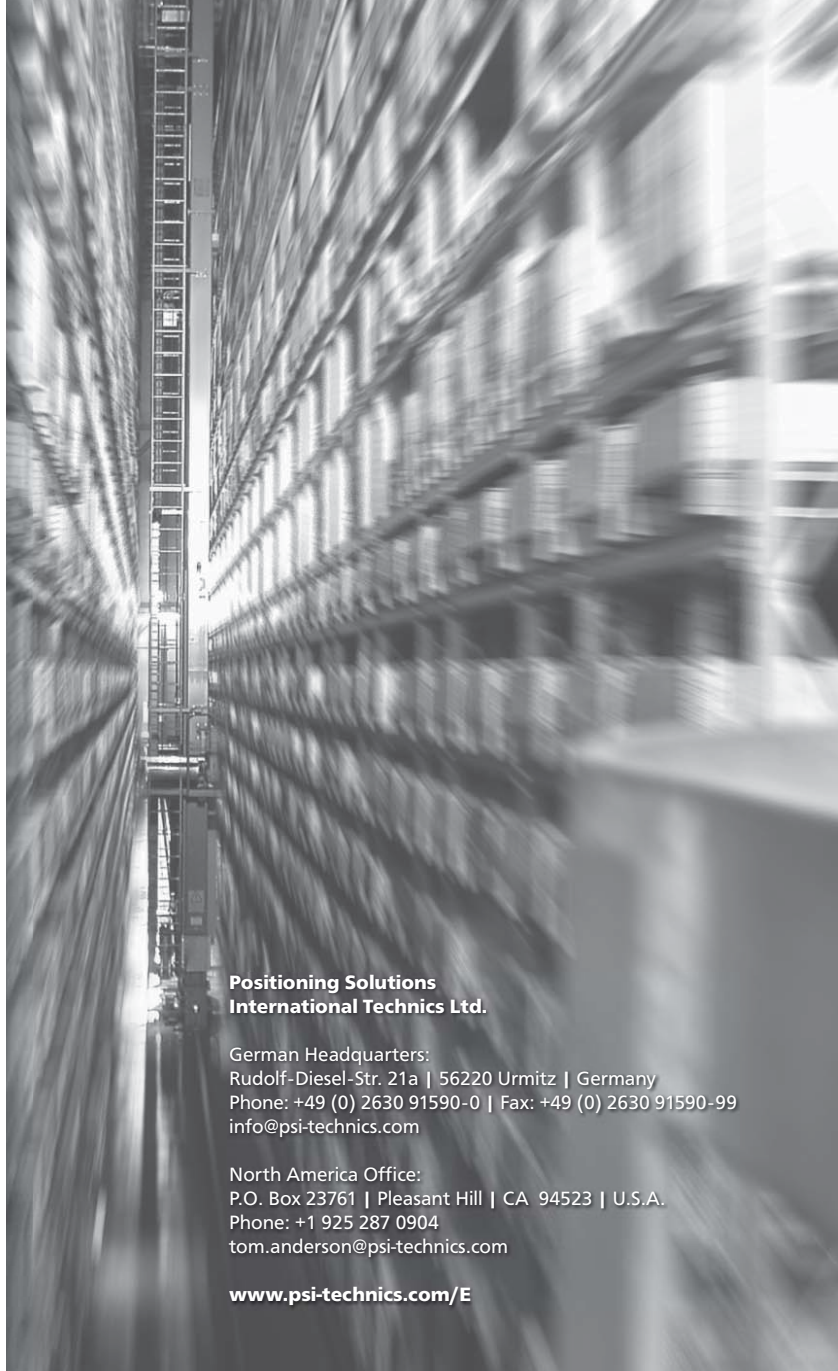
## Fast and Efficient Modernization of Stacker Cranes

### The Challenge

- >> Modernization of the positioning systems in the automated SKF warehouse in Tongeren, Belgium.
- >> As a global logistics partner, SKF Logistics Services specializes in providing industrial manufacturers with complete supply chain solutions. Therefore, properly working and well-maintained facilities are of utmost importance to SKF.
- >> SKF started modernizing its European logistics center after the U.S.-based company Trimble discontinued the production of its TCS4000 positioning system in 1995. The goal was to modernize the logistics facilities without changing the PLC or existing drives. However, SKF still required a high reliability and a short commissioning time.
- >> The biggest challenge consisted of coping with the greatly varying loads of the transported goods.

### The Solution

- >> Their old Trimble TCS4000 positioning system was replaced by PSI Technics' Positioning Solution System.
- >> The stacker cranes, the control technology and the distance meters were modernized; the existing PLC and the existing drives were retained.
- >> Now, the Positioning Solution System calculates individual travel profiles for SKF machines. The Positioning Solution System's time-optimized travel profiles eliminate creeping speed and compensate for load oscillations during positioning. The command structure is identical to the previously used system and no PLC code changes were required. Another advantage is the system's ease of use – no programming skills are required.



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## Project Brief

### Description

Modernization and optimization of a 1995 high-bay warehouse and stacker cranes used for the storage and retrieval of pallets with a maximum load of 2205 lb.

$$v_{x\max} = 619 \text{ ft/min}, v_{y\max} = 130.57 \text{ ft/min}$$

### Customer

SKF Logistics Services Belgium  
Tongeren, Belgium  
(European and worldwide logistics)  
[www.skflogisticsservices.com](http://www.skflogisticsservices.com)

### Industry

Mechanical engineering

### Equipment Modernization

- >> The new Positioning Solution System was installed and commissioned and a total of 14 Trimble TCS4000 units were replaced.
- >> Distance meters (SICK DME5000-211)
- >> ASCII serial communication protocol
- >> PSI Technics retrofitted 2 axes per stacker crane – 7 stacker cranes total – within one year.

>> *Instead of the previously installed 14 TCS4000 units (one unit per axis) only **7 Positioning Solution System** units were needed for the 14 stacker crane axes after the modernization.*

### Project Duration

August 2009 to September 2010



### SKF Tongeren, Belgium, Marc Valkeneers, Technical Coordinator



*„We depended on the Trimble TCS4000 since 1995. When we heard that the production was to be discontinued, we needed to ensure the future of our warehouse logistics.*

*We wanted to guarantee the smooth operation of our facilities and a continued spare parts supply for our customers. This was how the long-lasting cooperation between SKF and PSI Technics started.*

*Due to the modular design of the Positioning Solution System we were able to distribute the costs and to gradually modernize the stacker cranes in our high-bay warehouse. The Positioning Solution System completely replaced the previously used Trimble TCS4000 units – without the need to replace existing system components or drives. Based on the system’s machine modeling, we were able to improve our motion path efficiency.”*

**PSI Technics is your competent and reliable partner. We provide intelligent and efficient solutions that increase productivity and quality in the following fields: Factory automation, industrial positioning systems, industrial image processing, thermal protection of sensors, EMC analyses, temperature and humidity monitoring and analysis, safety engineering. In addition, we offer research and development in the fields of energy efficiency and energy management.**

