The Volvo Truck Corporation is one of the world leaders for heavy trucks. The company has production and development sites in Sweden, Belgium, the USA and Brazil. The trucks for the European market are built in Gothenburg (Sweden) and Gent (Belgium) whereby the engines, gears and driver cabs are supplied by different factories in Sweden.

Cabin production for the whole of Europe

The Volvo factory in Umeå is Volvo’s only production site for truck cabs in Europe. In this factory in Northern Sweden, 250 miles away from the Polar Circle, the cabins for all Volvo models are built and then transported to the assembly works in Gothenburg and Gent. The Umeå factory also supplies CKD (completely knocked down) assembly kits for the cabs to factories in Asia, Africa, Australia and America.

The driver cabs are offered in numerous variants – from the comfortable sleeper with a miniature office for long distance haulage to the simple day cab. A modular system with standardized components is therefore used for the cabins which can be applied for many models. At present Volvo Umeå makes three cab series with a total of 11 different models.

The cabs are fully prepared for installation in Umeå and then transported to the assembly works by rail. The production includes the complete metalworking, cab body construction, surface treatment, painting and final assembly. The whole production in Umeå is automated to a great extent with robots.

Higher capacity due to new painting line ...

The annual production was to be increased from 50,000 to 60,000 cabs with a capacity extension. The most important investment here was a new painting plant for the prime paintwork of the driver cabs. Dürr Paint Systems in Stuttgart received the general contract for this.

The new painting plant from Dürr consists of a cleaning system, a hand painting system EcoMacc, two airbrush systems for the interior painting with automatic door openers, two ESTA systems for the outside painting and two dryers. The plant is considered one of the most modern in the world.

Robots developed by Dürr take over the application of the prime paintwork with a 100 % repetitive accuracy.

Cab painting for Volvo trucks

Optimum from the prime coat

The driver cabs of Volvo trucks in Sweden have recently been getting their prime coat in one of the most modern paint shop plants in the world. The Swedish heavy truck manufacturer chose Totally Integrated Automation with Simatic WinCC as a control and automation system and are very pleased they did.
into the painting control system. According to the respectively identified cab the master Enterprise Resource Planning (ERP) system requests the appropriate painting data and outputs them to the corresponding painting controller. Volvo uses three different paints for the prime paintwork which depend on the shade of the final coat of paint.

The painting control system receives the current quality data such as type, color, process data and alarms from the control level as a reply and passes them on to the ERP system so that a continuous record is available for tracing the individual body right into the ERP level. The data are also available locally through the archive server for long-term analyses.

The WinCC server is designed redundantly with two servers. This server system is supplemented by an archive server for archiving the message data and value archives as well as an engineering station with which both WinCC and all controllers and the Micromaster drives are parameterized, loaded and saved. The backup and version management is user-friendly with Simatic A&D Data Management ADDM.

As operating stations 11 WinCC Clients are integrated at the moment for the visualization and operation of the painting process as well as the process and conveyor technology. The control level is equipped with ten Simatic-400F’s with which the whole painting plant is controlled. The communication is distributed on two TCP/IP networks: one network for linking the process data, another for visualization with integration in the factory network.

At the control level Profinet with Profisafe technology is used in which safety-oriented functions such as light barrier, emergency stop switch, door position switches together with the standard control functions are linked decentrally. The communication with the superior ERP system takes place based on TCP/IP and Web Services.

Volvo is very pleased with the user friendliness of the new control system. The capacity, availability and productivity have increased considerably in comparison with the old painting plant according to factory information. A second painting plant is being planned for the final painting at Volvo Umeå.

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