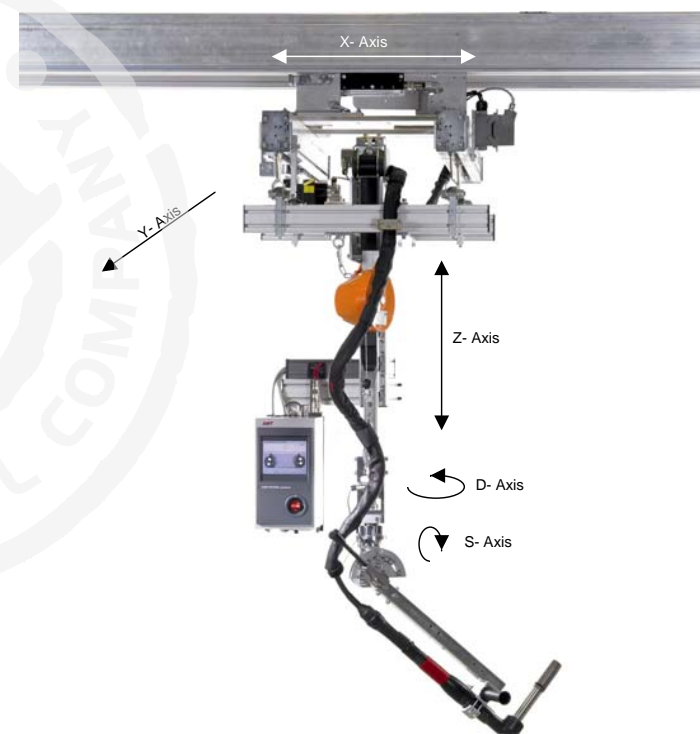


iTeleskop – the intelligent telescope

An assembly innovation



Alfing Montagetechnik GmbH

Auguste-Kessler-Strasse 20
D-73433 Aalen

Telefon +49 7361 501-2701
Telefax +49 7361 501-2709

E-Mail info@amt.alfing.de
Internet www.alfing.de

Service Hotline

Telefon +49 7361 501-2999
E-Mail service@amt.alfing.de

We reserve the right to make
changes without notice
advancements in technology.

iTeleskop
09/2008
Patent pending.

Are you sure that your stored fastening data
was generated from the correct location?

AMT

Nutrunner technology and assembly technology are our core strengths. The synergistic effects from this are unique. AMT rules the complex worlds of fastening and assembly like no other. As a long-standing, innovative partner of the automobile industry, we recognize the demands and needs of our customers. Our fascination in new possibilities led to the development of the **iTeleskop**.

It offers you the opportunity to store fastening locations, define operation sequences, control positions, and reliably allocate fastening results.



AMT – your competent system partner for assembly operations

iTeleskop:

With its modular system, the **intelligent Telescope** can be closely adapted to your requirements. It doesn't matter whether you're working with a single nutrunner, multi-nutrunners, riveting pistols, or grippers. The **iTeleskop** offers unlimited application opportunities.

The **iTeleskop** is available in a variety of sizes and configurations. Depending upon your application, the telescopes are assembled from individual, modular elements.

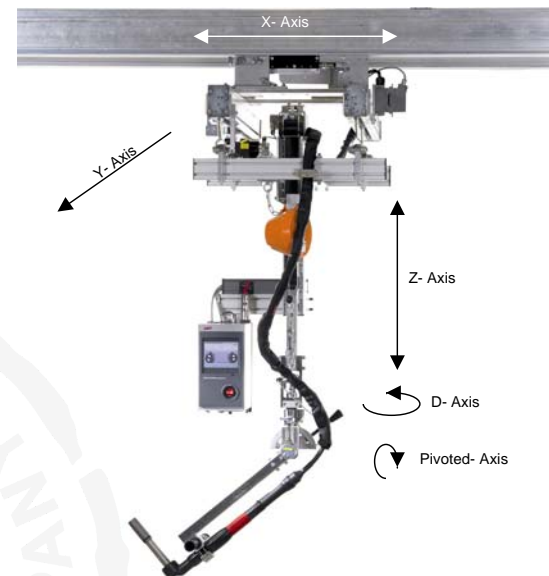
Whether installing a new work station or moving an existing station, this can be accomplished in only a few steps, resulting in reduced cost to you.

Up to 5 axes can be captured with the iTeleskop. This provides you with documentation for an operation related to location, part, or vehicle.

This is your chance to efficiently confront product liability problems. By doing this, you protect the quality and success of your product.

In connection with our Rail-Net Assembly System, the **iTeleskop** can be configured for wireless operation. This provides almost unlimited opportunities for the **iTeleskop** work area.

A changeover within your assembly line is now possible at low cost. The synergistic effects are enormous with great potential savings to you.



iTeleskop Features:

- Available for all common commercial rail systems
- Any fastening position can be reached by an optional, custom rotating and pivoting device
- Available with up to 5 position sensor systems, dependent upon application
- Torque configurations available up to 1200 Nm
- Integrated absolute position sensor systems:
 - Fastening position determination
 - Unrestricted work area definition with warning limits, thereby eliminating need for scanners, proximity switches, intermediate switches, etc.
 - Allocation of task definition
- Predefined operation sequences
- Process time reduction with automatic parameter selection / changeover
- Increased process reliability with automatic activation of correct fastening parameters
- Cost savings through reduced socket selectors
- Process-reliable allocation of fastening data to fastening location, part, vehicle

Process Reliability

iTeleskop

The Intelligence

The heart of the intelligent telescope is the SMX30 nutrunner control. All information from the positioning sensor systems meet together at this point. Based on up to 5 individual positions, the SMX30 nutrunner control calculates the fastening position. If the calculated position agrees with the next defined position, the nutrunner is released and automatically completes the designated fastening program. The operator can view the progress of each operation at any point on the nutrunner control monitor. This information is continuously updated for his reference. Trouble-free and error-proof operation sequences, with or without restricted guidance, are now possible with the addition of iTeleskop.

Enhanced Process Safeguarding

- Error-proof allocation of fastening parameters for part / fastening location.
- Faulty fastenings are identified and can be immediately reworked before leaving the work area.
- Varying fastening parameters can be achieved with the same socket at different locations.
- Specific operation sequences can be defined for one or more tools.

Socket selectors lose their right to exist.

Thanks to the iTeleskop, each fastening location is known. This makes it possible to automatically select and execute the optimum fastening sequence for each location. Problems with deformation can be eliminated with the use of different fastening strategies. Varying fastening parameters (tightening values) are automatically selected.



iTeleskop - for AMT Rail-Net Assembly Line Systems

iTeleskop – an intelligent telescope hits the road

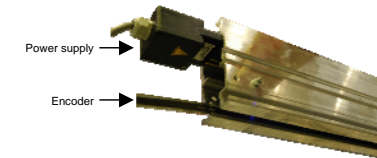
When the iTeleskop is integrated into an AMT Rail-Net Assembly System, the telescope can literally 'hit the road'. With its wireless connections, the iTeleskop is available for all tasks along the assembly line.

Unrestricted travel for the telescope eliminates all barriers in regard to flexibility and availability.

You save during the initial installation and for each changeover, as a result of the reduced installation requirements.



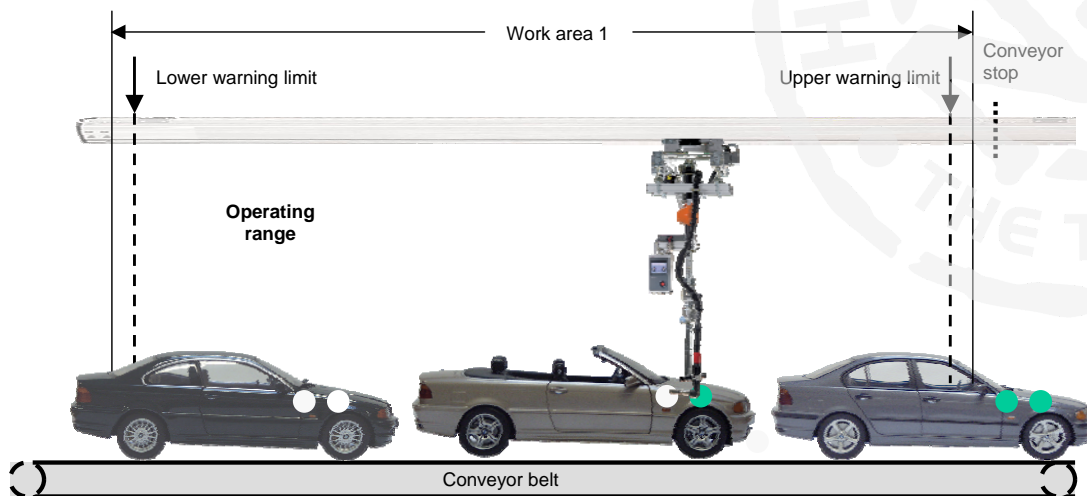
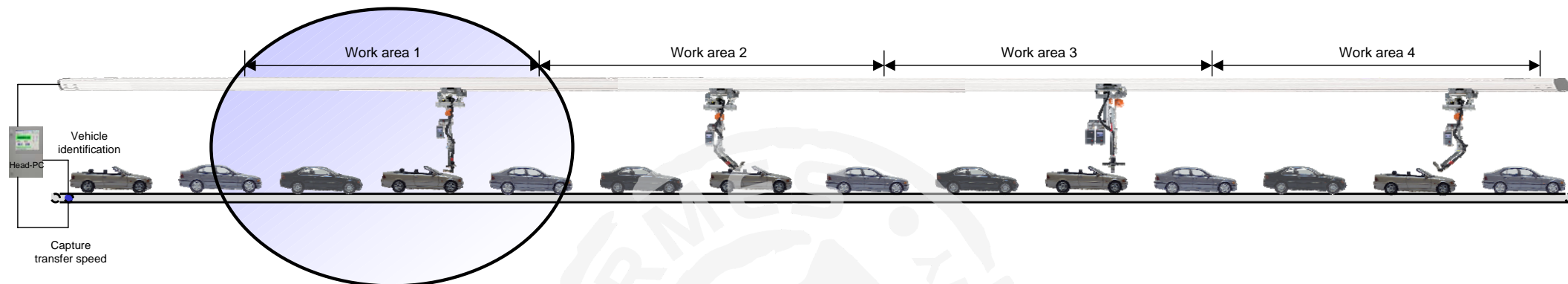
Wireless power and Ethernet connection with absolute positioning sensors throughout the assembly line



Additional advantages with integration into the Rail-Net Assembly System

- Elimination of cable track:
 - Reduced assembly requirements for initial installation and changeovers
 - Increased availability
 - Increased flexibility
- iTeleskop moves with a simultaneous, wireless energy supply
- Wireless Ethernet connection:
 - Data exchange between host computer, fastening data server, and nutrunner system
- Integrated absolute position sensor systems:
 - Fastening position determination
 - Unrestricted work area definition with warning limits, thereby eliminating need for scanners, proximity switches, intermediate switches, etc.
 - Allocation of task definition
- Flexible modification of work areas

Wireless power and Ethernet connection with absolute position sensors for up to 5 axes.



By combining a Rail-Net Assembly System with iTeleskop, process data can also be allocated to the vehicle and individual fastening locations within assembly line environments.

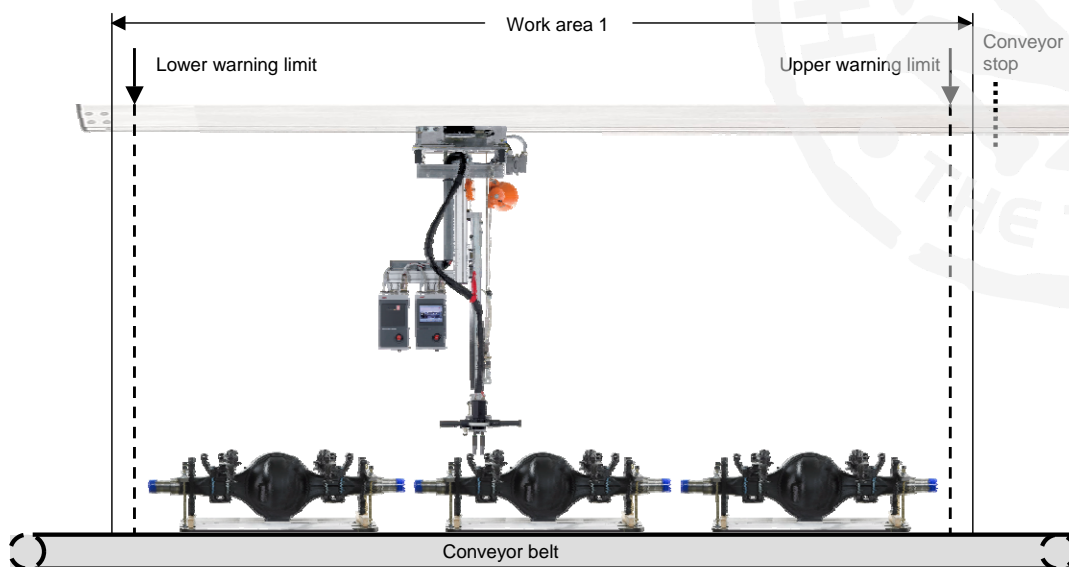
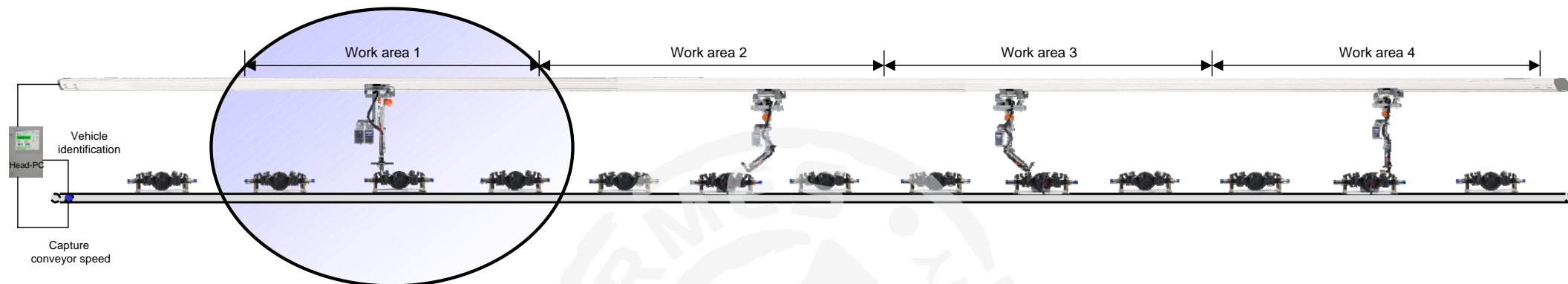
Defined operation sequences, automatic selection of fastening parameters, and a quality statement upon completion of the operation provide enhanced process safeguarding.

Operation Sequence:

- **1. Recognition of vehicle position**
Vehicle-specific data is read at the time of entry into the assembly area and stored in the lead PC. By storing the conveyor feed, the vehicle positions are continuously updated.
- **2. Recognition of fastening position**
When the start signal is actuated, all integrated position sensors are read. A vector calculation allows the fastening location to be calculated for the entire length of the conveyor. The operator work areas and release areas for fastening positions are defined by the user software.
- **3. Allocation of process data**
When the fastening location coordinates agree with the tool coordinates, a task release is issued. Upon completion of the fastening operation, the fastening data for each location is allocated to the vehicle.

This system provides guaranteed error-proof allocation of fastening data to a vehicle and individual fastening locations.

Wireless power and Ethernet connection with absolute position sensors for up to 5 axes.



With implementation of the iTeleskop, multiple work stations can be configured with only one device. By capturing the X-axis, parts can be automatically identified, and operation sequences can be loaded. The fastening locations are recognized and nutrunner programs are automatically selected.

Quality statements are based on each individual fastening location and provide enhanced process safeguards.

The iTeleskop is your guarantee that the stored data was generated from the designated fastening location.

Operation Sequence:

- **1. Recognition of fastening position**
When the start signal is actuated, all integrated position sensors are read. A vector calculation allows the fastening location to be calculated for the entire length of the conveyor. The operator work areas and release areas for fastening positions are defined by the user software.
- **2. Allocation of process data**
When the fastening location coordinates agree with the tool coordinates, a task release is issued. Upon completion of the fastening operation, the fastening data for each location is allocated to a part, and the next operation is displayed on the monitor.

This system provides a guaranteed error-proof allocation of fastening data to the part and to the fastening locations.

iTeleskop

iTeleskop



iTeleskop
with SMX30 nutrunner control
and HCX2 handheld nutrunner



iTeleskop
with SMX30 and SMX10 nutrunner control
and double KCX compact nutrunner



iTeleskop
pivoted
with SMX30 nutrunner control
and HCX2 handheld nutrunner

