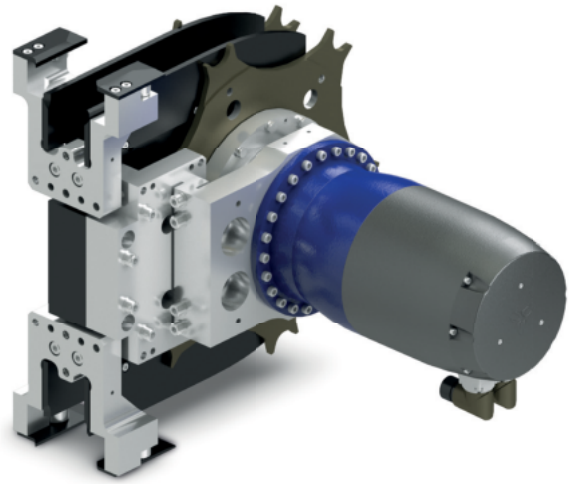
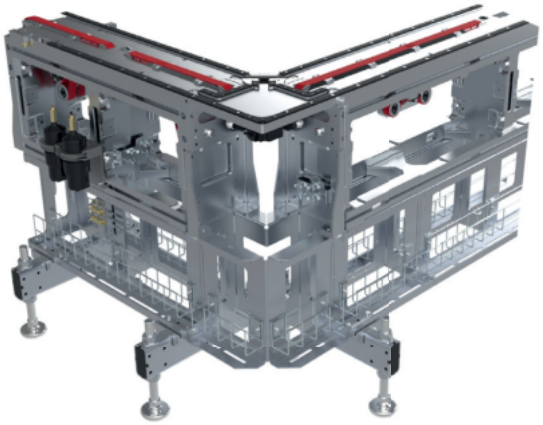


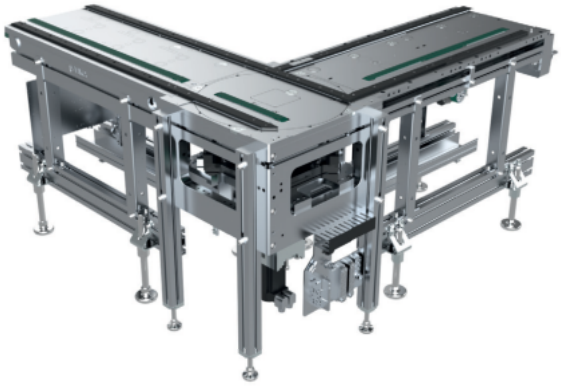
LINTRANS LTS-CI

Quick – Strong – Linear



LINTRANS LTH-CI

Modular – Flexible – Universal



LINTRANS LTL-CI

Resistent – Accurate – Tried & tested

TRANSPORTATION SYSTEMS

TRANSPORTATION SYSTEMS

STIWA MECHATRONIC SYSTEMS – YOUR PARTNER FOR OPTIMIZED PRODUCTION

As a leading manufacturer of automation technology, we have been providing products, projects and services for many years, thereby enabling optimized technology integrations with the best possible overall effect. Through the targeted interaction of mechanics, software and electronics, we achieve production solutions that guarantee the greatest possible flexibility, standardization, and safety. Our approach is all about "cooperative growth", meaning we are there every step of the way along our client's value added chain. No matter whether you need supply, handling, transportation or complete systems, STIWA is your partner for mechatronic special solutions!

STIWA TRANSPORTATION SYSTEMS

STIWA transportation systems offer you exceptional performance in terms of speed and positioning accuracy. The rigidly or loosely linked STIWA transport systems, designed for high performance, impress with minimal workpiece carrier changeover time. We guarantee the highest possible service life and reliability for your production processes.

INTELLIGENT MEANS OF PRODUCTION

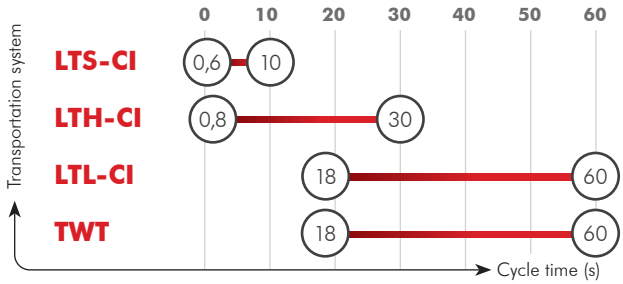
With high-performance control cycles of our products, we enable you to control your processes almost in real time. Included basic software guarantees networked processes. There is also the option of an ERP connection for operation and product data collection, which opens up further analysis options and records important parameters from your production processes. Workpiece carrier data from the whole system is recorded at all times and is always available to the machining modules.

Functional Matrix

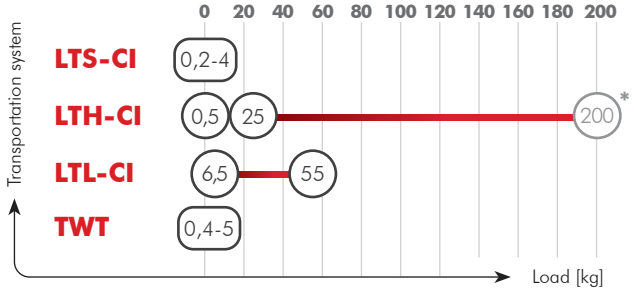
	TWT	LTS	LTH	LTL
Manual work station „safety-related"	●	●	●	●
Manual work station „ergonomic"	●	●	●	●
Technology Integration	●	●	●	●
Modularly expandable	●	●	●	●
Linear layout	●	●	●	●
Two-dimensional layout	●	●	●	●
Workpiece carrier „rigid"	●	●	●	●
Workpiece carrier „loose"	●	●	●	●

● possible ● conditionally possible ● not possible

Cycle Times



Moving Load (Component + Workpiece Carrier)

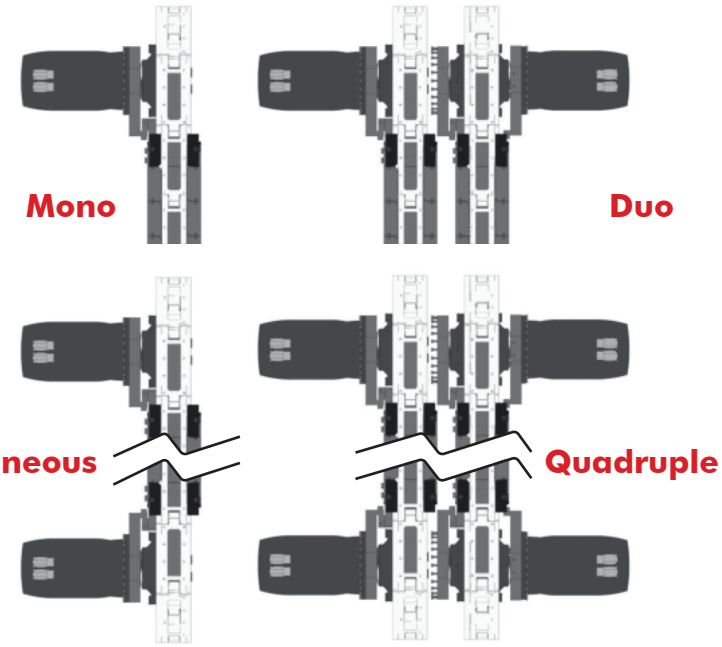


* in development

LINTRANS LTS-CI

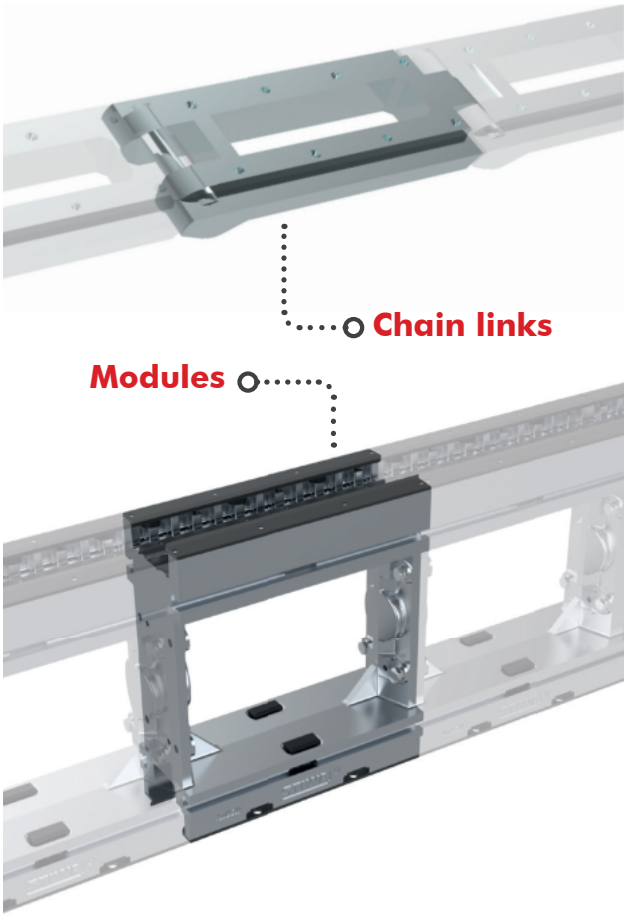
MECHANICAL STRUCTURE

The LTS-CI transportation system is an automated assembly system based on rigid linkage. The workpiece carriers located on the chain are moved synchronously. The system is specifically designed for the transportation of parts with short cycle times and low workpiece carrier changeover times.



CHARACTERISTICS AND FUNCTIONS

- Transportation of workpiece carriers by chain drive
- Modularly expandable production lines
- Direct force application on the transportation chain
- Upgradeable with additional modules
- Stable aluminium-cast base body



OBJECTIVES AND IMPACT

High speed
- Extremely fast workpiece carrier changeover

High precision
- High guidance accuracy ensures precision of positioning

Proven technology
- Used hundreds of times in all product areas

Parts spectrum
- From small to long parts

Universally usable
- Anti-static and suitable for clean-room use
- No magnetism

Compact layout
- Optimal use of space

BENEFIT

- The quickest transportation system for discrete manufacturing

OPTIONAL ACCESSORIES

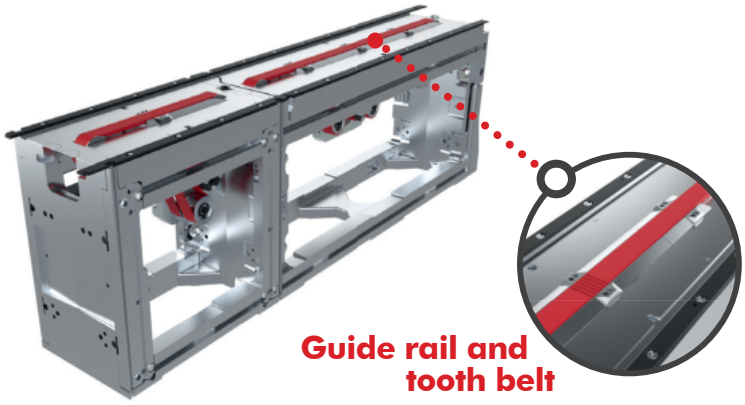
- Simultaneous actuation for higher output and performance
- Parallel and synchronous chains for processing of long parts

LINTRANS LTH-CI

IN DEVELOPMENT:
Heavy load version up to 200kg

MECHANICAL STRUCTURE

The LTH-CI transportation system is an automated assembly system based on hybrid (rigid/loose) linkage. Workpiece carriers can be moved independently in the system and carry out transportation tasks in manual workstations. The system has been developed for flexible high-performance production and facilitates different speeds and any desired positioning of workpiece carriers. Two-dimensional and linear system layouts can be implemented.



CHARACTERISTICS AND FUNCTIONS

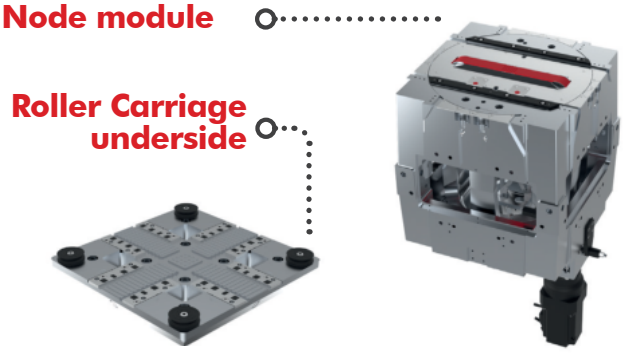
Manual work in the system
- » No system break between automatic and manual modules
- » Buffer integrated in the system
- » Functional safety

Clear conceptual advantages
- » No transmission handling necessary
- » Positioning mode, continuous operation configurable
- » Manual work station can be converted to automatic module

Transportation of parts with degree of freedom
- » Full NC axis

Configurable functionality
- » Buffer function or rapid workpiece carrier changeover
- » All positions can be accessed

Workpiece carrier with four orientation directions
- » Transportation system permits orientation of workpieces



OBJETIVES AND IMPACT

High precision, high load capacity
Low workpiece carrier changeover time
- » Depends on weight and travel distance
- » Traversing speed comparable to that of a servo axle

Loose or rigid linkage operating modes
- » In-line buffer
- » No additional buffer conveyors with part-specific handling required

Very long linear assembly lines without transmission modules possible
- » Transportation system processing quality

BENEFITS

- » Mounting of heavy parts
- » Use of workpiece carrier as an NC axle
- » Linearization option for the LTH-CI transportation system
  - Access and feeding possible from both sides
  - Return transportation on the system roof
  - Low number of workpiece carriers in return transportation

OPTIONAL ACCESSORIES

- » Special modules
- » Laser protection
- » Ports and manual work station connections

LINTRANS LTL-CI

MECHANICAL STRUCTURE

The LTL-CI transportation system is an automated assembly system based on loose linkage. Workpiece carriers can be moved independently in the system and also carry out transportation tasks in manual workstations.
The system is designed for the rapid transportation of large loads or of long or wide workpieces. The transport of the workpiece carriers is carried out via toothed belts and via frictional engagement in manual work stations.

CHARACTERISTICS AND FUNCTIONS

- High speed and high load capacity
- Transportation of large pieces
- Independent movement of work pieces within the system
- No static charge from sliding motion
- Friction distance drive units allow the integration of manual work stations within the transportation system

OBJECTIVES AND IMPACT

Short workpiece carrier changeover time even for large loads

- In-line buffer
- No additional buffer belts with part-specific handling required
- Loose and rigid linkage operating modes available

Two-dimensional machine concepts

- Repeat processing station delivery trips possible
- All types of workpiece carrier logistics possible thanks to workpiece carrier data server technology

Process quality

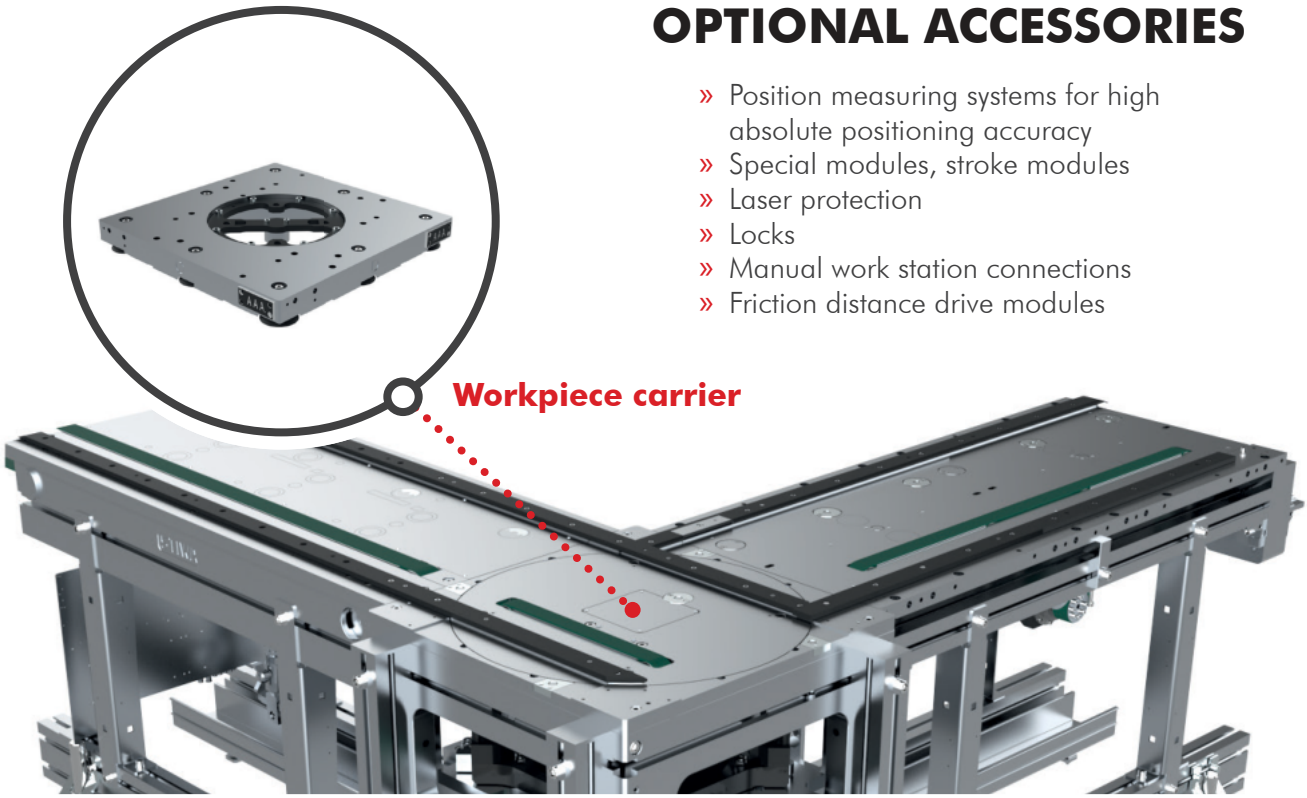
- Workpiece carrier transportation systems with high positioning accuracy

BENEFITS

- Use of workpiece carrier as an NC axle
- High net weight and system rigidity mean no additional braces or supports are required
- Fast workpiece carrier changeover

OPTIONAL ACCESSORIES

- Position measuring systems for high absolute positioning accuracy
- Special modules, stroke modules
- Laser protection
- Locks
- Manual work station connections
- Friction distance drive modules



TECHNICAL DATA

Transportation system	TWT	LINTRANS LTS-CI	LINTRANS LTH-CI	LINTRANS LTL-CI
System size	variable	max. 35 basic modules per chain (at 360 mm)	variable	variable
WPC	loose	rigid interlinked	loose	loose
WPC-changeover time (weight and distance-dependent)	ca. 0,51 s (part carrier single 48 mm)	ca. 0,23 s (chain link 180 mm)	ca. 0,35 s (AM 360 mm)	ca. 1,5 s (AM 480 mm)
Maximum traversing speed	0,51 m/s	2,945 m/s	2,7 m/s	1,0 m/s
Repeatability (in chain running direction) (transverse to chain running direction)	+/- 0,1 mm +/- 0,1 mm	+/- 0,15 mm +/- 0,03 mm	+/- 0,2 mm +/- 0,1 mm	+/- 0,1 mm +/- 0,1 mm
Max. weight of WPC (without additional elements)	3,5 (5) kg	4 kg	25 kg	55 kg
Max. vertical force on WPC (without support)	-	3.500 N	3.000 N	3.000 N
System grid	360 mm	360 mm	360 mm	480 mm
Basic system height (Floor to WPC upper edge)	870 - 995 mm	870 mm	860 - 940 mm	860 - 940 mm

WPC ... Workpiece carrier

COMPLETELY INTEGRATED – by this we unterstand:

- Flexible solutions – tailored to your needs
- Mastering the IIoT (Industrial Internet of Things): Optimized technology and system integrations due to many years of experience in the production and networking of automation systems.
- Safe processes with the best possible overall effect and lowest total costs
- Adaptive, subsequent production: Based on the pre-production processes and according to the situational requirements
- Comprehensive standardization – high scalability

Your contact person

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