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Cross-Belt Sorter

High-speed sorting solutions

The FORTNA cross-belt sorter is best utilized for high-speed sorting operations. The system offers rapid throughput and precise diverting capabilities and can handle different weight and size packages with ease. To maintain the highest level of accuracy and performance, the FORTNA cross-belt sorter features real-time monitoring and control capabilities.
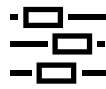
Accurate sorting

Seamless integration of hardware and software guarantees the highest level of accuracy.

- Recentering for precision performance.

- Exact cell position within the system determined by high resolution encoder.

- Precise speed control.

- Onboard control for fast and consistent communication.

- Direct drive for increased space control and reduced delay.

High capacity

System throughput begins with the induction unit, where intelligent algorithms optimize the loading strategy to ensure the most efficient combination for optimal performance.

- Optimization of the induction flow.

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- Peak system capacity.
- Maximized sorter utilization with tourque motors and accurate speed control.

High control

Machine control sensors collect and transmit data, enabling real-time analysis to predict and prevent potential faults or defects.

- Ground data analysis provides data collection and unique operating thresholds.
- Onboard data analysis: running system data collection and analysis.
- Data comparison and real-time remote control.
- Predictive maintenance.
- Insights and system report.
- High level of control with maximum system availability.

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Performing solution, reliable and effective

Flexible layout

The modular design enables flexible configurations in any facility.
The sorting solution can be any shape, available in straight and curved sections, inclined, declined, and double.
The carrier's design can also result in a space-saving stacked loop system within a small footprint.
The modular component designs are scalable and may be expanded and configured to meet development requirements.

High-quality components

The FORTNA cross-belt sorter is assembled from solid and AISI 304 stainless steel track. The curve in the loop design reduces the vibrations of the moving components. The robust and compact carrier is designed for longevity.

Low maintenance

The high-quality components and compact design result in low maintenance requirements. In the event of a sudden cell malfunction, the system can continue operating, allowing maintenance to be postponed until a later time.
A single cell type is suitable for an entire system. The cells can be easily replaced within a short timeframe, requiring no advanced skills, which accelerates maintenance tasks and reduces the need for spare parts.

Low impact

The FORTNA cross-belt sorter features balanced systems, ensuring low noise levels and energy efficiency to promote a safe workplace environment.

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Cross-Belt Single Cell

Single cell main features

	metric	imperial
Max item dimensions	from 850x700x700 to 1500x800x800 mm	from 33.5x27.5x27.5 to 59x31.5x31.5 in
System capacity	up to 16.600 cph@3m/s	
Smallest items	100 x 100 x 5 mm	3.9 x 3.9 x 0.2 in
Parcel weight	max. 50 kg	max. 110 lbs
Sorter speed	up to 3 m/sec	
Inclination	12° @13.000 mm	
Curve radius	R4000 mm	R157.5 in
Drive motor	LIM – Linear Induction Motor	
Noise level	≤ 70 dBA	
Control architecture	Full PLC	
Track	Stainless Steel AISI 304 (patented profile)	

Single cell carriers list

	Width (mm)	Length (mm)	Pitch (mm)	Max Payload (Kg)	Max nominal dimensions LxW (mm)	Max exceptional dimensions LxW (mm)	Max item footprint on single cell (mm)
XBS_S_1500_540_800_50	1500	540	800	50	1500x640	1500x800	1400x500x500
XBS_S_1500_440_700_50	1500	440	700	50	1500x560	1500x700	1400x400x400
XBS_S_850_440_700_50	850	440	700	50	850x560	850x700	700x400x400

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Cross-Belt Double Cell

Double cell main features

	metric	imperial
Max item dimensions	from 850x650x650 to 1200x800x800 mm	from 33.5x25.6x25.6 to 47.2x31.5x31.5 in
Smallest items	75x75x3 mm	2.9x2.9x0.12 in
Parcel max weight	25 kg (single cell) / 50 kg (dual cell)	55 lbs (single cell) / 110 lbs (dual cell)
Sorter speed	up to 2,5 m/sec	
System capacity	up to 19.600 cph	
Inclination	12° @13.000 mm	
Curve radius	R4000 mm	R118.1 in
Drive motor	LIM – Linear Induction Motor	
Noise level	≤ 70 dBA	
Control architecture	Full PLC	
Track	Stainless Steel AISI 304 (patented profile)	

Double cell carriers list

	Length (mm)	Width (mm)	Carrier pitch (mm)	INT^ (mm)	Max load per cell (Kg)	Max item footprint dimensions on single cell (mm)	Max item footprint dimensions on dual cell (mm)
XBS_D_1250_440_1300_25	1250	440	1300	85	25	1100x380x380	1150x800x800
XBS_D_1000_540_1500_25	1000	540	1500	100	25	850x500x500	900x800x800

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Data Acquisition System Predictive Maintenance

System monitoring
The FORTNA cross-belt system is equipped with a Data Acquisition System. Sensors installed in the loop collect and record system data to analyze the frequency spectrum of the machine under normal operating conditions.

Typical events to monitor
Possible mechanical anomalies along the track; Shock detection on the carriers; Carriers tensioning anomaly.

Real-time control
The collected data is continuously compared with the pre-established thresholds to monitor the status of the cross-belt system in real-time.

Data acquisition
When activated, all collected data can be integrated into the customer's server and managed on demand by FORTNA Lifecycle Performance Services during scheduled inspections. With customer consent, it can also be connected directly via VPN to the FORTNA Control Room, where the Lifecycle Performance Services team monitors system metrics and operational status in real time, ensuring full system oversight.

Installation
The FORTNA Data Acquisition System can be optionally included in the design of a new cross-belt project. It can also be added later to an existing operational system by the Lifecycle Performance Services team as an enhancement to the current solution.
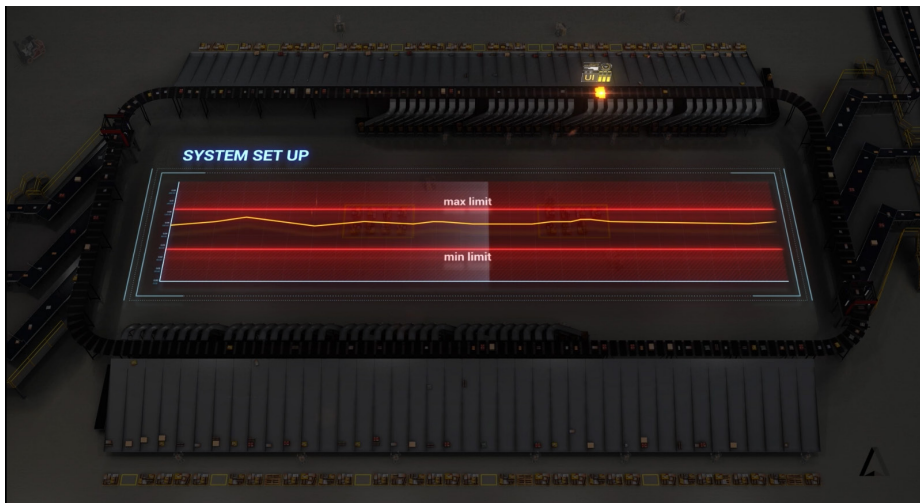
High system performance

Smooth Items Remover

In a loop sorter, misplaced items can interfere with system performance, reducing the sorter's overall capacity.

The FORTNA Smooth Items Remover device addresses this issue by removing misplaced packages without interrupting operations.

Equipped with sensors, it detects misplaced shipments on a cross-belt sorter and automatically directs them into a designated outlet using compressed air. Customer benefits:

- Ensures timely shipments, helping to meet service-level agreements

- Enhances efficiency through increased sorter throughput

The FORTNA Smooth Items Remover is easy to install and compatible with all sortation systems, whether for new greenfield projects or as an enhancement to existing systems.

Technical Data	
Minimum package weight	0,2 kg (depending on dimensions)
Maximum package weight	4 kg (depending on dimensions)
Performance	+ 95% success rate
Noise Level	~ 95 dB(C)
Control Unit	PLC
Supply	Compressed Air

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About FORTNA

FORTNA partners with the world's leading brands to transform omnichannel and parcel distribution operations. Known world-wide for enabling companies to keep pace with digital disruption and growth objectives, we design and deliver solutions, powered by intelligent software, to optimize fast, accurate and cost-effective order fulfillment and last mile delivery. Our people, innovative approach and proprietary algorithms and tools ensure optimal operations design and material and information flow.

Contact us today at **www.FORTNA.com**

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