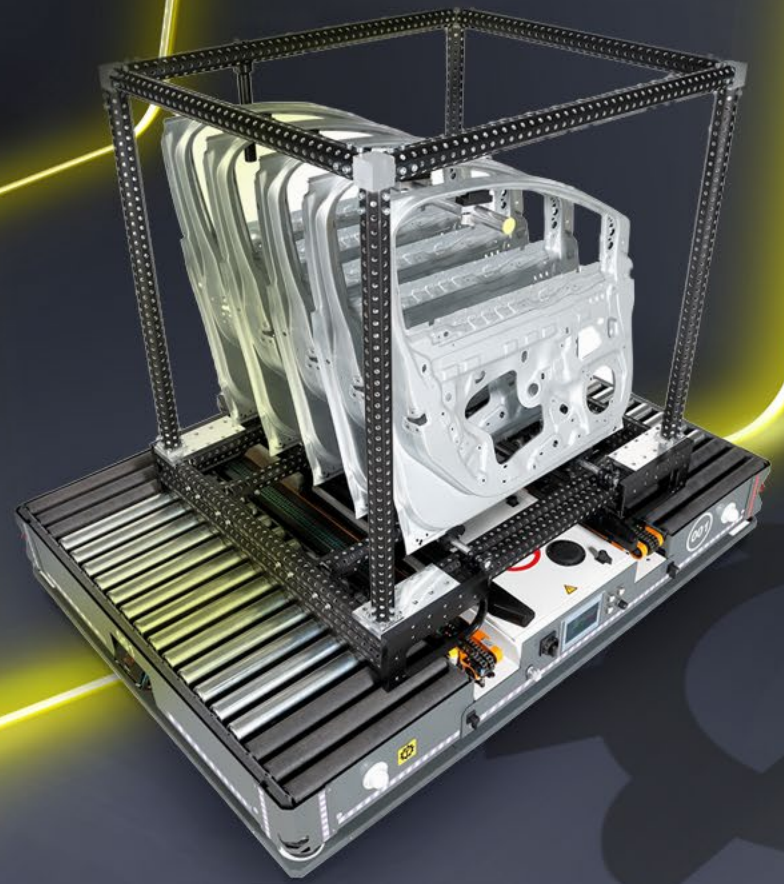
TÜNKERS®
Ingenuity in series.



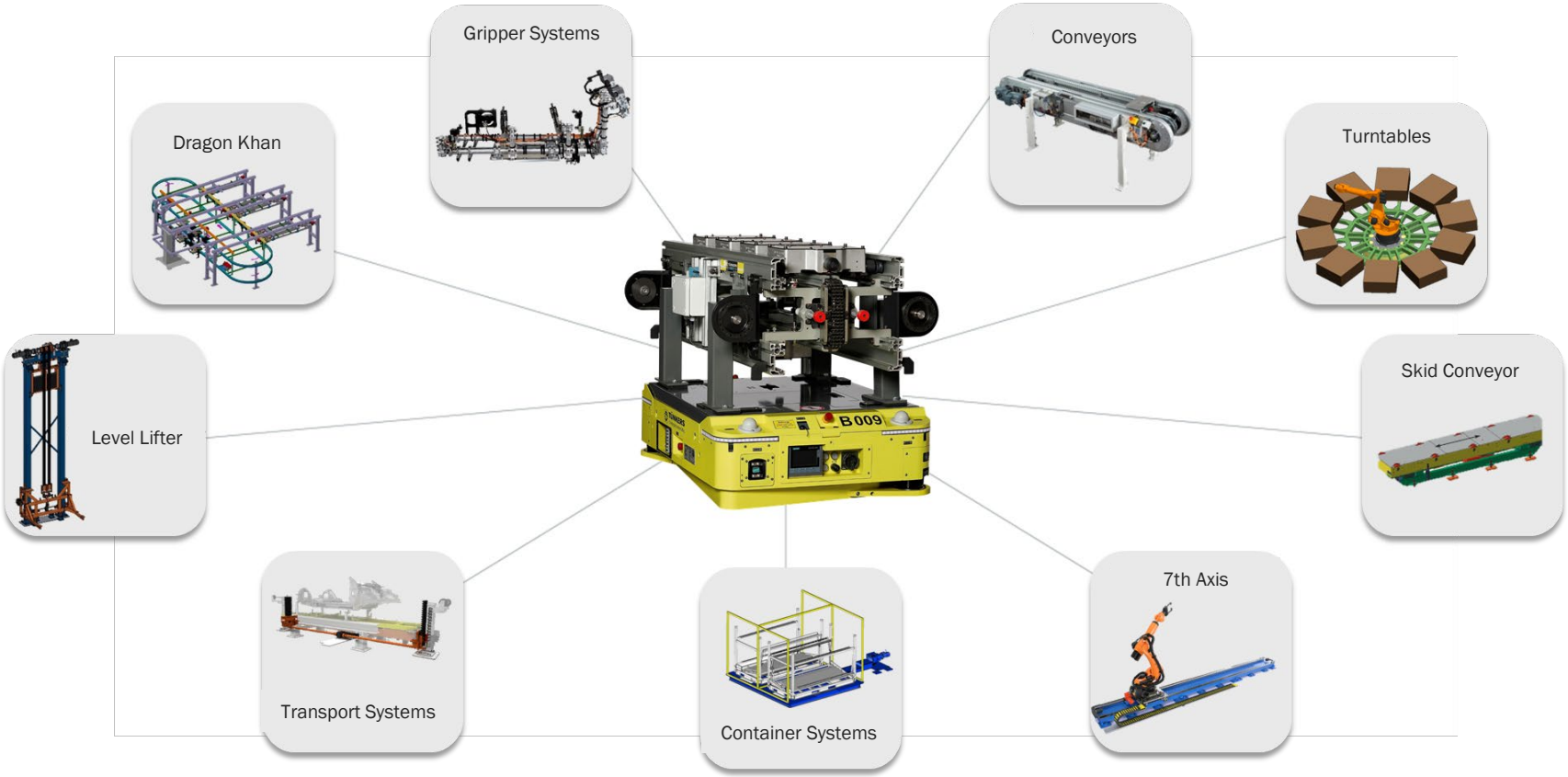
AUTONOMOUS
TRANSPORTING

Transportieren autonom

Autonomous transporting

Industrial Logistic Robots

タンカースの9モジュールの全てに連動し融合

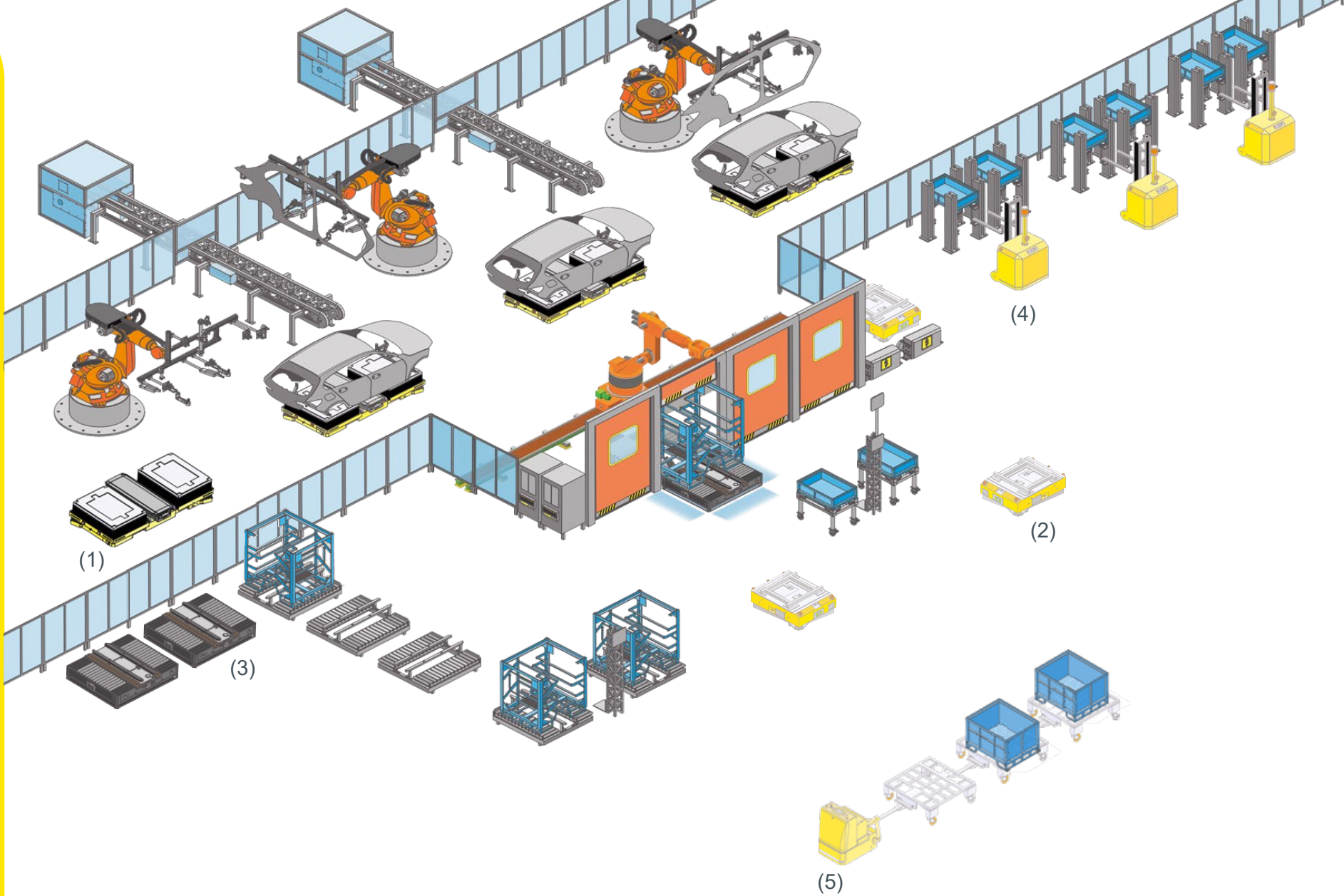


Übersicht

Overview

AGV-Types

- (1) Platform
- (2) Cart
- (3) Roller conveyor
- (4) Forklift
- (5) Tugger



工場・現場のあらゆるシーンで活躍

FREE NAVIGATION

The environment are captured by laser scanners and the position of the vehicle is determined by means of simultaneous localisation and mapping algorithm.

LASER REFLECTION

A laser scanner detects reflection marks along the route. The AGV position is determined by triangulation

OTHER NAVIGATION TYPES:

Inductive

A track guidance system embedded in the floor with a frequency of 7 to 12 Hz enables navigation of the vehicles.

Magnet

A control circuit follows a magnetic track on the floor. Another option is using small magnets placed in a grid in the floor for navigation.

Optical

A CCD camera in combination with a video converter detects a track or DMC codes on the ground.

Beacon

UWB or US beacons are installed in convenient locations in the plant. The position of the AGV is determined by triangulation.

GPS

This navigation uses GPS signals from satellites in combination with a reference station. This enables highly accurate positioning in the outdoor area.

誘導性センサ、磁器ガイド、光学式誘導、ビーコンスキャナ、GPSを各用途に分けて採用

Transportieren autonom

Autonomous transporting

For more than 60 years, we have been the topic of positioning.

Calibration

Innovative calibration processes ensure consistently high fleet accuracy.

No individual teaching of the transfers

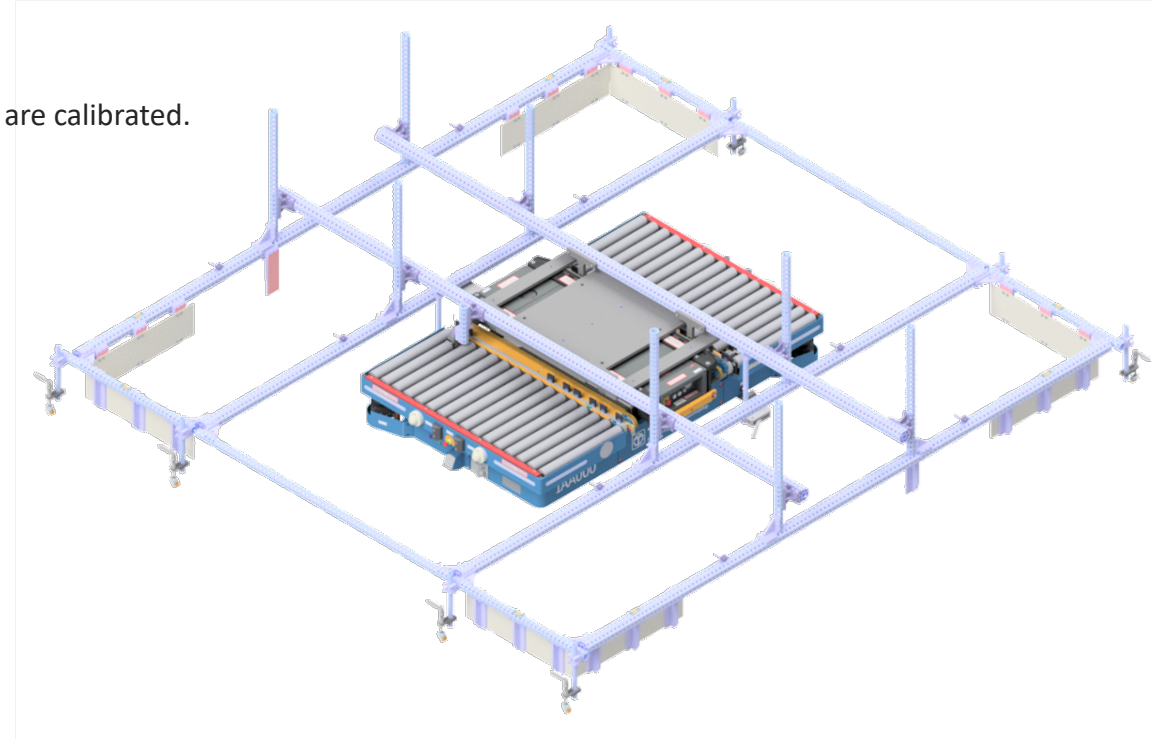
All sensors that affect the position of the vehicle are calibrated.

Position Accuracy*:

Free navigation: +/- 5mm +/-1°

DMC: +/- 3mm +/-1°

MCP: +/- 0.2mm (external Clamp)



年次校正用システムも併せてご提供

* In Anhängigkeit von Sensorik und Konturdaten, bezogen auf den Navigationspunktes

タンカース自動カート　TACT1208

TACT 1208

TÜNKERS AUTOMATED CART

The TÜNKERS Automated Cart TACT 1208 is a bidirectional, ramp-capable underride AGV, particularly characterised by its modular build. It adapts flexibly to different applications matching modules. This is made possible, among other things, by use of lifting table modules, gripper systems, roller conveyors, or accumulating conveyor systems.

両方向へ移動可能なAGVで、自動車のように動くことができます。 リフティングテーブルもしくは他のタンカースモジュールを載せることができ、可搬重量は1000Kg、最高速度2m/s, 最大走行斜度は8度。

TECHNICAL DATA	TACT 1208
Movement method	Bidirectional
AGV weight	480 kg
Payload	1000 kg
Dimensions	1200 x 878 x 370 mm
Ground clearance	30 mm
Ramp capability	8°
Load transfer system	Platform
Special equipment	Lifting table, lifting column, roller conveyor, gripper, or accumulating conveyor system
IP rating	54
SPEED	
Driving speed	0 - 1.6 m/s
Maximum speed	2.0 m/s
NAVIGATION	
Navigation type	Free navigation
Accuracy	+/- 5 mm*
Supplementary navigation	Optional DMC code navigation
Accuracy with additional navigation	+/- 3 mm*
Obstacle bypass	Optional*
VDA 5050 compatible	Yes
SAFETY	
Safety scanner	2D safety scanner
Scanning angle	360°
3D camera	Optional
Secure position	Optional
Safety WIFI	Optional
ACCUMULATOR	
Type	Lithium
Power	4.5 kW
Charging current	1C
VISUALISATION	
Driving visualisation	Yes
Acoustic notifications	Yes
Panel	Optional

*Depending on sensor and contour data

PRODUCT RANGE

タンカース自動カート　TACT1610

TACT 1610

TÜNKERS AUTOMATED CART

The TÜNKERS Automated Cart TACT 1610 is made particularly flexible by its omnidirectional driving mode. Similar to the TACT 1208, it can be expanded with by adding lifting table, gripper system, roller conveyor, or accumulating-conveyor system modules.

TACT1208と同じ技術を採用し、やや大型で360度方向自由に動くことが可能。 TACT1610と合わせて125台がVWの組み立てラインで稼働中。

TECHNICAL DATA	TACT 1610
Movement method	Omnidirectional
AGV weight	730 kg
Payload	1000 kg
Dimensions	1600 x 1078 x 370 mm
Ground clearance	40 mm
Ramp capability	7°
Load transfer system	Platform
Special equipment	Lifting table, lifting column, roller conveyor, gripper, or accumulating conveyor system
IP rating	54
SPEED	
Driving speed	0 - 1.6 m/s
Maximum speed	2.0 m/s
NAVIGATION	
Navigation type	Free navigation
Accuracy	+/- 5 mm*
Supplementary navigation	Optional DMC code navigation
Accuracy with additional navigation	+/- 3 mm*
Obstacle bypass	Optional*
VDA 5050 compatible	Yes
SAFETY	
Safety scanner	2D safety scanner
Scanning angle	360°
3D camera	Optional
Secure position	Optional
Safety WIFI	Optional
ACCUMULATOR	
Type	Lithium
Power	4.5 kW
Charging current	1C
VISUALISATION	
Driving visualisation	Yes
Acoustic notifications	Yes
Panel	Optional

*Depending on sensor and contour data

PRODUCT RANGE

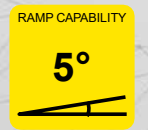
タンカース自動カート　TACT1909

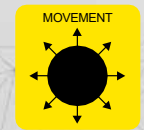
TACT 1909

TÜNKERS AUTOMATED CART

The TÜNKERS Automated Cart TACT 1909 carries weights of up to 1t over ramps with inclines of up to 5°. The swivelling safety scanner mechanism patented by TÜNKERS allows driving through under particularly narrow objects with a maximum protective field of 360°. Shorter cycle times are achieved through omnidirectional driving.

スキャナシステム採用でピックアップ時のサイクルタイム軽減に寄与。 通常走行時は360度方向スキャナとして動作し、可搬重量1000Kg、最大速度2m/sで稼働。





TECHNICAL DATA	TACT 1909
Movement method	Omnidirectional
AGV weight	690 kg
Payload	1000 kg
Dimensions	1950 x 970 x 380 mm**
Ground clearance	30 mm
Ramp capability	5°
Load transfer system	Platform
Special equipment	Lifting table, lifting column, roller conveyor, gripper, or accumulating conveyor system
IP rating	54
SPEED	
Driving speed	0 - 1.6 m/s
Maximum speed	2.0 m/s
NAVIGATION	
Navigation type	Free navigation
Accuracy	+/- 5 mm*
Supplementary navigation	Optional DMC code navigation
Accuracy with additional navigation	+/- 3 mm*
Obstacle bypass	Optional*
VDA 5050 compatible	Yes
SAFETY	
Safety scanner	2D safety scanner
Scanning angle	360°
3D camera	Optional
Secure position	Optional
Safety WIFI	Optional
ACCUMULATOR	
Type	Lithium
Power	4.5 kW
Charging current	1C
VISUALISATION	
Driving visualisation	Yes
Acoustic notifications	Yes
Panel	Optional

*Depending on sensor and contour data
**Deviation due to change of scanner position

PRODUCT RANGE

タンカースTOSシステム組み合わせ

TACT TOS

TÜNKERS TACT TOS

The TÜNKERS TACT TOS is one of the most modular vehicles in the range. Use of the TÜNKERS “OneScrew” technology enables individual construction according to customer requirements. The basic frame of the system is based on an octagonal profile with an offset hole pattern to provide a form fit. The connections are based on the standard TÜNKERS round tube components and are force-locked together. An extension with clamping technology enables easy fixing of components on the AGV.

タンカースの設計・組立が容易で自由であるTOSシステムとの融合で、生産現場での工程に合わせて独自の構成が可能。

MODULAR

TECHNICAL DATA	TACT TOS
Movement method	Bidirectional, omnidirectional
AGV weight	Variable depending on expansion
Payload	Variable depending on expansion
Dimensions	Variable depending on expansion
Ground clearance	30 mm
Ramp capability	No
Load transfer system	Platform
Special equipment	Clamping and linear technology, TOS System components
IP rating	20 - 54
SPEED	
Driving speed	0 - 1.6 m/s
Maximum speed	2.0 m/s
NAVIGATION	
Navigation type	Free navigation
Accuracy	+/- 5 mm*
Supplementary navigation	Optional DMC code navigation
Accuracy with additional navigation	+/- 3 mm*
Obstacle bypass	Optional*
VDA 5050 compatible	Yes
SAFETY	
Safety scanner	2D safety scanner
Scanning angle	360°
3D camera	Optional
Secure position	Optional
Safety WIFI	Optional
ACCUMULATOR	
Type	Lithium
Power	6.6 kW
Charging current	1C
VISUALISATION	
Driving visualisation	Optional
Acoustic notifications	Optional
Panel	Optional

*Depending on sensor and contour data

PRODUCT RANGE

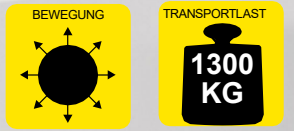
タンカース自動トロール

TRoll

TÜNKERS AUTOMATED TROLL

The TÜNKERS Automated TRoll has an active chain gripping system that enables a fully automatic pick-up of large load carriers. The loading and unloading options on either side in combination with an omni-directional travel mode makes it particularly flexible in use. The optional 3D cameras reliably detect forklift tines in the room, for example. Digital LEDs visualise events and driving movements.

自動倉庫からラック単位での搬送に使用。 上側にローラコンベアを装備し、前述のタンカースTOSシステムと融合して運用。



TECHNICAL DATA	TRoll 2216	TRoll 2214	TRoll 3014
Movement method	Omnidirectional	Omnidirectional	Omnidirectional
AGV weight	1350 kg	1400 kg	1600 kg
Payload	1000 kg	1300 kg	1300 kg
Dimensions	2270 x 1662 x 450 m	2286 x 1400 x 455 m	3086 x 1400 x 455 m
Transfer height	350 mm	350 mm	350 mm
Ground clearance	35 mm	35 mm	35 mm
Ramp capability	No	No	No
Load transfer system	Rollers with tele-scopic chain gripper system	Rollers with tele-scopic chain gripper system	Rollers with tele-scopic chain gripper system
IP rating	54	54	54
SPEED			
Driving speed	0 - 1.6 m/s		
Maximum speed	2.0 m/s		
NAVIGATION			
Navigation type	Free navigation		
Accuracy	+/- 5 mm*		
Supplementary navigation	Optional DMC code navigation		
Accuracy with additional navigation	+/- 3 mm*		
Obstacle bypass	Optional*		
VDA 5050 compatible	Yes		
SAFETY			
Safety scanner	2D safety scanner		
Scanning angle	360°		
3D camera	Optional		
Secure position	Optional		
Safety WIFI	Optional		
ACCUMULATOR			
Type	Lithium		
Power	6.6 kW	4,5 kW	4,5 kW
Charging current	1C		
VISUALISATION			
Driving visualisation	Yes		
Acoustic notifications	Yes		
Panel	Optional		

*Depending on sensor and contour data

PRODUCT RANGE

タンカース自動TRex

TRex

TÜNKERS Automated TRex

The TÜNKERS Automated TRex comes with an active belt conveyor to transport large load carriers on two levels. The load carriers are transferred fully automatically to the systems by an electrical system synchronisation. During the journey, the load carriers are securely fixed on the AGV by way of clamping technology.

PAYLOAD 1000 KG

MOVEMENT

トロール型AGVの小型のコンセプトで上側にローラコンベアではなくベルトコンベアを搬送用に設置。このAGVには2段の搬送面があり、小型ラック用には350㎜、大型ラック用には450㎜。

TECHNICAL DATA	TRex
Movement method	Omnidirectional
AGV weight	1400 kg
Payload	1000 kg
Dimensions	3400 x 1500 x 450 mm
Transfer height	350/450 mm
Ground clearance	30 mm
Ramp capability	No
Load transfer system	Belt conveyor
IP rating	20
SPEED	
Driving speed	0 - 1.0 m/s
Maximum speed	1.0 m/s
NAVIGATION	
Navigation type	Laser navigation
Accuracy	+/- 10 mm*
Supplementary navigation	No
Accuracy with additional navigation	
Obstacle bypass	No
VDA 5050 compatible	Yes
SAFETY	
Safety scanner	2D safety scanner
Scanning angle	360°
3D camera	Optional
Secure position	Optional
Safety WIFI	Optional
ACCUMULATOR	
Type	Lithium
Power	6.6 kW
Charging current	1C
VISUALISATION	
Driving visualisation	Yes
Acoustic notifications	Yes
Panel	Optional

*Depending on sensor and contour data

PRODUCT RANGE

タンカース　スキッドロボット

TECHNICAL DATA	TSkid 7515	TSkid 5415	TSkid 3014
Movement method	Omnidirectional	Omnidirectional	Omnidirectional
AGV weight	1700 kg	1500 kg	1350 kg
Payload	1000 kg	1300 kg	1300 kg
Dimensions	7500x1500x450mm	5400x1500x450mm	3062x1400x455mm
Transfer height	340 mm	340 mm	500 mm
Ground clearance	30 mm	30 mm	30 mm
Ramp capability	No	No	No
Load transfer system	Roller conveyor with flanges	Roller conveyor with flanges	Roller conveyor with flanges
IP rating	20	20	20
SPEED			
Driving speed	0 - 1.0 m/s		
Maximum speed	1.0 m/s		
NAVIGATION			
Navigation type	Free navigation		
Accuracy	+/- 5 mm*		
Supplementary navigation	Optional DMC code navigation		
Accuracy with additional navigation	+/- 3 mm*		
Obstacle bypass	Optional*		
VDA 5050 compatible	Yes		
SAFETY			
Safety scanner	2D safety scanner		
Scanning angle	360°		
3D camera	Optional		
Secure position	Optional		
Safety WIFI	Optional		
ACCUMULATOR			
Type	Lithium		
Power	6.6 kW		
Charging current	1C		
VISUALISATION			
Driving visualisation	Yes		
Acoustic notifications	Yes		
Panel	Optional		

*Depending on sensor and contour data

PRODUCT RANGE

タンカース　スタッカー

STacker

TÜNKERS STACKER

The confident TÜNKERS STacker is able to move in narrow aisles with high precision. It places its load carriers precisely in transfer stations. The counterweight principle enables transfer even in locations that are difficult to access. With an optional fork adjustment, it adapts flexibly to the load carriers.

フォークリフトタイプのAGVとして2種類を用意しています。オーバーレッグタイプとカウンタバランスタイプです。こちらはカウンタバランスタイプで700㎜高の重心で1000Kgの可搬能力を持ち、最大可搬高さ2600㎜ですが、要望により延長も可能。

TECHNICAL DATA	STacker
Movement method	Bidirectional
AGV weight	2600 kg
Payload	1000 kg with 700 mm load centre of gravity
Dimensions	2700 x 1160 x 2100 mm**
Transfer height	flexible
Ground clearance	40 mm
Ramp capability	No
Load transfer system	Forklift tines
Special equipment	Fork adjustment, telescopic tines, load carrier monitoring
IP rating	54
SPEED	
Driving speed	0 - 1.6 m/s
Maximum speed	1.6 m/s
NAVIGATION	
Navigation type	Free navigation
Accuracy	+/- 5 mm*
Supplementary navigation	Optional DMC code navigation, pallet pocket detection
Accuracy with additional navigation	+/- 3 mm*
Obstacle bypass	Optional*
VDA 5050 compatible	Yes
SAFETY	
Safety scanner	2D safety scanner
Scanning angle	360°
3D camera	Optional
Safe position sensing	Optional
Safety WIFI	Optional
ACCUMULATOR	
Type	Lithium
Power	6.6 kW
Charging current	1C
VISUALISATION	
Driving visualisation	Yes
Acoustic notifications	Yes
Panel	Optional

*Depending on sensor and contour data
**Differences possible by changing the LHE

PRODUCT RANGE

タンカース　S-ANT

S-ANT

TÜNKERS S-ANT

フォークリフトタイプAGVのオーバーレッグタイプです。これは車輪が車台に隠れていることを意味し、カウンターバランスタイプより小さく設計することができます。可搬重量は700m高の重心で1000Kg、安全性と動作精度は他のAGVと同様で、手動操作も可能。

The TÜNKERS S-Ant is a pallet mover that enables fully automated transport of pallets and boxes. The draw-bar control allows easy switching between automatic and manual operation.

TECHNICAL DATA	S-ANT
Movement method	Bidirectional
AGV weight	1330 kg
Payload	1000 kg with 700 mm load centre of gravity
Dimensions	2835 x 1160 x 2375 mm**
Transfer height	flexible
Ground clearance	35 mm
Ramp capability	No
Load transfer system	Forklift tines
Special equipment	Fork adjustment, telescopic tines, load carrier monitoring
IP rating	20
SPEED	
Driving speed	0 - 1.6 m/s
Maximum speed	1.6 m/s
NAVIGATION	
Navigation type	Free navigation
Accuracy	+/- 5 mm*
Supplementary navigation	Optional DMC code navigation, pallet pocket detection
Accuracy with additional navigation	+/- 3 mm*
Obstacle bypass	Optional*
VDA 5050 compatible	Yes
SAFETY	
Safety scanner	2D safety scanner
Scanning angle	360°
3D camera	Optional
Safe position sensing	Optional
Safety WIFI	Optional
ACCUMULATOR	
Type	Lithium
Power	6.6 kW
Charging current	1C
VISUALISATION	
Driving visualisation	Yes
Acoustic notifications	Yes
Panel	Optional

*Depending on sensor and contour data
**Differences possible by changing the LHE

PRODUCT RANGE