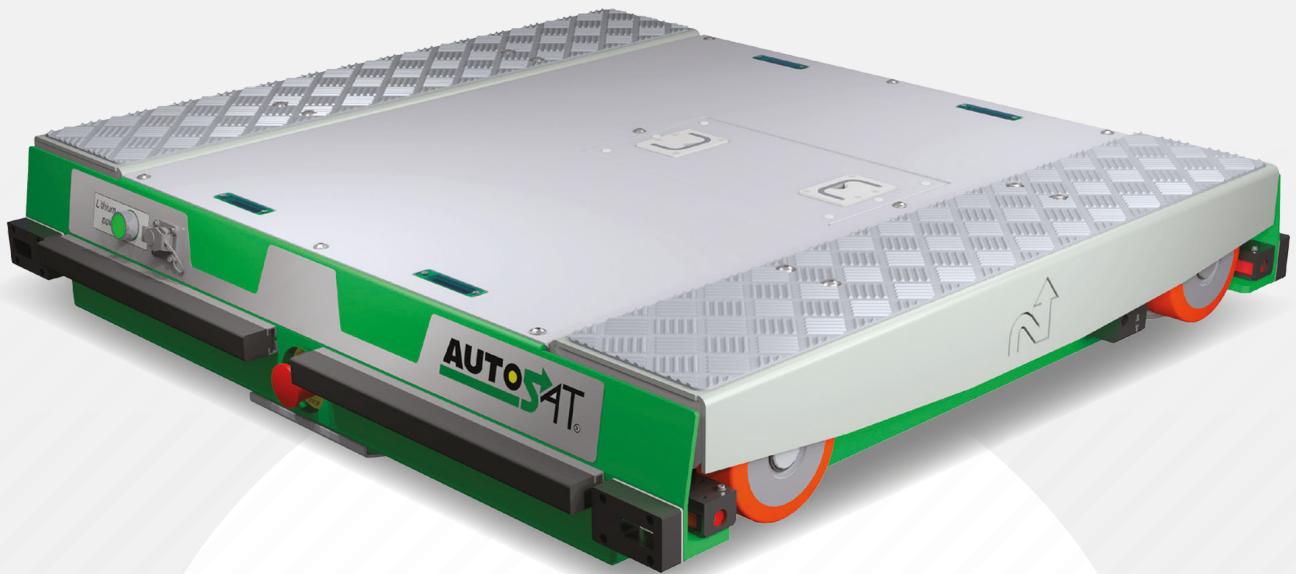


**AUTOMHA**



**AUTOSAT**

**THE BEST**

**HIGH DENSITY**

**STORAGE SOLUTION**

**MADE BY THE EXPERTS**

[automha.com](http://automha.com)

THE **SEMI-AUTOMATED SHUTTLE**  
DESIGNED FOR **MULTI-DEPTH PALLET STORAGE**,  
IDEAL FOR **ALL SECTORS** OF INDUSTRY,  
SUITABLE FOR **ALL RACK BRANDS**.

Patented by AUTOMHA in **2002**

More than **5.500 shuttles** installed in over 56 Countries

Range of application **-30°/+55°C**

AUTOSAT is the semi-automated shuttle created and designed by AUTOMHA for **intense multi-depth pallet storage**.

The shuttle operates in traditional drive-in lanes and guarantees the highest levels of efficiency in situations requiring repeated filling/emptying of shelves.

The shuttle is equipped with a special removable **Lithium battery** and is controlled by a simple **multi-function radio controller** with a multi-lingual LED display.

By moving autonomously within the lanes, AUTOSAT can be easily moved between various levels and shelves by a standard fork-lift truck as it picks, stows and re-orders the pallets in the storage lanes according to **FIFO** (first in - first out) or **LIFO** (last in - last out) mode.

The use of this shuttle allows for the use of the entire volume

of the warehouse, cutting handling times for storage and picking manoeuvres in half, and improving safety levels for the personnel present in the warehouse.

AUTOSAT is suitable for the storage of all types of pallet and loading units and can be used in **all industrial sectors**: it guarantees excellent performance in extremely low or high temperatures (-30 C°/+ 55 C°).

AUTOSAT is technology which was first patented by AUTOMHA, and is sold in the USA and CANADA under the **PALLETRUNNER** brand.

Warehouses equipped with AUTOSAT technology can be managed by the special LOG software, which manages and processes data regarding the **inbound and outbound handling of Loading Units in manual or semiautomated warehouses**.

## REFERENCE STANDARDS

### EUROPEAN DIRECTIVES:

#### **Machinery DIRECTIVE 2006/42/EC**

Safety requirements

#### **EMC DIRECTIVE 2014/30/EC**

Electromagnetic compatibility

#### **LVD DIRECTIVE 2014/35/EC**

Low Voltage Directive

#### **ATEX DIRECTIVE 2014/34/EC**

Environments with explosion hazard

### MAIN REFERENCE LEGISLATIONS:

EN ISO 12100:2010

EN ISO 13849-1/2 : 2015

EN 60204-1: 2018

EN 61000-4/6

### AUTOSAT PATENTS:

ATM00953

ATM01078

ATM01078

ATM01624

# MODELS

## STANDARD

Available for normal temperatures or refrigerated areas (AUTOSAT BZ).

The use of AUTOSAT BZ is permitted in temperatures as low as -30°C without any change in performance. The following measures should, however, be adopted:

- Do not move the shuttle into areas at ambient temperature; the resulting condensation that would form in the shuttle could compromise the functioning of the machine.
- The BZ model is supplied with an external "red box" battery which substitutes the Lithium battery during charging. We recommend that the "red box" is used during the night, when the shuttle is not in use, or for periods of rest of over 2 hours.

## INOX

An innovative model, designed to respond to the specific requirements of the cheese production and food

processing sector. Thanks to its 100% stainless steel and washable structure, AUTOSAT Inox is an ideal aid for optimising warehousing time and space, maintaining the hygiene standards required for the food sector. AUTOSAT Inox is also available in the BZ version.

## WI-FI

Semi-automated battery-powered machine fitted with wi-fi communication with PDA and AGV laser-guided shuttle carts.

With AUTOSAT WIFI, an operator to command the machine via radio controller is no longer required, as the shuttle operates automatically via wi-fi commands sent by the WMS (warehouse management software). AUTOSAT WIFI is, in any case, supplied with a radio controller and has the same Lithium battery as the other models. AUTOSAT WIFI is also suitable for all industrial sectors.

- Advantages of the PDA
- Advantages of AGV

## ATEX

Innovative model designed to operate in environments with explosion hazards. Converted in compliance with ATEX Directive 2014/34/EU and according to EN1755:2015 standard with all components certified according to their type certificate.

The marking of the machine is:

- CAT 2G IIB T4
- CAT 2D IIIC T135°C

This means that it can operate in areas classified as Zone 1 and Zone 2 for the gas classification family IIA and IIB (excluding IIC) with T triggering 135 C and Zone 21 and Zone 22 for powders also electroconductive IIIC (The surface temperature of the equipment in the car is always  $\leq 135$  °C).

# ADVANTAGES

## System concept

- Optimising of storage/depositing/picking phases
- Optimisation of space
- Full integration with various warehouse logistics (FIFO-LIFO)
- Efficient organisation of the storage area
- Maximum adaptability with pre-existing drive-in structures

## Technical advantages

- Powered by removable Lithium battery
- Maximum charging time 5 hours
- Average battery run time 8 hours
- Anti-tipping guides
- Laser targeting system for slowing down and positioning at the end of the lane
- Guide wheels for easy insertion into the lane
- Can be transported with a standard forklift truck

- Rapid and silent movement
- Real-time machine operational data available via the radio controller
- Suitable for refrigerated areas at temperatures as low as -30°C
- Significant energy savings with green technology

## Safety

- Storage/picking of pallets without the danger of collision thanks to laser targeting
- No risk to racking thanks to warehouse side handling
- Self-locking in the raised position when loaded
- Anti-collision system between satellites in the lane

## Maintenance

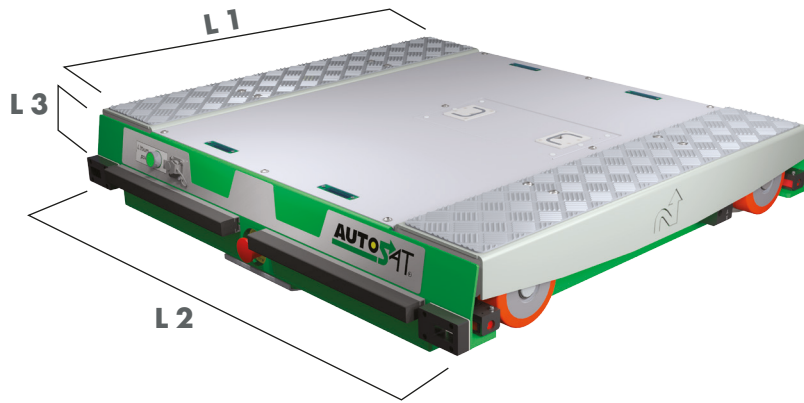
- Autoservice platform for the recovery of shuttle from the lane
- Predictive maintenance
- Guaranteed worldwide 24-hour, 7-days-a-week assistance

# INDUSTRIES

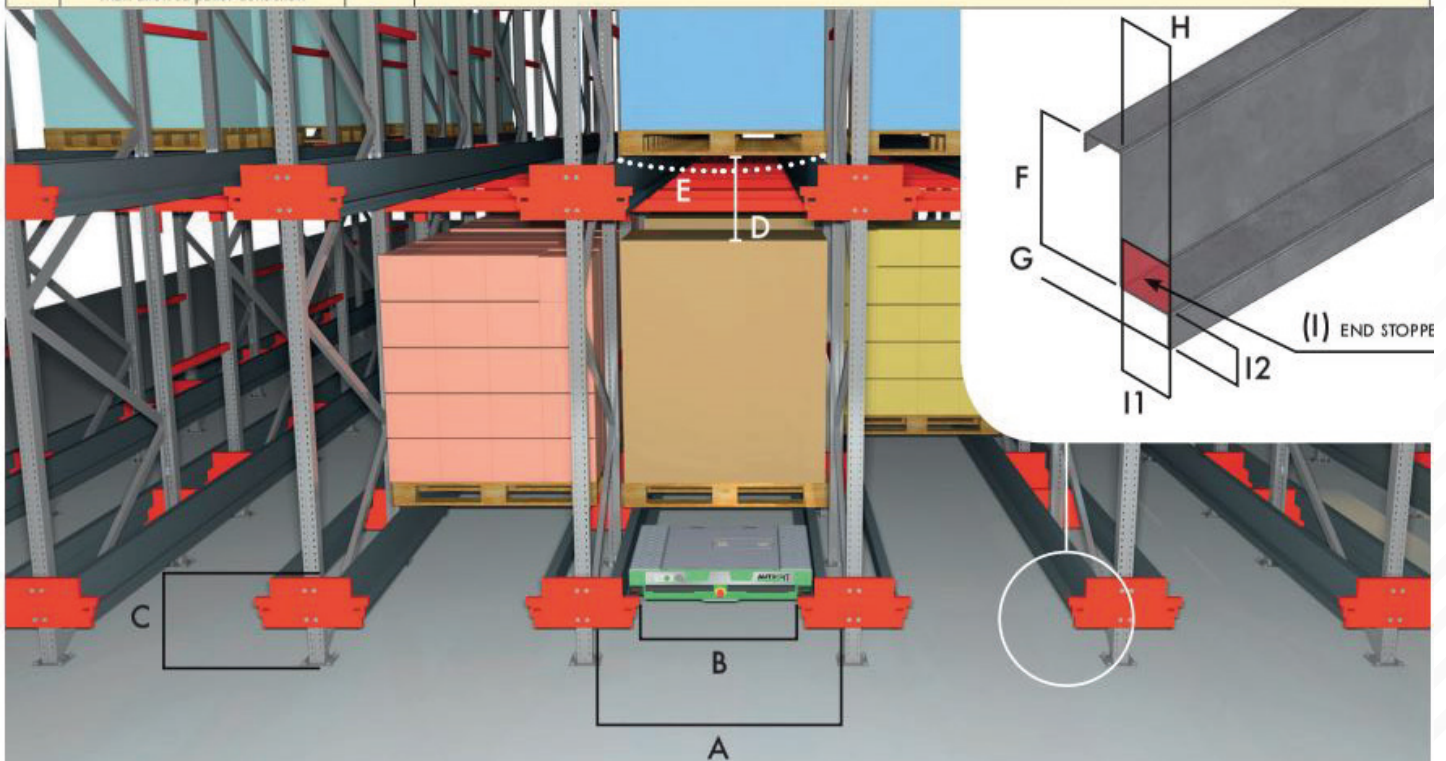
Food - Beverage - Dairy- Controlled temperature - Refrigerated - Logistics centres - ATEX

TECHNICAL DATA		AUTOSAT MODELS											
Data		u.m.	mm	mm	mm	mm	mm	mm	mm	mm	mm	inch	inch
IDENTIFICATION	Model	type	<b>SAT.0812</b>	<b>SAT.1010</b>	<b>SAT.1012</b>	<b>SAT.1111</b>	<b>SAT.1112</b>	<b>SAT.1140</b>	<b>SAT.1165</b>	<b>SAT.1210</b>	<b>SAT.1212</b>	<b>SAT.4840</b>	<b>SAT.4048</b>
	Pallet dimensions (D = depth/ F = forking side)	mm	800(D) x1200(F)	1000(D) x1000(F)	1000(D) x1200(F)	1100(D) x1100(F)	1100(D) x1200(F)	1140(D) x1140(F)	1165(D) x1165(F)	1200(D) x1000(F)	1200(D) x1200(F)	48(D)x40(F)	40(D)x48(F)
	Power supply	type	Lithium Battery										
	Command mode	type	Radiofrequency (Wifi Optional)										
	Load capability	kg	1500 (2000 Optional)										
	Temperature range ST / BZ / HT	°C	BZ -30 / -1   ST >0 / +55										
DIMENSIONS	<b>L1</b> total length (ref. technical drawing)	mm	884	1084	1084	1184	1184	1224	1249	1304	1304	1304	1084
	<b>L2</b> total width (ref. technical drawing)	mm	947	820	947	820	947	947	947	820	947	820	947
	<b>L3</b> total height (ref. technical drawing)	mm	175										
	Hoisting stroke	mm	45										
	Machine weight	kg	220	230	240	238	245	250	258	250	260	250	240
WHEELS	Idle wheels		Polyurethane										
	Wheel size front / rear	mm	120										
	Number of driving wheels	nr	2										
	Number of idler wheels	nr	2										
PERFORMANCE	Loaded/Unloaded travelling speed	m/min	35/70 (Adjustable)										
	Up speed	s	1,5										
	Down speed	s	1,5										
MOTORS	Travelling motor power	W	600										
	Lifting motor power	W	540										
BATTERY AND BATTERY CHARGER	Battery type		Lithium										
	Battery weight	kg	10										
	Battery dimensions (width, length, height)	mm	175x325x150										
	Battery capacity	Ah	20										
	Battery voltage	V	48										
	Battery lasting from full charge in ambient environment	h	8										
	Battery lasting from full charge in cold store environment	h	6										
	Charging time 100%	h	5										
	Battery charge current	Ah	12										
Battery life	year	>5											
VARIUS	Type of motor control		DC										
	Noice level to driver	dB(A)	<60										
REMOTE CONTROLLER	Frequency	MHz	433										
	Power supply		Rechargeable Battery										
	Protection		IP65										
	Display		Led										
	Tempertaure range ST / BZ	°C	-30 / +45										
	Languages		ITALIAN/ENGLISH/SPANISH/FRENCH/GERMAN/CZECH/POLISH/RUSSIAN/CHINESE/KOREAN/PORTUGUESE/ARABIC Other languages upon request										





SAT RACKING SYSTEM DIMENSIONS			AUTOSAT										
			mm	mm	mm	mm	mm	mm	mm	mm	mm	inch	inch
Pallet dimensions (P=depth/F=forking side)	u.m.		800(P) x1200(F)	1000(P) x1000(F)	1000(P) x1200(F)	1100(P) x1100(F)	1100(P) x1200(F)	1140(P) x1140(F)	1165(P) x1165(F)	1200(P) x1200(F)	1200(P) x1000(F)	48(P) x40(F)	40(P) x48(F)
<b>A</b>	Clearance between upright	mm	1350	1150	1350	1250	1350	1290	1320	1350	1150	1150	1350
<b>B</b>	Clearance between the rails	mm	843	716	843	716	843	843	843	843	716	716	843
<b>C</b>	Minimum height at first level	mm	270										
<b>D</b>	Minimum distance between	mm	300										
<b>E</b>	Pallet in height Max allowed pallet deflection	mm	30										



SAT RAIL DIMENSIONS FOR ALL AUTOSAT MODELS			AUTOSAT (all MODELS)										
			mm	mm	mm	mm	mm	mm	mm	mm	mm	inch	inch
Pallet dimensions (P=depth/F=forking side)	u.m.		800x1200	1000x1000	1000x1200	1100x1100	1100x1200	1140x1140	1165x1165	1200x1200	1200x1000	48x40	40x48
<b>E</b>	Upper Rail Height	mm	170										
<b>F</b>	Lower Rail Height	mm	45										
<b>G</b>	Rail width	mm	70										
<b>H</b>	End stopper dimensions (I1xI2)	mm	70x60										

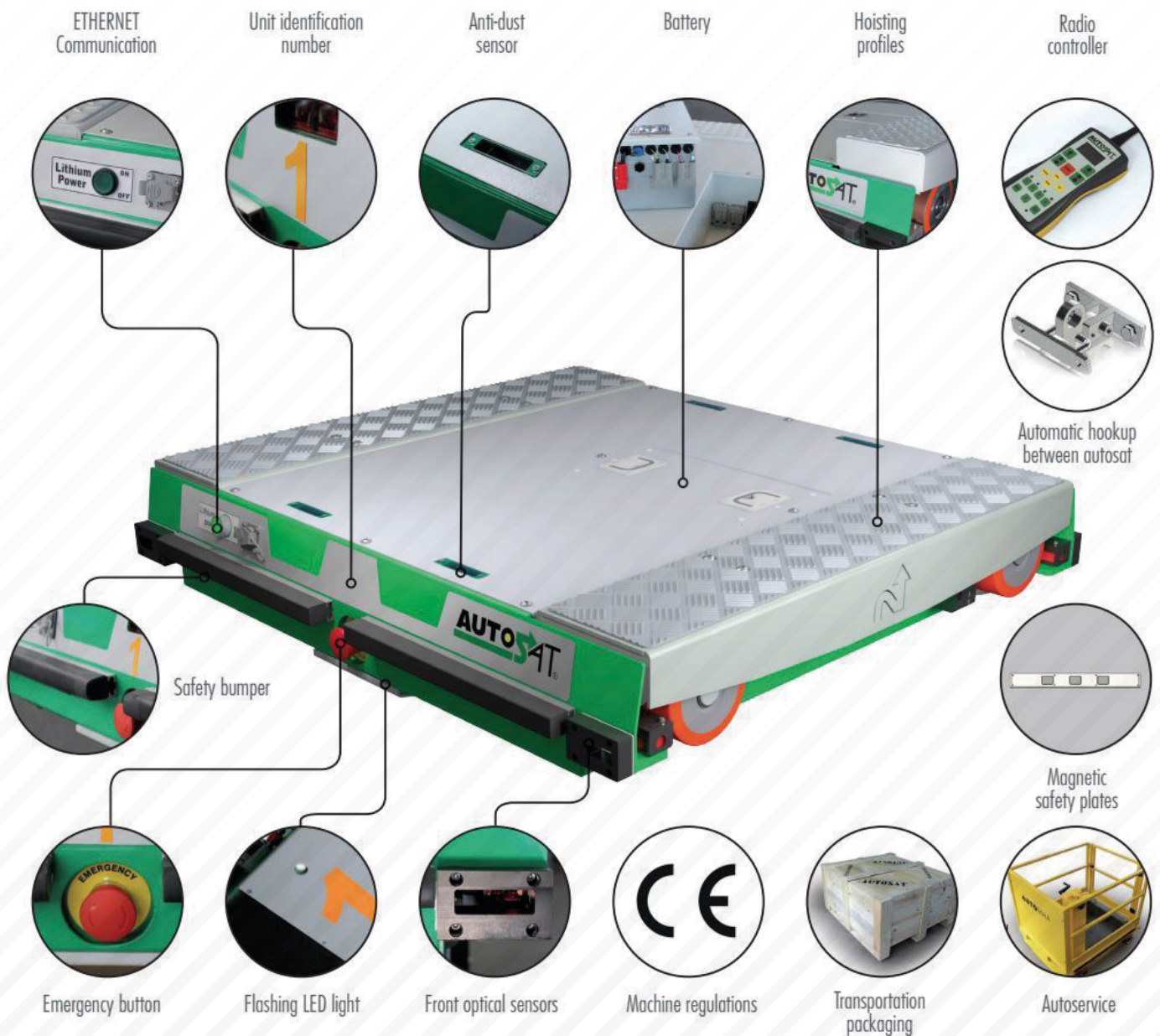
# EQUIPMENT

## STANDARD

- AUTOSAT
- On-board Battery
- Battery charger (220/110 Vdc)
- Multi-lingual radio controller
- Battery charger for radio controller (220/110 Vdc)
- Instruction manual

## OPTIONAL

- Increased load capacity (2.000 kg)
- Spare parts
- Drip protection
- Transportation
- Transport
- Installation & Training
- Marine transportation protection
- Forklift locking system (anchoring between shuttle and forklift truck)
- Rapid AUTOSAT coupling (emergency system for the retrieval of broken-down units)
- Magnetic safety plates (increases the stability of the satellite when on the forklift truck)
- PLS SICK Kit (speed control in the case of obstacles detected in the lane)
- Autoservice (manual security shuttle to recover broken-down machines or for in-lane maintenance)





# FUNCTIONS

## STANDARD

**Storage:** the shuttle, placed frontally in the "Home" position by a standard elevator/forklift truck, similarly receives the pallet to be stowed in the row. Via the "stow" button on the radio controller, Autosat lifts the pallet and carries it to the first free position within the storage lane.

Once the pallet has been stowed, it returns to the starting position.

**Picking:** the shuttle, placed frontally by a standard elevator/forklift truck, receives the command to pick merchandise via the "Pick" button on the radio controller. It runs along the rack, stops in below the first available pallet, lifts it and carries it to the "Home" position.

The operator can therefore easily collect the pallet with the forklift truck and free the machine.

**Continuous picking:** with a single press of the "Continuous picking" button, the operator sets off an activity consisting of multiple picking missions, without the need to repeatedly press the buttons on the radio controller.

This is useful for multiple picking operations in the same lane.

### **Manual setting of distance between pallets from 20**

**to 150 mm:** in the case of pallet overflow, the distance between pallets can be managed automatically via radio controller.

## MANUAL CONTROL OF Autosat

The shuttle's functions are controlled manually via radio controller.

Every step of the operation is controlled by separate commands, such as *lift*, *stow*, *move*.

- **Radio controller suitable for managing up to 4 Autosat simultaneously**
- **Mission counting capacity**
- **Automatic maintenance warning**

## OPTIONAL

### **"Compacting push" pallet reorganisation mode**

Autosat automatically reorganises the lane, compacting all of the pallets to fill empty spaces (function available for FIFO mode, compacting from production).

### **"Compacting pull" pallet reorganisation mode**

Autosat autonomously reorganises the lane, compacting all of the pallets to fill empty spaces (function available for FIFO mode, compacting from shipping).

### **Anti-collision between Autosat units in the same lane**

Required if multiple satellites are used in the same lane. The

satellites communicate with each other, avoiding collisions (function available for FIFO mode).

### **Stock taking: pallet quantity count**

The shuttle, moving along the lane, counts the pallets via the upper sensors. The total number of pallets handled is shown on the radio controller display.

Useful for medium and long lanes.

### **Multipallet: handling of pallets of different sizes in the same channel (FIFO or LIFO)**

Ensures flexible handling within the warehouse and allows for the use of pallets of different sizes within the same lane.

### **"PLUS" Continuous picking**

Allows for rapid picking. The shuttle behaves in the same manner as with continuous picking, but each mission is independent of the pallet being collected. If the first pallet made available is not collected, the shuttle proceeds with the second picking operation, which will then be queued. This way, the operator will always have two pallets ready to be collected.

### **Partial picking**

Via the Autosat radio controller, it is possible to define the number of pallets to pick in continuous mode.

### **Continuous storage**

With a single press of the "Continuous storage" button, the operator starts an activity consisting of multiple storage missions. This is useful for multiple storage in the same lane.

### **Bi-directional operation**

Autosat is capable of operating in FIFO mode, inverting direction via the radio controller.

### **Controlled pallet storage**

Via the Autosat radio controller and the relative menu, it is possible to define the position for the storage of the first pallet in the lane.

### **Camera**

Autosat is equipped with an on-board camera to provide realtime vision of Autosat's movement and immediate diagnosis via Wi-Fi.

### **QR Code**

Lane identification using a QR code tag.

### **Distance between pallets of up to 240 MM**

### **Distance between pallets of up to 350 MM**

### **Special functions on request**

### **Diagnosis software**

In case of mission faults, the radio controller displays the problem code to the operator.

# AUTOMHA

OFFICIAL SELLER

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