AUTOMHA

AUTOSAT

AUTOMATION MADE SIMPLE

AUTOSAT

A semi-automated machine designed for multi-depth pallet storage, ideal for all sectors of industry, suitable for all brands of rack.

Patented by AUTOMHA in 2002
More than 3,000 satellites installed in over 40 countries
Range of application -30°C/+55°C

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

The satellite operates in traditional drive-in lanes and guarantees the highest levels of efficiency in situations requiring repeated filling/emptying of shelves.
The satellite 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 satellite 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 ATOMHA, and is sold in the USA and CANADA under the **PALLET**RUNNER 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 semi-automated warehouses.**

FUNCTIONS

AUTOSAT

STANDARD

Storage: the satellite, 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 satellite, 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 satellite'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 satellite, 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 satellite 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 satellite proceeds with the second picking operation, which will then be queued. In this manner, there are always 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.

Odometer
Counts the km travelled.

Camera
AUTOSAT is equipped with an on-board camera to provide real-time vision of AUTOSAT's movement and immediate diagnosis via Wi-Fi.

QR Code
Lane identification using a QR code tag.

Inclinometer
Detects incorrect positioning of the pallet shuttle within the lane.

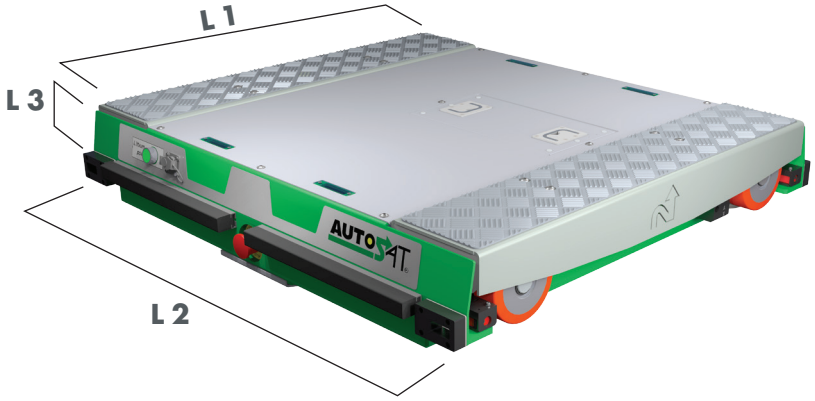
Distance between pallets of up to 240 MM

Distance between pallets of up to 350 MM

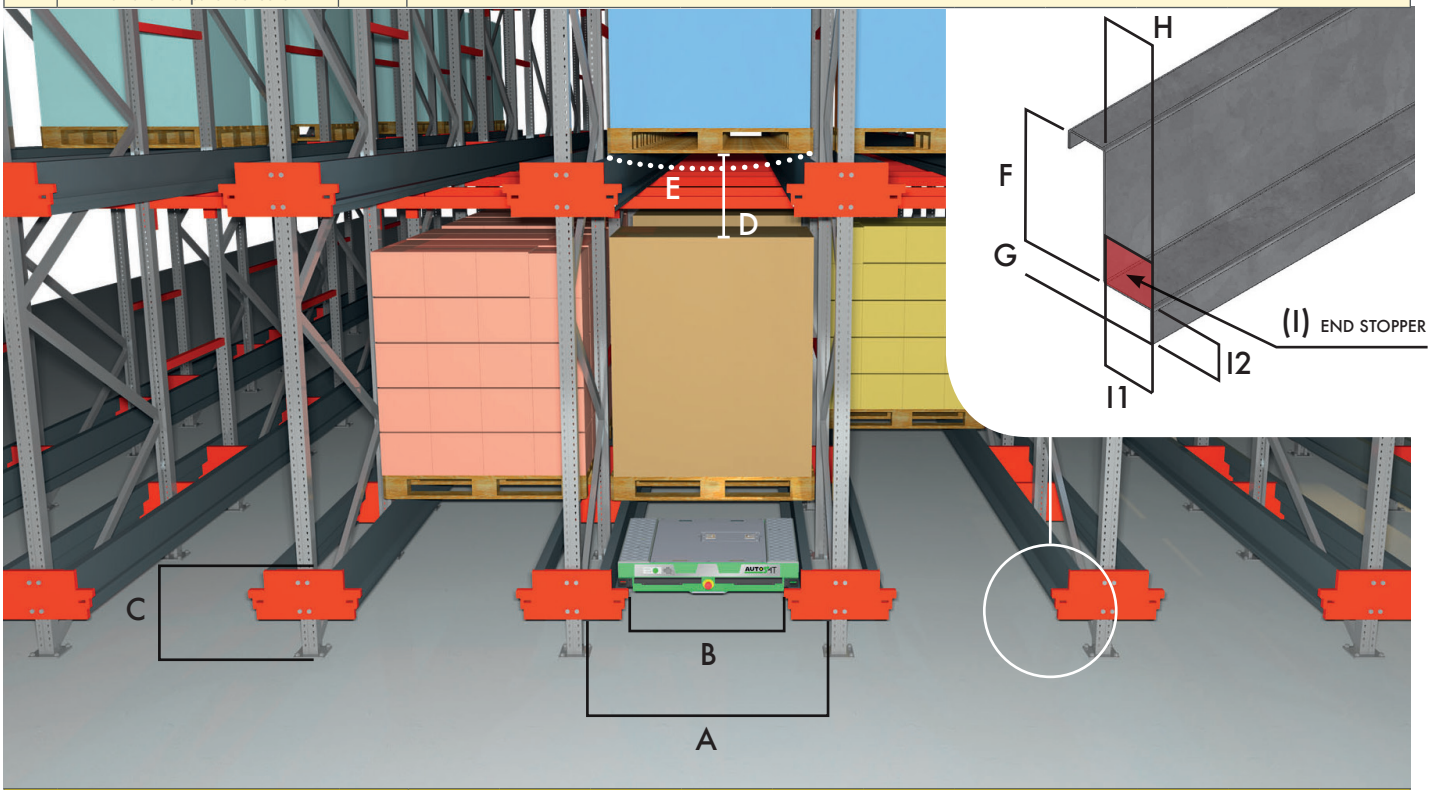
Special functions on request

Diagnosis software
In the case of mission errors, the radio controller displays the problem code to the operator.

	TECHNICAL DATA		AUTOSAT MODELS										
	Data	u.m.	mm	mm	mm	mm	mm	mm	mm	mm	mm	inch	inch
IDENTIFICATION	Model	type	**SAT.0812**	**SAT.1010**	**SAT.1012**	**SAT.1111**	**SAT.1112**	**SAT.1140**	**SAT.1165**	**SAT.1210**	**SAT.1212**	**SAT.4840**	**SAT.4048**
	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	**L1** total length (ref. technical drawing)	mm	884	1084	1084	1184	1184	1224	1249	1304	1304	1304	1084
	L2 total width (ref. technical drawing)	mm	947	820	947	820	947	947	947	820	947	820	947
	L3 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)
A	Clearance beetween upright	mm	1350	1150	1350	1250	1350	1290	1320	1350	1150	1150	1350
B	Clearance between the rails	mm	843	716	843	716	843	843	843	843	716	716	843
C	Minimum height at first level	mm	270										
D	Minimum distance between	mm	300										
E	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
E	Upper Rail Height	mm	170										
F	Lower Rail Height	mm	45										
G	Rail width	mm	70										
H	End stopper dimensions (I1xI2)	mm	70x60										

AUTOSAT

EQUIPMENT

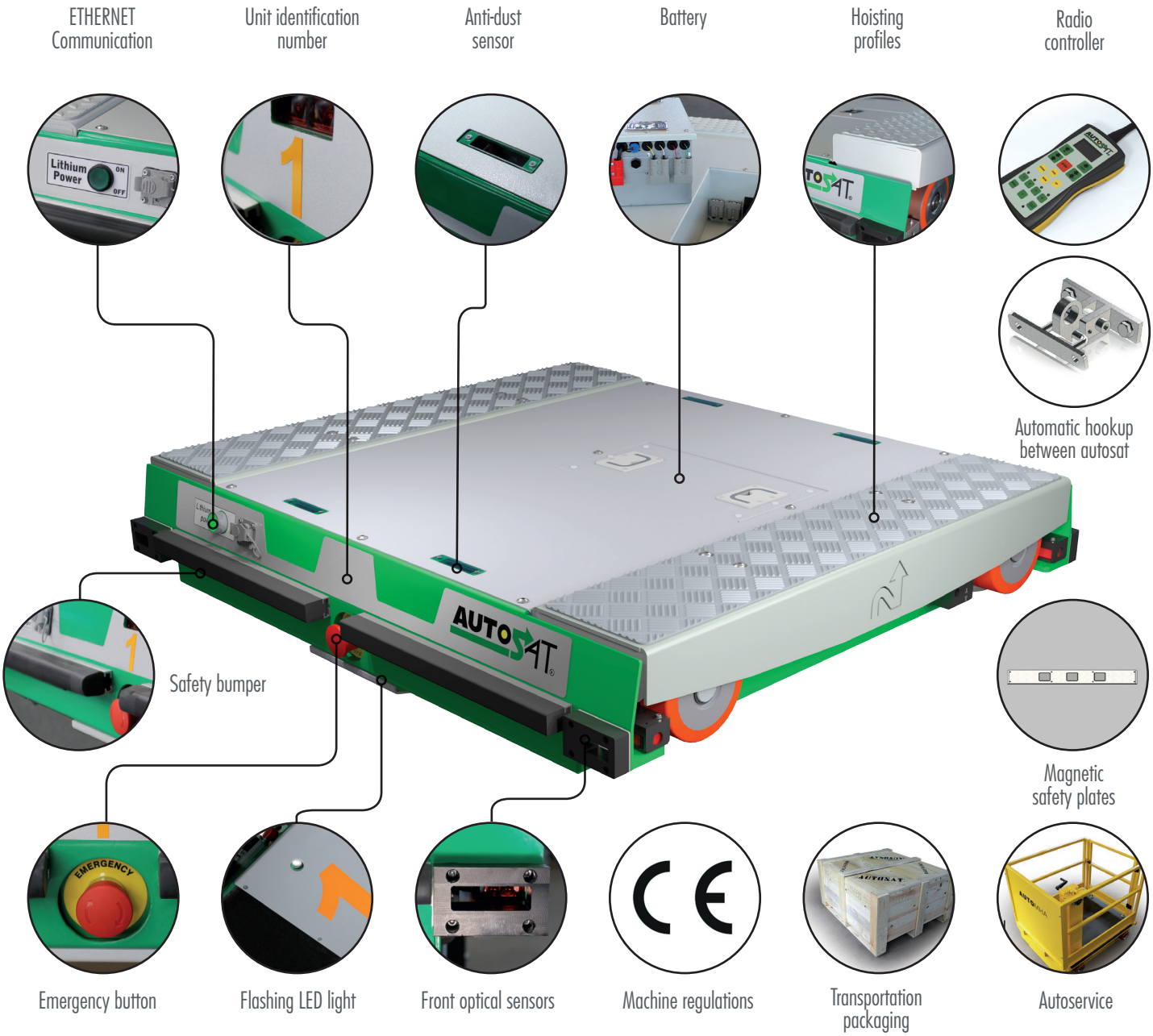
STANDARD

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 (2000 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)



MODELS

AUTOSAT

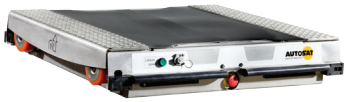
STANDARD

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 satellite into areas at ambient temperature; the resulting condensation that would form in the satellite 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.

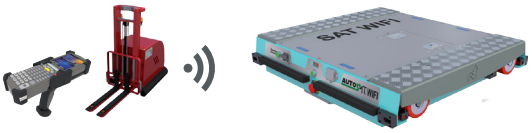


WI-FI

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 satellite 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**



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

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

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

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

SECTORS OF APPLICATION

Food - Beverage - Dairy- - Controlled temperature

Refrigerated - Logistics centres - ATEX

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HEADQUARTERS - BERGAMO - ITALY

OFFICIAL SELLER