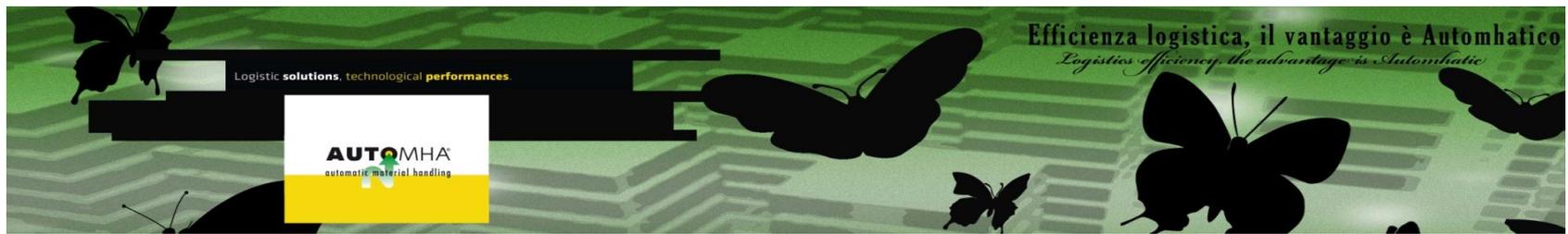




# AUTOSAT®

## THE PERFECT SYSTEM FOR THE HIGH DENSITY PALLETS STORAGING



## Why AUTOSAT is the most high tech shuttle in the world?

• The manufacturer is **AUTOMHA**, an Italian company leader since '80s in the production of automatic warehouses and handling systems.

The consequence has been to have the capability for design a machine able to contain in a very small space the better and innovative technology.

That is AUTOSAT®, the perfect system:

- *High Technology*
- *High Speed*
- *High performances*
- *High Pliability*



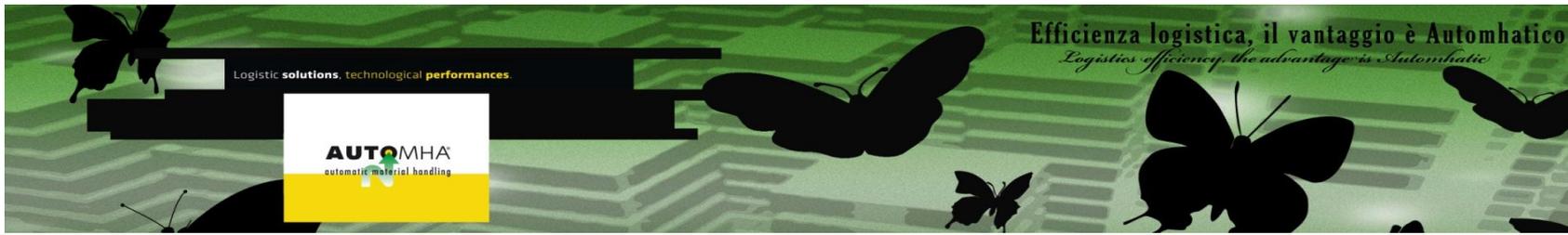


**AUTO5AT**

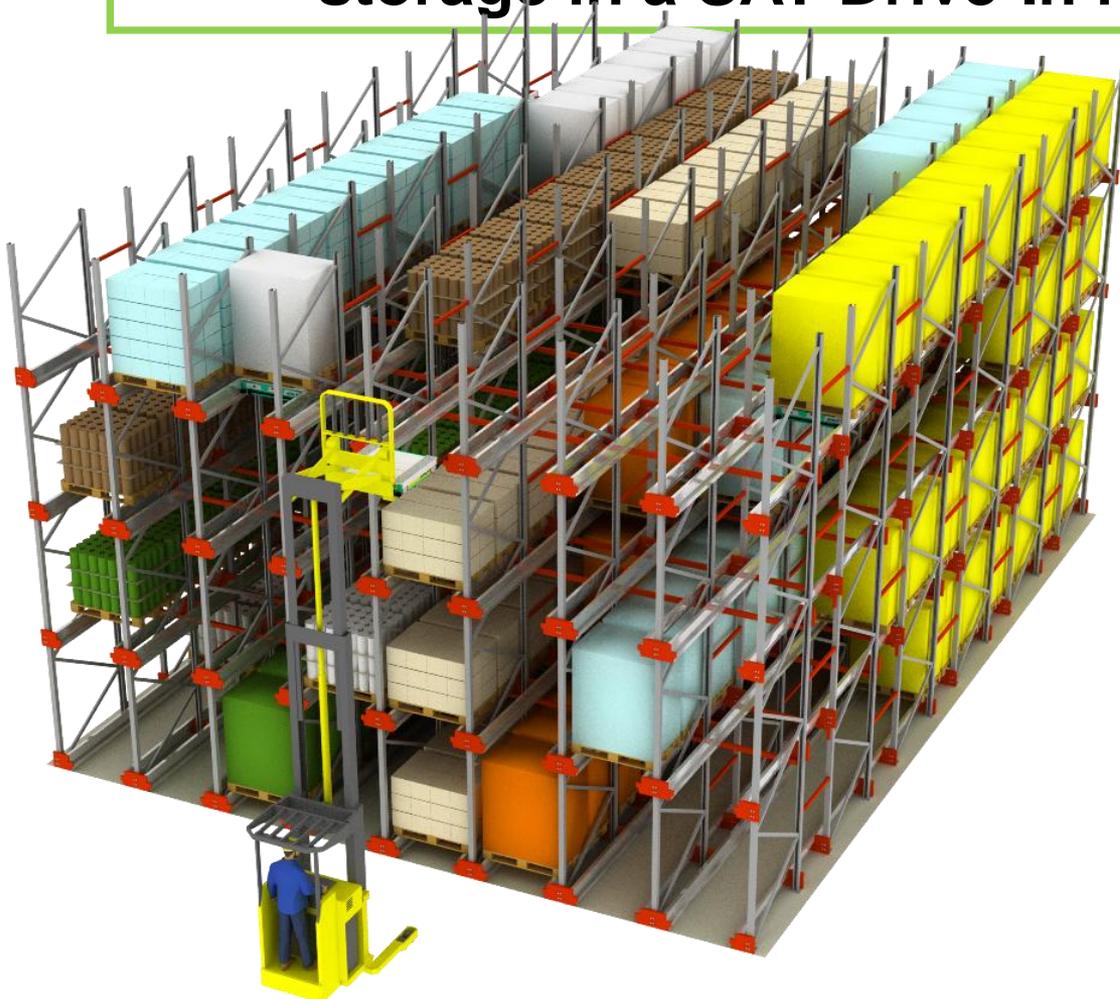
**Innovative concept, advantages**

**PATENT PENDING**

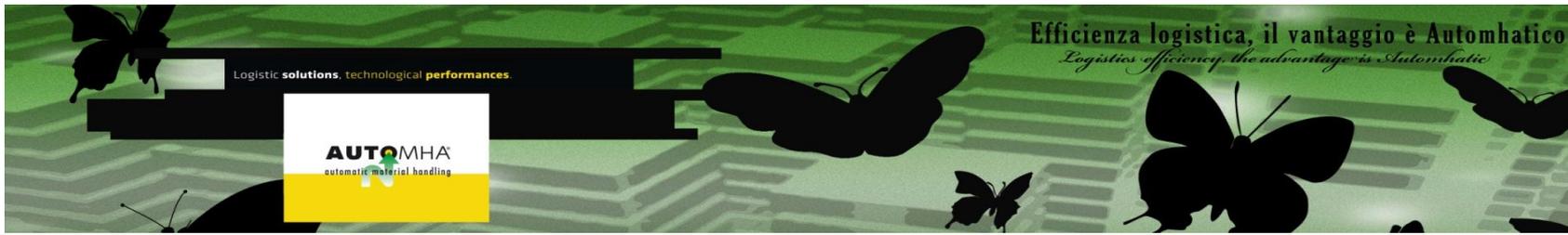
- Electrical mechanical lifting system
- Rechargeable battery
- Charger
- Rechargeable remote controller
- Autoservice



# The Semi-Automatic Solution for the high density storage in a SAT-Drive-In Racking System



AUTOSAT is a machine, feed by an innovative Lithium battery easy to recharge, that loads, carries, conveys good on pallets in and out of deep storage drive-in tunnels, allowing in an economical way the maximum use of warehouse volume, the easy movement of the goods, the working quickness. Placing AUTOSAT in own appropriate working pallets buffering channel, it is able to pick, place, reorganize pallets with good accuracy and efficiency. AUTOSAT is easy moved from one channel to another by fork lift and the missions are given by the operator by means of a friendly and interactive remote controller. The operator can manage the load unit be only in the front of the warehouse avoiding damages to the racking and to the goods.



# Why AUTOSAT is a winning vehicle?

**Save Ground Space**

Autosat is recommended when the length of the channel is starting from 5m up to the length you want – no limitation!

**Save Time**

Pallets are deposited at the front of the racking system, precluding the need for the operator to enter the racking system.

**Quick and Flexible movements**

The operator works at the front of the rack

**Best Storage Management**

Autosat make the management of the warehouses with high pallets quantity and a low quantity of SKU easier than the traditional storage systems.

**Advanced technology**

The high efficiency Lithium battery is easy to recharge and can be safely opportunity charged due to the lack of memory effect.

SAVE SPACE  
+  
SAVE TIME  
=  
SAVE MONEY!



# Why AUTOSAT is a winning vehicle?

## Minimum maintenance

Mechanical components self lubricants  
Every components quality guarantee

## Operating up to – 30 C

BZ version of Autosat  

- Heaters
- Insulation covers
- Special BZ software
- Special components

## State of art safety systems

- Active bumpers
- Fork lift Lock system (LS)
- WSE system

## Maintenance Software (ASM)

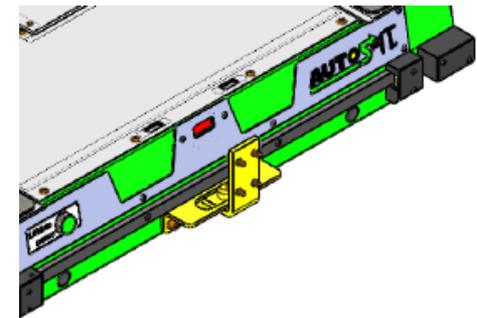
User friendly

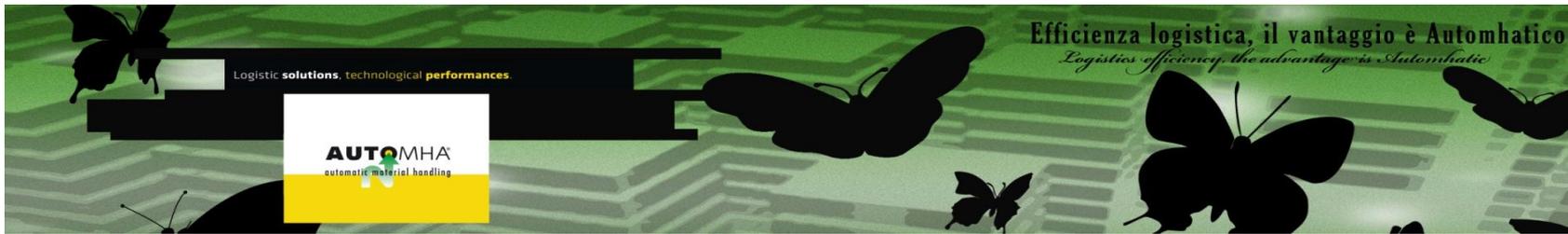
## Easy to use

Easy to understand

## Safe technology

Patent positioning system





# AUTOSAT Advanced and unique technical data

## Lithium battery

No memory effect  
Low weight – 13 kg – easy replacement  
Min. 900 charging as battery life → 4/5 years  
5,5 hours for 100% recharge and only 3 hours for a 80% recharge.  
Green technology



## Remote controller

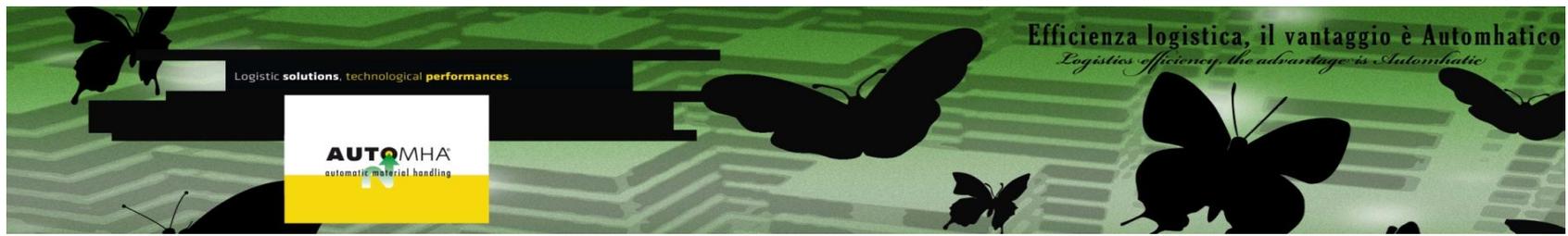
Interactive  
Rechargeable  
Working range up to 150 m in open air  
Can manage up to 4 Autosat at the same time



## Autoservice

Maintenance manual buggy  
Useful for:  
- Service on Autosat  
- Service on racking





## AUTOSAT Advanced and unique technical data

### Safety Systems

Protection against liquid dropping from pallet

Self locking

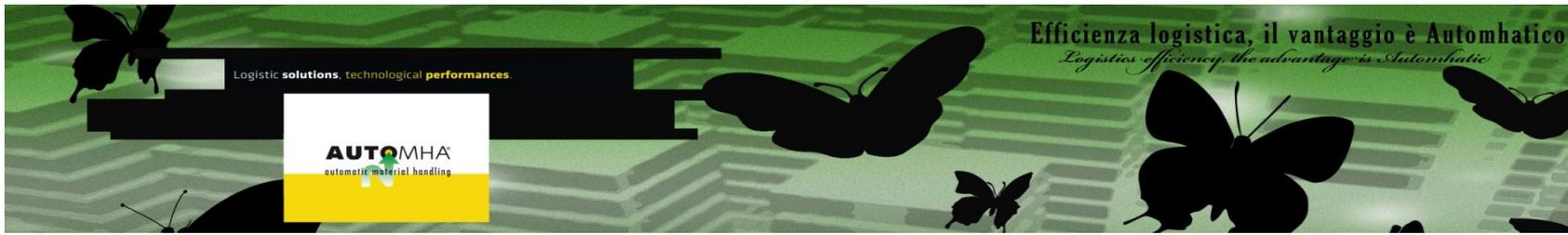
Uncollisions function

Simple maintenance

Active safety bumpers

Safety Wheel system (WSE)

Safe check for control of pallet presence



## AUTOSAT Advanced and unique technical data

**Distance between pallet**

Changeable by the operator  
From 20 mm up to 150 mm

**Autosat Working Range**

10-12-16 hours

**Silence working**

Wheels of motion Vulkollan for exceptional quietness, improved acceleration and high performances at low temperatures

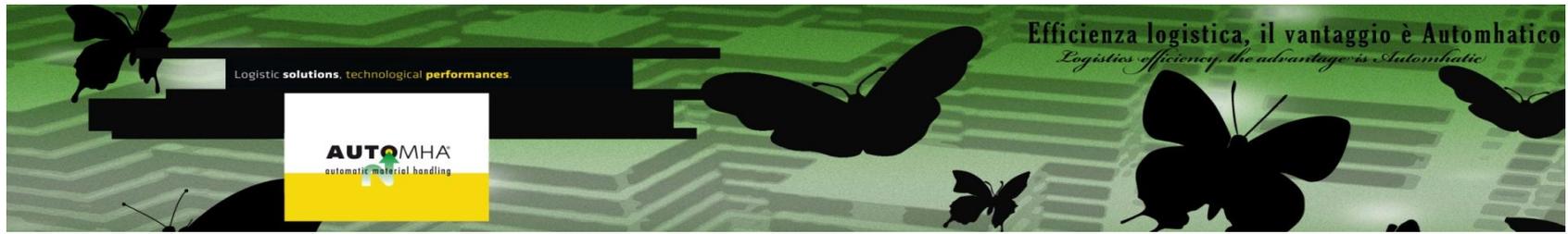
**Managing Load Overflows**

Autosat can manage SKU with Overflows in an easy way by adjusting the gap between pallets from the remote controller – very easy for the operator!

**Custom Set Up**

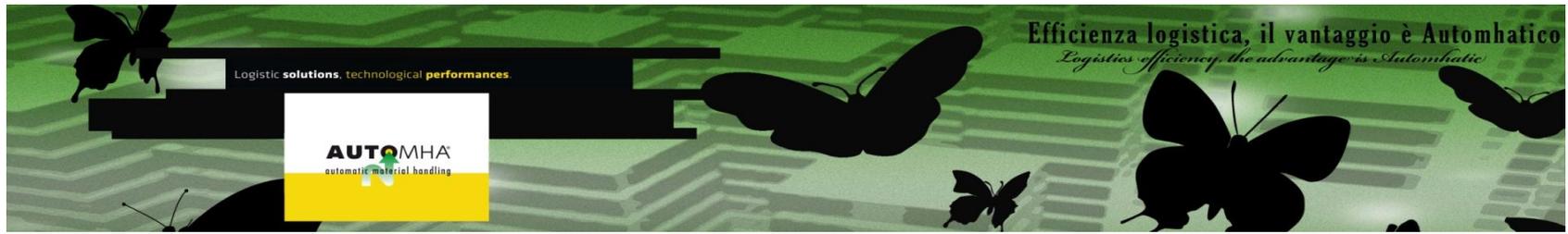
We can use AUTOSAT in a complete automatic system – Later see our AUTOMOVER





## AUTOSAT peculiarities respect the competitors

<b>Lithium Ion MNC batteries pack</b>	That mainly guarantee more than 900 recharging cycles, against 400 – 500 cycles offered by conventional pure lead AGM (Absorbed Glass Mat) batteries <b>(Green product)</b>
<b>Shorter recharging time</b>	Needed by BP. With this technology, 5 hours are enough to reach the full capacity against 8 hours pretended by Lead AGM accumulator <b>(Green product)</b>
<b>No memory effect on BP</b>	In case of urgency for pallets storing/retrieving, the BP could be placed inside Autosat even if with reduced capacity (after 1 hour from recharging time start) <b>(Green product)</b>
<b>Weightlessness of BP</b>	The entire BP weight is 13 Kg x 1 unit against 20 Kg x 2 units as conventional Lead AGM accumulator
<b>Mission RF keypad bi-directional</b>	Autosat gets the mission by RF keypad and vice versa, machine status are send continually to the Autosat RF keypad. The operator could read the machine status on LCD display integrated into RF keypad.
<b>RF keypad</b>	Allow to the operator the setting for the free space to be let between the pallets inside buffering channel
<b>Laser Sensors</b>	Are used by Autosat for positioning itself on both end of running rails ("home 1" and "home 2"). These two sensors have in charge the slow down motion and stop at the ends of rails. According to this technology, no bores or cams are required onto the shelving structures



## AUTOSAT peculiarities respect the competitors

### **Running motor temperature controls**

In case of some errors in running rails installation, the temperature on the motor could increase. Autosat, automatically, decrease the performances for avoiding any components damaging and so, make the operator understand which is the situation.

### **Controlled Ramps**

During acceleration and deceleration on running motion, the "motor closed loop" circuit allows the control of the ramps.

### **Simple And Easy Utilization**

All information are written on RF keypad LCD display – Autosat does not have lamps or led on the front, fount of possible misunderstanding for the operator.

### **Impact protection by WSE (Wheel Slow Encoder)**

In case of impact for pallet deflection or material exceeding, Autosat automatically stops. During retrieving (empty machine,) Autosat come back to home sending the information of error to the operator (running aisle obstacle). During storing, the collision could happen for material exceeding; in this case Autosat release the pallet, having on board, down and come back to home without sending any error.

### **Multi Pallet**

Available for handling, in the same channel, 2 different pallet size



# AUTOSAT Models

## Models and Dimensions

Model	Load max. Kg	Depth pallet mm	Wide pallet front mm	A mm	B mm	C mm	Stroke mm	Weight Kg	D mm	E min. mm	F min. mm
<b>SAT. 0812. ST. LTH</b>	1500	800	1200	878	174	955	45	180	843	300	270
<b>SAT. 1012. ST.LTH</b>	1500	1000	1200	1078	174	955	45	200	843	300	270
<b>SAT. 1212. ST.LTH</b>	1500	1200	1200	1298	174	955	45	220	843	300	270
<b>SAT. 4840.ST.LTH</b>	1500	1220	1016	1298	174	828	45	210	716	300	270
<b>SAT. 4048.ST.LTH</b>	1500	1016	1220	1078	174	955	45	200	843	300	270

# AUTOSAT Data

## Technical Information

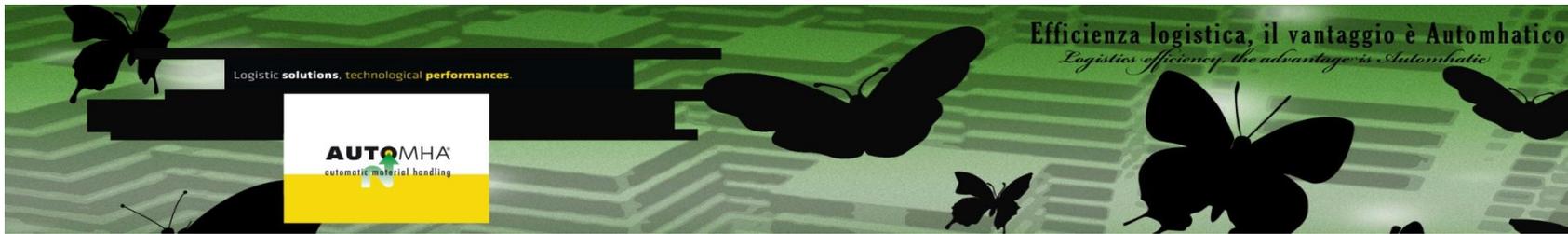
Shuttle performances	
Speed with load on board	~ 30-33 m/min
Speed without load on board	~ 63-66 m/min
Working range	10-12-16 h
Battery	
Type	Lithium - Ion MNC
Voltage	24 V
Capacity	53 Ah
Weight	~ 13 Kg
Charging station power	EU 240/50 Vac/HZ US 115/60 Vac/Hz
Charging time at 20°C for 80% level	3 h
Charging time at 20°C for 100% level	5,5 h
Battery life with correct use	min. 900 charging
Battery quantity on board	1
Features	
Working temperature	ST: from +5°C up to +45°C BZ: from +4°C up to -30°C
Colors	chassis RAL 6032 lid RAL 7035

Motors	
Travelling power motor	700 W
Lifting power motor	400 W
Remote controller	
Type	Radio-frequency
Display	LCD 16 x 2
Protection	IP65
Power	Battery
Charging battery	500 mAh - 4,8 V
Max. consumption during transmission	55 mA
Max. consumption during receiving	50 mA
Stand-by function	Stand-by mode active after 3 min. of not use
Battery life (at 20°C) with correct use	continuous 10 h stand-by 1300 h



The information in this datasheet can be modified for changes and integrations due to technological implementation. The performance and dimensions are nominal and subject to tolerance. The specifications are subject to change without notice.

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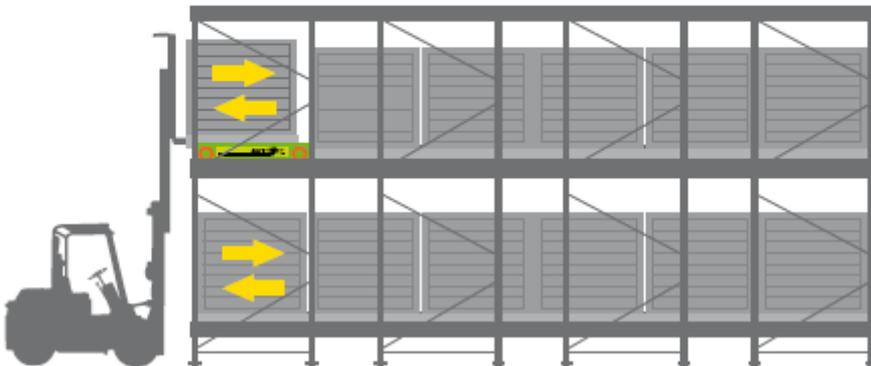
# Working conditions

## FIFO First in First out

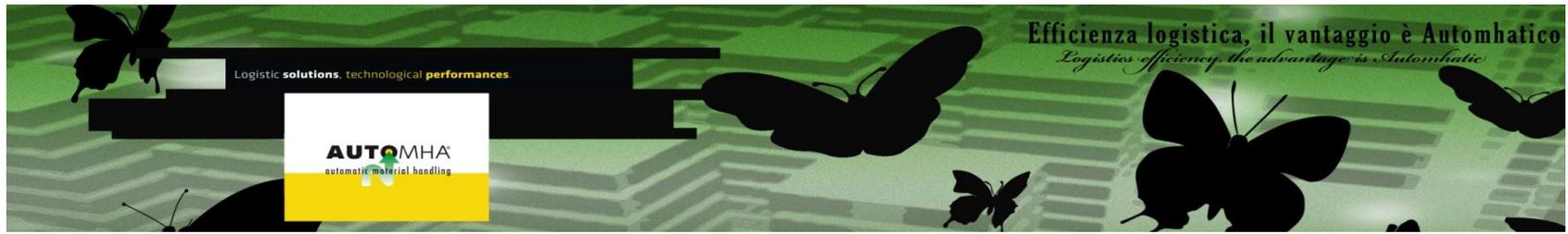


Method for storage, mainly used in food and pharmaceuticals field. AUTOSAT Lithium Power fits into this mode of storage allowing the automatic loading of pallets from a front storage system and the discharge from the opposite side. Therefore, it is necessary, in order to use the AUTOSAT Lithium Power system, have two fronts structure shelved free for loading and unloading the goods.

## LIFO Last in First out



Method for storage products that do not require monitoring of deadlines and therefore not necessarily the first pallet stored is the first taken, subject to a strategy of individual client. AUTOSAT Lithium Power fits into this mode of storage allowing automatic loading and unloading from the same face of the structure shelves. Just one front working with AUTOSAT Lithium Power.



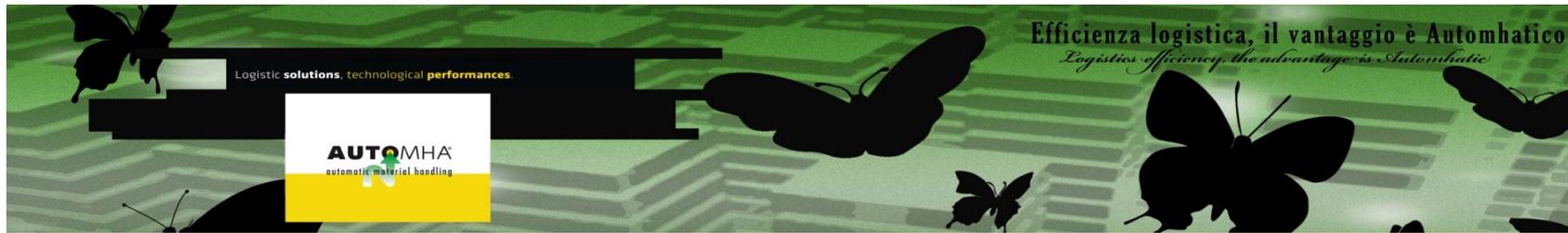
## Autosat functions

### Standard functions

- [IN](#)
- [OUT](#)
- [CONTINUOUS OUT](#)
- [DISTANCE BETWEEN PALLETS](#)
- MANUAL MODE
- [COMMAND UP TO 4 AUTOSATS](#)
- [SISTEMA EMERGENCY](#)

### Optional functions

- [COMPACTING "PUSH"](#)
- [COMPACTING "PULL"](#)
- CONTINUOUS IN
- [CONTINUOUS OUT "PLUS"](#)
- [MULTIPALLET](#)
- INVENTORY
- [UNCOLLISION BETWEEN AUTOSATS](#)
- MAINTENANCE SOFTWARE (ASM)
- FORKLIFT LOCK SYSTEM



# AUTOSAT Patent and marks

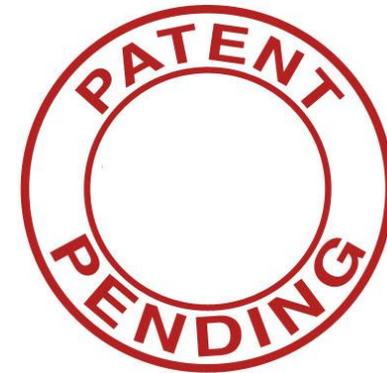
## Patent Pending nr.

[ATM01624](#) 26.02.10

[ATM01078](#) 23.06.08

[ATM01078](#) 26.06.07

[ATM00953](#) 29.12.06



## Marks registration

## On the territory

[AUTOMHA](#)

Worldwide

[AUTOSAT](#)

USA – Europe - International



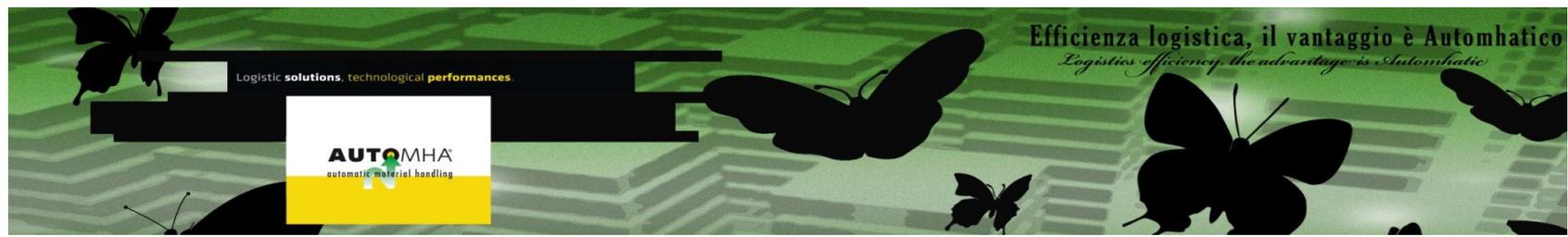


## The manufacturer, AUTOMHA presentation

*Automha designs global solutions* for the management of the internal handling of goods and products, from receipt to loading-unloading, from storage to picking, developing systems that can be customised, complex plants, transport lines and distribution ware-

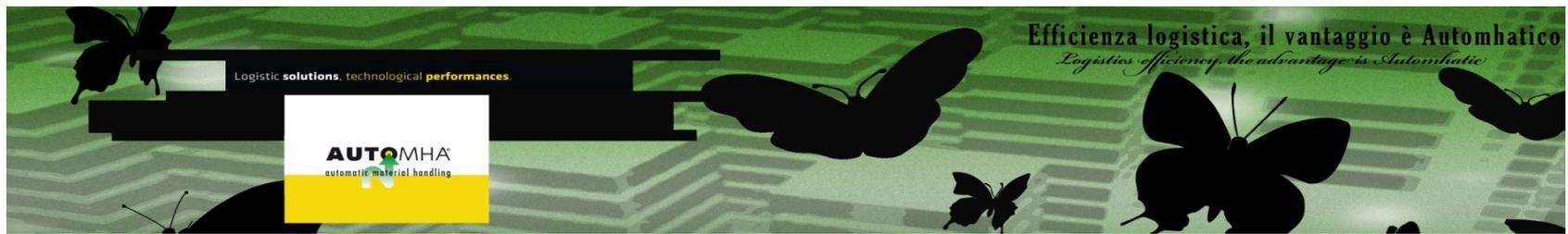
houses. Automha offers itself as an authentic System Solution Provider, a unique reference point for the complete management of projects, plants and products.





## AUTOMHA Some references

Varta Vhb Trasma Srl **DHL Aviation Srl** Wacker Chemie Ag Ankra Jungfalk & Co. Gmbh **Gildemeister Italiana SpA**  
 Acquavera SpA Julon D.D. **TNT Global Express SpA** Guala Dispensing SpA Guala Pack SpA **Guala Closures SpA**  
 Metra SpA Legrand SpA **Solvay Solexis SpA** Fonderie Officine Pietro Pilenga SpA DHL Express SpA **Euroeletto**  
**SpA** E.R.C. SpA Arturo Pozzi SpA **De Agostini Editore SpA** Scame Parre SpA Gammastamp SpA **Bulloneria**  
**Porino Srl** Danone SpA DB Line Srl **Cadicagroup SpA** BTicino SpA Ala Officine SpA **A.D.R. SpA** Fin.al SpA Alcan  
 Packaging Italia Srl **Farmacie Comunali SpA** Trevisan Cometal SpA SAF SpA **B.F.E. SpA** Tecnindustria Srl  
 Sasib SpA **Xilopack Srl** Gnutti Carlo SpA C.M.S.P. SpA **Savio Macchine Tessili SpA** LVF SpA Officina Meccanica  
 Invernizzi Srl **Bofrost Italia SpA** SAE Progetti Srl Albertini SpA **Sacto Srl** Mevis SpA Engitec Technologies SpA  
**Usi Italia Srl** Berti Pavimenti Legno Snc Sweet SpA **Panino Center Snc** Kunzi SpA Vitesses SpA **Prada SpA**  
 Marcegaglia Building SpA ATW S.A. **Schneider Electric SpA** Inoxia Srl Saip & Schyller SpA **CAM Srl** Fonderie  
 Alluminio SpA Nuova Euromec SpA **Ansaldo Energia SpA** Tecnoutensili Capararo Srl CAM il mondo del bambino  
 SpA **Tyremart Agricultural Ltd** Arianna Srl SIT SpA **Tessitura di Nosate e San Giorgio SpA** Safta SpA RF Celada  
 SpA **Gazpromtrubinvest** Minulamp SpA Dicitex Decor Pvt Ltd **A.C.S.A. Steel Forging SpA** Apparatebau Srl  
 Nuovo Istituto Italiano d'arti grafiche SpA **Ausimont SpA** C.M.I. Srl Elektra Union Srl **IBS SpA** MET SpA Taurus  
 80 SpA **Sada Forgiass Ltd** Riso Gallo SpA Eos Textile Mills Ltd **Texa SpA**



**AUTOMHA**<sup>®</sup>  
automatic material handling

thank you for your kind attention

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