



ISO
9001

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MOVING IDEAS



**Filling, Packaging and
Palletising Technologies**

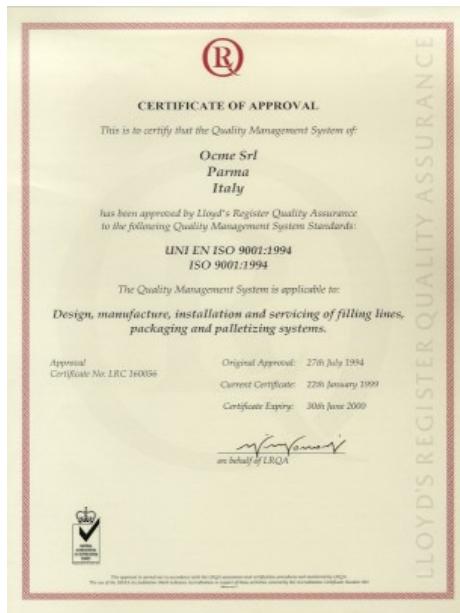
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“Internal Logistics with laser guided vehicles”



- *Francesco Ferrari* – AGV Sales Engineering

Experience



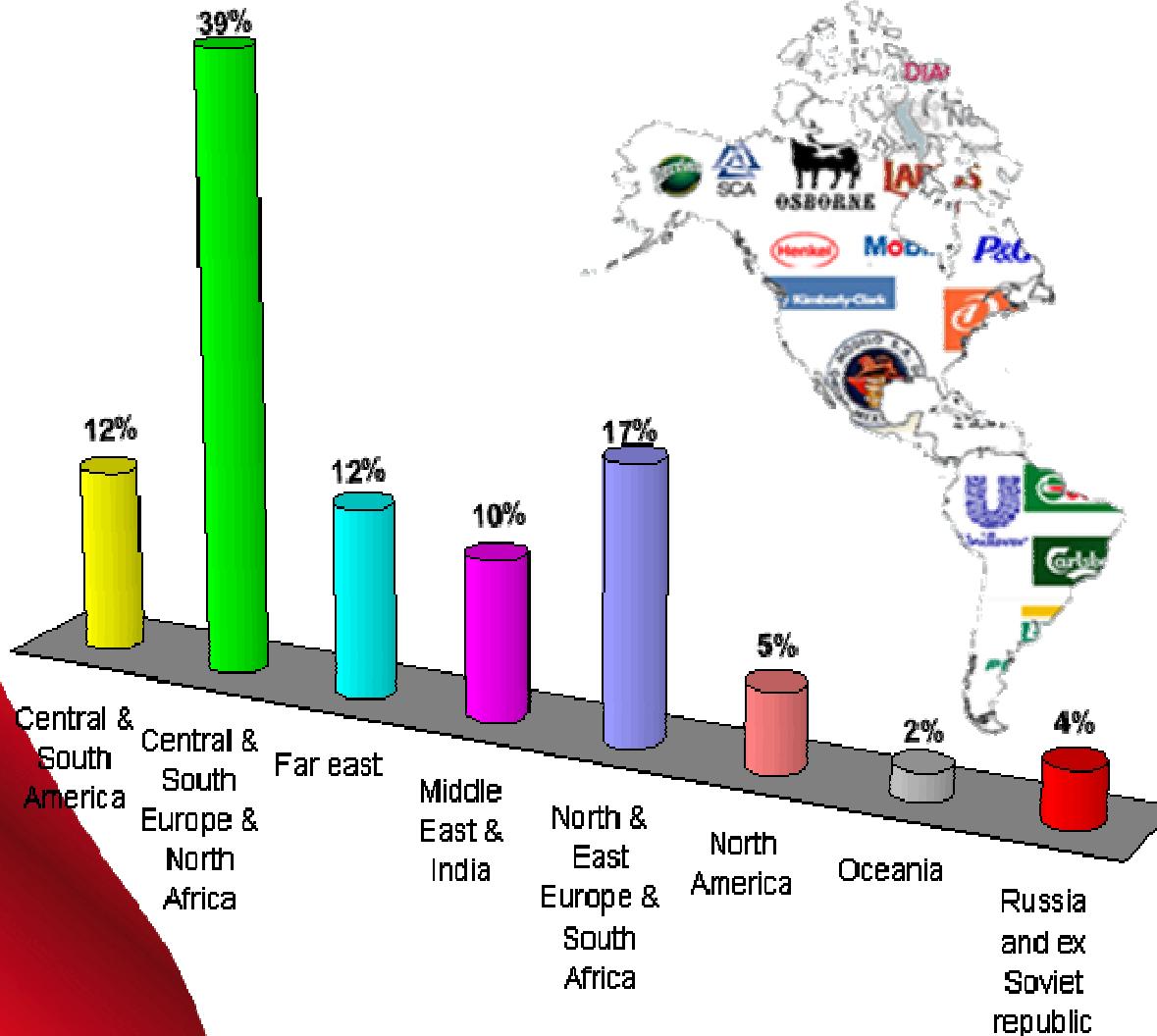
- In operation since 1954
- More than n. 500 Employees Worldwide (n. 410 in Parma)
- Sales Turnover 2011: more than € 100 Mil. (Export: 86%)
- R&D Investment 2011: 2,1% of Turnover
- ISO 9001 certified since 1994



Customers around the world

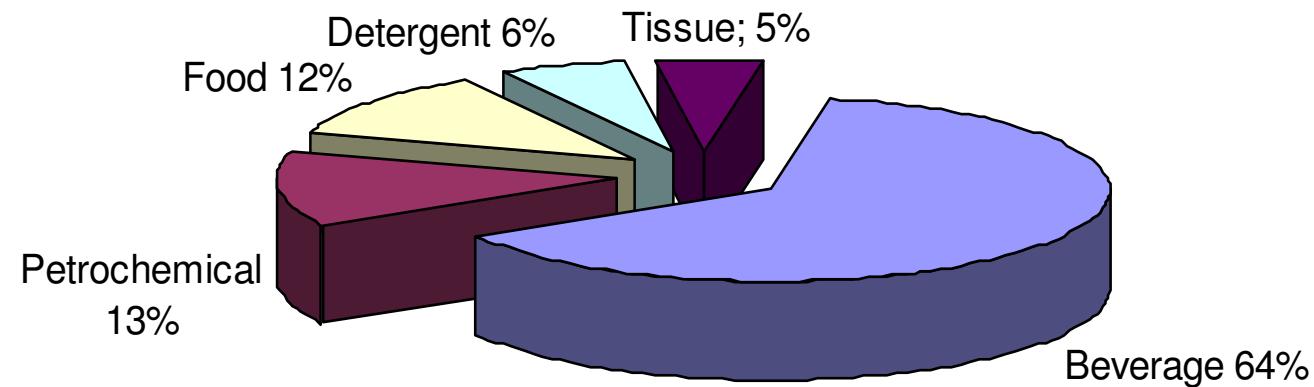
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Breakdown of turnover by product sector



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building the future of packaging
together

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magazzini automatici **SITEIA** **CIPACK**

Università degli
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Suzzara 26th April 2012

THE CHALLENGE

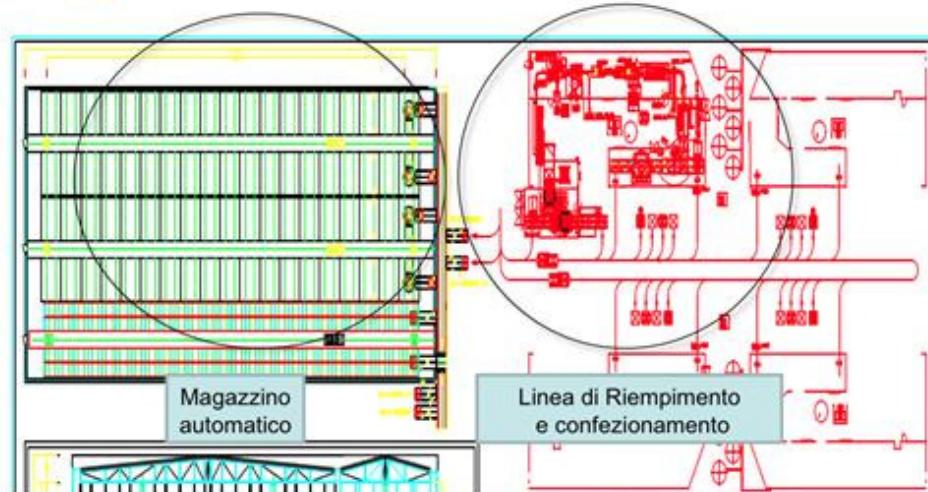
a complete filling line in less than



400 m²

promag
magazzini automatici

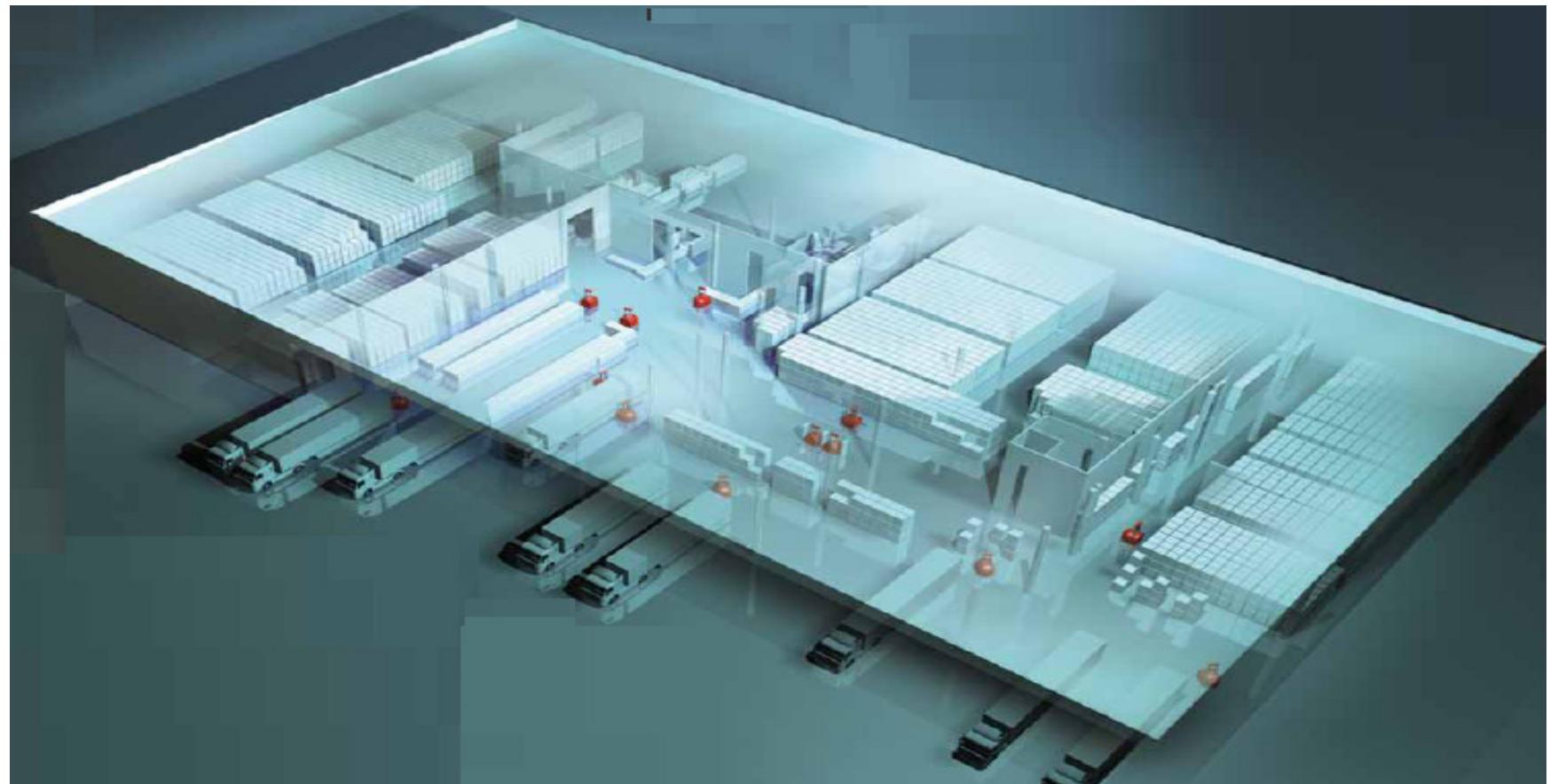
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Internal logistics with Laser Guided Vehicles.



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Why follow this path?

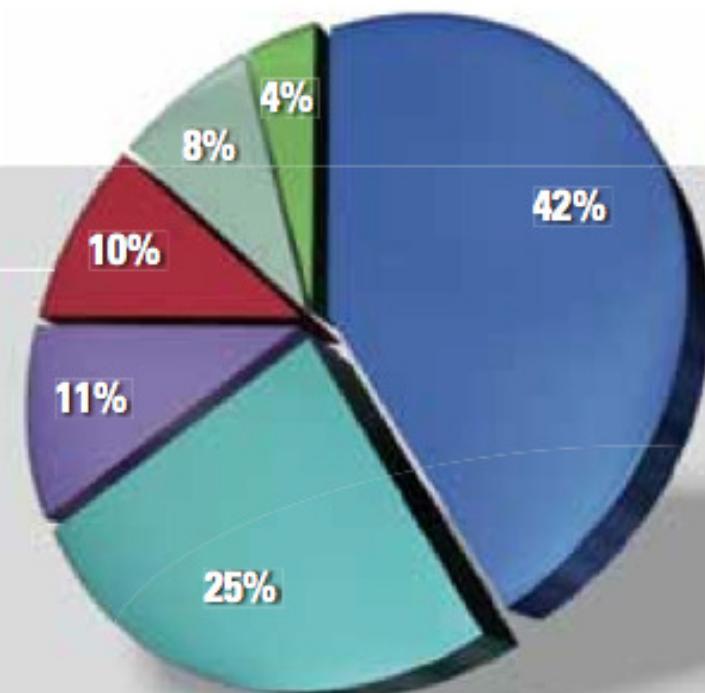
- Safe environment for workers
- No damages to workshop (walls, columns, etc.)
- No damages to machines
- Detailed product tracking, during all process
- Reduction on production costs
- Increase of workshop efficiency
- Improvement of company image

A total of 96.700 accidents caused by forklifts were registered in USA in 2006 :

- 34.900 were classified as serious
- 61.800 non-serious
- 85 fatalities

Causes

- Tipovers (42 %).
- Crushed between vehicle and a surface (25 %)
- Crushed between two vehicles (11 %)
- Struck or run over by a forklift (10 %)
- Struck by falling material (8 %)
- Fall from platform on the forks (4 %).



Source: Occupational Safety & Health Administration (2006)

Comparing Technology

	Wire-guided	Magnetic	Gyroscopic	Laser-guided
Impact on existing site structures	-	==	==	+
Sensitivity to floor quality	==	-	-	+
Precision of movement	+	-	==	+
Speed of movement	-	-	==	+
Post installation modifications	-	-	-	+
Initial cost	+	+	==	-
Cost of vehicle maintenance	==	==	-	==
Cost of system maintenance	-	==	==	+
Continuous position control	+	-	==	+
Safety of movements	+	-	==	+
Smoothness of movements	+	-	==	+
Product stability	+	-	==	+

Positive Neutral Negative

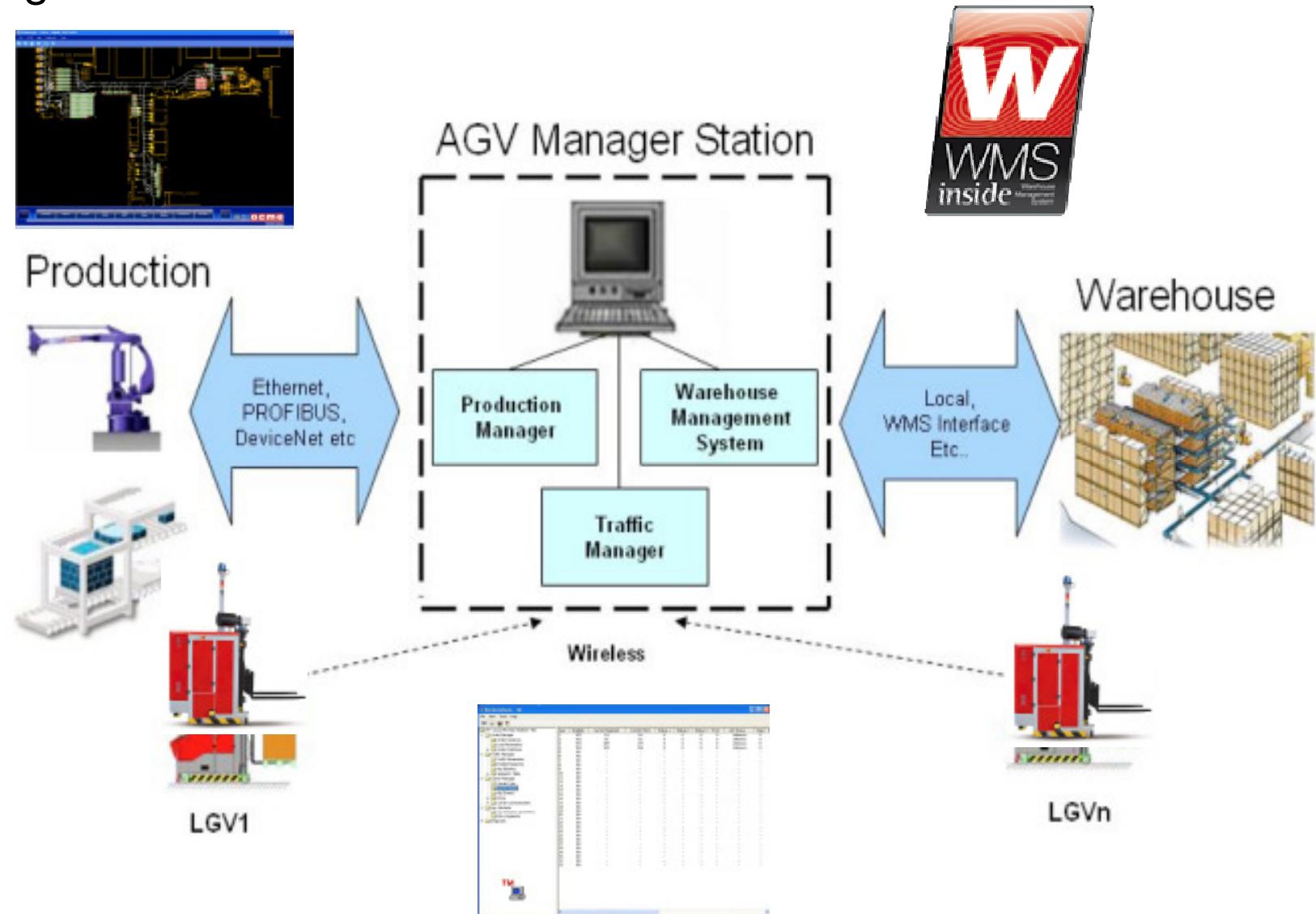
AGV system consists of the following units :

- LGV vehicles
- AGV Manager Station
- Wireless Network, Industrial Network
- HMI (Human Machine Interface)



AGV Manager Station and WMS System

AGV Manager station:



WAREHOUSE MANAGEMENT SYSTEM (WMSOCME)

The primary purpose of WMSOCME is to control the movement and storage of materials within the AGV System. WMSOCME provides to process the associated transactions, including shipping, receiving, putaway and picking. The systems also direct and optimize stock putaway based on real-time information about the status of the system.



Auriga

The Vehicle

- Max Speed 100 mt/min (6 km/h)
- Travelling Accuracy +/- 5 mm
- Pay-Load Capacity up to 6000 kg
- Working height from the floor for forks or clamps up to 9 m



Wide variety of models

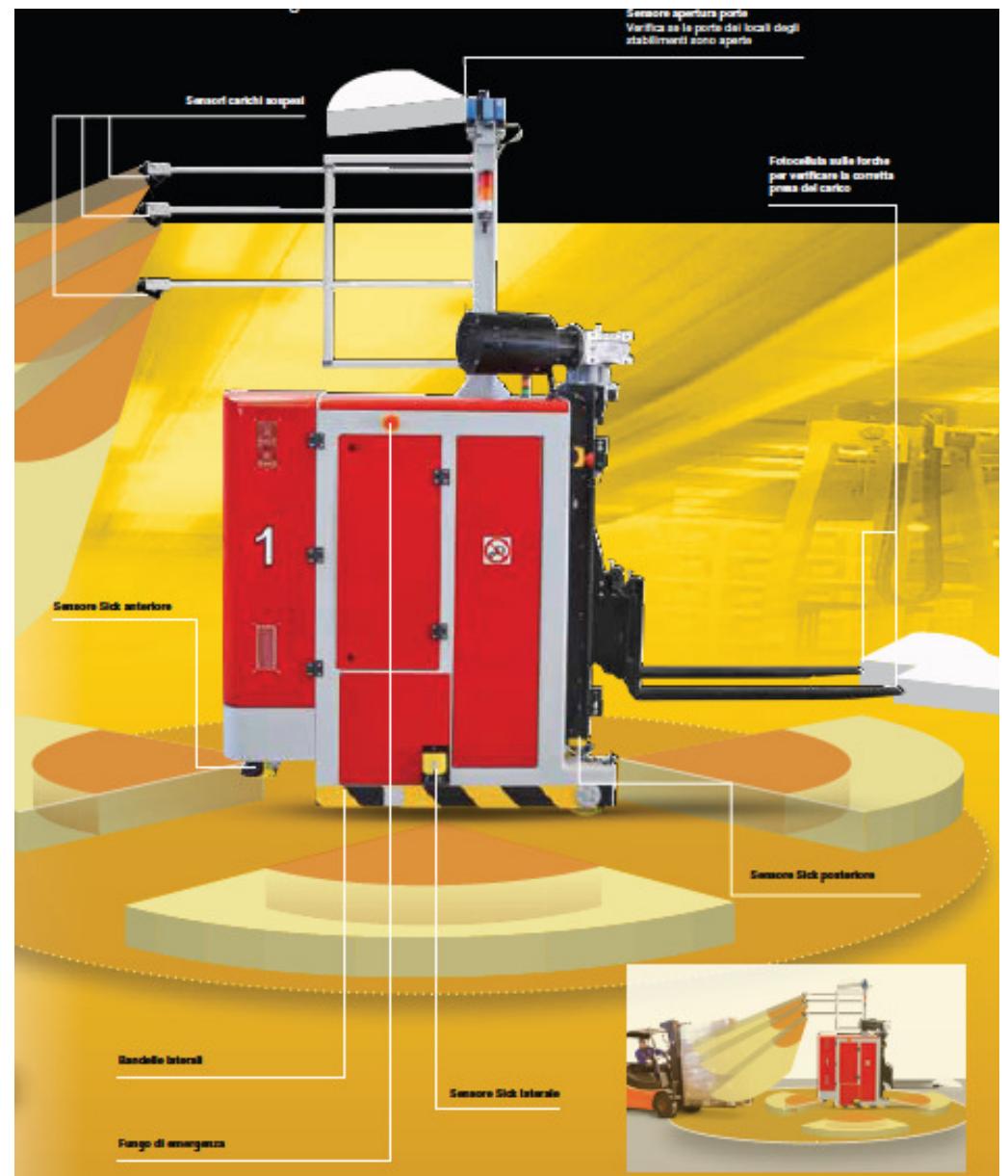


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Auriga

Safety

- Emergency Button
- Safety Laser Scanner
- Photocells
- Micro switches

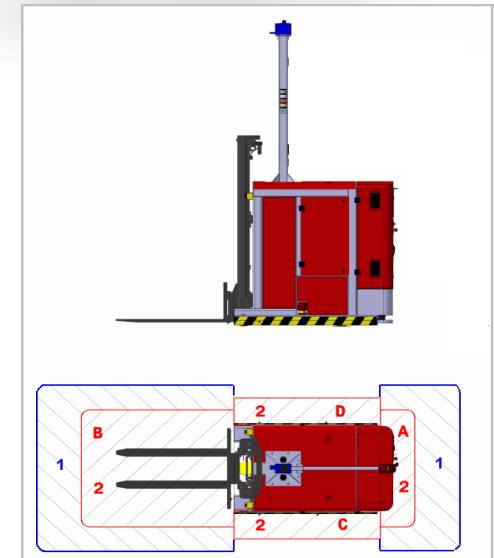
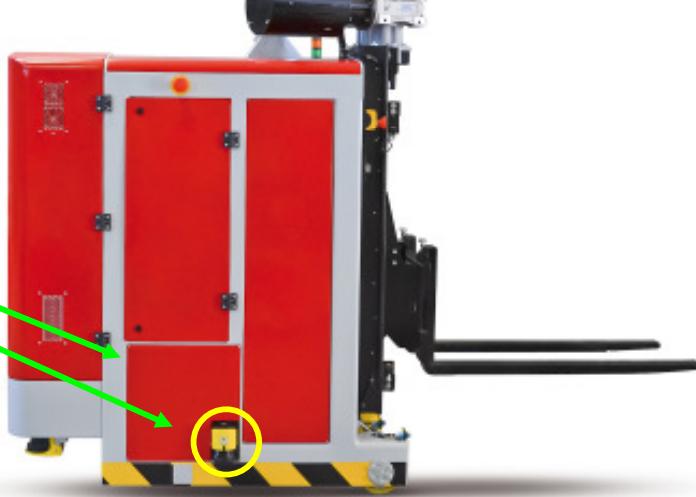


LGV Safety (Laser Scanners)

n=2 Safety Laser Scanners
Sick S3000 (forward and backwards)

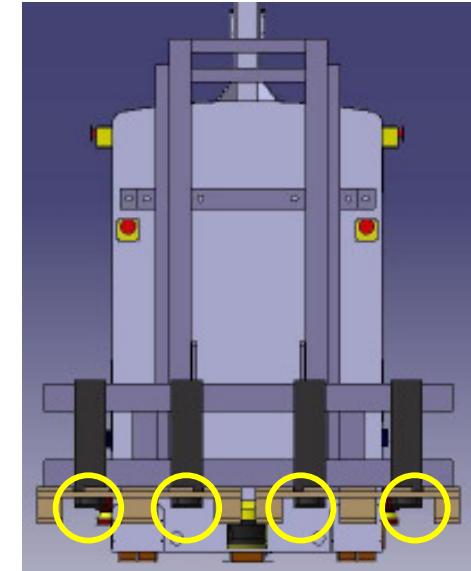


n=2 Safety Laser
Scanners
Sick S300 (sides)



LGV Safety (forks)

Photocells in the tip of the forks



Damaged Pallet check

During the picking of pallets sensors check for possible interference

Increased safety for the operators in the area (sensors always ON)

Confirms that no pallet is already present in the drop-off location

Auriga

Safety

Emergency Buttons

Micro safety switches



Safety Laser Scanners



SICK FlexiSoft Modular Safety Controller

Steer



Motorwheel

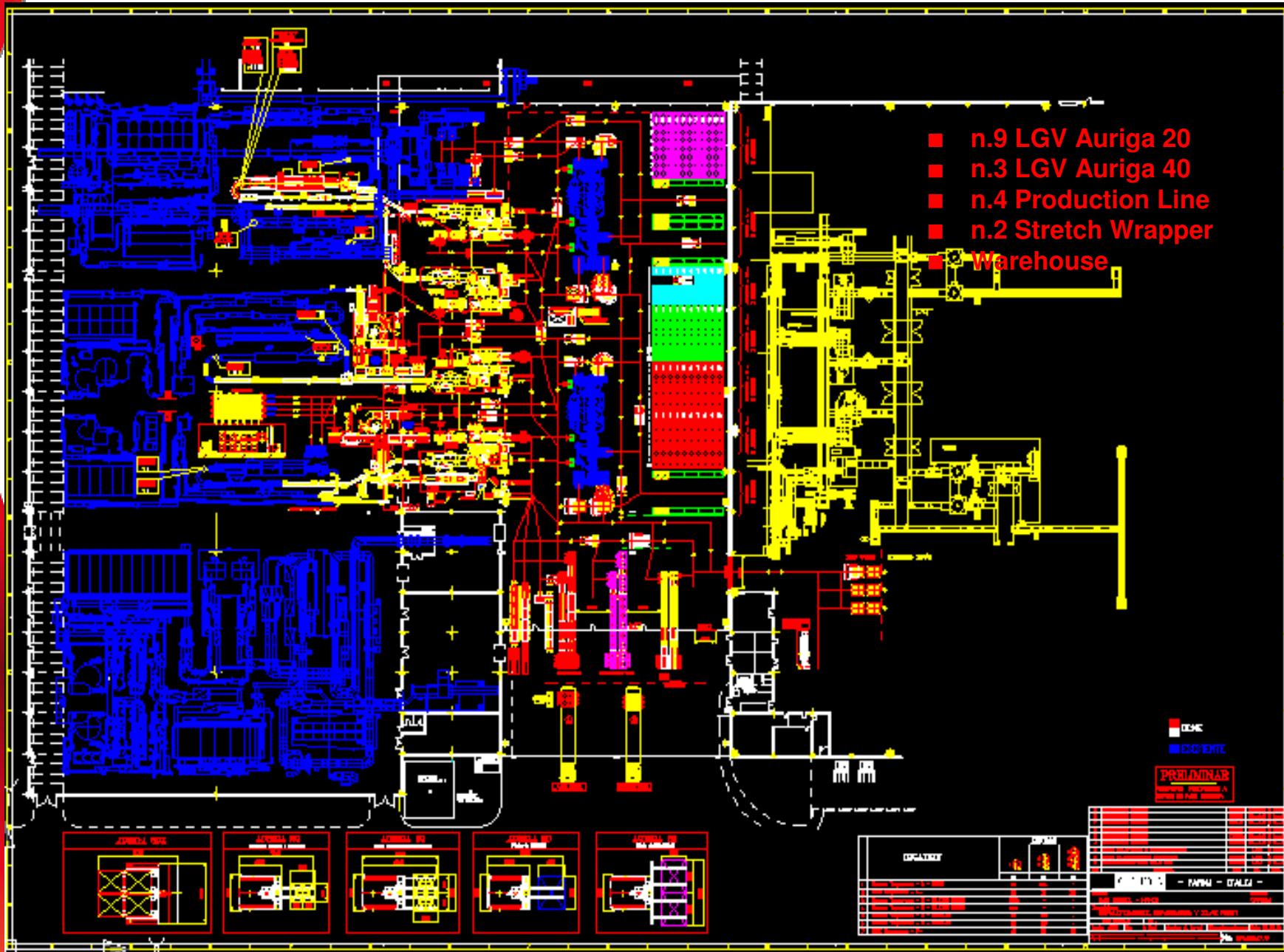
Traction

Kinetic Energy Recovery System

The kinetic energy is recovered during braking
and also when the forks are lowered



AGV System OCME



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