



ICAM INDUSTRIAL
INTELLIGENT SPACE SOLUTIONS

**NEW
DESIGN**



**NEW
TECHNOLOGY**



**NEW
FEATURES**



SILO^L, THE MULTI-PURPOSE VERTICAL SINGLE-COLUMN STORAGE SYSTEM

SILO^L is an automatic vertical storage system with shifting trays, designed for the intensive storage of a variety of items of differing type, size, weight or shape. It is also ideally suited for long or bulky materials.

 **SILO^L**

A VERSATILE STORAGE SYSTEM

NEW DESIGN AND SMART TECHNOLOGY



KEY BENEFITS AT A GLANCE

- Maximum use of vertical space in minimum footprint
- High versatility in application, including use for long or bulky items
- Drastic reduction in errors and picking times
- Operational ergonomics and safety for operators
- Protection of stored materials and efficient management of stock levels

Completely redesigned in line with the latest technological and ergonomic standards, SILO^L is a single-column, multi-purpose vertical storage system and is perfect for the **storage of long or bulky items** or for applications that require a **high level of operational versatility**.

Every detail of the new SILO^L system has been designed to ensure maximum flexibility and an **unprecedented level of productivity**, never before provided by a single-column storage system.

A **smart, cost-conscious design**, which facilitates assembly and installation and offers many new features.

New motors and drives, combined with the **dual-level tray delivery system**, offer a significant increase in productivity.

Load cells, installed on the vertical-lift system, ensure that the weight of the stored material is continually monitored, thereby avoiding any possible malfunctions or downtime caused by excessive weight.



MAXIMUM RELIABILITY, SAFETY AND COMFORT FOR WAREHOUSE OPERATORS

The SILO^L is a **vertical storage system housing shifting trays, arranged on both sides of the storage system** (front and back), while a central vertical-lift system, fitted with a tray retrieval mechanism, operates according to the goods-to-person principle: the requested items are automatically brought to the access opening, which is positioned at an ergonomic height for the operator to perform storage and retrieval operations.

Operation of the SILO^L storage system can be accomplished using an **incorporated PC**, located adjacent to the access opening, or via **any mobile device** on which the ICAM ICONTM vertical storage system management software has been installed.

Multi-ray photoelectric light curtains and an **automatic shutter door**, present only on defined machine configurations, allow the warehouse operator to work in complete safety during handling operations at the access opening.

Emergency push buttons on the front of the storage system enable the machine to be stopped immediately at any time.



■ TECHNICAL DATA

TRAY	
Maximum load	500 / 750 kg
Useful width	1,227 / 1,627 / 2,027 / 2,627 / 3,227 / 4,027 mm
Useful depth	665 / 855 mm
Height	75* / 100 mm
Maximum load height (single tray delivery)	675 mm
Maximum load height (dual tray delivery)	325 mm
Incremental positioning pitch	25 mm
Minimum tray spacing	100 mm for trays with H 75 mm 125 mm for trays with H 100 mm

STORAGE SYSTEM	
Maximum load capacity	80 t
Width	1,890 / 2,290 / 2,690 / 3,290 / 3,890 / 4,690 mm
Depth with internal access opening	2,730 / 3,300 mm
Depth with external access opening	3,620 / 4,380 mm
Height	3,000 ÷ 15,000 mm
No. of columns	1
Module height pitch	100 mm
Working environment operating temperature	0 ÷ 40° C
Relative humidity	50 ÷ 85%**

MAX. SPEED	
Vertical (Y axis)	1,5 m/s
Tray storage or retrieval (Z axis)	0,7 m/s

* The 75 mm height can be provided on trays 4,027 mm wide with a reduction in maximum load to 400 kg

** On request it is possible to equip the storage system with components able to withstand climatic conditions, which exceed these limits



IDEAL APPLICATIONS

- Buffer for semi-finished goods
- Storage of small parts
- Storage of components and spare parts
- Storage of consumables
- Storage of medium to long or bulky items
- Storage of heavy items

■ WIDTH OF THE MACHINE BASED ON THE TRAY WIDTH

	Tray Width (mm)					
	1,227	1,627	2,027	2,627	3,227	4,027
Width of the machine (mm)	1,890	2,290	2,690	3,290	3,890	4,690

THE RIGHT TRAY TO SUIT ANY NEEDS, EVEN FOR HEAVY LOADS

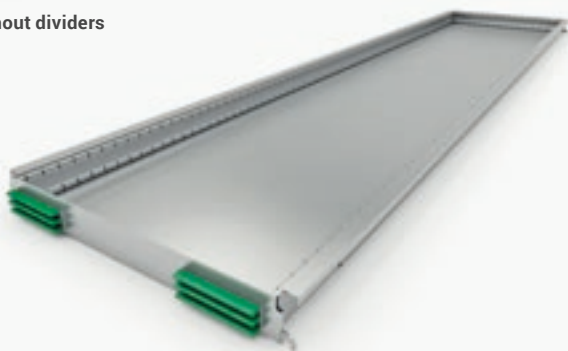
Our trays are available in a **wide range of sizes** with widths varying from a **minimum of 1,227 mm to a maximum of 4,027 mm**, **depths from 665 to 855 mm** and **height from 75 to 400 mm** thanks to side extensions. The two different tray load capacities of **500 and 750 kg** ensure a high level of operational flexibility.

Thanks to a range of accessories such as **side extensions, removable dividers and containers**, each tray can be configured as desired over time to provide organized, **flexible storage for items of various dimensions and shape**, and can be changed to suit anything from small components up to large-sized items, all in the same storage system. The accessories can be added at a later date to spread the initial investment required.

The **new tray suspension system**, equipped with technopolymer pads, provides greater noise reduction, while the **load cells** on the vertical lift system ensure that the weight of the stored material inside the tray is checked quickly and safely to prevent any possible malfunction or downtime.

The SILO^L can handle trays with **fixed load heights** (fixed configuration) or **variable load heights** (automatic configuration).

Tray without dividers



Boxes storage



Long items storage



Tray with side extensions and dividers



Small parts storage



ERGONOMICS AND PRODUCTIVITY, WITHOUT THE NEED TO COMPROMISE

Designed with ergonomics and safety in mind, the access openings can be fitted either **internally or externally**, with a **single** or **dual-level tray delivery system**.

Each storage system can be equipped with between **1** and **4** access openings, all positioned at a height of 700 mm from ground level, in order to ensure safe, ergonomic storage and retrieval operations. The access openings can be positioned at **different heights** or on **opposing sides** of the machine.

The **internal access opening** is the perfect solution for the handling of small to medium-sized items, those that have a unit weight that can be easily lifted by an operator.

The **external access opening** is more suited for the handling of heavy or bulky items, whose handling require the appropriate lifting equipment such as overhead cranes, pneumatic manipulators, robots. This option

ensures that warehouse staff is protected from any potentially hazardous or dangerous handling operations.

Both the internal and the external access openings can be fitted with single or dual tray delivery system.

The **single tray delivery** is the ideal solution where there is not such a high turnover of handling operations.

The **dual level delivery**, meanwhile, provides increased operational efficiency for storage and retrieval operations: while the operator stores and retrieves items on the first level, the internal vertical shift system continues working on the next handling operation, bringing it to the second level, therefore significantly reducing waiting times for the warehouse operator.



Internal access opening with single tray delivery



Internal access opening with dual level delivery



External access opening with single tray delivery



External access opening with dual level delivery

PRECISION, EFFICIENCY AND PROFITABILITY THROUGH INTELLIGENT STOCK MANAGEMENT

New standards of usability, accuracy and productivity can be achieved with the command and inventory control options.

With **ICON™** everything is always under control. This **web-based software**, designed and developed entirely by ICAM, facilitates the management and control of the entire range of our ICAM warehouse systems and much more.

Designed in accordance with the latest technological standards, **ICON™** meets the storage and picking needs of the most important commercial and industrial sectors, providing greater **flexibility of interface with the most popular WMS and ERP management software packages**.

Designed with the Microsoft.NET framework 4.5, **ICON™** was developed in C# with the development tools for Visual Studio.

The PC is Microsoft Windows 10 embedded and equipped with a network interface, a software package developed by ICAM, and a database server program (SQL Server Express Edition).



ICON™ KEY FEATURES AT A GLANCE

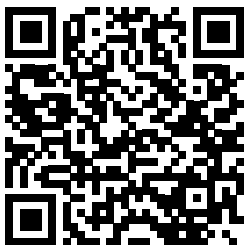
- Touch screen console
- Windows-based intuitive graphic interface
- Modular structure and versatile options
- Multiple inventory management strategies
- Multilingual and multiple-machine management
- Quick response times and optimized processing pathways
- Assignment of specific authorisation profiles for individual users



IRIDE™, is our innovative, interactive, control system* designed to make storage faster, more accurate and more intuitive using a digital environment, fully-integrated with both the storage system itself and our **ICON™** management system. It provides four main functions:

- **Light Picking Guide**
Guidance on picking operations through the use of coloured light beams that identify the exact location of the material required
- **Head-up Digital Dashboard**
Our digital dashboard which brings relevant handling information directly into the operator's line of sight
- **Adaptive Interior Lightning**
Integrated lighting system and light signalling of alarm – situations (activation of safety barriers, downtime, etc.)
- **Active Control**
Real-time, hands-free function which gives the operator the possibility to interact with the information projected onto the "Head-up Digital Dashboard"

* IRIDE is only available for use on internal access openings with a single tray delivery system on trays up to 2,027 mm wide.



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ICAM Srl

S.P. 237 delle Grotte
70017 – Putignano (BA) - ITALY
P.O. BOX 129
Ph: +39 080 4911377
Fax: +39 080 4911529
E-mail: info@icamonline.eu



www.silo-icam.com
www.icamonline.eu