Palletization and depalletization solutions

C09_r0_14

SIPA S.p.A.
Via Caduti del Lavoro, 3
31029 Vittorio Veneto (TV) - ITALY
Tel: +39 0438 911511
Fax: +39 0438 912273
E-mail: sipa@zoppas.com
Website: www.sipa.it

SIPA FILLING & PACKAGING DIVISION
Via Provinciale, 36
43038 Sala Baganza (PR) - ITALY
Tel: +39 0521 548111
Fax: +39 0521 548112
E-mail: sipa@zoppas.com
Website: www.sipa.it

SIPA LUXEMBOURG S.A.
2°, rue du Commerce – Ecostart 2
Centre d'Entreprise et d'Innovation
L-3895 FOETZ / Luxembourg
Tel: +352 26 55 16 89
Fax: +352 26 55 09 60
E-mail: sipa@zoppas.com

SIPA NORTH AMERICA
4341 International Parkway
Suite 110
Atlanta, Georgia 30354 - U.S.A.
Tel: +1 404 3493966
Fax: +1 404 5745568
E-mail: sales.northamerica@zoppas.com

SIPAMERICAN INDUSTRIES
Circuito Mexico 120
Parque Industrial Tres Naciones
San Luis Potosi S.L.P. CP 78395 - MEXICO
Tel: +52 444 8047400
Fax: +52 444 8047499
E-mail: sipamerican.industries@zoppas.com

SIPA ANDINA Ltda
Avenida El Dorado 68 C 61
Oficina 628, Piso 6
Bogota - COLOMBIA
Tel: +571 479 5252
Fax: +571 476 3444
E-mail: sipa.andina@zoppas.com

SIPA SUL AMERICA Ltda
Wt Empresarial Parque
Av. Gupê, 10.767 - Galpão 08 Bloco II
Jardim Belval
06422-120 Barueri - SP - BRAZIL
Tel: +55 11 47728300
Fax: +55 11 47728301
E-mail: sipa.sulamerica@zoppas.com

SC SIPA ENGINEERING ROMANIA S.r.l.
Str. Mangalia, 61
300186 Timisoara - ROMANIA
Tel: +40 356 434200
Fax: +40 356 434280
E-mail: sipa.romania@zoppas.com

SIPA TURKEY
SİPET A.Ş.
SITKI BEY PLAZA - Atatürk Caddesi No: 82/1
19 Mayıs Mahallesi - Kat:13 Daire:34
34736 Kozyatağı - Kadıköy - İstanbul - TURKEY
Tel: +90 216 474 9780
Fax: +90 216 474 9779
E-mail: SipaSalesTr@zoppas.com

SIPA UKRAINE
Office 37, 9 Turovs'ka St., Kyiv
04080 Kiev - UKRAINE
Tel: +380 (44) 4636645
Fax: +380 (44) 4257275
E-mail: office@sipa.kiev.ua

SIPA RUSSIA
Ul. Ordzhonikidze, 11 Str. 1/2
115419 Moscow - RUSSIA
Tel: +7 495 232 4191
Fax: +7 495 232 4190
E-mail: siparussia.office@zoppas.com

SIPA MIDDLE EAST LLC
Office n. 807 - Arenco Tower
P.O. Box 214525, Dubai Media City
Dubai U.A.E.
Tel: +971 4 3754607
Fax: +971 4 4230636
E-mail: SipaME@zoppas.com

SIPA SOUTH AFRICA
12th Floor, Metropolitan Building
7, Walter Sisulu Avenue
Cape Town 8001 - SOUTH AFRICA
Tel: +27 (21) 418 2750
E-mail: sipa.southafrica@zoppas.com

SIPA INDIA
B 101, Mangalya
Off Marol Maroshi Road
Marol, Andheri (East)
Mumbai - INDIA 400 059
Tel: +91 22 29201785
Fax: +91 22 29201795
E-mail: sipa.india@zoppas.com

SIPA THAILAND
3rd Floor, MSC Building, 571, Sukhumvit 71 Rd.,
Klongton - Nua, Vadhana
Bangkok 10110 - THAILAND
Tel: +662 713 0973-5
Fax: +662 713 0976
E-mail: sipa.fareast@zoppas.com

SIPA CHINA
19/F, unit 1905, Zhong Yu Plaza,
No. jia-6 Gongtibei Road, Chaoyang District
100027 Beijing - CHINA
Tel: +86 10 65120447-48
Fax: +86 10 65120449
E-mail: smh@zoppas.com

SIPA MACHINERY HANGZHOU
3 Road 14, Economic & Technology Development Zone
310018 Hang Zhou, Zhejiang province - CHINA
Tel: +86 571 86913106
Fax: +86 571 86913548
E-mail: smh@zoppas.com

SIPA JAPAN Ltd.
Cent-Urban Bldg. 604, 3-23-15, Nishinakajima,
Yodogawa-ku, Osaka 532-0011 - JAPAN
Tel: +81 6 4862 4801
Fax: +81 6 4862 4803
E-mail: tanigaki@sipajapan.com

SIPA

Zoppas Industries

Feel free to imagine. **We make it happen.**

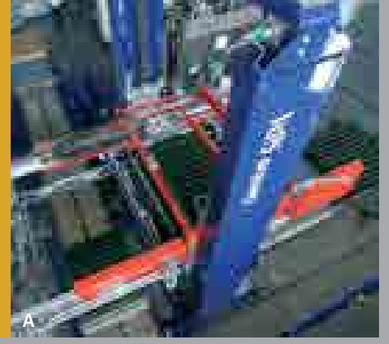
Palletization and depalletization solutions

SIPA

Genius

Traditional palletization and depalletization solutions.

Genius is a global project based on a standard double braced central unit which, by adding the different modules in the series, can create customized solutions according to speed, container type and programmes.
The range includes fixed and mobile pallet palletizers and depalletizers which match the highest performances available in the market today, and is designed to allow every user to find the best solution to suit their own specific needs.
More than fifty years' experience and the continuous drive towards innovation have made Sipa one of the worldwide leading companies in this sector. A range of complete, reliable end-line solutions able to satisfy all the needs of the bottling, food processing and chemical/pharmaceutical sectors.


A

Integration into complete lines

Considering the various sizes and types of packaging, end-line management is becoming increasingly important to assure the final efficiency of a complete line. We have applied all of our design experience to creating increasingly flexible and reliable solutions to serve efficient, high-performance complete lines.

General features and advantages

The main driving forces behind the Genius project were:

- ability to handle new generation containers in a "soft" manner.
- Operational flexibility and further reduction in change-over times.
- Increase in structural rigidity.
- Optimization of cycle to increase performance, with improved control of the different movements using state-of-the-art electronic solutions.
- Improvement of operational management by the operator, limiting mechanical regulations and simplifying access to the different components.
- Limiting maintenance and components subject to wear (e.g. lubrication-free transmission).
- Green approach: reduced consumption and operating noise. Attention to the recyclability of materials used.

		Products							
		Packs	Cartons	Crates	Loose PET bottles	Loose glass bottles	Cans	Glass jars	Tin containers
PAL	Gripping system	Halving platform	Halving platform	Jaws	Vacuum	-		Vacuum	
					Pliers	Sweep-off	-	Sweep-off	Magnetic
				Hooks	Cups	Cups		-	
	Steady pallet	**PTF/PTF-V**	**PTF/PTF-V**	**PM**	**PV**	**-**	**-**	**PV**	
					PP	**PS**		**PS**	**PH**
				PG	**PR**	**PR**		**-**	
	Moving pallet	**PTF/A**	**PTF/A**	**PM/A**	**-**	**-**	**-**	**-**	**PH/A**
				PG/A					
DEPAL	Gripping system	**-**	**-**	Jaws	Sweep-off	Sweep-off	Sweep-off	Sweep-off	Magnetic
				Hooks		Inflatable pipes			
	Steady pallet	**-**	**-**	**DM**	**DS/DS-V**	**DS/DS-V**	**DS/DS-V**	**DS/DS-V**	**DH**
				DG		**DB**			
	Moving pallet	**-**	**-**	**DM/A**	**DC/A**	**DC/A**	**DC/A**	**DC/A**	**DH/A**
				DG/A	**-**	**-**			

The table indicates the main application of the different types of machines, the working flexibility of the range allows anyhow to handle different products with the same gripping system.


B


C


D


E

A) Genius DS for rectangular glass bottles.
B) Group of PTF palletizers with multilayer configuration for cartons.
C) Genius PTF steady pallet type for cartons. Detail of the layer preparation.
D) Genius PTF steady pallet type for cartons high level infeed.
E) Detail of magnetic head.


A

Genius

Automatic palletizers steady pallet type.

The steady pallet palletizer range have infeed from below (in some cases the product can also be fed from the top). According to the product to be handled, the standard central unit can be integrated with various heads and accessory elements:

- PTF: layer transfer by halving platform for packs and cartons (even crates with the same head), clusters and multipacks.
- PTF/V layer transfer by halving platform for packs and cartons (even crates with the same head), clusters and multipacks, version with double moving platforms for high output lines.
- PM-PG: layer transfer by centralized jaw head (PM) and hook head (PG) for plastic crates.
- PP-PR: layer transfer by pliers-type head. (PP) and cap-type head (PR) for full or empty PET and glass bottles.
- PV: with vacuum head for empty loose containers (PET and glass).
- PS: sweep-off head for full glass loose containers.
- PH: with magnetic head for tin containers or jars with metal lids.

Technical Features

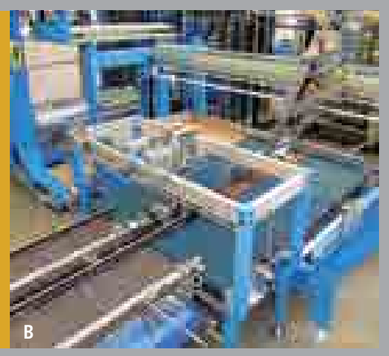
- Product infeed can be orthogonal or in line, often used for high operating speeds.
- The whole range is designed to accept a variable number of product infeeds (from 1 to 4).
- All models can be integrated with the robotized Fastlayer layer preparation device.
- Depending on the customers' production requirements, multi-pallet or multi-layer versions are available.
- Fully automatic system requiring limited operator intervention, operating in complete safety.
- Extremely simple, complete operator control panel. It can be integrated with an advanced control and supervision system.
- Possibility to handle all main pallets on the market trouble-free, with highly customizable solutions (half and quarter pallets, displays, dollies, etc.).

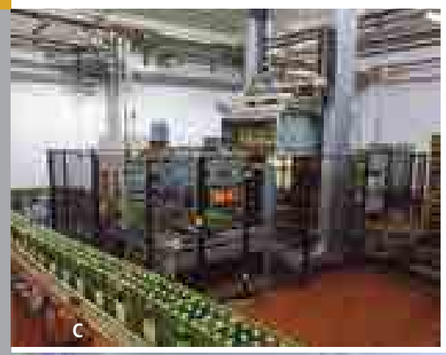
Output

Up to 330 layers/hour.
Up to 420 layers/hour with the double mobile platform solution.

Products that can be processed

- Packs
- Cartons
- Crates
- Loose PET bottles
- Loose glass bottles
- Cans
- Tin containers


B


C


D


E


F

A) Genius PTF triple infeed type for packs.
B) Detail of modular chains infeed.
C) Genius PTF single infeed type for crates.
D) Genius PV with vacuum head for empty loose containers.
E) Layer preparation by double pusher.
F) Genius PTF/V.


A

Genius

Automatic palletizers moving pallet type.

The range of moving pallet palletizers has been designed mainly for high production needs and/or to solve logistics and space problems. Product infeed is from above.
The appropriate head must be chosen according to the different products to be handled:

- PTF/A: layer transfer by halving platform for packs and cartons (even crates with the same head), clusters and multipacks.
- PM-PG/A: layer transfer by centralized jaw head (PM) and hook head (PG) for plastic crates.
- PH/A: with magnetic head for tin containers or jars with metal lids.

Technical Features

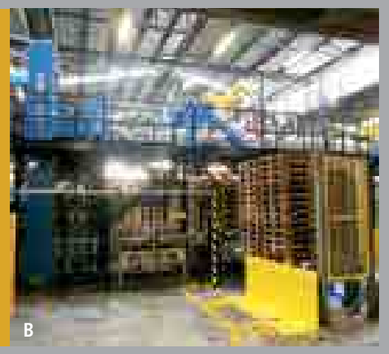
- Product infeed can be orthogonal or in line, often used for high operating speeds.
- The whole range is designed to accept a variable number of product infeeds (from 1 to 4).
- All models can be integrated with the robotized Fastlayer layer preparation device.
- Depending on the customers' production requirements, multi-pallet version is available.
- Fully automatic system requiring limited operator intervention, operating in complete safety.
- Extremely simple, complete operator control panel. Can be integrated with an advanced control and supervision system.
- Possibility to handle all main pallets on the market trouble-free, with highly customizable solutions (half and quarter pallets, displays, dollies, etc.).
- Possibility to include empty pallet loading module to increase application speed.

Output

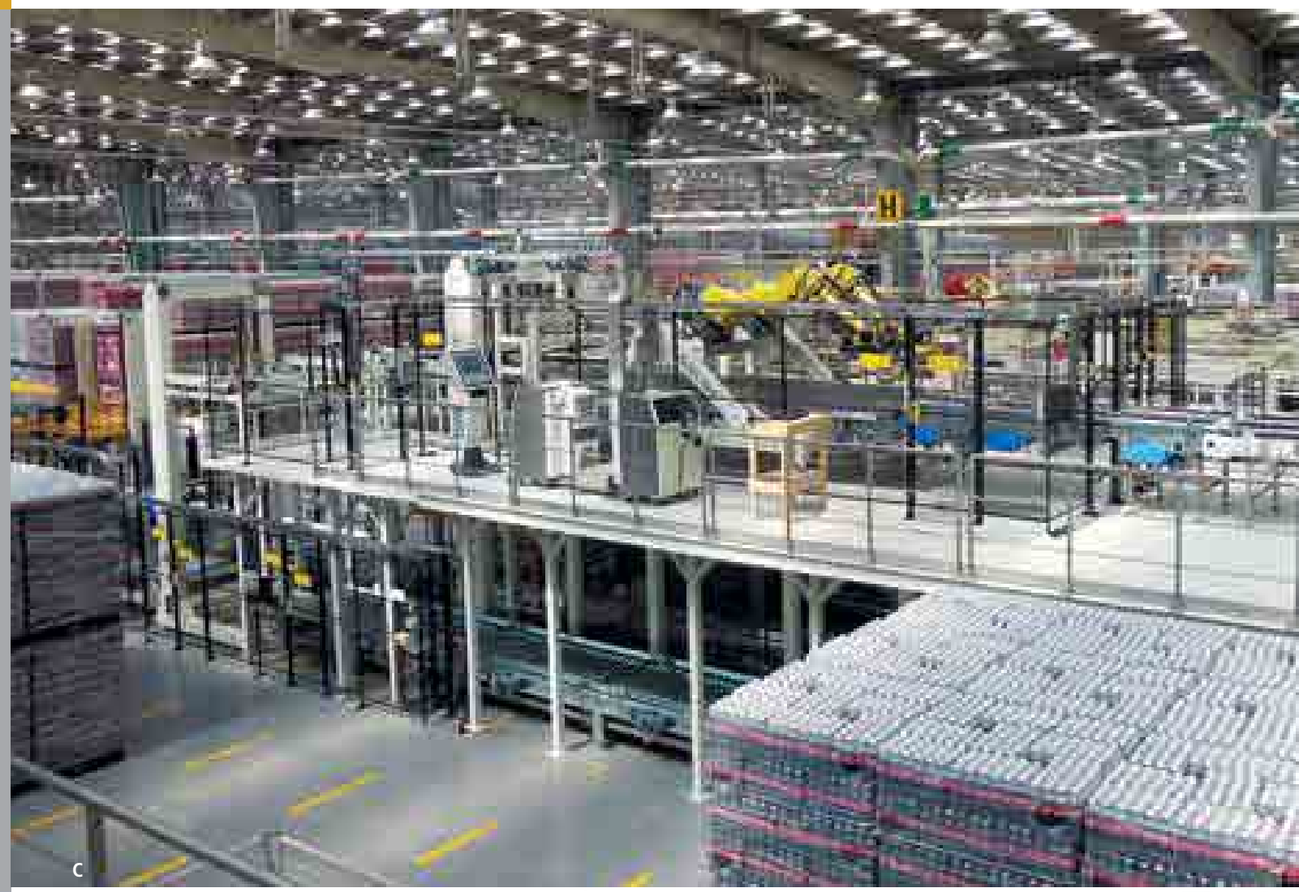
Up to 700 layers/hour.

Products that can be processed

- Packs
- Cartons
- Crates
- Loose PET bottles
- Loose glass bottles
- Cans
- Tin containers


B

A - B - C) Overall view of PTF/A palletizers for packs.
D) Detail of layer deposit on pallet and pad placing device with buffer magazine.
E) Fast pallet change device.


C


D


E


A

Fastlayer and Active Layer

Layer preparation with active pack orientation and arrangement.

These solutions offer an innovative alternative to conventional layer preparation requiring a divider and layer formation area with static pack-turning device. They can be integrated upstream of any kind of palletizer.
Thanks to these systems we are able to satisfy any kind of market request, both in terms of productivity (from low/average to high speed) and logistics (in line or orthogonal infeed, with high or low level feeding).

Fastlayer

The system can use 1 or 2 anthropomorphic robots mounted in parallel which move continuously and synchronously with the conveyor belt below. The packs are delivered along the layer forming conveyor in single row, appropriately spaced, and the robots work against the flow, orienting and arranging the packs to prepare the layer, according to the selected palletization layout.
The 6-axis robots are mounted above the conveyor, with a forward inclination of 40°, which optimizes the working area.

Active Layer

It is the layer preparation system designed to optimize the medium and low speed palletization plants with orthogonal infeed. The gripping head is installed on linear axes and moves in accordance with the flow of the packs arriving on the below belt chain.
The system is controlled by vector and brushless motor gear.

Considering the most recent drinks market trends, which require lighter bottles, and the increasingly aggressive marketing needs which generate a multiplication of sizes to be handled, this solution achieves three important results:

1) Transport improvement of some containers and assures extremely delicate handling, in order to avoid any kind of damage to the product.
2) Reduction of change-over times or adaptation to new products.
3) Increased performance with small footprint.

These results are achieved by designing a solution with the following features:

- The patented gripping system, which adds a further two movement axes, allows several packs to be handled at the same time without compromising on the accurate and delicate handling of the packs. The gripping head is available also with the automatic adjustment.
- The size change is managed simply through a selection process on the operator panel, and usually no mechanical components need to be replaced.
- The pack transfer conveyors, with modular chains, represent a flat, regular and continuously moving support base. This avoids excess friction on the pack bases and assures handling stability.
- The innovative 8-axis configuration and the optimization of the different cycles leads to high performance and limits the working speed of the different components. This guarantees reliability and reduction in wear over time.

A) Detail of gripping head for packs with automatic adjustment.
B) Fastlayer with 2 robots and layer preparation area.
C) Layer preparation with Active Layer.
D) One robot Fastlayer version.
E) Detail of layer compacting devices and pusher.
F) Overall view: layer deposit and pallet exit towards Stretch-wrapping machine.


B


C


D


E


F


A

Genius

Automatic depalletizers steady pallet type.

The range of steady pallet depalletizers with product outfeed from the bottom is extremely flexible, and was designed to allow every user to create the most appropriate solution for their own needs.
Based on a standard central unit and customizing with different heads and accessory modules, it is possible to handle the widest range of container shapes.

- DS: sweep-off depalletizer with complete layer transfer by independent jaw head and intermediate table for loose containers such as glass, PET bottles and jars.
- DSV: similar to the DS model but with a special head which increases overall productivity.
- DM-DG: layer transfer by centralized jaw-type head (DM) and hook head (DG) for plastic crates, with or without window.
- DH: with magnetic head for tin containers or jars with metal lids.
- DB: with inflatable pipe head for empty glass bottles with special shapes or partitions.

Technical Features

- Depending on the customers' production requirements, multi-layer and multi-pallet versions are available for the depalletizer.
- The depalletized layer is fed onto the line both on chain and air conveyors.
- Fully automatic system requiring limited operator intervention, operating in complete safety.
- Extremely simple, complete operator control panel. Can be integrated with an advanced control and supervision system.

Output

Up to 180 layers/hour.
Up to 230 layers/hour with the DSV.
Up to 320 layers/hour with the DM for crates.

Products that can be processed

- Crates
- Loose PET bottles
- Loose glass bottles
- Cans
- Glass jars
- Tin containers


B


C


D


E


F


G

A) Detail of layer discharge table of Genius DS for empty glass bottles.
B) Genius DS for empty PET bottles.
C) Detail of infl atable pipes gripping system: Genius DB.
D) Overall view: Genius DS for empty glass bottles.
E) Detail of layer discharge: Genius DS for empty PET bottles.
F) Detail of jaws gripping system: Genius DM.
G) Detail of layer transfer: Genius DS for empty glass bottles.


A

Genius

Automatic depalletizers moving pallet type.

This e range of moving pallet depalletizers has been designed mainly for high production needs. In some cases, on the other hand, this configuration is particularly useful for solving logistics and space problems.
The appropriate head must be chosen according to the different products to be handled:

- DC/A: with independent movement jaws-type head for glass, PET bottles and jars.
- DH/A: with magnetic head for tin containers or jars with metal lids.
- DM-DG/A: layer transfer by centralized jaw-type head (DM) and hook head (DG) for plastic crates, with or without window.

Technical Features

- Depending on the customers' production requirements, multi-pallet versions are available for the depalletizer.
- The depalletized layer is fed onto the line both on chain and air conveyors.
- Fully automatic system requiring limited operator intervention, operating in complete safety.
- Extremely simple, complete operator control panel. Can be integrated with an advanced control and supervision system.
- Full height sides on three sizes in the full pallet lift area. As an option, complete closure with infeed doors to stop containers from falling.

Output

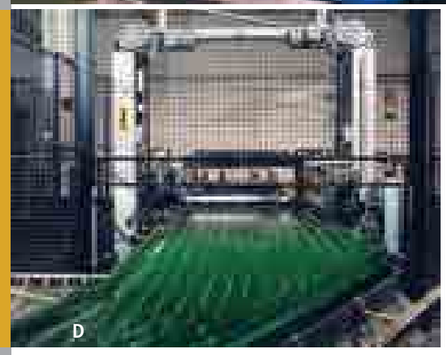
Up to 400 layers/hour.

Products that can be processed

- Crates
- Loose PET bottles
- Loose glass bottles
- Cans
- Glass jars
- Tin containers


B


C


D


E


F

A) Detail of layer discharge: Genius DC/A for empty cans.
B) Group of depalletizers DC/A for empty glass bottles for beer.
C) Genius DC/A for glass jars.
D) Detail of layer discharge table of Genius DC/A for empty glass bottles.
E) Detail of layer discharge with open jaw: Genius DC/A.
F) Detail of jaws transfer with independent movement: Genius DC/A.