

# COBOT STANDARD PLUS

PALLETIZING SOLUTION



**ALLIANCE**  
**AUTOMATION**

INNOVATE. CREATE. **ADVANCE.**

# COBOT STANDARD PLUS



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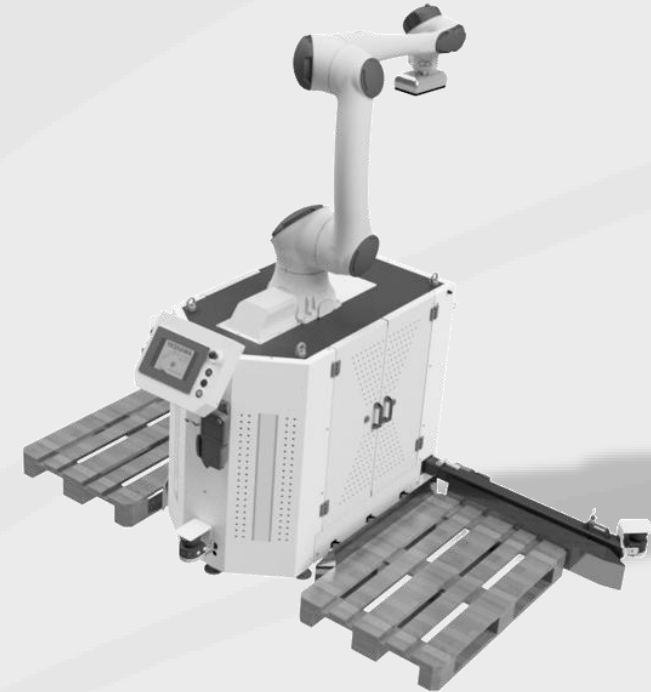
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# COBOT STANDARD PLUS

## A | Introduction

Offering a robotic palletizing system that is constituted by the following equipment and services described below:

A/A	Description	Units
1	Robot Yaskawa HC30PI	1
2	Robot vacuum collaborative gripper	1
3	Robot base (Robot A) with pallet positioners	1
4	Safety Scanner 3m (Robot A)	3
5	Product Conveyor	1
6	10" HMI / Industrial PC	1
7	Safety Systems	1 set
8	Interlayer Base	1



### A.1 | Technical Solution Description

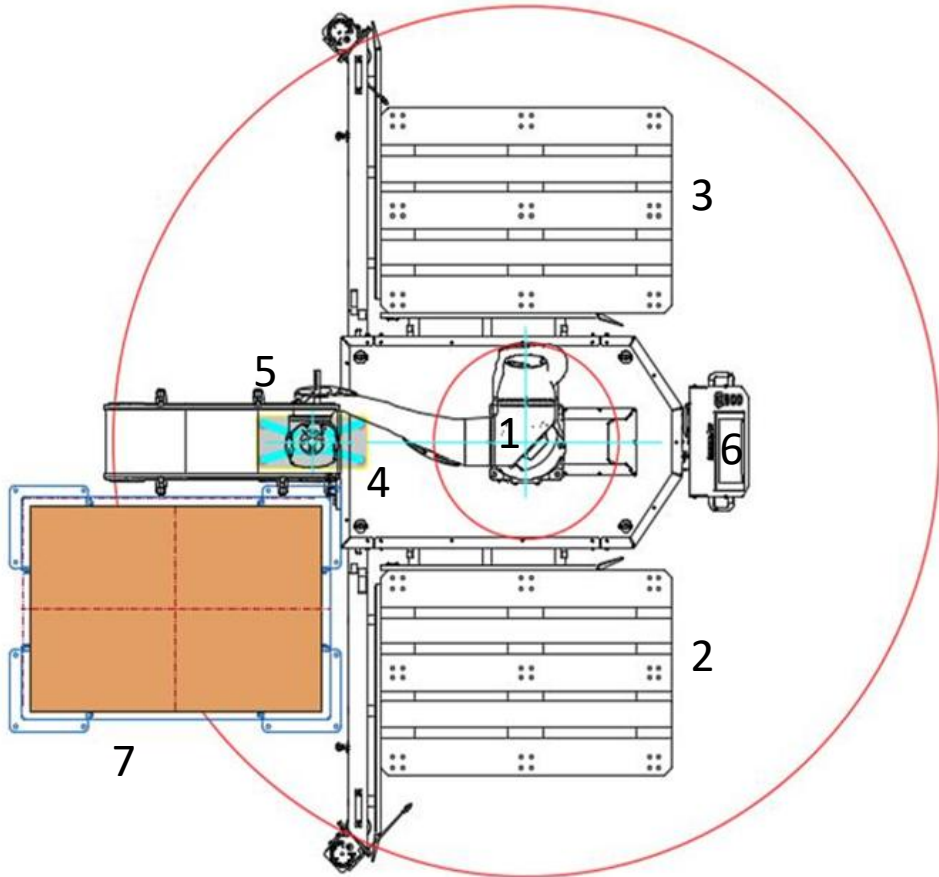
- › Cobot Standard Plus is designed to provide a mobile robotic palletizing solution for carton boxes, directly inline with your production line. Powered by Yaskawa HC30PI, the most advanced collaborative robot in the world, our system can handle 10cycles/minute – up to 20kg product weight – 2000mm pallet height. The system assures safety, outstanding repeatability and steady quality.
- › Safety fences are now obsolete due to our collaborative design utilizing high end safety scanners covering 360°. Cobot standard plus can be moved easily and fast due to its unique features without additional setup time requirements.

### A.2 | Cobot Standard Plus Operating Cycle

- › The operating cycle of Cobot standard plus is rather simple. Initially the operator loads the empty pallets to the system by placing them manually to the special ground bases. Thereafter the operator chooses the production program and starts the automatic operation of the system.
- › The robot starts its operation cycle by picking up the product, located at the conveyor, with its pneumatic gripper and palletizes it on the pallet according to the production program. When the pallet is ready the system informs the operator to remove the pallet manually. The operation cycle repeats until the production schedule is finished.

# COBOT STANDARD PLUS

## B | Mapping



L/N	Description	Quantity
1	Robot Yaskawa HC20DT	1
2	Pallet Position 1	1
3	Pallet Position 2	1
4	Robot Base	1
5	Vacuum Gripper	1
6	HMI	1
7	Base for Interlayers	1

# COBOT STANDARD PLUS

## C | System Components

### C.1 | COMPONENTS LIST

	STANDARD	OPTIONAL
<b>MECHANICAL</b>		
MOTORS	MOTOVARIO, ORIENTAL	SEW, SIEMENS
REDUCTION GEARS	MOTOVARIO, ORIENTAL	SEW, SIEMENS
SERVO MOTOR	SIEMENS, SCHNEIDER	YASKAWA
BEARINGS	SKF, SNR	
CONVEYOR BELTS	UNI, FLEXLINK	INTRALOX, BOSCH
<b>ELECTRICAL</b>		
PLC	SIEMENS, SCHNEIDER, YASKAWA	
DRIVE	SIEMENS, SNEIDER, DANFOSS, YASKAWA	
PHOTO CURTAINS	REER, SICK	
SAFETY CONTROLLER	REER	
SAFETY RELAY	REER, EUCHNER	
SAFETY LOCKS	EUCHNER	
ELECTRICAL BOARD CABINET	RITTAL	
TOUCH SCREEN	PROFACE	SIEMENS
INDUSTRIAL PC	BECKOFF, ADVANTECH	
PHOTOCELLS	IFM, SCHNEIDER, SICK	
ΣΥΣΤΗΜΑΤΑ ΟΠΤΙΚΟΥ ΕΛΕΓΧΟΥ	COGNEX, LMI	
<b>PNEUMATICS</b>		
PISTONS - VALVES	SMC	FESTO
VACUUM EQUIPEMENT	PIAB, SCHMALZ	





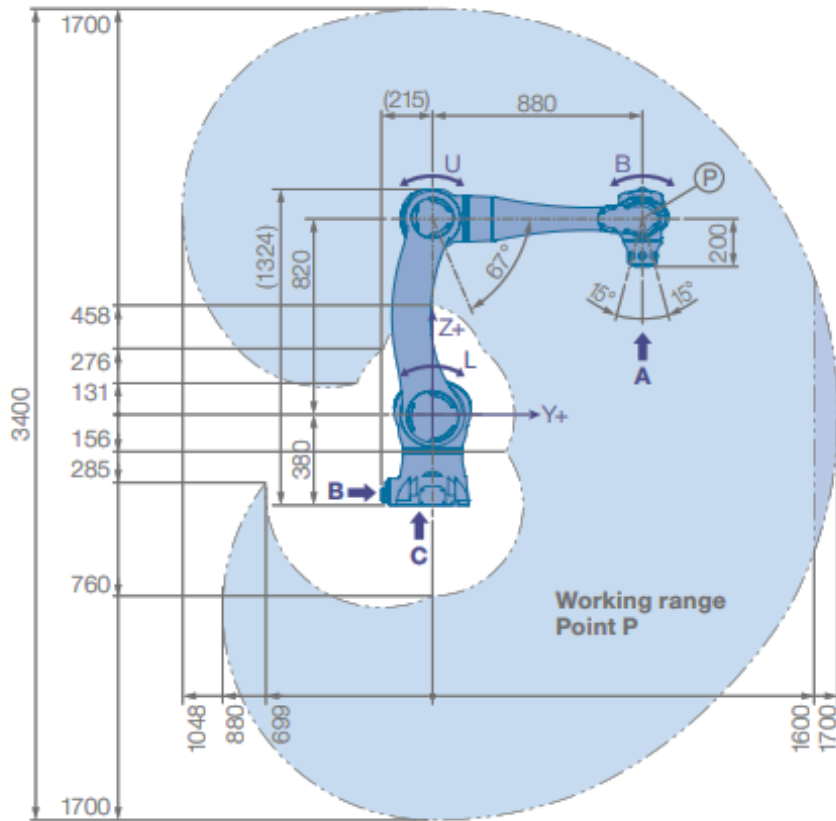
# COBOT STANDARD PLUS

## C | System Components

### C.2 | Robot Yaskawa HC30PI

- › This specific Yaskawa robot has been designed for product handling operations and is equipped with specialized safety system for human – machine interaction.
  - › It is a 6 axes robotic system with delicate and flexible mechanical parts design to promote high operation cycle times. Its design has been based on the standards of the modern production demands.
  - › The motor – reduction gears have been placed directly on each axis point to reduce maintenance costs. Reduction gears do not require maintenance and elements such as endless screws, motion belts and limit switch on the axes. The manufacturing of the robotic arm allows its horizontal placement in correlation to the production floor. Yaskawa is offering excellent repeatability of  $\pm 0.05$  mm.
- *Detailed technical specifications for the robotic system can be found in the relevant [Yaskawa Europe](#) specification sheet.*
  - **Important Note: Manufacturers manuals will be in English.**





### C.3 | FIGURE 1 HC30PL WORKING ENVELOPE

Specifications HC30PL						
Axes	Maximum motion range [°]	Maximum speed [°/s]	Allowable moment [Nm]	Allowable moment of inertia [kg · m <sup>2</sup> ]	Controlled axes	6
S	±210	80	-	-	Max. payload [kg]	30
L	±180/-154	80	-	-	Repeatability [mm]	±0.05
U	+247/-67	120	-	-	Max. working range R [mm]	1700/1600*
R	±15	112	-	-	Temperature [°C]	0 to +40
B	±15	132	-	-	Humidity [%]	20 - 80
T	±210	180	-	2.0	Weight [kg]	140
					Power supply, average [kVA]	1.5



# COBOT STANDARD PLUS

## C | System Components

### C.4 | Controller YRC 1000 Micro

The key advantage point of a Yaskawa robot is the superiority of the software of the YRC1000micro controller.

Technical specifications are provided below.



#### Specifications programming pendant

Dimensions	152 (W) x 299 (H) x 53 (D) mm
Weight	0.730 kg
Material	Reinforced plastics
Operation device	Select keys, axis keys, numerical/application keys, mode selector switch with keys (mode: teach, play, and remote), emergency stop button, enable switch, SD card interface device, USB port (1 port)
Display	5.7-inch color LCD, touch panel 640 x 480 pixels
IECpProtection class	IP54

\* Detailed technical specifications for the Robotic System can be found in the [Yaskawa Europe](#) relevant pdf.

# COBOT STANDARD PLUS

## C | System Components



### C.5 | Robot vacuum collaborative gripper

- › A robotic pneumatic collaborative vacuum gripper is offered for picking up products according to the palletizing format.
- › The gripper can handle 1 or more products per cycle.
- › The gripper will not allow the products to slip, will not injure the product, will not allow the product to hang, and will not mark the product.

### C.6 | Laser Safety Scanner

The system is equipped with three (3) laser safety scanners so that the collaboration between human – machine is performed with maximum safety.

This module is programmable according to the safety zones levels.



# COBOT STANDARD PLUS

## C | System Components

### C.7 | Robot base (Robot A) with pallet positioners

A robotic metal base is offered according to robot type and payload. The base will be painted with special anticorrosion painting. The robot base will be reinforced with additional weight to avoid anchoring of the system to the floor. Also the base is designed to be easily transferable with 2 position arms.



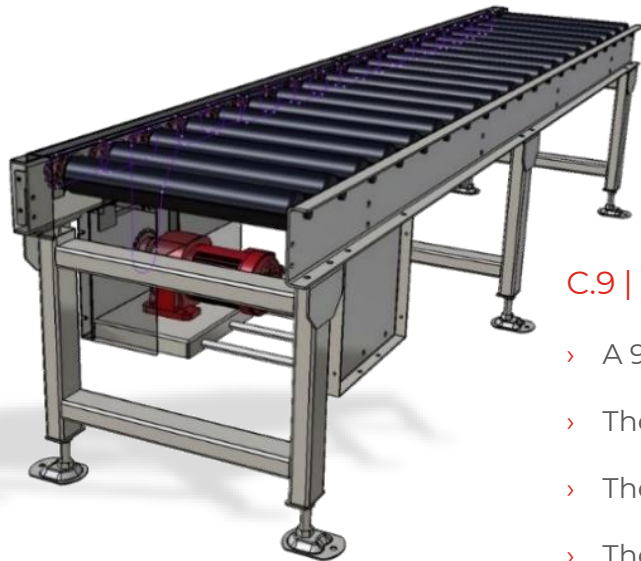
### C.8 | Teach Pendant

Easy and fast programming, with several user levels (from operator to safety mode) and Help function.



### C.9 | Product Conveyor

- › A 900 mm roller conveyor is offered with the system.
- › The system includes a pusher that moves the box to the picking position
- › The conveyor is used to transport the product from the production line to the robot.
- › The robot picking is performed at the very last point of the conveyor.



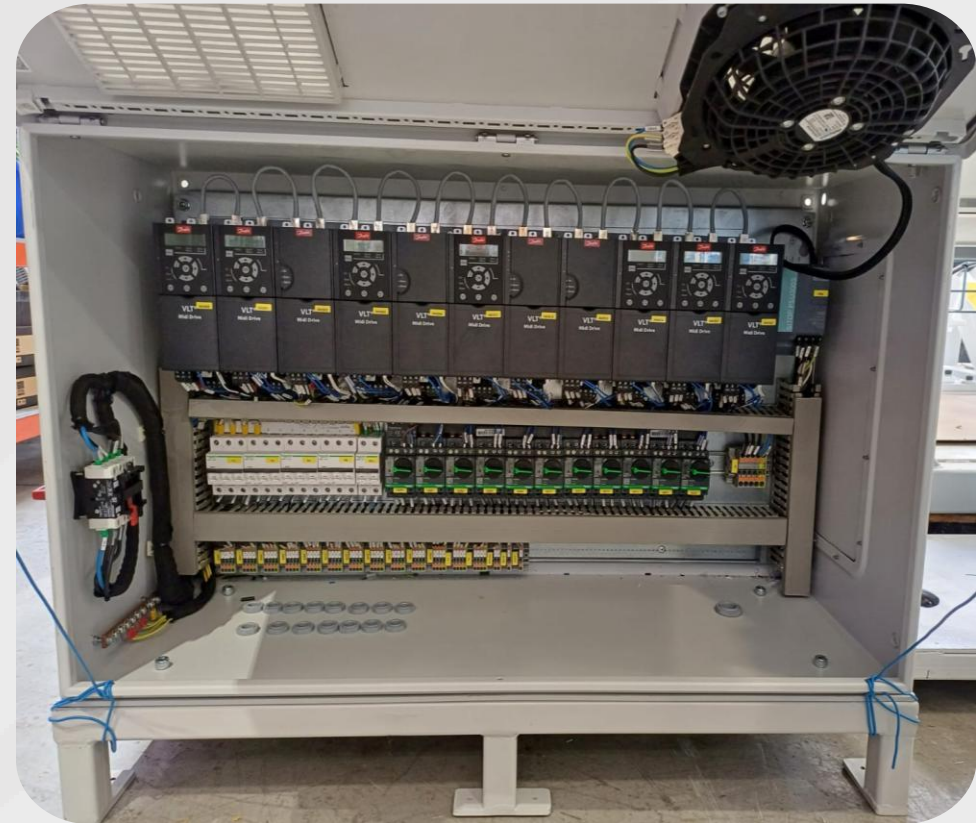
### C.10 | Industrial PC

- › For easy use and operation of the system, an industrial PC with a large 12" touch screen will be installed, allowing the operator to interact with the system. Through a user-friendly graphical interface, the application parameters can be changed (e.g., program selection), diagnostic messages can be read, meters and production phases can be viewed, and the system can be controlled.
- › On the screen, all messages related to the robot, individual systems, the PLC, and safety arrangements are consolidated. The communication with the systems is bidirectional, providing the operator with the convenience of performing all desired tasks from a friendly graphical environment, without having to handle separate subsystems individually.



### C.11 | RITTAL Electrical Board Cabinet

We offer RITTAL electrical board of appropriate dimensions for the installation of the HMI and all electrical parts of the system.





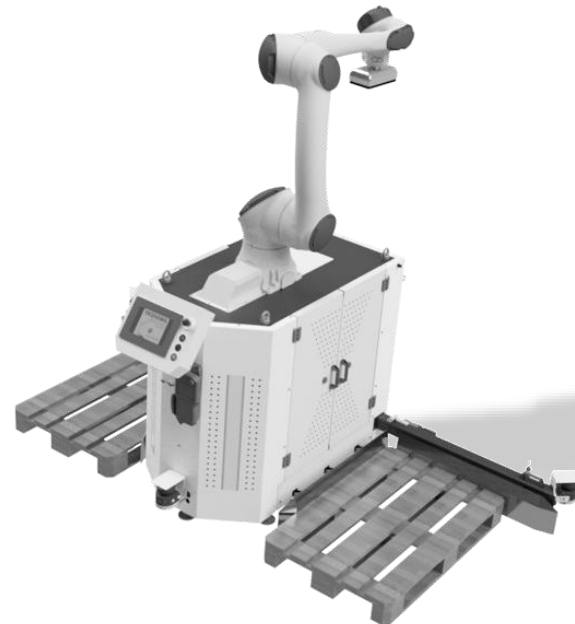
# COBOT STANDARD PLUS

## D | Advantages

### D.1 | Specifications and Advantages of COBOT STANDARD PLUS

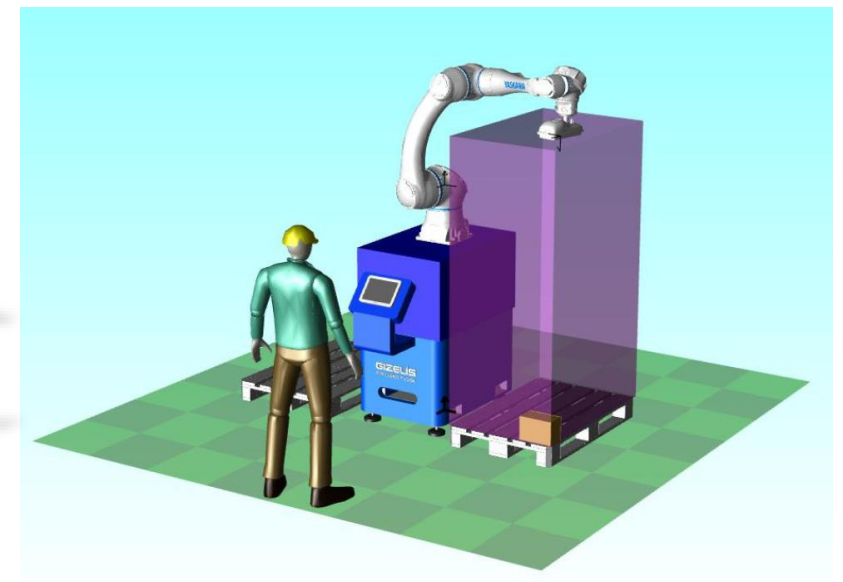
- › Easily transferred with forklift (manual or automatic) to another production line
- › Minimum space requirements
- › No safety guards required
- › Products up to 18kg\*.
- › Zone safety control
- › 1 or 2 palletizing position(s)
- › Small to medium productivity capacity
- › Plug and play solution
- › Human friendly collaborative design
- › Easily programmed
- › Rigid steel construction

*\*max product weight can reach 25kg with use of mechanical gripper*



### D.2 | Maximum Palletizing Height

- › The maximum palletizing height with our Cobot can reach 2,000 mm





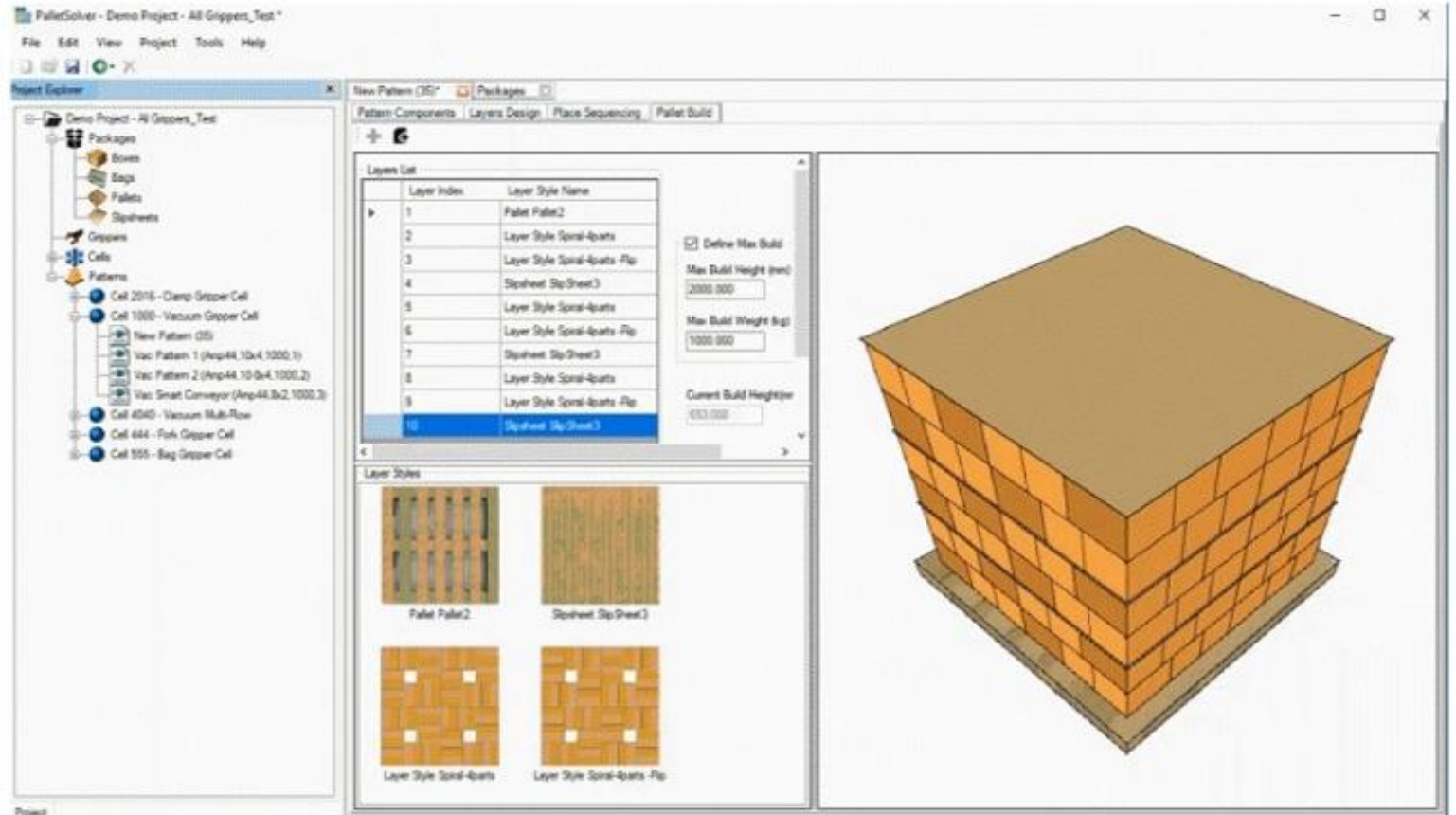
# COBOT STANDARD PLUS

## E | Programming

### E.1 | Software Platform

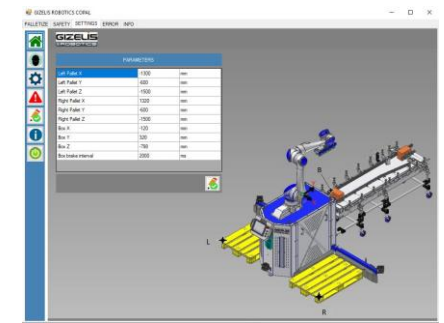
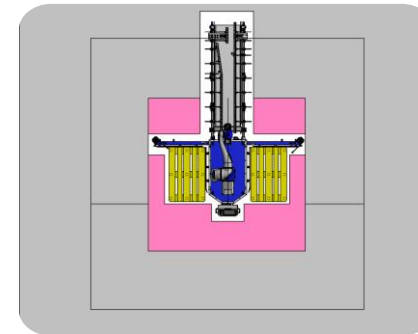
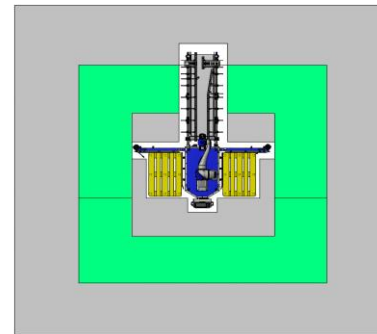
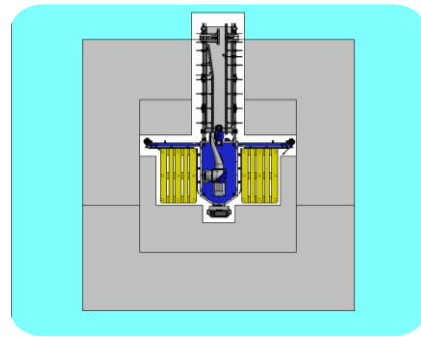
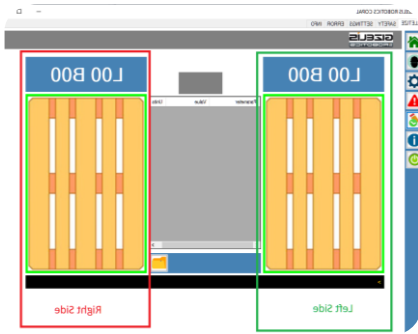
\* All software programming for all offered machinery is included in our offer.

The system will be able to execute the program for the product according to the project's specifications. For the robot, one (1) palletizing program has been planned.



# COBOT STANDARD PLUS

## E | Programming



\* Indicative Screens

All software programming for all offered machinery is included in our offer.

Gizelis Robotics COPAL software is an easy to operate HMI for the COBOT series. The GUI is divided in 3 areas

1. Buttons to navigate between screens
2. Indication of screens
3. Window of operation for each screen

- › **Home/ Palletize Screen:** The main screen of the HMI showing the current status of the palletizing process.. It is divided into 2 zones (Left and Right side). On the Upper part of each side the layer number (L00) and the box number (B00) are indicated.
- › **Industrial Mode:** When Industrial mode is indicated (Blue color) the robot operates at full speed without collaborative mode. Industrial mode can only be entered when safety scanners do not see any violation in their perimeter
- › **Cobot Mode:** The Cobot mode (Green) indicates that the robot is in collaborative mode which limits the maximum speed to 250mm/sec and that robot stops against 100N force.
- › **Super Cobot Mode:** Identical to Cobot mode but it cannot switch automatically back Industrial mode. Instead, it needs the RESET button to be pressed
- › **Settings:** This is the page of the basic settings and parameters that are necessary for the COBOT series to work properly.

In this screen the coordinates of the pallets and products position are entered.

# COBOT STANDARD PLUS

## F | Installation (FAT)

- › The equipment / technical solution manufactured and supplied by GIZELIS ROBOTICS S.A. will be installed and tested within our own factory therefore the dispatch of a commonly agreed test product by both parties is necessary and scheduled prior to the testing.
- › The installation of the equipment in our premises will be completed by our own experienced technicians maintaining all corresponding technical and safety regulations.
- › After factory installation, dry and wet test runs shall be performed where applicable.
- › Upon completion of this process, all manuals shall be delivered.





# COBOT STANDARD PLUS

## G | Training



- › Our company is offering full system training to your installation team. The training courses are divided into theoretical and practical sections.
- › We are following specific training procedure to ensure that your installation team will acquire all the necessary knowledge. The installation takes place once upon agreement between the two companies.
- › The number of trained personnel must be agreed before the training process begins.
- › After the training sessions are over; the customer signs a training protocol.