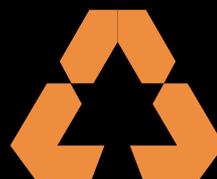


The most advanced
technology for
accurate and
precise handling

Factory Automation



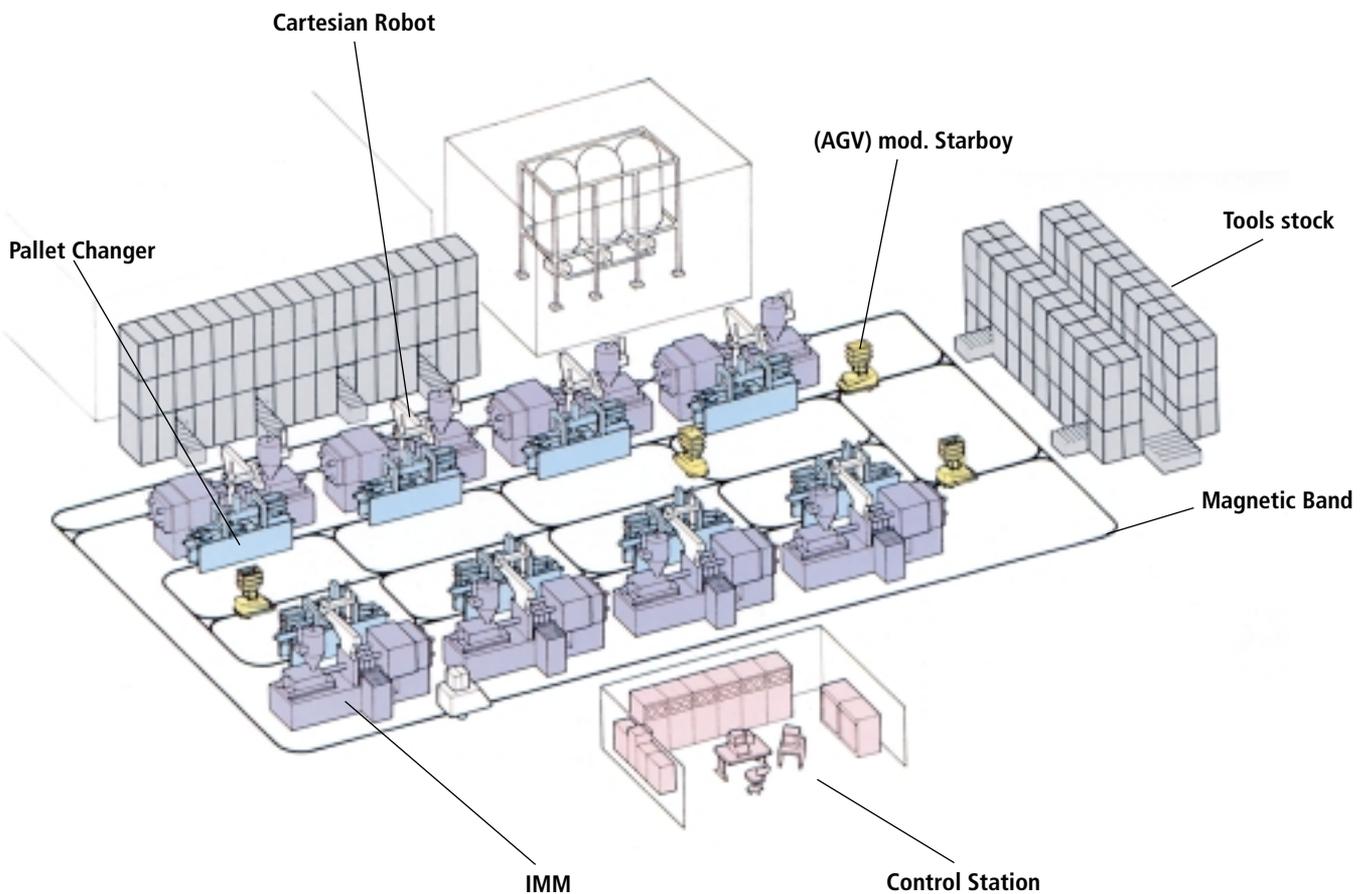
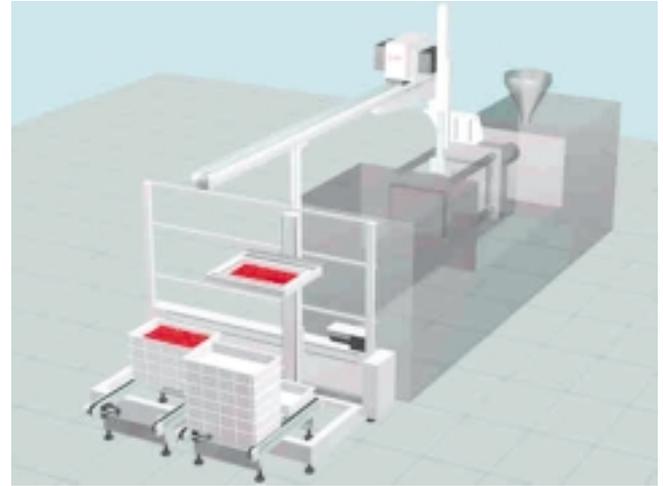
With regard to quality, we have just one aim: to offer the best



STAR
AUTOMATION

FACTORY AUTOMATION

Star Automation Europe offers total Factory Automation for the plastic industry starting from the moulded parts handling by a traverse robot that, installed on the IMM platen, can release them in an orderly way. Afterwards the pallet changer can create a buffer of containers (empty and full) beside the IMM and from there the AGV Starboy can carry the parts all around the factory. The efficiency of the handling can be achieved using one or more AGVs up to the complete unmanned automation for the weekend shift and more.



PALLET CHANGER C-70

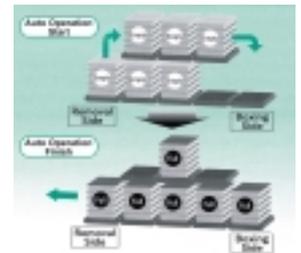
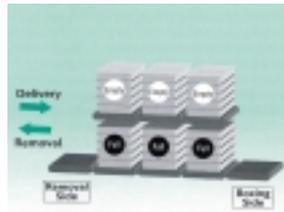
(for F-type containers)



Features

- Floor space saving and longer automated operation are realised by the double-deck-container-flow
- Since the container delivery and removal operation is done at the same position, the equipment arrangement for the material flow is easier
- Pendant type panel for easy operation

Operation diagram



Operation 1 (standard mode)

1. empty containers delivery
2. empty containers move to upper deck
3. empty containers move
4. destacking
5. boxing
6. full containers stacking and move to lower deck
7. full containers stocking
8. full containers remove

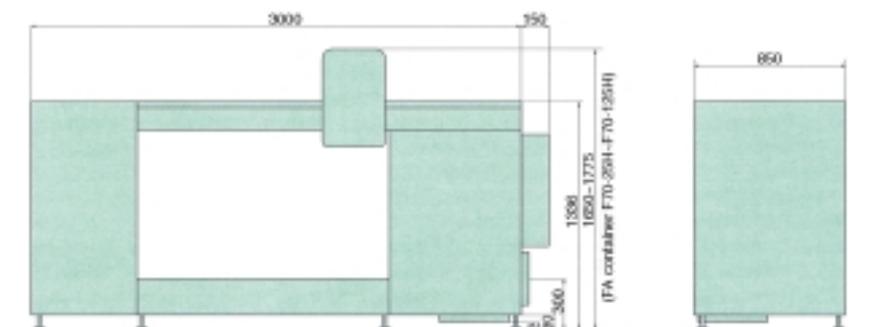
* maximum stock is 3 piles. One pile delivery and one pile removal is standard
 * empty containers should be delivered after full containers are removed

Operation 2 (long time mode)

1. empty containers move to upper deck
2. empty containers move
3. destacking
4. boxing
5. full containers stacking and move to lower deck
6. full containers move
7. full containers move to upper deck
8. full containers stocking

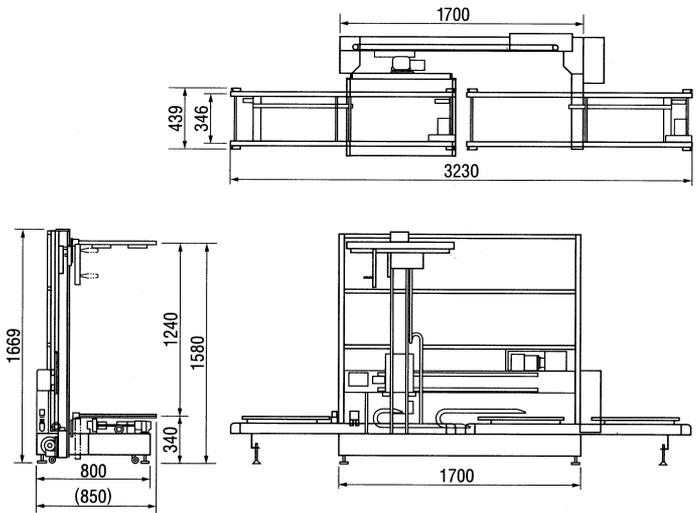
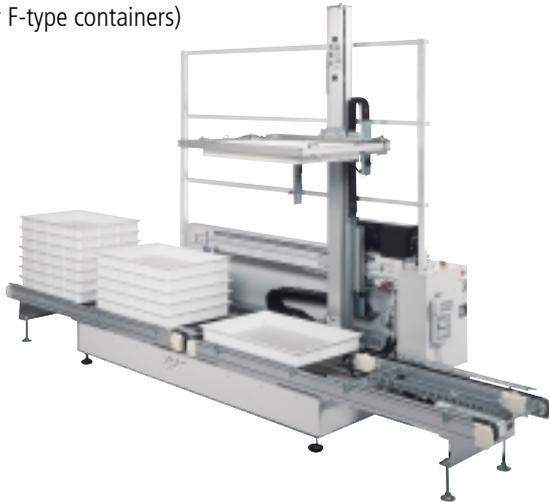
* operation starts after empty containers are delivered maximum stock is 6 piles
 * auto-operation stops after all containers are filled
 * full containers should be removed after all containers are filled

Outer dimensions (mm)



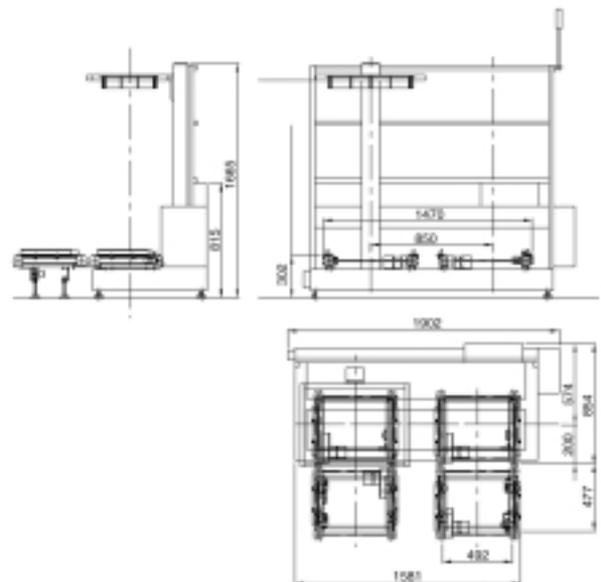
PALLET CHANGER I-70III

(for F-type containers)



PALLET CHANGER M-70III

(for M-type foldable containers)

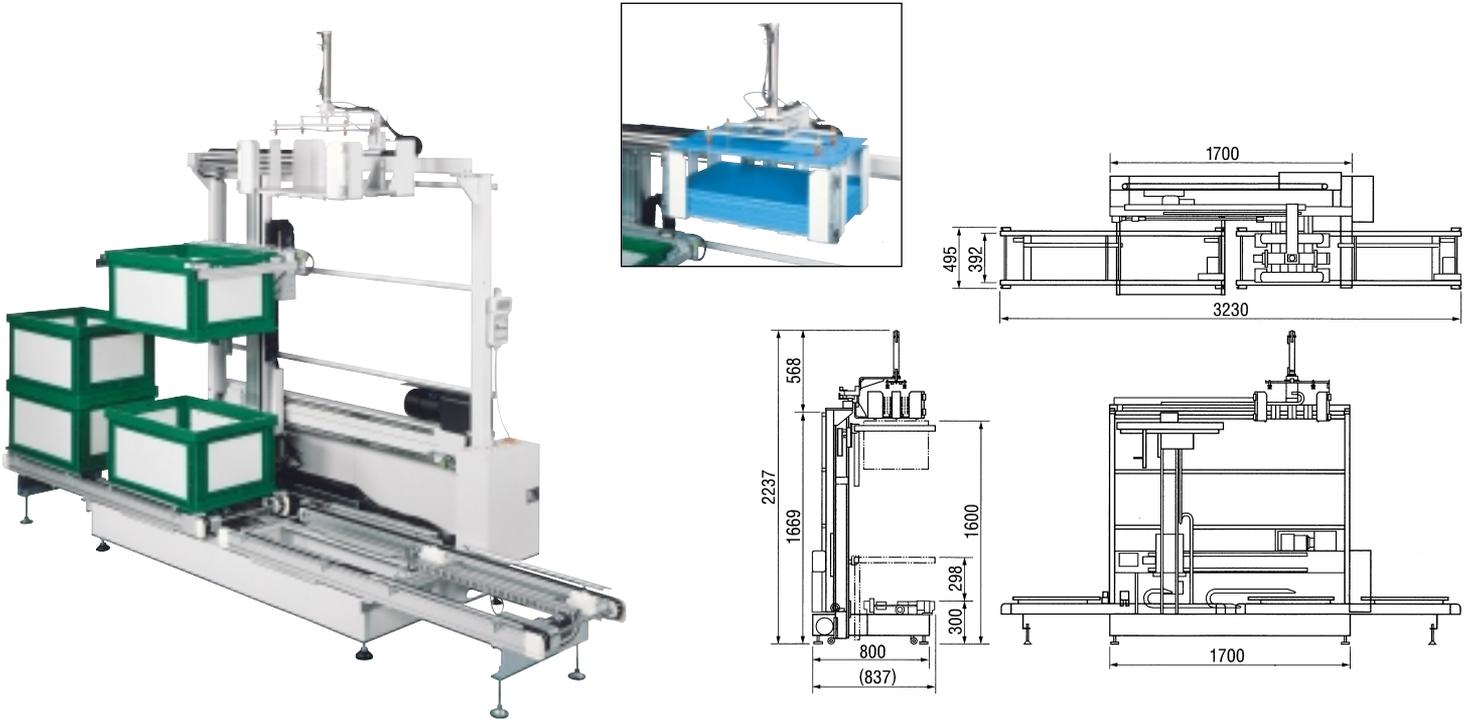


Features

- The linear layout of the cells of the Pallet Changer I-70III reduces the floor space required beside the IMM even allowing the future expansion of the buffer size.
- For axial robots or for special requirements, the version M-70III has the cell layout perpendicular to the container sliding movement
- Vertical axis and container boxing position are numerically controlled for high accuracy
- Automatic boxing operation can be achieved easily by linking this equipment with a traverse type automatic unloader
- Since this equipment has a numerically controlled vertical axis, it has the flexibility to work in conjunction with pallets of various depths
- Buffer conveyors for the empty containers feeding and for the delivery of the full containers are available together with the standard warning lamp
- Pendant type panel for easy operation

PALLET CHANGER IP-70III - (PALLET CHANGER MP-70III)

(for M-type foldable containers)



Features

- By installing an interleaf supply unit, it is possible to separate layers in deep containers thus ensuring the quality of the parts is maintained
- Increased the loading capacity (double of FA container specification one)

Pallet Changer model	Power source	Maximum power requirement (kVA)	Air pressure (Mpa)	Air consumption (NI/cycle)	Container replacement period (s)	Max container weight (kg)	Max stack weight (kg)	Container type	Slide stroke (mm)	Vertical stroke (mm)	Driving method
C-70	AC 220/380/415V ±10% 50/60Hz three-phases	0.8	0.4~0.5	12.7	4 (based on the boxing time of more than 15 s)	7	50	F-70	650	-----	Inverter motor Pneumatic cylinder
I-70III M-70III		1		3	11	15	70	F-70 F-40I (25h~125h)	850 (specifiable to 1 mm)	1240 (specifiable to 1 mm)	
IP-70III MP-70III				1	1			20		M-40 M-70	
J-40 J-70		3.6		25	7	25	F-70 F-40I (25h~125h)	800 (fixed)	1240 (specifiable to 1 mm)		

PALLET CHANGER J-40 / J-70

(for F-type containers)

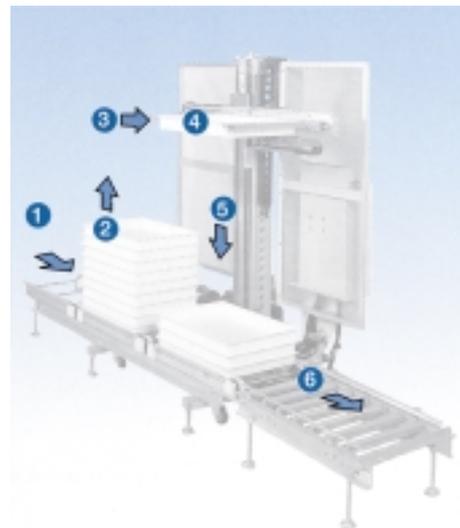
Features

- Automatic boxing operation can be achieved easily by linking with traverse type NC controlled automatic unloader
- Vertical axis is numerically controlled for high stop accuracy and flexibility to work in conjunction with pallets of various depth
- Equipped with buffer conveyors for delivery and removal

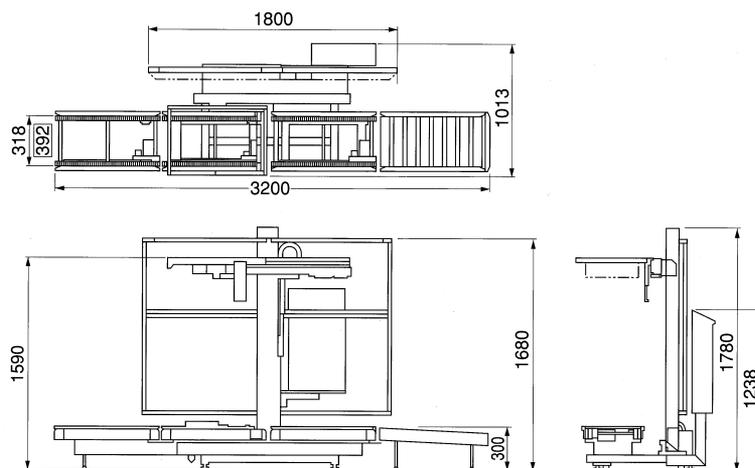


Operation diagram

1. empty containers delivery
2. empty containers lift
3. move to boxing position
4. boxing position
5. stacking of full containers
6. full containers removed



Outer dimensions (mm)



* Figure in shows the size for F-70 container type.

STARBOY - the lead player in automated transport lines



SPECIFICATIONS	
turns adjustment	based on speed difference
containers stack transfer	via belt
container working height	300 mm from the floor
max speed	60 m/min
stopping accuracy	± 5 mm
minimum turning radius	1000 mm
vehicle weight	less than 100 kg
max payload	50 kg
guide	on magnetic band
dimensions	1036 x 465 x 400h mm
safety devices	<ul style="list-style-type: none"> • bumpers • proximity and interference sensors • alarm warning lamp • emergency button • buzzer

Features

- The Automatic Guided Vehicle Starboy allows, when used together with other factory automation modules like Pallet Changers, the automatic transport of the containers with moulded parts from the production area to the midway buffer and to the delivery area
- One or more Starboys that, linked to the traffic supervisor, feed the empty containers and carry away the full containers from the IMM area so achieving the total automation
- The AGV Starboy is programmable in order to serve different IMM's and to follow specific paths that can be easily modified thanks to the adhesive magnetic band on the floor
- Latest technologies like the optical communication, the band detection, and the high performance motor make this AGV the leader in the transport of containers for moulded parts

FA CONTAINERS - Standard containers for moulded parts handling

All Factory Automation modules allow an efficient handling of the moulded parts using standard plastic containers or customer specific containers. The wide range of standard containers has not only the FA and the PATACON series, but also conductive, coloured and many others types of containers (A, K, M, N, NM, R, S Series etc).

FA containers

The stackable containers FA Series are suitable either for bulk or ordered release of the moulded parts and are available in 2 sizes (F-40I e F-70) with different heights. A thermoforming sheet, especially designed for the specific moulded part shape, can guarantee to keep their right position.

PATACON containers

The PATACON containers, light and rigid, are stackable and foldable so allowing a reduction of the required volume by 1/3 or 1/6. They are available in many sizes according to their capacity (volumes from 25 to 70 litres).

The main use of this type of container is for parts in bulk way but, when the separator sheet is used, also the ordered parts can be stocked.



Type	Model	Length (L) (mm)	Width (W) (mm)	Height		Container weight (g)
				Internal (mm)	External (mm)	
F-40I	15h	474 (518 mm on the outside)	300 (344 mm on the outside)	10	32.5	330
	25h			20	42.5	410
	50h			45	67.5	420
	75h			70	90	460
	100h			95	115	500
	125h			120	140	540
F-70	25h	578 (622 mm on the outside)	373 (417mm on the outside)	20	42	470
	50h			45	67	570
	75h			70	90	590
	100h			95	115	640
	125h			120	140	690
M	25 (l)	500 (544 mm on the outside)	326 (364 mm on the outside)	152	169	1250
	30 (l)			182	199	1350
	40 (l)			243	260	1490
	50 (l)	604 (650 mm on the outside)	399 (439 mm on the outside)	206	223	1850
	60 (l)			247	264	1950
70 (l)			288	305	2050	



FA CONVEYOR

The most suitable system for the containers stocking

Using these modules of Conveyors a buffer beside the IMM can be created and designed according to the space available.

The ideal layout can be chosen because these cells are independent thanks to the presence of limit switches, motor on each cell thus allowing the highest flexibility. This way the use and the maintenance of the buffer are easier and quicker.

Light aluminium structure on rollers allows the easiest modification of the buffer.

Despite the cells work normally with standard containers FA type, even customised containers can be used for specific projects.

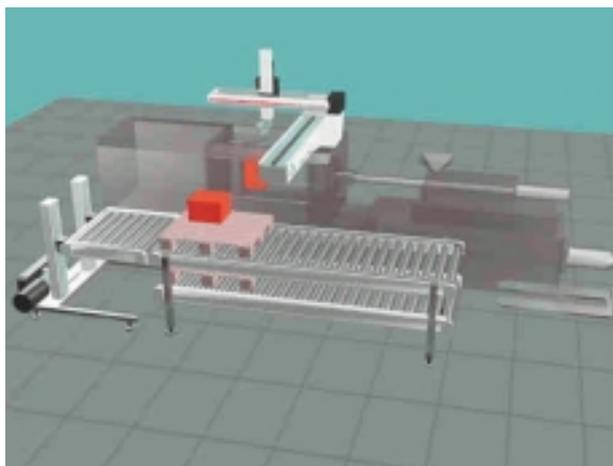
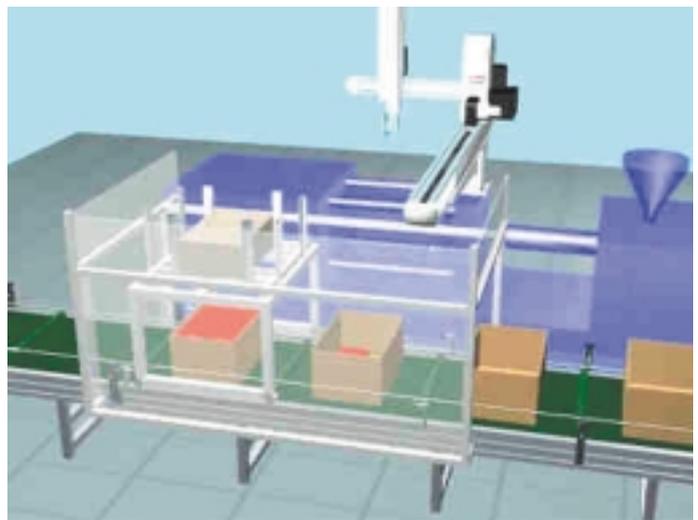
Using these FA Conveyors, the transport of stack of containers can be managed by standard AGV Starboy type.

BELT CONVEYOR

Boxing of moulded parts inside cartons

When a CNC robot releases the moulded parts inside a carton box, the simple conveyor belt can move the boxes and this complete automation (managed by the robot controller) can increase the autonomy of the whole production cell.

Separation sheets are automatically released over the parts so allowing the creation of different layers of products and guaranteeing the final product quality.



EUROPALLET-CHANGER

Europallet handling beside the IMM

This automation receives the moulded parts released by the CNC robot and allows the stacking on a single Europallet beside the IMM.

The autonomy of the production cell corresponds to the filling time of 3 Europallets.

The robust structure of the rolling device assures the correct handling of empty and full Europallets even with big size or very heavy parts.

The arrival of the empty Europallets and the delivery of the full ones will be done by the operator, eventually using the forklift.



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