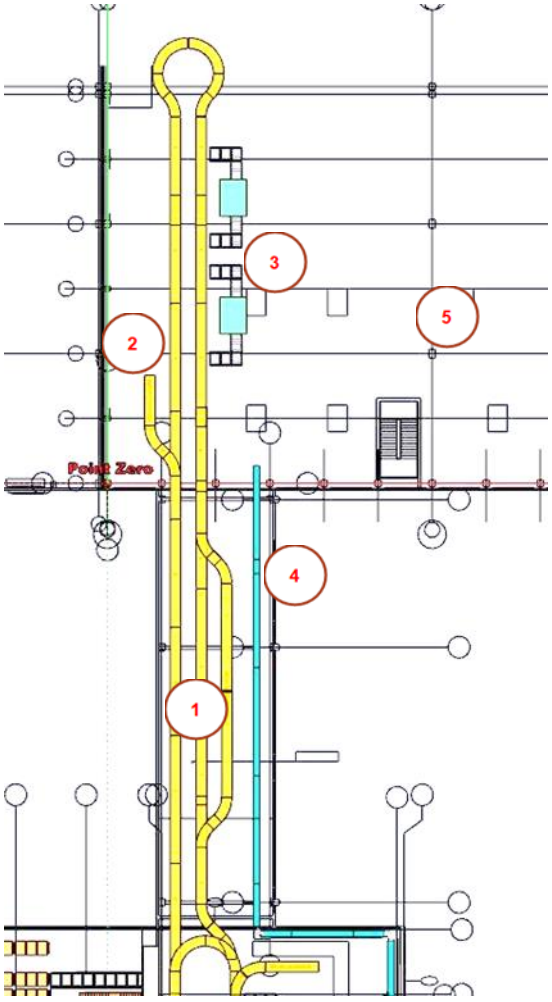


Figure 2-10: Layout connection existing building via bridge

1) RGV system in the bridge between new and existing building, including a waiting area for empty vehicles
2) RGV system maintenance centre (on a mezzanine in the existing building)
3) Vertical conveyors / lifts to connect the 1st floor to the Ground Floor in the existing building
4) Conveyor for filled shipping totes from the Picking Gallery in the bridge for transport to the shuttle and dispatch area in the existing building
5) Shuttle and dispatch area outgoing goods in existing buildings (layout in progress)

2.3.2. Logistical processing within new building

From the inbound area (see figure 4, point “2”) an industrial truck transports the provided load carriers (EURO, CHEP EPAL Plastic Pallets) to the inbound stitches (see figure 4, point “3”); for this transport, the industrial truck can pick up 2 pallets on a long fork and also transfer them simultaneously to the transfer stations of the pallet conveyor system.

From the inbound stitches the pallets will be transported to the RGV-system on the Ground Floor (see figure 4, point “5”).

Via the RGV system, the pallets are fed to the storage sections for storage in the HBW; after transfer from the RGV system, the pallets are stored in the individual aisles of the HBW (see figure 4, point “7”).

The two lifts (see figure 4, point "8") are supplied and removed by the RGV system and connect the 1st Floor. Pallets from the incoming goods area can be fed directly to the outgoing goods area in the existing building via these lifts with subsequent transport over the bridge.

In addition, the pallets from the repacking area, which are to be stored back in the HBW, are transported via the lifts from the 1st Floor to the Ground Floor to the storage level.

Pallet stacks with empty pallets after repacking are transported via the lifts from the 1st Floor to the ground floor and then removed from storage via the top conveyor section in the pallet feed area (see figure 4, point "3"), taken off by an industrial truck and fed to a buffer for empty pallets. There is also the option of transporting the pallet stacks on the first floor via the bridge between the new and existing building. In this case, the pallets on the ground floor in the existing building are removed from the pallet conveyor system by industrial trucks and transported to a defined area.

Pallets with empty shipping totes are placed in the existing building to be stored in the HBW (see figure 6, point "1"). From there, the pallets are fed to the first floor via the lifts (see figure 6, point "3"), taken over by the RGV system, transported to the new building via the RGV system, transferred to the vertical conveyors in the new building (see figure 7, point "5"), transported to the ground floor in the new building via the vertical conveyors, taken over there by the RGV system on the ground floor and transported to the storage lines in front of the HBW, transferred there to the storage lines and then stored in the HBW.

To retrieve the pallets from the HBW, they are transferred from the storage and retrieval machines on the first floor to the retrieval lines (see figure 7, point "2"), from where they are fed to the following possible destinations via the RGV system (see figure 7, point "3"):

- the pallet conveyors for feeding the workstations for manual depalletising of the shipping totes (see figure 7, point "6"),
- the pallet conveyors for supplying the workstations in the repacking area (see figure 7, point "8"),
- the lifts (see figure 7, point "5") for transport to the Ground Floor or
- the lifts in the existing building (see figure 10, point "3") to be transported from there to the Ground Floor and made available for removal by the pallet conveyor system (see figure 6, point "2").

The pallets with the shipping totes to be depalletised are manually depalletised at the two workstations (see figure 7, point "7") and the empty pallets are fed to an automatic palletiser (turquoise in figure 7), automatically palletised and then fed via the pallet conveyors and the RGV system to the lifts (figure 7, point "5") for transport to the Ground Floor. In the future the process of depalletising is expected to be automated and located in the same area.

The pallets are retrieved from the HBW to supply the repacking area and fed to the following destinations via the pallet conveyor system and cross-distribution trolleys.

- the manual workstations for repacking the article quantities into storage totes (see figure 8, point "1" or

- the robots (see figure 8, point "2") for automatic depalletising of filled storage totes from the pallets for replenishment of the Picking Gallery.

When the pallets become empty after repacking, they are fed from the manual work stations and from the work areas of the robots via cross-distribution trolleys and pallet conveyors to automatic empty pallet stackers (turkish to the left of the manual work stations in figure 8), After automatic stacking, the empty pallet stacks are transported to the Ground Floor via pallet conveyors and the RGV system and lifts (see figure 7, point "5"). There is also the option of transporting the pallet stacks on the first floor via the bridge between the new and existing building. In this case, the pallets on the ground floor in the existing building are removed from the pallet conveyor system by industrial trucks and transported to a defined area.

At the manual workstations in repacking, the article quantities are repacked into storage totes; empty storage totes are fed to the workstations via tote conveyor technology; the filled storage totes are either palletised manually onto an empty pallet at the workstation or fed to the robots for automatic palletising via tote conveyor technology.

After manual or automatic palletising, pallets with filled storage totes are transported back to the HBW for storage via the pallet conveyor system and the RGV system.

If items from the HBW that have already been repacked into totes are required for replenishment in the Picking Gallery, these pallets with totes are removed from the HBW and fed to the robots for automatic depalletising.

If faulty pallets are detected in the repacking area, they are fed to the Not-Okay station for further processing via the pallet conveyor system (see figure 8, point "7").

The formed filled storage totes or depalletised filled storage totes are transported to the automatic shuttle warehouse in the Picking Gallery via tote conveyor technology and transferred to the different levels in the shuttle warehouse for storage on the shuttle vehicles via conveyor technology on 3 levels and lifts for totes.

The shipping totes manually depalletised and unfolded at the workstations (figure 8, point "3") are checked at the checking station (figure 8, point "4") (weight, unfolding, barcode, RFID chip, soiling) and then transported to the picking levels in the Picking Gallery via a tote conveyor system.

In the Picking Gallery area, the storage totes are buffered in 12 rows of shelves for replenishment of the picking locations and transferred to the picking location as required. The picking locations are each located on 3 levels (see figure 9, points "1-3") and in 6 aisles. The empty shipping totes are transported to the various picking zones using conveyor technology. In the picking zones, the pickers are instructed via pick-by-light technology which tote articles are to be picked in which quantities in the individual shipping tote.

Empty storage totes produced after picking are manually transferred to the tote conveyor system for the shipping totes in the picking zones and transported from there via the tote conveyor system for the shipping totes and the empty storage totes to buffer sections for empty storage totes in front of the workstations in repacking. If there are too many empty storage totes in the system, these can be fed to the robots in repacking for palletising onto pallets; these pallets are then stored in the HBW. If these pallets are needed again, they are transported back to the robots in repacking, the totes are automatically depalletised and the empty totes are made available again for the workstations in repacking on the buffer sections.

Storage totes from the shuttle warehouse in the Picking Gallery area that are subject to a special check or inventory are either removed from the storage positions or the picking locations in the shuttle warehouse and transported to the multifunctional workstations on the 1st floor in the Repacking area (see figure 8, point "6"). After processing, these totes can be transported back to the automatic shuttle warehouse in the Picking Gallery area.

The shipping totes completed after picking are transported from the picking zones via the tote conveyor system in the Picking Gallery area, the repacking area, the HBW pre-zone on the first floor and in the bridge between the new and existing building (see figure 10, point "4") to the shuttle warehouse in the existing building (see figure 10, "4"). A Not-Okay station is provided in the existing building for checking the shipping totes after commissioning.

From the shuttle warehouse in the existing building, the shipping totes are retrieved according to the stores for which they are intended and then automatically stacked in 6 or 10 totes on dollies and then prepared for dispatch and loading.

2.3.3. Load carriers

The storage and transport units used are specified below. Unless other requirements are explicitly stated, these specifications apply to the entire system. All transport units comply with the usual manufacturing and wear tolerances in form and condition.

The Logistic Contractor is obliged to inspect the conveyed and stored goods personally and in a sufficiently large random sample before submitting an offer and to obtain full information about its properties. The technology used must be optimally designed for its purpose.

The functionality of the storage and conveying technology is achieved when even goods of inferior quality can be transported, stored and removed in continuous operation without disruptions. In particular, it must be ensured that all load carriers accepted by the dimensions, size and weight control stations can be transported and stored error-free in the entire system.

2.3.3.1. Storage tote

Storage totes are used as a buffer for picking sources within Picking Gallery. They will be created / filled with goods in the Repacking area (repacking of goods from supplier pallets).

After creation they will be put / stacked onto pallets and then those pallets will be buffered within HBW or send to the Picking Gallery system (into storage buffer or directly into picking channels).

Storage totes onto pallets will be transported to repacking, destacked and send to Picking Gallery as well.

Basic dimensions (L x W x H)	600 x 400 mm x 280 mm (outer dimensions)
Tare Weight:	approx. 3 kg
Total Weight:	max. 30 kg

2.3.3.2. Shipping tote

Shipping totes are used as picking destination within Picking Gallery system.

They are buffered folded (empty) on pallets within HBW. At unfolding stations they will be unfolded manually, buffered stacked on a shipping totes buffer and after destacking send to picking stations in

the Picking Gallery. In the future the process is planned to be done automatically, however the flow remains as described.

Basic dimensions (L x W x H)	600 x 400 mm x 320 mm (approx. outer dimensions)
Tare Weight:	approx. 3 kg
Total Weight:	max. 30 kg

Refer to appendix document “09-FKE64313VB-Rossmann-Version1-d006.pdf” for a more detailed specification.

2.3.3.3. Euro-Pallet

The Euro-Pallet is the most used load carrier in the warehouse. It is used as a storage for supplier / original pallets and stacked storage totes. Different types of Euro pallets are used:

- ***Wooden Euro-Pallet***

Basic dimensions (L x W x H):	1,200 x 800 mm x 144 mm, with a maximum overhang of 50 mm on each side
Tare Weight:	25 kg
Total Weight:	max. 1,000 kg

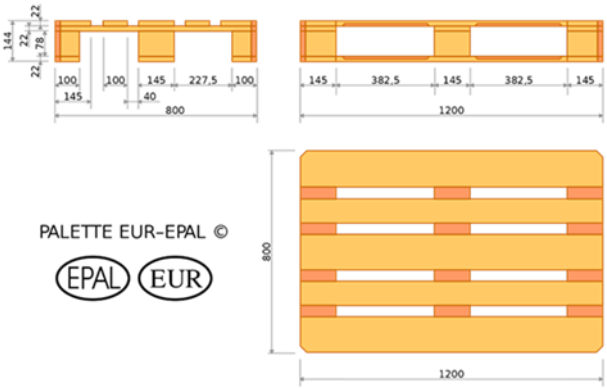


Figure 2-11: Load carrier wooden Euro-Pallet

- ***Plastic Euro-Pallet***

Basic dimensions (L x W x H):	1,200 x 800 mm x 144 mm, with a maximum overhang of 50 mm on each side
Tare Weight:	20 kg
Total Weight:	max. 1,000 kg

EPAL Euro Pallet

Max. size in the width 800 + 3 mm → 803 mm
Max. size in the length 1,200 + 3 mm → 1,203 mm

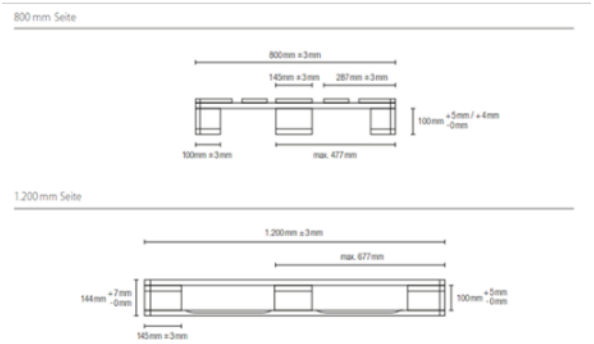


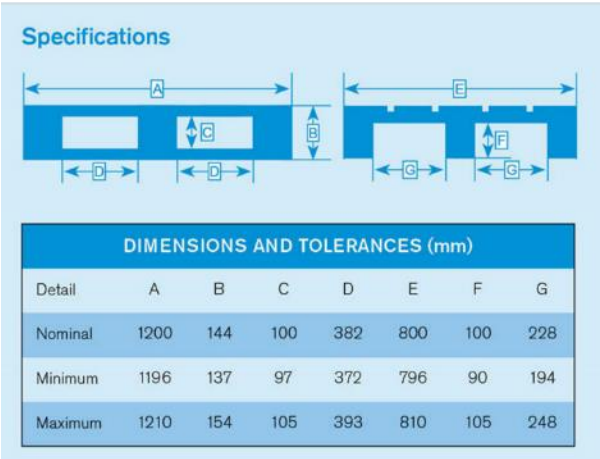
Figure 2-12: Load carrier EPAL Plastic Euro-Pallet

- ***Wooden Chep Euro-Pallet***

Basic dimensions (L x W x H):	1,200 x 800 mm x 144 mm, with a maximum overhang of 50 mm on each side
Tare Weight:	25 kg
Total Weight:	max. 1,000 kg

Chep Euro Pallet

Max. size in the width 800 + 10 mm → 810 mm
Max. size in the length 1,200 + 10 mm → 1,210 mm



DIMENSIONS AND TOLERANCES (mm)							
Detail	A	B	C	D	E	F	G
Nominal	1200	144	100	382	800	100	228
Minimum	1196	137	97	372	796	90	194
Maximum	1210	154	105	393	810	105	248

Figure 2-13: Load carrier Chep Euro-Pallet

The form and condition of the transport / storage equipment correspond to the usual manufacturing and usage tolerances.

The contractor is obliged to inspect the conveyed and stored goods personally before submitting an offer and to obtain full information about its properties.