

BOSCH SECURITY SYSTEMS

TRANSPORTATION STYLEGUIDE

BT | Transportation Styleguide | Version 2.0

Transportation Styleguide

Content

1 INTRODUCTION **3**

2 PALLET STANDARDS AND MODULARIZATION

Pallets as loading equipment 4

Area modules and multiples 4

Pallet configuration 5

Pallet stacking and Logistics 6

Container configuration for sea freight 6

Quick Recap 7

CONTACT AND SUPPORT **8**

Transportation Styleguide

Introduction

This appendix is applicable for SUPPLIER.

The following principles are applicable as an appendix to the agreements and rules made with the SUPPLIER relating to the official Logistics Supplier Manual (available on SupplyOn portal), to reinforce compliance and guidance on following functions:

Protective function

The protective function of packaging essentially involves protecting the contents from the environment and vice versa. The inward protective function is intended to ensure full retention of the utility value of the packaged goods. The packaging is thus intended to protect the goods from loss, damage and theft.

Storage function

The packaging materials and packaging containers required for producing packages must be stored in many different locations both before packaging of the goods and once the package contents have been used. Packaging must thus also fulfill a storage function.

Loading and transport function

The most efficient method of handling general cargo is to make up cargo units. Packaging should thus always facilitate the formation of cargo units; package dimensions and the masses to be accommodated should where possible be tailored to the dimensions and load-carrying capacity of standard pallets and containers.

Service function

The various items of information printed on packaging provide details about the contents and use of the particular product.

Correct and complete marking of packages helps to prevent incorrect handling, accidents, incorrect delivery, losses of weight and volume and Customs fines.

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Pallet standards and Modularization

Pallets as loading equipment

Packaging sizes are in particular adjusted to the internationally standard pallet dimensions of **1200 mm x 1000 mm** and **1200 mm x 800 mm (EUR)**. Using standard pallet dimensions firstly has economic advantages (better utilization of payload area). Secondly, there are technical advantages because the cargo may accordingly more readily and safely be secured on the pallet.

Bosch BT standard pallet is an ISO Pallet **1200 mm x 1000 mm** and material should be wooden and treated according to international rules ([ISPM 15](#)). A country list with the international standards for phytosanitary measures is available under IPPC phytosanitary standards.

Area module and multiples

The area module in the transportation chain is a rectangle of **600 mm x 400 mm**, and multiple is defined as any rectangle which may be formed without gaps from an integral multiple of the area module. The gross weight limit per manually handled package should be less than 8kg according to Ergonomics (**CD 04605** and IGEL analysis).

The following tables show an overview of the number and arrangement of packages of varying sizes on pallets:

1200 mm x 1000 mm pallet:				1200 mm x 800 mm pallet:			
600 x 400	5			600 x 400	4		
300 x 200	20			300 x 200	16		
300 x 400	10			300 x 400	8		

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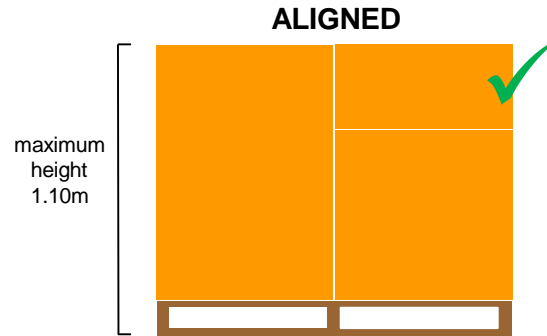
Pallet standards and Modularization

Pallet configuration

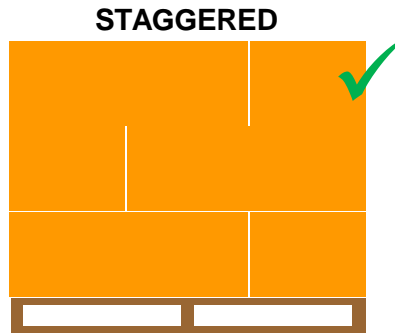
The greatest possible height and maximum payload of a loaded pallet depends on the way of transportation and the used service provider.

The optimum pallet height is **1100mm** (including pallet).

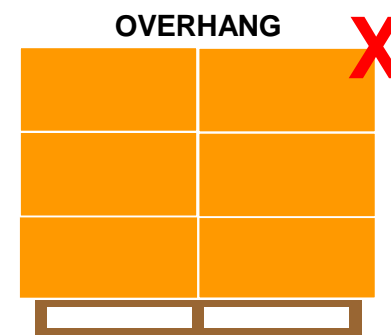
Air freight: The maximum pallet height is 1600mm/1700mm (including pallet) .



This is the ideal configuration.



Still OK, but may result in a 33% structural weakness



Not allowed – Up to 40% reduction in strength



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Pallet standards and Modularization

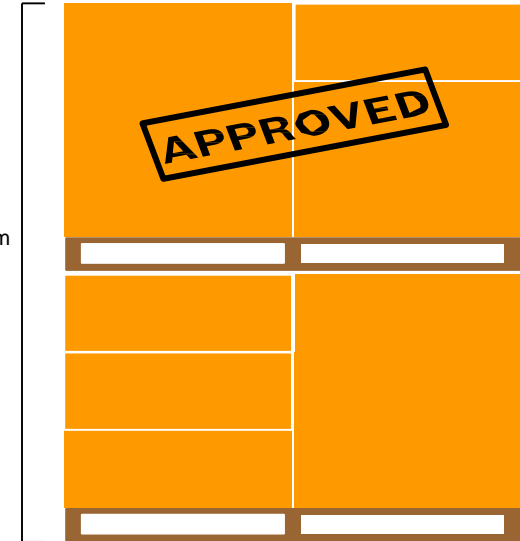
Pallet stacking

Stack factor: The stacking factor defines the number of identical parts /load carriers that can be stacked on top of one another. The stack factor is defined as follows (fig.1):

stack of 2 (1+1)

- **Maximum height of stacking 2200mm (2.20m)**

maximum height 2.20m



(fig.1)

Container configuration for sea freight

Standard containers are also known as general purpose containers.

Standard containers are mainly used as 20 and 40' containers (length).

For loading proposes, door opening dimensions are the most relevant dimension regarding stacking height:

- **20' and 40' standard container Door Openings (fig.2)**
- **Arrangement proposals of standard pallets in shipping (fig.3)**

Door openings	
Width	Height
[mm]	[mm]
2340	2292

(fig.2)

20' STANDARD	10 standard pallets 1,2 x 1,0m	
	11 europallets 1,2 x 0,8m	
40' STANDARD	21 standard pallets 1,2 x 1,0m	
	25 europallets 1,2 x 0,8m	

(fig.3)



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Pallet standards and Modularization

Here's a quick recap of packaging design criteria and pallet modularization best practices:

- ✓ The packaging concept proposed by SUPPLIER is subject to approval by BOSCH prior to the first delivery.
- ✓ Cartons with the same product should be loaded together on the same pallet(s) whenever possible.
- ✓ Maximized filling level of packages and loading units to minimize transportation costs.
- ✓ The gross weight limit per manually handled package should be less than 8kg according to Ergonomics (**CD 04605** and IGEL analysis): alternative agreements can be made to accommodate specific requirements or for reason of regional regulations.

Here's a quick recap of pallet stacking and container configuration best practices according ISO standards:

- ✓ Never stack mixed sizes of pallets.
- ✓ Never stack pallets in different directions.
- ✓ Use pallet stacking frames as cardboard corner protection or strapping to stabilize the load.
- ✓ Never reuse damaged pallets.
- ✓ Pallets shall be designed as 4-way pallets with three runners.
- ✓ Readjust pallet height according to your freight method (air, sea, truck)
- ✓ Keep stacks at a safe height.
- ✓ Secure cargo with lashing or dunnage air bags to prevent shifting and minimize movement.

Contact and Support

Bosch Sicherheitssysteme GmbH

Logistics (BT/LOG)

Robert-Bosch-Ring 5
85630 Grasbrunn
Germany