

 **HPE-CERTIFIED**  
CUSTOM PACKAGING



**PACKAGING GUIDELINES**

 **HPE-CERTIFIED**  
CUSTOM PACKAGING

2018 VERSION

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## 6. Outer packaging

Load-bearing packaging has to withstand different, higher loads when lifted (bending forces on the bottom, transverse pressure on the lid) compared to non-load-bearing.

Other internal and external forces, such as horizontal, vertical, and far reverse acceleration, stacking pressure, and so on, are identical for all packaging units, provided that they can be stacked.

Load-bearing packaging also:

- keeps together those goods comprising individual units, bracing unstable goods and enables stacking
- stabilises the packaged goods (prevents them from tilting and rolling) – this is particularly important for top-heavy goods, goods with an off-centre of gravity and goods with a small standing area
- ensures even distribution of the load on the floor, if necessary by providing suitable support or enlarging the standing area and thus avoiding excessively high surface pressure (load-bearing properties of ship's decks, containers and aircraft)
- if necessary, braces individual pieces within the packaging against each other
- guarantees that packaging units can be handled equally by industrial trucks and other lifting gear and can be stacked
- prevents mechanical damage to the packaged goods.

We can distinguish the following packaging means based on their construction features, resulting from differing requirements with regard to packaged goods and their sensitivity:

- Cases
- Crates
- Panel packaging

## Cases

A case is a rigid hollow construction that can be handled and loaded according to the load assumptions in these guidelines (see Section 2). It consists of six construction elements, assembled at right angles to each other. The surfaces form a solid casing.

It may be necessary to use angled lid surfaces (profiled case) when the maximum loading dimensions (profile) are exceeded.



Example: Case for packaging with a slanted lid surface. Source: HPE



Example: Crate for packaging with a flat lid surface. Source: HPE



Example: Panel packaging unit. Source: HPE

## 6. Outer packaging

## 6.3. CONSTRUCTION FEATURES

## Case/crate

A load-bearing case or crate has three components:

- a) The bottom 1
- b) The side and end walls 2, 3
- c) The lid 4

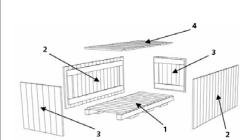


Fig. 17: The parts of a case. These are described in detail on the following pages. Source: HPE

## 6.3.1. TYPES OF LOAD-BEARING CASES

## The structure of a case is determined by:

- the dimensions of the packaged goods;
- the net weight;
- the load assumptions.

## 6. Outer packaging

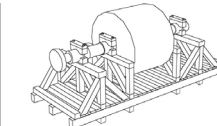


Fig. 41: Packaged goods supported for even load distribution on bottom. Source: HPE

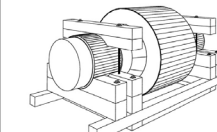


Fig. 42: Load transferred to outer surfaces. Source: HPE

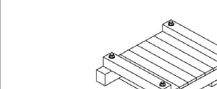


Fig. 43: Slitter and walls for heavy goods, cases and crates, type B2 and B3. Source: HPE

## 8. Container stowage

## 8.7.2. STRENGTH OF CARGO-SECURING EQUIPMENT IN CONTAINERS

Table 19: Strength of cargo-securing equipment in containers

Equipment	Strength
W Container	Lashing only
W Container	
W Open Top	
W Open Top	
W Flat	5.000 - 5.000 daN**
W Flat	5.000 - 5.000 daN**

\* The maximum securing load in cases, containers and total 20'40'. The loading may on the upper longitudinal endwalls be over the maximum securing load of 5.000 daN.

\*\* Minimum lashing only on longitudinal beams - the maximum securing load is 10.000 daN.

\*\*\* Valid in the EU.

## 8.8. PACKAGING AND STOWAGE 8.8.1. PACKAGING ADVICE

Different handling loads apply to the FCL and LCL shipping methods. This can have an effect on the design of the packaging.

- Collective shipment (LCL): atmospheric protection + rigid outer packaging
- Door-to-door container (FCL): atmospheric protection + rigid outer packaging or atmospheric protection on design of some other bottom structure



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