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MITTEILUNG NR.
NOTE NO.

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ZPA-17140011

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Changes

None – new release

Previous Editions

None – new release

1 SCOPE

This standard applies to all companies of Continental Automotive Divisions, their plants and departments.

2 REFERENCES

DIN 55423-5	Small load carrier systems – Dimensions and weights
DIN 55423-6	Small load carrier systems – Design, requirements and testing
DIN 53389	Testing of plastic, short examination of lightfastness
DIN 22244	Horizontal impact tests (Rangier shock)
DIN ISO 10531	Packaging- shipping ready – skill testing of unit loads (ISO 10531:1992)
DIN EN ISO 4892-2	Plastic – Methods of artificial irradiating or weathering from totes Part 2: Xenon lamps
DIN EN ISO 8611-1	Pallets for freight transport pallets- Part 1: Test methods EN ISO 8611-1:2004)

3 APPLICATION

General test – specifications for plastic pallets

4 GENERAL

The tests are carried out at 23°C (\pm 2°C), unless other temperatures are explicitly mentioned in the individual test specification.

The tests may be carried out at the earliest 72 hours after preparation of the pallets. The pallets should be stored up that time at room temperature.

1 Q = Test load = in pallets datasheet specified load

4.1 Deformation Resistance and Dimensional Stability

The dimensions L x B x H are checked at least three test samples.

The specified tolerances must be observed.

Subsequently, the test samples are heated up within a temperature cycle of 24 h to + 60°C , measured, cooled down to room temperature within 24 h, measured, further cooled down to - 30°C within 24 h and measured and again heated up within 24 h to room temperature and measured again.

The dimensions L x W x H may not vary by more than 0.5% compared to the delivery condition at room temperature.

4.2 Static Tests

For this purpose, the test loads are applied to the pallet in a practical manner without load unit fuse. Care must be taken to ensure that the test load is achieved.

Alternatively, the load may be controlled by appropriate devices such as, e.g. a tensile, pressure testing machine. For reproducibility, at least one complete layer of loaded bins must be located on the test pallet.

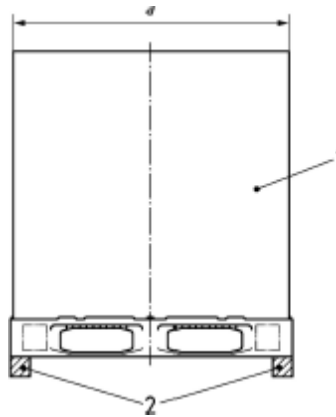
4.2.1 Ground Stacking

The pallet will be loaded with a test load (1 Q) for 30 minutes. The skids of the test pallet must not break or have cracks.

4.2.2 Stacking in Storage Rack

The pallet is loaded with a test load (1 Q), while the bottom plate or the skids resting on each 50 mm wide racks, which are flush with the outer edge of the pallet and shall not have sharp edges. They must be torsion-resistant in such a way that they do not affect the test results. Under these conditions, the pallet is loaded, while a deflection of 21 mm must not be exceeded on the 1200 mm long side

All test specifications see table (chap.7.3)



Picture: stacking in storage rack: 1 – Test load
2 – Skids support

4.2.3 Pressure Test

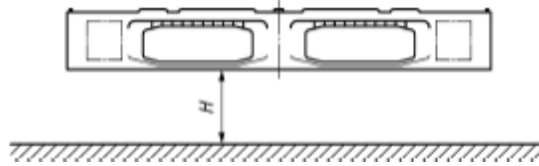
The pallet is loaded with a defined weight, where in the skids rest on a stable and horizontal ground level.

All test specifications see table (chap.7.3)
Cracks or visible breaks are not permitted.

5 DYNAMIC TESTS

5.1 Drop Test

The pallet is hanged up horizontal in 1 m height (**H**) and drops twice on the upper deck and twice on the skids. The test has to be carried out on three test pallets. It must arise neither fractures, chipping or cracks, nor deformations that affect the function.



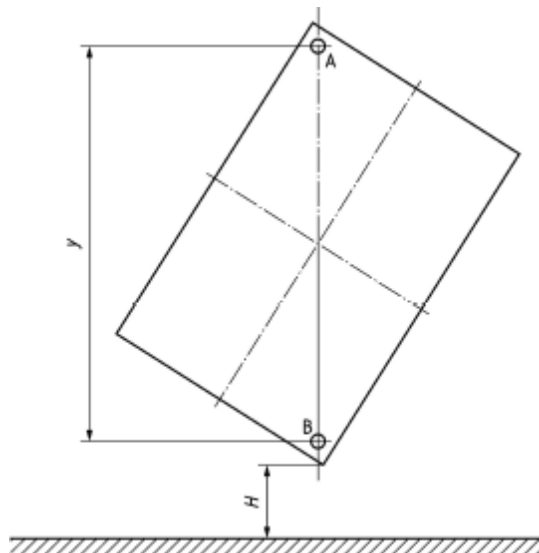
Picture: Drop Test

5.2 Corner Edge Drop Test

Tests have to be performed according to 8.9 in DIN EN ISO 8611-1 (2004-05) on the corner edge, with drop height (**H**). Three drop tests have to be performed per pallet.

All test specifications see table (chap.7.3)

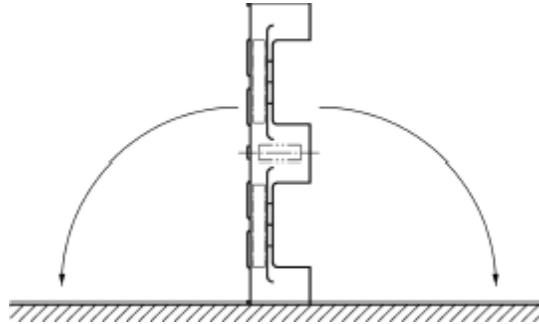
Measurements of the diagonal y have to be taken before the first and after the third drop test. The change in length in the impact diagonals must be $\leq 3.5\%$. Local deformations in the distance up to 100 mm around the place of impact are permitted. Cracks in the palette or the welding lines are not permitted.



Picture: Corner edges drop test

5.3 Tilting Test

Pallet has to be cooled down to -25°C and is placed on edge and will be overturned in both directions. It must arise neither fractures, chipping or cracks, nor deformations that affect the function.



Picture: Tilting test

5.4 Impact Test (Inclined plane)

It is carried out a horizontal impact of the loaded pallet on a wooden beam with a defined impact speed with an acceleration of -0.8 till -1.0 g of at least 150 milliseconds duration. The functionality of the pallet has to be conserved, there must not arise cracks or fractures.

5.5 Roller Conveyor Long-Term Test

A loading unit with 1 Q is moved on a powered roller conveyor in reverse 60 h. The distance between the roles of the conveyor must not exceed 210 mm.

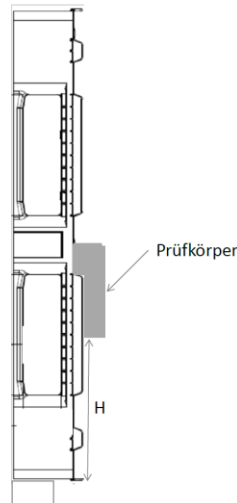
Visual inspection:

Abrasion and mobility will be described and evaluated.
Permanent deformation of the skids under 10 mm are acceptable.
Cracks or breaks are not permitted.

5.6 Impact Test on the outer Edge

The pallet is positioned vertically on a wooden beam, so that the outer edges are free. A steel test specimens of the dimensions 70 x 70 x 200 mm, all the edges provided with an radius R4, is dropped from a height H with the end face on the inside of the outer edges.

All test specifications see table (chap.7.3)
Cracks or breaks are not permitted.



Picture: Impact test on the outer edges

6 MATERIAL TESTS

6.1 Internal Pressure Test (only when pallets have closed skids)

The weld strength is performed at five already tested pallets as well as a range of one untested. It is respectively from a range of the following test

1. Shelf stacking
2. Drop test
3. Corner edges drop test
4. Shock drop test
5. Static test

The skids are drilled at 10 preloaded points. Subsequently, a pressure gauge is fitted with compressed air connection.

Two tests are provided:

- In the chambers, a pressure of 2 bar is introduced, it must be held for 10 minutes without appreciable pressure loss.
- In parallel, by appropriate means to check the tightness of the welds, leaks are not permitted

6.2 Wetting Agent Bath test

To test the material resistance to frequent cleaning, a new palette will be charged as a contribution to a network bath.

Following the pallet is examined by visual inspection for possible superficially visible changes or damage. Permitted are superficial, to 10 mm long and simply branched surface cracks. Longer, widely ramified or continuous cracks are not permitted.

7 HANDLING

7.1 Forklift Transportation

After DIN ISO 10531
Additionally $R < 2$ m to overturn ($R=1$ m)
Cracks and functional impairment deformations are not permitted.

7.2 Drop Test of Forklift Fork

According to DIN ISO 10531, but 15 cm drop high (chap.7.3)

7.3 Test Specifications

Below is the table to be used for the above-mentioned test procedures:

Designation	SAP CSE No	Size	4.2.2 Q=	4.2.3	5.2 H=	5.6 H=	7.2 H=
Heavy pallet	98-0789-1103-1-00	1200x800	850 kg	7 Q	2000 mm		2000 mm
Heavy pallet ESD	98-0789-1103-0-00	1200x800	800 kg	7 Q	1500 mm		2000 mm
Extreme heavy pallet CR-1	98-6000-0287-3-00	1200x800	1750 kg	7 Q	2000 mm		2000 mm
Light pallet	98-0348-1285-0-00	1200x800	400 kg	5 Q	2000 mm	300 mm	2000 mm
Light pallet CS-1	98-6000-0191-5-00	1200x800	800 kg	6 Q	2000 mm	400 mm	2000 mm
Light pallet CS-3	98-6000-0351-5-00	1200x1000	800 kg	6 Q	2000 mm	400 mm	2000 mm