

DLG Test Report 6909

Huber Technik Vertriebs GmbH

Cubicle 8GS WINGS

Durability, Handling/Installation, Slip Resistance, Deformability/Elasticity

OVERVIEW

A quality mark **“DLG-APPROVED for single value-determining criteria”** is awarded to agricultural products which have successfully passed a smaller-scope DLG usability test according to independent and recognized evaluation criteria. The test intends to highlight special innovations and key criteria of the test item. The test can focus on criteria from the DLG testing framework for full tests or on other individual features or qualitative criteria. The minimum requirements, the test conditions and procedures, as well as the evaluation guidelines of the test results are determined in consultation with a DLG expert group. They comply with the generally recognized technology rules as well as with scientific and agricultural knowledge and requirements. The successful test concludes with the publishing of a test report and the awarding of a quality mark which is valid for five years following the award date.

The DLG-APPROVED test for single value-determining criteria **“Durability, Handling/Installation, Slip Resistance, Deformability/Elasticity”** includes technical measurements on test stands and in the laboratories of the DLG Test Center. Slip Resistance as well as Deformability and Elasticity were measured, a Permanent Tread Load, an Abrasion Resistance Test as well as an Acid Test were applied. The test was based on the DLG Testing Framework for elastic stable flooring, as at April 2010. Other criteria were not investigated.

Quality mark additive **“Made in Germany”**

Additionally to the content of **“DLG-APPROVED for single value-determining criteria”** the quality management of the producer Huber Technik Vertriebs GmbH was evaluated. Only object of reflection was the production of agricultural floorings. This certificated and documented constant high product quality is shown in the additive **“Made in Germany”** for the cubicle HT 8GS WINGS.

Certification of the quality management is inspired by ISO 9001:2015. At the Audit of the production plant in Erding all processes which are responsible for constant high product quality were checked. The main focus was on the production process beginning at the raw materials procurement to placing the goods for delivery. After the first certification the production process will be evaluated on a regular basis.

EVALUATION – SUMMARY

The Huber HT 8GS WINGS Cubicle Roll tested here is an elastic flooring in the resting area of raised stalls was investigated regarding durability and comfort properties on test stands in the DLG Approved Test. During practical tests the installation, the size accuracy as well as cleaning were applied. The deformability is significantly better than the standard.

The tested cubicle HT 8GS WINGS is suitable as an elastic flooring in the resting area of raised stalls. A small amount of litter is necessary and recommendable.

Test Characteristic	Test Result	Valuation*
TECHNICAL CRITERIA		
Abrasion Resistance, Durability and Aging		
Abrasion Resistance	Good wear resistance	+
Permanent Tread Load	No permanent deformation	++
	No appreciable abrasion	+
Acid Resistance		
- Feed acid mixture	Resistant	+
- Uric acid	Resistant	+
- Sulphurous acid	Resistant	+
- Disinfection liquid	Resistant	+
- Peracetic acid	Resistant	+
Size Accuracy		
Deformation		
Handling and Installation		
Installation Personal Contribution	Justifiable Effort	O
Installation Instruction	Detailed and understandable	+
Cleaning and Disinfection		
Selfcleaning	Good	+
Daily Cleaning	No problem	+
Basic Cleaning and Disinfection	Good	+
ANIMAL RELATED CRITERIA		
Slip Resistance		
	Good on dry and wet surface	+
	Surefootedness very good	+
Deformability and Elasticity		
New condition	25.3 mm, very good	++
Endurance Test	27.1 mm, very good	++

* Evaluation range: + = resistant; O = limited resistant; – = not resistant

THE PRODUCT

Manufacturer and Applicant

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Product:
Cubicle HT 8GS WINGS

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Description and Technical Data

The tested cubicle HT 8GS WINGS is an elastic flooring

- For raised stalls
- Thickness approx. 49 mm
- Surface black rubber mat
 - Top coat with hammer top surface
 - Bottom with red fabric
 - Thickness approx. 9 mm
- Hardness Shore A: approx. 65
- Base of mattress consists of approx. 40 mm thick green foam panel, wrapped in plastic
- Installed as rolls

METHOD

TECHNICAL CRITERIA

Abrasion Resistance, Durability and Aging

In a standardized abrasion test with 10.000 cycles the top cover was grinded with an emery cloth (granulation 280) and a grinding pressure of 500 N (= 8.1 N/cm² surface pressure). The friction element was cooled continuously with water to prevent an influence of the generated heat during the abrasion test. The size of the grinded area was 61,5 cm².

The permanent tread load is measured on a test stand with a round steel foot in the standard test programme with 100,000 alternating loads at 10,000 N (corresponding to approx. 1,000 kg). The steel foot is adapted to the natural conditions as an “artificial cow foot”. The foot has a diameter of 105 mm and therefore a contact area of 75 cm²; the carrying edge of the hoof is simulated by a 5 mm wide ring.

Acid Resistance: Test samples of the cover were examined by a constant diving following DIN EN ISO 175:2000 (behavior of plastic against liquid chemicals). As liquid solutions acids of feed and excrements as well as disinfectant were used. During the test samples of the rubber cover (size: 30 mm * 30 mm) were immersed for 24 hours and 28 days at a room temperature of 20°C. The liquid solution was changed weekly. At the end of the testing the samples were rinsed off by distilled water and were dried for 24 hours. Before and after dipping weight, dimension, and shore (shore A) were measured. Visual changes, like loss of gloss, color changes and swelling or destruction and crystallization were evaluated additionally.

Size Accuracy: Dimensional Stability (hollow formation) of the flooring were evaluated following the installation instruction of the producer. Additionally a change of length and width was evaluated.

Handling, Installation

Installation of the flooring as well as the installation instruction were evaluated practically.

Cleaning and disinfection of the flooring were evaluated practically.

ANIMAL RELATED CRITERIA

Slip Resistance

The measurements were carried out with the Comfort Control test rig of the DLG test center. A loaded (10 kg) round plastic foot (105 mm diameter, with a contact area of 70 cm², 3 mm wide ring at the periphery of the ground) was pulled with a velocity of 20 mm/s across the mat.

At two farms 20 animals were directly observed while raising.

Deformability and Elasticity

The deformability is measured when the product is new and the permanent tread load is reproduced through a continuous beating with a calotte ($r = 120$ mm) and a penetration force of 2000 N (appropriate 200 kg).

TEST RESULTS IN DETAIL

Suitability

The tested cubicle HT 8GS WINGS is suitable as an elastic flooring in the resting area of raised stalls. A small amount of litter is necessary and recommendable.

Requirement for an unproblematic use is a suitable concrete bottom with a slope of minimum 3%, better would be 4%. Suitable litter is also very recommendable.

TECHNICAL CRITERIA

Abrasion Resistance, Durability and Aging

The depth of abrasion after 10,000 double cycles is 1.0 mm, which amounts 11% of the total surface level. 1.6 g of the material was rubbed off. The small amount of abrasion and the small depth of abrasion lead to a very good abrasion resistance of the flooring.

After the Permanent Tread Load at the test stand with 100,000 alternating loads at 10,000 N, no appreciable wear could be observed. No lasting deformation was determined.

Acid Resistance

The rubber mat was resistant against the tested liquids. The rubber mat seems to be suitable for the described usage.

Size Accuracy

There was no change of length or width after professional installation. Deformations have not been observed.

Handling, Installation

The installation instruction is detailed and understandable.

The installation can be done with justifiable effort, two people at least are necessary. Installed as rolls.

Cleaning and Disinfection

The self-cleaning effect is good and the daily cleaning of the surface is easy. Small amount of litter make it easy to keep the cubicle and the cow dry and clean. Due to the impermeable surface a disinfection (e.g. high pressure cleaner) is possible. During cleaning the cover a precleaning of the dirt is recommended. It is possible that moisture is accumulated under the cover. This could not be avoided. Cleaning and disinfection of the flooring must be done with liquids recommended by the company.

ANIMAL RELATED CRITERIA

Slip Resistance

The measurement by the mobile Comfort Control Slip Resistance Test Stand lead to a good slip resistance on dry and wet surfaces. The coefficient of friction (μ) is above the minimum value of $\mu = 0.45$. At two farms 20 animals were directly observed while raising. A very good surefootedness was observed. Slipping cows were not observed.

Deformability and Elasticity

In the ball penetration tests in new condition with a calotte ($r = 120$ mm), penetration depth was 25.3 mm. The resulting calculated bearing pressure of 10.5 N/cm^2 indicates a very low load on the carpal joints when lying down and getting up. Elasticity was measured following a permanent tread load exerted by a steel foot (contact area: 75 cm^2) with 100,000 alternating loads at 10,000 N. Following the endurance test, the penetration depth of the calotte increased from 25.3 mm to 27.1 mm. The bearing pressure decreased from 10.5 N/cm^2 to 9.8 N/cm^2 . This means that deformability and elasticity slightly increase.

Testing Medium	Concentration	Result after 24 hours	Result after 28 days	Valuation
Feed acid mixture				
	Concentrate, pH 2	No change	No change	Resistant
Excrement acid				
Uric acid	Saturated solution (0.4%)	No change	No change	Resistant
Sulphurous acid	5-6% SO_2	No change	No change	Resistant
Ammoniac	32% solution	No change	No change	Resistant
Disinfection liquid				
Stable antiseptic	2% solution of a product on basis of formic acid and glyoxyloic acid	No change	No change	Resistant
Peracetic acid	3000 ppm	No change	No change	Resistant

RESULT

The “DLG APPROVED test for single value-determining criteria” measures comfort and durability characteristics of Huber’s cubicle 8GS for usage in the resting area of raised stalls.

The cubicle HT 8GS WINGS has met the requirements of all criteria.

FURTHER INFORMATION

Please go to www.dlg-test.de/stalleinrichtungen to download more reports on animal welfare and cattle farming.

ABOUT DLG

In addition to being the executing body of well-known tests for agricultural engineering, farm inputs and foods, the DLG is also an open forum for the exchange of knowledge and opinions in the agricultural and food industry. Some 180 full-time employees and more than 3,000 volunteer experts are developing solutions to current problems. There are over 80 committees, working groups and committees who create the base of expertise for professional work. At the DLG, a great deal of specialist information for agriculture is created in the form of information leaflets and working papers, as well as articles in journals and books. DLG organizes the world's leading professional exhibitions for the agriculture and food sector. This contributes to the transparent presentation of modern products, processes and services to the public. Further information can be obtained under www.dlg.org/mitgliedschaft.

The DLG Test Center Technology and Farm Inputs

The DLG Test Centre Technology and Farm Inputs in Groß-Umstadt is the benchmark for testing agricultural products and farm inputs, as well as a leading testing and certification service provider for independent technology tests. The DLG test engineers precisely examine product developments and innovations by utilizing state-of-the-art measurement technology and testing methods gained from experience. As an accredited and EU registered testing laboratory the DLG Test Center Technology and Farm Inputs offers farmers and practitioners vital information and decision-making support for the investment planning of agricultural technology and farm inputs through recognized technology tests and DLG testing.

Please find all pictures, graphs, charts and seals in the official German version of the DLG test.