

Tested by experts: stable technology in practical use



DLG-APPROVED for lighting systems

In focus: animal welfare
and service life of lamps



Lighting systems – tested in practical use

The range of lamps and light systems available in the animal production sector is highly diversified. However, not all products are suitable for practical use, in which animal welfare conditions and the service life of the light installations are of crucial importance.

The practical tests for the DLG-APPROVED seal of quality for lighting systems are therefore focussed on the aspects of animal welfare, durability and cleaning.

Overview of the test criteria

Test criteria	Objectives
<p>Flicker-free lighting systems</p> <ul style="list-style-type: none"> • Does the light modulation frequency meet the requirements of the respective animal? • Measurement of the amplitude, wave form, frequency and modulation depth of the flicker (also at various dimming levels of various lamps within a product family). 	<p>Animal welfare</p> <p>Imperceptibly unstable light also places strain on the eye muscles and the nervous system of animals and disturbs the processing of sensory stimuli in the brain. Such stress factors can also trigger behavioural disorders.</p>
<p>Resistance to ammonia</p> <p>Simulated practical operation of approx. 10 years under animal house conditions. The test samples are exposed to controlled conditions for 1,500 hours in a climatic test cabinet:</p> <ul style="list-style-type: none"> • Temperatures up to 70°C • Relative humidity up to 70% • Ammonia concentration up to 750 ppm <p>During this process, the test samples are switched on and off in a sensible rhythm.</p>	<p>Durability</p> <p>The light systems must withstand the special conditions of ammonia laden stable air.</p>
<p>Cleaning resistance</p> <p>No damage or water ingress when sprayed using high-pressure cleaners:</p> <ul style="list-style-type: none"> • Spraying of critical functional areas • Reduction of the distance between the water nozzle and the surface of the test sample in stages with a constant exposure duration. • Material compatibility test with cleaning agents and disinfectants 	<p>Durability</p> <p>The light systems must withstand the regular use of high-pressure cleaners with partial exposure and sometimes aggressive cleaning agents and disinfectants.</p>

DLG-APPROVED: modular test set-up

Depending on the scope of the test, the DLG-APPROVED test mark is awarded for value-determining individual criteria or for a full test. The test mark is valid for five years as of the date on which it is awarded.



DLG-APPROVED for individual criteria

Assessment of the lighting system in the three individual criteria tests: freedom from flickering, resistance to ammonia and cleaning.



DLG-APPROVED full test

Lighting systems must successfully meet the criteria of freedom from flickering, resistance to ammonia, cleaning distance, user friendliness/handling, manufacturer instructions, energy consumption, animal welfare and human safety and must successfully pass the performance test and the IPX test.

The DLG-APPROVED test mark and the respective DLG test report provide you with an authoritative expert assessment and a powerful tool for your marketing mix. 80% of farmers regard test marks as relevant decision-making aids for investments. This is also combined with an extensive range of cross-media services to ensure your success amongst sales partners and customers.

Legislative and normative requirements

The German Animal Protection – Keeping of Production Animals regulation stipulates that sufficient lighting must be available to enable the monitoring and inspection of the animals at all times. The daily lighting intensity and lighting duration must correspond to the requirements of the respective species. Since the stable is also used as a workplace for humans, the Technical Rules for Workplaces (ASR 3.4) from the German Workplace Regulations also apply.

DLG Expert Knowledge pamphlets for Lighting in animal husbandry



Within the DLG committee for technology in animal production, leading experts have summarised the latest technical knowledge in three editions of the DLG Expert Knowledge series:

- DLG Expert Knowledge 415 'Lighting and lighting technology in cattle sheds'
- DLG Expert Knowledge 420 'Lighting technology for pig sties'
- DLG Expert Knowledge 438 'Lighting and lighting technology in poultry houses'

Download at: www.DLG.org/Merkblaetter (in German language)

DLG Test Center Technology and Farm Inputs

DLG has been testing and awarding certifications to agricultural machinery and farm inputs for over 130 years. DLG Test Center is the one of the leading agricultural institutes to test and certify tractors, machines and utility vehicles for field and on-farm operation, including farm inputs as well as forestry, municipal and garden equipment.

The Test Center in Gross-Umstadt provides farmers with valid information that represents an important decision-making aid for investments and practical implementation. Over 4,000 test reports and test results offer farmers clear orientation – from tractors, agricultural machinery and animal housing installations up to and including farm inputs.

Apart from applying DLG standards in its tests, the DLG Test Center also offers extensive testing services that apply national and international standards and regulations as a part of quality assessment programmes and customer-specific R&D requirements.

Further tests and services in the field of animal production

- More detailed light analysis based on the latest studies concerning particularly animal welfare lighting (e.g. determination of light yield, spectral components incl. UV component, light management)
- Technical safety analyses such as IPX tests, work safety requirements
- Analyses concerning material tolerability and the premature ageing of various products on exposure to typical influences from the animal production environment
- Testing of stable floor coverings for alleys and lying areas in cattle, horse and pig husbandry

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