

# DLG Test Report 6414

Bernard van Lengerich GmbH

## Straw blower V-Comfort Turbo

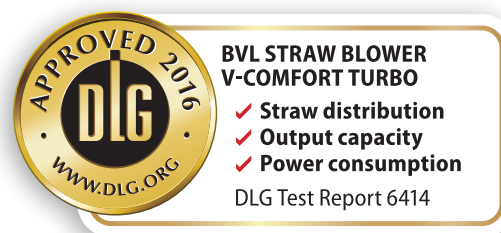
Straw distribution, output capacity, power consumption



**BVL STRAW BLOWER  
V-COMFORT TURBO**  
✓ Straw distribution  
✓ Output capacity  
✓ Power consumption  
DLG Test Report 6414

## Overview

A test mark "DLG-APPROVED for individual criteria" is awarded for agricultural products which have successfully fulfilled a scope-reduced usability testing conducted by the DLG according to independent and recognised evaluation criteria. The test is intended to highlight particular innovations and key criteria of the test object. The test may contain criteria from the DLG test scope for overall tests, or focus on other value-determining characteristics and properties of the test subject. The minimum requirements, test conditions and procedures as well as the valuation bases of the test results will be specified in consultation with an expert group of the DLG. They correspond to the recognized rules of technology, as well as the scientific and agricultural knowledge and requirements. The successful testing is concluded with the publication of a test report, as well as the awarding of the test mark which is valid for five years from the date of awarding.



The DLG-APPROVED test in the single criteria "Straw distribution, output capacity, power consumption" included measurements conducted under real-world conditions. The straw distribution, the throughput performance and power consumption were measured. Test basis was the DLG test framework for straw blowers, current as of June 2016. Other criteria were not tested

## Evaluation – short version

The straw blower V-Comfort Turbo, a straw blower mounted to BvL V-MIX trailed feed mixer wagon was examined with the DLG-approved individual test criteria under real-world conditions regarding the functional and performance properties.

Table 1:  
Results at a glance

Test feature	Test result	Assessment
<b>Straw distribution</b>		
Maximum throwing distance	30 m	++
Straw distribution	good	+
Output performance	very high	++
Power requirement	10.9 KW sec./kg	+

\* Evaluation range: ++ / + / o / - / -- (o = standard / n.e. = no evaluation)

## The product

### Applicant and manufacturer

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Product:  
Strohgebläse V-Comfort Turbo

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### Description and technical data

The straw blower V-Comfort Turbo tested here is a straw blower for the mounting onto a BvL trailed feed mixer wagon from the V-MIX series. It is used for the straw distribution in deep scattering stables.

The mechanically-driven straw blower is attached to the front of the feed mixer wagon. Alternatively, a mounting in the rear is also possible.

In order to reduce the dust, the feed mixer wagon can also be equipped with a water spraying nozzle (optional accessory).

In the test, the straw blower was mounted on a V-Mix Plus 20-2S feed mixer wagon with two mixing augers. Foreign objects, such as stones can be filtered out using the standardly attached stone trap. Optionally, BvL offers a reduction gear box, through which the power required for the starting torque can be reduced.

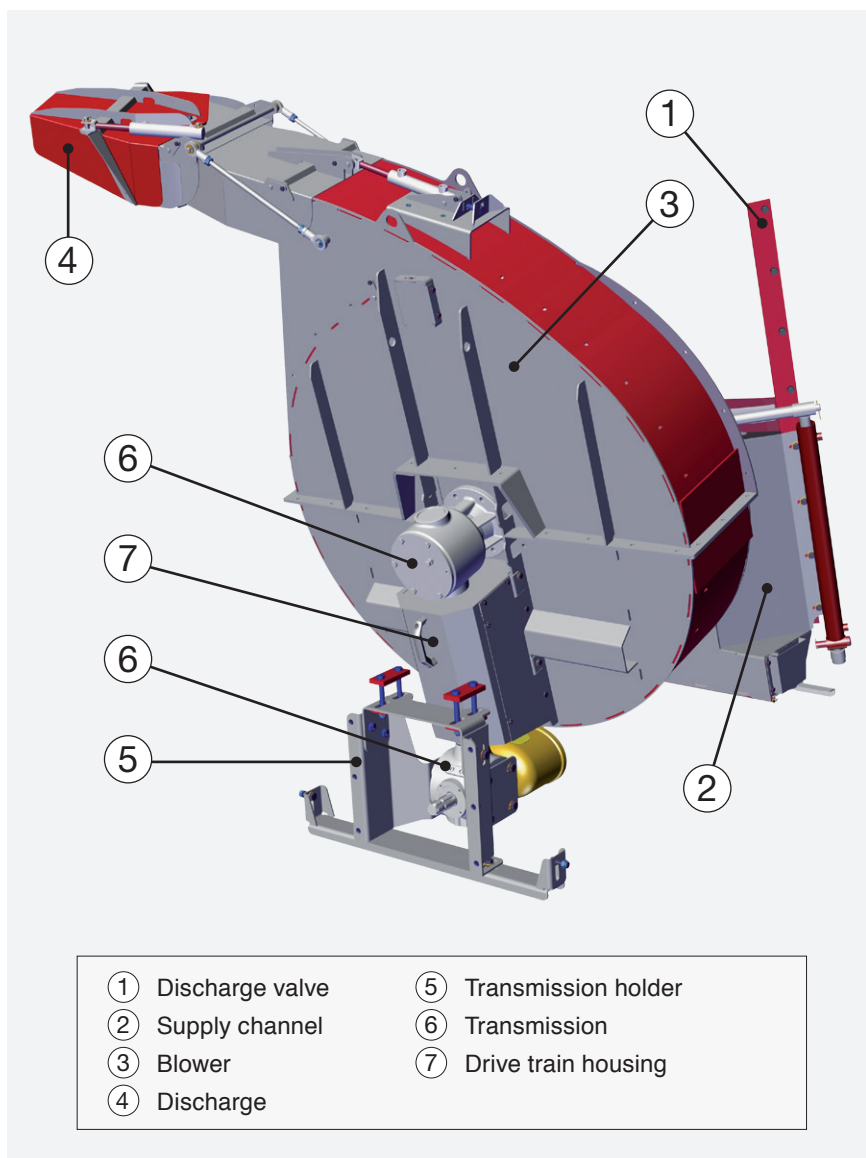


Figure 2:  
System sketch

### Main dimensions and weights

Additional length (for the feed mixer wagon)	750 mm
Additional weight (for the feed mixer wagon)	1000 kg for a rear-mounting 1225 kg for a front-mounting for V-MIX 1S 1300 kg for a front-mounting for V-MIX 2S
Total machine height (including tyres)	2700 mm
Diameter impeller	1460 mm
Number of discharge scoops	8

## The method

### Straw distribution

The maximum discharge distance and the spreading width were measured at the speed of the tractor's pto shaft of  $540 \text{ min}^{-1}$  (tractor with a power of 70 KW (95 PS)) and an dissolution or mixing time of 3 minutes.

The straw distribution was measured at maximum throwing distance and at a distance of 15 m. For this, collection trays (50 x 50 x 10 cm) were arranged laterally along the direction of travel flush-mounted to each other on the test field. The feed mixer wagon with the straw blower was pulled or respectively propelled by a tractor with a power of 70 KW (95 HP). The collection trays were passed with a speed of 1.4 km/h (slow speed forward during the distribution in the stable).

The quantities of straw collected in the collection trays were weighed, and the average straw distribution per  $\text{m}^2$  calculated from three repetitions.

### Output performance

The output performance in kg/minute was determined with a tractor's pto shaft speed of  $540 \text{ min}^{-1}$  using the weighing system of the feed mixer wagon.

### Power requirement

The power consumption during the dissolution and distributing of square bales was determined by measuring the necessary drive power via a torque-measuring hub at the pto shaft. The specific power requirement (KW sec/kg) to dissolution and spreading of straw is calculated relative to the dry matter mass.



Figure 3:  
Measurement of the straw distribution using collection trays

## The test results in detail

### Straw distribution

The maximum throwing distance with a tractor pto shaft speed of  $540 \text{ min}^{-1}$  is 30 meters. The maximum spreading width is 6 meters.

The straw distribution is proper when using barley straw (92.4%DM) with a maximum throwing distance and at 15 m throwing distance. The straw distribution is, however, dependent on the straw type, straw bale form and dissolution or respectively the mixing time of the feed mixer wagon. At the maximum throwing distance, the discharge opening of the straw blower had a distance of 252.5 cm to the ground. At a throwing distance of 15 m, the discharge opening of the straw blower had a distance of 221.5 cm to the ground. The respective straw distributions are shown in diagrams 1 and 2.



*Figure 4:*  
*Straw distribution at the maximum throwing distance*



*Figure 5:*  
*Straw distribution at a throwing distance of 15 m*

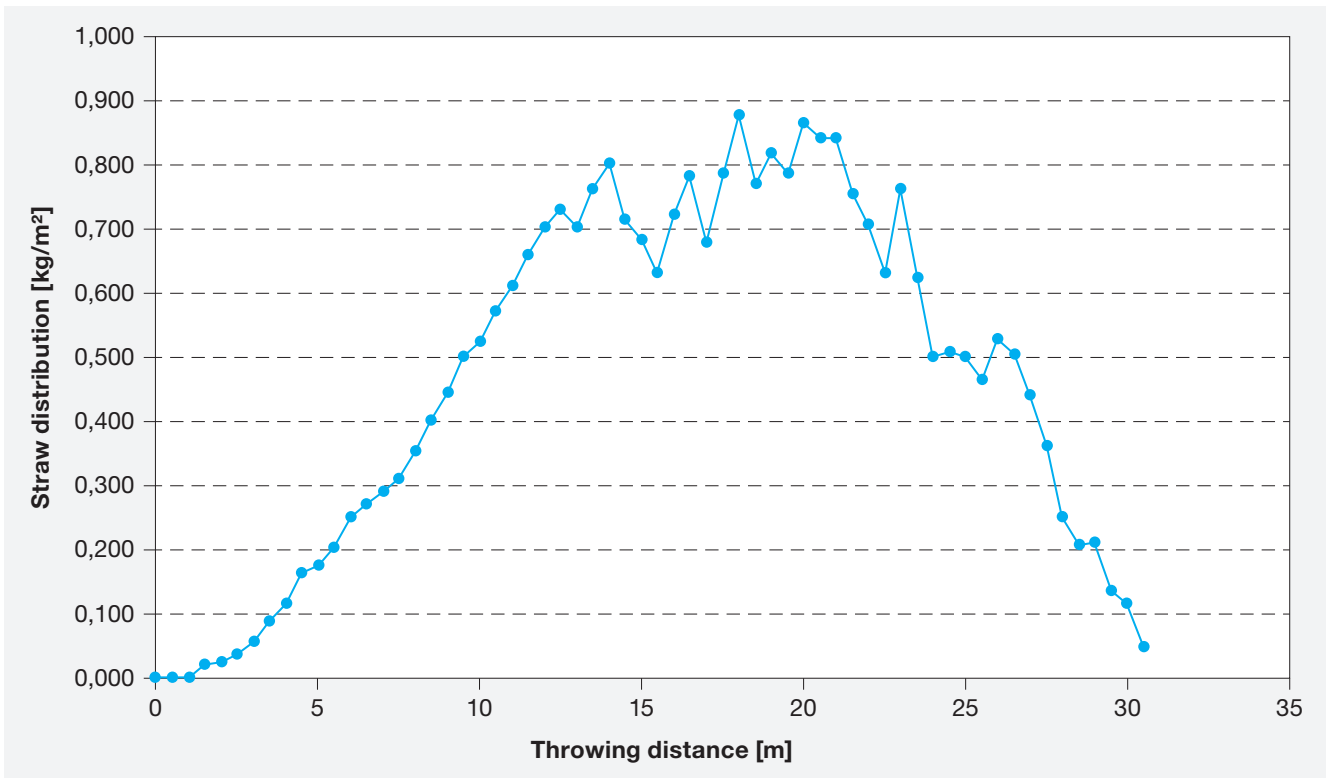


Figure 6:

Straw distribution in kg/m<sup>2</sup> was measured at a throwing distance of 30 m

In the range between 9.5 m and 25 m, straw accumulations between 0.5 and 0.86 kg/m<sup>2</sup> were attained. At the maximum throwing distance of 30 m, a significant straw accumulation of approx. 0.1 kg/m<sup>2</sup> was only measured beyond 4 m.

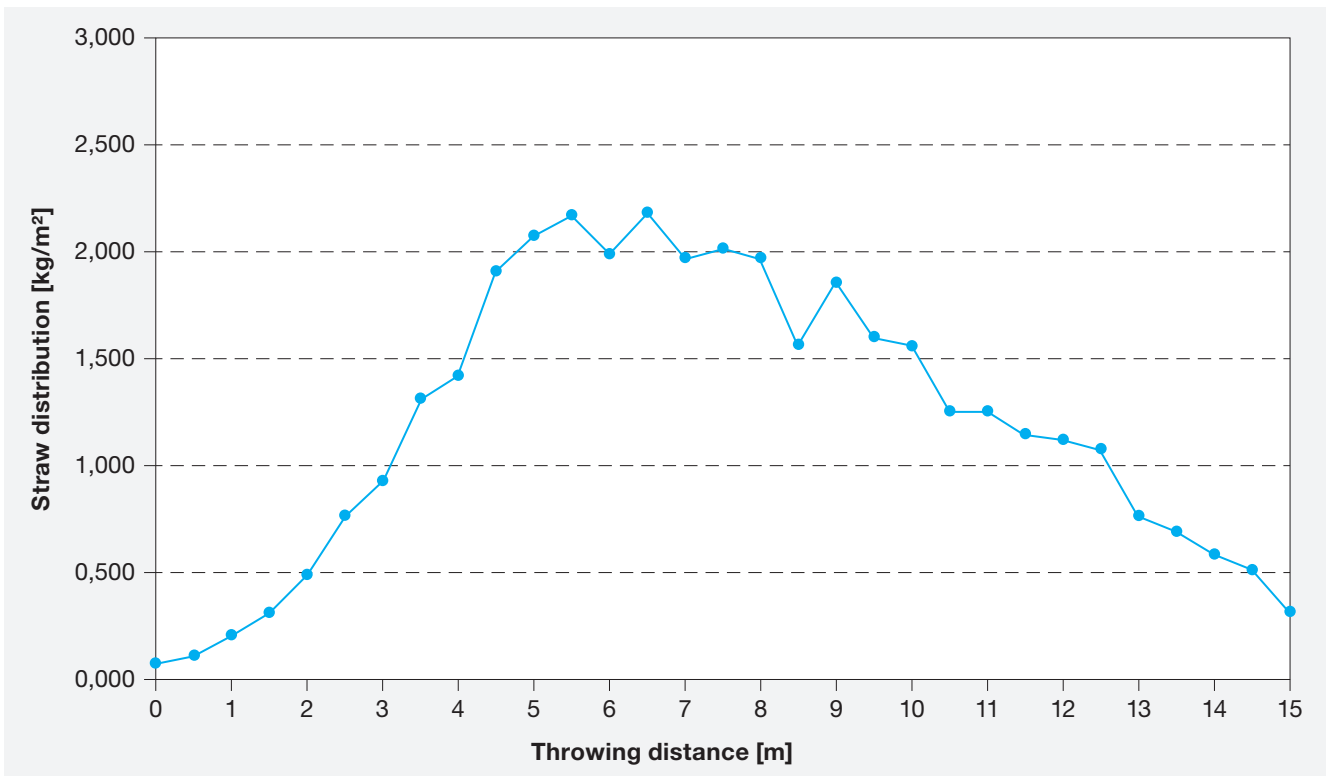


Figure 7:

Straw distribution in kg/m<sup>2</sup> at a throwing distance of 15 m

In the range between 3.5 m and 12.5 m, straw accumulations between 1.0 and 2.1 kg/m<sup>2</sup> were attained. At the throwing distance of 15 m, a straw accumulation of approx. 0.1 kg/m<sup>2</sup> was already measured as of 0.5 m.

## Throughput performance

The throughput capacity is comparatively very high, and with a fully-filled feed mixer wagon (2 square bales, 740 kg barley straw 92.4% DM, dissolution-mixing time of 3 minutes) amounted to a maximum of 318 kg/minute with a speed of the tractor's pto shaft at 540 min<sup>-1</sup>.

## Power requirement

Power consumption (measured at the tractor's pto shaft speed of 540 min<sup>-1</sup>) with an empty feed mixer wagon was 3.8 KW on average. With the straw blower additionally switched on, the average power demand amounted to 11.2 KW.

During the dissolution and distributing of 740 kg of straw (two square bales, barley straw 92.4% DM) with a throughput capacity of 318 kg/min. the power requirement amounted to an average of 53.1 KW. The calculated specific power requirement during the dissolution and spreading of straw (92.4% DM) is low with only 10.9 KW sec./kg.

## Conclusion

Criteria tested in the DLG approved single criteria test at hand, assess functional and performance properties of the Straw Blower V-Comfort Turbo.

The tested Straw Blower V-Comfort Turbo has satisfied the requirements of the test scope regarding the examined criteria.

## More information

Further test results for feed mixer wagons can be downloaded at [www.dlg-test.de](http://www.dlg-test.de). The competent DLG professional committees have published various informational pamphlets on the topics of animal-appropriateness and cattle-farming. These are available at [www.dlg.org/merkblaetter.html](http://www.dlg.org/merkblaetter.html) in the PDF format free of charge.

### Test performed by

DLG e.V.,  
Test Center  
Technology and Farm Inputs,  
Max-Eyth-Weg 1,  
64823 Groß-Umstadt

### DLG test scope

DLG-approved single criteria test "Straw blower"  
(current as of 06/2016)

### Area of expertise

Livestock systems

### Project director

Graduate engineer. agr. Susanne Gäckler

### Test engineer(s)

Dr. Harald Reubold \*

\* Author

## The 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. The more than 80 committees, working groups and committees thereby form the basis of expertise and continuity for the 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 organises 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. Secure the competitive edge as well as other benefits,

and contribute to the expert knowledge base of the agricultural industry. Further information can be obtained under [www.dlg.org/mitgliedschaft](http://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 tested 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 practice.

As an accredited and EU registered testing laboratory the DLG Test Center Technology and Farm Inputs offers farmers and practitioners vital information and decision support for the investment planning for agricultural technology and farm inputs through recognized technology tests and DLG testing.

Internal test code DLG: 16-132

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