



CASE STUDY

**WE MAKE
HARVESTING EASY**

**THE JÄGER GROUP DEVELOPS LIGHTWEIGHT
CARRYING ROLLER FOR BEET HARVESTERS**

CHALLENGE

*develop lightweight idler
for beet harvester*

*material wanted that is
gentle on screening belts*

*combination of lightweight
construction and rubber coating*



SOLUTION

*support roller made of
fiberglass-reinforced plastic*

*wall thickness reduction
thanks to new design*

*innovative 2-cup principle
enables rubber coating*



RESULT

*beet harvesters
save weight*

*arable soils
are spared*

*perfect material
protects the machine*





LIGHTWEIGHT IDLERS FOR BEET LIFTERS WANTED

Lightweight construction for airplanes and bicycles has been around for a long time, but lightweight components are also in demand in agricultural technology. Particularly in the case of a beet harvester, several kilograms can be saved. The JÄGER Group took on the challenge of redesigning a support roller that had previously been made of metal.

Modern beet harvesters are highly technical agricultural machines, they can drive and harvest semi-autonomously. Since more and more rows are to be harvested at

the same time, a fully filled beet harvester equipped with various technical components can weigh more than 60 tons. However, this weight has an impact on the soil, especially since legal requirements for soil-conserving arable farming must be complied with. If the soil is less loaded and thus less compacted, it requires less costly reworking.



IN SEARCH OF THE PERFECT MATERIAL FOR LIGHTWEIGHT IDLERS

An essential part of the screening belts in the beet harvester are the idlers, which support the conveyor belts and thus the beets are transported into the bunker of the harvester. Until then, the Jäger Group had mainly manufactured these idlers from steel and a first idler made of plastic was not yet light enough.

Lightweight idlers with a tread made of polyurethane are already available on the market from competitors, but this material wears out the belt and the belt rivet of the screening belts. The experts of the Jäger

Group therefore developed a lightweight idler with a rubberized tread, which protects the screen belts.

One major challenge was to rubberize the plastic body in a lightweight design. Together, the experts from Artemis and Jäger Gummi und Kunststoff came up with a solution.



SOLUTION

SAVING WEIGHT THANKS TO THREE INNOVATIVE IDEAS

The experts at Artemis developed the load-bearing roller from fiberglass-reinforced plastic; only the ball bearing is currently still made of metal.

However, they achieved the greatest savings by using a honeycomb-like design for the body, in this way, material could be reduced in the wall thickness. When rubberizing the plastic cups, high pressure and heat are generated, through a construction of two individual parts (an inner and an outer cup), the engineers of Artemis succeeded in coating the lightweight plastic cup with rubber. Joining the two cups after rubberizing proved

to be a real challenge. The fit of the plastic parts had to be very precise and bonding was a sensitive process that was mastered through perfect teamwork.

After extensive load tests in the laboratory, such as pressure tests of the tread and destruction of the bond, the JÄGER Group then carried out field tests at contractors.



RESULT

SUSTAINABLE MANAGEMENT WITH LIGHTWEIGHT LOAD-BEARING ROLLERS

The Artemis lightweight idler saves 200 grams per idler compared to conventional idlers. Depending on the type, between 60 and 120 idlers are installed in the sieve belt system of a beet harvester. The more screen belts and the longer the belts are in the machine, the more idlers are needed between the deflectors. With 120 idlers, our customers save a total of 24 kilograms in weight with the Artemis lightweight idler.

In addition, the wear of the expensive screening belts is significantly reduced with this

rubberized lightweight idler compared to an abrasive PU idler.

With advanced technology, the JÄGER Group has succeeded in equipping beet harvesters in such a way that they can work in a way that is gentle on the soil and at the same time the sieve belts have a longer service life. With our idlers you protect the environment and your machine!



CONTACT



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