
The vacuum traverse from Lubas can lift and move steel sheets weighing thousands of tons

# Weight Lifter Extraordinaire

BL67 I/O system and PS pressure sensors guarantee that the 15 t vacuum lifting systems from Lubas operate reliably

Twenty meters long, almost 5 meters wide and weighing thousands of tons due to their size and weight, the centimeter-thick steel plates produced and processed in steel mills do not necessarily rank among the things that conventional lifting systems are able to move. In order to be able to safely and comfortably maneuver these steel sheets, powerful solutions from specialist companies are required. Among these specialists is Lubas, a German machine and equipment manufacturer that has made a name for itself when it comes to vacuum lifting systems for extremely heavy loads.

"Our core business involves crossbeams for weights starting at 5,000 kilograms. But we have also built a crossbeam for a steel mill that can lift steel sheets weighing up to 32 tons," explains Alexia Bockermann, who is responsible for electro-technical planning and installation at Lubas. "There are very few companies in Germany that can build lifting equipment of this magnitude." According to Bockermann, however, the company is unique in Germany because of its high vertical range of manufacturing. What distinguishes Lubas: From steel construction planning to steel girder construction, valve engineering and vacuum vulcanization and electronics,

53 pressure sensors and two BL67 I/O fieldbus stations process the signals from each individual vacuum suction cup

almost all essential services are provided by this one company.

Among the most powerful mass-produced lifting machines from the Lubas product line are the models from the UniTravMega series, which can lift and transport large-scale sheets up to 18 meters long and weighing over 25 tons. Lubas is currently constructing two UniTravMega crossbeams with a lifting capacity of 15 tons each. These crossbeams are equipped with over 51 large vacuum suction cups arranged in 3 rows and attached to a massive weight-bearing body. The vacuum of each individual suction cup is recorded by Turck pressure sensors from the PS series and shown directly on site via the display. Lubas has installed two BL67 I/O stations to record and forward the measured values to the controller.

## Temperatures in the limit range

The sheer weight of the steel sheets to be transported is not the only challenge faced by the vacuum lifting systems from this machine manufacturer. When it comes to compensating for the oversized sheets, meaning re-heating in industrial ovens and subsequent specific quenching in cold water, temperatures of over 200 °C develop directly on the sheets. These temperatures can damage not only the vacuum suction cups, the steel structure, but also the hose connections and the overall electronics of the lifting systems if they are operated too long without protection. While the special vulcanized elastomers of the vacuum suction cups can withstand temperatures of up to 250 °C, the electronics built into the top side of the steel structure are considerably more sensitive. “It isn’t just that the crossbeam is permanently positioned above the broiling hot sheets, but you have to account for an average temperature of 60 to 70 °C,” explains Bockermann. “This already places a high demand on the electronics.”

For this special environment, Turck has provided the right solution with the BL67 remote I/O station and pressure sensors from the PS series. “We are building the decentralized concept with the BL67 stations for the first time. We used to do everything using terminal boxes in the control cabinet. Rapid installation using M12 plug-in connectors and electronics modules is a considerable advantage,” says Bockermann, when explaining the company’s decision to use Turck products. The compact fieldbus stations are an additional advantage: For the BL67, Turck also offers Ethernet gateways that can be used to connect the lifting systems to the operator‘s company network. “This gives our customers the opportunity to monitor via their own company network how many tons the crane has moved or how many pipes have gone into production.”

Both BL67 stations used in the UniTravMega record the signals from the 53 pressure sensors installed above the vacuum suction cups. Their pivot and swivel displays make it possible to easily and directly check each individual vacuum suction cup and conveniently program them using only 3 push buttons, this makes laptops or other external programming devices redundant. “For security and maintenance of the crossbeam, it is very important to see whether a vacuum is established on each suction cup. Without the pressure sensors and the displays, each suction cup would have to be checked using a test plate. The customer can spare this expense and effort using pressure sensors,” explains Bockermann.

In addition to its impressive sensor and fieldbus solutions, Turck’s excellent customer service played a central role in the cooperation between Lubas and the Mülheim-based automation specialists. Confirms Bockermann, “we wanted to avoid suppliers who go by the motto ‘sell the product and forget the customer’. With Turck, we know that we can get help at any time in case of problems.”

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**Quick read**

Vacuum crossbeams from Lubas lift heavy steel that other lifting systems had to give up on long ago. With two modular BL67 fieldbus stations and 53 pressure sensors from the PS series, Turck has developed both a rugged and easy solution that monitors the vacuum of any suction system.

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