

proANT 016 Stacklifter

The alternative to trolleys or drive under platforms. It guarantees a safe load pickup of stably guided stacks at higher speeds.

Transport robot for SLC stacks

The proANT model Stacklifter takes single or stacked SLC containers (small load carriers) up to a total weight of 100 kg from the floor and does not require transfer stations. With this transport robot, cost-effective and flexible material stores can be set up anywhere on the production area without the need for investment in materials handling technology (transfer stations) or on the hall floor (guides for trolleys).

The material can be made available on the complete production area and re-arranged at any time and without any costs. The material store is thus scalable and many smaller buffer stores can be set up on the production area close to the machines. Using a software algorithm, that calculates the material requirement in advance, the material can be brought from the buffer to the machine prompt, eliminating the need for long time and distances from a central warehouse. This means that the buffer store in the machine can be smaller and the size of rotating stock in the production can be minimized.

ASTI InSystems advises in detail on the implementation of material flow concepts that optimize inventories and transport times on the production area.

Safety

The proANT is equipped with a safety laser scanner that constantly scans the surroundings in the direction of driving. Speed-dependent warning and protective fields are defined in the scanner so that the proANT adapts its speed to the environment and always comes to a safe halt. The stack is positioned in the cargo area to prevent it from tipping over.

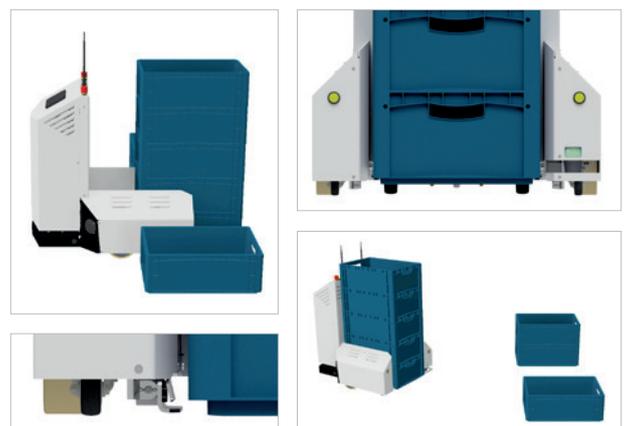
Dimensions (LxWxH)	935 x 693 x 1167 mm
Laser scanner	S300 von SICK (personal safety)
Load	Up to 100 kg
Load handling	SLC 600 x 400 and 400 x 300 mm single and stacked up to 1000 mm
Height of load transfer	0 mm (ground floor); passive load handling with lifting function and clamping
Drive	2 servo motors, 2 wheels differential drive and 4 free spinning wheels
Speed	1,3 m/s
Turning circle	0 mm (turns on the spot)
Positioning accuracy	+/- 1°, +/- 10 mm
Battery	8 cells LiFeYPO4 with balancing board and temperature monitoring, 24 V DC



Load pick-up from floor

To pick up the load, the vehicle approaches the containers standing on the floor and positions itself centrally in front of them. It then rotates 180° on the spot and drives backwards. A laser scanner monitors the positioning and the vehicle control system automatically inserts the stack into the loading space. A sensor on the front side of the hold signals correct loading.

The L-shaped load handling on the left and right in the loading area initially move towards each other just above the floor, pushing themselves underneath the lowest container. Therefore, the circumferential edge existing at each type of SLC containers is used. The lateral infeed movement of the runners centers and clamps the load between springy stop plates, which secures them against slipping. Afterwards, the stack is lifted about 40 mm from the floor. The robot can now transport the load to the destination point and deposit it there again fully automatically.



The proANT AGVs navigate autonomously. They find their path individually, avoid obstacles and calculate alternative routes to reach their goal in the shortest time possible.