



The CTR02 Double U-Frame trailer can accommodate two Euro pallets, each with a load weight of 800 kg, as well as other types of pallets commonly used in the industry

IMAGE SOURCE: CLARK Europe GmbH

Flexible Trolley Transport

15 March 2021 by Clark

Clark launches a tugger train system for efficient production logistics

Tugger trains and a synchronized material supply are an important component of value-added and customer-oriented production logistics – this has long been recognized by the automotive industry. For this reason, **Clark** has launched a tugger train system that specifically addresses the specific requirements of industrial customers. With the Clark tugger train, material transports over longer distances can be organized efficiently, safely and extremely flexibly.

The Clark tugger train is available as an all-in-one solution. It consists of the Clark CTX40-70 towing tractor with a towing capacity of 4 or 7 t and the CTR01 and CTR02 trailers. The CTR01 trailer, designed as a single

U-frame, is built for customers who mainly have to transport Euro pallets. It can accommodate a mobile trolley on which Euro pallets (1200 x 800 mm) with a maximum load capacity of 1200 kg can be transported.

The CTR02 Double U-Frame trailer can accommodate both Euro pallets and other types of pallets commonly used in industry. Via a sliding inner carrier, the operator can flexibly choose between a trolley measuring 1600 x 1000 mm with a load capacity of up to 1600 kg or two trolleys for transporting Euro pallets with a load weight of 800 kg each.



The operator can flexibly choose between a trolley with a size of 1600 x 1000 mm and a payload of up to 1600 kg via a sliding inner carrier on the CTR02

Image source: CLARK Europe GmbH

Loading from both sides without great effort

The Clark trailers allow ergonomic loading from both sides up to a total height of 1400 mm per trolley. No matter from which side, the operator can push the smooth-running trolleys into the lifting system of the frame without much effort, which then automatically locks into place. Another advantage is that the operator can walk through the frame to get to the other side of the trailer. The trailer's electric lift system requires little maintenance and has a lift height of 60 mm. A latching mechanism ensures that the trolleys are securely fixed in the frame. An immobilizer prevents the tugger train from starting up when the lift is lowered.

For coupling and uncoupling the trailers, a coupling with remote release is available in addition to the standard trailer coupling without remote release. This has the advantage that the tractors can automatically couple and uncouple additional trailers: The towing tractor can, for example, after delivering materials to the destination, uncouple the trailers and automatically couple empty trailers waiting there for the next "milk-run". The tugger train can thus be flexibly integrated into other production processes.



Small traffic area: With the help of the electrically steered wheels in the rear axle module, perfect tracking of the Clark tugger train is guaranteed: One trailer follows the other exactly in one lane both on a straight track and when cornering

Image source: CLARK Europe GmbH

Precise tracking during all driving maneuvers

The Clark trailers are designed to be very slim and robust. This makes the tugger train extremely compact and the operator has a good overview. However, the perfect directional stability of the tugger train is particularly noteworthy. This is guaranteed by the electrically steered wheels in the rear axle module: One trailer follows the other exactly in one lane both on a straight track and when cornering. As a result, the tugger train requires a small traffic area and can be used safely even in the tightest of spaces.

The CTR01 only requires an aisle width of 2000 mm for a 90° curve (with corner chamfer of 2 x 45° / 500 mm and without encountering traffic). For the CTR02, the minimum aisle width required for a 90° curve under the

same conditions is 2500 mm. The aisle width for a 180° curve (U-turn) is 4500 mm for the CTR01 and 5500 mm for the CTR02.



The Clark tugger train is available as an all-in-one solution. It consists of the Clark CTX40-70 towing tractor and the CTR01 and CTR02 trailers

Image source: CLARK Europe GmbH

High flexibility in trailer selection

The heart of the modular tugger train system is the autonomous electric steering system. This is not only maintenance-free, but also offers the advantage that it uses sensor information measured directly at the axle. Mechanical, hydraulic or electric steering information is not routed via the trailers and therefore does not have to be taken into account in the design of the load modules. The modular system allows free configurability with virtually no design restrictions. This means that individual customer requirements can be taken into

account. The customer can easily exchange trailers via a standardized interface. This has the advantage that different trailers can also be combined to form a tugger train.



The electric lifting system of the trailers is low maintenance and has a lifting height of 60 mm

Image source: CLARK Europe GmbH

Powerful and agile draft horses

The tugger train is led by the Clark towing tractors of the CTX series. Thanks to their compact design and good maneuverability, they are the ideal towing vehicles for tugger train systems. The robust tow tractors have very good pulling power and, thanks to powerful 48-volt AC traction motors, high thrust. The low-maintenance drive system has been designed for the toughest applications with quiet operation. The ergonomic driver's workplace leaves nothing to be desired. The driver can easily get on and off this truck from both sides. The workplace itself offers plenty of legroom, an automotive-style pedal arrangement and

generous storage compartments. Low vibration levels and a minimal noise level during operation guarantee comfortable and safe driving. Up to 20 performance parameters are individually programmable on the CTX, including acceleration, creep function, and regenerative braking, to tailor driving performance to the operator's requirements. Numerous options, such as a bracket with warning light, a comfortable driver's cab or the coupling/uncoupling aid ensure that the vehicle can be optimally adapted to the requirement profile of the operation.



The trolleys can be loaded on both sides and pushed into the frame's lifting system without much effort. The operator can walk through the frame to get to the other side of the trailer

Image source: CLARK Europe GmbH

Focus on the requirements of the customer

The idea for the Clark tugger train was born after the successful completion of a customer project and the knowledge gained from it. A large automobile manufacturer in the Russian Federation required a tugger train for more efficient material supply to production, which is equally designed for the transport of Euro pallets and other pallet sizes. At the plant, large heavy engines weighing 1600 kg as well as other vendor parts were to be delivered to the production line just-in-time. Since the traffic area there is space-critical, it was desired that the trailers could be loaded from both sides. In addition, the tugger train had to be able to keep exactly to the specified lane. This requirement profile gave rise to the CTR02 double U-frame trailer. Today, the customer can transport parts of different sizes and weights to the assembly stations with a "milk-run" and thereby increase added value.



The autonomous electric steering is maintenance-free and uses sensor information measured directly at the axle

Image source: CLARK Europe GmbH

The Clark tugger train system can be expanded as required and offers customers many advantages: In addition to an on-demand and efficient supply of the production line according to the so-called milk run principle, the operator saves logistics space with the Clark tugger train and can reduce both his inventories and his energy consumption. The risk of accidents can also be reduced due to a lower volume of traffic in the plant.



For coupling and uncoupling the trailers, in addition to the standard trailer coupling without remote release, a coupling with remote release is available. With the help of this coupling, the tractors can automatically hitch and unhitch other trailers

Image source: CLARK Europe GmbH

Source: CLARK Europe GmbH