



Fendt.

Regulated supply for transmission manufacturing at hourly intervals.

Tractor manufacturer, Fendt, has changed its supply of parts in transmission assembly to a circulation system (milk run) with STILL trolley trains and in doing so has drastically reduced its capital commitment, employee and energy costs.

The colour fits: More than 90 percent of Fendt tractors produced in Marktoberdorf are green when they leave the factory buildings. This lush colour is associated with the brand, which is steeped in tradition and has been part of the North American AGCO group since 1997. Fendt stands for quality, state-of-the-art technology, prestige and the highest level of efficiency.

It is not just the tractors that comply with these high demands, but also the manufacturing process. A milkrun system that saves on time, cost and energy expenditure has been in use in the assembly area of the continuously variable Vario transmission since 2011.

Sector: Automobile industry

Company: Large company, over 80 years of experience, 4,018 employees.

Challenge: to reduce capital commitment, employee and energy costs in the assembly area of the continuously variable Vario transmission.

Solution: Switch from front loaders to a circulation system (milk run) based on tigger trains. Thanks to the use of the new tigger train, the costs of material supply have reduced by 58.5 percent.

STILL products: Electric tow tractor CX-T, tigger trains, trolleys.

“The supply of parts for the 35 installation sites has not been carried out by front loaders since September 2010, but has instead been guaranteed by a special tigger train provided by STILL”, explains AGCO Logistics Manager Sabine Gutbrod. The train runs according to a fixed timetable, supplying the 19 storage racks in the assembly hall that has been newly created for this purpose with the up to 445 items that are required by Fendt for the different versions of the Vario transmission on an hourly basis.

92 percent energy saving thanks to an economical tigger train

Supply and demand therefore operates in accordance with the Kanban principle: “As soon as the last part has been removed from the small parts holder, the next order is initiated by the relevant employee”, explains Gutbrod. Based on the accurately defined minimum inventory, only one new container can be ordered, in order to keep the material inventories for assembly as low as possible - the available quantities always suffice for two to four hours maximum.

“The installation sites were previously supplied by front loaders and were supplied with parts for a whole day upon request”, recalls AGCO Logistics Planner Thomas Barnsteiner. The consequences of this were huge inventories, which not only increased capital commitment but also the search times for employees.

Another effect of the previous system was the fact that around 70 individual forklift transport runs took place each day, which led to a high volume of traffic in the tractor factory. “Every transport run took 5 minutes, which meant that the forklift was on the move for a total of 5.8 hours”, estimates Barnsteiner, adding: “With a consumption of 4.3 kilowatt hours, this yields a daily energy consumption of 24.9 kilowatt hours.

“This means that the milk run system will have paid for itself in 1.77 years”.

AGCO Logistics Manager, Sabine Gutbrod

The new tigger train only completes its 15-minute supply tour 8 times per day, yielding a total use of only 2 hours.

What is more, the STILL tractor can operate at a consumption rate of 1.0 kilowatt hours - which yields a daily consumption rate of 2.0 kilowatt hours. “This means that the tigger train has reduced energy consumption by 92 percent”, emphasises Barnsteiner.

His calculation has shown that the costs of material supply have reduced by 58.5 percent on the engine assembly line thanks to the tigger train. “This means that the milk run system will have paid for itself in 1.77 years”.

Distinction between material procurement and assembly

The new concept was also well received by employees from the very beginning. Technicians quickly noticed that they were now able to concentrate more on what they are actually doing. "The new system led to a clear distinction between material procurement and assembly", confirms Gutbrod.



Up to 5 connected "E-type frames" can each accommodate one large or two small order picker trolleys.



The E-type frames can be loaded or unloaded from either the right or left.

After the technician initiates the order, the order picker sets to work and fills the trolley train in question with the materials requested. The STILL trolley train is extremely flexible, unlike traditional tractor combinations. Up to 5 connected "E-type frames" can each accommodate one large or two small order picker trolleys. The trolleys are simply inserted into the E-type frames from the side, so there is no need for laborious coupling, uncoupling or reconnecting.

At the destination, the trolley driver can pull the trolley from the trolley train in a user-friendly manner, by means of an "ejector" activated using a foot lever, which balances out the roll resistance. The frames can be loaded or unloaded from either the right or the left side, as the so-called "Liftrunners" can be mounted on the train so that they open from either the right or left using the plug-in coupling.

Another advantage of the patented E-type frame is that the wheels of the trolley can be hydraulically raised prior to starting up the trolley train. Every E-type frame rolls on its own central axle, which considerably reduces the roll resistance and the driving noise and noticeably increases driving stability.

patented "E-type frames"

"STILL was the only company able to offer us this configuration", explains Gutbrod. The train equipment is also appealing due to its low boarding height and a cushioned driver's platform with very good ergonomics. "After all, the driver has to get on and off the train four to six times on his round trip. This means that a lower boarding height is quickly felt", states Barnsteiner. The equipment, which is only 800 millimetres wide, also impresses with its turning radius of less than four metres and its ability to pull a load of up to four tons.

It is no wonder that AGCO is planning on switching other assembly areas in its factory in Marktobendorf to the milkrun system with STILL trolley trains in the future. The deployment of a total of ten trolley trains is planned, which will primarily be used in the recently-developed production hall. Front loaders will then only continue to be used for loading and unloading lorries.

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