

# FLEXUS

Your SAP Partner for intralogistics

FLX-TLS

Tugger Train

Efficient Control of tugger trains for SAP®

Now available for  
S/4 HANA & SAP EWM

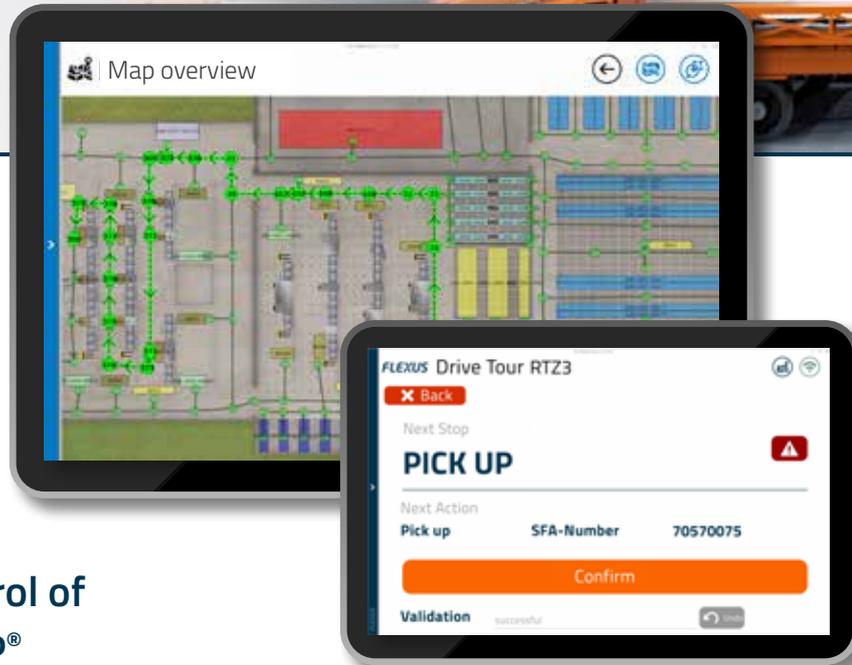
Control your  
tugger trains efficiently  
and directly via SAP®

SAP® Premium Certified  
Integration with SAP Applications



## SAP® tugger train control

- ✓ Planning of an optimal utilization and timing of the route trains
- ✓ Reduction of empty runs
- ✓ Production supply and disposal is guaranteed consistently
- ✓ Different tugger train models (dynamic, static, ...) possible in one plant
- ✓ Transportation of various cargoes within one solution
- ✓ Complex capacity planning possible
- ✓ Integration of the PP layer model possible
- ✓ Direct integration in SAP®



## Efficient and optimized control of tugger trains directly via SAP®

The tugger train control for SAP® is a separate Module of the FLX-TLS material guidance system for SAP®. It can be used integrated as well as a stand-alone solution. This means that only tugger trains or all vehicles within the plant can be controlled directly via SAP®.

Different tugger train models are possible. A distinction is made between fixed and dynamic route planning.

The driving orders of the tugger trains are generated on the basis of an individual timetable. This takes into account the due dates of the transport orders and schedules them accordingly.

### Targets of the route train control

The goal of tugger train control is to increase the capacity utilisation of the trailers in order to reduce the distances travelled and the duration of tours. As a result, tugger trains and manpower are also saved.

In addition, the creation of an individual timetable guarantees punctual production supply and disposal.

This allows tours to be planned at short term and the personnel structure to be adjusted in the long term.

## Functionality of tugger train control

The transport order generation is integrated in the SAP modules (e.g. supply of production) and can be combined with the FLX-TLS. Therefore, multilevel transports between tugger trains and forklifts are also possible.

The transport orders can be created automatically, e.g. from production order data, or they can be created manually in the Flexus worker dialog.

The tours of the tugger trains are created in the Route Optimizer based on the master data maintenance in SAP®. Using this, not only tugger-train-specific attributes such as the number of trailers, driving speed and set-up times can be stored, but also working time models or shift plans of the employees can be taken into account when creating driving orders.

The resulting transport orders can be quickly and easily assigned to dynamic or fixed routes.

In addition, thanks to the 2D cockpit, all stops and tours of the tugger trains can be visualized and therefore serve as an overview.



## Fixed and dynamic route planning

The tours of the trolley trains can be created in two different ways directly from SAP®.

### Route planning

#### Fixe route planning

- Drawing fixed routes within the Routeoptimizer
- Direct assignment of the transport order to a route
- Creation of tours on the basis of fixed routes

#### Dynamic route planning

- Definition of stops and routes only
- Dynamic planning algorithm for the creation of tours (minimization of driving distances, continuous improvement of initial solutions)

## Schedule generation

The scheduled orders are visualized in a clearly arranged cockpit and can be edited with regard to sequence and assignment.

This way, the tours are distributed on as few trolley trains as possible and taking due dates into account. As a result, the number of required trolley trains is minimized.

Regular adjustments to the schedule are made to take account of delays.

**Trolley train control for SAP® ensures continuous production supply and disposal.**

## Flexible route planning

The order determination of the trolley trains takes place directly in SAP®, taking into account the trolley train-specific attributes.

The trolley trains process the tours according to the previously generated schedule. This ensures a clear display of the tour, the next stop and the next transport order.

A validation of the tours is possible via Scan/Companion.

## Integration of the trailer management

The trailers, driven by a trolley train can be driven, coupled or uncoupled by different transport systems. Furthermore, each trailer type can be provided with its own capacity, defined positions and weight limits.

## Extensions through AI

AI models based on historical data enable an improvement of the time modules and lead to a more accurate prediction of the timetable as well as a long-term planning of personnel requirements.

## FLEXUS – Your SAP® Intralogistics Partner

Flexus AG is your competent consulting and development company for the process-oriented implementation of SAP® logistics solutions.

As a certified SAP® partner, we have a long-standing expertise in the field of intralogistics.

The Flexus solutions for SAP® intralogistics include FLX-Yard Management, the FLX-Transport-/Forklift Guidance System, the comprehensive portfolio for mobile data collection and the integration of the mail order business.

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