



# THINKING THROUGH SYSTEMS TO COMPLETION

TECHNOLOGY EFFICIENCY PROFITABILITY SAFETY



## COMPANY

WHERE ADDED VALUE IS  
A WIN-WIN SITUATION

Greater occupational safety, efficiency and profitability – the company SYN TRAC GmbH ensures all of this with a new vehicle category. A revolutionary system and equipment carrier, generating tangible added value for all customers, was developed over the course of many years. The well-thought-out technical system provides better working conditions for users, as well as financial advantages for decision-makers. Therefore, the new vehicle system satisfies, among others, municipalities, contractors and both road maintenance and motorway maintenance services.

## VISION

“THOSE WHO WORK EASILY AND SAFELY  
ARE AUTOMATICALLY FASTER.”

### Seeing the big picture and thinking systems through

Stefan Putz is the inventor of the SYN TRAC concept. Having grown up on a mountain farm, he got to grips with the challenges of hard daily work and potential for improvement from an early age. Following his technical interests, he specialised in special purpose machinery manufacturing, R&D and process and production optimisation. Decades' worth of experience in these areas plus the close connection to the agricultural and municipal sector culminated in the foundation of the company SYN TRAC GmbH in 2016.

### Putting workers centre-stage

The discrepancy between the legal requirements for occupational safety and the reality in vehicle construction inspired the company to dare to attempt a change of perspective. A unique docking system for all attachments centred on uncompromising functionality and occupational safety, thereby creating a new, industry-independent vehicle concept!

Key components include extreme stability due to optimum weight distribution and the innovative layout of the engine-transmission module. Today, SYN TRAC offers the ideal equipment carrier that can be adjusted optimally to all requirements.



# SYN TRAC

## UNIQUE FLEXIBILITY AND PERFORMANCE

### Highlights

- ❖ Automatic docking procedure for fast and simple changes of attachments
- ❖ Automatic coupling of one or multiple axles
- ❖ Special engine-transmission layout ensures a low centre of gravity
- ❖ Hydro-pneumatic chassis with independent suspension
- ❖ 420 HP CAT motor with hydrostatic, mechanic CVT transmission and high / low driving positions
- ❖ Driving speed up to 80 kph | suitable for motorways
- ❖ Steering modes: front-wheel, all-wheel & crab steering
- ❖ Comfortable cabin with panoramic view and innovative operating concept



### 1. Docking system

- ❖ Comfortable equipment mounting due to automated coupling of all media and interfaces
- ❖ Fastest attachment change in the world within one minute
- ❖ Automatic attachment recognition via storage of all pre-configured data
- ❖ Equipment change performed inside the driver's cabin without personnel use in the hazard area
- ❖ Identical docking system at the front & rear: application of attachment in the ideal position (visibility, ergonomics, operation, equipment transfer front dimension)

### 3. Engine & transmission

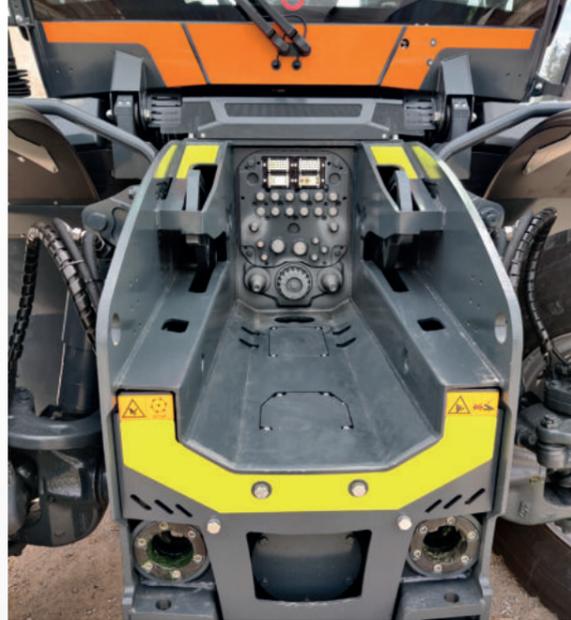
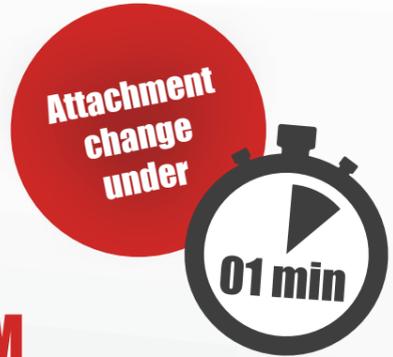
- ❖ Ideal weight distribution on the axles and optimally low centre of gravity due to the innovative layout of the engine-transmission module
- ❖ The hydraulic-mechanic power-split transmission facilitates continuous adjustment of creep speed up to 80 kph
- ❖ Considerable diagonal drives possible due to dry sump lubrication
- ❖ Efficient torque transmission of the power take-off at the front & rear

### 4. Cabin & ergonomics

- ❖ 360° panoramic view due to floor-level windows ensures optimum ergonomics and comfortable one-man operation
- ❖ Intuitive operational elements in the armrests & displays
- ❖ Optional one-hand joystick operation
- ❖ Winter package due to all-around heatable windows

### 2. Chassis & undercarriage

- ❖ Best handling characteristics thanks to tried and tested Tatra axles combined with independent wheel suspension
- ❖ Optimum driving stability due to longitudinal & transverse differential locks
- ❖ Maximum mobility and simple manoeuvrability due to short wheelbase and various steering modes (turning circle 9 metres)
- ❖ High level of driving comfort due to hydro-pneumatic suspension (optimum vibration dampening)
- ❖ Best working conditions for all attachments and avoidance of additional supports due to torsion-free chassis



Seven interfaces are connected automatically in under a minute – with just one person who doesn't have to leave the driver's cabin.

## DOCKING SYSTEM

### A REVOLUTION

#### The fastest docking system for all kinds of attachments

The technological core of SYN TRAC consists of the in-house, patented docking system at the front and rear that facilitates safe and convenient changing of every kind of attachment within one minute. Seven interfaces (mechanics, hydraulics, power take-off, axle drive, electrics, electronics and compressed air) are connected fully automatically to achieve this – and all of that with one single person operating the process from the driver's cabin!

#### Maximum safety and operational efficiency

The fully automated change of attachment eliminates manual work in the hazard area and the cabin doesn't have to be vacated. This drastically reduces the work preparation effort and, in combination with its multiple applications, massively increases productivity. The user-friendly, intuitive operation also increases performance, which is carried out via the same joystick used for vehicle operation. Function assignment occurs automatically upon docking after equipment recognition. This integrated system solution offers maximum working comfort and safety.

#### Optimum profitability

Low retrofitting times and avoidance of cumbersome tasks and equipment transport increase productive capacity utilisation. Vehicle requirements and therefore CO<sub>2</sub> emissions drop due to the enormous flexibility of the equipment carrier throughout all seasons. Vehicle fleet utilisation rises at the same time, leading to enormous cost savings. Follow-up investments, such as insurance, maintenance, servicing and storage, are also minimised.

#### Maximum occupational ergonomics

Well thought-out concept for best performance and safe handling that exceeds standard specifications!

#### Transport without additional effort

The high-speed range of up to 80 kph makes SYN TRAC the ideal working equipment for motorways, roads and the municipal sector. Transfers are possible without transportation equipment.

## ADVANTAGES AT A GLANCE

### AN ADDED VALUE CONCEPT FOR YEAR-ROUND USE



#### Ideal technical coupling

Equipment is recognised automatically; all forces operate in a fixed or flexible manner depending on the attachments' requirements.

#### Best handling characteristics

The Tatra axles ensure enormous load capacity and cross-country mobility in all weather conditions. The low centre of gravity and the level control system stabilise the equipment carrier in every driving situation.

#### Environmentally friendly transmission concept

The technical transmission adjustments make lower revolutions and the fuel-saving operation of attachments possible.

# MUNICIPAL & ROAD MAINTENANCE

SAFE | FAST | STABLE | AGILE | HIGH-PERFORMANCE

## Efficiency and functionality

SYN TRAC has proven its worth in this version with road & motorway maintenance services since 2018.

- ❖ Snowplough
- ❖ Snowblower
- ❖ Sidewall snowblower
- ❖ Rear-mounted gritter
- ❖ Third axle with pre-wetted salt gritter 5 m<sup>3</sup> salt – 6.6 m<sup>3</sup> brine
- ❖ Dual boom mower
- ❖ Boom mower with branch saw
- ❖ Embankment mower
- ❖ Verge mower
- ❖ Vacuum cart
- ❖ Third axle with three-way tipper container
- ❖ Road sweeper
- ❖ Three-sided rear container
- ❖ 10 metre boom mower
- ❖ Hedge trimming system with various mower heads
- ❖ Weed brush
- ❖ Collision protection
- ❖ Warning board distributor
- ❖ Transports



One SYN TRAC rig instead of three special purpose vehicles: the comfortable one-man operation of both attachments facilitates vertical and horizontal hedge trimming, including vacuuming of cuttings.

## Further advantages for mowing use:

- ❖ Increase in efficiency thanks to the execution of four work steps in one go with the three-fold boom mower and vacuum cart
- ❖ High level of stability due to torsional rigidity & mobility
- ❖ Precise working & improved ergonomics due to optimum visibility
- ❖ Reduction of noise pollution & fuel consumption due to low engine speed thanks to transmission gears on mowers
- ❖ Additional integrated working headlights on the mower head in work mode ensure ideal visibility conditions
- ❖ Comfortable one-man operation due to SYN TRAC joystick single-hand operation



Visibility and mobility also pay off in winter services. Thanks to hydrostatic-mechanical transmission, the scope of performance for gritting applications is equivalent to that of a self-propelled snowblower.

## Further advantages in snowblower use:

- ❖ Optimum visibility, mobility & cross-country mobility
- ❖ Ideal load distribution due to the proximity of the vehicle to the attachment
- ❖ Optimum power transmission: almost full engine power on the power take-off
- ❖ Low noise load & reduced fuel consumption due to revolution adjustment on the power take-off
- ❖ High traction due to accumulator





**Further advantages for road sweeper usage:**

- ❖ Hydraulics settings for each required output controllable via display
- ❖ Lower noise pollution & reduced fuel consumption due to operating in low engine speed range (idle)

SYN TRAC delivers impressive performance on all terrains with a high-performance drive on up to six axles (6x6) and 100% lockable differentials. Three steering modes and maximum mobility guarantee perfect driving even on narrow roads in difficult conditions. The high-performance working headlights ensure a perfect field of vision at night.

**Special features SYN TRAC, plough & 3AX pre-wetted salt gritter:**

- ❖ 6x6 chassis powered, 5 m<sup>3</sup> grit & 1850 l pre-wetted salt system
- ❖ Drivable regardless of terrain & conditions due to 100% lockable differentials
- ❖ High level of mobility due to all-wheel drive also guaranteed in combination as a three-axle chassis (steering modes transferable to all axles)
- ❖ Optimum visibility due to rear camera

**Further advantages for snow clearing:**

- ❖ Optimum visibility due to the proximity of the attachment to the cabin
- ❖ Excellent field of vision around the attachments due to the luminance of the working headlights
- ❖ Superior manoeuvrability due to four-wheel steering combined with short wheelbase



# VEHICLE DATA

TECHNOLOGY | EFFICIENCY | PROFITABILITY | SAFETY



## DIMENSIONS BASIC VEHICLE 4X4

Width: 2,550 mm  
Height: 3,400 mm  
Wheel base: 3,300 mm  
Total length: 4,700 mm  
(depending on the tyre dimensions)

## WEIGHTS

Empty weight: 11,500 kg  
Perm. total weight: 18,000 kg (20,000 kg)  
Perm. front axle load: 11,500 kg  
Perm. rear axle load: 11,500 kg

## CHASSIS/AXLES

Driven steering axles with swing full-floating axle and planetary reduction in the wheel hubs  
Axle load: 11,500 kg  
Hydro-pneumatic suspension  
Automatic level control system  
Total suspension travel: 320 mm (with 385/95R25 tyres)  
Permanent 4x4 all-wheel drive with longitudinal

and transversal differentials 4x4+2 or 6x6 drive train representable

## ENGINE

CAT C9.3B straight six-cylinder engine  
Power range: 310 kW (420 PS) 1,800 rpm  
Maximum torque: 1,900 Nm at 1,400 rpm  
Engine displacement: 9,300 cm<sup>3</sup>  
Exhaust gas treatment: DPF, DOC and SCR  
Exhaust emission standard: EU stage 5 (Nonroad, U.S. EPA Tier 4 Final)

## TRANSMISSION

Hydraulic-mechanical power split transmission with continuously variable gear ratio  
Dry sump lubrication  
Top speeds with reduced engine speed:

- ❖ Low travel range 0-50 kph at 1,200 rpm engine speed traction 136 kN

- ❖ High travel range 0-80 kph at 1,600 rpm engine speed traction 120 kN

## TOWING CAPACITY

Technical total towing weight 54,000 kg  
Maximum towing capacity 36,000 kg

## WORK HYDRAULICS

Load sensing axial-piston pump with 180 l/min and 250 bars  
In each case 6 double-acting valves with 100 l/min on the front and rear docking system  
Power beyond connection with max. 180 l/min on the front and rear docking system

## AUXILIARY DRIVES

Engine PTO shift with 1,000 rpm  
Torque 3,400 Nm on the front and the rear  
Standard hydraulic pump max. 180 l/min at 250 bars

## BRAKES

Driving brake: Wabco ABS air braking system as a two-circuit system  
Hand brake: Tristop spring-loaded cylinder

## STEERING

- All-wheel steering with following modes:
- ❖ Front-wheel steering
  - ❖ All-wheel steering
  - ❖ Crab steering

## ELECTRICAL EQUIPMENT

24-volt board net power supply  
Alternator with 145A  
8 LED working lights with 360° illumination  
On road full LED illumination according to regulation (EU) No 167/2023, front main headlight in halogen  
LED illumination for the stairway

## FILL QUANTITIES

Diesel: 420 l  
AdBlue: 34 l  
Engine oil: 35 l  
Coolant: 46 l  
Hydraulic oil: 140 l  
Gear oil: 75 l  
Axle gear oil: 20 l

## TYRES

Different variants possible (max. rolling circumference 4,550 mm)

## CABIN

Comfort cabin  
Air con  
Three-way adjustable steering column  
Driver's seat: air-suspended high-comfort seat with seat heating, ventilation and safety belt; multiple setting options, inclination / height / lumbar support / adjustable side bolster / heatable / rotatable

Reversible driving position  
Window wiper and washer at the front and rear windows  
Large telescope exterior mirrors, electrically adjustable and can be heated  
Radio with CD player, USB, Bluetooth and hands-free system  
Laminated safety glass – windscreen can be heated  
Door window optionally with wiper and heatable  
Sunscreen blinds at the rear  
2 operation panels 7-inc hand 12-inch  
Multifunctional rail system for the optimal positioning of additional operating elements  
Multifunctional armrest  
Digital tachograph upon request  
Camera system optionally available



## THOUGHT-OUT SYSTEMS TO COMPLETION

TECHNOLOGY | EFFICIENCY | PROFITABILITY | SAFETY

SYN TRAC achieves reliable performance for highly sophisticated tasks thanks to well thought-out, functioning high-tech systems. Performance spectrums that used to be limited to special purpose vehicles are combined to this end. A uniquely comprehensive technology creates solutions that flexibly adapt to requirements in order to ensure maximum profitability as well as occupational safety and investment security.

**Meeting requirements better: Unique Austrian Engineering**  
As a partner to our customers, we provide smart technical concepts and the exclusive use of high-quality parts of European origin that ensure safety both for the user and the operator.



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