

ON TRACK MACHINES

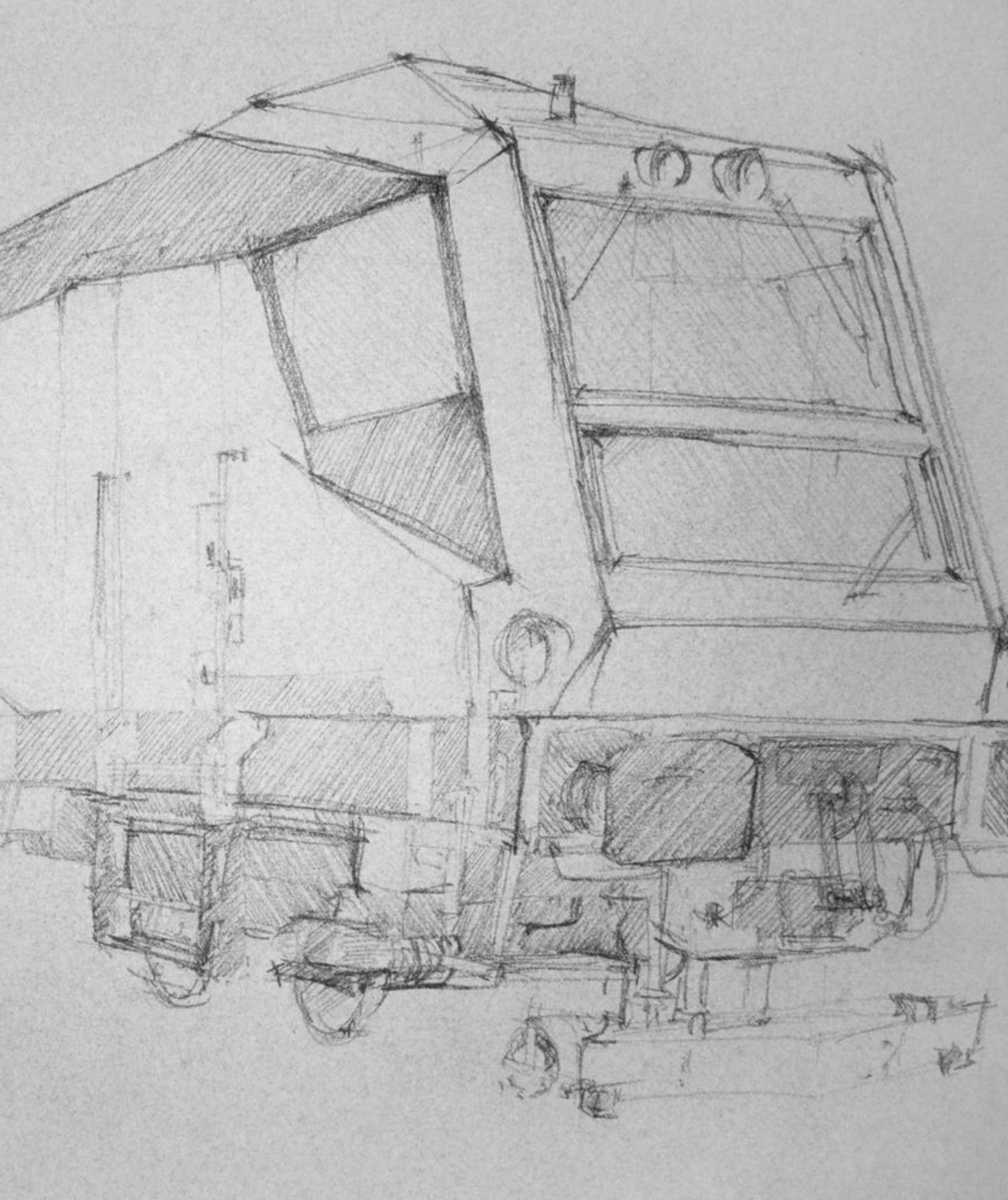


THE NEW ERA OF

INTELLIGENT
ON TRACK
MACHINES



www.s7-rail.com



OUR PHILOSOPHY

We think in systems.

The track and its individual components form a system. The strength of a system grows out of the quality of the individual components and the way they interact. As a developer of track maintenance machines, units and system solutions, we improve and optimise this interaction.

CONTENTS



04

Main advantages
of system7 technology

05

Product
Portfolio

08

Universal Tamping
Robot
S7 PLS 16 4.0

12

Continuous
Tamping Robot
S7 CPLS 32 4.0

14

Ballast Robot
S7 HSP 4.0

16

Fully hydraulic
tamping units /
retrofit kit

18

Remote diagnostics
and service



MAIN ADVANTAGES OF SYSTEM7 TECHNOLOGY

- Fully hydraulic tamping drive - vibration only during penetration and squeezing in the ballast
Noise reduction of more than -7dB per tamping cycle
- Pressure and displacement sensors record the compaction force curve during tamping
- Fewer wear parts – no rotating components or roller bearings in the system7 tamping drive
- Enormous reduction of life cycle costs



- In system7 automatic tamping mode the machine itself controls the **optimum compaction** by selecting the right compaction force and tamping time
- **Automated** and **computer-aided** control Sensor for **automatic**
- **condition monitoring** of the tamping units
- More than **-50% less fine dust emission**
- Generated automatically online on the machine:
Ballast bed report with statistical analysis

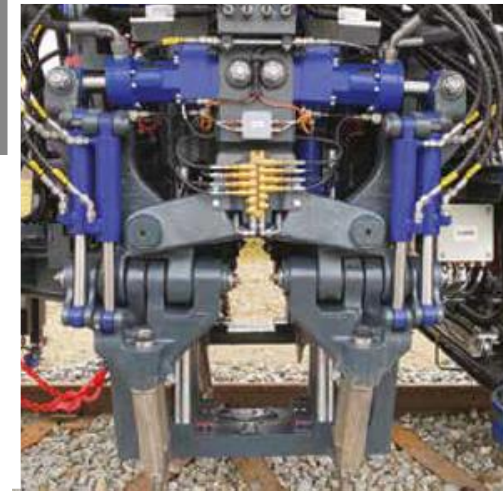
PRODUCT PORTFOLIO



Tamping
machines



Ballast
regulating
robot



Fully hydraulic
tamping units /
retrofit kit

TAMPING MACHINES

Cyclic Universal Tamping Robot S7 PLS 16

4.0

Version 1



- 16-tine turnout tamping split-head unit
- large workshop/crew room, no sweeping unit

Version 2



- 16-tine turnout tamping split-head unit
- small workshop/crew room, with sweeping unit

Continuous Tamping Robot S7 CPLS 32 4.0

Version 1



- 32-tine turnout tamping split-head unit, dynamic
- track stabiliser
- with sweeping unit, workshop/crew room

Version 2



- 32-tine turnout tamping split-head unit
- twin dynamic track stabiliser, workshop/crew room



THE REVOLUTION FOR
HIGHEST TAMPING
QUALITY IN PLAIN LINE AND
TURNOUT TAMPING



UNIVERSAL TAMPING ROBOT S7 PLS 16 4.0



EXCEPTIONAL INNOVATIONS FOR A **NEW**
TAMPING CULTURE

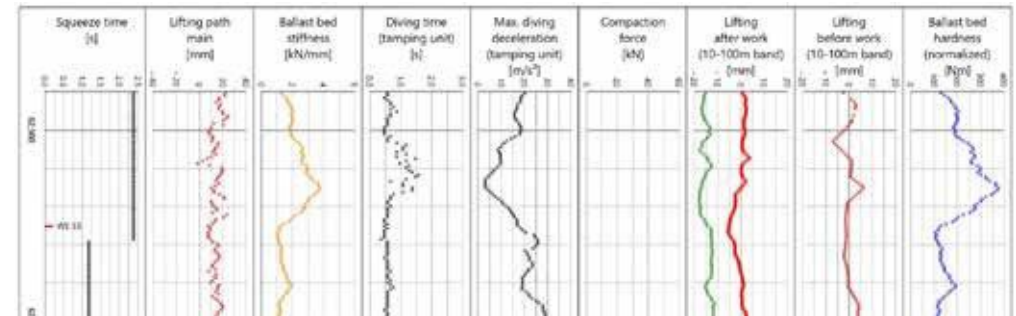
- At the heart of the machine is the latest generation of system7 tamping units with the patented **fully hydraulic tamping drive**.
 - It vibrates only when penetrating the track ballast and during squeezing.
 - No large number of rotating and wearing drive parts is required. This means **substantial savings** in overhaul and maintenance costs.
-
- Further low-wear technologies such as disc brakes guarantee **low life cycle costs** for the entire tamping machine.
 - Thanks to the **integration of the auxiliary lift** into the main lift, the same long bearer is always lifted automatically in the turnout.
 - The squeezing cylinders are equipped with integrated, contactless displacement sensors and pressure transducers which, during system7 automatic tamping, complete each squeezing process individually once the **optimum compaction force** has been reached.
 - Optimum compaction of the ballast extends the durability of the track geometry and **reduces the stress on the ballast**.
 - Remarkable **noise and dust reduction** minimises the impact on operators and the environment.
-
- Every squeezing cylinder records the progress of ballast compaction as well as the squeezing travel covered. From this the hardness of the ballast bed is derived and transmitted to the **infrastructure management web platform “INFRAME”**.



The tamping operation is displayed on a map with GPS coordinates and a photo of the sleeper surroundings.



- The data of the **ballast bed report** are automatically analysed, summarised and output.
In addition to the graphic representation of the ballast bed
- properties and the compaction achieved, long-wave longitudinal level defects before and after tamping are also plotted.



- The system7 universal tamping machine simplifies the operator's tasks with an **automatic tamping mode**. Two touchscreens and two joysticks allow the tamping operator to control the machine intuitively and easily.
Video images showing the working areas are displayed in the operator's field of vision.
- Ergonomically this is the optimum position. For every tamping insertion the display indicates alignment, longitudinal level and cross level as well as the correct functioning of the tamping units and of the measuring and control system.

- The **Turnout Engineer** is made up of several automatic systems such as:
- **Automatic lifting tool positioning** - A laser scanner ahead of the lifting and lining unit measures the surroundings around the lifting position and uses this to calculate the possible lifting points fully automatically.
- **Turnout teach-in automation** - records and stores the movements and settings of the lifting and lining unit and of the tamping units.

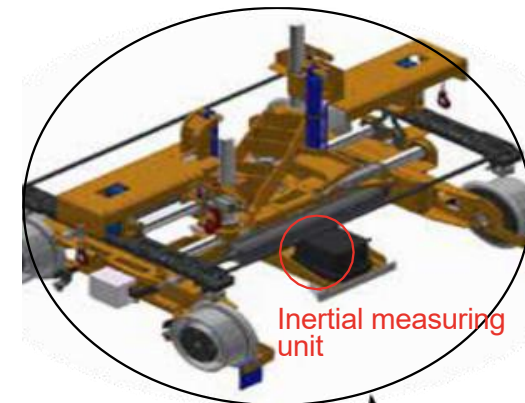




- The **optical measuring system** from system7 avoids the disadvantages of mechanical steel chords such as sag, snagging, oscillation, breakage, conflicts with obstacles inside the machine, damping of the system, temperature drift, shifting of the zero points, sensitivity to vibration, etc.
- The **inertial navigation measuring system** determines track defects precisely up to long defect wavelengths and is the basis for highly accurate track geometry optimisation and for the acceptance recording.

- The system7 **precision machine measuring system** consists of a digital optical camera system mounted on the centre measuring bogie.
- POWER LED patterns are installed on the two outer measuring bogies. The POWER LEDs are fitted with lenses that concentrate the light, so their luminosity is high. The system is therefore independent of daylight and of weather conditions such as fog or rain.
- The camera system detects the LED patterns by means of image recognition and identifies them unambiguously and robustly. The system is fault-tolerant and self-monitoring.

Absolute positioning system



Universal tamping robot S7 PLS 16. 4.0

**HIGH LINE OUTPUT
WITH MAXIMUM VERSATILITY**

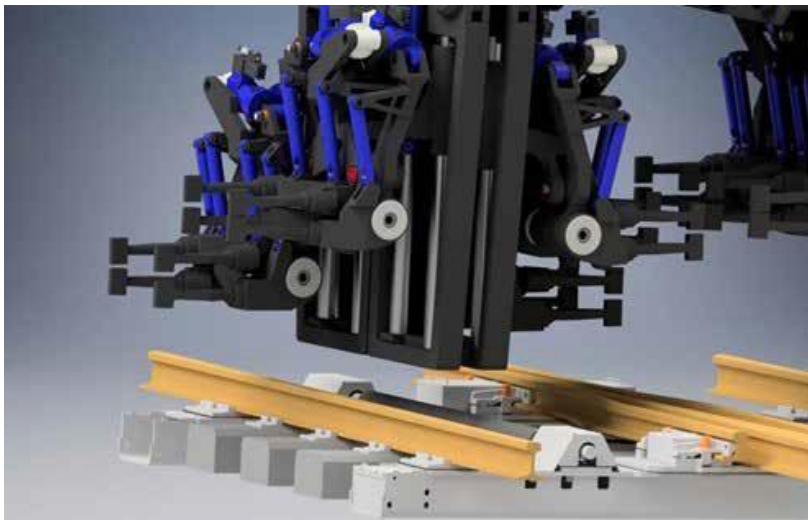


CONTINUOUS TAMPING Robot S7 CPLS 32 4.0



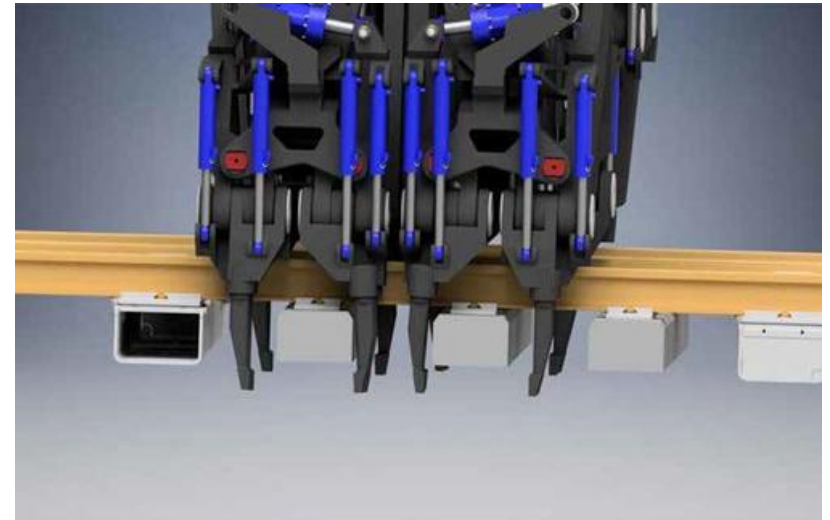
**THE PLAIN LINE TAMPING MACHINE THAT
CAN ALSO TAMP SMALL TURNOUTS**

- system7 builds on the proven fully hydraulic tamping technology of the S7 PLS 16 4.0 and extends the product portfolio with a **continuous-action two-sleeper tamping machine**.
- The fully hydraulic tamping drive allows the 8 splittable and independently movable tamping boxes to handle the **positioning of all 32 tamping tines**.
- This **globally unique patented technology** makes it possible to tamp all types of turnout and to carry out plain line tamping with a high output per metre thanks to the intelligent satellite. system7 thus redefines the term **universal** tamping machine.

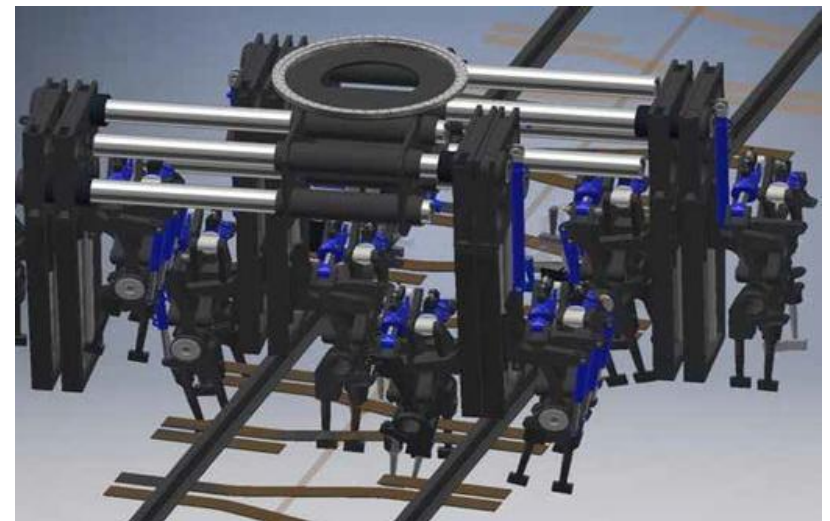


Turnout tamping mode:

- World first: all 32 tines can be swivelled independently of one another
- Turnouts with a central point machine can also be tamped.



Plain line tamping mode: High line output thanks to intelligent satellite control.



Y-steel sleeper tamping: Rotatable and individually movable split-head tamping units provide maximum versatility.

**INTELLIGENT
PROFILING**

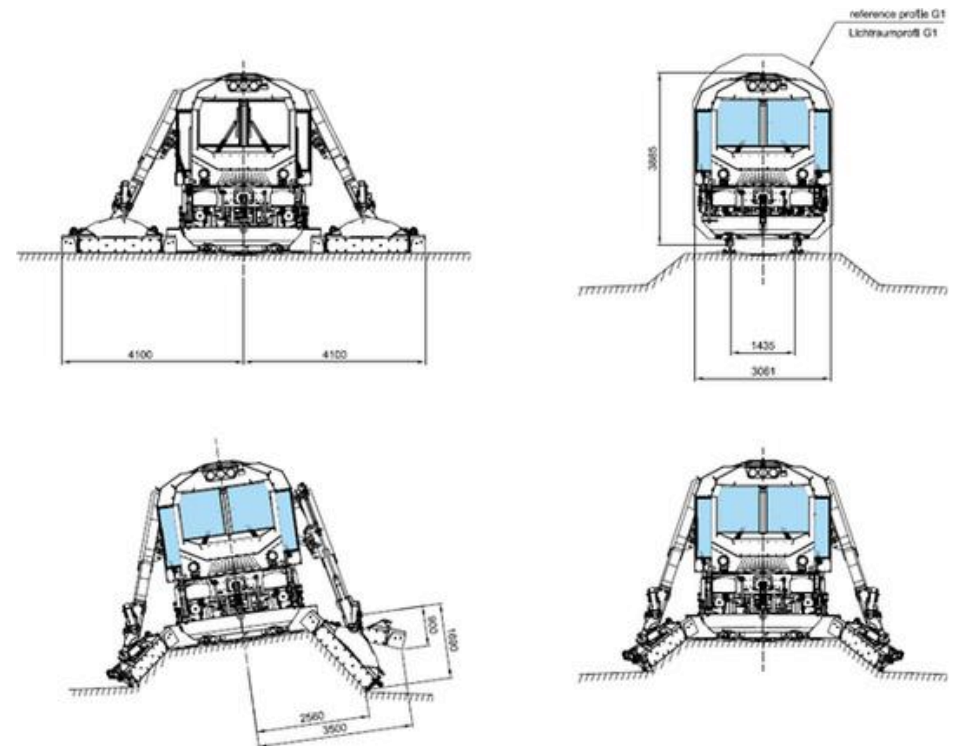


BALLAST ROBOT S7 HSP 4.0



**THE REVOLUTION IN BALLAST BED
PROFILING**

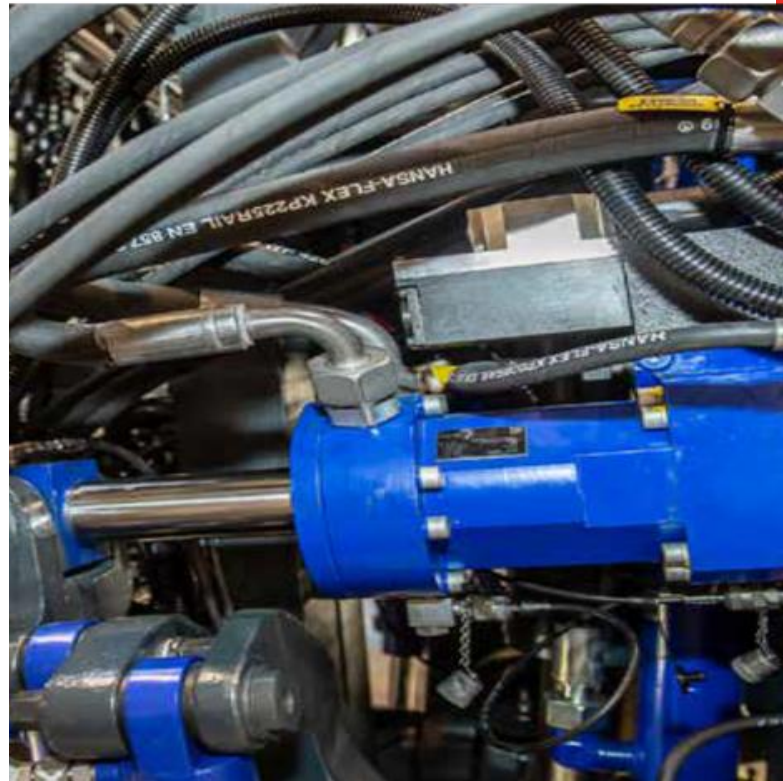
- system7 is building a globally unique ballast regulator concept with many patented innovations.
- Highlights of the high-performance ballast regulator S7 HSP 4.0:
- single-operator control through full automation Ploughing with
- shoulder ploughs and centre plough in both
- directions
- Excellent view of the shoulder ploughs and centre plough Simple
- brush shaft replacement (approx. 10 min) – also on site Universal
- shoulder plough
- Universal centre plough
- Acceptance recording for the ballast cross-section 8.5 m³ ballast silo
- Universal transverse ballast chute for simple ballasting of the centre area



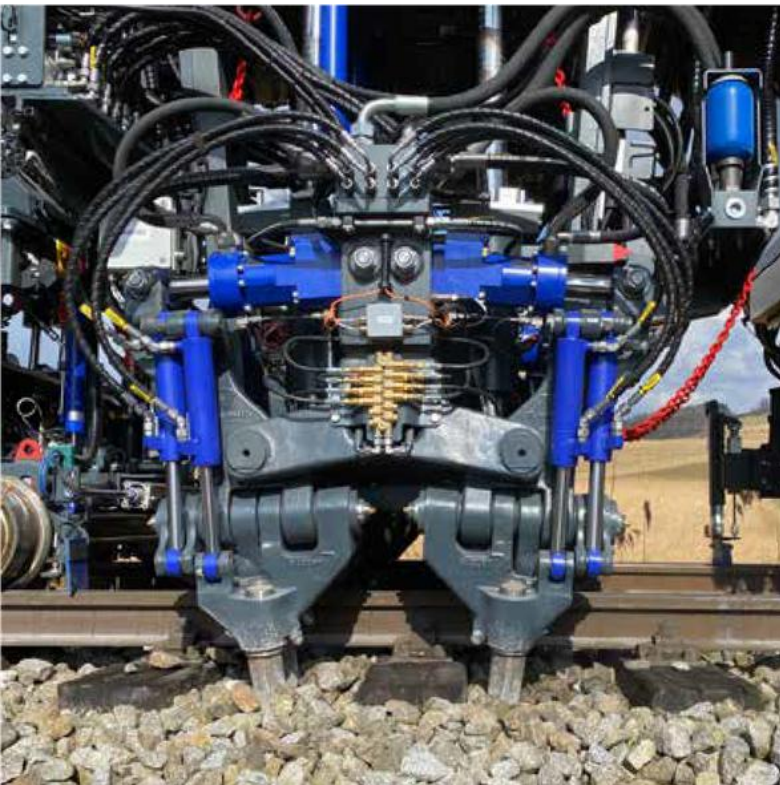
Universal shoulder plough



THE WHISPER-QUIET TAMPING
DRIVE THAT VIBRATES ONLY DURING
PENETRATION AND **DURING**
COMPACTION OF THE BALLAST

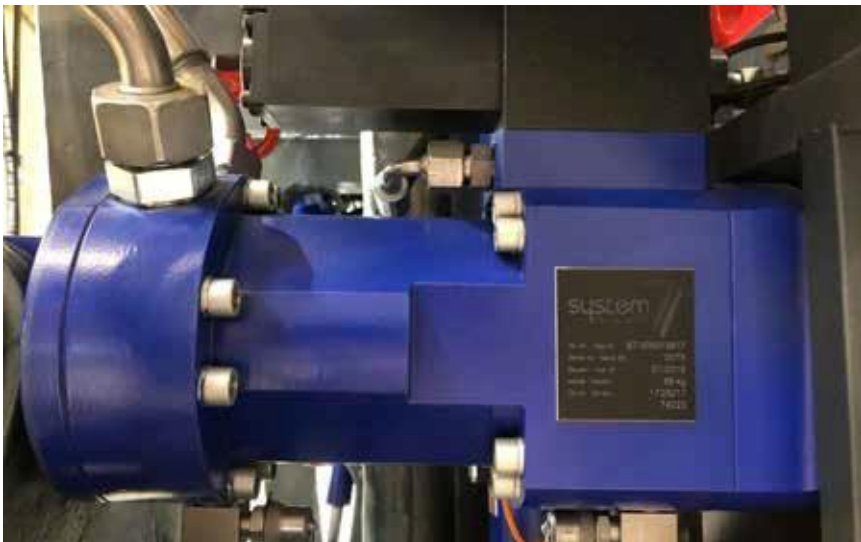
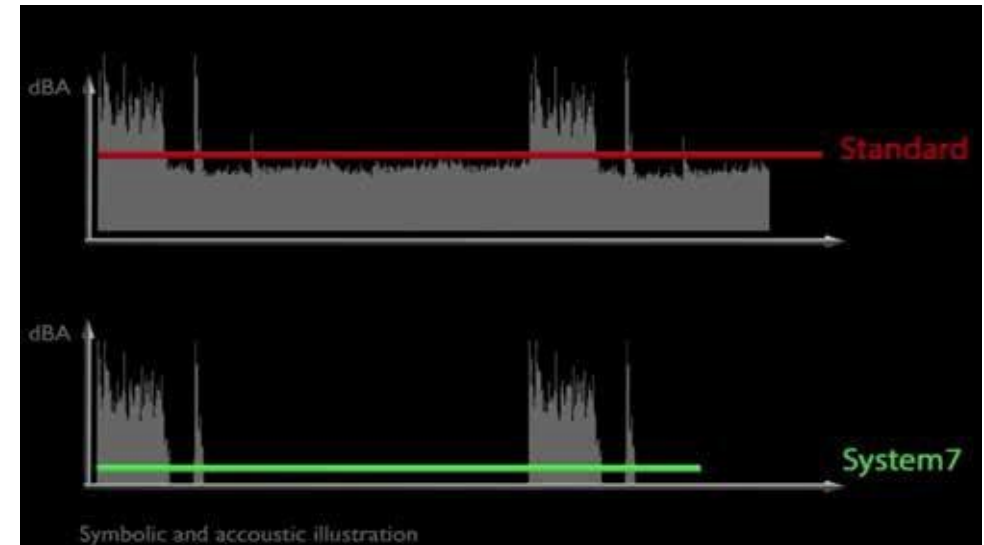


FULLY HYDRAULIC TAMPING UNITS/ RETROFIT KIT



UPGRADE YOUR EXISTING TAMPING
MACHINE **TO THE NEW S7 TAMPING**
CULTURE

- Low overhaul costs and **rapid payback**.
- **Significant reduction in noise and dust emissions**, since the tamping drive vibrates only during penetration and squeezing. The **optimum compaction** of the ballast extends the durability of the track geometry.
- The **tamping drive retrofit kit** is available for most conventional tamping units and offers the benefits of fully hydraulic tamping technology including system7 automatic tamping mode and ballast bed analysis.
- The fully hydraulic tamping machine is available as a perfect replacement for many conventional tamping machines.

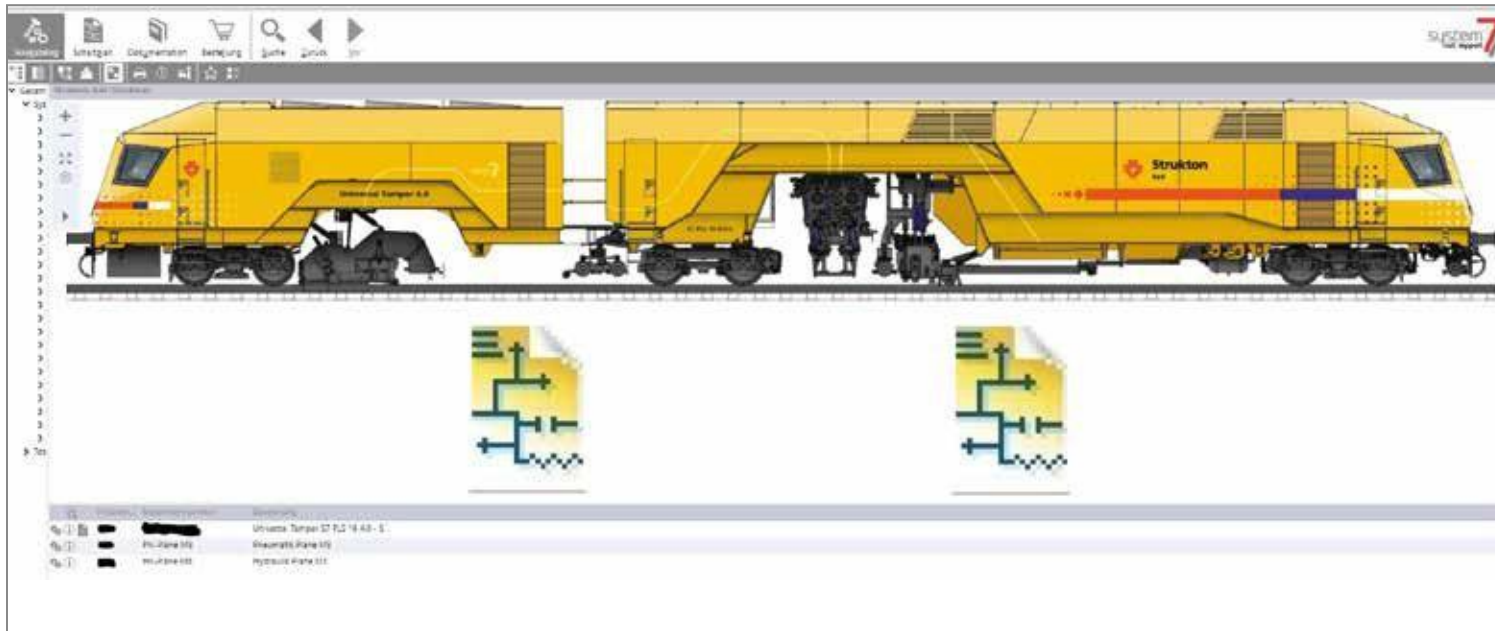


- By means of an **intelligent penetration aid** the amplitude and frequency of the tamping drive are controlled electronically and variably while penetrating the track ballast.
- This function was developed for hard ballast bed conditions and reduces the penetration forces, protecting the tamping machine.
- The operating data and the ballast bed properties measured by the tamping unit are transmitted automatically via GSM to the online infrastructure database INFrame.

REMOTE DIAGNOSTICS AND SERVICE

- system7 offers remote diagnostics and service.
- Spare parts can be ordered online via the 3D spare parts catalogue.
- The latest version of the spare parts catalogue is always available to our customers in the cloud.
- Our service team is available to our customers 24/7, 365 days a year.

3D spare parts catalogue



All information, data, drawings, etc. contained in the brochures of system7 are provided for information purposes only and no claims of any kind against system7 can be derived from them. Such information, etc. is binding on system7 only if it expressly becomes part of a contract concluded between system7 and the buyer, or if system7 confirms it in writing in an order confirmation.





SYSTEM7 railtechnology GMBH . Gewerbegebiet Süd 11 . A-4664 Laakirchen
Tel.: +43 (0) 7613/44700 . E-Mail: sales@s7-rail.com . www.s7-rail.com

English . 09.2026