**Driven by strong values**

Safety • Quality • Innovation

**HDS** Heavy Duty Sleeper

**HFT** Half-Frame Tie

Since 1953 SSL produces pre-stressed concrete ties for the Austrian Federal Railways, federal railways of other countries as well as private railways. Located in Linz, Austria / Europe we provide ties for main and secondary lines, special models for narrow-gauge railways, tunnel sections and switch points.

Highest quality of our ties is the result of a solid experience, constant innovation through cooperation with high-ranking universities and technical experts as well as state-of-the-art manufacturing. This is ensured through our certified quality management system.

Ties are subject to particularly high requirements of the track structure regarding safety, stability and endurance. Due to an increasing demand for heavier loads and faster trains we developed with the Austrian Federal Railways (ÖBB) a new designed and innovative tie:

**The HDS - Heavy Duty Sleeper / in the U.S. also known as HFT - Half-Frame Tie**

**The HDS/HFT is especially recommended for:**

- **Heavy axle loads**
- **High-speed railway lines**
- **Braking distances**
- **High degree curves**
- **Before/after bridges, tunnels & crossings**
- **Isolated joints**

## Test Sections and Experience

### In Austria

The HDS/HFT is used since 2004 by the Austrian Federal Railways (ÖBB) covering tight curves, sections before and after bridges, tunnels and railway crossings.

### In the United States

In cooperation with the AAR (Association of American Railroads), Union Pacific Railroad and the TTCI (Transportation Technology Center, Inc.) HDS/HFT have been installed in 2009 at the FAST (Facility for Accelerated Service Testing). Due to very positive test results HDS/HFT are used at two mainline revenue service locations on the Union Pacific Railroad since 2011.

## HDS/HFT Safety Superstructure

In 2013 in cooperation with the Austrian Federal Railways (ÖBB) the application area of the HDS/HFT has been extended with an anti-derailment device. In addition to the significant benefits of the HDS/HFT, we underline the great track stability and the very high resistance to lateral displacement compared to similar constructions.

# **HDS** Heavy Duty Sleeper
# **HFT** Half-Frame Tie

## Benefits

**Increased Lateral Resistance**
The resistance to lateral displacement in the ballast bed is considerably higher compared to standard concrete ties. The use of tie pads reduces it additionally.

**Higher Track Stability**
The four-point connection of the HDS/HFT with the rails of the track grid improves the stiffness and bearing capacity of the track system. Test results has also shown an increased absorption capacity of the rail temperature.

**Reduced Ballast Degradation**
A better bearing capacity due to a larger footprint and under-tie pads reduces ballast pressure significantly. Moreover, test results show a minimal ballast migration on superelevated curved track.

**High Quality Tie Components**
HDS/HFT are fitted with *Getzner* under-tie pads to provide a more consistent ballast loading condition and *Vossloh* elastic fastening systems.

**Efficient Production Method**
The pre-stressed concrete tie is manufactured and immediately demoulded with direct bonding. Regular and tight controls ensure highest quality of the ties.

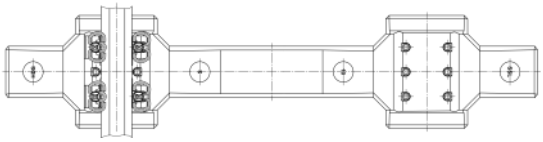
**Ease of Installation**
The HDS/HFT can be installed using a portal crane or a special paving train and a standard production switch tamper.

**Greater Efficiency and Life Expectancy**
HDS/HFT show great performance and ensure a longer service life of the ballast bed. Maintenance intervals are extended considerably. Consequently, life cycle costs are optimized.

## Technical Data

| | |
|---|---|
| **Length** | 2.60 m |
| **Width** | 0.55 m |
| **Heigth** | 0.233 m / 0.253 m |
| **Weight** | 450 kg / 500 kg |
| **Gauge** | 1 437 mm |
| **Rail Inclination** | 1:40 |
| **Concrete** | C50/60 |
| **Preload Force** | 480 kN |
| **Axle Load** | 250 kN / 360 kN |
| **Speed** | 250 km/h / 80 km/h |
| **Rail Types** | 60E1, 49E1, 54E2, AREA 136RE |
| **Reinforcement** | 6 moulded wires Ø 9,5 mm St 1375/1570 |
| **Rail Fastening System** | Vossloh W28 |

Additionally we offer you individual solutions.



# SCHWELLENWERK UND STEUERUNGSTECHNIK LINZ GMBH

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