

# **RIBBED BASE-PLATE FASTENINGS IN PICTURES**



**By F. A. Wingler, March 2021**

Coverpage Image: Ribbed Base-Plate for Turnouts from Donatsch Söhne, AG, Switzerland

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# **RIBBED BASE-PLATE RAIL FASTENINGS IN PICTURES**

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**German Railway indirect Standard KPO canted Ribbed Bearing-Plate  
Railfastening on Wooden Sleeper since 1926 ("K-Oberbau")**

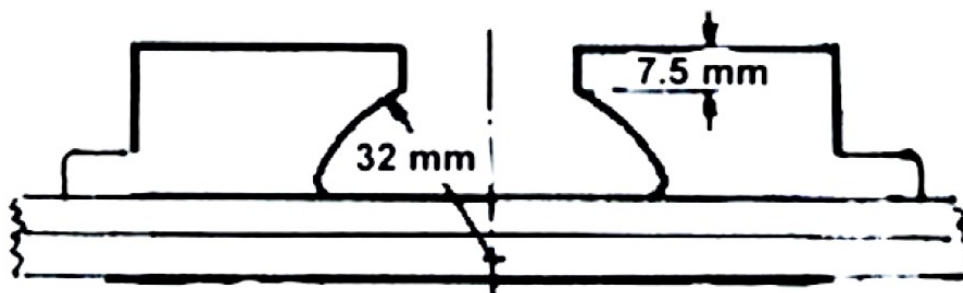
## **PREFACE**

The bearing ribbed base-plate for rail fastenings had been designed in Germany by the engineer Döhlert and introduced on German Railway in 1926. It is the most successful base-plate for indirect rail fastenings on wooden-, steel-, concrete-, composite-, polymer-sleepers and ballast-less slab tracks around the globe. The KPO fastening from 1926 on wooden sleepers superseded the direct and indirect dog-, cut- and screw-spike fastenings and had become the conventional rail-fastening in most Central and East European countries, in Central Asia and as well in Turkey for wooden sleepers. Together with an epsilon shaped elastic tension clamp, SKI ("Spann Klemme", patented 1967 by the German Engineer Professor Hermann Meier at the TU Munich and manufactured for the world market by Vossloh, Germany) it entered also India as a standard elastic fastening for Metro Rail on concrete plinth tracks and for modern turnouts.



**Indirect elastic SKI Rail Fastening of Bangalore Metro with canted Ribbed Base-Plate on Plinth Track; System Vossloh 330/336; Source: IPWE, Delhi, India**

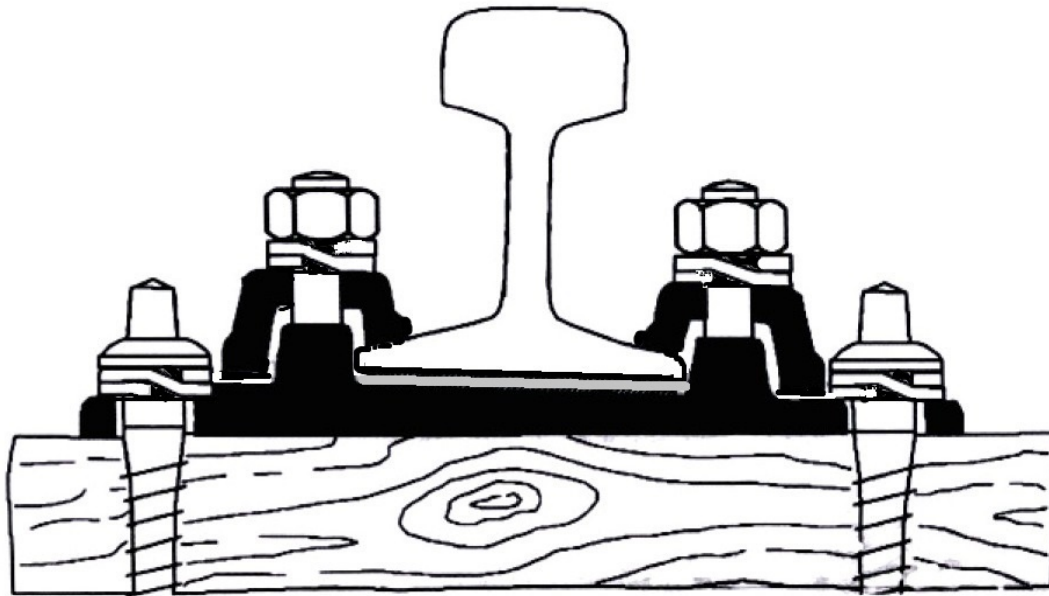
The **K-Ribbed Bearing-Plate** is one of the most adopted base-plates for indirect hook-bolt/nut rail fastenings by Railways around the globe on wooden-, steel-, composite-, FFU polymer-sleepers, concrete sleepers and as well on ballast-less or slab tracks. On the canted base bearing-plate there are two **Ribs** with a “**Swallow-Tail**” opening for the **Hook- Bolt**:



**Swallow-Tail Opening of Rib**



**KPO Hook Bolt and Clamp**



**KPO Assembly on Wooden Sleeper;** Graph by B. Lichtberger; TRACK COMPENDIUM, 2011, ISBN 978-3-7771-0421-8, DVV Media Group, GmbH, Hamburg, Germany

This “KPO” Fastening had been invented by the Engineer Döhlert and introduced on German Railway in 1926. For long it had been the most successful fastening around the globe.



**German Federal Railway 140 kmph Rail Track on Wooden Sleeper with KPO Fastening;** Pict. by F. A. Winger

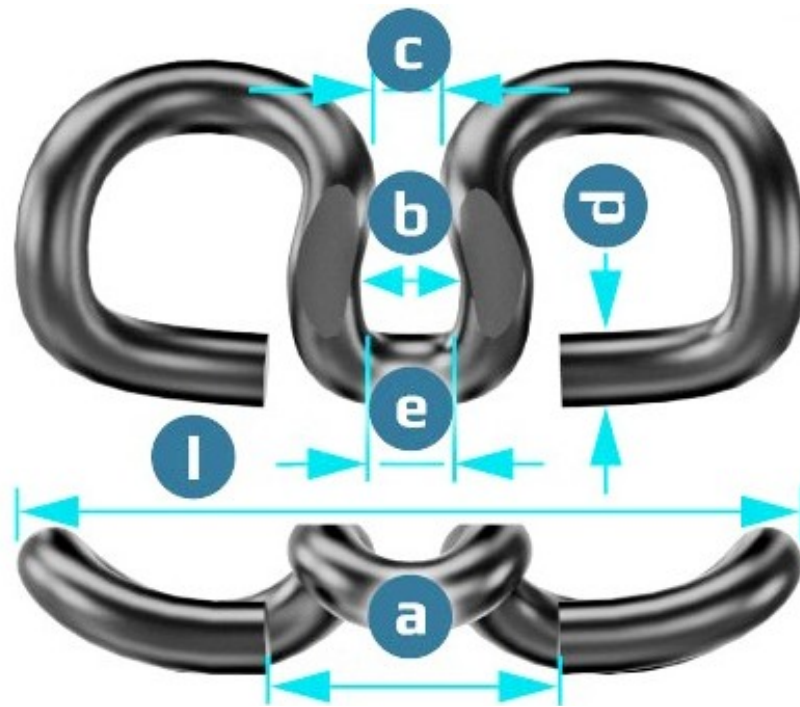
In 1988, the rigid Clamp had been replaced by the elastic Epsilon shaped Tension Clamp SKI 12, manufactured by Vossloh in Germany. The Clamping-Force can be adjusted by the torque on the Hook-Bolt Nut, which should be in the range between 180 and 200 Nm:



The K Ribbed-Fastening allows sandwich structures with a thick vulcanised rubber damping-pad between two cast iron-plates or between base-plate and concrete sleeper or slab with the possibility of vertical and horizontal adjustments:



**SKI 12 Tension Clamp and Hook-Bolt**



**SKI 12 Dimensions [mm]**

<u>a</u>	b	c	d	e	l
<u>50</u>	22	10	13	24	170



**Ribbed Base Plate with Epsilon shaped SKI 12 Fastening on Concrete Sleeper, Germany; Pict: Harumi Michelle Waßerroth**



**Ribbed Base-Plate on modern Y- Steel Sleepers, Switzerland**



**Ribbed Base-Plate on advanced Composite Sleepers, Lankhorst, Netherlands**



### **Ribbed Bearing Base-Plates on modern Sekisui FFU Polymer Sleepers**

The Ribbed Base-Plate SKI 12 Fastening one find nowadays in India on advanced Turnouts, as Bridge Sleepers and on Ballast-Less Slab Tracks and Metro Lines:



**Indirect elastic SKI Rail Fastening of Bangalore Metro with canted Ribbed Base-Plate on Plinth Track; System Vossloh 330/336; Source: IPWE, Delhi, India**



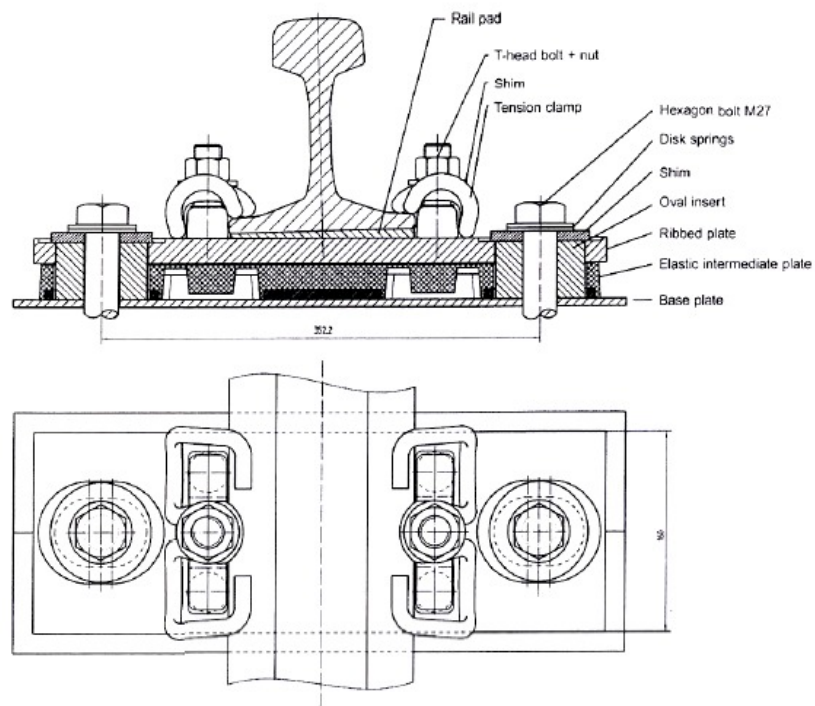
**Ribbed Base-Plate SK 12 Fastening on Delhi Metro Plinth BLT Track; Copyright: Daily Mail**



**Preparing Plinth Track with Ribbed Base Plates, Bangalore Metro**



**Ribbed Base-Plate SKI 12 Fastening for modern Switches and Crossings**



**Elastic Ribbed K-Plate Support with Vossloh Tension Clamp SKL12; Pad System for Turnouts, BWG**



**Ribbed Base-Plate with SKI 12 Fastening on Vossloh HH Turnout, Etihad National Rail, Saudi Arabia**



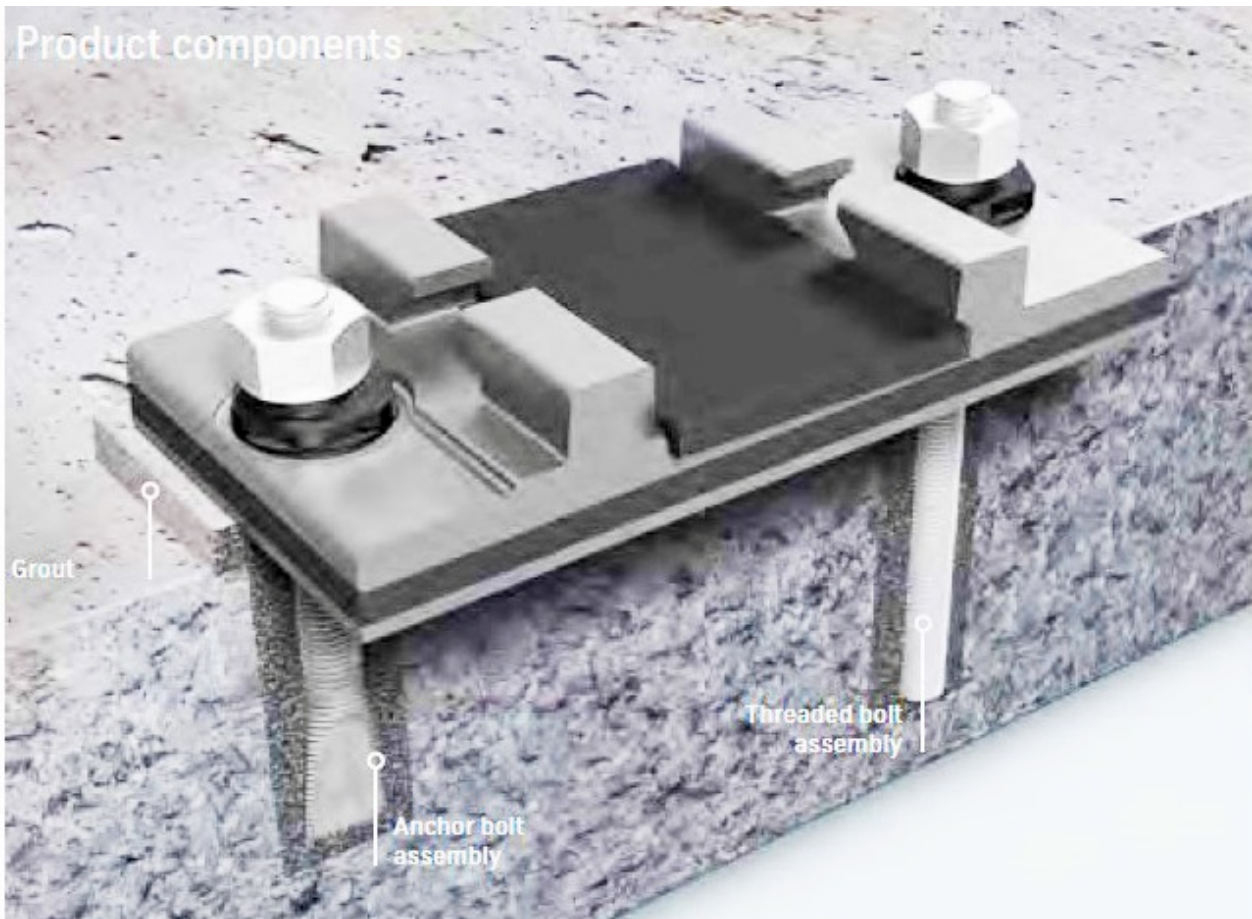
**Advanced Voest Alpine Standard Turnout with Ribbed Base-Plate and SKI 12 Fastening**



**Voest Alpine Ribbed Base-Plate Fastening for Mixed Traffic on Concrete Sleepers and Ballast-less Tracks**



**Ribbed Base-Plate SKI 12 Fastening on M. Bögl High-Speed Slab Track Turnout**



**ThyssenKrupp-Schulte ECF Ribbed Base-Plate**



**ThyssenKrupp Ribbed ECF Base-Plate Fastening with SKI 12 on Steel Bridge Sleepers; Rehabilitation on Cologne Rhine Bridge**



**INR Turnout with Ribbed Base-Plate SKI 12 Fastening, Bilaspur Section; India**

