

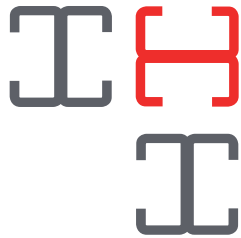
TSK 
Tunnel System Kern



KERN Tunneltechnik SA
SECONDARY LINING TUNNEL SYSTEMS

TSK

Tunnel System Kern



MODULAR FORMWORK SYSTEM

TSK is a modular system introduced in the market by Kern Tunneltechnik in order to provide a bespoke solution to demanding projects, where flexibility, quality and H&S are a priority. In particular the system is oriented to projects where single and special blocks must be realized.

TSK has the typical flexibility of a modular system and at the same time an extremely high level of engineering and manufacture that guarantees very small deformations which turns out to be successful in reducing costs and get an excellent finishing and tolerances.

The KERN formwork technology allows to reach this goal.

Unlike wooden or standard steel formworks, the shutter skin is in steel, painted with a special ceramic coat which provides an excellent pour finishing and a cleaning time reduction.

This level of quality could not be reached using other casting methodologies such as sprayed concrete or standard wood formwork.

A significant advantage of using the TSK Modular Formwork is the health, safety, environmental and finishing benefits.

Customers recognise that the use of cast in situ concrete reduces dust, noise pollution, fallout risk and decreases the volumes of concrete used in the works.

For every project, detailed static calculations, risk assessment and operation checklists lead to consider the extreme work case.



TSK SYSTEMS

TSK Wall Formwork

Kern Tunneltechnik has developed an extremely advanced system for the construction of concrete walls.

The system consists of modular panels that can be assembled together to vary the casting surface according to the requirements.

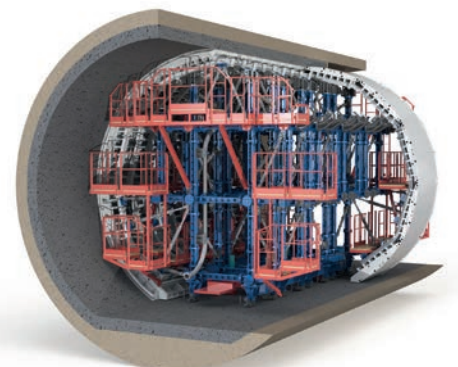
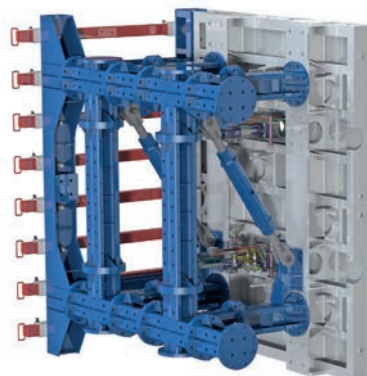
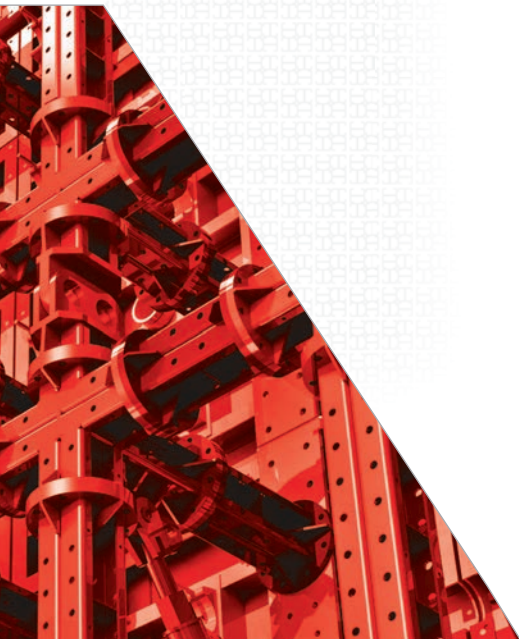
TSK modules support panels and guarantee stability during the concrete pour up to 100kN/m².

The wall formwork can be used independently or combined with other elements, for example for the creation of square tunnels.

TSK Formwork

Formwork is composed by **TSK** standard and special modular elements which permit to adapt and reuse the system in tunnels with different types of geometries, lengths, thicknesses, curves and slopes according project requirements. It has also the possibility to be longitudinally divided to enable the pour of longer and shorter blocks. Special elements can be assembled to realize curved blocks or conical transitions.

The adaptability of this solution allows a reduction of the fixed costs related to the realization of an additional. The possibility of adjusting the structure for different situations decreases the time required for the design and the amount of new elements to be produced.



TSK

BENEFITS

Adaptable to any Geometry and Tunnel Situation

Modular and Interlocking System

Exceptional Possibility of Application

High Safety Standards

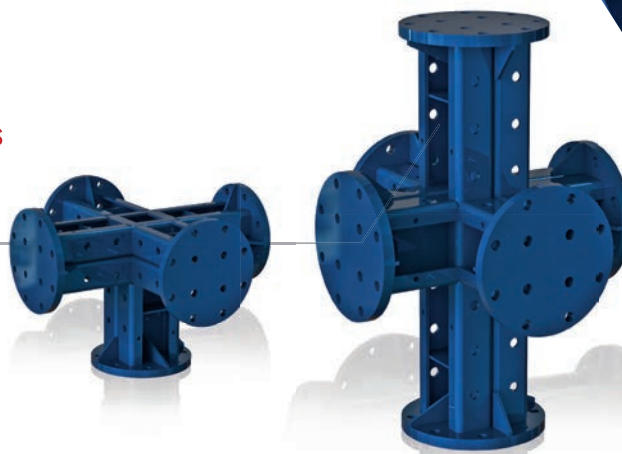
Small Deformations

Easy to Assemble

Up to 100 kN/m²

Efficiency in costs

Specific Rental Solutions

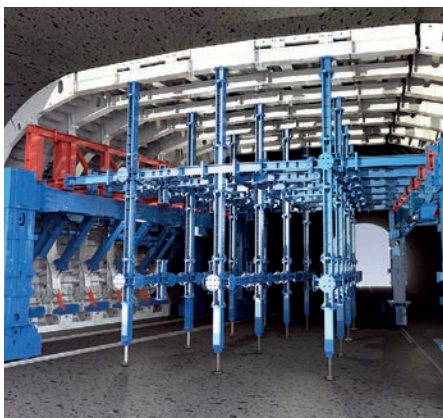


TSK Deck

The **TSK** is also designed to be used as a supporting system for deck formworks with straight or tapered sections.

This solution is performing and efficient in projects where size and shape of the deck vary from block to block and therefore is not possible carry out the completion of the construction works with a standard system.

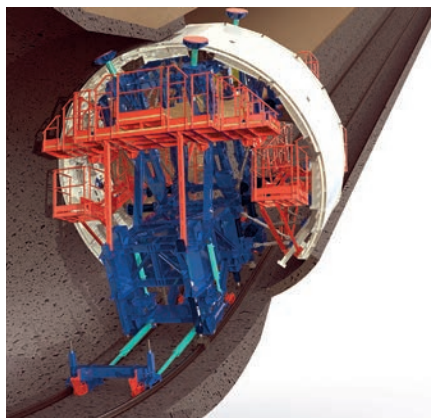
The **TSK** modules are capable to support pressures given by a concrete thickness up to 2m.



TSK Escalator Shutter

This system is developed considering the difficulties in performing a Secondary Lining with high inclination and at the same time maintaining the extremely high level of safety, quality and performance. The machine is equipped with a special jacking system which pushes the shutter upwards. Safety devices guarantee a homogenous movement. Additional measures are considered against slipping hazard.

This system is completely self-propelled, independent and remotely controlled not needing the use of potentially dangerous site means which have to work inclined.

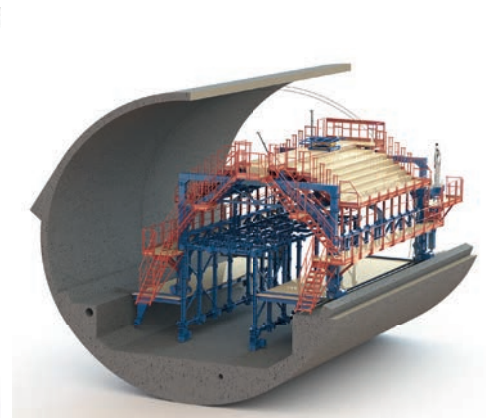


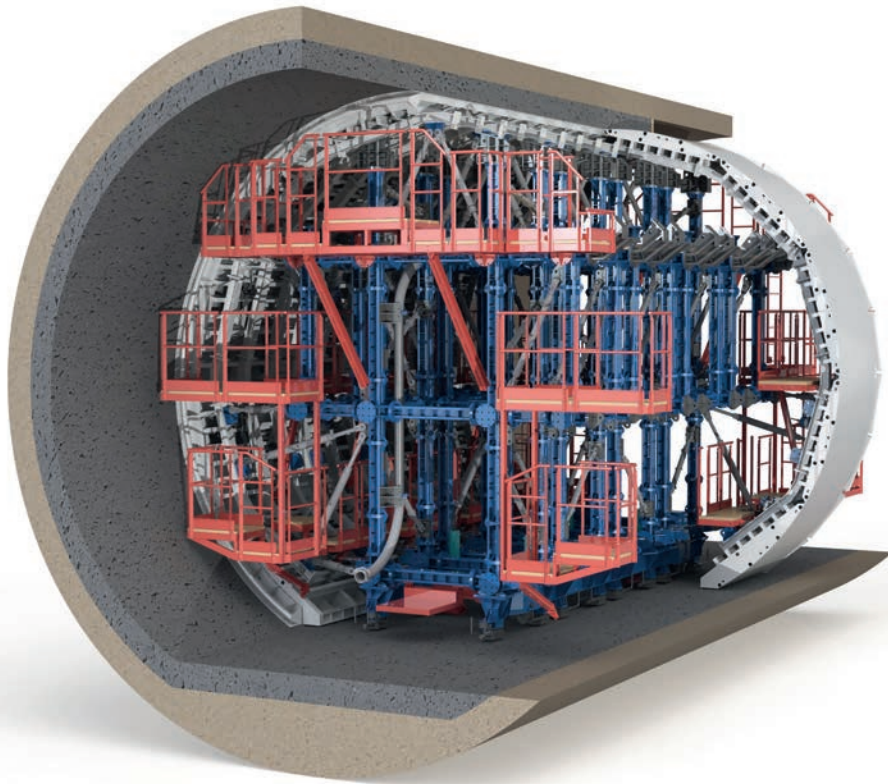
TSK Transport System

Given the huge flexibility of **TSK**, Kern Tunneltechnik designed a bespoke transport system for multi-lane road tunnels.

The system allows to transport and make a single machine without transforming it to the size of the tunnel according to the number of lanes.

There are no limits to use for the **TSK** which can be designed to countless projects and needs.





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