MULTI TASKER

100 / 250 / 800 / 910 / 1000 / 1200 / 1600 / 2000+

RAILWAY CRANE

KIROW

↑
Multi Tasker on the way to work

THE MULTI TASKER.
ONE CRANE. MANY POSSIBILITIES.

SAFETY AND FLEXIBILITY
IN EVERYDAY RAILWAY LIFE:
THE PERFECT CRANE FOR TRACK LAYING,
BRIDGE WORK AND RESCUE DUTIES.

Hamburg main station: approx. 1,600 trains pull into and out of the station daily. Zurich main station: 2,900 trains, Frankfurt (Main) main station: 1,730 trains. Tendency rising. Passengers as well as goods have to be transported on schedule from A to B. Delays are not only annoying but also cause economical losses. The requirements regarding logistics are therefore immense.

In order to ensure trouble free operation, maintenance and extension of the rail network are indispensable tasks. This includes the replacement of the switches, bridge work, as well as the setting of wagons onto the rails. In the event of accidents, locomotives must be retrieved, wreckage removed and rescue operations carried out efficiently and precisely, often under tremendous time pressure.

In the railway environment the working conditions on site tend to be difficult: sometimes a railway line has no adjacent road; sometimes there is no access from the side at all as in tunnels, on elevations or in deep valleys; sometimes a variety of obstacles, such as catenaries, train platforms, masts, posts or signal systems are in the way.
Railway cranes should thus be perfectly adapted to the challenges of the railway environment. The key to success: excellent manoeuvrability in areas with access restrictions and obstacles.

→ **INFO**
What constitutes practically designed railway cranes?
What are the special requirements when heavy loads are to be lifted on the rails?

→ It essentially depends on:

– excellent manoeuvrability, productivity and safety

→ More precisely, on:

– short possession times > lowest possible degree of interruption of the traffic on adjacent rails
– mobility/movability with load
– efficient lifting, propping and positioning
– excellent manoeuvrability even in areas with obstacles or difficult access
– movability/manoeuvrability on the rail network
– high standards of safety
– low operating costs

We developed the Multi Tasker to meet exactly these requirements.

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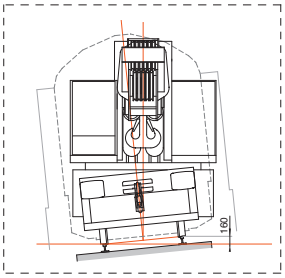
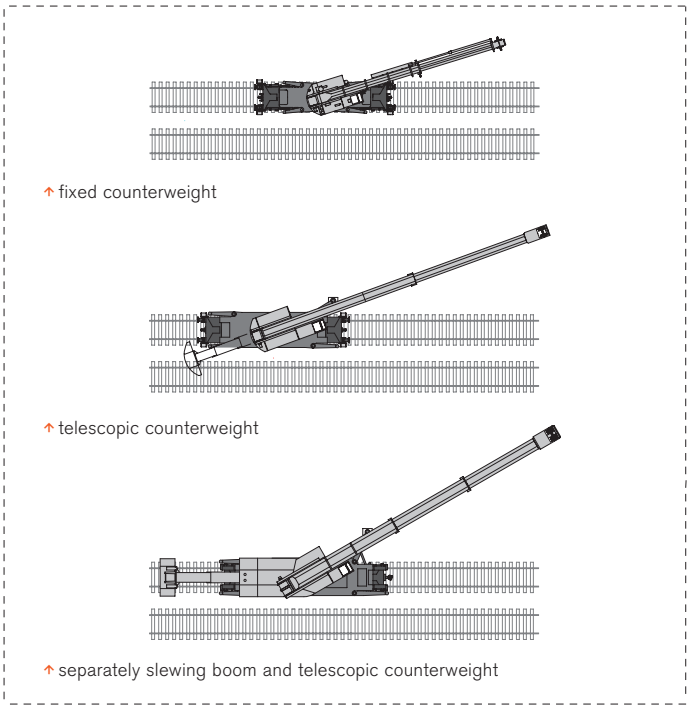
Stations are full of obstacles

MODERN GERMAN ART OF ENGINEERING: THE MULTI TASKER APPLIES HIGH STANDARDS REGARDING MANOEUVRABILITY AND SAFETY.

Superelevation compensation



Schematic diagram of superelevation compensation



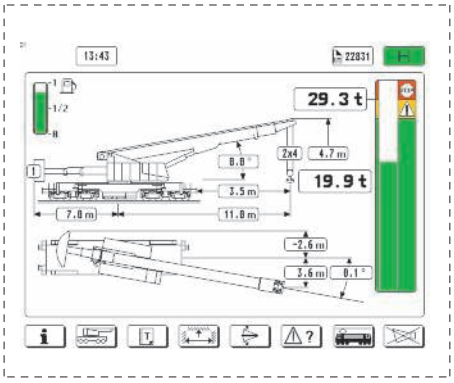
Innovative products from Kirow like the Multi Tasker are what drives the railroad industry ahead. Its technical advantages in terms of safety and manoeuvrability result from a technical concept based on the combination of four well proven technical elements:

The bogies of the Multi Tasker have been designed and optimised especially for crane operation. They are specially designed for crane work. To be able to move with heavy loads our bogies are equipped with spring blocking cylinders that block the leaf spring suspension. In superelevated curves, the Multi Tasker is able to travel with the same load capacity as on straight rails, because the undercarriage and the superstructure are levelled by an automatic superelevation compensation system.

The telescopic boom gives you supreme operational flexibility. Loads can be positioned freely by telescoping (even under overhead catenary with the boom in horizontal position), derricking and turning of the superstructure. Combining the slewing motion of superstructure and hook enables you to manoeuvre around obstacles such as masts or poles. The boom of the Multi Tasker is particularly light and strong.

The special counterweight arrangement of the Multi Tasker permits profile-free working with only one support

Telescopic boom for high flexibility of application



Load case indication for high working safety

The Multi Tasker is offered with three counterweight classes which have one feature in common: the crane can slew to the side without disturbing the traffic on the adjacent track. The trick: owing to the intelligent arrangement of the counterweights, only one support is needed for most load cases. This is an enormous advantage, as time consuming propping operations are reduced to a minimum – especially if propping conditions are demanding at site.

The combination of these provides the following two advantages: first of all the Multi Tasker is unbeatably manoeuvrable: below catenary and bridges in stations or tunnels, at signal devices and all other obstacles. Secondly, it is a milestone in the increase of the operational safety, i. e.: the automatic superelevation compensation means clearly defined load carrying capacities in rail superelevations; the intelligent counterweight concept makes sure that the counterweight does not endanger train traffic on adjacent lines. The Multi Tasker is of course equipped with a modern safety system. The electronic load moment limitation system switches off the crane automatically when it reaches overload conditions; maximum slewing angle and boom height can be set by the driver. And: the Multi Tasker optimally illuminates its area of operations and the surrounding area in the dark.

By the way, we exclusively use first-class materials and components from approved suppliers. These are used in standardised assembly groups, such as bogies, superstructures and booms.

Only the Multi Tasker can move such broad loads on the rail

Traffic continues during operations. The Multi Tasker does not affect the train traffic

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Constructing and travelling

What is more, each Multi Tasker is tailor made as it is built in accordance with the standards and requirements of each particular railway, for instance regarding gauge, geometry (profile etc.), load per axle, brake system, couplers and draw gear.

All this makes the Multi Tasker a multi-functional premium crane.

→ **INFO**
Typically Multi Tasker

- driving with heavy loads: bogies with hydraulic spring blocking cylinders
- constant lifting capacities in curves: automatic curve superelevation compensation
- extremely agile: self-propelled travelling and telescopic boom with swivelling hook
- extremely efficient: only one support needed on many occasions thanks to intelligent arrangement of counterweight
- tailor-made: in accordance with country-specific technical requirements

THE THEORY: MAXIMUM WORKING PERFORMANCE WITH MINIMUM POSSESSION TIME. **THE PRACTICE:** THE MULTI TASKER.

THE MULTI TASKER IN OPERATION.

Working below catenary

The Multi Tasker is at home where rails have been laid, i.e. everywhere in the world. It can be used for track laying, switch and crossing renewals, bridge work and the installation of a multitude of items. Moreover, the Multi Tasker is the ideal rescue device in case of accidents.

Track sections can be moved by means of hydraulic beam

TRACK LAYING

The Multi Tasker is a very economical tool for the laying of double tracks with panels.
Once the ballast bed is done all you need for installing a double track are some flat wagons and the Multi Tasker. The method is as follows:

- panels are prefabricated at an assembly spot and placed on the wagons
- the Multi Tasker alternately puts a panel in front of it and one on the adjacent line
- the panels are provisionally connected with fish plates or quick connectors
- the Multi Tasker drives on the freshly installed panel in front of it and the wagons on the adjacent line follow accordingly

The track sections are laid directly from the wagon onto the adjacent tracks

- when all panels that were on the wagons have been laid, wagons and Multi Tasker return to the assembly spot. Welding and tamping can be done at convenience.

The method is also suitable for renewals, especially for stretches of up to a length of 1000 m as long as the adjacent track can be used.

Laying of track sections with restricted space conditions

The advantages of the simple track laying method of the Multi Tasker are obvious:

- quick and efficient operation
- simple and reliable machinery
- low personnel cost

Kirow has developed a number of specialised attachments that allow the installation not only of prefabricated panels but also of loose sleepers.

CONSTRUCTION OF TRACK SWITCHES AND CROSSING POINTS

The Multi Tasker is also the most effective tool in the field of the construction of track switches and crossing points. Its working method may sound simple, however, it yields impressive results: the crane travels to the site, picks up the old switch sections and moves them one by one – in hoisted position and placed ahead of the buffers – to the assembly spot. There it picks up the switch sections, travels with them one by one ahead of the buffers to the site and places them in the hole until the new sections are all installed. This method has many advantages:

Only one track is needed for the installation process, as the Multi Tasker can travel on the sections it has laid just before.

Good visibility also in the dark

Due to the ability of the crane to pick up switch sections laterally at a distance of approx. 3 to 10 m and the ability to travel with the load, the assembly spot can be chosen freely at a distance of 1 to 2 km to the renewal site. Switch sections can be easily hoisted in case of typical railway obstacles, such as cable troughs, signal devices or slopes.

It is understood that the Multi Tasker can also unload track switch parts directly from wagons.

The unique working method of the Multi Tasker gives you a very high degree of operational flexibility which in turn simplifies the planning of logistic processes for switch renewals significantly.

The decisive advantages result from the technical concept of the Multi Tasker:

- high flexibility: The Multi Tasker does not need much space. It excels in restricted conditions. Thanks to the small rear radius of the counterweight of the Multi Tasker, it can work "profile-free", i.e. the traffic on the adjacent track is not affected.
- high speed and high efficiency: The Multi Tasker requires very little time for one lift – and needs only one support for most load cases.
- minimum possession times: It is possible to dismount and mount track switches by means of the Multi Tasker within two hours.
- utmost precision and high quality: The Multi Tasker is able to position switch sections carefully and with high precision. Switch sections are transported "stress free", as they hang horizontally under lifting beams. Thanks to the use of special nylon straps the rails of the sections are not damaged. And: as the Multi Tasker moves on rails, the just created ballast bed will not be affected by the installation process of the switch as ground pressure is low due to the even load distribution via rails. High quality and precision make sure switches installed with a Multi Tasker will have a longer life than those installed by more conventional means.
- high level of safety: Thanks to an integrated control system which stops operations when approaching overload conditions and allows to set site specific limits for the movements of

Switch section lifted from the side

Multi Tasker 1600 during recovery of a locomotive in Tibet

the boom with regard to height and movement to the side.

- low labor costs: The Multi Tasker is operated by only one crane driver and one or two slingers.
- low maintenance costs: Due to robust basic structures and a small number of parts that are subject to wear.

Rescue work

ACCIDENT SERVICE

The railway is considered as being very safe compared with other means of transportation. However, even with extreme care it is impossible to rule out the possibility of accidents completely.
In case of an accident, time is the most important factor. Rescue measures are to be carried out immediately to give the track back for traffic as quickly as possible; wreckage has to be removed, wagons have to be put to the side or re-railed and towed away. The Multi Tasker is the heavy lifting tool for accident situations. It is the only heavy-load device by means of which you can reach each place in the network and its environment (at a radius of 20 m and more). The Multi Tasker types with lifting capacities of 1000 mt and more are particularly well suited for accident relief duties.

The advantages of the Multi Tasker:

- fast transportation: Towed by locomotives to the place of the accident
- short start-up time: High lifting capacity and large outreach due to telescopic boom
- safe lifting operations: On many occasions only with one support due to special counterweight arrangement
- ability to travel with load: This means high degree of flexibility required in particular in case of accidents.

Efficient erection of bridge girders

BRIDGE WORK

The ability to pick, carry and install the load is of great use when doing bridge work. Bridges of varying sizes can be transported in front of the buffers from a convenient pick up point to the place of assembly and then laid precisely in position.
In case the adjacent line can also be used two cranes may work in tandem. In this way the total capacity of the tandem cranes is approximately four times the capacity of a single crane.

For bridge work especially the Multi Tasker type 800 and stronger are suited. Thanks to the advanced control system bridges can be positioned with utmost care and high accuracy.

FURTHER APPLICATIONS

The Multi Tasker can also lift, transport and install:

- concrete elements
- electrical components, such as transformers
- signal arrangements
- catenary wire bridges
- pedestrian bridges
- sound insulation elements
- roof elements (of stations e.g.)

and much more within a radius of 3 to 25 m around the rail.

THE MULTI TASKER IN OPERATION.

Lifting concrete elements with the Multi Tasker

Multi Tasker 1200 when lifting one of the largest auxiliary bridges of DB AG

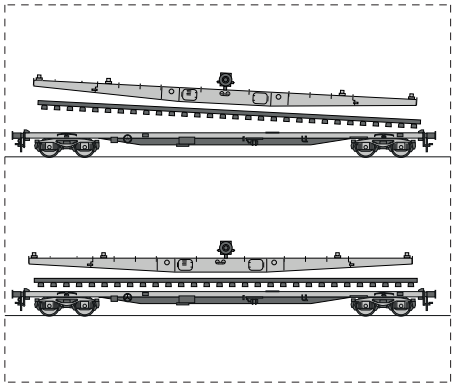
Bridge construction in tandem operation

No obstruction of train service

SELF-LEVELLING BEAM

The Self-Levelling Beam is the ideal companion to the crane.

Motorised traverse systems eliminate the need to search manually for the centre of gravity. By the means of an integrated hydraulic cylinder the crane hook can be shifted under full load until the lifting beam with the attached payload is horizontally leveled. No longer does a rigger have to climb around on the switch wagon or search for the mass centre – a bothersome and time-consuming procedure.



Safe and fast handling of switch segments with the Self-Levelling Beam

The possibility of quickly and easily positioning the lifting beam horizontally with and without payload minimizes the required lifting height when handling the switch components. The usable lifting height of the railway crane is increased, a decisive advantage, especially when working under the overhead line.

This enables the centre of gravity to be found quickly - simply by pressing a button on a remote-control unit.

This makes work significantly safer and additionally saves precious working time per lift.

IMPROVED LOAD POSITIONING

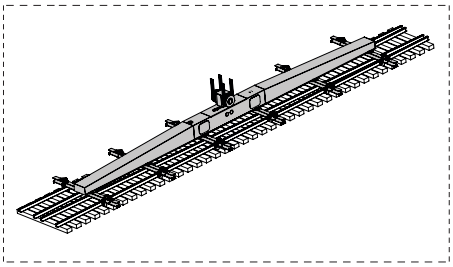
The Self-Levelling Beam makes positioning easy. Initially, one end of the segment can be lowered, positioned and fixed with precision.
After the final positioning of the whole switch segment, it can be lowered gently. This is particularly advantageous when installing very long segments of switch.

KIROW SWITCH HANDLER

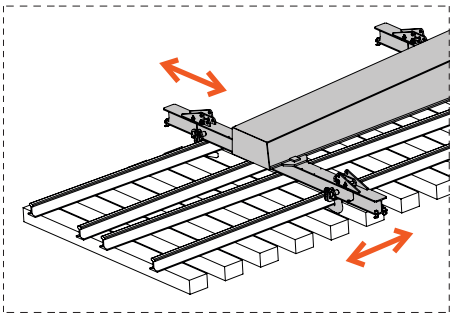
The Switch Handler goes one step beyond that: Manual operation of the load hooks for loading and unloading of the switch tilting wagons is entirely possible without climbing on top of the wagon platform. All work steps can be done from the ground. Dangerous working at height is eliminated.

In addition to the proven hook shifting device, this lifting beam system features crossbars with load hooks for directly fixing the switch segments. The crossbars are positioned beneath the lifting beam and their distance can be adjusted depending on the distance between the bearers by using a shifting cylinder. This guarantees that the load hooks can easily reach the segment from under the rail foot in any case. The shifiting functions of the crane hook and the crossbars are operated by a radio remote control.

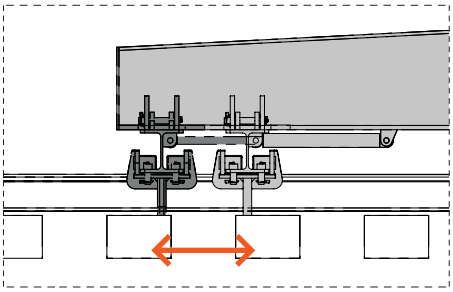
As soon as the Kirow Switch Handler is positioned on the switch segment, the load hooks can be pushed under the rail between the bearers. The utilization of the Kirow Switch Handler makes the handling of switch segments significantly easier.



Kirow Switch Handler



adjustable crossbars and load hooks of the Switch Handler



hydraulic shifting function of the crossbars

Switch panels can be directly fixed to the Switch Handler by using the integrated load hooks

Load positioning with the Self-Levelling Beam

WHY KIROW?
CRANE CONSTRUCTION SINCE 1880.

→ KNOW HOW

With more than 5,000 units delivered Kirow is world market leader for railway cranes. Since the mid 90ies Kirow is also engaged in the field of industrial transporters for track construction, shipyards and steelmills and established itself as a specialist for heavy duty equipment. Kirow's products are based on organically grown know-how that has been built up gradually by working closely together with our customers. The Multi Tasker is a modular product platform in a cluster of frequently demanded sizes around a very well proven product concept that can be adapted to specific customer needs and individual railways' requirements. This way our customers get the best of both worlds:

- on the one hand they get the benefits that come from the proven reliability of standardised components and design principles
- on the other hand individual customer requirements can be fulfilled and tailor the Multi Tasker to comply with country specific regulations.

The types portrayed in the product overview section shall give you a first indication. Build examples can be visited upon request.

→ QUALITY

Quality means to us: a sophisticated product concept, profound know-how in the fields of constructional design and control as well as the highest degree of precision with regard to fabrication and execution. It goes without saying that our engineers test and check all mechanical, hydraulic and electrical groups of components meticulously.

All this provides decisive advantages:

- maximum capability and reliability of the cranes
- low cost of operation
- long service life (even under the toughest operating conditions)

→ SERVICE

Excellent service means for us among other things: to be present and available. After all, something unforeseen could happen. Therefore you can reach us e.g. via hotline around-the-clock. Exclusively highly-qualified engineers and technical service personnel in our after-sales service are available for your safety and satisfaction. Last but not least, we place great importance on detailed and appropriate training and support of your personnel.

→ PARTNER APPROACH

The Multi Tasker is an extremely long-lasting product. The decision in favour of this crane is simultaneously the beginning of a comprehensive customer/supplier relationship often becoming manifest in repeated orders and follow-up orders. We

↑ Multi Tasker in the assembly hall

therefore attach great importance to ensuring that this relationship is fair and with long-term benefits for both sides. By the way, for us this starts long before the signing of the contract. We will be pleased to advise you, just give us a call.

↑ Kirow production facilities in Leipzig

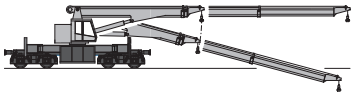
THE MULTI TASKER – THE ESSENTIAL TECHNICAL DATA.

AN OVERVIEW OF THE MULTI TASKER.

MULTI TASKER 100

The Multi Tasker 100 is ideal for easy erection activities, such as the setting of masts, sound insulation elements, etc. Lifting accessories for special tasks can also be supplied.

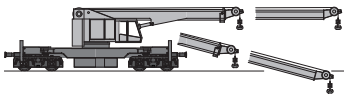
- maximum lifting capacity from 10 to 25 t
- maximum load moment of 100 to 150 tm
- 4 axles
- fixed counterweight with short rear outreach for working without disturbing the adjacent track



MULTI TASKER 250

The type 250 is a crane especially made for the laying of track sections with a length of 18 m. Well proven manual or hydraulic beams are available for hard work. The Multi Tasker 250 is moreover an excellent device for the renewal of smaller switch points.

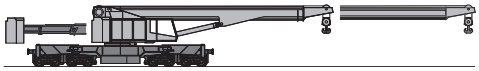
- maximum lifting capacity from 25 to 50 t
- maximum load moment of 250 to 300 tm
- optionally 4 or 8 axles
- fixed counterweight with short rear outreach for working without disturbing the adjacent track



MULTI TASKER 800/910

The type 800/910 is a special device developed for the renewal of switches with concrete sleepers. Moreover these cranes are suitable for mounting medium-heavy bridge elements and as rescue cranes in case of average load cases. We have taken special care that the Multi Tasker can be operated easily.

- maximum lifting capacity from 50 to 125 t
- maximum load moment from 500 to 900 tm
- 8 axles
- telescopic counterweight with only 2 m rear outreach with retracted counterweight for working without disturbing the adjacent track (alternatively types with larger rear outreach can also be supplied)



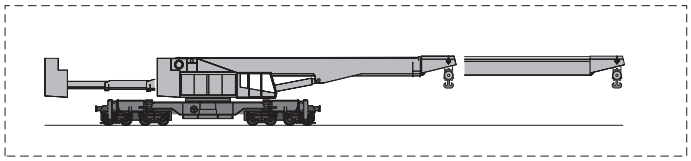
THE MULTI TASKER – THE ESSENTIAL TECHNICAL DATA.

AN OVERVIEW OF THE MULTI TASKER.

MULTI TASKER 1000

The types 1000/1010 have considerably higher lifting capacities compared with the types of the series 800/910 while maintaining the simplicity of its operating concept. The Multi Tasker 1000 has been designed for the construction of switches and bridges, for larger elements and can also be used in case of serious accidents.

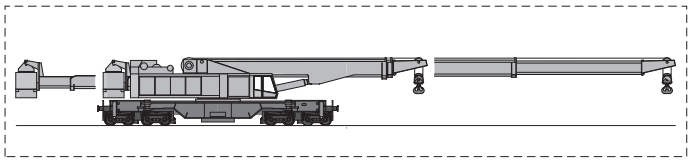
- maximum lifting capacity from 100 to 150 t
- maximum load moment from 1000 to 1200 tm
- 8 axles
- telescopic and chamfered counterweight with short rear outreach with retracted counterweight for working without disturbing the adjacent track. The counterweight can optionally be laid down for transportation



MULTI TASKER 1200

The Multi Tasker 1200 has again clearly higher lifting capacities compared with the type 1000/1010. The ability to slew the boom while the counterweight stays in line is a great advantage in case of operations in areas with restricted space conditions. Multi Taskers of the 1200 series are ideally suited for the construction of switch points and bridges but also in case of accidents.*

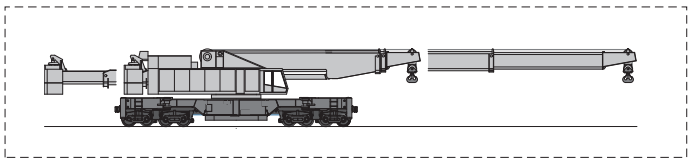
- maximum lifting capacity from 150 to 160 t
- maximum load moment of 1200 to 1400 tm
- 8 axles
- telescopic counterweight; counterweight is laid down for transportation
- separate slewing boom (option)



MULTI TASKER 1600

The Multi Tasker 1600 has significantly higher lifting capacities compared with the type 1200 – in particular when working with props. Thus, this crane is predestined for the recovery of locomotives. Moreover it is as multifunctional as the type 1200.**

- maximum lifting capacity of 160 t
- maximum load moment from 1600 to 2000 tm
- 8 axles
- telescopic counterweight; counterweight is laid down for transportation
- separate slewing boom (option)

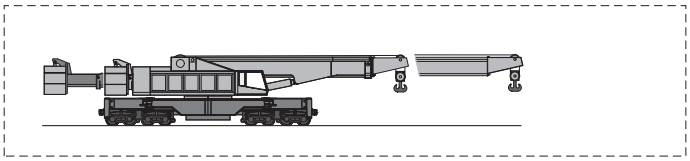


AN OVERVIEW OF
THE MULTI TASKER.

MULTI TASKER 2000+

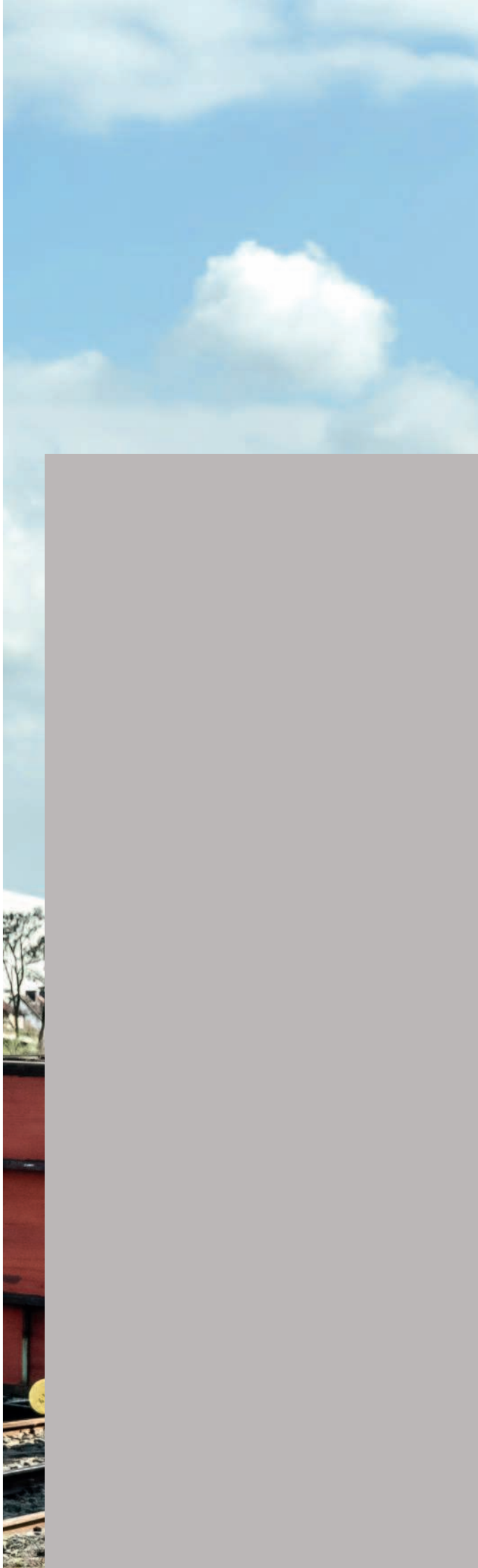
The Multi Tasker 2000+ from Kirow is the worlds strongest railway crane. Due to its excelling lifting capacity this crane is able to rerail even 150t locomotives in longitudinal direction in front of buffer. Therefore, accident recovery of the heaviest rolling stock is no challenge for the crane. Similar to the types 1200 and 1600, the Multi Tasker 2000+ can additionally be used for various lifting works on track thanks to its high lifting capacities.**

- maximum lifting capacity of 200 to 225 t
- maximum load moment from 2.200 to 2.880 tm
- optionally 8 or 12 axles
- telescopic counterweight; counterweight is laid down for transportation
- separate slewing boom (option)



* IN CASE OF RAILWAYS WITH LOW CONSTRUCTIONAL HEIGHT OR STRUCTURE GAUGE, CERTAIN LIFTING CAPACITIES CAN ONLY BE REALISED BY CRANES WITH SIMULTANEOUSLY ROTATING COUNTERWEIGHT.

** EXTREMELY HIGH LIFTING CAPACITIES OF THE 1600 NOT AVAILABLE FOR CRANES BUILT IN ACCORDANCE WITH UIC GAUGE. IF YOU SHOULD HAVE ANY QUESTIONS, PLEASE DO NOT HESITATE TO CONTACT US.



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