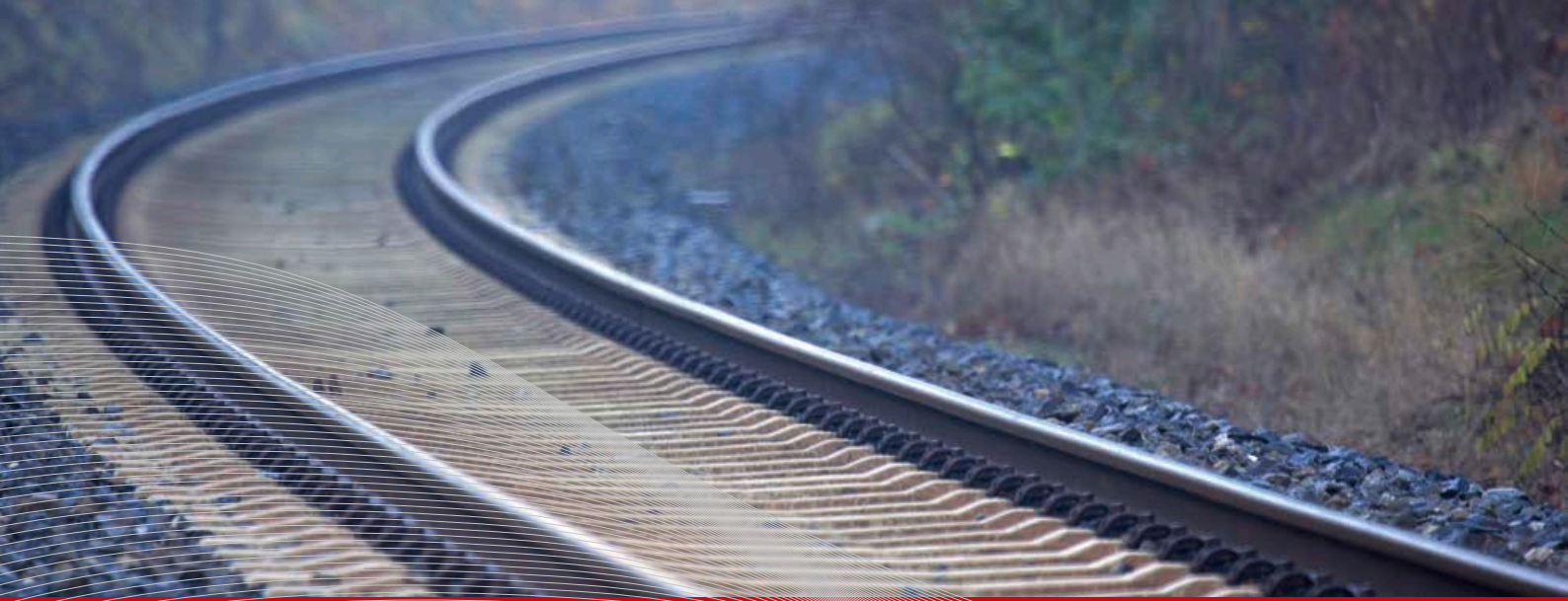




Wheelset presses



MAE.



Wheelset presses from MAE – sheer power and precision

Innovative technical solutions, a close relationship with our customers, qualified employees and a wealth of experience from diverse projects: for over 50 years, MAE has been developing and supplying rail vehicle wheelset assembly presses and set the trends that prove their worth in daily use at our customers the world over.

From low-cost workshop presses through to fully automatic high-performance presses, we offer a wide range of standard products that can be specially tailored to suit your specific application.

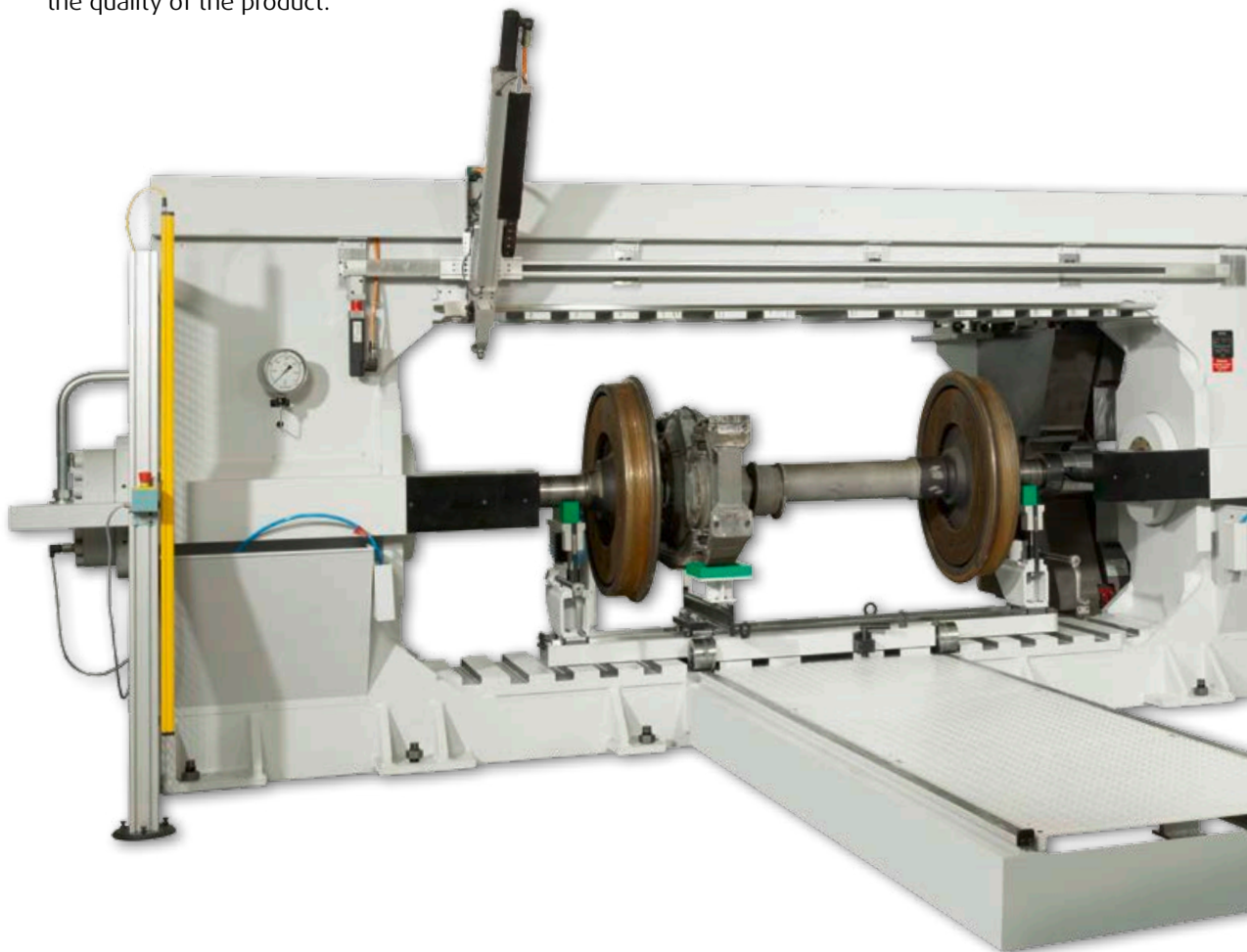
Design, assembly, commissioning and service: we have the specialists in-house. That is why MAE is a byword for innovative engineering „made in Germany“ offering products and services of the highest quality, reliability and value for money.



Powerful concepts – for growing demands

The demands on modern assembly processes have been steadily increasing worldwide. Vehicle manufacturers and operators are becoming more aware of the integrity of these processes and this is underlined by increasingly stringent regulations. Conventional wheelset press technology has seen significant advances in this area over the last two decades. MAE offers powerful concepts that are geared to meet these demands.

Centering cylinders for wheelset shafts and mounting sleeves for wheel and brake discs replace manual positioning with lifting appliances and enable exact component alignment. For loading and unloading the press, wheelset carriages have replaced tedious and dangerous crane handling operations. The heart of the press is a high-performance control computer. In combination with a force and displacement measuring system, it guarantees a precise assembly process conforming to relevant standards and extensively documents the quality of the product.





Today, centering cylinders, wheelset carriages and control computers are standard equipment even on simple workshop presses. High-performance presses for wheelset manufacturers or large maintenance companies are characterised by a high degree of automation of all operations and processes, including loading and unloading and press tool positioning.

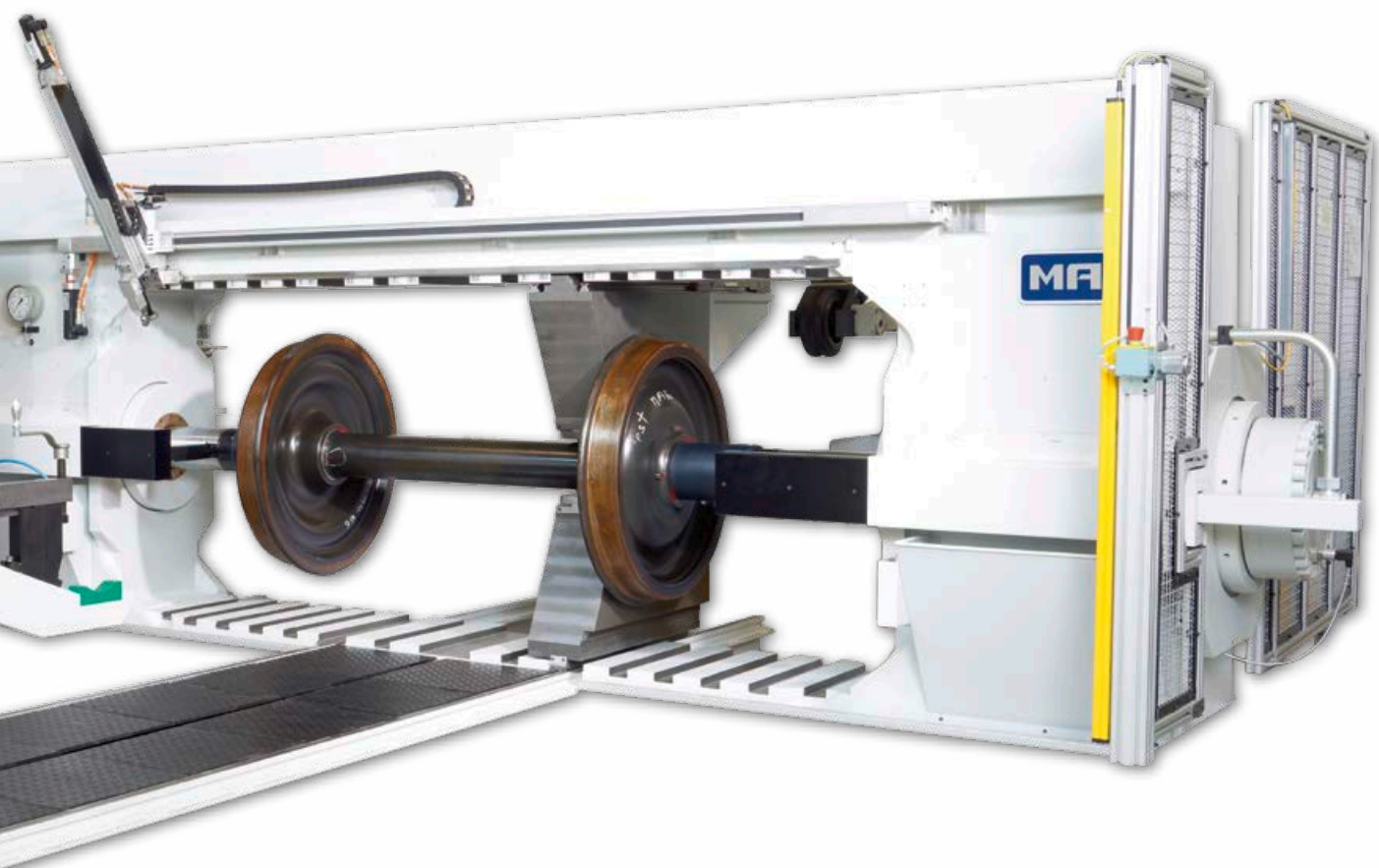
MAE has taken all this into account. The current range of presses for all applications is based on one, particularly efficient basic concept that offers outstanding operating convenience and precise, safe process sequences also for companies operating with small series production and a limited budget.



RADS series – the innovative basic machine

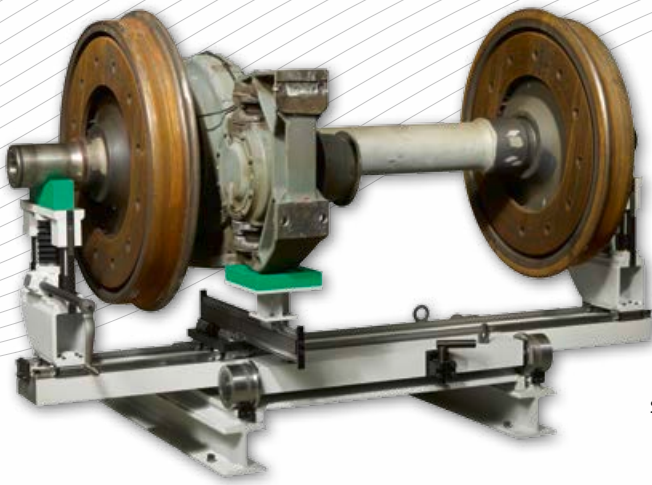
- *Low space requirement, high precision and exceptional stability due to the compact monoblock frame concept.*
- *Large, basic tools stored directly in the press frame for easy pressing operations also for critical wheelsets with limited space.*
- *Excellent ergonomics, easy access to the working area.*
- *Press tools are easy to move and protected against contamination.*
- *High energy efficiency due to demand-controlled hydraulic system.*
- *Certified, safety concept geared to the needs of the workplace.*





Loading and unloading systems – for efficient handling

The performance capability of a wheelset press depends largely on rational loading and unloading conveying systems. MAE offers with three basic systems, demand-orientated solutions for all applications.

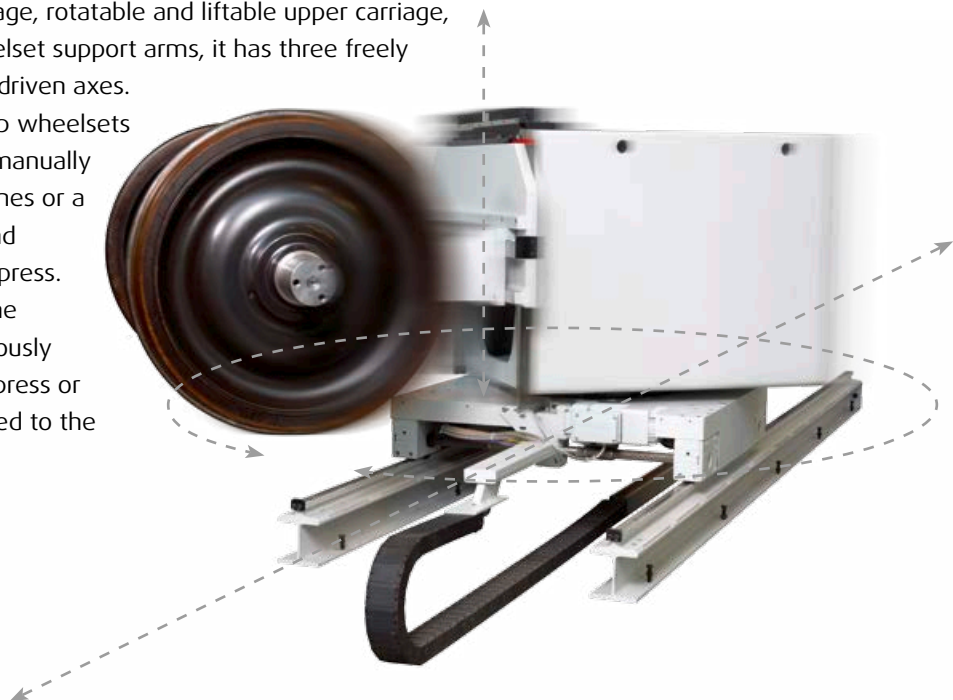


Manual wheelset transport carriage

This manually movable wheelset transport carriage is a low cost variant for single piece and small series production. Easy to adjust horizontal and vertical support elements for the wheelset shaft as well as for attached drive units enable it to be converted quickly and flexibly. Loading takes place outside the press space; tilt protection makes the carriage suitable for use as a pre-assembly stand.

MAE Movis wheelset manipulator

Since 2001, this patented Movis wheelset manipulator has been our tried and tested concept for large production quantities. With a rail-guided lower carriage, rotatable and liftable upper carriage, width-adjustable wheelset support arms, it has three freely programmable motor-driven axes. Movis is able to pick up wheelsets fully automatically or manually controlled from feed lines or a pre-assembly stand and transport them to the press. After being pressed, the wheelsets are continuously deposited behind the press or alternatively transported to the front again.





MAE MoGiS heavy-duty wheelset carriage

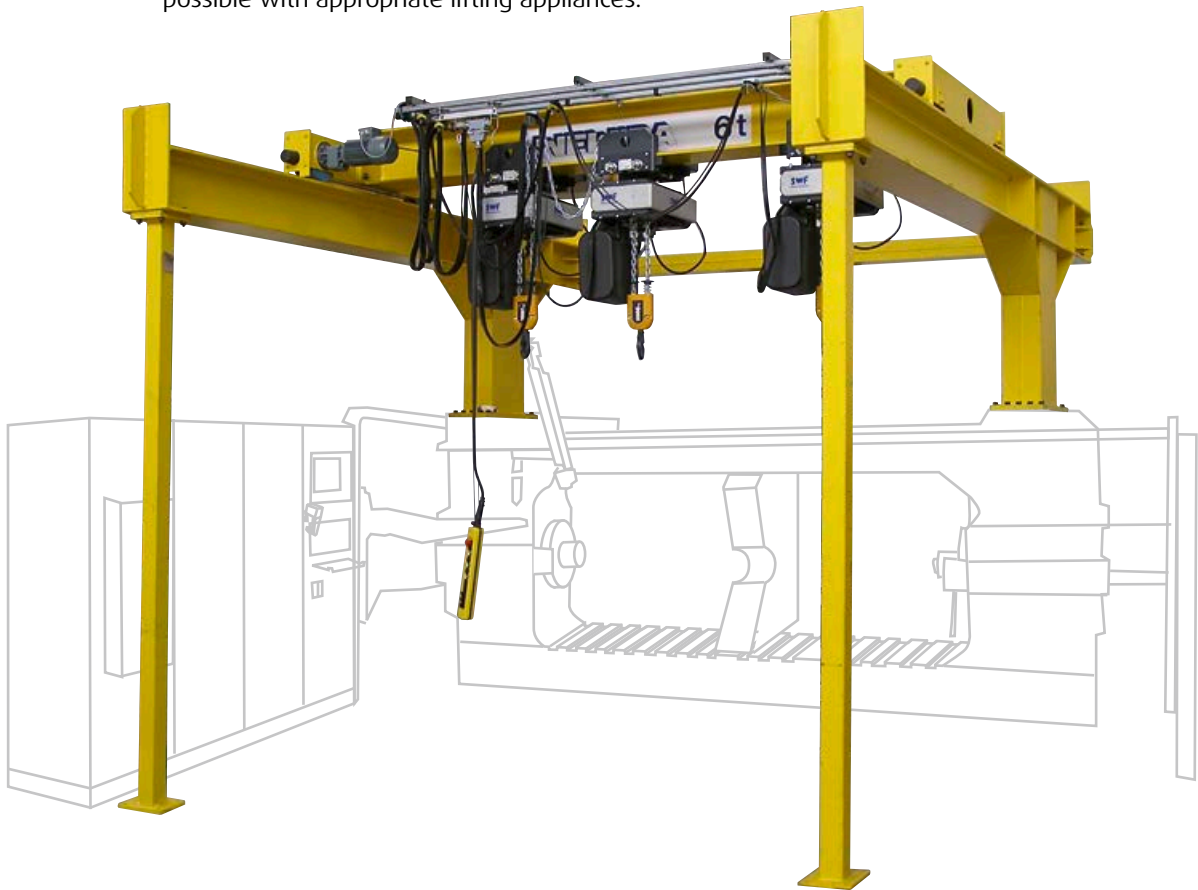
In order to transport heavy locomotive wheelsets safely, engine and gear units must be securely supported during the loading, unloading and pressing process. MAE offers with the MoGiS system a particularly efficient and flexible solution for this complex task. The wheelsets can be placed on the manual or motor-driven transport truck with height and width-adjustable attachment points for the wheelset shaft and drive unit by crane.

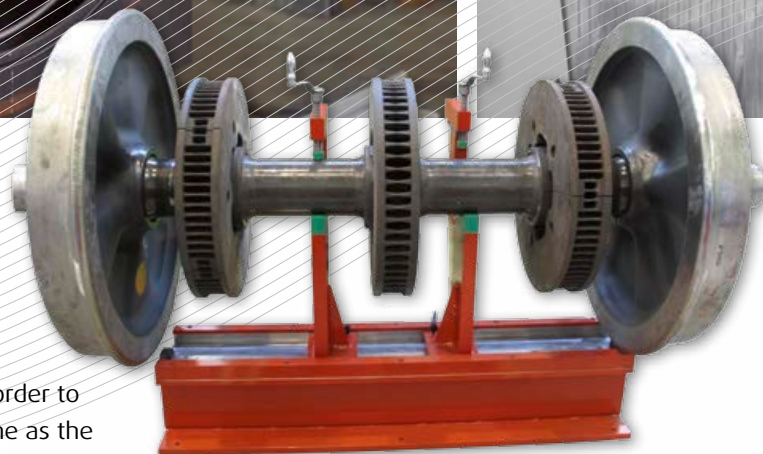
Options – tailored to your requirements

Do you need special equipment, tools and services or tailor-made components for special tools or even customised software? Simply contact us if you are looking for a concept that is specially tailored to meet your specific requirements.

Bridge crane

This bridge crane, which is designed specially for use in specific space conditions, makes the wheelset press independent of the availability of a workshop crane. It transports wheelset shafts and wheels and brake discs from the temporary storage facility in the area of the press to the pre-assembly stand via three individually or synchronously controllable hoists. Complete wheelsets can also be picked up and deposited at any required point. Today, cranes are hardly used for directly loading presses; however, this is easily possible with appropriate lifting appliances.





Pre-assembly stand

For high productivity, an independent workstation should be available for the pre-assembly of wheel and brake discs in order to prepare the next wheelset at the same time as the pressing process.

MAE offers two basic pre-assembly stands: a simple version with one working stand and a double pre-assembly stand, where one component can be pre-assembled by a worker at a station, whilst a second can be simultaneously loaded or unloaded.

High-pressure pumps

The wheel and brake discs of locomotives, railcars and passenger carriages today usually have connections for hydraulic lines for removal without damage.

MAE offers manual or automatically operated high-pressure pumps as well as associated hoses and quickly interchangeable connection adapters. By using collecting tanks, optimised hose routing and an enclosed machine frame, fouling is kept to a minimum and the risk of accidents and contamination is reduced.



Tools and engineering

Although the wheelset press can be considered as a standard product latest during the design phase of the special assembly tools for your vehicle fleet customized designs are required.

If your press needs to be designed for additional wheelset types, we can produce the necessary equipment including assembly and commissioning.



Modern measuring and control systems – for safe processes

The measuring and control system of a wheelset press is decisive for process safety, accuracy and ease of use. MAE took account of this at any early stage and has set new standards with the MAE RACOS control computer and freely programmable measuring system.

MAE-RACOS measuring computer

The MAE-RACOS which is based on a high-performance industrial PC was presented for the first time in 1995. In the meantime, we have realised several new generations with increasingly efficient hard- and software as well as a particularly comfortable operator interface.

The RACOS system handles all process information and encoder signals for positions and forces. It controls the automatic operation of all press cylinder drives, tool motions and loading system sequences in a freely programmable cycle.

The computer is installed in the computer cabinet directly next to the press. The large touchscreen LC display visualises the process in clear detail. Windows operator interface, Ethernet interface ports for customer wheelset databases, DVD drive and remote diagnosis are further features.



UIC - International Union of Railway



AAR - Association of American Railroads



DB - Deutsche Bahn

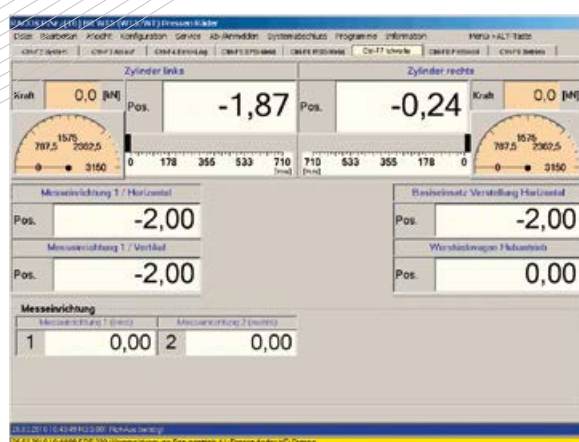


EU - Europäische Union



Curve evaluation

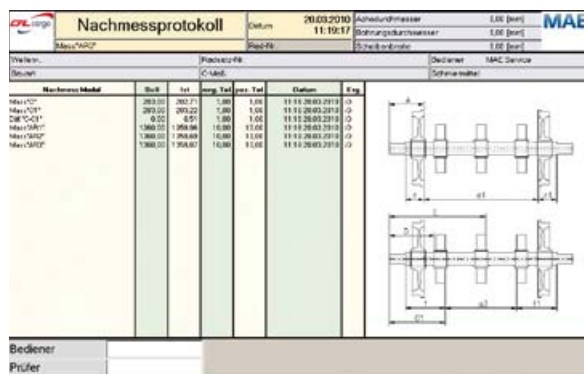
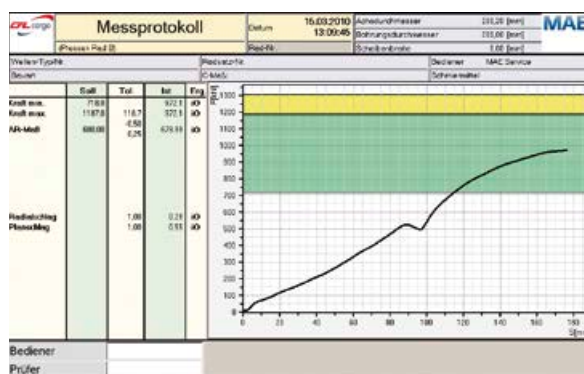
The force-displacement curve displayed in real time is the central quality feature for the pressing process. There are many global regulations and criteria that must be taken into account in addition to the specifications of wheelset manufacturers. The RACOS system offers the option of automatic curve evaluation and highly flexible programming of key data. Key specification data is simultaneously displayed.



Measuring head

This universal measuring device allows the recording of all wheelset geometric data of relevance to the pressing process in an automatic sequence. The axial positions of wheel and brake discs, gear components and shaft reference surfaces as well as the seat diameter on the wheelset shaft are taken into account. Axial and radial runout errors of shaft, wheels and brake discs can also be measured with the wheelset rotating.

Depending on the particular application, tactile or laser measuring heads are used.



Rail engineering at MAE – not only for wheelset presses

According to our motto „Controlling the power“ we offer in the area of rail engineering other assembly and straightening machines and systems.

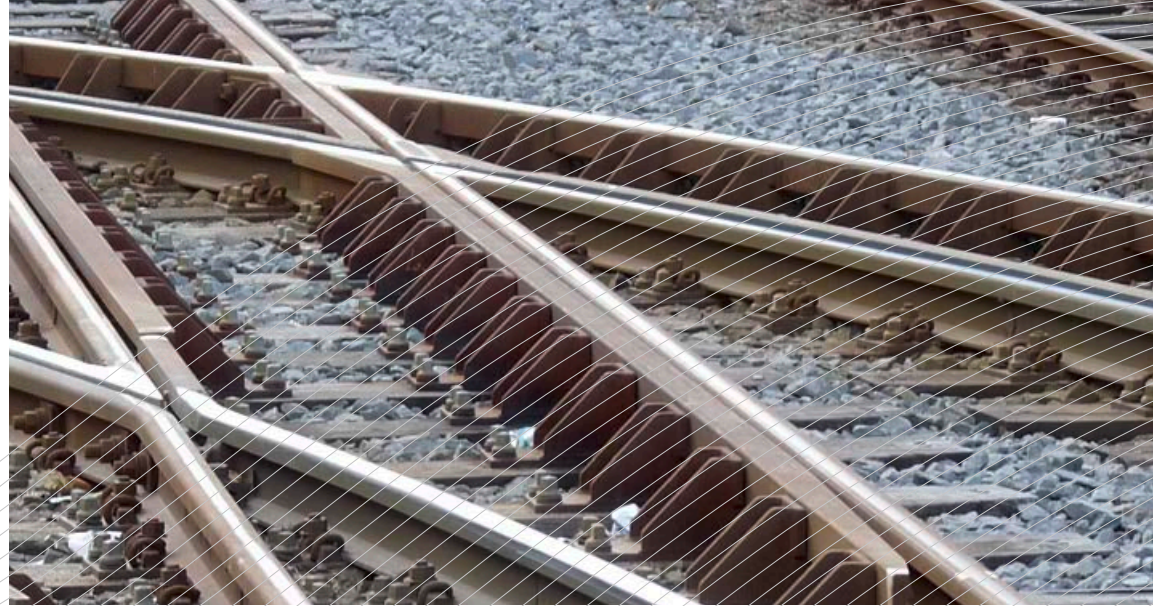
Mounting facility for single-ring resilient wheels

Our range includes appropriate devices for mounting single-ring resilient wheels. Depending on the production quantity, vertically or horizontally acting versions with manual or automatic control are used; this function can also be integrated in a wheelset press.



Mounting devices

For the removal of wheel and brake discs as well as fitting and removal of bearings, we offer low-cost horizontal presses with manual control.



Straightening machines

MAE precision straightening machines with stroke control are available in two variants:

For the manufacture of switchpoints and track maintenance, manual or semi-automatic horizontal C-column presses are used, either with one or two straightening cylinders.

For manufacturers of rails we offer four-point action, fully automatic straightening machines with integrated laser measuring system.

The patented four-point straightening process and innovative column design guarantee particularly fast and sensitive workpiece straightening.



After-sales service – for lasting success

We would like to keep in touch with you and your MAE press! This is why we offer services to ensure that your press operates reliably and is state of the art.

Calibration service

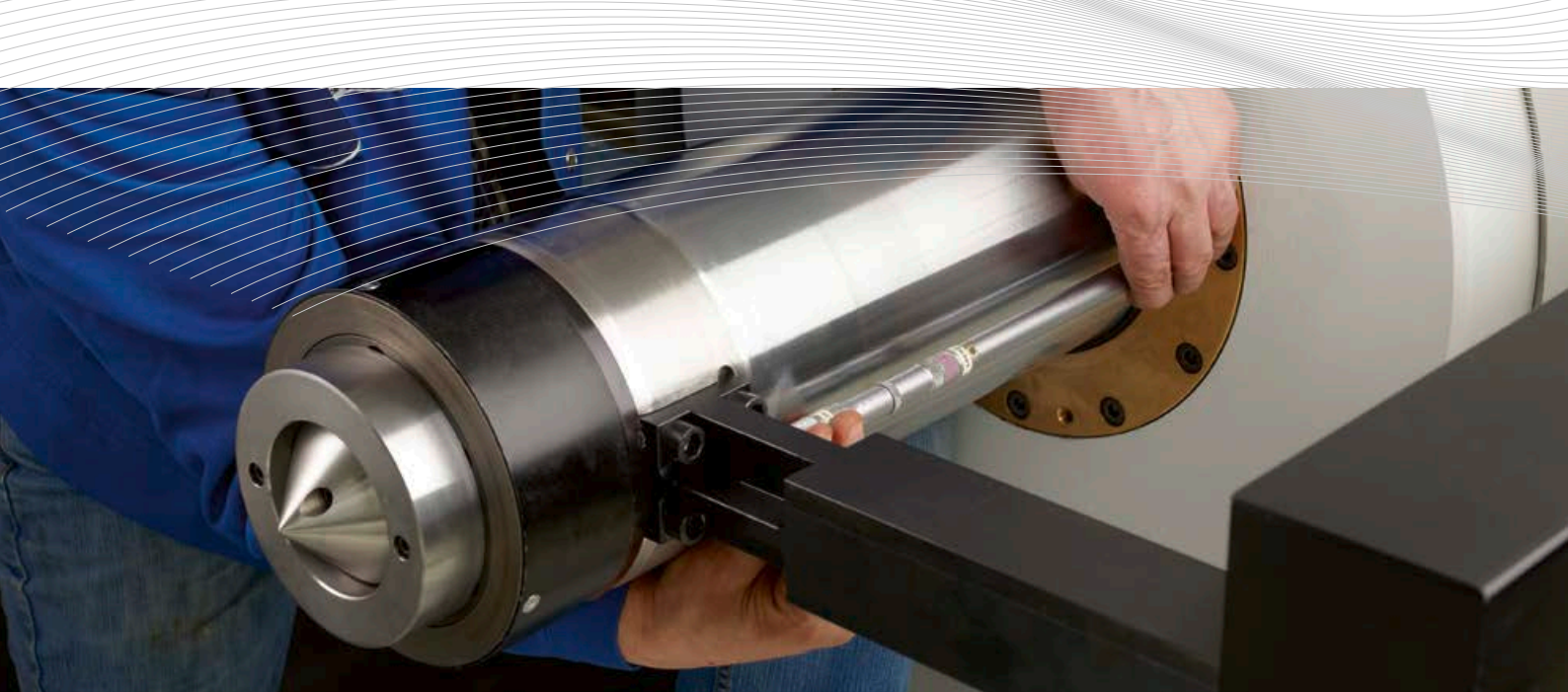
We carry out periodically prescribed tests and adjustments to the force-displacement measuring system in cooperation with certified calibration companies.

Maintenance contracts

We provide an efficient maintenance and repair service with our globally operating service department with a team of highly qualified personnel. These services can be either on a request basis or in the form of a low-cost maintenance contract.

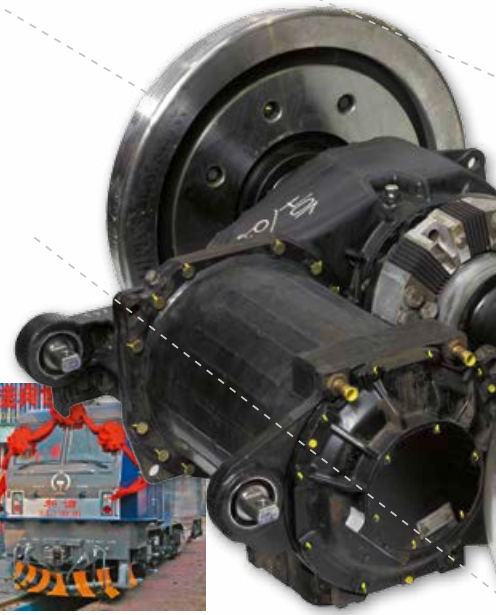
Upgrades and „retrofitting“

MAE wheelset presses are traditionally built to last. However, to ensure that they conform to current technological standards, we can upgrade machines to include modern control systems or renew the hydraulic drives. This ensures that old machines operate more efficiently and reliably.





References worldwide



Take advantage of our more than 50 years of experience with diverse rail vehicles worldwide, from the almost 100-year-old narrow gauge locomotive with rack and pinion drive to modern high-speed trains.



MAE.

MAE Maschinen- und Apparatebau Götzen GmbH

40699 Erkrath, Steinhof 65, Germany

40673 Erkrath, P.O. Box 1362

Phone +49 211 / 9 24 83-0

Fax +49 211 / 9 24 83-52

email: sales@mae-group.com

www.mae-group.com

MAE.

MAE-EITEL Inc.

97 Pinedale Industrial Rd.

Orwigsburg, PA 17961, USA

Phone +1 570 / 366-0585

Fax +1 570 / 366-2536

email: nwalker@mae-group.com

www.mae-group.com

MAE.

MAE Machine (Beijing) Co., Ltd.

Room 708, Building 2, Guangqujiayuan, Dongcheng District,
Beijing, Post Code: 100022, China

Phone +86 10 / 87513901

Fax +86 10 / 87513902

email: lucy@mae-group.com

www.mae-group.com

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Our brands: **MAE.** **EITEL.**