



Fabrication and Technical Services

TENOVA is a world-wide supplier of advanced technologies, products and services for the metal and mining industries



Tenova is a world-wide supplier of advanced technologies, products and services for the metal and mining industries providing innovative integrated solutions. Combined process automation and metallurgical know-how enhance the value delivered to the customers.

Tenova is committed further to develop its technology in the areas that mostly impact the future of the industries it serves: quality of the products delivered by the customer, energy saving and environmental safeguard.

Tenova TAKRAF specializes in the engineering and supply of open-pit mining and bulk materials handling equipment. It provides complete systems, as well as individual machines, to clients all over the world, in all climatic conditions.

Fabrication

With a production area of 17,900 m² divided into four separate bays, our Lauchhammer factory is used for:

- Metal prefabrication
- Steel construction
- Machine construction
- Assembly, Testing
- Wearing parts manufacture

Twelve radio-controlled cranes with lifting capacities of up to 80 tons are installed in the bays.

Equipped to the latest standards, we produce the key components for Tenova TAKRAF's product range

- Surface mining equipment
- Bulk materials handling equipment,
as well as all related genuine spares and wearing parts.

Highly efficient information processing systems support the work processes in the new production sites.



Tenova TAKRAF provides its partners throughout the world with top-quality components of structural and mechanical engineering.

Compact, weld-intensive steelwork with mechanical processing up to a maximum component weight of 130 t, structures made of steel including fine-grained qualities.

- Welded and other gearbox casings of all types, including machining
- Bucket wheel drives and their components
- Crawler links of all types and sizes
- Ball bearing slewing rims split upwards of a diameter of 6 m, with hardened or as-rolled bearing races
- Gear rims in all diameters between module 20 and module 40
- Support bearings with ball diameters up to 1500 mm
- Complex pre-assembly of compact machines and plant components up to the largest possible dispatch units, including electrical, hydraulic and pneumatic units



Workshop assembly and testing

Tenova TAKRAF provides complex manufacture and functional testing of components and complete machines, such as compact bucket wheel excavators, surface miners and transport crawlers.

We conduct trial runs and functional tests of large gear boxes, with and without load. Large volume 3D and other precise multidimensional measurements are done with lasertracker in connection with advanced analytics software.



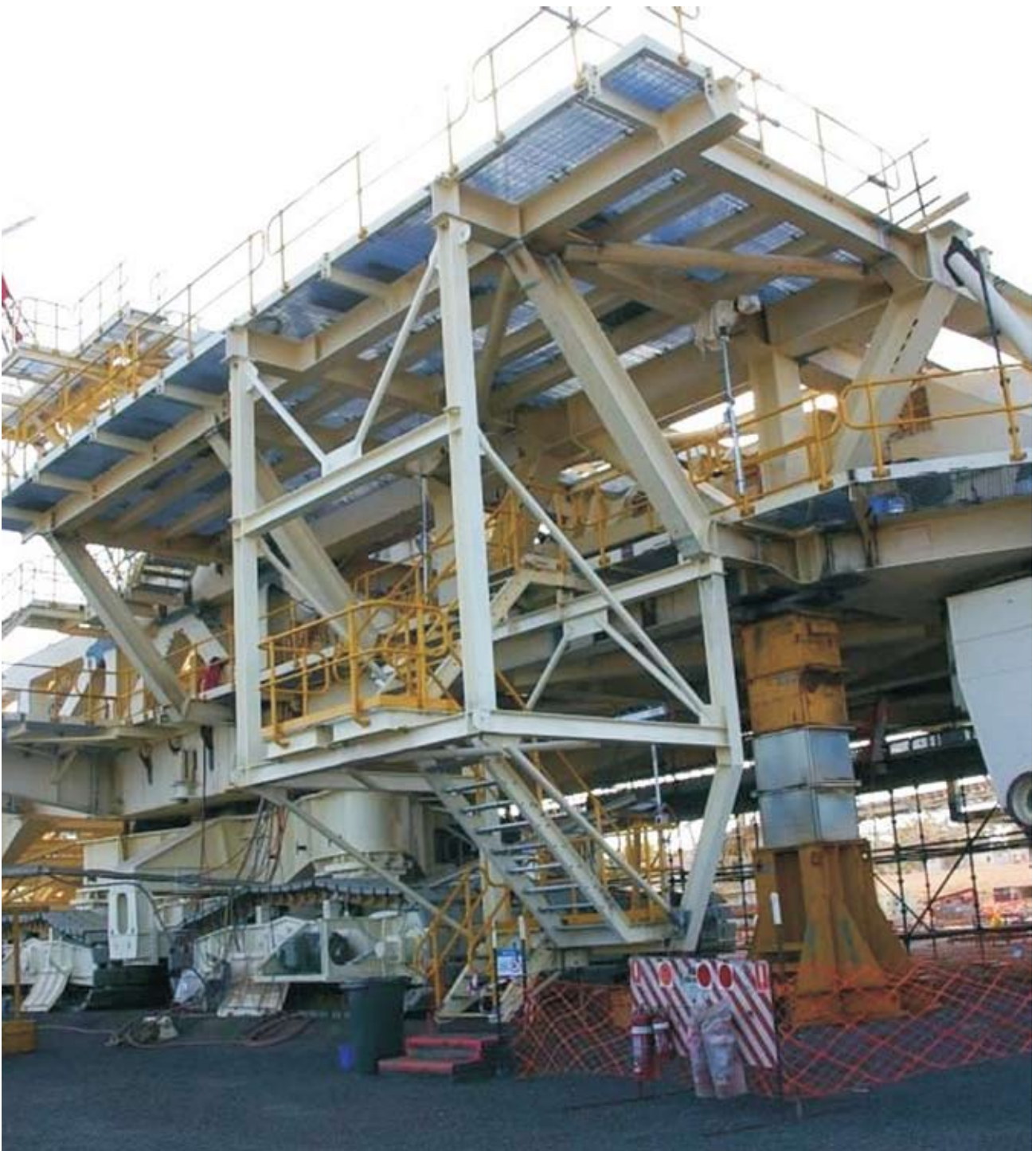
Technical Service Erection

When erecting complex integrated plants, Tenova TAKRAF's erection division co-ordinates all supplies and services at site.

Tenova TAKRAF's range of services includes:

- Structural and mechanical erection
- High-qualified welding operations
- Expert riveting
- Technological planning and execution of complicated erection and dismantling

We perform erection under tough climatic conditions - not only in some of the coldest regions in the world but also in the tropics. Of course, we can also provide erection management specialists to supervise and assist your own staff.



Service for new Plants

Tenova TAKRAF offers a comprehensive service package, featuring

- Erection and erection supervision
- Commissioning, final inspection
- Performance tests
- Warranty service
- 24 hour service

Working out of repair offers operation and maintenance of supplied and existent plant.



Regular Inspection and Maintenance

In order to ensure maximum operational availability and efficiency, we offer a first-grade inspection and maintenance programme

- Regular inspection of mining equipment corresponding to local mining regulations
- Drafting of inspection reports
- Setting and adjustment work, especially on safety and monitoring equipment preventative maintenance, including the replacement of spares and worn components
- Permanent operational assistance by on-site experts



Reconstruction, Refitting and Modernisation

In addition to selling new plant, Tenova TAKRAF also specialises in modernising and optimising existing plants already operating in mining and bulk handling areas.

This involves analysing equipment with the user and drafting a comprehensive modernisation concept, tailor-made to fit the climatic and mining conditions at site. Bucket wheel excavators and spreaders of all types are a particular speciality of our experts.

The company's in-house developed bucket wheel drive units often form the core of a modernisation process.

This puts Tenova TAKRAF in a position of being able to supply drive units for all classes of bucket wheel excavators supplied. These meet all the latest requirements regarding operational ease, availability and maintenance. Emission guidelines are maintained, even under the hardest climatic operating conditions.

The technical data of the drive unit can be monitored whilst the plant is in use, by fitting a diagnostic system to perform monitoring by remote control.

The modular assembly of the new drive unit allows the operators to standardise the drive technology of their various bucket wheel excavators step by step, thus leading to a noticeable reduction in maintenance costs, as well as the number of spare parts that need to be kept in stock.

Our service package also includes modernisation and refitting work on:

- Transport installations
- Conveying systems and cranes, also manufactured by other companies
- Testing equipment for the aviation industry



Training and Instruction

Even before commissioning we provide comprehensive training programmes for the qualified instruction of operating and maintenance personnel.

Specialists with many years of professional experience provide both theoretical and practical information, both on operating equipment and plant and its effective employment. The length of training depends on the topics to be covered and the previous knowledge of course participants.

Training courses can be carried out at Tenova TAKRAF or on the client's own premises.



Spare and Wear Parts

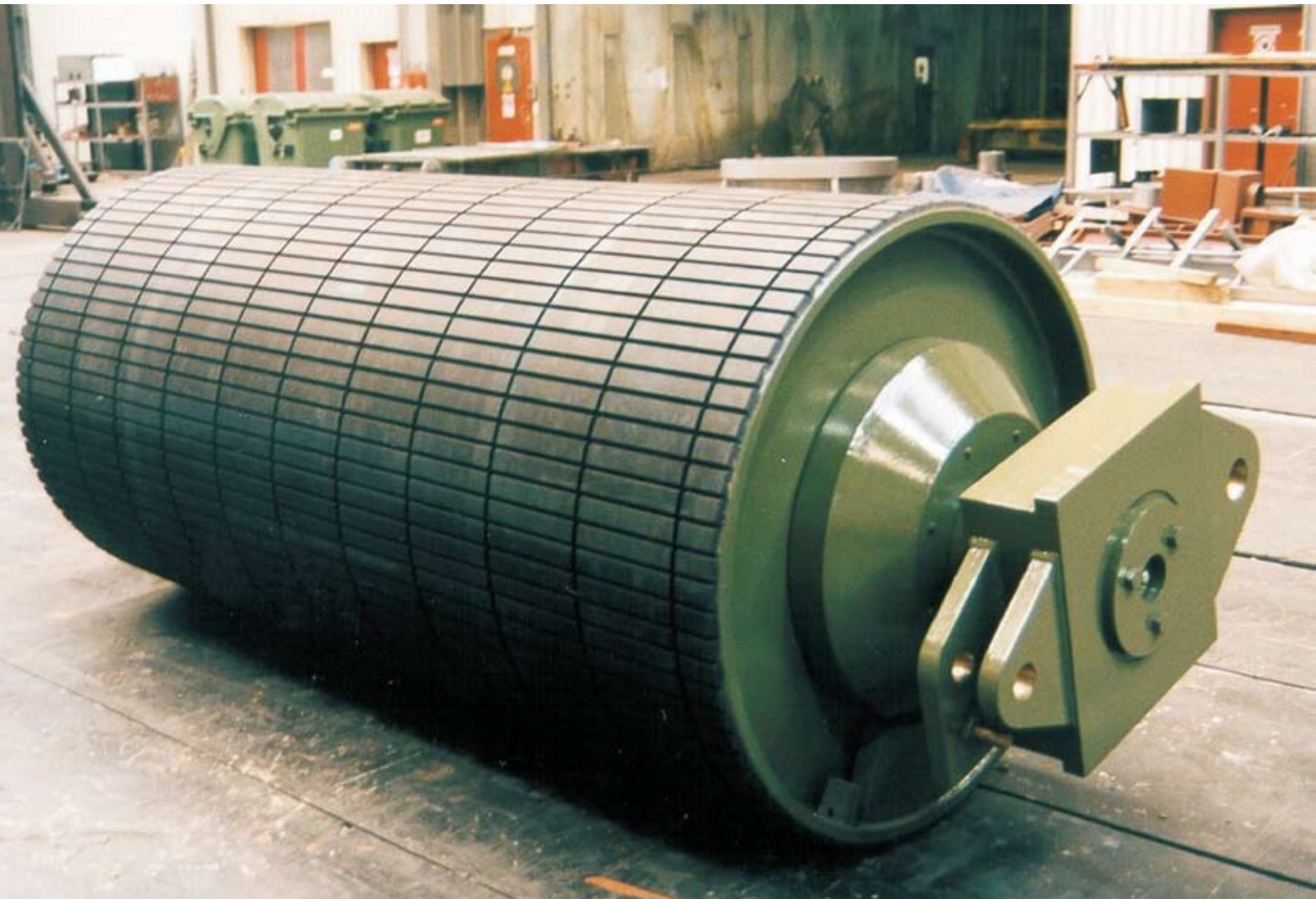
Even with careful maintenance and servicing, problems with technological equipment can never be completely ruled out.

Tenova TAKRAF provides first-class advice on spares and wearing parts, bearing in mind specific operating conditions.

All parts are supplied quickly and efficiently.

Customers benefit from the consistent standardisation of all documentation detailing the various plant components.

We also supply replacement parts for conveying equipment and machines supplied by other manufacturers. If we have the appropriate documentation, we can supply spares and wearing parts, as well as complete assembly groups.



Quality Assurance

Tenova TAKRAF's quality assurance is carried out pursuant to DIN EN ISO 9001: 2008, DIN EN ISO 14001: 2004 and DIN EN ISO 18001: 2007 in all phases of design, manufacture and erection.

Tenova TAKRAF's quality control comprises:

- Quality monitoring parallel to manufacture
- Non-destructive materials testing up to level 3
- Test and inspection planning for manufacture by self or third party
- Implementation of special testing tasks on the basis of 3-D measurements
- Continuous supervision of sub-contractors by Tenova TAKRAF's own quality assurance personnel
- Specific quality standards laid down in Tenova TAKRAF's certified internal code of practice



Products and Services

Open Cast Mining Equipment

- Complete open cast mining systems
- Bucket wheel excavators
- Bucket chain excavators
- Surface Miners
- Mobile transfer conveyors
- Conveyor systems (overland, curved, shiftable, inclined, etc.)
- Slope conveyor bridges
- Spreaders/Cross pit spreaders
- Mobile conveyor bridges
- Mobile and semi-mobile crushing stations
- Transport crawlers
- Heap-Leach Systems

Bulk Materials Handling Equipment

- Bulk materials handling systems
- Stackers
- Reclaimers
- Stacker/reclaimers
- Scraper reclaimers
- Ship loaders
- Continuous ship unloaders
- Grab type ship unloaders
- Tube conveyors
- Waggon tippers

Fabrication/Technical Service

- Component supplies
- Service, Maintenance
- Work farmed out by other industrial contractors
- Work assemblies
- Erection
- Quality assurance
- Operational assistance
- Inspection
- Original spare parts





Tenova TAKRAF

TAKRAF GmbH
Torgauer Straße 336
04347 Leipzig
Germany
phone +49 341 2423 500
fax +49 341 2423 510
sales@takraf.com

Bahnhofstraße 26
01979 Lauchhammer
Germany
phone +49 3574 854 0
fax +49 3574 854 100
service@takraf.com

Tenova S.p.A.
Torre Shipping
Via De Marini, 53
16149 Genoa
Italy
phone +39 010 6054067
fax +39 010 6054710
bulkhandling@it.tenovagroup.com

www.takraf.com
www.tenovagroup.com

TECHINT GROUP