SOLUTIONS FOR THE
GLOBAL MINING, BULK
MATERIAL HANDLING AND
MINERALS INDUSTRIES
## PRODUCTS AND SERVICES

### Mining Systems and Equipment
- Complete Mining Systems
- Bucket Wheel Excavators
- Bucket Chain Excavators
- Crushing Plants
- Apron Feeders
- Belt Conveyors
- Belt Feeders
- Belt Wagons
- Mobile Conveyor Bridges
- Spreaders
- Transport Crawlers
- Cable Reel Cars
- Shifting Heads

### Minerals Processing Equipment
- Roll Crushers
- Sizers
- High Pressure Grinding Rolls (HPGR)
- DELKOR Thickeners
- DELKOR Horizontal Vacuum Belt Filters
- DELKOR F.A.S.T. Filter Press
- DELKOR BQR Flotation Cells
- DELKOR Belt Linear Screens
- DELKOR Apic Jigs

### Bulk Material Handling Systems and Equipment
- Stockyard and Disposal Facilities
- Reclaimers
- Scrapers
- Stackers
- Combined Stacker/Reclaimers
- Wagon unloading
- Wagon/truck loading
- Belt Conveyors
- Tube/Pipe Conveyors
- Ship Loaders
- Ship Unloaders

### Services and Components
- Project Development Services
- Fabrication and Components
- Construction and Commissioning
- Technical Services and Spare Parts
Tenova TAKRAF is an integrated solutions provider to the global mining, bulk material handling, minerals processing and beneficiation industries, offering innovative technological solutions as well as process and commodity knowledge along the industry value chains. With the integration of the well-known DELKOR and, more recently, the Tenova Advanced Technologies (formerly Bateman Advanced Technologies) brand of products into TAKRAF, our portfolio for the mineral processing and beneficiation sectors has been considerably enhanced.

TAKRAF is a key supplier of equipment and systems for open pit mining and bulk handling, having provided hundreds of complete systems, as well as individual machines, to clients all over the world. Based upon more than a century of experience and know-how, the product range stretches from overburden removal, raw material extraction, conveying, processing, comminution, homogenizing, blending and storage to onward transport or shipment.

TAKRAF provides the full range of services, from project studies, planning, engineering and design to fabrication, supply, erection and commissioning, technical assistance, service and after-sales service for plants, systems and equipment. Its equipment has proved robust and reliable in adverse geological conditions, in extreme climates with temperatures down to minus 45°C, in dust, wind or extreme humidity, as well as in seismic zones and altitudes of up to 5,000 m above sea level or in underground applications.

TAKRAF has committed to both environmental and social sustainability in their business interactions and has adopted a Zero harm approach to safety under the SAFETY FIRST promise of the Tenova Group.
**HERITAGE**

Tenova TAKRAF is the result of the successful merger of the historic TAKRAF and Italimpianti brands, and their underlying know-how, tradition and experience.

TAKRAF is a German company with headquarters in Leipzig and state-of-the-art production facilities in Lauchhammer. With roots dating back to 1725, TAKRAF has built up a wealth of experience in development, design, fabrication, erection and commissioning of equipment and systems for the global mining and material handling industry.

Italimpianti, an Italian engineering company founded in Genoa in 1957, was a leading integrated supplier of technology and turnkey industrial plants. It boasted, amongst others, expertise in the design and supply of large-scale complex bulk material handling equipment and plants, bringing its customers advanced cost-effective technology as well as exceptional value for their investments.

**GLOBAL PRESENCE**

With more than 1000 employees in Germany, Italy, Australia, Brazil, Canada, Chile, China, India, Israel, South Africa and the USA, as well as representative offices on all continents, TAKRAF is close to its customers with technological support and real-time service.
TAKRAF combines global engineering skills to offer its customers a full range of project services: from studies, engineering, fabrication, erection and commissioning of mines, ports and stockyards, to the operation and maintenance of supplied or existing plants, expansion and revamping of existing operations, equipment modernization, relocation or retrofitting of plants and systems.

Equipment systems and plants developed by TAKRAF are utilized in mines, ports, power stations, steel mills, cement plants and many other operations. Customers all over the world rely on TAKRAF equipment as the backbone of their operations.
TAKRAF is able to provide equipment, systems and plants across a broad material spectrum. By leveraging its significant know-how and experience and the use of cutting-edge technologies, TAKRAF is able to guarantee that its customers' needs are fully served.

Iron ore, copper, gold, nickel, coal, ash, petroleum coke, lignite, bauxite, potash or manganese; whatever the material, TAKRAF provides a solution.
TAKRAF has the financial and technical resources to support any form of product supply in the categories of:
- Mining Systems and Equipment
- Bulk Material Handling & Port Equipment
- Minerals Processing Equipment
- Services and Components
MINING SYSTEMS AND EQUIPMENT

TAKRAF supplies equipment for continuous mining, conveying, crushing and spreading operations, including:

- Complete Mining Systems
- Bucket Wheel Excavators
- Bucket Chain Excavators
- Crushing Plants
- Apron Feeders
- Belt Conveyors
- Belt Feeders
- Belt Wagons
- Mobile Conveyor Bridges
- Spreaders
- Auxiliary Equipment
BULK MATERIAL HANDLING EQUIPMENT
PORT EQUIPMENT

For this market segment, TAKRAF offers a variety of batch and continuous loaders, unloaders, including:
- Continuous Ship Unloaders
- Grab Type Ship Unloaders
- Ship Loaders

YARD EQUIPMENT

Stockyard equipment provided by TAKRAF includes:
- Complete Stockyard and Disposal Facilities
- Stackers
- Bucket Wheel Reclaimers
- Bucket Wheel Bridge Reclaimers
- Drum Reclaimers
- Combined Stacker/Reclaimers
- Scraper Reclaimers
- Circular Stockyard Systems
- Wagon Tipplers
- Truck and Wagon Loading Systems
- Heap-Leach Systems
- Dry Stack Systems
- Belt Conveyors
- Tube/Pipe Conveyors
MINERALS PROCESSING EQUIPMENT

With the integration of the well-known DELKOR brand of products into TAKRAF, the offered portfolio for the mineral beneficiation and processing sectors has been considerably enhanced by products for sizing to screening, gravity separation, flotation, sedimentation (thickening) and filtration:

- Thickeners
- Horizontal Vacuum Belt Filters
- F.A.S.T. Filter Press
- BQR Flotation Cells
- Belt Linear Systems
- Apic Jigs

TAKRAF Comminution Technology includes:

- High Pressure Grinding Rolls
- Primary and Secondary Sizers
- Double Roll Crushers
TAKRAF offers a time-effective service leveraging a valued experience-based approach. Operational readiness for an immediate response to customer needs, reliability and a proactive style are integral elements of our business.

Skilled teams of technicians and engineers guarantee rapid on-site response in any emergency; providing customers with the security of engineering added value.

TAKRAF provides a wide range of services:
- Supervision & Commissioning
- Spare Parts & After Market Support
- Maintenance and Wear Part Management
- Inspection
- Debottlenecking
- Refurbishment
- Relocation
MANUFACTURING FACILITIES

The TAKRAF workshop in Lauchhammer (Germany) is located in Lusatia, the cradle of the European surface mining equipment manufacturing industry. With a covered production area of approximately 18,000 m² and a crane capacity of up to 120 tons, the workshop is well-equipped to machine, assemble and test heavy and outsized core components for the TAKRAF product range; as well as to reliably provide spare and wear parts for various pieces of equipment.

A variety of different products and equipment pieces are engineered and manufactured in the Lauchhammer works, ranging from heavy-duty components such as engineered pulleys, tailor-made gearboxes, crawler chains, slew bearings and gear rims, to large machines such as double roll crushers, sizers, jib cranes, apron feeders and transport crawlers. Various on-site testing facilities also allow for pre-commissioning to be conducted in a workshop environment thereby saving valuable time on site.

Thanks to a skilled and passionate workforce and the adoption of TAKRAF’s integrated management system certified according to ISO 9001, ISO 14001 and BS OHSAS 18001, the Lauchhammer workshop is able to maintain the highest quality standards whilst meeting the most demanding of delivery schedules.
PERFORMANCE AND RELIABILITY

TAKRAF is committed to offering solutions that are tailored to meet our customer’s specific requirements and targets.

By focusing our attention across all functional elements rather than solely focusing on the most important, in essence adopting a “zero base” approach, we are able to design and develop systems and/or equipment that is fit for purpose and ensure the best product in terms of value, functionality, quality and schedule.

We understand that every project is a new challenge. By leveraging our centuries of experience and know how, together with the latest global technologies and our own proprietary innovation and R&D, we are able to best mitigate and overcome complex engineering solutions and ensure that we are able to offer our clients a solution that best meets their requirements.

Therefore TAKRAF offers project development services including equipment selection, project studies, assistance services & support as well as material testing & simulation.
COMMITMENT TO INNOVATION

Technological innovation is the foundation of competitiveness.

We pride ourselves upon our engineering competence and understand that developing flexible, individual and effective design concepts is the key to finding the ideal solution for our customers and their diverse project requirements – even appreciating that in some instances this might entail diverging from prevailing design concepts.

By embracing innovation, TAKRAF is able to offer its customers the cutting-edge solutions they expect and deserve, as well as maintain a leading position at the forefront of industry developments.

QUALITY

To meet and even exceed customer expectations, quality and continuous improvement of services in line with the best industry practices and standards are priorities at TAKRAF.

The TAKRAF integrated management system is certified for compliance with DIN EN ISO 9001 : 2008, ISO 14001:2004 and BS OHSAS 18001:2007 standards and is reviewed on a regular basis to enhance effectiveness and ensure alignment with the best quality standards.
SUSTAINABILITY

TAKRAF has an overriding commitment to conduct itself, in all its operations and entities and across all stakeholder groups, according to sustainable business practices that respect the people and world in which we live in.

We are governed by an overall Code of Conduct that defines the general principles of conduct that all employees and parties, directly or indirectly involved in the activities of the company, are required to comply with.

Our various company policies also address certain specific aspects of sustainability that start from health & safety to anti-bribery, risk management, procurement and the prudent use of the Earth’s limited resources.

We invest in a number of Corporate Social Investment (CSI) programs in the countries in which we operate with a view to uplifting and supporting the local communities in which we engage and interact with.

Environmental Responsibility

TAKRAF has an overriding commitment to environmental responsibility and actively pursues a balance between economic results, development of industrial capability and sustainability.

In its operations TAKRAF aims to:
- Reduce energy consumption and wear effect
- Reduce emissions into air and water
- Reduce noise
- Provide open cast mining systems offering alternative technologies to mineral blasting
- Provide conveying systems as alternative to truck transport
- Resource conservation by supporting predictive maintenance and providing wear part management

Safety

Safety First is the safety promise of the Tenova group.

Safety is at the core of our culture and our way of living and doing things, at the office and at home.

We are committed to ensuring that all our global offices and job sites are clean, safe and healthy environments at all times for all stakeholders.
FOCUS ON PEOPLE

We understand that our employees are vital to the success and growth of our company.

TAKRAF employees are characterized by possessing outstanding technical and management expertise in the discipline in which they operate, a strong focus on the customer, a passion for innovation and an ability to be flexible and adapt to change. By leveraging our employees’ different nationalities, expertise and varied global operating experiences, we are able to successfully execute projects the world over. Furthermore, by supervising every stage of professional growth and providing on-going knowledge and skills training, TAKRAF guarantees the expertise and competence of its people and safeguards the highest quality standards.

TAKRAF aims to provide an inspiring and enriching work and career environment that provides diverse opportunities for personal growth and development in a global, multi-cultural and multi-disciplined organization.
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