ElectroMech

Solutions for Oil & Gas Industry

Partner of
STAHL CraneSystems

Solutions | Service | Satisfaction

Equipped to Excel

ElectroMech is the largest manufacturer of industrial cranes and related material handling equipment in India. We are renowned for providing unique solutions for the most challenging material handling requirements across a wide spectrum of industries and are highly relied upon for our design capability, high manufacturing standards and service excellence. Since our inception in 1979, we have commissioned over 5000 cranes in over 40 countries across the world with an unmatched track record of repeat orders.

Our product span

- **Electric Wire Rope & Chain Hoists**
- **Jib Cranes**
- **Wall Travelling Cranes**
- **Single Girder Overhead Cranes**
- **Single Girder Suspension Cranes**
- **Double Girder Overhead Cranes**
- **Semi-gantry Cranes**
- **Gantry/Goliath Cranes**
- **Customised Solutions**
- **Stacker Cranes**
- **Shaft/Tunnel Mucking Systems**

Exploring technology, ensuring higher reliability

It is our endeavour to maximise value to our customers in terms of cost of ownership, high reliability, high safety and ultimately higher productivity. ElectroMech has always prided itself on being at the forefront of adopting the very best that technology has to offer - our product range is continuously evolving to ensure that our customers have the best possible solution - be it advanced safety features or completely customised equipment.

Further, to make sure that we are able to meet the challenges of various industry requirements, we have collaborated with several global leaders. We have an exclusive tie-up with **Stahl CraneSystems, Germany,** a world leader in Explosion-protected (EX) cranes and components. Through this tie-up we offer safest lifting solutions for use in hazardous, explosion-prone areas.

Far-reaching solutions

As a result of our pursuance of world-class technology, our equipment can be seen operating flawlessly at diverse locations. ElectroMech supplies a variety of cranes and hoists

in capacities ranging from 80kg to more than 200MT across different industry verticals such as oil & gas, automobile, steel, power, shipbuilding, heavy engineering, and manufacturing.

ElectroMech equipment is also conspicuously present in the infrastructure segment. We are proud of the fact that several major infrastructure projects like roads, bridges, dams and power plants have been made operational by using equipment supplied by ElectroMech.

Versatility, safety, convenience and peace of mind are the standard features of any ElectroMech equipment. A fact attested by several repeat orders received from all major industrial groups all over the world.

The infrastructure

ElectroMech's headquarters and main manufacturing plant is in Pirangut, near Pune, India. Spread over 85,000 sq.m, with a covered area of 20,000 sq.m, this factory is one of the single largest dedicated overhead crane manufacturing facilities in Asia.

Our manufacturing techniques are industry leading, from CNC plasma cutting machines for the crane girders to shot blasting and a dedicated paint booth for finished crane components. Our quality management systems have been certified by Bureau Veritas for the latest ISO 9001:2008 requirements.

Benchmark services

Our partnership with our customers does not end with the commissioning and installation of equipment, but goes on to helping them with on-going care, repairs and modernisation of their hoisting solutions (irrespective of manufacturer). These services are offered through our subsidiary company - Cranedge, in a most cost-effective manner. Cranedge is India's largest industrial crane service organisation with a service network spread across the country.

Beyond cranes

ElectroMech meticulously ensures that our manufacturing processes are in harmony with the ecosystem in our surroundings. This includes intiatives such as - using advanced techniques for shot blasting and painting, ensuring use of only lead-free paints, proper circulation of fresh air, treating effluents properly before being discharged, using energy-efficient machines, processes and devices.

Competence from STAHL CraneSystems

The association between Germany-based crane manufacturer, Stahl CraneSystems and ElectroMech further complements the know-how and services on offer from both the companies.

Stahl CraneSystems can look back at over 130 years of experience. Throughout the years, the continual urge for innovation and modernisation has provided Stahl CraneSystems with constant developments and a position as the leader in the material handling technology.

In a state-of-the-art production facility in Germany, each crane component is made from the highest grades of materials to maximum precision to meet exact requirements. Modern production techniques and certified processes guarantee consistently high quality of crane components which are all

from a single source. The extensive spectrum of technical possibilities allows Stahl CraneSystems to react quickly and flexibly to customers' needs. From single workspace solutions to custom-built cranes, from interconnecting systems to complex automation, anything is possible. The product spectrum is broad with SWLs ranging from 125kg up to 160MT also constructed for hazardous areas Zone1 and Zone2 as well as Zone 21 and Zone 22.

Stahl CraneSystems supports customers' projects with tailored design and engineering services from start to finish, ensuring that every product is optimised for customers' specific processes.

- **Competent** : Experience and expertise gained from more than 100 years of crane technology.
- **Customer-oriented** : Qualified engineers work out customised solutions through a dialogue with the customer.
- **Flexible** : Modular structure of cost-effective, individual crane systems made from high quality components from Stahl CraneSystems.
- **Cost-effective** : Reliable, low maintenance and service-friendly hoists and components.
- **Customer-friendly** : Comprehensive, worldwide service network ensuring fast response time.
- **Safe investment** : Availability of original parts even decades after the range has been discontinued

Explosion Protection Technology

Explosive atmospheres may occur in industries such as chemical or petrochemical industries. Electrical apparatus used in potentially explosive atmospheres must be constructed in such a way that it does not become a source of ignition.

In order to avoid serious injuries and damage to material and environment, safety regulations, laws, decrees and standards have been established in most states. In this way, a high degree of safety has developed in explosion protection across the world. As the physical laws regarding the occurrence of explosions and the measures taken to prevent them are based on similar principles everywhere, currently the aim is to harmonise approval conditions and regulations regarding conformity at an international level. This brochure merely outlines the European explosion protection directives which, however, correspond largely to the international IECEx regulations. It cannot take the place of an intensive analysis of national legal principles and standards.

Stahl CraneSystems is pioneering, dynamic and uncompromising when the safety of persons and machines in areas subject to explosion hazards is at stake. Stahl CraneSystems occupies an exceptional position in this field with several decades of experience and expertise, fundamental research and development, approvals from the Federal Physico-Technical Institute (PTB) and other national and international test institutes and worldwide certification. All hoists and components without exception come from in-house production, from motor & brake to controls & control pendant. Stahl CraneSystems is the world specialist for explosion protection and as a world market leader offers the most comprehensive, complete programme of explosion-protected lifting, drive and control technology.

Offshore Platform

Petrochemical Industry

ATEX

With the ATEX product directive 94/9/EC (ATEX 95) and the ATEX user directive 1999/92/EC (ATEX 137) the European Community has established the basis for uniform European explosion protection.

This safety concept is applicable both for manufacturing electrical and non-electrical apparatus and for operating this apparatus in the respective industrial plants. The legislators of the individual member countries implement these directives in equivalent statutory regulations.

In Germany, for example, these are the Explosion Protection Ordinance ExVO (implementation of directive 94/9/EC), the Industrial Safety Ordinance (implementation of directive 1999/92/EC) and the Technical Regulations for Industrial Safety (TRBS), the regulations issued by the Employers' Liability Insurance Associations (e.g. BGR 104, BGR 109 and BGR 132), the Employers' Liability Insurance Association information sheets (e.g. BGI 740) and the regulations issued by the VDI (Association of German Engineers) (e.g. 2263 and 3673). ATEX directive 94/9/EC defines the properties required by apparatus for safe use in explosive areas. This includes classification into equipment groups and categories, the respective conformity assessment procedures to be followed, manufacturers' responsibility including CE conformity marking, basic safety requirements for the development and manufacture of explosion-protected equipment and recognised quality management measures to be implemented during production. ATEX directive 99/92/EC defines the obligations of users and employers for employees' protection in explosive areas. Inter alia, the user must assess risk and classify the potentially explosive areas into corresponding zones, so that the apparatus required by directive 94/9/EC can be used in safety.

Assessment of conformity in compliance with ATEX 95

Category 1 and M1	EC prototype test (III)	Production quality assurance (IV)		CE
		Product verification (V)		
	Individual verification (XI)			
Category 2 and M2	Electrical equipment or Internal combustion engine	EC prototype test (III)	Quality assurance of products (VII)	
			Conformity with prototype (VI)	
	Other apparatus	In-house production testing (VIII) and documentation at notified body		
	Individual verification (XI)			
Category 3	In-house production testing (VIII)			
	Individual verification (XI)			
	The figures in brackets refer to the modules of directive 94/9/EC which define the procedures to be followed for meeting conformity.			

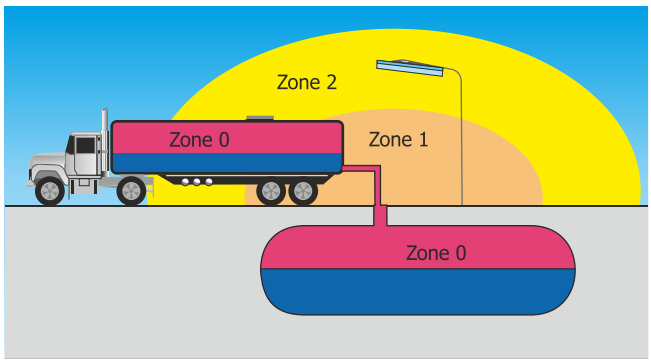
Examples for the classification of gases and vapours into groups and temperature classes

	T1	T2	T3	T4	T5	T6
I	Methane					
IIA	Acetone Ethane Ethyl Ethanoate Ammonia Benzol (pure) Ethanoic acid Carbon oxide Methane Methanol Propane Toluene	Ethanol i-Amyl acetate n-Butane n-Butyl alcohol	Benzene Diesel fuel Aircraft fuel Heating Oils n-Hexane	Acetaldehyde Ethyl ether		
IIB	Coal gas (lighting gas)	Ethylene				
IIC	Hydrogen	Ethylene				Carbon disulphide

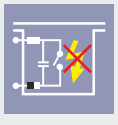
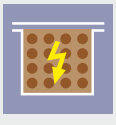
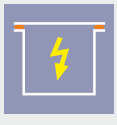
Explosion Protection Technology

Physical and technical principles

An explosion is a precipitate chemical reaction of combustible matter with oxygen, setting free high energy. In this connection, combustible matter may be gases, mists, vapours or dusts. An explosion can only take place if three factors come together: combustible matter (in suitable dispersion and concentration), oxygen (in the air) and a source of ignition (e.g. an electric spark). It is thus necessary to prevent ignition or reduce the effect of an explosion to an innocuous level. To ensure this, apparatus which is used in potentially explosive atmospheres must be designed, manufactured and of course marked in compliance with the relevant regulations (ATEX product directive 94/9/EC, IECEx regulations, etc.). Classification of devices into groups and categories according to ATEX product directives or in EPL according to IECEx standards results from their area of use or the safety level of protective measures and the frequency of occurrence of an explosive atmosphere. The highest possible risk potential must be taken into account when carrying out this classification. Only explosion protected apparatus may be used in areas in which explosive atmospheres may occur in spite of all preventive measures. This apparatus is produced in various types of protection in accordance with the corresponding construction regulations (series of standards IEC/EN 60079, IEC/EN 61241 and EN 13463). The type of protection applied by the manufacturer depends on the type and function of the apparatus. All standardised types of protection within a category are equivalent. In the EG declaration of conformity included in the technical documentation the manufacturer confirms that the product meets the ATEX directives.



IEC/EN 60079 for equipment in areas subject to gas/dust explosion hazards

				
Ex d flameproof enclosure IEC 60079-1 EN 60079-1	**Ex p** pressurised apparatus IEC 60079-2 EN 60079-2	**Ex e** increased safety IEC 60079-7 EN 60079-7	**Ex n** Zone 2 equipment IEC60079-15 EN 60079-15	**Ex o** oil immersion IEC60079-6 EN 60079-6
				
Ex m encapsula-tion IEC 60079-18 EN 60079-18	**Ex op** optical radiation IEC 60079-28 EN 60079-28	**Ex I** intrinsic safety IEC 60079-11 EN 60079-11	**Ex q** powder filling IEC 60079-5 EN 60079-5	**Ex t** protection by housing IEC60079-31 EN 60079-31

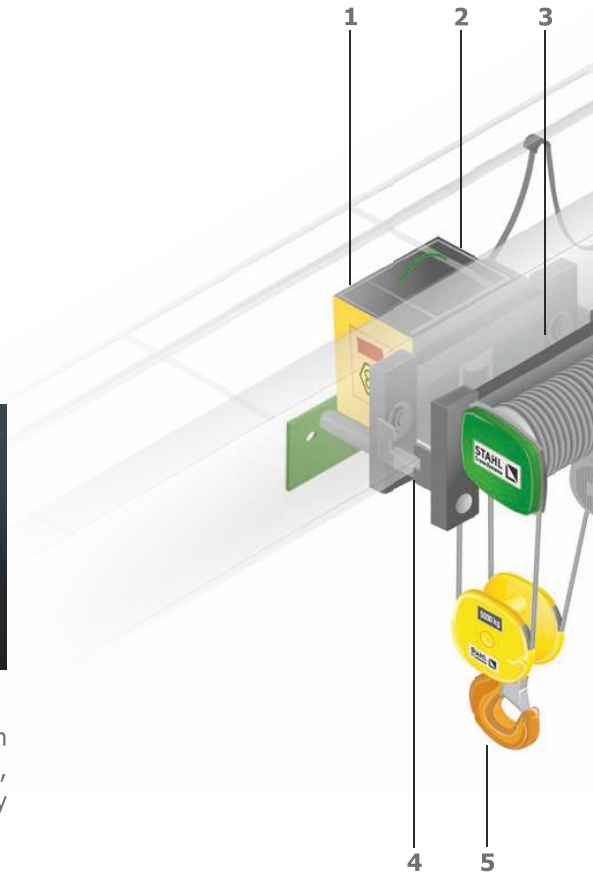
Indirect cable entry, very high safely level, provided by type of protections increased safely ›e‹ and flameproof enclosure ›d‹. Connection of Ex e connection box to Ex d with post-type bushing.

Typical crane features

- Protection against overloading
- Asbestos-free brake linings
- Overhoist & overlower limit switches
- Anti-derailment device on crane and crab unit, non-sparking type
- Control panel mounted on crane bridge platform
- Travel and traverse limit swiches with actuators for mounting oncrane runway
- Bronze coated load hooks
- Aggressive environment paint systems
- Low and high ambient temperatures
- Increased enclosure protection
- Anti-condensations panel heaters
- Radio control
- Off-standard supply voltages

Special Design for Cranes

In lifting, drive and control technology both electrical and non-electrical components and parts can trigger an explosion. Stahl CraneSystems therefore offers apparatus specially designed for use in areas subject to gas or dust explosion hazard. All hoists and crane components without exception are from in-house production, from motor and brake to controls and switchgear, and meet the latest European (ATEX) and international (IECEx) construction and safety regulations for potentially explosive atmospheres.



Cable entry

Indirect cable entry, very high safety level from type of protection increased safety ›e‹ and flameproof enclosure ›d‹. Connection of the Ex e connection box to Ex d by post-type bushing.

Limit switch

The type of protection of the limit switch combines flameproof enclosure ›d‹, increased safety ›e‹ and protection by housing ›tD‹.

Wheels

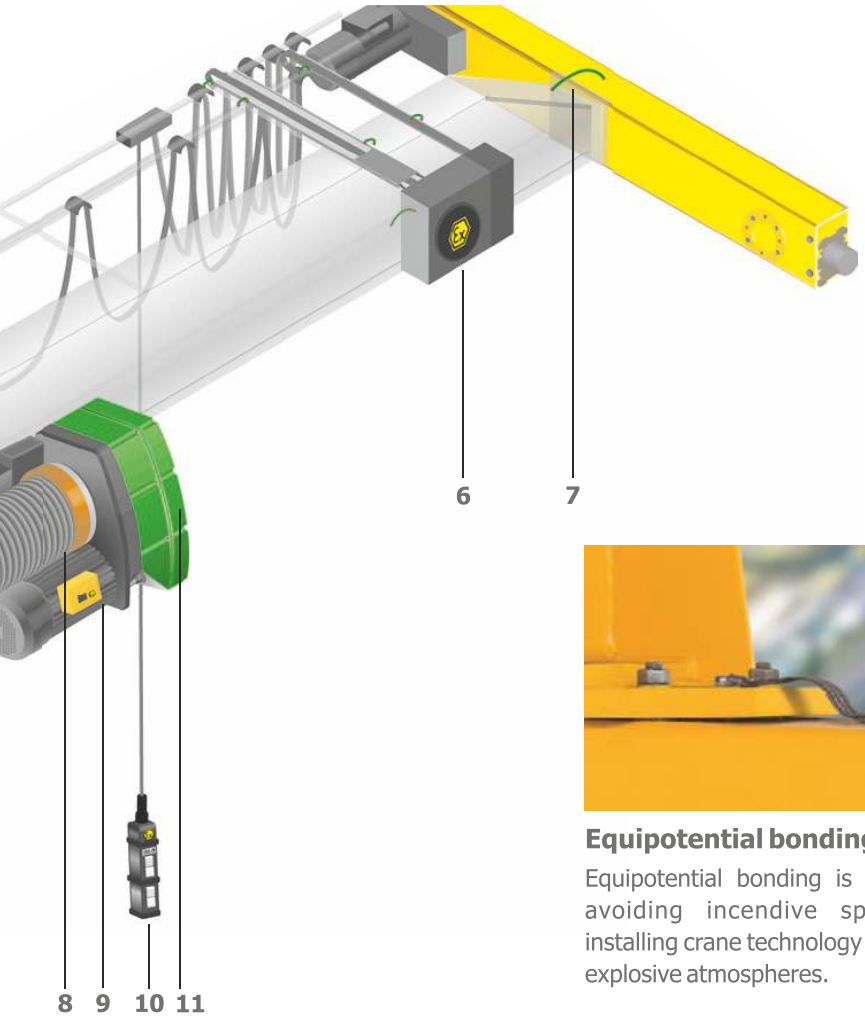
The type of protection of all wheels is constructional safety ›c‹. If travel speeds are high, this also includes brass wheels.

Overload device

The overload devices for Zone 1 and 21 comprise mechanical sensors (LMS), analog sensors (LET) for Zone 2 and 22.

Bottom hook block

The type of protection employed is constructional safety ›c‹, no aluminium is used. If travel speeds are high, individual parts, such as the load hook, are bronze-coated.

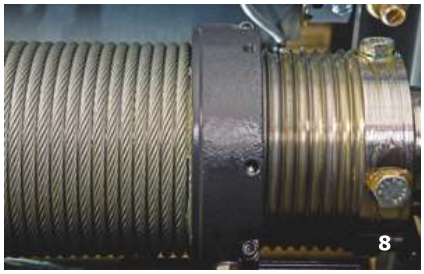


Panel box

The type of protection for panel boxes for Zone 1, 2 and 21 on cranes and hoists combines types of protection flameproof enclosure ›d‹, increased safety ›e‹ and protection by housing ›tD‹.

Equipotential bonding

Equipotential bonding is essential for avoiding incendive sparks when installing crane technology in potentially explosive atmospheres.



Rope guide/Chain guide

The wear-resistant rope guide in nodular graphite casting GJS (previously designated GGG) is extremely durable and not subject to temperature limitations. The same applies to the chain guide, type of protection used: constructional safety ›c‹.

Motors

Motors for Zone 1 and 21 are made of grey cast iron, the type of protection combines flameproof enclosure ›d‹, increased safety ›e‹ and protection by housing ›tD‹. For Zone 2 the motors are made of aluminium and in type of protection non-sparking equipment ›nA‹. For Zone 22 the motors are manufactured in IP 66 and protection by housing ›tD‹.

Control pendant

The type of protection of the housing is IP 66, installed elements protected by flameproof enclosure ›d‹, increased safety ›e‹ and protection by housing ›tD‹.

Gear

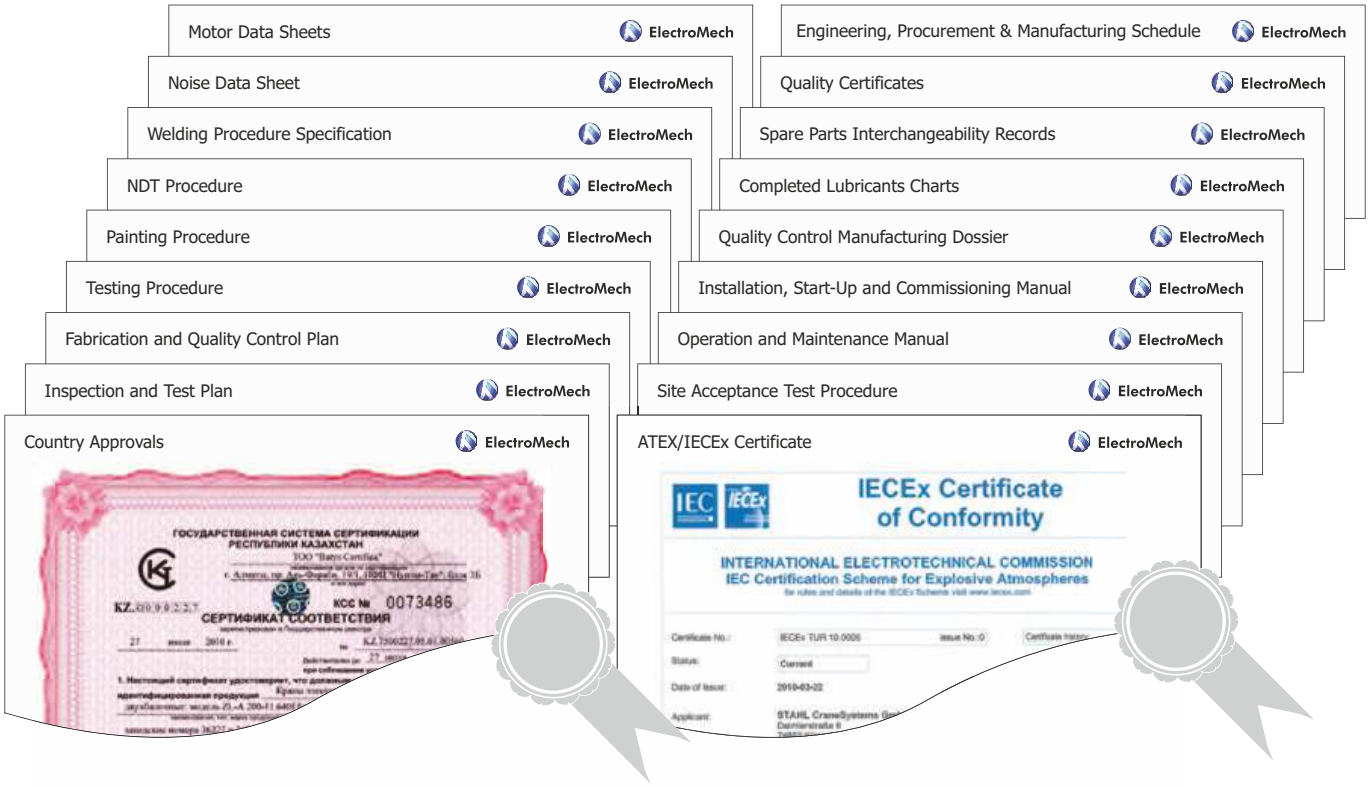
The types of protection of the gear are constructional safety ›c‹ and liquid immersion ›k‹. The protective liquid (oil) prevents sparks.

Certification and Documentation

Documentation

Documentation from ElectroMech meets and exceeds by far all the requirements of international project business. Even in the quotation stage, we assist you with all necessary documents and literature. In addition, you receive in-process documentation and extensive individual end customer documentation.

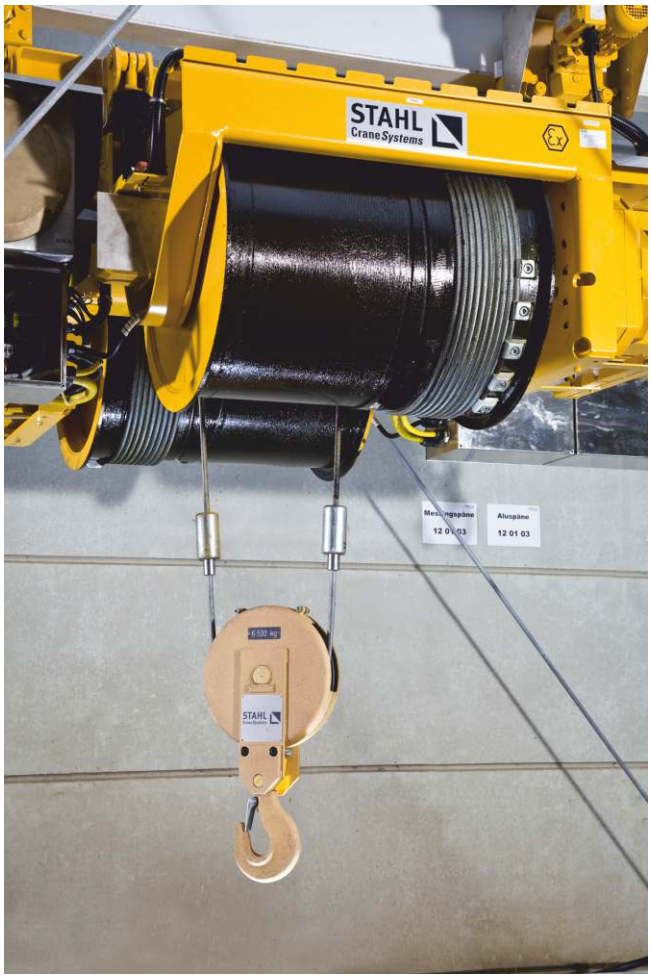
During all phases of your project, we offer you comprehensive services relating to documentation, certification and approvals complying with international, country-specific regulations and specifications.



Solutions for LNG

When maintenance is performed on LNG tanks, a 100 percent reliable technology is required. LNG is neither inflammable nor poisonous in its liquefied state and is thus relatively innocuous. However, if it evaporates, it is highly explosive. For this reason, the most stringent explosion protection regulations apply in the whole LNG terminal - including the crane technology. The LNG wire rope hoists and jib cranes from ElectroMech meet these requirements.

The LNG hoists from Stahl CraneSystems have been designed especially for maintenance work in natural gas liquefaction plants (LNG). Thanks to their high-quality components and robust design, they are ideal for use near the coast in challenging climate conditions. The pumps which pump the liquid natural gas into a pipeline system at a temperature of –161°C must be lifted out of the tanks and transported outside for maintenance. The extreme conditions prevailing in the tank necessitate special ropes which are permanently connected to the liquid gas pump. When maintenance is required, these ropes are attached to the wire rope hoist by means of a rope clamp, so that no hook is necessary. All safety-relevant components are doubled. This means that the hoisting procedure proceeds without disruption even if a rope should break. One of the two wire rope hoists lifts the pump, the second hoist runs alongside with a dead rope as backup. If the load rope should break during the hoisting procedure, the second wire rope hoist carries on hoisting. The shock-absorbing rocking suspension of the hoist cushions the impact of the abrupt load change. Thanks to their redundant design and rocking suspension, ElectroMech LNG wire rope hoists are regarded as the safest hoists available on the market.



Customised Solutions Across Industries

Time-bound completion of construction projects largely attributes to efficient and safe material handling systems employed in aggregates manufacturing and on project sites.

These requirements are highly demanding and involve designing customised solutions every time to suit specific applications as well as site conditions.

ElectroMech is known for its expertise in providing such solutions in the shortest possible time, which perfectly meet requirements cost-efficiently. We are an integral part of several large and prestigious infrastructure construction projects, providing advanced technology, efficient and reliable crane solutions.

We have successfully developed customised solutions for several construction projects in India and abroad. Our systems are being extensively used in projects like

- Metro rails, flyovers, bridges
- Hydroelectric power plants
- Nuclear plants
- Windmill projects
- Tunnelling projects
- Rails & roads

Apart from these areas, we can undertake the development of a suitable crane for any other application where lifting loads, height of lift, traverse span or even the project site imposes a challenge.

Customised Solutions Across Industries

ElectroMech customised crane solutions are helping several manufacturing plants across the world to reduce human efforts, ensure safe handling and enhance plant productivity.

These solutions are being extensively used from merely lifting and lowering loads at particular workstations, for achieving complete plant integration.

Various manufacturing industries which are benefitted through the use of our solutions include

- Automobile
- General engineering
- Cement
- Process plants
- PEB & fabrication
- Heavy engineering
- Shipping
- FMCG & consumer durables
- Steel & metal
- Warehousing


ElectroMech

Services Partner

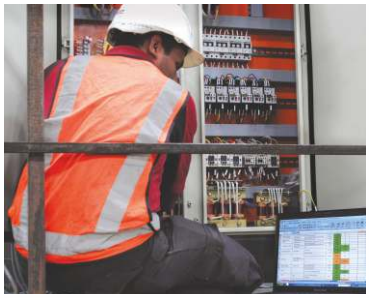
cranedge

An ElectroMech initiative

Exclusive company for ensuring 24x7 fitness of industrial overhead cranes of all makes

Cranedge service offerings

- Spares Sales
- Repairs, Services and Overhauling
- Annual Maintenance Contracts
- Crane Health Checks
- Modifications and Retrofits
- Relocation of Cranes
- Crane Safety Certification



Cranedge for you

At Cranedge, we pursue the concept of offering 'Service at your doorstep' for reaching 'zero down time' and building 'Lifetime Relationships'.

Cranedge is a dedicated service organisation exclusively for providing post-sales services to overhead crane users. As a specialist service provider, we are equipped and backed by resources which are essential prerequisites for us to excel in service and ensure a high level of customer satisfaction.

Our experienced and trained team is strategically located, supported by a strong logistics and inventory management system with quick access to spares of almost all makes of cranes. We have a knowledge bank on a variety of cranes and applications, and a host of products to optimise crane efficiency.

The Cranedge team is well trained on various aspects to ensure a very high up time of your cranes and ensure safe operations. This training includes crane architecture of various brands, systematic methods for quick diagnosis of problems and quicker methods to solve them, domain knowledge, safety procedures to be followed while working in your plant, precautions to ensure safe working of cranes, etc.

Once you engage Cranedge, your cranes are in safe hands.

For more details

Visit : **www.cranedge.com**

E-mail : youredge@cranedge.com

Call : **Toll-free** 1800 209 0010

A World of Satisfaction

ElectroMech has earned a noteworthy reputation of being a most reliable name in the field of material handling systems through its products and prompt, efficient service. Our clients have been experiencing a world of delight and satisfaction not only in India, but also in other countries where our presence is quite significant.

The sturdy ElectroMech cranes are operating year-after-year in extreme climatic conditions, irrespective of whether it is the sweltering heat of Rajasthan or the Middle East, or the biting chill of the Himachal or Afghanistan.

Our experience with cranes, installed at small workshops as well as at gigantic shipyards, expands our knowledge base. We are inspired to sharpen it further for designing advanced cranes for more critical applications.

Our happy customers all over are a source of immense satisfaction for team ElectroMech.

We are proud of our associations

ABB	Cummins	Lamprell Energy Ltd.	QAFCO	Schlumberger
Air Liquide	Fluor	Linde	RAS GAS – II Project	Siemens Ltd.
Aker	Foster Wheeler	Mitsubishi Heavy Industries	Reliance Industries Limited	Suzlon Energy Ltd.
Atlas Copco	GE	Oman Gas Company	Saipem	Technip
Bechtel	Impregilo	Petron	Samsung	Tecnimont
CORUS	Jacobs	Pyramid Engineers	Sandvik	Top Oil Field Services

ElectroMech

Solutions | Service | Satisfaction

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