POWER OF EXPERIEN INDIVIDUAL PROF
PROFESSIONAL AP RGY TOP QUALITY
DRIVING PROFES DEA TURNED
INTO **YOUR** ENERGY CONTINUOUS
ENERGY **BUSINESS** G SOLID PARTNER
CHALLENGING PROJECTS MOST DEMANDING APPLICAT
MORE ENERGY EFFICIENT
SOLID PARTNER POWER OF
EXPERIENCE TOP QUALITY INDIVIDUAL APPROACH PROFES

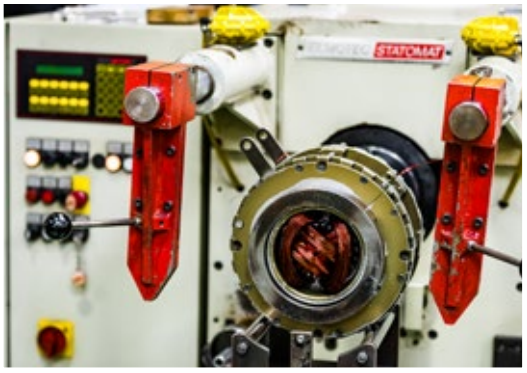
CANTONI®
MOTORI ELETTRICI

Product Lines



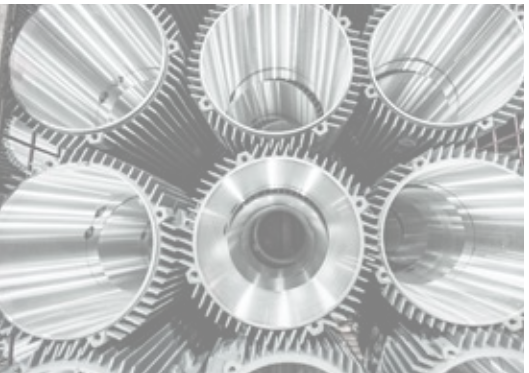




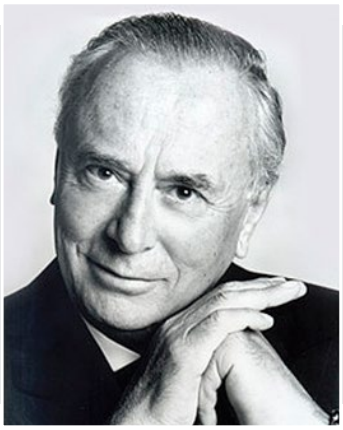




CANTONI®
MOTORI ELETTRICI

CANTONI GROUP



Giampiero Cantoni, Founder of Cantoni Group

Since almost a century, the Cantoni Group has been known worldwide as a leader in manufacturing and supplying electric motors, components and tools.

Thanks to the entrepreneurial commitment and great talent, the founder of the Group, **Prof. Giampiero Cantoni**, created diversified Group Enterprise that has gained outstanding success on the Domestic and International markets, placing us among the most important European manufacturers.

CANTONI MOTORI

Elektropol Cantoni – Milan – an Italian history.

Elektropol Cantoni was founded in 1964 and works in the area of electric asynchronous motors in the Italian market.

Thanks to the particularly flexible organization, we are able to satisfy, in a very short time, the most diverse customers' needs. We have one of the biggest warehouses in Europe located in Buccinasco (MI) with the availability of products from frame size 56 to 355, which allows us to guarantee prompt delivery of all standard 2-4-6-8 poles motors.

Due to the structure provided with the most modern and up-dated equipment, we are able to realize and customize all products according to the specific clients' requirements.

The division "Production of special motors" is able to provide a wide range of motors with customized execution: non-standard voltages, frequencies and speeds, mechanical modifications for special application and complete witnessed tests.

Our point of strength is the support provided to the customers in all commercial steps from pre-sales to after-sales, also thanks to the assistance of the engineers of our factories.

Tradition, experience and passion for better products

As a family owned Group we treasure old partnerships and constantly develop individual approach to customer needs. This has always been our main value on which we build our experience.

Most of all, we treasure long lasting business relationships, loyalty to customer, quality, research and innovation – the cornerstones of our philosophy and sales strategy.

Our Group comprises the following manufacturing plants located in Poland:

– Besel, Celma Indukta and Emit (electric motors),
– Ema-Elfa (components),
– Fana, Fenes, Formit and Narmod (tools).

The production plants have a rich experience and a long-standing industrial tradition in the design and production. All our motors guarantee high performance and big reliability even in the most demanding applications.

All main components of our motors are produced in our factories in order to guarantee high quality level. We pay particular attention to the materials used for production which are delivered only by qualified suppliers, exclusively from European Union.

Our designs and solutions correspond to the customer requirements and international standards. In order to identify the needs of the times and of the future, we use all our resources, being versatile, responsive and dynamic.

BESEL

History:

1950 – foundation

1955 – launch of manufacturing of 3-phase induction motors

1966 – launch of manufacturing of 1-phase induction motors

1995 – acquisition by ELEKTRIM S.A.

2000 – became part of CANTONI GROUP

At the beginning of its history, **Besel** dealt with regeneration of electric motors. One year later the plant started also the production of repulsion electric motors. Production of first 3-phase induction electric motors was launched in the middle of 50's, 11 years later the offer was extended by 1-phase induction motors.

The real milestone for development was building of the second manufacturing plant which resulted in high increase of series production. In 1991, the company was transformed into joint stock company. Since 1995, the majority stake belonged to ELEKTRIM S.A., and since 2000, the company has become a part of **CANTONI GROUP** – the leader of electric motor production in Poland.

For all those years, Besel has developed and gained experience in the motor sector becoming, at the same time, a well-known company in Poland and also recognizable abroad through Cantoni brand. With every year, the company is modernized and new technologies are introduced.

Many years of traditions and long cooperation with scientific organizations have resulted in user safe products with variety of executions.

At present, Besel operates on the area of 20 000 m^2. A substantial part of the production is exported to European Union's markets as well as to Asia, Africa and South and North America.

Motors of Besel production are in accordance with directives of European Union and labelled by CE mark. In 1995, the company received ISO 9001 certificate.

Besel's motors can be used in many branches of industry (machine tools, air conditioners, fans, pumps, woodworking machines, etc.). Due to the regular analysis of the current trends on the market, Besel can offer various solutions mostly based on customers' requirements.

Besel S.A. offers a wide range of 3-phase general purpose motors within a range from 0,04 kW up to 2,2 kW, 1-phase motors and special purpose motors.

CELMA INDUKTA

Celma Indukta S.A. is a company created after the merger of two longtime manufacturers of electric motors located in the South of Poland – Fabryka Maszyn Elektrycznych Indukta S.A. and Maszyny Elektryczne Celma S.A.

Indukta was established in 1878 as a repair workshop for textile machines. After some years of development, in 1919 company started the production of electric motors. The next big step was made in 1991 when Indukta had been transformed into a company owned by the State Treasury. In 1994, the factory's majority shares were purchased by ELEKTRIM S.A.

Celma was established in 1920. The factory benefited from Brown Boveri S.A. attainments.

For decades, the company significantly developed and has become one of the main motor producers in Poland. In 1996, the factory was acquired by ELEKTRIM S.A. Since 1997 (Indukta) and 2000 (Celma), the companies have become a part of Elektrim Motor, later **CANTONI GROUP**. Both factories grew a lot for all those years and their influence and role in the development of domestic industry has been very important. At present, Celma Indukta operates on the area of ca. 55 000 m^2.

Since 1993 (Indukta) and 1995 (Celma) the companies have been functioning based on ISO 9001 standard and afterwards obtained also certificate ISO 14001. The fundamental goal of the company's business is to provide the Customer with specific and comprehensive solutions and to ensure high quality and appropriate service for electric drives. Electric motors produced in the company are compliant with the EN, PN, DIN, VDE, BS, CEI, IEC, NEMA, CSA and UL standards.

The main group of motors produced by Celma Indukta are general purpose 3-phase squirrel-cage motors (frames 90-315) which can be used in many branches of industry. The factory offers also special motors suitable for specific operating conditions, e.g. in the mining and chemical applications (with ATEX, EAC, GOST and other certificates) as well as metallurgical and shipbuilding industries. Most of the products, including also explosion-proof motors, are offered with the CE mark. A considerable part of factory's production is intended for export. Motors are delivered to the European Union, as well as Asia, South and North America or Africa.

History:

1878 – foundation of Indukta in Bielsko-Biała

1920 – foundation of Celma in Cieszyn

1994/1996 – Indukta/Celma acquired by ELEKTRIM S.A.

1997/2000 – Indukta/Celma became a part of CANTONI GROUP

2011/2012 – merger of two factories into Celma Indukta S.A.

EMIT

History:

1921 – foundation

1997 – acquisition by ELEKTRIM S.A.

2001 – received present name: Zakład Maszyn Elektrycznych Emit S.A.

2002 – became part of CANTONI GROUP

Emit was founded in 1921 under the name Fabryka Polskich Zakładów Elektrycznych Brown-Boveri S.A. The factory started the production of 3-phase electric motors, transformers, generators which could operate e.g. with Diesel engines, and as the first factory in Poland produced tramway motors.
In 1931, the factory was closed and re-activated in 1933 under the name Zakłady Elektromechaniczne Rohn-Zieliński S.A. – Brown Boveri licence. After the war, the factory was nationalised and got the new name Zakłady Wytwórcze Maszyn Elektrycznych i Transformatorów M-1. The company remained the most important Polish manufacturer of electric machines and transformers. In 1967, the name was changed for Zakłady Wytwórcze Maszyn Elektrycznych i Transformatorów "EMIT". In 1997, the factory was acquired by ELEKTRIM S.A. and since 2002 has become a part of **CANTONI GROUP**.
Its present name, Zakład Maszyn Elektrycznych Emit S.A., the company received in 2001, after the ownership transformation and separation of transformers factory from Emit S.A.
As one of the leading manufacturers of 3-phase electric motors and generators for high and low voltage, medium and high output, Emit keeps its position on changing Polish investment market and readjusts the quality of its products, technology and company management to the international standards. Quality of products and services is granted by ISO 9001 (since 1997), Polish standards PN, international IEC, European EN and American NEMA/CSA. More than half of the products are exported to demanding foreign markets in the whole world. The factory is the main supplier of drives for fuel, power, chemical, paper, marine, mining and electromechanical industries.
At present, Emit operates on the area of ca. 20 000 m^2.
Emit offers over 2500 types of electric machines (frames 355-1000), e.g. induction motors (slip-ring and squirrel cage) in rated output from 50 kW to 6000 kW, including high voltage motors, low voltage motors, low and high voltage slip-ring motors, explosion-proof motors, as well as non-typical products designed and executed according to customers' requirements (i.e. motors for submersible pumps, combined cutter loaders, etc.).

EMA-ELFA

History:

1954 – foundation

1996 – factory became part of Indukta

1997 – received present name: Ema-Elfa Sp. z o.o.

2000 – became part of CANTONI GROUP

Ema-Elfa was founded in 1954. At the beginning, the factory dealt with the production of press studs, tacks, upholstery nails and clothing rivets.
Through many years the factory made a progress, extended its production, experienced a lot of organizational and management changes.
In 1976, the factory started the production of electromagnetic brakes HZE for electric motors produced in Indukta. In 1982, Fabryka Aparatury Elektrycznej Ema-Elfa was created and from this time the factory had developed dynamically, produced DC eletromagnetic brakes, pneumatic brakes type UW, DC brakes type F for domestic but also foreign markets. Its products were sold not only to Indukta but also to Besel. In 1996, after negotiations Indukta bought Ema-Elfa and in 1997, the factory received the present name Ema-Elfa Sp. z o.o. with 100% shares belonging to Indukta, becoming at the same time part of ELEKTRIM S.A. and later, in 2000, part of **CANTONI GROUP**.
At present, the factory operates on the area of 5000 m^2.
Ema-Elfa offers a wide range of electrical apparatus, such as: electromagnetic AC, DC brakes, powder brakes and clutches, electrohydraulic releases, self-locking systems, disconnecting and changer-over switches, tool boxes, EFM-control buttons and others…
The quality of products is confirmed by ISO 9001, ISO 14001 and ISO 18001.
Products are successfully applied in many different industries as: electromechanical, construction, shipyards, mining, etc., and are intended not only for domestic but also foreign markets.
Thanks to the skills and competences of employees supported by continuous investments in machinery, Ema-Elfa creates more intelligent, sustainable and innovative solutions for customers.

Quality Management Certificates

CERTIFICATION

Cantoni Group's factory, Celma Indukta was one of the first companies obtaining ISO 9001 certificate in Poland

All Cantoni Group manufacturing plants comply with the most important standards.

ISO 9001 is based on a number of quality management principles including a strong customer focus, the motivation and implication of top management, the process approach and continuous improvement. Using ISO 9001 helps to ensure that customers get consistent, good quality products and services.

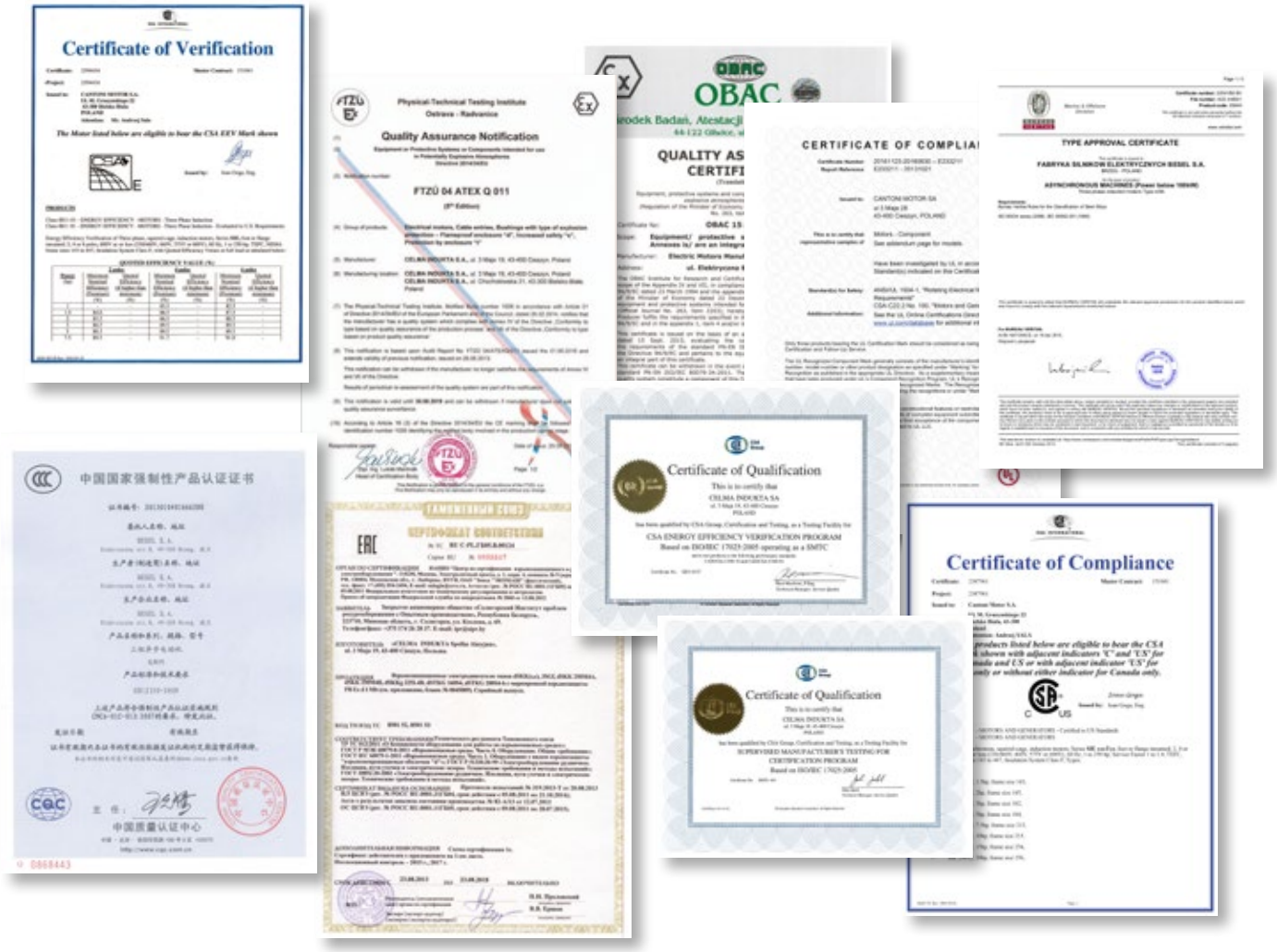
Our aim is to produce high quality products certified according to the most important standards. We always focus our work to provide a product that meets the customer requirements, define the approach to continuous improvement and monitor customer satisfaction. All people in our Group are fully engaged and motivated to provide the top quality products. We achieve this thanks to skilled technicians, trained workers and customer oriented employees.

As a demonstration of our aim to meet all high level international standard requirements, we are also certified ISO 14001 and OHSAS 18001 to prove our internal processes and behaviour.

ISO 14001 certification confirms that the organization manages their environmental responsibilities in an effective and internationally accepted way.

In Cantoni Group we know that taking care of the environment means taking care of our present and future.

Product Certificates



With **OHSAS 18001** certificate, Cantoni Group confirms the necessity of controlling and improving health and safety aspects within the organization.

Employees are Cantoni Group's main asset, thus, their well-being and safety are our priority.

Our laboratory Celma Indukta is also **ISO 17025** certified by Canadian Standard Association (CSA) for two aspects: safety and energy efficiency verification requirements as independent unit.

The safety part – Supervised Manufacturers Testing Certification (SMTC) confirms that our laboratory is allowed for supervised manufactured safety certification program.

The energy efficiency part confirms that energy verification program for motors operating as SMTC can be performed according to CSA 390 standard at our facilities.

All our prototype motors are tested and approved before series production and samples of our final products are tested periodically to check compliance with all parameters defined. Our production range has also different type of products certifications based on specific technical requirements, like UL-CSA, GOST, EAC, ATEX, IEC Ex, CCC, Bureau Veritas, DNV-GL, etc.

Our technicians are constantly updated, informed and trained about each new regulation in order to provide all possible solutions to meet final customer requirements and also study and engineer ad-hoc products with customers developers.

Top quality electric motors

Cantoni Group's electric motors are manufactured in a way to provide a durable product that our customers can rely on:

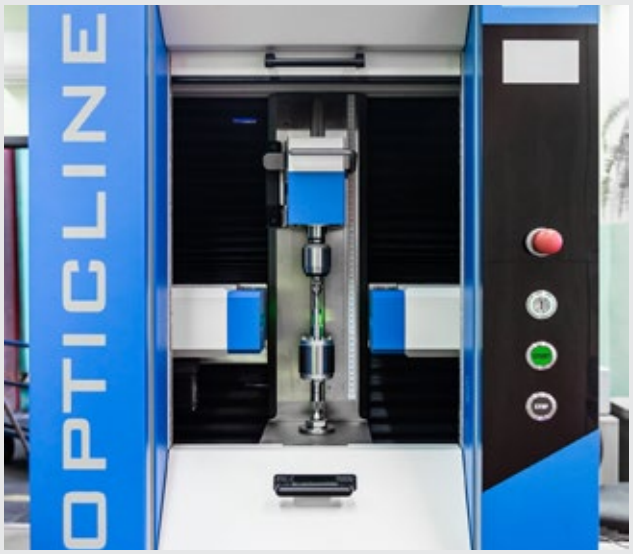
- motors manufactured using high quality raw materials and components
- long-life bearings
- robust and tough construction
- raw materials only from European qualified suppliers
- production process from the beginning to the end at our facilities
- proven electrical performance

Our motors for many applications

Our motors are produced with the aim to be flexible and adaptable to many different applications. The long tradition and experience of our technical departments, supported by a flexible and strong organization, can assure an engineering of the motor series that meet the most common requirements and the more and more specific requests from the manufacturers of cutting-edge machines.

Our long collaboration with some of the most important players in the world industrial market has built a strong and stable organization that is able to support the customer in the development of the best solutions for its application.

QUALITY IS OUR BUSINESS

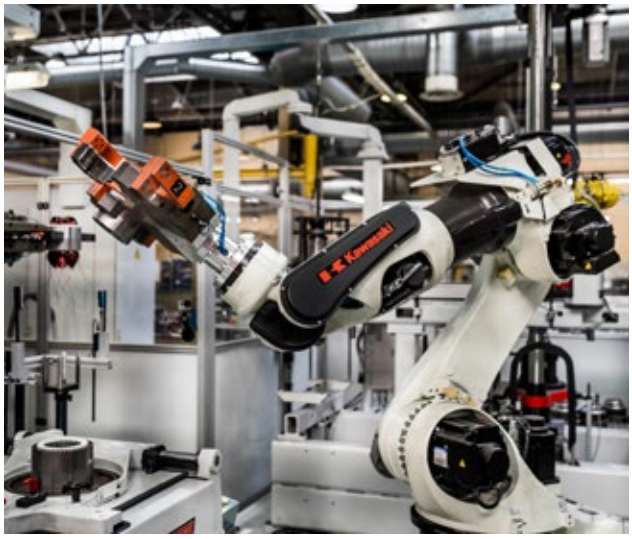


Cantoni Group continuous investments

The strategy of Cantoni Group is to realize a strong and continuous plan of investments with the aim to constantly increase the range of products, quality level and high productivity.

Cantoni Group international market leadership has been created thanks to such open and future oriented attitude. Investments into the new professional machinery, equipment and infrastructure increase the quality control, capacity and save the environment.

The use of world class CNC, automatic and semi-automatic machinery guarantees precision, repeatability and accuracy. Such considerable development plan of Cantoni Group enhances the already wide range of production, maximizes the quality of offered products, has led to a growing number of innovations (new series for specific applications, new design and solutions) and international approvals.



ENERGY EFFICIENCY

Starting from March 2014 the standard that defines the efficiency classes of eletric motors is IEC 60034-30-1. This standard includes motors from 2 to 8 poles, from 0,12 kW to 1000 kW, up to 1000 V for efficiency level IE1 to IE4. According to EU Regulation 640/2009 and supplement 04/2014, IE3 is the minimum level in European Union for motors 2, 4, 6 poles, from 0,75 kW to 375 kW. Our 3SIE series of motors is in compliance with this regulation.

Our aim to produce and offer the best technological products on the market, pushed us to develop also series of motors with high efficiency level, even if they are excluded from the obligatory minimum efficiency levels, like brake motors, ATEX and marine executions, 8 poles, single phase and many others. Saving energy costs and respecting environment is the most difficult challenge of the industrial development in the next years and Cantoni Group takes up this challenge.

IE4 SUPER PREMIUM EFFICIENCY

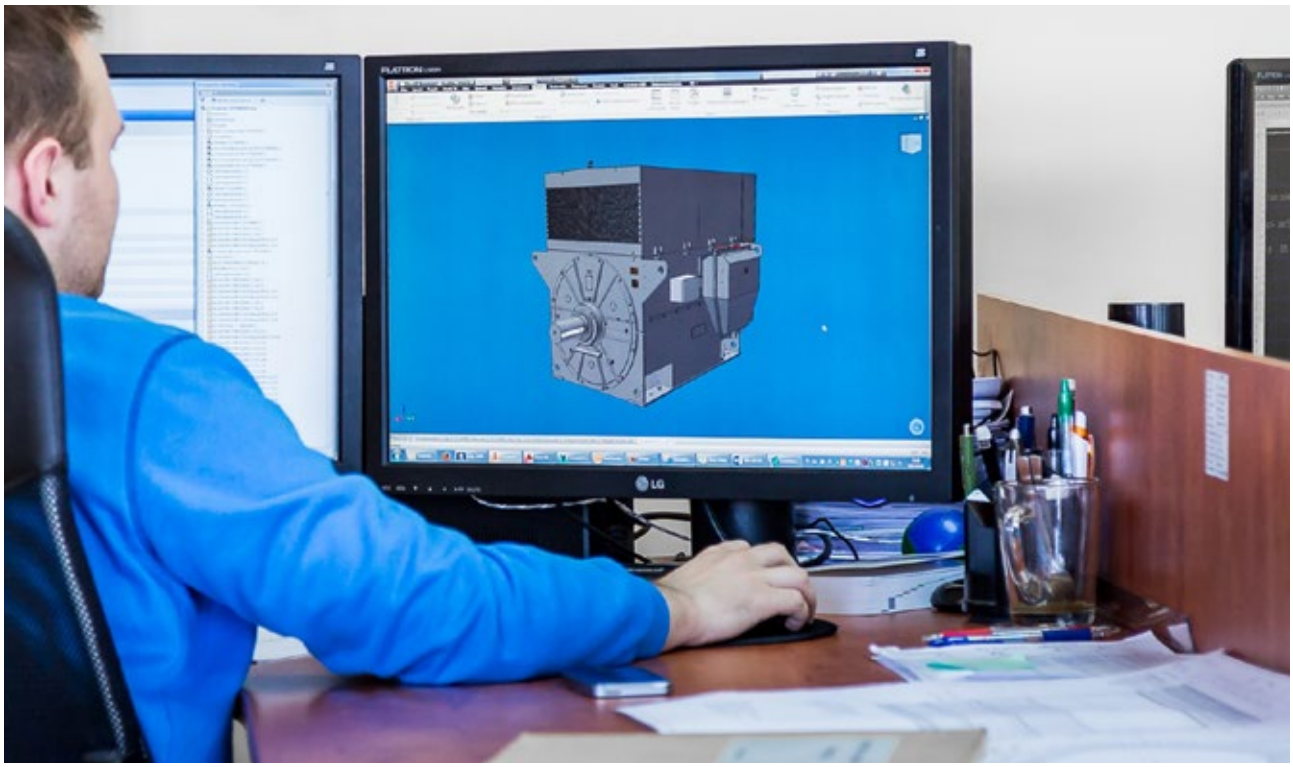
IE3 PREMIUM EFFICIENCY

IE2 HIGH EFFICIENCY

IE1 STANDARD EFFICIENCY

Research and Development

Cantoni Group realizes a strong and stable plan of research and development. All industrial processes and technical achievements are preceded by our extensive research and development efforts. Our highly skilled and experienced engineers provide advanced and optimal electric motor solutions to the world industrial projects, starting from the design until the final approval and the realization of prototypes. Every plant has its development department working on current and new series of motors for specific applications.



PRODUCTS FOR THE FUTURE

Cantoni Group supports young and passionate engineers in fulfilling their ambitions and gives them chance to materialize their innovative ideas in the process of designing highly advanced electric motors.
We cooperate also with the Institutes of Technology and support young scientists from Universities (e.g. the Mars Rover).
The project of transforming visions of young engineers into technically advanced constructions is highly appreciated by Cantoni Group and supported in any possible way.

Such approach of Cantoni Group contributes not only to the development of the Group itself but also of the global electric motor industry.

Worldwide presence

More than 40 countries, almost all continents

Through the network of distributors and business partners our motors operate in more than 40 countries in almost all continents and we constantly add new markets to this list.

WHY CANTONI GROUP?

Cantoni brand has become the acknowledged brand on the domestic and international electric motors market thanks to:

- experience and long rich tradition in the production of electric motors
- wide range of products
- proven electrical performance, durability, robust construction of motors
- solutions ideal for various applications, even the most demanding
- international certificates and awards confirming the quality and reliability
- production processes from the beginning to the end performed in Cantoni Group's factories
- raw materials only from European qualified suppliers
- long term approach resulting in great success on international markets
- experienced engineering staff engaged in advanced projects
- technical support and flexibility
- business relationships that guarantee success

Cantoni Group offers:

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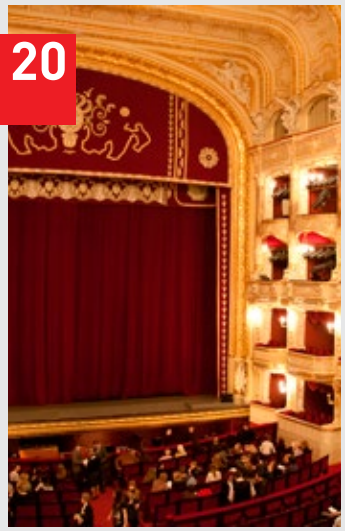


3-PHASE INDUCTION MOTORS

Standard execution:

Output: from 0,04 kW to 2200 kW
Number of poles: 2, 4, 6, 8
Frame: from 56 to 560
Voltages: 230/400 V (up to 112)
400/690 V (from 132)
Frequency: 50 Hz
Colour: RAL 5010 – blue
Insulation class: F/B
Degree of protection: IP55
Terminal box: on top
Duty: S1

Options available:

Number of poles: 10, 12 and more
Voltages: various
Frequency: 60 Hz and others upon request
Insulation class: H
Colour: various
Degree of protection: IP56, IP65, IP66
Terminal box: on left or right side
Duty: others
Efficiency level: IE1, IE2, IE3, IE4

Other options are available upon request.

General purpose motors

Our offer of general purpose motors is designed and produced not only to respect the energy efficiency regulation, but to provide a complete set of features to generate the maximum benefit to the customer: low vibration and noise level, durability, easy maintenance and long bearing life.

One motor, many applications

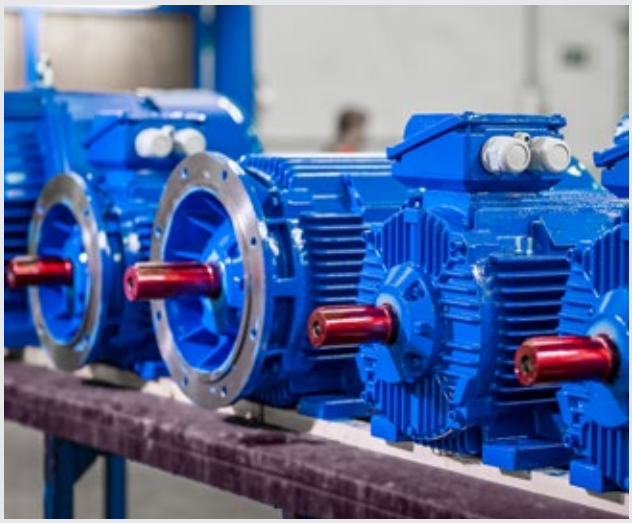
Thanks to our production process, from engineering to final execution of motors performed internally, we have experience, knowledge and manufacturing technology to develop and provide standard solutions which are flexible and adaptable for multiple use.

Applications

3-phase induction motors can be used in:

operational machines (turning, grinding, milling, drilling, boring, planning machines, etc.), cranes, ventilation systems, mixers, washing machines, pumps, conveyors, etc.

Industry: marine, food, wood, mechanical in general, chemical and oil, mineral and vegetal extraction, textile and cellulose, sugarcane facilities, alcohol, etc.



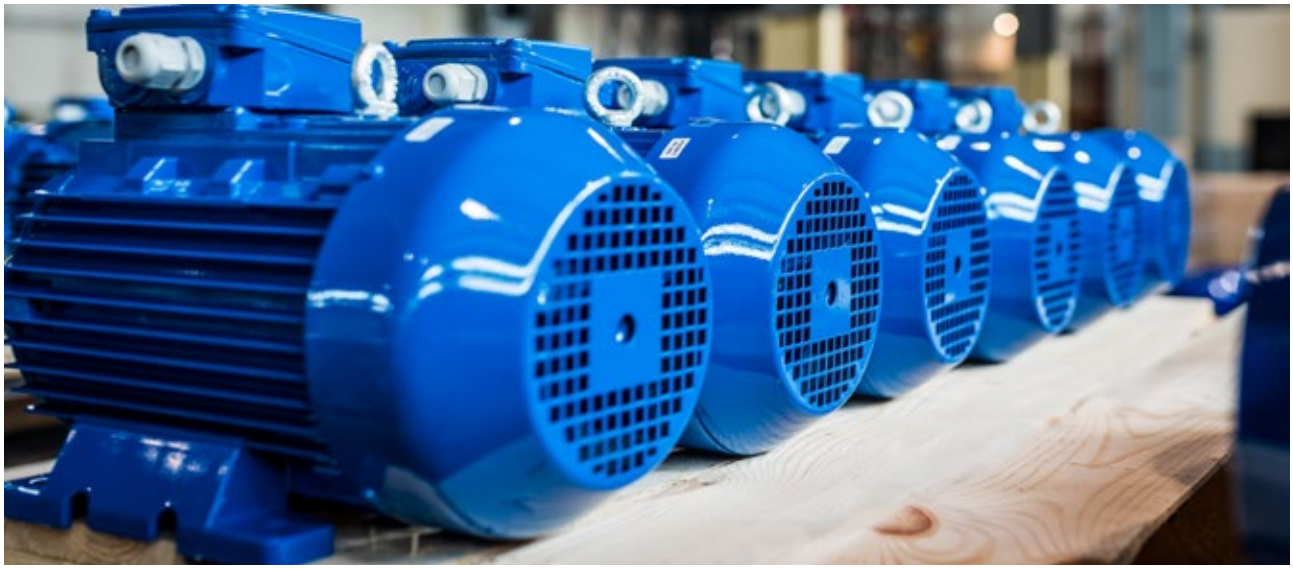
IE3 Efficiency

IEC 60034-30-1 standard and EU Regulation 640/2009, 4/2014

According to IEC 60034-30-1 standard and EU regulation 640/2009, 4/2014 starting from 1st January 2017, only IE3 Energy Efficiency motors from 0,75kW to 375kW can be sold in European Union. Our **3SIE series** is fully compliant with this regulation.

In addition it is allowed to produce and sell IE2 energy efficiency motors only for inverter use. Our **2SIE series** also meets the requirements of the regulation.

Cantoni motors are tested in our laboratory which is certified ISO 17025. It means that we can prove that our motors provide the efficiency level declared. Our production is constantly monitored and checked with scheduled laboratory tests of all components and final products.



Our series

IE1 – Sh, Sg, SIE series

Motors in efficiency class IE1.
“Sh” and "Sg" series is the historical project, still effective for motors in efficiency IE1 while "SIE" series is the new flexible construction.

IE2 – 2SIE series

Motors in efficiency class IE2.
"2SIE" series, based on the new flexible construction, meets all requirements of the most demanding customers both on electrical and physical parameters and special executions.

IE3 – 3SIE series

Motors in efficiency class IE3.
"3SIE" series, following the new flexible construction project "SIE", provides more efficient motors in the same construction, with the maximum level of compatibility on old machines.

IE1 STANDARD EFFICIENCY

IE2 HIGH EFFICIENCY

IE3 PREMIUM EFFICIENCY

The philosophy of details

All our projects are analyzed, designed, developed and produced with focus on each single detail. Our engineers and technical people work together to make always better products taking into consideration years of experience and knowledge.

Built to resist

Starting from the first motor produced, all factories work to build a durable product. Our motors work for many years with very low level of necessary maintenance services, at the same time generating additional savings.

Such result can be achieved only by using high quality materials, developing an effective project based on high skills level of employees, manufacturing using world class machines and investing a huge part of revenues.

Designed to be flexible

Our motors can be equipped with any additional option. Standard motor execution can meet all requirements of customers, simplifying machine projects and upgrading existing ones.

Our series

IE4 – 4SIE series

Motors in efficiency class IE4.
"4SIE" series, thanks to the good project of our engineers, is based on the same flexible construction "SIE" and can be provided with standard induction motors or even with permanent magnet technology.

IE4 SUPER PREMIUM EFFICIENCY

MULTI-SPEED MOTORS

Standard execution:

Output: from 0,06 kW to 235 kW
Number of poles: 4/2, 8/4, 12/6, 6/4, 8/6, 8/2, 8/6/4, 12/8/6/4
Frame: from 71 to 355
Voltages: 400 V
Frequency: 50 Hz
Colour: RAL 5010 – blue
Insulation class: F
Degree of protection: IP55
Duty: S1

Options available:

Voltages: various
Frequency: 60 Hz
Colour: various
Insulation class: H
Degree of protection: IP56, IP65, IP66
Terminal box: on left, right side, on top
Duty: others

Other options are available upon request.

Features and characteristics

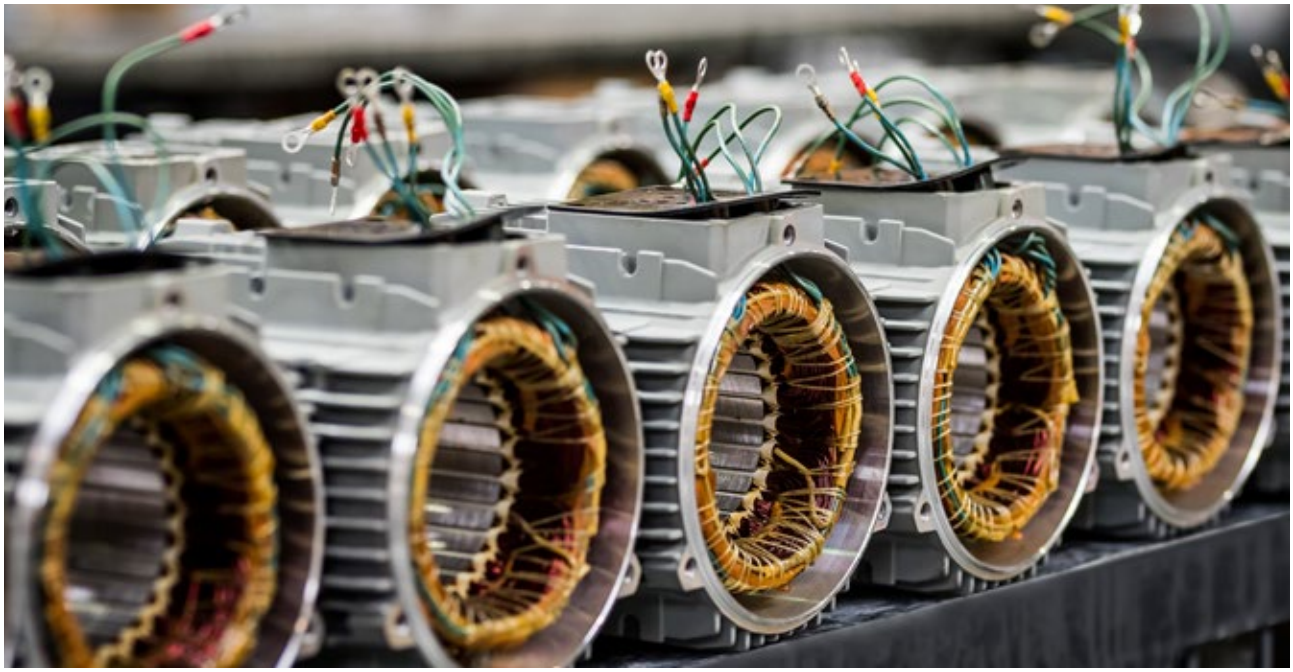
Based on our general purpose motors we offer our multi-speed series of motors.

In these motors the operation at two or more fixed speeds is obtained by changing the number of poles.

Such motors can be equipped with either single winding (switchable) or with separate windings.

Single winding motors are designed for direct starting from the supply and are single voltage, while motors with two or more separate windings are more flexible and adaptable for any application.

Motors meet the requirements of International rules IEC 60034-1.



Applications

Multi-speed motors can be used in fans, mixers, conveyors, lifts, etc.

BRAKE MOTORS

Standard execution:

Output: from 0,04 kW to 160 kW
Number of poles: 2, 4, 6, 8
Frame: from 56 to 315
Voltages: 400 V
Frequency: 50 Hz
Colour: RAL 5010 – blue
Insulation class: F
Degree of protection: IP55
Terminal box: on top
Duty: S1

Options available:

Number of poles: 10, 12 and also multi-speed motors
Voltages: various
Frequency: 60 Hz
Colour: various
Insulation class: H
Degree of protection: IP56, IP65, IP66
Efficiency level: IE1, IE2, IE3, IE4

Type of brakes:

independently supplied,
with lever for manual releasing of brake,
with reduced noise,
with temperature sensors,
designed for tropical climate.

Other options are available upon request.

AC or DC brakes

On the basis of our good flexible project of general purpose motors, we offer our series of brake motors.

In our offer we have 3-phase and 1-phase motors with AC or DC brakes as well as NEMA brake motors.

Such motors are used in applications with high safety requirements or where immediate stopping of the drive is required.

AC brake motors are used when a quick operation time is required, while DC brake motors operating time is longer and they are more silent.

AC brake is supplied by alternating voltage directly from terminal plate (or from independent supply system). The overall dimensions of mentioned brake are greater than its equivalent for DC current.

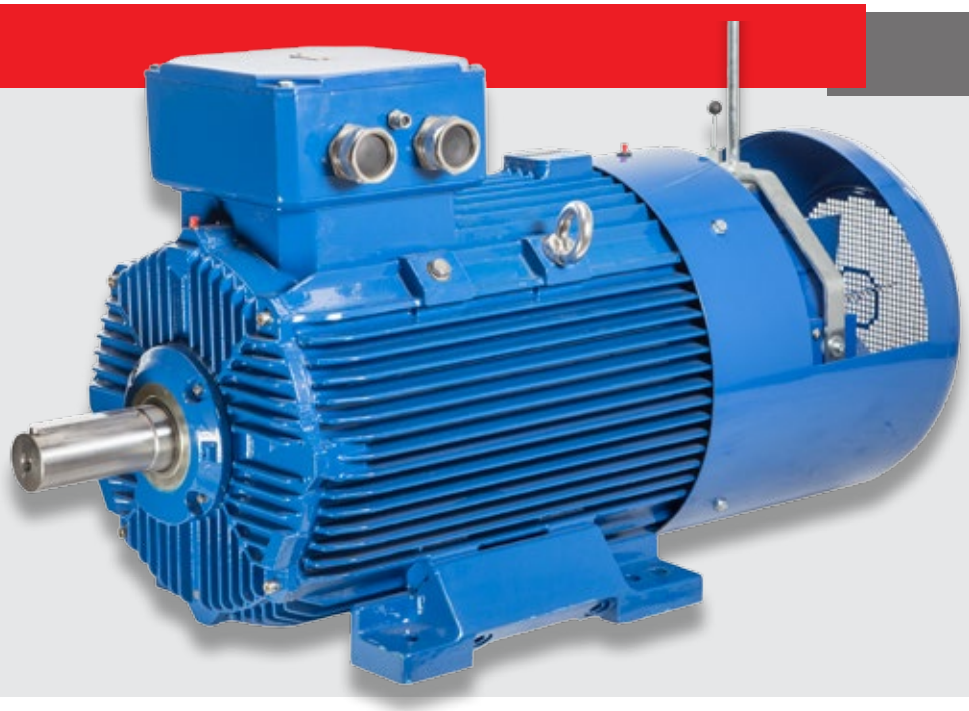
The type of brake used in the motor depends on customer's requirements and on the kind of duty, thus, we can provide the whole range of necessary solutions.

We offer also DC brake motors with delay braking for driving woodworking machines and explosion proof motors with ATEX brakes.

Applications

Brake motors can be used in: lifts, passenger elevator drives, ski lifts, platforms, cranes, overhead travelling cranes – wherever one has to keep in mind strict regulations of technical supervisory authorities applicable to elevator equipment.

Theatres, concert halls where it is necessary to comply with strict safety requirements together with very low permissible noise level – to stop the motor silently.



MARINE MOTORS

Standard execution:

Output: from 0,04 kW to 2 MW
Number of poles: 2, 4, 6, 8
Frame: from 56 to 560
Voltages: 230/400 V, 440 V, 460 V
Frequency: 60 Hz
Colour: RAL 5010 – blue
Insulation class: F
Degree of protection: IP23, IP55, IP56
Efficiency level: IE1

Options available:

Output: higher output upon request
Number of poles: 10, 12 and multi-speed
Frame: above 560
Voltages: various
Frequency: 50 Hz
Colour: various
Insulation class: H
Degree of protection: IP66, IP67
Terminal box: on left, right side, on top
Efficiency level: IE2, IE3, IE4

Other options are available upon request.

Marine classification

Marine motors are built in accordance with the requirements of the major marine classification:

- Germanischer Lloyd (GL)
- Lloyd's Register of Shipping (LRS)
- Bureau Veritas (BV) – type test certificate available
- Det Norske Veritas (DNV)
- Russian Certification (RMRS)
- American Bureau of Shipping (ABS)
- Polish Register of Shipping (PRS)

For marine motors the ambient temperature is up to 50ºC allowed, according to the classification authorities' rules. The reliable windings of motors are made from the material in class F protection and permissible temperature rise 95 K.

All marine motors of Cantoni production have its windings tropicalized, insensitive to moisture and micro-organisms. Such motors are made to withstand aggressive environment such as salt mist using VPI impregnation. Frame of motors is adapted for heavy conditions. Our motors are strongly protected against corrosion including special painting.

In order to enable supplying with power network available in sea ports the motors are designed for dual voltage and frequency.

Applications

Marine motors are used on:
ships boards, offshore applications

The following special marine motors are also available:

- Explosion-proof marine motors
- Marine motors for pumps
- Marine motors for axial fans
- Explosion-proof marine motors for fans
- Marine motors for boat davits and deck davits
- Marine motors for thrusters
- High voltage marine motors

HIGH VOLTAGE MOTORS

Standard execution:

Output: from 160 kW to 4000 kW
Number of poles: 2, 4, 6, 8
Frame size: from 315 to 1000
Voltages: 3300 V, 6000 V, 10 000 V
Frequency: 50 Hz
Colour: RAL 5010 – blue
Insulation class: F
VPI (Vacuum Pressure Impregnation)
Degree of protection: IP55

Options available:

Output: up to 6000 kW
Number of poles: up to 16
Voltages: from 1000 V to 11 000 V
Frequency: 60 Hz
Degree of protection: IP56, IP65, IP66

Execution for special environmental conditions (marine, dry tropical TA, wet tropical TH), Ex

Other options are available upon request.

Designed for you

Our HV motors are custom made according to specific customer and application requirements. Depending on the operational conditions we select the most appropriate solution from our wide product base: from high efficiency surface cooled motors to modular construction motors with air-to-air or water-to-air cooling.
Our specialists can help customers select correct motor for their application.

Stator and rotor units are designed for reliable, long life and manufactured using the best possible materials. Depending on application rotor's squirrel cages can be executed either with aluminum or copper bars. All stators are VPI impregnated to ensure excellent electrical parameters, heat transfer and resistance to environmental conditions. Moreover, they undergo multistage quality control to verify that all components meet foreseen parameters.

Bearings and sensors

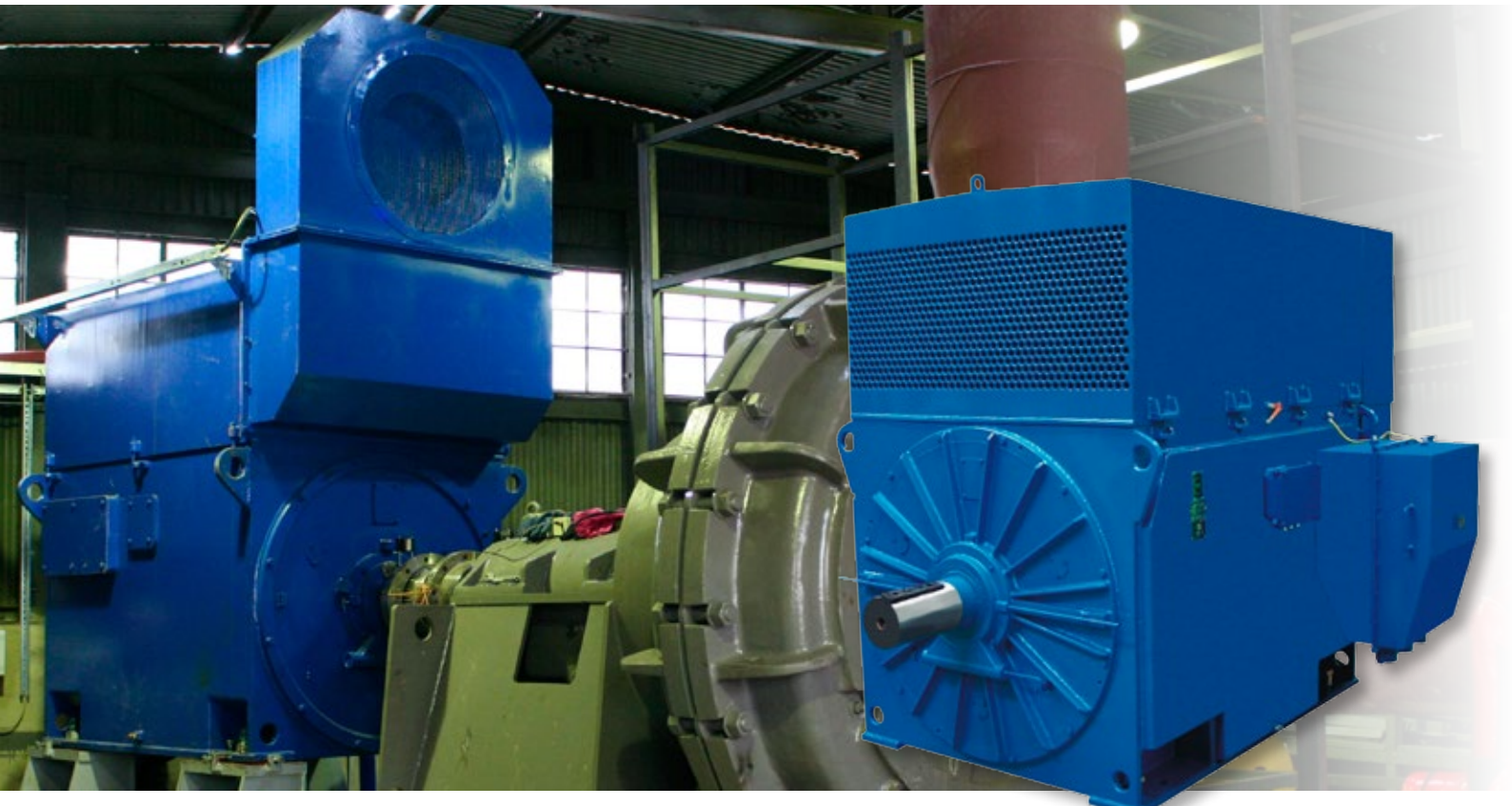
All motor series are equipped with high quality bearings matched to the application and operational speed in order to provide long service life. As a standard, motors are equipped with temperature sensors and on customer's request we can additionally provide vibration monitoring solutions.

Applications

HV motors can be used in:
pumps, fans, blowers, mixers, chippers, compressors, conveyors, extruders, shredders, thrusters, hoists, cranes and mill stands.

Such motors are used in fuel, power, chemical, paper, marine, mining and electromechanical industry.

We offer high voltage motors in standard and high efficiency.



HV series

Motors Sh series are of general purpose high efficiency high voltage motors.

Series Sh – 3-phase squirrel-cage motors (2000 V – 11 000 V) with system of cooling IC411.
3-phase squirrel-cage motors (10 – 11 kV) with system of cooling IC411.

Series Sf – 3-phase squirrel-cage motors (2000 V – 11 000 V) with system of cooling IC611 (air-air).

Series Sfw – 3-phase squirrel-cage motors (6000 V – 11 000 V) with system of cooling IC81W (air-water).

Series Sfr – high power motors with system of cooling IC511.

Series pSf – 3-phase squirrel-cage explosion proof motors (3000 V – 10 000 V) with overpressure system.

Series dSh – 3-phase squirrel-cage explosion proof motors 3 – 11 kV with system of cooling IC411.
3-phase squirrel-cage explosion proof motors (3000 V – 6600 V).

Series Shz – 3-phase squirrel-cage submersible motors (2000 V – 6600 V) with degree of protection IP68 (which is the first submersible motors 6 kV in Central Europe).

Series SUf(r) – 3-phase slip-ring motors (2000 V – 6600 V) with system of cooling IC511, IC611 (air-air).

Output: 5600 kW, rated speed: 745 RPM, voltage: 10 500 V

EXPLOSION PROOF MOTORS

Standard execution:

Output: from 0,75 kW to 3200 kW
Number of poles: 2, 4, 6, 8 and others upon request
Frame: from 80 to 900
Voltages: 400 V, 500 V and others upon request
Frequency: 50 Hz or 60 Hz
Degree of protection: IP55, IP56, IP65, IP66
Terminal box: on top
Duty: S1
Efficiency level: IE1, IE2, IE3

ATEX classification:

Category: M2, 2G, 3G, 2D, 3D
Zone: 1, 2, 21, 22
Temperature classes: T3, T4, T5
Enclosures: Exe, Exd(e), ExnA

Other options are available upon request.

Types of Ex motors

We offer a wide range of Explosion Proof motors, such as:

- non-sparking motors
- increased safety motors
- flame-proof motors for chemical industry
- flame-proof motors for mining industry

Requirements and standards

Motors adapted for operating in hazardous areas, other than mining, due to the presence of explosive gases, vapours, mists or dust are designated as Group II. In the mining, endangered by the explosion of methane and coal dust, motors are designated as Group I.

Each motor is manufactured according to requirements of ATEX Directive 2014/34/EC, which is dedicated for equipment operating in hazardous areas.

Moreover, we can also deliver Ex motors with other certifications/approvals like for example EAC, GOST, BiH, IEC Ex.

The motors meet the following requirements and standards:

EN 60079-0 – Explosive atmospheres – Part 0: Equipment – General requirements

EN 60079-1 – Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures "d"

EN 60079-7 – Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

EN 60079-15 – Explosive atmospheres – Part 15: Equipment protection by type of protection "n"

EN 60079-31 – Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"

NEMA MOTORS

Standard execution:

Output: from 0,75 HP to 250 HP
Number of poles: 2, 4, 6
Frame: from 143 to 447
Voltages: 230 V, 460 V, 575 V
Frequency: 60 Hz
Colour: RAL 5010 – blue
Insulation class: F/B
Degree of protection: IP55
Design: A or B
Oversized Ball Bearings
Designed for Horizontal & Vertical application
VPI Process applied for best electrical performance

Options available:

Voltage: various
Frequency: 50 Hz
Colour: various
Junction box: cast iron for sizes 143-286
JM or JP execution

Other options are available upon request.

Certifications:

– CSA/CSA-US
– UL
– Hazardous Locations (Class I Div 2, Class II Div 2)
– DOE approved (with CC number)
– CE Marked

Withstand severe conditions

3-phase NEMA Premium efficiency motors with squirrel-cage rotor – SIE series.

We have introduced a new low voltage NEMA motors SIE series that comply with the NEMA Premium requirements.
Our NEMA Premium™ efficiency electric motors refer to 1-speed, polyphase, 1-250 HP, 2, 4, and 6 poles, NEMA Design A or B, continuous rated, squirrel cage induction motors.

Our motors are designed for long life and reliable operation in most extreme industrial applications.

These motors are tough and withstand the dirtiest, dustiest and most severe conditions.

Our NEMA motors can operate in severe duty applications thanks to Heavy Duty Cast Iron Construction: frame, end brackets and conduit box with heavy gauge steel fanguard and non-sparking metal fan.

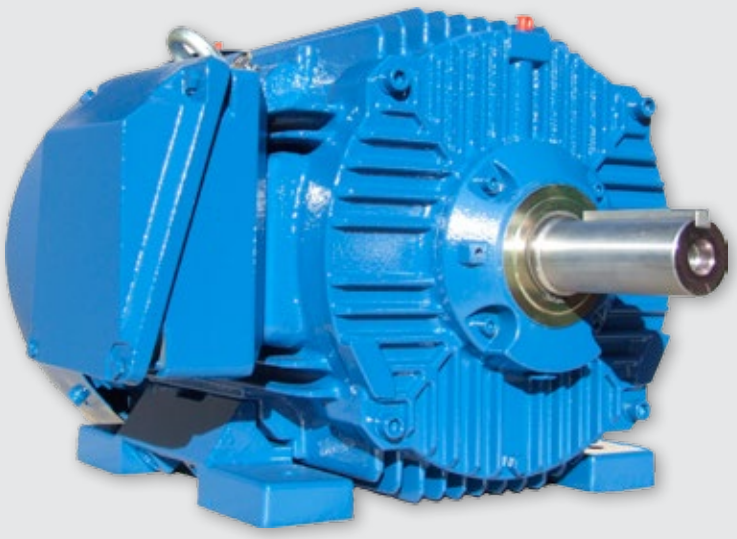
We have applied special shaft sealing systems to increase the level of protection against contaminants.

Applications

NEMA motors can be used for:

- pumps
- fans
- compressors
- material handling and other general purpose applications in damp, dusty or hostile environments

Motors are designed for direct on line (DOL), wye/delta and part starting winding (PWS).

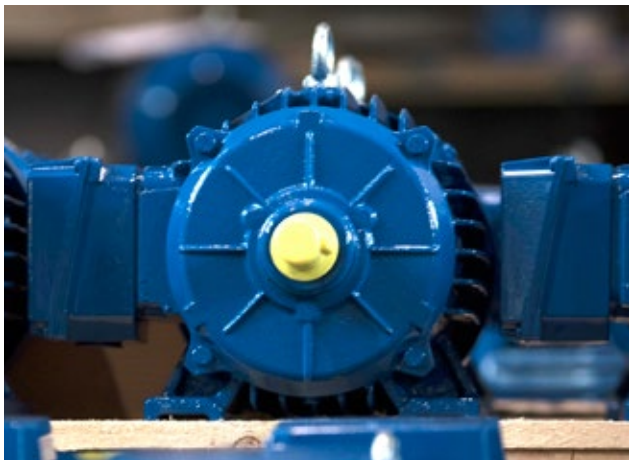


Removable feet

Our Nema motors, frames from 143 up to 286, can easily be converted to F1, F2 or round body configuration thanks to the option of removable/repositionable feet.

Junction box

As standard, motors can be offered with aluminium junction box for sizes from 143-286, and cast iron for sizes from 320-440. As optional execution, for sizes 143-286 can be also cast iron junction box.



Custom engineering

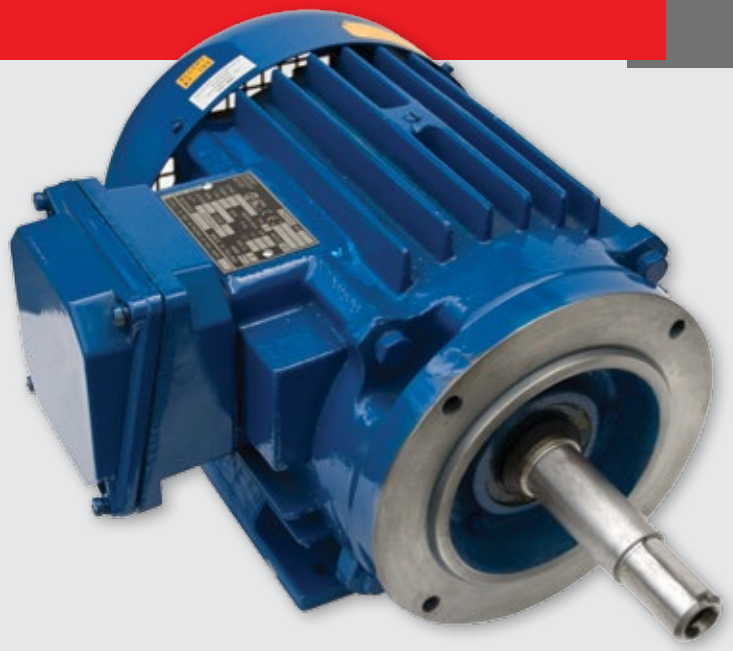
NEMA Premium

Our NEMA motors meet or exceed NEMA Premium Efficiency requirements, can be supplied via a frequency converter with wide range of speed control – 10:1CT & 20:1VT, have the service factor up to 1,4 and high locked rotor torque.

Moreover, motors generate very low vibration level (below 2,2 mm/sec) and have registered NEMA PREMIUM logo. Optionally, we can also deliver motors with certification for hazardous locations Class I Div 2 (flammable gases, vapours or liquids) or Class II Div 2 (combustible dust).

JM or JP execution

Apart from our standard executions we offer special JM/JP motors designated for driving of pumps.



1-PHASE MOTORS

Standard execution:

Output: from 0,04 kW to 4 kW
Number of poles: 2, 4
Frame: from 56 to 112
Voltages: 230 V
Frequency: 50 Hz
Colour: RAL 5010 – blue
Insulation class: F
Degree of protection: IP55
Terminal box: on top
Duty: S1

Options available:

Voltages: other supply voltages
Frequency: 60 Hz
Colour: various
Degree of protection: IP56, IP65, IP66
Insulation class: H
Tropicalization
Duty: others
Capacitor: placed in plastic covering box

Starting (electronic) relay instead of centrifugal switch in high starting torque execution.

Other options are available upon request.

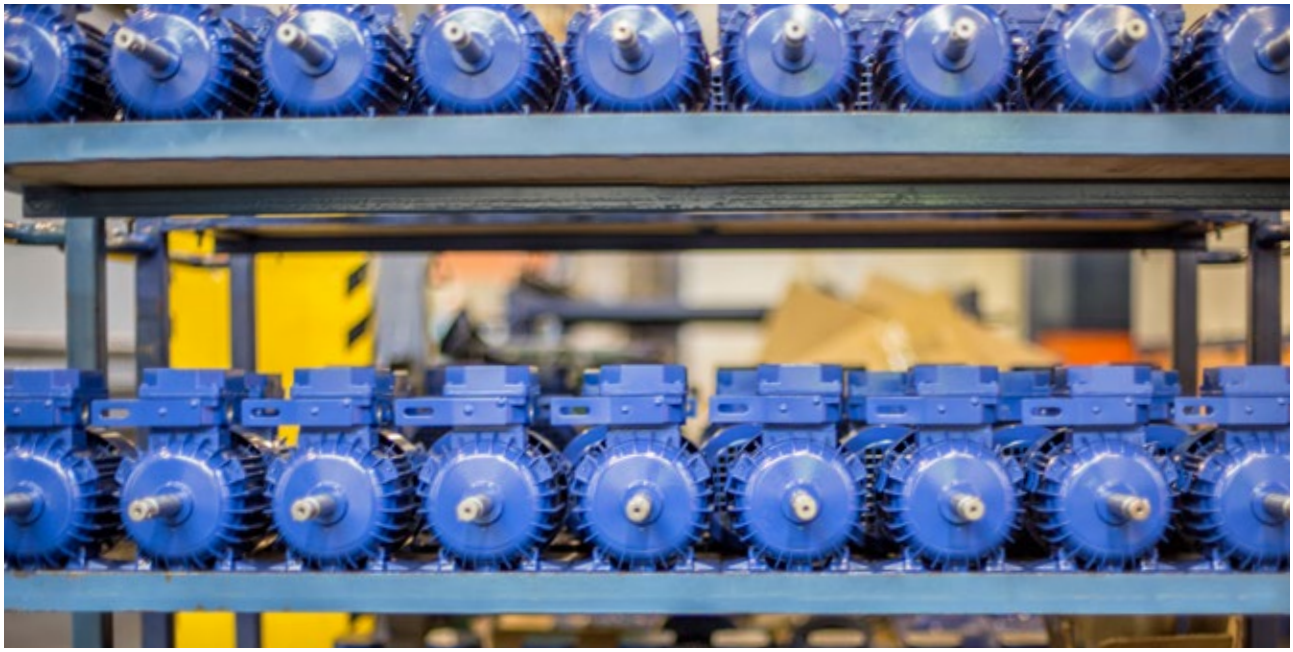
Three main groups

Motors meet requirements of international rules IEC 60034-1.

We produce 1-phase motors in three main executions: **standard starting torque** (with capacitor run), **increased starting torque** (with capacitor run and specially adjusted parameters), **high starting torque** (with capacitor run, capacitor start and centrifugal switch).

We produce also special 1-phase motors like: induction motors for axial fans, motors for woodworking machines, induction motors adapted to voltage governing of speed.

Our 1-phase motors can be offered also in efficiency class IE3. Such motors are designated as 3SSIE.



Applications

1-phase motors are mainly used in:

- drive of pumps
- fans
- compressors
- wood machines
- for food processing
- mixers for buildings

SPECIAL MOTORS

Apart from already specified motor groups, we offer many other special executions and customized motors like for example:

- Crane motors
- Submersible motors
- Slip-ring motors
- Motors for mining belt conveyors
- Motors for combined cutter loaders
- 3-phase rotating electrovibrators
- Traction motors and generators
- Motors for ventilation systems used in mining industry
- Motors for washing machines

Crane motors

Our motors are also designed for industrial cranes. We offer 3-phase one-speed motors for drive of the passenger and goods lifts fed by a frequency converter. Moreover, we also offer 3-phase two-speed motors with electromagnetic brake.

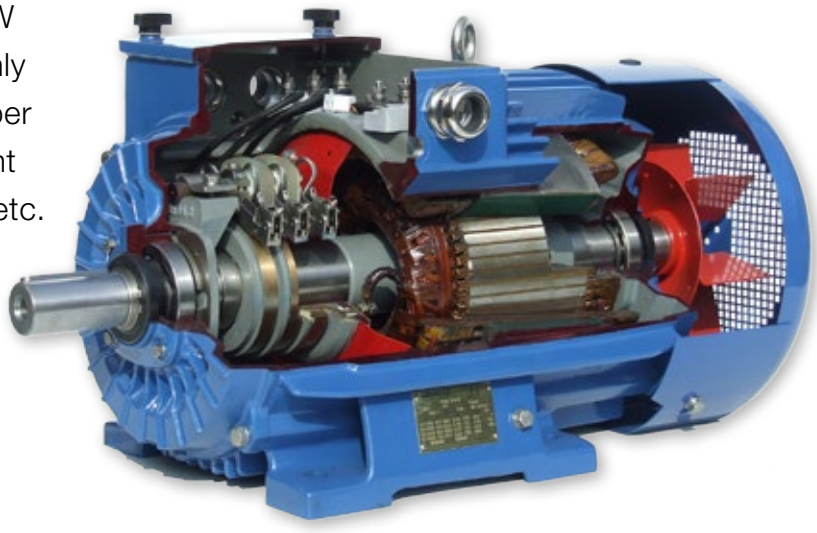
Submersible motors

Our offer includes submersible motors with protection degree IP68. Those motors are mostly used for driving of mixer in sewage plants. Motors are offered generally with the output power from 2,2 kW up to 11 kW as well as high voltage motors from 2000 V to 6000 V, series Shz.

Slip-ring motors

We offer slip-ring motors from 1,5 kW up to 200 kW. Such motors are mainly used for applications with high number of starts and drives with high moment of inertia, e.g. mills, belt conveyors, etc.

Upon request, we also produce slip-ring motors up to 2500 kW in voltages up to 11 kV.



Motors for mining belt conveyors

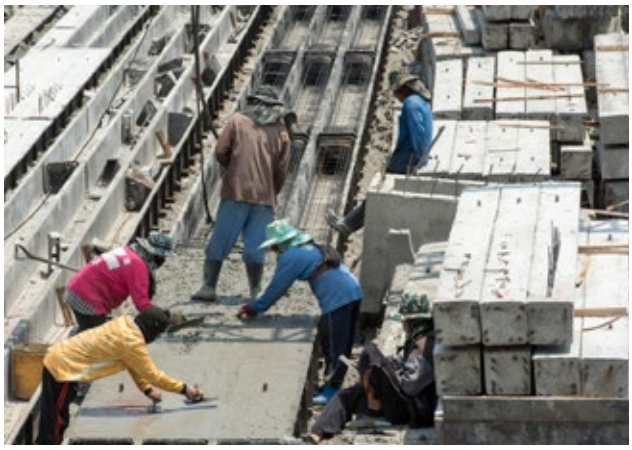
We offer 3-phase explosion-proof squirrel cage induction motors for driving of belt conveyors. The steel, welded design of the motors provides considerable durability and impact resistance. In those motors the bearing shields are made of cast iron. In case of bigger frames, we offer motors completely made of steel and water-cooled.

Motors for combined cutter loader

Our offer includes 3-phase explosion-proof squirrel-cage induction motors for driving of combined cutter loader. The motors are cooled with water. The whole design of motors is made of steel.

3-phase rotating electrovibrators

Electrovibrators offered by us are intended for driving of vibratory appliances which serve for consolidation of concrete, facilitate empting of silos' loose materials, used for driving of vibratory conveyors, consolidation of moulding sand, etc.



Traction motors and generators

We manufacture a wide range of traction motors and traction generators.
Our offer includes motors for various traction vehicles: trams (including low-deck trams), trolleybuses, subway and locomotives.

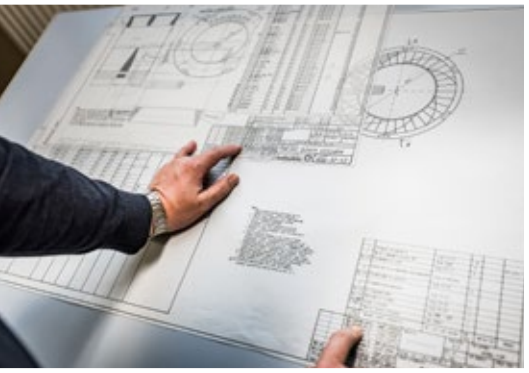
Motors for ventilation systems used in mining industry

We offer the whole range of electric motors for axial fans with the power up to 132 kW in two options, cast iron or welded design. Motors for driving fans are intended for use in underground coal mines, endangered by methane and coal dust explosion. Such motors belong to Group I of devices with the degree of safety category M2.

Motors for washing machines

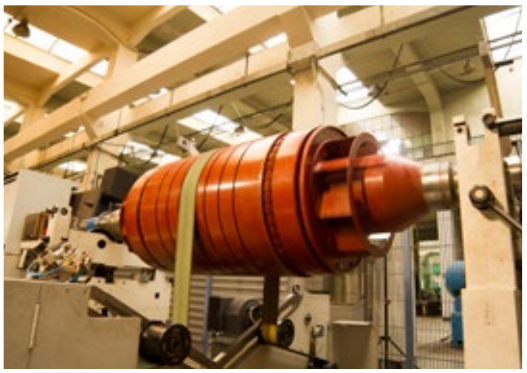
We offer wide range of motors for industrial washing machines with the output power 0,55 kW up to 3 kW. Those motors have special design, particularly, the frame is exactly manufactured according to customers' requirements. Motors are supplied by frequency converter, mostly used frequency in motor operation conditions is 75 Hz or 76 Hz.

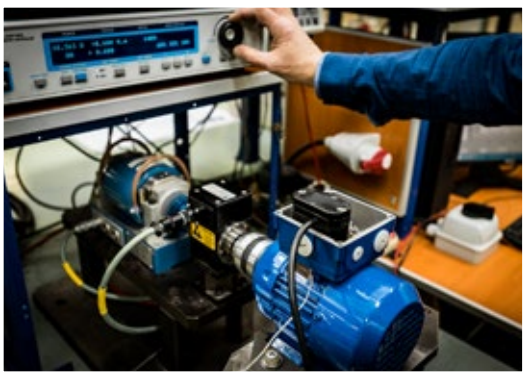
From the project to the application







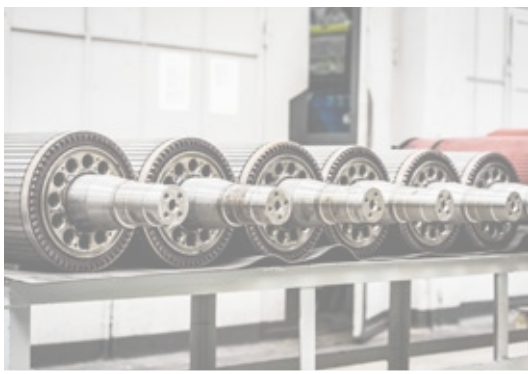

Driving Your Business











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