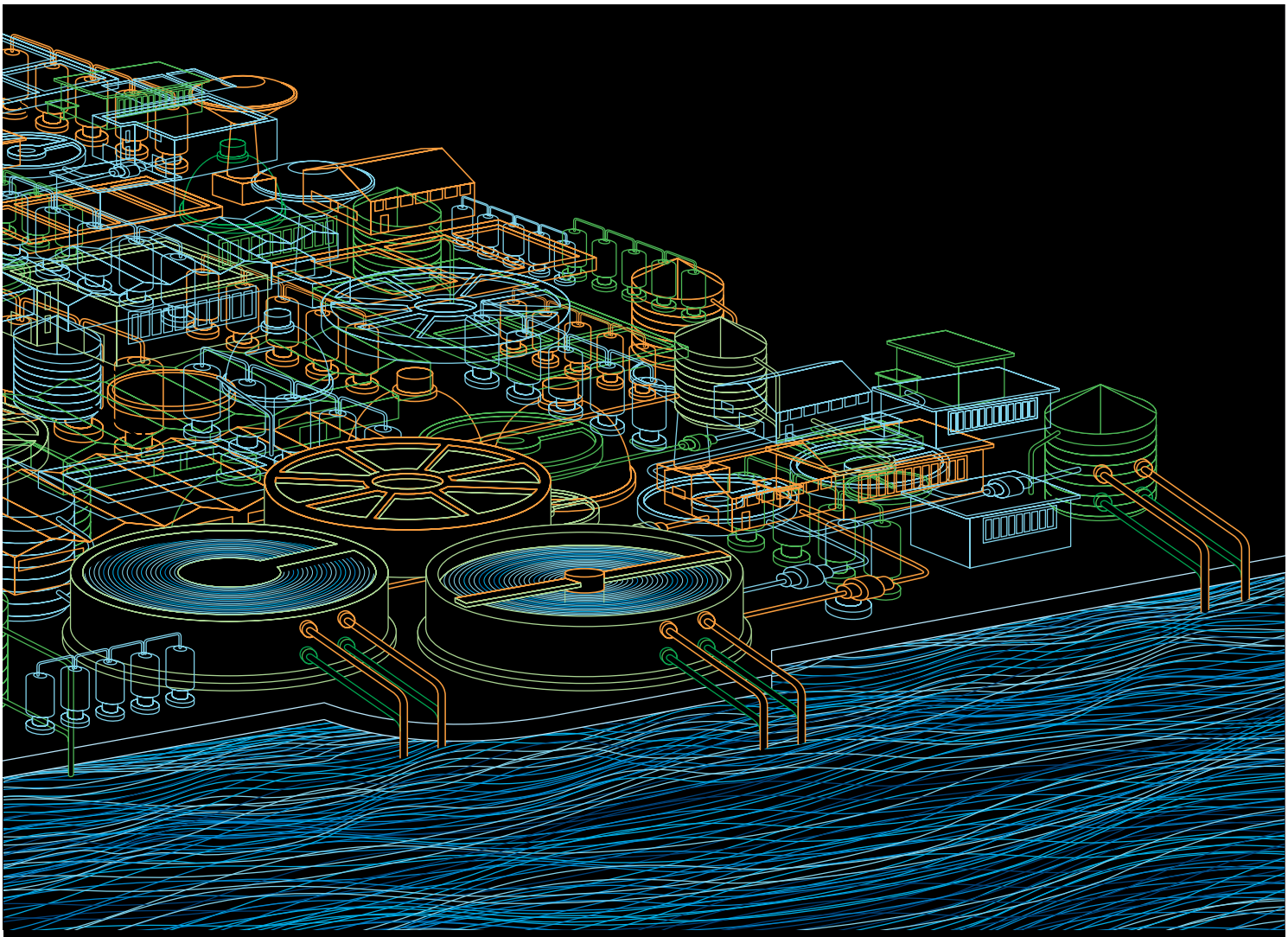
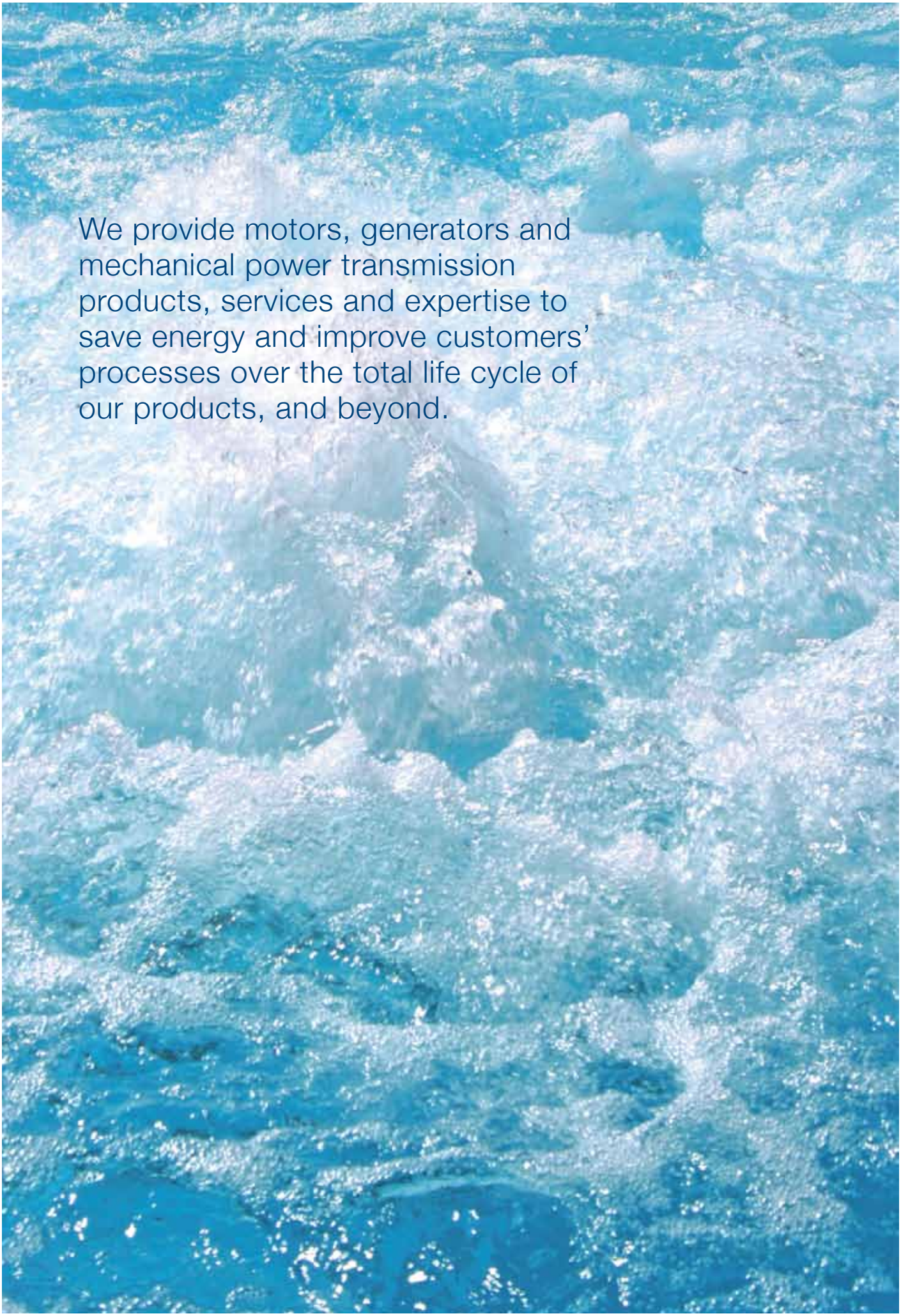


Brochure

Water industry
Reliable motors for energy saving and long life time

Power and productivity
for a better world™



We provide motors, generators and mechanical power transmission products, services and expertise to save energy and improve customers' processes over the total life cycle of our products, and beyond.

Motors and services
Reliability and efficiency for the water industry

The availability of water is definitely one of the biggest global challenges in the coming decades. Water demand exceeds supply in many parts of the world and we have to find better ways to manage the water. Lack of water combined with increased demand will put higher pressure to establish energy and cost efficient solutions for managing the entire water cycle. This is a challenge we are ready to take on.

ABB has a long experience with applications throughout the complete water cycle, from raw water intake, to desalination, large irrigation pumping, water treatment, distribution and all the way back to return of clean water to the ecosystem. Efficient water management requires a full overview of the water cycle to enable the best and most energy efficient usage of this essential asset.

ABB offers solutions that focus on supporting the entire water cycle with higher efficiency and better use of energy. The variable speed drive systems from ABB enable energy savings and lower CO_2 emissions in most pumping systems of the water treatment and distribution processes.

VSD's in combination with high efficiency motors does not only make water processes in all parts of the water cycle more efficient, but also help reduce maintenance costs as the softer starting and stopping of the pumping process takes down stress on the equipment.

The complete range of ABB products for the water processing industry offers opportunities for everyone involved throughout the lifecycle of the process plant. Our systems and services help consultants designing the system, contractors to tender and run the projects, and end users to operate the water process. Efficient plant management is achieved by integration of hardware and software solutions, where measurement and follow up of process ensures efficiency and reliability.

Water is a part of the global challenge – with long experience, presence in more than 100 countries and a complete portfolio of products and services, ABB is part of the solution.

Motors and services
Availability and experience in a global network

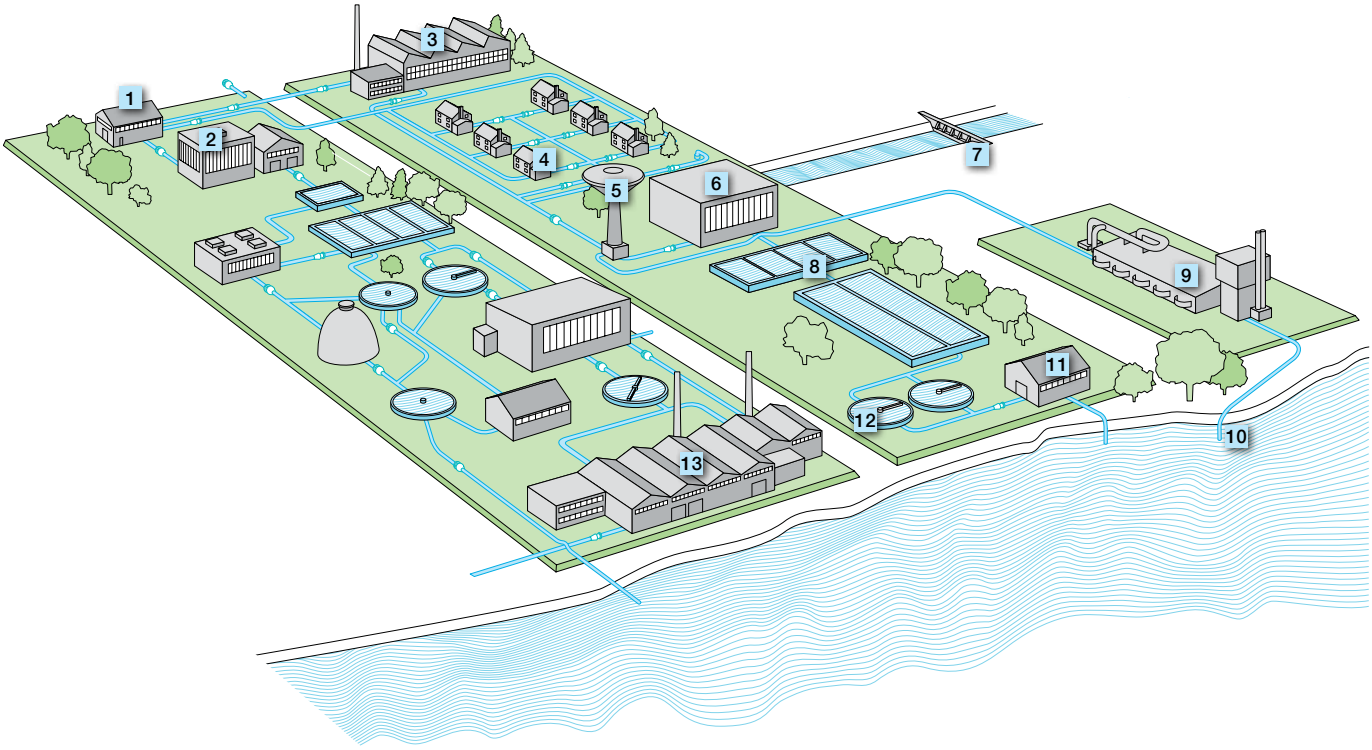
With more than 100 years of experience from manufacturing motors and hundreds of installation in the global water industry, ABB has the knowledge and expertise to provide a competitive edge to any company involved in any part of the water industry.

Electric motors are vital parts throughout the water process, from intake and desalination plants to pumping stations. The challenge is to provide environmentally friendly solutions that in all parts support efficient water conservation.

With a variety of motor types, including high and low voltage AC induction motors and high voltage AC synchronous motors, ABB help our customers to meet the challenges they face today. With increasing energy costs, the high efficiency motors bring great advantages to all pump applications and water processes.

As water is a critical resource for our everyday life as well as for many industries, which rely on an unlimited access to water, reliability of the equipment is more important than anything else in the operation of a pumping station.

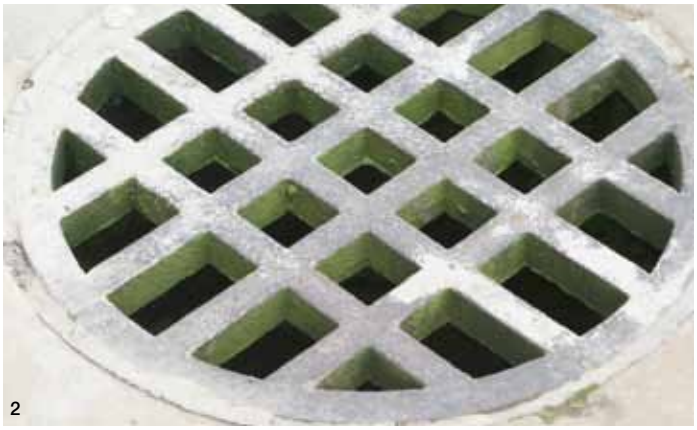
ABB's service for HV motors and generators has more than 1500 employees dedicated to service around the world, strengthened by service partners that are authorized to service ABB products. One of key objectives is to maximise the uptime of our customer's processes by ensuring the optimum lifetime of all ABB products in a predictable, safe and economical manner. ABB's service products, span the entire asset lifetime, from the moment a customer makes the first enquiry to disposal and recycling of the product.



1 Waste/sewage pumping | 2 Treatment plant inlet | 3 Industrial use | 4 Residential | 5 Water storage | 6 Water treatment plant | 7 Irrigation and water transfer | 8 Sedimentation | 9 Desalination plant | 10 Water intake | 11 Pumping station | 12 Coagulation | 13 Incineration. Special applications: Water lifting, Water transfer pipe.

Motors and services
Covering most applications in the water industry


1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1 Clean water applications | 2 Sewage applications | 3 Desalination plants | 4 Industrial applications

ABB supplies motors for various kinds of processes and applications in water.

Clean water applications
Pumps for extraction, transmission, treatment and distribution (incl. Electrical Submersible Pumps (ESP))

Sewage applications
Influent pumps, effluent pumps, treatment pumps and fans

Desalination plants
Raw water, process and high pressure pumps

Industrial applications
Pumps for cooling water supply and condensation

Other applications
Irrigation, water lifting, storage and district heating pumps

Motors and services
Variety of high performance motors

Induction motors

Induction motors are the workhorses of the industry due to their versatility, reliability and simplicity. In the power range up to 10 MW, a squirrel cage induction motor is usually the first choice. They are available up to 18 MW. ABB offers motors according to the NEMA standard through the Baldor brand. Baldor Dodge's CST gearbox & motor solution provides an alternative for low speed applications, where motors with 12-poles or more traditionally would have been used.

Low voltage motors

IEC motors
Power: 0.18–1,000 kW
Frame sizes: 56–450
Process performance motors for demanding applications
General performance motors for basic pump and fan applications
Hazardous area, high speed, water cooled, permanent magnet as examples for special applications.

NEMA motors
Power: 0.37–370 kW, 1/2–500 hp
Frame sizes: 56–5010
IP54 TEFC enclosures
Super-E models meet 2010 EISA requirements
Super-E models meet the requirements of NEMA MG1 Part 31.4.4.2 for VFD use, considered inverter ready

High voltage motors

Cast iron motor M3
Power: 110–750 kW
Frame sizes: 315–450
Standard high voltage motor
Based on proven platform
For serial OEM's
Short delivery times

Cast iron motor HXR
Power: 100–2,250 kW
Frame sizes: 315–560
High efficiency levels, even at partial load
Low noise levels
Fixed speed and variable speed use
Vertical solution

Modular motors AMA / AMI
Power: 160–20,000 kW
Frame sizes: 315–1120
Built from the basic design by using modular construction
Complete range of enclosures and cooling arrangements
Optimal weight to power ratio
Vertical solution

Large AC and induction motors
Power: 186–11,200 kW, 250–15,000 hp
Frame sizes: 449–10840
TEFC, TEAAC, TEWAC, WPII, WPI, DPG designs
Variable speed designs
High thrust capability

Submersible/Immersible motors

Baldor provides submersible motors for both wet pit and dry pit applications. Wet pit motors use the effluent for cooling and can run 15 minutes in air. Dry pit motors are sized to run continuously in air or submerged if needed. Primarily serving both municipal and industrial wastewater markets, the submersible motor can also used for slurry pumps, aerators and mixers. Our Immersible motor is designed for use where the possibility of flooding exists. Motors are designed to run for two weeks submerged at a maximum depth of 10 meters.

Submersible motors
Power: 0.75–335 kW, 1–450 hp, 15 min in air and 1–150 hp, 0.75–110 kW, continuous in air
Frame sizes: 180TY–440TY
U/L listed and CSA certified for class 1 division 1 groups C & D with a T3C temperature code
Tandem mechanical seals
Dual moisture probes to detect any moisture in oil chamber
Inverter rated insulation system, class 1 division 1 group D, T2A
7.62 m of cable, longer lengths available

Immersible motors
Power: 3.75–186 kW, 5–250 hp
Frame sizes: 210–449
NEMA Premium efficient designs
Variable frequency operation on variable torque applications
Winding temperature detectors (thermostats)
Space heaters
P-Base or C-face mounting
Vertical or horizontal mounting
7.62 m of cable
Immersible motor sealing system

Synchronous motors

Synchronous motors are typically considered for higher power ratings. In addition to their high power capabilities, synchronous motors offer the benefits of high efficiency, high performance and an adjustable power factor. Permanent magnet motors are synchronous motors that do not need separate excitation. These motors are typically used for very slow speed applications.

Synchronous motors AMZ
Power: 0.5–60 MW
Frame sizes: 710–2500
DOL and variable speed motors
Very high voltage motors
For pumps, fans, compressors, refiners, expanders, extruders, blowers etc
Vertical solution

Variable speed drives

The use of variable speed drives for flow and pressure control of electric motors results in significant energy savings and a reduction of life-cycle costs. In addition, variable speed drives provide soft starting/stopping features, which improve system reliability and extends the lifetime of motors.

Benefits of variable speed drives
Energy savings, typical payback on investment time: less than two years
Improvement of system efficiency
Longer lifetime of equipment
Reduced operating costs
Fast and precise process control

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www.abb.com/motors&generators
www.baldor.com

Power and productivity
for a better world™