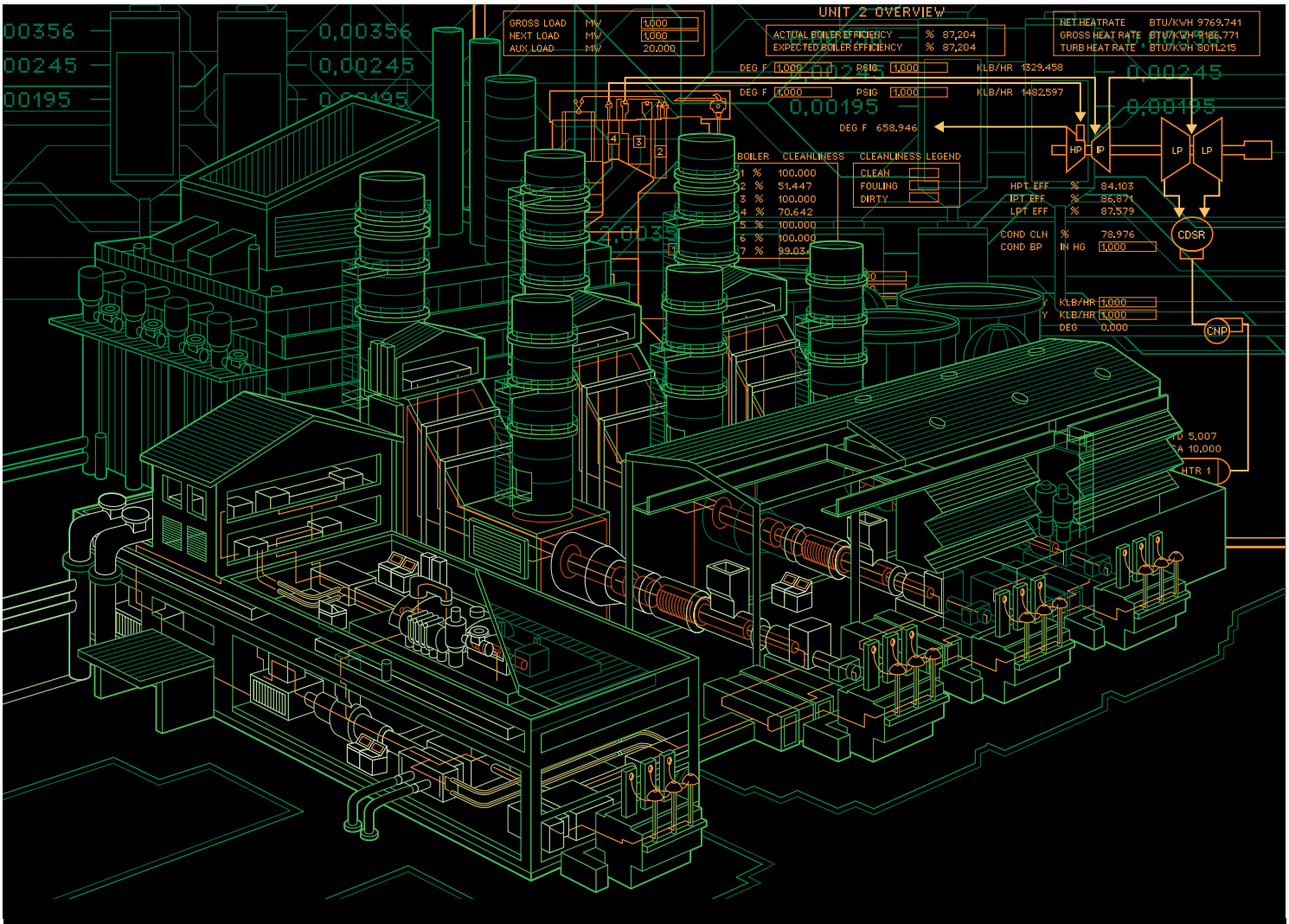


Brochure

High voltage motors in power generation

Power and productivity
for a better world™


We provide motors and generators,
services and expertise to save energy
and improve customers' processes
over the total lifecycle and beyond.

High voltage motors in power generation

Power plant operators face a range of challenges including increasing the efficiency and extending the life of existing equipment, installing new capacity and planning for the introduction of demanding new environmental requirements. ABB has the experience, products and technology to support operators in all these activities.

ABB has a complete range of high voltage induction and synchronous motors and generators in all applications in power generation plants including the largest fans and feed water pumps. Based on long experience of working with users ABB has accumulated extensive applications technology which is incorporated into the design of the products.

ABB motors meet the highest standards of efficiency and reliability and have the structural integrity to maintain high levels of performance Also they are designed to withstand conditions arising in generating plants such as load rejections or short circuits. Special care is taken when guaranteeing starting performance because it is important that the motors keep running during a voltage dip and are able to re-accelerate after a trip.

ABB is determined to remain at the forefront of technological development of products and of design and manufacturing methods. This technology is applied to new products and to upgrades of existing installations.

ABB is a world-wide enterprise with an extensive network of sales, service and manufacturing facilities. This provides fast and effective communication with all users and facilitates close, long term cooperation.

Power plants are designed to operate for up to 50 years and ABB maintains its support throughout, assisting plant builders from the design stage through to helping users to maintain and improve performance over the years of operation thereafter.

Motor applications in power plants

A power plant is crawling with electric motors. High and low voltage AC Induction motors, high voltage AC synchronous motors and sometimes also DC motors. Often there is a mix of old and new motors and a multitude of different makes which, in itself, causes many challenges.

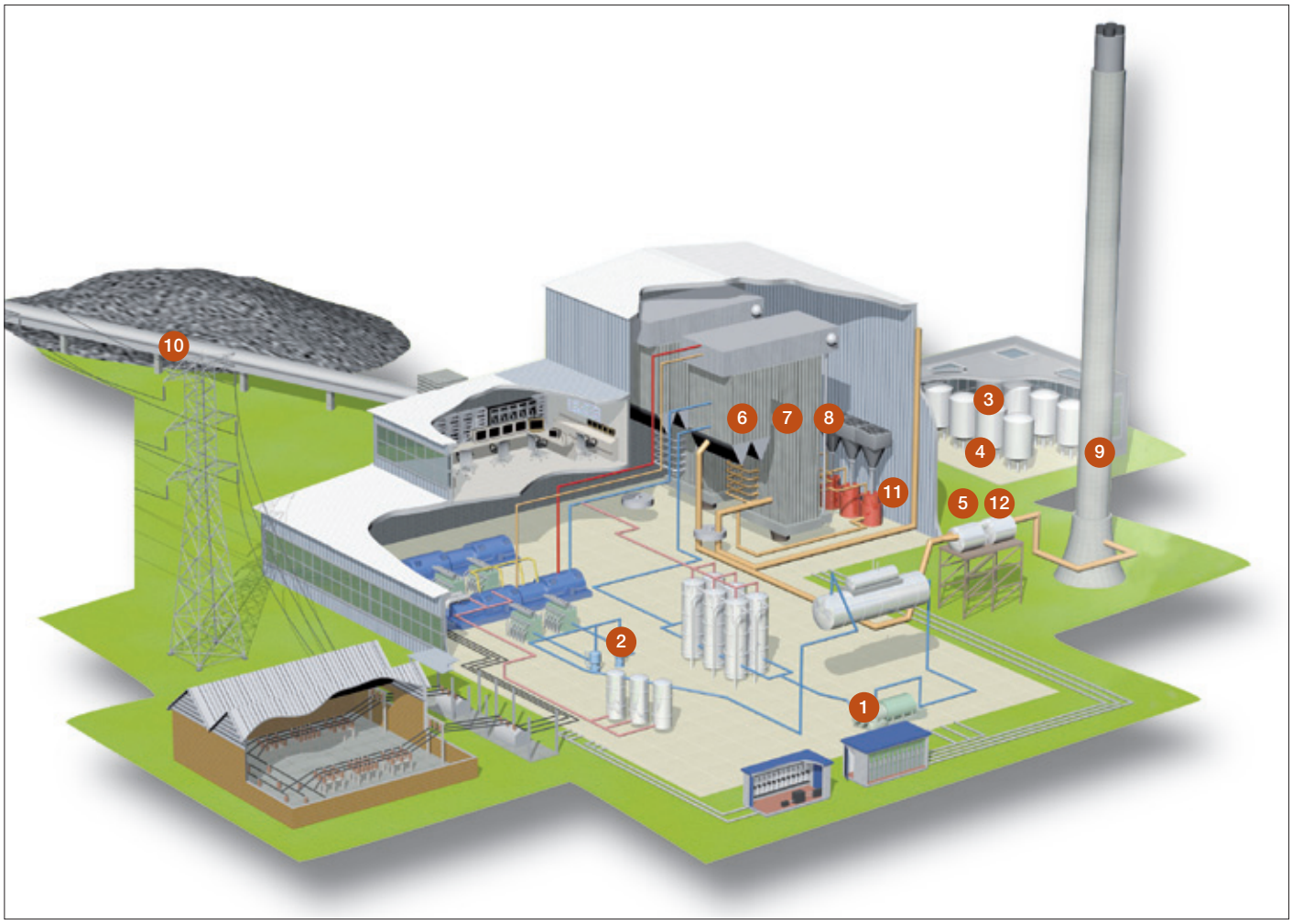
Reliability of the equipment is more important than anything else in the operation of a power plant. At the same time it is well to remember that every kWh of parasitic consumption saved becomes another kWh that can be sold. ABB is the market-leading supplier of motors and drives, providing both savings and reliability.

The main areas of use for large HV motors are: Pumps in the steam cycle and cooling system, fans in the flue gas system, fuel supply, environmental systems and various support systems such as compressed air. Significant improvements in the heat rate can be achieved with co-generation or district heating which also requires motors.

Do you know how many years your old motors have left in them?
Do you have a plan for which motors should be replaced first?
Do you know where the low hanging fruits on efficiency improvements are?
Do you know where a variable speed drive can improve your process dramatically?

Contact ABB – let us look at it together!

Motor description	Type	1 Boiler feed water pumps	2 Condensate extraction pumps	3 Cooling water district heating, & co-generation pumps	4 Condenser & cooling tower fans	5 FGD Slurry & absorber pumps
Induction motors Cast iron rib-cooled Up to 600 kW / 800 hp	M3		Biomass Small gas		All thermal	
Induction motors Cast iron rib-cooled Up to 2,000 kW / 2,700 hp	HXR	Biomass Gas Small coal	Biomass Large gas Coal	Biomass Gas	All thermal	Coall
Induction motors Modular welded steel frame Up to 2,000 kW / 2,700 hp	AMA	Biomass Gas Small coal	Biomass Large gas Coal	Biomass Gas Small coal		Coal
Induction motors Modular welded steel frame Up to 22,000 kW / 29,000 hp	AMI	Large coal		Large coal		
Synchronous motors Modular welded steel frame Up to 60,000 kW / 80,000 hp	AMS AMZ	Very large coal				
Frequency converter Variable speed operation	ACS LCI	Biomass Gas Coal	Biomass Gas Coal	Biomass Gas Coal	All thermal	Coal
Frequency converter Soft start	ACS LCI					



Forced draft, primary air & secondary air fans (6, 7, 8)	Induced draft fans (9)	Conveyors & coal feeders (10)	Pulverizers, crushers & coal mills (11)	Oxidation air compressors (12)	Fuel gas booster compressors	O_2 / CO_2 compressors	Plant air compressors
Biomass		Coal					All plants
Biomass Small coal	Biomass	Coal	Coal	Coal	Small gas		All plants
Biomass Small coal	Biomass Small coal	Coal	Coal	Coal	Large gas		All plants
Large coal	Large coal						
	Very large coal					CO_2 transport & storage IGCC coal Oxy-combust.	
Biomass Coal	Biomass Coal	Biomass Coal	Coal	Coal	Gas	CO_2 transport & storage	All plants
Large coal	Large coal					CO_2 transport & storage IGCC coal Oxy-combust.	

Support for users

In addition to supplying highly efficient and reliable motors ABB offers a wide range of services to support existing users of ABB equipment.

These services range from assisting in planning maintenance operations through to undertaking complete equipment upgrades.

Current conditions often require that the life of existing equipment be extended well beyond planned dates and to meet these needs ABB offers comprehensive Life Extension Treatments.

Such operations must be planned well in advance and to help prevent major problems caused by premature failure ABB has introduced LEAP (Life Expectancy Analysis Program). This is a systematic approach to maintenance management and equipment replacement decisions based upon careful monitoring of the condition of the machines and the stresses induced in them.

The particular strength of LEAP is its ability to track the development of vulnerabilities over time. Therefore LEAP can be directly integrated in a general maintenance program.

For critical applications on-line condition monitoring can be arranged.

Upgrading can be undertaken in one of ABB's approved workshops.

ABB's world-wide network of sales and service centres, manufacturing facilities and logistics ensure users of a prompt supply of quality assured ABB spare parts.

Modern technology

ABB has always played a leading role in research and development and has undertaken the rapid implementation of new technology into its products. Some recent developments are very relevant to the power generation industry.

The introduction of ABB variable speed drives using frequency converters to control motor speeds can achieve significant savings in the power generating industry where there is widespread use of wasteful components such as throttle valves and fluid couplings.

The new challenge to the power generating industry will be carbon capture and storage and it is expected to dwarf all others problems. This will require very powerful drives to handle large volumes of flue gas and even larger, more specialised drives for the compressors used to transport CO_2 and to produce oxygen for combustion. ABB has already built synchronous motors of more than 50 MW output for just such applications.

In all probability the carbon-restricted economy of the future will trigger other requirements which cannot be accurately foreseen today. ABB is especially well equipped to cope with these challenges. For example, where the superior efficiency and control of permanent magnet motors can be significant or where the use of ABB's extremely large Very High Voltage compressor motors connected directly to a 60 kV grid may be decisive.

Designers and operators of power generation plants can be confident that ABB motors incorporate many years of experience, are well suited to the application and are based upon the most appropriate technology.

Contact us

www.abb.com/motors&generators

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