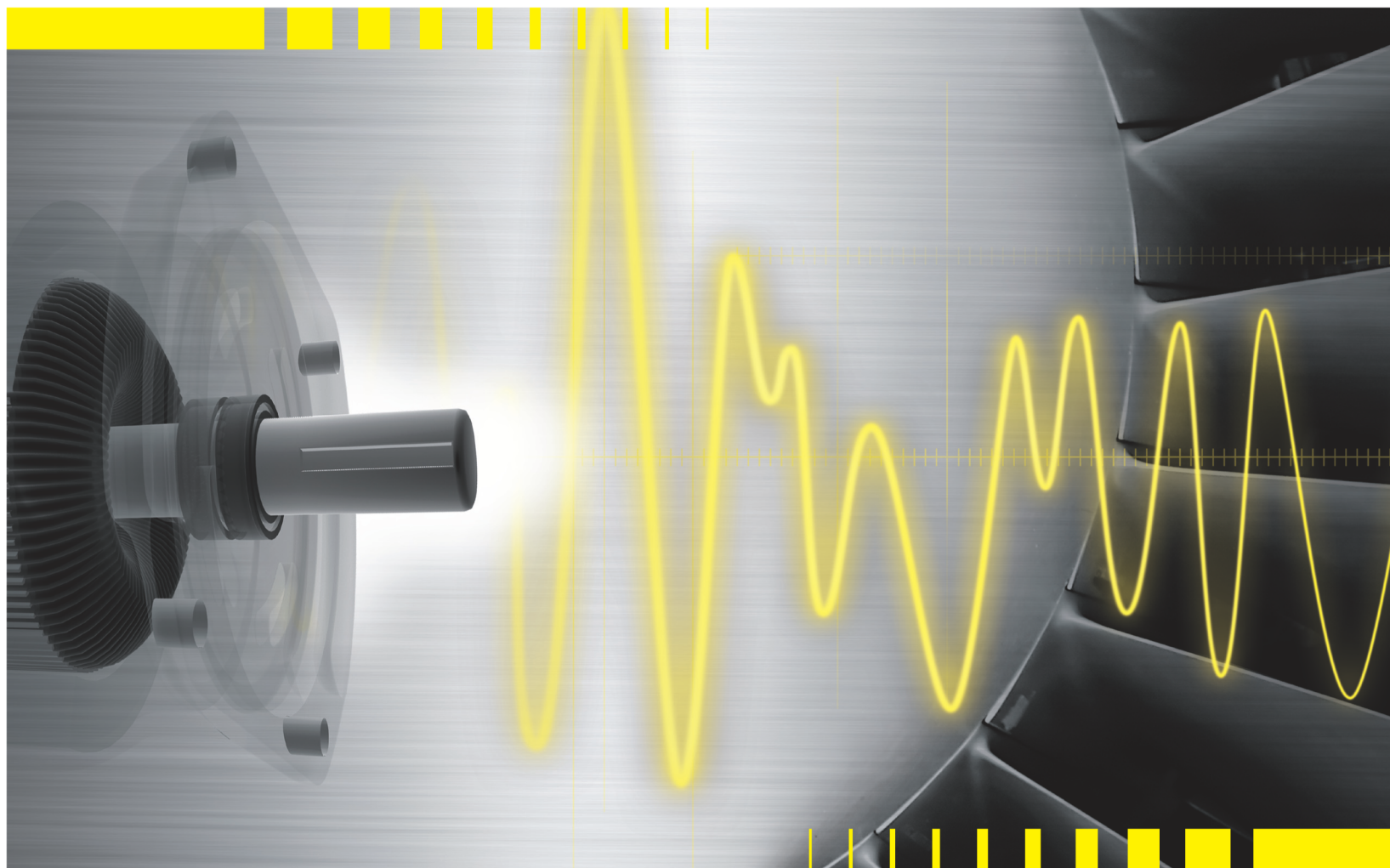
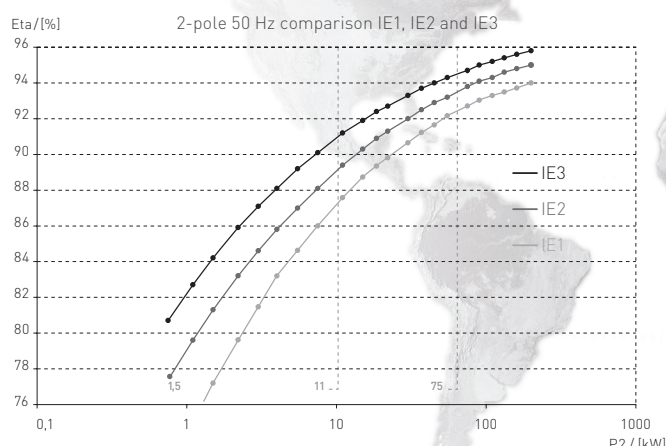


ATB GROUP PRODUCT RANGE



Leading Technologies of Tomorrow. World Class Efficiency for Today.



Due to the international guidelines on energy efficiency, low-voltage three-phase asynchronous motors worldwide have been redefined in standardised efficiency classes.

The regulation (EC) no. 640/2009 dated 22nd July 2009 by the European Commission regulates the requirements for an environmentally friendly motor design and in certain motor types the use of electronic speed control. This regulation applies to motors integrated into other products (i.e. machines).

Energy efficient motors of the ATB group meet the IE2 requirements.

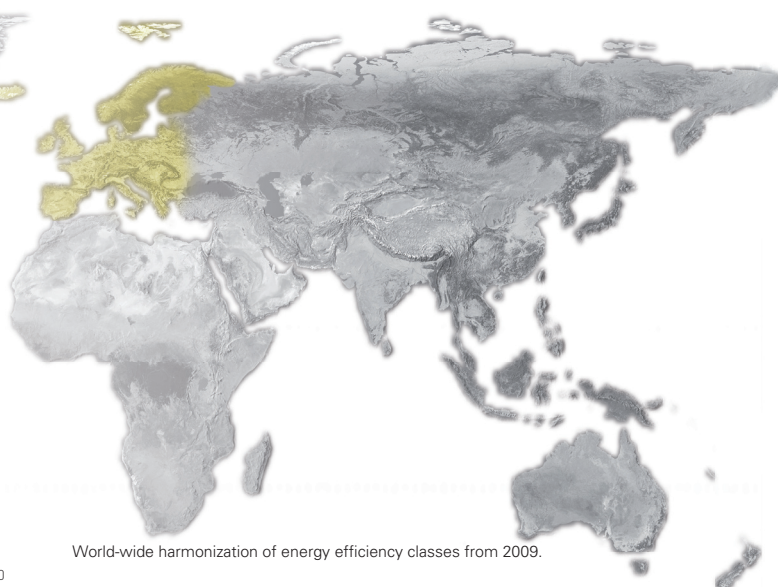
Even for smaller outputs than regulated by EC 640/2009 (0.06 – 0.75 kW) ATB has the technical solutions for IE2. New international efficiency classes for motors (IE = International Efficiency). The new IEC 60034-30:2009 standard defines, worldwide, the following efficiency classes for motors within the power ranges of 0.75 to 375 kW:

IE1 = Standard efficiency classes (comparable with EFF2)

IE2 = High efficiency (comparable with EFF1)

IE3 = Premium efficiency

The efficiency class describes the efficiency of motors when electrical energy is converted into mechanical energy. The higher the efficiency class, the greater the amount of active material, such as copper, which must be used.



The acquisition costs of the motors will increase correspondingly. However, seen over the life of the motor, the initial costs are only a small percentage and they are recuperated after a short time via energy cost savings.

Mandatory requirements

Directive 2005/32/EC (6 July 2005) from the European Parliament has established a framework for setting the eco-design requirements to be applied to "energy-using products". These products are grouped in lots. Motors come under lot 11 of the eco-design programme, as do pumps, fans and circulating pumps.

European directive EuP – lot 11 was voted on in July 2009.

It is based on standard IEC 60034-30 and defines the efficiency classes which will be mandatory in the future. It specifies the efficiency levels to be attained for machines sold in the European Market and outlines the timetable for their implementation. Obligation to release high-efficiency motors:

Class IE2 from 16 June 2011

Class IE3 from 01 January 2015 for power ratings from 7.5 to 375 kW, or IE2 motor + drive

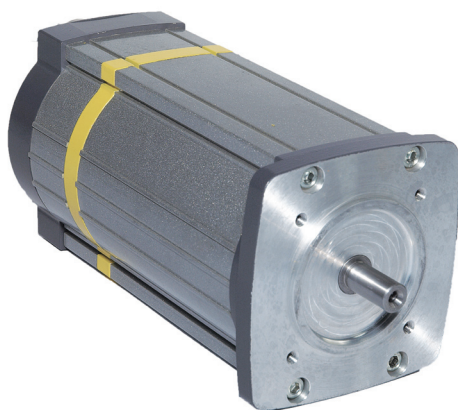
Class IE3 from 01 January 2017 for power ratings from 0.75 to 375 kW, or IE2 motor + drive

Full Range Supplier



Applications

- Propulsion
- Winches
- Conveyor Technique
- Heavy Lifting Systems
- Lift Drives
- Compressors
- Pumps
- Agitators
- Extruders
- Mills
- Rolling Mills
- Shredders
- Mining Machinery
- Traction Drives
- Auxiliary Drives
- Machine Tools
- Printing Machines
- Textile Machines
- Test Stands
- Injection Moulding Machines
- High Pressure Cleaners
- Lawn Mowers
- Scarifiers
- Chaff Cutters
- Concrete Mixers
- Ventilators/Blowers



EC MOTORS

Synchronous motors with integrated electronics

Output power	0.060-1.5 kW (planned up to 7.5 kW)
Speed range	up to 6,000 rpm
Voltage	230 V AC, 12 V DC, 24 V DC

Applications

Water and vacuum pumps, fans, textile machinery, drive technology, food processing equipment, conveyor technology

CUSTOMIZED INVERTERS

Output power	0.060-20 kW, up to 1,500 Hz
Position control	with, without sensor
Speed range	up to 90,000 rpm
Voltage	12/24/48 V DC / 150-450 V DC 230 V AC/ 3x400 V AC

Water-cooled design also available on request

up to 40 kW

Industrial Applications

Machine tools, fans, water and vacuum pumps, textile machinery drive technology, food processing equipment, elevators, conveyor technology

Automotive Applications

Drive chain and auxiliary drives for hybrid vehicles, fuel cell vehicles and electric cars



SINGLE – PHASE MOTORS WITH SQUIRREL CAGE ROTOR

Aluminium housing frame size range	56-100; 0.07-2.2 kW
Running/starting capacitor	

Applications

Water and vacuum pumps, fans, compressors, drive systems

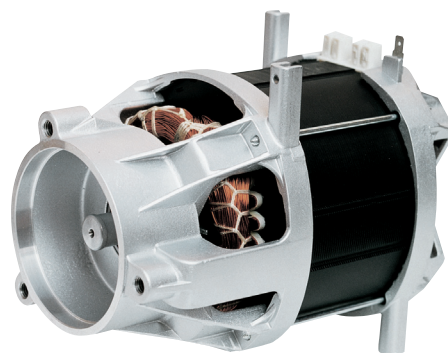
APPLIANCE MOTORS

Three-phase and single-phase motors without housing, stator and rotor units

Frame size range 45-112; 0.01-5.5 kW

Applications

All types of industrial uses, e.g. pump drives, fans and grain mills, lawn mowers, chopping machines, lawn aerators, concrete mixer, etc.



SUCTION BLOWERS AND COMPLETE FAN SYSTEMS

Complete induced draught fans axial and radial fans
(motor + attachment + impeller + housing)

Customized solution for aggressive environment and high ambient temperatures

Applications

Wood-fired boilers, pellet and straw firing, heating sector, air conditioning, ovens, medical technology

LV THREE – PHASE MOTORS WITH SQUIRREL CAGE ROTOR

Aluminium housing frame size range 56-200; 0.06-37 kW

Cast iron housing frame size range 80-560; 0.75-2,000 kW

Welded construction frame size range 315-710; 250-4,000 kW

Efficiency class IE1, IE2, IE3 on request

Special

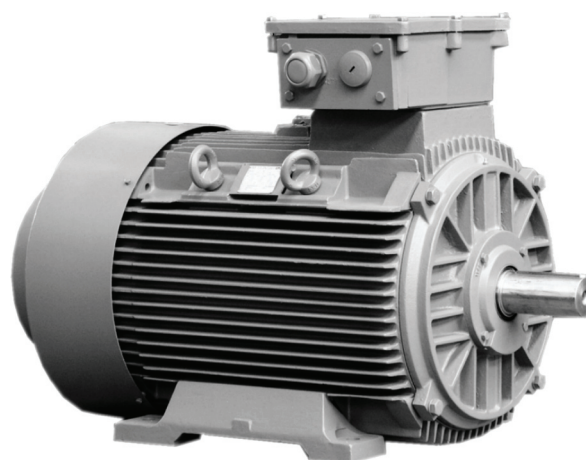
Water-cooled and drip-proof design available

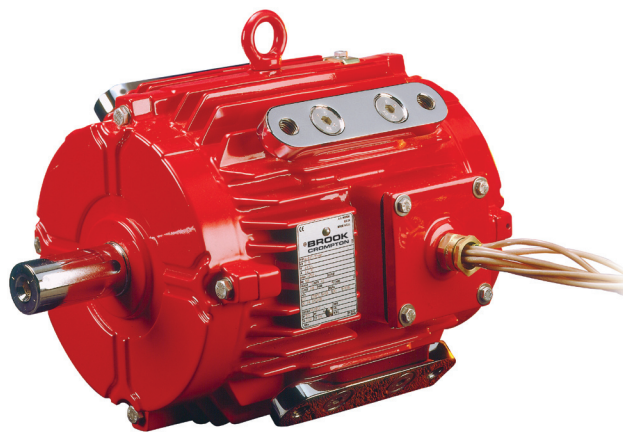
Applications

Water and vacuum pumps, fans, compressors, drive systems, chemical industry, marine

Nema frame 56-586; 0.33-500 HP

Brake motors: frame size range 56-200; 0.06-30 kW





SMOKE EXTRACTION MOTORS

Frame size range 80-55; 0.37-1,000 kW

Temperature classification according to the EN12101-3 from F200 up to F842

Mounting all current standards plus pad mounting according to IMB30

Applications

Stairwells, shopping malls, public buildings, tunnels, industrial buildings, enclosed car parks

LV VARIABLE SPEED DRIVES

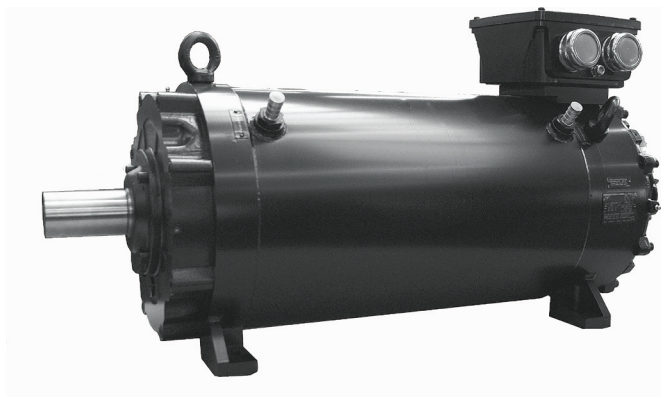
Frame size range 80-280; 0.37-90 kW; 20-50 Hz

Water cooled design also available on request up to 150 kW

Customized motors from 230 V-690 V up to 500 Hz available on request

Applications

Machine tools, fans, pumps, textile machinery, drive technology, food processing equipment, elevators

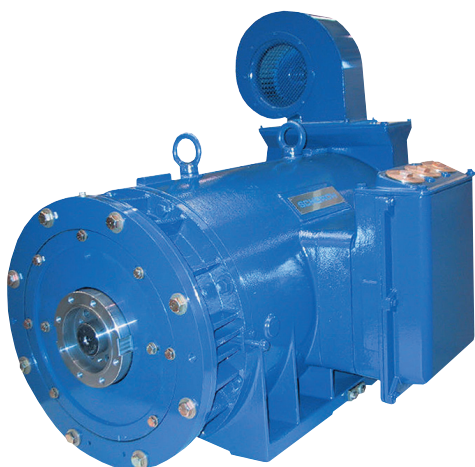


HIGH SPEED ASYNCHRONOUS MACHINES

Frame size range 80-450; 37-1,000 kW

Applications

Machine tools, fans, pumps, textile machinery, drive technology, food processing equipment, elevators, test stands



COMPACT DRIVES

Three-phase motor with integrated inverter
Aluminium housing frame size 80-180; 0.55-22 kW

Single-phase motor with integrated inverter
Aluminium housing frame size 63-90; up to 1.5 kW

Applications

Water and vacuum pumps, fans, compressors, drive systems



LV SLIP RING MOTORS

Frame size range 160-560, up to 1,100 kW

Special

In accordance with the requirements of the international leading classification societies, BV, GL, DNV, LR, RINA for marine application also available with squirrel-cage rotor

Applications

Marine motors, bow thruster drives, compressors for ship industry

LV INCREASED SAFETY MOTORS

Ex e, n, p

(optional dust ignition proof; zone 20, zone 21, zone 22)

Aluminium housing frame size range 63-160

Cast iron housing frame size range 80-560

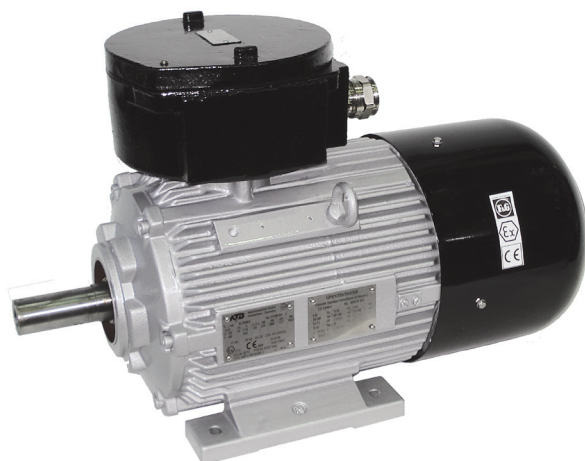
Power range 0.18-2,000 kW

Efficiency class IE1, IE2, IE3

Applications

Oil & gas industry, petrochemical industry, wood industry, pumps, fans, compressors





LV FLAMEPROOF MOTORS

Ex de IIB frame size range	80-315; 0.12-200 kW
Ex de IIC frame size range	63-500; 0.18-850 kW
Efficiency class	IE1, IE2, IE3
Compact drive motors with integral frequency inverter power range	0.55-11 kW

Applications

Chemical/petrochemical industry, oil & gas industry, on/off shore industry

HV MOTORS

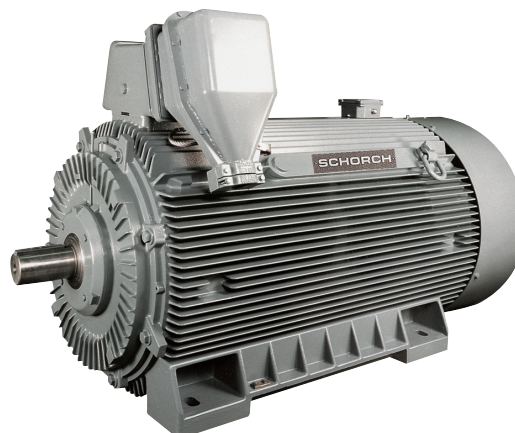
Asynchronous and synchronous motors

Frame size range	up to 1,700 up to 25,000 kW
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Surface-cooled, tube-cooled, water-cooled motors, with increased safety Ex e, d, n, p

Applications

Conveyor technology, water, power generations, compressor, pump drives, shredder, shipbuilding, wood/paper industry, mining, nuclear power generation, oil & gas industry



HV FLAMEPROOF MOTORS

Motors with increased safety Ex d

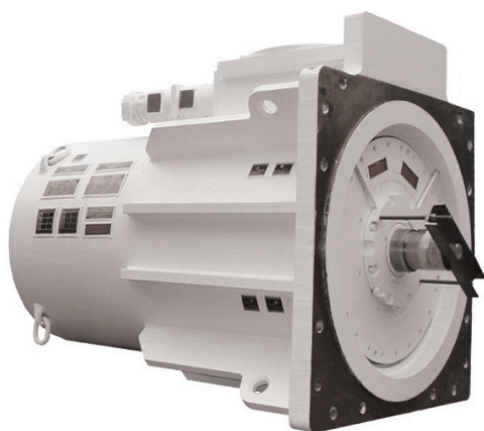
Frame size range	160-800; 15-10,000 kW
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Special

Water-cooled version, equipment group for mining

Applications

Mining, oil & gas industry, marine, petrochemical industry



HV SLIP RING MOTOR

Frame size range 355-900, up to 4,000 kW

Special

In accordance with the requirements of the international leading classification societies, BV, GL, DNV, LR, RINA for marine application also available with squirrel-cage rotor

Applications

Heavy duty pumps, conveyor belt, stone crusher, heavy duty cranes



SYCHNRONOUS AND ASYNCHRONOUS GENERATORS

Low voltage	synchronous	asynchronous
Frame size range	280-900	180-710
Output	132-1,500 kW	132-2,000 kW

Medium voltage	synchronous
Frame size range	355-900
Output	200-10,000 kW

Applications

Hydro power plants

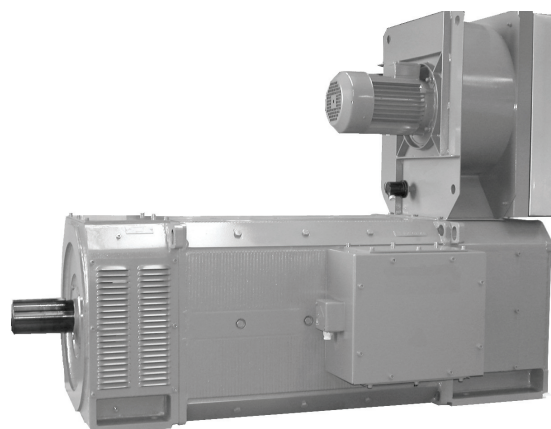
LV DC RANGE

Round steel frame DC motors

Frame size range 80-355; 0,18-750 kW

Applications

Compressors, machine builders, rail-signalling



Efficiency Motors



Climate protection through CO₂ reduction and renewable energies

Today's energy trends and motivators:

- EU targets for increased energy efficiency:
 - 20% CO₂ emissions
 - +20% energy efficiency
 - 20% the proportion of renewable energy
- Increased industrial efficiency through process optimization
- Limited availability of primary energy resources such as oil, gas, coal
- Higher financing costs of energy resources such as oil, gas, coal
- Globalization in the context of energy and the environment



Fixed speed drives:

increased use of
energy-saving motors
CO₂ reduction: 4.0 m tons



Variable speed drives:

electrical speed control
instead of mechanical control
CO₂ reduction: 12.0 m tons

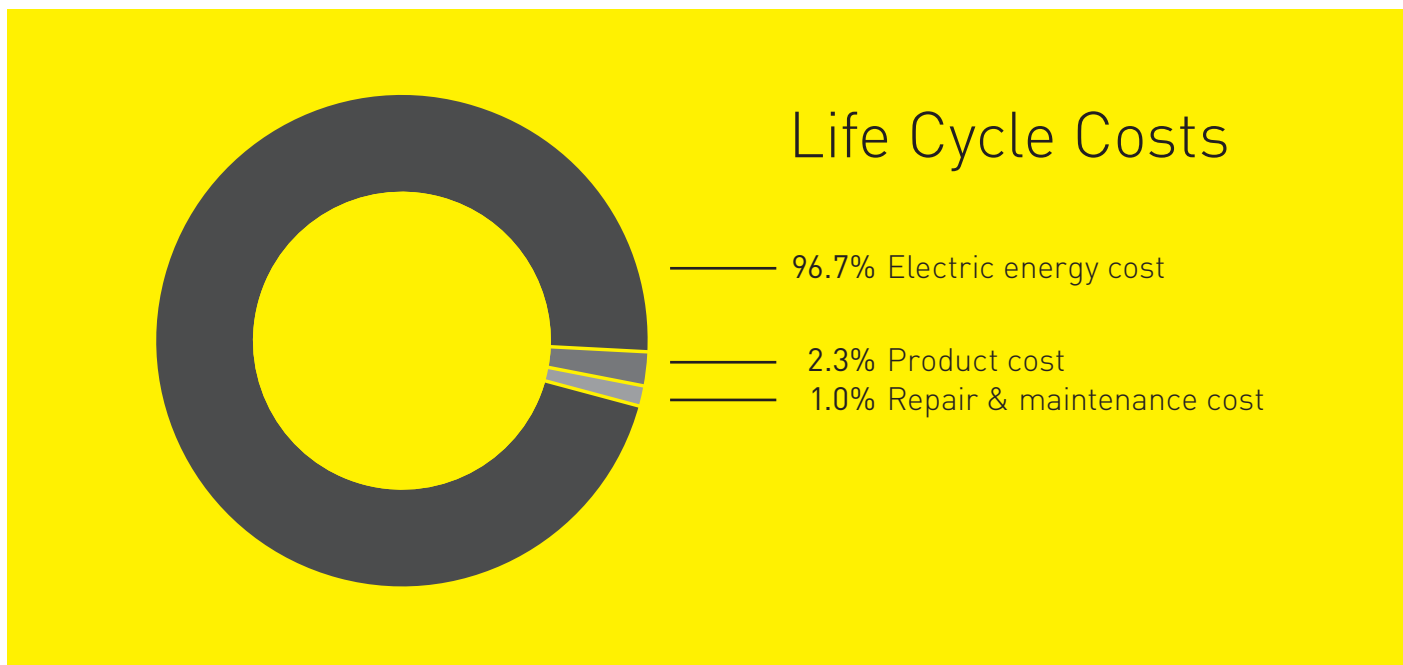


Mechanical system optimization:

mechanical system optimization
for the complete systems/machines
CO₂ reduction: 24.0 m tons

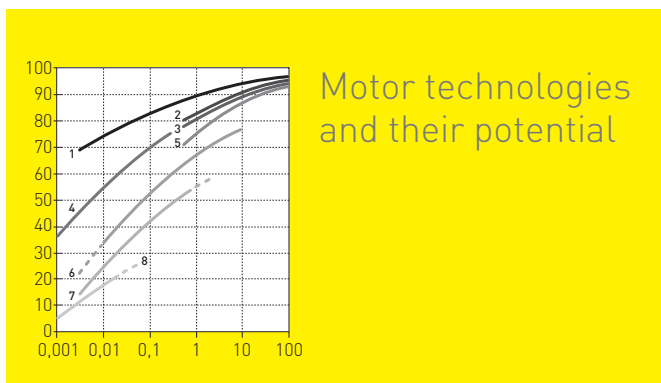
40 m tons

CO₂ reduction potential



Identifying and minimising cost factors

Life cycle costing starts by looking at underestimated, long-term costs. In order to achieve a transparent cost structure for a complete life cycle, it is first necessary to identify the most important cost drivers when operating a product. Depending on the process, these include, e.g. the energy, maintenance, personnel and storage costs.



Cost-savings with the right technology

- 1) Permanent magnet motor - special, electronic
- 2) Asynchronous motor, IE3
- 3) Asynchronous motor, IE2
- 4) DC permanent magnet motor - conventional
- 5) Asynchronous motor, IE1
- 6) Single-phase asynchronous motor, operating capacitor
- 7) Universal motor (collector motor)
- 8) Single-phase shaded-pole asynchronous motor

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