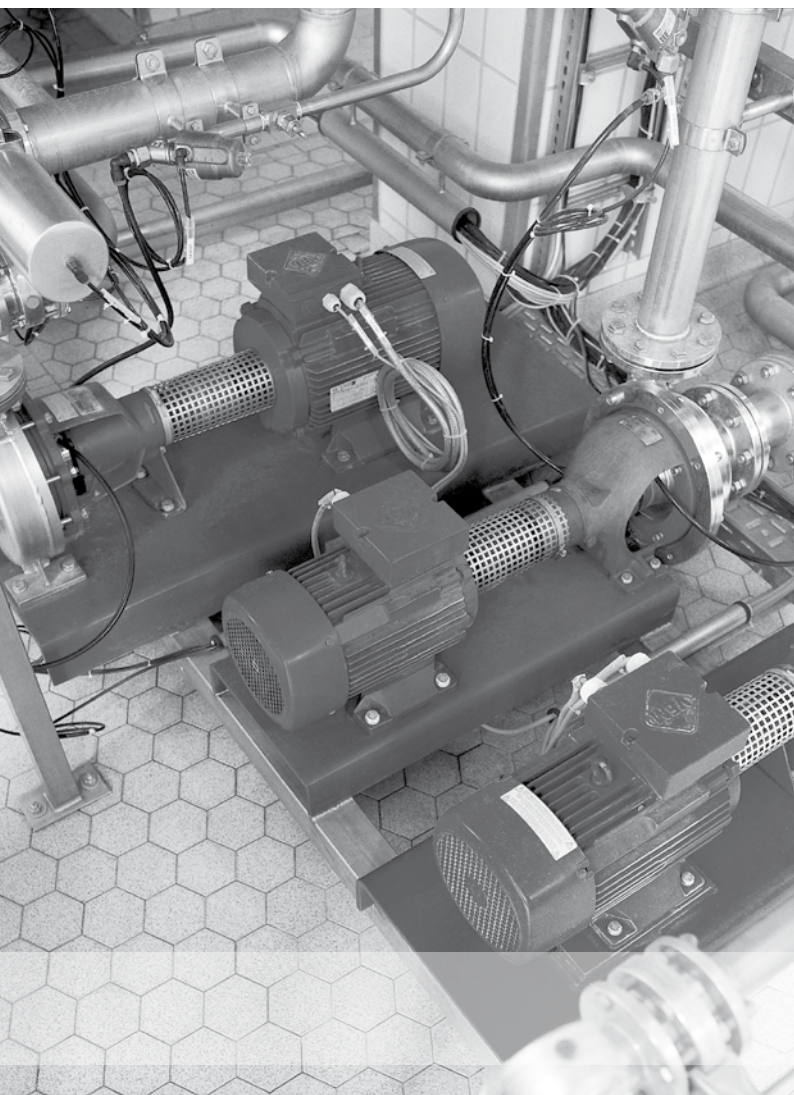




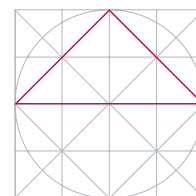
ELECTRIC DRIVES
FOR EVERY DEMAND

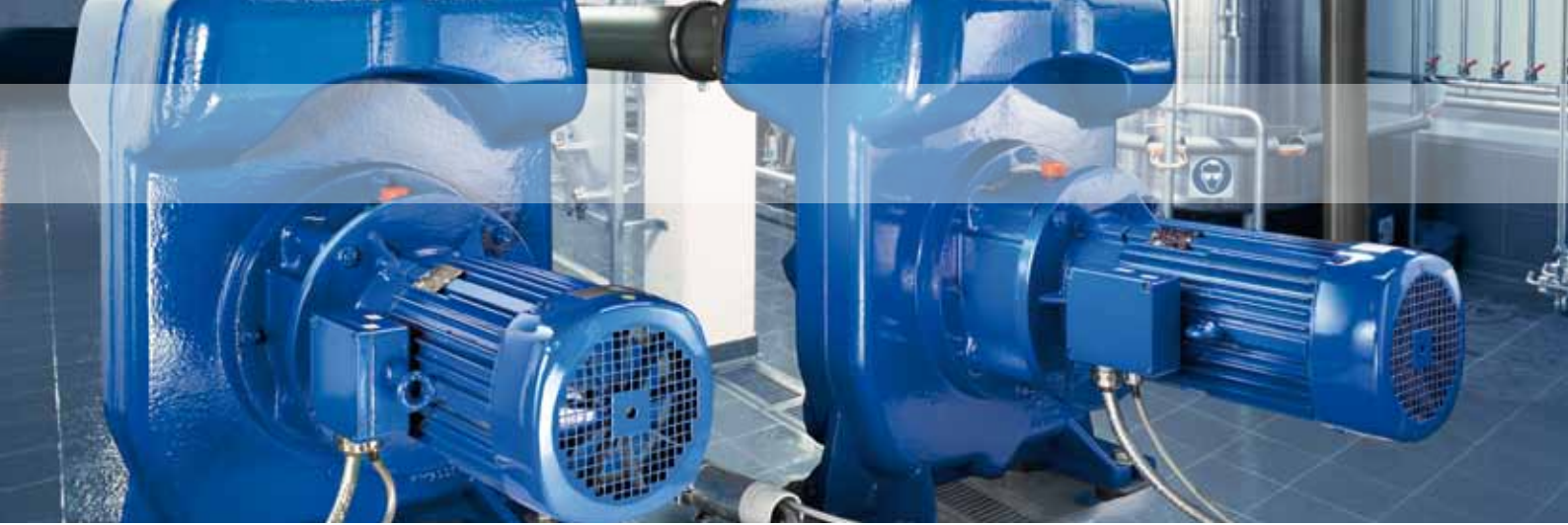


Energy saving motors

Designed for special applications
in Standard Efficiency IE1

www.vem-group.com





Energy saving motors for special applications Standard Efficiency IE1

Drives for industry, craft trades and agriculture

Versatile, reliable and efficient

Today electric drives are used in different designs in all branches of industry. In most processes the properties of the drive determine the efficiency of production. Low voltage three-phase asynchronous motors from VEM are perfectly adapted to the requirements of users, because they

- › are suitable for all fields of application
- › guarantee maximum operational reliability and long service life
- › offer energy-efficient performance
- › are available in type of protection IP 66
- › offer protection against thermal overload by our standard design in thermal class F with thermal reserve
- › are available in thermal class H as special design
- › have proven their quality over decades of practical use world wide.

High performance recognised worldwide

VEM three-phase motors with squirrel-cage rotor are available in two versions, whose dimensions and frame sizes are based on IEC 72.

The series (IE1-)K21R/K22R are designed as classic IEC/DIN series, i.e. with mounting dimensions and performances in line with DIN EN 50347. The series (IE1-)K20R is conceived with more progressive performance assignments and offers outputs up to two steps higher from the same frame size.

In addition, variants derived from these two series for other size/output pairings can be supplied as special versions. The terminal box can be mounted either at the left, on the top or at the right, as required.

The motors comply with all relevant national and international standards and regulations in line with IEC/EN 60034-1.

Regulation (EC) no. 640/2009 + regulation (EC) 4/2014

The regulation (EC) no. 640/2009 of the European Commission has come into effect since June 2011. This regulation defines the eco-design requirements for 2-, 4- and 6-pole low-voltage three-phase asyn-

chronous motors in the output range from 0.75 kW up to 375 kW. With the regulation (EC) 4/2014 from 6th January 2014 the exceptions were limited further.

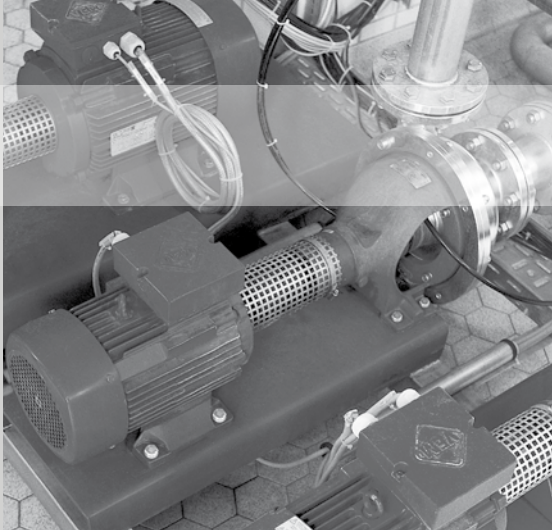
The individual steps of the eco-design requirements will be effective according to the following schedule:

- › **after 16th June 2011** motors must reach at least **IE2** defined in annex I no. 1 of the regulation.
- › **after 1st January 2015** motors with rated output of **7.5 to 375 kW** must reach at least **IE3** defined in annex I no. 1 of the regulation or **IE2** according to annex I no. 1 if they are equipped with a **device for speed control**.
- › **after 1st January 2017** all motors with rated output of **0.75 to 375 kW** must reach at least **IE3** defined in annex I no. 1 of the regulation or **IE2** according to annex I no. 1 if they are equipped with a device for speed control.

The regulation allows the user to select either a motor in IE3 (for fixed or variable speed) or a motor in IE2 in connection with a speed control.

Which motors are exempt from regulation (EC) 640/2009 + regulation (EC) 4/2014?

- (a) motors specified to operate wholly immersed in a liquid;
- (b) motors completely integrated into a product (for example gear, pump, fan or compressor) of which the energy performance cannot be tested independently from the product;
- (c) motors specified to operate exclusively:
 - › at altitudes exceeding 4 000 metres above sea-level;
 - › where ambient air temperatures exceed 60 °C;
 - › in maximum operating temperature above 400 °C;
 - › where ambient air temperatures are less than – 30 °C for any motor or less than 0 °C for a motor with water cooling;
 - › where the water coolant temperature at the inlet to a product is less than 0 °C or exceeding 32 °C; or
 - › in potentially explosive atmospheres as defined in Directive 94/9/EC of the European Parliament and of the Council (*);
- (d) brake motors.



Energy-saving motors of the class Standard Efficiency IE1 are designed for universal use in all branches.

| | |
|----------------------|--|
| Series | (IE1-)K21R, mounting dimensions and output correlation according to DIN EN 50347 (IE1-)K20R, K22R, Transnorm design |
| Size | |
| Power range | 0.06 – 500 kW |
| Efficiency class | IE1 acc. to IEC/EN 60034-30-1 |
| Types of protection | IP 55 acc. to IEC/EN 60034-5, higher types of protection as option |
| Type of construction | IM B3, IM B5 and derived types of construction acc. to IEC/EN 60034-7 |
| Designed for | 2- to 12-poles, 50 Hz and 60 Hz, voltage range A and B |
| Application ranges | Special operation conditions and variants, not complying with regulation (EC) 640 dated 22 nd July 2009 and regulation (EC) 4/2014 dated 6 th January 2014 |
| Type of cooling | IC 411 acc. to IEC/EN 60034-6 |

| Pole no. rpm | Rated output P [kW] | | | | | | Size | Rated output P [kW] | | | | | | | |
|-----------------|---------------------|-----------|-----------|----------|-----------|-----------|--------|---------------------|-----------|-----------|----------|-----------|-----------|---|---|
| | 2 3000 | 4 1500 | 6 1000 | 8 750 | 10 600 | 12 500 | | 2 3000 | 4 1500 | 6 1000 | 8 750 | 10 600 | 12 500 | | |
| 56 K U | 0.09 | 0.06 | - | - | - | - | 180 M | 22 | 19 | - | - | - | - | - | - |
| 56 G | 0.12 | 0.09 | - | - | - | - | 180 L | - | 22 | 15 | 11.0 | 6.0 | 5.5 | - | - |
| 63 K | 0.18 | 0.12 | 0.09 | - | - | - | 200 L | 30 | 30 | 19 | 15.0 | 9.0 | 6.0 | - | - |
| 63 G | 0.25 | 0.18 | 0.12 | - | - | - | 200 LX | 37 | - | 22 | - | 13.0 | 9.0 | - | - |
| 71 K | 0.37 | 0.25 | 0.18 | 0.09 | - | - | 225 S | - | 37 | - | 18.5 | - | - | - | - |
| 71 G | 0.55 | 0.37 | 0.25 | 0.12 | - | - | 225 M | 45 | 45 | 30 | 22 | 17.0 | 13.0 | - | - |
| 80 K | 0.75 | 0.55 | 0.37 | 0.18 | 0.09 | 0.09 | 250 M | 55 | 55 | 37 | 30 | 22.0 | 17.0 | - | - |
| 80 G | 1.1 | 0.8 | 0.6 | 0.25 | 0.12 | 0.12 | 280 S | 75 | 75 | 45 | 37 | 27.0 | 20.0 | - | - |
| 90 S | 1.5 | 1.1 | 0.8 | 0.37 | 0.18 | 0.18 | 280 M | 90 | 90 | 55 | 45 | 34.0 | 24.0 | - | - |
| 90 L | 2.2 | 1.5 | 1.1 | 0.55 | 0.25 | 0.25 | 315 S | 110 | 110 | 75 | 55 | 45.0 | 37.0 | - | - |
| 100 L | 3.0 | 2.2 | 1.5 | 0.75 | 0.37 | 0.37 | 315 M | 132 | 132 | 90 | 75 | 55.0 | 45.0 | - | - |
| 100 LX | - | 3.0 | - | 1.1 | 0.55 | - | 315 MX | 160 | 160 | 110 | 90 | 75.0 | 55.0 | - | - |
| 112 M | 4.0 | 4.0 | 2.2 | 1.5 | 0.75 | 0.75 | 315 MY | 200 | 200 | 132 | 110 | - | - | - | - |
| 112 MX | - | - | - | - | 1.10 | - | 315 L | 250 | 250 | 160 | 132 | 90 | 75 | - | - |
| 132 S.T | 5.5 | 5.5 | 3.0 | 2.2 | - | - | 315 LX | 315 | 315 | 200 | 160 | 110 | 90 | - | - |
| 132 SX.T | 7.5 | - | - | - | - | - | 355 MY | 315 | 315 | 200 | 160 | 110 | 90 | - | - |
| 132 S | 5.5 | 5.5 | 3.0 | 2.2 | 1.1 | 0.75 | 355 M | 355 | 355 | 250 | 200 | 132 | 110 | - | - |
| 132 SX | 7.5 | - | - | - | - | - | 355 MX | 400 | 400 | 315 | 250 | 160 | 132 | - | - |
| 132 M | - | 7.5 | 4.0 | 3.0 | 1.5 | 1.1 | 355 LY | 450 | 450 | 355 | 280 | 180 | 145 | - | - |
| 132 MX | - | - | 5.5 | - | 2.2 | 1.5 | 355 L | 500 | 500 | - | - | 200 | 160 | - | - |
| 160 M | 11.0 | 11.0 | 7.5 | 4.0 | 3.0 | 2.2 | | | | | | | | | |
| 160 MX | 15.0 | - | - | 5.5 | - | - | | | | | | | | | |
| 160 L | 18.5 | 15.0 | 11.0 | 7.5 | 5.5 | 3.0 | | | | | | | | | |

Please refer to our catalogues for technical details. The catalogues are available in printed or in digital version on DVD. They are also available in the internet.



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For detailed information
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