

Low voltage asynchronous motors IEC motors with squirrel-cage rotor

acc. to guideline
2009/125/EC (ErP)

Efficiency classes acc. to
IEC 60034-30

Standard Efficiency IE1
High Efficiency IE2
Premium Efficiency IE3



Low voltage asynchronous motors
IEC motors with squirrel-cage rotor
acc. to guideline 2009/125/EC (ErP)

Invalid: Basic catalogue 01-2010

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The products featured in this catalogue can also be found in the interactive electronic catalogue.

Additional information about the company and the products of VEM available via internet:

www.vem-group.com.

The electronic catalogue can assist you in selecting and configuring VEM products. You can choose to print out data sheets and requests and the programme can display scaled and dimensioned drawings that can be downloaded in different 2D and 3D-data files. In addition to general information about VEM, you have access to catalogues, spare parts lists, operation and maintenance manuals, test certificates and connection diagrams of the individual product types.

Please note:
Our policy is one of constant product improvement. Design, technical data and illustrations are subject to changes. They are not binding until confirmed in writing by supplier's works.



Introduction
Technical explanations

1



Introduction

Efficiency classification and efficiency determination

In the last few years the world-wide development for energy saving motors has led to a multitude of country-related regulations, laws and standards. This has made it difficult to compare and evaluate the individual products. To create a uniform world-wide base, the new IEC standard 60034-30 has been issued. This standard replaces the former Voluntary Agreement of CEMEP and at the same time extends the former scope to 2-, 4- and 6-poles and to 0.75 to 375 kW.

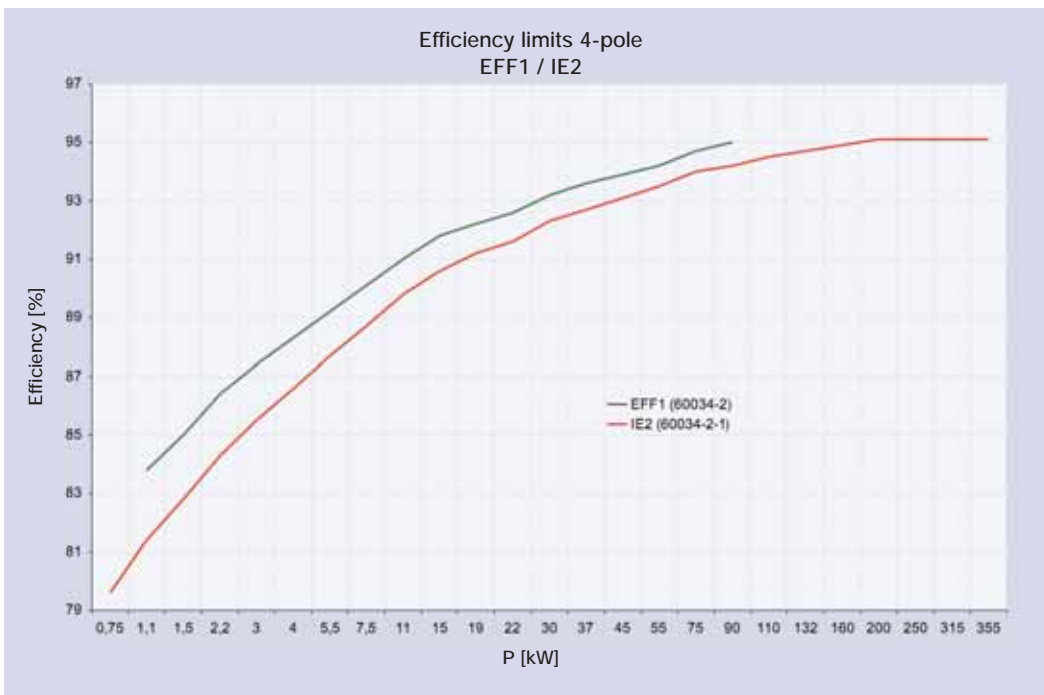
The marking is done corresponding with the code for type of protection IP (International Protection). It is now named **IE** International Efficiency:

- IE1** Standard Efficiency (former class EFF2)
- IE2** High Efficiency (former class EFF1)
- IE3** Premium Efficiency

With the introduction of the new efficiency classes the standard for the determination of efficiencies is changed as well. According to the standard IEC/EN 60034-2-1 the additional losses are not generally taken as 0.5 % of the input power, but they are determined in accordance with IEEE 112. Thus the nominal efficiencies decrease, even if no change has been done in motor design.

The new limit values were adapted to this new method. From November 2010 the standard IEC 60034-2-1 replaces the former IEC/EN 60034-2.

From that date on this method must always be used.



Shift of the limits by change of the selected test method, example 4-pole, 50 Hz

Minimum efficiencies of three-phase asynchronous motors according to Regulation (EC) no. 640/2009 dated 22nd July 2009

This standard is also the base for the implementation of guideline 2009/125/EC of the European Parliament and the Council of 21st October 2009 (former 2005/32/EC) establishing a framework for the setting of ecodesign requirements for energy-related products (ErP-directive) in the range of drive applications.

- Step 1:** Minimum efficiency (MEPS) IE2 since **16.06.2011**
- Step 2:** Increase to IE3 (Premium motors) is done on **01.01.2015** for the power range 7.5 kW to 375 kW. As option: IE2 + inverter
- Step 3:** On **01.01.2017** the power range is enlarged to include 0.75 kW to 375 kW. As option: IE2 + inverter

VEM has been gradually adapting its product range to these new regulations.

The foundation has thus been laid for energy-efficient solutions on the basis of optimised motors and drive systems. A focus is to be placed on the IE2 series, which is to be developed further as the future main series of the VEM modular system.

At the same time, IE2 motors can also be supplied for use in explosive atmospheres and for incorporation of the most varied mechanical modifications, for example brakes and forced ventilation.

(see table "Delivery program IE1, IE2 and IE3")

With the introduction of the minimum efficiency classes IE2 and IE3 the motor specifications of EN 50347 for a correlation between shaft height and foot dimensions can be kept only under certain conditions.

Concerning the motor length (dimension L, LC) and the installation size (dimension AC) it can be said that the new IE3 motor design might be significantly bigger compared with current motors. This results not only in increased prices due to material price additions compared to IE2

motors, but there will also be remarkable problems in exchanging used motors, especially in applications where today huge warehouses with spare motors exist to enable quick access to spare parts and fast reaction times in emergencies. In addition it must be noted that the weight of the rotor and therefore the centrifugal mass will be significantly bigger for IE2 and IE3 motors compared to standard motors (IE1). This leads to a reduced permissible no load starting frequency and the starting losses increase.

Energy efficient motors, especially of efficiency class IE3, are therefore not suitable for applications with frequent, very dynamic speed changes (Start/Stop operation, S3, S4, etc.).

Energy saving compact drives on the basis of efficiency class IE2

An energy-saving compact drive is achieved by combining an IE2 motor with a frequency converter. Enhanced efficiency is achieved not only at full load and the rated frequency of 50 Hz, but also in the partial-load range and at lower frequencies. Such drives require a higher initial investment, but soon pay back this additional outlay by

way of their lower operating costs. This drive solution will benefit not only traditional fields of application, for example pump and fan drives in air-conditioning systems, but also new branches such as conveyor engineering and vacuum technology. Our drives are available with outputs up to 22 kW.

Documentation

The used test method complying with EN 60034-2-1:2008 must be named in the product documentation according to the requirements of EN 60034-30. This information can be found in the installation, operating and maintenance instructions attached to each motor. In addition the motor selection data has been expanded to include the efficiency at 50 % rated output (new description includes: 100 %/ 75 %/50 %).

The IE identification is located on the name plate instead of the EFF logo. Besides the efficiency class the rated efficiency of the motor will be printed on the name plate.

IE_x – rated efficiency %, example: IE2 – 94.0 %



Hints about the use of regulation VO(EC) 640/2009

With the regulation (EC) no. 640/2009 of the Commission dated 22nd July 2009 about implementation of the guideline 2005/32/EC the definition of minimum efficiency classes (Minimum Efficiency Performance Requirements

Standard MEPS) has been issued based on EN 60034-30:2009 for certain types of electric motors and the gradual introduction into the market:

Which motors fall within the scope of EN 60034-30:2009?

Single-speed three-phase asynchronous motors with squirrel-cage rotor for 50 and/or 60 Hz and

- a rated voltage U_N up to 1000 V
- a rated output P_N between 0.75 kW and 375 kW
- a pole number of 2, 4 or 6

- are designed for duty type S1 (continuous duty) or S3 (intermittent periodic duty) with a relative cycle time of 80 % or more
- are suitable for direct online start at the mains
- are rated for the operational conditions complying with DIN EN 60034-1, chapter 6.

Which motors are excluded from the IE marking described in EN 60034-30:2009?

Excluded are

- Motors that are designed especially for inverter operation according to IEC 60034-25

- Motors that are completely integrated in another machine (i.e. pumps, ventilators and compressors) and that can not be tested separately.

Which motors are excluded from VO(EC) 640/2009?

- (a) Motors that are designed for operation immersed totally or partly in liquid media
- (b) Motors that are completely integrated into another machine (for example pumps, ventilators and compressors) and therefore the energy efficiency can not be tested separately
- (c) Motors specially designed for operation at the following ambient conditions:
 - (i) installation heights more than 1000 meter above sea level
 - (ii) ambient temperatures above 40 °C
 - (iii) operating limit temperatures more than 300 °C
 - (iv) ambient temperatures below -15 °C
 - (v) coolant temperatures at the inlet opening below 5 °C or above 25 °C
 - (vi) areas with risks of explosions complying with guideline 94/9/EC
- (d) Brake motors.

Which deadlines are valid for the implementation of MEPS?

Step 1: Minimum efficiency (MEPS) IE2 after 16th June 2011

Step 2: Increase to IE3 [Premium motors] is done on 1st January 2015 for power range 7.5 kW to 375 kW. There is an option of using "IE2+inverter".

Step 3: On 1st January 2017 the power range is extended to a range of 0.75 kW up to 375 kW. There is an again the option of using "IE2+inverter".

With the CE mark the manufacturer guarantees to the customer that the required nominal efficiencies are observed and the rated efficiencies on the name plate are kept. Thereby the permitted tolerances from DIN EN 60034-1 are still valid.

Within the area of EU it is no longer allowed to bring IE1 motors or not classified motors that are within the scope of the regulation (EC) 640/2009 in the market after 16th June 2011.

IE2 basic design series W.1R and optimised IE2 design series WE2R

The IE2 design series is available for the complete power range from 0.75 kW up to 375 kW. Individual sizes have been optimized in the mean time and are now available as well as type WE2R in addition to the design series W.1R.

For these types a new extended housing is used. The types WE2R will be generally exchanged by the corresponding types W.1R (Please refer to technical data in chapter 5).

Availability of IE2 design series complying with foreign regulations:

CSA-design, Class 4211-01 (Motors and Generators), File 101691-0-000

This certificate includes the basic series **KPR 63...100 / KPER 71...112** – max. 4.8 kW and **K10R 132...315 / K11R 132...315** – max. 315 kW (Ex-motors excluded).

Based on this certificate a delivery of IE2-motors is possible. The type designation is done with an additional mark after the pole number, ie. K11R 315 M2 IE2.



CSA-design, Class 8811-01 (Energy Efficiency Motors), File 101691-0-000

This certificate includes the series **WE1R 80...315 EP** power range 1...200 Hp,

Momentarily only 4-pole motors certified!

Efficiencies are corresponding with IE2

An additional marking of "IE2" on the name plate is not done, as the test standard is IEEE 112 and not IEC 60034-2-1. (Ex-motors are excluded!)



cUL-approval for Canada (E216143, PRGY8.E216143)

This certificate is available for the design series **W..R 71...315** – max. 315 kW

A delivery of IE2-motors with UL-logo is allowed, Type designation W..R...IE2.

(Ex-motors are excluded!)



cUL-approval for USA (E216143, PRGY2.E216143)

This certificate is available for the design series **W..R 71...315** – max. 315 kW

A delivery of IE2-motors with UL-logo is allowed, Type designation W..R...IE2. (Ex-motors are excluded!)



GOST-R

This certificate is available for the design series **IE2-W.1R 56...355**

Product code 33 11 00 (8501510000) Certificate-No. POCC DE CH 01.H06322
valid until 27.09.2013



above 1 kW up to 100 kW

Product code 33 2000 (8501 00 000 0) Certificate-No. POCC DE AB 28.H11066
valid until 23.09.2013

above 100 kW

Product code 33 3000 (8501 00 000 0) Certificate-No. POCC DE AB 28.H10585
valid until 15.05.2014



For Ex-motors special GOST-certificates are valid and a special RTN-approval. For this design the IE-marking must be done with a special mark, ie. WE1R 132 S2 Ex nA II T3 IE2 or K11R 132 S4 Ex e II T3 IE2.

IE3-design series

In the overview of product range the availability of copper rotors must be observed for some IE3 design variations.

Availability of IE3 design series complying with foreign regulations

CSA and UL-Ausführung

For the IE3-design series W41R there is no cUL, cUL US or CSA-approval available. Marking is only available with the note "built acc. to cUL, cUL_{US} or CSA". Marking with the logo of the certification society is not allowed.

Motors acc. to EISA for the US economic area

Motors acc. to EISA for the US economic area are currently not certified. A registration at the department of energy is pending. However there is currently no information about the process development of the certification. An order/delivery can only be done with the note "complying with EISA".

GOST-R

These certificates are valid for the series IE3-W41R 112...355



above 1 kW up to 100 kW

Product code 33 2000 (8501 00 000 0) Certificate-No. POCC DE AB 28.H11066
valid until 23.09.2013

above 100 kW

Product code 33 3000 (8501 00 000 0) Certificate-No. POCC DE AB 28.H10585
valid until 15.05.2014



**Hints for voltage selection according to IEC/EN 60034-30
Rated voltages, rated frequencies and rated output**

The marking for wide voltage range that is used so far (ie. 380...420 V) must be avoided as the efficiency for both voltages must be stated or the lowest efficiency for the total voltage range.

When marking the rated voltage and specification of **Zone A oder B**

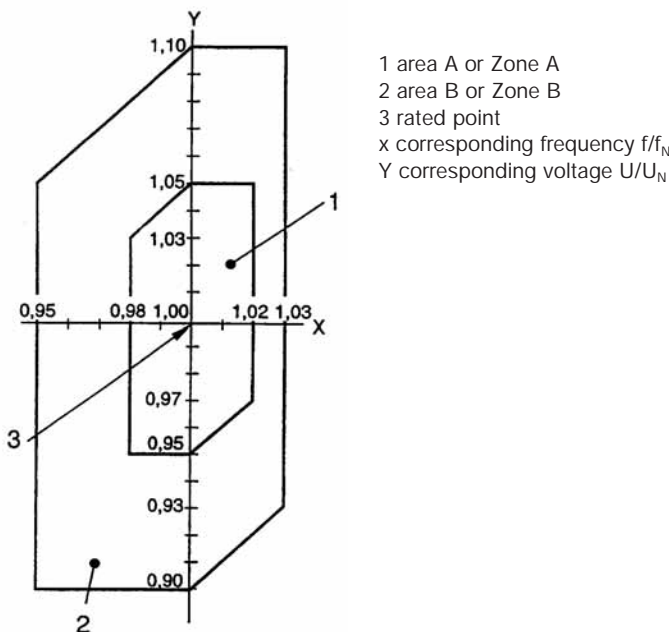
acc. to EN 60034-1 only the efficiency class (IE-Code) and the efficiency of this voltage must be stated, for example **400/690 V (Zone B) Δ/Y**

With this marking all questions of electric tolerances (voltage $\pm 10\%$ and frequency $-5\% \dots +3\%$) is clearly defined. A marking with rated voltage $\pm 10\%$ is not favourable as in this case the tolerances are added for the voltage limits.

An alternative possibility is the marking of **400/690 V $\pm 5\%$ (Zone A) Δ/Y**.

This variation is used especially for Ex-motors complying with the VIK recommendation 2011.

For this we start at 400 V and than a total voltage tolerance of $\pm 10\%$ and a frequency tolerance of only $\pm 2\%$ of the area A is valid according to **EN 60034-1**.



Voltage and frequency limits for motors according to DIN EN 60034-1

Explanation:

(Excerpt from EN 60034-30 about voltage selection)

Motors with more than one rated voltage/frequency/output-power combination may be assigned a rated efficiency and a rated efficiency-class for each rated voltage/frequency/output-power combination. However, as a minimum the lowest efficiency value and the associated IE-code (of all rated voltage/frequency/output-power combinations) shall always be printed on the rating plate. All efficiency values (50 %, 75 % and 100 % load) and IE-codes shall be available in the product documentation (catalogue or operating instructions).

Rated voltage/frequency combinations of the same magnetic flux and output-power, for example 230/400 V (delta/star) or 230/460 V (double-star/star), shall have only one rated efficiency.

NOTE: For example in Japan the rating combination "200 V/50 Hz – 200 V/60 Hz – 220 V/60 Hz" is commonly used and in Europe the rating combination "380 V/50 Hz – 400 V/50 Hz – 415 V/50 Hz – 460 V/60 Hz" is sometimes used. For these examples there will be three or four efficiency ratings and there may be several different IE-codes.

**Excerpt from VIK-recommendation 1 (Edition: March 2011)
Voltage selection according to VIK-recommendation 1,
Three-phase asynchronous motor – Techn. requirements**

.....

4.1.4 Voltage

230 V/400 V* ± 5 %**	50 Hz, Δ/Y
400 V/690 V* ± 5 %**	50 Hz, Δ/Y
290 V/500 V	50 Hz, Δ/Y

* Rated voltage acc. to DIN IEC 60038

** Rated voltage range

In an additional tolerance range of ± 5 % the torque must be kept without limitations. For motors with a rated voltage of 290 V/500 V there is no rated voltage range necessary. For Ex-motors with specification of the rated voltage range

the motor warming at the tolerance limits (limits of rated range plus ± 5 %) must not be above the permitted limit temperature. Generally the given permitted voltage tolerances of the motor must be observed.

Spare motors in EFF2, EFF1

A supply in this design version is definitely not possible any longer. The same goes for the Eff1-design. The use of the EFF-mark was only allowed until 15.06.2011.

New information for the documentation (excerpt from (EC) 640/2009)

REQUIREMENTS FOR PRODUCT INFORMATION

From 16th June 2011, the information on motors set out in points 1 to 12 shall be visibly displayed on:

- (a) the technical documentation of motors
- (b) the technical documentation of products in which motors are incorporated
- (c) free access websites of manufacturers of motors
- (d) free access websites of manufacturers of products in which motors are incorporated.

As regards to the technical documentation, the information must be provided in the order as presented in points 1 to 11. The exact wording used in the list does not need to be repeated. It may be displayed using graphs, figures or symbols rather than text.

1. nominal efficiency (η) at the full, 75 % and 50 % rated load and voltage (U_N)
2. efficiency level: 'IE2' or 'IE3'
3. the year of manufacture
4. manufacturer's name or trade mark, commercial registration number and place of manufacturer
5. product's model number
6. number of poles of the motor
7. the rated power output(s) or range of rated power output (kW)
8. the rated input frequency(s) of the motor (Hz)
9. the rated voltage(s) or range of rated voltage (V)
10. the rated speed(s) or range of rated speed (rpm)
11. information relevant for disassembly, recycling or disposal at end-of-life

See VEM installation and maintenance manual (edition 2010 and later)



Technical data

The performance data can be taken from the motor selection data tables.

Further important information for the selection of three-phase asynchronous motors can be found in the main catalogue of VEM "Low voltage asynchronous motors, IEC squirrel-cage motors".

When the application of the motor requires additional regulations, like gas or dust explosion protection, the corresponding motor series must be used.

Standards and regulations

The motors comply with the relevant standards and regulations, particularly with the following:

Titel	EN/DIN VDE	IEC
Rotating electrical machines, rating and performance	EN 60034-1	IEC 60034-1 IEC 60085
Efficiency classes of three-phase asynchronous motors	EN 60034-30	IEC 60034-30
Rotating electrical machines, standard methods for determining losses and efficiency	EN 60034-2-1	IEC 60034-2-1
Three-phase asynchronous motors for general use, with standardised dimensions and outputs, frame sizes 56 – 315	EN 50347	IEC 60072
Terminal markings and direction of rotation for rotating electrical machines	EN 60034-8	IEC 60034-8
Rotating electrical machines, symbols for types of construction and erection	EN 60034-7	IEC 60034-7
Built-in thermal protection	–	IEC 60034-11
Rotating electrical machines, methods of cooling	EN 60034-6	IEC 60034-6
Rotating electrical machines, types of protection	EN 60034-5	IEC 60034-5
Rotating electrical machines, mechanical vibrations	EN 60034-14	IEC 60034-14
Rotating electrical machines, noise limits	EN 60034-9	IEC 60034-9
Rotating electrical machines, starting performance of induction cage motors up to 660 V, 50 Hz	EN 60034-12	IEC 60034-12
IEC standard voltages	–	IEC 60038

VEM motors conform furthermore to various foreign regulations which are aligned to IEC 60034-1 or else have taken over the latter's stipulations as European standard EN 60034-1.

Dimensions and types of construction

The motors are available in the types of construction IM B3, IM B5, IM B14, IM B35, IM B34 and derived types taking into account the restrictions for the basic version.

Name plate

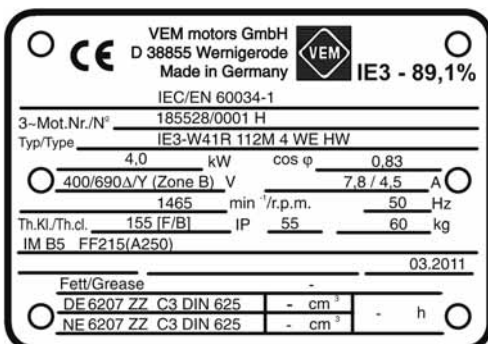
As standard the motor name plate is designed in German/English language for the standard series. Other languages are available on request. However for languages from non-EC countries we ask for an additional charge.

On the name plate the rated values like type designation and motor number, output, rated voltage and rated frequency, rated current, type of construction, type of protection, power factor, speed and thermal class are given.

The information can vary depending on the motor type. For motors with relubrication device the amount of grease/lubrication process is additionally given on the name plate or is noted on an auxiliary plate.

The name plates are fixed undetachably on the housing with groove pins. They are available in aluminium or stainless steel (additional charge).

If additional plates are required, please contact the manufacturer.



Name plate for wide voltage range

VEM motors GmbH
D 38855 Wernigerode
Made in Germany

IEC/EN 60034-1

3-Mot.Nr./N° 174724/0001 H

Typ/Type IE2-WE1R 160L 2 TPM HW

18,5 kW cos φ 0,91

400/690 D/Y +/-5% (Zone A) V 32,0 / 18,5 A

2935 min⁻¹/r.p.m. 50 Hz

Th.Kl./Th.cl. 155 (F) IP 55 139 kg

IM B3 05.11

Fett/Grease -

DE 6310 ZZ C3 DIN625	- cm ³	
NE 6309 ZZ C3 DIN625	- cm ³	h

VEM motors GmbH
D 38855 Wernigerode
Made in Germany

IEC/EN 60034-1

3-Mot.Nr./N° xxxxx/0001 H

Typ IE2-K11R 132 S2 EXEII T2/T3 VIK HW

4,6 kW cos φ 0,88

380...420/655...725 D/Y V 9,2 / 5,3 A

2899...2927 min⁻¹ 50 Hz

Th.Kl. 155(F/B) IP 55 56 kg

IM B3

Fett HIGH-LUB LM 3 EP

DE 6317 C3 DIN 625	57 cm ³	2.000h
NE 6317 C3 DIN 625	57 cm ³	

Zertifikat IBEU99ATEX1142/63

I_n/I_n 6,8

t_e T1/T2 26 s T3 9 s

Prüfung 15.03.2011

IE2 - 86,7%

Name plates for VIK-motors in design for wide voltage range

VEM motors Thurm GmbH
Made in Germany

DIN EN 60034-1

IE2-WE1R 90S2 DSD FDS

XXXXXXXXXXXXX IP 55 °C Th.Kl. 155 23,5 kg 3-Mot

IM V1FF130

50Hz	S1	60Hz
1,5 kW	IE2 - 81,3%	1,8 kW
230 / 400 V D/Y	cos φ 0,87	480 V D/Y
5,05 / 2,90 A	2910 min ⁻¹	4,95 / 2,85 A
		3520 min ⁻¹

... / ... V D/Y ... / ... V D/Y

... / ... A ... / ... A

... min⁻¹ cos φ ... min⁻¹ cos φ

VEM motors GmbH
D 38855 Wernigerode
Made in Germany

IEC/EN 60034-1

3-Mot.Nr./N° 182087/0001H

Typ/Type IE2-WE1R 160M 4 HW

50 Hz 400/690 Δ/Y V 60 Hz 460 Δ V

11 kW 21,5 / 12,5 A 12,5 kW 21,0 A

0,81 cos φ 1475 min⁻¹/r.p.m. 0,81 cos φ 1775 min⁻¹/r.p.m.

IE2 - 90,6% IE2 - 91,2%

IEC/EN 60034-1 01.11

IM B5/V1

Fett/Grease/Graisse -

DE 6310 ZZ C3 DIN 625	- cm ³	- h
NE 6309 ZZ C3 DIN 625	- cm ³	- h

Th.Kl./Th.cl./Cl.th. 155(F/B) IP 55 122 kg

Name plate Europe 50 Hz/60 Hz

VEM motors GmbH
D 38855 Wernigerode
Made in Germany

IEC / EN 60034-1

3-Mot.Nr./N° 184798/0001H

Typ/Type IE3-W41R 180M 4 WE HW

50 Hz 400/690 Δ/Y V 60 Hz 460 Δ V

15 kW 28/16 A 15 kW 24 A

0,84 cos φ 1480 min⁻¹/r.p.m. 0,84 cos φ 1776 min⁻¹/r.p.m.

IE3 - 92,1% IE3 - 93,0%

15 kW / 20 hp NEMA nom. Eff. 93,0 %

Design A Code Letter H

IM B3

Fett/Grease/Graisse ASONIC GHY 72-

DE 6310 Z C3 DIN 625	- cm ³	- h
NE 6310 Z C3 DIN 625	- cm ³	- h

01.11

Th.Kl./Th.cl./Cl.th. 155(F/B) IP 55 207 kg

Name plate Europe/USA IE3 50 Hz/60 Hz

VEM motors GmbH
D 38855 Wernigerode
Made in Germany

IEC / EN 60034-1 max. amb. temp. 40 °C

3-Mot.Nr./N° 169241/0002H

Typ/Type WE1R 225S 4 EP TPM HW SF 1,15

45 / 60 kW / hp cos φ 0,84

460 Δ V 71,5 A

1776 min⁻¹/r.p.m. 60 Hz

Th.Kl./Th.cl. 155 (F) IP 55 320 kg

nom. eff. acc. IEEEE 112 93,6 Code Letter J VEM01

IM B5 01.2011

Fett/Grease cm³ ASONIC GHY 72

DE 6313 C3 DIN 625	- cm ³	- h
NE 6312 C3 DIN 625	- cm ³	- h

Name plate EISA IE2, 60 Hz

VEM motors GmbH
D 38855 Wernigerode
Made in Germany

IEC / EN 60034-1 max. amb. temp. 40 °C

3-Mot.Nr./N° 169241/0002H

Typ/Type WE1R 225S 4 EP TPM HW SF 1,15

45 / 60 kW / hp cos φ 0,84

460 Δ V 71,5 A

1776 min⁻¹/r.p.m. 60 Hz

Th.Kl./Th.cl. 155 (F) IP 55 320 kg

nom. eff. acc. IEEEE 112 93,6 Code Letter J VEM01

IM B5 01.2011

Fett/Grease cm³ ASONIC GHY 72

DE 6313 C3 DIN 625	- cm ³	- h
NE 6312 C3 DIN 625	- cm ³	- h

Name plate CSA energy saving motor

Type designation, VEM Energy saving motors

Examples: IE2-WE1R 132 SX2 LL

IE2	-	W	E	1	R	132	S	X	2	LL
1		2	3	4	5	6	7	8	9	10
1	Efficiency class acc. to IEC 60034-30 IE1 ... IE2 ... IE3 ...									
2	Design version K ... squirrel-cage motor W ... energy saving motor									
3	Design condition/generation 1 ... series K1. 2 ... series K2., W2 4 ... series W4. E ... series WE.									
4	Characteristic number for standard 0 ... IEC, progressive design series 1,2 ... DIN/IEC									
5	Type of cooling R ... fin cooled, IC 411 O ... non-ventilated, IC 410 F ... with forced ventilation, IC 416									
6	Shaft height in mm 56, 63, 71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 250, 280, 315, 355									
7	Foot length K ... small G ... large S ... short M ... medium L ... long									
8	Symbols for different output X, Y, Z ...									
9	Pole number 2, 4, 6, ... pole-changing separated by dashes									
10	Special designs LL ... light bearing KR ... terminal box right									

Fits: Shaft ends

Shaft ends	up to Ø 48	k6
	as of Ø 55	m6
Mating components		H7

Tolerances – Electrical parameters

The following tolerances are permitted as specified in DIN EN 60034-1:

Efficiency (when determined indirectly)	- 0.15 (1- η) for $P_N \leq 150$ kW - 0.1 (1- η) for $P_N > 150$ kW
Power factor	$\frac{1-\cos\phi}{6}$ at least 0.02 at most 0.07
Slip (at standard load in warmed-up state)	$\pm 20\%$ for $P_N \geq 1$ kW $\pm 30\%$ for $P_N < 1$ kW
Starting current (in the planned starting connection)	+ 20% without lower limit
Starting torque	- 15% and + 25%
Pull-up torque	- 15%
Pull-out torque	- 10% (after application of this tolerance M_k/M still at least 1.6)
Moment of inertia	$\pm 10\%$
Noise level (Measurement area – sound intensity level)	+ 3 dB (A)

Taking necessary manufacturing tolerances and deviations in materials in the case of the raw materials used into account, these tolerances are permitted for three-phase asynchronous motors. The following remarks are given in the standard:

1. A guarantee of all or any of the values as specified in the table is not mandatory. Guaranteed values to which the permissible deviations should apply must be specified expressly in tenders. The permissible deviations must comply with the table.

2. Attention is drawn to the differences in the interpretation of the concept of a “guarantee”. In some countries, there is a differentiation between typical and declared values.

3. If a permissible deviation only applies in one direction, the value will not be limited in the other direction

Tolerances – Mechanical parameters

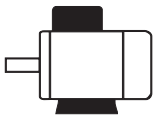

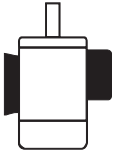
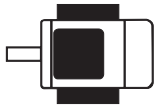
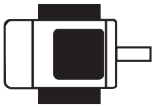
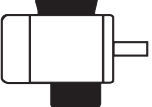
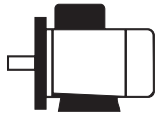





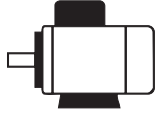


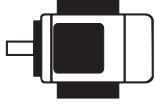
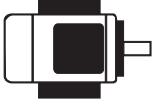
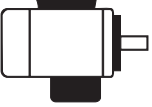
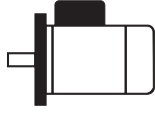


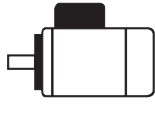
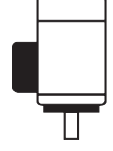

Letter codes acc. to DIN EN 50347	Meaning of the dimension	Fit or tolerance
B [a]	Spacing of feet fixing holes in axial direction	± 1 mm
P [a ₁]	Diameter or width across corners of flange	- 1 mm
A [b]	Spacing of feet fixing holes across axial direction	± 1 mm
N [b ₁]	Diameter of centring flange	up to diameter 230 mm j6 from diameter 250 mm h6
D, DA [d, d ₁]	Diameter of the cylindrical shaft end	up to diameter 48 mm k6 from diameter 55 mm m6
M [e ₁]	Pitch circle diameter of the mounting flange	± 0.8 mm
AB [f], AC [g]	Largest width of the motor (without terminal boxes)	+ 2%
H [h]	Shaft height (lowest edge of foot to centre of shaft end)	up to 250 -0.5 mm above 250 -1 mm
L, LC [k, k ₁]	Total length of the motor	+ 1%
HD [p]	Total height of the motor (lowest edge of foot)	+ 2%
K, K' [s, s ₁]	Diameter of the mounting holes of the foot or flange	+ 3%
GA, GC [t, t ₁]	Lowest edge of shaft end to the upper edge of the key	+ 0.2 mm
F, FA [u, u ₁]	Width of the key	h9
C, CA [w ₁ , w ₂]	Distance from the centre of the first foot mounting hole to the shaft shoulder or flange face	± 3 mm
	Distance from the shaft shoulder to the flange face in the case of fixed bearing on D-end	± 0.5 mm
	Distance from the shaft shoulder to the flange face	± 3 mm
m	Motor mass	- 5 to + 10%

Types of construction

The most frequently used types of construction are shown in the following table. Other types of construction on request. The type of construction is designated on the nameplate according to Code I, DIN EN 60034-7. Standard motors in sizes 56 – 200 that are ordered in the basic types of construction can also be used in the following other types of construction:

- IM B3 in IM B5, IM B7, IM B8 and IM V6
- IM B35 in IM 2051, IM 2061, IM 2071 and IM V36
- IM B34 in IM 2151, IM 2161, IM 2171 and IM 2131
- IM B5 in IM V3
- IM B14 in IM V19

Motors of types IM V5, IM V1 or IM V18 may optionally be fitted with a protective roof to prevent smaller parts from falling into their interior. For types with the shaft end pointing upward the user must provide a suitable covering to prevent smaller parts from falling into the fan cover (see also standard IEC/EN 60079-0). The cooling air flow must not be obstructed by the covering. As from frame size 225, consultation with the manufacturer will be necessary for the types IM V5, IM V6, IM B6, IM B7 and IM B8. In the frame size range as of 315L, the types IM B5 and IM V3 are not available. To facilitate connection to mains, the terminal boxes of all types may be turned through 90 deg (except for motors with terminal box 630 and 1000, inclined – these may be turned through 180 deg only).

Basic type of construction	Derived types of construction				
IM B3 IM 1001 	IM V5 IM 1011 	IM V6 IM 1031 	IM B6 IM 1051 	IM B7 IM 1061 	IM B8 IM 1071 
IM B35 IM 2001 	IM V15 IM 2011 	IM V36 IM 2031 	IM 2051 	IM 2061 	IM 2071 
IM B34 IM 2101 	IM 2111 	IM 2131 	IM 2151 	IM 2161 	IM 2171 
IM B5 IM 3001 	IM V1 IM 3011 	IM V3 IM 3031 			
IM B14 IM 3601 	IM V18 IM 3611 	IM V19 IM 3631 			

Limit speeds

When operating the motors in excess of the rated speed care should be taken to observe the limit values of the anti-friction bearings, the strength of the rotating parts, the critical rotor speeds and the circumferential speed of the fans.

The limit speeds listed in the table below may already require precautions to be taken such as special fans, special bearings or special balancing.

Type	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
(IE1-)K21R 63	15000	12000	12000	-
(IE1-)K21R 71	14000	11000	11000	11000
(IE1-)K21R 80	13000	11000	10000	10000
(IE1-)K21R 90	11000	9000	9000	9000
(IE1-)K21R 100	10000	8000	8000	8000
(IE1-)K21R 100 LX	7000	6000	6000	6000
(IE1-)K21R 112	7000	6000	6000	6000
(IE1-)K21R 132	7000	3600	2400	1800
(IE1-)K21R 160	6000	3600	2400	1800
(IE1-)K21R 180	6000	3000	2000	1500
(IE1-)K21R 200	5000	3000	2000	1500
(IE1-)K21R 225	5000	3000	2000	1500
(IE1-)K21R 250	4500	3000	2000	1500
(IE1-)K21R 280	4300	3000	2000	1500
(IE1-)K21R 315 S, M	3800	3000	2000	1500
(IE1-)K21R 315 MX	3600 ¹⁾	3000 ²⁾	3000	2000
(IE1-)K21R 315 MY, L, LX	3600 ¹⁾	3000 ²⁾	3000 ¹⁾	2600 ²⁾
(IE1-)K22R 355	3600 ¹⁾	3000 ²⁾	3000 ¹⁾	2600 ²⁾

Type	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
(IE1-)K20R 56	15000	12000	12000	-
(IE1-)K20R 63	14000	11000	11000	11000
(IE1-)K20R 71	13000	11000	10000	10000
(IE1-)K20R 80	11000	9000	9000	9000
(IE1-)K20R 90	10000	8000	8000	8000
(IE1-)K20R 100	7000	6000	6000	6000
(IE1-)K20R 112	7000	3600	2400	1800
(IE1-)K20R 132	7000	3600	2400	1800
(IE1-)K20R 160	6000	3000	2000	1500
(IE1-)K20R 180	6000	3000	2000	1500
(IE1-)K20R 200	5000	3000	2000	1500
(IE1-)K20R 225	4500	3000	2000	1500
(IE1-)K20R 250	4300	3000	2000	1500
(IE1-)K20R 280	3800	3000	2000	1500
(IE1-)K20R 315 S	3600 ¹⁾	3000 ²⁾	3000	2000
(IE1-)K20R 315 M, L	3600 ¹⁾	3000 ²⁾	3000 ¹⁾	2600 ²⁾

Type	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
W21R 63	15000	12000	12000	-
W21R 71	14000	11000	11000	11000
(IE2-)W.1R 80	13000	11000	10000	10000
(IE2-)W.1R 90	11000	9000	9000	9000
(IE2-)W.1R 100	10000	8000	8000	8000
(IE2-)W.1R 100 LX	7000	6000	6000	6000
(IE2-)W.1R 112	7000	6000	6000	6000
(IE2-)W.1R 132	7000	3600	2400	1800
(IE2-)W.1R 160	6000	3600	2400	1800
(IE2-)W.1R 180	6000	3000	2000	1500
(IE2-)W.1R 200	5000	3000	2000	1500
(IE2-)W.1R 225	5000	3000	2000	1500
(IE2-)W.1R 250	4500	3000	2000	1500
(IE2-)W.1R 280	4300	3000	2000	1500
(IE2-)W.1R 315 S, M	3800	3000	2000	1500
(IE2-)W.1R 315 MX	3600 ¹⁾	3000 ²⁾	3000	2000
(IE2-)W.1R 315 MY, L, LX	3600 ¹⁾	3000 ²⁾	3000 ¹⁾	2600 ²⁾
(IE2-)W.2R 355	3600 ¹⁾	3000 ²⁾	3000 ¹⁾	2600 ²⁾

Type	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
(IE3-)W41R 112	7000	6000	6000	6000
(IE3-)W41R 132	7000	3600	2400	1800
(IE3-)W41R 160	6000	3600	2400	1800
(IE3-)W41R 180	6000	3000	2000	1500
(IE3-)W41R 200	5000	3000	2000	1500
(IE3-)W41R 225	5000	3000	2000	1500
(IE3-)W41R 250	4500	3000	2000	1500
(IE3-)W41R 280	4300	3000	2000	1500
(IE3-)W41R 315 S, M	3800	3000	2000	1500
(IE3-)W41R 315 MX	3600 ¹⁾	3000 ²⁾	3000	2000
(IE3-)W41R 315 MY, L, LX	3600 ¹⁾	3000 ²⁾	3000 ¹⁾	2600 ²⁾
(IE3-)W42R 355	3600 ¹⁾	3000 ²⁾	3000 ¹⁾	2600 ²⁾

¹⁾ light bearing (D-end grooved ball bearing)
²⁾ heavy bearing (D-end cylindrical roller bearing)

The speed limits are valid analogous for motors with forced ventilation, cooling method IC 416, series (IE1-)K21F, (IE1-)K20F, (IE2-)W..F and (IE3-)W4.F.

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Bearing arrangement

Basic version

Type	D-end					N-end			Figure		Fixed bearing		
	Antifriction bearing	V-ring	γ-ring	Felt ring	Wave washer	Disc spring	Antifriction bearing	V-ring	Wave washer	Felt ring		DE	NDE
K21R 63	6201 2Z C3	-	-	11.5 x 19	-	-	6201 2Z C3	-	32	12 x 22	1	2	none
K21R 71	6202 2Z C3	-	-	14.5 x 21	-	-	6202 2Z C3	-	35	15 x 24	1	2	none
(IE1-)K21R 80	6204 2Z C3	-	-	19.5 x 26	-	-	6204 2Z C3	-	47	20 x 32	1	2	none
(IE1-)K21R 90	6205 2Z C3	-	-	24.5 x 35	-	-	6205 2Z C3	-	52	25 x 40	1	2	none
(IE1-)K21R 100	6206 2Z C3	-	-	29.2 x 40	-	-	6205 2Z C3	-	52	25 x 40	1	2	none
(IE1-)K21R 100 LX	6206 2Z C3	-	-	29.2 x 40	-	-	6206 2Z C3	-	62	30 x 50	1	2	none
(IE1-)K21R 112 M	6206 2Z C3	-	-	29.2 x 40	-	-	6206 2Z C3	-	62	30 x 50	1	2	none
(IE1-)K21R 132 S2, 4T	6208 2Z C3	-	-	39 x 60	-	-	6206 2Z C3	-	62	30 x 50	1	2	none
(IE1-)K21R 132 S, SX2, M6, 8	6208 2Z C3	-	-	-	80	-	6207 2Z C3	-	-	-	6	8	N-end
(IE1-)K21R 132 M4, MX6	6308 2Z C3	-	-	-	90	-	6308 2Z C3	-	-	-	6	8	N-end
(IE1-)K21R 160 M, MX8	6309 2Z C3	-	-	-	100	-	6308 2Z C3	-	-	-	6	8	N-end
(IE1-)K21R 160 MX2, L	6310 2Z C3	-	-	-	110	-	6309 2Z C3	-	-	-	6	8	N-end
(IE1-)K21R 180 M4, L6, 8	6310 2Z C3	-	-	-	110	-	6309 2Z C3	-	-	-	6	8	N-end
(IE1-)K21R 180 M2, L4	6310 C3	50A	-	-	110	-	6310 C3	50A	-	-	6	8	N-end
(IE1-)K21R 200 L, LX6	6312 C3	60A	-	-	-	130	6310 C3	50A	-	-	6	8	N-end
(IE1-)K21R 200 LX2	6312 C3	60A	-	-	-	130	6312 C3	60A	-	-	6	8	N-end
(IE1-)K21R 225 M2	6312 C3	60A	-	-	-	130	6312 C3	60A	-	-	6	8	N-end
(IE1-)K21R 225 S4, 8, M4, 6, 8	6313 C3	65A	-	-	-	140	6312 C3	60A	-	-	6	8	N-end
(IE1-)K21R 250 M2	6313 C3	65A	-	-	-	140	6313 C3	65A	-	-	6	8	N-end
(IE1-)K21R 250 M4, 6, 8	6314 C3	70A	-	-	-	150	6313 C3	65A	-	-	6	8	N-end
(IE1-)K21R 280 S2, M2	6314 C3	70A	-	-	-	150	6314 C3	70A	-	-	6	8	N-end
(IE1-)K21R 280 S4, 6, 8, M4, 6, 8	6316 C3	80A	-	-	-	170	6314 C3	70A	-	-	6	8	N-end
(IE1-)K21R 315 S2, M2	6316 C3	80A	-	-	-	170	6316 C3	80A	-	-	6	8	N-end
(IE1-)K21R 315 S4, 6, 8, M4, 6, 8	6317 C3	80A	-	-	-	180	6316 C3	80A	-	-	6	8	N-end
(IE1-)K21R 315 MX2	6317 C3	-	RB85	-	-	180	6316 C3	80A	-	-	13	16	N-end
(IE1-)K21R 315 MX4, 6, 8	6220 C3	-	RB100	-	-	180	6316 C3	80A	-	-	13	16	N-end
(IE1-)K21R 315 MY2	6317 C3	-	RB85	-	-	180	6317 C3 ¹⁾	85A	-	-	18	19	N-end
(IE1-)K21R 315 MY4, 6, 8	6320 C3	-	RB100	-	-	215	6317 C3 ¹⁾	85A	-	-	18	19	N-end
(IE1-)K21R 315 L2, LX2	6317 C3	-	RB85	-	-	180	6317 C3 ¹⁾	85A	-	-	18	19	N-end
(IE1-)K21R 315 L4, 6, 8, LX4, 6, 8	6320 C3	-	RB100	-	-	215	6317 C3 ¹⁾	85A	-	-	18	19	N-end
(IE1-)K22R 355 MY/M/MX/LY/L 2-pole	6317 C3	-	RB85	-	-	180	6317 C3 ¹⁾	85A	-	-	18	19	N-end
(IE1-)K22R 355 MY/M/MX/LY/L 4-, 6-, 8-pole	6324 C3	120S	-	-	-	260	6317 C3 ¹⁾	85A	-	-	18	19	N-end

¹⁾ for vertical types of mounting Q317 C3; figures 18, 21 from size (IE1-)K21R 315 MX standard version with relubrication device

Type	D-end					N-end			Figure		Fixed bearing		
	Antifriction bearing	V-ring	γ-ring	Felt ring	Wave washer	Disc spring	Antifriction bearing	V-ring	Wave washer	Felt ring		DE	NDE
K20R 56	6201 2Z C3	-	-	11.5 x 19	-	-	6201 2Z C3	-	32	12 x 22	1	2	none
K20R 63	6202 2Z C3	-	-	14.5 x 21	-	-	6202 2Z C3	-	35	15 x 24	1	2	none
(IE1-)K20R 71	6204 2Z C3	-	-	19.5 x 26	-	-	6204 2Z C3	-	47	20 x 32	1	2	none
(IE1-)K20R 80	6205 2Z C3	-	-	24.2 x 35	-	-	6205 2Z C3	-	52	25 x 40	1	2	none
(IE1-)K20R 90	6205 2Z C3	-	-	24.5 x 35	-	-	6205 2Z C3	-	52	25 x 40	1	2	none
(IE1-)K20R 100	6206 2Z C3	-	-	29.2 x 40	-	-	6206 2Z C3	-	62	30 x 50	1	2	none
(IE1-)K20R 112 M2, 4, 6, 8	6207 2Z C3	-	-	-	72	-	6207 2Z C3	-	-	-	6	8	N-end
(IE1-)K20R 112 MX6, 8	6207 2Z C3	-	-	-	72	-	6207 2Z C3	-	-	-	6	8	N-end
(IE1-)K20R 132 S, M	6308 2Z C3	-	-	-	90	-	6308 2Z C3	-	-	-	6	8	N-end
(IE1-)K20R 160 S, M	6310 2Z C3	-	-	-	110	-	6309 2Z C3	-	-	-	6	8	N-end
(IE1-)K20R 180 S2, M2	6310 C3	50A	-	-	110	-	6310 C3	50A	-	-	6	8	N-end
(IE1-)K20R 180 S4, 6, 8, M4, 6, 8	6312 C3	60A	-	-	-	130	6310 C3	50A	-	-	6	8	N-end
(IE1-)K20R 200 M2, L2	6312 C3	60A	-	-	-	130	6312 C3	60A	-	-	6	8	N-end
(IE1-)K20R 200 M4, 6, 8, L4, 6, 8	6313 C3	65A	-	-	-	140	6312 C3	60A	-	-	6	8	N-end
(IE1-)K20R 225 M2	6313 C3	65A	-	-	-	140	6313 C3	65A	-	-	6	8	N-end
(IE1-)K20R 225 M4, 6, 8	6314 C3	70A	-	-	-	150	6313 C3	65A	-	-	6	8	N-end
(IE1-)K20R 250 S2, M2	6314 C3	70A	-	-	-	150	6314 C3	70A	-	-	6	8	N-end
(IE1-)K20R 250 S4, 6, 8, M4, 6, 8	6316 C3	80A	-	-	-	170	6314 C3	70A	-	-	6	8	N-end
(IE1-)K20R 280 S2, M2	6316 C3	80A	-	-	-	170	6316 C3	80A	-	-	6	8	N-end
(IE1-)K20R 280 S4, 6, 8, M4, 6, 8	6317 C3	80A	-	-	-	180	6316 C3	80A	-	-	6	8	N-end
(IE1-)K20R 315 S2	6317 C3	-	RB85	-	-	180	6316 C3	80A	-	-	13	16	N-end
(IE1-)K20R 315 S4, 6, 8	6220 C3	-	RB100	-	-	180	6316 C3	80A	-	-	13	16	N-end
(IE1-)K20R 315 M2, L2	6317 C3	-	RB85	-	-	180	6317 C3 ¹⁾	85A	-	-	18	19	N-end
(IE1-)K20R 315 M4, 6, 8, L4, 6, 8	6320 C3	-	RB100	-	-	215	6317 C3 ¹⁾	85A	-	-	18	19	N-end

¹⁾ for vertical types of mounting Q317 C3; figures 18, 21 from size (IE1-)K20R 315 MX standard version with relubrication device

Bearing arrangement

Special version "heavy bearing arrangement" VL

Type	Antifriction bearing	D-end		N-end		Figure		Fixed bearing
		V-ring	γ-ring	Antifriction bearing	V-ring	DE	NDE	
(IE1-)K21R 132 S, SX2, M6, 8 VL	NU 208 E	40A	-	6207 RS C3	-	4	10	N-end
(IE1-)K21R 132 M4, MX6 VL	NU 308 E	40A	-	6308 RS C3	-	4	10	N-end
(IE1-)K21R 160 M, MX8 VL	NU 309 E	45A	-	6308 RS C3	-	4	10	N-end
(IE1-)K21R 160 MX2, L VL	NU 310 E	50A	-	6309 RS C3	-	7	10	N-end
(IE1-)K21R 180 M4, L6, 8 VL	NU 310 E	50A	-	6309 RS C3	-	7	10	N-end
(IE1-)K21R 180 M2, L4 VL	NU 310 E	50A	-	6310 C3	50A	7	9	N-end
(IE1-)K21R 200 L, LX6 VL	NU 312 E	60A	-	6310 C3	50A	7	9	N-end
(IE1-)K21R 200 LX2 VL	NU 312 E	60A	-	6312 C3	60A	7	9	N-end
(IE1-)K21R 225 M2 VL	NU 312 E	-	RB60	6312 C3	60A	7	9	N-end
(IE1-)K21R 225 S4, 8, M4, 6, 8 VL	NU 313 E	-	RB65	6312 C3	60A	7	9	N-end
(IE1-)K21R 250 M2 VL	NU 313 E	-	RB65	6313 C3	65A	7	9	N-end
(IE1-)K21R 250 M4, 6, 8 VL	NU 314 E	-	RB70	6313 C3	65A	7	9	N-end
(IE1-)K21R 280 S2, M2 VL	NU 314 E	-	RB70	6314 C3	70A	7	9	N-end
(IE1-)K21R 280 S4, 6, 8, M4, 6, 8 VL	NU 316 E	-	RB80	6314 C3	70A	7	9	N-end
(IE1-)K21R 315 S2, M2 VL	NU 316 E	-	RB80	6316 C3	80A	7	9	N-end
(IE1-)K21R 315 S4, 6, 8, M4, 6, 8 VL	NU 317 E	-	RB85	6316 C3	80A	7	9	N-end
(IE1-)K21R 315 MX2 VL	NU 317 E	-	RB85	6316 C3	80A	15	16	N-end
(IE1-)K21R 315 MX4, 6, 8 VL	NU 2220 E	-	RB100	6316 C3	80A	15	16	N-end
(IE1-)K21R 315 MY2 VL	NU 317 E	-	RB85	6317 C3 ¹⁾	85A	20	19	N-end
(IE1-)K21R 315 MY4, 6, 8 VL	NU 320 E	-	RB100	6317 C3 ¹⁾	85A	20	19	N-end
(IE1-)K21R 315 L2, LX2 VL	NU 317 E	-	RB85	6317 C3 ¹⁾	85A	20	19	N-end
(IE1-)K21R 315 L4, 6, 8, LX4, 6, 8 VL	NU 320 E	-	RB100	6317 C3 ¹⁾	85A	20	19	N-end
(IE1-)K22R 355 M/MX/L 2-pole VL	NU 317 E	-	RB85	6317 C3 ¹⁾	85A	20	19	N-end
(IE1-)K22R 355 M/MX/L 4-, 6-, 8-pole VL	NU 324 E	120S	-	6317 C3 ¹⁾	85A	20	19	N-end

¹⁾ for vertical types of mounting Q317 C3; figures 20, 21
from size (IE1-)K21R 315 standard version with relubrication device

Type	Antifriction bearing	D-end		N-end		Figure		Fixed bearing
		V-ring	γ-ring	Antifriction bearing	V-ring	DE	NDE	
(IE1-)K20R 112 M2, 4, 6, 8 VL	NU 207 E	40A	-	6207 RS C3	-	4	10	N-end
(IE1-)K20R 112 MX6, 8 VL	NU 207 E	40A	-	6207 RS C3	-	4	10	N-end
(IE1-)K20R 132 S, M VL	NU 308 E	40A	-	6308 RS C3	-	4	10	N-end
(IE1-)K20R 160 S, M VL	NU 310 E	50A	-	6309 RS C3	-	7	10	N-end
(IE1-)K20R 180 S2, M2 VL	NU 310 E	50A	-	6310 C3	50A	7	9	N-end
(IE1-)K20R 180 S4, 6, 8, M4, 6, 8 VL	NU 312 E	60A	-	6310 C3	50A	7	9	N-end
(IE1-)K20R 200 M2, L2 VL	NU 312 E	-	RB60	6312 C3	60A	7	9	N-end
(IE1-)K20R 200 M4, 6, 8, L4, 6, 8 VL	NU 313 E	-	RB65	6312 C3	60A	7	9	N-end
(IE1-)K20R 225 M2 VL	NU 313 E	-	RB65	6313 C3	65A	7	9	N-end
(IE1-)K20R 225 M4, 6, 8 VL	NU 314 E	-	RB70	6313 C3	65A	7	9	N-end
(IE1-)K20R 250 S2, M2 VL	NU 314 E	-	RB70	6314 C3	70A	7	9	N-end
(IE1-)K20R 250 S4, 6, 8, M4, 6, 8 VL	NU 316 E	-	RB80	6314 C3	70A	7	9	N-end
(IE1-)K20R 280 S2, M2 VL	NU 316 E	-	RB80	6316 C3	80A	7	9	N-end
(IE1-)K20R 280 S4, 6, 8, M4, 6, 8 VL	NU 317 E	-	RB85	6316 C3	80A	7	9	N-end
(IE1-)K20R 315 S2 VL	NU 317 E	-	RB85	6316 C3	80A	15	16	N-end
(IE1-)K20R 315 S4, 6, 8 VL	NU 2220 E	-	RB100	6316 C3	80A	15	16	N-end
(IE1-)K20R 315 M2, L2 VL	NU 317 E	-	RB85	6317 C3 ¹⁾	85A	20	19	N-end
(IE1-)K20R 315 M4, 6, 8, L4, 6, 8 VL	NU 320 E	-	RB100	6317 C3 ¹⁾	85A	20	19	N-end

¹⁾ for vertical types of mounting Q317 C3; figures 20, 21
from size (IE1-)K20R 315 standard version with relubrication device

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Bearing arrangement

Relubrication device

Type	Antifriction bearing	D-end				N-end		Figure		Fixed bearing
		V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	V-ring	DE	NDE	
(IE1-)K21R 132 S, SX2, M6, 8					at D-end not possible due to design version					
(IE1-)K21R 132 M4, MX6					at D-end not possible due to design version					
(IE1-)K21R 160 M, MX8					at D-end not possible due to design version					
(IE1-)K21R 160 MX2, L ¹⁾	6310 C3	-	RB50	110	-	6309 C3	45A	13 14	N-end	
(IE1-)K21R 180 M4, L6, 8 ¹⁾	6310 C3	-	RB50	110	-	6309 C3	45A	13 14	N-end	
(IE1-)K21R 180 M2, L4 ¹⁾	6310 C3	-	RB50	110	-	6310 C3	50A	13 14	N-end	
(IE1-)K21R 200 L, LX6 ¹⁾	6312 C3	-	RB60	-	130	6310 C3	50A	13 14	N-end	
(IE1-)K21R 200 LX2 ¹⁾	6312 C3	-	RB60	-	130	6312 C3	60A	13 14	N-end	
(IE1-)K21R 225 M2	6312 C3	-	RB60	-	130	6312 C3	60A	13 14	N-end	
(IE1-)K21R 225 S4, 8, M4, 6, 8	6313 C3	-	RB65	-	140	6312 C3	60A	13 14	N-end	
(IE1-)K21R 250 M2	6313 C3	-	RB65	-	140	6313 C3	65A	13 14	N-end	
(IE1-)K21R 250 M4, 6, 8	6314 C3	-	RB70	-	150	6313 C3	65A	13 14	N-end	
(IE1-)K21R 280 S2, M2	6314 C3	-	RB70	-	150	6314 C3	70A	13 14	N-end	
(IE1-)K21R 280 S4, 6, 8, M4, 6, 8	6316 C3	-	RB80	-	170	6314 C3	70A	13 14	N-end	
(IE1-)K21R 315 S2, M2	6316 C3	-	RB80	-	170	6316 C3	80A	13 14	N-end	
(IE1-)K21R 315 S4, 6, 8, M4, 6, 8	6317 C3	-	RB85	-	180	6316 C3	80A	13 14	N-end	
(IE1-)K21R 315 MX2					see basic version					
(IE1-)K21R 315 MX4, 6, 8					see basic version					
(IE1-)K21R 315 MY2					see basic version					
(IE1-)K21R 315 MY4, 6, 8					see basic version					
(IE1-)K21R 315 L2, LX2					see basic version					
(IE1-)K21R 315 L4, 6, 8, LX4, 6, 8					see basic version					
(IE1-)K22R 355 M/MX/L 2-pole					see basic version					
(IE1-)K22R 355 M/MX/L 4-, 6-, 8-pole					see basic version					

¹⁾ type of protection IP 54

Type	Antifriction bearing	D-end				N-end		Figure		Fixed bearing
		V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	V-ring	DE	NDE	
(IE1-)K20R 112 M2, 4, 6, 8 ¹⁾	6207 C3	-	RB35	72	-	6207 C3	35A	13 14	N-end	
(IE1-)K20R 112 MX6, 8 ¹⁾	6207 C3	-	RB35	72	-	6207 C3	35A	13 14	N-end	
(IE1-)K20R 132 S, M ¹⁾	6308 C3	-	RB40	90	-	6308 C3	40A	13 14	N-end	
(IE1-)K20R 160 S, M ¹⁾	6310 C3	-	RB50	110	-	6309 C3	45A	13 14	N-end	
(IE1-)K20R 180 S2, M2 ¹⁾	6310 C3	-	RB50	110	-	6310 C3	50A	13 14	N-end	
(IE1-)K20R 180 S4, 6, 8, M4, 6, 8 ¹⁾	6312 C3	-	RB60	-	130	6310 C3	50A	13 14	N-end	
(IE1-)K20R 200 M2, L2	6312 C3	-	RB60	-	130	6312 C3	60A	13 14	N-end	
(IE1-)K20R 200 M4, 6, 8, L4, 6, 8	6313 C3	-	RB65	-	140	6312 C3	60A	13 14	N-end	
(IE1-)K20R 225 M2	6313 C3	-	RB65	-	140	6313 C3	65A	13 14	N-end	
(IE1-)K20R 225 M4, 6, 8	6314 C3	-	RB70	-	150	6313 C3	65A	13 14	N-end	
(IE1-)K20R 250 S2, M2	6314 C3	-	RB70	-	150	6314 C3	70A	13 14	N-end	
(IE1-)K20R 250 S4, 6, 8, M4, 6, 8	6316 C3	-	RB80	-	170	6314 C3	70A	13 14	N-end	
(IE1-)K20R 280 S2, M2	6316 C3	-	RB80	-	170	6316 C3	80A	13 14	N-end	
(IE1-)K20R 280 S4, 6, 8, M4, 6, 8	6317 C3	-	RB85	-	180	6316 C3	80A	13 14	N-end	
(IE1-)K20R 315 S2					see basic version					
(IE1-)K20R 315 S4, 6, 8					see basic version					
(IE1-)K20R 315 M2, L2					see basic version					
(IE1-)K20R 315 M4, 6, 8, L4, 6, 8					see basic version					

¹⁾ type of protection IP 54

Bearing arrangement

Admissible axial and radial loads
basic version, horizontal shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K21R 56/63	0.05	0.32	-	0.09	0.39	-	0.16	0.39	-	-	-	-
(IE1-)K21R 71	0.07	0.34	-	0.12	0.43	-	0.19	0.43	-	0.25	0.43	-
(IE1-)K21R 80	0.13	0.58	-	0.24	0.73	-	0.36	0.73	-	0.46	0.73	-
(IE1-)K21R 90	0.13	0.60	-	0.26	0.77	-	0.36	0.77	-	0.50	0.77	-
(IE1-)K21R 100	0.15	0.77	-	0.31	0.86	-	0.34	0.86	-	0.52	0.86	-
(IE1-)K21R 100/112	0.17	0.77	-	0.31	0.98	-	0.42	0.98	-	0.52	0.98	-
(IE1-)K21R 132 S	0.75	1.15	1.03	1.05	1.45	1.29	1.4	1.65	1.47	1.4	1.85	1.65
(IE1-)K21R 132 SX	0.75	1.15	1.03	-	-	-	-	-	-	-	-	-
(IE1-)K21R 132 M	-	-	-	1.6	2.05	1.8	1.2	1.65	1.47	1.4	1.85	1.65
(IE1-)K21R 132 MX	-	-	-	-	-	-	1.9	2.3	2.05	-	-	-
(IE1-)K21R 160 M	1.1	2.0	1.8	1.5	2.5	2.2	1.9	2.9	2.6	2.1	3.25	2.8
(IE1-)K21R 160 MX	1.5	2.3	2.05	-	-	-	-	-	-	2.1	3.25	2.6
(IE1-)K21R 160 L	1.5	2.3	2.05	1.9	3.0	2.7	2.3	3.4	3.0	2.5	3.8	3.4
(IE1-)K21R 180 M	1.5	2.4	2.15	1.9	3.0	2.7	-	-	-	-	-	-
(IE1-)K21R 180 L	-	-	-	2.5	3.1	2.75	2.3	3.4	3.0	2.5	3.8	3.4
(IE1-)K21R 200 L	1.8	3.2	2.8	2.4	4.0	3.5	2.8	4.6	4.1	3.0	5.2	4.6
(IE1-)K21R 200 LX	2.5	3.2	2.8	-	-	-	2.8	4.6	4.1	-	-	-
(IE1-)K21R 225 S	-	-	-	3.0	4.4	3.9	-	-	-	4.2	5.6	5.0
(IE1-)K21R 225 M	2.5	3.2	2.8	3	4.4	3.9	3.5	5.1	4.5	4.2	5.6	5.0
(IE1-)K21R 250 M	2.5	3.4	3.0	3.5	4.9	4.3	3.8	5.6	5.0	4.5	6.3	5.6
(IE1-)K21R 280 S	3.5	5.05	4.6	4.5	7.5	6.8	5.0	8.7	8.0	6.0	9.6	8.9
(IE1-)K21R 280 M	4.0	5.1	4.6	4.5	7.5	6.9	5.0	8.7	8.05	6.0	9.7	9.0
(IE1-)K21R 315 S	4.5	5.9	5.4	6.0	7.3	6.7	7.0	8.5	7.6	7.5	9.5	8.7
(IE1-)K21R 315 M	4.5	5.9	5.4	6.0	7.3	6.8	7.0	8.3	7.8	7.5	9.4	8.8
(IE1-)K21R 315 MX	4.5	6.0	5.6	5.0	10.0	9.4	6.0	11.3	10.6	6.0	12.8	12.0
(IE1-)K21R 315 MY	6.0	9.6	9.0	6.0	9.6	9.0	7.0	11.1	10.7	7.5	12.5	12.3

Admissible axial and radial loads
heavy bearing arrangement, horizontal shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K21R 132 S	0.75	2.3	2.06	1.05	2.9	2.4	1.4	3.3	2.9	1.4	3.7	3.3
(IE1-)K21R 132 SX	0.75	2.3	2.06	-	-	-	-	-	-	-	-	-
(IE1-)K21R 132 M	-	-	-	1.6	4.1	3.6	1.2	3.3	2.9	1.4	3.7	3.3
(IE1-)K21R 132 MX	-	-	-	-	-	-	1.9	4.6	4.1	-	-	-
(IE1-)K21R 160 M	1.1	3.9	3.5	1.5	4.9	4.3	1.9	5.7	5.1	2.1	6.3	5.5
(IE1-)K21R 160 MX	1.5	4.5	4.0	-	-	-	-	-	-	2.1	6.3	5.1
(IE1-)K21R 160 L	1.5	4.5	4.0	1.9	5.9	5.3	2.3	6.6	5.9	2.5	7.4	6.6
(IE1-)K21R 180 M	1.5	4.7	4.2	1.9	5.9	5.3	-	-	-	-	-	-
(IE1-)K21R 180 L	-	-	-	2.5	6.0	5.4	2.3	6.6	5.9	2.5	7.4	6.6
(IE1-)K21R 200 L	1.8	6.1	5.3	2.4	7.6	6.7	2.8	8.7	7.8	3.0	9.9	8.8
(IE1-)K21R 200 LX	2.5	6.1	5.3	-	-	-	2.8	8.7	7.8	-	-	-
(IE1-)K21R 225 S	-	-	-	3.0	8.4	7.4	-	-	-	4.2	10.6	9.5
(IE1-)K21R 225 M	2.5	6.1	5.3	3	8.4	7.4	3.5	9.7	8.6	4.2	10.6	9.5
(IE1-)K21R 250 M	2.5	6.3	5.6	3.5	9.1	8.0	3.8	10.4	9.3	4.5	11.7	10.4
(IE1-)K21R 280 S	3.0	7.2	6.5	3.1	19.5	15.5	3.5	21.8	16.3	3.8	23.5	15.3
(IE1-)K21R 280 M	2.6	6.6	6.1	3.1	19.5	15.5	3.5	22.3	14.5	4.3	23.0	14.9
(IE1-)K21R 315 S	3.5	8.1	7.4	3.8	18.8	16.6	4.4	21.2	17.7	5.0	23.4	17.2
(IE1-)K21R 315 M	2.8	7.6	6.8	3.9	18.0	15.9	4.6	21.5	16.7	5.2	23.4	17.2
(IE1-)K21R 315 MX	3.4	18.3	16.6	3.7	26.0	21.7	4.1	28.5	18.4	4.5	31.5	20.3
(IE1-)K21R 315 MY	3.6	18.3	14.9	4.3	25.5	16.5	4.7	27.8	19.2	5.6	27.5	19.0

for sizes 315 L, LX and 355 data on request

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Bearing arrangement

Admissible axial and radial loads
basic version, vertical shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K21R 56/63	0.05	0.32		0.09	0.39		0.16	0.39		-	-	
(IE1-)K21R 71	0.07	0.34		0.12	0.43		0.19	0.43		0.25	0.43	
(IE1-)K21R 80	0.13	0.58		0.24	0.73		0.36	0.73		0.46	0.73	
(IE1-)K21R 90	0.13	0.60		0.20	0.77		0.36	0.77		0.44	0.77	
(IE1-)K21R 100	0.15	0.58		0.24	0.86		0.34	0.86		0.44	0.86	
(IE1-)K21R 100/112	0.17	0.77		0.31	0.98		0.42	0.98		0.52	0.98	
(IE1-)K21R 132 S	0.7	1.2	1.06	0.9	1.5	1.33	1.1	1.75	1.55	1.25	1.9	1.68
(IE1-)K21R 132 SX	0.7	1.2	1.06	-	-	-	-	-	-	-	-	-
(IE1-)K21R 132 M	-	-	-	1.4	2.1	1.9	1.05	1.7	1.5	1.25	1.9	1.68
(IE1-)K21R 132 MX	-	-	-	-	-	-	1.65	2.4	2.1	-	-	-
(IE1-)K21R 160 M	0.95	2.1	1.9	1.3	2.6	2.3	1.5	3.0	2.7	1.75	3.3	2.8
(IE1-)K21R 160 MX	1.2	2.4	2.1	-	-	-	-	-	-	1.75	3.3	2.7
(IE1-)K21R 160 L	1.1	2.5	2.2	1.5	3.1	2.7	1.8	3.6	3.2	2.1	3.9	3.5
(IE1-)K21R 180 M	1.4	2.5	2.2	1.5	3.1	2.7	-	-	-	-	-	-
(IE1-)K21R 180 L	-	-	-	1.9	3.2	2.8	1.8	3.6	3.2	2.1	3.9	3.5
(IE1-)K21R 200 L	1.3	3.4	3.0	1.8	4.2	3.7	2.0	4.9	4.3	2.4	5.4	4.8
(IE1-)K21R 200 LX	1.9	3.4	3.0	-	-	-	2.0	4.8	4.2	-	-	-
(IE1-)K21R 225 S	-	-	-	2.3	4.6	4.1	-	-	-	3.2	6.0	5.3
(IE1-)K21R 225 M	1.7	3.4	3.0	2.2	4.8	4.2	2.7	5.4	4.8	3.3	5.9	5.2
(IE1-)K21R 250 M	1.8	3.8	3.4	2.4	5.3	4.7	3.0	6.1	5.4	3.3	6.7	5.9
(IE1-)K21R 280 S	2.0	5.5	5.0	3.0	8.1	7.4	3.8	9.3	8.6	4.0	10.3	9.5
(IE1-)K21R 280 M	2.0	5.6	5.1	2.3	8.2	7.6	3.0	9.5	8.9	3.0	10.6	9.9
(IE1-)K21R 315 S	2.5	6.5	6.0	3.0	8.3	7.5	3.0	9.5	8.7	4.0	10.5	9.6
(IE1-)K21R 315 M	2.5	6.6	6.1	3.0	8.4	7.8	3.0	9.7	9.1	4.0	10.8	10.2
(IE1-)K21R 315 MX	2.0	7.0	6.5	1.5	11.4	7.3	2.3	12.9	12.1	3.0	14.3	13.5
(IE1-)K21R 315 MY	1.5	7.0	6.6	1.5	11.5	10.9	1.5	13.5	13.0	2.0	15.1	14.8

Admissible axial and radial loads
heavy bearing arrangement, vertical shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K21R 132 S	0.7	2.4	1.12	0.9	3.0	2.66	2.2	3.5	3.1	1.25	3.8	3.36
(IE1-)K21R 132 SX	0.7	2.4	1.12	-	-	-	-	-	-	-	-	-
(IE1-)K21R 132 M	-	-	-	1.4	4.2	3.8	1.05	3.4	3.0	1.25	3.8	3.36
(IE1-)K21R 132 MX	-	-	-	-	-	-	1.65	4.8	4.2	-	-	-
(IE1-)K21R 160 M	0.95	4.2	3.8	1.3	5.2	4.6	3.0	6.0	5.4	1.75	6.6	5.6
(IE1-)K21R 160 MX	1.2	4.8	4.2	-	-	-	-	-	-	1.75	6.6	5.4
(IE1-)K21R 160 L	1.1	4.9	4.3	1.5	6.0	5.3	1.8	7.0	6.2	2.1	7.6	6.8
(IE1-)K21R 180 M	1.4	4.9	4.3	1.5	6.0	5.3	-	-	-	-	-	-
(IE1-)K21R 180 L	-	-	-	1.9	6.2	5.5	1.8	7.0	6.2	2.1	7.6	6.8
(IE1-)K21R 200 L	1.3	6.6	5.9	1.8	8.2	7.2	2.0	9.6	8.4	2.4	10.5	9.4
(IE1-)K21R 200 LX	1.9	6.6	5.7	-	-	-	2.0	9.1	8.0	-	-	-
(IE1-)K21R 225 S	-	-	-	2.3	8.7	7.8	-	-	-	3.2	11.4	10.1
(IE1-)K21R 225 M	1.7	6.6	5.7	2.2	9.1	8.0	2.7	10.3	9.1	3.3	11.2	9.9
(IE1-)K21R 250 M	1.8	7.0	6.3	2.4	9.8	8.7	3.0	12.3	10.0	3.3	12.4	10.0
(IE1-)K21R 280 S	2.0	7.8	6.8	1.4	20.1	15.8	1.9	21.6	16.1	2.3	23.6	15.3
(IE1-)K21R 280 M	1.1	7.8	6.8	1.3	20.1	15.8	1.8	21.0	13.6	2.3	20.8	13.5
(IE1-)K21R 315 S	1.9	8.8	7.7	1.3	19.8	17.5	1.9	22.4	18.7	2.4	24.0	17.5
(IE1-)K21R 315 M	1.7	8.8	7.7	1.2	20.0	17.7	1.5	22.6	17.7	2.1	23.8	17.4
(IE1-)K21R 315 MX	0.9	19.0	16.8	0.8	27.0	23.9	0.8	28.6	18.5	1.2	28.6	18.5
(IE1-)K21R 315 MY	0.5	19.5	17.3	0.5	19.5	17.3	1.5	24.0	16.6	2.0	24.0	16.6

for size 315 L, LX and 355 data on request

Bearing arrangement

Admissible axial and radial loads
basic version, horizontal shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K20R 56	0.05	0.32		0.09	0.39		0.16	0.39		-	-	
(IE1-)K20R 63	0.07	0.34		0.12	0.43		0.19	0.43		0.25	0.43	
(IE1-)K20R 71	0.13	0.58		0.24	0.73		0.36	0.73		0.46	0.73	
(IE1-)K20R 80	0.13	0.60		0.20	0.77		0.36	0.77		0.44	0.77	
(IE1-)K20R 90	0.15	0.58		0.24	0.86		0.34	0.86		0.44	0.86	
(IE1-)K20R 100	0.17	0.77		0.31	0.98		0.42	0.98		0.52	0.98	
(IE1-)K20R 112 M	0.75	1.15	1.0	0.9	1.4	1.2	1.1	1.6	1.4	1.3	1.75	1.5
(IE1-)K20R 112 MX	-	-	-	-	-	-	1.05	1.6	1.4	1.25	1.75	1.5
(IE1-)K20R 132 S	-	-	-	0.7	2.0	1.8	0.8	2.3	2.0	0.9	2.6	2.3
(IE1-)K20R 132 M	0.5	1.65	1.45	0.65	2.15	1.9	0.75	2.45	2.2	0.85	2.7	2.4
(IE1-)K20R 160 S	1.1	2.4	2.1	1.6	3.05	2.7	1.8	3.5	3.1	2.2	3.9	3.5
(IE1-)K20R 160 M	1.2	2.4	2.1	1.6	3.05	2.7	1.8	3.6	3.2	2.1	4.0	3.5
(IE1-)K20R 180 S	1.4	2.5	2.1	1.8	4.1	3.6	2.1	4.8	4.2	2.5	5.2	4.6
(IE1-)K20R 180 M	1.3	2.6	2.3	1.8	4.3	3.8	2.0	5.0	4.4	2.4	5.4	4.8
(IE1-)K20R 200 M	1.8	3.4	3.0	2.4	4.7	4.2	2.75	5.4	4.8	3.2	5.9	5.2
(IE1-)K20R 200 L	1.7	3.4	3.0	2.2	4.8	4.2	-	-	-	-	-	-
(IE1-)K20R 225 M	1.5	2.8	2.5	2.5	5.4	4.8	3.0	6.2	5.5	3.5	6.8	6.0
(IE1-)K20R 250 S	2.0	5.5	5.0	3.0	8.1	7.4	3.8	9.3	8.6	4.0	10.3	9.5
(IE1-)K20R 250 M	2.0	5.6	5.1	2.3	8.2	7.6	3.0	9.5	8.9	3.0	10.6	9.9
(IE1-)K20R 280 S	2.5	6.5	6.0	3.0	8.3	7.5	3.0	9.5	8.7	4.0	10.5	9.6
(IE1-)K20R 280 M	2.5	6.6	6.1	3.0	8.4	7.8	3.0	9.7	9.1	4.0	10.8	10.2
(IE1-)K20R 315 S	2.0	7.0	6.5	1.5	11.4	7.3	2.3	12.9	12.1	3.0	14.3	13.5
(IE1-)K20R 315 M	1.5	7.0	6.6	1.5	11.5	10.9	1.5	13.5	13.0	2.0	15.1	14.8

Admissible axial and radial loads
heavy bearing arrangement, horizontal shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K20R 112 M	0.75	2.3	2.0	0.9	2.8	2.4	1.1	3.2	2.8	1.3	3.5	3.0
(IE1-)K20R 112 MX	-	-	-	-	-	-	1.05	3.2	2.8	1.25	3.5	3.0
(IE1-)K20R 132 S	-	-	-	0.7	4.0	3.6	0.8	4.6	4.0	0.9	5.2	4.6
(IE1-)K20R 132 M	0.5	3.3	2.9	0.65	4.3	3.8	0.75	4.9	4.4	0.85	5.4	4.8
(IE1-)K20R 160 S	1.1	4.7	4.1	1.6	5.9	5.3	1.8	6.8	6.0	2.2	7.6	6.8
(IE1-)K20R 160 M	1.2	4.7	4.1	1.6	5.9	5.3	1.8	7.0	6.2	2.1	7.8	6.8
(IE1-)K20R 180 S	1.4	4.9	4.1	1.8	8.0	7.0	2.1	9.4	8.2	2.5	10.1	9.0
(IE1-)K20R 180 M	1.3	5.1	4.5	1.8	8.4	7.4	2.0	9.8	8.6	2.4	10.5	9.4
(IE1-)K20R 200 M	1.8	6.5	5.7	2.4	8.9	8.0	2.75	10.3	9.1	3.2	11.2	9.9
(IE1-)K20R 200 L	1.7	6.5	5.7	2.2	9.1	8.0	-	-	-	-	-	-
(IE1-)K20R 225 M	1.5	5.3	4.8	2.5	10.3	9.1	3.0	11.8	10.5	3.5	12.9	11.4
(IE1-)K20R 250 S	1.9	7.8	6.8	1.4	20.4	16.0	1.8	22.6	17.0	2.2	23.8	15.4
(IE1-)K20R 250 M	1.1	8.0	8.0	1.3	20.1	15.8	1.8	20.8	13.4	2.2	20.6	13.3
(IE1-)K20R 280 S	1.9	9.1	8.1	1.4	19.8	17.5	1.9	22.4	18.7	2.4	24.1	17.7
(IE1-)K20R 280 M	1.7	9.3	8.1	1.2	20.1	17.8	1.5	22.5	17.6	2.1	23.9	17.6
(IE1-)K20R 315 S	0.9	19.2	17.0	0.8	27.0	23.1	0.8	28.5	18.4	1.5	28.5	18.4
(IE1-)K20R 315 M	0.5	20.5	18.1	0.5	20.5	13.2	1.4	24.0	15.5	2.0	24	15.5

for size 315 L data on request

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Bearing arrangement

Admissible axial and radial loads basic version, vertical shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K20R 56	0.05	0.32	-	0.09	0.39	-	0.16	0.39	-	-	-	-
(IE1-)K20R 63	0.07	0.34	-	0.12	0.43	-	0.19	0.43	-	0.25	0.43	-
(IE1-)K20R 71	0.13	0.58	-	0.24	0.73	-	0.36	0.73	-	0.46	0.73	-
(IE1-)K20R 80	0.13	0.60	-	0.20	0.77	-	0.36	0.77	-	0.44	0.77	-
(IE1-)K20R 90	0.15	0.58	-	0.24	0.86	-	0.34	0.86	-	0.44	0.86	-
(IE1-)K20R 100	0.17	0.77	-	0.31	0.98	-	0.42	0.98	-	0.52	0.98	-
(IE1-)K20R 112 M	0.75	1.15	1.0	0.9	1.4	1.2	1.1	1.6	1.4	1.3	1.75	1.5
(IE1-)K20R 112 MX	-	-	-	-	-	-	1.05	1.6	1.4	1.25	1.75	1.5
(IE1-)K20R 132 S	-	-	-	0.7	2.0	1.8	0.8	2.3	2.0	0.9	2.6	2.3
(IE1-)K20R 132 M	0.5	1.65	1.45	0.65	2.15	1.9	0.75	2.45	2.2	0.85	2.7	2.4
(IE1-)K20R 160 S	1.1	2.4	2.1	1.6	3.05	2.7	1.8	3.5	3.1	2.2	3.9	3.5
(IE1-)K20R 160 M	1.2	2.4	2.1	1.6	3.05	2.7	1.8	3.6	3.2	2.1	4.0	3.5
(IE1-)K20R 180 S	1.4	2.5	2.1	1.8	4.1	3.6	2.1	4.8	4.2	2.5	5.2	4.6
(IE1-)K20R 180 M	1.3	2.6	2.3	1.8	4.3	3.8	2.0	5.0	4.4	2.4	5.4	4.8
(IE1-)K20R 200 M	1.8	3.4	3.0	2.4	4.7	4.2	2.75	5.4	4.8	3.2	5.9	5.2
(IE1-)K20R 200 L	1.7	3.4	3.0	2.2	4.8	4.2	-	-	-	-	-	-
(IE1-)K20R 225 M	1.5	2.8	2.5	2.5	5.4	4.8	3.0	6.2	5.5	3.5	6.8	6.0
(IE1-)K20R 250 S	2.0	5.5	5.0	3.0	8.1	7.4	3.8	9.3	8.6	4.0	10.3	9.5
(IE1-)K20R 250 M	2.0	5.6	5.1	2.3	8.2	7.6	3.0	9.5	8.9	3.0	10.6	9.9
(IE1-)K20R 280 S	2.5	6.5	6.0	3.0	8.3	7.5	3.0	9.5	8.7	4.0	10.5	9.6
(IE1-)K20R 280 M	2.5	6.6	6.1	3.0	8.4	7.8	3.0	9.7	9.1	4.0	10.8	10.2
(IE1-)K20R 315 S	2.0	7.0	6.5	1.5	11.4	7.3	2.3	12.9	12.1	3.0	14.3	13.5
(IE1-)K20R 315 M	1.5	7.0	6.6	1.5	11.5	10.9	1.5	13.5	13.0	2.0	15.1	14.8

Admissible axial and radial loads heavy bearing arrangement, vertical shaft position (in kN)

Size	2-pole			4-pole			6-pole			8-pole		
	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}	F _a	F _{r0,5}	F _{r1,0}
(IE1-)K20R 112 M	0.75	2.3	2.0	0.9	2.8	2.4	1.1	3.2	2.8	1.3	3.5	3.0
(IE1-)K20R 112 MX	-	-	-	-	-	-	1.05	3.2	2.8	1.25	3.5	3.0
(IE1-)K20R 132 S	-	-	-	0.7	4.0	3.6	0.8	4.6	4.0	0.9	5.2	4.6
(IE1-)K20R 132 M	0.5	3.3	2.9	0.65	4.3	3.8	0.75	4.9	4.4	0.85	5.4	4.8
(IE1-)K20R 160 S	1.1	4.7	4.1	1.6	5.9	5.3	1.8	6.8	6.0	2.2	7.6	6.8
(IE1-)K20R 160 M	1.2	4.7	4.1	1.6	5.9	5.3	1.8	7.0	6.2	2.1	7.8	6.8
(IE1-)K20R 180 S	1.4	4.9	4.1	1.8	8.0	7.0	2.1	9.4	8.2	2.5	10.1	9.0
(IE1-)K20R 180 M	1.3	5.1	4.5	1.8	8.4	7.4	2.0	9.8	8.6	2.4	10.5	9.4
(IE1-)K20R 200 M	1.8	6.5	5.7	2.4	8.9	8.0	2.75	10.3	9.1	3.2	11.2	9.9
(IE1-)K20R 200 L	1.7	6.5	5.7	2.2	9.1	8.0	-	-	-	-	-	-
(IE1-)K20R 225 M	1.5	5.3	4.8	2.5	10.3	9.1	3.0	11.8	10.5	3.5	12.9	11.4
(IE1-)K20R 250 S	1.9	7.8	6.8	1.4	20.4	16.0	1.8	22.6	17.0	2.2	23.8	15.4
(IE1-)K20R 250 M	1.1	8.0	8.0	1.3	20.1	15.8	1.8	20.8	13.4	2.2	20.6	13.3
(IE1-)K20R 280 S	1.9	9.1	8.1	1.4	19.8	17.5	1.9	22.4	18.7	2.4	24.1	17.7
(IE1-)K20R 280 M	1.7	9.3	8.1	1.2	20.1	17.8	1.5	22.5	17.6	2.1	23.9	17.6
(IE1-)K20R 315 S	0.9	19.2	17.0	0.8	27.0	23.1	0.8	28.5	18.4	1.5	28.5	18.4
(IE1-)K20R 315 M	0.5	20.5	18.1	0.5	20.5	13.2	1.4	24.0	15.5	2.0	24	15.5

for size 315 L data on request

Bearing arrangement

Energy saving motors IE2-W.1R

Type	Antifriction bearing	D-end					N-end			Figure		Fixed bearing	
		Felt ring	V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	Felt ring	V-ring	Wave washer	DE		NDE
IE2-WE1R 80	6205 2Z C3	24.2 x 35	-	-	-	-	6205 2Z C3	25 x 40	-	52	1	2	none
IE2-WE1R 90	6205 2Z C3	24.2 x 35	-	-	-	-	6205 2Z C3	25 x 40	-	52	1	2	none
IE2-WE1R 100	6206 2Z C3	29.2 x 40	-	-	-	-	6206 2Z C3	30 x 50	-	62	1	2	none
IE2-WE1R 100 LX	6206 2Z C3	29.2 x 40	-	-	-	-	6206 2Z C3	30 x 50	-	62	1	2	none
IE2-WE1R 112	6206 2Z C3	29.2 x 40	-	-	-	-	6206 2ZN C3	30 x 50	-	62	1	2	none
IE2-W21R 112 MV6	6206 2ZN C3	29.2 x 40	-	-	-	-	6206 2ZN C3	30 x 50	-	62	1	2	none
IE2-WE1R 132 S2T	6208 2ZN C3	39.2 x 50	-	-	-	72	6306 2Z C3	30 x 50	-	-	1	2	N-end
IE2-WE1R 132 S2, SX2	6208 2Z C3	-	-	-	-	80	6207 2Z C3	-	-	-	6	8	N-end
IE2-WE1R 132 SY4, S4, M4	6308 2Z C3	-	-	-	-	90	6308 2Z C3	-	-	-	6	8	N-end
IE2-W21R 132 S6, M6	6208 2Z C3	-	-	-	-	80	6207 2Z C3	-	-	-	6	8	N-end
IE2-W21R 132 MX6	6308 2Z C3	-	-	-	-	90	6308 2Z C3	-	-	-	6	8	N-end
IE2-WE1R 160 M2, M4	6310 2Z C3	-	-	-	-	110	6309 2Z C3	-	-	-	6	8	N-end
IE2-WE1R 160 MX2, L2, L4, M2	6310 2Z C3	-	-	-	-	110	6309 2Z C3	-	-	-	6	8	N-end
IE2-W21R 160 M6	6309 2Z C3	-	-	-	-	100	6308 2Z C3	-	-	-	6	8	N-end
IE2-W21R 160 L6	6310 2Z C3	-	-	-	-	110	6309 2Z C3	-	-	-	6	8	N-end
IE2-WE1R 180 M4,	6310 2Z C3	-	-	-	-	110	6309 2Z C3	-	-	-	6	8	N-end
IE2-WE1R 180 M2, L4	6310 C3	-	50A	-	-	110	6310 C3	-	50A	-	6	8	N-end
IE2-W21R 180 L6	6310 2Z C3	-	-	-	-	110	6309 2Z C3	-	-	-	6	8	N-end
IE2-WE1R 200 L2, LX2	6312 C3	-	60A	-	-	130	6310 C3	-	50A	-	6	8	N-end
IE2-WE1R 200 L4	6312 C3	-	60A	-	-	130	6312 C3	-	60A	-	6	8	N-end
IE2-W21R 200 L6, LX6	6312 C3	-	60A	-	-	130	6310 C3	-	50A	-	6	8	N-end
IE2-WE1R 225 M2	6313 C3	-	65A	-	-	150	6313 C3	-	65A	-	6	8	N-end
IE2-WE1R 225 S4	6313 C3	-	65A	-	-	140	6312 C3	-	60A	-	6	8	N-end
IE2-WE1R 225 M4	6314 C3	-	70A	-	-	140	6312 C3	-	60A	-	6	8	N-end
IE2-W21R 225 M6	6313 C3	-	65A	-	-	140	6312 C3	-	60A	-	6	8	N-end
IE2-WE1R 250 M2	6313 C3	-	65A	-	-	140	6313 C3	-	65A	-	6	8	N-end
IE2-WE1R 250 M4	6314 C3	-	70A	-	-	150	6313 C3	-	65A	-	6	8	N-end
IE2-W21R 250 M6	6314 C3	-	70A	-	-	150	6313 C3	-	65A	-	6	8	N-end
IE2-WE1R 280 S2, M2	6314 C3	-	70A	-	-	150	6314 C3	-	70A	-	6	8	N-end
IE2-WE1R 280 S4, M4	6316 C3	-	80A	-	-	170	6314 C3	-	70A	-	6	8	N-end
IE2-W21R 280 S6, M6	6316 C3	-	80A	-	-	170	6314 C3	-	70A	-	6	8	N-end
IE2-W21R 315 S2, M2	6316 C3	-	80A	-	-	170	6316 C3	-	80A	-	6	8	N-end
IE2-W21R 315 S4, 6, M4, 6	6317 C3	-	80A	-	-	180	6316 C3	-	80A	-	6	8	N-end
IE2-W21R 315 MX2	6317 C3	-	-	RB85	-	180	6316 C3	-	80A	-	13	16	N-end
IE2-W21R 315 MX4, 6	6220 C3	-	-	RB100	-	180	6316 C3	-	80A	-	13	16	N-end
IE2-W21R 315 MY2	6317 C3	-	-	RB85	-	180	6317 C3 ¹⁾	-	85A	-	18	19	N-end
	6320 C3	-	-	RB100	-	215	6317 C3 ¹⁾	-	85A	-	18	19	N-end
IE2-W21R 315 L2, LX2	6317 C3	-	-	RB85	-	180	6317 C3 ¹⁾	-	85A	-	18	19	N-end
IE2-W21R 315 L4, 6, LX4, 6	6320 C3	-	-	RB100	-	215	6317 C3 ¹⁾	-	85A	-	18	19	N-end

¹⁾ for vertical types of mounting Q317 C3; figures 18, 21
(IE2-)W21R 315 MX, MY, L, LX standard version with relubrication device

Energy saving motors W21R

Type	Antifriction bearing	D-end					N-end			Figure		Fixed bearing	
		Felt ring	V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	Felt ring	V-ring	Wave washer	DE		NDE
W21R 63	6202 2Z C3	14.5 x 21	-	-	-	-	6202 2Z C3	15 x 24	-	32	1	2	none
W21R 71	6204 2Z C3	19.5 x 26	-	-	-	-	6204 2Z C3	20 x 32	-	35	1	2	none
W21R 80	6205 2Z C3	24.2 x 35	-	-	-	-	6205 2Z C3	25 x 40	-	52	1	2	none
W21R 90	6205 2Z C3	24.5 x 35	-	-	-	-	6205 2Z C3	25 x 40	-	52	1	2	none
W21R 100	6206 2Z C3	29.2 x 40	-	-	-	-	6206 2Z C3	30 x 50	-	62	1	2	none
W21R 100 LX	6206 2Z C3	29.2 x 40	-	-	-	-	6206 2Z C3	30 x 50	-	62	1	2	none
W21R 112	6206 2Z C3	29.2 x 40	-	-	-	-	6206 2ZN C3	30 x 50	-	62	1	2	none
W21R 132 S8, M8	6208 2Z C3	-	-	-	-	80	6207 2Z C3	-	-	-	6	8	N-end
W21R 160 M8, MX8	6309 2Z C3	-	-	-	-	100	6308 2Z C3	-	-	-	6	8	N-end
W21R 180 L8	6310 2Z C3	-	-	-	-	110	6309 2Z C3	-	-	-	6	8	N-end
W21R 200 L8	6312 C3	-	60A	-	-	130	6310 C3	-	50A	-	6	8	N-end
W21R 225 S8, M8	6313 C3	-	65A	-	-	140	6312 C3	-	60A	-	6	8	N-end
W21R 250 M8	6314 C3	-	70A	-	-	150	6313 C3	-	65A	-	6	8	N-end
W21R 280 S8, M8	6316 C3	-	80A	-	-	170	6314 C3	-	70A	-	6	8	N-end
W21R 315 S8, M8	6317 C3	-	80A	-	-	180	6316 C3	-	80A	-	6	8	N-end
W21R 315 MX8	6220 C3	-	-	RB100	-	180	6316 C3	-	80A	-	13	16	N-end
W21R 315 MY8	6320 C3	-	-	RB100	-	215	6317 C3 ¹⁾	-	85A	-	18	19	N-end
W21R 315 L8, LX8	6320 C3	-	-	RB100	-	215	6317 C3 ¹⁾	-	85A	-	18	19	N-end

¹⁾ for vertical types of mounting Q317 C3; figures 18, 21
W21R 315 MX, MY, L, LX standard version with relubrication device

1

Bearing arrangement

Energy saving motors IE2-WE2R

Type	D-end				N-end			Figure		Fixed bearing	
	Antifriction bearing	V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	V-ring	γ-ring	DE		NDE
IE2-WE2R 132 S4	6208 ZZ C3	-	40	80	-	6207 ZZ C3	-	35	6	8	N-end
IE2-WE2R 132 M6	6208 ZZ C3	-	40	80	-	6207 ZZ C3	-	35	6	8	N-end
IE2-WE2R 160 M4	6309 ZZ C3	-	45	100	-	6308 ZZ C3	-	40	6	8	N-end
IE2-WE2R 160 M6	6309 ZZ C3	-	45	100	-	6308 ZZ C3	-	40	6	8	N-end
IE2-WE2R 160 L4	6310 ZZ C3	-	50	110	-	6309 ZZ C3	-	45	6	8	N-end
IE2-WE2R 180 M4	6310 C3	50A	-	110	-	6310 C3	50A	-	6	8	N-end
IE2-WE2R 180 L6	6310 ZZ C3	-	50	110	-	6309 ZZ C3	-	45	6	8	N-end
IE2-WE2R 200 LX2	6312 C3	60A	-	-	130	6310 C3	50A	-	6	8	N-end
IE2-WE2R 200 LX6	6312 C3	60A	-	-	130	6310 C3	50A	-	6	8	N-end
IE2-WE2R 225 M4	6313 C3	65A	-	-	140	6312 C3	60A	-	6	8	N-end
IE2-WE2R 225 M6	6313 C3	65A	-	-	140	6312 C3	60A	-	6	8	N-end
IE2-WE2R 250 M4	6314 C3	70A	-	-	150	6313 C3	65A	-	6	8	N-end
IE2-WE2R 250 M6	6314 C3	70A	-	-	150	6313 C3	65A	-	6	8	N-end

Energy saving motors WE2R

Type	D-end				N-end			Figure		Fixed bearing	
	Antifriction bearing	V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	V-ring	γ-ring	DE		NDE
WE2R 132 M8	6208 ZZ C3		40	80		6207 ZZ C3		35	6	8	N-end
WE2R 160 MX8	6309 ZZ C3		45	100		6308 ZZ C3		40	6	8	N-end
WE2R 180 L8	6310 ZZ C3		50	110		6309 ZZ C3		45	6	8	N-end
WE2R 225 S8	6313 C3	65A			140	6312 C3	60A		6	8	N-end
WE2R 225 M8	6313 C3	65A			140	6312 C3	60A		6	8	N-end
WE2R 250 M8	6314 C3	70A			150	6313 C3	65A		6	8	N-end

Bearing arrangement

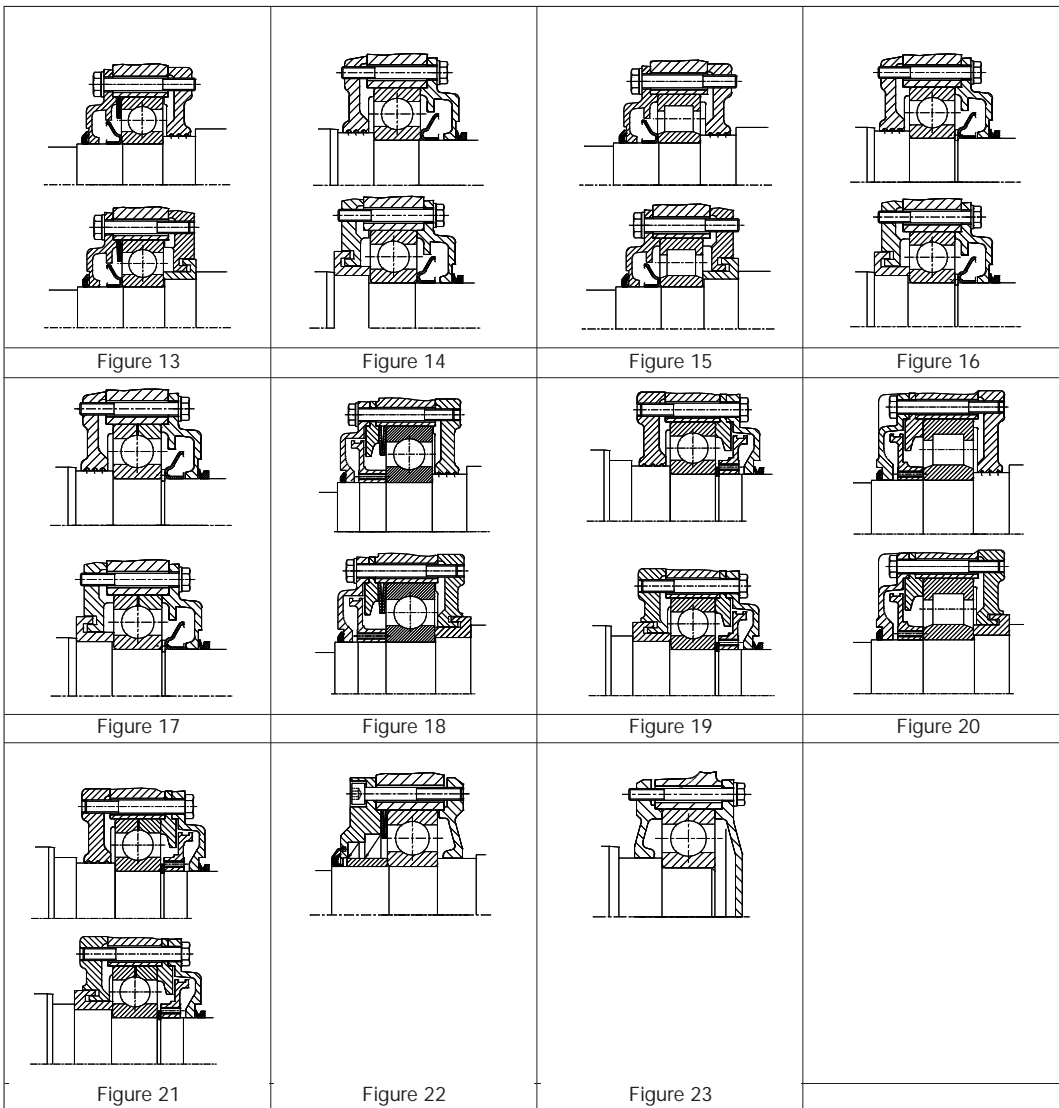
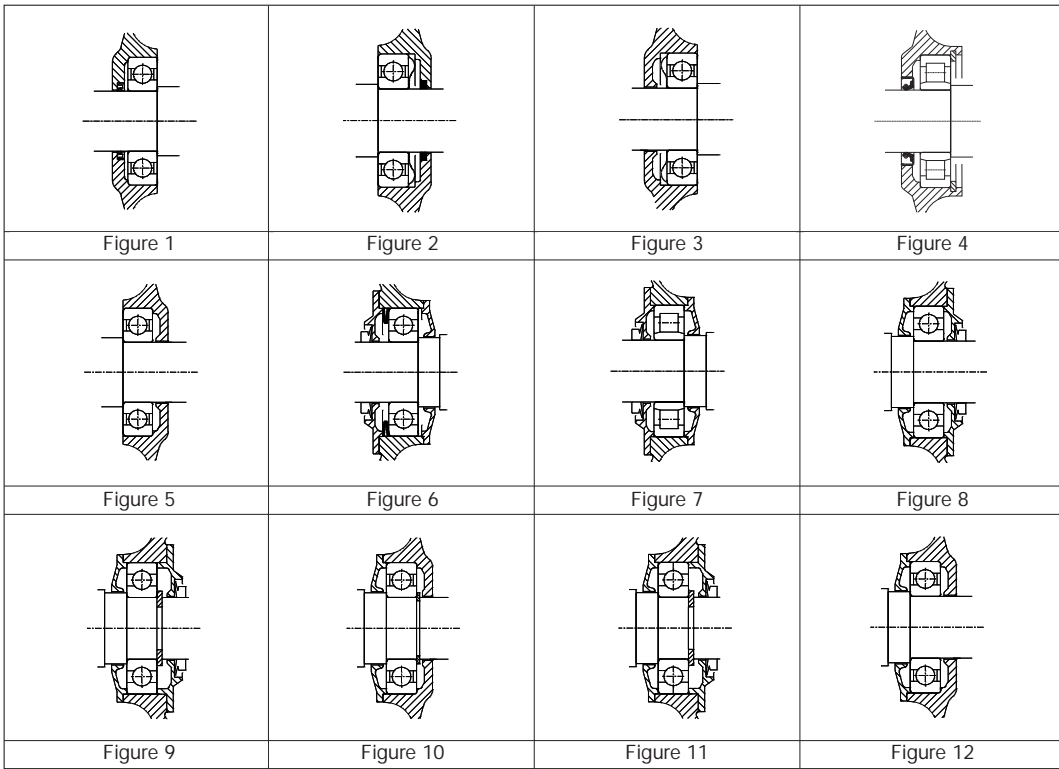
Energy saving motors IE3-W41R

Type	D-end				N-end			Figure		Fixed bearing	
	Antifriction bearing	V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	V-ring	γ-ring	DE NDE		
									DE		NDE
IE3-W41R 112 M2	6207 ZZ C3		35	72		6207 ZZ C3		35	6	8	N-end
IE3-W41R 112 M4	6207 ZZ C3		35	72		6207 ZZ C3		35	6	8	N-end
IE3-W41R 132 S2	6208 ZZ C3		40	80		6207 ZZ C3		35	6	8	N-end
IE3-W41R 132 SX2	6308 ZZ C3		40	90		6308 ZZ C3		40	6	8	N-end
IE3-W41R 132 S4	6308 ZZ C3		40	90		6308 ZZ C3		40	6	8	N-end
IE3-W41R 132 S6	6208 ZZ C3		40	80		6207 ZZ C3		35	6	8	N-end
IE3-W41R 132 M4	6308 ZZ C3		40	90		6308 ZZ C3		40	6	8	N-end
IE3-W41R 132 M6	6308 ZZ C3		40	90		6308 ZZ C3		40	6	8	N-end
IE3-W41R 132 MX6	6308 ZZ C3		40	90		6308 ZZ C3		40	6	8	N-end
IE3-W41R 160 M2	6310 ZZ C3		50			6309 ZZ C3		45	6	8	N-end
IE3-W41R 160 MX2	6310 ZZ C3		50			6309 ZZ C3		45	6	8	N-end
IE3-W41R 160 M4	6310 ZZ C3		50	110		6309 ZZ C3		45	6	8	N-end
IE3-W41R 160 M6	6310 ZZ C3		50	110		6309 ZZ C3		45	6	8	N-end
IE3-W41R 160 L2	6310 ZZ C3		50			6309 ZZ C3		45	6	8	N-end
IE3-W41R 160 L4C	6310 ZZ C3		50	110		6309 ZZ C3		45	6	8	N-end
IE3-W41R 160 L6C	6310 ZZ C3		50	110		6309 ZZ C3		45	6	8	N-end
IE3-W41R 180 M2C	6310 C3	50		110		6310 C3	50		6	8	N-end
IE3-W41R 180 M4	6310 C3	50		110		6310 C3	50		6	8	N-end
IE3-W41R 180 L4	6310 C3	50			110	6310 C3	50		6	8	N-end
IE3-W41R 180 L6C	6310 C3	50		110		6310 C3	50		6	8	N-end
IE3-W41R 200 L2	6312 C3	60			130	6312 C3	60		6	8	N-end
IE3-W41R 200 LX2C	6312 C3	60			130	6312 C3	60		6	8	N-end
IE3-W41R 200 L4C	6313 C3	65			140	6312 C3	60		6	8	N-end
IE3-W41R 200 L6	6313 C3	65			140	6312 C3	60		6	8	N-end
IE3-W41R 200 LX6C	6313 C3	65			140	6312 C3	60		6	8	N-end
IE3-W41R 225 S4C	6313 C3	65			140	6312 C3	60		6	8	N-end
IE3-W41R 225 M2	6313 C3	65			140	6313 C3	60		6	8	N-end
IE3-W41R 225 M4	6314 C3	70			150	6313 C3	65		6	8	N-end
IE3-W41R 225 M6	6314 C3	70			150	6313 C3	65		6	8	N-end
IE3-W41R 250 M2	6314 C3	70			150	6314 C3	70		6	8	N-end
IE3-W41R 250 M4	6316 C3	80			170	6314 C3	70		6	8	N-end
IE3-W41R 250 M6	6316 C3	80			170	6314 C3	70		6	8	N-end
IE3-W41R 280 S2	6314 C3	70			150	6314 C3	70		6	8	N-end
IE3-W41R 280 S4	6316 C3	80			170	6314 C3	70		6	8	N-end
IE3-W41R 280 S6, M6	6317 C3	85			180	6316 C3	80		6	8	N-end
IE3-W41R 280 M2	6314 C3	70			150	6314 C3	70		6	8	N-end
IE3-W41R 280 M4	6317 C3	85			180	6316 C3	80		6	8	N-end
IE3-W41R 315 S2, M2, MX2	6316 C3	80			170	6316 C3	80		6	8	N-end
IE3-W41R 315 S4, M4	6317 C3	85			180	6316 C3	80		6	8	N-end
IE3-W41R 315 S6	6220 C3		100		180	6316 C3	80		18	19	N-end
IE3-W41R 315 M6, MX6, MY6	6320 C3		100		215	6317 C3	85		18	19	N-end
IE3-W41R 315 MX2	6317 C3	85			180	6316 C3	80		6	8	N-end
IE3-W41R 315 MX4	6220 C3		100		180	6316 C3	80		18	19	N-end
IE3-W41R 315 MY2, L2, LX2	6317 C3	85			180	6317 C3	85		6	8	N-end
IE3-W41R 315 MY4	6320 C3		100		215	6317 C3	85		18	19	N-end
IE3-W41R 315 L4, LX4	6320 C3		100		215	6317 C3	85		18	19	N-end
IE3-W41R 355 M2	6317 C3		85		180	6317 C3	85		18	19	N-end
IE3-W22R 355 M4	6324 C3		120		260	6317 C3	85		18	19	N-end
IE3-W41R 355 M6, MX6	6324 C3		120		260	6317 C3	85		18	19	N-end
IE3-W41R 355 LY6, L6, LX6	6324 C3		120		260	6317 C3	85		18	19	N-end

Energy saving motors W41R

Type	D-end				N-end			Figure		Fixed bearing	
	Antifriction bearing	V-ring	γ-ring	Wave washer	Disc spring	Antifriction bearing	V-ring	γ-ring	DE NDE		
									DE		NDE
W41R 132 S8	6208 ZZ C3		40	80		6207 ZZ C3		35	6	8	N-end
W41R 132 M8	6308 ZZ C3		40	90		6308 ZZ C3		40	6	8	N-end
W41R 132 MX8	6308 ZZ C3		40	90		6308 ZZ C3		40	6	8	N-end
W41R 160 M8	6310 ZZ C3		50	110		6309 ZZ C3		45	6	8	N-end
W41R 160 L8	6310 ZZ C3		50	110		6309 ZZ C3		45	6	8	N-end
W41R 180 L8	6310 C3	50		110		6310 C3	50		6	8	N-end
W41R 200 L8	6313 C3	65			140	6312 C3	60		6	8	N-end
W41R 200 LX8	6313 C3	65			140	6312 C3	60		6	8	N-end
W41R 225 M8	6314 C3	70			150	6313 C3	65		6	8	N-end
W41R 250 M8	6316 C3	80			170	6314 C3	70		6	8	N-end
W41R 280 S6, M6	6317 C3	85			180	6316 C3	80		6	8	N-end
W41R 280 S8, M8	6317 C3	85			180	6316 C3	80		6	8	N-end
W41R 315 S8	6220 C3		100		180	6316 C3	80		18	19	N-end
W41R 315 M8, MX8, MY8	6320 C3		100		215	6317 C3	85		18	19	N-end
W41R 355 MY8, M8, MX8, LY8	6324 C3		120		260	6317 C3	85		18	19	N-end

Bearing arrangement



Terminal boxes

Standard version, sealed cable glands, power station design

Type	Material	Adapter flange	Dimensions				Thread cable gland	Maximum cable diameter	Terminal plate	Number of terminals	Thread terminal stud	Thread protective conductor	Figure
			AG	LL	AH	BE							
			x	Z	-	-							
Standard version													
KA 05	Alu	-	92	92	-	-	M20x1.5	Ø 13 mm	K1M4	6	M4	M4	
KA 05	Alu	-	92	92	-	-	M25x1.5	Ø 17 mm	K1M4	6	M4	M4	
KA 05-13	Alu	-	104	112	-	-	M20x1.5	Ø 13 mm	K1M4	6	M4	M4	
KA 05-13	Alu	-	104	112	-	-	M25x1.5	Ø 17 mm	K1M4	6	M4	M4	
KA 05-13	Alu	-	104	112	-	-	M32x1.5	Ø 21 mm	K1M4	6	M4	M4	
KK 25 A	Alu	-	156	145	-	-	M32x1.5	Ø 21 mm	SB 5	6	M5	M6	01
KK 25 A SS	GG-15	-	143	134	-	-	M32x1.5	Ø 21 mm	SB 5	6	M5	M6	01
KK 63/25 A	Alu	-	193	167	-	-	M40x1.5	Ø 28 mm	SB 5	6	M5	M6	01
KK 63 A	Alu	-	193	167	-	-	M40x1.5	Ø 28 mm	SB 6	6	M6	M6	01
KK 63 A	GG-15	-	174	162	-	-	M40x1.5	Ø 28 mm	SB 6	6	M6	M6	01
KK 63 A	Alu	-	193	167	-	-	M50x1.5	Ø 35 mm	SB 6	6	M6	M6	01
KK 63 A	GG-15	-	174	162	-	-	M50x1.5	Ø 35 mm	SB 6	6	M6	M6	01
KK 100 A	GG-15	-	213	207	-	-	M50x1.5	Ø 35 mm	SB 8	6	M8	M8	01
KK 200/100 A	GG-15	-	282	242	-	-	M63x1.5	Ø 45 mm	SB 8	6	M8	M8	01
KK 200 A	GG-15	-	282	242	-	-	M63x1.5	Ø 45 mm	SB 10	6	M10	M10	01
KK 400 A	GG-15	-	315	294	-	-	M63x1.5	Ø 45 mm	SB 12	6	M12	M10	02
KK 400 B	GG-15	-	415	340	265	-	M63x1.5	Ø 45 mm	KM 12	6	M12	LK	03
KK 400 B	GG-15	-	415	340	265	-	M72x2	Ø 56.5 mm	KM 12	6	M12	LK	03
KK 630 A	GG-15	horizontal	496	390	301	140	M72x2	Ø 56.5 mm	KLP 630-20	6	M20	LK	04G
KK 630 A	GG-15	sloping	496	390	301	140	M72x2	Ø 56.5 mm	KLP 630-20	6	M20	LK	04S
KK 1000 A	GG-15	horizontal	615	474	385	200	M72x2	Ø 56.5 mm	KLSO 1000	6	StS	LK	05G
KK 1000 A	GG-15	sloping	615	474	385	200	M72x2	Ø 56.5 mm	KLSO 1000	6	StS	LK	05S
KK 1000 A	GG-15	horizontal	615	474	385	200	M80x2	Ø 68 mm	KLSO 1000	6	StS	LK	05G
KK 1000 A	GG-15	sloping	615	474	385	200	M80x2	Ø 68 mm	KLSO 1000	6	StS	LK	05S
Sealed cable glands													
VGK 200 A	GG-15	-	387	242	-	-	Ø 66	Ø 66 mm	SB 10	6	M10	M10	06
VGK 400 A	GG-15	-	422	296	-	-	Ø 95	Ø 95 mm	SB 12	6	M12	M10	06
Power station design													
KK 25 A KA	GG-15	-	143	134	-	-	M32x1.5	Ø 21 mm	KL 155	6	M5	M6	07
KK 63 A KA	GG-15	-	184	172	-	-	M40x1.5	Ø 28 mm	KL 155	6	M5	M6	07
KK 63 A KA	GG-15	-	184	172	-	-	M40x1.5	Ø 28 mm	K1 M6	6	M6	M6	07
KK 63/100 A KA	GG-15	-	223	214	-	-	M50x1.5	Ø 35 mm	K1 M6	6	M6	M6	07
KK 100 A KA	GG-15	-	213	207	-	-	M50x1.5	Ø 35 mm	K1 M8	6	M8	M8	07
KK 200 A KA	GG-15	-	285	258	-	-	M63x1.5	Ø 45 mm	K1 M10	6	M10	M10	07
KK 200 B KA	GG-15	-	330	270	200	-	M63x1.5	Ø 45 mm	K1 M10	6	M10	LK	03
KK 400 A KA	GG-15	-	315	306	-	-	M63x1.5	Ø 45 mm	KM 12	6	M12	M10	07

StS... contact rail
LK... strap terminal

1

Terminal boxes

Standard version, sealed cable glands, power station design

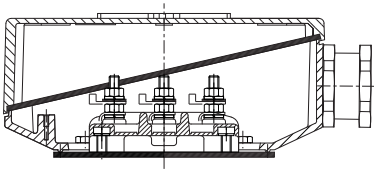


Figure 01

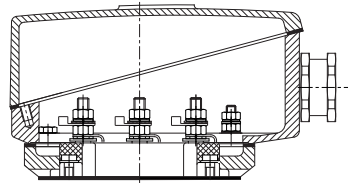
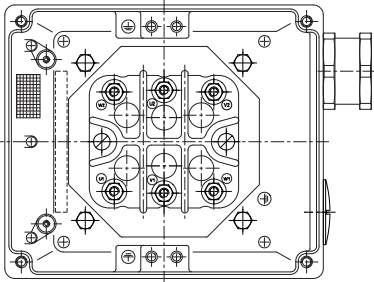


Figure 02

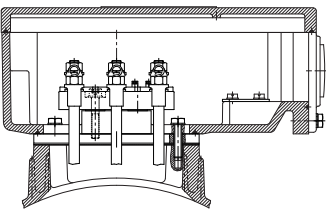
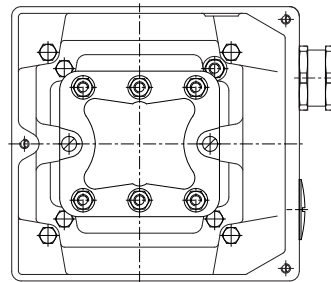


Figure 03

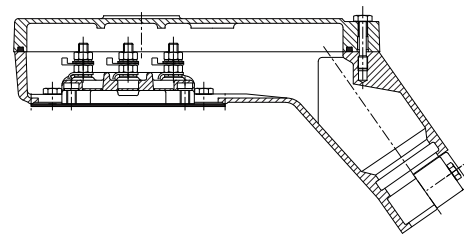
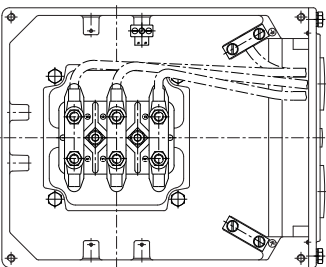


Figure 06

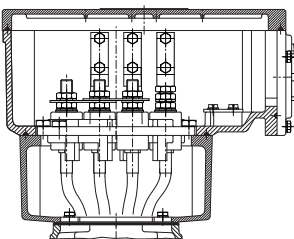
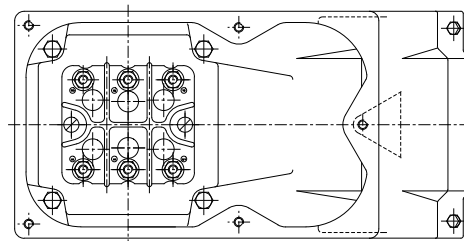


Figure 04G

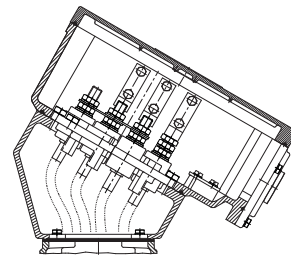
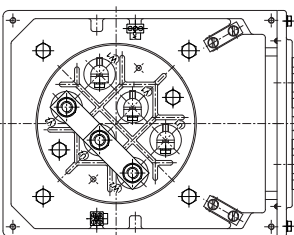
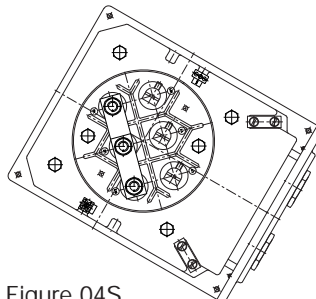


Figure 04S



Terminal boxes

Standard version, power station design

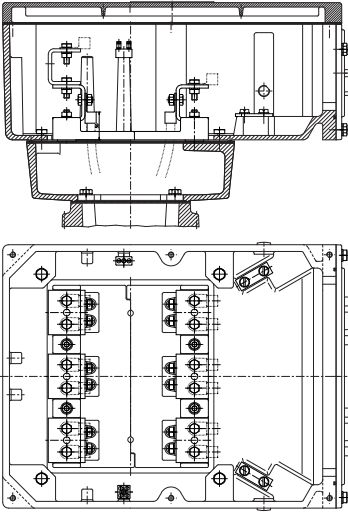


Figure 05G

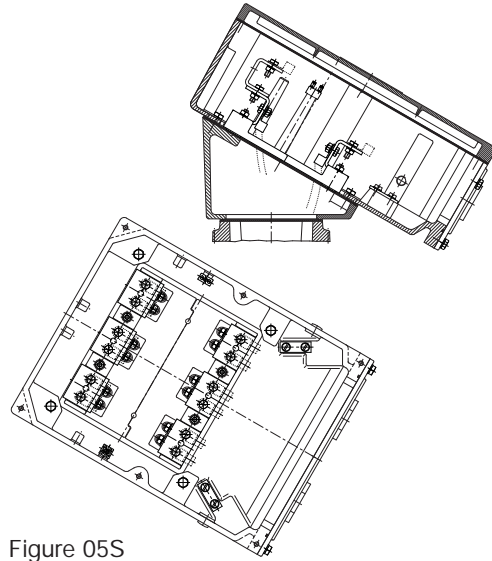


Figure 05S

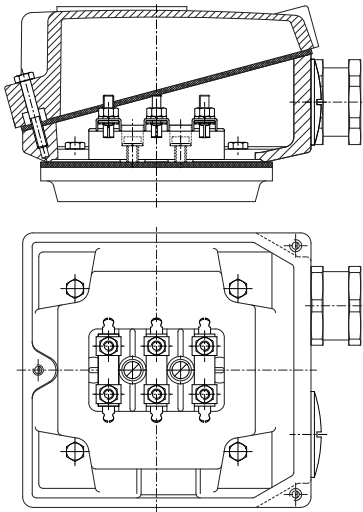


Figure 07



Modifications summary

IEC/DIN Series (IE1-)K21./K22. (IE2-)WE1./WE2./W21. (IE3-)W41.	56	63	71	80	90	100	100 LX, 112	132T	132	160	180	200	225	250	280	315 S, MX	315 MY	315 L, LX	355 MY, MX	355 LY, L
	Price code	56	63	71	80	90	100	112	132	160	180	200	225	250	280	315 S, MX	315 L, LX	.	.	.
Transnorm Series (IE1-)K20.	.	56	63	71	80	90	100	112	132	160	180	200	225	250	280	315 S, MX	315 L, LX	.	.	.
Electrical / winding monitoring																				
101 Other voltage and/or frequency/special winding	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
103 1 x PT100 (winding protection) four-wire circuit	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
130 1 x PT100 (winding protection) two-wire circuit	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
379 1 x PT100 (winding protection) two-wire circuit for inverter supply > 420 V (KU, KV, BM)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
391 3 x PT100 (winding protection) four-wire circuit	A	A	A	A	A	A	A	A	X	X	X	X	X	X	X	X	X	X	X	X
392 3 x PT100 (winding protection) two-wire circuit	A	A	A	A	A	A	A	A	X	X	X	X	X	X	X	X	X	X	X	X
393 3 x PT100 (winding protection) two-wire circuit for inverter supply > 420 V (KU, KV, BM)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
128 3 PTC resistors	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
371 3 PTC resistors for inverter supply > 420 V (KU, KV, BM)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
129 6 PTC resistors	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
372 6 PTC resistors for inverter supply > 420 V (KU, KV, BM)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
87 Temperature sensor KTY 84-130 (1 pc.)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
377 Temperature sensor KTY 84-130 (1 pc.) for inverter supply > 420 V (KU, KV, BM)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
131 3 Microtherm switches	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
378 3 Microtherm switches for inverter supply > 420 V (KU, KV, BM)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
388 6 Microtherm switches	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
389 6 Microtherm switches for inverter supply > 420 V (KU, KV, BM)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
139 Anti-condensation heating / heating tape (110 V or 220 V, 50 Hz)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
171 Insulation class H (cold) (used acc. to F)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
261 Insulation for voltages 1000 V (mains operation)	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	A	A	A
164 Version as a generator	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
Connection system / cable entry																				
97 Terminal box, side-mounted (right, left)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Terminal box, inclined type	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	O
98 Terminal box, turned (entry D-side/N-side/left)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A
156 Terminal lead length greater than 1000 mm (for 6 conductors each, for each 500 mm started) (for built-in motors only)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
158 Without terminal box, with cover plate (without cable price)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
159 Without terminal box, with cover box (without cable price)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
337 Without terminal box, with cover box/flat connections up to 1 m cable	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-
187 Next bigger terminal box	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
188 Additional terminal box (without accessories)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
196 Terminal box for auxiliary connections	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
279 Terminal box grey cast-iron 25/63 A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
289 VIK terminal box	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
302 1000 A terminal box ¹⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
310 630 A terminal box ²⁾	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
168 Housing, turned in longitudinal direction	K	K	K	K	K	K	K	K	X	X	X	X	X	X	X	X	X	X	X	X
357 Terminal box, N-side	X	X	X	X	X	X	X	X	K	K	K	K	K	K	K	K	K	K	K	K
Types of protection / Standards and regulations																				
144 VEM power station design according to EW-N 8269 (KA)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
374 Type of protection IP 54	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
125 Type of protection IP 56	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
170 Type of protection IP 65	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
169 Type of protection IP 66	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
137 Marine version IP 55	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
138 Marine version IP 56	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
307 Special marine version acc. to EWN 8278 (mechanical)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
361 Vertical design (in case of ship application)	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X
382 Combined approval for USA, Canada (c. UL us)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
387 Approval for USA (UL)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
194 NEMA version (electrically)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
353 Version for harbour cranes according to EW-N 8233	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	A	A	A

Modifications summary

Price code	IEC/DIN Series (IE1-)K21./K22. (IE2-)WE1./WE2./W21. (IE3-)W41.	56	63	71	80	90	100	100 LX, 112	132T	132	160	180	200	225	250	280	315 S, MX	315 MY	315 L, LX	355 MY, MX	355 LY, L
	Transnorm Series (IE1-)K20.	56	63	71	80	90	100	100 LX, 112	132T	132	160	180	200	225	250	280	315 S, MX	315 MY	315 L, LX	355 MY, MX	355 LY, L

Types of mounting

110	Without centring flange	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	A	A
375	Deviating flange according to catalogue	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
111	Version with welded feet (steel feet), types of construction IM B6, IM B7, IM B8, IM V5 ³⁾ , IM V6 ³⁾	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-
369	Version in vertical construction with Q bearings (required as of 315 MY)	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X
112	IM B35, IM V15 ³⁾ , IM V36	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
339	IM B35 K	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
113	IM B34	X	X	X	X	X	X	X	X	A	A	A	A	A	A	A	A	A	A	A	A
114	IM B5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K	K	K
362	IM V3 ³⁾	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	A
356	IM V1 ³⁾	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
117	Canopy for fan cover	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
338	IM B5 K	-	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
115	IM B14, IM V18, IM V19	X	X	X	X	X	X	X	X	X	X	A	A	A	A	A	A	A	A	A	A
288	PAD-mounted 8 foot holes under 45 deg	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	-	-

Mechanical versions

107	Special shaft (shorter, thicker and thinner, 2 nd shaft end included)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
108	Special shaft, 1 tapered shaft end	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
116	Aluminium fan	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
190	Grey cast-iron fan	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-
195	Multi-wing fan (low noise version)	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	-	-
330	Plastic fan cover	X	X	X	X	X	X	X	X	K	K	K	K	K	K	K	K	K	K	K	K
333	Protective cover for encoder	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
383	Vibration intensity B	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
165	Balancing against zero	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
166	High-speed version (HS)	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
376	Balancing with full key	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
143	Non-ventilated version (K21R/K11R-0)	X	X	X	X	X	X	X	X	X	X	X	X	0	0	0	0	0	0	0	0
146	External earthing terminal on housing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
161	Dredger version (incl. TII, vibration-resistant)	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
162	Version for the textile industry	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-
163	Vibration-resistant version	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
177	Flange accuracy R according to DIN 42955	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
199	Condensate drain plug	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
201	Condensate drain holes with felt plug (2 pieces)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
280	Additional foot holes at the top of the housing	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	-	-
285	Screen cut out from fan cover	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-
294	Housing with load bracket thread (2 pieces)	-	-	-	-	-	-	-	-	-	-	-	-	-	X	N	N	N	N	N	
331	Foot contact face, milled	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	-
411	Housing with ring nut (lifting eye bolt)	-	-	-	-	-	-	-	X	X	X	X	X	X	X	-	-	-	-	-	-
386	Memory version	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X

Corrosion protection/painting

133	Special colours	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
135	Colour system 02; 02S "World wide" (outdoors, indoors with high humidity)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
354	Colour system 04 (maritime/harbour climate)	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
368	Colour system 06 (higher temperatures, humidity, outdoors)	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
134	Colour system 07 (chemistry, higher temperatures, humidity, decontaminable)	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
443	Colour system 09L "Offshore" (UV resistant)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
311	Colour system 09S "Offshore" (UV resistant)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
136	Protection against elevated climatic requirements (TII)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
412	Climate-resistant rotor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
173	Layer thicknesses increased by 30 µm each	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
200	Stainless steel external bolts	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
286	Fan cover sprayed with anticorrosion agent	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
287	Fan sprayed with epoxy resin varnish	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
351	Paint system acc. to special-drawing	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-
315	Zinc-plated fan cover	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Attachments

96	Centric attachment of encoder (bell/intermediate flange, shaft end, coupling) (K21F, K210)	A	A	A	A	A	A	A	A	X	X	X	X	X	X	X	X	X	X	X	X
99	Centric attachment by means of a flange end shield, N-side (IM 2202)	A	A	A	A	A	A	A	A	X	X	X	X	X	X	X	X	X	K	K	K
367	Centric attachment by means of combined mount	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	X	X	X
100	Attachment of tachometer and incremental encoder (put-on version)	A	A	A	A	A	A	A	A	X	X	X	X	X	X	X	X	X	X	X	X
150	Attachment of backstop (without lock)	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X
358	Brake attachment	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X

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Modifications summary

IEC/DIN Series (IE1-)K21./K22. (IE2-)WE1./WE2./W21. (IE3-)W41.	Price code	Transnorm Series (IE1-)K20.	56	63	71	80	90	100	100 LX, 112	132T	132	160	180	200	225	250	280	315 S, MX	315 MY	315 L, LX	355 MY, MX	355 LY, L	
			.	56	63	71	80	90	100	100	112	132	160	180	200	225	250	280	315 S, MX	315 L, LX	.	.	
Bearing arrangement																							
95 Oil-tight design (radial shaft sealing ring, N-side fixed bearing)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A
118 Radial sealing ring, D-side (incl. N-side fixed bearing)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
119 Fixed bearing D-side			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
390 Fixed bearing, D-side, backlash-free			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	A
120 Fixed bearing N-side			X	X	X	X	X	X	X	X	X	X	X	N	N	N	N	N	N	N	N	N	N
121 Angular contact bearing D-side			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
122 Elevated transverse forces, D-side (incl. of fixed bearing, N-side)			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
415 Insulated roller bearing			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
340 Reinforced bearing, D-side (inclusive of fixed bearing series 42..)			-	-	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
332 Labyrinth seal			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
342 Bearing sealing with combined seal, D-side			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A
151 Bearing control with a temperature sensor for each bearing point (D-side/N-side) (without additional terminal box)			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
153 Bearing control with PT100 (2 conductors) for each bearing point			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
154 Bearing control with PT100 (4 conductors) for each bearing point			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
193 Relubricating device			K	K	K	K	K	K	K	X	X	X	X	X	X	X	X	X	N	N	N	N	N
262 Insulated bearing, N-side			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
413 Insulated bearing, D-side			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
278 Flat lubricating nipple, stainless steel (for both sides)			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
394 Tapered lubricating nipple (for both sides)			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
321 Tapered lubricating nipple of stainless steel (for both sides)			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
283 SPM solid sensor with accessories (per bearing arrangement)			-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X
284 SPM prepared without nipple			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
152 SPM bearing control (with nipple) (2 pieces)			-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X
364 Axial shaft sealing-ring			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
365 Gamma ring			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	N	K	K	K
127 Special grease			X	X	X	X	X	X	X	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Miscellaneous																							
147 2 nd rating plate, loose			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
148 Customer's rating plate			O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
414 Position plate			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
149 Stainless steel rating plate			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
253 Silicon-free design			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
410 Handling costs for items supplied by customer			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

- N... standard version
- X... special version at extra charge
- O... without extra charge
- K... not available
- not applicable
- A... on request

1) K22. 355 MX2, 4 is standard version
 2) K22. 355 MY, M und MX6, 8 is standard version
 3) additionally O-bearing for IM V15, IM V3, IM V1, IM V5, IM V6 (from size 315 MY necessary)
 4) relubrication device D-end not possible due to design version K21R 132 S, SX, M6, 8, 160 M, MX8;
 WE1R 132 S2; W21R 132 S6, 8, 160 M8; WE2R 132 M8, 160 M4, 6, MX8; W41R 132 S2, 6, 8, 160 MX8

Explanations of Modifications





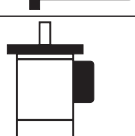
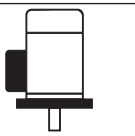


Code	Modification	Description
Electrical/Winding control		
101	Other voltage and/or frequency/special winding	Version for voltages or frequencies other than specified by IEC/DIN or for special windings according to customer's request
103	1 x PT100 (winding protection) four-wire circuit	One temperature sensor PT100 of four-wire circuit type in the winding head of the drive side for the protection of the winding
130	1 x PT100 (winding protection) two-wire circuit	One temperature sensor PT100 of two-wire circuit type in the winding head of the drive side for the protection of the winding
379	1 x PT100 (winding protection) two-wire circuit for inverter supply > 420 V (KU, KV, BM)	One temperature sensor PT100 of two-wire circuit type in the winding head of the drive side for the protection of the winding, suitable for inverter operation at voltages > 420 V
391	3 x PT100 (winding protection) four-wire circuit	Three temperature sensors PT100 of four-wire circuit type in each phase for the protection of the winding
392	3 x PT100 (winding protection) two-wire circuit	Three temperature sensors PT100 of two-wire circuit type in each phase for the protection of the winding
393	3 x PT100 (winding protection) two-wire circuit for inverter supply > 420 V (KU, KV, BM)	Three temperature sensors PT100 of two-wire circuit type in each phase for the protection of the winding, suitable for inverter operation at voltages > 420 V
128	3 PTC resistors	3 PTC resistor temperature sensors (PTC positive temperature coefficient), temperature-dependent semiconductor resistors with positive temperature coefficient, 1 sensor installed in each phase
371	3 PTC resistors for inverter supply > 420 V (KU, KV, BM)	as above, but special version for elevated voltage load in inverter mode of operation
129	6 PTC resistors	6 PTC resistor temperature sensors, temperature-dependent semiconductor resistors with positive temperature coefficient, 1 sensor installed in each phase on either side of the motor
372	6 PTC resistors for inverter supply > 420 V (KU, KV, BM)	as above, but special version for elevated voltage load in inverter mode of operation
87	Temperature sensor KTY 84-130 (1 pc.)	One temperature sensor on semiconductor base in the winding head of the drive side for the protection of the winding
377	Temperature sensor KTY 84-130 (1 pc.) for inverter supply > 420 V (KU, KV, BM)	One temperature sensor on semiconductor base in the winding head of the drive side for the protection of the winding, suitable for elevated voltage load in inverter mode of operation
131	3 Microtherm switches	Triple set of Microtherm switches in the winding head of the drive side for the protection of the winding
378	3 Microtherm switches for inverter supply > 420 V (KU, KV, BM)	Triple set of Microtherm switches in the winding head of the drive side for the protection of the winding, suitable for elevated voltage load in inverter mode of operation
388	6 Microtherm switches	Two triple sets of Microtherm switches in the winding head of the drive side for the protection of the winding
389	6 Microtherm switches for inverter supply > 420 V (KU, KV, BM)	Two triple sets of Microtherm switches in the winding head of the drive side for the protection of the winding, suitable for elevated voltage load in inverter mode of operation
139	Anti-condensation heating/heating tape (110 V or 220 V, 50 Hz)	Version with anti-condensation heating or a heating tape for standard applications
171	Thermal class 180 [H/F] (cold) (used acc. to F)	Version in thermal class [th. cl.] 180 with an insulation that is utilized with th. cl. 155 at maximum
261	Insulation for voltages 1000 V (mains operation)	Version for a motor operation at mains voltages > 725 V to 1000 V
164	Version as a generator	Version for generator operation with a winding specially modified to work with this mode of operation

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Explanations of Modifications

Code	Modification	Description
Connection system/Cable entry		
97	Terminal box, side-mounted (right, left) Terminal box, inclined type	Version with terminal box mounted on side of motor, either right or left
98	Terminal box, turned (entry D-side/N-side/left)	Version with terminal box mounted on top of the motor housing but turned relative to the shaft axis
156	Terminal lead length greater than 1000 mm (for 6 conductors each, for each 500 mm started) (for built-in motors only)	Allowance for terminal lead cable lengths exceeding 1000 mm or, in the case of versions with six conductors, for each 500 mm started; applies to built-in motors only
158	Without terminal box, with cover plate	Version of motor without terminal box but with a cover plate instead; the cable price is charged separately
159	Without terminal box, with cover box	Version of motor without terminal box but with a cover box instead; the cable price is charged separately
337	Without terminal box, with cover box/flat connections up to 1 m cable	Version of motor without terminal box but with a cover box instead and additional flat connections for the cables; the cable price is charged separately
187	Next bigger terminal box	Version in which a terminal box bigger by one stage is used on customer's request
188	Additional terminal box (without accessories)	Additional terminal box which is however supplied without any accessories
196	Terminal box for auxiliary connections	Additional terminal box in which the auxiliary connections are accommodated
279	Terminal box grey cast-iron 25/63 A	Terminal box of grey cast iron with a standard connection face but larger cable cross sections, suitable for 25 A or 63 A
289	VIK terminal box	Terminal box complying with the requirements of the VIK Recommendation 1, Three-phase Asynchronous Motors, Technical Requirements, 04/2005
302	1000 A terminal box	Terminal box whose terminal board is suitable for a 1000 A connection (busbars)
310	630 A terminal box	Terminal box whose terminal board is suitable for a 630 A connection
168	Housing, turned in longitudinal direction	Y version, connections are located on fan side
357	Terminal box, N-side	Terminal box on N-end plate
Types of protection/standards and regulations		
144	VEM power station design according to EW-N 8269 (KA)	Version with flexible terminal leads, climate-resistant rotor, terminal box dimensions according to VIK specifications, metallic cable glands and paint finish 02
374	Type of protection IP 54	Type of protection according to DIN EN 60034-5: IP5x dust-protected, IPx4 splash water
125	Type of protection IP 56	Type of protection according to DIN EN 60034-5: IP5x dust-protected, IPx6 heavy jet-water
85	Type of protection IP 57 S	Type of protection according to DIN EN 60034-5: IP5x dust-protected, IPx7 S temporarily submerged at standstill
170	Type of protection IP 65	Type of protection according to DIN EN 60034-5: IP6x dust-protected, IPx5 jet-water
169	Type of protection IP 66	Type of protection according to DIN EN 60034-5: IP6x dust-protected, IPx6 heavy jet-water
137	Marine version IP 55	Marine version for below-deck operation, type of protection IP 55, according to Classification Society...
138	Marine version IP 56	Marine version for on-deck operation, type of protection IP 56, according to Classification Society...
307	Special marine version according to EW-N 8278 (mechanical)	Marine version according to factory standard without direct reference to a classification
361	Vertical design (in case of ship application)	Special bearing concept with Q bearings in vertical types used in marine applications
382	Combined approval for USA, Canada (cULus)	Version meeting both the US regulations (UL 1004) and the Canadian regulations (CSA C22.2.100)
387	Approval for the USA (UL)	Version meeting the US regulations (UL 1004)
194	NEMA version (electrical)	Version which meets the US regulations (NEMA-MG 1) with respect to the electrical properties
353	Version for harbour cranes according to EW-N 8233	Version according to EW-N 8233 with brake, cable entry on the right, welded fan hood, climate-resistant rotor, special terminal board, two-fold impregnation (Joule heat and vacuum), paint system 04

Explanations of Modifications

Code	Modification	Description
Types		
110	Without centring flange	Centring flange according to DIN EN 50347 not provided
375	Deviating flange according to catalogue	Flange layout deviating from catalogue and DIN EN 50347
111	Version with welded feet (steel feet)	Steel feet used instead of grey cast iron for the types IM B6, IM B7, IM B8, IM V5, IM V6
369	Version in vertical construction with Q bearings (required as of 315 MY)	Special bearings for taking up large axial forces; alternatively, a double bearing with two angular ball bearings may be used
112	IM B35, IM V15, IM V36	 Foot/flange design according to Code I, DIN EN 60034-7, flange with through-holes [FF]
339	IM B35K	 Foot/flange design according to Code I, DIN EN 60034-7, smaller FF flange deviating from DIN EN 50347
113	IM B34	 Foot/flange design according to Code I, DIN EN 60034-7, flange with threaded holes [FT]
114	IM B5	 Flange design according to Code I, DIN EN 60034-7, flange with through-holes [FF]
362	IM V3	 Flange design according to Code I, DIN EN 60034-7, flange with through-holes [FF], shaft pointing up
356	IM V1	 Flange design according to Code I, DIN EN 60034-7, flange with through-holes [FF], shaft pointing down
117	Canopy for fan cover	Version designed to prevent that foreign objects fall into the fan of vertically mounted motors. The fan cover is provided with a protective roof larger in size than the circumscribed circle of the air inlet openings,
338	IM B5K	 Flange design according to Code I, DIN EN 60034-7, smaller FF flange deviating from DIN EN 50347
115	IM B14, IM V18, IM V19	 Flange design according to Code I, DIN EN 60034-7, flange with threaded hole [FT]
288	PAD-mounted 8 foot holes under 45 deg	Motor without feet, mounted with threaded rods, threaded holes under 45 deg

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Explanations of Modifications

Code	Modification	Description
Mechanical versions		
107	Special shaft	Shorter, thicker or thinner shaft, deviating from catalogue, inclusive of 2 nd shaft end
108	Special shaft, 1 tapered shaft end	Special shaft with tapered shaft end, taper 1:10
116	Aluminium fan	Special fan of light metal casting construction (EN AC-AISiCu1Mg according to DIN EN 1706, material number EN AC 45300)
190	Grey cast iron fan	Special fan of grey cast iron construction (EN GJL-200 according to DIN EN 1561)
195	Multi-wing fan (low-noise version)	Special unidirectional low-noise fan
330	Plastic fan cover	Fan cover made of PC moulding compound, MR-09 B5 according to DIN 7744
333	Protective cover for encoder	Cover hood for protecting the incremental transmitter
383	Vibration intensity B	Version with reduced vibration velocity acc. to EN 60034-14
165	Balancing against zero	Precision balance according to EW-N 8204 with very low vibration velocity
166	High-speed version (HS)	Version for motors intended for the use at speeds higher than those resulting from the frequencies 50/60 Hz (such as by inverter supply) and are therefore specially balanced
376	Balancing with full key	Version in which a balancing operation is carried out with full key instead of half key
143	Non-ventilated version (K21R/K11R-O) (FAN)	Version of the motor without fan
146	External earthing terminal on housing	Version in which an additional external earthing terminal is mounted to the housing
161	Dredger version (incl. TII, vibration-resistant)	Motors are vibration-resistant [see 163] and fitted with dust-protected bearings, Motors are always manufactured in combination with climatic protection TII
162	Version for the textile industry	Version using a special ventilation system which reduces the rate of accumulation of fibrous materials carried along by the cooling air on the motor, and IP55, thermal class F according to B and thermal winding protection
163	Vibration-resistant version	Motors can be used under sinusoidal vibrations for a vibration load up to 4 g at a frequency of 20 to 60 Hz, The winding overhang is particularly stabilized according to the anticipated load, The terminal leads are of flexible type and the screwed joints are locked by suitable means
177	Flange accuracy R according to DIN 42955	Version with reduced concentricity and axial eccentricity tolerance R according to DIN 42955
199	Condensate drain plug	Screw plug for closing the condensate drain hole
201	Condensate drain holes with felt plug (2 nos.)	Hole at the lowest point of the housing or end plate (depending on type of motor) for draining the condensate accumulating in the motor interior, closed with a felt plug
280	Additional foot holes at the top of the housing	Foot holes that are additionally provided at the top of the motor housing
285	Screen cut out from fan cover	Version in which the screen was cut out from the fan cover
294	Housing with load bracket thread (2 nos.)	Version with two load bracket threads
331	Foot contact face, milled	Version in which foot contact faces are milled into the housing
411	Housing with ring nut (lifting eye)	Version with a ring nut
386	Memory version	Version with RFID transponder for standard motors of shaft heights 112 to 355

Corrosion protection/paint coat

133	Special colour shades	Paint coat according to customer's specification
135	Colour system 02: 02S "World wide" (outdoors, indoors with high humidity) Corrosion class KK C2-C3 acc. to EN ISO 12944-2:1998	Two-component EP prime coat and water-base top coat, layer thickness $\geq 110 \mu\text{m}$
354	Colour system 04 (sea/seaport climate)	Two-component EP ceramic filled, layer thickness $\geq 150 \mu\text{m}$
368	Colour system 06 (higher temperatures, humidity, outdoors) Corrosion class KK C2-C3 acc. to EN ISO 12944-2:1998	Two-component EP prime coat and top coat, layer thickness $\geq 110 \mu\text{m}$
134	Colour system 07 (chemistry, higher temperatures, humidity, decontaminable) Corrosion class KK C3 acc. to EN ISO 12944-2:1998	Two layers of two-component EP prime coat and two-component EP top coat, layer thickness $\geq 150 \mu\text{m}$
443	Colour system 09L "Offshore" (UV resistant) Corrosion class KK C3 acc. to EN ISO 12944-2:1998	Water-based two-component EP prime coat and two-component PUR top coat, layer thickness $\geq 210 \mu\text{m}$
311	Colour system 09S "Offshore" (UV resistant) Corrosion class KK C4/5 acc. to EN ISO 12944-2:1998	Two-component EP zinc dust prime coat, two-component EP intermediate coat (containing micaceous iron ore) and two-component polyurethane top coat, layer thickness $\geq 240 \mu\text{m}$
136	Protection against elevated climatic requirements (TII)	Version with climate-resistant rotor, clamping bolt and standard parts with surface protective coating, rating plate of high-grade steel, paint system 02
412	Climate-resistant rotor	Rotor with a protective paint coat, suitable for tropical climates
173	Layer thicknesses increased by 30 μm each	Additional costs for paint layer thicknesses other than specified by the VEM paint systems
200	Stainless steel external bolts	All external bolts made of stainless steel

Explanations of Modifications

Code	Modification	Description
286	Fan cover sprayed with anticorrosion agent	Additional costs for an additional layer of anticorrosion agent on the fan cover
287	Fan sprayed with epoxy resin varnish	Additional costs for coating the fan with epoxy resin varnish
351	Paint system acc. to special-drawing 3135	Paint system based on customer's requests and recorded in special drawing 3135, mostly with plastic prime coat (30 µm) followed by paint coat according to customer's request
315	Zinc-plated fan cover	Additional costs for zinc-plated fan cover

Attachments

96	Centric attachment of encoder (bell/intermediate flange, shaft end, coupling) (K21F, K210)	Additional costs for the centric attachment of an incremental encoder
99	Centric attachment by means of a flange end shield, N-side (IM 2202)	Additional costs for the centric attachment of an incremental encoder by means of a flange end shield on the N-side
367	Centric attachment by means of combined mount	Additional costs for motors of frame size 315 if an incremental encoder is to be centrally attached
100	Attachment of tachometer and incremental encoder (put-on version)	Additional costs for the attachment of tachometer and incremental encoder behind fan cover
150	Attachment of backstop (without lock)	Additional costs for the attachment of a backstop
358	Brake attachment	Additional costs for the attachment of a motor brake

Bearing arrangement

95	Oil-tight design (radial shaft sealing ring, N-side fixed bearing)	Additional costs for oil-tight design with radial shaft sealing ring and fixed bearing on N-side
118	Radial sealing ring, D-side (incl. N-side fixed bearing)	Additional costs for the installation of a radial sealing ring on the D-side, inclusive of a fixed bearing on the N-side
119	Fixed bearing, D-side	Additional costs for a fixed bearing on the D-side
390	Fixed bearing, D-side, backlash-free	Additional costs for a backlash-free fixed bearing on the D-side
120	Fixed bearing, N-side	Additional costs for a fixed bearing on the N-side
121	Angular ball bearing, D-side	Additional costs for an angular ball bearing on the D-side
122	Elevated transverse forces, D-side (inclusive of fixed bearing, N-side)	Additional costs for a motor design in which elevated transverse forces are taken into account on the D-side, inclusive of a fixed bearing on the N-side
415	Insulated roller bearing	Additional costs for the installation of an insulated roller bearing
340	Reinforced bearing, D-side (inclusive of fixed bearing series 42..)	Additional costs for a reinforced bearing on the D-side, inclusive of a fixed bearing from series 42..
332	Labyrinth seal	Additional costs for the installation of a labyrinth seal
342	Bearing sealing with combined seal, D-side	Additional costs for the installation of a combined seal for sealing the bearing on the D-side
151	Bearing control with a temperature sensor for each bearing point (D-side/N-side) (without additional terminal box)	Additional costs for the installation of a temperature sensor for bearing control, for one bearing point each, without the use of an additional terminal box
153	Bearing control with PT100 (2 conductors) for each bearing point	Additional costs for the installation of a bearing temperature control facility with one PT100 in two-conductor circuit design, for one bearing point each
154	Bearing control with PT100 (4 conductors) for each bearing point	Additional costs for the installation of a bearing temperature control facility with one PT100 in four-conductor circuit design, for one bearing point each
193	Relubricating device	Version with relubricating device
262	Insulated bearing, N-side	Installation of an insulated bearing on the N-side
413	Insulated bearing, D-side	Installation of an insulated bearing on the D-side
278	Flat lubricating nipple, stainless steel (for both sides)	Installation of a flat lubricating nipple on the D- and N-sides
394	Tapered lubricating nipple (for both sides)	Installation of a tapered lubricating nipple on the D- and N-sides
321	Tapered lubricating nipple of stainless steel (for both sides)	Installation of a tapered lubricating nipple of stainless steel on the D- and N-sides
283	SPM solid sensor with accessories (for each bearing point)	Installation of an SPM solid sensor with accessories, for one bearing point each
284	SPM prepared without nipple	Motor is prepared for the installation of an SPM sensor
152	SPM bearing control (with nipple) (2 pieces)	Installation of a bearing control facility with SPM sensor
364	Axial shaft sealing ring	Additional costs for the installation of an axial shaft sealing ring
365	Gamma ring	Additional costs for the installation of a gamma ring
127	Special grease	Additional costs for the use of a special grease

Miscellaneous

147	2 nd rating plate, loose	Additional costs for the delivery of a second rating plate enclosed as loose item
148	Customer's rating plate	Additional costs for the generation of a rating plate according to customer's request
414	Position plate	Additional costs for the mounting of a position plate
149	Stainless steel rating plate	Additional costs for a rating plate made of high-grade steel
253	Silicon-free design	Additional costs for a motor design free of silicon
410	Handling costs for items supplied by customer	Additional costs for the expenditure incurred by the handling of tools/equipment supplied by the customer

Delivery program IE1, IE2 and IE3

Series	Type of cooling	Power range
Three-phase motors, IEC/DIN, with squirrel-cage rotor	IC 411	0.06 – 500 kW
Three-phase motors, IEC/DIN, with squirrel-cage rotor, 2-, 3- and 4-pole changing design	IC 411	0.06 – 200 kW
Three-phase motors, IEC/DIN, with squirrel-cage rotor	IC 411	0.06 – 500 kW
Three-phase motors, IEC/DIN, with squirrel-cage rotor	IC 411	0.06 – 600 kW
Three-phase motors, IEC/DIN, with squirrel-cage rotor	IC 411	0.06 – 600 kW
Three-phase brake motors, brake INTORQ	IC 411	0.12 – 90 kW
Three-phase brake motors, brake STROMAG	IC 411	0.12 – 315 kW
Three-phase brake motors, brake MAYER	IC 411	0.12 – 90 kW
Three-phase brake motors, brake KEB	IC 411	0.12 – 30 kW
Three-phase brake motors, brake PINTSCH BAMAG	IC 411	1.1 – 315 kW
Three-phase brake motors, brake PRECIMA	IC 411	0.12 – 7.5 kW
Three-phase brake motors, brake BINDER	IC 411	0.12 – 7.5 kW
Three-phase brake motors, brake TEMPORITTI	IC 411	0.12 – 7.5 kW
Three-phase motors, forced ventilated, IC 416	IC 416	0.25 – 500 kW
Three-phase motors for fans, forced ventilated, IC 418	IC 418	0.06 – 500 kW
Three-phase motors, non-ventilated, IC 410	IC 410	0.04 – 230 kW
Three-phase motors, water cooling, IC 31W	IC 31W	37 – 110 kW
Three-phase roller table motor in heavy duty design for mains operation, non-ventilated	IC 410	0.6 – 5.5 kW
Three-phase roller table motor in heavy duty design for inverter operation, non-ventilated	IC 410	0.37 – 290 kW
Three-phase roller table motor in light duty design for inverter operation, non-ventilated	IC 410	0.37 – 175 kW
Three-phase roller table motor in light duty design for inverter operation, ventilated	IC 411	0.09 – 500 kW
Three-phase roller table motor in light duty design for inverter operation, forced ventilated	IC 416	0.18 – 500 kW
Three-phase motors with squirrel-cage rotor for marine operation acc. to rules of international classification societies	IC 411	0.09 – 450 kW
Three-phase motors, ignition protective type Increased safety "e"	IC 411	0.12 – 315 kW
Three-phase motors, ignition protective type Flameproof enclosure "d/de"	IC 411	0.12 – 690 kW
Three-phase motors, ignition protective type "n" (non-sparking)	IC 411	0.06 – 450 kW
Three-phase motors, ignition protective type Safed by the housing "tD A21"	IC 411	0.06 – 315 kW
Three-phase motors, ignition protective type Safed by the housing "tD A22"	IC 411	0.06 – 355 kW
Three-phase motors for inverter feeding without filter up to 420 V, type of cooling IC 411	IC 411	0.09 – 430 kW
Three-phase motors for inverter feeding without filter up to 420 V, type of cooling IC 416	IC 416	0.09 – 430 kW
Three-phase motors for inverter feeding without filter up to 500 V, type of cooling IC 411, acc. to DIN VDE 0530-25 (VDE 0530-25):2009-08, curve A	IC 411	0.09 – 430 kW
Three-phase motors for inverter feeding without filter up to 500 V, type of cooling IC 416, acc. to DIN VDE 0530-25 (VDE 0530-25):2009-08, curve A	IC 416	0.09 – 430 kW
Three-phase motors for inverter feeding without filter up to 690 V, type of cooling IC 411, acc. to DIN VDE 0530-25 (VDE 0530-25):2009-08, curve B	IC 411	5.5 – 420 kW
Three-phase motors for inverter feeding without filter up to 690 V, type of cooling IC 416, acc. to DIN VDE 0530-25 (VDE 0530-25):2009-08, curve B	IC 416	5.5 – 420 kW
Three-phase compact drives, ventilated (VEMoDRIVE)	IC 411	0.55 – 22 kW
Three-phase compact drives, forced ventilated (VEMoDRIVE)	IC 416	0.55 – 22 kW
Motors for use in mechanical smoke and heat exhaust ventilators F200	IC 418	0.12 – 500 kW
Motors for use in mechanical smoke and heat exhaust ventilators F300	IC 418	0.12 – 420 kW
Motors for use in mechanical smoke and heat exhaust ventilators F400	IC 418	0.12 – 380 kW
Built-in motors	-	0.06 – 500 kW
Three-phase motors, IEC/DIN, with squirrel-cage rotor OW (without winding)	-	0.06 – 500 kW
Single-phase motors	IC 411	0.09 – 2.2 kW
Synchronous motors with permanent-magnet rotor, ventilated	IC 411	0.18 – 45 kW
Synchronous motors with permanent-magnet rotor, forced ventilated	IC 416	0.18 – 45 kW
Synchronous motors with permanent-magnet rotor, water cooling	IC 31W	45 – 94 kW
Three-phase asynchronous generators	IC 411	0.75 – 500 kVA
Permanent-magnet synchronous generators, type of cooling IC 411	IC 411	0.18 – 45 kVA
Three-phase motors with slip-ring rotor, ventilated	IC 411	2.2 – 250 kW
Three-phase motors with slip-ring rotor, version for cranes and metallurgical plants, ventilated	IC 411	2.2 – 315 kW

TN transnorm version

1) Active material (and winding) complying with IE1 or IE2, real efficiency depending on actual design

2) Active material and winding complying with IE1 or IE2

Mode of operation	Sizes	Available in efficiency class IE, acc. to EN 60034-30			Mandatory efficiency according to regulation (EC) no. 640/2009		
		0.75 – 375 kW 2-, 4- and 6-pole			Step 1	Step 2	Step 3
		* Standard Efficiency	High Efficiency	Premium Efficiency	from 16.06.2011	from 01.01.2015	from 01.01.2017
		IE1	IE2	IE3	0.75 – 375 kW	7.5 – 375 kW	0.75 – 375 kW
S1, continuous duty	IEC 56 to 355	X	X	a.A.	IE2	IE3 or IE2 + FU	
S1, continuous duty	IEC 63 to 315	-	-	-	none	none	none
intermittent duty S3 – 80/100 %	IEC 56 to 355	X	X	a.A.	IE2	IE3 or IE2 + FU	
S2, short-time operation	IEC 56 to 355	-	-	-	none	none	none
intermittent duty S3 – 25/40/60 %	IEC 56 to 355	-	-	-	none	none	none
S1, continuous duty	IEC 63 to 280	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 315	X	X	a.A.	none	none	none
S1, continuous duty	IEC 71 to 280	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 200	X	X	a.A.	none	none	none
S1, continuous duty	IEC 71 to 355	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 132	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 132	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 132	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 355	X	X	a.A.	IE2	IE3 or IE2 + FU	
S1, continuous duty	IEC 63 to 355	X	a.A.	-	none	none	none
S1, continuous duty	IEC 63 to 355	-	-	-	none	IE3 or IE2 + FU	
S1, continuous duty	IEC 225 to 280	X	X	a.A.	IE2	IE3 or IE2 + FU	
S4, S5, S7	TN 125 to 200	-	-	-	none	none	none
S8, S9	IEC 112 to 400	-	-	-	none	none	none
S8, S9	IEC 63 to 355	-	-	-	none	none	none
S8, S9	IEC 112 to 355	-	-	-	none	none	none
S8, S9	IEC 112 to 355	-	-	-	none	none	none
S1, continuous duty	IEC 63 to 355	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 355	X	a.A.	a.A.	none	none	none
S1, continuous duty	IEC 63 to 450	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 355	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 355	X	X	a.A.	none	none	none
S1, continuous duty	IEC 63 to 355	X	X	a.A.	none	none	none
S8, S9	IEC 56 to 355	X	X	a.A.	none	none	none
S8, S9	IEC 56 to 355	X	X	a.A.	none	none	none
S8, S9	IEC 56 to 355	a.A.	a.A.	-	none	none	none
S8, S9	IEC 56 to 355	a.A.	a.A.	-	none	none	none
S8, S9	IEC 56 to 355	-	-	-	none	none	none
S8, S9	IEC 56 to 355	-	-	-	none	none	none
S8, S9	IEC 71 to 180	X	X	a.A.	none	none	none
S8, S9	IEC 71 to 180	X	X	a.A.	none	none	none
S1, continuous duty/S2 – 120 min	IEC 74 to 355	X	a.A.	-	none	none	none
S1, continuous duty/S2 – 60 min	IEC 71 to 355	X	a.A.	-	none	none	none
S1, continuous duty/S2 – 120 min	IEC 71 to 355	X	a.A.	-	none	none	none
depending on design	IEC 56 to 355	(X) ¹⁾	(X) ¹⁾	-	none	none	none
depending on design	IEC 56 to 355	(X) ¹⁾	(X) ¹⁾	-	none	none	none
S1, continuous duty	IEC 63 to 100	-	-	-	none	none	none
S9	IEC 63 to 200	-	-	-	none	none	none
S9	IEC 63 to 200	-	-	-	none	none	none
S9	IEC 225 to 280	-	-	-	none	none	none
S1, continuous duty	IEC 80 to 355	(X) ²⁾	(X) ²⁾	-	none	none	none
S1, continuous duty	IEC 63 to 200	-	-	-	none	none	none
S1, continuous duty	IEC 132 to 315	-	-	-	none	none	none
S3, intermittent periodic duty	IEC 132 to 315	-	-	-	none	none	none



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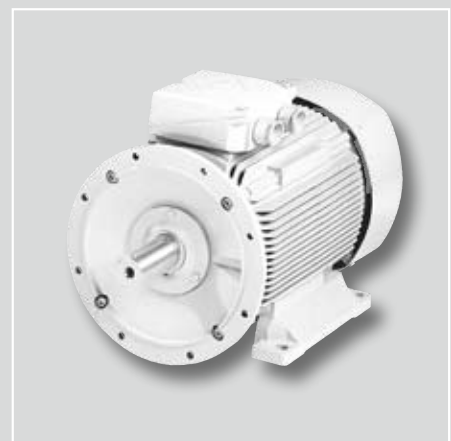


Energy saving motors Standard Efficiency IE1

2



Basic design
General technical data
Motor selection data
50 Hz, 2- to 8-poles
3000/1500/1000/750 rpm



General technical data

The most important technical data is summarized in the following table.
Detailed information can be found in the catalogue part "Technical explanations".



Product line	Motor with squirrel-cage rotor, IEC/DIN
Rated output	0.06 kW to 500 kW
Sizes	56 to 355
Material of housing	Grey cast iron
Rated torque	0.30 Nm to 3600 Nm
Types of circuit	Motors with one speed are designed with Δ /Y-circuit as standard.
Insulation of stator winding	Thermal class 155, as option 155 [F(B)], 180 acc. to EN 60034-1 (IEC 60034-1)
Type of protection	IP 55 acc. to EN 60034-5 (IEC 60034-5), as option IP 56 and higher
Type of cooling	IC 411 acc. to EN 60034-6 (IEC 60034-6)
Coolant temperature/ altitude of site	As standard - 20 °C up to + 40 °C, altitude of site 1000 m above sea level
Rated voltage	Rated voltage ranges A and B (Zone A, Zone B) acc. to EN 60034-1 (IEC 60034-1), standard voltage acc. to EN 60038 50 Hz, 230 V, 400 V, 500 V and 690 V
Efficiency	according to EN 60034-2-1; ≤ 1 kW direct measurement; 1.1 kW up to 150 kW summation of losses and (in line with USA, IEEE 112) additional loss determination according to additional loss method. This method is also used for the power range up to 375 kW corresponding with IEEE 112.
Types of construction	IM B3, IM B35, IM B5 and derived types of construction acc. to EN 60034-7
Colour system	Standard colour system "moderate", colour shade RAL 7031, blue-grey Special colour system "world wide", colour shade RAL 7031, blue-grey
Vibration grade	As standard grade "A" for motors without special vibration requirements
Shaft end	Acc. to DIN 748 (IEC 60072), balancing "with half key"
Sound pressure level	Acc. to EN ISO 1680, tolerance +3dB, data see in the main catalogue 01-2008 part "Technical explanations"
Limit speeds	Please refer to paragraph about limit speeds.
Bearing design	Please refer to paragraph about bearings.
Motor weights	Please refer to the technical selection lists.
Terminal boxes	Please refer to paragraph about terminal boxes.
Documentation	An operation and maintenance manual, a connection diagram and a safety data sheet is attached to each motor.
Tolerances	Please refer to paragraph about tolerances.
Options	Please refer to paragraph about modifications.

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)



Motor selection data

Design point 400 V, 50 Hz

Type	P _B kW	M _B Nm	n _B rpm	IE Class	η EN 60034-2-1			cos φ _B -	I _B 400 V A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg	
					100%	75%	50%									
Synchronous speed 3000 rpm – 2-pole version																
K210 56 K2 U	0.09	0.30	2840	-	70.2	68.1	64.5	0.74	0.25	4.9	2.3	2.3	2.8	0.00013	4.4	
K21R 56 G2	0.12	0.41	2830	-	70.3	67.0	60.1	0.77	0.32	4.5	2.1	2.1	2.3	0.00013	4.5	
K21R 63 K2	K20R 56 K2	0.18	0.62	2790	-	67.0	65.6	59.8	0.76	0.51	4.1	1.9	1.9	2.2	0.00013	4.9
K21R 63 G2	K20R 56 G2	0.25	0.85	2800	-	67.7	64.9	56.2	0.72	0.74	4.2	2.2	2.2	2.4	0.00015	5.2
K21R 71 K2	K20R 63 K2	0.37	1.27	2780	-	71.9	70.8	65.0	0.79	0.94	4.4	2.1	2.1	2.3	0.00025	6.7
K21R 71 G2	K20R 63 G2	0.55	1.89	2775	-	74.2	75.0	72.0	0.81	1.32	5.1	2.3	2.1	2.6	0.00032	7.6
IE1-K21R 80 K2	IE1-K20R 71 K2	0.75	2.54	2825	IE1-	76.8	77.5	74.3	0.82	1.72	5.9	2.4	2.4	2.4	0.00057	10.7
IE1-K21R 80 G2	IE1-K20R 71 G2	1.1	3.71	2835	IE1-	76.9	75.9	73.3	0.81	2.55	6.0	2.4	2.3	2.6	0.00072	11.5
IE1-K21R 90 S2	IE1-K20R 80 G2	1.5	5.04	2840	IE1-	81.2	82.2	80.3	0.86	3.1	7.0	2.5	2.5	2.8	0.00132	16.0
IE1-K21R 90 L2	IE1-K20R 80 G2	2.2	7.37	2850	IE1-	82.1	83.4	81.9	0.85	4.55	7.5	2.8	2.3	2.9	0.0017	19.0
IE1-K21R 100 L2	IE1-K20R 90 L2	3.0	10.0	2865	IE1-	82.8	83.1	83.3	0.85	6.15	6.8	2.4	2.2	2.8	0.00275	25.0
IE1-K21R 112 M2	IE1-K20R 100 S2	4.0	13.2	2900	IE1-	84.9	85.5	84.4	0.81	8.4	7.0	2.2	2.1	2.9	0.0045	32.0
IE1-K21R 132 S2T	IE1-K20R 100 L2	5.5	18.2	2890	IE1-	85.9	86.2	86.4	0.84	11.0	7.5	2.4	2.2	3.0	0.0055	40.0
IE1-K21R 132 SX2T	IE1-K20R 100 LV2	7.5	24.9	2880	IE1-	87.1	87.2	86.6	0.84	14.8	6.3	1.5	1.2	2.6	0.0680	48.0
IE1-K21R 132 S2	IE1-K20R 100 LV2	5.5	18.4	2860	IE1-	84.7	84.7	84.7	0.86	11	5.5	1.8	1.6	2.2	0.0081	52.0
IE1-K21R 132 SX2	IE1-K20R 112 M2	7.5	24.7	2900	IE1-	86.0	86.0	84.0	0.86	14.5	6.6	1.8	1.3	2.5	0.0110	57.0
IE1-K21R 160 M2	IE1-K20R 132 M2	11.0	36.2	2900	IE1-	87.6	87.6	84.6	0.90	20	7.0	2.4	2.0	3.0	0.0258	81.0
IE1-K21R 160 MX2	IE1-K20R 160 S2	15.0	48.9	2930	IE1-	88.7	88.7	85.8	0.90	27	7.1	2.2	1.7	2.9	0.0575	118
IE1-K21R 160 L2	IE1-K20R 160 M2	18.5	60.5	2920	IE1-	89.3	88.3	85.8	0.92	32.5	7.2	2.1	1.6	2.8	0.0675	134
IE1-K21R 180 M2	IE1-K20R 180 S2	22.0	71.6	2935	IE1-	89.9	89.1	86.1	0.92	38.5	6.8	1.7	1.4	2.6	0.105	165
IE1-K21R 200 L2	IE1-K20R 180 M2	30.0	97.4	2940	IE1-	91.1	90.3	88.8	0.92	51.5	7.3	2.0	1.6	2.9	0.128	195
IE1-K21R 200 LX2	IE1-K20R 200 M2	37.0	120.2	2940	IE1-	91.5	90.5	89.0	0.90	65	7.0	1.8	1.3	2.4	0.193	255
IE1-K21R 225 M2	IE1-K20R 200 L2	45.0	146.2	2940	IE1-	92.0	91.3	88.8	0.91	77.5	7.5	1.8	1.4	2.7	0.220	290
IE1-K21R 250 M2	IE1-K20R 225 M2	55.0	177.7	2955	IE1-	92.2	91.0	89.0	0.91	94.5	7.5	2.0	1.5	2.6	0.375	360
IE1-K21R 280 S2	IE1-K20R 250 S2	75.0	241.2	2970	IE1-	93.1	92.0	90.5	0.92	126	7.5	2.0	1.6	2.6	0.650	490
IE1-K21R 280 M2	IE1-K20R 250 M2	90.0	289.4	2970	IE1-	93.2	92.7	90.5	0.91	153	8.5	2.2	1.8	2.8	0.675	510
IE1-K21R 315 S2	IE1-K20R 280 S2	110.0	353.1	2975	IE1-	93.5	92.6	91.1	0.91	187	8.5	1.5	1.3	2.5	1.21	720
IE1-K21R 315 M2	IE1-K20R 280 M2	132.0	423.7	2975	IE1-	93.8	92.9	91.9	0.91	223	8.5	2.0	1.8	2.7	1.44	800
IE1-K21R 315 MX2	IE1-K20R 315 S2	160.0	513.6	2975	IE1-	94.0	93.0	92.5	0.93	264	8.5	2.0	1.6	2.6	1.76	980
IE1-K21R 315 MY2	IE1-K20R 315 M2	200.0	643.1	2970	IE1-	94.0	93.2	92.5	0.92	334	8.2	2.6	2.0	2.6	2.82	1170
IE1-K21R 315 L2	IE1-K20R 315 L2	250.0	803.1	2973	IE1-	94.1	93.2	93.0	0.93	412	7.3	2.1	1.4	2.0	3.66	1460
IE1-K21R 315 LX2	IE1-K20R 315 LX2	315.0	1009.5	2980	IE1-	94.5	94.5	92.8	0.92	523	8.6	2.7	1.7	2.4	4.43	1630
IE1-K22R 355 MY2		315.0	1006.8	2988	IE1-	94.5	94.3	93.7	0.88	547	8.6	1.3	1.0	3.0	4.10	1900
IE1-K22R 355 M2		355.0	1137.7	2980	IE1-	94.3	94.3	93.8	0.91	597	7.3	1.3	1.0	2.3	4.20	2000
K22R 355 MX2		400.0	1279.7	2985	-	94.6	94.5	93.8	0.90	678	8.5	1.9	1.3	3.2	5.50	2200
K22R 355 LY2		450.0	1440.7	2983	-	94.7	94.5	93.8	0.92	746	7.2	1.3	1.0	2.4	7.10	2400
K22R 355 L2		500.0	1599.7	2985	-	95.0	94.8	94.3	0.92	826	8.2	1.8	0.9	2.6	7.10	2400

2

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)



Motor selection data

Design point 400 V, 50 Hz

Type	P _B kW	M _B Nm	n _B rpm	IE Class	η EN 60034-2-1			cos φ _B -	I _B 400 V A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg
					100%	75%	50%								
Synchronous speed 1500 rpm – 4-pole version															
K210 56 K4 U	0.06	0.41	1410	-	60.1	56.5	49.6	0.60	0.24	3.1	2.3	2.3	2.7	0.00019	4.3
K21R 56 G4	0.09	0.63	1375	-	61.6	58.7	53.0	0.68	0.31	3.2	1.9	1.9	2.2	0.00019	4.4
K21R 63 K4	0.12	0.84	1370	-	57.9	51.2	42.2	0.68	0.44	3.2	1.9	1.8	2.2	0.00019	4.8
K21R 63 G4	0.18	1.26	1360	-	60.6	57.5	49.4	0.66	0.65	3.3	2.0	2.0	2.3	0.00024	5.2
K21R 71 K4	0.25	1.72	1385	-	64.3	63.2	58.2	0.72	0.78	3.6	1.8	1.8	2.1	0.00040	6.8
K21R 71 G4	0.37	2.58	1370	-	68.1	66.7	62.0	0.74	1.06	3.8	2.0	2.0	2.2	0.00050	7.8
K21R 80 K4	0.55	3.75	1400	-	71.9	70.7	64.1	0.69	1.6	4.1	2.1	2.0	2.3	0.00087	10.6
IE1-K21R 80 G4	0.75	5.12	1400	IE1-	73.6	72.2	66.8	0.70	2.1	4.6	2.2	2.1	2.3	0.00107	11.7
IE1-K21R 90 S4	1.1	7.45	1410	IE1-	76.7	76.8	73.6	0.79	2.62	5.5	2.3	2.2	2.5	0.00207	15.5
IE1-K21R 90 L4	1.5	10.2	1400	IE1-	78.6	79.1	76.9	0.81	3.4	5.5	2.5	2.4	2.6	0.00260	18.0
IE1-K21R 100 L4	2.2	14.9	1410	IE1-	80.2	80.7	79.5	0.80	4.95	6.0	2.5	2.3	2.7	0.00400	23.5
IE1-K21R 100 LX4	3.0	20.0	1430	IE1-	82.4	82.8	80.8	0.79	6.65	6.5	2.5	2.2	2.9	0.00725	30.0
IE1-K21R 112 M4	4.0	26.6	1435	IE1-	84.1	85.1	83.6	0.78	8.8	6.9	2.6	2.5	3.2	0.009	37.0
IE1-K21R 132 S4T	5.5	36.9	1425	IE1-	85.2	86.5	85.8	0.79	11.8	6.3	2.5	2.4	2.9	0.011	47.0
IE1-K21R 132 S4	5.5	36.5	1440	IE1-	84.9	84.9	83.4	0.89	10.5	6.5	1.9	1.7	3.0	0.015	50.0
IE1-K21R 132 M4	7.5	49.4	1450	IE1-	86.5	85.5	84.0	0.84	15	6.0	2.0	1.7	2.9	0.028	70.0
IE1-K21R 160 M4	11.0	72.4	1450	IE1-	88.0	87.6	85.6	0.85	21	6.8	2.2	1.9	3.3	0.035	92.0
IE1-K21R 160 L4	15.0	97.8	1465	IE1-	88.7	88.3	85.8	0.86	28.5	7.3	2.5	2.0	3.0	0.078	120
IE1-K21R 180 M4	18.5	121.0	1460	IE1-	89.3	88.8	86.8	0.86	35	6.8	2.5	2.0	2.9	0.090	136
IE1-K21R 180 L4	22.0	143.4	1465	IE1-	89.9	89.9	88.4	0.84	42	6.5	2.0	1.8	2.6	0.138	170
IE1-K21R 200 L4	30.0	195.6	1465	IE1-	90.7	90.2	89.2	0.85	56	7.0	2.0	1.7	2.4	0.168	220
IE1-K21R 225 S4	37.0	240.4	1470	IE1-	91.2	90.2	89.2	0.86	68	7.0	2.0	1.7	2.5	0.275	270
IE1-K21R 225 M4	45.0	292.3	1470	IE1-	91.7	91.2	89.7	0.86	82.5	7.0	2.0	1.7	2.5	0.313	300
IE1-K21R 250 M4	55.0	356.1	1475	IE1-	92.3	91.8	90.8	0.86	100	7.0	2.2	1.7	2.3	0.525	375
IE1-K21R 280 S4	75.0	484.0	1480	IE1-	92.7	92.1	90.6	0.86	136	7.0	2.0	1.7	2.2	0.950	520
IE1-K21R 280 M4	90.0	580.7	1480	IE1-	93.3	92.2	89.7	0.86	162	7.0	2.1	1.6	2.2	1.10	580
IE1-K21R 315 S4	110.0	707.4	1485	IE1-	93.5	92.9	91.4	0.86	197	7.5	1.8	1.6	2.2	1.96	740
IE1-K21R 315 M4	132.0	848.9	1485	IE1-	93.5	92.9	91.9	0.86	237	7.0	1.8	1.5	2.2	2.27	840
IE1-K21R 315 MX4	160.0	1032.4	1480	IE1-	93.8	93.6	92.8	0.87	283	7.0	1.8	1.5	2.0	2.73	1000
IE1-K21R 315 MY4	200.0	1286.2	1485	IE1-	94.3	93.3	92.8	0.88	348	7.5	2.0	1.8	2.4	4.82	1200
IE1-K21R 315 L4	250.0	1607.7	1485	IE1-	94.3	93.2	92.7	0.90	425	8.0	2.0	1.6	2.3	5.93	1510
IE1-K21R 315 LX4	315.0	2019	1490	IE1-	94.5	93.5	93.2	0.88	547	8.6	1.9	1.5	2.5	6.82	1630
IE1-K22R 355 MY4	315.0	2016.3	1492	IE1-	94.0	93.9	92.4	0.85	569	7.1	1.4	1.0	2.9	5.60	1950
IE1-K22R 355 M4	355.0	2275.3	1490	IE1-	94.5	94.2	93.2	0.84	646	8.1	1.8	1.0	3.1	7.9	2150
K22R 355 MX4	400.0	2556.9	1494	-	94.5	94.4	93.7	0.84	727	8.6	1.3	1.0	3.0	9.5	2400
K22R 355 LY4	450.0	2884.2	1490	-	94.5	94.4	93.7	0.82	838	8.0	1.2	1.0	3.0	10.0	2500
K22R 355 L4	500.0	3204.7	1490	-	94.3	94.0	93.1	0.79	969	7.9	1.1	1.0	3.0	10.00	2500

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)



Motor selection data

Design point 400 V, 50 Hz

Type	P _B kW	M _B Nm	n _B rpm	IE Class	η EN 60034-2-1			cos φ _B -	I _B 400 V A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg
					100%	75%	50%								
Synchronous speed 1000 rpm – 6-pole version															
K21R 63 K6	0.09	0.96	895	-	50.4	46.2	38.4	0.56	0.46	2.5	2.0	2.0	2.4	0.00024	4.9
K21R 63 G6	0.12	1.30	880	-	52.4	50.1	43.2	0.56	0.59	2.5	2.0	2.0	2.3	0.00027	5.7
K21R 71 K6	0.18	1.86	925	-	57.9	53.9	45.4	0.51	0.88	2.8	1.6	1.6	2.1	0.00045	7.4
K21R 71 G6	0.25	2.61	915	-	59.6	57.5	49.5	0.55	1.1	2.9	2.0	2.0	2.2	0.00060	8.3
K21R 80 K6	0.37	3.86	915	-	66.3	64.5	57.1	0.66	1.22	3.4	2.0	2.0	2.0	0.00130	11.0
K21R 80 G6	0.55	5.74	915	-	68.5	67.0	60.7	0.67	1.73	3.7	2.2	2.2	2.4	0.00175	12.5
IE1-K21R 90 S6	0.75	7.66	935	IE1-	70.5	68.8	63.2	0.64	2.4	4.5	2.4	2.4	2.6	0.00325	16.0
IE1-K21R 90 L6	1.1	11.24	935	IE1-	73.4	73.0	68.4	0.68	3.18	4.6	2.2	2.2	2.6	0.00425	19.0
IE1-K21R 100 L6	1.5	15.16	945	IE1-	76.0	75.2	71.1	0.73	3.9	4.6	2.1	2.0	2.4	0.00625	24.0
IE1-K21R 112 M6	2.2	22.12	950	IE1-	78.1	78.8	75.8	0.76	5.35	5.3	2.2	2.1	2.7	0.01225	33.5
IE1-K21R 132 S6T	3.0	30.6	935	IE1-	81.9	82.8	81.4	0.75	7.05	5.2	2.5	2.5	2.9	0.0139	39.0
IE1-K21R 132 S6	3.0	30.0	955	IE1-	79.7	79.7	76.2	0.82	6.6	5.7	1.8	1.6	2.7	0.0180	46.0
IE1-K21R 132 M6	4.0	40.0	955	IE1-	81.4	80.4	75.4	0.80	8.9	6.0	2.2	2.0	3.1	0.0230	53.0
IE1-K21R 132 MX6	5.5	55.0	955	IE1-	83.3	83.3	81.3	0.83	11.5	5.0	1.8	1.5	2.3	0.0430	70.0
IE1-K21R 160 M6	7.5	74.6	960	IE1-	85.0	84.0	80.0	0.82	15.5	5.5	2.0	1.6	2.5	0.0530	86.0
IE1-K21R 160 L6	11.0	108.9	965	IE1-	86.4	86.2	84.2	0.86	21.5	5.0	2.0	1.7	2.3	0.1130	114
IE1-K21R 180 L6	15.0	148.4	965	IE1-	87.7	86.7	83.7	0.83	29.5	6.0	2.4	2.1	2.7	0.1450	136
IE1-K21R 200 L6	18.5	182.1	970	IE1-	88.6	88.5	86.5	0.87	34.5	5.5	2.0	1.7	2.4	0.2280	175
IE1-K21R 200 LX6	22.0	216.6	970	IE1-	89.2	88.9	86.4	0.87	41	6.2	2.2	1.8	2.6	0.2680	200
IE1-K21R 225 M6	30.0	294.5	973	IE1-	90.2	89.8	87.8	0.89	54	6.5	2.2	1.7	2.5	0.4430	265
IE1-K21R 250 M6	37.0	362.4	975	IE1-	90.8	90.6	87.8	0.89	66	6.5	2.2	1.7	2.3	0.8250	360
IE1-K21R 280 S6	45.0	438.5	980	IE1-	91.4	91.4	89.4	0.87	81.5	6.0	2.0	1.5	2.0	1.28	465
IE1-K21R 280 M6	55.0	536.0	980	IE1-	91.9	91.4	89.4	0.88	98	6.5	2.3	1.7	2.4	1.48	520
IE1-K21R 315 S6	75.0	727.2	985	IE1-	92.7	92.0	91.0	0.87	134	7.0	2.0	1.6	2.4	2.63	690
IE1-K21R 315 M6	90.0	868.2	990	IE1-	93.4	92.5	91.0	0.88	158	7.0	2.0	1.7	2.4	3.33	800
IE1-K21R 315 MX6	110.0	1061.1	990	IE1-	93.3	93.1	91.6	0.88	193	7.5	2.2	1.7	2.6	3.60	880
IE1-K21R 315 MY6	132.0	1273.3	990	IE1-	94.0	93.7	92.5	0.88	230	7.5	2.0	1.7	2.4	6.00	1050
IE1-K21R 315 L6	160.0	1551.3	985	IE1-	94.3	94.0	92.8	0.89	275	7.5	2.3	1.9	2.4	6.67	1250
IE1-K21R 315 LX6	200.0	1929.3	990	IE1-	94.2	93.9	93.2	0.87	352	8.3	2.2	2.0	2.7	8.6	1460
K22R 355 MY6	200.0	1919.6	995	IE1-	94.4	94.3	93.8	0.83	368	7.0	1.5	1.3	2.4	8.1	1550
K22R 355 M6	250.0	2401.9	994	IE1-	94.5	94.2	93.3	0.81	471	7.0	1.8	1.3	2.3	8.2	1850
K22R 355 MX6	315.0	3023.4	995	IE1-	94.5	94.5	93.8	0.83	580	6.8	1.6	1.3	2.5	12.1	2200
K22R 355 LY6	355.0	3407.3	995	IE1-	94.4	94.2	92.4	0.78	696	7.4	1.9	1.4	2.6	14.0	2400

2

Three-phase motors with squirrel-cage rotor Energy saving motors

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz

Type	P _B kW	M _B Nm	n _B rpm	η EN 60034-2-1			cos φ _B -	I _B 400 V A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg	
				100%	75%	50%									
Synchronous speed 750 rpm – 8-pole version															
K21R 71 K8	K20R 63 K8	0.09	1.27	675	45.5	42.09	34.78	0.51	0.56	2.1	1.9	1.9	2.1	0.00050	6.6
K21R 71 G8	K20R 63 G8	0.12	1.71	670	46.5	42.14	33.72	0.51	0.73	2.3	1.8	1.8	2.1	0.00060	8.1
K21R 80 K8	K20R 71 K8	0.18	2.49	690	56.5	53.39	45	0.59	0.78	2.8	2.0	2.0	2.2	0.00130	10.5
K21R 80 G8	K20R 71 G8	0.25	3.44	695	57.5	54.09	46.11	0.56	1.12	3.0	2.3	2.3	2.5	0.00175	12.0
K21R 90 S8	K20R 80 K8	0.37	5.05	700	61.8	59.73	52.85	0.54	1.60	3.0	1.9	1.9	2.1	0.00300	15.0
K21R 90 L8	K20R 80 G8	0.55	7.56	695	64.8	62.48	55.77	0.60	2.04	3.2	1.9	1.9	2.2	0.00375	18.0
K21R 100 L8	K20R 90 L8	0.75	10.2	705	66.8	64.75	57.93	0.60	2.70	3.3	1.8	1.8	2.2	0.00625	23.0
K21R 100 LX8	K20R 100 S8	1.1	14.9	705	72.9	73.31	69.58	0.67	3.25	4.0	2.0	2.0	2.4	0.00900	28.0
K21R 112 M8	K20R 100 L8	1.5	20.3	705	75.4	75.74	72.36	0.70	4.10	4.4	2.2	2.1	2.5	0.01225	33.5
K21R 132 S8T	K20R 100 LX8	2.2	30.7	685	74.1	74.83	72.4	0.68	6.30	3.8	2.0	1.9	2.3	0.01390	39.0
K21R 132 S8	K20R 112 M8	2.2	29.8	705	75.5	75.0	72.0	0.76	5.5	4.5	1.7	1.6	2.3	0.01800	46.0
K21R 132 M8	K20R 112 MX8	3.0	40.6	705	78.0	78.0	75.0	0.75	7.4	4.5	1.7	1.6	2.3	0.0230	53.0
K21R 160 M8	K20R 132 S8	4.0	53.8	710	79.3	79.0	77.0	0.78	9.3	4.0	1.6	1.3	1.9	0.0430	70.0
K21R 160 MX8	K20R 132 M8	5.5	74	710	81.4	81.0	78.0	0.78	12.5	4.5	1.7	1.6	2.1	0.0530	86.0
K21R 160 L8	K20R 160 S8	7.5	98.8	725	83.0	83.0	79.0	0.78	16.5	4.5	1.8	1.6	2.1	0.1130	114.0
K21R 180 L8	K20R 160 M8	11.0	145.9	720	85.0	84.0	81.5	0.78	24.0	4.5	2.0	1.7	2.1	0.1450	136.0
K21R 200 L8	K20R 180 S8	15.0	197.6	725	86.5	86.0	83.0	0.79	31.5	5.0	2.0	1.7	2.3	0.228	175.0
-	K20R 180 M8	18.5	243.7	725	87.5	86.5	86.0	0.80	38.0	5.0	1.9	1.7	2.2	0.268	200.0
K21R 225 S8	-	18.5	243.7	725	89.2	88.0	86.0	0.83	36.0	5.5	2.0	1.6	2.2	0.440	265.0
K21R 225 M8	K20R 200 M8	22.0	289.8	725	89.2	89.0	88.5	0.84	42.5	5.0	1.8	1.5	2.2	0.440	265.0
K21R 250 M8	K20R 225 M8	30.0	392.5	730	89.7	89.5	86.5	0.79	61.0	5.5	2.2	1.8	2.2	0.825	360.0
K21R 280 S8	K20R 250 S8	37.0	480.7	735	90.5	90.0	87.5	0.80	74.0	5.5	2.0	1.5	2.0	1.35	465.0
K21R 280 M8	K20R 250 M8	45.0	584.7	735	91.0	90.5	88.0	0.77	92.5	6.0	2.3	1.8	2.4	1.55	520.0
K21R 315 S8	K20R 280 S8	55.0	709.8	740	92.1	91.0	89.5	0.80	108.0	6.5	1.8	1.6	2.3	2.63	690.0
K21R 315 M8	K20R 280 M8	75.0	967.9	740	92.3	92.0	90.5	0.81	145.0	6.0	2.0	1.6	2.3	3.33	800.0
K21R 315 MX8	K20R 315 S8	90.0	1161.5	740	92.5	92.0	90.5	0.81	173.0	6.0	1.9	1.6	2.2	3.60	880.0
K21R 315 MY8	K20R 315 M8	110.0	1419.6	740	93.6	93.0	91.0	0.81	209.0	6.5	2.1	1.8	2.4	6.00	1100
K21R 315 L8	K20R 315 L8	132.0	1703.5	740	94.0	93.3	91.0	0.83	244.0	6.3	2.0	1.7	2.1	6.76	1250
K21R 315 LX8	K20R 315 LX8	160.0	2064.9	740	94.2	93.5	91.0	0.79	310.0	7.2	2.2	1.9	2.5	8.71	1430
K22R 355 MY8	-	160.0	2053.8	744	93.5	93.3	92.5	0.80	309.0	6.8	1.3	1.0	2.5	9.3	1700
K22R 355 M8	-	200.0	2570.7	743	93.9	93.6	92.8	0.77	399.0	6.5	1.6	1.0	2.7	9.5	1850
K22R 355 MX8	-	250.0	3209	744	94.1	93.9	92.8	0.78	492.0	6.6	1.3	1.0	2.8	13.4	2200
K22R 355 LY8	-	280.0	3594.1	744	93.6	93.4	92.3	0.78	554.0	8.2	1.2	1.0	2.8	15.8	2400

Energy saving motors High Efficiency IE2

Basic design

General technical data

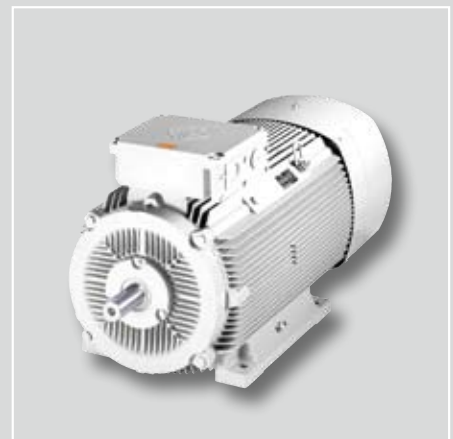
Motor selection data

50 Hz, 50/60 Hz, 2- to 8-poles

3000/1500/1000/750 rpm

3600/1800/1200/900 rpm

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General technical data

The most important technical data is summarized in the following table.
Detailed information can be found in the catalogue part "Technical explanations".

Product line	Motor with squirrel-cage rotor, IEC/DIN
Rated output	0.06 kW to 375 kW (.500 kW*)
Sizes	56 to 355
Material of housing	Grey cast iron
Rated torque	0.30 Nm to 3600 Nm
Types of circuit	Motors with one speed are designed with Δ /Y-circuit as standard.
Insulation of stator winding	Thermal class 155, as option 155 [F(B)], 180 acc. to EN 60034-1 (IEC 60034-1)
Type of protection	IP 55 acc. to EN 60034-5 (IEC 60034-5), as option IP 56 and higher
Type of cooling	IC 411 acc. to EN 60034-6 (IEC 60034-6)
Coolant temperature/ altitude of site	As standard - 20 °C up to + 40 °C, altitude of site 1000 m above sea level
Rated voltage	Rated voltage ranges A and B (Zone A, Zone B) acc. to EN 60034-1 (IEC 60034-1), standard voltage acc. to EN 60038 50 Hz, 230 V, 400 V, 500 V and 690 V
Efficiency	according to EN 60034-2-1; ≤ 1 kW direct measurement, 1.1 kW up to 150 kW summation of losses and (in line with USA, IEEE 112) additional loss determination according to additional loss method, this method is also used for the power range up to 315 kW corresponding with IEEE 112.
Types of construction	IM B3, IM B35, IM B5 and derived types of construction acc. to EN 60034-7
Colour system	Standard colour system "moderate", colour shade RAL 7031, blue-grey Special colour system "world wide", colour shade RAL 7031, blue-grey
Vibration grade	As standard grade "A" for motors without special vibration requirements
Shaft end	Acc. to DIN 748 (IEC 60072), balancing "with half key"
Sound pressure level	Acc. to EN ISO 1680, tolerance +3dB, data see in the main catalogue 01-2008 part "Technical explanations"
Limit speeds	Please refer to paragraph about limit speeds.
Bearing design	Please refer to paragraph about bearings.
Motor weights	Please refer to the technical selection lists.
Terminal boxes	Please refer to paragraph about terminal boxes.
Documentation	An operation and maintenance manual, a connection diagram and a safety data sheet is attached to each motor.
Tolerances	Please refer to paragraph about tolerances.
Options	Please refer to paragraph about modifications.

* not classified

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz

Type	P _B	M _B	n _B	IE Class	η			cos φ _B	I _B	I _A /I _B	M _A /M _B	M _S /M _B	M _K /M _B	J	m
	kW	Nm	rpm		EN 60034-2-1				400 V	-	-	-	-	-	kgm ²
Synchronous speed 3000 rpm – 2-pole version															
W21R 56 K2	0.09	0.30	2825	-	65.8	64.6	64.3	0.83	0.22	5.0	2.0	2.0	2.4	0.00015	4.8
W21R 56 G2	0.12	0.41	2810	-	67.3	65.8	61.9	0.83	0.31	4.7	2.0	2.0	2.2	0.00015	4.8
W21R 63 K2	0.18	0.61	2840	-	75.0	73.8	64.4	0.82	0.42	5.7	2.4	2.3	2.7	0.00025	6.3
W21R 63 G2	0.25	0.83	2860	-	73.7	73.9	70.1	0.84	0.55	6.2	2.6	2.5	2.8	0.00032	7.0
W21R 71 K2	0.37	1.24	2860	-	76.3	74.2	72.7	0.87	0.78	7.1	2.9	2.7	3.1	0.00057	10.0
W21R 71 G2	0.55	1.83	2870	-	78.7	78.3	75.4	0.86	1.14	7.4	3.0	2.7	3.3	0.00072	11.2
IE2-W21R 80 K2	0.75	2.49	2880	IE2-	80.4	80.9	79.0	0.88	1.48	7.7	2.2	2.1	2.7	0.00132	15.0
IE2-WE1R 80 G2	1.1	3.64	2885	IE2-	82.3	81.4	80.6	0.89	2.15	7.8	2.5	2.3	2.8	0.00170	18.0
IE2-WE1R 90 S2	1.5	4.92	2910	IE2-	83.9	83.6	81.0	0.87	2.90	9.0	2.8	2.4	3.4	0.00275	23.5
IE2-WE1R 90 L2	2.2	7.29	2880	IE2-	84.9	85.7	83.9	0.88	4.25	8.0	2.5	2.3	2.9	0.00275	23.5
IE2-WE1R 100 L2	3.0	9.78	2930	IE2-	86.9	86.1	83.4	0.76	6.55	8.5	2.6	2.4	3.8	0.00450	31
IE2-WE1R 112 MX2	4.0	13.08	2920	IE2-	87.0	86.4	85.8	0.84	7.90	8.3	2.3	2.1	3.3	0.00550	38
IE2-WE1R 112 MV2	5.5	18.11	2900	IE2-	87.6	88.7	88.8	0.88	10.3	7.8	2.0	1.9	2.7	0.00680	46
IE2-WE1R 132 S2T	5.5	18.1	2900	IE2-	87.6	88.7	88.8	0.88	10.3	7.8	2.0	1.9	2.7	0.00680	48
IE2-WE1R 132 S2	5.5	18.0	2915	IE2-	88.7	88.8	87.6	0.85	10.5	6.8	1.9	1.5	3.0	0.0110	57
IE2-WE1R 132 SX2	7.5	24.5	2925	IE2-	88.4	88.7	87.6	0.91	13.5	6.7	2.1	1.6	2.9	0.0168	75
IE2-WE1R 160 M2	11.0	35.6	2950	IE2-	90.3	90.3	89.1	0.90	19.5	7.7	2.3	1.7	3.1	0.0258	125
IE2-WE1R 160 MX2	15.0	48.7	2940	IE2-	90.7	91.2	90.8	0.92	26.0	6.7	1.8	1.4	2.6	0.0675	140
IE2-WE1R 160 L2	18.5	60.2	2935	IE2-	91.0	91.7	91.3	0.91	32.0	7.2	2.0	1.5	2.8	0.0675	140
IE2-WE1R 180 M2	22	72	2935	IE2-	91.3	90.6	86.4	0.90	38.5	6.2	1.4	1.1	2.4	0.105	173
IE2-WE1R 200 L2	30	97	2945	IE2-	92.0	91.3	90.5	0.91	52.0	6.9	1.7	1.3	2.6	0.128	210
IE2-WE1R 200 LX2	37	120	2940	IE2-	92.5	92.3	91.6	0.92	63.0	7.4	1.9	1.4	2.9	0.154	233
IE2-WE1R 225 M2	45	146	2950	IE2-	92.9	92.2	91.2	0.87	80.5	6.9	1.7	1.1	2.7	0.360	295
IE2-WE1R 250 M2	55	178	2955	IE2-	93.2	92.9	90.0	0.88	97	8.1	2.3	1.9	2.8	0.375	385
IE2-WE1R 280 S2	75	241	2972	IE2-	94.1	94.0	91.5	0.90	128	8.1	2.1	1.8	3.1	0.65	510
IE2-WE1R 280 M2	90	289	2970	IE2-	94.4	94.1	91.9	0.91	151	7.7	2.0	1.7	2.8	0.68	550
IE2-W21R 315 S2	110	353	2975	IE2-	94.5	94.3	93.3	0.89	189	8.0	1.3	1.2	2.4	1.21	730
IE2-W21R 315 M2	132	424	2975	IE2-	95.0	94.8	94.5	0.89	225	9.2	1.4	1.2	2.4	1.44	820
IE2-W21R 315 MX2	160	513	2977	IE2-	94.8	94.8	94.8	0.89	274	9.3	1.5	1.5	2.6	1.76	955
IE2-W21R 315 MY2	200	640	2983	IE2-	95.4	95.0	94.3	0.88	344	9.4	2.8	2.0	3.0	2.82	1200
IE2-W21R 315 L2	250	800	2984	IE2-	95.4	95.4	95.4	0.92	411	9.0	2.3	1.2	2.3	3.66	1450
IE2-W21R 315 LX2	315	1008	2985	IE2-	95.4	95.4	95.0	0.92	518	8.5	2.8	1.6	2.5	4.43	1700
IE2-W22R 355 M2	355	1138	2980	IE2-	95.1	95.1	94.6	0.90	599	8.0	1.2	0.8	2.2	4.20	2000
W22R 355 MX2	400	1280	2985		95.5	95.5	95.5	0.91	664	9.4	1.8	1.0	3.0	4.50	2200
W22R 355 LY2	450	1440	2985		96.0	96.0	95.5	0.92	735	7.0	1.3	0.9	2.4	7.10	2400
W22R 355 L2	500	1597	2990		96.2	96.0	95.0	0.92	815	8.5	1.5	1.2	2.5	7.10	2400
Optimised design series															
IE2-WE2R 200 LX2	37	120	2955	IE2-	92.9	93.2	92.5	0.90	64.0	8.1	2.3	1.8	3.3	0.154	238

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz

Type	P _B	M _B	n _B	IE Class	η			cos φ _B	I _B	I _A /I _B	M _A /M _B	M _S /M _B	M _K /M _B	J	m
	kW	Nm	rpm		EN 60034-2-1			-	400 V	-	-	-	-	kgm ²	kg
Synchronous speed 1500 rpm – 4-pole version															
W21R 56 K 4	0.06	0.41	1400	-	65.3	65.0	58.8	0.67	0.20	3.6	2.3	2.3	2.5	0.00024	4.8
W21R 56 G4	0.09	0.63	1370	-	67.9	64.5	60.1	0.71	0.28	3.3	1.8	1.7	2.1	0.00024	4.8
W21R 63 K4	0.12	0.82	1400	-	69.7	68.2	63.1	0.71	0.35	3.8	2.0	1.9	2.3	0.00040	6.3
W21R 63 G4	0.18	1.21	1425	-	72.1	69.3	63.2	0.64	0.57	4.4	1.8	1.8	2.7	0.00050	7.1
W21R 71 K4	0.25	1.67	1430	-	77.0	76.6	73.0	0.71	0.66	5.6	2.5	2.3	2.9	0.00087	9.9
W21R 71 G4	0.37	2.47	1430	-	79.0	78.2	73.1	0.69	0.98	6.2	2.8	2.6	3.2	0.00107	11.0
W21R 80 K4	0.55	3.67	1430	-	79.4	79.6	78.7	0.80	1.25	6.0	2.4	2.3	2.7	0.00207	14.5
IE2-W21R 80 G4	0.75	5.01	1430	IE2-	81.0	81.4	79.6	0.81	1.65	7.0	2.9	2.8	3.2	0.00260	17
IE2-WE1R 90 S4	1.1	7.32	1435	IE2-	82.0	82.3	80.4	0.80	2.42	6.8	2.4	2.2	2.9	0.00400	23
IE2-WE1R 90 L4	1.5	9.91	1445	IE2-	83.9	83.2	80.7	0.77	3.35	7.2	3.2	3.0	3.5	0.00450	28
IE2-WE1R 100 L4	2.2	14.4	1455	IE2-	85.9	85.2	81.7	0.77	4.8	9.3	3.2	3.0	3.6	0.00900	36
IE2-WE1R 100 LX4	3.0	19.7	1455	IE2-	86.5	86.3	84.5	0.77	6.5	9.0	3.3	3.1	3.9	0.01100	45
IE2-WE1R 112 MZ4	4.0	26.4	1445	IE2-	87.0	87.0	85.1	0.80	8.3	8.2	2.8	2.6	3.6	0.0130	50
IE1-WE1R 112 M 4	4.0	26.2	1460	IE2-	87.6	88.0	86.9	0.86	7.6	8.3	2.6	2.3	3.9	0.0170	56
IE2-WE1R 132 S4	5.5	35.7	1470	IE2-	89.8	89.9	88.4	0.87	10.0	7.4	2.3	1.9	3.4	0.035	87
IE2-WE1R 132 M4	7.5	48.7	1470	IE2-	89.9	90.0	88.5	0.82	14.5	8.5	2.6	2.1	4.0	0.035	88
IE2-WE1R 160 M4	11.0	71	1475	IE2-	90.6	90.3	88.5	0.82	21.5	8.1	3.1	2.4	3.4	0.078	122
IE2-WE1R 160 L4	15.0	97	1470	IE2-	90.6	91.2	90.7	0.87	27.5	7.6	2.6	2.0	3.0	0.115	160
IE2-WE1R 180 M4	18.5	120	1475	IE2-	91.5	91.5	90.4	0.86	34.0	6.8	1.8	1.5	2.7	0.168	207
IE2-WE1R 180 L4	22	142	1475	IE2-	91.6	91.4	89.9	0.83	42.0	7.3	2.1	1.7	3.0	0.168	215
IE2-WE1R 200 L4	30	194	1480	IE2-	92.3	91.3	88.2	0.80	58.5	7.3	2.1	1.7	2.9	0.275	277
IE2-WE1R 225 S4	37	240	1475	IE2-	92.7	91.8	90.7	0.84	68.5	7.4	2.2	1.7	2.7	0.313	313
IE2-WE1R 225 M4	45	290	1483	IE2-	93.1	93.0	91.1	0.84	83.0	7.9	2.2	1.8	2.3	0.525	390
IE2-WE1R 250 M4	55	354	1482	IE2-	94.0	94.1	92.5	0.85	99.5	7.7	1.8	1.5	2.3	0.95	535
IE2-WE1R 280 S4	75	482	1485	IE2-	94.2	94.4	92.1	0.84	137	7.2	1.8	1.6	2.1	0.95	550
IE2-WE1R 280 M4	90	580	1483	IE2-	94.3	94.5	94.0	0.84	164	7.4	1.8	1.6	2.3	1.10	610
IE2-W21R 315 S4	110	707	1485	IE2-	94.8	94.8	94.0	0.82	204	8.5	1.8	1.5	2.7	1.96	760
IE2-W21R 315 M4	132	849	1484	IE2-	95.0	95.0	94.5	0.83	242	8.2	1.8	1.6	2.3	2.27	850
IE2-W21R 315 MX4	160	1031	1482	IE2-	95.0	95.0	94.5	0.84	289	7.4	1.6	1.4	2.2	2.73	975
IE2-W21R 315 MY4	200	1282	1490	IE2-	95.1	95.1	94.5	0.87	349	8.5	1.8	1.6	2.5	4.82	1270
IE2-W21R 315 L4	250	1603	1490	IE2-	95.4	95.4	95.3	0.88	430	9.0	2.2	1.5	2.7	5.93	1450
IE2-W21R 315 LX4	315	2019	1490	IE2-	95.4	95.4	95.0	0.88	542	9.0	2.4	1.6	2.6	6.82	1630
IE2-W22R 355 M4	355	2271	1493	IE2-	95.5	95.5	95.0	0.87	617	8.1	1.3	1.0	2.7	7.9	2150
W22R 355 MX4	400	2557	1494		96.0	96.0	95.5	0.88	683	8.5	1.3	1.0	3.0	9.5	2400
W22R 355 LY4	450	2873	1496		96.5	96.5	96.0	0.86	783	8.5	1.4	0.8	2.9	10.0	2500
W22R 355 L4	500	3205	1490		96.5	96.5	95.5	0.84	890	8.0	1.2	0.9	3.0	10.0	2500

Optimised design series

IE2-WE2R 132 S4	5.5	36.2	1450	IE2-	88.4	89.3	89.0	0.87	10.5	7.7	2.3	1.8	3.5	0.020	64
IE2-WE2R 160 M4	11.0	71	1470	IE2-	90.3	90.3	88.9	0.78	22.5	7.8	2.4	2.1	3.9	0.043	105
IE2-WE2R 160 L4	15.0	97	1480	IE2-	92.0	92.0	90.6	0.84	28.0	9.1	3.0	2.5	3.9	0.115	161
IE2-WE2R 180 M4	18.5	120	1470	IE2-	91.2	90.6	89.3	0.78	37.5	6.4	2.0	1.6	2.8	0.138	176
IE2-WE2R 225 M4	45	291	1475	IE2-	93.1	92.9	92.1	0.80	87.0	7.6	2.6	1.9	3.1	0.356	346
IE2-WE2R 250 M4	55	356	1477	IE2-	93.9	93.8	93.7	0.82	103	7.5	2.4	1.9	2.4	0.619	436

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz

Type	P _B	M _B	n _B	IE Class	η			cos φ _B	I _B	I _A /I _B	M _A /M _B	M _S /M _B	M _K /M _B	J	m
	kW	Nm	rpm		EN 60034-2-1				400 V	-	-	-	-	kgm ²	kg
Synchronous speed 1000 rpm – 6-pole version															
W21R 71 K6	0.18	1.84	930	-	68.0	68.2	63.1	0.71	0.54	4.2	2.4	1.8	2.6	0.00130	11
W21R 71 G6	0.25	2.54	935	-	71.5	71.4	66.9	0.67	0.75	4.6	2.8	1.9	3.0	0.00175	12.5
W21R 80 K6	0.37	3.74	945	-	76.0	74.3	69.9	0.69	1.01	4.7	2.2	1.7	2.6	0.00325	15
W21R 80 G6	0.55	5.56	945	-	76.0	76.5	73.4	0.70	1.49	4.2	2.0	1.9	3.5	0.00425	18
IE2-W21R 90 S6	0.75	7.50	955	IE2-	78.2	78.3	75.1	0.71	1.95	4.9	2.4	2.3	2.6	0.00625	24
IE2-W21R 90 L6	1.1	11.0	955	IE2-	81.3	82.0	79.3	0.71	2.75	5.4	2.5	2.4	2.8	0.00720	30
IE2-W21R 100 LX6	1.5	15.0	955	IE2-	82.6	83.5	81.5	0.76	3.45	5.9	2.3	2.2	2.8	0.01390	36
IE2-W21R 112 MV6	2.2	22.0	955	IE2-	82.2	82.5	79.8	0.75	5.15	5.7	2.4	2.3	2.9	0.01550	48
IE2-W21R 112 MZ6	3.0	30.0	955	IE2-	83.3	83.6	81.3	0.75	6.85	6.5	2.8	2.7	3.5	0.01650	50
IE2-W21R 132 S6	3.0	29.8	963	IE2-	84.9	85.2	83.9	0.80	6.4	6.0	2.0	1.3	3.0	0.023	55
IE2-W21R 132 M6	4.0	39.6	965	IE2-	85.5	85.5	83.8	0.79	8.5	5.1	1.8	1.6	2.4	0.043	76
IE2-W21R 132 MX6	5.5	54	970	IE2-	86.1	85.5	82.4	0.77	12.0	5.7	2.2	1.7	2.7	0.053	85
IE2-W21R 160 M6	7.5	73	975	IE2-	87.4	88.1	86.0	0.81	15.5	6.3	2.5	2.1	2.9	0.113	118
IE2-W21R 160 L6	11.0	108	970	IE2-	88.7	87.9	86.3	0.85	21.0	5.8	2.2	1.9	2.7	0.145	135
IE2-W21R 180 L6	15.0	147	975	IE2-	89.7	88.8	86.7	0.84	28.5	6.2	2.1	1.8	2.8	0.228	185
IE2-W21R 200 L6	18.5	180	980	IE2-	90.4	88.8	86.5	0.85	35.0	6.6	2.3	1.7	2.9	0.268	208
IE2-W21R 200 LX6	22	214	980	IE2-	90.9	90.2	88.5	0.86	40.5	6.4	2.2	1.8	2.7	0.443	272
IE2-W21R 225 M6	30	291	985	IE2-	92.0	91.5	90.0	0.86	54.5	7.3	2.5	2.2	2.9	0.825	365
IE2-W21R 250 M6	37	359	985	IE2-	92.2	91.5	89.2	0.85	68.0	6.4	2.1	1.7	2.4	1.28	485
IE2-W21R 280 S6	45	437	983	IE2-	93.0	92.7	92.4	0.87	80.5	6.5	2.2	1.7	2.4	1.48	560
IE2-W21R 280 M6	55	531	990	IE2-	93.5	93.5	93.0	0.85	100	7.6	2.0	1.5	2.5	2.63	710
IE2-W21R 315 S6	75	723	990	IE2-	93.9	93.7	93.5	0.87	133	7.5	1.9	1.5	2.5	3.33	804
IE2-W21R 315 M6	90	868	990	IE2-	94.0	94.0	93.5	0.88	157	7.5	1.8	1.5	2.5	3.60	865
IE2-W21R 315 MX6	110	1061	990	IE2-	94.3	94.3	94.0	0.87	194	7.5	1.8	1.4	2.3	6.00	1210
IE2-W21R 315 MY6	132	1273	990	IE2-	94.6	94.3	94.0	0.87	231	7.5	1.9	1.4	2.2	6.00	1250
IE2-W21R 315 L6	160	1543	990	IE2-	94.8	94.5	93.5	0.88	277	7.5	2.0	1.5	2.4	6.67	1430
IE2-W21R 315 LX6	200	1929	990	IE2-	95.0	95.0	94.5	0.86	353	7.0	1.9	1.5	2.2	8.6	1460
IE2-W22R 355 M6	250	2402	994	IE2-	95.0	95.0	94.7	0.84	452	7.0	1.5	1.2	2.2	8.2	1850
IE2-W22R 355 MX6	315	3023	995	IE2-	95.2	95.2	95.2	0.86	555	7.0	1.3	1.1	2.2	12.1	2200
IE2-W22R 355 LY6	355	3407	995	IE2-	95.0	95.0	94.0	0.77	700	7.5	1.8	1.5	2.6	14.0	2400
Optimised design series															
IE2-WE2R 132 M6	4	40	955	IE2-	86.6	86.1	85.2	0.81	8.3	5.7	2.1	2.0	2.9	0.029	66
IE2-WE2R 160 M6	7.5	74	970	IE2-	87.5	87.6	85.9	0.79	15.5	5.9	2.1	1.8	2.9	0.053	103
IE2-WE2R 180 L6	15	148	970	IE2-	89.7	88.8	87.8	0.83	29	5.6	2.3	1.7	2.6	0.166	157
IE2-WE2R 200 LX6	22	215	975	IE2-	90.9	89.9	88.5	0.84	41.5	6.7	2.4	2.0	3.0	0.324	238
IE2-WE2R 225 M6	30	294	975	IE2-	91.7	91.4	90.6	0.87	54.5	6.7	2.3	1.9	2.8	0.514	308
IE2-WE2R 250 M6	37	361	979	IE2-	92.2	92.3	91.8	0.86	67.5	6.6	2.7	2.0	2.6	0.920	407

Three-phase motors with squirrel-cage rotor Energy saving motors

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz

Type	P_B	M_B	n_B	η			$\cos \varphi_B$	I_B	I_A/I_B	M_A/M_B	M_S/M_B	M_K/M_B	J	m
	kW	Nm	rpm	EN 60034-2-1			-	400 V	-	-	-	-	kgm ²	kg
Synchronous speed 750 rpm – 8-pole version														
W21R 80 K 8	0.18	2.42	710	68.0	a.A.	a.A.	0.61	0.63	3.5	1.9	1.9	2.6	0.00300	14.0
W21R 80 G 8	0.25	3.39	705	70.0	a.A.	a.A.	0.63	0.82	3.5	1.9	1.9	2.4	0.00375	17.0
W21R 90 S 8	0.37	5.05	710	73.0	71.8	67.2	0.63	1.16	3.1	1.7	1.6	1.8	0.00625	25.0
W21R 90 LV8	0.55	7.40	700	72.0	71.6	67.6	0.64	1.72	3.8	1.7	1.7	2.4	0.00720	26.0
W21R 100 S 8	0.75	10.0	715	77.0	75.4	70.9	0.62	2.27	4.6	2.6	2.5	3.0	0.01225	33.5
W21R 100 LX8	1.1	14.8	710	79.0	78.6	75.2	0.63	3.20	4.3	2.0	1.9	2.6	0.01390	36
W21R 112 MV8	1.5	20.5	700	78.0	78.5	75.8	0.65	4.25	3.8	1.7	1.6	2.2	0.01550	48
W21R 132 S8	2.2	29.2	720	81.7	81.0	77.5	0.65	6	4.8	2.2	2.0	3.2	0.0180	53
W21R 132 M8	3.0	39.8	720	82.7	83.0	81.3	0.74	7.1	3.9	1.6	1.3	1.9	0.0430	70
W21R 160 M8	4.0	53.2	718	84.2	83.7	81.9	0.72	9.5	4.6	1.6		2.5	0.0530	86
W21R 160 MX8	5.5	72.0	730	86.9	86.6	84.1	0.72	12.5	4.8	2.1	1.8	2.6	0.1130	114
W21R 160 L8	7.5	99	725	87.5	87.0	83.5	0.77	16	5.5	2.0		2.8	0.1450	136
W21R 180 L8	11.0	144	727	88.2	88.2	86.7	0.78	23	4.9	1.8	1.6	2.4	0.2280	175
W21R 200 L8	15.0	197	727	88.2	88.1	86.4	0.77	32	4.9	1.9	1.7	2.3	0.2680	200
W21R 225 S8	18.5	242	730	89.6	89.4	87.2	0.78	38	5.4	2.1	2.0	2.8	0.44	265
W21R 225 M8	22	287	733	90.6	89.4	89.9	0.78	45	5.6	2.2	1.8	2.6	0.83	360
W21R 250 M8	30	389	737	91.5	91.2	88.3	0.78	60.5	5.5	2.2	1.8	2.5	1.35	465
W21R 280 S8	37	480	736	91.6	91.1	88.6	0.79	73.5	5.4	2.0	1.7	2.3	1.55	520
W21R 280 M8	45	581	740	92.7	92.7	92.0	0.79	88.5	6.7	1.8	1.5	2.5	2.63	690
W21R 315 S8	55	710	740	93.0	93.0	92.5	0.80	107	6.0	1.8	1.5	2.2	3.33	800
W21R 315 M8	75	968	740	93.5	93.5	93.0	0.81	143	6	1.8	1.5	2.1	3.33	850
W21R 315 MX8	90	1161	740	92.1	91.6	90.1	0.81	174	6	1.9		2.2	3.60	880
W21R 315 MY8	110	1420	740	93.8	93.3	91.2	0.81	209	6.5	2.1		2.4	6.00	1050
W21R 315 L8	132	1704	740	94.3	93.7	91.3	0.83	243	6.3	2		2.1	6.76	1250
W21R 315 LX8	160	2065	740	94.2	94.2	93.8	0.80	306	7.2	2.2	1.8	2.5	8.71	1430
W22R 355 M8	200	2571	743	94.7	94.1	91.5	0.77	396					9.5	1850
W22R 355 MX8	250	3205	745	95.8	95.8	95.5	0.83	454	7.0	1.2	1.0	2.6	13.4	2200
W22R 355 LY8	280	3599	743	94.8	94.1	91.5	0.78	547					15.8	2400
Optimised design series														
WE2R 132 M8	3.0												0.029	65
WE2R 160 MX8	5.5	73.0	715	83.9	84.0	81.9	0.71	13.5	4.3	1.7	1.5	2.5	0.053	103
WE2R 180 L8	11.0		730	87.9	87.4	85.2	0.67		4.3	1.9	1.6	2.3	0.166	157
WE2R 225 S8	18.5	240	735	90.7	90.7	89.4	0.80	37.0	6.1	2.1	1.9	2.9	0.514	305
WE2R 225 M8	22	286	735	90.3	90.3	88.7	0.77	45.5	6.1	2.2	2.0	2.9	0.514	307
WE2R 250 M8	30	391	732	91.5	91.7	90.9	0.77	61.5	5.6	2.3	2.0	2.5	0.850	405

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Efficiency class „High Efficiency“ acc. to EN 60034-30
with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz/460 V, 60 Hz

Type	UB V	fB Hz	P _B kW	M _B Nm	n _B rpm	η 100 %	η 75 %	η 50 %	cos φ _B -	I _B A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg
Synchronous speed 3000/3600 rpm – 2-pole version																
W21R 56 K2	400	50	0.090	0.30	2825	- 65.8	64.6	64.3	0.83	0.22	5.0	2.0	2.0	2.4	0.00015	4.8
	460	60	0.105	0.29	3410	- 72.0	71.0	70.0	0.83	0.22	5.3	2.5	2.5	2.8		
W21R 56 G2	400	50	0.12	0.41	2810	- 67.3	65.8	61.9	0.83	0.31	4.7	2.0	2.0	2.2	0.00015	4.8
	460	60	0.14	0.39	3410	- 71.4	70.2	66.5	0.82	0.30	5.2	2.0	2.0	2.3		
W21R 63 K2	400	50	0.18	0.61	2840	- 75.0	73.8	64.4	0.82	0.42	5.7	2.4	2.3	2.7	0.00025	6.3
	460	60	0.21							a.A.						
W21R 63 G2	400	50	0.25	0.83	2860	- 73.7	73.9	70.1	0.84	0.55	6.2	2.6	2.5	2.8	0.00032	7.0
	460	60	0.30							a.A.						
W21R 71 K2	400	50	0.37	1.24	2860	- 76.3	74.2	72.7	0.87	0.78	7.1	2.9	2.7	3.1	0.00057	10.0
	460	60	0.44	1.21	3460	- 82.3	83.9	82.4	0.86	0.78	7.3	3.0	2.8	3.2		
W21R 71 G2	400	50	0.55	1.83	2870	- 78.7	78.3	75.4	0.86	1.14	7.4	3.0	2.7	3.3	0.00072	11.2
	460	60	0.65	1.79	3465	- 83.0	82.4	76.6	0.87	1.13	7.8	2.8	2.5	2.9		
IE2-W21R 80 K2	400	50	0.75	2.49	2880	IE2- 80.4	80.9	79.0	0.88	1.48	7.7	2.2	2.1	2.7	0.00132	15
	460	60	0.9	2.48	3470	IE2- 75.5	80.2	77.9	0.89	1.54	7.3	2.1	1.8	2.4		
IE2-WE1R 80 G2	400	50	1.1	3.64	2885	IE2- 82.3	81.4	80.6	0.89	2.15	7.8	2.5	2.3	2.8	0.00170	18
	460	60	1.3	3.58	3470	IE2- 84.0	83.8	80.6	0.89	2.16	8.0	2.4	2.2	2.7		
IE2-WE1R 90 S2	400	50	1.5	4.92	2910	IE2- 83.9	83.6	81.0	0.87	2.90	9.0	2.8	2.4	3.4	0.00275	23.5
	460	60	1.8	4.90	3510	IE2- 84.0	87.0	84.6	0.88	2.90	8.1	2.1	2.0	3.1		
IE2-WE1R 90 L2	400	50	2.2	7.29	2880	IE2- 84.9	85.7	83.9	0.88	4.25	8.0	2.5	2.3	2.9	0.00275	23.5
	460	60	2.6	7.16	3470	IE2- 85.5	86.5	87.4	0.88	4.30	7.2	2.1	1.8	2.7		
IE2-WE1R 100 L2	400	50	3	9.78	2930	IE2- 86.9	86.1	83.4	0.76	6.55	8.5	2.6	2.4	3.8	0.00450	31
	460	60	3.6	9.75	3525	IE2- 87.5	86.5	85.2	0.80	6.45	7.5	1.8	1.6	3.2		
IE2-WE1R 112 MX2	400	50	4	13.08	2920	IE2- 87.0	86.4	85.8	0.84	7.90	8.3	2.3	2.1	3.3	0.00550	38
	460	60	4.8	13.06	3510	IE2- 88.5	88.8	88.1	0.86	7.90	7.1	1.6	1.4	2.6		
IE2-WE1R 112 MV2	400	50	5.5	18.11	2900	IE2- 87.6	88.7	88.8	0.88	10.3	7.8	2.0	1.9	2.7	0.00680	46
	460	60	6.6	18.1	3490	IE2- 89.5	89.9	89.4	0.88	10.5	8.0	1.9	1.8	2.6		
IE2-WE1R 132 S2T	400	50	5.5	18.1	2900	IE2- 87.6	88.7	88.8	0.88	10.3	7.8	2.0	1.9	2.7	0.00680	48
	460	60	6.6	18.1	3490	IE2- 89.5	89.9	89.4	0.88	10.5	8.0	1.9	1.8	2.6		
IE2-WE1R 132 S2	400	50	5.5	18.0	2915	IE2- 88.7	88.8	87.6	0.85	10.5	6.8	1.9	1.5	3.0	0.0110	57
	460	60	6.3	17.1	3510	IE2- 88.9	88.8	87.0	0.86	12.0	6.7	1.9	1.5	3.1		
IE2-WE1R 132 SX2	400	50	7.5	24.5	2925	IE2- 88.4	88.7	87.6	0.91	13.5	6.7	2.1	1.6	2.9	0.0168	75
	460	60	9.0	24.5	3505	IE2- 89.5	89.4	88.5	0.90	16.0	6.2	2.1	1.7	2.8		
IE2-WE1R 160 M2	400	50	11.0	35.6	2950	IE2- 90.3	90.3	89.1	0.90	19.5	7.7	2.3	1.7	3.1	0.0258	125
	460	60	13.0	35.0	3545	IE2- 90.2	88.4	85.2	0.91	23.0	7.5	2.0	1.4	2.8		
IE2-WE1R 160 MX2	400	50	15.0	48.7	2940	IE2- 90.7	91.2	90.8	0.92	26.0	6.7	1.8	1.4	2.6	0.0675	140
	460	60	16.5	44.6	3535	IE2- 90.2	89.7	88.4	0.91	29.0	6.5	1.9	1.4	2.6		
IE2-WE1R 160 L2	400	50	18.5	60.2	2935	IE2- 91.0	91.7	91.3	0.91	32.0	7.2	2.0	1.5	2.8	0.0675	140
	460	60	22.0	59.6	3525	IE2- 91.6	91.3	89.6	0.92	37.5	7.0	1.8	1.3	2.6		
IE2-WE1R 180 M2	400	50	22	72	2935	IE2- 91.3	90.6	86.4	0.90	38.5	6.2	1.4	1.1	2.4	0.105	173
	460	60	26	70	3545	IE2- 91.7	91.6	90.9	0.90	39.5	6.0	1.5	1.2	2.4		
IE2-WE1R 200 L2	400	50	30	97	2945	IE2- 92.0	91.3	90.5	0.91	52.0	6.9	1.7	1.3	2.6	0.128	210
	460	60	33	89	3545	IE2- 91.7	91.0	90.1	0.92	49.0	7.2	1.7	1.4	2.7		
IE2-WE2R 200 LX2	400	50	37	120	2940	IE2- 92.5	92.3	91.6	0.92	63.0	7.4	1.9	1.4	2.9	0.154	233
	460	60	44	119	3545	IE2- 93.0	92.4	92.1	0.91	65.5	6.8	1.9	1.5	2.8		
IE2-WE1R 225 M2	400	50	45	146	2950	IE2- 92.9	92.2	91.2	0.87	80.5	6.9	1.7	1.1	2.7	0.360	295
	460	60	49	132	3550	IE2- 93.0	92.2	91.3	0.89	74.5	7.2	1.6	1.2	2.9		
IE2-WE1R 250 M2	400	50	55	178	2955	IE2- 93.2	92.9	90.0	0.88	97.0	8.1	2.3	1.9	2.8	0.375	385
	460	60	66	177	3557	IE2- 93.6	93.3	92.7	0.89	99.5	8.0	2.0	1.7	2.7		
IE2-WE1R 280 S2	400	50	75	241	2970	IE2- 94.1	94.0	91.5	0.90	128	8.1	2.1	1.8	3.1	0.65	510
	460	60	90	241	3569	IE2- 94.5	93.9	92.8	0.90	133	7.9	2.0	1.7	2.8		
IE2-WE1R 280 M2	400	50	90	289	2970	IE2- 94.4	94.1	91.9	0.91	151	7.7	2.0	1.7	2.8	0.68	550
	460	60	110	294	3568	IE2- 94.5	94.0	93.7	0.91	161	7.5	1.9	1.6	2.7		
IE2-W21R 315 S2	400	50	110	353	2975	IE2- 94.5	94.3	93.3	0.89	189	8.0	1.3	1.2	2.4	1.21	730
	460	60	120	320	3580	IE2- 94.5	94.0	93.0	0.89	179	8.5	1.4	1.3	2.5		
IE2-W21R 315 M2	400	50	132	424	2975	IE2- 95.0	94.8	94.5	0.89	225	9.2	1.4	1.2	2.4	1.44	820
	460	60	145	387	3580	IE2- 94.7	94.5	94.0	0.90	214	9.4	1.4	1.2	2.4		
IE2-W21R 315 MX2	400	50	160	513	2977	IE2- 94.8	94.8	94.8	0.89	274	9.3	1.5	1.5	2.6	1.76	955
	460	60	165	440	3580	IE2- 95.0	94.5	93.5	0.90	242	9.5	1.6	1.5	2.7		
IE2-W21R 315 MY2	400	50	200	640	2983	IE2- 95.4	95.0	94.3	0.88	344	9.4	2.8	2.0	3.0	2.82	1200
	460	60	220	586	3585	IE2- 95.4	95.0	94.0	0.89	325	9.5	2.8	2.0	3.0		
IE2-W21R 315 L2	400	50	250	800	2984	IE2- 95.4	95.4	95.4	0.92	411	9.0	2.3	1.2	2.3	3.66	1450
	460	60	280	748	3575	IE2- 95.4	95.0	94.0	0.91	405	9.5	2.4	1.1	2.4		
IE2-W21R 315 LX2	400	50	315	1008	2985	IE2- 95.4	95.4	95.0	0.92	518	8.5	2.8	1.6	2.5	4.43	1700
	460	60	330	880	3580	IE2- 95.4	95.4	95.4	0.92	472	9.0	2.8	1.6	2.5		
IE2-W22R 355 M2	400	50	355	1138	2980	IE2- 95.1	95.1	94.6	0.90	599	8.0	1.2	0.8	2.2	4.20	2000
	460	60	375	999	3585	IE2- 95.4	95.0	94.5	0.91	542	8.5	1.5	1.3	2.2		
W22R 355 MX2	400	50	400	1280	2985	- 95.5	95.5	95.5	0.91	664	9.4	1.8	1.0	3.0	4.50	2200
	460	60	440	1170	3590	- 95.8	95.5	95.0	0.91	633	9.4	1.7	1.1	3.0		
W22R 355 LY2	400	50	450	1440	2985	- 96.0	96.0	95.5	0.92	735	7.0	1.3	0.9	2.4	7.10	2400
	460	60	490	1303	3590	- 96.0	95.5	94.5	0.92	696	7.5	1.5	0.9	2.4		
W22R 355 L2	400	50	500	1597</												

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Efficiency class „High Efficiency“ acc. to EN 60034-30
with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz/460 V, 60 Hz

Type	UB V	fB Hz	P _B kW	M _B Nm	n _B rpm	η 100 %	η 75 %	η 50 %	cos φ _B -	I _B A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg
Synchronous speed 1500/1800 rpm – 4-pole version																
W21R 56 K4	400	50	0.060	0.41	1400	- 65.3	65.0	58.8	0.67	0.20	3.6	2.3	2.3	2.5	0.00024	4.8
W21R 56 G4	460	60	0.075	0.43	1680	- 66.3	64.9	56.4	0.71	0.20	3.9	2.1	2.1	2.5	0.00024	4.8
W21R 63 K4	400	50	0.12	0.82	1400	- 69.7	68.2	63.1	0.71	0.35	3.8	2.0	1.9	2.3	0.00040	6.3
W21R 63 G4	460	60	0.14	0.79	1700	- 70.5	70.6	66.1	0.71	0.35	4.1	2.0	1.9	2.4	0.00050	7.1
W21R 71 K4	400	50	0.25	1.67	1430	- 77.0	76.6	73.0	0.71	0.66	5.6	2.5	2.3	2.9	0.00087	9.9
W21R 71 G4	460	60	0.30	1.66	1725	- 77.1	76.5	72.8	0.74	0.66	5.2	2.1	2.0	2.7	0.00107	11
W21R 80 K4	400	50	0.55	3.67	1430	- 79.4	79.6	78.7	0.80	1.25	6.0	2.4	2.3	2.7	0.00207	14.5
IE2-W21R 80 G4	460	60	0.65	3.60	1725	- 81.2	80.5	76.9	0.81	1.24	6.2	2.2	2.1	2.6	0.00260	17
IE2-WE1R 90 S4	400	50	1.1	7.32	1435	IE2- 82.0	82.3	80.4	0.80	2.42	6.8	2.4	2.2	2.9	0.00400	23
IE2-WE1R 90 L4	460	60	1.3	7.16	1735	IE2- 84.0	84.8	83.5	0.81	2.40	6.6	2.5	2.3	3.0	0.00450	28
IE2-WE1R 100 L4	400	50	1.5	9.91	1445	IE2- 83.9	83.2	80.7	0.77	3.35	7.2	3.2	3.0	3.5	0.01100	45
IE2-WE1R 100 LX4	460	60	1.8	9.91	1735	IE2- 84.0	84.2	82.4	0.79	3.40	7.0	2.7	2.5	3.1	0.00900	36
IE2-WE1R 112 MZ4	400	50	2.2	14.4	1455	IE2- 85.9	85.2	81.7	0.77	4.80	9.3	3.2	3.0	3.6	0.0130	50
IE2-WE1R 112 M4	460	60	2.6	14.1	1755	IE2- 87.5	86.6	84.5	0.76	4.90	7.7	2.2	2.1	3.4	0.0170	56
IE2-WE1R 132 S4	400	50	3.0	19.7	1455	IE2- 86.5	86.3	84.5	0.77	6.50	9.0	3.3	3.1	3.9	0.035	87
IE2-WE1R 132 M4	460	60	3.6	19.6	1750	IE2- 87.5	87.8	86.0	0.79	6.50	7.7	2.6	2.5	3.2	0.035	88
IE2-WE1R 160 M4	400	50	4.0	26.4	1445	IE2- 87.0	87.0	85.1	0.80	8.30	8.2	2.8	2.6	3.6	0.078	122
IE2-WE1R 160 L4	460	60	4.5	24.6	1745	IE2- 87.5	87.5	85.9	0.80	8.05	7.8	2.4	2.3	3.5	0.115	160
IE2-WE1R 180 M4	400	50	4.0	26.2	1460	IE2- 87.6	88.0	86.9	0.86	7.6	8.3	2.6	2.3	3.9	0.168	207
IE2-WE1R 180 L4	460	60	4.8	26	1760	IE2- 89.5	88.9	87.5	0.88	7.6	7.8	2.4	2.1	3.6	0.168	215
IE2-WE1R 200 L4	400	50	5.5	35.7	1470	IE2- 89.8	89.9	88.4	0.87	10.0	7.4	2.3	1.9	3.4	0.275	277
IE2-WE1R 225 S4	460	60	6.6	35.7	1765	IE2- 89.8	90.0	88.5	0.88	10.5	6.6	2.2	1.6	3.0	0.313	313
IE2-WE1R 225 M4	400	50	7.5	48.7	1470	IE2- 89.9	90.0	88.5	0.82	14.5	8.5	2.6	2.1	4.0	0.525	390
IE2-WE1R 250 M4	460	60	9.0	48.6	1770	IE2- 90.8	90.6	89.0	0.83	15.0	8.1	2.5	2.0	3.8	0.95	535
IE2-WE1R 280 S4	400	50	11.0	71	1475	IE2- 90.6	90.3	88.5	0.82	21.5	8.1	3.1	2.4	3.4	0.95	550
IE2-WE1R 280 M4	460	60	13.0	70	1775	IE2- 91.1	90.8	89.2	0.82	21.5	7.7	2.8	2.2	3.2	1.10	610
IE2-W21R 315 S4	400	50	15.0	97	1470	IE2- 90.6	91.2	90.7	0.87	27.5	7.6	2.6	2.0	3.0	1.96	760
IE2-W21R 315 M4	460	60	16.5	89	1765	IE2- 91.2	91.5	90.4	0.87	26.1	7.4	2.4	2.0	2.9	2.27	850
IE2-W21R 315 MX4	400	50	18.5	120	1475	IE2- 91.5	91.5	90.4	0.86	34.0	6.8	1.8	1.5	2.7	2.73	975
IE2-W21R 315 MY4	460	60	22.0	118	1775	IE2- 92.4	91.4	89.9	0.86	35.0	6.3	1.6	1.4	2.5	4.82	1270
IE2-W21R 315 L4	400	50	22	142	1475	IE2- 91.6	91.4	89.9	0.83	42.0	7.3	2.1	1.7	3.0	5.93	1450
IE2-W21R 315 LX4	460	60	26	139	1780	IE2- 93.0	91.7	90.0	0.84	42.0	7.2	2.0	1.7	2.9	6.82	1630
IE2-W22R 355 M4	400	50	30	194	1480	IE2- 92.3	91.3	88.2	0.80	58.5	7.3	2.1	1.7	2.9	7.9	2150
W22R 355 MX4	460	60	36	193	1780	IE2- 93.0	92.5	91.4	0.82	59.5	6.8	2.0	1.7	2.8	9.5	2400
W22R 355 LY4	400	50	37	240	1475	IE2- 92.7	91.8	90.7	0.84	68.5	7.4	2.2	1.7	2.7	10.0	2500
W22R 355 L4	460	60	44	237	1775	IE2- 93.0	92.5	91.9	0.82	72.5	6.5	1.9	1.6	2.5	10.0	2500
IE2-W22R 355 M4	400	50	45	290	1483	IE2- 93.1	93.0	91.1	0.84	83.0	7.9	2.2	1.8	2.3	10.0	2500
IE2-W22R 355 M4	460	60	49	263	1780	IE2- 93.6	93.0	91.5	0.84	78.0	8.0	2.2	1.8	2.4	10.0	2500
IE2-W22R 355 M4	400	50	55	354	1482	IE2- 94.0	94.1	92.5	0.85	99.5	7.7	1.8	1.5	2.3	10.0	2500
IE2-W22R 355 M4	460	60	64	342	1785	IE2- 94.1	94.0	92.5	0.85	100	7.6	1.7	1.5	2.2	10.0	2500
IE2-W22R 355 M4	400	50	75	482	1485	IE2- 94.2	94.4	92.1	0.84	137	7.2	1.8	1.6	2.1	10.0	2500
IE2-W22R 355 M4	460	60	90	483	1780	IE2- 94.5	94.3	93.5	0.83	144	7.2	1.7	1.5	2.1	10.0	2500
IE2-W22R 355 M4	400	50	90	580	1483	IE2- 94.3	94.5	94.0	0.84	164	7.4	1.8	1.6	2.3	10.0	2500
IE2-W22R 355 M4	460	60	105	563	1780	IE2- 95.0	94.5	92.5	0.84	165	7.7	2.0	1.7	2.3	10.0	2500
IE2-W21R 315 S4	400	50	110	707	1485	IE2- 94.8	94.8	94.0	0.82	204	8.5	1.8	1.5	2.7	10.0	2500
IE2-W21R 315 M4	460	60	132	707	1784	IE2- 95.2	95.2	94.6	0.85	205	8.0	1.6	1.5	2.2	10.0	2500
IE2-W21R 315 MX4	400	50	132	849	1484	IE2- 95.0	95.0	94.5	0.83	242	8.2	1.8	1.6	2.3	10.0	2500
IE2-W21R 315 MY4	460	60	145	777	1783	IE2- 95.0	95.0	94.5	0.83	231	8.0	1.9	1.5	2.4	10.0	2500
IE2-W21R 315 L4	400	50	160	1031	1482	IE2- 95.0	95.0	94.5	0.84	289	7.4	1.6	1.4	2.2	10.0	2500
IE2-W21R 315 LX4	460	60	175	939	1780	IE2- 95.1	95.1	94.5	0.85	272	8.0	1.6	1.5	2.2	10.0	2500
IE2-W21R 315 L4	400	50	200	1282	1490	IE2- 95.1	95.1	94.5	0.87	349	8.5	1.8	1.6	2.5	10.0	2500
IE2-W21R 315 LX4	460	60	220	1174	1790	IE2- 95.4	95.4	95.0	0.87	333	8.8	2.0	1.6	2.6	10.0	2500
IE2-W21R 315 LX4	400	50	250	1603	1490	IE2- 95.4	95.4	95.3	0.88	430	9.0	2.2	1.5	2.7	10.0	2500
IE2-W21R 315 LX4	460	60	280	1494	1790	IE2- 95.4	94.5	93.5	0.87	423	9.2	2.3	1.6	2.8	10.0	2500
IE2-W21R 315 LX4	400	50	315	2019	1490	IE2- 95.4	95.4	95.0	0.88	542	9.0	2.4	1.6	2.6	10.0	2500
IE2-W21R 315 LX4	460	60	330	1761	1790	IE2- 95.4	94.5	93.5	0.87	499	9.2	2.5	1.7	1.7	10.0	2500
IE2-W22R 355 M4	400	50	355	2271	1493	IE2- 95.5	95.5	95.0	0.87	617	8.1	1.3	1.0	2.7	10.0	2500
IE2-W22R 355 M4	460	60	375	1997	1793	IE2- 95.4	95.4	94.5	0.87	567	9.0	1.3	0.9	2.9	10.0	2500
IE2-W22R 355 M4	400	50	400	2557	1494	96.0	96.0	95.5	0.88	683	8.5	1.3	1.0	3.0	10.0	2500
IE2-W22R 355 M4	460	60	425	2267	1790	96.0	96.0	95.5	0.87	639	9.0	1.4	1.0	3.1	10.0	2500
IE2-W22R 355 M4	400	50	450	2873	1496	96.5	96.5	96.0	0.86	783	8.5	1.4	0.8	2.9	10.0	2500
IE2-W22R 355 M4	460	60	475	2529	1794	96.0	96.0	95.5	0.83	748	9.2	1.5	1.0	3.5	10.0	2500
IE2-W22R 355 M4	400	50	500	3205	1490	96.5	96.5	95.5	0.84	890	8.0	1.2	0.9	3.0	10.0	2500
IE2-W22R 355 M4	460	60	525	2795	1794	96.5	96.5	95.0	0.83	823	9.0	1.3	1.0	3.3	10.0	2500

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Efficiency class „High Efficiency“ acc. to EN 60034-30
with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz/460 V, 60 Hz

Type	UB V	fB Hz	P _B kW	M _B Nm	n _B rpm	η 100 %	η 75 %	η 50 %	cos φ _B -	I _B A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg
Synchronous speed 1000/1200 rpm – 6-pole version																
W21R 71 K6	400 460	50 60	0.18	1.84	930	- 68.0	68.2	63.1	0.71	0.54	4.2	2.4	1.8	2.6	0.00130	11
W21R 71 G6	400 460	50 60	0.25	2.54	935	- 71.5	71.4	66.9	a.A. 0.67	0.75	4.6	2.8	1.9	3.0	0.00175	12.5
W21R 80 K6	400 460	50 60	0.37	3.74	945	- 76.0	74.3	69.9	a.A. 0.69	1.01	4.7	2.2	1.7	2.6	0.00325	15
W21R 80 G6	400 460	50 60	0.55	5.56	945	- 76.0	76.5	73.4	a.A. 0.70	1.49	4.2	2.0	1.9	3.5	0.00425	18
IE2-W21R 90 S6	400 460	50 60	0.75 0.90	7.50 7.47	955 1150	IE2- 78.2 IE2- 80.0	78.3 79.6	75.1 76.9	0.71 0.72	1.95 1.95	4.9 5.1	2.4 2.3	2.3 2.1	2.6 2.6	0.00625	24
IE2-W21R 90 L6	400 460	50 60	1.1	11.0	955	IE2- 81.3	82.0	79.3	0.71	2.75	5.4	2.5	2.4	2.8	0.00720	30
IE2-W21R 100 LX6	400 460	50 60	1.5	15.0	955	IE2- 82.6	83.5	81.5	a.A. 0.76	3.45	5.9	2.3	2.2	2.8	0.01390	36
IE2-W21R 112 MV6	400 460	50 60	2.2	22.0	955	IE2- 82.2	82.5	79.8	0.75	5.15	5.7	2.4	2.3	2.9	0.01550	48
IE2-W21R 112 MZ6	400 460	50 60	3.0	30.0	955	IE2- 83.3	83.6	81.3	0.75	6.85	6.5	2.8	2.7	3.5	0.01650	50
IE2-W21R 132 S6	400 460	50 60	3.0 3.6	29.8 29.6	963 1160	IE2- 84.9 IE2- 87.5	85.2 86.8	83.9 85.4	0.80 0.81	6.4 6.4	6.0 5.7	2.0 1.8	1.3 1.2	3.0 2.8	0.023	55
IE2-W21R 132 M6	400 460	50 60	4.0 4.5	39.6 36.9	965 1165	IE2- 85.5 IE2- 87.5	85.5 86.0	83.8 83.4	0.79 0.79	8.5 8.2	5.1 5.3	1.8 1.8	1.6 1.6	2.4 2.5	0.043	76
IE2-W21R 132 MX6	400 460	50 60	5.5 6.3	54 63	970	IE2- 86.1	85.5	82.4	0.77 a.A.	12.0	5.7	2.2	1.7	2.7	0.053	85
IE2-W21R 160 M6	400 460	50 60	7.5 9.0	73 73	975 1175	IE2- 87.4 IE2- 89.5	88.1 88.9	86.0 87.0	0.81 0.82	15.5 15.5	6.3 5.8	2.5 2.2	2.1 2.0	2.9 2.7	0.113	118
IE2-W21R 160 L6	400 460	50 60	11.0 13.0	108 130	970	IE2- 88.7	87.9	86.3	0.85 a.A.	21.0	5.8	2.2	1.9	2.7	0.145	135
IE2-W21R 180 L6	400 460	50 60	15.0 16.5	147 134	975 1177	IE2- 89.7 IE2- 90.2	88.8 89.3	86.7 87.3	0.84 0.85	28.5 27.0	6.2 6.6	2.1 2.2	1.8 1.8	2.8 2.7	0.228	185
IE2-W21R 200 L6	400 460	50 60	18.5 22.0	180 179	980 1175	IE2- 90.4 IE2- 91.7	88.8 90.1	86.5 88.5	0.85 0.86	35.0 35.0	6.6 6.7	2.3 2.2	1.7 1.8	2.9 2.7	0.268	208
IE2-W21R 200 LX6	400 460	50 60	22 25	214 202	980 1180	IE2- 90.9 IE2- 91.7	90.2 91.2	88.5 90.0	0.86 0.86	40.5 40.0	6.4 6.4	2.2 2.1	1.8 1.8	2.7 2.6	0.443	272
IE2-W21R 225 M6	400 460	50 60	30 36	291 291	985 1182	IE2- 92.0 IE2- 93.0	91.5 92.0	90.0 90.5	0.86 0.85	54.5 57.0	7.3 7.1	2.5 2.3	2.2 2.0	2.9 2.6	0.825	365
IE2-W21R 250 M6	400 460	50 60	37 40	359 322	985 1185	IE2- 92.2 IE2- 93.0	91.5 92.0	89.2 89.5	0.85 0.86	68.0 62.8	6.4 8.6	2.1 2.1	1.7 1.8	2.4 2.5	1.28	485
IE2-W21R 280 S6	400 460	50 60	45 49	437 395	983 1185	IE2- 93.0 IE2- 93.6	92.7 93.1	92.4 90.5	0.87 0.85	80.5 77.5	6.5 7.1	2.2 2.8	1.7 2.1	2.4 2.9	1.48	560
IE2-W21R 280 M6	400 460	50 60	55 64	531 514	990 1190	IE2- 93.5 IE2- 94.1	93.5 93.5	93.0 93.0	0.85 0.84	100 102	7.6 8.0	2.0 2.1	1.5 1.6	2.5 2.7	2.63	710
IE2-W21R 315 S6	400 460	50 60	75 82	723 658	990 1190	IE2- 93.9 IE2- 94.1	93.7 93.5	93.5 93.0	0.87 0.89	133 123	7.5 7.4	1.9 1.8	1.5 1.5	2.5 2.4	3.33	804
IE2-W21R 315 M6	400 460	50 60	90 99	868 794	990 1190	IE2- 94.0 IE2- 94.1	94.0 94.0	93.5 93.5	0.88 0.87	157 152	7.5 8.0	1.8 2.1	1.5 1.6	2.5 2.7	3.60	865
IE2-W21R 315 MX6	400 460	50 60	110 120	1061 963	990 1190	IE2- 94.3 IE2- 95.0	94.3 94.6	94.0 94.0	0.87 0.86	194 184	7.5 8.0	1.8 2.1	1.4 1.5	2.3 2.6	6.67	1210
IE2-W21R 315 MY6	400 460	50 60	132 145	1273 1164	990 1190	IE2- 94.6 IE2- 95.0	94.3 95.0	94.0 94.5	0.87 0.86	231 223	7.5 8.0	1.9 2.0	1.4 1.5	2.2 2.4	6.67	1250
IE2-W21R 315 L6	400 460	50 60	160 175	1543 1404	990 1190	IE2- 94.8 IE2- 95.0	94.5 94.8	93.5 94.3	0.88 0.87	277 266	7.5 8.0	2.0 2.0	1.5 1.5	2.4 2.4	8.6	1430
IE2-W21R 315 LX6	400 460	50 60	200 220	1929 1766	990 1190	IE2- 95.0 IE2- 95.0	95.0 95.0	94.5 94.5	0.86 0.86	353 338	7.0 7.0	1.9 1.9	1.5 1.5	2.2 2.3	8.6	1460
IE2-W22R 355 M6	400 460	50 60	250 280	2402 2241	994 1193	IE2- 95.0 IE2- 95.0	95.0 94.5	94.7 93.5	0.84 0.83	452 446	7.0 8.0	1.5 1.7	1.2 1.3	2.2 2.5	8.2	1850
IE2-W22R 355 MX6	400 460	50 60	315 330	3023 2633	995 1197	IE2- 95.2 IE2- 95.2	95.2 95.2	95.2 95.2	0.86 0.86	555 506	7.0 7.0	1.3 1.3	1.1 1.1	2.2 2.2	12.1	2200
IE2-W22R 355 LY6	400 460	50 60	355 375	3407 2997	995 1195	IE2- 95.0 IE2- 95.0	95.0 94.5	94.0 93.5	0.77 0.76	700 652	7.5 8.0	1.8 1.9	1.5 1.6	2.6 2.8	14.0	2400

Three-phase motors with squirrel-cage rotor Energy saving motors

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz/460 V, 60 Hz

Type	UB V	fB Hz	P _B kW	M _B Nm	n _B rpm	100 %	75 %	50 %	cos φ _B -	I _B A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg
Synchronous speed 750/900 rpm – 8-pole version																
W21R 80 K8	400	50	0.18	2.42	710	68.0	a.A.	a.A.	0.61	0.63	3.5	1.9	1.9	2.6	0.00300	14.0
	460	60	0.18						a.A.							
W21R 80 G8	400	50	0.25	3.39	705	70.0	a.A.	a.A.	0.63	0.82	3.5	1.9	1.9	2.4	0.00375	17.0
	460	60	0.25						a.A.							
W21R 90 S8	400	50	0.37	5.05	710	73.0	71.8	67.2	0.63	1.16	3.1	1.7	1.6	1.8	0.00625	25.0
	460	60	0.37						a.A.							
W21R 90 L8	400	50	0.55	7.40	700	72.0	71.6	67.6	0.64	1.72	3.8	1.7	1.7	2.4	0.00720	30.0
	460	60	0.55						a.A.							
W21R 100 L8	400	50	0.75	10.0	715	77.0	75.4	70.9	0.62	2.27	4.6	2.6	2.5	3.0	0.01225	33.5
	460	60	0.75						a.A.							
W21R 100 LX8	400	50	1.1	14.8	710	79.0	78.6	75.2	0.63	3.20	4.3	2.0	1.9	2.6	0.014	36
	460	60	1.1						a.A.							
W21R 112 MV8	400	50	1.5	20.5	700	78.0	78.5	75.8	0.65	4.25	3.8	1.7	1.6	2.2	0.016	48
	460	60	1.5						a.A.							
W21R 132 S8	400	50	2.2	29.2	720	81.7	81.0	77.5	0.65	6	4.8	2.2	2.0	3.2	0.018	55
	460	60	2.6	28.5	870	83.6	82.7	78.3	0.67	5.1	2.0	1.8	3.1			
W21R 132 M8	400	50	3.0	39.8	720	82.7	83.0	81.3	0.74	7.1	3.9	1.6	1.3	1.9	0.043	74
	460	60	3.6	39.5	870	84.2	84.5	83.0	0.75	3.6	1.4	1.2	1.8			
W21R 160 M8	400	50	4.0	53.2	718	84.2	83.7	81.9	0.72	9.5	4.6	1.6		2.5	0.053	86
	460	60							a.A.							
W21R 160 MX8	400	50	5.5	72.0	730	86.9	86.6	84.1	0.72	12.5	4.8	2.1	1.8	2.6	0.113	115
	460	60	6.6	72	875	87.8	87.2	84.6	0.74	4.9	2.0	1.6	2.4			
W21R 160 L8	400	50	7.5	99	725	87.5	87.0	83.5	0.77	16	5.5	2.0		2.8	0.145	136
	460	60							a.A.							
W21R 180 L8	400	50	11.0	144	727	88.2	88.2	86.7	0.78	23	4.9	1.8	1.6	2.4	0.228	175
	460	60	13.0	141	878	89.4	89.4	87.9	0.78	23.50	4.6	1.7	1.5	2.3		
W21R 200 L8	400	50	15.0	197	727	88.2	88.1	86.4	0.77	32	4.9	1.9	1.7	2.3	0.268	200
	460	60	18.0	196	878	88.9	88.7	87.4	0.78	32.50	4.8	1.8	1.6	2.2		
W21R 225 S8	400	50	18.5	242	730	89.6	89.4	87.2	0.78	38	5.4	2.1	2.0	2.8	0.44	265
	460	60	22	239	880	89.9	89.6	87.5	0.79	39.00	5.2	2.0	1.9	2.7		
W21R 225 M8	400	50	22	287	733	90.6	89.4	89.9	0.78	45	5.6	2.2	1.8	2.6	0.83	380
	460	60	33	356	885	91.5	91.0	89.5	0.78	58.00	5.6	2.1	1.8	2.4		
W21R 250 M8	400	50	30	389	737	91.5	91.2	88.3	0.78	60.5	5.5	2.2	1.8	2.5	1.35	480
	460	60	37	398	887	91.7	91.5	90.0	0.80	63.50	5.7	2.1	1.7	2.3		
W21R 280 S8	400	50	37	480	736	91.6	91.1	88.6	0.79	73.5	5.4	2.0	1.7	2.3	1.55	550
	460	60	45	484	888	91.7	91.2	89.0	0.79	78.00	6.0	2.1	1.6	2.2		
W21R 280 M8	400	50	45	581	740	92.7	92.7	92.0	0.79	88.5	6.7	1.8	1.5	2.5	2.63	690
	460	60							a.A.							
W21R 315 S8	400	50	55	710	740	93.0	93.0	92.5	0.80	107	6.0	1.8	1.5	2.2	3.33	800
	460	60	66	708	890	93.0	93.0	92.5	0.80	111	5.8	1.6	1.4	2.0		
W21R 315 M8	400	50	75	968	740	93.5	93.5	93.0	0.81	143	6.0	1.8	1.5	2.1	3.6	880
	460	60							a.A.							
W21R 315 MX8	400	50	90	1161	740	92.1	91.6	90.1	0.81	174	6.0	1.9		2.2	6.0	1050
	460	60							a.A.							
W21R 315 MY8	400	50	110	1420	740	93.8	93.3	91.2	0.81	209	6.5	2.1		2.4	6.76	1250
	460	60							a.A.							
W21R 315 L8	400	50	132	1704	740	94.3	93.7	91.3	0.83	243	6.3	2.0		2.1	8.71	1430
	460	60							a.A.							
W21R 315 LX8	400	50	160	2065	740	94.2	94.2	93.8	0.80	306	7.2	2.2	1.8	2.5	8.71	1430
	460	60	190	2039	890	94.3	94.3	94.0	0.81	312	7.0	2.1	1.7	2.3		
W22R 355 M8	400	50	200	2571	743	94.7	94.1	91.5	0.77	396					9.5	1850
	460	60							a.A.							
W22R 355 MX8	400	50	250	3205	745	95.8	95.8	95.5	0.83	454	7.0	1.2	1.0	2.6	13.4	2200
	460	60							a.A.							
W22R 355 LY8	400	50	280	3599	743	94.8	94.1	91.5	0.78	547					15.8	2400
	460	60							a.A.							

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Efficiency class „High Efficiency“ acc. to EN 60034-30
with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motorauswahldaten

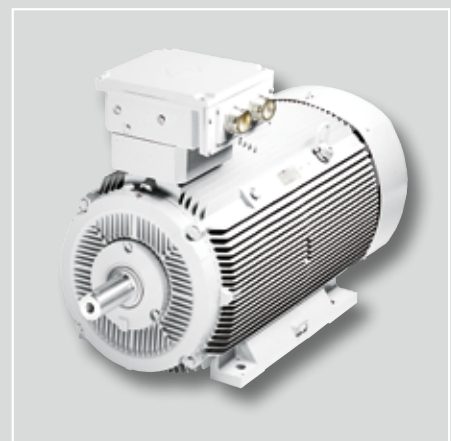
Design point 400 V, 50 Hz/460 V, 60 Hz

Typ	UB V	f _B Hz	P _B kW	M _B Nm	n _B rpm	η 100 %	η 75 %	η 50 %	cos φ _B -	I _B A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg
Synchronous speed 3000/3600 rpm – 2-pole version																
IE2-WE2R 200 LX2	400	50	37	120	2955	IE2- 92.9	93.2	92.5	0.90	64.0	8.1	2.3	1.8	3.3	0.154	238
	460	60	44	119	3545	IE2- 93.6	93.3	92.5	0.90	65.5	7.6	2.1	1.6	3.0		
Synchronous speed 1500/1800 rpm – 4-pole version																
IE2-WE2R 132 S4	400	50	5.50	36.2	1450	IE2- 88.4	89.3	89.0	0.87	10.5	7.7	2.3	1.8	3.5	0.020	64
	460	60	6.60	36.1	1745	IE2- 89.5	90.1	89.7	0.88	10.5	7.1	2.0	1.6	3.2		
IE2-WE2R 160 M4	400	50	11.0	71	1470	IE2- 90.3	90.3	88.9	0.78	22.5	7.8	2.4	2.1	3.9	0.043	105
	460	60	13.0	70	1765	IE2- 91.3	91.5	90.4	0.80	22.5	7.5	2.3	1.9	3.6		
IE2-WE2R 160 L4	400	50	15.0	97	1480	IE2- 92.0	92.0	90.6	0.84	28.0	9.1	3.0	2.5	3.9	0.115	161
	460	60	18.0	97	1775	IE2- 92.5	92.4	91.4	0.85	28.5	8.5	2.7	2.3	3.5		
IE2-WE2R 180 M4	400	50	18.5	120	1470	IE2- 91.2	90.6	89.3	0.78	37.5	6.4	2.0	1.6	2.8	0.138	176
	460	60	22.0	118	1775	IE2- 92.4	91.5	90.1	0.80	37.50	6.1	1.9	1.5	2.6		
IE2-WE2R 225 M4	400	50	45	291	1475	IE2- 93.1	92.9	92.1	0.80	87.0	7.6	2.6	1.9	3.1	0.356	346
	460	60	45	242	1775	IE2- 93.6	92.7	91.2	0.80	75.5	8.3	2.9	2.1	3.3		
IE2-WE2R 250 M4	400	50	55	356	1477	IE2- 93.9	93.8	93.7	0.82	103	7.5	2.4	1.9	2.4	0.619	436
	460	60	63	339	1777	IE2- 94.1	93.6	93.2	0.83	101	7.2	2.3	1.8	2.3		
Synchronous speed 1000/1200 rpm – 6-pole version																
IE2-WE2R 132 M6	400	50	4.0	40	955	IE2- 86.6	86.1	85.2	0.81	8.3	5.7	2.1	2.0	2.9	0.029	66
	460	60	4.0	32.9	1160	IE2- 87.5	86.8	84.4	0.78	7.3	6.2	2.3	2.2	3.2		
IE2-WE2R 160 M6	400	50	7.5	74	970	IE2- 87.5	87.6	85.9	0.79	15.5	5.9	2.1	1.8	2.9	0.053	103
	460	60	9	73	1170	IE2- 89.0	89.0	87.7	0.81	15.5	5.7	1.9	1.7	2.7		
IE2-WE2R 180 L6	400	50	15	148	970	IE2- 89.7	88.8	87.8	0.83	29.0	5.6	2.3	1.7	2.6	0.166	157
	460	60	15	122	1175	IE2- 90.2	89.5	87.4	0.83	25.0	6.3	2.5	1.9	2.9		
IE2-WE2R 200 LX6	400	50	22	215	975	IE2- 90.9	89.9	88.5	0.84	41.5	6.7	2.4	2.0	3.0	0.324	238
	460	60	25	202	1180	IE2- 91.7	90.8	89.5	0.86	40.0	6.6	2.3	1.9	2.9		
IE2-WE2R 225 M6	400	50	30	294	975	IE2- 91.7	91.4	90.6	0.87	54.5	6.7	2.3	1.9	2.8	0.514	308
	460	60	25	201	1185	IE2- 91.7	90.8	88.1	0.86	40.0	8.2	2.9	2.4	3.7		
IE2-WE2R 250 M6	400	50	37	361	979	IE2- 92.2	92.3	91.8	0.86	67.5	6.6	2.7	2.0	2.6	0.92	407
	460	60	40	324	1179	IE2- 93.0	93.4	91.8	0.86	63.0	6.7	2.7	2.1	2.6		
Synchronous speed 750/900 rpm – 8-pole version																
WE2R 132 M8	400	50	3.0							a.A.					0.0290	65
	460	60	3.6							a.A.						
WE2R 160 MX8	400	50	5.5	73.0	715	83.9	84.0	81.9	0.71	13.5	4.3	1.7	1.5	2.5	0.0530	103
	460	60	6.6	73.0	865	86.4	86.7	85.3	0.72	13.50	4.2	1.6	1.4	2.3		
WE2R 180 L8	400	50	11		730	87.9	87.4	85.2	0.67		4.3	1.9	1.6	2.3	0.1660	157
	460	60	13							a.A.						
WE2R 225 S8	400	50	18.5	240	735	90.7	90.7	89.4	0.80	37.0	6.1	2.1	1.9	2.9	0.514	305
	460	60	22	237	885	91.8	91.5	90.2	0.81	37.0	5.7	2.0	1.7	2.6		
WE2R 225 M8	400	50	22	286	735	90.3	90.3	88.7	0.77	45.5	6.1	2.2	2.0	2.9	0.514	307
	460	60	26	281	883	91.3	91.1	89.6	0.79	45.0	5.9	2.1	1.8	2.7		
WE2R 250 M8	400	50	30	391	732	91.5	91.7	90.9	0.77	61.5	5.6	2.3	2.0	2.5	0.95	405
	460	60	36	391	880	91.9	92.3	91.8	0.78	63.00	5.3	2.1	1.8	2.3		



Energy saving motors Premium Efficiency IE3

Basic design
General technical data
Motor selection data
50 Hz, 2- to 8-poles
3000/1500/1000 rpm



General technical data

The most important technical data is summarized in the following table.
Detailed information can be found in the catalogue part "Technical explanations".

Product line	Motor with squirrel-cage rotor, IEC/DIN
Rated output	0.75 kW to 375 kW, 2-, 4- and 6-poles (8-poles, not classified)
Sizes	80 to 355
Material of housing	Grey cast iron
Rated torque	2.5 Nm to 3000 Nm
Determination of efficiency class	acc. to EN 60034-2-1 ≤ 1 kW direct measurement, > 1 kW residual losses method
Types of circuit	Motors with one speed are designed with Δ /Y-circuit as standard.
Insulation of stator winding	Thermal class 155, as option 155 [F(B)], 180 acc. to DIN EN 60034-1 (IEC 60034-1)
Type of protection	IP 55 acc. to EN 60034-5 (IEC 60034-5)
Type of cooling	IC 411 acc. to EN 60034-6 (IEC 60034-6)
Coolant temperature/ altitude of site	As standard - 20 °C up to + 40 °C, altitude of site 1000 m above sea level
Rated voltage	Rated voltage ranges A and B (Zone A, Zone B) acc. to EN 60034-1 (IEC 60034-1), standard voltage acc. to EN 60038 50 Hz, 230 V, 400 V, 500 V and 690 V
Types of construction	IM B3, IM B35, IM B5 and derived types of construction acc. to EN 60034-7
Colour system	Standard colour system "moderate", colour shade RAL 7031, blue-grey Special colour system "world wide", colour shade RAL 7031, blue-grey
Vibration grade	As standard grade "A" for motors without special vibration requirements
Shaft end	Acc. to DIN 748 (IEC 60072), balancing "with half key"
Limit speeds	Please refer to paragraph about limit speeds.
Bearing design	Please refer to paragraph about bearings.
Motor weights	Please refer to the technical selection lists.
Terminal boxes	Please refer to paragraph about terminal boxes.
Documentation	An operation and maintenance manual, a connection diagram and a safety data sheet is attached to each motor.
Tolerances	Please refer to paragraph about tolerances.
Options	Please refer to paragraph about modifications.

Three-phase motors with squirrel-cage rotor Energy saving motors, Premium Efficiency IE3

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz

Type	P _B	M _B	n _B	η			cos φ _B	I _B	I _A /I _B	M _A /M _B	M _S /M _B	M _K /M _B	J	m	
	kW	Nm	rpm	n. EN 60034-2-1			-	400 V A	-	-	-	-	kgm ²	kg	
Synchronous speed 3000 rpm – 2-pole version															
IE3-W41R 80 K2	0.75			80.7	data on request										
IE3-W41R 80 G2	1.1			82.7	data on request										
IE3-W41R 90 S2	1.5			84.2	data on request										
IE3-W41R 90 L2	2.2			85.9	data on request										
IE3-W41R 100 L2	3.0			87.1	data on request										
IE3-W41R 112 M2	4.0	13	2910	88.7	88.5	87.6	0.85	7.7	6.8	1.8		2.9	0.011	57	
IE3-W41R 132 S2	5.5	18	2915	89.2	88.7	87.8	0.86	10.3	6.7	1.9		3.0	0.011	57	
IE3-W41R 132 SX2	7.5	24	2925	90.1	89.4	88.0	0.87	13.8	7.4	2.5	2.1	3.4	0.0168	75	
IE3-W41R 160 M2	11.0	36	2950	91.4	91.7	90.5	0.90	19.5	8.0	2.2	1.8	3.2	0.0575	125	
IE3-W41R 160 MX2	15.0	49	2950	91.9	92.0	91.3	0.91	26.0	7.9	2.2	1.8	1.1	0.0675	140	
IE3-W41R 160 L2	18.5	60	2960	92.4	92.4	91.5	0.90	32.0	9.2	2.6	2.1	3.6	0.078	160	
IE3-W41R 180 M2C	22.0	71	2965	92.7	92.0	90.6	0.90	38.0	8.3	2.3		3.4	0.1717	205	
IE3-W41R 200 L2	30.0	97	2955	93.3	92.5	90.8	0.90	51.5	8.4	2.2		3.1	0.36	300	
IE3-W41R 200 LX2C	37.0	119	2960	93.7	92.8	91.0	0.90	63.5	8.6	2.2		3.2	0.4757	305	
IE3-W41R 225 M2	45.0	145	2960	94.0	93.7	93.0	0.89	77.5	8.8	2.3	1.9	3.2	0.375	375	
IE3-W41R 250 M2	55.0	177	2975	94.6	94.4	93.6	0.91	92	8.9	2.2	1.9	3.2	0.65	510	
IE3-W41R 280 S2	75.0	241	2967	94.7	94.5	93.9	0.94	122	7.9	1.9	1.7	2.8	0.65	500	
IE3-W41R 280 M2	90.0	289	2970	95.0	94.5	94.0	0.90	152	8.4	2.2		3.1	0.675	545	
IE3-W41R 315 S2	110.0	353	2980	95.2	95.0	94.0	0.88	190	10.0	2.1	2.0	3.2	1.21	730	
IE3-W41R 315 M2	132.0	423	2980	95.4	95.0	94.5	0.89	224	10.0	1.5		2.6	1.44	820	
IE3-W41R 315 MX2	160.0	513	2977	95.6	95.0	94.5	0.89	271	9.5	1.7		2.7	1.76	955	
IE3-W41R 315 MY2	200.0	640	2985	95.8	95.0	94.0	0.86	350	10.0	1.9		3.2	2.82	1200	
IE3-W41R 315 L2	250.0	800	2985	95.8	95.8	95.0	0.92	409	9.5	2.3		2.3	3.66	1450	
IE3-W41R 315 LX2	315.0	1008	2985	95.8	95.8	95.8	0.92	516	8.5	2.8	1.6	2.5	4.43	1720	
IE3-W41R 355 M2	355.0	1136	2985	96.0	96.0	96.0	0.92	580	7.7	1.9	1.5	3.8	4.2	2000	
Synchronous speed 1500 rpm – 4-pole version															
IE3-W41R 80 G4	0.75			82.5	data on request										
IE3-W41R 90 S4	1.1			84.1	data on request										
IE3-W41R 90 L4	1.5			85.3	data on request										
IE3-W41R 100 L4	2.2			86.7	data on request										
IE3-W41R 100 LX4	3.0			87.7	data on request										
IE3-W41R 112 M4	4.0	26	1470	89.9	89.9	88.4	0.83	7.7	9.5	2.8	2.4	4.5	0.02	63	
IE3-W41R 132 S4	5.5	35	1480	91.0	90.2	87.9	0.73	12.0	9.9	3.4	2.8	5.4	0.035	90	
IE3-W41R 132 M4	7.5	49	1475	91.3	91.3	90.1	0.83	14.0	8.6	2.5	2.1	4.0	0.043	100	
IE3-W41R 160 M4	11.0	71	1475	91.4	91.5	90.6	0.83	21.0	7.5	2.5	2.1	3.3	0.078	125	
IE3-W41R 160 L4C	15.0	96	1488	92.6	92.3	91.0	0.83	28.0	10.4	3.2	2.5	3.9	0.1567	170	
IE3-W41R 180 M4	18.5	120	1475	92.7	92.9	92.0	0.84	34.5	6.9	1.9	1.7	3.0	0.168	210	
IE3-W41R 180 L4	22.0	141	1485	93.0	93.0	92.1	0.84	40.5	7.6	2.2	2.0	3.2	0.203	240	
IE3-W41R 200 L4C	30.0	194	1480	93.6	92.7	91.4	0.84	55.0	8.0	2.0		3.2	0.411	320	
IE3-W41R 225 S4C	37.0	238	1485	93.9	93.2	92.1	0.83	68.5	8.2	2.2		2.8	0.4675	365	
IE3-W41R 225 M4	45.0	290	1480	94.2	94.3	94.0	0.83	83.0	8.1	2.6	2.1	2.6	0.619	450	
IE3-W41R 250 M4	55.0	354	1485	94.7	94.8	94.4	0.84	100.0	8.0	2.1	1.8	2.4	0.95	545	
IE3-W41R 280 S4	75.0	483	1482	95.0	94.6	94.2	0.83	137.0	8.2	2.1	1.8	2.5	1.1	617	
IE3-W41R 280 M4	90.0	578	1487	95.1	94.0	93.2	0.83	164.0	9.5	1.9	1.7	2.6	1.96	785	
IE3-W41R 315 S4	110.0	706	1487	95.5	95.5	94.8	0.82	203.0	9.4	2.2	2.1	2.8	1.96	760	
IE3-W41R 315 M4	132.0	849	1485	95.6	95.4	95.0	0.83	240.0	9.0	2.2	1.9	2.7	2.27	940	
IE3-W41R 315 MX4	160.0	1029	1485	95.8	95.0	94.5	0.83	290.0	8.5	1.5		2.5	4.82	1270	
IE3-W41R 315 MY4	200.0	1282	1490	96.0	95.0	94.5	0.85	354.0	9.3	2.2		3.0	4.82	1270	
IE3-W41R 315 L4	250.0	1602	1490	96.2	96.2	96.0	0.87	431.0	9.4	2.2	1.8	2.7	5.93	1450	
IE3-W41R 315 LX4	315.0	2022	1488	96.0	95.0	94.5	0.83	571.0	9.0	2.0		2.9	6.82	1630	
IE3-W41R 355 M4	355.0	2271	1493	96.2	96.2	95.5	0.87	612.0	8.1	1.3	1.0	2.7	7.9	2150	

Three-phase motors with squirrel-cage rotor Energy saving motors, Premium Efficiency IE3

with surface ventilation, mode of operation S1, continuous duty
thermal class 155, type of protection IP 55
efficiency testing acc. to EN 60034-2-1:2007
(≤ 1 kW direct method, > 1 kW residual losses method)

Motor selection data

Design point 400 V, 50 Hz

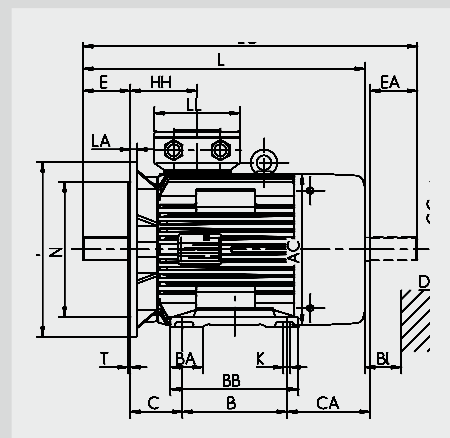
Type	P _B kW	M _B Nm	n _B rpm	η n. EN 60034-2-1			cos φ _B -	I _B 400 V A	I _A /I _B -	M _A /M _B -	M _S /M _B -	M _K /M _B -	J kgm ²	m kg	
				100 %	75 %	50 %									
Synchronous speed 1000 rpm – 6-pole version															
IE3-W41R 90 S6	0.75			78.9	data on request										
IE3-W41R 90 L6	1.1			81.0	data on request										
IE3-W41R 100 L6	1.5			82.5	data on request										
IE3-W41R 112 M6	2.2			84.3	data on request										
IE3-W41R 132 S6	3.0	30	965	86.3	86.7	85.6	0.82	6.2	6.1	2.0	1.3	3.1	0.029	70	
IE3-W41R 132 M6	4.0	40	965	86.8	87.0	86.0	0.80	8.3	4.8	1.7	1.5	2.4	0.043	76	
IE3-W41R 132 MX6	5.5	54	970	88.6	88.6	87.2	0.80	11.2	6.0	2.1	1.8	3.0	0.053	104	
IE3-W41R 160 M6	7.5	73	980	90.2	90.0	88.4	0.83	14.5	6.4	2.4	2.1	3.0	0.145	140	
IE3-W41R 160 L6C	11.0			90.3	data on request								0.166	155	
IE3-W41R 180 L6C	15.0			91.2	data on request								0.3396	212	
IE3-W41R 200 L6	18.5	179	985	92.1	91.8	90.2	0.86	33.5	8.0	3.0	2.3		0.514	345	
IE3-W41R 200 LX6C	22.0			92.2	data on request								0.6476	325	
IE3-W41R 225 M6	30.0	291	983	92.9	92.3	92.3	0.84	55.5	7.2	2.8	2.2	2.9	0.92	400	
IE3-W41R 250 M6	37.0	359	985	93.3	93.2	92.3	0.86	66.5	7.1	2.8	2.0	2.7	1.48	545	
IE3-W41R 280 S6	45.0	434	990	93.7	93.5	92.5	0.86	80.5	8.3	2.2	1.8	2.8	2.63	710	
IE3-W41R 280 M6	55.0	532	988	94.1	93.5	93.0	0.87	97	8.8	2.2	1.7	2.8	3.33	815	
IE3-W41R 315 S6	75.0	723	990	94.6	94.0	93.5	0.87	132	7.8	2.0	1.6	2.5	3.6	910	
IE3-W41R 315 M6	90.0	868	990	94.9	94.0	93.0	0.86	159	8.5	2.2		2.8	6.0	1050	
IE3-W41R 315 MX6	110.0	1.061	990	95.1	95.0	94.5	0.86	194	8.5	2.5	1.7	2.7	6.67	1250	
IE3-W41R 315 L6	132.0	1.271	992	95.4	95.0	94.5	0.87	230	8.0	2.1	1.6	2.5	8.6	1420	
IE3-W41R 355 M6	160.0	1.536	995	95.6	95.0	94.6	0.82	295	8.0	2.1		2.7	8.2	1850	
IE3-W41R 355 MX6	200.0	1.920	995	95.8	95.0	94.0	0.85	355	9.0	2.1		2.9	12.1	2200	
IE3-W41R 355 L 6	250.0			95.8	data on request								14.0	2400	
IE3-W41R 355 LX6	315.0			95.8	data on request								14.0	2400	
Synchronous speed 750 rpm – 6-pole version*)															
W41R 100 L8	0.75			77.0	data on request								0.01225	33.5	
W41R 100 LX8	1.1			79.0	data on request								0.0139	36	
W41R 112 M8	1.5			78.0	data on request								0.0155	46	
W41R 132 S8	2.2			80.5	data on request								0.0288	65	
W41R 132 M8	3.0			83.5	data on request								0.043	70	
W41R 160 M8	4.0			84.5	data on request								0.053	102	
W41R 160 MX8	5.5			86.0	data on request								0.145	136	
W41R 160 L8	7.5			88.0	data on request								0.166	155	
W41R 180 L8	11.0			89.0	data on request								0.268	200	
W41R 200 L8	15.0			89.2	data on request								0.324	235	
W41R 225 S8	18.5			90.5	data on request								0.514	310	
W41R 225 M8	22.0			91.0	data on request								0.92	395	
W41R 250 M8	30.0			92.0	data on request								1.55	520	
W41R 280 S8	37.0			92.0	data on request								2.63	690	
W41R 280 M8	45.0			92.3	data on request								3.33	800	
W41R 315 S8	55.0			92.3	data on request								3.33	800	
W41R 315 M8	75.0			92.5	data on request								3.6	880	
W41R 315 MX8	90.0			94.0	data on request								6.0	1050	
W41R 315 L8	110.0			94.5	data on request								8.71	1430	
W41R 355 MY8	132.0			95.0	data on request								9.3	1700	
W41R 355 M8	160.0			95.0	data on request								9.5	1850	
W41R 355 LY8	200.0			95.2	data on request								15.8	2400	

*) not classified



Dimensions

Flange dimensions
Energy saving motors Standard Efficiency IE1
Energy saving motors High Efficiency IE2
Energy saving motors Premium Efficiency IE3



Notes to dimensions

Dimensional designations according to EN 50347 and IEC 60072

Flange sizes in the dimensional tables are given in accordance to DIN 42948.

All dimensional data in mm

VEM motors GmbH reserves the right to change technical data without preceding information. Dimensional data in catalogues can lose their validity. Binding dimensional data can be requested from the VEM sales organisations.

Flange dimensions

Flanges with threadholes

Flange type acc. to EN 50347	Flange type acc. to DIN 42948	LA c ₁	M e ₁	N b ₁	P a ₁	S s ₁	T f ₁
FT 65	C 80	6.5	65	50	80	M5	2.5
FT 75	C 90	8	75	60	90	M5	2.5
FT 85	C 105	8.5	85	70	105	M6	2.5
FT 100	C 120	8	100	80	120	M6	3
FT 115	C 140	10	115	95	140	M8	3
FT 130	C 160	10	130	110	160	M8	3.5
FT 165	C 200	12	165	130	200	M10	3.5
FT 215	C 250	12	215	180	250	M12	4

Flanges with through holes

Flange type acc. to EN 50347	Flange type acc. to DIN 42948	LA c ₁	M e ₁	N b ₁	P a ₁	S s ₁	T f ₁
FF 100	A 120	9	100	80	120	7	3
FF 115	A 140	9	115	95	140	9	3
FF 130	A 160	9	130	110	160	9	3.5
FF 165	A 200	10	165	130	200	11	3.5
FF 215	A 250	11	215	180	250	14	4
FF 265	A 300	12	265	230	300	14	4
FF 300	A 350	13	300	250	350	18	5
FF 350	A 400	15	350	300	400	18	5
FF 400	A 450	16	400	350	450	18	5
FF 500	A 550	18	500	450	550	18	5
FF 600	A 660	22	600	550	660	22	6
FF 740	A 800	25	740	680	800	22	6

According to EN 50347 the flanges FF have through holes and the flanges FT have threadholes.
The standard DIN 42948 for flanges A and C are still valid yet.

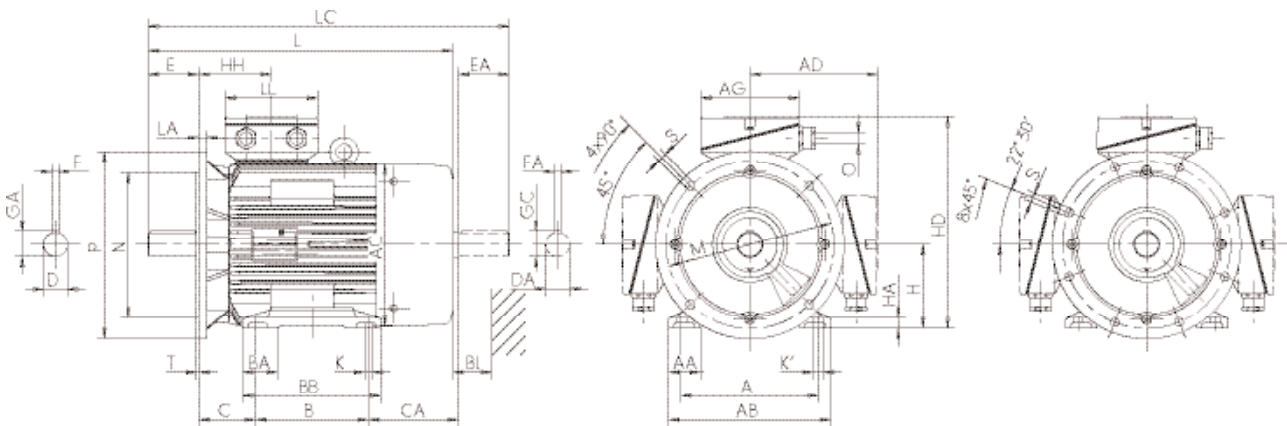
Tolerances for dimension N (b₁) see respective dimensional tables
LA (c₁) length of engagement

Three-phase motors with squirrel-cage rotor

Energy saving motors, Standard Efficiency IE1

Size 56 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 1001]
Flange dimensions see page 67



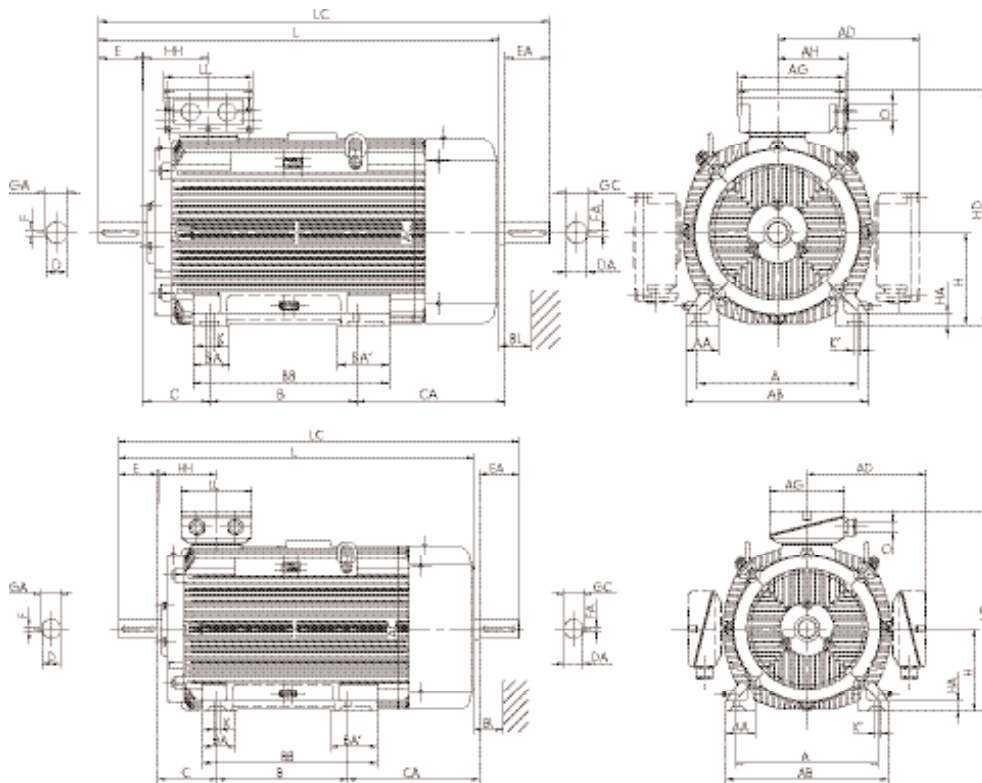
Type designation	GA t	GC t1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG	LL	O	Hole pattern	BI BI
K210 56 K2, 4U	10.2	10.2	56	7	154	a.A.	58	6	6	150	175	KA 05	92	92	M20 x 1.5	4L	14
K21R 56 G2, 4	10.2	10.2	56	7	154	a.A.	58	6	6	176	199	KA 05	92	92	M20 x 1.5	4L	14
K21R 63 K2, 4, 6	12.5	12.5	63	10	161	a.A.	58	8	8	179	205	KA 05	92	92	M20 x 1.5	4L	14
K21R 63 G2, 4, 6	12.5	12.5	63	10	161	a.A.	58	8	8	179	205	KA 05	92	92	M20 x 1.5	4L	14
K21R 71 K2, 4, 6, 8	16.0	16.0	71	11	175	a.A.	61	8	8	206	239	KA 05	92	92	M20 x 1.5	4L	14
K21R 71 G2, 4, 6, 8	16.0	16.0	71	11	175	a.A.	61	8	8	206	239	KA 05	92	92	M20 x 1.5	4L	14
IE1-K21R K2, 4, 6, 8	21.5	21.5	80	12	191	a.A.	67	10	10	249	293	KA 05	92	92	M20 x 1.5	4L	16
IE1-K21R 80 G2, 4, 6, 8	21.5	21.5	80	12	191	a.A.	67	10	10	249	293	KA 05	92	92	M20 x 1.5	4L	16
IE1-K21R 90 S2, 4, 6, 8	27.0	24.5	90	14	210	a.A.	70	10	10	275	330	KA 05	92	92	M25 x 1.5	4L	16
IE1-K21R 90 L2, 4, 6, 8	27.0	24.5	90	14	210	a.A.	70	10	10	297	352	KA 05	92	92	M25 x 1.5	4L	16
IE1-K21R 100 L2, 4, 6, 8	31.0	27.0	100	15	227	a.A.	75	12	12	331	386	KA 05	92	92	M25 x 1.5	4L	18
IE1-K21R 100 LX4, 8	31.0	31.0	100	13	237	a.A.	77	12	12	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 M2	31.0	31.0	112	18	249	a.A.	77	12	12	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 M6, 8	31.0	31.0	112	18	249	a.A.	77	12	12	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 MX2	31.0	31.0	112	18	249	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 M4	31.0	31.0	112	18	249	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 132 S2, 6, 8T	41.0	31.0	132	18	287	a.A.	105	12	12	430	498	KA 05-13	104	112	M32 x 1.5	4L	20
IE1-K21R 132 S4T	41.0	31.0	132	18	287	a.A.	105	12	12	460	528	KA 05-13	104	112	M32 x 1.5	4L	20
IE1-K21R 132 S2	41.0	35.0	132	16	310	257	108	12	12	459	542	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 SX2T	41.0	31.0	132	18	287	a.A.	105	12	12	460	528	KA 05-13	104	112	M32 x 1.5	4L	20
IE1-K21R 132 SX2	41.0	35.0	132	16	310	257	108	12	12	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 S4, 6, 8	41.0	35.0	132	16	310	257	108	12	12	459	542	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 M4	41.0	41.0	132	16	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 MX6	41.0	41.0	132	16	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 M6, 8	41.0	35.0	132	16	310	257	108	12	12	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 160 M2	45.0	41.0	160	18	374	307	114	15	15	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 M4, 6, 8	45.0	41.0	160	18	374	307	114	15	15	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 MX8	45.0	41.0	160	18	374	307	114	15	15	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 MX2	45.0	45.0	160	18	402	336	138	15	20	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 L2, 4, 6, 8	45.0	45.0	160	18	402	336	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 M2	51.5	51.5	180	20	441	369	147	15	20	635	751	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 M4	51.5	45.0	180	20	422	356	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 L4	51.5	51.5	180	20	441	369	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 L6, 8	51.5	45.0	180	20	422	369	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 200 L2, 4, 6, 8	59.0	51.5	200	22	461	389	147	19	25	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 200 LX6	59.0	51.5	200	22	461	389	147	19	25	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 200 LX2	59.0	59.0	200	22	500	417	168	19	25	727	851	KK 100 A	213	207	M50 x 1.5	4L	35
IE1-K21R 225 S4, 8	64.0	59.0	225	25	525	442	168	19	25	757	881	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 225 M2	59.0	59.0	225	25	525	442	168	19	25	767	891	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 225 M4	64.0	59.0	225	25	525	442	168	19	25	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 225 M6, 8	64.0	59.0	225	25	525	442	168	19	25	757	881	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 250 M2	64.0	59.0	250	28	608	484	177	24	30	862	977	KK 200 A	282	242	M63 x 1.5	8L	45
IE1-K21R 250 M4, 6, 8	69.0	59.0	250	28	608	484	177	24	30	862	977	KK 200 A	282	242	M63 x 1.5	8L	45
IE1-K21R 280 S2	69.0	69.0	280	32	666	546	206	24	30	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE1-K21R 280 S4, 6, 8	79.5	69.0	280	32	666	546	206	24	30	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE1-K21R 280 M2	69.0	69.0	280	32	666	546	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE1-K21R 280 M4, 6, 8	79.5	69.0	280	32	666	546	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50

** Terminal box left/right

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

Size 315
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B3 [IM 1001]



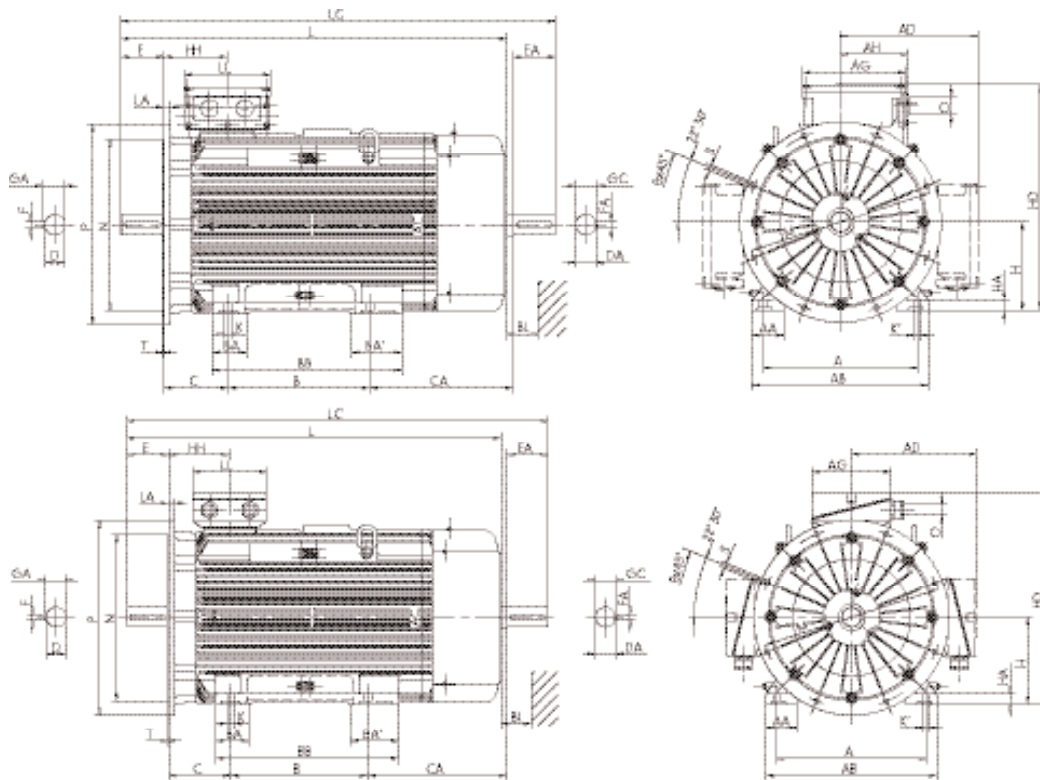
Type designation	Flange size	A	AA	AB	AC	AD	B	BA	BA'	BB	C	CA	D	DA	DB*)	E	EA	F	FA
		b	n	f	g	g1	a	m	m1	e	w1	w2	d	d1		l	l1	u	u1
IE1-K21R 315 S2	FF 600	508	126	590	550	416	406	120	-	503	216	316	65	65	M20	140	140	18	18
IE1-K21R 315 S4, 6, 8	FF 600	508	126	590	550	416	406	120	-	503	216	316	80	70	M20	170	140	22	20
IE1-K21R 315 M2	FF 600	508	126	590	550	416	457	120	-	554	216	320	65	65	M20	140	140	18	18
IE1-K21R 315 M4, 6, 8	FF 600	508	126	590	550	416	457	120	-	554	216	320	80	70	M20	170	140	22	20
IE1-K21R 315 MX2	FF 600	508	126	590	550	416	457	120	150	554	216	400	65	65	M20	140	140	18	18
IE1-K21R 315 MX4	FF 600	508	126	590	550	416	457	120	150	554	216	400	80	70	M20	170	140	22	20
IE1-K21R 315 MX6, 8	FF 600	508	126	590	550	416	457	120	150	554	216	320	80	70	M20	170	140	22	20
IE1-K21R 315 MX10, 12	FF 600	508	126	590	550	416	457	120	150	554	216	320	80	70	M20	170	140	22	20
IE1-K21R 315 MY2	FF 600	508	110	590	610	498	457	120	-	573	216	495	65	65	M20	140	140	18	18
IE1-K21R 315 MY4, 6, 8	FF 600	508	110	590	610	498	457	120	-	573	216	495	80	70	M20	170	140	22	20
IE1-K21R 315 L2	FF 600	508	110	590	610	498	508	120	-	624	216	539	65	65	M20	140	140	18	18
IE1-K21R 315 L4, 6, 8	FF 600	508	110	590	610	498	508	120	-	624	216	564	80	70	M20	170	140	22	20
IE1-K21R 315 LX2	FF 600	508	110	590	610	481	508	120	-	624	216	684	65	65	M20	140	140	18	18
IE1-K21R 315 LX4	FF 600	508	110	590	610	481	508	120	-	624	216	689	80	70	M20	170	140	22	20
IE1-K21R 315 LX6, 8	FF 600	508	110	590	610	498	508	120	-	624	216	564	80	70	M20	170	140	22	20

*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

Size 315
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 2001]
Flange dimensions see page 67



Type designation	GA t	GC t1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	AH -	O r	BI Bl
IE1-K21R 315 S2	69	69,0	315	44	731	595	211	28	35	1050	1218	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 S4, 6, 8	85	74,5	315	44	731	595	211	28	35	1080	1248	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 M2	69	69,0	315	44	731	595	211	28	35	1105	1273	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 M4, 6, 8	85	74,5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX2	69	69,0	315	44	731	595	211	28	35	1185	1353	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX4	85	74,5	315	44	731	595	211	28	35	1210	1383	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX6, 8	85	74,5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX10, 12	85	74,5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MY2	69	69,0	315	44	774	628	230	28	35	1270	1448	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 MY4, 6, 8	85	74,5	315	44	774	628	230	28	35	1300	1478	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 L2	69	69,0	315	44	774	628	230	28	35	1390	1543	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 L4, 6, 8	85	74,5	315	44	774	628	230	28	35	1420	1598	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 LX2	69	69,0	315	44	796	628	230	28	35	1510	1688	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 LX4	85	74,5	315	44	796	628	230	28	35	1540	1723	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 LX6, 8	85	74,5	315	44	796	628	230	28	35	1420	1598	KK 400 B	315	294	265	M63 x 1.5	55

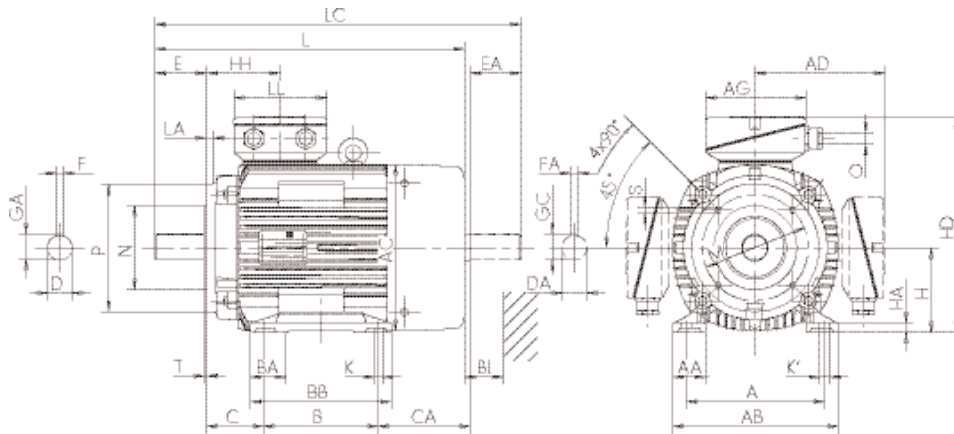
** Terminal box right/left

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

Size 56 to 180
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B34 [IM 2101]

Flange dimensions see page 67



Type designation	Flange sizes		A	AA	AB	AC	AD	B	BA	BB	C	CA	D	DA	DB*)	E	EA	F	FA
	small	big	b	n	f	g	g1	a	m	e	w1	w2	d	d1		l	l1	u	u1
K210 56 K2, 4U	FT 65	FT 85	90	18	110	-	98	71	-	86	36	28	9	9	M3	20	20	3	3
K21R 56 G2, 4	FT 65	FT 85	90	18	110	109	98	71	-	86	36	52	9	9	M3	20	20	3	3
K21R 63 K2, 4, 6	FT 75	FT 100	100	28	128	109	98	80	-	100	40	39	11	11	M4	23	23	4	4
K21R 63 G2, 4, 6	FT 75	FT 100	100	28	128	109	98	80	-	100	40	39	11	11	M4	23	23	4	4
K21R 71 K2, 4, 6, 8	FT 85	FT 115	112	32	138	124	104	90	-	116	45	43,5	14	14	M5	30	30	5	5
K21R 71 G2, 4, 6, 8	FT 85	FT 115	112	32	138	124	104	90	-	116	45	43,5	14	14	M5	30	30	5	5
IE1-K21R 80 K2, 4, 6, 8	FT 100	FT 130	125	38	168	139	111	100	-	125	50	63	19	19	M6	40	40	6	6
IE1-K21R 80 G2, 4, 6, 8	FT 100	FT 130	125	38	168	139	111	100	-	125	50	63	19	19	M6	40	40	6	6
IE1-K21R 90 S2, 4, 6, 8	FT 115	FT 130	140	40	178	157	119	100	-	130	56	74	24	22	M8	50	50	8	6
IE1-K21R 90 L2, 4, 6, 8	FT 115	FT 130	140	40	178	157	119	125	-	155	56	71	24	22	M8	50	50	8	6
IE1-K21R 100 L2, 4, 6, 8	FT 130	FT 165	160	47	192	177	126	140	-	175	63	73	28	24	M10	60	50	8	8
IE1-K21R 100 LX4, 8	FT 130	FT 165	160	42	193	196	136	140	-	175	63	102	28	28	M10	60	60	8	8
IE1-K21R 112 M2	FT 130	FT 165	190	50	224	196	136	140	-	180	70	95	28	28	M10	60	60	8	8
IE1-K21R 112 M6, 8	FT 130	FT 165	190	50	224	196	136	140	-	180	70	95	28	28	M10	60	60	8	8
IE1-K21R 112 MX2	FT 130	FT 165	190	50	224	196	136	140	-	180	70	129	28	28	M10	60	60	8	8
IE1-K21R 112 M4	FT 130	FT 165	190	50	224	196	136	140	-	180	70	129	28	28	M10	60	60	8	8
IE1-K21R 132 S2, 6, 8T	FT 130	FT 165	216	52	257	196	155	140	-	180	89	129	38	28	M12	80	60	10	8
IE1-K21R 132 S4T	FT 130	FT 165	216	52	257	196	155	140	-	180	89	129	38	28	M12	80	60	10	8
IE1-K21R 132 S2	FT 130	FT 165	216	50	256	217	178	140	55	180	89	153	38	32	M12	80	80	10	10
IE1-K21R 132 SX2T	FT 130	FT 165	216	52	257	196	155	140	-	180	89	129	38	28	M12	80	60	10	8
IE1-K21R 132 SX2	FT 130	FT 165	216	50	256	217	178	140	55	180	89	173	38	32	M12	80	80	10	10
IE1-K21R 132 S4, 6, 8	FT 130	FT 165	216	50	256	217	178	140	55	180	89	153	38	32	M12	80	80	10	10
IE1-K21R 132 M4	FT 165	FT 215	216	50	256	258	199	178	55	218	89	138	38	38	M12	80	80	10	10
IE1-K21R 132 MX6	FT 165	FT 215	216	50	256	258	199	178	55	218	89	138	38	38	M12	80	80	10	10
IE1-K21R 132 M6, 8	FT 130	FT 165	216	50	256	217	178	178	55	218	89	135	38	32	M12	80	80	10	10
IE1-K21R 160 M2	FT 165	FT 215	254	55	296	258	214	210	60	257	108	135	42	38	M16	110	80	12	10
IE1-K21R 160 M4, 6, 8	FT 165	FT 215	254	55	296	258	214	210	60	257	108	135	42	38	M16	110	80	12	10
IE1-K21R 160 MX8	FT 165	FT 215	254	55	296	258	199	210	60	257	108	135	42	38	M16	110	80	12	10
IE1-K21R 160 MX2	FT 215	FT 265	254	55	296	313	242	210	60	257	108	148	42	42	M16	110	110	12	12
IE1-K21R 160 L2, 4, 6, 8	FT 215	FT 265	254	55	296	313	242	254	60	301	108	142	42	42	M16	110	110	12	12
IE1-K21R 180 M4	FT 265	-	279	62	328	313	242	241	65	288	121	142	48	42	M16	110	110	14	12
IE1-K21R 180 L6, 8	FT 265	-	279	62	328	313	242	279	65	326	121	104	48	42	M16	110	110	14	12

*) Centre holes acc. to DIN 332-DS

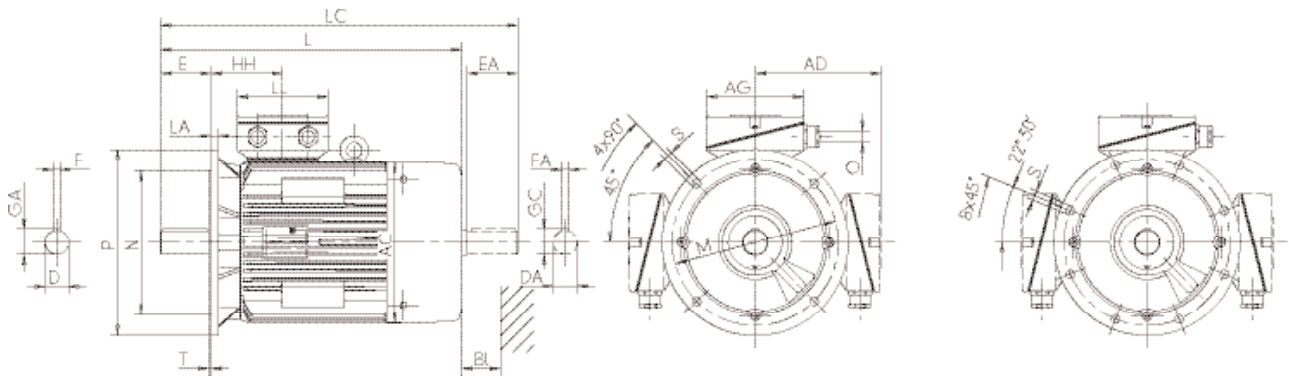
Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

Size 56 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B5 [IM 3001]

Type of construction IM V1 [IM 3011]

Flange dimensions see page 67



Type designation	Flange size	AC g	AD g1	D d	DA d1	DB*)	E l	EA l1	F u	FA u1	GA t	GC t1	H h	HH A	L k	LC k1	KK Type	AG	LL	O	Hole pattern	BI
K210 56 K2, 4U	FF 100	-	98	9	9	M3	20	20	3	3	10.2	10.2	56	81	173	197	KA 05	92	92	M20 x 1.5	4L	14
K21R 56 G2, 4	FF 100	109	98	9	9	M3	20	20	3	3	10.2	10.2	56	81	199	223	KA 05	92	92	M20 x 1.5	4L	14
K21R 63 K2, 4, 6	FF 115	109	98	11	11	M4	23	23	4	4	12.5	12.5	63	58	179	205	KA 05	92	92	M20 x 1.5	4L	14
K21R 63 G2, 4, 6	FF 115	109	98	11	11	M4	23	23	4	4	12.5	12.5	63	58	179	205	KA 05	92	92	M20 x 1.5	4L	14
K21R 71 K2, 4, 6, 8	FF 130	124	104	14	14	M5	30	30	5	5	16.0	16.0	71	61	206	239	KA 05	92	92	M20 x 1.5	4L	14
K21R 71 G2, 4, 6, 8	FF 130	124	104	14	14	M5	30	30	5	5	16.0	16.0	71	61	206	239	KA 05	92	92	M20 x 1.5	4L	14
IE1-K21R 80 K2, 4, 6, 8	FF 165	139	111	19	19	M6	40	40	6	6	21.5	21.5	80	67	249	293	KA 05	92	92	M20 x 1.5	4L	16
IE1-K21R 80 G2, 4, 6, 8	FF 165	139	111	19	19	M6	40	40	6	6	21.5	21.5	80	67	249	293	KA 05	92	92	M20 x 1.5	4L	16
IE1-K21R 90 S2, 4, 6, 8	FF 165	157	119	24	22	M8	50	50	8	6	27.0	24.5	90	70	275	330	KA 05	92	92	M25 x 1.5	4L	16
IE1-K21R 90 L2, 4, 6, 8	FF 165	157	119	24	22	M8	50	50	8	6	27.0	24.5	90	70	297	352	KA 05	92	92	M25 x 1.5	4L	16
IE1-K21R 100 L2, 4, 6, 8	FF 215	177	126	28	24	M10	60	50	8	8	31.0	27.0	100	75	331	386	KA 05	92	92	M25 x 1.5	4L	18
IE1-K21R 100 LX4, 8	FF 215	196	136	28	28	M10	60	60	8	8	31.0	31.0	100	77	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 M2	FF 215	196	136	28	28	M10	60	60	8	8	31.0	31.0	112	77	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 M6, 8	FF 215	196	136	28	28	M10	60	60	8	8	31.0	31.0	112	77	391	425	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 MX2	FF 215	196	136	28	28	M10	60	60	8	8	31.0	31.0	112	77	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 112 M4	FF 215	196	136	28	28	M10	60	60	8	8	31.0	31.0	112	77	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE1-K21R 132 S2, 6, 8T	FF 265	196	155	38	28	M12	80	60	10	8	41.0	31.0	132	105	430	498	KA 05-13	104	112	M32 x 1.5	4L	20
IE1-K21R 132 S4T	FF 265	196	155	38	28	M12	80	60	10	8	41.0	31.0	132	105	460	528	KA 05-13	104	112	M32 x 1.5	4L	20
IE1-K21R 132 S2	FF 265	217	178	38	32	M12	80	80	10	10	41.0	35.0	132	108	459	542	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 SX2T	FF 265	196	155	38	28	M12	80	60	10	8	41.0	31.0	132	105	460	528	KA 05-13	104	112	M32 x 1.5	4L	20
IE1-K21R 132 SX2	FF 265	217	178	38	32	M12	80	80	10	10	41.0	35.0	132	108	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 S4, 6, 8	FF 265	217	178	38	32	M12	80	80	10	10	41.0	35.0	132	108	459	542	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 M4	FF 265	258	199	38	38	M12	80	80	10	10	41.0	41.0	132	114	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 MX6	FF 265	258	199	38	38	M12	80	80	10	10	41.0	41.0	132	114	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 132 M6, 8	FF 265	217	178	38	32	M12	80	80	10	10	41.0	35.0	132	108	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE1-K21R 160 M2	FF 300	258	214	42	38	M16	110	80	12	10	45.0	41.0	160	114	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 M4, 6, 8	FF 300	258	214	42	38	M16	110	80	12	10	45.0	41.0	160	114	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 MX8	FF 300	258	199	42	38	M16	110	80	12	10	45.0	41.0	160	114	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 MX2	FF 300	313	242	42	42	M16	110	110	12	12	45.0	45.0	160	138	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 160 L2, 4, 6, 8	FF 300	313	242	42	42	M16	110	110	12	12	45.0	45.0	160	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 M2	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	635	751	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 M4	FF 300	313	242	48	42	M16	110	110	14	12	51.5	45.0	180	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 L4	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 180 L6, 8	FF 300	313	242	48	42	M16	110	110	14	12	51.5	45.0	180	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 200 L2, 4, 6, 8	FF 350	351	261	55	48	M20	110	110	16	14	59.0	51.5	200	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 200 LX6	FF 350	351	261	55	48	M20	110	110	16	14	59.0	51.5	200	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE1-K21R 200 LX2	FF 350	390	300	55	55	M20	110	110	16	16	59.0	59.0	200	168	727	851	KK 100 A	213	207	M50 x 1.5	4L	35
IE1-K21R 225 S4, 8	FF 400	390	300	60	55	M20	140	110	18	16	64.0	59.0	225	168	757	881	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 225 M2	FF 400	390	300	55	55	M20	110	110	16	16	59.0	59.0	225	168	767	891	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 225 M4	FF 400	390	300	60	55	M20	140	110	18	16	64.0	59.0	225	168	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 225 M6, 8	FF 400	390	300	60	55	M20	140	110	18	16	64.0	59.0	225	168	757	881	KK 100 A	213	207	M50 x 1.5	8L	40
IE1-K21R 250 M2	FF 500	440	358	60	55	M20	140	110	18	16	64.0	59.0	250	177	862	977	KK 200 A	282	242	M63 x 1.5	8L	45
IE1-K21R 250 M4, 6, 8	FF 500	440	358	65	55	M20	140	110	18	16	64.0	59.0	250	177	862	977	KK 200 A	282	242	M63 x 1.5	8L	45
IE1-K21R 280 S2	FF 500	490	386	65	65	M20	140	140	18	18	69.0	69.0	280	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE1-K21R 280 S4, 6, 8	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69.0	280	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE1-K21R 280 M2	FF 500	490	386	65	65	M20	140	140	18	18	69.0	69.0	280	206	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE1-K21R 280 M4, 6, 8	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69.0	280	206	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50

*) Centre holes acc. to DIN 332-DS

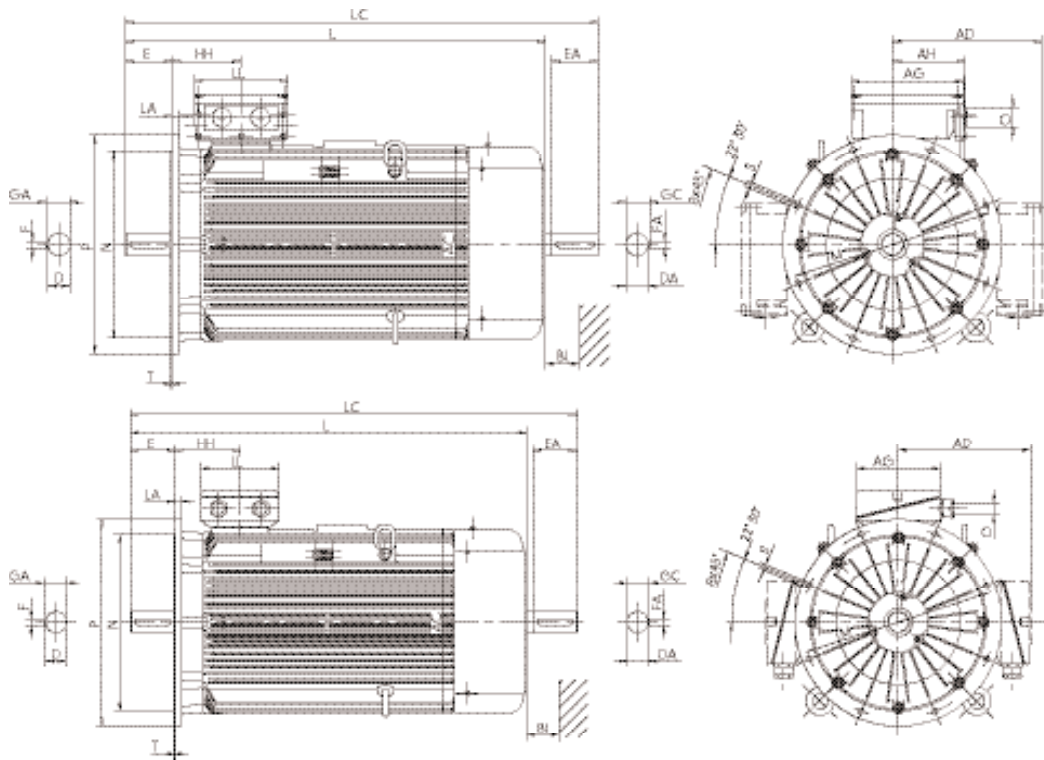
Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

Size 315
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B5 [IM 3001] up to size 315 MY

Type of construction IM V1 [IM 3011]

Flange dimensions see page 67



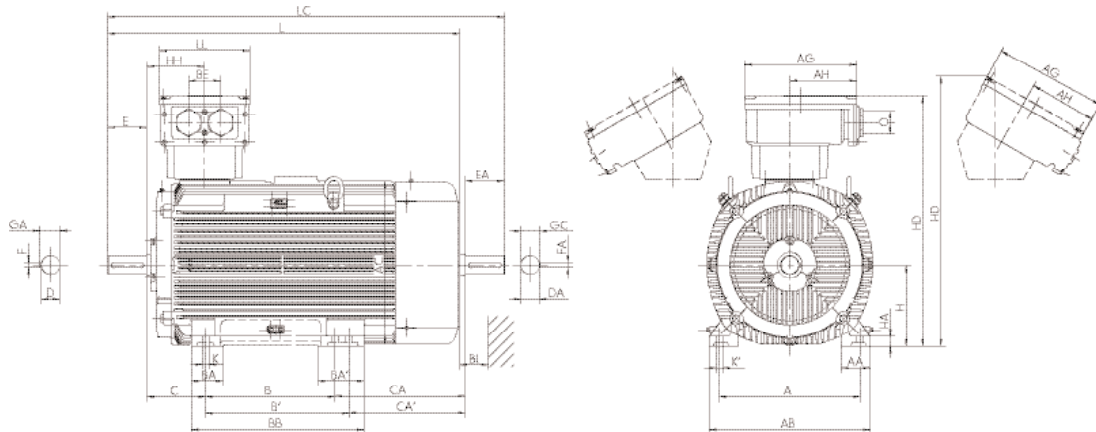
Type designation	Flange size	AC g	AD g1	D d	DA d1	DB*)	E l	EA l1	F u	FA u1	GA t	GC t1	H h	HH A	L k	LC k1	KK Type	AG x	LL z	AH -	O r	BI Bl
IE1-K21R 315 S2	FF 600	550	416	65	65	M20	140	140	18	18	69	69.0	315	211	1050	1218	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 S4, 6, 8	FF 600	550	416	80	70	M20	170	140	22	20	85	74.5	315	211	1080	1248	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 M2	FF 600	550	416	65	65	M20	140	140	18	18	69	69.0	315	211	1105	1273	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 M4, 6, 8	FF 600	550	416	80	70	M20	170	140	22	20	85	74.5	315	211	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX2	FF 600	550	416	65	65	M20	140	140	18	18	69	69.0	315	211	1185	1353	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX4	FF 600	550	416	80	70	M20	170	140	22	20	85	74.5	315	211	1215	1383	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX6, 8	FF 600	550	416	80	70	M20	170	140	22	20	85	74.5	315	211	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MX10, 12	FF 600	550	416	80	70	M20	170	140	22	20	85	74.5	315	211	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE1-K21R 315 MY2	FF 600	610	498	65	65	M20	140	140	18	18	69	69.0	315	230	1270	1448	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 MY4, 6, 8	FF 600	610	498	80	70	M20	170	140	22	20	85	74.5	315	230	1300	1478	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 L2	FF 600	610	498	65	65	M20	140	140	18	18	69	69.0	315	230	1390	1543	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 L4, 6, 8	FF 600	610	498	80	70	M20	170	140	22	20	85	74.5	315	230	1420	1598	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 LX2	FF 600	610	481	65	65	M20	140	140	18	18	69	69.0	315	230	1510	1688	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 LX4	FF 600	610	481	80	70	M20	170	140	22	20	85	74.5	315	230	1540	1723	KK 400 B	315	294	265	M63 x 1.5	55
IE1-K21R 315 LX6, 8	FF 600	610	498	80	70	M20	170	140	22	20	85	74.5	315	230	1420	1598	KK 400 B	315	294	265	M63 x 1.5	55

*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

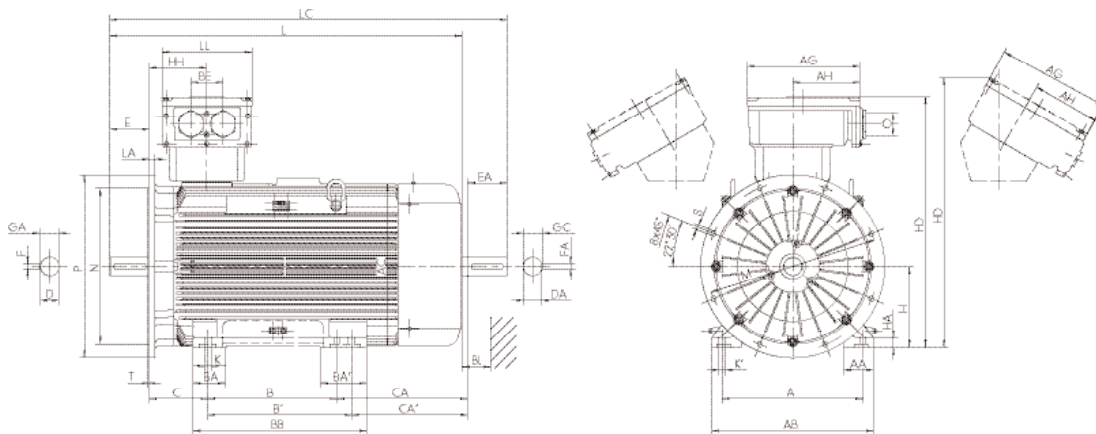
Size 355
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B3 [IM 1001]



Type of construction IM B35 [IM 2001]

Flange dimensions see page 67



Type designation	Flange size	A	AA	AB	AC	B	BA	BA'	BB	C	CA	D	DA	DB*)	E	EA	F	FA
		b	n	f	g	a	m	m1	e	w1	w2	d	d1		l	l1	u	u1
IE1-K22R 355 MY2, M2	FF 740	610	130	700	715	560	140	200	750	254	561	80	80	M20	170	170	22	22
IE1-K22R 355 MY4, 6, 8	FF 740	610	130	700	715	560	140	200	750	254	561	100	80	M24	210	170	28	22
IE1-K22R 355 M4	FF 740	610	130	700	715	560	140	200	750	254	561	100	80	M24	210	170	28	22
IE1-K22R 355 M6, 8	FF 740	610	130	700	715	560	140	200	750	254	561	100	80	M24	210	170	28	22
IE1-K22R 355 MX6, 8	FF 740	610	130	700	715	560	140	200	750	254	681	100	80	M24	210	170	28	22
K22R 355 MX2	FF 740	610	130	700	715	560	140	200	750	254	681	80	80	M20	170	170	22	22
K22R 355 LY2, L2	FF 740	610	130	700	715	630	140	200	750	254	611	80	80	M20	170	170	22	22
K22R 355 MX4	FF 740	610	130	700	715	560	140	200	750	254	681	100	80	M24	210	170	28	22
K22R 355 LY4, L4	FF 740	610	130	700	715	630	140	200	750	254	611	100	80	M24	210	170	28	22
IE1-K22R 355 LY6, 8	FF 740	610	130	700	715	630	140	200	750	254	611	100	80	M24	210	170	28	22

Type designation	GA	GC	H	HA	HD	HD**)	HH	K	K'	L	LC	KK Type	AG	LL	AH	BE	O	BI
	t	t1	h	c	p	p	A	s	s'	k	k1		x	z	-	-	r	BI
IE1-K22R 355 MY2, M2	85	85	355	44	1091	1172	250	28	35	1530	1715	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 MY4, 6, 8	106	85	355	44	1091	1172	250	28	35	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 M4	106	85	355	44	1091	1172	250	28	35	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 M6, 8	106	85	355	44	1091	1172	250	28	35	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 MX6, 8	106	85	355	44	1091	1172	327	28	35	1690	1875	KK 630 A	496	390	301	140	M72 x 2	60
K22R 355 MX2	85	85	355	44	1083	1174	327	28	35	1650	1835	KK 1000 A	615	474	385	200	M72 x 2	60
K22R 355 LY2, L2	85	85	355	44	1083	1174	327	28	35	1650	1835	KK 1000 A	615	474	385	200	M72 x 2	60
K22R 355 MX4	106	85	355	44	1083	1174	327	28	35	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60
K22R 355 LY4, L4	106	85	355	44	1083	1174	327	28	35	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60
IE1-K22R 355 LY6, 8	106	85	355	44	1083	1174	327	28	35	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60

*) Centre holes acc. to DIN 332-DS

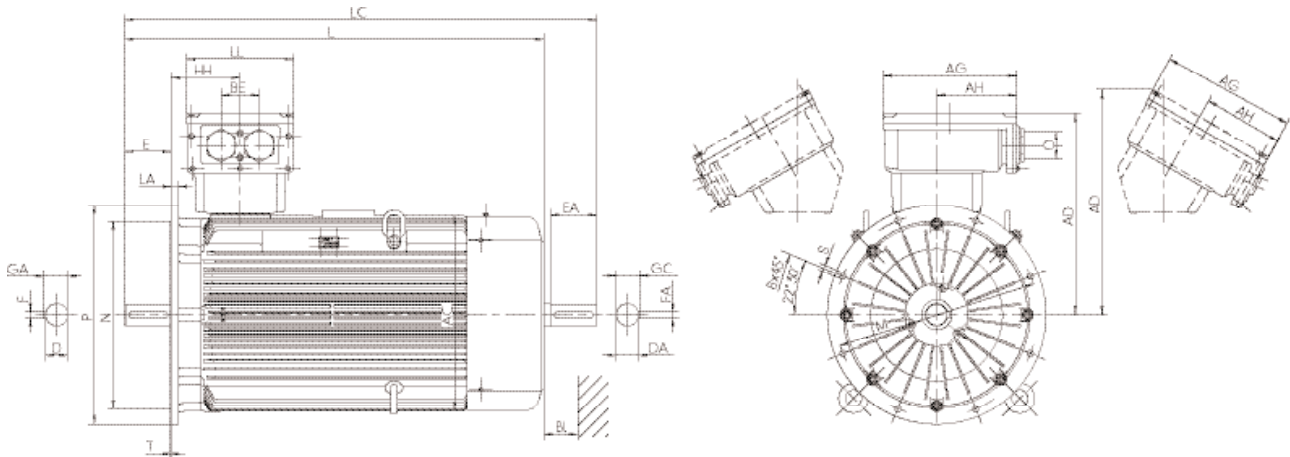
***) Terminal box tilted right/left

Three-phase motors with squirrel-cage rotor Energy saving motors, Standard Efficiency IE1

Size 355
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM V1 [IM 3011]

Flange dimensions see page 67



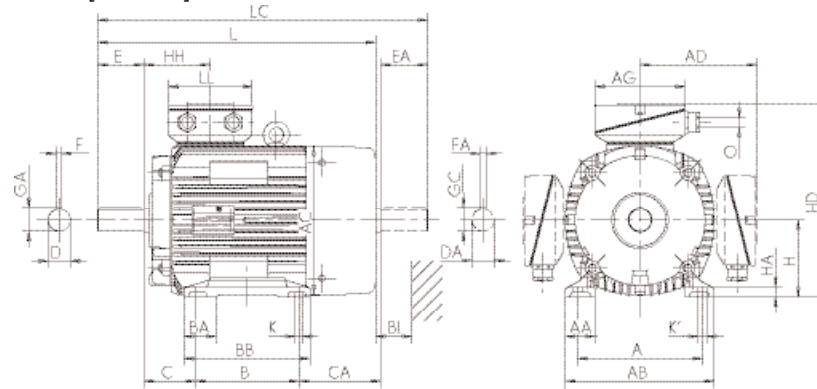
Type designation	Flange size	AC g	AD g1	AD** g1	D d	DA d1	DB*)	E l	EA l1	F u	FA u1	GA t	GC t1	H h	HH A	L k	LC k1	KK Type	AG x	LL z	AH -	BE -	O r	BI BI
IE1-K22R 355 MY2, M2	FF 740	715	736	817	80	80	M20	170	170	22	22	85	85	355	250	1530	1715	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 MY4, 6, 8	FF 740	715	736	817	100	80	M24	210	170	28	22	106	85	355	250	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 M4	FF 740	715	736	817	100	80	M24	210	170	28	22	106	85	355	250	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 M6, 8	FF 740	715	736	817	100	80	M24	210	170	28	22	106	85	355	250	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE1-K22R 355 MX6, 8	FF 740	715	736	817	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 630 A	496	390	301	140	M72 x 2	60
K22R 355 MX2	FF 740	715	728	819	80	80	M20	170	170	22	22	85	85	355	327	1650	1835	KK 1000 A	615	474	385	200	M72 x 2	60
K22R 355 LY2, L2	FF 740	715	728	819	80	80	M20	170	170	22	22	85	85	355	327	1650	1835	KK 1000 A	615	474	385	200	M72 x 2	60
K22R 355 MX4	FF 740	715	728	819	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60
K22R 355 LY, L4	FF 740	715	728	819	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60
IE1-K22R 355 LY6, 8	FF 740	715	728	819	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60

*) Centre holes acc. to DIN 332-DS

**) Terminal box tilted right/left

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 56 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55
Type of construction IM B3 [IM 1001]



Type designation	Flange size	Dimensions (mm)													E	EA	F	FA
		A	AA	AB	AC	AD	B	BA	BB	C	CA	D	DA	DB*)				
	b	n	f	g	g1	a	m	e	w1	w2	d	d1		l	l1	u	u1	
W21R 56 K2, 4	FF 100	90	18	110	109	-	71	-	86	36	52	9	9	M3	20	20	3	3
W21R 56 G2, 4	FF 100	90	18	110	109	-	71	-	86	36	52	9	9	M3	20	20	3	3
W21R 63 K2, 4	FF 115	100	21	120	124	-	80	-	95	40	59	11	11	M4	23	23	4	4
W21R 63 G2, 4	FF 115	100	21	120	124	-	80	-	95	40	59	11	11	M4	23	23	4	4
W21R 71 K2, 4, 6	FF 130	112	23	135	139	-	90	-	114	45	78	14	14	M5	30	30	5	5
W21R 71 G2, 4, 6	FF 130	112	23	135	139	-	90	-	114	45	78	14	14	M5	30	30	5	5
IE2-W21R 80 K2, 4, 6, 8	FF 165	125	26	152	157	-	100	-	124	50	80	19	19	M6	40	40	6	6
IE2-W21R 80 G2	FF 165	125	26	152	157	-	100	-	146	50	102	19	19	M6	40	40	6	6
IE2-W21R 80 G4, 6, 8	FF 165	125	26	152	157	-	100	-	146	50	102	19	19	M6	40	40	6	6
IE2-WE1R 90 S2, 4	FF 165	140	40	178	177	-	100	-	130	56	159	24	24	M8	50	50	8	8
IE2-W21R 90 S6, 8	FF 165	140	40	178	177	-	100	-	130	56	159	24	24	M8	50	50	8	8
IE2-WE1R 90 L2	FF 165	140	40	178	177	-	125	-	155	56	134	24	24	M8	50	50	8	8
IE2-WE1R 90 L4	FF 165	140	40	178	177	-	125	-	155	56	164	24	24	M8	50	50	8	8
IE2-W21R 90 L6, 8	FF 165	140	40	178	177	-	125	-	155	56	164	24	24	M8	50	50	8	8
IE2-W21R 100 L8	FF 215	160	42	193	196	-	140	-	175	63	102	28	28	M10	60	60	8	8
IE2-WE1R 100 L2	FF 215	160	42	193	196	-	140	-	175	63	102	28	28	M10	60	60	8	8
IE2-WE1R 100 L4	FF 215	160	42	193	196	-	140	-	175	63	136	28	28	M10	60	60	8	8
IE2-WE1R 100 LX4	FF 215	160	42	193	196	-	140	-	175	63	166	28	28	M10	60	60	8	8
IE2-W21R 100 LX6, 8	FF 215	160	42	193	196	-	140	-	175	63	136	28	28	M10	60	60	8	8
IE2-WE1R 112 MX2	FF 215	190	52	225	196	-	140	-	180	70	129	28	28	M10	60	60	8	8
IE2-WE1R 112 MZ4	FF 215	190	52	225	196	-	140	-	180	70	199	28	28	M10	60	60	8	8
IE2-W21R 112 MV2, 6, 8	FF 215	190	52	225	196	-	140	-	180	70	159	28	28	M10	60	60	8	8
IE2-WE1R 132 S2T	FF 265	216	50	256	258	199	140	55	180	89	176	38	32	M12	80	80	10	10
IE2-WE1R 132 SX2	FF 265	216	50	256	258	199	140	55	180	89	176	38	32	M12	80	80	10	10
IE2-WE1R 132 S4	FF 265	216	50	256	258	199	140	55	180	89	186	38	32	M12	80	80	10	10
IE2-W21R 132 S6, 8	FF 265	216	50	256	217	178	140	55	180	89	173	38	32	M12	80	80	10	10
IE2-WE1R 132 M4	FF 265	216	50	256	258	199	178	55	218	89	186	38	38	M12	80	80	10	10
IE2-W21R 132 M6, 8	FF 265	216	50	256	258	199	178	55	218	89	138	38	32	M12	80	80	10	10
IE2-W21R 132 MX6	FF 265	216	50	256	258	199	178	55	218	89	186	38	38	M12	80	80	10	10
IE2-WE1R 160 M2	FF 300	254	55	296	313	242	210	60	257	108	148	42	38	M16	110	80	12	10
IE2-WE1R 160 M4	FF 300	254	55	296	313	242	210	60	257	108	148	42	38	M16	110	80	12	10
IE2-W21R 160 M8	FF 300	254	55	296	258	214	210	60	257	108	135	42	38	M16	110	80	12	10
IE2-W21R 160 M6, MX8	FF 300	254	55	296	313	242	210	60	257	108	148	42	38	M16	110	80	12	10
IE2-WE1R 160 MX2	FF 300	254	55	296	313	242	210	56	257	108	185	42	42	M16	110	110	12	12
IE2-WE1R 160 L2	FF 300	254	55	296	313	242	254	60	301	108	142	42	42	M16	110	110	12	12
IE2-WE1R 160 L4	FF 300	254	55	296	313	242	254	60	301	108	200	42	42	M16	110	110	12	12
IE2-W21R 160 L6, 8	FF 300	254	55	296	313	242	254	60	301	108	142	42	42	M16	110	110	12	12
IE2-WE1R 180 M2	FF 300	279	62	328	351	261	241	65	288	121	169	48	48	M16	110	110	14	14
IE2-WE1R 180 M4	FF 300	279	62	328	351	261	241	65	288	121	214	48	42	M16	110	110	14	14
IE2-WE1R 180 L4	FF 300	279	62	328	351	261	279	65	326	121	176	48	48	M16	110	110	14	14
IE2-W21R 180 L6, 8	FF 300	279	62	328	351	261	279	65	326	121	176	48	42	M16	110	110	14	14
IE2-WE1R 200 L2	FF 350	318	70	372	351	261	305	70	360	133	138	55	48	M20	110	110	16	14
IE2-WE1R 200 LX2	FF 350	318	70	372	351	261	305	70	360	133	188	55	48	M20	110	110	16	14
IE2-WE1R 200 L4	FF 350	318	70	372	390	300	305	70	360	133	193	55	55	M20	110	110	16	16
IE2-W21R 200 LX6	FF 350	318	70	372	390	300	305	70	360	133	193	55	55	M20	110	110	16	16
IE2-W21R 200 L6, 8	FF 350	318	70	372	351	261	305	70	360	133	138	55	48	M20	110	110	16	14
IE2-WE1R 225 M2	FF 400	356	75	413	390	300	311	75	368	149	211	55	55	M20	110	110	16	16
IE2-WE1R 225 S4	FF 400	356	75	413	390	300	286	75	343	149	196	60	55	M20	140	110	18	16
IE2-WE1R 225 M4	FF 400	356	75	413	440	324	311	75	368	149	267	60	55	M20	140	110	18	16
IE2-W21R 225 S8	FF 400	356	75	413	390	300	286	75	368	149	211	60	55	M20	140	110	18	16
IE2-W21R 225 M6	FF 400	356	75	413	440	324	311	75	368	149	267	60	55	M20	140	110	18	16
IE2-W21R 225 M8	FF 400	356	75	413	440	324	311	75	368	149	267	60	55	M20	140	110	18	16
IE2-WE1R 250 M2	FF 500	406	84	471	440	358	349	84	412	168	210	60	55	M20	140	110	18	16
IE2-WE1R 250 M4	FF 500	406	84	469	490	386	349	84	412	168	275	65	55	M20	140	110	18	16
IE2-W21R 250 M6, 8	FF 500	406	84	469	490	386	349	84	412	168	275	65	55	M20	140	110	18	16
IE2-WE1R 280 S2	FF 500	457	94	522	490	386	368	96	431	190	234	65	65	M20	140	140	18	18
IE2-WE1R 280 M2	FF 500	457	94	522	490	386	419	96	482	190	229	65	65	M20	140	140	18	18
IE2-WE1R 280 S4	FF 500	457	94	522	490	386	368	96	431	190	234	75	65	M20	140	140	20	18
IE2-WE1R 280 M4	FF 500	457	94	522	490	386	419	96	482	190	229	75	65	M20	140	140	20	18
IE2-W21R 280 S6	FF 500	457	94	522	490	386	368	96	431	190	229	75	65	M20	140	140	20	18
IE2-W21R 280 S8	FF 500	457	94	522	490	386	368	96	431	190	229	75	65	M20	140	140	20	18
IE2-W21R 280 M6, 8	FF 500	457	88	522	550	416	419	94	482	190	384	75	65	M20	140	140	20	18

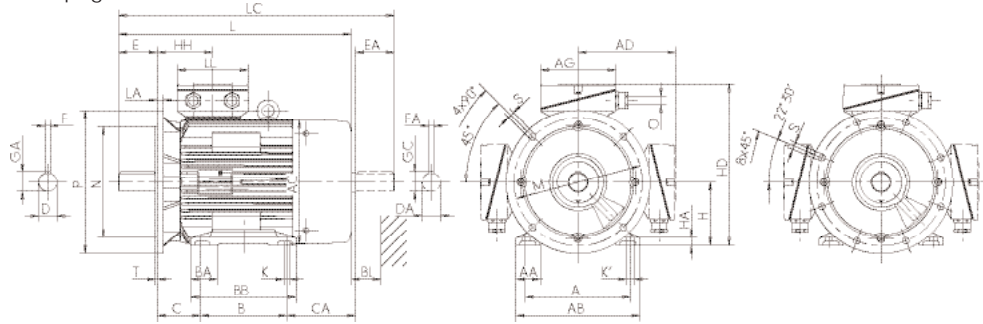
*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor

Energy saving motors, High Efficiency IE2

Size 56 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 2001]
Flange dimensions see page 67



Type designation	GA t	GC t1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	O -	Hole pattern	BI Bl
W21R 56 K2, 4	10.2	10.2	56	7	154	a.A.	58	6	6	176	199	KA 05	92	92	M20 x 1.5	4L	14
W21R 56 G2, 4	10.2	10.2	56	7	154	a.A.	58	6	6	176	199	KA 05	92	92	M20 x 1.5	4L	14
W21R 63K 2, 4	12.5	12.5	63	7.5	167	a.A.	61	7	7	199	225	KA 05	92	92	M20 x 1.5	4L	14
W21R 63 G2, 4	12.5	12.5	63	7.5	167	a.A.	61	7	7	199	225	KA 05	92	92	M20 x 1.5	4L	14
W21R 71 K2, 4, 6	16.0	16.0	71	8	182	a.A.	67	7	7	239	273	KA 05	92	92	M20 x 1.5	4L	16
W21R 71 G2, 4, 6	16.0	16.0	71	8	182	a.A.	67	7	7	239	273	KA 05	92	92	M20 x 1.5	4L	16
IE2-W21R 80 K2, 4, 6, 8	21.5	21.5	80	9	200	a.A.	70	10	10	265	310	KA 05	92	92	M20 x 1.5	4L	16
IE2-WE1R 80 G2	21.5	21.5	80	9	200	a.A.	70	10	10	287	332	KA 05	92	92	M20 x 1.5	4L	16
IE2-W21R 80 G4, 6, 8	21.5	21.5	80	9	200	a.A.	70	10	10	287	332	KA 05	92	92	M20 x 1.5	4L	16
IE2-WE1R 90 S2, 4	27.0	27.0	90	11	217	a.A.	75	10	10	321	376	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 90 S6, 8	27.0	27.0	90	11	217	a.A.	75	10	10	321	376	KA 05	92	92	M25 x 1.5	4L	18
IE2-WE1R 90 L2	27.0	27.0	90	11	217	a.A.	75	10	10	321	376	KA 05	92	92	M25 x 1.5	4L	18
IE2-WE1R 90 L4	27.0	27.0	90	11	217	a.A.	75	10	10	351	406	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 90 L6, 8	27.0	27.0	90	11	217	a.A.	75	10	10	351	406	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 100 L8	31.0	31.0	100	13	237	a.A.	77	12	12	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 L2	31.0	31.0	100	13	237	a.A.	77	12	12	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 L4	31.0	31.0	100	13	237	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 LX4	31.0	31.0	100	13	237	a.A.	77	12	12	421	489	KA 05	92	92	M25 x 1.5	4L	20
IE2-W21R 100 LX6, 8	31.0	31.0	100	13	237	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 112 MX2	31.0	31.0	112	18	249	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 112 MZ4	31.0	31.0	112	18	249	a.A.	77	12	12	461	529	KA 05	92	92	M25 x 1.5	4L	20
IE2-W21R 112 MV2,6,8	31.0	31.0	112	18	249	a.A.	77	12	12	421	489	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 132 S2T	41.0	41.0	132	15	287	a.A.	105	12	12	460	528	KK Ex	104	112	M32 x 1.5	4L	20
IE2-WE1R 132 SX2	41.0	41.0	132	15	331	a.A.	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 132 S4	41.0	41.0	132	15	331	a.A.	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 S6, 8	41.0	35.0	132	16	310	a.A.	108	12	12	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 132 M4	41.0	41.0	132	15	331	a.A.	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 M6, 8	41.0	41.0	132	16	331	a.A.	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 MX6	41.0	41.0	132	15	331	a.A.	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 160 M2	45.0	41.0	160	18	402	a.A.	138	15	20	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 M4	45.0	41.0	160	18	402	a.A.	138	15	20	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 M8	45.0	41.0	160	18	374	a.A.	138	15	15	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 M6, MX8	45.0	41.0	160	18	402	a.A.	138	15	20	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 MX2	45.0	45.0	160	18	402	a.A.	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 L2	45.0	45.0	160	18	402	a.A.	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 L4	45.0	45.0	160	18	402	a.A.	138	15	20	667	783	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 L6, 8	45.0	45.0	160	18	402	a.A.	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 180 M2	51.5	51.5	180	20	441	a.A.	147	15	20	635	751	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 180 M4	51.5	45.0	180	20	441	a.A.	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 180 L4	51.5	51.5	180	20	441	a.A.	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 180 L6, 8	51.5	45.0	180	20	441	a.A.	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 200 L2	59.0	51.5	200	22	461	a.A.	147	19	25	680	796	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE1R 200 LX2	59.0	51.5	200	22	461	a.A.	147	19	25	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE1R 200 L4	59.0	59.0	200	22	500	a.A.	168	19	25	727	851	KK 100 A	213	207	M50 x 1.5	4L	35
IE2-W21R 200 LX6	59.0	59.0	200	22	500	a.A.	168	19	25	727	851	KK 100 A	213	207	M50 x 1.5	4L	35
IE2-W21R 200 L6, 8	59.0	51.5	200	22	461	a.A.	147	19	25	680	796	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE1R 225 M2	59.0	59.0	225	25	525	a.A.	168	19	25	767	891	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE1R 225 S4	64.0	59.0	225	25	525	a.A.	168	19	25	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE1R 225 M4	64.0	59.0	225	25	549	a.A.	177	19	25	862	977	KK 100 A	213	207	M50 x 1.5	8L	45
IE2-W21R 225 S8	64.0	59.0	225	25	525	a.A.	168	19	25	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-W21R 225 M6	64.0	59.0	225	25	549	a.A.	177	19	25	862	977	KK 100 A	213	207	M50 x 1.5	8L	45
IE2-W21R 225 M8	64.0	59.0	225	25	549	a.A.	177	19	25	862	977	KK 100 A	213	207	M50 x 1.5	8L	45
IE2-WE1R 250 M2	64.0	59.0	250	28	608	a.A.	177	24	30	862	977	KK 200 A	282	242	M63 x 1.5	8L	45
IE2-WE1R 250 M4	69.0	59.0	250	28	636	a.A.	206	24	30	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-W21R 250 M6, 8	69.0	59.0	250	28	636	a.A.	206	24	30	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 S2	69.0	69.0	280	32	666	a.A.	206	24	30	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 M2	69.0	69.0	280	32	666	a.A.	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 S4	79.5	69.0	280	32	666	a.A.	206	24	30	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 M4	79.5	69.0	280	32	666	a.A.	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-W21R 280 S6	79.5	69.0	280	32	666	a.A.	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-W21R 280 S8	79.5	69.0	280	32	666	a.A.	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-W21R 280 M6, 8	79.5	69.0	280	40	696	a.A.	211	24	30	1105	1273	KK 200 A	282	242	M63 x 1.5	8L	55

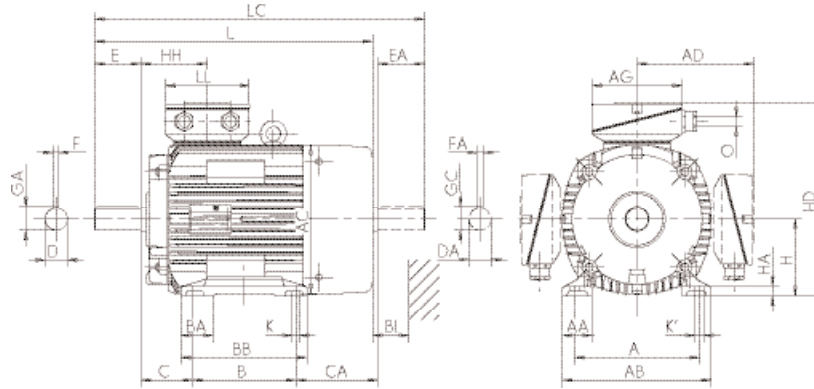
**) Terminal box left/right

Size 56/63/71/90: dimensions C, HH, L, LC are different for type of construction B35, see B5

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 132 to 250
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B3 [IM 1001]



Type designation	Flange size	A	AA	AB	AC	AD	B	BA	BB	C	CA	D	DA	DB*)	E	EA	F	FA
		b	n	f	g	g1	a	m	e	w1	w2	d	d1		l	l1	u	u1
IE2-WE2R 132 S4	FF 265	216	50	256	217	178	140	55	180	89	223	38	32	M12	80	80	10	10
IE2-WE2R 132 M6, 8	FF 265	216	50	256	217	178	178	55	218	89	185	38	32	M12	80	80	10	10
IE2-WE2R 160 M4	FF 300	254	55	296	258	214	210	60	257	108	185	42	38	M16	110	80	12	10
IE2-WE2R 160 M6, MX8	FF 300	254	55	296	258	214	210	60	257	108	185	42	38	M16	110	80	12	10
IE2-WE2R 160 L4	FF 300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
IE2-WE2R 180 L6	FF300	279	62	328	313	242	279	65	326	121	154	48	42	M16	110	110	14	12
IE2-WE2R 180 M4	FF 300	279	62	328	351	261	241	65	288	121	194	48	48	M16	110	110	14	14
IE2-WE2R 200 LX2	FF 350	318	70	372	351	261	305	70	360	133	188	55	48	M20	110	110	16	14
IE2-WE2R 200 LX6	FF 350	318	70	372	351	261	305	70	360	133	188	55	48	M20	110	110	16	14
IE2-WE2R 225 M4	FF 400	356	75	413	390	300	311	75	343	149	261	60	55	M20	140	110	18	16
IE2-WE2R 225 M6, 8	FF 400	356	75	413	390	300	311	75	368	149	221	60	55	M20	140	110	18	16
IE2-WE2R 250 M4	FF 500	406	84	469	440	386	349	84	412	168	325	65	55	M20	140	110	18	16
IE2-WE2R 250 M6, 8	FF 500	406	84	469	440	386	349	84	412	168	325	65	55	M20	140	110	18	16

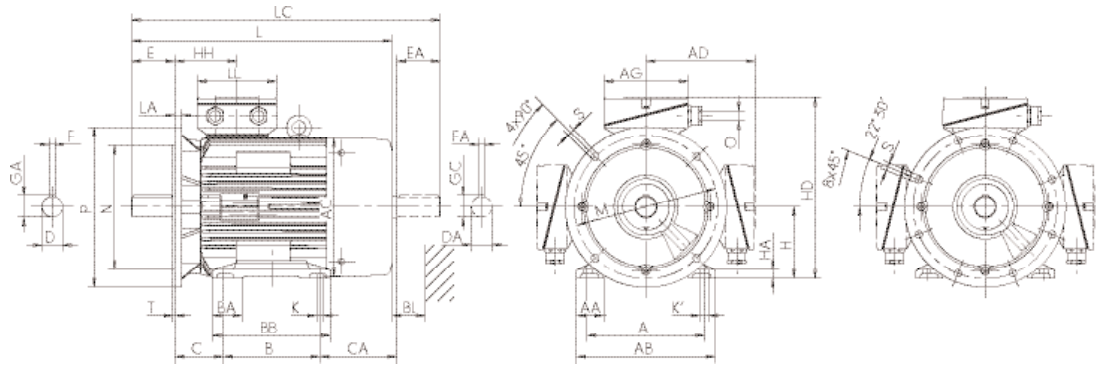
*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 132 to 250
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 2001]

Flange dimensions see page 67



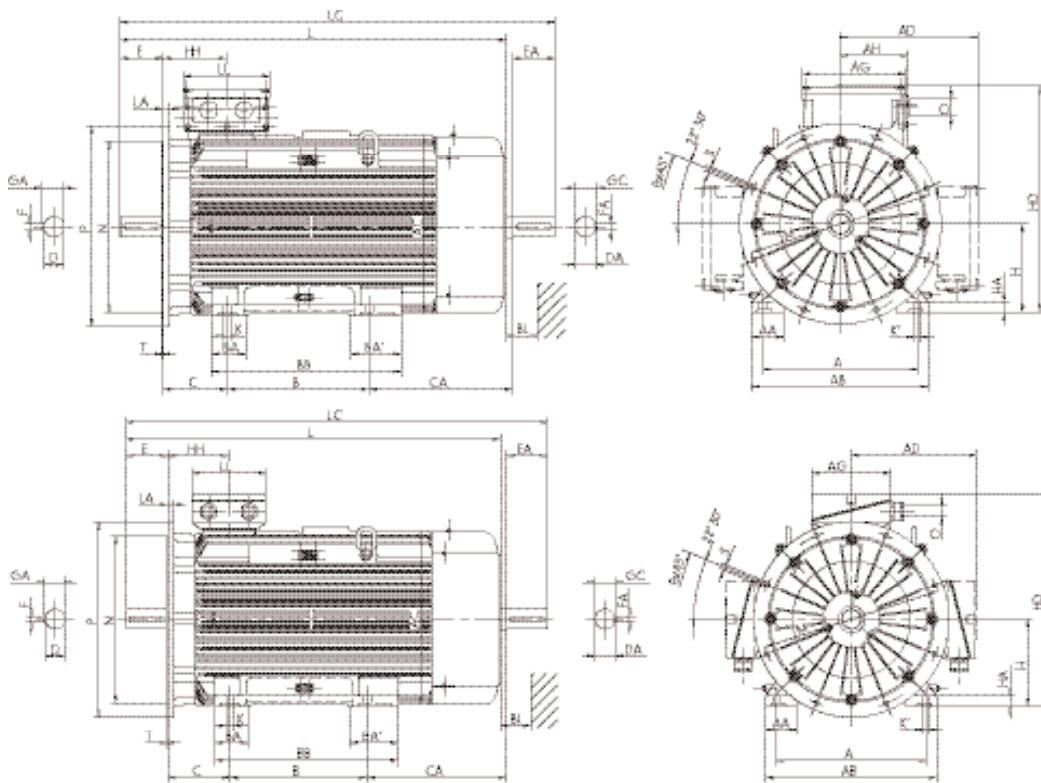
Type designation	GA t	GC t1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	O -	Hole pattern	BI Bl
IE2-WE2R 132 S4	41	35	132	16	310	a.A.	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE2R 132 M6, 8	41	35	132	16	310	a.A.	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE2R 160 M4	45	41	160	18	374	a.A.	114	15	15	609	693	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 160 M6, MX8	45	41	160	18	374	a.A.	114	15	15	609	693	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 160 L4	45	45	160	18	402	a.A.	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 180 L6	51.5	45	180	20	422	a.A.	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 180 M4	51.5	51.5	180	20	441	a.A.	147	15	20	635	751	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 200 LX2	59	51.5	200	22	461	a.A.	147	19	25	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE2R 200 LX6	59	51.5	200	22	461	a.A.	147	19	25	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE2R 225 M4	64	59	225	25	527	a.A.	168	19	25	847	971	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE2R 225 M8	64	59	225	25	527	a.A.	168	19	25	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE2R 250 M4	69	59	250	28	636	a.A.	177	24	30	912	1027	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE2R 250 M6, 8	69	59	250	28	636	a.A.	177	24	30	912	1027	KK 200 A	282	242	M63 x 1.5	8L	50

***) Terminal box left/right

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 315
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 2001]
Flange dimensions see page 67



Type designation	GA t	GC t1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	AH -	O r	BI BI
IE2-W21R 315 S2	69	69.0	315	44	731	595	211	28	35	1050	1218	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 M2	69	69.0	315	44	731	595	211	28	35	1105	1273	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 MX2	69	69.0	315	44	731	595	211	28	35	1185	1353	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 MY2	69	69.0	315	44	809	628	230	28	35	1270	1448	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 L2	69	69.0	315	44	809	628	230	28	35	1390	1568	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 LX2	69	69.0	315	44	809	628	230	28	35	1510	1688	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 S4	85	74.5	315	44	731	595	211	28	35	1080	1248	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 M4	85	74.5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 MX4	85	74.5	315	44	731	595	211	28	35	1215	1383	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 MY4	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 L4	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 LX4	85	74.5	315	44	809	628	230	28	35	1540	1718	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 S6	85	74.5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 M6	85	74.5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	265	M63 x 1.5	55
IE2-W21R 315 MX6	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 MY6	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 L6	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 LX6	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 S8	85	74.5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 M8	85	74.5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE2-W21R 315 MX8	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 MY8	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 L8	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55
IE2-W21R 315 LX8	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55

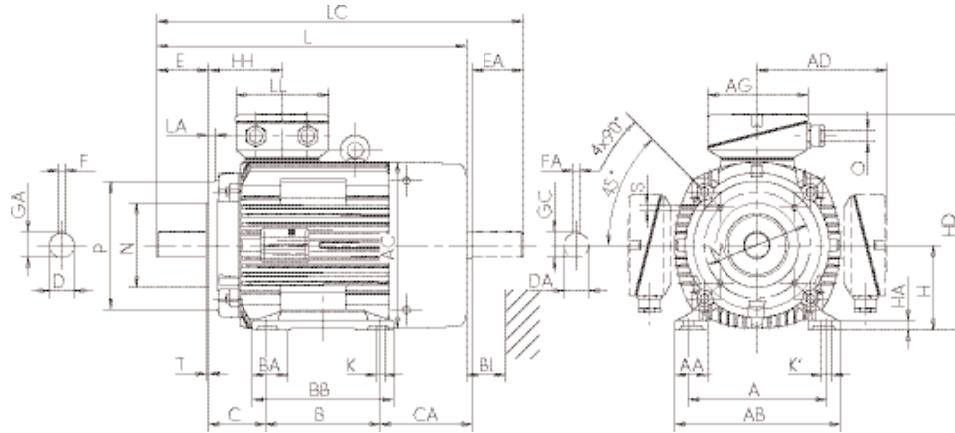
**) Terminal box left/right

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 56 to 160
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B34 [IM 2101]

Flange dimensions see page 67



Type designation	Flange sizes		A	AA	AB	AC	AD	B	BA	BB	C	CA	D	DA	DB*)	E	EA	F	FA
	small	big	b	n	f	g	g1	a	m	e	w1	w2	d	d1		l	l1	u	u1
W21R 56 K2, 4	FT 65	FT 85	90	18	110	109	-	71	-	86	36	52	9	9	M3	20	20	3	3
W21R 56 G2, 4	FT 65	FT 85	90	18	110	109	-	71	-	86	36	52	9	9	M3	20	20	3	3
W21R 63 K2, 4	FT 75	FT 85	100	21	120	124	-	80	-	95	40	59	11	11	M4	23	23	4	4
W21R 63 G2, 4	FT 75	FT 85	100	21	120	124	-	80	-	95	40	59	11	11	M4	23	23	4	4
W21R 71 K2, 4, 6	FT 85	FT 100	112	23	135	139	-	90	-	114	45	78	14	14	M5	30	30	5	5
W21R 71 G2, 4, 6	FT 85	FT 100	112	23	135	139	-	90	-	114	45	78	14	14	M5	30	30	5	5
IE2-W21R 80 K2, 4, 6, 8	FT 100	FT 130	125	26	152	157	-	100	-	124	50	80	19	19	M6	40	40	6	6
IE2-WE1R 80 G2	FT 100	FT 130	125	26	152	157	-	100	-	146	50	102	19	19	M6	40	40	6	6
IE2-W21R 80 G4, 6, 8	FT 100	FT 130	125	26	152	157	-	100	-	146	50	102	19	19	M6	40	40	6	6
IE2-WE1R 90 S2, 4	FT 115	FT 130	140	40	178	177	-	100	-	130	56	159	24	24	M8	50	50	8	8
IE2-W21R 90 S6, 8	FT 115	FT 130	140	40	178	177	-	100	-	130	56	159	24	24	M8	50	50	8	8
IE2-WE1R 90 L2	FT 115	FT 130	140	40	178	177	-	125	-	155	56	134	24	24	M8	50	50	8	8
IE2-WE1R 90 L4	FT 115	FT 130	140	40	178	177	-	125	-	155	56	164	24	24	M8	50	50	8	8
IE2-W21R 90 L6, 8	FT 115	FT 130	140	40	178	177	-	125	-	155	56	164	24	24	M8	50	50	8	8
IE2-W21R 100 L8	FT 130	FT 165	160	42	193	196	-	140	-	175	63	102	28	28	M10	60	60	8	8
IE2-WE1R 100 L2	FT 130	FT 165	160	42	193	196	-	140	-	175	63	102	28	28	M10	60	60	8	8
IE2-WE1R 100 L4	FT 130	FT 165	160	42	193	196	-	140	-	175	63	136	28	28	M10	60	60	8	8
IE2-WE1R 100 LX4	FT 130	FT 165	160	42	193	196	-	140	-	175	63	166	28	28	M10	60	60	8	8
IE2-W21R 100 LX6, 8	FT 130	FT 165	160	42	193	196	-	140	-	175	63	136	28	28	M10	60	60	8	8
IE2-WE1R 112 MX2	FT 130	FT 165	190	52	225	196	-	140	-	180	70	129	28	28	M10	60	60	8	8
IE2-WE1R 112 MZ4	FT 130	FT 165	190	52	225	196	-	140	-	180	70	199	28	28	M10	60	60	8	8
IE2-W21R 112 MV2, 6, 8	FT 130	FT 165	190	52	225	196	-	140	-	180	70	159	28	28	M10	60	60	8	8
IE2-WE1R 132 S2T	FT 130	FT 165	216	52	257	196	-	140	-	180	89	159	38	32	M12	80	80	10	8
IE2-WE1R 132 SX2	FT 130	FT 165	216	50	256	258	199	140	55	180	89	176	38	32	M12	80	80	10	10
IE2-WE1R 132 S4	FT 130	FT 165	216	50	256	258	199	140	55	180	89	186	38	32	M12	80	80	10	10
IE2-W21R 132 S6, 8	FT 130	FT 165	216	50	256	217	178	140	55	180	89	173	38	32	M12	80	80	10	10
IE2-WE1R 132 M4	FT 165	FT 215	216	50	256	258	199	178	55	218	89	186	38	38	M12	80	80	10	10
IE2-W21R 132 M6, 8	FT 165	FT 215	216	50	256	258	199	178	55	218	89	138	38	32	M12	80	80	10	10
IE2-W21R 132 MX6	FT 165	FT 215	216	50	256	258	199	178	55	218	89	186	38	38	M12	80	80	10	10
IE2-WE1R 160 M2	FT 165	FT 215	254	55	296	258	214	210	60	257	108	185	42	38	M16	110	80	12	10
IE2-WE1R 160 M4	FT 165	FT 215	254	55	296	313	242	210	60	257	108	178	42	38	M16	110	80	12	10
IE2-W21R 160 M8	FT 165	FT 215	254	55	296	258	214	210	60	257	108	135	42	38	M16	110	80	12	10
IE2-W21R 160 M6, MX8	FT 215	FT 265	254	55	296	313	242	210	60	257	108	148	42	38	M16	110	80	12	10
IE2-WE1R 160 MX2	FT 215	FT 265	254	55	296	313	242	210	56	257	108	185	42	42	M16	110	110	12	12
IE2-WE1R 160 L2	FT 215	FT 265	254	55	296	313	242	254	60	301	108	142	42	42	M16	110	110	12	12
IE2-WE1R 160 L4	FT 215	FT 265	254	55	296	313	242	254	60	301	108	200	42	42	M16	110	110	12	12
IE2-W21R 160 L6, 8	FT 215	FT 265	254	55	296	313	242	254	60	301	108	142	42	42	M16	110	110	12	12
Optimised design series																			
IE2-WE2R 132 S4	FT 130	FT 165	216	50	256	217	178	140	55	180	89	223	38	32	M12	80	80	10	10
IE2-WE2R 132 M6, 8	FT 130	FT 165	216	50	256	217	178	178	55	218	89	185	38	32	M12	80	80	10	10
IE2-WE2R 160 M4, 6, MX8	FT 165	FT 215	254	55	296	258	214	210	60	257	108	185	42	38	M16	110	80	12	10
IE2-WE2R 160 L4	FT 215	FT 265	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12

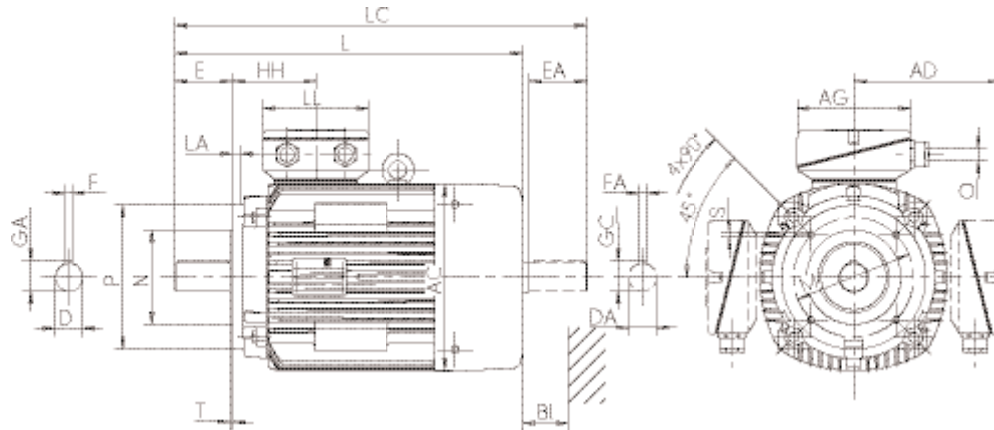
*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 56 to 160
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B14 [IM 3601]

Flange dimensions see page 67



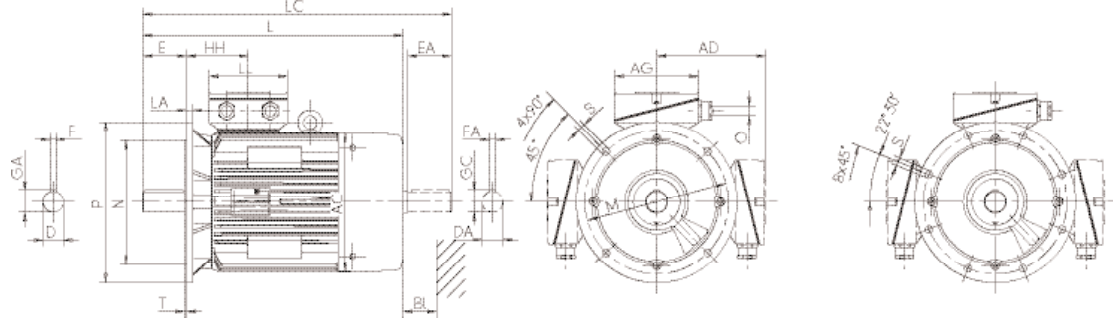
Type designation	GA t	GC t1	H h	HA c	HD p	HD** p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	O r	Hole pattern	BI Bl
W21R 56 K2, 4	10.2	10.2	56	7	154	a.A.	58	6	6	176	199	KA 05	92	92	M20 x 1.5	4L	14
W21R 56 G2, 4	10.2	10.2	56	7	154	a.A.	58	6	6	176	199	KA 05	92	92	M20 x 1.5	4L	14
W21R 63 K2, 4	12.5	12.5	63	7,5	167	a.A.	61	7	7	199	225	KA 05	92	92	M20 x 1.5	4L	14
W21R 63 G2, 4	12.5	12.5	63	7,5	167	a.A.	61	7	7	199	225	KA 05	92	92	M20 x 1.5	4L	14
W21R 71 K2, 4, 6	16	16	71	8	182	a.A.	67	7	7	239	273	KA 05	92	92	M20 x 1.5	4L	16
W21R 71 G2, 4, 6	16	16	71	8	182	a.A.	67	7	7	239	273	KA 05	92	92	M20 x 1.5	4L	16
IE2-W21R 80 K2, 4, 6, 8	21.5	21.5	80	9	200	a.A.	70	10	10	265	310	KA 05	92	92	M20 x 1.5	4L	16
IE2-WE1R 80 G2	21.5	21.5	80	9	200	a.A.	70	10	10	287	332	KA 05	92	92	M20 x 1.5	4L	16
IE2-W21R 80 G4, 6, 8	21.5	21.5	80	9	200	a.A.	70	10	10	287	332	KA 05	92	92	M20 x 1.5	4L	16
IE2-WE1R 90 S2, 4	27	27	90	11	217	a.A.	75	10	10	321	376	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 90 S6, 8	27	27	90	11	217	a.A.	75	10	10	321	376	KA 05	92	92	M25 x 1.5	4L	18
IE2-WE1R 90 L2	27	27	90	11	217	a.A.	75	10	10	321	376	KA 05	92	92	M25 x 1.5	4L	18
IE2-WE1R 90 L4	27	27	90	11	217	a.A.	75	10	10	351	406	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 90 L6, 8	27	27	90	11	217	a.A.	75	10	10	351	406	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 100 L8	31	31	100	13	237	a.A.	77	12	12	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 L2	31	31	100	13	237	a.A.	77	12	12	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 L4	31	31	100	13	237	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 LX4	31	31	100	13	237	a.A.	77	12	12	421	489	KA 05	92	92	M25 x 1.5	4L	20
IE2-W21R 100 LX6, 8	31	31	100	13	237	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 112 MX2	31	31	112	18	249	a.A.	77	12	12	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 112 MZ4	31	31	112	18	249	a.A.	77	12	12	461	529	KA 05	92	92	M25 x 1.5	4L	20
IE2-W21R 112 MV2,6,8	31	31	112	18	249	a.A.	77	12	12	421	489	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 132 S2T	41	41	132	18	287	a.A.	105	12	12	460	528	KK Ex	104	112	M32 x 1.5	4L	20
IE2-WE1R 132 SX2	41	41	132	15	331	a.A.	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 132 S4	41	41	132	15	331	a.A.	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 S6, 8	41	35	132	16	310	a.A.	108	12	12	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 132 M4	41	41	132	16	331	a.A.	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 M6, 8	41	41	132	16	331	a.A.	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 MX6	41	41	132	15	331	a.A.	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 160 M2	45	41	160	18	374	a.A.	114	15	15	605	689	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 M4	45	41	160	18	402	a.A.	138	15	20	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 M8	45	41	160	18	374	a.A.	138	15	15	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 M6, MX8	45	41	160	18	402	a.A.	138	15	20	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 MX2	45	45	160	18	402	a.A.	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 L2	45	45	160	18	402	a.A.	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 L4	45	45	160	18	402	a.A.	138	15	20	667	783	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 L6, 8	45	45	160	18	402	a.A.	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
Optimised design series																	
IE2-WE2R 132 S4	41	35	132	16	310	a.A.	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE2R 132 M6, 8	41	35	132	16	310	a.A.	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE2R 160 M4, 6, MX8	45	41	160	18	374	a.A.	114	15	15	609	693	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 160 L4	45	45	160	18	402	a.A.	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35

***) Terminal box left/right

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 56 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B5 [IM 3001], Type of construction IM V1 [IM 3011]
Flange dimensions see page 67



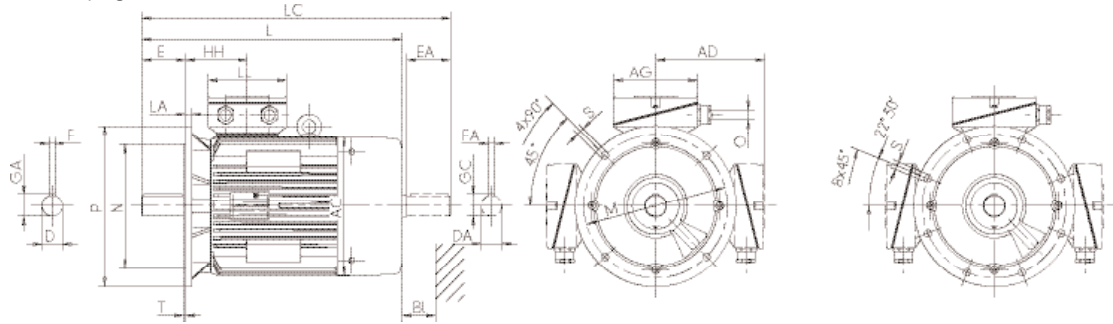
Type designation	Flange size	AC g	AD g1	D d	DA d1	DB*)	E l	EA l1	F u	FA u1	GA t	GC t1	H h	HH A	L k	LC k1	KK Type	AG x	LL z	O -	Hole pattern	BI Bl
W21R 56 K2, 4	FF 100	109	-	9	9	M3	20	20	3	3	10.2	10.2	56	81	199	222	KA 05	92	92	M20 x 1.5	4L	14
W21R 56 G2, 4	FF 100	109	-	9	9	M3	20	20	3	3	10.2	10.2	56	81	199	222	KA 05	92	92	M20 x 1.5	4L	14
W21R 63 K2, 4	FF 115	124	-	11	11	M4	23	23	4	4	12.5	12.5	63	94	232	258	KA 05	92	92	M20 x 1.5	4L	14
W21R 63 G2, 4	FF 115	124	-	11	11	M4	23	23	4	4	12.5	12.5	63	94	232	258	KA 05	92	92	M20 x 1.5	4L	14
W21R 71 K2, 4, 6	FF 130	139	-	14	14	M5	30	30	5	5	16	16	71	97	269	303	KA 05	92	92	M20 x 1.5	4L	16
W21R 71 G2, 4, 6	FF 130	139	-	14	14	M5	30	30	5	5	16	16	71	97	269	303	KA 05	92	92	M20 x 1.5	4L	16
IE2-W21R 80 K2, 4, 6, 8	FF 165	157	-	19	19	M6	40	40	6	6	21.5	21.5	80	70	265	310	KA 05	92	92	M20 x 1.5	4L	16
IE2-WE1R 80 G2	FF 165	157	-	19	19	M6	40	40	6	6	21.5	21.5	80	70	287	332	KA 05	92	92	M20 x 1.5	4L	16
IE2-W21R 80 G4, 6, 8	FF 165	157	-	19	19	M6	40	40	6	6	21.5	21.5	80	70	287	332	KA 05	92	92	M20 x 1.5	4L	16
IE2-WE1R 90 S2, 4	FF 165	177	-	24	24	M8	50	50	8	8	27	27	90	114	360	415	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 90 S6, 8	FF 165	177	-	24	24	M8	50	50	8	8	27	27	90	114	360	415	KA 05	92	92	M25 x 1.5	4L	18
IE2-WE1R 90 L2	FF 165	177	-	24	24	M8	50	50	8	8	27	27	90	114	360	415	KA 05	92	92	M25 x 1.5	4L	18
IE2-WE1R 90 L4	FF 165	177	-	24	24	M8	50	50	8	8	27	27	90	114	390	445	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 90 L6, 8	FF 165	177	-	24	24	M8	50	50	8	8	27	27	90	114	390	445	KA 05	92	92	M25 x 1.5	4L	18
IE2-W21R 100 L8	FF 215	196	-	28	28	M10	60	60	8	8	31	31	100	77	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 L2	FF 215	196	-	28	28	M10	60	60	8	8	31	31	100	77	357	425	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 L4	FF 215	196	-	28	28	M10	60	60	8	8	31	31	100	77	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 100 LX4	FF 215	196	-	28	28	M10	60	60	8	8	31	31	100	77	421	489	KA 05	92	92	M25 x 1.5	4L	20
IE2-W21R 100 LX6, 8	FF 215	196	-	28	28	M10	60	60	8	8	31	31	100	77	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 112 MX2	FF 215	196	-	28	28	M10	60	60	8	8	31	31	112	77	391	459	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 112 MZ4	FF 215	196	-	28	28	M10	60	60	8	8	31	31	112	77	461	529	KA 05	92	92	M25 x 1.5	4L	20
IE2-W21R 112 MV2, 6, 8	FF 215	196	-	28	28	M10	60	60	8	8	31	31	112	77	421	489	KA 05	92	92	M25 x 1.5	4L	20
IE2-WE1R 132 S2T	FF 265	196	-	38	38	M12	80	80	10	10	41	41	132	105	460	528	KK Ex	104	112	M32 x 1.5	4L	20
IE2-WE1R 132 SX2	FF 265	258	199	38	32	M12	80	80	10	10	41	41	132	114	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 132 S4	FF 265	258	199	38	32	M12	80	80	10	10	41	41	132	114	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 S6, 8	FF 265	217	178	38	32	M12	80	80	10	10	41	41	132	108	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 132 M4	FF 265	258	199	38	38	M12	80	80	10	10	41	41	132	114	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 M6, 8	FF 265	258	199	38	32	M12	80	80	10	10	41	41	132	114	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-W21R 132 MX6	FF 265	258	199	38	38	M12	80	80	10	10	41	41	132	114	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE1R 160 M2	FF 300	313	242	42	38	M16	110	80	12	10	45	41	160	138	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 M4	FF 300	313	242	42	38	M16	110	80	12	10	45	41	160	138	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 M8	FF 300	258	214	42	38	M16	110	80	12	10	45	41	160	138	559	643	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 M6, MX8	FF 300	313	242	42	38	M16	110	80	12	10	45	41	160	138	571	656	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 MX2	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 L2	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 160 L4	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	667	783	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 160 L6, 8	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 180 M2	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	635	751	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 180 M4	FF 300	351	261	48	42	M16	110	110	14	12	51.5	45	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 180 L4	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-W21R 180 L6, 8	FF 300	351	261	48	42	M16	110	110	14	12	51.5	45	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE1R 200 L2	FF 350	351	261	55	48	M20	110	110	16	14	59	51.5	200	147	680	796	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE1R 200 LX2	FF 350	351	261	55	48	M20	110	110	16	14	59	51.5	200	147	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE1R 200 L4	FF 350	390	300	55	55	M20	110	110	16	16	59	59	200	168	727	851	KK 100 A	213	207	M50 x 1.5	4L	35
IE2-W21R 200 LX6	FF 350	390	300	55	55	M20	110	110	16	16	59	59	200	168	727	851	KK 100 A	213	207	M50 x 1.5	4L	35
IE2-W21R 200 L6, 8	FF 350	351	261	55	48	M20	110	110	16	14	59	51.5	200	147	680	796	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE1R 225 M2	FF 400	390	300	55	55	M20	110	110	16	16	59	59	225	168	767	891	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE1R 225 S4	FF 400	390	300	60	55	M20	140	110	18	16	64	59	225	168	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE1R 225 M4	FF 400	440	324	60	55	M20	140	110	18	16	64	59	225	177	862	977	KK 100 A	213	207	M50 x 1.5	8L	45
IE2-W21R 225 S8	FF 400	390	300	60	55	M20	140	110	18	16	64	59	225	168	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-W21R 225 M6	FF 400	440	324	60	55	M20	140	110	18	16	64	59	225	177	862	977	KK 100 A	213	207	M50 x 1.5	8L	45
IE2-W21R 225 M8	FF 400	440	324	60	55	M20	140	110	18	16	64	59	225	177	862	977	KK 100 A	213	207	M50 x 1.5	8L	45
IE2-WE1R 250 M2	FF 500	440	358	60	55	M20	140	110	18	16	64	59	250	177	862	977	KK 200 A	282	242	M63 x 1.5	8L	45
IE2-WE1R 250 M4	FF 500	490	386	65	55	M20	140	110	18	16	69	59	250	206	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-W21R 250 M6, 8	FF 500	490	386	65	55	M20	140	110	18	16	69	59	250	206	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 S2	FF 500	490	386	65	65	M20	140	140	18	18	69	69	280	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 M2	FF 500	490	386	65	65	M20	140	140	18	18	69	69	280	206	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 S4	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69	280	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE1R 280 M4	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69	280	206	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-W21R 280 S6	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69	280	206	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-W21R 280 S8	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69	280	206	970	1118	KK 200 A					

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 56 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B5 [IM 3001], Type of construction IM V1 [IM 3011]

Flange dimensions see page 67



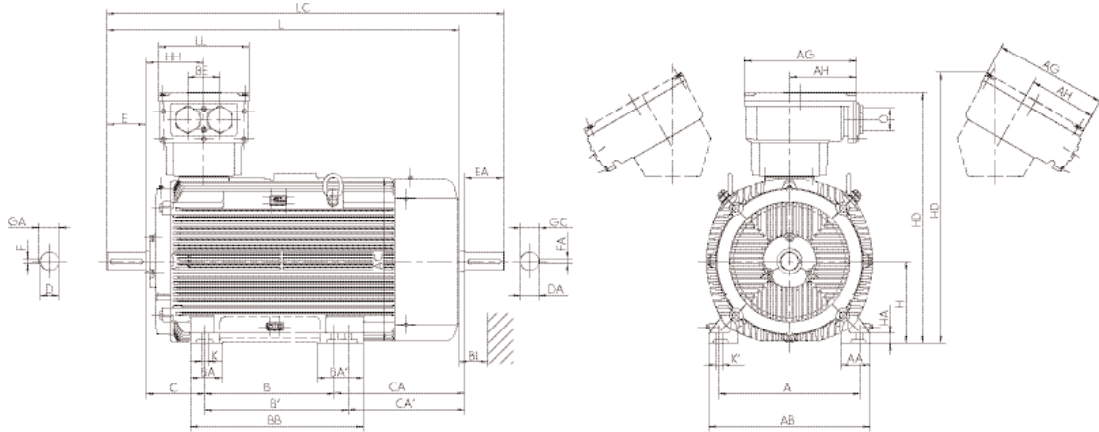
Type designation	Flange size	AC g	AD g1	D d	DA d1	DB*)	E l	EA l1	F u	FA u1	GA t	GC t1	H h	HH A	L k	LC k1	KK Type	AG x	LL z	O -	Hole pattern	BI Bl
IE2-WE2R 132 S4	FF 265	217	178	38	32	M12	80	80	10	10	41	35	132	108	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE2R 132 M6, 8	FF 265	217	178	38	32	M12	80	80	10	10	41	35	132	108	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE2-WE2R 160 M4, 6, MX8	FF 300	258	214	42	38	M16	110	80	12	10	45	41	160	114	609	693	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 160 L4	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 180 L6	FF 300	313	242	48	42	M16	110	110	14	12	52	45	180	138	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 180 M4	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	635	751	KK 63 A	193	167	M40 x 1.5	4L	35
IE2-WE2R 200 LX2	FF 350	351	261	55	48	M20	110	110	16	14	59	51.5	200	147	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE2R 200 LX6	FF 350	351	261	55	48	M20	110	110	16	14	59	51.5	200	147	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE2-WE2R 225 M4	FF 400	390	300	60	55	M20	140	110	18	16	64	59	225	168	847	971	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE2R 225 M6, 8	FF 400	390	300	60	55	M20	140	110	18	16	64	59	225	168	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
IE2-WE2R 250 M4	FF 500	440	386	65	55	M20	140	110	18	16	69	59	250	177	912	1027	KK 200 A	282	242	M63 x 1.5	8L	50
IE2-WE2R 250 M6, 8	FF 500	440	386	65	55	M20	140	110	18	16	69	59	250	177	912	1027	KK 200 A	282	242	M63 x 1.5	8L	50

*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 355
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B3 [IM 1001]



Type designation	Flange size	A b	AA n	AB f	AC g	B a	BA m	BA' m1	BB e	C w1	CA w2	D d	DA d1	DB*)	E l	EA l1	F u	FA u1
IE2-W22R 355 M2	FF 740	610	130	700	715	560	140	200	750	254	561	80	80	M20	170	170	22	22
IE2-W22R 355 M4	FF 740	610	130	700	715	560	140	200	750	254	561	100	80	M24	210	170	28	22
IE2-W22R 355 M6, 8	FF 740	610	130	700	715	560	140	200	750	254	561	100	80	M24	210	170	28	22
IE2-W22R 355 MX6, 8	FF 740	610	130	700	715	560	140	200	750	254	681	100	80	M24	210	170	28	22
W22R 355 MX2	FF 740	610	130	700	715	560	140	200	750	254	681	80	80	M20	170	170	22	22
W22R 355 LY2, L2	FF 740	610	130	700	715	630	140	200	750	254	611	80	80	M20	170	170	22	22
W22R 355 MX4	FF 740	610	130	700	715	560	140	200	750	254	681	100	80	M24	210	170	28	22
W22R 355 LY4, L4	FF 740	610	130	700	715	630	140	200	750	254	611	100	80	M24	210	170	28	22
IE2-W22R 355 LY6, 8	FF 740	610	130	700	715	630	140	200	750	254	611	100	80	M24	210	170	28	22

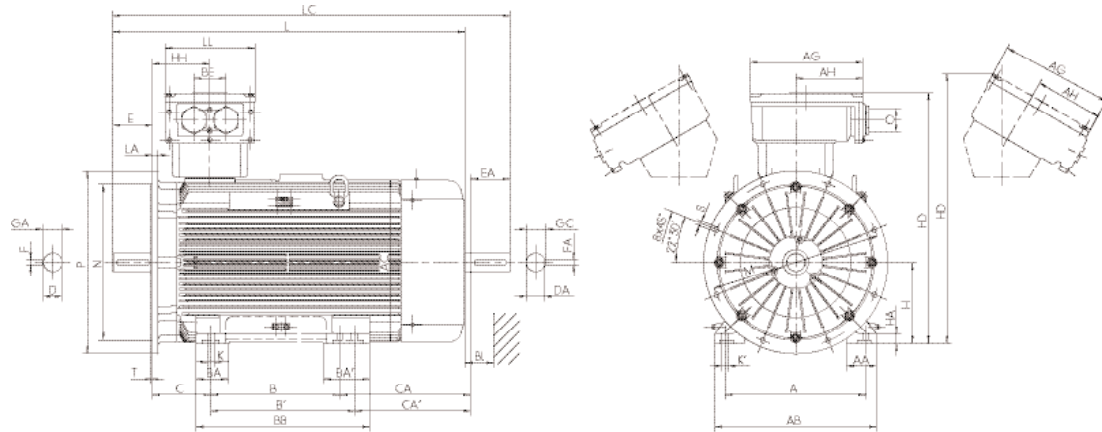
*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 355
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 2001]

Flange dimensions see page 67



Type designation	GA t	GC i1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	AH -	BE -	O r	BI Bl
IE2-W22R 355 M2	85	85	355	44	1091	1172	250	28	35	1530	1715	KK 630 A	496	390	301	140	M72 x 2	60
IE2-W22R 355 M4	106	85	355	44	1091	1172	250	28	35	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE2-W22R 355 M6, 8	106	85	355	44	1091	1172	250	28	35	1570	1755	KK 630 A	496	390	301	140	M72 x 2	60
IE2-W22R 355 MX6, 8	106	85	355	44	1091	1172	327	28	35	1690	1875	KK 630 A	496	390	301	140	M72 x 2	60
W22R 355 MX2	85	85	355	44	1083	1174	327	28	35	1650	1835	KK 1000 A	615	474	385	200	M72 x 2	60
W22R 355 LY2, L2	85	85	355	44	1083	1174	327	28	35	1650	1835	KK 1000 A	615	474	385	200	M72 x 2	60
W22R 355 MX4	106	85	355	44	1083	1174	327	28	35	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60
W22R 355 LY4, L4	106	85	355	44	1083	1174	327	28	35	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60
IE2-W22R 355 LY6, 8	106	85	355	44	1083	1174	327	28	35	1690	1875	KK 1000 A	615	474	385	200	M72 x 2	60

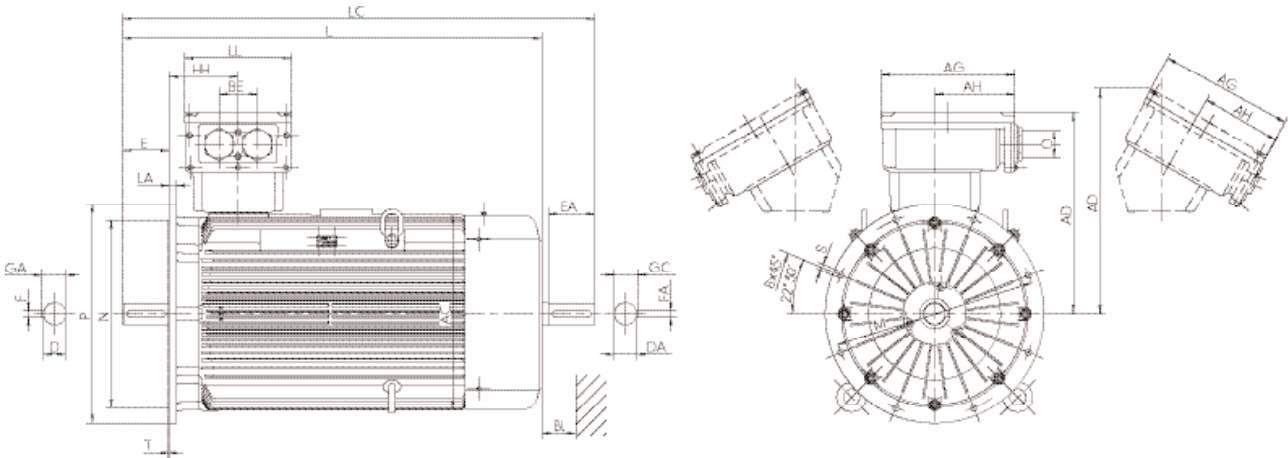
**) Terminal box tilted right/left

Three-phase motors with squirrel-cage rotor Energy saving motors, High Efficiency IE2

Size 355
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM V1 [IM 3011]

Flange dimensions see page 67



Type designation	Flange size	AC g	AD g1	AD** g1	D d	DA d1	DB*)	E l	EA l1	F u	FA u1	GA t	GC t1	H h	HH A	L k	LC k1	KK Type	AG x	LL z	AH -	BE -	O r	BI Bl
IE2-W22R 355 M2	FF 740	715	736	817	80	80	M20	170	170	22	22	85	85	355	250	1530	1715	KK 630 A	496	390	301	140	M72 x 2 60	
IE2-W22R 355 M4	FF 740	715	736	817	100	80	M24	210	170	28	22	106	85	355	250	1570	1755	KK 630 A	496	390	301	140	M72 x 2 60	
IE2-W22R 355 M6, 8	FF 740	715	736	817	100	80	M24	210	170	28	22	106	85	355	250	1570	1755	KK 630 A	496	390	301	140	M72 x 2 60	
IE2-W22R 355 MX6, 8	FF 740	715	736	817	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 630 A	496	390	301	140	M72 x 2 60	
W22R 355 MX2	FF 740	715	728	819	80	80	M20	170	170	22	22	85	85	355	327	1650	1835	KK 1000 A	615	474	385	200	M72 x 2 60	
W22R 355 LY2, L2	FF 740	715	728	819	80	80	M20	170	170	22	22	85	85	355	327	1650	1835	KK 1000 A	615	474	385	200	M72 x 2 60	
W22R 355 MX4	FF 740	715	728	819	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 1000 A	615	474	385	200	M72 x 2 60	
W22R 355 LY, L4	FF 740	715	728	819	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 1000 A	615	474	385	200	M72 x 2 60	
IE2-W22R 355 LY6, 8	FF 740	715	728	819	100	80	M24	210	170	28	22	106	85	355	327	1690	1875	KK 1000 A	615	474	385	200	M72 x 2 60	

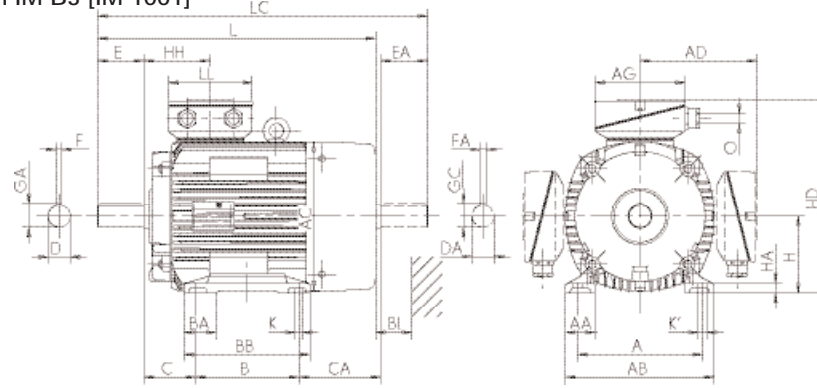
*) Centre holes acc. to DIN 332-DS

**) Terminal box tilted right/left

Three-phase motors with squirrel-cage rotor Energy saving motors, Premium Efficiency IE3

Size 80 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B3 [IM 1001]



Type designation	Flange size	A	AA	AB	AC	AD	B	BA	BB	C	CA	D	DA	DB*)	E	EA	F	FA
		b	n	f	g	g1	a	m	e	w1	w2	d	d1		l	l1	u	u1
IE3-W41R 80 K	FF 165																	
IE3-W41R 80 G	FF 165																	
IE3-W41R 90 S	FF 165																	
IE3-W41R 90 L	FF 165																	
IE3-W41R 100 L	FF 215																	
IE3-W41R 100 LX	FF 215																	
IE3-W41R 112 M2	FF 215	190	45	226	217	178	140	42	172	70	192	28	28	M10	60	60	8	8
IE3-W41R 112 M4	FF 215	190	45	226	217	178	140	42	172	70	242	28	28	M10	60	60	8	8
IE3-W41R 112 M6	FF 215	190	45	226	217	178	140	42	172	70	192	28	28	M10	60	60	8	8
IE3-W41R 132 S2	FF 265	216	50	256	217	178	140	55	180	89	173	38	32	M12	80	80	10	10
IE3-W41R 132 SX2	FF 265	216	50	256	258	204	140	47	180	89	176	38	32	M12	80	80	10	10
IE3-W41R 132 S4	FF 265	216	50	256	258	204	140	47	180	89	186	38	32	M12	80	80	10	10
IE3-W41R 132 M4	FF 265	216	50	256	258	204	178	47	218	89	236	38	38	M12	80	80	10	10
IE3-W41R 132 S6	FF 265	216	50	256	217	178	140	55	180	89	223	38	32	M12	80	80	10	10
IE3-W41R 132 M6	FF 265	216	50	256	258	204	178	55	218	89	138	38	32	M12	80	80	10	10
IE3-W41R 132 MX6	FF 265	216	50	256	258	204	178	47	218	89	236	38	38	M12	80	80	10	10
W41R 132 S8	FF 265	216	50	256	217	178	140	55	180	89	223	38	32	M12	80	80	10	10
W41R 132 M8	FF 265	216	50	256	258	204	178	55	218	89	138	38	32	M12	80	80	10	10
IE3-W41R 160 M2	FF 300	254	55	296	313	242	210	60	257	108	148	42	42	M16	110	110	12	12
IE3-W41R 160 MX2	FF 300	254	55	296	313	242	210	56	257	108	186	42	42	M16	110	110	12	12
IE3-W41R 160 L2	FF 300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
IE3-W41R 160 M4	FF 300	254	55	296	313	242	210	60	257	108	148	42	42	M16	110	110	12	12
IE3-W41R 160 L4C	FF 300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
IE3-W41R 160 M6	FF 300	254	55	296	313	242	210	56	257	108	186	42	42	M16	110	110	12	12
IE3-W41R 160 L6C	FF 300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
W41R 160 M8	FF 300	254	55	296	258	214	210	60	257	108	185	42	38	M16	110	80	12	10
W41R 160 MX8	FF 300	254	55	296	313	242	210	56	257	108	186	42	42	M16	110	110	12	12
W41R 160 L8	FF 300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
IE3-W41R 180 M2C	FF 300	279	62	328	351	261	241	65	288	121	214	48	48	M16	110	110	14	14
IE3-W41R 180 M4	FF 300	279	62	328	351	261	241	65	288	121	214	48	48	M16	110	110	14	14
IE3-W41R 180 L4	FF 300	279	62	328	351	261	279	65	326	121	226	48	48	M16	110	110	14	14
IE3-W41R 180 L6C	FF 300	279	62	328	351	261	279	65	326	121	176	48	48	M16	110	110	14	14
W41R 180 L8	FF 300	279	62	328	351	261	279	65	326	121	176	48	48	M16	110	110	14	14
IE3-W41R 200 L2	FF 350	318	70	372	390	300	305	70	360	133	233	55	55	M20	110	110	16	16
IE3-W41R 200 LX2C	FF 350	318	70	372	390	300	305	70	360	133	233	55	55	M20	110	110	16	16
IE3-W41R 200 L4C	FF 350	318	70	372	390	300	305	70	360	133	233	55	55	M20	110	110	16	16
IE3-W41R 200 L6	FF 350	318	70	372	390	300	305	70	360	133	233	55	55	M20	110	110	16	16
IE3-W41R 200 LX6C	FF 350	318	70	372	390	300	305	70	360	133	233	55	55	M20	110	110	16	16
W41R 200 L8	FF 350	318	70	372	351	261	305	70	360	133	188	55	48	M20	110	110	16	14
IE3-W41R 225 M2	FF 400	356	75	413	440	324	311	75	368	149	267	55	55	M20	110	110	16	16
IE3-W41R 225 S4C	FF 400	356	75	413	390	300	286	75	343	149	286	60	55	M20	140	110	18	16
IE3-W41R 225 M4	FF 400	356	75	413	440	324	311	75	368	149	267	60	55	M20	140	110	18	16
IE3-W41R 225 M6	FF 400	356	75	413	440	324	311	75	368	149	267	60	55	M20	140	110	18	16
W41R 225 S8	FF 400	356	75	413	390	300	286	75	343	149	236	60	55	M20	140	110	18	16
W41R 225 M8	FF 400	356	75	413	440	324	311	75	368	149	267	60	55	M20	140	110	18	16
IE3-W41R 250 M2	FF 500	406	84	469	490	386	349	84	374	168	275	60	60	M20	140	140	18	18
IE3-W41R 250 M4	FF 500	406	84	469	490	386	368	96	431	168	275	75	65	M20	140	140	20	18
IE3-W41R 250 M6	FF 500	406	84	469	490	386	349	84	412	168	275	65	55	M20	140	110	18	16
W41R 250 M8	FF 500	406	84	469	490	386	349	84	412	168	275	65	55	M20	140	110	18	16
IE3-W41R 280 S2	FF 500	457	88	522	490	386	368	96	431	190	234	65	60	M20	140	140	18	18
IE3-W41R 280 M2	FF 500	457	88	522	490	386	368	96	482	190	234	65	60	M20	140	140	18	18
IE3-W41R 280 S4	FF 500	457	88	522	490	386	368	96	431	190	234	75	65	M20	140	140	20	18
IE3-W41R 280 M4	FF 500	457	88	522	550	416	419	94	482	190	384	75	65	M20	140	140	20	18
IE3-W41R 280 S6	FF 500	457	88	522	550	416	368	94	431	190	380	75	65	M20	140	110	20	18
IE3-W41R 280 M6	FF 500	457	88	522	550	416	419	94	482	190	384	75	65	M20	140	140	20	18
W41R 280 S8	FF 500	457	88	522	550	416	368	94	431	190	380	75	65	M20	140	110	20	18
W41R 280 M8	FF 500	457	88	522	550	416	419	94	482	190	384	75	65	M20	140	140	20	18

*) Centre holes acc. to DIN 332-DS

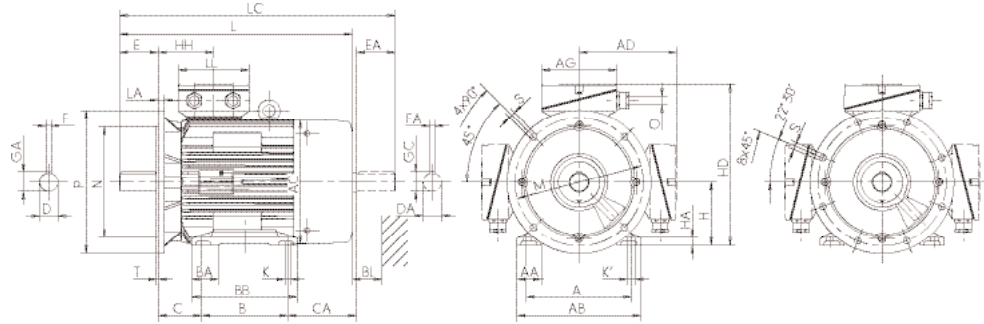
Three-phase motors with squirrel-cage rotor

Energy saving motors, Premium Efficiency IE3

Size 80 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 2001]

Flange dimensions see page 67



Type designation	GA t	GC t1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	O -	Hole pattern	BI Bl
IE3-W41R 80 K												KA 05	92	92	M20 x 1	4L	16
IE3-W41R 80 G												KA 05	92	92	M20 x 1	4L	16
IE3-W41R 90 S												KA 05	92	92	M20 x 1	4L	16
IE3-W41R 90 L												KA 05	92	92	M20 x 1	4L	16
IE3-W41R 100 L												KA 05	92	92	M20 x 1	4L	18
IE3-W41R 100 LX												KA 05	92	92	M20 x 1	4L	20
IE3-W41R 112 M2	31	31	112	15	290	237	108	12	12	459	522	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 112 M4	31	31	112	15	290	237	108	12	12	509	572	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 112 M6	31	31	112	15	290	237	108	12	12	459	522	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S2	41	35	132	16	310	257	108	12	12	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 SX2	41	41	132	15	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S4	41	41	132	15	331	279	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 M4	41	41	132	15	331	279	114	12	12	579	663	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S6	41	35	132	16	310	257	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 M6	41	41	132	16	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 MX6	41	41	132	15	331	279	114	12	12	579	663	KK 25 A	156	145	M32 x 1.5	4L	35
W41R 132 S8	41	35	132	16	310	257	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
W41R 132 M8	41	41	132	16	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 160 M2	45	45	160	18	402	336	138	15	20	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 MX2	45	45	160	18	402	336	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L2	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 M4	45	45	160	18	402	336	138	15	20	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L4C	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 M6	45	45	160	18	402	336	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L6C	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 M8	45	41	160	18	374	307	114	15	15	609	693	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 MX8	45	45	160	18	402	336	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 L8	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 M2C	51.5	51.5	180	20	441	369	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 M4	51.5	51.5	180	20	441	369	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 L4	51.5	51.5	180	20	441	369	147	15	20	730	846	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 L6C	51.5	51.5	180	20	441	369	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 180 L8	51.5	51.5	180	20	441	369	147	15	20	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 200 L2	59	59	200	22	500	417	168	19	25	767	891	KK 100 A	213	207	M50 x 1.5	4L	40
IE3-W41R 200 LX2C	59	59	200	22	500	417	168	19	25	767	891	KK 100 A	213	207	M50 x 1.5	4L	40
IE3-W41R 200 L4C	59	59	200	22	500	417	168	19	25	767	891	KK 100 A	213	207	M50 x 1.5	4L	35
IE3-W41R 200 L6	59	59	200	22	500	417	168	19	25	767	891	KK 100 A	213	207	M50 x 1.5	4L	35
IE3-W41R 200 LX6C	59	59	200	22	500	417	168	19	25	767	891	KK 100 A	213	207	M50 x 1.5	4L	35
W41R 200 L8	59	51.5	200	22	461	389	147	19	25	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE3-W41R 225 M2	59	59	225	25	549	459	177	19	25	832	947	KK 100 A	213	207	M50 x 1.5	8L	45
IE3-W41R 225 S4C	64	59	225	25	527	442	168	19	25	847	971	KK 100 A	213	207	M50 x 1.5	8L	40
IE3-W41R 225 M4	64	59	225	25	549	459	177	19	25	912	1027	KK 100 A	213	207	M50 x 1.5	8L	45
IE3-W41R 225 M6	64	59	225	25	549	459	177	19	25	912	1027	KK 100 A	213	207	M50 x 1.5	8L	45
W41R 225 S8	64	59	225	25	527	442	168	19	25	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
W41R 225 M8	64	59	225	25	549	459	177	19	25	912	1027	KK 100 A	213	207	M50 x 1.5	8L	45
IE3-W41R 250 M2	64	64	250	28	636	516	206	24	30	924	1072	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 250 M4	79.5	69	280	32	666	516	206	24	30	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE3-W41R 250 M6	69	59	250	28	636	516	206	24	30	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
W41R 250 M8	69	59	250	28	636	516	206	24	30	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
IE3-W41R 280 S2	69	64	280	32	666	546	206	24	30	924	1072	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 M2	69	64	280	32	666	546	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 S4	79.5	69	280	32	666	546	206	24	30	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE3-W41R 280 M4	79.5	69	280	40	696	585	211	24	30	1105	1273	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 S6	79.5	69	280	40	696	585	211	24	30	1050	1218	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 M6	79.5	69	280	40	696	585	211	24	30	1105	1273	KK 200 A	282	242	M63 x 1.5	8L	55
W41R 280 S8	79.5	69	280	40	696	585	211	24	30	1050	1218	KK 200 A	282	242	M63 x 1.5	8L	55
W41R 280 M8	79.5	69	280	40	696	585	211	24	30	1105	1273	KK 200 A	282	242	M63 x 1.5	8L	55

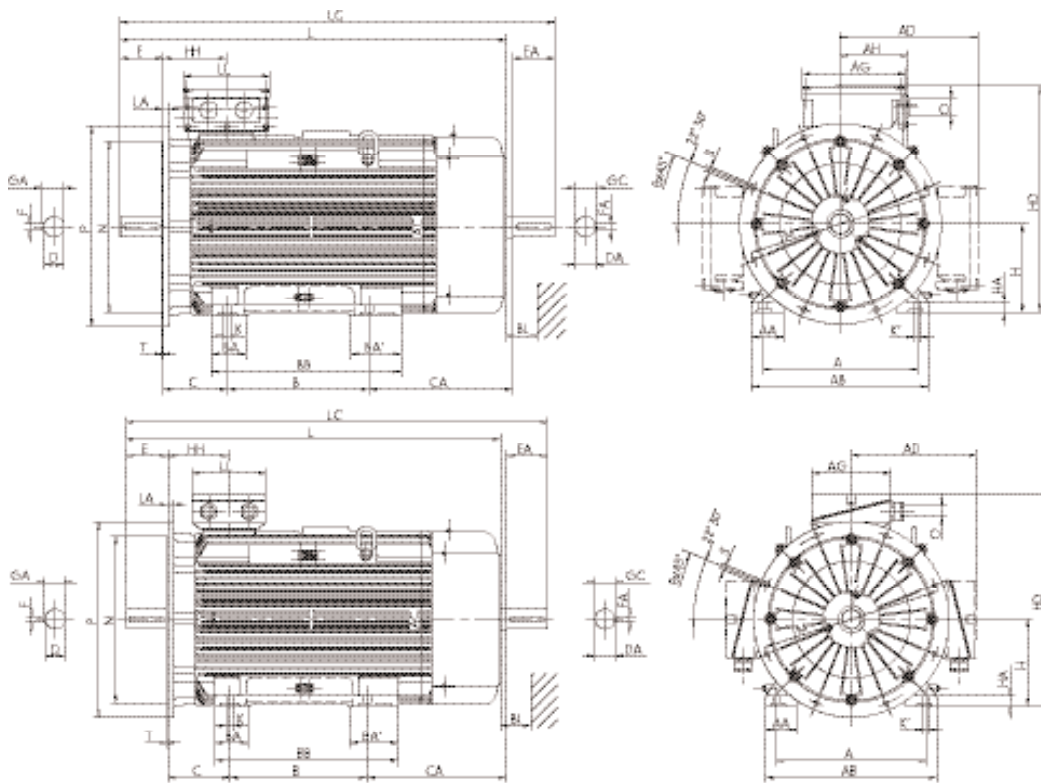
**) Terminal box tilted right /left

Three-phase motors with squirrel-cage rotor Energy saving motors, Premium Efficiency IE3

Size 315
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B35 [IM 2001]

Flange dimensions see page 67



Type designation	GA t	GC t1	H h	HA c	HD p	HD**) p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	AH -	O r	BI BI
IE3-W41R 315 S2	69	69	315	44	731	610	211	28	35	1050	1218	KK 200 A	282	242	-	M63 x 1.5	55
IE3-W41R 315 M2	69	69	315	44	731	610	211	28	35	1105	1273	KK 200 A	282	242	-	M63 x 1.5	55
IE3-W41R 315 MX2	69	69	315	44	731	610	211	28	35	1185	1353	KK 200 A	282	242	-	M63 x 1.5	55
IE3-W41R 315 MY2	69	69	315	44	809	628	230	28	35	1270	1448	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 L2	69	69	315	44	809	628	230	28	35	1390	1568	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 LX2	69	69	315	44	809	628	230	28	35	1510	1688	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 S4	85	74.5	315	44	731	610	211	28	35	1080	1248	KK 200 A	282	242	-	M63 x 1.5	55
IE3-W41R 315 M4	85	74.5	315	44	731	610	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE3-W41R 315 MX4, MY4	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 L4	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 LX4	85	74.5	315	44	809	628	230	28	35	1540	1718	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 S6	85	74.5	315	44	731	595	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
IE3-W41R 315 M6	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 MX6	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
IE3-W41R 315 L6	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55
W41R 315 S8	85	74.5	315	44	731	610	211	28	35	1135	1303	KK 200 A	282	242	-	M63 x 1.5	55
W41R 315 M8	85	74.5	315	44	809	628	230	28	35	1300	1478	KK 400 B	415	340	265	M63 x 1.5	55
W41R 315 MX8	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55
W41R 315 L8	85	74.5	315	44	809	628	230	28	35	1420	1598	KK 400 B	415	340	265	M63 x 1.5	55

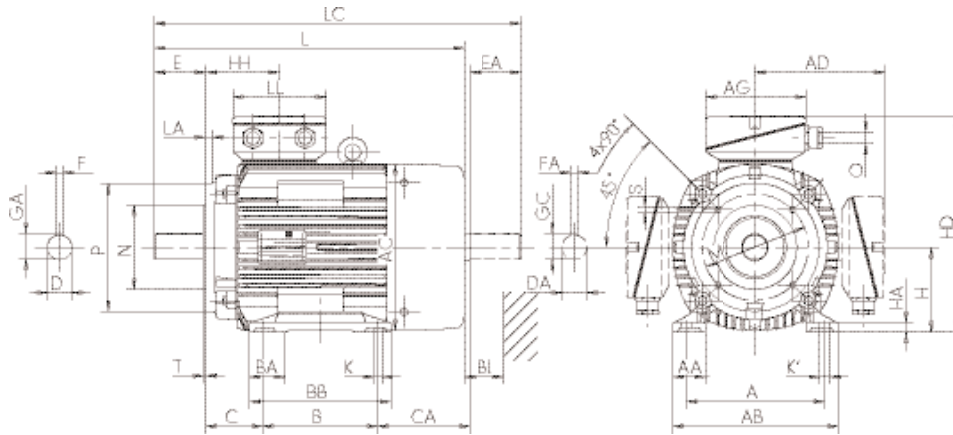
**) Terminal box tilted right/left

Three-phase motors with squirrel-cage rotor Energy saving motors, Premium Efficiency IE3

Size 80 to 160
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B34 [IM 2101]

Flange dimensions see page 67



Type designation	Flange size small	Flange size big	A b	AA n	AB f	AC g	AD g1	B a	BA m	BB e	C w1	CA w2	D d	DA d1	DB*)	E l	EA l1	F u	FA u1
IE3-W41R 80 K	FT 100	FT 130																	
IE3-W41R 80 G	FT 100	FT 130																	
IE3-W41R 90 S	FT 115	FT 130																	
IE3-W41R 90 L	FT 115	FT 130																	
IE3-W41R 100 L	FT 130	FT 165																	
IE3-W41R 100 LX	FT 130	FT 165																	
IE3-W41R 112 M2	FT 130	FT 165	190	45	226	217	178	140	42	172	70	192	28	28	M10	60	60	8	8
IE3-W41R 112 M4	FT 130	FT 165	190	45	226	217	178	140	42	172	70	242	28	28	M10	60	60	8	8
IE3-W41R 112 M6	FT 130	FT 165	190	45	226	217	178	140	42	172	70	192	28	28	M10	60	60	8	8
IE3-W41R 132 S2	FT 130	FT 165	216	50	256	217	178	140	55	180	89	173	38	32	M12	80	80	10	10
IE3-W41R 132 SX2	FT 165	FT 215	216	50	256	258	204	140	47	180	89	176	38	32	M12	80	80	10	10
IE3-W41R 132 S4	FT 165	FT 215	216	50	256	258	204	140	47	180	89	186	38	32	M12	80	80	10	10
IE3-W41R 132 M4	FT 165	FT 215	216	50	256	258	204	178	47	218	89	236	38	38	M12	80	80	10	10
IE3-W41R 132 S6	FT 130	FT 165	216	50	256	217	178	140	55	180	89	223	38	32	M12	80	80	10	10
IE3-W41R 132 M6	FT 165	FT 215	216	50	256	258	204	178	55	218	89	138	38	32	M12	80	80	10	10
IE3-W41R 132 MX6	FT 165	FT 215	216	50	256	258	204	178	47	218	89	236	38	38	M12	80	80	10	10
W41R 132 S8	FT 130	FT 165	216	50	256	217	178	140	55	180	89	223	38	32	M12	80	80	10	10
W41R 132 M8	FT 165	FT 215	216	50	256	258	204	178	55	218	89	138	38	32	M12	80	80	10	10
IE3-W41R 160 M2	FT 215	C300	254	55	296	313	242	210	60	257	108	148	42	42	M16	110	110	12	12
IE3-W41R 160 MX2	FT 215	C300	254	55	296	313	242	210	56	257	108	186	42	42	M16	110	110	12	12
IE3-W41R 160 L2	FT 215	C300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
IE3-W41R 160 M4	FT 215	C300	254	55	296	313	242	210	60	257	108	148	42	42	M16	110	110	12	12
IE3-W41R 160 L4C	FT 215	C300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
IE3-W41R 160 M6	FT 215	C300	254	55	296	313	242	210	56	257	108	186	42	42	M16	110	110	12	12
IE3-W41R 160 L6C	FT 215	C300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12
W41R 160 M8	FT 215	C300	254	55	296	258	214	210	60	257	108	185	42	38	M16	110	80	12	10
W41R 160 MX8	FT 215	C300	254	55	296	313	242	210	56	257	108	186	42	42	M16	110	110	12	12
W41R 160 L8	FT 215	C300	254	55	296	313	242	254	60	301	108	192	42	42	M16	110	110	12	12

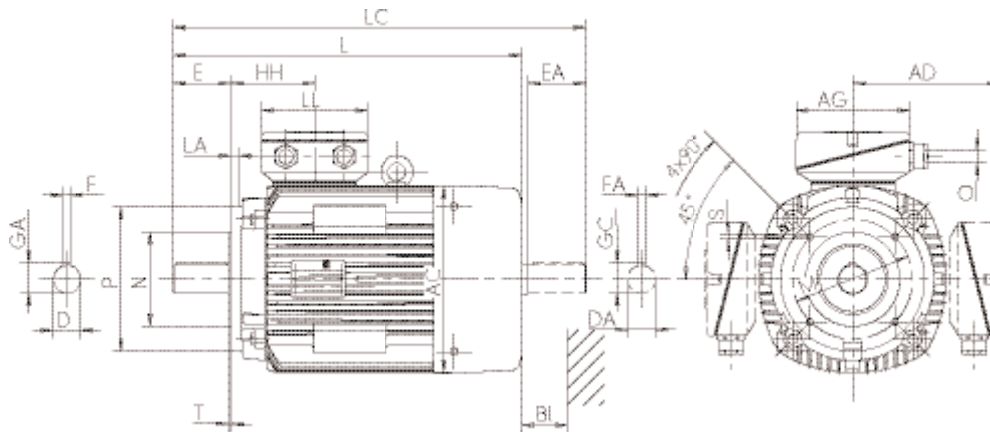
*) Centre holes acc. to DIN 332-DS

Three-phase motors with squirrel-cage rotor Energy saving motors, Premium Efficiency IE3

Size 80 to 160
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B14 [IM 3601]

Flange dimensions see page 67



Type designation	GA t	GC t1	H h	HA c	HD p	HD** p	HH A	K s	K' s'	L k	LC k1	KK Type	AG x	LL z	O -	Hole pattern	BI Bl
IE3-W41R 80 K			80									KA 05	92	92	M20 x 1	4L	16
IE3-W41R 80 G			80									KA 05	92	92	M20 x 1	4L	16
IE3-W41R 90 S			90									KA 05	92	92	M20 x 1	4L	16
IE3-W41R 90 L			90									KA 05	92	92	M20 x 1	4L	16
IE3-W41R 100 L			100									KA 05	92	92	M20 x 1	4L	18
IE3-W41R 100 LX			100									KA 05	92	92	M20 x 1	4L	20
IE3-W41R 112 M2	31	31	112	15	290	237	108	12	12	459	522	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 112 M4	31	31	112	15	290	237	108	12	12	509	572	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 112 M6	31	31	112	15	290	237	108	12	12	459	522	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S2	41	35	132	16	310	257	108	12	12	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 SX2	41	41	132	15	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S4	41	41	132	15	331	279	114	12	12	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 M4	41	41	132	15	331	279	114	12	12	579	663	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S6	41	35	132	16	310	257	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 M6	41	41	132	16	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 MX6	41	41	132	15	331	279	114	12	12	579	663	KK 25 A	156	145	M32 x 1.5	4L	35
W41R 132 S8	41	35	132	16	310	257	108	12	12	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
W41R 132 M8	41	41	132	16	331	279	114	12	12	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 160 M2	45	45	160	18	402	336	138	15	20	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 MX2	45	45	160	18	402	336	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L2	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 M4	45	45	160	18	402	336	138	15	20	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L4C	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 M6	45	45	160	18	402	336	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L6C	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 M8	45	41	160	18	374	307	114	15	15	609	693	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 MX8	45	45	160	18	402	336	138	15	20	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 L8	45	45	160	18	402	336	138	15	20	659	774	KK 63 A	193	167	M40 x 1.5	4L	35

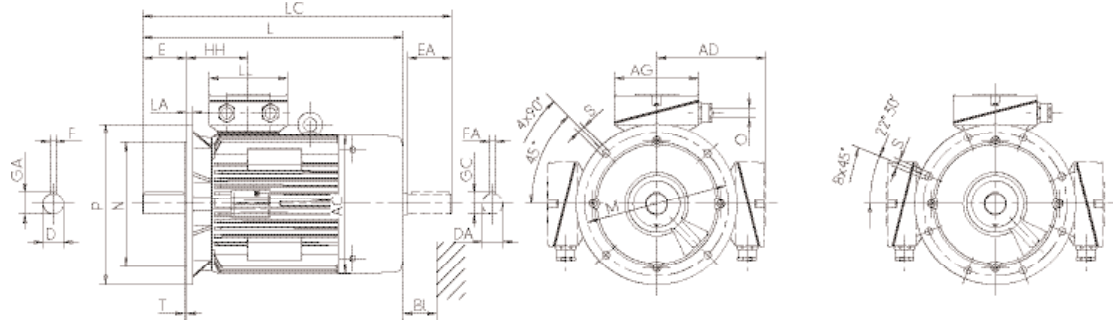
***) Terminal box tilted right/left

Three-phase motors with squirrel-cage rotor Energy saving motors, Premium Efficiency IE3

Size 80 to 280
with surface ventilation, cooling method IC 411, type of protection IP 55

Type of construction IM B5 [IM 3001], Type of construction IM V1 [IM 3011]

Flange dimensions see page 67



Type designation	Flange size	AC g	AD g1	D d	DA d1	DB*)	E l	EA l1	F u	FA u1	GA t	GC t1	H h	HH A	L k	LC k1	KK Type	AG x	LL z	O -	Hole pattern	BI BI
IE3-W41R 80 K	FF 165																KA 05	92	92	M20 x 1	4L	16
IE3-W41R 80 G	FF 165																KA 05	92	92	M20 x 1	4L	16
IE3-W41R 90 S	FF 165																KA 05	92	92	M20 x 1	4L	16
IE3-W41R 90 L	FF 165																KA 05	92	92	M20 x 1	4L	16
IE3-W41R 100 L	FF 215																KA 05	92	92	M20 x 1	4L	18
IE3-W41R 100 LX	FF 215																KA 05	92	92	M20 x 1	4L	20
IE3-W41R 112 M2	FF 215	217	178	28	28	M10	60	60	8	8	31	31	112	108	459	522	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 112 M4	FF 215	217	178	28	28	M10	60	60	8	8	31	31	112	108	509	572	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 112 M6	FF 215	217	178	28	28	M10	60	60	8	8	31	31	112	108	459	522	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S2	FF 265	217	178	38	32	M12	80	80	10	10	41	35	132	108	479	562	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 SX2	FF 265	258	204	38	32	M12	80	80	10	10	41	41	132	114	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S4	FF 265	258	204	38	32	M12	80	80	10	10	41	41	132	114	529	613	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 M4	FF 265	258	204	38	32	M12	80	80	10	10	41	41	132	114	579	663	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 S6	FF 265	217	178	38	32	M12	80	80	10	10	41	35	132	108	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 M6	FF 265	258	204	38	32	M12	80	80	10	10	41	41	132	114	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 132 MX6	FF 265	258	204	38	32	M12	80	80	10	10	41	41	132	114	579	663	KK 25 A	156	145	M32 x 1.5	4L	35
W41R 132 S8	FF 265	217	178	38	32	M12	80	80	10	10	41	35	132	108	529	612	KK 25 A	156	145	M32 x 1.5	4L	35
W41R 132 M8	FF 265	258	204	38	32	M12	80	80	10	10	41	41	132	114	481	565	KK 25 A	156	145	M32 x 1.5	4L	35
IE3-W41R 160 M2	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 MX2	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L2	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 M4	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	571	686	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L4C	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 M6	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 160 L6C	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 M8	FF 300	258	214	42	38	M16	110	80	12	10	45	41	160	114	609	693	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 MX8	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	609	724	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 160 L8	FF 300	313	242	42	42	M16	110	110	12	12	45	45	160	138	659	774	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 M2C	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 M4	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 L4	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	730	846	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 180 L6C	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
W41R 180 L8	FF 300	351	261	48	48	M16	110	110	14	14	51.5	51.5	180	147	680	796	KK 63 A	193	167	M40 x 1.5	4L	35
IE3-W41R 200 L2	FF 350	390	300	55	55	M20	110	110	16	16	59	59	200	168	767	891	KK 100 A	213	207	M50 x 1.5	4L	40
IE3-W41R 200 LX2C	FF 350	390	300	55	55	M20	110	110	16	16	59	59	200	168	767	891	KK 100 A	213	207	M50 x 1.5	4L	40
IE3-W41R 200 L4C	FF 350	390	300	55	55	M20	110	110	16	16	59	59	200	168	767	891	KK 100 A	213	207	M50 x 1.5	4L	35
IE3-W41R 200 L6	FF 350	390	300	55	55	M20	110	110	16	16	59	59	200	168	767	891	KK 100 A	213	207	M50 x 1.5	4L	35
IE3-W41R 200 LX6C	FF 350	390	300	55	55	M20	110	110	16	16	59	59	200	168	767	891	KK 100 A	213	207	M50 x 1.5	4L	35
W41R 200 L8	FF 350	351	261	55	48	M20	110	110	16	14	59	51.5	200	147	730	846	KK 63 A	193	167	M50 x 1.5	4L	35
IE3-W41R 225 M2	FF 400	440	324	55	55	M20	140	140	18	18	64	64	250	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	45
IE3-W41R 225 S4C	FF 400	390	300	60	55	M20	140	110	18	16	64	59	225	168	847	971	KK 100 A	213	207	M50 x 1.5	8L	40
IE3-W41R 225 M4	FF 400	440	324	60	55	M20	140	110	18	16	64	59	225	177	912	1027	KK 100 A	213	207	M50 x 1.5	8L	45
IE3-W41R 225 M6	FF 400	440	324	60	55	M20	140	110	18	16	64	59	225	177	912	1027	KK 100 A	213	207	M50 x 1.5	8L	45
W41R 225 S8	FF 400	390	300	60	55	M20	140	110	18	16	64	59	225	168	797	921	KK 100 A	213	207	M50 x 1.5	8L	40
W41R 225 M8	FF 400	440	324	60	55	M20	140	110	18	16	64	59	225	177	912	1027	KK 100 A	213	207	M50 x 1.5	8L	45
IE3-W41R 250 M2	FF 500	490	386	60	60	M20	140	140	18	18	64	64	250	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 250 M4	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69	280	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	50
IE3-W41R 250 M6	FF 500	490	386	65	55	M20	140	110	18	16	69	59	250	206	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
W41R 250 M8	FF 500	490	386	65	55	M20	140	110	18	16	69	59	250	206	924	1042	KK 200 A	282	242	M63 x 1.5	8L	50
IE3-W41R 280 S2	FF 500	490	386	65	60	M20	140	140	18	18	69	64	280	206	924	1072	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 M2	FF 500	490	386	65	60	M20	140	140	18	18	69	64	280	206	970	1118	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 S4	FF 500	490	386	75	65	M20	140	140	20	18	79.5	69	280	206	970	1118	KK 200 A	282	242	M63 x 1.5	8L	50
IE3-W41R 280 M4	FF 500	550	416	75	65	M20	140	140	20	18	79.5	69	280	211	1105	1273	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 S6	FF 500	550	416	75	65	M20	140	110	20	18	79.5	69	280	211	1050	1218	KK 200 A	282	242	M63 x 1.5	8L	55
IE3-W41R 280 M6	FF 500	550	416	75	65	M20	140	140	20	18	79.5	69	280	211	1105	1273	KK 200 A	282	242	M63 x 1.5	8L	55
W41R 280 S8	FF 500	550	416	75	65	M20	140	110	20	18	79.5	69	280	211	1050	1218	KK 200 A	282	242	M63 x 1.5	8L	55
W41R 280 M8	FF 500	550	416	75	65	M20	140	140	20	18	79.5	69	280	211	1105	1273	KK 200 A	282	242	M63 x 1.5	8L	55

*) Centre holes acc. to DIN 332-DS

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