



VEM  DRIVE

## Motors for converter-fed operation

### Contents

Product description .....	4/2
Overview of technical data .....	4/7

#### Motor selection data

Standard insulation (up to 420 V):

Series IE3-W4.R, IE2-WE.R, K2.R .....	4/8
---------------------------------------	-----

KU insulation (> 420 V up to 500 V):

Series IE3-WU.R, IE2-WU.R, KU.R .....	4/22
---------------------------------------	------

KV insulation (> 500 V up to 690 V):

Series KV.R .....	4/38
-------------------	------

Equivalent circuit data .....	4/41
-------------------------------	------

Mechanical limit speeds .....	4/47
-------------------------------	------

#### Bearings

Identical to bearings of standard motors  
see Chapter 2

#### Terminal boxes

Identical to bearings of standard motors  
see Chapter 2

#### Dimensions

Identical to dimension of standard motors  
see Chapter 2

## Product description

Whenever speed control is desirable or perhaps even indispensable for a given application, it is necessary to choose a motor suitable for operation on a frequency converter. In this respect, VEM offers ideal drive solutions for the most varied branches.

Generally speaking, all squirrel-cage motors from VEM can be operated on a frequency converter.

The corresponding drives are cost-effective as they are based on a modular system. VEM motors are suitable for converter-fed operation and can be matched to all low voltages.

If basic parameters of the drive system are unknown (e.g. compliance with NAMUR recommendations), special

measures must be taken to prepare the motor for converter-fed operation. The configuration of an electric drive system without knowledge of all interactions between the components can result in damage to the winding insulation and motor bearings. The voltage pulse at the motor terminals can reach very high amplitudes. Depending on the mode of operation of the motor, e.g. braking, and the type, length and routing of the motor cable, as well as in conjunction with active input power converters, pulse voltage peaks in excess of twice the link voltage of the converter may occur. The pulse voltages specified in Table 1 below are to be observed as maximum values.

Mains voltage = converter output voltage $U_N$	Converter DC link voltage $U_z = U_N \times 1.35$	Max. pulse voltage $\hat{U}_{LL}$
400	540	1350 V
440	594	1485 V
500	675	1690 V
600	810	2025 V
690	930	2330 V

Table 1: Maximum pulse voltages

### Voltage stresses (insulation systems)

Table 2 shows the insulation systems used by VEM, the maximum permissible pulse voltages  $\hat{U}_{LL}$  and the options for operation with different mains voltages. The prerequisite

in each case is that the windings must be configured for star connection if the motors are operated without a filter at the converter output. The following conditions apply:

- x ... Converters without input rectifier control → no limitations
- 1 ... No regenerative or braking operation
- 2 ... No regenerative or braking operation,  
no use in complex drive systems with central DC link,  
no voltage boosting by way of a controlled input power converter
- ... Motor operation not permissible without a filter at the converter output
- A ... May be possible in accordance with (2) upon request

Types/series	Standard series	Standard series	KU.R, KU.F, WU.R, WU.F		KV.R, KV.F
Insulation system	to Sp2945	Standard	Reinforced KU		Reinforced KV
Sizes BG	≤ 132	≥ 132	≤ 132	≥ 132	≥ 132
Basic data $\hat{U}_{LL}$	1350 V		1560 V	1800 V	2500 V
du/dt	< 1.5 kV/μs		< 3.0 kV/μs		< 5.0 kV/μs
Mains voltages					
up to 400 V	x		x		x
up to 440 V	1		x		x
up to 500 V	2		2	x	x
up to 600 V	-		-	2	x
up to 690 V	-		-		x

Table 2: VEM insulation systems for converter-fed motors

Converter-fed motors in VIK design,  
VE 01 – Three-phase asynchronous motors – Technical requirements – Status March 2011,  
Output voltages at the converter ≤ 690 V

According to section 6.7 of the VIK recommendation, motors may be subjected to a maximum peak voltage of 1350 V in accordance with DIN IEC 60034-17, Fig. 6, and a rate of voltage rise of 1.5 kV/μs at the motor terminals. If the peak voltages and/or rates of voltage rise exceed the aforemen-

tioned values, the lifetime of the insulation will be reduced to a greater or lesser extent. As this is excluded by the VIK recommendation, VIK motors for converter-fed operation without separately agreed peak voltage are designed as series K2.R/WE.R/W4.R.

From IEC frame size 315, VEM always recommends the use of an insulated bearing at the non-drive end. In this way, bearing currents are reduced to a level at which there is no risk of damage to the bearings. There are many possible causes

of bearing currents. On the one hand, the common-mode voltage produced by the converter may result in damage. On the other hand, inadequate motor earthing or cable shielding can also lead to bearing damage.

## Notes on the configuration of motors for operation on a frequency converter

A motor is only one component of a complex electric drive system. Even so, poor overall configuration of the drive system is often only manifested in reduced motor performance, whereas unsuitable parameterisation may also become evident at the transmission elements such as couplings and belt drives. Modern converters generally protect themselves and the motor against thermal overloads. Impermissible voltage peaks at the motor terminals, however, are not detected. If there is no corresponding circuitry at the converter output and/or if the cables are too long, there is thus a risk of damage to the motor insulation.

There are several ways in which to optimise the drive system:

- Output circuitry at the converter (reactor, du/dt filter or sine-wave filter)
- Motor with reinforced insulation
- Combination of the above (especially recommended with mains voltage > 500 V).

The planning of a complete drive system requires knowledge of all possible interactions between the components used. The project engineer must select the components of a drive system very carefully. He is decisively responsible for ensuring that the permissible voltage values are not exceeded at the motor terminals. Taking into account the influences of all other components, he must furthermore specify the necessary motor insulation. Examples of components with decisive influence for the stresses placed on the motor insulation:

### Output reactors

Output reactors reduce the capacitive recharging currents in case of long cables. Due to the form of the output voltage from the converter, capacitive components are especially detrimental with long cables. The cable capacitances result in recharging currents which must be supplied by the converter in addition to the motor current. With long motor cables (and when operating several motors), the total current (motor and recharging current) may increase to the point at which the peak output current is exceeded. In such cases, the converter will be switched off with the error message "Overcurrent".

When shielded cables are used for reasons of electromagnetic compatibility (EMC), the critical cable length is reduced further, as the shielding produces additional capacitances together with the power cables. The recharging currents can be reduced significantly by incorporating a reactor. In this way, the switching losses in the converter are reduced. Together with the cable capacitances, the output reactor lowers the rate of voltage rise at the motor terminals. It prevents the formation of high pulse voltages, but does not reduce existing voltage peaks. For this reason, we advise installation of the output reactor as close as possible to the converter.

### du/dt filter

The high switching frequencies which follow from very short switching intervals may result in rates of voltage rise in excess of 10 kV/μs at the converter output. With short cables, this can shorten the lifetime of the motor insulation.

Through the use of a du/dt filter, it is possible to limit the rate of voltage rise to less than 500 V/μs and the pulse amplitude to less than 1000 V.

If the electric strength of the motor insulation is unknown or the motor cables are very short, a du/dt filter should be used. For long cables, it may be necessary to provide either one or two reactors in addition to the du/dt filter.

### Sine-wave filter

Sine-wave filters modify the non-sinusoidal output voltage of the converter into a sinusoidal phase-to-phase motor voltage. The benefit of a sine-wave filter lies in significant improvement of the total harmonic distortion of the voltage (practically sinusoidal). Special insulation is not necessary. True running is improved, motor losses are reduced and there is less magnetic motor noise.

A disadvantage of a sine-wave filter, however, is the no longer negligible voltage drop. The output voltage at the filter may be reduced by up to 15 %, i.e. either the transition frequency of the converter must be reduced by approx. 15 %, which could make it necessary to provide a larger motor, or else the motor winding must be adapted to the reduced input voltage.

Comprehensive motor protection can be achieved with all-pole sine-wave filters. With these filters, the phase-to-earth voltages are also sinusoidal. Motors with standard insulation as well as unshielded and very long motor cables can be used. All-pole filters are used above all for motors where maintenance is difficult. They are similarly meaningful for the retrofitting of drives with unshielded and/or long motor cables.

### Self-ventilation (IC 411) and forced ventilation (IC 416)

When the speed of a self-ventilated motor decreases, the cooling air volume is reduced linearly and the pressure drops quadratically. Fan performance decreases cubically with the speed. As the motor losses are also lower, however, the reduced cooling effect only becomes evident at less than half of the rated speed. Where a self ventilated motor is intended for continuous operation at low speeds, it may be necessary to select a larger motor, depending on the required torque. At speeds above the rated speed, a significant increase in fan noise is to be expected, especially with 2- and 4-pole motors.

If an optional forced ventilation unit is added, a motor can also deliver a high continuous torque at lower speeds. At higher speeds, the noise level is reduced significantly compared to self-ventilation; at the same time, however, the available output decreases with increasing speed.

### Mechanical limit speeds

In case of operation above 60 Hz, the permissible limit speeds of the motor must be observed. For such cases, VEM recommends the use of an optional HS (high-speed) motor version. The relubrication intervals of the bearings are also shortened with increasing speed. It may thus be expedient to incorporate a relubrication system for motors from IEC size 160.

Motors for frequencies over 100 Hz can be supplied upon request.

**Ohmic stator resistance of smaller motors**

With lower motor outputs, it is increasingly necessary to take the relatively high ohmic stator resistance into account. Compensation must be provided in the form of overproportionate raising of the converter output voltage at lower frequencies (IxR compensation for U/f controllers). This measure enables reliable acceleration to the desired setpoint speed under load. In the case of converters with field-oriented control, the flux adaptation is automatic.

**Breakdown torque**

The effective acceleration torque is normally assumed to be approx. 70 % of the breakdown torque. When a motor is operated in the field-weakening range (operation with constant voltage above the rated frequency of the motor), the breakdown torque is reduced quadratically with increasing frequency. It is thus important to ensure that a torque ratio of  $M_K/M_N > 1.6$  is maintained at all times.

**Commissioning and parameterisation of the converter**

Converters must be commissioned and parameterised in accordance with the applicable commissioning and parameterisation instructions. When doing so, all aspects relevant for the specific application must be taken into account, for example

- Input of motor data (see rating plate)
- Connection of optional motor components (PTC, encoder, brake, forced ventilation unit, etc.)
- Torque characteristic of the driven machine (constant, square-law, etc.)
- Control mode (U/f characteristic, field-oriented control, etc.)
- Dynamic requirements (ramp-up and braking times)

**Ecodesign to DIN EN 50598**

Following the transition to energy-saving designs and IE efficiency classifications for asynchronous motors operated on a mains supply, the next step is to extend the scope of the classifications to include also power electronics components and systems, as well as driven equipment.

The standard comprises three parts. Part 2 contains specifications on determination and evaluation of the energy efficiency of drive systems for the output range from 0.12 kW to 1000 kW.

It also includes a proposal for the procedure to characterise the most energy-efficient solution for the so-called extended product comprising drive system and load machine. The standard specifies methods for determination of the losses of the complete drive module, the drive system and the overall motor system. Efficiency classes are defined for complete drive modules (IE classes) and drive systems (IES classes), and both limit values and test methods are provided to facilitate classification. Furthermore, methods are proposed for characterisation of the most energy-efficient solution, as dependent on the architecture of the motor drive system, the speed/load profile and the operating points of the application.

In future, specific data must be provided on losses and IE/IES classifications for all low-voltage drive systems incorporating three-phase asynchronous motors for the voltage range from 100 V to 1000 V.

The standard EN 50598-2 deals primarily with the complete drive modules and drive systems. Such modules – and the further components of an extended product – are represented in the following diagram (Fig. 1).

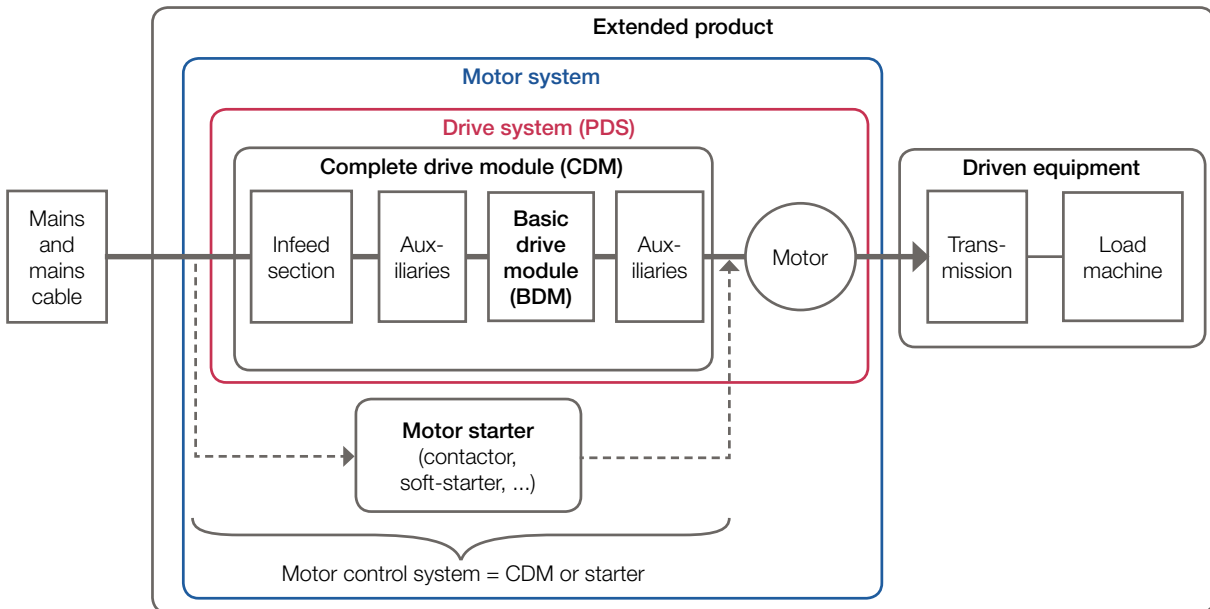


Fig. 1: Components of an extended product

## Explanations of important abbreviations:

- **CDM** – Complete Drive Module  
Complete frequency converter with power infeed, input and output filters, etc.
- **PDS** – Power Drive System  
Drive system comprising CDM and motor, including the motor cable
- **EEI** – Energy Efficiency Index  
Measure of the energy efficiency of an extended product, e.g. a pump drive. The smaller the EEI value, the lower the losses of the extended product.
- **IES class** – International Efficiency of Systems  
Efficiency class of a drive system (PDS)
- **RCDM** – Reference CDM  
The measured or calculated losses of an individual CDM are assessed in comparison to the losses of a reference CDM. The power loss of the reference CDM is assigned to efficiency class IE1. The RCDM also serves to enable motor manufacturers to determine the IES class of a PDS without knowledge of the real CDM and its manufacturer.
- **RM** – Reference motor  
The measured or calculated losses of an individual motor are assessed in comparison to the losses of a reference motor. The RM also serves to enable converter manufacturers to determine the IES class of a PDS without knowledge of the real motor and its manufacturer. The losses of the RM were derived from the IE2 efficiency classification of 4-pole asynchronous motors for 50 Hz in accordance with IEC/EN 60034-30, taking into account the rHL factors (ratios of the additional harmonic losses to the losses for a sinusoidal motor supply). The losses of the RM are also valid for 60 Hz applications.
- **RPDS** – Reference PDS (combination of reference motor and reference PDS)  
The measured or calculated losses of a PDS are compared to the losses of a reference PDS. The power loss of the reference PDS is assigned to efficiency class IES 1. The reference PDS also serves to enable pump manufacturers, for example, to determine the energy efficiency index of an extended product (in this case a pump based on the reference PDS) without knowledge of the real PDS, its real components (motor and CDM) and their manufacturers.

## Reference products → Definition

To determine the most energy-efficient extended product for an application, it is necessary to be able to compare the most varied power electronics components, motors and systems in a simple manner. The extended product approach described in the standard EN 50598-1, which is not to be discussed in further detail here, makes this possible.

The reference products are independent of any real product of a particular manufacturer and permit:

- specifications of limit values for classifications
- classification of an actual PDS through comparison to the reference PDS
- classification of the CDM and application of the future standard IEC/TS 60034-30-2 for the classification of converter-fed motors

– determination of a small number of suitable measuring points or calculation results as a development basis for the energy consumption

The introduction of reference points enables a manufacturer to perform comparisons with the reference products and thereby to assign products to a particular IE or IES class. A manufacturer who supplies only motors, for example, can already determine the IES classification of a final PDS in advance, even without knowledge of the real CDM and its manufacturer. To this end, the losses of the manufacturer's own motor must be measured or calculated together with the reference CDM. At present, however, the IE classifications for converter-fed motors are still under discussion.

Reference products → Loss measurement points

Eight loss measurement points each have been specified for a reference motor, reference CDM or reference PDS. The determination of the losses of the reference CDM is not

to be discussed in further detail here. Fig. 2 shows the eight measurement points for the reference PDS. These same operating points are also specified for the reference motor.

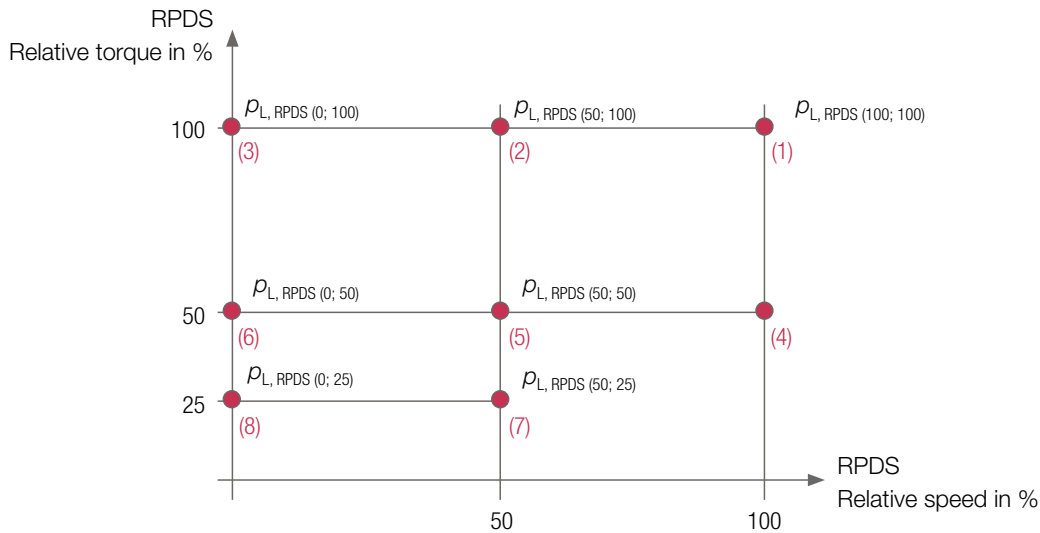


Fig. 2: Loss measurement points for the reference PDS

Theoretically, the losses must be known at every operating point between 0 % and 100 % of the relative speed and between 0 % and 100 % of the relative torque. In practice, however, it is sufficient to determine the losses at eight operating points.

Determination of the IE and IES classifications is nevertheless based exclusively on a comparison between the power losses of the real motor or real PDS and those of the reference motor or reference PDS at the rated operating point (100; 100).

If the power loss of a real PDS lies within +/- 20 % of the power loss of the reference PDS, then this PDS is assigned to class IES1. If the relative losses of the real PDS are less than 80 % compared to the reference PDS, the PDS can be assigned to class IES2. If the losses exceed those of the reference PDS by more than 20 %, then only class IES0 can be assigned.

For the end user, the various losses in partial-load operation are important. The levels of efficiency at actual partial loads must be calculated or measured on the basis of the eight operating points specified in the standard EN 50598, either by the user himself or by the supplier of the PDS. The methodology for calculation is described in the standard EN 50598.

IES class of PDS	PDS losses
IES0	> RPDS losses + 20 %
IES1	RPDS losses ± 20 %
IES2	< 80 % RPDS losses
IES3 to IES 9	(reserved)

## Overview of technical data

The most important technical data are summarised in the following table.  
Further information can be taken from the catalogue section "Introduction" (Chapter 1).

<b>Product group</b>	Squirrel-cage rotor, IEC/EN
<b>Rated output</b>	0.06 to 650 kW (non-classified, IE, IE1, IE2 and IE3 versions with 2, 4, 6 and 8 poles)
<b>Sizes</b>	56 to 400
<b>Housing material</b>	Grey cast iron
<b>Rated torque</b>	0.25 to 5130 Nm
<b>Efficiency classification/ efficiency determination</b>	IEC/EN 60034-30-1 /IEC/EN 60034-2-1, ≤ 1 kW direct measurement, > 1 kW residual loss method
<b>Method of connection</b>	Single-speed motors for converter-fed operation are designed preferably for star connection; delta configuration may be necessary from size 315.
<b>Stator winding insulation</b>	Thermal class 155, optional 155 [F(B)], 180 to IEC/EN 60034-1
<b>Converter output voltages</b>	up to 420 V, series K2.R, IE2-WE.R, IE3-W41R (see Chapter 2) >420 V up to 500 V, KU.R, IE2-WU.R, IE3-WU.R >500 V up to 690 V, KV.R, IE2-WV.R, IE3-WV.R
<b>Degree of protection</b>	IP 55 to IEC/EN 60034-5, optionally IP 56 and higher
<b>Type of cooling</b>	IC 411, IC 416, IC 71W (IC 31W) to IEC/EN 60034-6
<b>Coolant temperature/ installation altitude</b>	Standard -20 °C to +40 °C, Altitude 1000 m above sea level
<b>Rated voltage</b>	Standard voltages to EN 60038 50 Hz: 230 V, 400 V, 500 V, 690 V 60 Hz: 275 V, 460 V, 480 V, 600 V Voltage ranges A and B to IEC/EN 60034-1 (Prior consultation necessary regarding 230 V, 50 Hz and 275 V, 60 Hz for motors from size 315)
<b>Duty types</b>	S9, converter-fed operation
<b>Types of construction</b>	IM B3, IM B35, IM B5 and derived types to IEC/EN 60034-7
<b>Paint finish</b>	Normal finish "Moderate", colour RAL 7031, blue-grey Special finish "Worldwide", colour RAL 7031, blue-grey
<b>Vibration severity grade</b>	Grade "A" as standard for machines with no special vibration requirements
<b>Shaft ends</b>	to DIN 748 (IEC 60072), balanced with half-key
<b>Limit speeds</b>	Please refer to the section of "Limit speeds" in catalogue section "Motors for converter-fed operation", Chapter 4.
<b>Bearing design</b>	Please refer to the tables of "Bearing design data" in catalogue section „Standand motors“, Chapter 2.
<b>Motor mass</b>	Please refer to the technical selection lists.
<b>Terminal boxes</b>	Please refer to the section "Terminal boxes" in catalogue section „Standand motors“, Chapter 2.
<b>Documentation</b>	An operating and maintenance manual, a terminal plan and a safety data sheet are supplied with each motor.
<b>Tolerances</b>	Please refer to the section "Tolerances" in catalogue section "Introduction", Chapter 1.
<b>Options</b>	Please refer to the section "Overview of modifications" in catalogue section "Introduction", Chapter 1.







**Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 420 V**



with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data														Design point 400 V, 50 Hz		
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>K</sub> /I <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	M <sub>G</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m	
	Converter		Mains		(IEC/EN 60034-2)			-	400 V	-	-	-	-	kgm <sup>2</sup>	kg	
	KW	Nm	KW	rpm	100 %	75 %	50 %	-	A	-	-	-	-	-	-	
<b>Synchronous speed 3000 rpm – 2-pole version</b>																
IE2-WE2R 56 G2	0.12	0.40	0.12	2830	IE2-	53.6	69.6	60.8	0.77	0.32	4.5	2.1	2.1	2.3	0.00013	4.5
IE2-WE2R 63 K2	0.18	0.62	0.18	2790	IE2-	60.4	63.1	57.6	0.76	0.51	4.1	1.9	1.9	2.2	0.00013	4.9
IE2-WE2R 63 G2	0.25	0.86	0.25	2775	IE2-	64.8	66.7	61.9	0.8	0.67	4.2	1.9	1.9	2.2	0.00015	5.2
IE2-WE2R 71 K2	0.37	1.28	0.37	2750	IE2-	69.5	70.8	69.4	0.84	0.89	4.6	1.8	1.8	2.1	0.00025	6.7
IE2-WE2R 71 G2	0.55	1.89	0.55	2775	IE2-	74.1	75.0	72	0.81	1.32	5.1	2.3	2.1	2.6	0.00032	7.6
IE2-WE2R 80 K2	0.75	2.54	0.75	2825	IE2-	77.4	77.1	72.9	0.81	1.72	5.9	2.4	2.4	2.4	0.00057	10.7
IE2-WE2R 80 G2	1.1	3.75	1.1	2805	IE2-	79.6	78.7	76.4	0.85	2.36	5.6	1.9	1.8	2.2	0.00072	11.5
IE2-WE2R 90 S2	1.5	4.99	1.5	2870	IE2-	81.3	82.0	79.4	0.8	3.30	6.6	3.2	3.2	3.7	0.00132	16
IE2-WE2R 90 L2	2.2	7.37	2.2	2850	IE2-	83.2	83.0	81.6	0.85	4.55	7.5	2.8	2.3	2.9	0.0017	19.0
IE2-WE2R 100 LY2	3	9.97	3	2875	IE2-	84.6	85.1	83.6	0.85	6	7.4	2.6	2.3	3.3	0.0045	28.5
IE2-WE1R 112 M2	4	13.20	4	2900	IE2-	85.8	85.9	84.8	0.81	8.4	7	2.2	2.1	2.9	0.0045	32.0
IE2-WE1R 132 SY2T	5.5	18.20	5.5	2890	IE2-	87.0	86.2	86.4	0.84	11	7.2	2.1	1.7	2.8	0.0055	40.0
IE2-WE1R 132 SX2T	7.5	24.90	7.5	2880	IE2-	88.1	88.4	87.8	0.84	14.8	6.3	1.5	1.2	2.6	0.0068	48.0
IE2-WE1R 132 SX2	7.5	24.5	7.5	2925	IE2-	88.8	89.2	88.3	0.91	13.5	6.7	2.1	1.6	2.9	0.0168	75
IE2-WE1R 160 M2	11.0	35.6	11.0	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	15.0	2940	IE2-	90.7	90.5	89.1	0.92	26	6.7	1.8	1.4	2.6	0.0675	140
IE2-WE1R 160 L2	18.5	60.2	18.5	2935	IE2-	91.0	91.4	91.4	0.91	32	7.2	2.0	1.5	2.8	0.0675	140
IE2-WE1R 180 M2	22	71.6	22	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	30	2945	IE2-	92.0	91.3	90.5	0.91	52	6.9	1.7	1.3	2.6	0.128	210
IE2-WE1R 200 LX2	37	120	37	2940	IE2-	92.5	92.3	91.6	0.92	63	7.4	1.9	1.4	2.9	0.154	233
IE2-WE2R 200 LX2	37	120	37	2940	IE2-	92.5	92.3	91.6	0.92	63	7.4	1.9	1.4	2.9	0.154	233
IE2-WE1R 225 M2	45	146	45	2950	IE2-	92.9	92.2	91.2	0.87	80.5	6.9	1.7	1.1	2.7	0.220	295
IE2-WE1R 250 M2	55	178	55	2955	IE2-	93.5	93.7	93.2	0.89	95.5	8.2	2.3	1.9	2.8	0.375	385
IE2-WE1R 280 S2	75	241	75	2970	IE2-	94.1	94.0	91.5	0.90	128	7.9	2.1	1.7	3.0	0.65	500
IE2-WE1R 280 M2	90	289	90	2970	IE2-	94.4	94.1	91.9	0.91	151	7.7	2.0	1.7	2.8	0.68	550
IE2-WE1R 315 S2	110	353	110	2975	IE2-	94.5	94.3	93.3	0.89	189	8.0	1.3	1.2	2.4	1.21	730
IE2-WE1R 315 M2	132	424	132	2975	IE2-	95.0	94.8	94.5	0.89	225	9.2	1.4	1.2	2.4	1.44	820
IE2-WE1R 315 MX2	160	514	160	2973	IE2-	94.8	94.8	94.8	0.89	274	8.2	1.3	1.3	2.4	1.76	955
IE2-WE1R 315 MY2	200	640	200	2983	IE2-	95.4	95.0	94.3	0.88	344	9.4	2.8	2.0	3.0	2.82	1200
IE2-WE1R 315 L2	220	704	250	2984	IE2-	95.4	95.4	95.4	0.92	411	9.0	2.3	1.2	2.3	3.66	1450
IE2-WE1R 315 LX2	270	864	315	2985	IE2-	95.4	95.4	95.0	0.92	518	8.5	2.8	1.6	2.5	4.43	1700
IE2-WE2R 355 M2	330	1056	355	2985	IE2-	95.5	95.5	95.5	0.92	583	7.7	1.3	1.0	2.6	4.20	2000
IE2-WE2R 355 MX2	355	1134	400	2990	IE2-	95.5	95.5	95.5	0.91	664	9.4	1.8	1.0	3.0	4.50	2200
IE2-WE2R 355 LY2	425	1360	450	2985	IE2-	95.5	95.5	95.5	0.92	739	7.0	1.3	0.9	2.4	7.10	2400
IE2-WE2R 355 L2	425	1360	500	2985	IE2-	95.5	95.5	95.5	0.92	821	8.5	1.5	1.2	2.5	7.10	2400

### Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 420 V

**IE2** EU REGULATION 640/2009  
USE WITH VARIABLE SPEED DRIVE ONLY!

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data														Design point 400 V, 50 Hz		
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>G</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m	
	Converter		Mains	rpm	(IEC/EN 60034-2)			-	400 V	-	-	-	-	kgm <sup>2</sup>	kg	
	KW	Nm	KW		100 %	75 %	50 %		A							
Synchronous speed 1500 rpm – 4-pole version																
IE2-WE2R 63 K4	0.12	0.83	0.12	1380	IE2-	59.1	55.7	46.8	0.69	0.45	2.8	1.6	1.6	2.1	0.00019	4.8
IE2-WE1R 63 GY4	0.18	1.23	0.18	1395	IE2-	64.7	66.3	61.3	0.72	0.54	3.5	1.7	1.7	2.2	0.0004	6.3
IE2-WE2R 71 K4	0.25	1.71	0.25	1395	IE2-	68.5	68.1	63.8	0.70	0.73	3.9	2.1	2.1	2.5	0.0005	7.8
IE2-WE1R 71 GY4	0.37	2.48	0.37	1425	IE2-	72.7	72.2	68.6	0.69	1.00	4.9	2.4	2.4	3.0	0.00087	9.9
IE2-WE2R 80 K4	0.55	3.71	0.55	1415	IE2-	77.1	77.1	73.9	0.72	1.42	4.9	2.6	2.5	2.8	0.00107	11.7
IE2-WE1R 80 GY4	0.75	5.01	0.75	1430	IE2-	79.6	78.0	74.7	0.80	1.73	5.7	2.2	2.2	3.1	0.00207	14.5
IE2-WE2R 90 S4	1.1	7.32	1.1	1435	IE2-	81.4	80.1	77.0	0.76	2.60	6.3	3.0	3.0	3.8	0.0028	18.5
IE2-WE1R 90 LW4	1.5	9.95	1.5	1440	IE2-	82.8	83.8	81.4	0.76	3.40	6.5	2.7	2.7	3.6	0.004	23
IE2-WE1R 100 S4	2.2	14.5	2.2	1445	IE2-	84.3	84.9	82.7	0.79	4.67	7.3	2.7	2.5	3.1	0.00725	30
IE2-WE1R 100 LW4	3.0	19.8	3.0	1445	IE2-	85.5	85.8	83.6	0.79	6.33	7.8	3.0	2.9	3.6	0.009	36
IE2-WE1R 112 MZ4	4.0	26.4	4.0	1445	IE2-	86.6	86.8	84.9	0.80	8.30	8.2	2.8	2.6	3.6	0.013	50
IE2-WE2R 132 SY4	5.5	36.2	5.5	1450	IE2-	87.7	87.7	86.4	0.84	10.80	8.0	2.5	2.3	3.8	0.015	58
IE2-WE1R 132 S4	5.5	35.7	5.5	1470	IE2-	89.8	89.9	88.4	0.87	10	7.4	2.3	1.9	3.4	0.035	87
IE2-WE1R 132 M4	7.5	48.7	7.5	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	71.2	11.0	1475	IE2-	90.6	90.3	88.5	0.82	21.5	8.1	3.1	2.4	3.4	0.078	122
IE2-WE2R 160 M4	11	71.5	11	1470	IE2-	90.3	90.3	88.5	0.78	22.5	7.8	2.4	2.1	3.9	0.043	105
IE2-WE1R 160 L4	15.0	97	15.0	1470	IE2-	90.6	90.9	90.5	0.87	27.5	8.3	2.7	2.2	3.2	0.115	160
IE2-WE2R 160 L4	15	97	15	1480	IE2-	92.0	92.0	90.6	0.84	28	9.1	3.0	2.5	3.9	0.115	161
IE2-WE1R 180 M4	18.5	120	18.5	1475	IE2-	91.5	91.5	90.4	0.86	34	6.8	1.8	1.5	2.7	0.168	207
IE2-WE2R 180 M4	18.5	120	18.5	1470	IE2-	91.2	90.6	89.3	0.78	37.5	6.4	2.0	1.6	2.8	0.138	176
IE2-WE1R 180 L4	22	142	22	1475	IE2-	91.6	91.4	89.9	0.83	42	7.3	2.1	1.7	3.0	0.168	215
IE2-WE1R 200 L4	30	194	30	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	37	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	45	1483	IE2-	93.1	93.0	91.1	0.84	83	7.9	2.3	1.9	2.4	0.525	390
IE2-WE2R 225 M4	45	291	45	1475	IE2-	93.1	92.9	92.1	0.80	87	7.6	2.6	1.9	3.1	0.356	346
IE2-WE1R 250 M4	55	354	55	1485	IE2-	94.0	94.1	92.5	0.84	101	8.0	2.0	1.7	2.3	0.95	535
IE2-WE2R 250 M4	55	356	55	1477	IE2-	93.9	93.8	93.7	0.82	103	7.5	2.4	1.9	2.4	0.62	435
IE2-WE1R 280 S4	75	482	75	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	90	1483	IE2-	94.3	94.5	94.0	0.84	164	7.6	1.8	1.6	2.3	1.10	610
IE2-WE1R 315 S4	110	707	110	1485	IE2-	94.8	94.8	94.0	0.82	204	8.5	1.8	1.5	2.7	1.96	760
IE2-WE1R 315 M4	132	849	132	1484	IE2-	95.0	95.0	94.5	0.83	242	8.2	1.8	1.6	2.3	2.27	850
IE2-WE1R 315 MX4	160	1031	160	1482	IE2-	95.0	95.0	94.5	0.84	289	7.4	1.6	1.4	2.2	2.73	975
IE2-WE1R 315 MY4	200	1282	200	1490	IE2-	95.1	95.1	94.5	0.87	349	8.5	1.8	1.6	2.5	4.82	1270
IE2-WE1R 315 L4	250	1602	250	1490	IE2-	95.4	95.4	95.3	0.88	430	9.0	2.2	1.5	2.7	5.93	1450
IE2-WE1R 315 LX4	285	1827	315	1490	IE2-	95.4	95.4	95.0	0.88	542	9.0	2.4	1.6	2.6	6.82	1630
IE2-WE2R 355 M4	355	2271	355	1493	IE2-	95.5	95.5	95.0	0.87	617	8.0	1.3	1.0	2.7	7.90	2150
IE2-WE2R 355 MX4	390	2493	400	1494	IE2-	95.5	95.5	95.5	0.88	687	8.5	1.3	1.0	3.0	9.50	2400
IE2-WE2R 355 LY4	430	2745	450	1496	IE2-	95.5	95.5	95.5	0.86	791	8.5	1.4	0.8	2.9	10.00	2500
IE2-WE2R 355 L4	430	2745	500	1496	IE2-	95.5	95.5	95.5	0.84	900	8.0	1.2	0.9	3.0	10.00	2500

**Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 420 V**



with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data														Design point 400 V, 50 Hz		
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	η <sub>B</sub>	η <sub>B</sub>			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>G</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m	
	Converter		Mains	rpm	(IEC/EN 60034-2)			-	400 V	-	-	-	-	kgm <sup>2</sup>	kg	
	KW	Nm	KW		100 %	75 %	50 %		A							
Synchronous speed 1000 rpm – 6-pole version																
IE2-WE2R 63 G6	0.12	1.3	0.12	880	IE2-	50.6	47.0	39.5	0.59	0.59	2.6	2.1	2.1	2.3	0.00027	5.7
IE2-WE2R 71 K6	0.18	1.9	0.18	920	IE2-	56.6	54.4	48.5	0.52	0.8	2.9	2.0	2.0	2.3	0.0006	8.3
IE2-WE2R 71 G6	0.25	2.6	0.25	915	IE2-	61.6	57.5	51.6	0.55	1.1	2.9	2.0	2.0	2.2	0.0006	8.3
IE2-WE2R 80 K6	0.37	3.8	0.37	935	IE2-	67.6	68.5	63.3	0.65	1.17	3.7	2.1	2.1	2.6	0.00175	12.5
IE2-WE1R 80 GY6	0.55	5.6	0.55	945	IE2-	73.1	72.6	68.4	0.67	1.6	3.8	1.9	1.9	2.4	0.00325	15.0
IE2-WE2R 90 S6	0.75	7.6	0.75	945	IE2-	75.9	75.5	72.1	0.67	2.12	4.0	1.8	1.8	2.4	0.00425	19.0
IE2-WE1R 90 LW6	1.1	11.0	1.1	955	IE2-	78.1	78.0	75.1	0.69	2.95	4.7	2.5	2.4	2.8	0.00625	24.0
IE2-WE2R 100 L6	1.5	15.1	1.5	950	IE2-	79.8	80.4	77.6	0.7	3.85	5.1	2.5	2.4	3.0	0.0072	30.0
IE2-WE1R 112 MX6	2.2	21.9	2.2	960	IE2-	81.8	81.9	77.5	0.65	5.9	6.4	3.0	2.9	3.7	0.0139	37.0
IE2-WE1R 132 S6	3.0	29.8	3.0	963	IE2-	84.9	85.2	83.9	0.80	6.4	6.0	2.0	1.3	3.0	0.023	55
IE2-WE2R 132 M6	4.0	40	4.0	955	IE2-	85.1	86.0	85.2	0.82	8.3	5.7	2.1	2.0	2.9	0.029	66
IE2-WE1R 132 M6	4.0	39.6	4.0	965	IE2-	85.5	85.5	83.8	0.79	8.5	5.1	1.8	1.6	2.4	0.043	76
IE2-WE1R 132 MX6	5.5	54.1	5.5	970	IE2-	86.1	85.5	82.4	0.77	12	5.7	2.2	1.7	2.7	0.053	85
IE2-WE1R 160 M6	7.5	73	7.5	975	IE2-	87.4	88.1	86.0	0.81	15.5	6.3	2.5	2.1	2.9	0.113	118
IE2-WE2R 160 M6	7.5	74	7.5	970	IE2-	87.5	87.6	85.9	0.79	15.5	5.9	2.1	1.8	2.9	0.053	103
IE2-WE1R 160 L6	11.0	108	11.0	970	IE2-	88.7	87.9	86.3	0.85	21	5.8	2.2	1.9	2.7	0.145	135
IE2-WE2R 160 L6	11.0	108	11.0	975	IE2-	88.9	88.8	87.0	0.81	22	6.8	2.7	2.4	3.1	0.166	155
IE2-WE1R 180 L6	15.0	147	15.0	975	IE2-	89.7	88.8	86.7	0.84	28.5	6.2	2.1	1.8	2.8	0.228	185
IE2-WE2R 180 L6	15	148	15	970	IE2-	89.7	88.8	87.8	0.83	29	5.6	2.3	1.7	2.6	0.166	157
IE2-WE1R 200 L6	18.5	180	18.5	980	IE2-	90.4	88.8	86.5	0.85	35	6.6	2.3	1.7	2.9	0.268	208
IE2-WE1R 200 LX6	22	214	22	980	IE2-	90.9	90.2	88.5	0.86	40.5	6.4	2.2	1.8	2.7	0.443	272
IE2-WE2R 200 LX6	22	215	22	975	IE2-	90.9	89.9	88.5	0.84	41.5	6.7	2.4	2.0	3.0	0.324	238
IE2-WE1R 225 M6	30	291	30	985	IE2-	92.0	91.5	90.0	0.86	54.5	7.3	2.5	2.2	2.9	0.825	365
IE2-WE2R 225 M6	30	294	30	975	IE2-	91.7	91.4	90.6	0.87	54.5	6.7	2.3	1.9	2.8	0.514	308
IE2-WE1R 250 M6	37	359	37	985	IE2-	92.2	91.7	90.7	0.85	68	6.4	2.7	1.8	2.4	1.28	480
IE2-WE2R 250 M6	37	361	37	979	IE2-	92.2	92.3	91.8	0.86	67.5	6.6	2.7	2.0	2.6	0.92	407
IE2-WE1R 280 S6	45	437	45	983	IE2-	93.0	92.7	92.4	0.87	80.5	6.5	2.2	1.7	2.4	1.48	560
IE2-WE1R 280 M6	55	531	55	990	IE2-	93.5	93.5	93.0	0.85	100	7.6	2.0	1.5	2.5	2.63	710
IE2-WE1R 315 S6	75	723	75	990	IE2-	93.9	93.7	93.5	0.87	133	7.8	1.9	1.5	2.5	3.33	804
IE2-WE1R 315 M6	90	868	90	990	IE2-	94.0	94.0	93.5	0.88	157	7.5	1.8	1.5	2.5	3.60	865
IE2-WE1R 315 MX6	110	1061	110	990	IE2-	94.3	94.3	94.0	0.87	194	7.5	1.8	1.4	2.3	6.67	1210
IE2-WE1R 315 MY6	132	1273	132	990	IE2-	94.6	94.3	94.0	0.87	231	7.5	1.9	1.4	2.2	6.67	1250
IE2-WE1R 315 L6	160	1543	160	990	IE2-	94.8	94.5	93.5	0.88	277	7.5	2.0	1.5	2.4	8.60	1430
IE2-WE1R 315 LX6	185	1785	200	990	IE2-	95.0	95.0	94.5	0.86	353	7.0	1.9	1.5	2.2	8.60	1460
IE2-WE2R 355 M6	250	2402	250	994	IE2-	95.0	95.0	94.7	0.84	452	7.0	1.5	1.2	2.2	8.20	1850
IE2-WE2R 355 MX6	300	2879	315	995	IE2-	95.2	95.2	95.2	0.86	555	7.0	1.3	1.1	2.2	12.1	2200
IE2-WE2R 355 LY6	315	3023	355	995	IE2-	95.0	95.0	94.0	0.77	700	7.5	1.8	1.5	2.6	14.0	2400

## Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 420 V

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data														Design point 400 V, 50 Hz		
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	η <sub>B</sub>	η <sub>B</sub>			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m	
	Converter		Mains	rpm	(IEC/EN 60034-2)			-	400 V	-	-	-	-	kgm <sup>2</sup>	kg	
	kW	Nm	kW		100 %	75 %	50 %		A							
Synchronous speed 750 rpm – 8-pole version																
IE2-WE2R 71 G8	0.12	1.7	0.12	670	IE2-	39.8	39.8	31.9	0.54	0.73	2.10	1.80	1.80	2.00	0.0006	8
IE2-WE2R 80 K8	0.18	2.5	0.18	690	IE2-	45.9	52.2	44.0	0.59	0.78	2.70	1.90	1.90	2.20	0.0013	11
IE2-WE2R 80 G8	0.25	3.4	0.25	695	IE2-	50.6	50.4	42.5	0.56	1.12	3.00	2.30	2.30	2.50	0.00175	12
IE2-WE2R 90 S8	0.37	5.1	0.37	700	IE2-	56.1	57.3	50.7	0.54	1.60	3.00	1.50	1.50	2.00	0.003	15
IE2-WE2R 90 L8	0.55	7.6	0.55	695	IE2-	61.7	61.3	54.9	0.60	2.04	3.30	1.50	1.50	2.00	0.00375	18
IE2-WE2R 100 L8	0.75	10.2	0.75	705	IE2-	66.2	64.5	58.7	0.60	2.90	3.10	1.50	1.50	2.00	0.00625	23
IE2-WE1R 100 LY8	1.1	14.9	1.1	705	IE2-	70.8	71.2	67.6	0.67	3.25	4.00	2.00	2.00	2.40	0.009	28
IE2-WE1R 112 M8	1.5	20.3	1.5	705	IE2-	74.1	73.6	70.1	0.62	4.50	4.20	2.00	2.00	2.70	0.0139	37
IE2-WE1R 132 S8	2.2	29.2	2.2	720	IE2-	81.7	81.0	77.5	0.65	6	4.8	2.2	2.0	3.2	0.0180	55
IE2-WE2R 132 M8	3.0	40.4	3.0	710	IE2-	80.0	80.8	79.0	0.73	7.4	4.9	1.9	1.9	2.7	0.0290	65
IE2-WE1R 132 M8	3.0	39.8	3.0	720	IE2-	82.7	83.0	81.3	0.74	7.1	3.9	1.6	1.3	1.9	0.0430	74
IE2-WE1R 160 M8	4.0	53.2	4.0	718	IE2-	84.2	83.7	81.9	0.72	9.5	4.6	1.6	***)	2.5	0.0530	86
IE2-WE1R 160 MX8	5.5	72	5.5	730	IE2-	86.9	86.6	84.1	0.72	12.5	4.8	2.1	1.8	2.6	0.1130	115
IE2-WE2R 160 MX8	5.5	73	5.5	715	IE2-	83.9	84.0	81.9	0.71	13.5	4.3	1.7	1.5	2.5	0.0530	103
IE2-WE1R 160 L8	7.5	99	7.5	725	IE2-	86.9	87.6	86.6	0.76	16.5	4.5	1.8	1.6	2.3	0.1450	138
IE2-WE1R 180 L8	11.0	144	11.0	727	IE2-	88.2	88.2	86.7	0.78	23	4.9	1.8	1.6	2.4	0.2280	175
IE2-WE2R 180 L8	11	144	11	730	IE2-	87.9	87.4	85.2	0.67	25.5	4.3	1.9	1.6	2.3	0.1660	157
IE2-WE1R 200 L8	15.0	197	15.0	727	IE2-	88.2	88.1	86.4	0.77	32	4.9	1.9	1.7	2.3	0.2680	200
IE2-WE1R 225 S8	18.5	242	18.5	730	IE2-	89.6	89.4	87.2	0.78	38	5.4	2.1	2.0	2.8	0.440	265
IE2-WE2R 225 S8	18.5	240	18.5	735	IE2-	90.7	90.7	89.4	0.8	37	6.1	2.1	1.9	2.9	0.514	305
IE2-WE1R 225 M8	22	287	22	733	IE2-	90.6	89.4	89.9	0.78	45	5.6	2.2	1.8	2.6	0.825	380
IE2-WE2R 225 M8	22	286	22	735	IE2-	90.3	90.3	88.7	0.77	45.5	6.1	2.2	2.0	2.9	0.514	307
IE2-WE1R 250 M8	30	391	30	732	IE2-	90.8	91.0	90.0	0.78	61	5.6	2.2	1.9	2.4	0.830	380
IE2-WE1R 280 S8	37	479	37	737	IE2-	90.8	91.3	90.7	0.80	73.5	4.9	1.9	1.5	2.0	1.35	480
IE2-WE1R 280 M8	45	581	45	740	IE2-	91.8	91.8	90.7	0.77	92	5.8	2.3	1.8	2.5	1.55	535
IE2-WE1R 315 S8	55	710	55	740	IE2-	92.2	92.2	92.2	0.80	108	6.3	1.8	1.5	2.3	2.63	715
IE2-WE1R 315 M8	75	968	75	740	IE2-	92.7	92.5	92.5	0.81	144	6.0	2.1	1.4	2.1	3.33	805
IE2-WE1R 315 MX8	90	1161	90	740	IE2-	93.0	93.0	93.0	0.79	177	6.5	1.7	1.5	2.2	3.6	850
IE2-WE1R 315 MY8	110	1420	110	740	IE2-	93.4	93.4	93.4	0.82	207	6.5	1.8	1.6	2.2	6	1080
IE2-WE1R 315 L8	132	1704	132	740	IE2-	93.2	93.2	93.2	0.83	246	6.0	1.5	1.4	2.2	6.76	1250
IE2-WE1R 315 LX8	145	1871	160	740	IE2-	93.9	93.9	93.8	0.80	307	7.2	2.2	1.8	2.5	8.71	1430
IE2-WE2R 355 M8	200	2571	200	743	IE2-	94.5	94.1	91.5	0.77	397	***)	***)	***)	***)	9.5	1850
IE2-WE2R 355 MX8	225	2884	250	745	IE2-	94.0	94.0	94.0	0.83	463	7.0	1.2	1.0	2.6	13.4	2200
IE2-WE2R 355 LY8	230	2956	280	743	IE2-	94.3	94.3	94.3	0.78	549	7.2	1.3	1.0	2.7	15.8	2400

\*\*\*) upon request

**Three-phase motors with squirrel-cage rotor**  
**Standard insulation for converter-fed operation without filter up to 420 V**



with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data												Design point 400 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>	cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>M</sub> /I <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>R</sub> /M <sub>B</sub>	J	m
		kW	Nm	rpm	%	-	A	-	-	-	-	kgm <sup>2</sup>	kg
(IEC/EN 60034-2) 400 V													
Synchronous speed 3000 rpm – 2-pole version													
K210 56 K2		0.09	0.3	2840	70	0.74	0.25	4.9	2.3	2.3	2.8	0.00013	4.4
K21R 56 G2		0.12	0.4	2830	70.3	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	0.76	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	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	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	0.81	1.32	5.1	2.3	2.1	2.6	0.00032	7.6
K21R 80 K2	K20R 71 K2	0.75	2.54	2825	77.7	0.81	1.72	5.9	2.4	2.4	2.4	0.00057	10.7
K21R 80 G2	K20R 71 G2	1.1	3.71	2835	77.8	0.8	2.55	6	2.4	2.3	2.6	0.00072	11.5
K21R 90 S2	K20R 80 K2	1.5	5.04	2840	81.2	0.86	3.1	7	2.5	2.5	2.8	0.00132	16
K21R 90 L2	K20R 80 G2	2.2	7.37	2850	82.1	0.85	4.55	7.5	2.8	2.3	2.9	0.0017	19
K21R 100 L2	K20R 90 L2	3	10	2865	83.8	0.84	6.15	6.8	2.4	2.2	2.8	0.00275	25
K21R 112 M2	K20R 100 S2	4	13.2	2900	84.9	0.81	8.4	7	2.2	2.1	2.9	0.0045	32
K21R 112 MX2	K20R 100 L2	5.5	18.2	2890	85.9	0.84	11	7.5	2.4	2.2	3	0.0055	38
K21R 132 S2T	K20R 100 L2	5.5	18.2	2890	85.9	0.84	11	7.5	2.4	2.2	3	0.0055	40
K21R 112 MV2	K20R 100 LV2	7.5	24.9	2880	87.1	0.84	14.8	6.3	1.5	1.2	2.6	0.0068	46
K21R 132 SX2T	K20R 100 LV2	7.5	24.9	2880	87.1	0.84	14.8	6.3	1.5	1.2	2.6	0.0068	48
K21R 132 S2	K20R 112 MY2	5.5	18.4	2860	85.7	0.86	11	5.5	1.8	1.6	2.2	0.0081	52
K21R 132 SX2	K20R 112 M2	7.5	24.7	2900	87	0.86	14.5	6.6	1.8	1.3	2.5	0.011	57
K21R 160 M2	K20R 132 M2	11	36.2	2900	88.5	0.9	20	7	2.4	2	3	0.0258	81
K21R 160 MX2	K20R 160 S2	15	48.9	2930	89.4	0.9	27	7.1	2.2	1.7	2.9	0.0575	118
K21R 160 L2	K20R 160 M2	18.5	61	2920	90.5	0.92	32	7.2	2.1	1.6	2.8	0.0675	134
K21R 180 M2	K20R 180 S2	22	72	2935	91.8	0.92	37.5	6.8	1.7	1.4	2.6	0.105	165
K21R 200 L2	K20R 180 M2	30	97	2940	92.8	0.92	50.5	7.3	2	1.6	2.9	0.128	195
K21R 200 LX2	K20R 200 M2	37	120	2940	93	0.9	64	7	1.8	1.3	2.4	0.193	255
K21R 225 M2	K20R 200 L2	45	146	2940	93.7	0.91	76	7.5	1.8	1.4	2.7	0.22	290
K21R 250 M2	K20R 225 M2	55	178	2955	93.7	0.91	93	7.5	2	1.5	2.6	0.375	360
K21R 280 S2	K20R 250 S2	75	241	2970	94.6	0.92	124	7.5	2	1.6	2.6	0.65	490
K21R 280 M2	K20R 250 M2	90	289	2970	94.7	0.91	151	8.5	2.2	1.8	2.8	0.675	510
K21R 315 S2	K20R 280 S2	110	353	2975	95.4	0.91	183	8.5	1.5	1.3	2.5	1.21	720
K21R 315 M2	K20R 280 M2	132	424	2975	95.4	0.91	219	8.5	2	1.8	2.7	1.44	800
K21R 315 MX2	K20R 315 S2	160	514	2975	96	0.93	259	8.5	2	1.6	2.6	1.76	980
K21R 315 MY2	K20R 315 M2	200	643	2970	96	0.92	327	8.2	2.6	2	2.6	2.82	1170
K21R 315 L2	K20R 315 L2	250	803	2973	96.1	0.93	404	7.3	2.1	1.4	2	3.66	1460
K21R 315 LX2	K20R 315 LX2	315	1011	2975	96.7	0.92	511	7.4	2.4	1.4	2	4.43	1630
K22R 355 MY2		315	1007	2988	96.8	0.88	534	8.6	1.25	1	3	4.1	1900
K22R 355 M2		355	1138	2980	96.5	0.91	583	7.3	1.3	1	2.3	4.2	2000
K22R 355 MX2		400	1280	2985	96.8	0.9	663	8.5	1.9	1.3	3.2	5.5	2200
K22R 355 LY2		450	1441	2983	96.9	0.92	729	7.2	1.3	1	2.4	7.1	2400
K22R 355 L2		500	1600	2985	97.2	0.92	807	8.2	1.75	0.9	2.6	7.1	2400

**Motor selection data**

Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			I <sub>0</sub> kW	I <sub>max</sub> A	M <sub>max</sub> Nm	n <sub>max</sub> rpm	n <sub>maxFU</sub> rpm
		P <sub>50 Hz</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:2.5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:10</sub>	i <sub>B</sub>	M <sub>B</sub>					
		400 V			400 V			400 V			400 V							
		kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm					
<b>Synchronous speed 3000 rpm – 2-pole version</b>																		
K210 56 K2		0.09	0.25	0.3													15000	5220
K21R 56 G2		0.12	0.32	0.4													15000	5220
K21R 63 K2	K20R 56 K2	0.18	0.51	0.62	0.14		0.5	0.1	0.34	0.09	0.3				1	15000	5220	
K21R 63 G2	K20R 56 G2	0.25	0.74	0.86	0.2		0.69	0.14	0.49	0.12	0.42				1.5	15000	5220	
K21R 71 K2	K20R 63 K2	0.37	0.94	1.28	0.3		1.02	0.22	0.74	0.19	0.66				2.2	14000	5220	
K21R 71 G2	K20R 63 G2	0.55	1.32	1.91	0.44		1.52	0.32	1.12	0.29	1				3.7	14000	5220	
K21R 80 K2	K20R 71 K2	0.75	1.72	2.5	0.59		2	0.43	1.44	0.34	1.2				4.6	13000	5220	
K21R 80 G2	K20R 71 G2	1.1	2.55	3.7	0.88		3	0.64	2.2	0.51	1.76				7.4	13000	5220	
K21R 90 S2	K20R 80 K2	1.5	3.1	5	1.2		4	0.96	3.2	0.72	2.4				10	11000	5220	
K21R 90 L2	K20R 80 G2	2.2	4.55	7.4	1.76		5.9	1.44	4.7	1.07	3.6				16	11000	5220	
K21R 100 L2	K20R 90 L2	3	6.15	10	2.4		8	2	6.6	1.52	5.2				21	10000	5220	
K21R 112 M2	K20R 100 S2	4	8.4	13.2	3.2		10.6	2.8	9.4	2.2	7				29	7000	5220	
K21R 112 MX2	K20R 100 L2	5.5	11	18.20	5.5		18.1	4.7	15.5	3.9	13				41	7000	5220	
K21R 132 S2T	K20R 100 L2	5.5	11	18.2	4.4		14.5	3.8	12.4	3.1	10.4				41	7000	5220	
K21R 112 MV2	K20R 100 LV2	7.5	14.8	25.00	7.5		24.9	6.5	21.7	5.4	17.9				49	7000	5220	
K21R 132 SX2T	K20R 100 LV2	7.5	14.8	25	6		19.9	5.2	17.4	4.3	14.3				49	7000	5220	
K21R 132 S2	K20R 112 MY2	5.2	10.4	17.2	5.2	10.4	17.2	5.1	9.4	16.9	4.7	7.8	15.5	5.3	18.5	28	7000	5220
K21R 132 SX2	K20R 112 M2	7.5	14.5	24.8	7.5	14.1	24.8	7.5	13.7	24.8	6.6	11.6	21.8	5.9	28	43	7000	5220
K21R 160 M2	K20R 132 M2	10.5	19.5	35	10.5	19.5	35	10	18.2	33	8.4	15.3	28	6	47	76	6000	5220
K21R 160 MX2	K20R 160 S2	15	27	48.9	14.9	27	49	15	27	49.4	13.5	24.3	44.5	7.6	61	99	6000	5220
K21R 160 L2	K20R 160 M2	18.5	32	61	18.5	32	60.9	18.5	32	60.9	16.4	28.4	54	7.6	64	110	6000	5220
K21R 180 M2	K20R 180 S2	22	37.5	72	22	37.5	71.9	22	37.5	72.1	20.9	35.6	68.5	8.8	75	130	6000	5220
K21R 200 L2	K20R 180 M2	30	50.5	97	30	50.5	98	30	50.5	97.8	28.2	47.5	92	10.8	109	190	5000	5000
K21R 200 LX2	K20R 200 M2	37	64	120	37	64	120	37	64	120	35.4	61.5	115	14.5	118	200	5000	5000
K21R 225 M2	K20R 200 L2	45	76	146	45	76	146	45	76	146	42.2	71.5	137	18	155	270	5000	5000
K21R 250 M2	K20R 225 M2	55	93	178	55	93	178	55	93	178	51	86.5	165	23	185	320	4500	4500
K21R 280 S2	K20R 250 S2	74	122	238	74	122	238	74	123	238	69.5	115	224	30	244	430	4300	4300
K21R 280 M2	K20R 250 M2	87	146	280	87	146	280	87	146	280	80.7	135	260	36	322	560	4300	4300
K21R 315 S2	K20R 280 S2	110	183	353	110	183	354	110	183	354	110	183	354	36.5	348	610	3800	3800
K21R 315 M2	K20R 280 M2	132	219	424	132	219	424	132	219	424	132	219	424	40	455	800	3800	3800
K21R 315 MX2	K20R 315 S2	160	259	514	160	259	514	160	259	514	160	259	514	40	516	930	3600	3600
K21R 315 MY2	K20R 315 M2	192	314	616	192	314	616	192	314	616	192	314	616	65	655	1170	3600	3600
K21R 315 L2	K20R 315 L2	220	356	706	220	356	706	220	356	706	220	356	706	67	620	1120	3600	3600
K21R 315 LX2	K20R 315 LX2	270	438	867	270	438	867	270	438	867	270	438	867	50	784	1410	3600	3600
K22R 355 MY2		315	534	1007	315	534	1007	315	534	1007	297	503	950		1232	2110	3600	3600
K22R 355 M2		330	542	1058	330	542	1057	330	542	1057	306	503	980		1032	1830	3600	3600
K22R 355 MX2		355	588	1138	355	588	1138	355	588	1138	355	588	1138		1630	2860	3600	3600
K22R 355 LY2		380	620	1215	370	600	1186	370	600	1186	370	600	1186		1348	2420	3600	3600
K22R 355 L2		425	700	1360	370	600	1186	370	600	1186	370	600	1186		1615	2910	3600	3600

**Three-phase motors with squirrel-cage rotor**  
**Standard insulation for converter-fed operation without filter up to 420 V**



with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data												Design point 400 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>	cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m
		(IEC/EN 60034-2)				400 V							
		kW	Nm	rpm	%	-	A	-	-	-	-	kgm <sup>2</sup>	kg
<b>Synchronous speed 1500 rpm – 4-pole version</b>													
K210 56 K4		0.06	0.41	1410	60.1	0.6	0.24	3.1	2.3	2.3	2.7	0.00019	4.3
K21R 56 G4		0.09	0.63	1375	61.6	0.68	0.31	3.2	1.9	1.9	2.2	0.00019	4.4
K21R 63 K4	K20R 56 K4	0.12	0.84	1370	57.9	0.68	0.44	3.2	1.9	1.8	2.2	0.00019	4.8
K21R 63 G4	K20R 56 G4	0.18	1.26	1360	60.6	0.66	0.65	3.3	2	2	2.3	0.00024	5.2
K21R 71 K4	K20R 63 K4	0.25	1.72	1385	64.3	0.72	0.78	3.6	1.8	1.8	2.1	0.0004	6.8
K21R 71 G4	K20R 63 G4	0.37	2.58	1370	68.1	0.74	1.06	3.8	2	2	2.2	0.0005	7.8
K21R 80 K4	K20R 71 K4	0.55	3.75	1400	71.9	0.69	1.6	4.1	2.1	2	2.3	0.00087	10.6
K21R 80 G4	K20R 71 G4	0.75	5.12	1400	73.6	0.7	2.1	4.6	2.2	2.1	2.3	0.00107	11.7
K21R 90 S4	K20R 80 K4	1.1	7.5	1410	76.7	0.79	2.62	5.5	2.3	2.2	2.5	0.00207	15.5
K21R 90 L4	K20R 80 G4	1.5	10.2	1400	78.6	0.81	3.4	5.5	2.5	2.4	2.6	0.0026	18
K21R 100 L4	K20R 90 L4	2.2	14.9	1410	81.2	0.79	4.95	6	2.5	2.3	2.7	0.004	23.5
K21R 100 LX4	K20R 100 S4	3	20	1430	82.4	0.79	6.65	6.5	2.5	2.2	2.9	0.00725	30
K21R 112 M4	K20R 100 L4	4	26.6	1435	84.1	0.78	8.8	6.9	2.6	2.5	3.2	0.009	37
K21R 112 MX4	K20R 100 LX4	5.5	36.9	1425	86.3	0.78	11.8	6.3	2.5	2.4	2.9	0.011	45
K21R 132 S4T	K20R 100 LX4	5.5	36.9	1425	86.3	0.78	11.8	6.3	2.5	2.4	2.9	0.011	47
K21R 132 S4	K20R 112 M4	5.5	36.5	1440	85.7	0.89	10.5	6.5	1.9	1.7	3	0.015	50
K21R 132 M4	K20R 132 S4	7.5	49.4	1450	87	0.84	15	6	2	1.7	2.9	0.028	70
K21R 160 M4	K20R 132 M4	11	72	1450	88.4	0.85	21	6.8	2.2	1.9	3.3	0.035	92
K21R 160 L4	K20R 160 S4	15	98	1465	89.4	0.86	28	7.3	2.5	2	3	0.078	120
K21R 180 M4	K20R 160 M4	18.5	121	1460	90	0.86	34.5	6.8	2.5	2	2.9	0.09	136
K21R 180 L4	K20R 180 S4	22	143	1465	90.5	0.84	42	6.5	2	1.8	2.6	0.138	170
K21R 200 L4	K20R 180 M4	30	196	1465	91.5	0.85	55.5	7	2	1.7	2.4	0.168	200
K21R 225 S4	K20R 200 M4	37	240	1470	92.5	0.86	67	7	2	1.7	2.5	0.275	270
K21R 225 M4	K20R 200 L4	45	292	1470	93	0.86	81	7	2	1.7	2.5	0.313	300
K21R 250 M4	K20R 225 M4	55	356	1475	93.5	0.86	98.5	7	2.2	1.7	2.3	0.525	375
K21R 280 S4	K20R 250 S4	75	484	1480	94.1	0.86	134	7	2	1.7	2.2	0.95	520
K21R 280 M4	K20R 250 M4	90	581	1480	94.6	0.86	160	7	2.1	1.6	2.2	1.1	580
K21R 315 S4	K20R 280 S4	110	707	1485	95.1	0.86	194	7.5	1.8	1.6	2.2	1.96	740
K21R 315 M4	K20R 280 M4	132	849	1485	95.1	0.86	233	7	1.8	1.5	2.2	2.27	840
K21R 315 MX4	K20R 315 S4	160	1032	1480	95	0.87	279	7	1.8	1.5	2	2.73	1000
K21R 315 MY4	K20R 315 M4	200	1286	1485	96	0.88	342	7.5	2	1.8	2.4	4.82	1200
K21R 315 L4	K20R 315 L4	250	1608	1485	96.1	0.9	417	8	2	1.6	2.3	5.93	1510
K21R 315 LX4	K20R 315 LX4	315	2019	1490	96.5	0.88	535	8.6	1.9	1.5	2.5	6.82	1630
K22R 355 MY4		315	2016	1492	95.6	0.85	560	7.1	1.4	1	2.9	5.6	1950
K22R 355 M4		355	2275	1490	96.8	0.84	630	8.1	1.8	1	3.1	7.9	2150
K22R 355 MX4		400	2557	1494	96.8	0.84	710	8.6	1.3	1	3	9.5	2400
K22R 355 LY4		450	2884	1490	96.8	0.82	818	8	1.2	1	3	10	2500
K22R 355 L4		500	3205	1490	96.7	0.79	945	7.9	1.1	1	3	10	2500



**Motor selection data**

Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			I <sub>0</sub> kW	I <sub>max</sub> 400 V A	M <sub>max</sub> Nm	n <sub>max</sub> rpm	n <sub>maxFU</sub> rpm
		P <sub>50 Hz</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:2.5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:10</sub>	i <sub>B</sub>	M <sub>B</sub>					
		kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm					
Synchronous speed 1500 rpm – 4-pole version																		
K210 56 K4		0.06	0.24	0.41												0.8	12000	2610
K21R 56 G4		0.09	0.31	0.63												1	12000	2610
K21R 63 K4	K20R 56 K4	0.12	0.44	0.84	0.1		0.66	0.06		0.41	0.05		0.32			1.4	12000	2610
K21R 63 G4	K20R 56 G4	0.18	0.65	1.27	0.14		1.01	0.09		0.62	0.07		0.49			2.2	12000	2610
K21R 71 K4	K20R 63 K4	0.25	0.78	1.76	0.19		1.38	0.13		0.91	0.1		0.67			2.7	11000	2610
K21R 71 G4	K20R 63 G4	0.37	1.06	2.62	0.29		2.1	0.19		1.36	0.14		1.01			4.3	11000	2610
K21R 80 K4	K20R 71 K4	0.55	1.6	3.7	0.44		3	0.35		2.4	0.2		1.36			6.6	11000	2610
K21R 80 G4	K20R 71 G4	0.75	2.1	5.1	0.6		4.1	0.49		3.3	0.27		1.88			9	11000	2610
K21R 90 S4	K20R 80 K4	1.1	2.62	7.5	0.88		5.9	0.7		4.7	0.44		3			14	9000	2610
K21R 90 L4	K20R 80 G4	1.5	3.4	10.2	1.2		8	0.94		6.4	0.6		4.1			20	9000	2610
K21R 100 L4	K20R 90 L4	2.2	4.95	14.9	1.76		11.9	1.39		9.4	1		6.8			30	8000	2610
K21R 100 LX4	K20R 100 S4	3	6.65	19.8	2.4		15.8	2.2		14.4	1.68		11.3			44	6000	2610
K21R 112 M4	K20R 100 L4	4	8.8	26.6	3.2		21.3	3		19.4	2.3		15.3			65	6000	2610
K21R 112 MX4	K20R 100 LX4	5.5	11.8	36.90	5.2		35.1	4.4		29.6	3.4		22.7			82	6000	2610
K21R 132 S4T	K20R 100 LX4	5.5	11.8	36.90	4.2		28.1	3.5		23.7	2.7		18.2			82	6000	2610
K21R 132 S4	K20R 112 M4	5.5	10.5	36.5	5.5	10.5	36.5	5.5	9.2	36.5	5.1	8.4	34	5.1	25	76	3600	2610
K21R 132 M4	K20R 132 S4	7.5	15	49.4	7.5	15	49.4	6.6	13	43.5	6.3	12.6	41.5	7	34	100	3600	2610
K21R 160 M4	K20R 132 M4	11	21	72	11	21	72.7	9.4	18	62	8.3	15.9	55	9.8	52	160	3600	2610
K21R 160 L4	K20R 160 S4	15	28	98	15	28	98.5	14.2	26.5	93	12.7	23.8	83.5	12	63	200	3600	2610
K21R 180 M4	K20R 160 M4	18	33.5	118	18	33.5	118	16	29.8	105	14.5	27	95	14	76	240	3000	2610
K21R 180 L4	K20R 180 S4	22	42	143	22	42	144	20	38.2	130	17	32.5	113	20	84	260	3000	2610
K21R 200 L4	K20R 180 M4	29	53.65	190	29	54	190	26	48.1	170	23	42.6	150	20	100	320	3000	2610
K21R 225 S4	K20R 200 M4	37	67	240	37	67	240	36	65.2	231	32	58	209	23	129	420	3000	2610
K21R 225 M4	K20R 200 L4	45	81	292	45	81	293	43	77.4	278	38	68.4	248	27	156	510	3000	2610
K21R 250 M4	K20R 225 M4	55	98.5	356	55	98.5	357	52	93.1	340	47	84.5	305	28	174	570	3000	2610
K21R 280 S4	K20R 250 S4	75	134	484	75	134	486	74	132	476	67	120	432	30	226	740	3000	2610
K21R 280 M4	K20R 250 M4	90	160	581	90	160	583	88	157	570	80	143	520	43	270	890	3000	2610
K21R 315 S4	K20R 280 S4	110	194	707	110	194	710	110	194	710	110	194	710	53	326	1080	3000	2610
K21R 315 M4	K20R 280 M4	132	233	849	132	233	852	132	233	852	132	233	852	59	393	1300	3000	2610
K21R 315 MX4	K20R 315 S4	160	279	1032	160	279	1029	160	279	1029	145	253	930	67	429	1440	3000	2610
K21R 315 MY4	K20R 315 M4	200	342	1286	200	342	1286	200	342	1286	192	328	1235	79	632	2160	3000	2610
K21R 315 L4	K20R 315 L4	250	417	1608	250	417	1608	250	417	1608	239	399	1540	100	737	2580	3000	2610
K21R 315 LX4	K20R 315 LX4	285	484	1833	277	470	1780	277	470	1780	264	448	1700	130	1029	3530	3000	2610
K22R 355 MY4		315	560	2016	315	560	2018	315	560	2018	293	521	1879		1250	4090	3000	2610
K22R 355 M4		355	630	2275	355	630	2275	355	630	2275	328	582	2100		1502	4930	3000	2610
K22R 355 MX4		390	692	2500	390	692	2500	390	692	2500	368	653	2358		1638	5360	3000	2610
K22R 355 LY4		430	782	2756	430	782	2755	413	782	2650	390	709	2500		1888	6050	3000	2610
K22R 355 L4		410	775	2628	410	775	2628	394	775	2528	390	737	2500		2180	6720	3000	2610

**Three-phase motors with squirrel-cage rotor**  
**Standard insulation for converter-fed operation without filter up to 420 V**



with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data												Design point 400 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>	cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>R</sub> /M <sub>B</sub>	J	m
		(IEC/EN 60034-2)			400 V								
		kW	Nm	rpm	%	-	A	-	-	-	-	kgm <sup>2</sup>	kg
Synchronous speed 1000 rpm – 6-pole version													
K21R 63 K6	K20R 56 K6	0.09	0.96	895	50.5	0.56	0.46	2.5	2	2	2.4	0.00024	4.9
K21R 63 G6	K20R 56 G6	0.12	1.3	880	52	0.56	0.59	2.5	2	2	2.3	0.00027	5.7
K21R 71 K6	K20R 63 K6	0.18	1.86	925	58	0.51	0.88	2.8	1.6	1.6	2.1	0.00045	7.4
K21R 71 G6	K20R 63 G6	0.25	2.61	915	60	0.55	1.1	2.9	2	2	2.21	0.0006	8.3
K21R 80 K6	K20R 71 K6	0.37	3.86	915	66	0.66	1.22	3.4	2	2	2	0.0013	11
K21R 80 G6	K20R 71 G6	0.55	5.7	915	68	0.67	1.73	3.7	2.2	2.2	2.4	0.00175	12.5
K21R 90 S6	K20R 80 K6	0.75	7.7	935	70	0.64	2.43	4.5	2.4	2.4	2.6	0.00325	16
K21R 90 L6	K20R 80 G6	1.1	11.2	935	73	0.69	3.15	4.6	2.2	2.2	2.6	0.00425	19
K21R 100 L6	K20R 90 L6	1.5	15.2	945	76.4	0.73	3.9	4.6	2.1	2	2.4	0.00625	24
K21R 112 M6	K20R 100 L6	2.2	22.1	950	79.8	0.74	5.35	5.3	2.2	2.1	2.7	0.01225	33.5
K21R 132 S6T	K20R 100 LX6	3	30.6	935	81.9	0.75	7.05	5.2	2.5	2.5	2.9	0.0139	39
K21R 132 S6	K20R 112 M6	3	30	955	78.5	0.82	6.7	5.7	1.8	1.6	2.7	0.018	46
K21R 132 M6	K20R 112 MX6	4	40	955	80	0.8	9	6	2.2	2	3.1	0.023	53
K21R 132 MX6	K20R 132 S6	5.5	55	955	83	0.83	11.5	5	1.8	1.5	2.3	0.043	70
K21R 160 M6	K20R 132 M6	7.5	75	960	85	0.82	15.5	5.5	2	1.6	2.5	0.053	86
K21R 160 L6	K20R 160 S6	11	109	965	85.2	0.86	21.5	5	2	1.7	2.3	0.113	114
K21R 180 L6	K20R 160 M6	15	148	965	86	0.83	30.5	6	2.4	2.1	2.7	0.145	136
K21R 200 L6	K20R 180 S6	18.5	182	970	88.1	0.87	35	5.5	2	1.7	2.4	0.228	175
K21R 200 LX6	K20R 180 M6	22	217	970	88.8	0.87	41	6.2	2.2	1.8	2.6	0.268	200
K21R 225 M6	K20R 200 M6	30	294	973	90.4	0.89	54	6.5	2.2	1.7	2.5	0.443	265
K21R 250 M6	K20R 225 M6	37	362	975	91	0.89	66	6.5	2.2	1.7	2.3	0.825	360
K21R 280 S6	K20R 250 S6	45	439	980	92	0.87	81	6	2	1.5	2	1.28	465
K21R 280 M6	K20R 250 M6	55	536	980	92.5	0.88	97.5	6.5	2.3	1.7	2.4	1.48	520
K21R 315 S6	K20R 280 S6	75	727	985	93.7	0.87	133	7	2	1.6	2.4	2.63	690
K21R 315 M6	K20R 280 M6	90	868	990	94.4	0.88	156	7	2	1.7	2.4	3.33	800
K21R 315 MX6	K20R 315 S6	110	1061	990	94	0.88	192	7.5	2.2	1.7	2.6	3.6	880
K21R 315 MY6	K20R 315 M6	132	1273	990	95	0.88	228	7.5	2	1.7	2.4	6	1050
K21R 315 L6	K20R 315 L6	160	1551	985	95.3	0.89	272	7.5	2.3	1.9	2.4	6.67	1250
K21R 315 LX6	K20R 315 LX6	200	1929	990	95	0.87	349	8.3	2.2	2	2.7	8.6	1460
K22R 355 MY6		200	1920	995	96.1	0.83	362	7	1.5	1.3	2.4	8.1	1550
K22R 355 M6		250	2402	994	96	0.81	464	7	1.8	1.3	2.3	8.2	1650
K22R 355 MX6		315	3023	995	96.5	0.83	568	6.8	1.6	1.3	2.5	12.1	2200
K22R 355 LY6		355	3407	995	96	0.78	684	7.4	1.9	1.4	2.6	14	2400

**Motor selection data**

Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			I <sub>0</sub> kW	I <sub>max</sub> A	M <sub>max</sub> Nm	n <sub>max</sub> rpm	n <sub>maxFU</sub> rpm
		P <sub>50 Hz</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:2.5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:10</sub>	i <sub>B</sub>	M <sub>B</sub>					
		kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm					
Synchronous speed 1000 rpm – 6-pole version																		
K21R 63 K6	K20R 56 K6	0.09	0.46	0.98	0.06		0.7	0.06		0.57	0.04	0.45			1.7	12000	1740	
K21R 63 G6	K20R 56 G6	0.12	0.59	1.31	0.09		0.94	0.07		0.77	0.06	0.61			2.3	12000	1740	
K21R 71 K6	K20R 63 K6	0.16	0.88	1.66	0.12		1.28	0.08		0.85	0.06	0.6			3	11000	1740	
K21R 71 G6	K20R 63 G6	0.22	1.1	2.3	0.17		1.78	0.11		1.19	0.08	0.84			4.4	11000	1740	
K21R 80 K6	K20R 71 K6	0.37	1.22	3.9	0.28		2.9	0.18		1.94	0.14	1.5			5.9	10000	1740	
K21R 80 G6	K20R 71 G6	0.55	1.73	5.8	0.42		4.4	0.27		2.9	0.22	2.3			10	10000	1740	
K21R 90 S6	K20R 80 K6	0.75	2.43	7.6	0.52		5.3	0.4		4.1	0.31	3.2			15	9000	1740	
K21R 90 L6	K20R 80 G6	1.1	3.15	11.3	0.72		7.8	0.59		6.1	0.46	4.7			22	9000	1740	
K21R 100 L6	K20R 90 L6	1.5	3.9	15.3	1.2		12.2	0.96		10	0.76	7.7			27	8000	1740	
K21R 112 M6	K20R 100 L6	2.2	5.35	22.3	1.76		17.9	1.44		14.8	1.12	11.5			45	6000	1740	
K21R 132 S6T	K20R 100 LX6	3	7.05	30.8	2.4		24.6	2		20.2	1.6	16.3			68	6000	1740	
K21R 132 S6	K20R 112 M6	3	6.7	30.8	3	6.7	30.8	3	6.3	30.8	3	30.8	4.3	13.8	56	2400	1740	
K21R 132 M6	K20R 112 MX6	4	9	40.6	4	9	40.6	4	8.3	40.6	4	40.6	5.9	22	86	2400	1740	
K21R 132 MX6	K20R 132 S6	5.5	11.5	55	5.5	11.5	55.9	5.1	10.7	51.4	4.3	9	44	5.9	88	2400	1740	
K21R 160 M6	K20R 132 M6	7.5	15.5	75	7.5	15.5	75.8	6.9	14.3	70	5.9	12.2	60	8.5	130	2400	1740	
K21R 160 L6	K20R 160 S6	11	21.5	109	11	21.5	111	10	19.5	101	9.4	18.4	94	9.5	37	170	2400	1740
K21R 180 L6	K20R 160 M6	15	30.5	148	15	30.5	148	13.6	27.7	135	12.6	25.6	125	17	64	280	2000	1740
K21R 200 L6	K20R 180 S6	18.5	35	182	18	34	183	17	32.5	169	16	30.5	157	13.5	64	300	2000	1740
K21R 200 LX6	K20R 180 M6	22	41	217	22	41	218	20	37.5	200	19	35.5	188	16	82	390	2000	1740
K21R 225 M6	K20R 200 M6	30	54	294	30	54	295	30	54	295	29	52.5	286	18	103	510	2000	1740
K21R 250 M6	K20R 225 M6	37	66	362	37	66	362	37	66	362	36	64.5	350	24	117	580	2000	1740
K21R 280 S6	K20R 250 S6	45	81	439	45	81	441	45	81	441	45	81	441	24.5	124	610	2000	1740
K21R 280 M6	K20R 250 M6	55	97.5	536	55	97.5	539	55	97.5	539	55	97.5	539	32	181	900	2000	1740
K21R 315 S6	K20R 280 S6	75	133	727	75	133	731	75	133	731	75	133	731	42	246	1220	2000	1740
K21R 315 M6	K20R 280 M6	90	156	868	90	156	873	90	156	873	90	156	873	47.5	287	1450	2000	1740
K21R 315 MX6	K20R 315 S6	110	192	1061	110	192	1066	107	187	1040	100	175	970	62	385	1930	2000	1740
K21R 315 MY6	K20R 315 M6	132	228	1273	132	228	1280	132	228	1280	132	228	1280	66.5	420	2130	2000	1740
K21R 315 L6	K20R 315 L6	160	272	1551	160	272	1551	160	272	1551	160	272	1551	80	502	2600	2000	1740
K21R 315 LX6	K20R 315 LX6	185	323	1794	185	323	1794	185	323	1794	175	305	1700	115	725	3640	2000	1740
K22R 355 MY6		200	362	1920	200	362	1929	200	362	1929	185	335	1780		668	3220	2000	1740
K22R 355 M6		250	464	2402	250	464	2412	250	464	2412	238	442	2300		821	3860	2000	1740
K22R 355 MX6		300	541	2894	300	541	2894	300	541	2894	298	537	2870		1094	5290	2000	1740
K22R 355 LY6		315	607	3023	315	607	3023	315	607	3023	315	607	3023		1370	6200	2000	1740

**Three-phase motors with squirrel-cage rotor**  
**Standard insulation for converter-fed operation without filter up to 420 V**



with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data												Design point 400 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>	cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>M</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>R</sub> /M <sub>B</sub>	J	m
		(IEC/EN 60034-2)			400 V							kgm <sup>2</sup>	kg
		kW	Nm	rpm	%	-	A	-	-	-	-		
Synchronous speed 750 rpm – 8-pole version													
K21R 71 K8	K20R 63 K8	0.09	1.27	675	45.5	0.51	0.56	2.1	1.9	1.9	2.1	0.0005	6.6
K21R 71 G8	K20R 63 G8	0.12	1.71	670	46.5	0.51	0.73	2.3	1.8	1.8	2.1	0.0006	8.1
K21R 80 K8	K20R 71 K8	0.18	2.49	690	56.5	0.59	0.78	2.8	2	2	2.2	0.0013	10.5
K21R 80 G8	K20R 71 G8	0.25	3.44	695	58	0.56	1.12	3	2.3	2.3	2.5	0.00175	12
K21R 90 S8	K20R 80 K8	0.37	5	700	61.5	0.54	1.6	3	1.9	1.9	2.1	0.003	15
K21R 90 L8	K20R 80 G8	0.55	7.6	695	64.5	0.6	2.04	3.2	1.9	1.9	2.2	0.00375	18
K21R 100 L8	K20R 90 L8	0.75	10.2	705	63	0.6	2.9	3.3	1.8	1.8	2.2	0.00625	23
K21R 100 LX8	K20R 100 S8	1.1	14.9	705	73	0.67	3.25	4	2	2	2.4	0.009	28
K21R 112 M8	K20R 100 L8	1.5	20.3	705	75.5	0.7	4.1	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	0.68	6.3	3.8	2	1.9	2.3	0.0139	39
K21R 132 S8	K20R 112 M8	2.2	29.8	705	75.5	0.76	5.5	4.5	1.7	1.6	2.3	0.018	46
K21R 132 M8	K20R 112 MX8	3	40.6	705	78	0.75	7.4	4.5	1.7	1.6	2.3	0.023	53
K21R 160 M8	K20R 132 S8	4	53.8	710	79.3	0.78	9.3	4	1.6	1.3	1.9	0.043	70
K21R 160 MX8	K20R 132 M8	5.5	74	710	81.4	0.78	12.5	4.5	1.7	1.6	2.1	0.053	86
K21R 160 L8	K20R 160 S8	7.5	99	725	83	0.78	16.5	4.5	1.8	1.6	2.1	0.113	114
K21R 180 L8	K20R 160 M8	11	146	720	85	0.78	24	4.5	2	1.7	2.1	0.145	136
K21R 200 L8	K20R 180 S8	15	198	725	86.5	0.79	31.5	5	2	1.7	2.3	0.228	175
	K20R 180 M8	18.5	244	725	87.5	0.8	38	5	1.9	1.7	2.2	0.268	200
K21R 225 S8		18.5	244	725	89.2	0.83	36	5.5	2	1.6	2.2	0.44	265
K21R 225 M8	K20R 200 M8	22	290	725	89.2	0.84	42.5	5	1.8	1.5	2.2	0.44	265
K21R 250 M8	K20R 225 M8	30	392	730	90.2	0.79	61	5.5	2.2	1.8	2.2	0.825	360
K21R 280 S8	K20R 250 S8	37	481	735	91	0.8	73.5	5.5	2	1.5	2	1.35	465
K21R 280 M8	K20R 250 M8	45	585	735	91.5	0.77	92	6	2.3	1.8	2.4	1.55	520
K21R 315 S8	K20R 280 S8	55	710	740	93.1	0.8	107	6.5	1.8	1.6	2.3	2.63	690
K21R 315 M8	K20R 280 M8	75	968	740	93.3	0.81	143	6	2	1.6	2.3	3.33	800
K21R 315 MX8	K20R 315 S8	90	1161	740	93.5	0.81	172	6	1.9	1.6	2.2	3.6	880
K21R 315 MY8	K20R 315 M8	110	1420	740	94.6	0.81	207	6.5	2.1	1.8	2.4	6	1100
K21R 315 L8	K20R 315 L8	132	1704	740	95	0.83	242	6.3	2	1.7	2.1	6.76	1250
K21R 315 LX8	K20R 315 LX8	160	2065	740	95.2	0.79	307	7.2	2.2	1.9	2.5	8.71	1430
K22R 355 MY8		160	2054	744	95.2	0.8	303	6.8	1.3	1	2.5	9.3	1500
K22R 355 M8		200	2571	743	95.6	0.77	392	6.5	1.6	1	2.7	9.5	1600
K22R 355 MX8		250	3209	744	95.8	0.78	483	6.6	1.3	1	2.8	13.4	2200
K22R 355 LY8		280	3594	744	95.3	0.78	544	8.2	1.2	1	2.8	15.8	2400

**Motor selection data**

Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			I <sub>0</sub> kW	I <sub>max</sub> A	M <sub>max</sub> Nm	n <sub>max</sub> rpm	n <sub>maxFU</sub> rpm
		P <sub>50 Hz</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:2.5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:10</sub>	i <sub>B</sub>	M <sub>B</sub>					
		400 V kW	400 V A	400 V Nm	400 V kW	400 V A	400 V Nm	400 V kW	400 V A	400 V Nm	400 V kW	400 V A	400 V Nm					
<b>Synchronous speed 750 rpm – 8-pole version</b>																		
K21R 71 K8	K20R 63 K8	0.09	0.56	1.31	0.06		0.89	0.03		0.52	0.02		0.32			2	11000	1305
K21R 71 G8	K20R 63 G8	0.12	0.73	1.76	0.08		1.21	0.05		0.7	0.03		0.43			2.7	11000	1305
K21R 80 K8	K20R 71 K8	0.18	0.78	2.47	0.14		1.92	0.12		1.68	0.09		1.16			4.2	10000	1305
K21R 80 G8	K20R 71 G8	0.25	1.12	3.46	0.2		2.7	0.18		2.5	0.12		1.66			6.6	10000	1305
K21R 90 S8	K20R 80 K8	0.37	1.6	5	0.29		3.9	0.19		2.6	0.15		2.1			8.1	9000	1305
K21R 90 L8	K20R 80 G8	0.55	2.04	7.6	0.43		6	0.3		4.1	0.23		3.2			12	9000	1305
K21R 100 L8	K20R 90 L8	0.75	2.9	10.3	0.56		7.7	0.39		5.4	0.29		4			17	8000	1305
K21R 100 LX8	K20R 100 S8	1.1	3.25	15.3	0.88		12.2	0.69		9.6	0.48		6.7			27	6000	1305
K21R 112 M8	K20R 100 L8	1.5	4.1	20.8	1.2		16.6	0.96		13.2	0.66		9.2			39	6000	1305
K21R 132 S8T	K20R 100 LX8	2.1	6.3	29.5	1.28		18.2	1.04		15	0.84		11.8			54	6000	1305
K21R 132 S8	K20R 112 M8	2.2	5.5	30	2.2	5.5	30	2.2	4.75	30	2.09	4.1	28.5	4	9.6	47	1800	1305
K21R 132 M8	K20R 112 MX8	3	7.4	40.9	3	7.4	40.9	3	6.4	40.9	2.85	5.4	38.8	5.1	13.1	65	1800	1305
K21R 160 M8	K20R 132 S8	4	9.3	53.8	4	9.3	54.6	3.6	8.4	48.6	3.2	7.4	43.7	5	13.5	71	1800	1305
K21R 160 MX8	K20R 132 M8	5.5	12.5	74	5.5	12.5	75	4.9	11.1	67	4.4	10	60	8	18.6	100	1800	1305
K21R 160 L8	K20R 160 S8	7.5	16.5	99	7.5	16.5	102	6.6	14.5	89.8	6.2	13.6	83.6	10	26	140	1800	1305
K21R 180 L8	K20R 160 M8	11	24	146	11	24	147	9.7	21.2	130	9	19.6	120	14	38	210	1500	1305
K21R 200 L8	K20R 180 S8	15	31.5	198	14	29.4	184	12.6	26.5	168	11.4	23.9	152	18	55	310	1500	1305
	K20R 180 M8	18.5	38	244	17	35	225	15.3	31.4	205	13.9	28.6	185	18	64	370	1500	1305
K21R 225 S8		18.5	36	244	17	33.1	225	15.6	30.4	205	14	27.2	185	16	61	370	1500	1305
K21R 225 M8	K20R 200 M8	22	42.5	290	20	38.6	264	18.3	35.4	241	16.5	31.9	217	20	71	440	1500	1305
K21R 250 M8	K20R 225 M8	30	61	392	30	61	392	29	59	380	26	52.9	345	31	103	600	1500	1305
K21R 280 S8	K20R 250 S8	37	73.5	481	37	73.5	481	37	73.5	481	37	73.5	481	35	113	670	1500	1305
K21R 280 M8	K20R 250 M8	45	92	585	45	92	585	45	92	585	45	92	585	44	170	980	1500	1305
K21R 315 S8	K20R 280 S8	55	107	710	55	107	710	55	107	710	55	107	710	46	190	1140	1500	1305
K21R 315 M8	K20R 280 M8	75	143	968	75	143	968	75	143	968	75	143	968	62	252	1550	1500	1305
K21R 315 MX8	K20R 315 S8	90	172	1161	90	172	1169	90	172	1169	85	162	1100	81	290	1780	1500	1305
K21R 315 MY8	K20R 315 M8	110	207	1420	110	207	1429	110	207	1429	106	199	1373	86	382	2380	1500	1305
K21R 315 L8	K20R 315 L8	132	242	1704	132	242	1715	132	242	1715	127	233	1650	90	391	2500	1500	1305
K21R 315 LX8	K20R 315 LX8	145	278	1871	145	278	1871	145	278	1871	145	278	1871	140	591	3610	1500	1305
K22R 355 MY8		160	303	2054	160	303	2051	160	303	2051	153	290	1960		583	3590	1500	1305
K22R 355 M8		200	392	2571	200	392	2564	200	392	2564	184	361	2360		814	4850	1500	1305
K22R 355 MX8		225	435	2884	225	435	2884	225	435	2884	225	435	2884		1040	6280	1500	1305
K22R 355 LY8		230	447	2948	230	447	2948	230	447	2948	230	447	2948		1173	7040	1500	1305

**Three-phase motors with squirrel-cage rotor, Premium Efficiency IE3 for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data													Design point 400 V, 50 Hz			
Type	P <sub>B</sub> M <sub>B</sub> Converter		P <sub>B</sub> Mains	n <sub>B</sub> rpm	η <sub>B</sub> (IEC/EN 60034-2)			cosφ <sub>B</sub>	I <sub>B</sub> 400 V A	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>2</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J kgm <sup>2</sup>	m kg	
	kW	Nm			100 %	75 %	50 %									
Synchronous speed 3000 rpm – 2-pole version																
IE3-WU1R 56 G2	0.12	0.4	0.12	2830	IE3-	60.8	59.4	55.9	0.77	0.32	4.5	2.1	2.1	2.3	0.00013	4.5
IE3-WU2R 80 K2	0.18	0.6	0.18	2790	IE3-	65.9	63.1	58.8	0.76	0.51	4.1	1.9	1.9	2.2	0.00013	4.9
IE3-WU1R 63 G2	0.25	0.9	0.25	2825	IE3-	69.7	70.1	67.1	0.83	0.58	4.9	2.4	2.2	2.7	0.00025	6.3
IE3-WU2R 71 K2	0.37	1.2	0.37	2840	IE3-	73.8	74.1	71.7	0.82	0.83	5.8	2.8	2.7	3.2	0.00032	7.6
IE3-WU1R 71 G2	0.55	1.8	0.55	2870	IE3-	77.8	77.5	74.4	0.79	1.23	6.3	2.9	2.9	3.5	0.00057	10
IE3-WU2R 80 K2	0.75	2.50	0.75	2870	IE3-	80.7	80.7	78.2	0.81	1.65	6.4	2.6	2.6	3.5	0.00072	11.5
IE3-WU1R 80 GY2	1.1	3.66	1.1	2870	IE3-	82.7	83.8	82.6	0.86	2.22	7.0	2.8	2.7	3.4	0.00132	15
IE3-WU2R 90 S2	1.5	4.94	1.5	2900	IE3-	84.2	85.4	83.2	0.81	3.12	7.9	3.5	3.5	4.4	0.0017	19
IE3-WU1R 90 LY2	2.2	7.30	2.2	2880	IE3-	85.9	85.7	83.9	0.88	4.25	8.0	2.5	2.3	2.9	0.00275	23.5
IE3-WU1R 100 LY2	3	9.81	3	2920	IE3-	87.1	88	86.3	0.82	6.0	7.7	2.3	2.2	3.5	0.0045	31
IE3-WU1R 112 MY2	4	13.10	4	2920	IE3-	88.1	87.5	86.9	0.84	7.9	8.3	2.3	2.1	3.3	0.0055	38
IE3-WU1R 132 S2T	5.5	18.0	5.5	2925	IE3-	89.2	89.4	87.7	0.80	11.1	8.3	2.6	2.5	3.8	0.0068	48
IE3-WU0R 112 M2	4	13.0	4	2930	IE3-	89.2	89.2	87.9	0.87	7.4	6.9	1.5	1.2	2.9	0.011	60
IE3-WU1R 132 S2	5.5	18.0	5.5	2930	IE3-	89.2	88.6	87.0	0.84	10.5	7.7	1.9	1.3	3.5	0.011	65
IE3-WU1R 132 SX2	7.5	24.0	7.5	2925	IE3-	90.1	89.4	87.9	0.87	14.0	8.0	2.5	2.1	3.3	0.0168	75
IE3-WU1R 160 M2	11	36.0	11	2950	IE3-	91.4	91.7	90.5	0.90	19.5	8.0	2.2	1.8	3.2	0.0575	125
IE3-WU1R 160 MX2	15	49.0	15	2950	IE3-	91.9	92.0	91.3	0.91	26.0	7.9	2.2	1.7	3.1	0.0675	145
IE3-WU1R 160 L2	18.5	60.0	18.5	2960	IE3-	92.4	92.5	91.4	0.90	32.0	9.2	2.6	2.1	3.6	0.078	160
IE3-WU1R 180 M2C	22	71	22	2975	IE3-	92.7	92.6	91.5	0.91	37.5	8.9	1.9	1.4	3.3	0.1717	214
IE3-WU1R 200 L2	30	97	30	2965	IE3-	93.3	92.2	90.6	0.88	52.5	8.6	2.1	1.6	3.3	0.36	305
IE3-WU1R 200 LX2C	37	119	37	2980	IE3-	93.7	92.9	91.7	0.89	64.0	8.7	1.7	1.3	3.2	0.4757	310
IE3-WU1R 225 M2	45	145	45	2960	IE3-	94.0	93.7	93.0	0.89	77.5	8.8	2.3	1.9	3.2	0.375	375
IE3-WU1R 250 M2	55	177	55	2970	IE3-	94.6	94.4	93.6	0.91	92	8.9	2.2	1.9	3.2	0.65	510
IE3-WU1R 280 S2	75	241	75	2967	IE3-	94.7	94.5	93.9	0.89	128	8.1	1.9	1.9	2.8	0.65	500
IE3-WU1R 280 M2	85	273	90	2970	IE3-	95	94.5	94	0.90	152	8.4	2.2	1.8	3.1	0.675	545
IE3-WU1R 315 S2	110	354	110	2970	IE3-	95.2	94.5	93.5	0.89	187	10.0	1.9	1.7	3.0	1.21	750
IE3-WU1R 315 M2	132	423	132	2980	IE3-	95.4	95.0	94.5	0.89	224	10.0	2.0	1.8	3.0	1.44	815
IE3-WU2R 315 MX2	160	513	160	2980	IE3-	95.7	95.7	95.0	0.9	268	8.5	2.3	1.7	2.6	2.37	1095
IE3-WU1R 315 MY2	192	615	200	2980	IE3-	95.8	95.9	95.5	0.91	331	8.3	2.6	1.6	2.4	2.82	1200
IE3-WU1R 315 L2	220	704	250	2985	IE3-	96.0	96.0	95.9	0.92	409	8.4	2.5	1.4	2.3	3.66	1460
IE3-WU1R 315 LX2	270	864	315	2985	IE3-	95.8	95.8	95.8	0.92	516	8.5	2.8	1.6	2.5	4.43	1700
IE3-WU1R 355 M2	330	1056	355	2985	IE3-	96.0	96.0	96.0	0.92	580	7.7	1.9	1.5	3.8	4.20	2000
IE3-WU2R 355 MX2	355	1135	400	2988	IE3-	96.0	96.0	96.0	0.92	654	8.5	1.8	1.1	2.5	5.50	2275
IE3-WU2R 355 L2	370	1182	500	2990	IE3-	96.2	96.2	96.2	0.90	834	11.0	2.2	1.4	3.2	7.10	2445
IE3-WU2R 400 M2	450	1435	560	2995	IE3-	96.0	96.0	95.5	0.83	1014	9.0	2.8		3.0	8.44	3000
IE3-WU2R 400 MX2	500	1596	630	2992	IE3-	96.0	96.0	95.5	0.91	1041	9.5	2.5		2.7	9.41	3200
IE3-WU2R 400 L2	580	1856	710	2985	IE3-	96.0	96.0	95.5	0.90	1186	7.7	2.2	1.1	2.8	10.41	3450

### Three-phase motors with squirrel-cage rotor, Premium Efficiency IE3 for converter-fed operation without filter up to 500 V

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data													Design point 400 V, 50 Hz			
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	n <sub>B</sub>	IE3-	η <sub>B</sub> (IEC/EN 60034-2)			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>2</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m
	Converter kW	Nm	Mains kW	rpm		100 %	75 %	50 %	-	A	-	-	-	-	kgm <sup>2</sup>	kg
Synchronous speed 1500 rpm – 4-pole version																
IE3-WU2R 63 K4	0.12	0.8	0.12	1365	IE3-	64.8	64.5	59.7	0.72	0.37	3.2	1.9	1.8	2.2	0.00024	5.2
IE3-WU1R 63 G4	0.18	1.2	0.18	1415	IE3-	69.9	67.2	61.2	0.67	0.55	4.4	1.8	1.8	2.7	0.0005	7.1
IE3-WU2R 71 K4	0.25	1.7	0.25	1395	IE3-	73.5	71.2	66.7	0.70	0.72	3.9	2.1	2.1	2.5	0.0005	7.8
IE3-WU1R 71 GY4	0.37	2.5	0.37	1425	IE3-	77.3	76.8	73	0.69	1	4.9	2.4	2.4	3	0.00087	9.9
IE3-WU1R 80 K4	0.55	3.7	0.55	1430	IE3-	80.8	81	80.1	0.80	1.25	6	2.4	2.3	2.7	0.00207	14.5
IE3-WU1R 80 G4	0.75	4.96	0.75	1445	IE3-	82.5	82.3	79.6	0.77	1.70	7.0	3.1	3.1	3.7	0.0026	17.0
IE3-WU1R 90 SY4	1.1	7.30	1.1	1440	IE3-	84.1	82.6	79.7	0.76	2.5	6.7	2.8	2.7	3.7	0.004	22.5
IE3-WU1R 90 L4	1.5	9.91	1.5	1445	IE3-	85.3	83.2	80.7	0.77	3.35	7.2	3.2	3.0	3.5	0.0045	28
IE3-WU1R 100 LY4	2.2	14.4	2.2	1455	IE3-	86.7	85.2	81.7	0.77	4.80	9.3	3.2	3.0	3.6	0.009	36
IE3-WU1R 100 LX4	3	19.7	3	1455	IE3-	87.7	86.3	84.5	0.77	6.50	9.0	3.3	3.1	3.9	0.011	45
IE3-WU1R 112 M4	4	26	4	1470	IE3-	89.9	89.8	88.4	0.83	7.7	9.5	2.8	2.4	4.5	0.02	65
IE3-WU1R 132 S4	5.5	35	5.5	1480	IE3-	91.0	90.2	87.8	0.73	12.0	9.9	3.4	2.8	5.4	0.035	90
IE3-WU1R 132 M4	7.5	49	7.5	1475	IE3-	91.3	91.3	90.1	0.83	14.5	8.6	2.4	2.0	3.9	0.043	100
IE3-WU1R 160 M4	11	71	11	1475	IE3-	91.5	91.5	90.5	0.83	21.0	7.5	2.5	2.0	3.2	0.078	125
IE3-WU1R 160 L4C	15	96	15	1490	IE3-	92.8	92.5	91.0	0.83	28.0	10.5	2.8	2.4	3.9	0.1567	175
IE3-WU1R 180 M4	18.5	120	18.5	1475	IE3-	92.7	92.9	92.0	0.84	34.5	6.9	1.9	1.7	3.0	0.168	210
IE3-WU1R 180 L4	22	142	22	1480	IE3-	93.0	93.0	92.1	0.84	40.5	7.6	2.2	2.0	3.2	0.203	240
IE3-WU1R 200 L4C	30	193	30	1485	IE3-	93.6	93.2	92.4	0.85	54.5	7.0	1.6	1.4	2.6	0.411	327
IE3-WU1R 225 S4C	37	237	37	1490	IE3-	93.9	93.8	93.2	0.85	67.0	7.4	1.9	1.4	2.7	0.4675	367
IE3-WU1R 225 M4	45	290	45	1482	IE3-	94.2	94.3	94.0	0.82	84	8.1	2.6	2.1	2.6	0.619	450
IE3-WU1R 250 M4	55	354	55	1485	IE3-	94.7	94.8	94.4	0.83	101	8.1	2.1	1.8	2.5	0.95	550
IE3-WU1R 280 S4	75	482	75	1485	IE3-	95.0	94.6	94.2	0.83	137	8.2	2.1	1.8	2.5	1.1	617
IE3-WU1R 280 M4	90	578	90	1487	IE3-	95.2	94.7	94.0	0.83	164	9.5	1.9	1.7	2.6	1.96	785
IE3-WU1R 315 S4	110	706	110	1487	IE3-	95.4	95.0	94.3	0.82	203	9.5	1.9	1.7	2.7	1.96	760
IE3-WU1R 315 M4	132	849	132	1485	IE3-	95.6	95.4	95.0	0.83	240	9.0	2.2	1.9	2.7	2.27	850
IE3-WU1R 315 MX4	160	1026	160	1490	IE3-	95.8	95.8	95.5	0.84	287	9.5	2.1	2.0	3.2	4.01	1120
IE3-WU1R 315 MY4	200	1282	200	1490	IE3-	96.0	95.8	95.5	0.87	346	9.5	2.1	1.7	2.7	4.82	1250
IE3-WU1R 315 L4	250	1602	250	1490	IE3-	96.2	96.2	96.0	0.87	431	9.4	2.2	1.8	2.7	5.93	1450
IE3-WU1R 315 LX4	285	1827	315	1490	IE3-	96.0	96.0	96.0	0.87	544	9.5	2.3	1.7	2.9	6.82	1630
IE3-WU1R 355 M 4	355	2271	355	1493	IE3-	96.2	96.2	95.5	0.87	612	8.1	1.3	1.0	2.7	7.90	2150
IE3-WU2R 355 MX4	390	2500	400	1490		96.2	96.2	96.2	0.84	714	8.2	1.7	1.4	2.4	9.50	2410
IE3-WU2R 355 L4	480	3077	500	1490		96.4	96.4	96.0	0.84	891	7.4	2.5	1.2	2.3	10.00	2500
IE3-WU2R 400 M4	500	3198	560	1493		96.3	96.3	96.0	0.87	965	10.5	2.0		2.5	12.60	2900
IE3-WU2R 400 MX4	580	3707	630	1494		96.5	96.5	96.0	0.86	1096	10.0	3.1		3.3	14.33	3100
IE3-WU2R 400 L4	650	4158	710	1493		96.5	96.5	96.5	0.86	1235	11.4	4.1		3.8	16.29	3400

**Three-phase motors with squirrel-cage rotor, Premium Efficiency IE3 for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data													Design point 400 V, 50 Hz			
Type	P <sub>B</sub> M <sub>B</sub> Converter		P <sub>B</sub> Mains	n <sub>B</sub> rpm	IE3-	η <sub>B</sub> (IEC/EN 60034-2)			cosφ <sub>B</sub>	I <sub>B</sub> 400 V A	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>2</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J kgm <sup>2</sup>	m kg
	kW	Nm				100 %	75 %	50 %								
Synchronous speed 1000 rpm – 6-pole version																
IE3-WU1R 63 G6	0.12	1.23	0.12	930	IE3-	57.7	60.0	54	0.56	0.5	2.8	1.9	1.8	2.1	0.00045	6.7
IE3-WU2R 71 KY6	0.18	1.89	0.18	910	IE3-	63.9	62.0	56.5	0.55	0.75	2.9	1.7	1.7	2.1	0.0006	8.3
IE3-WU1R 71 GY6	0.25	2.54	0.25	940	IE3-	68.6	65.3	58.5	0.63	0.84	4	2.2	2.2	2.9	0.0013	10
IE3-WU1R 80 K6	0.37	3.72	0.37	950	IE3-	73.5	72.9	69.2	0.7	1.03	4	1.9	1.9	2.4	0.00325	15
IE3-WU1R 80 G6	0.55	5.53	0.55	950	IE3-	77.2	75.9	72.4	0.69	1.5	4.1	2.1	2.1	2.5	0.00425	18
IE3-WU1R 90 SY6	0.75	7.50	0.75	955	IE3-	78.9	78.3	75.1	0.71	1.95	4.9	2.4	2.3	2.6	0.00625	24
IE3-WU1R 90 L6	1.1	11.00	1.1	955	IE3-	81.0	81.0	78.5	0.72	2.75	5.4	2.5	2.4	2.8	0.0072	30
IE3-WU1R 100 LX6	1.5	15.00	1.5	955	IE3-	82.5	83.5	81.5	0.76	3.45	5.9	2.3	2.2	2.8	0.0139	36
IE3-WU1R 112 MV6	2.2	22.00	2.2	955	IE3-	84.3	83.6	80.9	0.74	5.15	5.7	2.4	2.3	2.9	0.0155	48
IE3-WU1R 112 M6	2.2	***	2.2	***	IE3-	84.3	***	***	***	***	***	***	***	***	***	***
IE3-WU1R 132 S6	3	30.0	3	965	IE3-	86.3	86.7	85.6	0.82	6.1	6.2	2.0	1.3	3.1	0.029	70
IE3-WU1R 132 M6	4	40.0	4	965	IE3-	86.8	87.0	86.0	0.80	8.3	4.8	1.7	1.4	2.4	0.043	75
IE3-WU1R 132 MX6	5.5	54.0	5.5	970	IE3-	88.6	88.6	87.2	0.80	11.0	6.0	2.1	1.7	3.0	0.053	105
IE3-WU1R 160 M6	7.5	73.0	7.5	980	IE3-	90.2	90.0	88.3	0.83	14.5	6.4	2.4	2.0	3.0	0.145	145
IE3-WU1R 160 L6C	11	107.0	11	985	IE3-	91.4	91.2	89.8	0.85	20.5	6.8	2.2	2	2.8	0.166	168
IE3-WU1R 180 L6C	15	145.0	15	985	IE3-	91.2	91.3	90.2	0.87	27.5	6.8	2	1.7	2.7	0.3396	214
IE3-WU1R 200 L6	18.5	180.0	18.5	980	IE3-	91.8	91.7	90.5	0.87	33.5	7.2	2.3	2	3	0.514	310
IE3-WU1R 200 LX6C	22	213.0	22	985	IE3-	92.2	91.5	90	0.87	39.5	7.6	2.1	1.7	2.9	0.6476	321
IE3-WU1R 225 M6	30	291	30	984	IE3-	92.9	92.2	91.0	0.84	55.5	7.2	2.7	2.2	2.9	0.92	400
IE3-WU1R 250 M6	37	359	37	985	IE3-	93.3	93.2	92.3	0.86	66.5	7.1	2.8	2.0	2.7	1.48	545
IE3-WU1R 280 S6	45	434	45	990	IE3-	93.7	93.0	91.5	0.86	80.5	8.5	2.1	1.8	2.8	2.63	695
IE3-WU1R 280 M6	55	531	55	990	IE3-	94.2	94.1	93.1	0.85	99	9.0	2.2	1.8	3.1	3.33	815
IE3-WU2R 315 S6	75	723	75	990	IE3-	94.6	94.0	93.5	0.86	133	8.2	1.8	1.4	2.3	5.55	1060
IE3-WU1R 315 M6	90	868	90	990	IE3-	94.9	94.3	93.5	0.83	165	8.5	2.2	1.7	2.7	6	1140
IE3-WU1R 315 MX6	110	1.061	110	990	IE3-	95.1	95.0	94.5	0.86	194	8.5	2.5	1.7	2.7	6.67	1210
IE3-WU1R 315 L6	132	1.267	132	995	IE3-	95.4	95.0	94.5	0.87	230	9.0	2.8	2.0	3.2	8.6	1550
IE3-WU1R 355 M6	160	1.536	160	995	IE3-	95.6	95.6	95.2	0.86	281	7.5	1.6	1.3	2.4	8.2	1850
IE3-WU1R 355 MX6	200	1919	200	995	IE3-	95.8	95.5	95.0	0.86	350	9.0	1.9	1.7	2.7	12.10	2200
IE3-WU2R 355 MX6	200	1919	200	995	IE3-	95.8	95.5	95.0	0.84	359	9.6	2.2	1.7	2.8	12.10	2350
IE3-WU2R 355 LY 6	250	2399	250	995	IE3-	95.8	95.5	95.0	0.82	459	8.0	1.8	1.5	2.5	14.00	2450
IE3-WU2R 355 L6	315	3023	315	995	IE3-	95.8	96.0	95.7	0.84	565	7.8	2.0	1.5	2.2	14.00	2450
IE3-WU2R 400 MY6	355	3407	355	995	IE3-	96.0	96	95.8	0.83	643	7.5	1.2	1.2	2.1	16.54	3000
IE3-WU2R 400 M6	400	3839	400	995		96.2	96.2	96	0.83	723	8.0	1.5	1.3	2.5	16.54	3000
IE3-WU2R 400 MX6	450	4314	450	996		96.0	96	95.8	0.84	805	7.6	1.5	***	2.2	18.44	3100
IE3-WU2R 400 L6	500	4794	500	996		96.4	96.4	96.4	0.82	1023	7.5	1.7	***	2.2	20.63	3320

\*\*\* upon request



### Three-phase motors with squirrel-cage rotor, Premium Efficiency IE3 for converter-fed operation without filter up to 500 V

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data													Design point 400 V, 50 Hz			
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	n <sub>B</sub>	IE3-	η <sub>B</sub> (IEC/EN 60034-2)			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>2</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m
	Converter kW	Nm	Mains kW	rpm		100 %	75 %	50 %	-	A	-	-	-	-	kgm <sup>2</sup>	kg
Synchronous speed 750 rpm – 8-pole version																
IE3-WU1R 71 G8	0.12	1.67	0.12	685	IE3-	50.7	48.8	43	0.64	0.48	2.6	1.7	1.7	2	0.0013	9.9
IE3-WU2R 80 K8	0.18	2.53	0.18	680	IE3-	58.7	56.3	49.8	0.61	0.73	2.6	1.6	1.6	2	0.00175	12
IE3-WU1R 80 G8	0.25	3.39	0.25	705	IE3-	64.1	64.3	58.4	0.59	0.93	3	1.4	1.4	2.1	0.003	14
IE3-WU2R 90 SY8	0.37	5.01	0.37	705	IE3-	69.3	67	61.2	0.56	1.39	3.1	1.6	1.6	2.2	0.00375	18.5
IE3-WU1R 90 L8	0.55	7.50	0.55	700	IE3-	73.0	70.6	66.3	0.64	1.72	3.6	1.8	1.8	2.3	0.0072	26
IE3-WU1R 100 LY8	0.75	10.1	0.75	710	IE3-	75.0	74.1	70.0	0.64	2.21	4.2	2.0	2.0	2.7	0.009	28
IE3-WU1R 100 LV8	1.1	***	1.1	***	IE3-	77.7	***	***	***	***	***	***	***	***	0.009	35
IE3-WU1R 112 M8	1.5	20.5	1.5	700	IE3-	79.7	78.7	76	0.65	4.25	3.8	1.6	1.5	2.1	0.0155	48
IE3-WU1R 132 S8	2.2	29	2.2	725	IE3-	84.4	84.5	82.4	0.7	5.4	4.1	1.6	1.5	2.3	0.043	80
IE3-WU1R 132 M8	3	40	3	720	IE3-	83.5	83.5	81.4	0.72	7	3.9	1.6	1.4	2.1	0.043	74
IE3-WU1R 160 M8	4	52	4	735	IE3-	87	86.7	83.8	0.71	9.4	5.4	2.5	2.2	2.9	0.113	119
IE3-WU1R 160 MX8	5.5	72	5.5	730	IE3-	87.5	87.5	85.6	0.73	12.5	4.7	1.9	1.7	2.5	0.145	143
IE3-WU1R 160 L8	7.5	98	7.5	730	IE3-	87.9	87.6	85.6	0.73	17	5.1	2.1	1.8	2.7	0.166	155
IE3-WU1R 180 L8	11	143	11	733	IE3-	89.3	89	87.1	0.75	23.5	5.4	2.1	1.9	2.8	0.228	175
IE3-WU1R 200 L8	15	196	15	730	IE3-	89.6	90	89	0.80	30	5.3	1.8	1.7	2.5	0.324	235
IE3-WU1R 225 S8	18.5	242	18.5	730	IE3-	90.1	***	***	***	***	***	***	***	***	0.514	310
IE3-WU1R 225 M8	22	286	22	735	IE3-	91.5	91.6	90.6	0.79	44	5.7	2.3	2	2.5	0.825	360
IE3-WU1R 250 M8	30	391	30	732	IE3-	91.3	91.9	91.4	0.81	58.5	5.4	2	1.8	2.3	0.92	420
IE3-WU1R 280 S8	37	479	37	738	IE3-	92	92	90.8	0.78	74.5	5.9	2.3	1.8	2.4	1.55	555
IE3-WU1R 280 M8	45	581	45	740	IE3-	93	93	92.4	0.78	89.5	6.5	1.7	1.5	2.4	2.63	700
IE3-WU2R 315 S8	55	708	55	742	IE3-	93.3	93.3	92.4	0.78	109	7.0	1.9	1.7	2.5	3.33	805
IE3-WU1R 315 M8	75	742	75	965	IE3-	93.8	94.2	93.8	0.81	142	7.0	1.9	1.7	2.3	5.55	1120
IE3-WU1R 315 MX8	90	1157	90	743	IE3-	94.3	94.4	93.6	0.8	172	7.9	2.4	2.0	2.7	6	1185
IE3-WU1R 315 MY8	110	1419	110	740	IE3-	93.8	94.0	93.8	0.82	206	6.5	1.9	1.5	2.1	6.76	1250
IE3-WU1R 315 L8	132	1703	132	740	IE3-	94.2	94.2	93.5	0.8	253	8.0	2.4	1.9	2.7	8.71	1450
IE3-WU1R 355 MY8	145	1859	145	745	IE3-	94.3	94.3	94.0	0.82	299	6.6	1.2	1.0	2.6	9.3	1700
IE3-WU1R 355 M8	180	2307	180	745	IE3-	94.7	94.9	94.2	0.81	376	7.0	1.0	1.0	2.7	9.5	1890
IE3-WU2R 355 MX8	220	2820	220	745	IE3-	94.6	94.4	93.5	0.68	561	5.2	1.4	1.3	2.0	13.40	2300
IE3-WU2R 355 L8	250	3204	250	745	IE3-	95.0	95.0	95.0	0.73	656	5.7	2.0	1.5	2.2	15.80	2450
IE3-WU2R 355 LX8	315	4048	315	743	IE3-	94.6	***	***	***	***	***	***	***	***	15.80	2400
IE3-WU2R 400 M8	315	4038	355	745	IE3-	95.0	95.0	95.0	0.74	729	6.5	1.5	1.3	1.8	17.94	2800
IE3-WU2R 400 MX8	355	4550	400	745	IE3-	95.6	95.5	95.0	0.69	875	5.6	1.3	1.0	2.0	19.99	3170
IE3-WU2R 400 L8	400	5127	450	745	IE3-	95.0	95.0	95.0	0.74	924	6.0	1.5	1.3	1.8	22.34	3320

\*\*\* upon request

**Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 500 V**



with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data														Design point 400 V, 50 Hz		
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m	
	Converter kW	Nm	Mains kW	rpm	(IEC/EN 60034-2) 100 % 75 % 50 %			-	400 V A	-	-	-	-	kgm <sup>2</sup>	kg	
<b>Synchronous speed 3000 rpm – 2-pole version</b>																
IE2-WU2R 56 G2	0.12	0.40	0.12	2830	IE2-	53.6	69.6	60.8	0.77	0.32	4.5	2.1	2.1	2.3	0.00013	4.5
IE2-WU2R 63 K2	0.18	0.62	0.18	2790	IE2-	60.4	63.1	57.6	0.76	0.51	4.1	1.9	1.9	2.2	0.00013	4.9
IE2-WU2R 63 G2	0.25	0.86	0.25	2775	IE2-	64.8	66.7	61.9	0.8	0.67	4.2	1.9	1.9	2.2	0.00015	5.2
IE2-WU2R 71 K2	0.37	1.28	0.37	2750	IE2-	69.5	70.8	69.4	0.84	0.89	4.6	1.8	1.8	2.1	0.00025	6.7
IE2-WU2R 71 G2	0.55	1.89	0.55	2775	IE2-	74.1	75.0	72	0.81	1.32	5.1	2.3	2.1	2.6	0.00032	7.6
IE2-WU2R 80 K2	0.75	2.54	0.75	2825	IE2-	77.4	77.1	72.9	0.81	1.72	5.9	2.4	2.4	2.4	0.00057	10.7
IE2-WU2R 80 G2	1.1	3.75	1.1	2805	IE2-	79.6	78.7	76.4	0.85	2.36	5.6	1.9	1.8	2.2	0.00072	11.5
IE2-WU2R 90 S2	1.5	4.99	1.5	2870	IE2-	81.3	82.0	79.4	0.8	3.30	6.6	3.2	3.2	3.7	0.00132	16
IE2-WU2R 90 L2	2.2	7.37	2.2	2850	IE2-	83.2	81.5	***)	0.85	4.55	7.5	2.8	2.3	2.9	0.0017	19.0
IE2-WU2R 100 LY2	3	9.97	3	2875	IE2-	84.6	85.1	83.6	0.85	6	7.4	2.6	2.3	3.3	0.0045	28.5
IE2-WU1R 112 M2	4	13.20	4	2900	IE2-	85.8	86.3	***)	0.81	8.4	7	2.2	2.1	2.9	0.0045	32.0
IE2-WU1R 132 SY2T	5.5	18.20	5.5	2890	IE2-	87.0	86.6	***)	0.84	11	7.5	2.4	2.2	3	0.0055	40.0
IE2-WU1R 132 SX2T	7.5	24.90	7.5	2880	IE2-	88.1	88.0	***)	0.84	14.8	6.3	1.5	1.2	2.6	0.0068	48.0
IE2-WU1R 132 S2	5.5	18.0	5.5	2915	IE2-	88.7	88.7	87.8	0.85	10.5	6.8	1.9	1.5	3.0	0.0110	57
IE2-WU1R 132 SX2	7.5	24.5	7.5	2920	IE2-	89.0	89.6	88.8	0.89	13.5	6.7	2	1.7	2.9	0.0168	75
IE2-WU1R 160 M2	11.0	35.7	11.0	2940	IE2-	91.0	91.7	91.3	0.89	19.5	6.5	1.7	1.4	2.4	0.0258	125
IE2-WU1R 160 MX2	15.0	48.8	15.0	2935	IE2-	90.6	91.3	91.1	0.91	26.5	6.7	1.8	1.5	2.6	0.0675	140
IE2-WU1R 160 L2	18.5	60.2	18.5	2935	IE2-	90.9	91.9	92.1	0.90	32.5	7.2	2	1.6	2.8	0.0675	140
IE2-WU1R 180 M2	22	71	22	2940	IE2-	91.6	91.6	92.3	0.90	38.5	6.4	1.6	1.3	2.5	0.105	173
IE2-WU1R 200 L2	30	97	30	2950	IE2-	92.5	93.2	92.9	0.90	52	7.1	1.9	1.6	3	0.128	210
IE2-WU1R 200 LX2	37	120	37	2945	IE2-	92.5	92.5	92.5	0.91	64	7.2	1.9	1.5	2.7	0.154	233
IE2-WU2R 200 LX2	37	120	37	2955	IE2-	92.9	93.2	92.5	0.90	64	8.1	2.3	1.8	3.3	0.154	233
IE2-WU1R 225 M2	45	146	45	2950	IE2-	92.9	92.2	91.2	0.87	80.5	6.9	1.7	1.1	2.7	0.220	295
IE2-WU1R 250 M2	55	178	55	2956	IE2-	93.2	93.6	92.6	0.89	95.5	7.6	1.9	1.5	2.6	0.375	385
IE2-WU1R 280 S2	74	238	74	2970	IE2-	94.1	94.0	91.5	0.90	126	8.1	2.1	1.8	3.1	0.65	500
IE2-WU1R 280 M2	87	280	87	2970	IE2-	94.4	94.1	91.9	0.91	146	7.7	2	1.7	2.8	0.68	550
IE2-WU1R 315 S2	110	353	110	2975	IE2-	94.5	94.3	93.3	0.89	189	8.0	1.3	1.2	2.4	1.21	730
IE2-WU1R 315 M2	132	424	132	2975	IE2-	95.0	94.8	94.5	0.89	225	9.2	1.4	1.2	2.4	1.44	820
IE2-WU1R 315 MX2	160	514	160	2973	IE2-	94.8	94.8	94.8	0.89	274	8.2	1.3	1.3	2.4	1.76	955
IE2-WU1R 315 MY2	200	640	200	2983	IE2-	95.4	95.0	94.3	0.88	344	9.4	2.8	2.0	3.0	2.82	1200
IE2-WU1R 315 L2	220	704	250	2984	IE2-	95.4	95.4	95.4	0.92	411	9.0	2.3	1.2	2.3	3.66	1450
IE2-WU1R 315 LX2	270	864	315	2985	IE2-	95.4	95.4	95.0	0.92	518	8.5	2.8	1.6	2.5	4.43	1700
IE2-WU2R 355 M2	330	1056	355	2985	IE2-	95.5	95.5	95.5	0.92	583	7.7	1.9	1.5	3.8	4.20	2000
IE2-WU2R 355 MX2	355	1134	400	2990	IE2-	95.5	95.5	95.5	0.91	664	9.4	1.8	1.0	3.0	4.50	2200
IE2-WU2R 355 LY2	425	1360	450	2985	IE2-	95.5	95.5	95.5	0.92	739	7.0	1.3	0.9	2.4	7.10	2400
IE2-WU2R 355 L2	425	1360	500	2985	IE2-	95.5	95.5	95.5	0.92	821	8.5	1.5	1.2	2.5	7.10	2400

\*\*\*) upon request

### Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 500 V

**IE2** EU REGULATION 640/2009  
USE WITH VARIABLE SPEED DRIVE ONLY!

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data													Design point 400 V, 50 Hz			
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub>			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m	
	Converter kW	Nm	Mains kW	rpm	(IEC/EN 60034-2) 100 % 75 % 50 %			-	400 V A	-	-	-	-	kgm <sup>2</sup>	kg	
Synchronous speed 1500 rpm – 4-pole version																
IE2-WU2R 63 K4	0.12	0.83	0.12	1380	IE2-	59.1	55.7	46.8	0.69	0.45	2.8	1.6	1.6	2.1	0.00019	4.8
IE2-WU1R 63 GY4	0.18	1.23	0.18	1395	IE2-	64.7	66.3	61.3	0.72	0.54	3.5	1.7	1.7	2.2	0.0004	6.3
IE2-WU2R 71 K4	0.25	1.71	0.25	1395	IE2-	68.5	68.1	63.8	0.70	0.73	3.9	2.1	2.1	2.5	0.0005	7.8
IE2-WU1R 71 GY4	0.37	2.48	0.37	1425	IE2-	72.7	72.2	68.6	0.69	1.00	4.9	2.4	2.4	3.0	0.00087	9.9
IE2-WU2R 80 K4	0.55	3.71	0.55	1415	IE2-	77.1	77.1	73.9	0.72	1.42	4.9	2.6	2.5	2.8	0.00107	11.7
IE2-WU1R 80 GY4	0.75	5.01	0.75	1430	IE2-	79.6	78.0	74.7	0.80	1.73	5.7	2.2	2.2	3.1	0.00207	14.5
IE2-WU2R 90 S4	1.1	7.32	1.1	1435	IE2-	81.4	80.1	77.0	0.76	2.60	6.3	3.0	3.0	3.8	0.0028	18.5
IE2-WU1R 90 LW4	1.5	9.95	1.5	1440	IE2-	82.8	83.8	81.4	0.76	3.40	6.5	2.7	2.7	3.6	0.004	23
IE2-WU1R 100 S4	2.2	14.5	2.2	1445	IE2-	84.3	84.9	82.7	0.79	4.67	7.3	2.7	2.5	3.1	0.00725	30
IE2-WU1R 100 LW4	3.0	19.8	3.0	1445	IE2-	85.5	85.8	83.6	0.79	6.33	7.8	3.0	2.9	3.6	0.009	36
IE2-WU1R 112 MZ4	4.0	26.4	4.0	1445	IE2-	86.6	86.8	84.9	0.80	8.30	8.2	2.8	2.6	3.6	0.013	50
IE2-WU2R 315 SY4	5.5	36.2	5.5	1450	IE2-	87.7	87.7	86.4	0.84	10.80	8.0	2.5	2.3	3.8	0.015	***
IE2-WU1R 112 M4	4.0	26.2	4.0	1460	IE2-	87.6	88.0	86.9	0.86	7.6	8.3	2.6	2.3	3.9	0.017	56
IE2-WU2R 132 S4	5.5	35.9	5.5	1465	IE2-	87.7	87.1	84.7	0.79	11.3	9.3	3.0	2.8	4.9	0.020	64
IE2-WU1R 132 S4	5.5	35.9	5.5	1465	IE2-	87.7	87.7	86.2	0.86	10.5	6.6	2	1.6	2.8	0.035	87
IE2-WU1R 132 M4	7.5	48.7	7.5	1470	IE2-	88.8	88.8	87.3	0.81	15	7.9	2.3	1.8	3.6	0.035	88
IE2-WU1R 160 M4	11.0	71	11.0	1475	IE2-	89.8	89.5	87.9	0.83	21.5	7.8	2.7	2.1	3.2	0.078	122
IE2-WU2R 160 M4	11	71	11	1470	IE2-	90.3	90.3	88.9	0.78	22.5	7.8	2.4	2.1	3.9	0.043	105
IE2-WU1R 160 L4	15.0	97	15.0	1480	IE2-	92.0	92.0	90.6	0.84	28	9.1	3	2.5	3.9	0.115	160
IE2-WU2R 160 L4	15	97	15	1475	IE2-	91.2	91.5	90.6	0.83	28.5	8.5	3.3	2.5	3.6	0.115	161
IE2-WU1R 180 M4	18.5	120	18.5	1475	IE2-	91.9	92.2	91.4	0.84	34.5	7	2	1.7	2.9	0.168	207
IE2-WU2R 180 M4	18.5	120	18.5	1470	IE2-	91.2	90.6	89.3	0.78	37.5	6.4	2	1.6	2.8	0.138	176
IE2-WU1R 180 L4	22	142	22	1475	IE2-	91.8	91.7	90.4	0.80	43	7.5	2.3	2	3.3	0.168	215
IE2-WU1R 200 L4	30	194	30	1480	IE2-	92.3	91.8	90.6	0.79	59.5	7.2	2.1	1.8	3	0.275	277
IE2-WU1R 225 S4	37	240	37	1475	IE2-	92.7	92.8	91.0	0.82	70	7	2	1.7	2.7	0.313	313
IE2-WU1R 225 M4	45	290	45	1483	IE2-	93.1	93.0	91.1	0.84	83	7.9	2.3	1.9	2.4	0.525	390
IE2-WU1R 225 M4	45	291	45	1475	IE2-	93.1	92.9	92.1	0.80	87	7.6	2.6	1.9	3.1	0.356	346
IE2-WU1R 250 M4	55	354	55	1485	IE2-	94.0	94.1	92.5	0.84	101	8	2	1.7	2.3	0.95	535
IE2-WU2R 250 M4	55	356	55	1477	IE2-	93.9	93.8	93.7	0.82	103	7.5	2.4	1.9	2.4	0.62	435
IE2-WU1R 280 S4	75	482	75	1485	IE2-	94.2	94.4	92.1	0.84	137	7.2	1.8	1.6	2.1	0.95	550
IE2-WU1R 280 M4	90	580	90	1483	IE2-	94.3	94.5	94.0	0.84	164	7.6	1.8	1.6	2.3	1.10	610
IE2-WU1R 315 S4	110	707	110	1485	IE2-	94.8	94.8	94.0	0.82	204	8.5	1.8	1.5	2.7	1.96	760
IE2-WU1R 315 M4	132	849	132	1484	IE2-	95.0	95.0	94.5	0.83	242	8.2	1.8	1.6	2.3	2.27	850
IE2-WU1R 315 MX4	160	1031	160	1482	IE2-	95.0	95.0	94.5	0.84	289	7.4	1.6	1.4	2.2	2.73	975
IE2-WU1R 315 MY4	200	1282	200	1490	IE2-	95.1	95.1	94.5	0.87	349	8.5	1.8	1.6	2.5	4.82	1270
IE2-WU1R 315 L4	250	1602	250	1490	IE2-	95.4	95.4	95.3	0.88	430	9.0	2.2	1.5	2.7	5.93	1450
IE2-WU1R 315 LX4	285	1827	315	1490	IE2-	95.4	95.4	95.0	0.88	542	9.0	2.4	1.6	2.6	6.82	1630
IE2-WU2R 355 M4	355	2271	355	1493	IE2-	95.5	95.5	95.0	0.87	617	8.0	1.3	1.0	2.7	7.90	2150
IE2-WU2R 355 MX4	390	2493	400	1494	IE2-	95.5	95.5	95.5	0.88	687	8.5	1.3	1.0	3.0	9.50	2400
IE2-WU2R 355 LY4	430	2745	450	1496	IE2-	95.5	95.5	95.5	0.86	791	8.5	1.4	0.8	2.9	10.00	2500
IE2-WU2R 355 L4	430	2745	500	1496	IE2-	95.5	95.5	95.5	0.84	900	8.0	1.2	0.9	3.0	10.00	2500

\*\*\* upon request

**Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 500 V**



with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data													Design point 400 V, 50 Hz			
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	η <sub>B</sub>		η <sub>B</sub>			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m
	Converter		Mains	rpm		(IEC/EN 60034-2)			-	400 V	-	-	-	-	-	kgm <sup>2</sup>
Synchronous speed 1000 rpm – 6-pole version																
	kW	Nm	kW			100 %	75 %	50 %		A						
IE2-WU2R 63 G6	0.12	1.3	0.12	880	IE2-	50.6	48.0	***)	0.56	0.6	2.5	2.0	2.0	2.3	0.00027	5.7
IE2-WU2R 71 K6	0.18	1.9	0.18	920	IE2-	56.6	54.4	48.5	0.52	0.8	2.9	2.0	2.0	2.3	0.0006	8.3
IE2-WU2R 71 G6	0.25	2.6	0.25	915	IE2-	61.6	56.5	***)	0.55	1.1	2.9	2.0	2.0	2.2	0.0006	8.3
IE2-WU2R 80 K6	0.37	3.8	0.37	935	IE2-	67.6	68.5	63.3	0.65	1.17	3.7	2.1	2.1	2.6	0.00175	12.5
IE2-WU1R 80 GY6	0.55	5.6	0.55	945	IE2-	73.1	72.6	68.4	0.67	1.6	3.8	1.9	1.9	2.4	0.00325	15.0
IE2-WU2R 90 S6	0.75	7.6	0.75	945	IE2-	75.9	***)	***)	0.67	2.12	4.0	1.8	1.8	2.4	0.00425	19.0
IE2-WU1R 90 LW6	1.1	11.0	1.1	955	IE2-	78.1	78.0	75.1	0.69	2.95	4.7	2.5	2.4	2.8	0.00625	24.0
IE2-WU2R 100 L6	1.5	15.1	1.5	950	IE2-	79.8	80.4	77.6	0.7	3.85	5.1	2.5	2.4	3.0	0.0072	30.0
IE2-WU1R 112 MX6	2.2	21.9	2.2	960	IE2-	81.8	***)	***)	0.65	5.9	6.4	3.0	2.9	3.7	***)	37.0
IE2-WU1R 112 SX6T	3.0	30.0	3.0	955	IE2-	83.3	83.1	80.5	0.73	7.1	7.0	3.2	3.1	4.0	0.0165	52.0
IE2-WU1R 132 S6	3.0	29.8	3.0	963	IE2-	84.9	85.2	83.9	0.80	6.4	6.0	2.0	1.3	3.0	0.023	55
IE2-WU2R 132 M6	4	40	4	955	IE2-	85.1	86.0	85.2	0.82	8.3	5.7	2.1	2.0	2.9	0.029	66
IE2-WU1R 132 M6	4.0	39.6	4.0	965	IE2-	85.5	85.5	83.8	0.79	8.5	5.1	1.8	1.6	2.4	0.043	76
IE2-WU1R 132 MX6	5.5	54.1	5.5	970	IE2-	86.1	85.5	82.4	0.77	12	5.7	2.2	1.7	2.7	0.053	85
IE2-WU1R 160 M6	7.5	73	7.5	975	IE2-	87.4	88.1	86.0	0.81	15.5	6.3	2.5	2.1	2.9	0.113	118
IE2-WU2R 160 M6	7.5	74	7.5	970	IE2-	87.5	87.6	85.9	0.79	15.5	5.9	2.1	1.8	2.9	0.053	103
IE2-WU1R 160 L6	11.0	108	11.0	970	IE2-	88.7	87.9	86.3	0.85	21	5.8	2.2	1.9	2.7	0.145	135
IE2-WU2R 160 L6	11.0	108	11.0	975	IE2-	88.9	88.8	87.0	0.81	22	6.8	2.7	2.4	3.1	0.166	155
IE2-WU1R 180 L6	15.0	147	15.0	975	IE2-	89.7	88.8	86.7	0.84	28.5	6.2	2.1	1.8	2.8	0.228	185
IE2-WU2R 180 L6	15	148	15	970	IE2-	89.7	88.8	87.8	0.83	29	5.6	2.3	1.7	2.6	0.166	157
IE2-WU1R 200 L6	16.5	161	16.5	980	IE2-	90.9	88.0	85.9	0.81	32.5	7.3	2.7	2.4	3.4	0.268	208
IE2-WU1R 200 LX6	22	214	22	980	IE2-	90.9	90.2	88.5	0.86	40.5	6.4	2.2	1.8	2.7	0.443	272
IE2-WU2R 200 LX6	22	215	22	975	IE2-	90.9	89.9	88.5	0.84	41.5	6.7	2.4	2	3	0.324	238
IE2-WU1R 225 M6	30	291	30	985	IE2-	92.0	91.5	90.0	0.86	54.5	7.3	2.5	2.2	2.9	0.825	365
IE2-WU2R 225 M6	30	294	30	975	IE2-	91.7	91.4	90.6	0.87	54.5	6.7	2.3	1.9	2.8	0.514	308
IE2-WU1R 250 M6	37	359	37	985	IE2-	92.2	91.5	89.2	0.85	68	6.4	2.1	1.7	2.4	1.28	480
IE2-WU2R 250 M6	37	361	37	979	IE2-	92.2	92.3	91.8	0.86	67.5	6.6	2.7	2	2.6	0.92	407
IE2-WU1R 280 S6	45	437	45	983	IE2-	93.0	92.7	92.4	0.87	80.5	6.5	2.2	1.7	2.4	1.48	560
IE2-WU1R 280 M6	55	531	55	990	IE2-	93.6	93.5	93.0	0.85	100	7.6	2	1.5	2.5	2.63	710
IE2-WU1R 315 S6	75	723	75	990	IE2-	93.9	93.7	93.5	0.87	133	7.8	1.9	1.5	2.5	3.33	804
IE2-WU1R 315 M6	90	868	90	990	IE2-	94.0	94.0	93.5	0.88	157	7.5	1.8	1.5	2.5	3.60	865
IE2-WU1R 315 MX6	110	1061	110	990	IE2-	94.3	94.3	94.0	0.87	194	7.5	1.8	1.4	2.3	6.67	1210
IE2-WU1R 315 MY6	132	1273	132	990	IE2-	94.6	94.3	94.0	0.87	231	7.5	1.9	1.4	2.2	6.67	1250
IE2-WU1R 315 L6	160	1543	160	990	IE2-	94.8	94.5	93.5	0.88	277	7.5	2.0	1.5	2.4	8.60	1430
IE2-WU1R 315 LX6	185	1785	200	990	IE2-	95.0	95.0	94.5	0.86	353	7.0	1.9	1.5	2.2	8.60	1460
IE2-WU2R 355 M6	250	2402	250	994	IE2-	95.0	95.0	94.7	0.84	452	7.0	1.5	1.2	2.2	8.20	1850
IE2-WU2R 355 MX6	300	2879	315	995	IE2-	95.2	95.2	95.2	0.86	555	7.0	1.3	1.1	2.2	12.1	2200
IE2-WU2R 355 LY6	315	3023	355	995	IE2-	95.0	95.0	94.0	0.77	700	7.5	1.8	1.5	2.6	14.0	2400

\*\*\*) upon request

### Three-phase motors with squirrel-cage rotor, High Efficiency IE2 for converter-fed operation without filter up to 500 V

**IE2** EU REGULATION 640/2009  
USE WITH VARIABLE SPEED DRIVE ONLY!

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data													Design point 400 V, 50 Hz			
Type	P <sub>B</sub>	M <sub>B</sub>	P <sub>B</sub>	n <sub>B</sub>	IE2-	η <sub>B</sub> (IEC/EN 60034-2)			cosφ <sub>B</sub>	I <sub>B</sub>	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	J	m
	Converter kW	Nm	Mains kW	rpm		100 %	75 %	50 %	-	400 V A	-	-	-	-	kgm <sup>2</sup>	kg
Synchronous speed 750 rpm – 8-pole version																
IE2-WU2R 71 G8	0.1	1.7	0.1	670	IE2-	39.8	41.3	***)	0.51	0.73	2.30	1.80	1.80	2.10	0.0006	8
IE2-WU2R 80 K8	0.2	2.5	0.2	690	IE2-	45.9	53.8	***)	0.59	0.78	2.80	2.00	2.00	2.20	0.0013	11
IE2-WU2R 80 G8	0.3	3.4	0.3	695	IE2-	50.6	54.0	***)	0.56	1.12	3.00	2.30	2.30	2.50	0.00175	12
IE2-WU2R 90 S8	0.4	5.1	0.4	700	IE2-	56.1	56.3	***)	0.54	1.60	3.00	1.90	1.90	2.10	0.003	15
IE2-WU2R 90 L8	0.6	7.6	0.6	695	IE2-	61.7	61.8	***)	0.60	2.04	3.20	1.90	1.90	2.20	0.00375	18
IE2-WU2R 100 L8	0.8	10.2	0.8	705	IE2-	66.2	63.0	***)	0.60	2.90	3.30	1.80	1.80	2.20	0.00625	23
IE2-WU1R 100 LY8	1.1	14.9	1.1	705	IE2-	70.8	72.5	***)	0.67	3.25	4.00	2.00	2.00	2.40	0.009	28
IE2-WU1R 112 M8	1.5	20.3	1.5	705	IE2-	74.1	73.6	70.1	0.62	4.50	4.20	2.00	2.00	2.70	0.0139	37
IE2-WU1R 132 S8	2.2	29.2	2.2	720	IE2-	81.7	81.0	77.5	0.65	6	4.8	2.2	2.0	3.2	0.0180	55
IE2-WU2R 132 M8	3.0	40.4	3.0	710	IE2-	80.0	80.8	79.0	0.73	7.4	4.9	1.9	1.9	2.7	0.0290	65
IE2-WU1R 132 M8	3.0	39.8	3.0	720	IE2-	82.7	83.0	81.3	0.74	7.1	3.9	1.6	1.3	1.9	0.0430	74
IE2-WU1R 160 M8	4.0	53.2	4.0	718	IE2-	84.2	83.7	81.9	0.72	9.5	4.6	1.6	***)	2.5	0.0530	86
IE2-WU1R 160 MX8	5.5	72	5.5	730	IE2-	86.9	86.6	84.1	0.72	12.5	4.8	2.1	1.8	2.6	0.1130	115
IE2-WU2R 160 MX8	5.5	73	5.5	715	IE2-	83.9	84.0	81.9	0.71	13.5	4.3	1.7	1.5	2.5	0.0530	103
IE2-WU1R 160 L8	7.5	99	7.5	725	IE2-	86.9	87.6	86.6	0.76	16.5	4.5	1.8	1.6	2.3	0.1450	138
IE2-WU1R 180 L8	11.0	144	11.0	727	IE2-	88.2	88.2	86.7	0.78	23	4.9	1.8	1.6	2.4	0.2280	175
IE2-WU2R 180 L8	11	144	11	730	IE2-	87.9	87.4	85.2	0.67	25.5	4.3	1.9	1.6	2.3	0.1660	157
IE2-WU1R 200 L8	15.0	197	15.0	727	IE2-	88.2	88.1	86.4	0.77	32	4.9	1.9	1.7	2.3	0.2680	200
IE2-WU1R 225 S8	18.5	242	18.5	730	IE2-	89.6	89.4	87.2	0.78	38	5.4	2.1	2.0	2.8	0.440	265
IE2-WU2R 225 S8	18.5	240	18.5	735	IE2-	90.7	90.7	89.4	0.8	37	6.1	2.1	1.9	2.9	0.514	305
IE2-WU1R 225 M8	22	287	22	733	IE2-	90.6	89.4	89.9	0.78	45	5.6	2.2	1.8	2.6	0.825	380
IE2-WU2R 225 M8	22	286	22	735	IE2-	90.3	90.3	88.7	0.77	45.5	6.1	2.2	2.0	2.9	0.514	307
IE2-WU2R 250 M8	30	391	30	732	IE2-	91.5	91.7	90.9	0.77	61.5	5.6	2.3	2.0	2.5	0.950	405
IE2-WU1R 280 S8	37	479	37	737	IE2-	90.8	91.3	90.7	0.80	73.5	4.9	1.9	1.5	2.0	1.35	480
IE2-WU1R 280 M8	45	581	45	740	IE2-	91.8	91.8	90.7	0.77	92	5.8	2.3	1.8	2.5	1.55	535
IE2-WU1R 315 S8	55	710	55	740	IE2-	92.2	92.2	92.2	0.80	108	6.3	1.8	1.5	2.3	2.63	715
IE2-WU1R 315 M8	75	968	75	740	IE2-	92.7	92.5	92.5	0.81	144	6.0	2.1	1.4	2.1	3.33	805
IE2-WU1R 315 MX8	90	1161	90	740	IE2-	93.0	93.0	93.0	0.79	177	6.5	1.7	1.5	2.2	3.6	850
IE2-WU1R 315 MY8	110	1420	110	740	IE2-	93.4	93.4	93.4	0.82	207	6.5	1.8	1.6	2.2	6	1080
IE2-WU1R 315 L8	132	1704	132	740	IE2-	93.2	93.2	93.2	0.83	246	6.0	1.5	1.4	2.2	6.76	1250
IE2-WU1R 315 LX8	145	1871	160	740	IE2-	93.9	93.9	93.8	0.80	307	7.2	2.2	1.8	2.5	8.71	1430
IE2-WU2R 355 M8	200	2571	200	743	IE2-	94.5	94.1	91.5	0.77	397	***)	***)	***)	***)	9.5	1850
IE2-WU2R 355 MX8	225	2884	250	745	IE2-	94.0	94.0	94.0	0.83	463	7.0	1.2	1.0	2.6	13.4	2200
IE2-WU2R 355 LY8	230	2956	280	743	IE2-	94.3	94.3	94.3	0.78	549	7.2	1.3	1.0	2.7	15.8	2400

\*\*\*) upon request

**Three-phase motors with squirrel-cage rotor**  
**Special insulation for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data, mains-fed operation												Design point 500 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub> (IEC/EN 60034-2)	cosφ <sub>B</sub>	I <sub>B</sub> 500 V	I <sub>M</sub> /I <sub>B</sub>	M <sub>K</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>R</sub> /M <sub>B</sub>	J	m
		kW	Nm	rpm	%	-	A	-	-	-	-	kgm <sup>2</sup>	kg
Synchronous speed 3000 rpm – 2-pole version													
KU10 56 KU		0.09	0.3	2840	70	0.74	0.2	4.9	2.3	2.3	2.8	0.00013	4.4
KU1R 56 G2		0.12	0.4	2830	70.3	0.77	0.26	4.5	2.1	2.1	2.3	0.00013	4.5
KU1R 63 KU	KUOR 56 KU	0.18	0.62	2790	67	0.76	0.41	4.1	1.9	1.9	2.2	0.00013	4.9
KU1R 63 G2	KUOR 56 G2	0.25	0.85	2800	67.7	0.72	0.59	4.2	2.2	2.2	2.4	0.00015	5.2
KU1R 71 KU	KUOR 63 KU	0.37	1.27	2780	71.9	0.79	0.75	4.4	2.1	2.1	2.3	0.00025	6.7
KU1R 71 G2	KUOR 63 G2	0.55	1.89	2775	74.2	0.81	1.06	5.1	2.3	2.1	2.6	0.00032	7.6
KU1R 80 KU	KUOR 71 KU	0.75	2.54	2825	77.7	0.81	1.38	5.9	2.4	2.4	2.4	0.00057	10.7
KU1R 80 G2	KUOR 71 G2	1.1	3.71	2835	77.8	0.8	2.04	6	2.4	2.3	2.6	0.00072	11.5
KU1R 90 S2	KUOR 80 KU	1.5	5.04	2840	81.2	0.86	2.5	7	2.5	2.5	2.8	0.00132	16
KU1R 90 L2	KUOR 80 G2	2.2	7.37	2850	82.1	0.85	3.6	7.5	2.8	2.3	2.9	0.0017	19
KU1R 100 L2	KUOR 90 L2	3	10	2865	83.8	0.84	4.9	6.8	2.4	2.2	2.8	0.00275	25
KU1R 112 M2	KUOR 100 S2	4	13.2	2900	84.9	0.81	6.7	7	2.2	2.1	2.9	0.0045	32
KU1R 112 MX2	KUOR 100 L2	5.5	18.2	2890	85.9	0.84	8.8	7.5	2.4	2.2	3	0.0055	38
KU1R 132 S2T	KUOR 100 L2	5.5	18.2	2890	85.9	0.84	8.8	7.5	2.4	2.2	3	0.0055	40
KU1R 112 MV2	KUOR 100 LV2	7.5	24.9	2880	87.1	0.84	11.8	6.3	1.5	1.2	2.6	0.0068	46
KU1R 132 SX2T	KUOR 100 LV2	7.5	24.9	2880	87.1	0.84	11.8	6.3	1.5	1.2	2.6	0.0068	48
KU1R 132 S2	KUOR 112 MY2	5.5	18.4	2860	85.7	0.86	8.8	5.5	1.8	1.6	2.2	0.0081	52
KU1R 132 SX2	KUOR 112 M2	7.5	24.7	2900	87	0.86	11.6	6.6	1.8	1.3	2.5	0.011	57
KU1R 160 M2	KUOR 132 M2	11	36.2	2900	88.5	0.9	16	7	2.4	2	3	0.0258	81
KU1R 160 MX2	KUOR 160 S2	15	48.9	2930	89.4	0.9	21.6	7.1	2.2	1.7	2.9	0.0575	118
KU1R 160 L2	KUOR 160 M2	18.5	61	2920	90.5	0.92	25.6	7.2	2.1	1.6	2.8	0.0675	134
KU1R 180 M2	KUOR 180 S2	22	72	2935	91.8	0.92	30	6.8	1.7	1.4	2.6	0.105	165
KU1R 200 L2	KUOR 180 M2	30	97	2940	92.8	0.92	40.4	7.3	2	1.6	2.9	0.128	195
KU1R 200 LX2	KUOR 200 M2	37	120	2940	93	0.9	51.2	7	1.8	1.3	2.4	0.193	255
KU1R 225 M2	KUOR 200 L2	45	146	2940	93.7	0.91	60.8	7.5	1.8	1.4	2.7	0.22	290
KU1R 250 M2	KUOR 225 M2	55	178	2955	93.7	0.91	74.4	7.5	2	1.5	2.6	0.375	360
KU1R 280 S2	KUOR 250 S2	75	241	2970	94.6	0.92	99.2	7.5	2	1.6	2.6	0.65	490
KU1R 280 M2	KUOR 250 M2	90	289	2970	94.7	0.91	121	8.5	2.2	1.8	2.8	0.675	510
KU1R 315 S2	KUOR 280 S2	110	353	2975	95.4	0.91	146	8.5	1.5	1.3	2.5	1.21	720
KU1R 315 M2	KUOR 280 M2	132	424	2975	95.4	0.91	175	8.5	2	1.8	2.7	1.44	800
KU1R 315 MX2	KUOR 315 S2	160	514	2975	96	0.93	207	8.5	2	1.6	2.6	1.76	980
KU1R 315 MY2	KUOR 315 M2	200	643	2970	96	0.92	262	8.2	2.6	2	2.6	2.82	1170
KU1R 315 L2	KUOR 315 L2	250	803	2973	96.1	0.93	323	7.3	2.1	1.4	2	3.66	1460
KU1R 315 LX2	KUOR 315 LX2	315	1011	2975	96.7	0.92	409	7.4	2.4	1.4	2	4.43	1630
KU2R 355 MY2		315	1007	2988	96.8	0.88	427	8.6	1.25	1	3	4.1	1900
KU2R 355 M2		355	1138	2980	96.5	0.91	466	7.3	1.3	1	2.3	4.2	2000
KU2R 355 MX2		400	1280	2985	96.8	0.9	530	8.5	1.9	1.3	3.2	5.5	2200
KU2R 355 LY2		450	1441	2983	96.9	0.92	583	7.2	1.3	1	2.4	7.1	2400
KU2R 355 L2		500	1600	2985	97.2	0.92	646	8.2	1.75	0.9	2.6	7.1	2400

Motor selection data, converter-fed operation														Converter-fed operation 500 V				
Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			I <sub>0</sub>	I <sub>max</sub>	M <sub>max</sub>	n <sub>max</sub>	n <sub>maxFU</sub>
		P <sub>50 Hz</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:2.5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:10</sub>	i <sub>B</sub>	M <sub>B</sub>					
		500 V			500 V			500 V			500 V							
		kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	rpm	rpm
Synchronous speed 3000 rpm – 2-pole version																		
KU10 56 KU		0.09		0.3													15000	5220
KU1R 56 G2		0.12		0.4													15000	5220
KU1R 63 KU	KUOR 56 KU	0.18		0.62	0.14		0.5	0.1	0.34	0.09		0.3				1	15000	5220
KU1R 63 G2	KUOR 56 G2	0.25		0.86	0.2		0.69	0.14	0.49	0.12		0.42				1.5	15000	5220
KU1R 71 KU	KUOR 63 KU	0.37		1.28	0.3		1.02	0.22	0.74	0.19		0.66				2.2	14000	5220
KU1R 71 G2	KUOR 63 G2	0.55		1.91	0.44		1.52	0.32	1.12	0.29		1				3.7	14000	5220
KU1R 80 KU	KUOR 71 KU	0.75		2.5	0.59		2	0.43	1.44	0.34		1.2				4.6	13000	5220
KU1R 80 G2	KUOR 71 G2	1.1		3.7	0.88		3	0.64	2.2	0.51		1.76				7.4	13000	5220
KU1R 90 S2	KUOR 80 KU	1.5		5	1.2		4	0.96	3.2	0.72		2.4				10	11000	5220
KU1R 90 L2	KUOR 80 G2	2.2		7.4	1.76		5.9	1.44	4.7	1.07		3.6				16	11000	5220
KU1R 100 L2	KUOR 90 L2	3		10	2.4		8	2	6.6	1.52		5.2				21	10000	5220
KU1R 112 M2	KUOR 100 S2	4		13.2	3.2		10.6	2.8	9.4	2.2		7				29	7000	5220
KU1R 112 MX2	KUOR 100 L2	5.5		18.20	5.5		18.1	4.7	15.5	3.9		13				41	7000	5220
KU1R 132 S2T	KUOR 100 L2	5.5		18.2	4.4		14.5	3.8	12.4	3.1		10.4				41	7000	5220
KU1R 112 MV2	KUOR 100 LV2	7.5		25.00	7.5		24.9	6.5	21.7	5.4		17.9				49	7000	5220
KU1R 132 SX2T	KUOR 100 LV2	7.5		25	6		19.9	5.2	17.4	4.3		14.3				49	7000	5220
KU1R 132 S2	KUOR 112 MY2	5.2	8.3	17.2	5.2	8.3	17.2	5.1	16.9	4.7	6.2	15.5	5.3	14.8	28	7000	5220	
KU1R 132 SX2	KUOR 112 M2	7.5	11.6	24.8	7.5	11.3	24.8	7.5	11	24.8	6.6	9.3	21.8	5.9	22.4	43	7000	5220
KU1R 160 M2	KUOR 132 M2	10.5	15.6	35	10.5	15.6	35	10	14.6	33	8.4	12.2	28	6	37.6	76	6000	5220
KU1R 160 MX2	KUOR 160 S2	15	21.6	48.9	14.9	21.6	49	15	21.6	49.4	13.5	19.4	44.5	7.6	48.8	99	6000	5220
KU1R 160 L2	KUOR 160 M2	18.5	25.6	61	18.5	25.6	60.9	18.5	25.6	60.9	16.4	22.7	54	7.6	51.2	110	6000	5220
KU1R 180 M2	KUOR 180 S2	22	30	72	22	30	71.9	22	30	72.1	20.9	28.5	68.5	8.8	60	130	6000	5220
KU1R 200 L2	KUOR 180 M2	30	40.4	97	30	40.4	98	30	40.4	97.8	28.2	38	92	10.8	87.2	190	5000	5000
KU1R 200 LX2	KUOR 200 M2	37	51.2	120	37	51.2	120	37	51.2	120	35.4	49.2	115	14.5	94.4	200	5000	5000
KU1R 225 M2	KUOR 200 L2	45	60.8	146	45	60.8	146	45	60.8	146	42.2	57.2	137	18	124	270	5000	5000
KU1R 250 M2	KUOR 225 M2	55	74.4	178	55	74.4	178	55	74.4	178	51	69.2	165	23	148	320	4500	4500
KU1R 280 S2	KUOR 250 S2	74	98	238	74	98	238	74	98	238	69.5	92	224	30	195	430	4300	4300
KU1R 280 M2	KUOR 250 M2	87	117	280	87	117	280	87	117	280	80.7	108	260	36	258	560	4300	4300
KU1R 315 S2	KUOR 280 S2	110	146	353	110	146	354	110	146	354	110	146	354	36.5	278	610	3800	3800
KU1R 315 M2	KUOR 280 M2	132	175	424	132	175	424	132	175	424	132	175	424	40	364	800	3800	3800
KU1R 315 MX2	KUOR 315 S2	160	207	514	160	207	514	160	207	514	160	207	514	40	413	930	3600	3600
KU1R 315 MY2	KUOR 315 M2	192	251	616	192	251	616	192	251	616	192	251	616	65	524	1170	3600	3600
KU1R 315 L2	KUOR 315 L2	220	285	706	220	285	706	220	285	706	220	285	706	67	496	1120	3600	3600
KU1R 315 LX2	KUOR 315 LX2	270	350	867	270	350	867	270	350	867	270	350	867	50	627	1410	3600	3600
KU2R 355 MY2		315	427	1007	315	427	1007	315	427	1007	297	402	950		986	2110	3600	3600
KU2R 355 M2		330	434	1058	330	434	1057	330	434	1057	306	402	980		826	1830	3600	3600
KU2R 355 MX2		355	470	1138	355	470	1138	355	470	1138	355	470	1138		1304	2860	3600	3600
KU2R 355 LY2		380	496	1215	370	480	1186	370	480	1186	370	480	1186		1078	2420	3600	3600
KU2R 355 L2		425	560	1360	370	480	1186	370	480	1186	370	480	1186		1292	2910	3600	3600

**Three-phase motors with squirrel-cage rotor**  
**Special insulation for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data, mains-fed operation												Design point 500 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub> (IEC/EN 60034-2)	cosφ <sub>B</sub>	I <sub>B</sub> 500 V	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>R</sub> /M <sub>B</sub>	J	m
		kW	Nm	rpm	%	-	A	-	-	-	-	kgm <sup>2</sup>	kg
Synchronous speed 1500 rpm – 4-pole version													
KU10 56 K4		0.06	0.41	1410	60.1	0.6	0.19	3.1	2.3	2.3	2.7	0.00019	4.3
KU1R 56 G4		0.09	0.63	1375	61.6	0.68	0.25	3.2	1.9	1.9	2.2	0.00019	4.4
KU1R 63 K4	KUOR 56 K4	0.12	0.84	1370	57.9	0.68	0.35	3.2	1.9	1.8	2.2	0.00019	4.8
KU1R 63 G4	KUOR 56 G4	0.18	1.26	1360	60.6	0.66	0.52	3.3	2	2	2.3	0.00024	5.2
KU1R 71 K4	KUOR 63 K4	0.25	1.72	1385	64.3	0.72	0.62	3.6	1.8	1.8	2.1	0.0004	6.8
KU1R 71 G4	KUOR 63 G4	0.37	2.58	1370	68.1	0.74	0.85	3.8	2	2	2.2	0.0005	7.8
KU1R 80 K4	KUOR 71 K4	0.55	3.75	1400	71.9	0.69	1.3	4.1	2.1	2	2.3	0.00087	10.6
KU1R 80 G4	KUOR 71 G4	0.75	5.12	1400	73.6	0.7	1.7	4.6	2.2	2.1	2.3	0.00107	11.7
KU1R 90 S4	KUOR 80 K4	1.1	7.5	1410	76.7	0.79	2.1	5.5	2.3	2.2	2.5	0.00207	15.5
KU1R 90 L4	KUOR 80 G4	1.5	10.2	1400	78.6	0.81	2.7	5.5	2.5	2.4	2.6	0.0026	18
KU1R 100 L4	KUOR 90 L4	2.2	14.9	1410	81.2	0.79	4	6	2.5	2.3	2.7	0.004	23.5
KU1R 100 LX4	KUOR 100 S4	3	20	1430	82.4	0.79	5.3	6.5	2.5	2.2	2.9	0.00725	30
KU1R 112 M4	KUOR 100 L4	4	26.6	1435	84.1	0.78	7	6.9	2.6	2.5	3.2	0.009	37
KU1R 112 MX4	KUOR 100 LX4	5.5	36.9	1425	86.3	0.78	9.4	6.3	2.5	2.4	2.9	0.011	45
KU1R 132 S4T	KUOR 100 LX4	5.5	36.9	1425	86.3	0.78	9.4	6.3	2.5	2.4	2.9	0.011	47
KU1R 132 S4	KUOR 112 M4	5.5	36.5	1440	85.7	0.89	8.4	6.5	1.9	1.7	3	0.015	50
KU1R 132 M4	KUOR 132 S4	7.5	49.4	1450	87	0.84	12	6	2	1.7	2.9	0.028	70
KU1R 160 M4	KUOR 132 M4	11	72	1450	88.4	0.85	16.8	6.8	2.2	1.9	3.3	0.035	92
KU1R 160 L4	KUOR 160 S4	15	98	1465	89.4	0.86	22.4	7.3	2.5	2	3	0.078	120
KU1R 180 M4	KUOR 160 M4	18.5	121	1460	90	0.86	27.6	6.8	2.5	2	2.9	0.09	136
KU1R 180 L4	KUOR 180 S4	22	143	1465	90.5	0.84	33.6	6.5	2	1.8	2.6	0.138	170
KU1R 200 L4	KUOR 180 M4	30	196	1465	91.5	0.85	44.4	7	2	1.7	2.4	0.168	200
KU1R 225 S4	KUOR 200 M4	37	240	1470	92.5	0.86	53.6	7	2	1.7	2.5	0.275	270
KU1R 225 M4	KUOR 200 L4	45	292	1470	93	0.86	64.8	7	2	1.7	2.5	0.313	300
KU1R 250 M4	KUOR 225 M4	55	356	1475	93.5	0.86	78.8	7	2.2	1.7	2.3	0.525	375
KU1R 280 S4	KUOR 250 S4	75	484	1480	94.1	0.86	107	7	2	1.7	2.2	0.95	520
KU1R 280 M4	KUOR 250 M4	90	581	1480	94.6	0.86	128	7	2.1	1.6	2.2	1.1	580
KU1R 315 S4	KUOR 280 S4	110	707	1485	95.1	0.86	155	7.5	1.8	1.6	2.2	1.96	740
KU1R 315 M4	KUOR 280 M4	132	849	1485	95.1	0.86	186	7	1.8	1.5	2.2	2.27	840
KU1R 315 MX4	KUOR 315 S4	160	1032	1480	95	0.87	223	7	1.8	1.5	2	2.73	1000
KU1R 315 MY4	KUOR 315 M4	200	1286	1485	96	0.88	274	7.5	2	1.8	2.4	4.82	1200
KU1R 315 L4	KUOR 315 L4	250	1608	1485	96.1	0.9	334	8	2	1.6	2.3	5.93	1510
KU1R 315 LX4	KUOR 315 LX4	315	2019	1490	96.5	0.88	428	8.6	1.9	1.5	2.5	6.82	1630
KU2R 355 MY4		315	2016	1492	95.6	0.85	448	7.1	1.4	1	2.9	5.6	1950
KU2R 355 M4		355	2275	1490	96.8	0.84	504	8.1	1.8	1	3.1	7.9	2150
KU2R 355 MX4		400	2557	1494	96.8	0.84	568	8.6	1.3	1	3	9.5	2400
KU2R 355 LY4		450	2884	1490	96.8	0.82	654	8	1.2	1	3	10	2500
KU2R 355 L4		500	3205	1490	96.7	0.79	756	7.9	1.1	1	3	10	2500



Motor selection data, converter-fed operation														Converter-fed operation 500 V				
Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			$I_0$	$I_{max}$	$M_{max}$	$n_{max}$	$\eta_{maxFU}$
		$P_{50\text{ Hz}}$	$i_B$	$M_B$	$P_{1:2.5}$	$i_B$	$M_B$	$P_{1:5}$	$i_B$	$M_B$	$P_{1:10}$	$i_B$	$M_B$					
		500 V			500 V			500 V			500 V							
		kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	rpm	rpm
Synchronous speed 1500 rpm – 4-pole version																		
KU10 56 K4		0.06														0.8	12000	2610
KU1R 56 G4		0.09														1	12000	2610
KU1R 63 K4	KUOR 56 K4	0.12		0.84	0.1		0.66	0.06		0.41	0.05		0.32			1.4	12000	2610
KU1R 63 G4	KUOR 56 G4	0.18		1.27	0.14		1.01	0.09		0.62	0.07		0.49			2.2	12000	2610
KU1R 71 K4	KUOR 63 K4	0.25		1.76	0.19		1.38	0.13		0.91	0.1		0.67			2.7	11000	2610
KU1R 71 G4	KUOR 63 G4	0.37		2.62	0.29		2.1	0.19		1.36	0.14		1.01			4.3	11000	2610
KU1R 80 K4	KUOR 71 K4	0.55		3.7	0.44		3	0.35		2.4	0.2		1.36			6.6	11000	2610
KU1R 80 G4	KUOR 71 G4	0.75		5.1	0.6		4.1	0.49		3.3	0.27		1.88			9	11000	2610
KU1R 90 S4	KUOR 80 K4	1.1		7.5	0.88		5.9	0.7		4.7	0.44		3			14	9000	2610
KU1R 90 L4	KUOR 80 G4	1.5		10.2	1.2		8	0.94		6.4	0.6		4.1			20	9000	2610
KU1R 100 L4	KUOR 90 L4	2.2		14.9	1.76		11.9	1.39		9.4	1		6.8			30	8000	2610
KU1R 100 LX4	KUOR 100 S4	3		19.8	2.4		15.8	2.2		14.4	1.68		11.3			44	6000	2610
KU1R 112 M4	KUOR 100 L4	4		26.6	3.2		21.3	3		19.4	2.3		15.3			65	6000	2610
KU1R 112 MX4	KUOR 100 LX4	5.5		36.90	5.2		35.1	4.4		29.6	3.4		22.7			82	6000	2610
KU1R 132 S4T	KUOR 100 LX4	5.5		36.90	4.2		28.1	3.5		23.7	2.7		18.2			82	6000	2610
KU1R 132 S4	KUOR 112 M4	5.5	8.4	36.5	5.5	8.4	36.5	5.5	7.4	36.5	5.1	6.7	34	5.1	20	76	3600	2610
KU1R 132 M4	KUOR 132 S4	7.5	12	49.4	7.5	12	49.4	6.6	10.4	43.5	6.3	10.1	41.5	7	27.2	100	3600	2610
KU1R 160 M4	KUOR 132 M4	11	16.8	72	11	16.8	72.7	9.4	14.4	62	8.3	12.7	55	9.8	41.6	160	3600	2610
KU1R 160 L4	KUOR 160 S4	15	22.4	98	15	22.4	98.5	14.2	21.2	93	12.7	19	83.5	12	50.4	200	3600	2610
KU1R 180 M4	KUOR 160 M4	18	26.8	118	18	26.8	118	16	23.8	105	14.5	21.6	95	14	60.8	240	3000	2610
KU1R 180 L4	KUOR 180 S4	22	33.6	143	22	33.6	144	20	30.6	130	17	26	113	20	67.2	260	3000	2610
KU1R 200 L4	KUOR 180 M4	29	42.9	190	29	43.2	190	26	38.5	170	23	34.1	150	20	80	320	3000	2610
KU1R 225 S4	KUOR 200 M4	37	53.6	240	37	53.6	240	36	52.2	231	32	46.4	209	23	103.2	420	3000	2610
KU1R 225 M4	KUOR 200 L4	45	64.8	292	45	64.8	293	43	61.9	278	38	54.7	248	27	124.8	510	3000	2610
KU1R 250 M4	KUOR 225 M4	55	78.8	356	55	78.8	357	52	74.5	340	47	67.6	305	28	139.2	570	3000	2610
KU1R 280 S4	KUOR 250 S4	75	107	484	75	107	486	74	106	476	67	96	432	30	181	740	3000	2610
KU1R 280 M4	KUOR 250 M4	90	128	581	90	128	583	88	126	570	80	114	520	43	216	890	3000	2610
KU1R 315 S4	KUOR 280 S4	110	155	707	110	155	710	110	155	710	110	155	710	53	261	1080	3000	2610
KU1R 315 M4	KUOR 280 M4	132	186	849	132	186	852	132	186	852	132	186	852	59	314	1300	3000	2610
KU1R 315 MX4	KUOR 315 S4	160	223	1032	160	223	1029	160	223	1029	145	202	930	67	343	1440	3000	2610
KU1R 315 MY4	KUOR 315 M4	200	274	1286	200	274	1286	200	274	1286	192	262	1235	79	506	2160	3000	2610
KU1R 315 L4	KUOR 315 L4	250	334	1608	250	334	1608	250	334	1608	239	319	1540	100	590	2580	3000	2610
KU1R 315 LX4	KUOR 315 LX4	285	387	1833	277	376	1780	277	376	1780	264	358	1700	130	823	3530	3000	2610
KU2R 355 MY4		315	448	2016	315	448	2018	315	448	2018	293	417	1879		1000	4090	3000	2610
KU2R 355 M4		355	504	2275	355	504	2275	355	504	2275	328	466	2100		1202	4930	3000	2610
KU2R 355 MX4		390	554	2500	390	554	2500	390	554	2500	368	522	2358		1310	5360	3000	2610
KU2R 355 LY4		430	626	2756	430	626	2755	413	626	2650	390	567	2500		1510	6050	3000	2610
KU2R 355 L4		410	620	2628	410	620	2628	394	620	2528	390	590	2500		1744	6720	3000	2610

**Three-phase motors with squirrel-cage rotor**  
**Special insulation for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data, mains-fed operation												Design point 500 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub> (IEC/EN 60034-2)	cosφ <sub>B</sub>	I <sub>B</sub> 500 V	I <sub>M</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>R</sub> /M <sub>B</sub>	J	m
		kW	Nm	rpm	%	-	A	-	-	-	-	kgm <sup>2</sup>	kg
Synchronous speed 1000 rpm – 6-pole version													
KU1R 63 K6	KUOR 56 K6	0.09	0.96	895	50.5	0.56	0.37	2.5	2	2	2.4	0.00024	4.9
KU1R 63 G6	KUOR 56 G6	0.12	1.3	880	52	0.56	0.47	2.5	2	2	2.3	0.00027	5.7
KU1R 71 K6	KUOR 63 K6	0.18	1.86	925	58	0.51	0.7	2.8	1.6	1.6	2.1	0.00045	7.4
KU1R 71 G6	KUOR 63 G6	0.25	2.61	915	60	0.55	0.88	2.9	2	2	2.21	0.0006	8.3
KU1R 80 K6	KUOR 71 K6	0.37	3.86	915	66	0.66	0.98	3.4	2	2	2	0.0013	11
KU1R 80 G6	KUOR 71 G6	0.55	5.7	915	68	0.67	1.38	3.7	2.2	2.2	2.4	0.00175	12.5
KU1R 90 S6	KUOR 80 K6	0.75	7.7	935	70	0.64	1.94	4.5	2.4	2.4	2.6	0.00325	16
KU1R 90 L6	KUOR 80 G6	1.1	11.2	935	73	0.69	2.52	4.6	2.2	2.2	2.6	0.00425	19
KU1R 100 L6	KUOR 90 L6	1.5	15.2	945	76.4	0.73	3.12	4.6	2.1	2	2.4	0.00625	24
KU1R 112 M6	KUOR 100 L6	2.2	22.1	950	79.8	0.74	4.28	5.3	2.2	2.1	2.7	0.01225	33.5
KU1R 132 S6T	KUOR 100 LX6	3	30.6	935	81.9	0.75	5.64	5.2	2.5	2.5	2.9	0.0139	39
KU1R 132 S6	KUOR 112 M6	3	30	955	78.5	0.82	5.4	5.7	1.8	1.6	2.7	0.018	46
KU1R 132 M6	KUOR 112 MX6	4	40	955	80	0.8	7.2	6	2.2	2	3.1	0.023	53
KU1R 132 MX6	KUOR 132 S6	5.5	55	955	83	0.83	9.2	5	1.8	1.5	2.3	0.043	70
KU1R 160 M6	KUOR 132 M6	7.5	75	960	85	0.82	12.4	5.5	2	1.6	2.5	0.053	86
KU1R 160 L6	KUOR 160 S6	11	109	965	85.2	0.86	17.2	5	2	1.7	2.3	0.113	114
KU1R 180 L6	KUOR 160 M6	15	148	965	86	0.83	24.4	6	2.4	2.1	2.7	0.145	136
KU1R 200 L6	KUOR 180 S6	18.5	182	970	88.1	0.87	28	5.5	2	1.7	2.4	0.228	175
KU1R 200 LX6	KUOR 180 M6	22	217	970	88.8	0.87	32.8	6.2	2.2	1.8	2.6	0.268	200
KU1R 225 M6	KUOR 200 M6	30	294	973	90.4	0.89	43.2	6.5	2.2	1.7	2.5	0.443	265
KU1R 250 M6	KUOR 225 M6	37	362	975	91	0.89	52.8	6.5	2.2	1.7	2.3	0.825	360
KU1R 280 S6	KUOR 250 S6	45	439	980	92	0.87	64.8	6	2	1.5	2	1.28	465
KU1R 280 M6	KUOR 250 M6	55	536	980	92.5	0.88	78	6.5	2.3	1.7	2.4	1.48	520
KU1R 315 S6	KUOR 280 S6	75	727	985	93.7	0.87	106	7	2	1.6	2.4	2.63	690
KU1R 315 M6	KUOR 280 M6	90	868	990	94.4	0.88	125	7	2	1.7	2.4	3.33	800
KU1R 315 MX6	KUOR 315 S6	110	1061	990	94	0.88	154	7.5	2.2	1.7	2.6	3.6	880
KU1R 315 MY6	KUOR 315 M6	132	1273	990	95	0.88	182	7.5	2	1.7	2.4	6	1050
KU1R 315 L6	KUOR 315 L6	160	1551	985	95.3	0.89	218	7.5	2.3	1.9	2.4	6.67	1250
KU1R 315 LX6	KUOR 315 LX6	200	1929	990	95	0.87	279	8.3	2.2	2	2.7	8.6	1460
KU2R 355 MY6		200	1920	995	96.1	0.83	290	7	1.5	1.3	2.4	8.1	1550
KU2R 355 M6		250	2402	994	96	0.81	371	7	1.8	1.3	2.3	8.2	1650
KU2R 355 MX6		315	3023	995	96.5	0.83	454	6.8	1.6	1.3	2.5	12.1	2200
KU2R 355 LY6		355	3407	995	96	0.78	547	7.4	1.9	1.4	2.6	14	2400

Motor selection data, converter-fed operation													Converter-fed operation 500 V					
Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			I <sub>0</sub>	I <sub>max</sub>	M <sub>max</sub>	n <sub>max</sub>	n <sub>maxFU</sub>
		P <sub>50 Hz</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:2.5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:10</sub>	i <sub>B</sub>	M <sub>B</sub>					
		500 V			500 V			500 V			500 V							
		kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	rpm	rpm
Synchronous speed 1000 rpm – 6-pole version																		
KU1R 63 K6	KUOR 56 K6	0.09		0.98	0.06		0.7	0.06		0.57	0.04		0.45			1.7	12000	1740
KU1R 63 G6	KUOR 56 G6	0.12		1.31	0.09		0.94	0.07		0.77	0.06		0.61			2.3	12000	1740
KU1R 71 K6	KUOR 63 K6	0.16		1.66	0.12		1.28	0.08		0.85	0.06		0.6			3	11000	1740
KU1R 71 G6	KUOR 63 G6	0.22		2.3	0.17		1.78	0.11		1.19	0.08		0.84			4.4	11000	1740
KU1R 80 K6	KUOR 71 K6	0.37		3.9	0.28		2.9	0.18		1.94	0.14		1.5			5.9	10000	1740
KU1R 80 G6	KUOR 71 G6	0.55		5.8	0.42		4.4	0.27		2.9	0.22		2.3			10	10000	1740
KU1R 90 S6	KUOR 80 K6	0.75		7.6	0.52		5.3	0.4		4.1	0.31		3.2			15	9000	1740
KU1R 90 L6	KUOR 80 G6	1.1		11.3	0.72		7.8	0.59		6.1	0.46		4.7			22	9000	1740
KU1R 100 L6	KUOR 90 L6	1.5		15.3	1.2		12.2	0.96		10	0.76		7.7			27	8000	1740
KU1R 112 M6	KUOR 100 L6	2.2		22.3	1.76		17.9	1.44		14.8	1.12		11.5			45	6000	1740
KU1R 132 S6T	KUOR 100 LX6	3		30.8	2.4		24.6	2		20.2	1.6		16.3			68	6000	1740
KU1R 132 S6	KUOR 112 M6	3	5.4	30.8	3	5.4	30.8	3	5	30.8	3	3.8	30.8	4.3	11	56	2400	1740
KU1R 132 M6	KUOR 112 MX6	4	7.2	40.6	4	7.2	40.6	4	6.6	40.6	4	5	40.6	5.9	17.6	86	2400	1740
KU1R 132 MX6	KUOR 132 S6	5.5	9.2	55	5.5	9.2	55.9	5.1	8.6	51.4	4.3	7.2	44	5.9	16.8	88	2400	1740
KU1R 160 M6	KUOR 132 M6	7.5	12.4	75	7.5	12.4	75.8	6.9	11.4	70	5.9	9.8	60	8.5	24	130	2400	1740
KU1R 160 L6	KUOR 160 S6	11	17.2	109	11	17.2	111	10	15.6	101	9.4	14.7	94	9.5	29.6	170	2400	1740
KU1R 180 L6	KUOR 160 M6	15	24.4	148	15	24.4	148	13.6	22.2	135	12.6	20.5	125	17	51.2	280	2000	1740
KU1R 200 L6	KUOR 180 S6	18.5	28	182	18	27.2	183	17	26	169	16	24.4	157	13.5	51.2	300	2000	1740
KU1R 200 LX6	KUOR 180 M6	22	32.8	217	22	32.8	218	20	30	200	19	28.4	188	16	65.6	390	2000	1740
KU1R 225 M6	KUOR 200 M6	30	43.2	294	30	43.2	295	30	43.2	295	29	42	286	18	82.4	510	2000	1740
KU1R 250 M6	KUOR 225 M6	37	52.8	362	37	52.8	362	37	52.8	362	36	51.6	350	24	93.6	580	2000	1740
KU1R 280 S6	KUOR 250 S6	45	64.8	439	45	64.8	441	45	64.8	441	45	64.8	441	24.5	99.2	610	2000	1740
KU1R 280 M6	KUOR 250 M6	55	78	536	55	78	539	55	78	539	55	78	539	32	144.8	900	2000	1740
KU1R 315 S6	KUOR 280 S6	75	106	727	75	106	731	75	106	731	75	106	731	42	197	1220	2000	1740
KU1R 315 M6	KUOR 280 M6	90	125	868	90	125	873	90	125	873	90	125	873	47.5	230	1450	2000	1740
KU1R 315 MX6	KUOR 315 S6	110	154	1061	110	154	1066	107	150	1040	100	140	970	62	308	1930	2000	1740
KU1R 315 MY6	KUOR 315 M6	132	182	1273	132	182	1280	132	182	1280	132	182	1280	66.5	336	2130	2000	1740
KU1R 315 L6	KUOR 315 L6	160	218	1551	160	218	1551	160	218	1551	160	218	1551	80	402	2600	2000	1740
KU1R 315 LX6	KUOR 315 LX6	185	258	1794	185	258	1794	185	258	1794	175	244	1700	115	580	3640	2000	1740
KU2R 355 MY6		200	290	1920	200	290	1929	200	290	1929	185	268	1780		534	3220	2000	1740
KU2R 355 M6		250	371	2402	250	371	2412	250	371	2412	238	354	2300		657	3860	2000	1740
KU2R 355 MX6		300	433	2894	300	433	2894	300	433	2894	298	430	2870		875	5290	2000	1740
KU2R 355 LY6		315	486	3023	315	486	3023	315	486	3023	315	486	3023		1096	6200	2000	1740

**Three-phase motors with squirrel-cage rotor**  
**Special insulation for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
 for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Motor selection data, mains-fed operation												Design point 500 V, 50 Hz	
Type IEC/DIN	Type Progressive	P <sub>B</sub>	M <sub>B</sub>	n <sub>B</sub>	η <sub>B</sub> (IEC/EN 60034-2)	cosφ <sub>B</sub>	I <sub>B</sub> 500 V	I <sub>A</sub> /I <sub>B</sub>	M <sub>A</sub> /M <sub>B</sub>	M <sub>S</sub> /M <sub>B</sub>	M <sub>R</sub> /M <sub>B</sub>	J	m
		kW	Nm	rpm	%	-	A	-	-	-	-	kgm <sup>2</sup>	kg
<b>Synchronous speed 750 rpm – 8-pole version</b>													
KU1R 71 K8	KUOR 63 K8	0.09	1.27	675	45.5	0.51	0.45	2.1	1.9	1.9	2.1	0.0005	6.6
KU1R 71 G8	KUOR 63 G8	0.12	1.71	670	46.5	0.51	0.58	2.3	1.8	1.8	2.1	0.0006	8.1
KU1R 80 K8	KUOR 71 K8	0.18	2.49	690	56.5	0.59	0.62	2.8	2	2	2.2	0.0013	10.5
KU1R 80 G8	KUOR 71 G8	0.25	3.44	695	58	0.56	0.9	3	2.3	2.3	2.5	0.00175	12
KU1R 90 S8	KUOR 80 K8	0.37	5	700	61.5	0.54	1.28	3	1.9	1.9	2.1	0.003	15
KU1R 90 L8	KUOR 80 G8	0.55	7.6	695	64.5	0.6	1.63	3.2	1.9	1.9	2.2	0.00375	18
KU1R 100 L8	KUOR 90 L8	0.75	10.2	705	63	0.6	2.32	3.3	1.8	1.8	2.2	0.00625	23
KU1R 100 LX8	KUOR 100 S8	1.1	14.9	705	73	0.67	2.6	4	2	2	2.4	0.009	28
KU1R 112 M8	KUOR 100 L8	1.5	20.3	705	75.5	0.7	3.3	4.4	2.2	2.1	2.5	0.01225	33.5
KU1R 132 S8T	KUOR 100 LX8	2.2	30.7	685	74.1	0.68	5	3.8	2	1.9	2.3	0.0139	39
KU1R 132 S8	KUOR 112 M8	2.2	29.8	705	75.5	0.76	4.4	4.5	1.7	1.6	2.3	0.018	46
KU1R 132 M8	KUOR 112 MX8	3	40.6	705	78	0.75	5.9	4.5	1.7	1.6	2.3	0.023	53
KU1R 160 M8	KUOR 132 S8	4	53.8	710	79.3	0.78	7.4	4	1.6	1.3	1.9	0.043	70
KU1R 160 MX8	KUOR 132 M8	5.5	74	710	81.4	0.78	10	4.5	1.7	1.6	2.1	0.053	86
KU1R 160 L8	KUOR 160 S8	7.5	99	725	83	0.78	13.2	4.5	1.8	1.6	2.1	0.113	114
KU1R 180 L8	KUOR 160 M8	11	146	720	85	0.78	19.2	4.5	2	1.7	2.1	0.145	136
KU1R 200 L8	KUOR 180 S8	15	198	725	86.5	0.79	25.2	5	2	1.7	2.3	0.228	175
	KUOR 180 M8	18.5	244	725	87.5	0.8	30.4	5	1.9	1.7	2.2	0.268	200
KU1R 225 S8		18.5	244	725	89.2	0.83	28.8	5.5	2	1.6	2.2	0.44	265
KU1R 225 M8	KUOR 200 M8	22	290	725	89.2	0.84	34	5	1.8	1.5	2.2	0.44	265
KU1R 250 M8	KUOR 225 M8	30	392	730	90.2	0.79	48.8	5.5	2.2	1.8	2.2	0.825	360
KU1R 280 S8	KUOR 250 S8	37	481	735	91	0.8	58.8	5.5	2	1.5	2	1.35	465
KU1R 280 M8	KUOR 250 M8	45	585	735	91.5	0.77	73.6	6	2.3	1.8	2.4	1.55	520
KU1R 315 S8	KUOR 280 S8	55	710	740	93.1	0.8	85.6	6.5	1.8	1.6	2.3	2.63	690
KU1R 315 M8	KUOR 280 M8	75	968	740	93.3	0.81	114	6	2	1.6	2.3	3.33	800
KU1R 315 MX8	KUOR 315 S8	90	1161	740	93.5	0.81	138	6	1.9	1.6	2.2	3.6	880
KU1R 315 MY8	KUOR 315 M8	110	1420	740	94.6	0.81	166	6.5	2.1	1.8	2.4	6	1100
KU1R 315 L8	KUOR 315 L8	132	1704	740	95	0.83	194	6.3	2	1.7	2.1	6.76	1250
KU1R 315 LX8	KUOR 315 LX8	160	2065	740	95.2	0.79	246	7.2	2.2	1.9	2.5	8.71	1430
KU2R 355 MY8		160	2054	744	95.2	0.8	242	6.8	1.3	1	2.5	9.3	1500
KU2R 355 M8		200	2571	743	95.6	0.77	314	6.5	1.6	1	2.7	9.5	1600
KU2R 355 MX8		250	3209	744	95.8	0.78	386	6.6	1.3	1	2.8	13.4	2200
KU2R 355 LY8		280	3594	744	95.3	0.78	435	8.2	1.2	1	2.8	15.8	2400

Motor selection data, converter-fed operation														Converter-fed operation 500 V				
Type IEC/DIN	Type Progressive	Converter input, 50 Hz			Setting range 1 : 2.5			Setting range 1 : 5			Setting range 1 : 10			I <sub>0</sub>	I <sub>max</sub>	M <sub>max</sub>	n <sub>max</sub>	n <sub>maxFU</sub>
		P <sub>50 Hz</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:2.5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:5</sub>	i <sub>B</sub>	M <sub>B</sub>	P <sub>1:10</sub>	i <sub>B</sub>	M <sub>B</sub>					
		500 V			500 V			500 V			500 V							
		kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	kW	A	Nm	rpm	rpm
Synchronous speed 750 rpm – 8-pole version																		
KU1R 71 K8	KUOR 63 K8	0.09		1.31	0.06		0.89	0.03		0.52	0.02		0.32			2	11000	1305
KU1R 71 G8	KUOR 63 G8	0.12		1.76	0.08		1.21	0.05		0.7	0.03		0.43			2.7	11000	1305
KU1R 80 K8	KUOR 71 K8	0.18		2.47	0.14		1.92	0.12		1.68	0.09		1.16			4.2	10000	1305
KU1R 80 G8	KUOR 71 G8	0.25		3.46	0.2		2.7	0.18		2.5	0.12		1.66			6.6	10000	1305
KU1R 90 S8	KUOR 80 K8	0.37		5	0.29		3.9	0.19		2.6	0.15		2.1			8.1	9000	1305
KU1R 90 L8	KUOR 80 G8	0.55		7.6	0.43		6	0.3		4.1	0.23		3.2			12	9000	1305
KU1R 100 L8	KUOR 90 L8	0.75		10.3	0.56		7.7	0.39		5.4	0.29		4			17	8000	1305
KU1R 100 LX8	KUOR 100 S8	1.1		15.3	0.88		12.2	0.69		9.6	0.48		6.7			27	6000	1305
KU1R 112 M8	KUOR 100 L8	1.5		20.8	1.2		16.6	0.96		13.2	0.66		9.2			39	6000	1305
KU1R 132 S8T	KUOR 100 LX8	2.1		29.5	1.28		18.2	1.04		15	0.84		11.8			54	6000	1305
KU1R 132 S8	KUOR 112 M8	2.2	4.4	30	2.2	4.4	30	2.2	3.8	30	2.09	3.3	28.5	4	7.7	47	1800	1305
KU1R 132 M8	KUOR 112 MX8	3	5.9	40.9	3	5.9	40.9	3	5.1	40.9	2.85	4.3	38.8	5.1	10.5	65	1800	1305
KU1R 160 M8	KUOR 132 S8	4	7.4	53.8	4	7.4	54.6	3.6	6.7	48.6	3.2	5.9	43.7	5	10.8	71	1800	1305
KU1R 160 MX8	KUOR 132 M8	5.5	10	74	5.5	10	75	4.9	8.9	67	4.4	8	60	8	14.9	100	1800	1305
KU1R 160 L8	KUOR 160 S8	7.5	13.2	99	7.5	13.2	102	6.6	11.6	89.8	6.2	10.9	83.6	10	20.8	140	1800	1305
KU1R 180 L8	KUOR 160 M8	11	19.2	146	11	19.2	147	9.7	17	130	9	15.7	120	14	30.4	210	1500	1305
KU1R 200 L8	KUOR 180 S8	15	25.2	198	14	23.5	184	12.6	21.2	168	11.4	19.1	152	18	44	310	1500	1305
	KUOR 180 M8	18.5	30.4	244	17	28	225	15.3	25.1	205	13.9	22.9	185	18	51.2	370	1500	1305
KU1R 225 S8		18.5	28.8	244	17	26.5	225	15.6	24.3	205	14	21.8	185	16	48.8	370	1500	1305
KU1R 225 M8	KUOR 200 M8	22	34	290	20	30.9	264	18.3	28.3	241	16.5	25.5	217	20	56.8	440	1500	1305
KU1R 250 M8	KUOR 225 M8	30	48.8	392	30	48.8	392	29	47.2	380	26	42.3	345	31	82.4	600	1500	1305
KU1R 280 S8	KUOR 250 S8	37	58.8	481	37	58.8	481	37	58.8	481	37	58.8	481	35	90.4	670	1500	1305
KU1R 280 M8	KUOR 250 M8	45	73.6	585	45	73.6	585	45	73.6	585	45	73.6	585	44	136	980	1500	1305
KU1R 315 S8	KUOR 280 S8	55	85.6	710	55	85.6	710	55	85.6	710	55	85.6	710	46	152	1140	1500	1305
KU1R 315 M8	KUOR 280 M8	75	114	968	75	114	968	75	114	968	75	114	968	62	202	1550	1500	1305
KU1R 315 MX8	KUOR 315 S8	90	138	1161	90	138	1169	90	138	1169	85	130	1100	81	232	1780	1500	1305
KU1R 315 MY8	KUOR 315 M8	110	166	1420	110	166	1429	110	166	1429	106	159	1373	86	306	2380	1500	1305
KU1R 315 L8	KUOR 315 L8	132	194	1704	132	194	1715	132	194	1715	127	186	1650	90	313	2500	1500	1305
KU1R 315 LX8	KUOR 315 LX8	145	222	1871	145	222	1871	145	222	1871	145	222	1871	140	473	3610	1500	1305
KU2R 355 MY8		160	242	2054	160	242	2051	160	242	2051	153	232	1960		466	3590	1500	1305
KU2R 355 M8		200	314	2571	200	314	2564	200	314	2564	184	289	2360		651	4850	1500	1305
KU2R 355 MX8		225	348	2884	225	348	2884	225	348	2884	225	348	2884		832	6280	1500	1305
KU2R 355 LY8		230	358	2948	230	358	2948	230	358	2948	230	358	2948		938	7040	1500	1305









## Equivalent circuit data

### Three-phase motors with squirrel-cage rotor for converter-fed operation without filter up to 420 V

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Equivalent circuit data		Design point 400 V Δ, 50 Hz					
Type		$R1_w$	$R2_w'$	$Rf_g$	$X1s$	$X2s'$	$X1_h$
		Ω	Ω	Ω	Ω	Ω	Ω
Synchronous speed 3000 rpm – 2-pole version							
K21R 63 K2	K20R 56 K2	256.5	141.9	18333	63.9	48.6	1590
K21R 63 G2	K20R 56 G2	168	101.1	13581	44.4	33.9	1170
K21R 71 K2	K20R 63 K2	114	66.6	11013	46.2	37.8	942
K21R 71 G2	K20R 63 G2	62.7	45.6	9087	33.3	27.81	864
K21R 80 K2	K20R 71 K2	45.9	28.89	7365	28.92	21.96	615
K21R 80 G2	K20R 71 G2	27.69	19.2	5277	18.87	14.7	438
K21R 90 S2	K20R 80 K2	12.3	12.84	4923	16.32	13.71	468
K21R 90 L2	K20R 80 G2	10.11	8.88	3300	10.14	8.7	296.1
K21R 100 L2	K20R 90 L2	7.47	6.03	2541	9.18	10.08	262.8
K21R 112 M2	K20R 100 S2	4.83	3.33	1887	6.75	7.35	145.2
K21R 112 MX2	K20R 100 L2	3.06	2.64	1701	5.16	5.88	135.3
K21R 132 S2T	K20R 100 L2	3.06	2.64	1701	5.16	5.88	135.3
K21R 112 MV2	K20R 100 LV2	1.86	1.83	1350	3.54	4.2	92.7
K21R 132 SX2T	K20R 100 LV2	1.86	1.83	1350	3.54	4.2	92.7
K21R 132 S2	K20R 112 MY2	4.725	2.78	2825	4.46	7.29	166.7
K21R 132 SX2	K20R 112 M2	2.03	1.82	1574	3.95	3.77	111.5
K21R 160 M2	K20R 132 M2	1.33	1.16	1481	2.24	3.047	111.2
K21R 160 MX2	K20R 160 S2	0.8092	0.68	1228	1.74	2.79	93.6
K21R 160 L2	K20R 160 M2	0.7	0.58	1297	1.51	2.55	98.9
K21R 180 M2	K20R 180 S2	0.4662	0.44	930	1.52	2.03	78.1
K21R 200 L2	K20R 180 M2	0.294	0.305	721	1.01	1.43	57.5
K21R 200 LX2	K20R 200 M2	0.2016	0.218	533	0.89	1.46	47.1
K21R 225 M2	K20R 200 L2	0.1498	0.166	441	0.68	1.16	38.6
K21R 250 M2	K20R 225 M2	0.1036	0.12	433	0.57	0.94	30.4
K21R 280 S2	K20R 250 S2	0.084	0.074	352	0.45	0.78	29.6
K21R 280 M2	K20R 250 M2	0.056	0.05	236	0.31	0.55	19.8
K21R 315 S2	K20R 280 S2	0.049	0.04	273	0.32	0.58	21.1
K21R 315 M2	K20R 280 M2	0.0364	0.03	226	0.24	0.46	17.5
K21R 315 MX2	K20R 315 S2	0.0252	0.028	190	0.18	0.37	14.6
K21R 315 MY2	K20R 315 M2	0.0196	0.016	180	0.14	0.27	10.8
K21R 315 L2	K20R 315 L2	0.01974	0.0135	366	0.13	0.34	12.63
K21R 315 LX2	K20R 315 LX2	0.01428	0.0102	266	0.096	0.3	9.7
K22R 355 MY2		0.00828	0.0053	198	0.1094	0.2049	4.862
K22R 355 M2		0.00851	0.00664	262	0.1127	0.2062	6.448
K22R 355 MX2		0.00526	0.0044	200	0.0779	0.1707	5.451
K22R 355 LY2		0.00667	0.00486	246	0.0863	0.2018	8.204
K22R 355 L2		0.00563	0.00372	192	0.0661	0.1545	5.412

**Three-phase motors with squirrel-cage rotor  
for converter-fed operation without filter up to 420 V**

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Equivalent circuit data		Design point 400 V Δ, 50 Hz					
Type		$R1_w$ Ω	$R2_w$ Ω	$RFe$ Ω	$X1s$ Ω	$X2s'$ Ω	$X1_h$ Ω
<b>Synchronous speed 1500 rpm – 4-pole version</b>							
K21R 63 K4	K20R 56 K4	398.4	216	27714	124.5	114	1623
K21R 63 G4	K20R 56 G4	241.8	163.8	20997	93.3	87.6	1272
K21R 71 K4	K20R 63 K4	187.8	104.1	15951	86.1	86.1	1149
K21R 71 G4	K20R 63 G4	111.3	75.3	11781	62.4	64.2	885
K21R 80 K4	K20R 71 K4	58.8	40.2	7875	47.7	43.2	543
K21R 80 G4	K20R 71 G4	39.6	31.2	6258	36.9	33.9	444
K21R 90 S4	K20R 80 K4	30	20.4	5802	17.88	14.79	414
K21R 90 L4	K20R 80 G4	21.36	16.05	4875	13.77	11.7	351
K21R 100 L4	K20R 90 L4	11.04	9.6	3561	10.23	9.57	257.1
K21R 100 LX4	K20R 100 S4	7.11	5.64	2586	7.47	7.53	187.5
K21R 112 M4	K20R 100 L4	5.46	4.29	1917	5.37	5.28	137.7
K21R 112 MX4	K20R 100 LX4	3.39	3.48	1329	3.57	3.84	94.92
K21R 132 S4T	K20R 100 LX4	3.39	3.48	1329	3.57	3.84	94.92
K21R 132 S4	K20R 112 M4	4.466	3.03	2182	4.53	4.58	150.3
K21R 132 M4	K20R 132 S4	2.8182	1.73	1715	3.32	3.82	100.3
K21R 160 M4	K20R 132 M4	1.6534	1.14	1200	2.194	2.88	78.2
K21R 160 L4	K20R 160 S4	1.0206	0.673	800	1.78	2.79	62.9
K21R 180 M4	K20R 160 M4	0.791	0.555	686	1.4	2.25	50.7
K21R 180 L4	K20R 180 S4	0.4942	0.41	692	1.34	2.31	43.7
K21R 200 L4	K20R 180 M4	0.3388	0.31	557	0.99	1.79	35.3
K21R 225 S4	K20R 200 M4	0.2044	0.209	444	0.85	1.62	30.4
K21R 225 M4	K20R 200 L4	0.1554	0.178	393	0.72	1.4	27
K21R 250 M4	K20R 225 M4	0.1232	0.12	327	0.63	1.19	24.8
K21R 280 S4	K20R 250 S4	0.0728	0.072	254	0.44	0.96	18.4
K21R 280 M4	K20R 250 M4	0.0588	0.06	225	0.38	0.83	16.3
K21R 315 S4	K20R 280 S4	0.0504	0.042	191	0.26	0.59	12.5
K21R 315 M4	K20R 280 M4	0.042	0.036	176	0.23	0.53	11.4
K21R 315 MX4	K20R 315 S4	0.0364	0.033	170	0.2	0.49	10.3
K21R 315 MY4	K20R 315 M4	0.0266	0.018	157	0.14	0.37	8.8
K21R 315 L4	K20R 315 L4	0.021	0.0149	228	0.119	0.39	7.86
K21R 315 LX4	K20R 315 LX4	0.014	0.011	171	0.088	0.37	5.81
K22R 355 MY4		0.00786	0.00903	185	0.1209	0.237	3.988
K22R 355 M4		0.0066	0.00699	160	0.092	0.1143	3.124
K22R 355 MX4		0.0049	0.00551	150	0.0808	0.1748	3.008
K22R 355 LY4		0.00414	0.00526	105	0.0671	0.1313	2.265
K22R 355 L4		0.00434	0.004	90	0.059	0.094	1.53

### Three-phase motors with squirrel-cage rotor for converter-fed operation without filter up to 420 V

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Equivalent circuit data		Design point 400 V Δ, 50 Hz					
Type		R <sub>1w</sub> Ω	R <sub>2w'</sub> Ω	R <sub>F<sub>e</sub></sub> Ω	X <sub>1s</sub> Ω	X <sub>2s'</sub> Ω	X <sub>1h</sub> Ω
<b>Synchronous speed 1000 rpm – 6-pole version</b>							
K21R 63 K6	K20R 56 K6	357.9	299.4	32235	244.8	259.2	1446
K21R 63 G6	K20R 56 G6	261.6	248.4	26829	203.4	216.9	1227
K21R 71 K6	K20R 63 K6	129.3	109.5	13734	145.5	136.8	645
K21R 71 G6	K20R 63 G6	112.5	99.9	13551	134.4	128.1	726
K21R 80 K6	K20R 71 K6	112.5	70.2	12150	51.3	53.1	708
K21R 80 G6	K20R 71 G6	68.1	50.4	8946	36.6	38.4	522
K21R 90 S6	K20R 80 K6	38.1	26.22	5430	25.59	30.6	366
K21R 90 L6	K20R 80 G6	25.77	19.77	4194	19.05	23.37	287.1
K21R 100 L6	K20R 90 L6	19.11	12.84	3909	15.21	17.73	238.5
K21R 112 M6	K20R 100 L6	13.44	9.06	3240	8.49	7.41	201
K21R 132 S6T	K20R 100 LX6						
K21R 132 S6	K20R 112 M6	8.624	6	2697	7.68	7.01	176.8
K21R 132 M6	K20R 112 MX6	5.25	4.12	1920	5.24	4.9	123
K21R 132 MX6	K20R 132 S6	3.906	2.91	1685	4.92	6.32	114.7
K21R 160 M6	K20R 132 M6	2.338	2.24	1340	3.71	4.9	91.1
K21R 160 L6	K20R 160 S6	1.694	1.31	1171	2.59	3.43	81.6
K21R 180 L6	K20R 160 M6	0.938	0.83	716	1.58	2.2	48.4
K21R 200 L6	K20R 180 S6	0.756	0.68	711	1.66	2.04	57
K21R 200 LX6	K20R 180 M6	0.56	0.54	572	1.3	1.63	46.1
K21R 225 M6	K20R 200 M6	0.378	0.385	480	1.1	1.38	41.9
K21R 250 M6	K20R 225 M6	0.2856	0.265	407	0.88	1.32	35.8
K21R 280 S6	K20R 250 S6	0.2072	0.185	338	0.74	1.13	27.4
K21R 280 M6	K20R 250 M6	0.1498	0.142	271	0.57	0.89	21.9
K21R 315 S6	K20R 280 S6	0.0938	0.081	210	0.48	0.74	18.4
K21R 315 M6	K20R 280 M6	0.0742	0.063	176	0.37	0.6	15.1
K21R 315 MX6	K20R 315 S6	0.0588	0.05	138	0.3	0.48	11.8
K21R 315 MY6	K20R 315 M6	0.0476	0.041	153	0.27	0.46	11.3
K21R 315 L6	K20R 315 L6	0.035	0.035	218	0.225	0.44	9.72
K21R 315 LX6	K20R 315 LX6	0.02338	0.025	126	0.159	0.34	6.22
K22R 355 MY6		0.0171	0.0166	165	0.183	0.341	5.425
K22R 355 M6		0.0121	0.01275	132	0.1393	0.2627	3.685
K22R 355 MX6		0.01002	0.01131	140	0.1228	0.2364	4.106
K22R 355 LY6		0.0071	0.00823	85	0.0886	0.1722	2.426
<b>Synchronous speed 750 rpm – 8-pole version</b>							
K21R 71 K8	K20R 63 K8	368.4	281.1	37266	195.6	266.7	1164
K21R 71 G8	K20R 63 G8	256.5	221.1	28521	153.3	209.1	900
K21R 80 K8	K20R 71 K8	235.2	145.2	24516	100.2	118.8	1011
K21R 80 G8	K20R 71 G8	139.5	97.5	16410	66.6	79.8	678
K21R 90 S8	K20R 80 K8	78.6	51.9	10836	47.4	65.4	480
K21R 90 L8	K20R 80 G8	53.1	40.2	8472	36.6	51	378
K21R 100 L8	K20R 90 L8	36.6	23.31	6696	25.89	34.5	273
K21R 100 LX8	K20R 100 S8	27.87	20.85	6867	19.29	17.34	276.9
K21R 112 M8	K20R 100 L8	18.39	13.14	5172	13.95	12.81	209.7
K21R 132 S8T	K20R 100 LX8						
K21R 132 S8	K20R 112 M8	13.006	9.43	4148	12.15	11.82	170.8
K21R 132 M8	K20R 112 MX8	9.212	7.3	3333	9.28	9.21	137.2
K21R 160 M8	K20R 132 S8	6.244	5.04	2667	8.34	11.31	128
K21R 160 MX8	K20R 132 M8	3.962	3.7	1967	6.02	8.3	92.1
K21R 160 L8	K20R 160 S8	2.478	1.86	1515	3.55	5.19	67.4
K21R 180 L8	K20R 160 M8	1.526	1.37	1148	2.57	3.9	50.6
K21R 200 L8	K20R 180 S8	0.952	0.85	795	2.1	2.7	39.8
	K20R 180 M8						
K21R 225 S8		0.756	0.77	762	1.88	2.48	39.3
K21R 225 M8	K20R 200 M8	0.602	0.59	688	1.7	2.29	39.7
K21R 250 M8	K20R 225 M8	0.35	0.33	437	1.08	1.7	25.1
K21R 280 S8	K20R 250 S8	0.266	0.23	425	0.93	1.54	21.6
K21R 280 M8	K20R 250 M8	0.161	0.17	310	0.67	1.13	15.8
K21R 315 S8	K20R 280 S8	0.133	0.11	295	0.65	1.07	15.8
K21R 315 M8	K20R 280 M8	0.0924	0.084	235	0.5	0.82	12.5
K21R 315 MX8	K20R 315 S8	0.0812	0.07	191	0.42	0.69	10.2
K21R 315 MY8	K20R 315 M8	0.0532	0.05	169	0.33	0.6	8.4
K21R 315 L8	K20R 315 L8	0.0434	0.0444	229	0.288	0.53	7.38
K21R 315 LX8	K20R 315 LX8	0.02856	0.031	160	0.199	0.37	4.82
K22R 355 MY8		0.0198	0.01786	165	0.2457	0.3049	4.91
K22R 355 M8		0.01474	0.01538	160	0.2027	0.2487	3.722
K22R 355 MX8		0.01169	0.01356	126	0.1639	0.2044	3.457
K22R 355 LY8		0.00851	0.01101	100	0.1304	0.1633	2.464

**Three-phase motors with squirrel-cage rotor  
for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Equivalent circuit data		Design point 500 V Δ, 50 Hz					
Type		$R1_w$ Ω	$R2_w$ Ω	$RFe$ Ω	$X1s$ Ω	$X2s'$ Ω	$X1_h$ Ω
<b>Synchronous speed 3000 rpm – 2-pole version</b>							
KU1R 63 KU	KUOR 56 KU	400.78	221.72	28645	99.84	75.94	2484
KU1R 63 G2	KUOR 56 G2	262.5	157.97	21220	69.38	52.97	1828
KU1R 71 KU	KUOR 63 KU	178.13	104.06	17208	72.19	59.06	1472
KU1R 71 G2	KUOR 63 G2	97.97	71.25	14198	52.03	43.45	1350
KU1R 80 KU	KUOR 71 KU	71.72	45.14	11508	45.19	34.31	961
KU1R 80 G2	KUOR 71 G2	43.27	30	8245	29.48	22.97	684
KU1R 90 S2	KUOR 80 KU	19.22	20.06	7692	25.5	21.42	731
KU1R 90 L2	KUOR 80 G2	15.8	13.88	5156	15.84	13.59	463
KU1R 100 L2	KUOR 90 L2	11.67	9.42	3970	14.34	15.75	411
KU1R 112 M2	KUOR 100 S2	7.55	5.2	2948	10.55	11.48	227
KU1R 112 MX2		4.78	4.13	2658	8.06	9.19	211
KU1R 132 S2 T	KUOR 100 L2	4.78	4.13	2658	8.06	9.19	211
KU1R 112 MV2		2.91	2.86	2109	5.53	6.56	145
KU1R 132 SX2T	KUOR 100 LV2	2.91	2.86	2109	5.53	6.56	145
KU1R 132 S2	KUOR 112 MY2	7.383	4.344	4414	6.97	11.39	260
KU1R 132 SX2	KUOR 112 M2	3.172	2.844	2459	6.17	5.89	174
KU1R 160 M2	KUOR 132 M2	2.078	1.813	2314	3.5	4.76	174
KU1R 160 MX2	KUOR 160 S2	1.264	1.063	1919	2.72	4.36	146
KU1R 160 L2	KUOR 160 M2	1.094	0.906	2027	2.36	3.98	155
KU1R 180 M2	KUOR 180 S2	0.728	0.688	1453	2.38	3.17	122
KU1R 200 L2	KUOR 180 M2	0.459	0.477	1127	1.58	2.23	89.8
KU1R 200 LX2	KUOR 200 M2	0.315	0.341	833	1.39	2.28	73.6
KU1R 225 M2	KUOR 200 L2	0.234	0.259	689	1.06	1.81	60.3
KU1R 250 M2	KUOR 225 M2	0.162	0.188	677	0.89	1.47	47.5
KU1R 280 S2	KUOR 250 S2	0.131	0.116	550	0.7	1.22	46.3
KU1R 280 M2	KUOR 250 M2	0.088	0.078	369	0.48	0.86	30.9
KU1R 315 S2	KUOR 280 S2	0.077	0.063	427	0.5	0.91	33
KU1R 315 M2	KUOR 280 M2	0.0569	0.0469	353	0.375	0.719	27.3
KU1R 315 MX2	KUOR 315 S2	0.0394	0.0438	297	0.281	0.578	22.8
KU1R 315 MY2	KUOR 315 M2	0.0306	0.025	281	0.219	0.422	16.9
KU1R 315 L2	KUOR 315 L2	0.03084	0.02109	572	0.2031	0.5313	19.73
KU1R 315 LX2	KUOR 315 LX2	0.0223	0.0159	416	0.15	0.469	15.16
KU2R 355 MY2		0.0129	0.0083	309	0.171	0.32	7.597
KU2R 355 M2		0.0133	0.0104	409	0.176	0.322	10.075
KU2R 355 MX2		0.0082	0.0069	313	0.122	0.267	8.517
KU2R 355 LY2		0.0104	0.0076	384	0.135	0.315	12.819
KU2R 355 L2		0.0088	0.0058	300	0.103	0.241	8.456

### Three-phase motors with squirrel-cage rotor for converter-fed operation without filter up to 500 V

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Equivalent circuit data		Design point 500 V Δ, 50 Hz					
Type		$R1_w$ Ω	$R2_w$ Ω	$Rf_e$ Ω	$X1_s$ Ω	$X2_s'$ Ω	$X1_h$ Ω
<b>Synchronous speed 1500 rpm – 4-pole version</b>							
KU1R 63 K4	KUOR 56 K4	622.5	337.5	43303	194.53	178.13	2536
KU1R 63 G4	KUOR 56 G4	377.81	255.94	32808	145.78	136.88	1988
KU1R 71 K4	KUOR 63 K4	293.44	162.66	24923	134.53	134.53	1795
KU1R 71 G4	KUOR 63 G4	173.91	117.66	18408	97.5	100.31	1383
KU1R 80 K4	KUOR 71 K4	91.88	62.81	12305	74.53	67.5	848
KU1R 80 G4	KUOR 71 G4	61.88	48.75	9778	57.66	52.97	694
KU1R 90 S4	KUOR 80 K4	46.88	31.88	9066	27.94	23.11	647
KU1R 90 L4	KUOR 80 G4	33.38	25.08	7617	21.52	18.28	548
KU1R 100 L4	KUOR 90 L4	17.25	15	5564	15.98	14.95	402
KU1R 100 LX4	KUOR 100 S4	11.11	8.81	4041	11.67	11.77	293
KU1R 112 M4	KUOR 100 L4	8.53	6.7	2995	8.39	8.25	215
KU1R 112 MX4		5.3	5.44	2077	5.58	6	148
KU1R 132 S4 T		5.3	5.44	2077	5.58	6	148
KU1R 132 S4	KUOR 112 M4	6.9781	4.734	3409	7.08	7.16	235
KU1R 132 M4	KUOR 132 S4	4.4034	2.703	2680	5.19	5.97	157
KU1R 160 M4	KUOR 132 M4	2.5834	1.781	1875	3.43	4.5	122
KU1R 160 L4	KUOR 160 S4	1.5947	1.052	1250	2.78	4.36	98
KU1R 180 M4	KUOR 160 M4	1.2359	0.867	1072	2.19	3.52	79
KU1R 180 L4	KUOR 180 S4	0.7722	0.641	1081	2.09	3.61	68
KU1R 200 L4	KUOR 180 M4	0.5294	0.484	870	1.55	2.8	55
KU1R 225 S4	KUOR 200 M4	0.3194	0.327	694	1.33	2.53	48
KU1R 225 M4	KUOR 200 L4	0.2428	0.278	614	1.13	2.19	42
KU1R 250 M4	KUOR 225 M4	0.1925	0.188	511	0.98	1.86	39
KU1R 280 S4	KUOR 250 S4	0.1138	0.113	397	0.69	1.5	29
KU1R 280 M4	KUOR 250 M4	0.0919	0.094	352	0.59	1.3	25
KU1R 315 S4	KUOR 280 S4	0.0788	0.066	298	0.41	0.92	20
KU1R 315 M4	KUOR 280 M4	0.0656	0.056	275	0.36	0.83	18
KU1R 315 MX4	KUOR 315 S4	0.0569	0.052	266	0.31	0.77	16
KU1R 315 MY4	KUOR 315 M4	0.0416	0.028	245	0.22	0.58	14
KU1R 315 L4	KUOR 315 L4	0.03281	0.0233	356	0.1859	0.6094	12.28
KU1R 315 LX4	KUOR 315 LX4	0.02188	0.0172	267	0.1375	0.5781	9.08
KU2R 355 MY4		0.01228	0.0141	289	0.1889	0.3703	6.23
KU2R 355 M4		0.01031	0.0109	250	0.1438	0.1786	4.88
KU2R 355 MX4		0.00766	0.0086	234	0.1263	0.2731	4.7
KU2R 355 LY4		0.00647	0.0082	164	0.1048	0.2052	3.54
KU2R 355 L4		0.00678	0.0063	141	0.0922	0.1469	2.39

**Three-phase motors with squirrel-cage rotor  
for converter-fed operation without filter up to 500 V**

with surface cooling, duty type S8, S9  
for rated voltage, thermal class 155 (F), degree of protection IP 55, 50 Hz

Equivalent circuit data		Design point 500 V Δ, 50 Hz					
Type		R1 <sub>w</sub> Ω	R2 <sub>w</sub> Ω	R <sub>F</sub> <sub>e</sub> Ω	X1s Ω	X2s' Ω	X1 <sub>h</sub> Ω
<b>Synchronous speed 1000 rpm – 6-pole version</b>							
KU1R 63 K6	KUOR 56 K6	559.22	467.81	50367	382.5	405	2259
KU1R 63 G6	KUOR 56 G6	408.75	388.13	41920	317.81	338.91	1917
KU1R 71 K6	KUOR 63 K6	202.03	171.09	21459	227.34	213.75	1008
KU1R 71 G6	KUOR 63 G6	175.78	156.09	21173	210	200.16	1134
KU1R 80 K6	KUOR 71 K6	175.78	109.69	18984	80.16	82.97	1106
KU1R 80 G6	KUOR 71 G6	106.41	78.75	13978	57.19	60	816
KU1R 90 S6	KUOR 80 K6	59.53	40.97	8484	39.98	47.81	572
KU1R 90 L6	KUOR 80 G6	40.27	30.89	6553	29.77	36.52	449
KU1R 100 L6	KUOR 90 L6	29.86	20.06	6108	23.77	27.7	373
KU1R 112 M6	KUOR 100 L6	21	14.16	5063	13.27	11.58	314
KU1R 132 S6T							
KU1R 132 S6	KUOR 112 M6	13.48	9.38	4214	12	10.95	276
KU1R 132 M6	KUOR 112 MX6	8.203	6.44	3000	8.19	7.66	192
KU1R 132 MX6	KUOR 132 S6	6.103	4.55	2633	7.69	9.88	179
KU1R 160 M6	KUOR 132 M6	3.653	3.5	2094	5.8	7.66	142
KU1R 160 L6	KUOR 160 S6	2.647	2.05	1830	4.05	5.36	128
KU1R 180 L6	KUOR 160 M6	1.466	1.3	1119	2.47	3.44	76
KU1R 200 L6	KUOR 180 S6	1.181	1.06	1111	2.59	3.19	89
KU1R 200 LX6	KUOR 180 M6	0.875	0.84	894	2.03	2.55	72
KU1R 225 M6	KUOR 200 M6	0.591	0.6	750	1.72	2.16	65
KU1R 250 M6	KUOR 225 M6	0.446	0.41	636	1.38	2.06	56
KU1R 280 S6	KUOR 250 S6	0.324	0.29	528	1.16	1.77	43
KU1R 280 M6	KUOR 250 M6	0.2341	0.222	423	0.891	1.391	34.2
KU1R 315 S6	KUOR 280 S6	0.1466	0.127	328	0.75	1.156	28.8
KU1R 315 M6	KUOR 280 M6	0.1159	0.098	275	0.578	0.938	23.6
KU1R 315 MX6	KUOR 315 S6	0.0919	0.078	216	0.469	0.75	18.4
KU1R 315 MY6	KUOR 315 M6	0.0744	0.064	239	0.422	0.719	17.7
KU1R 315 L6	KUOR 315 L6	0.0547	0.055	341	0.352	0.688	15.2
KU1R 315 LX6	KUOR 315 LX6	0.0365	0.039	197	0.248	0.531	9.7
KU2R 355 MY6		0.0267	0.026	258	0.286	0.533	8.5
KU2R 355 M6		0.0189	0.02	206	0.218	0.41	5.8
KU2R 355 MX6		0.0157	0.018	219	0.192	0.369	6.4
KU2R 355 LY6		0.0111	0.013	133	0.138	0.269	3.8
<b>Synchronous speed 750 rpm – 8-pole version</b>							
KU1R 71 K8	KUOR 63 K8	575.63	439.22	58228	305.63	416.72	1819
KU1R 71 G8	KUOR 63 G8	400.78	345.47	44564	239.53	326.72	1406
KU1R 80 K8	KUOR 71 K8	367.5	226.88	38306	156.56	185.63	1580
KU1R 80 G8	KUOR 71 G8	217.97	152.34	25641	104.06	124.69	1059
KU1R 90 S8	KUOR 80 K8	122.81	81.09	16931	74.06	102.19	750
KU1R 90 L8	KUOR 80 G8	82.97	62.81	13238	57.19	79.69	591
KU1R 100 L8	KUOR 90 L8	57.19	36.42	10463	40.45	53.91	427
KU1R 100 LX8	KUOR 100 S8	43.55	32.58	10730	30.14	27.09	433
KU1R 112 M8	KUOR 100 L8	28.73	20.53	8081	21.8	20.02	328
KU1R 132 S8T							
KU1R 132 S8	KUOR 112 M8	20.32	14.73	6481	18.98	18.47	267
KU1R 132 M8	KUOR 112 MX8	14.39	11.41	5208	14.5	14.39	214
KU1R 160 M8	KUOR 132 S8	9.76	7.88	4167	13.03	17.67	200
KU1R 160 MX8	KUOR 132 M8	6.19	5.78	3073	9.41	12.97	144
KU1R 160 L8	KUOR 160 S8	3.87	2.91	2367	5.55	8.11	105
KU1R 180 L8	KUOR 160 M8	2.384	2.14	1794	4.02	6.09	79
KU1R 200 L8	KUOR 180 S8	1.488	1.33	1242	3.28	4.22	62
	KUOR 180 M8						
KU1R 225 S8		1.181	1.2	1191	2.94	3.88	61
KU1R 225 M8	KUOR 200 M8	0.941	0.92	1075	2.66	3.58	62
KU1R 250 M8	KUOR 225 M8	0.547	0.52	683	1.69	2.66	39
KU1R 280 S8	KUOR 250 S8	0.416	0.36	664	1.45	2.41	34
KU1R 280 M8	KUOR 250 M8	0.252	0.27	484	1.05	1.77	25
KU1R 315 S8	KUOR 280 S8	0.2078	0.172	461	1.016	1.672	24.7
KU1R 315 M8	KUOR 280 M8	0.1444	0.131	367	0.781	1.281	19.5
KU1R 315 MX8	KUOR 315 S8	0.1269	0.109	298	0.656	1.078	15.9
KU1R 315 MY8	KUOR 315 M8	0.0831	0.078	264	0.516	0.938	13.1
KU1R 315 L8	KUOR 315 L8	0.0678	0.069	358	0.45	0.828	11.5
KU1R 315 LX8	KUOR 315 LX8	0.0446	0.048	250	0.311	0.578	7.5
KU2R 355 MY8		0.0309	0.028	258	0.384	0.476	7.7
KU2R 355 M8		0.023	0.024	250	0.317	0.389	5.8
KU2R 355 MX8		0.0183	0.021	197	0.256	0.319	5.4
KU2R 355 LY8		0.0133	0.017	156	0.204	0.255	3.9

## Mechanical limit speeds

Where motors are operated above the rated speed, the limit values of the antifriction roller bearings, the strength of the rotating parts, critical rotor speeds and the circumferential speed of the fan must be observed.

The limit speeds specified in the table below may already require the implementation of additional measures such as special fans, special bearings or special balancing.

Type (IE1-)K21R/F	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
(IE1-)K21. 56/63	15000	12000	12000	-
(IE1-)K21. 71	14000	11000	11000	11000
(IE1-)K21. 80	13000	11000	10000	10000
(IE1-)K21. 90	11000	9000	9000	9000
(IE1-)K21. 100	10000	8000	8000	8000
(IE1-)K21. 100 LX	7000	6000	6000	6000
(IE1-)K21. 112	7000	6000	6000	6000
(IE1-)K21. 132T	7000	6000	6000	6000
(IE1-)K21. 132	7000	3600	2400	1800
(IE1-)K21. 160	6000	3600	2400	1800
(IE1-)K21. 180	6000	3000	2000	1500
(IE1-)K21. 200	5000	3000	2000	1500
(IE1-)K21. 225	5000	3000	2000	1500
(IE1-)K21. 250	4500	3000	2000	1500
(IE1-)K21. 280	4300	3000	2000	1500
(IE1-)K21. 315 S, M	3800	3000	2000	1500
(IE1-)K21. 315 MX	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000	2000
(IE1-)K21. 315 MY, L, LX	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000 <sup>1)</sup>	2600 <sup>2)</sup>
(IE1-)K22. 355	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000 <sup>1)</sup>	2600 <sup>2)</sup>

Type (IE1-)K20R/F	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
(IE1-)K20. 56	15000	12000	12000	-
(IE1-)K20. 63	14000	11000	11000	11000
(IE1-)K20. 71	13000	11000	10000	10000
(IE1-)K20. 80	11000	9000	9000	9000
(IE1-)K20. 90	10000	8000	8000	8000
(IE1-)K20. 100	7000	6000	6000	6000
(IE1-)K20. 112	7000	3600	2400	1800
(IE1-)K20. 132	7000	3600	2400	1800
(IE1-)K20. 160	6000	3000	2000	1500
(IE1-)K20. 180	6000	3000	2000	1500
(IE1-)K20. 200	5000	3000	2000	1500
(IE1-)K20. 225	4500	3000	2000	1500
(IE1-)K20. 250	4300	3000	2000	1500
(IE1-)K20. 280	3800	3000	2000	1500
(IE1-)K20. 315 S	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000	2000
(IE1-)K20. 315 M, L	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000 <sup>1)</sup>	2600 <sup>2)</sup>

Type IE2-W.1R/F, IE2-WE2R/F	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
IE2-WE1. 56,				
IE2-WE2. 56/63	15000	12000	12000	-
IE2-WE1. 63				
IE2-WE2. 71	14000	11000	11000	11000
IE2-WE1. 71				
IE2-WE2. 80	13000	11000	10000	10000
IE2-WE1. 80				
IE2-WE2. 90	11000	9000	9000	9000
IE2-WE1. 90				
IE2-WE2. 100	10000	8000	8000	8000
IE2-WE1. 100	7000	6000	6000	6000
IE2-WE1. 112	7000	6000	6000	6000
IE2-WE1. 132T	7000	6000	6000	6000
IE2-WE1. 132	7000	3600	2400	1800
IE2-WE2. 132				
IE2-WE.. 160	6000	3600	2400	1800
IE2-WE.. 180	6000	3000	2000	1500
IE2-WE.. 200	5000	3000	2000	1500
IE2-WE.. 225	5000	3000	2000	1500
IE2-WE.. 250	4500	3000	2000	1500
IE2-WE.. 280	4300	3000	2000	1500
IE2-WE.. 315 S, M	3800	3000	2000	1500
IE2-WE.. 315 MX	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000	2000
IE2-WE.. 315 MY, L, LX	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000 <sup>1)</sup>	2600 <sup>2)</sup>
IE2-WE.. 355	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000 <sup>1)</sup>	2600 <sup>2)</sup>

Type IE3-W4.R/F	Synchronous speed at 50 Hz			
	3000 rpm	1500 rpm	1000 rpm	750 rpm
IE3-W41. 56,				
IE3-W42. 56/63	15000	12000	12000	-
IE3-W41. 63,				
IE3-W42. 71	14000	11000	11000	11000
IE3-W41. 71,				
IE3-W42. 80	13000	11000	10000	10000
IE3-W41. 80,				
IE3-W42. 90	11000	9000	9000	9000
IE3-W41. 90	10000	8000	8000	8000
IE3-W41. 100	7000	6000	6000	6000
IE3-W41. 112	7000	6000	6000	6000
IE3-W41. 132T	7000	6000	6000	6000
IE3-W41. 132,				
IE3-W42. 132	7000	3600	2400	1800
IE3-W4.. 160	6000	3600	2400	1800
IE3-W4.. 180	6000	3000	2000	1500
IE3-W4.. 200	5000	3000	2000	1500
IE3-W4.. 225	5000	3000	2000	1500
IE3-W4.. 250	4500	3000	2000	1500
IE3-W4.. 280	4300	3000	2000	1500
IE3-W4.. 315 S, M	3800	3000	2000	1500
IE3-W4.. 315 MX	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3000	2000
IE3-)W4.. 315 MY, L, LX	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3600 <sup>1)</sup>	3000 <sup>2)</sup>
IE3-W4.. 355	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3600 <sup>1)</sup>	3000 <sup>2)</sup>
IE3-W4.. 400	3600 <sup>1)</sup>	3000 <sup>2)</sup>	3600 <sup>1)</sup>	3000 <sup>2)</sup>

<sup>1)</sup> Light-duty bearing (D-end with deep-groove ball bearing)

<sup>2)</sup> Heavy-duty bearing (D-end with cylindrical roller bearing)

The limit values apply accordingly for motors with forced ventilation, type of cooling IC 416, series (IE1-)K21F, (IE1) K20F and (IE2-)W.1R

## **VEM Holding GmbH**

Pirnaer Landstraße 176  
01257 Dresden  
Germany

### **Sales**

#### **Low voltage department**

Tel. +49 3943 68-3127  
Fax +49 3943 68-2440  
E-Mail: [low-voltage@vem-group.com](mailto:low-voltage@vem-group.com)

#### **High voltage department**

Tel. +49 351 208-3237  
Fax +49 351 208-1108  
E-Mail: [high-voltage@vem-group.com](mailto:high-voltage@vem-group.com)

#### **Drive systems department**

Tel. +49 351 208-1180  
Fax +49 351 208-1185  
E-Mail: [drive-systems@vem-group.com](mailto:drive-systems@vem-group.com)

#### **VEM Service**

Tel. +49 351 208-3237  
Fax +49 351 208-1108  
E-Mail: [service@vem-group.com](mailto:service@vem-group.com)



For detailed information  
please visit our website.

[www.vem-group.com](http://www.vem-group.com)