



# Transnorm motors

Low-voltage motors for  
Premium Efficiency IE3\*)  
200 kW to 1000 kW

SENSE EXPERIENCE  
EXPERIENCE VISION





## More power and efficiency for the future

Electric machines from VEM are appreciated by millions of users worldwide. The name VEM is respected as a seal of quality. Large and special machines, as well as standard motors and special drives, are operating reliably in all branches of industry. Plants of all kinds are equipped with motors, generators and drive solutions for the full range of voltages. These products have been demonstrating their strengths for decades, even when exposed to some of the most extreme operating conditions – whether the dust and heat of a rolling mill, explosive atmospheres in the chemical industry, or damp, salt-laden air on the deck of a ship.

Our company can look back over more than 50 years of tradition and experience in the manufacturing of electric machines.

### Technical features

- › Efficiency class IE3<sup>\*)</sup>
- › Types of construction IM B3, IM B35 and IM V1 to IEC
- › Degree of protection IP 55; optionally IP 56 or IP 65
- › Robust, one-piece die-cast rotor
- › Winding compliant with thermal class 155, optionally 180, vacuum-impregnated
- › Optimised, high-performance ventilation system
- › Relubrication facility with grease supply regulator
- › Temperature monitoring with PTC thermistor as standard
- › Generously dimensioned terminal box
- › Two-tier terminal layout for 1000 A terminal box
- › Environment-friendly finish using water-based paint

With the new energy-efficient transnorm motor series W4.R, VEM has extended its low-voltage asynchronous motor range up to 1000 kW. Motors for the output range up to 800 kW meet the requirements for efficiency class Premium Efficiency IE3 to DIN EN 60034-30:2012 (draft). The increasing importance of energy efficiency, ever stricter demands in environment protection and wishes for reduced dimensions have been addressed through further development of the long proven series K21R and WE.R.

The new transnorm series W4.R departs from the former principle of cooling purely by way of cooling ribs and implements an additional internal cooling system. In combination with a new die-cast rotor, this promotes better thermal behaviour, as the basis for higher efficiency and an extremely compact design.

### Benefits

- › Energy-efficient design meeting efficiency class IE3<sup>\*)</sup>
- › Robust grey-cast housing and end shields
- › Low-vibration design
- › Compact design with smallest possible installation volume
- › High electrical strength for mains and converter-fed operation
- › Quiet running
- › Paint finishes for climate classes “moderate” and “worldwide” to IEC 721-2-1
- › Modern modular system
- › State-of-the-art manufacturing methods ensure high operational reliability

<sup>\*)</sup> E DIN EN 60034-30:2012 (draft)

With the new transnorm motor series W4.R, VEM has extended its low-voltage asynchronous motor range up to 1000 kW. The drives are characterised by their practically unlimited range of applications.

### Diverse applications

The range of applications for motors of the latest VEM generation is practically unlimited. They are ideal as drives to transport liquid media or compress gases, but no less suitable for use in cement works, rolling mills or chemical plants. In conjunction with frequency converters, the motors enable operators to implement tailored process control.

The optimised winding design permits use in variable-speed drive systems. A special mica-based winding system is available for converter-fed operation with converter output voltages up to 690 V. The system is designed for stresses in accordance with Curve B, IEC TS 60034-25.

Technical support during project planning, testing and commissioning is inherent to our customer services, as are inspections performed by our service department. Our motors comply with all relevant national and international regulations. All development, engineering, manufacturing and testing activities are governed by the stipulations of DIN ISO 9001 and certified by Germanischer Lloyd Certification GmbH. The motors meet the requirements of all applicable EU standards. Manufactured in Germany, they reflect an important element of our quality philosophy.

### Transnorm motors

**Energy-saving motors, Premium Efficiency IE3, Low-voltage asynchronous motors with squirrel-cage rotor with surface cooling, cooling method IC 411, mode of operation S1, continuous duty, thermal class 155, degree of protection IP 55**

| Type   | P <sub>B</sub><br>kW | M <sub>B</sub><br>Nm | IE   | η <sub>4/48</sub><br>100 % | J<br>kgm <sup>2</sup> | m<br>kg |
|--|----------------------|----------------------|------|----------------------------|-----------------------|---------|
| <b>Synchronous speed 3000 rpm/2-pole version</b> |                      |                      |      |                            |                       |         |
| IE3- W41R 315 S2                                 | 110                  | 353                  | IE3- | 95.2                       | 1.21                  | 730     |
| IE3- W41R 315 M2                                 | 132                  | 423                  | IE3- | 95.4                       | 1.44                  | 820     |
| IE3- W41R 315 MX2                                | 160                  | 513                  | IE3- | 95.6                       | 2.44                  | 1050    |
| IE3- W41R 315 MY2                                | 200                  | 640                  | IE3- | 95.8                       | 2.82                  | 1200    |
| IE3- W41R 315 L2                                 | 250                  | 800                  | IE3- | 95.8                       | 3.66                  | 1450    |
| IE3- W41R 315 LX2                                | 315                  | 1008                 | IE3- | 95.8                       | 4.43                  | 1720    |
| IE3- W42R 355 M2                                 | 355                  | 1138                 | IE3* | 95.8                       | 4.20                  | 2000    |
| W42R 355 MX2                                     | 400                  | 1278                 | IE3* | 95.8                       | 5.50                  | 2200    |
| W42R 355 L2                                      | 500                  | 1597                 | IE3* | 95.8                       | 7.10                  | 2400    |
| W42R 400 M2                                      | 560                  | 1790                 | IE3* | 95.8                       | 8.44                  | 2800    |
| W42R 400 MX2                                     | 630                  | 2014                 | IE3* | 95.8                       | 9.41                  | 3000    |
| W42R 400 L2                                      | 710                  | 2269                 | IE3* | 95.8                       | 10.41                 | 3200    |
| W42R 450 M2                                      | 800                  | 2557                 | IE3* | 95.8                       | 14.14                 | 4000    |
| W42R 450 MX2                                     | 900                  | 2876                 | -    | 95.8                       | 16.01                 | 4200    |
| W42R 450 L2                                      | 1000                 | 3194                 | -    | 95.8                       | 17.94                 | 4400    |

#### Synchronous speed 1500 rpm/4-pole version

|                   |      |      |      |      |       |      |
|-------------------|------|------|------|------|-------|------|
| IE3- W41R 315 S4  | 110  | 706  | IE3- | 95.4 | 1.96  | 760  |
| IE3- W41R 315 M4  | 132  | 849  | IE3- | 95.6 | 2.27  | 850  |
| IE3- W41R 315 MX4 | 160  | 1026 | IE3- | 95.8 | 4.02  | 1070 |
| IE3- W41R 315 MY4 | 200  | 1282 | IE3- | 96.0 | 4.82  | 1270 |
| IE3- W41R 315 L4  | 250  | 1602 | IE3- | 96.2 | 5.93  | 1450 |
| IE3- W41R 315 LX4 | 315  | 2022 | IE3- | 96.0 | 6.82  | 1630 |
| IE3- W41R 355 M4  | 355  | 2275 | IE3- | 96.0 | 7.90  | 2150 |
| W42R 355 MX4      | 400  | 2564 | IE3* | 96.0 | 9.50  | 2400 |
| W42R 355 L4       | 500  | 3205 | IE3* | 96.0 | 10.00 | 2500 |
| W42R 400 M4       | 560  | 3582 | IE3* | 96.0 | 12.60 | 2800 |
| W42R 400 MX4      | 630  | 4030 | IE3* | 96.0 | 14.33 | 3000 |
| W42R 400 L4       | 710  | 4542 | IE3* | 96.0 | 16.29 | 3200 |
| W42R 450 M4       | 800  | 5117 | IE3* | 96.0 | 22.76 | 4000 |
| W42R 450 MX4      | 900  | 5757 | -    | 96.0 | 25.34 | 4200 |
| W42R 450 L4       | 1000 | 6397 | -    | 96.0 | 28.07 | 4400 |

| Type   | P <sub>B</sub><br>kW | M <sub>B</sub><br>Nm | IE   | η <sub>4/48</sub><br>100 % | J<br>kgm <sup>2</sup> | m<br>kg |
|--|----------------------|----------------------|------|----------------------------|-----------------------|---------|
| <b>Synchronous speed 1000 rpm/6-pole version</b> |                      |                      |      |                            |                       |         |
| IE3- W41R 315 S6                                 | 75                   | 723                  | IE3- | 94.6                       | 5.55                  | 980     |
| IE3- W41R 315 M6                                 | 90                   | 868                  | IE3- | 94.9                       | 6                     | 1050    |
| IE3- W41R 315 MX6                                | 110                  | 1061                 | IE3- | 95.1                       | 6.67                  | 1250    |
| IE3- W41R 315 L6                                 | 132                  | 1267                 | IE3- | 95.4                       | 10                    | 1550    |
| IE3- W41R 355 M6                                 | 160                  | 1536                 | IE3- | 95.6                       | 8.2                   | 1850    |
| IE3- W42R 355 MX6                                | 200                  | 1920                 | IE3- | 95.8                       | 12.10                 | 2200    |
| IE3- W42R 355 L6                                 | 250                  | 1920                 | IE3- | 95.8                       | 14.00                 | 2400    |
| IE3- W42R 355 LX6                                | 315                  | 3033                 | IE3- | 95.8                       | 14.00                 | 2400    |
| W42R 400 MY6                                     | 355                  | 3407                 | IE3* | 95.8                       | 16.54                 | 2800    |
| W42R 400 M6                                      | 400                  | 3847                 | IE3* | 95.8                       | 16.54                 | 2800    |
| W42R 400 MX6                                     | 450                  | 4328                 | IE3* | 95.8                       | 18.44                 | 3000    |
| W42R 400 L6                                      | 500                  | 4809                 | IE3* | 95.8                       | 20.63                 | 3200    |
| W42R 450 M6                                      | 560                  | 5386                 | IE3* | 95.8                       | 29.26                 | 4000    |
| W42R 450 MX6                                     | 630                  | 6053                 | IE3* | 95.8                       | 33.00                 | 4200    |
| W42R 450 L6                                      | 710                  | 6821                 | IE3* | 95.8                       | 37.50                 | 4500    |

#### Synchronous speed 750 rpm/8-pole version

|              |     |      |      |      |       |      |
|--------------|-----|------|------|------|-------|------|
| W41R 315 S8  | 55  | 707  | IE3* | 93.8 | 5.55  | 980  |
| W41R 315 M8  | 75  | 968  | IE3* | 94.3 | 6     | 1050 |
| W41R 315 MX8 | 90  | 1154 | IE3* | 94.6 | 6.67  | 1250 |
| W41R 315 L8  | 110 | 1410 | IE3* | 94.9 | 10    | 1550 |
| W41R 355 M8  | 132 | 1692 | IE3* | 95.1 | 9.5   | 1850 |
| W42R 355 MX8 | 160 | 2054 | IE3* | 95.4 | 13.40 | 2200 |
| W42R 355 L8  | 200 | 2054 | IE3* | 95.6 | 15.80 | 2400 |
| W42R 355 LX8 | 250 | 3213 | IE3* | 95.6 | 15.80 | 2400 |
| W42R 400 MY8 | 315 | 4049 | IE3* | 95.6 | 17.94 | 2800 |
| W42R 400 M8  | 355 | 4551 | IE3* | 95.6 | 17.94 | 2800 |
| W42R 400 MX8 | 400 | 5134 | IE3* | 95.6 | 19.99 | 3000 |
| W42R 400 L8  | 450 | 5776 | IE3* | 95.6 | 22.34 | 3200 |
| W42R 450 M8  | 500 | 6418 | IE3* | 95.6 | 30.80 | 4000 |
| W42R 450 MX8 | 560 | 7179 | IE3* | 95.6 | 36.17 | 4200 |
| W42R 450 L8  | 630 | 8076 | IE3* | 95.6 | 40.71 | 4500 |

IE3\* – according to draft standard IEC 6034-30, Edition 2.0, 2/1652/CD, Efficiency measurement to IEC 60034-2-1  
Subject to change in the course of further development.

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