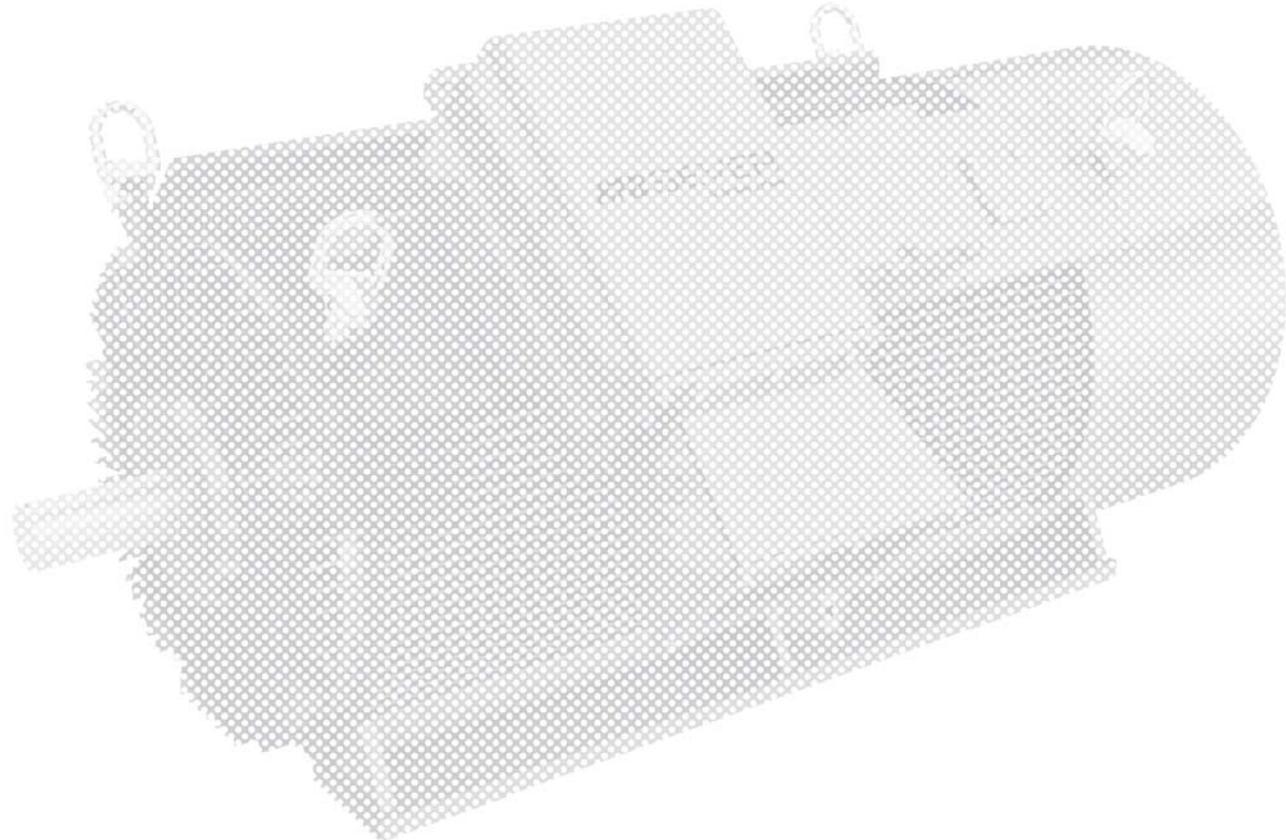


# Technical Documentation



TRANSNORM  
LOW VOLTAGE MOTORS  
IC 411

**ATB SEVER**  
Technology in Motion

## Mission, Vision, Targets



Our electric motors and generators are optimized in accordance with our client's technical and economical requests. Our clients will receive from us, within a very short notice, most advanced and high quality technical solutions of electric motors, generators, electric drives and complete technical solutions of small and middle sized hydroelectric power plants, along with economically most favourable conditions.

We are constantly moving your ideas. We are not just manufacturing motors and generators, we turn ambitious concepts of our clients into advanced, innovative and reliable products, which are unique and future oriented. Our reliability, creativity and flexibility will assist our clients in achieving their goals.

Keeping track with newest technological and technical solutions, our products are being constantly developed and therefore we are improving all our activities aimed to fulfil our client's requests. Our view of the future is oriented towards development of high power and big sized electric motors, hydrogenerators for small and middle sized hydroelectric power plants, as well as electric motors designed for extreme working conditions and most complex technical requirements.

# TRANSNORM MOTORS

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## TRANSNORM MOTORS

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## Low Voltage

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# TRANSNORM MOTORS

## 2 Our philosophy

As a competent full-range supplier of bespoke highly efficient electrical drives, we are ready to meet the challenges on a global market.

We find the perfect solution together with our customers and partners for their individual drive applications using our comprehensive development and production competences.

Our product range is as diverse as our customers' needs, leading to highly efficient solutions such as the transnorm motor range.

The transnorm motor range is now upgraded with a IC411 motor family with improved cooling system, providing state of the art performance while committed to our tradition as application expert and development partner.

The highly efficient new motor range has been developed by an international team of ATB specialists bringing together our joint values and expertise and will be produced as new platform on selected sites.

The ATB group represents innovative drive solutions and continually invests in the development of electrical motors and systems to meet the specific requirements of tomorrow.

## Characteristics

### Performance parameters

- ⚡ Power range from 160 kW to 4 MW
- ⚡ High efficiency up to 97,5 %
- ⚡ Comprehensive range of high and low voltage from 2 to 8 poles
- ⚡ IE3 up to 375 kW (acc. EN 60034-30:20129)
- ⚡ Enclosure IP 55 standard, optional IP 56, IP65

### Special attributes

- ⚡ Increased power to weight ratio
- ⚡ Optimized design to maximize performance
- ⚡ Improved cooling system IC 411
- ⚡ Lower bearing temperature and easy maintenance
- ⚡ Reduced noise level
- ⚡ Multi-position terminal box
- ⚡ Universal mounting position
- ⚡ Easy customization with modular add-on accessories
- ⚡ Suitable for use with inverter drives
- ⚡ Developed with Computational Fluid Dynamics (CFD)
- ⚡ Easy to fit in multiple industrial application and segments
- ⚡ Worldwide product and service support

# TRANSNORM MOTORS

## Technical data 3

### Low voltage range

#### Performance parameters

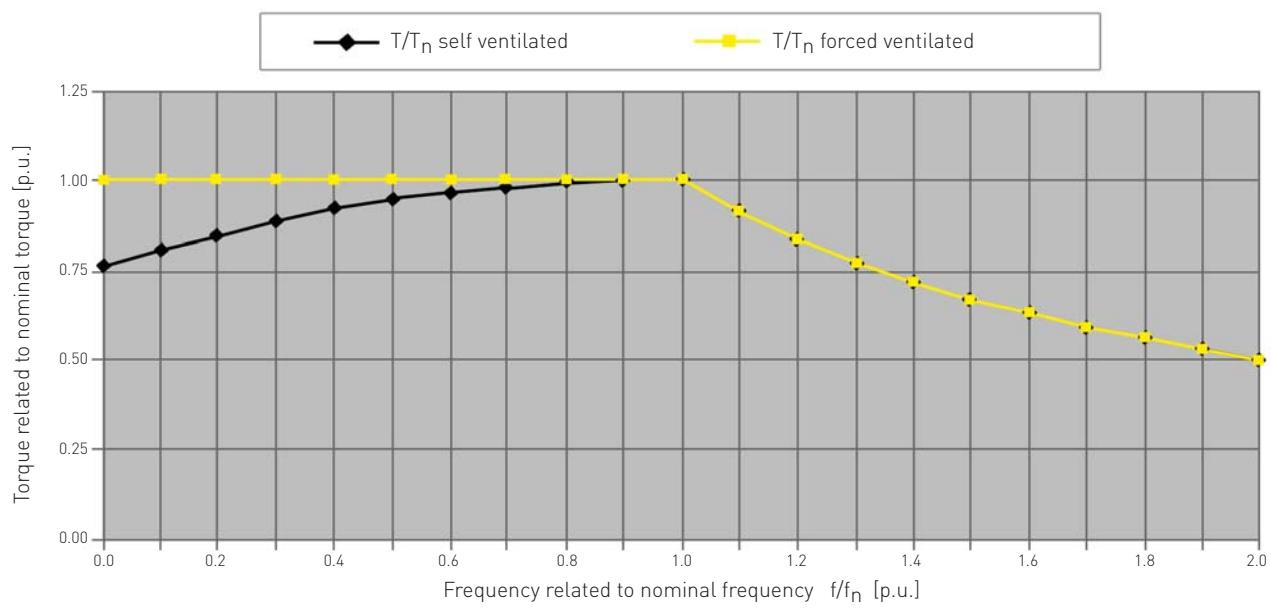
|             |    |         |         |         |           |           |             |             |       |
|-------------|----|---------|---------|---------|-----------|-----------|-------------|-------------|-------|
| Frame size  | mm | 315     | 355     | 400     | 450       | 500       | 560         | 630         | 710   |
| Power range | kW | 200-500 | 450-650 | 400-800 | 650-1,150 | 900-1,500 | 1,250-2,000 | 1,900-2,140 | 3,000 |

### High voltage range

#### Performance parameters

|             |    |         |         |         |           |           |             |             |             |
|-------------|----|---------|---------|---------|-----------|-----------|-------------|-------------|-------------|
| Frame size  | mm | 315     | 355     | 400     | 450       | 500       | 560         | 630         | 710         |
| Power range | kW | 160-400 | 225-600 | 355-800 | 560-1,250 | 710-1,800 | 1,250-2,250 | 1,800-3,000 | 2,600-4,000 |

Torque reduction for converter operation as a function of cooling system and rotational speed



# TRANSNORM MOTORS

## 4 Technical data

|                                      | Low voltage range                  | High voltage range            |
|--------------------------------------|------------------------------------|-------------------------------|
| Voltage                              | 400/690 V                          | 3,6/6/11 kV                   |
| Power                                | 200-3,000 kW                       | 160-4,000 kW                  |
| Frequency                            | 50/60 Hz                           | 50/60 Hz                      |
| Motor type                           | asynchronous motor with cage rotor |                               |
| Starting                             |                                    | direct, duty type S1          |
| Class of insulation                  |                                    | F                             |
| Temperature rise class               |                                    | B (F*)                        |
| Degree of protection                 |                                    | IP 55                         |
| Degree of protection of terminal box |                                    | IP 65                         |
| Method of cooling                    |                                    | IC 411                        |
| Type of construction                 |                                    | IMB3, IMV1                    |
| Ambient temperature                  |                                    | -20°C up to 40°C              |
| Altitude                             |                                    | up to 1,000 m above sea level |

\* Inverter drive motor

Subject to modifications



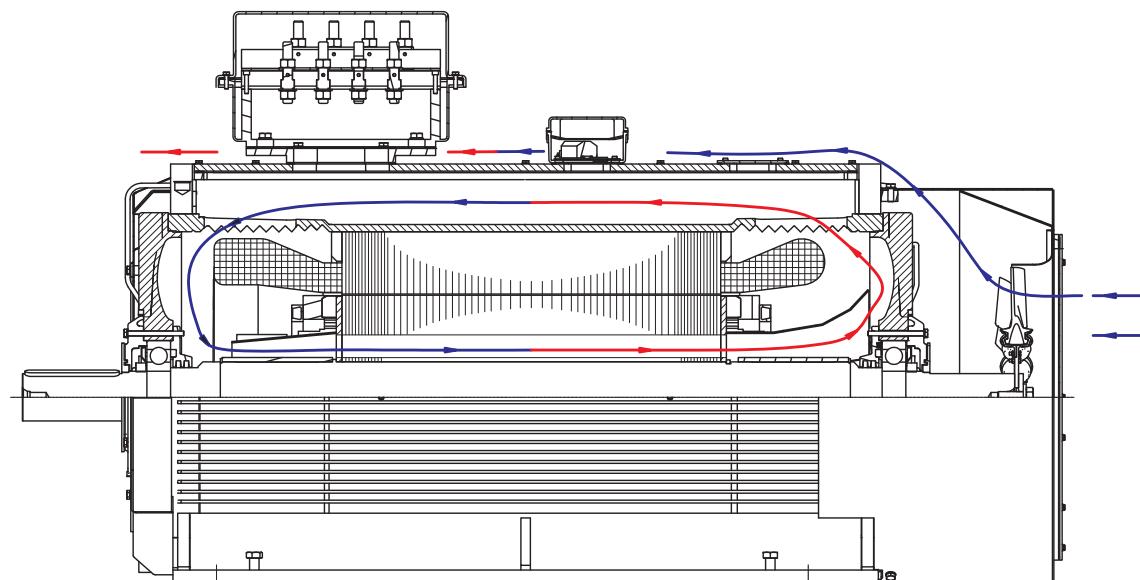
# TRANSNORM LV MOTORS

## Characteristics 5

### Cooling with the own fan, method of cooling IC411, motor series 5. ZK and 4.ZK

Motors with housings with ribs and the own ventilation have technically sophisticated concept of cooling, which corresponds to method of cooling IC411 according to IEC 60034-6 with additional internal circulation circuit. As shown in the drawing, the fan is placed on the non-drive end side. It sucks air from the outside and pushes it axially along the external cooling ribs of the housing. Heat exchange is done in the internal cooling circuit, which ensures uniform temperature distribution in the active motor part and in the bearing areas.

Fans which push the cooling air inside and outside are mounted on the motor shaft and have a role in significant reduction of noise regarding its optimized aerodynamic design.



### Motor protection

Many standard and optional devices for monitoring and protection are available.

| Protective device                | Description   |
|----------------------------------|---|
| Stator winding monitoring        | Standard equipment is 6 x Pt100 resistors for temperature monitoring  |
| Rolling bearings monitoring      | Standard equipment is one Pt100 resistor for temperature monitoring per bearing.<br>Optional – nipple for impact impulse measuring. |
| Monitoring of starting and speed | Optional – pulse encoder for variable speed drive motors  |
| Heaters                          | Optional  |

# TRANSNORM LV MOTORS

## 6 Characteristics

### Vibrations

Horizontal motors up to  $3600 \text{ min}^{-1}$  meet A vibration level according to IEC 60034-14.

Vibration level B is available as an option. The values of vibration for vertical motors we give on request.

### Balance quality

Rotors are dynamically balanced with a half key. Balancing quality is G2.5 according to ISO 1940, for speed up to and including  $1500 \text{ min}^{-1}$ .

### Rotation direction, fan

Rotation direction has to be defined for every order.  
External fan is foreseen for one rotation direction.

### Standards and regulations

Motors meet appropriate standards and regulations, especially those specified in the following table.

| Title  | IEC designation |
|--|-----------------|
| Rotating electrical machines – Part 1: Rating and performance  | IEC60034-1      |
| Rotating electrical machines – Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) – Classification  | IEC60034-5      |
| Rotating electrical machines - Part 6: Methods of cooling (IC Code)  | IEC60034-6      |
| Rotating electrical machines – Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)  | IEC60034-7      |
| Rotating electrical machines – Part 8: Terminal markings and direction of rotation   | IEC60034-8      |
| Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity  | IEC60034-14     |
| Rotating electrical machines – Part 15: Impulse voltage withstand levels of rotating a.c. machines with form-wound stator coils  | IEC60034-15     |
| Electrical insulation - Thermal evaluation and designation<br>Mechanical vibration --<br>Balance quality requirements for rotors in a constant (rigid) state -- Part 1: Specification and verification of balance tolerances | IEC60085        |
| Rotating electrical machines - Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)  | IEC60034-2-1    |

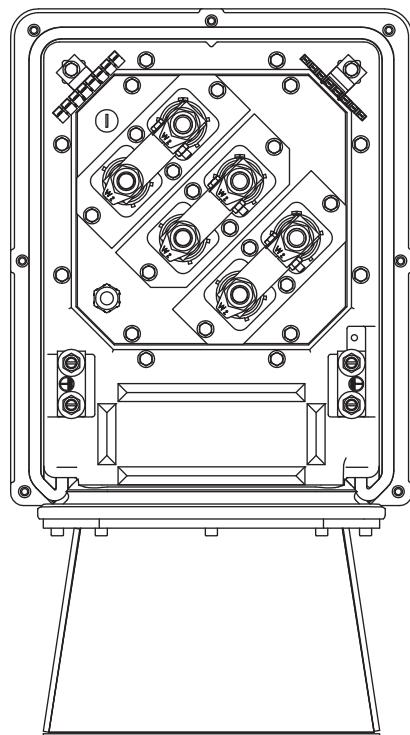
# TRANSNORM LV MOTORS

## Characteristics 7

Table of bearings for motors IM B3 and IM V1

| Size | Mounting arr. | Poles | DE side   | NDE side             | Grease quantity (cm <sup>3</sup> ) | Lubrication period (h) |      |      |      |
|------|---------------|-------|-----------|----------------------|------------------------------------|------------------------|------|------|------|
|      |               |       |           |                      |                                    | 2p=2                   | 2p=4 | 2p=6 | 2p=8 |
| 315  | B3            | 2     | 6317 C3   | 6317 C3              | 46/46                              | 1400                   |      |      |      |
|      |               | >=4   | 6322 C3   | 6322 C3              | 75/75                              |                        | 3000 | 4900 | 6300 |
|      | V1            | 2     | 6317 C3   | 6317 C3/C4           | 46/46                              | 1400                   |      |      |      |
|      |               | >=4   | 6322 C3   | 6322 C3/C4           | 75/75                              |                        | 3000 | 4900 | 6300 |
| 355  | B3            | 2     | 6317 C3   | 6317 C3              | 46/46                              | 1400                   |      |      |      |
|      |               | >=4   | 6322 C3   | 6322 C3              | 75/75                              |                        | 3000 | 4900 | 6300 |
|      | V1            | 2     | 6317 C3   | 6317 C3/C4           | 46/46                              | 1400                   |      |      |      |
|      |               | >=4   | 6322 C3   | 6322 C3/C4           | 75/75                              |                        | 3000 | 4900 | 6300 |
| 400  | B3            | 2     | 6317 C3   | 6317 C3              | 46/46                              | 1400                   |      |      |      |
|      |               | >=4   | 6324 C3   | 6324 C3              | 90//90                             |                        | 2700 | 4500 | 5900 |
|      | V1            | 2     | 6317 C3   | 6317 C4              | 46/46                              | 1400                   |      |      |      |
|      |               | >=4   | 6324 C3   | 6324 C3              | 90/90                              |                        | 2700 | 4500 | 5900 |
| 450  | B3            | >=4   | 6326 M C3 | 6326 M C3            | 105/105                            |                        | 2500 | 4200 | 5500 |
|      | V1            | >=4   | 6326 M C3 | 7326B + 6326 C3      | 105/105+105                        |                        | 2000 | 3500 | 4500 |
| 500  | B3            | >=4   | 6326 M C3 | 6330 M C3            | 105/105                            |                        | 2500 | 4200 | 5500 |
|      | V1            | >=4   | 6326 M C3 | 7330 B M + 6330 M C3 | 105/105+105                        |                        | 2000 | 3500 | 4500 |
| 560  | B3            | >=4   | 6330 C3   | 6334 C3              | 120/120                            |                        | 2000 | 3500 | 4500 |
|      | V1            | >=4   | 6330 C3   | 7334 B M + 6334 C3   | 120/120+120                        |                        | 1700 | 3000 | 3800 |

Drawing of terminal box



# TRANSNORM LV MOTORS

## 8 Electrical data

### Network operation

Low voltage TEFC motors, IP55, class F/B

400 V, 690V / 50Hz

| Type          | Power<br>Pn<br>kW | Nominal<br>speed<br>n<br>1/min | Motor<br>efficiency<br>η<br>% | Power<br>factor<br>$\cos\varphi$ | Nominal<br>current at<br>400V 690V |                     | Nominal<br>torque<br>Tn<br>Nm | Maximum<br>torque<br>Tm/Tn | Momentum<br>of inertia<br>J<br>$\text{kgm}^2$ | Weight<br>m<br>kg |
|---------------|-------------------|--------------------------------|-------------------------------|----------------------------------|------------------------------------|---------------------|-------------------------------|----------------------------|---|-------------------|
|               |                   |                                |                               |                                  | I <sub>n</sub><br>A                | I <sub>n</sub><br>A |                               |                            |   |                   |
| <b>2p=2</b>   |                   |                                |                               |                                  |                                    |                     |                               |                            |   |                   |
| 5.ZK 315 La-2 | 400               | 2976                           | 96,1                          | 0,95                             | 632                                | 365                 | 1284                          | 2,9                        | 2,64  | 2150              |
| 5.ZK 315 Lb-2 | 450               | 2981                           | 96,4                          | 0,94                             | 717                                | 414                 | 1442                          | 3,4                        | 2,9   | 2280              |
| 5.ZK 315 Lc-2 | 500               | 2980                           | 96,5                          | 0,95                             | 787                                | 454                 | 1602                          | 3                          | 3,27  | 2400              |
| 5.ZK 355 La-2 | 500               | 2978                           | 96,4                          | 0,96                             | 780                                | 450                 | 1603                          | 2,5                        | 5,51  | 3000              |
| 5.ZK 355 Lb-2 | 560               | 2982                           | 96,5                          | 0,95                             | 882                                | 509                 | 1793                          | 3,3                        | 6,3   | 3170              |
| 5.ZK 355 Lc-2 | 650               | 2980                           | 96,6                          | 0,96                             | 1003                               | 579                 | 2083                          | 2,9                        | 7,2   | 3370              |
| 5.ZK 400 La-2 | 560               | 2982                           | 96,4                          | 0,94                             | 516                                | 1793                | 2,9                           | 9,1                        | 3230  |                   |
| 5.ZK 400 Lb-2 | 630               | 2985                           | 96,4                          | 0,93                             | 581                                | 2016                | 2,8                           | 10,2                       | 3380  |                   |
| 5.ZK 400 Lc-2 | 710               | 2986                           | 96,5                          | 0,94                             | 657                                | 2270                | 2,8                           | 11,5                       | 3550  |                   |
| 5.ZK 400 Ld-2 | 800               | 2987                           | 96,7                          | 0,95                             | 728                                | 2558                | 3                             | 13                         | 3790  |                   |
| <b>2p=4</b>   |                   |                                |                               |                                  |                                    |                     |                               |                            |   |                   |
| 5.ZK 315 La-4 | 400               | 1486                           | 96,2                          | 0,88                             | 682                                | 394                 | 2571                          | 2,7                        | 4,34  | 1960              |
| 5.ZK 315 Lb-4 | 450               | 1487                           | 96,4                          | 0,89                             | 757                                | 437                 | 2890                          | 2,7                        | 4,78  | 2060              |
| 5.ZK 315 Lc-4 | 500               | 1489                           | 96,6                          | 0,88                             | 849                                | 490                 | 3207                          | 3                          | 5,25  | 2170              |
| 5.ZK 355 La-4 | 500               | 1492                           | 96,8                          | 0,87                             | 857                                | 495                 | 3200                          | 4,1                        | 8,77  | 2930              |
| 5.ZK 355 Lb-4 | 560               | 1491                           | 96,9                          | 0,92                             | 907                                | 524                 | 3587                          | 3,6                        | 9,76  | 3090              |
| 5.ZK 355 Lc-4 | 650               | 1492                           | 97,0                          | 0,90                             | 1075                               | 621                 | 4161                          | 3,9                        | 10,87   | 3280              |
| 5.ZK 400 La-4 | 560               | 1491                           | 96,9                          | 0,91                             | 920                                | 531                 | 3586                          | 3                          | 14,9  | 3520              |
| 5.ZK 400 Lb-4 | 630               | 1491                           | 97,0                          | 0,91                             | 1027                               | 593                 | 4035                          | 2,9                        | 16,8  | 3730              |
| 5.ZK 400 Lc-4 | 710               | 1491                           | 97,1                          | 0,92                             | 1152                               | 665                 | 4548                          | 2,9                        | 18,9  | 3950              |
| 5.ZK 400 Ld-4 | 800               | 1491                           | 97,0                          | 0,92                             | 1294                               | 747                 | 5124                          | 2,9                        | 21,3  | 4200              |
| 4.ZK 450 La-4 | 1150              | 1492                           | 97,2                          | 0,89                             | 1115                               | 7361                | 2,4                           | 32,6                       | 5600  |                   |
| 4.ZK 500 La-4 | 1100              | 1492                           | 97,0                          | 0,88                             | 1078                               | 7041                | 2,8                           | 39,5                       | 6300  |                   |
| 4.ZK 500 Lb-4 | 1300              | 1493                           | 97,1                          | 0,89                             | 1266                               | 8315                | 2,5                           | 44                         | 6600  |                   |
| 4.ZK 500 Lc-4 | 1500              | 1493                           | 97,2                          | 0,89                             | 1460                               | 9595                | 2,8                           | 49                         | 7400  |                   |
| 4.ZK 560 La-4 | 1750              | 1493                           | 97,1                          | 0,91                             | 1666                               | 11194               | 3                             | 98                         | 8300  |                   |
| 4.ZK 560 Lb-4 | 2000              | 1494                           | 97,2                          | 0,93                             | 1861                               | 12784               | 3                             | 115                        | 8900  |                   |
| <b>2p=6</b>   |                   |                                |                               |                                  |                                    |                     |                               |                            |   |                   |
| 5.ZK 315 La-6 | 315               | 985                            | 95,3                          | 0,8                              | 596                                | 344                 | 3054                          | 2,4                        | 5,46  | 1870              |
| 5.ZK 315 Lb-6 | 355               | 985                            | 95,4                          | 0,81                             | 663                                | 383                 | 3442                          | 2,4                        | 60,5  | 1970              |
| 5.ZK 315 Lc-6 | 400               | 984                            | 95,5                          | 0,84                             | 720                                | 416                 | 3882                          | 2,1                        | 6,38  | 2070              |
| 5.ZK 355 La-6 | 450               | 987                            | 96,0                          | 0,86                             | 787                                | 454                 | 4354                          | 2,7                        | 9,53  | 2840              |
| 5.ZK 355 Lb-6 | 500               | 987                            | 96,0                          | 0,86                             | 874                                | 505                 | 4838                          | 2,7                        | 10,79   | 2990              |
| 5.ZK 355 Lc-6 | 560               | 988                            | 96,1                          | 0,85                             | 990                                | 572                 | 5413                          | 2,8                        | 12,2  | 3170              |
| 5.ZK 400 La-6 | 500               | 992                            | 96,4                          | 0,85                             | 885                                | 511                 | 4813                          | 2,8                        | 20,1  | 3480              |
| 5.ZK 400 Lb-6 | 560               | 992                            | 96,5                          | 0,86                             | 970                                | 560                 | 5391                          | 2,7                        | 22,6  | 3670              |
| 5.ZK 400 Lc-6 | 630               | 992                            | 96,6                          | 0,88                             | 1067                               | 616                 | 6065                          | 2,5                        | 25,4  | 3880              |
| 5.ZK 400 Ld-6 | 710               | 992                            | 96,7                          | 0,88                             | 1197                               | 691                 | 6835                          | 2,6                        | 28,6  | 4130              |

Motors fed via frequency converter with non-sinusoidal exit voltage have reinforced insulation system.

Values, presented on this page are according to IEC 34-2-1 defined for the net supply operation.

Values for the converter fed operation depend from converter choice, and they cannot be defined in advance.

Motors with higher pole number, or multispeed motors are available ETO.

# TRANSNORM LV MOTORS

## Electrical data 9

**Network operation**  
**Low voltage TEFC motors, IP55, class F/B**  
**400 V, 690V / 50Hz**

| Type          | Power<br>Pn<br>kW | Nominal<br>speed<br>n<br>1/min | Motor<br>efficiency<br>$\eta$<br>% | Power<br>factor<br>$\cos\varphi$ | Nominal<br>current at<br>400V      690V |         | Nominal<br>torque<br>Tn<br>Nm | Maximum<br>torque<br>Tm/Tn | Momentum<br>of inertia<br>J<br>$\text{kgm}^2$ | Weight<br>m<br>kg |
|---------------|-------------------|--------------------------------|------------------------------------|----------------------------------|---|---------|-------------------------------|----------------------------|---|-------------------|
|               |                   |                                |                                    |                                  | In<br>A                                 | In<br>A |                               |                            |   |                   |
|               |                   |                                |                                    |                                  |   |         |                               |                            |   |                   |
| <b>2p=6</b>   |                   |                                |                                    |                                  |   |         |                               |                            |   |                   |
| 4.ZK 450 La-6 | 880               | 993                            | 96,7                               | 0,86                             | 885                                     | 8463    | 2,7                           | 42,6                       | 5700  |                   |
| 4.ZK 500 La-6 | 1250              | 995                            | 96,9                               | 0,87                             | 1248                                    | 11997   | 2,4                           | 89                         | 6600  |                   |
| 4.ZK 500 Lb-6 | 1350              | 995                            | 96,9                               | 0,85                             | 1380                                    | 12957   | 2,85                          | 97,5                       | 6900  |                   |
| 4.ZK 500 Lc-6 | 1500              | 995                            | 97,0                               | 0,86                             | 1505                                    | 14397   | 2,5                           | 106                        | 7200  |                   |
| 4.ZK 560 La-6 | 1750              | 995                            | 97,2                               | 0,88                             | 1712                                    | 16796   | 2,6                           | 141                        | 8900  |                   |
| 4.ZK 560 Lb-6 | 1950              | 996                            | 97,3                               | 0,87                             | 1928                                    | 18697   | 2,8                           | 161,25                     | 9500  |                   |
| 4.ZK 560 Lc-6 | 2150              | 996                            | 97,3                               | 0,88                             | 2101                                    | 20615   | 2,8                           | 180                        | 10000   |                   |
| 4.ZK 630 La-6 | 2300              | 996                            | 97,3                               | 0,89                             | 2222                                    | 22053   | 2,9                           | 287,1                      | 11700   |                   |
| 4.ZK 630 Lb-6 | 2450              | 996                            | 97,3                               | 0,89                             | 2381                                    | 23491   | 2,85                          | 306,5                      | 12000   |                   |
| <b>2p=8</b>   |                   |                                |                                    |                                  |   |         |                               |                            |   |                   |
| 5.ZK 315 La-8 | 200               | 737                            | 94,7                               | 0,83                             | 367                                     | 212     | 2592                          | 2                          | 6,8   | 2000              |
| 5.ZK 315 Lb-8 | 250               | 737                            | 94,7                               | 0,77                             | 495                                     | 286     | 3239                          | 2,1                        | 7,6   | 2120              |
| 5.ZK 315 Lc-8 | 315               | 739                            | 95,1                               | 0,77                             | 621                                     | 359     | 4071                          | 2,1                        | 8,2   | 2320              |
| 5.ZK 355 La-8 | 355               | 740                            | 95,5                               | 0,83                             | 646                                     | 373     | 4581                          | 2,4                        | 11,82   | 2880              |
| 5.ZK 355 Lb-8 | 400               | 741                            | 95,6                               | 0,81                             | 746                                     | 431     | 5155                          | 2,5                        | 13,38   | 3040              |
| 5.ZK 355 Lc-8 | 450               | 740                            | 95,7                               | 0,83                             | 818                                     | 472     | 5807                          | 2,5                        | 15,17   | 3220              |
| 5.ZK 400 La-8 | 400               | 743                            | 95,9                               | 0,78                             | 771                                     | 445     | 5141                          | 2,5                        | 25,3  | 3430              |
| 5.ZK 400 Lb-8 | 450               | 743                            | 96,1                               | 0,80                             | 842                                     | 486     | 5784                          | 2,3                        | 29,1  | 3620              |
| 5.ZK 400 Lc-8 | 500               | 743                            | 96,2                               | 0,81                             | 928                                     | 536     | 6427                          | 2,3                        | 36,2  | 3800              |
| 5.ZK 400 Ld-8 | 560               | 743                            | 96,3                               | 0,80                             | 1044                                    | 603     | 7198                          | 2,4                        | 42,4  | 4050              |
| 4.ZK 450 La-8 | 650               | 745                            | 96,3                               | 0,81                             | 697                                     | 8332    | 2,5                           | 52                         | 5600  |                   |
| 4.ZK 500 La-8 | 900               | 745                            | 96,4                               | 0,80                             | 976                                     | 11537   | 2,4                           | 81,7                       | 6300  |                   |
| 4.ZK 500 Lb-8 | 1000              | 745                            | 96,5                               | 0,80                             | 1084                                    | 12819   | 2,3                           | 90,6                       | 6700  |                   |
| 4.ZK 500 Lc-8 | 1100              | 745                            | 96,5                               | 0,81                             | 1179                                    | 14101   | 2,3                           | 100                        | 7000  |                   |
| 4.ZK 560 La-8 | 1250              | 747                            | 96,7                               | 0,81                             | 1344                                    | 15981   | 2,9                           | 155                        | 8700  |                   |
| 4.ZK 560 Lb-8 | 1400              | 747                            | 96,7                               | 0,82                             | 1486                                    | 17898   | 2,85                          | 168,5                      | 9000  |                   |
| 4.ZK 560 Lc-8 | 1630              | 747                            | 96,8                               | 0,81                             | 1730                                    | 20839   | 2,75                          | 189,2                      | 9600  |                   |
| 4.ZK 630 La-8 | 1900              | 746                            | 96,9                               | 0,86                             | 1919                                    | 24323   | 2,7                           | 300,5                      | 11200   |                   |
| 4.ZK 630 Lb-8 | 2140              | 746                            | 97,0                               | 0,87                             | 2134                                    | 27395   | 2,5                           | 315,5                      | 11400   |                   |

Motors fed via frequency converter with non-sinusoidal exit voltage have reinforced insulation system.

Values, presented on this page are according to IEC 34-2-1 defined for the net supply operation.  
 Values for the converter fed operation depend from converter choice, and they cannot be defined in advance.

Motors with higher pole number, or multispeed motors are available ETO.

# TRANSNORM LV MOTORS

## 10 Electrical data

### Converter fed operation

#### Constant torque speed range 1:2

400 V, 690V / 50Hz

| Type           | Power<br>Pn<br>kW | Nominal<br>speed<br>n<br>1/min | Motor<br>efficiency<br>$\eta$<br>% | Power<br>factor<br>$\cos\varphi$ | Nominal<br>current at<br>400V |      | Nominal<br>torque<br>Tn<br>Nm | Maximum<br>torque<br>Tm/Tn |
|----------------|-------------------|--------------------------------|------------------------------------|----------------------------------|-------------------------------|------|-------------------------------|----------------------------|
|                |                   |                                |                                    |                                  | In                            | In   |                               |                            |
|                |                   |                                |                                    |                                  | A                             | A    |                               |                            |
| 5.RZK 400 La-2 | 516               | 2984                           | 96,3                               | 0,94                             | 826                           | 477  | 1651                          | 3                          |
| 5.RZK 400 Lb-2 | 580               | 2986                           | 96,3                               | 0,94                             | 932                           | 538  | 1855                          | 3                          |
| 5.RZK 400 Lc-2 | 654               | 2987                           | 96,3                               | 0,93                             | 1051                          | 607  | 2091                          | 3                          |
| 5.RZK 400 Ld-2 | 737               | 2988                           | 96,6                               | 0,95                             | 1166                          | 673  | 2355                          | 3,3                        |
| 5.RZK 400 La-4 | 516               | 1491                           | 96,7                               | 0,90                             | 856                           | 494  | 3305                          | 3,1                        |
| 5.RZK 400 Lb-4 | 580               | 1491                           | 96,8                               | 0,91                             | 953                           | 550  | 3715                          | 3                          |
| 5.RZK 400 Lc-4 | 654               | 1491                           | 96,9                               | 0,91                             | 1067                          | 616  | 4189                          | 3                          |
| 5.RZK 400 Ld-4 | 737               | 1491                           | 97,0                               | 0,91                             | 1199                          | 692  | 4720                          | 3,1                        |
| 5.RZK 400 La-6 | 461               | 993                            | 96,3                               | 0,84                             | 828                           | 478  | 4434                          | 2,9                        |
| 5.RZK 400 Lb-6 | 516               | 993                            | 96,4                               | 0,86                             | 902                           | 521  | 4963                          | 2,8                        |
| 5.RZK 400 Lc-6 | 580               | 992                            | 96,5                               | 0,88                             | 989                           | 571  | 5584                          | 2,8                        |
| 5.RZK 400 Ld-6 | 654               | 992                            | 96,7                               | 0,87                             | 1122                          | 648  | 6296                          | 2,7                        |
| 5.RZK 400 La-8 | 369               | 743                            | 95,9                               | 0,77                             | 727                           | 420  | 4743                          | 2,5                        |
| 5.RZK 400 Lb-8 | 415               | 743                            | 96,0                               | 0,79                             | 790                           | 456  | 5334                          | 2,4                        |
| 5.RZK 400 Lc-8 | 461               | 743                            | 96,1                               | 0,80                             | 869                           | 502  | 5925                          | 2,3                        |
| 5.RZK 400 Ld-8 | 516               | 743                            | 96,2                               | 0,79                             | 977                           | 564  | 6632                          | 2,5                        |
| 4.RZK 450 La-4 | 1060              | 1490                           | 97,1                               | 0,89                             |                               | 1022 | 6793                          | 2,5                        |
| 4.RZK 450 La-6 | 820               | 992                            | 96,8                               | 0,85                             |                               | 827  | 7894                          | 2,9                        |
| 4.RZK 450 La-8 | 580               | 744                            | 96,4                               | 0,80                             |                               | 629  | 7444                          | 2,7                        |
| 4.RZK 500 La-4 | 1015              | 1492                           | 97,1                               | 0,88                             |                               | 988  | 6497                          | 3,1                        |
| 4.RZK 500 Lb-4 | 1200              | 1491                           | 97,2                               | 0,89                             |                               | 1154 | 7686                          | 2,6                        |
| 4.RZK 500 Lc-4 | 1400              | 1490                           | 97,3                               | 0,90                             |                               | 1337 | 8973                          | 2,8                        |
| 4.RZK 500 La-6 | 1180              | 993                            | 96,9                               | 0,86                             |                               | 1176 | 11348                         | 2,4                        |
| 4.RZK 500 Lb-6 | 1280              | 994                            | 97,0                               | 0,84                             |                               | 1310 | 12298                         | 2,9                        |
| 4.RZK 500 Lc-6 | 1430              | 993                            | 97,0                               | 0,86                             |                               | 1425 | 13752                         | 2,6                        |
| 4.RZK 500 La-8 | 830               | 743                            | 96,4                               | 0,79                             |                               | 904  | 10668                         | 2,7                        |
| 4.RZK 500 Lb-8 | 900               | 743                            | 96,4                               | 0,78                             |                               | 994  | 11567                         | 2,6                        |
| 4.RZK 500 Lc-8 | 970               | 743                            | 96,4                               | 0,79                             |                               | 1061 | 12467                         | 2,5                        |
| 4.RZK 560 La-4 | ETO               | ETO                            | ETO                                | ETO                              |                               | ETO  | ETO                           | ETO                        |
| 4.RZK 560 Lb-4 | ETO               | ETO                            | ETO                                | ETO                              |                               | ETO  | ETO                           | ETO                        |
| 4.RZK 560 La-6 | 1650              | 993                            | 97,2                               | 0,88                             |                               | 1602 | 15868                         | 2,6                        |
| 4.RZK 560 Lb-6 | 1850              | 994                            | 97,3                               | 0,87                             |                               | 1828 | 17774                         | 2,9                        |
| 4.RZK 560 Lc-6 | 2100              | 994                            | 97,3                               | 0,88                             |                               | 2033 | 20176                         | 2,8                        |
| 4.RZK 560 La-8 | 1150              | 745                            | 96,8                               | 0,79                             |                               | 1251 | 14741                         | 3,2                        |
| 4.RZK 560 Lb-8 | 1290              | 745                            | 96,8                               | 0,80                             |                               | 1380 | 16536                         | 3                          |
| 4.RZK 560 Lc-8 | 1500              | 745                            | 96,9                               | 0,80                             |                               | 1613 | 19228                         | 3,1                        |
| 4.RZK 630 La-6 | 2180              | 994                            | 97,3                               | 0,89                             |                               | 2100 | 21822                         | 3                          |
| 4.RZK 630 Lb-6 | 2325              | 994                            | 97,3                               | 0,89                             |                               | 2244 | 23273                         | 2,9                        |
| 4.RZK 630 La-8 | 1725              | 745                            | 97,0                               | 0,85                             |                               | 1749 | 22112                         | 2,9                        |
| 4.RZK 630 Lb-8 | 1950              | 745                            | 97,0                               | 0,86                             |                               | 1950 | 24997                         | 2,7                        |

# TRANSNORM LV MOTORS

Electrical data 11

## Converter fed operation

Constant torque speed range 1:5

400 V, 690V / 50Hz

| Type           | Power<br>Pn<br>kW | Nominal<br>speed<br>n<br>1/min | Motor<br>efficiency<br>$\eta$<br>% | Power<br>factor<br>$\cos\varphi$ | Nominal<br>current at<br>400V      690V |         | Nominal<br>torque<br>Tn<br>Nm | Maximum<br>torque<br>Tm/Tn |
|----------------|-------------------|--------------------------------|------------------------------------|----------------------------------|---|---------|-------------------------------|----------------------------|
|                |                   |                                |                                    |                                  | In<br>A                                 | In<br>A |                               |                            |
| 5.RZK 400 La-2 | 457               | 2985                           | 96,1                               | 0,94                             | 736                                     | 425     | 1462                          | 3,6                        |
| 5.RZK 400 Lb-2 | 514               | 2987                           | 96,1                               | 0,93                             | 833                                     | 481     | 1643                          | 3,6                        |
| 5.RZK 400 Lc-2 | 580               | 2989                           | 96,1                               | 0,93                             | 939                                     | 542     | 1853                          | 3,6                        |
| 5.RZK 400 Ld-2 | 654               | 2989                           | 96,4                               | 0,94                             | 1043                                    | 602     | 2090                          | 4                          |
| 5.RZK 400 La-4 | 457               | 1492                           | 96,6                               | 0,89                             | 767                                     | 443     | 2925                          | 3,7                        |
| 5.RZK 400 Lb-4 | 514               | 1492                           | 96,8                               | 0,90                             | 854                                     | 493     | 3290                          | 3,6                        |
| 5.RZK 400 Lc-4 | 580               | 1492                           | 96,9                               | 0,91                             | 956                                     | 552     | 3712                          | 3,6                        |
| 5.RZK 400 Ld-4 | 654               | 1492                           | 97,0                               | 0,91                             | 1074                                    | 620     | 4186                          | 3,7                        |
| 5.RZK 400 La-6 | 408               | 993                            | 96,2                               | 0,82                             | 752                                     | 434     | 3924                          | 3,5                        |
| 5.RZK 400 Lb-6 | 457               | 993                            | 96,4                               | 0,84                             | 816                                     | 471     | 4395                          | 3,4                        |
| 5.RZK 400 Lc-6 | 514               | 993                            | 96,5                               | 0,87                             | 889                                     | 513     | 4943                          | 3,1                        |
| 5.RZK 400 Ld-6 | 580               | 993                            | 96,6                               | 0,86                             | 1010                                    | 583     | 5578                          | 3,2                        |
| 5.RZK 400 La-8 | 327               | 744                            | 95,8                               | 0,74                             | 669                                     | 386     | 4197                          | 3                          |
| 5.RZK 400 Lb-8 | 368               | 743                            | 95,9                               | 0,77                             | 722                                     | 417     | 4730                          | 2,9                        |
| 5.RZK 400 Lc-8 | 408               | 744                            | 96,0                               | 0,78                             | 790                                     | 456     | 5237                          | 2,8                        |
| 5.RZK 400 Ld-8 | 457               | 744                            | 96,1                               | 0,77                             | 890                                     | 514     | 5866                          | 3                          |
| 4.RZK 450 La-4 | 940               | 1491                           | 97,0                               | 0,88                             |   | 914     | 6021                          | 2,8                        |
| 4.RZK 450 La-6 | 700               | 993                            | 96,6                               | 0,83                             |   | 724     | 6732                          | 3,4                        |
| 4.RZK 450 La-8 | 490               | 745                            | 96,2                               | 0,76                             |   | 554     | 6281                          | 3,2                        |
| 4.RZK 500 La-4 | 900               | 1493                           | 97,0                               | 0,87                             |   | 888     | 5757                          | 3,6                        |
| 4.RZK 500 Lb-4 | 1000              | 1492                           | 97,1                               | 0,88                             |   | 974     | 6401                          | 3,2                        |
| 4.RZK 500 Lc-4 | 1170              | 1493                           | 97,1                               | 0,87                             |   | 1154    | 7484                          | 3,9                        |
| 4.RZK 500 La-6 | 1020              | 994                            | 96,8                               | 0,85                             |   | 1034    | 9800                          | 2,9                        |
| 4.RZK 500 Lb-6 | 1120              | 994                            | 96,8                               | 0,82                             |   | 1175    | 10761                         | 3,4                        |
| 4.RZK 500 Lc-6 | 1260              | 996                            | 96,9                               | 0,85                             |   | 1276    | 12081                         | 3                          |
| 4.RZK 500 La-8 | 770               | 743                            | 96,4                               | 0,78                             |   | 853     | 9897                          | 3                          |
| 4.RZK 500 Lb-8 | 850               | 744                            | 96,4                               | 0,77                             |   | 951     | 10911                         | 2,8                        |
| 4.RZK 500 Lc-8 | 940               | 743                            | 96,4                               | 0,78                             |   | 1035    | 12082                         | 3                          |
| 4.RZK 560 La-4 | ETO               | ETO                            | ETO                                | ETO                              |   | ETO     | ETO                           | ETO                        |
| 4.RZK 560 Lb-4 | ETO               | ETO                            | ETO                                | ETO                              |   | ETO     | ETO                           | ETO                        |
| 4.RZK 560 La-6 | 1450              | 994                            | 97,1                               | 0,87                             |   | 1425    | 13931                         | 3                          |
| 4.RZK 560 Lb-6 | 1650              | 994                            | 97,2                               | 0,85                             |   | 1656    | 15853                         | 3,3                        |
| 4.RZK 560 Lc-6 | 1850              | 994                            | 97,2                               | 0,87                             |   | 1814    | 17774                         | 3,2                        |
| 4.RZK 560 La-8 | 980               | 745                            | 96,6                               | 0,76                             |   | 1114    | 12562                         | 3,8                        |
| 4.RZK 560 Lb-8 | 1100              | 745                            | 96,6                               | 0,77                             |   | 1224    | 14101                         | 3,5                        |
| 4.RZK 560 Lc-8 | 1280              | 745                            | 96,7                               | 0,77                             |   | 1434    | 16408                         | 3,7                        |
| 4.RZK 630 La-6 | 1960              | 994                            | 97,2                               | 0,88                             |   | 1909    | 18831                         | 3,4                        |
| 4.RZK 630 Lb-6 | 2080              | 995                            | 97,2                               | 0,88                             |   | 2030    | 19964                         | 3,3                        |
| 4.RZK 630 La-8 | 1560              | 745                            | 96,8                               | 0,83                             |   | 1607    | 19997                         | 3,3                        |
| 4.RZK 630 Lb-8 | 1760              | 745                            | 96,9                               | 0,85                             |   | 1786    | 22561                         | 3,1                        |

# TRANSNORM LV MOTORS

## 12 Electrical data

### Converter fed operation

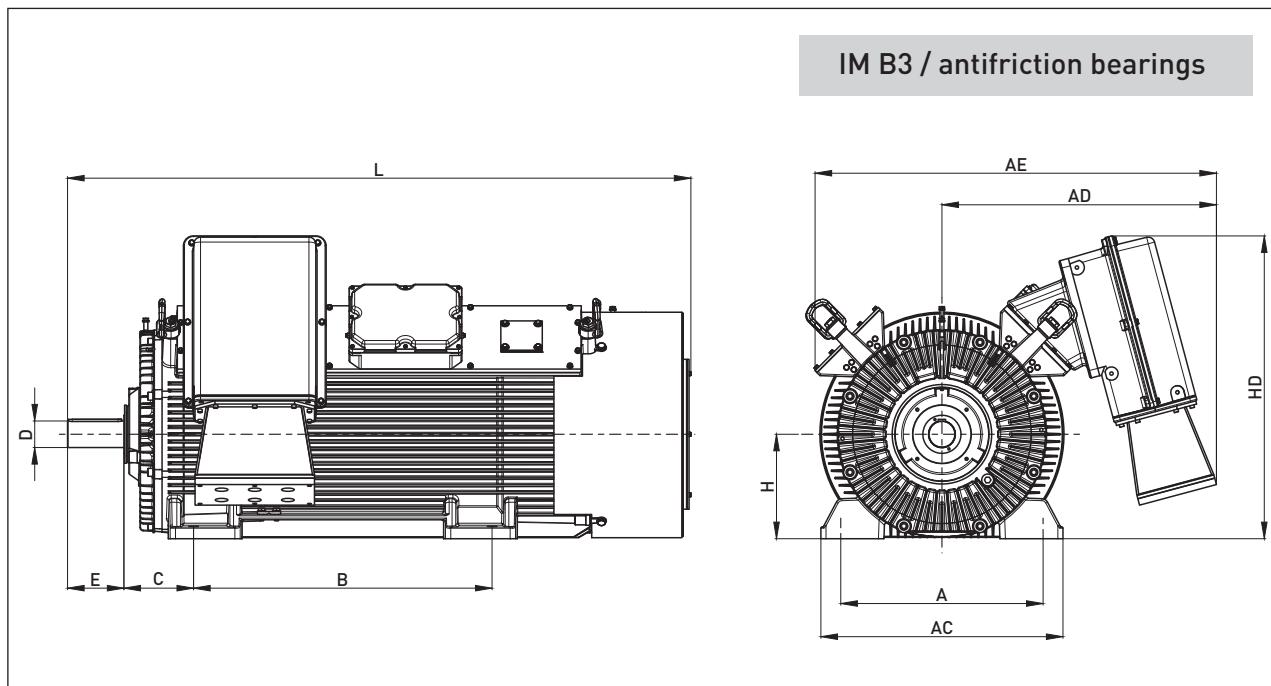
Constant torque speed range 1:10

400 V, 690V / 50Hz

| Type           | Power<br>Pn<br>kW | Nominal<br>speed<br>n<br>1/min | Motor<br>efficiency<br>$\eta$<br>% | Power<br>factor<br>$\cos\varphi$ | Nominal<br>current at<br>400V      690V |         | Nominal<br>torque<br>Tn<br>Nm | Maximum<br>torque<br>Tm/Tn |
|----------------|-------------------|--------------------------------|------------------------------------|----------------------------------|---|---------|-------------------------------|----------------------------|
|                |                   |                                |                                    |                                  | In<br>A                                 | In<br>A |                               |                            |
|                |                   |                                |                                    |                                  |   |         |                               |                            |
| 5.RZK 400 La-2 | 405               | 2987                           | 95,8                               | 0,94                             | 660                                     | 381     | 1295                          | 3,9                        |
| 5.RZK 400 Lb-2 | 455               | 2988                           | 95,9                               | 0,93                             | 745                                     | 430     | 1454                          | 4                          |
| 5.RZK 400 Lc-2 | 513               | 2990                           | 95,9                               | 0,93                             | 842                                     | 486     | 1639                          | 4                          |
| 5.RZK 400 Ld-2 | 578               | 2990                           | 96,1                               | 0,94                             | 930                                     | 537     | 1846                          | 4,4                        |
| 5.RZK 400 La-4 | 405               | 1493                           | 96,5                               | 0,88                             | 693                                     | 400     | 2591                          | 4,2                        |
| 5.RZK 400 Lb-4 | 455               | 1493                           | 96,6                               | 0,89                             | 769                                     | 444     | 2910                          | 4,1                        |
| 5.RZK 400 Lc-4 | 513               | 1493                           | 96,8                               | 0,90                             | 859                                     | 496     | 3281                          | 4,1                        |
| 5.RZK 400 Ld-4 | 578               | 1493                           | 96,9                               | 0,90                             | 965                                     | 557     | 3697                          | 4,2                        |
| 5.RZK 400 La-6 | 361               | 994                            | 96,1                               | 0,80                             | 689                                     | 398     | 3468                          | 4                          |
| 5.RZK 400 Lb-6 | 405               | 994                            | 96,2                               | 0,82                             | 745                                     | 430     | 3891                          | 3,9                        |
| 5.RZK 400 Lc-6 | 455               | 993                            | 96,4                               | 0,86                             | 804                                     | 464     | 4376                          | 3,5                        |
| 5.RZK 400 Ld-6 | 513               | 994                            | 96,5                               | 0,85                             | 913                                     | 527     | 4929                          | 3,6                        |
| 5.RZK 400 La-8 | 289               | 744                            | 95,6                               | 0,71                             | 618                                     | 357     | 3710                          | 3,5                        |
| 5.RZK 400 Lb-8 | 325               | 744                            | 95,8                               | 0,75                             | 663                                     | 383     | 4172                          | 3,3                        |
| 5.RZK 400 Lc-8 | 361               | 744                            | 95,9                               | 0,75                             | 727                                     | 420     | 4634                          | 3,1                        |
| 5.RZK 400 Ld-8 | 405               | 744                            | 95,9                               | 0,75                             | 821                                     | 474     | 5199                          | 3,5                        |
| 4.RZK 450 La-4 | 900               | 1492                           | 97,0                               | 0,88                             |   | 879     | 5761                          | 3                          |
| 4.RZK 450 La-6 | 660               | 994                            | 96,6                               | 0,82                             |   | 691     | 6341                          | 3,7                        |
| 4.RZK 450 La-8 | 450               | 745                            | 96,1                               | 0,75                             |   | 522     | 5768                          | 3,5                        |
| 4.RZK 500 La-4 | 860               | 1493                           | 97,0                               | 0,86                             |   | 854     | 5501                          | 3,7                        |
| 4.RZK 500 Lb-4 | 940               | 1493                           | 97,0                               | 0,87                             |   | 927     | 6013                          | 3,6                        |
| 4.RZK 500 Lc-4 | 1100              | 1493                           | 97,0                               | 0,86                             |   | 1096    | 7036                          | 4,2                        |
| 4.RZK 500 La-6 | 960               | 994                            | 96,7                               | 0,84                             |   | 983     | 9223                          | 3,1                        |
| 4.RZK 500 Lb-6 | 1040              | 995                            | 96,7                               | 0,81                             |   | 1109    | 9982                          | 3,7                        |
| 4.RZK 500 Lc-6 | 1180              | 994                            | 96,8                               | 0,84                             |   | 1208    | 11337                         | 3,3                        |
| 4.RZK 500 La-8 | 710               | 744                            | 96,3                               | 0,76                             |   | 804     | 9114                          | 3,2                        |
| 4.RZK 500 Lb-8 | 780               | 744                            | 96,2                               | 0,75                             |   | 893     | 10012                         | 3                          |
| 4.RZK 500 Lc-8 | 880               | 744                            | 96,3                               | 0,77                             |   | 984     | 11296                         | 2,8                        |
| 4.RZK 560 La-4 | ETO               | ETO                            | ETO                                | ETO                              |   | ETO     | ETO                           | ETO                        |
| 4.RZK 560 Lb-4 | ETO               | ETO                            | ETO                                | ETO                              |   | ETO     | ETO                           | ETO                        |
| 4.RZK 560 La-6 | 1350              | 994                            | 97,0                               | 0,86                             |   | 1338    | 12970                         | 3,2                        |
| 4.RZK 560 Lb-6 | 1550              | 995                            | 97,1                               | 0,84                             |   | 1571    | 14877                         | 3,6                        |
| 4.RZK 560 Lc-6 | 1800              | 996                            | 97,2                               | 0,87                             |   | 1771    | 17259                         | 3,3                        |
| 4.RZK 560 La-8 | 930               | 745                            | 96,5                               | 0,74                             |   | 1076    | 11921                         | 4                          |
| 4.RZK 560 Lb-8 | 1050              | 745                            | 96,5                               | 0,76                             |   | 1185    | 13460                         | 3,7                        |
| 4.RZK 560 Lc-8 | 1250              | 745                            | 96,6                               | 0,76                             |   | 1410    | 16023                         | 3,8                        |
| 4.RZK 630 La-6 | 1875              | 995                            | 97,1                               | 0,87                             |   | 1836    | 17996                         | 3,5                        |
| 4.RZK 630 Lb-6 | 1985              | 995                            | 97,1                               | 0,87                             |   | 1949    | 19052                         | 3,4                        |
| 4.RZK 630 La-8 | 1460              | 745                            | 96,8                               | 0,82                             |   | 1524    | 18715                         | 3,5                        |
| 4.RZK 630 Lb-8 | 1670              | 745                            | 96,9                               | 0,84                             |   | 1708    | 21407                         | 3,3                        |

# TRANSNORM LV MOTORS

Electrical data 13

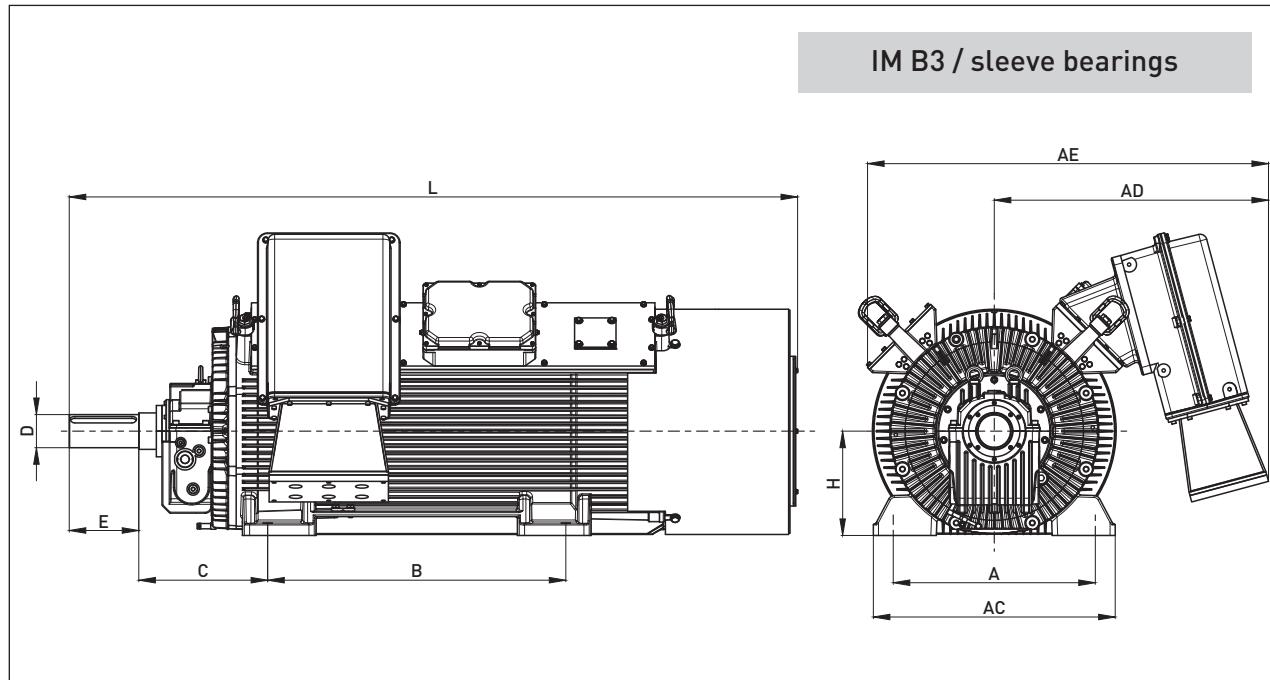


| dimensions |      |         |          |          |          |         |         |         |         |         |          |         |
|------------|------|---------|----------|----------|----------|---------|---------|---------|---------|---------|----------|---------|
| type       | pole | A<br>mm | AC<br>mm | AD<br>mm | AE<br>mm | B<br>mm | C<br>mm | D<br>mm | E<br>mm | H<br>mm | HD<br>mm | L<br>mm |
| 315        | 2    | 610     | 730      | 830      | 1210     | 900     | 200     | 80      | 170     | 315     | 915      | 1900    |
| 315        | >=4  | 610     | 730      | 830      | 1210     | 900     | 200     | 100     | 210     | 315     | 915      | 1940    |
| 355        | 2    | 686     | 810      | 855      | 1275     | 1000    | 224     | 80      | 170     | 355     | 1025     | 1995    |
| 355        | >=4  | 686     | 810      | 855      | 1275     | 1000    | 224     | 100     | 210     | 355     | 1025     | 2035    |
| 400        | 2    | 750     | 940      | 870      | 1320     | 1120    | 254     | 80      | 170     | 400     | 1090     | 2105    |
| 400        | >=4  | 750     | 940      | 870      | 1320     | 1120    | 254     | 110     | 210     | 400     | 1090     | 2145    |
| 450        | >=4  | 850     | 1050     | 920      | 1425     | 1250    | 280     | 120     | 210     | 450     | 1195     | 2550    |
| 500        | >=4  | 950     | 1160     | 960      | 1505     | 1320    | 315     | 140     | 250     | 500     | 1275     | 2825    |
| 560        | >=4  | 1060    | 1270     | 990      | 1585     | 1400    | 335     | 160     | 240     | 560     | 1375     | ETO     |
| 630        | >=4  | 1120    | 1370     | 1025     | 1675     | 1600    | 335     | 180     | 240     | 630     | 1475     | ETO     |
| 710        | >=4  | ETO     | ETO      | ETO      | ETO      | ETO     | ETO     | 190     | 350     | 710     | ETO      | ETO     |

ETO - engineering to order

# TRANSNORM LV MOTORS

## 14 Dimensions

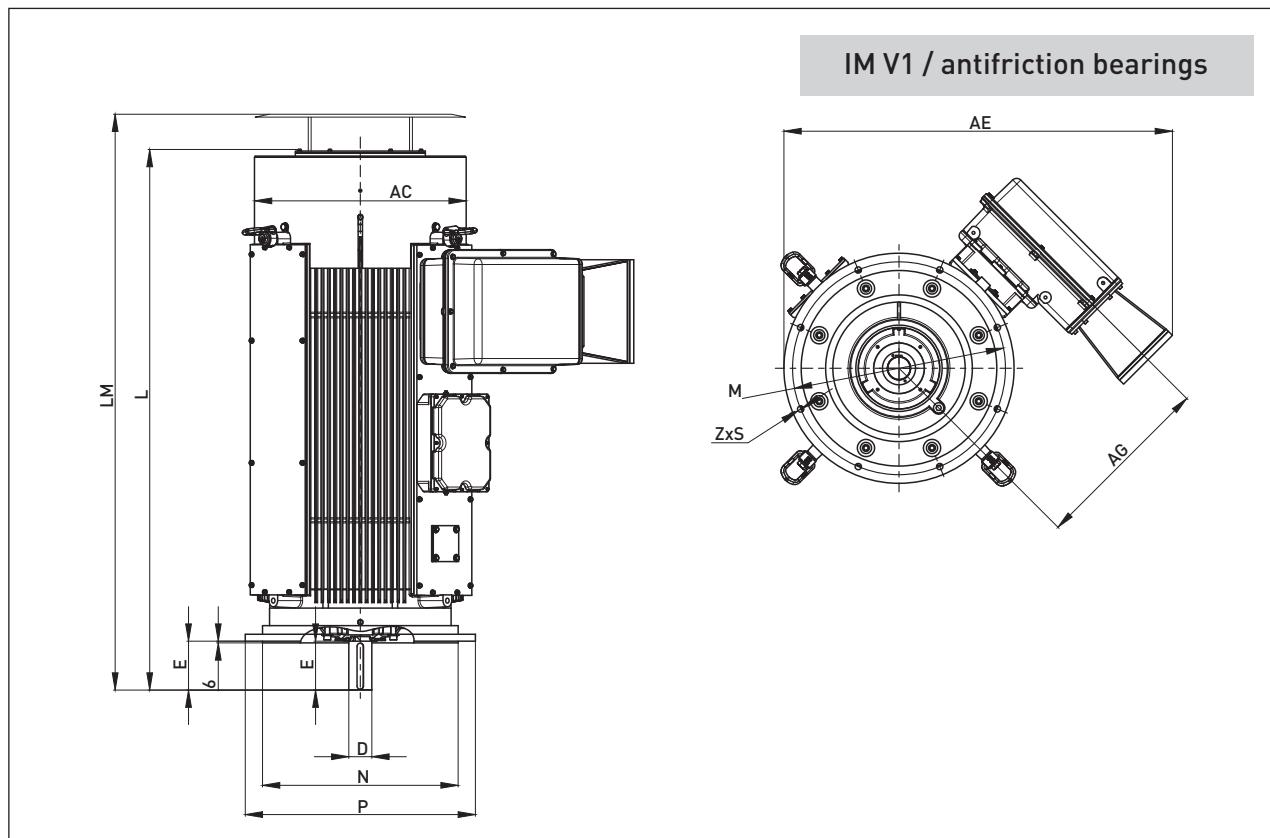


| type | pole | dimensions |          |          |          |         |              |              |              |              |               |              |  |
|------|------|------------|----------|----------|----------|---------|--------------|--------------|--------------|--------------|---------------|--------------|--|
|      |      | A<br>mm    | AC<br>mm | AD<br>mm | AE<br>mm | B<br>mm | x<br>C<br>mm | x<br>D<br>mm | x<br>E<br>mm | x<br>H<br>mm | x<br>HD<br>mm | x<br>L<br>mm |  |
| 315  | 2    | 610        | 730      | 830      | 1210     | 900     | 390          | 75           | 140          | 315          | 915           | 2060         |  |
| 315  | >=4  | 610        | 730      | 830      | 1210     | 900     | 390          | 75           | 140          | 315          | 915           | 2060         |  |
| 355  | 2    | 686        | 810      | 855      | 1275     | 1000    | 365          | 80           | 170          | 355          | 1025          | 2165         |  |
| 355  | >=4  | 686        | 810      | 855      | 1275     | 1000    | 365          | 100          | 210          | 355          | 1025          | 2205         |  |
| 400  | 2    | 750        | 940      | 870      | 1320     | 1120    | 430          | 85           | 170          | 400          | 1090          | 2605         |  |
| 400  | >=4  | 750        | 940      | 870      | 1320     | 1120    | 430          | 100          | 210          | 400          | 1090          | 2645         |  |
| 450  | 2    | 850        | 1050     | 920      | 1425     | 1250    | 475          | 95           | 170          | 450          | 1195          | 2835         |  |
| 450  | >=4  | 850        | 1050     | 920      | 1425     | 1250    | 475          | 120          | 210          | 450          | 1195          | 2875         |  |
| 500  | 2    | 950        | 1160     | 960      | 1505     | 1320    | 530          | 120          | 210          | 500          | 1275          | 3175         |  |
| 500  | >=4  | 950        | 1160     | 960      | 1505     | 1320    | 530          | 140          | 250          | 500          | 1275          | 3215         |  |
| 560  | 2    | 1060       | 1270     | 990      | 1585     | 1400    | 560          | 140          | 250          | 560          | 1375          | ETO          |  |
| 560  | >=4  | 1060       | 1270     | 990      | 1585     | 1400    | 560          | 160          | 240          | 560          | 1375          | ETO          |  |
| 630  | >=4  | 1120       | 1370     | 1025     | 1675     | 1600    | 570          | 180          | 240          | 630          | 1475          | ETO          |  |
| 710  | >=4  | ETO        | ETO      | ETO      | ETO      | ETO     | ETO          | 190          | 350          | 710          | ETO           | ETO          |  |

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# TRANSNORM LV MOTORS

Dimensions 15

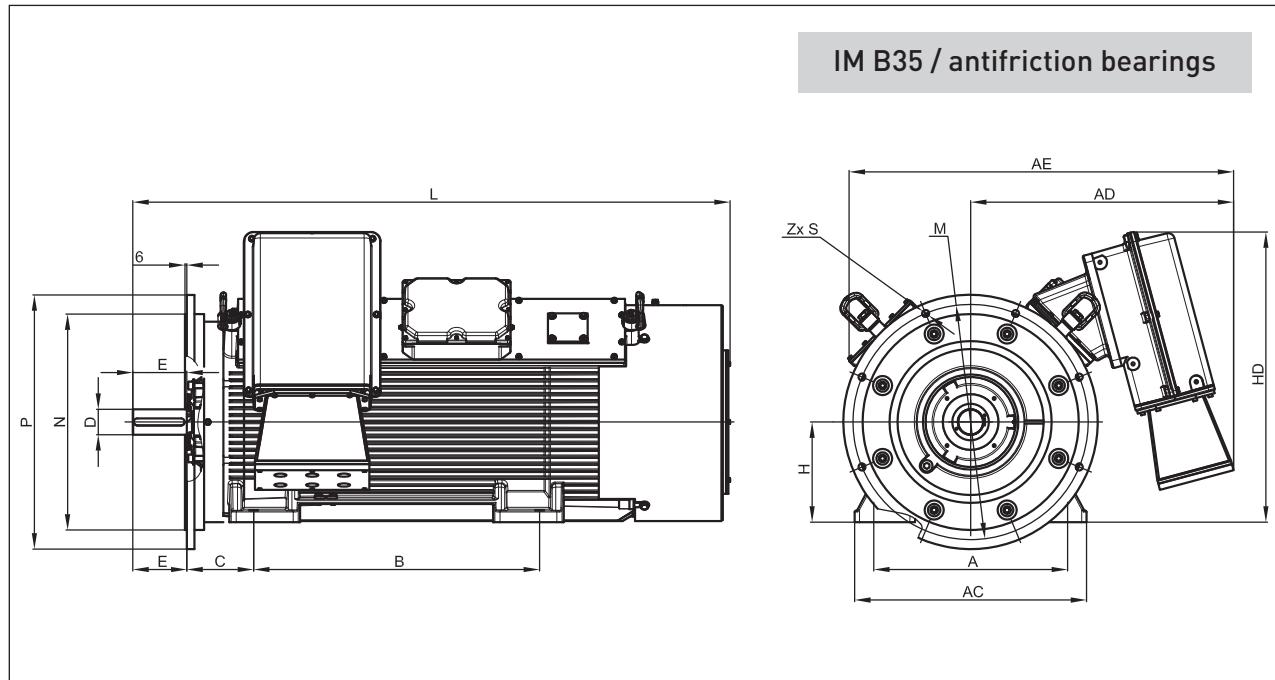


| type | pole | dimensions |          |          |         |         |         |          |         |         |         |         |     |          |  |
|------|------|------------|----------|----------|---------|---------|---------|----------|---------|---------|---------|---------|-----|----------|--|
|      |      | AC<br>mm   | AG<br>mm | AE<br>mm | D<br>mm | E<br>mm | L<br>mm | LM<br>mm | P<br>mm | N<br>mm | M<br>mm | S<br>mm | Z   | Quantity |  |
| 315  | 2    | 740        | 650      | 1350     | 80      | 170     | 1900    | 2030     | 800     | 680     | 740     | 22      | 8   |          |  |
| 315  | >=4  | 740        | 650      | 1350     | 100     | 210     | 1940    | 2070     | 800     | 680     | 740     | 22      | 8   |          |  |
| 355  | 2    | 820        | 700      | 1425     | 80      | 170     | 1995    | 2125     | 900     | 780     | 840     | 22      | 8   |          |  |
| 355  | >=4  | 820        | 700      | 1425     | 100     | 210     | 2035    | 2165     | 900     | 780     | 840     | 22      | 8   |          |  |
| 400  | 2    | 885        | 735      | 1450     | 80      | 170     | 2105    | 2235     | 1000    | 880     | 940     | 22      | 8   |          |  |
| 400  | >=4  | 885        | 735      | 1450     | 110     | 210     | 2145    | 2275     | 1000    | 880     | 940     | 22      | 8   |          |  |
| 450  | >=4  | 1000       | 795      | 1575     | 120     | 210     | 2550    | 2680     | 1150    | 1000    | 1080    | 22      | 8   |          |  |
| 500  | >=4  | 1100       | 850      | 1655     | 140     | 250     | 2825    | 2955     | 1270    | 1120    | 1200    | 35      | 8   |          |  |
| 560  | >=4  | ETO        | ETO      | ETO      | 160     | 240     | ETO     | ETO      | ETO     | ETO     | ETO     | ETO     | ETO | ETO      |  |
| 630  | >=4  | ETO        | ETO      | ETO      | 180     | 240     | ETO     | ETO      | ETO     | ETO     | ETO     | ETO     | ETO | ETO      |  |
| 710  | >=4  | ETO        | ETO      | ETO      | 190     | 350     | ETO     | ETO      | ETO     | ETO     | ETO     | ETO     | ETO | ETO      |  |

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# TRANSNORM LV MOTORS

## 16 Dimensions



| dimensions |      |      |      |      |      |      |     |     |     |     |      |      |      |      |      |     |     |          |
|------------|------|------|------|------|------|------|-----|-----|-----|-----|------|------|------|------|------|-----|-----|----------|
| typ        | pole | A    | AC   | AD   | AE   | B    | C   | D   | E   | H   | HD   | L    | P    | N    | M    | S   | Z   | Quantity |
|            |      | mm   | mm   | mm   | mm   | mm   | mm  | mm  | mm  | mm  | mm   | mm   | mm   | mm   | mm   | mm  | mm  |          |
| 315        | 2    | 610  | 740  | 830  | 1350 | 900  | 200 | 80  | 170 | 315 | 915  | 1900 | 800  | 680  | 740  | 22  | 8   |          |
| 315        | >=4  | 610  | 740  | 830  | 1350 | 900  | 200 | 100 | 210 | 315 | 915  | 1940 | 800  | 680  | 740  | 22  | 8   |          |
| 355        | 2    | 686  | 820  | 855  | 1425 | 1000 | 224 | 80  | 170 | 355 | 1025 | 1995 | 900  | 780  | 840  | 22  | 8   |          |
| 355        | >=4  | 686  | 820  | 855  | 1425 | 1000 | 224 | 100 | 210 | 355 | 1025 | 2035 | 900  | 780  | 840  | 22  | 8   |          |
| 400        | 2    | 750  | 885  | 870  | 1450 | 1120 | 254 | 80  | 170 | 400 | 1090 | 2105 | 1000 | 880  | 940  | 22  | 8   |          |
| 400        | >=4  | 750  | 885  | 870  | 1450 | 1120 | 254 | 110 | 210 | 400 | 1090 | 2145 | 1000 | 880  | 940  | 22  | 8   |          |
| 450        | >=4  | 850  | 1000 | 920  | 1575 | 1250 | 280 | 120 | 210 | 450 | 1195 | 2550 | 1150 | 1000 | 1080 | 22  | 8   |          |
| 500        | >=4  | 950  | 1100 | 960  | 1655 | 1320 | 315 | 140 | 250 | 500 | 1275 | 2825 | 1270 | 1120 | 1200 | 35  | 8   |          |
| 560        | >=4  | 1060 | ETO  | 990  | ETO  | 1400 | 335 | 160 | 240 | 560 | 1375 | ETO  | ETO  | ETO  | ETO  | ETO | ETO |          |
| 630        | >=4  | 1120 | ETO  | 1025 | ETO  | 1600 | 335 | 180 | 240 | 630 | 1475 | ETO  | ETO  | ETO  | ETO  | ETO | ETO |          |
| 710        | >=4  | ETO  | ETO  | ETO  | ETO  | ETO  | ETO | 190 | 350 | 710 | ETO  | ETO  | ETO  | ETO  | ETO  | ETO | ETO |          |

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