

**Type** : 4EL180M4D-PD-BA-000**Date** : 01.01.2023

|                              |                 |                            |                 |
|------------------------------|-----------------|----------------------------|-----------------|
| Power [kW]                   | : 18.5          | Efficiency Class           | : IE4           |
| Input Voltage [V]            | : 400           | Duty Cycle                 | : S1            |
| Connection Type [Δ / Y]      | : Δ             | Service Factor             | : 1.25          |
| Frequency [Hz]               | : 50            | Frame Size                 | : 180M          |
| Pole Number                  | : 4             | Weight [kg]                | : 142           |
| Nominal Speed [rpm]          | : 1475          | Insulation Class           | : F [155°C]     |
| Nominal Current [A]          | : 34.6          | Temperature Rise           | : B [80°C]      |
| Nominal Moment [Nm]          | : 120           | Protection Class           | : IP55          |
| Nominal Efficiency [η]       | : 94.2          | Vibration Severity Grade   | : A             |
| Power Factor [cosφ]          | : 0.82          | Method of Cooling          | : IC411 (TEFC)  |
| Locked Rotor Current [Ia/In] | : 8.0           | Direction of Rotation      | : Bidirectional |
| Locked Rotor Torque [Ma/Mn]  | : 3.1           | Balance                    | : Half Key      |
| Breakdown Torque [Mk/Mn]     | : 3.5           | Motor Thermal Protection   | : PTC           |
| Motor Color                  | : RAL 7031      | Altitude Above Sea Level   | : 1000m         |
| Ambient Temperature          | : -15°C / +40°C | Sound Pressure Level [dBA] | : 64            |

**ELECTRICAL DATA**

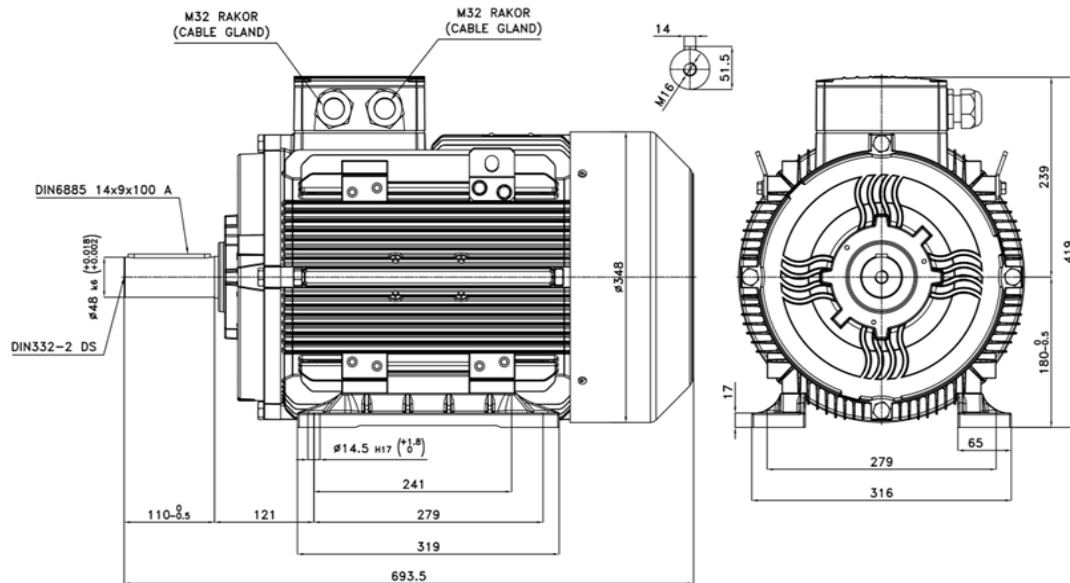
| Δ / Y | U [V] | f [Hz] | P [kW] | n [rpm] | I [A] | η [%100] | η [%75] | η [%50] | Cosφ | Cl  |
|-------|-------|--------|--------|---------|-------|----------|---------|---------|------|-----|
| Δ     | 400   | 50     | 18.5   | 1475    | 34.6  | 94.2     | 94.4    | 94.0    | 0.82 | IE4 |
| Y     | 690   | 50     | 18.5   | 1475    | 20.0  | 94.2     | 94.4    | 94.0    | 0.82 | IE4 |
| Δ     | 460   | 60     | 18.5   | 1775    | 30.3  | 94.5     | 94.6    | 94.1    | 0.81 | IE4 |
| Δ     | 460   | 60     | 21.5   | 1770    | 34.4  | 94.5     | 94.7    | 94.3    | 0.83 | IE4 |

**MECHANICAL DATA**

|                                       |                   |
|---------------------------------------|-------------------|
| Moment of Inertia [kgm <sup>2</sup> ] | : 0.14700         |
| Bearing [DS / NS]                     | : 6310ZZ / 6210ZZ |
| Frame Material                        | : Aluminum        |
| Flange Type / Material                | : B3 / Aluminum   |
| Cooling Fan Material                  | : Plastic         |
| End Shield Material                   | : Aluminum        |

**TERMINAL BOX**

|                          |             |
|--------------------------|-------------|
| Terminal Box Material    | : Aluminum  |
| Terminal Box Position    | : Top       |
| Terminal Box Cable Entry | : 2xM32x1.5 |
| Terminal Box Blind Cap   | : --        |
| Contact Screw Thread     | : M6        |

**MECHANICAL DIMENSIONS**

Manufactured and tested in accordance with IEC 60034

\*Technical data are subject to change! There may be discrepancies between calculated and rating plate values.

\*ELK Motor has right to change all the data without prior notice.

FR.AG.010 REV.NO: 04 REV.DATE: 01.01.2023



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## TECHNICAL DATASHEET ACCORDING TO COMMISSION REGULATION (EU) 2019/1781 THREE PHASE INDUCTION MOTOR - SQUIRREL CAGE

Type : 4EL180M4D-PD-BA-000

Date : 01.01.2023

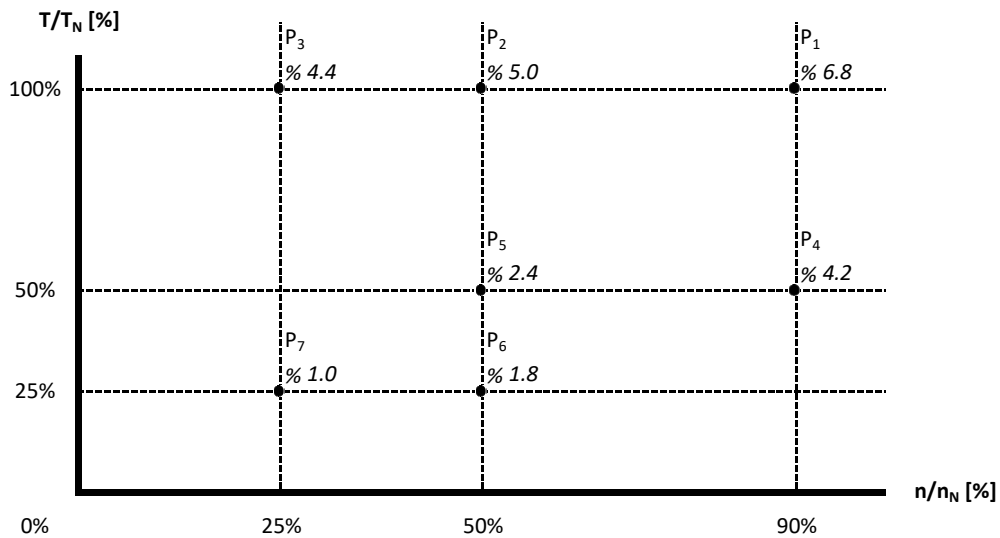
### NAMEPLATE DATA

|                                 |            |                                |        |
|---------------------------------|------------|--------------------------------|--------|
| Power [kW]                      | : 18.5     | Nominal Speed [rpm]            | : 1475 |
| Nominal Voltage [V]             | : 400      | Nominal Current [A]            | : 34.6 |
| Connection Type [ $\Delta$ / Y] | : $\Delta$ | Nominal Moment [Nm]            | : 120  |
| Nominal Frequency [Hz]          | : 50       | Nominal Efficiency [ $\eta$ %] | : 94.2 |

### THE POWER LOSSES AT SEVEN OPERATING POINTS ACCORDING TO COMMISSION REGULATION (EU) 2019/1781

| Operating Point Number | Speed $n/n_N$ [%] | Torque $T/T_N$ [%] | Relative Power Losses $P_L/P_N$ [%] | Efficiency $\eta$ [%] |
|------------------------|-------------------|--------------------|-------------------------------------|-----------------------|
| P <sub>1</sub>         | 90                | 100                | 6.8                                 | 93.0                  |
| P <sub>2</sub>         | 50                | 100                | 5.0                                 | 90.9                  |
| P <sub>3</sub>         | 25                | 100                | 4.4                                 | 85.0                  |
| P <sub>4</sub>         | 90                | 50                 | 4.2                                 | 91.4                  |
| P <sub>5</sub>         | 50                | 50                 | 2.4                                 | 91.1                  |
| P <sub>6</sub>         | 50                | 25                 | 1.8                                 | 87.6                  |
| P <sub>7</sub>         | 25                | 25                 | 1.0                                 | 86.1                  |

### MAP OF RELATIVE POWER LOSSES $P_L/P_N$ [%]



Manufactured and tested in accordance with IEC 60034

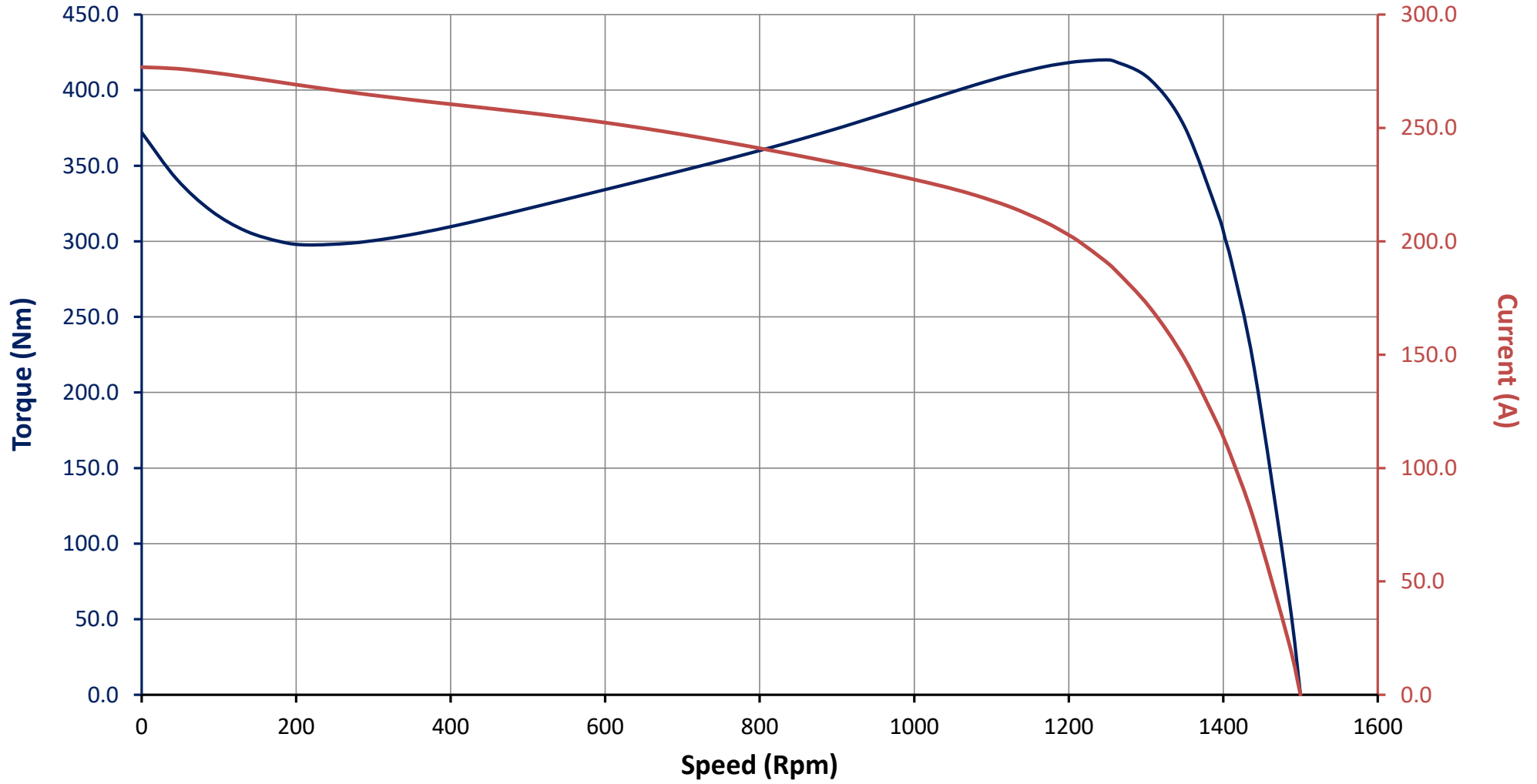
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Motor Code : 4EL180M4D-PD-BA-000

### Torque and Current Curves Related to Speed



Motor Code : 4EL180M4D-PD-BA-000

### Performance Curves Related to Rated Output

