

# PRODUCT INFORMATION PACKET

Model No: E3TN3004167B50D41100

Catalog No: E3TN3004167B50D41100

Made in Italy TCN Series, General Purpose Low Voltage IEC motor, Increased Safety, 15,00 kW,  
3 phase, 1472 RPM, D400/Y690V 50Hz, 160LA Frame B5, 4 Poles, IC411



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## Nameplate Specifications

|                            |        |                        |                             |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP                  | 20 Hp  | Output KW              | 15.0 kW                     |
| Frequency                  | 50 Hz  | Voltage                | 400/690 V                   |
| Current                    | 27.8 A | Speed                  | 1472 rpm                    |
| Service Factor             | 1      | Phase                  | 3                           |
| Efficiency                 | 92.1 % | Power Factor           | 0.85                        |
| Duty                       | S1     | Insulation Class       | F                           |
| Frame                      | 160LA  | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 40 °C  | Drive End Bearing Size | 6309                        |
| Opp Drive End Bearing Size | 6209   | UL                     | No                          |
| CSA                        | No     | CE                     | Yes                         |
| IP Code                    | IP55   | Number of Speeds       | 1                           |

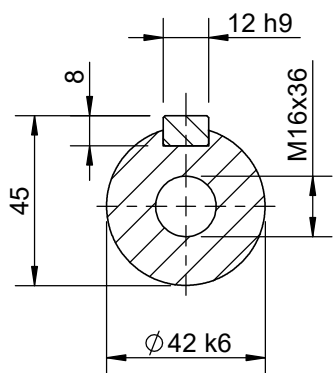
## Technical Specifications

|                       |               |                       |                  |
|-----------------------|---------------|-----------------------|------------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line   |
| Poles                 | 4             | Rotation              | Bi-Directional   |
| Mounting              | B5            | Motor Orientation     | Horizontal       |
| Drive End Bearing     | 2z-C3         | Opp Drive End Bearing | 2z-C3            |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed            |
| Overall Length        | 666.00 mm     | Frame Length          | 298.00 mm        |
| Shaft Diameter        | 42.000 mm     | Shaft Extension       | 110 mm           |
| Assembly/Box Mounting | Top           |                       |                  |
| Connection Drawing    | SC-01-T-1v-1a | Outline Drawing       | B5A04T8160001B01 |

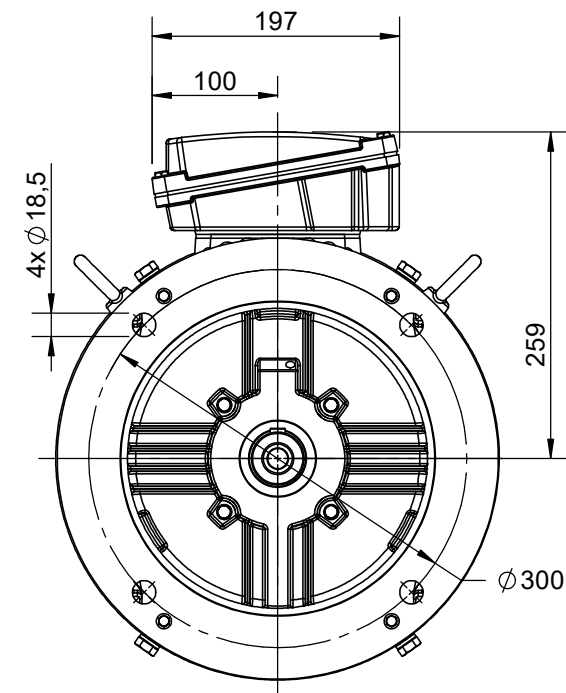
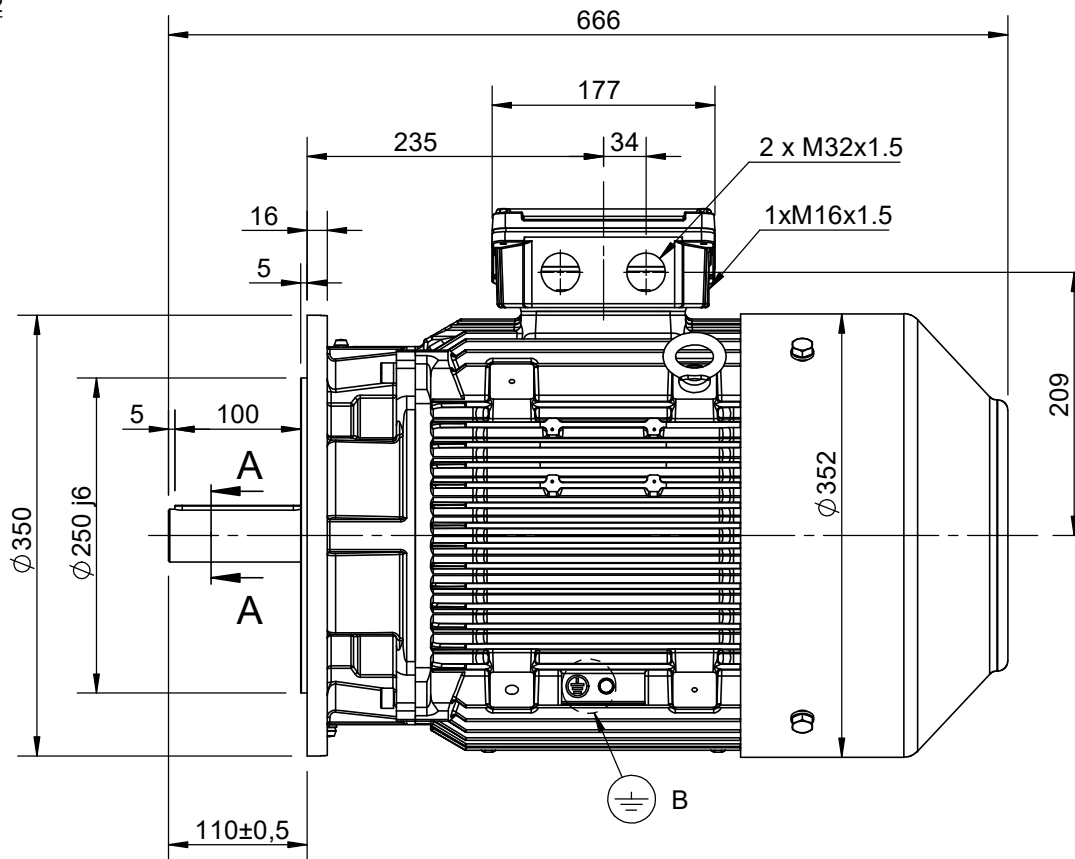
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DETAIL B

Earth Terminal  
suitable for cable  
section 2.5-35mm<sup>2</sup>



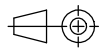
SECTION A-A  
SCALE 1:2



Earth terminal: 1 in the terminal box, 2 on the frame.

CUSTOMER REFERENCE AND ADDITIONAL INFORMATION:

MOTOR TYPE AND DESCRIPTION:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |      |                                                |                                                |                                                                                       |                                        |                  |  |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|------------------|--|------------|
| DRAWING REVISION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | REVISION BY | DATE | TOLERANCES (EXCEPT AS NOTED)<br>TOLERANCES: ±2 | DRAWN BY                                       | <div><div>REGAL™</div><div>cemp</div></div>                                           |                                        |                  |  |            |
| ECO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | APPROVED BY | DATE |                                                | DATE                                           |                                                                                       |                                        |                  |  | 11/11/2021 |
| ECO DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |      |                                                | DIMENSIONS ARE IN mm<br>ACCORDING TO IEC 60072 | APPROVED BY                                                                           | DESCRIPTION<br><br>Motor 160 TC (L) B5 |                  |  |            |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |      | DATE                                           |                                                | 12/11/2021                                                                            |                                        |                  |  |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |      | SERIAL NUMBER                                  | REFERENCE                                      |                                                                                       |                                        |                  |  |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |      |                                                | FIRST ANGLE<br>PROJECTION                      |  | SIZE                                   | DRAWING NUMBER   |  | SHEET      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |      |                                                |                                                |                                                                                       | A4                                     | B5A04T8160001B01 |  | 1 OF 2     |

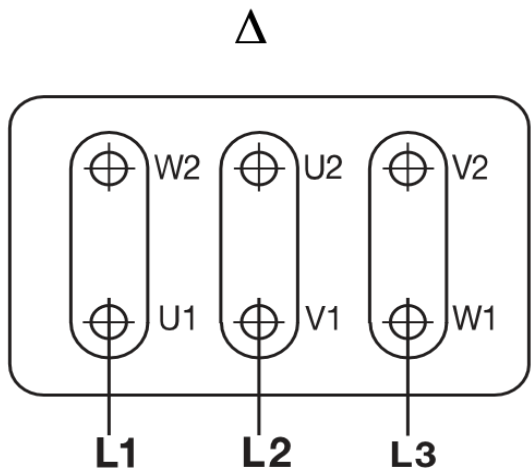
Schema di collegamento - *Connection diagram*  
Schemas de branchement - *Schaltplan*  
Esquemas de conexión



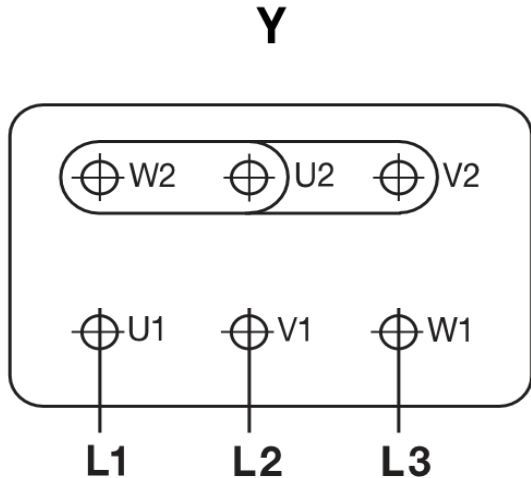
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**Motori trifase una velocità - *Single speed, three phase motors* - Moteurs triphasé une vitesse  
*Drehstrommotor Eine Drehzahlstufe* - Motores trifásico una velocidad**

Collegamento - *Connection* - Connexion - *Schaltung* - Conexión



Collegamento - *Connection* - Connexion - *Schaltung* - Conexión



L1 - L2 - L3 = Linea - *Supply* - Reseau - *Netz* - Red

Per invertire la rotazione invertire due fasi - *To change the rotation reverse two phases* - Pour changer le sens de rotation inverser deux phases - *Zur Drehrichtungsänderung zwei Phasen vertauschen* - Para invertir el sentido de rotación invertir dos fases

| Marcatura Morsetti Ausiliari - <i>Additional terminals marking (IEC60034-8)</i> |                                  |                                                                                               |
|---------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------|
| Marcatura<br><i>Marking</i>                                                     | No. morsetti<br><i>terminals</i> | Morsetto ausiliare per:<br><i>Additional terminal for:</i>                                    |
| TP1A - TP2A (allarme- <i>warning</i> )                                          | 2                                | Termistori PTC (alta velocità) - <i>Thermistor PTC (high speed) [*]</i>                       |
| TP1B - TP2B (allarme- <i>warning</i> )                                          | 2                                | Termistori PTC (bassa velocità) - <i>Thermistor PTC (low speed) [*]</i>                       |
| R1 - R2 - R3 (I sensore - <i>sensor</i> )                                       | 3                                | Termistore PT100 3 fili - <i>Thermistor PT 100 with 3 wires</i>                               |
| R4 - R5 - R6 (II sensore - <i>sensor</i> )                                      | 3                                |                                                                                               |
| R7 - R8 - R9 (III sensore - <i>sensor</i> )                                     | 3                                |                                                                                               |
| R11 - R12 - R13 (anteriore - <i>DE</i> )                                        | 3                                | Termistore PT100 su cuscinetto - <i>Thermistor PT 100 on bearing</i>                          |
| R21 - R22 - R23 (posteriore - <i>NDE</i> )                                      | 3                                |                                                                                               |
| TB1 - TB2 (allarme- <i>warning</i> )                                            | 2                                | Protettore bimetallico normalmente chiuso - <i>Normally closed bi-metallic switch (**)</i>    |
| TB3 - TB4 (intervento- <i>switch off</i> )                                      | 2                                | Protettore bimetallico del freno normalmente chiuso - <i>NC brake bi-metallic switch (**)</i> |
| TB8 - TB9 (intervento- <i>switch off</i> )                                      | 2                                |                                                                                               |
| TM1 - TM2 (allarme- <i>warning</i> )                                            | 2                                | Protettore bimetallico normalmente aperto - <i>Normally open bi-metallic switch (**)</i>      |
| TM3 - TM4 (intervento- <i>switch off</i> )                                      | 2                                |                                                                                               |
| HE1- HE2                                                                        | 2                                | Resistenze riscaldanti - <i>Space heaters</i>                                                 |
| U1 - U2                                                                         | 2                                | Ventilazione ausiliaria monofase - <i>Single phase forced ventilation</i>                     |
| U - V - W                                                                       | 2                                | Ventilazione ausiliaria trifase - <i>Three phase forced ventilation</i>                       |
| colori secondo schema del produttore -<br><i>colours according manufacturer</i> | 9                                | Encoder                                                                                       |
| CA1 - CA2                                                                       | 2                                | Condensatore - <i>Capacitor</i>                                                               |
| PE                                                                              | 1                                | Conduttore di terra - <i>Earth cable</i>                                                      |

[\*] U nominale - *U rated* = 6V - max 30V

(\*\*) U nominale - *U rated* = 250V



FOGLIO DATI PER MOTORI ELETTRICI ASINCRONI TRIFASI : SERIE IEC  
DATA SHEET FOR ASYNCHRONOUS THREEPHASE INDUCTION MOTORS: IEC SERIES

|                    |   |
|--------------------|---|
| Cliente / Customer | - |
| Offerta / Offer :  | - |
| Impianto / Plant   | - |

|  |
|--|
|  |
|  |
|  |

DATI DI PROGETTO - DESIGN DATA

|                                      |               |                                 |
|--------------------------------------|---------------|---------------------------------|
| Modo di protezione                   | II3G          | Motore / Frame                  |
| Type of protection                   |               | Scatola morsetti / Terminal box |
| Tem. Amb. Min. / Min Amb.Temp.       | -20           | °C                              |
| Umidità relativa / Relative humidity | 90%           |                                 |
| Tensione nominale / Rated Voltage    | 400 V +/- 10% |                                 |

|                                 |                    |
|---------------------------------|--------------------|
| Ex ec IIB T3 Gc                 | IP55               |
| Ex ec IIB Gc                    | IP55               |
| Tem. Amb. Max. / Max Amb. Temp. | 40 °C              |
| Altitudine / Altitude           | < 1000 mslm / masl |
| Frequenza / Frequency           | 50 Hz +/- 3%       |

DATI FUNZIONALI E COSTRUTTIVI - PERFORMANCE AND CONSTRUCTION DATA

|                                                     |                                                   |       |        |       |              |            |
|-----------------------------------------------------|---------------------------------------------------|-------|--------|-------|--------------|------------|
| 1                                                   | Quantità / Quantity                               |       |        |       |              | 01         |
| 2                                                   | Motore tipo / Motor type                          |       |        |       |              | TCN 160LA4 |
| 3                                                   | Numero di serie / Serial Number                   |       |        |       |              |            |
| 4                                                   | Forma costruttiva / Shape                         |       |        |       |              | B5         |
| 5                                                   | Certificato / Certificate                         |       | TÜV IT |       | 20 ATEX 103X |            |
| 6                                                   |                                                   |       |        |       |              |            |
| Dati nominali / Rated data                          |                                                   |       |        |       |              |            |
| 7                                                   | Poli / Pole                                       |       | n°     |       | 4            |            |
| 8                                                   | Potenza nominale / Rated power                    |       | kW     |       | 15,00        |            |
| 9                                                   | Corrente nominale / Rated current                 |       | A      |       | 27,75        |            |
| 10                                                  | Velocità nominale / Full Load speed               |       | 1/min  |       | 1472         |            |
| 11                                                  | Collegamento / Winding connection                 |       |        |       |              | D          |
| 12                                                  | Isolamento / Insulation class                     |       |        |       |              | F          |
| 13                                                  | Sovratemperatura / Temperature rise               |       |        |       |              | DT80K      |
| 14                                                  | Raffreddamento / Cooling type                     |       |        |       |              | IC411      |
| 15                                                  | Fattore di servizio / Service factor              |       |        |       |              | 1          |
| 16                                                  |                                                   |       |        |       |              |            |
| 17                                                  | Classe di rendimento / Efficiency level IEC 34-30 |       |        |       | IE3          |            |
| Performances elettriche / Electrical performances   |                                                   |       |        |       |              |            |
| Carico / Load                                       |                                                   |       | 4/4    | 3/4   | 2/4          |            |
| 18                                                  | Giri / Speed                                      | 1/min | 1472   | 1483  | 1489         |            |
| 19                                                  | Corr. / Curr.                                     | A     | 27,75  | 21,66 | 14,52        |            |
| 20                                                  | Rend / Eff                                        | %     | 92,1   | 92,7  | 92,2         |            |
| 21                                                  | cos φ                                             | -     | 0,85   | 0,81  | 0,81         |            |
| Performances all'avviamento / Starting performances |                                                   |       |        |       |              |            |
| 22                                                  | Ia/In - LRC/FLC                                   |       |        |       | %            | 755        |
| 23                                                  | Cosphi a rotore bloccato / LR power factor        |       |        |       | 0,48         |            |
|                                                     | Tempo a rotore bloccato / LRWT                    |       |        |       |              |            |
| 24                                                  | 100% Un (A caldo / Warm)                          |       |        |       | sec          | 8          |
| 25                                                  | (A freddo / Cold)                                 |       |        |       | sec          | 21         |
| 26                                                  | 80% Un (A caldo / Warm)                           |       |        |       | sec          | 13         |
| 27                                                  | (A freddo / Cold)                                 |       |        |       | sec          | 33         |
|                                                     | Tempo di avviamento ammissibile / ART             |       |        |       |              |            |
| 28                                                  | 100% Un                                           |       |        |       | sec          | 19         |
| 29                                                  | 80% Un                                            |       |        |       | sec          | 29         |
| Curva di coppia / Speed-torque values               |                                                   |       |        |       |              |            |
| 30                                                  | Coppia nominale / Rated Torque                    |       |        |       | Nm           | 97,32      |
| 31                                                  | Ca/Cn - LRT/FLT                                   |       |        |       | %            | 255        |
| 32                                                  | Cmax/Cn - BDT/FLT                                 |       |        |       | %            | 320        |
| 33                                                  |                                                   |       |        |       |              |            |
| 34                                                  |                                                   |       |        |       |              |            |
| 35                                                  |                                                   |       |        |       |              |            |
| Varie / Other                                       |                                                   |       |        |       |              |            |
| 36                                                  |                                                   |       |        |       |              |            |
| 37                                                  |                                                   |       |        |       |              |            |
| 38                                                  |                                                   |       |        |       |              |            |
| 39                                                  |                                                   |       |        |       |              |            |

|                                                             |                                            |                         |             |
|-------------------------------------------------------------|--------------------------------------------|-------------------------|-------------|
| Servizio / Duty                                             |                                            |                         |             |
| 40                                                          | Servizio / Duty type                       | -                       | S1          |
| 41                                                          | Intermittenza / Cyclic duration factor     | -                       | -           |
| 42                                                          | Avviamenti-ora / Starting-hour             | -                       | -           |
| 43                                                          | Tempo ciclo / Time                         |                         | -           |
| Cuscinetti / Bearings                                       |                                            |                         |             |
| 44                                                          | Cuscinetto ant / DE bearing                | -                       | 6309 ZZ C3  |
| 45                                                          | Cuscinetto post / NDE bearing              | -                       | 6209 ZZ C3  |
| 46                                                          | Carico radiale max / Max radial load in X1 | N                       | 2377        |
| 47                                                          | Carico assiale max / Max axial load        | N                       | 1721        |
| 48                                                          | Tipo grasso / Grease type                  | LGHP2 SKF or equivalent |             |
| 49                                                          | Intervallo lubrificazione / Lubrication    | h                       | -           |
| 50                                                          | Quantità grasso / Quantity grease          | gr                      | -           |
| Caratteristiche meccaniche / mechanical specification       |                                            |                         |             |
| 51                                                          | Massa / Mass                               | kg                      | 170         |
| 52                                                          | Momento d'inerzia / Moment of inertia      | kgm2                    | 0,1603      |
| 53                                                          | Rumore a vuoto / Noise at no load (1 m)    | Lp dB(A)                | 66          |
| 54                                                          | Vibrazioni / Vibration level               | IEC 34-14               | A           |
| 55                                                          | Limite norma / Vibration limit             | mm/sec                  | 2,20        |
|                                                             |                                            |                         |             |
| 56                                                          |                                            |                         |             |
| 57                                                          |                                            |                         |             |
| Dati entrata cavi - verniciatura / Cable entry and painting |                                            |                         |             |
| 63                                                          | Entrata cavi / Cable entry                 | IEC 60423               | 2xM32+1xM16 |
| 64                                                          | Ciclo verniciatura / Painting cycle        |                         | STD         |
| 65                                                          | Colore finale / Final colour               | RAL                     | 5010        |
|                                                             |                                            |                         |             |
| 66                                                          |                                            |                         |             |
| 67                                                          |                                            |                         |             |
| 68                                                          |                                            |                         |             |
| 69                                                          |                                            |                         |             |
| 70                                                          |                                            |                         |             |
| 71                                                          |                                            |                         |             |
| Ausiliari - Auxiliaries                                     |                                            |                         |             |
| 72                                                          | Sonde termiche / Temperature detector      | winding                 | PTC         |
| 73                                                          | Sonde termiche / Temperature detector      | bearing                 | -           |
| 74                                                          | Scaldiglie / Heaters                       | V / W                   | -           |
| 75                                                          | Preparation for SPM sensor                 |                         | -           |
| 76                                                          | Pressacavi / Cable glands                  |                         | NO          |
| 77                                                          |                                            |                         |             |

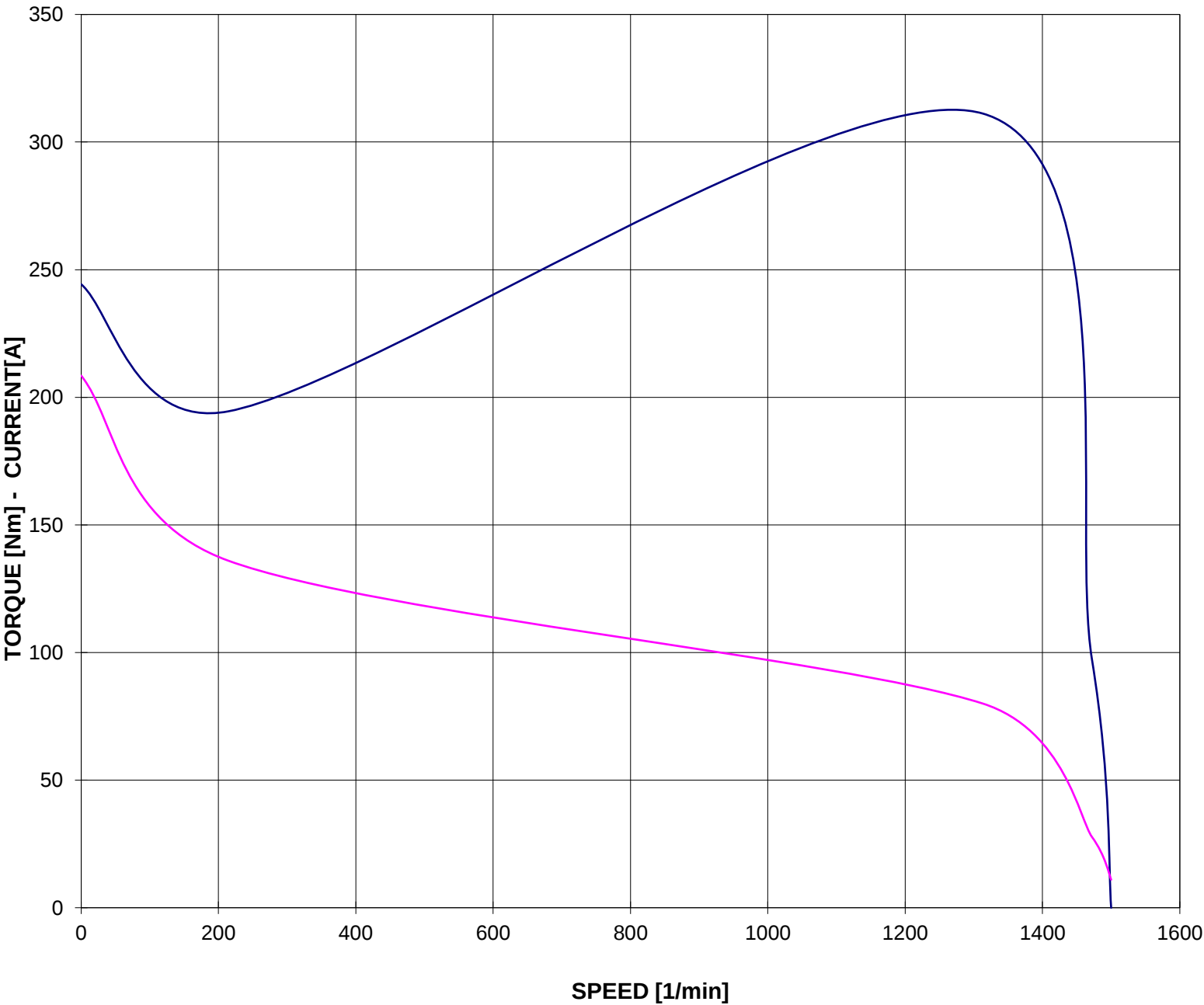
Documento preliminare - Preliminary data sheet

**CURVA COPPIA/CORRENTE-GIRI**  
**TORQUE/CURRENT-SPEED DIAGRAM**

Cliente / Customer -  
Impianto / Plant -  
**ITEM** -  
Numero d'offerta / Offer Number -

|                                            |                   |        |
|--------------------------------------------|-------------------|--------|
| <b>Motore / Motor</b>                      | <b>TCN 160LA4</b> |        |
| Potenza nominale / Rated power             | 15,00             | kW     |
| Poli / Pole                                | 4                 |        |
| Tensione - Frequenza / Voltage - Frequency | 400 - 50          | V - Hz |
| Corrente / Rated current                   | 27,75             | A      |
| Velocità / Speed                           | 1472              | rpm    |
| Coppia / Torque                            | 97,32             | Nm     |

— COPPIA - TORQUE — CORRENTE - CURRENT



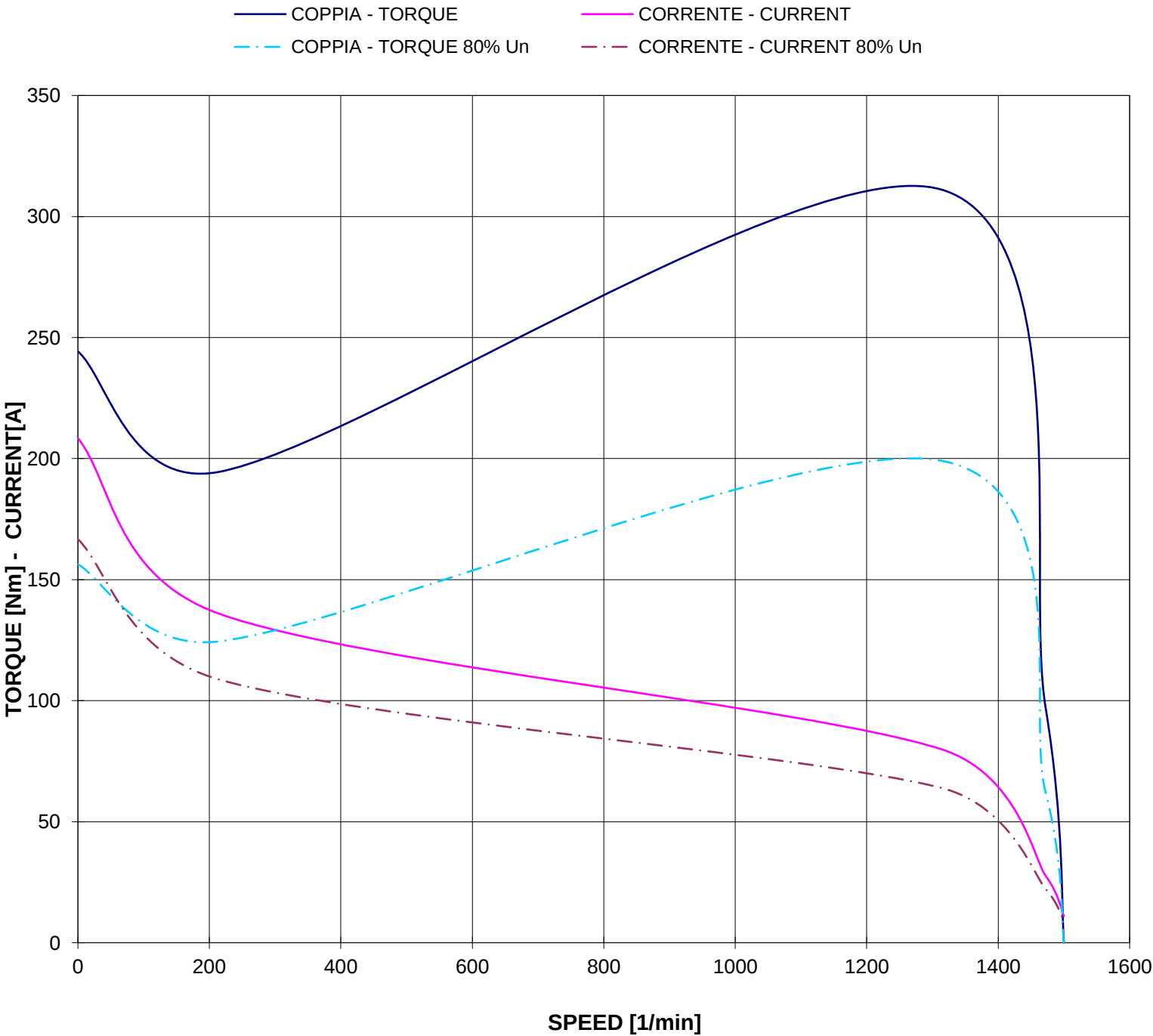
Valori calcolati - Data obtained by calculation method  
Documento preliminare - Preliminary document

Data / Date 29-giu-22

**CURVA COPPIA/CORRENTE-GIRI (Tensione ridotta)**  
**TORQUE/CURRENT-SPEED DIAGRAM (Reduced voltage)**

Cliente / Customer -  
Impianto / Plant -  
**ITEM** -  
Numero d'offerta / Offer Number -

|                                            |                   |        |
|--------------------------------------------|-------------------|--------|
| <b>Motore / Motor</b>                      | <b>TCN 160LA4</b> |        |
| Potenza nominale / Rated power             | 15,00             | kW     |
| Poli / Pole                                | 4                 |        |
| Tensione - Frequenza / Voltage - Frequency | 400 - 50          | V - Hz |
| Corrente / Rated current                   | 27,75             | A      |
| Velocità / Speed                           | 1472              | rpm    |
| Coppia / Torque                            | 97,32             | Nm     |



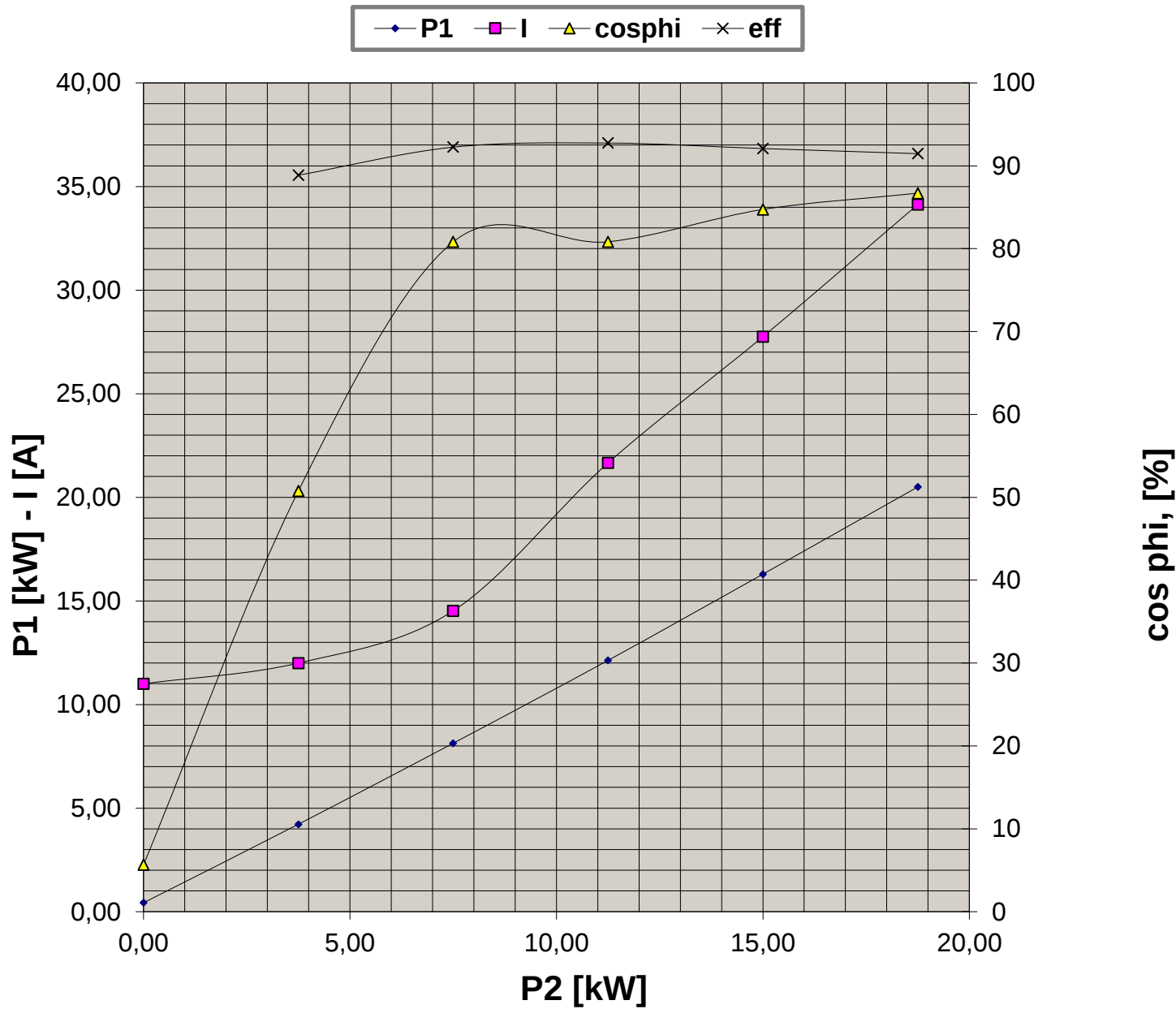
Valori calcolati - Data obtained by calculation method  
Documento preliminare - Preliminary document

Data / Date 29-giu-22

CURVE CARATTERISTICHE  
PERFORMANCE CURVES

Ciente / Customer -  
Impianto / Plant -  
ITEM -  
Numero d'offerta / Offer Number -

|                                            |            |        |
|--------------------------------------------|------------|--------|
| Motore / Motor                             | TCN 160LA4 |        |
| Potenza nominale / Rated power             | 15,00      | kW     |
| Poli / Pole                                | 4          |        |
| Tensione - Frequenza / Voltage - Frequency | 400 - 50   | V - Hz |
| Corrente / Rated current                   | 27,75      | A      |
| Velocità / Speed                           | 1472       | rpm    |
| Coppia / Torque                            | 97,32      | Nm     |



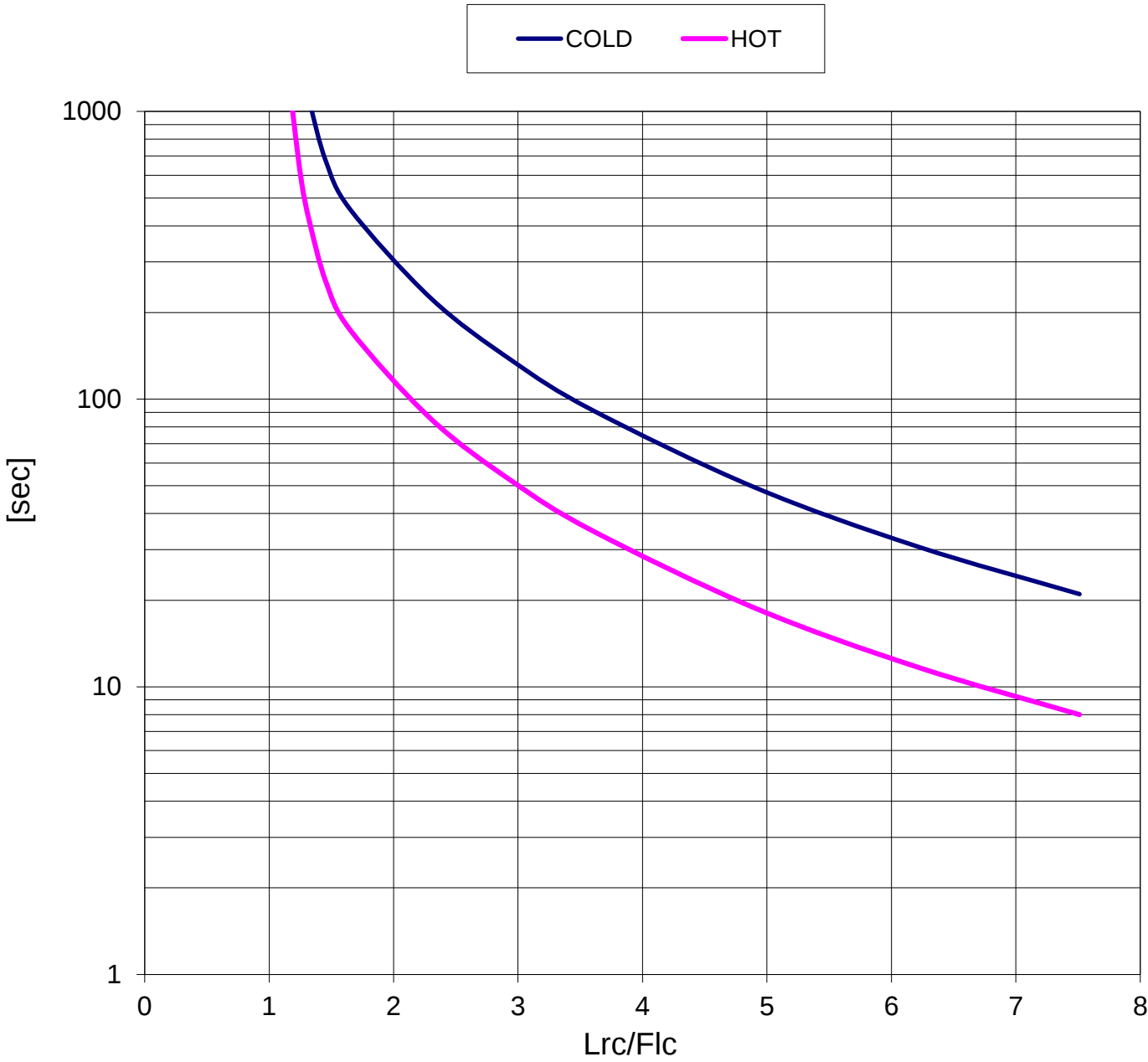
Valori calcolati - Data obtained by calculation method  
Documento preliminare - Preliminary document

Data / Date 29-giu-22

**CURVA LIMITE CORRENTE TEMPO**  
**THERMAL WITHSTAND CURVE**

Cliente / Customer -  
Impianto / Plant -  
**ITEM** -  
Numero d'offerta / Offer Number -

|                                            |                   |        |
|--------------------------------------------|-------------------|--------|
| <b>Motore / Motor</b>                      | <b>TCN 160LA4</b> |        |
| Potenza nominale / Rated power             | 15,00             | kW     |
| Poli / Pole                                | 4                 |        |
| Tensione - Frequenza / Voltage - Frequency | 400 - 50          | V - Hz |
| Corrente / Rated current                   | 27,75             | A      |
| Velocità / Speed                           | 1472              | rpm    |
| Coppia / Torque                            | 97,32             | Nm     |



Valori calcolati - Data obtained by calculation method  
Documento preliminare - Preliminary document

Data / Date 29-giu-22

**CURVA LIMITE CORRENTE TEMPO (Tensione ridotta)**  
**THERMAL WITHSTAND CURVE (Reduced voltage)**

Cliente / Customer -  
Impianto / Plant -  
**ITEM** -  
Numero d'offerta / Offer Number -

|                                            |                   |        |
|--------------------------------------------|-------------------|--------|
| <b>Motore / Motor</b>                      | <b>TCN 160LA4</b> |        |
| Potenza nominale / Rated power             | 15,00             | kW     |
| Poli / Pole                                | 4                 |        |
| Tensione - Frequenza / Voltage - Frequency | 400 - 50          | V - Hz |
| Corrente / Rated current                   | 27,75             | A      |
| Velocità / Speed                           | 1472              | rpm    |
| Coppia / Torque                            | 97,32             | Nm     |

