

# PRODUCT INFORMATION PACKET

Model No: E3TN3004095B35S41100

Catalog No: E3TN3004095B35S41100

Made in Italy TCN Series, General Purpose Low Voltage IEC motor, Increased Safety, 1,50 kW,  
3 phase, 1441 RPM, D230/Y400V 50Hz, 90L Frame B35, 4 Poles, IC411



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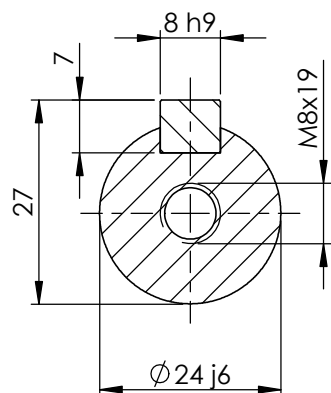
## Nameplate Specifications

|                            |        |                        |                             |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP                  | 2 Hp   | Output KW              | 1.5 kW                      |
| Frequency                  | 50 Hz  | Voltage                | 230/400 V                   |
| Current                    | 3.2 A  | Speed                  | 1441 rpm                    |
| Service Factor             | 1      | Phase                  | 3                           |
| Efficiency                 | 85.6 % | Power Factor           | 0.78                        |
| Duty                       | S1     | Insulation Class       | F                           |
| Frame                      | 90L    | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 40 °C  | Drive End Bearing Size | 6205                        |
| Opp Drive End Bearing Size | 6205   | 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              | B35              | Motor Orientation     | Horizontal     |
| Drive End Bearing     | 2z-C3            | Opp Drive End Bearing | 2z-C3          |
| Frame Material        | Cast Iron        | Shaft Type            | Keyed          |
| Overall Length        | 332.00 mm        | Frame Length          | 153.00 mm      |
| Shaft Diameter        | 24.000 mm        | Shaft Extension       | 50 mm          |
| Assembly/Box Mounting | Top              |                       |                |
| Outline Drawing       | B3A04T8090001D01 | Connection Drawing    | SC-01-T-1v-1a  |

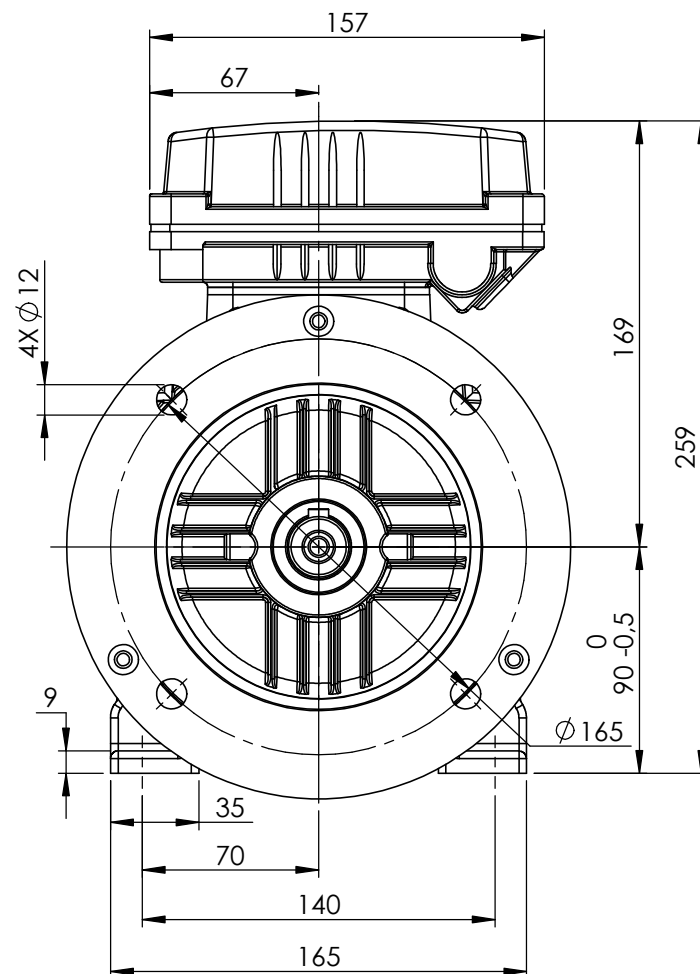
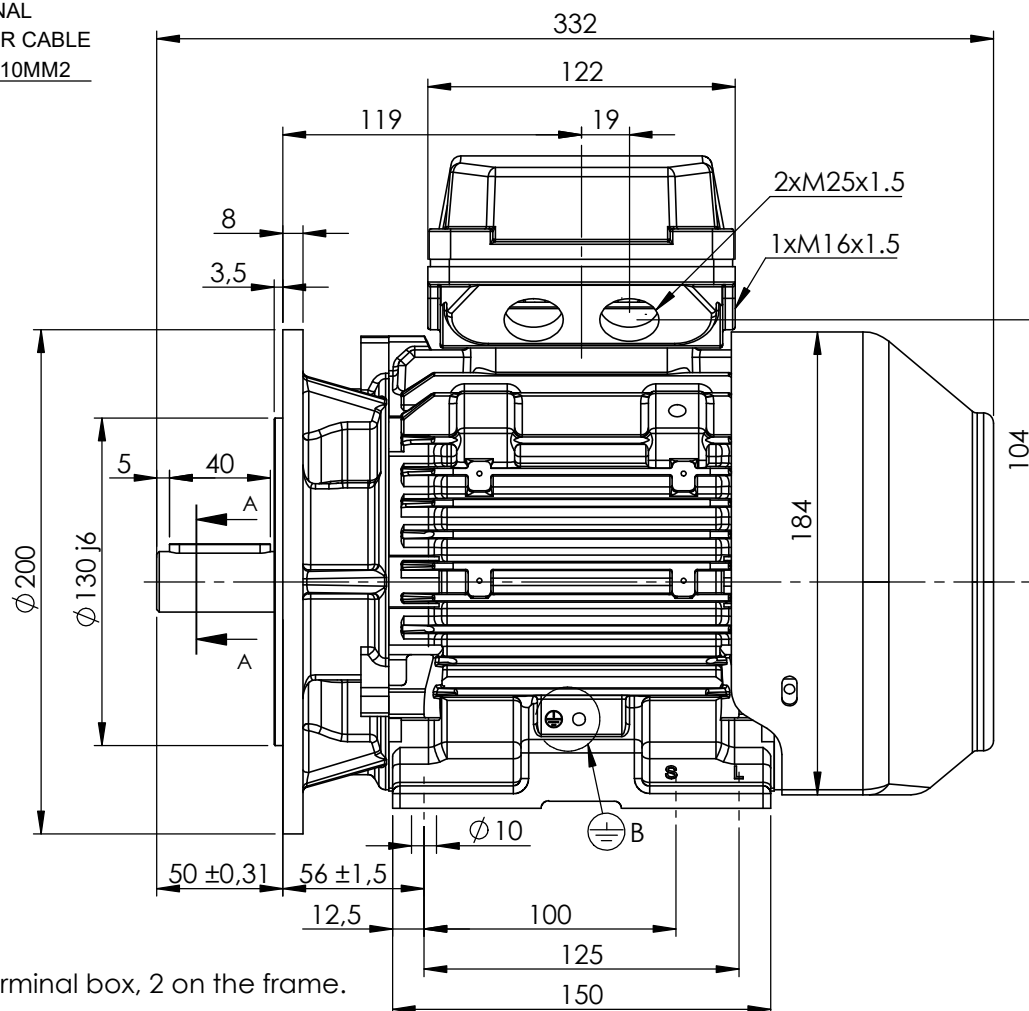
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SECTION A-A  
SCALE 1 : 1



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



CUSTOMER REFERENCE AND ADDITIONAL INFORMATION:

MOTOR TYPE AND DESCRIPTION:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                    |                                                                      |                                           |                                                                                                                                                                                                             |            |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--|
| DRAWING REVISION<br>1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | REVISION BY<br>TN | DATE<br>20/04/2022 | TOLERANCES (EXCEPT AS NOTED)<br>TOLERANCES: ±2<br>* TOLERANCES: ±0.8 | DRAWN BY<br>TN                            | <div><div></div><div></div></div> |            |  |
| ECO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | APPROVED BY<br>LP | DATE<br>21/04/2022 |                                                                      | DATE<br>25/10/2021                        |                                                                                                                                                                                                             |            |  |
| ECO DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                    | DIMENSIONS ARE IN mm<br>ACCORDING TO IEC 60072                       | APPROVED BY<br>LP                         | DESCRIPTION<br><b>Motor 90 TC (L) B35</b>                                                                                                                                                                   |            |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                    | SERIAL NUMBER                                                        |                                           | REFERENCE                                                                                                                                                                                                   | SIZE<br>A4 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                    | FIRST ANGLE<br>PROJECTION                                            | DRAWING NUMBER<br><b>B3A04T8090001D01</b> |                                                                                                                                                                                                             |            |  |

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



DTE 01/01/2004  
SC - 01 - T - 1v.doc

**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 -<br><i>Normally closed bi-metallic switch (**)</i>    |
| TB3 - TB4 (intervento- <i>switch off</i> )                                      | 2                                | Protettore bimetallico del freno normalmente chiuso -<br><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 -<br><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 90L4     |  |
| 3                                                   | Numero di serie / Serial Number            |       |      |           |              |  |
| 4                                                   | Forma costruttiva / Shape                  |       |      |           | B35          |  |
| 5                                                   | Certificato / Certificate                  |       |      | TÜV IT    | 20 ATEX 103X |  |
| 6                                                   |                                            |       |      |           |              |  |
| Dati nominali / Rated data                          |                                            |       |      |           |              |  |
| 7                                                   | Poli / Pole                                |       |      | n°        | 4            |  |
| 8                                                   | Potenza nominale / Rated power             |       |      | kW        | 1,50         |  |
| 9                                                   | Corrente nominale / Rated current          |       |      | A         | 3,28         |  |
| 10                                                  | Velocità nominale / Full Load speed        |       |      | 1/min     | 1441         |  |
| 11                                                  | Collegamento / Winding connection          |       |      |           | Y            |  |
| 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 | 1441 | 1456      | 1473         |  |
| 19                                                  | Corr. / Curr.                              | A     | 3,28 | 2,64      | 2,30         |  |
| 20                                                  | Rend / Eff                                 | %     | 85,6 | 86,9      | 85,2         |  |
| 21                                                  | cos φ                                      | -     | 0,77 | 0,71      | 0,55         |  |
| Performances all'avviamento / Starting performances |                                            |       |      |           |              |  |
| 22                                                  | Ia/In - LRC/FLC                            |       |      | %         | 735          |  |
| 23                                                  | Cosphi a rotore bloccato / LR power factor |       |      |           | 0,65         |  |
|                                                     | Tempo a rotore bloccato / LRWT             |       |      |           |              |  |
| 24                                                  | 100% Un (A caldo / Warm)                   |       |      | sec       | 8            |  |
| 25                                                  | (A freddo / Cold)                          |       |      | sec       | 17           |  |
| 26                                                  | 80% Un (A caldo / Warm)                    |       |      | sec       | 13           |  |
| 27                                                  | (A freddo / Cold)                          |       |      | sec       | 26           |  |
|                                                     | Tempo di avviamento ammissibile / ART      |       |      |           |              |  |
| 28                                                  | 100% Un                                    |       |      | sec       | 15           |  |
| 29                                                  | 80% Un                                     |       |      | sec       | 23           |  |
| Curva di coppia / Speed-torque values               |                                            |       |      |           |              |  |
| 30                                                  | Coppia nominale / Rated Torque             |       |      | Nm        | 9,94         |  |
| 31                                                  | Ca/Cn - LRT/FLT                            |       |      | %         | 320          |  |
| 32                                                  | Cmax/Cn - BDT/FLT                          |       |      | %         | 350          |  |
| 33                                                  |                                            |       |      |           |              |  |
| 34                                                  |                                            |       |      |           |              |  |
| 35                                                  |                                            |       |      |           |              |  |
| Varie / Other                                       |                                            |       |      |           |              |  |
| 36                                                  |                                            |       |      |           |              |  |
| 37                                                  |                                            |       |      |           |              |  |
| 38                                                  |                                            |       |      |           |              |  |
| 39                                                  |                                            |       |      |           |              |  |

|                                                                    |                                            |                         |             |
|--------------------------------------------------------------------|--------------------------------------------|-------------------------|-------------|
| <b>Servizio / Duty</b>                                             |                                            |                         |             |
| 40                                                                 | Servizio / Duty type                       | -                       | S1          |
| 41                                                                 | Intermittenza / Cyclic duration factor     | -                       | -           |
| 42                                                                 | Avviamenti-ora / Starting-hour             | -                       | -           |
| 43                                                                 | Tempo ciclo / Time                         |                         | -           |
| <b>Cuscinetti / Bearings</b>                                       |                                            |                         |             |
| 44                                                                 | Cuscinetto ant / DE bearing                | -                       | 6205 ZZ C3  |
| 45                                                                 | Cuscinetto post / NDE bearing              | -                       | 6205 ZZ C3  |
| 46                                                                 | Carico radiale max / Max radial load in X1 | N                       | 589         |
| 47                                                                 | Carico assiale max / Max axial load        | N                       | 312         |
| 48                                                                 | Tipo grasso / Grease type                  | LGHP2 SKF or equivalent |             |
| 49                                                                 | Intervallo lubrificazione / Lubrication    | h                       | -           |
| 50                                                                 | Quantità grasso / Quantity grease          | gr                      | -           |
| <b>Caratteristiche meccaniche / mechanical specification</b>       |                                            |                         |             |
| 51                                                                 | Massa / Mass                               | kg                      | 30          |
| 52                                                                 | Momento d'inerzia / Moment of inertia      | kgm2                    | 0,0043      |
| 53                                                                 | Rumore a vuoto / Noise at no load (1 m)    | Lp dB(A)                | 61          |
| 54                                                                 | Vibrazioni / Vibration level               | IEC 34-14               | A           |
| 55                                                                 | Limite norma / Vibration limit             | mm/sec                  | 1,60        |
|                                                                    |                                            |                         |             |
| 56                                                                 |                                            |                         |             |
| 57                                                                 |                                            |                         |             |
| <b>Dati entrata cavi - verniciatura / Cable entry and painting</b> |                                            |                         |             |
| 63                                                                 | Entrata cavi / Cable entry                 | IEC 60423               | 2xM25+1xM16 |
| 64                                                                 | Ciclo verniciatura / Painting cycle        |                         | STD         |
| 65                                                                 | Colore finale / Final colour               | RAL                     | 5010        |
|                                                                    |                                            |                         |             |
| 66                                                                 |                                            |                         |             |
| 67                                                                 |                                            |                         |             |
| 68                                                                 |                                            |                         |             |
| 69                                                                 |                                            |                         |             |
| 70                                                                 |                                            |                         |             |
| 71                                                                 |                                            |                         |             |
| <b>Ausiliari - Auxiliaries</b>                                     |                                            |                         |             |
| 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

-

**Motore / Motor**

**TCN 90L4**

Potenza nominale / Rated power

1,50

kW

Poli / Pole

4

Tensione - Frequenza / Voltage - Frequency

400 - 50

V - Hz

Corrente / Rated current

3,28

A

Velocità / Speed

1441

rpm

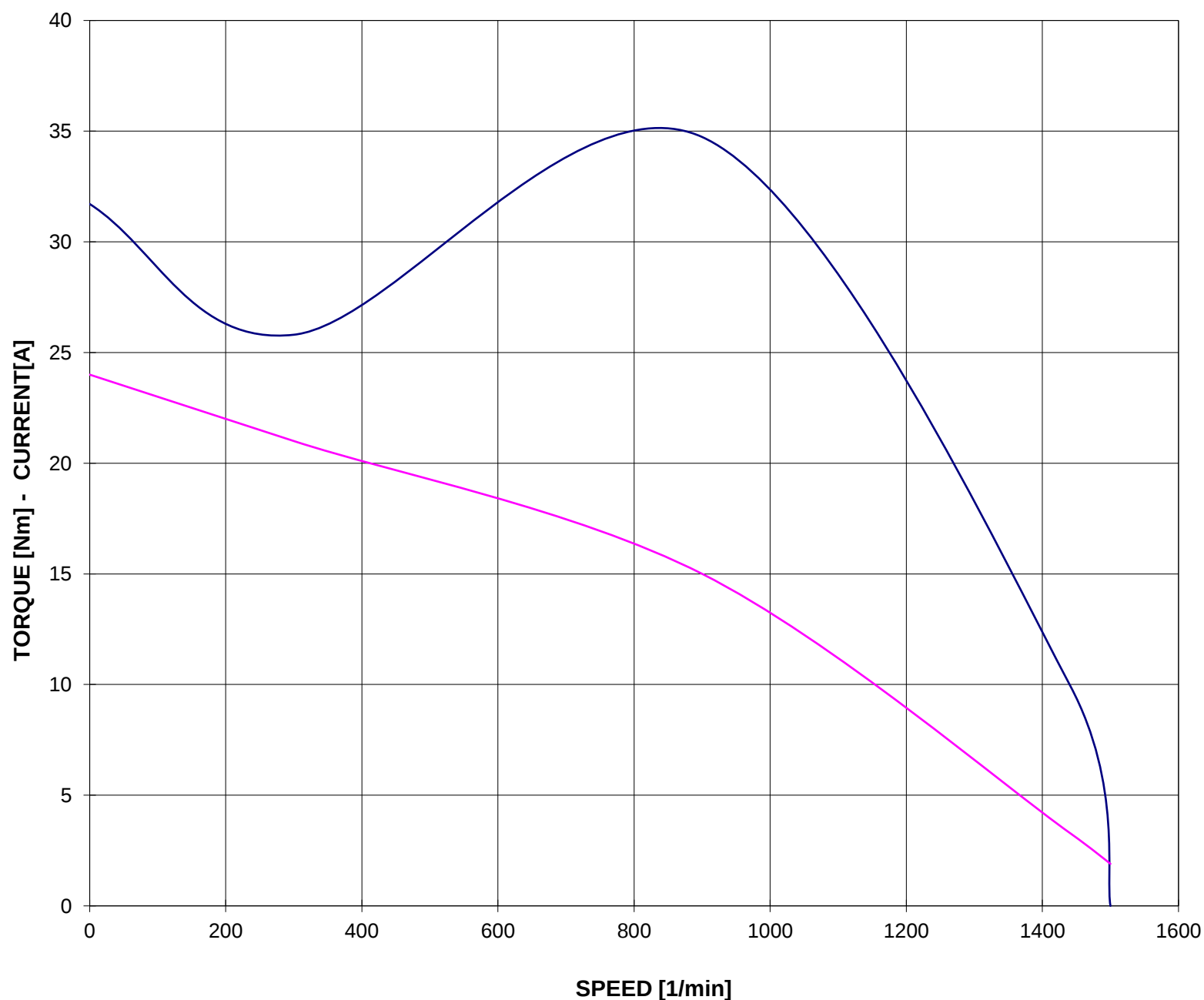
Coppia / Torque

9,94

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

-

**Motore / Motor**

**TCN 90L4**

Potenza nominale / Rated power

1,50

kW

Poli / Pole

4

Tensione - Frequenza / Voltage - Frequency

400 - 50

V - Hz

Corrente / Rated current

3,28

A

Velocità / Speed

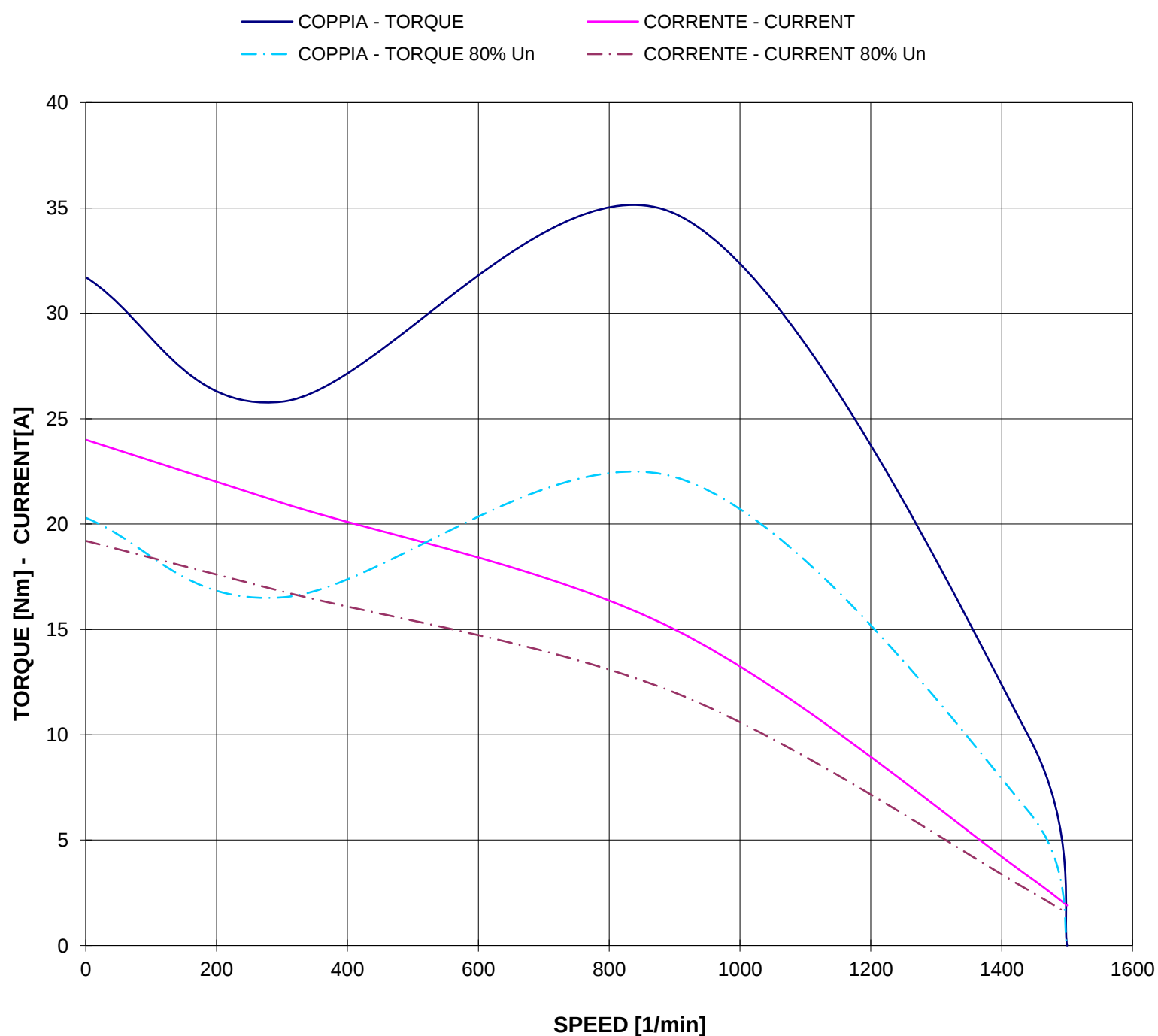
1441

rpm

Coppia / Torque

9,94

Nm



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

Data / Date 29-giu-22

## CURVE CARATTERISTICHE PERFORMANCE CURVES

Cliente / Customer

-

Impianto / Plant

-

ITEM

-

Numero d'offerta / Offer Number

-

### Motore / Motor

### TCN 90L4

Potenza nominale / Rated power

1,50

kW

Poli / Pole

4

Tensione - Frequenza / Voltage - Frequency

400 - 50

V - Hz

Corrente / Rated current

3,28

A

Velocità / Speed

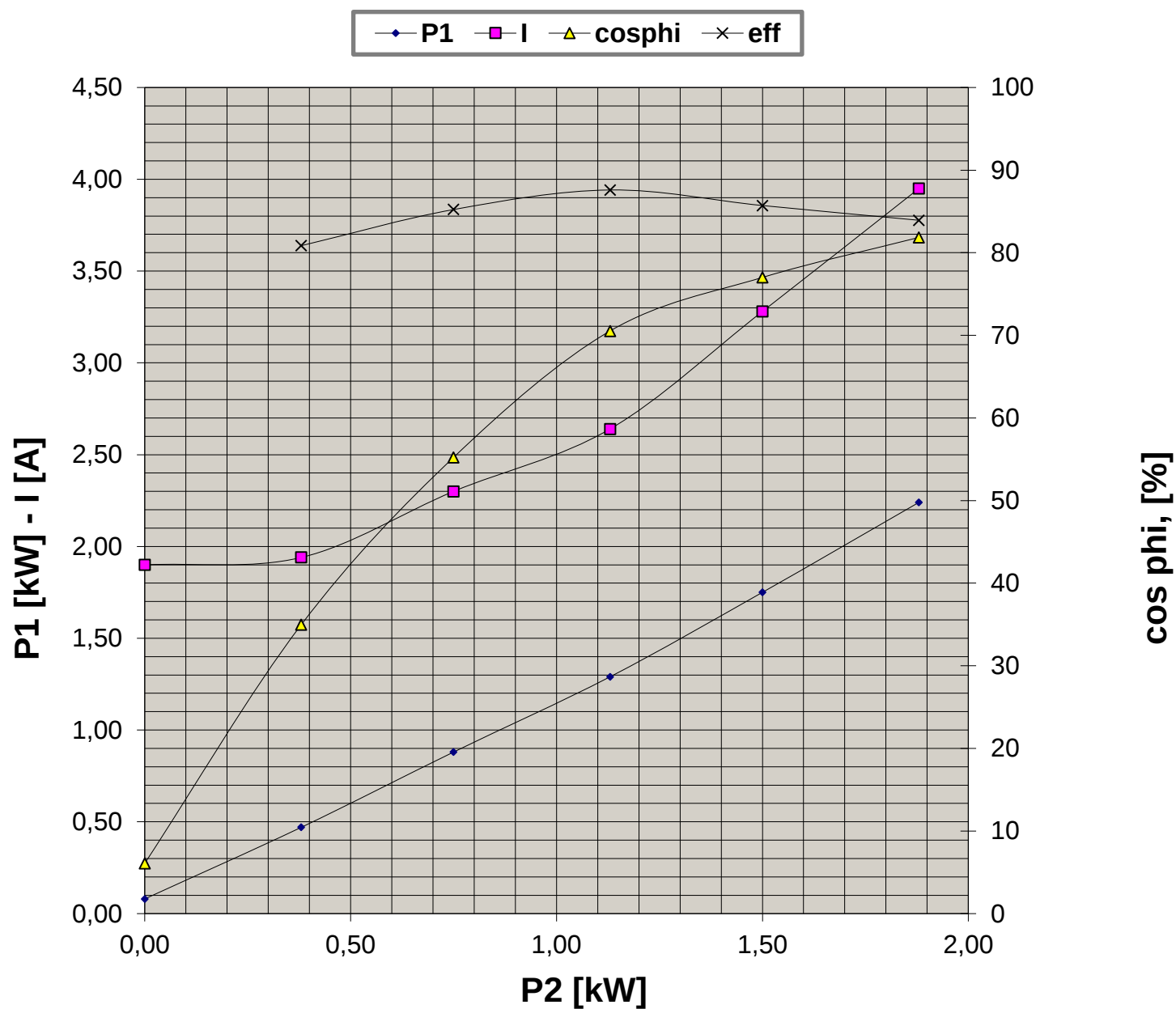
1441

rpm

Coppia / Torque

9,94

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

-

### Motore / Motor

### TCN 90L4

Potenza nominale / Rated power

1,50

kW

Poli / Pole

4

Tensione - Frequenza / Voltage - Frequency

400 - 50

V - Hz

Corrente / Rated current

3,28

A

Velocità / Speed

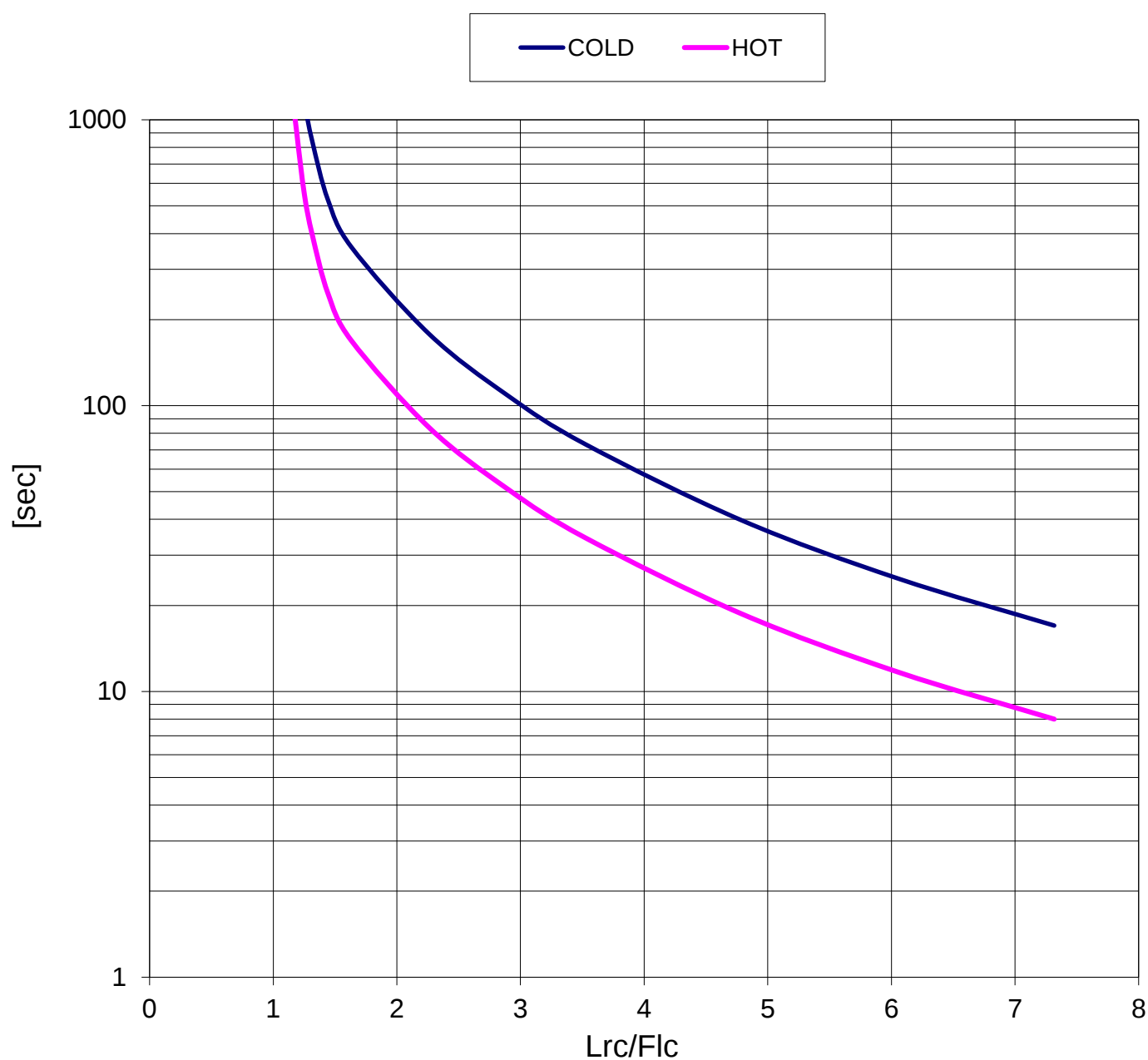
1441

rpm

Coppia / Torque

9,94

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)**

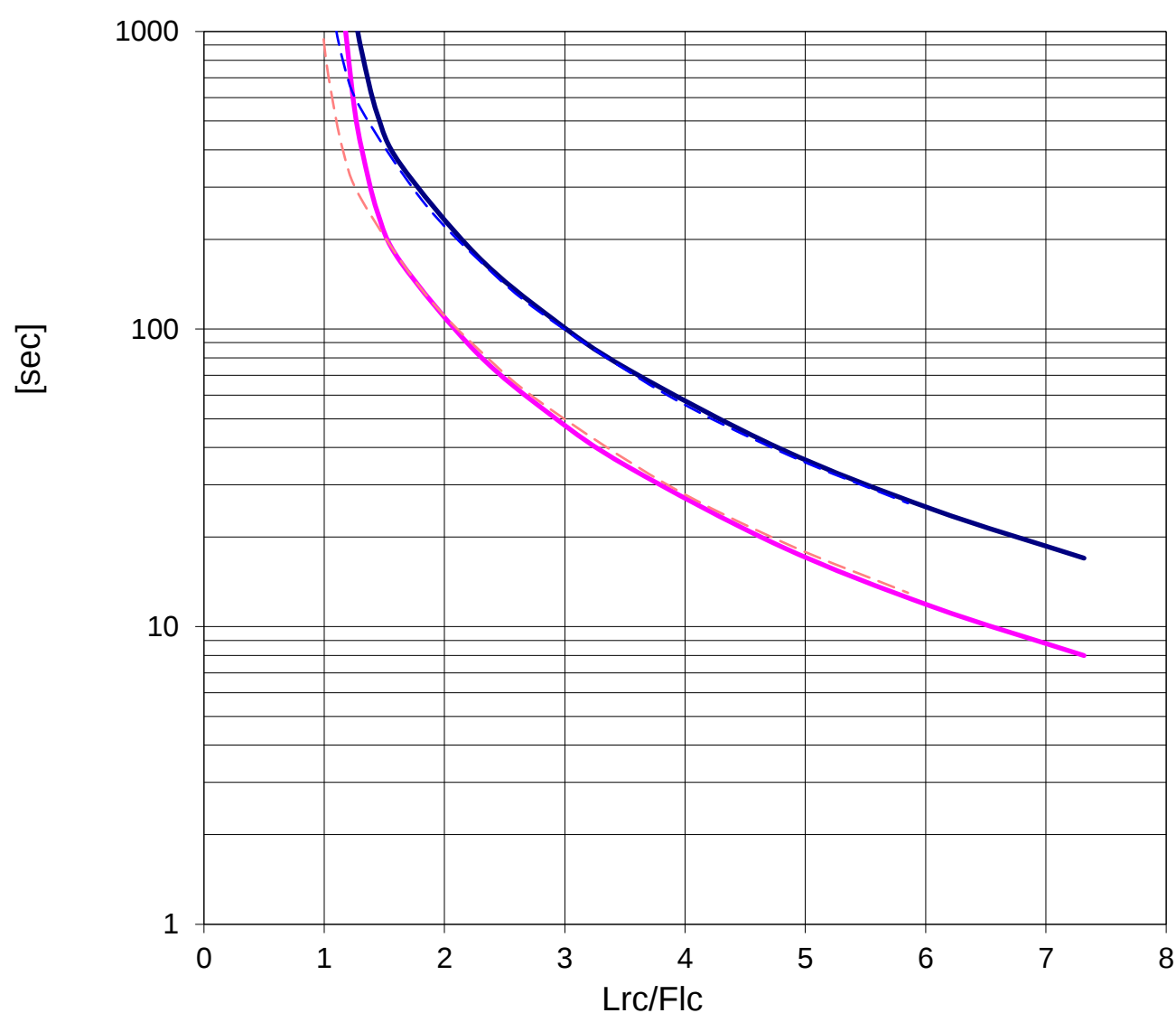
Cliente / Customer -  
Impianto / Plant -  
**ITEM** -  
Numero d'offerta / Offer Number -

**Motore / Motor**

**TCN 90L4**

|                                            |          |        |
|--------------------------------------------|----------|--------|
| Potenza nominale / Rated power             | 1,50     | kW     |
| Poli / Pole                                | 4        |        |
| Tensione - Frequenza / Voltage - Frequency | 400 - 50 | V - Hz |
| Corrente / Rated current                   | 3,28     | A      |
| Velocità / Speed                           | 1441     | rpm    |
| Coppia / Torque                            | 9,94     | Nm     |

— COLD (100% Un) — HOT (100% Un) - - COLD (80% Un) - - HOT (80% Un)



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

Data / Date 29-giu-22