

# Motor Parameters ILM85x26



## PERFORMANCE CHARACTERISTICS

(INTERCONNECTION STAR-SERIAL)

|                                                 |                      |      |
|-------------------------------------------------|----------------------|------|
| Power P                                         | [W]                  | 470  |
| Rated torque $T_r$                              | [Nm]                 | 2.9  |
| Peak torque $T_{max}$ @ 20% linearity deviation | [Nm]                 | 9.37 |
| Rated voltage $U_r$                             | [V]                  | 48   |
| Rotation speed $n_{max}^*$                      | [rpm]                | 1560 |
| Rated current $I_r$ (phase current amplitude)   | [A]                  | 11.5 |
| Copper losses $P_{L,r}$ @ $T_r$ and 20°C        | [W]                  | 31.7 |
| Torque constant $k_T$ @ 20°C                    | [mNm/A]              | 253  |
| Motor constant $k_M$ @ 20°C                     | [Nm/√W]              | 0.52 |
| Terminal resistance $R_{TT}$ @ 20°C             | [mΩ]                 | 320  |
| Terminal inductance $L_{TT}$                    | [μH]                 | 1040 |
| Rotor inertia J                                 | [kgcm <sup>2</sup> ] | 1.06 |
| Number of pole pairs                            | -                    | 10   |
| Max. efficiency $\eta$                          | %                    | 91   |
| Weight m                                        | [g]                  | 670  |

\* Theoretical no-load rotation speeds at rated voltage  $U_r$ . Variations can arise from operation with different inverters.  
Higher rotation speeds or change of the voltage level can be achieved by varying the interconnection scheme.

## MAXIMAL ROTATION SPEEDS

| DC link voltage [V]               | 48   | 36   | 24   | 14   | 12   | 9    |
|-----------------------------------|------|------|------|------|------|------|
| star-serial $n_{\max}^*$ [rpm]    | 1560 | 1170 | 780  | 470  | 390  | 290  |
| delta-serial $n_{\max}^*$ [rpm]   | 2700 | 2030 | 1350 | 810  | 680  | 510  |
| star-parallel $n_{\max}^*$ [rpm]  | 3120 | 2340 | 1560 | 940  | 780  | 590  |
| delta-parallel $n_{\max}^*$ [rpm] | 5400 | 4050 | 2700 | 1620 | 1350 | 1010 |

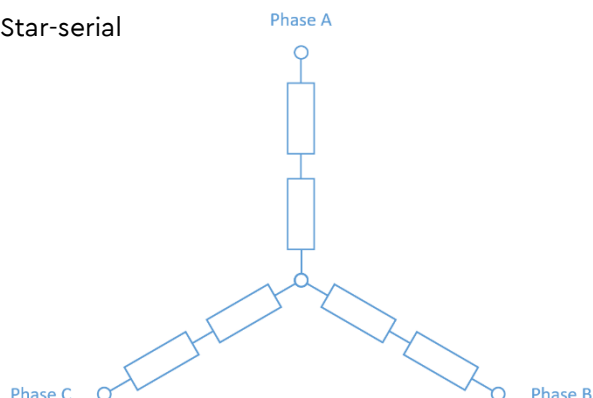
\* Theoretical no-load rotation speeds at indicated voltage. Mechanical limits apply and must not be exceeded.  
Variations can arise from operation with different inverters.

## CHARACTERISTICS INTERCONNECTION VARIANTS

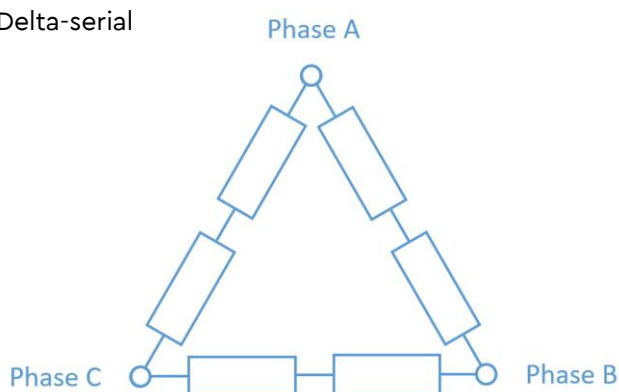
| Interconnection | $U_r$ [V] | $I_r$ [A] | $k_T$ [mNm/A] | $R_{TT}$ [mΩ] | $L_{TT}$ [μH] |
|-----------------|-----------|-----------|---------------|---------------|---------------|
| star-serial     | 48        | 11.5      | 253           | 320           | 1040          |
| delta-serial    | 28        | 19.9      | 146           | 107           | 347           |
| star-parallel   | 24        | 23.0      | 127           | 80            | 260           |
| delta-parallel  | 14        | 39.8      | 73            | 27            | 87            |

## AVAILABLE INTERCONNECTION VARIANTS

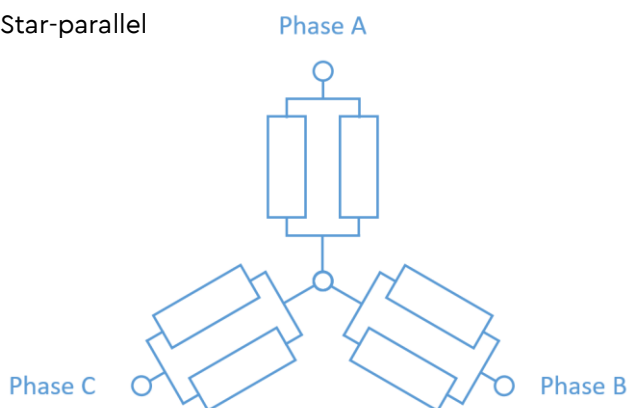
Star-serial



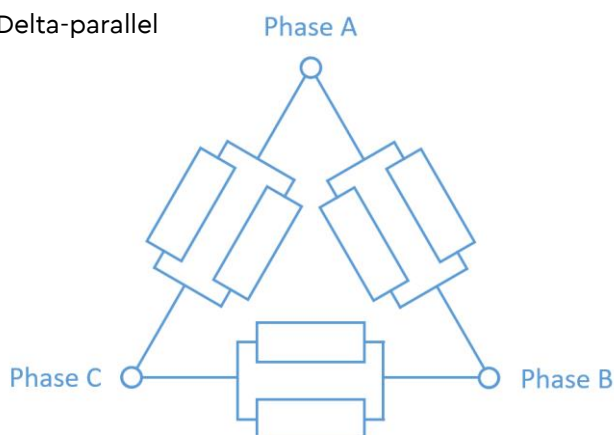
Delta-serial



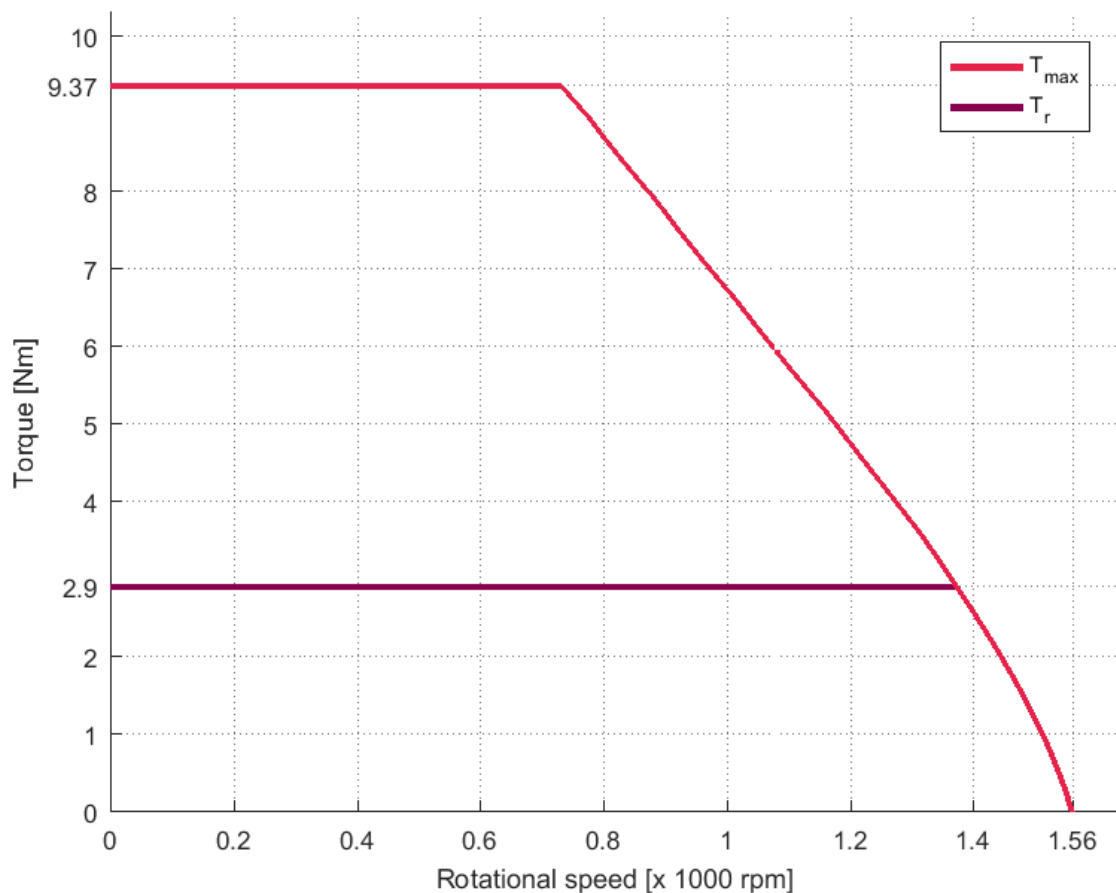
Star-parallel



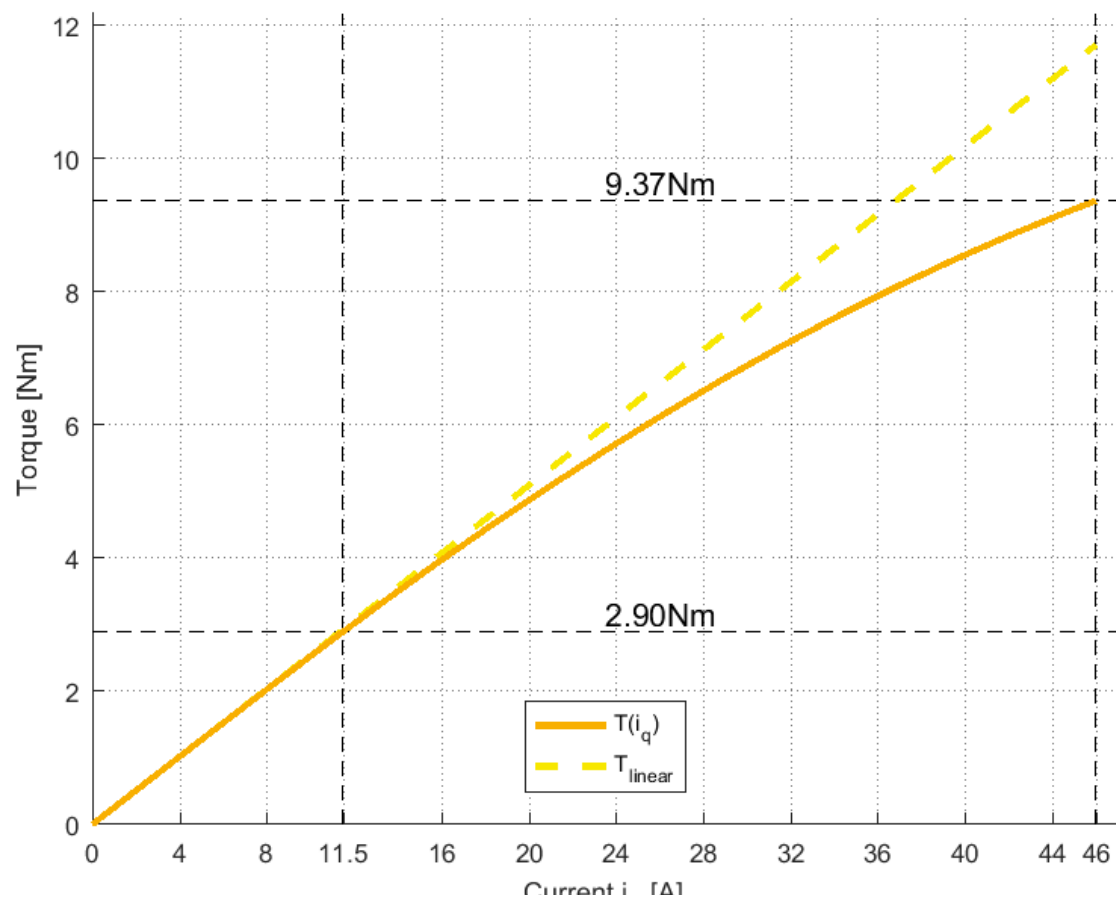
Delta-parallel



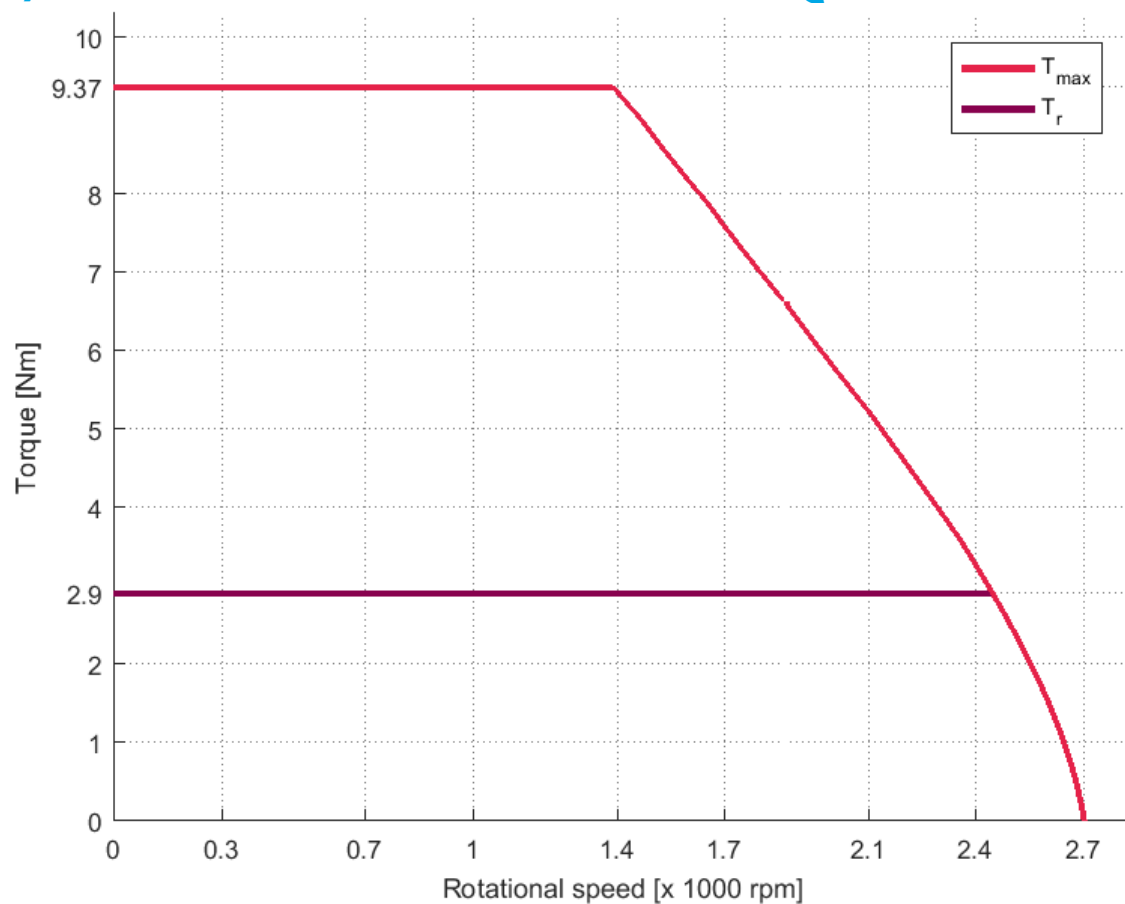
## T/N-DIAGRAM ILM85X26 STAR-SERIAL @ 22 °C



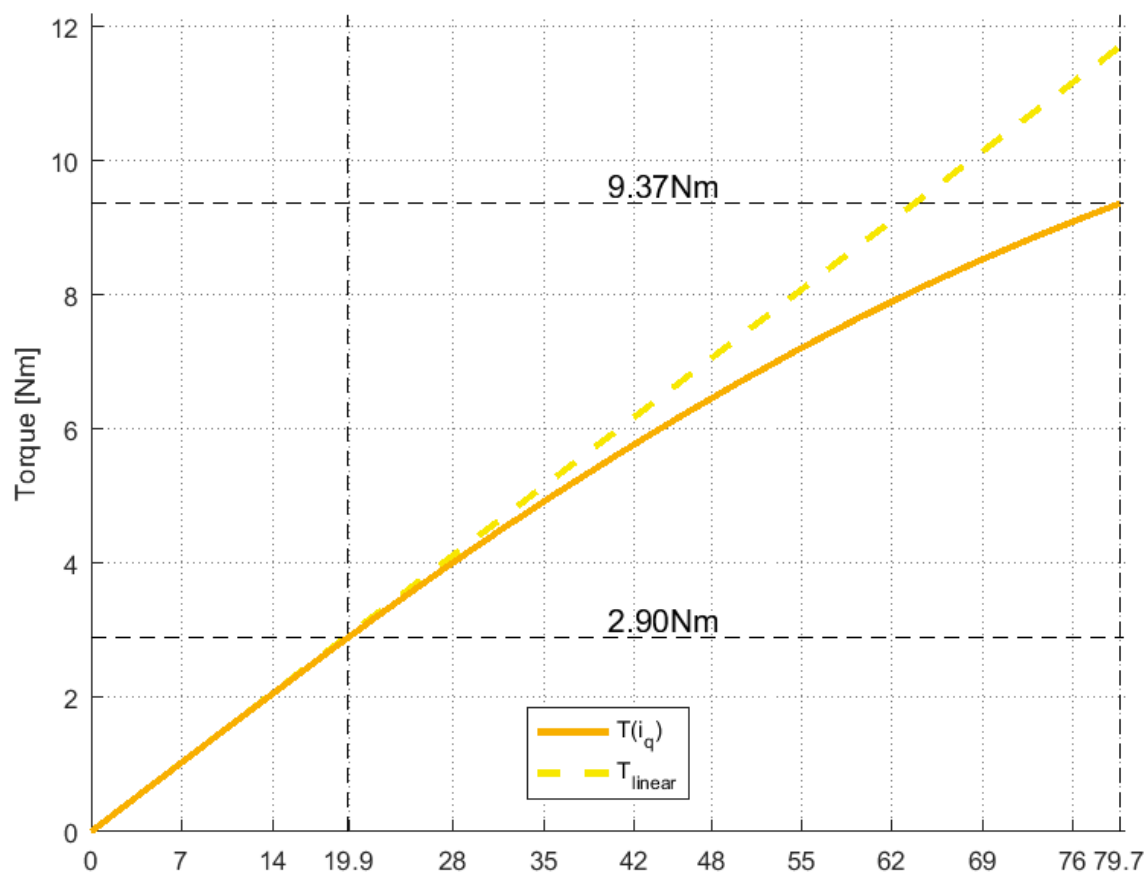
## T/I-DIAGRAM ILM85X26 STAR-SERIAL @ 22 °C



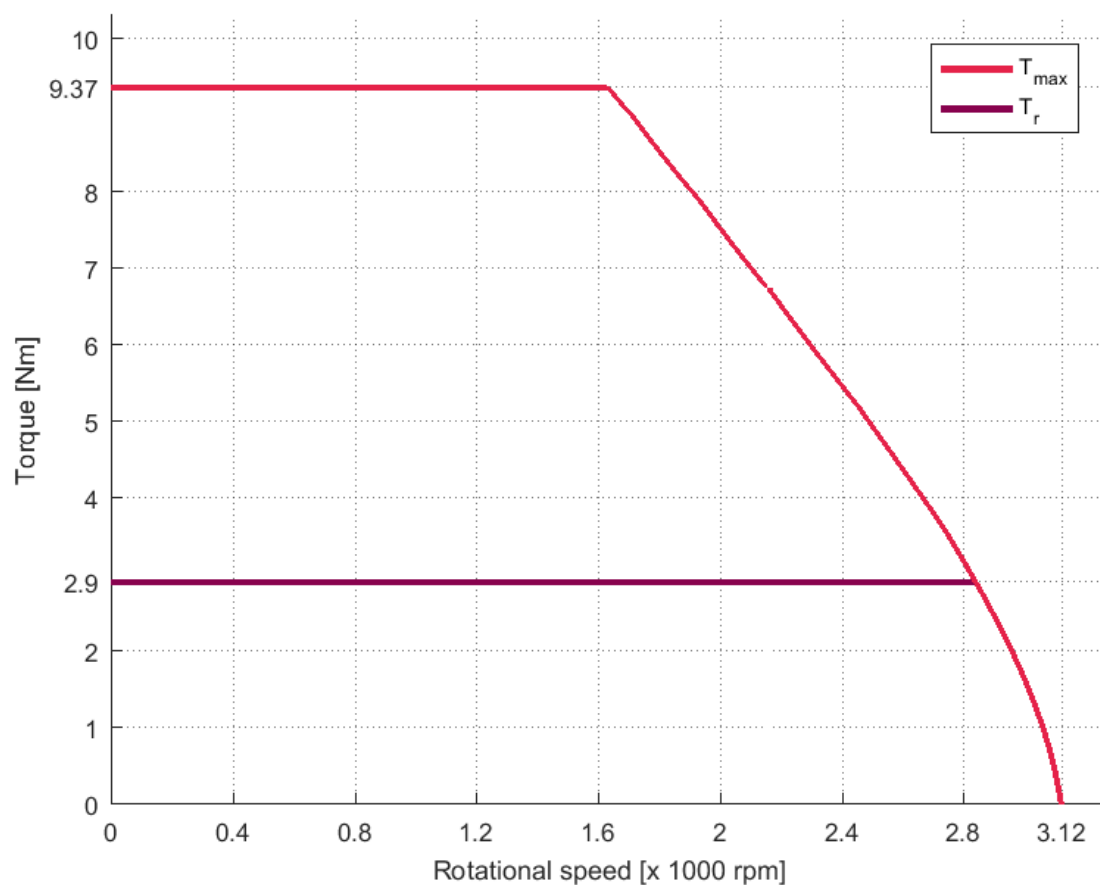
## T/N-DIAGRAM ILM85X26 DELTA-SERIAL @ 22 °C



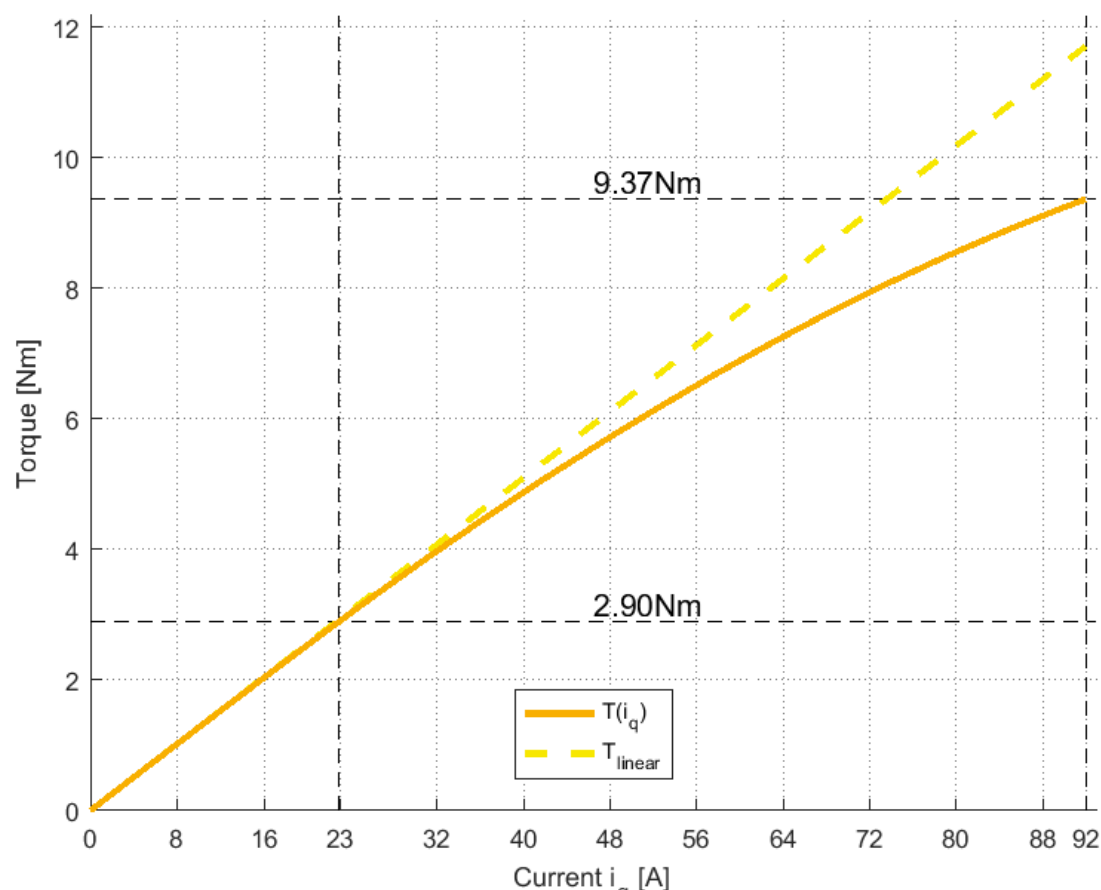
## T/I-DIAGRAM ILM85X26 DELTA-SERIAL @ 22 °C



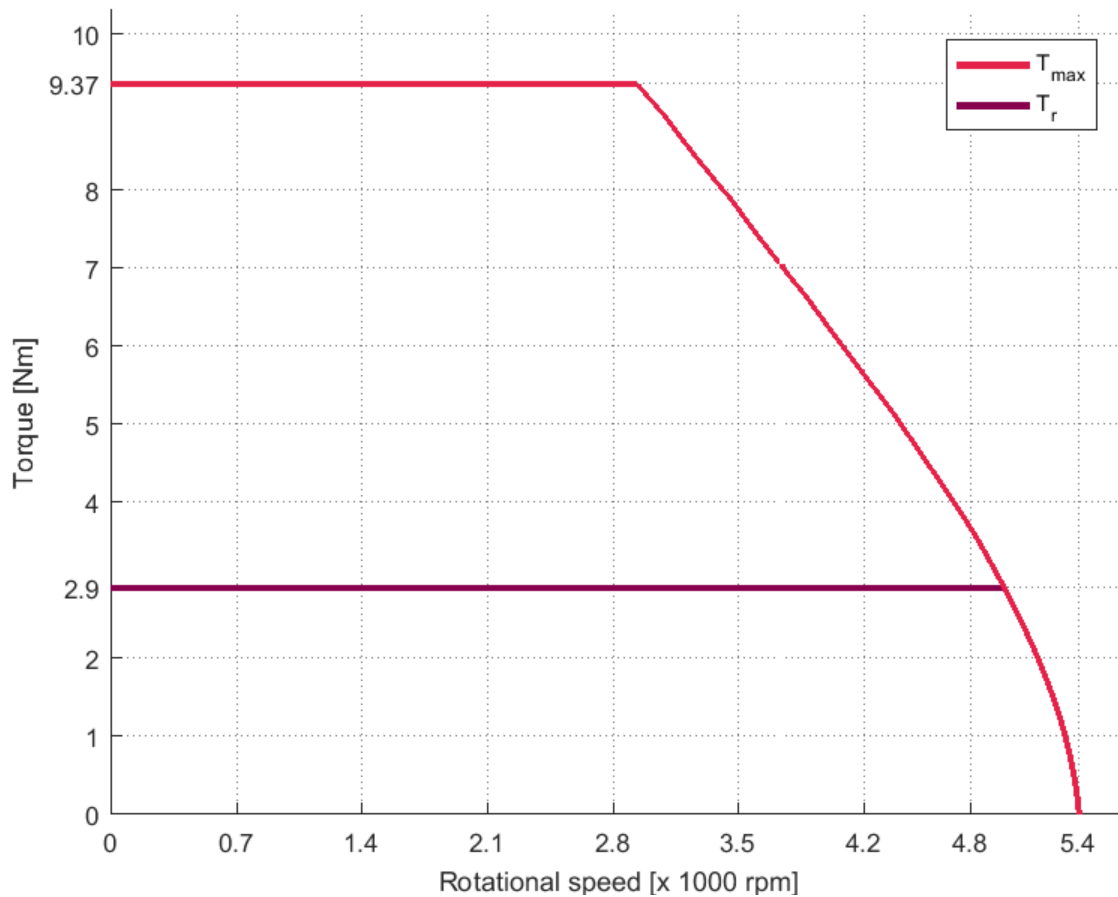
## T/N-DIAGRAM ILM85X26 STAR-PARALLEL @ 22 °C



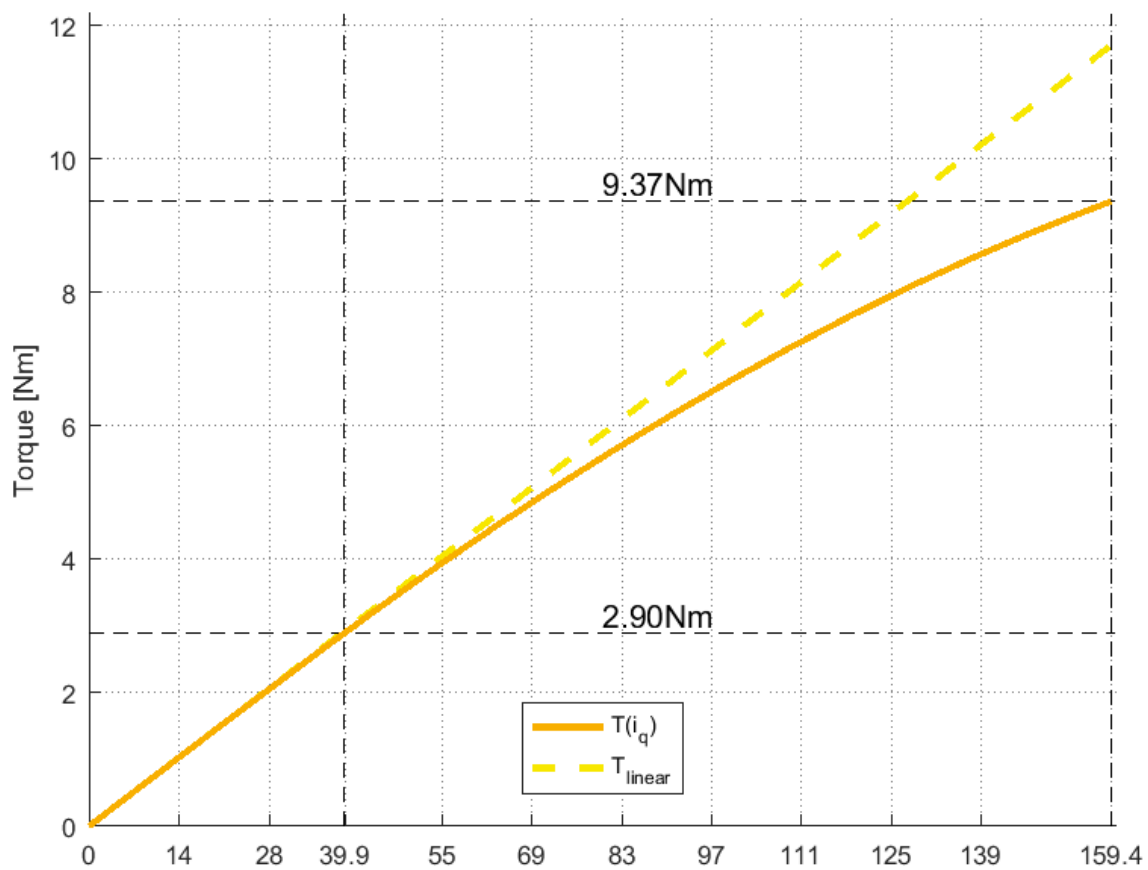
## T/I-DIAGRAM ILM85X26 STAR-PARALLEL @ 22 °C



## T/N-DIAGRAM ILM85X26 DELTA-PARALLEL @ 22 °C



## T/I-DIAGRAM ILM85X26 DELTA-PARALLEL @ 22 °C



## FOR FURTHER INQUIRIES, PLEASE CONTACT:

**TQ-SYSTEMS GMBH**

GUT DELLING, MÜHLSTRAßE 2  
82229 SEEFELD  
DEUTSCHLAND

TEL. +49 8153 9308-0  
FAX +49 8153 4223

E-MAIL [INFO@TQ-ROBODRIVE.COM](mailto:INFO@TQ-ROBODRIVE.COM)  
INTERNET [WWW.TQ-GROUP.COM](http://WWW.TQ-GROUP.COM)