

Motor Parameters ILM85x13



PERFORMANCE CHARACTERISTICS (INTERCONNECTION STAR-SERIAL)

Power P	[W]	443
Rated torque T_r	[Nm]	1.44
Peak torque T_{max} @ 20% linearity deviation	[Nm]	4.66
Rated voltage U_r	[V]	48
Rotation speed n_{max}^*	[rpm]	2938
Rated current I_r (phase current amplitude)	[A]	10.8
Copper losses $P_{L,r}$ @ T_r and 20°C	[W]	19.3
Torque constant k_T @ 20°C	[mNm/A]	134
Motor constant k_M @ 20°C	[Nm/ $\sqrt{W}$]	0.330
Terminal resistance R_{TT} @ 20°C	[m Ω]	220
Terminal inductance L_{TT}	[μ H]	560
Rotor inertia J	[kgcm ²]	0.61
Number of pole pairs	-	10
Max. efficiency η	%	92
Weight m	[g]	400

* 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]	2938	2203	1469	881	734	551
delta-serial $n_{\max}^*$ [rpm]	5089	3817	2544	1527	1272	954
star-parallel $n_{\max}^*$ [rpm]	5876	4407	2938	1763	1469	1102
delta-parallel $n_{\max}^*$ [rpm]	10178**	7633	5089	3053	2544	1908

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

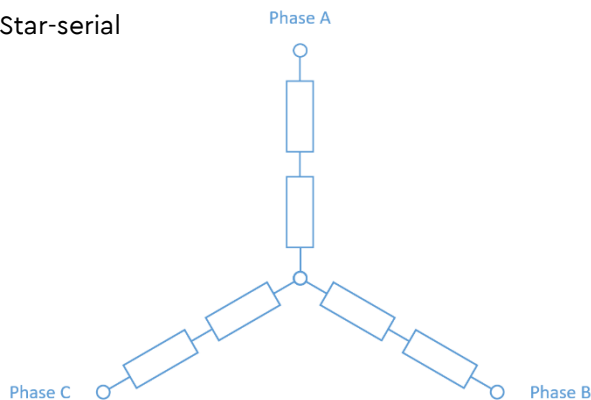
** $n_{\max, \text{mech}} = 7900$ rpm must not be exceeded.

CHARACTERISTICS INTERCONNECTION VARIANTS

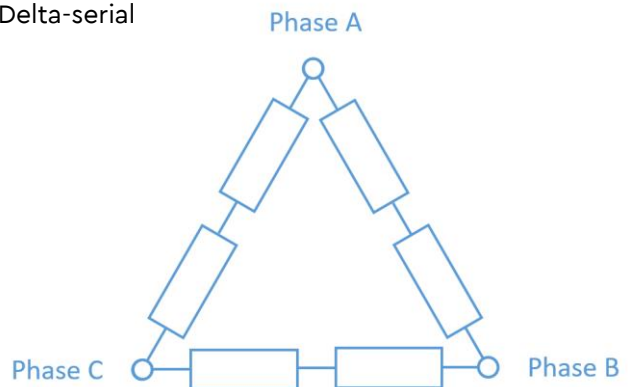
Interconnection	U_r [V]	I_r [A]	k_T [mNm/A]	R_{TT} [m Ω]	L_{TT} [μ H]
star-serial	48	10.8	134	220	560
delta-serial	28	18.7	77	73	187
star-parallel	24	21.6	67	55	140
delta-parallel	14	37.4	39	18	47

AVAILABLE INTERCONNECTION VARIANTS

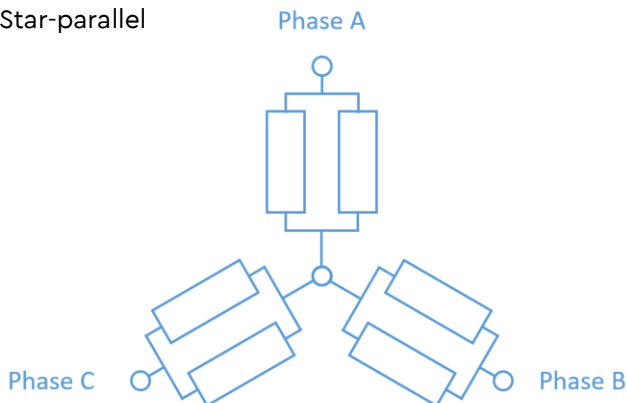
Star-serial



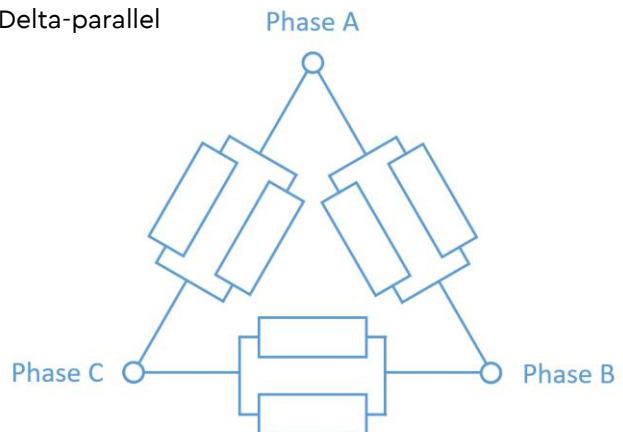
Delta-serial



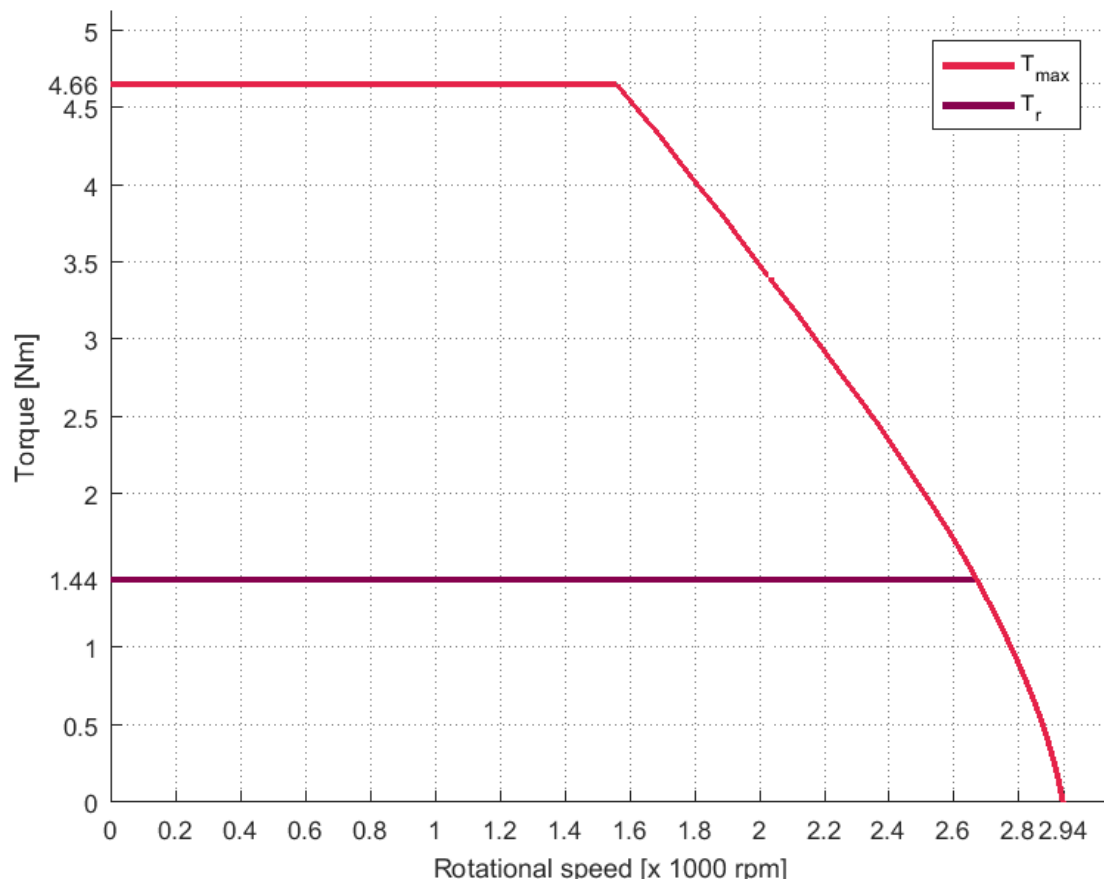
Star-parallel



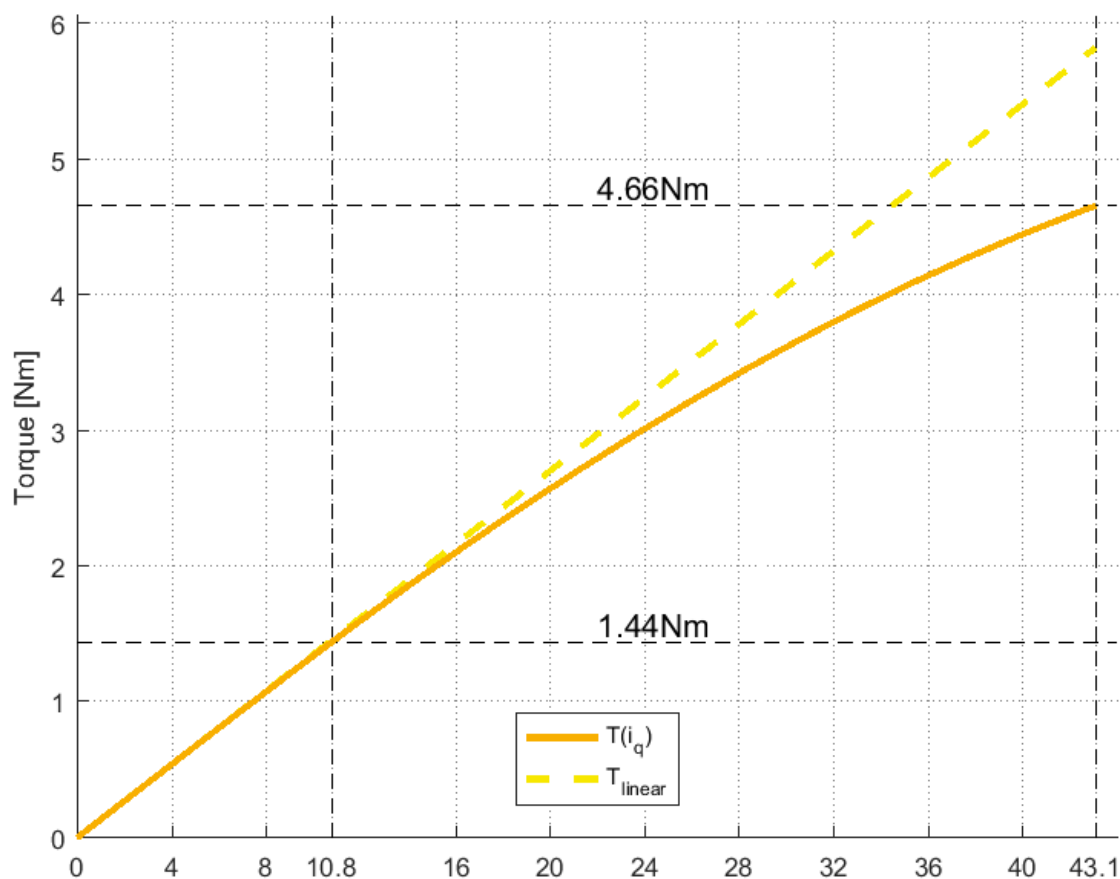
Delta-parallel



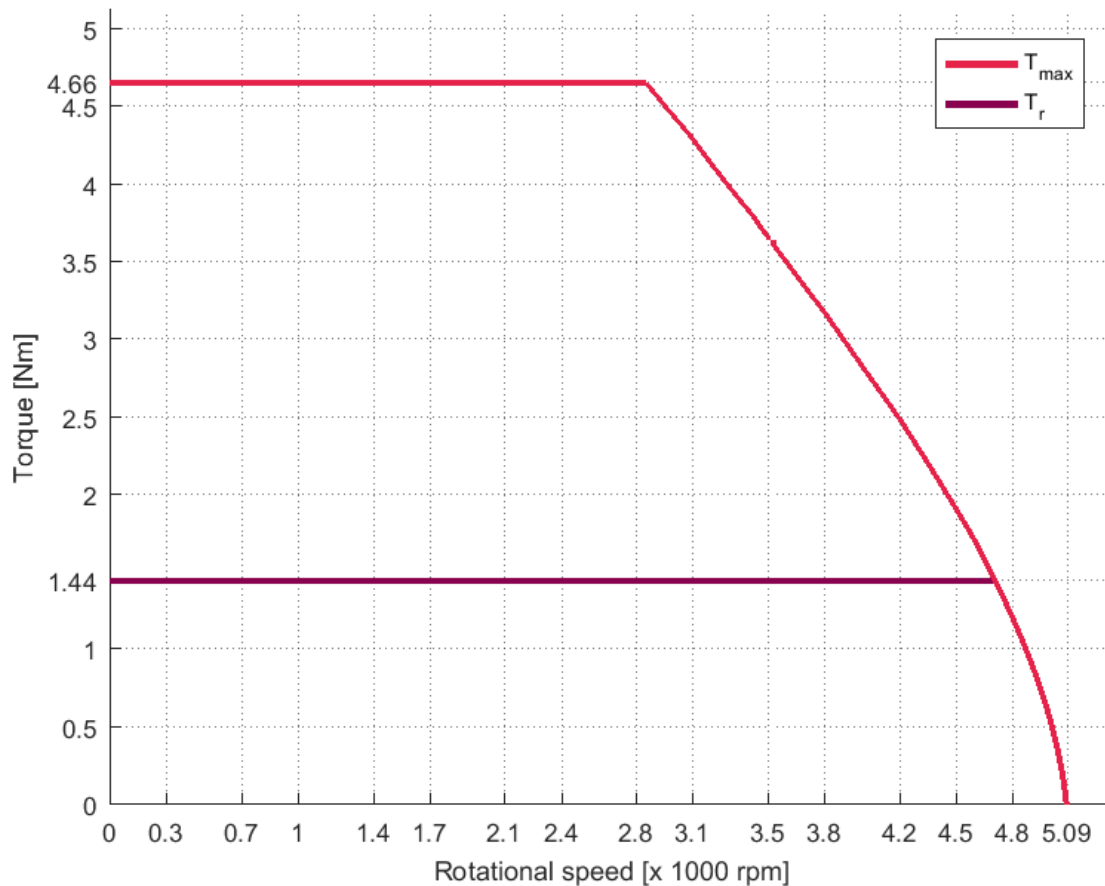
T/N-DIAGRAM ILM85X13 STAR-SERIAL @ 22 °C



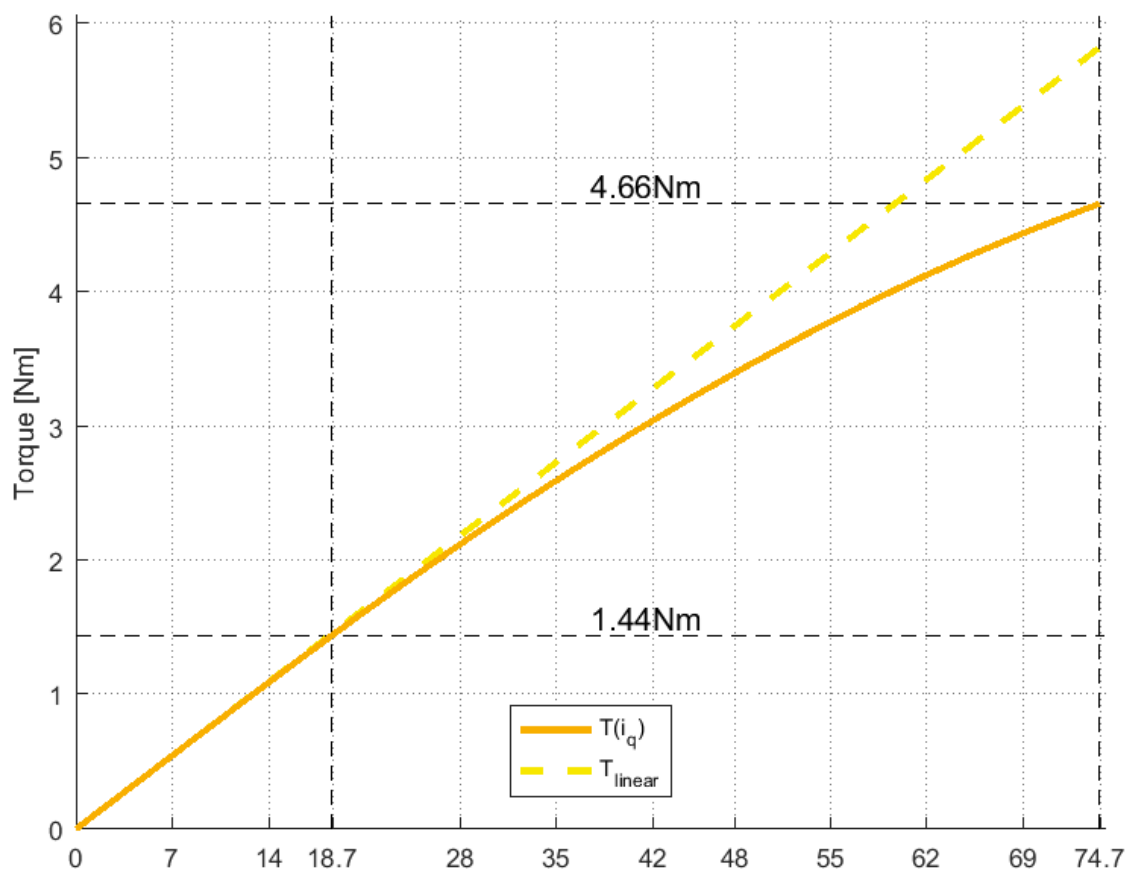
T/I-DIAGRAM ILM85X13 STAR-SERIAL @ 22 °C



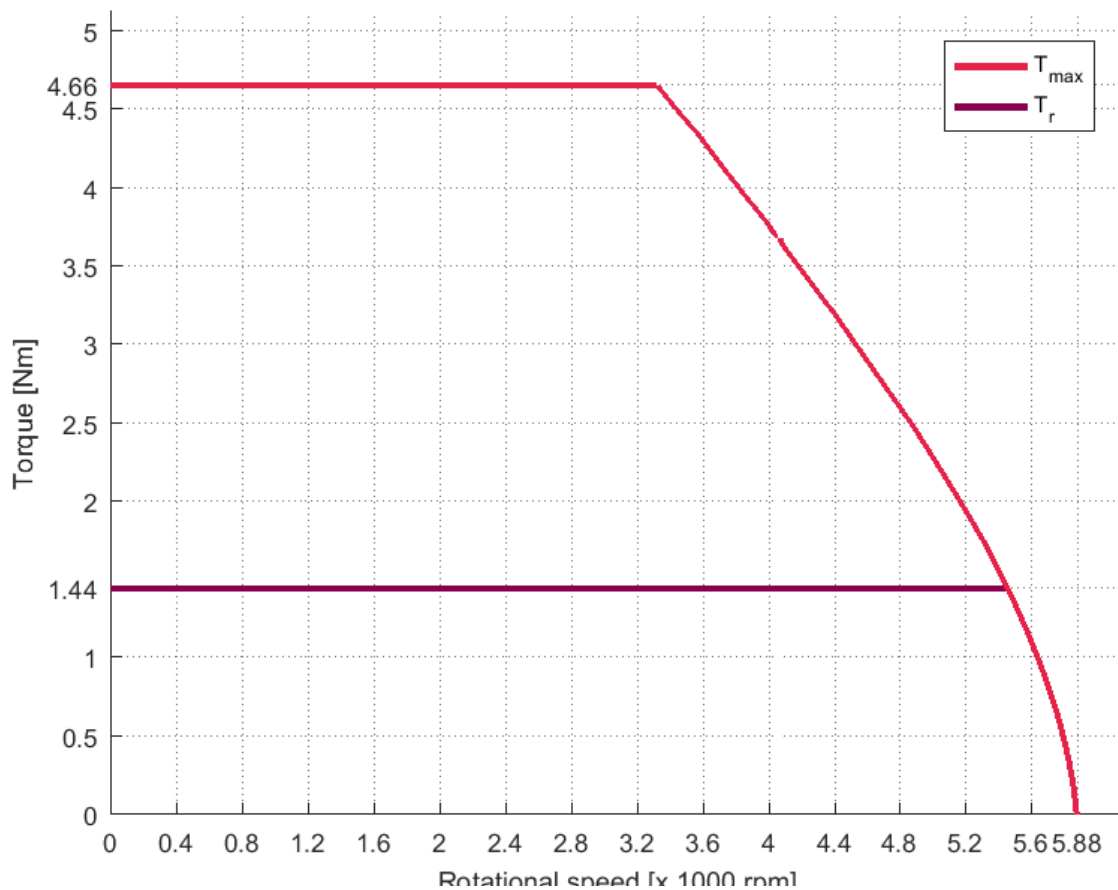
T/N-DIAGRAM ILM85X13 DELTA-SERIAL @ 22 °C



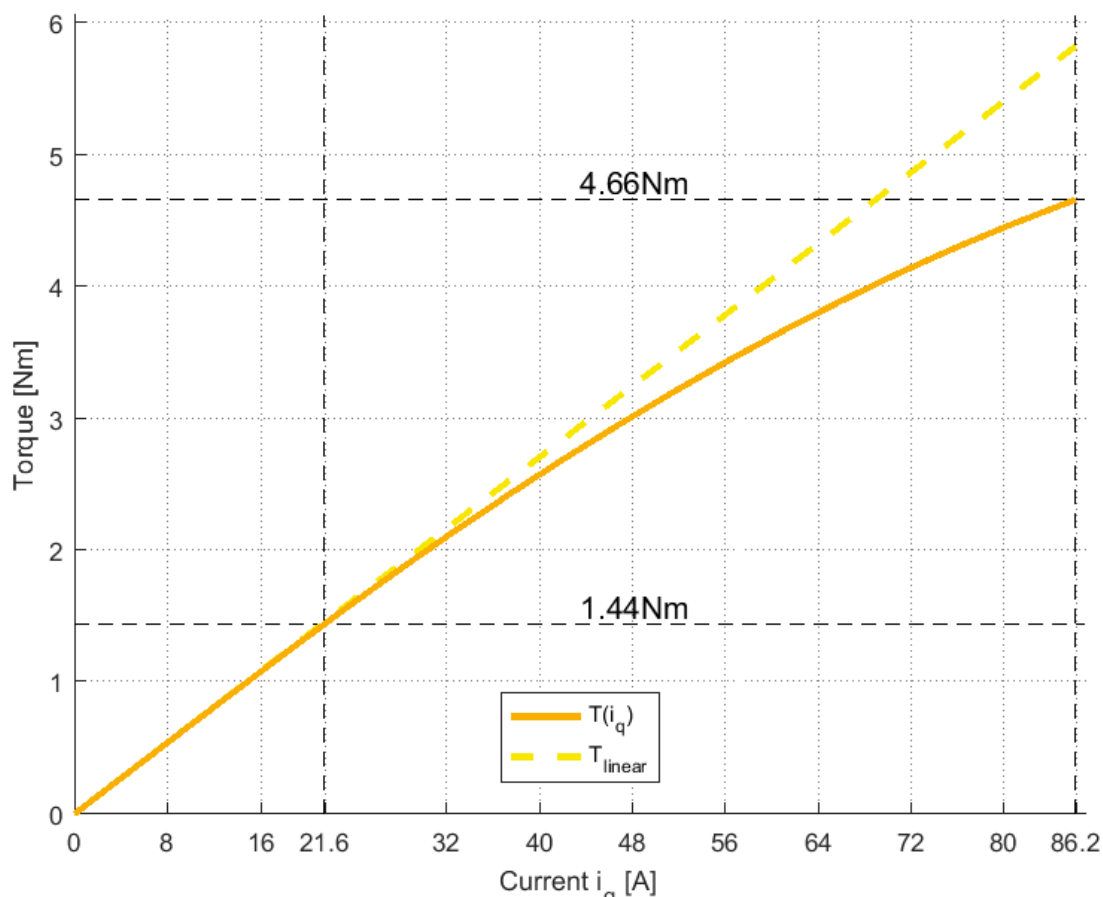
T/I-DIAGRAM ILM85X13 DELTA-SERIAL @ 22 °C



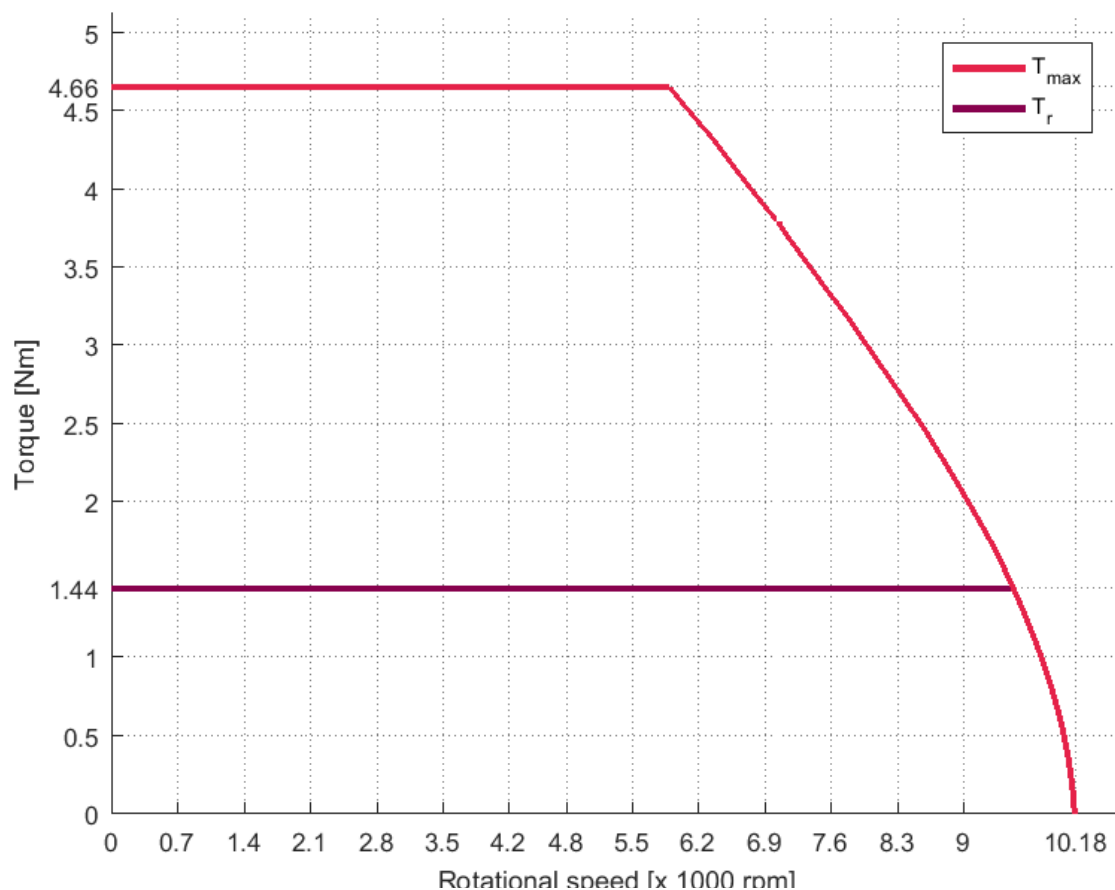
T/N-DIAGRAM ILM85X13 STAR-PARALLEL @ 22 °C



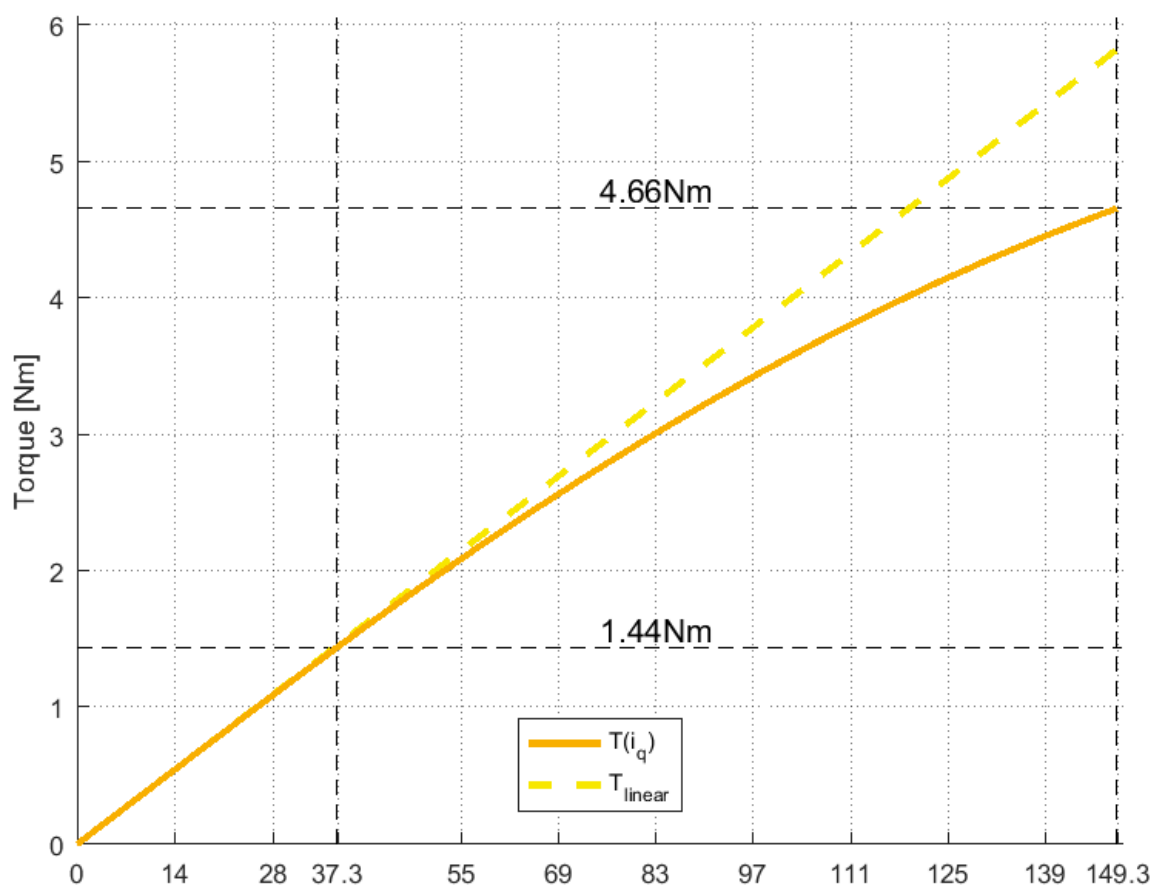
T/I-DIAGRAM ILM85X13 STAR-PARALLEL @ 22 °C



T/N-DIAGRAM ILM85X13 DELTA-PARALLEL @ 22 °C



T/I-DIAGRAM ILM85X13 DELTA-PARALLEL @ 22 °C



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