ETEL

TMKi Standard

HIGH SPEED TORQUE MOTOR — TMKi0530-100

MOTOR PERFORMANCE		Winding codes	UH	XH		
		UNIT	WATER COOLING	WATER COOLING		
Tp	Peak torque	Nm	3700	3520		
Ti	Intermittent torque	Nm	2900	2890		
Tc	Continuous torque	Nm	2210	2200		
Ts	Standstill torque	Nm	1800	1790		
Ip	Peak current	Arms	226	383		
Ii	Intermittent current	Arms	143	275		
Ic	Continuous current	Arms	90.2	174		
Is	Standstill current	Arms	68.4	132		
ns	Rated low speed	rpm	0.094	0.093		
nm	Maximum speed without flux weakening	rpm	224	435		
nm,FW	Maximum speed with flux weakening	rpm	825	1280		
τon,p	Maximum ON time for peak cycle	s	13	18		
τon,i	Maximum ON time for intermittent cycle	s	3.1	3.1		
Pp	Power dissipation @ Ip	W	41400	31500		
Pi	Power dissipation @ Ii	W	20900	20900		
Pc	Power dissipation @ Ic	W	8360	8350		
Td	Max. detent torque (average to peak)	Nm	14	14		

MOTOR SETTING		UNIT				
Kt	Torque constant	Nm/Arms	29.9	15.4		
Ku	Back EMF constant (*)	Vrms/(rad/s)	17.7	9.14		
Km	Motor constant	Nm/√W	34.8	34.6		
R20	Electrical resistance at 20°C (*)	Ohm	0.492	0.132		
Ld/Lq	Electrical inductance (*)	mH	5.72 / 4.79	1.52 / 1.28		
Isc	Maximum short-circuit current	Arms	81.5	158		
nb	Base speed	rpm	159	332		
nb,i	Base speed at intermittent duty cycle	rpm	134	283		
nb,p	Base speed at peak duty cycle	rpm	116	254		
nn	Rated speed	rpm	141	296		
Tn	Rated torque	Nm	2160	2030		
In	Rated current	Arms	88.4	161		
τth	Thermal time constant	s	145	146		
Rth	Thermal resistance	K/W	0.0117	0.0116		
2p	Number of poles	-	88	88		
J	Rotor inertia	kg·m²	2.37	2.37		
mr	Rotor mass	kg	56.8	56.8		
ms	Stator mass	kg	77.3	77.5		

MOTOR ENVIRONMENT		UNIT				
Udc	Nominal DC bus voltage	VDC	600	600		
Di	Intermittent duty cycle	%	40	40		
Dp	Peak duty cycle	%	5.0	5.0		
Sr	Rotor exchange surface	m²	0.209	0.209		
θamb	Ambient temperature	°C	20	20		
θmax	Maximum coil temperature	°C	130	130		
θw	Inlet water temperature	°C	20	20		
Δθw	Water temperature difference for Pc	K	5.0	5.0		
qw	Minimum water flow for Δθw	l/min	26	26		
Δpw	Max. pressure drop at qw	bar	1.5	1.5		

Notes: (*) terminal to terminal.
Hypotheses and tolerances are in ETEL Integration Manual.

Caution: Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

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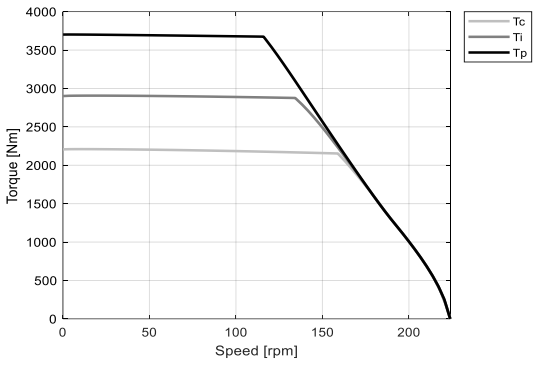
UH - WATER COOLING



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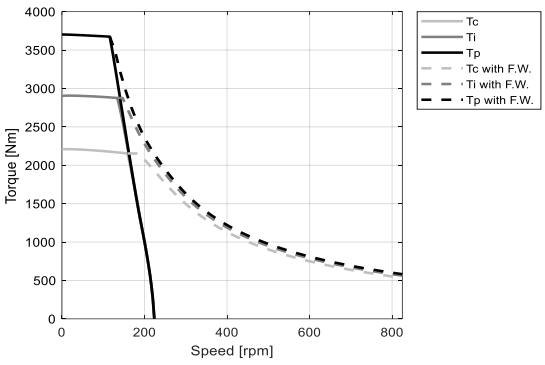
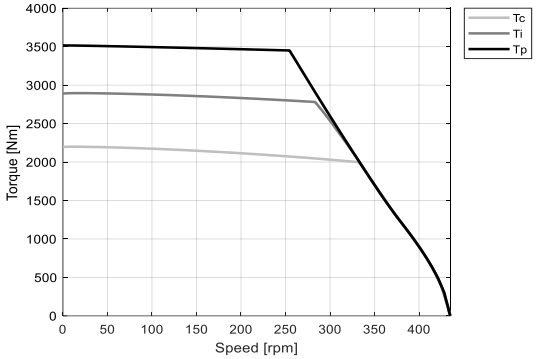


XH - WATER COOLING



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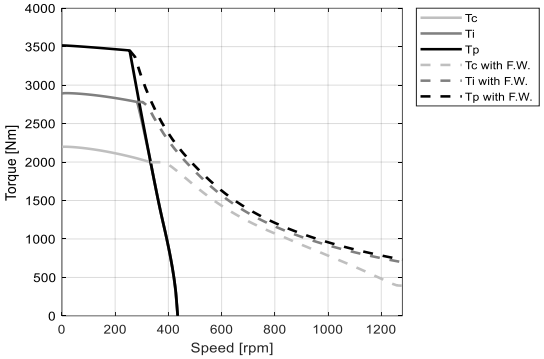

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