ETEL

TMKi Standard

HIGH SPEED TORQUE MOTOR

TMKi0991-050

MOTOR PERFORMANCE		Winding codes	UP	XP		
		UNIT	WATER COOLING	WATER COOLING		
Tp	Peak torque	Nm	6130	6120		
Ti	Intermittent torque	Nm	4670	4610		
Tc	Continuous torque	Nm	3470	3410		
Ts	Standstill torque	Nm	2810	2760		
Ip	Peak current	Arms	393	762		
Ii	Intermittent current	Arms	247	469		
Ic	Continuous current	Arms	157	297		
Is	Standstill current	Arms	119	225		
ns	Rated low speed	rpm	0.032	0.032		
nm	Maximum speed without flux weakening	rpm	240	467		
nm,FW	Maximum speed with flux weakening	rpm	598	598		
τon,p	Maximum ON time for peak cycle	s	19	17		
τon,i	Maximum ON time for intermittent cycle	s	3.2	3.2		
Pp	Power dissipation @ Ip	W	38400	40400		
Pi	Power dissipation @ Ii	W	19500	19400		
Pc	Power dissipation @ Ic	W	7790	7780		
Td	Max. detent torque (average to peak)	Nm	14	14		

MOTOR SETTING		UNIT				
Kt	Torque constant	Nm/Arms	27.5	14.1		
Ku	Back EMF constant (*)	Vrms/(rad/s)	16.5	8.51		
Km	Motor constant	Nm/√W	57.9	56.6		
R20	Electrical resistance at 20°C (*)	Ohm	0.150	0.0416		
Ld/Lq	Electrical inductance (*)	mH	1.49 / 1.35	0.395 / 0.361		
Isc	Maximum short-circuit current	Arms	146	283		
nb	Base speed	rpm	178	398		
nb,i	Base speed at intermittent duty cycle	rpm	150	315		
nb,p	Base speed at peak duty cycle	rpm	129	258		
nn	Rated speed	rpm	158	352		
Tn	Rated torque	Nm	3180	2300		
In	Rated current	Arms	144	199		
τth	Thermal time constant	s	211	212		
Rth	Thermal resistance	K/W	0.0133	0.0133		
2p	Number of poles	-	176	176		
J	Rotor inertia	kg·m²	15.9	15.9		
mr	Rotor mass	kg	87.1	87.1		
ms	Stator mass	kg	145	145		

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	0.315	0.315		
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	24	24		
Δpw	Max. pressure drop at qw	bar	1.1	1.1		

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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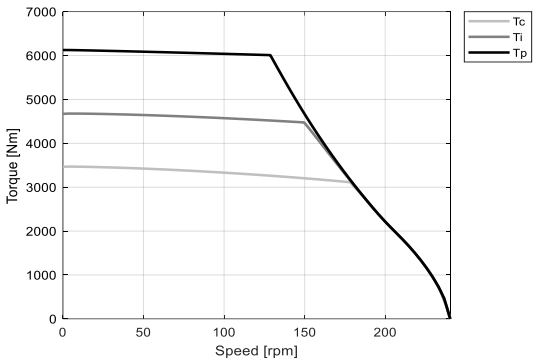
UP - WATER COOLING



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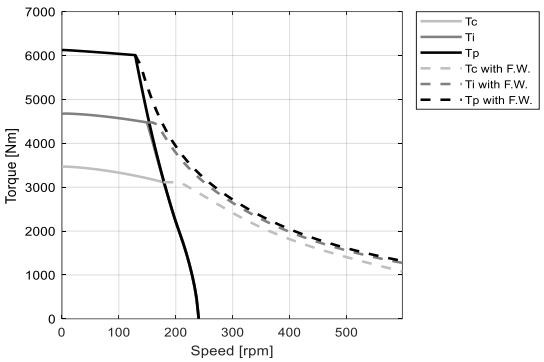
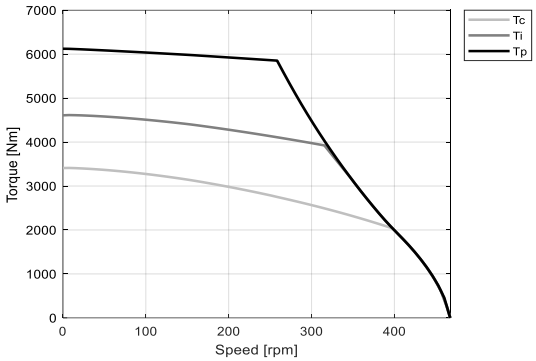
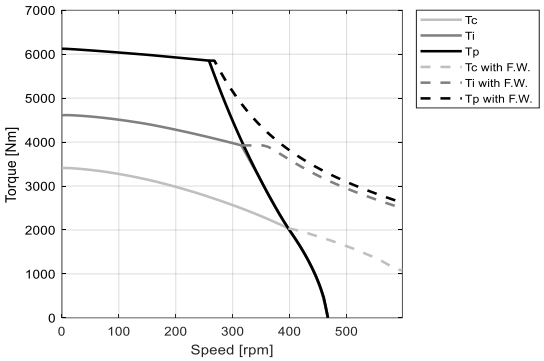


XP - WATER COOLING



XP - WATER COOLING



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