ETEL

TMB+ Standard

CONVENTIONAL TORQUE MOTOR TMB+0291-070

MOTOR PERFORMANCE		Winding codes	SA	SB	SD	UD
		UNIT	WATER COOLING	WATER COOLING	WATER COOLING	WATER COOLING
Tp	Peak torque	Nm	608	608	608	608
Ti	Intermittent torque	Nm	491	491	491	497
Tc	Continuous torque	Nm	356	356	356	362
Ts	Standstill torque	Nm	285	285	285	289
Ip	Peak current	Arms	14.9	29.8	59.6	93.1
Ii	Intermittent current	Arms	10.9	21.8	43.5	69.4
Ic	Continuous current	Arms	6.88	13.8	27.5	43.9
Is	Standstill current	Arms	5.21	10.4	20.8	33.2
ns	Rated low speed	rpm	0.29	0.29	0.29	0.29
nm	Maximum speed without flux weakening	rpm	111	222	444	695
nm,FW	Maximum speed with flux weakening	rpm	321	490	784	943
τon,p	Maximum ON time for peak cycle	s	13	13	13	14
τon,i	Maximum ON time for intermittent cycle	s	2.9	2.9	2.9	2.9
Pp	Power dissipation @ Ip	W	10600	10600	10600	10400
Pi	Power dissipation @ Ii	W	7420	7420	7420	7560
Pc	Power dissipation @ Ic	W	2970	2970	2970	3020
Td	Max. detent torque (average to peak)	Nm	2.6	2.6	2.6	2.6

MOTOR SETTING		UNIT				
Kt	Torque constant	Nm/Arms	62.4	31.2	15.6	9.98
Ku	Back EMF constant (*)	Vrms/(rad/s)	35.8	17.9	8.95	5.73
Km	Motor constant	Nm/√W	9.38	9.38	9.38	9.48
R20	Electrical resistance at 20°C (*)	Ohm	29.5	7.38	1.84	0.740
Ld/Lq	Electrical inductance (*)	mH	310 / 270	77.6 / 67.4	19.4 / 16.9	7.94 / 6.86
Isc	Maximum short-circuit current	Arms	6.06	12.1	24.2	37.9
nb	Base speed	rpm	48.1	167	393	671
nb,i	Base speed at intermittent duty cycle	rpm	6.90	124	332	573
nb,p	Base speed at peak duty cycle	rpm	1.24	89.6	232	388
nn	Rated speed	rpm	32.8	145	361	536
Tn	Rated torque	Nm	343	251	164	125
In	Rated current	Arms	6.84	9.37	12.0	14.7
τth	Thermal time constant	s	94.1	94.1	94.1	94.6
Rth	Thermal resistance	K/W	0.0350	0.0350	0.0350	0.0343
2p	Number of poles	-	44	44	44	44
J	Rotor inertia	kg·m²	0.0567	0.0567	0.0567	0.0567
mr	Rotor mass	kg	4.96	4.96	4.96	4.96
ms	Stator mass	kg	22.2	22.2	22.2	22.3

MOTOR ENVIRONMENT		UNIT				
Udc	Nominal DC bus voltage	VDC	600	600	600	600
Di	Intermittent duty cycle	%	40	40	40	40
Dp	Peak duty cycle	%	5.0	5.0	5.0	5.0
Sr	Rotor exchange surface	m²	0.110	0.110	0.110	0.110
θamb	Ambient temperature	°C	20	20	20	20
θmax	Maximum coil temperature	°C	130	130	130	130
θw	Inlet water temperature	°C	20	20	20	20
Δθw	Water temperature difference for Pc	K	5.0	5.0	5.0	5.0
qw	Minimum water flow for Δθw	l/min	9.3	9.3	9.3	9.4
Δpw	Max. pressure drop at qw	bar	0.4	0.4	0.4	0.4

Notes: (*) terminal to terminal.
Hypotheses and tolerances are in ETEL Integration Manual.
Please refer to ETEL Integration Manual for the mass of the optional cooling jacket and the possible additional pressure drop.

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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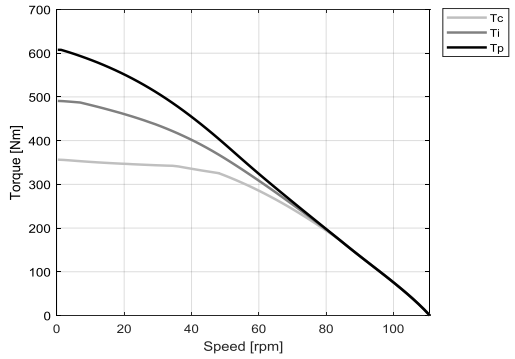
SA - WATER COOLING



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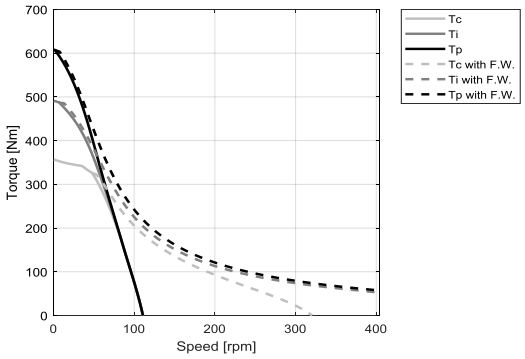

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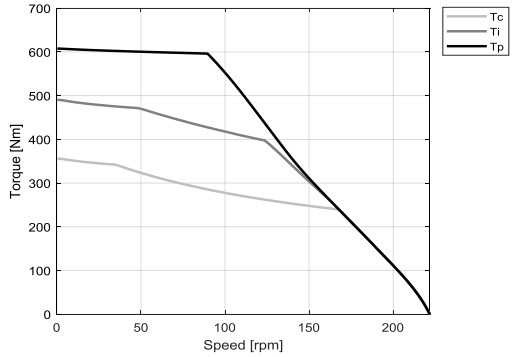

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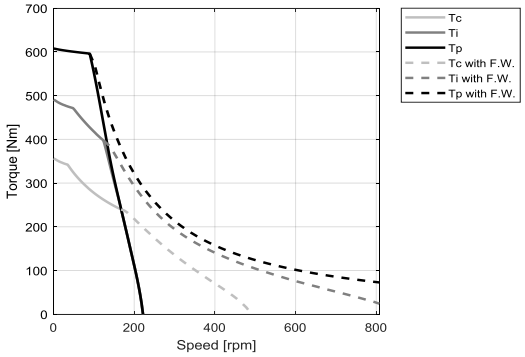

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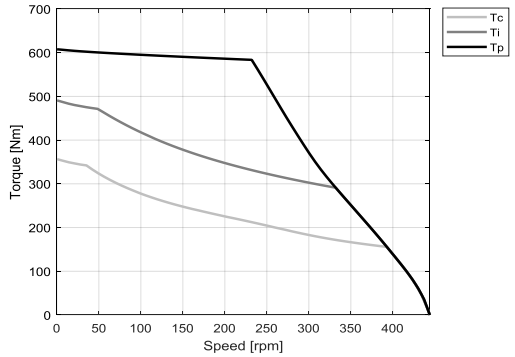

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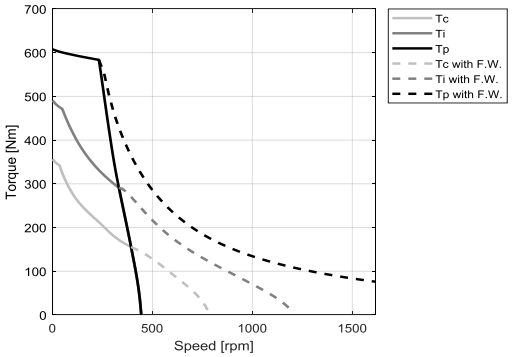

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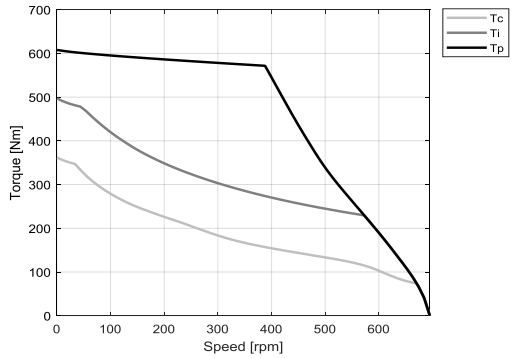

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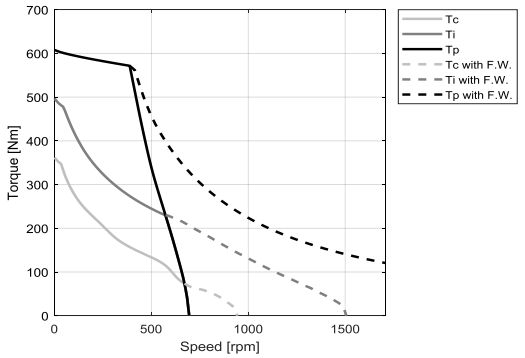

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