ETEL

TMB Standard

CONVENTIONAL TORQUE MOTOR TMB+0990-100

MOTOR PERFORMANCE		Winding codes	UD	WD	WH	WP
		UNIT	WATER COOLING	WATER COOLING	WATER COOLING	WATER COOLING
Tp	Peak torque	Nm	13000	13800	13800	13800
Ti	Intermittent torque	Nm	9980	10200	10200	10200
Tc	Continuous torque	Nm	7410	7570	7570	7570
Ts	Standstill torque	Nm	5970	6120	6120	6120
Ip	Peak current	Arms	97.7	164	328	656
Ii	Intermittent current	Arms	61.0	91.2	182	365
Ic	Continuous current	Arms	38.6	57.7	115	231
Is	Standstill current	Arms	29.2	43.7	87.4	175
ns	Rated low speed	rpm	0.046	0.046	0.046	0.046
nm	Maximum speed without flux weakening	rpm	29.5	42.8	85.7	172
nm,FW	Maximum speed with flux weakening	rpm	94.7	118	183	268
τon,p	Maximum ON time for peak cycle	s	10	7.5	7.5	7.5
τon,i	Maximum ON time for intermittent cycle	s	2.9	2.9	2.9	2.9
Pp	Power dissipation @ Ip	W	70200	91300	91300	91300
Pi	Power dissipation @ Ii	W	34600	34800	34800	34800
Pc	Power dissipation @ Ic	W	13800	13900	13900	13900
Td	Max. detent torque (average to peak)	Nm	37	37	37	37

MOTOR SETTING		UNIT				
Kt	Torque constant	Nm/Arms	234	162	80.8	40.4
Ku	Back EMF constant (*)	Vrms/(rad/s)	135	92.8	46.4	23.2
Km	Motor constant	Nm/√W	91.4	94.0	94.0	94.0
R20	Electrical resistance at 20°C (*)	Ohm	4.39	1.97	0.492	0.123
Ld/Lq	Electrical inductance (*)	mH	64.3 / 54.7	30.6 / 25.6	7.64 / 6.41	1.91 / 1.60
Isc	Maximum short-circuit current	Arms	27.5	39.8	79.7	159
nb	Base speed	rpm	14.9	28.2	70.5	160
nb,i	Base speed at intermittent duty cycle	rpm	6.21	18.9	54.2	131
nb,p	Base speed at peak duty cycle	rpm	0.00	9.01	34.7	80.1
nn	Rated speed	rpm	11.7	24.1	62.9	140
Tn	Rated torque	Nm	6620	5620	3930	2490
In	Rated current	Arms	35.1	41.2	55.1	72.0
τth	Thermal time constant	s	147	150	150	150
Rth	Thermal resistance	K/W	0.00731	0.00728	0.00728	0.00728
2p	Number of poles	-	176	176	176	176
J	Rotor inertia	kg·m²	9.99	9.99	9.99	9.99
mr	Rotor mass	kg	50.1	50.1	50.1	50.1
ms	Stator mass	kg	172	174	174	174

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	0.680	0.680	0.680	0.680
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	10	10	10	10
qw	Minimum water flow for Δθw	l/min	22	22	22	22
Δpw	Max. pressure drop at qw	bar	0.9	0.9	0.9	0.9

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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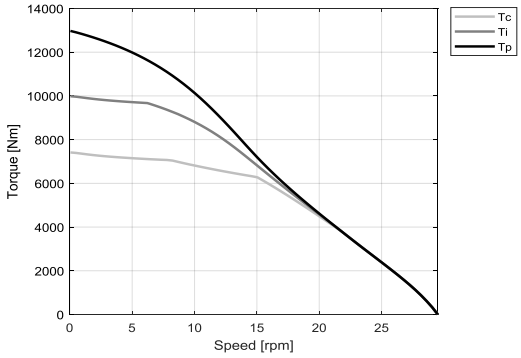
UD - WATER COOLING



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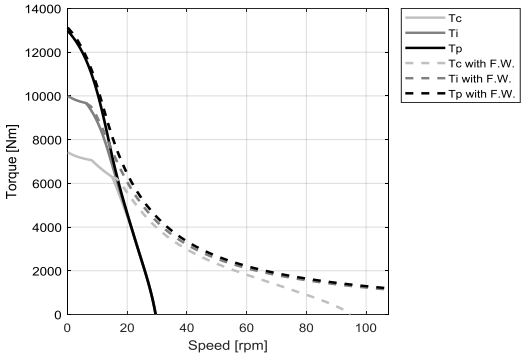

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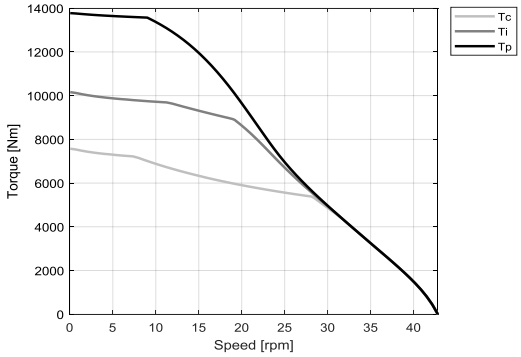

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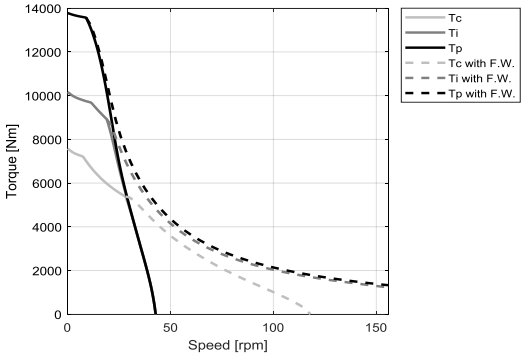

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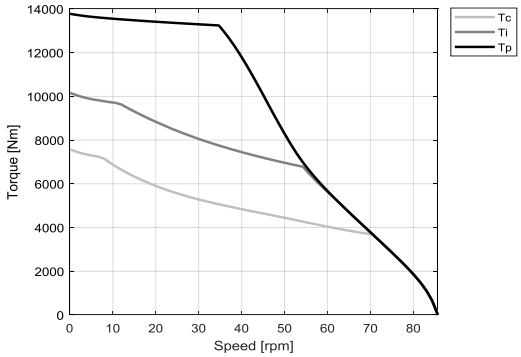

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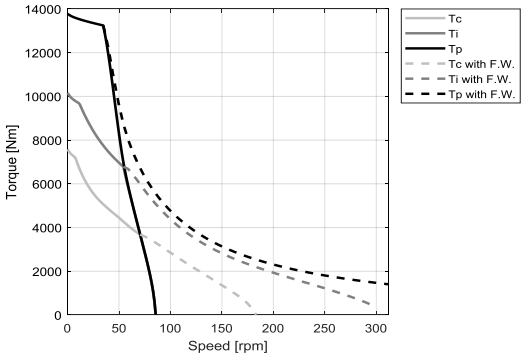

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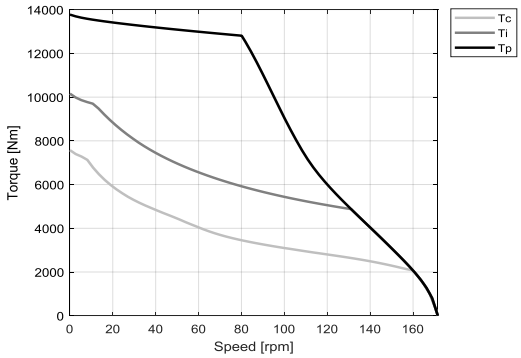

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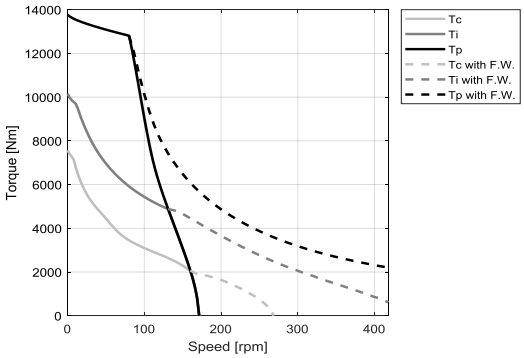

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