

2.1 Speed–torque diagrams

Table 2-12 Standard 1FT5102 motor

1FT5102						
Technical data	Code	Units	–□AA71	–□AC71	–□AF71	–□AG71
Engineering data						
Rated speed	n_N	RPM	1200	2000	3000	4000
Rated torque (100 K)	M_N (100 K)	Nm	31.0	29.0	25.0	10.0
Rated current	I_N	A	12.0	19.0	25.0	13.0
Standstill torque (60 K)	M_0 (60 K)	Nm	27.0	27.0	27.0	27.0
Standstill torque (100 K)	M_0 (100 K)	Nm	33.0	33.0	33.0	33.0
Standstill current (60 K)	I_0 (60 K)	A	9.9	16.5	25.0	31.5
Standstill current (100 K)	I_0 (100 K)	A	12.5	20.5	31.0	38.5
Moment of inertia (with brake)	J_{mot}	10^{-4} kgm ²	151	151	151	151
Moment of inertia (without brake)	J_{mot}	10^{-4} kgm ²	136	136	136	136
Limiting data						
Maximum speed	n_{max}	RPM	1900	3200	4900	6200
Maximum torque	M_{max}	Nm	108	108	108	108
Max. current	I_{max}	A	47.0	80.0	120.0	164.0
Limiting torque	M_{limit}	Nm	52.0	57.0	57.0	45.0
Physical constants						
Torque constant	k_T	Nm/A	2.74	1.64	1.08	0.86
Voltage constant	k_E	V/1000 RPM	310	186	122	97
Winding resistance	$R_{ph.}$	Ohm	0.9	0.33	0.14	0.097
Rotating field inductance	L_D	mH	14.2	5.2	2.2	1.4
Electrical time constant	T_{el}	ms	16	16	16	16
Mechanical time constant	T_{mech}	ms	3.3	3.3	3.3	3.3
Thermal time constant	T_{th}	min	45	45	45	45
Weight (with brake)	m	kg	36	36	36	36
Weight (without brake)	m	kg	31	31	31	31

Fig. 2-12 Speed–torque diagram, 1FT5102

1) applies for a 600 V DC link voltage

