

Technical data sheet - servomotors ULTRACT - UL10F

Motor Identifier	Symbol	Units	UL1004F	UL1004F	UL1004F	UL1007F	UL1007F	UL1007F	UL1010F	UL1010F	UL1010F	UL1013F	UL1013F
Reference Data			100 rad/s 400 Vac	200 rad/s 400 Vac	300 rad/s 400 Vac	100 rad/s 400 Vac	200 rad/s 400 Vac	300 rad/s 400 Vac	100 rad/s 400 Vac	200 rad/s 400 Vac	300 rad/s 400 Vac	100 rad/s 400 Vac	200 rad/s 400 Vac
Nominal torque, c. duty S1, 0 speed, $\Delta T=100^{\circ}\text{C}$	T100	Nmrms	47	48	48	85	85	85	118	115	118	149	147
Nominal torque, c. duty S1, 0 speed, $\Delta T=65^{\circ}\text{C}$, in air (1)	Tn	Nmrms	38	38	38	69	69	69	95	93	95	120	118
Base speed	wn	rad/s	105	209	314	105	209	314	105	209	314	105	209
Nominal power, S1 $\Delta T=65^{\circ}\text{C}$ (1)	Pn	W	3828	7550	10748	6907	13056	17544	9554	17108	22229	11962	21229
Nominal power, S1 $\Delta T=100^{\circ}\text{C}$ (2)	P100	W	4832	9659	14125	8690	16892	24069	11986	22360	31958	14972	28011
Torque at max. speed (1)	Tw	Nmrms	36,57	36,07	34,23	65,99	62,37	55,87	91,28	81,73	70,79	114,29	101,41
Torque at max. speed (2)	Tw100	Nmrms	46,17	46,14	44,98	83,03	80,69	76,65	114,52	106,82	101,78	143,04	133,81
Peak torque, S.I.R. 10%	Tpk	Nmrms	125,95	127,73	127,73	228,4	228,4	228,4	317,64	308,69	317,64	399,69	394,1
Physical Data	Symbol	Units	UL1004F	UL1004F	UL1004F	UL1007F	UL1007F	UL1007F	UL1010F	UL1010F	UL1010F	UL1013F	UL1013F
Maximum speed	wmax	rad/s	400	400	400	400	400	400	400	400	400	400	400
Rotor inertia	Jm	mkgm ²	6	6	6	9	9	9	12	12	12	15	15
Acceleration at peak torque	apk	rad/s ²	20991	21289	21289	23377	23377	23377	26470	25724	26470	26646	26273
Max. shock on motor, any direction	S	m/s ²	200	200	200	200	200	200	200	200	200	200	200
Max. vibration, radial	Vr	m/s ²	200	200	200	200	200	200	200	200	200	200	200
Max. vibration, axial	Va	m/s ²	50	50	50	40	40	40	30	30	30	30	30
Shaft torsional resonance frequency (3)	fm	Hz	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1200	1200	1200	450	450
Mass	M	kg	40	40	40	51	51	51	70	70	70	82	82
Winding insulation	-	-	classe H	classe H	classe H	classe H	classe H	classe H	classe H	classe H	classe H	classe H	classe H
Motor insulation	-	-	classe F	classe F	classe F	classe F	classe F	classe F	classe F	classe F	classe F	classe F	classe F
Cooling	-	-	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione
Protection (4)	-	-	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54
Thermal Data	Symbol	Units	UL1004F	UL1004F	UL1004F	UL1007F	UL1007F	UL1007F	UL1010F	UL1010F	UL1010F	UL1013F	UL1013F
Motor losses at nominal power, $\Delta T=65^{\circ}\text{C}$	Ln	W	660	660	660	700	700	700	750	750	750	800	800
Thermal impedance, motor to air	Rtha	$^{\circ}\text{C}/\text{W}$	0,0985	0,0985	0,0985	0,0929	0,0929	0,0929	0,0869	0,0869	0,0869	0,0813	0,0813
Thermal impedance, motor to air + flange	Rthf	$^{\circ}\text{C}/\text{W}$	0,08	0,08	0,08	0,08	0,08	0,08	0,07	0,07	0,07	0,07	0,07
Thermal capacity	Cth	J/ $^{\circ}\text{C}$	24036	24036	24036	31433	31433	31433	38829	38829	38829	46226	49755
Thermal time constant in air	ta	s	2367	2367	2367	2919	2919	2919	3365	3365	3365	3756	4043
No load losses at base speed	L0	W	31	65	121	43	110	223	54	155	324	65	200
Threshold of built-in PTC	PTCt	$^{\circ}\text{C}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$
Electrical Data	Symbol	Units	UL1004F	UL1004F	UL1004F	UL1007F	UL1007F	UL1007F	UL1010F	UL1010F	UL1010F	UL1013F	UL1013F
Pole number	PN	-	8	8	8	8	8	8	8	8	8	8	8
Connection	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Back E.M.F., 20 $^{\circ}\text{C}$ (5)	Ke	Vs	2,78	1,43	0,95	2,86	1,43	0,95	2,86	1,43	0,95	2,86	1,59
Torque constant	Kt	Nm/Arms	4,81	2,48	1,65	4,95	2,48	1,65	4,95	2,48	1,65	4,95	2,75
Temperature coefficient of E.M.F.	dKe/dT	%/ $^{\circ}\text{C}$	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09
Winding resistance, 20 $^{\circ}\text{C}$ (5)	Rw	Ohm	5,4	1,39	0,62	1,84	0,46	0,2	1,02	0,27	0,11	0,69	0,22
Winding inductance (1000Hz)	Lw	mH	53,76	14,22	6,32	28,44	7,11	3,16	18,96	4,74	2,11	14,22	4,39
Nominal voltage	Vn	Vrms	364	356	346	353	339	330	344	330	321	338	362
E.M.F. at 3000 rpm	V3000	Vrms	873	449	299	898	449	299	898	449	299	898	499
Nominal current, 0 speed, $\Delta T=100^{\circ}\text{C}$	In0	Arms	10,24	20,2	30,3	18,06	36,12	54,19	25,12	48,82	75,36	31,61	56,1
Nominal current at nom. power (1)	In	Arms	8,06	15,47	22,07	14,11	26,74	36,08	19,51	35,06	45,80	24,43	39,17
Peak current	lpk	Arms	26,16	51,59	77,38	46,12	92,25	138,37	64,14	124,68	192,43	80,71	143,25
Frequency	fn	Hz	67	133	200	67	133	200	67	133	200	67	133
Efficiency at rated power	n	-	0,85	0,92	0,94	0,91	0,95	0,96	0,93	0,96	0,97	0,94	0,96
Min. demag. current, 125 $^{\circ}\text{C}$	ldm	Apk	69	135	203	135	270	405	203	405	608	270	486
Winding capacitance to ground	Wc	nF	16	16	16	32	32	32	48	48	48	64	64

Test conditions

- (1) Motor suspended in horizontal position in free still air, ambient temperature = 20 $^{\circ}\text{C}$
- (2) Motor flanged to 20 mm thick aluminium base at 20 $^{\circ}\text{C}$ in horizontal position, ambient temperature = 20 $^{\circ}\text{C}$
- (3) With interference coupling and infinite load inertia applied in the middle of the shaft extension
- (4) Standard type
- (5) Typical value, tolerance +/-10%

Remark: All quantities are in International Standard units, 20 $^{\circ}\text{C}$ unless stated otherwise

UL1013F300 rad/s
400 Vac

160
129
314
28125
41907
89,57
133,46
431,11

UL1013F

400
15
28740
200
200
20
450
82
classe H
classe F
ventilazione
IP54

UL1013F

800
0,0813
0,07
46226
3756
405
130°

UL1013F

8
Y
0,95
1,65
-0,09
0,07
1,49
317
299
102,28
57,94
261,18
200
0,97
810
64