

Technical data sheet - servomotors

Ultract - UL13F

Motor Identifier	Symbol	Units	UL1310F	UL1310F	UL1310F	UL1320F	UL1320F	UL1320F	UL1330F	UL1330F	UL1330F	UL1340F	UL1340F	UL1340F
			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	300 rad/s 400 Vac
Reference Data														
Nominal torque, c. duty S1, 0 speed, DT=100°C	T100	Nmrms	122	120	121	232	236	231	338	338	337	442	442	445
Nominal torque, c. duty S1, 0 speed, DT=65°C, in air (1)	Tn	Nmrms	99	97	97	187	190	186	273	273	272	356	356	359
Base speed	wn	rad/s	105	209	314	105	209	314	105	209	314	105	209	314
Nominal power, S1 DT=65°C (1)	Pn	W	11862	22573	32229	22472	43311	57406	32687	61031	79248	42632	78605	100042
Nominal power, S1 DT=100°C (2)	P100	W	12796	24505	35469	23793	46341	62855	34161	64594	86385	44117	82466	108598
Torque at max. speed (1)	Tw	Nmrms	113	107	102	214	206	182	312	291	252	407	375	318
Torque at max. speed (2)	Tw100	Nmrms	122	117	112	227	221	200	326	308	275	421	393	345
Peak torque, S.I.R. 10%	Tpk	Nmrms	329	322	324	634	634	620	909	909	905	1187	1187	1197
Physical Data														
Maximum speed	wmax	rad/s	400	400	400	400	400	400	400	400	400	400	400	400
Rotor inertia	Jm	mkgm2	22	22	22	36	36	36	49	49	49	63	63	63
Acceleration at peak torque	apk	rad/s2	15136	14842	14941	17588	17859	17470	18468	18468	18385	18854	18854	19004
Max. shock on motor, any direction	S	m/s2	200	200	200	200	200	200	200	200	200	200	200	200
Max. vibration, radial	Vr	m/s2	200	200	200	200	200	200	200	200	200	200	200	200
Max. vibration, axial	Va	m/s2	50	50	50	40	40	40	30	30	30	30	30	20
Shaft torsional resonance frequency (3)	fm	Hz	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	800	800	800	400	400	400
Mass	M	kg	88	88	88	126	126	126	162	162	162	210	210	210
Winding insulation	-	-	classe H	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	classe F
Cooling	-	-	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione	ventilazione
Protection (4)	-	-	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54
Thermal Data														
Motor losses at nominal power, DT=65°C	Ln	W	840	840	840	1010	1010	1010	1180	1180	1180	1350	1350	1350
Thermal impedance, motor to air	Rtha	°C/W	0,077	0,077	0,077	0,064	0,064	0,064	0,055	0,055	0,055	0,048	0,048	0,048
Thermal impedance, motor to air + flange	Rthf	°C/W	0,063	0,063	0,063	0,054	0,054	0,054	0,047	0,047	0,047	0,042	0,042	0,042
Thermal capacity	Cth	J/°C	34472	34472	34472	53560	53560	53560	72648	72648	72648	91736	91736	91736
Thermal time constant in air	ta	s	2667	2667	2667	3447	3447	3447	4002	4002	4002	4417	4417	4417
No load losses at base speed	L0	W	74	144	263	97	239	475	121	333	688	144	428	900
Threshold of built-in PTC	PTCt	°C	130	130°	130°	130°	130°	130°	130°	130°	130°	130°	130°	130°
Electrical Data														
Pole number	PN	-	8	8	8	8	8	8	8	8	8	8	8	8
Connection	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Back E.M.F., 20°C (5)	Ke	Vs	2,86	1,43	0,95	2,86	1,27	0,95	2,86	1,43	0,95	3,18	1,27	0,95
Torque constant	Kt	Nm/Arms	4,95	2,48	1,65	4,95	2,2	1,65	4,95	2,48	1,65	5,5	2,2	1,65
Temperature coefficient of E.M.F.	dKe/dT	%/°C	-0,09	-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°C (5)	Rw	Ohm	1,060	0,280	0,121	0,360	0,070	0,040	0,200	0,050	0,020	0,160	0,030	0,014
Winding inductance (1000Hz)	Lw	mH	21,56	5,39	2,4	10,78	2,13	1,2	7,19	1,8	0,8	6,66	1,6	0,6
Normal voltage	Vn	Vrms	373	359	351	361	312	340	356	345	334	392	304	330
E.M.F. at 3000 rpm	V3000	Vrms	898	449	299	898	399	299	898	449	299	998	399	299
Nominal current, 0 speed, DT=100°C	In0	Arms	26	51	77	49	113	147	72	144	215	85	211	284
Nominal current at nom. power (1)	In	Arms	24	46	66	46	100	118	67	125	162	78	181	205
Peak current	Ipk	Arms	66	130	197	126	288	376	184	367	549	216	540	725
Frequency	fn	Hz	67	133	200	67	133	200	67	133	200	67	133	200
Efficiency at rated power	n	-	0,93	0,96	0,97	0,96	0,98	0,98	0,97	0,98	0,99	0,97	0,98	0,99
Min. demag. current, 125°C	ldm	Apk	135	270	405	270	608	810	405	810	1215	486	1215	1620
Winding capacitance to ground	Wc	nF	24	24	24	48	48	48	72	72	72	96	96	96

Test conditions

- (1) Motor suspended in horizontal position in free still air, ambient temperature = 20°C
- (2) Motor flanged to 20 mm thick aluminium base at 20°C in horizontal position, ambient temperature = 20°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°C unless stated otherwise