

Technical data sheet - servomotors ULTRACT - UL13

Motor Identifier	Symbol	Units	UL1310	UL1310	UL1310	UL1320	UL1320	UL1320	UL1330	UL1330	UL1330	UL1340	UL1340	UL1340
			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, $\Delta T=100^{\circ}\text{C}$	T100	Nmrms	94	92	92	176	179	175	255	255	254	332	332	334
Nominal torque, c. duty S1, 0 speed, $\Delta T=65^{\circ}\text{C}$, in air (1)	Tn	Nmrms	75	74	74	142	144	141	206	206	205	267	267	269
➔ Base speed	wn	rad/s	105	209	314	105	209	314	105	209	314	105	209	314
Nominal power, S1 $\Delta T=65^{\circ}\text{C}$ (1)	Pn	W	8844	16408	22181	16577	30460	35524	23920	41762	43411	31006	52566	47379
Nominal power, S1 $\Delta T=100^{\circ}\text{C}$ (2)	P100	W	10294	19451	27415	18811	35665	45451	26640	48407	58171	34025	60383	67698
Torque at max. speed (1)	Tw	Nmrms	84	78	70	158	145	113	228	199	138	296	251	150
Torque at max. speed (2)	Tw100	Nmrms	98	92	87	179	170	144	254	231	185	325	288	215
Peak torque, S.I.R. 10%	Tpk	Nmrms	251	246	248	473	480	469	685	685	682	891	891	898

Physical Data	Symbol	Units	UL1310	UL1310	UL1310	UL1320	UL1320	UL1320	UL1330	UL1330	UL1330	UL1340	UL1340	UL1340
Maximum speed	wmax	rad/s	400	400	400	400	400	400	400	400	400	400	400	400
Rotor inertia	Jm	mkgm ²	22	22	22	36	36	36	49	49	49	63	63	63
Acceleration at peak torque	apk	rad/s ²	11560	11336	11411	13328	13534	13239	13916	13916	13853	14146	14146	14258
Max. shock on motor, any direction	S	m/s ²	200	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	200
Max. vibration, axial	Va	m/s ²	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	73	73	73	106	106	106	140	140	140	174	174	74
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	-	-	convezione	convezione	convezione	convezione	convezione	convezione	convezione	convezione	convezione	convezione	convezione	convezione
Protection (4)	-	-	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54	IP54

Thermal Data	Symbol	Units	UL1310	UL1310	UL1310	UL1320	UL1320	UL1320	UL1330	UL1330	UL1330	UL1340	UL1340	UL1340
Motor losses at nominal power, $\Delta T=65^{\circ}\text{C}$	Ln	W	490	490	490	580	580	580	670	670	670	760	760	760
Thermal impedance, motor to air	Rtha	$^{\circ}\text{C}/\text{W}$	0,132	0,132	0,132	0,112	0,112	0,112	0,097	0,097	0,097	0,085	0,085	0,085
Thermal impedance, motor to air + flange	Rthf	$^{\circ}\text{C}/\text{W}$	0,094	0,094	0,094	0,083	0,083	0,083	0,075	0,075	0,075	0,068	0,068	0,068
Thermal capacity	Cth	J/ $^{\circ}\text{C}$	30642	30642	30642	48725	48725	48725	66809	66809	66809	84892	84892	84892
Thermal time constant in air	ta	s	4065	4065	4065	5461	5461	5461	6481	6481	6481	7261	7261	7261
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	$^{\circ}\text{C}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$	130 $^{\circ}$

Electrical Data	Symbol	Units	UL1310	UL1310	UL1310	UL1320	UL1320	UL1320	UL1330	UL1330	UL1330	UL1340	UL1340	UL1340
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 $^{\circ}\text{C}$ (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	%/ $^{\circ}\text{C}$	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09	-0,09
Winding resistance, 20 $^{\circ}\text{C}$ (5)	Rw	Ohm	1,063	0,276	0,121	0,355	0,068	0,04	0,195	0,048	0,021	0,162	0,025	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	1,06	0,6
➔ Nominal voltage	Vn	Vrms	346	334	326	337	291	316	333	323	311	367	285	307
E.M.F. at 3000 rpm	V3000	Vrms	898	449	299	898	399	299	898	449	299	998	399	299
➔ Nominal current, 0 speed, $\Delta T=100^{\circ}\text{C}$	In0	Arms	19	39	58	37	85	111	54	108	161	63	158	213
Nominal current at nom. power (1)	In	Arms	18	33	45	33	70	73	48	85	89	56	121	98
Peak current	lpk	Arms	50	99	150	95	218	284	138	276	413	161	404	544
Frequency	fn	Hz	67	133	200	67	133	200	67	133	200	67	133	200
Efficiency at rated power	n	-	0,95	0,97	0,98	0,97	0,98	0,98	0,97	0,98	0,98	0,98	0,99	0,98
Min. demag. current, 125 $^{\circ}\text{C}$	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 $^{\circ}\text{C}$
- (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