

TORQUE



Applimotion
Motors & Actuators

PRODUCT DATA SHEET

Omni™ Series Motors

Low-Profile Direct Drive
Motors for the World's
Machines and Robots

The Omni Series enables OEMs to design high performance, reliable, small and lightweight systems using flexible and easy-to-integrate rotary motor components.

➤ [CELERAMOTION.COM](https://celeramotion.com)



Omni™ Series Motors

Low-Profile Direct Drive Motors for the World's Machines and Robots



Compact and Powerful.

Designed for easy integration into OEM assemblies, the Omni Series is offered in a wide range of low-profile form factors with a large through hole for convenient routing of cables, optics, and other system elements. Frameless direct drive kit construction enables easy integration into machinery, robot joints, rotary stages and actuators.

Built using state-of-the-art magnetic designs, the Omni Series delivers high torque density, low cogging and low stator and rotor mass in a thermally efficient package. Direct drive technology provides high speeds and accelerations with good mechanical stiffness and zero backlash, reducing settling times and increasing system performance and throughput.

Three models of the Omni Series motors are available: ULT for low-mid range torque requirements; UTH for high torque requirements; and UTO for applications that require an outside rotating configuration. All models are compatible with a wide range of controllers and drives. Windings and form factors can be customized to meet application requirements.

Benefits

- High torque density in low-profile form factors enables small footprint
- Large through hole for convenient routing of cables, optics, plumbing and other system elements
- High mechanical stiffness and low rotor inertia for efficient control of highly dynamic axes
- Low cogging for accurate and smooth motion
- Easy integration into system design
- Compatible with wide range of drives and controllers
- Custom windings and form factors available to meet application requirements

SPECIFICATIONS	UNITS	ULT MODELS	UTH MODELS	UTO MODELS
Continuous Torque:	Nm	0.02 to 5.9	0.03 to 87.6	0.01 to 8.2
Peak Torque:	Nm	0.06 to 17.7	0.09 to 263	0.03 to 24.6
Diameter:	mm	45 to 165 (Stator OD)	22 to 533 (Stator OD)	20 to 200 (Rotor OD)
Through Hole:	mm	32 to 120 (Rotor ID)	13 to 432 (Rotor ID)	9 to 100 (Stator ID)
Maximum Speed:	rpm	up to 5,000	up to 5,000	up to 10,000

Product groups listed and corresponding data are provided as a reference. Actual motor attributes are model and configuration specific. Standard and custom models are available within each group. Peak torque output is based on a 3:1 peak to continuous current ratio in the amplifier, and is based on limited duty cycle. Specifications subject to change.

RoHS
CE



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Omni™ Series Motors

Low-Profile Direct Drive Motors for the World's Machines and Robots

Omni UTH High Performance Motors

SIZE	UTH-29	UTH-46	UTH-51	UTH-56	UTH-63		
MODEL NUMBER	UTH-29-A-19-A-x-000	UTH-46-A-17-A-x-000	UTH-51-A-27-A-x-000	UTH-56-A-47-B-x-000	UTH-63-A-8-A-x-000	UTH-63-B-18-A-x-000	UTH-63-B-18-B-x-000

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	0.082	0.105	0.184	0.629	0.103	0.240	0.251
	oz-in	11.6	14.9	26.0	89.1	14.6	34.0	35.5
Peak Torque	Nm	0.245	0.315	0.552	1.887	0.309	0.720	0.753
	oz-in	34.7	44.6	78.1	267.2	43.7	101.9	106.6

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	0.9	4.1	2.5	7.3	1.8	4.9	2.1
Resistance	Ohm	18.00	1.81	4.15	0.56	9.10	1.25	6.60
Inductance	mH	9.50	1.25	2.60	0.84	1.00	0.23	0.90
Ke	V/krpm	10.4	3	8.6	10.0	6.6	5.7	13.7
Kt	Nm/amp	0.099	0.029	0.082	0.095	0.063	0.054	0.131
Kt sine	Nm/amp	0.086	0.025	0.071	0.083	0.055	0.047	0.113
Km	Nm/w ^{3/2}	0.023	0.021	0.040	0.128	0.021	0.049	0.051

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	6.0	3.0	3.5	3.0	3.0	3.0	3.0
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MECHANICAL SPECIFICATIONS

Stator OD	mm	29.21	45.72	50.80	55.88	63.50	63.50	63.50
Stator ID	mm	13.46	21.84	27.18	24.64	50.04	50.04	50.04
Rotor OD	mm	12.70	20.32	25.43	23.80	46.99	46.99	46.99
Rotor ID	mm	6.48	8.13	11.94	13.72	33.02	28.02	28.02
Stator Length	mm	21.34	16.61	26.67	46.23	8.13	18.80	18.80
End Turn, Lead Side	mm	3.05	5.08	8.89	12.70	1.78	2.29	2.29
Stack Height	mm	15.24	6.10	8.89	27.18	4.57	13.72	13.72
End Turn, Non-Lead Side	mm	3.05	5.44	8.89	6.35	1.78	2.79	2.79
Weight	kg	0.057	n/a	n/a	0.318	0.040	0.150	0.150
Poles Count	#	8	6	6	8	12	12	12
Rotor Inertia	lb-in-sec ²	2.00E-06	n/a	n/a	4.10E-05	9.00E-05	3.66E-04	3.66E-04
	kg-m ²	2.26E-07	n/a	n/a	4.63E-06	1.02E-05	4.14E-05	4.14E-05
Halls (optional)		n/a	n/a	External	External	External	External	External



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Omni UTH High Performance Motors

SIZE	UTH-63				UTH-70
MODEL NUMBER	UTH-63-B-18-C-x-000	UTH-63-B-24-A-x-000	UTH-63-B-51-A-x-000	UTH-63-B-52-A-x-000	UTH-70-A-25-A-x-000

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	0.268	0.485	1.098	1.044	0.736
	oz-in	37.9	68.7	155.5	147.8	104.2
Peak Torque	Nm	0.803	1.455	3.294	3.132	2.208
	oz-in	113.7	206.0	466.5	443.5	312.7

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	10.7	4.1	1.9	4.9	1.1
Resistance	Ohm	0.26	1.82	8.10	1.25	26.50
Inductance	mH	0.04	4.50	29.00	4.10	20.00
Ke	V/krpm	2.9	13.9	66.4	24.8	80.5
Kt	Nm/amp	0.028	0.133	0.634	0.237	0.769
Kt sine	Nm/amp	0.024	0.115	0.549	0.205	0.666
Km	Nm/w ^{3/2}	0.054	0.098	0.223	0.212	0.149

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	3.0	3.0	3.0	3.0	3.0
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MECHANICAL SPECIFICATIONS

Stator OD	mm	63.50	63.50	63.50	63.50	70.00
Stator ID	mm	50.04	29.16	29.16	29.16	47.68
Rotor OD	mm	46.99	27.94	28.14	27.94	45.90
Rotor ID	mm	28.02	12.67	12.80	12.80	36.02
Stator Length	mm	18.80	27.94	50.80	50.80	24.89
End Turn, Lead Side	mm	2.29	6.35	6.35	6.99	2.29
Stack Height	mm	13.72	12.70	38.10	38.10	20.32
End Turn, Non-Lead Side	mm	2.79	8.89	6.35	5.72	2.29
Weight	kg	0.150	0.210	0.524	0.524	n/a
Poles Count	#	12	8	8	8	26
Rotor Inertia	lb-in-sec ²	2.52E-04	1.80E-04	5.40E-04	5.40E-04	n/a
	kg-m ²	2.85E-05	2.03E-05	6.10E-05	6.10E-05	n/a
Halls (optional)		External	Internal	Internal	Internal	Internal



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Omni UTH High Performance Motors

SIZE	UTH-76			UTH-92	UTH-100	
MODEL NUMBER	UTH-76-A-24-A-x-000	UTH-76-A-24-B-x-000	UTH-76-B-70-A-x-000	UTH-92-A-28-A-x-000	UTH-100-A-25-A-x-000	UTH-100-A-25-B-x-000

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	0.688	0.609	2.657	0.934	1.768	1.730
	oz-in	97.4	86.2	376.3	132.3	250.3	245.0
Peak Torque	Nm	2.063	1.827	7.972	2.803	5.303	5.190
	oz-in	292.2	258.7	1128.9	396.9	751.0	735.0

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	2.6	3.9	7.4	2.7	8.2	4.0
Resistance	Ohm	4.50	1.50	0.83	6.00	0.89	3.70
Inductance	mH	2.20	0.66	1.30	1.94	1.36	6.00
Ke	V/krpm	31.0	18.3	42.0	39.7	25.0	50.0
Kt	Nm/amp	0.296	0.175	0.401	0.379	0.239	0.477
Kt sine	Nm/amp	0.256	0.151	0.347	0.328	0.207	0.413
Km	Nm/w ^{3/2}	0.140	0.143	0.440	0.155	0.254	0.248

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	3.0	4.0	2.0	2.0	1.5	1.5
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MECHANICAL SPECIFICATIONS

Stator OD	mm	76.20	76.20	75.95	92.08	101.60	101.60
Stator ID	mm	60.45	60.45	46.48	75.44	65.02	57.40
Rotor OD	mm	59.18	59.18	45.21	73.66	62.99	62.99
Rotor ID	mm	47.63	47.63	25.02	63.50	43.18	43.18
Stator Length	mm	28.58	24.13	69.85	34.04	24.38	24.38
End Turn, Lead Side	mm	3.18	3.18	6.99	5.08	4.57	4.57
Stack Height	mm	17.78	17.78	57.79	19.05	15.24	15.24
End Turn, Non-Lead Side	mm	7.62	3.18	5.08	9.91	4.57	4.57
Weight	kg	0.330	0.330	n/a	n/a	0.644	0.644
Poles Count	#	16	16	20	14	12	12
Rotor Inertia	lb-in-sec ²	0.0009	0.0009	n/a	n/a	0.0013	0.0026
	kg-m ²	1.02E-04	1.02E-04	n/a	n/a	1.47E-04	2.94E-04
Halls (optional)		Internal	Internal	Internal	Internal	Internal	Internal



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Low-Profile Direct Drive Motors for the World's Machines and Robots

Omni UTH High Performance Motors

SIZE	UTH-100		UTH-114			
MODEL NUMBER	UTH-100-A-25-E-x-000	UTH-100-A-40-A-x-000	UTH-114-A-20-A-x-000	UTH-114-B-21-A-x-000	UTH-114-B-21-B-x-000	UTH-114-A-36-B-x-000

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	1.534	3.952	1.483	1.076	0.836	3.589
	oz-in	217.2	559.6	210.0	152.3	118.4	508.3
Peak Torque	Nm	4.601	11.855	4.448	3.227	2.508	10.768
	oz-in	651.5	1678.8	629.9	456.9	355.2	1525

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	18.8	12.6	2.8	4.0	20.7	5.9
Resistance	Ohm	0.17	0.57	7.40	3.80	0.14	2.00
Inductance	mH	0.19	1.10	11.00	3.70	0.10	4.80
Ke	V/krpm	9.5	36.6	60.6	31.5	4.7	71.0
Kt	Nm/amp	0.091	0.349	0.579	0.301	0.045	0.678
Kt sine	Nm/amp	0.079	0.303	0.501	0.260	0.039	0.587
Km	Nm/w ^{3/2}	0.220	0.463	0.213	0.154	0.120	0.479

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	1.5	1.0	1.5	1.5	1.5	1.3
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MECHANICAL SPECIFICATIONS

Stator OD	mm	101.60	101.60	114.30	114.30	114.30	114.30
Stator ID	mm	65.02	65.02	74.42	92.96	92.96	73.91
Rotor OD	mm	62.99	62.99	72.90	89.15	89.15	72.90
Rotor ID	mm	43.18	43.18	53.34	76.20	76.20	53.34
Stator Length	mm	24.38	39.73	20.27	20.32	20.47	36.58
End Turn, Lead Side	mm	4.57	4.57	5.00	5.08	5.08	5.59
Stack Height	mm	15.24	30.58	10.01	10.34	10.31	25.40
End Turn, Non-Lead Side	mm	4.57	4.57	5.26	4.90	5.08	5.59
Weight	kg	0.644	1.134	0.595	0.264	0.264	n/a
Poles Count	#	12	12	16	24	24	16
Rotor Inertia	lb-in-sec ²	0.0013	0.0026	0.0003	n/a	n/a	n/a
	kg-m ²	1.47E-04	2.94E-04	3.39E-05	n/a	n/a	n/a
Halls (optional)		Internal	Internal	External	Internal	Internal	Internal



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Omni UTH High Performance Motors

SIZE	UTH-127		UTH-152	UTH-165	
MODEL NUMBER	UTH-127-B-28-A-x-000	UTH-127-A-30-A-x-000	UTH-152-A-40-A-x-000	UTH-165-A-38-A-x-000	UTH-165-A-56-A-x-000

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	2.67	4.11	10.55	8.56	13.64
	oz-in	379	582	1495	1212	1932
Peak Torque	Nm	8.02	12.33	31.66	25.67	40.93
	oz-in	1136	1746	4484	3636	5796

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	14.1	5.7	8.9	8.7	14.4
Resistance	Ohm	0.50	3.13	1.42	1.50	0.72
Inductance	mH	1.10	9.30	3.20	2.00	1.29
Ke	V/krpm	22.0	84.6	138.0	115.0	110.0
Kt	Nm/amp	0.210	0.808	1.318	1.098	1.050
Kt sine	Nm/amp	0.182	0.699	1.141	0.951	0.909
Km	Nm/w ^{3/2}	0.297	0.457	1.106	0.896	1.238

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	0.9	0.9	0.8	0.8	0.6
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MECHANICAL SPECIFICATIONS

Stator OD	mm	127.00	127.00	152.40	165.10	165.10
Stator ID	mm	84.33	76.45	108.20	137.41	137.41
Rotor OD	mm	81.28	74.96	106.53	135.89	135.84
Rotor ID	mm	55.88	53.34	88.90	118.11	118.11
Stator Length	mm	27.31	27.94	39.37	41.28	55.58
End Turn, Lead Side	mm	6.35	6.35	7.62	6.35	6.35
Stack Height	mm	15.88	16.51	26.67	28.58	42.88
End Turn, Non-Lead Side	mm	5.08	5.08	5.08	6.35	6.35
Weight	kg	2.608	2.608	n/a	1.488	n/a
Poles Count	#	6	12	20	32	32
Rotor Inertia	lb-in-sec ²	0.003	0.003	n/a	0.018	0.039
	kg-m ²	3.73E-04	3.39E-04	n/a	2.03E-03	4.38E-03
Halls (optional)		Internal	Internal	n/a	Internal	Internal



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Omni UTH High Performance Motors

SIZE	UTH-230		UTH-434	UTH-533	
MODEL NUMBER	UTH-230-A-32-A-x-000	UTH-230-A-32-F-x-000	UTH-434-A-92-A-x-000	UTH-533-A-50-A-x-000	UTH-533-A-50-B-x-000

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	15.81	14.31	53.62	80.91	74.72
	oz-in	2239	2027	7593	11457	10581
Peak Torque	Nm	47.42	42.94	160.85	242.72	224.15
	oz-in	6716	6080	22778	34372	31743

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	15.7	3.5	15.0	3.5	40.8
Resistance	Ohm	0.52	10.50	1.00	18.50	0.14
Inductance	mH	1.10	18.30	5.10	95.00	0.60
Ke	V/krpm	117.0	476.0	416.0	2700.0	213.0
Kt	Nm/amp	1.117	4.545	3.972	25.778	2.034
Kt sine	Nm/amp	0.967	3.936	3.439	22.323	1.761
Km	Nm/w ^{3/2}	1.549	1.402	3.972	5.993	5.535

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	0.7	0.7	0.4	0.4	0.4
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MECHANICAL SPECIFICATIONS

Stator OD	mm	230.00	230.00	441.96	533.40	533.40
Stator ID	mm	184.66	184.91	377.44	463.80	463.80
Rotor OD	mm	183.13	183.13	364.74	459.74	459.74
Rotor ID	mm	159.99	159.99	0.00	431.80	431.80
Stator Length	mm	32.21	32.21	91.44	50.29	50.29
End Turn, Lead Side	mm	5.99	6.35	22.86	14.35	14.35
Stack Height	mm	19.51	19.51	45.72	21.59	21.59
End Turn, Non-Lead Side	mm	6.71	6.35	22.86	14.35	14.35
Weight	kg	n/a	n/a	n/a	n/a	n/a
Poles Count	#	32	32	24	60	60
Rotor Inertia	lb-in-sec ²	0.069	0.069	n/a	n/a	n/a
	kg-m ²	7.80E-03	7.80E-03	n/a	n/a	n/a
Halls (optional)		External	Internal	External	External	External



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Omni ULT Ultra Thin Motors

SIZE	ULT-45	ULT-63				
MODEL NUMBER	ULT-45-A-10-A-x-00x	ULT-63-A-8-A-x-00x	ULT-63-A-8-F-x-00x	ULT-63-A-18-C-x-00x	ULT-63-B-18-B-x-00x	ULT-63-C-18-A-x-00x

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	0.039	0.082	0.085	0.217	0.184	0.171
	oz-in	5.5	11.6	12.0	30.8	26.0	24.3
Peak Torque	Nm	0.117	0.245	0.254	0.652	0.552	0.514
	oz-in	16.5	34.7	36.0	92.3	78.1	72.8

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	1.4	5.6	3.9	3.2	2.0	4.2
Resistance	Ohm	10.00	0.96	1.96	3.00	7.50	1.70
Inductance	mH	1.10	0.10	0.26	0.45	1.20	0.23
Ke	V/krpm	3.2	1.7	2.5	8.0	10.7	4.8
Kt	Nm/amp	0.031	0.016	0.024	0.076	0.102	0.045
Kt sine	Nm/amp	0.026	0.014	0.021	0.066	0.088	0.039
Km	Nm/w ^{3/2}	0.010	0.017	0.017	0.044	0.037	0.035

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	4.5	3.0	3.0	3.0	3.0	3.0
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MECHANICAL SPECIFICATIONS

Stator OD	mm	43.18	63.50	63.50	63.50	63.50	63.50
Stator ID	mm	33.53	49.53	49.53	49.53	49.53	49.53
Rotor OD	mm	32.00	48.39	48.51	48.51	48.51	48.51
Rotor ID	mm	25.40	38.10	38.10	38.10	38.10	38.10
Stator Length	mm	10.67	9.27	9.27	18.24	18.24	18.54
End Turn, Lead Side	mm	2.79	1.78	1.78	2.03	2.03	2.03
Stack Height	mm	5.08	4.57	4.57	13.72	13.72	13.72
End Turn, Non-Lead Side	mm	2.79	2.92	2.92	2.49	2.49	2.79
Weight	kg	0.034	0.051	0.051	0.136	0.136	0.136
Poles Count	#	12.0	12.0	12.0	12.0	12.0	12.0
Rotor Inertia	lb-in-sec ²	1.1E-05	7.0E-05	7.0E-05	2.1E-04	2.1E-04	2.1E-04
	kg-m ²	1.2E-06	7.9E-06	7.9E-06	2.4E-05	2.4E-05	2.4E-05
Halls (optional)		External	External	External	External	External	External



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Omni ULT Ultra Thin Motors

SIZE	ULT-91		ULT-100			
MODEL NUMBER	ULT-91-A-30-A-x-00x	ULT-91-A-60-A-x-00x	ULT-100-A-15-A-x-00x	ULT-100-A-15-C-x-00x	ULT-100-A-15-D-x-00x	ULT-100-A-24-A-x-00x

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	1.425	1.865	0.601	0.636	0.624	1.063
	oz-in	202	264	85.2	90.1	88.3	150
Peak Torque	Nm	4.274	5.595	1.804	1.909	1.871	3.188
	oz-in	605	792	256	270	265	451

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	11.7	32.3	4.0	9.3	10.4	4.3
Resistance	Ohm	0.33	0.04	3.75	0.70	0.55	3.30
Inductance	mH	1.10	0.11	6.80	1.40	1.10	9.70
Ke	V/krpm	14.2	6.7	17.5	8.0	7.0	29.0
Kt	Nm/amp	0.136	0.064	0.167	0.076	0.066	0.277
Kt sine	Nm/amp	0.117	0.055	0.145	0.066	0.057	0.240
Km	Nm/w ^{3/2}	0.236	0.309	0.086	0.091	0.089	0.152

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	2.0	2.0	1.5	1.5	1.5	1.5
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MECHANICAL SPECIFICATIONS

Stator OD	mm	91.44	91.44	101.60	101.60	101.60	101.60
Stator ID	mm	56.90	56.90	55.63	55.63	55.63	55.63
Rotor OD	mm	55.88	55.88	54.61	54.61	54.61	54.61
Rotor ID	mm	40.64	40.64	43.18	48.26	48.26	43.18
Stator Length	mm	44.96	60.71	16.51	16.51	17.78	24.64
End Turn, Lead Side	mm	12.70	12.70	4.45	4.45	4.45	4.70
Stack Height	mm	25.91	40.39	8.89	8.89	8.89	15.24
End Turn, Non-Lead Side	mm	6.35	7.62	3.18	3.18	4.45	4.70
Weight	kg	n/a	n/a	0.332	0.332	0.332	0.578
Poles Count	#	20.0	20.0	16.0	16.0	16.0	16.0
Rotor Inertia	lb-in-sec ²	8.0E-04	0.0011	3.5E-05	3.5E-05	3.5E-05	2.7E-04
	kg-m ²	9.0E-05	1.2E-04	4.0E-06	4.0E-06	4.0E-06	3.0E-05
Halls (optional)		Internal	Internal	Internal	Internal	Internal	Internal



Applimotion
Motors & Actuators

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Omni™ Series Motors

Low-Profile Direct Drive Motors for the World's Machines and Robots

Omni ULT Ultra Thin Motors

SIZE	ULT-100		ULT-127				
MODEL NUMBER	ULT-100-A-24-C-x-00x	ULT-100-A-24-E-x-00x	ULT-127-B-19-A-x-00x	ULT-127-A-30-A-x-00x	ULT-127-A-30-C-x-00x	ULT-127-A-30-D-x-00x	ULT-127-A-45-A-x-00x

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	1.058	0.965	1.530	2.824	2.391	2.877	4.669
	oz-in	150	137	217	400	339	407	661
Peak Torque	Nm	3.175	2.895	4.589	8.471	7.172	8.632	14.007
	oz-in	450	410	650	1200	1016	1222	1983

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	7.4	19.4	5.5	5.5	32.7	14.4	6.7
Resistance	Ohm	1.10	0.16	2.50	2.50	0.07	0.36	2.00
Inductance	mH	3.20	3.20	5.00	6.50	0.13	0.80	5.20
Ke	V/krpm	16.7	5.8	32.5	60.0	8.5	23.2	81.0
Kt	Nm/amp	0.159	0.055	0.310	0.573	0.081	0.221	0.773
Kt sine	Nm/amp	0.138	0.048	0.269	0.496	0.070	0.192	0.670
Km	Nm/w ^{3/2}	0.152	0.138	0.196	0.362	0.307	0.369	0.547

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	1.5	1.5	1.2	1.2	1.2	1.2	1.0
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MECHANICAL SPECIFICATIONS

Stator OD	mm	101.60	101.60	130.18	130.18	130.18	130.18	130.18
Stator ID	mm	55.63	55.63	98.04	98.04	98.04	98.04	98.04
Rotor OD	mm	54.61	54.61	96.52	96.52	96.52	96.52	96.52
Rotor ID	mm	43.18	43.18	81.03	82.60	82.60	82.55	73.15
Stator Length	mm	24.64	24.64	18.92	30.48	30.48	30.48	48.01
End Turn, Lead Side	mm	4.70	4.70	4.57	7.62	7.62	7.62	6.60
Stack Height	mm	15.24	15.24	10.16	17.78	17.78	17.78	35.05
End Turn, Non-Lead Side	mm	4.70	4.70	4.19	5.08	5.08	5.08	6.35
Weight	kg	0.578	0.578	0.590	0.785	0.785	0.785	1.091
Poles Count	#	16.0	16.0	24.0	24.0	24.0	24.0	24.0
Rotor Inertia	lb-in-sec ²	2.7E-04	2.7E-04	0.0033	0.0025	0.0025	0.0025	0.0050
	kg-m ²	3.0E-05	3.0E-05	3.7E-04	2.8E-04	2.8E-04	2.8E-04	5.7E-04
Halls (optional)		Internal	Internal	Internal	Internal	Internal	Internal	Internal



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Omni™ Series Motors

Low-Profile Direct Drive Motors for the World's Machines and Robots

Omni ULT Ultra Thin Motors

SIZE	ULT-165						
MODEL NUMBER	ULT-165-A-12-A-x-00x	ULT-165-A-12-B-x-00x	ULT-165-A-12-D-x-00x	ULT-165-A-18-B-x-00x	ULT-165-A-18-C-x-00x	ULT-165-A-38-A-x-00x	ULT-165-A-38-B-x-00x

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	1.255	1.208	1.694	3.161	3.125	5.924	5.633
	oz-in	178	171	240	448	443	839	798
Peak Torque	Nm	3.766	3.623	5.083	9.484	9.375	17.771	16.899
	oz-in	533	513	720	1343	1328	2516	2393

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	2.6	4.9	11.0	6.5	9.3	6.3	8.7
Resistance	Ohm	13.70	3.70	0.75	2.40	1.15	3.00	1.50
Inductance	mH	13.30	3.50	1.50	6.00	2.60	6.90	3.20
Ke	V/krpm	57.0	28.5	18.0	57.0	39.0	109.0	75.7
Kt	Nm/amp	0.544	0.272	0.172	0.544	0.372	1.041	0.723
Kt sine	Nm/amp	0.471	0.236	0.149	0.471	0.322	0.901	0.626
Km	Nm/w ^{3/2}	0.147	0.141	0.198	0.351	0.347	0.601	0.590

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	1.0	1.0	1.0	0.9	0.9	0.8	0.8
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MECHANICAL SPECIFICATIONS

Stator OD	mm	165.10	165.10	165.10	165.10	165.10	165.10	165.10
Stator ID	mm	128.52	128.52	128.52	128.52	128.52	128.52	128.52
Rotor OD	mm	127.00	127.00	127.00	127.00	127.00	127.00	127.00
Rotor ID	mm	112.06	112.06	112.01	109.22	109.22	109.22	109.22
Stator Length	mm	11.71	11.99	21.13	19.05	20.70	38.10	38.05
End Turn, Lead Side	mm	3.15	3.15	7.92	3.81	4.57	4.95	4.65
Stack Height	mm	5.69	5.69	5.59	11.43	11.43	28.58	28.58
End Turn, Non-Lead Side	mm	2.87	3.15	7.62	3.81	4.70	4.57	4.83
Weight	kg	0.411	0.411	0.411	0.950	0.950	1.488	1.488
Poles Count	#	36.0	36.0	36.0	36.0	36.0	36.0	36.0
Rotor Inertia	lb-in-sec ²	0.0013	0.0013	0.0016	0.0030	0.0030	0.0080	0.0080
	kg-m ²	1.5E-04	1.5E-04	1.8E-04	3.4E-04	3.4E-04	9.0E-04	9.0E-04
Halls (optional)		Internal	Internal	Internal	Internal	Internal	Internal	Internal



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Omni™ Series Motors

Low-Profile Direct Drive Motors for the World's Machines and Robots

Omni UTO Outside Running Motors

SIZE	UTO-20	UTO-52	UTO-70	UTO-200		
MODEL NUMBER	UTO-20-A-8-A-N-001	UTO-52-A-18-A-N-000	UTO-70-A-25-A-N-000	UTO-200-A-24-A-N-000	UTO-200-A-24-B-N-000	UTO-200-B-36-A-N-000

PERFORMANCE SPECIFICATIONS

Continuous Torque	Nm	0.011	0.320	0.979	5.847	5.157	8.192
	oz-in	1.5	45.3	138.6	828.0	730.3	1160.1
Peak Torque	Nm	0.032	0.961	2.936	17.541	15.471	24.577
	oz-in	4.5	136.0	415.8	2484.0	2190.9	3480.3

ELECTRICAL SPECIFICATIONS

Continuous Current	Amp	2.1	6.9	20.3	4.6	29.3	32.5
Resistance	Ohm	2.650	0.630	0.145	4.200	0.105	0.085
Inductance	mH	0.26	0.40	0.12	7.20	0.14	0.15
Ke	V/krpm	0.6	5.4	5.6	147	20.5	29.3
Kt	Nm/amp	0.006	0.052	0.053	1.403	0.196	0.280
Kt sine	Nm/amp	0.005	0.045	0.046	1.215	0.169	0.242
Km	Nm/w ^{3/2}	0.004	0.065	0.140	0.685	0.604	0.959

THERMAL SPECIFICATIONS

Thermal Resistance	°C/w	8	3	1.5	1	1	1
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MECHANICAL SPECIFICATIONS

Stator OD	mm	15.80	40.89	58.17	171.20	171.20	171.20
Stator ID	mm	8.99	17.84	28.65	100.00	100.00	100.08
Rotor OD	mm	19.81	52.07	70.10	199.09	199.09	199.09
Rotor ID	mm	16.41	42.62	59.94	168.40	168.40	176.02
Stator Length	mm	7.80	17.53	24.23	24.13	29.21	35.56
End Turn, Lead Side	mm	1.0414	3.175	4.318	4.826	7.62	10.16
Stack Height	mm	5.715	11.43	15.5956	13.97	13.97	15.24
End Turn, Non-Lead Side	mm	1.0414	2.921	4.318	5.334	7.62	10.16
Weight	kg	n/a	0.085	n/a	n/a	n/a	n/a
Poles Count	#	12	16	16	30	30	40
Rotor Inertia	lb-in-sec ²	n/a	0.0004	n/a	0.076	0.076	0.078
	kg-m ²	n/a	4.52E-05	n/a	8.59E-03	8.59E-03	8.81E-03
Halls (optional)		External	Internal	Internal	External	External	External



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How to Order

Motor

UTH-100-A-25-A-N-000 (example)

Mechanical Configuration

000=Standard

001=No back iron

Feedback Option

N= None

H= Halls

Winding Option

Factory code

Axial Length

mm

Magnetic Attributes

Factory code

Diameter

mm

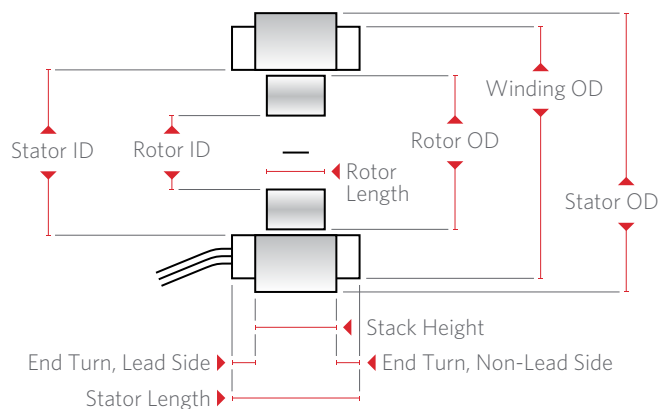
Motor Series

UTH= High performance

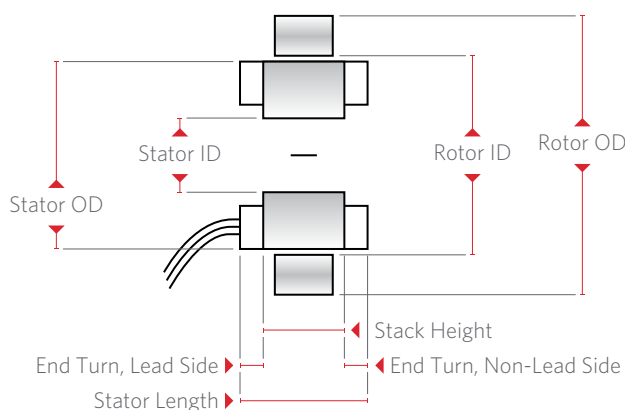
ULT= Ultra thin

UTO= Outside rotating

Dimensional Interface — UTH, ULT Models



Dimensional Interface — UTO Models



Notes

1. Ring magnets are limited to 5000 rpm, contact factory for higher speed magnet material.
2. Mechanical speed limits are imposed on all motors, contact factory for special options for higher speeds.
3. Kt value is calculated from the Ke value and is a static value. Amplifier design will impact actual running torque, contact factory.
4. Peak torque output is based on a 3:1 peak to continuous current ratio in the amplifier, and is limited to 10% duty cycle.
5. Dimensions are for -N-000 configurations; consult celeramotion.com or contact us for other configurations.



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