

RBE(H) Motor Series

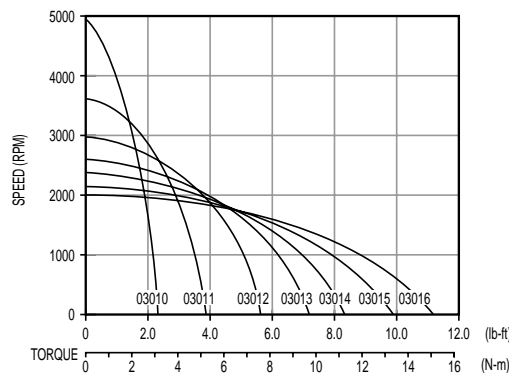
RBE(H) 03010 MOTOR SERIES PERFORMANCE DATA

Motor Parameters	Symbols	Units	03010	03011	03012	03013	03014	03015	03016
Max Cont. Output Power at 25°C amb.	HP Rated	HP	0.863	1.12	1.32	1.48	1.49	1.60	1.61
	P Rated	Watts	644	832	981	1107	1110	1190	1200
Speed at Rated Power	N Rated	RPM	3000	2230	1830	1630	1460	1320	1200
Max Mechanical Speed	N Max	RPM	8300	8300	8300	8300	8300	8300	8300
Continuous Stall Torque at 25°C amb.	Tc	lb-ft	2.21	3.73	5.75	7.04	8.22	9.83	11.3
		N-m	3.00	5.06	7.81	9.55	11.1	13.3	15.3
Peak Torque	Tp	lb-ft	15.2	23.7	43.0	56.3	68.8	85.1	101
		N-m	20.6	32.2	58.3	76.3	93.2	115	137
Max Torque for Linear KT	Tsl	lb-ft	6.26	11.7	18.9	24.7	30.1	37.3	41.8
		N-m	8.49	15.9	25.6	33.5	40.9	50.6	56.7
Motor Constant	Km	lb-ft/ \sqrt{W}	0.308	0.482	0.707	0.846	0.958	1.13	1.27
		N-m/ \sqrt{W}	0.418	0.653	0.958	1.15	1.30	1.53	1.73
Thermal Resistance*	Rth	°C/Watt	1.55	1.32	1.20	1.14	1.07	1.03	1.00
Viscous Damping	Fi	lb-ft/RPM	5.06E-05	8.44E-05	1.21E-04	1.55E-04	1.86E-04	2.26E-04	2.58E-04
		N-m/RPM	6.86E-05	1.14E-04	1.64E-04	2.10E-04	2.52E-04	3.06E-04	3.50E-04
Max Static Friction	Tf	lb-ft	0.0938	0.171	0.255	0.332	0.401	0.493	0.566
		N-m	0.127	0.231	0.345	0.450	0.544	0.668	0.767
Max Cogging Torque Peak to Peak	Tcog	lb-ft	0.0521	0.103	0.159	0.210	0.257	0.317	0.366
		N-m	0.0706	0.140	0.216	0.285	0.348	0.430	0.496
Frameless Motor	Inertia	Jmf	2.03E-04	3.54E-04	5.16E-04	6.67E-04	8.02E-04	9.84E-04	1.13E-03
		Kg-m ²	2.75E-04	4.80E-04	7.00E-04	9.04E-04	1.09E-03	1.33E-03	1.53E-03
Weight	Wtf	lb	3.25	5.36	7.68	9.79	11.7	14.2	16.2
		Kg	1.41	2.43	3.48	4.44	5.31	6.45	7.37
Housed Motor	Inertia	Jmh	3.33E-04	5.78E-04	8.44E-04	1.09E-03	1.31E-03	1.61E-03	1.84E-03
		Kg-m ²	4.52E-04	7.84E-04	1.14E-03	1.48E-03	1.78E-03	2.18E-03	2.49E-03
Weight	Wth	lb	7.56	10.1	13.0	15.5	17.9	20.9	23.4
		Kg	3.43	4.60	5.90	7.05	8.10	9.50	10.6
No. of poles	P		12	12	12	12	12	12	12

Winding Constants	Symbols	Units	A			B			C			A			B			C			A			B			C		
Current at Cont. Torque	Ic	Amps	7.58	5.87	3.60	7.30	5.62	3.49	6.98	5.38	3.34	6.54	5.03	3.12	6.26	4.82	2.99	6.05	4.66	2.89	5.84	4.19	2.82						
Current at Peak Torque	Ip	Amps	60.5	40.3	24.3	53.9	35.9	22.6	60.5	40.3	25.4	60.5	40.3	25.4	60.5	40.3	25.4	60.5	40.3	25.3	60.5	72.0	25.3						
Torque Sensitivity	Kt	lb-ft/Amp	0.304	0.392	0.640	0.535	0.695	1.12	0.862	1.12	1.80	1.13	1.47	2.37	1.38	1.79	2.88	1.72	2.23	3.60	2.03	1.45	4.21						
		N-m/Amp	0.412	0.531	0.868	0.725	0.942	1.52	1.17	1.52	2.45	1.53	1.99	3.21	1.87	2.43	3.92	2.33	3.03	4.88	2.75	1.96	5.70						
Back EMF constant	Kb	V/KRPM	43.1	55.6	90.9	75.9	99	159	122	159	256	160	208	336	196	255	410	244	317	511	288	206	597						
Motor Resistance	Rm	Ohms	0.974	1.63	4.23	1.23	2.09	5.33	1.49	2.51	6.43	1.78	3.00	7.70	2.07	3.48	8.95	2.30	3.87	9.94	2.54	1.32	10.9						
Motor Inductance	Lm	mH	1.9	3.2	8.4	3.3	5.6	14	4.8	8.1	21	6.2	10	27	7.6	13	33	8.9	15	39	11	5.6	47						

*Rth assumes a housed motor mounted to a 7.5" x 7" x 0.375" aluminum heatsink or equivalent

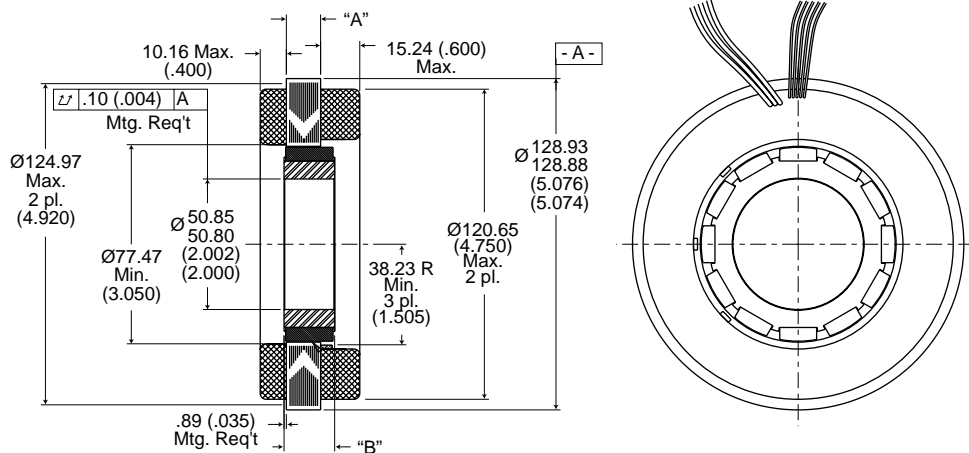
Continuous Duty Capability for 130°C Rise — RBE - 03010 Series



RBE(H) Motor Series

DIMENSIONS

RBE-0301X-X00



Dimensions in mm (inches).
Product designed in inches.

Metric conversions provided for reference only.

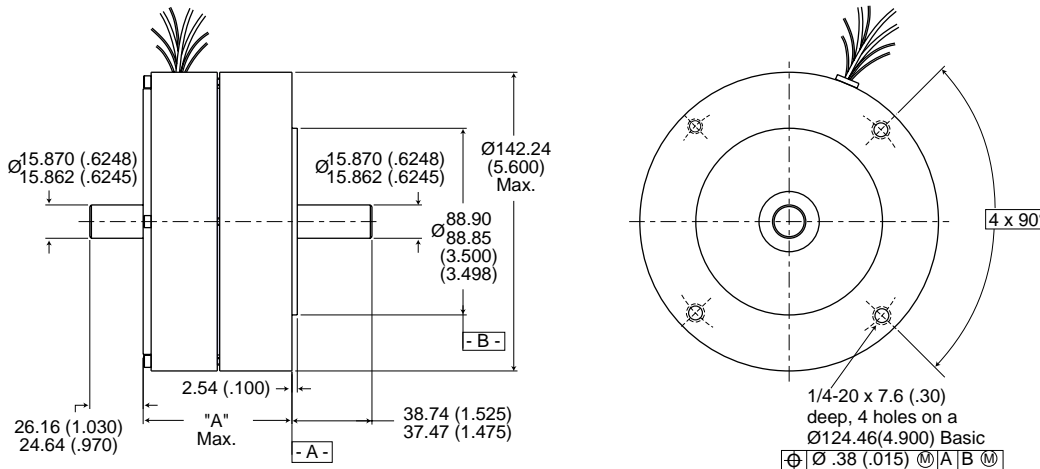
Notes:

- 1) For a C.W. rotation, as viewed from lead end, energize per excitation sequence table.
- 2) V-AB, V-BC and V-CA is back EMF of motor phases AB, BC and CA respectively, aligned with sensor output as shown for C.W. rotation only.
- 3) Mounting surface is between $\varnothing 124.97$ (4.920) and $\varnothing 128.91$ (5.075) on both sides.

MODEL NUMBER	RBE-03010	RBE-03011	RBE-03012	RBE-03013	RBE-03014	RBE-03015	RBE-03016
"A" Dimension	13.34 (0.525)	26.67 (1.050)	41.275 (1.625)	54.61 (2.150)	66.68 (2.625)	82.55 (3.250)	95.25 (3.750)
"B" Dimension	19.69 (0.775)	33.02 (1.300)	47.63 (1.875)	60.96 (2.400)	73.02 (2.875)	88.90 (3.500)	101.6 (4.000)

Tolerance $\pm .010$ on "A" Dimension.

RBEH-0301X-00



Dimensions in mm (inches).
Product designed in inches.

Metric conversions provided for reference only.

Notes:

- 1) Shaft end play: with a 24 lb reversing load, the axial displacement shall be .013-.13 (.0005-.0050).
- 2) For a C.C.W. rotation, as viewed from pilot end, energize per excitation sequence table.
- 3) V-AB, V-BC and V-CA is back EMF of motor phases AB, BC and CA respectively, aligned with sensor output as shown for C.C.W. rotation only.

MODEL NUMBER	RBEH-03010	RBEH-03011	RBEH-03012	RBEH-03013	RBEH-03014	RBEH-03015	RBEH-03016
"A" Dimension	71.63 (2.820)	84.96 (3.345)	99.57 (3.920)	112.90 (4.445)	124.97 (4.920)	140.84 (5.545)	153.54 (6.045)

RBE/RBEH LEADWIRE

Motor Leads: #18 AWG Teflon coated per MIL-W-22759/11, 3 leads, 152 (6.00) min lg. ea. 1-black, 1-red, 1-white.

Sensor Leads: #26 AWG type "ET" Teflon coated per MIL-W-16878, 5 leads, 152 (6.00) min lg. ea. 1-blue, 1-brown, 1-green, 1-orange, 1-yellow.