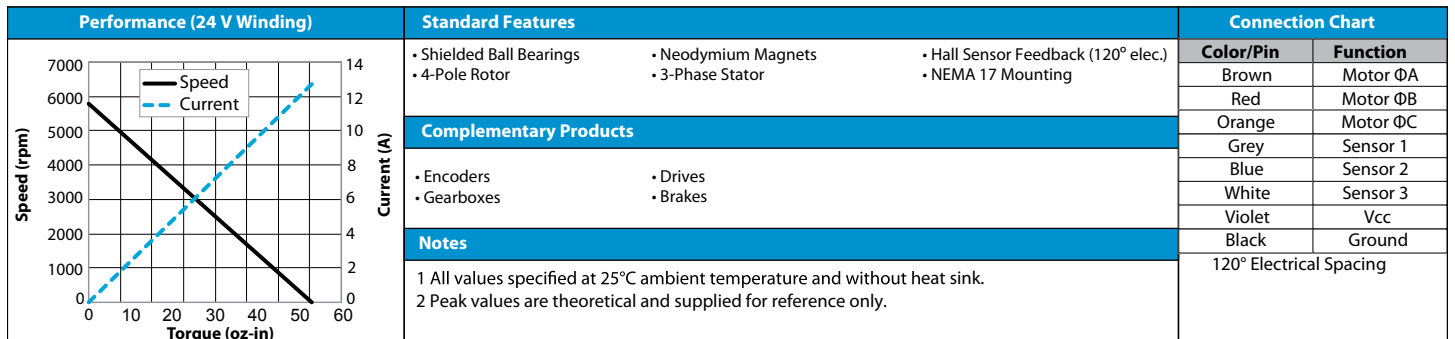
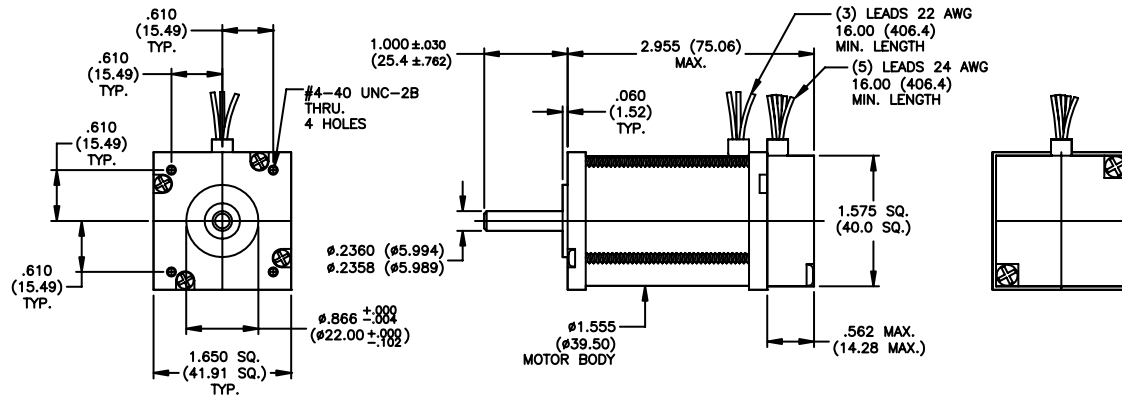


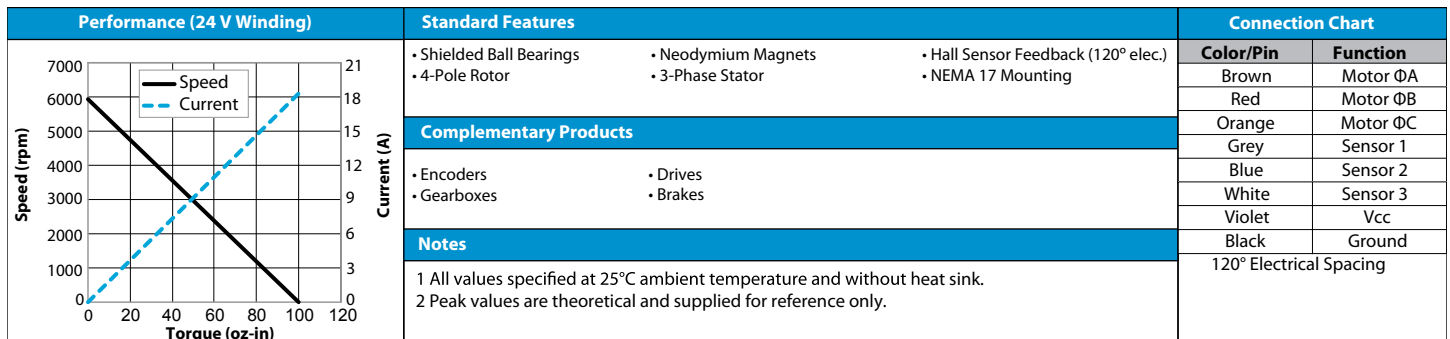
		Part/Model Number							
Specification	Units	4411 15.2 V	4411 19.1 V	4411 24.0 V	4411 30.3 V	4411 38.2 V	4411 48.0 V	4411 60.0 V	4411 76.4 V
Supply Voltage	VDC	15.2	19.1	24.0	30.3	38.2	48.0	60.6	76.4
Continuous Torque	oz-in	12	12	12	12	12	12	12	12
	Nm	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847	0.0847
Speed @ Cont. Torque	RPM	4850	4820	4830	4830	4820	4830	4830	4830
Current @ Cont. Torque	Amps (A)	3.90	3.09	2.47	1.95	1.54	1.24	0.98	0.77
Continuous Output Power	Watts (W)	43	42	43	43	42	43	43	43
Motor Constant	oz-in/sqrt W	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
	Nm/sqrt W	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
Torque Constant	oz-in/A	3.529	4.462	5.584	7.044	8.924	11.155	14.062	17.848
	Nm/A	0.025	0.032	0.039	0.05	0.063	0.079	0.099	0.126
Voltage Constant	V/krpm	2.61	3.30	4.13	5.21	6.60	8.25	10.4	13.2
	V/rad/s	0.025	0.032	0.039	0.05	0.063	0.079	0.099	0.126
Terminal Resistance	Ohms	0.75	1.19	1.89	3.00	4.76	7.56	12.0	19.0
Inductance	mH	0.14	0.21	0.34	0.54	0.84	1.34	2.20	3.36
No-Load Current	Amps (A)	0.043	0.034	0.027	0.021	0.017	0.014	0.011	0.009
No-Load Speed	RPM	5810	5780	5800	5800	5780	5800	5800	5780
Peak Current	Amps (A)	20.3	16.1	12.7	10.1	8.03	6.35	5.05	4.02
Peak Torque	oz-in	71.4	71.4	70.7	71.1	71.4	70.7	71.0	71.6
	Nm	0.5041	0.5041	0.4991	0.502	0.5041	0.4991	0.5013	0.5055
Coulomb Friction Torque	oz-in	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	Nm	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Viscous Damping Factor	oz-in/krpm	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
	Nm s/rad	1.61E-6	1.61E-6	1.61E-6	1.61E-6	1.61E-6	1.61E-6	1.61E-6	1.61E-6
Electrical Time Constant	ms	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Mechanical Time Constant	ms	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.4
Thermal Time Constant	min	23	23	23	23	23	23	23	23
Thermal Resistance	Celsius/W	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ²	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064
	kg-m ²	4.52E-6	4.52E-6	4.52E-6	4.52E-6	4.52E-6	4.52E-6	4.52E-6	4.52E-6
Weight (Mass)	oz	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
	g	396.9	396.9	396.9	396.9	396.9	396.9	396.9	396.9



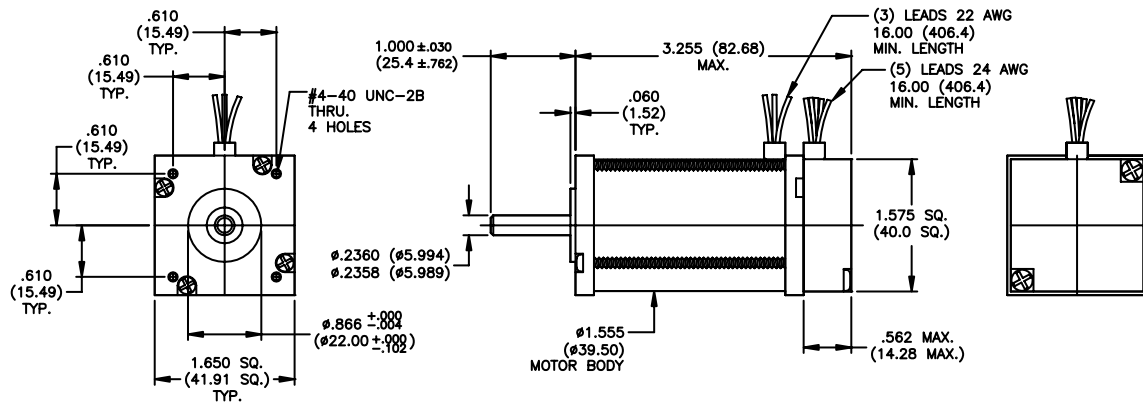
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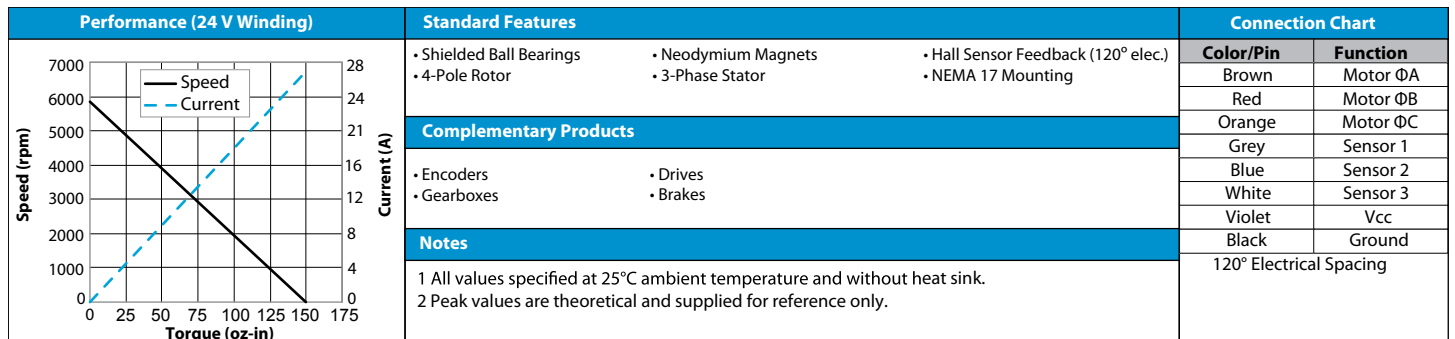
		Part/Model Number							
Specification	Units	4412 19.1 V	4412 24.0 V	4412 30.3 V	4412 38.2 V	4412 48.0 V	4412 60.0 V	4412 76.4 V	4412 96.0 V
Supply Voltage	VDC	19.1	24.0	30.3	38.2	48.0	60.6	76.4	96.0
Continuous Torque	oz-in	14	14	14	14	14	14	14	14
	Nm	0.0988	0.0988	0.0988	0.0988	0.0988	0.0988	0.0988	0.0988
Speed @ Cont. Torque	RPM	5240	5210	5250	5230	5210	5250	5230	5210
Current @ Cont. Torque	Amps (A)	3.82	3.02	2.42	1.91	1.51	1.21	0.95	0.76
Continuous Output Power	Watts (W)	55	55	56	55	55	56	55	55
Motor Constant	oz-in/sqrt W	4.8	4.8	4.7	4.8	4.8	4.7	4.8	4.8
	Nm/sqrt W	0.034	0.034	0.033	0.034	0.034	0.033	0.034	0.034
Torque Constant	oz-in/A	4.327	5.463	6.842	8.667	10.939	13.683	17.334	21.880
	Nm/A	0.031	0.039	0.048	0.061	0.077	0.097	0.122	0.155
Voltage Constant	V/krpm	3.20	4.04	5.06	6.41	8.09	10.12	12.82	16.18
	V/rad/s	0.031	0.039	0.048	0.061	0.077	0.097	0.122	0.155
Terminal Resistance	Ohms	0.82	1.31	2.08	3.30	5.24	8.32	13.2	21.0
Inductance	mH	0.16	0.26	0.41	0.64	1.04	1.60	2.60	4.16
No-Load Current	Amps (A)	0.035	0.028	0.022	0.017	0.014	0.011	0.009	0.007
No-Load Speed	RPM	5960	5920	5980	5950	5920	5980	5950	5920
Peak Current	Amps (A)	23.3	18.3	14.6	11.6	9.16	7.28	5.79	4.58
Peak Torque	oz-in	101	100	99	100	100	99	100	100
	Nm	0.7131	0.706	0.6989	0.706	0.706	0.6989	0.706	0.706
Coulomb Friction Torque	oz-in	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	Nm	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Viscous Damping Factor	oz-in/krpm	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
	Nm s/rad	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6	1.81E-6
Electrical Time Constant	ms	0.20	0.20	0.20	0.19	0.20	0.19	0.20	0.20
Mechanical Time Constant	ms	5.0	5.0	5.1	5.0	5.0	5.1	5.0	5.0
Thermal Time Constant	min	26	26	26	26	26	26	26	26
Thermal Resistance	Celsius/W	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ²	0.00080	0.00080	0.00080	0.00080	0.00080	0.00080	0.00080	0.00080
	kg-m ²	5.65E-6	5.65E-6	5.65E-6	5.65E-6	5.65E-6	5.65E-6	5.65E-6	5.65E-6
Weight (Mass)	oz	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
	g	453.6	453.6	453.6	453.6	453.6	453.6	453.6	453.6



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		Part/Model Number							
Specification	Units	4413 24.0 V	4413 30.3 V	4413 38.2 V	4413 48.0 V	4413 60.0 V	4413 76.4 V	4413 96.0 V	4413 121.2 V
Supply Voltage	VDC	24.0	30.3	38.2	48.0	60.6	76.4	96.0	121.2
Continuous Torque	oz-in	19	19	19	19	19	19	19	19
	Nm	0.1341	0.1341	0.1341	0.1341	0.1341	0.1341	0.1341	0.1341
Speed @ Cont. Torque	RPM	5300	5300	5330	5300	5300	5330	5300	5300
Current @ Cont. Torque	Amps (A)	3.96	3.13	2.50	1.98	1.57	1.25	0.99	0.78
Continuous Output Power	Watts (W)	75	75	75	75	75	75	75	75
Motor Constant	oz-in/sqrt W	5.9	5.9	5.8	5.9	5.9	5.8	5.9	5.9
	Nm/sqrt W	0.042	0.042	0.041	0.042	0.042	0.041	0.042	0.042
Torque Constant	oz-in/A	5.544	7.004	8.775	11.101	14.062	17.577	22.175	27.989
	Nm/A	0.039	0.049	0.062	0.078	0.099	0.124	0.157	0.198
Voltage Constant	V/krpm	4.10	5.18	6.49	8.21	10.4	13.0	16.4	20.7
	V/rad/s	0.039	0.049	0.062	0.078	0.099	0.124	0.157	0.198
Terminal Resistance	Ohms	0.89	1.42	2.26	3.58	5.68	9.04	14.3	22.7
Inductance	mH	0.19	0.30	0.47	0.74	1.20	1.88	2.96	4.80
No-Load Current	Amps (A)	0.027	0.022	0.017	0.014	0.011	0.009	0.007	0.006
No-Load Speed	RPM	5840	5840	5880	5840	5840	5890	5840	5840
Peak Current	Amps (A)	27.0	21.3	16.9	13.4	10.7	8.45	6.70	5.33
Peak Torque	oz-in	150	149	148	149	149	148	149	149
	Nm	1.059	1.0519	1.0449	1.0519	1.0519	1.0449	1.0519	1.0519
Coulomb Friction Torque	oz-in	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	Nm	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Viscous Damping Factor	oz-in/krpm	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033
	Nm s/rad	2.22E-6	2.22E-6	2.22E-6	2.22E-6	2.22E-6	2.22E-6	2.22E-6	2.22E-6
Electrical Time Constant	ms	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Mechanical Time Constant	ms	3.5	3.5	3.6	3.5	3.5	3.6	3.5	3.5
Thermal Time Constant	min	27	27	27	27	27	27	27	27
Thermal Resistance	Celsius/W	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ²	0.00086	0.00086	0.00086	0.00086	0.00086	0.00086	0.00086	0.00086
	kg-m ²	6.07E-6	6.07E-6	6.07E-6	6.07E-6	6.07E-6	6.07E-6	6.07E-6	6.07E-6
Weight (Mass)	oz	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
	g	510.3	510.3	510.3	510.3	510.3	510.3	510.3	510.3



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