



ISL Products International

DC MOTOR / GEAR MOTOR EVALUATION

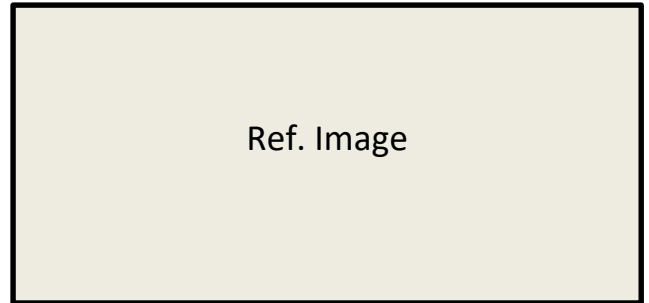
CUSTOMER MOTOR EVALUATION

Document Number:	ISL 031522
Customer:	<p>Company XYZ 123 Street Name Syosset, NY 11791</p> <p>Contact Name: Jane Doe</p> <p>Phone: xxx-xxx-xxxx</p> <p>Email: janedoe@email.com</p>
Test Information:	<p>Test Date: 01/01/2022</p> <p>Testing For: No-Load: speed, current On-Load: speed, current, power, torque, efficiency</p> <p>Application: Unknown</p> <p>Location: Melville, NY</p> <p>Test Engineer: Name</p>

**The data contained in this evaluation report is confidential and shall be only used by the people authorized for the purpose in which it has been supplied. This report shall not be disclosed to any party without the written consent of ISL Products International Ltd.*

Motor Sample Description

Diameter:	Ø 42 mm
Length (w/o Shaft):	
Customer PN:	
Voltage:	24VDC
Motor Type:	Brushed w/ Encoder
Gearhead Type:	Planetary



Quantity – No-Load:	100 pcs
Quantity – On-Load:	10 pcs

Tests Performed:

- 1. No-Load:** The test was run in free air, with no-load on the motor shaft.

Parameters Monitored:

- Voltage
- Speed
- Current

- 2. On-Load:** The test was run on our brake dynamometer, with a gradual load applied to the motor shaft.

Parameters Monitored:

- Voltage
- Speed
- Current
- Power
- Torque
- Efficiency

No Load Test Results

Quantity Tested: **14**

Reference Specs: **Speed (rpm)** **Current (mA)** **Noise**

500	< 500	OK
-----	-------	----

Motor Number:

1	482	410	OK
2	484	410	OK
3	486	400	OK
4	488	390	OK
5	491	410	OK
6	491	410	OK
7	491	410	OK
8	495	400	OK
9	499	400	OK
10	488	400	OK
11	481	395	OK
12	425	510	NOT GOOD
13	420	600	NOT GOOD
14	481	395	OK

Legend:	Acceptable	Concerning	Issue
----------------	------------	------------	-------

* Legend: Nominal performance tolerances are between 10% - 15% for most gear motors. Current draw less than nominal is typically not an issue.

* Noise Test: Subjective observation based on nominal operating sounds. Looking for abnormal noise levels and sounds.

On Load Test Results

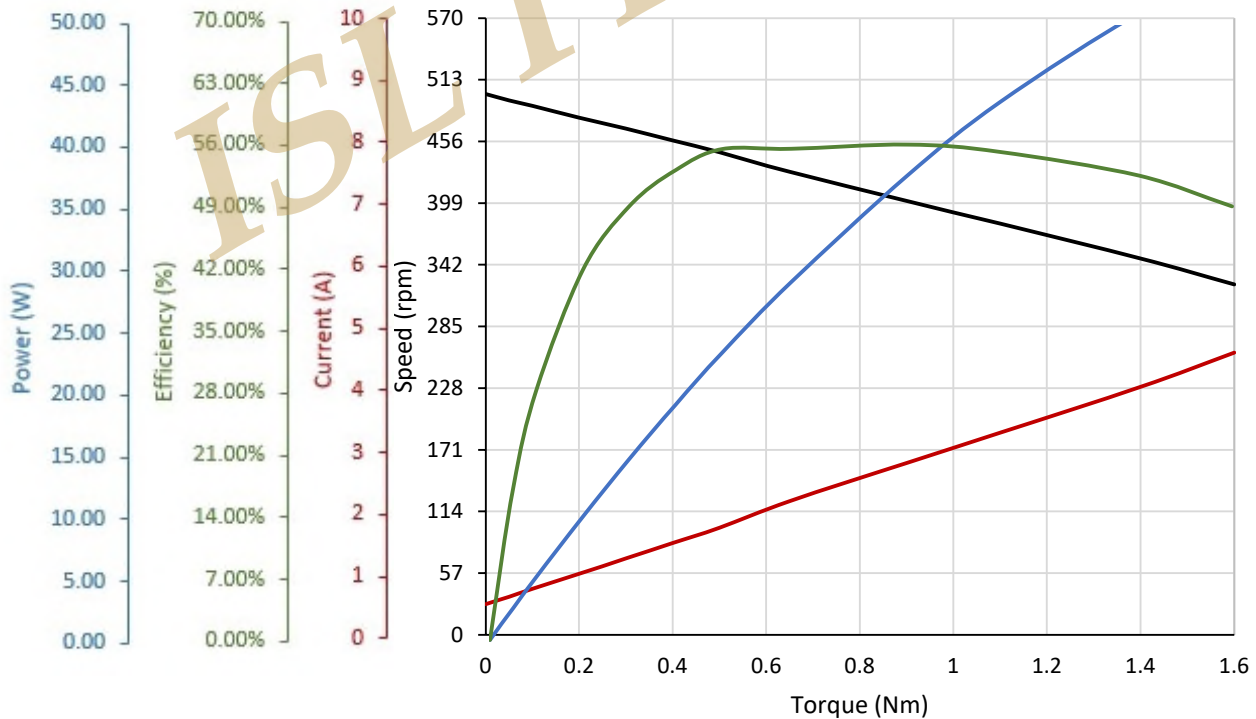
Expected / Nominal Performance

Quantity Tested: **2**

Reference Specs:

<u>Torque (Nm)</u>	<u>Torque (kg.cm)</u>	<u>Speed (rpm)</u>	<u>Current (A)</u>	<u>Power (W)</u>	<u>Efficiency</u>
0	0	500	0.5	0.00	0.00%
0.05	0.51	494	0.62	2.59	17%
0.1	1.02	489	0.75	5.12	28%
0.2	2.04	478	0.99	10.01	42%
0.3	3.06	468	1.24	14.70	49%
0.4	4.08	457	1.49	19.14	54%
0.5	5.10	446	1.74	23.35	56%
0.65	6.63	428	2.17	29.13	56%
0.9	9.18	401	2.79	37.79	56%
1.1	11.22	380	3.28	43.77	56%
1.4	14.28	348	4.02	51.02	53%
1.6	16.32	324	4.58	54.29	49%

Reference Performance Curve:



On Load Test Results

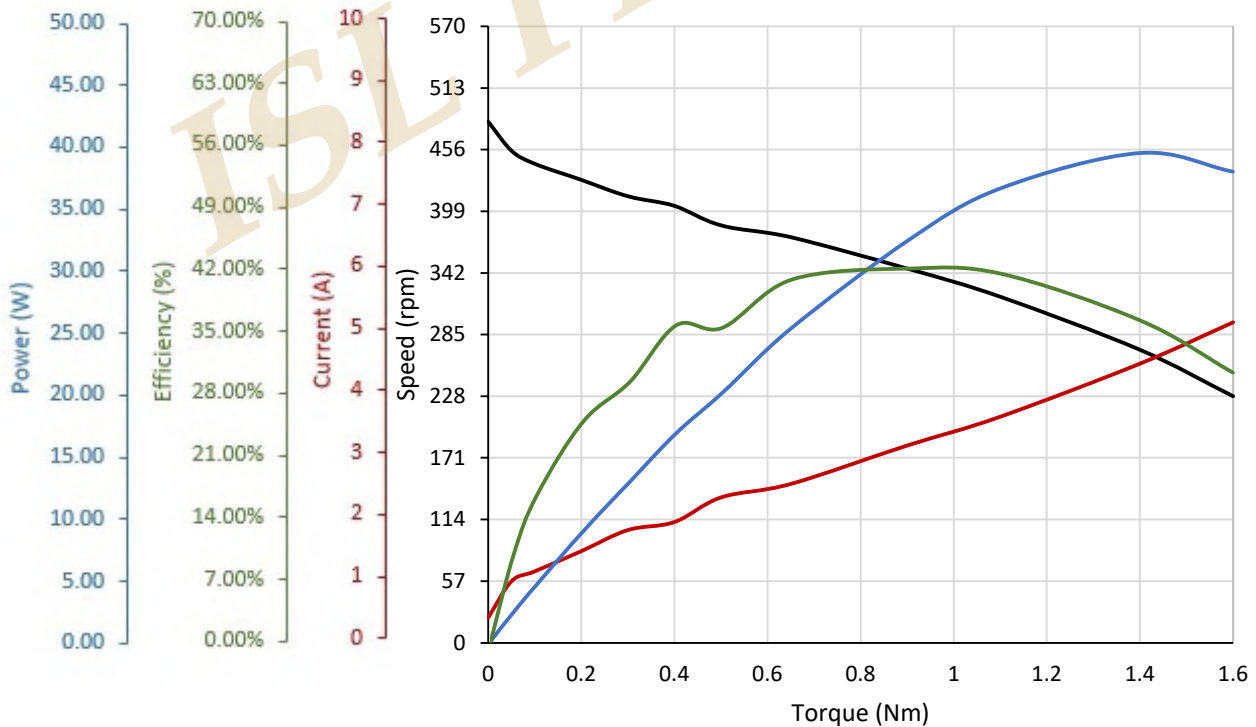
Motor ID: 1

Performance Results:

Torque (Nm) **Torque (kg.cm)** **Speed (rpm)** **Current (A)** **Power (W)** **Efficiency**

0	0.00	482	0.41	0.00	0%
0.05	0.51	455	1	2.38	10%
0.1	1.02	443	1.16	4.64	17%
0.2	2.04	428	1.49	8.96	25%
0.3	3.06	413	1.83	12.97	30%
0.4	4.08	404	1.96	16.92	36%
0.5	5.10	386	2.36	20.21	36%
0.65	6.63	375	2.58	25.53	41%
0.9	9.18	346	3.2	32.61	42%
1.1	11.22	320	3.67	36.86	42%
1.4	14.28	271	4.53	39.73	37%
1.6	16.32	228	5.2	38.20	31%

Performance Curve:



On Load Test Results

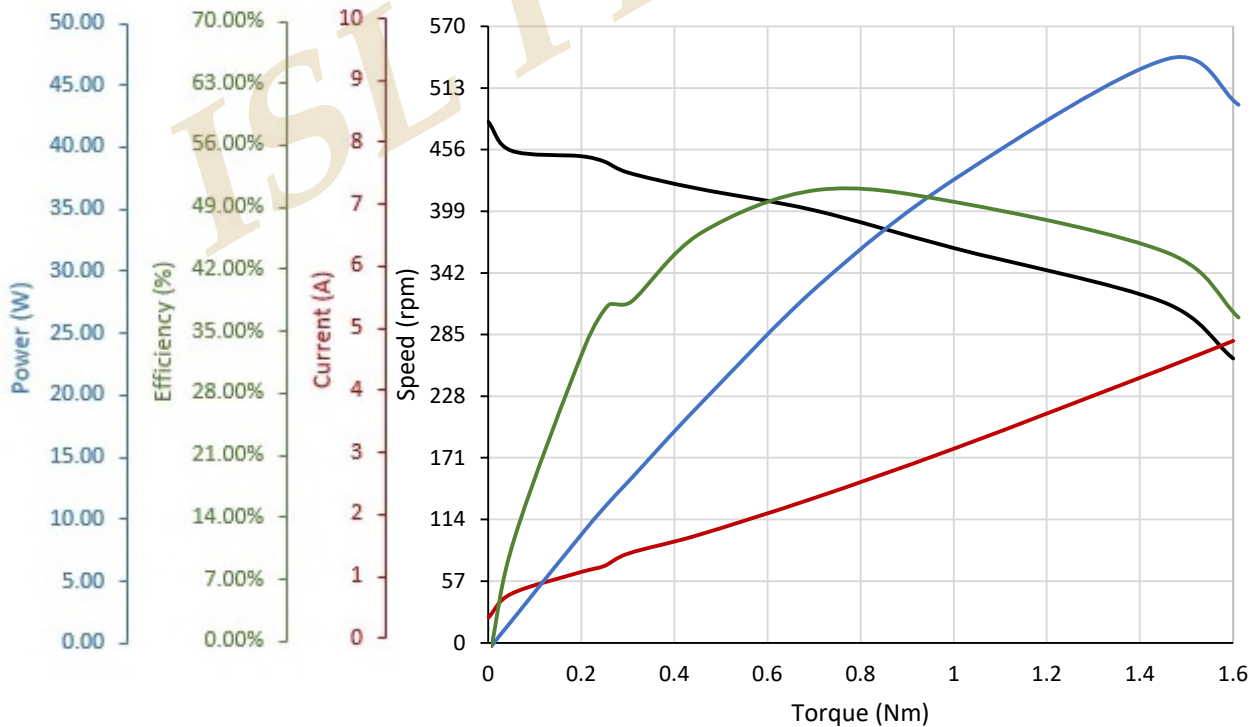
Motor ID: 2

Performance Results:

Torque (Nm) **Torque (kg.cm)** **Speed (rpm)** **Current (A)** **Power (W)** **Efficiency**

0	0.00	482	0.41	0.00	0%
0.05	0.51	455	0.8	2.38	12%
0.2	2.04	450	1.15	9.42	34%
0.25	2.55	445	1.25	11.65	39%
0.3	3.06	435	1.45	13.67	39%
0.45	4.59	420	1.75	19.79	47%
0.7	7.14	400	2.35	29.32	52%
1	10.20	365	3.15	38.22	51%
1.45	14.79	315	4.45	47.83	45%
1.6	16.32	263	4.9	44.07	37%

Performance Curve:



Disclaimer: *ISL Products is not an accredited agency for motor testing. Our dyno testing service is intended to provide our customers with performance data based on our in-house test equipment. Please keep in mind when evaluating any electric motor, the equipment being used is a large variable. The way load is applied to the motors, the sensors being used and other equipment can vary data from our results to any outside results. Typically when a performance curve is generated, there are a few specific points that are measured and the rest of the curve is then projected based on those initial calculations. This also leads to some outliers and variation from test to test. The main focus when evaluating multiple motors is to see how different motors perform on the same dyno setup focusing on overall consistency. If you insist that we test the actual physical stall conditions of a particular motor, please understand that this is essentially a destructive test as the motor may not perform adequately after this sort of test.*