PRODUCT SPECIFICATION

TSL-R-520-CODR

Brushed DC
Vibration Motor Series

12 V and 24 V options

6000 r/min OR 10000r/min

Double copper round head configuration

12 V **24 V**

Clean design. Reliable performance. Custom configurations available.

R-520-CODR Brushed DC Vibration Motor

Motor Model	TSL-R-520-14385	TSL-R-520-10770	TSL-R-520-20230	TSL-R-520-14460
Voltage Operating Range	9.0-14.0	14.5-26.0	9.0-14.0	14.5-26.0
Voltage Nominal	12	24	12	24
No Load Speed (r/min)	6000	6000	10000	10000
No Load Current (A)	0.078	0.035	0.091	0.041
Max Efficiency Speed (r/min)	4897	4877	8730	8701
Max Efficiency Current (A)	0.347	0.152	0.541	0.264
Max Efficiency Torque (g.cm)	53.8	57.4	43.96	47.43
Max Efficiency Output (W)	2.04	1.79	4.5	4.52
Max Power Speed (r/min)	3318	3334	5395	5274
Max Power Current (A)	0.73	0.31	1.57	0.83
Max Power Torque (g.cm)	146.6	153.7	152.7	176.4
Max Power Output (W)	4.17	3.56	9.12	9.72
Stall Torque (g.cm)	293.3	307.5	305.5	352.9
Stall Current (A)	1.545	0.663	3.222	1.701

Specifications are for reference only. Products can be customized according to customer requirements.

Performance Curve - 12 V / 6000 r/min

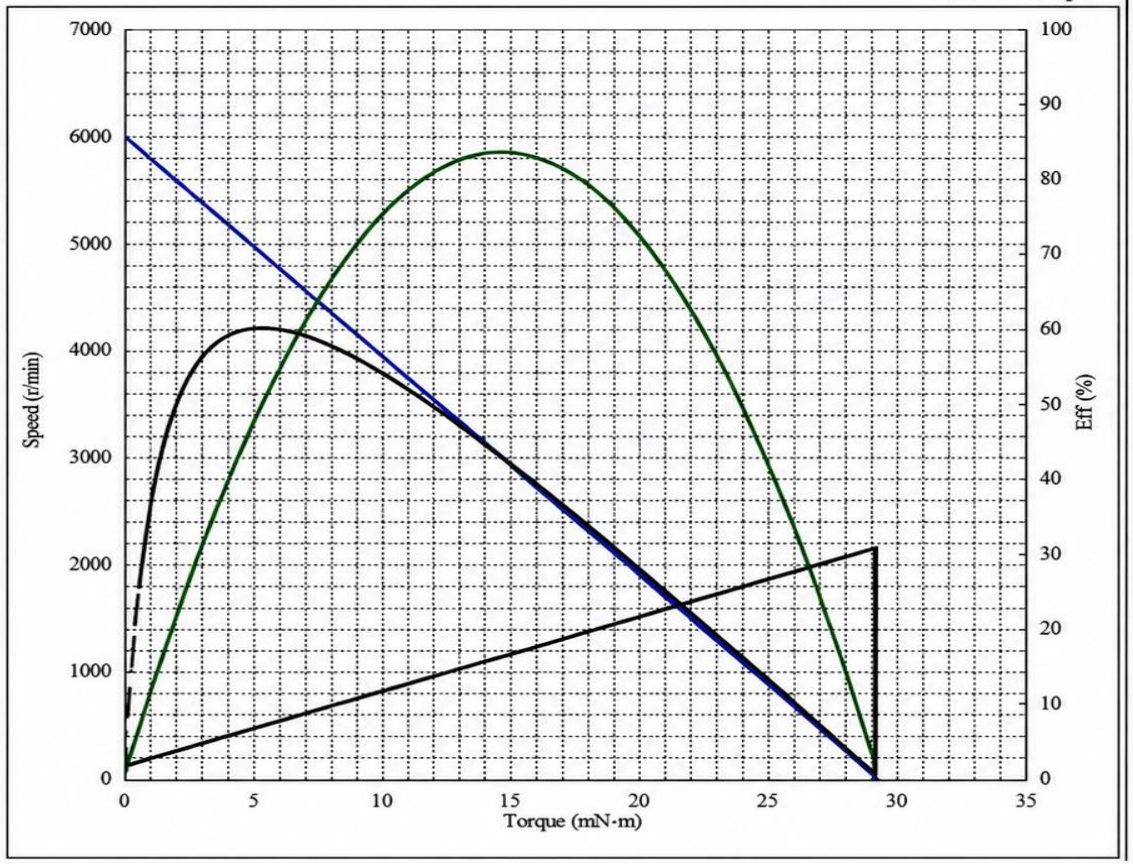
Date : 03.01.22

Full scale : 100 % Eff

5.0 Watts

5.0 Amp.

Model: R-520-14385



Performance (in an ambient temperature of 25-30 ° C)

Motor tested rapidly to prevent significant temperature rise.

At a constant voltage of:	12.0	Volts
Direction :	CCW	
At No Load		
Speed :	5998	r/min
Current :	0.078	AMPS
At stall (Extrapolated)		
Torque :	29.33	mN·m
Current :	1.545	AMPS
At maximum efficiency		
Efficiency:	49.0	%
Torque :	5.382	mN·m
Speed :	4897	r/min
Current :	0.347	AMPS
Output :	2.04	Watts
At maximum Power output		
Output :	4.178	Watts
Torque :	14.667	mN·m
Speed :	3318	r/min
Current :	0.73	AMPS

Characteristics

Torque constant K_t :	20.000	mN·m/AMP
E.M.F. constant Ec :	20.000	mV/rad/sec
Dynamic resistance:	7.7686	Ohms
Motor regulation Mr :	204.46	r/min/mN·m
Km	7.175670416	

Performance Curve - 12 V / 10000 r/min

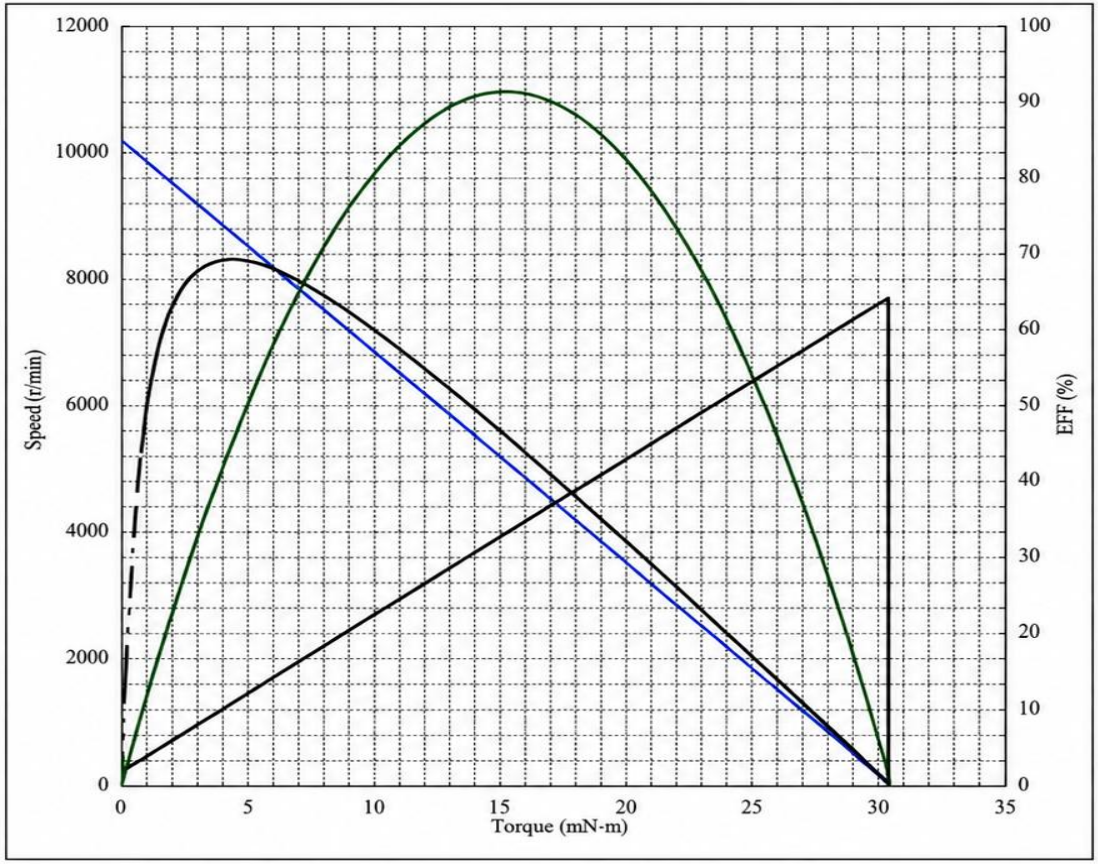
Date : 05.06.22

Full scale : ------ 100% Eff

----- 10.0 Watts

——— 5.0 Amp.

Model: R-520-20230



Performance (in an ambient temperature of 25.30° C)

Motor tested rapidly to prevent significant temperature rise.

At a constant voltage of :		12.0	Volts
Direction :		CCW	
At No Load			
	Speed :	10197	r/min
	Current :	0.091	AMPS
At stall (Extrapolated)			
	Torque :	30.55	mN-m
	Current :	3.222	AMPS
At maximum efficiency			
	Efficiency:	69.2	%
	Torque :	4.396	mN-m
	Speed :	8730	r/min
	Current :	0.541	AMPS
	Output :	4.50	Watts
At maximum Power output			
	Output :	9.128	Watts
	Torque :	15.276	mN-m
	Speed :	5395	r/min
	Current :	1.57	AMPS
Characteristics			
Torque constant K_t :		9.758	mN-m/AMP
E.M.F. constant Ec :		9.758	mV/rad/sec
	Dynamic resistance:	3.7245	Ohms
Motor regulation Mr :		333.78	r/min/mN-m
	Km	5.056148364	

Performance Curve - 24 V / 6000 r/min

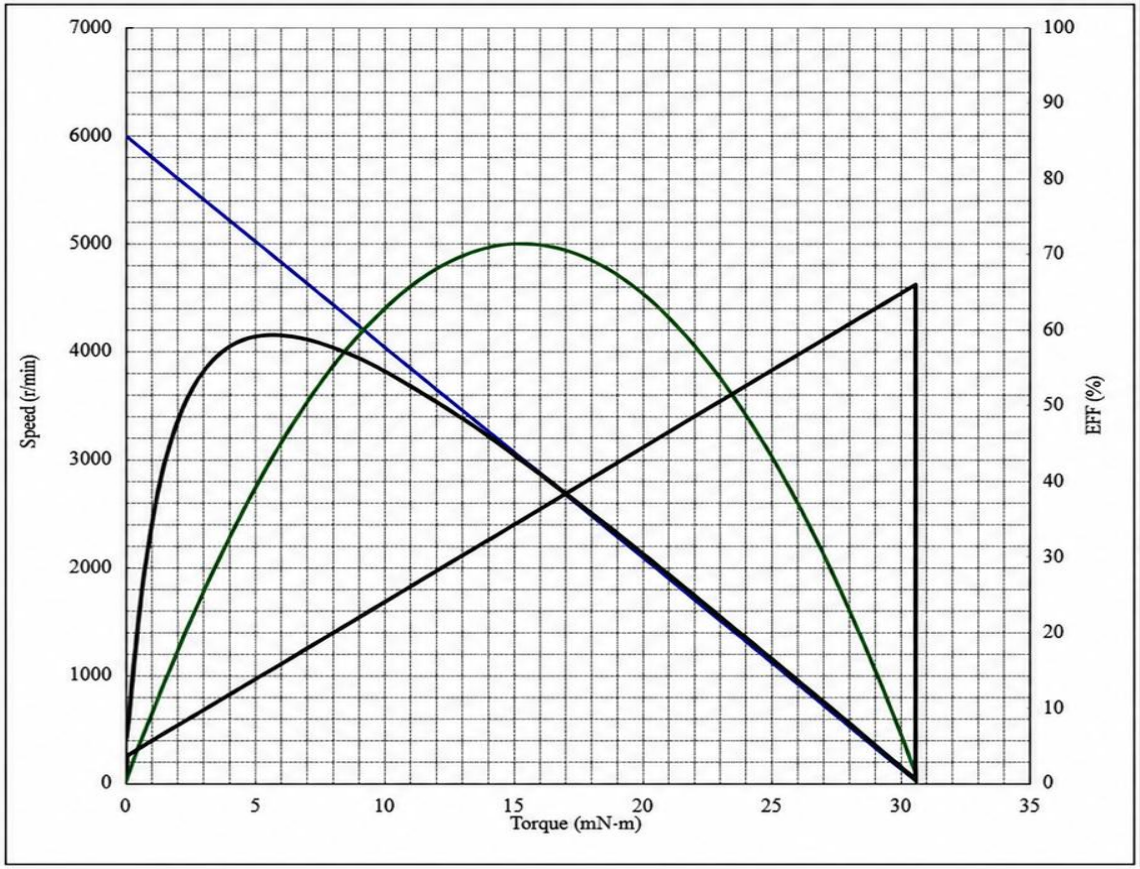
Date : 03.01.22

Full scale : 100 % Eff

5.0 Watts

1.0 Amp.

Model: R-520-10770



Performance (in an ambient temperature of 25-30° C)

Motor tested rapidly to prevent significant temperature rise.

At a constant voltage of :	24.0	Volts
Direction :	CCW	

At No Load

Speed :	5998	r/min
Current :	0.035	AMPS

At stall (Extrapolated)

Torque :	30.75	mN-m
Current :	0.663	AMPS

At maximum efficiency

Efficiency:	49.0	%
Torque :	5.747	mN-m
Speed :	4877	r/min
Current :	0.152	AMPS
Output :	1.79	Watts

At maximum Power output

Output :	3.567	Watts
Torque :	15.377	mN-m
Speed :	3334	r/min
Current :	0.31	AMPS

***Characteristics**

Torque constant K_t :	49.000	mN-m/AMP
E.M.F. constant Ec :	49.000	mV/rad/sec
Dynamic resistance:	36.2202	Ohms
Motor regulation Mr :	195.05	r/min-mN-m
Km	8.141867343	

Performance Curve - 24 V / 10000 r/min

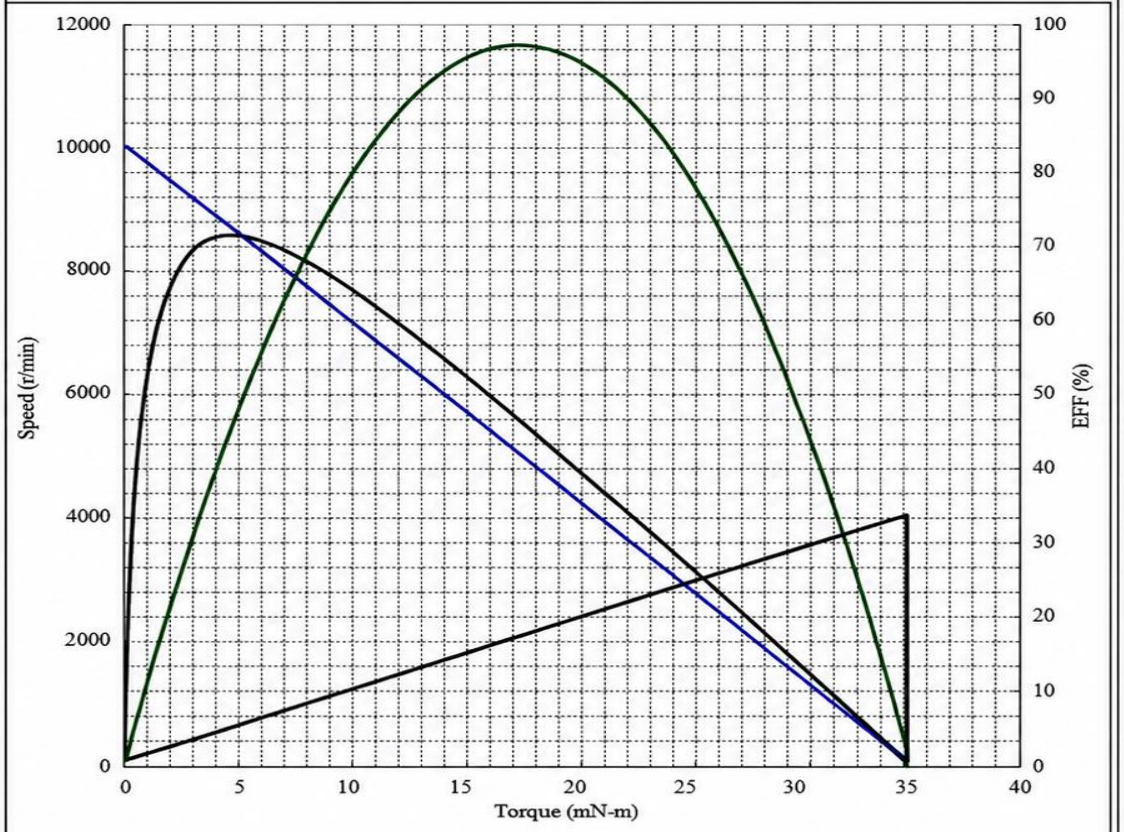
Date : 05/06/22

Full scale : ----- 100% Eff

----- 10.0 Watts

_____ 5.0 Amp.

Model: R-520-14460



Performance (in an ambient temperature of 25-30° C)

Motor tested rapidly to prevent significant temperature rise.

At a constant voltage of :	24.0	Volts
Direction :	CCW	
At No Load		
Speed :	10051	r/min
Current :	0.041	AMPS
At stall (Extrapolated)		
Torque :	35.29	mN-m
Current :	1.701	AMPS
At maximum efficiency		
Efficiency :	71.4	%
Torque :	4.743	mN-m
Speed :	8701	r/min
Current :	0.264	AMPS
Output :	4.52	Watts
At maximum Power output		
Output :	9.722	Watts
Torque :	17.647	mN-m
Speed :	5274	r/min
Current :	0.83	AMPS
Characteristics		
Torque constant K_t :	21.258	mN-m/AMP
E.M.F. constant Ec :	21.258	mN/rad/sec
Dynamic resistance :	14.1070	Ohms
Motor regulation Mr :	284.78	r/min/mN-m
Km	5.659932054	

Outline Dimensions - Double Round Copper Head

Applicable model: TSL-R-520-CODR