

MR15 Series (1.5" Diameter)



STANDARD

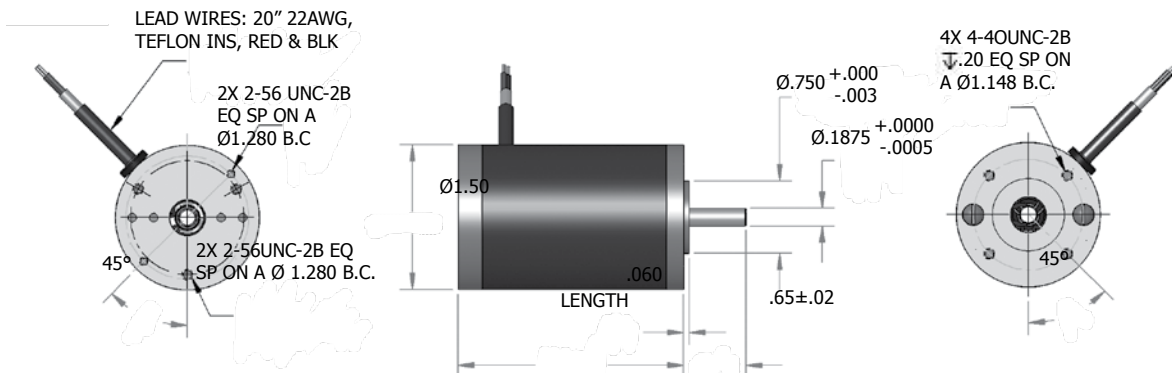


Speed: up to 10KRPM
 Output: power up to 50 Watts continuous
 Torque: up to 10 oz-in continuous

Mounting available in SAE, Metric or NEMA17

Features:

- Internal Brush holder
- Dual Stage Dynamic Balancing
- Diamond Finished Commutators
- ABEC 3 Double Shielded Ball Bearings
- Low Torque Ripple
- Stainless Steel Shafts
- 100% Inspection and Testing
- Tapered-Field Magnet Technology
- Fully Neutralized, Bidirectional Operation



OPTION	Length	
	Inches	MM
MR1509	2.344	59.5
MR1517	3.094	78.6
MR1525	3.969	100.8

CUSTOM

The MR Line features an internal brush holder design allowing this motor to fit into extremely compact areas. Motor capable of replacing many competitive designs.

Here are just a few applications it is being used on:

- Medical
- Military
- Aerospace
- Robotic

Call (800) 899-4372 to discuss your application with our engineers.

CUSTOM SAMPLE DESIGNS



AIRCRAFT
 UTILITY MOTOR
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FLIGHT
 CONTROLS
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Specifications available at www.dynetic.com

STEP 1 - CHOOSE POWER AND WINDING OPTIONS
 Select your options below and place their code in its corresponding block as shown on page 9

- MR** **MODEL OPTIONS** 15
- POWER OPTION**
 09 - 30 Watts
 17 - 40 Watts
 25 - 50 Watts
- WINDING OPTIONS**
 12 - 12 Volts
 24 - 24 Volts
 36 - 36 Volts
 48 - 48 Volts
- REAR OPTIONS**
 0 - None
 1 - 5 - Encoder Type
 6 - Brake Type
- OUTPUT OPTIONS**
 0 - None
 1 - Nema 17 Flange
 4 - 5 - Gearhead Type
- RATIO OPTIONS**
 Gearhead Ratio

MR15 PERFORMANCE CHART

Part Number			12V			24V			36V			48V		
Power Options			09	17	25	09	17	25	09	17	25	09	17	25
Rated Output Power	W	Watts	30	40	50	30	40	50	30	40	50	30	40	50
No Load Speed	Snl	RPM	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
Rated Speed	Sr	RPM	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700
Max Speed		RPM	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
Rated Torque	Tr	Oz-In	6	8	10	6	8	10	6	8	10	6	8	10
		Ncm	4.24	5.65	7.06	4.24	5.65	7.06	4.24	5.65	7.06	4.24	5.65	7.06
Peak Torque	Tp	Oz-In	43.0	58.8	77.8	43.0	58.8	77.8	43.0	58.8	77.8	43.0	58.8	77.8
		Ncm	30.0	41.7	54.9	30.0	41.7	54.9	30.0	41.7	54.9	30.0	41.7	54.9
Regulation	Rm	RPM/Oz-In	260	200	97	260	200	97	260	200	97	260	200	97
Thermal Rise **	Tpr	C/WATT	8.7	6.2	4.1	8.7	6.2	4.1	8.7	6.2	4.1	8.7	6.2	4.1
Thermal Time Constant	TT	Minutes	20	20	20	20	20	20	20	20	20	20	20	20
Mech. Time Constant	TM	mS	19	22	24	19	22	24	19	22	24	19	22	24
Armature Inertia	Ja	Oz-in Sec2	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Acceleration	Acc	Krad/S2	65	55	45	65	55	45	65	55	45	65	55	45
Rated Voltage Range	Vr	Volts	0-15	0-15	0-15	0-30	0-30	0-30	0-45	0-45	0-45	0-60	0-60	0-60
Back EMF	Ke	V/KRPM	1.4	1.7	1.5	2.7	2.8	3.0	4.4	4.5	4.5	5.5	5.7	6.0
No Load Current		Amps	0.53	0.65	0.74	0.27	0.26	0.36	0.12	0.16	0.23	0.13	0.13	0.17
Rated Current	Ir	Amps	3.25	3.66	4.50	1.68	2.22	2.45	1	1.38	1.63	0.83	1.09	1.22
Pulse Current	Ip	Amps	22.7	31.0	48.7	11.80	15.60	24.35	8.2	9.7	16.22	5.8	7.6	12.17
Torque Constant	Kt	Oz-In/Amp	1.89	2.30	2.04	3.65	3.75	4.08	5.99	6.08	6.08	7.42	7.7	8.17
		Ncm/Amp	1.33	1.61	1.44	2.58	2.67	2.88	4.19	4.29	4.29	5.24	5.44	5.80
Resistance	Ra	Ohms	0.72	0.87	0.31	2.70	1.80	1.23	6.40	3.80	2.55	10.26	5.94	4.73
Inductance	La	mH	0.40	0.62	0.30	1.6	1.1	1.19	3.4	2.8	4.69	6.3	4.6	4.69
Weight	Wm	Oz	8.4	12	16	8.4	12	16	8.4	12	16	8.4	12	16

* Custom voltages available
 * Values apply at rated voltage, torque & speeds
 ** Based on 10" x 10" x 1/4" Aluminum Plate Heatsink

MR15 REAR OPTIONS (ENCODERS / BRAKES)



STEP 2 - CHOOSE REAR OPTION

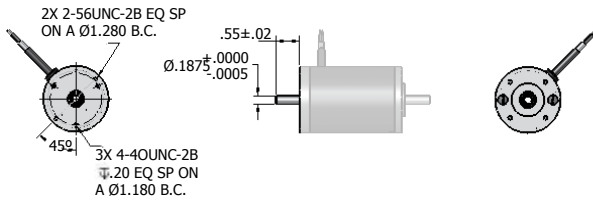
Select your options below and place their code in its corresponding block as shown on page 9

MR	MODEL OPTIONS 15	POWER OPTION 09 - 30 Watts 17 - 40 Watts 25 - 50 Watts	WINDING OPTIONS 12 - 12 Volts 24 - 24 Volts 36 - 36 Volts 48 - 48 Volts	REAR OPTIONS 0 - None 1 - 5 - Encoder Type 6 - Brake Type	OUTPUT OPTIONS 0 - None 1 - Nema 17 Flange 4 - 5 - Gearhead Type	RATIO OPTIONS Gearhead Ratio
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DRAWINGS

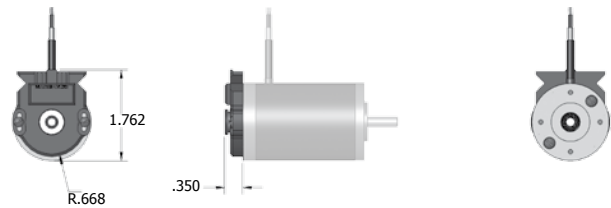
REAR OPTION 1 - REAR SHAFT

DETAILS BELOW



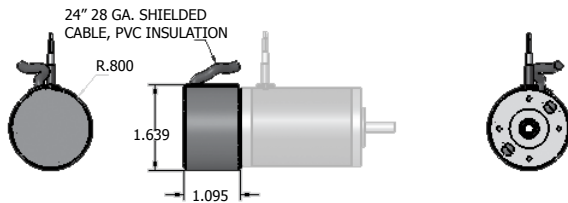
REAR OPTION 2 & 3 - ENCODER

DETAILS BELOW



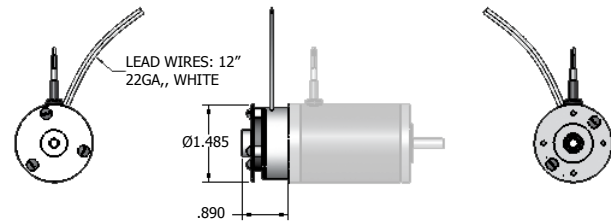
REAR OPTION 4 & 5 - ENCODER

DETAILS BELOW



REAR OPTION 6 BRAKE

DETAILS BELOW



SPECIFICATIONS

REAR OPTION 1 - REAR SHAFT

- .01875 shaft extends .59" $\pm .02$ from rear end cap.
- Custom options include flats, keyways, turn down or hollow shafts.

REAR OPTION 2 - ENCODER

- 500 Line, low profile, cost effective modular design in two channel output with index.
- Recommended connector is a Berg 90312-008

ENCODER PINOUT DATA

PIN1	GND	PIN 5	CH B
PIN 2	Z	PIN 6	NC
PIN 3	CH A	PIN 7	NC
PIN 4	+VCC	PIN 8	NC

REAR OPTION 3 - ENCODER

- 1000 Line, square wave two channel quadrature with index
- 8 pin connector

ENCODER PINOUT DATA

PIN1	GND	PIN 5	CH B
PIN 2	Z	PIN 6	NC
PIN 3	CH A	PIN 7	NC
PIN 4	+VCC	PIN 8	NC

REAR OPTION 4 - ENCODER

- 500 Line, dual quadrature output with index
- Complements and line driver, 24" cable

ENCODER PINOUT DATA

+5VDC	RED	CH A	GREEN
COMMON	BLACK	CH A'	RED/BLK
INDEX	WHITE	CH B	ORANGE
INDEX;	BLUE	CH B'	WHT/BLK

REAR OPTION 5 - ENCODER

- 1000 Line, dual quadrature output with index
- Complements and line driver, 24" cable

ENCODER PINOUT DATA

+5VDC	RED	CH A	GREEN
COMMON	BLACK	CH A'	RED/BLK
INDEX	WHITE	CH B	ORANGE
INDEX;	BLUE	CH B'	WHT/BLK

REAR OPTION 6 - FAILSAFE BRAKE

- Spring Applied Friction Brake.
- Failsafe brake is designed to hold or decelerate inertial loads when the voltage is turned off

BRAKE DATA

TORQUE	1 LB-IN
VOLTAGE	24 VDC
CURRENT	.170 AMPS
INERTIA	.0004 LB-IN ²

STEP 3 - CHOOSE OUTPUT / GEAR OPTIONS

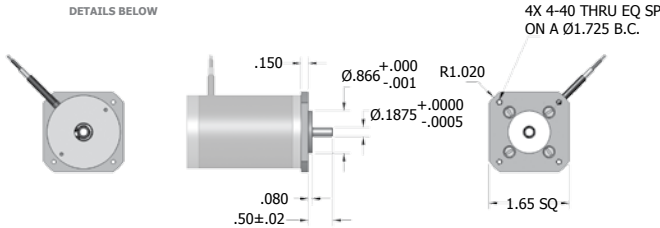
Select your options below and place their code in its corresponding block as shown on page 9

- MR** MODEL OPTIONS POWER OPTION WINDING OPTIONS REAR OPTIONS OUTPUT OPTIONS RATIO OPTIONS
- 15 09 - 30 Watts 12 - 12 Volts 0 - None 0 - None Gearhead Ratio
- 17 - 40 Watts 24 - 24 Volts 1 - 5 - Encoder Type 1 - Nema 17 Flange
- 25 - 50 Watts 36 - 36 Volts 6 - Brake Type 4 - 5 - Gearhead Type
- 48 - 48 Volts

DRAWINGS

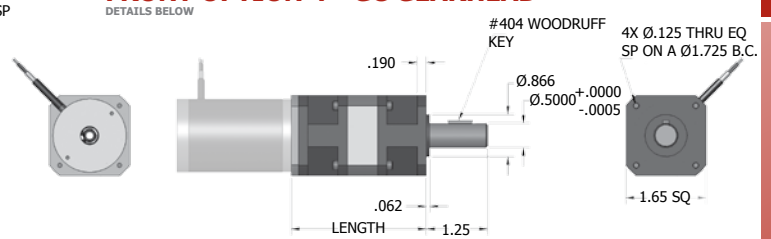
FRONT OPTION 1 - MOUNTING FLANGE

DETAILS BELOW



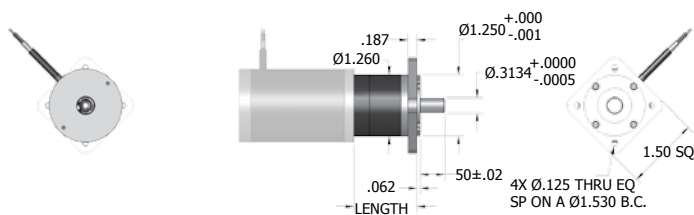
FRONT OPTION 4 - GC GEARHEAD

DETAILS BELOW



FRONT OPTION 5 - GI GEARHEAD

DETAILS BELOW



SPECIFICATIONS

FRONT OPTION 1 - MOUNTING FLANGE

NEMA17 Flange - (1.7 sq. or 40 mm) with a 5 mm shaft.

FRONT OPTION 4 - GC GEARHEAD

P/N	003	004	006	007	010	016	022	028	040	049	055	070	100	160	280	400	550	700
Ratio	3:1	4:1	6:1	7:1	10:1	16:1	22:1	28:1	40:1	49:1	55:1	70:1	100:1	160	280	400	550	700
Length Inches	2.32	2.32	2.32	2.32	2.32	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	3.46	3.46	3.46	3.46	3.46
Peak Efficiency	90%	90%	90%	90%	90%	85%	85%	85%	85%	85%	85%	85%	85%	80%	80%	80%	80%	80%
Torque Cont. In/lbs	167	158	143	119	56	169	171	172	174	172	156	128	52	181	183	185	165	136
Torque Multiplier	2.7	3.6	5.4	6.3	9	13.6	18.7	23.8	34	41.65	46.75	59.5	85	128	224	320	440	560
Peak Torque In/lbs	261	248	223	158	84	264	267	269	272	199	243	201	77	283	286	286	257	212
Backlash Arc Min Std/Low	6/3	6/3	6/3	6/3	6/3	10/5	10/5	10/5	10/5	10/5	10/5	10/5	10/5	14/7	14/7	14/7	14/7	14/7

High quality, high reliability true planetary design with extremely low backlash. All features as the GCP gearhead as well as sealed, high shaft loading capacity, Viton O-Ring at each joint and high strength steels. Hand picked and hand assembled.

5 - GI GEARHEAD

P/N	005	016	025	036	064	125	256	500	1024
Ratio	5.18:1	15.88:1	25.01:1	34.97:1	68.06:1	123.97:1	252.24:1	493.18:1	1011.84:1
Length Inches	0.926	1.296	1.296	1.296	1.662	1.662	2.032	2.032	2.032
Peak Efficiency	80%	75%	75%	75%	70%	70%	65%	65%	65%
Torque In/Oz	106	318	318	318	637	637	637	637	637
Torque Multiplier	4.1	11.91	18.76	26.23	47.64	86.78	163.96	320.57	657.70
Max Backlash °Deg	2	1.55	1.55	1.55	1.60	1.60	1.65	1.65	1.65

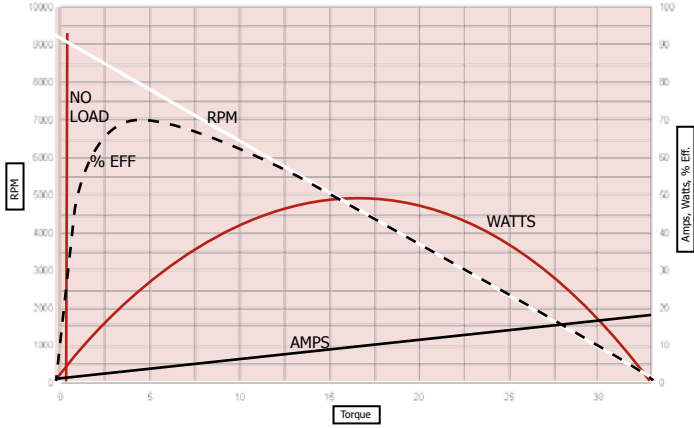
Modular designed gearhead allows virtually unlimited motor flange options. Customize the output flange and shaft to fit your current application or use our standard flange for efficiency. Other options include: Plastic gears for quiet operation, Special seals for advance IP classifications, Stainless output shaft.

MR15 TORQUE CURVES



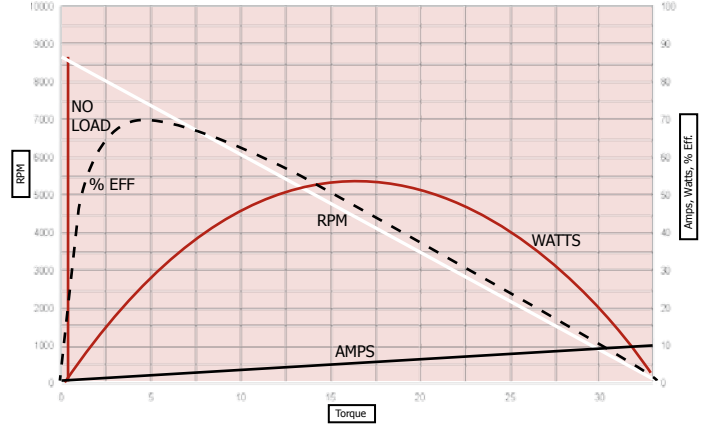
MR1509-12

12 Vdc
Motor Performance Chart



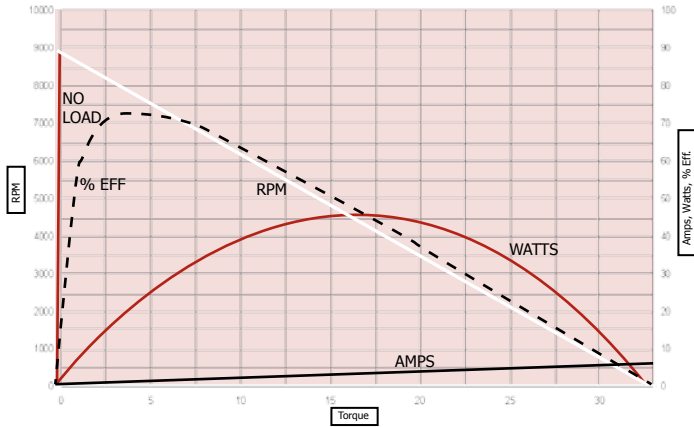
MR1509-24

24 Vdc
Motor Performance Chart



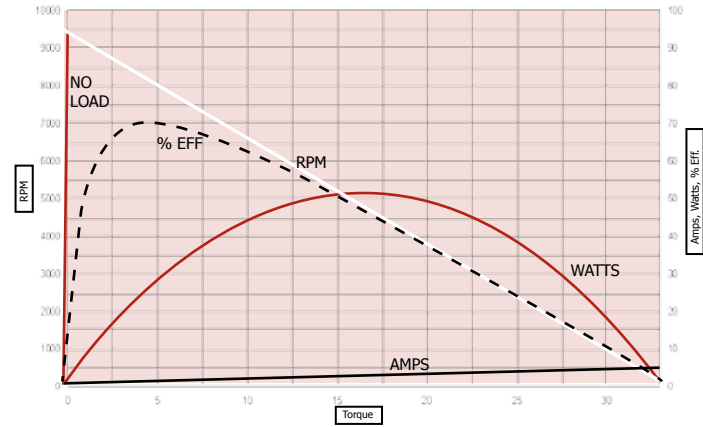
MR1509-36

36 Vdc
Motor Performance Chart



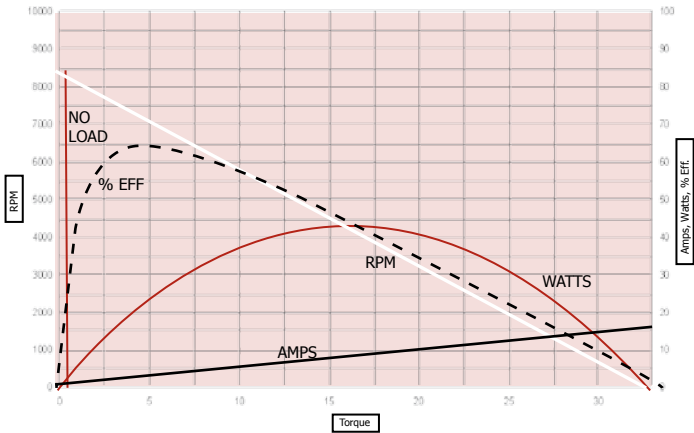
MR1509-48

48 Vdc
Motor Performance Chart



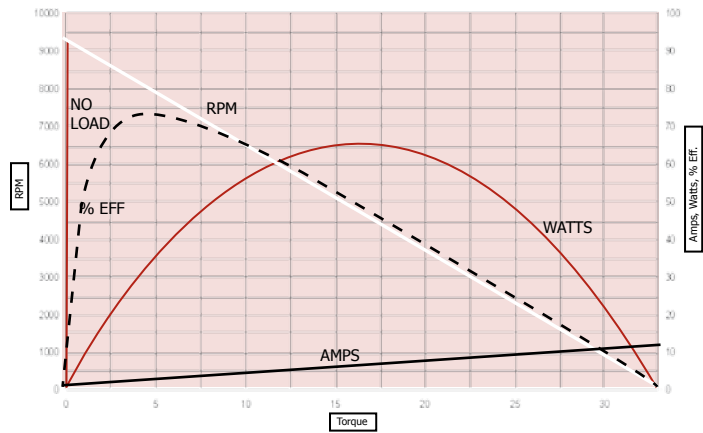
MR1517-12

12 Vdc
Motor Performance Chart



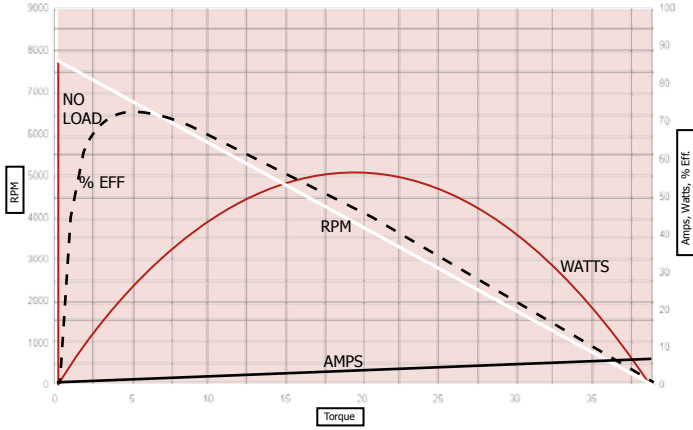
MR1517-24

24 Vdc
Motor Performance Chart



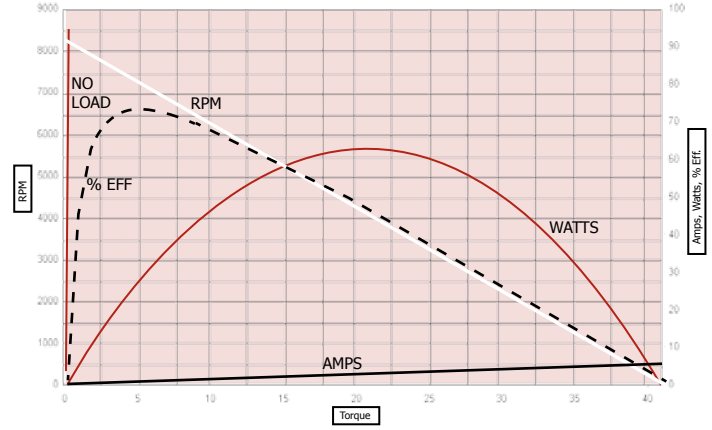
MR1517-36

36 Vdc
Motor Performance Chart



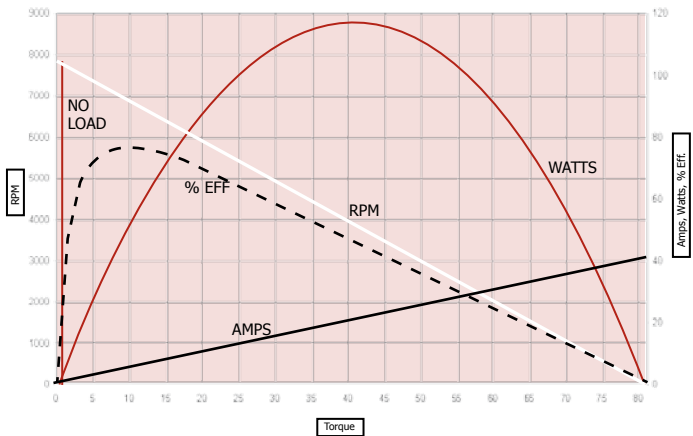
MR1517-48

48 Vdc
Motor Performance Chart



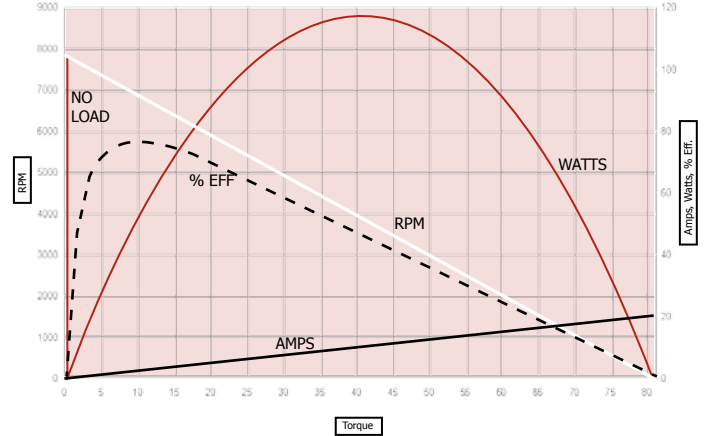
MR1525-12

12 Vdc
Motor Performance Chart



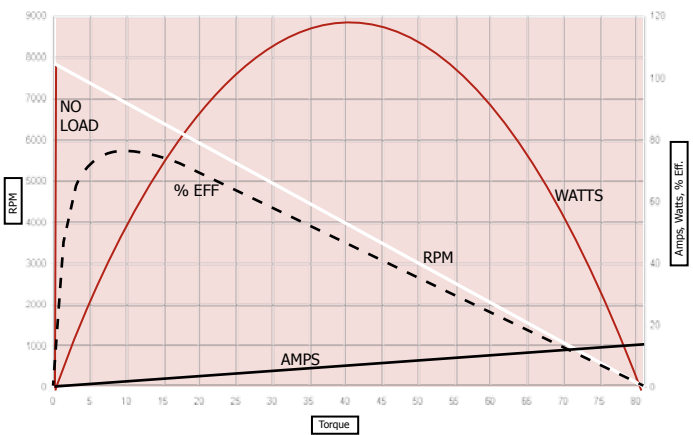
MR1525-24

24 Vdc
Motor Performance Chart



MR1525-36

36 Vdc
Motor Performance Chart



MR1525-48

48 Vdc
Motor Performance Chart

