

IronHorse® Permanent-Magnet DC Motors (SCR Rated) Model Overview

**MTPM-P10-1JK43****MTPM-P25-1JK44****MTPM-P33-1L18****MTPM-P75-1L18****MTPM-1P5-1M18**

IronHorse motors are manufactured by leading motor suppliers with decades of experience delivering high-quality motors to the demanding U.S. market. Our suppliers test the motors during production and after final assembly. This is how we can stand behind our IronHorse motors with a two-year warranty (motors 1/3hp and above only; motors 1/4hp and less have a one-year warranty).

IronHorse DC motors are designed for use on unfiltered SCR (Thyristor) type and PWM (pulse width modulated) type DC adjustable speed drives, and on across-the-line DC controls.

The IronHorse line of DC motors features:

- Replacement brush sets
- Simple two-lead connection
- Class F insulation

Features for Small-Frame Motors 1/4hp and Under

- Available models accommodate 12 VDC, 24 VDC, 90 VDC (110 VAC DC drive), and 180 VDC (230 VAC DC drive)
- Rated for SCR drives
- TENV enclosure
- IP40 environmental rating
- Class F insulation
- High energy ceramic magnets
- Double shielded ball bearings
- Dynamically-balanced armature
- Electrically-reversible
- 18in leads, or junction boxes with 8-inch leads
- Externally replaceable brushes
- Can be mounted in any orientation
- Not intended for DC power generation
- UL recognized (E365956), CSA certified (259724), RoHS

Features for Motors 1/3hp and Above

- Input power of 115 or 230 volts rectified AC can be used with an appropriate SCR drive
- Linear speed/torque characteristics over entire speed range
- High starting torque for heavy load applications
- Capable of dynamic braking for faster stops
- Available in TENV or TEFC housings, depending on model
- NEMA 56C flange mount
- Rolled steel shell frame / cast aluminum end bell
- Removable base (0.33–2hp)
- STABLE motor slide bases for adjustable mounting of NEMA motors from 56–449T
- Space-saving design
- Large, replaceable brushes for longer brush life
- Easy access to DC motor brushes (DC motors ship with one set of brushes installed and one set of spare brushes in the box)
- Large easy-to-wire junction box with rubber gasket and six-inch leads
- Heavy duty oversized ball bearings
- High tensile strength steel shaft
- Large, easy to read nameplate
- Electrically reversible
- Not intended for DC power generation
- Service Factor: 1.0
- Two year warranty
- cCSA_{US} certified (247070), CE, RoHS

Applications

- Conveyors
- Turntables
- Where adjustable speed and constant torque are required
- When dynamic braking and reversing capabilities are needed



IronHorse® DC Motors

MTPM Small-Frame Permanent Magnet DC Motors – 1/31 to 1/4hp



MTPM-P10-1JK43
with flying leads



MTPM-P25-1JK44
with junction box

Motor Specifications – MTPM Series Small-Frame Permanent Magnet DC Motors														
Part Number	Price	Voltage (VDC)	HP	Speed (rpm)	F/L Torque (oz-in)	F/L Current (A)	Shaft Dia (in)	Pilot Shaft (in)	Overhung Load (lb)	Axial/Thrust Load (lb)	Wiring Type	Replacement Brush	Weight (lb)	Drawing Links
<u>MTPM-P10-1JK43</u>	\$137.00	12/24	1/20	1746	28	4.8	5/16	1.00	85	70	Flying Leads	<u>MTPM-BRUSH-5</u>	2.8	<u>PDF</u>
<u>MTPM-P13-1JK42</u>	\$148.00		1/17	1825	32	5.4							3.3	<u>PDF</u>
<u>MTPM-P17-1JK43</u>	\$197.00		1/13	1841	42	7.5	1/2	2.02	130	150	Junction Box	<u>MTPM-BRUSH-4</u>	5.3	<u>PDF</u>
<u>MTPM-P25-1JK40</u>	\$205.00		1/6	1732	96	14.3							7.8	<u>PDF</u>
<u>MTPM-P25-1JK44</u>	\$205.00		1/5	1854	113	18.1							9	<u>PDF</u>
<u>MTPM-P03-1L18</u>	\$143.00	90	1/31	1797	18	0.4	5/16	1.00	85	70	Flying Leads	<u>MTPM-BRUSH-7</u>	2.8	<u>PDF</u>
<u>MTPM-P04-1L17</u>	\$151.00		1/26	1749	22	0.5							3.3	<u>PDF</u>
<u>MTPM-P05-1L19</u>	\$197.00		1/19	1917	28	0.7	1/2	2.02	130	150	Junction Box	<u>MTPM-BRUSH-6</u>	5.3	<u>PDF</u>
<u>MTPM-P13-1L19</u>	\$195.00		1/8	1917	73	1.4							7.8	<u>PDF</u>
<u>MTPM-P14-1L19</u>	\$212.00		1/7	1740	86	1.6							9	<u>PDF</u>
<u>MTPM-P07-1M24</u>	\$176.00	180	1/15	2440	28	0.4	1/2	2.02	130	150	Junction Box	<u>MTPM-BRUSH-6</u>	5.3	<u>PDF</u>
<u>MTPM-P13-1M19</u>	\$212.00		1/8	1865	73	0.7							7.8	<u>PDF</u>
<u>MTPM-P14-1M18</u>	\$212.00		1/7	1828	84	0.8							9	<u>PDF</u>



IronHorse® DC Motors

56C Frame TEFC/TENV Motors – DC – 1/3 to 2hp



Motor Specifications – DC 56C Frame Motors – 1800rpm											
Part Number	Price	HP	Base RPM	Armature Voltage	Housing	NEMA Frame	Service Factor	F.L. Amps	Weight (lb)	Drawing Links	
MTPM-P33-1L18	\$253.00	1/3	1800	90 VDC	TENV	56C flange mount	1.0	3.5	17.70	PDF	
MTPM-P50-1L18	\$326.00	1/2							5.2	20.74	PDF
MTPM-P75-1L18	\$369.00	3/4							7.8	25.30	PDF
MTPM-001-1L18	\$409.00	1							10.4	28.36	PDF
MTPM-1P5-1L18	\$443.00	1-1/2							15.4	34.97	PDF
MTPM-P33-1M18	\$250.00	1/3		180 VDC	TENV				1.75	17.60	PDF
MTPM-P50-1M18	\$324.00	1/2							2.6	20.74	PDF
MTPM-P75-1M18	\$369.00	3/4							3.9	25.58	PDF
MTPM-001-1M18	\$409.00	1							5.2	28.32	PDF
MTPM-1P5-1M18	\$443.00	1-1/2							7.7	35.70	PDF
MTPM-002-1M18	\$705.00	2							9.8	61.95	PDF

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product.

Performance Data – DC 56C Frame Motors – 1800rpm																	
Part Number	HP	Armature Voltage	Torque (lb-ft)	Form Factor *	Ambient Temp.	Insulation Class	Ball Bearings		Mounting	Wire / Housing	Shaft	Constant Torque Speed Range	Overall Speed Range	Base / Type	Paint Color	Rotor Inertia (kg·m ²)	Efficiency (%)
			Full Load				DE Bearing	ODE Bearing									
MTPM-P33-1L18	1/3	90 VDC	0.97	1.35	40°C (104°F)	F	6203	6203	Top Mounted	Junction Box	Keyed	90-1800rpm	0-2000rpm	Rigid Removable	Gray	0.01956	79
MTPM-P50-1L18	1/2		1.46													0.02365	
MTPM-P75-1L18	3/4		2.19													0.02795	
MTPM-001-1L18	1		2.92													0.03225	
MTPM-1P5-1L18	1-1/2		4.38													0.04945	
MTPM-P33-1M18	1/3	180 VDC	0.97													0.01956	79
MTPM-P50-1M18	1/2		1.46													0.02365	80
MTPM-P75-1M18	3/4		2.19													0.02795	
MTPM-001-1M18	1		2.92													0.03225	
MTPM-1P5-1M18	1-1/2		4.38													0.04945	81
MTPM-002-1M18	2		5.84													0.09675	85

* See additional information in Form Factor Table.

Form Factor

The voltage used to power a permanent magnet (PM) DC motor is not pure DC; it is derived by rectifying a supplied AC voltage. The resulting DC voltage has a ripple that is related to the frequency of the AC input.

Form factor is the ratio of I_{rms} to I_{dc} , and it indicates how close the driving voltage is to pure DC. The form factor for a DC battery is 1.0. The higher the form factor is above 1.0, the more it deviates from pure DC. The Form Factor Table shows examples of commonly used voltages.

Form factor should not exceed 1.40 for continuous operation. Half wave rectification is not recommended, as it drastically increases form factor.

Operating Ironhorse PMDC motors with DC voltages with form factors higher than 1.40 can result in premature brush failure and excessive motor heating.

Form Factor Table

Form Factor	DC Voltage Source
1.0	Battery (pure DC)
1.05 *	Pulse width modulation (PWM)
1.40 **	Full wave rectification (1-phase)
1.9 ***	Half wave rectification (1-phase) **

* All DC-input IronHorse GSD series DC drives are 1.05.
IronHorse AC-input GSD5 DC drive is 1.05.

** 1-phase full wave rectification is the most common form of DC drive in 0.33–2hp range. All IronHorse GSD series DC drives are 1.40 or better.

*** Not Recommended.



56C Frame Motors – DC – 1/3 to 2hp – Accessories



DC motor brushes

Brushes commutate the incoming current in a DC motor. All IronHorse PMDC motors are shipped with a set of brushes in the motor. An extra set of brushes is included in the box. The brushes below can be ordered for spare.

IronHorse DC brushes should be changed at a maximum interval of 2500 hours motor runtime. When changing brushes, always change them as a set (never change only one brush).

DC Motor Accessories							
Part Number	Price	Description	Applicable Motor Type	Rated Voltage	Motor HP	Brush Materials	Dimension L x W x H
<u>MTPM-BRUSH-1</u>	\$15.50	Brushes with springs, package of 2	IronHorse MTPM	90 VDC 180 VDC	1/3–1-1/2hp	Resin class Graphite	0.75in x 0.27in x 0.70in 19 mm x 6.9mm x 18mm
<u>MTPM-BRUSH-2</u>	\$20.00			180 VDC	2hp		0.71in x 0.49in x 0.70in 18mm x 12mm x 18mm
<u>MTPM-BRUSH-3</u>	\$18.00			90 VDC	1-1/2hp		0.73in x 0.35in x 0.63in 19mm x 8.9mm x 16mm

All IronHorse 56C-frame DC motors ship with one set of brushes installed and one extra set in the box.



IronHorse® VP1 DC Gearmotors

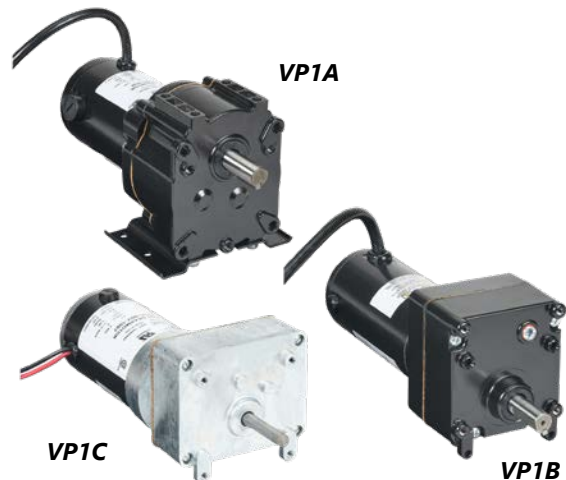
Series VP1 Parallel Shaft Gearmotors – 90 VDC

Torque range to 280 in-lbs and Speed range to 165rpm

Model Overview

IronHorse DC gearmotors are manufactured in the U.S.A. by a leading motor supplier with over 75 years experience delivering high-quality motors and gearmotors to the demanding U.S. market. VP1 series gearmotors provide 90 VDC motor voltage with new industry standard torque and speed ranges. Our supplier does 100% dynamic testing of the gearmotors before shipment.

IronHorse DC gearmotors are designed for use with adjustable SCR controls and drives or with PWM (pulse width modulated) adjustable speed drives. The motors can also be started “across-the-line” with a DC power source, but the system may see a sudden high current surge.



Gearmotor Features

- Available in 90 VDC
- Torque ranges from 13 – 280 in-lbs
- Speed ranges from 7 – 165rpm
- TENV enclosure
- Metal gears for long service life
- Reduced noise design
- IP40 environmental rating
- Class F insulation
- SCR rated
- Rugged diecast aluminum design
- VP1A, VP1VB - 36" Jacketed power cord; VP1C - 18in flying leads
- Externally replaceable DC brushes; available for purchase
- Double-shielded bearings
- Dynamically balanced armature
- Electrically reversible
- Orientation restrictions vary depending on model
- Not intended for DC power generation
- UL recognized (E365956), CSA certified (259724), RoHS

Applications

- Conveyors
- Turntables
- Pick and place
- Indexers
- Small machinery
- Where reduced speed and/or increased torque are required



IronHorse® VP1 DC Gearmotors

VP1A Parallel Shaft Gearmotors – 90 VDC, 1/20 to 1/4hp



VP1A Features:

- Torque range: 28 - 280 in-lbs
- Speed range: 18 - 165rpm
- Permanent lubrication (oil)
- 36" jacketed power cord
- Foot or Face mount



VP1A-90V-2034

Gearmotor Specifications – VP1A Series Parallel Shaft													
Part Number	Price	Voltage (VDC)	Motor HP	Speed (rpm)	Gear Ratio	F/L Torque (lb-in)	F/L Current (A) *	Shaft Dia (in)	Overhung Load (lb)	Axial/Thrust Load (lb)	Replacement Brush	Weight (lb)	Drawing Link
VP1A-90V-2034	\$359.00	90	1/20	34	57.7:1	82	0.94	5/8	150	75	MTPM-BRUSH-6	9	PDF
VP1A-90V-2051	\$359.00			51	34:1	55							PDF
VP1A-90V-2111	\$359.00			111	17.5:1	28							PDF
VP1A-90V-7018	\$359.00		1/8	18	103:1	150	0.82					12	PDF
VP1A-90V-7021	\$362.00			21	88:1	280	1.30						PDF
VP1A-90V-7026	\$362.00			26	69:1		1.58						PDF
VP1A-90V-7032	\$362.00			32	58:1	220	1.50						PDF
VP1A-90V-7054	\$362.00			54	34:1	138	1.51						PDF
VP1A-90V-7061	\$362.00			61	30:1	113	1.42						PDF
VP1A-90V-7091	\$362.00			91	20:1	86	1.58						PDF
VP1A-90V-7165	\$362.00			165	11:1	47	1.57						PDF
VP1A-90V-8042	\$402.00		1/4	42	57.7:1	280	2.45					13	PDF
VP1A-90V-8083	\$402.00			83	30:1	160	2.53						PDF

* Current must be limited so that it does not exceed 125% of the gearmotor rated current.

Mounting Orientation Guidelines

Shaft Horizontal Rightside Up	Shaft Vertical Down	Shaft Vertical Up	Shaft Horizontal Upside Down	Shaft Horizontal Base Rolled 90°



IronHorse® VP1 DC Gearmotors

VP1B and VP1C Parallel Shaft Gearmotors – 90 VDC, 1/50 to 1/11hp



VP1B Features:

- Torque range: 20 - 100 in-lbs
- Speed range: 20 - 139rpm
- Permanent lubrication (oil)
- 36" jacketed power cord
- Face mount only

VP1C Features:

- Torque range: 13 - 50 in-lbs
- Speed range: 7 - 94rpm
- Permanent lubrication (grease)
- 18" flying leads
- Face mount only



VP1B-90V-2037



VP1C-90V-1007

Gearmotor Specifications – VP1B and VP1C Series Parallel Shaft

Part Number	Price	Voltage (VDC)	Motor HP	Speed (rpm)	Gear Ratio	F/L Torque (lb-in)	F/L Current (A) *	Shaft Dia (in)	Overhung Load (lb)	Axial/Thrust Load (lb)	Replacement Brush	Weight (lb)	Drawing Link
<u>VP1B-90V-2037</u>	\$332.00	90	1/25	37	79:1	74	0.67	1/2	150	75	<u>MTPM-BRUSH-5</u>	6	<u>PDF</u>
<u>VP1B-90V-2139</u>	\$332.00			139	16:1	20	0.63						<u>PDF</u>
<u>VP1B-90V-4020</u>	\$332.00		1/17	20	102:1	100	0.50						<u>PDF</u>
<u>VP1B-90V-4071</u>	\$332.00			71	31:1	40	0.64						<u>PDF</u>
<u>VP1B-90V-5071</u>	\$332.00		1/11		52:1	83	1.29						<u>PDF</u>
<u>VP1B-90V-5139</u>	\$332.00			139	24:1	42	1.19						<u>PDF</u>
<u>VP1C-90V-1007</u>	\$230.00	90	1/50	7	386:1		0.15	5/16	150	75	<u>MTPM-BRUSH-7</u>	6	<u>PDF</u>
<u>VP1C-90V-1011</u>	\$230.00			11	269:1	50	0.19						<u>PDF</u>
<u>VP1C-90V-1021</u>	\$230.00		1/32	21	120:1		0.28						<u>PDF</u>
<u>VP1C-90V-2029</u>	\$230.00		1/25	29	83.5:1	40	0.31						<u>PDF</u>
<u>VP1C-90V-2047</u>	\$230.00			47	55:1	26	0.33						<u>PDF</u>
<u>VP1C-90V-2094</u>	\$230.00			94	26:1	13	0.31						<u>PDF</u>

* Current must be limited so that it does not exceed 125% of the gearmotor rated current.

Mounting Orientation Guidelines

Shaft Horizontal Rightside Up	Shaft Vertical Down	Shaft Vertical Up	Shaft Horizontal Upside Down	Shaft Horizontal Base Rolled 90°



IronHorse® MTG DC Gearmotors

Series MTG Gearmotors – 1/19 to 1/5hp

Model Overview

IronHorse DC gearmotors are manufactured in the U.S.A. by a leading motor supplier with over 75 years experience delivering high-quality motors and gearmotors to the demanding U.S. market. MTG series provides a variety of parallel shaft and right angle shaft gearmotors in voltage ranges from 12 - 180 VDC. Our supplier does 100% dynamic testing of the gearmotors before shipment.

IronHorse DC gearmotors are designed for use on unfiltered SCR (Thyristor) type rectified AC input. They may also be used with PWM (pulse width modulated) type DC adjustable speed drives, and in across-the-line applications.



Applications

- Conveyors
- Turntables
- Pick and place
- Indexers
- Small machinery
- Where reduced speed and/or increased torque are required

General Features

- Available in 12, 24, and 90 VDC
- Available from 1/19 to 1/5hp
- Available with parallel or right-angle gear shafts

Gearmotor Features

- TENV enclosure
- IP40 environmental rating
- Class F insulation
- SCR rated
- Externally-replaceable brushes
- Double-shielded bearings
- Dynamically-balanced armature
- Electrically-reversible
- 18-inch leads, or junction box with 8-inch Leads
- Replacement components are available
- Orientation restrictions vary depending on model. See illustrations for details
- Not intended for DC power generation
- UL recognized (E365956), CSA certified (259724), RoHS



IronHorse® MTG DC Gearmotors

MTGP Parallel Shaft Gearmotors – 1/17 to 1/15hp

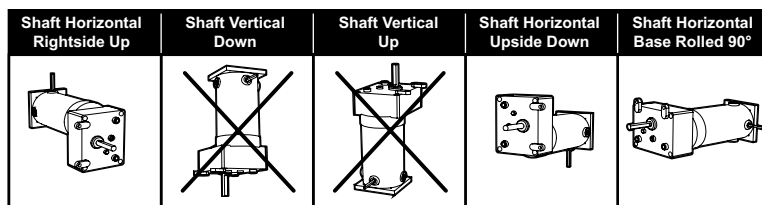


MTGP-P06-1J008

Gearmotor Specifications – MTGP Series Parallel Shaft Gearmotors																
Part Number	Price	Voltage (VDC)	Motor HP	Speed (rpm)	Gear Ratio	F/L Torque (in-lb)	F/L Current (A) *	Shaft Dia (in)	Overhung Load (lb)	Axial/ Thrust Load (lb)	Replacement Brushes	Weight (lb)	Gearbox Features	Drawing Link		
MTGP-P06-1L008	\$253.00	90	1/17	8.4	386:1	50	0.19	5/16	50	None (not suitable for applications with axial/ thrust loading)	MTPM-BRUSH-7	4	<ul style="list-style-type: none">• Grease lubrication **• Sleeve bearings• 18-inch wiring leads• Face mounted	PDF		
MTGP-P06-1L012	\$254.00			12	269:1	50	0.23							PDF		
MTGP-P06-1L037	\$254.00			37	83:1	45	0.40							PDF		
MTGP-P06-1L055	\$236.00			55	55:1	45	0.54							PDF		
MTGP-P06-1L114	\$249.00			114	26:1	26	0.61							PDF		
MTGP-P06-1J008	\$236.00	12	1/16	7.9	386:1	50	1.39				MTPM-BRUSH-5			PDF		
MTGP-P06-1J024	\$254.00			24	120:1	50	2.41							PDF		
MTGP-P06-1J034	\$258.00			34	83:1	45	2.86							PDF		
MTGP-P06-1J050	\$236.00			50	55:1	45	3.88							PDF		
MTGP-P06-1J097	\$237.00			97	26:1	36	5.68							PDF		

* Current must be limited so that it does not exceed 125% of the gearmotor rated current. ** Permanently lubricated. Replacement parts are available, as shown in “Replacement Parts for MTGP and MTGR DC Gearmotors” subsection.

Mounting Orientation Guidelines





IronHorse® DC Gearmotors

MTGP Parallel Shaft Gearmotors – 1/17 to 1/5hp

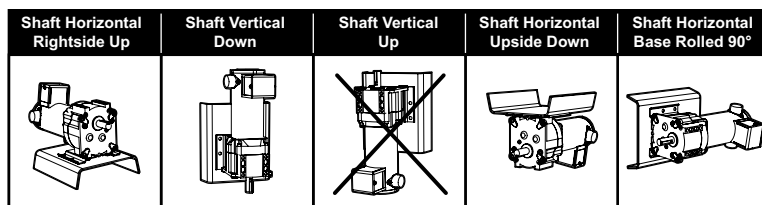


MTGP-P20-1J026

Gearmotor Specifications – MTGP Series Parallel Shaft Gearmotors																
Part Number	Price	Voltage (VDC)	Motor HP	Speed (rpm)	Gear Ratio	F/L Torque (in-lb)	F/L Current (A) *	Shaft Dia (in)	Overhung Load (lb)	Axial/ Thrust Load (lb)	Replacement Brushes	Weight (lb)	Gearbox Features	Drawing Link		
MTGP-P14-1L026	\$415.00	90	1/7	26	69:1	280	1.58	5/8	150	200	MTPM-BRUSH-6	11.4	<ul style="list-style-type: none">• Oil lubrication **• Needle bearings• Junction box with 8-inch wiring leads• Face mounted or foot mounted• Designed to AGMA standards	PDF		
MTGP-P14-1L039	\$415.00			39	46:1	189	1.59							PDF		
MTGP-P14-1L061	\$403.00			61	30:1	130	1.59							PDF		
MTGP-P14-1L091	\$403.00			91	20:1	86	1.58							PDF		
MTGP-P14-1L165	\$403.00			165	11:1	47	1.57							PDF		
MTGP-P20-1J026	\$426.00	12	1/5	26	69:1	280	12.60				MTPM-BRUSH-4			PDF		
MTGP-P20-1J037	\$426.00			37	46:1	245	15.80							PDF		
MTGP-P20-1J056	\$417.00			56	30:1	168	15.70							PDF		
MTGP-P20-1J084	\$417.00			84	20:1	112	15.70							PDF		
MTGP-P20-1J154	\$391.00			154	11:1	61	15.60							PDF		
MTGP-P20-1K018	\$417.00	24	1/5	18	110:1	280	4.41				MTPM-BRUSH-4			PDF		
MTGP-P20-1K036	\$417.00			36	46:1	245	7.89							PDF		
MTGP-P20-1K084	\$412.00			84	20:1	112	7.87							PDF		
MTGP-P20-1K153	\$412.00			153	11:1	61	7.81							PDF		

* Current must be limited so that it does not exceed 125% of the gearmotor rated current. ** Permanently lubricated. Replacement parts are available, as shown in "Replacement Parts for MTGP and MTGR DC Gearmotors" subsection.

Mounting Orientation Guidelines





IronHorse® MTG DC Gearmotors

MTGR Right Angle Gearmotors – 1/19 to 1/15hp



MTGR-P07-1J036

Gearmotor Specifications – MTGR Series Right-Angle Shaft Gearmotors																
Part Number	Price	Voltage (VDC)	Motor HP	Speed (rpm)	Gear Ratio	F/L Torque (in-lb)	F/L Current (A) *	Shaft	Overhung Load (lb)	Axial/ Thrust Load (lb)	Replacement Brush	Weight (lb)	Gearbox Features	Drawing Link		
MTGR-P05-1L038	\$412.00	90	1/19	38	50:1	42	0.68	dual shaft 0.5in diameter	200	150	MTPM-BRUSH-6	8.3	• Grease lubrication ** • Ball bearings • Junction box with 8-inch wiring leads • Face or Foot mounted • Single worm	PDF		
MTGR-P05-1L053	\$412.00			53	36:1	33	0.68							PDF		
MTGR-P05-1L093	\$412.00			93	20.5:1	23	0.68							PDF		
MTGR-P05-1L132	\$412.00			132	14.5:1	17	0.67							PDF		
MTGR-P05-1L197	\$412.00			197	9.75:1	12	0.68							PDF		
MTGR-P07-1J036	\$385.00	12	1/15	36	50:1	50	5.69				MTPM-BRUSH-4			PDF		
MTGR-P07-1J084	\$385.00			84	20.5:1	34	6.78							PDF		
MTGR-P07-1J177	\$386.00			177	9.75:1	18	6.78							PDF		

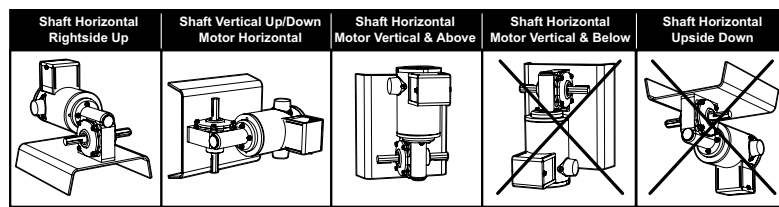
* Current must be limited so that it does not exceed 125% of the gearmotor rated current.

** Permanently lubricated.

*** Not intended for DC power generation.

Replacement parts are available, as shown in “Replacement Parts for MTGP and MTGR DC Gearmotors” subsection.

Mounting Orientation Guidelines





IronHorse® DC Gearmotors

MTGR Right Angle Gearmotors – 1/7 to 1/5hp



MTGR-P20-1K023

Gearmotor Specifications – MTGR Series Right-Angle Shaft Gearmotors																
Part Number	Price	Voltage (VDC)	Motor HP	Speed (rpm)	Gear Ratio	F/L Torque (in-lb)	F/L Current (A) *	Shaft	Overhung Load (lb)	Axial/ Thrust Load (lb)	Replacement Brush	Weight (lb)	Gearbox Features	Drawing Link		
MTGR-P14-1L022	\$441.00	90	1/7	22	82:1	280	1.41	single shaft 0.625 in diameter	150	200	MTPM-BRUSH-6	14.4	<ul style="list-style-type: none">• Double shielded ball bearings• Junction box with 8-inch wiring leads• Foot mounted• Bevel gears• 80 – 90% efficient• Can be backdriven ****	PDF		
MTGR-P14-1L040	\$443.00			40	44:1	185	1.64							PDF		
MTGR-P14-1L064	\$474.00			64	28:1	116	1.65							PDF		
MTGR-P14-1L077	\$462.00			77	23:1	97	1.65							PDF		
MTGR-P14-1L178	\$441.00			178	10:1	44	1.64							PDF		
MTGR-P20-1K023	\$451.00	24	1/5	23	82:1	280	5.64				MTPM-BRUSH-4			PDF		
MTGR-P20-1K039	\$446.00			39	44:1	263	8.74							PDF		
MTGR-P20-1K075	\$451.00			75	23:1	137	8.72							PDF		
MTGR-P20-1K174	\$451.00			174	10:1	63	8.75							PDF		

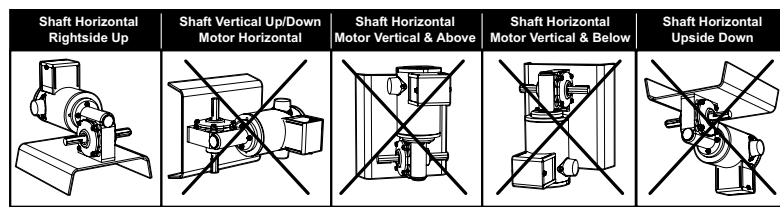
* Current must be limited so that it does not exceed 125% of the gearmotor rated current.

** Permanently lubricated.

*** Not intended for DC power generation.

Replacement parts are available, as shown in “Replacement Parts for MTGP and MTGR DC Gearmotors” subsection.

Mounting Orientation Guidelines





IronHorse® DC Gearmotor Replacement Parts

Replacement Parts for Small Frame DC Motors and DC Gearmotors

Brush replacement kits are for use in any Ironhorse DC gearmotors and small frame DC motors. Reference motor technical pages for brush cross reference. The appropriate brushes are also listed as recommended items on the webstore item page for each motor.

Replacement Parts for Small Frame DC Motors and DC Gearmotors *		
Part Number	Price	Description
<u>MTPM-BRUSH-4</u>	\$39.00	IronHorse DC motor brushes, replacement. Package of 2. For use with IronHorse 1/4hp and 1/5hp 12 VDC or 24 VDC MTPM, MTGR, MTGP and VP1 series permanent magnet DC motors and gearmotors. (2) brush caps included.
<u>MTPM-BRUSH-5</u>	\$30.00	IronHorse DC motor brushes, replacement. Package of 2. For use with IronHorse 1/6hp or smaller 12 VDC or 24 VDC MTPM, MTGR, MTGP and VP1 series permanent magnet DC motors and gearmotors. (2) brush caps included.
<u>MTPM-BRUSH-6</u>	\$33.00	IronHorse DC motor brushes, replacement. Package of 2. For use with IronHorse 1/7hp and 1/8hp 90 VDC or 180 VDC MTPM, MTGR, MTGP and VP1 series permanent magnet DC motors and gearmotors. (2) brush caps included.
<u>MTPM-BRUSH-7</u>	\$27.00	IronHorse DC motor brushes, replacement. Package of 2. For use with IronHorse 1/10hp or smaller 90 VDC or 180 VDC MTPM, MTGR, MTGP and VP1 series permanent magnet DC motors and gearmotors. (2) brush caps included.
<u>MTGA-KIT-1</u>	\$51.00	IronHorse DC motor spare parts kit, for use with IronHorse 1/4hp and smaller MTPM, MTGR and MTGP series DC motors and gearmotors, includes (2) metal brush cap covers, (1) terminal box, (1) 1/8in shaft key and (1) 3/16in shaft key.



MTPM-BRUSH-4



MTGA-KIT-1