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AUTO ELECTRICAL

**FLEXIBLE DRIVE
AGENCIES**

COOPER
Bussmann
Productivity Through Protection™

DOGA


Eberspächer


WALBRO

RANGE	DESCRIPTION	Part No.	
VENTILATOR	DR600 2 speeds	324 036 101 (12V)	
		324 036 201 (24V)	
AIR COOLER	MICRO COOLER 12V	129 002 000 A	
	MOBILE COOLER 12V	129 005 000	
	MOBILE COOLER XL 12V	129 004 000	
HELIOS	Helios 2000 plastic grille (grey)	282 104 120 (12V)	
	Helios 2000 plastic grille (white)	282 104 121 (12V)	
	Helios 2000 plastic grille (black)	282 104 122 (12V)	
	Helios 2000 plastic grille (white)	282 104 220 (24V)	
	Helios 2000 plastic grille (white)	282 104 221 (24V)	
	Helios 2000 plastic grille (black)	282 104 222 (24V)	
	Helios 2000 grille aluminium	282 104 100 (12V)	
		282 104 200 (24V)	
	Helios 2000 less elect. consumption and noiseless	282104126 (12V)	
		282104226 (24V)	
	Helios 4000	282 105 100 (12V)	
		282 105 200 (24V)	
	Helios 7000 without box	282 106 103 (12V)	
		282 106 203 (24V)	
		282 106 100 (12V)	
	Helios 7000 with box	282 106 100 (12V)	
		282 106 200 (24V)	
	ARTIK	Artik 10 000W marine / defroster	282 113 100 C (12V)
282 113 200 C (24V)			

XEROS	Xeros 4000 standard	282 110 100 (12V)			
		282 110 200 (24V)			
	Xeros 4000 marine	282 110 131 (12V)			
		282 110 231 (24V)			
	Xeros 4000 plastic grille	282 110 110 (12V)			
		282 110 210 (24V)			
	Xeros 4000 grill front + both sides	282 110 111 (12V)			
		282 110 211 (24V)			
	Xeros 4000 2 air outlets Ø 45	282 110 166 (12V)			
		282 110 266 (24V)			
	Xeros 4000 2 air outlets Ø 50	282 110 161 (12V)			
		282 110 261 (24V)			
	Xeros 4000 2 air outlets Ø 60	282 110 163 (12V)			
		282 110 263 (24V)			
	Xeros 4000 2 air outlets Ø 75	282 110 165 (12V)			
		282 110 265 (24V)			
	Xeros 4000 buses turnable and closable air outlet	282 110 153 (12V)			
		282 110 253 (24V)			
	Xeros 4000 water pipes Ø14	282 110 102 B (12V)			
		282 110 202 B (24V)			

ZENITH	Zenith 8000 standard	282 112 100 (12V)	
		282 112 200 (24V)	
	Zenith 8000 grille	282 112 103 (12V)	
		282 112 203 (24V)	
	Zenith 8000 3 buses air outlets Ø 60	282 112 101 (12V)	
		282 112 201 (24V)	
	Zenith 8000 3 buses air outlets Ø 75	282 112 102 (12V)	
	Zenith 8000 4 buses air outlets Ø 60	282 112 202 (24V)	
282 112 104 (12V)			
282 112 204 (24V)			
ACCESSORIES	slatted diffuser for Zenith	145 735 000 A	
	Support 3 air outlets bracket	145 734 000 A	
	Support 4 air outlets bracket Ø60	145 737 000 A	
	air outlet Ø 50	65707	
	air outlet Ø 60	65887	
	air outlet Ø 75	65727	
	Aluminium grille Helios 2000	134 086 000C	

AIR VENT LOUVRE

Much sought after & hard to find, original factory fit to Ford Cortina, Escort & Carpi.

Also suitable for custom vehicle & commercial applications including trucks, buses & marine.

Part No. 061405



TRUCK & BUS/COACH HEATING SYSTEMS

TRUCK HEATING SYSTEMS

		AIRTRONIC D2				AIRTRONIC D4				AIRTRONIC D5				D8LC	
Fuel		EN590 Diesel or paraffin				EN590 Diesel or paraffin				EN590 Diesel or paraffin				EN590 Diesel or paraffin	
Voltage	Volts	12 or 24				12 or 24				12 or 24				12 or 24	
Heat Settings		Power	High	Medium	Low	Power	High	Medium	Low	Power	High	Medium	Low	High	Low
Heat Flow	Watts	2,200	1,800	1,200	850	4,000	3,000	2,000	1,000	5,500	4,800	2,700	1,200	8,000	3,500
Air Throughput	m3/h	90	75	52	36	150	130	95	55	233	233	137	137	258	250
Electric Power Consumption	Watts	34	23	12	8	40	24	13	7	80	80	40	40	115	115
Fuel Consumption	l/h	0.28	0.23	0.15	0.10	0.51	0.38	0.25	0.13	0.7	0.58	0.34	0.15	1.00	0.40
Weight	Kg	2.7				4.5				8				20	
Technical Features	<ul style="list-style-type: none"> - Electronic speed control with gentle adjustment, low noise and low power consumption - Fully integrated microprocessor control - Continuous monitoring - Fan function possible for summer operation - Diagnostic system 														



BUS/COACH HEATING SYSTEMS

		HYDRONIC 4		HYDRONIC 5		HYDRONIC 10				HYDRONIC			
										16	24	30	35
Fuel		EN590 Diesel or paraffin		EN590 Diesel or paraffin		EN590 Diesel or paraffin				EN590 Diesel or paraffin			
Voltage	Volts	12		12 or 24		12 or 24				24			
Heat Settings		High	Low	High	Low	Power	High	Medium	Low	High	High	High	High
Heat Flow	Watts	4,300	2,400	5,000	2,400	9,500	7,500	3,200	1,500	16,000	24,000	30,000	35,000
Water Throughput	l/h	900		900		1,400				5,000			
Electric Power Consumption	Watts	48	23	50	23	125	76	42	35	170	190	215	230
Fuel Consumption	l/h	0.53	0.27	0.67	0.27	1.2	0.9	0.4	0.18	2.0	2.9	3.65	4.2
Weight	Kg	2.9		2.9		6.5				18			
Technical Features	<ul style="list-style-type: none"> - Low noise and low power consumption - Fully integrated microprocessor control - Continuous monitoring - Diagnostic system 												



MARINE AIR HEATING

		AIRTRONIC D2				AIRTRONIC D4				AIRTRONIC D5				D8LC	
Fuel		EN590 Diesel or paraffin				EN590 Diesel or paraffin				EN590 Diesel or paraffin				EN590 Diesel or paraffin	
Voltage	Volts	12 or 24				12 or 24				12 or 24				12 or 24	
Heat Settings		Power	High	Medium	Low	Power	High	Medium	Low	Power	High	Medium	Low	High	Low
Heat Flow	Watts	2,200	1,800	1,200	850	4,000	3,000	2,000	1,000	5,500	4,800	2,700	1,200	8,000	3,500
Air Throughput	m3/h	90	75	52	36	150	130	95	55	233	233	137	137	258	250
Electric Power Consumption	Watts	34	23	12	8	40	24	13	7	80	80	40	40	115	115
Fuel Consumption	l/h	0.28	0.23	0.15	0.10	0.51	0.38	0.25	0.13	0.7	0.58	0.34	0.15	1.00	0.40
Weight	Kg	2.7				4.5				8				20	
Technical Features	<ul style="list-style-type: none"> - Electronic speed control with gentle adjustment, low noise and low power consumption - Fully integrated microprocessor control - Continuous monitoring - Fan function possible for summer operation - Diagnostic system 														



MARINE WATER HEATING

		HYDRONIC 4		HYDRONIC 5		HYDRONIC 10				HYDRONIC				
										16	24	30	35	
Fuel		EN590 Diesel or paraffin		EN590 Diesel or paraffin		EN590 Diesel or paraffin				EN590 Diesel or paraffin				
Voltage	Volts	12		12 or 24		12 or 24				24				
Heat Settings		High	Low	High	Low	Power	High	Medium	Low	High	High	High	High	
Heat Flow	Watts	4,300	2,400	5,000	2,400	9,500	7,500	3,200	1,500	16,000	24,000	30,000	35,000	
Water Throughput	l/h	900		900		1,400				5,000				
Electric Power Consumption	Watts	48	23	50	23	125	76	42	35	170	190	215	230	
Fuel Consumption	l/h	0.53	0.27	0.67	0.27	1.2	0.9	0.4	0.18	2.0	2.9	3.65	4.2	
Weight	Kg	2.9		2.9		6.5				18				
Technical Features	<ul style="list-style-type: none"> - Low noise and low power consumption - Fully integrated microprocessor control - Continuous monitoring - Diagnostic system 													



COOPER BUSSMANN TRANSPORTATION PRODUCTS

589/H98

Flexible Drive Agencies brings you the very latest in Circuit Protection, Power Distribution and Wiring Accessories for transportation from Cooper Bussmann.

Choose from the wide range of Fuse Blocks, Power Relay Modules, Stud Type Junction Blocks, Bolt-in Fuse Holders, In-Line Fuse Holders or any number of other components available ex our stock. For your convenience, we also carry a wide range of circuit breakers and fuses.

Let us design a system to your exclusive needs. The Cooper Bussmann VEC (Vehicle Electrical Centre) & DVEC (Dual Vehicle Electrical Centre) uses patented programmable 3D matrix technology to produce a solution tailored to the individual and unique requirements of the customer. The VEC and DVEC are capable of accepting a variety of components, from traditional Fuses and Circuit Breakers through to Relays, Diodes and Resistors, all in a package that is guaranteed to provide the best possible space utilization, not to mention the savings in harness size and splicing.

Rather than design your harness around an off the shelf power distribution and fusing device, let us tailor a Cooper Bussmann VEC or DVEC to suit your harness.



AUTO ELECTRICAL



Productivity Through Protection™

SERIES 31000/32000 VEHICLE ELECTRICAL CENTRES

Cooper Bussmann's Single Vehicle Electrical Centre (VEC) and Dual Vehicle Electrical Centre (DVEC) are widely used Transportation Industry power distribution modules. The VEC & DVEC use patented programmable 3D matrix technologies that can be easily modified to accommodate changes to an electrical system. These can be customised for each specific electrical system, but requires no tooling for implementation.

The VEC & DVEC accept automotive components including fuses, relays, circuit breakers, diodes, and other devices that have 2.8mm wide terminals on 8.1 mm centreline spacing. The compact size of the VEC (about 4"x 4") and larger size of the DVEC (approximately 8"x 4") provide for high component density. VEC's provide either 8.0mm bladed inputs or M8/M6 stud inputs. The VEC can accommodate up to 2 input connectors - 4 bladed inputs or 2 studs - and 4 output connectors. The DVEC can accommodate up to twice this amount. (Some designs may limit the number of connectors available for use.)

APPLICATIONS

The VEC/DVEC is ideal for distributed main power as well as auxiliary "add-on" applications. Current VEC/DVEC applications include Class 3-8 trucks, buses, chassis and RV, Con-Ag equipment, marine specialty vehicles, and automotive power distribution systems.

BENEFITS

The customisable designs of the VEC/DVEC enable them to incorporate many different devices and multiple design variations. Splices in the harness can also be eliminated by internally programming them into the grid matrix. The inputs (connector or stud) and outputs (connector) of the VEC/DVEC are color-coded and keyed, and provide quick installation. This makes the module easy to service. The largest benefit of these modules are the reduced lead times and zero tooling cost

SPECIFICATIONS

Input Terminal Rating: 8.0mm blade terminals (60A max per terminal); M8/M6 input studs (100A max per terminal). 200A max total for VEC, 400A max total for DVEC.

Output Terminal Rating: 2.8mm blade terminals (30A max per terminal).

Temperature Rating: -40°F (-40°C) to 260°F (125°C).

Materials: UL-Rated 94V-0 thermoplastic housing and connectors; Tin-plated copper internal grid.

Termination: Delphi Packard Metri-Pack® 280 Series terminals (sealed/unsealed & tanged/tangless) or Amps® terminals.* Delphi Packard 280 Series cavity plugs are installed where wires are not used.* Accepts #10-22 AWG wire sizes.

Mounting Torque Rating: 24in-lb (2.7Nm) max.

Mounting Orientation: Unit cannot be installed upside-down. Consult factory for proper mounting orientations.

Ingress Protection Rating: IP55.

NOTE: Vehicle Electrical Centres are made to customers specification. These are not an off the shelf item.

OPTIONS

Cover: Vented (VEC), Solid with gasket (VEC/DVEC), Solid without gasket (DVEC), or none provided.

Cover Label: Inside cover, outside cover (VEC only), or none provided.

Input Style: 8.0mm blade terminals or studs (M8/M6).

Mounting: External feet with mounting holes (VEC/DVEC) or internal mounting holes (VEC only).

Components: Fuse, breaker, relay, etc. installation to be specified by customer.

Severe Service: Added environmental protection available.

Each design is customer specific. Consult your sales rep today for your application.

MVEC Multiplexed for Canbus use.



SERIES 15301 REAR TERMINAL MINI FUSE & RELAY

Power Distribution Module

The Rear Terminal Mini Fuse and Relay panel (RTMR) provides efficient power distribution in a rugged compact form for applications in marine, construction, agriculture, heavy trucking, specialty vehicles, etc. This innovative product offers a weather tight enclosure (IP66/67) for various MINI (2.8mm) blade components when cover, cable seals, and cavity plugs are installed. It is available with various degrees of internal electrical bussing. Additionally, custom labels and multiple hardware configurations are available to solve any application need.

SPECIFICATIONS

Input Terminal Rating: M6 input studs on bussed/ partially bussed inputs: 80A max input on bussed fuse side, 80A max input on bussed relay side.

Output Terminal Rating: 2.8mm blade terminals (30A max per terminal)

Temperature Rating: -40°F (-40°C) to 260°F (125°C)

Materials: Black UL-Rated 94V-0 thermoplastic housing; Tin-plated copper internal bussing; Bright nickel-plated brass studs (on bussed versions).

Termination: Delphi Packard Metri-Pack® 280 Series terminals (sealed/tangless) or Amp® terminals.* Delphi Packard 280 Series cavity plugs are installed where wires are not used.* Accepts #12-22 AWG wire sizes

Torque Rating: 75in-lb (8.5Nm) max.

Mounting Torque Rating: #10-32 threaded inserts, 24in-lb (2.7Nm) max torque.

Ingress Protection Rating: IP66-IEC 60529 (Valid when properly installed with cover, sealed terminals, and cavity plugs.) IP67 (Same requirements as IP66, but also needs a periodic - 3-9 months - coating of silicone lubricant applied to green base seal.)

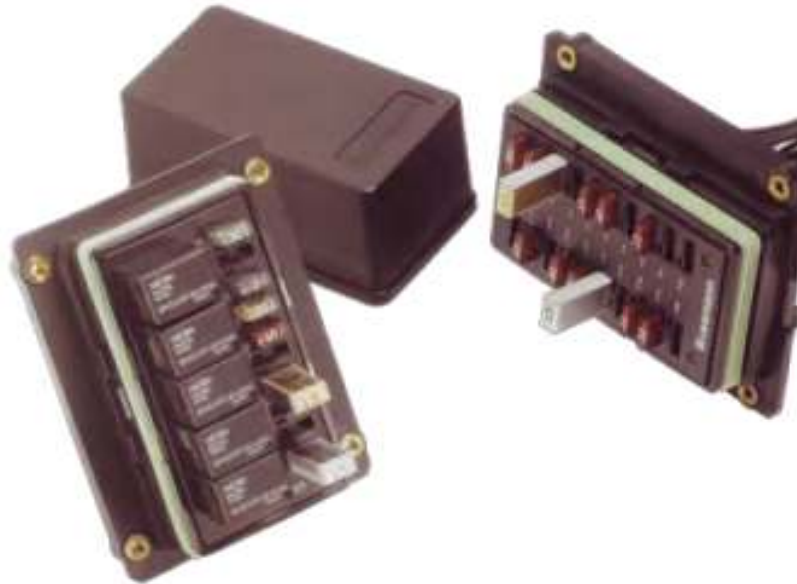
OPTIONS

End Caps: Protective silicone end caps available for studded versions.

Mounting: Mounting brackets available for surface- mounting RTMR

Labels: Consult factory for custom label options.

Replacement Accessories: Consult factory for available service parts.



Part No.	Configuration	Bussed	Cover
153011D11	20 fuse positions	Dual	Fuse
153012D12	10 fuse and 5 relay positions	Dual	Circuit breaker
153011D12	20 fuse positions	Dual	Circuit breaker
15303404	10 fuse and 5 relay positions	Non-Bussed	Circuit breaker
12110845	Terminals to suit RTMR	-	-
12015323	Seal to suit 12110845	-	-
12010300	Cavity plug	-	-

SERIES 37700 PRM & PFM

Power Relay Module

Cooper Bussmann offers a sealed Power Relay Module (PRM) along with an accompanying Power Fuse Module (PFM). These compact power distribution modules are designed for high current applications, and are suitable for placement in extreme moisture and high vibration environments. The PRM contains a 70A moulded-in relay and two female fuse positions. One of these fuses protects the relay and the other is a single-circuit inline fuse.

The PFM contains only two fuses - each a separate circuit. A silicone seal and removable cover offer a weather-tight enclosure for the fuse positions. PRMs/PFMs also feature rugged M8 power input studs. Multiple units may be connected together via a custom buss bar, or can be bussed to any of Cooper Bussmann's PDMs (i.e. 31000/32000 Series VEC/DVEC, 15301 Series RTMR, etc.)

SPECIFICATIONS

PRM Rating: 70A, 12VDC steady-state relay; 24VDC relay also available. Relay protection fuse: up to 60A; Non-switched inline fuse: up to 60A.

PFM Rating: Each inline fuse rated up to 60A.

Temperature Rating: -40°F (-40°C) to 185°F (85°C).

Materials: UL-Rated 94V-0 thermoplastic body and cover; Silicone seal; Tin-plated copper terminals; Plated steel studs.

Input Termination: M8 threaded stud. PRM Switching/Trigger Signal: Delphi Packard Metri-Pack® 150 Series; AmpSeal® 16.*

Output Termination Option: Bussmann Series 32004 sealed connector (see page 4); Accepts Delphi Packard 800 series terminals.*

Two M6 threaded studs; color-coded to show switched non-switched.

Torque Rating: Input stud: 144in-lb (16.3Nm) max.; Output stud: 48in-lb (5.4Nm) max.

Mounting Torque Rating: 48in-lb (5.4Nm) max.

Ingress Protection Rating: IP66

(excluding stud connections)

OPTIONS

Mounting: Counter rotation feature (CRF) available to prevent rotation on single bolt installations.

Bussing: Custom bussing available for joining multiple PRMs/PFMs. Options also available for bussing PRMs/PFMs to other Bussmann power distribution modules.

Accessories: Stud caps, separators, service components.

Consult factory for details.



Pictured PRM Part No.	377021AN0012	12V
Pictured PRM Part No.	377021AN0024	24V
Pictured PFM Part No.	377011NN0011	-
Part No.	2103430	PRM Plug includes plug, terminals, retainer & seals

Fuses available for PRM & PFM

Part No.	Amp Rating
FMX20	20
FMX30	30
FMX40	40
FMX50	50
FMX60	60

SERIES 15710 REAR TERMINAL ATC® FUSE BLOCK

The Rear Terminal ATC® Fuse Block (RTA) is a rear-fed panel with high component retention, which makes it an ideal choice for high vibration environments including construction, agriculture, bus, RV, heavy trucking equipment, etc. It is available in multiple lengths and internal bussing configurations. This allows for up to three separate power input circuits and 32 individual output circuits.

SPECIFICATIONS

Input Terminal Rating: 1/4-20 stud; Quick-connect terminals provided on middle bus (Series 15713). 200A max total input for unit.

Output Terminal Rating: 30A max load per circuit.

Temperature Rating: -40°F (-40°C) to 260°F (125°C).

Materials: Black UL-Rated 94V-0 thermoplastic.

Termination: Delphi Packard Pack-Con® Series 3 & 5." I

Input Wire Size: #4-6 AWG. **Output Wire Size:** #10-16 AWG.

Torque Rating: 50in-lb (5.6Nm) max.

Mounting Torque Rating: #10-32 threaded inserts, 24in-lb (2.7Nm) max torque.



OPTIONS

Positions: 8-32 circuits available.

Split Power: Single, dual, or triple bus options.

Cover: Splash-resistant covers available. Short cover for fuses only, and taller cover for use with circuit breakers.

Locks: Secondary locks available for securing of output terminals (#15710-TP). (Comes in multiples of 8 positions. Must order multiple strips to cover length of selected RTA.)

Tools: Output terminal removal tool (#HT15710-01). Secondary lock removal tool (#HT15710-02).

Pictured Part No.	15711060611A	12 position
	Terminals sold separately Part No. JD21730	

SERIES 15600 ATC® BLADE TYPE FUSE PANELS

The 15600 ATC® fuse block is a compact, yet rugged, power distribution module. It is available in a single or dual internal buss electrical configuration featuring an optional ground pad terminal strip. The 15600 fuse block is surface mounted, uses convenient quick-connect terminals, and is recommended as a supplemental power distribution module. It can be used to accompany main PDMs such as the Bussmann 31000/32000 Series VEC/DVEC, 15710 Series RTA, and the 15301 Series RTMR.

SPECIFICATIONS

Input Terminal Rating: #10-32 threaded studs (100A max).

Output Terminal Rating: 30A max per circuit.

Temperature Rating: -20°F (0°C) to 150°F (65°C).

Materials: Black UL-Rated 94V-0 thermoplastic.

Termination: .250" x .032" quick-connect terminals.

Ground terminal pad option available.

Input wire size: #4-6 AWG.

Output wire size: #12-16 AWG.

Torque Rating: 20in-lb (2.25Nm) max.

Mounting Torque Rating: 8in-lb (0.9Nm) max.



OPTIONS

Positions: 4-20 circuits available.

Split Power: Single or dual buss options.

Pictured Part No.	156000620	6 position
Pictured Part No.	156001421	14 position

HMG FUSE HOLDER

Automotive Bolt-In Fuseholder for the AMG Fuse

The HMG fuse holder accepts industry standard AMG fuses for primary fusing applications. The narrow rugged body makes it ideal for demanding environments such as `under the hood' locations in construction, agriculture, heavy trucking, and specialty vehicle applications.

SPECIFICATIONS

Rating: For use with AMG fuses from 100-300A.

Temperature Rating: -40°F (-40°C) to 260°F (125°C).

Materials: Black UL-Rated 94V-0 thermoplastic with zinc-plated steel studs.

Termination: M8 or 5/16-18 threaded studs and hex nuts for fuse mounting. Wire sizes: #2-8 AWG.

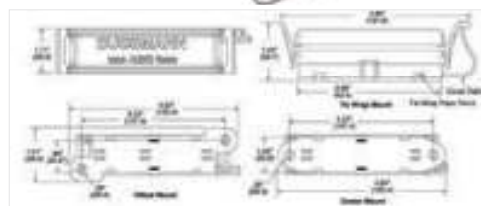
Torque Rating: 150in-lb (17Nm) max.

Mounting Torque Rating: Optional mounting hole patterns, 44in-lb (5Nm) max.

FEATURES

Side-stackable, Bottom side insulated from mounting panel and Splash resistant cover.

Pictured Part No. HMG211



FMG FUSE HOLDER

Full Access Automotive Bolt-In Fuseholder for the AMG Fuse

The FMG fuse holder accepts industry standard AMG fuses for primary fusing applications. The FMG is offered with a tough elastomer cover for fuse protection, yet allows for cable input from various orientations. This fuse holder cover is available in multiple colors and lengths. Similar to Bussmann's HMG holder, the FMG is well suited for demanding environments such as under the hood locations in construction, agriculture, heavy trucking, and specialty vehicle applications.

SPECIFICATIONS

Rating: For use with AMG fuses from 100-300A.

Temperature Rating: -40°F (-40°C) to 260°F (125°C).

Materials: Black UL-Rated 94V-0 thermoplastic with zinc-plated steel studs; thermoplastic elastomer cover.

Termination: M8 or 5/16-18 threaded studs and hex nuts for fuse mounting. Wire sizes: #2-8 AWG.

Torque Rating: 120in-lb (13.5Nm) max.

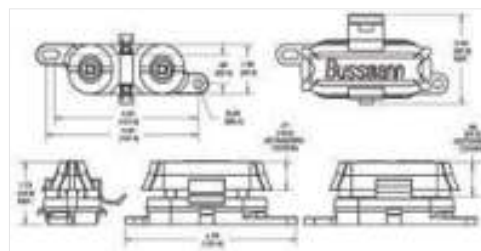
Mounting Torque Rating: 1/4-20 screws with washers (recommended), 44in-lb (5Nm) max.


OPTIONS

Cover: Available in black or red. Extended cover length also available.

FEATURES

Full access for cables. Can be routed to studs from nearly every direction.



Main picture Part No.	FMG211	AMG Fuses Available		AMG125	125
		Part No.	Amp rating	AMG150	150
		AMG6040	40	AMG175	175
		AMG6060	60	AMG200	200
		AMG6080	80	AMG250	250
		AMG100	100	AMG300	300

LMG BIG BLOCKS

Cooper Bussmann Transportation Products now offers a heavy power distribution module called the LMG (a.k.a "BigBlock"). The LMG is used for main branch primary fusing and accepts multiple (2, 3 or 5) industry standard AMG fuses. Using a common input bus bar, the LMG requires just one input connection to power all fuses!

The Big Block provides efficient power distribution suitable for many "under the hood" applications such as: Marine, Construction, Agriculture, Heavy Trucking, Bus & Specialty Vehicles

SPECIFICATIONS

Sizing: 2, 3 and 5 positions available

Ratings: maximum total combined rating is 300a continuous

Temperature: -40°C (-40°F) to 85°C (185°F)

Termination: 5/16-18 or m8 studs, nuts, and lockwashers for fuse and surface mountings

Torques: mounting: 100 in-lbs (11.3nm) max; power input/output: 120 in-lbs (13.6nm) max

Material: Housing: black ul-rated 94 v-0 thermoplastic

Cover: red epdm cover for protection from accidental shorts

Studs: plated steel

Part No.	Positions
LMG31001	3
LMG51001	5



CIRCUIT BREAKERS, STUD JUNCTION BLOCKS & FUSES

589/H98

SERIES 187 MARINE RATED CIRCUIT BREAKER (MRCB)

Manual reset circuit breakers with switch function

SPECIFICATIONS

Single Pole Thermal Type Breakers

Applications: Typically used in DC power systems in marine applications (as a main or branch circuit breaker), truck and bus systems, RV systems, add-on protection for accessories, lift gates, etc. This unit is external ignition protected and weatherproof.

Rating: 25-150A, 48VDC.

Interrupt Rating: Main Breaker Protection Interrupt Rating (5kA @ 12VDC).
(Consult factory for higher voltage interrupt ratings.)

Operating Temperature Rating: -40°F (-40°C) to 185°F (85°C).

Storage Temperature Rating: -40°F (-40°C) to 260°F (125°C).

Materials: Black UL-Rated 94V-0 thermoset plastic body. Cover and lever are UL-Rated 94V-0 thermoplastic.

Marking: Standard marking includes amp/volt ratings. Custom markings also available.

Termination: 5/16-18 threaded studs.

Torque Rating: 75in-lbs (8.5Nm) max.

Mounting Torque Rating: Panel or surface-mount options; 50in-lb (5.6 Nm) max.

Ingress Protection Rating: IP66

Features / Options: A manual reset circuit breaker with On-Off switch capability.

Compliances: ABYC E-11; CE; SAE J1171 (Ignition protected).

Consult factory for time characteristic curves.



Pictured Part No. 187030F001 Surface mount 30 amp

STUD TYPE JUNCTION BLOCKS

SPECIFICATIONS

Applications: Heavy-duty ground or power connection points in AC or DC circuits. Feed through or stand alone mount options available for transformers, communication and computer power sections along with various vehicle electrical systems. Mounting Torque Rating: 48in-lb (5.4Nm) max.

FEATURES

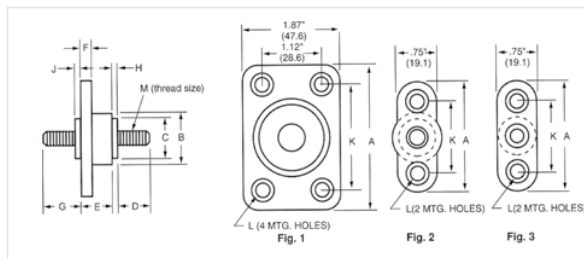
Modular design offers design and manufacturing flexibility.

Suggested Max. Termination Ratings:

Thread/Stud Size	Amperages	Thread/Stud Size	Amperages
#10	50amps	#3/8	250 amps
#1/4 & M6	100 amps	#1/2	400 amps
#5/16	200 amps		



Dimensions



Pictured Part No. C19252

Pictured Part No. C1933

SERIES 25X MID-RANGE CIRCUIT BREAKERS

MANUAL RESET CIRCUIT BREAKERS

Automatic, Manual and Manual W/ Push-to-Trip

SPECIFICATIONS

Single Pole Thermal Type Breakers

Applications: This unit is external ignition protected and weatherproof. It is typically used in DC power systems in marine applications (as a main or branch circuit breaker), truck, bus and RV systems, add on protection for accessories, etc.

Rating: 10-50A, 32ADC

Interrupt Rating: Circuit Protection (2.5kA) per ABYC E-11.

Operating Temperature Rating: -40 C to 85 C

Storage Temperature Rating: -40 C to 125 C

Materials: Black UL Rated 94V-0 thermoset plastic body. Cover, level and button are UL-Rated 94V-0 thermoplastic. Cover has a elastomer overmold.

Marking: Standard marking includes amp/volt ratings, part numbers and "SAE Type B."

Termination: #10-32 threaded studs.

Torque Rating: 24in-lb (2.7Nm) max.

Mounting Torque Rating: Panel mount with either # 8-32 threaded inserts or # 10 clearance holes. 18in-lb (2.0Nm) max

Ingress Protection Rating: IP66

Features/Options: Series 254 & 255 also features a Push-to-Trip option.

Compliances: SAE J553; ABYC E-11; SAE J1171 (ignition protected).

Part No.	Amperage Rating
25510B1	10
25515B1	15
25520B1	20
25525B1	25
25530B1	30



MINI BLADE FUSES

FUSES CIRCUIT BREAKERS

Choose from ATM Mini Blade-fuses, ATC Blade fuses, and MAXI Blade fuses for push in fuse block applications. AMI and AMG fuses will cater to your bolt in fuse needs.



Part No.	ATM05CB
Part No.	ATM10CB
Part No.	ATM15CB
Part No.	ATM20CB
Part No.	ATM25CB
Part No.	ATM30CB

FUSES & CIRCUIT BREAKERS

To compliment our full range of Cooper Bussmann circuit protection and power distribution hardware, a selection of quality Cooper Bussmann Fuses and Circuit breakers are available.

STANDARD BLADE FUSES

SPECIFICATIONS

Current Rating: 5-40A.

Voltage Rating: 32VDC

Interrupt Rating: 1,000A @ 32VDC.

Housing Material: UL-Rated 94V-0 thermoplastic.

Terminal Material: Tin Plated zinc alloy.

Marking: Amperage marking is OCR compliant.

Compliances: UL-Recognised (3-40A); SAE J1284; ISO 8820-3



SERIES 21 X MINI

A wide range of circuit breakers cater to every circuit protection application requiring auto, modified or manual reset. Choose from Mini Circuit breakers (21X series), ATC Circuit Breakers (22x series & 227 Series) and Maxi Circuit Breakers for fuse block mounting. Series 174 "Flat Pack", Series 12X "Shortstop", Series 25X "Mid Range", Series 18 "Hi-Amp" and Series 187 Marine Rated Circuit Breakers will cover all stand alone uses.



ATC® CIRCUIT BREAKERS

SPECIFICATIONS

Single Pole Thermal Type Breakers

Rating: 5-30A, 28VDC

Interrupt Rating: 400A @ 28VDC

Operating Temp Rating: -40°C to 85°C

Storage Temp Rating: -40°C 125°C

Materials: UL-Rated 94V-0 thermoplastic bod. Tin plated copper alloy terminals.

Marking: Colour is colour-coded to amperage ratings.

Termination: 5.2mm wide blades compatible with ATC type fuse blocks.

Compliances: SAEJ553; SAE J1284; ISO 8820-3; DIN 72581-3 Type C.



Part No.	Amp Rating	Part No.	Amp Rating	Part No.	Amp Rating
ATC05	5	22105300	5	2270500	5A
ATC10	10	22110300	10	2271000	10A
ATC15	15	22115300	15	2271500	15A
ATC20	20	22120300	20	2272000	20A
ATC25	25	22125300	25	2272500	25A
ATC30	30	22130300	30	2273000	30A
ATC40	40				

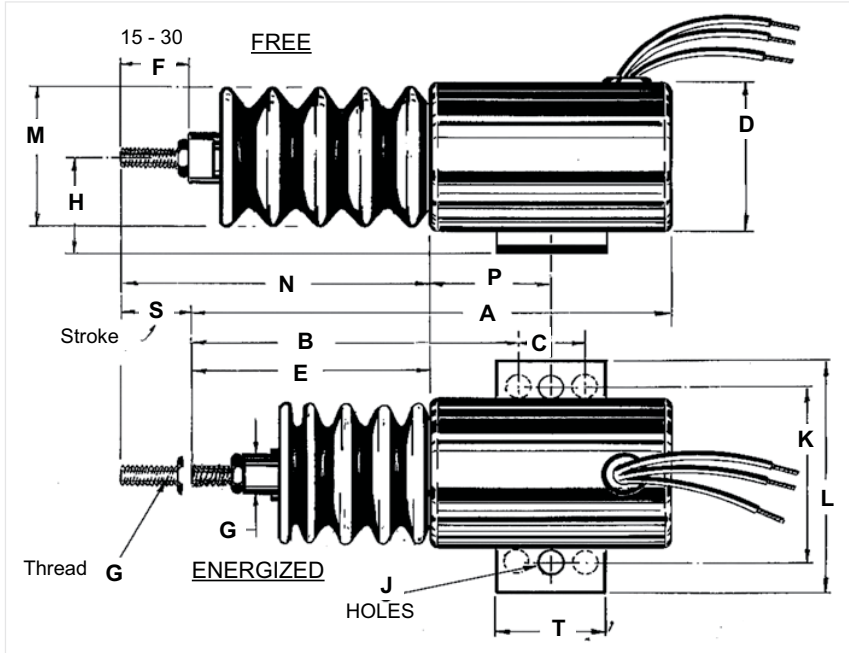
DC SOLENOIDS

FOR DIESEL ENGINE SHUT-DOWN OR THROTTLING

Uniquely Australian made - FDA - 3 Wire Solenoids provide reliable control over diesel engine shut down or throttling. Wired through the starter solenoid circuit or separate time delay relay the three wire circuitry avoids the problems of internally switched types. Available in 12 and 24 Volt versions and two basic sizes.

All models protected from dust and moisture entry and include integral return spring.

	BT12	BT24	BT12A	BT24A
A	157		130	
B	95		95	
C	37		---	
D	51		41	
E	67		65	
F	NOM 25		NOM 25	
G	1/4 - 28		1/4 - 28	
H	31		27	
I	2.5		2.5	
J	4HOLES 7.0		2HOLES 6.5	
K	65		50	
L	80		63	
M	40		40	
N	100		90	
P	---		32	
Q	12.5		12.5 A/F	
S	33		25	
T	57		30	



Part No.	Voltage	Strike	Pull	Hold
BT12	12VDC	1 1/2" / 38mm	20 1 lbf / 89 N	55 1 lbf / 245 N
BT 24	24VDC	1 1/2" / 38mm	20 1 lbf / 89 N	55 1 lbf / 245 N
BT12A	12VDC	1" / 25mm	16 1 lbf / 66 N	34 1 lbf / 150 N
BT24A	24VDC	1" / 25mm	26 1 lbf / 66 N	34 1 lbf / 150 N



WOODWARD DUAL COIL SOLENOIDS

To allow a solenoid to be held energized for long periods of time without overheating, Woodward uses two separate coil windings instead of one. The first wound coil operates at a high current level to provide maximum pull or push. The second wound coil simply holds the plunger in place after it has completed its stroke and "bottomed out." Since the current required to hold the plunger in place is low, dual coil solenoids can be energized continuously without overheating. This unique design concept results in a highly efficient compact solenoid approximately one half the size of a comparable single coil unit.

** all the ones in stock are 1" stroke pull type internally switched solenoids **

Part No.	150412V	12 volt
Part No.	150424V	24 volt
Part No.	175112V	12 volt
Part No.	175124V	24 volt
Part No.	200312V	12 volt
Part No.	200324V	24 volt



MURPHY PUSH/PULL SOLENOIDS

Murphy push pull solenoids provide single unit versatility for engine applications, such as shutdown. A choice of two models and two voltages is available. The RP2307/2308 have 1 inch (25mm) of travel, All models come complete with a return spring and a rubber seal boot. Both sides of the solenoid will accept 1/4 inch threaded rod.



Part No.	RP2307	12 volt
Part No.	RP2308	24 volt

SOLENOID TIMER

ENGINE CONTROL

Description: This unit has been designed to provide safe and automatic operation for the entire range of 12 or 24 volt FDA solenoids. The pull in coil is energized for a precise period of time and the solenoid is automatically switched to the hold mode. Burn outs to the pull in coil are eliminated due to excessive time taken in applying power. e.g. when wired to a faulty or slow starting engine via the starter relay.

Part No.	FD2001
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FUEL LOCK SOLENOID

For use in conjunction with engine protection systems ie CP210F to shut off fuel. Available in 12 volt only.



Part No.	SOL0612
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FUEL PUMPS

085/G63

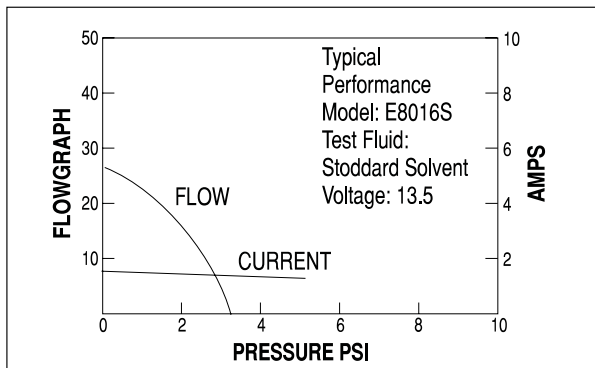
E8000 SERIES UNIVERSAL

New Universal Solid State E8012S Series Electric Fuel Pump features advanced technology. Exclusive design provides increased vapour handling capacity. Solid state engineering has no electrical contact points to wear out and it is highly resistant to voltage spikes, even reversed polarity. Permanently sealed construction with no screws to loosen or leak. Impervious to corrosion from alcohol blended fuels. Available for both domestic and import carbureted applications.

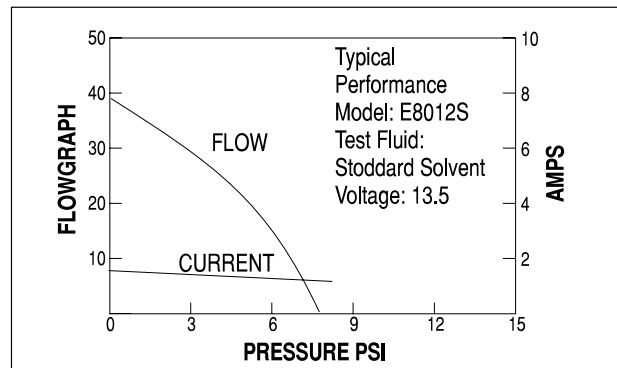
Part No.	E8012S	7 PSI
Part No.	E8016S	3 PSI



E8016 S



E8012 S



AUTO ELECTRICAL

WALBRO GEROTOR 255LPH HIGH PERFORMANCE IN TANK FUEL PUMPS

The Walbro high output in-tank electric fuel pumps are available in flow ratings of 255 litres of fuel per hour. These particular pumps flow significantly more fuel at higher pressure. For example, at 80 PSI the standard 255 lph pump will flow around 132 litres per hour. At that same 80 PSI the equivalent HP (high pressure) fuel pump will flow over 210 litres (50 gallons) per hour.

Walbro in-tank electric fuel pumps utilise a proven gerotor design. The outside dimensions, however, are compact enough to fit existing hanger assemblies, with little modification.



Part No.	GSS342	12 Volt
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WALBRO RECIPROCATING FUEL PUMPS

085/G63

FRA MODEL UNIQUE FEATURES

For applications where low cost and durability are required.

- Flow: to 190 lph (52 gph)
- Continuous duty life (diesel fuel): > 5000 hrs
- Weight: 0.74 kg (1.63 lbs)
- Pump cycles continuously when power is on



FRB MODEL UNIQUE FEATURES

For applications where battery life, low noise and durability are important and fuel quality is questionable.

- Flow: to 160 lph (35 gph)
- Ampere hours: up to 70% less than FRA & FRC
- Continuous duty life (diesel fuel):>18000 hrs
- Weight: 0.83 kg (1.83 lbs)
- Pump cycles only when fuel is demanded
- Replaceable filter



FRC MODEL UNIQUE FEATURES

For applications where low costs and better durability are important and fuel quality is questionable.

- Flow: to 210 lph (55 gph)
- Ampere hours: up to 70% less than FRA & FRC
- Continuous duty life (diesel fuel):>10000 hrs
- Weight: 0.75 kg (1.65 lbs)
- Pump cycles only when fuel is demanded



FRD MODEL UNIQUE FEATURES

For applications where battery life, low noise and durability are important.

- Flow: to 210 lph (55 gph)
- Continuous duty life (diesel fuel):>10000 hrs
- Weight: 0.83kg (1.83lbs)
- Pump cycles continuously when power is on
- Replaceable filter



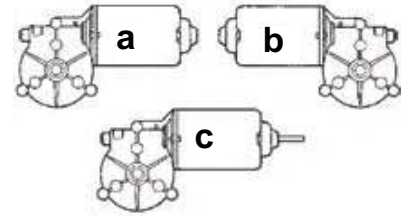
STANDARD FEATURES - ALL MODELS

- Current requirement: < 2 amps average
- Reverse polarity protected up to 60 minutes
- Self priming (dry lift) of more than 120cm (48")
- Dry run to four (4) hours
- Compatible with all commercially available pump grade petrol, diesel or bio-diesel
- Operating temperature: -40 ~ +70C (-40 ~ +155F)
- Transient voltage protected to 100 volts
- U.S. Coast Guard 16623-1 and 16623-2 approved
- European CE Standards EN 61000-6-2 and EN 6-3-2100 approved

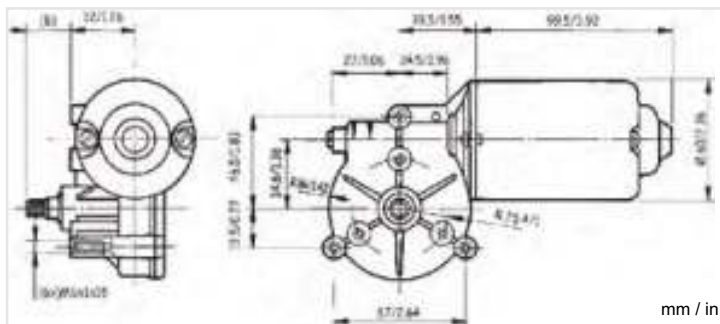
* Includes additional corrosion protection for use on diesel or petrol marine applications. Meets ASTM B-117 Standards.

Part No.	VOLTS
FRA11	12 Volt
FRB21	24 Volt
FRB51	12 Volt
FRB61	12 Volt
* FRB132	12 Volt
* FRB162	24 Volt
FRC82	12 Volt
FRD11	12 Volt

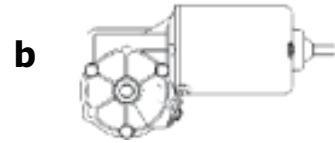
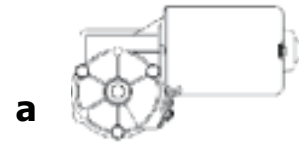
MOTOR WITH GEAR



Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Transmission Ratio	Approximate weight	Water tightness	Wheel material	Design: a, b, c	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)		la (A)									
111.3711.20.00	12	5/44.2	40	5	25/221.2	25	E22	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	1
111.3711.30.00	24	5/44.2	40	2.5	25/221.2	13	E22	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	1
111.3761.20.00	12	5/44.2	40	5	25/221.2	25	E23	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	1
111.3761.30.00	24	5/44.2	40	2.5	25/221.2	13	E23	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	1
111.3761.20.00E	12	5/44.2	40	5	25/221.2	25	E23	C25	F2	62:1	1.25 / 3.34	IP53	PLA	a	1
111.3761.30.00E	24	5/44.2	40	2.5	25/221.2	13	E23	C25	F2	62:1	1.25 / 3.34	IP53	PLA	a	1
111.3763.20.00	12	6/53.1	25	4	25/221.2	15	E23	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	3
111.3763.30.00	24	6/53.1	25	2	25/221.2	8	E23	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	3
111.4761.30.00	24	5/44.2	40	2.5	25/221.2	13	E23	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	b	1
111.9031.20.00	12	3/26.5	70	6	25/221.2	34	E23	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	2
111.9031.30.00	24	3/26.5	70	3	25/221.2	17	E23	C25	EE2	62:1	1.25 / 3.34	IP53	PLA	a	2
111.9039.30.00	24	1.5/13.2	240	4	14/123.9	23	E23	C26	EE1	49:4	1.25 / 3.34	IP53	PLA	a	4
111.9041.30.00	24	5/44.2	40	2.5	25/221.2	13	E24	C25	EE2	62:1	1.30 / 3.48	IP53	BRO	a	1
111.9094.20.00	12	5/44.2	40	5	25/221.2	25	E52	C2	EE2	62:1	1.25 / 3.34	IP53	PLA	a	1
111.9107.30.00	24	1.5/13.2	240	4	14/123.9	23	E24/E53	C26	EE1	49:4	1.25 / 3.34	IP40	CEL	c	4
111.9114.30.00	24	3/26.5	70	3	25/221.2	17	E24/E54	C37	EE2	62:1	1.25 / 3.34	IP40	PLA	c	2
111.9199.30.00	24	3/26.5	100	3	20/177.01	24	E24	C26	F3	59:2	1.25 / 3.34	IP53	PLA	a	59

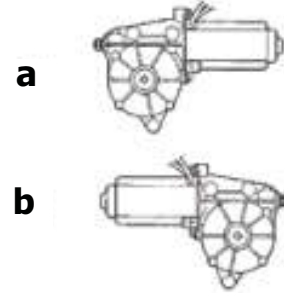


MOTOR WITH GEAR



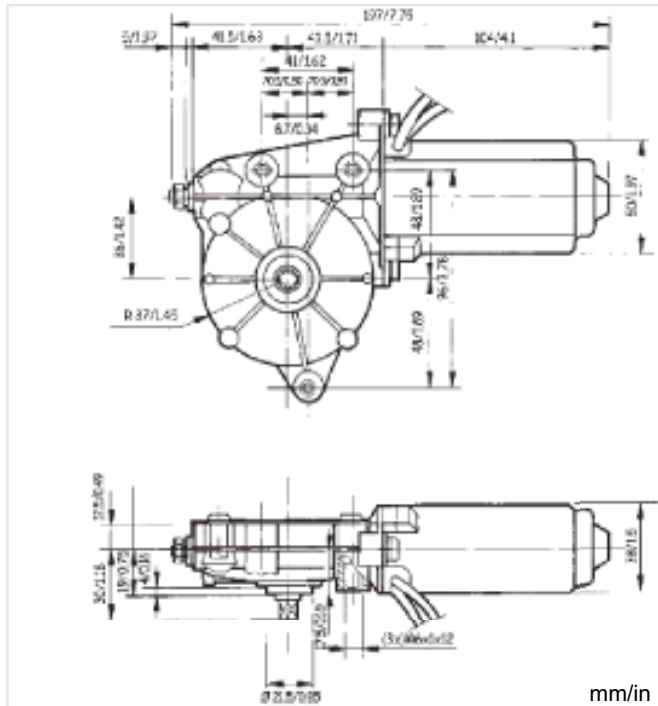
Part No.	Nominal Voltage		Nominal torque		Nominal speed		Nominal current		Starting torque		Starting Current		Self-locking torque		Shaft	Connections	Wiring diag.	Transmission Ratio	Approximate weight	Water tightness	Wheel material	Design: a, b	Curve
	Un (V)	Mn (N.m./ lbf.in)	Nn (r.p.m)	In (A)	Ma (N.m./ Lbf.in)	Ia (A)	Mk (N.m.)																
119.3780.20.00	see 319.3860.20.00 page 28																						
119.3780.30.00	see 319.3860.30.00 page 28																						
119.3786.20.00	see 319.3862.20.00 page 28																						
119.3786.30.00	see 319.3862.30.00 page 28																						
119.3786.20.00E	see 319.1862.20.00 page 28																						
119.3786.30.00E	see 319.1862.30.00 page 28																						
119.3788.20.00	see 319.3846.20.00 page 28																						
119.3788.30.00	see 319.3846.30.00 page 28																						
119.9009.20.00	see 319.3820.20.00 page 28																						
119.9009.30.00	see 319.3820.30.00 page 28																						
119.9032.20.00	see 319.3822.20.00 page 28																						
119.9032.30.00	see 319.3822.30.00 page 28																						
119.9035.20.00	12	4/35.4	140	10	25/221	60	-	E35	C38	EE4	48:2	2.30 / 6.20	IP53	PLA	a	13							
119.9037.30.00	24	6/53.10	80	5	30/266	24	-	E35/E50	C33	EE4	48:2	2.30 / 6.20	IP40	PLA	b	11							
119.9059.30.00	24	3.5/40	195	6	30/266	65	-	E35	C33	EE4	48:2	2.30 / 6.20	IP53	PLA	a	14							
119.9062.20.00	12	8/70.8	40	8	30/226	40	40	E55	C39	EE5	50:1	2.50 / 6.70	IP53	CEL	a	15							
119.9063.20.00	12	9/79.6	27	8	35/310	30	40	E35	C33	EE4	50:1	2.50 / 6.70	IP53	CEL	a	16							

MOTOR WITH GEAR



Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Transmission Ratio	Approximate weight	Water tightness	Wheel material	Design: a, b	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)		Ia (A)				i	P (kg / lb.t)	IP			
210.0102.20.D0	12	3/26.5	55-75	7.5	10/88.5	28	E39	C38	EE16	60:1	0.95 / 2.54	IP40	PLA	a	17
210.0102.20.I0	12	3/26.5	55-75	7.5	10/88.5	28	E39	C38	EE16	60:1	0.95 / 2.54	IP40	PLA	b	17
210.0102.30.D0	24	3/26.5	55-75	4	10/88.5	14	E39	C38	EE16	60:1	0.95 / 2.54	IP40	PLA	a	17
210.0102.30.I0	24	3/26.5	55-75	4	10/88.5	14	E39	C38	EE16	60:1	0.95 / 2.54	IP40	PLA	b	17

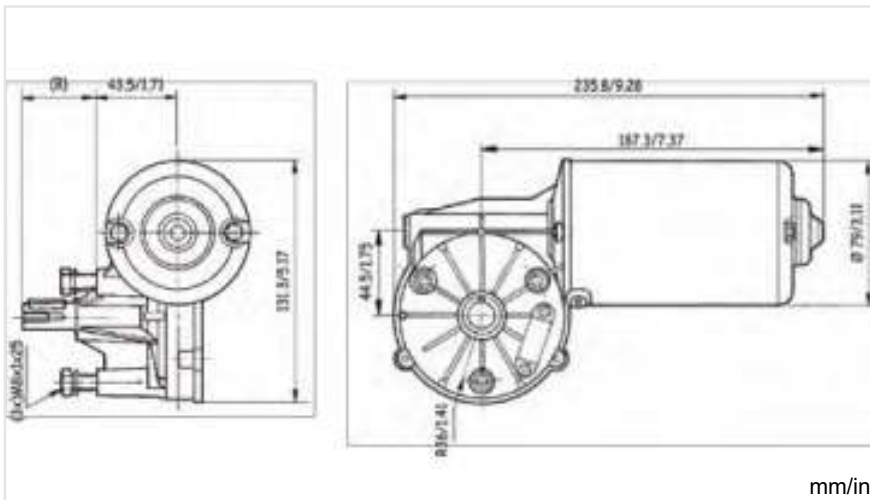
(VDE 0530) S3 -10% (10 min.)



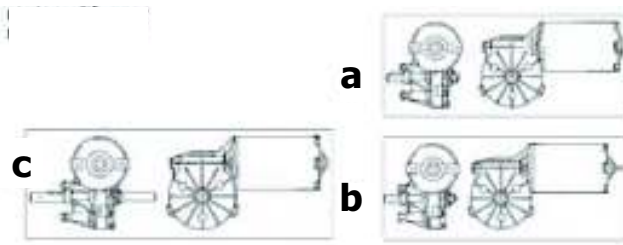
MOTOR WITH GEAR



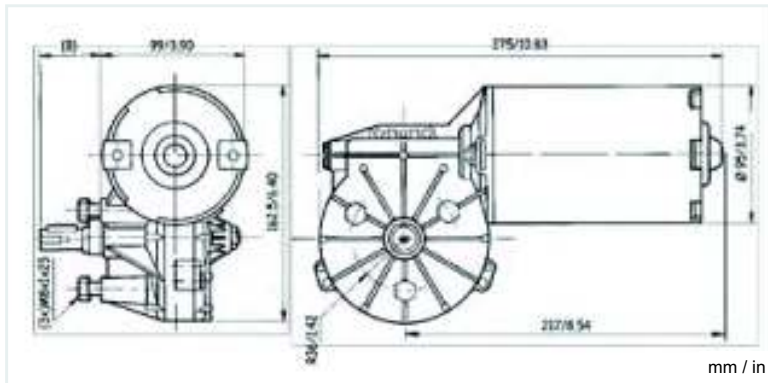
Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Transmission Ratio	Approximate weight	Water tightness	Wheel material	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)		Ia (A)				i	P (kg / lb.t)	IP		
258.1710.20.00	12	15/133	25	10	80/708	42	E36	C34	F2	52:1	3.00 / 8	IP53	PLA	18
258.1710.30.00	24	15/133	25	5	80/708	21	E36	C34	F2	52:1	3.00 / 8	IP53	PLA	18
258.3710.20.00	12	15/133	25	10	80/708	42	E36	C34	EE2	52:1	3.00 / 8	IP53	PLA	18
258.3710.30.00	24	15/133	25	5	80/708	21	E36	C34	EE2	52:1	3.00 / 8	IP53	PLA	18
258.3712.20.00	12	12/106	40	12	80/708	55	E36	C34	EE2	52:1	3.00 / 8	IP53	PLA	19
258.3712.30.00	24	12/106	40	6	80/708	32	E36	C34	EE2	52:1	3.00 / 8	IP53	PLA	19
258.9026.20.00	12	12/106	40	12	80/708	55	E36	C34	EE2	52:1	3.00 / 8	IP53	CEL	19
258.9026.30.00	24	12/106	40	6	80/708	32	E36	C34	EE2	52:1	3.00 / 8	IP53	CEL	19



MOTOR WITH GEAR



Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Transmission Ratio	Approximate weight	Water tightness	Wheel material	Design: a, b, c	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)		Ia (A)									
259.3710.20.00	12	20/177	22	12	130/1150	60	E37	C34	EE2	50:1	5.90 / 15.80	IP53	PLA	a	20
259.3710.30.00	24	20/177	22	6	130/1150	30	E37	C34	EE2	50:1	5.90 / 15.80	IP53	PLA	a	20
259.9001.20.00	12	15/132.7	40	18	120/1062	98	E37	C34	F2	50:1	5.90 / 15.80	IP53	PLA	a	21
259.9001.30.00	24	15/132.7	40	9	120/1062	49	E37	C34	F2	50:1	5.90 / 15.80	IP53	PLA	a	21
259.9008.30.00	24	25/221	25	7	135/1195	30	E37/E51	C34	EE2	50:1	5.90 / 15.80	IP40	PLA	b	22
259.9016.30.00	24	20/177	22	6	130/1150	30	E37	C34	EE2	50:1	5.90 / 15.80	IP53	CEL	a	20
259.9027.20.00	12	20/177	22	12	130/1150	60	E61/E62	C40	EE1	50:1	6.0 / 16.07	IP53	CEL	c	20

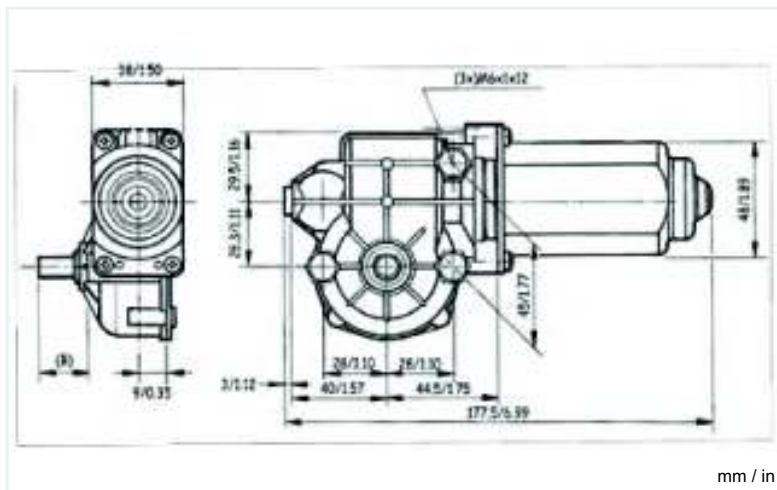


MOTOR WITH GEAR

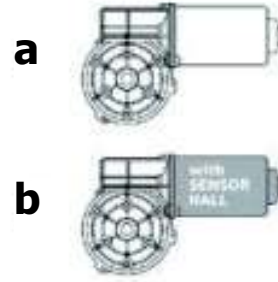


Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Transmission Ratio	Approximate weight	Water tightness	Wheel material	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)		Ia (A)								
316.2711.20.00	12	2/17.70	38	3.4	10 / 88.5	12	E29	C30	EE4	62:1	0.90 / 2.41	IP40	PLA	56
316.2711.30.00	24	2/17.70	38	1.7	10 / 88.5	6	E29	C30	EE4	62:1	0.90 / 2.41	IP40	PLA	56
316.2761.20.00	12	2/17.70	38	3.4	10 / 88.5	12	E30	C30	EE4	62:1	0.90 / 2.41	IP40	PLA	56
316.2761.30.00	24	2/17.70	38	1.7	10 / 88.5	6	E30	C30	EE4	62:1	0.90 / 2.41	IP40	PLA	56
316.2761.20.00E	12	2/17.70	38	3.4	10 / 88.5	12	E30	C30	F4	62:1	0.90 / 2.41	IP40	PLA	56
316.2761.30.00E	24	2/17.70	38	1.7	10 / 88.5	6	E30	C30	F4	62:1	0.90 / 2.41	IP40	PLA	56
316.9728.30.00	24	2/17.70	38	1.7	10 / 88.5	6	E30	C30	EE4	62:1	0.90 / 2.41	IP40	BRO	56
316.9731.20.00 *	12	1.5 / 13.27	65	6.0	10 / 88.5	22	E30	C30	EE4	62:1	0.90 / 2.41	IP40	PLA	57
316.9731.30.00 *	24	1.5 / 13.27	65	3.0	10 / 88.5	11	E30	C30	EE4	62:1	0.90 / 2.41	IP40	PLA	57

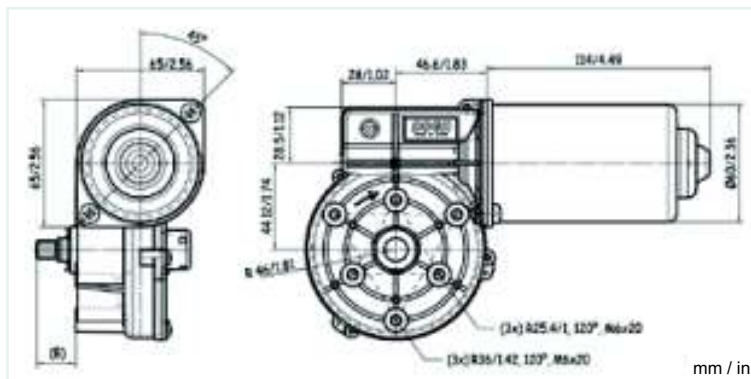
* (VDE 0530) S3 - 10% (10min)



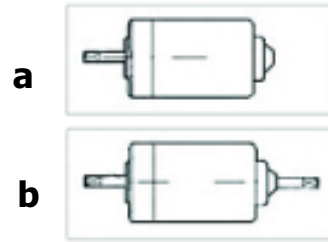
MOTOR WITH GEAR



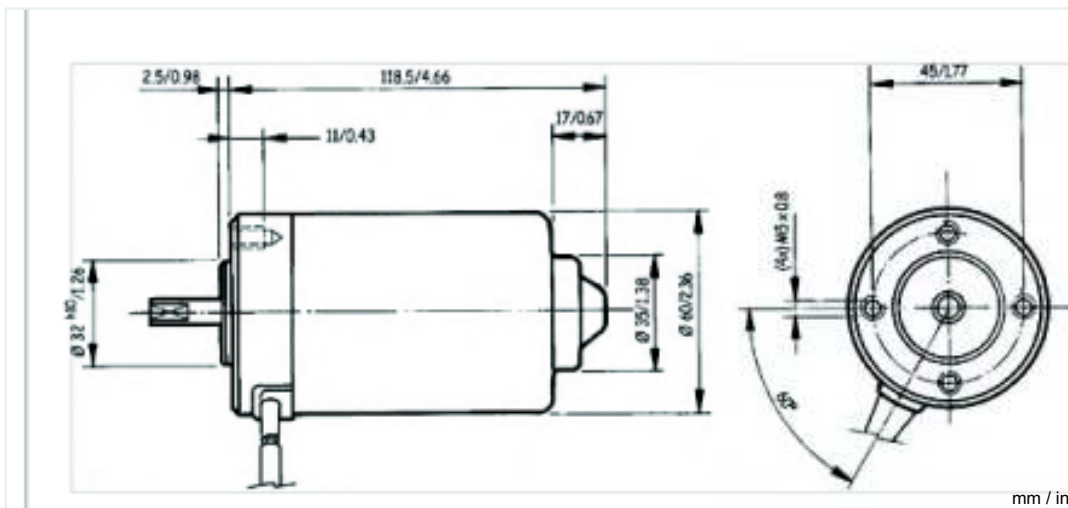
Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Transmission Ratio	1.7 / 4.55	Water tightness	Wheel material	Design: a, b	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)	Ma (N.m./Lbf.in)	Ia (A)					P (kg / lb.t)				
319.3860.20.00	12	9 / 79.6	30	7	50 / 442.5	28	E35	C37	EE4	81:1	1.7 / 4.55	IP55	PLA	a	58
319.3860.30.00	24	9 / 79.6	30	3	50 / 442.5	15	E35	C37	EE4	81:1	1.7 / 4.55	IP55	PLA	a	58
319.3862.20.00	12	8 / 70.8	45	6	50 / 442.5	50	E35	C37	EE4	81:1	1.7 / 4.55	IP55	PLA	a	60
319.3862.30.00	24	9 / 79.6	45	3	60 / 531	25	E35	C37	EE4	81:1	1.7 / 4.55	IP55	PLA	a	61
319.3846.20.00	12	3 / 26.5	95	6	35 / 309.8	60	E35	C37	EE4	78:2	1.7 / 4.55	IP55	PLA	a	62
319.3846.30.00	24	3 / 26.5	95	3	35 / 309.8	30	E35	C37	EE4	78:2	1.7 / 4.55	IP55	PLA	a	63
319.1860.20.00	12	9 / 79.6	30	7	50 / 442.5	28	E35	C37	F2	81:1	1.7 / 4.55	IP55	PLA	a	58
319.1860.30.00	24	9 / 79.6	30	3	50 / 442.5	15	E35	C37	F2	81:1	1.7 / 4.55	IP55	PLA	a	58
319.1862.20.00	12	8 / 70.8	45	6	50 / 442.5	50	E35	C37	F2	81:1	1.7 / 4.55	IP55	PLA	a	60
319.1862.30.00	24	9 / 79.6	45	3	60 / 531	25	E35	C37	F2	81:1	1.7 / 4.55	IP55	PLA	a	61
319.1846.20.00	12	3 / 26.5	95	6	35 / 309.8	60	E35	C37	F2	78:2	1.7 / 4.55	IP55	PLA	a	62
319.1846.30.00	24	3 / 26.5	95	3	35 / 309.8	30	E35	C37	F2	78:2	1.7 / 4.55	IP55	PLA	a	63
319.3820.20.00	12	9 / 79.6	30	7	50 / 442.5	28	E35	C37	EE4	81:1	1.7 / 4.55	IP55	BRO	a	58
319.3820.30.00	24	9 / 79.6	30	3	50 / 442.5	15	E35	C37	EE4	81:1	1.7 / 4.55	IP55	BRO	a	58
319.3822.20.00	12	8 / 70.8	45	6	50 / 442.5	50	E35	C37	EE4	81:1	1.7 / 4.55	IP55	BRO	a	60
319.3822.30.00	24	9 / 79.6	45	3	60 / 531	25	E35	C37	EE4	81:1	1.7 / 4.55	IP55	BRO	a	61
319.3806.20.00	12	3 / 26.5	95	6	35 / 309.8	60	E35	C37	EE4	78:2	1.7 / 4.55	IP55	BRO	a	62
319.3806.30.00	24	3 / 26.5	95	3	35 / 309.8	30	E35	C37	EE4	78:2	1.7 / 4.55	IP55	BRO	a	63
319.4860.20.00	12	9 / 79.6	30	7	50 / 442.5	28	E35	C41	EE17	81:1	1.7 / 4.55	IP40	PLA	b	58
319.4860.30.00	24	9 / 79.6	30	3	50 / 442.5	15	E35	C41	EE17	81:1	1.7 / 4.55	IP40	PLA	b	58
319.4862.20.00	12	8 / 70.8	45	6	50 / 442.5	50	E35	C41	EE17	81:1	1.7 / 4.55	IP40	PLA	b	60
319.4862.30.00	24	9 / 79.6	45	3	60 / 531	25	E35	C41	EE17	81:1	1.7 / 4.55	IP40	PLA	b	61



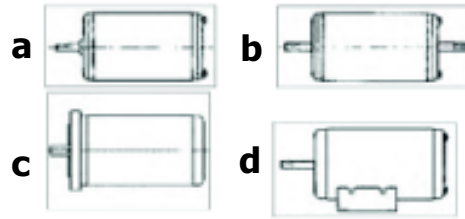
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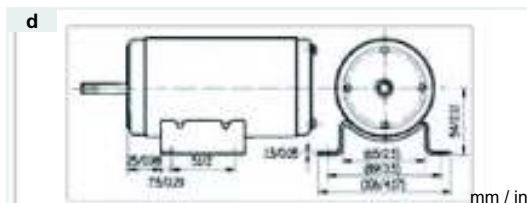
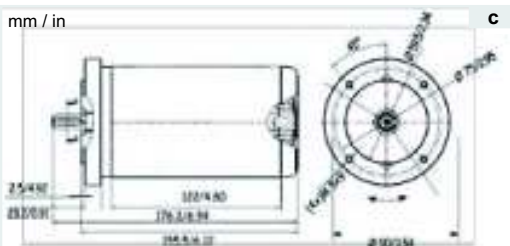
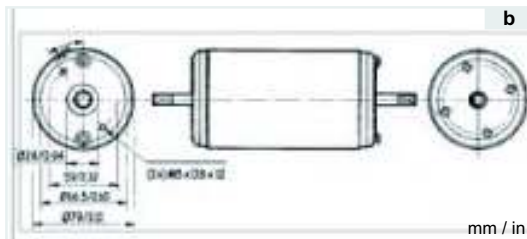
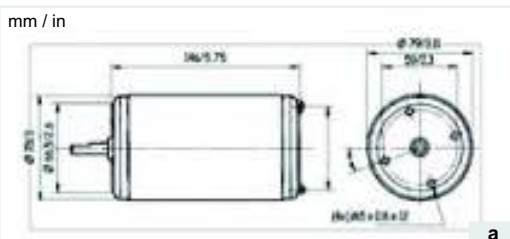
Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Approximate weight	Water tightness	Design: a, b	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)	Ma (N.m./Lbf.in)	la (A)				P (kg / lb.t)			
162.4101.20.00	12	0.18 / 1.59	2800	7.5	1.0 / 8.85	33	E2	C2	EE2	1.1 / 2.95	IP53	a	32
162.4101.30.00	24	0.20 / 1.77	3000	4	1.0 / 8.85	18	E2	C2	EE2	1.1 / 2.95	IP53	a	33
162.4102.20.00	12	0.20 / 1.77	2000	6	1.0 / 8.85	24	E2	C3	EE2	1.1 / 2.95	IP53	a	34
162.4102.30.00	24	0.20 / 1.77	2000	3	1.0 / 8.85	12	E2	C3	EE2	1.1 / 2.95	IP53	a	34
162.4106.20.00	12	0.18 / 1.59	2800	7.5	1.0 / 8.85	33	E4	C2	EE2	1.1 / 2.95	IP53	a	32
162.4106.30.00	24	0.20 / 1.77	3000	4	1.0 / 8.85	18	E4	C2	EE2	1.1 / 2.95	IP53	a	33
162.4107.30.00E	24	0.20 / 1.77	2000	3	1.0 / 8.85	12	E5	C5	F3	1.1 / 2.95	IP53	a	34
162.4108.30.00	24	0.18 / 1.59	1500	2.5	0.8 / 7.08	8.5	E2	C3	EE2	1.1 / 2.95	IP53	a	35
162.4109.30.00	24	0.18 / 1.59	1500	2.5	0.8 / 7.08	8.5	E38	C35	EE3	1.1 / 2.95	IP53	a	35
162.4109.50.00	48	0.18 / 1.59	1500	1,3	0.8 / 7.08	4,5	E38	C35	EE3	1.1 / 2.95	IP53	a	35
162.4113.30.00	24	0.12 / 1.06	3000	2.5	1.0 / 8.85	15	E3	C4	F3	1.1 / 2.95	IP40	a	36
162.4116.30.00	24	0.20 / 1.77	3000	4	1.0 / 8.85	18	E58/E57	C2	EE2	1.1 / 2.95	IP40	b	33



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Part No.	Nominal Voltage		Nominal Torque		Nominal speed		Nominal current		Starting torque		Starting Current		Shaft	Connections	Wiring diag.	Approximate weight		Water tightness	Design: a, b, c, d	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)	Ma (N.m./Lbf.in)	la (A)	P (kg / lb.t)	IP												
168.4105.20.04	12	0.50 / 4.42	1900	14	3.0 / 26.5	64	E8	C8	EE1	2.6 / 6.9	IP40	a	37							
168.4105.30.04	24	0.50 / 4.42	1900	7	3.0 / 26.5	32	E8	C8	EE1	2.6 / 6.9	IP40	a	37							
168.4108.20.04	12	0.45 / 3.98	2800	19	3.0 / 26.5	100	E9	C9	EE4	2.6 / 6.9	IP40	a	39							
168.4108.30.04	24	0.45 / 3.98	2800	10	3.0 / 26.5	52	E9	C9	EE4	2.6 / 6.9	IP40	a	39							
168.4111.20.04	12	0.75 / 6.64	1000	11	2.8 / 24.8	36	E11	C9	EE2	2.6 / 6.9	IP40	a	40							
168.4111.30.04	24	0.75 / 6.64	1000	5.5	2.8 / 24.8	18	E11	C9	EE2	2.6 / 6.9	IP40	a	40							
168.4112.20.04	12	0.70 / 6.19	1500	14	3.0 / 26.5	56	E12	C11	EE2	2.6 / 6.9	IP40	a	42							
168.4112.30.04	24	0.70 / 6.19	1500	7	3.0 / 26.5	28	E12	C11	EE2	2.6 / 6.9	IP40	a	42							
168.4115.30.04	24	0.50 / 4.42	3000	11	3.0 / 26.5	70	E13/E41	C13	EE2	2.6 / 6.9	IP40	a	41							
168.4116.20.04	12	0.50 / 4.42	1900	14	3.0 / 26.5	64	E8	C8	EE1	2.6 / 6.9	IP40	d	37							
168.4116.30.04	24	0.50 / 4.42	1900	7	3.0 / 26.5	32	E8	C8	EE1	2.6 / 6.9	IP40	d	37							
168.4121.0.04E	24	0.50 / 4.42	3000	11	3.0 / 26.5	70	E11/E11	C13	F2	2.6 / 6.9	IP40	b	41							
168.4122.30.04	24	0.75 / 6.64	1000	5.5	2.8 / 24.8	18	E13/E41	C13	EE2	2.6 / 6.9	IP40	a	40							
168.4123.20.04	12	0.50 / 4.42	2100	16	3.0 / 26.5	76	E13/E41	C13	EE2	2.6 / 6.9	IP40	a	43							
168.4123.30.04	24	0.50 / 4.42	2100	8	3.0 / 26.5	38	E13/E41	C13	EE2	2.6 / 6.9	IP40	a	43							
168.4134.30.04	24	0.30 / 2.65	750	1.5	1.5 / 13.3	7	E59	C9	EE2	2.6 / 6.9	IP40	a	44							
168.4136.3B.00E	24	0.75 / 6.64	1000	5.5	2.8 / 24.8	18	E63	C42	F2	2.6 / 6.9	IP40	c	40							



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Part No.	Nominal Voltage	Nominal Torque	Nominal speed	Nominal current	Starting torque	Starting Current	Shaft	Connections	Wiring diag.	Approximate weight	Water tightness	Curve
	Un (V)	Mn (N.m./ lbf. in)	nn (r.p.m)	In (A)	Ma (N.m./Lbf.in)	Ia (A)				P (kg / lb.t)	IP	
260.0107.30.00	24	0.08 / 0.70	4000	3	0.04 / 3.54	12	E19	C19	EE9	0.7 / 1.87	IP40	51
260.0108.20.00	12	0.08 / 0.70	4000	6	0.04 / 3.54	24	E19	C20	EE9	0.7 / 1.87	IP40	51
260.0111.20.04	12	0.08 / 0.70	3000	5	0.04 / 3.54	22	E19	C21	EE2	0.7 / 1.87	IP40	50
260.0111.30.04	24	0.08 / 0.70	3000	2.5	0.04 / 3.54	11	E19	C21	EE2	0.7 / 1.87	IP40	50

