

EUM and EUM-W Series Enclosed UniModule

Enclosed and Washdown UniModule Combinations

Clutch/Brake Combinations



1020

Motor Clutch/Brake
Sizes 50, 100, 180, 210, 215

Use for clutch/brake applications, available dust tight (IP 60) and washdown (IP 65). Has hollow bore input for mounting directly to C-face motors. Brake shaft and C-face on output side accommodate reducer, parallel drive or coupling. Basic components: field, rotor, 2 armatures and power on magnet. See page A-46 (dust tight) and page A-55 (washdown) in this catalog.



2030

Input Clutch/Brake
Sizes 50, 180, 210

Use for clutch/brake applications, available dust tight (IP 60) and washdown (IP 65). Features dual C-faces and shafts. Input from parallel drive or coupling. Output to reducer. Basic components: field, rotor, 2 armatures and power on magnet. See page A-48 (dust tight) and page A-56 (washdown) in this catalog.

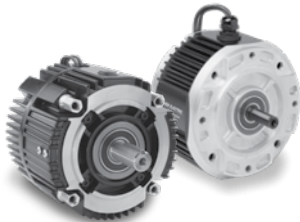


2030-B

Input Clutch/Brake – with Accessory Base Mounting
Sizes 50, 180, 210

Base mounting allows Input Clutch/Brake combinations to be utilized as separate drive units. Attach with pulleys, sprockets, etc. See page A-48 (dust tight) and page A-56 (washdown) in this catalog.

Clutch Combinations



1040

Motor Clutch/Output Clutch
Sizes 50, 100, 180, 210

Use for clutch only applications, available dust tight (IP 60). Has hollow bore input for mounting directly to C-face motors. Output shaft and C-face on output side accommodate reducer, parallel drive or coupling. Basic components: field, rotor, 1 armature. See page A-47 in this catalog.

EUM Series Enclosed UniModule

50, 100, and 180 Sizes

Totally Enclosed Versions

Warner Electric Series Enclosed UniModules (EUM and EUM-W) package the same hard working, rugged components and features of our standard Electro Modules (EM) and UniModules (UM), sealed coils; twin bearing supported output shafts for maintaining close concentricity's; Warner Electric's exclusive AutogapTM which automatically adjusts the armature for wear; and close fitting hardened keys into a totally enclosed housing. The rugged housing keeps wear particles in and contaminants out and provides quiet operation. Washdown versions offer additional protection from water intrusion. Pre-burnished at the factor for reliable and consistent operation out-of-box.

- Keeps wear particles in.
- Keeps contaminants out.
- Washdown versions protect against water intrusion.
- Quiet operation.
- Non-washdown units are finned for heat dissipation.
- Optional fan kits available for enhanced heat dissipation.
- UL listed when optional conduit box (washdown version available) is installed.

A note about the content of this section:

All size 50, 100 and 180 modules including EM, UM, UM-C, UM-SS previously described in this catalog can be converted to an enclosed unit (EUM non-washdown) simply with the addition of a cover kit (5370-101-076 for clutches and clutch/brakes, 5370-101-082 for standalone brakes). Warner Electric size 50, 100 and 180 EUM configurations previously supplied with dedicated enclosed housings are included here for your convenience as well as dedicated size 210 and 215 EUMs.

EUM starts on page A-46.

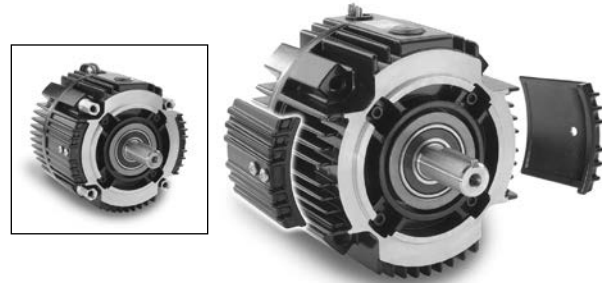
EUM-W starts on page A-55.

To convert any UniModule 50, 100, and 180 sizes to an EUM, purchase optional Cover Kit

Enclosed UniModule Conversion

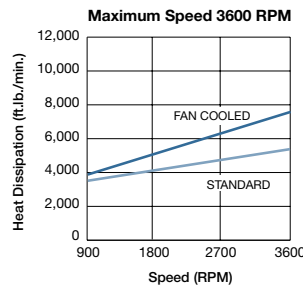
Part Number 5370-101-076

Enclosed UniModules, (EUMs) for 50, 100, and 180 sizes, are being replaced by UniModules (UMs) and an easy to install cover kit. Each kit contains (2) vent covers, (2) gaskets and (4) screws. A vent cover bolts to both sides of the UniModule unit to enclose the open vents of the housing creating a totally enclosed (non-washdown) brake package which keeps contaminants out and wear particles in for clean, quiet operation.

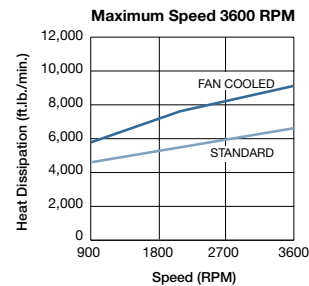


Heat Dissipation Curves

EUM 50



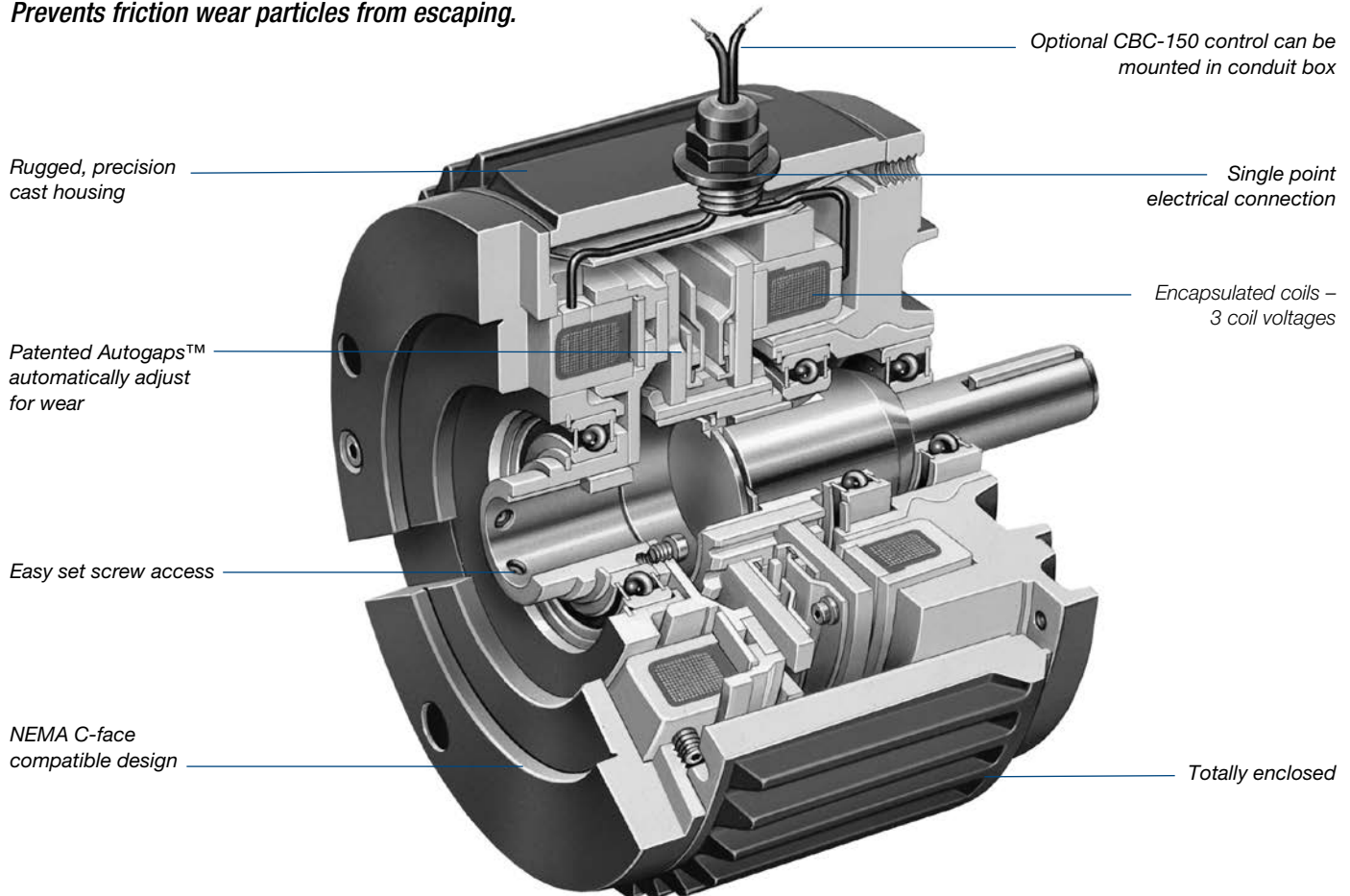
EUM 100/180



EUM Series Enclosed UniModule

210 and 215 Sizes

*Clean, quiet, operation. Nothing can get in, nothing can get out.
Enclosed design eliminates damage to the working components.
Prevents friction wear particles from escaping.*



One piece, C-face package completely assembled and factory aligned. Mates easily with standard motors and reducers. Foot mounted package also available. Easy-to-install and no maintenance required.

Bolt-it-down, wire-it-up. UniModule is ready to go. Automatic adjustment for wear. Complete control capability.

Available with built-in power supply or used with separate controls for soft starts and stops . . . or for fast acting, accurate cycling.

- Factory burnished for out-of-box torque
- Superior heat transfer
- Dual endbell for easy repair
- Single point electrical connection
- Optional conduit box
- Optional integral control

Improved Hub Design/Autogap System

- Improved for longer spline life
- Autogap functions over broad current range
- New hub material

EUM Totally Enclosed

EUM (black) units are totally enclosed to keep wear particles in and exclude contaminants and are suitable for most industrial applications.

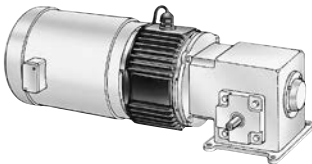
EUM Series Enclosed UniModule

Selection

EUM - Selection Procedure

Warner Electric EUM clutch/brake modules normally mount in either of two methods: NEMA C-face mounting or base mounting.

1. Select Configuration



a. NEMA C-face Mounting (1020 and 1040 Configurations)

Based on the NEMA C-face frame size of the prime mover, select the corresponding clutch/brake package size from the Frame Size Selection chart. Size 100 houses the components of the size 180 in a size 50 frame, while size 215 incorporates size 210 components.

Select either a 1020 or a 1040 (EUM only) configuration. The 1020 is a clutch/brake, while the 1040 is a clutch only. The 2030 configuration is a clutch/brake for base mounting.

Frame Size Selection

NEMA Frame Size	EUM Size
56C/48Y	EUM-50* EUM-100**
182C/143TC 184C/145TC	EUM-180
213C/182TC 215C/184TC	EUM-210
213TC/215TC	EUM-215

* For 56C/48Y Frame motors 3/4 HP and smaller the EUM-100 size may be used where extended life is desirable.
** EUM-100 size is recommended for motors 1 HP and larger.

b. Base Mounting (2030 Configuration)



Enclosed UniModule assemblies may be mounted as separate drive units driven from the prime mover by V-belts, chain and sprockets, couplings, timing belts and other standard power transmission components.

Select the correct size 2030 package from the Horsepower vs. Shaft Speed chart by determining the motor horsepower and RPM at the module location. The correct size EUM is shown at the intersection of the HP and operating speed. For additional sizing information, refer to the technical sizing procedure (step 2).

2. Determine Technical Requirements

Technical considerations for sizing and selection are torque and heat dissipation. Each merits careful consideration, especially heat dissipation as over time, use in excessive temperature environments will have an adverse effect on bearing life and coil wire insulation integrity.

Compare the calculated torque requirement with the average dynamic torque ratings. Select a unit with adequate torque. If the unit selected on torque is different than the unit selected based on heat, select the larger size unit.

Two heat dissipation curves are shown. A fan kit accessory is available for use with these units.

Horsepower vs. Shaft Speed

HP	SHAFT SPEED AT CLUTCH (IN RPM)																	
▼	100	200	300	400	500	600	700	800	900	1000	1100	1200	1500	1800	2000	2400	3000	3600
1/4																		
1/2															EUM-50			
3/4																		
1													EUM-100/180					
1-1/2																		
2																		
3																		
5																		
7-1/2																		
10																		

*For applications with speeds below 100RPM, please contact Warner Electric Application Support.

EUM Series Enclosed UniModule

a. Heat Dissipation Sizing

Friction surfaces slip during the initial period of engagement and, as a result, heat is generated. The clutch/brake selected must have a heat dissipation rating greater than the heat generated by the application. Therefore, in high inertia or high cycle rate applications, it is necessary to check the heat dissipation carefully. Inertia, speed and cycle rate are the required parameters.

Heat dissipation requirement is calculated as follows:

$$E = 1.7 \times WR^2 \times (N/100)^2 \times F$$

where:

$$E = \text{Heat (lb. ft./min.)}$$

WR^2 = Total reflected inertia at the clutch/brake shaft. Include the clutch/brake output inertia. (lb.ft.²)

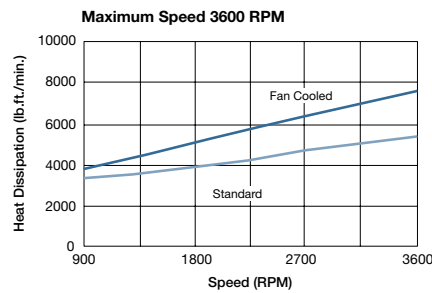
N = Speed in revolutions per minute (RPM)

F = Cycle rate in cycles per minute (CPM)

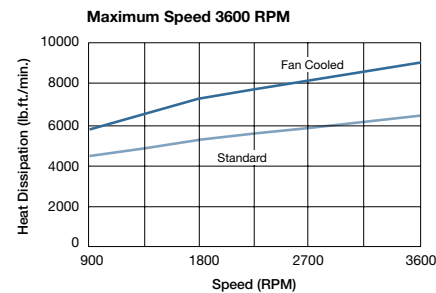
Compare the calculated heat generated in the application to the unit ratings using the heat dissipation curves. Select the appropriate unit that has adequate heat dissipation ability.

Enclosed UniModule Heat Dissipation Curves

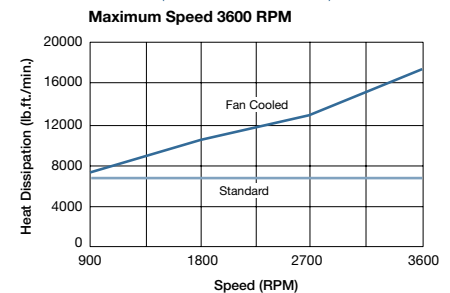
EUM 50



EUM 100/180



EUM 210/215 (fan not available for 215)



b. Torque Sizing

For most applications, the correct size clutch/brake can be selected from the Horsepower vs. Shaft Speed chart.

Determine the motor horsepower and the RPM at the clutch/brake. The correct size unit is shown at the intersection of horsepower and shaft speed.

If the static torque requirements are known, refer to the Specifications Table to select a unit.

For some applications, the torque requirement is determined by the time allowed to accelerate and decelerate the load. (This time is generally specified in milliseconds.) For these applications, it is necessary to determine the torque requirement based on load inertia and the time allowed for engagement.

The torque requirements are calculated as follows:

$$T = (WR^2 \times N) / (308 \times t)$$

where:

$$T = \text{Average Dynamic Torque (lb. ft.)}$$

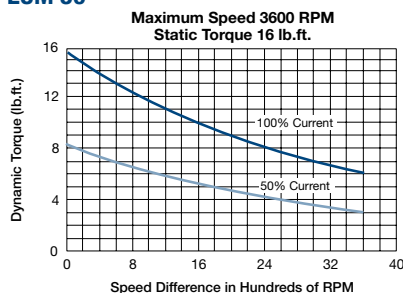
WR^2 = Total reflected inertia at the clutch/brake shaft. Include the clutch/brake output inertia. (lb. ft.²)

N = Speed in revolutions per minute (RPM)

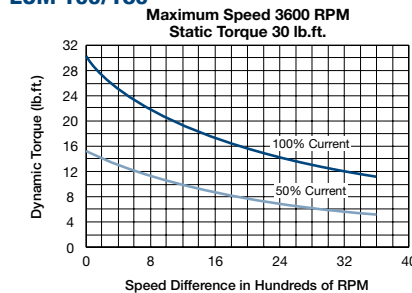
t = Time allowed for the engagement (sec)

C-face Clutch/Power-on Brake Dynamic Torque Curves

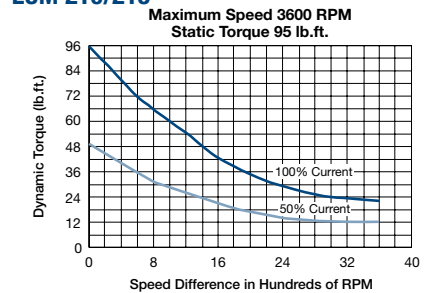
EUM 50



EUM 100/180



EUM 210/215



EUM Series Enclosed UniModule

Specifications

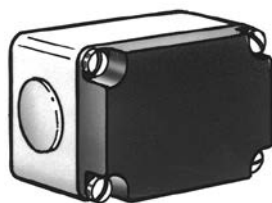
UniModule Size	Shaft Dia.	Static Torque lb. ft.	Horsepower	Max. RPM	Voltage DC	NEMA Frame Size
EUM50	.625	16	1/4-3/4	3600	6, 24 and 90	56C/48Y
EUM100	.625	30	1-2	3600	6, 24 and 90	56C/48Y
EUM180	.875	30	1-2	3600	6, 24 and 90	182C/143TC 184C/145TC
EUM210	1.125	95	3-5	3600	6, 24 and 90	213/182TC 215C/184TC
EUM215	1.375	95	7-1/2-10	3600	6, 24 and 90	213TC/215TC

Accessories

Warner Electric Enclosed UniModules can be fitted with several accessories to extend their capacity and ease of mounting.

Conduit Box

NEMA 4 and UL listed, available in standard and washdown versions.



Integral Control

The CBC-150 dual channel control fits into the cover of the conduit box. It is suitable for AC side switching (triac or relay) and includes high performance suppression.



Fan Kit (UM and EUM 1020 only)

Extends the thermal capacity of an EUM. Mounts between motor and EUM, includes shaft, fan, guard and hardware. Available in standard black coating or food grade approved white coating.

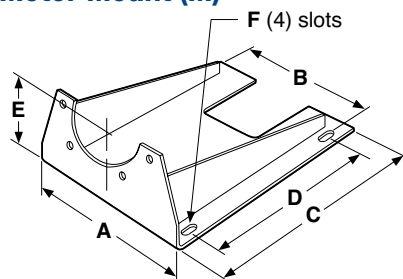


Mounting Brackets

Two styles of mounting brackets are available for simplified installation. The base mount is used with the 2030 configuration. A motor mount is also available and provides sturdy support for a 1020 or 1040 combination with motor.

(Optional)

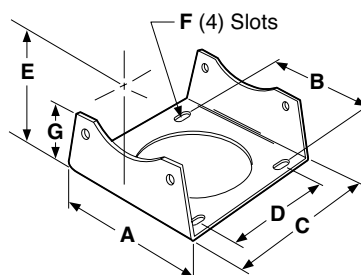
Motor Mount (M)



For use with 1020 and 1040 Combinations.

Size	A	B	C	D	E	F	Part No.
50/100	9.25	8.25	11.00	8.000	3.50	.797 x .406	5370-101-078
180	9.25	8.25	11.00	8.000	4.50	.797 x .406	5370-101-079
210/215	11.50	10.50	12.00	9.000	5.25	.750 x .406	5371-101-012

Base (B)



For use with 2030 and 3040 units.

Size	A	B	C	D	E	F	G	Part No.
50/100	6.000	5.000	5.672	4.000	3.500	.750 x .406	2.000	5370-101-004
180	6.625	5.000	5.672	4.000	4.500	.750 x .406	3.000	5370-101-002
210/215	9.000	7.750	8.203	6.000	5.250	.750 x .531	3.385	5371-101-001

EUM Series Enclosed UniModule

Selection and Ordering Information

Totally Enclosed EUM Model No.	Voltage D.C.	COMBINED	OR	SEPARATE		
		Part No.		Part Numbers		
		UniModule w/kit		UniModule	and	Cover Kit
1020 Configuration – Enclosed EUM						
EUM-50-1020	6	5370-15		5370-273-201	and	5370-101-076
	24	5370-16		5370-273-203	and	5370-101-076
	90	5370-17		5370-273-204	and	5370-101-076
EUM-100-1020	6	5370-18		5370-273-206	and	5370-101-076
	24	5370-19		5370-273-208	and	5370-101-076
	90	5370-20		5370-273-209	and	5370-101-076
EUM-180-1020	6	5370-21		5370-273-211	and	5370-101-076
	24	5370-22		5370-273-213	and	5370-101-076
	90	5370-23		5370-273-214	and	5370-101-076
EUM-210-1020	6			5371-273-028		
	24			5371-273-029		
	90			5371-273-027		
EUM-215-1020	6			5371-273-082		
	24			5371-273-083		
	90			5371-273-084		
20 Configuration (Power On Brake Only) – Enclosed EUM						
EUM-210-20	24			5371-169-105		
	90			5371-169-104		
EUM-215-20	24			5371-169-109		
	90			5371-169-108		
1040 Configuration – Enclosed EUM						
EUM-50-1040	90	5370-24		5370-271-204	and	5370-101-076
EUM-180-1040	90	5370-25		5370-271-214	and	5370-101-076
EUM-210-1040	90			5371-271-024		
2030 Configuration – Enclosed EUM						
EUM-50-2030	6	5370-26		5370-273-216	and	5370-101-076
	24	5370-27		5370-273-218	and	5370-101-076
	90	5370-28		5370-273-219	and	5370-101-076
EUM-180-2030	6	5370-29		5370-273-226	and	5370-101-076
	24	5370-30		5370-273-228	and	5370-101-076
	90	5370-31		5370-273-229	and	5370-101-076
EUM-210-2030	6			5371-273-032		
	24			5371-273-033		
	90			5371-273-031		

Accessories

Option	Size	Enclosed UniModule
Conduit box	All sizes	5370-101-042
Control	CBC-150-1	6004-448-001
	CBC-150-2	6004-448-002
Base Mount Kits for 2030	50	5370-101-004
	50/180*	5370-101-002
	210	5371-101-001
Motor Mount Kits for 1020, 1040, 20	50/100	5370-101-078
	50/100/180*	5370-101-079
	210/215	5371-101-012
Fan Kits for 1020, 1040	50/100	5370-101-055
	180	5370-101-054
	210	5371-101-029

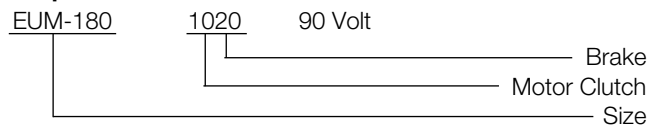
* Because of diameter limitations, bases for original design EUMs are available in 4.5" center height (143/145TC) only.

How to Order

Motor or Reducer Mounted

Simply combine the size number with the configuration of the required UniModule. Specify voltage. See chart for specific part numbers. Order optional conduit box if desired.

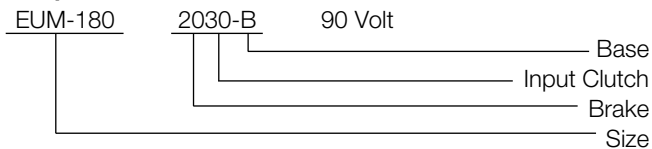
Example



Base Mounted

Simply combine the size number with the configuration of the required UniModule. Specify voltage. See chart for specific part numbers. Order optional conduit box if desired.

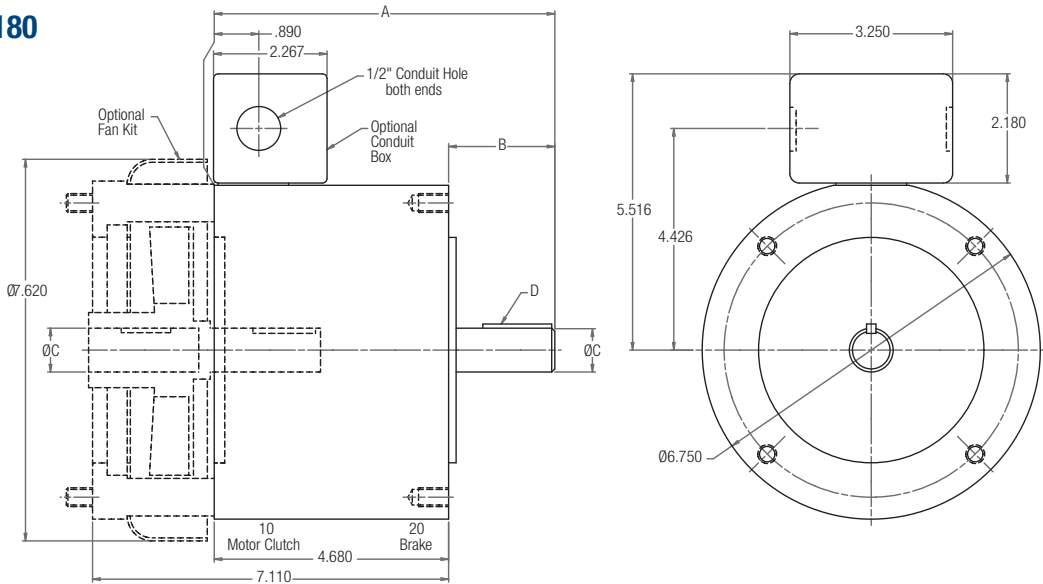
Example



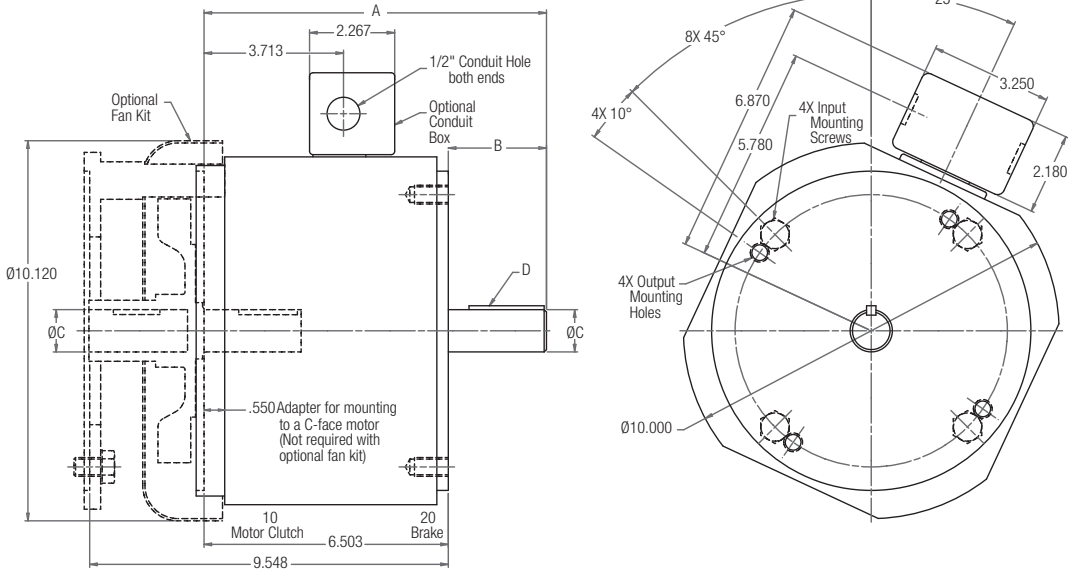
EUM Series Enclosed UniModule

EUM-1020 Motor Clutch/Brake Combination

SIZE 50/100/180



SIZE 210/215



Dimensions

Size	A	B	C	D
50	6.720	2.040	0.625	3/16 x 3/16
100	6.741	2.061	0.625	3/16 x 3/16
180	6.801	2.121	0.875	3/16 x 3/16
210	9.117	2.614	1.125	1/4 x 1/4
215	9.617	3.114	1.375	5/16 x 5/16

* Dimension includes the .500 thick adapter required for mounting to a C-face motor.

Specifications

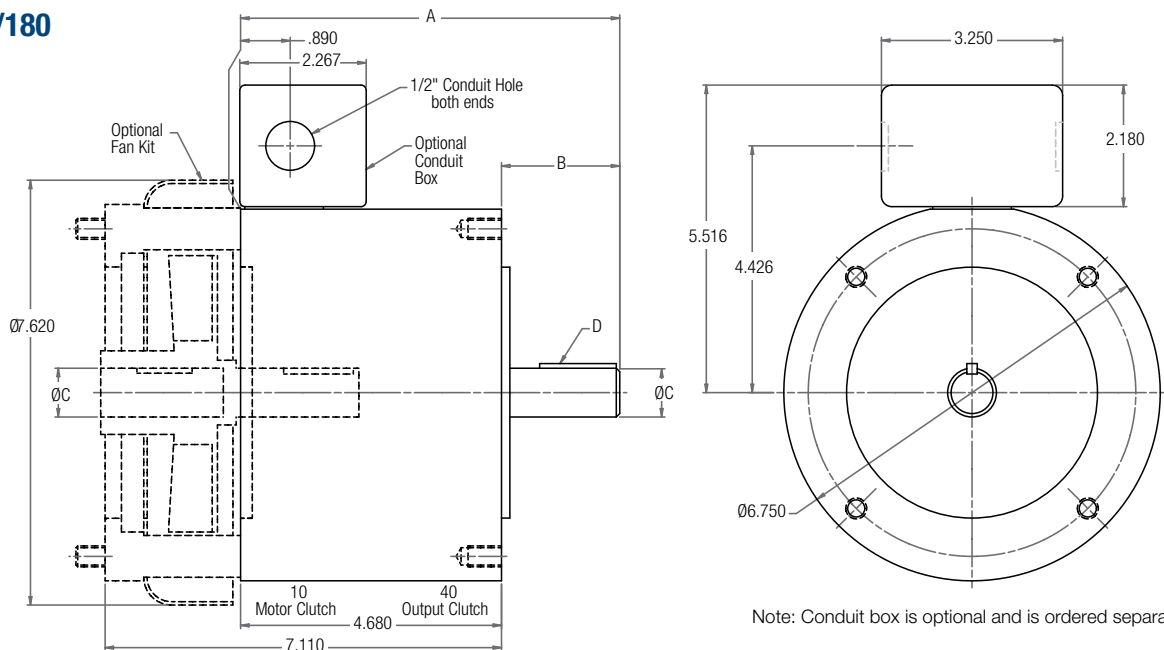
Model Size	Voltage DC	Static Torque lb. ft.	Max. RPM	NEMA Frame Size
50	6, 24, 90	16	3600	56C/48Y*
100	6, 24, 90	30	3600	56C/48Y**
180	6, 24, 90	30	3600	182C/143TC 184C/145TC
210	6, 24, 90	95	3600	213C/182TC 215C/184TC
215	6, 24, 90	95	3600	213TC/215TC

For standard NEMA frame dimensions, see page G-3.

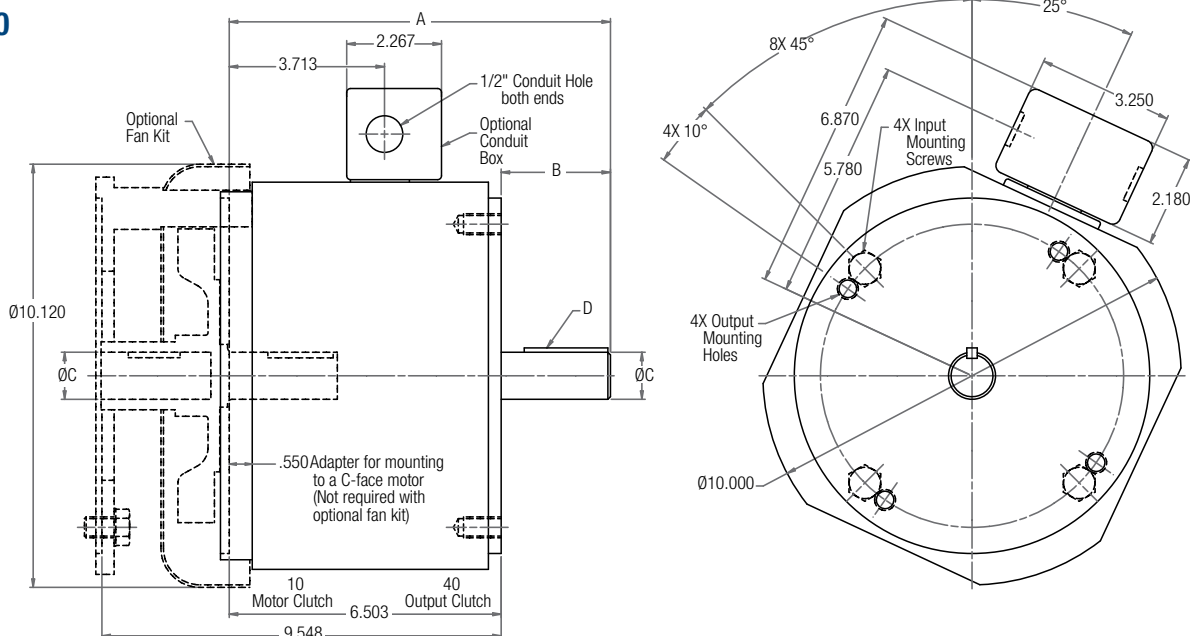
EUM Series Enclosed UniModule

EUM-1040 Motor Clutch/Output Clutch Combination

SIZE 50/180



SIZE 210



Dimensions

Size	A	B	C	D
50	6.720	2.040	0.625	3/16 x 3/16
180	6.801	2.121	0.875	3/16 x 3/16
210	9.117	2.614	1.125	1/4 x 1/4

*Dimension includes the .500 thick adapter. Required for C-face mounting to a motor.

Specifications

Model Size	Voltage DC	Static Torque lb. ft.	Max. RPM	NEMA Frame Size
50	90	16	3600	56C/48Y
180	90	30	3600	182C/143TC 184C/145TC
210	90	95	3600	213C/182TC 215C/184TC

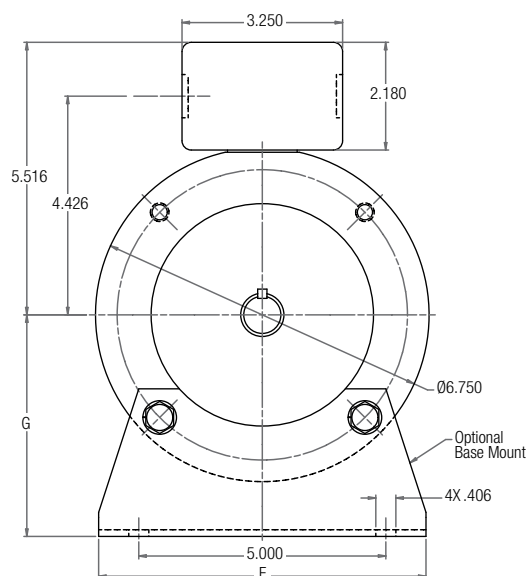
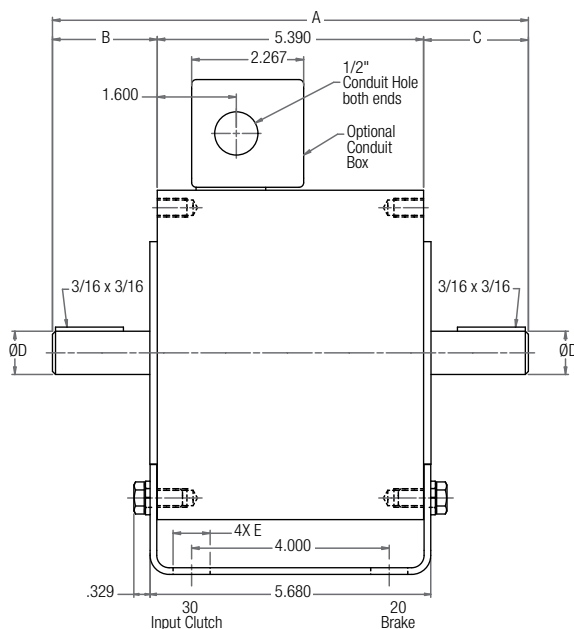
For standard NEMA frame dimensions, see page G-3.

EUM Series Enclosed UniModule

EUM-2030 Input Clutch/Brake Combination

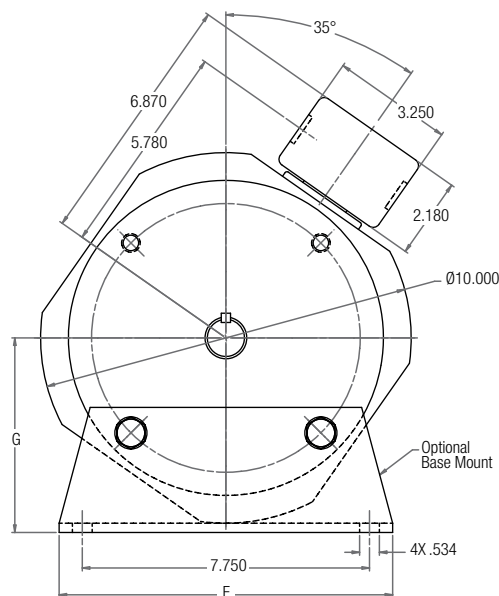
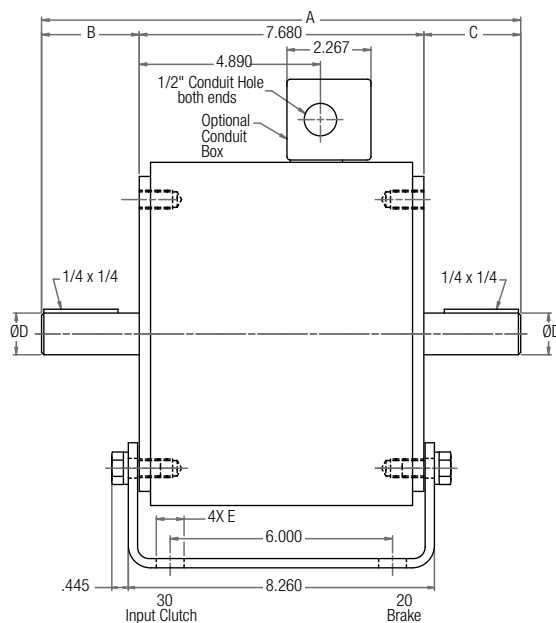
EUM-2030-B Input Clutch/Brake Combination – Base Mounted

SIZE 50/180



Note: Mounting base and conduit box are optional and are ordered separately.

SIZE 210



Dimensions

Size	A	B	C	D	E	F	G
50	9.492	2.062	2.040	0.625	0.800	6.000	3.500
180	9.632	2.121	2.121	0.875	0.750	6.625	4.500
210	12.930	2.636	2.614	1.125	0.750	9.000	5.250

Specifications

Model Size	Voltage DC	Static Torque lb. ft.	Max. RPM	NEMA Frame Size
50	6, 24, 90	16	3600	56C/48Y
180	6, 24, 90	30	3600	182C/143TC 184C/145TC
210	6, 24, 90	95	3600	213C/182TC 215C/184TC

For standard NEMA frame dimensions, see page G-3.

Notes

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