

TENV/IP54 Super-Mod® Clutch-Brake Modules

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Imagine a totally-enclosed, non-ventilated clutch-brake ready to work right out of the box, requiring no modifications. And at a price competitive with “open” enclosure clutch-brakes.

TENV Super-Mod will give you extended cycles, enhanced operating efficiency and longer operating life. TENV Super-Mod Modules are well suited for challenging applications where water, moisture, dirt, dust and other airborne pollutants can shorten the life of traditional clutch-brakes.

Examine these key value-added features:

- Cast-aluminum housing that meets IP54 requirements, preventing moisture and dirt from affecting operation of the unit
- Integrally cast, clutch-side magnetic body and endbell provides large heat

sink that conducts heat away from coil

- Brake-side magnetic body integrated with cast housing creates a heat exchanger that keeps the brake coil cool
- Unique fan design creates bi-directional air movement within the unit. This stabilizes internal temperatures and eliminates hot spots. The fan is cast into the drive hub and is equally efficient at moving air axially through the housing during motor rotation in either direction
- Depending on the model, between 28 and 60 percent fewer parts than competitive units for enhanced reliability and service life
- Armature assembly features an automatic gap adjustment that maintains a consistent de-energized armature-to-friction-face air gap

- Completely gasketed conduit box resists moisture and spray
- Washdown (IP55) availability in select models

For even better performance, include an optional Tor-ac® rectifier for 115 or 230 Vac input. Tor-ac rectifiers connect directly to the AC power source for switching on the AC-side. This eliminates contact arcing, improving the life of associated switching components while providing you with mechanical response times comparable to DC-side switching.

The Stearns TENV Super-Mod Module comes in a wide range of popular sizes with nominal static torque ratings from 16 and 145 lb-ft. Each unit is designed as an exact drop-in replacement, so you can upgrade today or at your next regularly scheduled maintenance shutdown.

Stearns Super-Mod Totally-Enclosed Non-Ventilated (TENV) Modules Featuring ...

Internal components shown are for SM-50-100-180 only.

Standard conduit box has gaskets to protect against moisture

Optional Tor-ac Rectifier(s)

Rugged TENV/IP54 cast-aluminum enclosure

Integral clutch magnet body serves as a large heat sink for heat dissipation

Precision sealed ball bearings

Non-asbestos friction linings

Grooved shaft key

Exclusive bi-directional integral fan circulates air internally which eliminates hot spots inside the enclosure

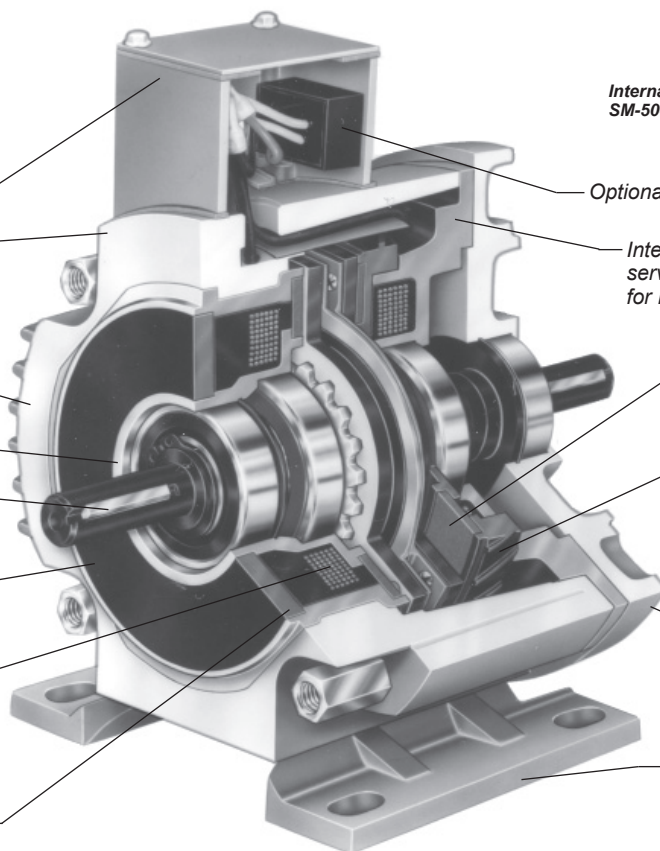
Machined C-face and C-face registers

Input adapter kit delivers flexibility to change configurations

*Class H insulation materials
Operating range - 20° thru 104° F*

Brake magnet body cast into aluminum housing creates an efficient heat sink to conduct heat away from brake coil

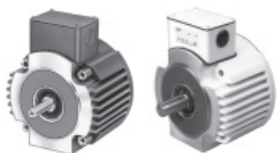
Optional cast-aluminum base kit does not restrict use of C-face and C-face register



Super-Mod Product Overview

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SM-1020 C-Face Clutch- Brake Module



See Page 13 for ordering. The 1020 Module mounts directly to a C-face motor and can then mount to a C-face gear reducer. It can also be direct coupled or used to connect driven equipment by belt or chain. Both the clutch and brake elements are power-on for activation. External dimensions are identical with most competitive brands making field replacement an exact "drop-in." No component assembly required. Washdown models now available in select sizes.

SM-2030B Base-Mounted Clutch-Brake, Double Shafted



See Page 13 for ordering. The 2030B Module is a foot or base-mounted clutch-brake. It can be direct coupled in a drive system or connected through belt and/or chain equipment. The 2030 and 2030B models can be user built-up from 1020 Modules by adding on the input adapter kit (2030) and the base kit with the input adapter kit (2030B).

SM-1040 C-Face Clutch Module



See Page 14 for ordering. The 1040 Module can be mounted directly to a C-face motor with the output shaft mounted into a C-face gear reducer or coupled/connected to the driven equipment by belt or chain. External dimensions are identical with most competitive brands making field replacements an exact "drop-in." No component assembly required. Washdown models now available in select sizes.

SM-3040B Base-Mounted Clutch, Double Shafted



See Page 14 for ordering. The 3040B Module is a foot or base-mounted clutch-only unit. It can be direct coupled in a drive system or connected through belt and/or chain equipment. The 3040 and 3040B models can be user built-up from 1040 Modules by adding on the input adapter kit (3040) and the base kit with the input adapter kit (3040B).

SM-20 C-Face Brake Module, with Output Shaft



See Page 15 for ordering. The 20 Module mounts directly to a C-face motor and can then mount to a C-face reducer. It can also be direct coupled or used to connect driven equipment by belt or chain. It is a power-on brake. External dimensions are identical with most competitive brands making field replacements an exact "drop-in." No component assembly required. Washdown models now available in select sizes.

SM-20MB C-Face Brake Module

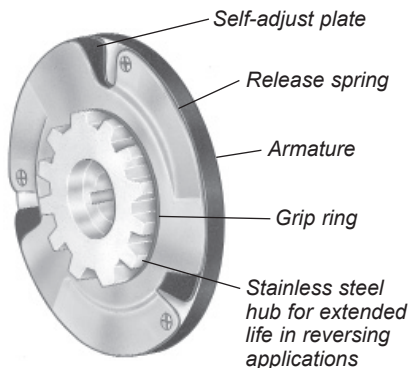


See Page 16 for ordering. The 20MB Module is a power-on brake. It is designed to be mounted on the accessory end of a double-shafted, C-face motor. External dimensions are identical with most competitive brands making field replacement an exact "drop-in." No component assembly required.

| Size | Available Models | | | | | | Static Torque |
|--------|------------------|-------|--------------|-------|----------|------|---------------|
| SM-50 | 1020, 1020WD | 2030B | 1040, 1040WD | 3040B | 20, 20WD | 20MB | 16 lb-ft |
| SM-100 | 1020, 1020WD | 2030B | 1040, 1040WD | 3040B | 20, 20WD | 20MB | 35 lb-ft |
| SM-180 | 1020, 1020WD | 2030B | 1040, 1040WD | 3040B | 20, 20WD | 20MB | 35 lb-ft |
| SM-210 | 1020 | 2030B | 1040 | 3040B | 20 | 20MB | 75 lb-ft |
| SM-250 | 1020 | 2030B | 1040 | 3040B | 20 | 20MB | 145 lb-ft |

Stearns Gap System

Gap system provides consistent de-energized armature-to-friction-face air gap.



Gap system maintains a consistent de-energized armature-to-friction-face air gap. This spacing is automatically adjusted with each armature engagement throughout the useful life of the product.

The grip ring is expanded over the specially-controlled outside diameter of the spline. This ring is positioned between the back side of the armature and the release spring. So positioned, the armature is free to move into engagement, restrained only by the forces of the release spring. This action or movement is further constrained by the self-adjusting plate. It allows only the proper amount of movement to take place before it bottoms out against the grip ring.

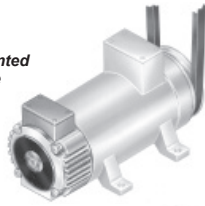
While the Stearns Gap feature is desirable in most applications, there are some situations where it should be disabled, such as very soft starts and/or stops achieved with low voltage energizing of the coil.

How To Select The Proper Unit For Your Application

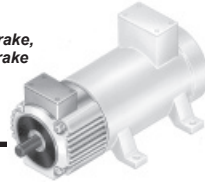
1st

Select the appropriate configuration based on the relationship with the motor, gearbox and drive components.

C-face mounted motor brake module (20MB)



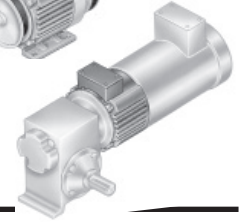
C-face mounted brake, clutch or clutch-brake module (20, 1020 or 1040)



Foot/base mounting of clutch-brake or clutch module (2030B or 3040B)



C-face mounted brake, clutch, or clutch-brake module. Mounted between motor and gearbox (20, 1020, or 1040)



2nd

Determine if the application requires clutching only, braking only or a clutch-brake combination.

Clutch Only

Provides a start and/or continuous motion until the control logic disengages (removes the power or voltage from the unit's coil).

NOTE: The load will coast since no braking action is provided.

Brake Only

Provides a stop and hold, typically of a motor shaft, until the control logic disengages (removes the power or voltage from the unit's coil).

Clutch-Brake

Provides a start-stop motion used for cycling, intermediate or random motion and controls a load or machine element. Both the clutch and brake coils are electrically engaged (power on), however, the control logic should not signal both coils to be engaged at the same time.

Typical Super-Mod Applications

Material Handling

- Conveyors
- Stackers
- Aviation baggage/freight conveyors
- Automated storage/retrieval systems
- Carousel machinery
- Feeder machinery

Printing/Paper Handling

- Business form presses
- Sheet-fed presses
- Laminator machines

Packaging

- Stretch wrap machinery
- Palletizers
- Strapping machinery
- Carton — tape and seal machines
- Labelling equipment
- Bag and box making machines

Machine Tools

- Transfer line equipment

Food Processing

- Bakery ovens
- Bottling machinery
- Meat saws and processing equipment
- Packaging and wrap equipment
- Dough process equipment

3rd

Select the proper size/torque rating based on horsepower and RPM (speed at the clutch or brake) using the Super-Mod Selection Chart to the right. Based on 2.75 service factor.

For other service factors and speeds, use the formulas shown to the far right.

Note: Frame size and shaft diameter may affect selection and should be considered. See manufacturer's dimensional and sizing information.

CAUTION: RPM refers to shaft speed at clutch or brake. Based on 2.75 service factor.

Super-Mod Selection Chart

| RPM \ HP | 200 | 400 | 600 | 800 | 1000 | 1200 | 1500 | 1800 | 2100 | 2400 |
|----------|-----|-----|-----|-----|------------|------|--------|------|------|------|
| 1/8 | | | | | | | | | | |
| 1/4 | | | | | | | | | | |
| 1/3 | | | | | | | | | | |
| 1/2 | | | | | SM-50 | | | | | |
| 3/4 | | | | | | | | | | |
| 1 | | | | | SM-100/180 | | | | | |
| 1 1/2 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | SM-210 | | | |
| 5 | | | | | | | | | | |
| 7 1/2 | | | | | | | SM-250 | | | |
| 10 | | | | | | | | | | |

$$T_d = \frac{5252 \times P}{N} \times SF$$

Where:

T_d = Average dynamic torque, lb-ft

P = Horsepower, HP

N = Shaft speed differential at clutch and/or brake components, RPM

SF = Service factor

5252 = Constant

4th Here's Where Stearns Super-Mod Units Increase Your Capability

Ensure that the unit can properly dissipate the heat generated by the application. Thermal capacity can be calculated as follows:

$$E = 1.7 \times WR^2 \times \left(\frac{N}{100}\right)^2 \times F$$

Where:

E = Energy (heat) which needs to be dissipated in foot pounds per minute (ft-lb/min) for the application requirement.

WR² = Total reflected inertia at clutch-brake shaft location. This should include clutch-brake inertia.

N = Speed differential in revolutions per minute at the clutch-brake shaft.

F = Number of cycles per minute (cycle rate)

The thermal capacity requirements calculated should be compared to the thermal capacity ratings. Exceeding this rating could cause overheating and possible failure. SM 50-100-180 can accommodate 5,000 ft-lb/min; SM-210 7,000 ft-lb/min; and SM-250 5,600 ft-lb/min.

| Inertia (lbft ²) | SM 50-100 | SM 180 & 210 |
|------------------------------|-----------|--------------|
| Clutch brake | 0.063 | 0.144 |
| Clutch only | 0.04 | 0.08 |
| Brake only | 0.035 | 0.08 |

5th

Select any other options you may require.

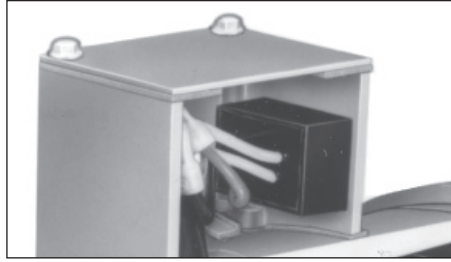
Integral Control Package

Internally mounted Tor-ac™ solid-state rectifiers to convert 115 or 230 Volt AC to DC power.

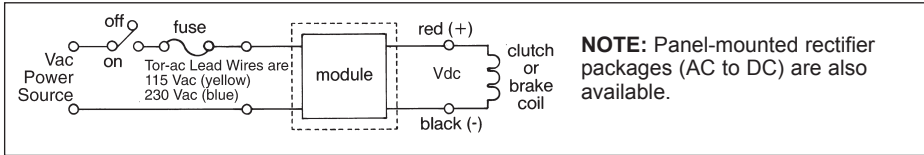
By totally eliminating the need for an external rectifier — and the size selection and mounting associated with it — Tor-ac units can:

- Reduce wiring costs — with circuits requiring fewer wires and connections
- Extend switching component life — through switching on the AC line, which eliminates arcing and prolongs contact life
- Cut switching transient noise — with circuitry that suppresses transients directly at the source, reducing the possibility of EMI noise radiation or conduction

Tor-ac™ Kit



Single-channel, solid-state, quick-response rectifier circuit can be mounted in any SM unit which allows you to switch on the AC-side with mechanical response times comparable to traditional DC-side switching.



NOTE: Panel-mounted rectifier packages (AC to DC) are also available.

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Adapter Kit

An input adapter kit can be stocked which gives you immediate flexibility to modify to double shafted configurations. See page 16 for ordering and dimensional information.

Base Kit

A base kit can be added to clutch only (1040) or clutch-brake (1020) units. See page 16 for ordering and dimensional information.

6th Special Application Considerations

Be sure to analyze any special application considerations. Some of these might be:

Low Speed

Application of clutches and brakes at speeds of 300 RPM or less may not permit sufficient burnishing or run-in to occur, the result being reduced and erratic torque output. For these applications, we suggest using a unit which has a static torque rating of at least two times the calculated torque requirement.

High Cycle Rates

Applications where high cycle rates are required could result in heat being generated which is in excess of the unit's capability to dissipate. The thermal capacity requirement equation should be used to size the clutch and/or brake for this type of application. High cycle rates may also require special high-speed controls.

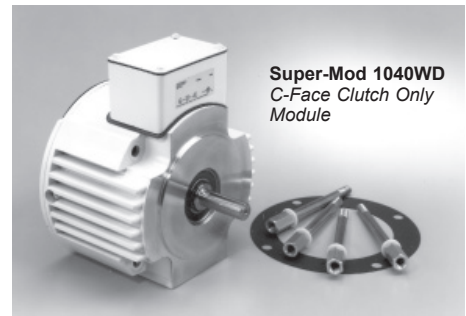
Soft Starts And/Or Stops

While the Stearns Gap feature is desirable in most applications, there are some situations where it should be disabled, such as very soft starts and/or stops achieved with low voltage energizing of the coil. For applications where the voltage will be varied to below 75% of the coil rating, request that the Stearns Gap feature be disabled.

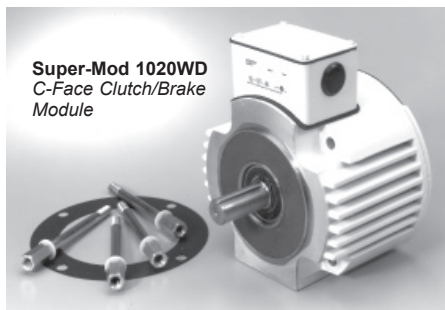
Washdown

For applications requiring regular washdown, such as food processing or other wet, high-humidity environments, *Stearns offers Super-Mod TENV Washdown Clutch-Brake Modules.*

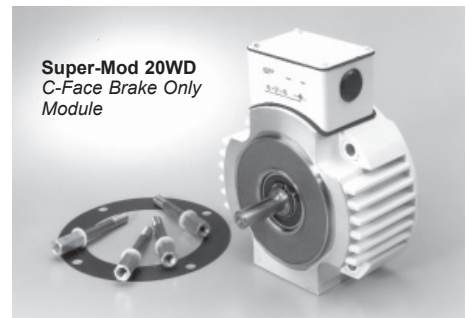
- Available in direct coupled clutch-brake, clutch only and brake only combinations.
- Models in most popular sizes with nominal static torque ratings of 16 and 35 lb-ft.
- Fully neoprene gasketed with BISSC approved white epoxy paint.
- See pages 13-15 for ordering information.



Super-Mod 1040WD
C-Face Clutch Only Module



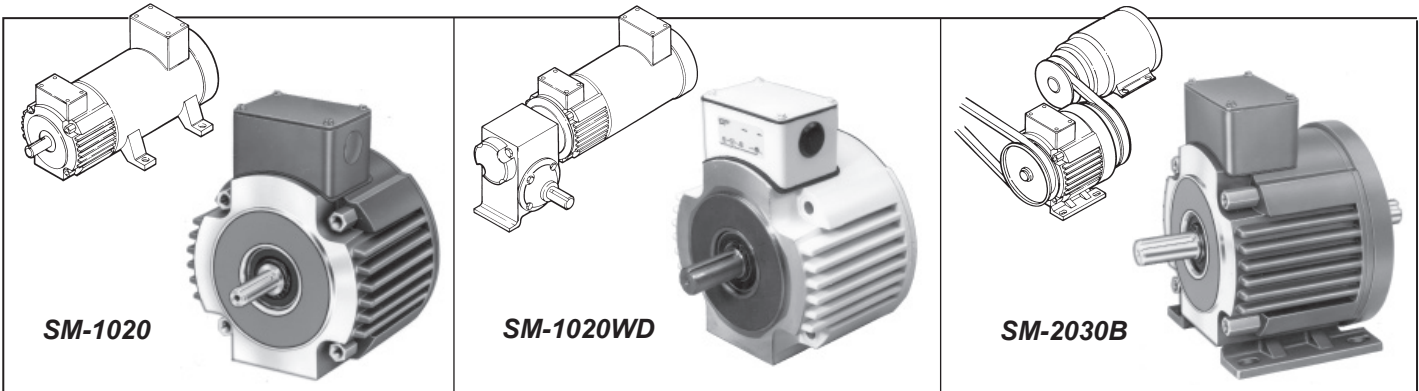
Super-Mod 1020WD
C-Face Clutch/Brake Module



Super-Mod 20WD
C-Face Brake Only Module

Super-Mod® Clutch-Brake Modules: SM-1020, SM-1020WD (Washdown) and SM-2030B

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- 56C through 215TC NEMA Frame Sizes
- 16 through 145 lb-ft Static Torque; 2400 Maximum RPM
- TENV – Totally Enclosed (Non-Ventilated) IP-54 Enclosure Protection, (IP-55 for Washdown Units)
- Listed by Underwriters Laboratories, Inc., File E-71115 and CSA Certified, File LR-6254
- Power-On Clutch and Brake* Engagement
- Maximum Overhung load capacity is 85 lbs

*See Catalog 200 for our complete selection of power-off “fail safe” brakes including the C-face to C-face coupler units (Series 56,700 and 87,700).

Performance Data, Ordering Information

| Static Torque lb-ft | Dynamic Torque lb-ft | NEMA Frame | Hub Bore and Shaft Diameter | Model | Part Number ^① | Thermal Capacity (ft-lb/min) ^② | Wt. (lbs) | Maximum Electrical Power (watts) |
|---------------------|----------------------|------------|-------------------------------|---------------|--------------------------|---|-----------|----------------------------------|
| 16 | 10 | 56C | 5/8 hub bore 5/8 shaft | SM-50-1020 | 2-35-0561-01-A*L | 5000 | 20 | 19 |
| | | | | SM-50-1020B | 2-35-0561-01-B*L | 5000 | 22 | 19 |
| | | | | SM-50-1020WD | 2-35-0562-01-A*L | 5000 | 20 | 19 |
| | | | | SM-50-2030 | 2-35-0561-01-C*L | 5000 | 24 | 19 |
| | | | | SM-50-2030B | 2-35-0561-01-D*L | 5000 | 24 | 19 |
| | | | | SM-100-1020 | 2-35-0561-02-A*L | 5000 | 20 | 29 |
| | | | | SM-100-1020B | 2-35-0561-02-B*L | 5000 | 22 | 29 |
| | | | | SM-100-1020WD | 2-35-0562-02-A*L | 5000 | 20 | 29 |
| | | | | SM-100-2030 | 2-35-0561-02-C*L | 5000 | 24 | 29 |
| | | | | SM-100-2030B | 2-35-0561-02-D*L | 5000 | 24 | 29 |
| 35 | 20 | 140TC | 7/8 hub bore 7/8 shaft | SM-180-1020 | 2-35-1401-02-A*O | 5000 | 20 | 29 |
| | | | | SM-180-1020B | 2-35-1401-02-B*O | 5000 | 22 | 29 |
| | | | | SM-180-1020WD | 2-35-1402-02-A*O | 5000 | 20 | 29 |
| | | | | SM-180-2030 | 2-35-1401-02-C*O | 5000 | 24 | 29 |
| | | | | SM-180-2030B | 2-35-1401-02-D*O | 5000 | 24 | 29 |
| 75 | 44 | 180TC | 1-1/8 hub bore 1-1/8 shaft | SM-210-1020 | 2-35-1801-03-A*R | 7000 | 31 | 16 |
| | | | | SM-210-1020B | 2-35-1801-03-B*R | 7000 | 31 | 16 |
| | | | | SM-210-2030 | 2-35-1801-03-C*R | 7000 | 37 | 16 |
| | | | | SM-210-2030B | 2-35-1801-03-D*R | 7000 | 37 | 16 |
| 145 | 86 | 210TC | 1-3/8 hub bore 1-3/8 shaft | SM-250-1020 | 2-35-2101-04-A*U | 5600 | 37 | 38 |
| | | | | SM-250-1020B | 2-35-2101-04-B*U | 5600 | 37 | 38 |
| | | | | SM-250-2030 | 2-35-2101-04-C*U | 5600 | 37 | 38 |
| | | | | SM-250-2030B | 2-35-2101-04-D*U | 5600 | 37 | 38 |

②Thermal capacity rating is based on ambient temperature of 70°F at 1750 RPM.

SM Clutch-Brake Module Guide:

SM-1020 – Standard (direct-coupled)
 SM-1020B – Standard with Base
 SM-1020WD – IP-55 Washdown (available in NEMA frame sizes 56C-145TC)
 SM-2030 – Standard with Clutch Input Adapter
 SM-2030B – Clutch Input Adapter Plus Base

①Example of a complete part number:

2-35-0561-01-A*JL
 — 5/8 hub
 — 90-100 Vdc
 — Basic unit
 — 0=Standard Unit
 — 2= Without Gap Adjust

Voltage Table

| Character | Voltage |
|-----------|------------|
| C | 12 Vdc |
| E | 24-28 Vdc |
| J | 90-100 Vdc |
| N | 115 Vac |
| P | 230 Vac |

Hub Size Table for SM-1020's

| Character | Bore | Keyway |
|-----------|-------|-------------|
| L | 5/8 | 3/16 x 3/32 |
| O | 7/8 | 3/16 x 3/32 |
| R | 1 1/8 | 1/4 x 1/8 |
| U | 1 3/8 | 5/16 x 5/32 |

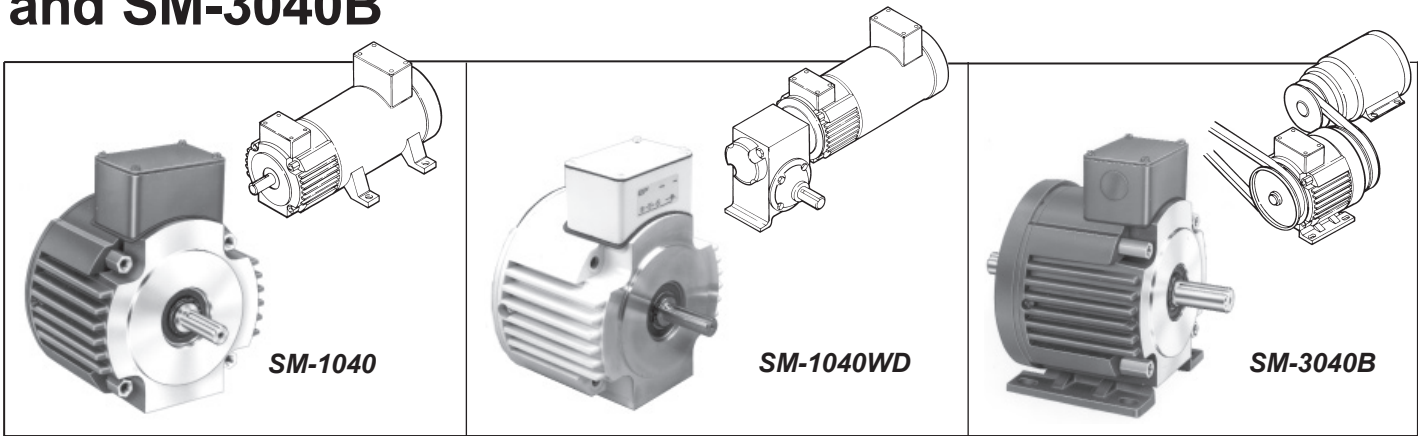
Options - Features Table

| Series | Character | Description |
|----------|-----------|---|
| SM-1020 | A | Basic unit |
| SM-1020B | B | Basic unit plus base |
| SM-2030 | C | Basic unit plus clutch input adapter |
| SM-2030B | D | Basic unit plus base & clutch input adapter |

Specials available upon request.

Super-Mod® Clutch Only Modules: SM-1040, SM-1040WD (Washdown) and SM-3040B

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- 56C through 215TC NEMA Frame Sizes
- 16 through 145 lb-ft Static Torque; 2400 Maximum RPM
- TENV – Totally Enclosed (Non-Ventilated) IP-54 Enclosure Protection, (IP-55 for Washdown Units)
- Listed by Underwriters Laboratories, Inc., File E-71115 and CSA Certified, File LR-6254
- Maximum overhung load capacity is 85 lbs

Performance Data, Ordering Information

| Static Torque lb-ft | Dynamic Torque lb-ft | NEMA Frame | Hub Bore and Shaft Diameter | Model | Part Number ^① | Thermal Capacity (ft-lb/min) ^② | Wt. (lbs) | Maximum Electrical Power (watts) |
|---------------------|----------------------|------------|-------------------------------|---------------|--------------------------|--|-----------|----------------------------------|
| 16 | 10 | 56C | 5/8 hub bore 5/8 shaft | SM-50-1040 | 2-36-0561-01-A*L | 5000 | 20 | 19 |
| | | | | SM-50-1040B | 2-36-0561-01-B*L | 5000 | 22 | 19 |
| | | | | SM-50-1040WD | 2-36-0562-01-A*L | 5000 | 20 | 19 |
| | | | | SM-50-3040 | 2-36-0561-01-C*L | 5000 | 20 | 19 |
| | | | | SM-50-3040B | 2-36-0561-01-D*L | 5000 | 24 | 19 |
| | | | | SM-100-1040 | 2-36-0561-02-A*L | 5000 | 20 | 29 |
| | | | | SM-100-1040B | 2-36-0561-02-B*L | 5000 | 22 | 29 |
| | | | | SM-100-1040WD | 2-36-0562-02-A*L | 5000 | 22 | 29 |
| | | | | SM-100-3040 | 2-36-0561-02-C*L | 5000 | 22 | 29 |
| | | | | SM-100-3040B | 2-36-0561-02-D*L | 5000 | 24 | 29 |
| 35 | 20 | 140TC | 7/8 hub bore 7/8 shaft | SM-180-1040 | 2-36-1401-02-A*O | 5000 | 20 | 29 |
| | | | | SM-180-1040B | 2-36-1401-02-B*O | 5000 | 22 | 29 |
| | | | | SM-180-1040WD | 2-36-1402-02-A*O | 5000 | 20 | 29 |
| | | | | SM-180-3040 | 2-36-1401-02-C*O | 5000 | 22 | 29 |
| | | | | SM-180-3040B | 2-36-1401-02-D*O | 5000 | 24 | 29 |
| 75 | 44 | 180TC | 1-1/8 hub bore 1-1/8 shaft | SM-210-1040 | 2-36-1801-03-A*R | 7000 | 31 | 16 |
| | | | | SM-210-1040B | 2-36-1801-03-B*R | 7000 | 31 | 16 |
| | | | | SM-210-3040 | 2-36-1801-03-C*R | 7000 | 31 | 16 |
| | | | | SM-210-3040B | 2-36-1801-03-D*R | 7000 | 31 | 16 |
| 145 | 86 | 210TC | 1-3/8 hub bore 1-3/8 shaft | SM-250-1040 | 2-36-2101-04-A*U | 5600 | 31 | 38 |
| | | | | SM-250-1040B | 2-36-2101-04-B*U | 5600 | 31 | 38 |
| | | | | SM-250-3040 | 2-36-2101-04-C*U | 5600 | 31 | 38 |
| | | | | SM-250-3040B | 2-36-2101-04-D*U | 5600 | 31 | 38 |

^②Thermal capacity rating is based on ambient temperature of 70°F at 1750 RPM.

Voltage Table

| Character | Voltage |
|-----------|------------|
| C | 12 Vdc |
| E | 24-28 Vdc |
| J | 90-100 Vdc |
| N | 115 Vac |
| P | 230 Vac |

Hub Size Table for SM-1040's

| Character | Bore | Keyway |
|-----------|-------|-------------|
| L | 5/8 | 3/16 x 3/32 |
| O | 7/8 | 3/16 x 3/32 |
| R | 1 1/8 | 1/4 x 1/8 |
| U | 1 3/8 | 5/16 x 5/32 |

Options - Features Table

| Series | Character | Description |
|----------|-----------|---|
| SM-1040 | A | Basic unit |
| SM-1040B | B | Basic unit plus base |
| SM-3040 | C | Basic unit plus clutch input adapter |
| SM-3040B | D | Basic unit plus base & clutch input adapter |

Specials available upon request.

SM Clutch Module Guide:

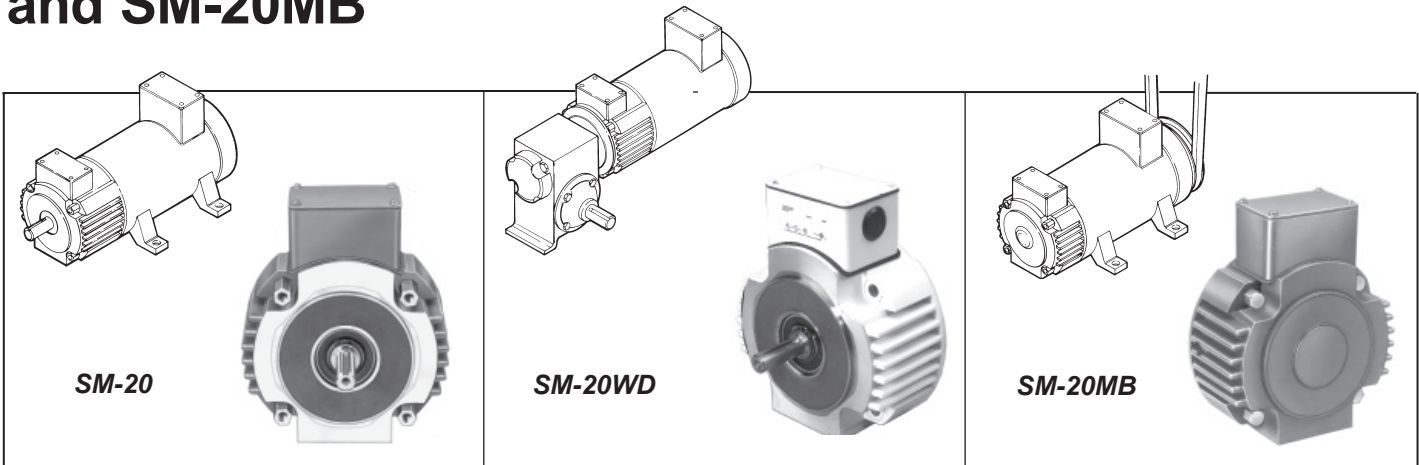
SM-1040 – Standard (direct-coupled)
 SM-1040B – Standard with Base
 SM-1040WD – IP-55 Washdown (available in NEMA frame sizes 56C-145TC)
 SM-3040 – Standard with Clutch Input Adapter
 SM-3040B – Clutch Input Adapter Plus Base

①Example of a complete part number:

2-36-0561-01-AJL — 5/8 hub
 — 90-100 Vdc
 — Basic unit
 — 0=Standard Unit
 — 2= Without Gap Adjust

Super-Mod® Brake Only Modules: SM-20, SM-20WD (Washdown) and SM-20MB

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- 16 through 145 lb-ft Static Torque; 2400 Maximum RPM
- TENV – Totally Enclosed (Non-Ventilated) IP-54 Enclosure Protection, (IP-55 for Washdown Units)
- Listed by Underwriters Laboratories, Inc., File E-71115 and CSA Certified, File LR-6254
- Power-On Brake* Engagement
- Maximum overhung load capacity is 85 lbs.

*See Catalog 200 for our complete selection of power-off "fail safe" brakes including the C-face to C-face coupler units (Series 56,700 and 87,700).

Performance Data, Ordering Information

| Static Torque lb-ft | Dynamic Torque lb-ft | NEMA Frame | Hub Bore and Shaft Diameter | Model | Part Number ^① | Thermal Capacity (ft-lb/min) ^② | Wt. (lbs) | Maximum Electrical Power (watts) |
|---------------------|----------------------|------------|-------------------------------|-------------|--------------------------|---|-----------|----------------------------------|
| 16 | 10 | 56C | 5/8 hub bore 5/8 shaft | SM-50-20 | 2-37-0561-01-A*L | 5000 | 11 | 19 |
| | | | | SM-50-20WD | 2-37-0562-01-A*L | 5000 | 11 | 19 |
| | | | | SM-50-20MB | 2-37-0561-01-X*L | 5000 | 10 | 19 |
| | | | | SM-100-20 | 2-37-0561-02-A*L | 5000 | 11 | 29 |
| | | | | SM-100-20WD | 2-37-0562-02-A*L | 5000 | 11 | 29 |
| | | | | SM-100-20MB | 2-37-0561-02-X*L | 5000 | 10 | 29 |
| 35 | 20 | 140TC | 7/8 hub bore 7/8 shaft | SM-180-20 | 2-37-1401-02-A*O | 5000 | 12 | 29 |
| | | | | SM-180-20WD | 2-37-1401-02-X*O | 5000 | 12 | 29 |
| | | | | SM-180-20MB | 2-37-1401-02-X*O | 5000 | 11 | 29 |
| | | | | SM-210-20 | 2-37-1801-03-A*R | 7000 | 15 | 16 |
| | | | | SM-210-20MB | 2-37-1801-03-X*R | 7000 | 15 | 16 |
| | | | | SM-250-20 | 2-37-2101-04-A*U | 5600 | 18 | 38 |
| 75 | 44 | 180TC | 1-1/8 hub bore 1-1/8 shaft | SM-210-20 | 2-37-1801-03-A*R | 7000 | 15 | 16 |
| | | | | SM-210-20MB | 2-37-1801-03-X*R | 7000 | 15 | 16 |
| 145 | 86 | 210TC | 1-3/8 hub bore 1-3/8 shaft | SM-250-20 | 2-37-2101-04-A*U | 5600 | 18 | 38 |
| | | | | SM-250-20MB | 2-37-2101-04-X*U | 5600 | 18 | 38 |

②Thermal capacity rating is based on ambient temperature of 70°F at 1750 RPM.

SM Brake Module Guide:

- SM-20 – Standard (direct-coupled)
- SM-20WD – IP-55 Washdown (available in NEMA frame sizes 56C-145TC)
- SM-20MB – No Shaft (end mounted)

①Example of a complete part number:

2-37-0561-01-AJL — 5/8 hub
 — 90-100 Vdc
 — Basic unit
 — 0=Standard Unit
 — 2= Without Gap Adjust

Options - Features Table

| Series | Character | Description |
|---------|-----------|--------------------------------------|
| SM-20 | A | Basic unit (coupler) |
| SM-20 | C | Basic unit plus clutch input adapter |
| SM-20MB | X | No shaft (end mount motor brake) |

Specials available upon request.

Voltage Table

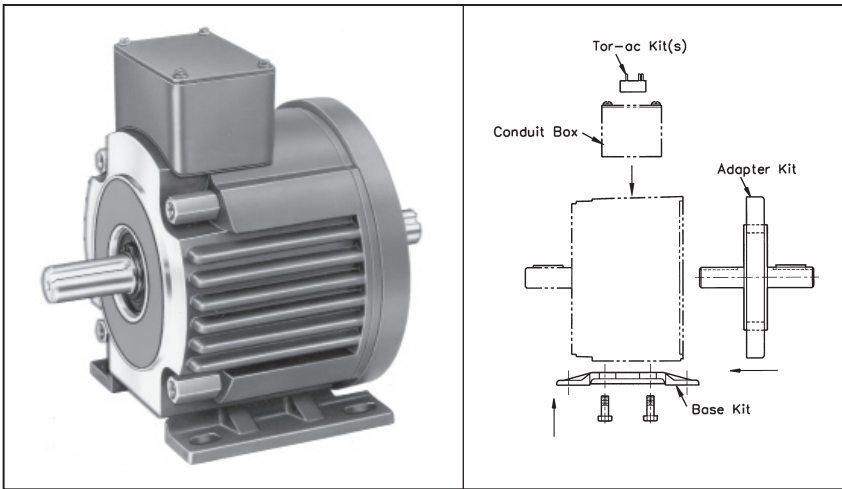
| Character | Voltage |
|-----------|------------|
| C | 12 Vdc |
| E | 24-28 Vdc |
| J | 90-100 Vdc |
| N | 115 Vac |
| P | 230 Vac |

Hub Size Table for SM-20's

| Character | Bore | Keyway |
|-----------|-------|-------------|
| L | 5/8 | 3/16 x 3/32 |
| O | 7/8 | 3/16 x 3/32 |
| R | 1 1/8 | 1/4 x 1/8 |
| U | 1 3/8 | 5/16 x 5/32 |

Super-Mod® Conversion Kits

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Mechanical Flexibility through Conversion Kits

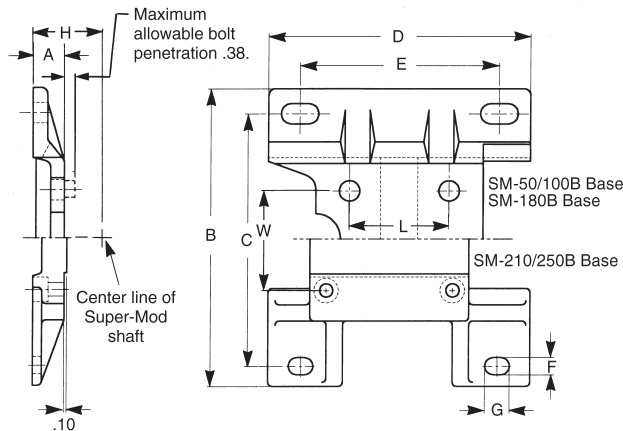
Super-Mod units are stocked in a wide range of configurations and voltages. Additionally, to keep your inventory down and provide quick shipments, Super-Mod provides the answer with inexpensive, easy to use, stock conversion kits. Stock either the base kit, adapter kit, Tor-ac kit or all of them and you can quickly modify your standard clutch (1040), brake (20) or clutch-brake (1020) into almost any configuration (2030TB, 3040B for example).

Super-Mod is an innovative product. When combined with your equipment, it provides added value through increased reliability and reduced inventory.

Base Kit Dimensional Data (In Inches)

Base Kits Cannot Be Used On Brake Only (20 and 20MB)

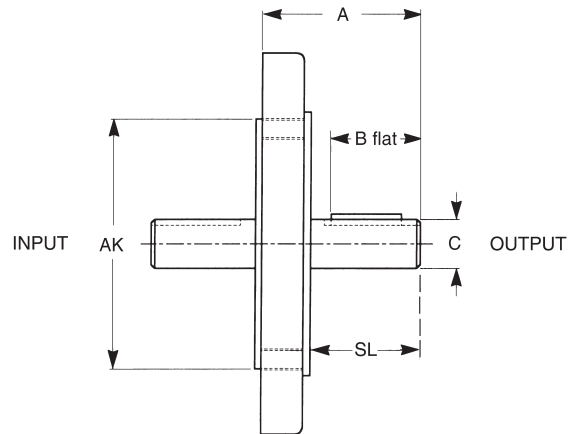
| Series | A | B | C | D | E | F | G | H | L | W | Bolt Size |
|-------------|------|------|------|------|------|-----|-----|------|--------------|----------------|-----------------------------|
| SM-50/100B | .54 | 6.00 | 5.00 | 5.25 | 4.00 | .41 | .78 | 3.50 | 2.02 1.98 | 1.914 1.910 | 3/8" - 16x3/4" hex head |
| SM-180B | 1.54 | 6.00 | 5.00 | 5.25 | 4.00 | .41 | .78 | 4.50 | 2.02 1.98 | 1.914 1.910 | 3/8" - 16x3/4" hex head |
| SM-210/250B | .80 | 9.00 | 7.75 | 8.00 | 6.00 | .54 | .78 | 5.26 | 3.13 3.12 | 3.865 3.855 | 3/8" - 16x1" socket head |



Input Adapter Kit (For use with Super-Mod only)

Dimensional Data (In Inches)

| Series | AK | A | B | C | Keyway | SL |
|------------|------|------|------|-------------|-------------|-------------|
| SM-50/100A | 4.50 | 2.78 | 1.41 | .625/.624 | 3/16 x 3/32 | 1.785-2.014 |
| SM-180A | 4.50 | 2.84 | 1.41 | .875/.874 | 3/16 x 3/16 | 1.792-2.022 |
| SM-210A | 8.50 | 3.33 | 1.78 | 1.125/1.124 | 1/4 x 1/4 | 2.439-2.489 |
| SM-250A | 8.50 | 3.87 | 2.41 | 1.375/1.374 | 5/16 x 5/16 | 2.929-2.979 |



Ordering Information

| Catalog Number | Part Number | Option |
|---|--------------|--------------------------|
| Base Kits (Base Kits Cannot Be Used On Brake Only - 20 and 20MB) | | |
| SM-50/100B | 5-78-1101-01 | SM-50 and SM-100 Series |
| SM-180B | 5-78-1101-02 | SM-180 Series |
| SM-210B | 5-78-0001-30 | SM-210 and SM-250 Series |
| Input Adapter Kits | | |
| SM-50/100A | 5-78-6100-31 | SM-50 and SM-100 Series |
| SM-180A | 5-78-6100-32 | SM-180 Series |
| SM-210A | 5-78-0000-23 | SM-210 Series |
| SM-256A | 5-78-0000-24 | SM-250 Series |

Rectifiers Performance Data

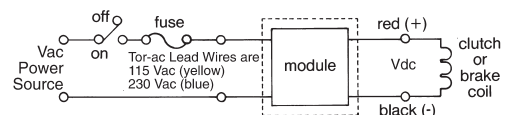
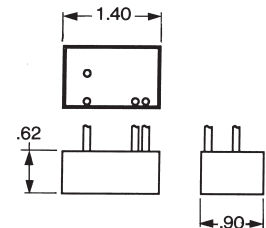
| | Catalog Number | Part Number | AC Input Voltage | Nominal DC Output | | |
|---------------------|----------------|---------------|------------------|-------------------|------------------------|------------|
| | | | | Volts | Max. Amps ^① | Max. Watts |
| Tor-ac [Ⓞ] | SBC-100-1 | 4-1-20194-00K | 115 50-60 Hz | 100 | .4 | 40 |
| Tor-ac [Ⓞ] | SBC-200-1 | 4-1-20290-00K | 230 50-60 Hz | 100 | .4 | 80 |

^①Use with 90-100 Vdc "J" coils only.

^②Based on ambient temperature of 149°F.

Tor-ac Kit

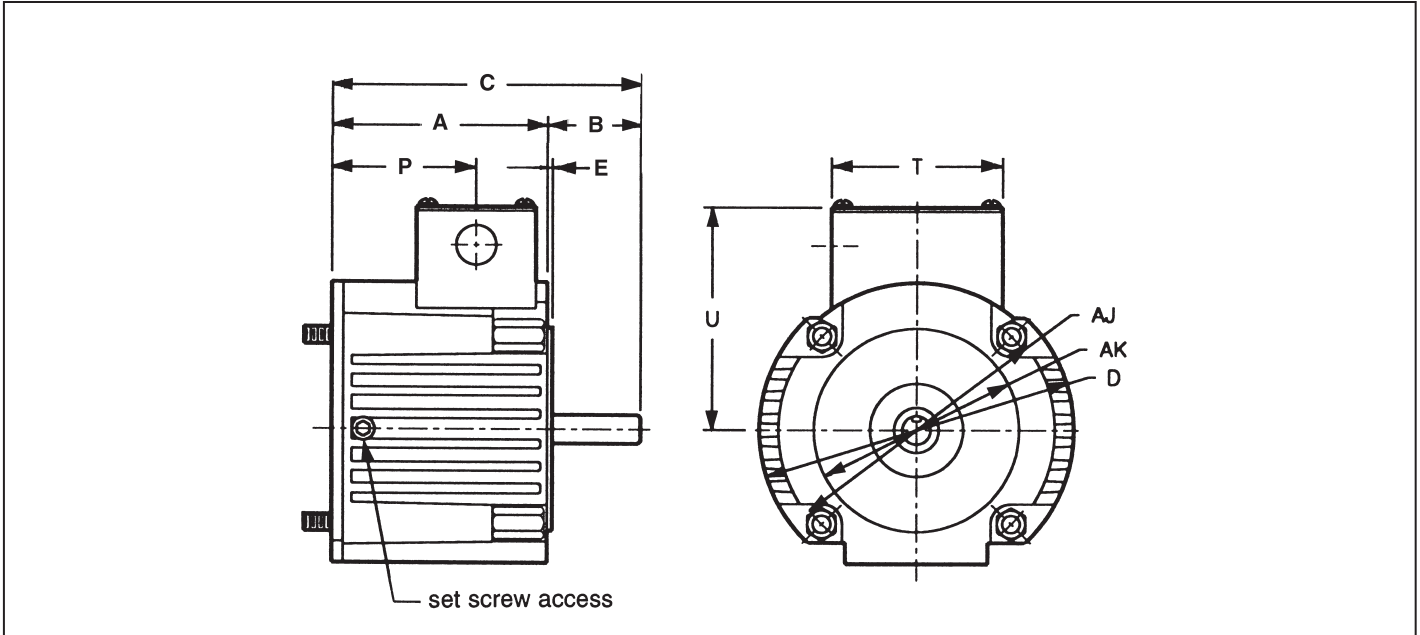
Single channel, solid-state, quick response rectifier circuit can be mounted in any SM unit. Lets you switch on the AC-side, with mechanical response times equal to traditional DC-side switching.



Super-Mod® Dimensional Data

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SM-1020, SM-1040, SM-20 and SM-20MB

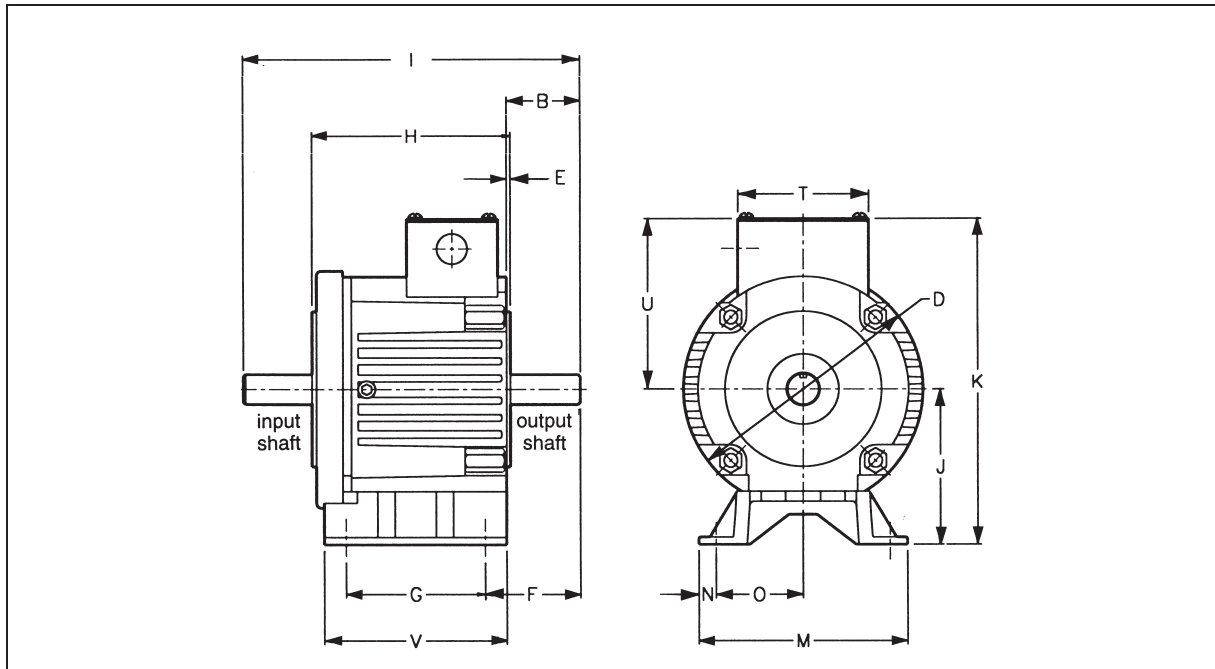


| NEMA C-Face Frame Size | Configuration | Basic Module Style | Basic Model Number | AJ | AK | Hub bore and shaft ø | Keyway | A | B | C | D | E | P | T | U |
|---|---------------------------------|--------------------|--------------------|-------|-----|----------------------|-------------|------|------|------|-----|-----|------|-----|-----|
| SM-50 SM-100 56C 5/8 hub bore 5/8 shaft | C-face Clutch/Brake | 1020 | 2-35-056X-0X-A*L | 5.875 | 4.5 | 5/8 | 3/16 x 3/32 | 4.71 | 2.06 | 6.77 | 6.9 | .16 | 3.15 | 2.8 | 4.9 |
| | C-Face Clutch Only | 1040 | 2-36-056X-0X-A*L | | | | | 3.14 | | 5.2 | | | 2.92 | | |
| | C-Face Brake Only | 20 | 2-37-056X-0X-A*L | | | | | --- | --- | --- | | | | | |
| | C-Face Brake Only without Shaft | 20MB | 2-37-056X-0X-X*L | | | | | --- | --- | --- | | | | | |
| SM-180 145TC 7/8 hub bore 7/8 shaft | C-face Clutch/Brake | 1020 | 2-35-140X-02-A*O | 5.875 | 4.5 | 7/8 | 3/16 x 3/32 | 4.71 | 2.12 | 6.83 | 6.9 | .16 | 3.15 | 3.8 | 4.9 |
| | C-Face Clutch Only | 1040 | 2-36-140X-02-A*O | | | | | 3.14 | | 5.25 | | | 1.58 | | |
| | C-Face Brake Only | 20 | 2-37-140X-02-A*O | | | | | --- | --- | --- | | | | | |
| | C-Face Brake Only without Shaft | 20MB | 2-37-140X-02-X*O | | | | | --- | --- | --- | | | | | |
| SM-210 182TC 184TC 1-1/8 hub bore 1-1/8 shaft | C-face Clutch/Brake | 1020 | 2-35-1801-03-A*R | 7.25 | 8.5 | 1-1/8 | 1/4 x 1/8 | 6.11 | 2.59 | 8.7 | 9 | .25 | 2.83 | 4 | 7.4 |
| | C-Face Clutch Only | 1040 | 2-36-1801-03-A*R | | | | | 4.61 | | 7.2 | | | 2.17 | | |
| | C-Face Brake Only | 20 | 2-37-1801-03-A*R | | | | | --- | --- | --- | | | | | |
| | C-Face Brake Only without Shaft | 20MB | 2-37-1801-03-X*R | | | | | --- | --- | --- | | | | | |
| SM-250 213TC 215TC 1-3/8 hub bore 1-3/8 shaft | C-face Clutch/Brake | 1020 | 2-35-2101-04-A*U | 7.25 | 8.5 | 1-3/8 | 5/16 x 5/32 | 6.11 | 3.03 | 9.14 | 9 | .25 | 2.83 | 4 | 7.4 |
| | C-Face Clutch Only | 1040 | 2-36-2101-04-A*U | | | | | 4.61 | | 7.64 | | | 2.17 | | |
| | C-Face Brake Only | 20 | 2-37-2101-04-A*U | | | | | --- | --- | --- | | | | | |
| | C-Face Brake Only without Shaft | 20MB | 2-37-2101-04-X*U | | | | | --- | --- | --- | | | | | |

Super-Mod® Dimensional Data

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SM-2030B and SM-3040B



| NEMA C-Face Frame Size | Configuration | Basic Module Style | Basic Model Number | Shaft ø | Keyway | B | D | E | F | G | H | I | J | K | M | N | O | T | U | V |
|---|---|--------------------------|-----------------------|------------|----------------|------|-----|-----|------|---|------|-------|------|-------|---|------|------|-----|-----|------|
| SM50 SM100 56C 5/8 shaft | Base Mount Clutch/Brake- Double Shaft | 2030B | 2-35-056X-0X-D*L | 5/8 | 3/16 x 3/32 | 2.06 | 6.9 | .16 | 2.76 | 4 | 5.9 | 9.55 | 3.5 | 8.4 | 6 | 0.5 | 2.5 | 3.8 | 4.9 | 5.25 |
| | Base Mount Clutch Only- Double Shaft | 3040B | 2-36-056X-0X-D*L | 5/8 | 3/16 x 3/32 | | | | | | | | | | | | | | | |
| SM-180 143TC 145TC 7/8 shaft | Base Mount Clutch/Brake- Double Shaft | 2030B | 2-35-140X-0X-D*O | 7/8 | 3/16 x 3/32 | 2.12 | 6.9 | .16 | 2.82 | 4 | 5.9 | 9.61 | 4.5 | 9.4 | 6 | 0.5 | 2.5 | 3.8 | 4.9 | 5.25 |
| | Base Mount Clutch Only- Double Shaft | 3040B | 2-36-140X-0X-D*O | 7/8 | 3/16 x 3/32 | | | | | | | | | | | | | | | |
| SM-210 182TC 184TC 1-1/8 shaft | Base Mount Clutch/Brake- Double Shaft | 2030B | 2-35-1801-03-D*R | 1-1/8 | 1/4 x 1/8 | 2.59 | 9 | .25 | 3.41 | 6 | 6.91 | 12.09 | 5.25 | 12.65 | 9 | 0.63 | 3.87 | 4 | 7.4 | 8 |
| | Base Mount Clutch Only- Double Shaft | 3040B | 2-36-1801-03-D*R | 1-1/8 | 1/4 x 1/8 | | | | | | | | | | | | | | | |
| SM-250 213TC 215TC 1-3/8 shaft | Base Mount Clutch/Brake- Double Shaft | 2030B | 2-35-2101-04-D*U | 1-3/8 | 5/16 x 5/32 | 3.03 | 9 | .25 | 3.88 | 6 | 6.91 | 12.97 | 5.25 | 12.65 | 9 | 0.63 | 3.87 | 4 | 7.4 | 8 |
| | Base Mount Clutch Only- Double Shaft | 3040B | 2-36-2101-04-D*U | 1-3/8 | 5/16 x 5/32 | | | | | | | | | | | | | | | |

Interchange Listing for Super-Mod® TENV Clutch and Brake Modules BACK TO TABLE OF CONTENTS

| Module Type | NEMA Motor Frame Size | Torque lb-ft | Module Interchange | | | | |
|----------------------------|-----------------------|--------------|--|--------------------|-------------------|---------------|---------------------------------------|
| | | | Stearns® TENV | Warner® EUM (TENV) | Warner® UM (Open) | Dodge® (Open) | Inertia Dynamics/ Dynacorp® (Open) |
| | | | Catalog No. | Catalog No. | Catalog No. | Catalog No. | Catalog No. |
| C-Face Clutch/ Brake | 56 | 16 | SM-50-1020 | EUM-50-1020 | UM-50-1020 | --- | --- |
| | | 22 | use SM-100-1020 | --- | --- | DMCCB-50 | CBP-56-22 |
| | | 30 | | EUM-100-1020 | UM-100-1020 | --- | --- |
| | | 32 | | --- | --- | --- | CBP-56-32 |
| | | 34 | --- | --- | DMCCB-100 | --- | |
| | 35 | SM-100-1020 | --- | --- | --- | --- | |
| | 140 | 30 | use SM-180-1020 | EUM-180-1020 | UM-180-1020 | --- | --- |
| | | 32 | | --- | --- | --- | CBP-145-32 |
| | | 34 | | --- | --- | DMCCB-180 | --- |
| | | 35 | SM-180-1020 | --- | --- | --- | --- |
| | 180 | 75 | SM-210-1020 | --- | --- | --- | --- |
| | | 95 | use SM-210-1020 <i>(Unit is a direct interchange when used on motors rated 5hp or less)</i> | EUM-210-1020 | UM-210-1020 | --- | --- |
| | | 100 | | --- | --- | DMCCB-210 | --- |
| | | 125 | | --- | --- | --- | CBP-184-125 |
| | 210 | 95 | use SM-250-1020 | EUM-215-1020 | UM-215-1020 | --- | --- |
| | | 100 | | --- | --- | DMCCB-256 | --- |
| 125 | | --- | | --- | --- | CBP-215-125 | |
| 145 | | SM-250-1020 | --- | --- | --- | --- | |
| Clutch/ Brake Double Shaft | 56 | 16 | SM-50-2030 | EUM-50-2030 | UM-50-2030 | --- | --- |
| | | 22 | use SM-100-2030 | --- | --- | DMSCB-50 | CBP-56-22 |
| | | 30 | | EUM-100-2030 | UM-100-2030 | --- | --- |
| | | 32 | | --- | --- | --- | CBP-56-32 |
| | | 35 | SM-100-2030 | --- | --- | --- | --- |
| | 140 | 30 | use SM-180-2030 | EUM-180-2030 | UM-180-2030 | --- | --- |
| | | 32 | | --- | --- | --- | CBP-145-32 |
| | | 34 | | --- | --- | DMSCB-180 | --- |
| | | 35 | SM-180-2030 | --- | --- | --- | --- |
| | 180 | 75 | SM-210-2030 | --- | --- | --- | --- |
| | | 95 | use SM-210-2030 <i>(Unit is a direct interchange when used on motors rated 5hp or less)</i> | EUM-210-2030 | UM-210-2030 | --- | --- |
| | | 100 | | --- | --- | DMSCB-210 | --- |
| | | 125 | | --- | --- | --- | CBP-184-125 |
| | 210 | 95 | use SM-250-2030 | --- | UM-215-2030 | --- | --- |
| | | 100 | | --- | --- | DMSCB-256 | --- |
| | | 125 | | --- | --- | --- | CBP-215-125 |
| 145 | | SM-250-2030 | --- | --- | --- | --- | |
| C-Face Clutch Only | 56 | 16 | SM-50-1040 | EUM-50-1040 | UM-50-1040 | --- | --- |
| | | 22 | use SM-100-1040 | --- | --- | DMCCO-50 | CP-56-22 |
| | | 30 | | --- | UM-100-1040 | --- | --- |
| | | 32 | | --- | --- | --- | CP-56-32 |
| | | 34 | --- | --- | DMCCO-100 | --- | |
| | 35 | SM-100-1040 | --- | --- | --- | --- | |
| | 140 | 30 | use SM-180-1040 | EUM-180-1040 | UM-180-1040 | --- | --- |
| | | 32 | | --- | --- | --- | CP-145-32 |
| | | 34 | | --- | --- | DMCCO-180 | --- |
| | | 35 | SM-180-1040 | --- | --- | --- | --- |
| | 180 | 75 | SM-210-1040 | --- | --- | --- | --- |
| | | 95 | use SM-210-1040 <i>(Unit is a direct interchange when used on motors rated 5hp or less)</i> | --- | UM-210-1040 | --- | --- |
| | | 100 | | --- | --- | DMCCO-210 | --- |
| | | 125 | | --- | --- | --- | CP-184-125 |
| | 210 | 95 | use SM-250-1040 | --- | UM-215-1040 | --- | --- |
| | | 100 | | --- | --- | DMCCO-256 | --- |
| 125 | | --- | | --- | --- | CP-215-125 | |
| 145 | | SM-250-1040 | --- | --- | --- | --- | |

Super-Mod® Interchange Listing

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| Module Type | NEMA Motor Frame Size | Torque lb-ft | Module Interchange | | | | |
|------------------------------|-----------------------|--------------|--|--------------------|-------------------|---------------|---------------------------------------|
| | | | Stearns® TENV | Warner® EUM (TENV) | Warner® UM (Open) | Dodge® (Open) | Inertia Dynamics/ Dynacorp® (Open) |
| | | | Catalog No. | Catalog No. | Catalog No. | Catalog No. | Catalog No. |
| Clutch Only Double Shaft | 56 | 16 | SM-50-3040 | --- | UM-50-3040 | --- | --- |
| | | 22 | use SM-100-3040 | --- | --- | DMSCO-50 | CP-56-22 |
| | | 30 | | --- | UM-100-3040 | --- | --- |
| | | 32 | | --- | --- | --- | CP-56-32 |
| | | 35 | SM-100-3040 | --- | --- | --- | --- |
| | 140 | 30 | use SM-180-3040 | --- | UM-180-3040 | --- | --- |
| | | 32 | | --- | --- | --- | CP-145-32 |
| | | 34 | | --- | --- | DMSCO-180 | --- |
| | | 35 | SM-180-3040 | --- | --- | --- | --- |
| | 180 | 75 | SM-210-3040 | --- | --- | --- | --- |
| | | 95 | use SM-210-3040 <i>(Unit is a direct interchange when used on motors rated 5hp or less)</i> | --- | UM-210-3040 | --- | --- |
| | | 100 | | --- | --- | DMSCO-210 | --- |
| | | 125 | | --- | --- | --- | CP-180-125 |
| | 210 | 95 | use SM-250-3040 | --- | UM-215-3040 | --- | --- |
| | | 100 | | --- | --- | DMSCO-256 | --- |
| | | 125 | | --- | --- | --- | CP-210-125 |
| 145 | | SM-250-3040 | --- | --- | --- | --- | |
| C-Face Brake Only | 56 | 16 | SM-50-20 | --- | EM-50-20 | --- | --- |
| | | 22 | use SM-100-20 | --- | --- | DMCBO-50 | BP-56-22 |
| | | 30 | | --- | EM-100-20 | --- | --- |
| | | 32 | | --- | --- | --- | BP-56-32 |
| | | 34 | --- | --- | DMCBO-100 | --- | |
| | 35 | SM-100-20 | --- | --- | --- | --- | |
| | 140 | 30 | use SM-180-20 | --- | EM-180-20 | --- | --- |
| | | 32 | | --- | --- | --- | BP-145-32 |
| | | 34 | | --- | --- | DMCBO-180 | --- |
| | | 35 | SM-180-20 | --- | --- | --- | --- |
| | 180 | 75 | SM-210-20 | --- | --- | --- | --- |
| | | 95 | use SM-210-20 <i>(Unit is a direct interchange when used on motors rated 5hp or less)</i> | --- | EM-210-20 | --- | --- |
| | | 100 | | --- | --- | DMCBO-210 | --- |
| | | 125 | | --- | --- | --- | BP-184-125 |
| | 210 | 95 | use SM-250-20 | --- | EM-215-20 | --- | --- |
| | | 100 | | --- | --- | DMCBO-256 | --- |
| 125 | | --- | | --- | --- | BP-215-125 | |
| 145 | | SM-250-20 | --- | --- | --- | --- | |
| C-Face Brake Only (no shaft) | 56 | 16 | SM-50-20MB | --- | EM-50-20MB | --- | --- |
| | | 22 | --- | --- | DMCBX-50 | MBP-56-22 | |
| | 140 | 22 | use SM-180-20MB | --- | --- | --- | MBP-145-22 |
| | | 30 | | --- | EM-180-20MB | --- | --- |
| | | 34 | | --- | --- | DMCBX-180 | --- |
| | | 35 | SM-180-20MB | --- | --- | --- | --- |
| | | 57 | --- | --- | --- | --- | 305 |
| | 180 | 75 | SM-210-20MB | --- | --- | --- | --- |
| | | 95 | use SM-210-20MB <i>(Unit is a direct interchange when used on motors rated 5hp or less)</i> | --- | EM-210-20MB | --- | --- |
| | | 100 | | --- | --- | DMCBX-210 | --- |
| | | 175 | | --- | --- | --- | 308 |
| | 210 | 80 | use SM-250-20MB | --- | MB-825 | --- | --- |
| 100 | | --- | | --- | DMCBX-256 | --- | |
| 145 | | SM-250-20MB | | --- | --- | --- | --- |
| 175 | | --- | --- | --- | --- | 308 | |

Application Note: Stearns shaft sizes are to NEMA standards. Please verify shaft length and diameter requirements when making interchanges.

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