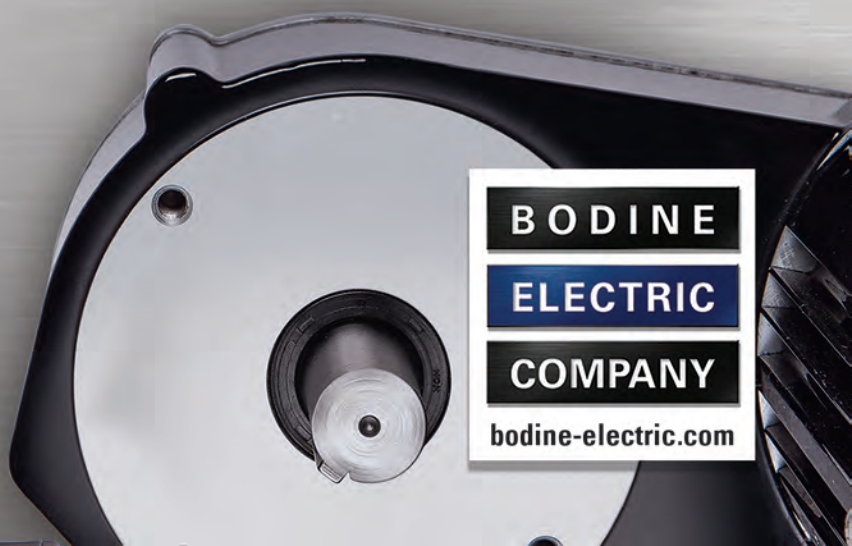
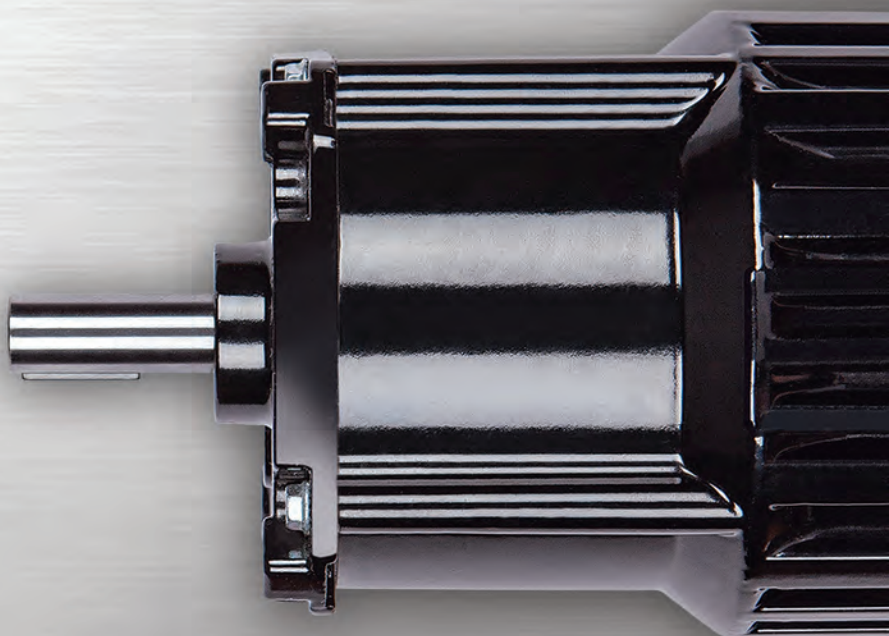




## GEARMOTORS • MOTORS • CONTROLS

AC  
PMDC  
BLDC



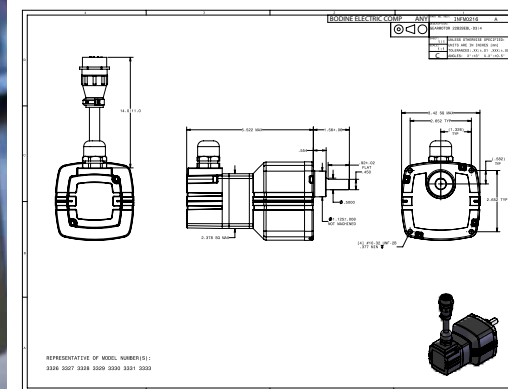
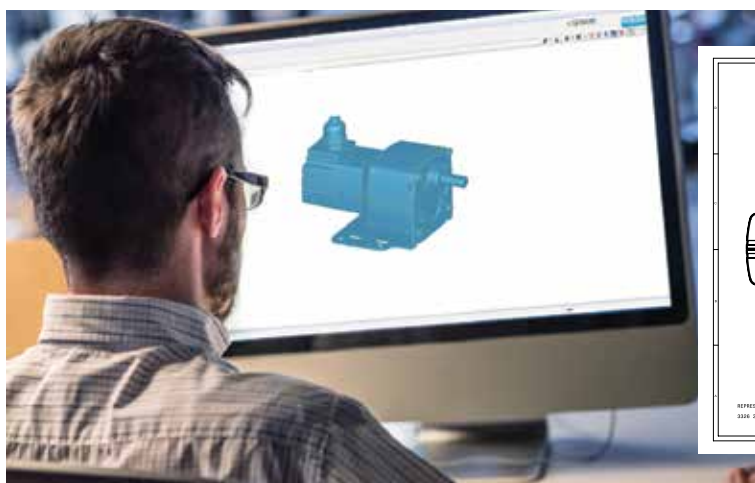
**BODINE  
ELECTRIC  
COMPANY**

**bodine-electric.com**



# For 2D/3D CAD drawings and distributor locations, go to [www.bodine-electric.com](http://www.bodine-electric.com)

Our website features the latest product specifications, technical documents, connection diagrams and instruction manuals. Dimension drawings and 3D models can be imported from the website directly into most CAD software programs. You will also find information about Bodine's newest products, our distributor locator, and helpful Tech Tools designed to answer the most commonly asked motion control questions.



## UL/CSA Safety Compliance

Products are marked cURus or UR/CSA, and most products meet CE. All products are also



RoHS compliant.

Motors and gearmotors

conform to UL standard 1004 and CSA standard C22.2 No. 100. They are documented in UL file number E47177 and CSA file number LR2797.

Electronic controls conform to UL standard 508 and CSA standard C22.2 No. 14. They are documented in UL file number E44529 and CSA file number LR26397.

## Motor Options

For the comparative advantages of AC motors and gearmotors, see page 21.

### Variable speed

#### Pacesetter AC motors

- Voltage ratings are 230 VAC, 60 Hz (3-phase) or 230/460 VAC, 60 Hz (3-phase)

#### Fixed-speed AC motors

- Voltage ratings are 115 VAC, 60 Hz (single-phase) or 230 VAC, 60 Hz (3-phase)
- Metric voltage ratings are 230 VAC, 50 Hz (1- or 3-phase)

#### Permanent Magnet DC motors

- Voltage ratings are 12/24 VDC, 24 VDC, 90/130 VDC or 130 VDC
- Metric voltage rating is 180 VDC
- Compatible with 90 V controls (90/130 VDC and 130 VDC only)

#### Brushless DC (ECM) motors

- Voltage ratings are 24 or 130 VDC

	Variable Speed Pacesetter Inverter Duty AC				Fixed-Speed AC				Permanent Magnet DC			Brushless DC		INTEGRA BLDC		
	30R	34R	42R	48R	K-2	30R	34R	42R	48R	24A	33A	42A	22B	34B	22B	34B
Power (HP)	1/25-1/17	1/8-1/4	3/8	1/3-3/4	1/1600- 1/200	1/40-1/30	1/15-1/5	1/12-1/4	1/5-1/2	1/50-1/7	1/16-1/3	1/4-1/2	1/16-1/5	1/5-3/8	1/16-1/8	1/4
Torque (oz-in.)	24-35	70-148	222	185-445	0.35-3.2	10-20	38-119	48-148	112-296	8-24	34-134	101-180	20-50	33-151	25-50	100
Rated Speed (rpm)	1700	1700, 1800	1700	1700, 1800	1200, 1550, 1800, 3600	1700, 1800, 3400	1700, 1800, 3400	1700, 3450	1700, 1800	2500, 11,500	2500	2500	2500, 10,000	2500, 10,000	2500	2500

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**2 Year**  
system warranty

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# Motor Speed Controls

Our motion controls are precisely engineered to provide maximum performance from our motors and gearmotors. Choose a Bodine gearmotor and speed control and get our extended 2-year system warranty.

**2 Year**  
system warranty



## AC

### Pacesetter™ Inverter Duty Three Phase Motor Speed Controls

#### Basic Three-Phase Chassis AC Motor Speed Control



- Speed control via external speed pot or external 0-5 VDC analog signal (isolation required)
- Adjusts current limit, max. speed, min. speed, decel. time, accel. time, and slip compensation
- Output freq. selectable between 0-60 Hz and 0-120 Hz.
- Connector for remote direction control
- Connector for remote momentary start switch
- Protection against overload, overvoltage, undervoltage, and short circuit
- UL Listed, CE
- See page 43 for reference dimensions

Three-Phase AC Output Power				Input Power		Model Number
HP	Motor V	Motor Amps	Hz	V	Hz	
1/2	230	2.4	0-120	115	50 / 60	2982
1/2		2.4		230		2983
1/2		2.4		115 / 230		2984
1		4		115 / 230		2987

#### NEMA 4X/IP-65 Enclosed AC Motor Speed Control



- LED status indicators provide indication of the drive's status and operating mode
- GFCI compatible
- F-B-R (Forward-Brake-Reverse), Start/Stop, and On/Off switches
- Motor current selection
- More than 200% starting torque
- Overvoltage and undervoltage
- Run/Fault relay output contacts turn equipment on/off and signal stop mode if a fault has occurred.
- No remote operation
- cULus

Three-Phase AC Output Power				Input Power		Model Number
HP	Motor V	Motor Amps	Hz	V	Hz	
1	230	3.6	0-120	115 or 208/230	50 / 60	2999

#### NEMA-1/IP-40 Enclosed AC Motor Speed Control



- Run/Fault relay output contacts turn equipment on/off and signal stop mode if a fault has occurred.
- Barrier terminal blocks facilitate wiring
- Motor overload ( $I^2t$ ) with RMS current limit
- Electronic inrush current limit
- Regeneration eliminates tripping due to bus overvoltage
- Overvoltage and undervoltage
- No remote operation
- Built-in line filter for CE compliance
- cULus, CE

Three-Phase AC Output Power				Input Power		Model Number
HP	Motor V	Motor Amps	Hz	V	Hz	
1	230	3.6	0-120	115 or 208/230	50 / 60	2998

## Type UPM | Unfiltered SCR Motor Speed Control (NEMA-4 Enclosure)

- Operates from 115 Volt AC or 230 Volt AC line
- Designed to drive 90 Volt DC or 130 Volt DC motors
- Switchable output for 0-90 Volt DC or 0-180 Volt DC
- Back EMF feedback maintains better than 2% speed regulation

- Dip switches to easily calibrate control for different motor sizes
- NEMA 4 enclosure for wet or dirty environments
- Trim pots on PC board to adjust torque limit, minimum speed limit, maximum speed limit, acceleration time, deceleration time, and speed regulation

- Speed can be adjusted manually using speed pot on front of enclosure
- Terminal block inside enclosure for quick line and motor connection
- Line fuses inside enclosure
- Line filter inside enclosure to reduce conducted EMI
- cURus, CE, RoHS



HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
1/5 @ 90V 1/3 @ 180V	115 / 230	90 or 130 @ 115 VAC 180 @ 230 VAC	2.1	4.2	1.4	UPM-3318E4	1865

## Type WPM | Filtered PWM DC Basic Speed Control (Chassis, IP-00)

- Models 0780-0784 operate from 115 Volt AC line, 50/60 Hz
- Models 0786-0789 operate from a DC power supply or a battery
- 115V models: filtered DC output for cooler motor operation, longer brush life, lower audible noise, and wider speed range

- Back EMF feedback maintains better than 1% speed regulation
- Dip switches to easily calibrate control for different motor sizes
- Two diagnostic LEDs indicate when power is on and when current output is at limit set by TORQ pot
- Five on-board user-adjustable pots for torque limit, minimum speed limit, maximum speed

- limit, acceleration time, and speed regulation
- Speed can be adjusted manually using a remote 10k speed pot (included with control)
- Connections for optional user-supplied inhibit switch
- cURus, RoHS



WPM Chassis Control (115 V model with terminal block)

HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number		
							1/4 in. QC tab	Terminal Block	
WPM Chassis Filtered PWM DC Control (115 V Models)									
1/4	115	90 or 130	2.0	2.5	1.0	WPM-2109C	0780	0783	
7/16			3.2	5		WPM-2137C	0781	0784	
WPM Chassis PWM DC Control (12 and 24 V Models)									
1/12 @1250 rpm	1/6 @2500 rpm	(VDC) 12-14	12	15	35	1.0	WPM-2137C	—	0787
			17	0786				—	
—	1/3	24-35	24	14				0788	0789



WPM Chassis Control (12 or 24 V models)

## Type WPM | Filtered PWM DC Basic Speed Control (NEMA-1, IP-40)

- Filtered DC output
- Designed to drive 90 Volt DC or 130 Volt DC motors
- Dip switches to easily calibrate control
- Model 0794: includes F-B-R (forward-brake-reverse) switch

- Line voltage compensation minimizes speed drift
- Trim pots on PC board to adjust torque limit, minimum speed limit, maximum speed limit, acceleration time, and speed regulation
- Manual speed adjustment

- Terminal block inside enclosure
- Back EMF feedback maintains better than 2% speed regulation
- Factory installed AC line cable
- cURus, RoHS



WPM Enclosed Control (Speed only)

HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
WPM Enclosed Filtered PWM DC Control							
1/4	115	90 or 130	2.0	2.5	1.0	WPM-2109E1	0790
7/16			3.2	5		WPM-2137E1	0791
WPM Enclosed Filtered PWM DC Speed and Direction Control							
7/16 @ 90 V 5/8 @ 130 V	115	90 or 130	3.7	7.1	1.0	WPM-2148E1	0794



WPM Enclosed Control (With Direction Switch)

For control accessories see page 35. See page 43 for reference dimensions.

Visit our website for 2D/3D CAD drawings.



**Type FPM | Filtered SCR DC Basic Speed Control**

- Designed to drive 90 Volt DC or 130 Volt DC motors
- Dip switches to easily calibrate control
- Line voltage and temperature compensation
- Trim pots on PC board to adjust torque limit, minimum speed limit, maximum speed limit, acceleration time, and speed regulation.
- Back EMF feedback maintains better than 2% speed regulation
- 10k Ohm remote speed pot and 24" connecting wire supplied with each control
- Connections for optional user-supplied inhibit switch
- Terminal block
- Plug-in connector for speed pot and optional user supplied inhibit switch
- Flexibility in adding plug-in interface boards
- Built-in line and motor fuseholders (both fuses supplied)
- UR, CSA, RoHS

HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
1/17	115	90 or 130	0.5	1	1.0	FPM-0810C	0810
1/6			1.25	2.5		FPM-0830C	0830
1/3			2.3	4.6		FPM-0850C	0850

**Type FPM | Filtered SCR DC Basic Speed Control (NEMA-12 Enclosure)**

- Designed to drive 90 Volt DC or 130 Volt DC motors
- Dip switches to easily calibrate control
- Line voltage and temperature compensation
- Trim pots on PC board to adjust torque limit, minimum speed limit, maximum speed limit, acceleration time, and speed regulation.
- Manual speed adjustment
- Terminal block inside enclosure
- Back EMF feedback maintains better than 2% speed regulation.
- Fuse holders for line and motor inside enclosure (both fuses supplied)
- UR, CSA, RoHS

HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
<b>FPM Enclosed Filtered SCR DC Controls NEMA 12, Basic Speed Control</b>							
1/17	115	90 or 130	0.5	1	1.0	FPM-0815E	0815
1/6			1.25	2.5		FPM-0835E	0835
1/3			2.3	4.6		FPM-0855E	0855

**Type FPM | Filtered SCR DC Basic Speed and Direction Control (NEMA-12 Enclosure)**

- Filtered DC output for different motor sizes.
- Designed to drive 90 Volt DC or 130 Volt DC motors
- Line voltage and temperature compensation
- Dynamic braking for quick stops
- Trim pots on PC board to adjust torque limit, minimum speed limit, maximum speed limit, acceleration time, and speed regulation
- Manual speed adjustment
- Rotary switch on enclosure for direction
- Terminal block inside enclosure for motor connection
- Back EMF feedback maintains better than 2% speed regulation
- Fuse holders for line and motor inside enclosure (fuses included)
- UR, CSA, RoHS

HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
<b>FPM Enclosed Filtered SCR DC Controls NEMA 12, Speed and Direction Control</b>							
1/17	115	90 or 130	0.5	1	1.0	FPM-0818E	0818
1/6			1.25	2.5		FPM-0838E	0838
1/3			2.3	4.6		FPM-0858E	0858

### Type FPM | Filtered SCR DC Remote Speed Control (NEMA-12 Enclosure)

- Designed to drive 90 Volt DC or 130 Volt DC motors
- Dip switches to easily calibrate control
- Line voltage and temperature compensation

- Trim pots on PC board to adjust torque limit, minimum speed limit, maximum speed limit, acceleration time, and speed regulation
- Speed can be adjusted manually
- Terminal block inside enclosure

- Back EMF feedback maintains better than 2% speed regulation
- Fuse holders for line and motor inside enclosure (both fuses supplied)
- UR, CSA, RoHS



HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Remote Signal	Product Type	Model Number
<b>FPM Enclosed Filtered SCR DC Controls NEMA 12, Remote Speed Control</b>								
1/17	115	90 or 130	0.5	1	1.0	Analog	FPM-0816E	0816
1/6			1.25	2.5		Analog	FPM-0836E	0836
1/3			2.3	4.6		Analog	FPM-0856E	0856

### Type UPM | Unfiltered SCR DC Remote Speed Control

- Designed to drive 90 Volt DC or 130 Volt DC motors
- Switchable output for 0-90 Volt DC or 0-180 Volt DC.
- Back EMF feedback maintains better than 2% speed regulation.
- Dip switches to easily calibrate control

- Two diagnostic LEDs indicate when power is on and when current output is at limit set by TORQ pot
- Six on-board user-adjustable pots for torque limit, minimum speed limit, maximum speed limit, acceleration time, deceleration time and speed regulation

- Speed can be adjusted manually using a remote 10K speed pot (included with control)
- Unfiltered drive draws lower AC line current than comparable SCR filtered controls
- Connections for optional user-supplied inhibit switch
- cURus, CE, RoHS



HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number	
							1/4 in. QC tab	Terminal Block
UPM Unfiltered SCR DC Controls Chassis, Basic Speed Control								
1/5 @ 90 V 1/3 @ 180 V	115/230	90 or 130 @ 115 VAC 180 @ 230 VAC	2.1	4.2	1.6	UPM-3318C	0865	0866

### Type UPM | NEMA-1 Unfiltered SCR Basic Speed Control (NEMA-1 Enclosure)

- Designed to drive 90 Volt DC or 130 Volt DC motors
- Line voltage compensation minimizes speed drift
- Back EMF feedback maintains better than 2% speed regulation.
- Dip switches to easily calibrate control

- Trim pots on PC board to adjust torque limit, minimum speed limit, maximum speed limit, acceleration time, deceleration time, and speed regulation
- Two diagnostic LEDs indicate when power is on and when current output is at limit set by TORQ pot

- Manual speed adjustment
- Terminal block inside enclosure
- Unfiltered drive draws lower AC line current than comparable SCR filtered controls
- Connections for optional user-supplied inhibit switch
- cURus, RoHS



HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
<b>UPM Enclosed Unfiltered SCR DC Controls NEMA 1, Basic Speed Control</b>							
1/5	115	90 or 130	2.1	4.2	1.6	UPM-3318E1	0867

## Type ABL | Low Voltage PWM BLDC Speed and Direction Control (Chassis, IP-00)

Models  
3904, 3905  
and 3907

- Ideal for portable, battery operated applications
- On-board speed potentiometer for manual adjustment
- Accepts 0-5 VDC analog signal for remote operation
- Unique Smart Reverse™ circuit provides quick reversing and prevents motor plugging
- Dynamic braking for quicker stops
- 12 pulse/revolution tach output provides indication of motor speed
- Models 3904, 3905 and 3907: Logic output indicates control shutdown due to a motor overload
- Speed can be adjusted manually or by remote control over a range of 30:1
- 10k Ohm remote speed pot supplied with each control
- Inherent closed loop system maintains a 2% maximum change in motor speed from 0-100% of rated load when operated at rated speed
- cURus, RoHS

HP Rating	Input V (VDC)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
Chassis Low Voltage PWM BLDC (24 V Models)							
1/6	24-35	24	10	13.5	1.0	ABL-3905C	3905
3/8			20	30		ABL-3907C	3907
Chassis Low Voltage PWM BLDC (12 V Model)							
Contact Factory	12-14	12	20	30	1.0	ABL-3907C	3904
Compact Chassis Low Voltage PWM BLDC (12 and 24 V Models)							
1/4	12-14	12	20	30	1.0	ABL-3906C	3908
3/8	24-35	24	18	27			3909



Models 3908 and 3909

## Type ABL | Filtered SCR BLDC Speed and Direction Control (Chassis, IP-00)



- Unique Smart Reverse™ circuit for remote control of motor direction
- Dynamic braking for quicker stops
- 12 pulse/revolution tach output
- Green LED indicates AC power on
- Red LED indicates control shutdown due to a fault condition
- Speed can be adjusted manually
- 10k Ohm remote speed pot supplied with each control
- DIP switches set the current limit
- Five onboard user-adjustable pots for torque limit, minimum speed limit, maximum speed limit, acceleration time, and deceleration time
- Fuse holders for line and motor fuses (fuses included)
- Inherent closed loop system maintains a 1% maximum change in motor speed from 0-100% of rated load when operated at rated speed
- UR, CSA, RoHS

HP Rating (@ rpm)	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
3/8@2500	115	130	3	6	1.0	ABL-3911C	3911
1/3@10,000						ABL-3921C	3921

## Type ABL | Filtered SCR BLDC Speed/Direction Control (NEMA-12 Enclosure)



- Unique Smart Reverse™ circuit allows remote control of motor direction
- Dynamic braking for quicker stops
- 12 pulse/revolution tach output provides indication of motor speed
- Internal: Red LED indicates control shutdown due to a fault condition
- Speed can be adjusted manually
- DIP switches set the current limit
- Inherent closed loop system maintains a 1% maximum change in motor speed from 0-100% of rated load when operated at rated speed
- Fuse holders for line and motor fuses (fuses included)
- UR, CSA, RoHS

HP Rating (@ rpm)	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
3/8@2500	115	130*	3	6	1.0	ABL-3912E	3912
1/3@10,000						ABL-3913E	N3913

\* for brushless motors and controls

## Type ABL | Unfiltered SCR BLDC Speed and Direction Control (Chassis, IP-00)



- Lower cost alternative to model 3911
- Unique Smart Reverse™ circuit
- 12 pulse/revolution tach output
- Green LED indicates AC power on
- Red LED indicates control shutdown due to a fault condition
- Speed can be adjusted manually
- 10k Ohm speed pot supplied with each control
- DIP switches set the current limit so that the same control model can drive any size Bodine motor
- Inherent closed loop system maintains a 1% maximum change in motor speed from 0-100% of rated load when operated at rated speed
- UR, CSA, RoHS

HP Rating	Input V (VAC, 50/60 Hz)	Motor Rating (VDC)	Continuous Output Current (Amps)	Peak Output Current (Amps)	FF	Product Type	Model Number
3/8	115	90	3	6	1.6	ABL-3910C	3910

"N" model numbers require lead time and minimum quantities.



## "L" Brackets



Model No.	Description
A 0969	Kit for E, F and FX gearmotors (will not fit 48R-F or 48R-FX)
B 0970	Kit for WX gearmotors
C 0979	Kit for 34R and 34B motors
D 0980	Kit for 34R-Z gearmotors
E 0990	Kit for 24A motors
F 5968	Kit for 30R and 33A motors; 30R-D, 24A-D, 22B-D, 24A-Z, 33A-Z and 22B-Z gearmotors

## AC | DC Motor and Gearmotor Accessory Kits



Model No.	Description
A 0967	Base plate kit for 3F gearmotors
B 0977	IP-44 protection kit for 33A gearmotors and motors
C 0978	IP-44 protection kit for 42A gearmotors and motors
D 0984	Die cast terminal box kit for 34R, 42R, 48R, and 33A, 42A motors and gearmotors ( <i>DC: does not fit on 12 or 24VDC models</i> )
E 0985	Oversized die cast t-box kit. Fits capacitor for use with 42R-FX gearmotors. Also fits 42R, 48R, 33A and 42A motors/gearmotors.
— 1982	Die cast terminal box with terminal block for 30R motors and gearmotors
— 1984	Die cast terminal box kit with terminal block for 34R, 42R, 48R, 33A and 42A motors/gmtrs. <i>90/130, 130V and 180VDC models only.</i>
— 5982	Die cast terminal box for 30R motors and gearmotors
F 0992	Adaptor plate for mounting brakes or encoders for 33A/42A gearmotors/motors with accy. ready shaft extensions
G 0993	Adaptor plate for mounting brakes or encoders for 22B/34B gearmotors/motors with accy. ready shaft extensions
H 0995	3-hole adaptor plate for E, F, WX and FX gearmotors. Provides drop-in replacement for competitive gearmotors.
I 0996	Base kit for 34R motors and gearmotors
J 0960	Mounting Flange for 60P planetary gearmotors (U.S.)
K 0961	Mounting Flange for 60P planetary gearmotors (Metric)
L 0962	IP-66 Seal Kit for 60P planetary gearmotors (U.S.)
M 0963	IP-66 Seal Kit for 60P planetary gearmotors (Metric)

## AC Capacitors



Box-Type Capacitor



Metal Can-Type Capacitor



A, B

Select a run capacitor based on the specifications found on pages 4-21 (29-33 for metric models) and in the tables below. The AC gearmotor or motor nameplate states the required capacitance of the run capacitor, but it is also critical to specify a capacitor that has the voltage ratings as shown in these tables. When using a run capacitor that is not supplied by Bodine Electric, please make sure the voltage rating is equal to or higher than the voltage rating specified on this page. Different motor sizes might require a different minimum voltage rating for the run capacitor.

Part No.	µF /VAC	Part No.	µF /VAC	Part No.	µF /VAC
<b>Box-Type Metalized Film Capacitor (Plastic Case)</b>					
49400045 <sup>1</sup>	0.9/250	49426812 <sup>1</sup>	4.0/250	49401123 <sup>1</sup>	3.75/370
49400046 <sup>1</sup>	1.0/250	49401015	5.0/250	49401068 <sup>1</sup>	5.0/400
49400047 <sup>1</sup>	1.2/250	49401154 <sup>1,3</sup>	7.5/370	49401107 <sup>1</sup>	12.5/370
49400048 <sup>1</sup>	1.3/250	49401054	10.0/250	49401075 <sup>1</sup>	15.0/350
49400050 <sup>1</sup>	1.5/250	49401115 <sup>1</sup>	6.0/450	49401057	20.0/350
49400051 <sup>1</sup>	1.6/250	49401106	9.0/250	<b>Round Metal Can-Type Capacitor</b>	
49401049	0.4/440	49401006	12.5/250	49401124	25.0/370
49400091	1.3/440	49401156 <sup>3</sup>	15.0/250	49401145 <sup>2</sup>	45.0/250
49401047	2.3/250	49401113 <sup>1</sup>	20.0/250	49401147 <sup>2</sup>	40.0/250
		49401112 <sup>1</sup>	27.5/250	49401148 <sup>2</sup>	10.0/450
		49401090 <sup>1</sup>	30.0/250		

<sup>1</sup> Capacitor fits inside terminal box kit model 0984. <sup>2</sup> Capacitor fits inside oversized terminal box model number 0985. <sup>3</sup> New capacitor part number effective 06/2016.

### Capacitor Mounting Clamps

Model No.	Description
A 54701013	Mounting clamp for round, metal can type capacitor model 49401124
B 54701029	Mounting clamp for round, metal can type capacitors: models 49401145, 49401147, and 49401148

**For mounting details and dimensions, visit [www.bodine-electric.com](http://www.bodine-electric.com)**

**Shaft kits** for type 3F/H, 5L/H and GB/H gearmotors



**Cover kits** type 3F/H (left), types 5L/H and GB/H (right)



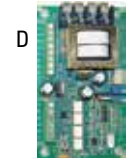
**Flange mount kits** type 3F/H (left), types 5L/H and GB/H (right)

Item	Model No.	Description
—	0910	Shaft kit for type 3F/H gearmotors, 1/2 inch diameter, single shaft
—	0920	Shaft kit for type 3F/H gearmotors, 1/2 inch diameter, double shaft
—	0912	Shaft kit for type 5L/H gearmotors, 5/8 inch diameter, single shaft
—	0922	Shaft kit for type 5L/H gearmotors, 5/8 inch diameter, double shaft
—	0917	Shaft kit for type GB/H gearmotors, 3/4 inch diameter, single shaft
—	0927	Shaft kit for type GB/H gearmotors, 3/4 inch diameter, double shaft
—	0950	Cover kit for type 3F/H gearmotors
—	0951	Cover kit for type 5L/H and GB/H gearmotors
—	0955	Flange mount kit for 3F/H gearmotors
—	0956	Flange mount kit for 5L/H and GB/H gearmotors

## Control Accessories

BLDC  
PMDC

Item	Model No.	Description
—	0888	<b>Analog Interface Board</b> for use with model 0810, 0830, and 0850 controls. Allows control to accept a variable voltage or current signal from user's host controller to automatically control motor speed. Inputs are optically isolated.
—	0890	<b>Electronic Direction and Braking Board, F-B-R Kit</b> , for use with model 0810, 0830, and 0850 controls. Allows user to change motor direction and to dynamically brake motor to a quick stop. Inputs are not optically isolated. This kit includes one F-B-R board, one cable and connector, mounting hardware, and two additional braking resistors.
—	0893	<b>Local/Remote Switch</b> for use with model 0810, 0830, and 0850 controls when used with accessory model 0888. Allows user to switch between automatic and manual operation.
—	0895	<b>Switch Sealing Kit</b> upgrades NEMA-12 brushless DC and PMDC enclosed controls to IP-44 rating.
A	3981	<b>Cable Kit</b> for stock 34B/FV INTEGRAMotors. Length: six feet (3 cables: power, logic and encoder).
B	3982	<b>Extension Cable</b> for model 3910, 3911, 3921 and 3912 controls. Extends the cable between the motor and control by six feet. Both ends are equipped with circular connections for easy connection between model 3983 cable assembly or encased control and the motor. Length: six feet.
C	3983	<b>Connection Cable Assembly</b> for connecting model 3910, 3921 and 3911 chassis controls to stock 130 V motors. One end of the cable is equipped with a circular connector, the other end is equipped with quick disconnects for phase leads, and a molded connector for the commutation leads. Length: 6 feet.
D	3984	<b>Analog Interface And Isolation Module</b> for model 3910, 3911, 3921 and 3912 controls. Provides Analog interface and isolates controls from system controller input signals which may be at different potentials.
—	43300260	<b>Speed Potentiometer Kit</b> for use with FPM controls. Contains 10k Ohm potentiometer, hardware, wire and connector for manually regulating motor speed.
—	43300270	<b>Fuse and Speed Potentiometer Kit</b> for use with model 3910 control. Contains potentiometer for manually regulating motor speed and various fuses to cover the range of motors and gearmotors which can be used with the control.



## Metric Accessories



Metric "L" Brackets

Item	Model No.	Description
A	0990	Metric Kit for 24A
B	1968	Metric Kit for 33A motors, and type D and Z gearmotors
C	1970	Metric Kit for type W gearmotors
D	1969	Metric Kit for E, F and FX gearmotors (will not fit 48R-F or 48R-FX)
—	—	no "L" bracket kits are available for 34R and 34R-Z gearmotors

A



B



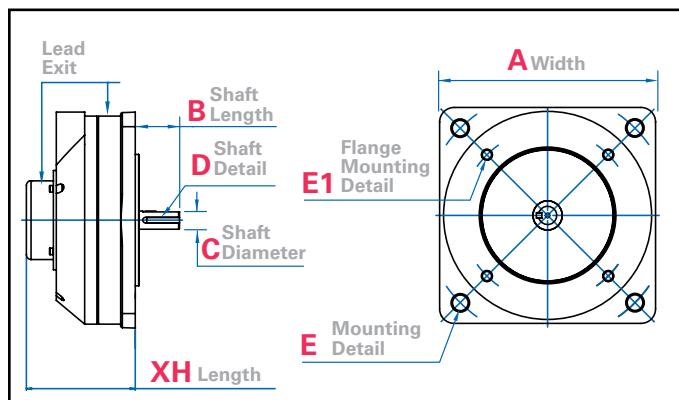
Metric Motor and Gearmotor Kits

Item	Model No.	Description
A	1982	Metric die cast terminal box kit for 30R motors and gearmotors
A	1984	Metric die cast terminal kit with terminal block for 33A, 34R, 42A and 42R motors and gearmotors. For 90/130, 130V and 180VDC models only.
B	0991	Metric die cast base kit for 42A motors and gearmotors
—	0992	Metric adaptor plate for 33A and 42A motors and gearmotors

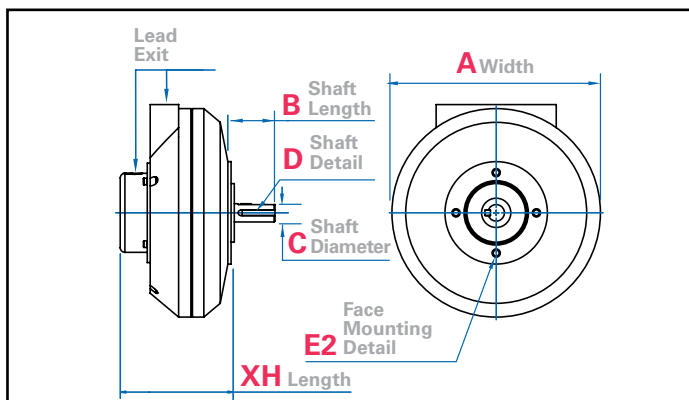
## e-TORQ Dimensions

Dimensions (in inches) are for reference only. For CAD drawings and up-to-date specifications, please visit [www.bodine-electric.com](http://www.bodine-electric.com).

Flange Mount, page 23



Face Mount, page 23

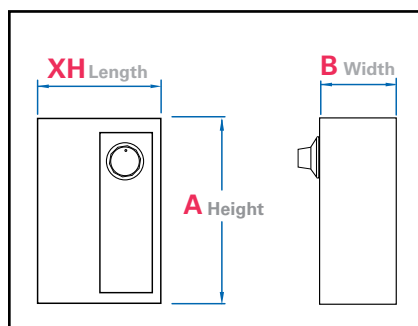


	Product Type	Weight (lbs.)	XH Length	A Diameter/Width (if square)	B Shaft Length	C Shaft Diameter	D Shaft Detail	E Mounting Detail (Through Holes)	E1 Flange Mounting Detail	E2 Face Mounting Detail	Lead/Cord Length (in.)
Flange Mount	7"	13	3.82	7.40	1.50	.626	Flat/key	[4] Thru Holes, .535 Dia. On 8.465 B.C.	[4] 3/8-16 UNC-2B x .50 Max. Deep on 5.875 B.C.	—	72
Face Mount	7"	12	3.87	7.13	1.50	.625	Flat/key	—	—	[4] 1/4-20 UNC-2B x .31 Max. Deep on 2.75 B.C.	72
	14"	75	5.47	14.06	1.75	1.000	Flat/key	—	—	[4] 3/8-16 UNC-2B x .50 Max. Deep on 6.50 B.C.	

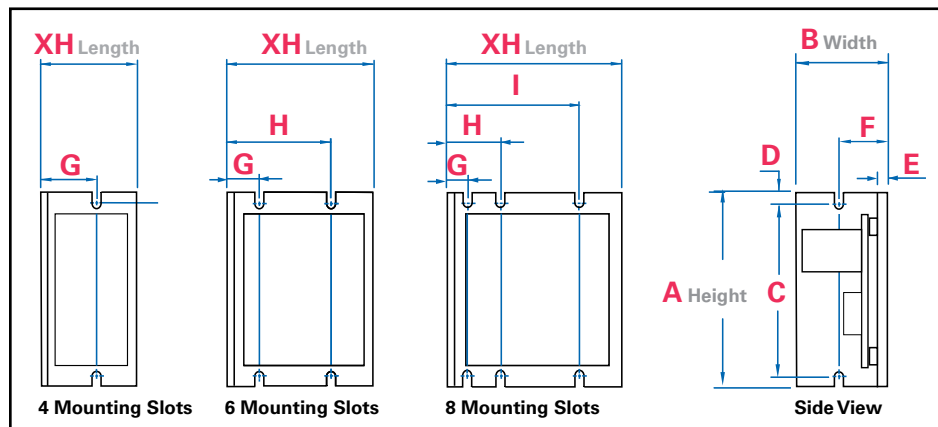
## Control Dimensions

pages 24-28

Enclosed Models



Chassis Models



Enclosed Models

	Model Number	Description	XH Length	A Height	B Width
NEMA 4X/1P-65 NEMA 1/1P-40	2999	AC Inverter	5.51	9.53	5.97
	2998	AC Inverter	4.95	7.00	4.15
NEMA 1	2996	AC Inverter	7.116	4.96	5.672
NEMA 1	0790, 0791, 0794	DC	7.12	3.92	3.74
NEMA 12	see website	DC/BLDC	6.16	8.44	3.94

Chassis Models

	Model Number	Description	XH Length	A Height	B Width	C Slot Height	D Slot Center to Edge	E Heat Sink Thickness	F Side Slot to Edge	G Slot 1 to Edge	H Slot 2 to Edge	I Slot 3 to Edge
AC Inverter	2982, 2983, 2984	8 mounting slots	3.87	4.30	2.66	3.80	.25	—	.950	.485	1.235	2.985
	2987	6 mounting slots-no side slots	4.30	4.67	4.96	—	—					
(DC) WPM	see website	6 mounting slots	3.64	4.30	1.75	3.80	.25	.90	.95	.50	3.00	—
(DC) UPM	see website		3.64	4.30	1.50	3.80	.25	.90	.95	.50	3.00	—
(DC) FPM	0810		4.75	6.00	1.25	5.50	.25	—	.94	1.13	3.63	—
(DC) FPM	0830, 0850		5.00	9.25	2.14	8.25	.38	—	—	1.31	3.81	—
(BLDC) ABL	3911, 3921	6 mounting slots	5.50	8.00	2.63	7.50	.25	.188	.117	1.25	42.5	—
(BLDC) ABL Low Voltage	3904, 3905, 3907	4 mounting slots	3.90	8.00	2.25	7.50	.25	.188	1.283	2.25	—	—
	3908, 3909	6 mounting slots	3.25	5.25	1.30	5.05	.10	.125	.65	.75	2.75	—



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## Hollow Shaft Gearmotors and Accessories

Hollow shaft gearmotors connect directly to the driven load, reducing the overall space required by the gearmotor. Get the flexibility of Bodine's hollow shaft gearmotors without expensive couplings and mounting hardware.

- Rated torques: 6.8 to 380 lb-in
- Gear ratios: 5:1 to 280:1
- Single- or double-output stainless steel shaft kits
- Face-mounting flanges
- 230VAC and 230/460VAC 3-phase models available



## Speed Controls for Fractional Horsepower Gearmotors

Bodine filtered and unfiltered speed controls provide optimized performance for a wide range of gearmotors and motors. Match a Bodine gearmotor and control and get an extended two-year system warranty. Chassis and enclosed models are available.

- PMDC, brushless DC, and AC motor speed controls
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