

DATA SHEET

BD MOTORIZED PUMP UNITS



**Motors: 8023ES, 8024ES,
8025ES**

**Used on
Pump Models: 230, 231, 237, 240, 241,
247, 270, 271, 277**

**Motors: 8026ES, 8027ES,
8028ES, 8029ES**

**Used on
Pump Models: 340, 341, 347, 350, 351,
357**



Model 340BD33 Shown

MOTORIZED UNIT FEATURES

- No pulleys, belts, belt guards, or adjustments to consider
- Easy assembly
- Single source purchases
- Motors – CSA and UL recognized (60 Hz)
CSA Reference No. LR-2262
UL Reference No. E-46145

⚠CAUTION

SOME MOTOR MODELS CONTAIN NO THERMAL PROTECTOR

A separate over-current protection device must be installed to prevent motor burnout and possible fire damage due to overloaded or stalled motor. Motor must be properly grounded.

MOTOR WARRANTY

All electric motors are warranted by the manufacture to be free from defects of material and workmanship for one year from date of shipment. For warranty consideration, ship the defective motor PREPAID directly to Baldor. Contact Cat Pumps for warranty procedure and the nearest authorized Baldor Service Center. If you are uncertain as to the cause of failure (Pump or Motor) return the complete assembly PREPAID to Cat Pumps for evaluation. Call for RGA number prior to returning.

INSTALLATION INSTRUCTIONS

Before installing motorized pump unit, check incoming voltage to be certain it does not exceed motor rating as this will result in motor damage. Instructions for electrical connection are on a decal on the motor housing. Qualified or trained personnel should install equipment. Equipment should be installed in accordance with the National Electrical Code, local codes and with NEMA MG1, Safety Standards for Construction and Guide for Selection, Installation and use of Electric Motors and Generators.

Review your application flow and pressure requirements. Exceeding the rated pressure of the motorized unit may cause overheating of your motor, high amp draw and result in shortened motor life. Before operation see lubrication on next page.

ASSEMBLY OF ELECTRIC MOTOR AND PUMP

1. A flange mount is required to mount the electric motor to the pump.
2. Rotate pump shaft so keyway is toward back of pump. Insert key into pump shaft. To assure key is completely seated, beveled end should be toward pump and flat surface horizontal with shaft keyway. Shaft may not fit into motor if key is improperly installed.
3. Next slip washers onto shaft retaining bolt (M8x20). Apply Loctite® 242® to threaded section and thread bolt into pump shaft. Torque to 110 in. lbs. (12 Nm) (Models 340 and 350 only.)
4. Mount adapter plate onto pump with extended collar toward pump, side vents to the right and left. Line up center four threaded holes with those on bearing case.
5. Apply a small amount of Loctite® 242® to the four M6x20 Hex Flat Head screws and secure adapter plate to pump. Torque to 60-70 in. lbs. (6.6 - 7.7 Nm).
6. Apply Loctite® 242® to set screws and insert into motor shaft. Thread into shaft only partially — not completely into keyway.
7. Apply Antiseize lubricant (PN 6106) to pump shaft and I.D. of motor shaft. Carefully insert pump into hollow motor shaft until flange is flush with motor. Be certain key on pump shaft lines up with keyway on motor shaft.
8. Secure pump and motor with lockwasher and hex head screws and torque to 50-60 ft. lbs. (5.5 - 6.6 Nm).
9. Use a 5/32" allen wrench (PN 34030) to secure set screws through side vent in flange mount. Torque to 60-75 in. lbs. (6.6 - 8.3 Nm).

Loctite and 242 are registered trademarks of the Henkel Corporation.

3 FRAME — MOTORIZED PUMP UNITS

MOTORIZED UNITS

	230BD151 231BD151 237BD151	230BD31 231BD31 237BD31	230BD33 231BD33 237BD33
Shipping Unit Weight	76 lbs.	110 lbs.	90 lbs.
Shipping Unit Dimensions	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"
PUMPS	230, 231, 237	230, 231, 237	230, 231, 237
Flow	2.3 gpm	2.3 gpm	2.3 gpm
Pressure Range	100 to 900 psi	100 to 1900 psi	100 to 1900 psi
MOTORS	8023ES	8024ES	8025ES
Assembly Mount — REQUIRED	8020	8021	8021
Horsepower	1.5 HP	3.0 HP	3.0 HP
Phase	Single	Single	Three
RPM	1725 RPM	1725 RPM	1750 RPM
Frame Size	56C-TEFC	184TC-TEFC	182TCZ-TEFC
Hertz	60 HZ	60 HZ	60 HZ
Volts	115/208/230V	230V	208-230/460V
Maximum Amps	12.8/6.7/6.4 Amps	13.2 Amps	8.6-8.2/4.1 Amps
Service Factor	1.15	1.0	1.15
Max. Ambient Temperature	104°F	104°F	104°F
Shaft Diameter (Hollow)	16.5 mm	16.5 mm	16.5 mm
Thermo Overload	No	Yes	No
Capacitor Start	Yes	Yes	No
Insulation	Class B	Class F	Class F

MOTORIZED UNITS

	240BD31 241BD31 247BD31	240BD33 241BD33 247BD33	270BD31 271BD31 277BD31	270BD33 271BD33 277BD33
Shipping Unit Weight	110 lbs.	90 lbs.	110 lbs.	90 lbs.
Shipping Unit Dimensions	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"
PUMPS	240, 241, 247	240, 241, 247	270, 271, 277	270, 271, 277
Flow	3.6 gpm	3.6 gpm	4.2 gpm	4.2 gpm
Pressure Range	100 to 1200 psi	100 to 1200 psi	100 to 1000 psi	100 to 1000 psi
MOTORS	8024ES	8025ES	8024ES	8025ES
Assembly Mount — REQUIRED	8021	8021	8021	8021
Horsepower	3.0 HP	3.0 HP	3.0 HP	3.0 HP
Phase	Single	Three	Single	Three
RPM	1725 RPM	1750 RPM	1725 RPM	1750 RPM
Frame Size	184TC-TEFC	182TCZ-TEFC	184TC-TEFC	182TCZ-TEFC
Hertz	60 HZ	60 HZ	60 HZ	60 HZ
Volts	230V	208-230/460V	230V	208-230/460V
Maximum Amps	13.2 Amps	8.6-8.2/4.1 Amps	13.2 Amps	8.6-8.2/4.1 Amps
Service Factor	1.0	1.15	1.0	1.15
Max. Ambient Temperature	104°F	104°F	104°F	104°F
Shaft Diameter (Hollow)	16.5 mm	16.5 mm	16.5 mm	16.5 mm
Thermo Overload	Yes	No	Yes	No
Capacitor Start	Yes	No	Yes	No
Insulation	Class F	Class F	Class F	Class F

Refer to individual Pump Data Sheet and Service Manual for maintenance parts, service procedures and additional specifications.

MOUNTING FLANGE COMPONENTS

8020 Assembly Mount (8023ES)

1	34110	Flange, Mount
2	34162	Screw, HHC (10-32x1/2)
4	34379	Screw, HH (M6x20)
4	34160	Screw, HH (3/8"x1-1/4")
4	126745	Lockwasher (M6)
1	32145	Screw, Assy HH (M8x20)
4	30921	Lockwasher (3/8")
1	30047	Key
1	6106	Antiseize

8021 Assembly Mount (8024ES, 8025ES)

1	34111	Flange, Mount
2	34162	Screw, HHC (10-32x1/2)
4	34379	Screw, HH (M6x20)
4	32143	Screw, HH (1/2"x1-1/4")
4	126745	Lockwasher (M6)
1	32145	Screw, Assy HH (M8x20)
4	30908	Lockwasher (1/2")
1	30047	Key
1	6106	Antiseize

8022 Assembly Mount (8026ES, 8027ES, 8028ES, 8029ES)

1	34112	Flange, Mount
2	34162	Screw, HHC (10-32x1/2)
4	34379	Screw, HH (M6x20)
4	32143	Screw, HH (1/2"x1-1/4")
4	126745	Lockwasher (M6)
1	32145	Screw, Assy HH (M8x20)
4	30908	Lockwasher (1/2")
1	30057	Key
1	6106	Antiseize

5 FRAME — MOTORIZED PUMP UNITS

MOTORIZED UNITS	340BD31 341BD31 347BD31	340BD33 341BD33 347BD33	340BD51 341BD51 347BD51	340BD53 341BD53 347BD53
Shipping Unit Weight	122 lbs.	98 lbs.	128 lbs.	112 lbs.
Shipping Unit Dimensions	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"
PUMPS	340, 341, 347	340, 341, 347	340, 341, 347	340, 341, 347
Flow	4.0 gpm	4.0 gpm	4.0 gpm	4.0 gpm
Pressure Range	100 to 1100 psi	100 to 1100 psi	100 to 1800 psi	100 to 1800 psi
MOTORS	8026ES	8027ES	8028ES	8029ES
Assembly Mount — REQUIRED	8022	8022	8022	8022
Horsepower	3.0 HP	3.0 HP	5.0 HP	5.0 HP
Phase	Single	Three	Single	Three
RPM	1725 RPM	1750 RPM	1725 RPM	1725 RPM
Frame Size	184TC-TEFC	182TCZ-TEFC	184TC-TEFC	184TC-TEFC
Hertz	60 HZ	60 HZ	60 HZ	60 HZ
Volts	230V	208-230/460V	208-230V	208-230/460V
Maximum Amps	13.2 Amps	8.6-8.2/4.1 Amps	24.0/26.0 Amps	15.0/13.2/6.6 Amps
Service Factor	1.0	1.15	1.0	1.0
Maximum Ambient Temperature	104°F	104°F	104°F	104°F
Shaft Diameter (Hollow)	20 mm	20 mm	20 mm	20mm
Thermo Overload	Yes	No	No	No
Capacitor Start	Yes	N/A	Yes	N/A
Insulation	Class F	Class F	Class F	Class F

MOTORIZED UNITS	350BD31 351BD31 357BD31	350BD33 351BD33 357BD33	350BD51 351BD51 357BD51	350BD53 351BD53 357BD53
Shipping Unit Weight	122 lbs.	98 lbs.	128 lbs.	112 lbs.
Shipping Unit Dimensions	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"	26.5" x 16.5" x 16.0"
PUMPS	350, 351, 357	350, 351, 357	350, 351, 357	350, 351, 357
Flow	5.0 gpm	5.0 gpm	5.0 gpm	5.0 gpm
Pressure Range	100 to 900 psi	100 to 900 psi	100 to 1450 psi	100 to 1450 psi
MOTORS	8026ES	8027ES	8028ES	8029ES
Assembly Mount — REQUIRED	8022	8022	8022	8022
Horsepower	3.0 HP	3.0 HP	5.0 HP	5.0 HP
Phase	Single	Three	Single	Three
RPM	1725 RPM	1750 RPM	1725 RPM	1725 RPM
Frame Size	184TC-TEFC	182TCZ-TEFC	184TC-TEFC	184TC-TEFC
Hertz	60 HZ	60 HZ	60 HZ	60 HZ
Volts	230V	208-230/460V	208-230V	208-230/460V
Maximum Amps	13.2 Amps	8.6-8.2/4.1 Amps	24.0/26.0 Amps	15.0/13.2/6.6 Amps
Service Factor	1.0	1.15	1.0	1.0
Maximum Ambient Temperature	104°F	104°F	104°F	104°F
Shaft Diameter (Hollow)	20 mm	20 mm	20 mm	20mm
Thermo Overload	Yes	No	No	No
Capacitor Start	Yes	N/A	Yes	N/A
Insulation	Class F	Class F	Class F	Class F

Refer to individual Pump Data Sheet and Service Manual for maintenance parts, service procedures and additional specifications.

SUGGESTED MOTOR RELUBE INTERVAL

Hours/Duty Cycle Per Year	Lube Interval
500 Hours	5 Years
Continuous Normal Application	2 Years
Seasonal Service Motor is idle for 6 months or more	1 Year (beginning of season)
Continuous high ambients, dirty or moist locations or high vibration.	6 months

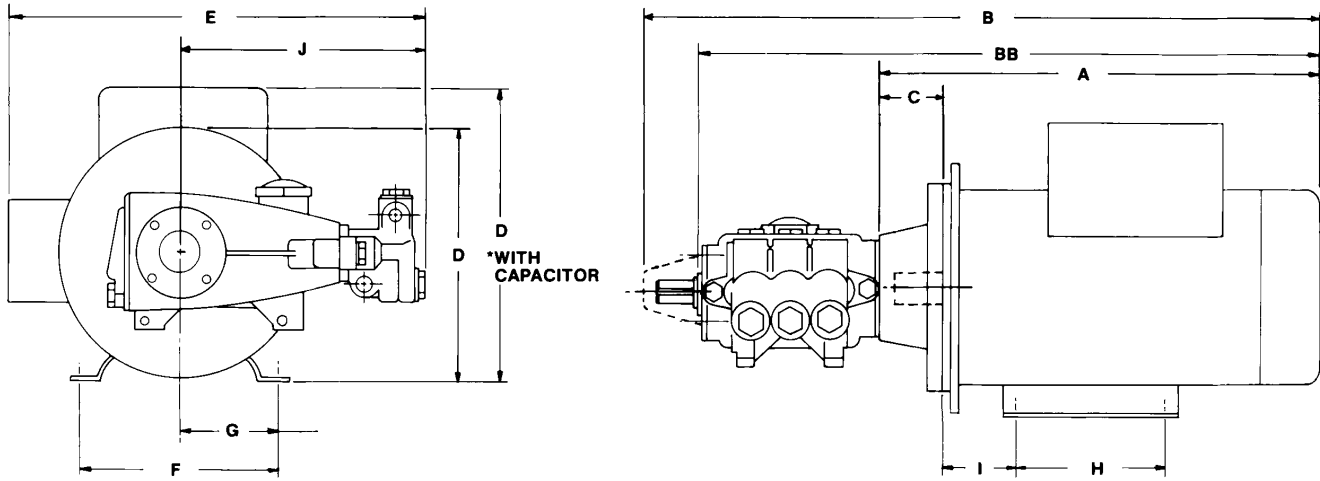
MOTOR LUBRICATION

This is a ball bearing motor with initial lubrication at the factory. No lubricant needed unless motor has been stored for over a year. Baldor motors are pre-greased normally with Shell Oil Company's "Dolium R". Several equivalent greases which are compatible with Baldor furnished grease are Chevron Oil's "SRI No. 2" and Texaco Inc. "Premium RB".

Overgreasing bearings can cause premature failure. Motor is equipped with Alemite fitting. Clean tip of fitting and apply grease gun. Use 1 to 2 strokes. Any excess may drip out the bottom drain during the first 20 minutes of operation.

NOTICE

Keep grease clean. Lubricate motors at standstill. Remove and replace drain plugs at standstill. Do not mix petroleum grease and silicone grease in motor bearings.



MOTOR	PUMP/SHAFT	A	B	BB	C	D	E	F	G	H	I	J
8023ES (1.5 HP 1 PH)	3PFR (16.5mm)	14.62 (371)	22.12 (561)	—	2.00 (50)	*8.38 (213)	12.85 (326)	4.88 (124)	2.44 (62)	3.0 (76)	3.06 (78)	7.6 (193)
8024ES (3 HP 1 PH)	3PFR (16.5mm)	15.82 (402)	23.32 (592)	—	1.88 (48)	*11.56 (294)	14.10 (358)	7.50 (190)	3.75 (95)	5.5 (140)	3.62 (92)	7.6 (193)
8025ES (3 HP 3 PH)	3PFR (16.5mm)	15.91 (404)	23.30 (591)	—	1.88 (48)	8.9 (226)	13.48 (342)	7.50 (190)	3.75 (95)	5.5 (140)	3.62 (92)	7.6 (193)
8026ES (3 HP 1 PH)	5PFR (20mm)	15.82 (402)	24.22 (615)	22.49 (571)	1.88 (48)	*11.56 (294)	15.43 (392)	7.50 (190)	3.75 (95)	5.5 (140)	3.62 (92)	8.93 (227)
8027ES (3 HP 3 PH)	5PFR (20mm)	15.91 (404)	24.36 (618)	22.90 (581)	1.88 (48)	8.9 (226)	14.81 (376)	7.50 (190)	3.75 (95)	5.5 (140)	3.62 (92)	8.93 (227)
8028ES (5 HP 1 PH)	5PFR (20mm)	17.32 (440)	25.72 (653)	23.99 (609)	1.88 (48)	*11.56 (294)	14.81 (376)	7.50 (190)	3.75 (95)	5.5 (140)	3.62 (92)	8.93 (227)
8029ES (5 HP 3 PH)	5PFR (20mm)	17.29 (439)	25.69 (652)	23.96 (608)	1.88 (48)	9.00 (229)	14.81 (376)	7.50 (190)	3.75 (95)	5.5 (140)	3.62 (92)	8.93 (227)

⚠ CAUTIONS AND WARNINGS

All High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high pressure system.

Read all CAUTIONS and WARNINGS before commencing service or operation of any high pressure system. The CAUTIONS and WARNINGS are included in each service manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.com/cautions-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.



CAT PUMPS

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