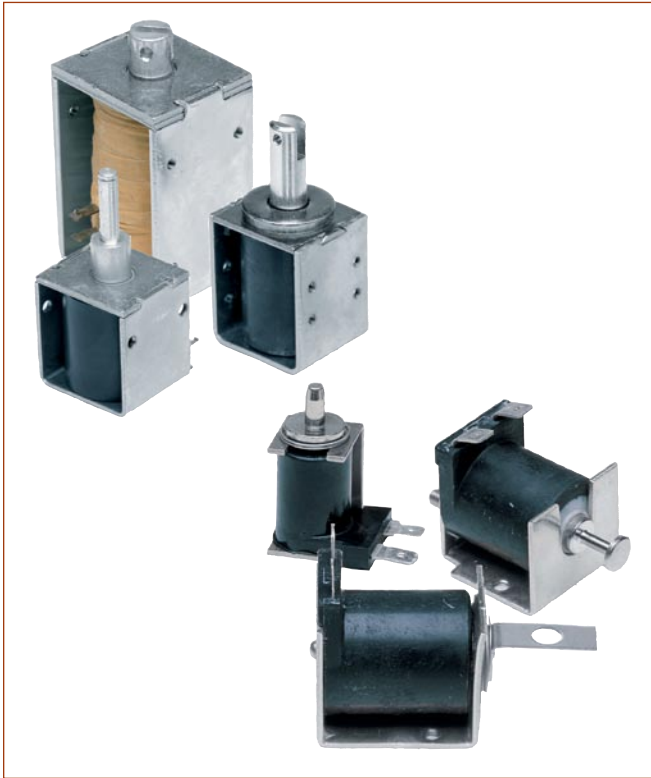


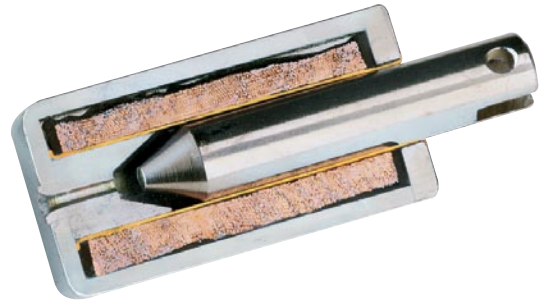
Dormeyer® Open Frame Solenoids



- Low cost, high volume products
- Strokes to 1.25 inches
- Custom design work is our strength

Applications

- Appliances
- Printers
- Coin dispensers
- Security door locks
- Storage/retrieval systems
- PC board insertion equipment
- Vending



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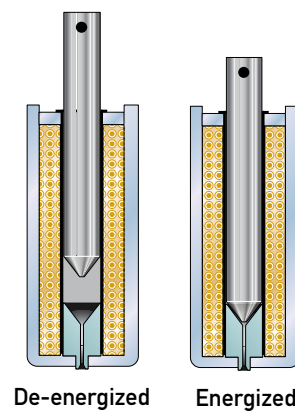
The open frame solenoid is the simplest solenoid device consisting of an open iron frame, an overmolded or taped coil, and a movable plunger in the center of the coil. Open frame solenoids are the most economical of all the solenoid types.

Applications for Dormeyer® AC open frame devices are numerous. Open frame solenoids are well suited for applications which require locking and latching functions.

Applications for Dormeyer AC open frame solenoids include residential and commercial door locks, credit card key “smart” locks, self-cleaning oven locks, front-loading washing machine and dishwasher locks, computer cartridge locks, and many more.

Principle of Operation

The open frame solenoid consists of an open iron frame, a coil, and a movable plunger in the center of the coil. When energized, the plunger is pulled into the stator which consists of the frame and coil.



Selection Overview

Use the selection charts on page 12 to determine which model offers the desired performance and mechanical specifications.

Refer to the individual frame size specification pages for complete performance and mechanical data.

Even with our many standard solenoid designs, our customers often require a product with unique features or performance capabilities. If you don't find what you're looking for in the catalog, please give us a call and talk to one of our application engineers.

Dormeyer® Open Frame Solenoids

Design Considerations

Construction

Open frame solenoids are designed with two frame styles, the C Frame style, in which the coil is enclosed on one side, and the Box Frame style in which the coil is enclosed on two sides. The Box Frame style provides slightly higher force output and is more rugged in design.

Tapped mounting holes are used for easy installation and interchangeability.

Most models have slotted and cross drilled plungers for easy load attachment.

The plunger is plated for corrosion resistance, and provides a low coefficient of friction and long life.

Over molded coils are available in both Box Frame and C Frame solenoids and offer excellent protection from moisture and humidity. Some solenoids are UL recognized. Most have UL recognized coil insulation systems.

Life

When selecting an open frame solenoid, as with any other solenoid style, it is important to consider the effects of heat, since an increase in coil temperature reduces the work output and the life of the unit. Standard life is 50,000 to 100,000 operations. Consult the factory for longer life of 500,000 or more cycles, and other special requirements.

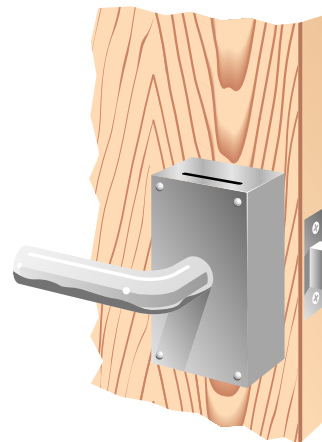
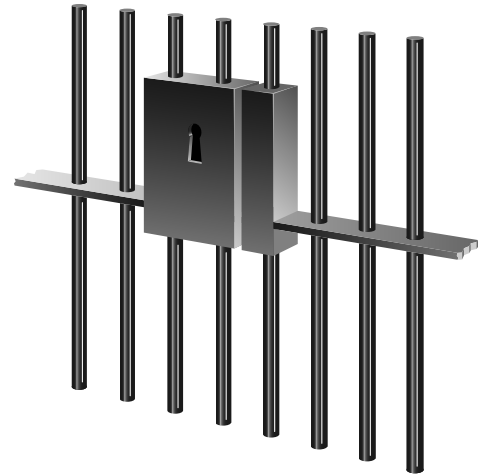
Duty Cycle

Duty cycle is determined by solenoid ON time/(ON + OFF time).

For example: a solenoid is actuated for 30 seconds, then off for 90 seconds.
 $30 \text{ sec ON} / (30 \text{ Sec ON} + 90 \text{ sec OFF}) = 30/120 = 1/4$ or 25% duty cycle.

Performance Curves

The Force/Stroke performance curves in this section serve as guides to determine the solenoid size needed to produce a desired force at a given stroke, duty cycle, and power source. All Force/Stroke curves are performed under standard test conditions: ambient temperature of 20°C. A design safety factor of 1.5 to 1.5 is recommended. For example, when a 4.5 lb pull force is required, select a model with a safety factor of 1.5 to 1.5 times (5.8 to 6.7 lb).



Dormeyer® AC Open Frame Solenoid Selection

AC actuated open frame solenoids are available in box frame and C frame design styles in a variety of models and sizes.

Models are available for continuous use and intermittent duty.

For higher force applications, consider an laminate solenoid.



Box Frame

This solenoid has a 4-sided closed box frame and solid plunger and is, therefore, more electrically efficient than the C Frame solenoid. The closed, box frame also provides improved mechanical strength.



C Frame

C Frame solenoids consist of a formed C-shaped steel frame and solid plunger. Therefore, these solenoids are less efficient and less costly than their Box Frame counterparts.

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Size	Frame Type	Coil Type ⁽¹⁾	Height (inches)	Width (inches)	Length (inches)	Max. Stroke (inches)	Nominal Stroke (inches)	Typical Force (lbs)		Page
								Nominal Stroke and 100% Rated Voltage @ 100% Duty	25% Duty	
B4HD	Box	OM	1.63	1.45	2.18	1.00	0.50	1.3	5.0	13
B20	Box	T	0.94	0.81	1.14	0.50	0.25	0.2	0.5	15
B22	Box	OM	1.47	1.31	1.61	1.00	0.40	1.2	2.6	17
C8	C	OM	0.81	0.75	1.13	0.50	0.25	0.2	0.4	18
C26	C	OM	0.90	0.85	1.73	1.00	0.50	0.3	0.7	21

⁽¹⁾ OM = Overmolded; T = Taped

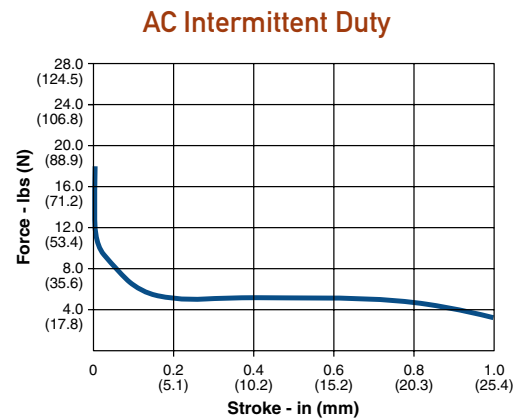
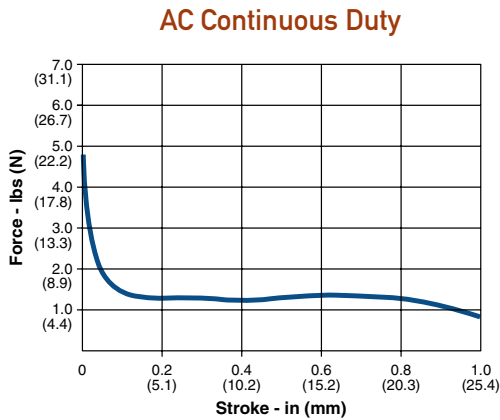
⁽¹⁾ OM = Overmolded; T = Taped

All specifications subject to change without notice.

Dormeyer® Box Frame Size B4HD — AC Operation

Specifications

Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	20% on time, 80% off time. On time not to exceed 3 min. at 20°C ambient temperature
Direction of Load Movement	Pull
Coil Insulation	Class "A": 105°C max. temperature standard. Other temperature classes are available
Coil Termination	3/16" QC
Plunger Weight	2.2 oz. (62.4 g)
Total Weight	12.5 oz. (354 g)
Dimensions	See page 24



Duty Cycle	Continuous – 31 VA		Intermittent – 145 VA	
Model	B4HD-1-M-36	B4HD-2-M-36	B4HD-501-M-36	B4HD-502-M-36
Volts — 60Hz (50 Hz avail.)	120	240	120	240
Coil Resistance ± 10% (Ohms at 25°C)	73	320	19.3	78
Amps Seated ± 10%	0.155	0.075	1.146	0.580
Amps at 1/8" ± 10%	0.340	0.187	1.876	0.874
Amps at 1/4" ± 10%	0.460	0.269	2.370	1.147
Amps at 3/8" ± 10%	0.575	0.309	2.804	1.348
Amps at 1/2" ± 10%	0.690	0.381	3.221	1.552
Amps at 5/8" ± 10%	0.805	0.412	3.566	1.729
Amps at 3/4" ± 10%	0.910	0.467	3.875	1.928
Amps at 7/8" ± 10%	1.000	0.517	4.085	2.033
Amps at 1" ± 10%	1.050	0.558	4.214	2.119

NOTES:

1. All data is typical.
2. Force testing is done with the solenoid in the horizontal position.
3. All data reflects operation with no heatsink.
4. Other coil terminations available.
5. 230V/50 Hz models are also available. Please contact us for ordering information.
6. All specifications subject to change without notice.

How to Order

Select the part number from the table provided. (For example, to order a continuous duty cycle unit rated at 120 VAC, specify B4HD-1-M-36.

Please see www.dormeyer-solenoids.com (click on Stock Products tab) for our list of stock products available through our distributors.

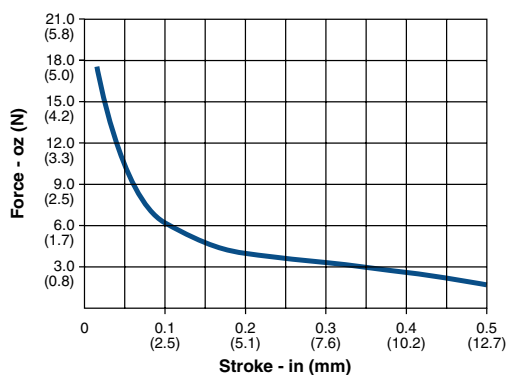
Dormeyer® Box Frame Size B20 — AC Operation

Specifications

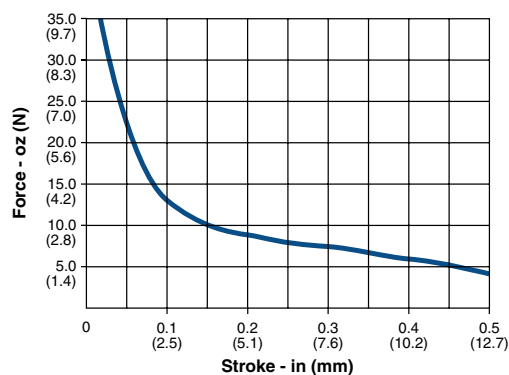
Continuous Duty Cycle 100% at 20°C ambient temperature
 Intermittent Duty Cycle 20% on time, 80% off time. On time not to exceed 3 min. at 20°C ambient temperature

Direction of Load Movement Pull
 Coil Insulation Class "A": 105°C max. temperature standard. Other temperature classes are available
 Coil Termination Lead wires
 Plunger Weight 0.58 oz. (16.4 g)
 Total Weight 2.17 oz. (61.6 g)
 Dimensions See page 25

AC Continuous Duty



AC Intermittent Duty



Duty Cycle	Continuous – 8 VA		Intermittent – 18 VA	
Model	B20-1-A-3	B20-2-A-3	B20-501-A-3	B20-502-A-3
Volts — 60Hz (50 Hz avail.)	120	240	120	240
Coil Resistance ± 10% (Ohms at 25°C)	580	3000	338	1410
Amps Seated ± 10%	0.074	0.032	0.149	0.075
Amps at 1/8" ± 10%	0.139	0.060	0.157	0.129
Amps at 1/4" ± 10%	0.165	0.670	0.298	0.149
Amps at 3/8" ± 10%	0.181	0.720	0.320	0.160
Amps at 1/2" ± 10%	0.188	0.740	0.329	0.164

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Other coil terminations available.
- 230V/50 Hz models are also available. Please contact us for ordering information.
- All specifications subject to change without notice.

How to Order

Select the part number from the table provided. (For example, to order a continuous duty cycle unit rated at 120 VAC, specify B20-1-A-3.

Please see www.dormeyer-solenoids.com (click on Stock Products tab) for our list of stock products available through our distributors.

Dormeyer® Box Frame Size B22 — AC Operation

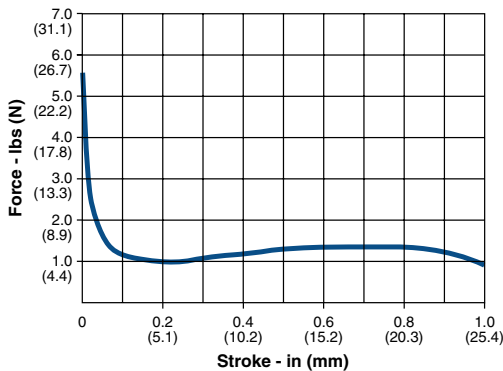
Specifications

Continuous Duty Cycle 100% at 20°C ambient temperature
 Intermittent Duty Cycle 20% on time, 80% off time. On time not to exceed 3 min. at 20°C ambient temperature

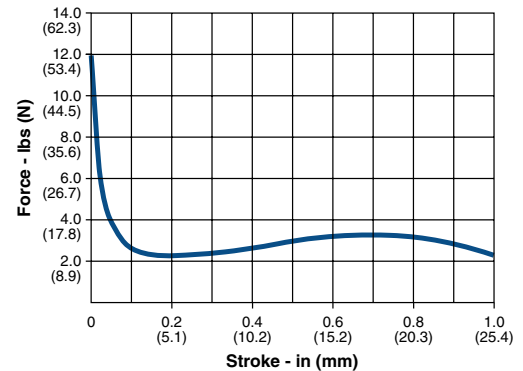
Direction of Load Movement Pull
 Coil Insulation Class "A": 105°C max. temperature standard. Other temperature classes are available
 Coil Termination 3/16" QC
 Plunger Weight 1.5 oz. (42.5 g)
 Total Weight 8.0 oz. (227 g)
 Dimensions See page 26

All catalog products manufactured after April 1, 2006 are RoHS Compliant

AC Continuous Duty



AC Intermittent Duty



Duty Cycle	Continuous – 12 VA		Intermittent – 40 VA	
Model	B22-1-M-36	B22-2-M-36	B22-501-M-36	B22-502-M-36
Volts — 60Hz (50 Hz avail.)	120	240	120	240
Coil Resistance ± 10% (Ohms at 25°C)	107	433	40.5	163
Amps Seated ± 10%	0.162	0.090	0.548	0.357
Amps at 1/8" ± 10%	0.322	0.220	0.920	0.528
Amps at 1/4" ± 10%	0.417	0.247	1.135	0.625
Amps at 3/8" ± 10%	0.492	0.308	1.365	0.735
Amps at 1/2" ± 10%	0.603	0.368	1.593	0.872
Amps at 5/8" ± 10%	0.697	0.403	1.835	1.007
Amps at 3/4" ± 10%	0.793	0.438	2.077	1.128
Amps at 7/8" ± 10%	0.870	0.482	2.267	1.227
Amps at 1" ± 10%	0.925	0.523	2.405	1.283

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Other coil terminations available.
- 230V/50 Hz models are also available. Please contact us for ordering information.
- All specifications subject to change without notice.

How to Order

Select the part number from the table provided. (For example, to order a continuous duty cycle unit rated at 120 VAC, specify B22-1-M-36.

Please see www.dormeyer-solenoids.com (click on Stock Products tab) for our list of stock products available through our distributors.

All specifications subject to change without notice.

Dormeyer® C Frame Size C8 — AC Operation

Specifications

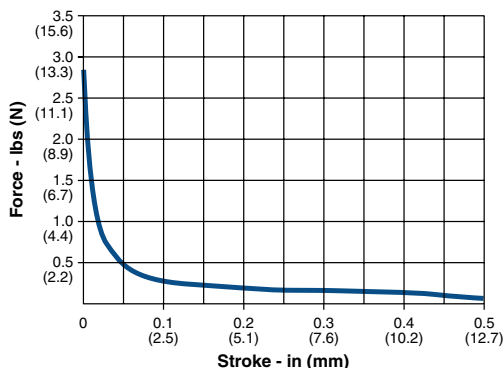
Continuous Duty Cycle 100% at 20°C ambient temperature
 Intermittent Duty Cycle 20% on time, 80% off time. On time not to exceed 3 min. at 20°C ambient temperature

Direction of Load Movement Pull
 Coil Insulation Class "A": 105°C max. temperature standard. Other temperature classes are available

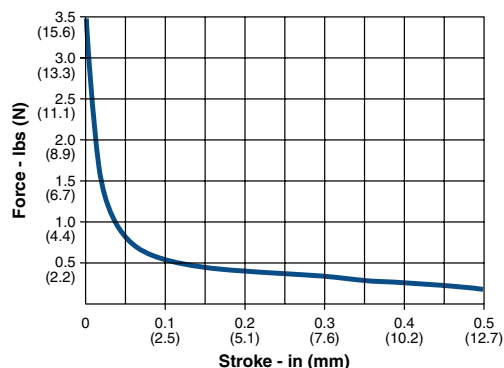
Coil Termination 3/16" QC
 Plunger Weight 0.4 oz. (11.3 g)
 Total Weight 1.7 oz. (48.2 g)
 Dimensions See page 27

All catalog products manufactured after April 1, 2006 are RoHS Compliant

AC Continuous Duty



AC Intermittent Duty



Duty Cycle	Continuous – 6.5 VA		Intermittent – 19 VA	
Model	C8-19-M-36	C8-20-M-36	C8-519-M-36	C8-520-M-36
Volts — 60Hz (50 Hz avail.)	120	240	120	240
Coil Resistance ± 10% (Ohms at 25°C)	840	3739	500	2010
Amps Seated ± 10%	0.0512	0.029	0.112	0.056
Amps at 1/8" ± 10%	0.102	0.502	0.122	0.089
Amps at 1/4" ± 10%	0.117	0.572	0.135	0.101
Amps at 3/8" ± 10%	0.126	0.613	0.143	0.109
Amps at 1/2" ± 10%	0.130	0.637	0.146	0.112

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Other coil terminations available.
- 230V/50 Hz models are also available. Please contact us for ordering information.
- All specifications subject to change without notice.

How to Order

Select the part number from the table provided. (For example, to order a continuous duty cycle unit rated at 120 VAC, specify C8-19-M-36.

Please see www.dormeyer-solenoids.com (click on Stock Products tab) for our list of stock products available through our distributors.

All specifications subject to change without notice.

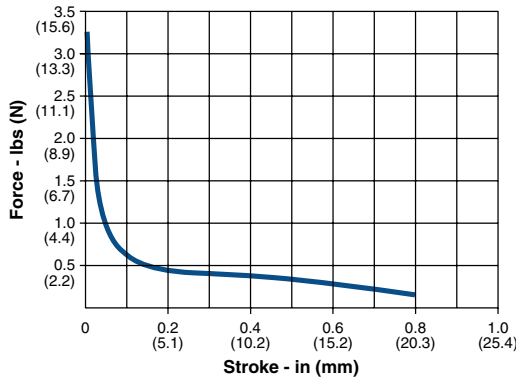
Dormeyer® C Frame Size C26 — AC Operation

Specifications

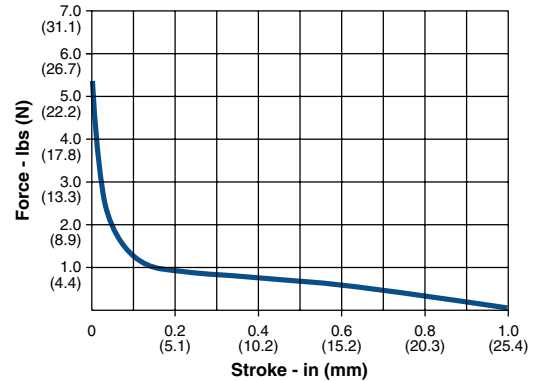
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	20% on time, 80% off time. On time not to exceed 3 min. at 20°C ambient temperature
Direction of Load Movement	Pull
Coil Insulation	Class "A": 105°C max. temperature standard. Other temperature classes are available
Coil Termination	3/16" QC
Plunger Weight	0.5 oz. (14.2 g)
Total Weight	3.0 oz. (85.1 g)
Dimensions	See page 28

All catalog products manufactured after April 1, 2006 are RoHS Compliant

AC Continuous Duty



AC Intermittent Duty



Duty Cycle	Continuous – 12 VA		Intermittent – 24 VA	
Model	C26-19-M-36	C26-20-M-36	C26-519-M-36	C26-520-M-36
Volts — 60Hz (50 Hz avail.)	120	240	120	240
Coil Resistance ± 10% (Ohms at 25°C)	364	1000	149	560
Amps Seated ± 10%	0.081	0.041	0.270	0.146
Amps at 1/8" ± 10%	0.167	0.083	0.405	0.200
Amps at 1/4" ± 10%	0.209	0.101	0.481	0.242
Amps at 3/8" ± 10%	0.242	0.117	0.543	0.275
Amps at 1/2" ± 10%	0.269	0.128	0.594	0.302
Amps at 5/8" ± 10%	0.290	0.138	0.634	0.322
Amps at 3/4" ± 10%	0.306	0.143	0.667	0.337
Amps at 7/8" ± 10%	0.320	0.146	0.687	0.348

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Other coil terminations available.
- 230V/50 Hz models are also available. Please contact us for ordering information.
- All specifications subject to change without notice.

How to Order

Select the part number from the table provided. (For example, to order a continuous duty cycle unit rated at 120 VAC, specify C26-19-M-36.

Please see www.dormeyer-solenoids.com (click on Stock Products tab) for our list of stock products available through our distributors.

All specifications subject to change without notice.

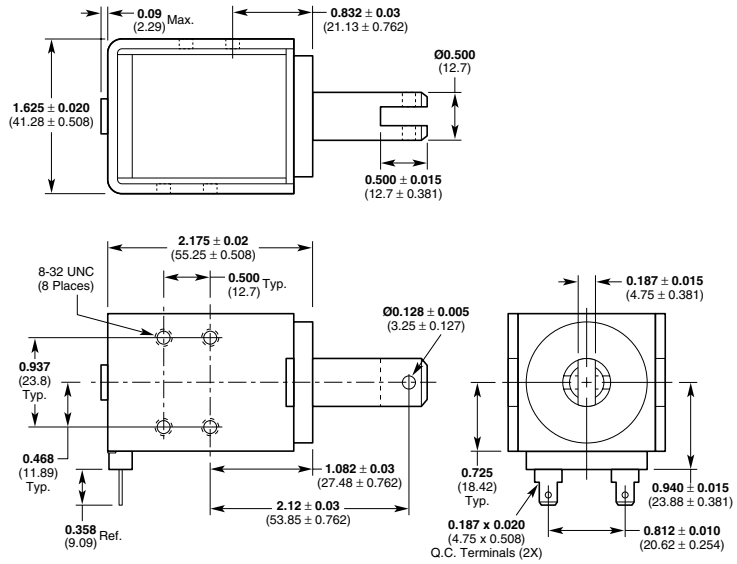
Dormeyer® Box Frame Dimensions

Inches (mm)

All solenoids are illustrated in energized state

NOTE: Many other metric and American standard threads are available.

B4HD



All specifications subject to change without notice.

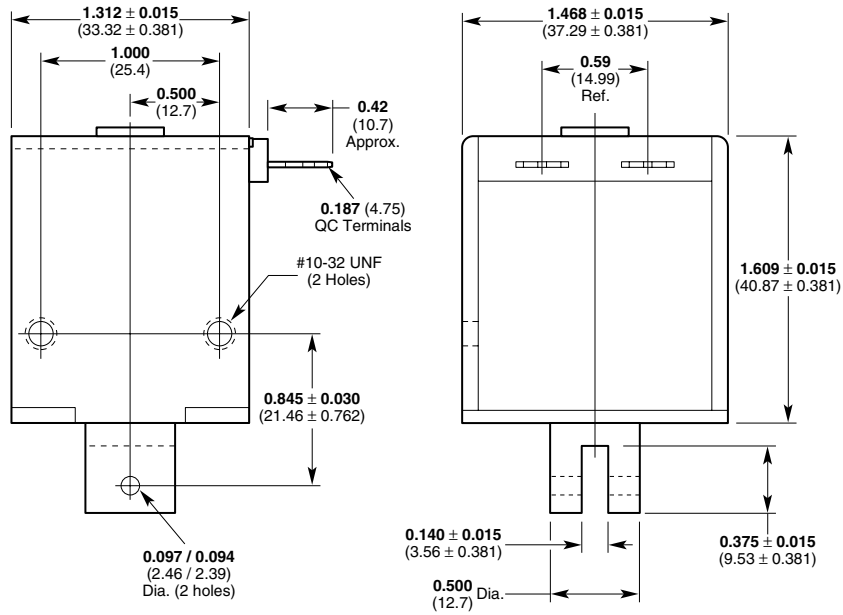
Dormeyer® Box Frame Dimensions

Inches (mm)

All solenoids are illustrated in energized state

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B22



All specifications subject to change without notice.

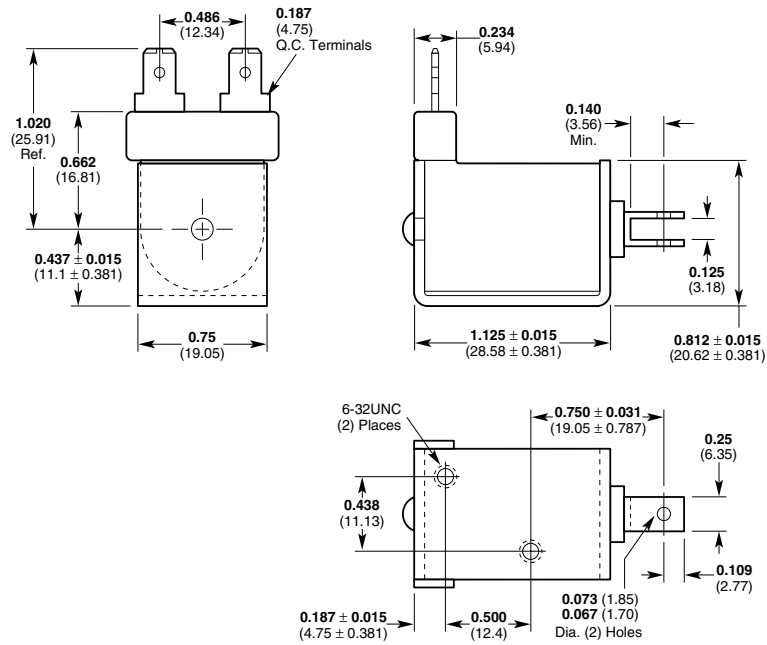
Dormeyer® C Frame Dimensions

Inches (mm)

All solenoids are illustrated in energized state

NOTE: Many other metric and American standard threads are available.

C8



All specifications subject to change without notice.

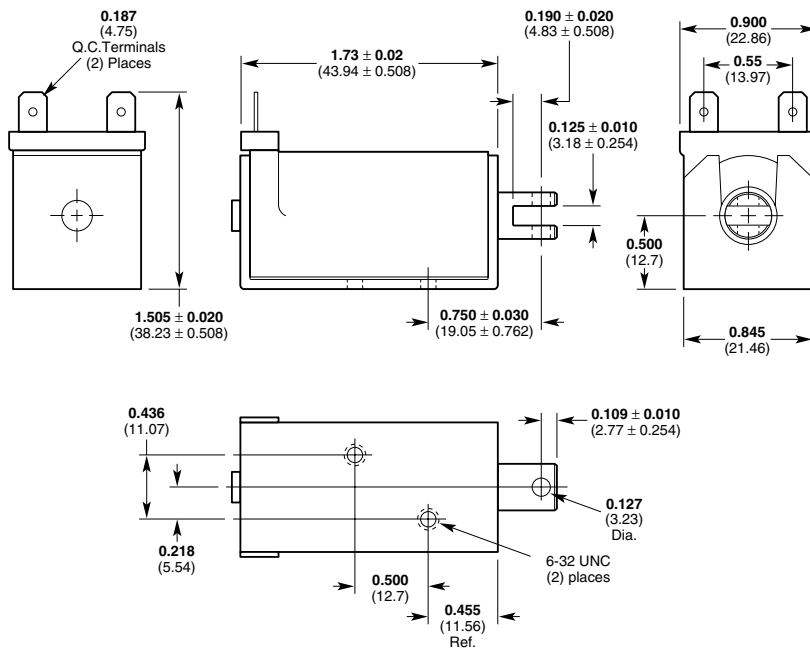
Dormeyer® C Frame Dimensions

Inches (mm)

All solenoids are illustrated in energized state

NOTE: Many other metric and American standard threads are available.

C26



All specifications subject to change without notice.