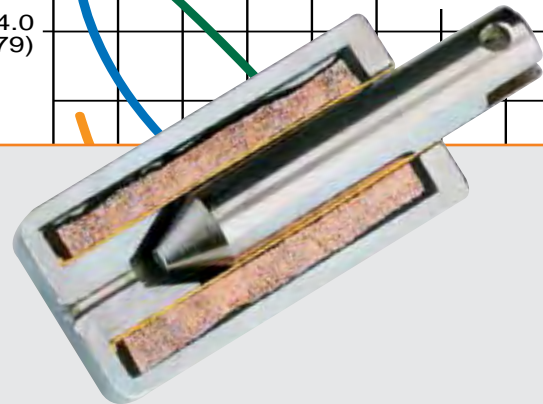
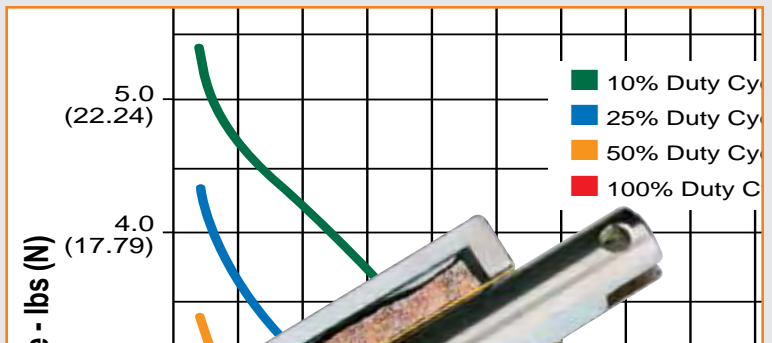


Ledex® Open Frame Solenoids



innovating motion



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

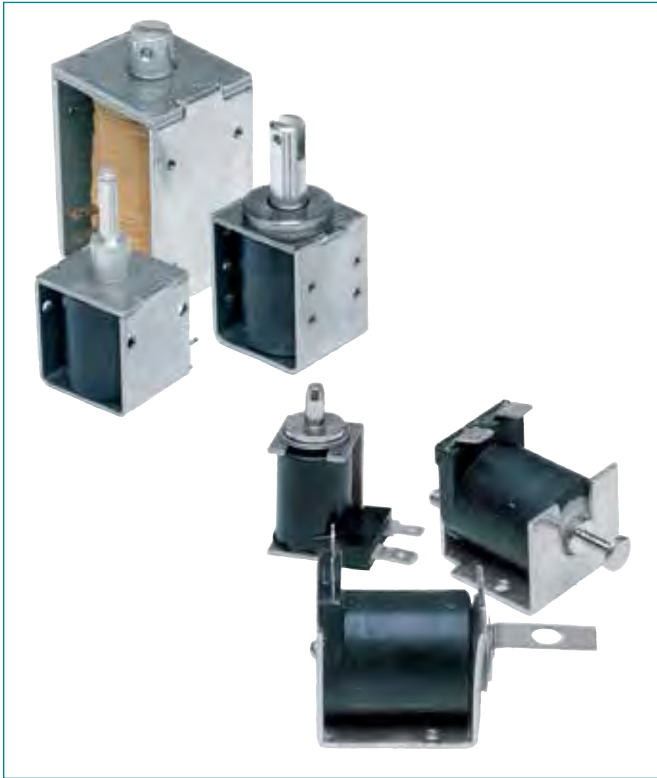
Tel. +34 902 450 160
info@ermec.com
www.ermec.com

ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

bilbao@ermec.com
portugal@ermec.com

Ledex® Open Frame Solenoids

LINEAR Open Frame



- Low cost, high volume products
- Strokes to 1.00 inch
- Custom design work is our strength

Applications

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



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

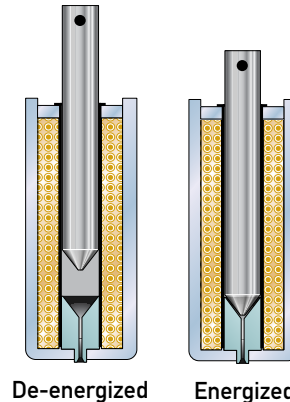
The open frame solenoid is the simplest solenoid device consisting of an open iron frame, an overmolded or taped coil, and a movable plunger in the center of the coil. Open frame solenoids are the most economical of all the solenoid types, and are typically selected for applications in which extremely long life and precise positioning are not critical.

Applications for Ledex® DC open frame devices are numerous. As with all types of solenoids, open frame models are well suited for applications which require either locking or latching functions.

Applications for DC open frame solenoids include residential and commercial door locks, credit card key “smart” locks, pharmaceutical compartment locks, circuit breakers, pinch valves, 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.



Selection Overview

Use the selection charts on the following page 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.

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. Life ratings extend to 3 million cycles depending on the product size and application. Consult the factory for longer life of 500,000 or more cycles, and other special requirements.

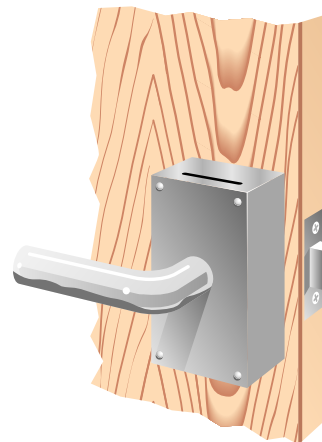
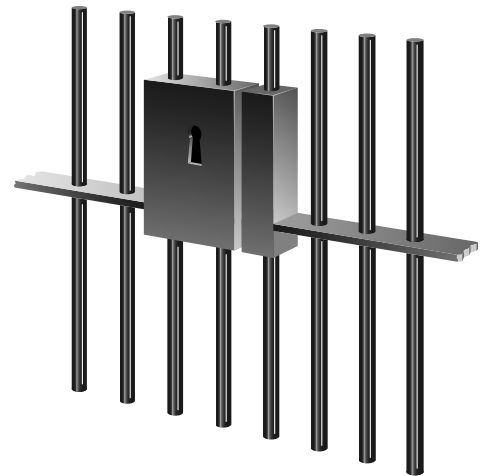
Duty Cycle

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 1.3 to 1.5 is recommended. For example, when a 4.5 lb pull force is required, select a model with a safety factor of 1.3 to 1.5 times (5.8 to 6.7 lb).



Ledex® Open Frame Solenoids

On-Off DC Open Frame Solenoids

All products are RoHS Compliant

DC actuated units 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 low duty cycle applications, consider a magnetic latching open frame.



Box Frame

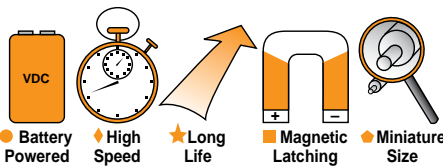
This solenoid has a 4-sided closed box frame and solid plunger and is, therefore, more electrically efficient than the C Frame solenoid. The closed, box frame also provides improved mechanical strength.

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.

Size	Frame Type	Coil Type ⁽¹⁾	Height (in)	Width (in)	Length (in)	Max. Stroke (in)	Nominal Stroke (in)	Typical Force (lbs) Nominal Stroke ⁽²⁾ and 100% Rated Voltage @	
								100% Duty	25% Duty
B12 ●◆◆	Box	T	0.40	0.32	0.63	0.20	0.07	0.02	0.13
C5 ◆◆◆	C	T	0.46	0.41	0.94	0.20	0.1	0.10	0.43
B17 ●◆◆	Box	T	0.59	0.51	0.79	0.18	0.08	0.08	0.38
C8 ●◆	C	OM	0.81	0.75	1.13	0.50	0.20	0.04	0.27
B20 ●	Box	T	0.94	0.81	1.14	0.50	0.25	0.1	0.5
B14 ●	Box	T	1.02	0.79	1.45	0.60	0.20	0.5	1.9
B14HD ●★	Box	T	1.02	0.79	1.47	0.50	0.20	0.5	2.0
B14HDP ⁽³⁾ ●★	Box	T	1.02	0.79	1.47	0.50	0.20	0.5	2.0
B28	Box	T	1.19	0.94	1.13	0.50	0.20	0.5	1.3
B28HD	Box	T	1.25	0.94	1.23	0.50	0.20	0.5	2.5
B11HD	Box	T	1.25	0.94	2.00	0.70	0.40	1.3	2.9
B22	Box	OM	1.47	1.31	1.61	1.00	0.40	0.6	2.2
B4HD	Box	OM	1.63	1.45	2.18	1.00	0.50	0.8	3.4
B41	Box	T	2.03	1.73	3.05	1.00	0.50	2.7	11.0

⁽¹⁾ OM = Overmolded; T = Taped ⁽²⁾ Using flat face plunger ⁽³⁾ Push actuation; all other models are pull devices



All specifications subject to change without notice.

Magnetic Latching DC Open Frame Solenoids

Magnetic latching solenoids are designed for low duty cycle applications where the solenoid's energized position is needed for an extended period of time.

When power is applied to the solenoid, the plunger moves to its energized position. The plunger latches magnetically in this position and remains there, consuming no power, until a negative electrical pulse is applied to allow the plunger to unlatch.

The reverse voltage applied is dependent on the load attached to the plunger but must be well below the initial energizing value.

While continuous duty, on/off solenoids tend to develop heat, magnetic latching solenoids do not since no power is consumed in the energized state.

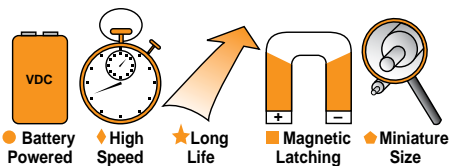


Since magnetic latching solenoids are typically used in low duty cycle applications, they are also perfect candidates for battery operation. These products are therefore cataloged as standard as low as 5-6 volts.

Typical applications for magnetic latching solenoids include door closers, locks, latches and security devices. Almost any solenoid type can be developed as a magnetic latching version. We offer open frame and tubular varieties as catalog standard products.

Size	Frame Type	Coil Type ⁽¹⁾	Height (in)	Width (in)	Length (in)	Max. Stroke (in)	Nominal Stroke (in)	Typical Force (lbs) Nominal Stroke ⁽²⁾ and 100% Rated Voltage @ 25% Duty
B12-L ●◆◆◆	Box-Latching	T	0.40	0.32	0.63	0.14	0.04	0.29
B12P-L ●◆◆◆	Box-Latching	T	0.40	0.32	0.63	0.14	0.04	0.20
C5-L ●◆◆◆	C - Latching	T	0.46	0.41	0.94	0.18	0.06	0.31
B17-L ●◆◆◆	Box - Latching	T	0.59	0.51	0.79	0.18	0.08	0.13
C8-L ●◆◆	C - Latching	OM	0.81	0.75	1.13	0.50	0.20	0.60
B14-L ●◆	Box - Latching	T	1.02	0.79	1.45	0.50	0.15	1.5
B14HD-L ●★◆	Box - Latching	T	1.02	0.79	1.47	0.50	0.15	3.7
B14HDP-L ⁽³⁾ ●★◆	Box - Latching	T	1.02	0.79	1.47	0.50	0.15	3.7
B22-L ◆	Box - Latching	OM	1.47	1.31	1.61	0.50	0.20	2.1

⁽¹⁾ OM = Overmolded; T = Taped ⁽²⁾ Using flat face plunger ⁽³⁾ Push actuation; all other models are pull devices



All specifications subject to change without notice.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com

1.937.454.2345

Fax: 1.937.898.8624

ERMEC, S.L. - MADRID

C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

bilbao@ermec.com
portugal@ermec.com

Ledex® Box Frame Size B4HD

Part Number: B4HD - **XXX** - M- 36

All products are RoHS Compliant

LINEAR Open Frame

Select from performance chart below

Specifications

Operation	Pull
Dielectric Strength	1500 VRMS for one second
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	See below
Holding Force	11.7 lbs (52 N) at 20°C
Coil Insulation	Class "A": 105°C max.
Coil Termination	3/16" QC
Plunger Weight	2.4 oz. (66.6 g)
Total Weight	13.5 oz. (382.7 g)

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	83	34	13
Maximum ON Time (sec) for single pulse	∞	609	207	66
Watts (@ 20°C)	12.5	25	50	125
Ampere Turns (@ 20°C)	1536	2174	3073	4860

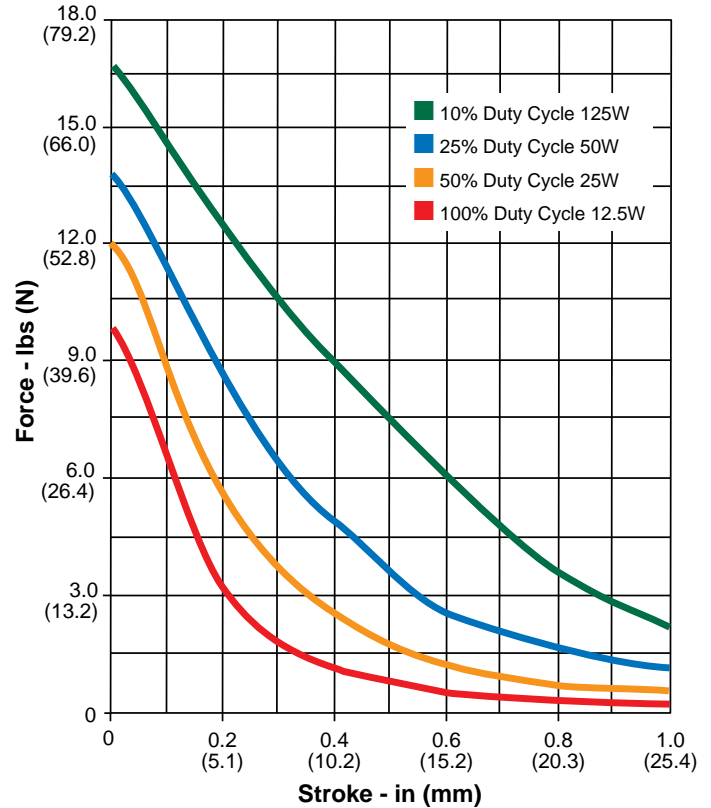
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B4HD-255-M-36	2.94	754	6	8.5	12	19
B4HD-254-M-36	11.42	1467	12	17	24	38
B4HD-253-M-36	46.83	2964	24	34	48	76
B4HD-252-M-36	181	5724	48	68	96	152
B4HD-251-M-36	1157	14239	120	170	240	380

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Pull versions standard; push versions available.
- Other coil terminations available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC, specify B4HD-253-M-36.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixido, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

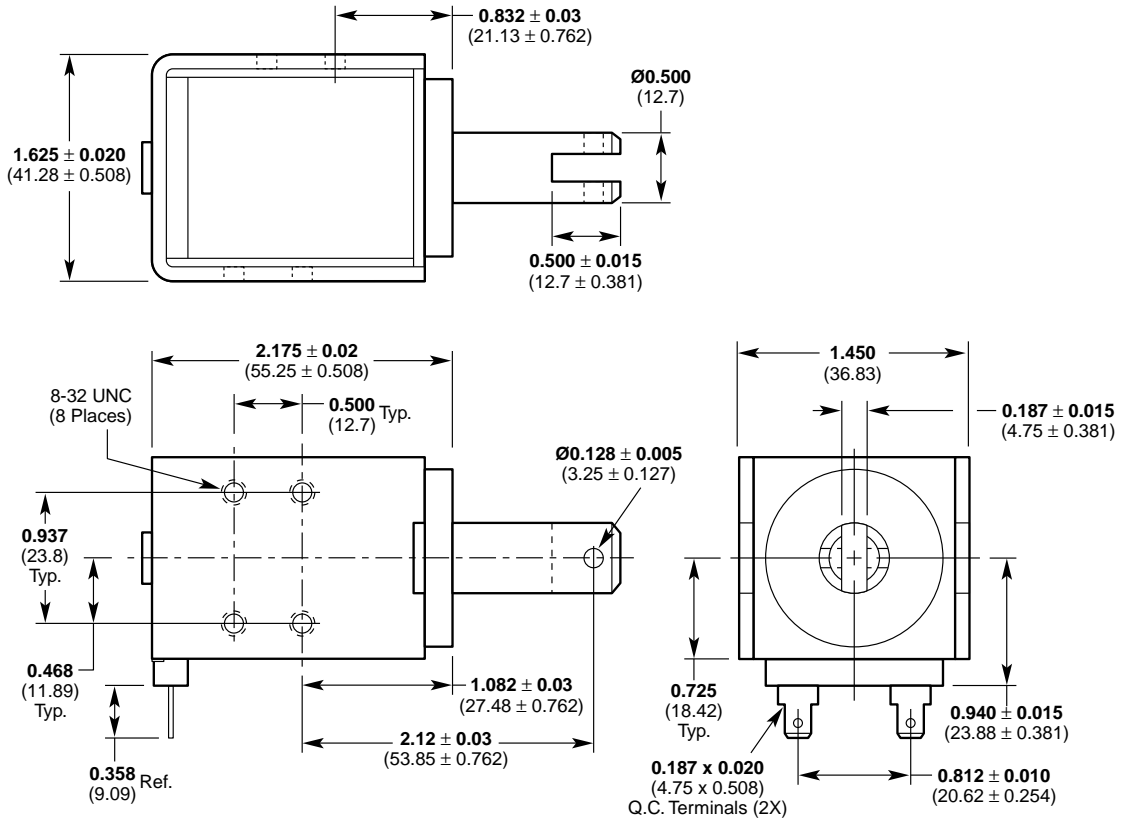
Fax: 1.937.898.8624
bilbao@ermec.com
portugal@ermec.com

Ledex® Box Frame Size B4HD

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Box Frame Size B11HD

Part Number: B11HD - **XXX** - B-3

All products are RoHS Compliant

LINEAR Open Frame

Select from performance chart below

Specifications

Operation	Pull
Dielectric Strength	1500 VRMS for one second
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	See below
Holding Force	7.75 lbs (34.5 N) at 20°C
Coil Insulation	Class "B": 130°C max.
Coil Termination	10" (254 mm) PVC lead wires
Plunger Weight	1.4 oz. (38 g)
Total Weight	6.8 oz. (192.8 g)

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	382	71	21
Maximum ON Time (sec) for single pulse	∞	528	164	48
Watts (@ 20°C)	9	18	36	90
Ampere Turns (@ 20°C)	1119	1582	2238	3539

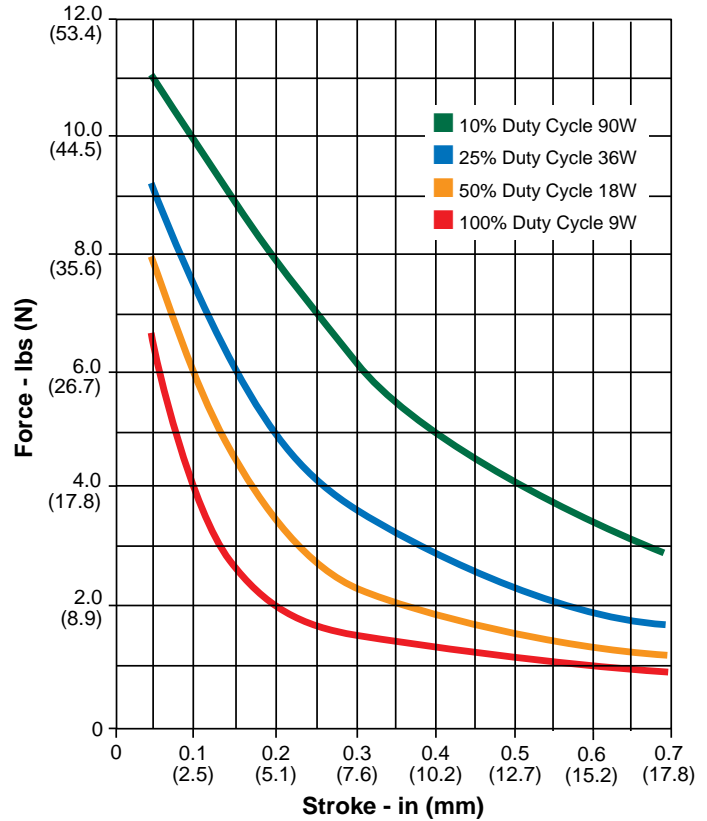
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B11HD-255-B-3	4.2	780	6.1	8.7	12.3	19
B11HD-254-B-3	16.7	1533	12.3	17	25	39
B11HD-253-B-3	67	3050	25	35	49	78
B11HD-252-B-3	286	6360	51	72	102	160
B11HD-251-B-3	1710	14973	124	176	248	382

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heat sink.
- Pull versions standard; push versions available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 49 VDC, specify B11HD-253-B-3.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

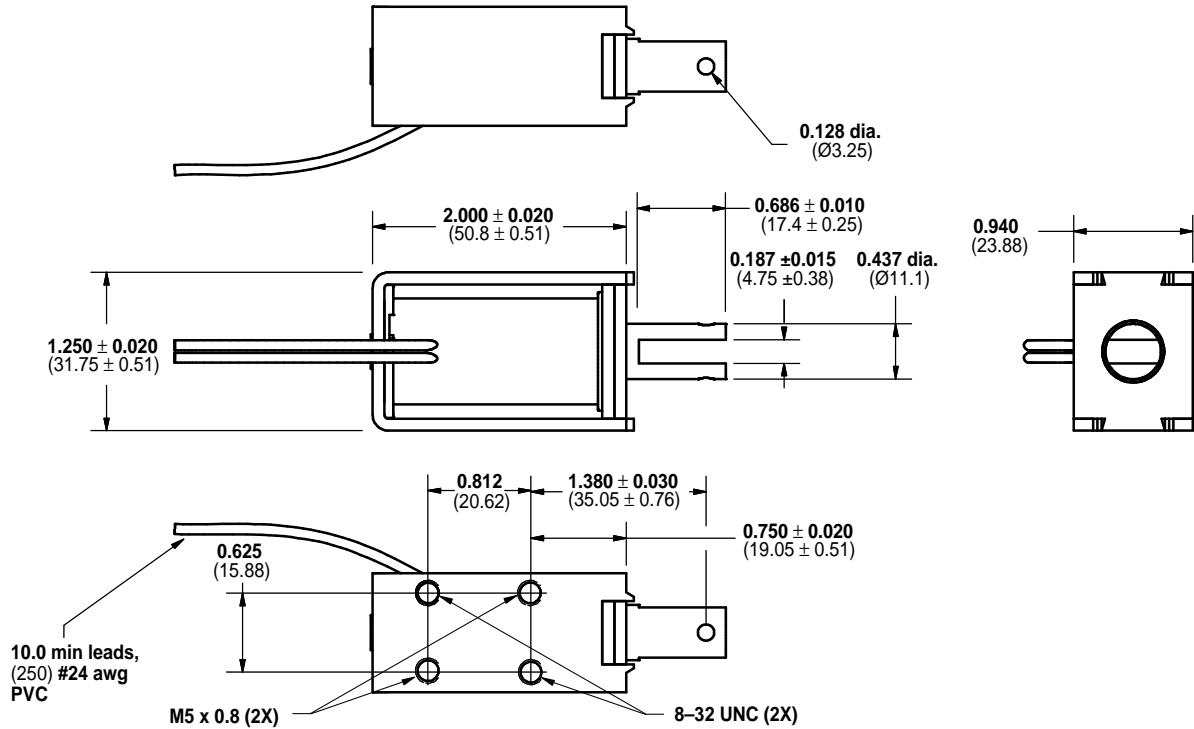
Fax: 1.937.898.8624
bilbao@ermec.com
portugal@ermec.com

Ledex® Box Frame Size B11HD

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Box Frame Size B12

Part Number: B12 - **XXX** - B-3

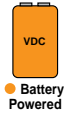
All products are RoHS Compliant

Select from performance chart below

LINEAR Open Frame

Specifications

Operation	Pull
Dielectric Strength	500 VRMS for one second
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	See below
Holding Force	7.7 oz. (2.1 N) at 20°C
Coil Insulation	Class "A": 105°C max.
Coil Termination	10" (254 mm) PVC lead wires
Plunger Weight	0.05 oz. (1.4 g)
Total Weight	0.30 oz. (8.5 g)



Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	84	11	2
Maximum ON Time (sec) for single pulse	∞	120	34	8
Watts (@ 20°C)	1.3	2.6	5.2	13
Ampere Turns (@ 20°C)	178	251	355	561

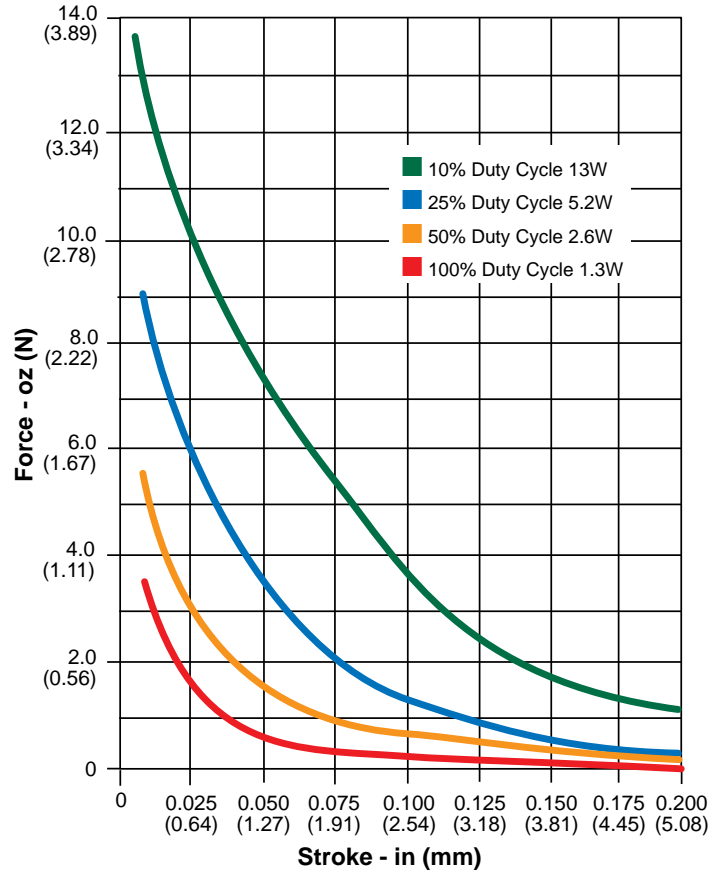
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B12-258-B-3	6.92	417	3	4.24	6	9.5
B12-255-B-3	27.7	824	6	8.5	12	19
B12-256-B-3	62.3	1184	9	13	18	28.5
B12-254-B-3	110.8	1632	12	17	24	38
B12-253-B-3	443.1	3336	24	34	48	76

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heat sink.
- Pull versions standard; push versions available.
- Magnetic latching version available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC, specify B12-253-B-3.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

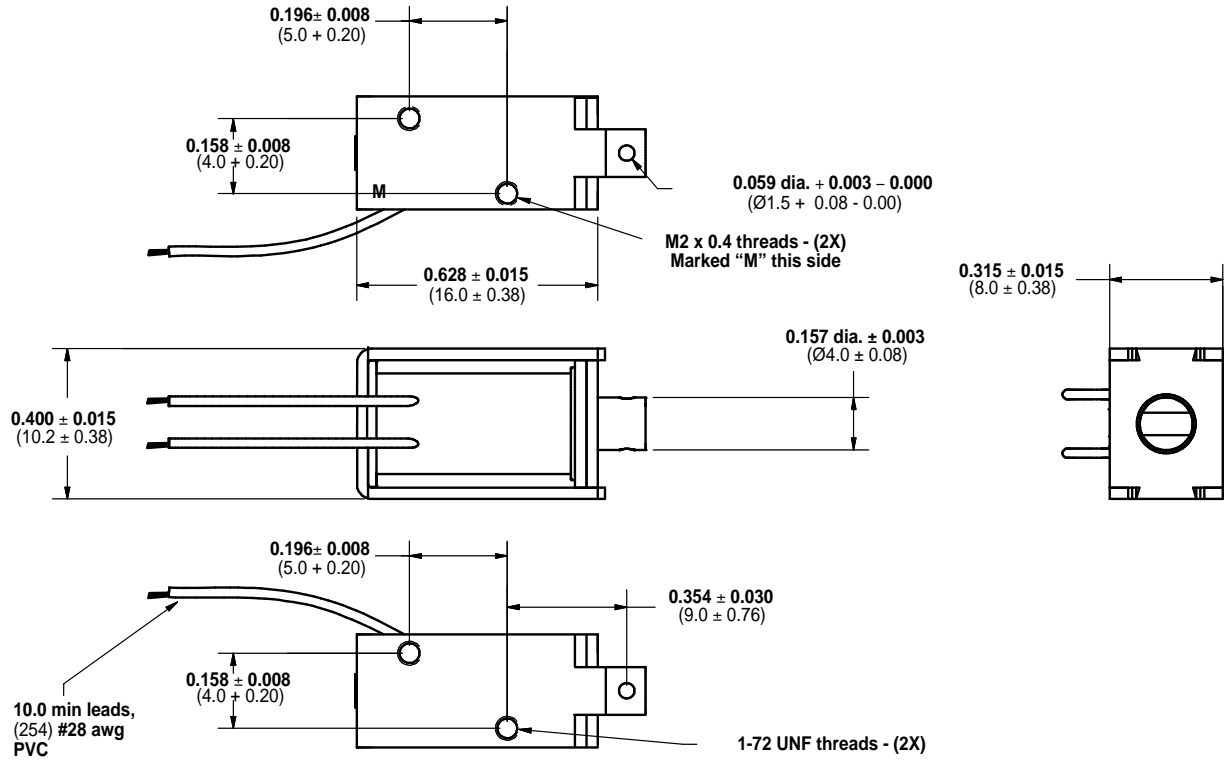
Fax: 1.937.898.8624
bilbao@ermec.com
portugal@ermec.com

Ledex® Box Frame Size B12

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Box Frame Size B14HD

Part Number: B14HD - 2 XX - B- X

All products are RoHS Compliant

LINEAR Open Frame



Battery Powered



Long Life

4 - 10 Inch (254 mm) leads
 6 - Terminals
 Coil Selection (from performance chart below)
 2 - Conical Pole Configuration

Specifications

Operation	Pull
Dielectric Strength	1000 VRMS for one second
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	See below
Holding Force	6.38 lbs (28.4 N) at 20°C
Coil Insulation	Class " B": 130°C max.
Coil Termination	10" (254 mm) PVC lead wires or terminal
Plunger Weight	0.86 oz. (24.4 g)
Total Weight	3.47 oz. (98.4 g)

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	100	27	7
Maximum ON Time (sec) for single pulse	∞	326	100	28
Watts (@ 20°C)	5.5	11	22	55
Ampere Turns (@ 20°C)	663	938	1326	2097

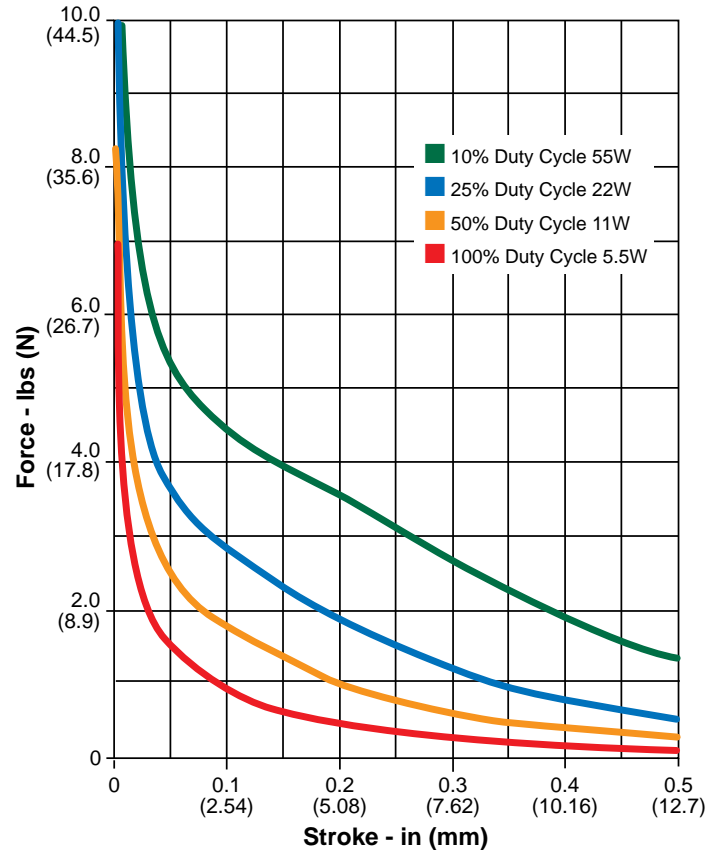
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B14HD-258-B-X	1.45	321	3.0	4.3	6.1	9.7
B14HD-257-B-X	7.0	750	6.0	8.7	12.4	19.6
B14HD-256-B-X	14.2	1068	9.0	12.5	17.6	27.9
B14HD-254-B-X	27.5	1470	12.0	17.4	24.6	38.9
B14HD-253-B-X	110.2	2920	24.0	34.8	49.2	77.8

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heat sink.
- Pull versions standard; push versions available.
- Magnetic latching version available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 6.1 VDC with 10" lead wires, specify B14HD-258-B-4.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
 C/ Francesc Teixidó, 22
 08918 Badalona SPAIN

Tel. +34 902 450 160
 info@ermec.com
 www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
 ERMEC, S.L. - MADRID
 C/ Puerto Rico, 4
 28222 Majadahonda (Madrid) SPAIN

bilbao@ermec.com
 portugal@ermec.com

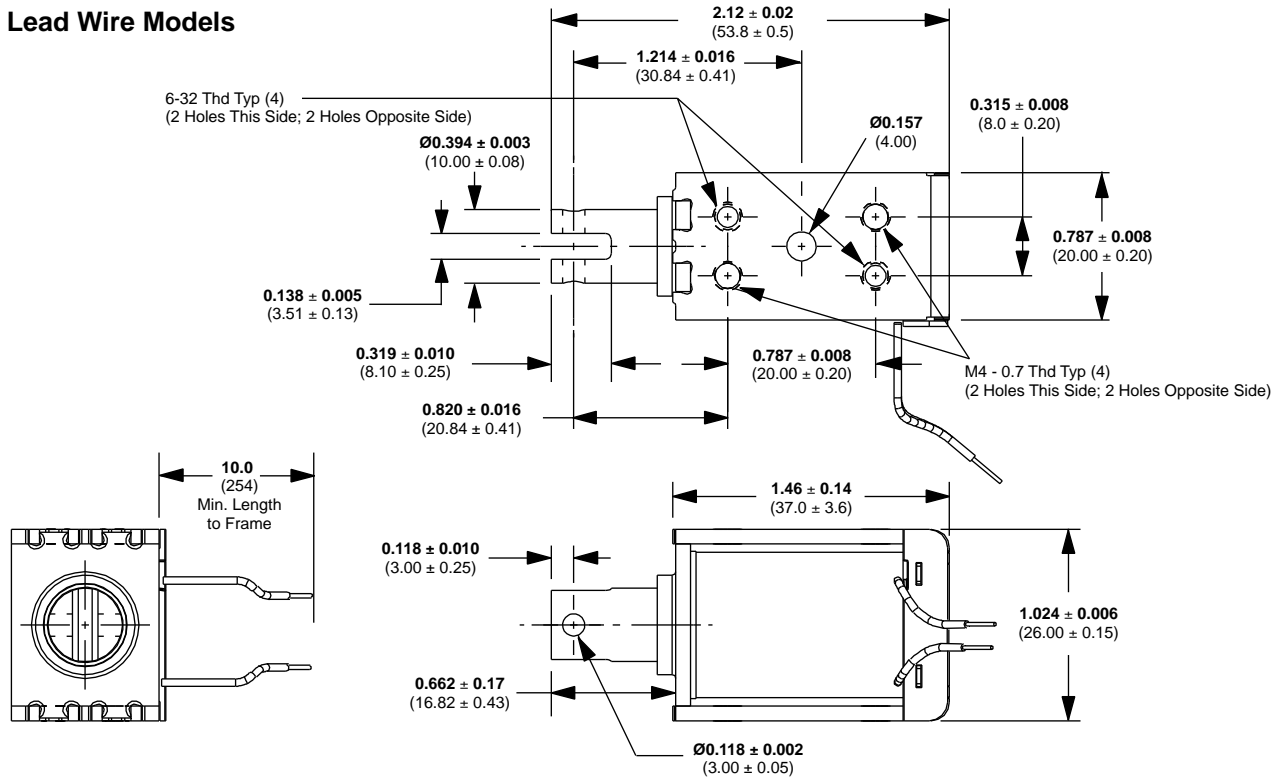
Ledex® Box Frame Size B14HD

Dimensions

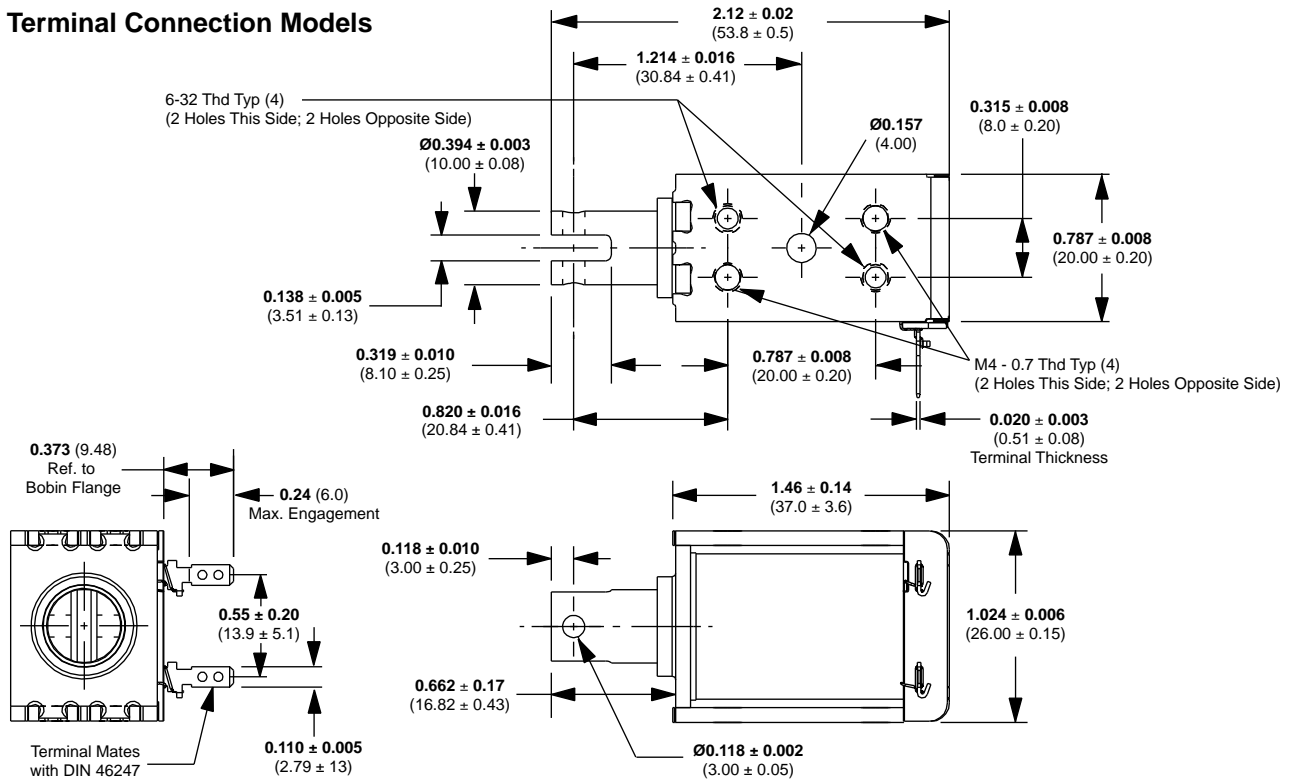
Inches (mm)

All solenoids are illustrated in energized state

Lead Wire Models



Terminal Connection Models



Ledex® Box Frame Size B14HDP

Part Number: B14HDP - **2** **XX** - B- **X**

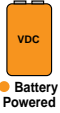
All products are RoHS Compliant

LINEAR Open Frame

4 - 10 Inch (254 mm) leads
6 - Terminals
Coil Selection (from performance chart below)
2 - Conical Pole Configuration

Specifications

Operation Push
Dielectric Strength 1000 VRMS for one second
Continuous Duty Cycle 100% at 20°C ambient temperature
Intermittent Duty Cycle See below
Holding Force 6.38 lbs (28.4 N) at 20°C
Coil Insulation Class "B": 130°C max.
Coil Termination 10" (254 mm) PVC lead wires or terminal
Plunger Weight 0.91 oz. (25.8 g)
Total Weight 3.53 oz. (100.1 g)



Battery Powered



Long Life

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	100	27	7
Maximum ON Time (sec) for single pulse	∞	326	100	28
Watts (@ 20°C)	5.5	11	22	55
Ampere Turns (@ 20°C)	663	938	1326	2097

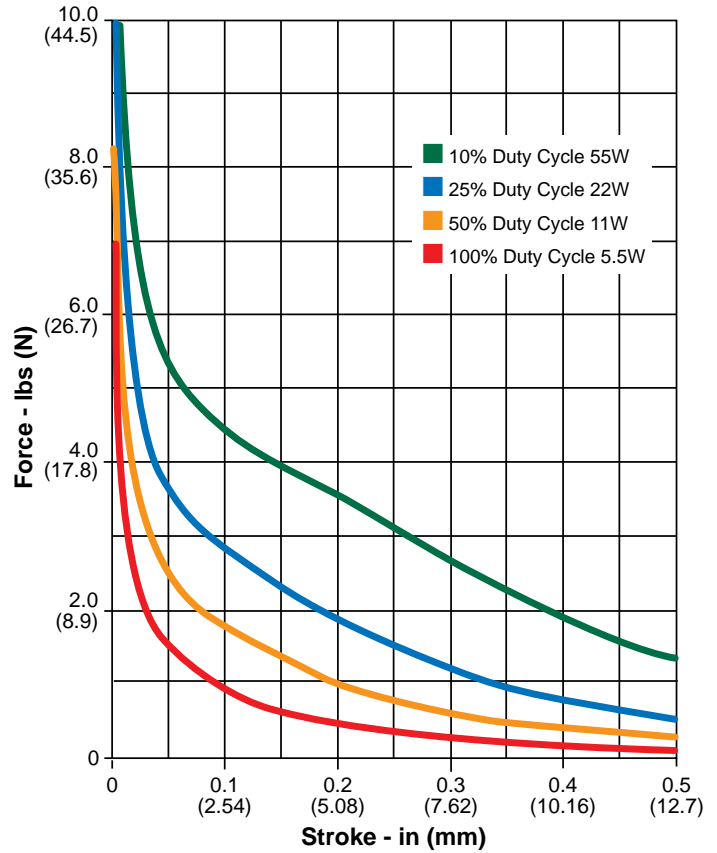
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B14HDP-258-B-X	1.45	321	3.0	4.3	6.1	9.7
B14HDP-257-B-X	7.0	750	6.0	8.7	12.4	19.6
B14HDP-256-B-X	14.2	1068	9.0	12.5	17.6	27.9
B14HDP-254-B-X	27.5	1470	12.0	17.4	24.6	38.9
B14HDP-253-B-X	110.2	2920	24.0	34.8	49.2	77.8

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heat sink.
- Pull versions standard; push versions available.
- Magnetic latching version available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 6.1 VDC with 10" lead wires, specify B14HDP-258-B-4.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

bilbao@ermec.com
portugal@ermec.com

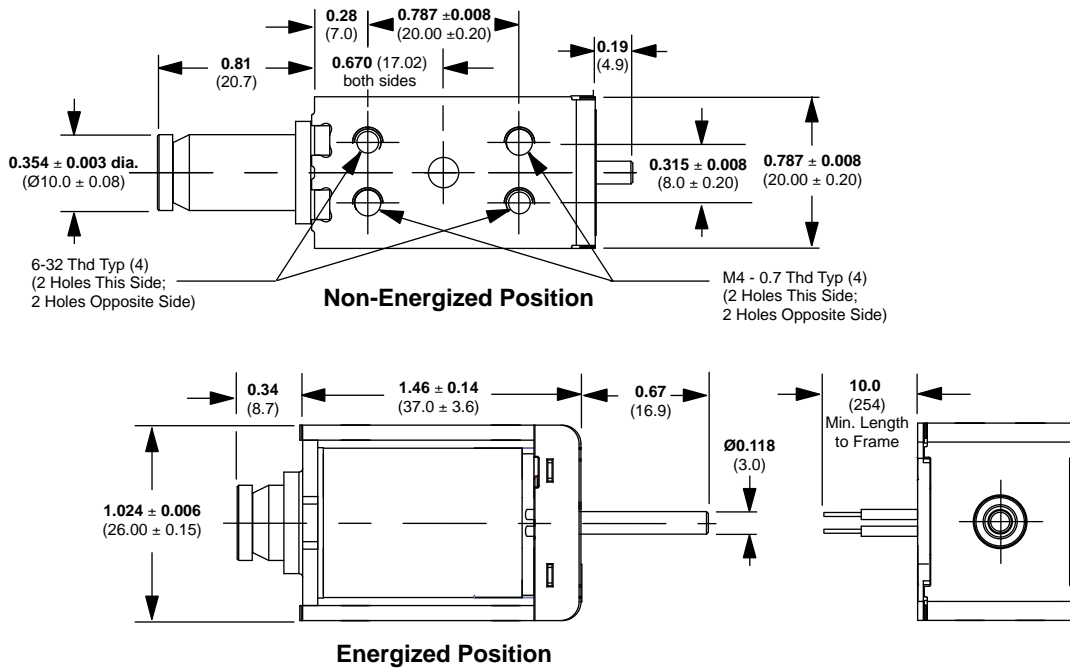
Ledex® Box Frame Size B14HDP

Dimensions

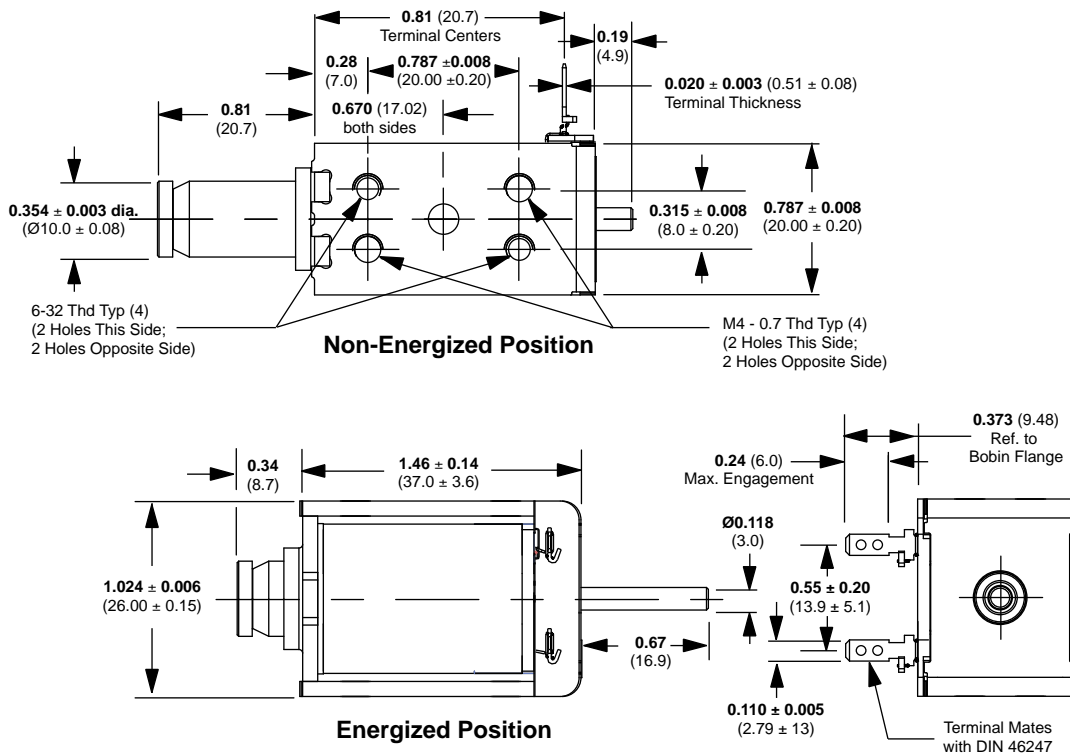
Inches (mm)

Illustrated in energized/de-energized state

Lead Wire Models



Terminal Connection Models



Ledex® Box Frame Size B22

Part Number: B22 - **XXX** - M-36

All products are RoHS Compliant

LINEAR Open Frame

Select from performance chart below

Specifications

Operation	Pull
Dielectric Strength	1500 VRMS for one second
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	See below
Holding Force	8 lbs (35.6 N) at 20°C
Coil Insulation	Class "A": 105°C max.
Coil Termination	3/16" QC
Plunger Weight	1.4 oz. (39.7 g)
Total Weight	7.5 oz. (212.6 g)

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	52	23	9
Maximum ON Time (sec) for single pulse	∞	485	167	47
Watts (@ 20°C)	9.9	19.8	39.6	99
Ampere Turns (@ 20°C)	1046	1482	2093	3314

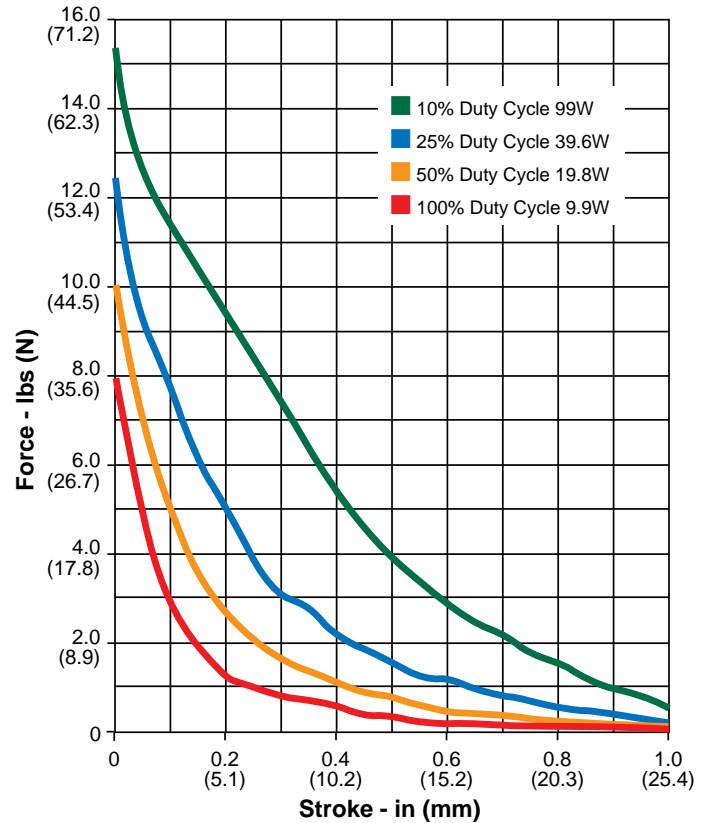
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B22-255-M-36	3.64	635	6	8.5	12	19
B22-254-M-36	14.55	1300	12	17	24	38
B22-253-M-36	58.18	2578	24	34	48	76
B22-252-M-36	232.73	5103	48	68	96	152
B22-251-M-36	1493	12744	120	172	240	385

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Pull versions standard; push versions available.
- Other coil terminations available.
- Magnetic latching version available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC, specify B22-253-M-36.)

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

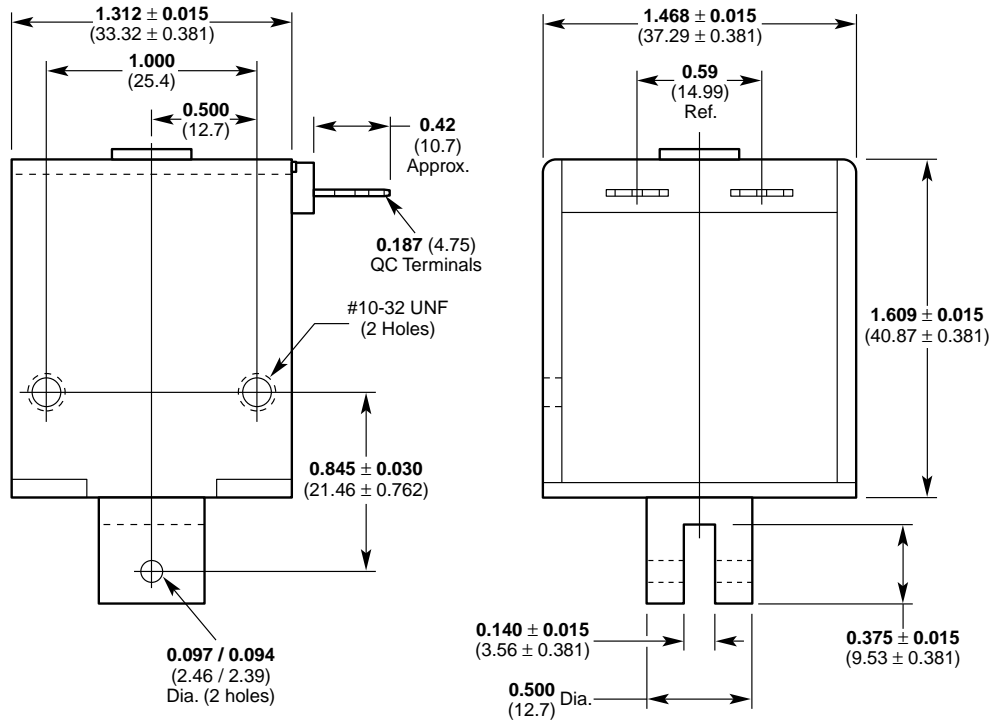
Fax: 1.937.898.8624
bilbao@ermec.com
portugal@ermec.com

Ledex® Box Frame Size B22

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Box Frame Size B41

Part Number: B41 - **XXX** - B- 1

All products are RoHS Compliant

LINEAR Open Frame

Select from performance chart below

Specifications

Operation	Pull
Dielectric Strength	1000 VRMS for one second
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	See below
Holding Force	16 lbs (71.2 N) at 20°C
Coil Insulation	Class "A": 105°C max.
Coil Termination	10" (254 mm) PVC lead wires
Plunger Weight	5.6 oz. (158.8 g)
Total Weight	31.0 oz. (878.9 g)

Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	95	60	14
Maximum ON Time (sec) for single pulse	∞	1548	491	139
Watts (@ 20°C)	19	38	76	190
Ampere Turns (@ 20°C)	1981	2807	3963	6274

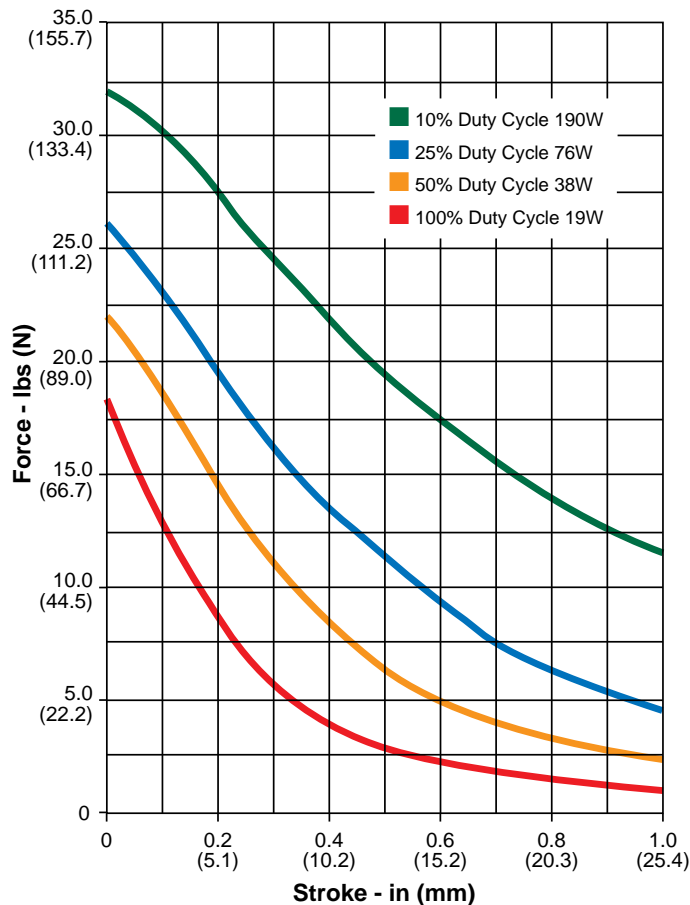
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B41-255-B-1	1.84	608	6	8.5	12	19
B41-254-B-1	7.67	1432	12	17	24	38
B41-253-B-1	30.19	2814	24	34	48	76
B41-252-B-1	121.5	5610	48	68	96	152
B41-251-B-1	793.46	14259	120	173	240	388

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Pull versions standard; push versions available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC, specify B41-253-B-1.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

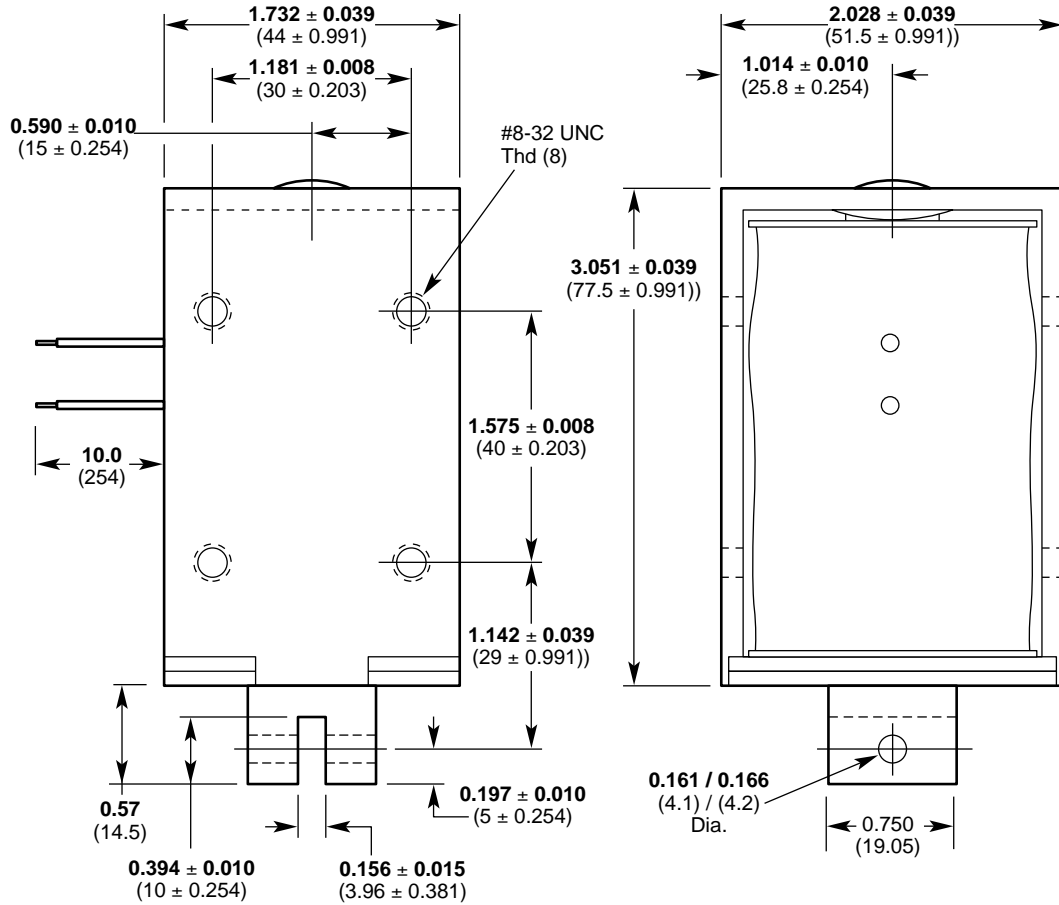
Fax: 1.937.898.8624
bilbao@ermec.com
portugal@ermec.com

Ledex® Box Frame Size B41

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® C Frame Size C8

Part Number: C8 - - M-36

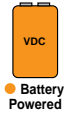
All products are RoHS Compliant

LINEAR Open Frame

Select from performance chart below

Specifications

Operation	Pull
Dielectric Strength	500 VRMS for one second
Continuous Duty Cycle	100% at 20°C ambient temperature
Intermittent Duty Cycle	See below
Holding Force	2.24 lbs (9.96 N) at 20°C
Coil Insulation	Class "A": 105°C max.
Coil Termination	3/16" QC
Plunger Weight	0.4 oz. (11.3 g)
Total Weight	1.6 oz. (45.4 g)



Performance

Maximum Duty Cycle	100%	50%	25%	10%
Maximum ON Time (sec) when pulsed continuously	∞	19	9	3
Maximum ON Time (sec) for single pulse	∞	286	92	27
Watts (@ 20°C)	3.6	7	14	35
Ampere Turns (@ 20°C)	464	657	929	1470

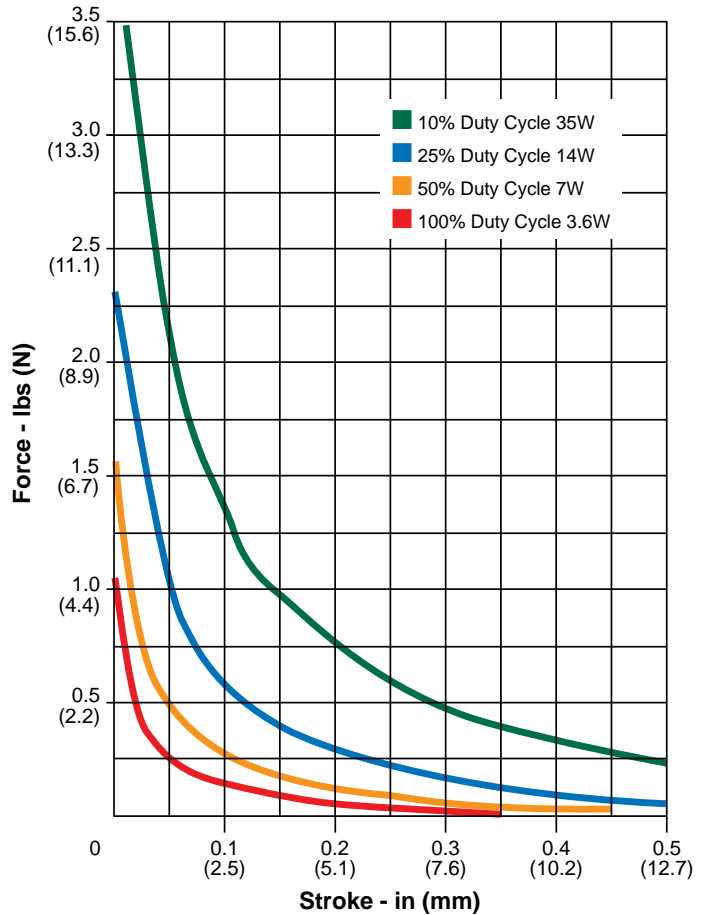
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
C8-276-M-36	2.56	404	3	4.2	5.9	9.3
C8-273-M-36	9.30	752	6	8.5	12	19
C8-274-M-36	23.2	1252	9	12.7	18	28.5
C8-272-M-36	37.12	1484	12	17	24	38
C8-271-M-36	150.73	2736	24	34	48	76
C8-270-M-36	621.54	5544	48	68	96	152
C8-269-M-36	3824	15035	120	164	231	366

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.
- Magnetic latching versions available.
- Pull versions standard; push versions available.
- Other coil terminations available.

Typical Force @ 20°C



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC, specify C8-271-M-36.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

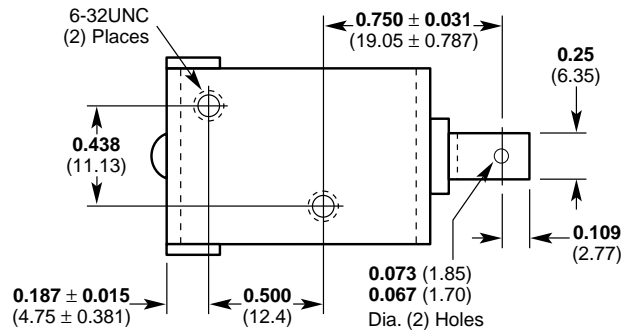
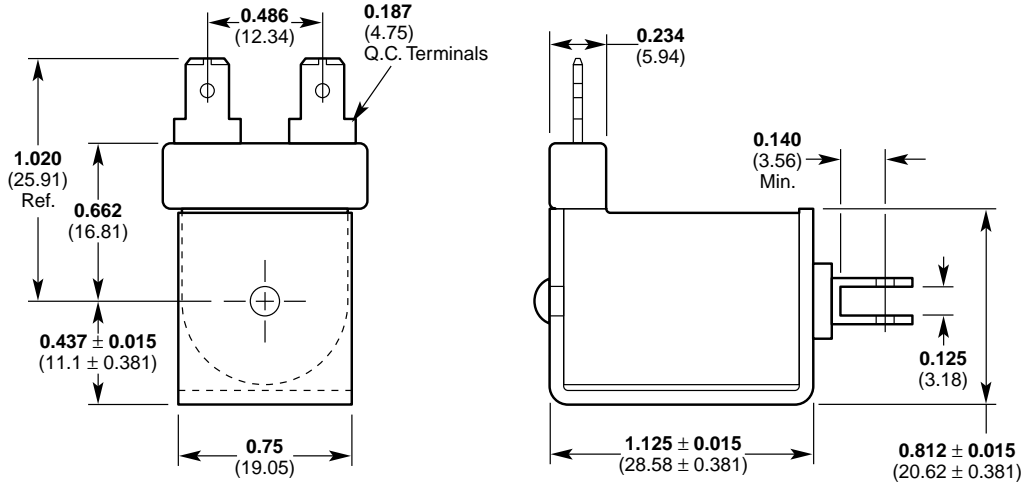
bilbao@ermec.com
portugal@ermec.com

Ledex® C Frame Size C8

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Magnetic Latching Box Frame Size B12-L

Part Number: B12 - L - 1 XX - B- 3

All products are RoHS Compliant

LINEAR Open Frame

Coil Selection
(from performance chart below)

Pole Configuration
1 Flat Face

Specifications

Operation	Pull
Dielectric Strength	500 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnet Hold Force*	11.6 oz (3.2 N) @ 20°C
Coil Insulation	Class "A": 105°C max
Coil Termination	10" (254 mm) PVC lead wires
Spring Force	8.80 oz/in; 2.1 oz latched position
Plunger Pole Face	Flat face (other options available)
Plunger Weight	0.04 oz (1.13 g)
Total Weight	0.29 oz (8.22 g)

*In no power, latched position, with return spring

Performance

Maximum Duty Cycle	Unlatch Voltage		
	50%	25%	10%
Recommended Max ON Time (sec)	1	1	1
Watts (@ 20°C)	1.3	2.6	5.2
Ampere Turns (@ 20°C)	178	251	355

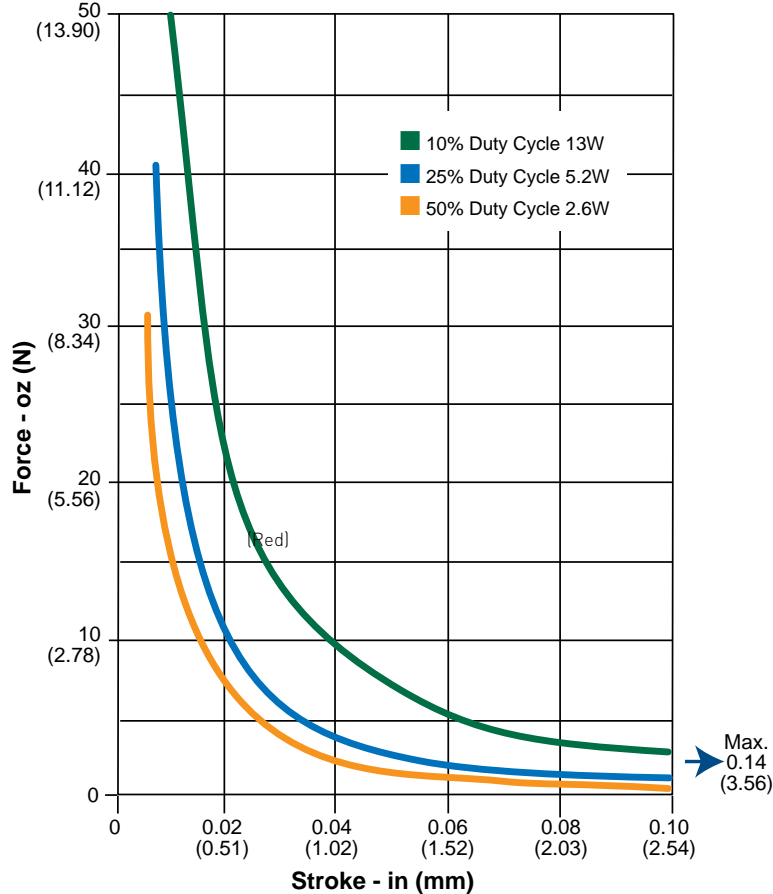
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	Unlatch VDC	VDC (Nom)	VDC (Nom)	VDC (Nom)
B12-L-158-B-3	6.92	417	3	4.2	6	9.5
B12-L-155-B-3	27.70	824	6	8.5	12	19
B12-L-156-B-3	62.30	1184	9	13	18	28.5
B12-L-154-B-3	110.80	1632	12	17	24	38
B12-L-153-B-3	443.10	3336	24	34	48	76

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.

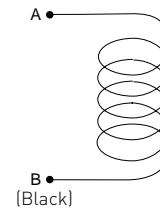
Typical Force @ 20°C – Flat Face Plunger (net with spring)



Coil Polarity

Latch: A+ B-

Unlatch: A- B+



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 12 VDC, specify B12-L-155-B-3.)

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

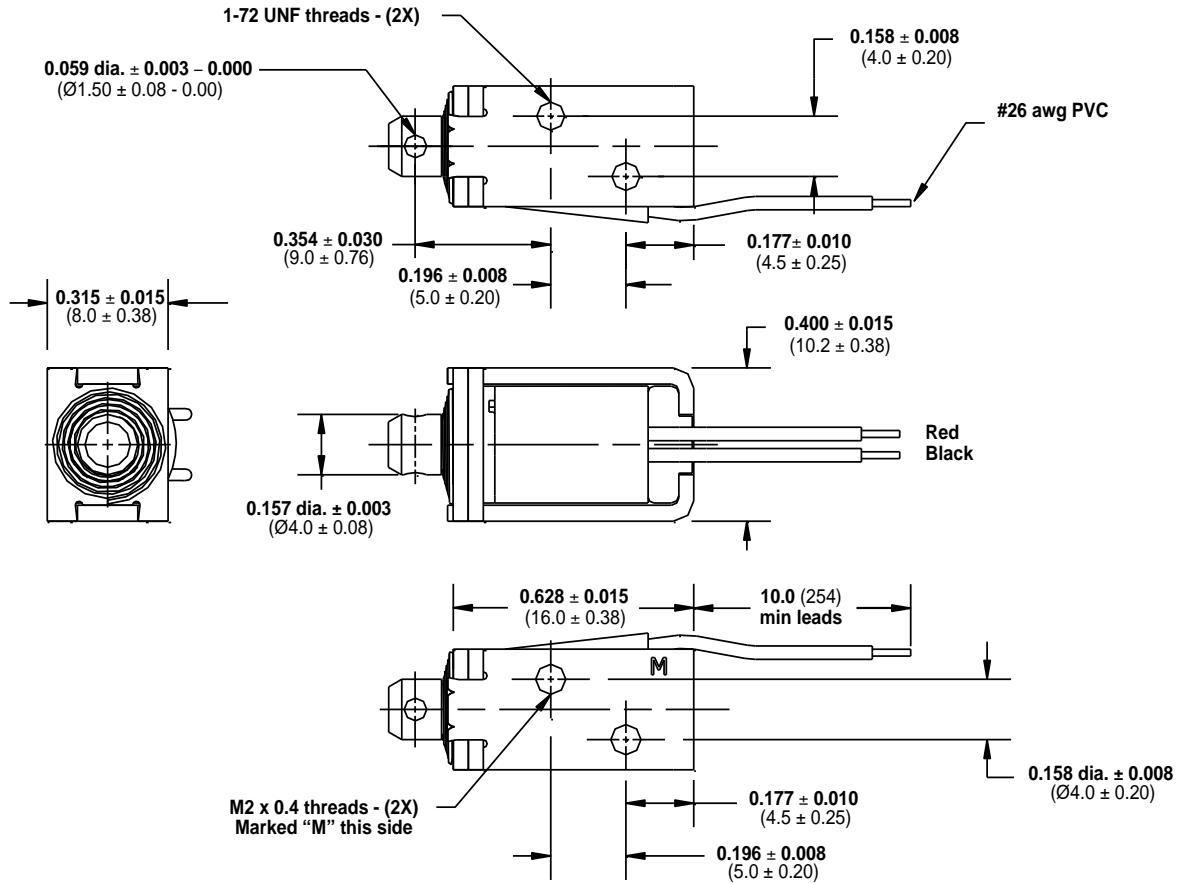
bilbao@ermec.com
portugal@ermec.com

Ledex® Magnetic Latching Box Frame Size B12-L

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Magnetic Latching Box Frame Size B12P-L

Part Number: B12P - L - 1 XX - B-3

All products are RoHS Compliant

LINEAR Open Frame

Coil Selection
(from performance chart below)

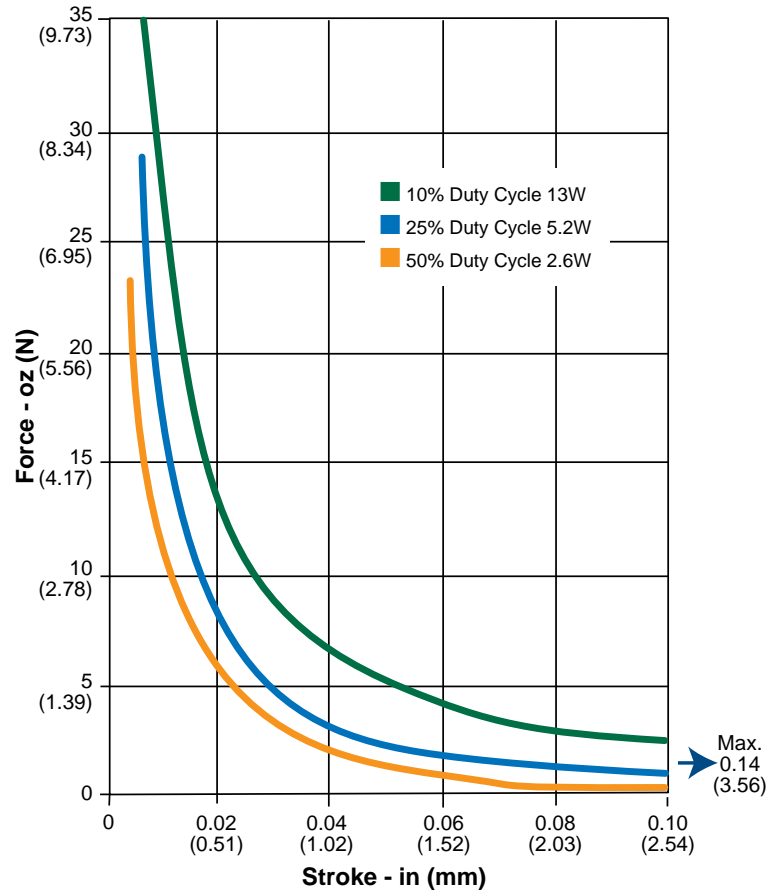
Pole Configuration
1 Flat Face

Specifications

Operation	Push
Dielectric Strength	500 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnet Hold Force*	9.34 oz (2.6 N) @ 20°C
Coil Insulation	Class "A": 105°C max
Coil Termination	10" (254 mm) PVC lead wires
Spring Force	8.80 oz/in; 2.1 oz latched position
Plunger Pole Face	Flat face
Plunger Weight	0.05 oz (1.42 g)
Total Weight	0.30 oz (8.51 g)

*In no power, latched position, with return spring

Typical Force @ 20°C – Flat Face Plunger (net with spring)



Performance

Maximum Duty Cycle	Unlatch Voltage		
	50%	25%	10%
Recommended Max ON Time (sec)	1	1	1
Watts (@ 20°C)	1.3	2.6	5.2
Ampere Turns (@ 20°C)	178	251	355

Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	Unlatch VDC	VDC (Nom)	VDC (Nom)	VDC (Nom)
B12P-L-158-B-3	6.92	417	3	4.2	6	9.5
B12P-L-155-B-3	27.70	824	6	8.5	12	19
B12P-L-156-B-3	62.30	1184	9	13	18	28.5
B12P-L-154-B-3	110.80	1632	12	17	24	38
B12P-L-153-B-3	443.10	3336	24	34	48	76

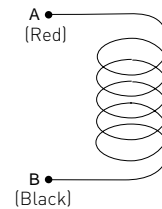
NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.

Coil Polarity

Latch: A+ B-

Unlatch: A- B+



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 12 VDC, specify B12-L-155-B-3.)

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

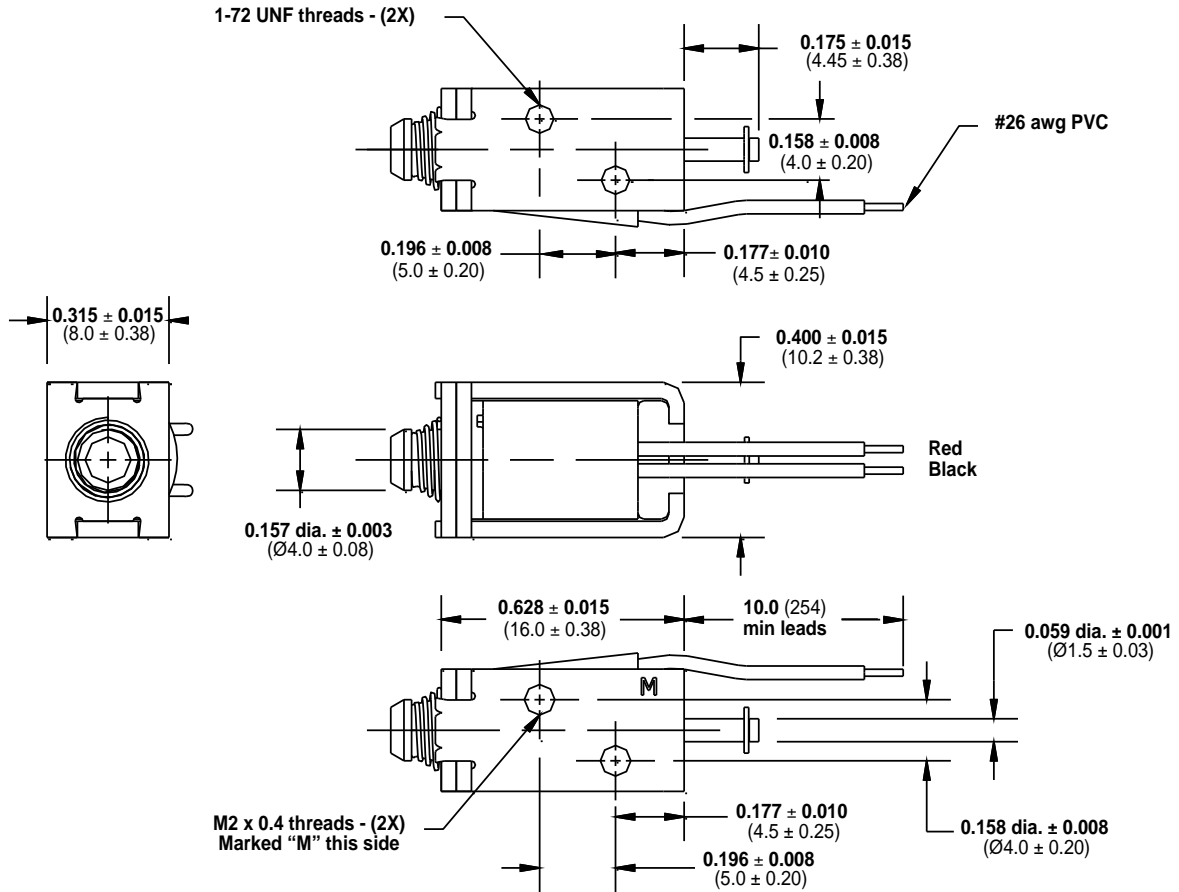
bilbao@ermec.com
portugal@ermec.com

Ledex® Magnetic Latching Box Frame Size B12P-L

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Magnetic Latching Box Frame Size B14-L

LINEAR Open Frame

Part Number: B14 - L - **X** **XX** - B-4

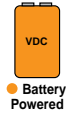
All products are RoHS Compliant

Coil Selection
(from performance chart below)

Pole Configuration
1 Flat Face
2 50° Conical

Specifications

Operation	Pull
Dielectric Strength	500 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnet Hold Force*	Flat Face: 1.20 lb (5.3 N) 50° Conical: 0.30 lb (1.3 N)
Coil Insulation	Class "B": 130°C max.
Coil Termination	10" (254 mm) PVC lead wires
Spring Force	0.37 lb/in; 0.17 lb latched position
Plunger Pole Face	Flat face or 50° conical
Plunger Weight	0.50 oz (14.2 g)
Total Weight	3.38 oz (95.9 g)
*In no power, latched position, with return spring	



Performance

Maximum Duty Cycle	Unlatch Voltage			
	50%	25%	10%	
Recommended Max ON Time (sec)	1	1	1	1
Watts (@ 20°C)	5.2	10.4	20.8	52.2
Ampere Turns (@ 20°C)	750	1060	1500	2370

Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	Unlatch VDC	VDC (Nom)	VDC (Nom)	VDC (Nom)
B14-L-X58-B-4	1.93	480	3	4	6	10
B14-L-X55-B-4	6.90	871	6	8.5	12	19
B14-L-X56-B-4	17.40	1408	9	13	18	29
B14-L-X54-B-4	28.60	1791	12	17	24	38
B14-L-X53-B-4	110.00	3450	24	34	48	76

NOTES:

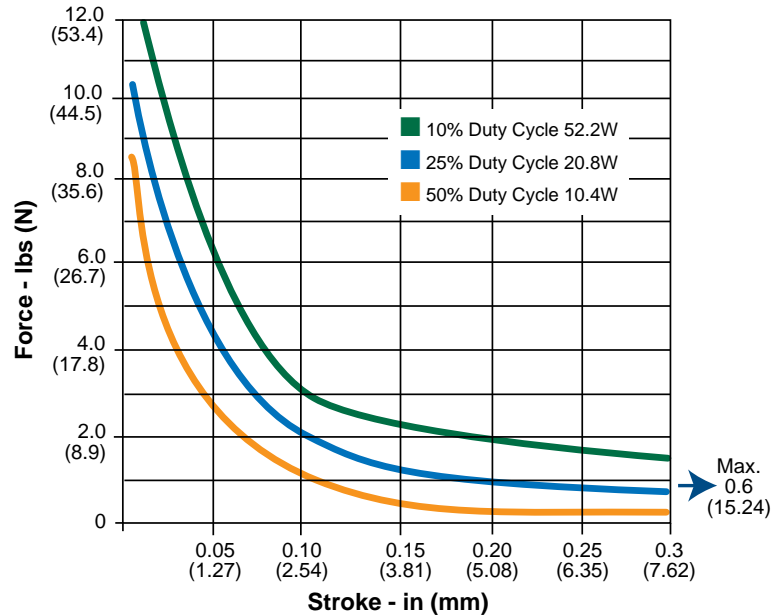
- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.

How to Order

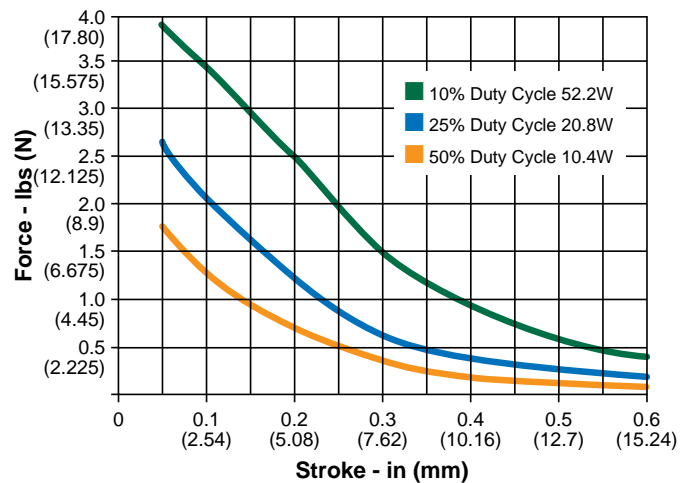
Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC with a 50° Conical Armature, specify B14-L-253-B-4.

Please see www.ledex.com for our list of stock products available through our North American distributors.

Typical Force @ 20°C – Flat Face Armature (net with spring)

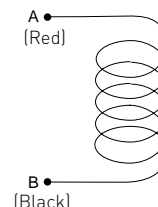


Typical Force @ 20°C – 50° Conical Armature (net with spring)



Coil Polarity

Latch: A+ B-
Unlatch: A- B+



All specifications subject to change without notice.

Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com

1.937.454.2345

Fax: 1.937.898.8624

ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

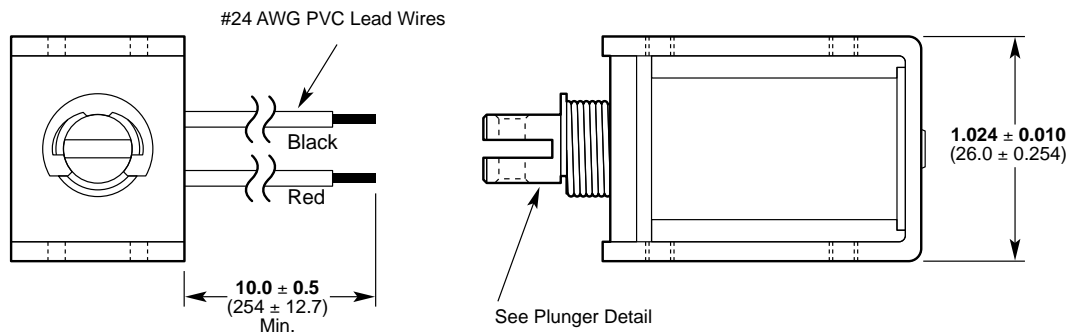
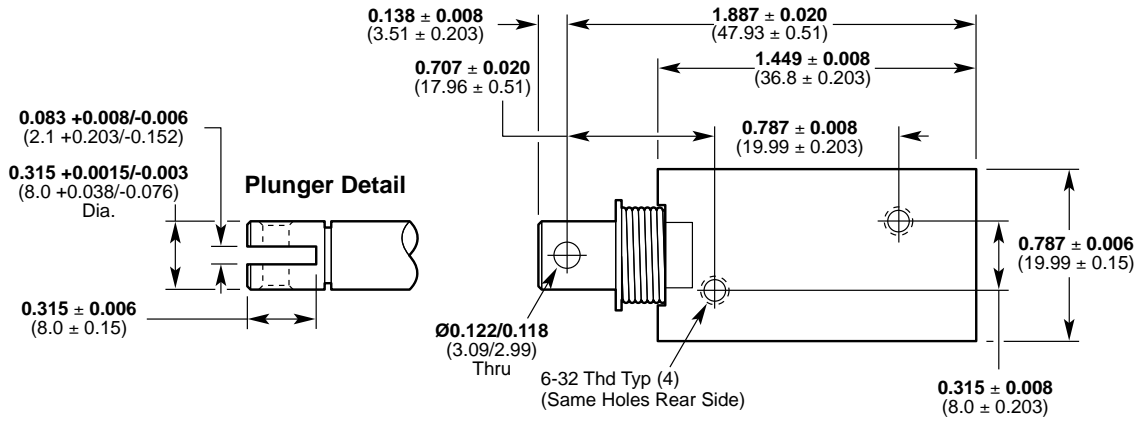
bilbao@ermec.com
portugal@ermec.com

Ledex® Magnetic Latching Box Frame Size B14-L

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Magnetic Latching Box Frame Size B14HD-L

LINEAR Open Frame

Part Number: B14HD - L - X XX - B - X

4 - 10 Inch (254 mm) leads
6 - Terminals

All products are RoHS Compliant

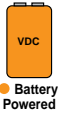
Coil Selection (from performance chart below)

Pole Configuration
1 - Flat Face
2 - Conical

Specifications

Operation	Pull
Dielectric Strength	1000 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnetic Holding Force*	Conical: 8.7 lb (38 N) Flat Face: 12.6 lb (56 N)
Coil Insulation	Class "B": 130°C max.
Coil Termination	10" (254 mm) PVC lead wires or terminal
Plunger Pole Face	Flat face or conical
Plunger Weight	0.86 oz. (24.4 g)
Total Weight	3.47 oz. (98.4 g)

* In no power, latched position, with return spring



Performance

Maximum Duty Cycle	Unlatch Voltage		
	50%	25%	10%
Recommended Max ON Time (sec)	1	1	1
Watts (@ 20°C)	11	11	22
Ampere Turns (@ 20°C)	940	938	1326

Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B14HD-L-X58-B-X	1.45	321	4.4	4.3	6.1	9.7
B14HD-L-X57-B-X	7.0	750	8.9	8.7	12.4	19.6
B14HD-L-X56-B-X	14.2	1068	12.7	12.5	17.6	27.9
B14HD-L-X54-B-X	27.5	1470	17.7	17.4	24.6	38.9
B14HD-L-X53-B-X	110.2	2920	35.4	34.8	49.2	77.8

NOTES:

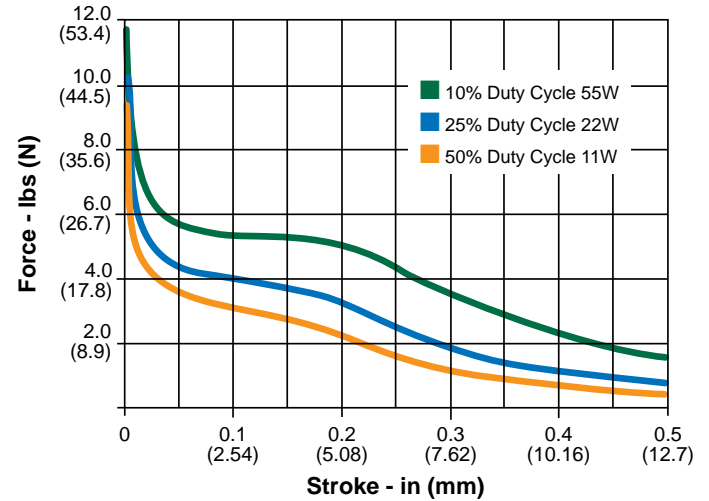
- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heat sink.

How to Order

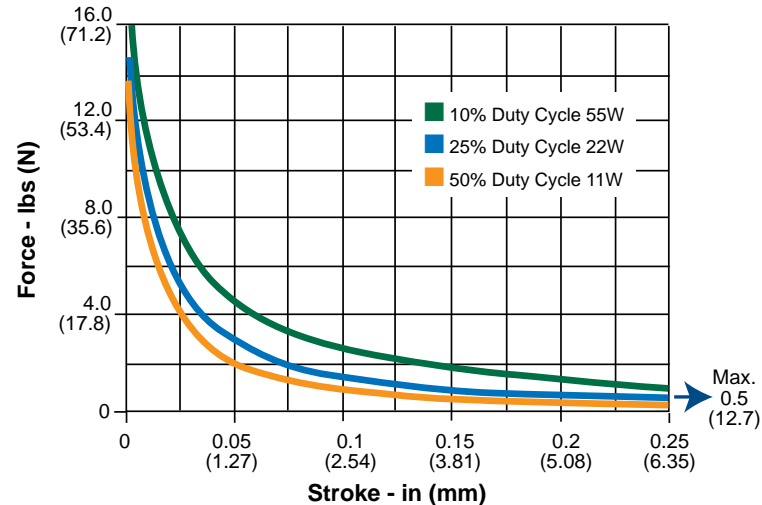
Select the part number from the table provided. (For example, to order a 25% duty cycle unit with a conical pole configuration rated at 6.1 VDC with 10" lead wires, specify B14HD-L-258-B-4.

Please see www.ledex.com for our list of stock products available through our North American distributors.

Typical Force @ 20°C – Conical (net with spring)

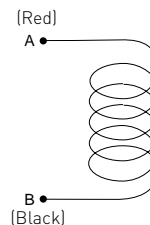


Typical Force @ 20°C – Flat Face (net with spring)



Coil Polarity

Latch: A+ B-
Unlatch: A- B+



All specifications subject to change without notice.

Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixido, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

bilbao@ermec.com
portugal@ermec.com

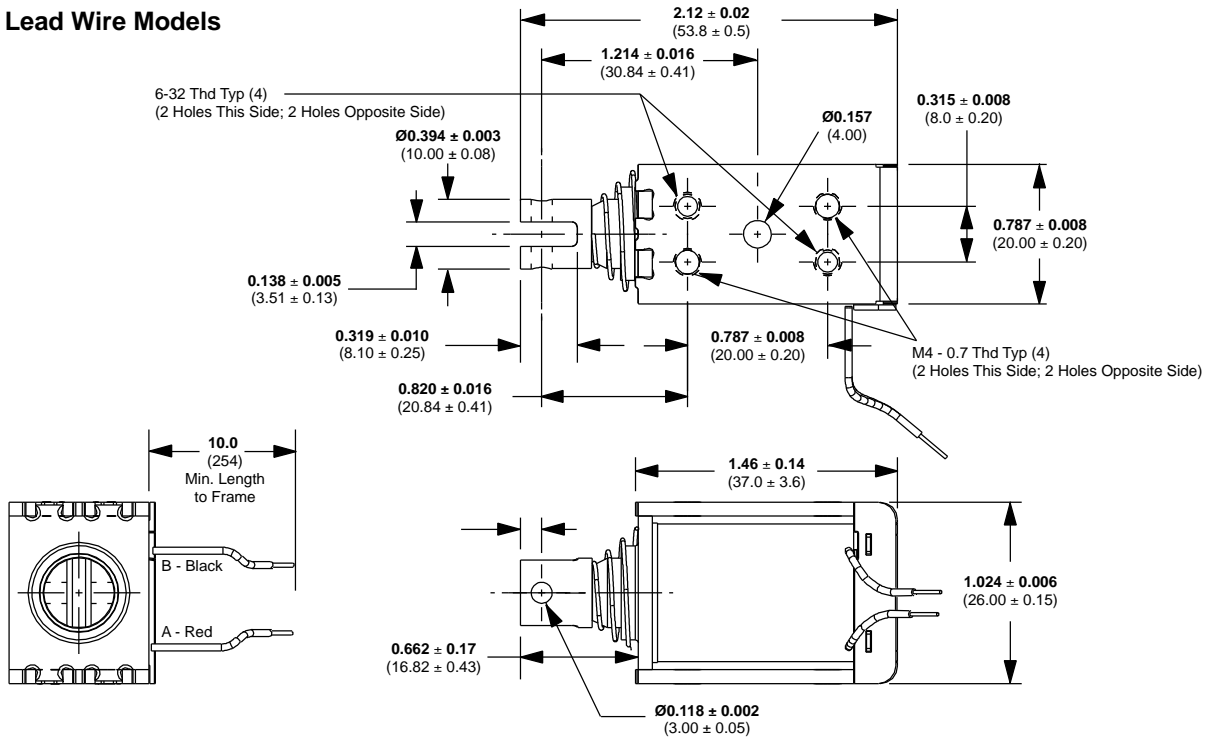
Ledex® Magnetic Latching Box Frame Size B14HD-L

Dimensions

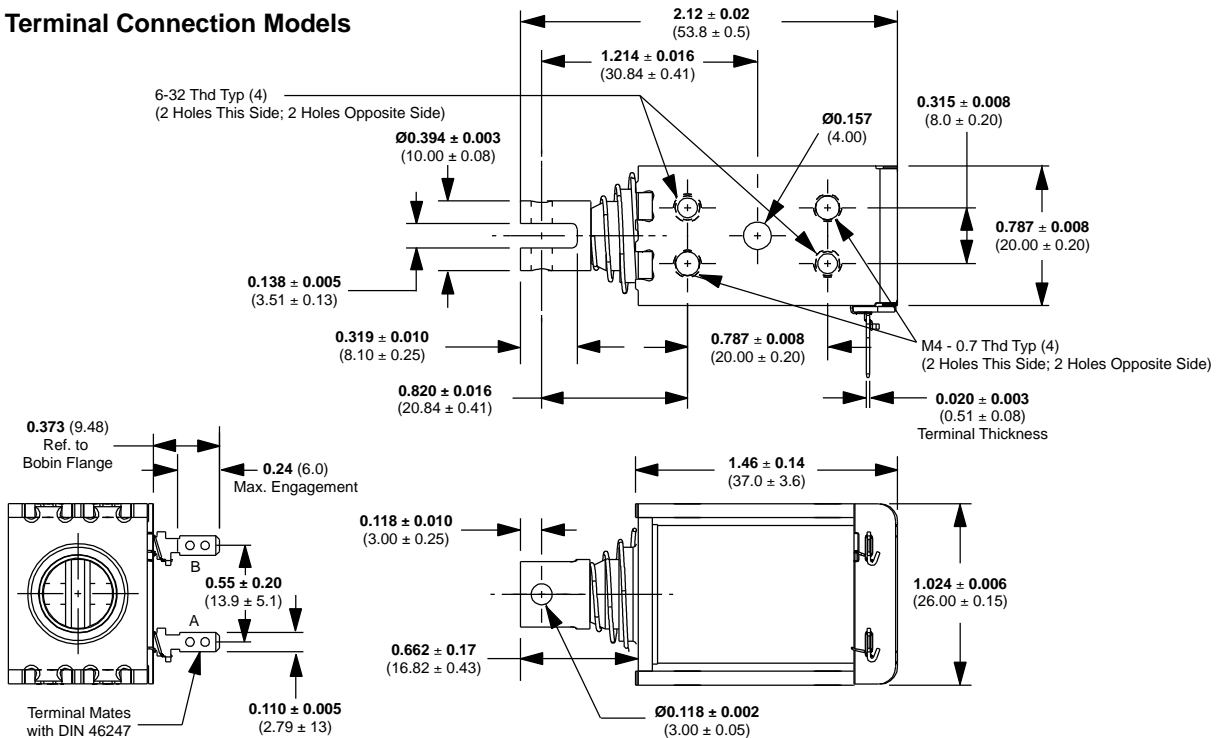
Inches (mm)

All solenoids are illustrated in energized state

Lead Wire Models



Terminal Connection Models



Ledex® Magnetic Latching Box Frame Size B14HDP-L

LINEAR Open Frame

Part Number: B14HDP - L - X XX - B - X

All products are RoHS Compliant

4 - 10 Inch (254 mm) leads
6 - Terminals

Coil Selection (from performance chart below)

Pole Configuration
1 - Flat Face
2 - Conical

Specifications

Operation	Push
Dielectric Strength	1000 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnetic Holding Force*	Conical: 8.7 lb (38 N) Flat Face: 12.6 lb (56 N)
Coil Insulation	Class "B": 130°C max.
Coil Termination	10" (254 mm) PVC lead wires or terminal
Plunger Pole Face	Flat face or conical
Plunger Weight	0.91 oz. (25.8g)
Total Weight	3.53oz. (100.1 g)

* In no power, latched position, with return spring



Performance

Maximum Duty Cycle	Unlatch Voltage		
	50%	25%	10%
Recommended Max ON Time (sec)	1	1	1
Watts (@ 20°C)	11	11	22
Ampere Turns (@ 20°C)	940	938	1326

Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
B14HDP-L-X58-B-X	1.45	321	4.4	4.3	6.1	9.7
B14HDP-L-X57-B-X	7.0	750	8.9	8.7	12.4	19.6
B14HDP-L-X56-B-X	14.2	1068	12.7	12.5	17.6	27.9
B14HDP-L-X54-B-X	27.5	1470	17.7	17.4	24.6	38.9
B14HDP-L-X53-B-X	110.2	2920	35.4	34.8	49.2	77.8

NOTES:

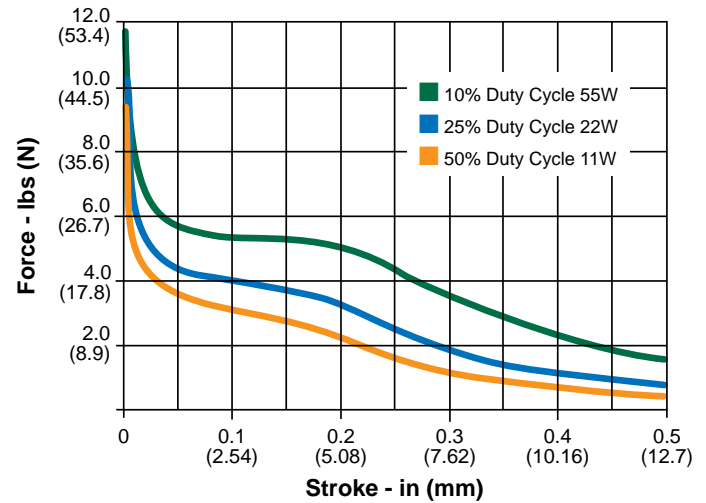
- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heat sink.

How to Order

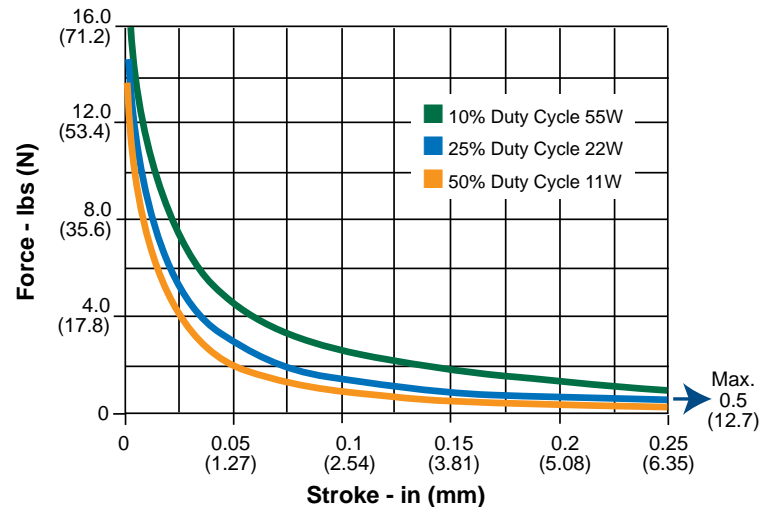
Select the part number from the table provided. (For example, to order a 25% duty cycle unit with a conical pole configuration rated at 6.1 VDC with 10" lead wires, specify B14HDP-L-258-B-4.

Please see www.ledex.com for our list of stock products available through our North American distributors.

Typical Force @ 20°C – Conical (net with spring)



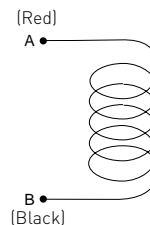
Typical Force @ 20°C – Flat Face (net with spring)



Coil Polarity

Latch: A+ B-

Unlatch: A- B+



All specifications subject to change without notice.

Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixido, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

bilbao@ermec.com
portugal@ermec.com

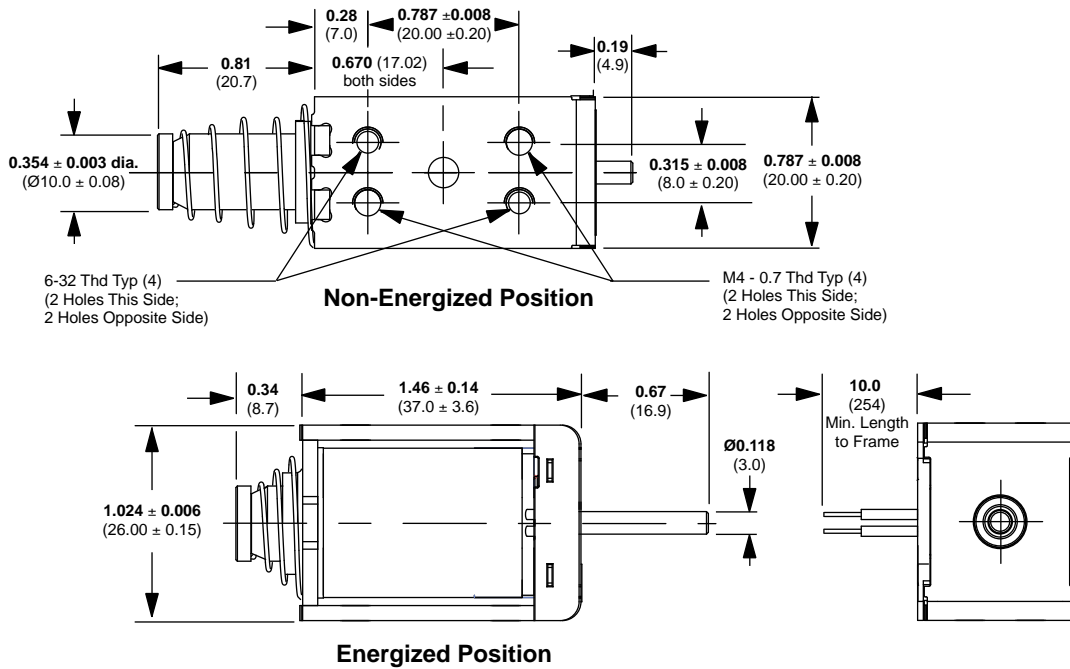
Ledex® Magnetic Latching Box Frame Size B14HDP-L

Dimensions

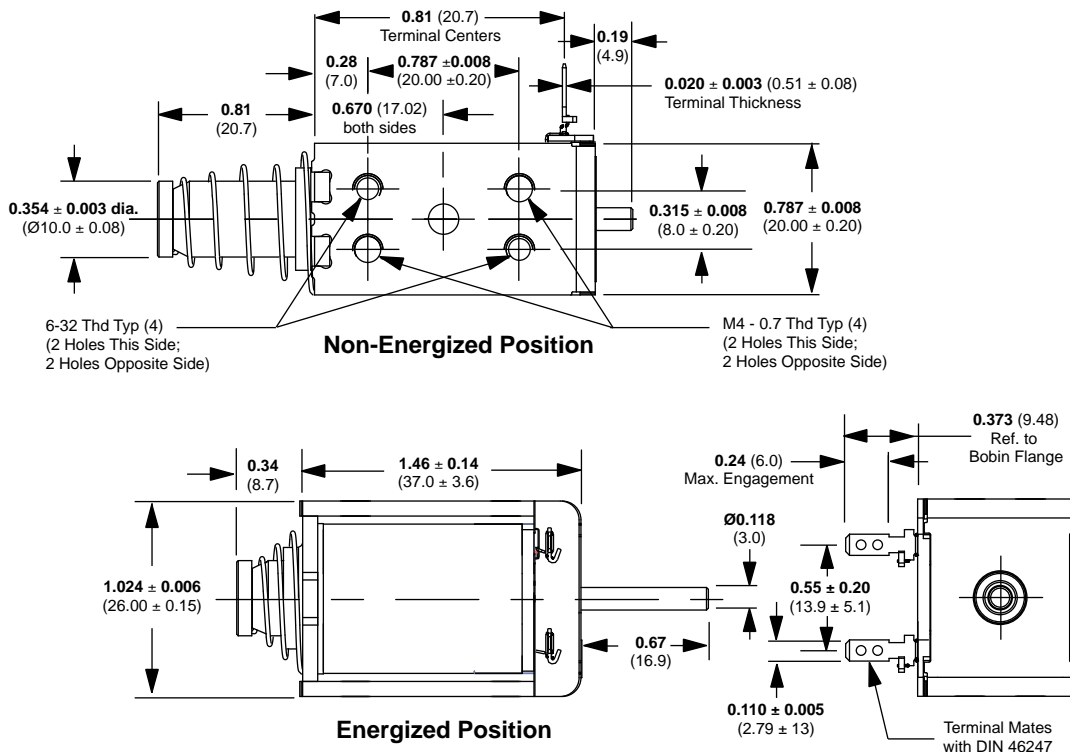
Inches (mm)

All solenoids are illustrated in energized state

Lead Wire Models



Terminal Connection Models



Ledex® Magnetic Latching Box Frame Size B17-L

Part Number: B17 - L - X XX - B-3

Coil Selection
(from performance chart below)

Pole Configuration
1 Flat Face

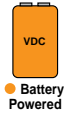
All products are RoHS Compliant

LINEAR Open Frame

Specifications

Operation	Pull
Dielectric Strength	500 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnet Hold Force*	10 oz. (2.5 N)
Coil Insulation	Class "B": 130°C max.
Coil Termination	10" (254 mm) PVC lead wires
Spring Force	16.0 oz/in; 2.4 oz latched position
Plunger Pole Face	Flat face (other options available)
Plunger Weight	0.08 oz. (2.46 g)
Total Weight	0.70 oz. (19.85 g)*In no power, latched position.

* In no power, latched position, with return spring



Performance

Maximum Duty Cycle	Unlatch Voltage		
	50%	25%	10%
Recommended Max ON Time (sec)	1	1	1
Watts (@ 20°C)	1.6	3.2	6.4
Ampere Turns (@ 20°C)	292	414	584

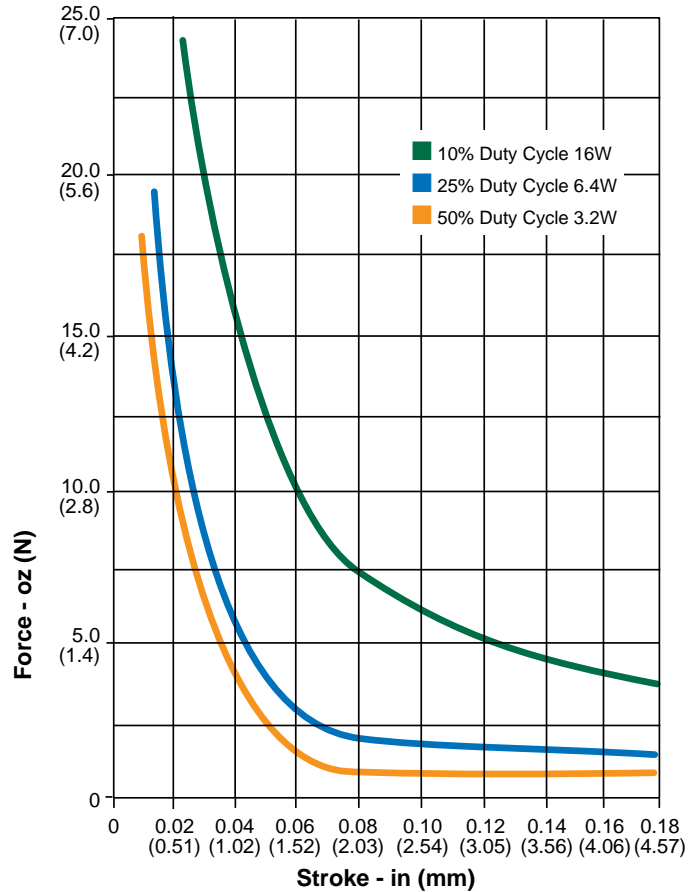
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	Unlatch VDC	VDC (Nom)	VDC (Nom)	VDC (Nom)
B17-L-158-B-3	5.40	556	3	4	6	9
B17-L-155-B-3	21.93	1112	6	8.5	12	19
B17-L-156-B-3	50.20	1540	9	12	18	28.3
B17-L-154-B-3	88.95	2208	12	17	24	38
B17-L-153-B-3	337.00	3687	24	34	48	76
B17-L-152-B-3	1465.00	9177	48	68	96	153

NOTES:

- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.

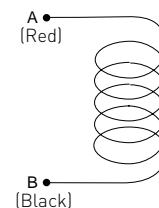
Typical Force @ 20°C (Net, with Spring)



Coil Polarity

Latch: A+ B-

Unlatch: A- B+



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC, specify B17-L-153-B-3.

Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345 Fax: 1.937.898.8624
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

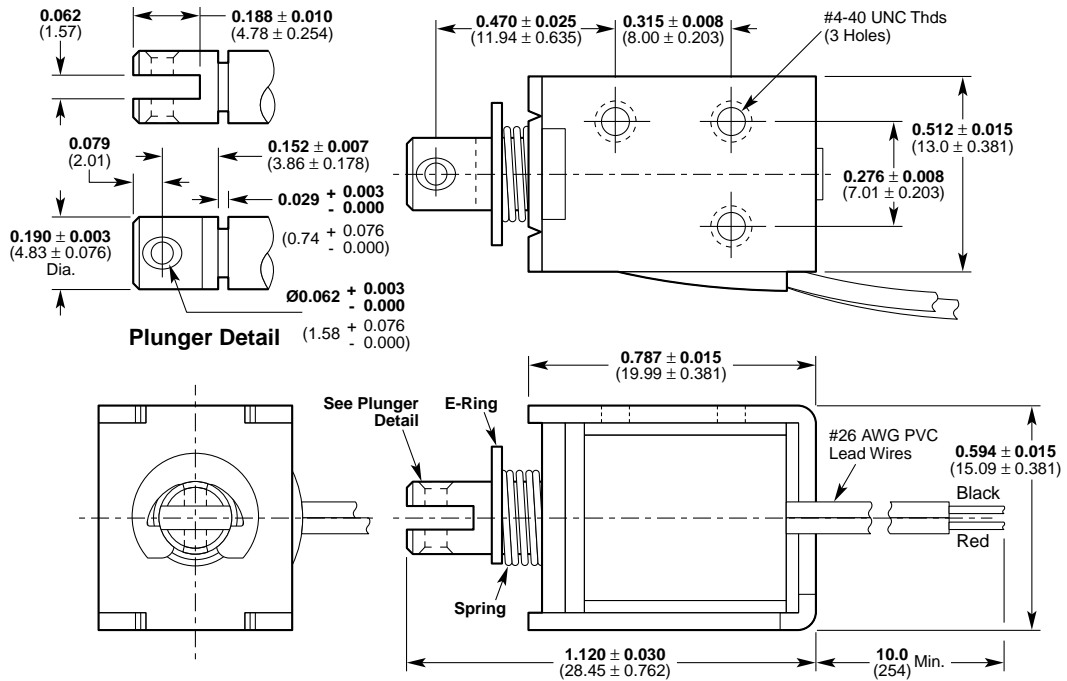
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portugal@ermec.com

Ledex® Magnetic Latching Box Frame Size B17-L

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



All specifications subject to change without notice.

Ledex® Magnetic Latching Box Frame Size B22-L

LINEAR Open Frame

Part Number: B22 - L - **X** **XX** - M- 36

All products are RoHS Compliant

Coil Selection
(from performance chart below)

Pole Configuration
1 Flat Face
2 60° Conical

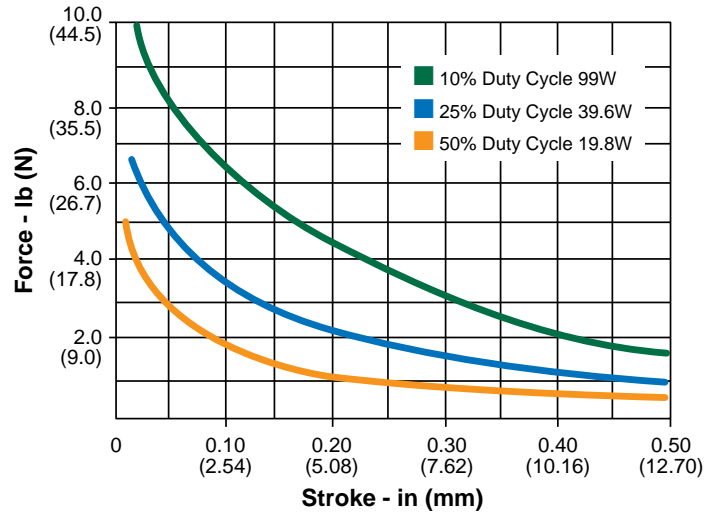
Specifications

Operation	Pull
Dielectric Strength	1500 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnet Hold Force*	Flat Face: 5.0 lb (22 N) 60° Conical: 1.0 lb (4.5 N)
Coil Insulation	Class " B": 130°C max.
Coil Termination	(1) 3/16" QC; (1) 1/4" QC
Spring Force	2.4 lb/in; 1.08 lb latched position
Plunger Pole Face	Flat face or 60° conical
Plunger Weight	1.24 oz. (35.2 g)
Total Weight	7.5 oz. (212.8 g)

* In no power, latched position, with return spring



Typical Force @ 20°C – 60° Armature (Net, with Spring)



Performance

Maximum Duty Cycle	Unlatch Voltage			
	50%	25%	10%	
Recommended Max ON Time (sec)	1	1	1	1
Watts (@ 20°C)	9.9	19.8	39.6	99
Ampere Turns (@ 20°C)	1046	1482	2093	3314

Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	Unlatch VDC	VDC (Nom)	VDC (Nom)	VDC (Nom)
B22-L-X55-M-36	3.64	635	6	8.5	12	19
B22-L-X54-M-36	14.55	1300	12	17	24	38
B22-L-X53-M-36	58.18	2578	24	34	48	76
B22-L-X52-M-36	232.73	5103	48	68	96	152
B22-L-X51-M-36	1493.00	12744	120	172	240	385

NOTES:

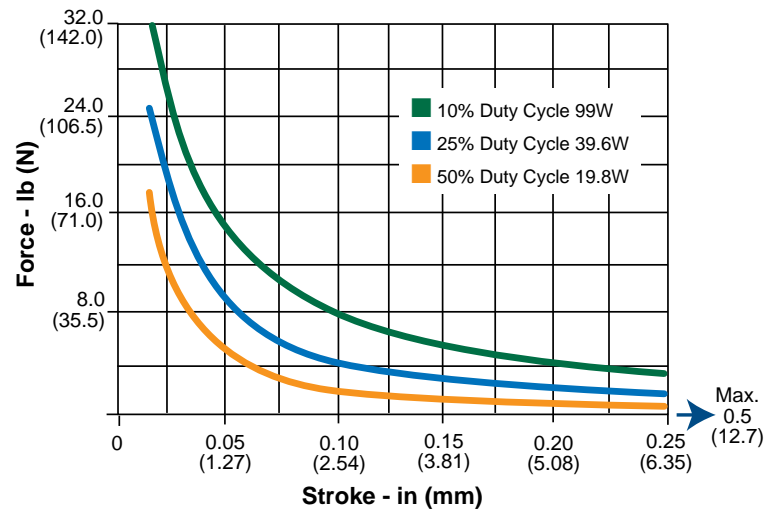
- All data is typical.
- Force testing is done with the solenoid in the horizontal position.
- All data reflects operation with no heatsink.

How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle flat face unit rated at 48 VDC, specify B22-L-153-M-36.

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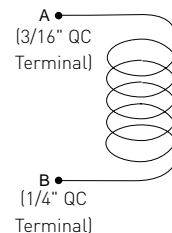
Typical Force @ 20°C – Flat Face Armature (Net, with Spring)



Coil Polarity

Latch: A+ B-

Unlatch: A- B+



All specifications subject to change without notice.

Force values for reference only.

Ledex® Solenoids



ERMEC, S.L. BARCELONA
C/ Francesc Teixido, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

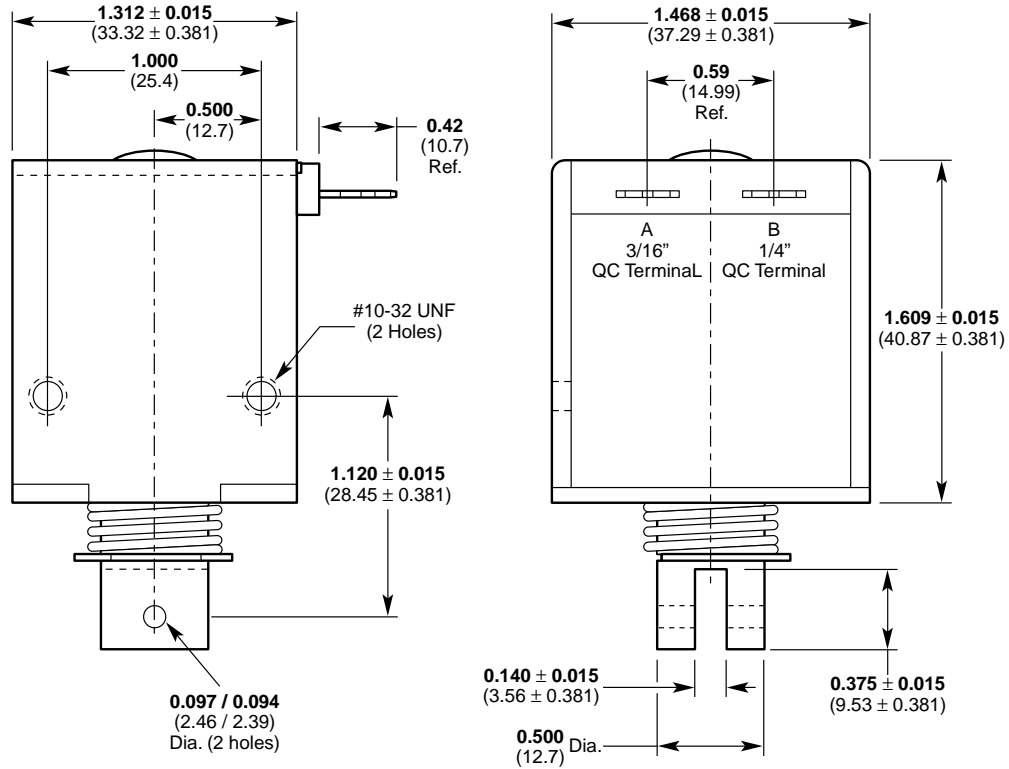
Fax: 1.937.898.8624
bilbao@ermec.com
portugal@ermec.com

Ledex® Magnetic Latching Box Frame Size B22-L

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Magnetic Latching C Frame Size C5-L

Part Number: C5 - L - **XXX** - B - 1

All products are RoHS Compliant

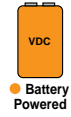
LINEAR Open Frame

Select from performance chart below

Specifications

Operation	Pull
Dielectric Strength	500 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnet Hold Force*	1.29 lb (5.7 N)
Coil Insulation	Class "B": 130°C max.
Coil Termination	0.025" square pin terminals
Plunger Pole Face	Flat face (other options available)
Spring Force	12.34 oz-in; 2.40 oz latched position
Plunger Weight	0.10 oz. (2.8 g)
Total Weight	0.42 oz. (11.9 g)

* In no power, latched position, with return spring



Performance

	Unlatch Voltage			
	50%	25%	10%	
Maximum Duty Cycle				
Recommended Max ON Time (sec)	1	1	1	1
Watts (@ 20°C)	3	6	12	30
Ampere Turns (@ 20°C)	422	564	844	1268

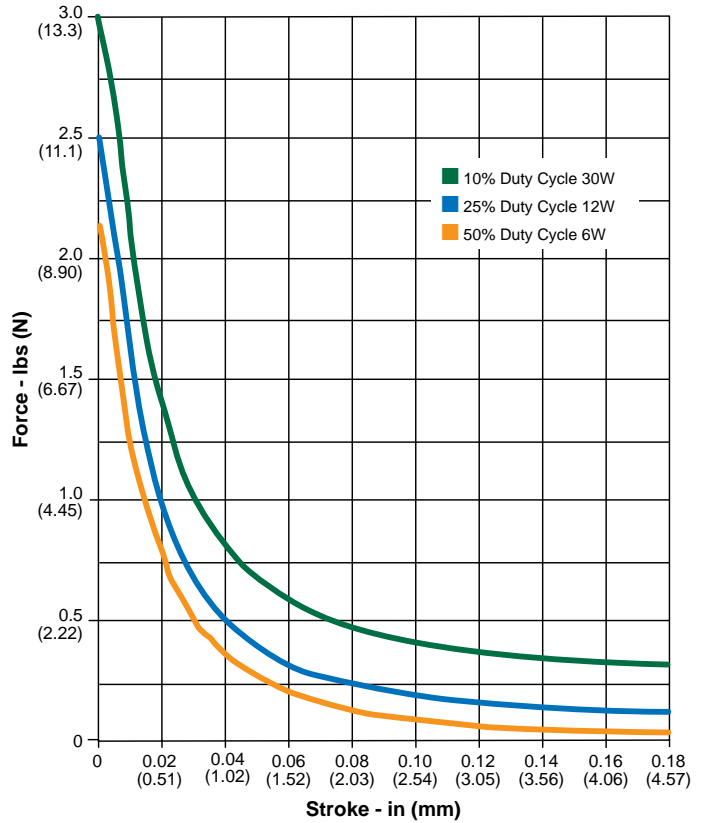
Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
C5-L-273-B-1	2.88	406	3	4	6	9
C5-L-272-B-1	11.52	795	6	8	12	19
C5-L-271-B-1	25.77	1222	9	12	18	28
C5-L-270-B-1	48.65	1642	12	17	24	38
C5-L-269-B-1	72.84	1968	15	21	30	47
C5-L-268-B-1	152.20	2860	21	30	43	68
C5-L-267-B-1	191.73	3202	24	34	48	76

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.

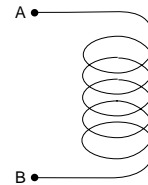
Force (Net, With Spring)



Coil Polarity

Latch: A+ B-

Unlatch: A- B+



How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit rated at 48 VDC, specify C5-L-267-B-1.

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Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
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C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

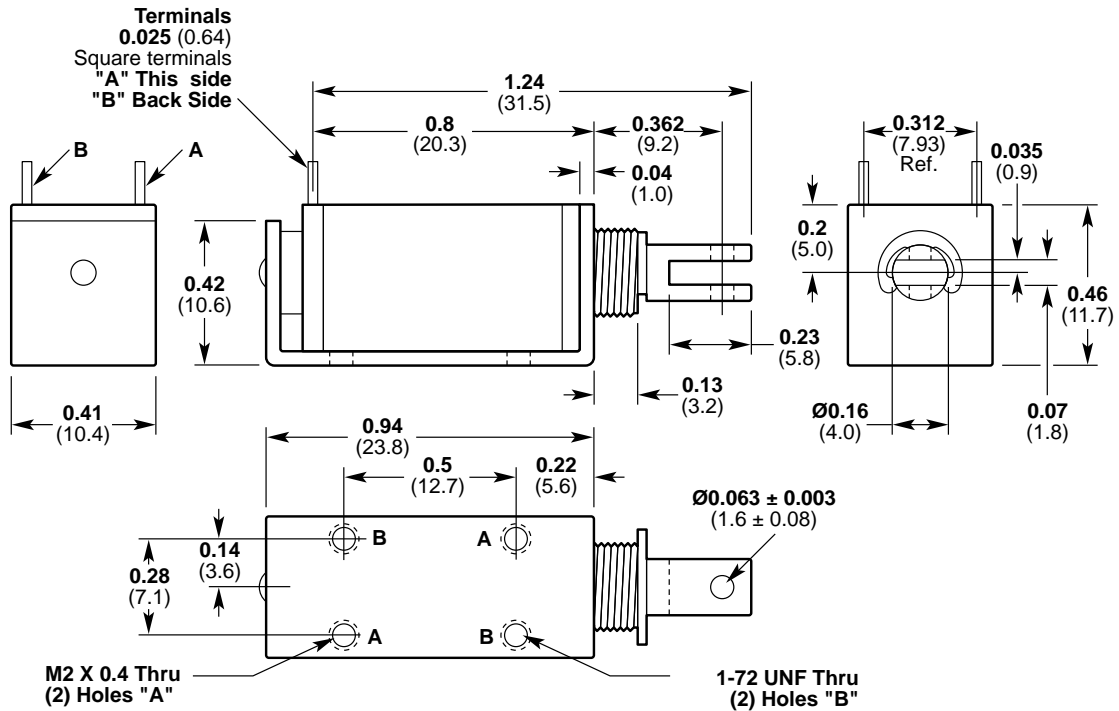
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bilbao@ermec.com
portugal@ermec.com

Ledex® Magnetic Latching C Frame Size C5-L

Dimensions

Inches (mm)

All solenoids are illustrated in energized state



Ledex® Magnetic Latching C Frame Size C8-L

LINEAR Open Frame

Part Number: C8-L - X XX - M- 36

All products are RoHS Compliant

Select coil from performance chart below

Plunger pole face:

- 1 Flat Face
- 2 40° Reverse Conical

Specifications

Operation	Pull
Dielectric Strength	500 VRMS for one second
Unlatch Voltage	See schematic and coil data below
Magnet Holding Force*	Flat Face: 1.60 lb (7.12 N) 40° Reverse Conical: 1.25 lb (5.56 N)
Spring Force	0.53 lb/in; 0.26 lb latched operation
Coil Insulation	Class "B": 130°C max.
Coil Termination	(1) - 1/4" QC; (1) - 3/16" QC
Plunger Pole Face	Flat face or 40° reverse conical
Plunger Weight	0.4 oz. (11.3 g)
Total Weight	1.6 oz. (45.4 g)

* In no power, latched position, with return spring

Performance

	Unlatch			
	Voltage	50%	25%	10%
Maximum Duty Cycle				
Recommended Max ON Time (sec)	1	1	1	1
Watts (@ 20°C)	3.6	7	14	35
Ampere Turns (@ 20°C)	464	657	929	1470

Coil Data

Part Number	Resistance (@20°C)	Ref # Turns	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
C8-L-X76-M-36	2.56	404	3	4.2	5.9	9.3
C8-L-X73-M-36	9.30	752	6	8.5	12	19
C8-L-X74-M-36	23.2	1252	9	12.7	18	28.5
C8-L-X72-M-36	37.12	1484	12	17	24	38
C8-L-X71-M-36	150.73	2736	24	34	48	76
C8-L-X70-M-36	621.54	5544	48	68	96	152
C8-L-X69-M-36	3824	15035	120	164	231	366

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.

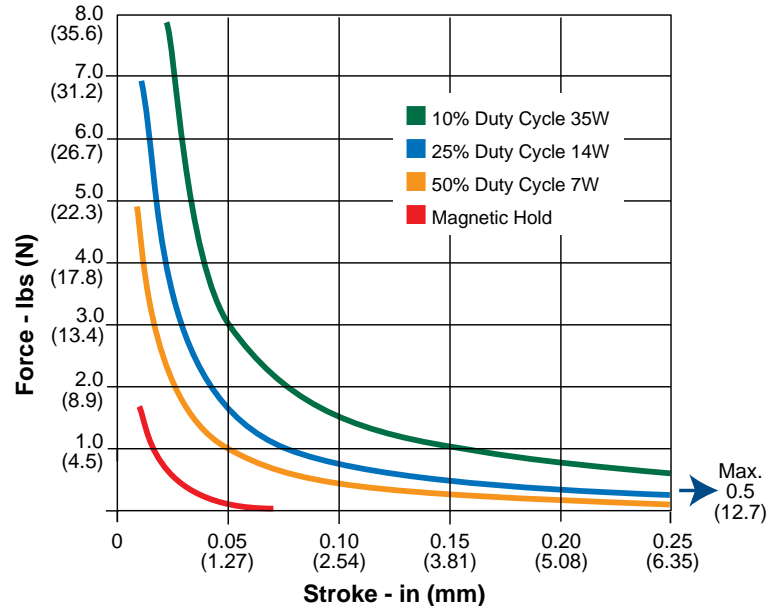
How to Order

Select the part number from the table provided. (For example, to order a 25% duty cycle unit with a 40° reverse conical plunger pole face rated at 48 VDC, specify C8-L-271-M-36.

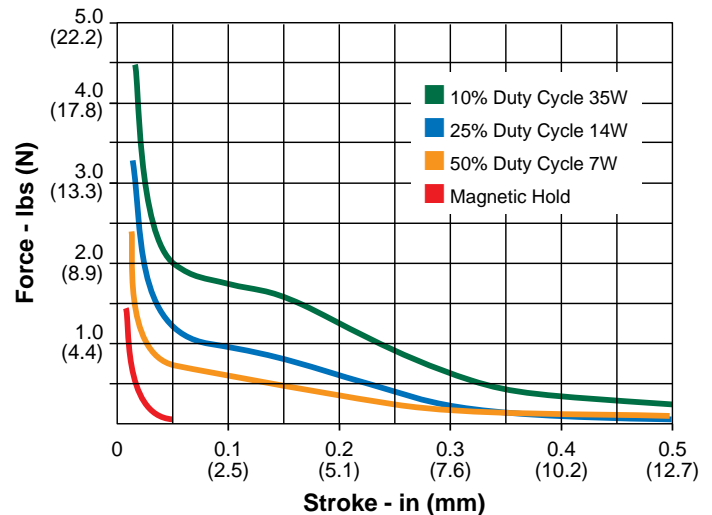
Please see www.ledex.com for our list of stock products available through our North American distributors.

All specifications subject to change without notice.

Typical Force with Flat Face (net with spring @ 20°C)

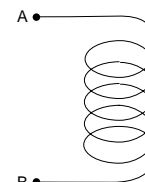


Typical Force with 40° Reverse Conical (net with spring @ 20°C)



Coil Polarity

Latch: A+ B-
Unlatch: A- B+
(A) 1/4" QC terminal
(B) 3/16" QC terminal



Force values for reference only.

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ERMEC, S.L. BARCELONA
C/ Francesc Teixidó, 22
08918 Badalona SPAIN

Tel. +34 902 450 160
info@ermec.com
www.ermec.com

www.ledex.com 1.937.454.2345
ERMEC, S.L. - MADRID
C/ Puerto Rico, 4
28222 Majadahonda (Madrid) SPAIN

Fax: 1.937.898.8624
bilbao@ermec.com
portugal@ermec.com

Ledex® Magnetic Latching C Frame Size C8-L

Dimensions

Inches (mm)

All solenoids are illustrated in energized state

