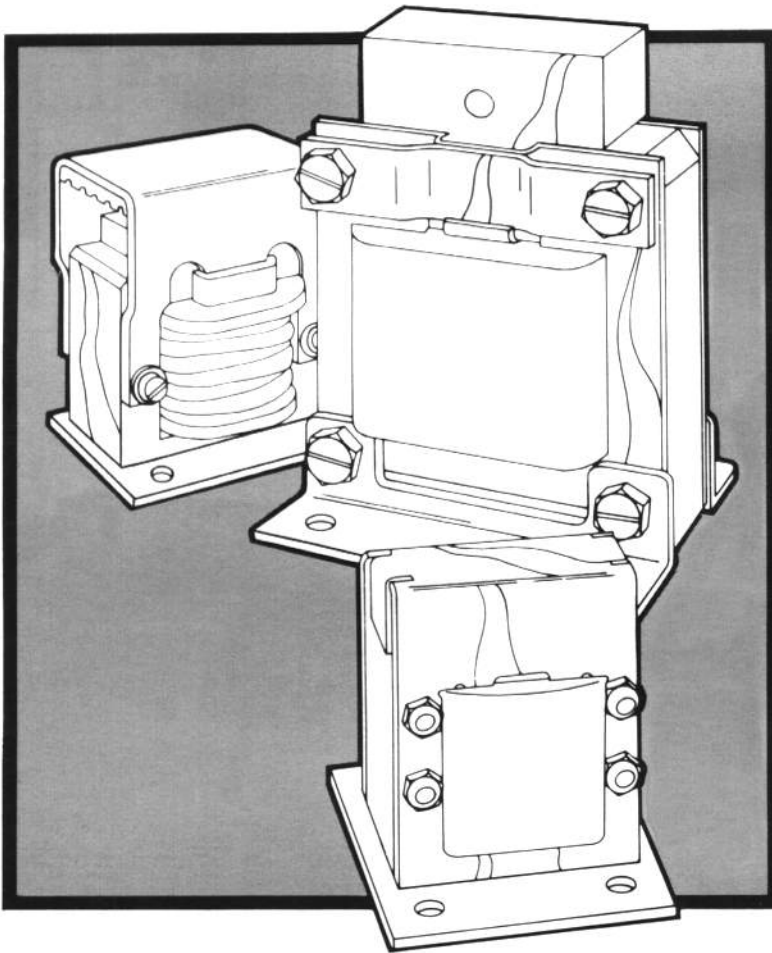


EB

SOLENOIDS

General Catalog



NAMCO

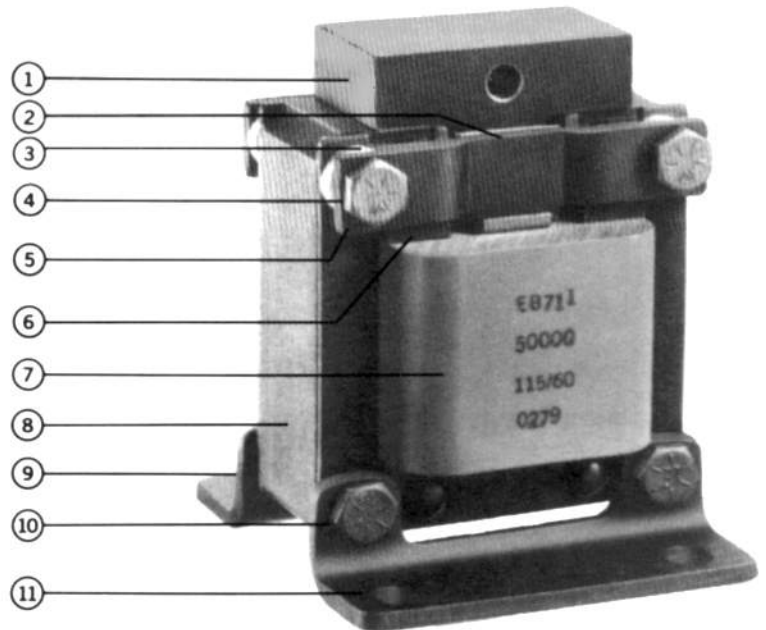
CONTENTS

Contents

DESCRIPTION	PAGE(s)
Typical Solenoid Components	1
Application and Selection	2
Glossary	2
Force	2
Stroke	2
Duty Cycle	2
Allowable Coil Temperature	2
Voltage Current	2
Strike	3
Solenoid Load	3
Mounting	3
Applying Solenoids	3
EB200 Series (1/2" Stroke)	5-8
EB450 Series (1" Stroke)	9-10
EB600 Series (1/2" Stroke)	11-14
EB710 Series (1" Stroke)	15-18

Typical Solenoid Components

Item	Component Part
1	Plunger
2	Coil Liner
3	Spacer
4	Hex Head Bolt — Base Mtg.
	Hex Head Bolt — Side Mtg.
	Hex Head Bolt — Throat Mtg.
5	Liner Bracket
6	Coil Wedge
7	Coil
8	Core Assembly
9	Locknut for Hex Bolt
10	Hex Head Bolt
	Hex Hd. Bolt — Base & Side Mtg.
11	Mounting Bracket



Solenoids are electromechanical devices which convert an electromotive force into mechanical motion and a useable force. The simplest form of a solenoid might be the solenoid used in door chimes at your home.

The most common solenoids are generally referred to as linear solenoids which can be designed as push or pull types. Rotary solenoids are also available, but are more complex in design.

When the coil is energized, by passing current through the coil, the electromotive force established pulls the solenoid plunger into the coil. Push type solenoids work exactly like the pull type; however, the useable force is transmitted by a push rod or equivalent which extends through and is free to move through the solenoid stop.

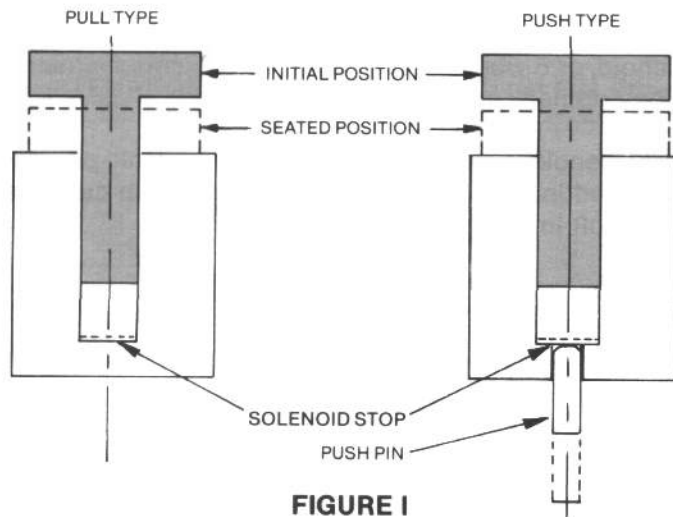


FIGURE 1

Application and Selection

In order to properly select and apply solenoids regardless of the type used, important factors in their selection must be considered. These are:

- Force and Stroke Requirements
- Power source (current and voltage)
- Duty Cycle
- Ambient temperature
- Allowable coil temperature
- Environment
- Envelope dimensions

Glossary

• Force

Pull or push force developed by the solenoids when the coil is energized.

• Stroke

The distance the plunger must travel from its initial installed position until it is in the seated position. (Refer to Figure 1.)

• Duty Cycle

The ratio of "on" time (energized) to the total cycle time.

$$\text{Duty cycle \%} = \frac{\text{"on" time}}{\text{"on" time} + \text{"off" time}} \times 100$$

Continuous duty: 100% duty or "on" 100% of time of a cycle.

Intermittent duty: Less than 100%.

The duty cycle is important because the temperature reached during the "on" time may exceed the allowable design temperature of the coil, thereby damaging the coil.

As cycle rates increase, temperature of the solenoid will increase and force will decrease. Therefore, solenoids which are to be used in a continuous duty cycle have reduced force ratings, while solenoids designed for intermittent applications provide greater force values.

• Allowable Coil Temperature

The maximum operating temperature at which the solenoid may be operated without adversely affecting the materials used in the construction of the solenoid.

Normally this temperature is established by the limits of the materials used in the coil system insulation material.

Class A	105 °C Maximum
Class B	130 °C Maximum
Class F	155 °C Maximum
Class H	180 °C Maximum

• Voltage Current

The voltage to the coil must be determined and the low tolerance on line voltage taken into consideration when selecting a solenoid. For example, if the voltage falls below a certain value, say to 100 volts although the line voltage may be rated at 120 volts, the solenoid should be selected to provide the force required at the lower voltage, or 100 volts.

Conversely, over voltage will cause over heating and could damage the solenoid. (When selecting a solenoid, make sure allowance is made for the ambient temperature of the environment in which the solenoid is expected to operate.)

Stroke

Use the shortest stroke possible. This will reduce wear and the impact force when the plunger seats, extending service life of the solenoid.

Solenoid Load

Select a solenoid with rated force close to the load requirements imposed on it; again at the shortest stroke. Be sure to take into consideration fluctuations in voltage and mechanical losses in the system, particularly if the actuating system consists of linkages or there is inherent drag or friction in the system. A rule of thumb is to design for 85% of the "book" value for force/stroke.

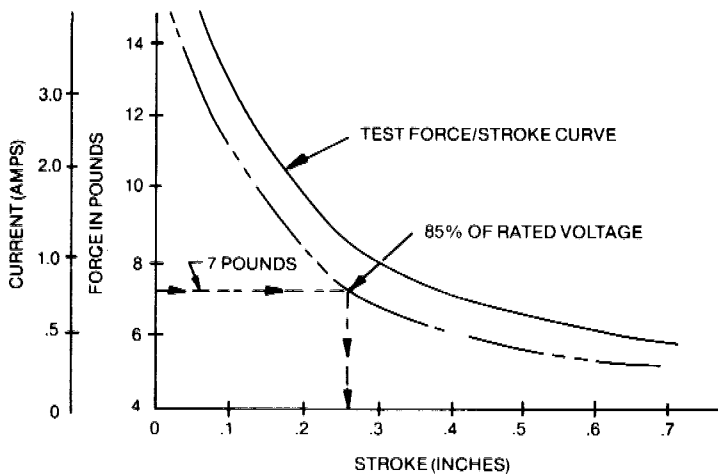


FIGURE II

Example: In Figure II, if a force of 7 pounds is required, it would be better to achieve the required force at a stroke of .25 inches as opposed to the ideal test stroke value of .4 inches, thereby, allowing for mechanical losses and fluctuation in line voltage.

Mounting

Special care should be taken in mounting the solenoid. The solenoid plunger should be free to move in and out of the coil in a straight line with the load. Side loads cause drag and wear. If the solenoid plunger is in any way restricted in its force path or does not seat properly onto the shading coils the solenoid will become noisy and "buzz".

The solenoid should be mounted in the vertical position as shown in Figure III if at all possible. Mounting the solenoid on its side causes wear of the coil liner and the friction developed should be treated as a mechanical loss in the system.

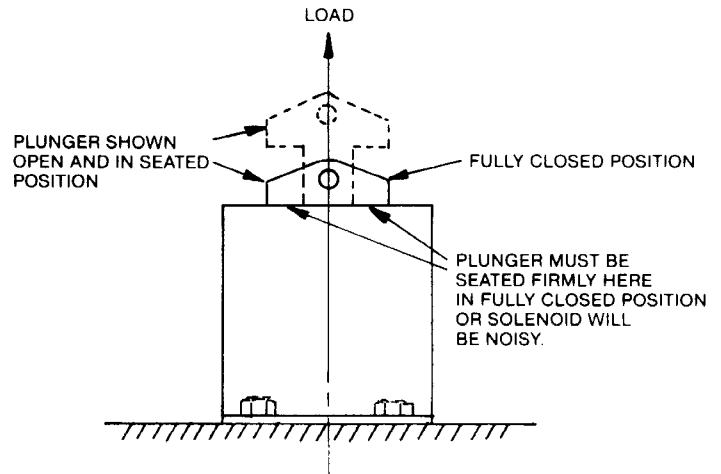


FIGURE III

Mount the solenoid rigidly so the load does not move the solenoid, or if vibration is present, the solenoid remains in the originally installed position.

If the solenoid is mounted such that the solenoid plunger is blocked in the open position, higher in-rush currents may result in burning out the coil.

Applying Solenoids

Therefore, when applying solenoids, consideration should be given to the following items:

- Mount solenoid in a vertical plane which will reduce wear between plunger and coil liner.
- Solenoid life varies depending on application and environmental conditions. Service life can be improved through lubrication and periodic inspection. Continuing periodic inspections should be made to maintain trouble free operation.
- Refer to solenoid label for electrical ratings and the appropriate solenoid bulletin for acceptable environmental conditions in which the solenoid has been designed to function properly. Check with the factory if there is any doubt regarding the application and/or service required. Use factory service components only. Do not mix different components or unidentifiable parts.
- Check to assure ambient temperature plus solenoid temperature rise is well within the maximum insulation rating of solenoid.
- SOLENOIDS SHOULD BE mounted rigidly and in readily accessible locations, with suitable clearances to permit easy service and replacement when necessary.
- SOLENOIDS SHOULD BE placed in locations where foreign material do not accumulate under normal operating conditions to avoid interference with the operation.

-
- Unless specifically designed for such service **SOLENOIDS SHOULD NOT BE** submerged in or splashed with oils, coolants or other liquids.
 - **SOLENOIDS MUST NOT BE** used in locations where temperature or atmospheric conditions are beyond those for which they have been specifically designed.
 - Check line voltage. Solenoids should not be subjected to voltages and currents other than those printed or stamped on coil or solenoid. Use a coil designed for a specific power supply.
 - Solenoids should not be used in applications where the coil will be subjected to voltage spikes.
 - Use solenoids rated for the intended application. Solenoids should not be cycled at a rate which will prevent cooling of the coil. A continuous current in-rush may occur which can burn out the coil.
 - Mounting for solenoids should be designed to avoid blocking solenoid plunger in open positions resulting in a high in-rush current which may burn out coil. Use the shortest possible stroke to reduce impact force and wear. Mount solenoid on a heat sink if possible.
 - Do not use solenoids in an overloaded or underloaded condition and do not apply side loads to the plunger. The load force line should be in a straight line with the plunger.

The user should refer to NFPA 70B, **RECOMMENDED PRACTICE FOR ELECTRICAL EQUIPMENT MAINTENANCE**, published by the National Fire Protection Association, for additional information.



Pull and Push Type Solenoids

The EB200 series industrial solenoids are available in standard base and side mountings and have stainless steel saddle type retainers. They are available in stacking widths of 1/2, 3/4, 1 and 1-1/4 inches. Available with side or bottom mountings and in 50 Hz and DC models. Standard versions available for 115, 230, 460V, 60 Hz.

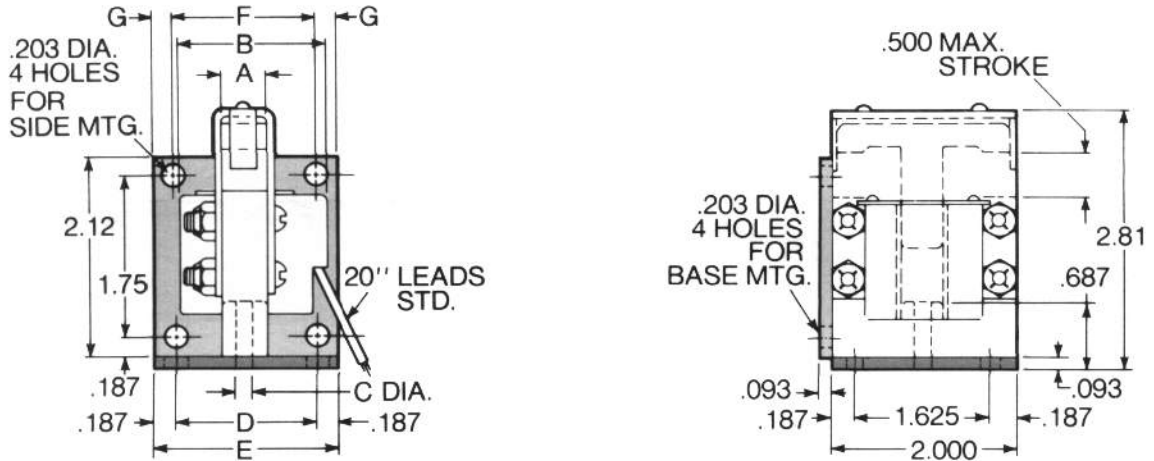
Features include:

- 1/2 inch stroke
- 115, 230, and 460 V, 60 Hz models
- 2 to 10 pound pull or push force
- Standard side and base mounting
- 1-1/2" long stainless steel round loose push pin available at additional charge
- Captive pin is also available at additional cost. (Pin has head or shoulder which serves to hold it in place in the solenoid.)

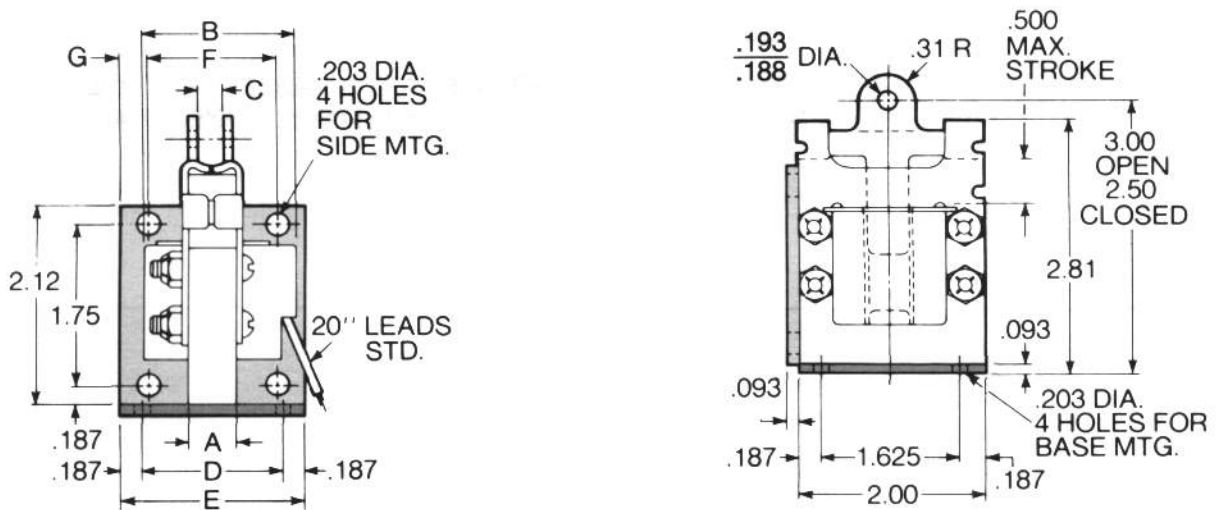
Stacking Size	Part Number	Type	Mounting	V & C	(Inches) Stroke	(Lbs.) Force	Description or Special Features
.50	EB200-00067	Pull	Standard Base	110/120/60	.50	2	
	EB200-00219	Pull	Standard Base	110/120/60	.50	1.5	Same as EB200-00067 except special coil
	EB200-00141	Pull	Standard Side	110/120/60	.50	2	
	EB200-00140	Pull	Standard Side	110/DC	.50	.55	Same as EB200-00141 except D.C. coil and force
	EB200-00264	Pull	Standard Side	110/120/60	.50	2	Same as EB200-00141 except special ret. stops cut off
	EB200-00653	Pull	Non-Standard Side	115/50	.62	1.5	Special core, special plunger, special retainer, special coil, spring return
	EB200-00675	Pull	Non-Standard Side	110/120/60	.62	2.0	Same as EB200-00653 except force, special coil
.75	EB200-09543	Push	Non-Standard	110/120/60	.125	5.25	Special core, special plunger, special coil, special pin
	EB200-09857	Push	Standard Base	110/120/60	.50	2.0	
	EB200-10034	Pull	Standard Base	110/120/60	.50	6.	
	EB200-10093	Pull	Standard Base	220/240/60	.50	6.	Same as EB200-10034 except voltage
	EB200-10215	Pull	Standard Side	110/120/60	.50	6.	
	EB200-10700	Pull	Standard Side	115/50/60	.50	6.	Special plunger with .205 link hole
	EB200-10343	Pull	Non-Standard Side	110/120/60	.50	6.	Special core, special coil, coil information on both sides
1.00	EB200-10216	Pull	Standard Side	220/240/60	.50	6.	Same as EB200-10215 except voltage
	EB200-19704	Push	Standard Side	110/120/60	.50	6.	
	EB200-19894	Push	Standard Side	48 VDC	.50	1.75	Special plunger, special saddle stop
	EB200-20067	Pull	Standard Base	110/120/60	.50	7.5	
1.25	EB200-20114	Pull	Standard Side	110/120/60	.50	7.5	
	EB200-20464	Pull	Non-Standard Side	110/120/60	.50	7.5	Special mounting, special plunger, special retainer
	EB200-29865	Push	Standard Base	110/120/60	.50	7.5	
1.25	EB200-30025	Pull	Standard Base	220/240/60	.50	10.	Same as EB200-30046 except voltage
	EB200-30046	Pull	Standard Base	110/120/60	.50	10.	
	EB200-30123	Pull	Standard Base	440/480/60	.50	10.	Same as EB200-30046 except voltage
	EB200-30195	Pull	Standard Side	110/120/60	.50	10.	
	EB200-30843	Pull	Standard Side	110/50/60	.50	10.	Same as EB200-30195 except voltage 110/50/60
	EB200-39896	Push	Standard Base	110/120/60	.50	10.	
	EB200-39116	Push	Non-Standard Base	115/50/60	.375	7.0	
	EB200-39117	Push	Non-Standard Base	115/50/60	.50	7.0	Special mounting, special coil, 36" leads
	EB200-39143	Push	Non-Standard Base	115/60	.50	10.	Special mounting, special coil
	EB200-39115*	Push	Standard Base	110/50/60	.50	10.	Special spring return
	EB200-39904*	Push	Standard Base	220/50/60	.50	10.	Same as EB200-39115 except voltage
	EB200-39193	Push	Non-Standard Side	440/60	.50	10.	Special coil, special lead wire
	EB200-39363	Push	Non-Standard Side	110/60	.50	15.0	Same as EB200-39383 except coil is reversed
	EB200-39383	Push	Non-Standard Side	110/60	.50	15.0	Captive pin 13/16" in closed position, special coil
	EB200-39386	Push	Non-Standard Side	125/60	.50	15.0	Same as EB200-39383 except voltage
EB200-39366	Push	Non-Standard Side	125/60	.50	15.0	Same as EB200-39363 except voltage	

EB200 Series

EB200 Push Type, Base and Side Mount



EB200 Pull Type, Base and Side Mount



Mounting Information and Dimensions

Push Type, Base and Side Mount

Code: ■ Base Base Mounting

Stacking Size A	B	C	D	E	F	G
.50	1.56	.172	1.250	1.62	—	—
.75	Not available as standard unit. See special solenoid catalog.					
1.00	2.12	.205	1.750	2.12	—	—
1.25	2.38	.199	2.125	2.50	—	—

Code: ■ Side Side Mounting

.50	1.56	.172	—	—	1.500	.250
.75	1.88	.172	—	—	1.500	.250
1.00	Not available as standard unit. See special solenoid catalog.					
1.25	Not available as standard unit. See special solenoid catalog.					

Pull Type, Base and Side Mount

Code: ■ Base Base Mounting

Stacking Size A	B	C	D	E	F	G
.50	1.56	.25	1.250	1.62	—	—
.75	1.88	.25	1.500	1.88	—	—
1.00	2.12	.38	1.750	2.12	—	—
1.25	2.38	.50	2.125	2.50	—	—

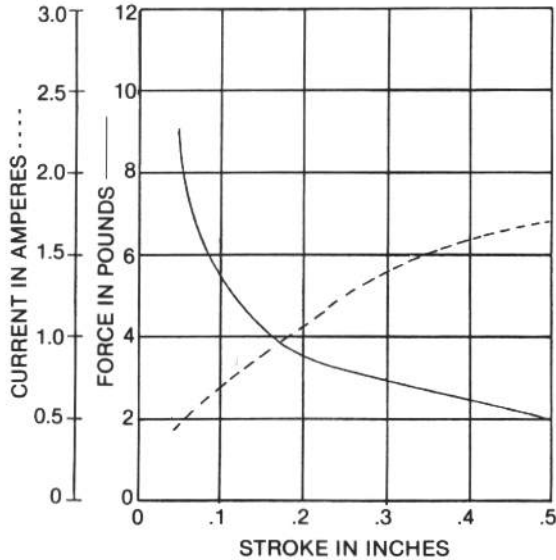
Code: ■ Side Side Mounting

.50	1.56	.25	—	—	1.500	.250
.75	1.88	.25	—	—	1.500	.250
1.00	2.12	.38	—	—	2.125	.187
1.25	2.38	.50	—	—	2.125	.187

NAMCO

Typical Force and Current Curves

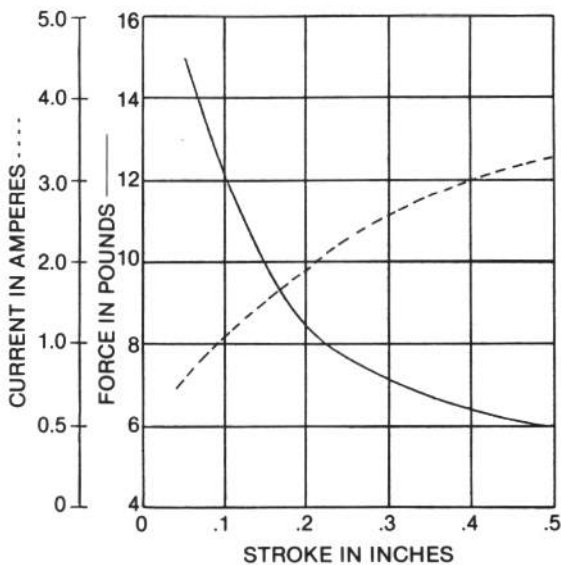
.50 Stacking Size Curves Shown for 115 volt, 60 Hz



STROKE (inches)	PULL TYPE		PUSH TYPE	
	FORCE lbs.	CURRENT amps.	FORCE lbs.	CURRENT amps.
.1	5.5	.7	5.5	.7
.2	3.5	1.1	3.5	1.1
.3	3.0	1.4	3.0	1.4
.4	2.5	1.6	2.5	1.6
.5	2.0	1.7	2.0	1.7

REFERENCE PART NUMBERS FOR .50 STACKING SIZE
EB200-09857, EB200-00067, EB200-00141

.75 Stacking Size Curves Shown for 115 volt, 60 Hz



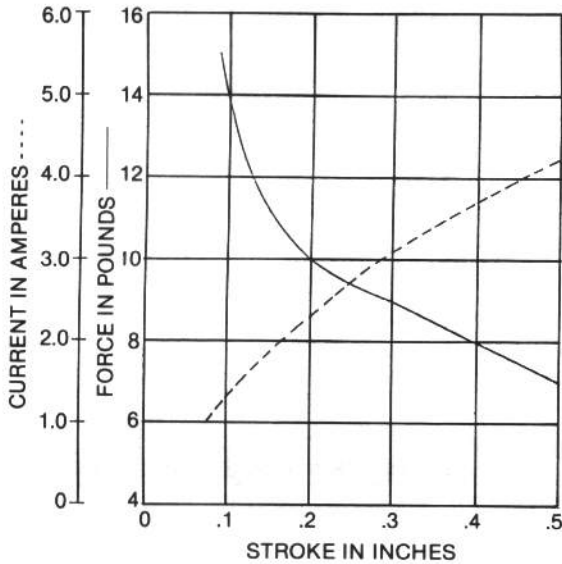
STROKE (inches)	PULL TYPE		PUSH TYPE	
	FORCE lbs.	CURRENT amps.	FORCE lbs.	CURRENT amps.
.1	12.1	1.1	12.1	1.1
.2	8.5	1.9	8.5	1.9
.3	7.0	2.6	7.0	2.6
.4	6.5	3.0	6.5	3.0
.5	6.0	3.3	6.0	3.3

REFERENCE PART NUMBERS FOR .75 STACKING SIZE
EB200-19704, EB200-10034

EB200 Series

Typical Force and Current Curves

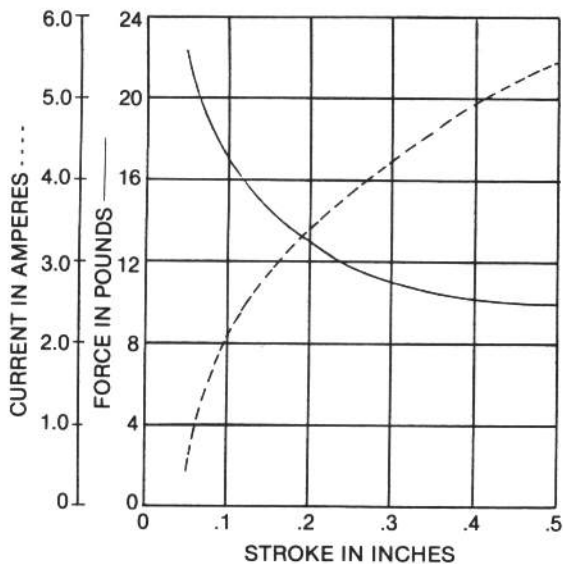
1.00 Stacking Size Curves Shown for 115 volt, 60 Hz



STROKE (inches)	PULL TYPE		PUSH TYPE	
	FORCE lbs.	CURRENT amps.	FORCE lbs.	CURRENT amps.
.1	14.0	1.3	14.0	1.3
.2	10.0	2.3	10.0	2.3
.3	9.0	3.1	9.0	3.1
.4	8.0	3.7	8.0	3.7
.5	7.5	4.2	7.5	4.2

REFERENCE PART NUMBERS FOR 1.00 STACKING SIZE
EB200-29865, EB200-20067, EB200-20114

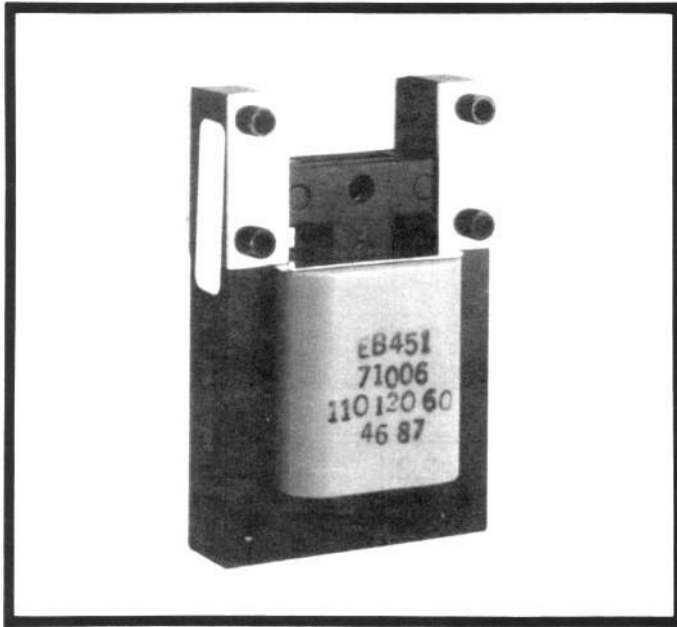
1.25 Stacking Size Curves Shown for 115 volt, 60 Hz



STROKE (inches)	PULL TYPE		PUSH TYPE	
	FORCE lbs.	CURRENT amps.	FORCE lbs.	CURRENT amps.
.1	17.0	2.1	17.0	2.1
.2	13.0	3.4	13.0	3.4
.3	11.2	4.1	11.2	4.1
.4	10.4	4.9	10.4	4.9
.5	10.0	5.4	10.0	5.4

REFERENCE PART NUMBERS FOR 1.25 STACKING SIZE
EB200-39896, EB200-30046, EB200-30195

Pull and Push Type Solenoids



Series **EB450** solenoids are available with pull and push force of 7 to 11 pounds and a stroke up to 1 inch. The EB450 series is rated for continuous duty. Available in stacking widths of 3/4 and 1 inch. They are designed with stainless steel saddle stops. All models have through holes in stack for mounting.

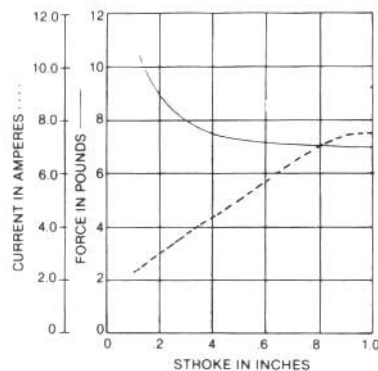
Features include:

- 1 inch stroke
- 115, 460 V, 60 Hz standard
- 7 to 11 pound pull or push force
- - 10°C to 30°C ambient environment
- Rated for continuous duty

Stacking Size	Part Number	Type	Mounting	V & C	(Inches) Stroke	(Lbs.) Force	Description or Special Features
.75	EB450-10006	Pull	Standard Thru	110/120/60	1.0	7.0	Special plunger, Special coil 5 foot leads, special core
	EB450-10130	Pull	Non-Standard Thru	110/120/60	1.0	7.0	
1.00	EB450-20046	Pull	Standard Thru	110/120/60	1.0	11.7	Same as EB200-20254 except voltage
	EB450-20254	Pull	Standard Side	110/120/60	1.0	11.7	
	EB450-20284	Pull	Standard Side	440/480/60	1.0	11.7	
	EB450-29874	Push	Standard Thru	110/120/60	1.0	11.7	Same as EB450-29874 except special coil 90" leads
	EB450-29610	Push	Standard Thru	110/120/60	1.0	11.7	

Typical Force and Current Curves

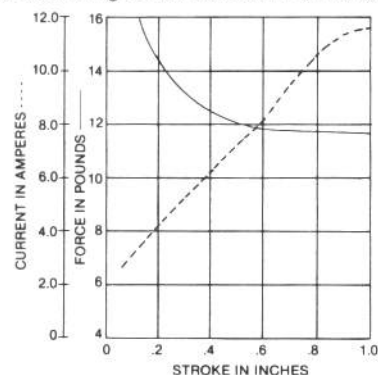
.75 Stacking Size Curves Shown for 115 volt, 60 Hz



STROKE (inches)	PULL TYPE	
	FORCE lbs.	CURRENT amps.
.2	9.0	2.8
.4	7.5	4.2
.6	7.2	5.5
.8	7.1	6.5
1.0	7.0	7.4

REFERENCE PART NUMBERS FOR .75 STACKING SIZE
EB450-10006

1.00 Stacking Size Curves Shown for 115 volt, 60 Hz

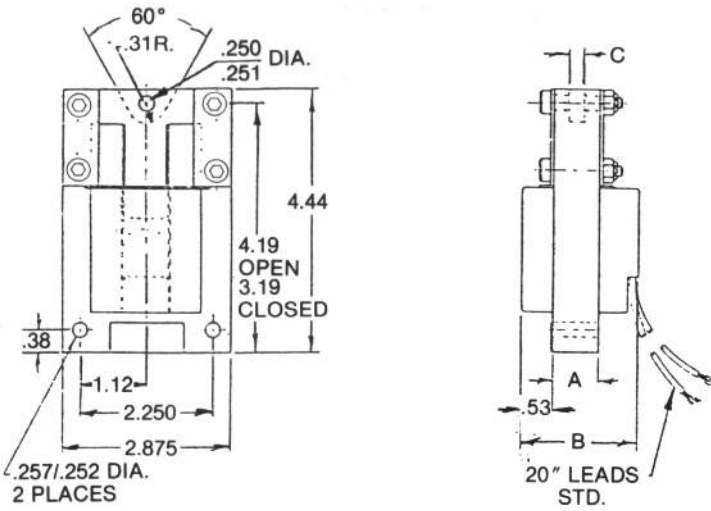


STROKE (inches)	PULL TYPE		PUSH TYPE	
	FORCE lbs.	CURRENT amps.	FORCE lbs.	CURRENT amps.
.2	14.5	4.1	14.5	4.1
.4	12.5	6.2	12.5	6.2
.6	11.9	8.0	11.9	8.0
.8	11.8	10.9	11.8	10.9
1.0	11.7	11.8	11.7	11.8

REFERENCE PART NUMBERS FOR 1.00 STACKING SIZE
EB450-20046, EB450-29874

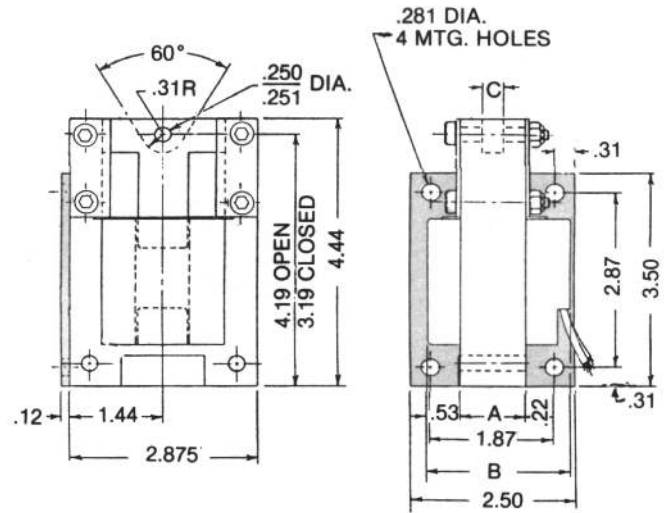
EB450 Series

EB450 Pull Type



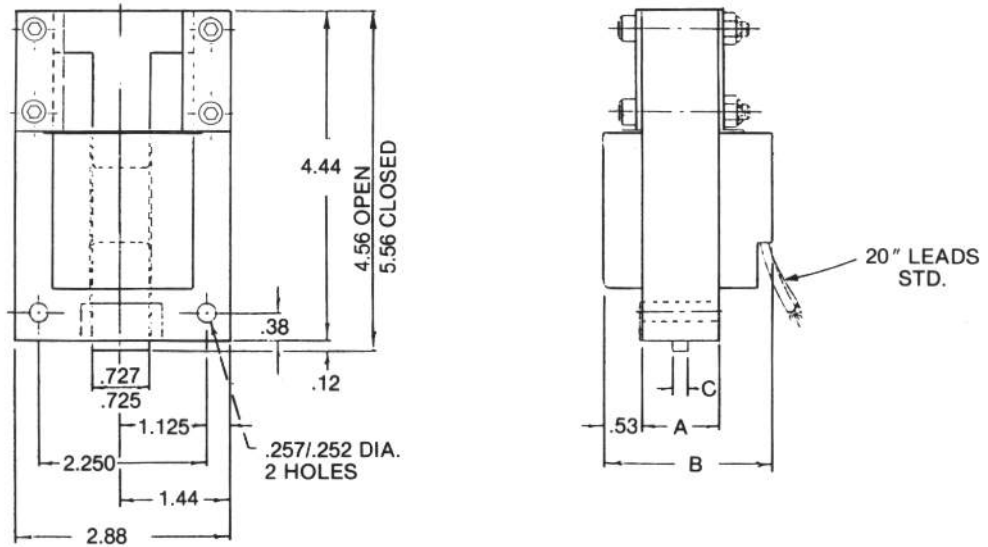
Through Mounting

New Mount



Side Mounting

EB450 Push Type

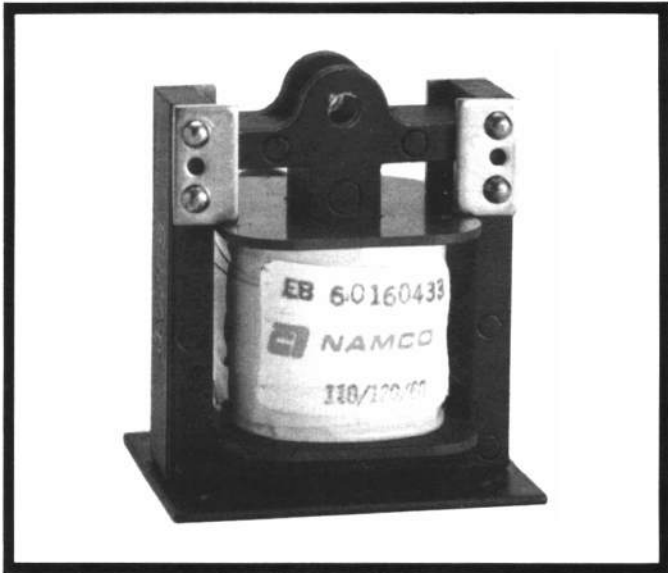


Through Mounting

Variable Dimensions in Inches

EB450 PULL TYPE		
Stacking Size A	B	C
.75	2.00	.250
1.00	2.25	.312

EB450 PUSH TYPE		
Stacking Size A	B	C
.75	Not available as standard unit. See special solenoid catalog.	
1.00	2.25	.312



Pull and Push Type Solenoids

Series **EB600** solenoids are available in pull or push versions with stacking widths of 1/2, 3/4 and 1. Designed with stainless steel saddle stops and have .5 inch stroke maximum. All models have through holes in stack for mounting.

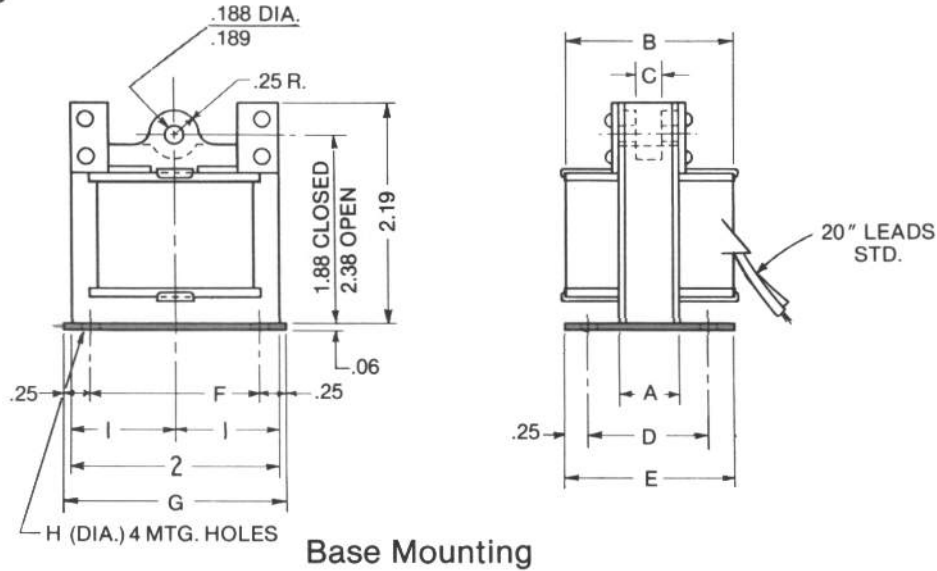
Features include:

- .5 inch stroke
- 115, 230, 60 Hz
- 3 to 8 pound pull or push force
- — 10°C to 30°C ambient environment
- Rated for continuous service

Stacking Size	Part Number	Type	Mounting	V & C	(Inches) Stroke	(Lbs.) Force	Description or Special Features
.562	EB600-00005	Pull	Standard Base	110/120/60	.50	2.8	Same as EB600-00005 except voltage
	EB600-00083	Pull	Standard Base	220/240/60	.50	2.8	
.75	EB600-10120	Pull	Standard Base	110/120/60	.50	5.0	
1.00	EB600-20015	Pull	Standard Base	110/120/60	.50	8.0	Special coil, standard winding, 4 ft. long special lead wire
	EB600-20333	Pull	Non-Standard Thru	110/60	.50	8.0	
	EB600-29885	Push	Standard Base	110/120/60	.50	8.0	Special coil Special coil, 32# at 1/4" stroke Flathead Plunger
	EB600-29673	Push	Standard Side	110/60	.50	4.5	
	EB600-29693	Push	Standard Side	42 VDC	.50	8.0	

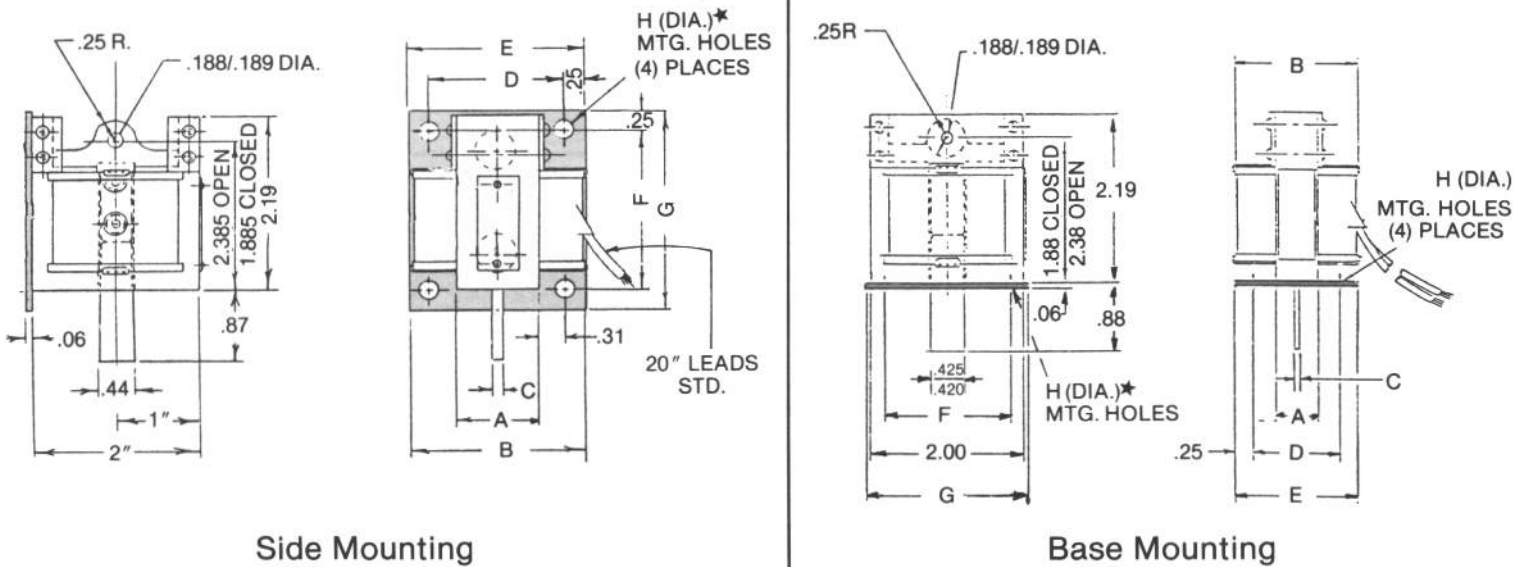
EB600 Series

EB600 Pull Type



Base Mounting

EB600 Push Type



Side Mounting

Base Mounting

EB600 Pull Type, VARIABLE DIMENSIONS IN INCHES

Stacking Size	A	B	C	D	E	F	G	H★
.562	.562	1.62	.25	1.12	1.62	1.62	2.12	.17
.75	.75	1.81	.31	1.38	1.88	2.00	2.50	.20
1.00	1.00	2.06	.38	1.62	2.12	2.00	2.50	.25

★ Diameter of 4 Holes for Mounting.

EB600 Push Type, VARIABLE DIMENSIONS IN INCHES

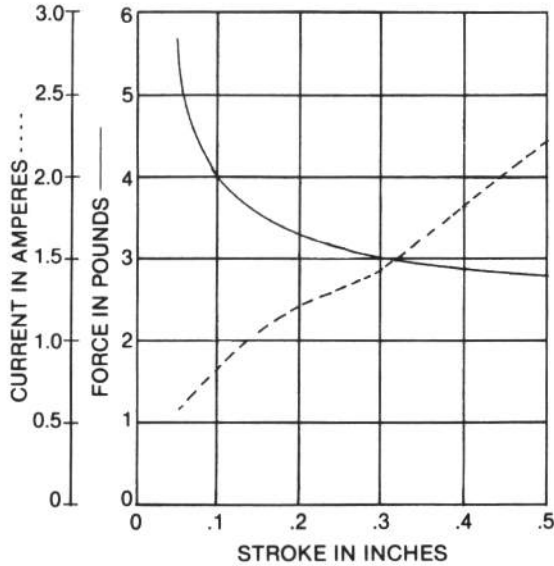
Stacking Size	A	B	C	D	E	F	G	H★
.562	Not available as standard unit. See special solenoid catalog.							
1.00	1.00	2.06	.12	1.62	2.12	2.00	2.50	.25

★ Diameter of 4 Holes for Mounting.

NAMCO

Typical Force and Current Curves

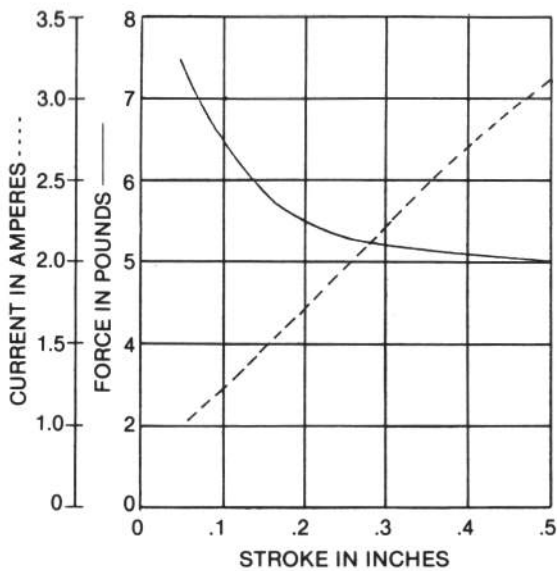
.562 Stacking Size Curves Shown for 115 volt, 60 Hz



STROKE (inches)	PULL TYPE	
	FORCE lbs.	CURRENT amps.
.1	4.0	.8
.2	3.3	1.2
.3	3.0	1.4
.4	2.9	1.8
.5	2.8	2.2

REFERENCE PART NUMBERS FOR .562 STACKING SIZE
EB600-00005

.75 Stacking Size Curves Shown for 115 volt, 60 Hz



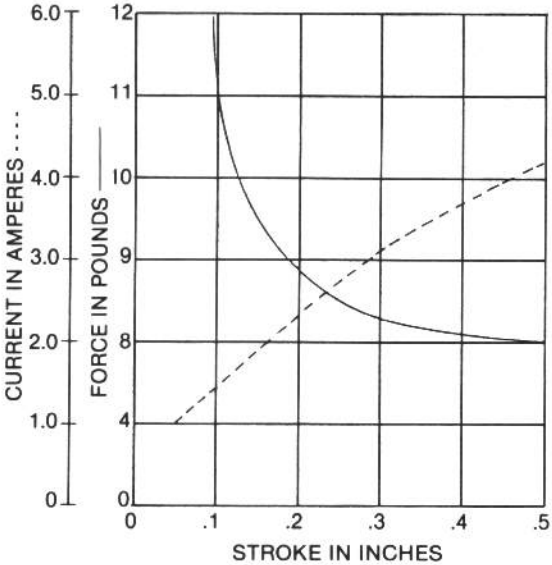
STROKE (inches)	PULL TYPE	
	FORCE lbs.	CURRENT amps.
.1	6.5	1.2
.2	5.4	1.7
.3	5.2	2.2
.4	5.1	2.7
.5	5.0	3.1

REFERENCE PART NUMBERS FOR .75 STACKING SIZE
EB600-10120

EB600 Series

Typical Force and Current Curves

1.00 Stacking Size Curves Shown for 115 volt, 60 Hz



STROKE (Inches)	PUSH TYPE		PULL TYPE	
	FORCE lbs.	CURRENT amps.	FORCE lbs.	CURRENT amps.
.1	11.2	1.4	11.2	1.4
.2	8.9	2.3	8.9	2.3
.3	8.2	3.1	8.2	3.1
.4	8.1	3.7	8.1	3.7
.5	8.0	4.2	8.0	4.2

REFERENCE PART NUMBERS FOR 1.00 STACKING SIZE
 EB600-20015, EB600-29885, EB600-20333



Pull Type Solenoids

The **EB710** series industrial solenoids are designed for use in Class B insulation systems with ambient temperatures ranging from -10°C to 30°C with occasional excursions to 40°C. They are available in stacking widths of 3/4, 1, 1-1/4 and 2 inches and feature universal mounting brackets. They can be equipped with special coils to enable them to function under a wide range of severe industrial environments.

Features include:

- 10 to 30 pound push or pull force
- Stainless steel saddle-type retainers
- 115, 230, and 460, 60 Hz model
- 1 inch stroke

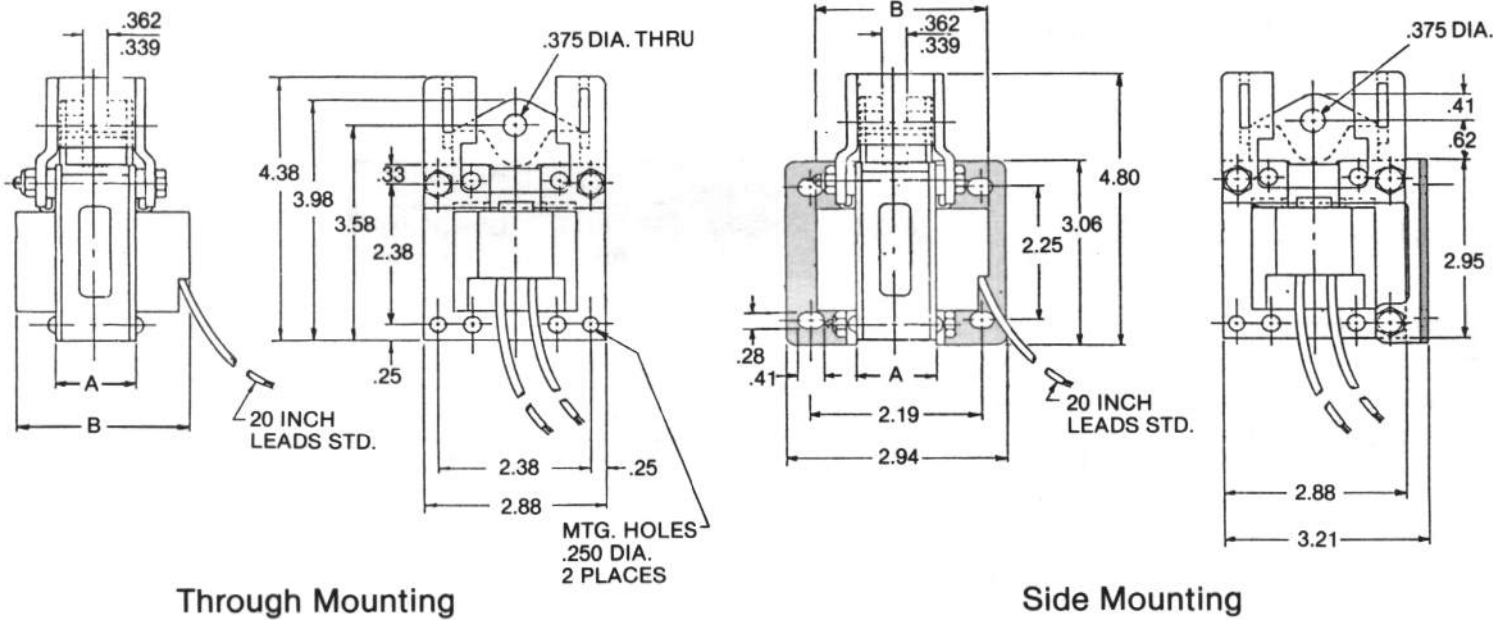
The EB710 series is intended to replace the EB700 series.

Consult factory for special solenoids.

Stacking Size	Part Number	Type	Mounting	V & C	(Inches) Stroke	(Lbs.) Force	Description or Special Features
.75	EB710-11200	Pull	Standard Side	115/60	1.0	12.5	With round head plunger and guides
	EB710-11000	Pull	Standard Thru	115/60	1.0	12.5	With round head plunger and guides
1.00	EB710-30000	Pull	Standard Thru	115/60	1.0	18.0	With round head plunger
1.25	EB710-50001	Pull	Standard Thru	230/60	1.0	19.0	With round head plunger
	EB710-50002	Pull	Standard Thru	460/60	1.0	19.0	Same as EB710-50001 except voltage
2.0	EB710-90001	Pull	Standard Thru	230/60	1.0	28.0	With round head plunger
	EB710-90002	Pull	Standard Thru	460/60	1.0	28.0	With round head plunger

EB710 Series

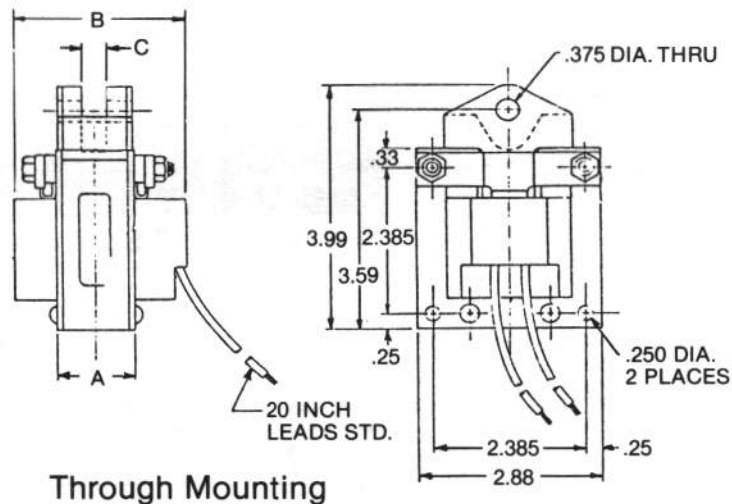
EB710 Pull Type, Round Head Plunger, with Guide



Dimensions

Stacking Size A	B	C
.75	2.19	.362/.339

EB710 Pull Type, Round Head Plunger

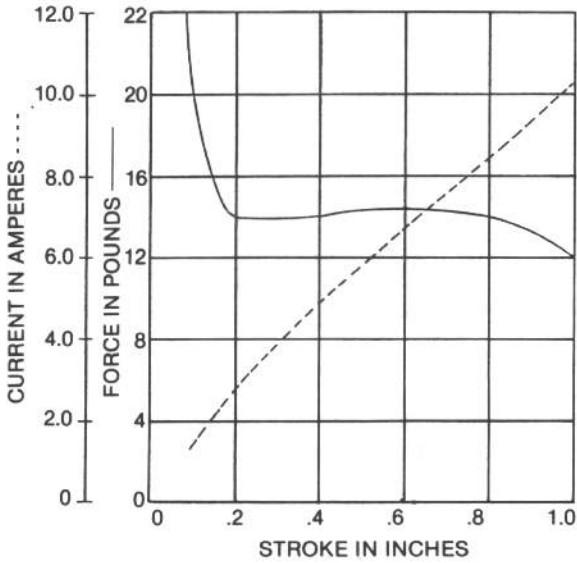


Dimensions

Stacking Size A	B	C
1.00	2.44	.362/.339
1.25	2.69	.410/.387
2.00	3.44	.650/.637

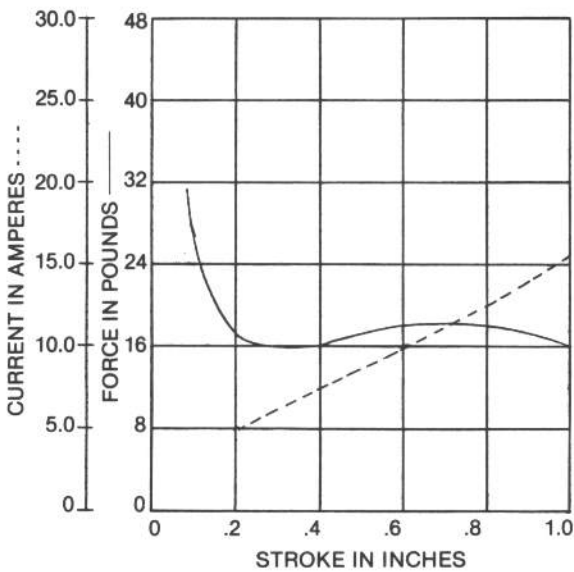
Typical Force and Current Curves

.75 Stacking Size Curves Shown for 115V, 60 Hz



STROKE (inches)	PULL TYPE	
	FORCE lbs.	CURRENT amps.
.2	14.0	2.8
.4	14.0	4.9
.6	14.5	6.7
.8	14.0	8.4
1.0	12.0	10.3

1.00 Stacking Size Curves Shown for 115V, 60 Hz



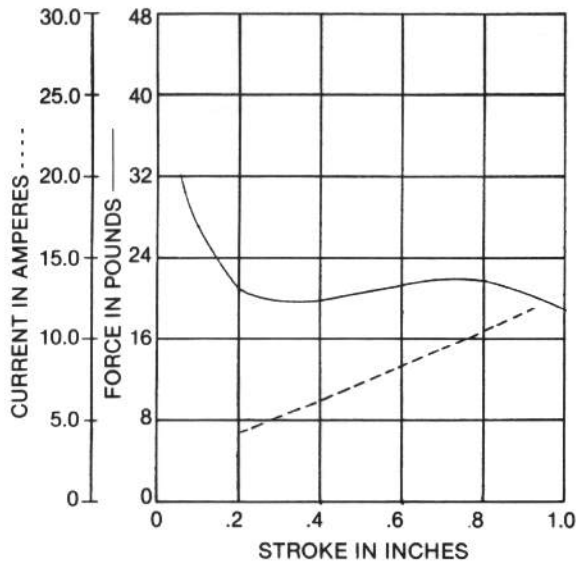
STROKE (inches)	PULL TYPE	
	FORCE lbs.	CURRENT amps.
.2	17.5	5.0
.4	16.0	7.3
.6	18.0	10.0
.8	18.0	12.6
1.0	16.0	15.5

REFERENCE PART NUMBERS FOR 1.00 STACKING SIZE
EB710-30000

EB710 Series

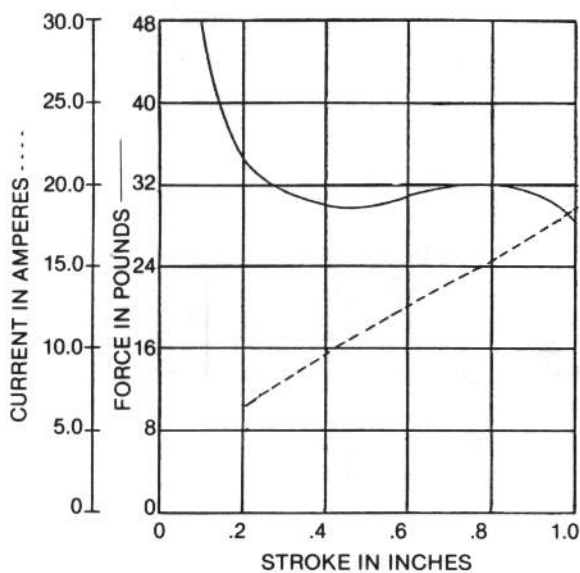
Typical Force and Current Curves

1.25 Stacking Size Curves Shown for 115V, 60 Hz



STROKE (inches)	PULL TYPE	
	FORCE lbs.	CURRENT amps.
.2	21.0	5.3
.4	20.0	8.4
.6	21.5	11.4
.8	22.0	14.0
1.0	19.0	17.3

2.00 Stacking Size Curves Shown for 115V, 60 Hz



STROKE (inches)	PULL TYPE	
	FORCE lbs.	CURRENT amps.
.2	34.5	8.7
.4	30.0	13.0
.6	31.0	17.0
.8	32.0	20.6
1.0	28.0	25.2

SPECIAL SOLENOIDS

Series
EB200
EB450
EB600
EB710

Listed in Alphanumeric order are Special Solenoids first, determine from the EB Standard Solenoid Catalog if a Standard Solenoid can be substituted for a Special Solenoid. If not, Consult Factory. Special Solenoids are priced higher than Standard Solenoids.

Consult Factory before ordering.

NAMCO

EB200 Series SOLENOIDS

PART NO.	TYPE	MOUNTING	V & C	(INCHES) STROKE	(LBS.) FORCE	DESCRIPTION OR SPECIAL FEATURES
EB200-00005	Pull	Standard Base	115/50/60	.50	3.0	Same as EB200-00067 except voltage & cycle (Dual)
EB200-00157	Pull	Standard Side	110/DC	.50	1.0	Same as EB200-00140 except force
EB200-00238	Pull	Special Side	24/60	.62	1.5	Same as EB200-00653 except V & C
EB200-00266	Pull	Standard Side	220/240/60	.50	3.0	Same as EB200-00264 except voltage
EB200-00683	Pull	Standard Base	277/60	.50	3.0	Same as EB200-00067 except voltage
EB200-00193	Pull	Standard Side	220/240/60	.50	3.0	Same as EB200-00141 except voltage
EB200-00006	Pull	Standard Base	230/60	.50	3.0	Same as EB200-00067 except voltage
EB200-00033	Pull	Standard Base	110/50	.50	3.0	Same as EB200-00067 except V & C
EB200-00040	Pull	Standard Base	220/240/60	.50	3.0	Same as EB200-00067 except voltage
EB200-00041	Pull	Standard Base	440/480/60	.50	3.0	Same as EB200-00067 except voltage
EB200-00093	Pull	Standard Base	220/50/60	.50	3.0	Same as EB200-00067 except voltage dual cycle
EB200-00163	Pull	Standard Side	220/50	.50	3.0	Same as EB200-00141 except V & C
EB200-00158	Pull	Standard Side	115/50/60	.50	3.0	Same as EB200-00141 except voltage dual cycle
EB200-00523	Pull	Standard Side	110/50	.50	3.0	Same as EB200-00141 except V & C
EB200-00344	Pull	Standard Base	110/120/60	.25	2.0	Special coil with saddle stop special slot in saddle special plunger
EB200-00414	Pull	Standard Base	110/120/60	.75	2.0	Special retainer for 3/4" stroke
EB200-00606	Pull	—	110/120/60	.50	3.0	Same as EB200-00067 except no plate on core
EB200-00673	Pull	Special Side	110/120/60	.62	1.5	Same as EB200-00238 except voltage
EB200-00897	Pull	Special Side	24/50	.62	1.5	Same as EB200-00238 except cycle
EB200-09403	Push	Standard Side	24 VDC	.50	1.0	Same as EB200-09784 except D.C. coil and force
EB200-09853	Push	Standard Base	110/60	.50	3.0	Same as EB200-09857 except voltage
EB200-09673	Push	Special Base	110/60	.50	3.0	Special mounting plate
EB200-09474	Push	Special Base	110/120/60	.187	3.5	Same as EB200-09673 except attached pin and stroke and force
EB200-09784	Push	Standard Side	110/120/60	.50	3.0	
EB200-09773	Push	Standard Side	220/60	.50	3.0	Same as EB200-09784 except voltage
EB200-09453	Push	Standard Side	220/50	.50	3.0	Same as EB200-09784 except voltage and cycle
EB200-09763	Push	Standard Side	230 VDC	.50	1.0	D.C. with resistor
EB200-09513	Push	Special	230/60	.125	5.25	Same as EB200-09543 except voltage
EB200-10073	Pull	Standard Base	220/50	.50	5.5	Same as EB200-10034 except V & C
EB200-10454	Pull	Special Side	110/120/60	.125	6.5	End of retainer cut off, special coil, special plunger
EB200-10033	Pull	Standard Base	110/50	.50	5.5	Same as EB200-10034 except V & C
EB200-10037	Pull	Standard Base	440/480/60	.50	5.5	Same as EB200-10034 except voltage
EB200-10038	Pull	Standard Base	440/50	.50	5.5	Same as EB200-10034 except V & C
EB200-10043	Pull	Standard Base	110/60	.50	5.5	Same as EB200-10034 except voltage
EB200-10053	Pull	Standard Base	120/60	.50	5.5	Same as EB200-10034 except voltage
EB200-10063	Pull	Standard Base	208/60	.50	5.5	Same as EB200-10034 except voltage
EB200-10125	Pull	Standard Side	440/480/60	.50	5.5	Same as EB200-10215 except voltage
EB200-10193	Pull	Standard Side	110/60	.50	5.5	Same as EB200-10215 except voltage
EB200-10203	Pull	Standard Side	115/125/60	.50	5.5	Same as EB200-10215 except voltage
EB200-10533	Pull	Standard Side	115/50/60	.50	5.5	Same as EB200-10215 except voltage (dual cycle)
EB200-10234	Pull	Standard Side	230 VDC	.50	5.5	Same as EB200-10215 except D.C.
EB200-10293	Pull	Special Side	12/60	.50	5.5	Same as EB200-10343 except voltage
EB200-10353	Pull	Special Side	220/50	.50	5.5	Same as EB200-10343 except V & C
EB200-10385	Pull	Special Side	230/50	.50	5.5	Same as EB200-10343 except V & C
EB200-10386	Pull	Special Side	440/480/60	.50	5.5	Same as EB200-10343 except voltage
EB200-10387	Pull	Special Side	220/240/60	.50	5.5	Same as EB200-10343 except voltage
EB200-10393	Pull	Standard Base	110/60	.50	5.5	Special coil standard winding 36" leads
EB200-10395	Pull	Standard Base	450/60	.50	5.5	Same as EB200-10393 except voltage
EB200-10396	Pull	Standard Base	120/60	.50	5.5	Same as EB200-10393 except voltage
EB200-10403	Pull	Standard Base	125 VDC	.50	5.5	Same as EB200-10393 except D.C.
EB200-10413	Pull	Standard Base	110/60	.75	5.0	Special retainer, special coil, standard winding 48" leads
EB200-10453	Pull	Special Side	110/60	.125	6.5	Same as EB200-10454 except voltage
EB200-19505	Push	Standard Base	110/120/60	.50	5.5	
EB200-19443	Push	Standard Base	110/50	.50	5.5	Same as EB200-19505 except V & C
EB200-19754	Push	Standard Base	110/120/60	.25	6.5	Special saddle stop
EB200-19814	Push	Standard Base	110/120/60	.312	6.25	Special saddle stop
EB200-20100	Pull	Standard Base	230 VDC	.50	6.5	Same as EB200-20067 except D.C.
EB200-20164	Pull	Special Base	110/120/60	.50	9.0	Special core, special plunger, special coil
EB200-20103	Pull	Standard Side	110/50	.50	6.5	Same as EB200-20114 except V & C
EB200-20155		Special replacement solenoid for 5K100 (EB280)		.09	2.0	Solenoid for Bullard Co. 110/120/60
EB200-20003	Pull	Standard Base	110/50	.50	6.5	Same as EB200-20067 except V & C
EB200-20004	Pull	Standard Base	125 VDC	.50	3.2	Same as EB200-20067 except D.C. and force
EB200-20064	Pull	Standard Base	230/50	.50	6.5	Same as EB200-20067 except V & C
EB200-20065	Pull	Standard Base	220/240/60	.50	6.5	Same as EB200-20067 except voltage
EB200-20259	Pull	Standard Base	110/60	.50	7.5	Same as EB200-20067 except special coil
EB200-20403	Pull	Standard Base	220/50	.50	6.5	Same as EB200-20067 except V & C
EB200-20483	Pull	Standard Base	24/50	.50	6.5	Same as EB200-20067 except V & C
EB200-20157		Special replacement solenoid for 5K100 (EB280)		110/50		

EB200 Series SOLENOIDS

PART NO.	TYPE	MOUNTING	V & C	(INCHES) STROKE	(LBS.) FORCE	DESCRIPTION OR SPECIAL FEATURES
EB200-20123	Pull	Standard Side	120/60	.50	6.5	Same as EB200-20114 except voltage
EB200-20173	Pull	Special Side	110/50	.50	6.5	Same as EB200-20464 except V & C
EB200-20213	Pull	Special Side	220/50	.50	6.5	Same as EB200-20464 except V & C
EB200-20465	Pull	Special Side	220/240/60	.50	6.5	Same as EB200-20464 except voltage
EB200-20466	Pull	Special Side	440/480/60	.50	6.5	Same as EB200-20464 except voltage
EB200-29805	Push	Standard Base	110/120/60	.312	6.75	Same as EB200-29865 except length of stroke
EB200-29735	Push	Standard Side	220/240/60	.50	6.5	Same as EB200-29734 except voltage
EB200-29513	Push	Special Throat	125 VDC	.50	10.0	Special core, special plunger, special retainer, special mounting feet, special coil
EB200-29523	Push	Special Throat	48 VDC	.50	10.0	Same as EB200-29513 except voltage
EB200-29464	Push	Special Base	110/60	.25	8.0	Special saddle stop
EB200-29533	Push	Special Throat	24 VDC	.50	10.0	Same as EB200-29513 except voltage
EB200-29734	Push	Standard Side	110/120/60	.50	6.5	
EB200-29614	Push	Standard Side	110/120/60	.312	7.0	Special core 9/32" push pin hole, special saddle stop
EB200-29863	Push	Standard Base	110/60	.50	6.5	Same as EB200-29865 except voltage
EB200-29593	Push	Special Base	110/60	.187	9.0	Special stroke, special saddle stop
EB200-30833	Pull	Standard Side	220/240/60	.50	9.0	Same as EB200-30195 except voltage
EB200-31117	Pull	Standard Base	115/50/60	.50	9.0	Same as EB200-30046 except special coil
EB200-30033	Pull	Standard Base	110/50	.50	9.0	Same as EB200-30046 except V & C
EB200-30043	Pull	Standard Base	110/60	.50	9.0	Same as EB200-30046 except voltage
EB200-30163	Pull	Standard Base	550/60	.50	9.0	Same as EB200-30046 except voltage
EB200-30783	Pull	Standard Base	220/50	.50	9.0	Same as EB200-30046 except V & C
EB200-30793	Pull	Standard Base	230/50	.50	9.0	Same as EB200-30046 except V & C
EB200-30183	Pull	Standard Side	110/50	.50	9.0	Same as EB200-30195 except V & C
EB200-30233	Pull	Standard Side	220/50	.50	9.0	Same as EB200-30195 except V & C
EB200-30883	Pull	Standard Side	440/480/60	.50	9.0	Same as EB200-30195 except voltage
EB200-30363	Pull	Standard Base	220/60	.75	7.25	Special retainer
EB200-30484	Pull	Standard Base	110/120/60	.50	9.0	1/4" diameter hole in plunger
EB200-30483	Pull	Standard Base	220/60	.50	9.0	Same as EB200-30484 except V & C
EB200-30584	Pull	Standard Base	110/120/60	.50	9.0	Same as EB200-31117 except V & C
EB200-30405	Pull	Standard Side	220/240/60	.50	9.0	Special coil, standard winding 48" leads
EB200-30434	Pull	Standard Side	110/120/60	.75	7.25	Special retainer
EB200-30524	Pull	Standard Side	220/240/60	.75	7.25	Special coil, standard winding 28" leads, special retainer, 1/4" diameter hole in plunger
EB200-39846	Push	Standard Base	220/240/60	.50	9.0	Same as EB200-39896 except voltage
EB200-39883	Push	Standard Base	110/60	.50	9.0	Same as EB200-39896 except voltage
EB200-39124	Push	Special Base	110/120/60	.50	9.0	Special coil, 48" leads, special diameter pin hole in plunger
EB200-39315	Push	Standard Base	110/120/60	.375	9.5	Special saddle stop
EB200-39323	Push	Standard Base	110/50	.375	9.5	Same as EB200-39315 except V & C
EB200-39664	Push	Standard Base	110/120/60	.312	10.5	Special coil winding special saddle stop
EB200-39118	Push	Special Base	115/50/60	.156	17.75	Special coil, 36" leads, special force
EB200-39373	Push	Special Side	110/50	.50	15.0	Same as EB200-39363 except cycle
EB200-39393	Push	Special Side	110/50	.50	15.0	Same as EB200-39383 except cycle
EB200-38713	Push	Standard Base	230 VDC	.50	9.0	Same as EB200-39896 except 230 VDC
EB200-39826	Push	Standard Base	440/480/60	.50	9.0	Same as EB200-39896 except voltage
EB200-39893	Push	Standard Base	110/50	.50	9.0	Same as EB200-39896 except V & C
EB200-39898	Push	Standard Base	135/60	.50	9.0	Special testing
EB200-39023	Push	Standard Base	110/60	.50	9.0	Same as EB200-39896 except class H coil
EB200-39035	Push	Standard Base	110/120/60	.375	9.25	Same as EB200-39896 except special saddle stop, 3/8" stroke
EB200-39203	Push	Standard Base	110/60	.50	15.0	Special coil, 3/8" diameter push pin hole
EB200-39403	Push	Standard Base	110/60	.50	15.0	Special coil, 15.0 at 1/2" stroke
EB200-39675	Push	Special Base	110/120/60	.375	8.0	Special coil, 1/4" diameter push pin hole
EB200-39786	Push	Standard Base	110/120/60	.312	9.0	Special saddle stop for 5/16" stroke
EB200-39343	Push	Standard Base	110/60	.375	11.0	Special coil
EB200-39564	Push	Special Base	110/120/60	.531	9.0	Special saddle stop for .531 stroke
EB200-39293	Push	Special Base	110/60	.531	9.0	Same as EB200-39564 except 110/60 and 3/8" hole in S.S.
EB200-39423	Push	Special Base	220/50	.50	9.0	Same as EB200-39444 except V & C
EB200-39493	Push	Special Base	110/60	.343	12.0	Special mounting
EB200-39553	Push	Special Base	230 VDC	.50	7.0	Special D.C.
EB200-39693	Push	Special Base	220/50	.375	7.0	Same as EB200-39683 except cycle
EB200-39444	Push	Special Base	110/120/60	.50	9.0	Special mounting
EB200-39543	Push	Special Base	250 VDC	.50	7.0	Same as EB200-39553 except voltage
EB200-39683	Push	Special Base	220/60	.375	7.0	Special coil

EB450 Series SOLENOIDS

PART NO.	TYPE	MOUNTING	V & C	(INCHES) STROKE	(LBS.) FORCE	DESCRIPTION OR SPECIAL FEATURES
EB450-00026	Pull	Standard Thru Style 1 Mounting	110/120/60	1.0	4.0	
EB450-00054	Pull	Standard Thru Style 1 Mounting	220/240/60	1.0	4.0	Same as EB450-00026 except voltage
EB450-00064	Pull	Standard Thru Style 1 Mounting	440/480/60	1.0	4.0	Same as EB450-00026 except voltage
EB450-60043	Pull	Standard Thru Style 2 Mounting	110/60	1.0	16.0	
EB450-60073	Pull	Standard Thru Style 2 Mounting	220/240/60	1.0	16.0	Same as EB450-60043 except voltage
EB450-60083	Pull	Standard Thru Style 2 Mounting	440/60	1.0	16.0	Same as EB450-60043 except voltage
EB450-10063	Pull	Standard Thru Style 1 Mounting	220/240/60	1.0	6.5	Same as EB450-10006 except voltage
EB450-10011	Pull	Standard Thru Style 1 Mounting	240/50	1.0	6.5	Same as EB450-10006 except voltage
EB450-10014	Pull	Standard Thru Style 1 Mounting	24 VDC	1.0	6.5	Same as EB450-10006 except voltage (D.C.)
EB450-10175	Pull	Standard Thru Style 2 Mounting	110/120/60	1.0	6.5	
EB450-10433	Pull	Standard Thru Style 1 Mounting	440/60	1.0	5.0	Terminal blocks & special coil (insulated wire)
EB450-10434	Pull	Standard Thru Style 1 Mounting	440/480/60	1.0	5.0	Same as EB450-10433 except voltage
EB450-10234	Pull	Standard base	110/120/60	1.0	6.5	
EB450-10236	Pull	Standard base	220/240/60	1.0	6.5	Same as EB450-10234 except voltage
EB450-10323	Pull	Special Side	110/60	1.0	16.0	Same as EB450-10338 except voltage
EB450-10338	Pull	Special Side	110/120/60	1.0	16.0	Special coil
EB450-10169	Pull	Special Side	115 DC	1.0	16.0	Same as EB450-10338 except voltage, D.C. coil
EB450-10635	Pull	Standard side	440/480/60	1.0	6.5	With riveted retainers
EB450-10003	Pull	Standard Thru Style 1 Mounting	110/50	1.0	6.5	Same as EB450-10006 except voltage and cycle
EB450-10008	Pull	Standard Thru Style 1 Mounting	440/480/60	1.0	6.5	Same as EB450-10006 except voltage
EB450-10009	Pull	Standard Mounting Style 1 Mounting	440/50	1.0	6.5	Same as EB450-10006 except voltage and cycle
EB450-10043	Pull	Standard Mounting Style 1 Mounting	220/50	1.0	6.5	Same as EB450-10006 except voltage and cycle
EB450-10083	Pull	Standard Mounting Style 1 Mounting	380/50	1.0	6.5	Same as EB450-10006 except voltage and cycle
EB450-10543	Pull	Standard Mounting Style 1 Mounting	24/60	1.0	6.5	Same as EB450-10006 except voltage
EB450-10664	Pull	Standard Mounting Style 1 Mounting	12 VDC	1.0	3.2	Same as EB450-10006 except D.C. and force
EB450-10144	Pull	Standard side	110/120/60	1.0	6.5	
EB450-10168	Pull	Special side	125 VDC	1.0	16.0	Same as EB450-10169 except voltage
EB450-10176	Pull	Standard Thru Style 2 Mounting	220/240/60	1.0	6.5	Same as EB450-10175 except voltage
EB450-10237	Pull	Standard base	440/480/60	1.0	6.5	Same as EB450-10234 except voltage
EB450-10343	Pull	Standard side	220/50	1.0	6.5	Same as EB450-10603 except voltage and cycle
EB450-10363	Pull	Standard side	380/60	1.0	6.5	Same as EB450-10603 except voltage
EB450-10393	Pull	Standard side	550/60	1.0	6.5	Same as EB450-10603 except voltage
EB450-10603	Pull	Standard side	220/240/60	1.0	6.5	With riveted retainers
EB450-10514	Pull	Standard Thru Style 1 Mounting	110/120/60	1.0	6.5	With special coil Class H - Standard winding
EB450-19885	Push	Standard Thru Style 1 Mounting	110/120/60	1.0	6.5	
EB450-19887	Push	Standard Thru Style 1 Mounting	220/240/60	1.0	6.5	Same as EB450-19885 except voltage
EB450-19892	Pull/Push	Standard Thru Style 1 Mounting	220/60	1.0	6.5	Special pull/push double solenoid
EB450-19637	Push	Standard Thru Style 1 Mounting	110/60	1.0	5.0	Same as EB450-19885 except special coil 5.0 # at 1/2" stroke
EB450-19754	Push	Special Base	110/120/60	1.0	6.5	Special plunger with hardened steel tip with saddle stop
EB450-19883	Push	Standard Thru Style 1 Mounting	110/50	1.0	6.5	Same as EB450-19885 except voltage and cycle
EB450-19894	Pull/Push	Standard Thru Style 1 Mounting	220/50	1.0	6.5	Same as EB450-19892 except 50/cycle
EB450-19465	Push	Standard base (For round pin)	110/120/60	1.0	6.5	1/8" plunger ext. in open position special pin with saddle stop
EB450-19473	Push	Standard base	110/50	1.0	6.5	Same as EB450-19465 except voltage and cycle
EB450-22000	Pull/Pull	—	440/60	1.0	11.0	Special double solenoid, special Hi-temp coil Class H

EB450 Series SOLENOIDS

PART NO.	TYPE	MOUNTING	V & C	(INCHES) STROKE	(LBS.) FORCE	DESCRIPTION OR SPECIAL FEATURES
EB450-20067	Pull	Standard Thru Style 1 Mounting	220/240/60	1.0	11.0	Same as EB450-20046 except voltage
EB450-20364	Pull	Standard Thru Style 2 Mounting	110/120/60	1.0	11.0	
EB450-20484	Pull	Special Side	110/120/60	1.0	11.0	Terminal block outside of core shield, slotted mounting holes
EB450-20023	Pull	Standard Thru Style 1 Mounting	110/50	1.0	11.0	Same as EB450-20046 except voltage and cycle
EB450-20053	Pull	Standard Thru Style 1 Mounting	208/60	1.0	11.0	Same as EB450-20046 except voltage
EB450-20080	Pull	Standard Mounting Style 1	110/50/60	1.0	11.0	Same as EB450-20046 except voltage and dual cycle
EB450-20083	Pull	Standard Thru Style 1 Mounting	380/60	1.0	11.0	Same as EB450-20046 except voltage
EB450-20105	Pull	Standard Thru Style 1 Mounting	440/480/60	1.0	11.0	Same as EB450-20046 except voltage
EB450-20174	Pull	Standard Base	110/120/60	1.0	11.0	
EB450-20175	Pull	Standard Base	100/50	1.0	11.0	Same as EB450-20174 except voltage and cycle
EB450-20214	Pull	Standard Base	220/240/60	1.0	11.0	Same as EB450-20174 except voltage
EB450-20215	Pull	Standard Base	440/480/60	1.0	11.0	Same as EB450-20174 except voltage
EB450-20403	Pull	Standard Thru Style 2 Mounting	250/50	1.0	11.0	Same as EB450-20364 except voltage and cycle
EB450-20274	Pull	Standard Side	220/240/60	1.0	11.0	Same as EB450-20254 except voltage
EB450-20504	Pull	Standard Thru Style 1 Mounting	110/120/60	1.0	2.5	Same as EB450-20046 except special coil and 26" leads
EB450-20513	Pull	Standard Thru Style 1 Mounting	115 D.C.	1.0	2.5	Same as EB450-20504 except DC and wound coil
EB450-20584	Pull	Standard Thru Style 1 Mounting	110/120/60	1.0	13.0	Same as EB450-20046 except special coil and cut-out switch
EB450-20625	Pull	Standard Thru Style 1 Mounting	110/120/60	1.0	7.0	Same as EB450-20046 except no retainers and special coil
EB450-29604	Push	Standard Thru Style 2 Mounting	110/120/60	1.0	11.0	With saddle stop
EB450-29623	Push	Standard Thru Style 2 Mounting	24 VDC	.875	19.0	1/2" ext. open position 17/64" dia. hole in end of bar. Special retainer
EB450-29825	Push	Standard Thru Style 1 Mounting	110/50	1.0	11.0	Same as EB450-29874 except voltage and cycle
EB450-29843	Push	Standard Thru Style 1 Mounting	220/50	1.0	11.0	Same as EB450-29874 except voltage and cycle
EB450-29834	Push	Standard Thru Style 1 Mounting	220/240/60	1.0	11.0	Same as EB450-29874 except voltage
EB450-29584	Push	Standard Thru Style 1 Mounting	110/120/60	1.0	11.0	Special plunger 9/16" ext. in open position with saddle stop
EB450-29611	Push	Standard Thru Style 1 Mounting	220/240/60	1.0	11.0	Same as EB450-29610 except voltage
EB450-29554	Push	Standard Throat	110/120/60	1.0	11.0	Special terminal block inside of core — 13/16" ext. closed

EB600 Series SOLENOIDS

PART NO.	TYPE	MOUNTING	V & C	(INCHES) STROKE	(LBS.) FORCE	DESCRIPTION OR SPECIAL FEATURES
EB600-00155	Pull	Standard side	110/120/60	.50	2.5	
EB600-00157	Pull	Standard side	220/240/60	.50	2.5	Same as EB600-00155 except voltage
EB600-00503	Pull	Standard throat	110/120/60	.50	2.5	
EB600-00013	Pull	Standard base	110/50	.50	2.5	Same as EB600-00005 except V & C
EB600-00033	Pull	Standard base	208/60	.50	2.5	Same as EB600-00005 except voltage
EB600-00063	Pull	Standard base	220/50	.50	2.5	Same as EB600-00005 except V & C
EB600-00167	Pull	Standard side	440/480/60	.50	2.5	Same as EB600-00155 except voltage
EB600-00174	Pull	Standard side	200/60	.50	2.5	Same as EB600-00155 except voltage
EB600-09900	Push	Standard base	110/120/60	.50	2.5	
EB600-09883	Push	Standard base	220/60	.50	2.5	Same as EB600-09900 except voltage
EB600-09854	Push	Standard side	110/120/60	.50	2.5	
EB600-09663	Push	Standard base	110/50	.50	2.5	Same as EB600-09900 except V & C - Push bar
EB600-09883	Push	Standard side	220/60	.50	2.5	Same as EB600-09854 except V & C - Push bar
EB600-09633	Push	Special base	110/60	.25	1.5	Special mounting, special coil with stops - Push bar
EB600-09744	Push	Standard base	110/120/60	.375	3.5	Special coil, special cut-out in mounting - round pin
EB600-09733	Push	Standard base	220/60	.375	3.5	Same as EB600-09744 except voltage - round pin
EB600-09675	Push	Standard base	110/120/60	.375	3.5	Same as EB600-09744 except special coil, CL.H round pin
EB600-10035	Pull	Standard base	220/240/60	.50	4.0	Same as EB600-10120 except voltage
EB600-10075	Pull	Standard side	110/120/60	.50	4.0	
EB600-10003	Pull	Standard base	110/50	.50	4.0	Same as EB600-10120 except V & C
EB600-10063	Pull	Standard base	440/60	.50	4.0	Same as EB600-10120 except voltage
EB600-10263	Pull	Standard side	220/240/60	.50	4.0	Same as EB600-10075 except voltage
EB600-10164	Pull	Standard throat	110/120/60	.50	4.0	
EB600-20303	Pull	Standard base	110/60	.50	2.0	Special coil
EB600-20125	Pull	Standard side	110/120/60	.50	6.5	
EB600-20127	Pull	Standard side	220/240/60	.50	6.5	Same as EB600-20125 except voltage
EB600-20083	Pull	Standard base	220/50	.50	6.5	Same as EB600-20015 except V & C
EB600-20103	Pull	Standard base	220/240/60	.50	6.5	Same as EB600-20015 except voltage
EB600-20153	Pull	Standard side	220/60	.50	6.5	Same as EB600-20125 except voltage
EB600-20176	Pull	Standard throat	110/120/60	.50	6.5	
EB600-20205	Pull	Special throat	110/120/60	.50	6.5	Special throat mounting
EB600-29885	Push	Standard base	110/120/60	.50	6.5	
EB600-29673	Push	Standard side	110/60	.50	4.5	Special coil
EB600-29693	Push	Standard side	42 VDC	.50	6.5	Special coil, 38 # at 1/4" stroke
EB600-29835	Push	Standard side	110/120/60	.50	6.5	
EB600-29903	Push	Standard base	110/50	.50	6.5	Same as EB600-29885 except V & C

EB710 Series SOLENOIDS

PART NO.	TYPE	MOUNTING	V & C	(INCHES) STROKE	(LBS.) FORCE	DESCRIPTION OR SPECIAL FEATURES
EB710-10100	Pull	Standard base	115/60	1.0	12.5	With round head plunger
EB710-10000	Pull	Standard thru	115/60	1.0	12.5	With round head plunger
EB710-10102	Pull	Standard base	460/60	1.0	12.5	Same as EB710-10100 except voltage
EB710-11100	Pull	Standard base	115/60	1.0	12.5	With round head plunger and guides
EB710-10200	Pull	Standard side	115/60	1.0	12.5	With round head plunger
EB710-12000	Pull	Standard thru	115/60	1.0	12.5	With flat head plunger
EB710-11201	Pull	Standard side	200/60	1.0	12.5	Same as EB710-11200 except voltage
EB710-12100	Pull	Standard base	115/60	1.0	12.5	With flat head plunger
EB710-12101	Pull	Standard base	230/60	1.0	12.5	Same as EB710-12100 except voltage
EB710-12200	Pull	Standard side	115/60	1.0	12.5	With flat head plunger
EB710-12201	Pull	Standard side	230/60	1.0	12.5	Same as EB710-12200 except voltage
EB710-12202	Pull	Standard side	460/60	1.0	12.5	Same as EB710-12200 except voltage
EB710-30100	Pull	Standard base	115/60	1.0	18.0	With round head plunger
EB710-30200	Pull	Standard side	115/60	1.0	18.0	With round head plunger
EB710-32200	Pull	Standard side	115/60	1.0	18.0	With flat head plunger
EB710-30007	Pull	Standard thru	115/50	1.0	18.0	Same as EB710-30000 except cycle
EB710-30101	Pull	Standard base	230/60	1.0	18.0	Same as EB710-30100 except voltage
EB710-30102	Pull	Standard base	460/60	1.0	18.0	Same as EB710-30100 except voltage
EB710-31000	Pull	Standard thru	115/60	1.0	18.0	With round head plunger and guides
EB710-31200	Pull	Standard side	115/60	1.0	18.0	With round head plunger and guides
EB710-32000	Pull	Standard thru	115/60	1.0	18.0	With flat head plunger
EB710-32001	Pull	Standard thru	230/60	1.0	18.0	Same as EB710-32000 except voltage
EB710-32100	Pull	Standard base	115/60	1.0	18.0	With flat head plunger
EB710-32202	Pull	Standard side	460/60	1.0	18.0	Same as EB710-32200 except voltage
EB710-32206	Pull	Standard side	240/60	1.0	18.0	Same as EB710-32200 except voltage
EB710-22000	Push	Standard thru	115/60	1.0	13.5	
EB710-22100	Push	Standard base	115/60	1.0	13.5	
EB710-22106	Push	Standard base	24/60	1.0	13.5	Same as EB710-22100 except voltage
EB710-22200	Push	Standard side	115/60	1.0	13.5	
EB710-22202	Push	Standard side	460/60	1.0	13.5	Same as EB710-22200 except voltage
EB710-23200	Push	Standard side	115/60	1.0	13.5	With guides
EB710-24000	Push	Standard thru	115/60	1.0	13.5	With saddle stop
EB710-24100	Push	Standard base	115/60	1.0	13.5	With saddle stop
EB710-24200	Push	Standard side	115/60	1.0	13.5	With saddle stop
EB710-24202	Push	Standard side	460/60	1.0	13.5	Same as EB710-24200 except voltage
EB710-25102	Push	Standard base	460/60	.50	15.5	
EB710-50100	Pull	Standard base	115/60	1.0	19.5	With round head plunger
EB710-50101	Pull	Standard base	230/60	1.0	19.5	Same as EB710-50100 except voltage
EB710-50102	Pull	Standard base	460/60	1.0	19.5	Same as EB710-50100 except voltage
EB710-50200	Pull	Standard side	115/60	1.0	19.5	With round head plunger
EB710-50201	Pull	Standard side	230/60	1.0	19.5	Same as EB710-50200 except voltage
EB710-50300	Pull	Standard throat	115/60	1.0	19.5	With round head plunger
EB710-51101	Pull	Standard base	230/60	1.0	19.5	With round head plunger and guides
EB710-51200	Pull	Standard side	115/60	1.0	19.5	With round head plunger and guides
EB710-52100	Pull	Standard base	115/60	1.0	19.5	With flat head plunger
EB710-52200	Pull	Standard side	115/60	1.0	19.5	With flat head plunger
EB710-53201	Pull	Standard side	230/60	1.0	19.5	With flat head plunger and guides
EB710-42000	Push	Standard thru	115/60	1.0	17.0	
EB710-42001	Push	Standard thru	230/60	1.0	17.0	Same as EB710-42000 except voltage
EB710-42200	Push	Standard side	115/60	1.0	17.0	
EB710-42201	Push	Standard side	230/60	1.0	17.0	Same as EB710-42200 except voltage
EB710-44100	Push	Standard base	115/60	1.0	17.0	With saddle stop
EB710-44200	Push	Standard side	115/60	1.0	17.0	With saddle stop
EB710-73300	Pull	Standard throat	115/60	1.0	25.0	With guides
EB710-73321	Pull	Standard throat	220/50	1.0	24.5	Same as EB710-73300 except V & C
EB710-70000	Pull	Standard thru	115/60	1.0	24.5	With round head plunger
EB710-70100	Pull	Standard base	115/60	1.0	24.5	With round head plunger
EB710-70200	Pull	Standard side	115/60	1.0	24.5	With round head plunger
EB710-70201	Pull	Standard side	230/60	1.0	24.5	Same as EB710-70200 except voltage
EB710-72100	Pull	Standard base	115/60	1.0	24.5	With flat head plunger
EB710-72102	Pull	Standard base	230/60	1.0	24.5	Same as EB710-72100 except voltage
EB710-72200	Pull	Standard side	115/60	1.0	24.5	With flat head plunger
EB710-62000	Push	Standard thru	115/60	1.0	21.5	
EB710-62001	Push	Standard thru	230/60	1.0	21.5	Same as EB710-62000 except voltage
EB710-62101	Push	Standard base	230/60	1.0	21.5	
EB710-62200	Push	Standard side	115/60	1.0	21.5	
EB710-62201	Push	Standard side	230/60	1.0	21.5	Same as EB710-62200 except voltage
EB710-62301	Push	Standard throat	230/60	1.0	21.5	
EB710-63200	Push	Standard side	115/60	1.0	21.5	With guides
EB710-63301	Push	Standard throat	230/60	1.0	21.5	With guides
EB710-64100	Push	Standard base	115/60	1.0	21.5	With saddle stop
EB710-64200	Push	Standard side	115/60	1.0	21.5	With saddle stop
EB710-64201	Push	Standard side	230/60	1.0	21.5	With saddle stop

EB710 Series SOLENOIDS

PART NO.	TYPE	MOUNTING	V & C	(INCHES) STROKE	(LBS.) FORCE	DESCRIPTION OR SPECIAL FEATURES
EB710-66100	Push/Pin	Standard base	115/60	1.0	21.5	With flat head plunger
EB710-66101	Push/Pin	Standard base	230/60	1.0	21.5	Same as EB710-66100 except voltage
EB710-90000	Pull	Standard thru	115/60	1.0	30.5	With round head plunger
EB710-90100	Pull	Standard base	115/60	1.0	30.5	With round head plunger
EB710-90101	Pull	Standard base	230/60	1.0	30.5	Same as EB710-90100 except voltage
EB710-90102	Pull	Standard base	460/60	1.0	30.5	Same as EB710-90100 except voltage
EB710-90103	Pull	Standard base	575/60	1.0	30.5	Same as EB710-90100 except voltage
EB710-91200	Pull	Standard side	115/60	1.0	30.5	With round head plunger and guides
EB710-91203	Pull	Standard side	575/60	1.0	30.5	Same as EB710-91200 except voltage
EB710-92002	Pull	Standard thru	460/60	1.0	30.5	With flat head plunger
EB710-92004	Pull	Standard thru	380/50	1.0	30.5	With flat head plunger
EB710-92100	Pull	Standard base	115/60	1.0	30.5	With flat head plunger
EB710-92101	Pull	Standard base	230/60	1.0	30.5	Same as EB710-92100 except voltage
EB710-92102	Pull	Standard base	460/60	1.0	30.5	Same as EB710-92100 except voltage
EB710-92200	Pull	Standard side	115/60	1.0	30.5	With flat head plunger
EB710-92300	Pull	Standard throat	115/60	1.0	30.5	With flat head plunger
EB710-92380	Pull	Standard throat	115/60	1.0	30.5	Same as EB710-92300 except class H coil
EB710-93100	Pull	Standard base	115/60	1.0	30.5	With flat head plunger and guides
EB710-93200	Pull	Standard side	115/60	1.0	30.5	With flat head plunger with guides
EB710-93300	Pull	Standard throat	115/60	1.0	30.5	With flat head plunger and guides
EB710-93302	Pull	Standard throat	460/60	1.0	30.5	Same as EB710-93300 except voltage
EB710-82000	Push	Standard thru	115/60	1.0	30.0	
EB710-82100	Push	Standard base	115/60	1.0	30.0	
EB710-82101	Push	Standard base	230/60	1.0	30.0	Same as EB710-82100 except voltage
EB710-82102	Push	Standard base	460/60	1.0	30.0	Same as EB710-82100 except voltage
EB710-82200	Push	Standard side	115/60	1.0	30.0	
EB710-84000	Push	Standard thru	115/60	1.0	30.0	With saddle stop
EB710-84200	Push	Standard side	115/60	1.0	30.0	With saddle stop
EB710-87201	Push/Pin	Standard side	230/60	1.0	30.0	With guides
EB710-88201	Push/Pin	Standard side	230/60	1.0	30.0	With saddle stop



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