



INDIAN PRECISION ENGINEERS

Quality Beyond Customer Satisfaction



PRODUCT CATALOGUE

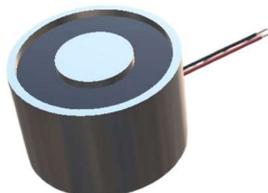


01 ELECTROMAGNETIC DC
LINEAR PUSH PULL SOLENOIDS



02 ELECTRONIC DOOR
LOCK

03 HOLDING
ELECTROMAGNETS

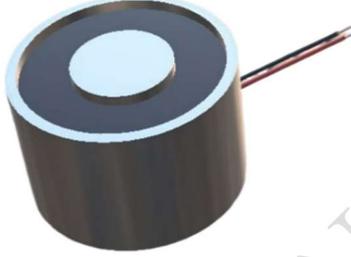




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<p>Electronic Door Lock Solenoid Type 706.__. __</p> <p>Stroke Range: 5mm & 10mm</p>		<p>15-16</p>
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INDIAN PRECISION ENGINEERS



“Indian Precision Engineers” ventured into the realm of Power Transmission in 1978, marking the inception of our journey. We specialize in crafting Electromagnetic Products to ensure reliable and seamless control.

As a prominent manufacturer, with an extensive experience spanning over four decades, we excel in creating a diverse array of Electromagnetic Push Pull Linear Solenoids, Electromagnetic Clutches, and Electromagnetic Brakes, offered in various models.

Our steadfast dedication to Quality, Reliability, and Precision has solidified Indian Precision Engineers' position as a distinguished entity within the industry. Our products find extensive utilization across sectors such as original Equipment Machine Tools Manufacturing, S.P.M builders, the EV Sector, activated door locks, robotics, automotive engine management, irrigation valves for garden watering, Printing & Packaging industries, and Textile Industries.

We respectfully request the inclusion of our esteemed organization in your Approved Supplier's list. Our Sales & Technical teams eagerly anticipate engaging in meaningful discussions to address any challenges you encounter within this domain. Thank you for considering our services, and we assure you of our unwavering commitment to delivering excellence."

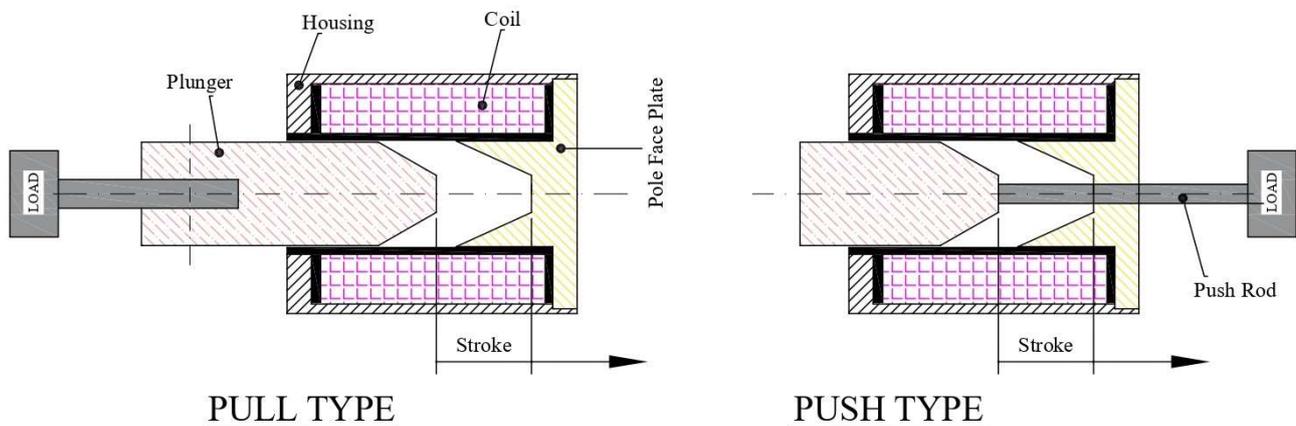


GENERAL INFORMATION

“Linear Solenoid” is an electromagnetic device that converts electrical energy into a mechanical pushing or pulling force or motion.

LINEAR SOLENOID CONSTRUCTION:

Linear solenoids are available in two basic configurations called a “PULL - TYPE” as it pulls the connected load towards itself when energized, and the “PUSH - TYPE” that acts in the opposite direction pushing it away from itself when energized. Both push and pull types are generally constructed the same with the difference being in the location of the return spring and design of the plunger.



SELECTING A SOLENOID

The normal way to decide on selecting a solenoid for a particular application, there are number of points that should be considered to assure that the smallest, most efficient & proper type is selected. It depends on the Stroke required & the length of the duty cycle.

STROKE

The total movement of the plunger when electrical power is applied to the solenoid is known as the stroke. In other words, the air gap between the movable plunger & the fixed Pole Piece in the de – energized Condition is called the stroke length.

PUSH/PULL TYPE

These are the basic functions the solenoids are to perform when the solenoid is energized, the plunger retracts pulling the load, de–energized, and it falls back. This is Pull Type.

In a Push Type the solenoid when energized pushes the load with a push rod. Actually, a push solenoid is a pull solenoid with addition of push rod which rides against the internal face of the plunger.



DUTY CYCLE

It is a comparison of the time a solenoid is energized to the time it is de – energized expressed as a percentage.

$$\text{Duty Cycle} = \frac{\text{ON Time}}{(\text{ON Time} + \text{OFF Time})} \times 100$$

In Case of an intermittent duty, solenoid is ON for a very short time & followed by off time which is normally at least as long as the on time. As the ON time decreases & OFF time increases more current can be applied to the solenoid without causing Coil Overheating.

In continuous duty solenoid will be in ON position continuously without interruption for periods of about 30minutes or longer with no OFF time to allow the coil to cool, continuous duty solenoids must have coils wound to limit the current drain & must also be large enough to provide for adequate heat radiation to prevent Coil burn-out. This means that a continuous duty solenoid will be considerably larger than an intermittent design to produce the same force/stroke.

COIL TEMPERATURE

Actual Temperature of wire in the coil winding. It is the Combination of ambient temperature plus heating due to current flow through the coil.

For any given stroke, solenoid force decreases with coil temperature increases and conversely, increases when Coil Temperature is lowered.

FORCE OF THE SOLENOID

The forces indicated in the performance data are measured at an ambient temperature of 24°C with solenoid functioning at its normal operating temperature with 90% of its rated voltage.

PROTECTIVE FINISH

The solenoid housing is either Zinc Plated, phosphate or painted.

APPLICATION

The linear solenoid actuator is useful in many applications that require an open or closed (in or out) type motion such as electronically activated door locks, pneumatic or hydraulic control valves, robotics, automotive engine management, irrigation valves to water the garden and even the “Ding-Dong” doorbell has one. They are available as open frame, closed frame or Tubular types.

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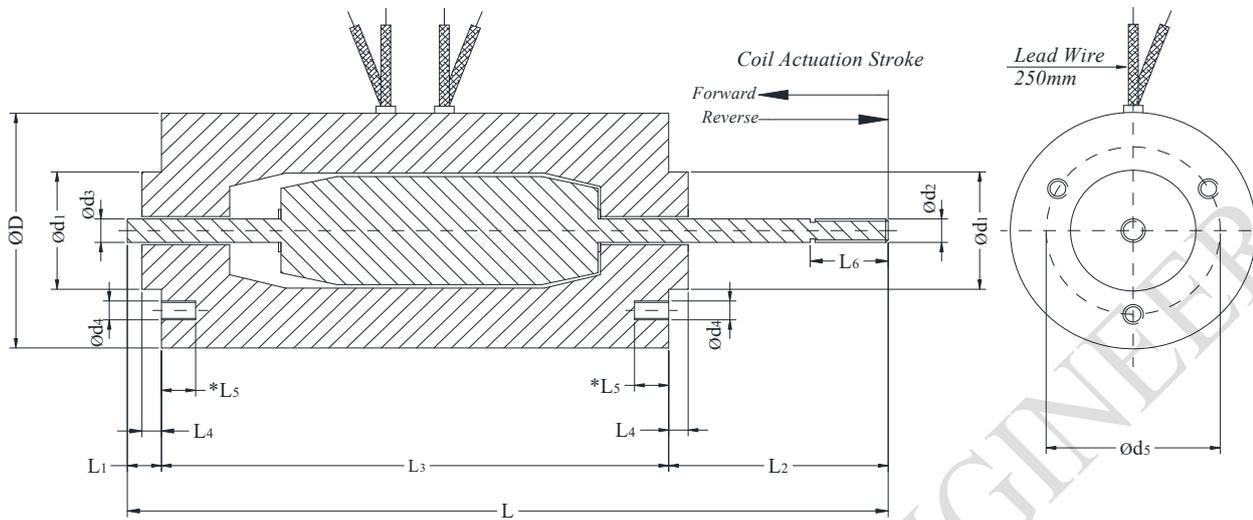
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Part Name	EM Double Acting Push Pull Solenoids
Part Number	701. _____ (size)

Dimensions:

*Do not use over length screw for mounting.

**Function:**

- ☞ Push and pull type.

Construction:

- ☞ Heavy duty closed tubular design.
- ☞ Fastening with 3 faced & tapped holes.
- ☞ Connections with free leads plug connector or terminal box.
- ☞ 6 sizes Ø (mm) 40, 50, 60, 70, 80, 90.
- ☞ Fork Ends & Safety Rubber End Cap available.
- ☞ Pole Face Plate guided with maintenance free bearings. High service life
- ☞ Insulation materials of winding wire correspond to thermal class F.
- ☞ Protection class according IP52 & IP54.
- ☞ Corrosion resistant plated/Painted parts.
- ☞ Insulation Resistance passed for $>100\text{M}\Omega$ at 1000VDC with Megger.

Applications:

- ☞ Tooling machines / SPM Machines / Automatic Turret Locking.
- ☞ Packing machines.
- ☞ Textile machines.
- ☞ Automation / Remote Control & office machines etc..



Different Standards:

SIZE	Input Voltage	Duty Rating ED	Max. ON time	Power Consumption	Force	Stroke	DIMENSIONS in mm												
							∅D	L3	∅d1	∅d2	∅d3	∅d4	∅d5	L1	L2	L	L4	L5	L6
40	24 VDC	100%	Conti.....	16.5 w	10 N	8mm	40	85	22	M5	5	M3	30	12	37	134	4	4	15
		50%	100 sec	41 w	17 N														
		5%	10 sec	262 w	44 N														
50	24 VDC	100%	Conti.....	30 w	16 N	10mm	50	104	25	M5	5	M4	34	12	40	156	4	5	18
		50%	100 sec	53 w	28 N														
		5%	10 sec	335 w	78 N														
60	24 VDC	100%	Conti.....	35 w	36 N	12mm	60	124	32	M6	6	M5	45	12	45	181	4	5	18
		50%	100 sec	77 w	54 N														
		5%	10 sec	550 w	130 N														
70	24 VDC	100%	Conti.....	32 w	41 N	15mm	70	142	38	M8	8	M5	52	14	54	210	5	5	20
		50%	100 sec	85 w	67 N														
		5%	10 sec	500 w	156 N														
80	24 VDC	100%	Conti.....	62 w	44 N	20mm	80	148	42	M10	10	M6	62	15	70	233	5	8	30
		50%	100 sec	110 w	69 N														
		5%	10 sec	590 w	155 N														
90	24 VDC	100%	Conti.....	52 w	60 N	25mm	90	176	52	M12	12	M6	68	17	85	278	5	10	40
		50%	100 sec	131 w	100 N														
		5%	10 sec	824 w	225 N														

Options:

- ☞ Please contact us for application related solutions.
- ☞ Modifications & special designs on request.
- ☞ Delivery with and without flange.
- ☞ Special Voltage Available on Request.
- ☞ Recommended to Mount on Heat Sink Aluminum Block.

Order Example:

701.50.24VDC.50%ED



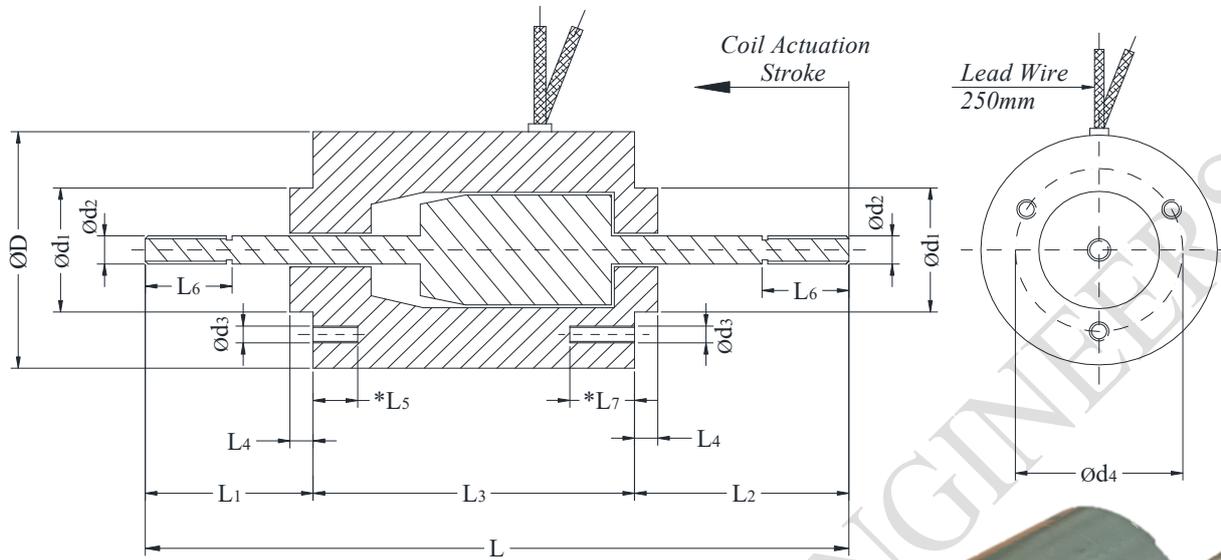
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Dimensions:

Part Name	EM Single Acting Push Pull Solenoids
Part Number	702. _____ (size)



*Do not use over length screw for mounting.

Function:

- ☞ Push and pull type.

Construction:

- ☞ Heavy Duty closed Tubular Design.
- ☞ Fastening with three face tapped holes.
- ☞ 7 sizes ϕ (mm) 40, 50, 60, 70, 80, 90, 100.
- ☞ Connections with free leads, plug connector or terminal box.
- ☞ Fork Ends and Rubber End Cover are available.
- ☞ Pole Face Plate guided with maintenance free bearings.
- ☞ High service life.
- ☞ Insulation materials of winding wire correspond to thermal class F.
- ☞ Protection class IP 52 & IP54.
- ☞ Corrosion resistant plated/painted parts.
- ☞ Insulation Resistance passed for $>100M\Omega$ at 1000VDC with Megger.

Application:

- ☞ Tooling machines / SPM Machines / Automatic Turret Locking.
- ☞ Packing machines.
- ☞ Textile machines.
- ☞ Measuring and control technology.
- ☞ Medical Equipment.
- ☞ Open & Close Mechanism.



**Different Standards:**

SIZE	Input Voltage	Duty Rating ED	Max. ON time	Power Consumption	Force	Stroke	DIMENSIONS in mm												
							ØD	L3	Ød1	Ød2	Ød3	Ød4	L1	L2	L	L4	L5	L6	L7
40	24 VDC	100%	Conti.....	13 w	4.5 N	8mm	40	55	22	M5	M3	30	29	37	121	4	4	15	6
		50%	100 sec	28 w	10 N														
		5%	10 sec	156 w	35 N														
50	24 VDC	100%	Conti.....	16.5 w	11 N	10mm	50	70	25	M5	M4	34	30	40	140	4	5	15	8
		50%	100 sec	34 w	19 N														
		5%	10 sec	270 w	65 N														
60	24 VDC	100%	Conti.....	26 w	20 N	12mm	60	82	32	M6	M5	45	33	45	160	4	6	18	10
		50%	100 sec	54 w	37 N														
		5%	10 sec	377 w	120 N														
70	24 VDC	100%	Conti.....	33 w	22 N	15mm	70	94	38	M8	M5	52	39	54	187	5	6	20	10
		50%	100 sec	66 w	43 N														
		5%	10 sec	447 w	154 N														
80	24 VDC	100%	Conti.....	31 w	23 N	20mm	80	104	42	M10	M6	62	50	70	224	5	8	30	12
		50%	100 sec	71 w	48 N														
		5%	10 sec	588 w	176 N														
90	24 VDC	100%	Conti.....	51 w	37 N	25mm	90	123	52	M12	M6	68	60	85	268	5	8	40	12
		50%	100 sec	131 w	81 N														
		5%	10 sec	823 w	264 N														
100	24 VDC	100%	Conti.....	69 w	74 N	30mm	100	144	58	M12	M8	76	61	91	296	6	11	40	13
		50%	100 sec	125 w	138 N														
		5%	10 sec	855 w	470 N														

Options :

- ☞ Please contact us for application related solutions.
- ☞ Modifications & special designs on request.
- ☞ Different Voltage on Request.
- ☞ Recommended to Mount on Heat Sink Aluminum Block.

Order Example:**702.50.24VDC.50%ED**

↓ ↓ ↓ ↓
 Type Size Voltage Duty Cycle

Contact Us:

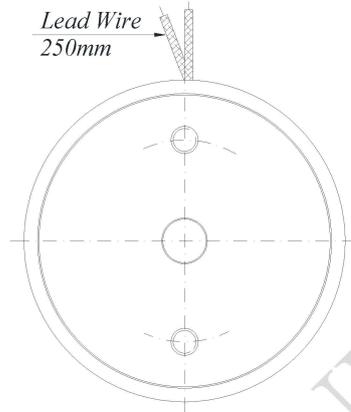
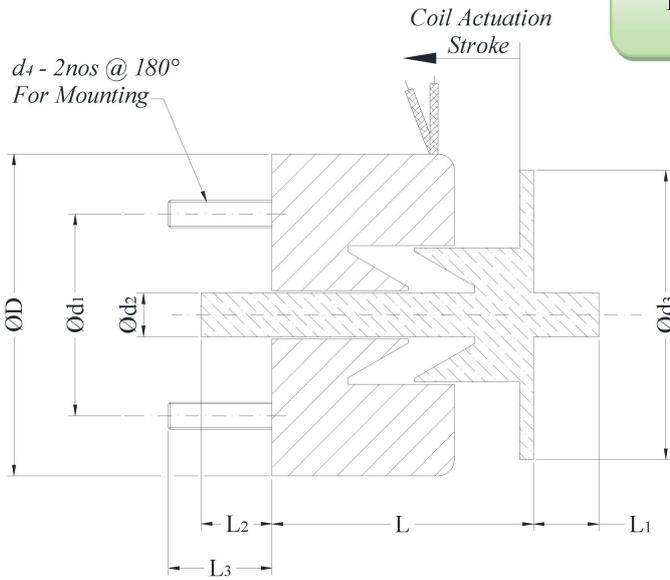
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Dimensions:

Part Name	EM Single Acting Push Pull Solenoids
Part Number	703. (size)



Function

- ☞ Push and pull type.

Construction

- ☞ Fastening with two studs.
- ☞ 3 sizes ϕ (mm) 48, 59 & 87.
- ☞ Connections with free leads.
- ☞ Pole Face Plate guided with maintenance free bearings.High service life.
- ☞ Insulation materials of winding wire correspond to thermal class F.
- ☞ Corrosion resistant plated.Insulation Resistance passed for >100M Ω at 1000VDC with Megger.

Application:

- ☞ Tooling machines / SPM Machines / Automatic Turret Locking.
- ☞ Packing machines.
- ☞ Textile machines.
- ☞ Measuring and control technology.
- ☞ Medical Equipment.
- ☞ Open & Close Mechanism.



Different Standards:

SIZE	48									59									87									
Duty Rating ED %	100			50			10			100			50			10			100			50			10			
Max. ON time (Sec)	Conti....			70			10			Conti....			70			10			Conti....			70			10			
Input Voltage	24									24									24									
Power Consumption (w)	21			42			210			32			64			320			41			82			410			
Stroke (mm)	2	4	6	2	4	6	2	4	6	4	8	12	4	8	12	4	8	12	6	10	14	6	10	14	6	10	14	
Force (N)	40	17	10	65	32	110	150	110	75	50	17	7	80	35	16	210	150	65	90	40	25	180	85	45	500	320	200	
DIMENSIONS in mm	∅D	48									59									87								
	L	33									48									60								
	∅d1	32									37									54								
	∅d2	6									8									10								
	∅d3	41.5									54									83								
	d4	M4									M5									M6								
	L1	12									12									22								
	L2	13									13									13								
L3	18									19									22									

Options:

- ☞ Please contact us for application related solutions.
- ☞ Modifications & special designs on request.
- ☞ Different Voltage on Request.
- ☞ Recommended to mount on heat sink aluminum block.

Order Example:**703.59.24VDC.50%ED**

↓ ↓ ↓ ↓
 Type Size Voltage Duty Cycle

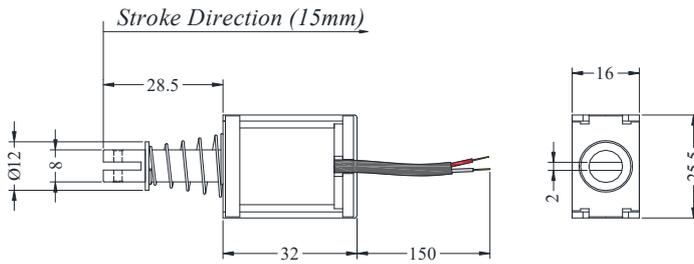
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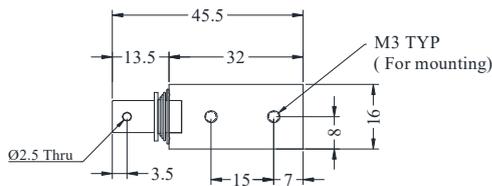
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Dimensions:



Non-Energized Position



Energized Position

All dimensions are in mm

Caution :Do not use a lengthened screw.

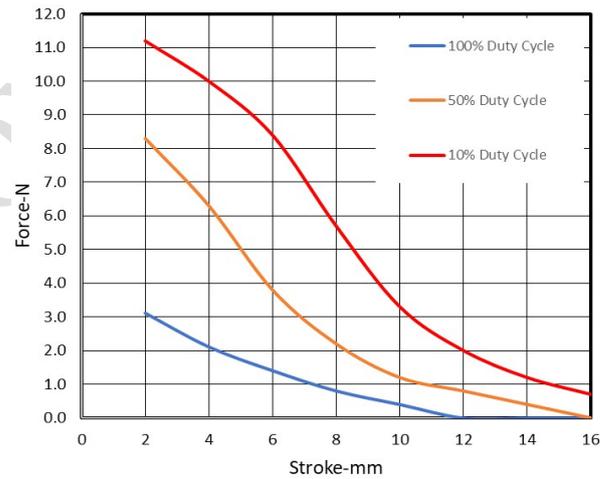
Part Name	Linear Push Pull Open Frame Solenoid
Part Number	704251-10101



Specifications:

Operation	Linear Push Pull Open Frame Solenoid
Spring return force @ 0 mm stroke	2.5N
Coil Insulation	Class " F ": 155°C max
Plunger weight	13 gms
Total weight	80 gms
Life expectations	Tested for 1million cycles without load.

Forces @ 24°



Performance:

Maximum Duty Cycle	100%	50%	10%
Maximum ON Time (Sec)	Continuous	60	8
Holding force @ 0 mm stroke	10.5N	16.4N	22.2N
Input Voltage	24 VDC		
Watts (24°C)	6w	24w	48w

Note:

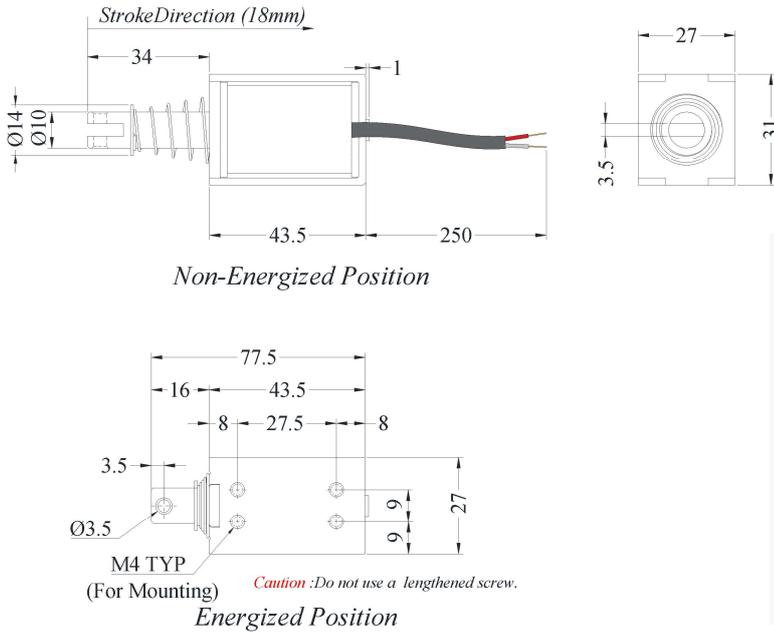
- Force Testing is done with the solenoid in the vertical position.
- All data reflects operation with no heat sink.
- Solenoids are available in optional for different voltages on the requirement.
- Solenoid is protected with corrosion resistant plating.
- All specifications are subject to change without notice.

Contact Us:

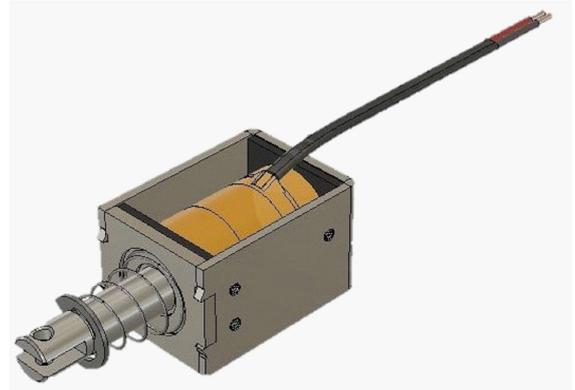
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Dimensions:



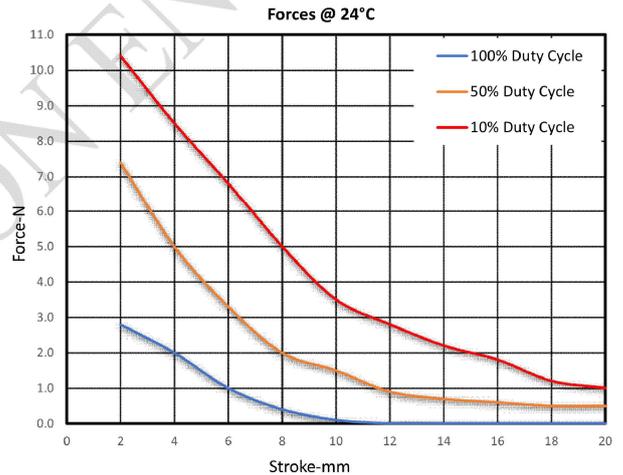
Part Name	Linear Push Pull Open Frame Solenoid
Part Number	70430-10101



All dimensions are in mm

Specifications:

Operation	Linear Push Pull Open Frame Solenoid
Spring return force @ 0 mm stroke	2.5N
Coil Insulation	Class " F ": 155°C max
Plunger weight	28 gms
Total weight	175 gms
Life expectations	≥ 2,00,000 cycles



Performance:

Maximum Duty Cycle	100%	50%	10%
Maximum ON Time (Sec)	Continuous	100	8
Holding force @ 0 mm stroke	40.5N	46 N	52.5N
Input Voltage	24 VDC		
Watts (24°C)	8w	24w	48w

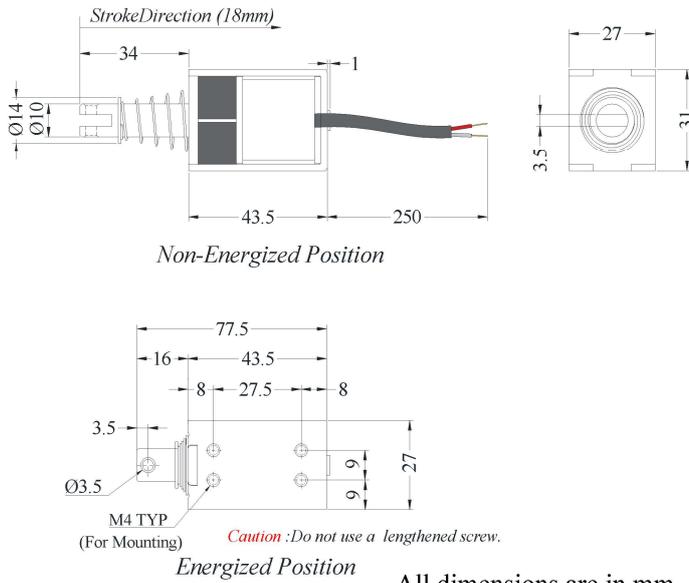
Note:

- ☞ Force Testing is done with the solenoid in the vertical position.
- ☞ All data reflects operation with no heat sink.
- ☞ Solenoids are available in optional F for different voltages on the requirement.
- ☞ Solenoid is protected with corrosion resistant plating.
- ☞ All specifications are subject to change without notice.

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Dimensions:

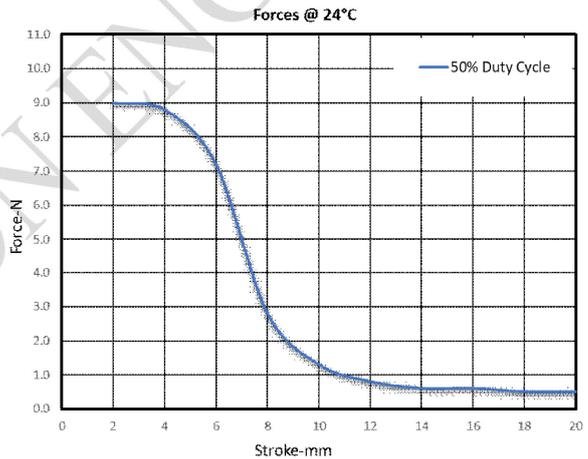


Part Name	Linear Push Pull Latching Solenoid
Part Number	70530-10102



Specifications:

Operation	Linear Push Pull Latching
Spring return force @ 1 mm stroke	1N
Holding force (with Power)	45N
Holding force (without power)	25N
Coil Insulation	Class " F ": 155°C max
Plunger weight	13 gms
Total weight	220 gms
Life expectations	Tested for 1million cycles without load.
Maximum Duty Cycle	50%
Maximum ON Time (Sec)	60 sec
Input Voltage	12VDC
Watts (24°C)	16w



Applications:

- Column tube lock mounting bracket in two/three-wheeler for handle lock.
- Latching Solenoid Valve.
- Magnetic Latch Solenoid Actuator.

Note:

- ☞ Force Testing is done with the solenoid in the vertical position.
- ☞ All data reflects operation with no heat sink.
- ☞ Solenoids are available in optional for different voltages on the requirement.
- ☞ Solenoid is protected with corrosion resistant plating.
- ☞ All specifications are subject to change without notice.

Benefits:

- ☞ No continuous electrical supply needed.
- ☞ Cost-effective option
- ☞ suitable in many applications
- ☞ Remote operation
- ☞ Use lower power, making them environmentally friendly.
- ☞ Versatile application available:

Contact Us:

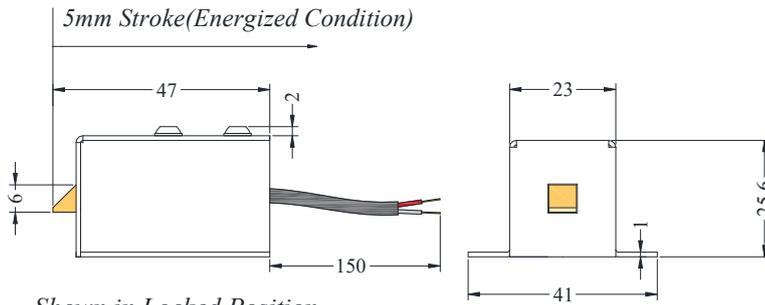
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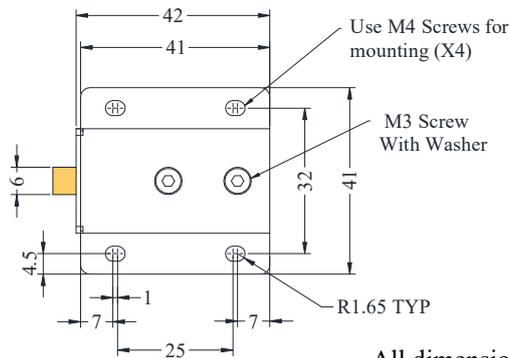
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Dimensions:



Shown in Locked Position



All dimensions are in mm



Part Name	Electronic Door Lock Solenoid
Part Number	70625-10101

Specifications:

Operation	Door Lock
Coil Insulation	Class " F ": 155°C max
Life expectations	Tested for 1million cycles without load.

Performance:

Stroke Length (Lock Tongue)	5mm stroke
Voltage	24VDC
Current	1.3
Size	47 X 46 X 26
Weight	100 gms
Unlock response time	1 sec
Spring Return force	2.5N
Pulling force at Max. stroke	1.8N

Applications:

- ☞ Two-wheeler Seat lock
- ☞ Luggage Locks
- ☞ File Cabinet Lock
- ☞ Locker Locks
- ☞ Electric Locks
- ☞ Fume Hood Lock
- ☞ Door Lock
- ☞ Electromagnetic Locks
- ☞ Gold Locker etc....

Note:

- ☞ Force Testing is done with the solenoid in the vertical position.
- ☞ All data reflects operation with no heat sink.
- ☞ Solenoids are available in optional for different voltages on the requirement.
- ☞ Solenoid is protected with corrosion resistant plating.

Contact Us:

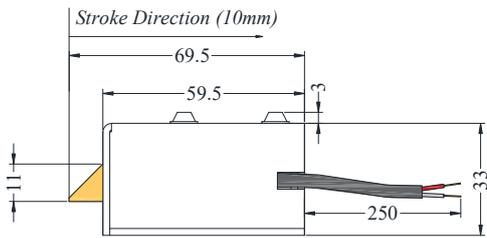
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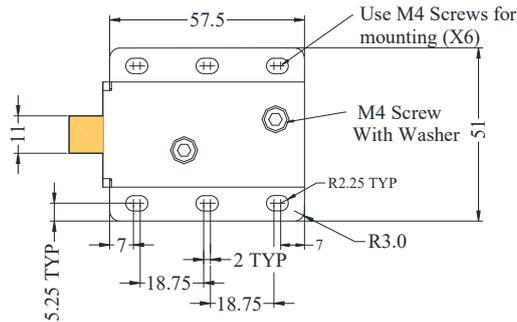
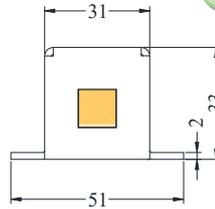
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Dimensions:

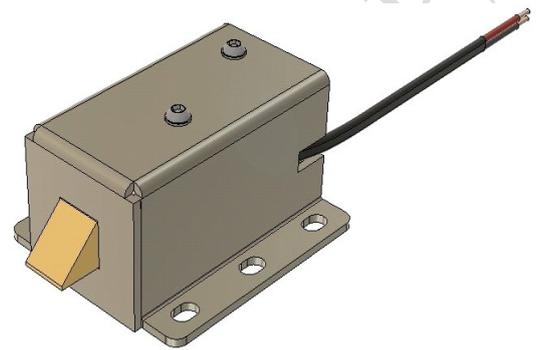


Shown in Locked Position



All dimensions are in mm

Part Name	Electronic Door Lock Solenoid
Part Number	70630-10101



Specifications:

Operation	Door Lock
Coil Insulation	Class " F ": 155°C max
Life expectations	≥ 2,00,000 cycles

Performance:

Stroke Length (Lock Tongue)	10mm
Voltage	24VDC
Current	1.8
Size	71 X 52 X 35
Weight	280 gms
Unlock response time	1 sec
Spring Return force	2.6N
Pulling force at Max. stroke	3.0N

Applications:

- ☞ Two-wheeler Seat lock
- ☞ Luggage Locks
- ☞ Locker Locks
- ☞ Electric Locks
- ☞ Fume Hood Lock
- ☞ Door Lock
- ☞ Electromagnetic Locks
- ☞ File Cabinet Lock
- ☞ Gold Locker etc....

Note:

- ☞ Force Testing is done with the solenoid in the vertical position.
- ☞ All data reflects operation with no heat sink.
- ☞ Solenoids are available in optional for different voltages on the requirement.
- ☞ Solenoid is protected with corrosion resistant plating.

Contact Us:

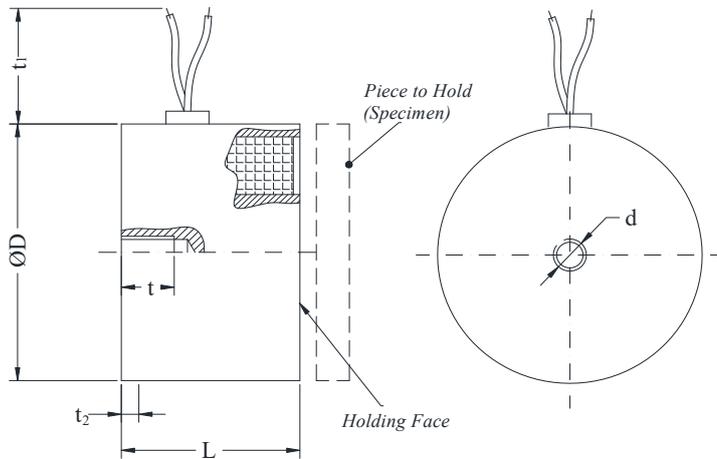
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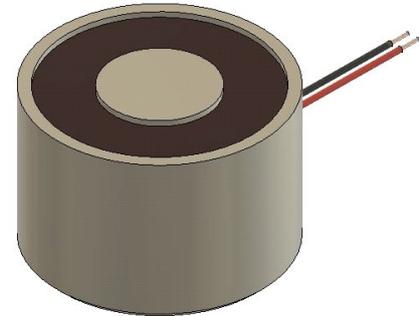
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Dimensions:



Part Name	Holding Electromagnet
Part Number	101.____ (size)



Different Standards:

SIZE		40	50	65	80	100	150	180	250
Holding Force 'N' at stroke of 0mm		380	630	1000	1600	2700	7500	15000	30000
Duty Cycle ED %		100	100	100	100	100	100	100	100
Electrical Power P20 (W)		5.5	6.5	9	14	21	42	60	90
Weight (kg)		0.2	0.3	0.55	1.2	2.1	6.4	11	26
DIMENSIONS	D (mm)	40	50	65	80	100	150	180	250
	L (mm)	27	30	35	38	43	56	63	80
	d (mm)	M5	M5	M8	M8	M10	M16	M24	M24
	t (mm)	8	8	12	12	15	24	36	36
	t1 (mm)	250	250	250	250	250	250	500	500
	t2 (mm)	4	4	5	7	7	15	20	25

These holding electromagnets are D C operated units, which when electric current passes into the device, generate an electromagnetic field that can be employed for the purpose of holding or manipulating ferrous material.

- ☞ Standard Voltage 24 Volts D C (12 & 48 Volts D C available on request)
- ☞ Operating Time: 100%, Black Oxide / Blue Passivized Finishing, Protection: IP 54.
- ☞ Thermal Class 'F' (155°C). Max. Operating Amb.Temp. 40°C & Product Rising Temp 80°C. Recommended to Mount on Heat Sink Aluminum Block.
- ☞ With free flexible lead ends. (With terminal box available on request)
- ☞ The Max.Holding Forces listed relate to magnets operating at 90% of nominal working voltage and normal working temperature, holding work piece of optimum thickness having a good surface finish (manufactured in EN2 Material) which covers the full magnet holding face without air gaps (0mm). In cases where work piece materials, surface finish or profile differ, magnet hold force capability will be reduced.
- ☞ A centrally positioned tapped hole is provided for fixing the magnets. If more than one hole is required on different PCD, it must be observed that the depth of holes be less than dimension " t2 ".
- ☞ The Adhesive force may be 5% of the magnetic force with a stroke of 0mm when device is de actuated. The external return force must be above this adhesive force with a sufficient safety margin.

Application: Material Handling Technology, Door Holding Devices, Solenoid for short stroke, Machine Construction.

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INDIAN PRECISION ENGINEERS

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