



# 4344 SERIES



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### HERMETIC SEALED THERMOSTATS

#### Introduction

The Klixon® 4344 precision thermostat is constructed with a snap-acting bimetal disc, which serves as the actuating element. As the temperature reaches a pre-determined calibration point, the disc snaps to its reverse curvature producing a crisp, positive switching action inherent to Klixon® thermostats. This feature assures reliable, consistent operating temperature over a long cycle life. The standard thermostat is copper-nickel plated with silver contacts. Other plating finishes are available upon request. Gold plated contacts can be furnished for the electrical loads listed in the table below to assure reliable circuit switching under low wattage conditions. Gold plated contacts are not suitable for higher loads.

Our most common mounting configurations are depicted in the following pages. Many other varieties are available. Leads can be welded to pin type terminals to form an integral unit.

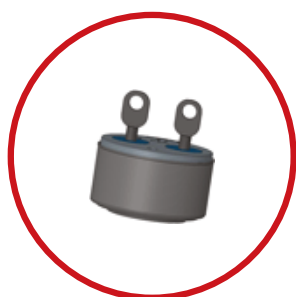
The switch can be custom packed into a probe, strap mount, or immersion thermostat. Consult the factory for special requests.

#### Features

- Snap-action switching
- Rapid thermal response
- Single pole, single throw
- Normally open or normally closed
- Pre-set, non adjustable calibration

#### Applications

- Semiconductor cryogenic pumps
- Hazardous duty motors
- Submersible pumps
- Fire suppression equipment
- Medical X-ray tubes
- Medical incubator thermal control
- Locomotive and rail car heaters
- Marine engine heaters



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#### Switching Action

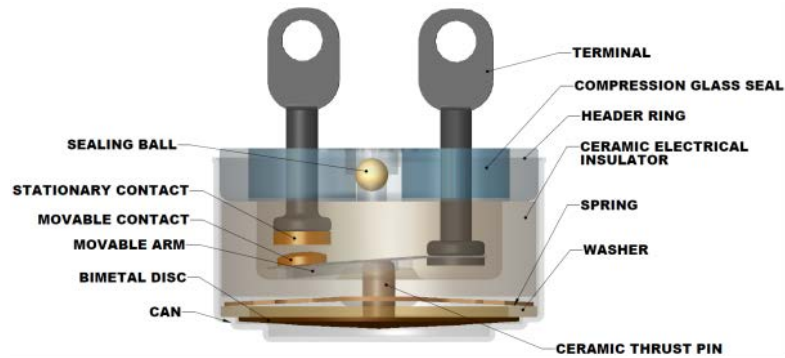
All thermostats are supplied with single pole, single throw switching. The contacts can be constructed as:

**Normally Closed:** Limit type application; contacts open on temperature rise at a predetermined temperature to de-energize the circuit. Contacts automatically re-close as the device cools to a pre-determined temperature.

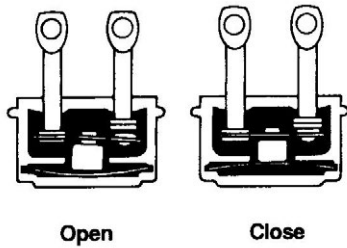
**Normally Open:** Fan type application; contacts close on temperature rise at a predetermined temperature to energize the circuit. Contacts automatically reopen as the device cools to a predetermined temperature.

The opening and closing temperatures are pre-set and non-adjustable.

## Typical Cross Section View



## Operation



When heated, the internal stresses of the bi-metal cause the disc to reverse its curvature with a snap-action at a fixed, preset temperature and operate the electrical contacts.

A decrease in the ambient temperature below the reset temperature of the disc relieves the internal stresses in the disc. The disc returns to its normal curvature and the contacts assume their normal operating position.

## SPECIFICATIONS

### Performance Characteristics

<b>Switch Action</b>	SPST (Snap Action)																														
<b>Contact Resistance</b>	0.050 ohms maximum per MIL-STD-202, Method 307																														
<b>Contact Ratings</b>	<table border="1"> <thead> <tr> <th>30 VAC/DC</th> <th>125 VAC</th> <th>250 VAC</th> <th rowspan="2">Life Cycles</th> </tr> <tr> <th colspan="3">Amperes</th> </tr> </thead> <tbody> <tr> <td>5.0</td> <td>2.5</td> <td>1.0</td> <td>100,000</td> </tr> <tr> <td>5.5</td> <td>3.0</td> <td>1.5</td> <td>50,000</td> </tr> <tr> <td>6.0</td> <td>4.0</td> <td>2.0</td> <td>25,000</td> </tr> <tr> <td>6.5</td> <td>5.0</td> <td>2.5</td> <td>10,000</td> </tr> <tr> <td>7.0</td> <td>6.0</td> <td>3.0</td> <td>5,000</td> </tr> </tbody> </table>			30 VAC/DC	125 VAC	250 VAC	Life Cycles	Amperes			5.0	2.5	1.0	100,000	5.5	3.0	1.5	50,000	6.0	4.0	2.0	25,000	6.5	5.0	2.5	10,000	7.0	6.0	3.0	5,000	
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7.0	6.0	3.0	5,000																												
	Based on standard differential																														
<b>Dielectric Strength</b>	1250 VAC, rms, 60 Cycles for 1 minute, terminal to case, per MIL-STD-202, Method 301																														
<b>Vibration Resistance</b>	5-2000 Hm, 20G, per MIL-STD-202, Method 204 Condition D, (unmonitored)																														
<b>Shock Resistance</b>	100G, 6 milliseconds, per MIL-STD-202, Method 213																														
<b>Hermeticity</b>	1 x 10 <sup>-5</sup> atm cc/sec. max per MIL-STD-202 Method 112, Condition C																														
<b>Salt Spray</b>	per MIL-STD-202, Method 101, Condition B, 5% solution																														
<b>Weight</b>	Basic Unit	4.8 grams																													
	with Bracket	5.8 grams																													

## Gold Contact Ratings (Resistive)

<b>30 VAC/DC</b>	500 mA and below
<b>115 VAC</b>	200 mA and below
<b>230 VAC</b>	100 mA and below

## Temperature

<b>Ambient Temperature Range</b>	-80°F to +550°F (-62.2°C to 287.8°C)																							
<b>Operating Temperature</b>	Temperature at which normally closed contacts open or normally open contacts closed.																							
<b>Tolerance</b>	Allowable range above and below setpoint and reset temperatures * An additional $\pm 3^{\circ}\text{F}$ tolerance is required for over molded devices.																							
<b>Differential</b>	<b>Operating Temperature</b>						<b>Differential</b>						<b>Tolerance*</b>											
	<b>°F</b>		<b>°C</b>		<b>°F</b>		<b>°C</b>		<b>°F</b>		<b>°C</b>		<b>°F</b>		<b>°C</b>		<b>°F</b>		<b>°C</b>					
	-65	-53.9	30	16.7	10	5.6	210	98.9	30	16.7	8	4.4	220	104.4	30	16.7	8	4.4	230	110.0	30	16.7	8	4.4
	-40	-40.0	30	16.7	10	5.6	240	115.6	30	16.7	8	4.4	250	121.1	30	16.7	8	4.4	260	126.7	30	16.7	8	4.4
	-15	-26.1	30	16.7	10	5.6	270	132.2	30	16.7	8	4.4	280	137.8	30	16.7	8	4.4	290	143.3	30	16.7	8	4.4
	0	-17.8	20	11.1	5	2.8	300	148.9	30	16.7	8	4.4	310	154.4	40	22.2	12	6.7	320	160.0	40	22.2	12	6.7
	10	-12.2	20	11.1	5	2.8	330	165.6	40	22.2	12	6.7	340	171.1	40	22.2	12	6.7	350	176.7	40	22.2	12	6.7
	20	-6.7	20	11.1	5	2.8	375	190.6	40	22.2	12	6.7	400	204.4	40	22.2	12	6.7	425	218.3	40	22.2	12	6.7
	30	-1.1	20	11.1	5	2.8	450	232.2	40	22.2	12	6.7	475	246.1	70	38.9	25	13.9	500	260.0	70	38.9	25	13.9
	40	4.4	20	11.1	5	2.8	525	273.9	70	38.9	25	13.9	550	287.8	70	38.9	25	13.9						
	50	10.0	20	11.1	5	2.8																		
	60	15.6	20	11.1	5	2.8																		
	70	21.1	20	11.1	5	2.8																		
	80	26.7	20	11.1	5	2.8																		
	90	32.2	20	11.1	5	2.8																		
	100	37.8	20	11.1	5	2.8																		
	110	43.3	20	11.1	5	2.8																		
	120	48.9	20	11.1	5	2.8																		
	130	54.4	20	11.1	5	2.8																		
	140	60.0	20	11.1	5	2.8																		
	150	65.6	20	11.1	5	2.8																		
160	71.1	20	11.1	5	2.8																			
170	76.7	20	11.1	5	2.8																			
180	82.2	20	11.1	5	2.8																			
190	87.8	20	11.1	5	2.8																			
200	93.9	20	11.1	5	2.8																			
<b>Materials and Finish</b>	Unplated 304 stainless for all new designs. (other finishes available upon request)																							

## Standard Lead Connections

Leads are available in heat-resistant rubber, neoprene, silicone-rubber and Teflon\* in #118 gauge stranded wire in standard incremental lengths of 4" to 36". Other gauge and lengths are available upon request.

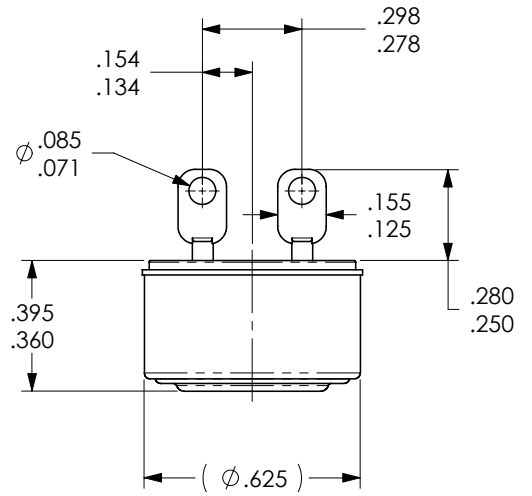
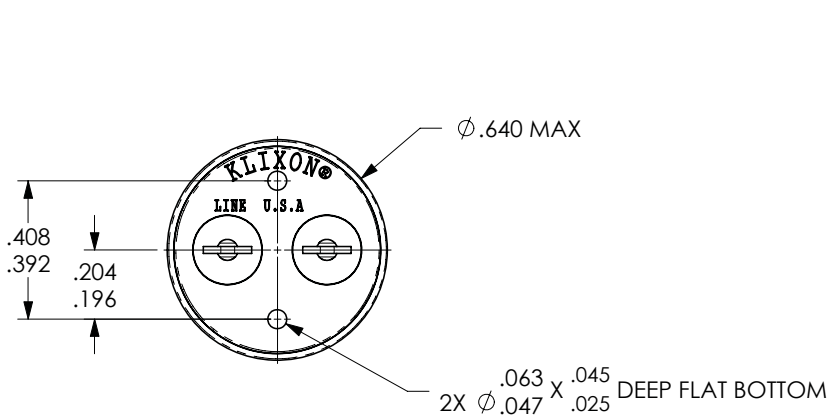
\* Trademark of E.I. DuPont de Nemours and Co.



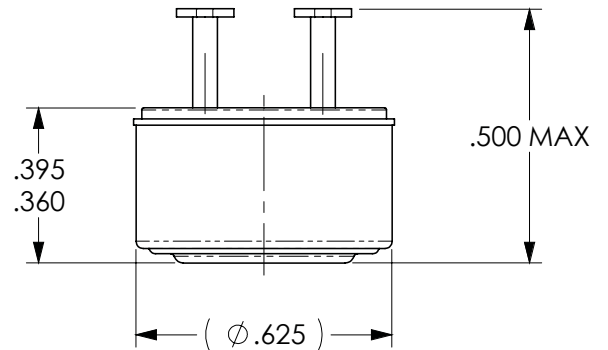
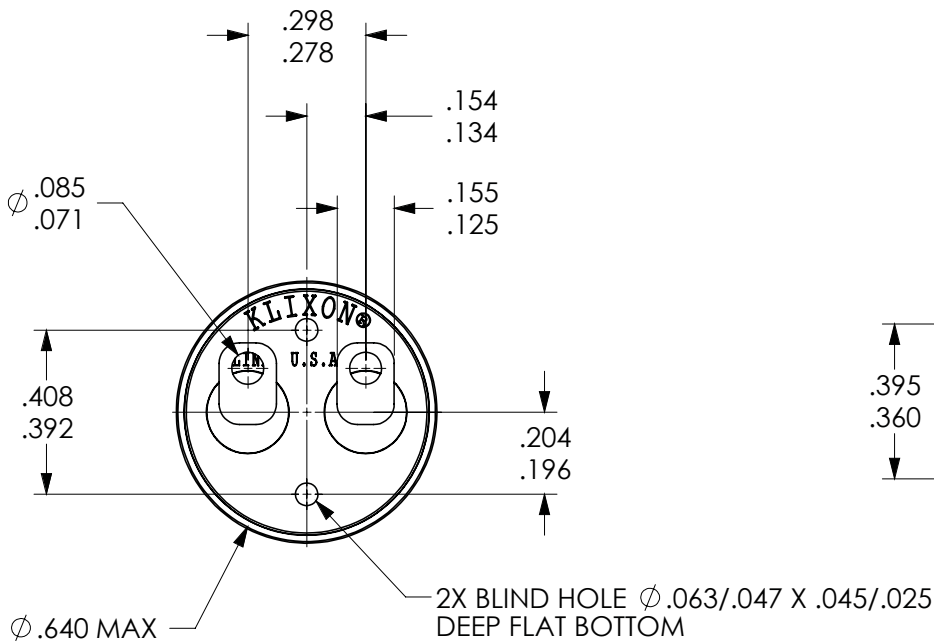
# DIMENSION

An additional  $\pm 3^\circ\text{F}$  tolerance is required for over molded devices.  
All dimensions are in inches

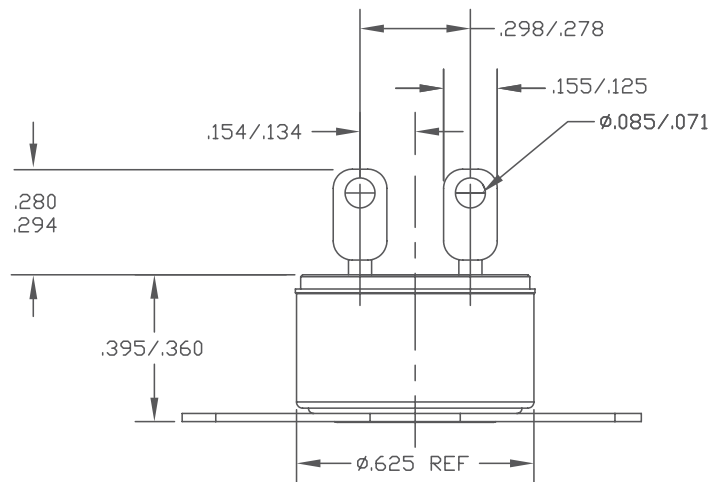
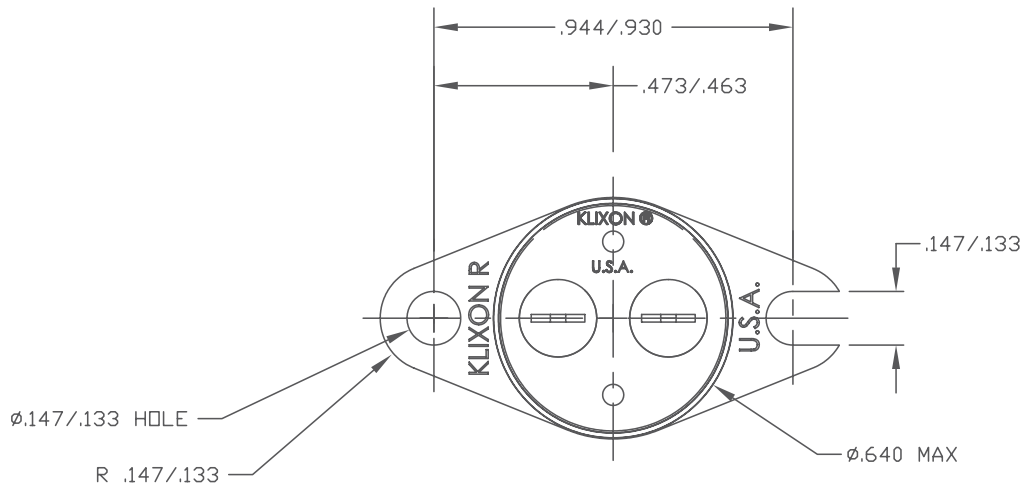
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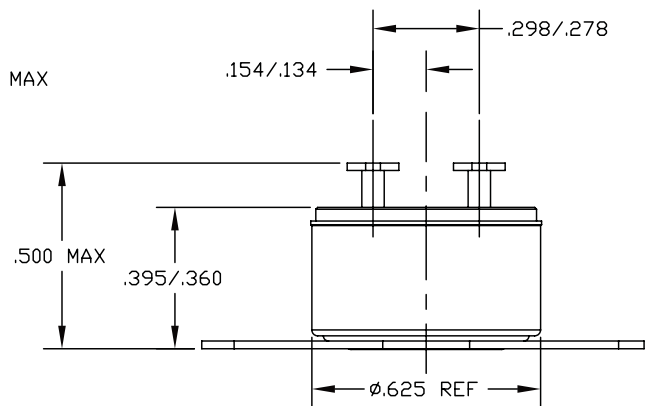
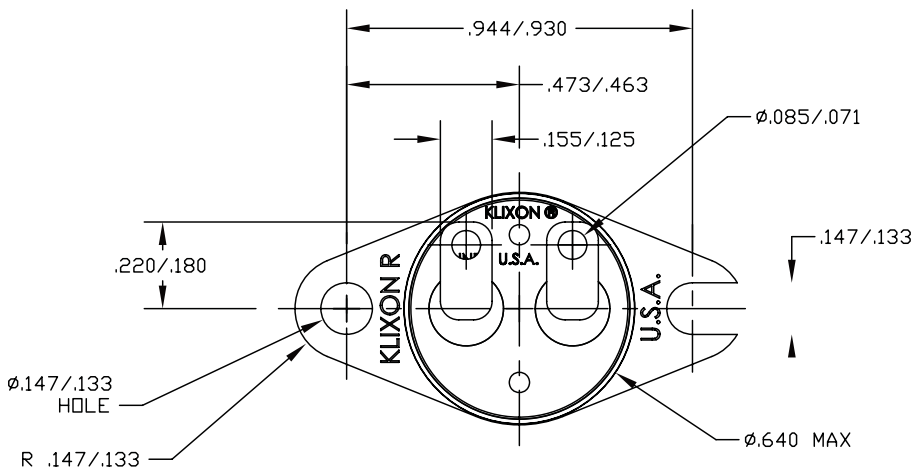
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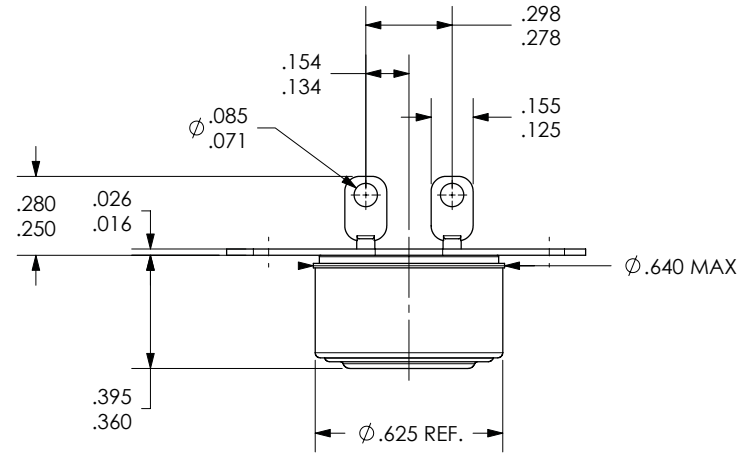
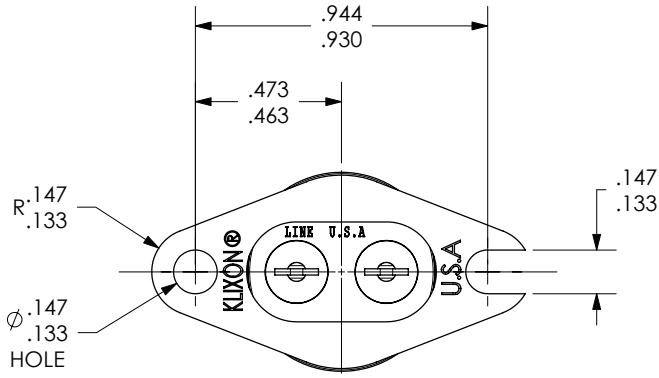
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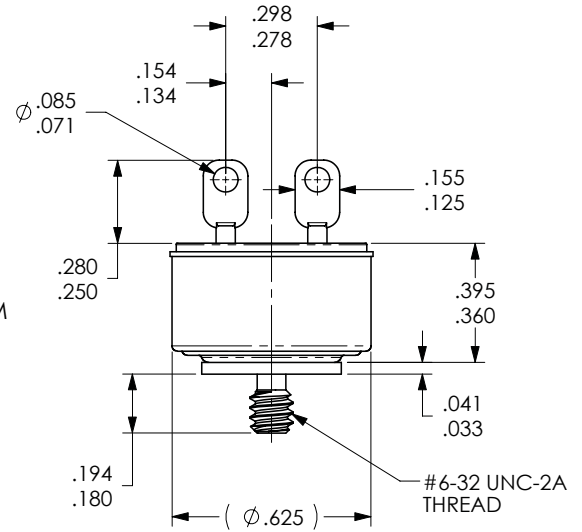
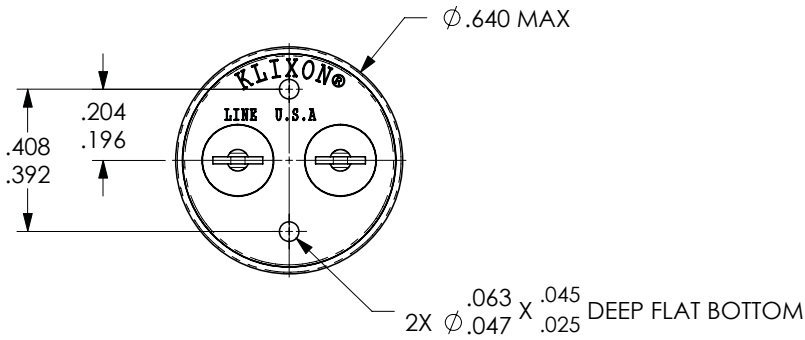
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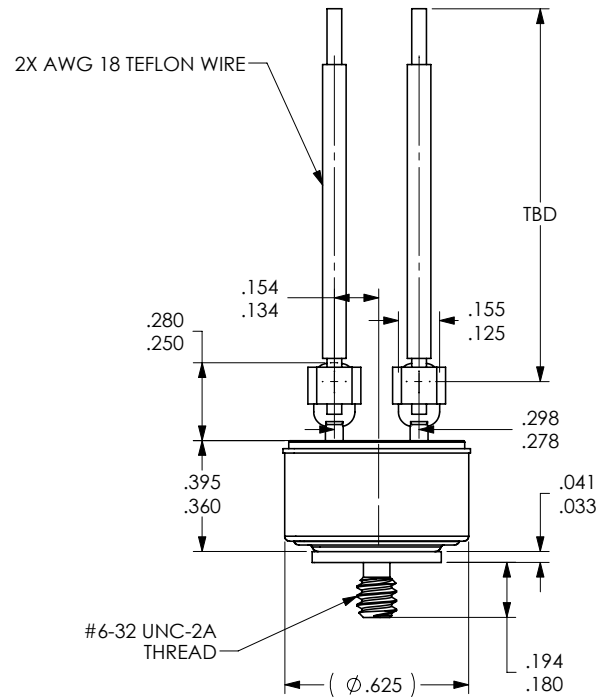
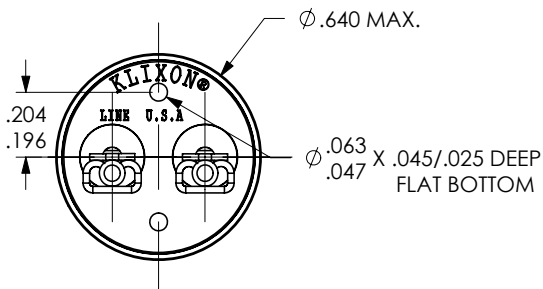
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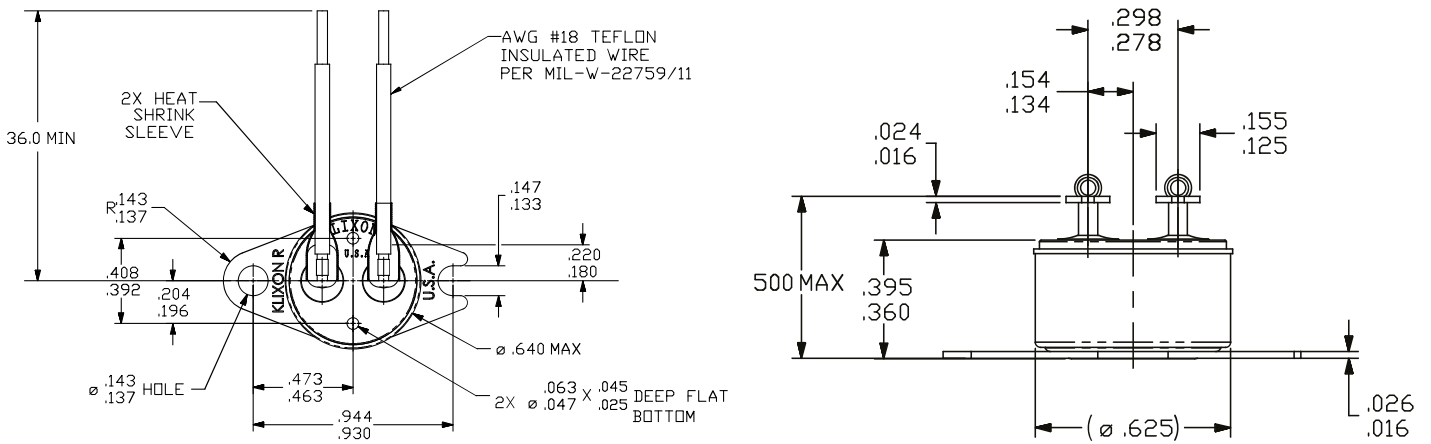
### 4344 - 13



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## AGENCY APPROVALS AND CERTIFICATIONS



<b>UL</b>	File No. 34618
<b>CSA</b>	File No. LR24458

## WARNINGS



### RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

**Failure to follow these instructions can result in serious injury, or equipment damage.**



### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

**Failure to follow these instructions will result in death or serious injury**

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