

# PRODUCT MANUAL

## LYNX™ MOLD DEFLECTION SENSOR

### LS-MD-040





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### LS-MD-040

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# PRODUCT MANUAL

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## INTRODUCTION

Read, understand, and comply with all following instructions. This guide must be kept available for reference at all times.

### DISCLAIMER




Inasmuch as RJG, Inc. has no control over the use to which others may put this material, it does not guarantee that the same results as those described herein will be obtained. Nor does RJG, Inc. guarantee the effectiveness or safety of any possible or suggested design for articles of manufacture as illustrated herein by any photographs, technical drawings, and the like. Each user of the material or design or both should make his own tests to determine the suitability of the material or any material for the design as well as the suitability of the material, process, and/or design for his own particular use. Statements concerning possible or suggested uses of the material or designs described herein are not to be construed as constituting a license under any RJG, Inc. patent covering such use or as recommendations for use of such material or designs in the infringement of any patent.

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### ALERTS

The following three alert types are used as needed to further clarify or highlight information presented in the manual:

-  **DEFINITION** *A definition or clarification of a term or terms used in the text.*
-  **NOTES** *A note provides additional information about a discussion topic.*
-  **CAUTION** *A caution is used to make the operator aware of conditions that can cause damage to equipment and/or injury to personnel.*

### ABBREVIATIONS

DIA	diameter
MIN	minimum
MAX	maximum
R.	radius



## PRODUCT DESCRIPTION

The LS-MD-040 mold deflection sensor from RJG, Inc. is a single-channel, digital strain gage, button-style sensor that measures up to 0.040" (1,016 mm) of mold deflection at the parting line each cycle.

The exclusive Lynx digital technology sensor is designed for use with the RJG eDART® or CoPilot® process control and monitoring systems.

## APPLICATIONS

### MOLD DEFLECTION SENSOR

The button-and-spring-style mold deflection sensor is suitable for injection molding applications in which the following conditions are met:

- A single sensor will be installed nearest the center of the mold where there is no cavity or runner on the parting line, or two sensors will be installed around a centered cavity, or where flash is most likely to occur.
- Applied pressure is high enough to prevent poor sensor resolution, but low enough to prevent sensor damage.
- Sensor will be kept below 250 °F (120 °C) for standard models or 425 °F (220 °C) for high-temperature models in the mold; **sensor electronics, regardless of model, will be kept below 140 °F (60 °C).**

**CAUTION** *Sensors MUST be used only within the recommended temperature ranges; failure to comply will result in the damage or destruction of equipment.*

- Only one point of contact to the sensor.

- The eDART and CoPilot systems require a mold clamped/closed machine sequence signal to “zero” the mold deflection sensor (provided from the molding machine to the eDART or CoPilot system by a connected Lynx™ Shielded Sequence Module ID7-M-SEQ). The zero point will be when machine sequence signal mold clamped/closed goes “ON”; this works with coining when the mold remains open at the start of injection—since zero is fully clamped, then the amount of coining opening is visible.
- Each sensor appears with the type name “Mold Deflection” within the eDART or CoPilot systems. This cannot be changed because it is programmed into the sensor. Select a location that most closely describes where the sensor is positioned. Add IDs for each position around the face of the mold; “Parting Line” is usually used unless the sensor is in an odd position in a block.

## OPERATION

### INDIRECT/UNDER PIN

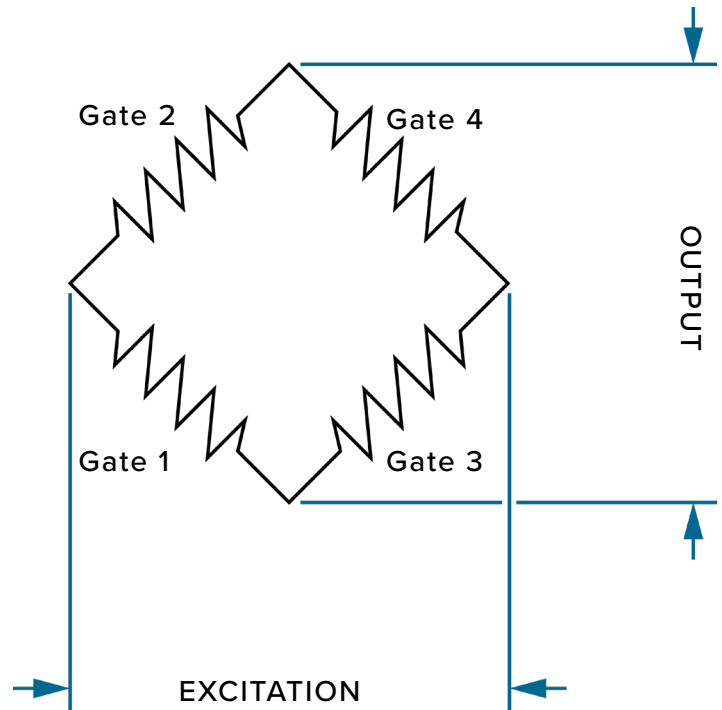
The Lynx single channel strain gage mold deflection sensor is placed in the clamp plate behind a 5/16" ejector pin which protrudes 0.040" (1,016 mm) into the parting line area—not the cavity. When the mold clamps, the pin is pressed flush with the parting line and the full force (~40 lb.) is applied to the sensor through the spring compression, defining the “zero” deflection. As the mold “cracks” each incremental force decrease on the sensor is reported as an increase in deflection. The sensor is calibrated to assume 0.040" (1,016 mm) of maximum deflection.

The accuracy of the sensor is dependent on the full scale/maximum deflection. When the mold is fully open, the sensor must be at the maximum deflection. The eDART or CoPilot system computes a scale factor based on the full scale value while the mold is open and the zero value that is recorded once the parting line is closed and injection begins.

### STRAIN GAGE SENSORS

The strain gage sensing element inside the sensor body converts the applied force to an electrical signal that can read using the eDART or CoPilot system software. The sensing element uses a Wheatstone bridge configuration (four strain gage elements positioned in a circuit) to convert small amounts of sensor deformation into a measurable voltage through the change in resistance of the strain gage sensing elements. The sensor sends out a low-level voltage signal which is proportional to the amount of force applied by the pressure placed on the pin and transferred to the sensor.

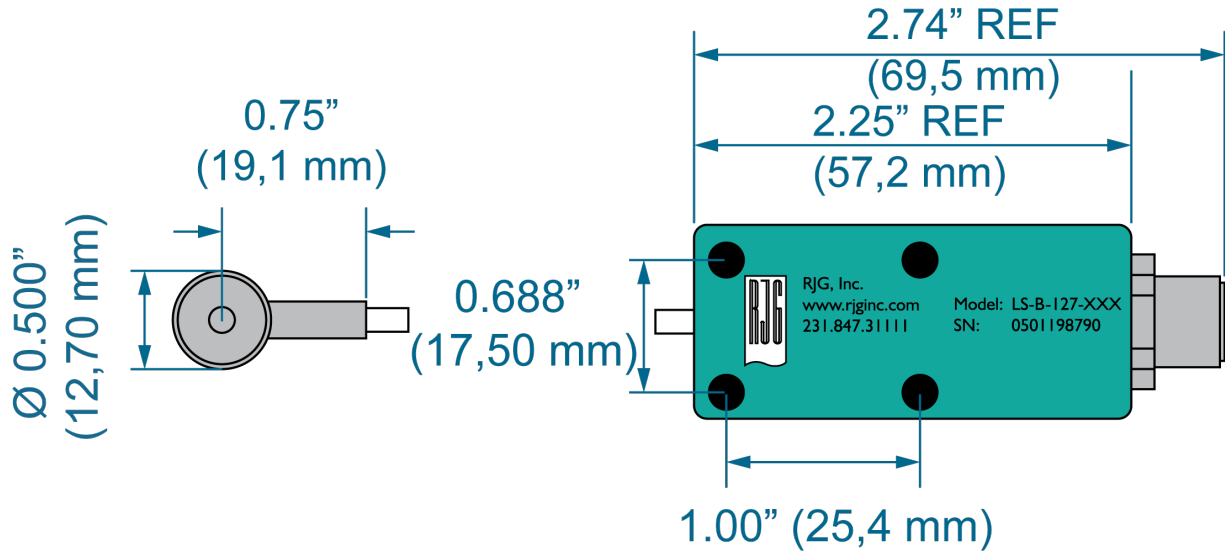
STRAIN GAGE OPERATING PRINCIPLE



The voltage measurement is carried through the sensor cable, to the Lynx sensor electronics case mounted on the outside of the mold. The voltage signal is converted by the sensor's electronics to a high-accuracy digital output that directly correlates with pressure from within the cavity.

The Lynx case is connected to the RJG, Inc. eDART or CoPilot system, which records and displays the sensor's measurement for use in process monitoring and control. In addition, the Lynx case communicates the sensor model, serial number, full scale load, and calibration data automatically to the eDART or CoPilot system, providing the highest level of sensor accuracy while minimizing the need for user-entered data when configuring the sensor in the eDART or CoPilot systems.

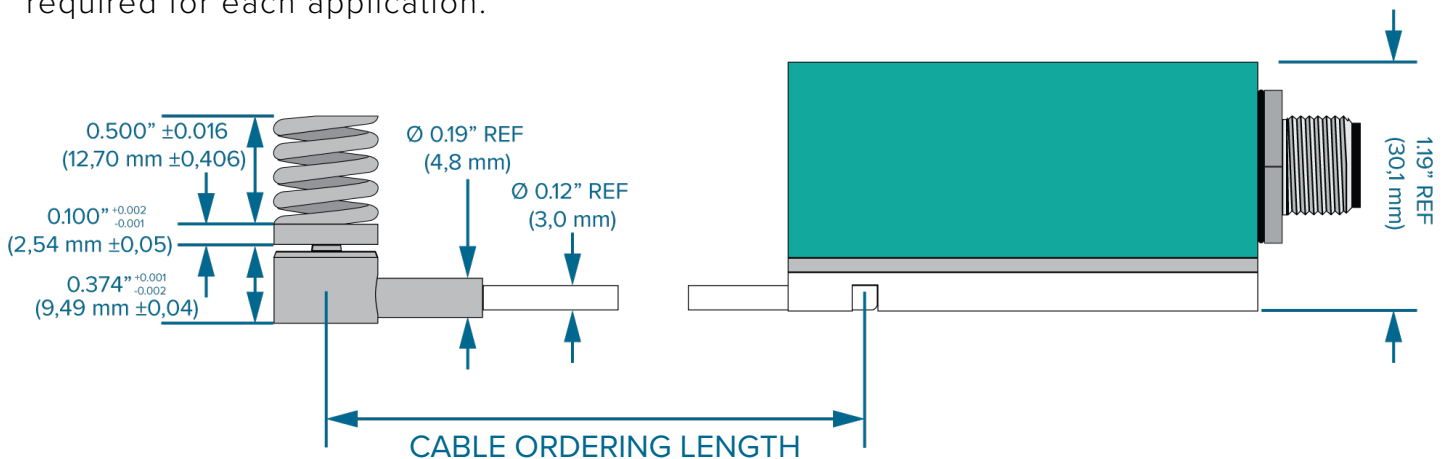
## DIMENSIONS



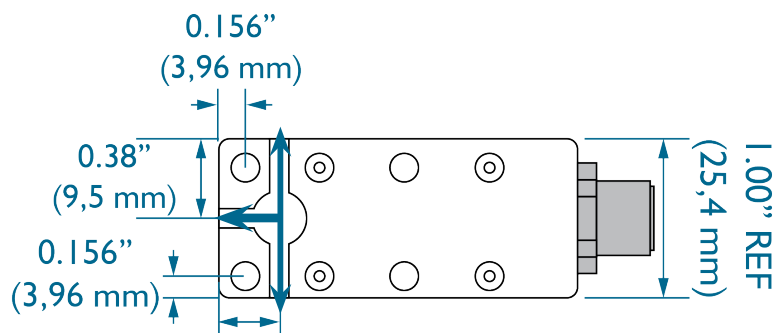
## CABLE LENGTHS

Length must be longer than needed to facilitate safe installation and removal of connector from tool to prevent tension on the lead wire; generally, 2–3" (50–75 mm) of slack is sufficient. Use good sense to determine the appropriate cable length required for each application.

3–48"	(1/8" increments)
75–1,200 mm	(3,0 mm increments)



## CABLE ROUTING OPTIONS





## INSTALLATION

A typical, single-deflection test point is centrally-located in the mold where there is no cavity or runner on the parting line. However, if a cavity or runner impedes centering the sensor, two sensors may be installed on each side of the obstruction—where flash is most likely to occur.

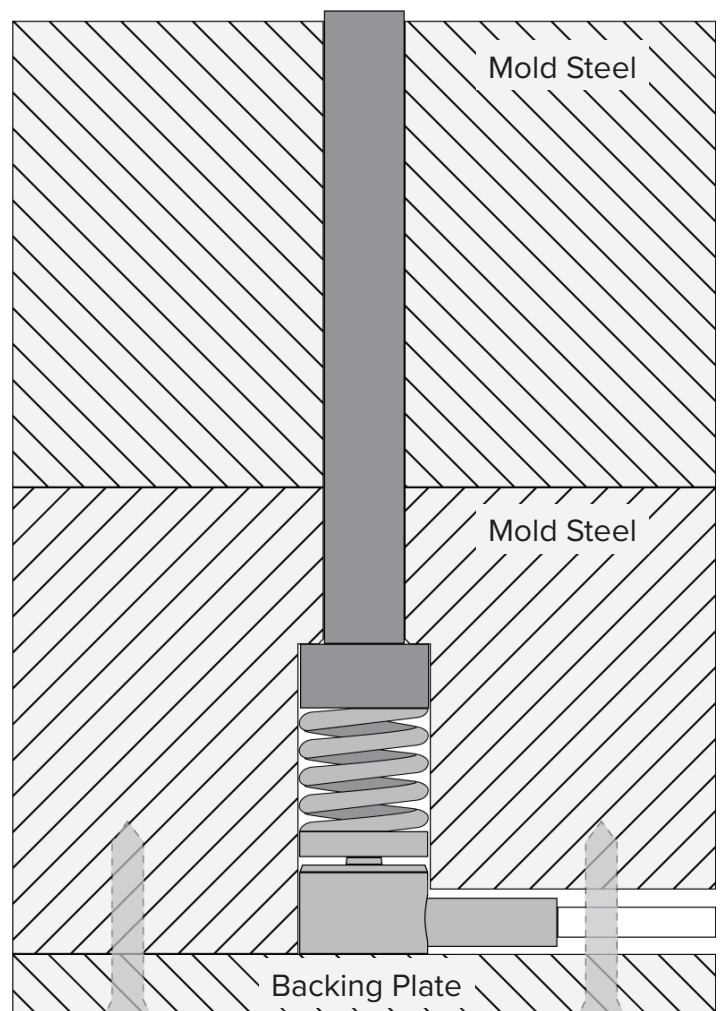
The sensor may be placed on either the A- or B- side of the mold, though placement in the A-side may be more convenient for avoiding support pillars. The sensor may also be installed in the sprue puller plate of a three-plate mold.

If an off-center pressure is occurring on the mold, several sensor locations may be implemented for testing.

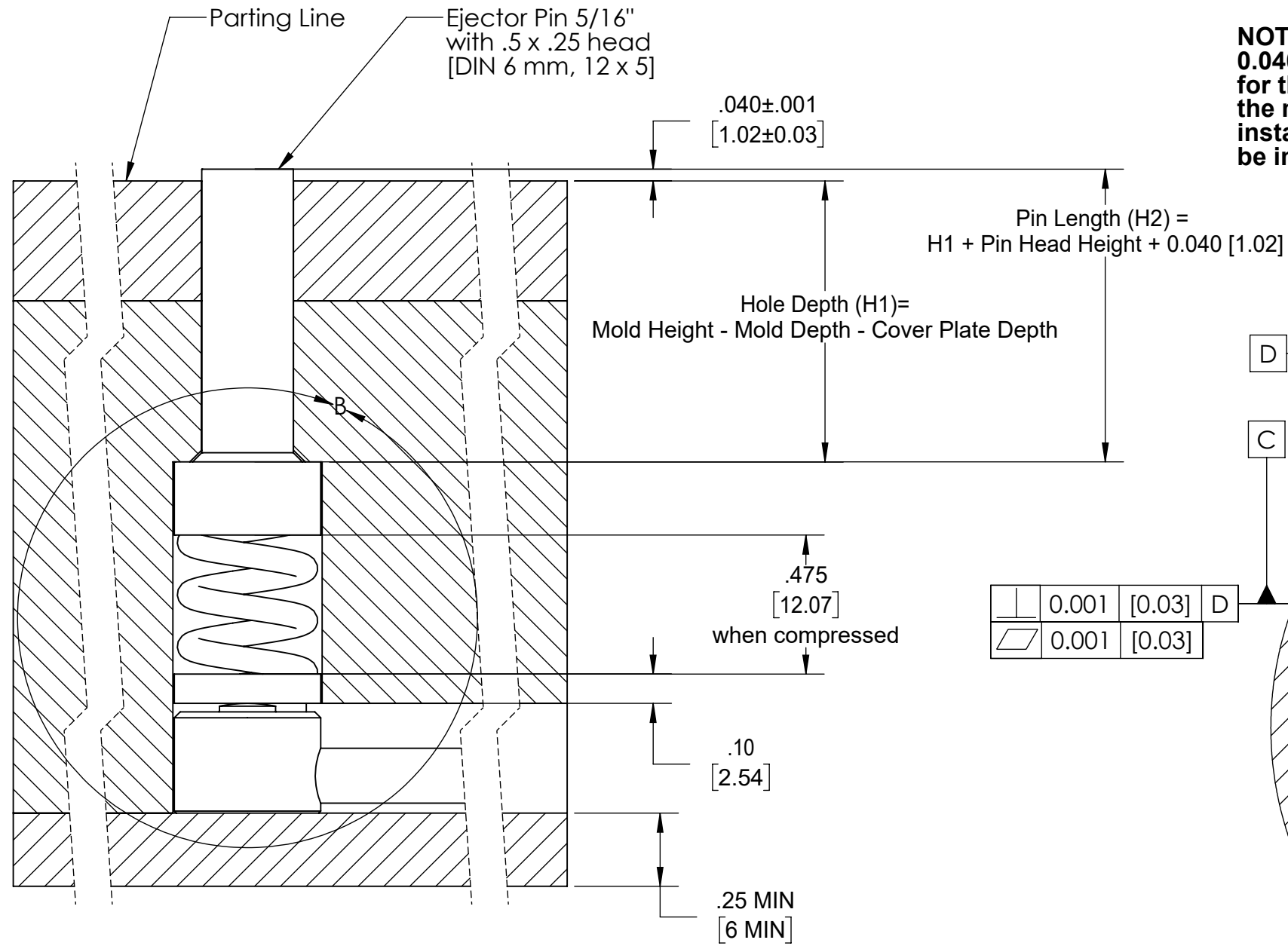
### INSTALLATION OVERVIEW

The sensor body is mounted outside of the mold. A channel is machined into the mold for the sensor cable and sensor head assembly. The sensor head assembly is placed under the pin above the backing plate in the mold steel. The pin is retained in the mold steel and reaches through to parting line (refer to figure at right).

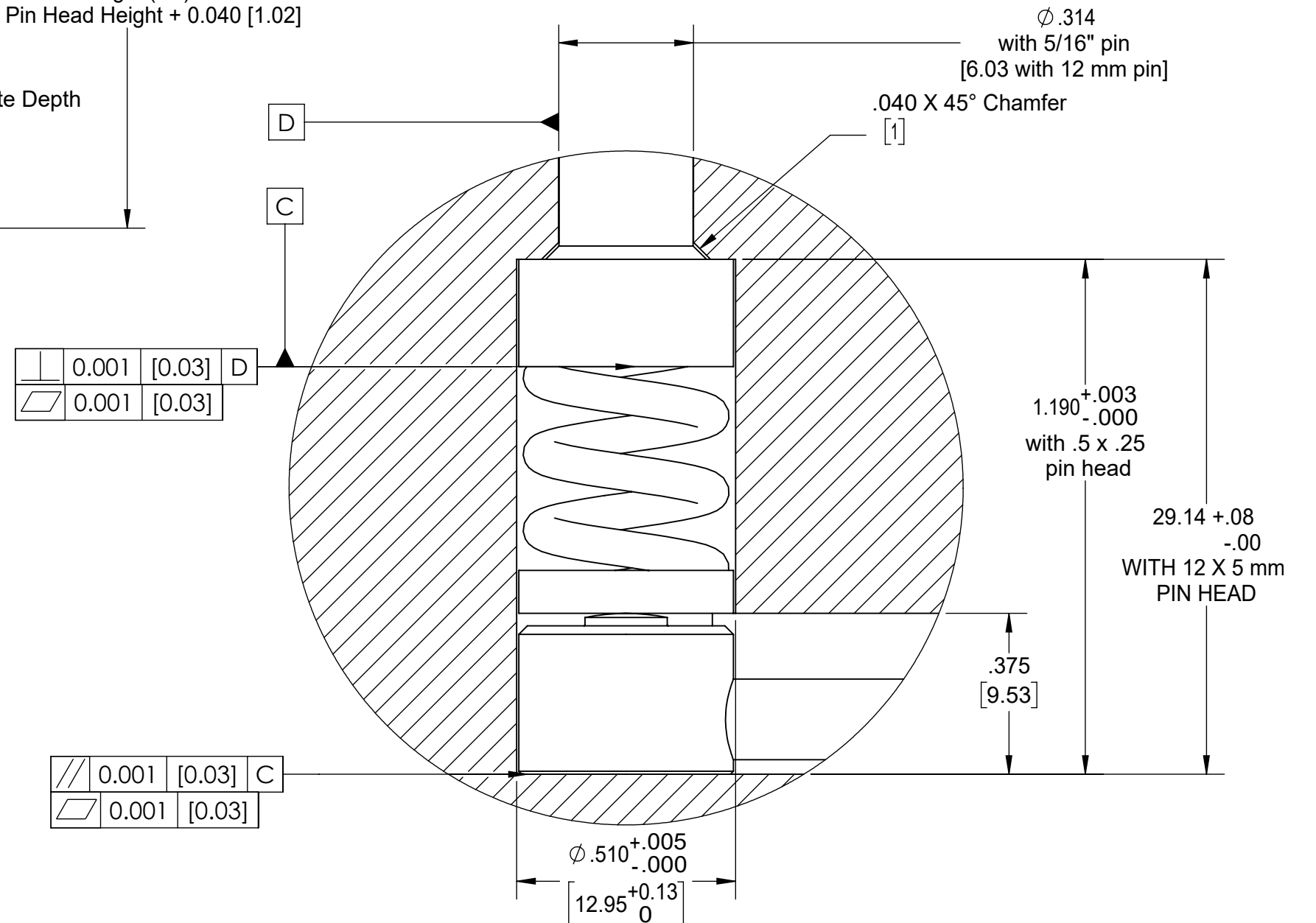
Due to the various installation options, the customer must supply the correct pin(s), backing plate(s), and backing plate(s) hardware for sensor installation.



# INSTALLATION SPECIFICATIONS



**NOTE:** The pin must be compressed 0.040 [1.02] when the mold is clamped for the sensor to read accurately. If the mold does not fully close in the installed region, the pin height must be increased accordingly.



## INSTALLATION SPECIFICATIONS (continued)

The sensor and pin pockets are calculated for 5/16" or 6,0 mm DIN standard pin sizes.

- The 5/16" pin has a 0.50" DIA head that is 0.25" thick.
- The 6,0 mm DIN pin has a 12,0 mm DIA head that is 5,0 mm tall.

Choose the pin appropriate for the application.

The springs come with a  $\pm 0.016"$  ( $\pm 0,4$  mm) tolerance. The sensor pocket hole depth is designed to accept springs of minimum and maximum length, preloading the smallest and not-overloading the longest.

### SENSOR, SPRING, AND PIN HEAD POCKET

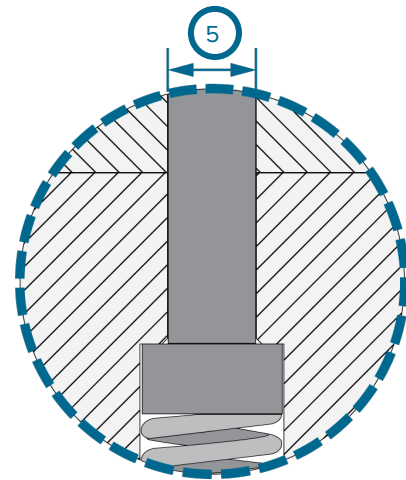
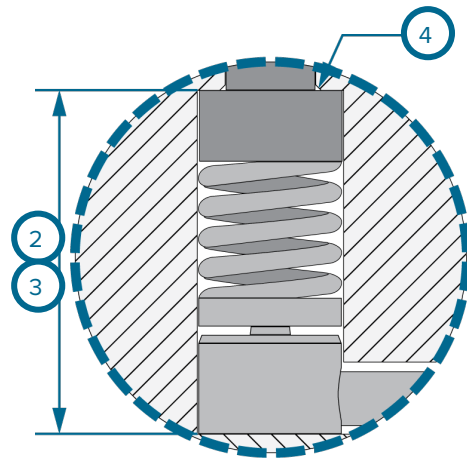
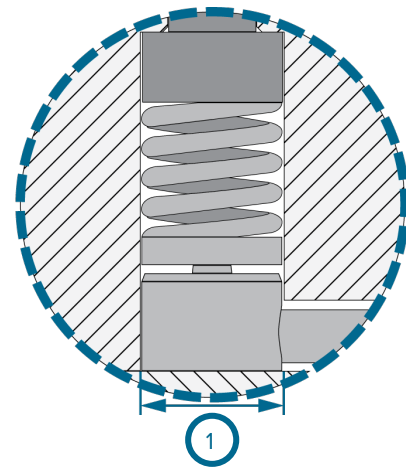
The sensor, spring, and pin head pocket is machined into the mold steel measuring DIA 0.510"  $+0.005/-0.0$  (12,95 mm  $+0,13/-0,0$ ) [1 at right]; use the table below to determine pocket depth based on the selected pin size (2 & 3 at right):

Pin Size	Pin Head Height	Sensor & Pin Head Pocket Depth
5/16"	0.25"	1.190" ( $+0.003/-0.000$ )
6,0 mm	5,0 mm	29,14 mm ( $+0,08/-0,00$ )

Chamfer the sensor head pocket to the pin pocket 0.040" (1,0 mm) [4 at right] 45°.

### PIN POCKET BORE

The pin pocket bore is machined in the mold steel. The pocket must be concentric DIA 0.314" (6,03 mm) [5 at right]).



1	$\varnothing$ 0.510" $+0.005/-0.0$ (12,95 mm $+0,13/-0,0$ )	4	Chamfer 0.040" (1,0 mm) at 45°
2	1.190" ( $+0.003/-0.000$ )	5	$\varnothing$ 0.314" (6,03 mm)
3	29,14 mm ( $+0,08/-0,00$ )		

## INSTALLATION SPECIFICATIONS (continued)

### PIN POCKET DEPTH

Pin hole depth ( $H^1$  [1 AT RIGHT]) must be calculated individually for each application. The pin hole depth is calculated using mold height, sensor and ejector pin head hole depth, and backing plate depth.

#### HOLE DEPTH ( $H^1$ )

= Mold Height - Hole Depth - Backing Plate Depth

### PIN LENGTH

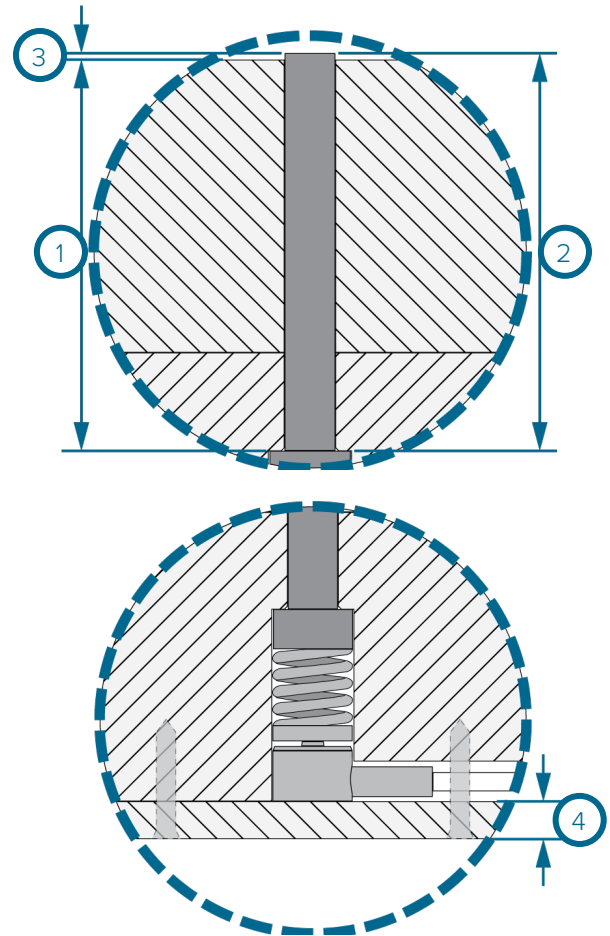
The pin length ( $H^2$  [2 AT RIGHT]) must be calculated individually for each application. The pin length is calculated using pin hole depth, pin head height, and deflection calibration of 0.040"  $\pm$  0.001 (1,02 mm  $\pm$  0,03 [3 AT RIGHT]) MAX; the sensor is internally calibrated for this length.

#### PIN LENGTH ( $H^2$ )

=  $H^1$  + Pin Head Height + 0.040" (1,02 mm)

### BACKING PLATE

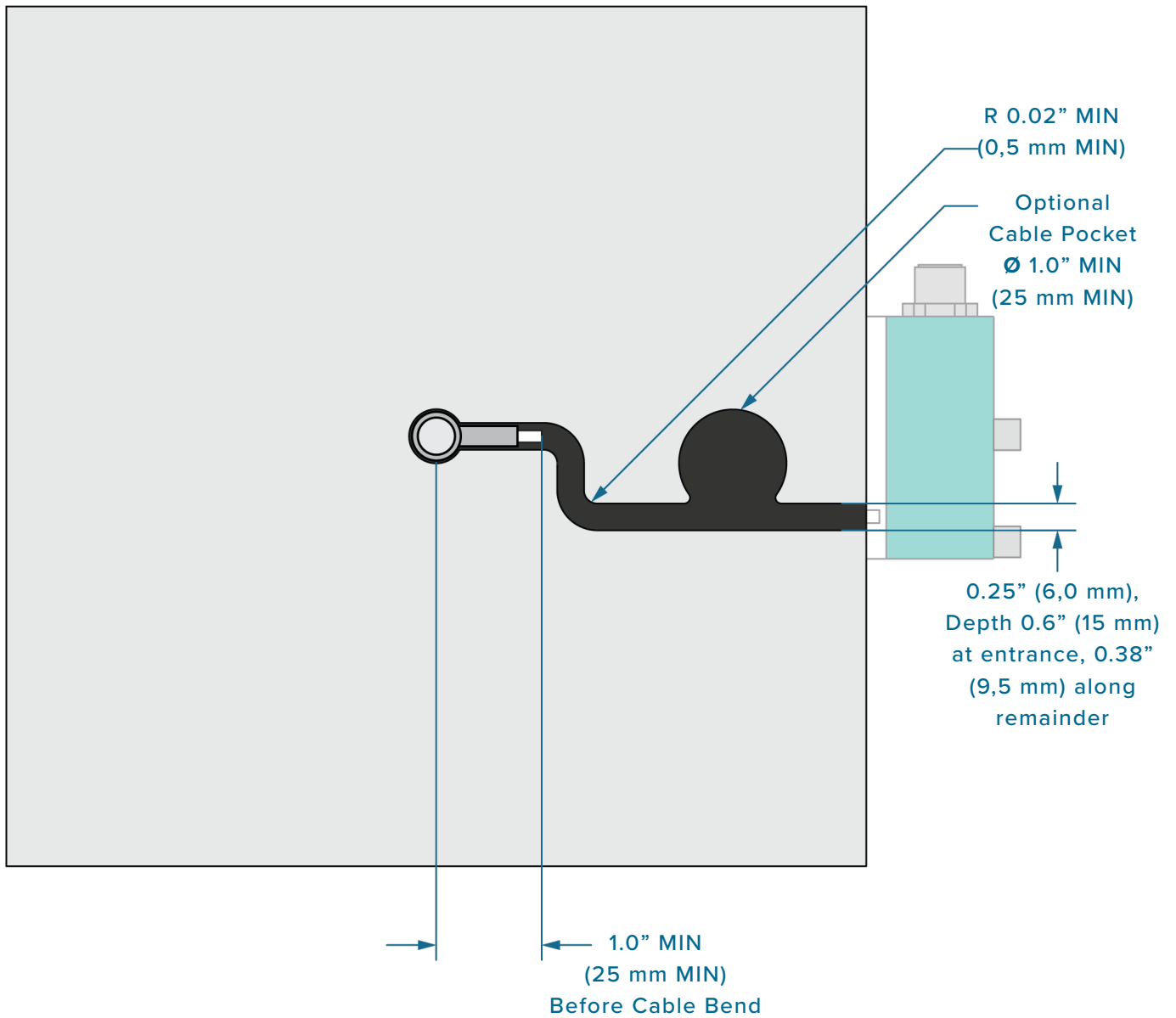
The backing plate must be 0.25" (6,0 mm [4 AT RIGHT]) MIN, made of SAE 1080 steel (AFNOR XC70/XC80). Incorporate and install screws (5 AT RIGHT) in the backing plate design on each side of the sensor diameter to avoid any bending of the cover.



1	$H^1$ = Mold Height - Hole Depth - Backing Plate Depth
2	$H^2$ = $H^1$ + Pin Head Height + 0.040" (1,016 mm)
3	0.040" (1,016 mm)
4	0.25" (6,0 mm) MIN
5	8-32 x 1.75" (M4x0.7x15,88)

## INSTALLATION SPECIFICATIONS (continued)

### SENSOR CABLE CHANNELS

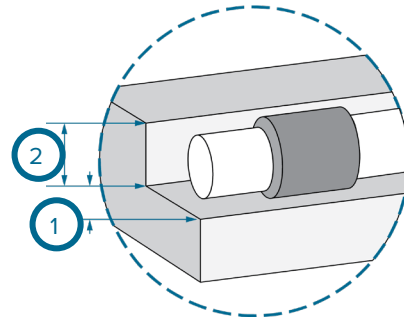


## INSTALLATION SPECIFICATIONS (continued)

### SENSOR CABLES

#### 1. Cable Channel

Machine a cable channel width of 0.25" (6 mm [**1 AT RIGHT**]) with and depth 0.6" (15 mm [**2 AT RIGHT**]) at entrance and 0.38" (9,5 mm) along remainder.

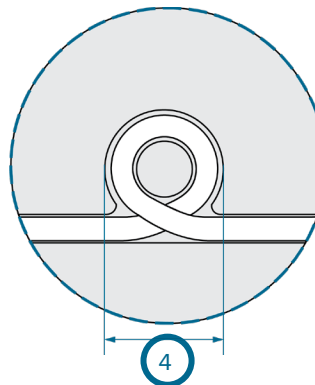
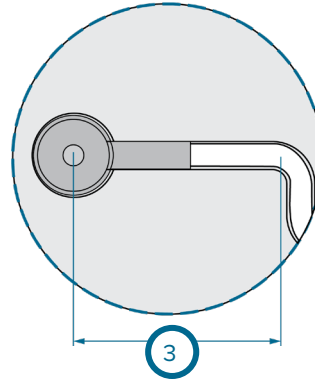


#### 2. Sensor Cable Bend

- The sensor cable must not be bent within 1.00" (25 mm [**3 AT RIGHT**]) MIN of sensor head center.

#### 3. Excess Cable Pocket

- If necessary, a cable pocket may be machined to store excess cable. This requires 1.00" (25 mm [**4 AT RIGHT**]) MIN DIA for the cable to coil.

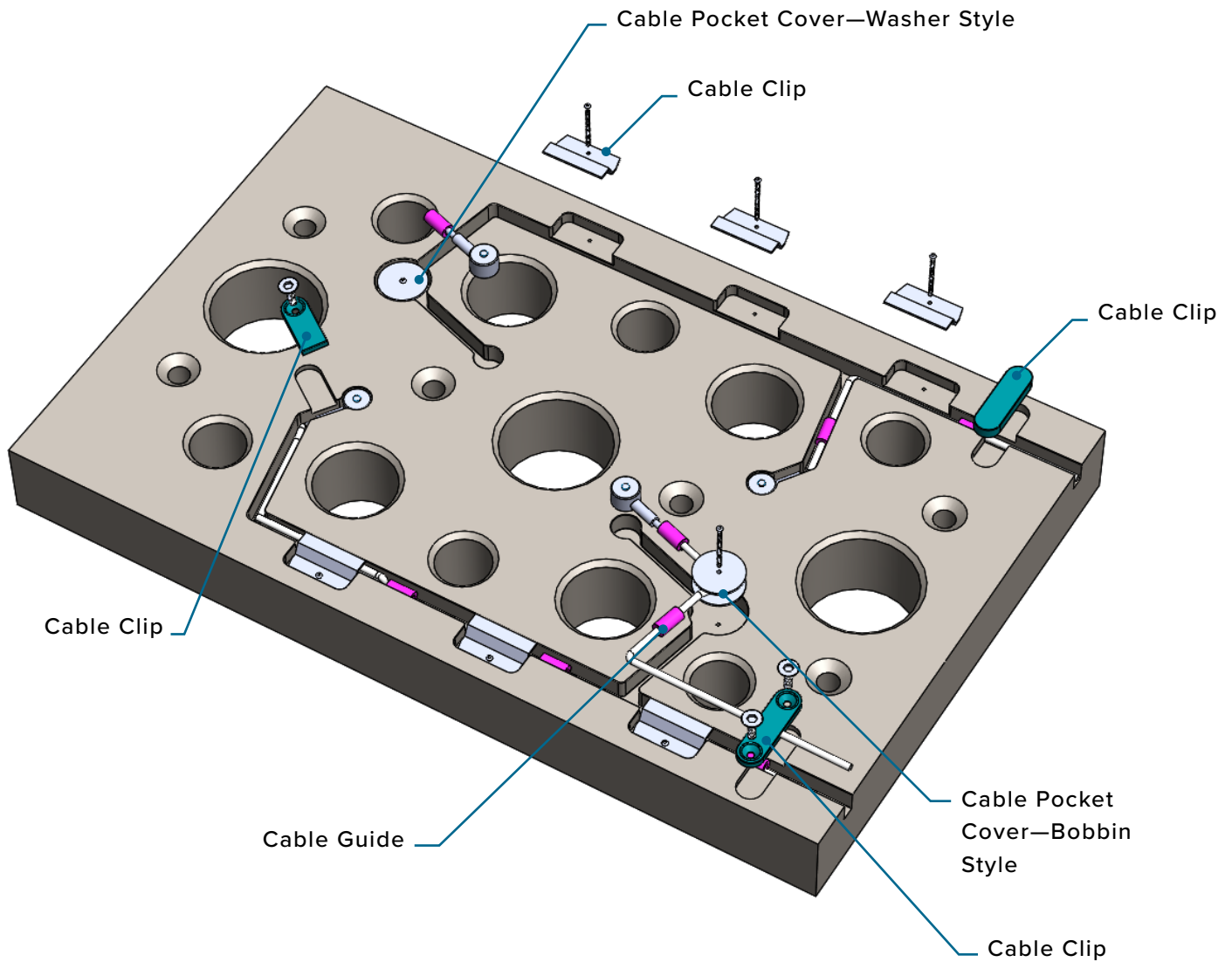


<b>1</b>	0.25" (6 mm)
<b>2</b>	0.38" (9,5 mm)
<b>3</b>	1.00" (25 mm) MIN
<b>4</b>	∅ 1.00" (25 mm) MIN

## INSTALLATION SPECIFICATIONS *(continued)*

### SENSOR CABLE RETENTION

Sensor cable retention strategies must be considered during the mold design phase. Cables are often not the exact size needed, or do not easily remain in the cable channels during assembly and must be retained using one or more of the following methods.

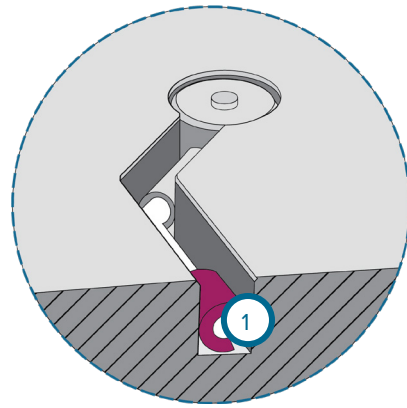


## INSTALLATION SPECIFICATIONS *(continued)*

### SENSOR CABLE RETENTION

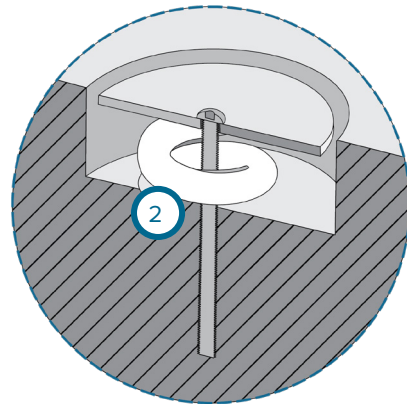
#### 1. Cable Guides

Use self-locking cable guides (**1 AT RIGHT**) in cable channels to retain the sensor cable. Cable guides are silicone rubber tubes with a slot in them to accommodate the sensor cable; the cable guides fit snugly within the cable channel dimensions provided.



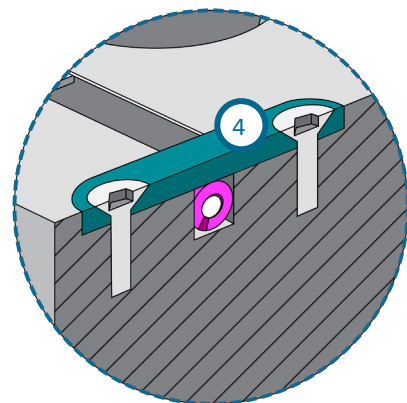
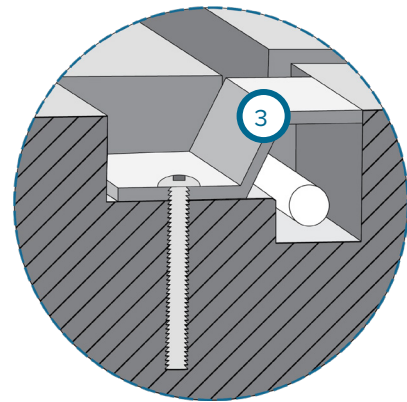
#### 2. Cable Pocket Covers

If excess cable pockets are present, it may be useful to provide a cover (**2 AT RIGHT**) for the cable pocket with which to retain extra cable. Though RJG does not currently provide a solution specifically for this application, plastic or metal discs with a centrally-located hole, retained by a single bolt through the center, can be used to easily retain cable within the pocket. Alternatively, a bobbin-style device can be used similarly to retain cable within a pocket.



#### 3. Cable Clips

Cables may also be retained in channels using cable clips (**3 & 4 AT RIGHT**); RJG does not currently provide this solution. Clips can be formed from sheet or plate metal and retained by machine screws, or purchased from a molding components supplier. The clips can supplement or replace the use of silicone rubber cable guides, enabling an easier assembly of the tool.

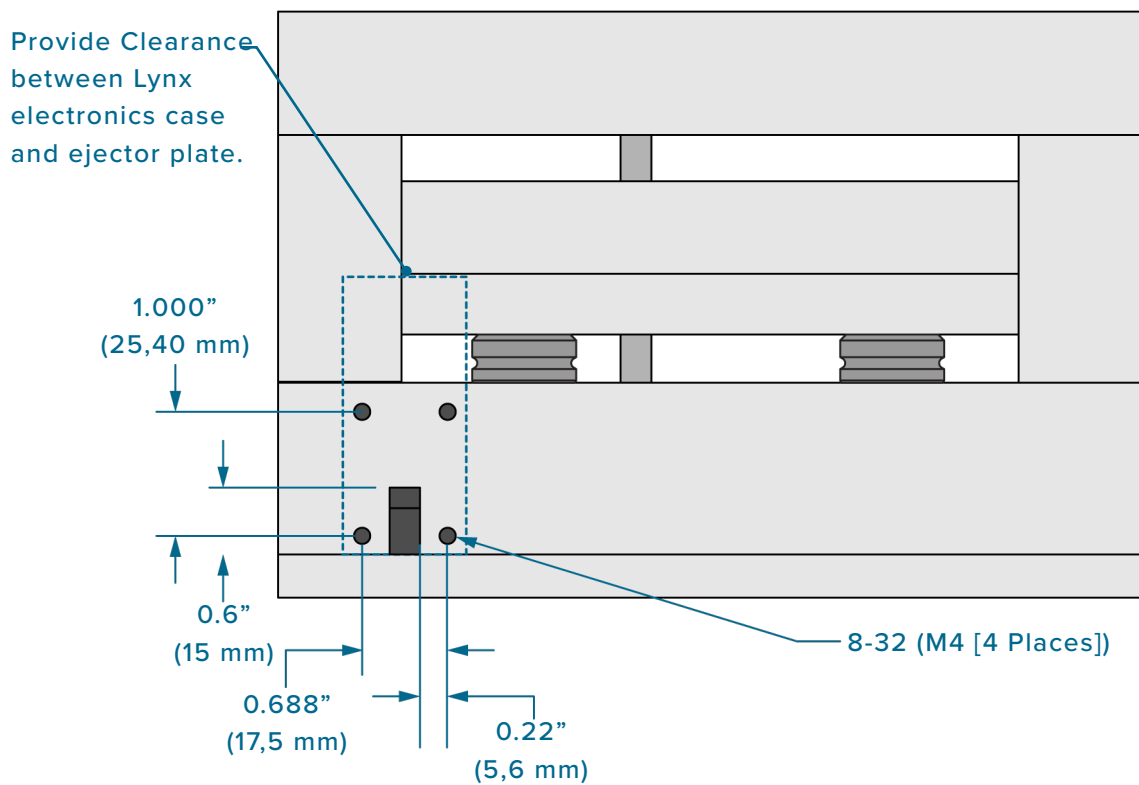


## INSTALLATION SPECIFICATIONS (continued)

### LYNX CASE MOUNTING

#### 1. Clamp Plate Installations

The Lynx sensor case is mounted parallel/front facing (faces direction in which the mold moves to the mold movement for clamp plate installations to allow access to the Lynx premium cable. Install the Lynx sensor case on the outside of the mold using the provided socket head cap screws 8-32 x 1.75" (M4—not provided by RJG).



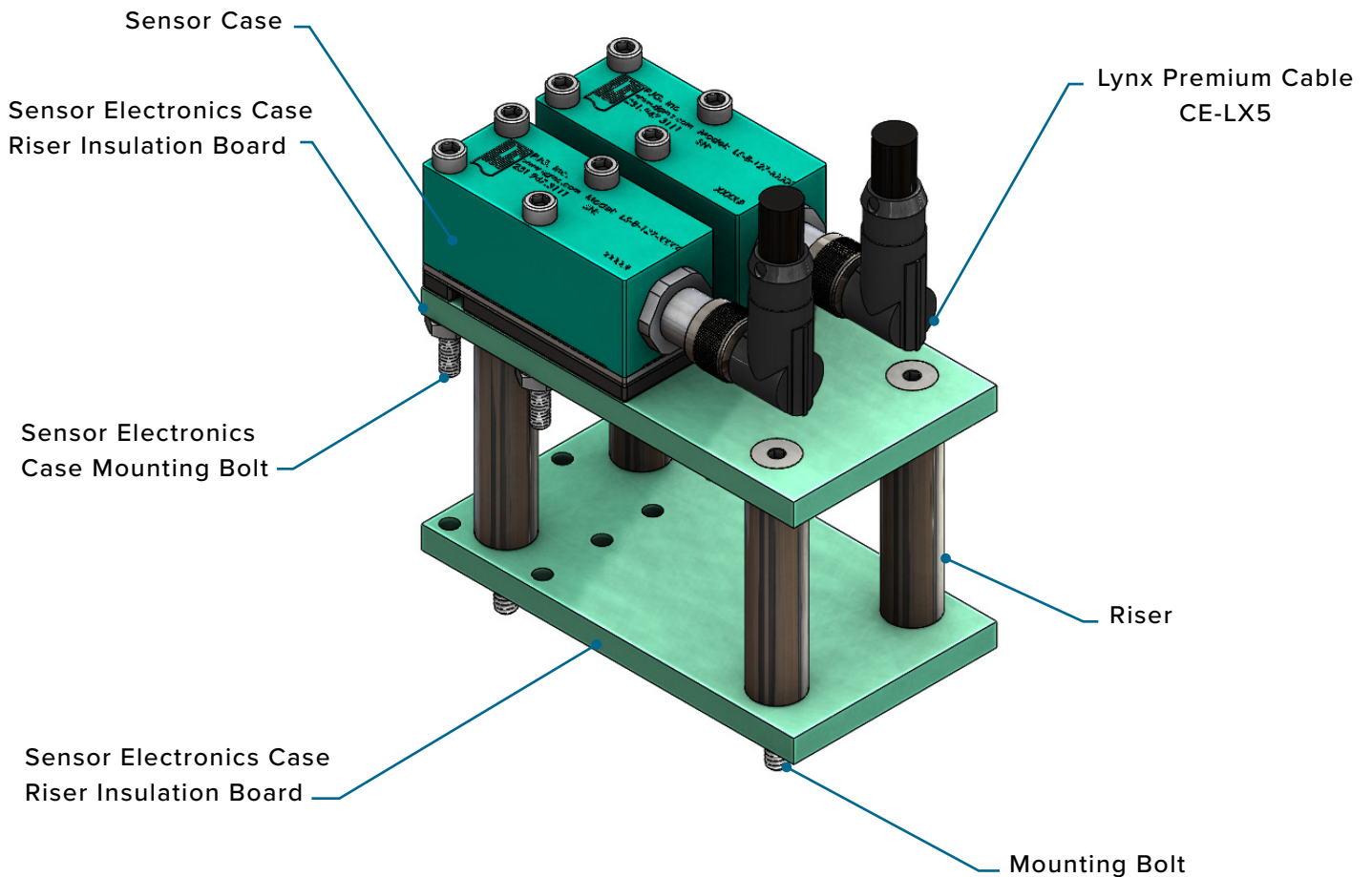


## INSTALLATION SPECIFICATIONS *(continued)*

### HIGH-TEMPERATURE SENSOR CASE INSTALLATION

While the high-temperature sensor models include a sensor head which can withstand temperatures of up to 425 °F (220 °C), the sensor case must be kept below 140 °F (60 °C)—the same as the standard sensor models. In order to meet the temperature conditions for the sensor electronics in the sensor case, a riser can be constructed

on which to mount the case—provided that there is adequate space on the mold and clearance for all components. The following depicts such an installation. For assistance in designing an appropriate installation to prevent heat damage to the sensor electronics, contact RJG customer support (“Customer Support” on page 25).



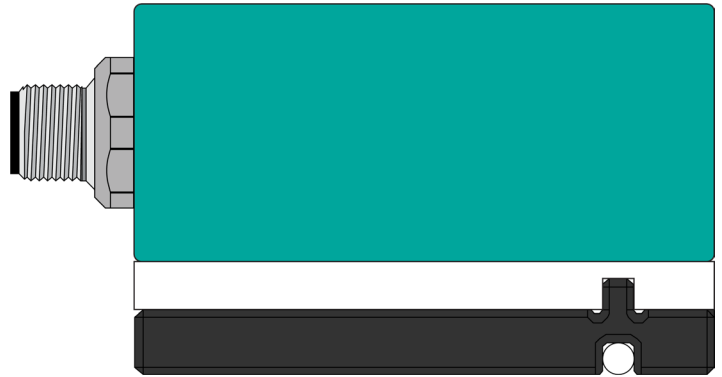
## INSTALLATION SPECIFICATIONS *(continued)*

### CABLE STORAGE

Use cable stackers (**AT RIGHT**) to provide storage for excess cable. Refer to the table below for cable stacker storage specifications.

Stackers	Screw Length	Cable Stored
1	1.75" (45 mm)	6.0" (152,4 mm)
2	2.00" (50 mm)	12.0" (304,8 mm)
3	2.25" (60 mm)	18.0" (457,2 mm)
4	2.50" (64 mm)	24.0" (609,6 mm)

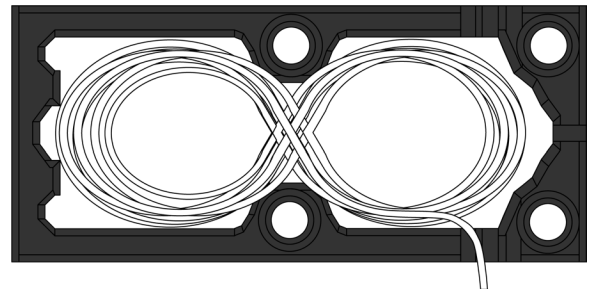
STACKER INSTALLED ON LYNX CASE



STACKER SIDE VIEW



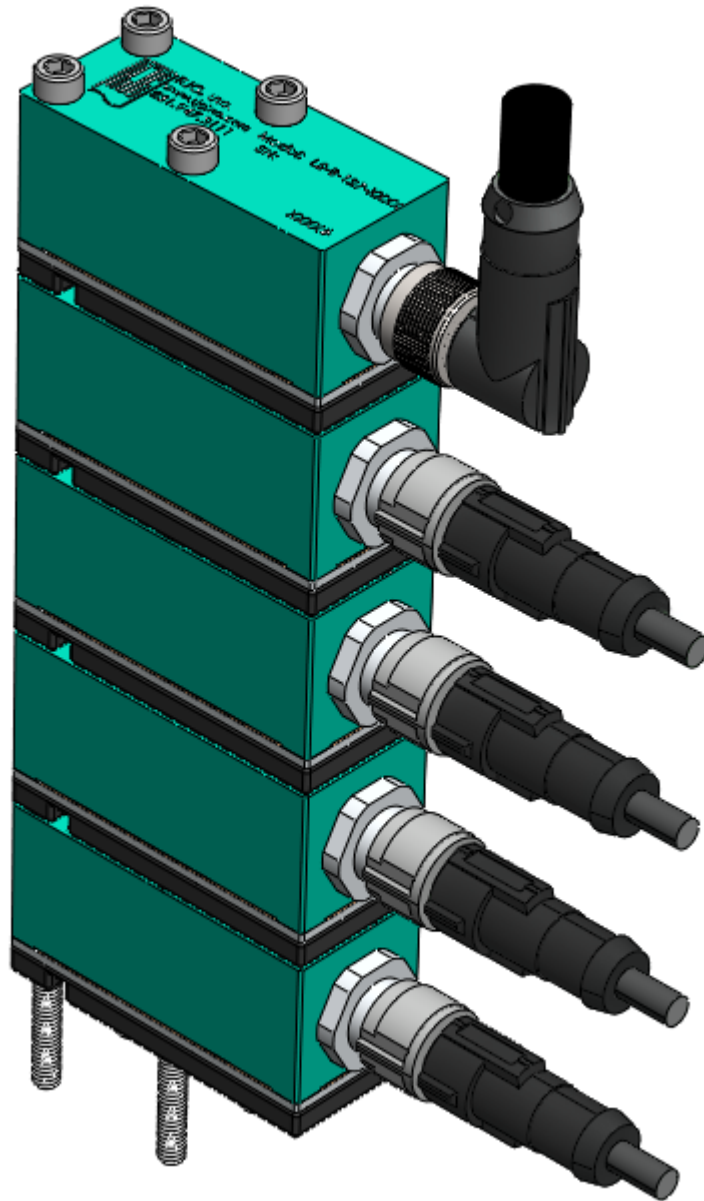
STACKER TOP VIEW WITH CABLE



## INSTALLATION SPECIFICATIONS *(continued)*

### STACKING LYNX CASES

The Lynx sensor electronics cases may be stacked, and even embedded in a mold (provided that temperature and connection clearances are observed); straight connection Lynx premium cables (CE-LX5-W) must be used in order to stack the Lynx cases except for the uppermost case/cable connection due to the space requirements for the connection.





## MAINTENANCE

Strain gage sensors require little maintenance.

### CLEANING

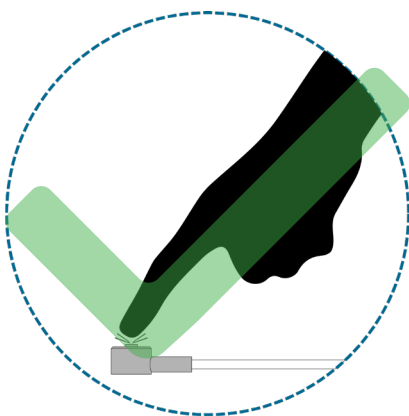
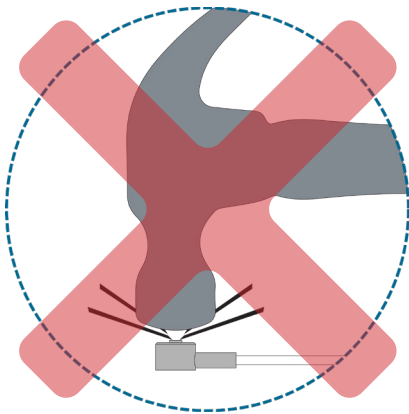
Pull sensors from the mold and clean out the pockets and channels when a mold is pulled for preventative maintenance. Sensors must be installed in pockets free from oil, dirt, grime, and grease.

### TESTING & CALIBRATION

#### TESTING SENSORS

Basic force tests are easily performed on the sensor; a small, even amount of force applied to the sensor head is sufficient to determine if the sensor is correctly reading pressure.

**CAUTION** *NEVER strike the sensor head with excessive force; failure to comply will result in damage or destruction of sensor.*



RJG, Inc. offers the following tools to test sensors.

#### 1. Sensor PreCheck

The Sensor PreCheck provides diagnostics on typical sensor problems such as sensor drift, preload, and zero shift, and can also detect sensor installation errors caused by improper pocket dimensions, damaged wires, and damaged sensor heads. A test report with sensor configuration can be emailed or printed from the device. This device allows testing of up to thirty-two sensors at one time and can verify that a force was applied to the sensor.

#### 1. eDART Software—Raw Data Viewer

The eDART Raw Data Viewer displays the status of the sensor, either Valid, No Reply, Stale, or Invalid.

- A Valid sensor has raw counts that change when force is applied to the sensor; this indicates a properly working sensor.
- A No Reply sensor is not communicating with the eDART; the sensor may be unplugged.
- A Stale sensor indicates a sensor that is unused.
- An Invalid sensor will indicate a Failure of either Over-range (Ovrng) or Under-range (Undrng). The Ovrng indicates the sensor's calibration has changed too far in a positive direction, outside of the upper specification. The Undrng indicates that the sensor's calibration has changed too far in a negative direction, and the sensor may report a number below zero when load is applied.

## TESTING & CALIBRATION *(continued)*

### CALIBRATION

RJG recommends that sensors be calibrated every year, but the need for regular calibration depends largely on the accuracy required for the application and the requirements of individual quality systems and industry regulations.

RJG sensors are designed to hold calibration for operating life. The vast majority stay within a 2% accuracy specification, which is sufficient for most customer applications.

### COMMON FACTORS AFFECTING SENSOR RECALIBRATION

#### 1. Required Application Accuracy

Some applications require more accuracy than others. If using cavity pressure control on a precise part with a narrow processing window, it may be important to maintain sensor calibration to within 1%.

If simply detecting short shots, calibration shifts of 5% or more may be tolerated. As a point of reference, a 2% calibration error means that a cavity pressure of 3,000 psi (207 bar) may read as low as 2,940 psi (203 bar), or as high as 3,060 psi (211 bar), which is insignificant in most applications. For most applications, calibration accuracy of 2% is more than sufficient, and is used by RJG as the specification for repaired sensors.

#### 2. Quality System Regulations

If US Food and Drug Administration (FDA) quality system requirements must be met, or those of other stringent quality systems, sensor calibration may be required. However, even in these cases, there is often flexibility to adjust guidelines to meet the needs of the application.

#### 3. Sensor Cycle Count

In the most aggressive environments, it takes at least 100,000 cycles for a sensor to show significant calibration errors. In more typical applications, calibration will remain stable for 500,000–1,000,000 cycles. Even then, many sensors in the field with multiple millions of cycles show little calibration shift. If a sensor is in a low volume mold that sees fewer cycles, the need for sensor recalibration is minimized.

#### 4. Sensor Load

The higher the peak load on the sensor, the more the loading nub can wear—and the higher the potential for calibration shift. Low force sensors (125-pound sensors, for example) show less calibration shift than high force sensors (2000-pound sensors); sensors that run at the lower end of their force range (less than 40% of full scale) show less calibration shift than sensors that run at the high end of their range.

## TESTING & CALIBRATION *(continued)*

### 5. Sensor Operating Temperature

The higher the mold temperature, the greater the potential for calibration shift. Below 212 °F (100 °C), calibration usually remains stable. Sensors running at 300–400 °F (150–200 °C) have a greater potential for permanent calibration shift over time.

### 6. Visible Sensor Wear

It is normal for the loading nub to show some wear. However, if the wear pattern exceeds half the diameter of the loading nub, the sensor calibration is more likely to have shifted significantly.

### 7. Sensor Zero Offset Shift

The zero offset is the reading of the sensor with no load applied. While not directly related to the sensor calibration, the zero offset does provide indication that the sensor's calibration may be suspect.

### 8. Abnormal Readings

A sensor reading abnormally high or low relative to template or to other sensors can be an indication of a calibration shift. Before sending the sensor back, check for other more common causes of erroneous readings, such as incorrect sensor pocket dimensions, sensor preload, contamination in the sensor pocket, and binding ejector pin due to misalignment, debris/contamination, or galling.

## WARRANTY

### RJG, INC. STANDARD THREE-YEAR WARRANTY

RJG, Inc. is confident in the quality and robustness of the LS-MD-040 sensors, and so are offering a three-year warranty on all RJG cavity pressure sensors. RJG's cavity pressure sensors are guaranteed against defects in material and workmanship for three years from the ship date. The warranty is void if it is determined that the sensor was subjected to abuse or neglect beyond the normal wear and tear of field use, or in the event the sensor has been opened by the customer. This new warranty policy is the most generous offered in the cavity pressure sensor industry, with one year being the most common.

### PRODUCT DISCLAIMER

RJG, Inc. is not responsible for the improper installation of this equipment, or any other equipment RJG manufactures.

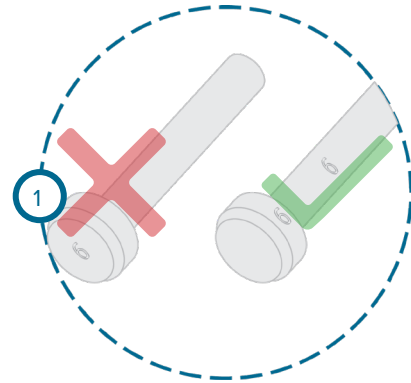
Proper RJG equipment installation does not interfere with original equipment safety features of the machine. Safety mechanisms on all machines should never be removed.



## INSTALLATION ERRORS

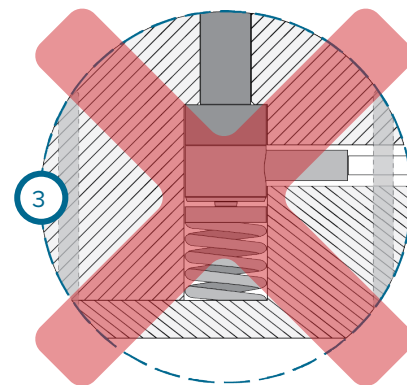
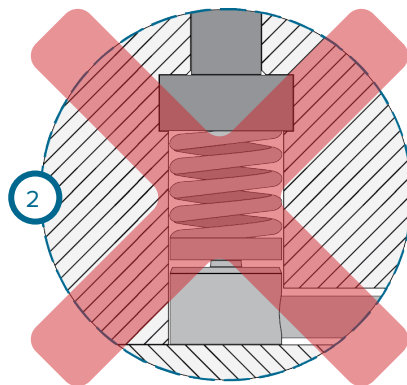
### PIN ISSUES

1. Pin is engraved on head (1 at right).
  - Pin head must remain flat. Engrave pins on side if necessary.



### SENSOR HEAD ISSUES

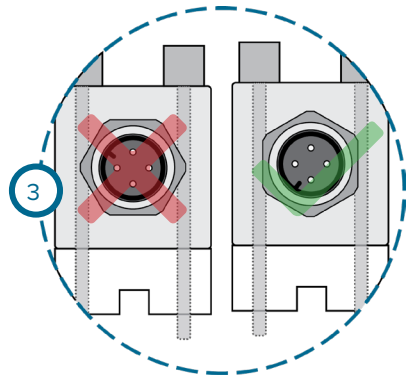
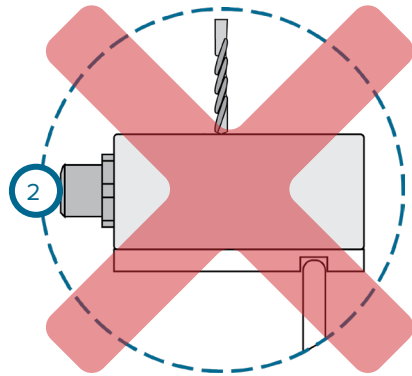
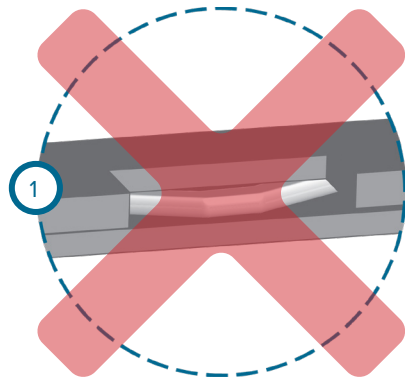
1. Pin head diameter is larger than sensor pocket diameter (2 at right).
  - Ensure that the pin rests only on the sensor spring.
2. Sensor head is installed incorrectly (3 at right).
  - The sensor spring must face the pin. Do not install the sensor head upside-down.



## INSTALLATION ERRORS (continued)

### CASE AND CABLE ISSUES

1. Sensor cable is pinched during mold assembly (1 at right).
2. Sensor case is mounted on surface that exceeds temperature rating.
  - Do not mount the Lynx case on surface that exceeds the recommended temperature rating. Contact RJG, Inc. Customer support for high-temperature applications.
3. Lynx case is drilled to accommodate alternate mounting (2 at right).
  - NEVER drill the Lynx case. Failure to comply will result in damage or destruction to equipment and void of warranty.
4. Orientation of Lynx connector on Lynx case is altered from OEM (3 at right).
  - The Lynx connector on the Lynx case is keyed. DO NOT attempt to change key orientation by loosening or tightening the Lynx connector on the Lynx case. Failure to comply will result in damage to equipment and void of warranty.



## CUSTOMER SUPPORT

Contact RJG's Customer Support team by phone or email.

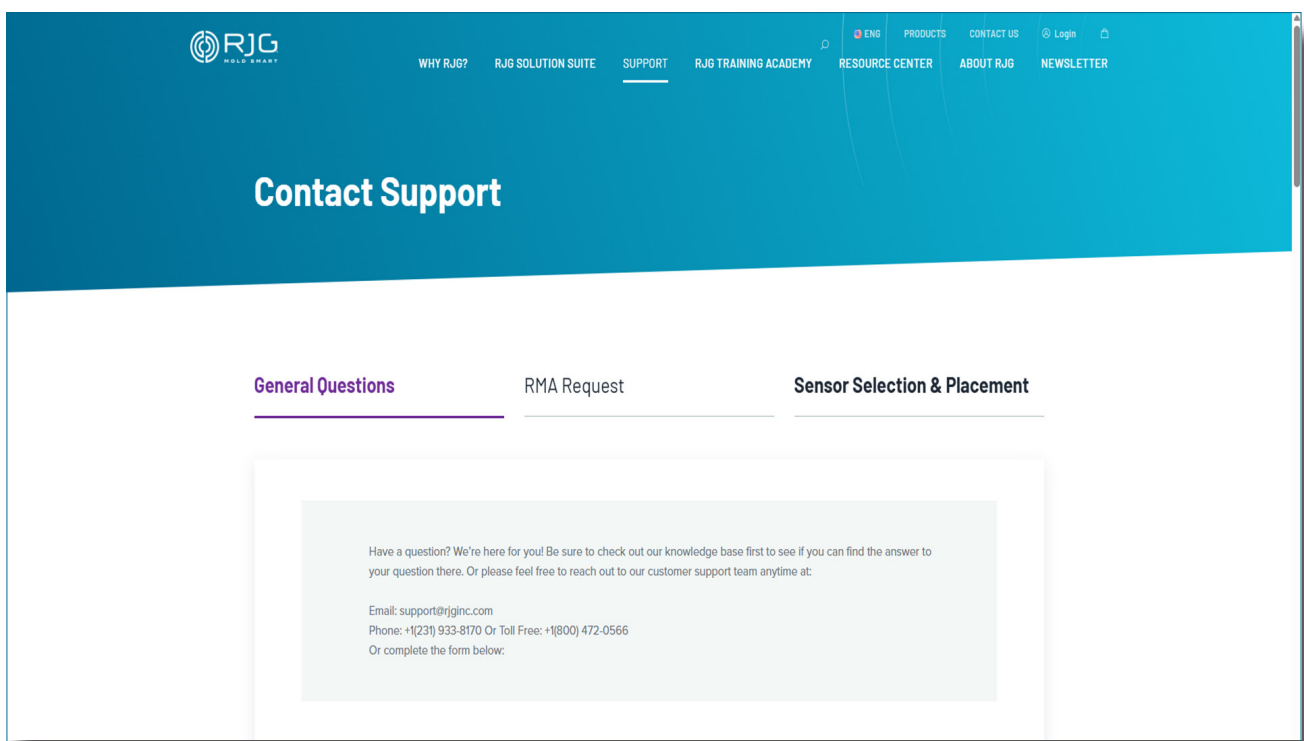
RJG, Inc. Customer Support

P: 800.472.0566 (Toll Free)

P: +1.231.933.8170

email: [support@rjginc.com](mailto:support@rjginc.com)

[www.rjginc.com/support](http://www.rjginc.com/support)





## RELATED PRODUCTS

### COMPATIBLE PRODUCTS

The LS-MD-040 is compatible with other RJG, Inc. products for use with the eDART or CoPilot process control and monitoring systems.

### LYNX PREMIUM CABLES CE-LX5-W

The Lynx premium sensor cable (1 at right) is a polypropylene-coated cable suited for the heat and stress found in injection molding environments. The cable is available in lengths from 12– 473” (0,3–12 m), and can be ordered with 180° (straight) or 90° fittings. One CE-LX5-W is required to interface each LS-MD-040 with the eDART or CoPilot systems.



### LYNX TWO-PORT JUNCTION J-LX2-CE

The J-LX2-CE two-port Lynx junction (2 at right) provides a quick, direct connection from RJG sensors and adapters to the RJG, Inc. eDART or CoPilot systems.



### LYNX FIVE-PORT JUNCTION BOX J-LX5-CE

Up to five Lynx devices may be connected to the five-port junction box (3 at right), which interfaces the Lynx devices with the eDART or CoPilot systems. The J-LX5-CE can be mounted on the mold or machine.



### LYNX NINE-PORT JUNCTION BOX J-LX9-CE

Up to nine Lynx devices may be connected to the nine-port junction box (4 at right), which interfaces the Lynx devices with the eDART or CoPilot systems. The J-LX9-CE can be mounted on the mold or machine.



## SIMILAR PRODUCTS

RJG, Inc. offers a wide array of cavity pressure sensors for each application—strain gage, single-channel, multi-channel, and digital.

### LYNX SINGLE-CHANNEL STRAIN GAGE BUTTON SENSOR LSB127-50/125/500/2000

The LSB127-50/125/500/2000 line of sensors (1 at right) from RJG, Inc. are single-channel, digital strain gage, indirect (under-pin), 0.50" (12,7 mm) button-style cavity pressure sensors that can withstand forces up to 50 lb. (0.22 kN), 125 lb. (0.56 kN), 500 lb. (2.22 kN), and 2,000 lb. (8.90 kN) and temperatures up to 250 °F (120 °C—standard sensors) or 425 °F (220 °C—high-temperature sensors).



### LYNX MULTI-CHANNEL STRAIN GAGE SYSTEM

The Lynx Multi-Channel Strain Gage system (2 at right) saves real estate on the mold providing simplified installation of up to eight sensors to one connection point on the mold.

#### 1. Eight-Channel Strain Gage Adapter with Mold ID SG/LX8-S-ID

The SG/LX8-S-ID adapter resides on the molding machine, allowing technicians to move molds easily by disconnecting and connecting the connector cable. A Lynx premium cable then connects the adapter to the eDART system.

#### 2. Eight-Channel Sensor Plate with Mold ID SG-8

The SG-8 plate resides on the mold allowing users to interface up to eight multi-channel strain gage sensors. A Lynx premium cable then connects the plate to the adapter and the eDART or CoPilot systems.

#### 3. Lynx Multi-Channel Strain Gage Button Sensors MCSG-50/125/500/200 and MCSG-4000

The MCSG-50/125/500/2000 and MCSG-4000 sensors provide the same strain gage technology and indirect installation style as the LSB127-50/125/500/2000 and LSB159-4000 sensors, but are compatible with the multi-channel components.





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