

**GAGEMAKER**

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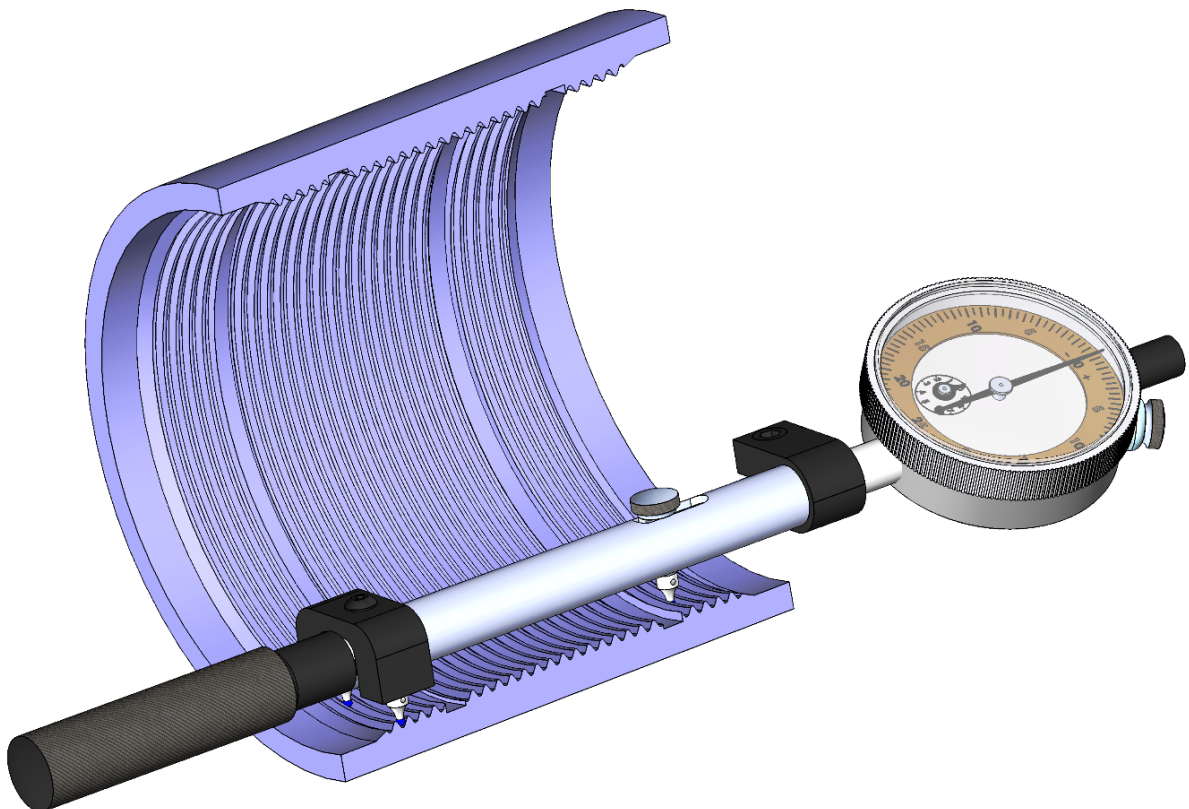
*CA-9001*

*Coupling Alignment  
Gage*

*OPERATION MANUAL*

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OMCA90016-16

## Operating Procedures

### Inspecting Parts

#### Materials Needed:

- Coupling Alignment Gage (CA-9001)
- Contact points (3)
- Marker
- Calipers
- Paper clip or Piano Wire
- Scale or Ruler

1. Use the table at right to determine which contact points should be installed to inspect the coupling.

**IMPORTANT:** API Specification 5B Section 5.1.35 requires proper contact points be used during the inspection of coupling alignment.

Connection Type	Threads per Inch (TPI)	Contact Point Diameter (Inches)	Model Number
API Buttress Casing – Taper	5	0.100 Truncated by 0.030	T062
API Tubing & Casing <b>(8 Round)</b>	8	0.072	T072
API Tubing <b>(10 Round)</b>	10	0.057	T057

2. Rock the gage forward and seat the moveable contact point into the thread. Use your index finger to apply just enough pressure to maintain the gage's contact with the thread flanks.

3. Use a marker to draw a line inside of the coupling.

**NOTE:** This line will be used as a timing mark.



4. Use a marker to mark the center of the coupling.



5. Mark the thread that is 1.500 in. from the center of the coupling.

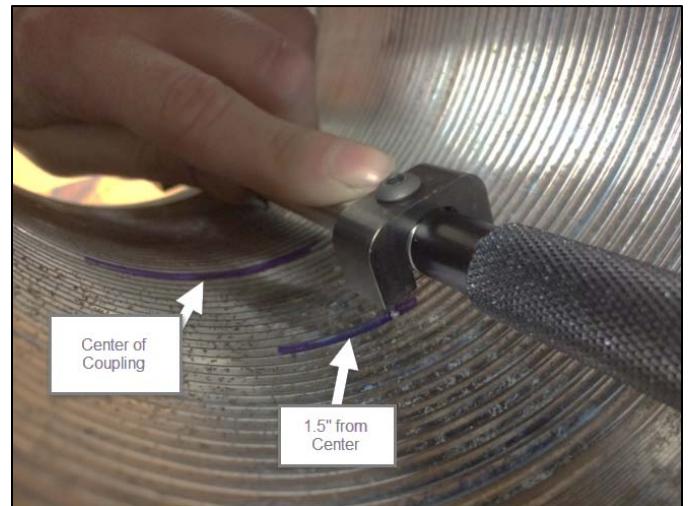
**IMPORTANT:** This mark will be used to properly position the center of the coupling between the contact points of the CA-9001 as mandated by API Specification 5B Section 5.1.35.

- Place the coupling on a table or surface and position it on its side.

**NOTE:** The table or surface needs to have enough room for the coupling to roll one complete revolution.

**IMPORTANT:** Proper Personal Protective Equipment (PPE) such as steel toed boots should be worn during the inspection of the coupling to prevent injuries from falling objects.

- Position the CA-9001 by placing the two fixed contact points into the thread groove marked in Step 5 (1.500 in. from center). Ensure that all of the contact points are seated in the proper thread grooves.

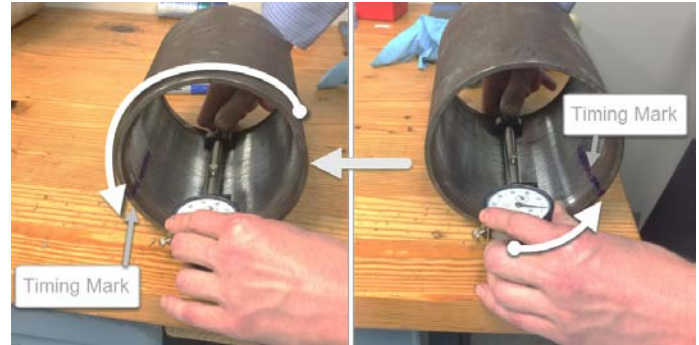


- Zero the gage by adjusting the bezel.



9. Roll the coupling one complete revolution and make note of the minimum and maximum indications.

**TIP:** Roll the coupling by keeping both hands on the gage and pushing the gage down and forward.



10. Determine the total sweep by subtracting the minimum indication from the maximum indication.

The **total sweep** of the coupling **must not exceed** the maximum sweep value recorded in the tables found in the Maximum Sweep Value tables on page 7 & 8.

The maximum sweep values were calculated using the following equation from API Specification 5B Section 5.1.35.

where

**R** = maximum permissible sweep of the dial gauge indicator;

**E** = pitch diameter of the coupling where the contact points on the gauge are located. This must be calculated for the coupling being inspected;

**A** = maximum allowable misalignment in 20 ft. API Specification 5B Section 4.1.10 states that the maximum angular misalignment shall not exceed  $\frac{3}{4}$ " per 20' of the projected axis for all tubing and casing sizes.

## Maximum Sweep Values

### EUE

EUE Coupling Size (Inches)	Maximum Sweep Value (Inches)
1.315	0.004
1.660	0.006
1.900	0.006
2 <sup>3</sup> / <sub>8</sub>	0.008
2 <sup>7</sup> / <sub>8</sub>	0.009
3 <sup>1</sup> / <sub>2</sub>	0.011
4	0.013
4 <sup>1</sup> / <sub>2</sub>	0.014

### NUE

NUE Coupling Size (Inches)	Maximum Sweep Value (Inches)
2 <sup>3</sup> / <sub>8</sub>	0.007
2 <sup>7</sup> / <sub>8</sub>	0.009
3 <sup>1</sup> / <sub>2</sub>	0.011
4	0.012
4 <sup>1</sup> / <sub>2</sub>	0.014

### LTC

LTC Coupling Size (Inches)	Maximum Sweep Value (Inches)
4 <sup>1</sup> / <sub>2</sub>	0.014
5	0.015
5 <sup>1</sup> / <sub>2</sub>	0.017
6 <sup>5</sup> / <sub>8</sub>	0.020
7	0.021
7 <sup>5</sup> / <sub>8</sub>	0.023
8 <sup>5</sup> / <sub>8</sub>	0.026
9 <sup>5</sup> / <sub>8</sub>	0.029
20	0.061

**STC**

<b>STC Coupling Size (Inches)</b>	<b>Maximum Sweep Value (Inches)</b>
4½	0.014
5	0.015
5½	0.017
6⅝	0.020
7	0.021
7⅝	0.023
8⅝	0.026
9⅝	0.029
10¾	0.033
11¾	0.036
13⅜	0.041
16	0.049
18⅝	0.057
20	0.062

**API BUTTRESS**

<b>Buttress Coupling Sizes (Inches)</b>	<b>Maximum Sweep Value (Inches)</b>
4½	0.014
5	0.015
5½	0.017
6⅝	0.020
7	0.021
7⅝	0.023
8⅝	0.026
9⅝	0.029
10¾	0.033
11¾	0.036
13⅜	0.041
16	0.049
18⅝	0.058
20	0.062



## **NOTES**

## **Maintenance Tips**

- Keep all unprotected metal surfaces coated with light oil.
- Avoid dropping the gage or subjecting it to any vibration or impact.
- Keep the gage dry and away from any machine coolant spray.
- Do not force the movement of any of the mechanical parts. The mechanics are designed to move freely.
- Keep the indicator face clean.

## **Warranty Information**

Gagemaker warrants its products to be free from defects in material and workmanship under normal operating conditions for 12 months from the date of shipment. This warranty is limited to repairing, or at Gagemaker's option, replacing any product which is proven to have been defective at the time it was shipped and/or suffered damage during shipping; provided buyer has given Gagemaker written notice of any such claimed defect within 15 days of receipt. Any defective product must be properly packed and shipped to the Gagemaker factory in Pasadena, Texas USA. This warranty applies to all products when used in a normal industrial environment. Any unauthorized tampering, misuse or neglect will make this warranty null and void. Under no circumstances will Gagemaker or any affiliate have any liabilities for loss or for any indirect or consequential damages. The foregoing warranties are in lieu of all other warranties expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

## **Products Requiring Repair or Calibration Return Process**

1. Prior to sending any products to Gagemaker, please call 713-472-7360 and request a Returned Material Authorization (RMA) number from Sales.
2. Include a Purchase Order or work instructions with the returned product.
3. Return to: Gagemaker LP  
712 East Southmore Ave.  
Pasadena, TX 77502-110



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