



TUBING & CASING CONNECTIONS

Coupling Alignment

What is coupling alignment?

- API Definition - the opposing coupling-thread cones are aligned through the bore.
- Ensuring the threads on both ends of the coupling are aligned so it will mate properly with the other connection.

What is a coupling? Why is coupling alignment important?

A coupling is a device used to connect two shafts together at their ends for the purpose of transmitting power. In the oilfield, it is a connection threaded on both ends that is used to join two external threaded connections together. The primary purpose of couplings is to join two pieces of rotating equipment while permitting some degree of misalignment or end movement or both. If the coupling is not aligned correctly, then it could cause a crack in the coupling due to stress which can lead to leaks and blowouts. Just like all measurement taken, it must be within a certain tolerance to guarantee the misalignment won't cause the connection to fail.



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Office 1 832 446 3783 Mob 1 281 382 9413

www.gaugetraining.com - sales@gaugetraining.com

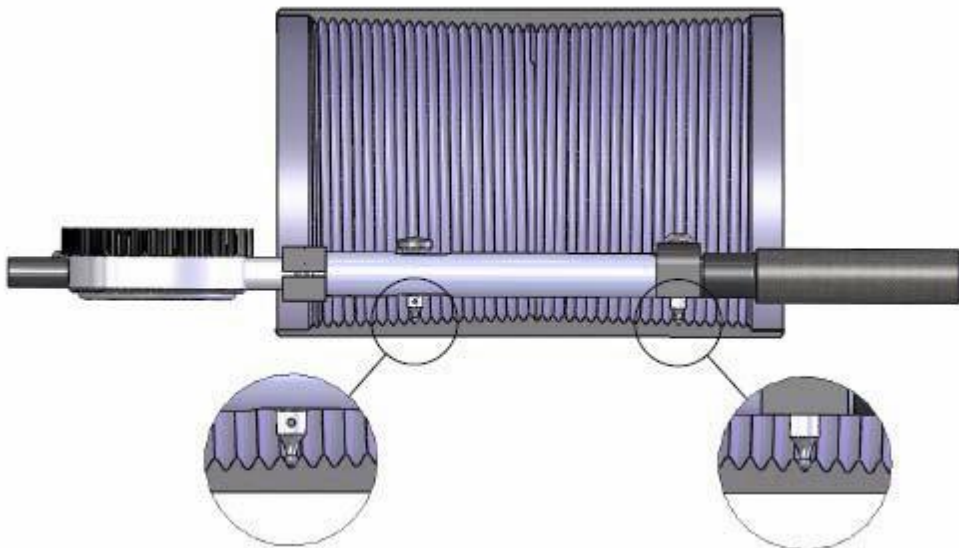


What's the procedure for inspecting coupling alignment?

There is a coupling alignment gauge that uses contact points to check the alignment. The contact points utilized on thread alignment gauges of this type shall be as follows: Line pipe, round thread casing and tubing shall be the same as those as used on a lead gauge to check these connections. Ball point diameter of 0.100" (2.54mm) truncated 0.030" (0.76mm) shall be used for Buttress casing threads. The contact points shall be inserted in the thread grooves an equal distance on either side of the "J" area but not less than 2J plus two thread turns apart parallel along the centerline axis of the coupling (see figure below), and rotated one turn while positioned in the thread grooves. The maximum sweep of the dial indicator shall not exceed the amount determined by the following formula:

$$R = EA/240$$

- **R** – is the maximum permissible sweep of the dial gauge indicator
- **E** – is the pitch diameter of the coupling where the contact points on the gauge are located. *This shall be calculated for the coupling being inspected.
- **A** – is the maximum allowable misalignment in 20 ft. (see 4.4.1.10 in API 5B)



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