

## ONYX COUPLINGS

Designed specifically to address recurring themes in the oilfield related to coupling and tubing failures, the Onyx line of couplings helps an operator find enhanced coupling performance for specific well conditions where conventional API TA and TAS type couplings don't provide sufficient performance.

Our proprietary blend of 4720 provides customers with the same enhanced performance they find with our current Onyx Sucker Rod line manufactured from the same alloy. More information on the Onyx Sucker Rod is available on our website with details on metallurgies, impact toughness, and application information.

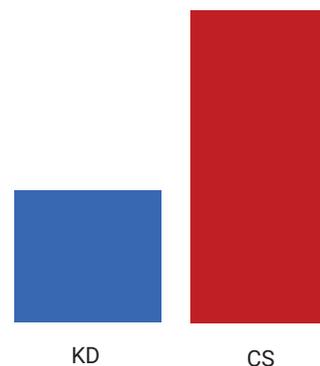
Onyx Couplings

Coupling	UNS Series	Tensile
Grade TA	G86300M	96K – 120K psi
Grade TAS	G86300M	96K – 120K psi
Grade HA*	G86300M	130K – 145K psi
Grade HAS*	G86300M	130K – 145K psi
Grade TS	G4720M	95K – 120K psi
Grade TSS	G4720M	95K – 120K psi

### MECHANICAL

Yield Strength, 2 inch offset, psi	60,000
Tensile Strength, psi	95,000–125,000

Charpy Impact Results



ASTM E23

The Onyx Coupling raw material has a more than 50% increase in impact toughness compared to other TA and TS grade coupling materials.

## Enhanced Design Features

### THE US ROD MANUFACTURING STANDARD

US Rod's extremely accurate precision CNC lathes and our unique manufacturing approach ensures the threads are concentric with the outer diameter for the most concentric wall thickness throughout. This key feature eliminates stress concentrations due to eccentric wall thickness. All of US Rod's couplings are manufactured with an enhanced face that provides maximum contact area between the coupling face and the sucker rod pin shoulder. This improved design fosters consistent circumferential displacement (CD) and preload stress values during makeup, helping to reduce connection related failures. In addition, all couplings are furnished with cold formed threads that provide additional strength and fatigue resistance. All US Rod couplings are manganese phosphate coated



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# COUPLINGS

## Onyx Critical Service Couplings

### EXTENDING RUN LIFE IN CORROSIVE ENVIRONMENTS

The Onyx Critical Service (CS) coupling is an API TS type coupling, designed to provide extended performance for applications that customers were using API TA style couplings. The coupling includes all the same design features of US Rods standard TA and TAS coupling line but improves on the offering by utilizing the enhanced proprietary Onyx metallurgy. The Onyx CS coupling can be used to extend the operational window of acceptable rod string performance with TA couplings, prior to needing to switch from TA to TAS couplings due to corrosion concerns.



## Onyx Severe Service Couplings

### FIGHT TUBING DAMAGE, EXTEND RUN LIFE, AND LOWER LIFTING COSTS

For wells where other coupling offerings don't provide adequate protection against corrosion, and where conventional spray metal coupling features can increase the risk of costly workovers, the Onyx Severe Service coupling will address a customer's biggest challenges.



The Onyx Severe Service Coupling has lower porosity than conventional spray metal couplings and laser clad products, while it remains due to the manufacturing process, less aggressive on the tubing reducing the risk of holes near deviated sections of wells. This unique manufacturing process results in a product with a 66% increase in wear life, coupled with a 60% reduction in friction.

For harsh environments, where customers need to minimize the risk of failure due to improper make up, corrosion-based failures from the inside and out causing coupling breaks, or when fatigue causes failure due to non-uniform material properties of the coupling's substrate, the Onyx Severe Service coupling will deliver substantial improvements.



US Rod Manufacturing is the only privately owned and operated Rod manufacturing plant in the USA.



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