

# MACAÉ STUB WELDING SERVICES



## Stub Welding

Wellbore Integrity Solutions' (WIS) DRILCO product line specializes in **stub welding** of alloy steel and non-magnetic stainless-steel drilling tools. During a drilling tool's life cycle, it will be subjected to many connection reworks or even defects which will take it out of service. Our stub welding solutions enable the addition of material to the end of the drilling tool, followed by post-weld machining to **restore the tool** to its original dimensional state. DRILCO stub welding services can **reduce** your overall asset **cost** by increasing your tools overall **life span**.

# DRILCO

**DELIVERING  
EXCELLENCE  
AND INNOVATION**

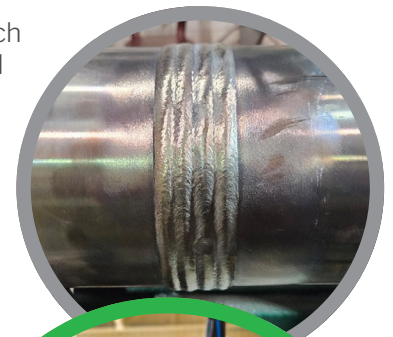
### Methods of Stub Welding

Our specialized welding methods such as Submerged ARC, Hot Wire GTAW, and Friction Welding produces the best weld possible. Our stub welding systems are fully automated ensuring repeatable welds at the highest quality level. Each weld is inspected to ensure the absence of any defects in accordance with ASME BPVC Section IX.

**Submerged ARC** is a welding process which requires a continuous fed consumable solid or tubular electrode. The molten weld and arc zone are protected from contamination by being "submerged" under granular flux which provides a current path between the electrode and the material. This method allows for deep weld penetration and since the weld is under flux there is no chance of spatter.

**Hot Wire GTAW** is a welding process that uses tungsten electrode to produce the weld. A constant current power supply produces energy that is conducted across the arc through a column of ionized gas. This process grants greater control over the weld than other methods, which allows for stronger, higher quality welds.

**Friction Welding** is a solid-state welding process that generates heat through mechanical friction with the additional of lateral forces to plastically displace and fuse the materials into one part. Friction welding produces very limited and narrow heat-affected zone regions resulting in excellent metallurgical properties in the joint area. There is no melting, hence no solidification defects occur such as gas porosity and segregation.





## Qualification

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We realize each weld will be exposed to harsh environments downhole. To survive these harsh environments, it is extremely important each weld be free of voids, porosity, and any defects. Due to this our welders ensure the highest level of quality by adhering to many standards and qualifications.

- All qualification requirements are therefore based on the API specification for welding joints, Specification 5DP, sections 6.4 and 6.7, API RP 5CT, 5C1, and the ASME IX.
- DRILCO Welding Procedure Qualification Records (WPQRS) follow all requirements as per ASME IX, Article II, Section QW\_256-1.
- All mechanical and chemical testing adheres to ASTM, ASME IX and API Specification.

## Qualified Materials

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- Non-Magnetic Stainless Steels, such as, P550, P580 P650, P670, 15-15 HS & MAX, NMS 140, DNM 140 and Datalloy II.

## Other Available Services

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### Tubular Inspection Services

Our qualified personnel offer a full range of inspection services, which include third-party and customer-defined standards.

### Machine Shop Services

Whether it's a common tubular connection, or a proprietary one requiring licensing, we stand ready to recut and repair tubulars 24/7.

### Tubular Management Services

Tubular management services provide tubular inventory visibility, storage location management, and centralized maintenance to reduce repair time.

### Premium Hardbanding Services

We provide application-specific hardbanding solutions for openhole and cased hole drilling that increase tubular durability and maximize wear resistance.

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For more information, contact your local WIS DRILCO sales representative: [wellboreintegrity.com/drilco](http://wellboreintegrity.com/drilco)

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## Highly trained welders. Stringent testing methods.

Through our quality management systems, we deliver consistent performance while complying with industry regulations.