



# Accelerated Stealth-Lock™

# pipeline projects with MIF Connection April 2022



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PG: 160920 COUPLINGS FOR PIPES QUICK CONNECT  
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# Accelerating flowline construction whilst reducing: GHGs; Hazards; Risks and Manpower



Most Operator Strategies include accelerating extensive integrated drilling programs at the nucleus of production increase objectives. At Stealth-Lock™ we get ahead of the drill rigs by constructing pipeline gathering networks with existing contractors, more than 10 x faster than conventional welding.

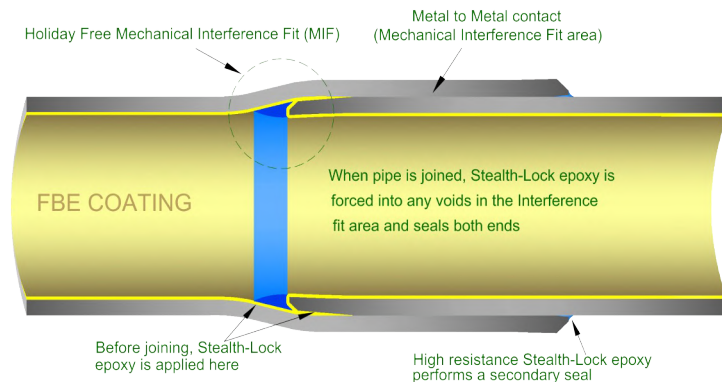
Our Stealth-Lock™ MIF mechanical connection is in wide use across the world, already yielding production increase and productivity gains for worldwide operators such as ADNOC, PDO, Pan American (BP), Occidental, Promigas and many more.

Based now in Abu Dhabi, AGODCO Group is the owner and OEM of Stealth-Lock™, and also has licenced partners such as Tenaris (the largest global tubular goods manufacturer) who deliver integrated pipeline construction services to its clients in the Western Hemisphere.

Conventional welding of pipelines emits massive volumes of GHGs, it is also slow, hazardous and requires huge resource investments that are slow on Cash Conversion Cycles.

AGODCO's Stealth-Lock™ pledges to add value to any Client's objectives as it is the leading API 5L line pipe connection system in the world, delivering cost reduction, project acceleration – safely.

## Stealth-lock & FBE for a holiday free connection



## Key Features of Stealth-Lock™ MIF Connection

- Up to 2 km of constructed flowline per day, per crew
- Cold-formed with no hazardous hot-works
- 98.5% Reduction of GHGs per km installed
- 93% Reduction in Hazard & Risks
- Circa 50% reduction in overall project timeline
- the Client "Product To Market" much faster

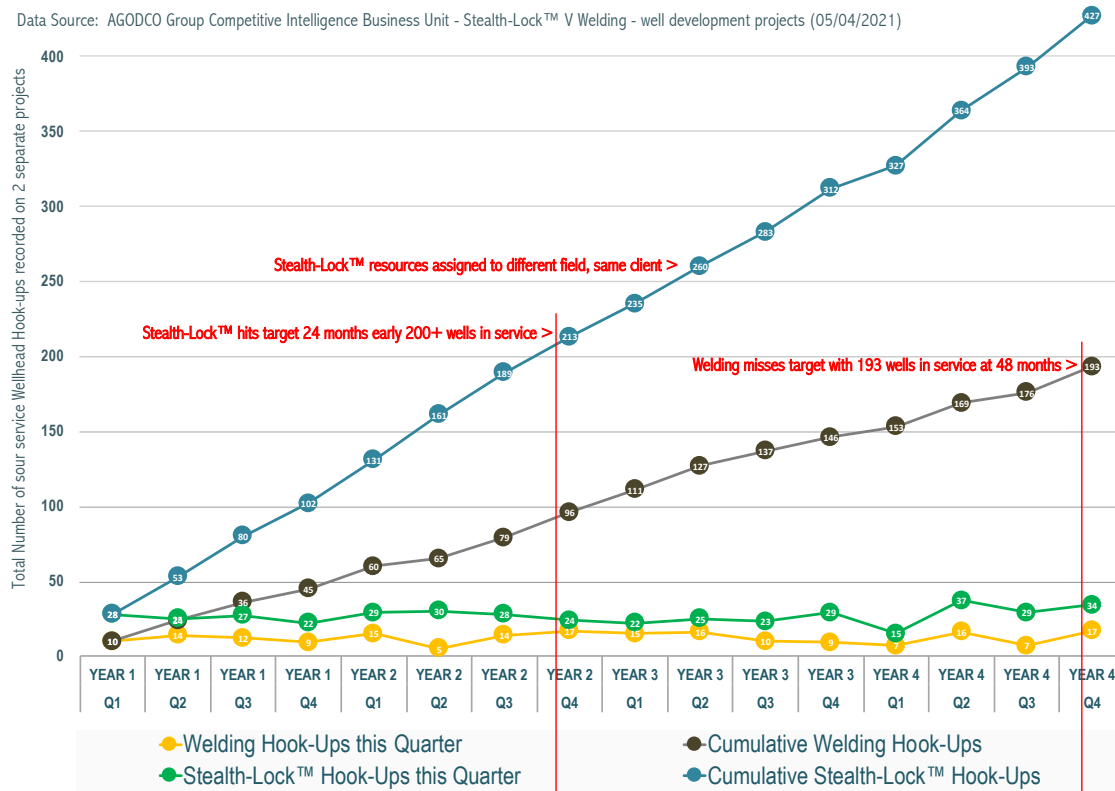
## Financial Benefits to the Client

Not only is this a gamechanger substantially reducing GHGs emissions, the Cash Conversion Cycles on invested and operational capital are dramatically reduced for the Client. Production increases earlier whilst spending less capital on stocking handling and management of redundant inventory and contractor interface.



# Consolidated Hook-Ups. Stealth-Lock™ v Welding. Completing 4 Year flowline contracts in 2 Years

Data Source: AGODCO Group Competitive Intelligence Business Unit - Stealth-Lock™ V Welding - well development projects (05/04/2021)



- ### Client Value Gains
- ✓ 98.5% reduction of GHG emissions per km
  - ✓ 93% risk reduction for Lost Time Incidents
  - ✓ 93% reduction in "hot-works"
  - ✓ Well Hook-ups at double the usual rate
  - ✓ Project completions at 50% timeline
  - ✓ Production in service accelerated
  - ✓ Cash Conversion Cycle greatly reduced
  - ✓ Lower project investment capital employed
  - ✓ Supply-chain management reduced
  - ✓ Inventory management & cost reduction
  - ✓ Vertically Integrated project management

- ### Contractor Value Gains
- ✓ Reduce welding assets by 80%
  - ✓ Reduce welding manpower by 80%
  - ✓ Reduce food & accommodation costs by 70%
  - ✓ Reduce transportation costs by 50%
  - ✓ Complete projects in 50% of timeline
  - ✓ Accelerate cashflow by 200%
  - ✓ Increase profit from marginal to circa 25%
  - ✓ 93% risk reduction for Lost Time Incidents
  - ✓ 93% risk reduction for Covid virus transmission

**48 months contract completed 24 months**  
**Connection Name:** Stealth-Lock™ Connection  
**Diameter:** NPS 2 - 6"  
**Pipe Grade:** API 5L Grade B, X42, X52, X60  
**WT:** Various  
**Coated:** Bare CS, OD & ID Coated  
**Flowline Hook-ups:** 213  
**Monthly Average:** 8.9 wells hooked-up pcm  
**Average Length:** 2.11 km  
**Client:** Confidential  
**Location:** Confidential

**213 Wells**  
**2 Years**

**Stealth-Lock™ MIF Construction**

**48 months contract underperformance**  
**Connection Name:** Welded Connection  
**Diameter:** NPS 2 - 6"  
**Pipe Grade:** API 5L Grade B, X42, X52, X60  
**WT:** Various  
**Coated:** Bare CS, OD & ID Coated  
**Flowline Hook-ups:** 193  
**Monthly Average:** 4 wells hooked-up pcm  
**Average Length:** 2.02 km  
**Client:** Confidential  
**Location:** Confidential

**193 Wells**  
**4 Years**

**Welding Construction**



# 98.5% Reduction of GHGs compared to welding



# GHGs: Stealth-Lock™ is a gamechanger to support all Client's Net Zero Targets:

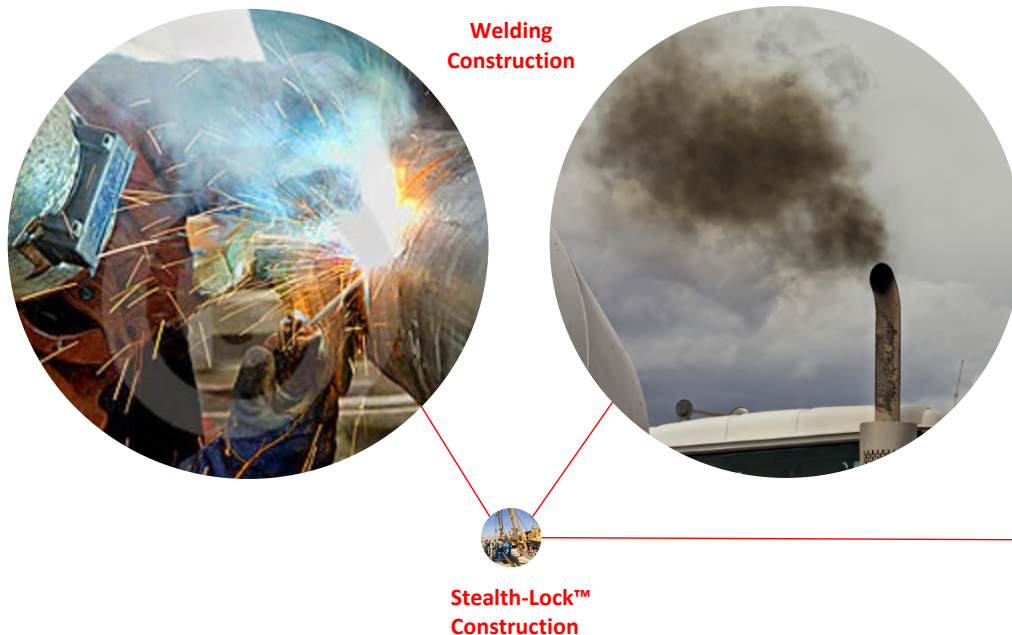
*"Occidental Petroleum laid out its target to reduce greenhouse gas emissions at its operations to net zero by 2040"*

Source: Reuters

Welded flowline construction is intensive in manpower, heavy equipment and emissions of GHGs including toxic gases. Scrap and welding electrode disposal also imposes additional flora and fauna harm and risk to human health.

The Stealth-Lock™ MIF connection is a cold-forming process that is more than 10 x faster than welding whilst substantially reducing heavy equipment, manpower, GHG emissions and eliminating spent welding electrodes.

Typical calculations lower GHG emissions by up to 98.5% per km constructed.



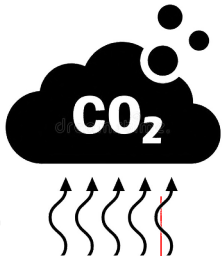
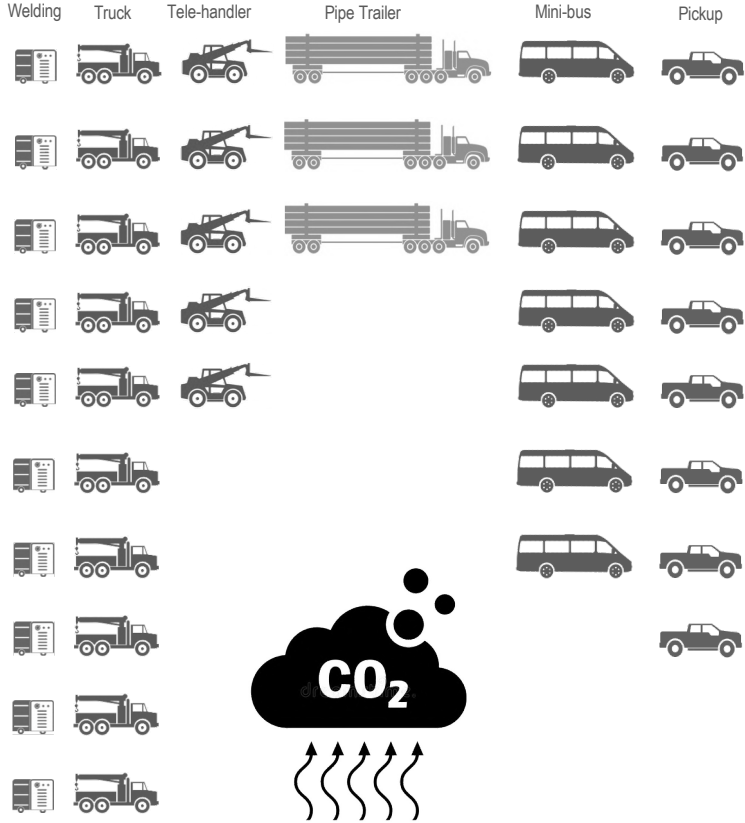
## Factors to lower GHGs emissions with Stealth-Lock™

- One SL crew performs the work of 10-12 welding crews
- Where possible SL preps pipe with electric HPU
- 900 manhours per km for welding versus 60 for SL
- Average "km driven" are a fraction with Stealth-Lock™
- Unlike welding, no CO<sub>2</sub> or other GHGs for joining pipes
- Fraction of CO<sub>2</sub> emitting heavy equipment with SL

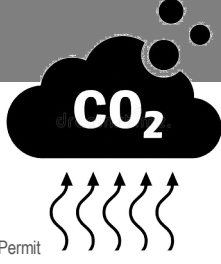
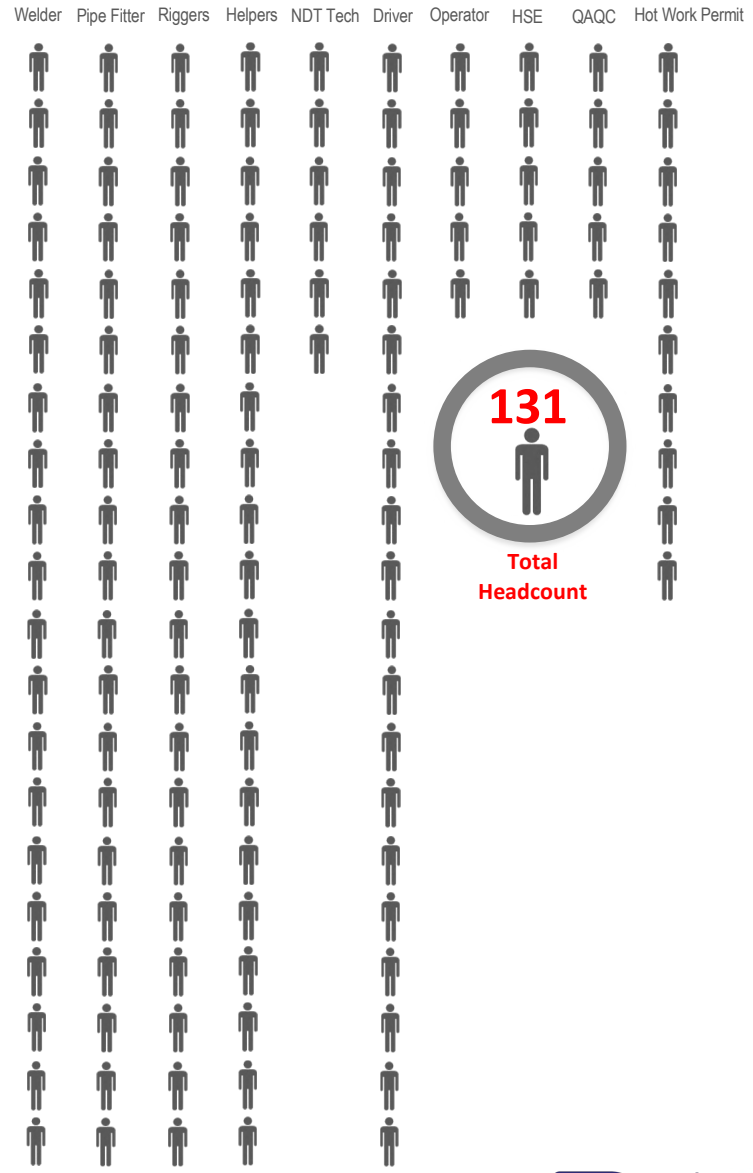
**98.5%**  
**GHGs**  
**Reduction**

# GHG Emissions: Resources required for 2 km of welding per day -10 welding crews

## Welding Equipment



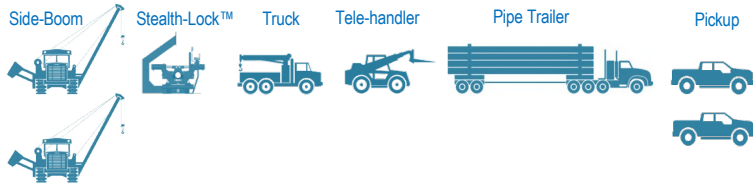
## Welding Manpower



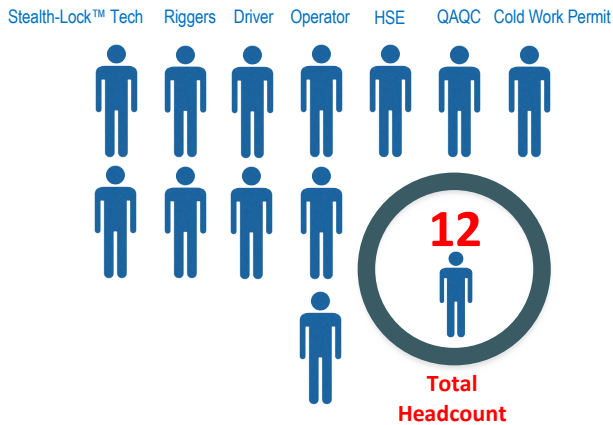
Full Welding Resources = 2 km pipeline per day

Stealth-Lock™ vs Welding

Stealth-Lock™ Equipment

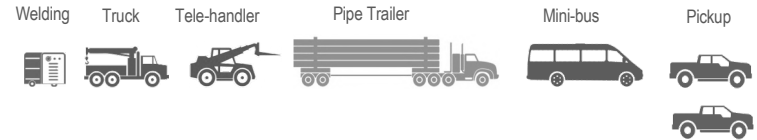


Stealth-Lock™ Manpower

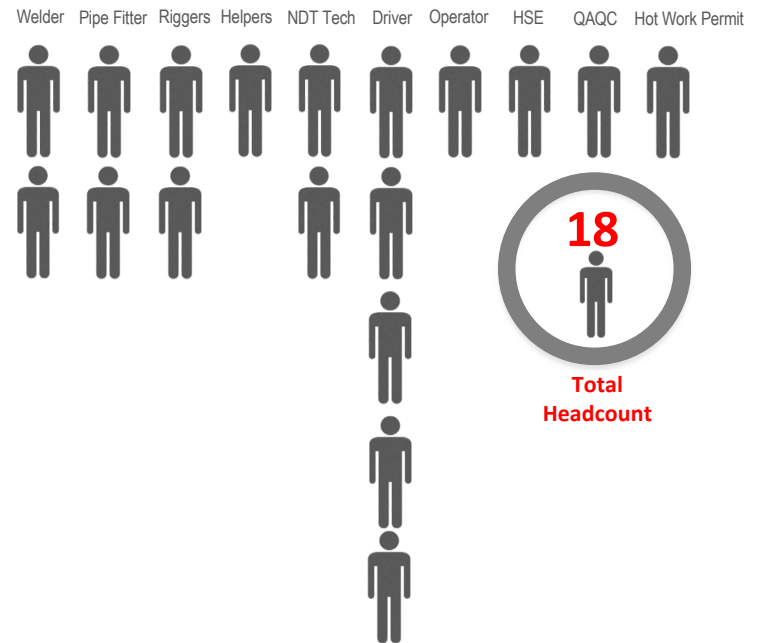


1 x Stealth-Lock™ Crew = 2 km pipeline per day

Welding Equipment



Welding Manpower



1 x Welding Crew = 0.2 km pipeline per day

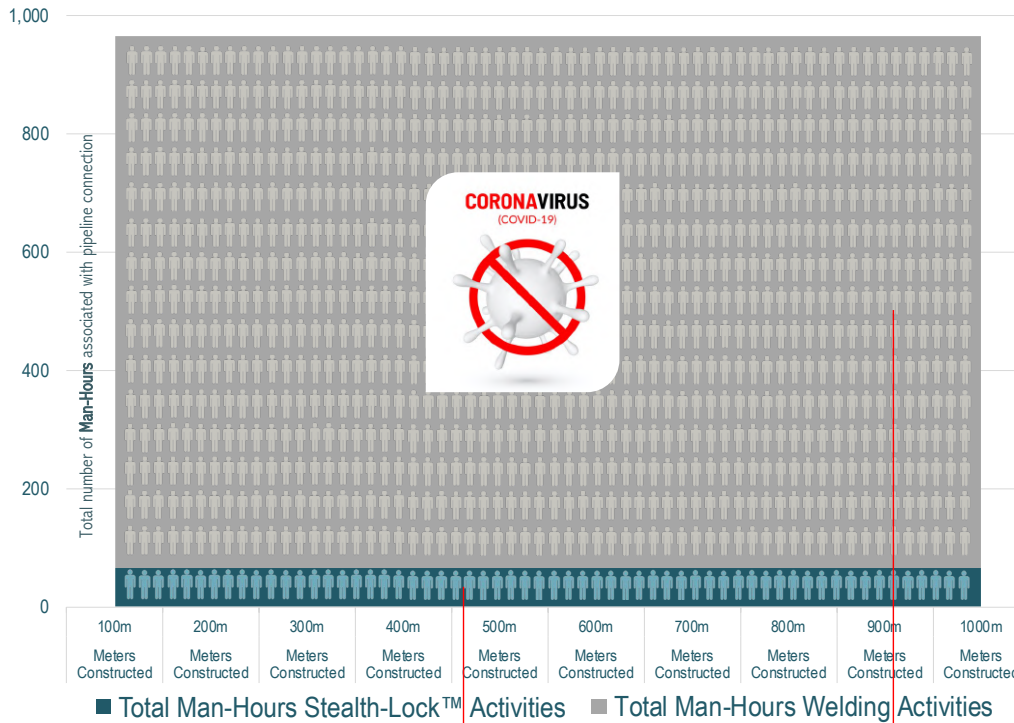
93% Reduction of  
Hazards & Risk  
compared to welding





# 93% Hazard & Risk Reduction including existing or future COVID transmission by reducing Man-Hours Per Kilometer

required Man-Hours for 1 km of pipeline connection



**60**  
Man-Hours  
Per km

**Stealth-Lock™ MIF  
Construction**

**900**  
Man-Hours  
Per km

**Welding  
Construction**

## the Client Value Gains

- ✓ 93% Reduced risk of suspension of projects due to contagion
- ✓ 93% Reduced risk of Lost Time Incidents affecting the project
- ✓ 93% conversion of “hot-works” to “cold-form” connection
- ✓ 93% Reduced “kilometers driven” by average manpower
- ✓ 93% Reduced risk to existing “live” assets

## Contractor Value Gains

- ✓ 93% Reduced risk of suspension of projects due to contagion
- ✓ 93% Reduced risk of Lost Time Incidents affecting the project
- ✓ 93% conversion of “hot-works” to “cold-form” connection
- ✓ 93% Reduced “kilometers driven” by average manpower
- ✓ Reduce food & accommodation costs by more than 70%
- ✓ Reduce transportation costs by more than 50%
- ✓ Accelerate cashflow by 200%
- ✓ Contractual deliverables achieved in less than 50% of timeline

## Virus Mitigation: **Stealth-Lock™** versus **Welded Connections**

**Man-Hours Per Km:** Human Exposure reduced by 93% compared to welding activities

**Task Risk Analysis** of human exposure during pipeline construction. “Man-Hours” per Km

Pipe Connection Method	Team Total # of Men	Working Hours Per day	Total Man-Hours Per Day	Average Meters Constructed Per day	Total Man-Hours Per Meter	Man-Hours Per Km	93% reduction of HIR exposure
Welding	18	10	180	200	0.90	900	man-hours to construct 1 km of welding
Stealth-Lock™	12	10	120	2000	0.06	60	man-hours to construct 1 km of Stealth-Lock™

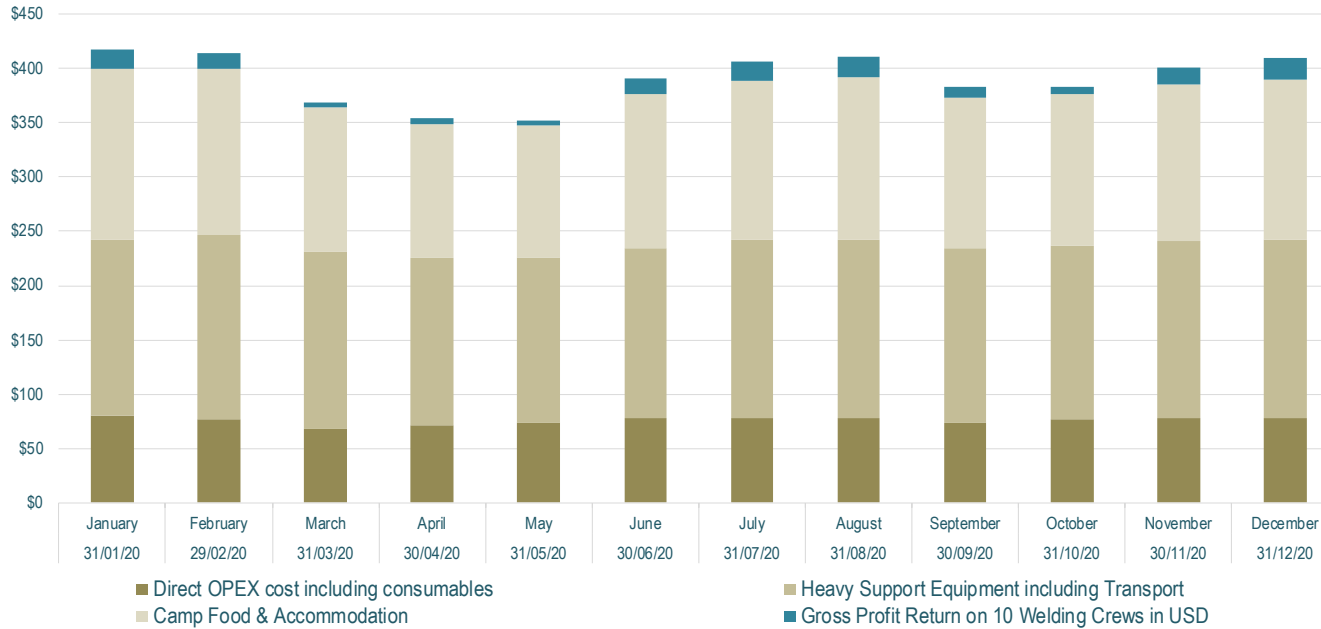
**Analytic Inputs (Assuming average performance on installation of NPS 2-inch to 8-inch API 5L CS or coated pipe):**  
**Welding:** Crew of 6 men; 1 permit holder; 2 heavy equipment operator; 2 NDT technicians; 2 QA/SE; 5 drivers.  
**Stealth-Lock™:** Crew of 2 men; 3 heavy equipment operators; 2 riggers; 1 hiab driver; 1 permit holder; 2 QA/SE; 1 driver.

# 94% Increased ROI for contractors without increasing rates to the client

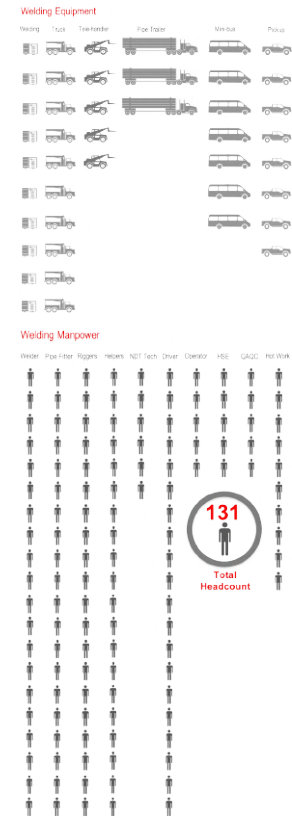


# Low Profit: 10 Welding crews versus 1 Stealth-Lock™ crew - stats per annum (USD 1,000s)

Data Source: AGODCO Group Competitive Intelligence Business Unit (05/04/2021)

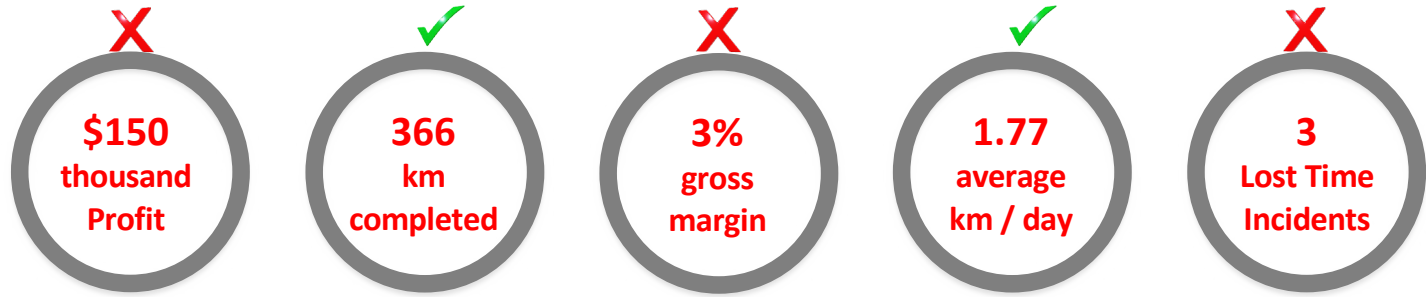


**Welded:** 10 Crews  
**Crew Headcount:** 131  
**Diameter:** NPS 4"  
**Pipe Grade:** API 5L X42  
**WT:** 8.56 mm  
**Coated:** No  
**Client:** Typical Data  
**Location:** Typical Data



## Welding Performance & Financial Results

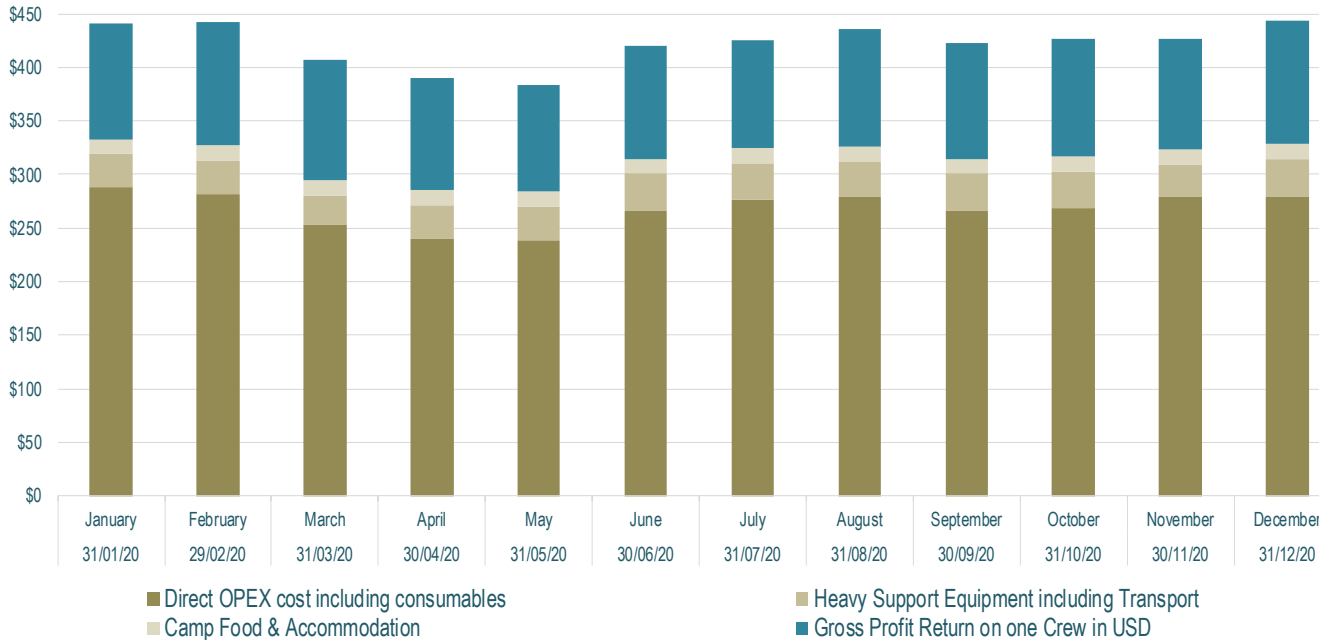
**Crew Name:** 10 Welding Crews  
**Completed:** 365 km  
**Active:** 207 days  
**Daily Average:** 1.77 km  
**Sales Revenue:** USD 4.691 million  
**Cost of Sale:** USD 4.541 million  
**Gross Profit Contribution:** USD 0.150 million  
**Gross Margin:** 3%



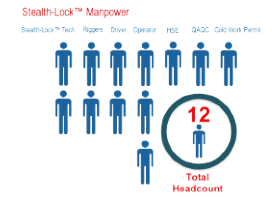
Numbers based on 10 standard welding crews with supporting assets and a sales rate of \$12,825 per km constructed. All data is for pipeline mechanical construction only and excludes, civil and trenching works, fittings, hydrotest and commissioning for hook up.

# Typical Performance & Financial Results if Contractor adopts Stealth-Lock™ crew 53% utilization per annum

Data Source: AGODCO Group Competitive Intelligence Business Unit (05/04/2021)



**Stealth-Lock™ Model:** SL26 HPUD  
**Crew Headcount:** 12 (excluding back-office)  
**Diameter:** NPS 4”  
**Pipe Grade:** API 5L X42  
**WT:** 8.56 mm  
**Coated:** No  
**Client:** Typical Data  
**Location:** Typical Data



**Contractor Value Gains**

- ✓ 93% Risk to Project reduced
- ✓ Faster project completion
- ✓ Greatly increased Return On Investment
- ✓ Accelerated cash-flow

**Crew Performance & Financial Results**  
 Crew Name: Lion  
 Completed: 395 km  
 Active: 193 days  
 Daily Average: 2.05 km  
 Contractor Revenue: USD 5,066 million  
 Cost of Sale: USD 3.774 million  
 Contractor Gross Profit: USD 1.292 million  
 Gross Margin: 26%

**\$1.3**  
Mil USD  
Profit

**395**  
km  
completed

**26%**  
gross  
margin

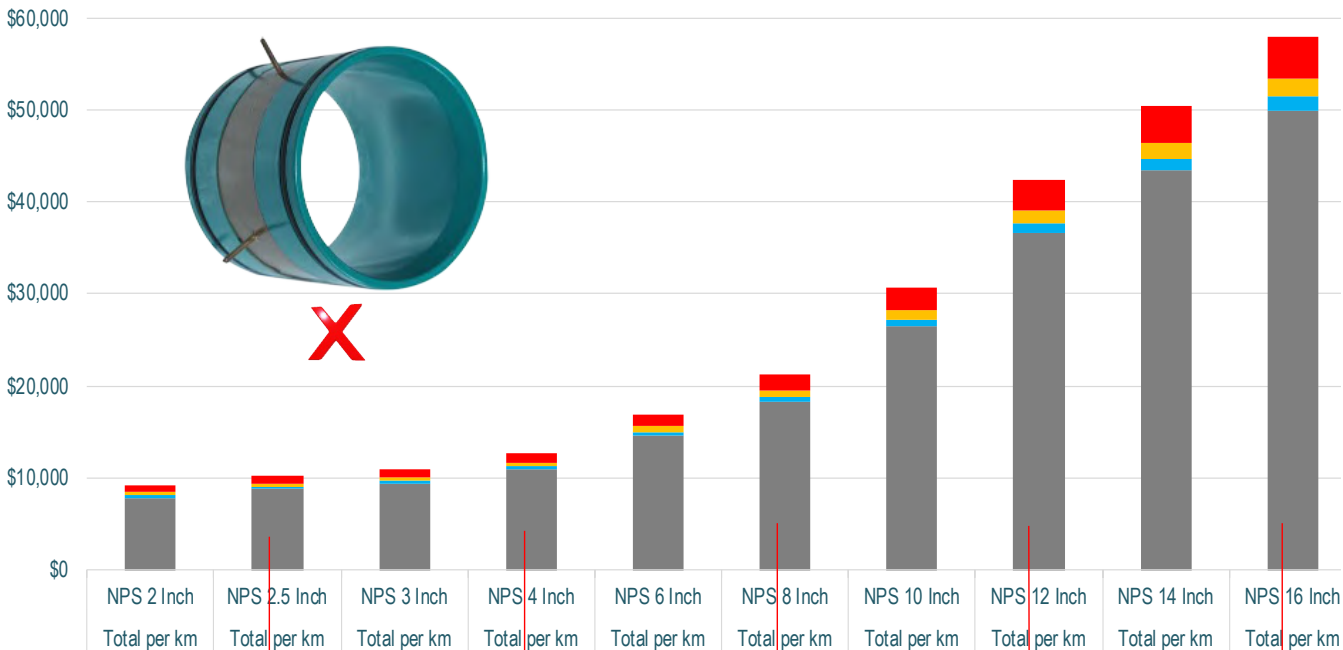
**2.05**  
average  
km / day

**0**  
Lost Time  
Incidents

Numbers based on 53% average utilization of manpower and assets each month with a sales rate of \$12,825 per km constructed. All data is for pipeline mechanical construction only and excludes, civil and trenching works, fittings, hydrotest and commissioning for hook up.

# With Stealth-Lock™ Internal Welding Insert Sleeves not required for FBE coated pipe

Data Source: AGODCO Group Competitive Intelligence Business Unit (05/04/2021)



ID Sleeve Insert Product Purchase Cost Per km  
 Mastic Cost Per km  
 Additional Fitting Cost Per km (above standard welding)  
 Rejection Repair Cost Per km



## The cost and problems with Internal Welding Insert Sleeves

Fusion Bonded Epthe Client (FBE) internal coatings for line pipes are commonly used in Sour Service conditions as a defense against accelerated corrosion and to provide integrity longevity to the pipeline system. When welding FBE coated pipes, the typical method to protect the FBE from “burn-back” damage and to result in a “holiday-free” connection, is to procure and install expensive welding insert sleeves as pictured alongside. Such insert sleeves add time, materials and cost to the welded joint. Insert sleeves are often problematic if not installed and welded correctly. Each rejected connection requires two new sleeves to weld in the repair as a pup-joint.

The Stealth-Lock™ Connection is designed to interlock the FBE coating immediately upon pressing the friction fitting together. This provides an immediate holiday-free connection without the need for additional materials, time and cost.

### Client Value Gains

- ✓ Eliminated cost of expensive materials
- ✓ Faster project completion
- ✓ High integrity for sour service production
- ✓ Pipeline service longevity in oil, gas & water

### Contractor Value Gains

- ✓ Eliminated cost of rejected welded sleeves
- ✓ Faster project completion
- ✓ Greatly reduced OPEX cost
- ✓ Accelerated cash-flow

**Disclaimer:** AGODCO Group offers the above data that is based on its own competitive intelligence. The data is not specific to any system, company or product. The data is indicative of the typical savings that could be achieved when opting to switch from FBE coated welded connections to the Stealth-Lock™ Connection system. There are many welding insert sleeve products available on the global market all with varying degrees of reliability. Sleeve reliability is often dependent upon the contractor's compliant installation according to manufacturers specifications.



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