



## CAPILLARY INJECTION SOLUTIONS

### Capabilities

- Chemicals delivered to the source of the problem.
- Facilitates increased run times.
- Cost effective operations.

### Safety

- Technicians are extensively trained to safely perform the job safely.
- Comprehensive, in-depth safety program.



### Equipment

- Internally installed tubing
- Externally installed tubing
- Injector head and BOP
- Downhole injection valves
- Spooling trailers

The process of getting chemicals downhole can be problematic, especially where fluid levels are already high. Fortunately for our customers, Gravity has the solution.

We know that delivering chemicals to the source of the problem, and at the most effective depths, maximizes the chemical effectiveness for each treatment. In return, this results in increased run times and residuals for the most cost-effective operations.

Our Gravity Capillary Management team has developed injection strings installed either internally or externally, to deliver chemicals downhole effectively. Each installation performed by our experienced team is engineered to maximize results, by analyzing pH levels, chlorides, H<sub>2</sub>S and CO<sub>2</sub> levels, temperature and depth, appropriate metallurgy can be recommended for the capillary string.



# CHEMICAL SOLUTIONS

## Capillary String Integrity

Our goal is the success of our customer's capillary systems. To maximize results, we use water analysis to determine pH, chlorides and H<sub>2</sub>S and CO<sub>2</sub> content along with temperature and depth to offer an appropriate recommendation for correct metallurgy.

Capillary Standards and Environments

Duplex 2205 - Low chlorides, low pH, low temperatures

Alloy 825 - Higher chlorides, low pH, higher temperatures

Alloy 625 - Higher chlorides, higher pH, higher temperatures

Flow Assurance - products and services that keep production operations flowing to minimize

MATERIAL	DENSITY (lbs/in <sup>3</sup> )	MYS		MTS		HARDNESS (max)	PREN*
		KSI	MPa	KSI	MPa		
Nickel Alloy 625 (UNS NO6625)	0.305	90	620	120	827	C35	46-56
Nickel Alloy 825 (UNS NO8825)	0.293	35	620	85	586	B95	31
2205 Duplex (UNS S32205)	0.278	80	241	110	758	C30.5	36
2505 Super Duplex (UNS S32750)	0.282	95	552	120	827	C32	42.5
316L (UNS S31603)	0.29	40	655	80	552	B90	23-28

\* Pitting Resistance Equivalent Number (PREN):  $1 \times \%Cr + 3.3 \times \%Mo + 16 \times \%N$

String Repair - String Consolidation

Our in-house orbital welding facility is the only one of its' kind in the Permian Basin. Each autogenous weld is tested, recorded and documented. We offer complete string management and local storage.