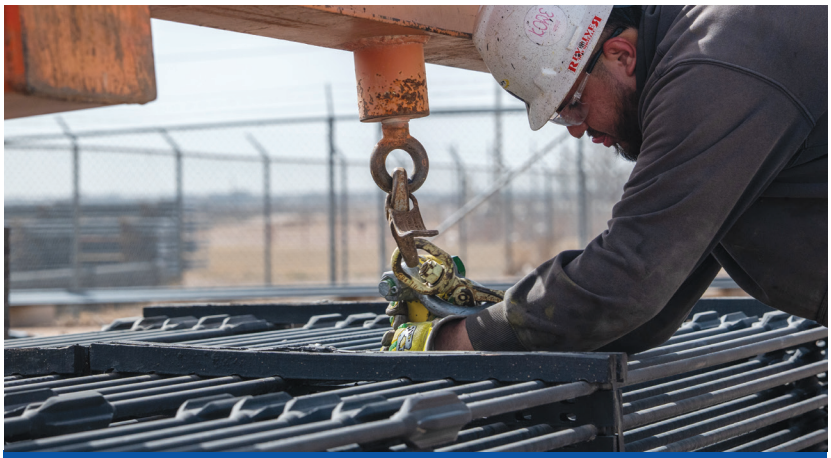
LL DS SUCKER ROD

SUCKER ROD PRODUCT LINE

The Liberty Lift DS (API D Special Alloy) normalized and tempered sucker rod is designed for use in medium to heavily loaded, effectively inhibited corrosive wells. Manufactured from our specially selected grade of steel and subjected to a tailored heat treatment, this rod stands out as one of our most corrosion tolerant options.



ABOUT LL DS SUCKER RODS

The DS sucker rod is manufactured using AISI 4720SR nickel-chromium-molybdenum micro-alloyed SBQ (Special Bar Quality) steel, offering exceptional strength to withstand high stresses in demanding applications. Liberty Lift DS rods are engineered to not only meet but exceed the API standards for the D “Special” Sucker Rod.

PROCESS

Liberty Lift Rods undergo thorough straightening and inspection using advanced eddy current technology. The rods are forged to precise dimensions, and all forged ends are examined for discontinuities through magnetic particle inspection. Next, the rods are normalized to relieve residual stress and create a uniform grain structure, then tempered to establish the desired mechanical properties. To enhance fatigue resistance, the normalized and tempered rods (N&T) are shot-peened. Our quality team oversees every stage of manufacturing and performs tensile testing on three samples from each heat treatment batch to ensure mechanical properties meet specifications. Finally, the pin ends are precision machined, and the threads are cold rolled to add strength to the sucker rod pin connection.

CHEMISTRY

CARBON
0.19-0.23

MANGANESE
0.85-1.05

PHOSPHORUS
< 0.025 Max

SULPHUR
< 0.020 Max

SILICON
0.15-0.35

COPPER
0.40-0.60

NICKEL
0.90-1.20

CHROMIUM
0.80-1.05

MOLYBDENUM
0.22-0.30

VANADIUM
0.020-0.040

MECHANICAL PROPERTIES

MINIMUM YIELD
85,000 PSI

TENSILE STRENGTH
120,000-140,000 PSI

ELONGATION (% IN 8IN)
10Mn

REDUCTION OF AREA %
40Mn

ROCKWELL HARDNESS C
23 to 30

APPLICATION

Medium to heavy load applications in effectively inhibited corrosive wells.

MAXIMUM OPERATING STRESS

Sa=(T/2.8+0.375 Smin) SF