ARTIFICIAL LIFT SOLUTIONS TECH SPECS

EL® High-Strength Sucker Rod

Increased uptime in heavy-load applications and harsh environments

Applications

- Super high-load capacity in mild or sweet, corrosive environments¹
- · Reciprocating rod lift systems
- PCP systems

Features and Benefits

- High-yield and high-tensile-strength properties provide greater length capabilities for uncompromised well depths
- Light-weight strength allows for reduced pumping-unit size and energy savings with no reduction in production rates
- Outer surface is permanently prestressed up to 120 ksi (827 MPa) for greater reliability and endurance
- Reduced diameter allows for smaller, more-economic tubing sizes

Tool Description

Weatherford EL high-strength sucker rods are manufactured with proprietary, HY grade alloy steel to provide an ultrahigh-load rating and fatigue resistance for sweet, mildly corrosive environments that are properly inhibited. EL sucker rods feature an exclusive induction, case-hardening process that gives them the superior performance within the most aggressive pumping environments. EL sucker rods feature a compression layer on the surface of each rod that retains its high constitution under severe compression as well as with normal operating tensile loads. This added tensile-stress surface protection greatly reduces the chance of fatigue cracks.



Weatherford EL high-strength sucker rods provide superior strength and long-lasting durability in corrosive environments.



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Specifications

	Description					
ID	Nominal size	0.750 (19.05)	0.875 (22.23)	1.000 (25.40)	1.125 (28.58)	
D_R	Rod body diameter	0.730 (13.03)				
Ds	Pin shoulder OD	1.500 (38.10)	1.625 (41.28)	2.000 (50.80)	2.250 (57.15)	
D _T	Nominal thread diameter	1.063 (26.99)	1.187 (30.16)	1.375 (34.93)	1.562 (39.69)	
Li	Pin length	1.43 (36.51)	1.62 (41.28)	1.87 (47.63)	2.125 (53.98)	
Ws	Wrench square width	1.00 (25.40)		1.313 (33.34)	1.500 (38.10)	
L _{WS}	Wrench square length	1.25 (31.75)			1.63 (41.28)	
D _B	Bead diameter	1.40 (35.72)	1.50 (38.1)	1.90 (48.42)	2.187 (55.63)	
D _I	Stress relief diameter	0.915 (23.24)	1.04 (26.42)	1.22 (31.17)	1.414 (35.92)	
L _R	Sucker rod length	25 and 30 ft (7.62 and 9.144 m)				
L _P	Pony rod length	2, 4, 6, 8, 10 ft (.6, 1.2 ,1.8, 2.4, 3 m)				
L _C	Coupling OD, SH	4.00 ft (101.6 m)				
C _{OD}	Coupling OD, SH	1.50 (38.10)	1.625 (41.30)	2.00 (80.80)	2.25 (53.0)	
C _{OD}	Coupling OD, FH	1.625 (41.30)	1.812 (46.00)	2.187 (55.60)	2.375 (60.30)	
~ 25-ft rod weight w/o coupling		38.5 lbs (17.5 kg)	52.0 lbs (23.6 kg)	69.9 lbs (31.7 kg)	88.7 lbs (40.2 kg)	
	~ 25-ft rod weight w/FH coupling	40.0 lbs (18.1 kg)	53.8 lbs (24.4 kg)	72.5 lbs (32.9 kg)	91.8 lbs (41.6 kg)	
~ 25-ft rod weight w/SH coupling		39.8 lbs (18.1 kg)	53.5 lbs (24.3 kg)	71.9 lbs (32.6 kg)	91.17 lbs (41.35 kg)	

Chemical Composition

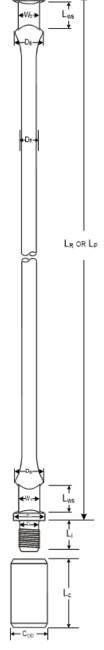
Material	C %	Mn %	Si %	Ph %	S %	Cr %	Ni %	Mo %	Other %
- Proprietary -									

Mechanical Properties²

API	Yield Strength	Tensile Strength	Elongation %	Reduction %	Heat			
Grade	ksi (MPa)	ksi (MPa)	(8-in.) in.		Treatment			
- Proprietary -								

Maximum Allowed Stress Calculation

(55,000 psi + 0.2143 S_{MIN}) * SF





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 $^{^{\}rm 1}\,{\rm Provided}$ satisfactory corrosion-inhibiting practices are followed.

²Weatherford recommends applying a service factor to the specified-torque limit based on operating conditions.

Please refer to Weatherford engineering bulletin TB-135 for further guidance on torque limits.