S88™ Sucker Rod

Durability for high-fatigue tolerance within deep, challenging wells

Applications

- Reciprocating rod lift systems
- PCP lift systems
- Deep, highly loaded wells in mildly corrosive environments[1]

Features and Benefits

- Improved tensile strength for aggressive well conditions
- Enhanced toughness properties for added strength in challenging applications
- Finer grain structure adds greater fatigue resistance

Tool Description

Weatherford S88 sucker rods are manufactured from 3130M nickel-chrome HS special alloy steel and provide an intermediate step between API Grade D sucker rods and ultrahigh-strength, EL sucker rods. S88 sucker rods are proven to decelerate crack propagation for improved fatigue resistant in highly loaded wells. Weatherford S88 sucker rods are quenched and tempered and typically have a Charpy-impact value that is 3 times greater than normalized-and-tempered rods. This quality enhances toughness with a finer grain structure that makes them capable of greater fatigue resistance. S88 sucker rods include the Weatherford proprietary shot-peen process which is proven to decelerate fatigue propagation, enhancing fatigue life up to 10 times.

Weatherford S88 sucker rods provide enhanced fatigue resistance for superior performance in deep, challenging wells.

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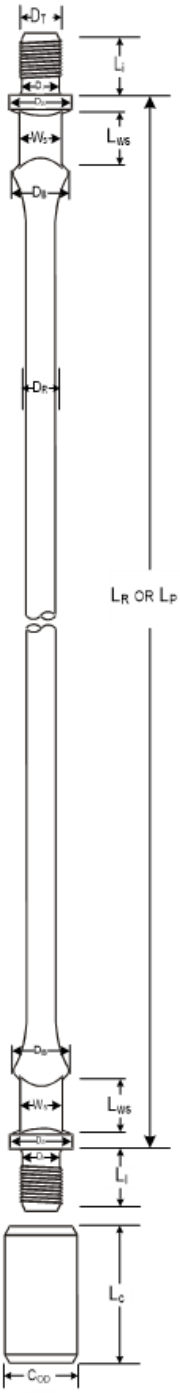
S88™ Sucker Rod

Specifications

	Description	in. (mm)			
ID	Nominal size	0.750 (19.05)	0.875 (22.23)	1.000 (25.40)	1.125 (28.58)
D_R	Rod body diameter				
D_S	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)
L_I	Pin length	1.43 (36.51)	1.62 (41.28)	1.87 (47.63)	2.125 (53.98)
W_S	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 %
3130M	0.22 to 0.29	0.70 to 1.00	0.15 to 0.35	0.025 Max	0.030 Max	0.41 to 0.65	0.70 to 0.10	–	–

Mechanical Properties[2]

API Grade	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation % (8-in.) in.	Reduction %	Heat Treatment
HS Special Alloy	105 (724)	140 to 155 (965 to 1,069)	10 Min	40 Min	Normalized and Tempered

Maximum Allowed Stress Calculation

$(T/2.8 + 0.375\ S_{MIN}) * SF$

[1] Provided satisfactory corrosion-inhibiting practices are followed.
[2] Weatherford 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.

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