QD20™ Sucker Rod

Improved rod lift and PCP performance

Applications

- Reciprocating rod lift systems
- PCP systems
- Medium- to heavy-load wells[1]

Features and Benefits

- Extreme hardness for severe and demanding applications
- Finer grain structure provides enhanced fatigue resistance

Tool Description

Weatherford QD20 sucker rods are manufactured from 20CroMoA chrome-molly, API DA grade alloy steel and designed for medium-load applications in inhibited, moderate to severely corrosive wells. They include a quenched and tempered treatment resulting in a Charpy impact value that is 8X greater than normalized and tempered, D grade rods. QD20 sucker rods undergo a proprietary process for a finer-grain structure shown to improve fatigue-crack resistance, compared to conventional treatments. QD20 rods have fully rolled, cold-formed threads that are designed to provide a precise, smooth, reinforced structure that is unattained by normal machine-cut threads. QD20 sucker rods are shot peened using a highly refined, Weatherford proprietary process that is shown to improve fatigue crack resistance as compared to sucker rods with conventional shot-peen processes.

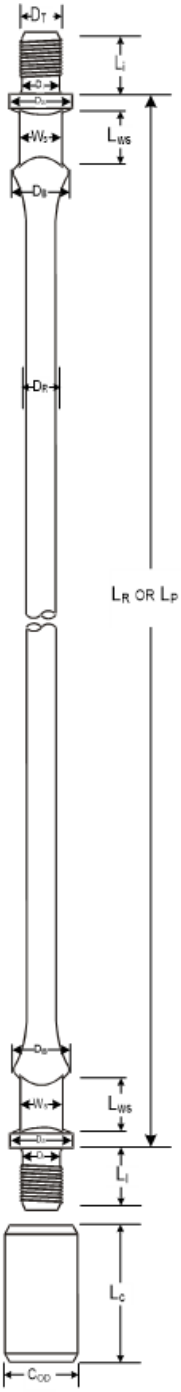
Weatherford QD20 sucker rods provide enhanced fatigue resistance for superior performance in challenging wells.

Weatherford®

QD20™ 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 %	Cu %	Cr %	Ni %	Mo %
20CrMoA	0.17 to 0.24	0.40 to 0.70	0.17 to 0.37	0.025 Max	0.20 Max	0.20 Max	0.80 to 1.10	0.30 Max	0.15 to 0.25

Mechanical Properties[2]

API Grade	Yield Strength ksi (MPa)	Tensile Strength ksi (MPa)	Elongation % (8 in.) 8 in.	Reduction %	Heat Treatment
DA Alloy	105 (724)	115 to 140 (792 to 965)	10 Min	45 Min	Quenched 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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