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.

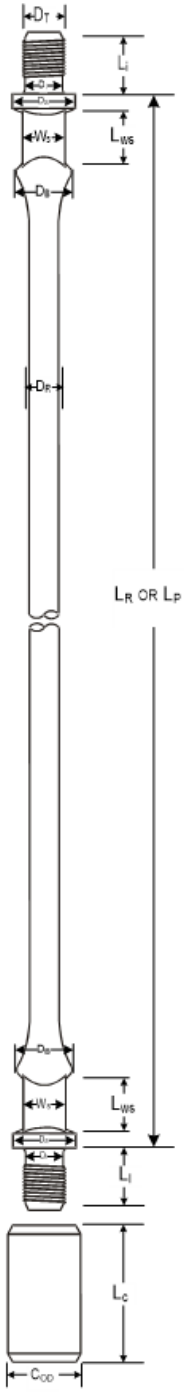
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QD20™ Sucker Rod

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 (0.6, 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

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

Specified Torque Limit[2]

Rod Size in. (mm)	0.750 (19.05)	0.875 (22.23)	1.000 (25.40)	1.125 (28.58)
ft-lbs (Nm)	505 (685)	800 (1,085)	1,195 (1,620)	1,705 (2,312)

Maximum Allowed Stress Calculation

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

[1] Provided satisfactory corrosion-inhibiting practices are followed.
[2] Weatherford recommends Hi-T couplings and 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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