$QD20^{\text{M}}$ Sucker Rod

Improved rod lift and PCP performance

Applications

- Reciprocating rod lift systems
- PCP systems
- Medium- to heavy-load wells¹

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 mediumload 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.



QD20[™] Sucker Rod

Specifications

Description	in. (mm)					
Nominal size	0 750 (19 05)	0.875 (22.23)	1.000 (25.40)	1.125 (28.58)		
Rod body diameter	0.750 (15.05)					
Pin shoulder OD	1.500 (38.10)	1.625 (41.28)	2.000 (50.80)	2.250 (57.15)		
Nominal thread diameter	1.063 (26.99)	1.187 (30.16)	1.375 (34.93)	1.562 (39.69)		
Pin length	1.43 (36.51)	1.62 (41.28)	1.87 (47.63)	2.125 (53.98)		
Wrench square width	1.00 (25.40)		1.313 (33.34)	1.500 (38.10)		
Wrench square length	1.25 (31.75)			1.63 (41.28)		
Bead diameter	1.40 (35.72)	1.50 (38.1)	1.90 (48.42)	2.187 (55.63)		
Stress relief diameter	0.915 (23.24)	1.04 (26.42)	1.22 (31.17)	1.414 (35.92)		
Sucker rod length	25 and 30 ft (7.62 and 9.144 m)					
Pony rod length	2, 4, 6, 8, 10 ft (.6, 1.2 ,1.8, 2.4, 3 m)					
Coupling OD, SH	4.00 ft (101.6 m)					
Coupling OD, SH	1.50 (38.10)	1.625 (41.30)	2.00 (80.80)	2.25 (53.0)		
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)		
	Nominal size Rod body diameter Pin shoulder OD Nominal thread diameter Pin length Wrench square width Wrench square length Bead diameter Stress relief diameter Stress relief diameter Sucker rod length Pony rod length Coupling OD, SH Coupling OD, SH Coupling OD, SH Coupling OD, FH ~ 25-ft rod weight w/o coupling ~ 25-ft rod weight w/FH coupling	Nominal size0.750 (19.05)Rod body diameter0.750 (19.05)Pin shoulder OD1.500 (38.10)Nominal thread diameter1.063 (26.99)Pin length1.43 (36.51)Wrench square width1.001Wrench square length1.40 (35.72)Bead diameter1.40 (35.72)Stress relief diameter0.915 (23.24)Sucker rod length0.915 (23.24)Coupling OD, SH1.50 (38.10)Coupling OD, SH1.50 (38.10)Coupling OD, FH38.5 lbs (17.5 kg)~ 25-ft rod weight w/FH coupling40.0 lbs (18.1 kg)~ 25-ft rod weight w/FH coupling39.8 lbs	Nominal size 0.750 (19.05) 0.875 (22.23) Rod body diameter 0.750 (19.05) 0.875 (22.23) Pin shoulder OD 1.500 (38.10) 1.625 (41.28) Nominal thread diameter 1.063 (26.99) 1.187 (30.16) Pin length 1.43 (36.51) 1.62 (41.28) Wrench square width 1.000 (25.40) Wrench square length 1.25 (31.75) Bead diameter 1.40 (35.72) 1.50 (38.1) Stress relief diameter 0.915 (23.24) 1.04 (26.42) Sucker rod length 25 and 30 ft (2000) 25 and 30 ft (2000) Pony rod length 1.50 (38.10) 1.625 (41.30) Coupling OD, SH 1.50 (38.10) 1.625 (41.30) Coupling OD, SH 1.625 (41.30) 1.812 (46.00) 25-ft rod weight w/o coupling 38.5 lbs (23.6 kg) 52.0 lbs (23.6 kg) ~ 25-ft rod weight w/o coupling 40.0 lbs (24.4 kg) 53.8 lbs (24.4 kg) ~ 25-ft rod weight w/FH coupling 39.8 lbs 53.5 lbs	Nominal size 0.750 (19.05) 0.875 (22.23) 1.000 (25.40) Rod body diameter 1.500 (38.10) 1.625 (41.28) 2.000 (50.80) Nominal thread diameter 1.063 (26.99) 1.187 (30.16) 1.375 (34.93) Pin length 1.43 (36.51) 1.62 (41.28) 1.87 (47.63) Wrench square width 1.000 (25.40) 1.313 (33.34) Wrench square length 1.40 (35.72) 1.50 (38.1) 1.90 (48.42) Stress relief diameter 0.915 (23.24) 1.04 (26.42) 1.22 (31.17) Sucker rod length 2.5 and 30 ft (7.62 and 9.144 m) 1.50 (38.10) 1.625 (41.30) 2.00 (80.80) Coupling OD, SH 1.50 (38.10) 1.625 (41.30) 2.00 (80.80) 2.00 (80.80) Coupling OD, SH 1.50 (38.10) 1.625 (41.30) 2.00 (80.80) 2.00 (80.80) Coupling OD, SH 1.625 (41.30) 1.812 (46.00) 2.187 (55.60) 2.25-ft rod weight w/o coupling 38.5 lbs (23.6 kg) (31.7 kg) ~ 25-ft rod weight w/o coupling 40.0 lbs (23.6 kg) (31.7 kg) (32.9 kg) 32.9 kg) 32.5 lbs (32.9 kg) 32.9 kg) 32.9		

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 Properties²

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

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.



LR OR LP

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