HD™ Sucker Rod

Proven fatigue endurance within deep, mildly corrosive wells

Applications

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

Features and Benefits

- 4333MV nickel-chromium-molybdenum steel designed for high-strength service for effective performance in corrosive environments
- Shot-peened process creates compressive stress that strengthens surface-tension properties for enhanced downhole longevity

Tool Description

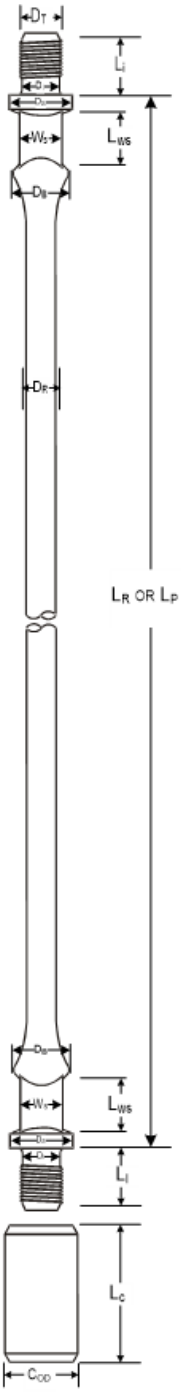
Weatherford HD sucker rods are manufactured with 4333MV nickel-chromium-molybdenum, HS special grade alloy steel and provide an additional intermediate step between API Grade D and ultrahigh-strength, Weatherford EL rods. HD sucker rods are designed for challenging-well service and extended run life that is shown to last 3X longer than next-best alternative sucker rods. The metallurgical makeup of HD sucker rods is checked continually for quality assurance and follow the strict Weatherford quality standards observed with all Weatherford sucker rods. HD sucker rods also receive a proprietary shot-peen process proven for improved fatigue tolerance.

Weatherford HD sucker rods provide enhanced fatigue resistance for enhanced performance corrosive wells.

HD™ Sucker Rod

Specifications

	Description	in. (mm)			
ID	Nominal size	0.750 (19.05)	0.875 (22.23)	1.000 (25.40s)	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 %
4333MV	0.30 to 0.35	0.70 to 0.90	0.20 to 0.35	0.035 Max	0.040 Max	0.85 to 1.10	1.65 to 2.00	0.15 to 0.25	0.35 Max Cu 0.08 to 0.11 Va

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.