

# **COROD<sup>®</sup>** Regular-Strength (DE/DER) Continuous Rod

Weatherford's *COROD* regular-strength (DE/DER) continuous rod is designed for medium-load reciprocating and rotary pumping where carbon dioxide or chlorides are present and in more corrosive environments that are effectively inhibited. *COROD* DE/DER is made from a chrome-molybdenum special alloy, microalloyed with titanium to improve its mechanical and heat-treating properties. Its chromium content is increased to 2 percent to improve corrosion resistance in certain applications. This product is available in multiple round and semi-elliptical sizes to suit a wide range of applications.

*COROD* continuous rod provides a superior alternative to conventional sucker rods. Unlike conventional sucker rods, which are coupled every 25 or 30 ft (7.6 or 9.1 m), *COROD* continuous rod requires couplings only at the top and bottom of the rod string, regardless of well depth. This innovative solution reduces pin and coupling failures by decreasing the number of threaded connections, thereby minimizing the potential for rod string failures and costly well interventions. With more uniform contact loads and a lighter weight that reduces torque and power requirements for rotary-based applications, *COROD* continuous rod also extends the lifespan of tubing. Installation is quick, and Weatherford offers a full array of field servicing options.

### **Applications**

- Rotary (progressing cavity pumping) systems
- Reciprocating-rod-lift systems





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## Features, Advantages and Benefits

- Fewer threaded connections on the rod string reduce the potential for pin and coupling failures as well as the need for costly well interventions.
- The uniform body design evenly distributes contact loads over the entire rod, reducing the severity of tubing and rod wear.
- The large annular space minimizes pressure losses.
- The rod strings are lighter than conventional suckerrod strings, reducing the amount of weight on the service unit
- The finished product undergoes a cold-working process (known as *shot peening*) to produce a residual stress on the outside layer of the material, which in turn increases resistance to fatigue and corrosion failure.

### **Specifications**

Minimum tensile strength (psi/MPa)	115,000 <i>790</i>
Minimum yield strength (psi/MPa)	90,000 <i>620</i>
Maximum average hardness	Rockwell: 28 Brinell: 271
Heat treatment	Quenched and tempered

#### **Chemical Composition**

Note: all elements in % by weight

Material	Carbon	Manganese	Phosphorus Maximum	Sulphur Maximum	Silicon	Nickel Maximum	Chromium	Molybdenum	Aluminum	Titanium	Copper
4120M	0.18 to 0.23	0.40 to 0.60	0.015	0.010	0.15 to 0.30	0.25	1.80 to 2.00	0.15 to 0.20	0.020 to 0.050	0.005 to 0.020	0.20 to 0.30



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## **Product Types**

#### Round

(Rotary and reciprocating applications)



COROD Number	COROD Size (in./mm)	Minimum Weight (Ib/ft, <i>kg/m</i> )	Minimum Area (in. <sup>2</sup> / <i>mm</i> <sup>2</sup> )	Maximum Torque (ft lb/ <i>N•m</i> )
DER 8.5	1-5/32	3.57	1.050	1,490
	29.4	5.32	678	2,020
DER 6	1	2.67	0.785	955
	25.4	3.98	<i>507</i>	1,295
DER 4	7/8	2.04	0.601	640
	22.2	3.05	388	868

#### Semi-Elliptical

(Reciprocating applications)



00000	COROD	Major Diameter		Minor Diameter		Minimum	Minimum	
COROD Number	Size (in./mm)	in. (±0.020)	mm (± 0.5)	in. (±0.020)	mm (± 0.5)	Weight (lb/ft, <i>kg/m</i> )	Area (in.²/mm²)	
DE 8	1-1/8	1.570	35.9	0.745	18.9	3.38 5.03	0.994 642	
DF 7	28.6 17/16	1.430	36.3	0.745	19.9	3.03	0.886	
DET	27.0	1.430	30.3	0.745	19.9	4.49	572	
DE 6	1 25.4	1.260	32.0	0.740	18.8	2.67 3.98	0.785 507	
DE 5	15/16 23.8	1.115	28.3	0.730	18.5	2.35 3.50	0.690 445	
DE 4	7/8 22.2	1.005	25.5	0.700	17.8	2.04 3.05	0.601 388	
DE 3	13/16 20.6	0.940	23.9	0.650	16.5	1.76 2.63	0.518 335	

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