Data sheet P 540

Revision 0 Preliminary

1. CHEMICAL COMPOSITION

„P540“ is a special nonmagnetic, austenitic Mn-Cr-N-steel with a nitrogen content of ≤2%.

C	Mn	Cr	Mo	N	Ni
max. 0,05	19,0-21,0	17,0-19,5	0,30-0,80	min. 0,50	0,8-2,0

2. MECHANICAL PROPERTIES

Following mechanical properties (tested at room temperature) are achieved by a special cold-working process over the full length of the collar:

Yield Strength (min.): 0,2%-offset method	OD up to 9 1/4“	120 ksi	830 N/mm²
	OD 9 1/2“ and larger	110 ksi	760 N/mm²
Tensile Strength (min.):		130 ksi	900 N/mm²
Elongation (min.):		20%	20%
Reduction of area (min.):		50%	50%
Impact energy (min.):		90 ft.lb	122 J
Endurance Strength / N=10⁵ (min.):		± 65 ksi	± 455 N/mm²
Hardness Brinell:		285-400 HB	285-400 HB

3. MAGNETIC PROPERTIES

Relative permeability: ≤ 1,005.

4. CORROSION RESISTANCE

- **Transgranular SCC:** Prevented by special surface treatments (Hammer peening, roller burnishing, shot peening).
- **Intergranular SCC:** The occurrence of material sensitization is prevented by quenching after warmforging. Each collar is tested according to ASTM A 262, Pract.A and E, last edition.
- **Pitting Corrosion:** Due to a high chromium- and nitrogen content a high resistance to pitting corrosion is given.

5. NON-DESTRUCTIVE TESTING

- **Magnetic inspection:** Drill collars are 100% tested by a proprietary probe-testing process using a Förster Magnetomat 1.782. (“Hot Spot“-test). Magnetic permeability of each collar is certified with the printout of probe-testing.
- **Ultrasonic inspection:** Each collar is ultrasonically inspected over 100% of the volume according to ASTM E 114, last edition as a minimum level.

P540 Non-Magnetic Drill Collars meet all requirements of API Spec. 7.1, last edition.
All tests are carried out according to ASTM-Standards, last editions.
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