

Data sheet P 580

Revision 2

1. CHEMICAL COMPOSITION

„P580“ is a special nonmagnetic, austenitic Mn-Cr-N-steel with a high pitting corrosion resistance, specifically developed for oilfield applications.

C	Mn	Cr	Ni	Mo	N
max. 0,06	22,00-24,50	20,50-22,00	max. 2,50	max. 1,50	min. 0,75

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.):	OD up to 9 ¹ / ₄ "	140 ksi	965 N/mm ²
0,2%-offset method	OD 9 ¹ / ₂ " and larger	130 ksi	900 N/mm ²
Tensile Strength (min.):		150 ksi	1035 N/mm ²
Elongation (min.):		20%	20%
Reduction of area (min.):		50%	50%
Impact energy (min.):		60 ft.lb	82 J
Endurance Strength / N=10 ⁷ (min.):		60 ksi	414 N/mm ²
Hardness Brinell:		350-450 HB	350-450 HB

3. MAGNETIC PROPERTIES

Relative permeability: ≤ 1,001.

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 the very high chromium- and nitrogen contents an excellent resistance to pitting corrosion is given. A PRE-value (PRE=Cr+3,3.Mo+16.N) of min. 37 is guaranteed.

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.

P580 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.
Prepared / released: B. Holper
Date: June, 2013