AUBERT&DUVAL

Steel

FND

15NiMoCr10

Variants:
FNDW: Consumable electrode remelted grade
FNDYW: Vacuum induction melted and consumable electrode remelted grade

SPECIFICATION

15NiMoCr10

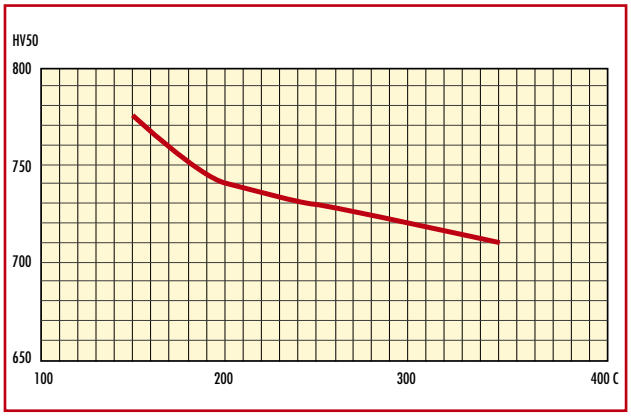
MECHANICAL PROPERTIES

(Properties beneath the carburised layer)

- Oil quench from 960 °C. Sub-zero -70 °C. Temper at 300 °C:
  - UTS: 1400 N/mm²
  - 0.2 % Yield strength: 1120 N/mm²
  - Elongation (5d): 13 %
  - Impact strength KV: 120 J

- Gas quench (3 bars) from 960 °C. Sub-zero -70 °C. Temper at 300 °C:
  - UTS: 1350 N/mm²
  - 0.2 % Yield strength: 1030 N/mm²
  - Elongation (5d): 13 %
  - Impact strength KV: 110 J

Surface hardness of the carburised layer in relation to tempering temperature



COMPOSITION

Carbon	0.15
Nickel	2.50
Molybdenum	2.00
Silicon	1.10
Chromium	1.00

APPLICATIONS

- This case hardening steel has applications in all mechanical assemblies working at temperatures above 150 °C e.g. gears, fuel injectors. It is also used for parts requiring a good adherent PVD layer.
  This steel can be gas pressure quenched, which reduces distortion caused by heat treatment.

CHARACTERISTICS

- Case hardening and through hardening steel with excellent hardenability, high mechanical properties and a surface hardness of more than 750HV after carburising, combined with tempering temperatures of up to 350 °C.
- The good temper resistance of this steel allows it to be used with a duplex treatment (carburising + quenching + nitriding) to obtain a good case depth and surface hardness of more than 800 HV.

HEAT TREATMENT

- Carburising:
  - 850/980 °C
- Harden:
  - Heat to 950/970 °C
  - Oil or gas pressure quench.
- Temper:
  - After carburising, quenching and sub-zero treatment, this steel is tempered between 150 °C and 350 °C depending on service requirements.
    The surface hardness of the carburised layer is more than 60 HRC.

PHYSICAL PROPERTIES

- Density: 7.8

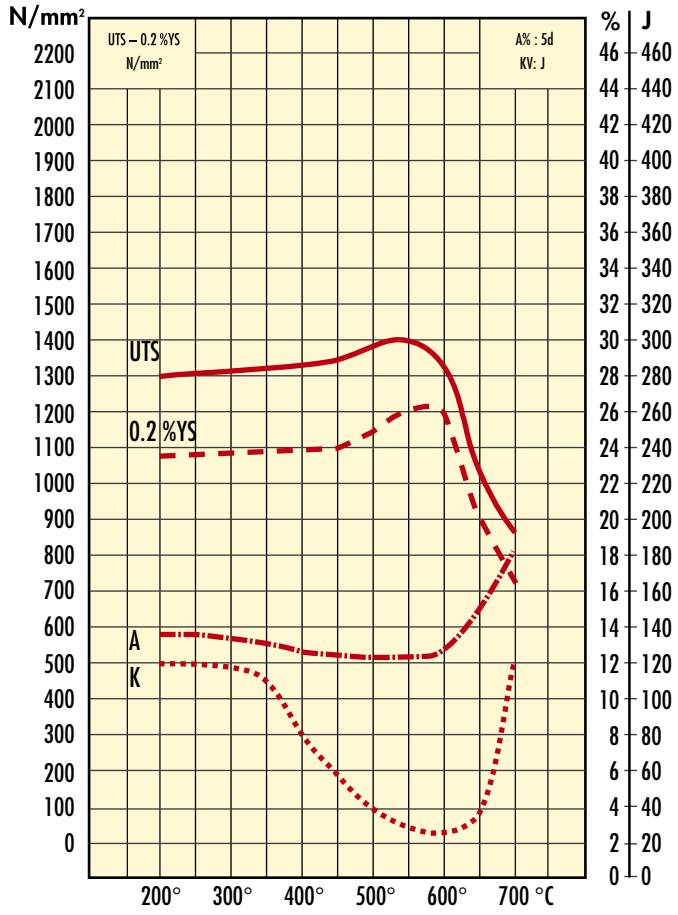
- Mean coefficient of expansion in m/m.°C:
  - between 20 °C and 100 °C: 11.6 x 10^{-6}
  - between 20 °C and 300 °C: 12.4 x 10^{-6}
  - between 20 °C and 500 °C: 13.2 x 10^{-6}

- Critical points:
  - Ac 1: 750 °C
  - Ac 3: 930 °C

FORGING

- Please contact us.

TEMPERING CURVE



Heated to 960 °C, oil quenched

(heat treatment on rough machined blanks)

AUBERT & DUVAL

22, rue Henri-Vuillemin • 92230 Gennevilliers - France
Tel: 33 (0)1 55 02 58 00 • Fax: 33 (0)1 55 03 58 01
Internet: http://www.aubertduval.fr • e-mail: dircom@aubertduval.fr