

Applications

X40MnCrN19K, 1.3813 non-magnetic steels, rust and acid resistant. 1.3813 is often supplied in a hot-cold-formed version. In this treatment state, 1.3813 has a tensile strength of 830 – 1030 N/mm² and a yield point of at least 390 N/mm² at room temperature. Area of application connecting parts, mechanical engineering, mechanically and thermally highly stressed components in shipbuilding, mechanical engineering and vehicle construction as well as in electrical engineering. These rolled round bars intended for the manufacture of shafts, arbors, pins and similar parts, acc. to TLV9384.01 SEW 390, DIN Spec.

Equivalent or Similar Grades - Chemical Composition

Grade	Chemical composition WT %						
	C	Si	Mn	P	S	Cr	N
X40MnCrN19K, 1.3813	0.3-0.50	Max 0.50	18-20	Max 0.05	Max 0.015	3.0-5.0	0.08-0.12
X40MNCR18K, 1.3817	0.3-0.50	Max 1.00	17-19	Max 0.06	Max 0.015	3.0-5.0	Max 0.10

Mechanical Properties

Cold Working

- Tensile strength R_m MPa: Min 850-1250
- Yield Strength R_p MPa: Min 600
- Akv J: Min 90
- A %: 35

Hot working

- Tensile strength R_m MPa: Min 830-1030
- Yield Strength R_p MPa: Min 390
- Akv J: Min 124
- A %: Min 40

Quenched

- Tensile strength R_m MPa: 740-930

- Yield Strength R_p MPa: Min 290
- Akv J: Min 124
- A %: Min 45

Cold Drawn

- Tensile strength R_m MPa: 850-1250
- Yield Strength R_p MPa: Min 550
- Akv J: Min 90
- A %: Min 20
- Z %: Min 35
- Hardness: 260-360 HB

Physical Properties

Temp(°C)	GPa	MTEC	W/m·°C	J/kg·°C	$\Omega\text{mm}^2/\text{m}$	kg/dm ³	ν
400.0	-	18.70	-	-	-	-	-
300.0	-	17.90	-	-	-	-	-
200.0	-	17.10	-	-	-	-	-
100.0	-	16.00	-	-	-	-	-
20.0	-	-	14.00	-	-	-	-
20.0	-	-	-	-	0.70	-	-
20.0	-	-	-	-	-	7.70	-
20.0	195.00	-	-	-	-	-	-