

1.3813, X40MnCrN19 - Non-magnetic Steel Datasheet

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 TLV 9384 01, SEW 390, DIN Spec.

Chemical Composition

Grade	Chemical composition WT %						
	C	Si	Mn	P	S	Cr	N
1.3813, X40MnCrN19	0.03-0.50	Max 0.87	17-19	Max 0.10	Max 0.03	3.0-5.0	0.08-0.12

Mechanical Properties

Cold Working

- Tensile strength R_m MPa: Min 830-1030
- Yield Strength R_p MPa: Min 490
- Akv J: Min 103
- 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



1.3813, X40MnCrN19

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- 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	Ω mm ² /m	kg/dm ³	v
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	-	-	-	-	-	-

Heat Treatment

Welding Properties

Machining Properties

Similar or Equivalent Steel Grade

X40MnCrN19, 1.3813, X40MnCrN18, X2CrNiMoN-18-14-3, X2CrNiMnMoNNb21-16-5-3, 1.3964, 1.3952, 1.3817

