42CrMo4

Quenched and tempered steels

Material no.	–
according to	DIN EN 10083, Teil 3
Tensile strength class	C

General Information

The steel grade 42CrMo4 belongs to the product category of quenched and tempered steels. These are used for highly stressed components, where the combination of high strength and wear-resistance with tenaciousness is of utmost importance.

Chemical composition [1)2)]

(melt analysis in percent by weight)

	min.	max.
C	0,38%	0,45%
Si		0,40%
Mn	0,60%	0,90%
P		0,025%
S		0,035%
Cr	0,90%	1,20%
Mo	0,15%	0,30%

1) Heat analysis

2) restriction according to the specification of the norm

Typical mechanical properties [1)]

Nom. thick. e	Yield strength $R_{p0,2}$
	550 - 800 MPa

Nom. thick. e	Tensile strength R_m
	850 - 1050 MPa

Nom. thick. e	Total elongation A[2)]
2,0 - 6,0 mm	8 - 15 %

1) derived from tensile tests transversal to rolling direction (reference value for a hot rolled coil)

2) For the nominal thickness e, the following applies:
e < 3 mm: A_{80}
e = 3 mm: A_5

Available dimensions

Hot-rolled coils pickled, mill edge

Thickness in mm	Width in mm
2,00 – 2,24	900 –1300
2,25 – 2,99	900 –1350
3,00 – 3,99	900 –1550
4,00 – 6,00	900 –1650

Widths < 900 mm on request

Hot-rolled slit strip

Thickness in mm	Width in mm
2,50 – 2,99	100 – 640
3,00 – 4,60	100 – 690
4,61 – 6,00	140 – 740

Widths <100 mm on request

Microstructure

The 42CrMo4 in hot rolled state usually has a ferritic-pearlitic microstructure with a typical grain size of > 9 ASTM according to DIN 50602.

200:1

500:1

Examples of application

Parts with high tenaciousness used in the automotive and aircraft industry, such as axle legs, axles, drive rods, crankshafts, pinions, gearwheels, linings, link plates, belt buckles, springs, saw blades, knifes and scissors.

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