

Material properties

Material	1.1191 (European Union / EN)
Group	Structural and constructional steels
Subgroup	EN 10277-5 Bright steel products; Steels for quenching and tempering
Comment	Technical delivery conditions
Application	-

Yield Stress[MPa]			
Dimension	Min	Max	Approx
Bar; Cold drawn (C); 5 - 10 mm	565	-	-
Bar; Cold drawn (C); 10 - 16 mm	500	-	-
Bar; Cold drawn (C); 16 - 40 mm	410	-	-
Bar; Cold drawn (C); 40 - 63 mm	360	-	-
Bar; Cold drawn (C); > 63 mm	310	-	-
Bar; Cold drawn and quenched and tempered (C + QT); 16 - 40 mm	430	-	-
Bar; Cold drawn and quenched and tempered (C + QT); 40 - 63 mm	370	-	-
Bar; Cold drawn and quenched and tempered (C + QT); 63 - 100 mm	370	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 5 - 10 mm	700	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 10 - 16 mm	650	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 16 - 40 mm	570	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 40 - 63 mm	470	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 63 - 100 mm	380	-	-

Tensile Stress[MPa]			
Dimension	Min	Max	Approx
Bar; Cold drawn (C); 5 - 10 mm	750	1050	-
Bar; Cold drawn (C); 10 - 16 mm	710	1030	-
Bar; Cold drawn (C); 16 - 40 mm	650	1000	-
Bar; Cold drawn (C); 40 - 63 mm	630	900	-
Bar; Cold drawn (C); > 63 mm	580	850	-
Bar; Cold drawn and quenched and tempered (C + QT); 16 - 40 mm	650	800	-

Tensile Stress[MPa]			
Dimension	Min	Max	Approx
Bar; Cold drawn and quenched and tempered (C + QT); 40 - 63 mm	630	780	-
Bar; Cold drawn and quenched and tempered (C + QT); 63 - 100 mm	630	780	-
Bar; Quenched and tempered and cold drawn (QT + C); 5 - 10 mm	850	1050	-
Bar; Quenched and tempered and cold drawn (QT + C); 10 - 16 mm	800	1010	-
Bar; Quenched and tempered and cold drawn (QT + C); 16 - 40 mm	750	950	-
Bar; Quenched and tempered and cold drawn (QT + C); 40 - 63 mm	700	880	-
Bar; Quenched and tempered and cold drawn (QT + C); 63 - 100 mm	650	820	-
Bar; As rolled and turned (SH); 16 - 100 mm	580	820	-

Elongation A5 [%]			
Dimension	Min	Max	Approx
Bar; Cold drawn (C); 5 - 10 mm	5.0	-	-
Bar; Cold drawn (C); 10 - 16 mm	6.0	-	-
Bar; Cold drawn (C); 16 - 40 mm	7.0	-	-
Bar; Cold drawn (C); 40 - 63 mm	8.0	-	-
Bar; Cold drawn (C); > 63 mm	8.0	-	-
Bar; Cold drawn and quenched and tempered (C + QT); 16 - 40 mm	16.0	-	-
Bar; Cold drawn and quenched and tempered (C + QT); 40 - 63 mm	17.0	-	-
Bar; Cold drawn and quenched and tempered (C + QT); 63 - 100 mm	17.0	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 5 - 10 mm	8.0	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 10 - 16 mm	8.0	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 16 - 40 mm	9.0	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 40 - 63 mm	10.0	-	-
Bar; Quenched and tempered and cold drawn (QT + C); 63 - 100 mm	11.0	-	-

Hardness**Dimension****Hardness**

Bar; As rolled and turned (SH); 16 - 100 mm

172 - 242 HB

Chemical Composition [%]**Criterion****Min****Max****Approx**

C	0.4200	0.5000	-
Si	-	0.4000	-
Mn	0.5000	0.8000	-
P	-	0.0350	-
S	-	0.0350	-
Cr	-	0.4000	-
Mo	-	0.1000	-
Ni	-	0.4000	-
Cr+Mo+Ni	-	0.6300	-