

STANDARD REFERENCE:

EN ISO 683-4: 2018 (Hot-rolled products) | EN 10277: 2018 (Bright products)

RODACCIAI REFERENCES AND COMPARABLE STANDARDS

EUROPE		ITALY	GERMANY	FRANCE	UK	USA
EN 10087: 1998 EN 10277-3: 2008		(UNI 4838-80)	(DIN 1651-88)	(NF A 35-562-86)	(BS 970 pt.3-91)	ASTM A 29
Grade	N°					
36SMn14	1.0764	CF 35 SMn 10	-	35 MF 6	216M36	1137

CHEMICAL COMPOSITION (CAST ANALYSIS) (%)

C	Si / max	Mn	P / max	S
0,32÷0,39	0,40	1,30÷1,70	0,060	0,10÷0,18

MECHANICAL PROPERTIES - AS ROLLED CONDITION

Size mm	as Rolled and/or as Rolled + Turned (+SH)		as Rolled and/or as Rolled + Turned + Quenched + Tempered (+SH +QT)		
	Hardness HB max	R _m (MPa)	R _{p0,2} (MPa) min	R _m (MPa)	A ₅ (%) min
≥5 ≤10	225*	580÷770*	480	700÷850*	14*
>10 ≤16	225*	580÷770*	460	700÷850*	14*
>16 ≤40	219	560÷750	420	670÷820	15
>40 ≤63	216	560÷740	400	640÷790	16
>63 ≤100	216	550÷740	360	570÷720	17

*Values valid only for hot rolled products
 For size <5 mm the mechanical properties may be agreed at the time of enquiry and order

MECHANICAL PROPERTIES OF BRIGHT STEEL

Size mm	Cold Drawn (+C)			Quenched + Tempered + Peeled (+QT +SH)*			Quenched + Tempered + Cold Drawn (+QT +C)		
	R _{p0,2} (MPa) min	R _m (MPa)	A ₅ (%) min	R _{p0,2} (MPa) min	R _m (MPa)	A ₅ (%) min	R _{p0,2} (MPa) min	R _m (MPa)	A ₅ (%) min
≥5 ≤10	500	660÷960	6	-	-	-	525	750÷1000	6
>10 ≤16	440	620÷920	6	-	-	-	520	740÷990	6
>16 ≤40	390	600÷900	7	420	670÷820	15	505	720÷970	8
>40 ≤63	360	580÷840	8	400	640÷790	16	475	680÷930	9
>63 ≤100	340	560÷820	9	360	570÷720	17	405	580÷840	9

* This values are valid also for Cold Drawn - Quenched + Tempered Condition (+C +QT)
 For size <5 mm the mechanical properties may be agreed at the time of enquiry and order

WORKING TEMPERATURES RECOMMENDED

Operation	Hot forgings deformation	Normalizing	Soft annealing	Quenching in oil	Quenching in water	Tempering
°C	950÷1200	860÷890	650÷700	850÷880	820÷840	540÷680

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FREE-CUTTING STEELS
 DIRECT-HARDENING

PR70-SAE1137
