

**STANDARD REFERENCE:**
**UNI EN 10087: 1998 (Hot-rolled products) | UNI EN 10277-3: 2008 (Bright products)**
**RODACCIAI REFERENCES AND COMPARABLE STANDARDS**

EUROPE		ITALY	GERMANY	FRANCE	UK	USA
UNI EN 10087: 1998 UNI 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°					
36SMnPb14	1.0765	CF 35 SMnPb 10	-	35 MF 6 Pb	216M36 Leaded	11L37

**CHEMICAL COMPOSITION (CAST ANALYSIS) (%)**

C	Si / max	Mn	P / max	S	Pb
0,32÷0,39	0,40	1,30÷1,70	0,06	0,10÷0,18	0,15÷0,35

**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*	R <sub>m</sub> (MPa)	R <sub>p0,2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) min
≥5 ≤10	-	580÷770**	480	700÷850	14
>10 ≤16	-	580÷770**	460	700÷850	14
>16 ≤40	166÷222	560÷750	420	670÷820	15
>40 ≤63	166÷219	560÷740	400	640÷790	16
>63 ≤100	163÷219	550÷740	360	570÷720	17

\* For reference only \*\*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 - COLD DRAWN CONDITION**

Size mm	Cold Drawn (+C)			Cold Drawn + Quenched + Tempered (+C +QT)			Quenched + Tempered + Cold Drawn (+QT +C)		
	R <sub>p0,2</sub> (MPa) min	R <sub>m</sub> (MPa)*	A <sub>5</sub> (%) min	R <sub>p0,2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) min	R <sub>p0,2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) 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

\*For reference only  
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

rev. 04/2013

**FREE-CUTTING STEELS**  
**DIRECT-HARDENING**

Rodacciai name

**PR80-SAE1137Pb**
**1306**