

**STANDARD REFERENCE:**

FIAT 52501 Specification | UNI 7847 - 79 (Hot-rolled)

**RODACCIAI REFERENCES AND COMPARABLE STANDARDS**

EUROPE		ITALY	GERMANY	FRANCE	UK	USA
EU 86 - 70		(UNI 7847 - 79) FIAT 52501	(DIN 17212-72)	(NF A 35-563-83)	(BS 970 pt.3-96)	ASTM A 29
Grade	N°		Werkstoff	N°		
C53	-	C53	CF 53	1.1213	(XC 55 TS)	(070M55) (1055)

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

ITALY	C	Si	Mn	P / max	S	Cr / max	Mo / max	Ni / max	Cu / max	Al
C53	0,52÷0,57	0,15÷0,35	0,60÷0,80	0,035	0,020÷0,035	0,20	0,05	0,25	0,30	0,020÷0,050

**MECHANICAL PROPERTIES - AS ROLLED CONDITION**

Delivering condition	Size mm	Rp <sub>0.2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) min	HB core	HB surface
SOFT ANNEALED	all	-	-	-	-	≤235
SPHERODIZING	all	-	-	-	-	≤210
NORMALIZED	>16 ≤100	340	640÷790	16	-	180÷232
QUENCHED AND TEMPERED	≤16	520	760÷910	12	220÷260	220÷264
	>16 ≤40	470	710÷850	14	207÷248	
	>40 ≤100	420	640÷780	15	190÷229	

**MECHANICAL PROPERTIES - BRIGHT PRODUCT CONDITION\* \*\***

Size (mm)	as Rolled + as Rolled + Turned (+SH)		Quenched + Tempered + Turned (+QT +SH)**			Quenched + Tempered + Cold Drawn (+QT +C)			Cold Drawn (+C)		
	Hardness HB	R <sub>m</sub> (MPa)	Rp <sub>0.2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) min	Rp <sub>0.2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) min	Rp <sub>0.2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) min
≥5 ≤10	-	-	-	-	-	670	885÷1085	6	610	785÷1120	5
>10 ≤16	-	-	-	-	-	640	850÷1060	6	535	750÷1100	5
>16 ≤40	189÷274	640÷920	490	750÷900	14	610	795÷1010	7	460	710÷1075	6
>40 ≤63	189÷274	640÷920	420	700÷850	15	550	740÷960	8	425	695÷1060	7
>63 ≤100	189÷274	640÷920	420	700÷850	15	475	715÷900	8	-	-	-

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

**WORKING TEMPERATURES RECOMMENDED**

Operation	Hot forgings deformation	Normalizing	Soft annealing	Quenching in oil	Tempering
°C	850÷1100	825÷865	650÷700	805÷845	550÷650

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Mark Rodacciai

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**SURFACE HARDENING STEELS**  
 NOT ALLOYED

**R53TI**
