

STANDARD REFERENCE:
EN 10088-3: 2005 (Hot-rolled and bright products)

RODACCIAI REFERENCES AND COMPARABLE STANDARDS

EUROPE		ITALY	GERMANY		FRANCE	UK	USA
EN 10088-3: 2005		(UNI 6900: 71)	(DIN 17440 - 85)		(NF A 35-574-90)	(BS 970 pt. 3-91)	AISI
Grade	N°		Werkstoff	N°			
X12CrS13	1.4005	X 12 CrS 13	-	-	Z 11 CF 13	416S21	416

CHEMICAL COMPOSITION (CAST ANALYSIS) (%)

C	Si / max	Mn / max	P / max	S / max	Cr	Mo / max
0,06÷0,15	1,00	1,50	0,040	0,15÷0,35	12,0÷14,0	0,60

MECHANICAL PROPERTIES - Rough turned (1X) in the annealed condition

Size max (mm)	Heat treatment	Hardness HB max*	Rp 0,2 (MPa) min	Rm (MPa)	A5 (%) min
100	Annealed (+A)	220	-	730 max	-
	Quenched + Tempered (+QT 650)	-	450	650÷850	12

* only for guidance

MECHANICAL PROPERTIES - Cold drawn (2H, 2B) and ground bars (2G) in the solution annealed condition

Size max (mm)	Annealed		Quenched + Tempered			
	Rm (MPa) max	HB max*	Heat treatment	Rp 0,2 (MPa) min	Rm (MPa) max	A5 (%) min**
≤ 10	880	280	Quenched + Tempered (+QT650)	550	700÷1000	8
> 10 ≤ 16	880	280		500	700÷1000	8
> 16 ≤ 40	800	250		450	650÷930	10
> 40 ≤ 63	760	230		450	650÷880	10
> 63 ≤ 100	730	220		450	650÷850	12

* for reference only ** values valid only for size ≥ 5 mm

WORKING TEMPERATURES RECOMMENDED

Operation	Hot forgings deformation	Annealing (air)	Quenching (air, oil)	Tempering (QT 650)
°C	900÷1100	745÷825	950÷1000	680÷780