

STANDARD REFERENCE:

EN 10088-3: 2014 (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°			
X46Cr13	1.4034	(X 40 Cr 14)	X46Cr13	1.4034	Z 44 C 14	-	420

CHEMICAL COMPOSITION (CAST ANALYSIS) (%)

C	Si / max	Mn / max	P / max	S / max	Cr
0,43÷0,50	1,00	1,00	0,040	0,030	12,5÷14,5

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

Size max (mm)	Heat treatment	Hardness HB max*	Rp _{0,2} (MPa) min	R _m (MPa)	A ₅ (%) min	KV (J) min
100	Annealed (+A)	245	-	800 max	-	-
	Quenched + Tempered (+QT 800)	-	650	800÷1000	10	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				
	R _m (MPa) max	HB max*	Heat treatment	Rp _{0,2} (MPa) min	R _m (MPa) max	A ₅ (%) min**	KV (J) min
≤ 10	950	305	Quenched + Tempered (+QT 850)	700	900÷1150	7	-
> 10 ≤ 16	950	305		700	900÷1150	7	-
> 16 ≤ 40	900	280		650	850÷1100	8	12
> 40 ≤ 63	840	260		650	850÷1000	8	12
> 63 ≤ 100	800	245		650	850÷1000	10	12

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

MECHANICAL PROPERTIES - Cold drawn wire and coils (2H)

Tensile strength levels	+C 500	+C 650	+C 800	+C900
R _m (MPa)	500÷700	650÷850	800÷1000	900÷1100

Note: the desired tensile strength level shall be evaluated depending on diameter required



MECHANICAL PROPERTIES - Cold drawn wire and coils in the solution annealed condition (2D)

Size	$0,50 \leq d \leq 1,00$	$1,00 \leq d \leq 3,00$	$3,00 \leq d \leq 5,00$	$5,00 \leq d \leq 16,00$
Rm (MPa) max	1100	1050	1000	950
A (%) max	10	10	10	15

Note: If skin passed, Rm might be increased by up to 50 MPa

WORKING TEMPERATURES RECOMMENDED

Operation	Hot forgings deformation	Annealing (furnace, air)	Quenching in air or oil	Tempering (QT 850)
°C	900÷1100	750÷850	950÷1050	650÷700

