

**STANDARD REFERENCE:**
**UNI EN 10083-1: 1998 (Hot-rolled products)**
**RODACCIAI REFERENCES AND COMPARABLE STANDARDS**

	EUROPE		ITALY	GERMANY		FRANCE	UK	USA
	UNI EN 10083-1: 1998		(UNI 7845-78)	(DIN 17200-86)		(NF A 35-552-86)	(BS 970 pt.3-96)	ASTM A 29
	Grade	N°		Werkstoff	N°			
<b>KV30</b>	C30E	1.1178	C30	Ck 30	1.1178	XC 32	080A30	1030
<b>R30S</b>	C30R	1.1179		Cm 30	1.1179			

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

	Europe	C	Si / max	Mn	P / max	S	Cr / max	Mo / max	Ni / max	Al
<b>KV30</b>	C30E	0,27÷0,34	0,40	0,50÷0,80	0,035	≤ 0,035	0,40	0,10	0,40	-
<b>R30S</b>	C30R					0,020÷0,040				

**MECHANICAL PROPERTIES - AS ROLLED CONDITION**

Size mm	HB max to condition:		Quenched and tempered (+QT)					Normalized (+N)		
	Treated to improve shearability (+S)	Soft annealing (+A)	R <sub>p0,2</sub> (MPa) min	R <sub>m</sub> (MPa) min	A <sub>5</sub> (%) min	Z (%) min	KV (J) min	R <sub>p0,2</sub> (MPa) min	R <sub>m</sub> (MPa)	A <sub>5</sub> (%) min
≤ 16		-	400	600÷750	18	40	40	280	510	20
> 16 ≤ 40	it can be sheared without heat treatment	-	350	550÷700	20	45	40	250	480	21
> 40 ≤ 100		-	300*	500÷650*	21*	50*	40*	250	480	21
> 100 ≤ 160		-	-	-	-	-	-	230	460	21
> 160 ≤ 250		-	-	-	-	-	-	230	460	21

\* Values valid for diameter up to 63 mm or thickness up to 35 mm

**MECHANICAL PROPERTIES - BRIGHT PRODUCTS 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)	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	-	-	-	-	-	565	750÷900	9	480	620÷950	6
> 10 ≤ 16	-	-	-	-	-	510	680÷850	9	400	575÷900	7
> 16 ≤ 40	147÷195	495÷655	350	550÷700	20	460	640÷800	10	300	560÷850	8
> 40 ≤ 63	147÷195	495÷655	300	500÷650	21	390	550÷690	11	275	525÷800	9
> 63 ≤ 100	147÷195	495÷655	300	500÷650	21	310	500÷650	12	240	470÷780	9

\*For reference only \*\*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 water	Tempering
°C	850÷1150	870÷910	650÷700	850÷890	550÷660