20NiCrMo2-2 - Nr. 1.6523
20NiCrMoS2-2 - Nr. 1.6526

STANDARD REFERENCE:

EN ISO 683-3: 2018 (Hot-rolled) | **EN 10277: 2018** (Bright products)

RODACCIAI REFERENCES AND COMPARABLE STANDARDS

EUROPE		ITALY	GERMANY		FRANCE	UK	USA
EN 10084: 2008 EN 10277-4: 2008		(UNI 7846-78)	(DIN 17210-84)		(NF A 35-551-86)	(BS 970 pt.1 -96)	ASTM A 29
Grade	**N°**		**Werkstoff**	**N°**			
20NiCrMo2-2	1.6523	20NiCrMo2	21 NiCrMo 2	1.6523	20 NCD 2	805M20	8620
20NiCrMoS2-2	1.6526		21 NiCrMoS 2	1.6526			

CHEMICAL COMPOSITION (CAST ANALYSIS) (%)

EUROPE	C	Si	Mn	P / max	S	Cr	Mo	Ni	Cu / max	Al
20NiCrMo2-2	0,17÷0,23	0,15÷0,40	0,65÷0,95	0,025	≤ 0,035	0,35÷0,70	0,15÷0,25	0,40÷0,70	0,40	0,020÷0,050
20NiCrMoS2-2					0,020÷0,040					

MECHANICAL PROPERTIES - AS ROLLED CONDITION - Hardness (HB) in the condition

Treated to improve sherability (+S)	Annealed to maximum hardness requirements (+A)	Treated to hardness range (+TH)		Treated to ferrite-pearlite structure and hardness range (+FP)	
(≤ 255)	≤ 212	≥ 161	≤ 212	≥ 149	≤ 194

MECHANICAL PROPERTIES - BRIGHT PRODUCT CONDITION

Size mm	+A*+ Turned (+A +SH)	+A*+ Cold drawn (+A+C)	FP**+ Turned (+FP +SH)	FP**+ Cold drawn (+FP +C)
	Hardness HB max	Hardness HB max	Hardness HB	Hardness HB
≥ 5 ≤ 10	-	270	-	-
> 10 ≤ 16	-	260	-	-
> 16 ≤ 40	212	255	149÷194	149÷240
> 40 ≤ 63	212	255	149÷194	149÷235
> 63 ≤ 100	212	255	149÷194	149÷235

*+A = annealed to maximum hardness requirement
**+FP = treated to ferrite-perlite structure and hardness range
For size <5 mm the mechanical properties may be agreed at the time of enquiry and order

WORKING TEMPERATURES RECOMMENDED

Operation	Hot forgings deformation	Carburizing temperature	Core quenching temperature	Case quenching temperature	Tempering
°C	900÷1150	880÷980	860÷900	780÷820	150÷200

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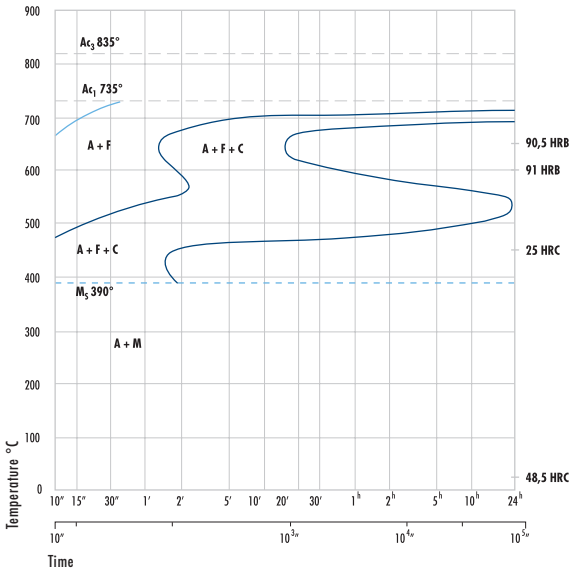
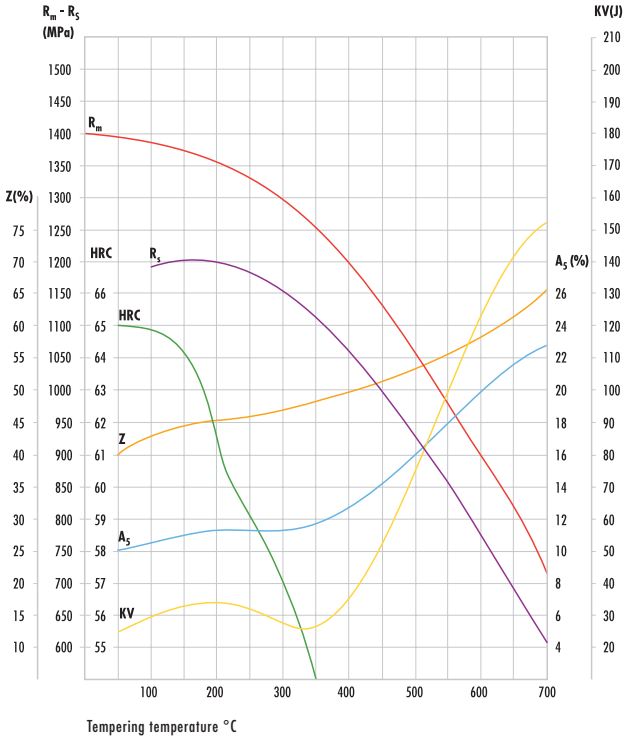
HARDNESS LIMITS (JOMINY TEST)

Limits of range		Hardness HRC at a distance from quenched end of test pieces (mm)												
		1,5	3	5	7	9	11	13	15	20	25	30	35	40
+H	Max	49	48	45	42	36	33	31	30	27	25	24	24	23
	Min	41	37	31	25	22	20	-	-	-	-	-	-	-
+HH	Max	49	48	45	42	36	33	31	30	27	25	24	24	23
	Min	44	41	36	31	27	24	22	21	-	-	-	-	-
+HL	Max	46	44	40	36	31	29	27	26	23	21	20	20	-
	Min	41	37	31	25	22	20	-	-	-	-	-	-	-

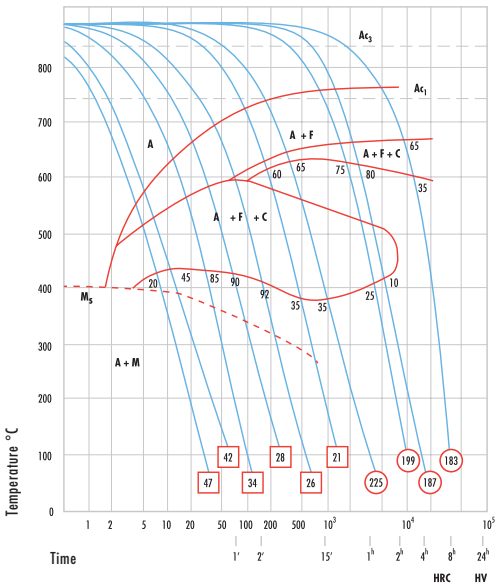
TTT



TEMPERING CURVE



CCT



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