

Steel Grade: 20MnMoNi4-5 | Material No: 1.6311

**CHEMICAL COMPOSITION**

C(%) ≤	Si(%) ≤	Mn(%) ≤	P(%) ≤	S(%) ≤	Cr(%)	Mo(%)	Ni(%)	Other(%)
0.17~0.23	≤0.40	1.00~1.50	0.035	0.035	≤0.50	0.45~0.60	0.40~0.80	—

**HARDNESS AND HEAT TREATMENT MECHANICAL PROPERTIES**

Hot Working °C	Annealing/Normalizing °C	Quench °C	Temper °C	Brinell Hardness HBS	Tensile Strength   $\sigma_b \geq$ Mpa	Normal Temp Yield Strength   $\sigma_s \geq$ Mpa	Extensibility   $\delta_5 \geq$ (%)	Ballistic   $ak_v \geq$ J⑥		
1100~850	580~620	870~940 Oil	610~690	—	570~750	430	16	41⑤		
Yield Strength   $\sigma_{0.2} \geq$ /Mpa					Creep Limit/Mpa   1000h					
200°C	300°C	350°C	400°C	450°C	500°C	450°C	500°C	550°C	600°C	10000h   450°C
392	371	363	353	—	—	—	—	—	—	—
Creep Limit/Mpa   10000h			Creep Rupture/Mpa   1000h			Creep Rupture/Mpa   10000h				
500°C	550°C	600°C	450°C	500°C	550°C	600°C	450°C	500°C	550°C	600°C
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