

Quality	20CrMoVTiB4-10
According to Standard	EN 10269 : 2013 (E)
Number	1.7729

Comparable Standards	EN	W.N.					
		20CrMoVTiB4-10	1.7729				
Chemical Analysis	C %	Si % max	Mn %	P% max	S% max	Al <sub>tot</sub>	Ti
	0.17 to 0.23	≤ 0.40	0.35 to 0.75	0.02	0.015 <sup>b</sup>	0.015 to 0.080	0.07 to 0.15
	B	Cr %	Mo %	Ni %	V %	Others	As
	0.001 to 0.010	0.90 to 1.20	0.90 to 1.10	≤ 0.20	0.60 to 0.80	Sn : ≤ 0.020 Cu : ≤ 0.20	≤ 0,020

#### Guidance for Heat Treatment

Heat Treatment Symbol <sup>a</sup>	Normalizing, quenching or Solution annealing temperature °C	Type of cooling <sup>b</sup>	Tempering or precipitation treatment (and time) °C
+ QT	660 to 700 + 970 to 990	a, w, o	680 to 720

#### Mechanical Properties at Room Temperature

Heat Treatment Condition <sup>a,b</sup>	Hardness	Diameter <sup>c</sup>	Proof Strength	Tensile strength	Elongation after fracture	Reduction in area	Impact energy (ISO-V) at 20°C
	HBW max	d mm	R <sub>p0.2</sub> Mpa min.	R <sub>m</sub> Mpa	A % min.	Z % min.	KV <sub>2</sub> J min.
+ QT	-	d ≤ 100 100 < d ≤ 160	660 660	820 to 1000 820 to 1000	15 15	50 50	40 27