

Material data sheet

Material Number ~1.4401; ~1.4919

Country U.S.A.

Designations 316 H (SAE); S31609 (SAE); 316 H (AISI); S31609 (UNS); A 182 (F 316 H) (ASTM); A 213 (316 H) (ASTM); A 240 (316 H) (ASTM); A 249 (316 H) (ASTM); A 312 (316 H) (ASTM); A 358 (316 H) (ASTM); A 376 (316 H) (ASTM); A 403 (CR316 H) (ASTM); A 403 (WP316H) (ASTM); A 479 (316 H) (ASTM); A 813 (316 H) (ASTM); A 814 (316 H) (ASTM); A 943 (TP316H)(S 31609) (ASTM); A 965 (F316H) (ASTM); SA 182 (316 H) (ASME); SA 213 (316 H) (ASME); SA 240 (316 H) (ASME); SA 249 (316 H) (ASME); SA 312 (316 H) (ASME); SA 376 (316 H) (ASME); SA 403 (316 H) (ASME); SA 479 (316 H) (ASME)

Chemical composition

Element	min/max
C	0,04-0,10
Si	<=0,75
Mn	<=2,00
P	<=0,045
S	<=0,030
Cr	16,00 -18,00
Mo	2,00 - 3,00
Ni	10,00 -14,00

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Country Europe
Designations X6CrNiMoB17-12-2

Chemical composition

Element	min/max	Others
C	0,04 - 0,08	
Si	<-1,00	
Mn	<=2,00	
P	<=0,035	
S	<=0,015	
B	0,0015 - 0,0050	
Cr	16,50 - 18,50	
Mo	2,00 - 2,50	
N	<=0,110	
Ni	10,00 - 13,00	

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Mechanical properties

dimension	value	specimen	at temperature	cooling	duration
<i>Data from Stahlschlüssel book</i>					
solution heat treated					
0,2% yield stress					
	$\geq 205 \text{ N/mm}^2$		$\sim 20^\circ\text{C}$		
	$\geq 177 \text{ N/mm}^2$		$\sim 100^\circ\text{C}$		
	$\geq 147 \text{ N/mm}^2$		$\sim 200^\circ\text{C}$		
	$\geq 127 \text{ N/mm}^2$		$\sim 300^\circ\text{C}$		
	$\geq 118 \text{ N/mm}^2$		$\sim 400^\circ\text{C}$		
	$\geq 108 \text{ N/mm}^2$		$\sim 500^\circ\text{C}$		
	$\geq 103 \text{ N/mm}^2$		$\sim 550^\circ\text{C}$		
	$\geq 98 \text{ N/mm}^2$		$\sim 600^\circ\text{C}$		
	$\geq 78 \text{ N/mm}^2$		$\sim 700^\circ\text{C}$		
Tensile strength					
	490 - 690 N/mm^2		$\sim 20^\circ\text{C}$		
Elongation after fracture (A5)					
	$\geq 35\%$		$\sim 20^\circ\text{C}$		
Impact value (DVM)					
	$\geq 96 \text{ J}$		$\sim 20^\circ\text{C}$		
Impact value KV (ISO-V/Charpy-V)					
	$\geq 90 \text{ J}$		$\sim 20^\circ\text{C}$		
Creep rupture strength 10.000 h					
	$\sim 250 \text{ N/mm}^2$		$\sim 550^\circ\text{C}$		
	$\sim 175 \text{ N/mm}^2$		$\sim 600^\circ\text{C}$		
	$\sim 111 \text{ N/mm}^2$		$\sim 650^\circ\text{C}$		
	$\sim 65 \text{ N/mm}^2$		$\sim 700^\circ\text{C}$		
	$\sim 42 \text{ N/mm}^2$		$\sim 750^\circ\text{C}$		conditional
Creep rupture strength 100.000 h					
	$\sim 175 \text{ N/mm}^2$		$\sim 550^\circ\text{C}$		
	$\sim 120 \text{ N/mm}^2$		$\sim 600^\circ\text{C}$		
	$\sim 69 \text{ N/mm}^2$		$\sim 650^\circ\text{C}$		
	$\sim 34 \text{ N/mm}^2$		$\sim 700^\circ\text{C}$		
	$\sim 20 \text{ N/mm}^2$		$\sim 750^\circ\text{C}$		conditional
High temperature stability					
	$\sim 700^\circ\text{C}$				