

<b>Quality</b>	<b>X6Cr17</b>	<b>Ferritic</b>
<b>Number</b>	<b>1.4016</b>	<b>Stainless Steel</b>

## Chemical composition

C%	Si%	Mn%	P%	S% <sup>a)</sup>	Cr%	
max	max	max	max	max		
0,08	1,00	1,00	0,040	0,030	16,0-18,0	EN 10088-1: 2005
± 0.01	+ 0.05	+ 0.03	+ 0.005	± 0.005	± 0.2	

Product deviations are allowed

<sup>a)</sup> for improving polishability, it is suggested a controlled sulphur content of max 0,015 %

## Temperature °C

Melting range	Hot-forming	Recrystallization	Soft annealing	MMA welding - AWS electrodes
1510-1425	1100-950	810-700 cooling to 300, then air	850-750 air	<i>pre-heating</i> 200 <i>annealing after w.</i> 800-750
Isothermal annealing	Quenching	Tempering	<i>joint with steel</i>	
not suitable	not suitable	not suitable	carbon	CrMo alloyed stainless
			E60 xx	E8018-B 2 E309 – E308
			<i>cosmetic welding</i>	E430

## Mechanical properties

**Hot-formed** EN 10088-3: 2005 in conditions 1C, 1E, 1D, 1X, 1G, 2D

size		Testing at room temperature					
mm		R	Rp 0.2	A%	Kv +20 °C	HB <sup>a)</sup>	<sup>a)</sup> for information only
from	to	N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min	J min	max	
100		400-630	240	20		200	+A annealed material

**Cold-processed** EN 10088-3: 2005 in conditions 2H, 2B, 2G, 2P

size		Testing at room temperature			R	Rp 0.2	A%	Kv +20 °C
mm		R	HB		N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min	J min
from	to	N/mm <sup>2</sup> max	max					
10 <sup>b)</sup>					500-750	320	8	
10	16				480-750	300	8	
16	40				400-700	240	15	
40	63				400-700	240	15	
63	100				400-630	240	20	
+A annealed material								

<sup>b)</sup> in the range of 1 mm ≤ d < 5 mm, values are valid only for rounds – the mechanical properties of non round bars of < 5 mm of thickness have to be agreed at the time of request and order

**Forged** EN 10250-4: 2001

size		Testing at room temperature					
mm		R	Rp 0.2	A%	C%	Kv +20 °C	HB
from	to	N/mm <sup>2</sup>	N/mm <sup>2</sup> min	min	min	J min	max
100		400-630	240				200
+A annealed material							

Effect of **cold-working** (hot-rolled +RA+C). Approximate values

R	N/mm <sup>2</sup>	550	620	680	700	720
Rp 0.2	N/mm <sup>2</sup>	320	500	590	620	650
A	%	22	11	10	9	9
Reduction	%	0	10	20	30	40

**Minimum values at high temperatures** EN 10088-3: 2005

Rp 0.2	N/mm <sup>2</sup>	220	215	210	205	200	195	190	+A annealed material
Test at	°C	100	150	200	250	300	350	400	

## X6Cr17 n° 1.4016 ferritic steel

<b>Thermal expansion</b>	$10^{-6} \cdot K^{-1}$	▶	10.0	10.5	10.5	10.5	11.0	12.0
<b>Modulus of elasticity</b>	longitudinal	GPa	220	215	210	205	195	
<b>Modulus of elasticity</b>	tangential	GPa	79					
<b>Poisson number</b>	$\nu$		0.144	0.138				
<b>Electrical resistivity</b>	$\Omega \cdot mm^2/m$		0.60		0.77		0.93	1.05
<b>Electrical conductivity</b>	Siemens·m/mm <sup>2</sup>		1.67					1.25
<b>Specific heat</b>	J/(Kg·K)		460		495		570	660
<b>Density</b>	Kg/dm <sup>3</sup>		7.75					760
<b>Thermal conductivity</b>	W/(m·K)		25					
<b>Relative magnetic permeability</b>	$\mu_r$		600-1000 ~					
<b>Temperature</b>	°C		20	100	200	300	400	600
								800

The symbol ▶ indicates between 20 °C and 100 °C, 20 °C and 200 °C .....

Corrosion resistance	Atmospheric		Chemical			x phenol, food, detergents, weak organic acids
	<i>industrial</i>	<i>marine</i>	<i>medium</i>	<i>oxidizing</i>	<i>reducing</i>	
Fresh water						
x	x		x	x		

<b>Magnetic</b>	yes
<b>Machinability</b>	good
<b>Hardening</b>	cold-drawing and other cold plastic deformations
<b>Service temperature in air</b>	up to 800 °C continuous service and up to 875 °C intermittent service

Europe	USA	USA	China	Russia	Japan	India	Republic of Korea
EN	UNS	ASTM	GB	GOST	JIS	IS	KS
X6Cr17	S43000	<b>430</b>	1Cr17	12Ch17	SUS 430	X07Cr17	STS 430



Architectural element