

Corrosion-resistant alloys

Nicrofer 3620 Nb – alloy 20			Nicrofer 3127 hMo – alloy 31			Nicrofer 3127 IC – alloy 28		
Sheet/strip	Tube/pipe	Rod/bar	Sheet/strip	Tube/pipe	Rod/bar	Sheet/strip	Tube/pipe	Rod/bar

DESIGNATIONS AND SPECIFICATIONS

D	Designation	NiCr20CuMo	X 1 NiCrMoCu 32 28 7	X 1 NiCrMoCuN 31 27 4
	Material N.	2.4660	1.4562	1.4563
	VdtÜV	-	509	-
USA	UNS	N 08020	N 08031	N 08028
	ASTM(B) ASME(SB)	463	625	709
GB	Designation BS	-	-	-
	BS	-	-	-
F	AFNOR	-	-	Z 1 NCDU 31.27

CHEMICAL COMPOSITION (%)

Nickel	36.5 - 38	30 - 32	30 - 32
Chromium	19 - 21	26 - 28	26 - 28
Iron	Balance	Balance	Balance
Azote	-	0.15 - 0.25	0.04 - 0.07
Others	Cu: 3 - 4 Nb: 0.1 - 0.3	Cu: 1 - 1.4	Cu: 1 - 1.4
Molybdenum	2 - 3	6 - 7	3 - 4
Carbon	Max. 0.02	Max. 0.015	Max. 0.015

MECHANICAL PROPERTIES (N/mm², %)

Temperature (°C)	Rp 0.2	Rp 1.0	Rm	A5	Rp 0.2	Rp 1.0	Rm	A5	Rp 0.2	Rp 1.0	Rm	A5
20	Min. 240	-	Min. 550	Min. 30	Min. 280	Min. 310	Min. 650	Min. 40	Min. 215	Min. 245	Min. 500	Min. 35
100	Min. 210	-	520	40	Min. 210	Min. 240	630	50	Min. 190	Min. 220	500	40
200	Min. 180	-	500	40	Min. 180	Min. 210	580	50	Min. 165	Min. 195	490	40
300	Min. 140	-	480	40	Min. 165	Min. 195	530	50	Min. 150	Min. 180	480	40
400	-	-	-	-	Min. 150	Min. 180	500	50	Min. 135	Min. 165	465	40
500	-	-	-	-	Min. 135	Min. 165	470	50	Min. 120	Min. 150	-	-
550	-	-	-	-	Min. 125	Min. 155	-	-	Min. 115	Min. 145	-	-

PHYSICAL PROPERTIES AT ROOM TEMPERATURE OR AS INDICATED

Density	g/cm ³	8.1	8.1	8.0
Specific heat	J/Kg K	456	452	452
Thermal conductivity	W/m K	11.5	11.7	11.7
Electrical resistivity	μΩ	107	103	104
Thermal expansion	10 ⁻⁶ /K	16	15.1	15.8
20-300°C				
Modulus of elasticity	kN/mm ²	202	198	191

FABRICATION CHARACTERISTICS

Formability	Good	Good	Good
Weldability	Satisfactory	Good	Good

WELDING PRODUCTS

Filler wire	Nicrofer S 6020 - FM 625	S 5923 - FM 59	Nicrofer S 3127- FM 31 ¹	S 5923 - FM 59 ¹	Nicrofer S 3127 - FM 31	S 6020 - FM 625
Covered electrode	2.4621	2.4609	1.4562	2.4609	1.4562	2.4621
	EL-NiCr20Mo9Nb	EL-NiCr22Mo16	X1NiCrMoCu 32 28 7	EL-NiCr22Mo16	X1NiCrMoCu 32 28 7	EL-NiCr20Mo9Nb
	AWS ENiCrMo-3					AWS ENiCrMo-3

MATERIAL DESCRIPTION, MAIN CHARACTERISTICS

Niobium-stabilised nickel-iron-chromium alloy with molybdenum and copper additions. Excellent resistance to stress-corrosion cracking. Good resistance to dilute sulfuric acid, even at high temperatures.

Austenitic low-carbon, high-molybdenum iron-nickel-chromium alloy with copper and nitrogen additions. Excellent resistance to pitting, crevice corrosion and stress-corrosion cracking. Outstanding resistance to oxidizing media. Particularly resistant to sulfuric acid solutions, even when contaminated, and to phosphoric acid.

Austenitic low-carbon iron-nickel-chromium alloy with molybdenum and copper additions. High resistance to pitting, crevice corrosion and to stress-corrosion cracking. Very good resistance to oxidizing media.