

VDM® Alloy HT 70

Designations and standards

Standard	Material designation
Werkstoffnummer	2.4658
DIN Kurzzeichen	NiCr 70 30
DIN	17470
UNS	N06003

Chemical composition (weight-%) acc. to ASTM B 344

	Fe	Cr	Ni	C	Mn	Si	Cu	Mo	Al	Others
Min.		29	Bal.			1				0,01
Max.	1	31		0,07	1,0	1,5	0,5	-	0,2	0,04

Mechanical properties at room temperature acc. to DIN 17470 and 17471

	N/mm ²	ksi
Tensile strength (Rm)	≥ 650	≥ 94,3

mm	Wire diameter		Elongation A _{L-100} (in %)
	mm	inches	
0.063 – 0.125	0.025 – 0.049		≈ 14
> 0.125 – 0.5	> 0.049 – 0.197		≈ 18
> 0.5 – 1.0	> 0.197 – 0.394		≥ 18
> 1.0	> 0.394		≥ 25

Creep properties (N/mm²)

Temperature in °C	°F	R _{p 1,0/10³h}
600	1,112	80
700	1,292	40
800	1,472	15
900	1,652	9
1,000	1,832	4
1,200	2,192	0,5

Physical properties at room temperature

Density	(g/cm ³)	8,1
Thermal conductivity	(W/m · K)	13,8
Modulus of elasticity	(kN/mm ²)	200

Temperature in °C °F	Electrical resistivity		Coefficient of thermal expansion (10 ⁻⁶ /K)	Specific heat (J/kg · K)
	(μΩ cm)			
	DIN 17470	ASTM B 344		
20 68	119	116	-	420
200 392	122	118	13.5	-
400 752	124	122	14.5	-
500 932	125	125	14.8	-
600 1,112	124	124	15.0	-
800 1,192	124	124	16.0	-
1.000 1,832	124	124	17.0	500
1.200 2,192	125	125	-	-

Processing

Melting point	(°C)	Approx. 1,400
Max. operating temperature in air	(°C)	Approx. 1,250
Formability		good
Weldability		satisfactory
Filler metal		matching

Material characteristics

- High heat resistance, very strong at high temperatures
- Good resistance in an oxidizing/reducing atmosphere
- Also available in an insulating oxidized version (Suprox grade)

Typical applications

- Electric and enamelling furnaces, night storage heaters
- Furnaces and kilns with changing atmosphere

Legal notice

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