

1. Alloys

Alloy	Material UNS No.	Standard
FeNi36	1.3912	SEW 385 / DIN 17745
FeNi41	1.3917 / K94100	DIN 17745 / ASTM F30
FeNi46	1.3920 / K94600	SEW 385 / DIN 17745 / ASTM F30
FeNi51	2.4478 / N14052	SEW 385 / DIN 17745 / ASTM F30
FeNi29Co18Mn	1.3981 / K94610	SEW 385 / DIN 17745 / ASTM F15
FeNi47Cr5Al		

2. Chemical composition (Reference values in % w/w)

Alloy	Ni	Co	Mn	Al	Cu	Cr	Si	Fe
FeNi36	36	≤ 0.10	≤ 0.50	≤ 0.05	≤ 0.3	≤ 0.3	≤ 0.30	balance
FeNi41	41	≤ 0.10	≤ 0.80	≤ 0.05	≤ 0.20	≤ 0.25	≤ 0.30	balance
FeNi46	46	≤ 0.10	≤ 0.80	≤ 0.05	≤ 0.20	≤ 0.25	≤ 0.30	balance
FeNi51	51	≤ 0.10	≤ 0.60	≤ 0.05	≤ 0.20	≤ 0.25	≤ 0.30	balance
FeNi29Co18Mn	29	17	≤ 0.50	≤ 0.05	≤ 0.20	≤ 0.20	≤ 0.20	balance
FeNi47Cr5Al	47	≤ 0.20	≤ 0.30	≤ 0.30	≤ 0.20	4.0 - 6.0	≤ 0.30	balance

3. Physical properties

Alloy	Density	Melting point	Specific electrical resistivity at 20 °C	Thermal conductivity at 20 °C	E-Modulus
	g/cm ³	°C	Ω • mm ² /m	10 ⁻⁶ /K	GPa
FeNi36	8.15	1435	0.79	13	137
FeNi41	8.20	1440	0.63	15	142
FeNi46	8.20	1450	0.55	16	152
FeNi51	8.25	1450	0.38	17	160
FeNi29Co18Mn	8.15	1450	0.46	17	157
FeNi47Cr5Al	8.25	1440	0.85		

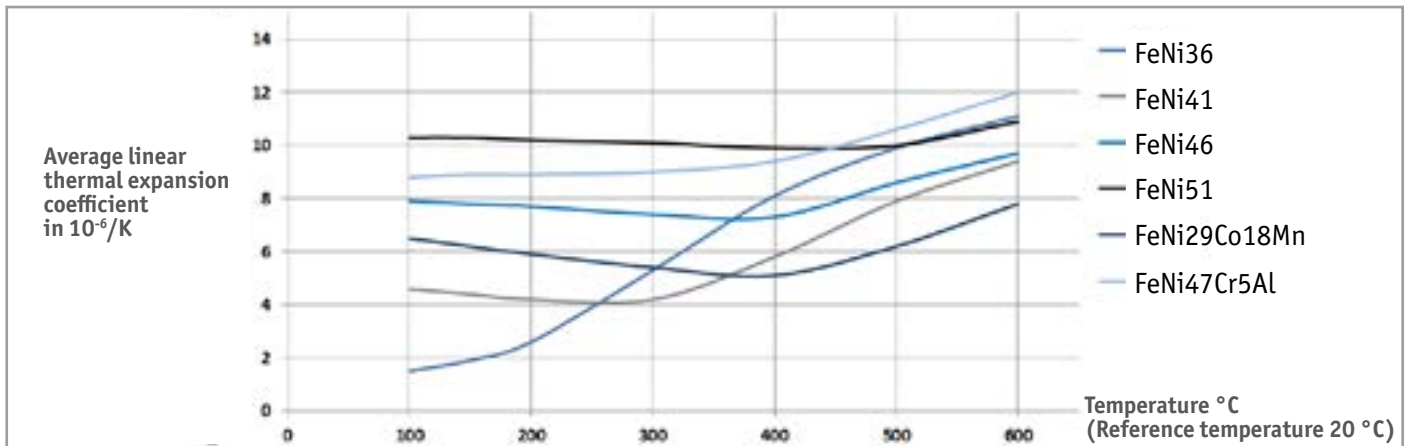
4. Thermal expansion properties

Alloy	Average linear thermal expansion coefficient in 10 ⁻⁶ /K Reference temperature 20 °C							Curie temperature °C
	100 °C	150 °C	200 °C	300 °C	400 °C	500 °C	600 °C	
FeNi36	1.5	1.9	2.6	5.3	8.1	9.9	11.1	230
FeNi41	4.6	4.4	4.2	4.2	5.8	7.9	9.4	340
FeNi46	7.9	7.8	7.7	7.4	7.3	8.6	9.7	400
FeNi51	10.3	10.3	10.2	10.1	9.9	10.0	10.9	500
FeNi29Co18Mn	6.5	6.2	5.9	5.4	5.1	6.2	7.8	435
FeNi47Cr5Al	8.8	8.9	8.9	9.0	9.4	10.6	12.0	345

Heat treatment 900 °C | Annealing time 0.5 h | Cooling time to 100 °C at least 10 h | Medium: hydrogen



Expansion Curves



5. Mechanical properties (Reference values soft-annealed condition)

Alloy	0,2 % Yield strength	Tensile strength	Elongation	Vickers hardness
	MPa	MPa	%	HV
FeNi36	270	450	35	130
FeNi41	290	500	35	140
FeNi46	270	520	35	140
FeNi51	260	540	30	140
FeNi29Co18Mn	380	530	35	160
FeNi47Cr5Al	260	540	30	140

6. Dimensions and tolerances: Thickness & Width (in mm)

Thickness	Width 10 - 50	Width > 50 - 200	Width > 200 - 320
0.10 - 0.20	+/- 0.010	+/- 0.015	+/- 0.020
> 0.20 - 0.50	+/- 0.020	+/- 0.020	+/- 0.030
> 0.50 - 1.00	+/- 0.030	+/- 0.030	+/- 0.040
> 1.00 - 2.00	+/- 0.040	+/- 0.040	+/- 0.050
> 2.00 - 2.50	+/- 0.050	+/- 0.050	+/- 0.060

Width	Thickness 0.10 - 0.20	Thickness > 0.20 - 0.50	Thickness > 0.50 - 1.00	Thickness > 1.00 - 2.50
10 - 50	+/- 0.1	+/- 0.2	+/- 0.2	+/- 0.3
> 50 - 200	+/- 0.2	+/- 0.3	+/- 0.3	+/- 0.4
> 200 - 320	+/- 0.3	+/- 0.4	+/- 0.5	+/- 0.6

Length (in mm)

Thickness	Length 500 - 3000
0.40 - 2.00	+ 10

7. Delivery forms (in mm)

Form	Thickness	Width	Length	Coil-ID	Coil-OD
Coil	0.10 - 2.50	10 - 320		300 / 400 / 500	max. 1050
Strip / Sheet	0.40 - 2.00	50 - 320	500 - 3000		

Important Note: All data in this Material Data Sheet are only for information purposes. Other dimensions and features to customer specification on request. Guarantees relating to specific characteristics or purposes require always a special written agreement.