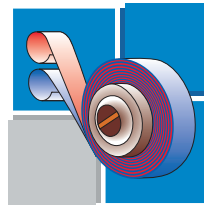
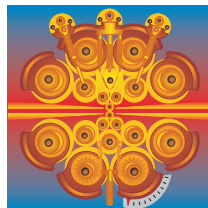


Thermostatic Bimetals

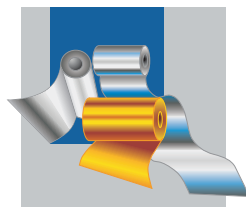


Clad Materials



**Metal Strips**

- Soft-magnetic Iron-Nickel-Alloys
- Sealing and Expansion Alloys
- Nickel
- Nickel-Chromium-Alloys
- Nickel-Copper-Alloys
- Copper-Nickel-Alloys
- Nickel-Manganese-Alloys**



Metallic Foils

Product group:

# Nickel-Manganese-Alloys

## 1. ALLOY

AMW-TRADE NAME	ALLOY	STANDARD	MATERIAL-NO. DIN/UNS
NiMn1	NiMn1	DIN 17741	2.4110
NiMn2	NiMn2	DIN 17741	2.4110/N02212
NiMn5	NiMn5	DIN 17741/ASTM F290	2.4116/N02211
NiMn4Si	NiMn4Si		
NiMn2Cr	NiMn2CrSiTiZr		

## 2. AVERAGE CHEMICAL COMPOSITION

(mass - %)

AMW-TRADE NAME		Ni (+Co)	C	Cr	Cu	Fe	Mg	Mn	S	Si	Ti	Zr
NiMn1	min.	98						0.4				
	max.		0.15	0.1	0.50	0.50	0.15	1.0	0.010	0.25	0.10	
NiMn2	min.	97						1.5				
	max.		0.1		0.25	0.35	0.15	2.5	0.010	0.25	0.10	
NiMn5	min.	94						4.5				
	max.		0.15		0.3	0.4	0.2	5.5	0.010	0.2	0.10	
NiMn4Si	min.	94						4.0		0.9		
	max.		0.1		0.2	0.8		4.6	0.06	1.1		
NiMn2Cr	min.	94.5		1.7				1.8		0.35	0.25	0.1
	max.	95.5	0.02	1.9	0.1	0.3	0.02	2.1	0.005	0.55	0.4	0.2

### 3. PHYSICAL PROPERTIES

AMW-TRADE NAME	DENSITY		ELECTRICAL RESISTIVITY		THERMAL EXPANSION COEFFICIENT		CURIE - TEMPERATURE	
	lb/in. <sup>3</sup>	g/cm <sup>3</sup>	AT 68 °F Ω•cmil/ft	AT 20 °C μΩ•m	68 TO 212 °F 10 <sup>-6</sup> /°F	20 °C TO 100 °C 10 <sup>-6</sup> /°C	°F	°C
NiMn1	0.318	8.8			7.2	13	680	360
NiMn2	0.318	8.8	69	0.115	7.2	13	680	360
NiMn5	0.318	8.8			7.2	13		
NiMn4Si	0.318	8.8			7.2	13		
NiMn2Cr	0.318	8.8			7.2	13		

### 4. MECHANICAL PROPERTIES

AMW-TRADE NAME	TEMPER	TENSILE STRENGTH Rm		ELONGATION	HARDNESS BRINELL	
		ksi	MPa		ROCKWELL B	BRINELL
NiMn1	annealed quarter hard	min. 54 min. 71	min. 370 min. 490	min. 40 min. 20	max. 69 approx. 77	max. 120 approx. 140
NiMn2	annealed quarter hard hard	min. 58 min. 78 min. 108	min. 400 min. 540 min. 740	min. 40 min. 20 min. 2	max. 74 approx. 85 approx. 97	max. 130 approx. 160 approx. 220
NiMn5	annealed				max. 74	max. 130
NiMn4Si	annealed	min. 65	min. 450	min. 40	max. 74	max. 130
NiMn2Cr	annealed half hard	min. 65 min. 80	min. 450 min. 550	min. 30 min. 15	max. 74 approx. 95	max. 130 approx. 210

## 5. DIMENSIONS AND TOLERANCES

### THICKNESS TOLERANCES

in.	THICKNESS mm	WIDTH		WIDTH		WIDTH	
		in. 0.39 to 3.94	mm 10 to 100	in. > 3.94 to 7.87	mm > 100 to 200	in. > 7.87 to 11.81	mm > 200 to 300
0.004 to 0.006	0.10 to 0.15	± 0.0004	± 0.010	± 0.0006	± 0.015	± 0.0008	± 0.020
> 0.006 to 0.008	> 0.15 to 0.20	± 0.0006	± 0.015	± 0.0008	± 0.020	± 0.0008	± 0.020
> 0.008 to 0.014	> 0.20 to 0.35	± 0.0008	± 0.020	± 0.0012	± 0.030	± 0.0012	± 0.030
> 0.014 to 0.020	> 0.35 to 0.50	± 0.0012	± 0.030	± 0.0016	± 0.040	± 0.0016	± 0.040
> 0.020 to 0.039	> 0.50 to 1.00	± 0.0016	± 0.040	± 0.0020	± 0.050	± 0.0020	± 0.050
> 0.039 to 0.059	> 1.00 to 1.50	± 0.0020	± 0.050	± 0.0024	± 0.060	± 0.0024	± 0.060
> 0.059 to 0.087	> 1.50 to 2.20	± 0.0024	± 0.060	± 0.0028	± 0.070	± 0.0031	± 0.080
> 0.087 to 0.118	> 2.20 to 3.00	± 0.0031	± 0.080	± 0.0035	± 0.090	± 0.0039	± 0.100

Other thickness and tolerances on request.

### WIDTH TOLERANCES

in.	WIDTH mm	THICKNESS		THICKNESS		THICKNESS	
		in. 0.004 to 0.039	mm 0.10 to 1.00	in. > 0.039 to 0.071	mm > 1.00 to 1.80	in. > 0.071 to 0.098	mm > 1.80 to 2.50
0.39 to 3.94	10 to 100	± 0.004	± 0.1	± 0.008	± 0.2	± 0.012	± 0.3
> 3.94 to 7.87	> 100 to 200	± 0.008	± 0.2	± 0.012	± 0.3	± 0.016	± 0.4
> 7.87 to 11.81	> 200 to 300	± 0.012	± 0.3	± 0.020	± 0.5	± 0.024	± 0.6

Other width and tolerances on request.

## LENGTH TOLERANCES (CUT LENGTH)

THICKNESS		LENGTH	
in.	mm	in.	mm
0.016 to 0.079	0.40 to 2.00	20 to 118	500 to 3000
	+ 0.40		+ 10

Other tolerances on request.

## 6. PRODUCT FORM

FORM	THICKNESS		WIDTH		LENGTH		COIL - ID		COIL - OD	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
Strip	0.004 to 0.118	0.10 to 3.00	0.39 to 11.81	10 to 300			11.81/15.75/19.69	300/400/500	max. 41.3	max. 1050
Cut length	0.016 to 0.079	0.40 to 2.00	1.97 to 11.81	50 to 300	20 to 118	500 to 3000				

Other form on request.

All data contained in this document are for information purposes only.  
Other properties can be engineered according to customer specifications.

Guarantees of specific characteristics or applications require special written agreement.



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