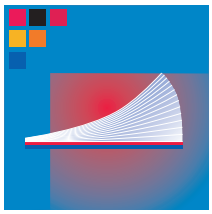
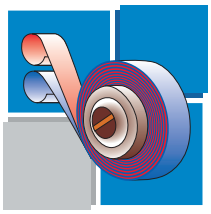
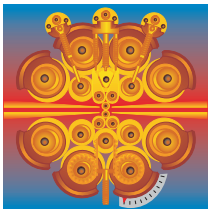
AUERHAMMER
METALLWERK GMBH



Thermostatic Bimetals

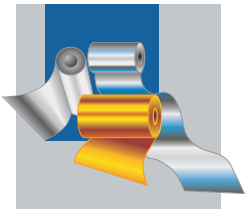


Clad Materials



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:

Sealing and Expansion Alloys

1. Alloy

AMW-Trade name	Alloy	Standard	Material-No. DIN/UNS
Dilaton 36	FeNi36	SEW 385/DIN 17745	1.3912
Dilaton 41	FeNi41	ASTM F30	K94100
Dilaton 42	FeNi42	SEW 385/DIN 17745	1.3917
Dilaton 46	FeNi46	SEW 385/DIN 17745/ASTM F30	1.3920/K94600
Dilaton 51	FeNi51	SEW 385/DIN 17745/ASTM F30	2.4478/N14052
Dilaton 51Cr1	FeNi51Cr1	SEW 385/DIN 17745	2.4480
Dilaton 29/18	FeNi28Co18Mn	SEW 385/DIN 17745/ASTM F15	1.3981/K94610
Dilaton 48Cr6Al	FeNi48Cr6Al		

2. Average chemical composition

(mass - %)

AMW-Trade name	Ni	Co	Mn	Al	Cu	Cr	Si	Fe
Dilaton 36	36	≤ 0.05	≤ 0.50	≤ 0.10	n.s.	n.s.	≤ 0.50	bal.
Dilaton 41	41	≤ 0.05	≤ 0.80	≤ 0.10	≤ 0.10	≤ 0.25	≤ 0.30	bal.
Dilaton 42	42	≤ 0.05	≤ 1.0	≤ 0.10	≤ 0.15	≤ 0.05	≤ 0.30	bal.
Dilaton 46	46	≤ 0.05	≤ 0.80	≤ 0.10	n.s.	≤ 0.25	≤ 0.30	bal.
Dilaton 51	50 - 52	n.s.	≤ 0.60	≤ 0.10	n.s.	≤ 0.25	≤ 0.30	bal.
Dilaton 51Cr1	51 - 53	≤ 0.05	≤ 1.0	≤ 0.10	n.s.	0.7 - 1.1	≤ 0.30	bal.
Dilaton 29/18	29	17.1	≤ 0.50	≤ 0.10	≤ 0.20	≤ 0.20	≤ 0.20	bal.
Dilaton 48Cr6Al	47	n.s.	≤ 0.30	≤ 0.40	≤ 0.03	5.3 - 6.3	≤ 0.40	bal.

(n.s.: not specified)

3. Physical properties

AMW-Trade name	Density		Melting temperature		Electrical resistivity at 68 °F	Electrical resistivity at 20 °C	Thermal conductivity at 68 °F	Thermal conductivity at 20 °C	Modulus of elasticity	
	lb/in.³	g/cm³	°F	°C	Ω•cmil/ft	µΩ•m	Btu•in./h•ft²•°F	W/m•K	10³ ksi	GPa
Dilaton 36	0.294	8.2	2606	1430	469	0.78	91	13	19.9	137
Dilaton 41	0.296	8.2	2624	1440	385	0.64	105	15	20.6	142
Dilaton 42	0.296	8.2	2624	1440	373	0.62	105	15	20.6	142
Dilaton 46	0.296	8.2	2624	1440	331	0.55	105	15	22.0	152
Dilaton 51	0.298	8.3	2642	1450	259	0.43	119	17	23.2	160
Dilaton 51Cr1	0.298	8.2	2642	1450	259	0.43	119	17	22.8	157
Dilaton 29/18	0.294	8.2	2642	1450	271	0.45	119	17	22.8	157
Dilaton 48Cr6Al	0.298	8.3	2624	1440	511	0.85				

4. Thermal expansion characteristics

AMW-Trade name	Average linear thermal expansion coefficient 10^{-6}/F, base temperature 68 °F / 10^{-6}/K, base temperature 20 °C							Inflection-point/ Curie-temperature	
	212°F/100°C	302°F/150°C	392°F/200°C	572°F/300°C	752°F/400°C	932°F/500°C	1112°F/600°C	°F	°C
Dilaton 36	0.83/1.5	1.06/1.9	1.44/2.6	2.94/5.3	4.50/8.1	5.50/9.9	6.17/11.1	446	230
Dilaton 41	2.56/4.6	2.44/4.4	2.33/4.2	2.33/4.2	3.22/5.8	4.39/7.9	5.22/9.4	644	340
Dilaton 42	3.22/5.8	3.11/5.6	3.00/5.4	3.00/5.4	3.44/6.2			671	355
Dilaton 46	4.39/7.9	4.33/7.8	4.28/7.7	4.11/7.4	4.06/7.3	4.78/8.6	5.39/9.7	752	400
Dilaton 51	5.72/10.3	5.72/10.3	5.67/10.2	5.61/10.1	5.50/9.9	5.56/10.0	6.06/10.9	932	500
Dilaton 51Cr1	5.78/10.4	5.78/10.4	5.78/10.4	5.78/10.4	5.78/10.4	5.83/10.5	6.11/11.0	914	490
Dilaton 29/18	3.61/6.5	3.44/6.2	3.28/5.9	3.00/5.4	2.83/5.1	3.44/6.2	4.33/7.8	797	425
Dilaton 48Cr6Al					5.72/10.3			644	340

heat treatment 900°C, annealing time 0.5 h, cooling time to 100°C longer than 10 h, medium hydrogen

5. Mechanical properties

AMW-Trade name	Yield strength Rp 0.2		Tensile strength Rm		Elongation	Hardness Rockwell B	Hardness Brinell
	ksi	MPa	ksi	MPa	%	HRB	HB
Dilaton 36	41	280	73	500	35	75.0	130
Dilaton 41	39	270	73	500	35	75.0	130
Dilaton 42	44	300	74	510	30	75.0	130
Dilaton 46	39	270	73	500	35	78.7	140
Dilaton 51	41	280	81	560	30	76.9	135
Dilaton 51Cr1	41	280	81	560	30	76.9	135
Dilaton 29/18	51	350	78	540	35	85.0	155
Dilaton 48Cr6Al			78	540	30	75.0	130

Average values for condition „annealed and recrystallized“

6. Dimensions and tolerances

Thickness tolerances

Thickness in.	Thickness mm	Width in. 0.39 to 1.97	Width mm 10 to 50	Width in. > 1.97 to 7.87	Width mm > 50 to 200	Width in. > 7.87 to 12.60	Width mm > 200 to 300
0.004 to 0.008	0.10 to 0.20	± 0.0004	± 0.010	± 0.0006	± 0.015	± 0.0008	± 0.020
> 0.008 to 0.020	> 0.20 to 0.50	± 0.0008	± 0.020	± 0.0008	± 0.020	± 0.0012	± 0.030
> 0.020 to 0.039	> 0.50 to 1.00	± 0.0012	± 0.030	± 0.0012	± 0.030	± 0.0016	± 0.040
> 0.039	> 1.00	± 0.0020	± 0.050	± 0.0020	± 0.050	± 0.0028	± 0.070

Other thickness and tolerances on request.

Width tolerances

Width		Thickness		Thickness		Thickness		Thickness		Thickness	
in.	mm	in. 0.004 to 0.008	mm 0.10 to 0.20	in. > 0.008 to 0.020	mm > 0.20 to 0.50	in. > 0.020 to 0.039	mm > 0.50 to 1.00	in. > 0.039 to 0.079	mm > 1.00 to 2.00	in. > 0.079	mm > 2.00
0.39 to 1.97	10 to 50	± 0.004	± 0.1	± 0.008	± 0.2	± 0.008	± 0.2	± 0.012	± 0.3	± 0.016	± 0.4
> 1.97 to 7.87	> 50 to 200	± 0.008	± 0.2	± 0.012	± 0.3	± 0.012	± 0.3	± 0.016	± 0.4	± 0.020	± 0.5
> 7.87 to 12.60	> 200 to 320	± 0.012	± 0.3	± 0.016	± 0.4	± 0.020	± 0.5	± 0.024	± 0.6	± 0.032	± 0.8

Other width and tolerances on request.

Length tolerances (cut length)

Thickness		Length	
in.	mm	in. 20 to 118	mm 500 to 3000
0.016 to 0.079	0.40 to 2.00	+ 0.40	+ 10

Other tolerances on request.

7. 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 12.60	10 to 320			11.81/15.75/19.69	300/400/500	max. 41	max. 1050
Cut length	0.016 to 0.079	0.40 to 2.00	1.97 to 12.60	50 to 320	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 costumer specifications.

Guarantees of specific characteristics or applications require special written agreement.

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