

# NAS42 (UNS K94100)

## Controlled Expansion Alloys

An Fe-42% Ni alloy, NAS42 has a coefficient of thermal expansion close to that of silicon, ceramic and glass. In addition to integrated circuit lead frames, applications include the manufacture of vibrating plates and metal masks. NAS42 is also used as a soft magnetic material.

### Steel Grade/Standard

Nippon Yakin Grade	ASTM B753	EN
NAS42	UNS K94100	1.3917

### Chemical Composition

	C	Si	Mn	P	S	Ni	Cr	Co	Fe
Typical	0.008	0.19	0.51	0.002	0.001	40.73	0.08	0.06	Bal

[wt %]

### Physical Properties

Destiny	g/cm <sup>3</sup>	8.15
Average coefficient of thermal expansion	10 <sup>-7</sup> /°C 30~300°C	46
Young's modulus	N/mm <sup>2</sup>	14.7 × 10 <sup>4</sup>

### Mechanical Properties

Typical Value

Finish	Proof stress (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Hardness (HV)
BA	265	441	37	125
1/2H	588	657	11	205
H	744	769	3	234

## Production capability

Finish : BA  
Thickness : 0.10mm ~ 0.5mm  
Width : 5mm ~ 500mm

## Application

Electronic components, Lead frame

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For more information, please contact:  
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