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Development of Spot Weldable Vibration Damping Steel Sheets for Room Temperature Use

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## Development of Spot Weldable Vibration Damping Steel Sheets for Room Temperature Use\*



### *Synopsis:*

*A thermosetting type of polyester resin with a three-dimensional molecular structure crosslinked by an isocyanate hardening agent having three functional groups was developed for use as a viscoelastic resin in vibration damping steel sheets for room temperature use.*

Laminating at  
continuous line

Productivity,  
Cost  
(steel sheets, organic resin, metal powder)

Thermosetting type  
polyester resin

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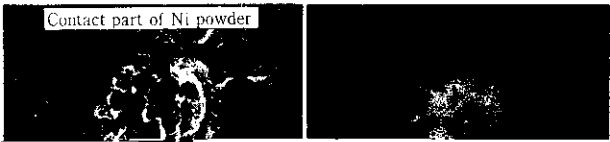
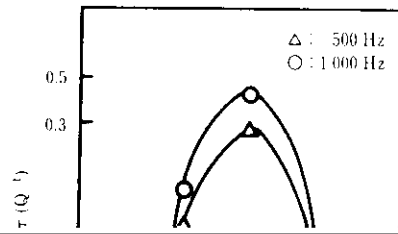
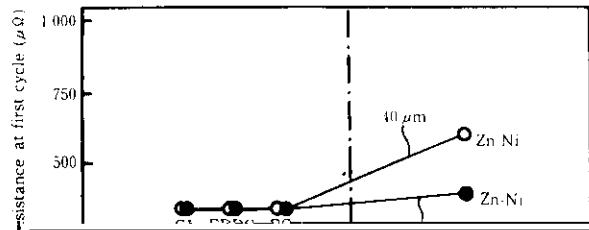


Table 1 Comparison of metal powders for spot welding of vibration damping steel sheet

Metal	Electric resist-	Melting	Micro Vickers	Spot	Anti-
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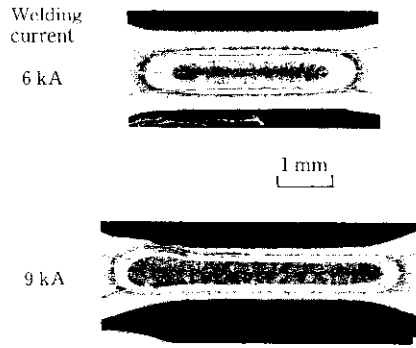


Photo 2 Cross section of weld nugget

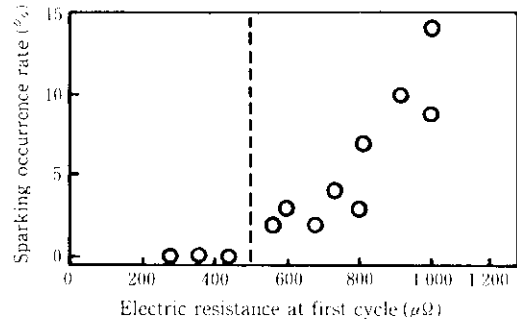
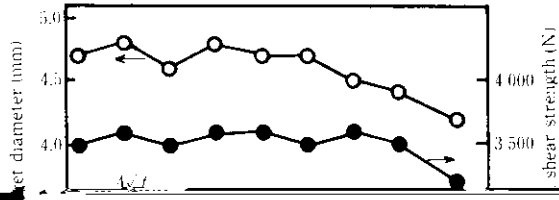
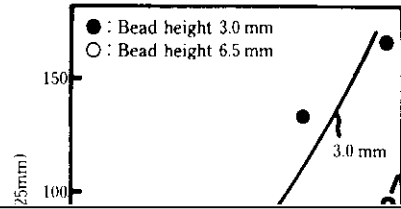
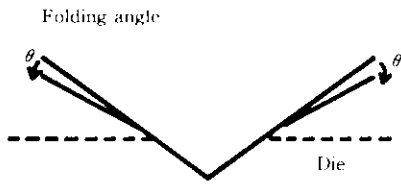


Fig. 11 Effect of electric resistance at first cycle on sparking occurrence rate

### 3.3 Workability

#### 3.3.1 Maximum drawing ratio

An Erichsen test was performed with various additions of hardening agent to the polyester resin, and the





and no reduction in the adhesive strength at room

(1) This thermosetting type of polyester is a new resin

Furthermore, in various environmental deterioration tests with such coating solvents as toluene and methyl-ethylketone, and in heat-resistance, moisture-resistance and salt-spray tests, no reduction in adhesive strength

sional crosslinkage to maximize its vibration damping capability, adhesion, and heat and solvent resistance.

(2) By setting the ratio of the Ni powder average grain