
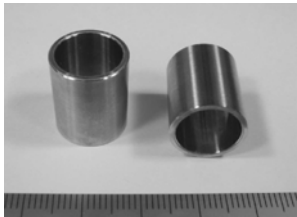


NEW PRODUCTS

Balancer Weight

<p>Technical background</p> <p>In motorcycles, balancer weights are installed to maintain the balance of the crankshaft in order to reduce vibration due to the reciprocal motion of the pistons and connecting rods. Hitachi Powdered Metals applied WH-7G material (specific gravity: 17.8Mg/m³), which has the highest specific gravity in the WH material series (used in weights) in combination with excellent toughness, thereby achieving a compact size approximately 50% smaller than that of conventional Fe-based weights.</p>	
<p>Conventional technology</p> <p>Due to the low specific gravity of Fe (7.8Mg/m³), various problems arose when Fe-based weights were used, including the need to use large-scale weights in order to obtain a given inertia force.</p>	<p>New technology</p> <ul style="list-style-type: none"> • WH-7G material, which has a high specific gravity, high toughness, and satisfactory corrosion resistance, was developed by optimizing the binder composition, content, and addition method and sintering conditions.
<p>Possible applications of the new product</p> <p>Balancer weights</p> 	<p>Features of the new technology</p> <ol style="list-style-type: none"> (1) Because WH-7G material has a high specific gravity of 17.8Mg/m³, a compact weight design is possible. (2) WH-7G has satisfactory corrosion resistance, eliminating the need for plating or other surface treatments. (3) Because toughness is high, a satisfactory caulking property can be obtained.
<p>Cost comparison</p> <p>Conventional product = 100 (conventional W-based heavy alloy) New product = 90 (plating is not required)</p>	

Stator Core

<p>Technical background</p> <p>The requirements for stators for AC brushless motors include high permeability, high magnetic flux density, and low core loss. Hitachi Powdered Metals developed a new material, EU-52, which has the highest permeability and magnetic flux density in the EU-50 series, which has a proven record of use in various types of motors, actuators, and other devices, as well as high electrical properties. Taking advantage of these features, the company successfully achieved mass production of stators for AC brushless motors.</p>									
<p>Conventional technology</p> <p>With conventional silicon steel sheets (electrical steel sheets), it is difficult to form a 3-dimensional magnetic circuit. Therefore, a new stator with a 3-D magnetic circuit had been desired.</p>	<p>New technology</p> <ul style="list-style-type: none"> • EU-52, which possesses high permeability, high magnetic flux density, and low core loss, was developed by adopting the optimal composition and submaterial addition method and optimizing sintering conditions. <table> <tr> <td>Density</td> <td>: 7.3Mg/m³</td> </tr> <tr> <td>Magnetic flux density B2000A/m</td> <td>: 1.3T</td> </tr> <tr> <td>Permeability μm</td> <td>: 3000</td> </tr> <tr> <td>Resistivity ρ</td> <td>: 45 μΩ·m</td> </tr> </table>	Density	: 7.3Mg/m ³	Magnetic flux density B2000A/m	: 1.3T	Permeability μm	: 3000	Resistivity ρ	: 45 μΩ·m
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<p>Possible applications of the new product</p> <p>Stators for AC motors</p> 	<p>Features of the new technology</p> <ol style="list-style-type: none"> (1) EU-52 is a high resistivity, low core loss material. (2) Because EU-52 has high permeability and high magnetic flux density, application to cores for various types of actuators, stators for motors, etc. is possible. (3) A 3-dimensional magnetic circuit can be formed easily. 								