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### [Oricalco, Shape Memory Fabric](#)



"Nitinol is the name of a light weight Shape Memory Alloy having a content of Titanium of 45% and characterized by their extraordinary ability to recover any shape pre-programmed, upon heating. Until today Nitinol has been used in advanced sectors like aerospace and, recently, in medical applications.

Through the Technology Transfer Programme of the ESA, Grado Zero Espace has transferred this knowledge in traditional sectors, like the textile one. In this framework, Grado Zero Espace has used Nitinol to obtain an orthogonally weaved fabric, called Oricalco, used for manufacturing of the first shape memory shirt at industrial level. Its sleeves could be programmed to shorten immediately as the room temperature heats up. Besides, the inserted shape memory material permits to mechanically deform the fabric and, after heating it with hot air for few seconds, to return on the previous shape. It is possible to perform this "deformation-return in shape" transformation many times and it could be possible (choosing the most suitable textile structure) to decide almost every type of starting and deformed shape.

The competence derived from the manufacturing of this shirt included the knowledge of the most suitable design, materials, machines and type of weaving, together with the attention directed to the high costs of Nitinol wire. Besides, after Oricalco development, Grado Zero Espace continued its study on Shape Memory Materials and on other type of Ni-Ti Alloys accumulating a lot of experience in manufacturing different type of Smart Textile Structure (fabrics, knits, tubular, special yarn, hybrid yarn,...), and permitting, in some cases, to optimize the manufacturing processes also for serial production".

See [Grado Zero Espace](#)

Posted by moab at 08:13 

Labels: [Smart materials](#)

<http://emplankton.blogspot.com/2009/01/oricalco-shape-memory-fabric.html>