# Direct soldering by means of an active metal interlayer

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| **Title** | **Direct soldering** by means of an active metal interlayer |
| **Basic technology outline** | Direct soldering by common solder and active metal interlayer<br>A direct soldering process utilizing a combination of conventional solder and interlayer of active metal (Ti, Mg. Zr, Hf, Cr, La, Y, Ce, Pr)<br>Allows direct soldering of non-metallic materials without their prior plating and without the use of active solders |
| **Technology deployment** | Soldering of metallic materials with non-metallic<br>Usable in the fields of vacuum technology and other laboratory techniques, electrical engineering, research and development.<br>Allows direct soldering of metallic materials with non-metallic or difficult to solder materials<br>Designed for ultrasonic or vacuum soldering<br>Suitable for the manufacture of products based on metals, technical ceramics, glass and other nonmetallic materials |
| **Advantages over currently used solutions** | Usable for all application temperatures<br>Allows use of common solders (Sn, Sn+Ag, others) with non-metallic soldering<br>Suitable for all application temperatures and large amount of materials – by the combination of solder and active metal used does not require special processing of soldered materials |

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| **Current status of technology** | Patented and tested technology<br>(Slovak) patent pending No. 50086-2016<br>Successfully tested under relevant conditions<br>Realized and analyzed were solder joints formed between the materials: Cu a Si, SiC, $Al_2O_3$, $SiO_2$, C (graphite) and others |
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