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### **Information regarding AL85PLUS - Standard**

Fields of application:

- Thermal joining of aluminium and aluminium alloys of different kinds and material thicknesses
- Removal of dents from Al body sheet metal
- Suitable for further machining, can be drilled, milled, turned or threaded, etc.

### **Enables economical repairs in accordance with the current value of the object such as:**

- Attachment of parts that have broken off
- Repair of threads
- Repair of cracks and holes in aluminium housings or profiles

### **Advantages:**

- Very slight or no deformation of the workpiece
- Diffusion at temperatures above 420°C
- Separation by heating (380°C) without difficulties
- Economical (1 meter of AL85PLUS - Standard is sufficient for producing approx. 10 meters of seam)
- High strength of the joint (up to 2,6 of aluminium)
- A variety of heat sources can be used, e.g. laser, hot air, butane, propane, induction heating
- No special training or special devices required
- Low purchase and handling costs
- No toxic waste, no disposal costs
- Free of lead and cadmium
- No flux and no separate degreasing required
- Only one solder for all aluminium alloys

### **Note:**

Joints that are produced using AL85PLUS - Standard are sometimes harder than the base material aluminium. The seams can be painted. However, they cannot be chromium-plated and anodized.

### **Technical data:**

Tensile strength:	up to 2,6 of aluminium
Hardness (Brinell HBW 2,5/62,5):	average 93-113 according to DIN EN ISO 6506-1
Thermal expansion:	up to 3-6% (depending on the cooling process)
Working temp./melting point:	380-420°C
Melting point pure aluminium:	660°C
Heat resistance:	240°C
Made in:	Germany
TÜV-Germany:	test-report B10-01760-B (TÜV NORD MPA GmbH & Co. KG, NL Bitterfeld)

### **Steps for thermal joining:**

#### **1. Preparation**

Remove visible dirt from all parts. To repair threads, bore out the hole of the damaged thread to a diameter that is approx. 1 mm larger than the nominal diameter. To repair cracks and parts that have broken off, the fracture area must be prepared on both sides for a fillet weld.

#### **2. Heating**

Warning: Do not use acetylene for heating! Fix the workpiece in position and heat it to the working temperature of 380°C. Use the AL85PLUS - Standard wire to check if this temperature has been reached on the workpiece.

#### **3. Application of AL85PLUS - Standard**

Apply the wire to the area that is to be joined as soon as the wire on the heated workpiece becomes liquid. Keep the applied molten metal liquid throughout the entire procedure by maintaining a continuous heat supply.

#### **4. Penetration of the oxide layer**

Use a pointed object (scriber, screwdriver etc.) to penetrate the aluminium oxide layer of the workpiece by moving it two or three times through the molten metal seam on all pieces applying slight pressure.

#### **5. Diffusion**

Continue to apply the flame to the workpiece for a little longer to initiate diffusion. At a temperature of approx. 420°C the molten metal starts to diffuse through the oxide layer of the workpiece creating a permanent joint.

#### **6. Cooling down**

Let the workpiece slowly cool down after joining.

#### **Practical hint**

Joints with steel, copper, brass or zinc diecasting cannot be produced. These materials can thus also be used to prevent involuntary running off of liquid AL85PLUS - Standard e.g. when working on inclined surfaces.

#### **Possible mistakes**

- Heat is too low
- Oxide layer was not penetrated
- No diffusion
- Acetylene was used by mistake