WHAT IS CLAIMED:

1. A contact tip assembly for MIG-welding that uses a plasma transferred arc (PTA) torch, comprising:

a guide having a longitudinal center axis, a first end, and an opposite second end, and a center bore extending and running along the longitudinal center axis of the guide from its first end to its second end through which a metal wire can be provided;

an electrically insulating lining inside of the center bore and extending at least from the first end to the second end of the guide; and

an electric contact unit comprising a support and a contact tip, the contact tip in electric contact with an electric energy source, the electric contact unit arranged to contact the metal wire with the contact tip past the second end of the guide, the contact tip assembly positioned so that after the metal wire passes through the guide and is brought into contact with the contact tip, the metal wire is positioned in a plasma arc of the plasma transfer arc (PTA) torch above a deposition point of a workpiece;

wherein the electric contact unit is separate and apart from the guide and from the PTA torch.

2. The contact tip assembly of claim 1, further comprising a wire pressing assembly for pressing the metal wire into contact with the contact tip of the electric contact element.

3. The contact tip assembly of any one of claims 1-2, further comprising a contact element pressing assembly for pressing the contact tip of the electric contact element onto the metal wire.

4. The contact tip assembly of claim 1, further comprising a wire pressing assembly and a contact element pressing assembly.

5. The contact tip assembly of any one of claims 1-4, where the electrically insulating lining:

comprises a guide channel having an inlet opening at the first end and an outlet opening at the second end and running through the electrically insulating lining along the longitudinal center axis.

6. The contact tip assembly of any one of claims 1-5, wherein the electric contact unit is positioned at a distance away from the outlet opening.

7. The contact tip assembly of any one of claims 1-6, further comprising a bottom opening in the bottom of the guide.

8. The contact tip assembly of claim 7, wherein the bottom opening extends to the second end.

9. The contact tip assembly of any one of claims 1-8, wherein the guide is made of or comprises Ti or a Ti alloy or composite containing Al, Cr, Cu, Fe, Hf, Sn, Mn, Mo, Ni, Nb, Si, Ta, V, W, or Zr, or combinations thereof.

10. The contact tip assembly of any one of claims 1-9, wherein the contact tip is made of or comprises an electrically conductive metal or metal alloy or composite comprising Cu alone or in combination with W.

11. The contact tip assembly of any one of claims 1-10, further comprising a coating on the surface of the electrically insulating lining that forms the guide channel.

12. The contact tip assembly of any one of claims 1-11, further comprising an insulating tip on the surface of the wire pressing assembly that comes into contact with the metal wire.

13. The contact tip assembly of any one of claims 1-12, wherein the electric contact unit comprises:

an electrical connection that connects the contact tip to a power source;

an insulator connector that connects the contact tip to a contact tip support.

14. The contact tip assembly of any one of claims 1-13, further comprising a cut out section that exposes the metal wire to the contact tip of the electric contact unit.

15. The contact tip assembly of any one of claims 1-14, further comprising:

a support element to which the guide and the electric contact unit can be connected for support;

a metal wire delivery source;

and a frame to which the support element can be attached.

16. The contact tip assembly of claim 15, wherein a thermally insulating material is present between:

the support element and the guide;

the support element and the electric contact unit; and

the support element and the frame.

17. A method for providing an electric current to a metal wire during manufacturing of a three-dimensional object of a metallic material by solid freeform fabrication, comprising:

feeding a metal wire through a guide;

providing a contact tip in electric contact with an electric energy source, the contact tip being separate and apart from the guide;

contacting the metal wire with the contact tip after the metal wire has passed through an end portion of the guide; and

positioning the metal wire after it is in contact with the contact tip in a plasma arc of a plasma transfer arc (PTA) torch above a deposition point of a workpiece, wherein the contact tip is isolated spatially from the PTA torch.

18. The method of claim 17, wherein the metal wire is in the form of a wire and comprises Ti or a Ti alloy.