

Solid Wire Weld modes

In MIG/MAG welding, the mode of material transfer between the filler wire and the weld pool changes in line with the welding current. The arc transfer mode is selected in line with the welding position, basic material and material thickness:

1. **Short arc**
2. **Globular arc**
3. **Spray arc**
4. **Pulse arc**

Short arc welding

Short arc welding takes place with a low heat input when the welding parameters are 50–180 A and 15–23 V. Contact between the filler material and welding piece causes a short circuit. As a result, the tip of the filler wire heats up and a droplet is transferred to the weld pool. The number of short circuits per second is in the range of 20–200, depending on the welding parameters and the size of the filler wire.

Globular arc welding

Globular arc welding is regarded as an intermediate step between short-arc and spray-arc welding. In this method, the parameters are 180–260 A and 23–28 V. In globular arc welding, both short circuit transfer and spray transfer without short circuits are used to transfer the filler material. The large droplets that arise in the transfer of filler material cause excessive spatter. Usually, steps are taken to avoid the globular arc range.

Spray arc welding

Spray arc welding takes place with a high heat input when the welding parameters exceed 260 A and 28 V. In spray arc welding, the filler material transfers to the welding pool as a spray without short circuiting. The high arc voltage melts the droplet before a short circuit takes place. In spray arc welding, filler material production is high and there is no spatter, but the method is not suited for position welding.

Pulse welding

The pulse welding range covers all power ranges from low to high. In pulse welding, material transfer takes place without short-circuiting. Instead, the machine produces a pulsed current, with each pulse resulting in the generation of a single filler material droplet. Pulsed welding is a versatile method suitable for a wide range of metals.