WELDING SYSTEMS

Made for Robots.

Technical information

microMIG and LiftArc function

Please read operating manual before initial startup.
Pay attention to safety instructions.
Please keep for future reference.

TIN-0118EN | V1.0 | 0412.1.ot

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1 Getting started with microMIG™

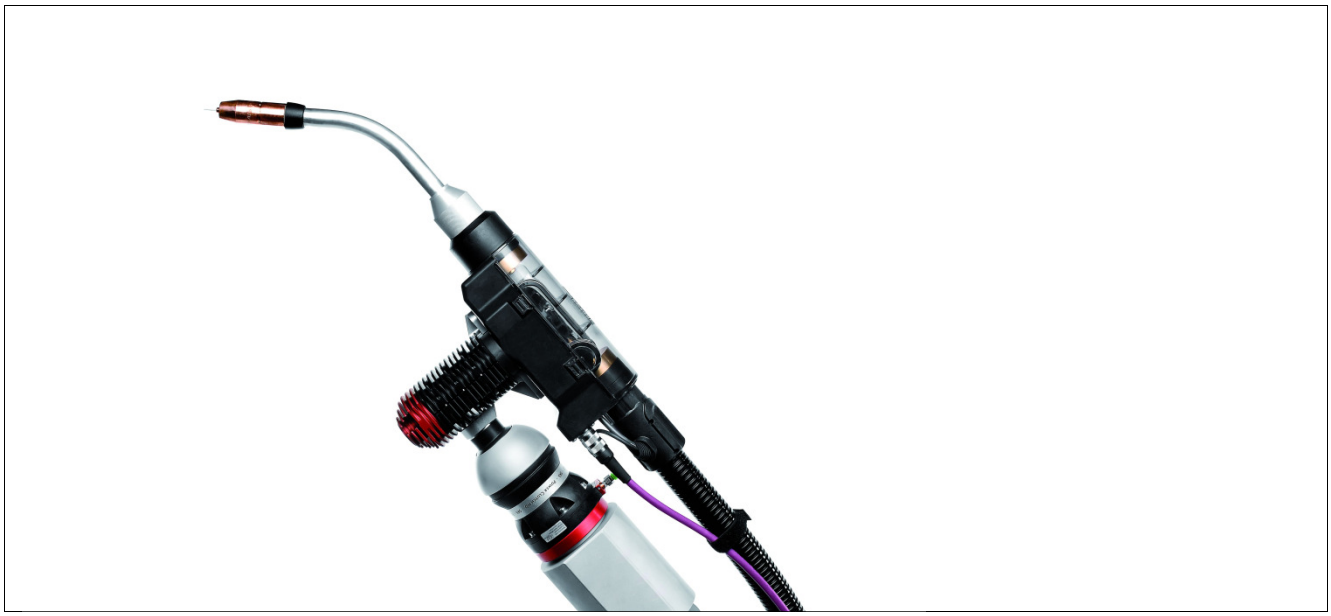

Fig. 1: microMIG torch system

1.1 How it works

A pulse sequence [3] (specific number of pulses) is used to create the weld puddle and indirectly set the wire feed speed (deposition rate). The last pulse is used to create a drop of molten wire at the wire end. Next, the wire is fed until contact with the workpiece with low current [2] and the drop melts into the puddle. Upon contact the turning direction of the wire feeder is reversed and the wire is retracted for a defined time [4] with low current. After re-ignition of the arc, the turning direction is again reversed (forward) and the pulse sequence starts again after a short waiting period [1].

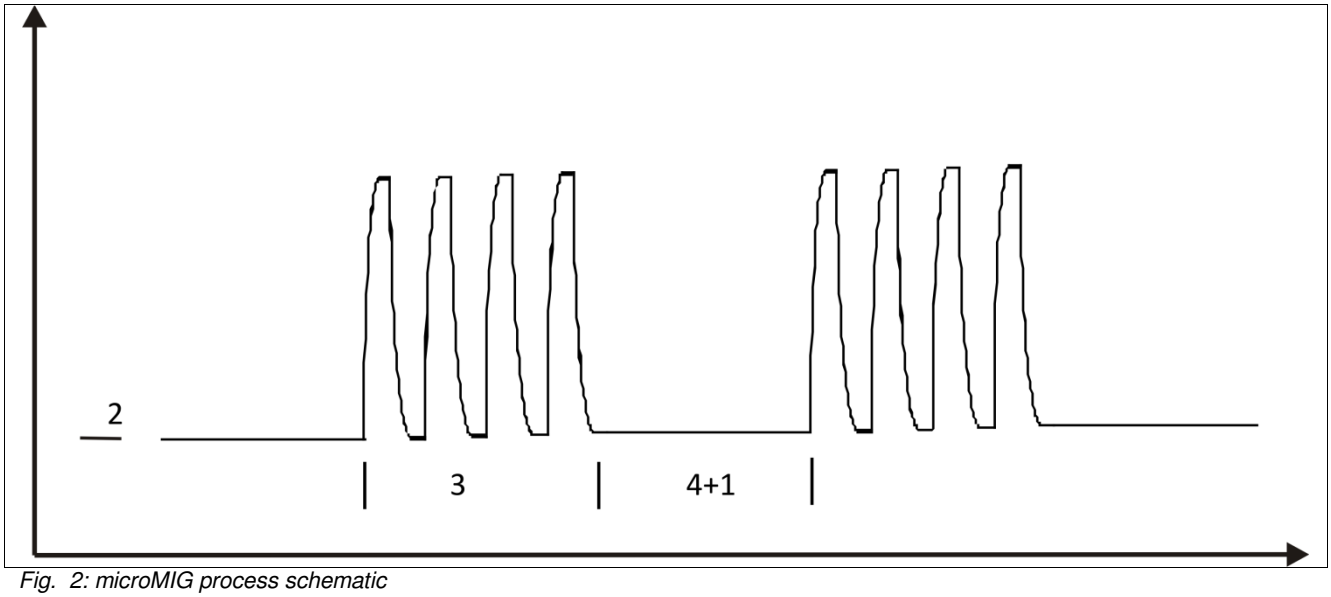

Fig. 2: microMIG process schematic

1.2 microMIG™ parameters

- Hold off time [1]
  Time between end of retract (switch to wire fed forward) and start of puls sequence.
  Standard: 12ms (at WF=12m/min 480in/min)
  increase value if WF is smaller
  reduce value if WF is higher

- SKS base current [2]
  Current during drop deposition und during re-ignition (until start of next pulse sequence). Determines heat input into part (penetration)
  Standard: 30A
  reduce value: less energy, less spatter during re-ignition
  increase value: more penetration / more energy, risk of spatter during re-ignition

- Wire feed
  wire feed speed during pulse sequence and during feed until short circuit
  Notice: effective wire feed speed is slower and also depends on pulse sequence! Q8Tool shows mean value (effective WF)
  Standard: steel 10m/min 400in/min stainless steel 12m/min 480in/min
  Faster: risk that wire sticks at workpiece (dips into weld puddle too deep)
  Slower: less risk of spatter, less deposition rate

- Pulse series [3]
  Number of pulses between short circuit routines (drop deposition)
  Determines deposition rate
  more pulses: more heat, higher deposition rate
  less pulses: less heat, smaller deposition rate
- Reverse time [4]
  Time how long wire is drawn back
  Determines arc length.
  Standard: ca. 15-21 ms
  Longer time: longer arc (risk of undercuts)
  Shorter time: shorter arc (risk of short circuit during pulse sequence)

Other pulse parameter: We recommend use of KU-characteristics for pulse sequence.

2 LiftArc (GMAW) fuction

The LiftArc (GMAW) function changes the behaviour of the welding equipment at the start.
The wire is advanced until it touches the component and is then withdrawn at a low current. This draws the arc up. The transition to normal welding parameters then takes place.
This soft arc ignition is very low in spatter and is reproducible.
The function can be switched on and off for each part number in the END program.

2.1 Firmware states required

The following minimum component firmware states are required for using LiftArc (GMAW) ignition:

Components	Firmware state
Q8pt/w or Q6pw controller:	6.49
LSQ5 / LSQ3 power source	1.41
Motor 61 motor card	1.12
Q8Tool4 software (local version)	2.9.9.4
Q8Tool software (network version)	2.9.9.4

2.2 Hardware required

As LiftArc (MSG) ignition requires very good wire control, this function should only be used with the SKS Front Pull torch. The use of an MOT61 motor card is also absolutely essential.

Required:

- Front Pull torch
- Front Pull module (MOT61 motor card)

Information

The LiftArc function can also bring about improvements in the ignition behaviour when using other SKS torch systems.

2.3 Required settings for Frontpull system

The “Lift Arc” function must be activated in the END program for the appropriate part numbers.
The START parameter settings must be modified due to the system's changed start routine.

Information

The Front Pull ignition routine is currently limited to use with the I-pulse and KF-pulse processes (see firmware states above). The Front-Pull function must be deactivated in the END program when executing GMAW welds.

Process	Pulse
Start pulse duration	7 ms
Starting current	20A

The above values are guide values and may vary in individual cases

Information

Particularly when loading "older" control content or parameter sets, it should be ensured that the START parameters are modified before downloading or on the control system.

Information

If the “Recalculate” function is carried out on the control system (e.g. when changing material, gas or wire diameter), then the values of the standard welding parameters will be entered as default values. The parameters must be reset in the welding program if necessary.

2.4 Required settings for Power Joint system

Process	Pulse
Start pulse duration	7 ms
Starting current	20A

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