

MILD STEEL



Amperage	40 amps per mm
Polarity	DC
Filler Material	ER70S-2 or ER70S-6
Filler Diameter	1.6mm - 2.4mm dependent on material thickness
Tungsten Type	Red (2% Thoriated) or Pink (MultiMix)
Tungsten Diameter	2.4mm sharpened to 30 degrees
Tungsten Stick out	Same length as the diameter of cup
Gas Lens	Recommended in size 6-9 cup
Shielding Gas	100% Argon flowing at 8 LPM or 17 CFH
Pre-flow	1 second
Post-flow	3-5 seconds
Purging Gas	Not required
Pulse	Recommended on thinner w/thicknesses 2-5 hertz
Upslope	Not required but recommended 2 seconds
Downslope	Not required but recommended 2 seconds
Arc Length	2 to 4mm

CHROMOLY STEEL



Amperage	40 amps per mm
Polarity	DC
Filler Material	ER70S-2 or ER80S-D2
Filler Diameter	1.6mm dependent on material thickness
Tungsten Type	Red (2% Thoriated) or Pink (MultiMix)
Tungsten Diameter	2.4 sharpened to 30 degrees
Tungsten Stick out	Same length as the diameter of cup
Gas Lens	Recommended in size 8-12 cup
Shielding Gas	100% Argon flowing at 9 LPM or 19 CFH
Pre-flow	1 second
Post-flow	5-10 seconds
Purging Gas	Not required
Pulse	Recommended on thinner w/thicknesses 1-4 hertz
Upslope	1-2 seconds to ensure slow ramp up to temperature
Downslope	2-14 seconds to slow the rate of recrystallization and prevent craters
Arc Length	1 to 3mm

ALUMINIUM



Amperage	40 amps per mm
Polarity	AC
Filler Material	4043 or 5356
Filler Diameter	2.4mm or 3.2mm
Tungsten Type	White (1% Zirconiated) or Pink (MultiMix)
Tungsten Diameter	2.4 sharpened to 40 degrees <i>A small section of the end can be flattened to aid tungsten balling</i>
Tungsten Stick out	Half the length of the cup diameter
Gas Lens	Not required but can be an assistance in low amperage welding
Shielding Gas	100% Argon flowing at 8 LPM or 17 CFH
Pre-flow	1 second to maintain a clean tungsten
Post-flow	3 second to maintain a clean tungsten
Purging Gas	Not required
Pulse	Optional depending on material thickness
AC Balance	Between 65% (for dirty material) 85% (more penetration)
AC Frequency	Higher Frequency equals tighter arc for smaller weld bead
Upslope	1-2 seconds
Downslope	3-5 seconds to slow the rate of recrystallization and prevent craters
Arc Length	3mm to 5mm

STAINLESS STEEL



Amperage	35 amps per mm
Polarity	DC
Filler Material	308L for 304 Stainless or 316L for 316 Stainless
Filler Diameter	1.0-2.4mm dependent on material thickness
Tungsten Type	Red (2% Thoriated) or Pink (MultiMix)
Tungsten Diameter	2.4 sharpened to 30 degrees
Tungsten Stick out	Same length as the diameter of cup
Gas Lens	Essential #12 cup or larger
Shielding Gas	100% Argon flowing at 12 LPM or 24 CFH
Pre-flow	1 second
Post-flow	5-10 seconds
Purging Gas	Recommended 12 LPM to fill and 8LPM to maintain
Pulse	Recommended on thinner w/thicknesses 1-4 hertz
Upslope	1 seconds to ensure slow ramp up to temperature
Downslope	3 seconds to slow the rate of recrystallization and prevent craters
Arc Length	1mm to 3mm

TITANIUM



Amperage	35 amps per mm
Polarity	DC
Filler Material	Grade 2 ErTi-2, Grade 3 ErTi-3, Ti6Al4V/ Grade 5 ErTi-5
Filler Diameter	1.6mm
Tungsten Type	Pink (MultiMix)
Tungsten Diameter	2.4 sharpened to 30 degrees
Tungsten Stick out	Same length as the diameter of cup
Gas Lens	Essential #18 cup or larger
Shielding Gas	100% Argon flowing at 14 LPM or 30 CFH
Pre-flow	3 seconds
Post-flow	8-20 seconds
Purging Gas	Recommended 12 LPM to fill and 8LPM to maintain
Pulse	Recommended on thinner w/thicknesses 1-4 hertz
Upslope	1 second to ensure slow ramp up to temperature
Downslope	3-4 seconds to slow the rate of recrystalliza- tion and prevent craters
Arc Length	1mm to 3mm