

# SPECIAL PURPOSE ELECTRODES

TOOL STEEL TIG CUT LENGTHS – TABLE  
(PERHEAT/POSTHEAT CHART)



## WELCO SUPERMISSILE WELD THE ULTIMATE ELECTRODE FOR WELDING STEELS WITH HIGHEST STRENGTH AND MAXIMUM DUCTILITY (AC-DC)

Assures dense, non-cracking welds on "problem" steels such as high carbon steels; tool steels; stainless steels; spring steels; manganese steels; and dissimilar steels.

**Applications:** WELCO SUPER MISSILEWELD is particularly advantageous when the alloy content of the steel to be welded is unknown. This unique electrode is so versatile that its applications are virtually too multiple in number to specify. For years, it has been a maintenance and repair "stand-by" in every industry throughout the world.

**Procedure:** Use either AC or DC reverse polarity. Clean weld area. Bevel heavy sections. For high carbon steels, a preheat of 400°F is recommended. Hold a short arc. Run stringer beads. Peening will help relieve stresses. Let each pass cool and slag will peel off easily.

### Features:

Tensile strength \_\_\_\_\_ Up to 120,000 psi  
Yield strength \_\_\_\_\_ Up to 85,000 psi  
Ductility \_\_\_\_\_ Up to 35% elongation in 2"  
Hardness as deposited \_\_\_\_\_ 200 to 300 Brinell  
(Work hardens)  
Impact resistance \_\_\_\_\_ Excellent  
Heat resistance \_\_\_\_\_ High  
Frictional resistance \_\_\_\_\_ Excellent  
Abrasive resistance \_\_\_\_\_ Mild  
Will not respond to heat treatment

### MESSER/EUTECTIC – SUPER 600 ELECTRODE

Contains: MOLYBDENUM, Plus, More Cr/Ni

### PROVIDING MECHANICAL PROPERTIES SUPERIOR TO SUPER MISSILEWELD

P/N S600332 — 3/32" Dia **\$49.50 Per Lb.**  
AMPS 40-80

P/N S60018 — 1/8" Dia **\$48.50 Per Lb.**  
AMPS 65-120

P/N S600532 — 5/32" Dia **\$44.50 Per Lb.**  
AMPS 90-150

Available in 1/16" for 110V Welders 30-40 amps  
**Part No. S600116 \$51.50 Per Lb.**

Sizes	Amperage	1 lb Package		5 lb Package		10 lb Package	
		PART	Price	PART	Price	PART	Price
3/32" x 9"	40-80 amps	SMW332-1	\$39.95	SMW332-5	\$189.50	-	-
1/8" x 14"	70-110 amps	SMW18-1	\$39.95	SMW18-5	\$182.60	-	-
5/32" x 14"	95-145 amps	SMW532-1	\$39.95	-	-	SMW532-10	\$360.90
3/16" x 14"	145-200 amps	SMW316-1	\$39.95	-	-	SMW316-10	\$360.90

## WELCO FILLER METALS FOR TOOL STEELS

### Procedure: Arc (SMAW):

- Identify the tool steel to be welded. While there are many variations of tool and die steels, the most common are:
 

Water hardening	W-1 through W-5
Oil hardening	O-1 through O-6
Air hardening	A-2 through A-10
High speed	M-1 through M-44
Hot work	H-10 through H-43
- Prepare the surface to be welded. Remove all foreign matter and rough edges. Make sure that only the original base metal is exposed.
- Select the proper electrode per the chart. Preheat the tool steel to be welded per the chart.
- Use AC or DC, reverse polarity, with the lowest possible amperage setting for good fusion.
- Using a striker plate, carry the arc to the area to be welded.
- Maintain preheat temperature while welding.
- Two or more passes should be used to minimize dilution of the base metal. Peen each pass rapidly to stress relieve.
- Postheat or temper the deposit per the chart.
- If heat treating is desired, use the annealing, hardening and quenching recommendations listed under "TOOL STEEL TIG CUT LENGTHS."
- For checking proper welding temperature, use a temperature indicator.
- With reference to "Step 7" above, WELCO SUPER MISSILEWELD is recommended as a "cushioning" or "padding" pass adjacent to the base metal. This minimizes dilution of the base metal and offers a softer, more ductile alloy next to the higher hardness base metal. WELCO SUPER MISSILEWELD does not respond to heat treatment, so it should not be exposed to the finished weld area being heat treated.

*SIZE Dia (Inch)	AIR HARDENED 5 Lb Package	OIL HARDENED 5 Lb Package	WATER HARDENED 5 Lb Package	HIGH SPEED TOOL 5 Lb Package	FLAME HARDENED CHROME -MOLY**	HOT WORKING TOOL STEEL**
3/32 50-90	4AH332-5 \$122.95	4OH332-5 \$135.35	4WH332-5 \$111.35	4HSS332-5 \$162.50	4FH332-5 \$85.50	4HW332-5 \$121.30
1/8 70-110	4AH18-5 \$121.25	4OH18-5 \$134.80	4WH18-5 \$110.85	4HSS18-5 \$160.45	4FH18-5 \$84.60	4HW18-5 \$119.25
5/32 100-145	4AH532-5 \$120.65	4OH532-5 \$133.25	4WH532-5 \$109.90	4HSS532-5 \$159.95	4FH532-5 \$84.60	4HW532-5 \$117.85
3/16 140-200	-	-	-	-	4FH316-5 \$84.60	-

\*3/32" Dia. are 9" lg. All others are 12" lg

\*\*5 Lb. Package