Castolin Eutectic®
Eutectic Castolin

Specially Formulated Filler Metal for
Molybdenum-Bearing Tool & Die Steels

TigTectic® 5HSS

- For the repair welding of M-Class Tool Steels
- Good for surface enhancement of low-alloy steels
- Exceptional property retention at high temperatures

TigTectic® 5HSS

TigTectic 5HSS is a TIG filler rod designed for the repair or surface enhancement where the properties of an M-Series, Molybdenum-bearing Tool & Die steel is necessary or desirable.

Weld deposits resist softening at elevated temperatures, have excellent resistance to tool contact wear, and have superior application toughness.

TECHNICAL DATA

Typical Values	
Hardness:	62 - 64 HRC as-deposited
Hot Hardness:	45 - 50 HRC up to 1200°F (649°C)
Annealing Temperature:	1650°F (899°C)
Hardening Temperature:	2225 - 2250°F (1218 - 1232°C) 1000 - 1050°F (537 - 565°C)
Preheat Temperature:	950 - 1000°F (510 - 537°C) when welding M1, M2 & M10 grades. For general applications a preheat of 400°F (204°C) is suitable
Inter-pass Temperature:	950 - 1100°F (510 - 593°C) when welding M-grade steels. For general applications use a ± 25°F inter-pass range
Current & Polarity:	DCEP (+) and AC

SUGGESTED WELDING PARAMETERS:

Diameter	Amperage	Shielding Gas
0.045" (1.2mm)	30 - 80	100% Argon @ 30 - 46 scfh
1/16" (1.6mm)	70 - 150	100% Argon @ 30 - 46 scfh
3/32" (2.4mm)	150 - 250	100% Argon @ 30 - 46 scfh

Note: Amperages are recommended based on the diameter of the Tungsten Electrode and NOT the filler.

PROCEDURE FOR USE

PREPARATION: Clean weld area of scale and/or oxide and degrease using VOC-free cleaners. Dye penetrant test to locate cracks. Prepare cracks by grinding so as to generate a "U" profile. For enclosed cracks without an end point continue the preparation some 1" (25mm) ahead of the crack. Preheat slowly according to the grade and heat treated condition of the tool or die.

TECHNIQUE: Start the arc by using impulse high-frequency or by using a copper startblock. Do not use a carbon block as this will contaminate the weld deposit! Deposit stringer beads. Do not wave more than 2x, as wide beads can cause distortion.

POST WELDING: Parts should be covered with a heat-retardant blanket or placed in a pre-heated furnace for controlled cool-down.

TYPICAL APPLICATIONS

For M-series tool steels, particularly grade M1, M2 and M10. This grade, and other grades, are noted for use in blanking, piercing, forming, and deep cutting operations.

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