



## Tool and Die Welding (GTAW)

### Project 3 – Specification and Print

<b>Weld Type</b>	Worn Shaft Build-Up
<b>Welding Process</b>	GTAW
<b>Position</b>	Flat
<b>Material</b>	1/4" Steel
<b>Joint Type</b>	
<b>Backing Option</b>	
<b>Backing Material</b>	

<b>Polarity</b>	DC+
<b>Electrode</b>	ER70s-6
<b>Transfer Mode</b>	
<b>Tungsten Electrode</b>	2% Ceriated
<b>Shielding Gas</b>	100% Argon
<b>Flow Rate</b>	25 cfh
<b>Cup Size</b>	

Welding Procedure									
Weld Layers	Pass No.	Process	Filler Metal Classification	Filler Metal Diameter in (mm)	Current Amps	Current Type and Polarity	Wire Feed Speed	Volts	Remarks
Stringer		GTAW	ER70s-6	1/16"	130a	DC+			





---

## Tool and Die Welding (GTAW)

### *Project 3 – Specification and Print*

---

#### **Heat Treatment:**

**Preheat Temperature:**

**Post Heat Temperature:**

**Interpass Temperature:** Air Cool for controlled temperatures

**Stress Relieving:**

**Technique:** A worn shaft build up using stringer beads. Looking for bead quality and bead placement.  
Fill to just over thread dimension for machining after.

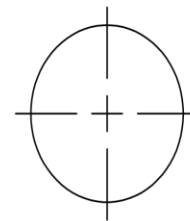
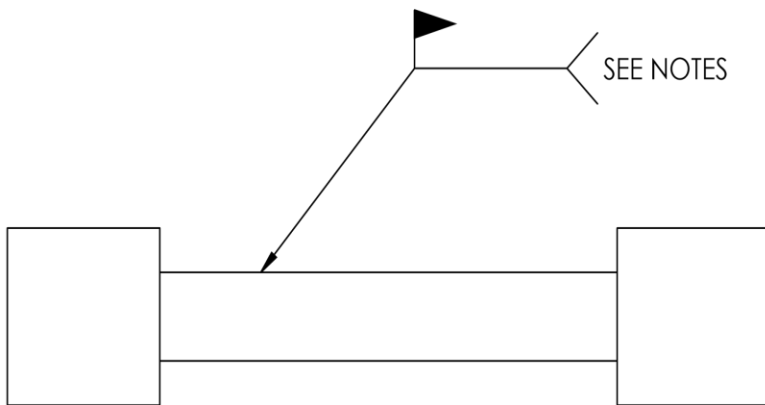
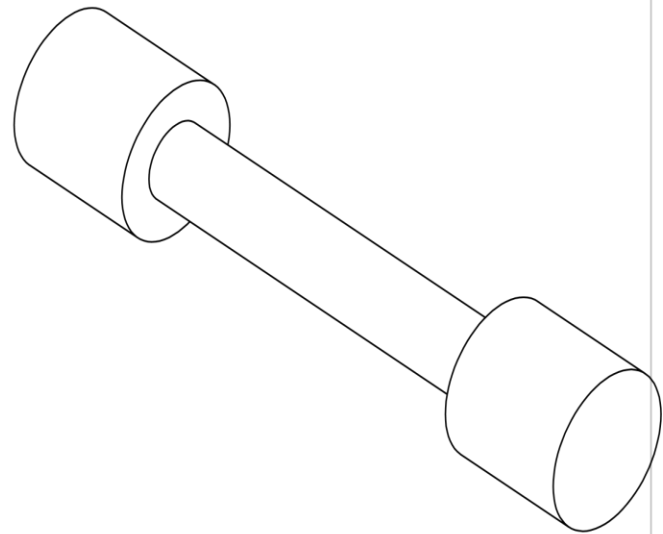
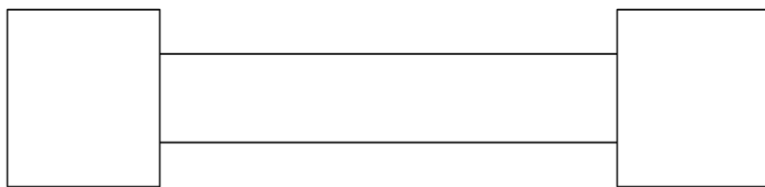
**Additional Notes:** Show instructor progress every 30 minutes minimum.





## Tool and Die Welding (GTAW)

### Project 3 – Specification and Print



**NOTES:**  
SHAFT BUILD UP  
2 PIECES MADE  
UTILIZING SMAW &  
GTAW PROCESSES

**PROPRIETARY AND CONFIDENTIAL**  
THE INFORMATION CONTAINED IN THIS  
<INSERT COMPANY NAME HERE>. ANY  
REPRODUCTION OR TRANSMISSION OF  
THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF  
<INSERT COMPANY NAME HERE> IS  
PROHIBITED.

**SolidWorks Educational Edition.  
For Instructional Use Only.**

		UNLESS OTHERWISE SPECIFIED:	NAME	DATE	TITLE: <b>CIMWD-221 Project 3</b>	
		DIMENSIONS ARE IN INCHES	DRAWN	J.SIBERT		5/5/15
		TOLERANCES: FRACTIONAL ±	CHECKED			
		ANGULAR: MACH ± BEND ±	ENG APPR.			
		TWO PLACE DECIMAL ±	MFG APPR.			
		THREE PLACE DECIMAL ±	Q.A.			
		INTERPRET GEOMETRIC TOLERANCING PER:	COMMENTS:			
		MATERIAL				
		FINISH				
		USED ON				
		APPLICATION				
		DO NOT SCALE DRAWING				
SIZE	DWG. NO.	REV				
<b>A</b>	<b>PART 11 D</b>					
SCALE: 1:1	WEIGHT:	SHEET 1 OF 1				

5

4

3

2

1





---

## **Tool and Die Welding (GTAW)**

### *Project 3 – Specification and Print*

---

#### **SAFETY DISCLAIMER:**

M-SAMC educational resources are in no way meant to be a substitute for occupational safety and health standards. No guarantee is made to resource thoroughness, statutory or regulatory compliance, and related media may depict situations that are not in compliance with OSHA and other safety requirements. It is the responsibility of educators/employers and their students/employees, or anybody using our resources, to comply fully with all pertinent OSHA, and any other, rules and regulations in any jurisdiction in which they learn/work. M-SAMC will not be liable for any damages or other claims and demands arising out of the use of these educational resources. By using these resources, the user releases the Multi-State Advanced Manufacturing Consortium and participating educational institutions and their respective Boards, individual trustees, employees, contractors, and sub-contractors from any liability for injuries resulting from the use of the educational resources.

#### **DOL DISCLAIMER:**

This product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.

#### **RELEVANCY REMINDER:**

M-SAMC resources reflect a shared understanding of grant partners at the time of development. In keeping with our industry and college partner requirements, our products are continuously improved. Updated versions of our work can be found here: <http://www.msamc.org/resources.html>.

