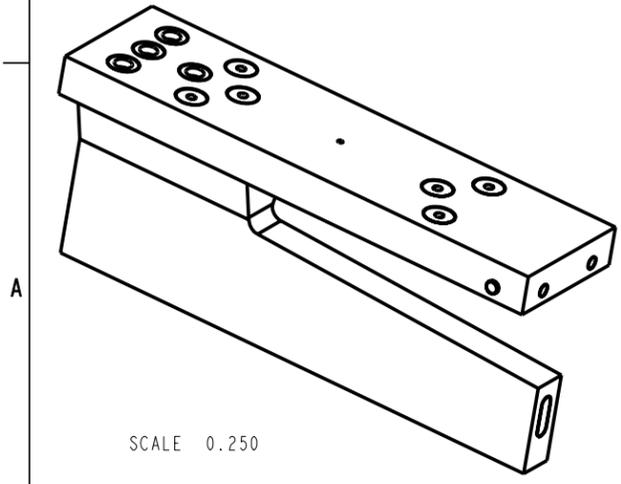


REVISIONS				
ZONE	REV	DESCRIPTION	BY	APPROVED DATE

CLEANING AND BRAZING PROCEDURES

- PRE-MEASURE ALL MATING COMPONENTS TO VERIFY DIAMETRICAL CLEARANCES PER THE PRINT AND EXAMINE SURFACES FOR FINISH. NO BURRS ALLOWED.
- CLEAN THE COMPONENTS FIRST WITH ACETONE THEN USE AN ALCOHOL RINSE, DRYING PARTS WITH CLEAN SHOP RAGS. THEN IMMERSIVE THE PARTS IN A CLEAN DE-IONIZED WATER AND 3-5% CITRANOX SOLUTION IN AN ULTRASONIC TANK AT 90-110 F FOR 15 MINUTES.
- BLOW-DRY THE PARTS WITH CLEAN DRY NITROGEN. PLACE ALCOHOL IN THE DRILLED HOLES OF THE PLATE AND VANE AND BLOW DRY WITH DRY NITROGEN.
- AFTER STEP # 2 ALL PARTS ARE TO BE HANDLED WITH CLEAN LATEX OR NITRILE GLOVES. PARTS MUST BE KEPT ON CLEAN, DRY SURFACES AND STORED IN OIL FREE ALUMINUM FOIL. BRAZING MUST TAKE PLACE WITHIN 48 HOURS OF CLEANING.
- ROLL AND CUT 0.031 DIAMETER 50/50 AUCU FILLER WIRE TO CONFORM TO THE SMALL DIAMETER OF THE PLUGS. ASSEMBLE THE PLUG AND FILLER AND PLACE THE ASSEMBLY IN THE APPROPRIATE HOLE IN THE PARTS. STAKE THE MATING DIAMETERS IN THREE PLACES TO KEEP THE PLUG IN PLACE DURING PUMP DOWN AND BRAZING.
- APPLY 50/50 AU CU GOLD PASTE (WESGO 50/50 AU/CU PASTE) TO THE O.D. OF THE PLUG. FILL THE CHAMFERED AREA.
- FURNACE BRAZE PARTS IN A POSITIVE PRESSURE HYDROGEN RETORT. HYDROGEN GAS FLOW 0.005 L/MINUTE/CUBIC IN OF RETORT INSIDE AREA MINIMUM. HYDROGEN GAS MINIMUM DEW POINT -35°C. PARTS TO BE ARRANGED TO ALLOW A FREE FLOW OF HYDROGEN TO ALL SIDES OF THE PART.
- BRAZE CYCLE:
 - * FURNACE MUST PULL A VACUUM 1×10^{-3} TORR BEFORE THE INTRODUCTION OF HYDROGEN GAS.
 - * PREHEAT PARTS TO 880-900°C HOLD UNTIL STABILIZED.
 - * HEAT AT THE FURNACE AT A 50°C/MINUTE MINIMUM RATE.
 - * BRAZE HOLD POINT AT 980°C PART TEMPERATURE, HOLD FOR 1 MINUTE.
 - * COOL AT 100°C/MINUTE.
 - * DO NOT INTRODUCE INERT GAS COOLING UNTIL PARTS ARE BELOW 600°C.
 - * DO NOT OPEN PARTS TO ATMOSPHERE UNTIL PARTS ARE BELOW 150°C



SCALE 0.500

WEIGHT: 217 lbs.

NOTE:

- ROUGH MACHINE PRIOR TO BRAZING FOR STRESS RELIEF.
- FURNACE BRAZE IN HYDROGEN ATMOSPHERE AT 1850° F USING 50-50 Au-Cu ALLOY. USE $\phi .031$ " WIRE AND .002" THK FOIL.
- CLEAN COMPONENTS FOR VACUUM SERVICE (10^{-10} Torr.). PRIOR TO ASSEMBLY.
- AFTER BRAZING PERFORM A LEAK TEST WITH A HELIUM MASS SPECTROMETER LEAK DETECTOR. TOTAL LEAK RATE NOT TO EXCEED 1×10^{-9} STD. (cc/Sec HE).

ITEM	DRAWING/PART NUMBER	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPEC	QTY
5	G12840-3	LIFTING FIXTURE PLUG	304 SST	6
4	G12840-2	TUBE BRAZE PLUG	304 SST	4
3	G12839-4	SLOT PLUG	OFE COPPER F68-99 CLASS 2 OR BETTER	1
2	G12839-1	WATER DRILL PLUG	OFE COPPER F68-99 CLASS 2 OR BETTER	3
1	G12838	VANE DRILLING DETAIL	SEE PARTS LIST	1

PARTS LIST/BILL OF MATERIALS				
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES TOLERANCES	DRAWN BY: B. RUSTHOVEN	DATE: 16-Jun-03	THIS DRAWING IS THE PROPERTY OF ARGONNE NATIONAL LABORATORY RARE ISOTOPE ACCELERATOR	
DECIMALS: .125 ±.01	CHECKED BY:	DATE:	TITLE: RARE ISOTOPE ACCELERATOR CONCEPTUAL DESIGN 57 MHZ RFO STRUCTURE VANE ROUGH MACHINING & PLUG BRAZE ASSEMBLY	
ANGULAR: .005 ±.005	DESIGNED BY: B. RUSTHOVEN	DATE: 16-Jun-03	RESPONSIBLE ENGINEER: S. SHARMA	
SURFACE ROUGHNESS: REMOVE ALL BURRS AND BREAK SHARP EDGES .03 MAX. SURFACE TEXTURE TO BE IN ACCORDANCE WITH LATEST ANSI B46.1 DIMENSIONING & TOLERANCING IN ACCORDANCE WITH LATEST ANSI Y14.5	GROUP LEADER: S. SHARMA	DATE:	APPROVED BY: D. SCHRAGE	
MODEL NAME: A98-01154-1-VANE_BRAZE	RELEASE LEVEL:	VERSION:	SIZE: 150W No. D	DRWG NUMBER: G12835
ELECTRONIC FILE NAME: G12835	MATERIAL: SEE PARTS LIST	SCALE: 0.500	DO NOT SCALE DRAWING	SHEET 1 OF 1