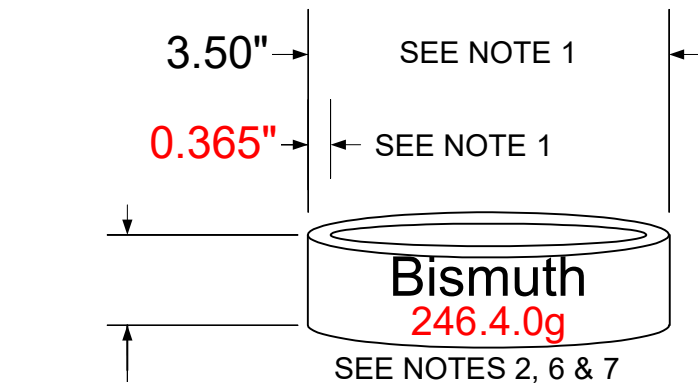
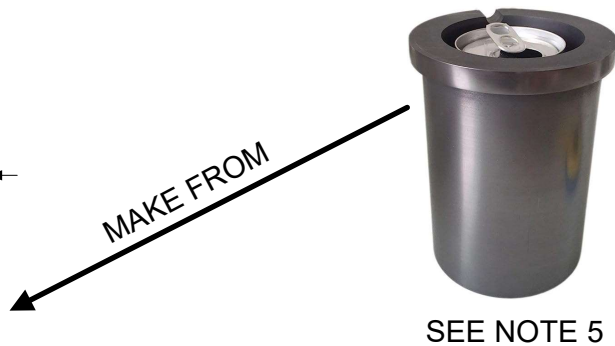


- 1 CYLINDER



- 2 CYLINDER



8. USE CENTERING HOLES OF THE FOUR 0.625 DIA. HOLES TO CLAMP TO LATHE JAWS.

7. USE APPROX. 300GRAMS Bismuth metal Ingot chunk 99.99% pure OR SIMILAR. REF.: <https://www.ebay.com/str/hallmarkmetals>, SUGGEST MELT POT: <https://www.amazon.com/dp/B0BCNV3NL8> OR SIMILAR. LET BISMUTH COOL VERY SLOWLY IN THE MOLD.

6. MAKE MOLD OF -1 CYLINDER USING Mold Max 60 - High Heat Resistant Silicone Rubber Compound OR SIMILAR PRODUCT. POUR 1/8TH INCH BASE 5 INCH DIA. WITH 2" CENTER HOLE. AFTER MOLD BASE IS SETUP, PLACE GRAPHITE IN CENTER AND MOLD 3/4 INCH DEEP AND 5 INCH DIA. WITH A TOTAL HEIGHT OF 3/4+1/8" REFERENCE PICTURE ON SHEET 3.

5. MAKE FROM "OTOOLWORLD 99.9% Pure Graphite Crucible", 5KG SIZE REF.: <https://www.amazon.com/dp/B07416C8S6> MACHINE CRUCIBLE LIP DOWN TO MATCH O.D. OF CRUCIBLE AND MACHINE HOLE IN BOTTOM TO I.D. OF CRUCIBLE. THEN MACHINE INTO 2 SHORT CYLINDERS OF EQUAL HEIGHT. IF O.D. OR I.D. ARE OUT OF ROUND, MACHINE UNTIL ROUND.

4. BEVEL EDGES 0.025 INCHES OR LESS TO ASSIST IN FINE TUNING MATCHING WEIGHTS BUT DO NOT BEVEL OR ROUND EDGES MORE THAN 0.025 INCHES.

3. MACHINE TOP AND BOTTOM SURFACES FLAT EXCEPT FOR NOTE 4 BEVEL. MACHINE BISMUTH SLOW AND COOL WITH SHARP TOOL.

2. TARGET WEIGHT IS 270.0GRAMS BUT ALL GRAPHITE AND BISMUTH CYLINDERS CAN BE SLIGHTLY LESS IF NECESSARY IN ORDER TO MAKE ALL PIECES MATCH WEIGHT EXACTLY USING A SCALE THAT READS TENTHS OF GRAMS. ONLY THE HEIGHT OF EACH PIECE CAN CHANGE TO REMOVE WEIGHT.

NOTES: 1. ALL O.D.s MUST MATCH WITHIN +/- 0.005 INCHES AND ALL I.D.s MUST MATCH WITHIN +/- 0.005 INCHES AMONG ALL CYLINDERS. THE TARGET O.D. AND I.D. WAS 3.50 INCHES AND 2.750" INCHES BUT BOTH CAN CHANGE AS REQ. SO O.D. AND I.D. OF ALL GRAPHITE AND BISMUTH CYLINDERS MATCH. ONLY HEIGHTS CAN VARY TO MAKE ALL CYLINDER WEIGHTS MATCH PER NOTE 2.

#### REVISIONS:

A. SH 2, CENTER HOLE M3  
B. ALL MATING PARTS  
MUST BE SAME OD & ID  
EVEN IF CAN'T KEEP  
DIMENSIONS SHOWN.  
SEE MORE REV. ON SH4



REV. E

SHEET 1 OF 5

**DWG. TITLE: MASS TEST CYLINDERS  
AND SUPPORTS**

**DESIGN: GEORGE BUGH**

**COPYRIGHT 2023 © VASANT CORPORATION**

QTY 4 REQ FOR NHA  
**- 7 DETAIL**

MAKE FROM 4MM  
CARBON FIBER PLATE  
<https://www.amazon.com/dp/B07GCVZHL9>  
OR SIMILAR

0.625" DIA.  
4 PLACES  
SEE NOTE 8

0.40  
TYP

0.40"  
TYP

MAKE CENTER HOLE  
WITH #31 DRILL BIT,  
SEE NOTE 8

CUT TO 3.0"  
SEE NOTE 8

LATHE TO SNUG FIT  
WITH MATING PART  
SEE NOTE 8

**REV. E - 3D PRINTED  
THIS PART**

ROUND OR BEVEL  
THIS EDGE ONLY  
R 0.025

2mm

SEE NEXT PAGE

3.0"

4mm

DO NOT BEVEL

DO NOT BEVEL



REV. E

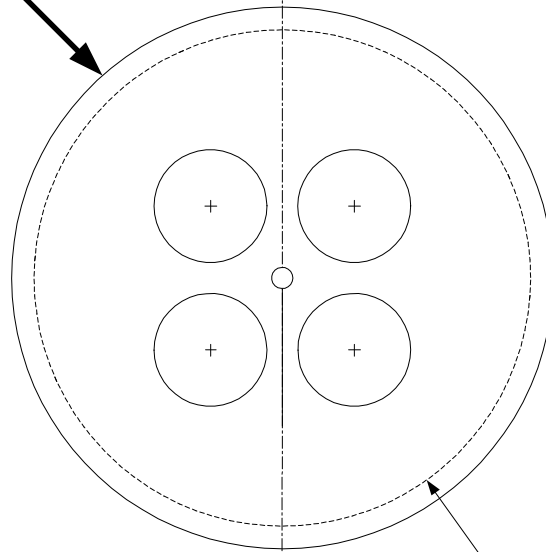
SHEET 2 OF 5

**DWG. TITLE: MASS TEST CYLINDERS  
AND SUPPORTS**

DESIGN: GEORGE BUGH

COPYRIGHT 2023 © VASANT CORPORATION

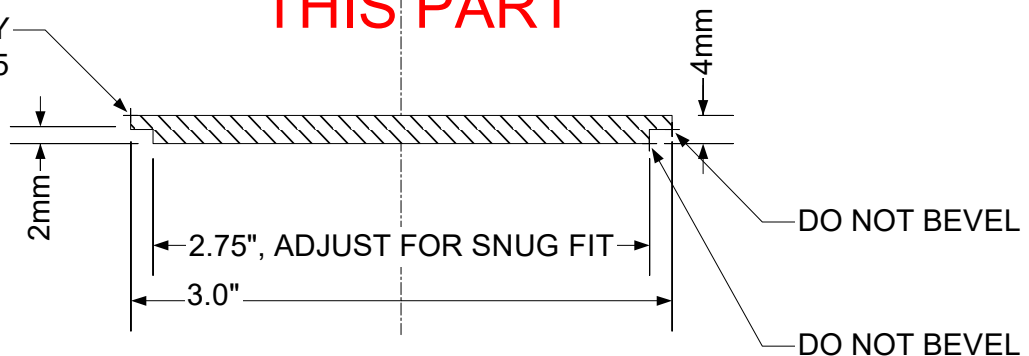
QTY 4 REQ FOR NHA  
- 7 DETAIL



LATHE TO LIGHTLY SNUG FIT  
WITH MATING PART BEFORE  
TRIMMING THE 4 SPOKES  
AS SHOWN ON NEXT PAGE  
SEE NOTE 8

**REV. E - 3D PRINTED  
THIS PART**

BEVEL THIS EDGE ONLY  
R 0.025



REV. E

SHEET 3 OF 5

**DWG. TITLE: MASS TEST CYLINDERS  
AND SUPPORTS**

DESIGN: GEORGE BUGH

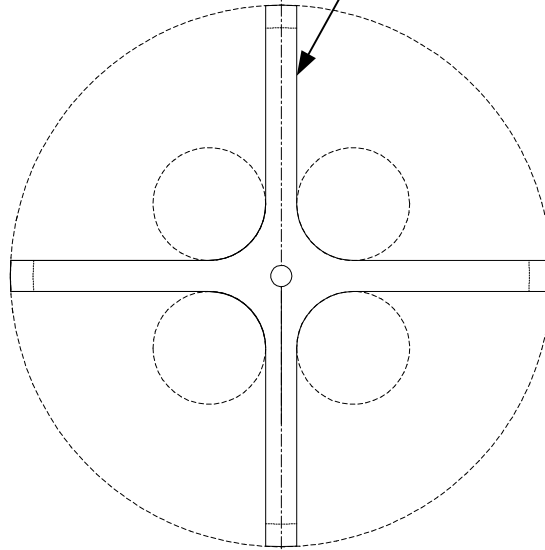
COPYRIGHT 2023 © VASANT CORPORATION

REVISIONS:

C. MADE SUPPORTS FROM  
BASS WOOD.  
D. DELETED BASS WOOD.  
D. SWITCHED BACK TO  
CARBONFIBER SUPPORTS  
E. 3D PRINTED THE -3  
SUPPORTS INSTEAD OF  
MACHINING  
E. SH1 - UPDATED FINAL  
WEIGHTS AND DIAMETERS

CL

CUT TANGENT TO THE FOUR  
HOLES TO MAKE 4 SPOKES  
OF 0.172" WIDTH.



0.172  
TYP

REV. E - 3D PRINTED  
THIS PART



REV. E

SHEET 4 OF 5

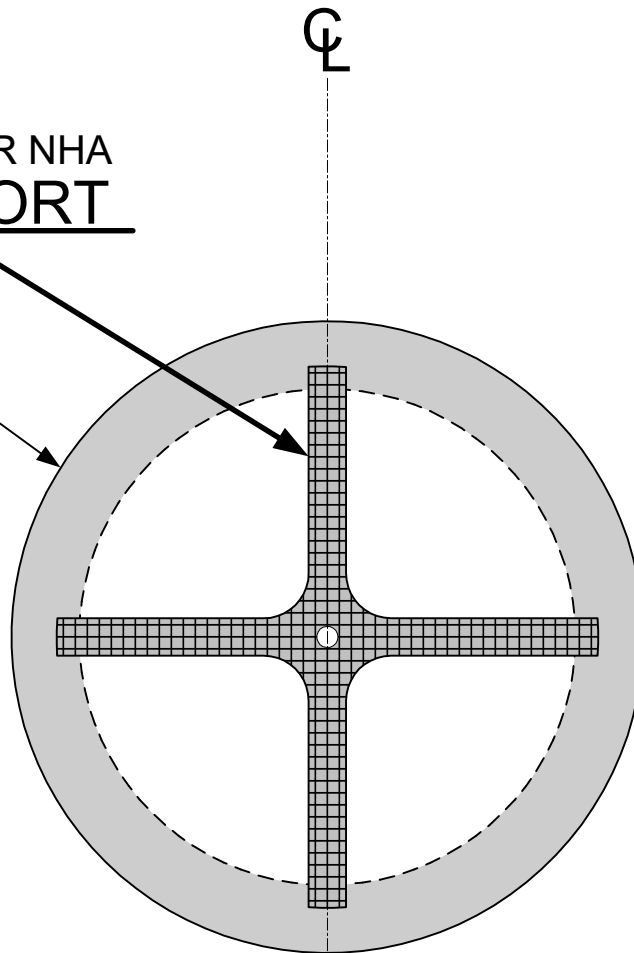
**DWG. TITLE: MASS TEST CYLINDERS  
AND SUPPORTS**

**DESIGN: GEORGE BUGH**

**COPYRIGHT 2023 © VASANT CORPORATION**

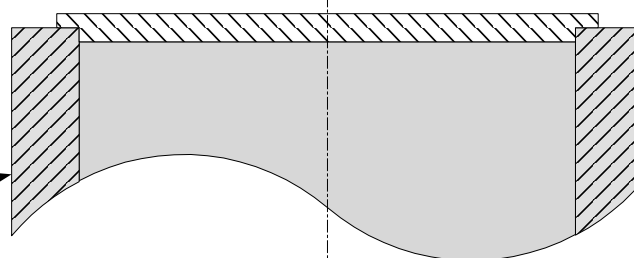
QTY 4 REQ FOR NHA  
- 3 SUPPORT

MATING PART



REV. E - 3D PRINTED  
THIS PART

MATING PART



REV. E

SHEET 5 OF 5

**DWG. TITLE: MASS TEST CYLINDERS  
AND SUPPORTS**

DESIGN: GEORGE BUGH

COPYRIGHT 2023 © VASANT CORPORATION