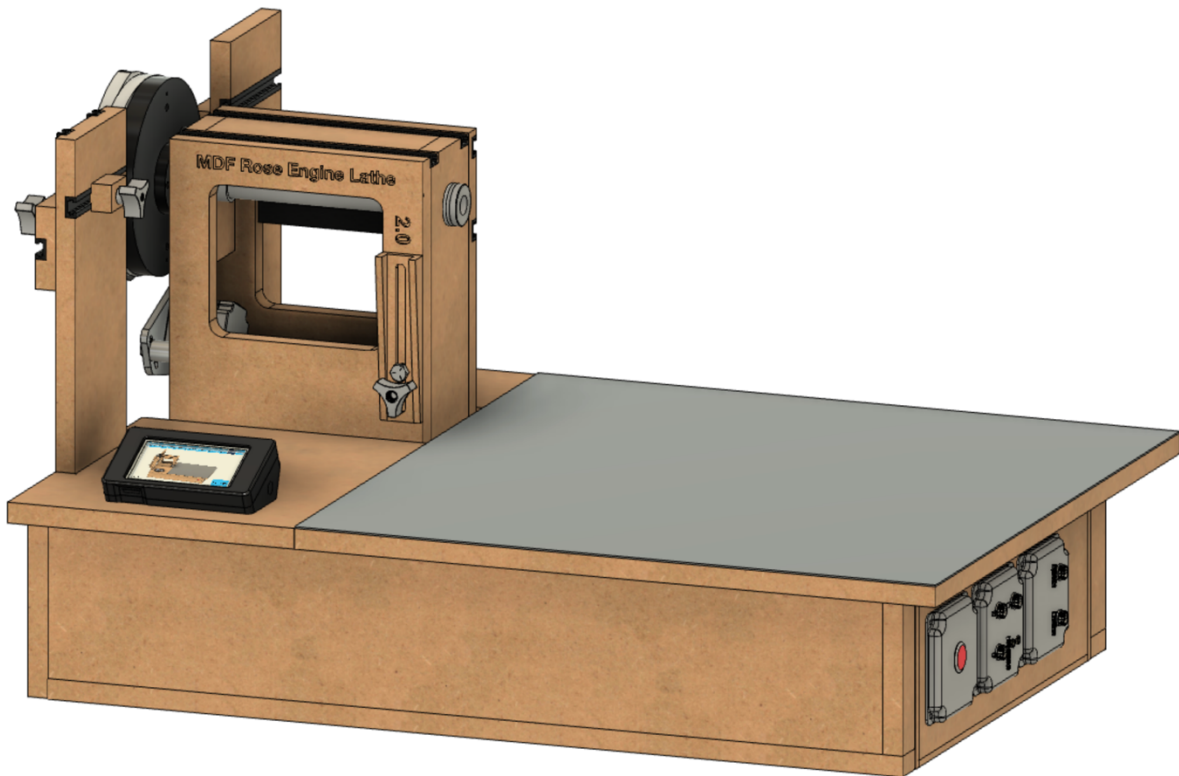


MDF Rose Engine Lathe 2.0

with Stepper Motor Drive



Stepper Motor Bracket & Associated Parts

Version 1.0
03 August 2020

MDF Rose Engine Lathe 2.0

Stepper Motor Bracket

You can purchase this from us at www.ColvinTools.com, or build them yourself. If you have any questions, please contact us at ColvinTools@Gmail.com.

Good luck and we hope you enjoy this machine as much as we.

Rich Colvin & Jack Zimmer

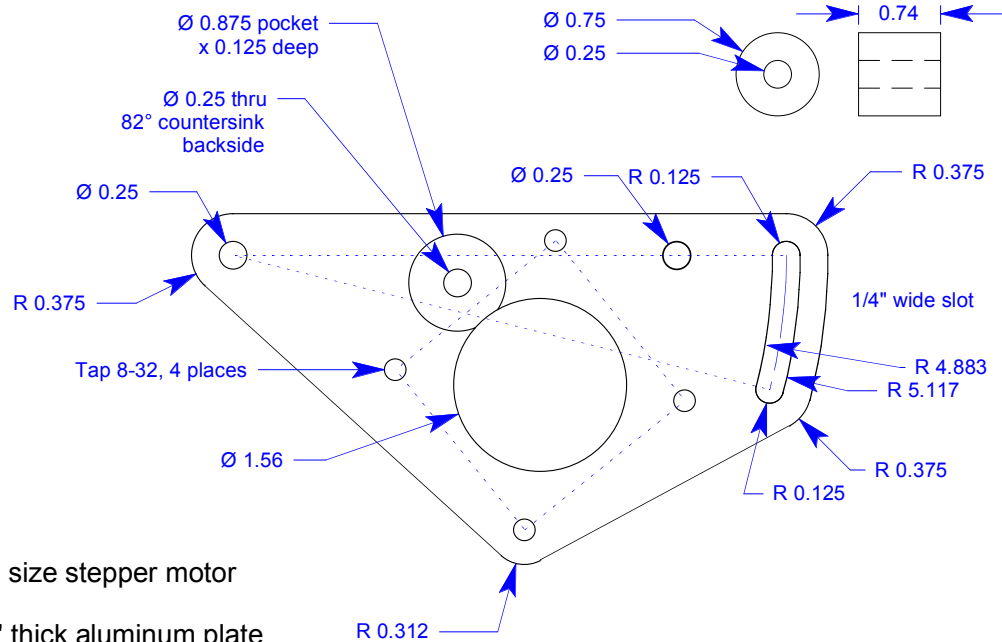
Permission is not granted to manufacture these for sale.

Stepper Motor Bracket

MDF Stepper Motor Plate

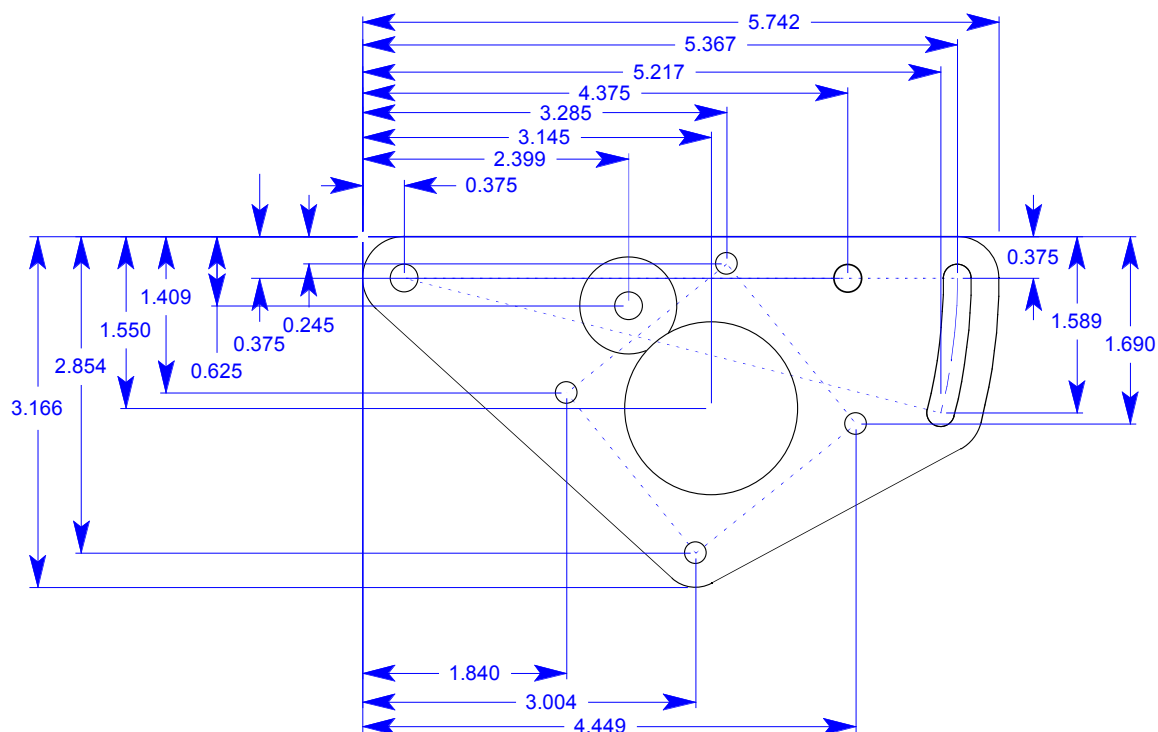
v4 8-2-20

Stepper Plate Spacers
- 2 required, with 1/4" washers and 1/4"-20 x 2-1/2" bolts



For NEMA 23 size stepper motor

Material: 1/4" thick aluminum plate

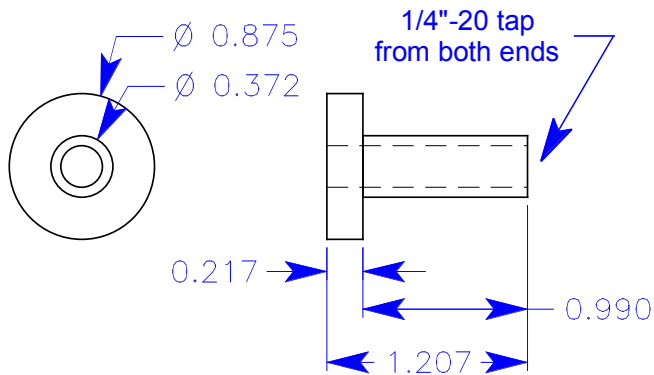


MDF Rose Engine Lathe 2.0

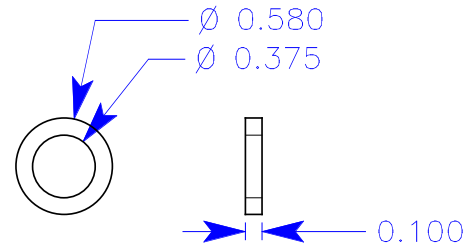
Stepper Motor Bracket

MDF Stepper Plate Idler Assembly
v2 8-2-20

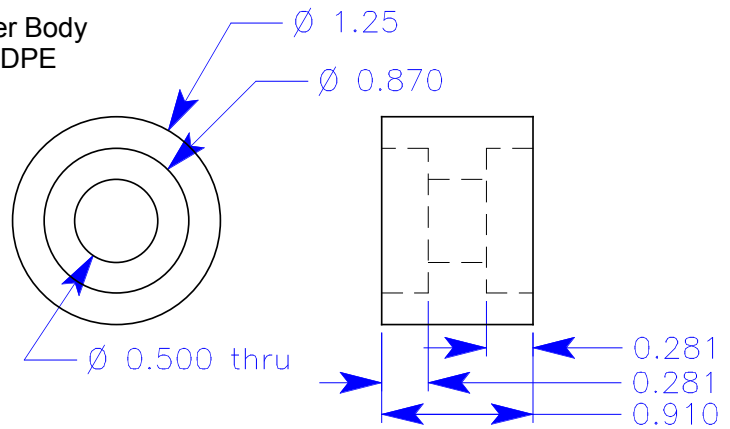
Idler Shaft
- Steel



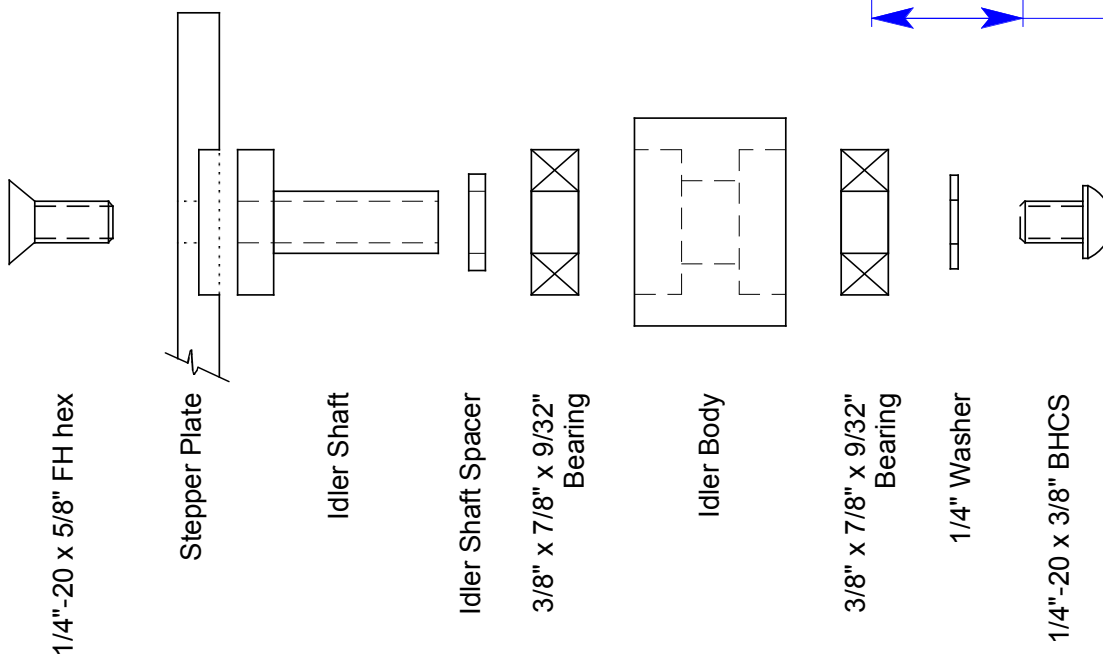
Idler Shaft Spacer
- HDPE



Idler Body
- HDPE



Idler Assembly
- Use blue Loctite on screws



MDF Rose Engine Lathe 2.0

Stepper Motor Bracket

Parts for Stepper Drive Plate and Idler Assembly
v1 - 8-2-20

Off-the-shelf Parts:

- 4 - #8-32 x 3/8" screws (Phillips or BHCS) for NEMA 23 motor
- 2 - 1/4"-20 x 2-1/2" Hex head bolts
- 3 - 1/4" washers, 2 for plate and 1 for idler
- 1 - 1/4"-20 x 5/8" FH hex drive screw
- 1 - 1/4"-20 x 3/8" BHCS

- 2 - 1/4"-20 dowel nuts for wood (.39" OD x .63" L) McM-C #90835A210
<https://www.mcmaster.com/90835A210/>

- 1 - 12T GT2 5mm pulley with .25" bore, 2 flanges, aluminum, for 9mm wide belt, SDP-SI #A 6A55-012DF0908 <http://shop.sdp-si.com/catalog/product/?id=A%206a55-012df0908>

- 2 - 3/8" x 7/8" x 9/32" shielded ball bearings MSC #01377498
<https://www.mscdirect.com/product/details/01377498>

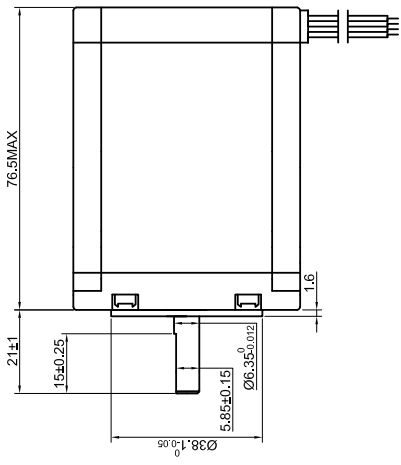
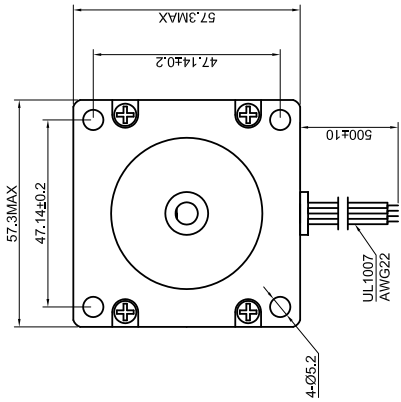
- 1 - GT3 5mm pitch, 131T / 655mm long, 9mm wide Timing belt, Misumi #GBN655EV5GT-90
<https://us.misumi-ec.com>

Manufactured Parts:

- 1 - Stepper Plate - 1/4" thick plate, rough 5-3/4" x 3-1/4"
- 2 - Stepper plate spacers - 3/4" diameter aluminum rod
- 1 - Idler shaft - 7/8" diameter steel rod
- 1 - Idler shaft spacer - 5/8" diameter HDPE rod or similar
- 1 - Idler body - 1-1/4" diameter HDPE rod or similar

MDF Rose Engine Lathe 2.0

Stepper Motor Bracket



SPECIFICATION	CONNECTION	BIPOLAR
AMPS/PHASE		3.00
RESISTANCE/PHASE(Ohms)@25°C		1.13±10%
INDUCTANCE/PHASE(mH)@1KHz		4.80±20%
HOLDING TORQUE(Nm)(lb-in)		1.89[16.73]
STEP ANGLE(°)		1.80
STEP ACCURACY(NON-ACCUM)		±5.00%
ROTOR INERTIA(g-cm²)		440.00
WEIGHT(kg)(lb)		1.20[2.65]
TEMPERATURE RISE:MAX.80°C (MOTOR STANDSTILL;FOR 2PHASE ENERGIZED)		
AMBIENT TEMPERATURE -10°C-50°C[14°F-122°F]		
INSULATION RESISTANCE 100 Mohm (UNDER NORMAL TEMPERATURE AND HUMIDITY)		
INSULATION CLASS B 130°C[266°F]		
DIELECTRIC STRENGTH 500VAC FOR 1MIN.(BETWEEN THE MOTOR COILS AND THE MOTOR CASE)		
AMBIENT HUMIDITY MAX.85%(NO CONDENSATION)		

TYPE OF CONNECTION (EXTERN)		MOTOR	
PIN NO	BIPOLAR	LEADS	WINDING
1	A —	BLK	A
2	A\ —	GRN	A\
3	B —	RED	B
4	B\ —	BLU	B\

FULL STEP 2 PHASE-Ex. WHEN FACING MOUNTING END (X)

STEP	A	B	A\	B\	CCW
1	+	+	-	-	↑
2	-	+	+	-	↑
3	-	-	+	+	↓
4	+	-	-	+	↓

BLK GRN RED BLU

APVD	12.2.2019	STEPPER MOTOR	
CHKD			
DRN			
SCALE	1:1.5	SIGNATURE	DATE
		23HS30-3004S	