

Parts List for Draper Machine

Frame

Four 26" x 1.5" square tubing--done
Four 41" x 1.5" square tubing--done
Five 19" x 1.5" square tubing--done
One 22" x 2" square tubing (turn table support)

Four castors to mount on base.
Table top: Bathroom laminate about 1/4" diameter.

Drive Train

Two 24" keyed shafts, 1" in diameter--done
Pulleys as specified in excel document--done
One 28 RPM motor--done
Two type A V-belts: size to fit frame (and adjust frame dimensions to fit)
A61 v-belt: 63" OD looks like a good fit--done
Ball Joint 3/8-24 both male thread--done
Three 1" ID mounted ball bearings--done
One 1" ID bronze shaft bearing--done
Two 1" ID flat thrust bearings—done
Shaft Machine keys--done

2-1" coupling 1/4 -28 thread (1" long, 7/16 diameter, RH thread)—done.
4-1" bolts 1/4-28 thread—wait.—use 1/4-20 bolts now.
4 – 1/4-28 bolt just under 2" with 3/8" head. (Replace with 1/4-20?)—done.
4 – 1/4" lock washers.—get at hardware store.

The A61 fan belt has a 63" OD. Wrapping it around the 1.7" pulley and the 11" pulley, and pulling it tight, the distance between pulley edges is about 20 5/8". The belt is still loose under these conditions. The machine was designed with a 21" distance between pulleys, and that should work fine because I can always use shims on the outer shaft mounts to bring them a bit closer together, but the extra 3/8" will give me room to tighten up the belt. Go ahead and use the 21" design.

11/28/04

Drive train for Draper polishing machine

Draper polishing machine: use a simple drive train with 1/6 hp (3.6 A) 28 RPM motor. It may be underpowered. List pulleys by pitch rather than diamtere. Use all A-belt pulleys

FAST Gears

Shaft	Diameter	Gear in	Ratio	Gear out	RPM	1/RPM Ratios
Motor	0.75	none	none	5.75	28	
Overarm Drive		1	3.7	1.55405405	1.7	43.513514 0.64347826
Turn table		1	10.75	0.15813953		6.88120679 6.32352941

Slow Gears

Shaft	Diameter	Gear in	Ratio	Gear out	RPM	1/RPM Ratios
Motor	0.75	none	none	1.5	28	
Overarm Drive		1	3.7	0.40540541	1.7	11.351351 2.46666667
Turn table		1	10.75	0.15813953		1.79509742 6.32352941

Medium Gears

Shaft	Diameter	Gear in	Ratio	Gear out	RPM	1/RPM Ratios
Motor	0.75	none	none	3.75	28	
Overarm Drive		1	3.7	1.01351351	1.7	28.378378 0.98666667
Turn table		1	10.75	0.15813953		4.48774356 6.32352941

Pulleys on the Overarm drive and Turn Table are fixed. Only the motor gear is changed to adjust speed.

Parts	Source	Cat. Number	Cost	Ordered	Quantity
1.7 X 1"	MC	620k13	10.28	9/10/04	1
3.7 X 1"	MC	6204k24	15.93	9/10/04	1
1.5 X 3/4"	MC	6245k61	2.62	9/10/04	1
3.75 X 3/4"	MC	6245k69	3.99	9/10/04	1
5.75 X 3/4"	MC	6245k73	5.99	9/10/04	1
10.75 X 1"	Cooler	6330	18.7	9/10/04	1

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Drive train for Draper polishing machine

(12) X 1"	Cooler	6338	21.4	9/10/04	2
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total			78.91		
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