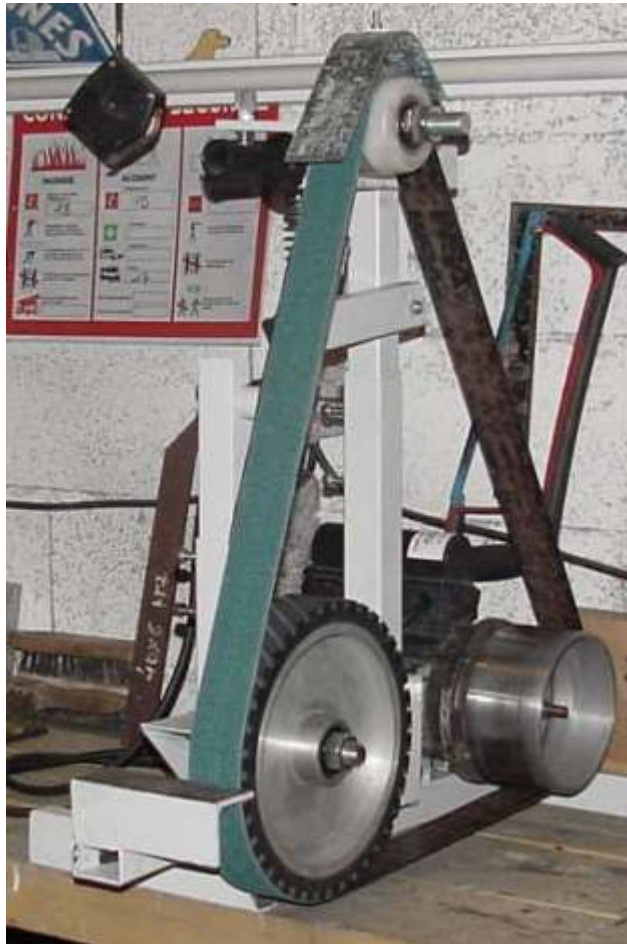


How to build your own Simple Backstand



As hobbyst knifemaker, I needed a backstand but normal models were too expensive for me. So, I decided to build my own model. This one is made from junkyard tubes. To simplify explanations, I've given standard sizes for metal parts.

I've been using it for months : no problem.

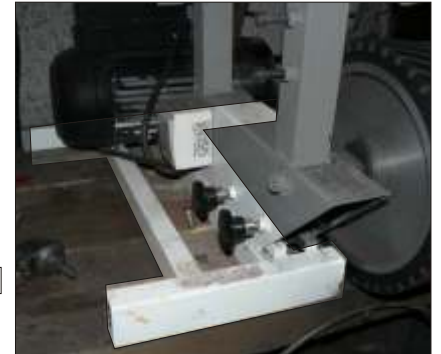
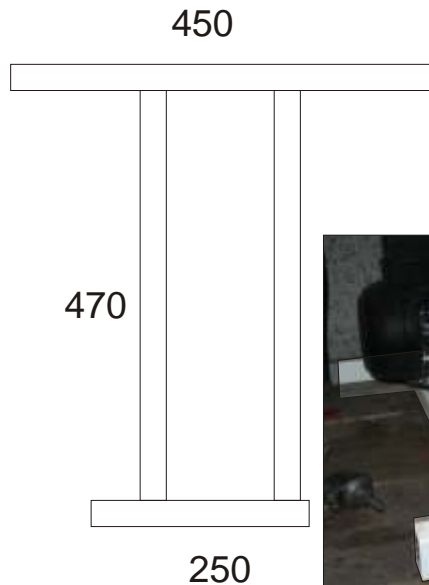
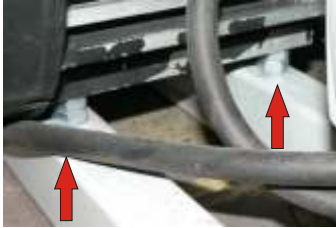
I describe what I've done, it must be perfectible, and there's many other ways to do it.

It's just to tell you : " go on, you can do it !" :-)

As I'm French, I'm trying to explain the best I can in English... Try your best to understand !

First step : build the base : it has to be stable and strong.
Here, it's made of welded square tubes 40x40 mm.

I've chosen the space between the two axial tubes to fit the base of my motor :



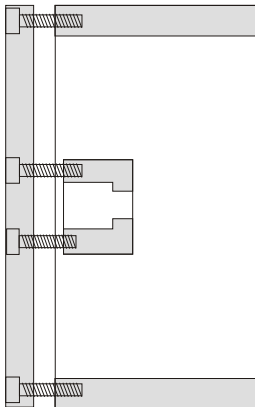
This motor comes from a pool pump.

It must be strongly fixed to the base.

Second step : tracking wheel.

It must be made according to your motor cam, and according to the required final diameter (see below)

Mine was made of aluminium , this way :



Roue d'entraînement

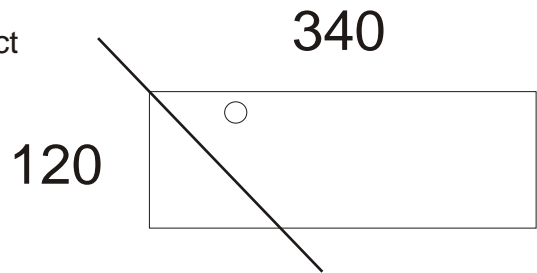
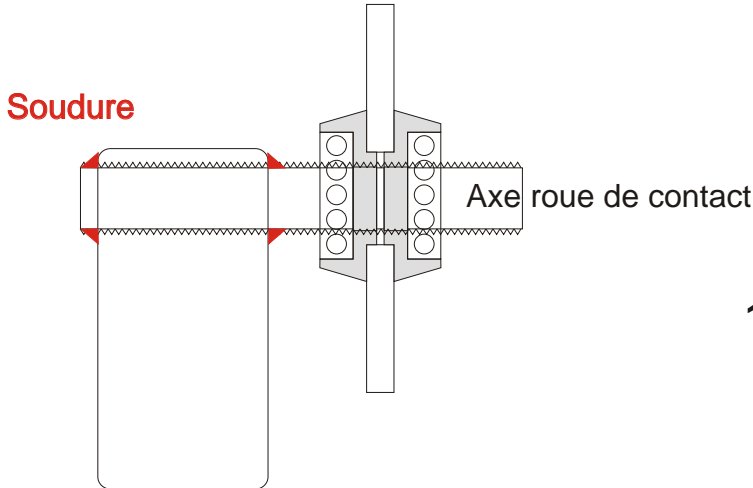
You can make it in wood, plastic....

Band speed must be, according to me, around 25 m/s.
Band makers are giving a speed of 33 m/s, but, at use, it's too fast for me.
So, the diameter of the wheel will be 17 cm

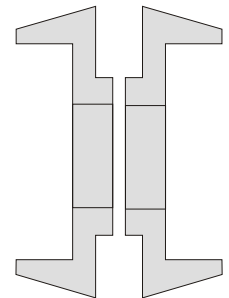
$$(0,170 \text{ m} \times 3.1415 \times 2750 \text{ tr/mn} / 60 = 24,48 \text{ m/s})$$

Contact wheel support :
 Strong rectangular tube : 60x120 and 340 mm long,
 It's cut to give room around the wheel
 The wheel axis is simply made with a threaded rod of 20mm.
 Brought from Soucille, this contact wheel is a 250mm model, hardness 60 shore.

(You can make a wood contact wheel covered with felt.
 But you can't compare with special ones.)



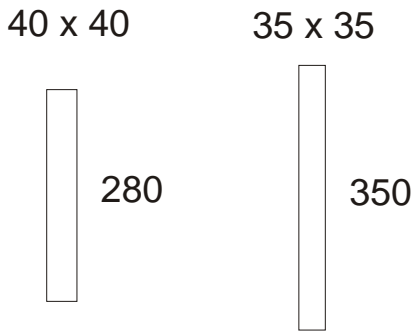
Those contact wheels are sold simply with a hole in the middle : you have to make your own support with bearings..
 Mine is made of two parts, as shown.



So, the axis is welded to the big tube, the wheel is mounted on it. Then you have a "wheel block" and a "motor base".
 Carefully align the wheel block on the motor base, then weld it together.



Next step : centering system :
 Use two square tubes sliding in each other
 Ex : 40 x 40 and 35 x 35 mm

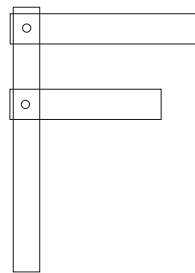
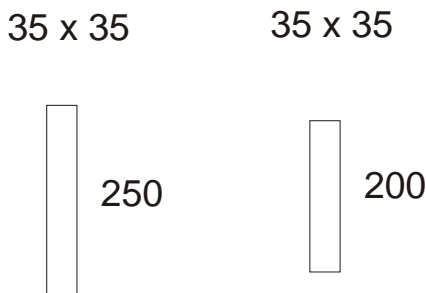


In the big one (40x40) drill two holes (9mm) : you'll have to weld two 8mm bolts : with two 8mm nuts you'll be able to lock your system.



The 35x35 tube will support the centering system.

I cut two ends of tube of 35 x 35 of 250 and 200 length: they will be used as supports for the centering wheel and to the tension spring .



Both tubes are fixed to the tube of support with a threaded rod crossing with bolts on each side (nilstop). We cross the lower tube with a filleted stem at the end of which we fix a spring which will serve for tightening the band. In my opinion, the spring has to have a pressure between 5 and 10 kg. The filleted stem serves for adjusting.



Centering system :

There, the simplest is to refer to photos: an iron bar of 8 of the thickness and 20 wide is welded in an end of 20mm filleted stem which will receive the wheel of regulation. Two holes are drilled for the axis, the other one for the adjusting screw.



A strong 25x25mm metal angle is welded on the side to maintain the regulation bolt.



Then assemble all the centering parts.



And align it with the tracking wheel and the contact wheel :



When it's correct, weld the centering system to the main frame.
It's time to check if it works properly !
Remember that a centering wheel must be convex : if it's flat, you'll have difficulties to maintain the band centered.

You can now add options :

A flat table , of 50/50 corner, and fixed to sliding tubes, like the centering system.



A removable plane support in front of the wheel of contact, in welded Angles:



A small removable casing which limits the projection of the sparks



You've done it ! You should have a machine easy to use, and effective.

Supplies :

- Contact wheel, diameter 250, shore 60 : 93 € TTC

Soucille
Z.I. De Felet
63300 Thiers
Tel : 04 73 80 67 45

- Centering wheel: caster of transpallet

Www.manutan.fr

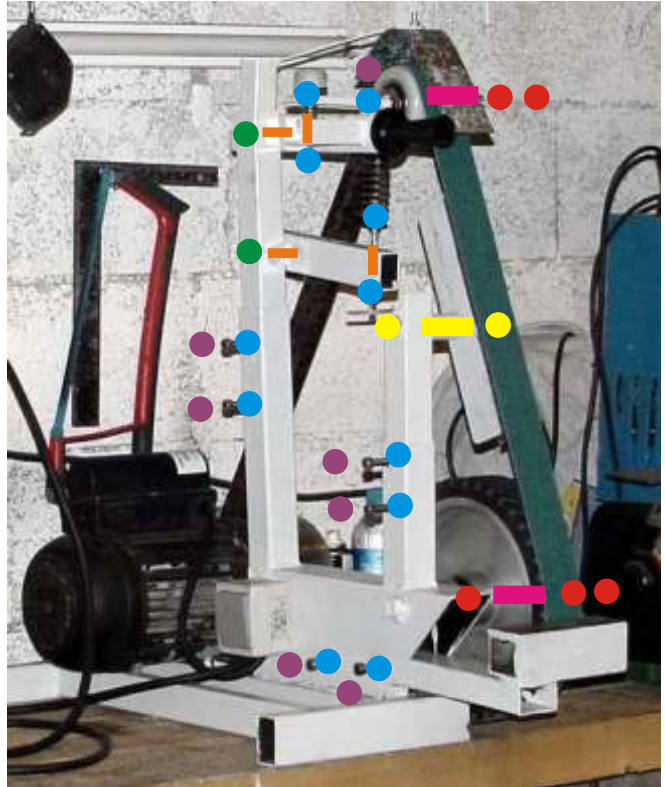
20 82 x 100 100 1000 1325M218 €16,00

http://www.manutan.fr/is-bin/INTERSHOP.enfinity/eCS/MAF/fr_FR/-/EUR/DisplayProductInformation-Start;sid=cjKeicOBA92ejoAVS8qUhsWUKdyb1TScnDI=?ProductSKU=1325M218&CategoryName=MainG-06177-750&Image=

- 30 cm threaded rod 20mm █
- 5 bolts 20mm ●
- 50 cm threaded rod 8mm █
- 11 bolts 8 mm ●
- 4 bolts 8 nilstop ●
- 7 nuts 8mm diam. / 30mm length ●

For the flat plan under band :

- 10 cm threaded rod 12mm █
- 2 bolts 12 nilstop ●



Iron :

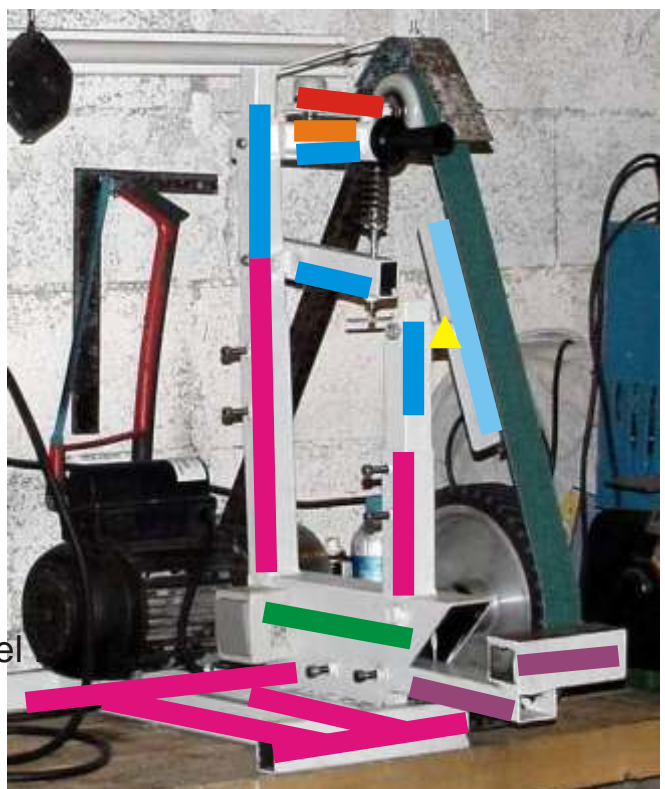
- 220 cm de 40 x 40 █
- 105 cm de 35 x 35 █
- 35 cm de 120 x 60 █
- 15 cm angle 25 x 25 █
- 20 cm flat iron 8 x 20 █

For the flat plan under band :

- 30 cm angle 50 x 50mm █
- 4 cm tube ▲

For the support in front of the contact wheel

- 50 cm tube 50 x 50mm █



Example of other infinite possibilities

