Manufacture of a check non return valve for hand pump.
Necessary material:

- Tube Pvc size desired for the case this is the 80mm in diameter
- A 3mm thick expanded pvc plate
- Glue gel PVC
- The truck air Chamber (recovered in PointS)
- Neoprene contact adhesive
- 4 Small screws 3mm in diameter by valve.

For tools:

- A good cutter
- A pencil
- A drill
- Fine grain (80) to very fine sanding disc (120)
- A brush sanding with Emery cloth.
- Forest of 2.5 mm for the front screw holes
- A 3 mm for the screw hole drill
- A 3mm tap for the screw pitch
- A hacksaw

And it's gone...
Firstly the valves will be integrated to the pump and the pump body (T PVC) suction and delivery.
Valves do not have the same size as to be effective and to avoid that valves block by the vacuumed materials, it is necessary that suction valve "spits directly in the outlet duct."

While for the discharge valve should be as short as possible.

This will determine the positioning of the valve locking ring.

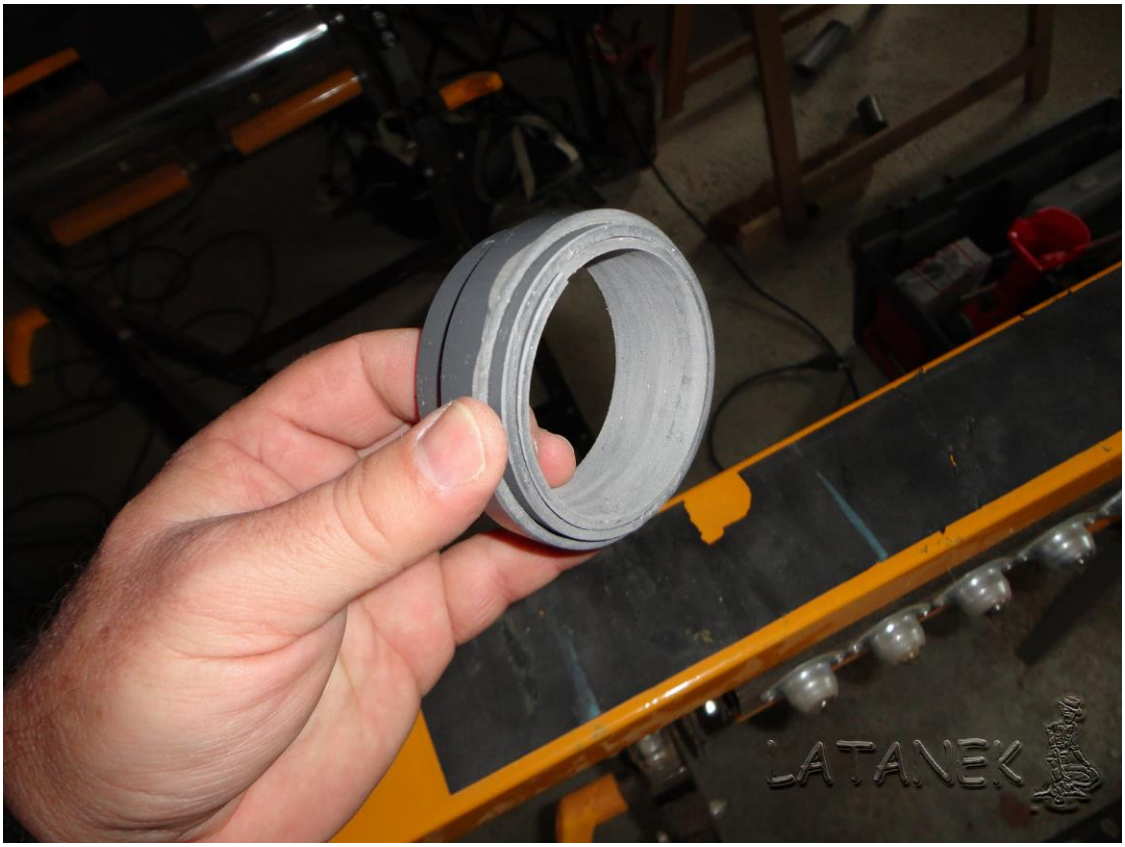
Realization of the discharge valve.

Preparation of pieces of tube:

4 Tube parts, from left to right locking ring, ring 1 ring 2 and the tube of the valve.

For 1 and 2 rings this are pieces of the base tube, slotted and reduced to fit each other.

Careful to put the slots in opposition



For the last tube, work the ring 2 with sanding brush so the last tube back gently.

All must fit without forcing on the outer ring

All and then pasted.

It is the discharge valve and the holding ring is near the valve while for the suction valve is reversed. I would put you at the end of guide 2 valves.

It rectifies and planning all of the collage for a plane perpendicular to the tube (what is very important is the plan) for this I pass all the sanding disc.

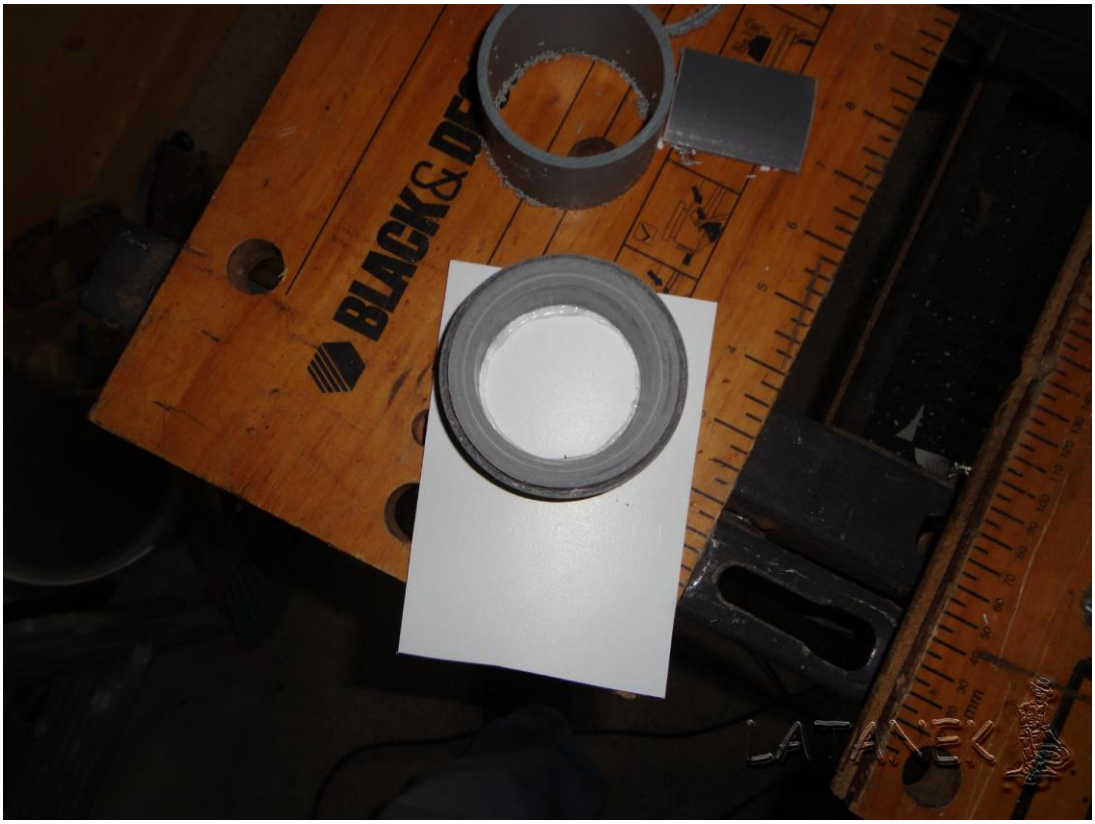
It gets a flat surface (good contact).

It removes the tube too with the saw hacksaw and skips to the drive to rectify and smooth out the other side of the valve.

We'll prepare the area of contact, for it takes a piece of expanded pvc plate (wider than the diameter of the valve of course).

We'll paste this sheet of pvc on the valve and it puts a top weight to ensure a good contact and proper sealing.

After drying

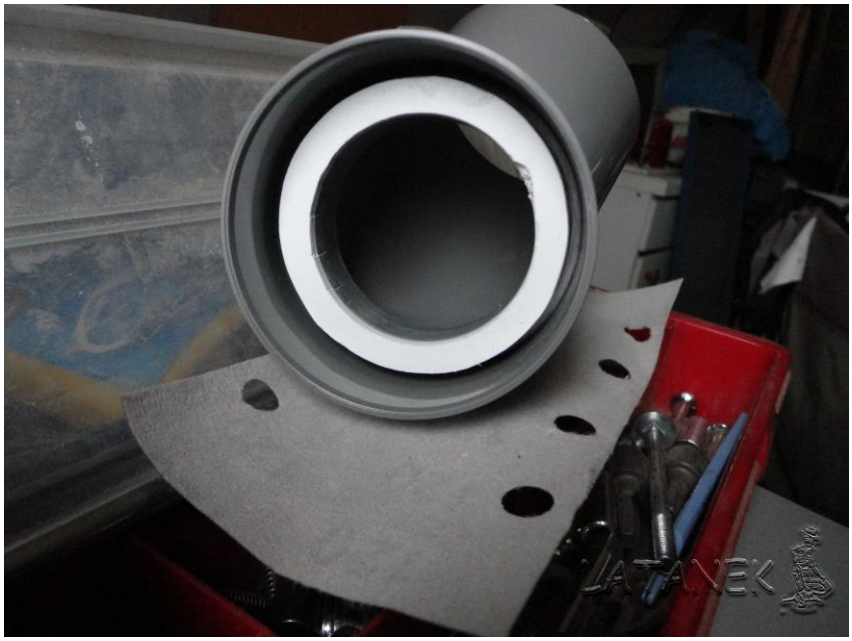


We'll be able to cut the cutter carefully and carefully the ring thus creates.

We pass all the disc to finish the edge of the ring of the valve.

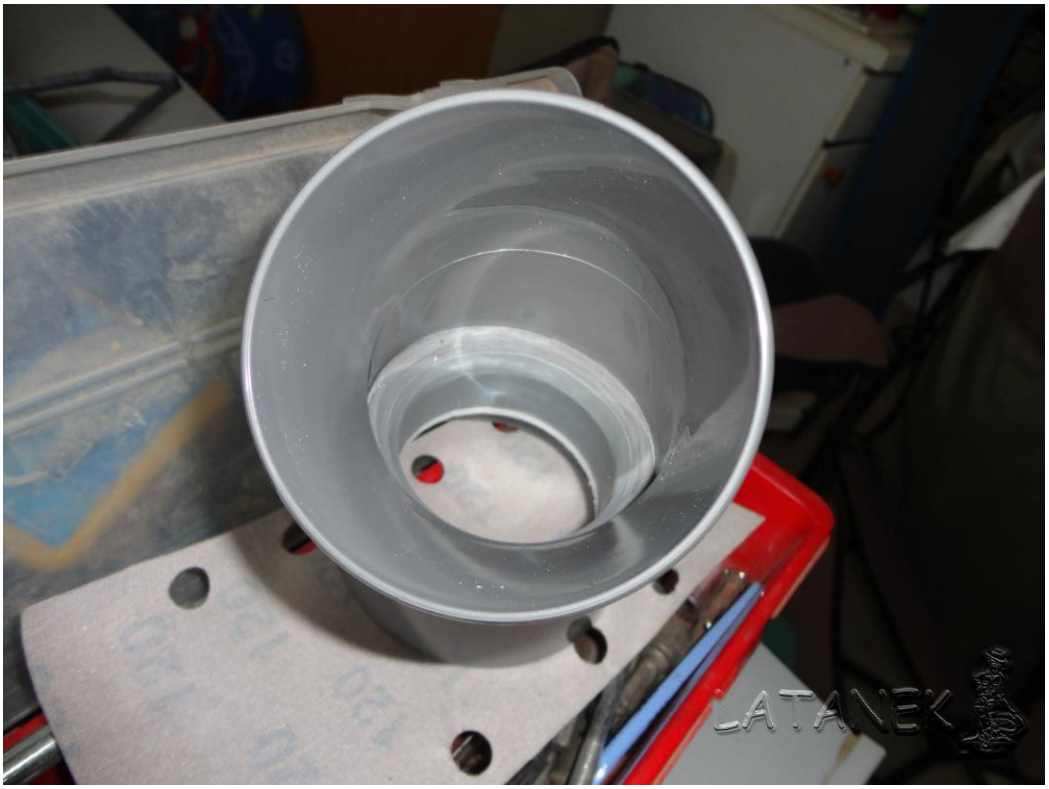
There we will dig the inside of the ring of the valve.

Carefully on core Center



Is placed in the tube or the connection T, we test the positioning and we adjust slopes and angles.

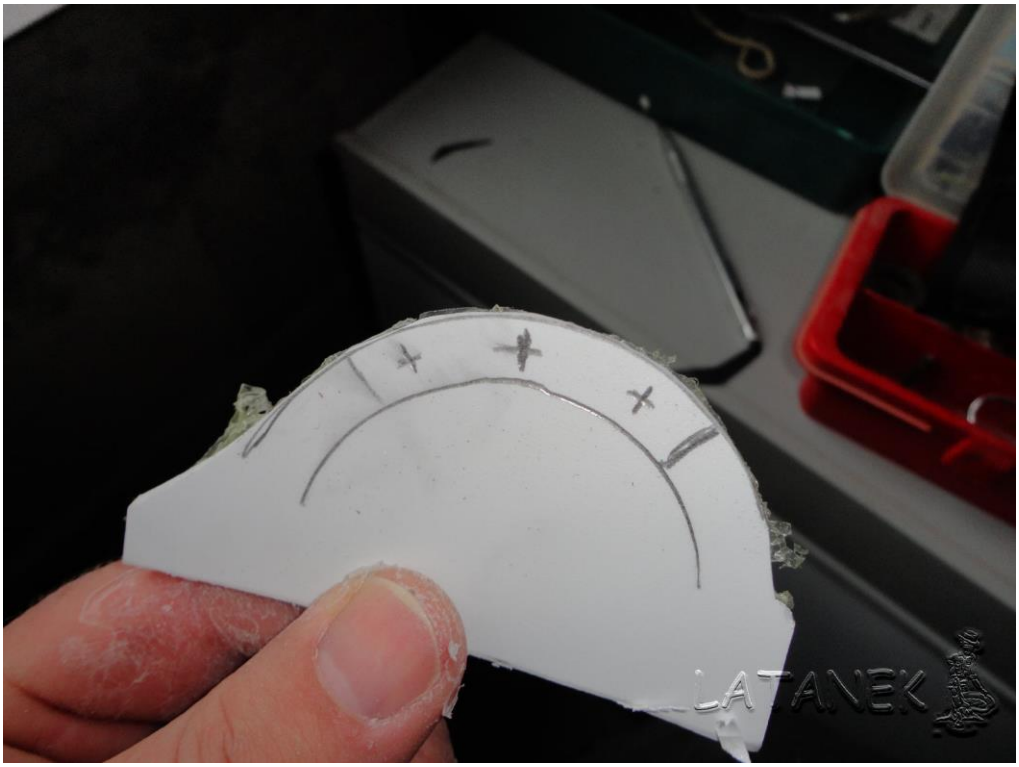
For adjustment to the small onions



Adjust it to have no hole or space to trap gold particles that would remain in the pump and which would not go into the bucket or the sluice.

The suction part is the valve body is finished.

On the piece remaining sheet of PVC foam. Asked the valve and drawing pencil brand outside and inside of the valve, and then positioned trademarks for drilling the mounting holes.



Positioned on the valve plate and drilling 3 holes with 2.5 mm drill without moving the whole then drill the holes of the plate only with 3 mm drill bit

Then it taps the holes in the body of the valve and taps of 3mm.

Set the plate with the screws.

Size is another piece in the expanded PVC plate and drilling the holes with a 3mm drill.

We refixe everything

We size the cutter and we end all the sanding disc

We will prepare the positioning of the hinge.

This phase is important because it will condition the opening of the valve. The ideal is to make a record of a width equivalent to at least twice the thickness of the plate is 6mm.

Once the whole plot, it re - to dismantle everything.

The recovered truck air Chamber size a piece of much larger than the plate.

Rotate the top valve to check the size for info I use visible reinforcements (3 ribs) as a reference of hinge. Attention has put the smooth part below, otherwise this is not waterproof!

A shot of sandpaper on the faces and paste the contact neoprene glue

Once stuck, carefully cutting the edge of the valve and then set the cutter so that the saw blade ensure that 2.5 to 2.7 mm for cutting the hinge this CI is very IMPORTANT otherwise you'll have to redo a valve plate.

In the air Chamber cutting a piece of wide enough T-shaped rubber are drilled and placed on the plate

On curve this tab to implement compression

Then once in place is a hole with 3mm drill bit and we put a screw with his bolt caution the screw head must be inside as on the cliché

There is an adjustment to make, trim the edges of the valve for a full opening in the tube. The seal provided by the recovery and the flexibility of the rubber

That is your valve is now complete and you can insert it into your body to pump.

Here is the comparison between the inlet valve (longer and more back in ring)

And discharge

As you can see, everything is removable and easy to manufacture good DIY.

Soon a video in-situ pump in action.

A ++

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