

Incubator (32mm) construction manual

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The incubators are arranged in a level tank and fed water from a header tank. Level tank and header tank (Figure 1) are made from a falcon tube container (Figure 2) (50ml) (nr 479-0079 at www.vwr.com). The bottom of the level tank consists of a 143x143x 2mm white pvc plate (Figure 2), we got them custom cut at www.plastkompaniet.no). Attach using not too much or too little superglue (...an acquired skill). It is challenging to glue these plastics together (PP and PVC). Rub the surfaces of the falcon tube container before gluing (sandpaper 80), and be particularly accurate when putting glue on the outer edges to avoid leakage. Put on something heavy while the glue hardens. Drill three 6mm holes on both sides of the level tank as shown in Figure 2.

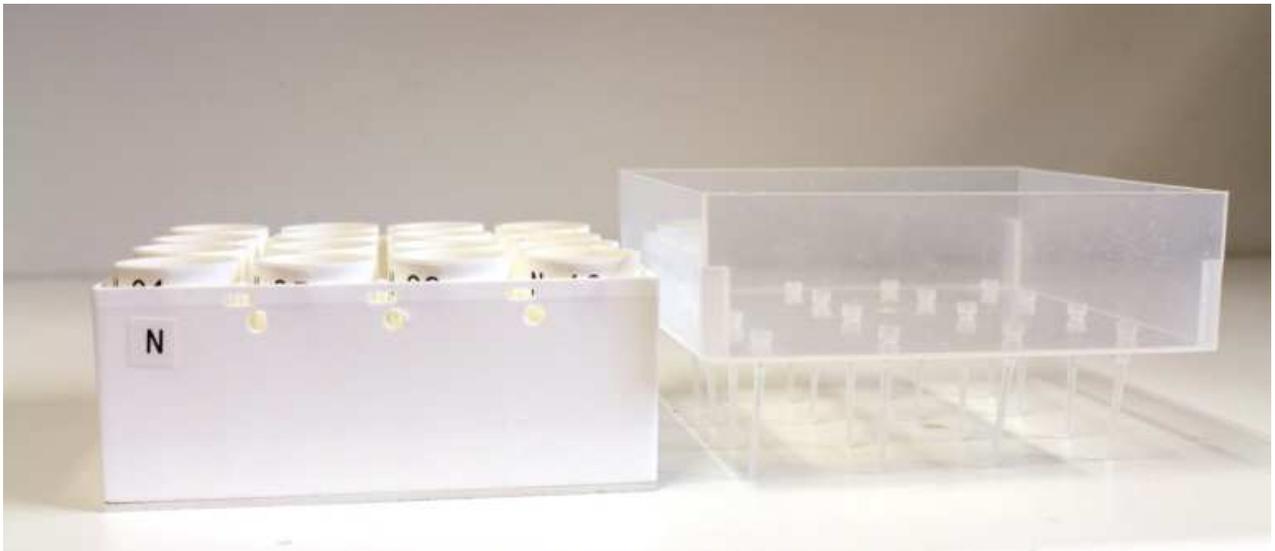


Figure 1. Small incubators in level tank (left) and header tank (right) with pipette tips to feed water into the individual incubators.

The header tank is fitted with 16 pipette tips (Eppendorf 0,5-20 μ l L, nr. 613-3502 at www.vwr.com) to supply water to each of the incubators in the level tank (Figure 1). Holes (3.7 mm) must be drilled to fit the pipette tips in the center of the incubators. It is useful to make a template if you make many racks (Figure 2). The pipette tips must be cut to a length of 41mm, removing the thin end. Press the tip into the hole until it stops (Figure 1). When in use air bubbles must be removed from the pipettes at start up by blowing water into the hole using a disposable pipette for instance.

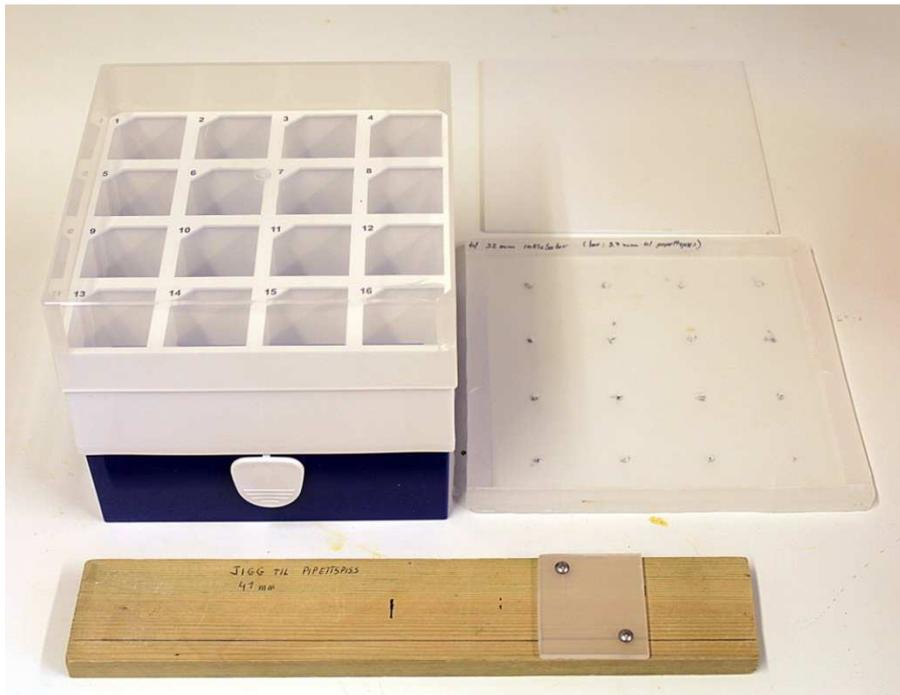


Figure 2. Falcon tube container with transparent lid. The white part of the container and white pvc plate (upper right) is used to make the level tank. The transparent lid is used to make the header tank. A jig to cut pipette tips (in front) and a jig to drill holes to pipette tips in the header tank (right, middle) is also shown.

Each of the individual incubator units are made from 32mm white polypropylene tubes (Wavin) and cut to lengths of 60 mm. The tubes should be cut on a band saw so that the cut is straight. Use a sheet of sandpaper (80) on a flat table and rub the cut like you were to draw the number 8. This way the cut remains 90 degrees to the length of the tube. Put a piece of 150 μ nylon plankton mesh on a plastic bag on the table (the glue doesn't stick to PE-LD plastic). Clean and put on just the exact amount of superglue covering the whole cut-surface (again an acquired skill) and press the tube onto the mesh. Put on something small and heavy on the tube while the superglue hardens (Figure 4). Inspect to see if the mesh is attached properly all the way round. Cut away ALL excess plankton mesh using a scalpel blade. If there is a lot of glue on the mesh inside the incubator: rip it off and do it again!



Figure 3. Gluing 150 μ plankton mesh (nylon) to the bottom of the incubator unit using superglue (cyanoacrylate).

For questions and more information, send email to: post.slrc@uib.no