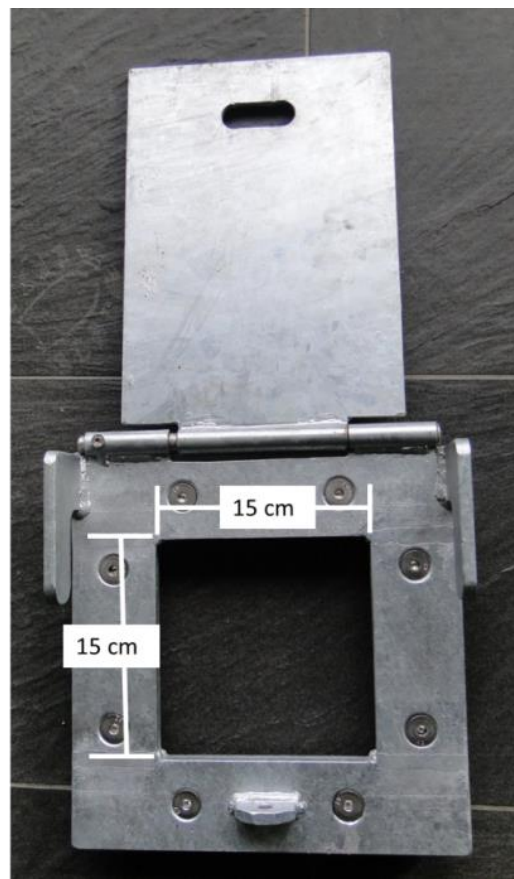
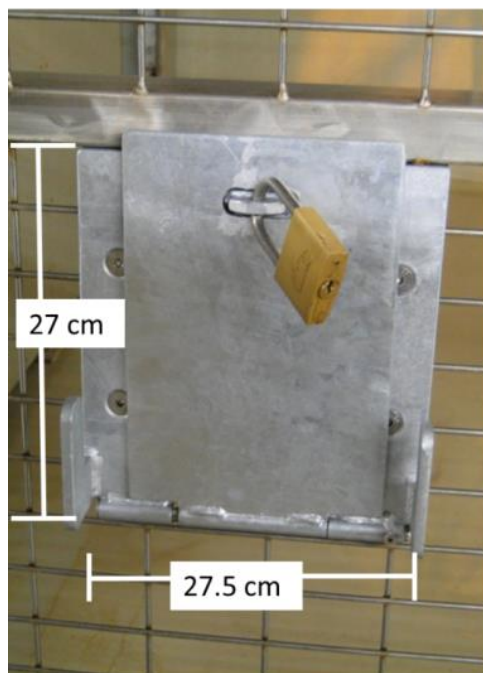


Additional file 1:

Plastic tube installation

When taking measurements, the device is attached to the metal plate that is fixed to the wire or bars of the compartment and can be removed. The outer dimensions of the metal plate are 27 x 27 cm, while the dimensions of the inner rectangle are 15 x 15 cm (Additional Figure 1).



Additional Figure 1: Metal plate with outside measures installed and locked at the bars (left hand side), and inner dimension measures when open (right hand side).

After installation, the metal plate remains in the zoos and can be closed with a lock. To install the device, the lock is opened and the cover plate is opened, too. The arm measure tube has an adapter made out of metal which is easily connected into the plate. Afterwards the installation is again protected with a lock. A metal holder was built to stabilize the whole construction (Additional Figure 2). The tube is easy to clean and was carefully designed so that animals cannot hurt themselves by reaching an arm in the tube.



Additional Figure 2: Metal plate is opened, the tube is connected, stabilized and locked.