

METER

2-INCH ADAPTER MOUNTING AND APPLICATION INSTRUCTION SHEET

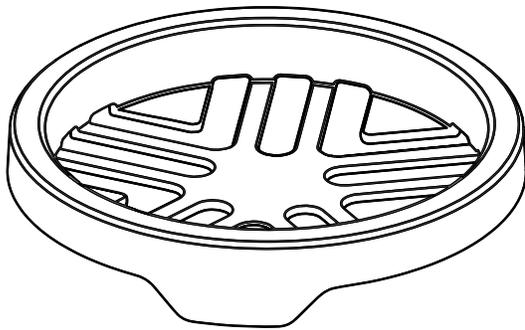
Use this instruction sheet for:

- Measuring 100 ML soil samples with KSAT and additional HYPROP
- Measuring 100 ML soil samples with HYPROP

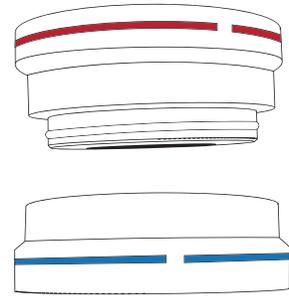
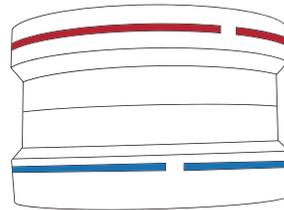
KSAT and HYPROP are designed to be used with a 250 ML soil sample ring. The 2-inch adapter enables 100 ML soil samples to be measured. This instruction sheet covers soil saturation for KSAT (page 2) and HYPROP (page 13) measurements, and mounting the 2-inch adapter for 100 ML soil samples for KSAT (page 7) and HYPROP (page 11).

ACCESSORIES

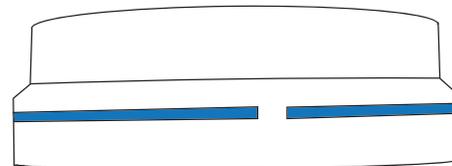
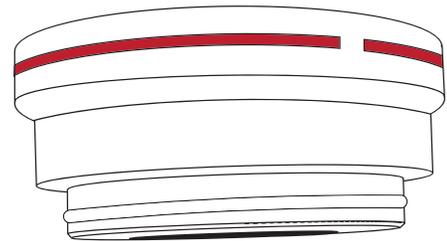
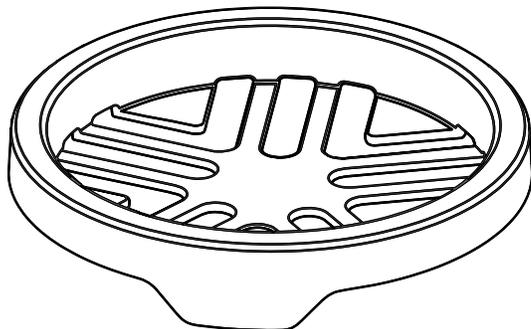
Below are the accessories used and described in this guide. Learn more at metergroup.com.



Saturation plate



2-inch adapter



Set (Saturation Plate and 2-inch adapter)

SATURATING THE SOIL SAMPLE FOR KSAT MEASUREMENTS

1. Weigh the adapter and note its weight (this will be necessary for evaluation).
2. Remove the lid from the sample ring from the cutting side of the sample.
3. Clean the sealing area thoroughly.

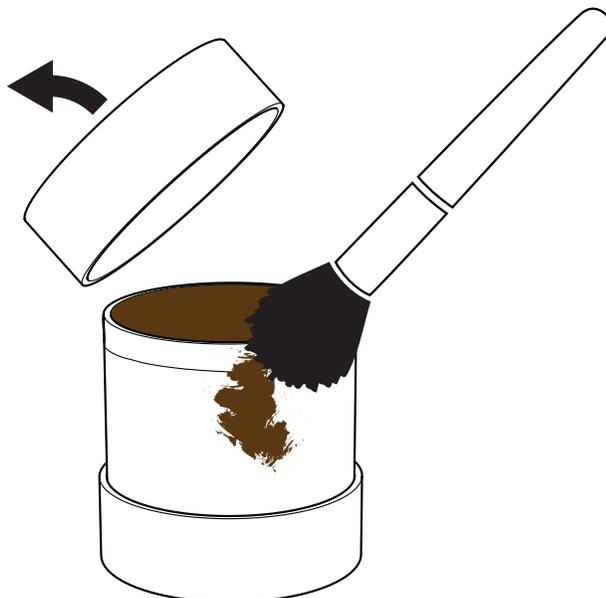


Figure 1 Remove lid from sample ring cutting side and clean

4. Put the blue marked part of the adapter on the saturation plate (Figure 2). Be sure to place it with the blue marking line downward on the saturation plate and covered with a filter paper.

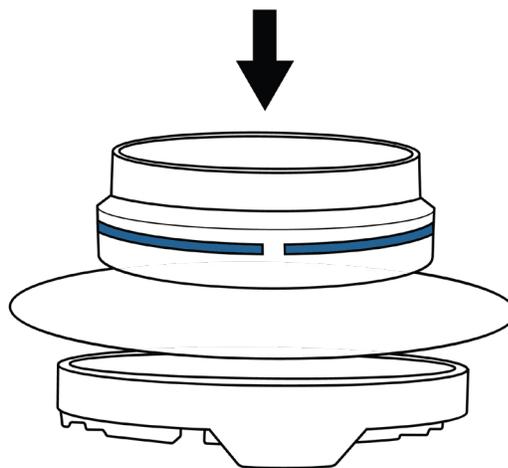


Figure 2 Saturation plate, adapter, and filter paper

5. Flip the adapter and place it on top of the soil sampling ring (Figure 3).

2-INCH ADAPTER MOUNTING AND APPLICATION

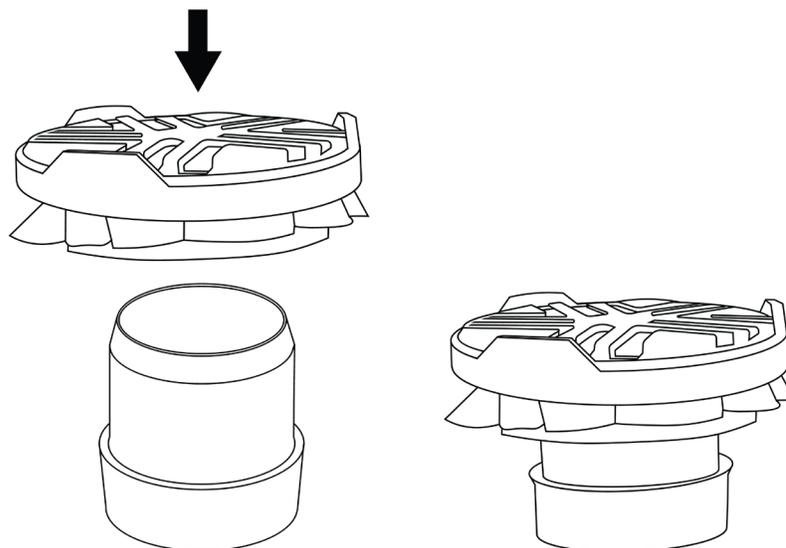


Figure 3 Flip the adapter and place on sample

6. Turn the soil sample and remove the other lid (Figure 4).

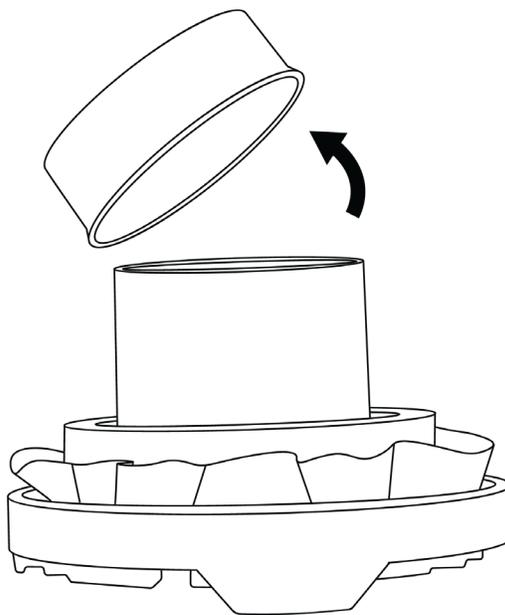


Figure 4 Remove lid from other side of soil sample ring

7. Place the red-marked part of the adapter with the marking line upwards and on top of the soil sampling ring (Figure 5).

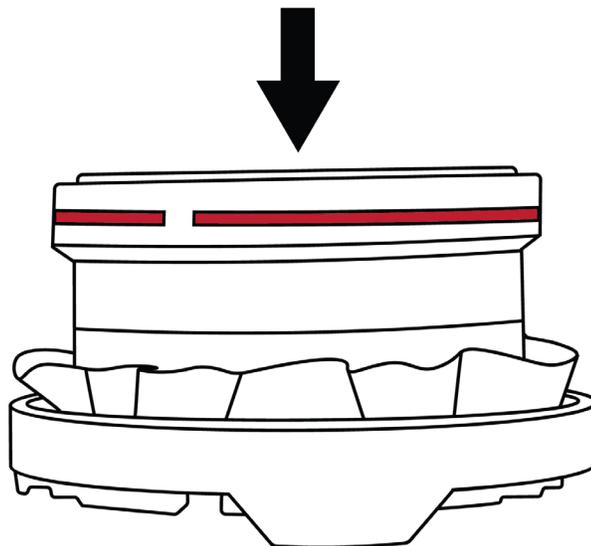


Figure 5 Place red-marked adapter

8. Fill the pan with enough water to be just below the top of the sample ring (Figure 6).
9. Place soil sample in the water pan (Figure 6).
Carefully tilt the sample including the saturation plate to let air bubbles escape.

IMPORTANT: Do not pour water on the sample. This may trap air in the sample.

Recommended times for various soil types listed in Table 1.

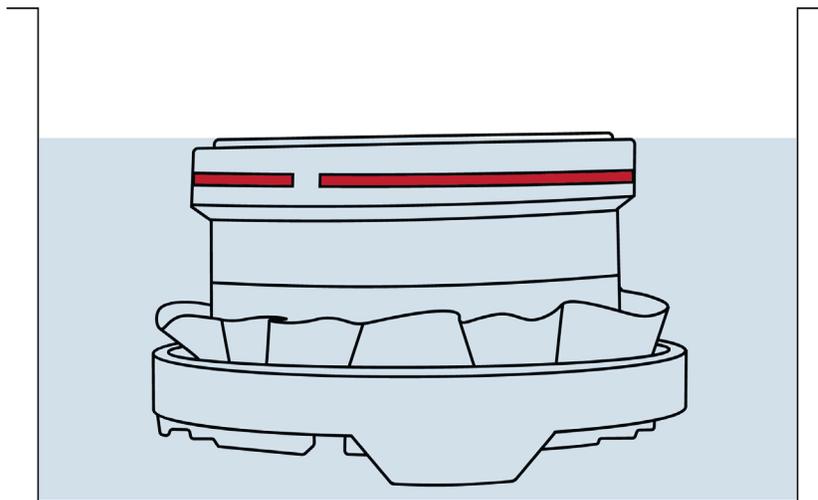


Figure 6 Saturate soil sample

Table 1 Typical Saturating Times

Material	Fill up time	Time to saturation
Course sand	approximately 9 min	approximately 10 min
Fine sand	approximately 45 min	approximately 1 h
Silt	approximately 6 h	approximately 24 h
Clay	n.a.	up to two weeks

10. When the saturation is complete, put the entire setup in a pan (if there is only one soil sample in the saturation pan you can leave it there).

11. Fill the pan with at least 12 cm water so that the soil sample is completely covered with water (Figure 7).

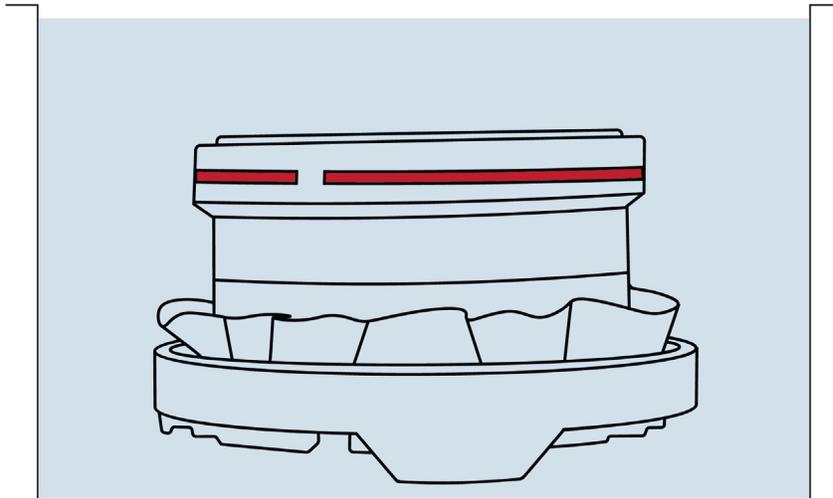


Figure 7 Cover sample with water

12. Saturate the porous plate of the red gasket and put it in the same water-filled pan (Figure 8).

NOTE: The pores of the porous plate must be completely filled with water before being placed on the soil sample. A complete saturation of the porous plate has occurred when it does not float in water but settles. For an immediately dried out plate, desaturate quickly under vacuum in a desiccator. Submerge the plate in water (with a weight on it to avoid floating) and evacuate the system. Then bring it back to atmospheric pressure.

Avoid turning the plate into a vertical position. Only move the saturated plate if it is possible to maintain horizontal positioning.

Gravity force will dewater the plate from the top.

Be sure that the gap of the red-marked part of the adapter is air free. Put the red gasket under water on top of the red-marked part of the adapter.

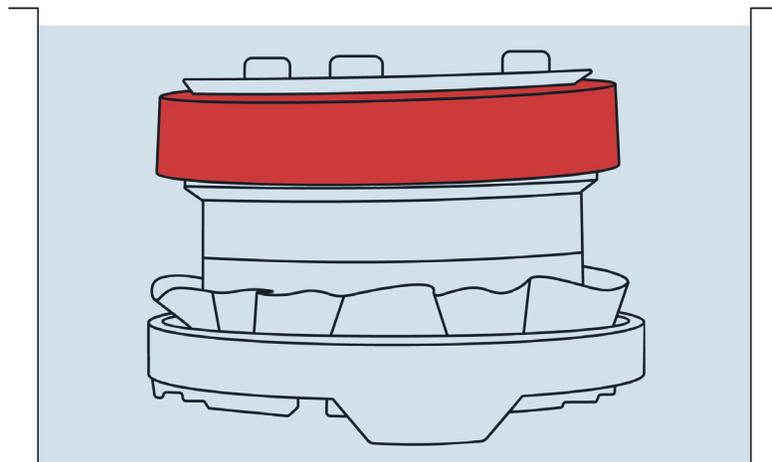


Figure 8 Red gasket on adapter

13. Keeping the sample under water, turn it rightside up.
14. Remove the saturation plate and the filter paper.

2-INCH ADAPTER MOUNTING AND APPLICATION

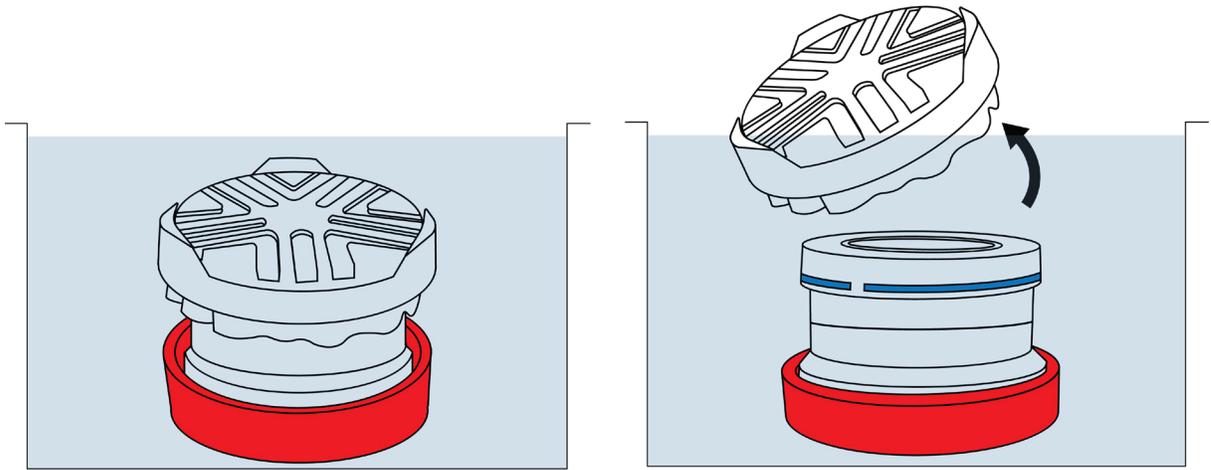
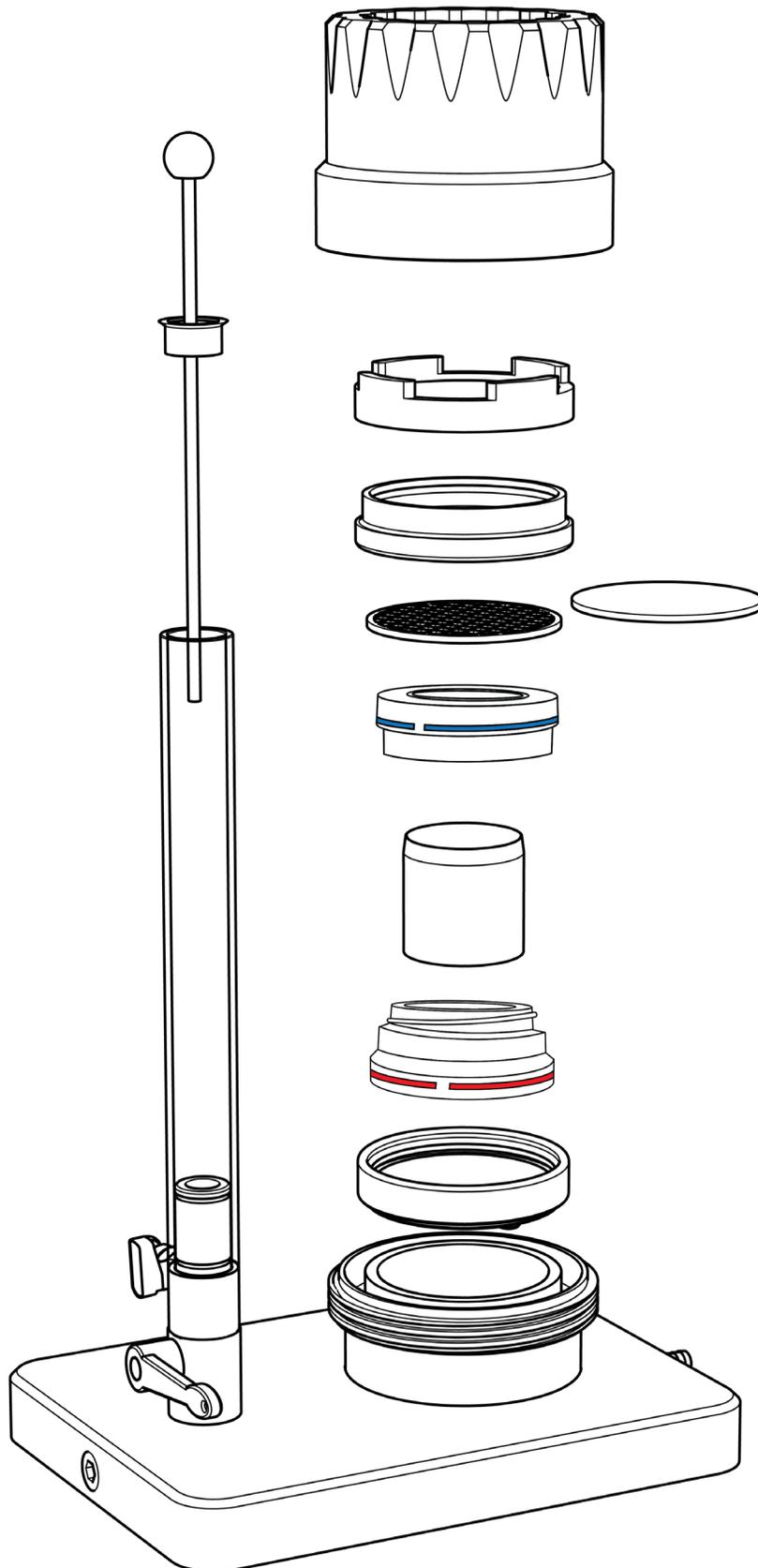


Figure 9 Turn sample rightside up under water

MOUNTING THE SAMPLE FOR KSAT MEASUREMENTS



1. Open fill cock (Figure 10) and fill burette.
2. Close fill cock.
3. Open burette cock and flood the measuring dome.

IMPORTANT: If the burette cock is closed when the sample is mounted the rapid pressure increase may damage the pressure sensor in the device.

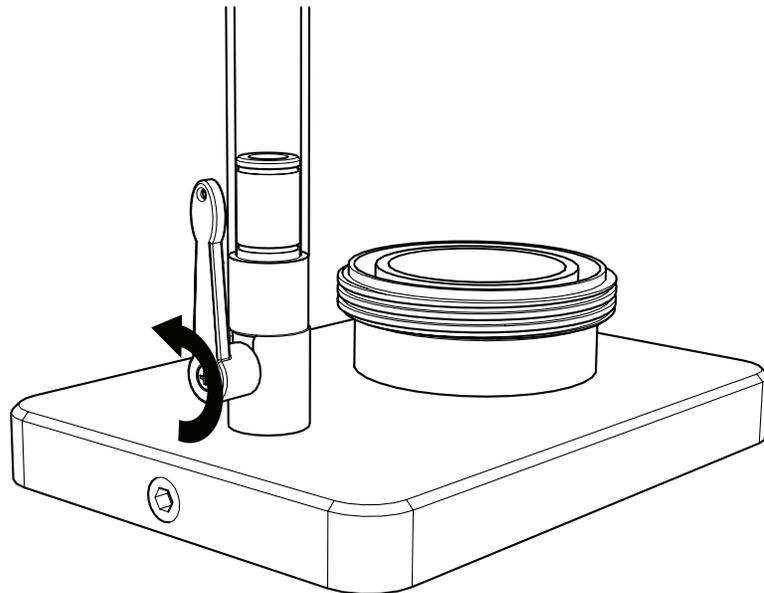


Figure 10 Open/Close the fill cock

4. Take the soil sample out of the water pan and carefully move it horizontally to the device.
5. Put the sample slightly tilted on the water lens, allowing air to escape.

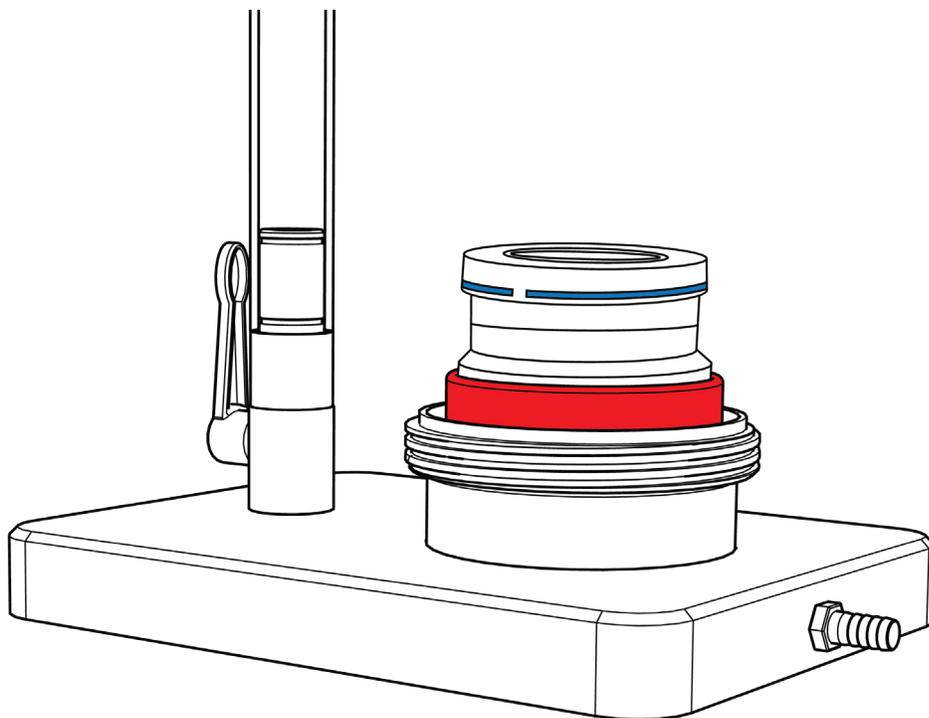


Figure 11 Put sample on water lens

Please use mesh for consolidated materials and porous plate for non-consolidated materials (Figure 12).

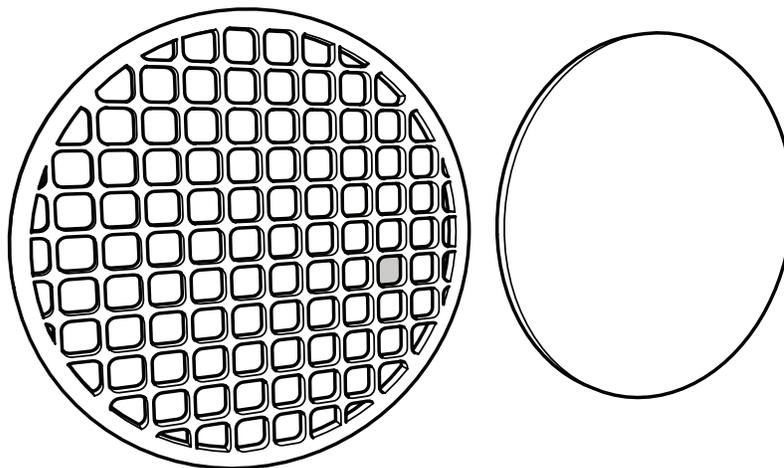


Figure 12 Mesh or porous plate

6. Adapt the software setup to your choice.
7. Press the porous plate or the mesh into the groove from the bottom of the blue gasket.
8. Place the crown on top of the blue gasket (Figure 13).

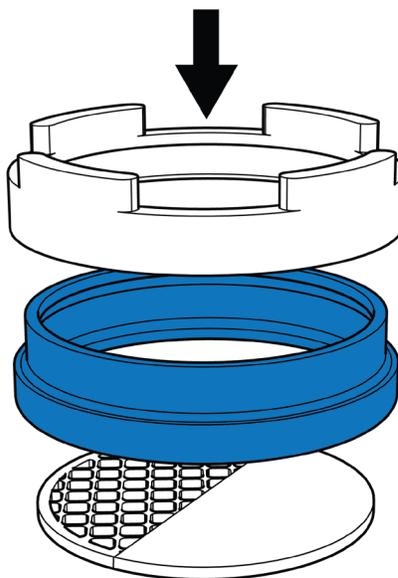


Figure 13 Place crown on top of blue gasket with mesh or porous plate

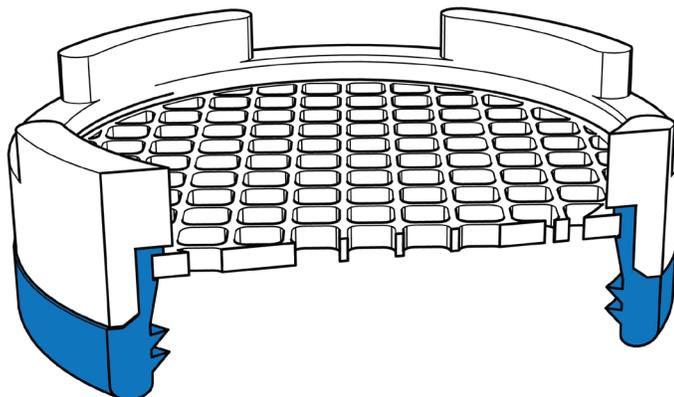


Figure 14 Mesh, gasket, and crown assembled

9. Press the assemble mesh or porous plate, gasket, and crown (Figure 14) onto the sample ring in the KSAT (Figure 15).

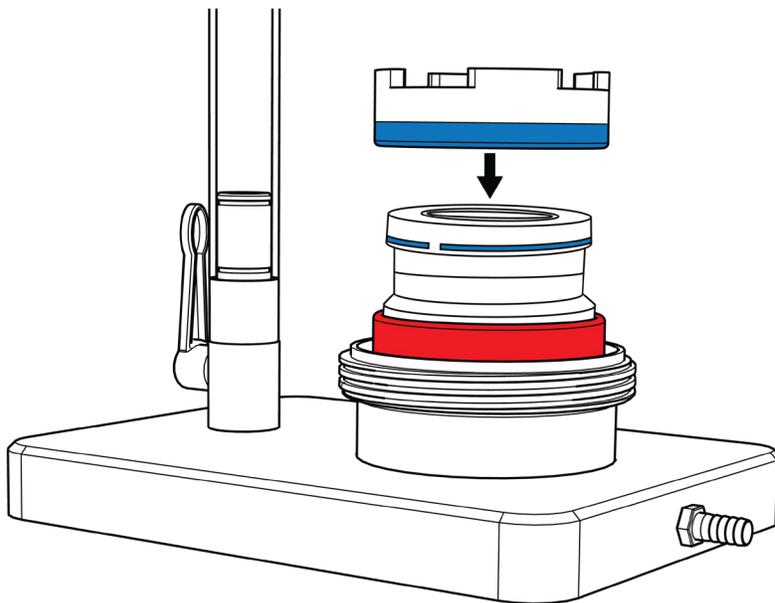


Figure 15 Press onto sample ring in KSAT

10. Place the screw cap on top of the assembled gasket and crown (Figure 16).

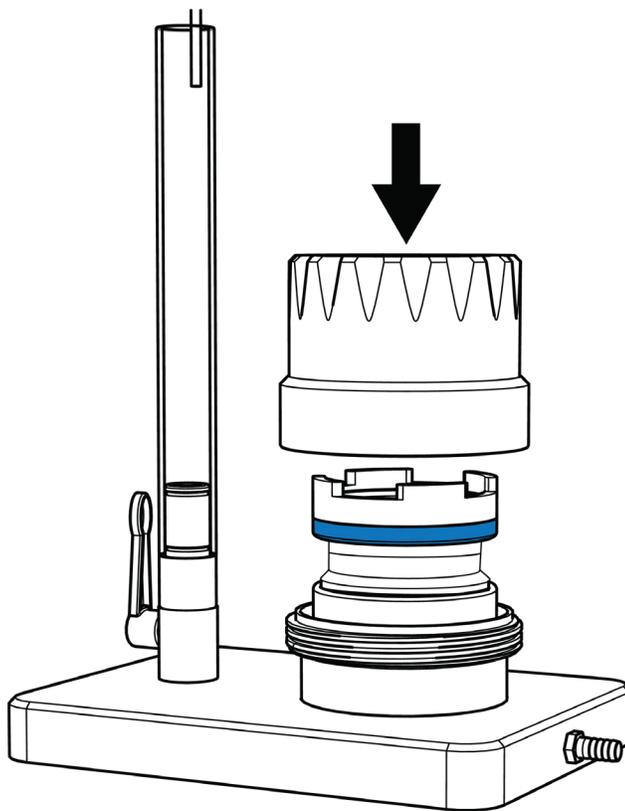
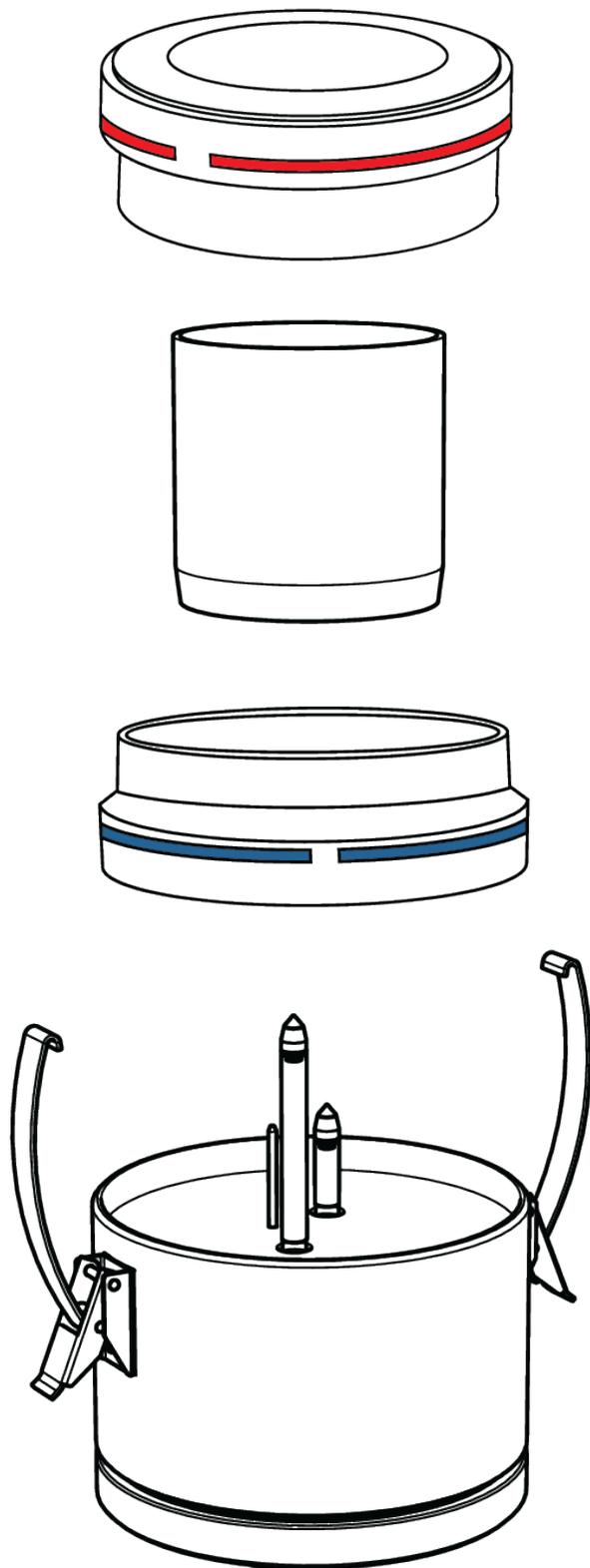


Figure 16 Place screw cap on top of the assembled gasket and crown

The system is now ready for measurement. For instructions about the next steps please read the KSAT manual available on the [KSAT Support](https://meter.ly/KSAT-support) webpage (meter.ly/KSAT-support).

NOTE: The required parameters in the software will need to be updated.

MOUNTING THE SAMPLE FOR HYPROP MEASUREMENTS (OPTIONAL)



This section provides the steps for the option to continue with a HYPROP measurement after a KSAT measurement.

1. Open the burette cock and remove the adapter, soil sample, blue gasket and crown from the KSAT.
2. Remove the blue gasket and crown.
3. Place the auger guide on top of the blue-marked part of the adapter for augering the holes for the tensiometer shafts ([Figure 17](#)).

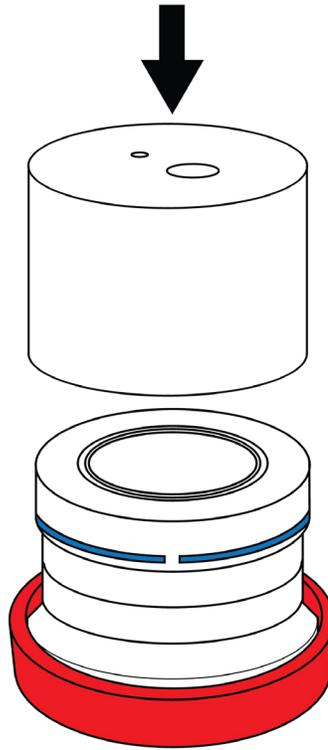


Figure 17 Place auger guide

4. After creating holes for the HYPROP tensiometer shafts, place the refilled HYPROP on top of the soil sample ([Figure 18](#)).
Information for refilling the HYPROP and HYPROP preparation is available in the HYPROP user manual. Access the user manual from the [HYPROP support](https://meter.ly/hyprop-support) page (meter.ly/hyprop-support).
5. Turn the system upsidedown.
6. Remove the red gasket and close the HYPROP clips ([Figure 18](#)).

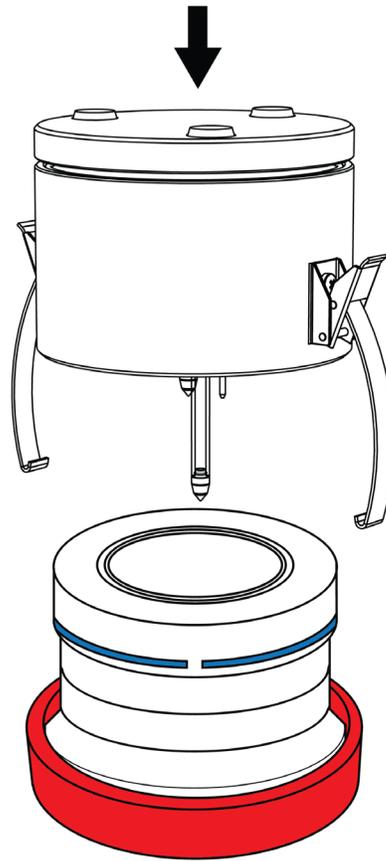


Figure 18 Place HYPROP on top of soil sample

7. Check that the gap between HYPROP and adapter are dry.
Also check that the surface is dry.
8. Remove any residual water from the adapter.

The HYPROP is now ready for measurement. For further instructions on HYPROP measurements, please read the HYPROP manual on the [HYPROP Support](https://meter.ly/hyprop-support) page (meter.ly/hyprop-support).

For evaluation with LABROS SoilView-Analysis please insert the adapter's net weight into the field **Information weight correction**.

SATURATING THE SOIL SAMPLE FOR HYPROP MEASUREMENTS

This section provides instructions for how to saturate the soil sample if only using the HYPROP (not KSAT combined with HYPROP). Once the soil sample is saturated, return to previous section for directions to mount the HYPROP beginning on [page 11](#).

1. Weigh the adapter and note its weight.
This will be necessary for evaluation.
2. Remove the lid from the sample ring on the non-cutting side and clean the sealing area thoroughly ([Figure 19](#)).

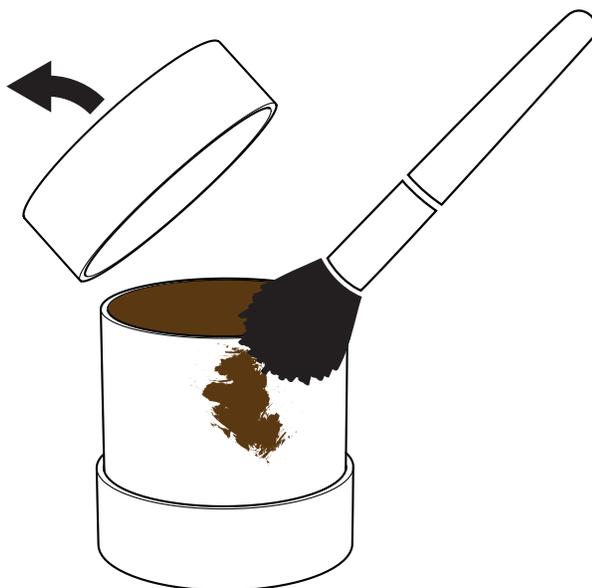


Figure 19 Remove lid and clean sealing area

3. Cover the red-marked part of the adapter with a filter paper.
4. Place the adapter with the red marking line downward on the saturation plate. (Figure 20)

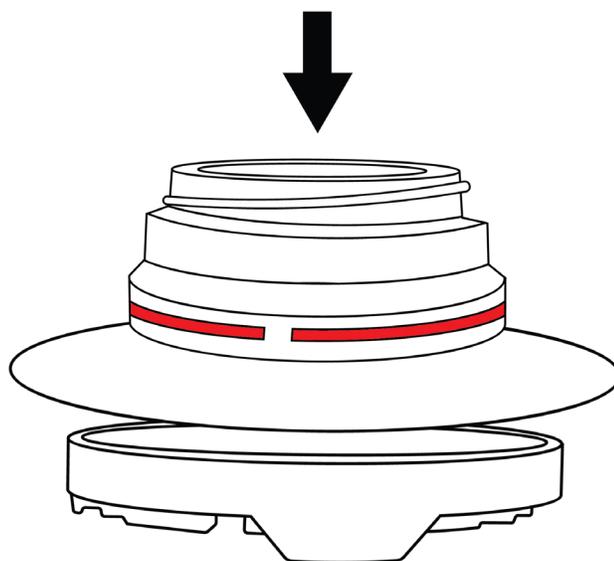


Figure 20 Place adapter and filter on saturation plate

5. Flip the adapter and place it on top of the soil sampling ring (Figure 21).

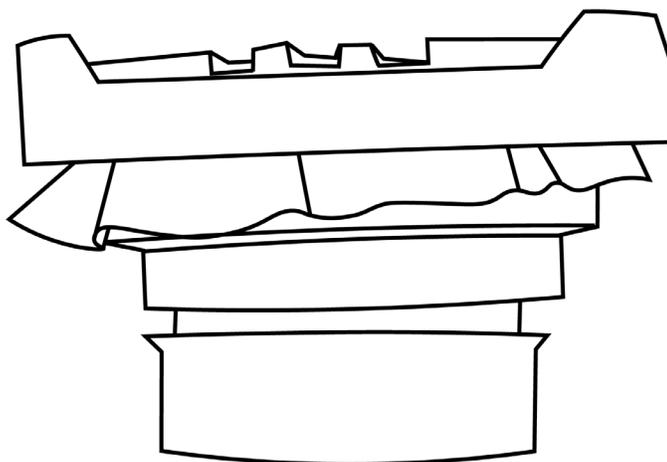


Figure 21 Flip the adapter and place on top of sampling ring

6. Turn the soil sample and remove the other lid (Figure 22).

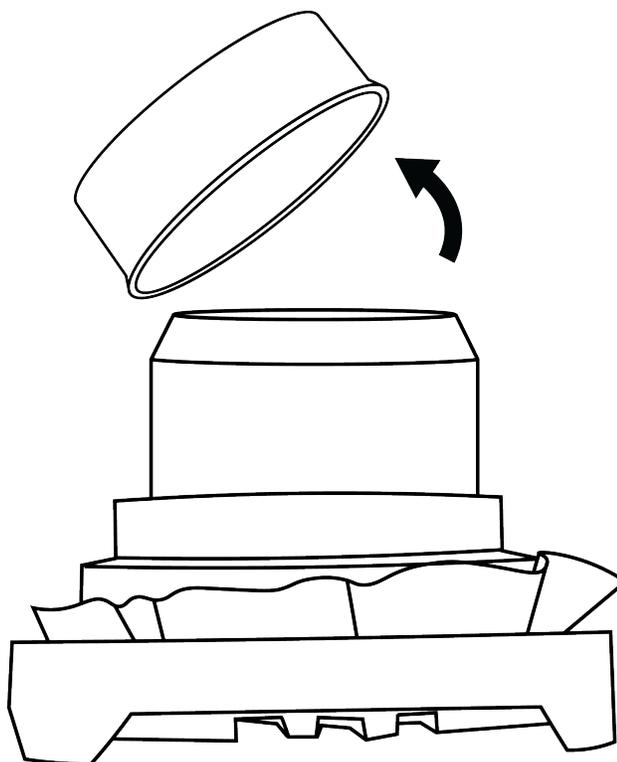


Figure 22 Turn and remove other lid

7. Put the blue-marked part of the adapter with the marking line upwards on top of the soil sampling ring (Figure 23).

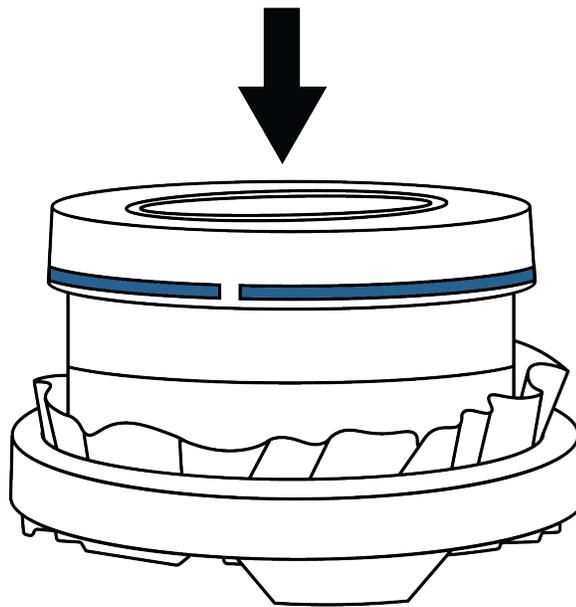


Figure 23 Place adapter on top of cutting side of sample ring

8. Put the sample in a water pan.
9. Fill the pan with water until it is just below the top of the sample ring.
10. Carefully tilt the sample including the saturation plate to let air bubbles escape and place soil sample in water pan.

IMPORTANT: Do not pour water on the sample because it may trap air.

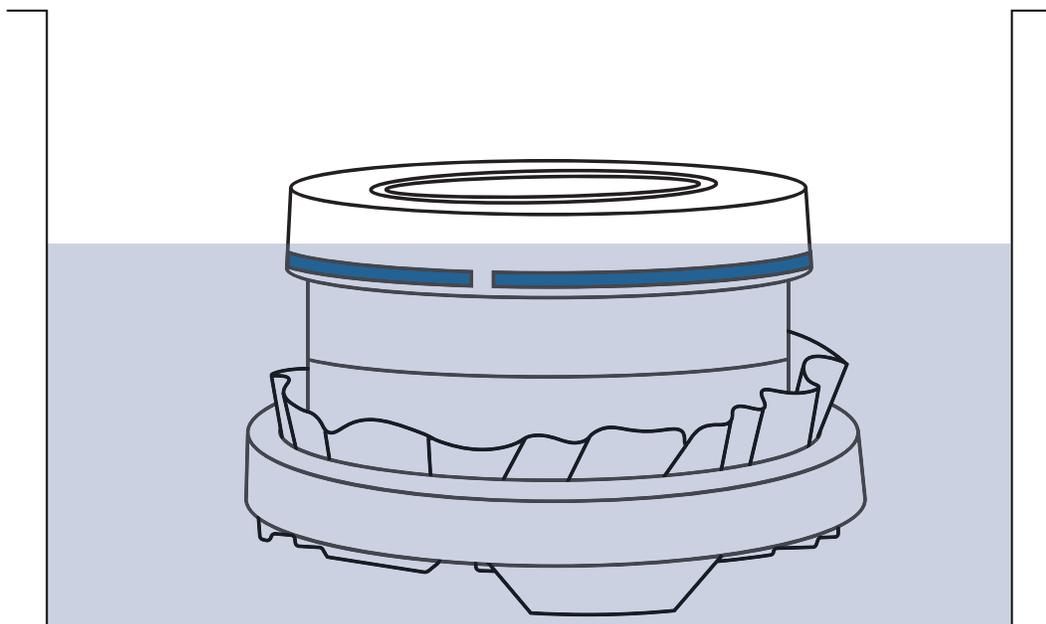


Figure 24 Saturate soil sample

11. Let the sample saturate for the appropriate amount of time.
Recommend times in [Table 1](#).

When saturation is complete, follow the steps in previous section beginning on [page 11](#) for mounting the HYPROP.