

# Solinst® Discrete Interval Sampler Operating Instructions

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Model 425 Mk3 1" dia.

## Operating Principles

The Discrete Interval Sampler (DIS) allows samples to be taken from distinct levels within a well. The sampler is pressurized at the surface to prevent water from entering the device as it is being lowered to the desired sampling depth. The pressure is then released allowing the Discrete Interval Sampler to fill under hydrostatic pressure. The Discrete Interval Sampler is repressurized to maintain chemical stability of the sample as the DIS is retrieved. At the surface, the sample is removed using the Sample Release Device.

### SAFETY PRECAUTION Using High Operating Pressures can be Dangerous

For sampling at depths greater than 200 ft. (60 m) below water level use the following method to increase safety.

**Before Sampling:** Pressurize the sampler to 100 psi (700 kPa) then lower the sampler to a depth of about 160 ft. (50 m) below water.

At that level increase the pressure to the maximum required, as determined when setting the operating pressure. Then lower the sampler to the appropriate level and continue as per the operating instructions.

**After Sampling:** Raise the sampler to a depth of about 160 ft. (50 m) below water, then decrease the pressure on the sampler to 100 psi (700 kPa). Continue to raise the sampler and follow the instructions to properly remove the sample.

### Recommended Operating Pressure

Depth (ft.) below water	Pressure psi	Depth (m) below water	Pressure kPa
25	20	7.6	145
50	30	15.2	220
100	50	30.5	370
200	95	61.0	670
300	140	91.4	965

### Discrete Interval Sampler Size & Capacity Options

Size	Capacity	Size	Capacity
1" x 2 ft.	6 oz	25.4 mm x 610 mm	175 ml
1.66" x 2 ft.	15 oz	38 mm x 610 mm	450 ml
2" x 2 ft.	27 oz	50.8 mm x 610 mm	800 ml

## Sampling with the Discrete Interval Sampler

**Notes:** 1. The Sample Release Device NEVER goes down the well.  
2. A safety support line should always be used to lower the Sampler

- Before using the Discrete Interval Sampler, there are two important pieces of information needed.
  - Desired Sampling Depth
  - Static Water Level
- With the tubing connected to the Discrete Interval Sampler (see Assembly on Page 2), and the air pump assembled, connect the air pump to the Pressure Inlet.
- Turn the Pressurize/Vent Valve to Pressurize.
- At this point you must make a calculation to ensure that you are operating at the proper pressure using one of the following formulas, or the chart at lower left.

### Setting the Operating Pressure

Feet	Meters
Sampler depth below grade (ft.) - static water level below grade (ft.) $\times 0.43 + 10$ psi	Sampler depth below grade (m) - static water level (m) $\times 9.8 + 70$ kPa

### Example

Sampling Depth is 100 ft. - Static Water Level at 30 ft.  
 $\times 0.43 + 10$  psi = 40 psi  
 Therefore the Discrete Interval Sampler should be pressurized to 40 psi for proper operation.

- Using the air pump, pressurize the Discrete Interval Sampler to the required pressure.
- Disconnect the air pump from the reel before lowering sampler into the well.
- Use a safety support line, such as the Model 103 Tag Line, to lower the DIS to the proper sampling depth. (See Model 103 Data Sheet).
- Once the sampler is at the desired sampling depth, turn the Pressurize/Vent Valve to Vent. Wait for 1-3 minutes to allow the Discrete Interval Sample to fill.
- Turn the Pressurize/Vent Valve to Pressurize.
- Connect the air pump to the Pressure Inlet on the reel and repressurize the system as determined in step 4.
- Once pressurized, disconnect the air pump and bring the sampler to the surface following the "Safety Precaution" described above.
- When the sampler is at the surface, and you are ready to retrieve your sample, turn the Pressurize/Vent Valve to Vent.
- Hold the Discrete Interval Sampler over your sample bottle and press the Sample Release Device Stem up into the Decanter Body until sample begins to flow from the sampler. The flow rate can be regulated by simply adjusting the amount of the Stem inserted into the Decanter Body.

**Note:** If no sample is coming out of the Discrete Interval Sampler, remove the tubing to allow venting and then take your sample.

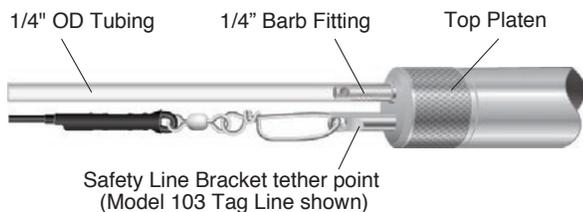
## Assembly

**Note:** The PTFE check ball sinks in water.  
The Polypropylene check ball floats in water.

1. Ensure there is a V116 o-ring installed on the Decanter Body.
2. Push the V-010 o-ring inside the Decanter Body.
3. Place a V-203 o-ring inside the Decanter Body.
4. Drop the PTFE check ball into the Decanter Platen.
5. Push a Check Ball Retainer into the Bottom Platen until it seats.
6. Thread the Decanter Body into the Sampler Body until finger tight.
7. Ensure there is a V-116 o-ring installed over the Top Platen.
8. Place the other V-203 o-ring into the Top Platen.
9. Drop the Polypropylene check ball into the Top Platen.
10. Push the other Check Ball Retainer into the Top Platen until it seats.
11. Thread the Top Platen into the Sampler Body until finger tight.
12. If required, a small (2 mm) Allen key can be used to tighten and/or loosen the Barb Fitting and Safety Line Bracket on the Top Platen.
13. Push the tubing onto the Barb Fitting. Check the connection by pulling firmly on the tubing. It should not pull off of the fitting.

**Note:** Use an awl to open the very tip of the tubing, or heat the tubing to help push it completely over all the barbs.

### Tubing Connection

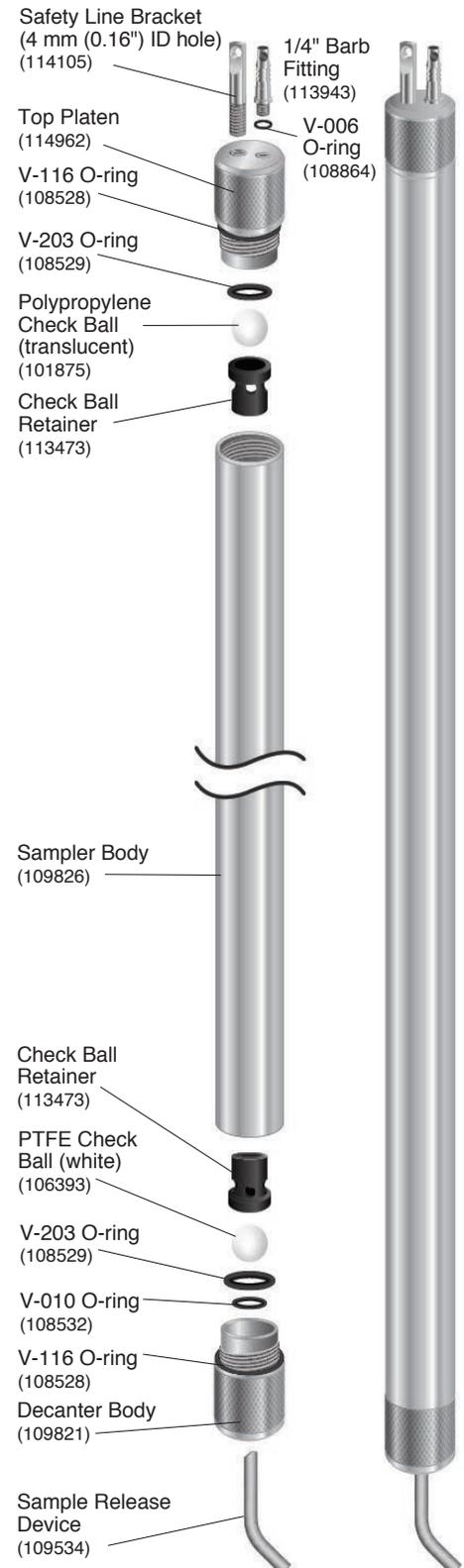


## Decontamination

- Notes:**
1. Always follow your local guidelines and standard protocols.
  2. Replace worn o-rings.

The Discrete Interval Sampler should be decontaminated after each sampling event.

1. Disassemble the Sampler.
2. Wash all Discrete Interval Sampler parts in a phosphate-free soap.
3. Rinse all parts thoroughly with deionized water and dry.
4. Reassemble the Sampler



Model 425 1" dia. x 2 ft.  
Discrete Interval Sampler (114966)