

Solinst® Discrete Interval Sampler Operating Instructions

Model 425 1" dia.

Operating Principles

The Discrete Interval Sampler 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 Sampler and tubing to fill under hydrostatic pressure. The Sampler is repressurized to maintain chemical stability of the sample as the Discrete Interval Sampler is retrieved.

At the surface, the sample is removed using the Sample Release Device, or in the case of the transportable model, sealed for transport straight to a laboratory.

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
500	225	152.4	1,565

Discrete Interval Sampler Capacity

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

Sampling with the Discrete Interval Sampler

Note: The Sample Release Device NEVER goes down the well.

- 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, 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.
- Lower the Discrete Interval Sampler down the well to the desired sampling depth. If you have not marked your tubing, you may want to attach a measuring tape or Tag Line (See Model 103 Data Sheet) to the Lowering Bracket to measure to the proper sampling depth.
- 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.
- 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 Lower Check Ball 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 Lower Check Ball Body.

Note: If no sample is coming out of the Discrete Interval Sampler, loosen the Compression Fitting to allow venting and then take your sample.

Assembly

1. Push the V-010 o-ring inside the Bottom Platen.
2. Place a V-203 o-ring inside the Bottom Platen.
3. Ensure a V-116 o-ring is installed over the Bottom Platen.

Note: The Teflon check ball sinks in water. The Polypropylene ball floats in water.

4. Drop the Teflon check ball into the Bottom Platen.
5. Push a Check Ball Retainer into the Bottom Platen until it seats.
6. Thread the Bottom Platen into the Sampler Body until finger tight.
7. Place the other V-203 o-ring into the Top Platen.
8. Ensure there is a V-116 o-ring installed over the Top Platen.

Note: The Polypropylene check ball floats in water. The Teflon ball sinks in water.

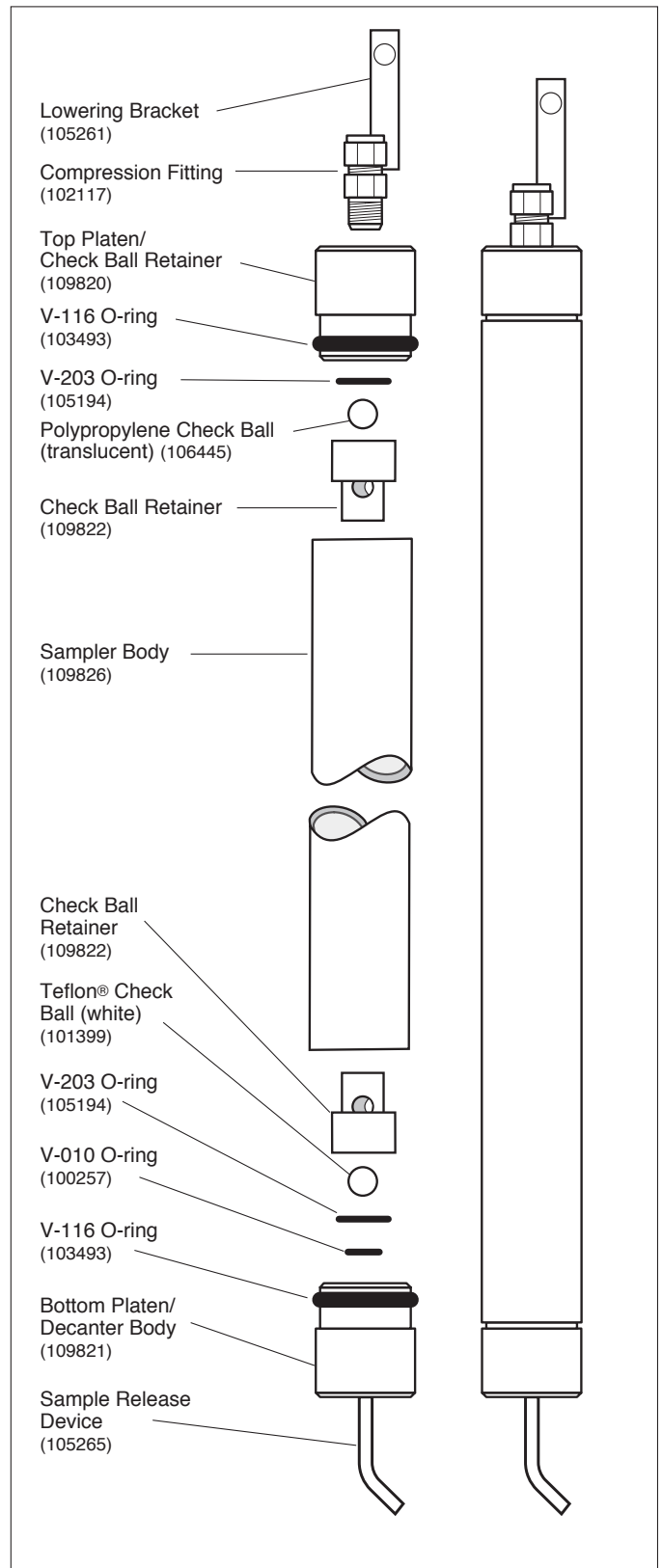
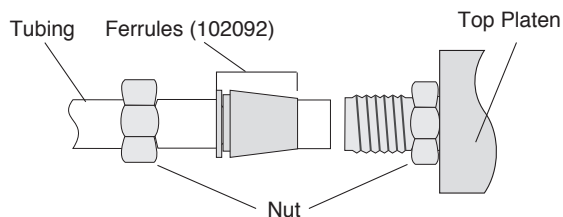
9. Drop the Polypropylene check ball into the Top Platen.
10. Push the other Check Ball Retainer into the Top Platen until it seats.
11. Thread the Top Platen into the Sampler Body until finger tight. Ensure the Compression Fitting is threaded into the Top Platen.
12. Attach the tubing by tightening the compression fitting nut to the compression fitting until finger tight. Using a wrench tighten until snug (no more than 1/8 or 1/4 turns).

Decontamination

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

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

Tubing Connection (Compression Fitting) Assembly



Model 425 1" dia. x 2 ft. Discrete Interval Sampler (109824)

Operating Principles

The Discrete Interval Sampler 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 Sampler and tubing to fill under hydrostatic pressure. The Sampler is repressurized to maintain chemical stability of the sample as the Discrete Interval Sampler is retrieved.

At the surface, the sample is removed using the Sample Release Device, or in the case of the transportable model, sealed for transport straight to a laboratory.

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
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1.66" x 2'	15 oz	38 mm x 610 mm	450 ml
2" x 2'	27 oz	50.8 mm x 610 mm	800 ml

Sampling with the Discrete Interval Sampler

Note: The Sample Release Device NEVER goes down the well.

- 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, 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) x 0.43 + 10 psi	Sampler depth below grade (m) - static water level (m) x 9.8 + 70 kPa
Example	
Sampling Depth is 100 ft. - Static Water Level at 30 ft. x 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.
- Lower the Discrete Interval Sampler down the well to the desired sampling depth. If you have not marked your tubing, you may want to attach a measuring tape or Tag Line (See Model 103 Data Sheet) to the Lowering Bracket to measure to the proper sampling depth.
- 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.
- 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 Lower Check Ball 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 Lower Check Ball Body.

Note: If no sample is coming out of the Discrete Interval Sampler, loosen the Compression Fitting to allow venting and then take your sample.

Assembly

1. Push the V-010 o-ring inside the Lower Check Ball Body.
2. Place the V-203 o-ring inside the Lower Check Ball Body.
3. Insert the Teflon spacer into the Lower Check Ball Body until flush with the outer edge.
4. Thread the Lower Check Ball Body into the Lower Platen until it is finger tight.

Note: The Teflon check ball sinks in water. The Polypropylene ball floats in water.

5. Drop the Teflon check ball into the Lower Platen.
6. Push the Check Ball Retainer into the top of the Lower Platen until it seats.
7. Thread the Lower Platen into the Sampler Body until finger tight.
8. Place the V-203 o-ring inside the Upper Check Ball Body.
9. Insert the Teflon Spacer into the Upper Check Ball Body until flush with the outer edge.
10. Thread the Upper Check Ball Body into the Upper Platen until it is finger tight.
11. Drop the Polypropylene check ball into the Upper Platen.

Note: The Polypropylene check ball floats in water. The Teflon ball sinks in water.

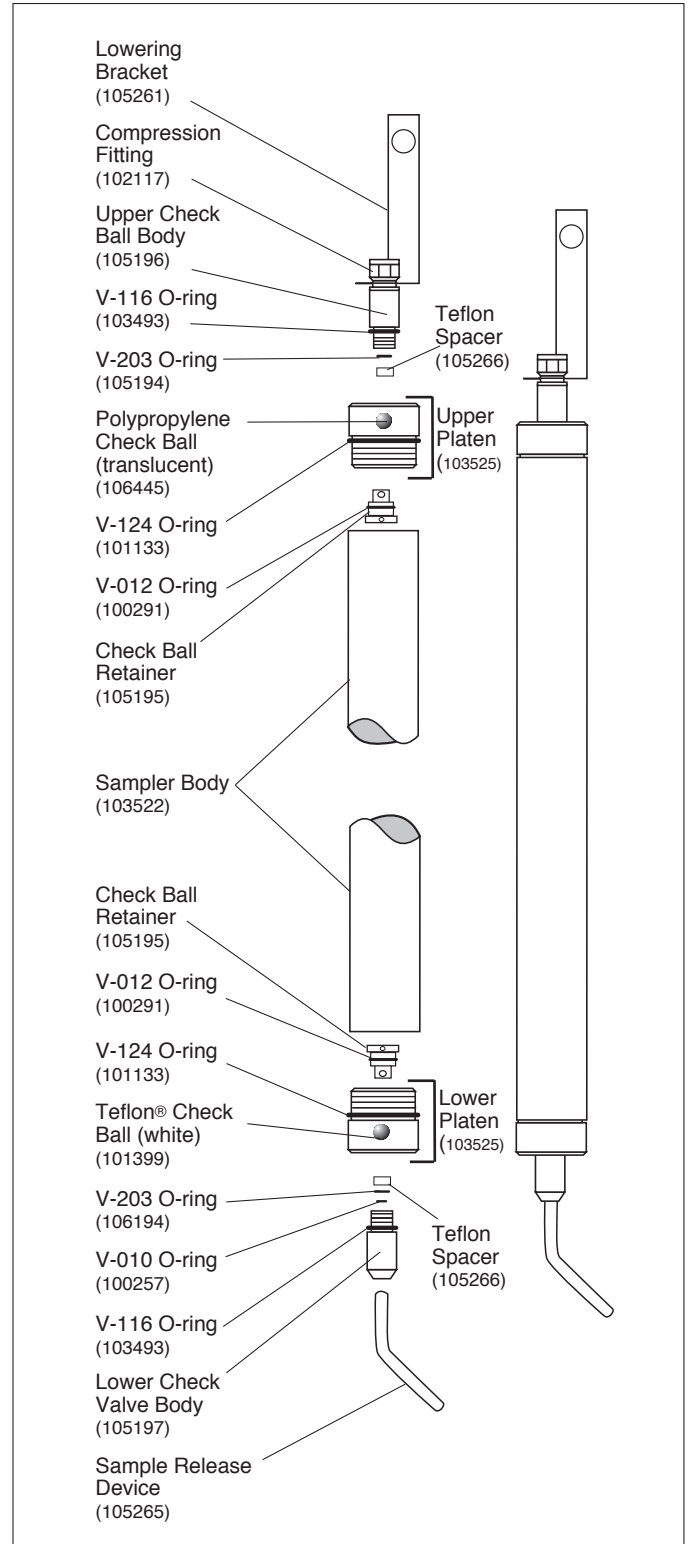
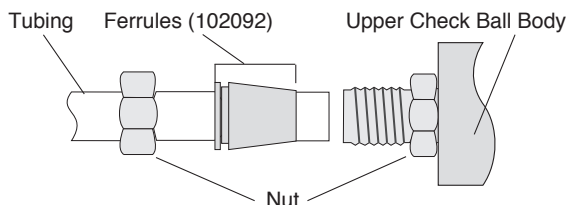
12. Push the o-ring on the Check Ball Retainer into the Upper Platen until it seats.
13. Thread the Upper Platen into the Sampler Body until finger tight.
14. Attach the tubing by tightening the compression fitting nut to the compression fitting until finger tight. Using a wrench tighten until snug (no more than 1/8 or 1/4 turns).

Decontamination

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

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

Tubing Connection (Compression Fitting) Assembly



Model 425 1.66" x 2 ft. Discrete Interval Sampler (105264)

Operating Principles

The Discrete Interval Sampler 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 Sampler and tubing to fill under hydrostatic pressure. The Sampler is repressurized to maintain chemical stability of the sample as the Discrete Interval Sampler is retrieved.

At the surface, the sample is removed using the Sample Release Device, or in the case of the transportable model, sealed for transport straight to a laboratory.

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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

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Sampling with the Discrete Interval 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, and the air pump assembled, connect the air pump to the Pressure Inlet.
- Turn the Pressure/Vent Valve to Pressure.
- 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
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- Using the air pump, pressurize the Discrete Interval Sampler to the proper pressure.
- Disconnect the air pump from the reel before lowering into the well.
- Lower the Discrete Interval Sampler down the well to the desired sampling depth. If you have not marked your tubing, you may want to attach a measuring tape or Tag Line (See Model 103 Data Sheet) to the Discrete Interval Sampler Body to measure to the proper sampling depth.
- Once the sampler is at the desired sampling depth, turn the Pressure/Vent Valve to Vent. Wait for 1-3 minutes to allow the Discrete Interval Sampler and tubing to fill to static water level completely.
- Turn the Pressure/Vent Valve to Pressure.
- Connect the air pump to the Pressure Inlet on the reel and repressurize the system using the same pressure as before.
- Once pressurized, disconnect the air pump and bring sampler to the surface.
- When the sampler is at the surface you are ready to retrieve your sample from the Discrete Interval Sampler. Turn the Pressure/Vent Valve to Vent.
- Hold the Discrete Interval Sampler over your sample bottle and press the SRD Stem up into the SRD End Piece 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 End Piece.

Note: If no sample is coming out of the Discrete Interval Sampler, loosen the Compression Fitting to allow venting and then take your sample.

Assembly

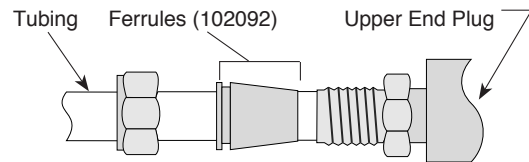
1. Take the Sample Release Device (SRD) End Piece and lubricate the o-ring.
2. Lubricate the o-ring on the SRD Stem and slip the SRD Stem through the SRD End Piece from the threaded end until the pin reaches the threads.
3. Thread the SRD into the bottom of the Lower End Plug until it is finger tight.
4. Lubricate the Lower End Plug o-ring.
5. Lubricate the o-ring on the Valve Body and thread into the top of the Lower End Plug.
6. Lubricate the o-ring on the Valve Poppet and drop into the Valve Body, narrow end in first.
7. Lubricate the o-ring for the Central Rod Connector and thread into the Valve Body.
8. Take the Central Rod and thread approximately 4 rotations to just get it started at this point.
9. Slide the Sampler Body over the Central Rod until completely butted up against the Lower End Plug.
10. Lubricate the o-ring on the Upper End Plug.
11. Line up the Central Rod Connector on the Upper End Plug with the threaded portion of the Central Rod in the Sampler Body and begin to thread together.
12. Tighten the Top and Bottom End Plugs until the Sampler Body is completely butted up against both of these to form a good seal.
13. Unscrew the Compression Fitting and carefully remove so as to not lose the Ferrules inside the fitting.
14. Place the Lowering Bracket over the threaded portion of the Compression Fitting (Optional).
15. Take the nut of the Compression fitting and slide onto the tubing. Slide the Hat shaped Ferrule over the tubing and then the Cone shaped Ferrule until you have about 2 inches of tubing exposed.
16. Butt the tubing into the Compression Fitting.
17. Slide the Ferrules down until they are butted together at the top of the Compression Fitting.
18. Slide the Nut of the Compression fitting down the tube and thread onto the Upper End Plug until finger tight. Then take a 9/16" wrench and tighten the Compression fitting another 1 1/4 turns.

Decontamination

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

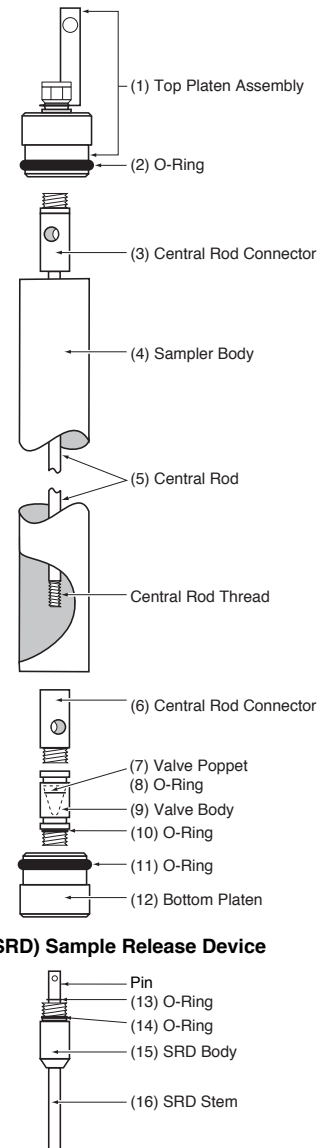
1. Disassemble the Sampler.
2. Wash all Sampler parts in a non-phosphate soap or mild solvent.
Note: Do not use acetone on the o-rings
3. Rinse all parts thoroughly with deionized water and dry.
4. Reassemble the Sampler.

Compression Fitting Assembly



Model 425 2" dia. x 2 ft Discrete Interval Sampler

Complete DIS	101857
(1) Top Platen Assembly	110863
(2) O-Ring (V-131)	101862
(3) Central Rod Connector	100706
(4) Sampler Body	101856
(5) Central Rod	100707
(6) Central Rod Connector	100706
(7) Valve Poppet	100369
(8) O-Ring (V-011)	100628
(9) Valve Body	100368
(10) O-Ring (V-112)	102095
(11) O-Ring (V-131)	101862
(12) Bottom Platen	101855
(13) O-Ring (V-009)	101288
(14) O-Ring (V-112)	102095
(15) SRD Body	100711
(16) SRD Stem	100710



Model 425 2" x 2 ft. Discrete Interval Sampler (101857)