1725-F10 / 1725-F50 Standard Ponar® Grab

Safety:

1. Be sure you are able to keep the boat in proper balance at all times. Lifting the Ponar® Grab into the boat, dumping its contents, and washing those contents may require leaning over the side of the boat.

2. Severe injury to fingers or hands can be caused by movement of the lever arms. Push the safety pin through both locking holes; unexpected movement of the lever arms or scoops can be dangerous.

Introduction:

The standard Ponar® sampler has a scoop volume of 8200 mL and a sampling area of 229 x 229 mm (9 x 9"). It is available with stainless steel scoops and bottom lip or entirely in stainless steel, for severe conditions. Removable stainless steel top screens, 500 micron, slide on and off and allow the water to flow through the sampler during descent. This lessens the frontal shock wave created by descent and reduces surface disturbance. Both screens are covered with neoprene rubber flaps that open during descent and close during retrieval to prevent sample wash out.

- Materials: Stainless steel or zinc-plated steel
- Fasteners, screen: 18-8 SS
- Weight: 20 kg (45 lb)
- 4 extra weights: 7 kg (15 lb) total
- Volume: 8.2 L
- Sampling area: 229 x 229 mm (9 x 9")

P/N 031680

Description:

The Ponar® Grab Sampler enjoys widespread use on all types of bottoms for sampling of benthos sediments, except the hardest clays, in both fresh and salt water. It is specifically recommended for:

a. Firm, hard bottoms, free of vegetation, such as sand, gravel, consolidated marl or clay.
b. Intermixtures of sand, stones, coarse debris
c. Soft or mucky sediments

Wildco's contribution to the popularity of this instrument is the exclusive "Safety Pin" lock. This lock prevents closing of the dredge until its removal and thus safeguards you from untimely, unexpected closings.

Sturdily built of all steel, it is a deliberately heavy device. Its total weight, augmented by extra weights and the mechanical leverage exerted during the closing action, allows it to bite deep into the bottom. The unique construction of jaws with an attached underlip enables the grab to wipe free most stones and gravel which may jam open otherwise. Tapered cutting edges assist in easy soil penetration. Closing should occur over 90% of the time. If it does not, this usually means the device needs to be cleaned of debris.

The center pivot scoop causes minimal disturbance to the sample. It samples well, clear firm clay bottoms to the depth of its scoops, or, if the clay is very hard, as deep as most aquatic invertebrates dig. Heavy duty hinges easily absorb heavy impacts. Features include all stainless steel scoops and bottom underlip and removable stainless steel top screens which slide on and off. The underlip wipes clean most pebbles and small cobble that would prevent the scoops from closing completely. Removable side plates prevent the lateral loss of sample when scoops are closing. Scoop volume is 8200 mL.

First produced in 1966, it has remained one of the mainstays in environmental science.

Note: Studies made in Lake Michigan by .A. Robertson and C.F. Powers of the Great Lakes Research Division, University of Michigan at Ann Arbor, indicate the Ponar is a more efficient quantitative sampler of the macrobenthos than the orange peel, Petersen, or Smith-McIntyre. Study depth ranged from 23 to 150 meters in variety of hard and soft sediment types.

Preliminary Techniques:

1. It is advisable to take one or two trial samples at the beginning of a sampling program as a means of determining whether added weights are necessary to make certain that the grab will bite deep enough into the bottom being sampled.

2. If a stick, rock or other hard object wedges between the jaws and prevents complete closure when the sample is being taken, that sample must be discarded as imperfect.

Operating Instructions:

1. Inspect the sampler to ensure all parts are in good working condition and that the unit is securely fastened to the line on the hoist.

2. WARNING: Do not handle or move the Ponar® grab unless the safety pin is fully pushed in the locking holes.

• To insert the Safety Pin lock: Keeping clear of the jaws and other working edges of the grab, move the jaws to the open position. Bring the free end of the horizontal locking bar into position in the locking notch on the upper bar to insert the Safety Pin lock.

2. Attach your line. We recommend use of Wildco® 's 61-B series stainless steel cable. Loop your line through the clevis at the top center of the lever arms and clamp securely! Secure clamping is essential for operator safety and to prevent losing the sampler. Clamp the other end of your line to your boat or float. To prevent loss of the sampler, attach the free end of the line securely to boat or float for easy recovery.

3. With the boat or working platform on location for the first sampling operation, use the winch to lift the grab clear of the deck and then the outboard. Use a winch with the Standard Ponar. Due to its weight (45 pounds) a winch such as Wildco® 's 66-C10 is generally used for heavier grabs. [Petite Ponar®, at 24 pounds, is usually hand-held.]

4. Insert the pinch pin™. Just before lowering the grab into the water, and with the line taut, remove the safety pin so that the closing mechanism will release when the sampler is on the bottom. Firmly push the Pin-Pin in its place. As long as the line is taut the pinch-pin will stay in place. When the line starts to become slack, the pinch-pin spring will pop out of the lever arm holes, allowing the scoops to close.

6. Lower the sampler slowly. Top surfaces are covered with 500 micron mesh stainless steel screen to reduce shock wave and drift, yet prevents bottom sediments and organisms from escaping. When the line slackens, which means you've attained the depth desired, the pinch-pin pops out, and you're ready to take your sample.

7. Take your sample. When the grab reaches the bottom, allow a moment for it to sink into the sediments. Then slack off on the cable. Letting the cable go slack serves to release tension on the upper bar, permitting the movement that allows the horizontal locking bar to drop out of the locking notch. Now the tension on the cable is resumed to exert a closing motion, transmitted mechanically through the bars and to the jaws of the grab. This mechanical action, plus the force exerted downward by the weights bolted to the jaws, tends to force the jaws deeper into the bottom as they are moving to close. The jaws' machine tapered butting edges add to the ease of movement through bottom materials.

8. Maintain tension on the cable by operating the winch to close the sampler and raise the apparatus back to the surface. This should be a steady, relatively slow lift. Closing should occur over 90% of the time. If it does not, inspect all moving parts for cleanliness and ease of movement. Clean and adjust as necessary.

9. Remove the sample. When the grab reaches the surface, lift it clear and swing it inboard to a position over a tub placed to receive the sample. The Petite Ponar® sample is designed for use with the Wildco® 190-E25 wash bucket. Either the Ponar® or Petite Ponar® grabs may be used with the Wildco® Wash Frame 188-E50 Rinse with clean water.

10. Taking care to stay clear of the edges of the grab jaws, open the sampler and discharge the sample into the tub. Samples should be screened, sieved, separated, bottled, labeled and otherwise processed for analysis and classification studies by the standard procedures outline for the work in progress.

11. If specimens are not analyzed at once, place them in a labeled plastic bag or jar for later.

12. At the end of sampling operations, replace the "Safety Pin" to prevent accidental closing of the grab jaws in handling or shipping. Then wash and inspect the grab and make necessary repairs or adjustments in preparation for the next use.

- There are many other ways to process samples, depending upon the reason for taking it.

Bottom Sampling Criteria:

The requirements of bottom sampling are so diverse that no one sampler has been devised which will serve all purposes. For preliminary or reconnaissance work, certain simple forms of samplers may be used in most situations. For more precise work, however, the instrument must be chosen in accordance with the particular needs of the program and the structure of bottom materials. Considerations include:

- General purpose of the project as a whole
- Nature of the bottom - kind of materials and degree of uniformity
- Types of analyses to be made
- How the results will be used

Important to the success of the project is the taking of samples that are accurately representative of the entire area. Since no two sampling projects are identical as to physical properties and problems encountered, no predetermined guidelines can be formulated to assure this. Therefore you must relay upon the experience and expertise of the people doing the sampling.

Individual sample size must also be determined by sampling methods used and the physical character of bottom materials.

General types of sampling techniques include:

- Horizontal sampling over the selected area. This may be performed by the random sampling method or by distribution of individual samples along transects planned in advance.
- Vertical, seasonal and special sampling require advance planning dictated by work objectives.
- To take small sub-samples, keep the scoops closed and slide open the top screen. Then push several small diameter clear plastic tubes through the collected sample down to the scoops. Withdraw the tubes and throw back the balance of the sample.

Maintenance:

1. Keep lightly oiled and/or greased! Lever arm pivots and the big hinge pin use an automotive grade grease or oil. Clean and adjust for smooth and easy motion.

- Tip: When the bottom grab is out of service for a prolonged length of time, we recommend applying a coat of oil or other rust barrier to protect the unit's metal surfaces. Coat all surfaces, joints, bolts and stud-bolt holes if these are to be left open.

2. Daily Cleaning: Thoroughly rinse with fresh water to remove any residue chemicals after each sampling session, with particular care after use in salt or acid water. Do the same with all equipment - cable, crane, winch, boats etc.

- Never store any aquatic sampling instrument while wet or damp. Always allow to air dry completely. Otherwise mildew or rust may form.

3. Wash the grab after each sample drop; at the close of the day, give the entire apparatus a thorough washing with fresh water.
4. Inspect the cutting edges after each sample drop. Severe nicks or dents may require reworking these edges to assure a good cutting action and tight closure.
5. Removable top screens: During your last washing, before storing your Ponar® grab, remove the two top screens and wash out any dirt or debris from the slots they slide in. You can adjust the tension of the top screen by increasing or decreasing its twist. Hold by the short sides, twist as needed.
6. Hard Water Scale: After extensive sampling in hard water, calcium carbonate and other insoluble particles may build up. Remove these by soaking the entire sampler in a 3 N solution of

nitric, sulfuric or hydrochloric acid. These solutions will remove the scale without damaging the metal or plastic parts. Limit soaking time to 30 minutes. Rinse thoroughly. Check it carefully by eye. Repeat as necessary.
If needed, the side plates and underlip can be removed, unscrewed, straightened by hammering and replaced.

Accessories:

The following accessories are manufactured by Wildlife Supply Company for express use with the equipment you have bought. As always, we recommend purchase of crucial replacement parts before your sampling session.

- Aircraft Cable 61-B14, 100 ft.
- Wash Frame 188-E10
- Winches 66-C10

Standard Ponar® (1725-F10; 1725-F50)
Replacement Parts
It is strongly recommended that replacement parts be purchased before going into the field. In this way you need not lose precious sampling time waiting for critical parts. We particularly recommend purchase of additional parts identified with an asterisk (*)

1725-K15 Ponar® replacement screen, stainless steel, pack of 2
1725-L12* Ponar® heavy release pin with spring and chain*
1726-G12 Ponar® weights, extra 2# each, 4 per set
1726-G52 Ponar® weights, stainless steel, 2# each, 4/set
1725-L20 Replacement flap and retainer with screw set

Note: Additional weights are good for hard bottoms, when you more weight to penetrate.