



TYPES OF SAMPLERS

- Depending upon the area ratio
 - Thick wall sampler
 - Thin wall sampler
- Thick wall samplers :-Used for obtaining disturbed but representative soil samples.
 - Area ratio $> 10\%$
- Thin wall samplers :-Used for obtaining undisturbed samples.
 - Area ratio $< 10\%$



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TYPES OF SAMPLERS

Depending upon the mode of operation

- 1. Open drive sampler**
- 2. Piston sampler**
- 3. Rotary sampler**

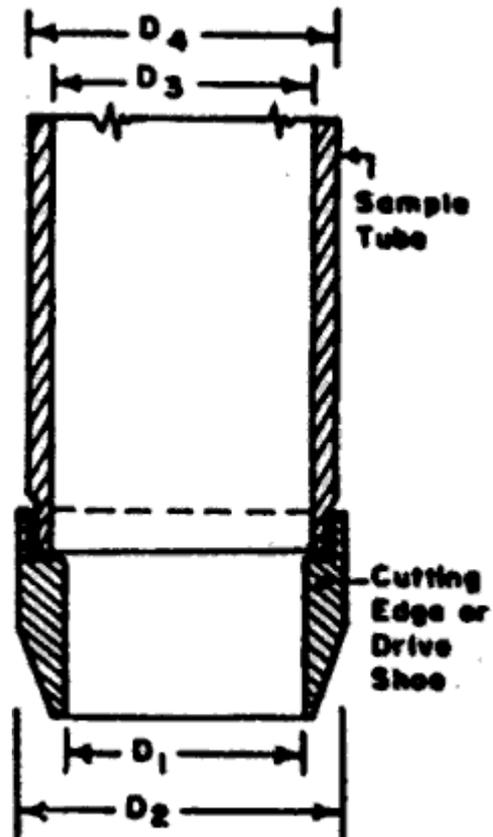


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Open drive sampler





Open drive sampler

- **Undisturbed samples are obtained from boreholes by open drive samplers.**
- **Open drive samplers consist of thin walled tubes which are pushed or driven in to the soil at the bottom of the hole and then rotated detach the lower end of the sample from the soil.**
- **Most soft or moderately stiff cohesive soil can be sampled without extensive disturbance in thin walled seamless steel tubes having diameter not less than 50 mm.**



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- **The lower end of the tube is sharpened to form a cutting edge and the other end is machined for attachment to the drill rods.**
- **The entire tube is pushed or driven in to the soil at the bottom of the hole and is removed sample with inside.**
- **The two ends of the tube are then sealed and sample shifted to the laboratory**



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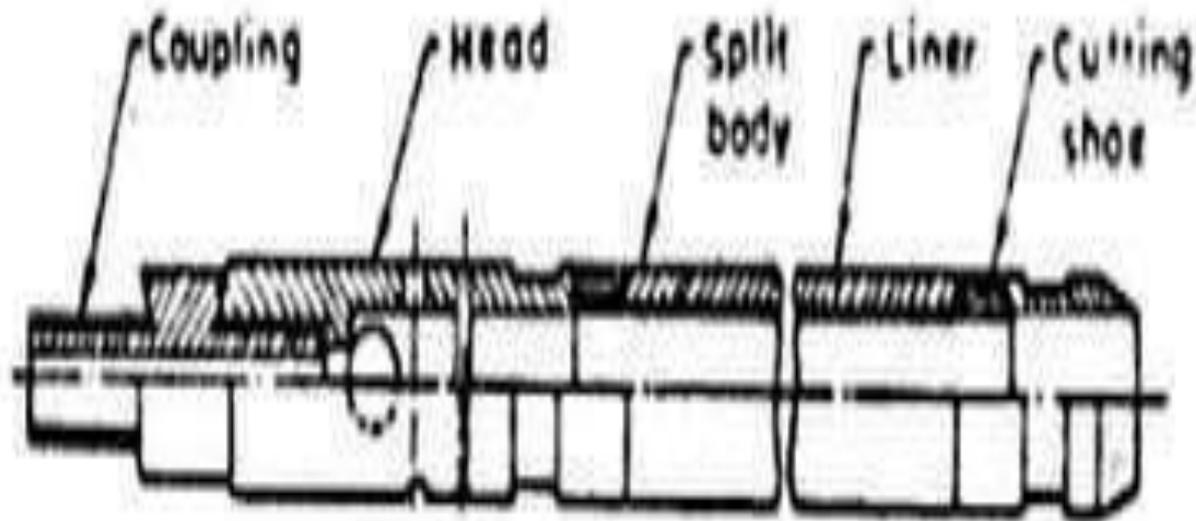
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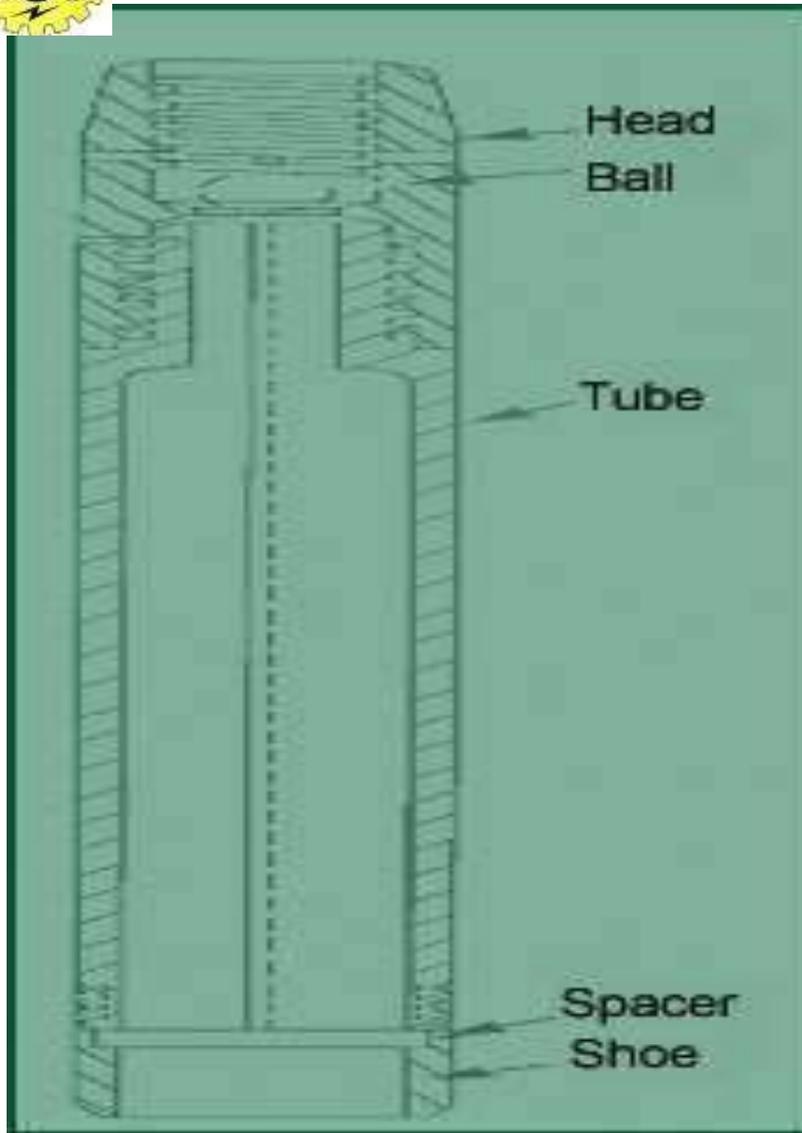
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SPLIT SPOON SAMPLER

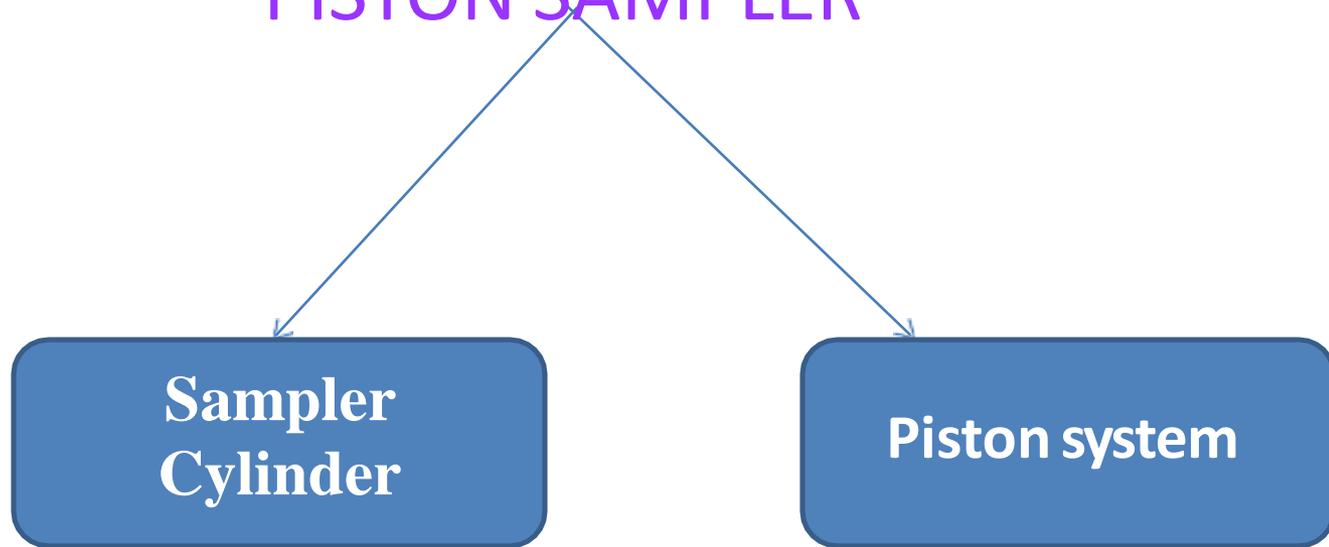


(a) Assembly of split spoon sampler





PISTON SAMPLER





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- **The piston fits tightly in the sampler cylinder.**
- **Good quality undisturbed samples are obtained from piston samplers which use thin –walled sampling tubes with a piston inside.**
- **The tube is being lowered to the bottom of the drill hole, the piston rods and piston are held at the bottom of the sampler by means of a drill rod which rises to the top of the bore hole.**
- **The presence of the piston prevents excess soil from squeezing in to the tube and thus, maintains the integrity of the sample.**



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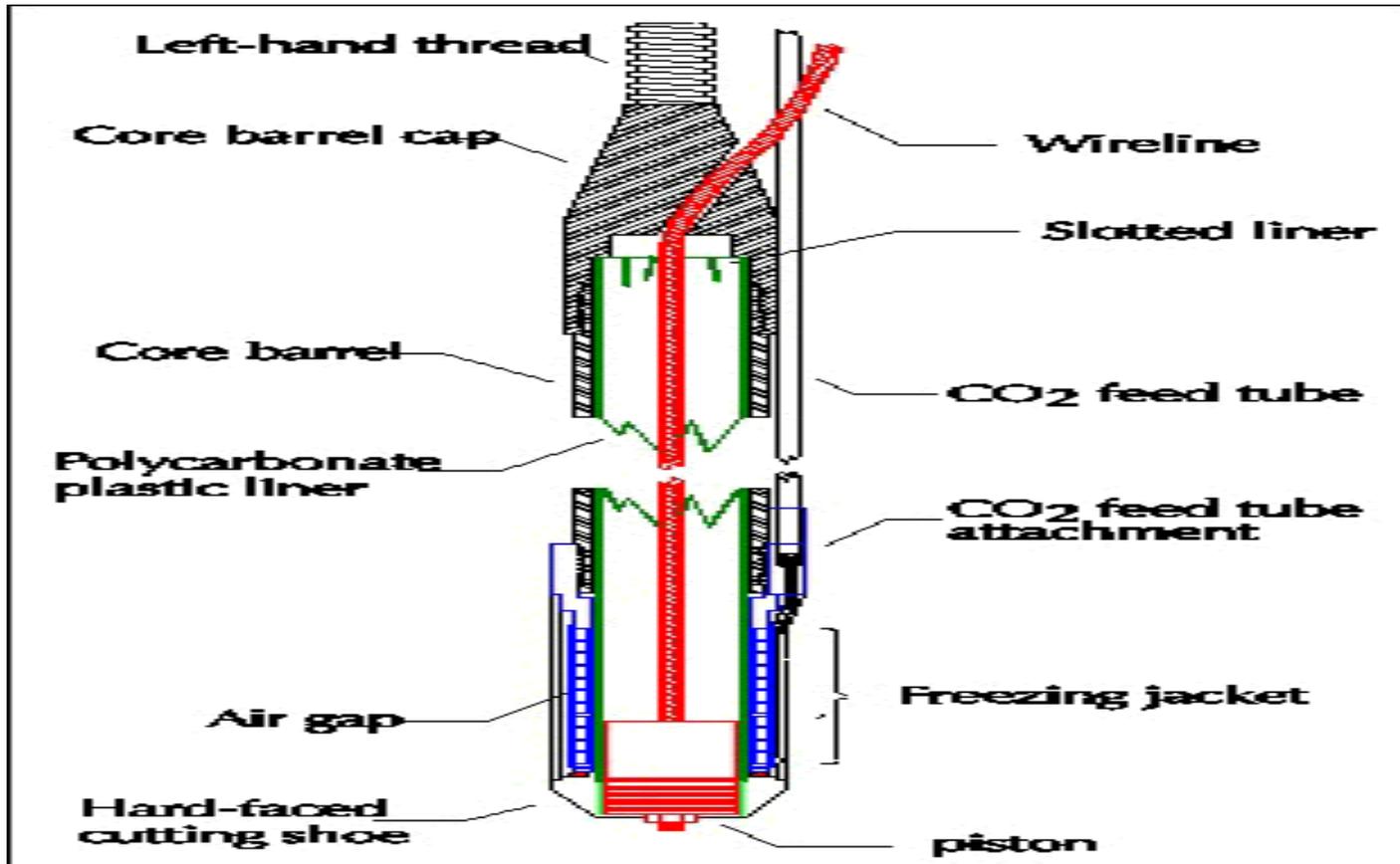


Figure 1. A cross-sectional view of the sample-freezing drive shoe attached to the Solinst core barrel. The scale is broken; the sampler is about 6.5 ft (2 m) long and 3 in. (75 mm) in diameter.



ROTARY SAMPLER

- **A Rotary Sampler is a double –walled tube sampler with an**
 - **inner removable liner.**
- **The outer tube or the rotating barrel is provided with a cutting bit.**
- **The bit cuts an annular ring when the barrel is rotated.**
- **The inner tube which is stationary, slides over the cylindrical sample cut by the outer rotating barrel. The sample is collected in the inner liner**
- **Rotary samplers are useful for sampling in firm to hard cohesive soils and particularly in rocks**



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