

HARVARD MINIATURE COMPACTION APPARATUS



The **S3521** Harvard Miniature Compaction Apparatus is used for moisture density tests of soils using small samples and duplicating the sheepsfoot roller type of compaction. The apparatus is furnished with a specimen ejector, collar remover with spacer plate, mold holder, mold and collar, compaction tamper with 20 lb. and 40 lb. spring and instructions. The mold is machined from seamless tubing and has a volume of $1/45 \text{ ft}^3$ and is 1.3"

I.D. by 2.816" H. The apparatus is designed so the collar remover and specimen ejector are incorporated into one assembly.

MODELS	DESCRIPTION
S3521	HARVARD MINIATURE COMPACTION APPARATUS

ACCESSORIES	DESCRIPTION
S3524	EXTRA MOLD, HOLDER, COLLAR
S3525	EXTRA MOLD SET
S3527	EXTRA MOLD HOLDER
S3529	EXTRA SOIL TAMPER

MINIATURE PERMEAMETER



This unit has a diameter of 1.3" and a volume of $1/454 \text{ ft}^3$ which is the same as the above mentioned **S3521**. The base has water inlet/outlet connections and is furnished with a porous stone. Head has pipette assembly, holder and graduated rule.

MODELS	DESCRIPTION
S3531	MINIATURE PERMEAMETER

ACCESSORIES	DESCRIPTION
S3532	EXTRA POROUS STONE

SAND CONES

The sand cone density test is a simple in-situ procedure for determination of soil density. The test is performed by removing and weighing an amount of soil, determining the moisture content, filling the hole with calibrated sand from a sand cone and computing the volume of the hole from the weight of sand used. Dry density and moisture content are reported. The sand cones are available in two sizes, 4" and 6-1/2" diameter openings. They are constructed entirely of brass to prevent corrosion. The 4" sand cones are furnished complete with a 2 quart glass jar. The 6-1/2" sand cones are furnished complete with a 1 gallon plastic jar. The **S3621** 12" Sand Cone is for determining the density of soils with large aggregates (AASHTO T-181) and is an alternative to AASHTO T-191. This sand cone is furnished with a control valve, aluminium rings, supports, aluminum container with plastic viewing insert, and aluminum base plate. The **S3631** Direct Reading Sand Cone reduces time, work and expense of the test and exceeds required standards. The cylinder is graduated from 0.4 to $.110 \text{ ft}^3$ by .002 readable to about .0005. Also furnished with a soil tray which is not pictured. Also available **X6711** & **X6721** Ottawa Sand which is specifically graded for ASTM tests. The **X6711** is 20-30 mesh which meets ASTM C-778, D1556 and AASHTO T-132 while the **X6721** is 16-100 mesh meeting ASTM C-778 and AASHTO T-106. **X6731** Density Sand is clean, dry, uniform, uncemented, durable and free flowing. Few particles pass a #200 sieve or are retained on a #10 sieve.



S3615 W/ SOIL TRAY



S3631

MODELS	DESCRIPTION	STANDARDS
S3611	SAND CONE & JAR, 4"	ASTM D-1556 / AASHTO T-181, T-191
S3615	SAND CONE & JAR, 6-1/2"	
S3621	SAND CONE & JAR, 12"	
S3631	DIRECT READING SAND CONE	

ACCESSORIES	DESCRIPTION
S3612	EXTRA JAR FOR S3611
S3617	EXTRA JAR FOR S3615
S3641	SOIL TRAY FOR S3611
S3645	SOIL TRAY FOR S3615
X6711	OTTAWA SAND, 20-30 MESH
X6721	OTTAWA SAND, 16-100 MESH
X6731	DENSITY SAND