

Standard Compaction Kit

ASTM* D 698, D 1557

* See Standards Buyer's Guide at www.DGSI.info/3000.



S-31000 Standard Compaction Kit 100 lb

Set Includes

S-310	5.5 lb Compaction Hammer, 12 in (30.5 cm) drop
S-320	4 in Compaction Mold
S-329	Sample Ejector
S-35710	Straight Edge, beveled
G-30010	Pan, sheet metal, 24 x 24 x 3 in
P-47000	Screen Tray, #4
G-29101	Spoon, stainless steel
G-29202	Scoop
G-510	Rubber Mallet
G-341	Water Bottle
G-30015	Mixing Bowl, stainless steel
G-312	Sample Container, 4 qt HDPE pail w/ lid (4 ea.) (not shown)

For Coarse Grain Soils, Add

S-326	6 in Compaction Mold
P-47008	Screen Tray, 3/4 in
P-47004	Screen Tray, 3/8 in

For Modified Proctor (ASTM D 1557), Add

S-311	10 lb Compaction Hammer, 18 in (45.7 cm) drop
S-326	6 in ID Compaction Mold

Scales

GW-130	Avoirdupois Multipurpose Scale
OR GW-131	Metric Multipurpose Scale
OR GW-152	General Purpose Scale, 15000 g / 33 lb cap. 0.5 g / 0.001 lb readability

Ovens

GO-220	Bench Oven, 7.0 cu ft (see p.111 for details)
OR GO-216	Double-Wall Utility Oven, 115 V (for Atterberg limits) (see p.111 for details)

Compaction Molds and Rammers

Model S-310 ASTM*: D 558, D 559, D 560, D 698

Model S-310 AASHTO*: T 99, T 134, T 135, T 136

Model S-311 ASTM*: D 1557

Model S-311 AASHTO*: T 180

* See Standards Buyer's Guide at www.DGSI.info/3000.

GUIDE FOR SELECTING MOLDS AND RAMMERS

Compactive Application	ASTM Std.	Mold Model	Hammer Model
Standard Proctor	D 558, D 559, D 560, D 698, Method A or B	S-320, S-321 S-322	S-310
Standard Proctor or CBR*	D 698, Method C or D	S-326, S-327	S-310
1 7/8 in (48 mm)	D 1557 Method A	S-320, S-321 S-322	S-311
Modified Proctor	D 1557 Method B	S-326, S-327	S-311
Modified Proctor or CBR*	D 1557 Method C or D	S-326, S-327	S-311

* CBR mold requires the use of spacer disc.

Soil Compaction Molds

The DGSI compaction molds for soil conform to ASTM and AASHTO Standards. They are used with the Automated Soil Compactor or manual soil compaction rammers. Made from zinc plated steel, they have a 2-in. (10.2 cm) collar, base plate and studs with wing nuts for easy dismantling.



Soil Compaction Molds, S-300 series

Soil Compaction Molds

Model	Description	Weight
S-320	4 in ID Compaction Mold, 1/30 ft ³ (.95 cm ³) capacity, 4.584 in high	13 lb
S-321	4 in Tapered Compaction Mold, 1/30 ft ³ (.95 cm ³) capacity, 4.584 in high	13 lb
S-322	4 in ID Split Compaction Mold, 1/30 ft ³ (.95 cm ³) capacity, 4.584 in high	15 lb
S-325	6 in Split Compaction Mold, .075 ft ³ (2.2 cm ³) capacity, 4.584 in high	18 lb
S-326	6 in ID Compaction Mold, .075 ft ³ (2.2 cm ³) capacity, 4.584 in high	18 lb
S-327	6 in ID CBR Compaction Mold, 7 in high	20 lb
S-328	6 in ID LBR Compaction Mold, 6 in high	19 lb
S-319	6 in ID Split Compaction Mold, 6 in high, Soil Cement	19 lb

Related Items

S-32710	Spacer Disc for S-327 Mold, 5 7/8 in dia. x 2.416 in high
S-32810	Spacer Disc for S-328 Mold, 5 7/8 in dia. x 1.416 in high
S-329	Sample Ejector for Compaction Molds
S-35710	Straight Edge, ground with beveled edge

Sleeve Compaction Rammer

Model S-310 ASTM*: D 558, D 559, D 560, D 698
Model S-310 AASHTO*: T 99, T 134, T 135, T 136

All rammers have a 2-in dia. face. They are provided with a loosely fitting guide sleeve to control drop height without restricting the free fall of the weight. The weight is mounted on the end of a rod. Guide sleeves have four vent holes at each end to allow free air flow during use.



S-311, top, and S-310, bottom

S-310	Sleeve Compaction Rammer, 5.5 lb (2.5 kg), 12 in (30.5 cm) drop	10 lb
S-311	Sleeve Compaction Rammer, 10 lb (4.5 kg), 18 in (45.7 cm) drop	20 lb

Sample Ejector

The DGSI Sample Ejector provides fast extrusion of soil samples from compaction molds. This Ejector may also be used to remove samples from CBR/LBR molds, Marshall molds and Thin-wall Sampler tubes 6-in long.

Standard Features:

- Rugged all steel construction.
- Hydraulic Jack with 6,000 lbf (27 kN) force.
- Adaptor Plates and Pistons available in alternate sizes for other applications.
- Quick-change height adjustment.
- Hydraulic piston, manual.



S-329

S-329	Sample Ejector with upper plate and piston for 4- and 6-in molds	50 lb
Related Items		
S-32924	2.8 in adapter plate and piston (for 3-in Shelby tube extraction)	

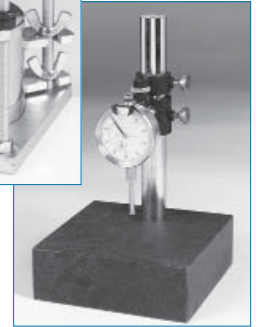
Georgia Swell Mold Device

Georgia Test Method GDT-6

The S-324 Mold and related accessories are designed to meet the specifications of Georgia test method GDT-6, "Method of Test For Determining Volume Change of Soil". The S-324 Mold meets the specifications for both the "Swell" and "Shrinkage" molds.



S-324



E-885 with E-814

The S-32402 Gauge Block is used to "zero" the dial indicator (part # E-814) when the indicator is placed either in the Dial Indicator Holder with Granite Base (part # E-885), or the Cross Head Reference Bar (part # S-32401). The specification also calls for a Nr. 1 qualitative, 4-in dia. paper (S-32405).

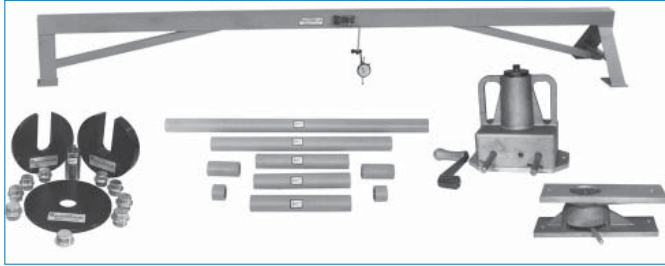
S-324	GA DOT Volume Change Mold, 4 in Mold Assembly with Perforated Base Plate	10 lb
Accessories		
S-32401	Cross-Head Assembly	
S-32402	Gauge Block	
S-32405	Filter Paper, 4 in diameter, # 601	
E-885	Dial Indicator Holder with Granite Base	
E-814	Dial Indicator, 1 in travel with 0.001 in readability	
Related Items		
S-310	Compaction Hammer, 5.5 lb (standard)	
S-35710	Straight Edge	
GO-220	Portable Bench oven, 300 °F, 115 V	
Replacement Items		
S-32412	Shrinkage Mold for GA DOT vol. change mold	
S-32413	Base plate for GA DOT vol. change mold	
S-32414	Adjusting nut for GA DOT vol. change mold	

Proctor Penetrometer Test Set

ASTM D 1558 See Standards Buyer's Guide at www.DGSI.info/3000.

The S-172 serves as a rapid field test to determine the approximate amount of moisture in the soil. It is used with Methods A and B of Test Method D 698 to develop relationships between moisture content, density and penetration resistance. The set includes a spring dynamometer with a scale on the stem of the handle graduated from 10 lb to 130 lb and nine interchangeable needles in a wooden box with carrying handle.

S-172	Proctor Penetrometer Set	32.0 lb
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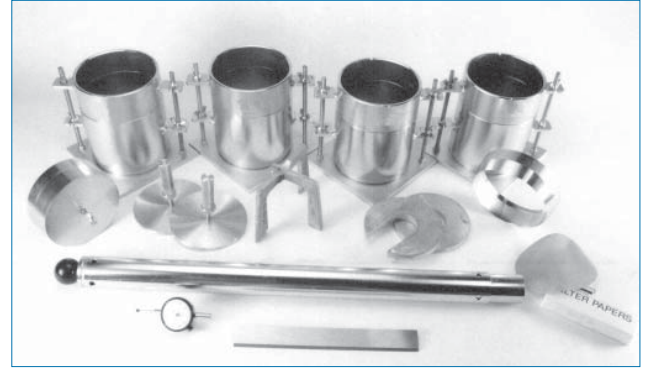


S-180

Field CBR Test Set

ASTM D 4429

The DGSI Field CBR Test Set follows the U.S. Army COE (with optional 3-speed jack) and ASTM recommendations. The set includes a two-speed 10,000 lbf (45 kN) Mechanical Jack, swivel head, an 8 ft long Dial Support Bridge, Piston, Piston Extension and Connector sets. The Penetration Dial Gauge is provided with a magnetic holder. Three Surcharge Masses, a Surcharge Plate and Proving Ring with Dial Indicator completes the Set.



S-350

Laboratory CBR Test Set

ASTM* D 1883 * See Standards Buyer's Guide at www.DGSI.info/3000.

A convenient package of the apparatus needed for CBR/LBR Testing. It may be used with either the motor driven S-610 Unconfined Compression Load Frame, S-611 Automated Load Frame or the S-360 Hand Operated CBR/LBR Load Frame.

S-180	Field CBR Test Set	310 lb
Set Includes		
E-281	Adapter (2) for Proving Ring	
S-18020	2 x 4 in Penetration Piston	
S-18030	CBR Extension Rod Set, includes one (1) 4, 12, 24 and 36 in rod (one of each, 4 total)	
S-18031	Field CBR Connector Set	
S-18040	CBR Bridge Support	
E-880	Magnetic Gauge Holder	
E-812	Penetration Dial Indicator, 1 in travel, 0.001 in, CCW	
S-18050	Circular 10 lb Surcharge Mass	
S-18060	Slotted 10 lb Surcharge Mass	
S-18070	Slotted 20 lb Surcharge Mass	
S-18005	10,000 lbf 2-Speed Jack (ASTM), 2 in travel	
S-18006	Swivel Base for 2-Speed Jack S-18005	
E-716	10,000 lbf Proving Ring w/ Dial Indicator	
Related Items:		
S-18010	3-Speed Jack (COE), 2 in travel, 10,000 lbf	
S-18011	Swivel Base for 3-Speed Jack S-18010	
E-712	Proving Ring, 2,000 lbf	
E-715	Proving Ring, 6,000 lbf	

S-350	Laboratory CBR Test Set	175 lb
S-35099	Laboratory LBR Test Set	175 lb
Set Includes		
For CBR Test Set		
S-327	(4) CBR Molds, 6 in (15.2 cm) ID	
S-32710	CBR Spacer Disc, steel 5-15/16 in (13.1 cm) x 2.416 in (61 mm)	
S-359	CBR Filter Papers, #613, box of 100	
S-352, S-353, S-354, E-814, S-355A, S-356A, S-311, S-35710 as described below		
For LBR Test Set		
S-328	(4) LBR Molds, 6 in (15.2 cm) ID	
S-32810	LBR Spacer Disc, steel 5-7/8 in (14.9 cm x 1.416 in (36 mm)	
S-35910	LBR Filter Papers, #631, box of 100	
S-352, S-353, S-354, E-814, S-355A, S-356A, S-311, S-35710 as described below		
S-352	(4) Filter Screens, #100 brass, 5-15/16 in (15.1 cm) dia.	
S-353	(4) Swell Plates, 5-7/8 in (14.9 cm) dia.	
S-354	Aluminum Tripod Attachment for use with the Swell Plate	
E-814	Mechanical 2-3/4 in Dial Indicator, 1 in x 0.001 in divisions	
S-355A	(4) Surcharge Weights 5-7/8 in (14.9 cm) OD	
S-356A	(4) Slotted Surcharge Weights, 5-7/8 in (14.9 cm) dia.	
S-311	10 lb Compaction Hammer	
S-35710	Straight Edge, ground with beveled edge	
Accessories not included in set		
S-357	Steel Cutting Edge, tubular, 6 in (15.2 cm) ID, hardened	
C-253	Metal Curing Tank, 137 gal (519 L) capacity, 24 x 24 x 60 in (0.6 x 0.6 x 1.5 m)	
C-254	Metal Curing Tank, 300 gal (1136 L) capacity, 36 x 96 x 24 in (0.9 x 0.6 x 2.8 m)	

See p.52 for the Sample Ejector which may be used to remove samples from CBR/LBR molds, Marshall molds and thin-wall sampler tubes 6-in long.

Automated Soil Compactor

Uniform, consistent and safe compaction for quality test results — layer after layer.

**ASTM* D 558, D 559, D560, D 698, D 1557
AASHTO* T-99*, T-134, T-135, T-136, T-180**

* See Standards Buyer's Guide at www.DGSI.info/3000.



S-333 Automated Soil Compactor shown with hammer and mold. (hammers and molds sold separately).

The S-333 Automated Soil Compactor provides uniform, consistent and safe mechanical compaction of Proctor and CBR samples for quality test results in the laboratory. Mechanized compaction minimizes inconsistencies and operator errors associated with hand compaction and frees the operator for other tasks.

Benefits:

- Soil layers are uniformly compacted, every time.
- Conformity to ASTM and AASHTO standards for hammer drop height is assured because the hammer lift compensates for changing sample height.
- Display shows number of layers and blow counts per layer to prevent common causes of operator errors. Blows can be pre-set in memory and automatically stop the machine.
- Changing hammer drop height (to accommodate alternate test requirements) is simple and very quick — just insert a couple of spacers and you're ready. 12 or 18 in drop.
- Safety operation — fully enclosed drive mechanism, locking mechanism to prevent the hammer from falling when the machine is OFF, and emergency shut-off button.
- Rotating base accepts molds from a variety of manufacturers.
- Works with standard, CBR and LBR molds.

 For more information please visit www.DGSI.info/3093

SPECIFICATIONS

Lift Mechanism	Self-tensioning chain drive
Drop Height	Adjustable, 12 in (305 mm) or 18 in (457 mm)
Hammer Clearance	11 in (279 mm) between hammer face and rotating mold base
Control Panel	Machine: Emergency "Off" button; jog switch, reset switch; Start and Stop buttons.
Display	LED displays number of layers and blow counts.
Compaction Rate	26 blows per minute
Power Supply	1/3 hp (0.25 kW) motor 7 A at 115 V or 3.5 V at 220 V
Oper. Temp.	32 to 150 °F (0 to 65 °C)
Dimensions and Volume:	
Footprint	25 x 23 in (635 x 584 mm) W x D
Max. Height	48 in (1.22 m) without hammer shaft extended. 84 in (2.13 m) with 7" soil and shaft extended.
Total Ship. Vol.	57.4 ft ³ (1.62 m ³)
Weight:	
Total Ship. Wt	384 lb (175 kg)

ORDERING INFORMATION

S-333	Automated Soil Compactor, 110 V, 60 Hz. Order hammer(s) separately.	385 lb
S-33310	Automated Soil Compactor, 220 V, 60 Hz. Order hammer(s) separately.	385 lb

Accessories:

S-33360	Cam Mold Clamp Assembly (2 required)	3 lb
S-320	4 in (102 mm) Compaction Mold	13 lb
S-32013	Mold Base 4 in	5 lb
S-326	6 in (152 mm) Compaction Mold	18 lb
S-32613	Mold Base 6 in	8 lb
330302	Mold Base Tie Rod	1 lb

Hammers: At least one hammer must be selected.

S-33380	5.5 lb (2.5 kg) Hammer with Round Face	7 lb
S-33385	5.5 lb (2.5 kg) Hammer with Pie-shaped Face	7 lb
S-33390	10 lb (4.5 kg) Hammer with Round Face	14 lb
S-33395	10 lb (4.5 kg) Hammer with Pie-shaped Face	14 lb
S-33020	Calibration Kit. Meets ASTM D 2168	
S-33050	Lead Calibration Cylinders, 100/pack	

Related Items:

S-329	Sample Ejector	
S-35710	Straight Edge, Beveled	
G-30010	Pan, sheet metal, 24" x 24" x 3"	
P-47000	Screen Tray, #4, 14 3/4" x 22 3/4"	
G-29202	Scoop	
G-510	Rubber Mallet	
G-341	Water Bottle	
G-30015	Stainless Steel Mixing Bowl	
GW-120	Heavy Duty Solution Balance. Other balances available — see Section 6, Laboratory Equipment.	
GO-215	Double Wall Utility Oven, 115 V. Other ovens available — see Section 6, Laboratory Equipment.	
GO-220	Bench Oven, 7.0 ft ³	
For Coarse Grain Soil Add:		
P-47008	Screen Tray, 3/4", 13 3/4" x 22 3/4"	
P-47004	Screen Tray, 3/8", 13 3/4" x 22 3/4"	