

Direct Shear Machine

**ASTM D 3080    AASHTO T 236**

Two similar systems are available:

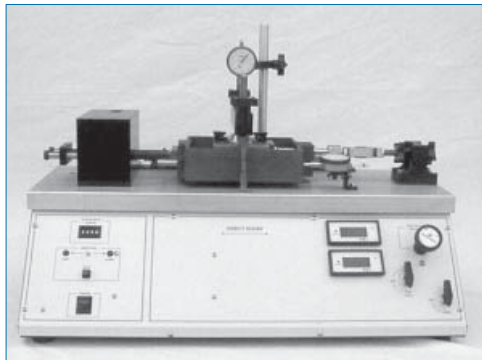
- The S-490 applies dead weight loading with optional weights. Generally considered to be more sensitive at low loads.
- The S-492 uses a pneumatic air cell to apply the vertical load. Smaller footprint. Easier to apply normal loads but requires a compressed air source. An optional kit for residual shear testing is available.

The operator sets horizontal travel with limit switches. Strain rates are set with digital thumb wheels. Horizontal loads are displayed on a panel-mounted E-405 Smart Digital Readout with RS-485 output. The units are compact and self contained.

The S-490 has casters. The S-492 is cabinet mounted.

**Note:** To perform residual shear testing, a conversion kit (part number S-49220) is required.

**Pneumatic Direct Shear Machine, S-492,** features two pneumatic pistons to provide the vertical load to the specimen with accuracy. A small diameter rolling diaphragm piston provides small loads from 4 lbf to 100 lbf (18 to 4.5 kN). A large diameter piston provides loads up to 1500 lbf (6.7 kN).



S-492

Specifications for Dead Weight Direct Shear		
Specifications	(Dead Weight) S-490	(Pneumatic) S-492
Horizontal Movement:	2 in (5.1 cm) maximum	2 in (5.1 cm) maximum
Strain Rate:	0.00005 in to 0.2 in/min	0.00005 in to 0.2 in/min
Vertical Load:	1500 lb (680 kg)	4 - 1500 lb (1.8 - 680 kg)
Max. Horizontal Shear:	1500 lb (680 kg)	1500 lb (680 kg)
Overall Height:	54 in (137 cm)	22 in (56 cm)
Cabinet Height:	9 in (23 cm)	9 in (23 cm)
Length:	36 in (91 cm)	30 in (76 cm)
Depth:	14.5 in (37 cm)	14.5 in (37 cm)

The basic unit includes a set of 2.5 in (6.35cm) diameter stainless steel shear rings, porous stones, drainage plates and an anodized aluminum water chamber. Shear force is measured with an E-405 Smart Digital Readout (RS-485 output included) and a 2,000 lbf (8.9 kN) S-type load cell. One E-814 dial indicator for measuring horizontal displacement and one E-805 dial indicator for vertical displacement are included with the S-490.

**The Dead Weight Direct Shear Machine, S-490,** with optional kit for residual shear testing uses a dead weight system for applying the vertical load to the specimen. A 10:1 ratio beam allows the application of vertical loads up to 1411 lb (6.3 kN) depending on the weight set selected.



S-490

S-490	Dead Weight Direct Shear, 110 V	250 lb
S-49010	Dead Weight Direct Shear, 220 V	250 lb
S-492	Pneumatic Direct Shear, 110 V	190 lb
S-49210	Pneumatic Direct Shear, 220 V	190 lb

**Accessories:**

S-44901	16-Ton Weight Set for S-490
S-44902	32-kg Weight Set for S-490
S-44903	64-kg Weight Set for S-490
S-44904	32-Ton Weight Set for S-490
S-44905	88-kg Weight Set for S-490
S-49051	2-in Dia. Shear Rings
S-49052	2.42-in Dia. Shear Rings
S-49053	2.5-in Dia. Shear Rings
S-49054	4-in Dia. Shear Rings
S-49055	4-in Square Shear Rings
S-49220	Residual Shear Testing kit

**Related Items:**

E-310	Vertical Displacement Transducer, 0.5 in x 0.0001 in
E-312	Horizontal Displacement Transducer, 2 in x 0.001 in
E-405	Smart Digital Indicator
E-40504	RS-485 Output Board
E-40508	RS-485 to RS-232 Converter
E-40521	WinSAS™ Data Collecting Software
E-8000E	EZ-Daq System (US units)
E-8000M	EZ-Daq System (SI units)