

## Technical data sheet

**Item number:** 5.00027  
**MatchCode/Type:** ESD60.60  
**Designation:** Large Shear Box Device 300 x 300 mm

[www.geomation.de/en/ESD60.60](http://www.geomation.de/en/ESD60.60)

**Intrastat code:** 90248019      **Country of origin:** DE      **Net weight (kg):** 500,000  
**Drawing number:** ESD60.60-00:00.1  
**Electrical data:** 230 VAC, 50/60 Hz  
**Dimensions:** 1700 x 900 x 1500 mm (L x B x H)  
**Standards:** ISO 17892-10; DIN 18137-3; DIN EN ISO 12597-1; DIN 60009  
**Catchwords:**



The large shear box device ESD60.60 is used to determine gravel, soil and geotextiles with force and displacement-controlled tests. The load / normal stress is generated electropneumatically in this special apparatus. The shear drive is designed electromechanically.

including accessories:

- Force transducer 60 kN, accuracy 0.2% of full scale for shear force measurement
- 4 pieces force transducers 15 kN, accuracy 0.2% of full scale for load measurement
- Hose material for compressed air connection
- Power cord
- Connection cable for RS232 interface, optional Ethernet connection cable

Characteristics:

- device for direct shear tests according to ISO 17892-10 (formerly DIN 18137-3) and DIN EN ISO 12597-1 (with geotextiles)
- optional pull-out tests with geotextiles / geogrids according to DIN 60009 (additional accessories required)
- vertically guided, tilt-free upper shear frame thanks to double roller bearing guide (in standard version); optional: upper shear frame with self-aligning bearing, allows the upper shear frame to be tilted
- regulated electropneumatic precision drive for generating the normal stress in the shear gap, precisely regulated via 4 load sensors (control deviation <math><0.5\text{ kN/m}^2</math> from 5 kN/m<sup>2</sup> over the entire load range)
- regulated electromechanical drive to generate the horizontal shear stress
- frictional connection between normal stress generation an upper shear frame to compensate for wall friction in the upper shear frame; the normal stress in the shear gap is measured and regulated
- water box for flooding / saturation the sample
- shear tests can be realized with a fixed shear gap or with a minimum shear gap (due to the vertically movable upper shear frame)
- carrying out shear tests with either a constant or variable shear area
- automatic shear surface correction can be activated by the user
- precise settlement and shear path measurement with digital dial gauge, resolution 1 μm, as option
- serial interface for PC-controlled testing with data logging using a standard-PC with the software GeoDESC, optional with Ethernet-interface
- cyclical recording and displaying of all measured values in the GeoDESC program after the start of the test and transferring the data to Microsoft EXCEL for extended evaluation and display purposes during the test
- online changing of all test parameters during the test procedure at any time
- automatic limitation of the load, pressure and external Sensors
- intuitive operation and easy handling with 4,3" touch screen with separate function keys and haptics
- manual adjustment of the shear box

Specifications:

- Dimensions of the shear box:
  - lower shear box 300 x 400 x 100 mm (WxDxH)
  - upper shear box 300 x 300 x 100 mm (WxDxH)
- dimensions: 1700 x 900 x 1400 mm (WxDxH)
- shear gap: adjustable from 0 to 35 mm
- weight: approx. 500 kg
- supply voltage: 230 VAC, 50/60 Hz
- operating pressure: 12 bar
- Connection for compressed air supply: fitting / nippel nominal width NW5
- max. shear force: 60 kN

- shear rate: 0,001 - 50,000 mm/min; "infinitely" slow due to position control in the shear box
- max. shear path: 100 mm
- sample area: 900 cm<sup>2</sup>
- max. vertical force: 60 kN (4 x 15 kN)
- max.normal stress: 620 kN/m<sup>2</sup>
- smallest controllable normal stress: 5 kN/m<sup>2</sup> (with shear box 300x300mm)

**Scope of delivery (for 1 pcs.):**

Quantity	Article-No.	Discription
1 pcs.	F.00696	load frame ELS25 - ready-to-use basic device
1 pcs.	2.00139	KAS-E60/0,2/ ZUG strain gauge load cell 60 kN - shear force - tension
4 pcs.	2.00093	KAS-E15/0,2 strain gauge load cell 10 kN - normal force -
0,5 m	E.00967	TX19 PVC fabric hose 19mm (3/4")
1 pcs.	E.00100	KGW3SW1 Mains cable with IEC plug 3m
1 pcs.	E.00104	RS232-CABL-5M Serial data cable 9-pin, RS232, length 5m
1 pcs.	F.00810	Shear box reduction for lower shear box
2 pcs.	F.01006	ESD60.60 shear gap indicator assembly
2 pcs.	F.00805	Dirt cover for sample preparation

**Recommended accessories (not included):**

Quantity	Article-No.	Discription
1 pcs.	5.00029	ESD60.60. SETT60 Set for settlement measurement (DMU60/1000)
1 pcs.	5.00031	ESD60.60.SP320 Set for shear path measurement with incremental sensor 440 mm
1 pcs.	5.00075	SBR225x225 Shear box (insert) 225x225mm for ESD60.60
1 pcs.	5.00076	SBR160x160 Shear box (insert) 160x160mm for ESD60.60
1 pcs.	5.00032	ESD60.60.PULL pull-out testing for ESD60.60
1 pcs.	5.00033	ESD60.60. GEOTEX Roller clamp module for geotextiles
1 pcs.	4.00020	KOMPR8.15 laboratory compressor 8 bar
1 pcs.	4.00052	DUE230A Pressure doubler / pressure intensifier (2:1)
1 pcs.	4.00034	FDR16 pressure regulation with filter