

119 Helpsheet



World Leaders in Computer Controlled Testing
Systems for Geotechnical Engineers and Geologists

Hardware

Load Cell Range Selection for Triaxial Testing

It is necessary to select a load cell of an appropriate capacity for the specimen that you are testing to ensure it has the correct range and will give you the best resolution.

		APPROX. AXIAL FORCE kN						
Test Specimen dia. mm	Approx. test specimen area sq. cm	Undrained test*			Drained test**			
		Undrained shear strength S_u			$c' = 0$			
		50kPa (soft)	100kPa (med. stiff)	150kPa (stiff)	$\phi' = 20^\circ$	$\phi' = 30^\circ$	$\phi' = 40^\circ$	
38	10	0.1	0.2	0.3	0.5	1	2	
50	20	0.2	0.4	0.6	1	2	4	
70	40	0.4	0.8	1.2	2	4	8	
100	80	0.8	1.6	2.4	4	8	16	
150	180	1.8	3.6	5.4	9	18	36	
200	320	3.2	6.4	9.6	16	32	64	
254	510	5.1	10	15.3	25.5	51	102	
300	720	7.2	14.4	21.6	36	72	144	
LOAD CELL RANGE		2kN	4-5kN	8-10kN	16-20kN	**** 32-40kN ****	64-100kN	250 kN

* For $f = 0$, deviator stress $D = 2S_u$

** For $c' = 0$, deviator stress $D = 2s_3'$

Values shown for $s_3' = 500\text{kPa}$
Double Values for $s_3' = 1000\text{kPa}$
Halve values for $s_3' = 250\text{kPa}$