

# CALIBRATION SYSTEMS

## Force Calibration Systems

Tovey Engineering transfer standard force calibration systems are available in sizes ranging from 20 lbf to 1 million lbf. These versatile automated calibration systems reduce calibration time and cost, permitting efficient in-house transducer calibration. Systems meet ASTM E74 required measurement uncertainty of applied forces of less than 0.005% of range, or overall measurement uncertainty of 0.025%-0.050% of reading.

### Features:

- > Systems include load frame, transfer standard load cells, hydraulic actuator, and automated control and data analysis software.
- > Durable multi-column load frames exhibit high frame stiffness, highly symmetric stiffness, exceptional alignment, and precision machining.
- > Universal fixturing allows tension and compression calibration without changeover.
- > Included metrology grade transfer standards exhibit industry leading accuracy, meeting the lowest specifications of any load cell manufacturer.
- > Systems enable fully automated calibration; exercise transducers automatically with specified forces and number of cycles.
- > Calibrate transducers in load sequences using up to thirty different load points with simultaneous measurement of up to three bridges.
- > Automated closed-loop system calculates performance parameters and performs data evaluations per ASTM E74 and/or ISO 376.
- > Model 9150 ratio-metric instruments provide excitation of 5 or 10 Voltz, signal conditioning and A to D conversion with 24 bit digital resolution and a useable resolution to < 100 nanovoltz. Linearization at up to 10 points can be performed.
- > Model TS-10-2 Transducer Simulator with 30ppm measurement uncertainty (1 year) simplifies instrument calibration and provides an instrument check standard.
- > Data files and graphs for calibration records are produced and stored.
- > Data analysis and output is compliant with national and international standards.

### Accreditations:

NVLAP Lab Code 200662-0

ANSI Z540, ISO/IEC 17025

ASTM E74, ISO 376



11K lbf Force Calibration System

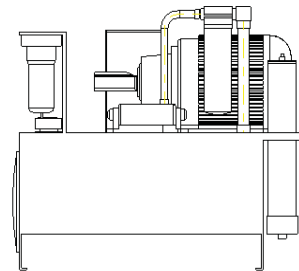
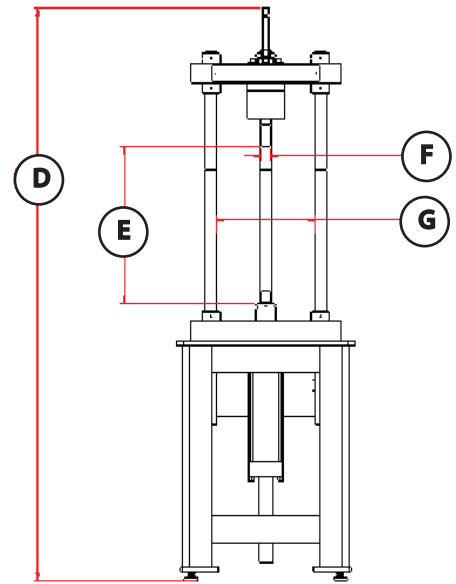
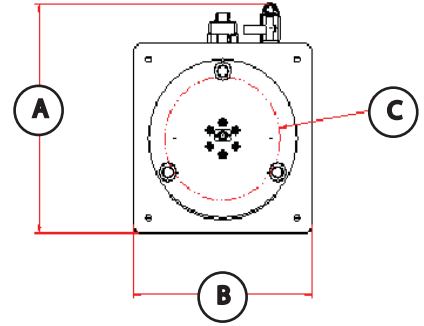


Portable 3K lbf Force Calibration System

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## DIMENSIONS

Load frames 3K-55K					
Dimension	Capacity >	3K	11K	55K	
A	Base Depth	29 in (74 cm)	29 in (74 cm)	29 in (74 cm)	
B	Base width	24 in (61 cm)	24 in (61 cm)	24 in (61 cm)	
C	Working diameter	12.9 in max (32.8 cm)	15.3 in max (38.9 cm)	14.9 in max (37.9 cm)	
D	Overall height	76 in (193 cm)	83 in (211 cm)	98 in (249 cm)	
E	Vertical working space	21.5-30.0 in (54.6 cm-76.2 cm)	21.0-30.0 in (53.3 cm-76.2 cm)	29.0-40.0 in (73.7 cm-101.6 cm)	
F	Thread size	1/2-20 UNC 3A (Both ends)	1-14 UNS 3A (Both ends)	1 3/4 -12 UN 3A (Both ends)	
G	Column opening	10.8 in max (27.4 cm)	13.2 in (33.5 cm)	12.6 in (32 cm)	
	Weight of load frame	480 lbs (219 kg)	920 lbs (419 kg)	1,380 lbs (628 kg)	
Load frames 110K-1M					
Dimension	Capacity >	110K	220K	1M	
A	Base Depth	29 in (74 cm)	36 in (92 cm)	38 in (97 cm)	
B	Base width	24 in (61 cm)	36 in (92 cm)	38 in (97 cm)	
C	Working diameter	14.9 in max (37.8 cm)	21.0 in max (53.4 cm)	34.5 in max (87.6 cm)	
D	Overall height	95 in (242 cm)	117 in (298 cm)	149 in (379 cm)	
E	Vertical working space	29.0-38.0 in (73.7 cm-96.6 cm)	28.0-41.0 in (71.2 cm-104.2 cm)	21.5-30.0 in (54.6 cm-76.2 cm)	
F	Thread size	1 3/4 -12 UN 3A (Both ends)	2 3/4 -8 UN 3A (Both ends)	6 -8 UN 3A (Head) 5 1/2 -8 UN 3A (Cyl)	
G	Column opening	12.6 in max (32.0 cm)	17.9 in max (45.4 cm)	23.5 in max (59.7 cm)	
	Weight of load frame	1,820 lbs (828 kg)	4,900 lbs (2,228 kg)	32,000 lbs (14,545 kg)	
Hydraulic pump					
Length	Width	Height	Weight	Electrical	Pressure
44 in (112 cm)	30 in (77 cm)	38 in (97 cm)	660 lbs (300 kg)	10 HP	4000 psi max (282 kg/cm)



**THE TECHNICAL LEADER IN LOAD CELLS AND FORCE MEASUREMENT**