

Force Calibration Simplified

The Universal Calibrating Machine (UCM) is a versatile, easy-to-use hydraulic-force calibration system. The machine is designed for ultimate accuracy and reliability. Capabilities include:

- Available in capacities from 10,000 to 2,250,000 lbf (50 to 10 000 kN)
- Calibrates both tension and compression force instruments
- Calibrates a wide range of force instruments
- Customizable features and dimensions based on the user's specifications and needs
- Able to calibrate instruments in accordance with ASTM E74, ISO 376, and other force standards

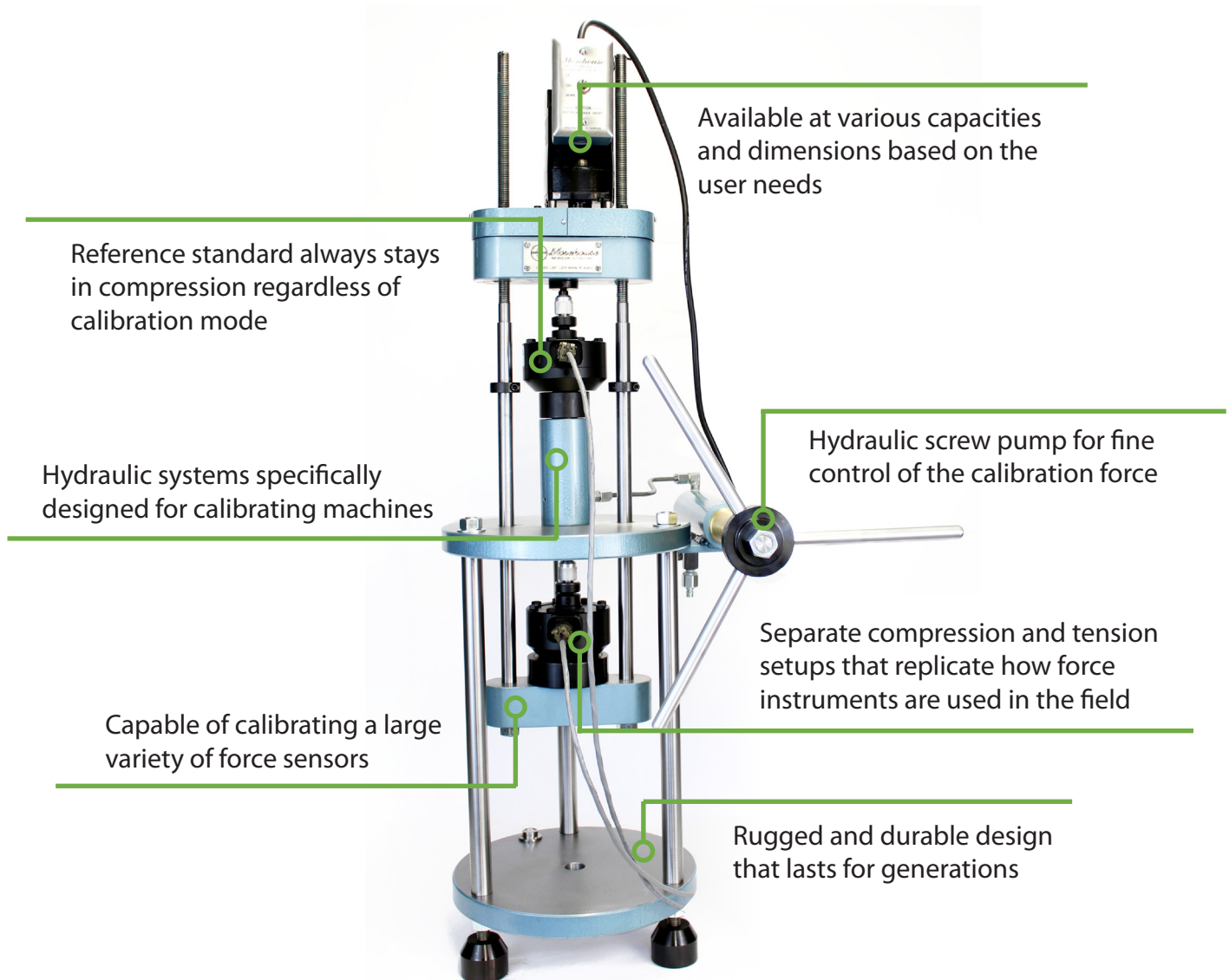


Figure 1: Morehouse Universal Calibrating Machine (UCM)



Tension and Compression Calibration

Compression calibration

- Reference standard is positioned between the jack and upper yoke
- Unit under test is placed between the upper machine platen and lower yoke

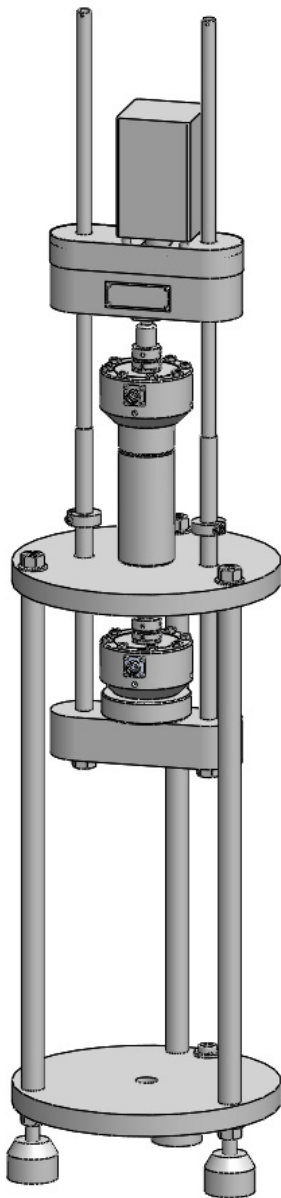


Figure 2: Typical Compression Setup

Tension calibration

- Reference standard is positioned between the jack and upper yoke
- Unit under test is connected by tension members between the lower yoke and lower platen

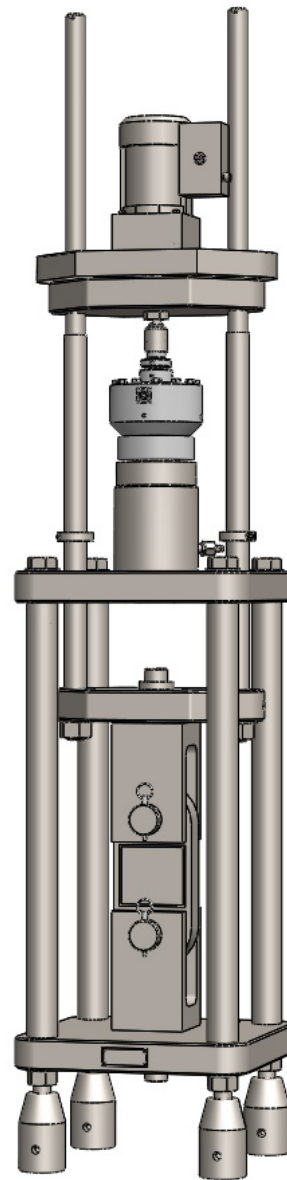


Figure 3: Typical Tension Setup

Technical Specifications

- Machine consists of three major parts: stationary frame, movable frame or yoke, and hydraulic jack
- Available in capacities from 10,000 to 2,250,000 lbf (50 to 10 000 kN)
- Two height options (01 and 02) available for smaller capacity machines (10,000 to 100,000 lbf; 50 to 500 kN)
- Calibration is in accordance with ASTM E74, ISO 376 and other internationally recognized force standards
- Calibrates a variety of difference force instruments such as load cells (general purpose, button, washer, universal, low capacity, multi-axis, miniature, S-beam, strain gage), force gauges (general purpose, digital, hand-held), proving rings, force transducers, dynamometers, crane scales, load links, and more
- Machines under 200,000 lbf (1 000 kN) capacity are supplied with a ball seat adapter
- A variety of reference standards are available to achieve the desired accuracy, quoted separately

Mechanical	
Capacities	10,000 to 2,250,000 lbf (50 to 10 000 kN) ¹
Calibration Mode	Both compression and tension
Maximum Misalignment	1/16th in. (1.6mm) over max yoke length
Unit Under Test Area	Adjustable (see dimensions)
Maximum Jack Stroke	1.0 in. (25.4 mm)
Maximum Hydraulic Pressure	5,000 psi (34 473.79 kPa)
Yoke Adjustment Speed	Approx. 2 in/min. (50.8 mm/min.)

Standard Power Requirements		
lbf Capacities	kN Capacities	Power
10,000 - 600,000	50 - 3 000	115 or 220 VAC, single phase
1,000,000	5 000	230 or 460 VAC, three phase

¹ Contact Sales for more information on capacities above 1,000,00 lbf (5 000 kN)

Table 1: UCM Specifications

Don't see what you need? Not a problem.

We make custom machines with features and dimensions to meet your requirements.

Technical Specifications

Capacity required (lbf)	Model designation ¹	Max capacity	A	L Max ²	L Min ²	M Max ²	M Min ²	Size
10,000	UCM-11xy-01	11,500	TBD	TBD	TBD	TBD	TBD	Standard
10,000	UCM-11xy-02	11,500	48.0	13.5	2.0	12.5	1.5	Compact
30,000	UCM-30xy-01	30,000	96.0	22.0	3.0	43.5	24.5	Standard
30,000	UCM-30xy-02	30,000	75.0	22.0	3.0	22.5	3.0	Compact
60,000	UCM-60xy-01	60,000	105.0	22.5	3.0	46.0	26.5	Standard
60,000	UCM-60xy-02	60,000	81.0	23.5	3.0	22.5	2.0	Compact
100,000	UCM-112xy-01	112,500	112.5	24.0	3.0	46.5	25.5	Standard
100,000	UCM-112xy-02	112,500	92.0	24.5	3.0	26.5	5.0	Compact
200,000	UCM-225xy-01	225,000	120.0	28.5	7.0	36.5	14.5	Standard
300,000	UCM-338xy-01	338,000	132.0	29.5	8.0	41.5	19.5	Standard
500,000	UCM-675xy-01	675,000	158.0	34.5	10.0	50.5	26.0	Standard
600,000	UCM-675xy-01	675,000	158.0	34.5	10.0	50.5	26.0	Standard
1,000,000	UCM-1125xy-01	1,125,000	192.5	40.0	11.0	54.0	25.0	Standard

Table 2: UCM lbf Dimensions (inches)

Capacity required (kN)	Model designation ¹	Max capacity	A	L Max ²	L Min ²	M Max ²	M Min ²	Size
50	UCM-10xy-01	44	TBD	TBD	TBD	TBD	TBD	Standard
50	UCM-10xy-02	44	1 220	340	50	320	30	Compact
100	UCM-30xy-01	133	2 440	570	80	1 110	620	Standard
100	UCM-30xy-02	133	1 900	570	80	570	80	Compact
250	UCM-60xy-01	266	2 670	580	80	1 160	670	Standard
250	UCM-60xy-02	266	2 060	600	80	570	50	Compact
500	UCM-112xy-01	500	2 860	610	80	1 180	650	Standard
500	UCM-112xy-02	500	2 340	620	80	670	130	Compact
1 000	UCM-225xy-01	1 000	3 040	720	170	920	370	Standard
1 500	UCM-338xy-01	1 500	3 360	750	200	1 050	500	Standard
3 000	UCM-675xy-01	3 000	4 010	880	260	1 280	660	Standard
5 000	UCM-1125xy-01	5 000	4 870	1 020	280	1 370	630	Standard

Table 3: UCM kN Dimensions (mm)

¹ Model designations xy are defined as:

- x = M for manual or A for automated
- y = D for domestic or E for export

² Referenced dimensions are configured with the use of Morehouse load cells as the standards.

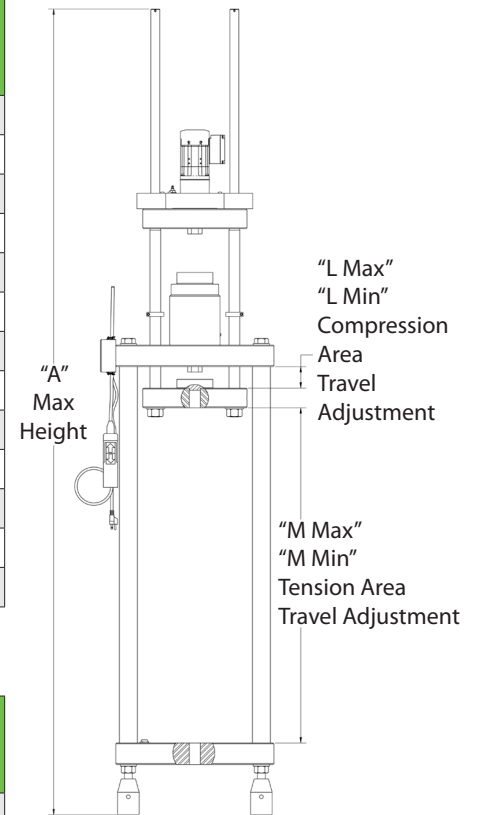


Figure 4: UCM Dimensions