



## TORBAL FB Precision Force Gauges

The FB is an affordable fully configurable force gauge designed for a wide range of tension and compression applications. No complex configuration or setup, the force gauge is intuitive and easy to use with logically arranged user menus which allow for out-of-the-box use. The unit includes all essential force measuring modes.

- ▶ Peak, Multi Peak, and Standard (Real Time) Modes
- ▶ Backlit LCD with Auto-Rotate Display
- ▶ Compression and Tension
- ▶ MicroSD (SDHC Class 4) for data storage
- ▶ USB Port Interface
- ▶ Ergonomic and Rugged Design
- ▶ Higher capacities also available on VWR.COM

**NOTE:** Supplied with microSD card, 5 chrome-plated precision attachments, extension shaft, rechargeable batteries, RS232 cable, carrying case, and power supply/battery charge.

FORCE						
VWR Cat. No.	76175-310	76175-312	76175-314	76175-316	76175-318	76175-320
MODEL	FB5	FB10	FB20	FB50	FB200	FB500
Capacity	1lbf   0.5kgf   5N	2lbf   1kgf   10N	4lbf   2kgf   20N	10lbf   5kgf   50N	40lbf   20kgf   200N	100lbf   50kgf   500N
Resolution	0.0002lbf   0.1gf   0.001N	0.0005lbf   0.2gf   0.002N	0.001lbf   0.5gf   0.005N	0.002lbf   1gf   0.01N	0.01lbf   5gf   0.05N	0.02lbf   10gf   0.1N
Sampling Rate	80Hz					
Accuracy	± 0.2% Full Scale					
Overload	200% Full Scale (Display Limit: 110%)					
Interface	USB (B Type), RS232, microSD (SDHC Class 4)					
Measuring Units	N, kgF, lbf, ozF, lb, oz, kg					
Rechargeable Batteries	4 x Ni-MH 2700mAh (included)					
Battery Operating Time	32h (LCD Backlight OFF, BT Wireless OFF)   27h (LCD Backlight ON, BT Wireless OFF)					
Power Supply	12V, 1.2A (included)					
Shaft Size	0.43"   11mm (thread M6x8mm)					
Dimensions	215mm (8.5 in) x 100mm (3.9 in) x 40mm (1.6 in)					
Unit Weight	560g (1.2lb)					
Warranty	24 months					



### TCRBAL FC Pro Precision Force Gauges

The FC is a versatile force gauge with interchangeable load cells, packed with a 1000Hz sampling rate, and built in Bluetooth connectivity. Easy to use for tension and compression applications. Includes Output and Input Mode for controlling external peripherals. Very user friendly all-purpose force tester with Peak, Multi Peak, and Standard (Real Time) Modes.

- ▶ Wireless PC Connectivity
- ▶ 1000Hz Sampling Rate
- ▶ Output and Input Modes
- ▶ Compression and Tension
- ▶ MicroSD (SDHC Class 4) for data storage
- ▶ USB Port Interface
- ▶ Backlit LCD with Auto-Rotate Display
- ▶ Ergonomic and Rugged Design
- ▶ Higher capacities and accessories available on VWR.COM

**NOTE:** Supplied with wireless dong, analog I/O cable, microSD card, 5 chrome-plated precision attachments, extension shaft, rechargeable batteries, RS232 cable, carrying case, and power supply/battery charge.

FORCE						
VWR Cat. No.	76175-326	76175-328	76175-330	76175-332	76175-294	76175-296
MODEL	FC5	FC10	FC20	FC50	FC200	FC500
<b>Capacity</b>	1lbf   0.5kgf   5N	2lbf   1kgf   10N	4lbf   2kgf   20N	10lbf   5kgf   50N	40lbf   20kgf   200N	100lbf   50kgf   500N
<b>Resolution</b>	0.0002lbf   0.1gf   0.001N	0.0005lbf   0.2gf   0.002N	0.001lbf   0.5gf   0.005N	0.002lbf   1gf   0.01N	0.01lbf   5gf   0.05N	0.02 lbf   10gf   0.1N
<b>Sampling Rate</b>	1000Hz					
<b>Accuracy</b>	± 0.1% Full Scale					
<b>Overload</b>	200% Full Scale (Display Limit: 110%)					
<b>Interface</b>	BT Wireless, USB (B Type), RS232, microSD (SDHC Class 4), Analog I/O					
<b>Input / Output Port</b>	YES (THR)					
<b>Measuring Units</b>	N, kgF, lbf, ozF, lb, oz, kg					
<b>Rechargeable Batteries</b>	4 x Ni-MH 2700mAh (included)					
<b>Battery Operating Time</b>	29h (LCD Backlight OFF, BT Wireless OFF)   25h (LCD Backlight ON, BT Wireless OFF)					
<b>Dimensions</b>	215mm (8.5 in) x 100mm (3.9 in) x 40mm (1.6 in)					
<b>Unit Weight</b>	560g (1.21lb)					
<b>Warranty</b>	24 months					
<b>Power Supply</b>	12V, 1.2A (included)					
<b>Shaft Size</b>	11mm (.43 in) (thread M6x8mm)					

## TORBAL FSA Cap Torque Gauges

The FSA torque gauge offers superior performance which makes it ideal for even the most demanding production or quality control applications. Engineered with high output load cells to deliver accurate and repeatable torque measurement at all times.



- ▶ Built-in wireless
- ▶ 1000 Hz data capture
- ▶ MicroSD card for data storage
- ▶ USB and RS232 interface
- ▶ Analog I/O models
- ▶ Rugged design

**NOTE:** Supplied with microSD card, Mini USB Wireless Adapter, Clamping Posts, NimH Rechargeable Batteries AA format (4), Analog I/O Cable, RS232 Cable.

FORCE			
VWR Cat. No.	76175-342	76175-344	76175-346
MODEL	FSA2	FSA5	FSA10
Capacity	17lbf.in   0.2kgf.m   2Nm	44lbf.in   0.5kgf.m   5Nm	100lbf.in   1kgf.m   10Nm
Resolution	0.01lbf.in   0.1gf.m   0.001Nm	0.01lbf.in   0.1gf.m   0.001Nm	0.1lbf.in   1gr.m   0.01Nm
Sampling Rate	1000Hz		
Accuracy	± 0.5% Full Scale		
Overload	150% Full Scale (Display Limit: 110%)		
Interface	BT Wireless, USB (B Type), RS232, microSD (SDHC Class 4)		
Input / Output Port	YES (THR)		
Measuring Units	Nm, N.cm, kgf.m, gf.m, lbf.in		
Rechargeable Batteries	4 x Ni-MH 2700mAh, 1.2V (included)		
Battery Operating Time	14h (LCD Backlight OFF, BT Wireless OFF)   11h (LCD Backlight ON, BT Wireless OFF)   8h (LCD Backlight ON, BT Wireless ON)		
Power Supply	12V, 1.2A (included)		
Sample Diameter Range	0.79in to 7.09in (20mm to 180mm)		
Dimensions	13.6in x 9.3in x 6.3in (345mm x 236mm x 160mm)		
Unit Weight	11.3lb (5.1kg)		



## TORBAL FSB and FSC Torque Gauges

High precision torque gauges designed for clockwise and counterclockwise testing (FSB), and advanced precision torque testers - ideal for verification or adjustment of virtually any manual or electric wrench, and screwdriver (FSC).

- ▶ Wireless PC Connectivity
- ▶ 1000Hz Data Capture
- ▶ MicroSD Card for data storage
- ▶ USB and RS232 Interface
- ▶ Analog I/O Modes
- ▶ Ergonomic and Rugged Design
- ▶ Stats and Analytics

**NOTE:** Supplied with microSD card, Mini USB Wireless Adapter, Load-Cell Handles and Chuck Load Cell (FSB) or Wrench Load-Cell (FSC), NiMH Rechargeable Batteries AA format (4), Analog I/O Cable, RS232 Cable.

FORCE			
VWR Cat. No.	FSB: 76175-348   FSC: 76175-354	FSB: 76175-350   FSC: 76175-356	FSB: 76175-352   FSC: 76175-358
MODEL	FSB2   FSC2	FSB5   FSC5	FSB10   FSC10
Capacity	17lbf.in   0.2kgf.m   2Nm	44lbf.in   0.5kgf.m   5Nm	100lbf.in   1kgf.m   10Nm
Resolution	0.01lbf.in   0.1gf.m   0.001Nm	0.01lbf.in   0.1gf.m   0.001Nm	0.1lbf.in   1gf.m   0.01Nm
Sampling Rate	1000Hz		
Accuracy	± 0.5% Full Scale		
Overload	150% Full Scale (Display Limit: 110%)		
Interface	BT Wireless, USB (B Type), RS232, microSD (SDHC Class 4)		
Input / Output Port	YES (THR)		
Measuring Units	Nm, N.cm, kgf.m, gf.m, lbf.in		
Rechargeable Batteries	4 x Ni-MH 2700mAh, 1.2V (included)		
Battery Operating Time	16h (LCD Backlight OFF, BT Wireless OFF)   11h (LCD Backlight ON, BT Wireless OFF)   8h (LCD Backlight ON, BT Wireless ON)		
Power Supply	12V, 1.2A (included)		
Torque Sensor Dimensions	FSB: 1.97in x 7.28in (50mm x 185mm)   FSC Base: 3.58in   Head: 1.75in x Height: 2.6in (91mm   44.7mm x 66mm)		
Torque Sensor Wrench Socket Opening	FSB: N/A, FSC: 1/4"		
Torque Sensor Weight	FSB: 1lb (415g), FSC: 1.5lb (615g)		