DILLON

FORCE MEASUREMENT EQUIPMENT

Contents

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Company History

Dillon was founded in 1937 by William C. Dillon in the USA as a supplier of cable tensioning products to the armed forces. The company grew rapidly, expanded its offering and today has a comprehensive range of force measurement devices. These products are sold into a wide variety of markets worldwide including lifting applications, telecommunications, aviation, military, public utilities, offshore oil/gas, shipping and lift maintenance.

In 1986, Dillon was acquired by Avery Weigh-Tronix, a world leading manufacturer of industrial scales, weighing equipment and measurement devices. With a long history dating back to the 1700s, Avery Weigh-Tronix is headquartered in Birmingham in the UK, and has manufacturing facilities in the UK, USA, Canada, China and India. Avery Weigh-Tronix is part of the fortune 150 Illinois Tool Works (ITW) family and sits within its Test and Measurement Division. ITW is a diversified manufacturer of advanced industrial technology and employs approximately 60,000 men and women across 825 decentralized business units.

With a reputation for superior strength, reliability, accuracy and quality, Dillon goes from strength to strength.

Dillon Information

Common Conversions

FORCE	Description	Abbreviation	Conversions
	Newton	N	1 N = 0.2248 lbf = 0.1020 kgf
	kilogram-force or kilogram ("force" is dropped & implied)	kgf or kg	1 kgf = 1 kg = 9.807 N = 2.204 lbf
	pound-force or pound	lbf or lb	1 lbf = 1 lb = 4.448 N = 0.4536 kgf
	thousand pounds	kip	1 kip = 1000 lbf
MASS	**Description**	**Abbreviation**	**Conversions**
	short ton	ton	1 ton = 2000 lb
	long ton	long ton	1 long ton = 2240 lb
	metric ton	ton, tonn or tonne	1 metric ton = 1000 kg
TORQUE	**Description**	**Abbreviation**	**Conversions**
	Newton-meter	N*m	1 N*m = 0.102 kg*m = 0.738 ft*lb
	kilogram-meter	kg*m	1 kg*m = 9.807
	foot-pound or pound-foot	ft*lb or lb*ft	1 ft*lb = 1 lb*ft = 1.356 N*m
	inch-pound or pound-inch	in*lb or lb*in	12 in*lb = 12 lb*in = 1 ft*lb

Key Terms

Accuracy

1. The closeness of a measurement to a standard or a true value.

2. The predicted closeness of an instrument for a given measurement in good measuring conditions. % full scale accuracy is the largest expected error throughout the range from zero to rated capacity. Example: ±0.5% full scale accuracy on a 10,000 kg dynamometer = 0.5% * 10,000 kg = 50 kg potential error (low or high).

Calibration

The process which assigns display readings under known and controlled conditions and then verifies correctness of the assignment.

Capacity

The rating or working limit of the instrument.

Compression

A force pushing equally from two directions in the same axis.

Compression

Divisions

The size of the increment when moving from one electronic digit (or mechanical marker) to the next. Almost always a multiple of 1, 2 or 5. Divisions = Capacity / Resolution

Excitation

The voltage inputted to a load cell.

Force

A push or pull that one body exerts on another. Some forces include gravity, spring, adhesion, friction, magnetic and impact.

Full-scale capacity

see capacity

Load

Another term to describe force or torque.

Recalibration

The process of comparing an instrument against a load standard and adjusting if readings are outside tolerance.

Repeatability

The consistency of readings when a constant load is applied and removed multiple times.

Reproducibility

The consistency of readings with different operators when all other test conditions are the same.

Resolution

The number of increments between no load and full scale capacity. Resolution = Capacity / Divisions

Shackle

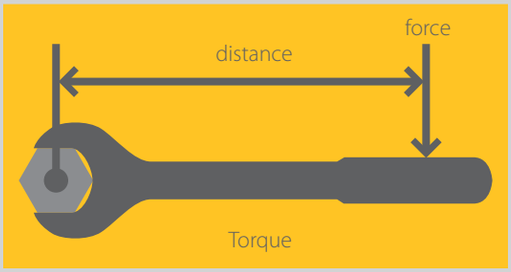
The common forged hardware bow and pin connected to a dynamometer.

Signal

The voltage output of a load cell.

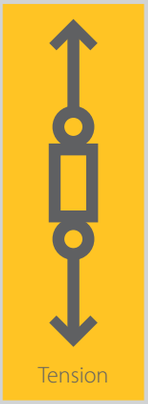
Torque

A force applied a distance away from an axis of rotation. Torque = Force * Distance



Tension

1. A force pulling equally from two directions in the same axis.
2. The tensile force in a wire



Ultimate Safety Factor

The amount an instrument may be overloaded without physical separation of the load supporting elements. Expression examples: 5:1 or 500%, both mean 5 times the instrument capacity.

Zero

The reference point at which measurement starts. Loads above this point will be positive and loads below this will be negative.

Recalibration Intervals

Generally customers place Dillon force measurement instruments on a 12-month recalibration interval. However the time period between calibrations may be shorter or longer depending upon their use, accuracy needs and internal requirements.

The recalibration interval is appropriate if customers find adjustments made during recalibrations are near their internal limits for accuracy.

The interval can be extended if customers find the adjustments are small compared to their standards.

The interval should be shortened if the adjustments are significant compared to their standards.

Customers who do not conduct studies on recalibration intervals should follow the guidance of an experienced measurement distributor.

Dynamometer/Load Link/Crane Scales

Dynamometer

An instrument that displays the tension force exerted between the two attached shackles. Generally used to determine tension in a line or suspended weight.

Dynamometers are simple to operate with one main operating function, ZERO. Dillon dynamometers retain their peak measurement. The peak reading is easily reset by the user.

Dillon is the most recognized name in dynamometers. The instruments are portable, factory precalibrated, and ready to work out of the box. Only Dillon offers both mechanical and electronic versions and has the widest assortment of styles and capacities in each. Includes calibration certificate.

Crane Scale

A crane scale is a dynamometer outfitted with equipment appropriate for suspended weighing, such as large openings in upper shackles, hooks on the bottom and large dials for easy distant viewing.

Applications

Oil / Offshore / Dams / Engines / Aviation / Zip Lines / Public Utilities / Guy Wires / Load Testing / Drop Testing / Mechanical Advantage - Training / Belaying Load - Training / Weight of Ladle / Material Handling / Nuclear / Military / Elevator / Field Testing Chain / Ladder Rung Testing / Proof Loading / Multi-point LIfts / Farm Hitch / Stunt Force / High Line Wire Walk/ Torque / Before and After Weighing / Weighing Drag
Buckets / Pull Testing to Failure

AP Dynamometer

Originally designed to measure the tension on telephone wires, the Dynamometer has proven to have limitless versatility as a tension and weight measuring instrument. It is used for such diverse jobs as suspended weighing; mounting cables for bridges; adjusting tension on guy wires; field testing chain, rope, wire—anything requiring precision force or tension measurement.

Dillon is the leader in dynamometers with the largest installed population throughout the world. The sturdy design, top grade components and premium coatings make it last for years in severe environments and applications: the pounding aboard military vehicles, rough handling in field measurements and even use underwater[1]. Embraced by industrial contractors across the globe, we are confident the AP will satisfy your most demanding applications.

Feature for feature — Dillon Dynamometer sets the standard.

- **Accuracy–** ± 0.5% of full scale capacity for precise data.
- Broadest range of capacities and resolutions are certain to fit your needs.
- Wide temperature range for use in nearly any environment (-50 to 140°F / -45 to 60°C)
- Large safety factor for overload protection and long life.
- No batteries required.
- Dial size choice for the best in portability or visibility.
- Anti-parallax dial and pointer produce accurate readings from any perspective.
- Maximum hand retains peak load point and is easily reset.
- Zero control cancels preset loads (backside).
- High strength case resists heavy blows.
- Generous shackle openings mate with most hooks and hardware.
- High specification materials on all load components. Heat treated to tight tolerances.
- Durable powder coat paint provides outstanding protection.
- Offset load beam eases tension measurement.
- Approvals: CE on all capacities excluding 50K; ASME b30.26 compliant.

5" (125 mm) diameter AP dynamometer includes a rugged ABS plastic carry case with die-cut foam inserts. Capacities of 30,000 lb (15,000 kg) and above are shipped in a heavy-duty reinforced plywood crate. An optional steel carry case is available for 10" (250 mm) diameter dynamometers up to 20,000 lb (10,000 kg) capacity.

5" (125 mm)
ABS plastic carry case

Optional
10" (250 mm)
Steel carry case

Options:

Zero positioning

The standard zero position is 9 o'clock for both the 5" and 10" dial sizes. Capacities up to 20,000 lb can be supplied with the zero at 12, 3 or 6. Photo shows a nonstandard position of 12 o'clock.

Zero Positioning

Klaxon signal alarm

Mounted on rear of the Dynamometer and sounds an alarm at a preset load point.

5" (125 mm) 30,00 lb (15,00 kg)
Heavy-duty reinforced plywood crate

1 Dillon recommends short intervals in clean water followed with rinse and drain.

AP Dynamometer

Pound Capacities

	5" (125 mm) Dial Size		10" (250 mm) Dial Size		
	Part Number	**Capacity x Division**	**Part Number**	**Capacity x Division**	**Ultimate Safety Factor**
LOW	30006-0019	500 x 5	N/A		5:1
	30006-0027	1000 x 10	30007-0026	1000 x 5	5:1
	30006-0035	2000 x 20	30007-0034	2000 x 10	5:1
	30006-0043	4000 x 25	N/A		5:1
	30006-0050	5000 x 50	30007-0059	5000 x 20	5:1
	30006-0076	8000 x 50	N/A		5:1
	30006-0084	10,000 x 100	30007-0083	10,000 x 50	5:1
MED	30006-0092	15,000 x 100	N/A		5:1
	30006-0100	20,000 x 200	30007-0109	20,000 x 100	5:1
HIGH	N/A		30784-0017	30,000 x 200	5:1
	N/A		30784-0033	50,000 x 200*	3:1

** Not CE approved.*

Kilogram Capacities

	5" (125 mm) Dial Size		10" (250 mm) Dial Size		
	Part Number	**Capacity x Division**	**Part Number**	**Capacity x Division**	**Ultimate Safety Factor**
LOW	30006-0134	500 x 5	N/A		
	30006-0159	1000 x 10	30007-0158	1000 x 5	5:1
	30006-0126	2000 x 20	30007-0125	2000 x 10	5:1
	30006-0167	4000 x 25	N/A		5:1
	N/A		30007-0174	5000 x 20	5:1
MED	30006-0118	10,000 x 100	30007-0117	10,000 x 50	5:1
HIGH	N/A		30784-0058	20,000 x 100	4:1

Dynamometer Specifications

Accuracy: + 0.5% of capacity

Temperature Range: -50° to 140° F (-45° to 60° C)

Ultimate Safety Factor: See table on cover for minimum USF

Construction:

Pressure bar—

High-grade E4340 alloy steel or 7075-T651 aluminum

Shackles—

A4140 forged steel (machined from E4340 steel)

Shackle pins—

Machined from E4340 steel

Case Housing:

5" models are equipped with high strength composite plastic case.

10" models use cast aluminum enclosure.

Corrosion Protection: Pressure bar protected with durable powder coat paint. Shackles and pins are electroless nickel plated. All integral machining and fasteners are produced from noncorrosive materials or have suitable plating.

Zero Control: Zero up to 20% of capacity. Zeroed load must be considered as part of ultimate load.

Calibration: Traceable to NIST.

Documentation: Includes User's Guide and signed calibration card.

Carry Case/Crate:

Low/Med capacity 5" dial – includes plastic carry case

Low/Med capacity 10" dial – optional steel carry case

All high capacity – includes reinforced plywood crate

Periodic Proof Loads: Controlled 150% proof loads permitted annually.

Approval: CE on all capacities excluding 50K

ASME b30.26 compliant on 20,000 lb (10,000 kg) and below

Weights pounds (kg)

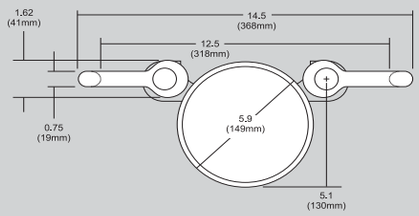
5" (125 mm) Low and Med			
Net Weight	**Shipping Weight**	**Shipping Weight** (steel case)	**Shipping Box**
9 (4)	15 (6.8)		16 x 11 x 7" (406 x 279 x 177 mm)
10" (250 mm) Low and Med			
10 (4.5)	16 (7.2)	26 (11.7)	14 x 14 x 7" (355 x 355 x 177 mm)
30,000 - 50,000 (20,000 kg) High			
64 (29)	98 (44)		37.5 x 13 x 10.5" (952 x 330 x 266 mm)

AP Dynamometer

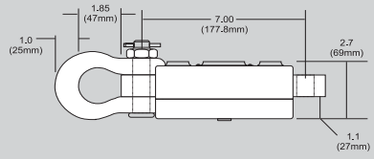
Low & Medium Capacities
500-20,000 lb / 200-10,000 kg

Dimensions in inches (mm)
Drawing scales differ between capacities
Dimensions subject to manufacturer /supplier tolerances and are subject to change without notice.

5" dial design

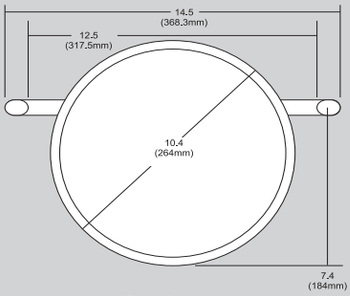


Front view

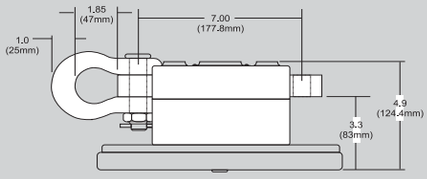


Side view

10" dial design

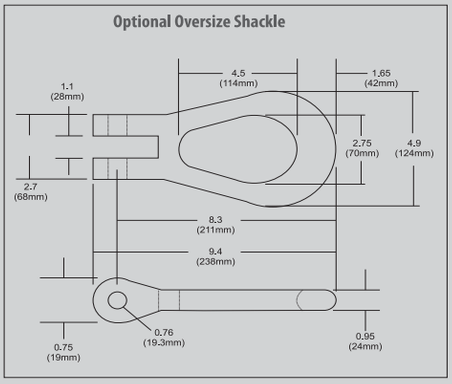


Front view

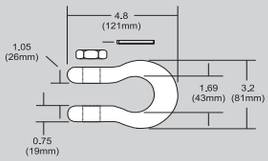


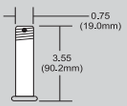
Side view

Optional Oversize Shackle



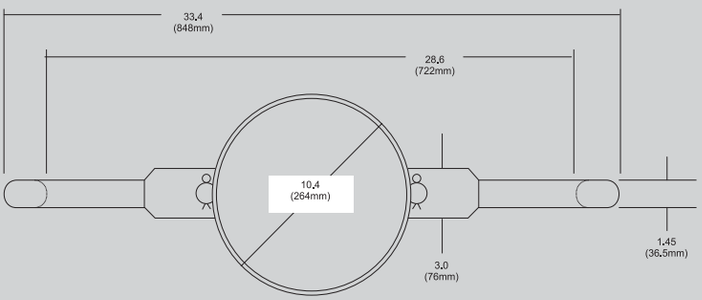
Standard Shackle

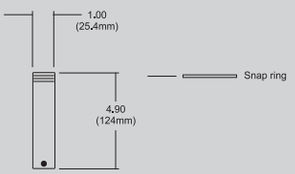


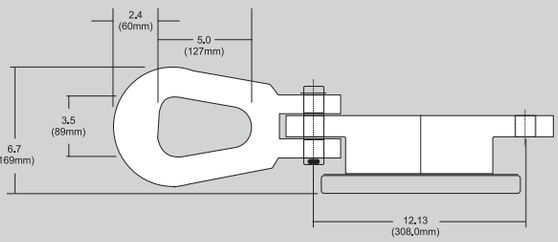


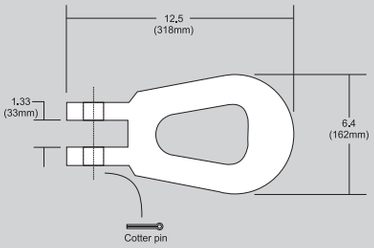
Pin

High Capacities
30,000-50,000 lb / 15,000-20,000 kg









AP Crane Scale Hardware Kits

Feature for feature — Dillon Dynamometer sets the standard.

- **Available in Low, Intermediate and High Range Models:** Capacities from 1000 to 20,000 pounds. Capacities from 500 to 10,000 kg.
- **Anti-parallax Dial and Pointer:** Easy to read even at an angle.
- **Tare Capability:** Tare loads up to 20% of capacity can be zeroed out by means of zero control.
- **Dust Protection:** Pinion gear, sector gear and shafts are mounted in precision aircraft bearings, permanently sealed against dust and dirt. Oiling is never required.
- **Tough Construction:–** Mechanism case is a heavy aluminum alloy casting, tough enough to resist even heavy blows.
- **Ingenious Design:** Utilizes a specially designed alloy steel beam that translates force to pounds. Full scale reading results from beam deflection of only 0.026". Applied loads are indicated instantly.
- **Reduced Wear:** Pinion and sector gears are cut from stainless steel and hardened aluminum. Use of these dissimilar materials greatly reduces friction and wear.
- **Protective Finish:** Scale cases are coated with a baked-on powder paint process making them resistant to chips, scratches, rust and corrosion.
- **Maximum indicator:** Remains in position to indicate peak load point after load is removed from scale.
- **Hardware Kits:** Now offered as an add on feature to the AP Dynamometer of choice.

Capacity & Resolution

Capacity	Capacities & Dial Divisions (lb)	Capacities & Dial Divisions (kg)	Length in (mm)	Net/Gross Weight lb (kg)		Hook Kit Net/Ship Weight lb (kg)	
Low	1,000 x 5	N/A	25.5 (647)	28 (12)	62 (28)	13 (5)	44 (19)
Low	2,000 x 10	1000 x 5	25.5 (647)	28 (12)	62 (28)	13 (5)	44 (19)
Low	N/A	2000 x 10	25.5 (647)	28 (12)	62 (28)	13 (5)	44 (19)
Low	5,000 x 20	N/A	25.5 (647)	28 (12)	62 (28)	13 (5)	66 (29)
Low	10,000 X 50	5000 x 20	25.5 (647)	28 (12)	62 (28)	20 (9)	66 (29)
Med	*20,000 x 100	*10,000 x 50	29.75 (755)	48 (21)	83 (37)	42 (19)	77 (34)

Crane Specifications

Accuracy: To ±0.5% of full scale.
Tare adjustment: Up to 20% of full scale range.
Ultimate safety factor: 5:1(*4:1 for 20,000 lb and 10000 kg).
Dial diameter: 10"
Scale length: (from inside of eye to inside of hook)
Low Range: 25½"
Medium Range: 29¾"

All kits are shipped complete to allow direct interface to the AP Dynamometer. Hook kit and AP Dynamometer are shipped in separate packaging.

Heavy-duty reinforced plywood crate

EDXtreme Dynamometer/Load Link

Guesswork is not acceptable – failure is not an option. When you have people working around high tension cables and massive loads, there is no room for error. You have to have complete confidence in the strength and the accuracy of your measurement tools.

Since 1937, Dillon Dynamometers have been chosen for the jobs where only the best will do. Now, Dillon has once again lifted the performance bar and set the standard for others to follow.

Uncompromising on safety and adaptable to the need

The EDXtreme exemplifies the trademark precision and rugged construction of Dillon dynamometers. Its highly refined design draws on the inherent strengths of premium-grade materials to achieve a 5:1 minimum factor of safety.*

While the EDXtreme may be configured for something as simple as a digital hanging scale, it offers a higher level of intelligence. With user-defined functions and sophisticated communication options, the EDXtreme readily adapts to multi-tasking operations or multi-link systems capable of monitoring a series of critical stress points from a single location — it is the definition of application versatility.

Xtreme engineering

Building a precision instrument that can survive real-world punishment requires masterful engineering. This is where Dillon's experience shines through. The engineers assigned to the EDXtreme drew on a depth of industrial application knowledge and conducted exhaustive materials testing to achieve the highest structural integrity.

- **Superior strength and corrosion resistance –** High capacity models are constructed of powder coated aircraft-quality alloy steel. Lower capacity models are powder coated aircraft-quality aluminum.
- **5:1 factor of safety* –** This measure of strength and safety is maintained by most capacities. Computer modeling confirms the low stress and long product life that is inherent in the EDXtreme design.
- **Retained hardware –** Allows permanent attachment of centering spacers, which eliminates fumbling during high capacity rigging.
- **NEMA 4X/IP55 –** The EDXtreme is clearly the choice for reliability in any environment – in-plant or out on the job site.
- **On board storage** (Accumulation lift and store, push button, and continuous)
- **Load Alarm –** LED light

Xtreme accuracy: 0.1%

High resolution and accurate repeatable readings are essential to proper weighing. The higher standards set for the EDXtreme meant taking the time to ensure that material characteristics, load element design and strain gauge meshed perfectly. The result of that effort is a typical accuracy of 0.1% of full scale capacity*. The enhanced resolution mode of 1 part in 5000 provides the level of readability needed for refined weighing.

Xtreme ease

- **Exclusive SOFTKEY interface –** Dillon has eliminated confusing menus for faster setup and simple operation. In addition to lbf, kgf and Newtons, programmable functions can correct for gravitational variations and allow the use of custom units of measurement along with multiple lines or reeving.
- **Wide-angle, backlit LCD –** Provides improved readability over a wider viewing angle and has backlighting for low light conditions.
- **Battery operation –** The EDXtreme is powered by two standard C-cell batteries. Batteries are easily accessible for fast replacement.

** Models with 75 T/160,000 lb or higher capacity feature a 4:1 safety factor and 0.3% accuracy.*

EDXtreme Dynamometer/Load Link

Optional Remote Communicator II

A basic stand-alone model can be easily upgraded "in-the-field" to accommodate changing needs. Remote configuration, data acquisition and single point monitoring of multiple links are all possible with the hardwired or radio communication options available with the EDXtreme. An RS-232 interface is standard on both the EDXtreme and Communicator for connection to a host PC.

Typical Configurations

1. Stand-alone EDX for direct measurement applications.
2. Single network with one EDX radio dynamometer and Communicator.
3. Single network with multiple EDX dynamometers and one Communicator. The Communicator monitors the load at each scale, plus the total weight..
4. Single network with two, three or four Communicators.
5. Multiple networks with multiple EDX dynamometers and Communicators.

Communications unlock the full potential of the EDXtreme

One of the foremost reasons for choosing an electronic dynamometer is added functionality. The radio or hardwired options available with the EDXtreme offer the convenience and safety of remote operation. Additionally, data from the dynamometer(s) can be downloaded to a PC via an RS-232 connection for compilation and analysis or to generate hard-copy printouts.

Remote control and radio communications are not new to the Dillon product line. In fact, it is the depth of Dillon's experience in this area that led to meaningful innovations in the design of the EDXtreme and its optional remote Communicator.

Improved radio performance

Unlike the many products on the market today, the EDXtreme radio dynamometer utilizes leading-edge 2.4Ghz radio frequency technology to eliminate common interference issues. This spread spectrum technology will establish and maintain the strongest, most reliable communications.

Dynamic monitoring and control

The optional Communicator is an extremely powerful hand-held remote that can define the function and manage the operation of one or more EDXtreme dynamometers using wired or radio technologies. Through the programmable SOFTKEY interface, one or more Communicators can monitor multiple dynamometers within the same airspace. In multiple-link lifting arrays, the Communicator can display readings at any or all lift points and calculate the total load.

Options

Printer, remote display

CP103

RD-65

ABS plastic carry case

Bracket

Rubber Sleeve

EDXtreme Dynamometer/Load Link

Capacity & Resolution

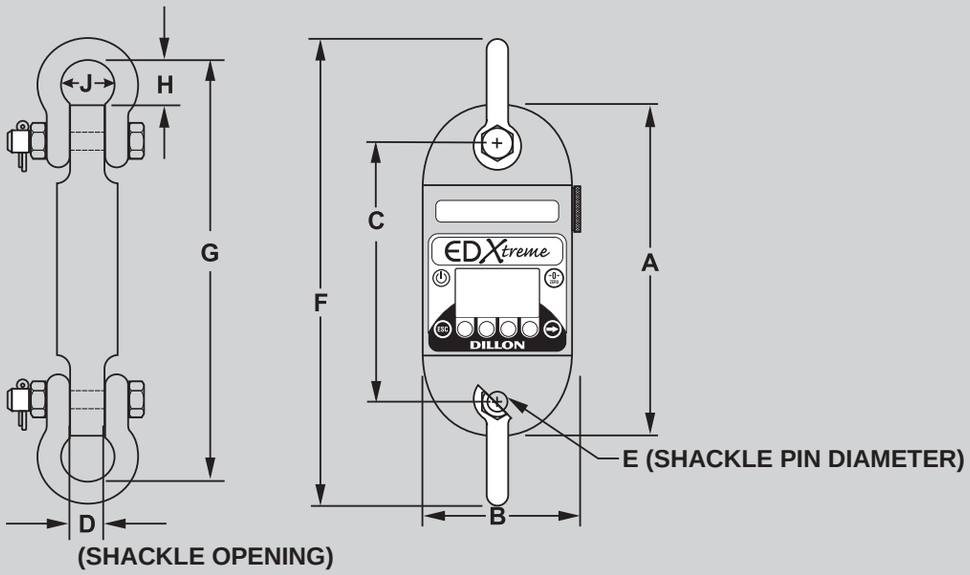
Model*	Capacity x Resolution (normal/enhanced)			Overload†	Construction
EDX–1T (EDX-2.5K)	2,500 lbf x 2/0.5	1,000 kgf x 1/0.2	10,000 N x 10/2	700%	Aircraft-quality 2024 aluminum
EDX–2T (EDX-5K)	5,000 lbf x 5/1	2,000 kgf x 2/0.5	20,000 N x 20/5		
EDX–5T (EDX-10K)	10,000 lbf x 10/2	5,000 kgf x 5/1	50,000 N x 50/10		
EDX–10T (EDX-25K)	25,000 lbf x 20/5	10,000 kgf x 10/2	100,000 N x 100/20	500%	Aircraft-quality E4340 alloy steel
EDX–25T (EDX-55K)	55,000 lbf x 50/10	25,000 kgf x 20/5	250,000 N x 200/50		
EDX–50T (EDX-100K)	100,000 lbf x 100/20	50,000 kgf x 50/10	500,000 N x 500/100		
EDX–75T (EDX-160K)	160,000 lbf x 100/50	75,000 kgf x 50/20	—	400%	Aircraft-quality E4340 alloy steel
EDX–100T (EDX-220K)	220,000 lbf x 200/50	100,000 kgf x 100/20	—		
EDX-150T (EDX-330K)	330,000 lbf x 200/100	150,000 kgf x 100/50	—		
EDX-250T (EDX-550K)	550,000 lbf x 500/200	250,000 kgf x 200/50	—		

** Model number in parenthesis shows U.S. convention for describing capacities. † Ultimate overload protection rating.*

Dimensions inches (mm)

Model	A	B	C	D	E	F	G	H	J	Shackle
EDX–1T	10.6 (269)	5.0 (127)	7.8 (198)	1.06 (26)	0.75 (19)	15.3 (389)	13.4 (340)	1.36 (34)	1.69 (43)	Dillon
EDX–2T	10.6 (269)	5.0 (127)	7.8 (198)	1.06 (26)	0.75 (19)	15.3 (389)	13.4 (340)	1.36 (34)	1.69 (43)	Dillon
EDX–5T	11.4 (289)	5.3 (135)	8.1 (206)	1.38 (35)	1.00 (25)	17.5 (400)	15.7 (400)	2.17 (56)	2.28 (58)	Green Pin*
EDX–10T	11.5 (291)	5.3 (133)	7.9 (201)	1.97 (50)	1.38 (35)	21.0 (534)	18.5 (470)	3.50 (89)	3.25 (83)	Green Pin*
EDX–25T	13.7 (348)	6.0 (152)	9.0 (229)	2.75 (70)	1.97 (50)	28.7 (730)	25.2 (640)	5.70 (146)	4.96 (126)	Green Pin*
EDX–50T	15.8 (400)	6.8 (172)	10.3 (262)	3.88 (99)	2.75 (70)	38.8 (986)	33.7 (856)	8.98 (228)	7.09 (180)	Green Pin*
EDX–75T	16.5 (419)	7.8 (197)	10.3 (262)	3.88 (99)	2.75 (70)	39.3 (998)	33.7 (856)	8.58 (218)	7.09 (180)	Green Pin*
EDX–100T	18.0 (457)	7.8 (197)	11.0 (280)	5.00 (127)	3.25 (83)	46.9 (1911)	40.4 (1025)	11.14 (283)	7.48 (190)	Green Pin*
EDX–150T	21.0 (533)	8.8 (222)	12.6 (321)	5.25 (133)	3.75 (95)	53.9 (1368)	45.6 (1159)	12.3 (313)	9.0 (229)	Crosby
EDX–250T	27.0 (686)	9.8 (248)	17.5 (445)	8.5 (216)	5.00 (127)	75.8 (1925)	62.8 (1595)	17.9 (454)	13.0 (330)	Crosby

**Dimensions shown using Green Pin shackles. Crosby shackles available - consult factory for dimensions.* *Dimensions shown are nominal and subject to tolerances.*



EDXtreme Dynamometer/Load Link

Dynamometer Specifications

Enclosure: Designed to NEMA4X/IP55. Suitable for continuous outdoor use.

Accuracy: 0.1% of capacity up to EDX-50T.*
0.3% of capacity for EDX-75T and above.*

Repeatability: 0.1% of capacity up to EDX-50T.*
0.3% of capacity for EDX-75T and above.*
** Normal resolution mode with Dillon provided shackles.*

Proof Load: 150% of capacity up to EDX-75T.
110% of capacity EDX-100T and above.

Ultimate Overload: See table on reverse.

Safe Overload: 200% of capacity

Body Protection: Aluminum and alloy steel capacities are powder coated.

Bearings: Unmatched repeatability attained by needle bearings in shackle pin holes up to EDX-5T. Shackle pin acts as inner race.

Shackles: Forged industry standard anchor shackles. Models up to EDX-5T use precision machined shackle pin. Higher capacities use bar stock pin.

Display: 128 x 64 dot-graphic LCD display shows up to 6 digits 1.0" (26 mm) high plus annunciators and softkeys. Digits are .11 inches (3 mm) thick for unmatched readability.

Display Update Rate: 2 times per second.

Peak Capture Rate: 10/100/1,000 Hz

Connector: Recessed sealed connector may be used for serial communications or connection to a Communicator II remote.

RS-232 Communication: Print or extract data easily. Continuous output can drive a scoreboard. Configurable poll character.

Calibration: Traceable to the National Institute of Standards and Technology. Certificate included with curve of readings. Passes only with three consecutive confirming runs, with all points in specification.

Battery Life: Stand alone EDXtreme with no radio and no backlight lasts up to 400+ hours continuous. 150 hours continuous with Radio Link System. Use with two C-Cell alkaline batteries. (When using backlight, battery life will be reduced, depending on intensity.)

Operating Temperature: -4° F to 158° F (-20° to 70° C)

Included with Instrument: All include certificate of calibration, manual and batteries. Plastic carry case included for EDX-1T to EDX-50T. Higher capacities include rugged plywood storage crate. Instruments with shackles include centering spacers (EDX-20T & up) and shackle storage crate (EDX-20T to EDX-75T). Display backlight.

Options: Shackles. Radio communications.

Approval: CE

Communicator II Specifications

Enclosure: Designed to NEMA 3 / IP54 with optional sleeve.
Suitable for protected outdoor use.

Instrument Size: 9.5 x 5.0 x 2.5 inch (241 x 127 x 64 mm).

Accuracy: Not applicable. Only sends and receives digital information.

Display: 128 x 64 dot-graphic LCD display can show full readings up to 5 instruments.

Battery Life: Up to 80 hours continuous radio using (4) AA alkaline batteries.

Operating Temperature: -4° F to 158° F (-20° to 70° C)

Connectors: Sealed connectors may be used for serial communications and wired connection to an EDXtreme dynamometer.

RS-232 Communication: Print or extract data easily. Continuous output can drive a scoreboard. Configurable poll character.

Included with Remote: Carry case and batteries

Accessories: Rubberized case protector sleeve.
Remote wall mount bracket. Serial and remote cable assemblies.

Approval: CE

Radio Specifications

FCC Certified: For unlicensed low power devices. No radio licensing or permits required for normal operation.* (In the US and Canada. Check local ordinances in other countries.)

Frequency: ISM 2.4 GHz frequency band operates between 2.4 to 2.4835 GHz.

Output Level: 10 mW (10 dBm)

Display Update Rate: 1 time per second.

Number of Links Remote Can Control: Up to 15 addresses.

Configuration Address: Automatic and configurable.

Antenna: Integral antenna.

Range: Open-air range up to 600 feet (200 m), line-of-sight. Indoor range dependent upon environment with 300 feet (100 m) common. Low power radio systems are dependent upon interference levels from other radio systems and environmental conditions. Radio devices are not suitable for all applications.

Weights pounds (kg)

Model	Unit Weight	Weight with Shackles	Approximate Shipping Weight
EDX–1T	4.3 (2.0)	8.6 (3.9)	13 (6)
EDX–2T	4.4 (2.0)	8.7 (3.9)	13 (6)
EDX–5T	5.6 (2.5)	14 (6.1)	22 (10)
EDX–10T	16 (7.3)	40 (18)	46 (21)
EDX–25T	25 (11)	96 (43)	125 (56)
EDX–50T	38 (17)	238 (108)	296 (134)
EDX–75T	54 (25)	250 (114)	325 (145)
EDX–100T	70 (32)	410 (186)	480 (218)
EDX–150T	120 (54)	650 (295)	750 (340)
EDX–250T	250 (113)	1,490 (675)	1,600 (725)
Communicator	1.25 (.6)	—	10 (5)

EDjunior Dynamometer/Load Link

Big on the basics

The EDjunior dynamometer gets straight to the point – apply a load; take a reading. Its Spartan design is a direct response to industries that have wanted an extremely well-built instrument that could be relied upon for simple, yet critical measurements of weight and force.

A Strong Family Resemblance

The EDjunior draws its strength from the exhaustive engineering that went into the design of the Dillon EDXtreme dynamometer. Both share the same base of research and testing to match material characteristics and load cell technology. The choices made in development have yielded an exceptionally rugged instrument capable of consistently delivering accurate, repeatable measurements.

Extreme Value

The EDjunior is even more remarkable, when you consider price. If you believe you have to pay more, to get more – just compare the Dillon EDjunior to the competition. Nothing else comes close!

Proof of Performance

The EDjunior is all about value. Behind its simple design and easy operation, you will find the quality and performance not found elsewhere in the low price range. With the EDjunior, Dillon proves that economy can go hand-in-hand with accuracy, long service life and, most importantly, worker safety.

Consider the features; compare the numbers

Measurement Capabilities

The EDjunior provides peak detection as well as sustained load readings. Selectable units of measure include lbf, kgf and Newtons.

Accuracy — The load element design and strain gauges chosen for the EDjunior produce an accuracy of 0.2 % (full scale). This level of precision offers flexibility for use in a broad range of applications.

Resolution — Readings are displayed with a resolution of 1 part in 1000 to ensure the level of readability required for critical lifting applications.

Control Interface

The exclusive Dillon SOFTKEY interface provides direct access to setup and display functions without the typical confusing menu structure. The 6-digit dot-matrix display features 1 inch (26 mm) high numerals for greater visibility.

High Strength, Low Weight

Heavy, cumbersome tools make tough jobs even harder. Through the use of aircraft quality materials, Dillon has made the EDjunior an easy-to-position, highly mobile instrument with exceptional strength. It offers an impressive factor of safety at all capacities.

Dillon's distinctive curve-body design further eliminates unnecessary weight and streamlines the unit to help prevent binding.

ABS plastic carry case

EDjunior Dynamometer/Load Link

Capacity & Resolution

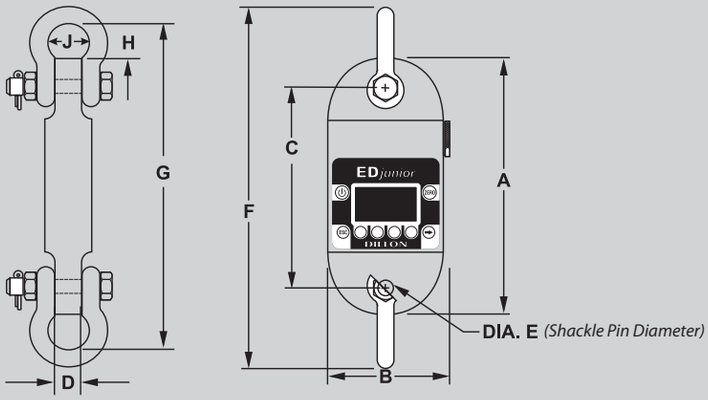
Model*	Capacity x Resolution (normal/enhanced)			Overload†	Construction
EDjr–1T (EDjr-2.5K)	2,500 lbf x 2	1,000 kgf x 1	10,000 N x 10	700%	Aircraft-quality 2024 aluminum
EDjr–2T (EDjr-5K)	5,000 lbf x 5	2,000 kgf x 2	20,000 N x 20		
EDjr–5T (EDjr-10K)	10,000 lbf x 10	5,000 kgf x 5	50,000 N x 50		
EDjr–10T (EDjr-25K)	25,000 lbf x 20	10,000 kgf x 10	100,000 N x 100	500%	Aircraft-quality E4340 alloy steel

** Model number in parenthesis shows U.S. convention for describing capacities. † Ultimate overload protection rating.*

Dimensions inches (mm)

Model	A	B	C	D	E	F	G	H	I	J
EDjr–1T	8.4 (213)	5.0 (127)	6.98 (174)	0.75 (19)	0.50 (13)	11.6 (296)	10.8 (274)	1.20 (30)	2.03 (52)	1.16 (29)
EDjr–2T	10.6 (269)	5.0 (127)	7.8 (198)	1.06 (27)	0.75 (19)	14.8 (375)	13.4 (340)	1.41 (35)	2.94 (75)	1.69 (43)
EDjr–5T	11.4 (289)	5.3 (135)	8.1 (206)	1.38 (35)	1.00 (25)	17.8 (451)	15.8 (402)	2.22 (56)	4.03 (102)	2.28 (58)
EDjr–10T	11.5 (291)	5.3 (133)	7.9 (201)	1.97 (50)	1.38 (35)	21.6 (548)	18.8 (478)	3.67 (93)	4.53 (115)	3.25 (83)

Dimensions shown are nominal and subject to tolerances.



(Shackle Opening)

Dynamometer Specifications

Enclosure: Designed to NEMA4X/IP55. Suitable for continuous outdoor use.

Accuracy: 0.2% of capacity

Repeatability: 0.2% of capacity

Proof Load: 150% of capacity

Ultimate Overload: See table on reverse

Safe Overload: 200%

Display: 128 x 64 dot-graphic LCD display shows all digits 1.0" (26 mm) high plus annunciators and softkeys

Display Update Rate: 2 times per second

Peak Hold Sampling Rate: 10 times per second typical

RS-232 Communication: Not available. See Dillon EDXtreme.

Calibration: Traceable to the National Institute of Standards and Technology. Calibration card included.

Battery Life: 425 hours typical use with two C-cell alkaline batteries

Backlight: Configurable. Using backlight will consume more battery power, reducing battery life.

Operating Temperature: -4° F to 158° F (-20° to 70° C)

Included with Instrument: Carry case, batteries, manual and calibration card

Warranty: 2 years parts and labor

Overload: Recorded at 120% with date and time stamp

Weights pounds (kg)

Model	Unit Weight	Weight with Shackles	Approximate Shipping Weight
EDjr–1T	2.9 (1.3)	3.9 (1.8)	14 (6)
EDjr–2T	4.5 (2.0)	7.8 (3.9)	17 (8)
EDjr–5T	6.4 (2.9)	14.3 (6.5)	23 (10)
EDjr–10T	17 (8.2)	41 (19)	50 (23)

ED Series Crane Scales

Guesswork is not acceptable – failure is not an option. When you have people working around high tension cables and massive loads, there is no room for error. You have to have complete confidence in the strength and the accuracy of your measurement tools.

Since 1937, Dillon Dynamometers have been chosen for the jobs where only the best will do. Now, Dillon has once again lifted the performance bar and set the standard for others to follow.

Two ED Series models are available: The high-end EDXtreme (also called EDX), and the affordable EDjunior. Choose EDXtreme for the most demanding applications; EDXtreme is built with the best materials and designed with cutting-edge features like radio control. Where cost is a concern, and reliability is a requirement, choose EDjunior – the perfect crane scale for simple jobs.

EDXtreme – The ultimate in reliability & accuracy

Xtreme engineering

Building a precision instrument that can survive real-world punishment requires masterful engineering. This is where Dillon's experience shines through. The engineers assigned to the EDXtreme drew on a depth of industrial application knowledge and conducted exhaustive materials testing to achieve the highest structural integrity.

- **Superior strength and corrosion resistance –** High capacity models are constructed of powder coated aircraft-quality alloy steel. Lower capacity models are powder coated aircraft-quality aluminum.
- **5:1 factor of safety –** This measure of strength and safety is maintained at all capacities. Computer modeling confirms the low stress and long product life that is inherent in the EDXtreme design.
- **Retained hardware –** Allows permanent attachment of centering spacers, which eliminates fumbling during high capacity rigging.
- **NEMA 4X/IP55 –** The EDXtreme is clearly the choice for reliability in any environment – in-plant or out on the job site.
- **On board storage** (Accumulation lift and store, push button, and continuous)

Xtreme accuracy: 0.1%

High resolution and accurate repeatable readings are essential to proper weighing. The higher standards set for the EDXtreme meant taking the time to ensure that material characteristics, load element design and strain gauge meshed perfectly. The result of that effort is a typical accuracy of 0.1% of full scale capacity*. The enhanced resolution mode of 1 part in 5000 provides the level of readability needed for refined weighing.

Xtreme ease

- **Exclusive SOFTKEY interface –** Dillon has eliminated confusing menus for faster setup and simple operation. In addition to lbf, kgf and Newtons, programmable functions can correct for gravitational variations and allow the use of custom units of measurement along with multiple lines or reeving.
- **Wide-angle, backlit LCD –** Provides improved readability over a wider viewing angle and has backlighting for low light conditions.
- **Battery operation –** The EDXtreme is powered by two standard C-cell batteries. Batteries are easily accessible for fast replacement.

Hook Choices

Reliable, high quality Crosby hooks are used on all EDX Crane Scales.

- Non-Swivel Hook (top) – basic hook for low-cost, low-headroom weighing.
- Basic Swivel Hook (left) – Used to align rigging to the crane.
- Bearing Swivel Hook (left) – Used for precise positioning under load.

ED Series Crane Scales

EDjunior - The market leader in accuracy & value

The EDjunior is all about value. Behind its simple design and easy operation, you will find the quality and performance not found elsewhere. With the EDjunior, Dillon proves that economy can go hand-in-hand with accuracy, long service life and, most importantly, worker safety - just compare the Dillon EDjunior to the competition. Nothing else comes close!

Measurement capabilities

The EDjunior provides peak detection as well as sustained load readings. Selectable units of measure include lbf, kgf and Newtons.

Accuracy — The load element design and strain gauges chosen for the EDjunior produce an accuracy of 0.2 % (full scale). This level of precision offers flexibility for use in a broad range of applications. Capacities up to 25,000 lb (10000 kg) available.

Resolution — Readings are displayed with a resolution of 1 part in 1000 to ensure the level of readability required for critical lifting applications.

Control Interface

The exclusive Dillon SOFTKEY interface provides direct access to setup and display functions without the typical confusing menu structure. The 6-digit dot-matrix display features 1 inch (25 mm) high numerals for greater visibility.

High Strength, Low Weight

Heavy, cumbersome tools make tough jobs even harder. Through the use of aircraft quality materials, Dillon has made the EDjunior an easy-to-position, highly mobile instrument with exceptional strength. It offers an impressive factor of safety at all capacities.

All Environments

With its NEMA4/IP55 design, the EDjunior is at home in virtually any environment and ideally-suited to outdoor job-site applications as well as in-plant use.

Hook Choices

- Basic Swivel Hook (left/bottom) – Used to align rigging to the crane
- Non-Swivel Hook (left/top) – basic hook for low-cost, low-headroom weighing.

ED Series Crane Scales

EDXtreme - Capacity & Resolution

Unit Capacity lb (kg)	Capacity x Resolution (normal/enhanced)			Overload†	Construction
1T (2,500)	2,500 lbf x 2/0.5	1,000 kgf x 1/0.2	10,000 N x 10/2	700%	Aircraft-quality 2024 aluminum
2T (5,000)	5,000 lbf x 5/1	2,000 kgf x 2/0.5	20,000 N x 20/5		
5T (10,000)	10,000 lbf x 10/2	5,000 kgf x 5/1	50,000 N x 50/10		
10T (25,000)	25,000 lbf x 20/5	10,000 kgf x 10/2	100,000 N x 100/20	500%	Aircraft-quality E4340 alloy steel
25T (50,000)	50,000 lb x 50/10	20,000 kg x 20/5	200,000 N x 200/50		

† Ultimate overload protection rating.

EDXtreme Specifications

Enclosure: Designed to NEMA4X/IP55. Suitable for continuous outdoor use.

Accuracy: 0.1% of capacity up to EDX-20T.*

Repeatability: 0.1% of capacity up to EDX-20T.*
** Normal resolution mode with Dillon provided shackles.*

Proof Load: 150% of capacity up to EDX-75T.
110% of capacity EDX-100T and above.

Ultimate Overload: See table on reverse.

Safe Overload: 200% of capacity

Body Protection: Aluminum and alloy steel capacities are powder coated.

Bearings: Unmatched repeatability attained by needle bearings in shackle pin holes up to EDX-5T. Shackle pin acts as inner race.

Shackles: Forged industry standard anchor shackles. Models up to EDX-5T use precision machined shackle pin. Higher capacities use bar stock pin.

Display: 128 x 64 dot-graphic LCD display shows up to 6 digits 1.0" (26 mm) high plus annunciators and softkeys. Digits are .11 inches (3 mm) thick for unmatched readability.

Display Update Rate: 2 times per second.

Peak Capture Rate: 10/100/1,000 Hz

Connector: Recessed sealed connector may be used for serial communications or connection to a Communicator II remote.

RS-232 Communication: Print or extract data easily. Continuous output can drive a scoreboard. Configurable poll character.

Calibration: Traceable to the National Institute of Standards and Technology. Certificate included with curve of readings. Passes only with three consecutive confirming runs, with all points in specification.

Battery Life: Stand alone EDXtreme with no radio and no backlight lasts up to 400+ hours continuous. 150 hours continuous with Radio Link System. Use with two C-Cell alkaline batteries. (When using backlight, battery life will be reduced, depending on intensity.)

Operating Temperature: -4° F to 158° F (-20° to 70° C)

Included with Instrument: All include certificate of calibration, manual and batteries. Plastic carry case included for EDX-1T to EDX-50T. Higher capacities include rugged plywood storage crate. Instruments with shackles include centering spacers (EDX-20T & up) and shackle storage crate (EDX-20T to EDX-75T). Display backlight.

Options: Shackles. Radio communications.

Approval: CE

Communicator II Specifications

Enclosure: Designed to NEMA 3 / IP54 with optional sleeve. Suitable for protected outdoor use.

Instrument Size: 9.5 x 5.0 x 2.5 inch (241 x 127 x 64mm).

Accuracy: Not applicable. Only sends and receives digital information.

Display: 128 x 64 dot-graphic LCD display can show full readings up to 5 instruments.

Battery Life: Up to 80 hours continuous radio using (4) AA alkaline batteries.

Operating Temperature: -4° F to 158° F (-20° to 70° C)

Connectors: Sealed connectors may be used for serial communications and wired connection to an EDXtreme dynamometer.

RS-232 Communication: Print or extract data easily. Continuous output can drive a scoreboard. Configurable poll character.

Included with Remote: Carry case and batteries

Accessories: Rubberized case protector sleeve.
Remote wall mount bracket. Serial and remote cable assemblies.

Approval: CE

Radio Specifications

FCC Certified: For unlicensed low power devices. No radio licensing or permits required for normal operation.* (In the US and Canada. Check local ordinances in other countries.)

Frequency: ISM 2.4 GHz frequency band operates between 2.4 to 2.4835 GHz.

Output Level: 10 mW (10 dBm)

Display Update Rate: 1 time per second.

Number of Links Remote Can Control: Up to 15 addresses.

Configuration Address: Automatic and configurable.

Antenna: Integral antenna.

Range: Open-air range up to 600 feet (200 m), line-of-sight. Indoor range dependent upon environment with 300 feet (100 m) common. Low power radio systems are dependent upon interference levels from other radio systems and environmental conditions. Radio devices are not suitable for all applications.

ED Series Crane Scales

EDjunior - Capacity & Resolution

Unit Capacity lb (kg)	Capacity x Resolution (normal/enhanced)			Overload†	Construction
2,500 (1000)	2,500 lbf x 2	1,000 kgf x 1	10,000 N x 10	700%	Aircraft-quality 2024 aluminum
5,000 (2000)	5,000 lbf x 5	2,000 kgf x 2	20,000 N x 20		
10,000 (5000)	10,000 lbf x 10	5,000 kgf x 5	50,000 N x 50		
25,000 (10000)	25,000 lbf x 20	10,000 kgf x 10	100,000 N x 100	500%	Aircraft-quality E4340 alloy steel

† Ultimate overload protection rating.

EDjunior Specifications

Enclosure: Designed to NEMA4X/IP55. Suitable for continuous outdoor use.

Accuracy: 0.2% of capacity.

Repeatability: 0.2% of capacity.

Ultimate Overload: 700%

Safe Overload: 200%

Display: 128 x 64 dot-graphic LCD display shows all digits 1.0" (26 mm) high plus annunciators and softkeys.

Display Update Rate: 2 times per second.

RS-232 Communication: Not available. See Dillon EDX Crane Scale.

Calibration: Traceable to the National Institute of Standards and Technology. Calibration card included.

Battery Life: 400+ hours typical use with two C-cell alkaline batteries.

Operating Temperature: -4° F to 158° F (-20° to 70° C)

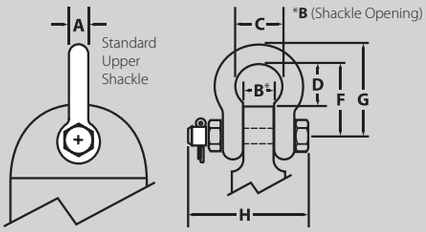
Included with Instrument: Batteries, manual and calibration card.

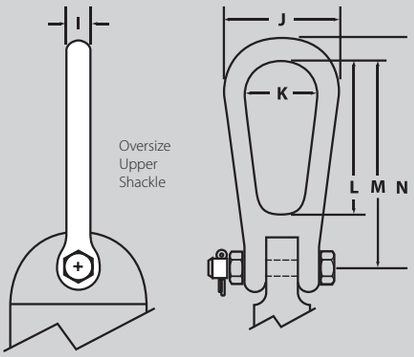
Optional Accessories: Shipping / storage crate.

Approval: CE

ED Series Crane Scales

Instrument & Hardware Dimensions





EDXtreme Standard Upper Shackle

Unit Capacity lb (kg)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	F in (mm)	G in (mm)	H in (mm)	Weight lb (kg)
2,500 (1000)	0.76 (19)	1.06 (26)	1.69 (42)	1.35 (34)	2.76 (70)	3.77 (96)	3.55 (90)	2.2 (1.0)
5,000 (2000)	0.76 (19)	1.06 (26)	1.69 (42)	1.35 (34)	2.76 (70)	3.77 (96)	3.55 (90)	2.2 (1.0)
10,000 (5000)	0.87 (22)	1.42 (36)	2.28 (57)	1.97 (50)	3.78 (96)	4.65 (118)	4.36 (110)	4.0 (1.8)
25,000 (10000)	1.25 (32)	2.01 (51)	3.27 (83)	3.43 (87)	5.20 (132)	6.46 (164)	7.01 (178)	11 (5.0)
50,000 (20000)	1.75 (45)	2.91 (74)	4.96 (126)	5.66 (143)	8.00 (203)	9.76 (248)	9.80 (249)	32 (14.5)

EDjunior Standard Upper Shackle

Unit Capacity lb (kg)	A in (mm)	B in (mm)	C in (mm)	D in (mm)	F in (mm)	G in (mm)	H in (mm)	Weight lb (kg)
2,500 (1000)	0.43 (11)	0.75 (19)	1.16 (29)	1.18 (30)	1.94 (49)	2.39 (61)	2.64 (67)	0.5 (0.2)
5,000 (2000)	0.63 (16)	1.06 (27)	1.69 (42)	1.46 (37)	2.87 (73)	3.50 (89)	3.86 (98)	1.7 (0.8)
10,000 (5000)	0.87 (22)	1.42 (36)	2.28 (57)	2.13 (54)	3.78 (96)	4.65 (118)	5.12 (130)	4.0 (1.8)
25,000 (10000)	1.25 (32)	2.01 (51)	3.27 (83)	3.43 (87)	5.20 (132)	6.46 (164)	7.01 (178)	11 (5.0)

EDXtreme Oversize Upper Shackle - not available in 25,000 lb and 50,000 lb.

Unit Capacity lb (kg)	I in (mm)	J in (mm)	K in (mm)	L in (mm)	M in (mm)	N in (mm)	Weight lb (kg)
2,500 (1000)	0.94 (24)	4.88 (124)	2.76 (70)	4.49 (114)	6.98 (177)	8.64 (219)	6.4 (2.9)
5,000 (2000)	0.94 (24)	4.88 (124)	2.76 (70)	4.49 (114)	6.98 (177)	8.64 (219)	6.4 (2.9)
10,000 (5000)	0.94 (24)	4.88 (124)	2.76 (70)	4.49 (114)	6.73 (171)	8.39 (213)	6.4 (2.9)

EDjunior Oversize Upper Shackle - not available in 2,500 lb.

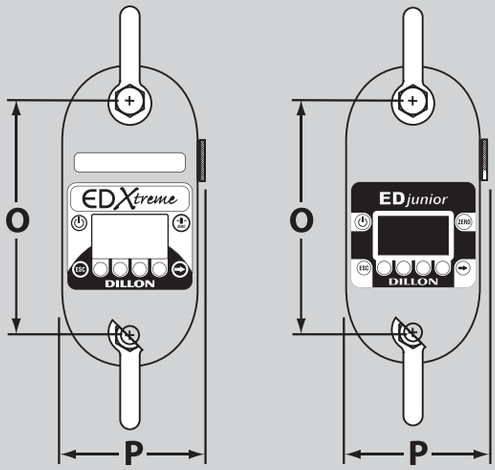
Unit Capacity lb (kg)	I in (mm)	J in (mm)	K in (mm)	L in (mm)	M in (mm)	N in (mm)	Weight lb (kg)
5,000 (2000)	0.94 (24)	4.88 (124)	2.76 (70)	4.49 (114)	6.98 (177)	8.64 (219)	6.4 (2.9)
10,000 (5000)	0.94 (24)	4.88 (124)	2.76 (70)	4.49 (114)	6.73 (171)	8.39 (213)	6.4 (2.9)

EDXtreme Instrument Body

Unit Capacity lb (kg)	O in (mm)	P in (mm)	Weight lb (kg)
2,500 (1000)	7.79 (198)	5.01 (128)	4.3 (2.0)
5,000 (2000)	7.79 (198)	5.01 (128)	4.4 (2.0)
10,000 (5000)	8.10 (206)	5.34 (136)	5.6 (2.5)
25,000 (10000)	8.04 (204)	5.26 (134)	16 (7.3)
50,000 (20000)	9.18 (233)	5.98 (152)	25 (11)

EDjunior Instrument Body

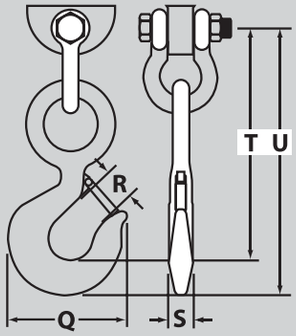
Unit Capacity lb (kg)	O in (mm)	P in (mm)	Weight lb (kg)
2,500 (1000)	6.89 (175)	4.98 (127)	2.9 (1.3)
5,000 (2000)	7.85 (199)	4.98 (127)	4.5 (2.0)
10,000 (5000)	8.17 (207)	5.34 (136)	6.4 (2.9)
25,000 (10000)	8.04 (204)	5.26 (134)	16 (7.3)



ED Series Crane Scales

EDXtreme Non-Swivel Hook

Unit Capacity lb (kg)	Q in (mm)	R in (mm)	S in (mm)	T in (mm)	U in (mm)	Weight lb (kg)
2,500 (1000)	6.3 (160)	1.61 (40)	1.66 (43)	10.2 (258)	12.0 (304)	10 (4.7)
5,000 (2000)	6.3 (160)	1.61 (40)	1.66 (43)	10.2 (258)	12.0 (304)	10 (4.7)
10,000 (5000)	7.5 (190)	2.08 (52)	1.63 (42)	12.9 (328)	15.1 (384)	19 (9.0)
25,000 (10000)	10.4 (262)	3.02 (76)	2.38 (61)	17.8 (451)	20.8 (528)	50 (23)
50,000 (20000)	14.1 (358)	3.00 (76)	3.19 (82)	27.0 (686)	22.8 (578)	138 (63)



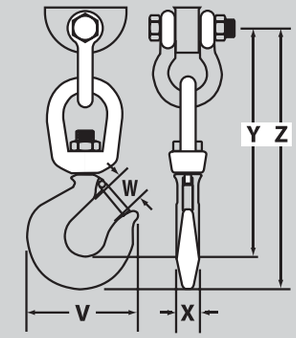
Non-Swivel Hook

EDjunior Non-Swivel Hook

Unit Capacity lb (kg)	Q in (mm)	R in (mm)	S in (mm)	T in (mm)	U in (mm)	Weight lb (kg)
2,500 (1000)	4.0 (101)	1.09 (27)	0.94 (24)	6.4 (163)	7.6 (191)	2.6 (1.2)
5,000 (2000)	6.3 (160)	1.61 (40)	1.66 (43)	10.2 (258)	11.6 (294)	10 (4.5)
10,000 (5000)	7.5 (190)	2.08 (52)	1.63 (42)	12.9 (328)	15.1 (384)	19 (9.0)
25,000 (10000)	10.4 (262)	3.02 (76)	2.38 (61)	17.8 (451)	20.8 (528)	50 (23)

EDXtreme Basic Swivel Hook - not available in 50,000 lb.

Unit Capacity lb (kg)	V in (mm)	W in (mm)	X in (mm)	Y in (mm)	Z in (mm)	Weight lb (kg)
2,500 (1000)	4.8 (123)	1.14 (29)	1.36 (34)	10.3 (261)	11.8 (298)	7.1 (3.2)
5,000 (2000)	4.8 (123)	1.14 (29)	1.36 (34)	10.3 (261)	11.8 (298)	7.1 (3.2)
10,000 (5000)	6.3 (160)	1.39 (36)	1.61 (40)	13.5 (343)	15.3 (389)	14 (6.0)
25,000 (10000)	8.3 (212)	1.95 (50)	2.27 (57)	17.2 (438)	19.8 (504)	34 (15)



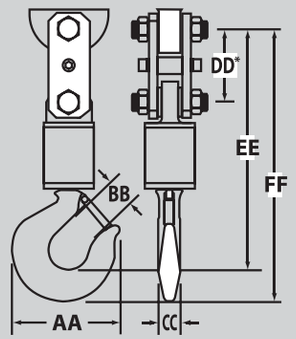
Basic Swivel Hook

EDjunior Basic Swivel Hook

Unit Capacity lb (kg)	V in (mm)	W in (mm)	X in (mm)	Y in (mm)	Z in (mm)	Weight lb (kg)
2,500 (1000)	3.2 (81)	0.72 (19)	0.95 (24)	7.4 (186)	8.2 (208)	1.7 (0.8)
5,000 (2000)	4.8 (123)	1.14 (29)	1.36 (34)	10.3 (261)	11.7 (298)	6.6 (3.0)
10,000 (5000)	6.3 (160)	1.39 (36)	1.61 (40)	13.5 (343)	15.3 (389)	14 (6.0)
25,000 (10000)	8.3 (212)	1.95 (50)	2.27 (57)	17.4 (442)	20.0 (508)	35 (16)

EDXtreme Bearing Swivel Hook (swivel under load) - not available on EDjunior

Unit Capacity lb (kg)	AA in (mm)	BB in (mm)	CC in (mm)	DD* in (mm)	EE in (mm)	FF in (mm)	Weight lb (kg)
2,500 (1000)	4.9 (123)	1.14 (29)	1.41 (35)	4.01 (102)	12.7 (321)	14.1 (358)	11 (5.0)
5,000 (2000)	4.9 (123))	1.14 (29)	1.41 (35)	4.01 (102)	12.7 (321)	14.1 (358)	11 (5.0)
10,000 (5000)	6.3 (160)	1.45 (37)	1.69 (42)	4.51 (115)	15.3 (388)	17.1 (435)	21 (10)
25,000 (10000)	10.3 (263)	2.39 (61)	3.19 (81)	5.01 (128)	22.7 (576)	25.7 (652)	65 (30)
50,000 (20000)	13.6 (346)	3.01 (77)	3.25 (82)	not used	20.9 (531)	24.6 (623)	140 (64)



Bearing Swivel Hook

Selecting an ED Series Crane Scale is easy:

1. Choose EDXtreme or EDjunior unit.
2. Select required capacity.
3. Select upper shackle style.
4. Select hook style.
5. Obtain dimensional information from charts.
6. Add radio remote and/or backlight options, if desired.

Common Measurements:

1. Headroom: add dimensions (F or M) + O + (T or Y or EE)
2. Total Length: add dimensions (G or N + O + (U or Z or FF)
3. Shackle Thickness: subtract dimensions (G or N) - (F or M)
4. Hook Thickness: subtract dimensions (V or Z or FF) - (T or Y or EE)

Tension Meters / Tension Monitors

Quick-Check

Tension Meter

An instrument designed to measure the tension in wire. Factory calibrated to the wires specified in each order.

Lever actuated design is built for speed in repetitive measurement applications with the same wire type. Although much faster than a dynamometer in such applications, it is generally less accurate. It requires knowledge of the wire size and type and the appropriate calibration called.

The instruments are portable, factory precalibrated, and ready to work out of the box. Includes documentation of the calibrations stored in the instrument.

Quick Balance

Applications

Quick-Check: Guide Wires / Median Barrier / Zip Lines / Electric - Metro Transit / Ski Lifts / Concrete Support - Rods / Public Utilites / Fall Arrest Cable

Quick Balance: Elevator Balancing

Quick Balance Tension Meter

ABS plastic carry case

The Dillon Quick Balance tension meter quickly measures tension on elevator traction cables or other cable sets, recording individual readings, averages and total readings. Quick Balance installs, measures and removes in seconds, giving accurate digital readings up to 10,000 lbs. No lookup or correction tables required, and no need to write down readings for comparisons.

- Significant labor and time savings
- Safety improvement in measurement method
- View and balance multiple lines in minutes
- Measures total force quickly and easily
- Default of three wire rope sizes (included) with the ability to add 5 more wire ropes
- Elevator Inspections

  Quickly balance wire ropes
  Measure total weight of car
- Accommodates a wide range of wire rope sizes and styles
- Highly visible yellow finish
- Easy-to-read backlit display with full text prompts
- Easy to use soft-key interface
- Uses popular AA batteries and has long life between changes

The Fastest Cable Tension Meter

Quick Balance can be placed on a cable, measure its tension and removed in seconds. There are no complex lookup tables and no conversion charts. The operator can quickly select from different wire rope sizes and types stored in the Quick Balance memory. Once a set of measurements has been taken the operator can adjust various tensions in the check tensioning mode which displays both current and target settings of individual cables.

Broad Application

Quick Balance can be employed in many industries for the balancing of multiple line installations. Typical applications include elevators, tower and stack guy wire rope and crane rigging sets.

Quick Balance Specifications

Tension capacities: 10,000lb/45kN/4500kg

Wire rope sizes and types:

3/16" to 1" possible
½" 8 x 19 Included
9/16" 8 x 19 Included
5/8" 8 x 19 Included

Up to 5 other size and wire types may be added.

Accuracy: + 3% of full scale.

Calibrated to specific wire rope size and type; ± 5% with same wire rope diameter as calibrated but different wire rope type.

Number of calibrations: 3 factory installed wire rope sizes:

½" 8 x 19
9/16" 8 x 19
5/8" 8 x 19

Up to 5 additional wire rope types can be stored independently

Calibration: Each wire rope calibration is traceable to the National Institute of Standards and Technology. Certificate included with curve readings. Passes only with three consecutive confirming runs, with all points in specification.

Loading error: Cable elongation of only 0.08" (2mm)

Display: Dot graphic, backlit LCD supports full text and 1.0" high digits

Sheave range: Supplied with one set of sheaves (¼" to ¾" in range). Other selections may be ordered as necessary.

Environmental protection: Suitable for continued outdoor use.

Operating range: -4°F to 140°F (-20°C to 60°C)

Tension units of measure: Pound-force, kilogram force, Newtons

Resolution: Configurable for low, medium or high

Recalibration: At user discretion. Common calibration period is 24 months but should be more frequent in heavy use applications. Factory calibrations typically completed in 2 to 4 days. On site calibration may be possible through your Dillon distributor.

Approvals: CE

Quick-Check Tension Meter

The Dillon Quick-Check Tension Meter quickly measures tension in cable guardrails, guy lines and overhead wires. It installs, measures and removes in seconds. The digital loadcell is highly accurate and requires no lookup or correction tables.

- Store wire rope readings and export data (Ideal for tower data collection)
- Time saving check-tensioning mode
- Portable and rugged – designed for outdoor use
- Built-in averaging saves time and eliminates errors
- Factory calibrated for up to 20 unique wire sizes and types
- Sheaves with bearings eliminate friction and provide the best accuracy
- Accommodates a wide range of wire sizes and styles
- Telescoping handle engages meter quickly with minimal effort
- Highly visible yellow finish
- Easy-to-read display with full-text prompts
- RS-232 Port
- Easy to use soft-key interface
- Uses popular AA batteries and has long life between changes
- Backlight – configurable
- Onboard storage of wire rope readings

The Fastest Cable Tension Meter

The Dillon Quick-Check can be placed on a cable, measure its tension, and removed in seconds. There are no complex lookup tables, no conversion charts.
The operator can quickly select from 20 different wire sizes and types stored in Quick-Check's memory. The Check-Tensioning mode graphically displays the current and target tensions for extremely quick setting of line tension. Even the infrequent battery changes are quick.

Broad Application

The Quick-Check can be employed in many industries to ensure proper tensioning. Typical applications include tower and stack guy wires, pretensioned cable barriers, bridges, elevators, winch rope, overhead electric transit wires, fall arrest systems, aircraft cables and utilities.

RS-232 port

Quick-Check Tension Meter

Quick-Check Specifications

Tension capacities:

2000 lb/10 kN/1000 kg

10,000 lb/45 kN/4500 kg

Wire sizes: 3/16 inch through 1 inch (4.75 mm through 25.4 mm)
View helpful ordering tips at dillon-force.com

Accuracy: + 3% instrument capacity (calibrated to specific wire size and type.)

Loading error: Cable elongation of only 0.08 inch (2mm)

Display: Dot-graphic LCD display supports full text and 1 inch high digits.

Sheave range: Each set accommodates rated wire size and ½" smaller. Multiple sheave sets may be used.

Suggested wire calibrations: Calibrate each wire diameter needed with the most appropriate sheaves. If two wire types are used of the same diameter (e.g. ½" 1x7 and ½" 6x19), calibrate each type independently if accuracy is critical.

Calibration: Each wire rope calibration is traceable to the National Institute of Standards and Technology. Certificate included with curve readings. Passes only with three consecutive confirming runs, with all points in specification.

Environment protection: Suitable for continued outdoor use.

Battery life: 120+ hours (backlight off)

Operating range: -4° F to 158° F (-20° C to 70° C)

Tension units of measure: pound-force, kilogram force, Newtons

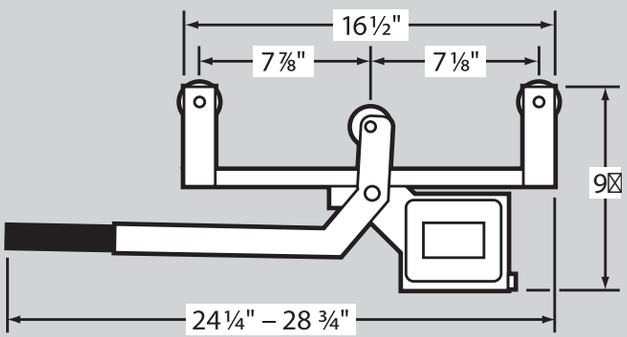
Resolution: Configurable low/med/high

Size: 10 x 23 x 3 inch (25 x 59 x 8 cm)

Weight: Approx 11 lb (5 kg)

Recalibration: At user discretion. Commonly 12-24 months; should be more frequent with heavy use. On-site recalibration may be possible through your Dillon distributor.

Approvals: CE



ABS plastic carry case

Mechanical Force Gauges

Mechanical Force Gauge

An ultra small instrument that displays the force exerted between the two load points. Available in tension, compression or both (push-pull) versions. Generally used to monitor tension in a small cable or to measure compressive forces within a press.

Mechanical force gauges are simple to operate with one main operating function, ZERO. Some models may be equipped with a maximum pointer to retain peak reading.

These instruments are portable, factory precalibrated, and ready to work out of the box. Includes calibration certificate.

Applications

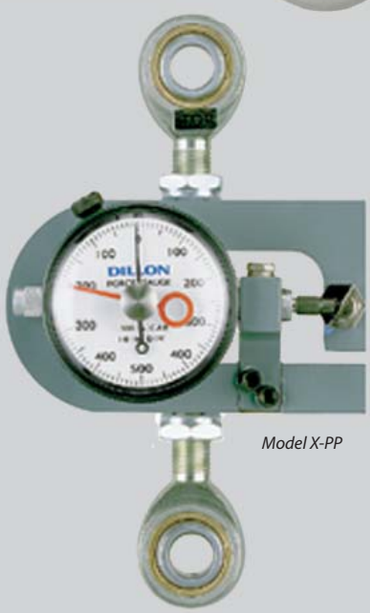
X-Force: Arbor Press, Checking Brake Pressure in Airplane Cockpit, Automotive Industry, Canning Facilities for Measuring Compressive Loads

U-Force: Measure Force between Welding Probes

Mechanical X Force Gauges

Model X-C

Model X-ST



Model X-PP

Model X Mechanical Force Gauges
Measure tension, compression and push/pull.

Model X-C with compression calibration

Model X-C comes in nine capacities ranging from 50 lb to 25,000 lb or 50 to 10000 kg. All feature accuracy of ±1% of full capacity, except the 25,000 (10000 kg) capacity instruments which are accurate to ±2% of full capacity.

Load is applied against a hardened ball which rotates to maintain vertical alignment as pressure increases. The ball is held in place with a spring clip or retainer. A threaded mounting hole is located opposite the loading ball in the bottom of the beam.

Model X-C is available in pound and kilogram capacities.

Model X-ST with tension calibration

Dillon offers the Model X-ST in seven capacities from 100 lb to 10,000 lb or 25 kg to 5000 kg. Accuracy is ±1% of full range. (Note: For applications requiring capacities beyond 10,000 lb or 5000 kg in tension, consider the Dillon Dynamometer).

Tension Force Gauges in capacities through 2,000 lb (1000 kg) are supplied with two rod-end connectors. 5,000 and 10,000 lb (5000 kg) capacities are equipped with convenient shackles and pins.

Calibration is available in pounds and kilograms.

Model X-PP with compression/tension calibration

Force gauges calibrated in push-pull are available in four capacities in pounds ranging from 50-0-50 lb up to and including 2,500-0-2,500 lb and three metric capacities from 50-0-50 to 1000-0-1000 kg. Accuracy is ±2% of maximum dial reading (based upon total capacity of both compression and tension scales).

Model X-PP gauges in capacities up to and including 500-0-500 lb or 250-0-250 kg are supplied with a set of self-aligning spherical rod-end connectors for tension loading. Force is applied to connectors through a hardened steel pin which must be slip fit in connector holes.

2,500-0-2,500 lb and 1000-0-1000 kg capacity gauges are equipped with two shackle adapters, shackles and pins. Shackles must be removed when compression load is involved. Force is then applied against shackle pins in a suitable test setup.

All push-pull gauges are supplied with a compression-loading spherical ball fitting for compression loading.

Options

- Shockless dial indicator for installations involving the sudden application or release of force. (Maximum pointer cannot be supplied with shockless dial indicator.)
- Maximum load pointer which remains at peak load until manually reset. (not available on Model X-PP)
- Zero position on dial may be factory positioned at 12, 3, 6, or 9 o'clock. Standard position is at 12 o'clock.

Principle of operation

A D-shaped deflection beam is the heart of the Dillon Force Gauge. Machined to close tolerances, beams are heat treated to develop optimum strength and spring characteristics. High-strength aluminum is used in Model X instruments through 500 lb (200 kg). Ranges above this are fabricated from aircraft-quality alloy steel.

A precision dial indicator is mounted at the null point of the deflection beam. The indicator plunger rests against a slanted anvil at the open end of the beam, as shown in the photo. Under compression loads, the two halves of the beam tend to close. Tension force causes them to move apart. This action pushes the plunger inward, as determined by the slant of the anvil. Readings produced on the dial are in direct relation to applied load. The pointer revolves 360° clockwise under compression or tension forces. Push-pull gauges read half scale (180°) clockwise in compression, and counterclockwise, 180° from center zero under tension loads.

Low beam deflection

When measured across the center of top- and bottom-loading holes, the approximate beam deflection is as follows:

50 to 250-lb capacity (25 to 100 kg)	0.019″
500-lb capacity (200 kg)	0.016″
1,000-lb capacity (500 kg)	0.018″
2,000-lb capacity (1000 kg)	0.011″
5- and 10,000-lb capacity (2 and 5000 kg)	0.010″
25,000-lb capacity (10,000 kg)	0.022″

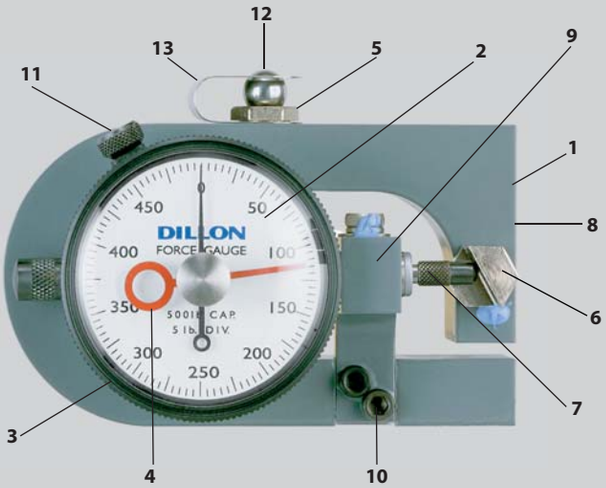
Overload rating

Accidental overloads up to 30% of capacity can be safely sustained without injury to the dial indicator or deflection beam. All capacities feature a 5:1 design safety factor.

General information

- To reset zero, loosen knurled bezel-locking screw and rotate dial.
- Dillon Model X Force Gauges may be mounted horizontally, vertically, or flat.
- The baked-enamel finish resists corrosion and rust.
- Operating temperature up to 120° F.

Model X Force-Gauge Parts Identification
1. Deflection beam
2. Dial indicator with zero at standard 12:00 position
3. Bezel
4. Maximum load pointer (optional)
5. Pressure button
6. Slanted Anvil
7. Dial indicator plunger
8. Anvil set screw
9. Mounting bracket for dial indicator
10. Screws for mounting bracket
11. Bezel-locking screw
12. Loading ball
13. Spring retainer clip



Mechanical X Force Gauge

Model X-C (Compression) Force Gauge

A

Part Number	Pounds	Part Number	Kilograms	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	J in (mm)	J1 in (mm)	K in (mm)
30386-0035	50 x .05	-	-	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.00 (50.8)	2.25 (57.1)	0.38 (9.6)	1/4-28	1/4-28	2.94 (74.6)
30386-0043 30386-0159*	100 x 1	- 30386-0183*	50 x 0.5	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.00 (50.8)	2.25 (57.1)	0.38 (9.6)	1/4-28	1/4-28	2.94 (74.6)
30446-0033 30446-0090*	250 x 2.5	- 30446-0181*	100 x 1	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.00 (50.8)	2.25 (57.1)	0.38 (9.6)	1/4-28	1/4-28	2.94 (74.6)
30446-0017 30446-0074*	500 x 5	- 30446-0082*	200 x 2	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.00 (50.8)	2.25 (57.1)	0.38 (9.6)	1/4-28	1/4-28	2.94 (74.6)
30444-0019 30444-0050*	1,000 x 10	- 30444-0068*	500 x 5	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.00 (50.8)	2.25 (57.1)	0.38 (9.6)	1/2-20	1/2-20	2.94 (74.6)
30388-0017 30388-0058*	2,000 x 20	- 30388-0066*	1000 x 10	4.75 (120.6)	1.00 (25.4)	0.50 (12.7)	3.00 (76.1)	2.25 (57.1)	2.50 (63.5)	2.75 (69.8)	0.38 (9.6)	1/2-20	1/2-20	3.44 (873)
30389-0016 30389-0057*	5,000 x 50	- 30389-0065*	2000 x 20	4.75 (120.6)	1.00 (25.4)	0.50 (12.7)	3.00 (76.1)	2.25 (57.1)	2.50 (63.5)	2.7 (69.8)	0.38 (9.6)	1/2-20	1/2-20	3.44 (8.73)

B

Part Number	Pounds	Part Number	Kilograms	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	J in (mm)	J1 in (mm)	K in (mm)
30423-0014 30423-0055*	10,000 x 100	- 30423-0063*	5000 x 50	5.87 (149.0)	1.87 (47.5)	0.94 (23.9)	3.94 (100.0)	2.75 (69.8)	3.00 (76.1)	3.62 (91.9)	0.75 (19.0)	7/8-14	7/8-14	4.50 (114.2)
30449-0014 30449-0055*	25,000 x 250	- 30449-0063*	10000 x 100	6.56 (166.5)	2.38 (60.4)	1.18 (29.9)	4.68 (118.8)	3.31 (84.0)	3.63 (92.1)	3.62 (91.9)	1.00 (25.4)	1-14	1 1/4-12	5.50 (139.6)

Model X-ST (Tension) and Model X-PP (Push-Pull) Gauges

C

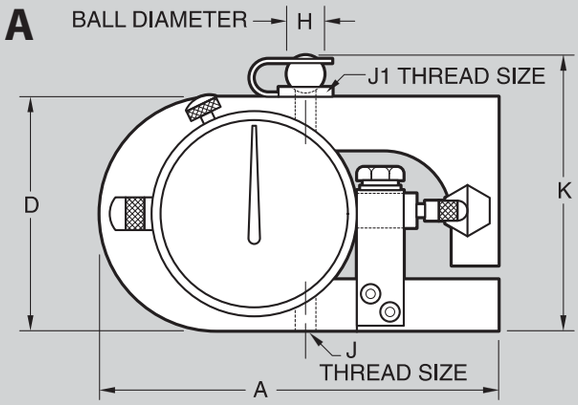
Part Number	Tension lb	Part Number	Tension kg	Part Number	Push-Pull lb	Part Number	Push-Pull kg	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)
-	-	- 30443-0176*	25 x 0.25	-	-	-	-	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.03 (51.5)
30443-0044 30443-0150*	100 x 1	30443-0093 30443-0184*	50 x 0.5	30795-0014	50-5-50	-	-	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.03 (51.5)
30445-0034 30445-0109*	250 x 2.5	- 30445-0182*	100 x 1	30796-0013	125-0-125	30796-0021	50-0-50	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.03 (51.5)
30445-0018 30445-0083*	500 x 5	30445-0026 30445-0091*	200 x 2	-	-	-	-	4.25 (107.9)	1.00 (25.4	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.03 (51.5)
30276-0012 30276-0053*	1,000 x 10	- 30276-0061*	500 x 5	30798-0011	500-0-500	30798-0029	250-0-250	4.25 (107.9)	1.00 (25.4)	0.50 (12.7)	2.50 (63.5)	2.06 (52.3)	2.03 (51.5)
30440-0013 30440-0054*	2,000 x 20	- 30440-0062*	1000 x 10	-	-	-	-	4.75 (120.6)	1.00 (25.4)	0.50 (12.7)	3.00 (76.1)	2.25 (57.1)	2.19 (55.6)

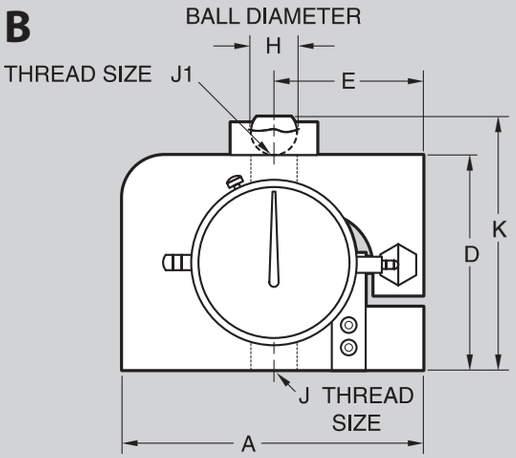
D

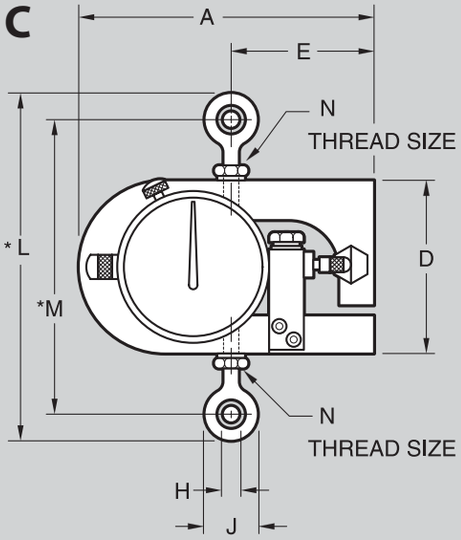
- 30442-0052*	5,000 x 50	-	2000 x 20	30800-0017	2,500-0-2,500	30800-0025	1000-0-1000	4.75 (120.6)	1.50 (36.1)	0.75 (19.0)	3.00 (76.1)	2.25 (57.1)	2.66 (67.5)
- 30441-0053*	10,000 x 100	- 30441-0061*	5000 x 50	-	-	-	-	5.88 (149.2)	1.88 (47.7)	0.94 (23.9)	3.94 (100.0)	2.75 (69.8)	3.00 (76.1)

**Max hand*

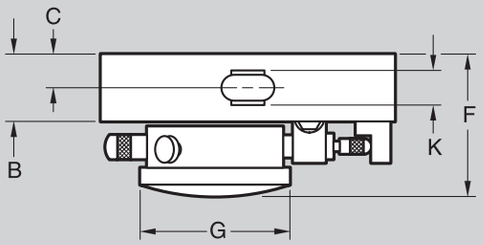
Mechanical X Force Gauge

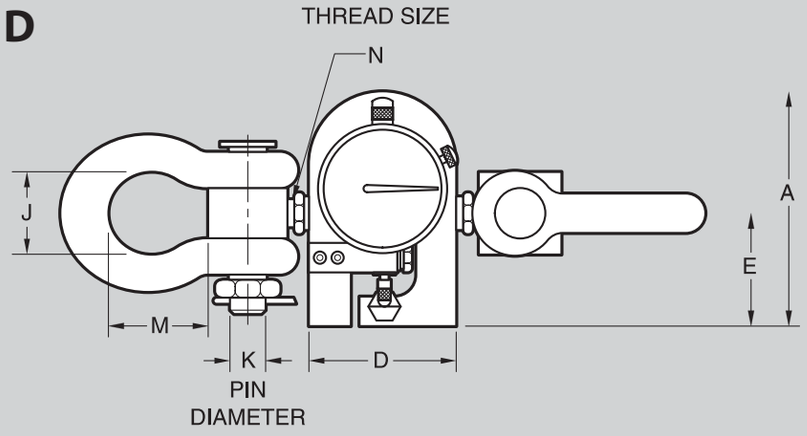


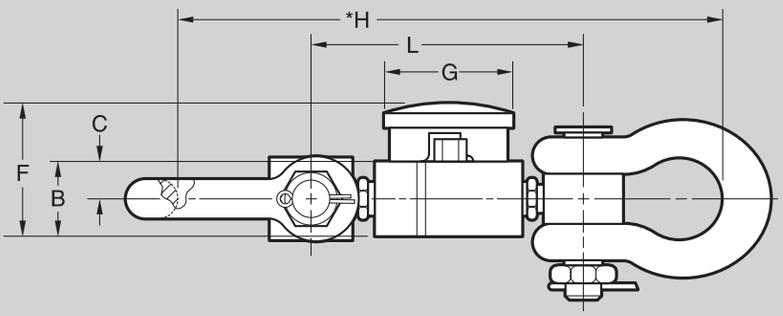




Top View of Drawings A,B,C

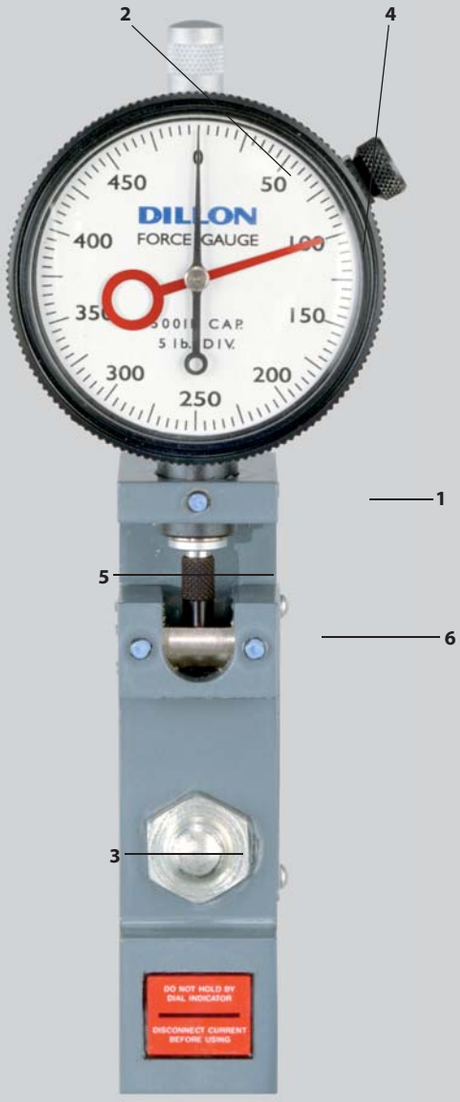






G in (mm)	H in (mm)	J in (mm)	K in (mm)	L in (mm)	M in (mm)	N in (mm)
2.25 (57.1)	0.25 (6.3)	0.75 (19.0)	0.38 (9.6)	5.00	4.25 (107.9)	1/4-28
2.25 (57.1)	0.25 (6.3)	0.75 (19.0)	0.38 (9.6)	5.00	4.25 (107.9)	1/4-28
2.25 (57.1)	0.25 (6.3))	0.75 (19.0)	0.38 (9.6)	5.00	4.25 (107.9)	1/4-28
2.25 (57.1)	0.25 (6.3))	0.75 (19.0)	0.38 (9.6)	5.00	4.25 (107.9)	1/4-28
2.25 (57.1)	0.50 (12.7)	1.31 (33.2)	0.62 (15.7)	6.94	5.62 (155.3)	1/2-20
2.75 (69.8)	0.50 (12.7)	1.31 (33.2)	0.62 (15.7)	7.44	6.12 (155.3)	1/2-20
2.75 (69.8)	10.94 (277.7)	1.69 (42.9)	0.75 (19.0)	5.44	1.94 (138.1)	1/2-20
3.62 (91.9)	12.69 (322.1)	1.69 (42.9)	0.75 (19.0)	7.19	1.94 (182.5)	7/8-1/4

Mechanical U Force Gauges



Model U Force-Gauge Parts Identification
1. Deflection beam
2. Indicator with zero at 6:00 position
3. Pressure fitting
4. Maximum pointer (optional)
5. Indicator plunger
6. Slanted anvil

Model U Mechanical Force Gauges
Slim line design for added versatility.

The Model U Force Gauge is an accurate (±1% of full range) mechanical compression-measurement instrument. Its slim-line design has repeatedly proven valuable in installations where space is at a premium.

The versatility of this simple instrument is demonstrated by the fact that it can be used as a hand-held device, permanently mounted on a flat surface plate, or used in test fixtures.

How the U Force Gauge Works

The Dillon Model U Force Gauge employs a deflection beam machined from aircraft quality alloy steel and heat treated to develop optimum strength and spring characteristics. A precision dial indicator is mounted at the null point of this beam.

Compression force is normally applied against a single pressure fitting mounted on the upper half of the beam. (For accurate calibration, designate the type of pressure fitting you wish to use with the U Force Gauge. They are of four types: domed, cupped, flat, or a flat nylon insert. Flat bottom gauges require only one fitting).

When load is exerted, the beam moves downward causing a slanted anvil on the free end to push against the indicator plunger. The indicator reading is a direct representation of the applied load.

Dillon offers a capacity for every job

U Force Gauges are available for measurement in pounds or kilograms. There are 6-pound capacities ranging from 25 x .25 to 5,000 x 50 lb. The 4 kilogram capacities range from 10 x .1 to 500 x 5 kg.

Dillon also offers high-capacity gauges with pounds capacities from 500 to 5,000 lb and a metric model with a capacity of 500 kg. High-capacity gauges all have flat-bottom design, and each includes one pressure fitting of your choice.

Zero position– The zero position on the indicator dial can be factory positioned at 12 o'clock, 3 o'clock, 6 o'clock, or 9 o'clock. The standard position is the 6 o'clock position.

Maximum pointer– Model U Force Gauges can include a maximum pointer which remains at peak load until it is reset.

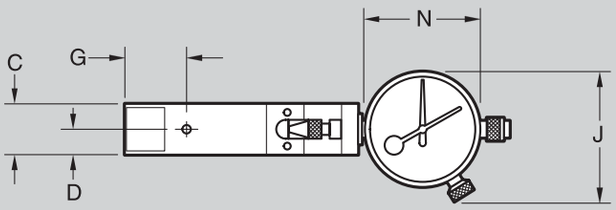
Shockless dial indicator– Offers added protection in applications where force is applied or released rapidly.

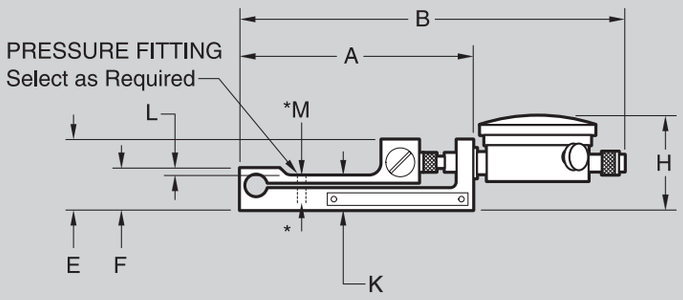
Dial orientation– The dial indicator can be factory positioned at 0° (standard), 90°, 180°, 270° clockwise. Photos on this page show standard dial orientation.

Note: maximum pointer and shockless dial indicator cannot be offered on the same unit.

Low- Range Flat-Bottom Model U Force Gauge

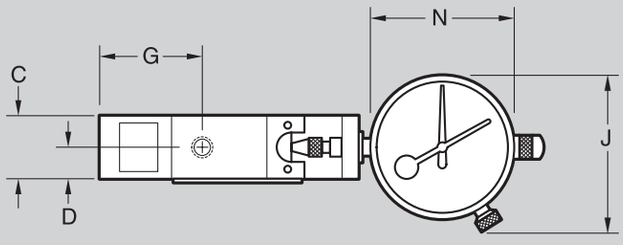
Part Number	Pounds	Part Number	Kilograms	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	J in (mm)	K in (mm)	L in (mm)	M in (mm)
30354-0017	25 x 0.25	30354-0066	10 x 0.1	3.28 (83.3)	5.50 (139.6)	0.73 (18.5)	0.36 (9.1)	0.97 (24.6)	0.56 (14.2)	0.90 (22.8)	1.40 (35.5)	1.87 (47.5)	0.46 (11.7)	0.094 (2.4)	1.67 (42.4)
30354-0033	100 x 1	30354-0082	50 x 0.5	3.28 (83.3)	5.50 (139.6)	0.73 (18.5)	0.36 (9.1)	0.97 (24.6)	0.56 (14.2)	0.90 (22.8)	1.40 (35.5)	1.87 (47.5)	0.46 (11.7)	0.094 (2.4)	1.67 (42.4)
30354-0058	250 x 2.5	30354-0090	100 x 1	3.28 (83.3)	5.50 (139.6)	0.73 (18.5)	0.36 (9.1)	0.97 (24.6)	0.56 (14.2)	0.90 (22.8)	1.40 (35.5)	1.87 (47.5)	0.46 (11.7)	0.094 (2.4)	1.67 (42.4)

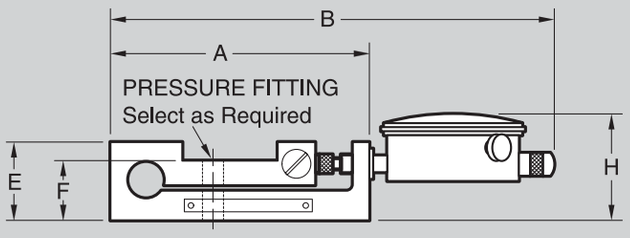




High- Range Flat-Bottom Model U Force Gauge

Part Number	Pounds	Part Number	Kilograms	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	J in (mm)	N in (mm)
30482-0020	500 x 5	-	-	3.87 (98.0)	6.75 (171.3)	0.98 (24.9)	0.49 (12.4)	1.25 (31.5)	0.92 (23.6)	1.52 (38.6)	1.67 (42.4)	2.44 (63.5)	2.25 (57.2)
30482-0053	1,000 x 10	30482-0079	500 x 5	3.87 (98.0)	6.75 171.3)	0.98 (24.9)	0.49 (12.4)	1.25 (31.5)	0.92 (23.6)	1.52 (38.6)	1.67 (42.4)	2.44 (63.5)	2.25 (57.2)
30478-0034	5,000 x 50	-	-	4.74 (120.1)	7.94 (201.5)	0.98 (24.9)	0.49 (12.4)	1.72 (43.7)	1.41 (35.5)	2.06 (52.3)	2.06 (52.3)	2.88 (72.8)	2.75 (69.9)





Mechanical U Force Gauges

Select the right pressure fittings

Load is applied to the Dillon Model U Force Gauge through hardened pressure fittings. Each recessed-bottom gauge includes two fittings which you may choose from the following list. Each flat-bottom gauge includes one fitting which you may choose from the following list.

For 25 to 250 lb (10 to 100 kg) capacity gauges:

- Part No. 30160-0011 flat surface
- Part No. 30156-0017 cupped surface
- Part No. 30159-0014 domed surface
- Part No. 30158-0015 nylon insert

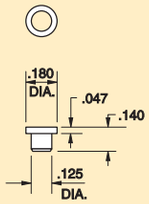
For 500 lb, 1000 lb, and 500 kg capacity gauges:

- Part No. 30483-0011 domed surface
- Part No. 30378-0019 cupped surface
- Part No. 30484-0010 flat surface

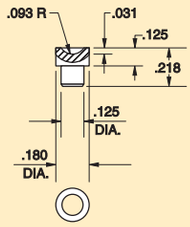
For 5,000 lb capacity gauges:

- Part No. 30434-0011 domed surface pressure fitting
- Part No. 30125-0015 cupped surface pressure fitting
- Part No. 30475-0011 flat surface

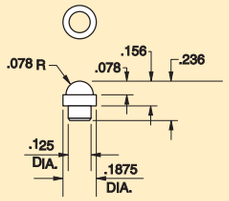
30160-0011



30156-0017



30159-0014



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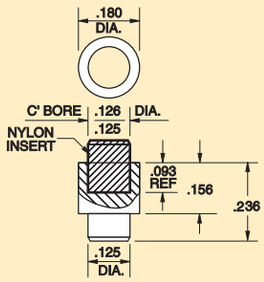

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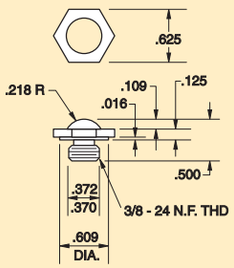

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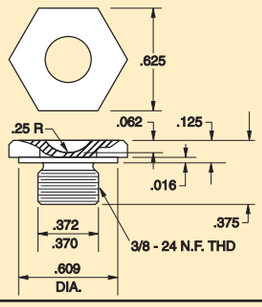
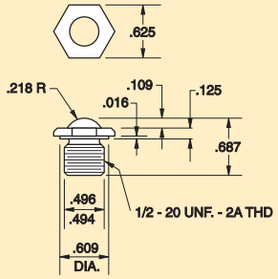


30434-0011



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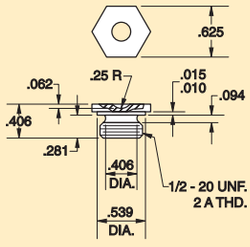

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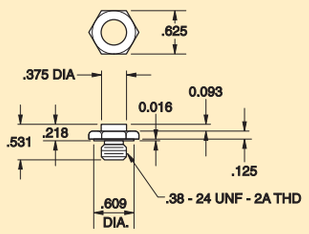

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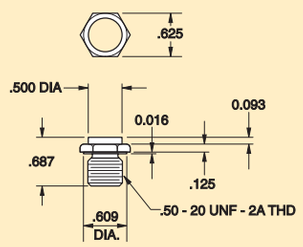


Load Cells & Indicators

Indicator & Load Cell Combination

A system comprised of the following:

Electronic indicator display

Load cell and cable

System calibration

These systems are ready to work out of the box. Includes calibration certificate. This calibration is unique to the load cell and indicator. If either is replaced, the new system should receive a new calibration.

Load cell

A sensor which responds with a proportional signal output relative to a load applied to it in tension or compression. Strain gauge load cells are the most common technology, where voltage output varies with changing force. The output is not meaningful by itself, and a dedicated indicator is typically coupled to it. Load cells are available in a wide assortment of capacities in each design.

The load cell has a long wire lead or connector for the cable assembly.

Indicator

The instrumentation designed to convert the meaningless voltage signal from the sensor into a reading understandable for the user. Depending upon sophistication, the instrument may have a variety of output choices as standard or options (e.g. serial RS-232, analog output, relays).

Applications

Load Cells: Batching Systems, Weighing, Pull Tests, Overhead Crane Load Display

Indicator: Drum Weighing, Overhead Weighing, Indication of Tension Test of Cables in Test Bed, Interfaced with Running Line Tension Meters

Load Cells

S- Beam

Z-cell

SGMC / SGMT

- Different styles for unique applications
- Many capacities available
- Many hardware choices for simple installation
- Free system assembly and calibration

Field proven in thousands of applications

Dillon load cells are rugged strain gage sensors with field proven history in thousands of applications.

Different styles for unique applications

- Top performing tension/compression combination cells
- Overhead suspended rated cells – designed for strength and safety
- Robust compression-only cells

Many capacities available

- Capacities from 25 – 100,000 lb / 10 – 40,000 kg
- Many stock items

Hardware eases load cell installation

- Choices from lifting eyes, eye nuts, threaded stud, compression bases and load buttons

Free calibration with Dillon Indicators

- A Dillon load cell and indicator system is ready for measurement, right out of the box. Includes detailed certificate.

Combine several load cells together and see their total output with a load cell summing box

Dillon S-Beam Load Cells

For performance and versatility, the Dillon S-Beam load cell is a top choice.

- Measures both tension and compression
- Alloy steel with nickel plating
- Broad assortment of hardware

Capacities	Cell Height	Thread
50 / 100 / 200 lb 22 / 45 / 90 kg	2.50 in 64 mm	1/4-28
500 / 1,000 / 2,000 lb 220 / 450 / 900 kg	2.50 in 64 mm	1/2-20
5,000 / 10,000 lb 2,200 / 4,500 kg	4.00 in 99 mm	3/4-16
20,000 lb 9,000 kg	7.00 in 178 mm	1¼-12

See back Load Cell specifications sheet for more dimensions and detail.

Tension Z-cells are suitable for overhead suspended measurement.

Dillon Z-Beam Load Cells

The most robust Z-cell style load cells available.

- Top-grade material
- Built in overload stops
- Includes hardware

Capacities	Tension Height	Compression Height
25 / 50* / 100 lb 10 / 22* / 45 kg	7.25 in 185 mm	3.9 in 100 mm
500 / 1,000 lb 220 / 450 kg	8 in 205 mm	4.7 in 120 mm

See back Load Cell specifications sheet for more dimensions and detail.

**Compression only*

SGMT
Designed for overhead suspension. Optional eye nut available.

SGMC
Includes cap and base.

Dillon SGMT / SMGC Load Cells

Designed to handle extreme applications.

- High-Grade stainless steel body
- 500% Minimum overload safety factor
- Full rated pound and kilogram capacities

Capacities	SGMT Height (tension)	SGMC Height (compression)
2,000 / 5,000 / 10,000 lb	4.88 in	4.91 in
20,000 lb	6.25 in	5.88 in
50,000 / 100,000 lb	7.91 in	7.38 in

See back Load Cell specifications sheet for more dimensions and detail.

Load Cells

Specifications

Model*	S-Beam	Z-Cell	SGMT & SGMC
General			
Application	Tension and Compression	Tension or Compression	Tension SGMT Compression SGMC
Connector or Cable Length	20 ft / 6 m**	side mount connector	side mount connector
Rated Output	3 ±0.01 mV/V	2 ±0.2 mV/V	2 ±0.2
Maximum Excitation	15 VDC	15 VDC	15 VDC
Bridge Resistance	350Ω + 4Ω	350Ω ± 2Ω	350Ω ± 2Ω
Overload without Zero Shift (% FS)	150%	300%	300%
Minimum Ultimate Safety Factor (% FS)	not rated	500%	500%
Suitable for Critical Suspended Loads	No	Yes	Yes
Typical In-system Accuracy			
Typical System Accuracy FI-127* (% FS)	±0.1%	±0.1%	±0.25%
Typical System Accuracy FI-90* (% FS)	±0.1%	±0.1%	±0.35%
Typical System Accuracy FI-80* (% FS)	±0.1%	±0.1%	±0.5%
Specific Performance Accuracy			
Zero Balance (% full scale capacity (FS))	<1%	<10%	<2%
Non-linearity (% FS)	±0.02%	±0.05%	±0.4%
Hysteresis (% FS)	±0.02%	±0.03%	±0.3%
Non-repeatability (% FS)	±0.01%	±0.02%	±0.1%
Creep (% FS in 20 min)	0.03%	0.03%	0.03%
Temperature Specifications			
Zero (% FS/100°F)	±0.1%	±0.1%	±2.0%
Output (% load/100°F)	±0.2%	±0.2%	±2.0%
Temperature Comp Range	15 to 140°F	15 to 115°F	15 to 115°F
Operable Temperature Range	–20 to +200°F	–20 to +200°F	–20 to +200°F

** Typical applications consist of maximum indicator linearization correction of load cell. Increased loading with immediate measurement. No torsional or off-axis loads. Temperature of 65 to 75°F.*

*** Available with tinned leads or 7-pin connector*

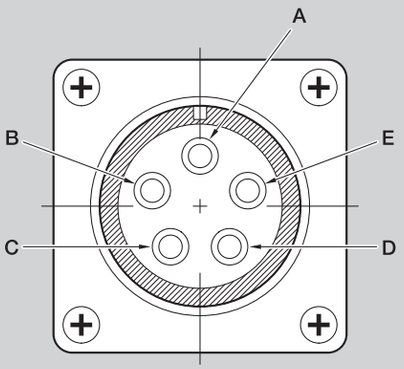
Capacity / Resolution

Capacity	Typical Display Increments (resolution)
10 lb / kg	0.001 lb / kg
11 lb / kg	0.002 lb / kg
20 lb / kg	0.002 lb / kg
22 lb / kg	0.005 lb / kg
45 lb / kg	0.005 lb / kg
50 lb / kg	0.005 lb / kg
90 lb / kg	0.01 lb / kg
100 lb / kg	0.01 lb / kg
200 lb / kg	0.02 lb / kg
220 lb / kg	0.02 lb / kg

Capacity	Typical Display Increments (resolutions)
450 lb / kg	0.05 lb / kg
500 lb / kg	0.05 lb / kg
1000 lb / kg	0.1 lb / kg
2,000 lb / kg	0.2 lb / kg
5,000 lb / kg	0.5 lb / kg
10,000 lb / kg	1 lb / kg
20,000 lb / kg	2 lb / kg
40,000 lb / kg	5 lb / kg
50,000 lb / kg	5 lb / kg
100,000 lb/kg	10 lb / kg

Z-Cell/SGMT/SGMC connector

A - Output
B + Excitation
C + Output
D -Excitation
E Shield



S-Beam tinned leads

Red + Excitation
Black -Excitation
Green + Output
White - Output
Bare Shield

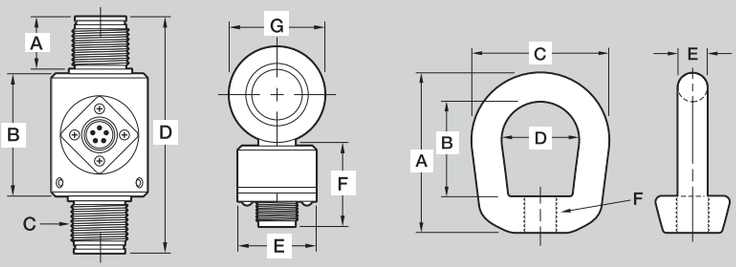
Load Cells

SGMT Dimensions

Capacities	Part Number	A in (mm)	B in (mm)	C in (class)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	Weight lb (kg)
2,000 lb 5,000 lb 10,000 lb	31909-0064 31909-0155 31910-0038	1.13	2.63	1 3/16-12	4.88	1.50	1.75	1.97	2.0
20,000 lb	31911-0045	1.81	2.63	1 ½-12	6.25	1.50	1.75	2.22	2.5
50,000 lb	31912-0036	2.53	2.84	2 ¼-12	7.91	1.50	1.75	3.00	5.5
100,000 lb	31912-0085	2.53	2.84	2 ¼-12	7.91	1.50	1.75	3.00	10

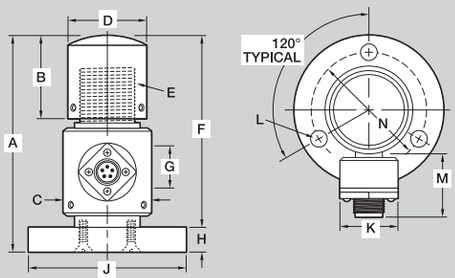
SGMT Eye Nut Dimensions

Load Cell Ratings	Eye Nut Part Number	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	Weight lb (kg)
2,000 – 10,000 lb 1,000 – 5,000 kg	30270-0018	5.0 (127)	3.1 (78)	4.0 (102)	2.2 (57)	0.9 (23)	1 3/16 - 12	2.5 (1.1)
20,000 lb 10,000 kg	30560-0017	6.8 (172)	4.0 (102)	5.6 (142)	3.1 (79)	1.3 (32)	1 ½ - 12	6.8 (3.1)
50,000 lb 20,000 kg	30561-0016	10.0 (254)	6.3 (159)	7.0 (178)	4.0 (102)	1.5 (38)	2 ¼ - 12	17 (7.6)



SGMC Dimensions

Capacities	Part Number	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	H in (mm)	Weight lb (kg)
2,000 lb 5,000 lb 10,000 lb	31913-0068 31913-0159 31914-0034	4.91	1.63	0.50	3.88	1.50	0.406	1.75	3.06	3.5
20,000 lb	31915-0041	5.88	1.97	0.63	4.00	1.50	0.531	1.75	3.125	12
50,000 lb	31916-0032	7.38	2.94	0.63	5.00	1.50	0.531	1.75	4.00	12
100,000 lb	31916-0081	7.38	2.94	0.63	5.00	1.50	0.531	1.75	4.00	15



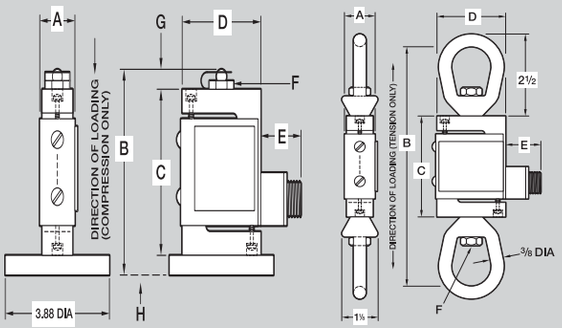
Load Cells

Z-Cell Dimensions

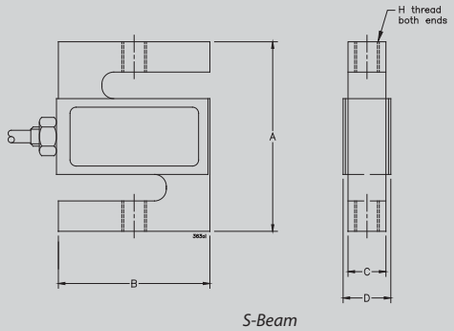
Capacities lb (kg)	Part Number	A in (mm)	B in (mm)	C in (class)	D in (mm)	E in (mm)	F in (mm)	G in (mm)	Weight lb (kg)
Tension Load Cells									
25 (10) 100 (45)	33565-0115 33565-0131	(22)	(184)	(76)	(51)	(38)			(1.4)
500 (220)	33565-0164	1.13 (28)	7.5 (196)	3.25 (83)	2.50 (64)	1.5 (38)	½ - 20	n/a	3.0 (1.4)
1000 (450)	33565-0180	1.13 (28)	8.0 (203)	3.75 (95)	2.50 (64)	1.5 (38)	½ - 20	n/a	3.0 (1.4)
Compression Load Cells									
25 (10) 50 (22) 100 (45)	33365-0117 33365-0125 33365-0133	0.88 (22)	3.94 (100)	3.00 (76)	2.00 (51)	1.5 (38)	3/8 - 24	0.44 (11)	3.0 (1.4)
500 (220)	33365-0166	1.13 (28)	4.19 (106)	3.25 (83)	2.50 (64)	1.5 (38)	½ - 20	0.44 (11)	3.0 (1.4)
1000 (450)	33365-0182	1.13 (28)	4.69 (119)	3.75 (95)	2.50 (64)	1.5 (38)	½ - 20	0.44 (11)	3.0 (1.4)

S-Beam Dimensions

Capacities lb (kg)	Part Number	A in (mm)	B in (mm)	C in (class)	D in (mm)	E in (mm)	Weight lb (kg)
20 ft (6 m) Cable with Tinned Leads							
50 (22) 100 (45) 200 (90)	AWT27-500020 AWT27-500021 AWT27-500022	2.50 (64)	2.00 (51)	0.50 (12)	0.7 (17)	¼ - 28 (2B)	1.1 (0.5)
500 (220) 1,000 (450)	AWT27-500023 AWT27-500024	2.50 (64)	2.00 (51)	0.75 (18)	0.9 (23)	½ - 20 (2B)	1.5 (0.7)
2,000 (900)	AWT27-500025	2.50 (64)	2.00 (51)	1.00 (25)	1.2 (29)	½ - 20 (2B)	2.2 (1.0)
5,000 (2,200) 10,000 (4,500)	AWT27-500026 AWT27-500027	4.00 (99)	3.00 (76)	1.00 (31)	1.2 (29)	¾ - 16 (2B)	3.6 (1.6)
20,000 (9,000)	AWT27-500028	7.00 (178)	5.00 (113)	2.00 (43)	2.2 (48)	1 ¼ - 12 (2B)	20 (9.2)
20 ft (6 m) Cable with 7-pin Connector							
50 (22) 100 (45) 200 (90)	AWT27-500011 AWT27-500012 AWT27-500013	2.50 (61)	2.00 (51)	0.50 (12)	0.7 (17)	¼ - 28 (2B)	1.1 (0.5)
500 (220)	AWT27-500014	2.50 (61)	2.00 (51)	0.75 (18)	0.9 (23)	½ - 20 (2B)	1.5 (0.7)
2,000 (900)	AWT27-500016	2.50 (61)	2.00 (51)	1.00 (25)	1.2 (29)	½ - 20 (2B)	2.2 (1.0)
5,000 (2,200) 10,000 (4,500)	AWT27-500017 AWT27-500018	4.00 (99)	3.00 (76)	1.00 (31)	1.2 (29)	¾ - 16 (2B)	3.6 (1.6)
20,000 (9,000)	AWT27-500019	7.00 (178)	5.00 (113)	2.00 (43)	2.2 (48)	1 ¼ - 12 (2B)	20 (9.2)



Z-Cells

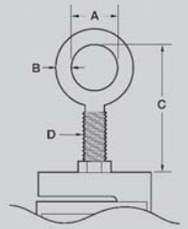


S-Beam

Load Cells

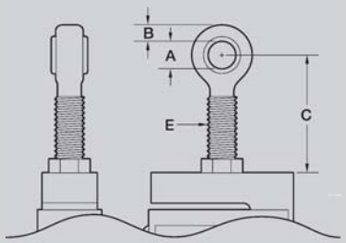
Forged Eyebolt Dimensions *(not for critical overhead use, see Z-Cell and SGMT)*

S-Beam Load Cell Ratings	Eyebolt Part Number	Breaking Strength*	A in (mm)	B in (mm)	C in (mm)	D in (mm)	Weight lb (kg)
50– 200 lb (22 – 90 kg)	52744-0218	2,500 lb	1.0 (25)	0.4 (10)	2.2 (55)	¼ - 28	0.14 (0.06)
500 – 2,000 lb (220 – 900 kg)	52744-0234	12,000 lb	1.1 (28)	0.5 (13)	2.7 (67)	½ - 20	0.36 (0.16)
5,000 – 10,000 lb (2,200 – 4,500 kg)	52744-0242	25,000 lb	1.5 (38)	0.7 (18)	3.4 (85)	¾ - 16	1.0 (0.45)



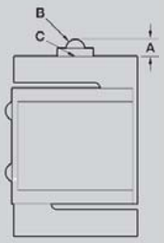
Rod End Bearing Dimensions *(not for critical overhead use, see Z-Cell and SGMT)*

S-Beam Load Cell Ratings	Rod End Bearing Part Number	Rating*	A in (mm)	B in (mm)	C in (mm)	D in (mm)	E in (mm)	Weight lb (kg)
50– 200 lb (22 – 90 kg)	AWT15-500178	2,200 lb	0.25 (6)	0.25 (6)	1.3 (32)	0.38 (10)	¼ - 28	0.1 (0.0)
500 – 2,000 lb (220 – 900 kg)	AWT15-500179	8,300 lb	0.50 (13)	0.41 (11)	1.8 (47)	0.63 (16)	½ - 20	0.3 (0.1)
5,000 – 10,000 lb (2,200 – 4,500 kg)	AWT15-500180	14,000 lb	0.75 (19)	0.50 (13)	2.0 (50)	0.88 (22)	¾ - 16	0.7 (0.3)
20,000 lb 9,000 kg	AWT15-500181	44,000 lb	1.25 (32)	0.75 (19)	2.6 (67)	1.09 (28)	1 ¼ - 12	2.5 (1.1)



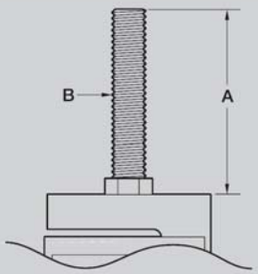
Load Button Dimensions

Load Cell Ratings	Rod End Bearing Part Number	A in (mm)	B Radius in (mm)	C in (mm)	Weight lb (kg)
50– 200 lb (22 – 90 kg)	AWT05-500228	0.25 (6)	0.50 (13)	¼ - 28	0.0 0.0
500 – 2,000 lb (220 – 900 kg)	AWT05-500230	0.50 (13)	3.00 (76)	½ - 20	0.0 0.0
5,000 – 10,000 lb (2,200 – 4,500 kg)	AWT05-500231	0.68 (17)	5.00 (129)	¾ - 16	0.1 0.1
20,000 lb 9,000 kg	AWT05-500233	1.17 (30)	15.0 (381)	1 ¼ - 12	0.5 0.3



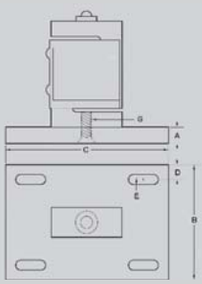
Threaded Stud Dimensions *(not for critical overhead use, see Z-Cell and SGMT)*

Load Cell Ratings	Rod End Bearing Part Number	A in (mm)	B in (mm)	Weight lb (kg)
50– 200 lb (22 – 90 kg)	AWT15-500173	1.2 (30)	¼ - 28	0.0 0.0
500 – 2,000 lb (220 – 900 kg)	AWT15-500174	1.9 (48)	½ - 20	0.1 0.1
5,000 – 10,000 lb (2,200 – 4,500 kg)	AWT15-500175	2.1 (53)	¾ - 16	0.4 0.2
20,000 lb 9,000 kg	AWT15-500176	9.5 (241)	1 ¼ - 12	3.9 1.8



Compression Plate Dimensions *(not for tensile use!)*

Load Cell Ratings	Rod End Bearing Part Number	A in (mm)	B in (mm)	C in (mm)	E in (mm)	E in (mm)	F in (mm)	Weight lb (kg)
50– 200 lb (22 – 90 kg	AWT15-500182	0.38 (10)	4.00 (102)	4.00 (102)	0.50 (13)	0.28 x 0.75	¼ - 28	1.8 (0.8)
500 – 2,000 lb (220 – 900 kg)	AWT15-500183	0.50 (13)	4.00 (102)	4.00 (102)	0.75 (19)	0.41 x 1.00	½ - 20	2.3 (1.1)
5,000 – 10,000 lb (2,200 – 4,500 kg)	AWT15-500184	0.75 (19)	5.00 (127)	5.00 (127)	1.00 (25)	0.53 x 1.00	¾ - 16	5.4 (2.5)
20,000 lb 9,000 kg	AWT15-500185	1.25 (32)	7.00 (178)	6.00 (178)	1.50 (38)	0.88 x 1.25	1 ¼ - 12	15.2 (6.9)



FI-521 LED Load Cell Indicator

The FI-521 is a bi-directional load cell instrument accepting both positive and negative load cell signals, internally performing the analog to digital conversion at 80 times per second. The FI-521 Indicator features an IP65 stainless steel enclosure for reliable performance in wet or dusty environments. Included swivel mounting bracket allows for wall or bench mounting. Watertight connections include the AC power cable, 7-pin load cell quick disconnect cable connector and three additional cable ports. The instrument's 6 key front panel enables all setup, configuration and calibration procedures. FI-521's calibration procedures include a multi-point calibration feature for correcting the performance of non-linear load cells. The indicator has memory to store calibration information for up to three load cells.

The FI-521 can store peak and first peak values at 80 Hz. Operators can track stored data using date/time information and a 6-digit ID number. The stored data can then be printed or sent to a PC or other device using programmable print and data output formats. The FI-521's four logic level inputs and the bi-directional serial port can receive control commands from external devices. The instrument can control external devices via any of the two standard cutoff outputs. Also, has on board an analog output that is fully calibrated for 0 to 2.5 VDC.

System calibration is free when ordered with a Dillon Load Cell. See notes on load cell price list.

Key Features:

- 3 cell memory
- 80 Hz peak capture rate
- IP65
- 2 RS-232 serial ports
- RS-485
- 5 point curve linearization
- Built-in real time and date clock
- Units of measure: kgf, lbf, Newton
- 2 set point outputs
- 7-pin load cell quick disconnect (equipped)
- 4 remote keypad inputs
- Analog output

Specifications

Power Supply: Input 100 - 240 VAC, 50 - 60Hz internal mounted power supply with output of 12VDC at 2 amps

Display: 7 digits, 7-segment, 0.7" (17 mm) ultra-bright LEDs with 14 annunciators. Max display range -999,999 to 999,999. Display update rate 10Hz.

Keypad: 6 push buttons; select, cell, print, unit, zero, on/off

Environment
- **Working Temperature:** -10° C to 40° C (14° F to 104° F)
- **Storage Temperature:** -20° C to 70° C (-4° F to 158° F)
- **Humidity:** 10 to 90% RH without condensation
- **Protection:** IP65

Load Cell Drive Capacities
- **Excitation Voltage:** 5VDC
- **Capacity:** Drives up to eight 350-ohm load cells
- **Signal Connection:** 4 or 6 lead load cells
- **Load Cell Input Range:** -15mV to +15mV
- **Max Load Cell Output**: 3mV/V

Communication
- **Serial Port 1:** Full-duplex RS-232
- **Serial Port 2:** Full-duplex RS-232 or half-duplex RS-485
- **Baud Rate:** Selectable 1200-2400-4800-9600-19200/38400-57600 bps
- **Data Output Format:** 8N1, 7O1, 7E1
- **Serial Output:** Select up to 14 additional data parameters
- **RS-485:** 0-5VDC
- **Analog Output:** 0 to 2.5VDC (≤ 2.5mA)
- **Remote Input:** Select,cell, print, unit, zero, off
- **Setpoint 1 & 2:** 5 to 24VDC (.5A max) external, 5 to 8VDC (≤ .1A) internal

Analog Circuit Characters
- 24-bit A/D converter
- **A/D Conversion Speed:** Peak Force 80Hz; Live Force 10Hz
- **A/D Conversion:** 1mV input will output 100,000 raw counts.
- **Hardware:** low pass filter and 2 programmable digital low pass filters
- **Max Display Range:** -999,999 to 999,999
- **Division Number Range:** 100,000 divisions

Real Clock: Built-in nonvolatile real time & date

Other Main Functions
- Programmable Zero Range
- Programmable automatic zero point tracking
- Programmable motion detection window
- Programmable auto-power off time
- Adjustable LED brightness
- **Units of Measure:** kgf, lbf, Newton
- Configurable serial output content
- Two set point output with two data comparison points

Product Codes
- AWT05-506170 - US Version
- AWT05-506171 - EU Version
- AWT05-506172 - UK Version

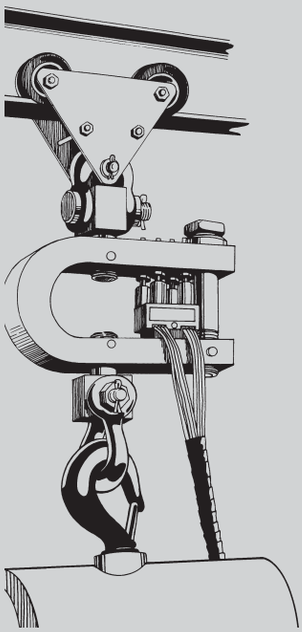
Options
- PCs, printers, remote displays

CP103

RD-65

Combine several load cells together and see their total output with a load cell summing box

Force Control Switches



DynaSwitch

One site for installation of a DynaSwitch is at the dead end of a line. If this is not practical, the DynaSwitch may be used to support an equalizer sheave, or an entire hoist may be suspended from the DynaSwitch.

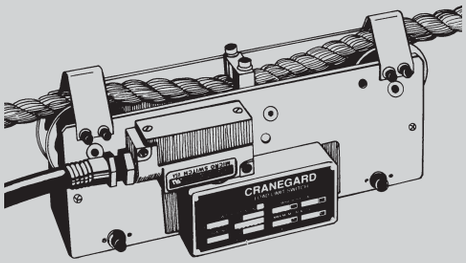
A device that provides switch outputs which change state (open/close) at specific forces. It requires no batteries or power to operate. Customers may connect these switches to a variety of devices such as relays, lights and alarms or to the motor controller to stop crane movement.

Common applications are:

- Overload protection
- Underload protection
- Desired force attainment (in repetitive operations such as a press)
- Batching

A force control switch may have multiple switches as needed for triggering at several loads. The switch settings are set at the factory to the specific load(s) desired by the customer. These set points are generally unchanged throughout its service life.

Force control switches are available in in-line or clamp-on versions. A calibration certificate is included.



Cranegard

The Cranegard clamps on to the line allowing it to be mounted where it is not possible to mount a DynaSwitch. No rope cutting is required.

Force control switches are used to protect cranes, hoists and other lifting machinery against weight or force overload as well as slack load. They are also used to perform control functions in the case of DynaSwitch. There are no dial indicators associated with these devices, only switches which not only shut off power when an overload condition exists, but also operate lights, buzzers or klaxons to warn of an impeding overload.

Applications

DynaSwitches: Overload Protection (Crane, Hoist), Hydro Power (Overload and Slack Line for Water Gate), Load Limit for Mfg of Fire Hose Proof Load Test

Cranegard: Overload Protection (Crane, Hoist), Hydro Power (Overload and Slack Line for Water Gate), Elevator (overload)

Force Control Switch - DynaSwitch

For cable ends and supported loads

Dillon DynaSwitch systems are a reliable, low cost way to control forces and prevent overloads. They can be used in automation controls, acting as scales. They can be used on cranes, hoists and elevators-not only to shut off power when an overload condition exists, but they can also be set to operate lights, buzzers or klaxons to warn of an impending overload. Like 24-hour sentinels, they can operate in normal or extreme environments.

The heart of the system is a force beam which operates in tension or compression. Seven different load capacities are available. Switch and physical connection options are listed. Each beam can accommodate from one to four switches which can be set to operate as many as four different switching functions or combinations including slackline detection.

All DynaSwitch force beams and attachment fittings have an ultimate safety factor of 5:1 (4.5:1 for metric capacities). In addition, all models have an overload stop or bolt to provide extra protection to the measuring ability of the DynaSwitch force beam. Dillon will set the switches to trigger at the loads you desire, if specified at time of order.

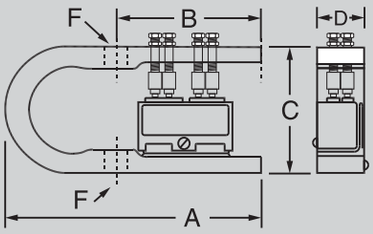
Specifications

	DSW-1	DSW-2	DSW-3	DSW-4	DSW-5	DSW-6	DSW-7
Capacity lb (kg)	100 (50)	1,000 (500)	2,000 (1000)	5,000 (2500)	10,000 (5000)	25,000 (12500)	50,000 (25000)
Min Setpoint* lb (kg)	15 (7.5)	100 (50)	200 (100)	500 (250)	1,000 (500)	1,250 (625)	2,500 (1250)
Repeatability lb (kg)	±3 (±1.5)	±30 (±15)	±60 (±30)	±150 (±75)	±300 (±150)	±750 (±375)	±1,500 (±750)
Hardware options	D,E,S	D,E,G,S	E,F,G,H,S	E,G,S	E,F,G,H,S	E,G,S	E,G
Switch options	A,J	A,J	B,C	A,J	B,C	B,C	B,C

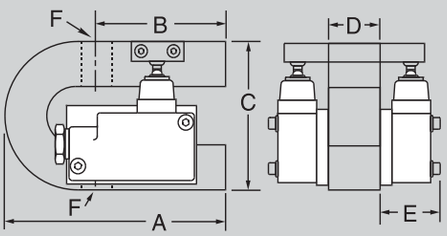
Dimensions

	DSW-1	DSW-2	DSW-3	DSW-4	DSW-5	DSW-6	DSW-7
A in (cm)	5.12 (13.0)	5.12 (13.0)	6.00 (15.2)	5.50 (14.0)	6.00 (15.2)	8.25 (21.0)	9.31 (23.7)
B in (cm)	2.94 (7.5)	2.94 (7.5)	3.50 (8.9)	3.00 (7.6)	3.50 (8.9)	5.00 (12.7)	5.00 (12.7)
C in (cm)	2.48 (6.3)	2.48 (6.3)	3.96 (10.1)	2.98 (7.6)	3.96 (10.1)	4.69 (11.9)	5.50 (14.0)
D in (cm)	0.98 (2.5)	0.98 (2.5)	1.47 (3.7)	0.98 (2.5)	1.44 (3.7)	2.38 (6.1)	2.68 (6.8)
E in (cm) *Option B*	n/a	n/a	1.59 (4.0)	n/a	1.59 (4.0)	1.59 (4.0)	1.59 (4.0)
E in (cm) *Option C*	n/a	n/a	2.48 (6.3)	n/a	2.48 (6.3)	2.48 (6.3)	2.48 (6.3)
F (thread)	¼ - 28 UNF	½ - 20 UNF	7/8 - 14 UNF	½ - 20 UNF	7/8 - 14 UNF	1¼- 12 UNF	1¾ - 12 UNF

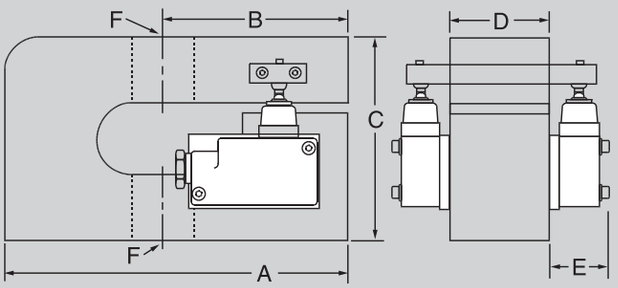
**Multiply by 3 for Option C.*



100 lb, 1,000 lb and 5,000 lb capacity force beam. Illustrated with four low differential switches.



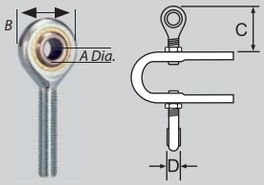
2,000 lb and 10,000 lb capacity force beam. Illustrated with two weatherproof switches (option 2B).



25,000 lb and 50,000 lb capacity force beam. Illustrated above two weatherproof switches (option B).

Force Control Switch - DynaSwitch

DynaSwitch Hardware Options



Dimensions inches (cm)

D

Model	A	B	C	D
DSW-1	0.25 (.64)	0.75 (1.9)	1.25 (3.2)	0.38 (1.0)
DSW-2	0.50 (1.27)	1.32 (3.4)	1.88 (4.8)	0.63 (1.6)

Rod End Connectors for Tension Rigging

FITS DSW-1, DSW-2

Self-aligning, rod end connectors are normally mounted at right angles to each other providing universal alignment under load. They can be mounted parallel to the force beam on request.

Dimensions inches (cm)

E

Model	A
DSW-1, DSW-2, DSW-4	0.45 (1.1)
DSW-3, DSW-5	0.61 (1.6)
DSW-6, DSW-7	0.83 (2.1)

Hardened Ball and Cup for Compression Use

FITS All

Heat-treated alloy steel. Cup is highly polished and plated. Ball is held in place by spring clip held by shoulder of cup. Slightly different configuration for high range switches.

Dimensions inches (cm)

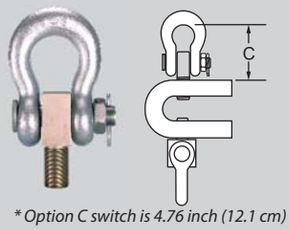
F

Model and Switch		A
DSW-3	Switch B	4.34 (11.0)
	Switch C	5.24 (13.3)
DSW-5	Switch B	4.34 (11.0)
	Switch C	5.06 (12.9)

Lifting Eye for Tension Use

FITS DSW-3, DSW-5

Hardened steel eye threads into force beam. Oriented parallel to force beam unless otherwise specified. Orientation fixed by roll pin.



** Option C switch is 4.76 inch (12.1 cm)*
† Option C switch is 5.06 inch (12.85 cm)
‡ Option C switch is 8.38 inch (21.3 cm)

Dimensions inches (cm)

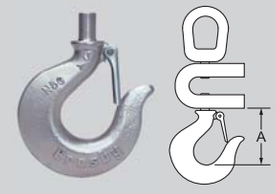
G

Model	DSW-2	DSW-3	DSW-4	DSW-5	DSW-6	DSW-7
A	1.69 (4.3)	1.69 (4.3)	1.69 (4.3)	1.69 (4.3)	3.25 (8.2)	5.00 (12.7)
B	1.94 (4.9)	1.94 (4.9)	1.94 (4.9)	1.94 (4.9)	4.06 (10.3)	6.12 (15.5)
C	4.19 (10.6)	4.13* (10.5)	4.19 (10.6)	4.13† (10.5)	7.12‡ (18.1)	10.36 (26.3)

Adapter, Shackle and Pin

FITS All except DSW-1

A hardened, forged steel shackle with adapter and pin for tension rigging of DynaSwitches. shackles and similar fittings are installed at time of manufacture with the plane of the top fitting lifting opening parallel to the beam length, and at 90° to the position of bottom fitting. Orientation fixed by roll pin.



Dimensions inches (cm)

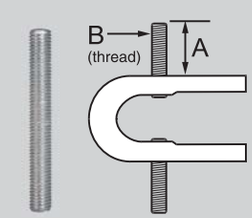
H

Model and Switch		A
DWS-3	Switch B	5.00 (12.7)
	Switch C	5.00 (12.7)
DSW-5	Switch B	5.00 (12.7)
	Switch C	4.81 (12.2)

Non-Swiveling Hook

FITS DSW-3, DSW-5

A hardened, forged steel hook threaded to fit 2,000 and 10,000 load switches only. Has spring latch. Should be specified and installed at time of manufacture before set points are adjusted. Oriented parallel to force beam unless otherwise specified. Orientation fixed by roll pin.



** Option C switch is 2.00 inch (5.1 cm)*

Dimensions inches (cm)

S

Model	DSW-1	DSW-2	DSW-3	DSW-4	DSW-5	DSW-6
A	1.25 (3.2)	1.88 (4.8)	2.19 (5.6)	2.31 (5.9)	2.19* (5.6)	2.31 (5.9)
B	¼-28	½-20	7/8-14	½-20	7/8-14	1¼-12

Threaded Stud

FITS All except DSW-7

For applications where conventional shackle or attachment eye cannot be used. Will accommodate yokes and other special fixtures. Heat treated alloy steel, secured by a roll pin.

Force Control Switch - Cranegard

Clamp-on cable overload protection

Clamps on cables for wire rope hoist, elevator and crane overload prevention and slackline detection. Installs in minutes with screwdriver and Allen wrench. Installation is simplicity itself. Clamp the Cranegard® directly onto a slack hoist or crane wire rope quickly without severing rope or interrupting service. Up to four switches can be furnished. Switch actuates immediately when pre-set load limit is exceeded. Dillon will set the switches to trigger at the loads you desire, if specified at time of order.

Specifications Notes:

- Basic units can accommodate 1,2,3 or 4 of option B or 1 or 2 of option C switches
- Ultimate safety factor of all units is 2:1 (1.8:1 for metric capacities)
- Cable should be IWRC (Independent Wire Rope Core) with as many strands as possible.
- Wire rope selection for any application for proper safety factor is a customer responsibility.
- Calibration performed with rope diameter specified at order.

Specifications

	Capacity lb (kg)	Min.Set Point lb (kg)	Repeatability	Rope Diameter* in (mm)
CGS-1	2,500 (1250)	100 (50)	±75 (±35)	3⁄16 to ½ (5 to 13)
CGS-2	5,000 (2500)	200 (100)	±150 (±75)	3⁄8 to 7⁄8 (10 to 22)
CGS-3	10,000 (5000)	400 (200)	±300 (±150)	7⁄16 to 7⁄8 (11 to 22)
CGS-4	20,000 (10000)	800 (400)	±600 (±300)	5⁄8 to 1¼ (16 to 32)

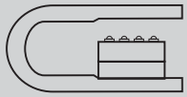
Dimensions

	Switch Option	Width in (cm)	Height in (cm)	Length in (cm)
CGS-1 CGS-2 CGS-3	1B, 2B	3.6 (9.2)	5.4 (13.7)	11.5 (29.2)
	3B 4B	4.6 (11.8)		
	1C	5.0 (12.7)	6.0 (15.2)	
	2C	7.3 (18.4)		
CGS-4	1B, 2B	4.5 (11.4)	7.8 (19.7)	16.0 (40.6)
	3B, 3B	5.4 (13.7)		
	1C	5.9 (14.9)		
	2C	8.0 (20.3)		

**Specify rope diameter when ordering. Other rope diameters can be specified on special order.*

Force Control Switch

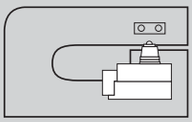
Switch Options



A Low Differential Travel Switch

FITS DSW-1, DSW-2, DSW-4

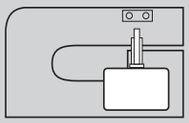
For use in controlled environment. Single pole, double throw. 5 amps at 125 or 250 VAC. 12" leads included. Maximum 4 per unit. Operating temperature range: -65°F (-54°C) to 180°F (82°C)



B Weatherproof Low Differential Travel Switch

FITS DSW-3, DSW-5, DSW-6, DSW-7
Cranegard

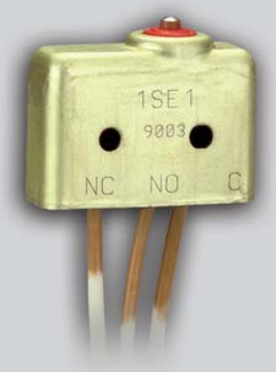
Has neoprene gasket around housing halves for tight seal. Includes elastomer seal boot around the actuator. Sealed conduit connectors. Die cast aluminum housing meets NEMA1 and 4 enclosures. Single pole, double throw, 0.002" travel. 15 amps, 125, 250, or 480 VAC. ¼ amp, 250 VDC. Maximum 4 per unit. Switch thread size: 14, 3½" threads minimum. Includes plastic cable strain relief. Operating temperature range: -25°F (-32°C) to 160°F (71°C).

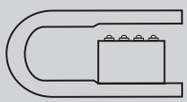


C Explosion-Proof Switch

FITS DSW-3, DSW-5, DSW-6, DSW-7
Cranegard

For use in hazardous locations (Class I, Div. I, groups C & D; Class II, groups E, F & G). Flame paths within the housing cool exploding gases below kindling temperature before they reach the explosive gases surrounding the housing. Single pole, double throw. Aluminum enclosure. (Not sealed against liquid.) UL and CSA listed. 20 amps, 125, 250, or 480 VAC. Maximum 2 per unit. Includes plastic cable strain relief. Operating temperature range: -40°F (-40°C) to 160°F (71°C).





J Weatherproof Low Differential Travel Switch

FITS DSW-1, DSW-2, DSW-4

Sealed for use in high environment situations. Single pole, double throw. 5 amps at 125, 250 VAC.
12" leads included. Maximum 4 per unit. Operating temperature range: -65°F (-54°C) to 180°F (82°C)

Force Control Switch

Ordering Information

When ordering DynaSwitches:

- Specify model number.
- Specify switch option and quantity.
- Specify fitting option desired on top of force beam.
- Specify fitting option desired on bottom of force beam
- Specify switch set point(s) if factory setting is desired.

Example: For a 10,000 lb range DynaSwitch with two weather proof switches, with lifting eye on top and shackle and adapter on bottom. Switch settings at 5,000 and 7,000 lb (both ascending).

Use this shortened form to designate models and options:

"DSW-5-B2-F-G
Switch settings at 5,000 lb (ascending) and 7,000 lb (ascending)."

When ordering Cranegards:

- Specify Model number.
- Specify pulley size (determined by rope diameter).
- Specify switch option and quantity.
- Specify switch set point(s) if factory setting is desired.

Example: For a 5,000 lb capacity unit with pulleys grooved for 5/8" rope diameter, with three weatherproof option B switches, set at 2,000, 3,000, and 4,000 lb

Use this shortened form to designate models and options:

"CGS-2-B3
For 5/8" rope diameter
Switch settings at 2,000 lb (ascending), 3,000 lb (ascending) and 4,000 lb (ascending)."

Ascending loads are most common and are assumed if not stated. Descending loads are most frequently used for slack-line detection.

Handheld Force Gauges

The force gauge measures how items respond under test by monitoring forces acting against its stem in tension or compression.

Some examples include:

- The force required to separate two items.
- The amount of force required to insert one component into another.
- The amount of force required to extract it.

A force gauge can also be used as a suspended scale.

These instruments are portable, factory precalibrated, and ready to work out of the box. Includes calibration document.

Applications

Ergonomic Testing, UL Testing/Door & Window Resistance, Compression/Tension/Push-Pull, Peel Testing

GL Force Gauge

Basic Digital Force Measurement

- Measures tension and compression forces
- Retains peak force reading
- Rechargeable battery for portability
- Backlit display for all light levels
- Serial output to transmit data
- Includes full set of handy accessories

The Dillon GL Force Gauge is the best equipped force gauge found in its price range, including features such as rechargeable battery, serial output, backlight, die-cast enclosure, carry case and more. The GL is available in a wide assortment of capacities to fit nearly any testing need. The optional CT Test Stand is an ideal complement to the GL Force Gauge to improve testing results.

Capacity & Resolution

	N	kg-f	lb-f
GL025	25 x 0.01	2.5 x 0.001	5.5 x 0.002
GL050	50 x 0.02	5 x 0.002	11 x 0.005
GL100	100 x 0.05	10 x 0.005	22 x 0.01
GL250	250 x 0.1	25 x 0.010	55 x 0.02
GL500	500 x 0.2	50 x 0.02	110 x 0.05

Force Gauges Specifications

Accuracy: +/- 0.4% of capacity

Tension/compression testing: Both

Overload protection: 120% minimum

Enclosure: Die cast metal

Power: Rechargeable battery or AC charger

Display type: 7 segment LCD, 4.5 digit with backlight

Data output: RS-232

Weight: 21 oz (610 g)

Operating temperature: 60º – 95ºF (15º – 35ºC)

Includes: Hook, complression button, cone point, chisel, inverted chisel, extension rod, carry case, batteries, charger, user's manual, calibration card

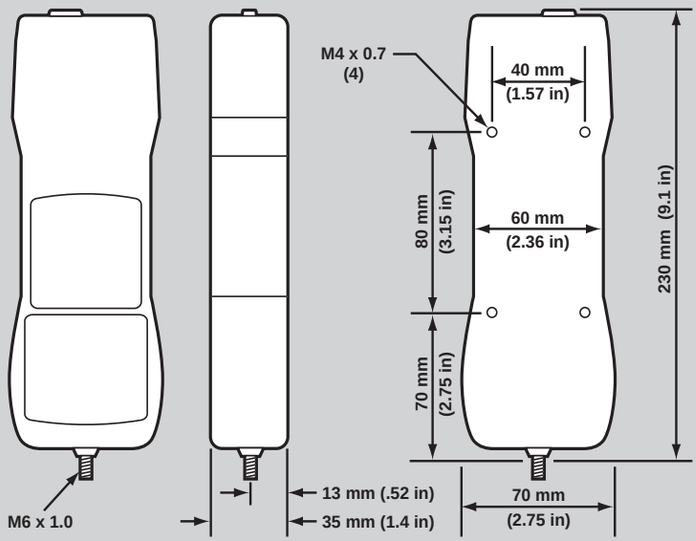
Battery charge: 10 hour operation from full charge

Accessories available: Universal test stand mounting plate, serial cable, test stand

Approvals: CE

Warranty: One year parts and labor

Shipping Weight: 1.5 kg (3.5 lb)



Test Stands

A measurement assisting device that ensures a specimen is pulled or pushed in axis with the force gauge and at a consistent speed. Test stands deliver better testing reproducibility.

A test stand has a stationary attachment point (typically at the base) and a moving crosshead, where the force gauge is attached. Most test stands can exert tension and compression loads.

Manual test stands offer better speed and direction consistency versus a handheld test stand.

Test stands generally are not considered a measurement instrument and are not reviewed for calibration.

CT Manual Test Stand

Optional Dillon Model GL digital force gauge

Basic Force Measurement Test Stand

- Applies Tension and Compression Loads
- Improves testing consistency
- Ultra-affordable
- Accommodates Dillon and competitive force gauges'

The Dillon CT Test Stand is an affordable tool to improve the quality of testing results. It controls the variables which can affect testing results, including:

- Off axis forces – Maintains alignment with the force gauge axis
- Speed variations – Reduces 'force surges' that are common in handheld tests

Aligns with the Model GL force gauge without accessories. The tension alignment accessory permits other gauges to be used in tension in perfect alignment.

Force Gauges Specifications

Capacity: 500 N / 110 lbf / 50 kgf

Tension/Compression testing: Both

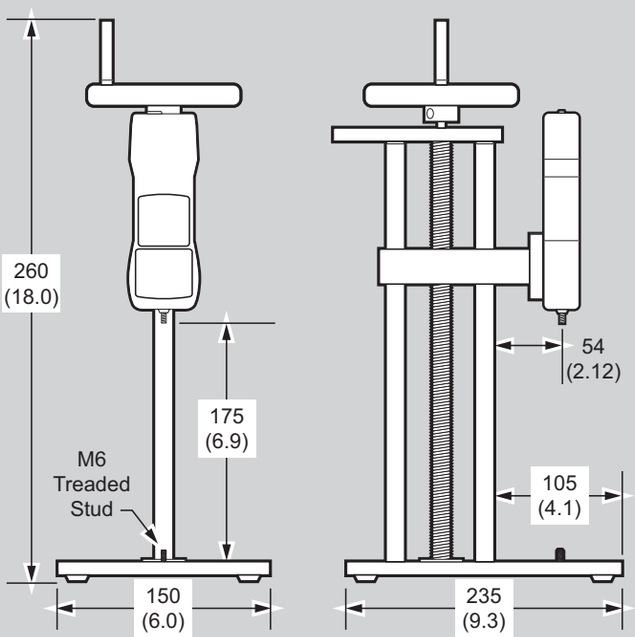
Travel per hand wheel rotation: 3.0 mm / 0.12 in

Gauge mounting: All Dillon electronic force gauges and other gauges with the popular 2.25 inch (57 mm) spacing attach to crosshead. Plate may be drilled to accommodate other patterns.

Warranty: One year parts and labor.

Shipping weight: 8 kg (18 lb)

UNITS:
millimeters (inches)



Data Force Software

Dillon Data Force Windows™-based software delivers the full potential of Dillon Digital Force instruments by providing real-time graphing software.

Data Force enables a PC to communicate with Dillon digital instruments via the instruments' standard bi-directional RS-232 interface. The PC functions as a virtual chart recorder with the following features:

- Force vs time graph (real time)
- Start/stop triggers
- Auto-ranging
- Zooming/re-scaling
- Overlaying the test traces
- Printout of tabular data
- Data export to spreadsheets

During a test, Data Force records force data at a rate of up to 200Hz (200 times per second). When the test has finished, operators can define a range of data by dragging two sliders, and, within that range, the software calculates average, maximum, minimum and area under the plotted curve.

Operators can re-scale and relabel graph axis and add graph titles. The software will save user-defined preferences for repeat testing. It will plot a series of similar tests on the same graph.

Data can be printed in tabular or graphical form or exported in ASCII format.

Data Force is flexible and easy to use. It operates from either the keyboard or a mouse.

The software provides an extensive system of context-sensitive Help screens.

Data Force Specifications

Operates with Dillon instruments:
- EDXtreme & Communicator
- Quick-Check Red
- FI-521 Force Indicator
- GL
- FI-127 Force Indicator

RS-232 communication: 300 to 921,600 baud

RS-232 request character: Configurable

Data acquisition rate: From 0.01 to 200Hz (load points per second)

Maximum number of data points: 17,280,000

Duration of data logging: 24 hours

Data which can be plotted/accumulated: Force vs time

Force units: lb, oz, kN, N, mN, kg, g

Time units: seconds, minutes or hours

Logging start/stop triggers: On force or time

Automatic real-time graph scaling & zooming

Multiple test display: Up to four traces can be overlaid

Print output: Graphs & raw data

Data export to other PC software: ASCII file (comma or tab delimited)

Accessories required: RS-232 cable (9-pin available), RS-232 to USB converter (available)

Computer required: Microsoft Windows™ XP or 7 with USB port
USB dongle (supplied)

User-defined text: Graph titles, axis

RMA

GENERAL POLICIES

PRODUCT RETURN /CREDIT

The following Dillon Policy has been established to provide a consistent method of handling product returned for credit. Shipped products are returnable at the discretion of Dillon. **Distributors or dealers must receive prior written approval before returning equipment for credit or replacement.** Distributors or dealers may request return authorization by contacting Dillon within the guidelines listed below.

1. All products fall within the two categories listed below and will follow appropriate guidelines for return authorization.

    a. **Standard catalog product:** All products authorized for return are subject to a **minimum** restocking charge of 20% of the purchase price. If Dillon receives a replacement order at the time of the return request, the restocking charge may be reduced to 10% of the net value. The restocking charge may be higher based on the usage history of the product in question and Dillon findings following the receipt and inspection of the returned items.

    b. **Special (RFQ) equipment:** Non-standard Dillon product cannot be returned under any circumstances after shipment.

2. Product that is returned must arrive in **new** condition, in the original packing container, and show no signs of demonstration or use (unless prior arrangement has been made for the use of the product). Equipment showing signs of use, damage or are missing components will incur additional restocking charges, refurbishing charges, or will be denied credit and returned. Distributors or dealers will receive notification of additional charges.

3. For equipment to be eligible for return, the Dillon distributor or dealer must request return authorization from the Dillon Sales Department within 45 days from the date of shipment. If the equipment is deemed an out of box failure the Sales Department will transfer the call to Customer Service to troubleshoot the problem and equipment is replaced with new product when all repair routes are exhausted. If the technician cannot fix the problem a Return Material Authorization will be issued.

4. **Return Material Authorization (RMA) Numbers expire 30 days from the date issued. A $75 net handling charge will be assessed to activate an expired Return Material Authorization (RMA).**

5. Freight charges for returned product are the responsibility of the sender. The original freight charges are non-refundable.

6. The Return Material Authorization (RMA) form must be placed inside the shipping container and the RMA# marked on the outside of each container to assure proper credit.

ADMINISTRATIVE CHARGES

Charges are imposed for documentation above that supplied with the equipment.
Certificate of Calibration – included with calibrated Dillon instruments. Content varies by product. Call for details.
Certificate of Conformance – with serial number, model and signature. $75 net.
Conformance certificates with specified content may be higher if additional administrative or production labor is required.
Export Documentation Fee: $60 net unless distributor supplies their own commercial invoice.
Please contact Dillon in advance of quoting if in question.

Warranty

WARRANTY & SERVICE POLICY FORCE MEASUREMENT PRODUCTS

Statement of Limited Warranty

Subject to the terms and conditions as stated herein, Avery Weigh-Tronix, LLC. (hereafter referred to as "Dillon") warrants its equipment to be free from defects in material and factory workmanship for a period of twenty-four months from the date of shipment., unless otherwise stated on sales literature.

Terms and Conditions of Limited Warranty

This obligation is limited exclusively to defective original equipment manufactured or supplied by Dillon and is subject to the inspection and analysis by Dillon to conclusively identify or confirm the nature and cause of failure. Dillon is not responsible for the maintenance or calibration of its equipment beyond the date of shipment. Scheduled periodic maintenance, calibration checks and calibration adjustments are the responsibility of the equipment owner.

Equipment owner is responsible for equipment return to Dillon factory in packaging suitable for shipping rigors. Damage occurring to shipping related handling is not covered under warranty.

Defective components or parts will be replaced during the warranty period provided the failed item is returned to the factory. Labor will be waived on work associated with warranty repairs performed at the factory. Equipment will be shipped via ground/surface to the originating address at factory expense on equipment with factory warranty repair.

Dillon's responsibility is confined to the repair or replacement of Dillon equipment or parts and does not extend coverage to labor, material or service charges involved in removal of equipment for return to the factory.

Dillon is not responsible and will not be held liable for losses, injury or damage caused to persons or property by reason of the installation of Dillon products or their failure.

This warranty is not applicable for expenses, either direct or consequential, that may arise from the use or inability to use these products.

Dillon reserves the right to incorporate improvements in material and design of the products without notice and is not obligated to incorporate the same improvements in equipment previously manufactured.

In certain cases, such as used equipment or peripheral equipment not manufactured by Dillon, a reduced warranty may apply.

Conditions Which Void Limited Warranty

This warranty shall not apply to equipment which:

A. Has had repairs or modifications not authorized by Dillon which in Dillon's judgement have affected the performance or reliability.

B. Has been subject to misuse, negligent handling, improper installation, extreme environmental conditions, accident, damage by fire, water, submersion, or act of God.

C. Has had serial numbers altered, defaced or removed.

Freight Carrier Damage

Claims for equipment damaged in transit must be referred to the freight carrier. Visible damage should be reported immediately. Concealed damage as soon as possible, in any case, within fifteen (15) days of receipt of shipment, in accordance with freight carrier regulations.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING ANY WARRANTY THAT EXTENDS BEYOND THE DESCRIPTION OF THE PRODUCT. This warranty statement sets forth the extent of our liability for breach of any warranty or deficiency in connection with the sale or use of the product. It is understood that we will not be liable for consequential damages of any nature, including but not limited to, loss of profit, delays or expenses, whether based on tort or contract.

DILLON

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ISO 9001

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