



FORCE DIAL™ MODEL FDL FORCE GAGE

- TENSION & COMPRESSION TO 100 lbf
- DUAL GRADUATIONS: lbf & kgf
- PEAK FORCE HOLD
- EASY-TO-READ 2" DIAL
- ACCURACY: ± 0.3% OF FULL SCALE
- AMERICAN STANDARD THREADS

The ergonomically designed FDL Force Dial™ Push - Pull Force Gage features an impressive ±0.3% accuracy. Available in seven capacities, all models have dual graduations in pounds and kilograms. The FDL mounts directly onto Wagner test stands with American standard threads and is easily mounted onto other single column test stands with optional mounting adapters. Optional handles and a variety of gripping fixtures are available.

MODEL	CAPACITY/GRADUATION	
FDL 2	2 lbf x 0.02 lbf	1 kgf x 0.01 kgf
FDL 6	6 lbf x 0.05 lbf	3 kgf x 0.025 kgf
FDL 10	10 lbf x 0.1 lbf	5 kgf x 0.05 kgf
FDL 20	20 lbf x 0.2 lbf	10 kgf x 0.1 kgf
FDL 40	40 lbf x 0.25 lbf	20 kgf x 0.2 kgf
FDL 60	60 lbf x 0.5 lbf	30 kgf x 0.25 kgf
FDL 100	100 lbf x 1 lbf	50 kgf x 0.5 kgf

ACCESSORIES

FD/HDL	Handles
FD/RT	Rubber Tip
FD/A-1	Aluminum Hook - Small (10 lbf)
FD/S-1	Steel Hook - Large (100 lbf)
FD/B-1	Steel Hook - XL (200 lbf)
FD/S-2	Flat Head
FD/S-3	Cone Point
FD/S-4	Chisel Head
FD/S-5	Vee Tip
FD/S-6	Extension Rod
FD/A-7	Hinged Hook - Small (20 lbf)
FD/S-7	Hinged Hook - Large (100 lbf)
FD/A-8	Hinged Cradle - Small (20 lbf)
FD/S-8	Hinged Cradle - Large (100 lbf)

OPERATION

- Prior to using the FDL, the accuracy should be verified by testing with weights - see "CALIBRATION" section.
- Forces must be applied to the load shaft only in an axial manner. Applying a load at an angle can cause an error in readings and possibly damage the gage.
- Force measurements can be made with the FDL in any position - pull at the top and push at the bottom - since changes in the pointer's zero system due to the effect of gravity are compensated by rotating the dial bezel.
- Attachments installed on the shaft should only be finger tight. Use of a tool may cause internal damage to the gage.
- Lubrication of the FDK/FDN is not recommended since oil will accumulate dust resulting in increased friction and decreased accuracy.
- Use of the FDL in the lower end of its range may produce inaccurate results. Another model with a lower capacity may be necessary. The FDL is built to the accuracy stated, but may be used in its lower range if the gage is tested in that range and found to meet user requirements.
- Call Wagner Instruments with questions regarding the use of the FDL in your application.

PEAK FORCE HOLD

- The maximum force applied to the FDL is retained by the peak hold switch located on the upper right side of the gage. The peak reading is saved by the pointer remaining at the maximum force applied after the force has been removed. To activate, press the switch to "ON". To release the peak and return the pointer to zero, press the switch to "OFF".

CALIBRATION

- The accuracy of the FDL is ±0.3% of full scale. To calculate the possible error in lbf or kgf of your FDL multiply the gage capacity by .003.

Example for an FDL 100:

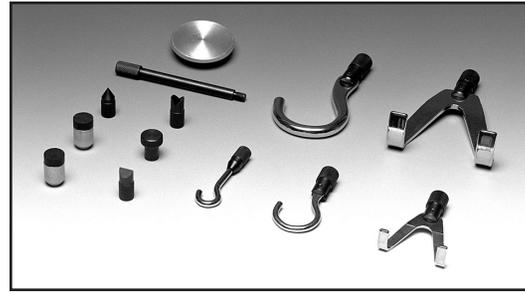
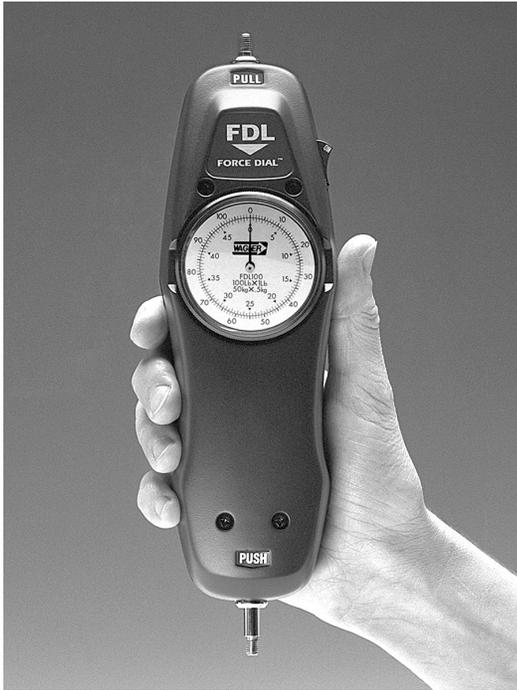
$$100 \text{ lbf} \times 0.003 = \pm 0.3 \text{ lbf}$$

Thus, the possible error can be ±0.3 lbf at any reading on the dial from 0-100 lbf.

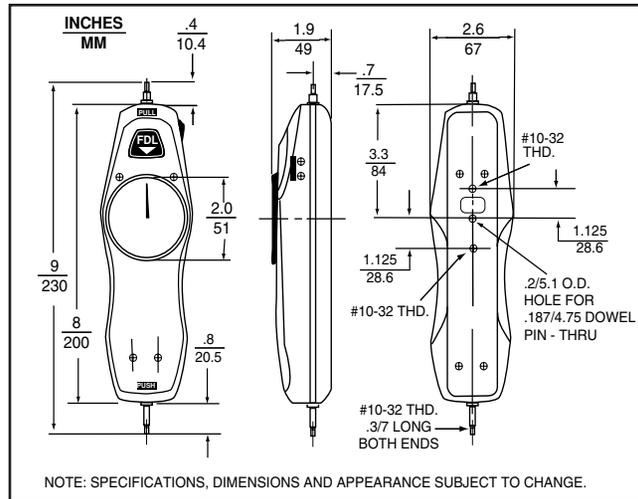
- Prior to shipping, the FDL is calibrated with certified test weights. Since rough handling during shipment may affect the accuracy of the FDL, it is recommended that the accuracy be verified prior to use by suspending one or more known weights on the FDL.
- Periodical testing of the FDL accuracy should be performed with certified test weights. It is suggested that weights be suspended on the securely mounted gage at 1/4, 1/2, 3/4 and full capacity.
- Do not attempt to adjust the FDL. If it is found inaccurate contact Wagner Instruments.
- When using the FDL, position the pointer by rotating the dial to the "ZERO" position before applying force to the gage.

MOUNTING

- American Standard 10-32 thread mounting holes are provided on the rear side of the FDL for mounting to a test stand or fixtures. The mounting hole pattern is compatible with many test stands. The pattern contains two #10-32 threaded holes, 2-1/4" apart on the vertical centerline. A third 3/16" unthreaded clearance hole is provided for a dowel pin, found on some test stands for suspension of the force gage. Mounting screws should penetrate the gage no more than 5/16".

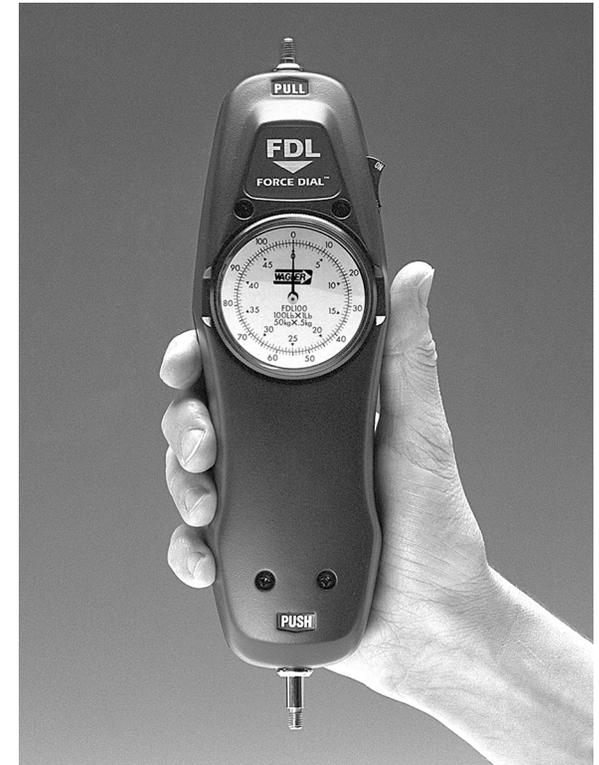


Optional accessories.



WAGNER **FORCE DIAL™**
Push-Pull Force Gage

OPERATION MANUAL
FDL SERIES



Warranty and Limitation of Liability: Wagner Instruments expressly warrants to its buyer for one year from the date of purchase that the goods sold shall be free from defects in workmanship and materials under normal conditions. Wagner Instruments will, at its option, replace, repair, or refund in full, the purchase price of the instrument or any part thereof which in our opinion is defective, provided the instrument has not been subjected to tampering, abuse or exposed to highly corrosive conditions. An instrument that has been improperly used cannot be considered under this warranty. We make no warranties, expressed or implied, including, without limitation, any warranties of fitness or merchantability, except as expressly set forth above, we shall not be liable for any anticipated or lost profits, incidental damages, consequential damages, costs, time charges, or other losses in connection with the instrument or replacement parts thereof. If a manufacturing defect is found, we will replace or repair the instrument or any defective part thereof without charge; however, our obligation hereunder does not include the cost of transportation which must be borne by the customer. We assume no responsibility for damage in transit, and any claims for such damage should be presented to the carrier by the purchaser. In addition, we may, at our option, take back the defective instrument and refund, in full settlement, the



FDL shown with optional handles.

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