



Drop Weight (Falling Weight Impact) Tester – NG-FWT1 & NG-FWT2 (Up to 2000 J)

Standards: [ISO 148](#), [ASTM E23](#), [ISO 179](#), [ISO 180](#), [ASTM D6110](#), [ISO 8256](#), [ASTM D256](#), [ASTM D2444](#), [ASTM D3763](#), [ASTM D7192](#), [ASTM E208](#)



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Description

NextGen’s **NG-FWT Series low-capacity systems** (NG-FWT1 and NG-FWT2) are drop weight impact testers, also commonly referred to as falling weight impact testers, designed for controlled impact testing up to 2000 J (1475 ft/lb). They enable repeatable impact events by controlling drop height, impact speed, and energy, helping you evaluate how materials, samples, and components respond to sudden shock and dynamic loading.

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These testers support a wide range of specimen shapes and fixtures, from flat coupons to formed parts and assemblies. The vertical frame design emphasizes rigidity and stable guidance to reduce unwanted vibration during impact and improve repeatability across test series.

Testing can be operated directly at the machine via an integrated touch LCD interface with DROPTest-S, or paired with a dedicated PC running DROPTest-BASIC for expanded evaluation, workflows, and data management. This makes it easier to align testing with internal procedures, reporting formats, and customer documentation requirements.



The NG-FWT platform can be configured for instrumented impact testing, including optional high-speed measurement electronics for force and impact signal acquisition. Machine control and safety are built around an industrial PLC architecture with interlocked guarding logic for daily lab and QA use.

Typical Applications

NG-FWT drop weight and falling weight impact testing is used to compare impact resistance, energy absorption, and damage tolerance across materials, production batches, weldments, and finished components. It is also applied to simulate real-world events such as drops, collisions, and repeated impacts under controlled conditions.

Common use cases include puncture and falling-dart style impact evaluation on plastics and rigid sheets, damage-resistance testing of composite laminates, and instrumented impact studies on structural metals where consistent energy delivery and traceable test data are required.



NG-FWT1 & NG-FWT2 Drop Weight Testers Features

The NG-FWT1 and NG-FWT2 are built for repeatable, high-precision impact testing with industrial-grade automation, configurable instrumentation, and a safety-focused machine architecture. Key features include:

- **Robust vertical frames:** designed with high rigidity and resistance to dynamic interference to support stable impact guidance, long-term durability, ergonomic access, and low-maintenance operation.
- **SIEMENS PLC control with touchscreen HMI:** integrated PLC automation with an LCD touch screen running DROPTest-S software for intuitive on-machine operation, clear parameter setup, and fast test execution at the machine base.
- **Comprehensive test management (DROPTest-BASIC option):** compatible with a full PC running DROPTest-BASIC software to enable advanced evaluation, structured test workflows, searchable data storage, and reporting for laboratory and QA documentation.
- **Automated lifting and positioning system:** electronically controlled positioning adjusts to the required energy level or a defined position with high repeatability, reducing operator variability and speeding up changeovers between test setups.
- **Advanced measuring electronics (optional):** expandable instrumentation with up to 4 MHz measurement speed for high-resolution force and impact signal acquisition, supporting detailed analysis in instrumented impact testing.
- **Instrumented test mandrel identification (optional):** automatic recognition of instrumented mandrels operating within EN ISO 7500-1 and ASTM E4 accuracy classes, with linearization capability to improve measurement quality and traceability.
- **Multi-axis expansion (optional):** optional horizontal axis control enables impact energy measurement at multiple points, with an anti-reflection system available to improve measurement stability where optical sensing is used.
- **Safety and regulatory compliance:** designed to meet EC machinery directive requirements and incorporates EN ISO 13850 SIL 1 safety functions, with integrated interlocks and safety logic for controlled access.



- **Calibrated weights and accredited certification:** weights can be calibrated in line with legal metrology requirements and certified by an EN ISO/IEC 17025 accredited laboratory to support verifiable energy settings and audit-ready documentation.
- **Custom test preparations:** configurable for specialized fixtures, supports, and procedures to match customer methods and applicable industry standards.
- **Extreme condition testing integration (optional):** compatible with temperature chambers or high-temperature furnaces to support high-precision impact testing under controlled thermal conditions.

Watch Video



Watch the Drop Weight (Falling Weight Impact) Tester – NG-FWT1 & NG-FWT2 (Up to 2000 J) product video.

[WATCH ON YOUTUBE](#)



NG-FWT Machine Control & Operator Interface

The NG-FWT1 and NG-FWT2 use a centralized control concept with ergonomically positioned interfaces to support smooth operation and precise test execution.

All electronics and machine-control components are integrated into a Rittal central enclosure. Safety and automation are managed by a Simatic S7 safety PLC running DROPTest-S-XXX safety software, with electromechanical interlocking and modular expansion capability.

The advanced touchscreen interface displays key test parameters in real time, including fall height, energy dissipation, drop weight, and impact speed, supporting accurate monitoring and repeatable testing.

Safety Compliance & System Security

The NG-FWT1 and NG-FWT2 are designed to meet European safety requirements for high-impact testing systems, including the European Machinery Directive (89/392/EEC and 91/368/EEC) for machinery safety.

The safety architecture includes a certified TÜV safety circuit with dedicated control and monitoring, supporting reliable protection in daily laboratory and QA operation.

Safety performance is aligned with EN ISO 13849-1/2. Critical safety functions use dual-layer protection with double-fused safeguards to increase operational security.

For ongoing risk control, the system continuously monitors safety guards and access doors in real time and integrates EN ISO 13850 SIL 1 safety functions for controlled access and emergency stop behavior.



NG-FWT Optional Extensions

NG-FWT systems can be expanded with advanced instrumentation for deeper analysis and higher data quality. Optional force measurement and impact trajectory evaluation are supported through high-speed 4 MHz measuring electronics, integrated digital control, and the SPEED measurement unit for precise data acquisition, with modular functionality enabled via DROPTest-BASIC.

For studies under controlled thermal conditions, an optional cooling expansion supports temperature-controlled impact testing with cooling capability down to -90°C , allowing more accurate evaluation of material behavior at reduced temperatures.

For higher throughput and consistent handling, NG-FWT can be integrated into fully automated robotic solutions. Robotic operation enables autonomous test sequences without manual intervention, improving repeatability and efficiency in production and laboratory environments.



DROPTest Software Features

DROPTest is a core part of the NG-FWT1 and NG-FWT2 vertical impact testing platform, built to improve testing efficiency, repeatability, and documentation in laboratories and quality control environments. Key capabilities include:

- **Purpose-built for drop weight testing:** optimized for precise impact evaluation and efficient day-to-day operation.
- **Customizable samples and standards:** edit sample types, naming conventions, and test parameters to match internal procedures and applicable standards.
- **Graphical test preparation:** guided, step-by-step workflows with visual instructions aligned to individual test methods.
- **Real-time digital monitoring:** live display of critical parameters such as impact force, velocity, and related measurement channels.
- **Comprehensive data management:** searchable database for measured results with filters by order, date, and user-defined fields.
- **Built-in calibration mode:** integrated calibration tools to support accurate measurement and traceable setups.
- **Automated cooling timing:** programmable cooling cycles aligned with EN ISO 148-1 and ASTM E23 when working with temperature conditioning workflows.
- **Data integration with peripherals:** supports data transfer from temperature chambers, thermometers, and other connected devices.
- **Multi-language interface:** suitable for international labs and multi-site organizations.
- **Advanced reporting and export:** generate PDF reports and export datasets to CSV, MySQL, or MS SQL for further analysis and archiving.
- **Unlimited licensing:** no installation limits, enabling deployment across multiple systems without licensing restrictions.



NG-FWT Drop Weight Testers Technical Specifications

Technical Data	Units	NG-FWT 200VP	NG-FWT 400VP	NG-FWT 600VP	NG-FWT 800VP	NG-FWT 1000VP	NG-FWT 2000VP
Energy Range	J ft/lb	0.3 - 294 0.22 - 217	0.3 - 405 0.22 - 299	0.3 - 588 0.22 - 434	0.3 - 757 0.22 - 558	2.5 - 882 1.8 - 650	2.5 - 1814 1.8 - 1337
Impact Speed	m/s	0.7-4.42	0.7-4.646	0.7-6.26	0.7-4.645	1-7.67	1-8.52
Fall height range	mm	25-1000	25-1100	25-2000	25-1100	25-3000	25-3700
Position accuracy	mm	0.5					
Weights Dimensions	kg	0.5-30	0.5-37.5	0.5-30	0.5-70	0.5-30	0.5-50
Accuracy weights classes	%	According to OIML					
Weight	lbs/kg	798/362	873/396	913/414	1098/498	1098/498	1358/616
Color finish	RAL	1015, 5015					
Dimensions							
Height	in/mm	104"/2620	104"/2620	144"/3650	105"/2650	184"/4680	222"/5650
Width	in/mm	31.5"/800	31.5"/800	31.5"/800	31.5"/800	31.5"/800	35.5"/900
Length	in/mm	22.5"/570	22.5"/570	22.5"/570	22.5"/570	22.5"/570	26.5"/670
Environmental conditions							
Operating temperature	°C	10 to 35					
Storage Temperature	°C	-35 to 55					
Working space humidity	%	< 90					
Noise level	dB	< 65					
Electrical Connection							
Supply voltage	V	230...240/50-60Hz					
Fuse	A	16					
Power rating (without accessories)	VA	820	820	820	1000	1000	2000



International Standards Compliance

NG-FWT systems can be configured to support a wide range of international standards across plastics, composites, and metals, including:

- **ISO / EN ISO:** Charpy and falling weight impact methods (e.g., ISO 179-1/-2, ISO 148-1, ISO 6603-2, ISO 7765-2, ISO 18352)
- **ASTM:** drop weight and impact standards (e.g., ASTM E208, ASTM E23, ASTM A370, ASTM D2444, ASTM D256, ASTM D3763, ASTM D6110, ASTM D7136)
- **GOST:** GOST 9454-78, GOST 30456-97
- **DIN / EN (machine safety & integration):** DIN EN ISO 12100, DIN EN ISO 14120, DIN EN 60204-1 ed.2, EN 6038
- **Aerospace:** Airbus AITM 1.0010, Boeing BSS 7260, DIN 65561

Request a Quote

Need help choosing the right NG-FWT configuration or confirming standards and accessories for your test method? Share your target energy range, specimen type, and any instrumentation or temperature requirements.

Request an [online quote](#) or [contact our team](#), and we'll respond quickly with a recommended setup and complete technical details.

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