

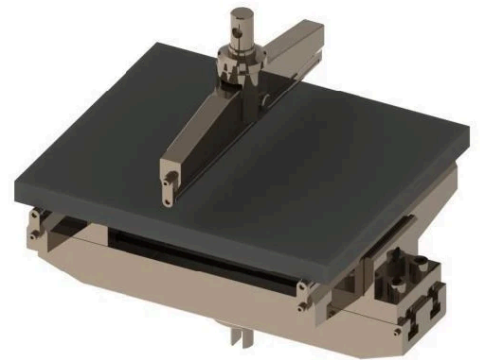


3-Point and 4-Point Bending Fixtures for Uniform Moment Flexural Testing

Precision 3-Point and 4-Point Bending Fixtures for NextGen Universal Testing Machines

NextGen's bending fixtures are precision-engineered to enable accurate flexural testing of various materials, including metals, ceramics, composites, concrete, bricks, and construction products. These accessories are optimized for seamless integration with NG-EML and other universal testing machines in our product line, ensuring compatibility, durability, and repeatable results. All fixtures are compliant with international testing standards such as ASTM C1609, ASTM C78, ASTM C293, ISO 178, and EN 12808, ensuring they are suitable for both R&D and quality control environments.

Each fixture is designed for specific bending test applications such as 3-point or 4-point configurations, enabling laboratories to meet the most demanding flexural strength, deformation, and modulus testing requirements.



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NGB304 – Bending Fixture

The **NGB304 Bending Fixture** series is designed for accurate 4-point bending tests on natural stone, ceramics, and composite materials. With three model variations—**NGB304A**, **NGB304B**, and **NGB304C**—this system accommodates a wide range of specimen sizes and load requirements. Each fixture includes adjustable upper and lower spans, precision rollers, and is compatible with standard UTM systems.

- **Application:** 4-point bending tests on natural stone, ceramic, and composite materials.
- **Maximum Capacity:** ≤ 30 kN.
- **Grip Weight:**
 - NGB304A: Upper 15 kg / Lower 24 kg
 - NGB304B: Upper 19 kg / Lower 35 kg
 - NGB304C: Upper 22 kg / Lower 47.5 kg
- **Connection:** $\Phi 10$ mm pin (upper and lower), UTM compatible.
- **Adjustable Span:**
 - Upper: ≤ 250 mm (A), ≤ 400 mm (B), ≤ 500 mm (C)
 - Lower: ≤ 500 mm (A), ≤ 800 mm (B), ≤ 1000 mm (C)
- **Max Specimen Width:** 160 mm
- **Dimensions:**
 - Upper Grip Height (A): 218 mm / 218 mm / 223 mm
 - Lower Grip Height (B): 185 mm / 195 mm / 205 mm
 - Base Width (C): 600 mm / 900 mm / 1100 mm
- **Roller Diameter:** $\Phi 25$ mm
- **Working Temperature:** Ambient conditions.



Technical Specifications – NGB304 4-Point Bending Fixture

Parameter	NGB304A	NGB304B	NGB304C
Application	- Bending test for natural stone, ceramic, composite materials		
Maximum Force Capacity	≤ 30 kN	≤ 30 kN	≤ 30 kN
Upper Grip Weight	15 kg	19 kg	22 kg
Lower Grip Weight	24 kg	35 kg	47.5 kg
Working Temperature	Ambient		
Connection – Upper Grip	Φ10 mm pin	Φ10 mm pin	Φ10 mm pin
Connection – Lower Grip	Φ10 mm pin	Φ10 mm pin	Φ10 mm pin
Upper Span (Adjustable)	≤ 250 mm	≤ 400 mm	≤ 500 mm
Lower Span (Adjustable)	≤ 500 mm	≤ 800 mm	≤ 1000 mm
Maximum Specimen Width	160 mm	160 mm	160 mm
Upper Grip Height (A)	218 mm	218 mm	223 mm
Lower Grip Height (B)	185 mm	195 mm	205 mm
Base Width (C)	600 mm	900 mm	1100 mm
Roller Diameter	Φ25 mm	Φ25 mm	Φ25 mm



NGB105A – Bending Fixture

The **NGB105A Bending Fixture** is engineered for high-capacity 4-point bending tests on ordinary concrete, metal, ceramic, and composite specimens. With robust $\Phi 18$ mm pin connections and a 100 kN force capacity, this fixture is well-suited for laboratories performing strength analysis on large structural materials. It supports both standard and non-standard specimen sizes.

- **Application:** Bending tests for ordinary concrete, metal, ceramic, and composite.
- **Maximum Capacity:** ≤ 100 kN.
- **Grip Weight:** 21.3 kg (Upper Grip), 38.9 kg (Lower Grip).
- **Connection:** $\Phi 18$ mm pin (upper and lower), compatible with large-scale testing frames.
- **Adjustable Span:**
 - Upper: ≤ 200 mm
 - Lower: ≤ 480 mm
- **Maximum Specimen Width:** 160 mm
- **Dimensions:**
 - Upper Grip Height (A): 270 mm
 - Lower Grip Height (B): 259 mm
 - Base Width (C): 580 mm
- **Roller Diameter:** $\Phi 30$ mm
- **Working Temperature:** Ambient conditions.
- **Standard Specimen:** 150 mm \times 150 mm \times 600/550 mm
- **Non-standard Specimen:** 100 mm \times 100 mm \times 400 mm



Technical Specifications – NGB105A 4-Point Bending Fixture

Parameter	Specification
Application	Bending test for ordinary concrete, metal, ceramic, composite
Maximum Force Capacity	≤100 kN
Upper Grip Weight	21.3 kg
Lower Grip Weight	38.9 kg
Working Temperature	Ambient
Connection – Upper Grip	Φ18 mm pin
Connection – Lower Grip	Φ18 mm pin
Upper Span (Adjustable)	≤200 mm
Lower Span (Adjustable)	≤480 mm
Maximum Specimen Width	160 mm
Upper Grip Height (A)	270 mm
Lower Grip Height (B)	259 mm
Base Width (C)	580 mm
Roller Diameter	Φ30 mm
Standard Specimen	150 mm × 150 mm × 600/550 mm
Non-standard Specimen	100 mm × 100 mm × 400 mm



Optional Accessories – NGB105A Bending Fixture

Deformation Measurement Device (Optional) This device allows real-time monitoring of specimen deformation during 4-point bending tests. It collects bending displacement data and enables calculation of the elastic modulus of the specimen for accurate mechanical property evaluation.

Roller Support (Optional)



NGD204A – Bending Fixture

The **NGD204A 3-Point Bending Fixture** is specifically developed for testing wall bricks, metal, ceramics, and composite materials under flexural load. Its compact form and adjustable span up to 200 mm make it ideal for laboratories conducting strength evaluation of structural and brittle materials. The fixture supports both small and medium-sized specimens and operates under ambient temperature.

- **Application:** Bending tests for wall bricks, metal, ceramic, and composite materials.
- **Maximum Capacity:** ≤20 kN.
- **Grip Weight:** 3.2 kg (Upper Grip), 12.7 kg (Lower Grip).
- **Connection:** Φ10 mm pin (upper and lower), UTM-compatible.
- **Span (Adjustable):** ≤200 mm.
- **Maximum Specimen Width:** 90 mm.
- **Dimensions:**
 - Upper Grip Height (A): 123 mm
 - Lower Grip Height (B): 184 mm
 - Base Width (C): 300 mm
- **Roller Diameter:** Φ30 mm
- **Standard Specimens:**
 - 190 mm × 35 mm × 90 mm
 - 240 mm × 115 mm × 53 mm
- **Working Temperature:** Ambient conditions.

Technical Specifications – NGD204A 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for wall bricks, metal, ceramic, composite



Parameter	Specification
Maximum Force Capacity	≤20 kN
Upper Grip Weight	3.2 kg
Lower Grip Weight	12.7 kg
Working Temperature	Ambient
Connection – Upper Grip	Φ10 mm pin
Connection – Lower Grip	Φ10 mm pin
Span (Adjustable)	≤200 mm
Maximum Specimen Width	90 mm
Upper Grip Height (A)	123 mm
Lower Grip Height (B)	184 mm
Base Width (C)	300 mm
Roller Diameter	Φ30 mm
Standard Specimen	190 mm × 35 mm × 90 mm 240 mm × 115 mm × 53 mm

Optional Accessories – NGD204A Bending Fixture

Roller Support (Optional)



NGD204B – Bending Fixture

The **NGD204B 3-Point Bending Fixture** is optimized for testing precast concrete paving bricks as well as metals, ceramics, and composite materials. With a span adjustable up to 400 mm and a high-strength lower grip, it accommodates larger specimens under medium-load bending. Its structure ensures stability and compatibility with standard UTM systems.

- **Application:** Bending tests for precast concrete paving bricks, metal, ceramic, and composite materials.
- **Maximum Capacity:** ≤20 kN.
- **Grip Weight:** 3.2 kg (Upper Grip), 20 kg (Lower Grip).
- **Connection:** Φ10 mm pin (upper and lower), UTM-compatible.
- **Span (Adjustable):** ≤400 mm.
- **Maximum Specimen Width:** 123 mm.
- **Dimensions:**
 - Upper Grip Height (A): 185 mm
 - Lower Grip Height (B): 500 mm
 - Base Width (C): 90 mm
- **Roller Diameter:** Φ30 mm
- **Working Temperature:** Ambient conditions.

Technical Specifications – NGD204B 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for precast concrete paving bricks, metal, ceramic, composite
Maximum Force Capacity	≤20 kN
Upper Grip Weight	3.2 kg



Parameter	Specification
Lower Grip Weight	20 kg
Working Temperature	Ambient
Connection – Upper Grip	Φ10 mm pin
Connection – Lower Grip	Φ10 mm pin
Span (Adjustable)	≤ 400 mm
Maximum Specimen Width	123 mm
Upper Grip Height (A)	185 mm
Lower Grip Height (B)	500 mm
Base Width (C)	90 mm
Roller Diameter	Φ30 mm

Optional Accessories – NGD204B Bending Fixture

Roller (Optional)

Roller Support (Optional)



NGD204C – Bending Fixture

The **NGD204C 3-Point Bending Fixture** is designed for flexural strength testing of gypsum plasterboard, metal, ceramics, and composite materials. Featuring a wide specimen compatibility (up to 310 mm) and lightweight upper grip, this fixture is ideal for testing fragile and large-format specimens under low to medium force. Its compact roller system and stable base design ensure reliable and repeatable results.

- **Application:** Bending tests for gypsum plasterboard, metal, ceramic, and composite materials.
- **Maximum Capacity:** ≤20 kN.
- **Grip Weight:** 3.4 kg (Upper Grip), 20 kg (Lower Grip).
- **Connection:** Φ10 mm pin (upper and lower), UTM-compatible.
- **Span (Adjustable):** ≤400 mm.
- **Maximum Specimen Width:** 310 mm.
- **Dimensions:**
 - Upper Grip Height (A): 114 mm
 - Lower Grip Height (B): 176 mm
 - Base Width (C): 350 mm
- **Roller Diameter:** Φ20 mm
- **Working Temperature:** Ambient conditions.

Technical Specifications – NGD204C 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for gypsum plasterboard, metal, ceramic, composite
Maximum Force Capacity	≤20 kN



Parameter	Specification
Upper Grip Weight	3.4 kg
Lower Grip Weight	20 kg
Working Temperature	Ambient
Connection – Upper Grip	Φ10 mm pin
Connection – Lower Grip	Φ10 mm pin
Span (Adjustable)	≤ 400 mm
Maximum Specimen Width	310 mm
Upper Grip Height (A)	114 mm
Lower Grip Height (B)	176 mm
Base Width (C)	350 mm
Roller Diameter	Φ20 mm

Optional Accessories – NGD204C Bending Fixture

Roller (Optional)

Roller Support (Optional)



NGD204D – Bending Fixture

The **NGD204D 3-Point Bending Fixture** is engineered for testing fiber cement products, metals, ceramics, and composite materials. It supports specimen widths up to 260 mm and features a compact roller system. With a lightweight upper grip and a strong base, it provides a stable and efficient setup for mid-range bending applications in ambient conditions.

- **Application:** Bending tests for fiber cement products, metal, ceramic, and composite materials.
- **Maximum Capacity:** ≤20 kN.
- **Grip Weight:** 2.3 kg (Upper Grip), 14.4 kg (Lower Grip).
- **Connection:** Φ10 mm pin (upper and lower), UTM-compatible.
- **Span (Adjustable):** ≤240 mm.
- **Maximum Specimen Width:** 260 mm.
- **Dimensions:**
 - Upper Grip Height (A): 106 mm
 - Lower Grip Height (B): 168 mm
 - Base Width (C): 350 mm
- **Roller Diameter:** Φ10 mm
- **Working Temperature:** Ambient conditions.

Technical Specifications – NGD204D 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for fiber cement products, metal, ceramic, composite
Maximum Force Capacity	≤20 kN
Upper Grip Weight	2.3 kg



Parameter	Specification
Lower Grip Weight	14.4 kg
Working Temperature	Ambient
Connection – Upper Grip	Φ10 mm pin
Connection – Lower Grip	Φ10 mm pin
Span (Adjustable)	≤240 mm
Maximum Specimen Width	260 mm
Upper Grip Height (A)	106 mm
Lower Grip Height (B)	168 mm
Base Width (C)	350 mm
Roller Diameter	Φ10 mm

Optional Accessories – NGD204D Bending Fixture

Roller (Optional)

Roller Support (Optional)



NGD204E – Bending Fixture

The **NGD204E 3-Point Bending Fixture** is designed for testing fired roofing tiles, metals, ceramics, and composite materials. With a wide specimen accommodation of up to 350 mm and durable $\Phi 10$ mm pin-mounted grips, this fixture is ideal for evaluating the flexural strength of brittle and structural materials under ambient conditions.

- **Application:** Bending tests for fired roofing tiles, metal, ceramic, and composite materials.
- **Maximum Capacity:** ≤ 20 kN.
- **Grip Weight:** 4.3 kg (Upper Grip), 19.5 kg (Lower Grip).
- **Connection:** $\Phi 10$ mm pin (upper and lower), compatible with standard UTM systems.
- **Span (Adjustable):** ≤ 300 mm.
- **Maximum Specimen Width:** 350 mm.
- **Dimensions:**
 - Upper Grip Height (A): 105 mm
 - Lower Grip Height (B): 168 mm
 - Base Width (C): 400 mm
- **Roller Diameter:** $\Phi 20$ mm
- **Working Temperature:** Ambient conditions.

Technical Specifications – NGD204E 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for fired roofing tiles, metal, ceramic, composite
Maximum Force Capacity	≤ 20 kN
Upper Grip Weight	4.3 kg
Lower Grip Weight	19.5 kg



Parameter	Specification
Working Temperature	Ambient
Connection – Upper Grip	Φ10 mm pin
Connection – Lower Grip	Φ10 mm pin
Span (Adjustable)	≤300 mm
Maximum Specimen Width	350 mm
Upper Grip Height (A)	105 mm
Lower Grip Height (B)	168 mm
Base Width (C)	400 mm
Roller Diameter	Φ20 mm

Optional Accessories – NGD204E Bending Fixture

Roller (Optional)

Roller Support (Optional)



NGD204F – Bending Fixture

The **NGD204F 3-Point Bending Fixture** is optimized for evaluating the flexural behavior of inorganic rigid thermal insulation foam, metals, ceramics, and composite materials. With a medium-width capacity and balanced grip design, it provides accurate and reliable support for low-to-medium force bending tests under ambient conditions.

- **Application:** Bending tests for inorganic rigid thermal insulation foam, metal, ceramic, and composite materials.
- **Maximum Capacity:** ≤20 kN.
- **Grip Weight:** 2.7 kg (Upper Grip), 16.3 kg (Lower Grip).
- **Connection:** Φ10 mm pin (upper and lower), compatible with standard UTM systems.
- **Span (Adjustable):** ≤300 mm.
- **Maximum Specimen Width:** 160 mm.
- **Dimensions:**
 - Upper Grip Height (A): 123 mm
 - Lower Grip Height (B): 185 mm
 - Base Width (C): 400 mm
- **Roller Diameter:** Φ30 mm
- **Working Temperature:** Ambient conditions.

Technical Specifications – NGD204F 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for inorganic rigid thermal insulation foam, metal, ceramic, composite
Maximum Force Capacity	≤20 kN
Upper Grip Weight	2.7 kg



Parameter	Specification
Lower Grip Weight	16.3 kg
Working Temperature	Ambient
Connection – Upper Grip	Φ10 mm pin
Connection – Lower Grip	Φ10 mm pin
Span (Adjustable)	≤300 mm
Maximum Specimen Width	160 mm
Upper Grip Height (A)	123 mm
Lower Grip Height (B)	185 mm
Base Width (C)	400 mm
Roller Diameter	Φ30 mm

Optional Accessories – NGD204F Bending Fixture

Roller Support (Optional)

NextGen’s wide array of bending fixtures allows laboratories and manufacturers to conduct standardized flexural testing across a range of materials and specimen geometries. Whether you need a compact solution for classroom training or a robust fixture for industrial-grade testing, we offer the right product for your universal testing machine. All bending fixtures are precision-calibrated, quality-verified, and available with rapid shipping across North America.

Contact our team today to request a quote, verify compatibility with your system, or schedule a demonstration.