



Bending Fixtures for Standard 3-Point Flexural Testing

3-Point and Marker Bending Fixtures for Flexural Testing

NextGen's bending fixtures are engineered for precision flexural testing of various materials, including thermoplastics, composites, metals, and laminated structures. Designed to operate with NG-EML and SHM Universal Testing Machines, these fixtures offer compliant and repeatable setups for standardized 3-point and marker bending tests.

Supported testing standards include:

- ASTM D790 (Flexural Properties of Plastics)
- ISO 178 (Plastics – Flexural Properties)
- ISO 14125 (Fiber-Reinforced Plastic Composites)
- ASTM E290 (Bend Testing for Ductility)
- GB/T 9341 (Flexural Properties of Plastics)

Fixtures are available in multiple capacities, support spans, and loading configurations, allowing labs to perform accurate testing in compliance with global standards.

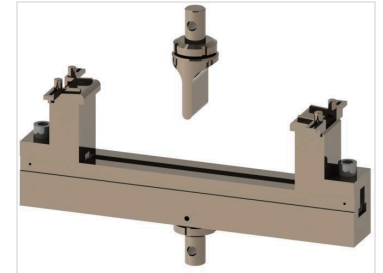


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NGA204A – 3-Point Bending Fixture

The **NGA204A 3-Point Bending Fixture** is designed for accurate flexural testing of a wide range of materials including plastics, alloys, composites, and ceramics. Built to support forces up to 20 kN, this fixture features an adjustable span up to 200 mm, making it suitable for various specimen sizes. The system includes interchangeable loading noses and support rollers, allowing customization for specific test standards and applications. With high stability and robust construction, NGA204A delivers consistent, repeatable results across quality control and research environments.



- **Application:** Bending tests for plastic, alloy, composite, ceramic, and other rigid materials.
- **Maximum Capacity:** Up to 20 kN load.
- **Connection:** Ø10 mm pin mount (upper and lower), compatible with standard UTMs.
- **Dimensions:** Height 85 mm; Grip body width 157 mm; Overall width 231 mm.
- **Span:** Adjustable up to 200 mm.
- **Specimen Range:** Supports specimens up to 30 mm wide.
- **Loading Nose:** R5 (customizable).
- **Support Roller:** R2, R5 (customizable).
- **Grip Weight:** 0.5 kg (upper grip), 5.3 kg (lower grip).
- **Working Temperature:** Ambient.
- **Note:** NextGen can provide various loading noses and support rollers according to client requirements.

Technical Specifications – NGA204A 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for plastic, alloy, composite, ceramic, etc.

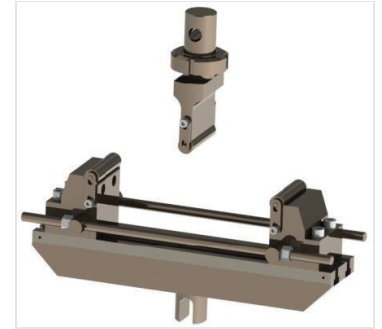


Parameter	Specification
Maximum Force Capacity	≤ 20 kN
Connection Type	Upper Grip: Ø10 mm pin Lower Grip: Ø10 mm pin
Span (Adjustable)	≤ 200 mm
Overall Height (A)	85 mm
Grip Body Width (B)	157 mm
Overall Width (C)	231 mm
Working Temperature	Ambient
Grip Weight	Upper Grip: 0.5 kg Lower Grip: 5.3 kg
Compatible Specimen Width	≤ 30 mm
Loading Nose	R5 (custom options available)
Support Roller	R2, R5 (custom options available)



NGA504A – 3-Point Bending Fixture

The **NGA504A 3-Point Bending Fixture** is a heavy-duty solution for flexural testing of high-strength materials, including metals, advanced composites, ceramics, and construction-grade materials. Built to handle forces up to 50 kN, it features an adjustable span up to 280 mm, with a robust steel body designed for long-term reliability. The fixture includes Ø20 mm loading and support rollers, with the flexibility to accommodate various roller sizes upon request. The NGA504A is ideal for structural material evaluation in demanding industrial and research environments.



- **Application:** Bending tests for metal, alloy, composite, ceramic, and structural materials.
- **Maximum Capacity:** Up to 50 kN load.
- **Connection:** Ø18 mm pin mount (upper and lower), suitable for heavy-load UTMs.
- **Dimensions:** Height 123 mm; Grip body width 190 mm; Overall width 400 mm.
- **Span:** Adjustable up to 280 mm.
- **Specimen Range:** Accommodates specimens up to 80 mm wide.
- **Rollers:** Ø20 mm loading and support rollers (custom sizes available).
- **Grip Weight:** 2.5 kg (upper grip), 18.5 kg (lower grip).
- **Working Temperature:** Ambient.
- **Note:** NextGen can provide various loading and support rollers according to client requirements.

Technical Specifications – NGA504A 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for metal, alloy, composite, ceramic, construction material etc.
Maximum Force Capacity	≤ 50 kN

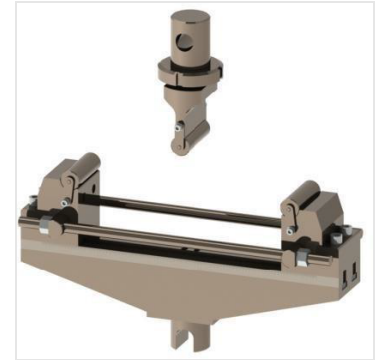


Parameter	Specification
Connection Type	Upper Grip: Ø18 mm pin Lower Grip: Ø18 mm pin
Span (Adjustable)	≤ 280 mm
Overall Height (A)	123 mm
Grip Body Width (B)	190 mm
Overall Width (C)	400 mm
Working Temperature	Ambient
Grip Weight	Upper Grip: 2.5 kg Lower Grip: 18.5 kg
Compatible Specimen Width	≤ 80 mm
Loading Roller	Ø20 mm
Support Roller	Ø20 mm



NGA105A – 3-Point Bending Fixture

The **NGA105A 3-Point Bending Fixture** is a high-capacity fixture engineered for flexural testing of strong and rigid materials, including metal, ceramic, composite, and construction materials. With a load capacity of up to 100 kN and an adjustable span up to 340 mm, it is ideal for evaluating large specimens and high-strength materials under demanding testing conditions. The system features Ø20 mm loading and support rollers, with custom roller options available upon request. Designed for compatibility with high-force universal testing machines, NGA105A delivers robust and repeatable performance in both industrial and laboratory settings.



- **Application:** Bending tests for metal, alloy, composite, ceramic, and structural materials.
- **Maximum Capacity:** Up to 100 kN load.
- **Connection:** Ø18 mm pin mount (upper and lower), built for high-load test frames.
- **Dimensions:** Height 145 mm; Grip body width 190 mm; Overall width 464 mm.
- **Span:** Adjustable up to 340 mm.
- **Specimen Range:** Supports specimens up to 80 mm wide.
- **Rollers:** Ø20 mm loading and support rollers (customizable).
- **Grip Weight:** 2.5 kg (upper grip), 20.6 kg (lower grip).
- **Working Temperature:** Ambient.
- **Note:** NextGen can provide various loading and support rollers according to client requirements.

Technical Specifications – NGA105A 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for metal, alloy, composite, ceramic, construction material etc.

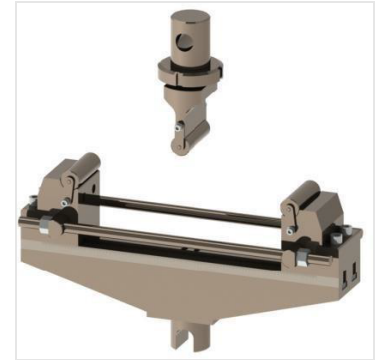


Parameter	Specification
Maximum Force Capacity	≤ 100 kN
Connection Type	Upper Grip: Ø18 mm pin Lower Grip: Ø18 mm pin
Span (Adjustable)	≤ 340 mm
Overall Height (A)	145 mm
Grip Body Width (B)	190 mm
Overall Width (C)	464 mm
Working Temperature	Ambient
Grip Weight	Upper Grip: 2.5 kg Lower Grip: 20.6 kg
Compatible Specimen Width	≤ 80 mm
Loading Roller	Ø20 mm
Support Roller	Ø20 mm



NGA305A – 3-Point Bending Fixture

The **NGA305A 3-Point Bending Fixture** is built for high-capacity flexural testing of tough and dense materials, such as metals, ceramics, composites, and structural-grade construction materials. With a maximum force capacity of 300 kN and a span adjustable up to 400 mm, it is designed to handle demanding test conditions and large specimen sizes. The system features Ø30 mm loading and support rollers and offers customization options to suit specific standards. With an extremely durable construction and precise alignment, the NGA305A is a reliable solution for advanced material testing.



- **Application:** Bending tests for metal, alloy, composite, ceramic, and construction materials.
- **Maximum Capacity:** Up to 300 kN load.
- **Connection:** Ø18 mm pin mount (upper and lower), compatible with heavy-duty universal testing machines.
- **Dimensions:** Height 156 mm; Grip body width 267 mm; Overall width 500 mm.
- **Span:** Adjustable up to 400 mm.
- **Specimen Range:** Supports specimens up to 90 mm wide.
- **Rollers:** Ø30 mm loading and support rollers (customizable).
- **Grip Weight:** 6.0 kg (upper grip), 36.0 kg (lower grip).
- **Working Temperature:** Ambient.
- **Note:** NextGen can provide various loading and support rollers according to client requirements.

Technical Specifications – NGA305A 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for metal, alloy, composite, ceramic, construction material etc.



Parameter	Specification
Maximum Force Capacity	≤ 300 kN
Connection Type	Upper Grip: Ø18 mm pin Lower Grip: Ø18 mm pin
Span (Adjustable)	≤ 400 mm
Overall Height (A)	156 mm
Grip Body Width (B)	267 mm
Overall Width (C)	500 mm
Working Temperature	Ambient
Grip Weight	Upper Grip: 6.0 kg Lower Grip: 36.0 kg
Compatible Specimen Width	≤ 90 mm
Loading Roller	Ø30 mm
Support Roller	Ø30 mm



NGA104A – 3-Point Bending Fixture

The **NGA104A 3-Point Bending Fixture** is a precise and lightweight system developed for low-force bending tests on plastics, alloys, ceramics, and composite materials. With a force capacity of up to 10 kN and an adjustable span up to 200 mm, it is ideal for testing smaller specimens with accuracy. The fixture includes Ø5 mm loading and support rollers and is equipped with a digital indicator to measure specimen deformation during testing. Compact yet capable, the NGA104A is well-suited for research, education, and quality control environments.



- **Application:** Bending tests for plastic, alloy, composite, ceramic, and structural materials.
- **Maximum Capacity:** Up to 10 kN load.
- **Connection:** Ø10 mm pin mount (upper and lower), suitable for small-frame universal testing machines.
- **Dimensions:** Height 90 mm; Grip body width 230 mm; Overall width 340 mm.
- **Span:** Adjustable up to 200 mm.
- **Specimen Range:** Supports specimens up to 90 mm wide.
- **Rollers:** Ø5 mm loading and support rollers.
- **Grip Weight:** 0.5 kg (upper grip), 9.7 kg (lower grip).
- **Working Temperature:** Ambient.
- **Note:** Equipped with digital indicator to measure deformation of the specimen during test.

Technical Specifications – NGA104A 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for plastic, alloy, composite, ceramic, construction material etc.
Maximum Force Capacity	≤ 10 kN

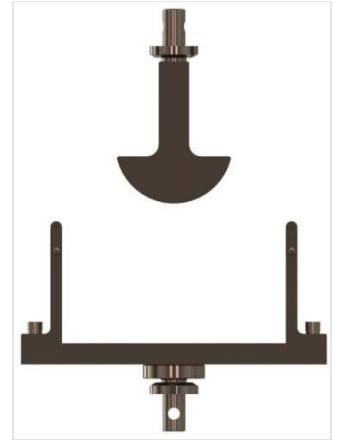


Parameter	Specification
Connection Type	Upper Grip: Ø10 mm pin Lower Grip: Ø10 mm pin
Span (Adjustable)	≤ 200 mm
Overall Height (A)	90 mm
Grip Body Width (B)	230 mm
Overall Width (C)	340 mm
Working Temperature	Ambient
Grip Weight	Upper Grip: 0.5 kg Lower Grip: 9.7 kg
Compatible Specimen Width	≤ 90 mm
Loading Nose	R5
Support Roller	R5
Additional Feature	Equipped with digital indicator to measure deformation during test



NGA104B – 3-Point Bending Fixture

The **NGA104B 3-Point Bending Fixture** is specially designed for low-force flexural testing of ceramic tile adhesive specimens. With a load capacity of up to 10kN and a fixed 200mm span, it supports standardized evaluation of bonding performance and durability. This fixture accommodates specimens with dimensions commonly used in tile adhesive testing and is equipped with R50×60 mm loading and support rollers to ensure stable and even load application. The NGA104B provides dependable performance in laboratory environments requiring precise mechanical testing of bonding materials.



- **Application:** Bending tests for adhesive of ceramic tiles.
- **Maximum Capacity:** Up to 10 kN load.
- **Connection:** Ø10 mm pin mount (upper and lower), compatible with standard UTMs.
- **Dimensions:** Height 150 mm; Grip body width 170 mm; Overall width 260 mm.
- **Span:** Fixed at 200 mm.
- **Specimen Size:** Supports standard sizes such as 280×45×5 mm and 300×45×3 mm.
- **Rollers:** R50×60 mm loading and support rollers.
- **Grip Weight:** 2.6 kg (upper grip), 6.0 kg (lower grip).
- **Working Temperature:** Ambient.

Technical Specifications – NGA104B 3-Point Bending Fixture

Parameter	Specification
Application	Bending test for adhesive of ceramic tile
Maximum Force Capacity	≤ 10 kN

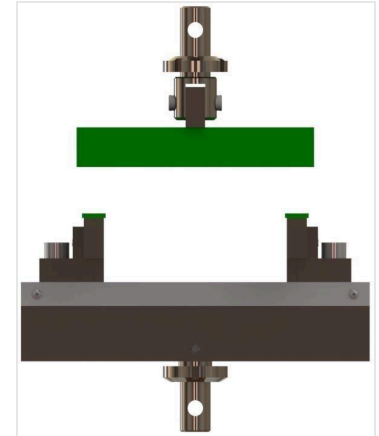


Parameter	Specification
Connection Type	Upper Grip: Ø10 mm pin Lower Grip: Ø10 mm pin
Span (Adjustable)	≤ 200 mm (Fixed span used: 200 mm)
Overall Height (A)	150 mm
Grip Body Width (B)	170 mm
Overall Width (C)	260 mm
Working Temperature	Ambient
Grip Weight	Upper Grip: 2.6 kg Lower Grip: 6.0 kg
Specimen Size	280×45×5 mm and 300×45×3 mm (L×W×T)
Loading Nose	R50×60 mm
Support Roller	R50×60 mm
Span	200 mm



NGA204A – Marker Bending Fixture

The **NGA204A Marker Bending Fixture** is purpose-built for the mechanical evaluation of raised pavement markers. With a load capacity of up to 20kN and an adjustable span up to 200mm, it enables reliable flexural testing of roadway safety products. Its dual-height and dual-width design ensures compatibility with a wide range of marker sizes. The fixture features a sturdy construction and is suitable for standard universal testing machines in laboratory environments focused on transportation and infrastructure material performance.



- **Application:** Bending tests for raised pavement markers.
- **Maximum Capacity:** Up to 20 kN load.
- **Connection:** Ø10 mm pin mount (upper and lower), compatible with standard UTM systems.
- **Span:** Adjustable up to 200 mm.
- **Height:** 85 mm (upper grip), 120 mm (lower grip).
- **Width:** 150 mm (upper grip), 220 mm (lower grip).
- **Grip Weight:** 6.5 kg.
- **Working Temperature:** Ambient.

Technical Specifications – NGA204A Marker Bending Fixture

Parameter	Specification
Application	Bending test for raised pavement markers
Maximum Force Capacity	≤ 20 kN
Connection Type	Upper Grip: Ø10 mm pin Lower Grip: Ø10 mm pin

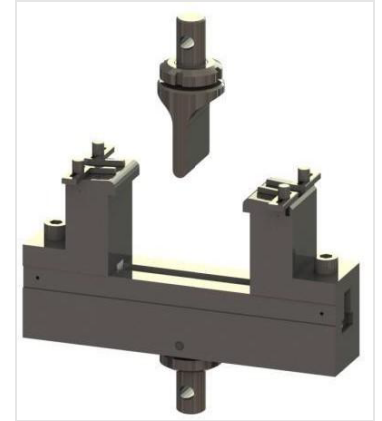


Parameter	Specification
Span (Adjustable)	≤ 200 mm
Height	Upper Grip (A): 85 mm Lower Grip (B): 120 mm
Width	Upper Grip (C): 150 mm Lower Grip (D): 220 mm
Working Temperature	Ambient
Grip Weight	6.5 kg



NGA104G – 3-Point Bending Fixture

The **NGA104G 3-Point Bending Fixture** is designed for flexural testing of plastics, composites, and ceramic construction materials under extreme temperature conditions. Supporting a wide temperature range from -70°C to $+350^{\circ}\text{C}$, it is ideal for thermal performance evaluation and environmental simulation. With a 90 mm adjustable span and compact footprint, this fixture features precision-aligned R5 loading and support rollers for smooth, consistent load distribution. NGA104G is the preferred solution for material testing in research labs and thermal chambers.



- **Application:** Bending tests for plastic, composite, and ceramic materials.
- **Maximum Capacity:** Up to 10 kN load.
- **Connection:** $\varnothing 10$ mm pin mount (upper and lower), compatible with most UTMs.
- **Span:** Adjustable up to 90 mm.
- **Height:** 86 mm (upper grip), 157 mm (lower grip).
- **Base Width:** 190 mm.
- **Specimen Range:** Supports specimens up to 30 mm wide.
- **Rollers:** R5 loading roller; R5 and R2 support rollers (customizable).
- **Grip Weight:** 0.4 kg (upper grip), 5.2 kg (lower grip).
- **Working Temperature:** -70°C to $+350^{\circ}\text{C}$.
- **Note:** NextGen can provide various loading and support rollers according to client requirements.

Technical Specifications – NGA104G 3-Point Bending Fixture



Parameter	Specification
Application	Bending test for plastic, composite, ceramic construction material etc.
Maximum Force Capacity	≤ 10 kN
Connection Type	Upper Grip: Ø10 mm pin Lower Grip: Ø10 mm pin
Span (Adjustable)	≤ 90 mm
Height	Upper Grip (A): 86 mm Lower Grip (B): 157 mm
Base Width (C)	190 mm
Working Temperature	-70 °C to +350 °C
Grip Weight	Upper Grip: 0.4 kg Lower Grip: 5.2 kg
Compatible Specimen Width	≤ 30 mm
Loading Roller	R5
Support Roller	R5, R2

NextGen’s complete bending fixture line ensures compatibility with universal testing machines while providing consistent performance in flexural testing. Whether for industrial QA or academic research, each fixture meets strict ISO and ASTM standards. Contact NextGen for expert assistance in selecting the right fixture for your testing system or to request a formal quotation.

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