+1000 °C (+1832 °F) Reverse Stress Pullrods

Catalog Number 3117-031

Features

- Suitable for both fatigue and monotonic tensile testing at elevated temperatures
- Backlash free specimen clamping, essential for testing though zero load
- Ambient to high temperature (+1000 °C /+1832 °F) operation
- Mechanical operation means no need for separate hydraulic supply or hand pump
- Interchange adapters allows various threaded-end specimen sizes to be accommodated
- Compatible with Instron®'s standard water-cooled adapters, preventing heat transfer to the loadcell and actuator
- Design optimizes lateral stiffness by keeping overall length to a minimum
- Compatible with Instron high temperature split furnaces
- Compatible with Instron AlignPRO™ fixture to ensure optimum co-axial relationship between upper and lower pullrod
- Optional clevis grips and electrical isolation for high temperature fracture mechanics applications

Description

These reverse stress pullrods are designed to meet the specific requirements of reverse stress low cycle fatigue and tensile tests at elevated temperatures.

The pullrods are manufactured from a nickel based superalloy, selected for its excellent fatigue and creep resistance characteristics.

Principle of Operation

Backlash free specimen clamping is achieved using an outer pull rod nut and a smaller specimen nut (mounted onto either end of the specimen). The larger pullrod nut when fitted over the specimen nut and tightened clamps the specimen securely against the end of the pull rod. Thus ensuring a smooth loading path for the specimen with no 'glitches' when cycling through zero load.

Application Range

- Full reverse stress high temperature testing
- High temperature fatigue testing
- High temperature tensile testing
- High temperature fracture mechanics (when used with optional high temperature CT grips)

▲
+1000 °C (+1832 °F) pullrods with furnace

+1000 °C (+1832 °F) Reverse Stress Pullrods

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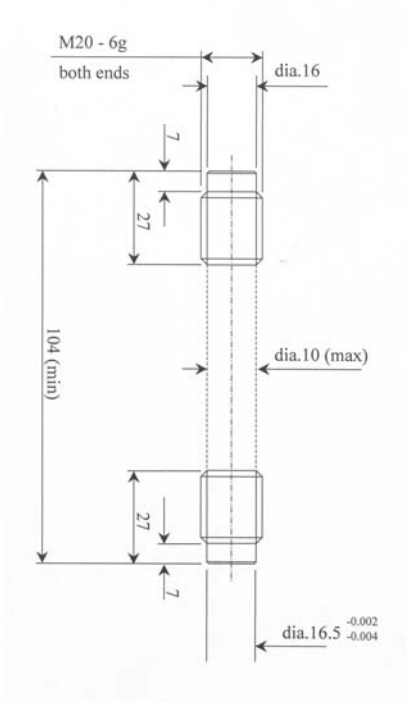
Specifications

Catalog Number	3117-031
Maximum Operating Temperature	+1000 °C (+1832 °F)
Minimum Operating Temperature	Ambient
Mass (Each)	20 kg (44.09 lb)
Standard Specimen Nut Size	M20 (others available on request)
Attachment Method (2)	M30x2 RH female thread
Total Effective Length	628 mm (including 104 mm specimen)
	24.72 in (including 4.09 in specimen)

Temperature	Max Load [1]	
	Pullrod	M20 specimen nut
Ambient	±100 kN	±45 kN
+600 °C (+1112 °F)	±100 kN	±45 kN
+850 °C (+1562 °F)	±75 kN	±35 kN
+950 °C (+1742 °F)	±50 kN	±25 kN
+1000 °C (+1832 °F)	±37.5 kN	±13 kN

Notes:

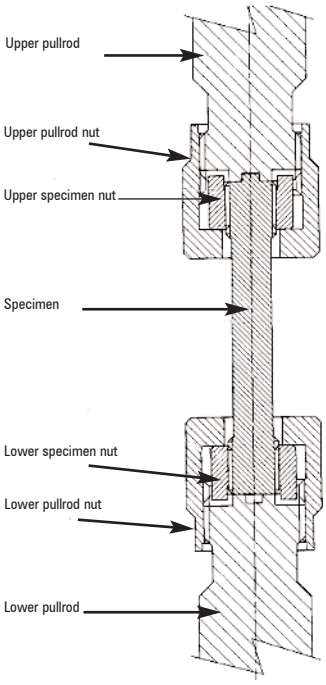
1. Based on 10,000 hrs creep life
2. Requires either 3117-010 or 3117-011 and appropriate attachment kit



▲ **Specimen dimensions (mm)**

Accessories

Catalog Number	Description
3117-010	Water-cooled adaptor
3117-011	Water-cooled adaptor and alignment rings
2632-054/5/6/7	High temperature axial strain gauged extensometers
8000-072/3	AlignPRO™ alignment fixture
4040C	AlignPRO software and electronics
6815C	Threaded strain gauged specmen (for ambient use only)
2420C	Clevis grips for use up to +1000 °C (+1832 °F)
3117-035	Tension only specimen adaptor M8
3117-036	Tension only specimen adaptor M10
3117-037	Tension only specimen adaptor M12
3117-038	Tension only specimen adaptor M16
3117-150/151	High temperature three zone split furnace



▲ **Specimen installation**

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