

# HYDRAULIC REVERSE-STRESS PULLRODS

3117-501

The 3117-501 pullrods reverse-stress pullrods with hydraulic preload designed for elevated temperature Low Cycle Fatigue applications. The pullrods are also suitable for hot tensile tests and other reverse axial stress applications.

## 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)

## FEATURES AND BENEFITS

- Designed with an external rod diameter of 60mm to provide lateral stiffness for excellent alignment characteristics
- Provides proven repeatable alignment to Class 5 according to ISO12106 & ASTM E606 when used in conjunction with AlignPro alignment fixture<sup>1</sup>
- Suitable for threaded or button headed specimens with the appropriate specimen adaptors
- Features replaceable specimen insert seats to enable easy refurbishment
- Lower pullrod includes integrated angular adjustment capability
- Interchangeable adapters allow various threaded-end and button specimen sizes to be accommodated
- Preloading mechanism is hydraulically driven - more repeatable than manually clamping
- “One touch operation” via the use of an electric pump (3117-503 only) thereby eliminating variations due to human error
- Scribed feature on pullrods to enable consistent rotational alignment
- Precision faces are all water cooled to allow tighter tolerances without the risk of seizing due to high temperatures
- No rotation of specimen or any components during clamping

### Notes

1. When used for reverse stress testing, eg. LCF or tensile testing requires load cell alignment fixture (8000-082).
2. A Pump unit is required to operate the pullrods. This is available as either 3117-503 for the electrically operated pump unit, or catalogue number 3117-505 which provides a manually driven hand pump.
3. For High Temperature testing it is a requirement that a water coolant supply be made available.



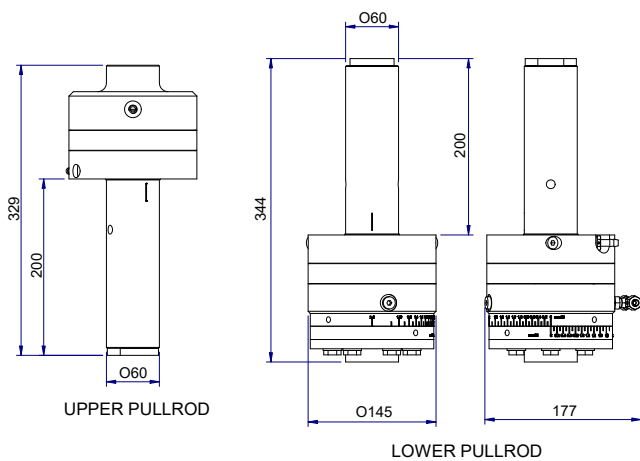
## SPECIFICATIONS

Weight: Lower Pullrod	kg	19.1
	lb	42.1
Weight: Upper Pullrod	kg	15.9
	lb	35.05
Maximum Pressure	bar	130
Maximum Operating Temperature	C	1050
Fatigue Life	-	1×10 <sup>8</sup> full load reverse stress cycles*

- \*Fatigue life is very much dependant on the test type and application.
- The fatigue life figure should be used for guidance only

## LOAD/TEMPERATURE RATING

Temperature (°C)	Rated Load (kN)			
	Pullrod	M20 Adaptor	M12 Adaptor	M8 Adaptor
Ambient	100	86.3	34.8	16.0
600	100	93.7	37.7	17.4
700	100	93.7	37.7	17.4
800	87.5	87.5	34.7	16.0
850	75	78.5	31.6	14.6
900	62.5	62.5	22.8	10.5
950	50	56.6	14.7	6.8
1000	37.5	22.7	9.1	4.2
1050	25	12.7	5.1	2.3



## INSTRON LOW CYCLE FATIGUE RELATED ACCESSORIES & PRODUCTS

Catalog Number	Description
3117-503	Electric Pump for use with 3117-501 Hydraulic Reverse Stress Pullrods
3117-505	Manual Hand Pump for use with 3117-501 Hydraulic Reverse Stress Pullrods
3117-511	Water cooler for 3117-501 hydraulic LCF pullrods
3117-521	M20 Reverse Stress Specimen Adaptors
3117-523	M12 Reverse Stress Specimen Adaptors
3117-525	M8 reverse stress specimen adaptors
3117-541	Standard button head specimen adaptor (Ø8 gauge diameter)
3117-544	Small button head specimen adaptor (Ø5 gauge diameter)
3117-301	Furnace Controller and Software



3117-301 Furnace Controller Software



3117-503 Electrically Operated Pump with One-Touch Operation

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