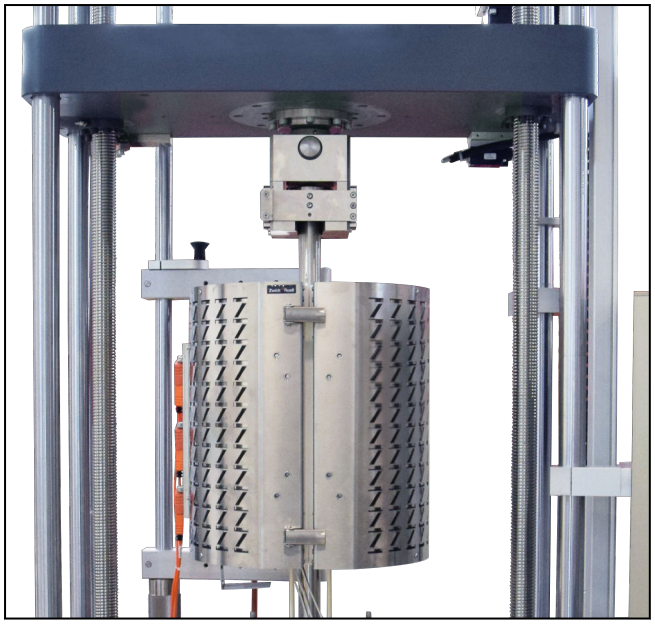
Zwick / Roell

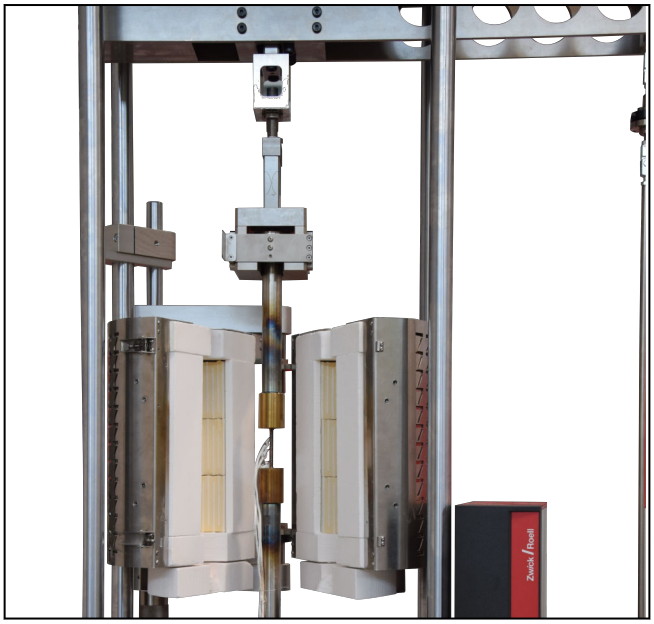
Product Information

Load String for Creep Tests up to 1,200°C

CTA: 255503 255504



Load string and pull rod coupling in creep testing machine Kappa DS



Load string and pull rod coupling in creep testing machine Kappa LA

Applications

The high-temperature pull rods transfer the force from the high-temperature specimen adapters in the furnace to the high-temperature pull rod coupling outside of the furnace. This load string is used for creep tests up to 1,200°C.

Interchangeable high-temperature specimen adapters enable creep tests on:

- Round specimens with threaded head
- Flat specimens with shoulder head and hole

The high-temperature load string consists of:

- High temperature pull rod coupling
- High-temperature pull rod
- High-temperature specimen adapter

Advantages and features

- Easy changeover with ambient temperature accessories via mounting studs or T-slotted mounting
- Secure alignment in accordance with ASTM E1012 due to automatic compensation of the smallest angular error with self-aligning spherical axial bearing.
- Easy changeover of specimen adapter according to specimen sizes and shapes
- Secure and quick gripping without tools
- High-temperature pull rods and specimen adapters are made from nickel-based alloy that has a high tensile and creep strength at temperatures up to 1,200°C
- A high-temperature pull rod made from ceramics with operating temperatures of up 1,500°C can also be combined with the high-temperature pull rod coupling.

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Product Information

Load String for Creep Tests up to 1,200°C

High-temperature pull rod coupling

The high-temperature pull rod coupling is attached to the wear-free flexible joint for creep testing machines type Kappa LA. For creep testing machines type Kappa SS / DS / SS-CF, the insertable mounting studs are used for connection, as with the universal testing machines.

The high-temperature pull rod coupling can be combined with the metallic high-temperature pull rod and the ceramic pull rod. It is equipped with a self-aligning spherical axial bearing at the top, which ensures alignment in accordance with ASTM E1012.

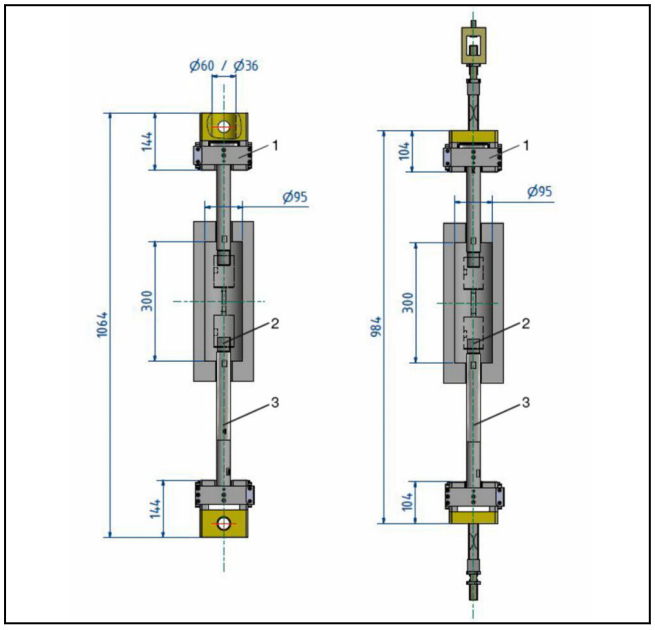
High-temperature pull rod

The installation length of the high-temperature system depends on the configuration (i.e. specimen adapter and furnace used). For more information on common installation lengths, see below (left).

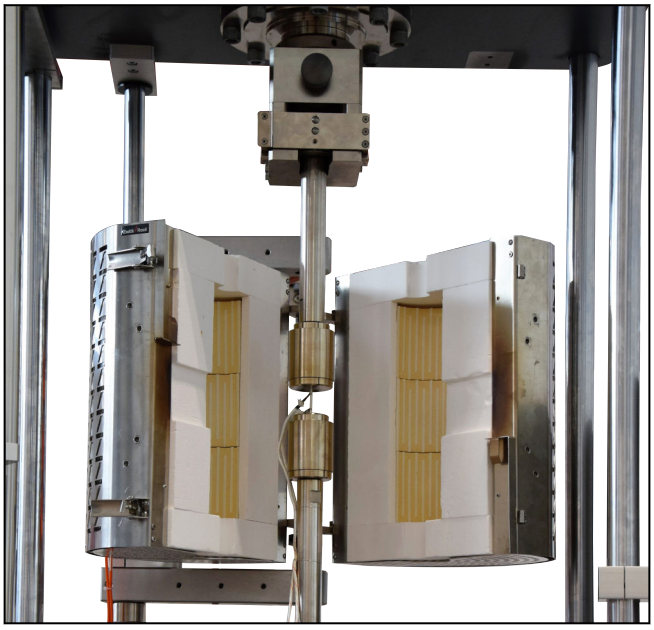
The high-temperature pull rod consists of a spherical axial bearing and a high-temperature resistant pull rod.

The spherical axial bearing compensates for small angular errors, thereby ensuring low bending moment force transmission in accordance with ASTM E1012.

CTA: 255505 255506



Load string installation situation for Kappa DS / SS / SS-CF (left) and Kappa LA (right)



High-temperature pull rod and high-temperature furnace in Kappa SS

1 High-temperature pull rod coupling
2 High-temperature specimen adapter
3 High-temperature pull rod

All data at ambient temperature.

Subject to change in the course of further development.

Product Information

Load String for Creep Tests up to 1,200°C

High-temperature specimen adapter
The specimen adapters for various specimen sizes and types can be easily interchanged. Their adjusted length ensures that the specimen center always correlates to the furnace center for the various specimen sizes.

Furthermore, the height of the furnace can be adjusted steplessly and the furnace height can be automatically centered to the specimen center during the test.

The specimen adapters are suitable for creep tests on metals at high temperatures (up to 1,200°C). The maximum test loads depend on the thread sizes (see example on page 4).

There are two types for various specimen shapes:

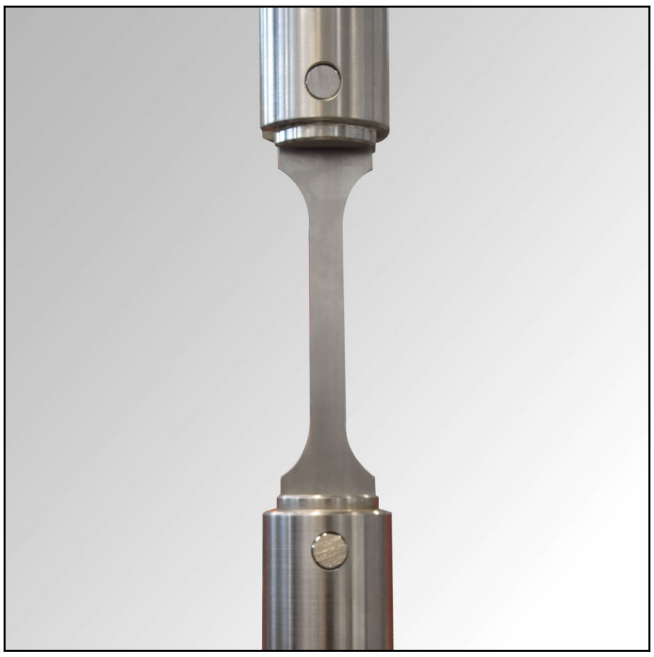
I) High-temperature specimen adapter for round specimens with threaded head
The specimen adapters are designed for round specimens with threaded head, according to size, to DIN EN ISO 204 and ASTM E139. The force is transmitted through form fit connection via the threaded head.

II) High-temperature specimen adapter for flat specimens with shoulder head and hole
These specimen adapters are designed for flat specimens with a hole in the shoulder head to DIN EN ISO 204 and ASTM E139. The force is transmitted through form fit connection via a lock-pin.

The specimen adapter is equipped with a double-sided adjustable centering stop. This ensures easy centering of various specimen thicknesses.

CTA: 255508 255509

High-temperature specimen adapter for round specimens with threaded head and thermocouples



High-temperature specimen adapter for flat specimens with shoulder head and hole

All data at ambient temperature.

Subject to change in the course of further development.

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Product Information

Load String for Creep Tests up to 1,200°C

High-temperature pull rod coupling (scope of delivery: 1 set)

Item number	MP01149	MP01241
Machine type Kappa	Kappa SS / DS / SS-CF	Kappa LA
Fmax	50 | 100 kN	50 | 100 kN
Connector	Ø 36 | Ø 60 m	fix | fix

High-temperature pull rod (scope of delivery: 1 pair)

Description	ArticleNumber
High-temperature pull rod for placing in the high-temperature pull rod coupling - Fmax 100 k - Temperature range: Ambient temperature up to 1,200°C	**MP01150**

High-temperature specimen adapter: round specimens with threaded head (scope of delivery: 1 pair)

Description	ArticleNumber
M4 ... M20	**Diverse**
1/4 " ... 3/4 "	**Diverse**

Example: test loads for high-temperature specimen adapters for round specimens with threaded head M12

Item number	MP00354			
Thread size	M12			
Test temperature	800	1,000	1,200	°C
Maximum force [kN] at 10 h	42.5	11.6	3.8	kN
Maximum force [kN] at 100 h	28.9	4.9	1.9	kN
Maximum force [kN] at 1,000 h	21.5	3.7	1.2	kN

High-temperature specimen adapter: flat specimens with shoulder head and pin (scope of delivery: 1 pair)

Item number	Diverse
Slot width	3 ... 15 mm
Pin Ø	Ø 6 ... Ø 15

Note:
More information on load strings for the following applications will be available soon:

- Creep fatigue test
- Creep crack growth test
- Hydrogen embrittlement