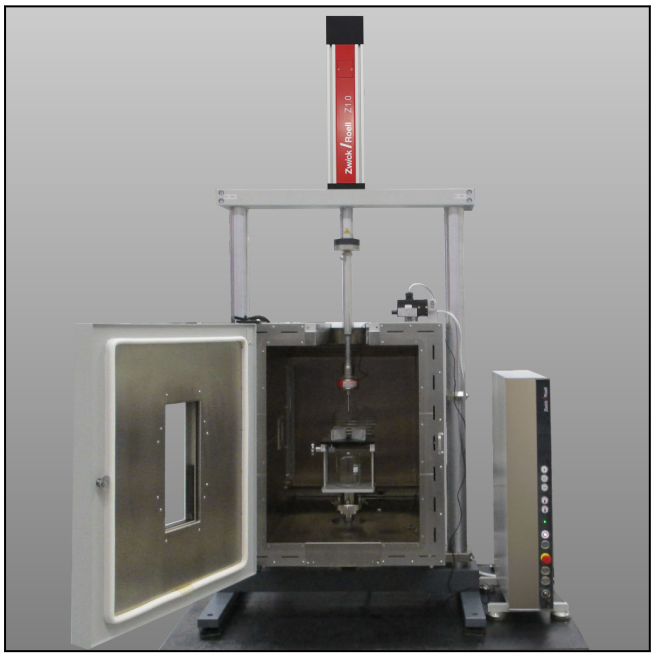
Zwick / Roell

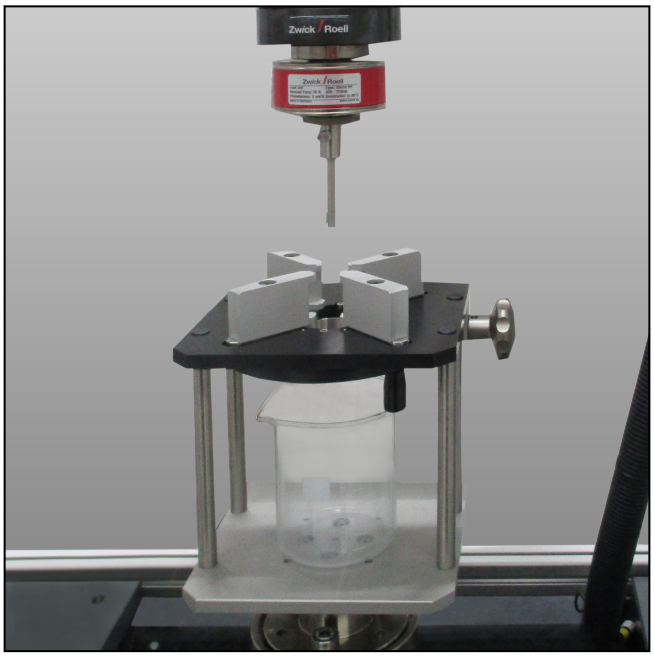
Product Information

Spring simulation of autoinjectors

CTA: 210197 210198



Electromechanical servo testing actuator 1 kN with temperature chamber



Test fixture with specimen

Application range

Simulation of the spring of an auto-injector by means of a force-controlled change in the path of the materials testing machine.

Through the simulation of spring forces, development efforts and costs are significantly reduced since the use of real springs is eliminated. High product safety is ensured through the load capacity of the springs, even with changes in viscosity, and possible recalls due to incomplete injections is avoided. The high resolution of the crosshead movement and superb speed accuracy, even at very slow test speeds and short test travel, deliver reliable test results.

Testing system

- The tests can be performed with a ZwickRoell materials testing machine or a single testing actuator, depending on the required injection speed.
- A powerful wear-free AC motor enables a high crosshead speed of 30,000 mm/min over the entire force range up to 1 kN.
- Optional temperature conditioning device allows for the simulation of spring forces under temperature.

Advantages and features

- With the simulation of spring forces, the costly use of real springs during development of injectables can be eliminated, and development efforts can be reduced.
- The functional capability of spring loaded injectables, even with changes in viscosity during storage, can already be tested in the development phase. This ensures product safety and helps avoid possible recalls due to incomplete injections.
- Through the simulation of autoinjector spring characteristics development costs can be reduced.
- A test program written specifically for this application enables the required spring properties to be transferred conveniently to testXpert III.

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Product Information

Spring simulation of autoinjectors

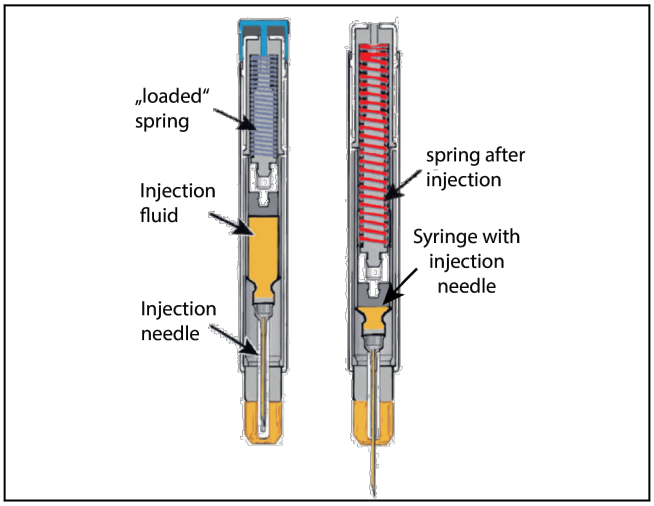
Required accessories

testXpert III Graphical Sequence Editor for spring simulation of autoinjectors[1)]

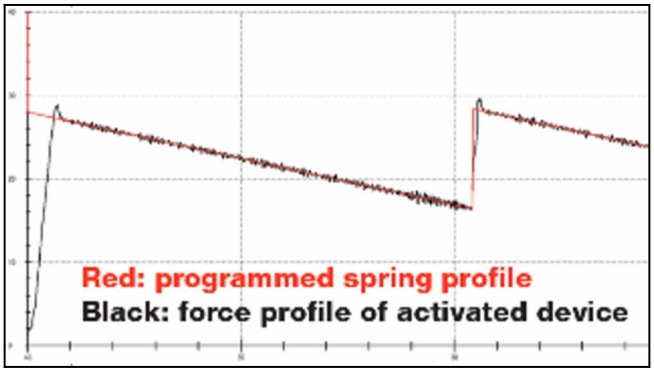
Application range and description

- Simulation of the spring of an autoinjector by means of a force-controlled change in the path of the materials testing machine.
  This enables:
  – 1. The design of the optimal spring in the development of autoinjectors
  – 2. Ensuring that the drug is fully squeezed out after storage or, in the case of increased viscosity, already in the development phase
- The testXpert III test program enables the free graphic creation of test sequences.
- The creation and modification of tests is possible within a very short time.
- The test program supports the writing of the reference value table.
- The following options are already included in the test program:
  Results editor, layout editor, export editor, report editor, organization editor, temperature control and virtual testing machine

CTA: 252340



CTA: 252341



Description	Item number
testXpert III, Graphical Sequence Editor spring simulation of syringes	**1041585**

Further necessary accessories

Description	Item number
Test fixture, syringes and carpules	**082865**
Carpule mounting 1.5 ml	**082866**
Carpule mounting 3 ml	**082868**

1) Graphical Sequence Editor is only suitable for testControl II

All data at ambient temperature.

We reserve the right to make technical changes in the course of ongoing development.