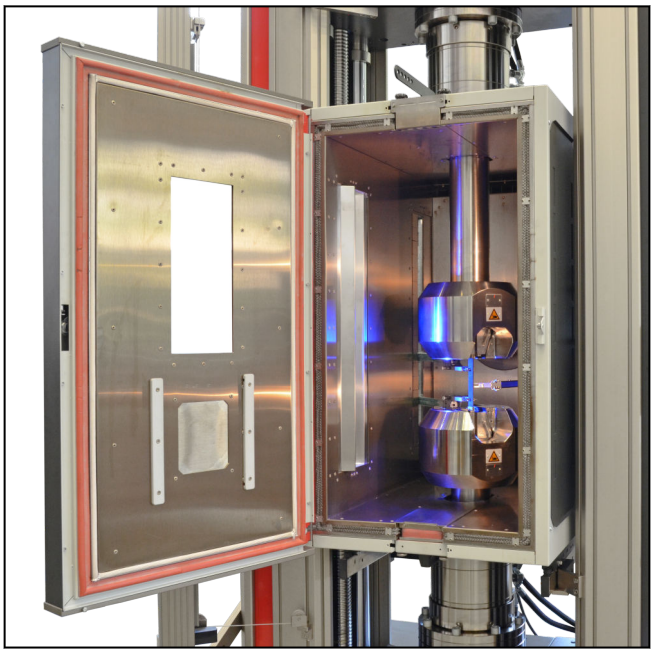
Zwick / Roell

Product Information

Temperature chamber for AllroundLine up to 360 °C

CTA: 217032 240681

AllroundLine Z250 with temperature chamber



Temperature chamber, open

Applications

Materials and components testing in a wide temperature range, among others for:

- Tensile and flexure tests on plastics such as PI and PA
- Tensile, shear, flexure and compression tests on composites, i.e. with PEEK or PTFE matrix
- Tensile tests on metals to ISO 6892-2. Prepared for integration of two additional thermocouples

Advantages and features

- **Reliable test results**
  Material or component characteristics are determined with the highest level of accuracy and in compliance with the standards. The smallest test details become visible due to the unsurpassed measuring accuracy of this testing system.
  - The temperature chamber ensures accurate measurements with load cells and extensometers, Thanks to the innovative fan concept, characteristic values are free from influences caused by vibrations and convection.
  - Proper test performance can be easily demonstrated to customers and auditors. When combined with the testXpert III testing software, the test results are repeatable and settings are traceable. Recording of the temperature sequence starts during the heating phase.
  - When changing to tests at ambient temperature, the position of optical extensometers remains unchanged.
- **Time and cost savings**
  State of the art technology guarantees maximum specimen throughput with minimal energy use:
  - The particularly high heating and cooling performance at low LN2 and power consumption lowers operating costs. In some cases, LN2 costs can be cut in half when compared to standard market solutions.
  - Specimen changes through the door-in-door minimize temperature losses and ice formation, significantly increasing specimen throughput.
- **Flexible in use**
  The innovative ZwickRoell temperature chamber guarantees a flexible testing system tailored to customer requirements, without compromises. This also ensures reliable test results in the future.
  - Four lateral interfaces allow for the connection of several extensometers (optical and contact) or a handling system.
  - All options can be retrofitted on site.
  - The large volume of the chamber also provides sufficient space for components testing and ensures constant temperatures around the specimen.

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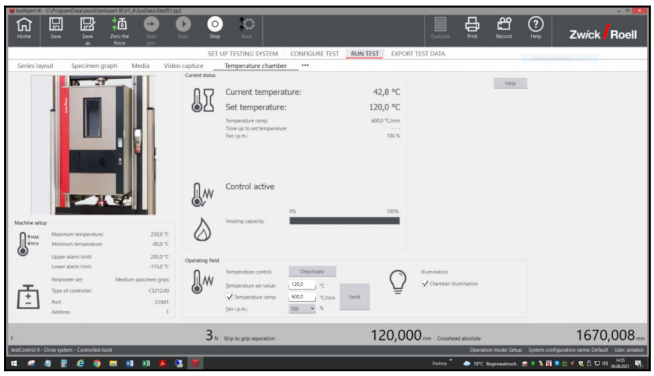
- **High operating comfort**
  The intuitive, fast and workflow-oriented operation of all system components is guaranteed through ZwickRoell's testXpert III testing software. By loading the test program, the testing system including the temperature chamber is fully, operator-independently, and traceably configured. All safety settings and tool separation values are automatically set correctly. This guarantees reliable test results and maximum safety for users and the testing system.
  - Standardized operation of all products via testXpert III reduces training requirements to a minimum.
  - testXpert III enables the automatic approach of different force, strain, and temperature steps in various sections.

CTA: 256443



testXpert III user interface

- **Accurate temperature control**
  The temperature chamber achieves extremely homogeneous and precise conditions for the specimens throughout the entire volume of the chamber. This ensures that test results are accurate and repeatable.
  - The sophisticated air-feed system in combination with precise and very stable temperature control guarantees spatial homogeneity and temporal stability of +/- 1 °C to DAkkS/DKD R 5-7 Method C.
  - The optional temperature sensor positioned near the specimen controls the temperature at the critical location, thereby optimizing the test results. The practical holder allows fast, precise sensor positioning.
- The safety door function guarantees operator safety in accordance with European safety regulations, where the chamber door acts as a safety door with guard locking.
- One or multiple extensometers are mounted on the side. This gives the user full view and unobstructed access to the test area.
- With the door-in-door concept, specimens can be conveniently changed, even at 360 °C. The heat is optimally shielded and the operator is protected.

All data at ambient temperature.

Subject to change in the course of further development.

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Technical data

Item No.	**1090458**	
Temperature range	**RT +10°C ... +360 °C**	
With LN_2 cooling system (option)	-80 ... +360 °C	
Connection LN_2 (inner threads)[1)]	G 3/8	
Coolant operating pressure	1.5 +/- 0.1	bar
Typical LN_2 consumption when: [2)]		
Cooling from RT to -30 °C	8.5	l
Hold at -30 °C	9	l/h
Cooling to -80 °C	19	l
Hold at -80 °C	14	l/h
Rate of temperature change without load to EN 60068-3-5[3)]		
Heating mode from RT to 360°C	11.5	K/min
Corresponds to a warm-up time of:	23	min
Cooling mode from RT to -80 °C	5	K/min
Corresponds to a cool-off time of:	17	min
Temporal instability [4)]	+/- 1	°C
Local inhomogeneity [4)]	+/- 1	°C
Power supply	400	V, 3Ph/N/PE
Power frequency	50/60	Hz
Power consumption	7.2	kVA
Power supply cable	l = 4 m, with 5-pin CEE plug (16A)	
Interface	RS 232 (requires a COM port on the PC)	
Minumum version	from testXpert III V1.6	
Dimensions:		
Test area:		
Height	900	mm
Width	460	mm
Depth	740	mm
Inside of the door to the test axis	400	mm
Outer (distance to outer sides):		
Height	1040	mm
Width	600	mm
Depth	1345	mm
Weight, approx. (without options)	230	kg
Design	Four openings (two left, two right), closed with dummy plug by default, for connection of extensometers, for example; door hinge on left; condensation drain included in connection unit	
Overall noise level	< 68	dB(A)

1) The supply line connection also includes a G 3/8"-UNF 3/4"-16 adapter

2) Chamber closed, with typical equipment (100 kN specimen grip). During cooling: consumption between 10% and 90% of the temperature range to EN 60068-3-5

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3) The rate of temperature change is determined between 10 % and 90 % of the specified range to EN 60068-3-5

4) To DAkkS/DKD R 5-7 Method C: expanded measurement uncertainty of the temperature measurement system +/- 1.5 K (basic chamber, no load)

Accessories required

Installation components

Required: 1 x guide rails

Description	ArticleNumber
Guide rails For all temperature chambers for AllroundLine testing machines with test area width 440/630/640 mm Temperature chamber runs on the guide rails For use of an extensometer in conjunction with a rigid fixing unit The minimum distance between the base crosshead and the bottom side of the temperature chamber is 123 mm	**1090376**
Guide rails, modular For temperature chambers installed in the upper test area of an AllroundLine floor-standing testing machine with test area width 630/1030/1040 mm For use of an extensometer in conjunction with a rigid or swiveling fixing unit The minimum distance between the top crosshead and the top side of the temperature chamber is 159 mm	**1090377**
Guide rails, modular For all temperature chambers for AllroundLine testing machines with test area width 440/630/640 mm Temperature chamber runs on the guide rails For use of an extensometer in conjunction with a rigid or swiveling fixing unit The minimum distance between the base crosshead and the bottom side of the temperature chamber is 123 mm	**1090378**

Optional accessories

Door versions

(can also be used in combination)

Description	ArticleNumber
Door with additional opening Minimal temperature fluctuation during specimen change or removal of clip-on extensometer. Enables shorter cycle times, reduced operating costs and reduced ice formation in cooling mode.	**Included**
Safety door function for operator protection Chamber door functions as a safety door with guard-locking, guaranteeing safety as per MRL. Detection of temperature chamber position and automatic selection of safety device (machine or temperature chamber).	**1022224**

Cooling

Description	ArticleNumber
Cooling system with safety valve Cooling using LN_2 (liquid nitrogen) Expansion of the temperature range to -80 °C Please ensure sufficient ventilation of the room	**1022212**

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Description	ArticleNumber
Liquid nitrogen container Vacuum super insulation, 100 l, incl. connection line (Item number 1022235) To supply the temperature chamber with liquid nitrogen, operating pressure 1.5 bar	**1022225**

Description	ArticleNumber
Connection line to the temperature chamber Vacuum super insulation, L = 1.5 m, UNF 3/4”-16 Ensures optimal performance of the temperature chamber in cooling mode when using alternative liquid nitrogen container. The vacuum super insulation ensures that the nitrogen reaches the temperature chamber in liquid form.	**1022235**

Temperature control near the specimen

Description	ArticleNumber
Temperature sensor near the specimen Incl. holder for free positioning of the temperature sensor near the specimen	**1022213**

Glass insert for optical extensometer

Fog-free below room temperature due to test temperature-dependent heating of the pane, and integrated dry-air-fill feature between the panes (internal circuit).

Required in combination with non-contact extensometer.

For measurement of the change in width directly at the specimen edge, the glass insert is required 2x.

Description	ArticleNumber
Glass insert for use in lateral opening on the rear left or front right sides of the temperature chamber up to 360 °C (height H = 1040 mm)	**1090509**
Glass insert for use in lateral opening on the rear right or front left sides of the temperature chamber up to 360 °C (height H = 1040 mm)	**1094404**

Mechanical insert for contact extensometer

Required in combination with contact extensometers (with sensor arms)

Through the use of individual inserts, the required opening remains small, minimizing the loss of temperature

Description	ArticleNumber
Mechanical insert for use in lateral opening on the temperature chamber up to 360 °C (height H = 1040 mm)	**1090510**

Heat protextion clothes

Description	ArticleNumber
Heat protection gloves Size M Made of para-aramid, wool and carbon With leather palm braid, Leather cuff for additional forearm protection, Contact heat up to 350 °C	**1090513**
Heat protection gloves Size L Made of para-aramid, wool and carbon With leather palm braid, Leather cuff for additional forearm protection, Contact heat up to 350 °C	**1090514**
Heat protection jacket Size S	**1103556**

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Description	ArticleNumber
Leather jacket with snap fasteners	
Heat protection jacket Size M Leather jacket with snap fasteners	**1103519**
Heat protection jacket Size L Leather jacket with snap fasteners	**1103520**
Protection helmet with visor For protection of the head against radiant heat Consists of helmet, visor retainer and polycarbonate visor	**1103521**