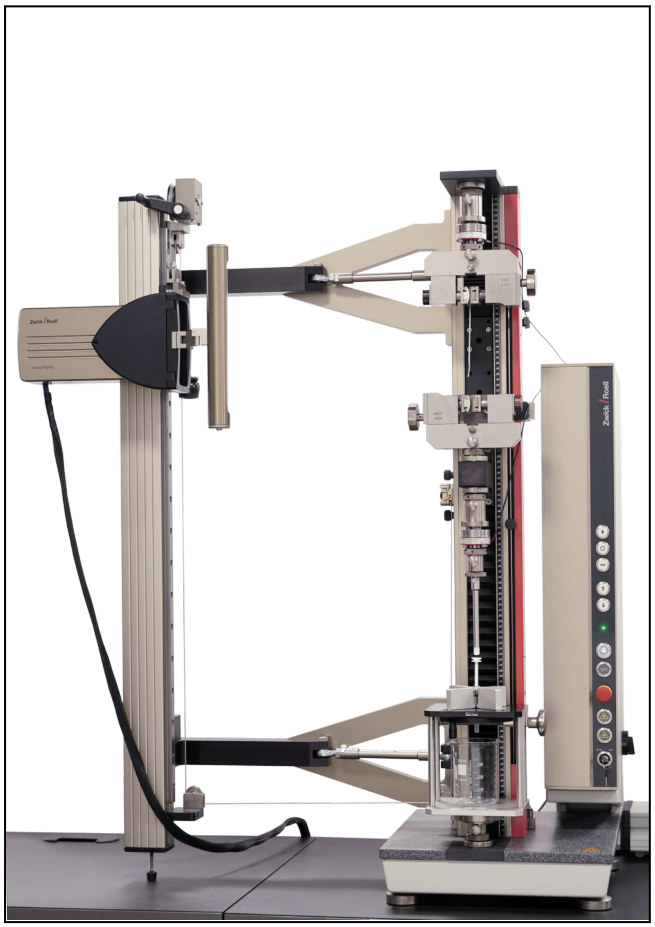
Zwick / Roell

Product Information

Material Testing Machine zwickiLine Z2.5 TN+

CTA: 222531 233359



zwickiLine Z2.5 TN with two test areas

ZERTIFIKAT CERTIFICATE - CERTIFICADO - CERTIFICAT

COLANDIS
the clean air company

CERTIFICATE

The COLANDIS GmbH certifies

ZwickRoell GmbH & Co. KG
August-Nagel-Strasse 11
89079 Ulm

for

zwickiLine Z2.5 +

a cleanroom suitability according to the DIN EN ISO 14644 1:2016-06; DIN EN ISO 14644-14 and VDI 2083-9.1 for

ISO-Class	Operation condition
5	Dynamic condition at all relevant points

This certificate is limited to the cleanliness of airborne particles.
The product has been tested according to VDI 2083 Page 9.1 and DIN EN ISO 14644-14.

Related report: 204935-2
Date of report: 07.05.2020

Matthias Hacking
Kahla, May 2020

cleanroom tested COLANDIS ISO 14644 VDI 2083

COLANDIS GmbH
Im Camisch 34
D - 07768 Kahla

zwickiLine Z2.5+ cleanroom certificate

Applications

The zwickiLine Z2.5 TN+ materials testing machine is a powerful, flexible testing solution for a wide range of demanding test situations. The materials testing machine is ideally suited for high-precision test requirements and for research and development purposes.

The zwickiLine Z2.5 TN+ is also the perfect solution for test tasks under cleanroom conditions. It can be used in the areas of production and testing in cleanroom class 5.

Due to its special technical properties, the zwickiLine Z2.5 TN+ is ideal for testing of metals, springs, composites, medical components, and for instrumented indentation testing for hardness determination. The high acceleration rate and crosshead speed provide the optimal conditions, for example, to simulate the behavior of the spring in an autoinjector with the crosshead during a spring simulation test for medical autoinjectors.

Advantages and features

The technical properties of the zwickiLine Z2.5 TN+ significantly differentiate it from the zwickiLine. It provides sophisticated possibilities for applications with increased test requirements.

- A powerful wear-free AC motor enables a high crosshead speed of 3000 mm/min over the entire force range up to 2.5 kN.
- High resolution of the crosshead movement of 0.95 nm and superb speed accuracy with 18 µm/min, deliver reliable test results even at very slow test speeds and short test travel distances in the µm range.
- The stiffness is four times higher than for a regular zwickiLine Z2.5, which also allows for testing of very stiff specimens without an additional extensometer.

PI 595 1220

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The zwickiLine Z2.5 TN+ can be used in the areas of production and testing in cleanroom class 5 to DIN EN ISO 14644-1.

- The testing machine can be directly integrated into the production process in the cleanroom (e.g. insulin pen testing). This ensures product quality.
- Testing can take place directly at the specimen removal location, without the time consuming transfer of specimens from the cleanroom. This saves a significant amount of time while maintaining the same level of quality.
- Biological specimens can be tested without contamination.

Option DIN EN ISO 13849 satisfies the following additional criteria:

Performance level
The safety level (performance level) of the testing system is classified via independent software from IFA (German Institute of Occupational Health and Safety). All electrical components are covered. In addition to risk assessment, compliance with the requirements of ISO 13849 is verified.

Two-channel monitoring of safety door position:
A safety door is used to prevent crushing/pinching, or injuries caused by specimen remains at accelerated velocities. The test is not started until the door is closed. Mechanical interlocking ensures that the door cannot be opened during the test. Two-channel position monitoring ensures that operation of the machine with the safety door open is not possible, even in the event of sensor failure. The machine can be operated at reduced speed with the safety door open for setup purposes.

Safety electronics
All safety-related signals are evaluated by special safety electronics. The signals are processed by hardware in order to eliminate software errors.

Two-channel monitoring of crosshead movement:
During testing machine setup and insertion of a specimen, it must be ensured that unintentional crosshead movement which may endanger the operator does not occur. A special control system for the motor (safe torque off) plus two-channel monitoring of motor r.p.m. eliminates uncontrolled crosshead movement.

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Technical data

Type **Item No.**	**Z2.5 TN+** **1039527**	
Test load F_{max}	2.5	kN
Test area		
Height, P_{min}…P_{max} (each without mounting stud)		
Moving crosshead mounted with angle up	365 ... 1040	mm
Moving crosshead mounted with angle down	125 ... 800	mm
Depth	105	mm
Width	No limitation	
Travel s of the moving crosshead, max.	E = Sum of the installation dimensions of all test arrangements (load cell, specimen grips/test fixture/test tool, mounting stud)	
If E < P_{min}	P_{max} - E	
Load frame		
Dimensions		
Height	1289[1)]	mm
Width	408[2)]	mm
Width with machine electronics	437[2)]	mm
Depth	480[2)]	mm
Depth with machine electronics	662[2)]	mm
Weight		
With machine electronics, approx.	127	kg
Average noise level at v_{max} measured at 1 m distance from the front of the machine	64	dB(A)
Drive system		
Motor	AC servo motor	
Crosshead speed v_{min} ... v_{max}	0.0005 ... 3000[3)]	mm/min
Drive travel resolution	0.95	nm
Power input specifications		
Power supply	230	V, 1Ph/N/PE
Power consumption (full load), approx.	2.3	kVA

1) The dimension increases by 9 mm with the additional crosshead option (top crosshead)

2) With “large base” option: width 583 mm, width with machine electronics 611 mm, depth 565 mm, depth with machine electronics 746 mm.

3) Values apply to machines with closed safety door and closed safety guard in automatic mode and to machines without safety device and/or without safety guard. For machines with the safety door and/or safety guard open, the speed is reduced to 600 mm/min.

All data at ambient temperature.