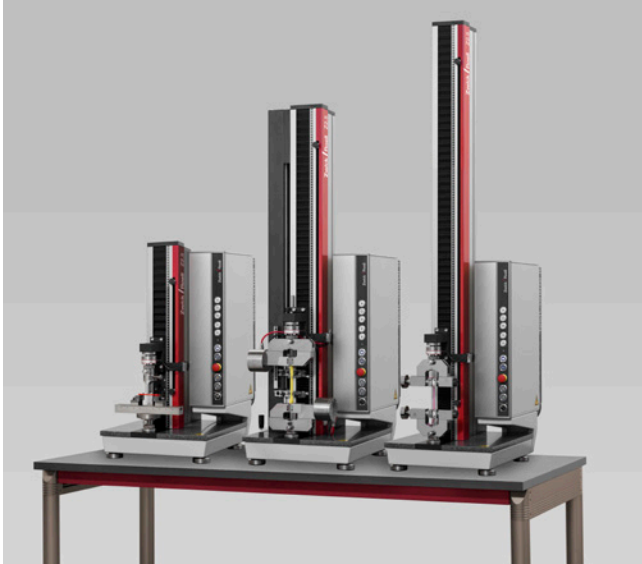
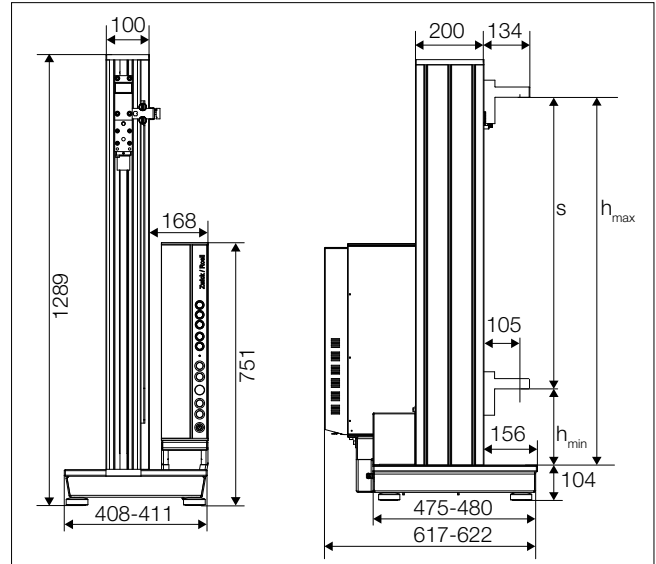


## Product Information

### zwickiLine Materials Testing Machines Z5.0



zwickiLine range with testControl II electronics



Principle drawing of the zwickiLine basic version

#### Range of application

zwickiLine is a powerful, flexible and cost-effective testing solution for many different materials and components and is ideal for both research and development and routine quality assurance. A wide range of equipment options allows zwickiLine to be used for tests on plastics, elastomers, metals, composites, paper, board, textiles, foams, foodstuffs and components.

#### Made in Germany

zwickiLine, including all mechanical, electronic and software components, together with the extensive range of accessories are developed and produced at Zwick Roell's production facility in Germany and are therefore ideally matched to each other. This means that zwickiLine is an extremely high-quality product and also allows Zwick to offer the best possible support.

#### Powerful drives

Extremely low minimum speeds can be set, combined with excellent speed-constancy. The drive also delivers high crosshead travel resolution; this is important in tests on components requiring a high degree of travel-precision and in tests on specimens with high levels of stiffness and low travel, for example.

The high test speed range can be used without restriction. In addition, test loads up to 110% of the machine nominal load are permissible to compensate for heavy combinations of test fixtures, accessories etc.

#### Innovative high-quality load-frame design

- The new zwickiLine extruded profile possesses 6 continuous, freely accessible standard-profile slots for individual mounting of specimen materials, fixtures, safety devices, accessories etc.
- The generous test-area depth enables larger fixtures to be used and larger components tested, the wide base crosshead enabling optimum securing and retaining.
- High-quality machine design, including for example hard-wearing ceramic control buttons for the electronics, ensures a long service life.

#### High stiffness and precision crosshead guide

The stiff load-frame profile and large connecting surfaces reduce the inclination angle of the crosshead under load, enabling very precise alignment and application of force to the specimen. This is advantageous for flexure tests, compression tests, precision tests on components etc.

#### Safety for you and the entire testing system, and the modern safety device

Features ensuring safety include the 2-channel (= double safeguard) safety circuit, operating-mode selector-switch and Drive Off switch. The operator is shielded from flying specimen fragments or other hazards by the CE-compliant safety device featuring a large test area, transparent design and excellent accessibility.

## Product Information

### zwickiLine Materials Testing Machines Z5.0

#### Powerful, innovative testControl II electronics

zwickiLine is equipped with testControl II digital measurement and control electronics, mounted vertically on the load frame for better protection against ingress of liquids or conductive particles.

#### testXpert II – intelligent and reliable

testXpert II testing software and testControl II electronics are perfectly matched, ensuring safe, efficient, reliable operation of the materials testing machine. testXpert II offers the optimum solution for any testing requirement.

#### Eco mode

testControl II automatically switches to eco mode when not in use, saving energy.

#### Built-in safety in accordance with EC Machinery Directive

The statutory safety requirements of the EC Machinery Directive are implemented in all Zwick machines, which are accompanied by an EC Declaration of Conformity on delivery. Only the latest safety technologies and proven industrial components are used. A very high level of safety is guaranteed for user, test results, specimen material and testing system.

#### Ergonomic remote control with display

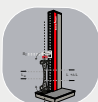
The entire test can be performed via the display-equipped remote control unit, independently of the PC. In addition, rapid, high-precision positioning is possible via the rocker switch with integrated thumbwheel.

### Overview of key advantages of testControl II electronics



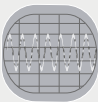
#### Flexibility through modularity

testControl II provides 6 flexible, time-synchronized slots, enabling several sensors to be in use at the same time, with monitoring and protection, regardless of use.



#### Machine compliance correction

The high-quality drive technology and on-line machine compliance correction enable extremely accurate travel measurement and positioning.



#### High data transmission rate

High data transmission rate (2000 Hz) allows fast measurement combined with maximum reproducibility. This is highly advantageous for rapid tests, short brittle fracture events and for tear growth, adhesion and peel tests, for example.



#### System monitoring

Detailed information regarding current status and usage level of testing equipment greatly simplifies processes such as planning maintenance and spares/replacement procurement.



#### Fast, adaptive drive-controller

The high drive control frequency of 1000 Hz enables fast, precise force and strain control. Benefits include enabling components to be loaded very quickly and accurately with the specified force.

In addition, all control parameters required for fast, accurate approach to target positions are automatically set, enabling time and cost savings by eliminating the need for time-consuming pre-tests.



#### Maximum accuracy

High (24-bit) measured-value resolution for maximum test-result accuracy and reproducibility. This means for example that even minimal force changes on the specimen can be recorded and displayed accurately.



#### Innovative interfaces

E.g. time-synchronised EtherCat® bus system allows future-proof sensor integration to be taken for granted.

## Product Information

### zwickiLine Materials Testing Machines Z5.0

Type	Z5.0 TS	Z5.0 TN	Z5.0 TH
Item number	059005	059006	059007
Load frame			
Test load F <sub>N</sub> in tensile/compression direction	5 kN	5 kN	5 kN
Weight approx. (incl. electronics, without any accessories)	70 kg	78 kg	83 kg
Height <sup>(1)</sup>	789 mm	1289 mm	1589 mm
Height of the test area (without accessories)	P <sub>min</sub> ... P <sub>max</sub> <sup>;(3)</sup>		
angled moving crosshead mounted upwards	365 ... 540 mm	365 ... 1040 mm	365 ... 1340 mm
angled moving crosshead rotated 180°	125 ... 300 mm	125 ... 800 mm	125 ... 1100 mm
Width <sup>(2)</sup> x Depth (Depth with electronics console)	411 x 480 (622) mm		
Width of the test area x throat depth (Test axis to profile)	infinite x 105 mm		
Maximum travel (s) of the mounting square:	if E < P <sub>min</sub> : if E > P <sub>min</sub> :	s = P <sub>max</sub> - P <sub>min</sub> s = P <sub>max</sub> - E	
E = sum of the mounting dimensions of the complete testing equipment (load cell, specimen grips/testing device, mounting stud)			
Noise level measured at maximum test speed	55 dB(A)		
Finish	RAL 7021 black grey and RAL 7037 dusty grey		
Ambient temperature / Air humidity	+10 ... +35 °C / 20 ... 90 %		
Conformity	to ISO 9000 and CE		
Drive system			
Motor	DC servo-motor		
Input signal, set-value preset	digital		
Controller / Cycle time	adaptive / 1000 Hz		
Crosshead speed v <sub>min</sub> ... v <sub>nom</sub>	0.0005 ... 600 mm/min		
Drive system's travel resolution	0,0168 µm		
Positioning, repetition accuracy	± 2 µm		
Measurement and control electronics			
Number of slots available for measurement and control modules	2 synchronized module bus slots (expandable to 5) <sup>(4)</sup> 1 synchronised PCIe slots		
Force measurement	Grade 0.5 / 1 see load cell, according to DIN EN ISO 7500-1, ASTM E4		
Measurement range	up to 165 % of F <sub>N</sub>		
Calculated resolution (e.g. in tensile / compression direction)	24 bit		
Data acquisition rate, internal	400 kHz		
Test data transmission rate to the PC	500 Hz (optional 2000 Hz)		
Zero-point correction	automatic at start of measurement		
Measurement signal runtime correction for all channels	yes		
Interface	Ethernet		
Power ratings			
Electrical connections adjustable	100 ... 240 V (Wide-range input)		
Range of tolerance	± 10 %		
Power rating / Mains frequency	0.44 kVA / 50/60 Hz		

<sup>(1)</sup> with option „Additional crosshead“ height is increased by 9 mm

<sup>(2)</sup> Width option „Large base“: Width 586 mm, Depth 565 mm, Depth with electronics console 707 mm

<sup>(3)</sup> See drawing on front page

<sup>(4)</sup> A DCSC module is included in delivery (occupies one module bus slot). The drive occupies an optional module bus slot.

**Options e.g.:** 2000 Hz online test data transmission, extension of the throat depth to 205 mm (up to  $F_{max}$  2.5 kN), additional crosshead (up to  $F_{max}$  2.5 kN), extension of the electronics to six slots (measuring channels)

**Accessories e.g.:** Specimen grips, test tools, load cell, extensometer, safety device

We would be glad to give you information to further options and accessories on request.