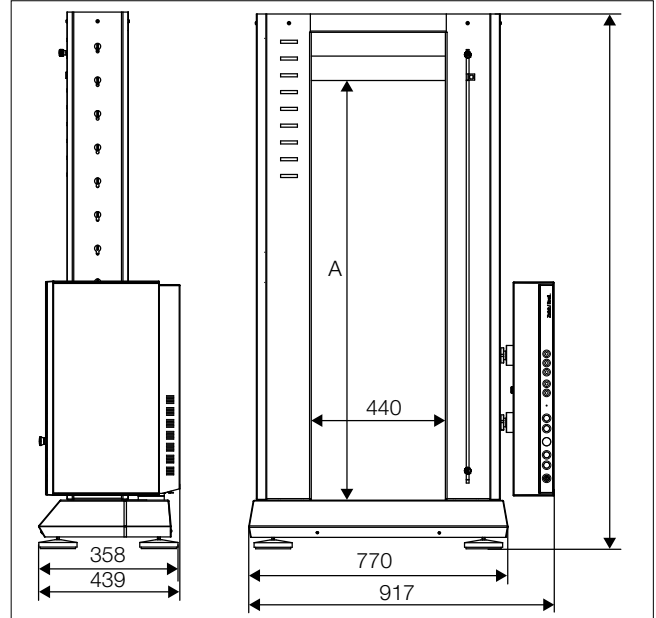


## Product Information

### ProLine table-top testing machines Z005 up to Z100



ProLine Z050TN



Principle drawing of the ProLine Z030/Z050 TN

#### Range of application

The ProLine materials testing machine product group was primarily developed for standardized tests on materials and components. Used in conjunction with the intuitive testXpert II software, ProLine materials testing machines are fast and very easy to operate.

#### Made in Germany

ProLine, 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-accuracy. 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.

The faster return speeds reduce cycle times and increase test throughput, with AC drive technology ensuring that the motor is maintenance-free.

#### Precision crosshead guides

ProLine's moving crosshead is guided very accurately via two steel columns, enabling precise force application to the specimen. This is advantageous for flexure, tests, compression tests, precision tests on components etc.

#### Exclusively from Zwick: Xforce load cells

ProLine materials testing machines are equipped with Xforce load cells developed and manufactured in the Zwick Roell Group. The effect of parasitic influences (such as temperature and transverse forces) on test results is significantly less than with other, comparable load cells. In addition, Xforce loads cells are very stable and less sensitive to transverse forces in compression and flexure tests, for example.

#### Short delivery times

The very short delivery time of 2 weeks for ProLine materials testing machines means that pending tests can quickly be tackled without losing valuable time.

#### Safety for you and the entire testing system

Features ensuring safety include the 2-channel (= double safeguard) safety circuit, operating-mode selector-switch, Drive Off switch and motor holding brake.

## Product Information

### ProLine table-top testing machines Z005 up to Z100

#### 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 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

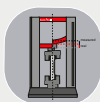
The entire test can be performed via the display-equipped remote control unit, independently of the PC. In addition, rapid, high-precision positioning is possible via the rocker switch with integrated thumbwheel.

### Overview of key advantages of testControl II electronics



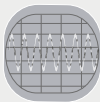
#### Flexibility through modularity

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

### ProLine table-top testing machines Z005 up to Z100

Data	Value
<b>Load frame</b>	
Finish	RAL 7021 black grey, stainless steel metallic, RAL 3031 orientred
Ambient temperature	+10 ... +35 °C
Air humidity	20 ... 90 %
Conformity	ISO 9000 and CE
<b>Drive system</b>	
Motor	AC servo-motor
Input signal, set-value preset	digital (real-time Ethernet, EtherCAT®)
Controller / Cycle time	adaptive / 1000 Hz
Positioning, repetition accuracy	±2 µm
Permissible feedback energy	Up to 50 % machine utilization
<b>Measurement and control electronics</b>	
Number of slots available for measurement and control modules	2 synchronized module bus slots (expandable to 5) <sup>(1)</sup> 1 synchronised PCIe slots
Force measurement	grade 0.5 / 1 see load cell, to DIN EN ISO 7500-1, ASTM E4,
Measurement range	up to 165 % of $F_N$
Calculated resolution (e.g. in tensile / compression direction)	24 bits
Data acquisition rate, internal	400 kHz
Test data transmission rate to the PC	500 Hz (optional 2000 Hz)
Zero-point correction	automatically at measurement begin
Measurement signal runtime correction for all channels	yes
Interface for PC	Ethernet
Eco Mode	yes, power section automatically switched off (time adjustable)
CE conformity	yes, according to machine guidelines 2006/42/EG
<b>Power ratings</b>	
Electrical connections	230 VAC
Range of tolerance	± 10 %
Mains frequency	50/60 Hz

<sup>(1)</sup> A DCSC module is included in delivery (occupies one module bus slot).

## Product Information

### ProLine table-top testing machines Z005 up to Z100

Type	Z005TN	Z010TN	Z010TH <sup>2</sup>	Z020TN	Z030TN	Z050TN	Z100TN	
Item number	059008	059010	059011	059012	059013	059021	059022	
<b>Load frame</b>								
Test load $F_N$ in tensile/compr. direction	5	10	10	20	30	50	100	kN
Test area width	440	440	440	440	440	440	640	mm
Height of test area (dimension A) <sup>(1)</sup>	1070	1050	1450	1050	1370	1370	1360	mm
Max travel of moving crosshead <sup>(1)</sup>	1000	980	1380	980	1285	1285	1275	mm
Height	1331	1331	1731	1331	1743	1743	1829	mm
Width	770	770	770	770	850	850	1070	mm
Width with electronics console	917	917	917	917	1000	1000	1205	mm
Depth	358	358	358	358	456	456	602	mm
Depth with electronics console	439	439	439	439	462	462	645	mm
Total weight with electron. console	110	135	150	135	330	330	530	kg
Lower mounting stud dia. (included in scope of supply)	20	20	20	36	36	36	60	mm
Noise level measured at maximum test speed	59	57	57	58	68	69	71	dB (A)
<b>Drive unit</b>								
Crosshead speed $V_{min} \dots V_{Nenn}$	0,0005 ... 1500	0,0005 ...1000	0,0005 ...1000	0,0005 ... 500	0,0005 ... 300	0,0005 ... 600	0,0005 ... 300	mm/min
Increased crosshead return speed (at reduced force)	2000	1500	1500	750	500	800	400	mm/min
Drive system's travel resolution	0.039	0.038	0.038	0.018	0.012	0.016	0.0081	$\mu\text{m}$
Positioning, repetition accuracy	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 2$	$\mu\text{m}$
<b>Power ratings</b>								
Electrical connections (adjustable)	1 PH, N, PE							
Mains frequency	50/60	50/60	50/60	50/60	50/60	50/60	50/60	Hz
Power rating	0.8	0.8	0.8	0.8	0.8	1.2	1.2	kVA

<sup>(1)</sup> Without accessories

<sup>(2)</sup> At testing machine Z010 TH the maximum total weight of in the moving crosshead inserted specimen grips and tools is limited to 20 kg