

## Product Information

Floor testing machines Z100 up to Z250 of the Allround-Line



Z250 SN

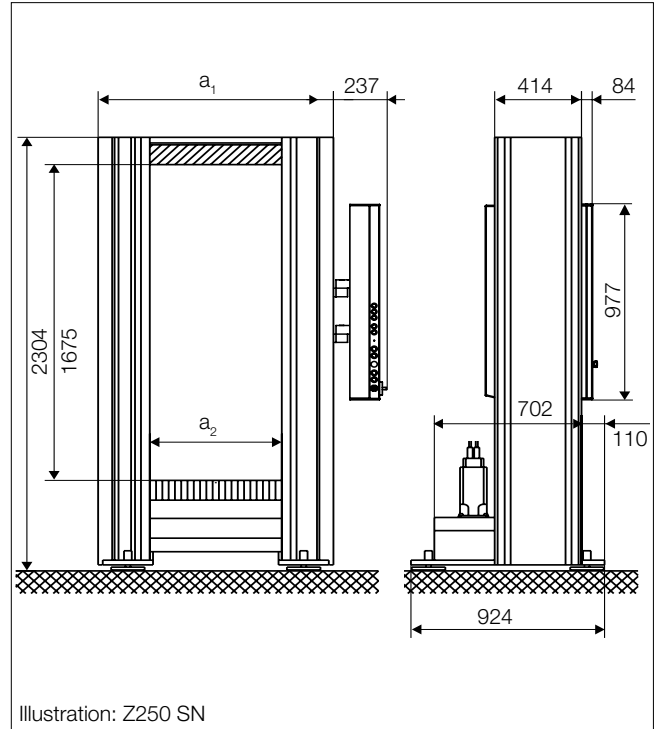


Illustration: Z250 SN

### General advantages of Allround-Line with Zwick testControl II electronics

#### Modern load-frame design

- Drive is via maintenance-free, digitally controlled AC drive technology, which in combination with the innovative motor feedback system ensures excellent constant velocity properties, even at very low speeds.
- Mechanical connections with large mating surfaces and robustly dimensioned components ensure a high level of machine stiffness, which in combination with precise crosshead guidance minimizes undesirable mechanical influences on the specimen.

#### High level of operator convenience

- Ergonomics are top priority when it comes to operating the new Allround-Line machine.
- Adjustable for optimum ergonomic configuration; modular design allows adaptation as and when required.
- Adjustable crossheads allow variable test area configuration.
- Base design features damping elements with leveling facility plus space for lift truck access - easily adapted to suit the installation site.

#### Innovative electronics

The new *testControl II* measurement and control electronics provide the ideal basis for precise, reproducible test results. Impressive features include new drive technology, high measured-value acquisition-rates and a high level of modularity (full details on Page 2).

#### Highest safety standards

Allround-Line guarantees a high degree of protection for user, test results, specimen material and testing system. Only the latest safety technology and proven industrial components are used, while all testing systems comply with the EC Machinery Directive.

#### Future-proof

Modular design means that the testing system can be re-equipped or upgraded whenever required. Moreover, the *testControl II* control electronics are compatible with the future generation of Zwick software, with spare parts available for a minimum of ten years after the product has been discontinued.

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Data	Value
<b>Load frame</b>	
Finish	RAL 7021 black grey and RAL 7038 agate grey
Ambient temperature	+10 ... +35 °C
Air humidity (non-condensing)	20 ... 90 %
<b>Drive system</b>	
Motor	AC servo-motor with concentrated windings Hiperface® motor feedback system
Input signal, set-value preset	digital (real-time Ethernet, EtherCAT®)
Controller / Cycle time	adaptive / 1000 Hz
Positioning, repetition accuracy on the crosshead	± 2 µm
<b>Measurement and control electronics</b>	
Number of slots available for measurement and control modules	2 synchronized module bus slots (expandable to 6)* 2 synchronised PCIe slots
Force measurement	grade 0.5 / 1 see load cell, to DIN EN ISO 7500-1, ASTM E4, JIS B7721
Calculated resolution (for example in tensile / compression direction)	24 bits
Effective resolution in tensile / compression direction	20 bits (corresponds to ± 1.000.000 points)
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>	
Mains frequency	50/60 Hz
Electrical connections	400V +/- 10% (3Ph, N, PE)

\* A high-quality USC measurement module for a load cell is included in delivery (occupies one module bus slot).

#### **testControl II - options, e.g.**

Description	Item number
Option <i>testControl II</i> plus: Activation of four additional slots, for <i>testControl II</i> testing machines.	<b>057983</b>
2000 Hz Online test data transmission: Increasing the test data transmission from 500 Hz (standard) to 2000 Hz. The test data is transmitted to <i>testXpert® II</i> , and is processed in real-time.	<b>057860</b>
Display remote control for <i>testControl II</i> for effective, ergonomic operation of the materials testing machine	<b>057984</b>

#### **Options on request, e.g.**

- Supplementary crossheads for the additional second test area
- CE-compliant electrically lockable safety shields
- Mounting platforms

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Type	Z100 SN	Z100 SW	Z150 SN	Z150 SW	Z250 SN	Z250 SW	
Item number	056794	056795	056797	056798	056799	056801	
<b>Load frame</b>							
Test load $F_N$ in tensile / compression direction	100	100/50 <sup>(1)</sup>	150	150/100 <sup>(1)</sup>	250	250/100 <sup>(1)</sup>	kN
Height	2304	2304	2304	2304	2304	2304	mm
Width ( $a_1$ )	1123	1523	1123	1523	1123	1523	mm
Width with electronics console	1360	1760	1360	1760	1360	1760	mm
Depth	924	924	924	924	924	924	mm
Test area width <sup>(2)</sup> ( $a_2$ )	630	1030	630	1030	630	1030	mm
Test area height <sup>(3)</sup>							
1st size: upper, crosshead top	1755	1720	1675	1615	1675	1615	mm
2nd size: lower, crosshead top	1825	1760	1715	1655	1715	1655	mm
3rd size: lower, crossh. bottom	1820	1755	1655	1595	1655	1595	mm
4th size: upper & lower, with additional crosshead	1735	1645	1540	1440	1540	1440	mm
Overall weight with electronics	1070	1570	1470	2100	1500	2100	kg
Noise level at maximum test speed	70	70	70	70	70	70	dB (A)
<b>Drive system</b>							
Crosshead speed up to 110% of test load ( $v_{min} \dots v_{Nom}$ )	0.00005 ... 1000	0.00005 ... 1000	0.00005 ... 900	0.00005 ... 900	0.00005 ... 600	0.00005 ... 600	mm/min
Accuracy of the set speed	0.05	0.05	0.05	0.05	0.05	0.05	% of set speed
Increased crosshead return speed (at reduced force)	1500	1500	1500	1500	1000	1000	mm/min
Drive system's travel resolution	0.0034	0.0034	0.0031	0.0031	0.0021	0.0021	$\mu m$
<b>Power ratings</b>							
Power rating	5	5	5.5	5.5	6	6	kVA

<sup>(1)</sup> This testing machine includes two additional test axes (see picture below). The second value indicates the limited test load when testing in the additional test axes.

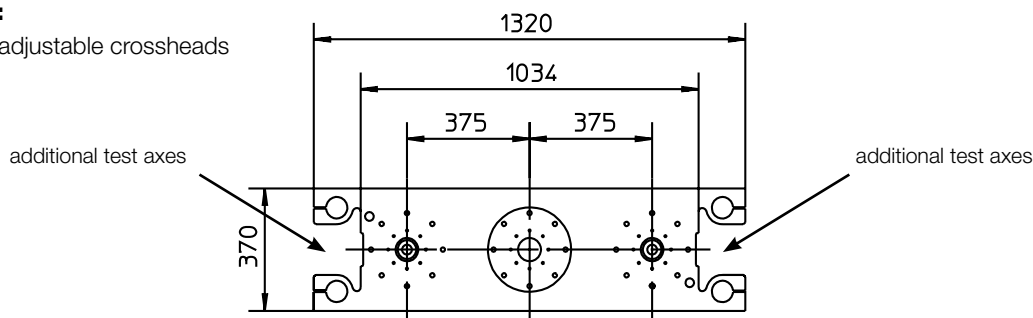
<sup>(2)</sup> Test area width: the daylight between the side panels.

<sup>(3)</sup> Test area height: the max. distance of the moving crosshead to the upper, i.e. lower crosshead, without any mountings.

<sup>(2) (3)</sup> A description to these dimensions on next page.

#### Optional, e.g.:

Supplementary adjustable crossheads

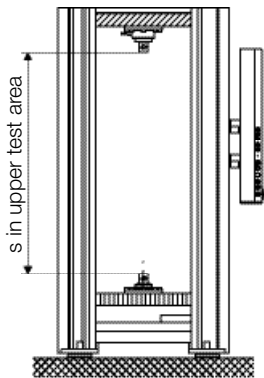


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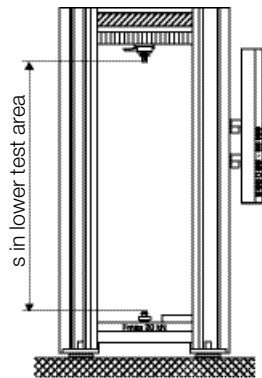
#### Maximum travel of the moving crosshead

The *maximum travel s* of the moving crosshead is the difference of the test area height P (1st up to 4th size, see table „technical data“) and the sum of the mounting dimensions (E) of the complete testing equipment E:  $s = P - E$



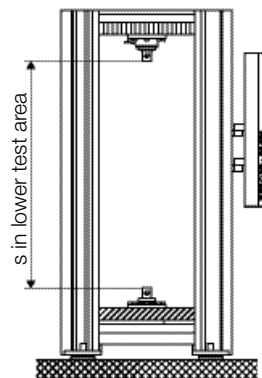
#### Basic version

Adjustable crosshead  
above moving crosshead



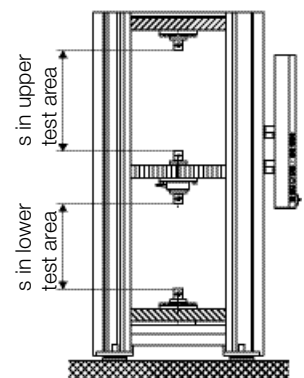
#### Basic version

Adjustable crosshead  
above moving crosshead  
(F<sub>max</sub> restricted)



#### Mounting variant

Mounting of existing  
adjustable crosshead below  
moving crosshead



#### Equipped with additional crosshead

Mounting of additional  
crosshead/mounting  
platform

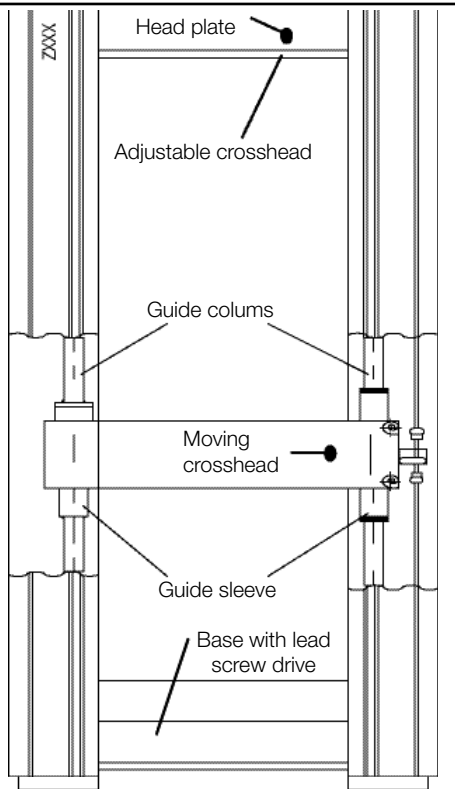
(upper test area)  
 $s = 1\text{st size} - E$

(lower test area)  
 $s = 2\text{nd size} - E$

(lower test area)  
 $s = 3\text{rd size} - E$

(upper resp. lower test area)  
 $s = 4\text{th size} - E$

#### Principle drawing



#### Legend

- Adjustable crosshead
- Moving crosshead
- Additional, adjustable crosshead / mounting platform