

### **Product Information**

Materials testing machine Z330E with testControl II



Z400E with hydraulic grips

CTA: 98400 98514

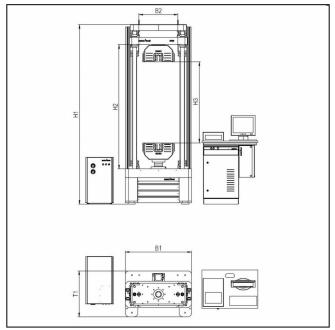
### Advantages and features

#### Modern load-frame design

- The robust load-frame features four hard-chromed guide-columns and massive base and moving cross-heads, ensuring excellent guidance properties and a high level of machine stiffness.
- Maintenance-free digitally controlled AC drive technology combined with an innovative motor feedback system allows excellent constant speed characteristics to be achieved even at extremely low speeds.
- The backlash-free pre-stressed precision ball-screws with digitally controlled AC servo drive allow virtually maintenance-free operation.
- The large test area combined with low overall height enables specimens and components with a wide range of lengths to be tested.
- The testing machine is positioned directly on the ground with no foundation.

### **Operator convenience**

- Convenient operating height for specimen insertion with grips installed.
- testXpert III's intelligent test environment concept reduces set-up times and increases productivity.



Drawing: Z400E with hydraulic grips

### **Innovative electronics**

- The new testControl II measurement and control electronics provide the ideal basis for precise, reproducible test results.
- Developed in-house by ZwickRoell, the electronics impress through maximum accuracy, high measured-value rates and flexible modularity.

#### Satisfying the most demanding safety requirements

- Compliance with the statutory safety requirements of the EC Machinery Directive is ensured in all materials testing machines, while an EC Declaration of Conformity accompanies every machine supplied.
- Only the latest safety technology and proven industrial components are used.
- The highest degree of safety for the operator, test results, specimen material, and testing system are guaranteed.

### Future-proof

- Modular design means that the testing system can be re-equipped or upgraded whenever required.
- Moreover, testControl II control electronics are compatible with future-generation ZwickRoell software.
- Even after a product has been discontinued, spare parts remain available for a minimum of 10 years.

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Paint finish PAL 7031 iron gray and PAL7038 agate gray Ambient temperature +10 +35 °C Sumidity (non-condensing) 20 90 % Drive Motor Concentrated windings, Hiperface® motor foedback system motor holding brake yes Control, set-value specification digital (real-time Ethernet, EtherCAT®) Control, set-value specification digital (real-time Ethernet, EtherCAT®) Controller/cycle time adaptive / 1000 Hz Repeat positioning accuracy on crosshead ±1.0 Hz Repeat positioning accuracy on crosshead ±1.0 Jum Measurement and control electronics Synchronized module bus slots, 1 synchronized PCle slot <sup>1</sup> Force measurement le Calculated resolution (e.g. load cell in tensile/compression direction) Measured-value sampling-rate, internal 400 kHz Measured-value transmission rate to PC So0 (optionally 2000) Hz Zaro-point correction for all channels Interface to PC Measurement signal runtime correction for all channels Cor mode? Yes, power unit automatically switched of (time adjustable) Yes apper Machinery Directive 2004/42L Eco mode? Eco conde? Eco conde? Mains supply frequency	Description	Value		
Ambient temperature     +10+35     °C       Humidity (non-condensing)     2090     %       Drive     Motor     AC servo motor with concentrated windings, Hiperface® motor feedback system       motor holding brake     yes        Control, set-value specification     digital (real-time Ethernet, EtherCAT®)        Control, set-value specification     digital (real-time Ethernet, EtherCAT®)        Control set-value specification     digital (real-time Ethernet, EtherCAT®)        Control etertonics     ± 1.0     Hz        Number of slots available for measurement and control module     \$ synchronized module bus slots, 1 synchronized PCle slot1 <sup>1</sup> Force measurement     Class 0.5 from 1% of Fmax / Class 1 for 2 % of Fmax, as per EN ISO 7500-1, ASTM E4, JIS B 772        Calculated resolution (e.g. load cell in tensile/compression direction)     24      Hz       Measured-value sampling-rate, internal     400     KHz        Measured-value transmission rate to PC     500 (optionally 2000)     Hz        Measurement signal runtime correction for all channels     yes, power unit automatically switched off (time adjustable)	Load frame			
Humidity (non-condensing)     2090     %       Drive     Motor     AC servo motor with concentrated windinys, Hiperface®, motor feedback system       motor holding brake     yes	Paint finish	RAL 7011 iron gray and RAL7038 agate gray		
Drive     Motor   AC servo motor with concentrated windings, Hiperface® motor feedback system     motor holding brake   yes     Control, set-value specification   digital (real-time Ethernet, EtherCAT®)     Controller/cycle time   adaptive / 1000   Hz     Repeat positioning accuracy on crosshead   ± 1.0   µm     Measurement and control electronics   Jmm   Magazine and control electronics     Number of slots available for measurement and control module   5 synchronized module bus slots, 1 synchronized PCle slot <sup>1</sup> Force measurement   Class 0.5 from 1% of Fmax / Class 1 from 0.2 % of Fmax, as per EN ISO 7500-1, ASTM E4, JIS B 7721   Sol optionally 2000     Calculated resolution (e.g. load cell in tensile/compression direction)   24   bit     Measured-value sampling-rate, internal   400   kHz     Measured-value transmission rate to PC   500 (optionally 2000)   Hz     Measurement signal runtime correction for all channels   yes   yes     Interface to PC   Ethernet   yes, power unit automatically switched off (time adjustable)     Compliance?   yes, power unit automatically switched off (time adjustable)     Concopliance?   yes, power unit automatically switched off (time adjustable)     Chematical suppl	Ambient temperature	+10 +35	°C	
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motor feedback system     motor feedback system       motor holding brake     yes       Control, set-value specification     digital (real-time Ethernet, EtherCAT®)       Controller/cycle time     adaptive / 1000     Hz       Repeat positioning accuracy on crosshead     ± 1.0     µm       Mumber of slots available for measurement and control module     5 synchronized module bus slots, 1 synchrolized PCle slot <sup>1</sup> )       Fore measurement     Class 0.5 from 1% of Fmax / Class 1 from U.2 % of Fmax, as per EN ISO 7500-1, ASTM E4, JIS B 772       Calculated resolution (e.g. load cell in tensile/compression direction)     24     bit       Measured-value sampling-rate, internal     400     kHz       Measured-value transmission rate to PC     500 (optionally 2000)     Hz       Measurement signal runtime correction for all channels     yes, power unit automatically switched U(im adjustable)       Interface to PC     Ethernet     Sco power unit automatically switched U(im adjustable)       Compoliance?     yes, power unit automatically switched U(im adjustable)       Compliance?     yes, as per Machinery Directive 2006/42E       Etertrict supply data     So/60     Hz	Drive			
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Controller/cycle timeadaptive / 1000HzRepeat positioning accuracy on crosshead± 1.0µmMeasurement and control electronicsNumber of slots available for measurement and control module5 synchronized module bus slots, 1 synchroized PCle slot <sup>1</sup> )Force measurementClass 0.5 from 1% of Fmax / Class 1 for 2% of Fmax, as per EN ISO 7500-1, ASTM E4, JIS B 7721Calculated resolution (e.g. load cell in tensile/compression direction)24Measured-value sampling-rate, internal400kHzMeasured-value transmission rate to PC500 (optionally 2000)HzZero-point correctionautomatic, at start of measurementHzMeasurement signal runtime correction for all channelsyes, power unit automatically switched of (time adjustable)Cic compliance?yes, as per Machinery Directive 2006/42LCCic compliance?yes, as per Machinery Directive 2006/42LCCic compliance?yes, as per Machinery Directive 2006/42LCElectrical supply data50/60Hz	motor holding brake	yes		
Repeat positioning accuracy on crosshead± 1.0µmMeasurement and control electronicsNumber of slots available for measurement and control model5 synchronized module bus slots, 1 syn-brized PCle slot1 <sup>1</sup> Force measurementClass 0.5 from 1% of Fmax / Class 1 for JCless 0.5 from 1% of Fmax / Class 0.	Control, set-value specification	digital (real-time Ethernet, EtherCAT®)		
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direction)KHzMeasured-value sampling-rate, internal400kHzMeasured-value transmission rate to PC500 (optionally 2000)HzZero-point correctionautomatic, at start of measurementHzMeasurement signal runtime correction for all channelsyes	Force measurement			
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Zero-point correctionautomatic, at start of measurementMeasurement signal runtime correction for all channelsyesInterface to PCEthernetEco mode?yes, power unit automatically switched off (time adjustable)CE compliance?yes, as per Machinery Directive 2006/42ECElectrical supply data50/60Hz	Measured-value sampling-rate, internal	400	kHz	
Measurement signal runtime correction for all channelsyesInterface to PCEthernetEco mode?yes, power unit automatically switched off (time adjustable)CE compliance?yes, as per Machinery Directive 2006/42ECElectrical supply dataEthernetMains supply frequency50/60	Measured-value transmission rate to PC	500 (optionally 2000)	Hz	
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Eco mode?yes, power unit automatically switched off (time adjustable)CE compliance?yes, as per Machinery Directive 2006/42ECElectrical supply dataHzMains supply frequency50/60	Measurement signal runtime correction for all channels	yes		
CE compliance? yes, as per Machinery Directive 2006/42EC   Electrical supply data Mains supply frequency   50/60 Hz	Interface to PC	Ethernet		
Electrical supply data 50/60 Hz	Eco mode?	yes, power unit automatically switched off (time adjustable)		
Mains supply frequency50/60Hz	CE compliance?	yes, as per Machinery Directive 2006/42EC		
	Electrical supply data			
	Mains supply frequency	50/60	Hz	
Electrical supply 400 +/- 10 % V, 3Ph/PE	Electrical supply	400 +/- 10 %	V, 3Ph/PE	
Power consumption 6.5 kVA	Power consumption	6.5	kVA	

1) A high-quality DCSC measurement module for one load cell is included in delivery (occupies one module bus slot).

### Options<sup>1)</sup>

Description
Display-equipped remote control for testControl II
Measured-value transmission-rate increase from standard 500 Hz to 2000Hz
Add-on table unit for electronics cabinet, with CPU-holder
ZwickRoell extensometer attachment (see catalog)
Leveling feet
Front/rear safety device
Lead-screw guard
Side test-area

<sup>1)</sup> See catalog for item numbers and further details

All data at ambient temperature.

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## **Product Information**

Materials testing machine Z330E with testControl II

### Product data

Type Item Number	Standard 1012978	H1-500 1013494	H1+500 1013493	B1+400 1013499	2 test areas 1013511	
Load frame						
Test force $F_{N}$ in tens./comp. direction	330	330	330	330	330	kN
No. of guide columns	4	4	4	4	4	
No. of drive screws	2	2	2	2	2	
Stiffness of load frame at H2 = 1000 mm	511	511	511	469	511	kN/ mm
Height - H1	3036	2536	3536	3036	3010	mm
Width - B1	1120	1120	1120	1520	1120	mm
Depth - T1	775	775	775	775	775	mm
Test-area width - B2	660	660	660	1060	660/620	mm
Test-area height - H2	2130	1630	2630	2130	2130	mm
Test stroke - H3 (with hydraulic grips)	1400	900	1900	1400	1400	mm
Weight without attachments	1850	1700	1950	2600	2100	kg
with hydraulic grips	2250	2100	2350	3000	2500	kg
Specific floor loading (with hydraulic grips)	2.7	2.5	2.8	3.6	3.0	kg/ cm <sup>2</sup>
Noise level at maximum test speed	<70	<70	<70	<70	<70	dBA
Drive						
Crosshead speed	0.00005 to 400	0.00005 400	0.00005 to 400	0.00005 to 400	0.00005 to 400	mm/ min
Increased crosshead return speed (at reduced force)	520	520	520	520	520	mm/ min
Drive travel resolution	0.000197	0.000197	0.000197	0.000197	0.000197	μm

### **Overview of load frame**

