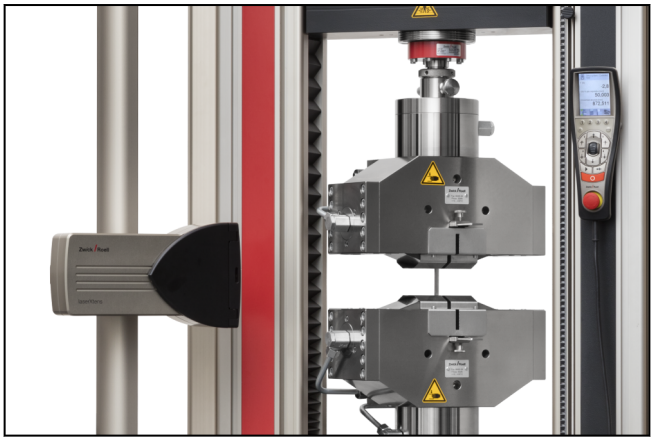
Product Information

Xforce K load cells

CTA: 42857 106381

Xforce family



Xforce K load cell in an AllroundLine materials testing machine

Patented Xforce load cells - exclusively from ZwickRoell

Xforce load cells are only available from ZwickRoell. These high-accuracy load cells are used for all load-frame ranges, including for ProLine - no compromises here.

Area of application

Xforce load cells are ideal for tensile, compression and flexure tests and for cyclic tests with zero crossing.

Parasitic influences

All Xforce load cells are highly insensitive to parasitic influences such as transverse forces, bending moments, torque and temperature variations.

Load cell design and construction

- All Xforce load cells are based on a rotation-symmetrical or axis-symmetrical design principle, making them highly resistant to transverse forces.
- The low overall height reduces measurement errors.
- The design delivers high operating forces, very small measurement travel and high stiffness levels.
- A high-quality shielded measurement cable with sensor plug forms the connection to the measurement amplifier for the measuring equipment.

Self-identifying sensor plugs

These intelligent load cells have a unique electronic identification system stored on an internal EEPROM.

- The testXpert III testing software automatically identifies the sensor type and properties.
- Force and travel limits are automatically imported.
- Sensor overloads plus date are stored in the EEPROM.

Fast load cell change

If several load cells are to be used, or in the event of frequent load cell changes, we recommend the 'Connection via Mounting Stud' option.

- Saves time and increases flexibility.
- Avoids unnecessary strain on the load cell cable during screwing in and unscrewing.
- The plug-in system delivers better alignment to the test axis than the usual threaded mounting.
- Reference positions for different test arrangements are automatically re-attained (with a threaded mounting, reference positions change according to the number of turns screwed in).

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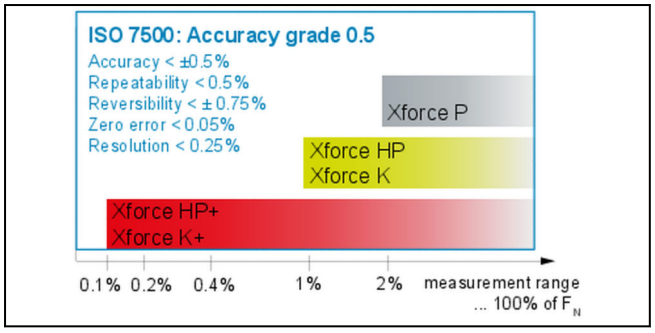
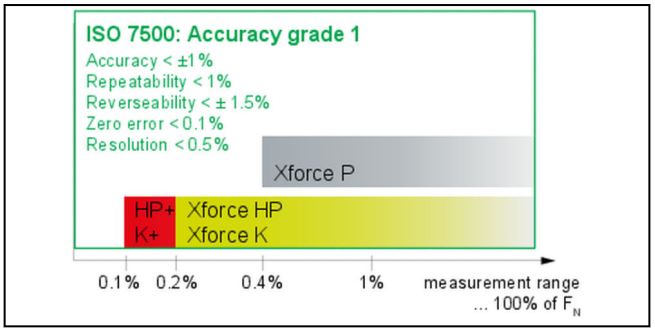
Product Information

Xforce K load cells

CTA: 53175 53176



Satisfies all 5 criteria for ISO 7500-1, Accuracy Class 0.5



Satisfies all 5 criteria for ISO 7500-1, Accuracy Class 1

Simple mechanical plug-in system, including for two test areas

- Each load cell is equipped with a precision-fit mounting stud, allowing fast, play-free fitting of specimen grips and test fixtures, with optimum alignment to the test axis.
- Reference positions (e.g. test-fixture separation) are set up just once by the operator and are stored in the test environment of the testXpert III testing software. This reference position is automatically and exactly re-attained after each fixture change. It doesn't get more convenient than that!
- With Xforce K load cells a second mounting-stud can optionally be used, allowing use in two test areas.

System calibration

Before dispatch each load cell is calibrated with the testing system plus drive and the measurement and control electronics as a complete system. This is recorded in the accompanying factory calibration certificate.

Calibration and accuracy as per ISO 7500-1

All data apply to measured values in compression and tension directions.

- All load cells are calibrated up to the relevant nominal force F_{nom} and satisfy the requirements of the following standards: EN ISO 7500 -1, EN ISO 7500 -2, ASTM E4.
- Xforce load cells satisfy the calibration requirements and all five criteria of the ISO 7500-1 accuracy classes over a very large measurement range.

Large measurement range

- The large measurement range frequently eliminates the need to purchase a second load cell, saving the costs of acquisition and annual calibration.
- Even with high pre-loads due to heavy test fixtures or specimen grips, virtually the entire load-cell measurement-range remains available. The load cell can still be used to full nominal capacity with fixture weights amounting to 45 % of nominal force.

Overload protection, force limits and operating force

- Xforce load cells are very robust and can withstand loads up to 300% of nominal capacity without mechanical failure and up to 150% without zero-point shift. This means that overload protection such as pre-loaded springs, mechanical stops or guiders to absorb transverse forces is generally unnecessary.
- The crosshead travel range can be restricted via software and hardware limit stops, protecting load cells and text fixtures.
- Force limits can be set in testXpert III to switch off the testing system automatically, protecting the load cell.

All data at ambient temperature.

Subject to change in the course of further development.

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Product Information

Xforce K load cells

Technical data

Type	Xforce K		
Measurement range	**10 - 250**		**kN**
Force limits/ranges			
Operating force F_G, max.	150		% of F_{nom}
Operating range, max.	150		% of F_{nom}
Limit force F_L	150		% of F_{nom}
Force at break F_B	300		% of F_{nom}
Limit transverse force F_Q	100		% of F_{nom}
Influences/limit values			
Torque influence	±0.005		% of F_{nom}/mm
Ambient temperature	+10 ... +60		°C
Other values			
Nominal characteristic value C_{nom}	2		mV/V
Cable length	3.5		m

Xforce K (10 - 50 kN)

Load cell	**10**	**10**	**20**	**30**	**50**	**kN**
Item No.	**1008815**	**1008732**	**318936**	**325642**	**318934**	
Item No. for ProLine	**-**	**1008733[1)]**	**325222[1)]**	**325644[1)]**	**325223[1)]**	
Nominal force F_{nom}	10	10	20	30	50	kN
Nominal force F_{nom} [lbf]	2248	2248	4496	6744	11240	lbf
Accuracy						
Accuracy Class 1 (from 0.2 % of F_{nom})	20	20	40	60	100	N
Accuracy Class 0.5 (from 1 % of F_{nom})	100	100	200	300	500	N
Dimensions						
Installation height	74	90	75.5	75.5	75	mm
Connection						
Connection thread	-	M28x1.5	-	-	-	
Connection flange	Flange 1[2)]	-	Flange 1[2)]	Flange 1[2)]	Flange 1[2)]	
Mounting stud	Ø20	Ø20	Ø36	Ø36	Ø36	mm
Influences/limit values						
Limit bending moment	500[3)]	500[3)]	600[3)]	700[3)]	1100[3)]	Nm
Limit torque	500[4)]	500[4)]	500[4)]	500[4)]	1800[4)]	Nm

1) Only in combination with a ProLine load frame. Please observe the relevant note.

2) Flange 1 = pitch circle 115 mm, Flange 2 = pitch circle 220 mm.

3) Maximum bending moments Mb for a load cell which is unloaded in the direction of measurement. In the case of simultaneous loading with a nominal load, the values should be halved.

4) Unloaded. In the case of simultaneous loading with a nominal load, these values should be halved.

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Product Information

Xforce K load cells

Xforce K (100 - 250 kN)

Load cell	**100**	**100**	**150**	**250**	**250**	**kN**
Item No.	**318932**	**068922[1)2)]**	**320304**	**318930**	**068918[3)2)]**	
Item No. for ProLine	**325328[4)]**		**-**	**-**		
Nominal force F_{nom}	100	100	150	250	250	kN
Nominal force F_{nom} [lbf]	22481	22481	33721	56202	56202	lbf
Accuracy						
Accuracy Class 1 (from 0.2 % of F_{nom})	200	-	300	500	500	N
Accuracy Class 0.5 (from 1 % of F_{nom})	1000	-	1500	2500	2500	N
Accuracy Class 1 (from 0.4 % of F_{nom})	-	400	-	-	-	
Accuracy Class 0.5 (from 2 % of F_{nom})	-	2000	-	-	-	
Dimensions						
Installation height	106	131	106	162	131	mm
Connection						
Connection flange	Flange 2[5)]	Flange 2[5)]	Flange 2[5)]	Flange 2[5)]	Flange 2[5)]	
Mounting stud	60	Flange	60	60	Flange	mm
Influences/limit values						
Limit bending moment	4800[6)]	30000[6)]	8000[6)]	30000[6)]	30000[6)]	Nm
Limit torque	10000[7)]	55000[7)]	[7)]20000	55000[7)]	55000[7)]	Nm

1) Flange interface with 70 mm centering gauge instead of mounting stud, for combination with the alignment fixture (Item No. 068902) and hydraulic grip type 8594 “body-over-wedge” (Item No. 072865 and 072869). Design and technical data as for Item No. 068918.

2) The load cell cannot be used in combination with table-top testing machines.

3) Flange interface with centering gauge instead of mounting stud (pitch circle 115/220 mm, centering gauge D30/70 mm).

4) Only in combination with a ProLine load frame. Please observe the relevant note.

5) Flange 1 = pitch circle 115 mm, Flange 2 = pitch circle 220 mm.

6) Maximum bending moments Mb for a load cell which is unloaded in the direction of measurement. In the case of simultaneous loading with a nominal load, the values should be halved.

7) Unloaded. In the case of simultaneous loading with a nominal load, these values should be halved.