

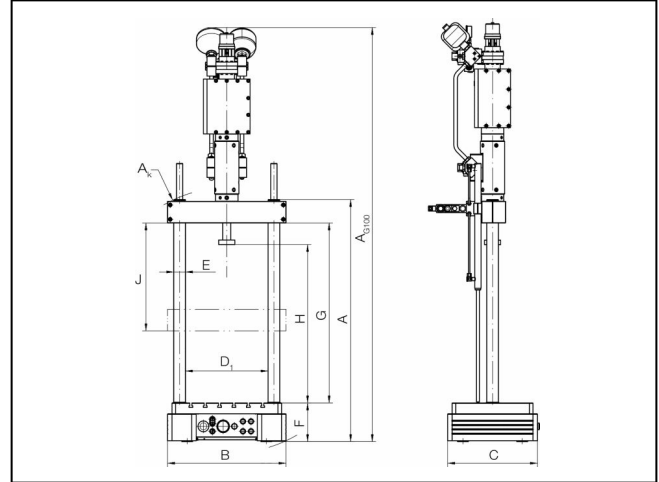
Product Information

Servo-hydraulic testing machine - HCT range

CTA: 94916 94917



HCT with support base (option)



Drawing: HCT

Range of application

The HCT is a servo-hydraulic table-top testing machine with combined linear/rotary drive. It is used to determine material properties (of round or pipe specimens for example) under biaxial loading. Multiaxial fatigue tests on components are also possible as the drive unit is mounted on the upper crosshead and the frame is equipped with an integral T-slotted platform. Due to its size the HCT is also a natural choice for use in biomechanical applications, particularly for realistic loading of implants and prostheses. As the linear and torsion drives are configured independently of each other, single-axis tests are also possible; tensile/compression only or torsion only.

Description of operation

The machine consists of a compact, very stiff 2-column frame featuring high-precision alignment. The upper crosshead employs manual clamping and can be positioned using hydraulic lifting-cylinders. The load unit is mounted on the upper crosshead and consists of a linear actuator with hydrostatic bearings and a rotary actuator connected via a torsionally stiff length-compensating coupling. This design principle avoids linear movement of the rotary drive. The advantages are higher dynamic response, better simulation accuracy and longer service life for the rotary actuator.

A high-precision displacement and angle measurement system is incorporated. The combined load cell/torque transducer can be attached to the piston rod or lower crosshead as required.

The HCT must be installed on a stable base, for example a heavy workbench. In the case of critical tests

or installation conditions and high frequencies we recommend use of the optional concrete base with vibration-damping feet. As the load frame is bolted on to it, it should also be used for frames with column extensions.

The modern, high-performance Control Cube multi-channel electronics are equipped with two measurement channels: force/displacement and torque/angle. Additional measurement channels are optionally available. Synchronous test data acquisition is employed; each measurement channel can also be used as a control channel. The entire test sequence is configured using Cubus testing software. The set values for the linear and rotary actuators are output synchronously.

Advantages and features

- 2-column frame for dynamic tests up to 25kN / 250 Nm
- hydraulic adjustment and manual clamping of upper crosshead
- testing actuator installed in upper crosshead
- suitable for combined linear/rotary drive at 10 kN / 100 Nm and 25 kN / 250 Nm
- torsionally stiff, backlash-free length-compensating coupling
- hydrostatic-bearing, sealless linear actuator
- hard-chromed T-slotted platform and columns for tests in corrosive media
- safety housing to comply with CE Machinery Directive depending on application
- option: hydraulic wedge grips for tensile/compression-torsion tests

PI861 0816

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Technical data

| Test-area height | Standard | Extended 250 mm | Extended 500 mm | |
|--|--|----------------------------|----------------------------|-------|
| Dynamic nominal force | 25 | 25 | 25 | kN |
| A _{G100} – max. height of test frame | 2310 | 2560 | 2810 | mm |
| A _K - tilted dimension for installation | 1750 | 1995 | 2240 | mm |
| B – max. width of test frame | 660 | 660 | 660 | mm |
| C – max. depth of test frame | 500 | 500 | 500 | mm |
| D1 - distance between columns | 460 | 460 | 460 | mm |
| E – column diameter | 65 | 65 | 65 | mm |
| F - height of top edge of lower crosshead | 215 | 215 | 215 | mm |
| G – max. test area height ¹⁾ | 1000 | 1250 | 1500 | mm |
| H – max. working test area height ²⁾ | 910 | 1160 | 1410 | mm |
| J - Crosshead displacement range | 600 | 600 | 600 | mm |
| K - weight ³⁾ | 435 | 450 | 465 | kg |
| Frame stiffness at 1000mm crosshead separation | 300 | 300 | 300 | kN/mm |
| T-slot connection dimensions | as per DIN 508 M10 x 12, spacing 80 mm Ø 70 mm, 6 x M8 (only 6 bolts) and Ø 115 mm, 4 x M8 | | | |
| Clamping/ adjustment: manual/ hydraulic | 935275⁴⁾ | 936110⁴⁾ | 936259⁴⁾ | |

1) Distance between upper and lower crossheads

2) Distance between piston flange and base crosshead with piston retracted

3) Weight with actuator unit

4) Secure, stable mounting on support required; base 935284 recommended

Linear/rotary drive including length-compensating coupling

| | Force/stroke | Torque/angle | 280 bar | 210 bar |
|------------|--------------|--------------|---------------|---------------|
| HCT 10/100 | 10 kN/100 mm | 100 Nm/100° | 019508 | 041530 |
| HCT 25/250 | 25 kN/100 mm | 250 Nm/100° | 041515 | 041531 |

- The machine can be connected either to an existing 280 / 210bar hydraulic supply or to its own power pack (e.g. HP 40, see PI524 Hydraulic Power Pack).
- Also required are servo valves, a leakage oil pump (924785) and a distribution unit (935223).

Load cells and torque transducers

Accuracy class as per EN ISO 7500-1

| Force/torque | Accuracy class | Item No. |
|----------------|---|---------------|
| 10 kN / 100 Nm | Class 0.5 from 500 N Class 1 from 2.5 Nm | 007119 |
| 25 kN / 250 Nm | Class 0.5 from 1250 N Class 1 from 5 Nm | 936139 |

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Measurement and control electronics / software

Cable, remote control, PC additionally required.

| Description | Item number |
|---|---------------|
| Control Cube servo controller - 2-channel | 007998 |
| Option: add-on for 4 instead of 2 amplifiers | 008022 |
| Cubus configuration module | 035015 |
| Cubus cyclic constant amplitude fatigue tests | 035017 |
| Cubus block program | 034803 |