Zwick / Roell

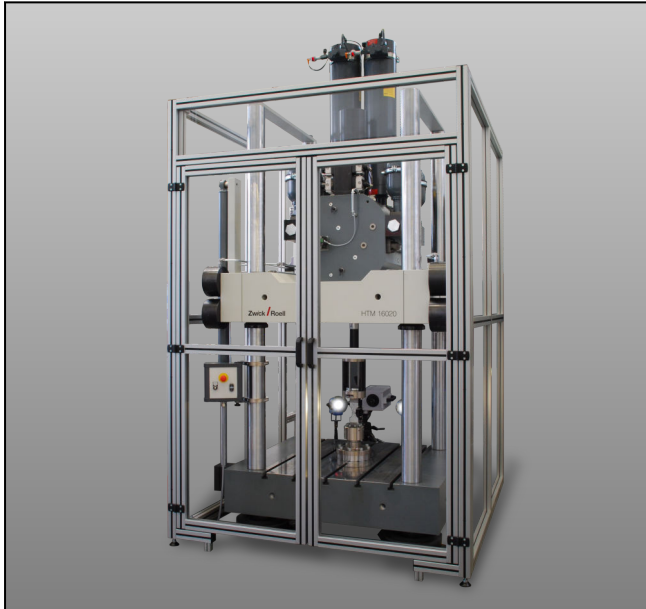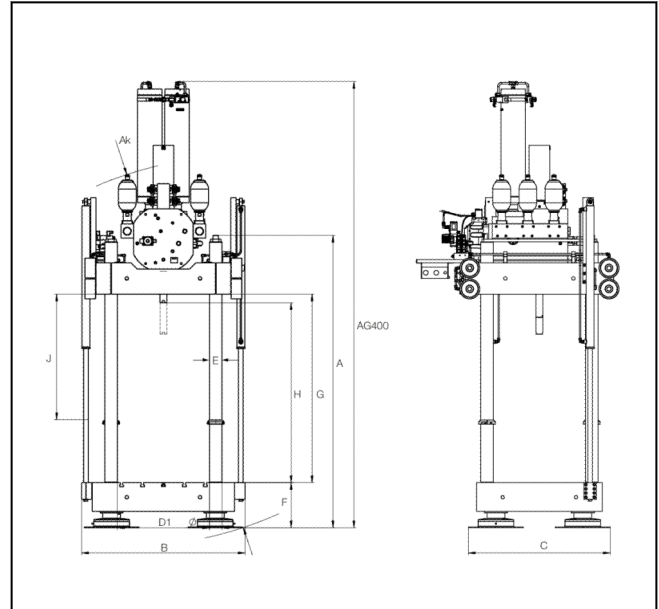## Product Information

HTM 16020 high-speed testing machine

HTM 16020 high-speed testing machine

Drawing of HTM showing dimensions

Application

The fracture behavior of many materials is dependent (among other things) on the loading rate. Numerical calculation of crash safety requires relevant data and constitutive equations. ZwickRoell's HTM range of servo-hydraulic high-speed testing machines enable strain-rate-dependent characteristic values to be determined over a wide speed range. High-speed punch and tensile tests plus peel and shear tests can be performed on plastics and metals as well as on glued and welded connections, while test speed can be adjusted continuously over a wide range.

Advantages

- Tests can be performed over a very wide loading-rate range from quasi-static to 20 m/s.
- The large T-slotted platform also enables crash tests on components to be performed.
- Hydraulic clamping and adjustment for easy positioning of upper crosshead.
- With testXpert a uniform software platform is available, from test definition right through to evaluation.
- Easy integration of optical extensometers.
- Machine is mounted on pneumatic springs, allowing installation almost anywhere.

Features

- Effective piston stroke of 300 mm allows highly ductile specimens to be tested or especially long specimens used.
- Extremely stiff 2-column load frame designed to minimize the effects of high impulse peaks during high-speed tests.
- Hydrostatic bearing, double-rod actuator for tension and compression with enhanced end-cushioning.
- System pressure 280 bar for maximum dynamic response.
- Accumulators used to supply hydraulic energy are mounted directly adjacent to the actuator to minimize flow losses.
- Digital piston transducer is temperature-stable, possesses a very high dynamic response and requires no calibration.
- Electronics with integrated high-speed data-acquisition; four channels as standard (can be expanded to eight).
- The safety housing and hydraulic safety-circuit reflect the special demands placed on safety during high-speed tests.

Product Information

HTM 16020 high-speed testing machine

Type HTM	16020	
Nominal force, static	160	kN
Piston speed	20 / 0.001	max/min m/s
Total piston stroke	400	mm
End cushioning	2 x 50	mm
Effective stroke	300	mm
Nominal pressure	280	bar
Actuator design	Double-rod actuator with hydrostatic bearings	
Force measurement	Piezo-electric	
Displacement measurement	Incremental	
T-slots	as per DIN650-22H8, spacing 200 mm	
Dimensions [1]		
A - Min. height of test frame	2793	mm
A_K - topple measure for installation	3552	mm
A_{G400} - Overall height with actuator	4264	mm
Max. width of test frame	1560	mm
Max. depth of test frame	1353	mm
D - Distance between columns	880	mm
E - Column diameter	120	mm
F - Height of upper edge of lower crosshead	432	mm
G - Max. test area height	1800	mm
H - Max. working test area height	1718	mm
J - Crosshead displacement range	1200	mm
Weight with actuator	13000	kg
Item No.		
HTM load frame with T-slotted platform	**026388**	
HTM actuator	**026390**	
HTM safety device	**026392**	
Required accessories[2]		
HTM B-II hydraulic distribution unit with hose-holder	**072577**	
Leakage oil pump	**924785**	

[1] Dimensions without safety housing and pipe brackets

[2] The machine can be connected to a central 280 bar hydraulic supply or to a dedicated hydraulic power unit.

Measurement and control electronics

Description	Item number
testControl II • Mounted in an electrical cabinet • Width x height x depth: 600 x 1000 x 600 • Including load measurement amplifier and 4-channel transient memory	**1050755**
Workstation for two transient memory cards (009521)	**3005235**

All data at ambient temperature.

We reserve the right to make technical changes in the course of ongoing development.

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HTM 16020 high-speed testing machine

Software

Description	Item number
testXpert ® basic program, German	**058388**
testXpert ® basic program, English	**058389**
Master test program 'Transient Recorder' • Memory for performing tests with high-speed data logging	**640034**
Test program for performing HTM tensile / punch tests	**935674**

Accessories

Description	Item number
Data acquisition • Additional transient memory card for 4 additional analog inputs	**009521**
Measurement amplifier • Broadband measurement amplifier, frequency range DC up to 1 MHz (-3dB) e.g. for specimens with strain gages applied	**009360**
Module housing for up to 4 broadband amplifiers (009360)	**009361**
ProPact correction software • For optimizing set-value signals, to achieve best-possible speed constancy	**020926**
Triggering module • For incorporation of a high-speed camera	**009533**

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