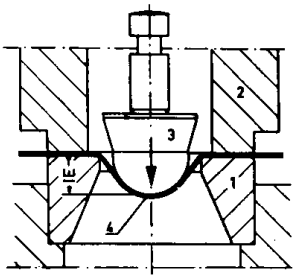
Sheet and Strip Metal Testing Machine

Model 111

With
electro-hydraulic
drive



Test Tool No. 27

testing equipment for quality management

ERICHSEN
since 1910

Technical Description

ERICHSEN Cupping Test

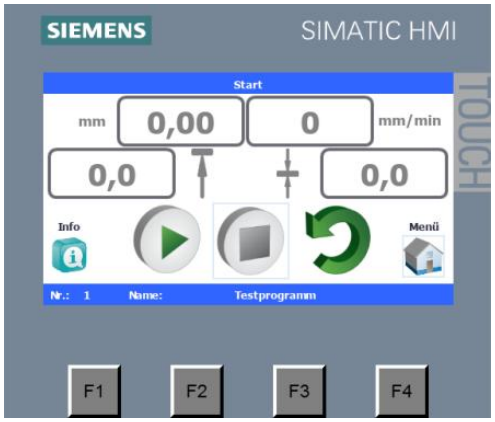
For quality tests
on sheet and strip metal

The Product

Sheet Metal Testing Machine, Model 111 - electronically controlled testing machine with electro-hydraulic drive and a max. drawing force of 45 kN.

The model 111 is particularly user-friendly due to its functional design.

The clear arranged menu navigation via the touch panel (5 freely programmable programs and tool changes) has password-protected levels, which protect against unauthorized access (such as program changes).



The "Start" screen displays all required parameters, such as the drawing stroke, drawing force and drawing speed. The sheet metal testing machine is also equipped with an individually adjustable crack detection system.

The package includes a test tool no. 27 and one filling of hydraulic oil.

The Application

This **Sheet and Strip Metal Testing Machine** is especially designed for an easy and quick quality conformance inspection and quality control on sheet and strip metal, but also particularly suitable for production monitoring because of its sturdy construction.

Fig. 1 Test Tools

The testing machine, Model 111, is suitable

- for the **ERICHSEN CUPPING TEST**

  on all ferrous and non-ferrous metals in accordance with the following standards:

ISO 8490	DIN 50 101 / 50 102
EN 14-58	ASTM 643-84
EN 14-67	JIS Z-2247

  as well as all national and international standards mentioning the ERICHSEN Cupping Test.

- for the **Olsen Test** as used in the USA, if appropriate tools are set up.

There are important reasons for using the **Sheet and Strip Metal Testing Machine, Model 111,** for quality assurance:

- ♦ Lowering of manufacturing costs by making spot checks on the drawing quality of cold rolled sheet during production or in the process department.
- ♦ Sorting out of material of lower quality arriving at the Goods Inwards Department. Without special test preparation it is immediately possible to establish if the material supplied has the prescribed drawing quality.
- ♦ Determining the most appropriate sheet thickness for a particular drawn workpiece to optimise the ratio of price to suitability for the manufacturing process.

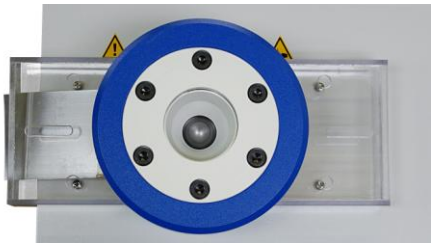
Quantitative assessment of sheet quality by means of the ERICHSEN Cupping Value provides a basis of communication between sheet metal producers and users.

The shape of the crack and the surface roughness (= grain size) provides information of the quality of the sheet metal and its suitability for drawing. Also giving valuable information especially for the sheet metal producer.

The good functional layout of Model 111 makes this machine particularly user friendly.

The sturdy design and the hydraulic oil system employed ensure that minimum wear is experienced so that a good repeatability of the test results is assured over a long period of time.

1 Test cylinder
2 Specimen insert aperture
3 Drawing speed regulator
4 Levelling feet
5 Main switch
6 Touch panel



As the testing machine is equipped with the function “automatic stop at specimen failure” the cupping procedure is automatically interrupted when a crack appears so that an objective test result will always be achieved.

With the timer setting, the crack detection can be delayed in time or changed by manually entering the force drop (in the program in 0.01 kN increments).

It is possible to delay the crack detection using a timer. Often this facility is necessary for testing thicker sheet metal panels in order to achieve a uniquely defined crack in conformity with the standards.

The Description

This testing machine is available as a work-top model with compact dimensions which requires only a minimum of space.

All hydraulic and electronic control and drive units are enclosed in a sturdy sheet metal housing. The necessary control elements and the touch panel are clearly laid-out on the front panel.

The test cylinder is installed at an angle, so that the test procedure can be carried out comfortably when seated. It is no longer necessary to open the test head to remove the specimen, as this is automatically released by the hydraulic specimen holder once the test has been conducted. The entire test procedure runs automatically, including crack detection.

When carrying out the **ERICHSEN Cupping Test** the sheet metal specimen in the form of a strip is inserted in the test cylinder and centralised by locating diagonally.

After pressing the "Start" button, the specimen with a fixed sheet holder force of 10 kN is pressed against the drawing die.

After reaching the sheet holder force, the actual deep-drawing process is initiated.

Technical Data

Dimensions (W x H x D)	620 x 370 x 700 mm
Weight, net	ca. 135 kg
Mains supply	L/N/PE AC 230 V 50 Hz
Power consumption	1.5 kVA
Drawing force, max.	45 kN / 100 bar
Drawing speed	max. 150 mm/min
Punch stroke	19 mm
Sheet holder force	10 kN + 1,5 kN

Specimen dimensions:

Sheet width	max. 105 mm
Sheet thickness up to approx. (applicable for a tensile strength of approx. 400 N/mm^2)	max. 2 mm

Order Information	
Order No.	**Product Name**
02300231	**Sheet and Strip Metal Testing Machine, Model 111**
Included in the scope of supply: ♦ Test Tool No. 27 ♦ One filling of hydraulic oil ♦ Operating manual	

Subject to technical modifications.
TBE 111 – II/2019

Further products supplied by ERICHSEN:

SHEET and STRIP METAL TESTING MACHINES

Deep draw cup test

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Hydraulic and electric force gauges – Tensile and pressure testing machines -

Torque measuring devices – Calibration equipment

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Density

Grain Size and pigment dispersion

Opacity and hiding power

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Drying properties

Film thickness

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Please contact us for detailed literature/quotations.

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