

Microcomputer-controlled Cupping Testing Machine

HY-WDW-100BT



(Picture is for reference only)

I. Features

This machine is a special equipment for the ductility test of metal sheets and strips, and it is also the only equipment for evaluating the plastic deformation properties of metal materials in China. » , to test the anisotropy of various metal sheets.

It adopts hydraulic clamping and hydraulic stamping compound oil cylinder; the sample will automatically stop when cracks occur, and it is easy to observe the crack; it has a peak value memory function, that is, the maximum punching force and maximum deformation depth are automatically memorized; the punch and sample are replaced, and the loading and unloading is convenient. The main features of this product are that the accuracy of the cupping value is 0.01mm, the control and measurement accuracy of the main load test force is 1N, and the loading speed of the main test force

is controlled at a constant rate, thus greatly improving the control accuracy of the machine. Controlled mechanical loading, wheel-spoke sensor force measurement, which improves the test accuracy of the main test force and the rupture accuracy of the control sample. A high-precision encoder is used to measure the cupping value. In terms of test accuracy, the decimal point can be guaranteed. The accuracy of the last two digits. The test process is automatically controlled by computer and analyzed automatically.

Standard:ISO 20482-2013

II.Specification:

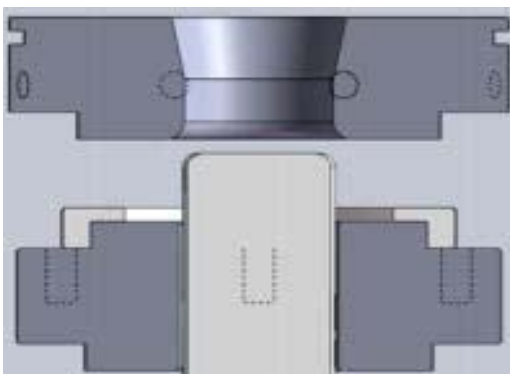
1. Plate thickness: 0.1~2mm (high-precision sensor, can realize ultra-thin plate test)
2. Plate width: 90-100mm;
3. Punch stroke: 40mm;
4. The tightening piston stroke is 40mm.
5. Stamping load: 100kNmax.
6. Maximum clamping load: 10kN.
7. Resolution of cupping value: 0.01mm
8. Test speed: 2-100mm/min
9. Cupping test mold specifications:
 - Standard punch ball: $\phi 20 \pm 0.05$ mm
 - Standard Pad Die Aperture: $\phi 33 \pm 0.1$ mm
 - Standard stent aperture: $\phi 27 \pm 0.05$ mm
10. Non-standard molds can be provided for special orders. Cupping testing machine that can meet international standards such as American Standard and European Standard.
11. Hydraulic oil: No. N46 hydraulic oil (available in general gas stations).
12. Dimensions: 700×360×1700 (mm)
13. Power supply: AC220V
14. Weight: 450Kg

III. Standard configuration:

No.	Name	Specification	Qty.
1	60kN Host	High-precision and low-noise screw AC servo speed control system Encoder	1 set
2	Cupping test control system	Prepare high-precision encoder	1 set
3	Hydraulic clamping and control system		1 set
4	Standard cupping test mold	Punches, pad dies, fixed dies	1 set
5	Computer	Brand	1 unit
6	Printer	HP color spray A4	1 unit
7	Electrical control system		1 set
8	Software	English	1 set
9	Load cell	Sample pressure load cell	1 piece
10	Load cell	Stamping load cell	1 piece

Optional part:

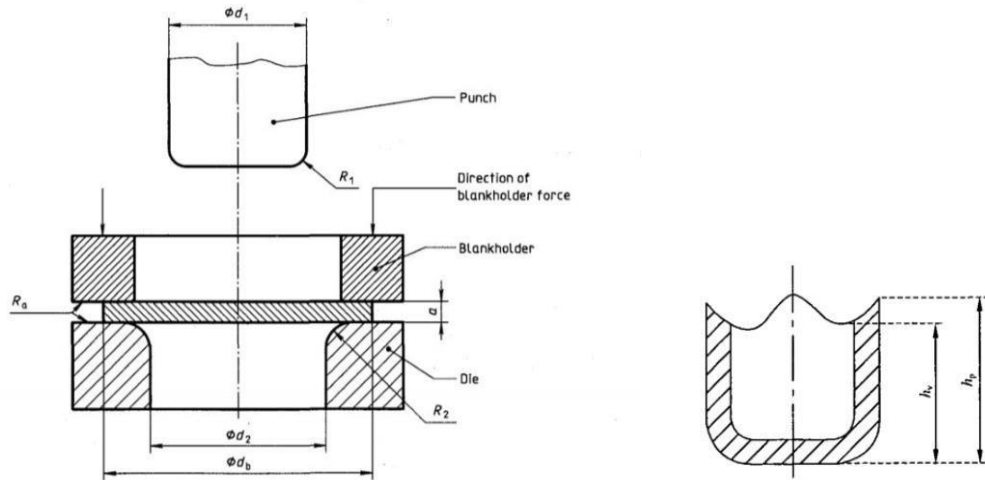
1. Earing test ISO 11531



Principle

This International Standard specifies a method for determining the ear height of metal sheet and strip of nominal thickness from 0,1 mm to 3 mm after deep drawing.

It is a test that uses a cylindrical punch to press the clamped metal sheet or strip sample into a specified die to form a cylindrical cup to show the anisotropy of the material expressed by the ear-making rate.



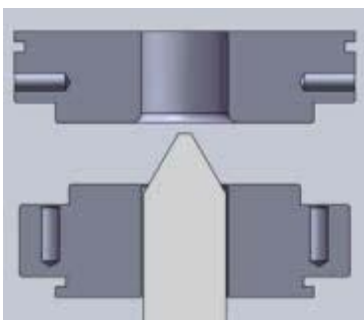
Test Result:

Table 2

Thickness of test piece a mm	Inside diameter of die d_2		Inside radius of die R_2		Surface roughness (maximum) R_a μm
	for $d_1 = 33$ mm	for $d_1 = 50$ mm	for $d_1 = 33$ mm	for $d_1 = 50$ mm	
$0,1 < a \leq 0,2$	33,44	50,44	$2,0 \begin{smallmatrix} 0 \\ -0,2 \end{smallmatrix}$	$2,5 \begin{smallmatrix} 0 \\ -0,2 \end{smallmatrix}$	0,1
$0,2 < a \leq 0,4$	33,88	50,88	$2,5 \begin{smallmatrix} +0,2 \\ 0 \end{smallmatrix}$	$3,0 \begin{smallmatrix} +0,2 \\ 0 \end{smallmatrix}$	0,1
$0,4 < a \leq 0,8$	34,76	51,76	$3,5 \begin{smallmatrix} +0,2 \\ 0 \end{smallmatrix}$	$4,5 \pm 0,1$	0,8
$0,8 < a \leq 1,6$	36,52	53,52	$5,0 \begin{smallmatrix} +0,2 \\ 0 \end{smallmatrix}$	$6,5 \pm 0,1$	0,8
$1,6 < a \leq 3,0$	39,60	56,60	$7,0 \begin{smallmatrix} +0,2 \\ 0 \end{smallmatrix}$	$9 \begin{smallmatrix} 0 \\ -0,2 \end{smallmatrix}$	1,6

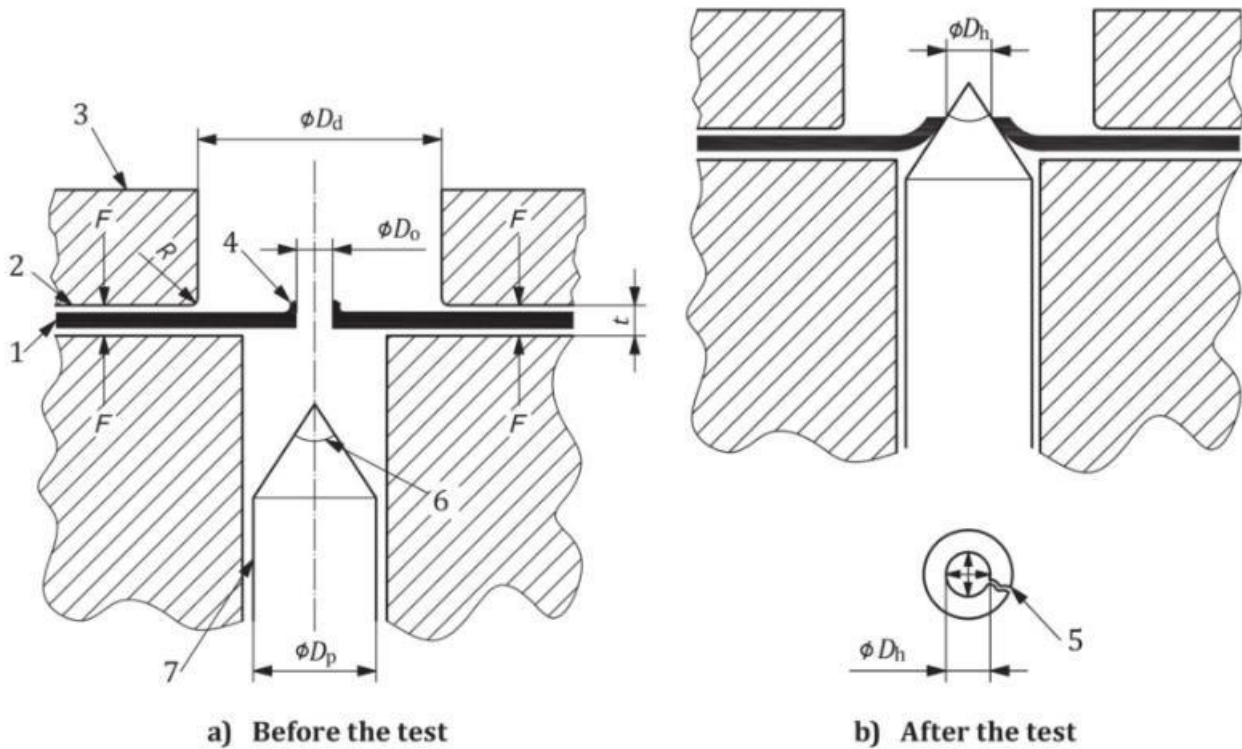
Punch radius R_1 will be $3,3 \text{ mm} \pm 0,05 \text{ mm}$ for punch diameter of 33 mm, and $5,0 \text{ mm} \pm 0,05 \text{ mm}$ for punch diameter 50 mm.

2.Hole expansion test ISO 16630



Principle

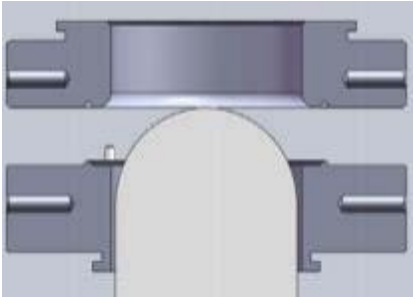
This standard describes a method of determining the hole expansion ratio in metallic sheets and strips with a thickness range of 1,2 mm to 6,0 mm inclusive and a width of at least 90 mm.



Key Key

- 1 test piece
- 2 die shoulder
- 3 die
- 4 burr
- 5 crack
- 6 punch tip angle
- 7 punch

3. Forming limit curve ISO 12004



Principle

This part of ISO 12004 specifies the testing conditions to be used when constructing a forming-limit curve (FLC) at ambient temperature and using linear strain paths. The material considered is flat, metallic and of thickness between 0,3 mm and

With Optical measuring system to acquire FLD diagram & FLC curve:

