HKMedQC
Wellcome Technology Co., Limited
Email:ivylin@hkmedqc.com
web:http://www.hkmedqc.com
19H Maxgrand plaza,No.3 Tai Yau Street, San Po Kong,Kowloon,hk

Round Hole Card

>>>Instruction<<<

The circular hole-type test card method is used to test spatial resolution.

Overview

The spatial resolution is tested using circular hole-type test cards. The production of circular hole-type test cards can also be determined through negotiation between the supplier and the buyer.

The basic structure of circular hole-type test cards

Circular hole-type test cards are made on a high-density cylindrical substrate [steel (such as Q235), aluminum (such as 3003), plastic (such as PMMA), etc.], with a series of circular holes of different diameters processed on it. The processing error should be less than 1%, and the holes are arranged in rows.Its basic structure is shown in Figure A.1.

The diameter of the circular hole-type test card can be designed according to specific circumstances. The thickness H is generally around 20 mm.

The diameter D of the circular hole card is 25 mm, and the thickness H is 20 mm; the hole diameters d of the circular hole card (in ascending order) are 0.2 mm, 0.3 mm, 0.4 mm, 0.5 mm, and 0.6 mm.

Unit: mm

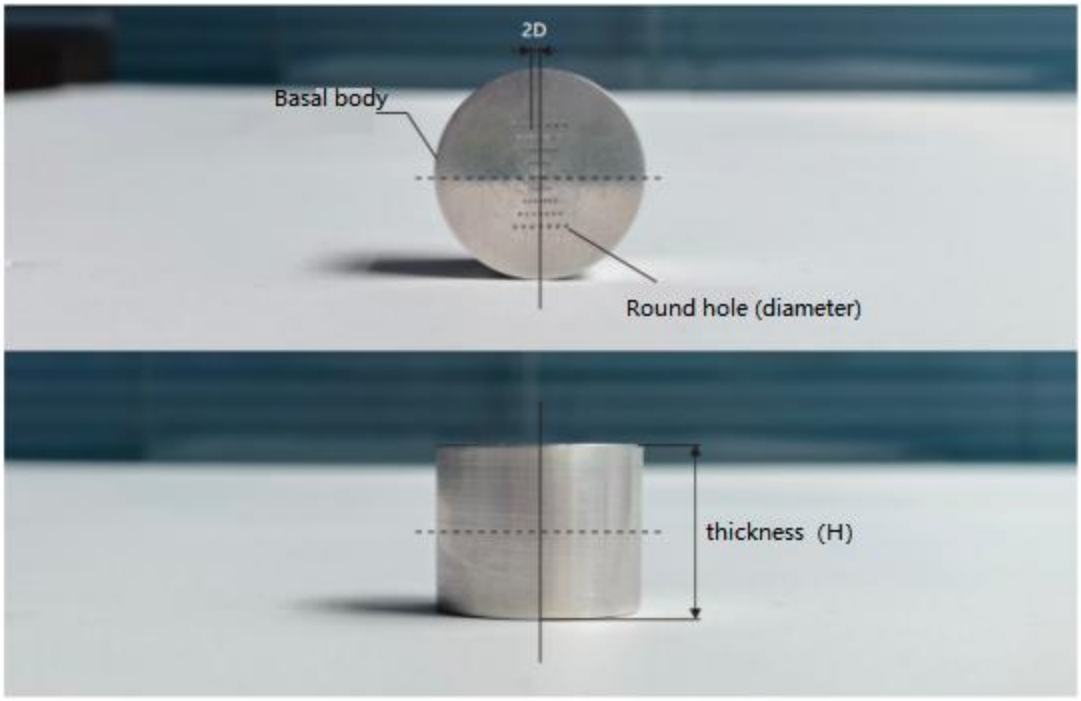

Figure A.1 Structure Diagram of Circular Hole Test Card

Email:ivylin@hkmedqc.com
web:http://www.hkmedqc.com
19H Maxgrand plaza,No.3 Tai Yau Street, San Po Kong,Kowloon,hk

Calculation of spatial resolution

According to formula (1), calculate the spatial resolution R of the system:

$$R = (1/2) \times 1/D_{min} \quad (1)$$

In the formula:

R —— Spatial resolution, Lp/mm;

Dm in —— The smallest aperture that can be distinguished on the CT image (distinguished at 10% modulation), mm.

R	D mm (Unit:mm)	Round hole tolerance:±1%
1.6	0.313	0.003
1.8	0.278	0.003
2.0	0.250	0.003
2.2	0.227	0.002
2.6	0.192	0.002
3.0	0.167	0.002
3.4	0.147	0.001
3.8	0.132	0.001

Note: The minimum diameter of the round hole should be: 0.132mm.