

camera and delicate, and calculating the distance according to the triangulation principle, be obtained by processing the three-dimensional data of the measuring object. The car handle Dimensions approximately 95mm, the surface of the handle by most of the free-form surface, part of the over-surfaces and a small part of the plane, and in order to facilitate the subsequent model reconstruction process, requiring deleted too close to the place in the small curvature of the point cloud data point, but in the point cloud large curvature is retained more frequent data points.

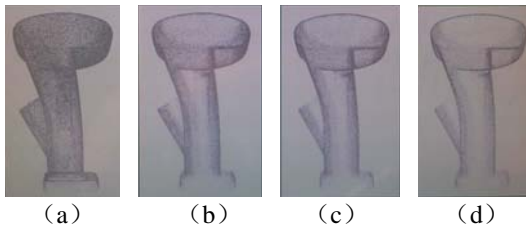


Figure3. Car handle data point cloud of simplification results

Figure 3 (a) by the point cloud its synthetic surface handle data point cloud, the data point cloud is very dense, about 114,000 data points. Figure 3 (b) to call angle deviation streamlined point cloud, streamlining angle error value of 0.12 (degrees) and streamlined data point cloud about 62,000 data points. Figure 3 (c) is calling the chord deviation method streamlined point cloud, streamlining the chord deviation value of 0.12 (mm), and the streamlined data from cloud about 51,000 data points. Figure 3 (d) is a direct call angle - chord comprehensive streamlining streamlined point cloud the streamline angle error value is 0.12 (degrees) the chord deviation value of 0.12 (mm), streamlined data from point cloud about 33,000 data points, the point cloud to streamline algorithm to ensure that meet the accuracy requirements, a more streamlined efficiency.

IV. CONCLUSION

The laser measurement speed, high accuracy, good efficiency, real-time, but the laser measurement point cloud data to obtain a huge amount to the follow-up computing and storage are inconvenient, research data point cloud streamline method has a very important significance. This article describes the common point cloud data point cloud classification and streamlined approach, starting from the analysis of the characteristics of the three-dimensional laser scan data point cloud, based on the angle of curvature change -

--- chord streamline method. The practical application using angle - chord streamline method to the three-dimensional laser scanner scan line data point cloud directly effective and streamlined, and is able to retain more data points, the big change in curvature curve transform small at remove more data points, to better retain the object surface features as reflected in the point cloud of the original data in the case of ensuring streamlined rate.

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