

ACCURATE CENTRE OF EXCELLENCE

Selection of Number of Datum:

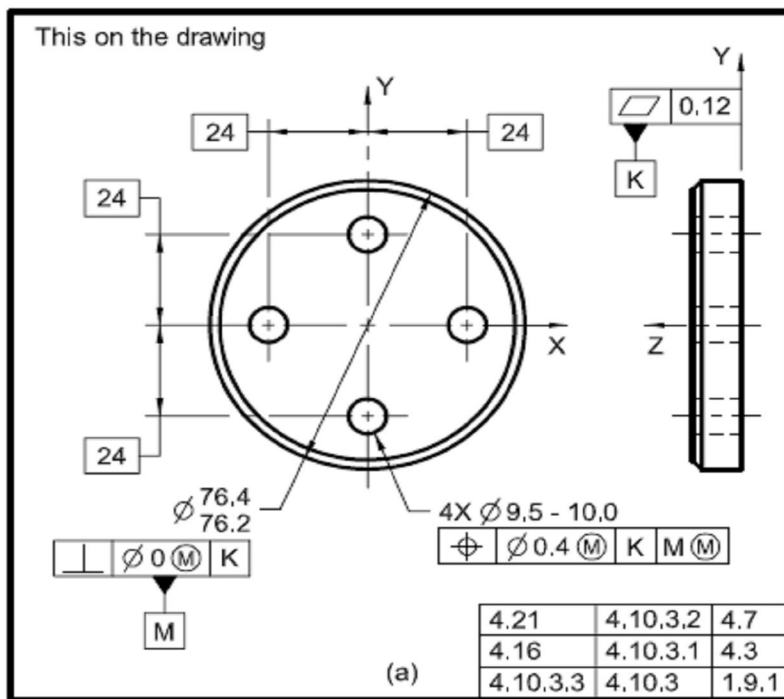
Almost in every training program one of the common questions asked was how many datum are recommended or is it required always 3 datum on every part. Especially by engineers who use 3D CMM and always fix Primary, Secondary and tertiary datum.

To answer that the drawing designer select only those and specific numbers of datum which are functionally relevant or important. This shows that either one or two or all three datum representation is applicable for the function & Constrain and not by choice.

Following example demonstrate that only two datum are sufficient to control the 6 degree of freedom. But if you analyse constraining datum plane and datum cylinder as origin the first hole can be located at any rotation because of the round shape of the component. All next holes are with respect to the first hole and centre of cylinder. Therefore designer gives only two datum.

But for inspection all three datum are constrained like plane as primary, line between centre and one of the holes as secondary and centre as origin so six degree of freedom get locked.

Conclusion: Selection of number of datum is completely functional and constrain base requirement and while measurement very carefully need to apply it.



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