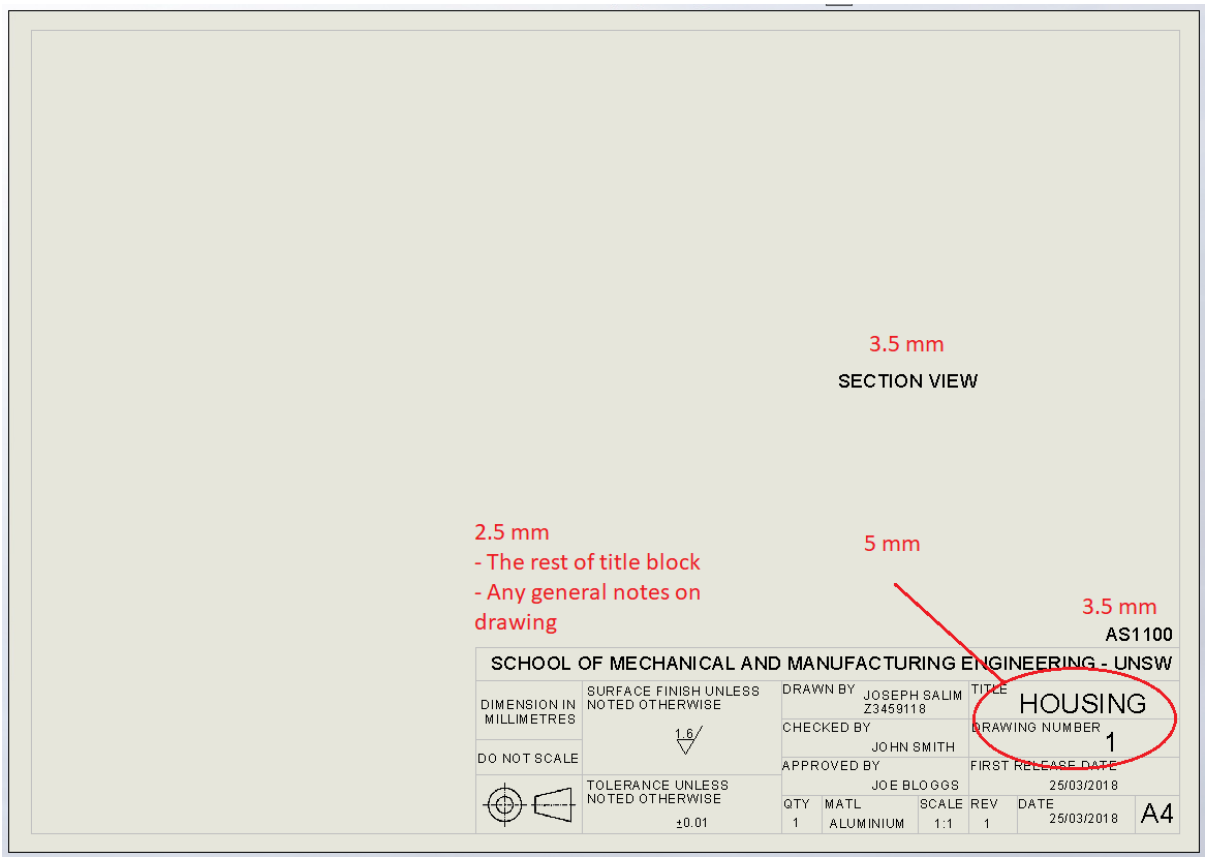
# Engineering Drawing standards

## Fonts

**TABLE 1.2** Minimum character height for sheet sizes

| USAGE (UPPER CASE ONLY) | CHARACTER HEIGHT (h), mm | |
|---|---|---|
| | SHEET SIZE | |
| | A0, B1 | A1, A2, A3, A4, B2, B3, B4 |
| Titles and drawing numbers | 7 | 5 |
| Subtitles, headings, view and section designations | 5 | 3.5 |
| General notes, material lists, dimensions | 3.5 | 2.5 |

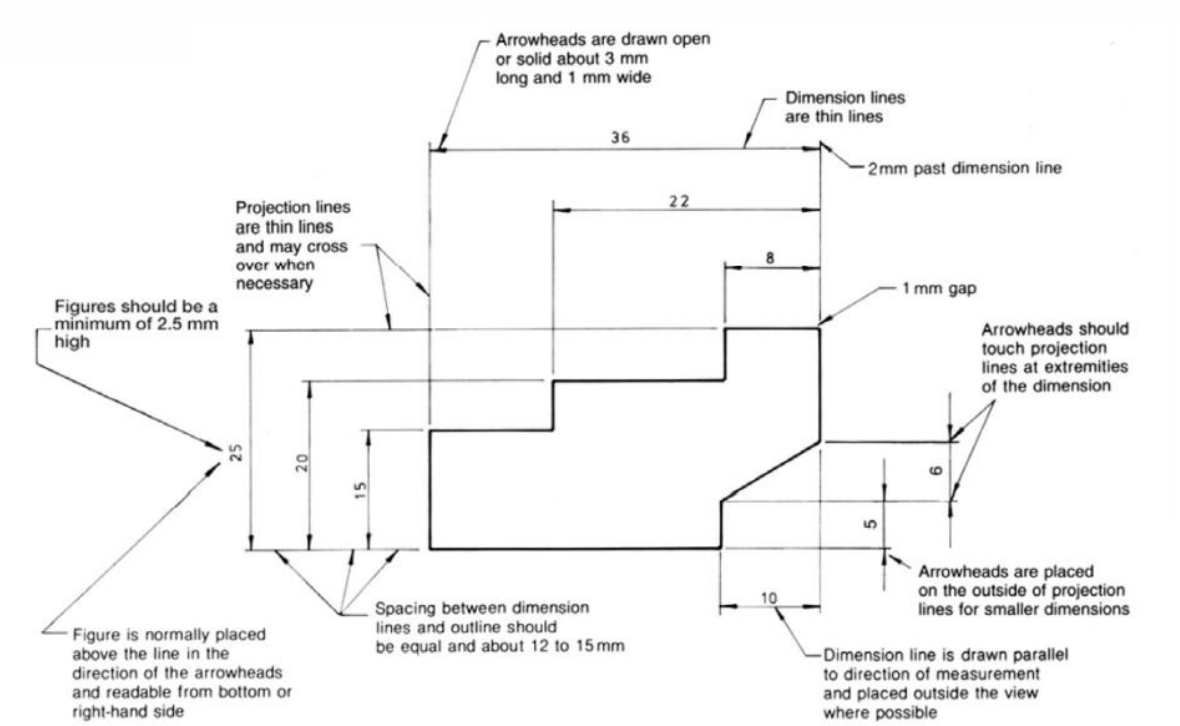
*From Boundy




- Everything must be in capital letters
- Everything must be filled in

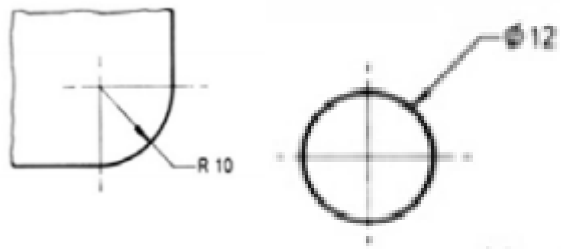
## Dimensioning

- Baseline Dimensioning
- Smaller dimensions beneath bigger ones

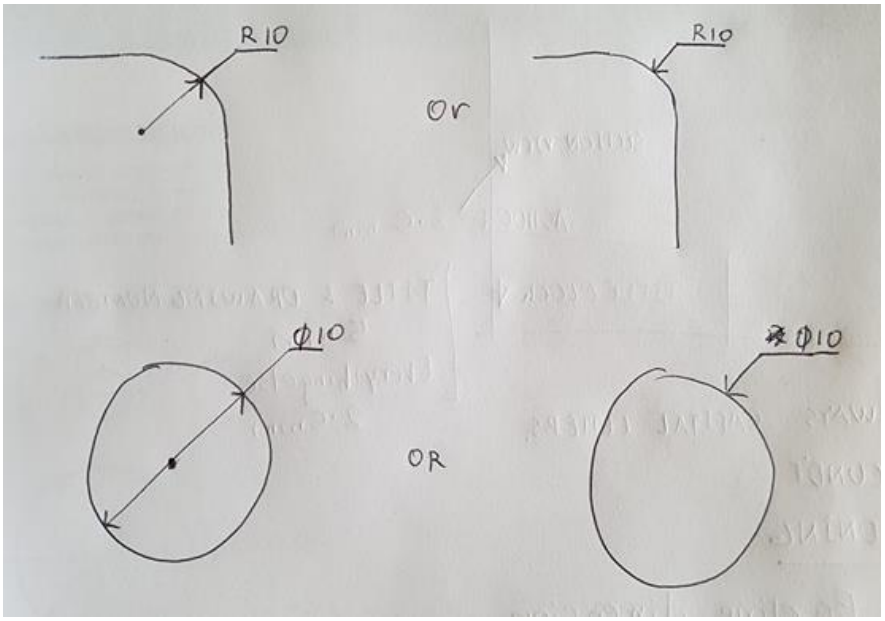



*Lecture notes, Boundy

- Diameter for circles
- Radius for arcs

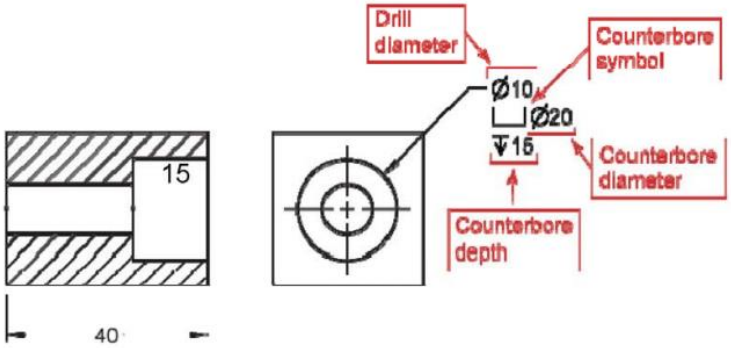


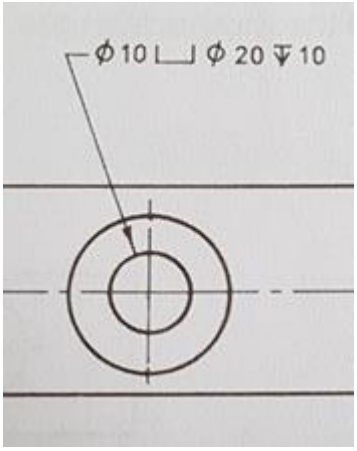

- Acceptable leaders
    - Please note the position and direction of arrows
    - *From Lecture/Boundy

- 


## Dimensioning Holes

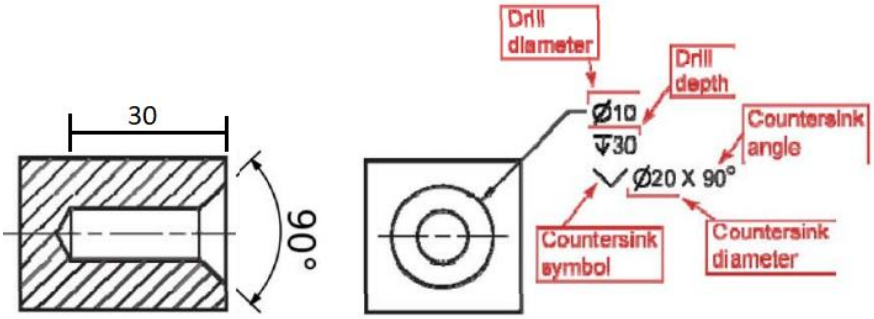
- Counterbore

- 

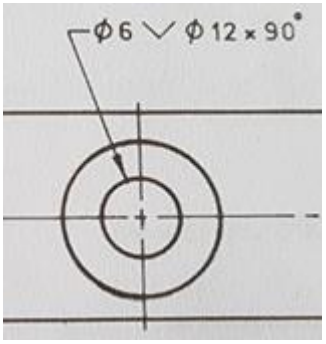
    - *From Lecture
- 

    - *From Boundy

- Countersink

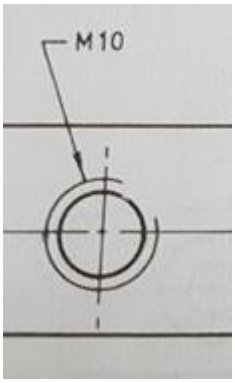



  - *Lecture




  - *Boundy
- No fuss on whether arrow points to inner or outer circle

## Dimensioning Screw Threads




-
- Please point to the outer diameter
- Note that the outer circle is not a full circle
- *Boundy

## Scales

A) Scale – Enlargement
**2:1**, **5:1**, **10:1**, 20:1, 50:1

-

A) Scale - Reduction
**1:2**, 1:2.5, **1:5**, **1:10**, 1:20, 1:50, 1:100,1:200, 1:500, 1:1000, 1:2000, 1:5000, 1:10000

Use standard dimensions (shown in bold). In your assignment use 1:1 wherever possible.

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- * Lecture

## Surface Finish

- Normally use Machine finish at 1.6
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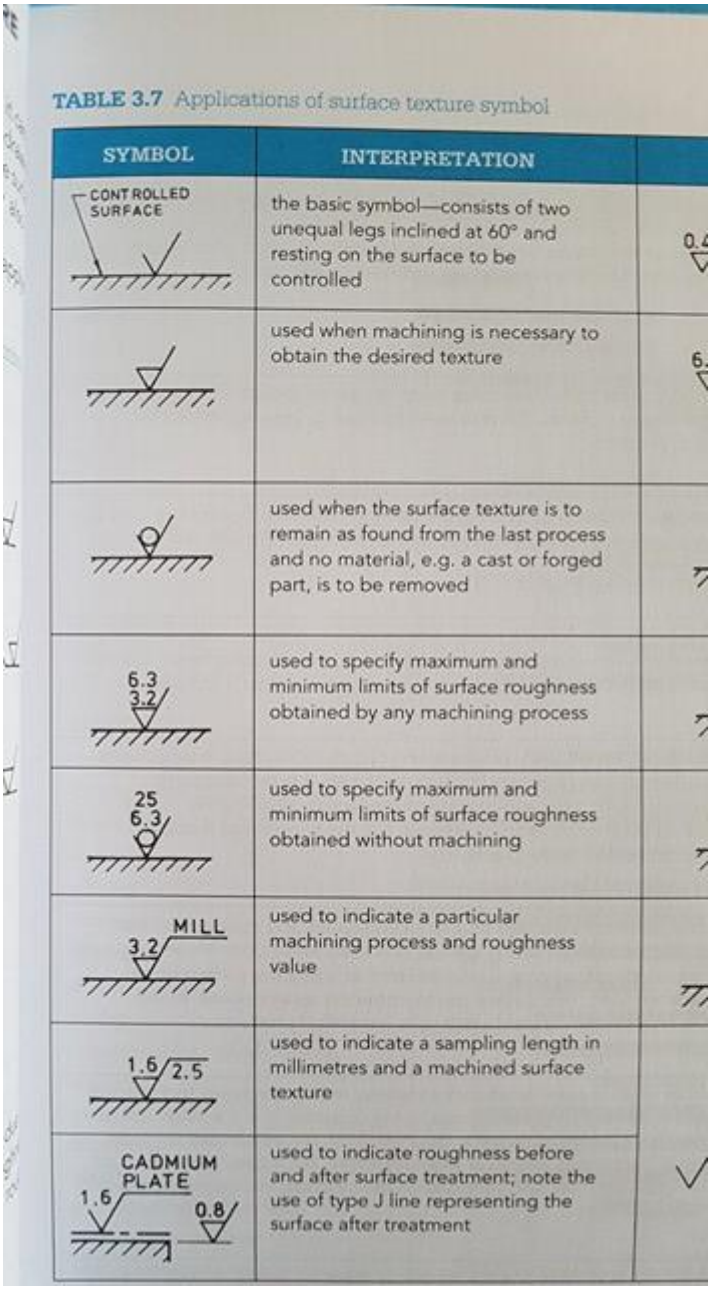

TABLE 3.7 Applications of surface texture symbol

| SYMBOL | INTERPRETATION |
|---|---|
| CONTROLLED SURFACE | the basic symbol—consists of two unequal legs inclined at 60° and resting on the surface to be controlled |
| | used when machining is necessary to obtain the desired texture |
| | used when the surface texture is to remain as found from the last process and no material, e.g. a cast or forged part, is to be removed |
| 6.3 3.2 | used to specify maximum and minimum limits of surface roughness obtained by any machining process |
| 25 6.3 | used to specify maximum and minimum limits of surface roughness obtained without machining |
| MILL 3.2 | used to indicate a particular machining process and roughness value |
| 1.6 2.5 | used to indicate a sampling length in millimetres and a machined surface texture |
| CADMIUM PLATE 1.6 0.8 | used to indicate roughness before and after surface treatment; note the use of type J line representing the surface after treatment |

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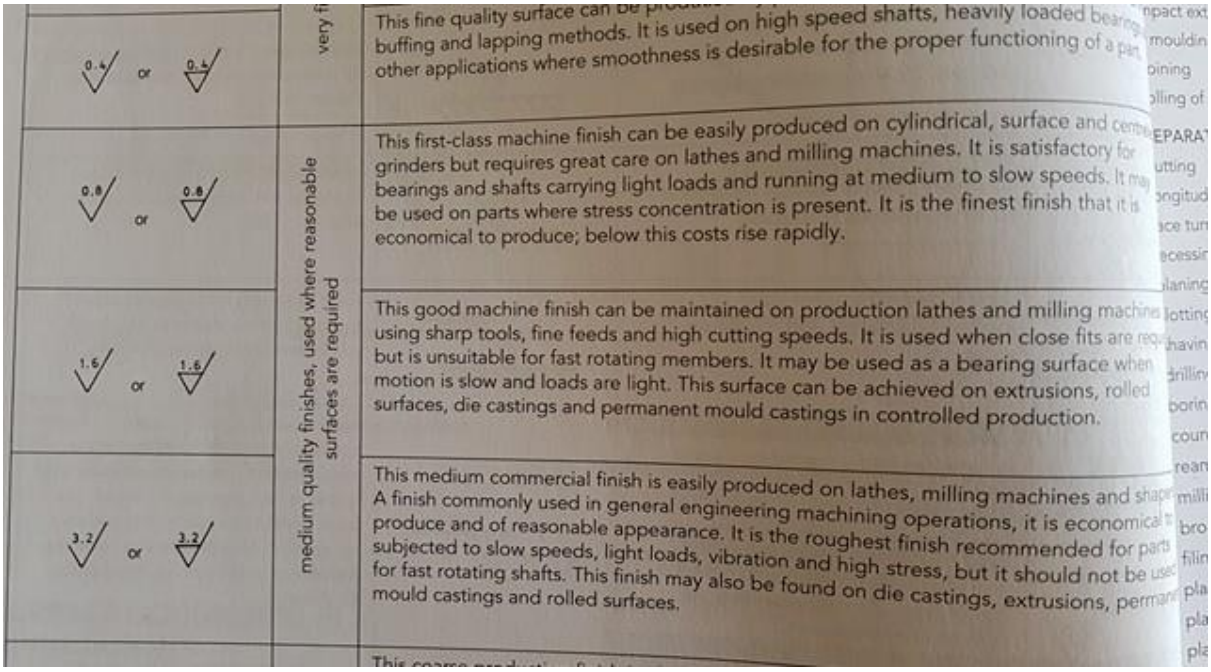

| | | |
|---|---|---|
| 0.4 or 0.4 | very fi | This fine quality surface can be produced by buffing and lapping methods. It is used on high speed shafts, heavily loaded bearings and other applications where smoothness is desirable for the proper functioning of a part. |
| 0.8 or 0.8 | medium quality finishes, used where reasonable surfaces are required | This first-class machine finish can be easily produced on cylindrical, surface and centre grinders but requires great care on lathes and milling machines. It is satisfactory for bearings and shafts carrying light loads and running at medium to slow speeds. It may be used on parts where stress concentration is present. It is the finest finish that it is economical to produce; below this costs rise rapidly. |
| 1.6 or 1.6 | | This good machine finish can be maintained on production lathes and milling machines using sharp tools, fine feeds and high cutting speeds. It is used when close fits are required but is unsuitable for fast rotating members. It may be used as a bearing surface when motion is slow and loads are light. This surface can be achieved on extrusions, rolled surfaces, die castings and permanent mould castings in controlled production. |
| 3.2 or 3.2 | | This medium commercial finish is easily produced on lathes, milling machines and shapers. A finish commonly used in general engineering machining operations, it is economical to produce and of reasonable appearance. It is the roughest finish recommended for parts subjected to slow speeds, light loads, vibration and high stress, but it should not be used for fast rotating shafts. This finish may also be found on die castings, extrusions, permanent mould castings and rolled surfaces. |

## General Notes

- Use of symmetry lines/centre mark
- Over dimensioning
- Redundant views
- Tangent edges removed
    - *Covered in handout
- Hidden lines only on section views (Not Isometric)
    - *Covered in handout