

Turner 1st Year – Transparencies

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Turner 1st Year – Transparencies



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ANINDO – GERMAN PROJECT

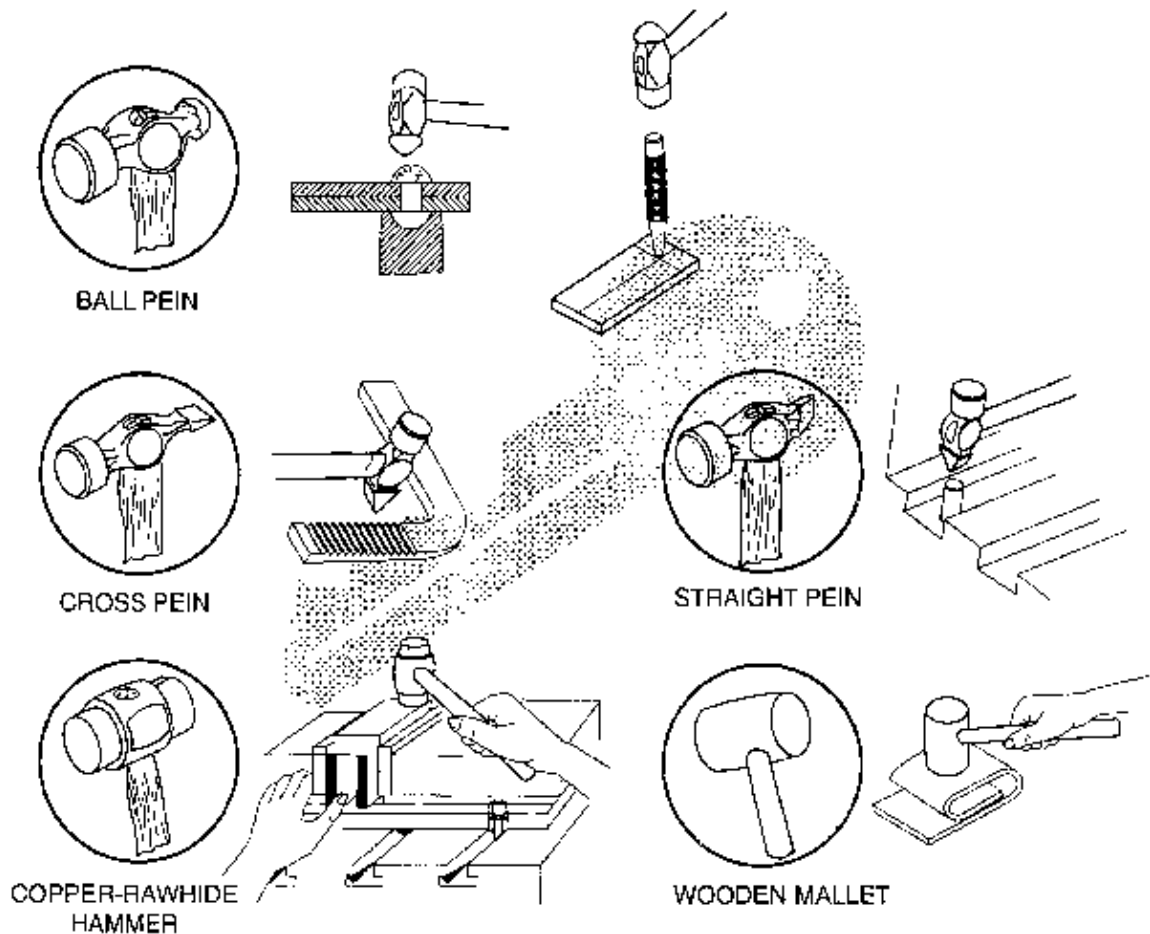
Directorate General of Employment & Training, Ministry of Labour, Govt. of India.

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CENTRAL INSTRUCTIONAL MEDIA INSTITUTE
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Germany

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Hand Hammers – Applications

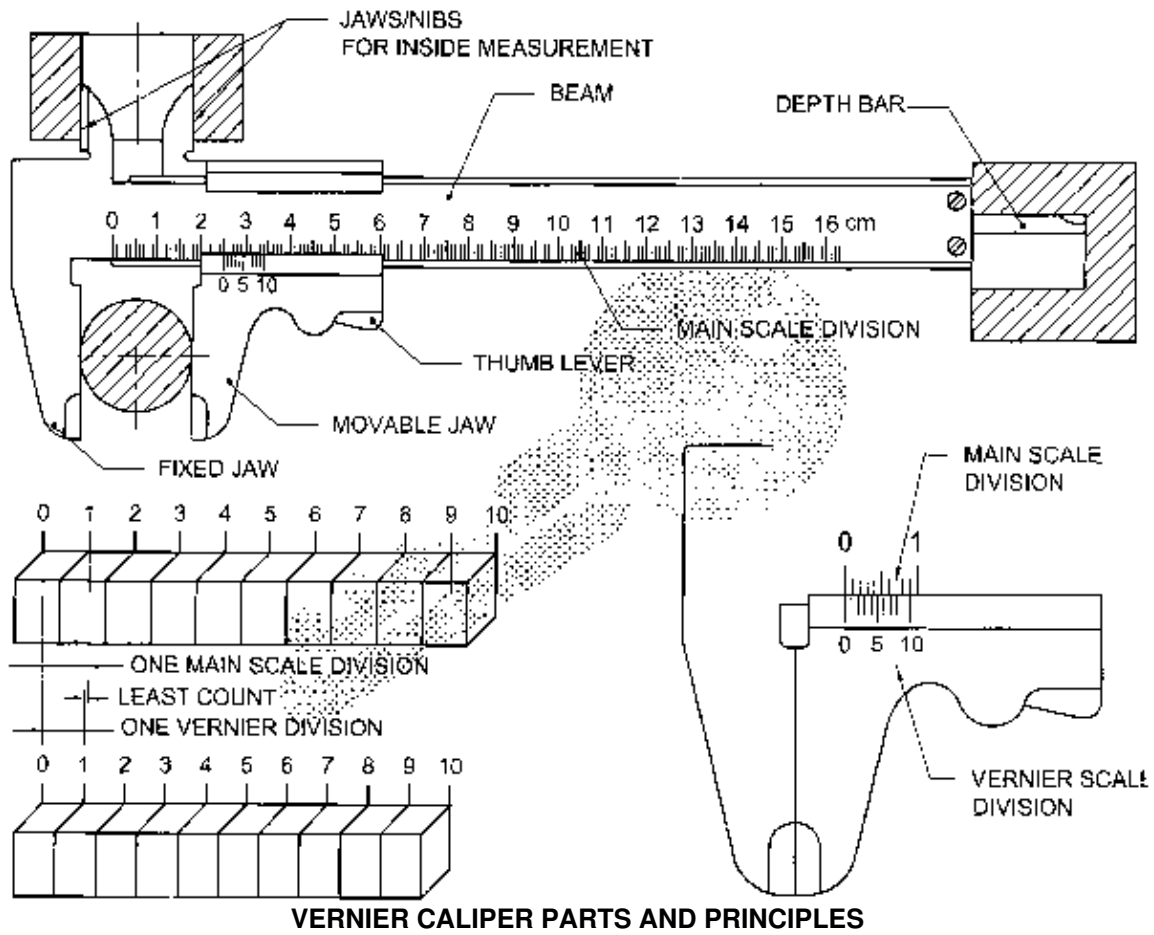
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HAND HAMMERS – APPLICATIONS

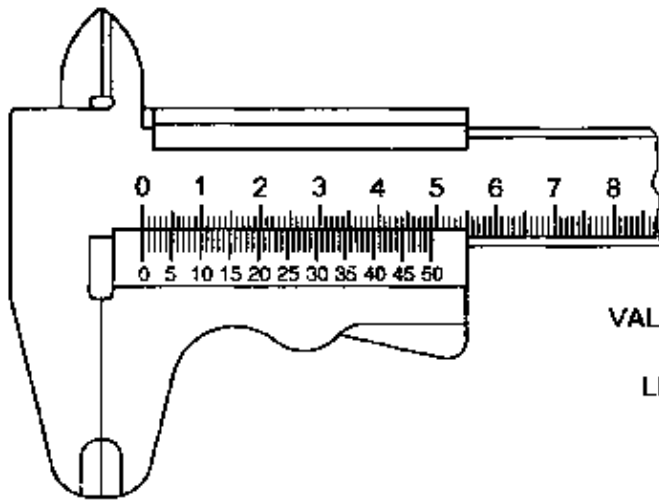
Vernier Caliper Parts and Principles

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Reading of Vernier Caliper

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49 MAIN SCALE DIVISIONS
ARE DIVIDED INTO 50
VERNIER SCALE DIVISIONS

$$\text{VALUE OF 1 VSD} = \frac{49}{50} \text{ mm}$$

$$\text{LEAST COUNT} = 1 \text{ MD} - 1 \text{ VSD}$$

$$= 1 - \frac{49}{50}$$

$$= \frac{1}{50} = 0.02 \text{ mm}$$

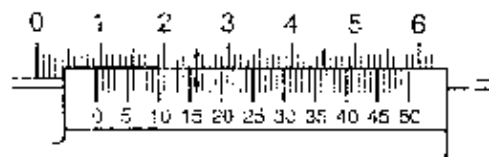


$$\text{MAIN SCALE READING} = 10.00 \text{ mm}$$

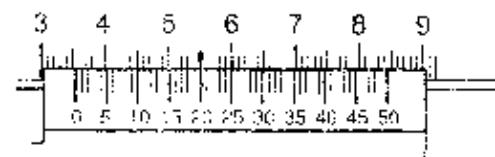
$$\text{VALUE OF COINCIDING } \left. \begin{array}{l} \text{VERNIER} \\ \text{DIVISION} \end{array} \right\} = 0.40 \text{ mm}$$

$$\text{READING} = 10.40 \text{ mm}$$

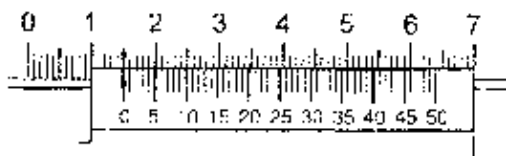
ASSIGNMENTS:-



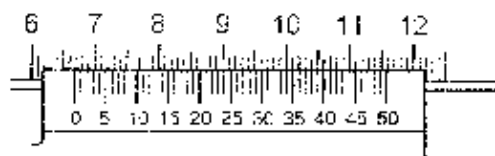
$$\text{A READING} = 9.32 \text{ mm}$$



$$\text{B READING} = 35.40 \text{ mm}$$



$$\text{C READING} = 15.00 \text{ mm}$$

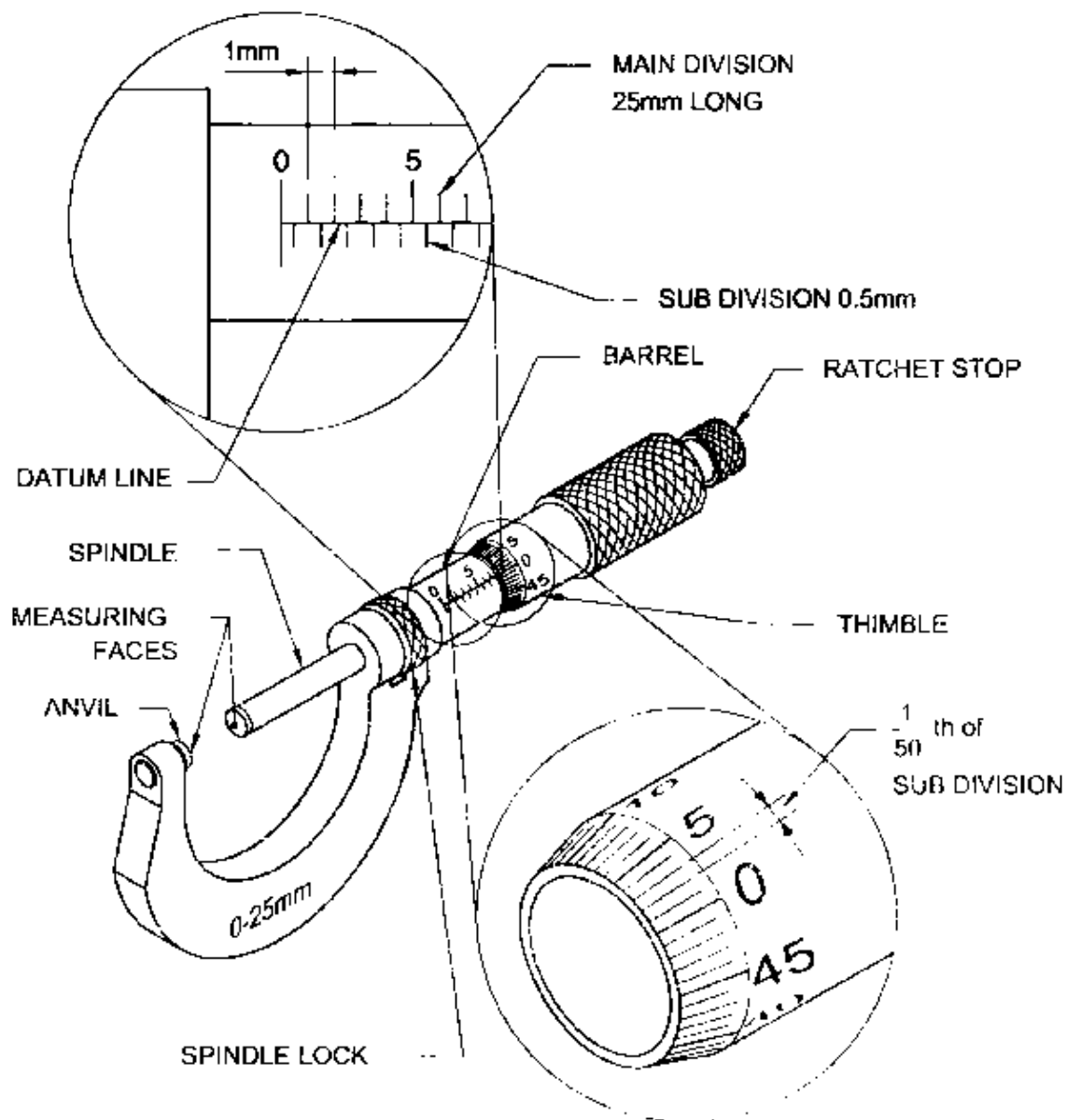


$$\text{D READING} = 66.80 \text{ mm}$$

READING OF VERNIER CALIPER

Micrometer parts and graduations

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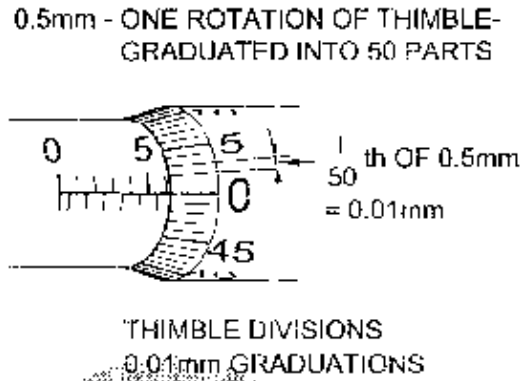
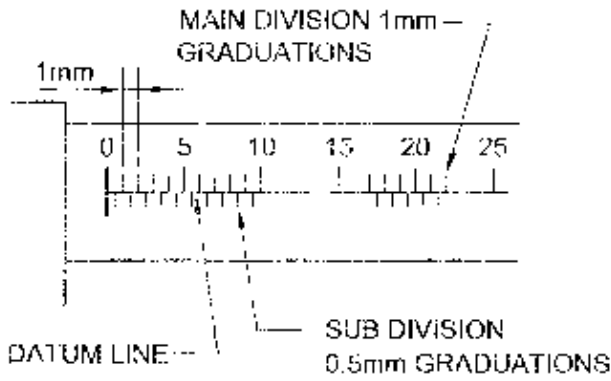
$$\begin{aligned} \text{LEAST COUNT} &= \frac{1}{50} \text{th of } 0.5\text{mm} \\ &= \boxed{0.01 \text{ mm}} \end{aligned}$$

MICROMETER PARTS AND GRADUATIONS

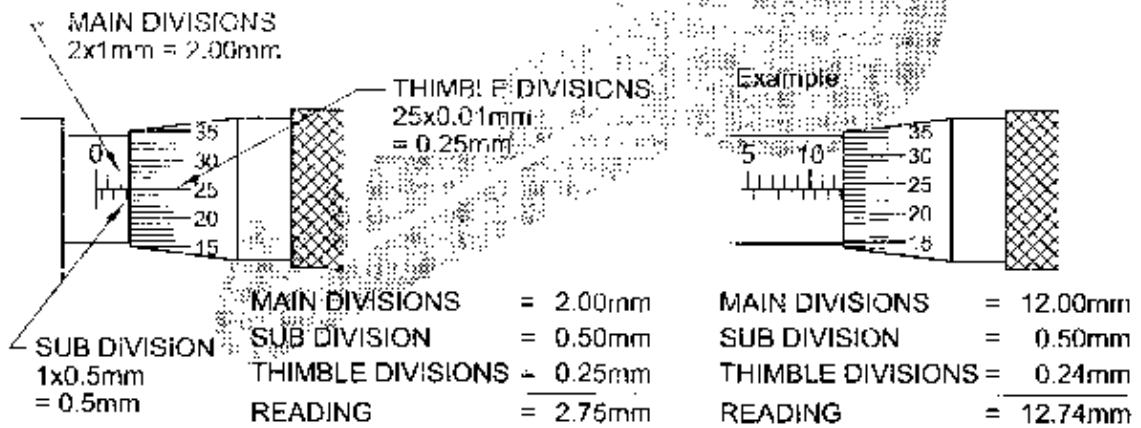
Micrometer reading

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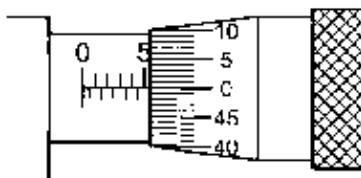
MICROMETER GRADUATIONS



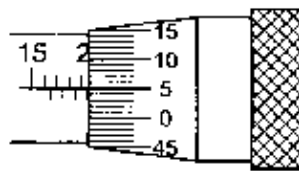
MICROMETER READING



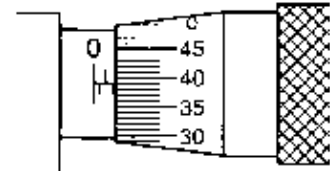
ASSIGNMENTS:-



A READING 5.50 mm



B READING 19.55 mm

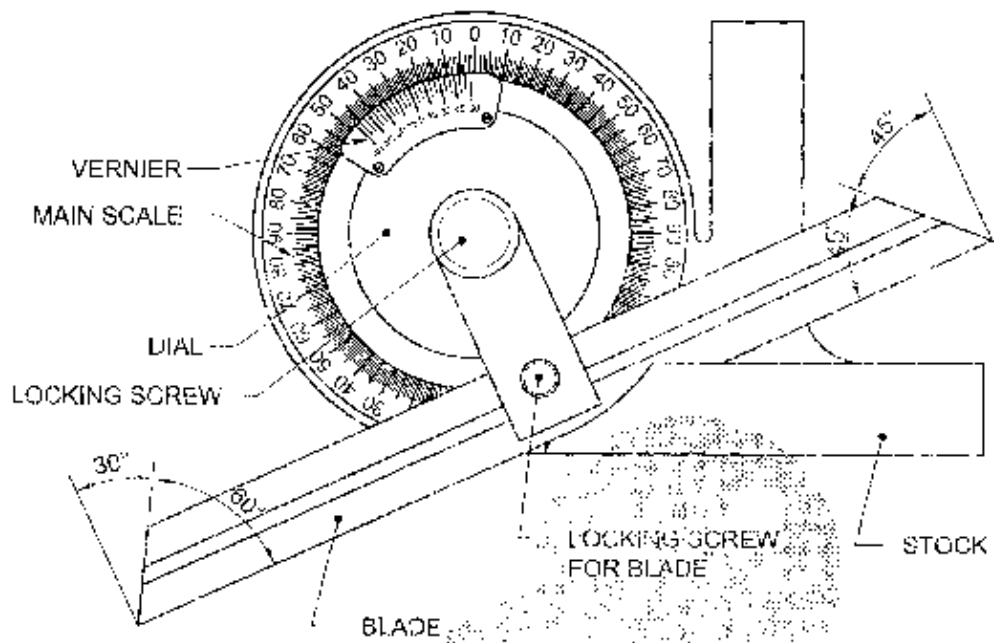


C READING 1.89 mm

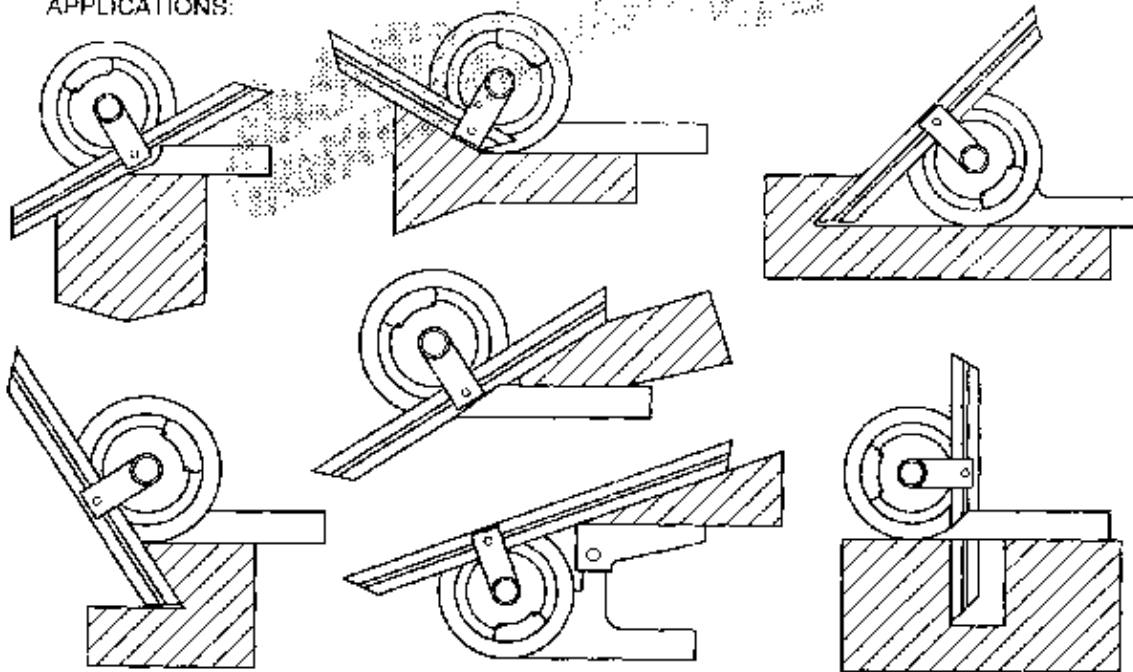
MICROMETER READING

Vernier bevel protractor parts & application

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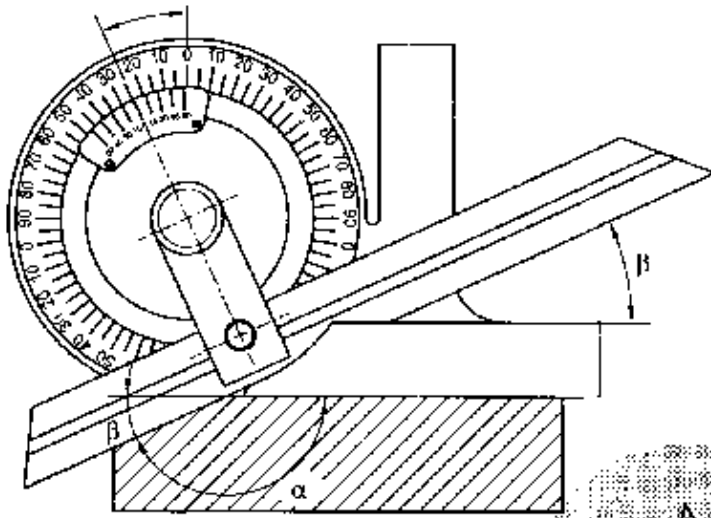
APPLICATIONS:



VERNIER BEVEL PROTRACTOR PARTS & APPLICATION

Bevel protractor reading

TR 01 02 03 02 93



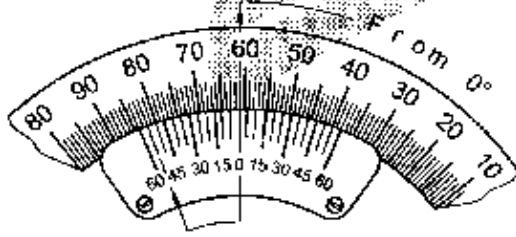
OBTUSE ANGLE
 $\alpha = 180^\circ \beta$

ASSIGNMENTS:-



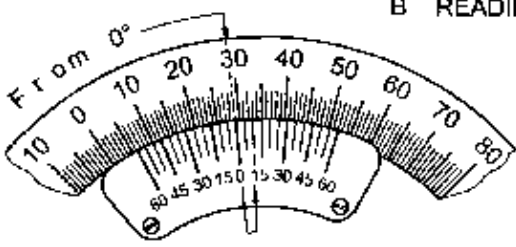
A READING

$\alpha - \beta = 54^\circ 25'$



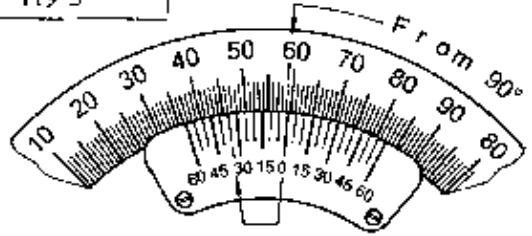
B READING

$\alpha = 180^\circ \beta$
 $= 180^\circ 60' 55'$
 $119^\circ 5'$



C READING

$29^\circ 10'$

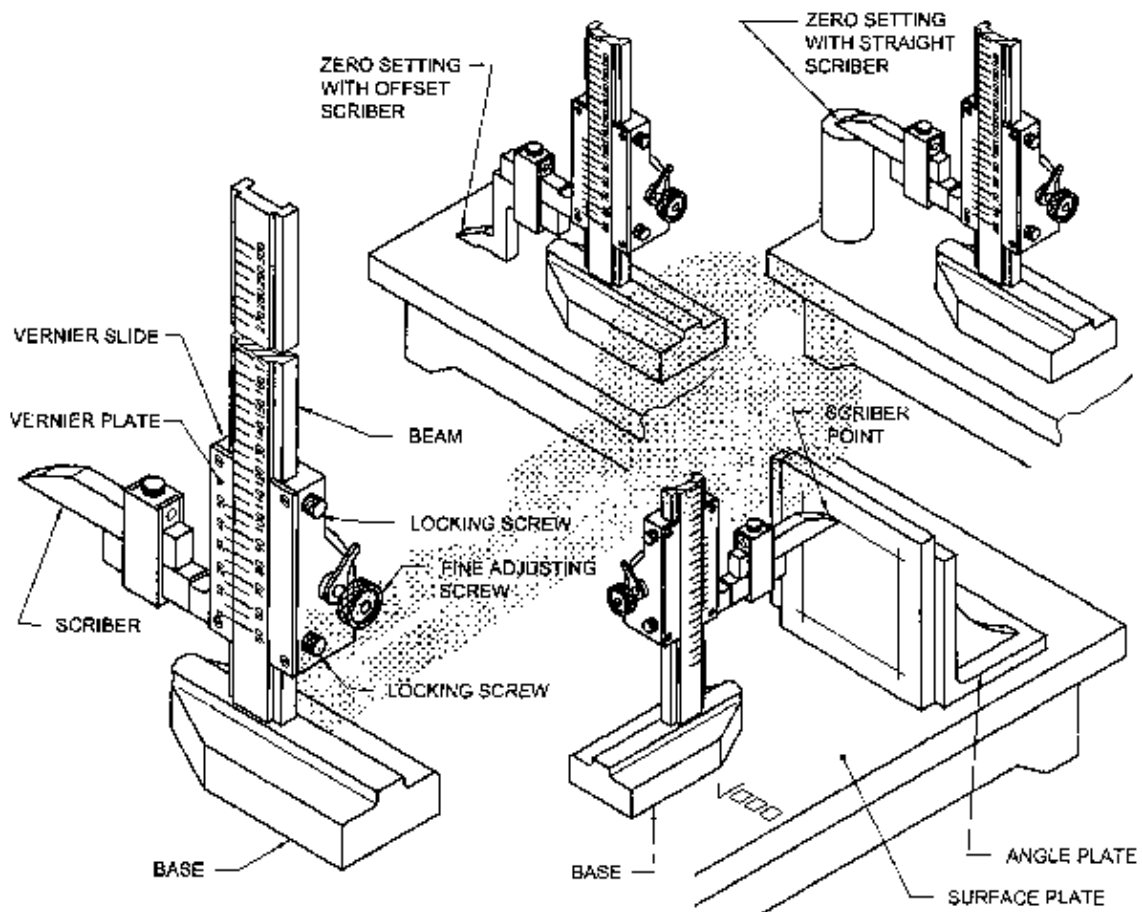


D READING

$30^\circ 35'$

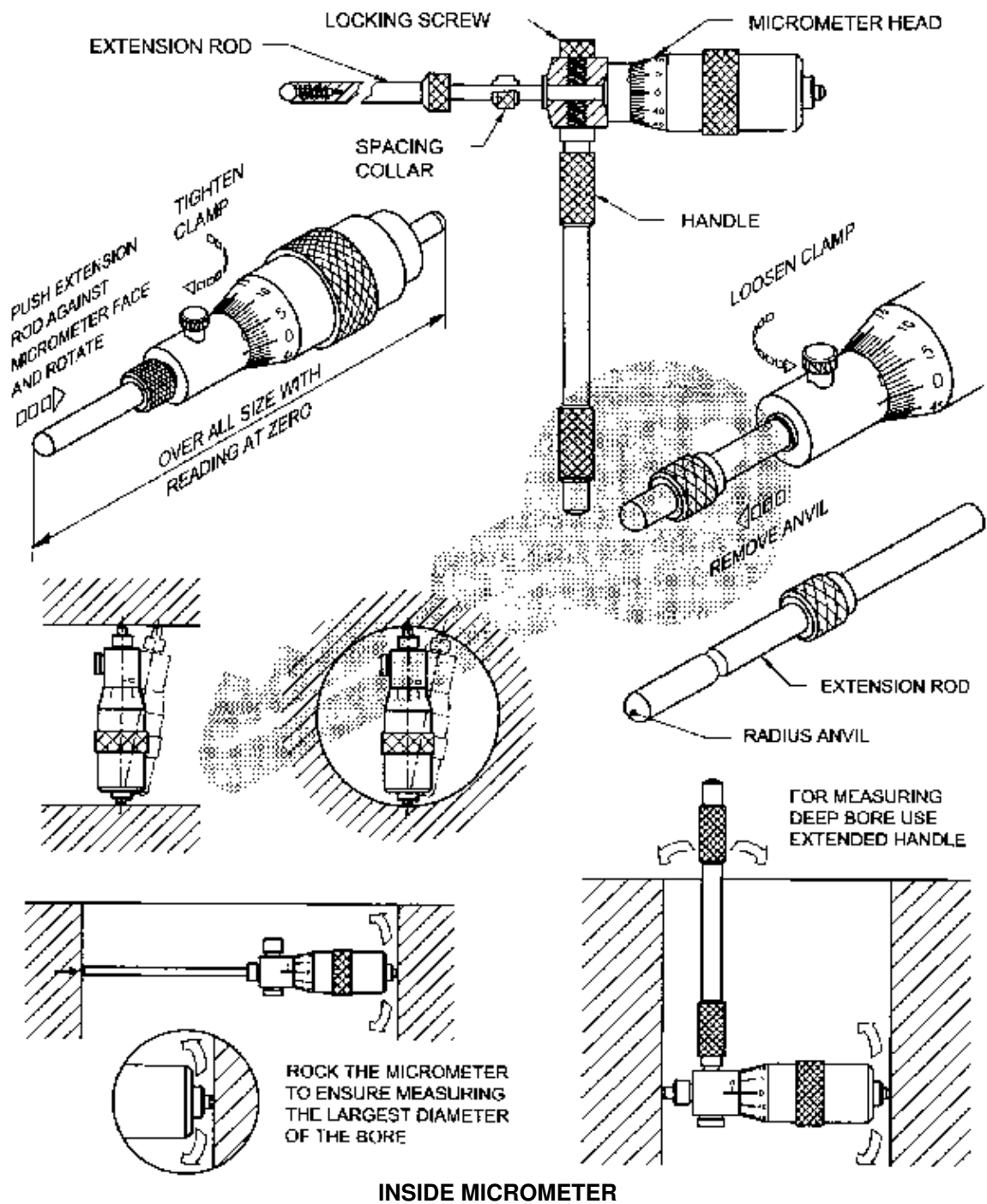
BEVEL PROTRACTOR READING

Vernier height gauge



Inside Micrometer

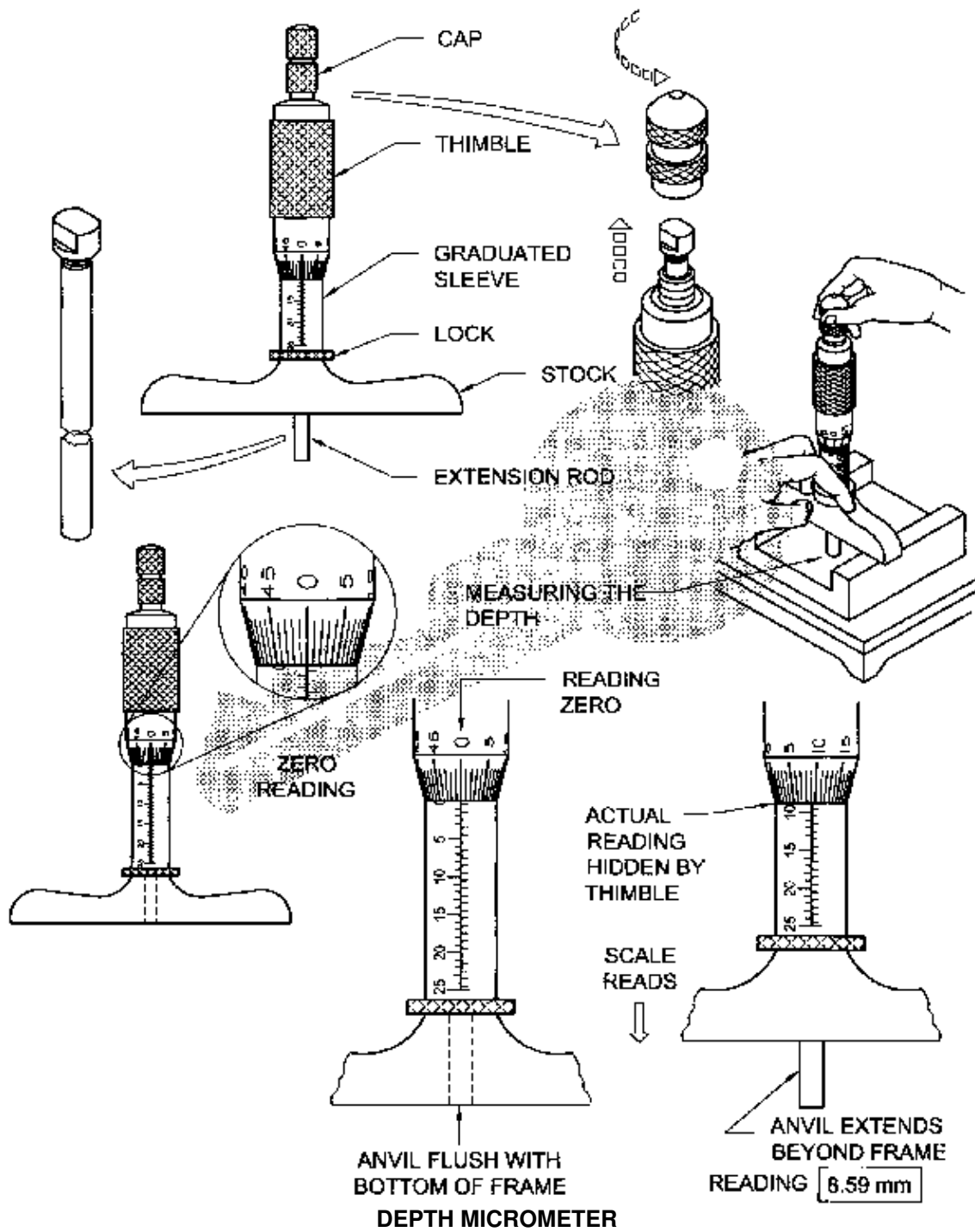
TR 01 02 05 01 93



INSIDE MICROMETER

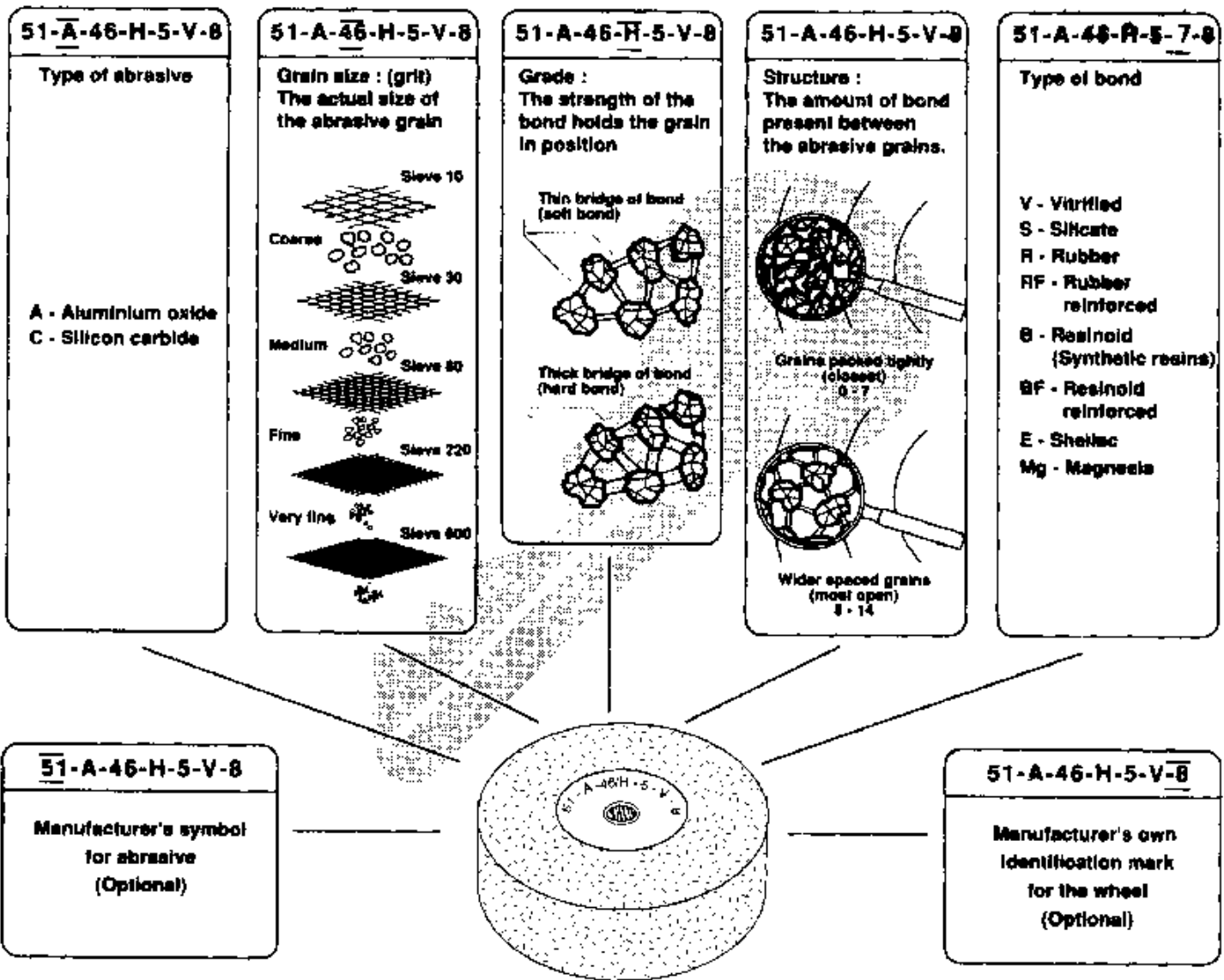
Depth Micrometer

TR 01 02 06 01 93



Grinding wheel marking

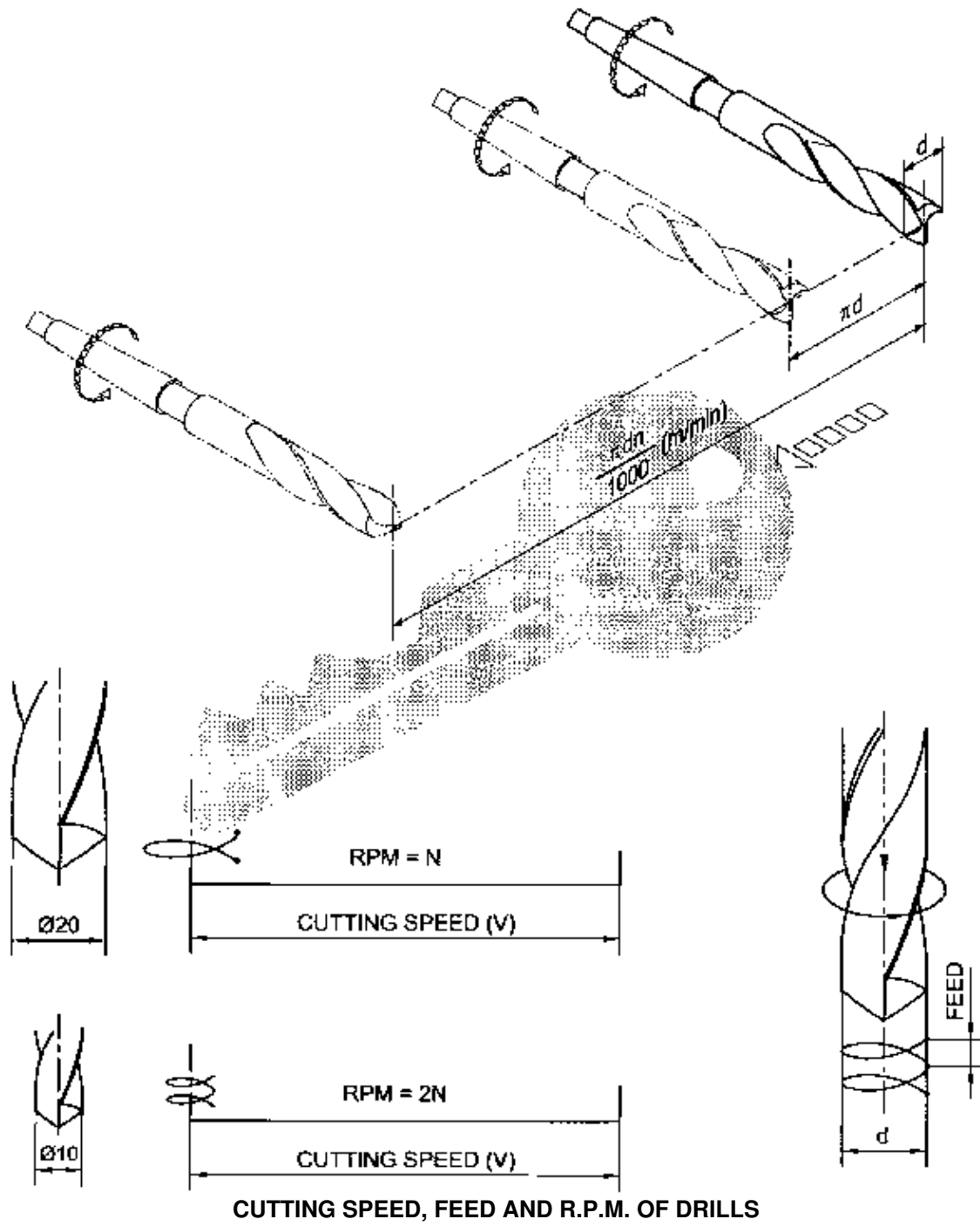
TR 01 04 01 01 93



GRINDING WHEEL MARKING

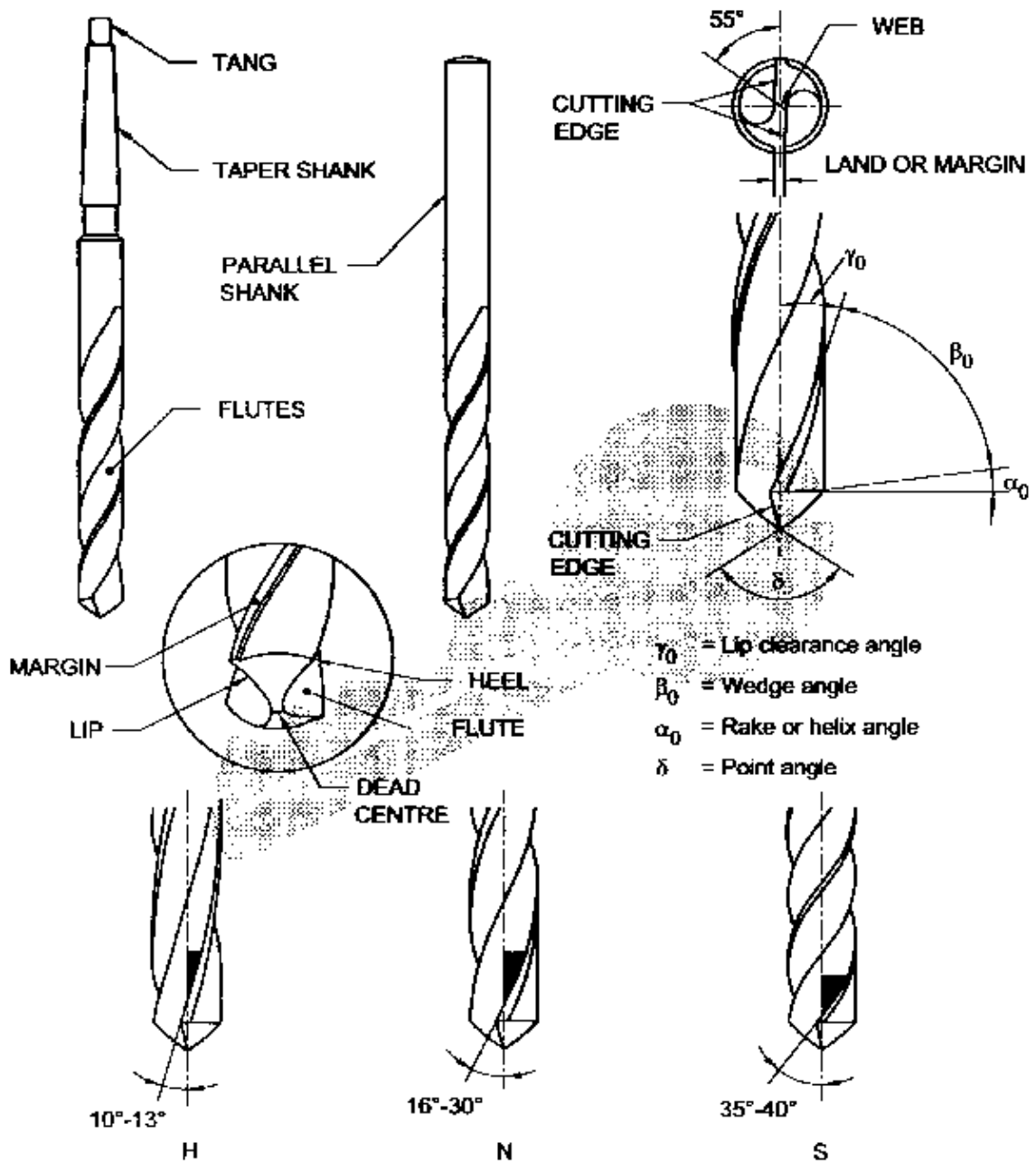
Cutting speed, feed and R.P.M. of Drills

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Drill parts and angles

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Type H - For hard and tenacious materials.
 Type N - For normal low carbon steels.
 Type S - For soft and tough materials.

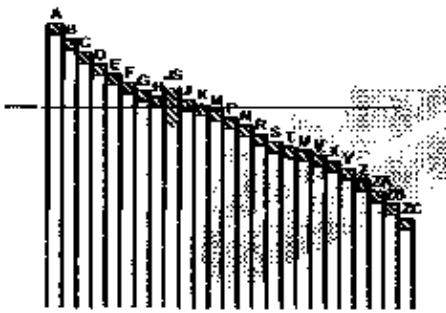
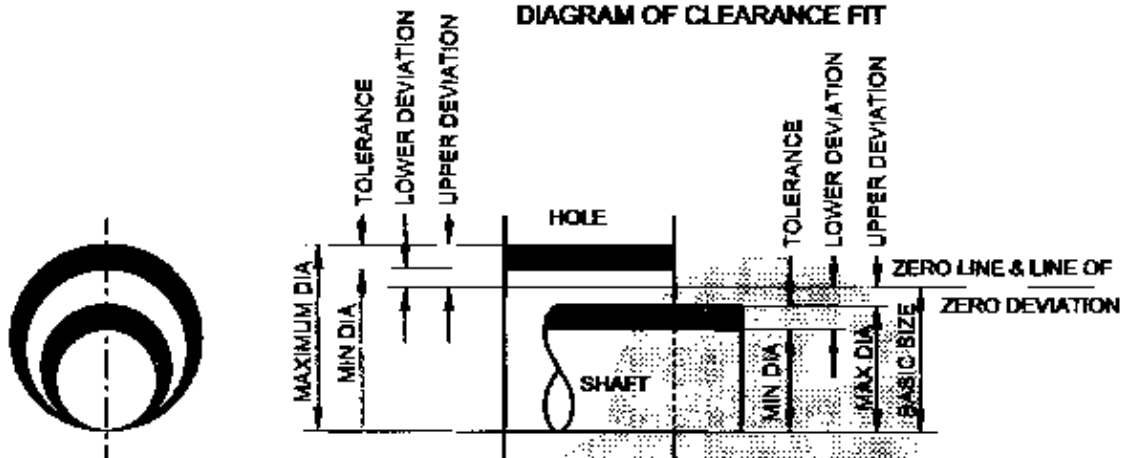
DRILL PARTS AND ANGLES

Fundamentals of limits and fits

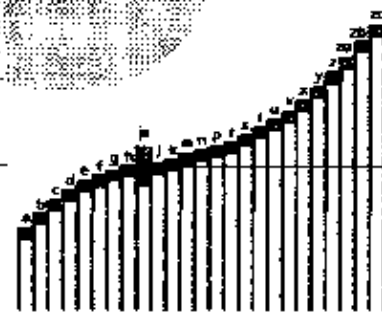
TR 01 06 01 01 93



**SIMPLIFIED SCHEMATIC
 DIAGRAM OF CLEARANCE FIT**

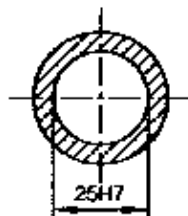


CAPITAL LETTERS INDICATE 25 FUNDAMENTAL DEVIATION FOR HOLES

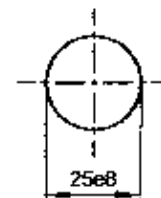
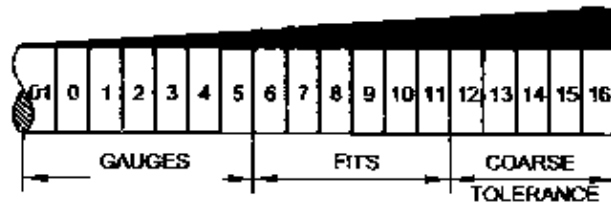


SMALL LETTER INDICATE 25 FUNDAMENTAL DEVIATION FOR SHAFTS

18 GRADES OF TOLERANCES



• WHAT DOES 25H7 INDICATE?

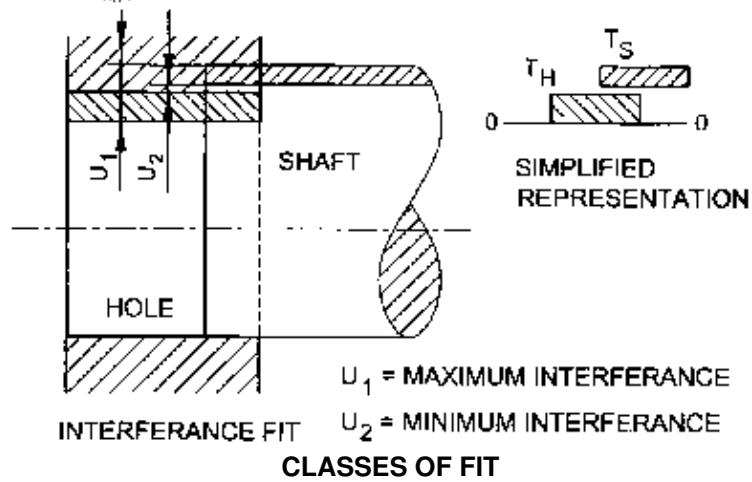
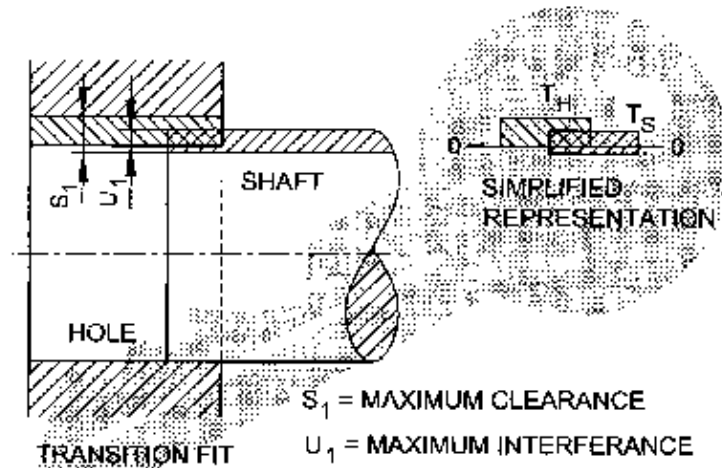
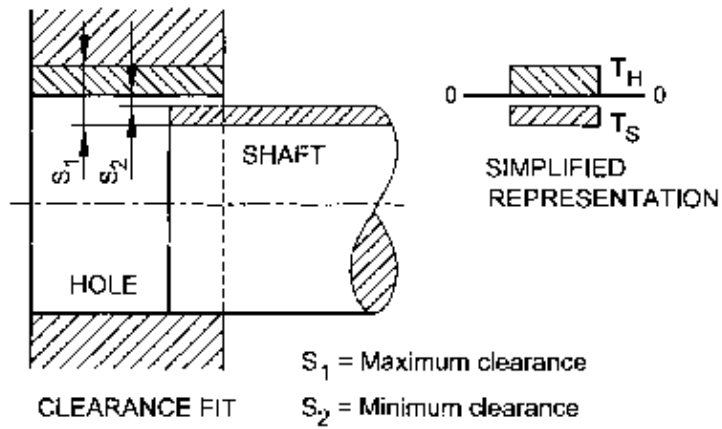


• WHAT DOES 25e8 INDICATE?

FUNDAMENTALS OF LIMITS AND FITS

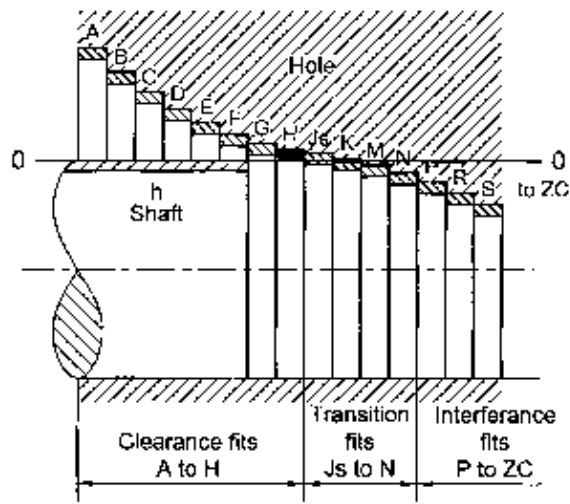
Classes of fit

TR 01 06 01 02 93

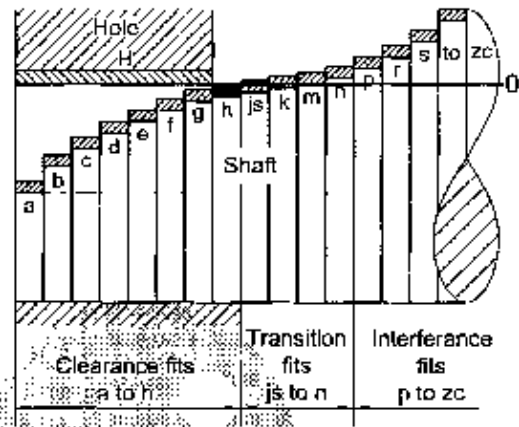


Shaft basis and hole basis system of limits and fits

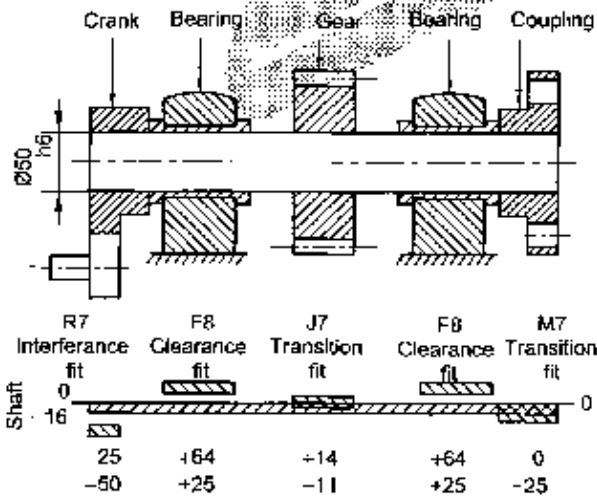
TR 01 06 01 03 93



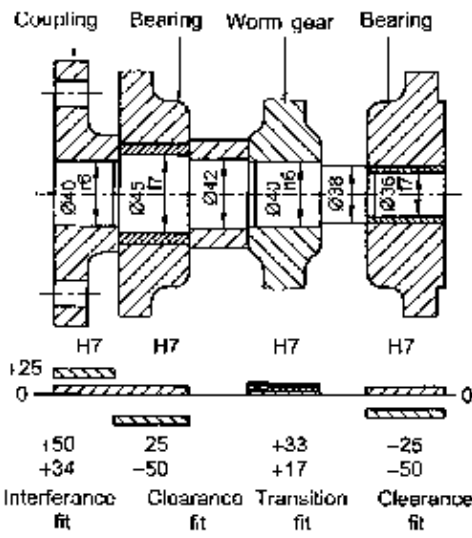
**BASIC SHAFT SYSTEM
(SHAFT BASIS)**



**BASIC HOLE SYSTEM
(HOLE BASIS)**



APPLICATION OF THE BASIC SHAFT SYSTEM

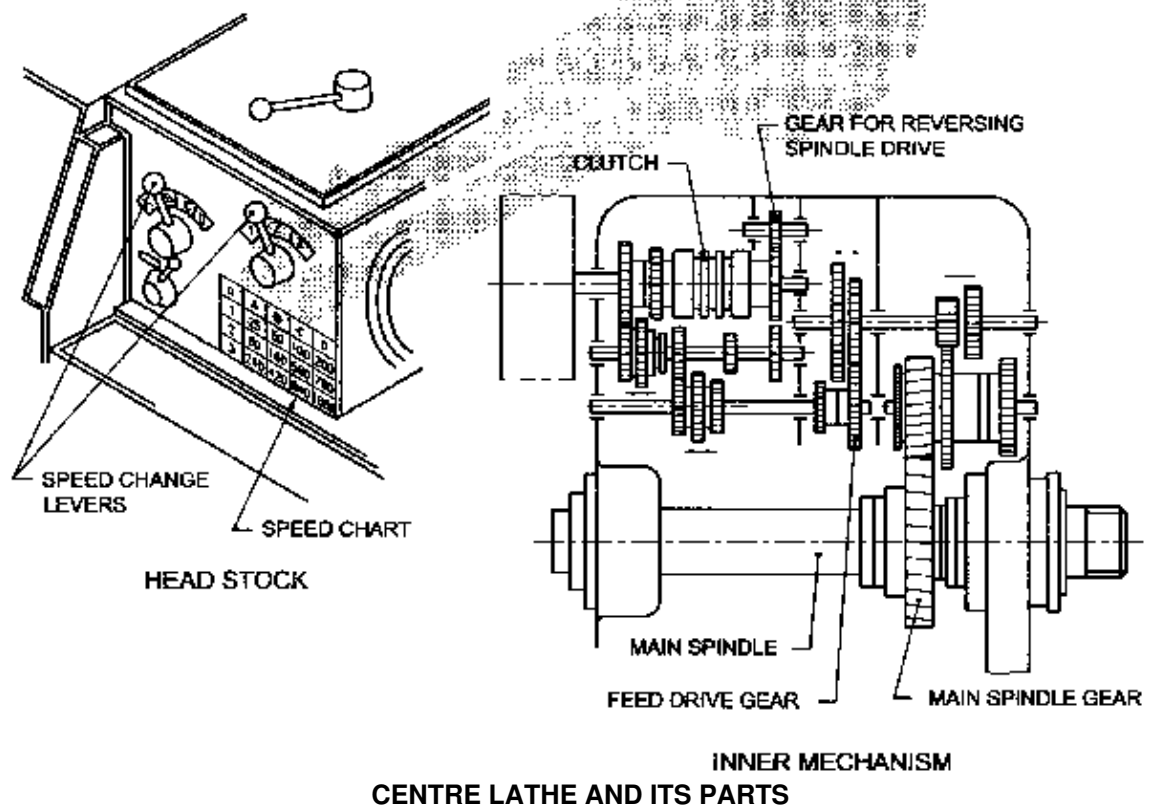
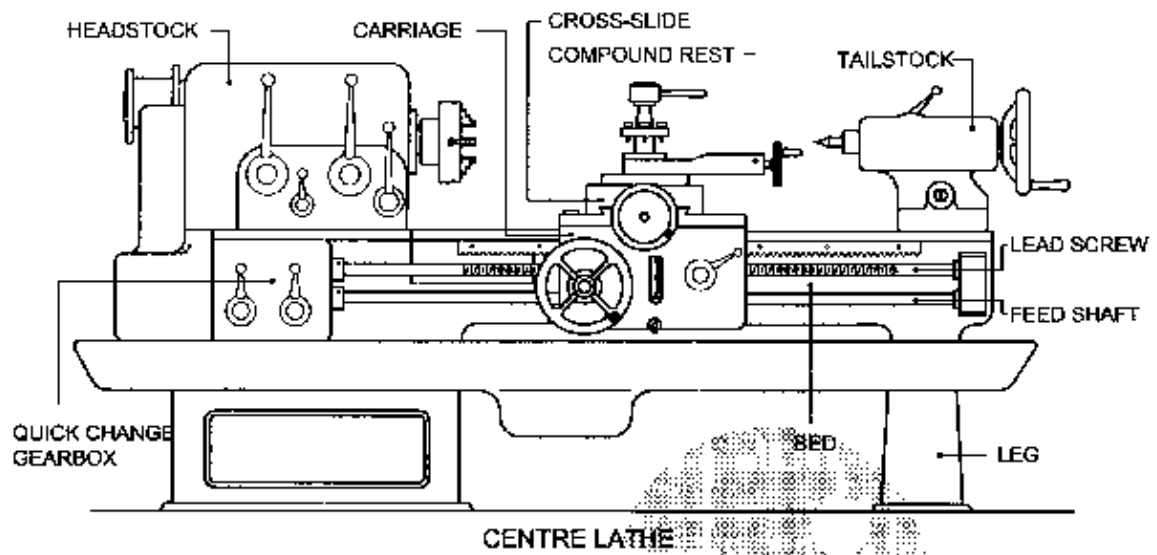


APPLICATION OF THE BASIC HOLE SYSTEM

SHAFT BASIS AND HOLE BASIS SYSTEM OF LIMITS AND FITS

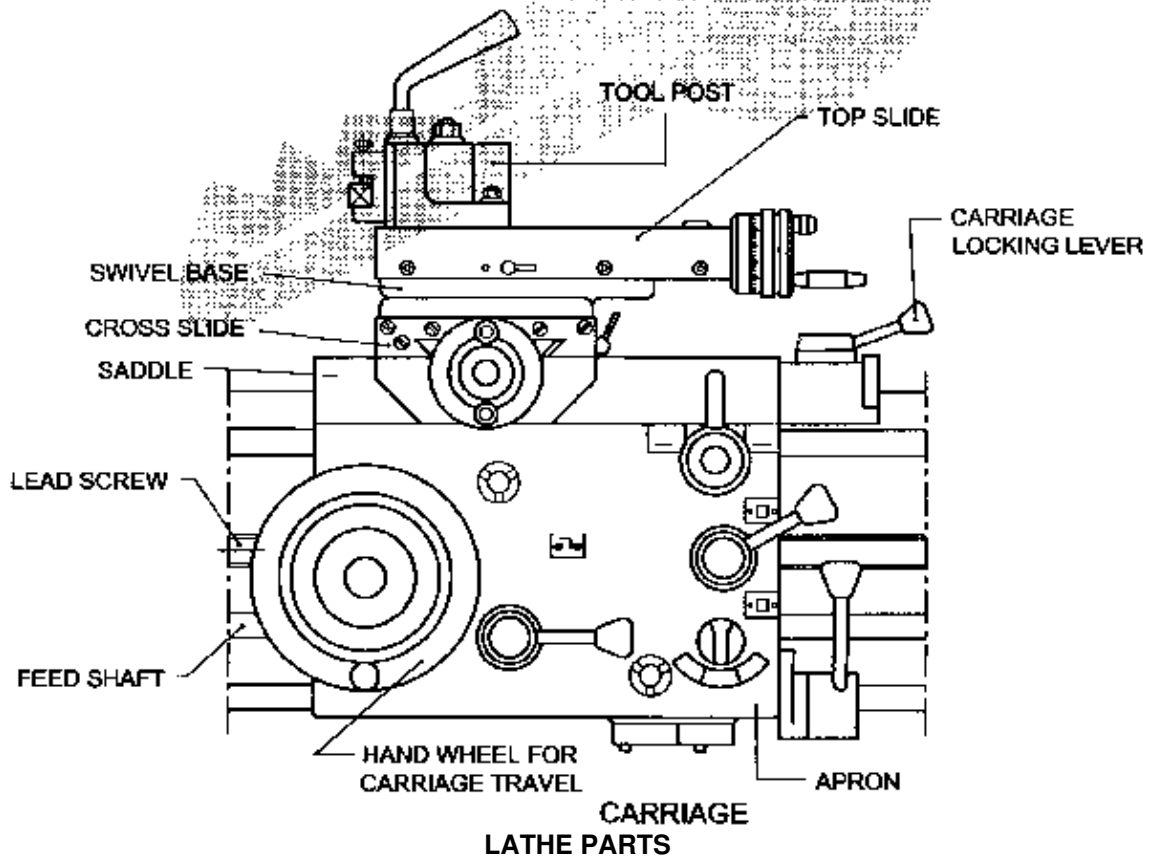
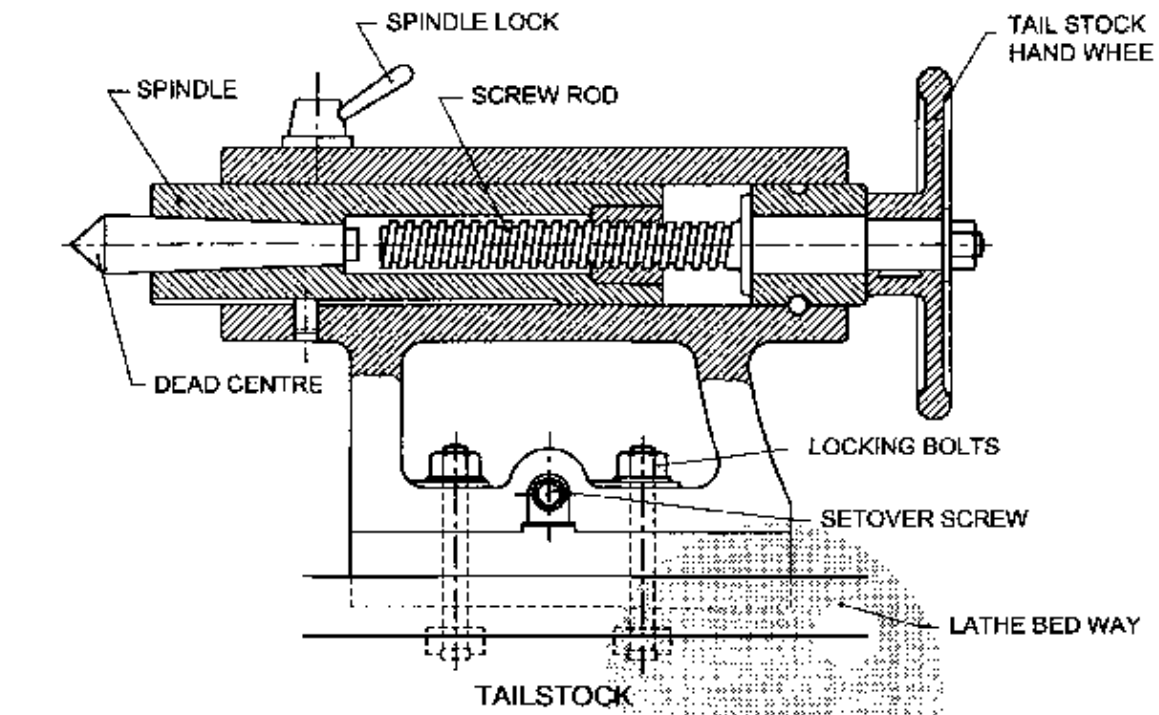
Centre lathe and its parts

TR 01 12 01 01 93



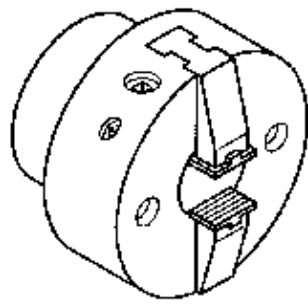
Lathe parts

TR 01 12 03 02 93

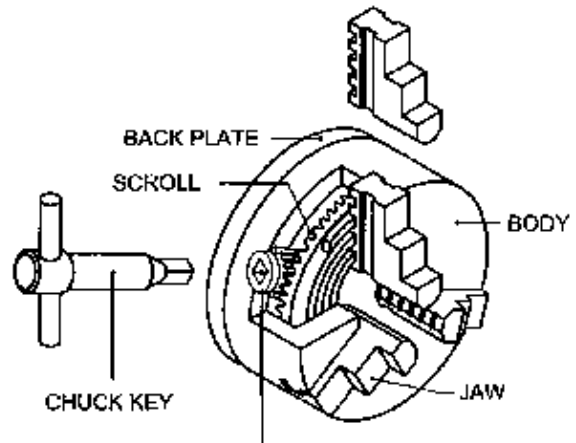


Lathe chucks

TR 01 13 01 01 93

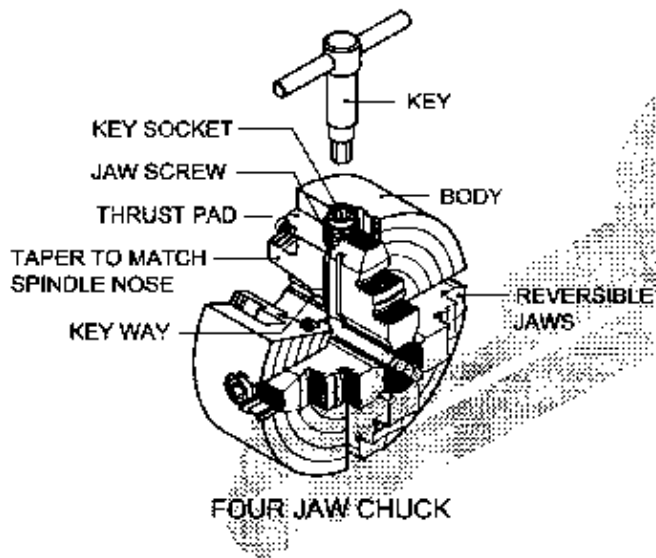


TWO JAW CHUCK

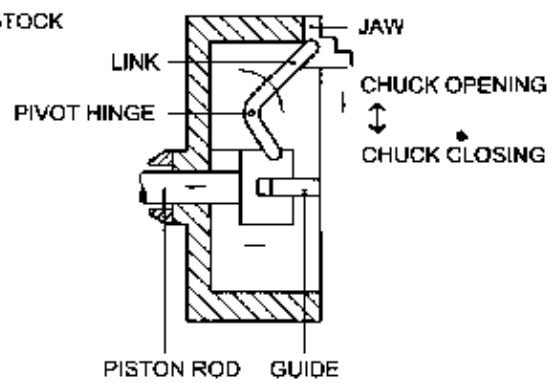
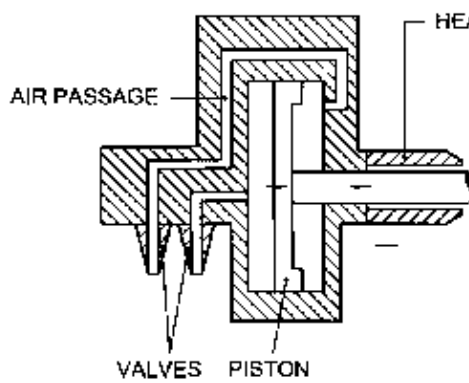


KEY SOCKET AND BEVEL GEAR TO ROTATE SCROLL

THREE JAW CHUCK



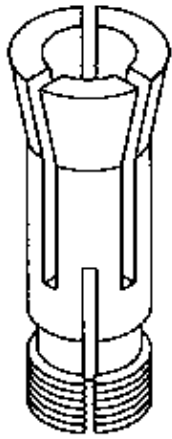
FOUR JAW CHUCK



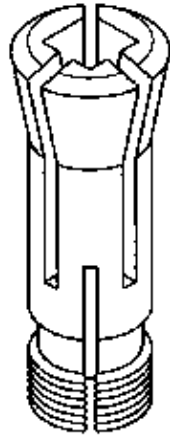
HYDRAULIC CHUCK
LATHE CHUCKS

Collet chucks

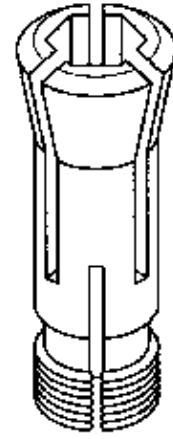
TR 01 13 01 02 93



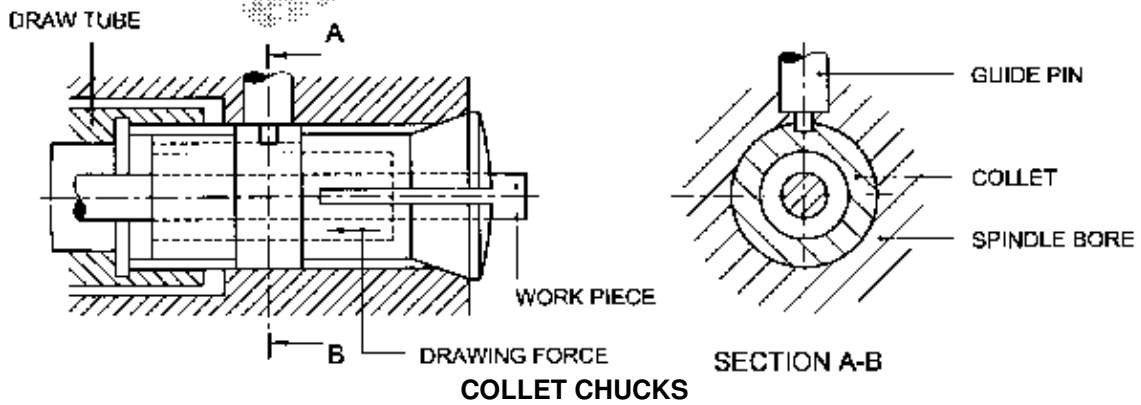
ROUND COLLET



SQUARE COLLET

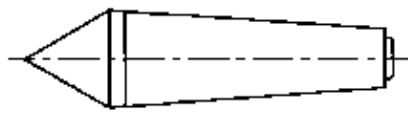


HEXAGON COLLET

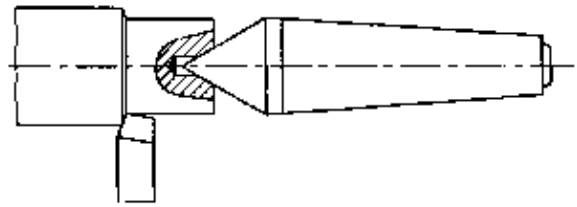


Lathe centres and their application

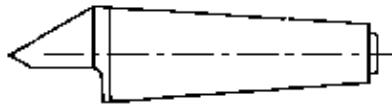
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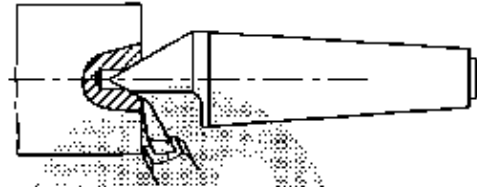
ORDINARY CENTRE



APPLICATION OF ORDINARY CENTRE



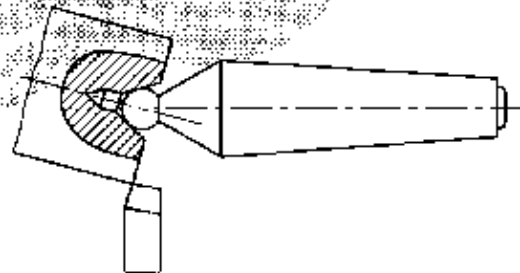
HALF CENTRE



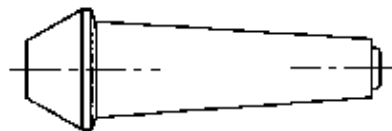
APPLICATION OF HALF CENTRE



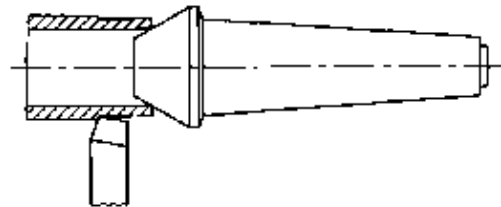
BALL CENTRE



APPLICATION OF BALL CENTRE



PIPE CENTRE

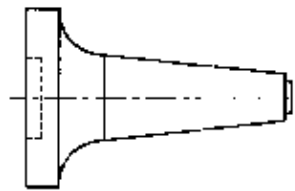


APPLICATION OF PIPE CENTRE

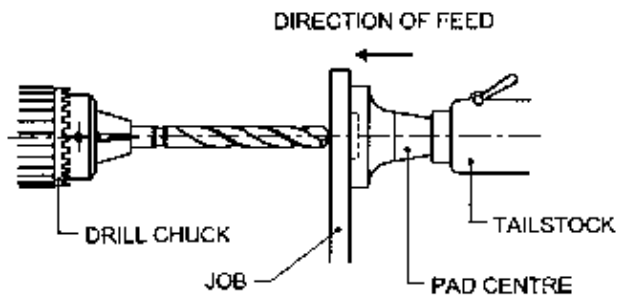
LATHE CENTRES AND THEIR APPLICATION

Lathe centres and their application

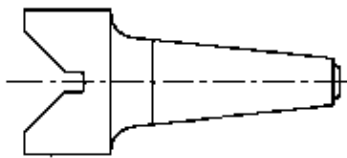
TR 01 13 02 02 93



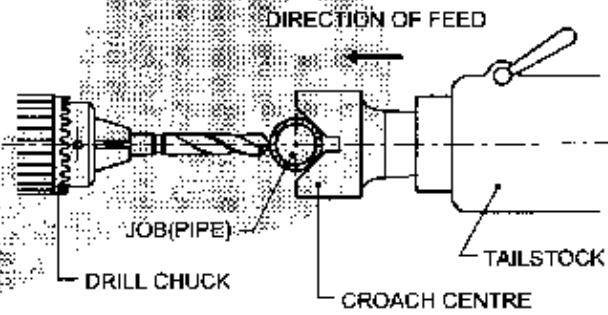
PAD CENTRE



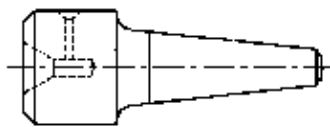
APPLICATION OF PAD CENTRE



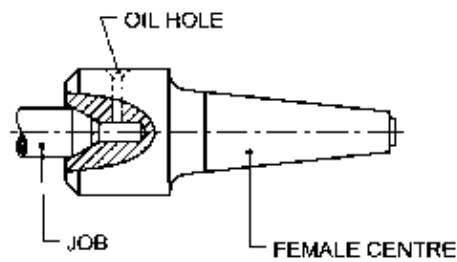
CROACH OR SWIVEL V CENTRE



APPLICATION OF CROACH CENTRE



FEMALE CENTRE

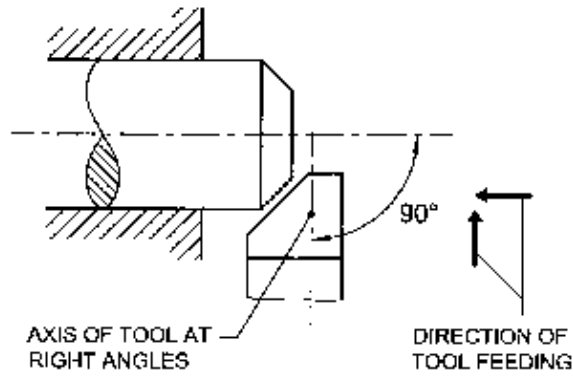


APPLICATION OF FEMALE CENTRE

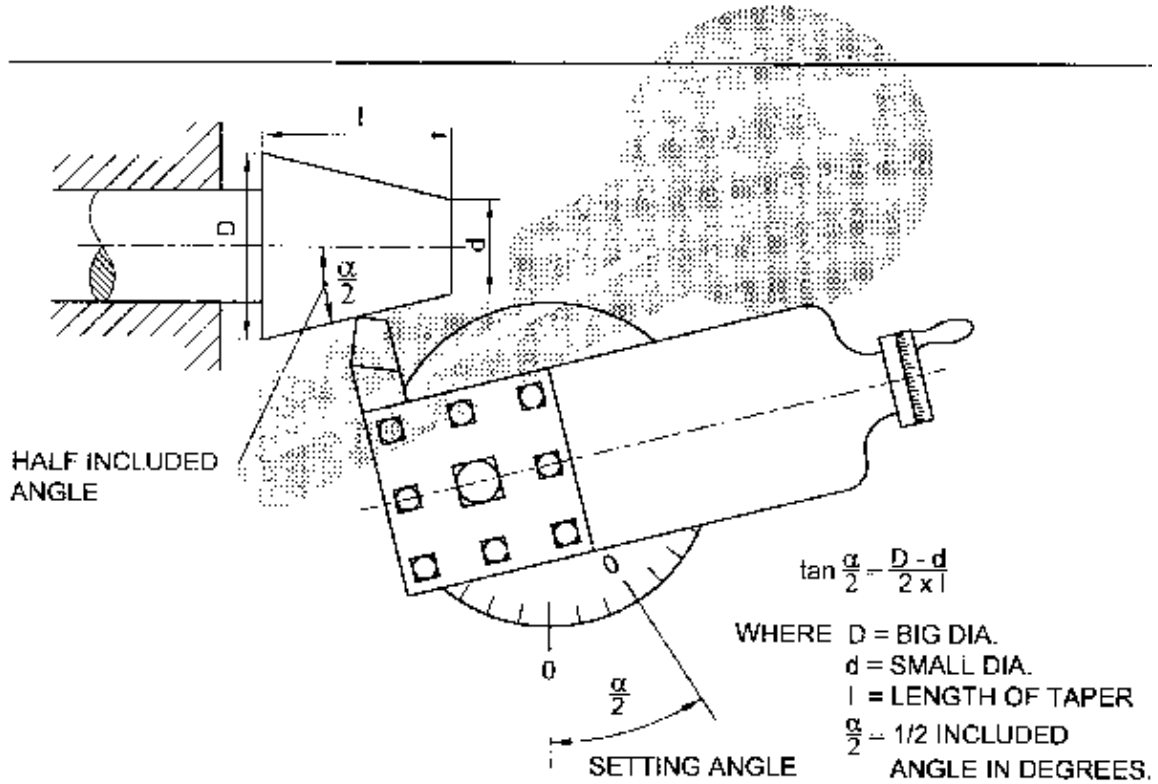
LATHE CENTRES AND THEIR APPLICATION

Different methods of taper turning (Form tool and compound rest)

TR 01 15 03 01 93



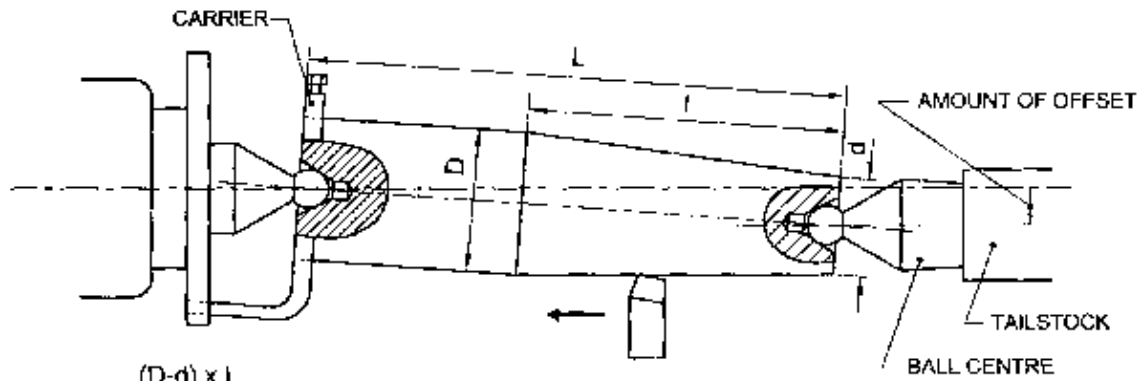
FORM TOOL METHOD



COMPOUND SLIDE METHOD
DIFFERENT METHODS OF TAPER TURNING (FORM TOOL AND COMPOUND REST)

Different methods of taper turning (Tails tock set over and taper turning attachment)

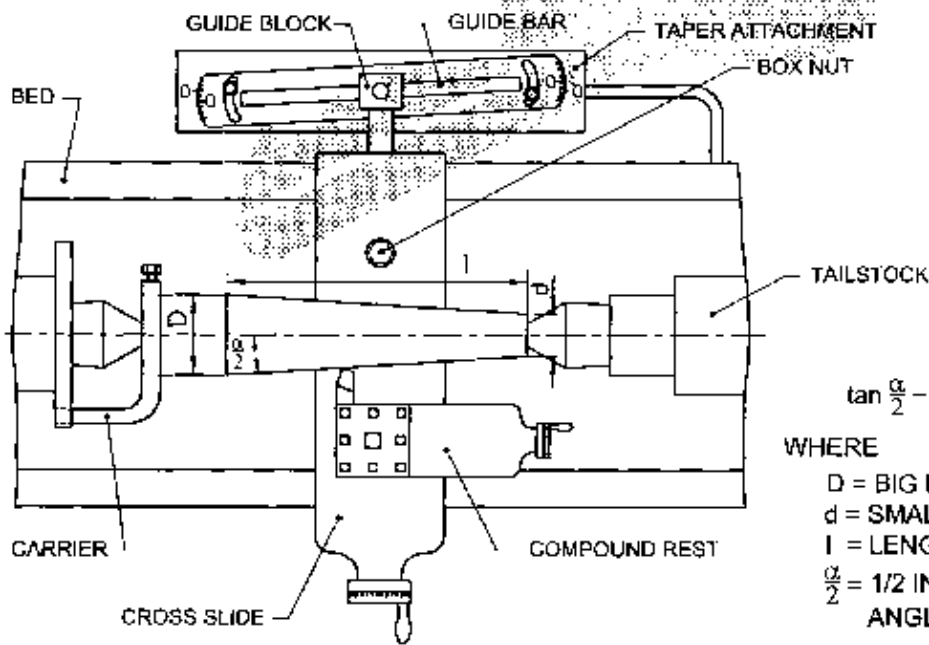
TR 01 15 03 02 93



$$\text{OFFSET} = \frac{(D-d) \times L}{2 \times l}$$

Where D = Big dia. of taper
 d = Small dia. of taper
 l = Length of taper
 L = Total length of job

TAILSTOCK OFFSET METHOD



$$\tan \frac{\alpha}{2} = \frac{D-d}{2 \times l}$$

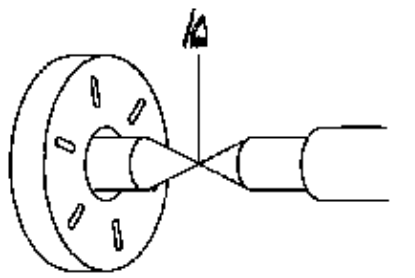
WHERE
 D = BIG DIA.
 d = SMALL DIA.
 l = LENGTH OF TAPER
 $\frac{\alpha}{2}$ = 1/2 INCLUDED
 ANGLE IN DEGREES.

TAPER TURNING ATTACHMENT METHOD

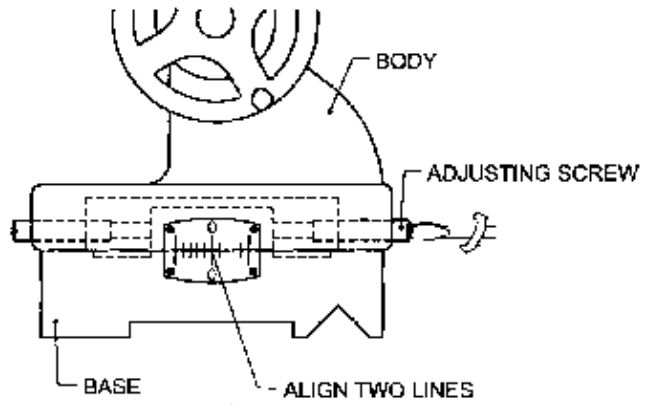
DIFFERENT METHODS OF TAPER TURNING (TAILS TOCK SET OVER AND TAPER TURNING ATTACHMENT)

Alignment of lathe centres

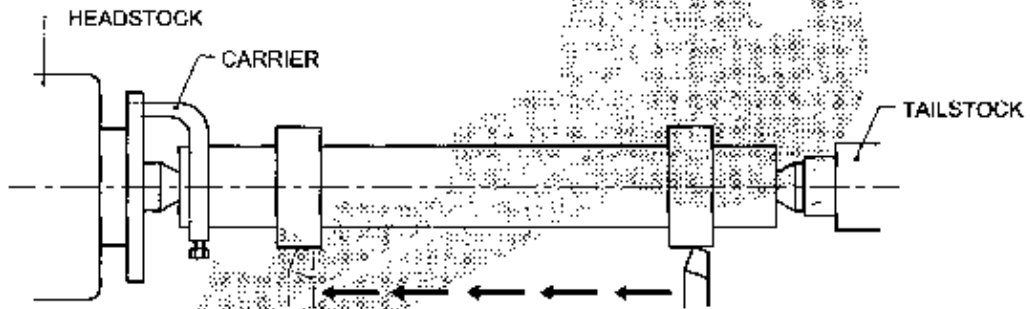
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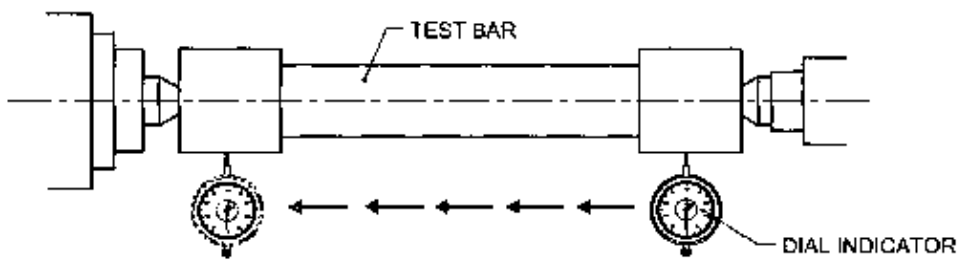
VISUAL ALIGNMENT OF CENTRES



ALIGNMENT OF CENTRES USING GRADUATIONS ON BACK OF TAILSTOCK



ALIGNMENT OF LATHE CENTRES BY TRAIL CUT METHOD



ALIGNING CENTRES WITH A TEST BAR AND DIAL INDICATOR
ALIGNMENT OF LATHE CENTRES

