INSTRUCTIONS FOR USE

Notice: The scales K and L have been omitted on the simpler type.

Description: Top bevel: Rule 0—13 cm divided into mm or inches.

Stock: Scale K: Cube scale. Range 1—1—1—1 or really 0—10—100—1000.
Scale A: Square scale. Range 1—1—1 or really 1—10—100.

Front of slide: Scale B: Square scale. Identical with the scale A.
Scale CI: Reciprocal scale. Range 1—1 or really 10—1 or 1—0,1.
Scale C: Fundamental scale. Range 1—1 or really 1—10.

Stock: Scale D: Fundamental scale. Identical with the scale C.
Scale L: Scale of equidistance. Range 0—10 or really 0—1.

Back of slide: Scale S: Sin-scale. Range 0,1—1 ($5^\circ 44'$—90°).
Scale ST: Combined sin- and tan-scale. Range 0,01—0,1 ($34',4$—$5^\circ 44'$).
Scale T: Tan-scale. Range 0,1—1 ($5^\circ 44'$—45°).

The scales A, B, CI, C, and D are supplied with some extra divisions outside the main range.

Constants: Scale A and B: π (left half) and 7,85 (right half). The number last mentioned indicates partly $\frac{\pi}{4} \cdot 100 \doteq 78,5$, partly the specific weight of iron 7,85.

Scale C and D: $c = \sqrt{\frac{4}{\pi}} = 1,128$ and π.

The cursor has 2 extra hairlines—one on each side of the main hairline—at the distance $c = 1,128$.

Instructions for use: Multiplication of 2 factors $1,744 \times 2,325 = 4,055$.
The left (or right) index (the mark 1) is set upon the first factor 1,744 on D, the hairline of the cursor is set upon the second factor 2,325 on C, and the product 4,055 is read on D.
The same settings are employed by the multiplication $174,4 \times 0,2325 = 40,55$, where the ciphers are the same as above, but where the decimal points have been moved.
The *decimal point* in the result is most easily placed by means of an estimated calculation.

Division $4,055 \div 2,325 = 1,744$.
By means of the hairline of the cursor the slide is moved until the number 2,325 on C lies opposite the number 4,055 on D. The result is read on D opposite the left (or right) index of C.
The *Reciprocal value* of a number 0,2325 is $1 \div 0,2325 = 4,300$. This may be calculated by ordinary division on C and D but may be directly read on CI in relation to C.
By means of the scale CI multiplication may be replaced by division, and vice versa. $0,4055 \times 4,300 = 0,4055 \div (1 \div 4,300) = 1,744$.

Multiplication of 3 factors may be performed by multiplication of the 2 first, after which the result is multiplied by the third factor. By means of the reciprocal scale CI the calculation may, however, be performed much more simply. $0,4055 \times 4,300 \times 3,120 = 0,4055 \div (1 \div 4,300) \times 3,120 = 5,44$.

Squares may be calculated by ordinary multiplication by means of the scales C and D, but it is easier to read the square directly on the scale A in relation to the scale D. $1,744 \times 1,744 = 3,040$ (C and D); $1,744^2 = 3,04$ (A and D). By the employment of the square scales less accuracy is obtained than by the fundamental scales, but time is saved by the simpler handling.
Square-roots are calculated correspondingly. Attention must be paid to whether the number is to be set on the left or the right half of the scale A. $\sqrt{3,04} = 1,744$ (left half); $\sqrt{30,4} = 5,52$ (right half).
Extraction of square root may also be done by means of the fundamental scales by seeking out a position of the hairline of the cursor where the readings on CI and D are equal. $\sqrt{17,44} = 4,175$. Greater accuracy is obtained in this manner.

Cubes may be calculated by ordinary multiplication of 3 factors, but may be read directly on the cube scale K. $1,744^3 = 5,30$. The employment of the cube scale gives less accuracy than the fundamental scales.
Extraction of *Cube-roots* may be calculated correspondingly. Attention must be paid to whether the number is to be set on the left, middle, or right third of the scale K. $\sqrt[3]{5,30} = 1,744$; $\sqrt[3]{53,0} = 3,755$; $\sqrt[3]{530} = 8,10$.

Briggs' Logarithms may be read on the scale L in relation to the scale D. $\log 1,744 = 0,2410$.
The scale L may be used by calculation of powers and roots.
$y = 1,744^{2,4}$; $\log y = 2,4 \cdot 0,2410 = 0,578$; $y = 3,790$.
$y = \sqrt[5]{1,744}$; $\log y = 0,2410 \div 5 = 0,04820$; $y = 1,116$.

The *Trigonometrical scales* S, ST, and T are found on the back of the slide and are read through the pane. The scale S gives values of sine from 0,1—1 corresponding to angles between $5^\circ 44'$ and 90°. The scale T gives values of tangent from 0,1—1 corresponding to angles between $5^\circ 44'$ and 45°. The scale ST gives joint values of sine and tangent from 0,01—0,1 corresponding to angles between $34',4$ and $5^\circ 44'$.

NOTE

The Slide Rule is not printed but figures as well as the very clear and sharp divisions have by means of special machinery been engraved into P. V. C. A. This material has the following advantages: the surfaces are not liable to discolouration, it does not strain the eyes even in artificial light, it cannot burn, it is unbreakable and very insensitive to moisture, cold and heat. The Slide Rule can be used year after year without showing signs of wear — in short, a better Slide Rule is not made.

How to care for the Slide Rule.

Never more the slide quickly backwards and forwards in order to wear it down.
To enable the smooth movement of the slide the stock is elastic. After removal of the slide and the cursor it is easily adjusted by bending the stock slightly inwards or outwards.
If the slide sticks the groove may be smeared with solid paraffin (Never use talc or sand-paper).
The cursor is replaced from the right with the spring upwards towards the bevelled edge.
The Slide Rule is easily cleaned by means of a few drops of liquid soap on a wad of cottonwool (Never use petrol, benzine, or the like).
Protect the Slide Rule against heat over 120° F. (50° centigrade), for instance direct exposure to the heat of the sun, an electric bulb, a radiator, or the like.

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