

# "MARC"

## Pocket Slide-Rules

EXTRA-FLAT - PATENTED

### SPECIAL MODEL N° 5 ELECTRICIAN

"MARC" POCKET SLIDE-RULES  
are available in six different models:  
STUDENT — MANNHEIM  
BEGHIN — SINE-TANGENT  
ELECTRICIAN — RIETZ

#### DIRECTIONS FOR USE

This slide-rule has been especially made to facilitate electrical calculations.

Its use is easy if one knows how to use the ordinary type of slide-rule. Multiplications, divisions and their combinations are worked out the ordinary slide-rule.

#### Definition of the various scales starting from the top

Scale 1 : kilowatt.

— 2 : —

— 3 : CV (top scale of the slider).

— 4 : (bottom scale of the slider).

— 5 : CV (bottom scale of the slide-rule).

— 6 : Dynamo-Motor (on the slide-rule, underneath the slider).

**Multiplication :  $2,5 \times 4$ .** — Pull the left hand 1 of scale 4 above 2,5 read on scale 5 ; read the result : 10 on scale 5 under 4 read on scale 4. If scale 5 is too short use the right-hand 1 of scale instead of the left-hand 1. One can also use scales 2 and 3 in a similar way.

**Division :  $45 : 3,5$ .** — Bring 3,5 (scale 4) over 45 (scale 5). Read the result 12,85 (scale 5) over the right or left hand 1 of scale 4.

**Square-root  $\sqrt{25}$ .** — Bring the cursor over 25 read on the right-hand 1 of scale 5 (on the left-hand part if the number has an even number of figures). — Read the result : 5 on scale 5.

Other operations worked the other way round obviously give the

**Cubic-root  $\sqrt[3]{64}$ .** — Place the cursor over this number (right-hand part on scale 2; left-hand part if the number has an odd number of figures). Pull the slider until you can read (on scale 3) below 64 the same number on scale 5 above the left-hand 1 of scale 4. Here the result is 4. For cubes proceed the other way about.

**Transformation of 25 kw into CV.** — Bring the cursor on 25 of scale 1. Read the result on scale 5 : 33,8 CV.

**Transformation of 155 CV into kw.** — Cursor on 155 of scale 5. Result on scale 1 : 114 kw.

**Efficiency of a 40 kw dynamo absorbing 65 CV.** — Bring 65 (scale 3) under 40 (scale 2) so that scale 6 is shown. The result is read on scale 6, above the reference-mark : 0,84.

**Efficiency of a 20 CV motor absorbing 18,5 kw.** — Bring 20 (scale 3) under 18,5 (scale 2); result 0,81 (scale 6).

**Section of a 30/10 m/m diameter circular rod.** — Bring the number C (scale 4) above 3 (scale 5) read the result above the left-hand 1 of scale 3 i. e. : 7,07. Reversing the above operations one can work out diameters when the cross-section is known. If the result falls outside the slide-rule use C' on scale 4.

**Weight of a steel rod :** Diameter : 20m/m; length : 1 m. — Bring A (scale 4) in front of 2 (scale 5) : read the result above 1 m. (scale 3) i. e. : 4,9 kg.

In the case of a 2 m. rod : weight 4,9 kg.

**Weight of a copper wire.** — Same as above using CU (scale 4).

**Weight of an aluminium wire.** — Same as above using AL.

**Circumference and lateral surface of a cylinder :** Diameter : 2,5 m.; length : 6 m. — Bring M (scale 3) under 2,5 of scale 2, read the circumference above 100 (scale 3) : 7,85 and the lateral surface above 6 (scale 3) : 47,10.

