floXlab

Original

Cerchar Apparatus

Determination of the Cerchar Abrasivity Index on Rock Samples

Cerchar Original — fully mechanical hard-rock abrasivity tester

Geotechnical & Rock Mechanics Testing Equipment

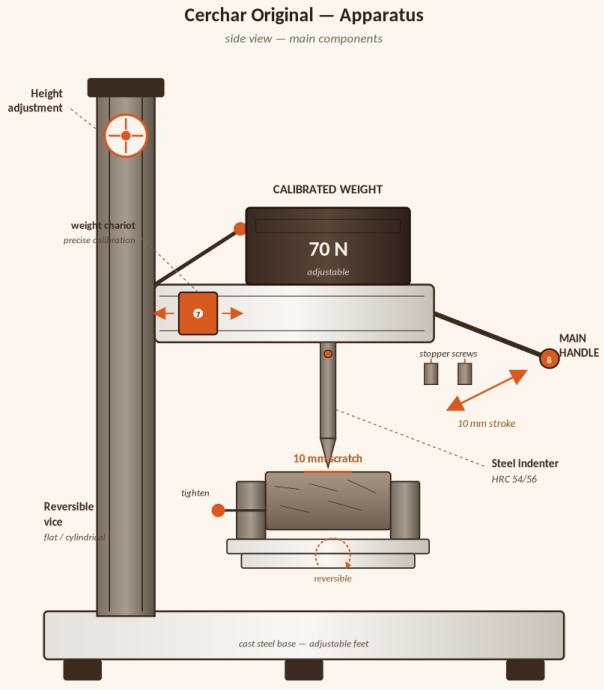
Overview

What the Cerchar Original does, in brief

- Cerchar abrasivity test for hard-rock samples
- Determines the Cerchar Abrasivity Index (CAI)
- 70 N adjustable load — fine-tuned by chariot
- HRC 54/56 indenter hardness — replaceable
- 10 mm scratch length on the rock surface
- Specimens up to Ø 76 mm × H 150 mm
- Fully mechanical — no power, air or hydraulics
- Compliant with ASTM D7625, NF P94-430-1, ISRM

Main Components

Side view — annotated diagram



Steel Indenter

HRC 54/56 hardened pin, replaceable

Calibrated Weight

70 N adjustable — fine-tuned by chariot

Reversible Vice

Flat or cylindrical specimens, up to Ø 76 mm

Main Handle

Drives the indenter through 10 mm stripe

Height Adjustment

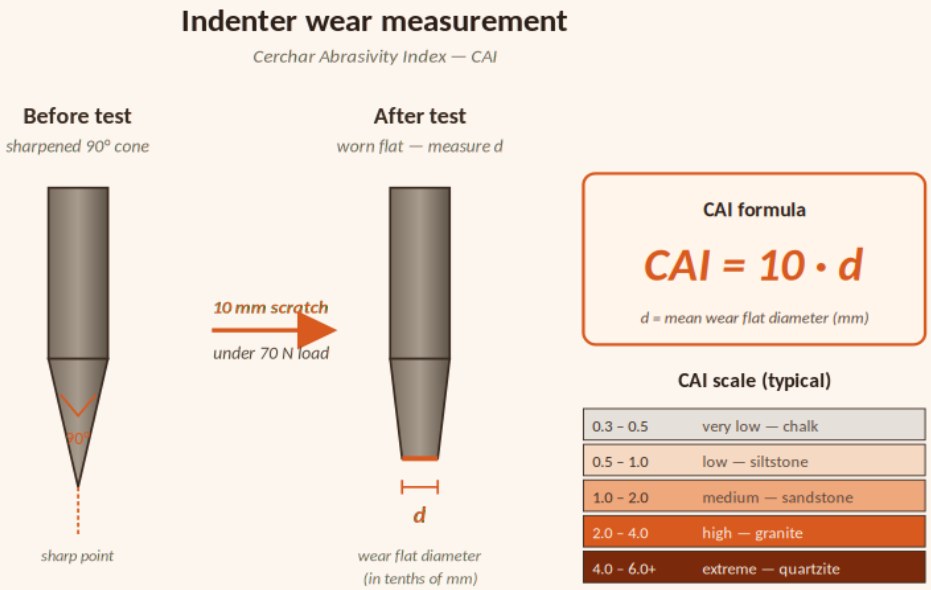
Arm height adjustment for specimens

Base Plate

Cast steel frame, levelled with feet

Measurement Principle

Cerchar method — abrasivity by indenter wear



How the test works

- A sharp pin is pressed against fresh rock
- 70 N load applied via dead weight
- Main handle drives a precise 10 mm stripe
- Pin wears in proportion to abrasivity
- Wear flat diameter d measured under microscope
- 5+ stripes averaged to compute CAI

Technical Specifications

Test method	Cerchar abrasivity — indenter wear	**Indenter material**	Steel — Rockwell HRC 54/56
Standards	ASTM D7625-10, NF P94-430-1, ISRM	**Total weight**	25 kg
Indenter load	70 N adjustable (calibrated by chariot)	**Dimensions**	260 × 460 × 375 mm
Scratch length	10 mm	**Operating range**	5 – 40 °C, indoor use
Specimen Ø max	76 mm (3 in)	**Power supply**	None — fully mechanical
Specimen H max	150 mm (6 in)	**Optional accessories**	Sharpening tool, microscope

Applications

Where the Cerchar Original delivers value

Tunnelling & TBM

Cutter wear prediction for tunnel boring machines and underground excavation

Mining

Drill bit and tool wear assessment for hard-rock mining

Civil Engineering

Hard-rock excavation feasibility for underground construction

Quarrying & Aggregates

Tool selection and wear forecast for rock processing

Geomechanics R&D

Rock characterization and abrasivity ranking in research labs

Quality Control

Routine QC of cutting tools and certified rock specimens

Get in Touch

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