CONSULTATIVE COMMITTEE FOR MASS AND RELATED QUANTITIES (CCM)

The CCM **promotes global comparability of measurements for mass** and **related quantities and implements the kilogram redefinition.**
The CCM plays a guiding role in coordinating new advances in mass and related quantities that take place at the NMIs and the BIPM.

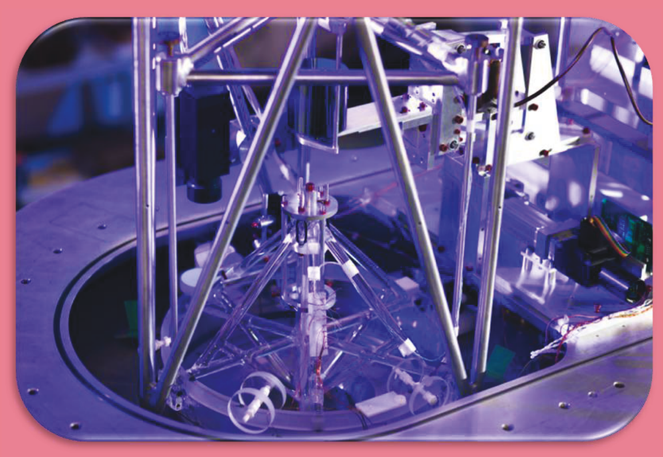
IMPACT

The CCM'S expertise reaches from hardness-testing methods used to monitor advanced manufacturing processes in real time, to traceable diagnostic measurements of blood pressure and intraocular pressure - with further requirements in food safety and energy production.

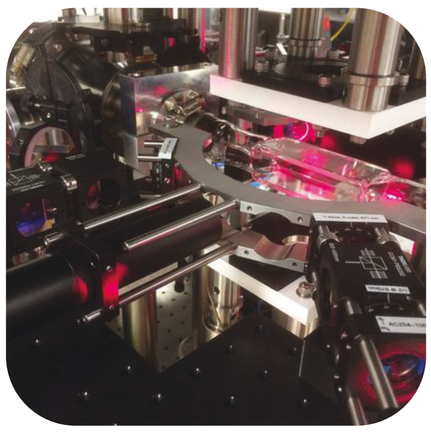
KEY ACHIEVEMENTS SINCE 2022

Reconciliation of lack of agreement in kilogram realizations

Improved agreement was achieved for the 3rd comparison of kilogram realization experiments completed in 2025. This progress paves the way for **transitioning mass dissemination** from a coordinated international kilogram to independent national realizations.



NRC's Kibble balance
Credit: NRC



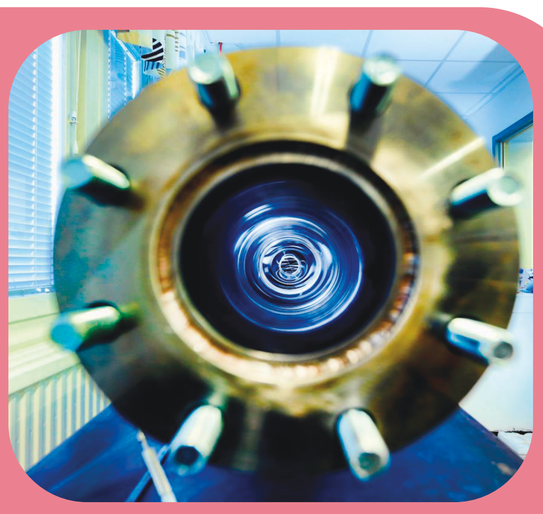
NIST's cold atom vacuum standard
Credit: NIST

New technologies

Advanced measurement capabilities were developed to address key metrological needs, including **fluid flow metrology** for decarbonization of energy supply and **quantum-based standards** in vacuum, pressure, mass, force and torque for self-calibration and shortened traceability chains.

Towards standards for dynamic measurement

Responding to end-user requirements, targeted progress has been made towards developing standards for the **dynamic calibration of instruments** that measure quantities such as force, torque, pressure and acceleration of gravity.



RISE's shock tube for dynamic pressure calibration
Credit: RISE