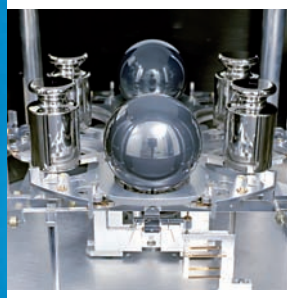
Comparator Balances

The Reference
in Vacuum Weighing Technology



Ready for various artefacts
Thanks to the unique STAR-shaped pan, OIML weights from 100 g up to 10 kg, silicon spheres up to 100 mm in diameter or density artefacts can be placed directly on the weighing pan.

Direct access
The user places weights directly on the turntable through the large quick loading door. The ergonomic design allows direct access to the system.

Constant vacuum
The unique Load-Lock system allows exchange of weights into the vacuum chamber without vacuum release.

High vacuum conditions
Serially connected, the vacuum pumping system creates controlled measuring conditions from ambient pressure down to 10^{-6} mbar.

M_one and M_10
Vacuum weighing technology up to 10 kg

National Metrology Institutes improve their measurement accuracy using the reference in vacuum mass determination: The METTLER TOLEDO M_one and M_10 evaluate various artefacts and results up to 10 ng accuracy and offer unique flexibility features. Determine the mass of weights, artefacts and silicon spheres up to 10 kg from controlled ambient pressure down to vacuum at 10^{-6} mbar. Load the artefacts directly through the quick loading door or through the Load-Lock system. The Windows® M_Control software accompanies you during the whole process. M_one and M_10 offer you:

- Mass determination up to 1 kg or 10 kg, respectively
- Controlled ambient to vacuum conditions
- Ready for different shapes of artefacts
- Automated Gravimetric Centering (AGC) of weights

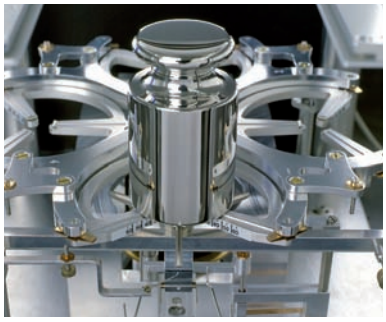
METTLER TOLEDO vacuum mass comparators are the reference in over 15 National Metrology Institutes

METTLER TOLEDO

Technical Data

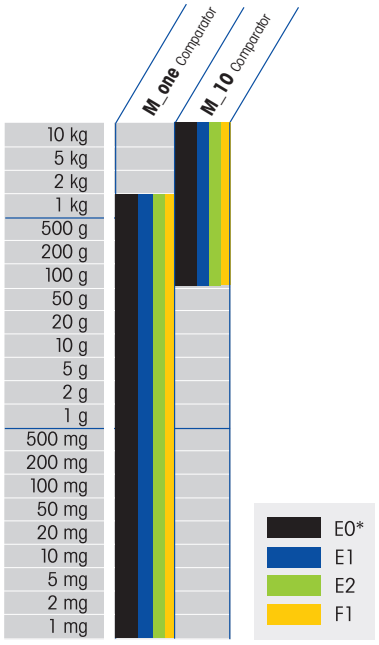
M_one / M_10 Comparator Vacuum mass determination up to 10 kg

	M_one	M_10
Maximum load	1001.5 g	10011 g
Readability	100 ng	1 µg
Readability for value evaluation	10 ng	0.1 µg
Repeatability at nominal load (5x ABA, measured at)	500 ng (1kg)	8 µg (10kg)
Repeatability typical ABA	300 ng	4 µg
Electrical weighing range	1.5 g	11 g
Substitution weights	OIML or Disc 1mg - 1kg	Disc 5, 3, 1 kg
Settling time	30 s	30 s
Adjustment built-in	motorized, with exchangable weight	motorized, with exchangable weight
Adjustment with external weight	1 g	10 g
Weighing positions	Turntable, 4 or 6 positions	Turntable, 4 positions
Automated Gravimetric Centering of weights – AGC	all positions	all positions
Substitution weights	OIML or Disc 1mg – 1 kg	Disc 5, 3, 1 kg
Software and controller	Windows®, standard	Windows®, standard
Vacuum properties		
Vacuum pressure range	10^{-6} – 1000 mbar	10^{-6} – 1000 mbar
Vacuum optimized chamber shape	Round bell jar	Round bell jar
Vacuum access flanges	15 flanges	15 flanges
Quick loading door	Standard - round	Standard - round
Vacuum chamber dimensions	720 x 1030 x 930	784 x 1200 x 1180
Vacuum loading system – Load-Lock	Optional	–
Vacuum transport case for Round Robin test	Optional	–
Artefact dimensions		
Cylindrical (e.g. National prototype)	∅ 22 – 90 mm	∅ 18 – 105 mm
OIML / ASTM shape with recessed bottom	∅ 22 – 90 mm	∅ 18 – 105 mm
Spheres (e.g. Avogadro project)	∅ 40 – 100 mm	∅ 18 – 110 mm
Density artefacts and disc weights	∅ 22 – 90 mm	∅ 18 – 105 mm
Weight dissemination disc	max. ∅ 90 mm	max. ∅ 105 mm
Max. object height (H, mm)	100 mm	195 mm
Mass determination & Applications		
National Prototype / National Standards / "E0" weights	1 mg – 1 kg	100 g – 10 kg
Weight dissemination	1 mg – 1 kg	100 g – 10 kg
Density determination with Buoyancy Artefacts	yes	yes
Silicon sphere determination	yes	yes
Surface effect analysis with artefacts	yes	yes
Mass analysis in controlled or vacuum environment	yes	yes
Accessories		
Reference weight certified	1 g – 1 kg	1 kg – 10 kg
Disc weights	Optional	Optional
Density artefacts	Optional	Optional
Vacuum pump system	Optional	Optional
Automated lifting device	Optional	Optional
Stone table or aluminium frame	Optional	Optional
Klimet Sensor System A30V for Temperature, Pressure, Humdity and CO_2	Optional	Optional



AGC – Automated Gravimetic Centering of all weights for even more precision

Density determination with Buoyancy Artefacts



*) National prototyp and standard weights

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