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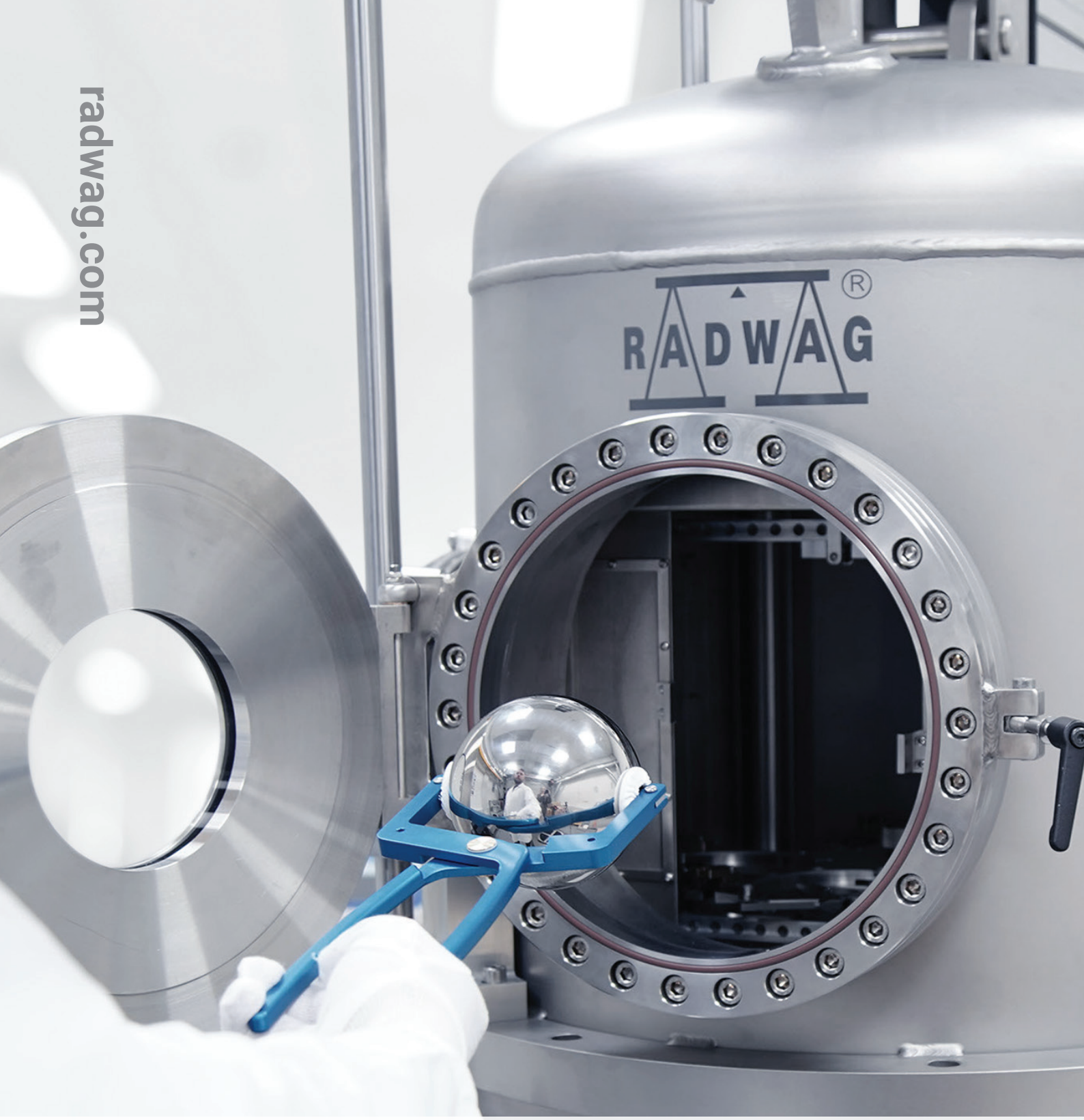


AVK-1000.5Y

Automatic Vacuum Mass Comparator

Comparison in Vacuum with the Highest Accuracy
Measurement in a Vacuum of $10^{(-6)}$ mBar
Suspended Weighing Pan for Elimination of Eccentricity Errors
LOAD LOCK – Mass Standard Transfer System

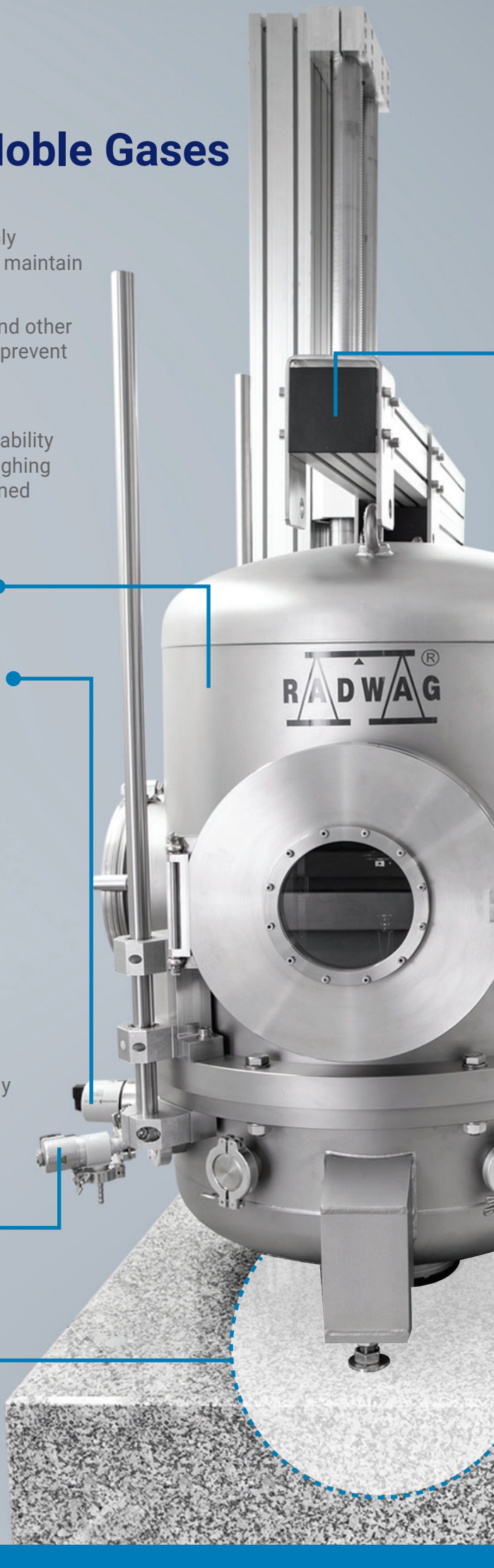
AVK-1000.5Y

Comparison in Vacuum or Noble Gases

The AVK-1000.5Y automatic vacuum mass comparator is mainly intended for national metrological institutes that transport and maintain the national reference mass standard of 1 kg.

Resolution of 10 billion units plus elimination of human error and other external factors due to the use of vacuum chamber effectively prevent any potential errors that may occur during the measurement.

The comparator enables comparison of up to 6 artefacts of cylinder or sphere shape, and of max 1 kg mass, with repeatability of 0.5 µg and readability of 0.1 µg. Thanks to a suspended weighing pan, the eccentricity error being an effect of incorrectly positioned mass standard is eliminated.



The main vacuum chamber

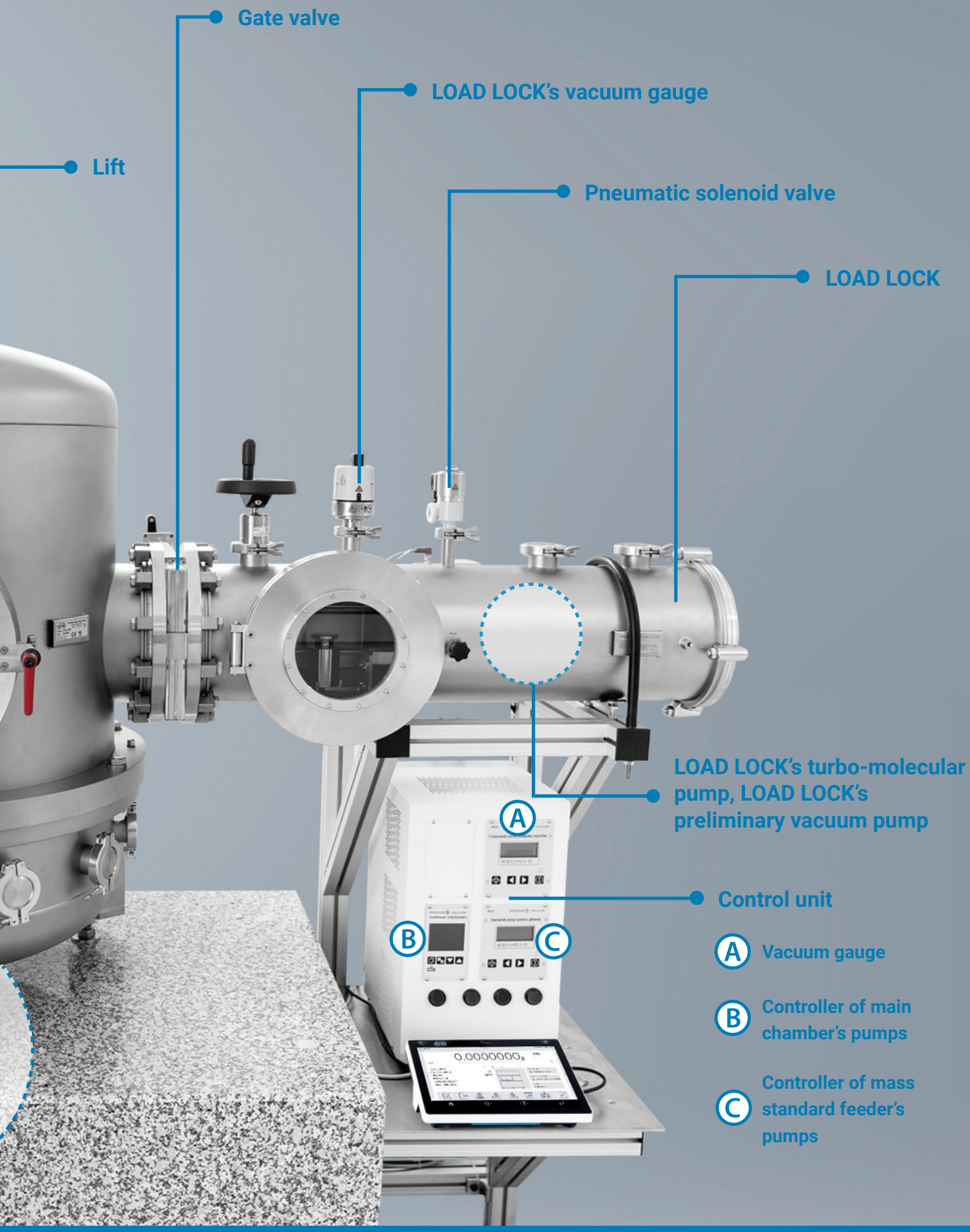
Main chamber's vacuum gauge

A specially designed vacuum chamber enables carrying out measurements in a vacuum of $10^{(-6)}$ mBar capacity or in atmosphere containing noble gases, also in constant pressure upon closing the system with use of the top-class quality valves.

LOAD LOCK mass standard transfer system enables switching or adding artefacts without changing the atmosphere inside the main chamber. Use of mass standard transfer chamber reduces time required for obtaining the respective value of vacuum to ca. 4 hours. The LOAD LOCK is equipped with a high-efficiency pump system and a top-class vacuum gauge. A specially designed inspection hole enables monitoring of the whole transfer process. Supplementing the AVK-1000 vacuum mass comparator with LOAD LOCK system significantly improves the comparison performance.

Pneumatic solenoid valve

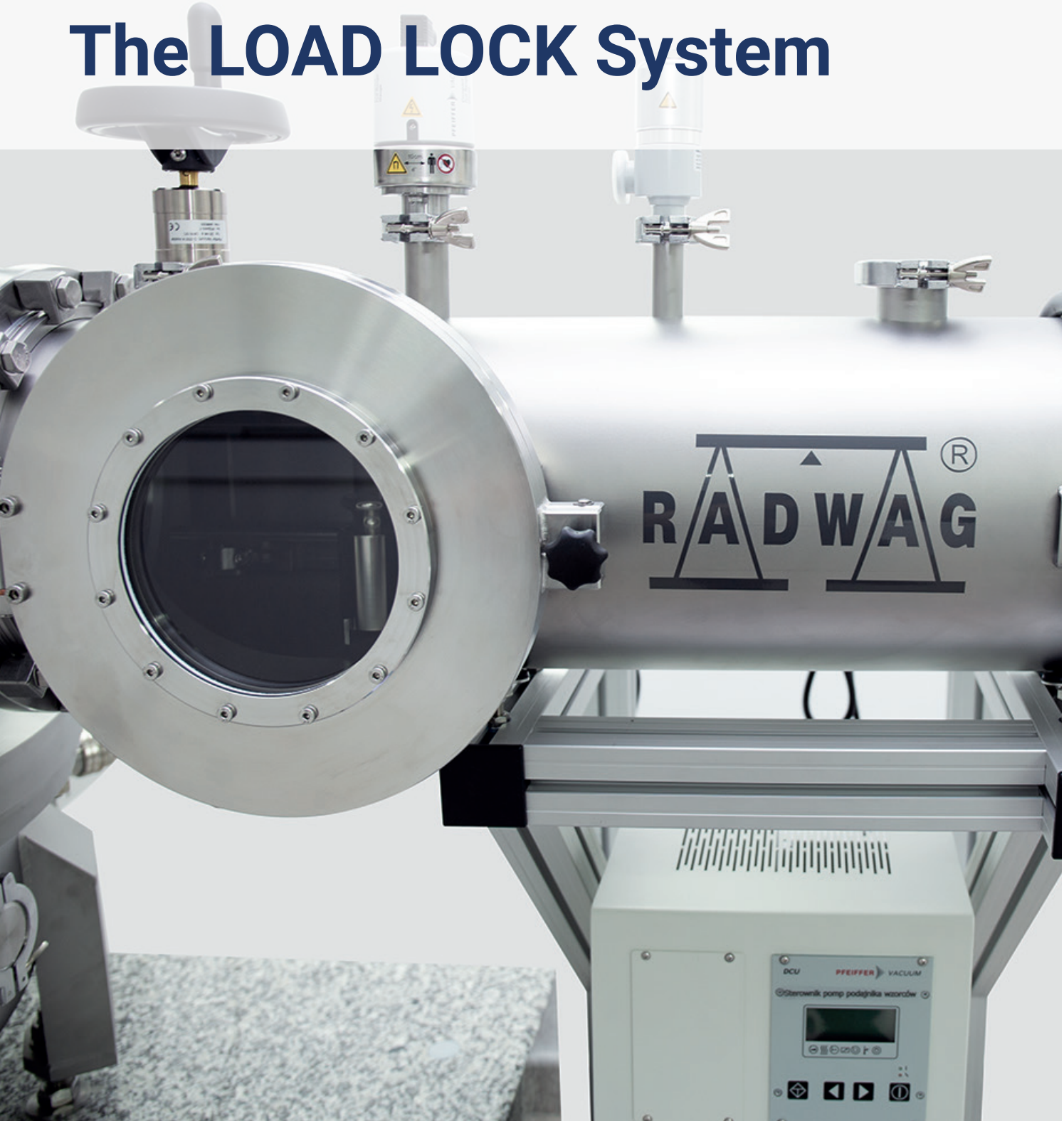
Main chamber's turbo-molecular pump
Main chamber's preliminary vacuum pump


Gate valve
LOAD LOCK's vacuum gauge
Lift
Pneumatic solenoid valve
LOAD LOCK
LOAD LOCK's turbo-molecular pump, LOAD LOCK's preliminary vacuum pump
Control unit
A
B
C
A Vacuum gauge
B Controller of main chamber's pumps
C Controller of mass standard feeder's pumps

Vacuum Chamber

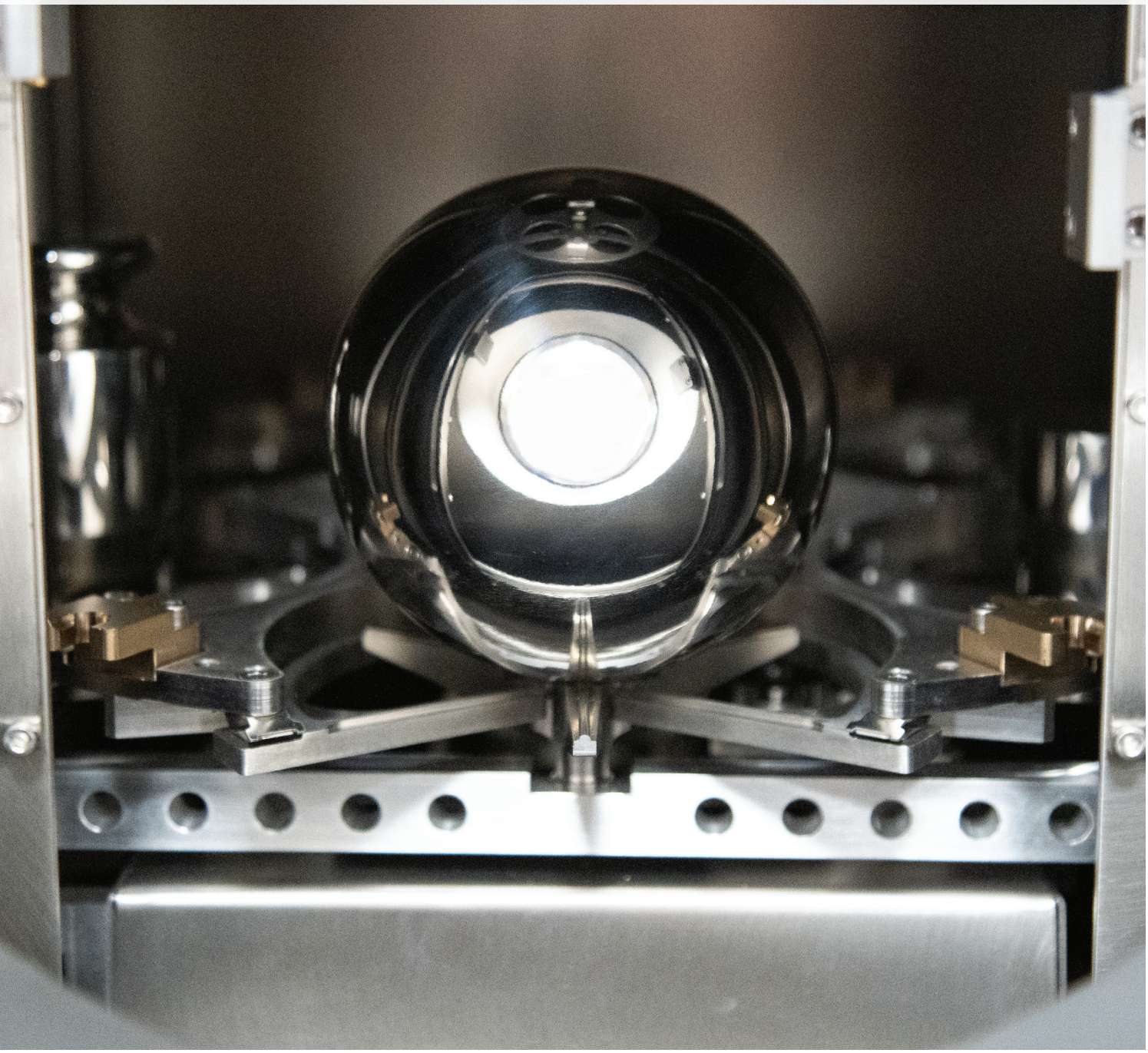
Used chamber enables comparison in vacuum of maximum $10^{(-6)}$ mBar or in noble gases such as argon.

The LOAD LOCK System



The LOAD LOCK system for transfer of mass standards enables switching and adding artefacts without changing the atmosphere inside the main chamber.

Magazine



The mass comparator features magazine for 6 cylindrical objects of Ø 22 - 95 mm x 110 mm or sphere objects of maximum diameter of Ø 100 mm.

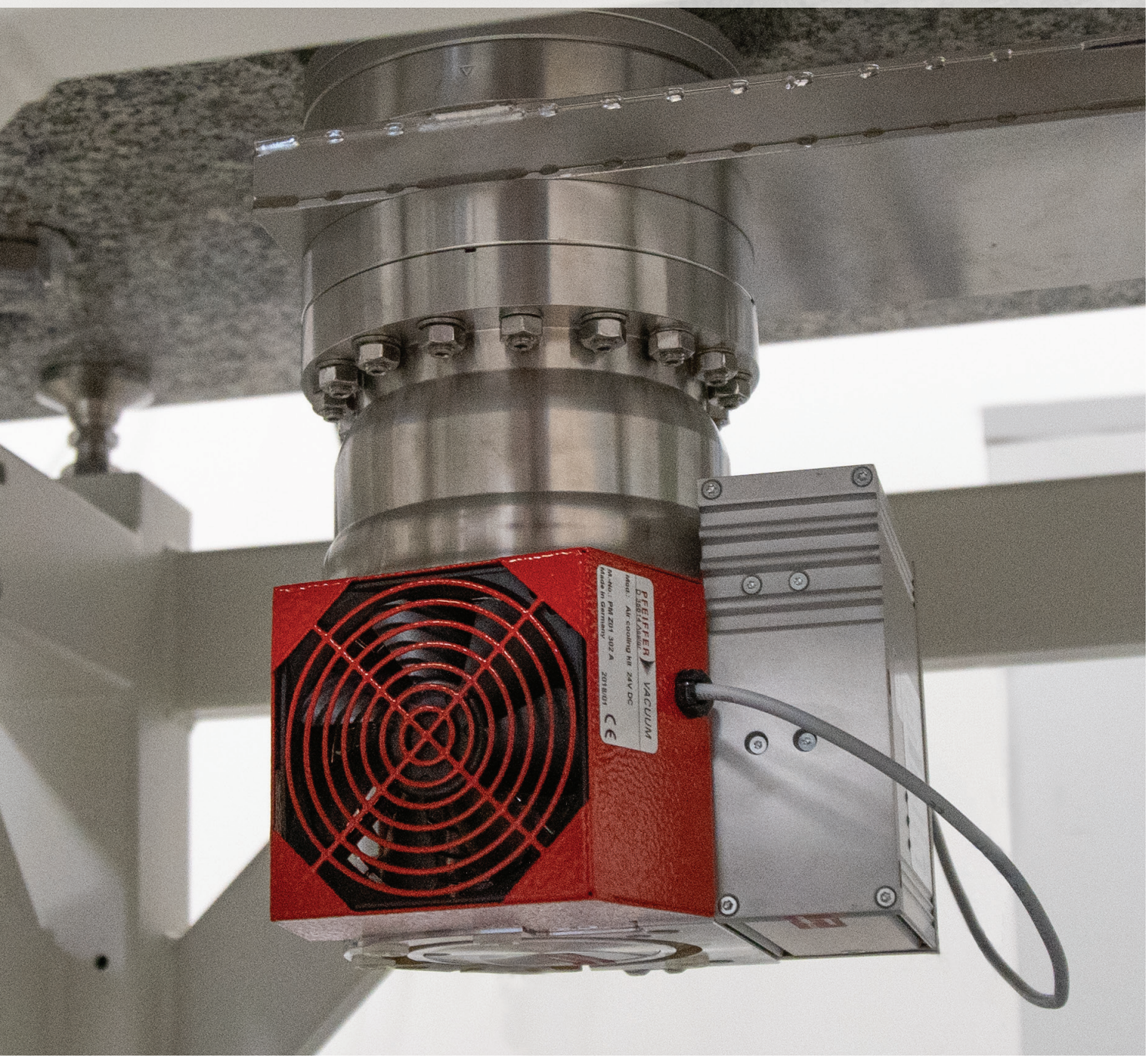
Main Chamber

The main chamber of mass comparator is equipped with 8 flanges (DN 40 ISO KF) for connecting devices such as vacuum gauge, solenoid valves, CO_2 sensors, etc. LOAD LOCK chamber features 2 such flanges.

Pump System Controller

Controller set for operation of preliminary and turbomolecular pump of the main chamber and LOAD LOCK system, and vacuum gauge controller.

Vacuum Pump



Turbomolecular pump used to maintain vacuum at the level of $10^{(-6)}$ mBar.

AVK-1000.5Y Vacuum Mass Comparator with the Chamber Lifted Up

Ready-for-operation AVK-1000.5Y Vacuum Mass Comparator

Two Faces

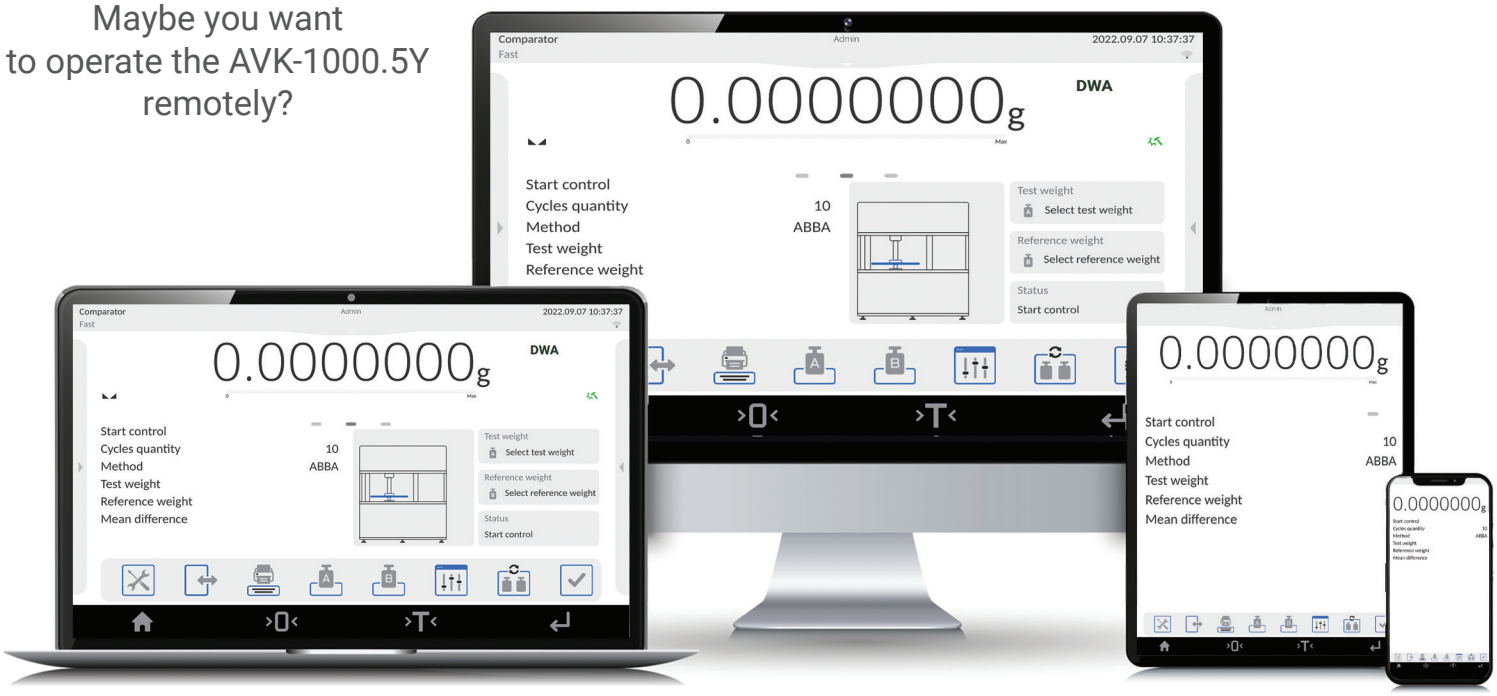
Depending on your preference, AVK-1000.5Y Vacuum Mass Comparator enables light and dark mode.

Ambient Light

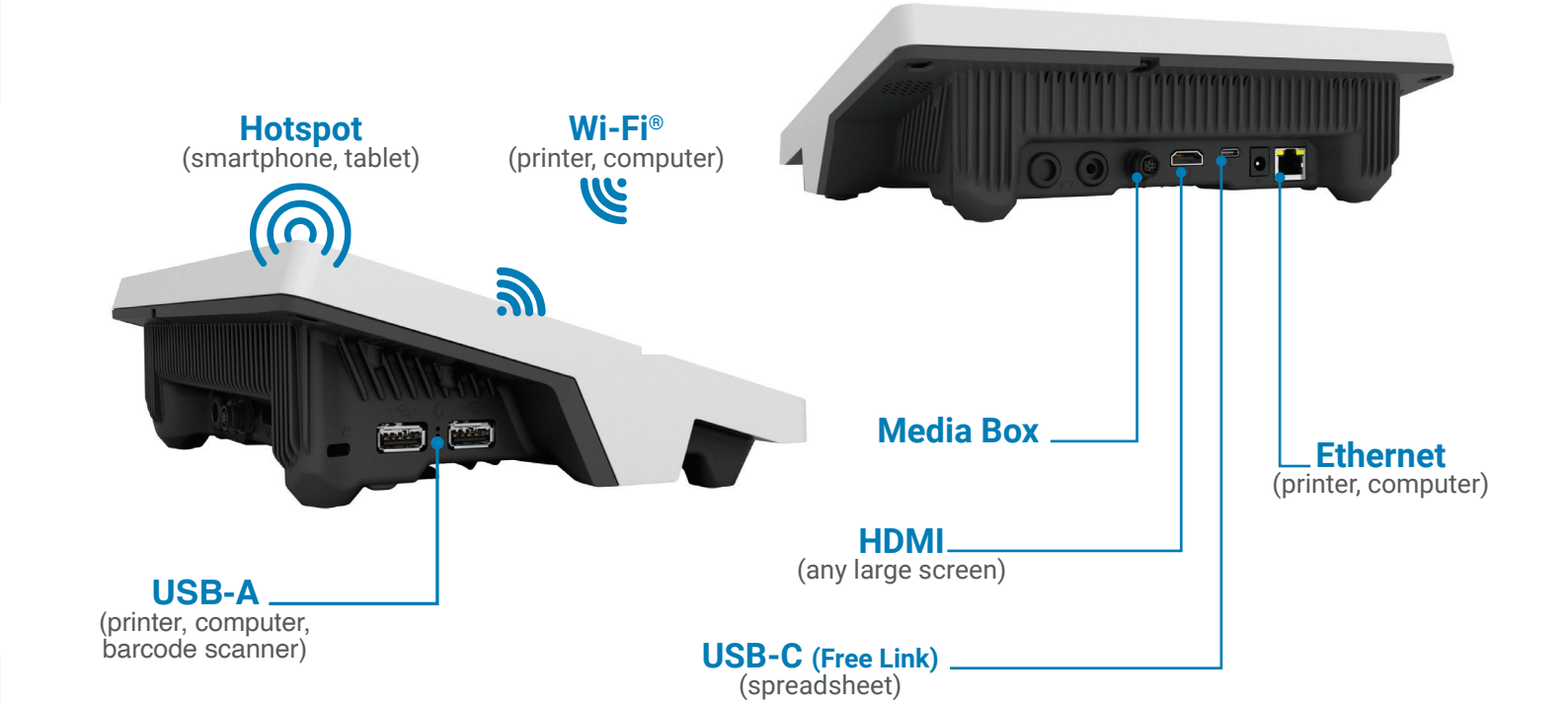
Innovative way of user-balance communication.

Hotspot

Maybe you want
to operate the AVK-1000.5Y
remotely?

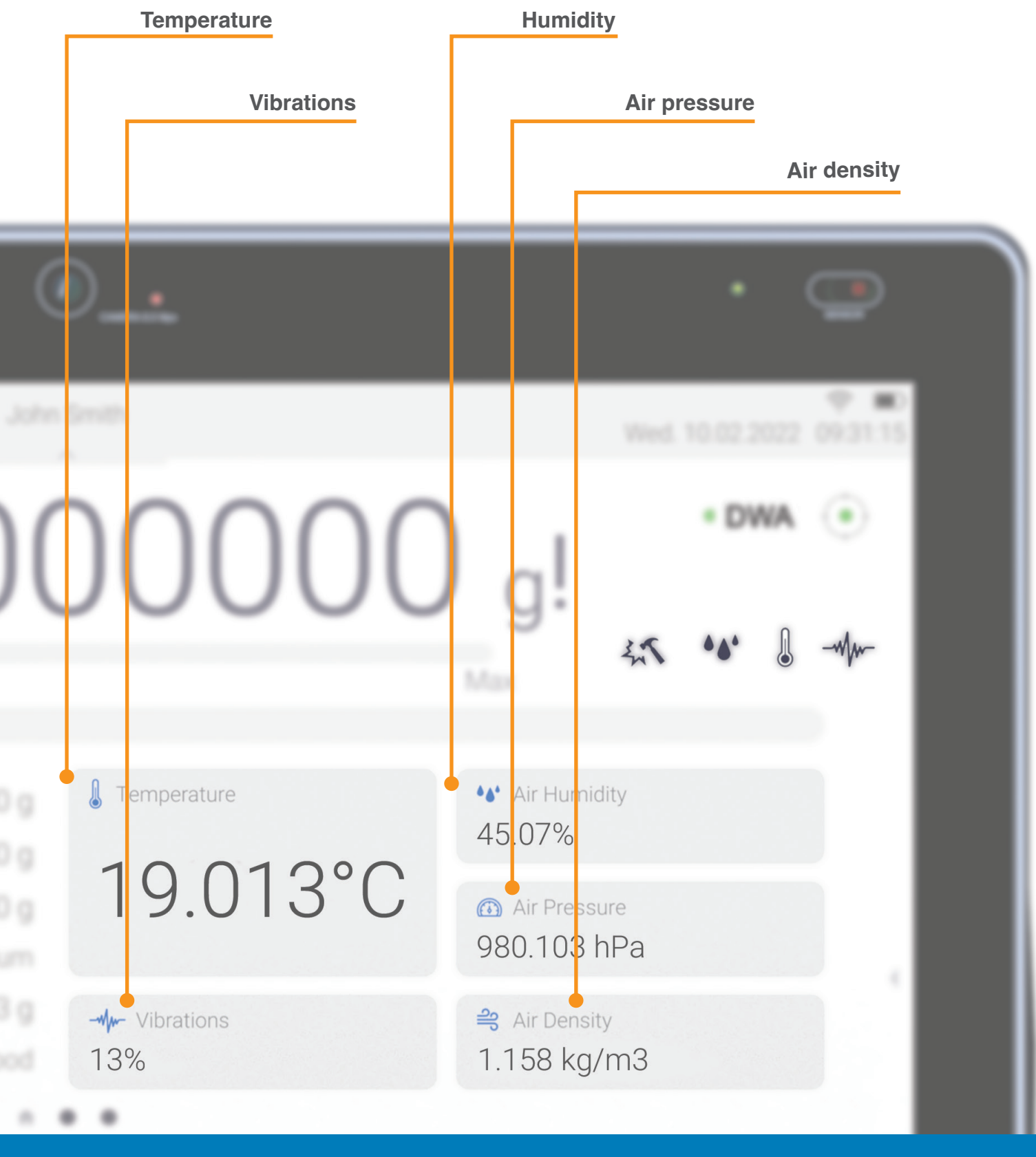


Safety First - Audited Login Methods



Are the Conditions in Your Laboratory the Best for the Balance You Have?

AVK-1000.5Y Vacuum Mass Comparator monitors temperature, humidity, pressure, and vibration. The results are displayed as graphs or a widget on the home screen. Unsuitable conditions for the balance are signalled by DWA. And all of this is recorded in a dedicated database.



Technical Specification

OIML calibration range	E1	100 g – 1 kg
OIML calibration range	E2	100 g – 1 kg
OIML calibration range	F1	100 g – 1 kg
OIML calibration range	F2	100 g – 1 kg
OIML calibration range	M1	–
OIML calibration range	M2	–
Maximum capacity [Max]		1002 g
Readability [d]		0.1 µg
Repeatability for nominal load *		0.5 µg
Stabilization time		60 s
Adjustment		External
Electric compensation range		-1 g – + 2 g
External supplementary weights		500 g; 800 g; 900 g
Comparison object dimensions		Cylindrical ø 22 - 95 mm × 110 mm; spherical ø 40 - 100 mm
Magazine positions		6
Display		10” colour touch screen
Communication interfaces		2×USB-A, Ethernet, USB-C, HDMI, Hotspot, Wi-Fi® ***
Operating temperature		+15 – +30 °C
Operating temperature change rate		±0.1 °C / 12 h
Pressure in the vacuum chamber		10^{-6} mBar
Relative humidity **		45 – 60%
Transport and storage temperature		-20 – +50 °C
Weighing pan dimensions		ø 100 mm
Indicator dimensions (L×W×H)		249 × 170 × 72 mm
Overall dimensions (L×W×H)		965 × 745 × 1700 mm

*Repeatability in vacuum for model ambient conditions | **Non-condensing conditions | ***Wi-Fi® is a registered trademark of Wi-Fi Alliance.

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