



KONICA MINOLTA

## News Release

# New CM-36dG Series Benchtop Spectrophotometers for High-accuracy Color Management, Including Two Models that Offer Simultaneous Measurement of Color and Gloss

## Contributing to DX of supply chain globalization

Tokyo (January 13, 2021) – Konica Minolta, Inc. (Konica Minolta) today announced that the company will launch the new CM-36dG series of benchtop spectrophotometers, including the CM-36dG horizontal-format and CM-36dGV vertical-format models, both of which offer simultaneous measurement of color and gloss, and the CM-36d entry-level model for reflectance color measurements in February 2021.

The CM-36dG, CM-36dGV, and CM-36d are the successor models to the CM-3600A and CM-3610A benchtop spectrophotometers that have been widely used by material suppliers in the automotive and IT equipment fields. These instruments are targeted mainly at color-matching and quality control applications for paint, plastic, textile, etc. material suppliers, where simultaneous measurement of color and gloss\*1 will increase the efficiency of inspection processes and high measurement accuracy enables outstanding quality control. In addition, they are equipped with a function that compensates for slight shifts in measured values due to ambient temperature changes, etc. to offer high stability and reliability. Measurement operation usability has also been greatly improved over the previous models which will lead to increased operator productivity.

With the new coronavirus making it difficult for people to travel and the continuing globalization of supply chains, digitalization and IT usage in production areas are accelerating. By converting color and gloss information into digital data with high accuracy, these new instruments contribute to the digital transformation (DX) of manufacturing by realizing quality control without relying on target samples or the eyes of skilled workers.

\*1 CM-36dG, CM-36dGV only



CM-36dG

### Value provided by CM-36dG Series

#### 1. Simultaneous measurement of color and gloss for improved inspection processes

The CM-36dG and CM-36dGV are two-in-one instruments that measure color and gloss

simultaneously. For paint color matching, measuring both color (spectral reflectance) and gloss increases the parameters for color-matching calculations, contributing to improved quality. For quality control of plastics, measuring both color (material color) and gloss (surface conditions) realizes high-level quality evaluation and improved work efficiency.

## 2. High measurement accuracy for outstanding quality control

With the CM-36dG and CM-36dGV, differences in measurement values between instruments are exceedingly small (inter-instrument agreement is exceedingly high), so when these instruments are used consistently from suppliers through finished product maker, higher inspection process efficiency can be expected. Colorimetric inter-instrument agreement is within  $\Delta E^*_{ab}$  0.12 (average for 12 BCRA tiles), a 20% improvement compared to previous models, and gloss inter-instrument agreement is also the same or better than the performance of gloss-only instruments. This enables more efficient work in the supply chain when using multiple instruments or instruments in several locations.

In addition, since measured value differences with previous models are also kept exceedingly small, previous data can continue to be used as is, minimizing the work involved when switching models (for SCI data only\*2).

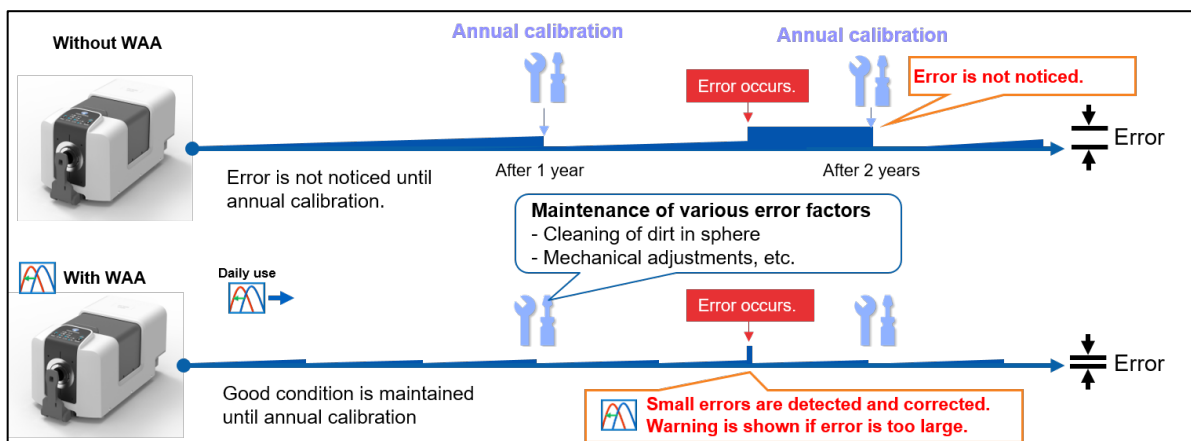
\*2 SCI: Specular Component Included. An illumination/viewing method in which the sample is diffusely illuminated and the measured light includes specularly reflected light.

## 3. Wavelength compensation function for high stability

CM-36dG Series instruments are equipped with a WAA (Wavelength Analysis & Adjustment) function\*3 which compensates for slight shifts in measurement values due to external factors such as ambient temperature changes, etc. Together with annual calibration and maintenance, it can help minimize problems for stable operation.

\*3 WAA license required

[Concept of how accuracy is maintained by WAA]



## 4. High usability for improved operator productivity

CM-36dG Series have several features to help improve worker productivity.

The sample viewing function\*4 uses an integrated camera to provide a view of the sample from inside the integrating sphere for accurate positioning of measurement subjects. Plus, a status panel shows the measurement status and condition settings to reduce operator

error, and a measuring button lets the operator take measurements without having to switch back to the computer for improved work efficiency. Plus, the transmittance chamber opens widely to enable measurements of even large sheets or panels without having to cut off a sample. And 4 measurement areas (3 on CM-36d) are provided for flexibility in choosing the appropriate area for the measurement subject.

\*4 Software such as Konica Minolta SpectraMagic NX Ver. 3.2 or later required.

Three models are being offered: the horizontal-format full-featured CM-36dG, the CM-36dGV with the same features as the CM-36dG in a vertical format for easier textile or paper measurements, and the CM-36d with basic features for lower introduction cost.

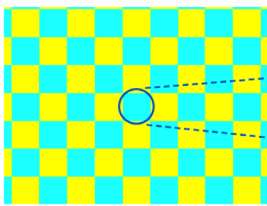


Photo 1: Sample viewer image

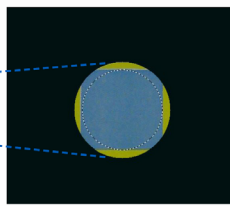


Photo 2: Status panel

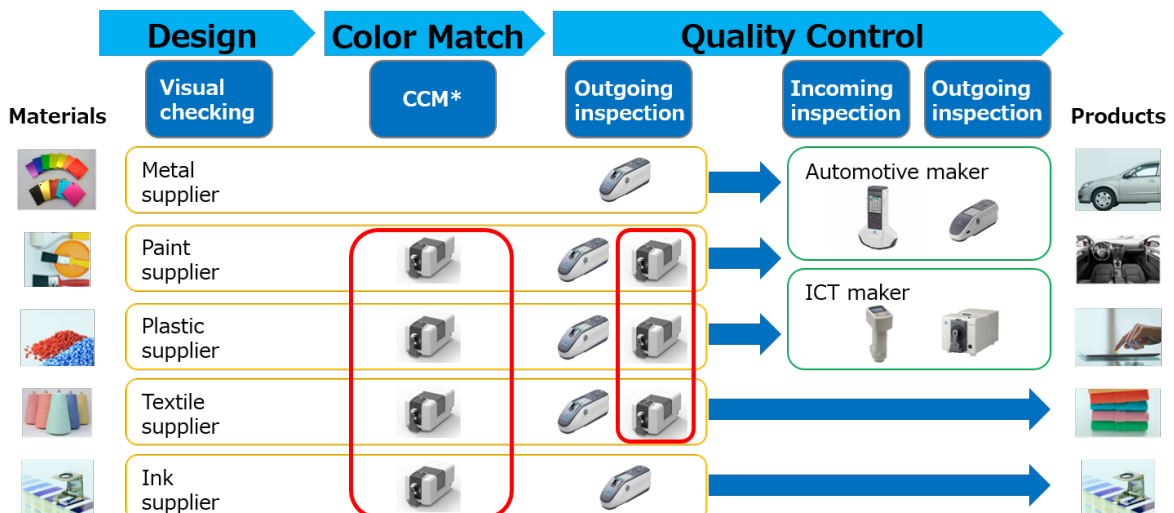


Photo 3: Transmittance chamber



Photo 4: Vertical format CM-36dGV

**【Product positioning】**



\* Computer color matching

## Main specifications

The information, specifications, and product appearance provided in this news release are subject to change without notice.

Model		CM-36dG	CM-36dGV	CM-36d
Color	Illumination/viewing system	di: 8°, de: 8° (diffused illumination, 8° viewing angle), SCI (specular component included)/SCE (specular component excluded) switchable Conforms to DIN 5033 Teil7, JIS Z 8722 Condition "c", ISO7724/1, CIE No.15(2004), ASTM E1164 for reflectance measurements		
	Measurement/Illumination area	LAV: Ø25.4mm/Ø30mm LMAV: Ø16mm/Ø20mm MAV: Ø8mm/Ø11mm SAV: Ø4mm/Ø7mm		LAV: Ø25.4mm/Ø30mm MAV Ø8mm/Ø11mm SAV: Ø4mm/Ø7mm
	Repeatability	"Colorimetric values: Standard deviation within $\Delta E^*ab$ 0.02 (When a white calibration plate is measured 30 times at 10-second intervals after white calibration under Konica Minolta standard measurement conditions)		Colorimetric values : Standard deviation within $\Delta E^*ab$ 0.03 (When a white calibration plate is measured 30 times at 10-second intervals after white calibration under Konica Minolta standard measurement conditions)
	Inter-instrument agreement	Within $\Delta E^*ab$ 0.12 (Based on average for 12 BCRA Series II color tiles; LAV/SCI. Compared to values measured with a master body under Konica Minolta standard measurement conditions)		Within $\Delta E^*ab$ 0.15 (Based on average for 12 BCRA Series II color tiles; LAV/SCI. Compared to values measured with a master body under Konica Minolta standard measurement conditions)
	Transmittance measurement	Possible (Measurement area: Ø17mm)		
	UV setting	100% / 0% / Adjusted (Instantaneous numerical adjustment of UV with no mechanical filter movement required)*5; 400 nm and 420 nm UV cutoff filters		No adjustment function (UV100%)
Gloss	Measurement angle	60°		
	Measurement area	MAV: 10 × 8 mm ellipse / SAV: Ø3 mm		
	Repeatability	Standard deviation within 0-10GU: 0.1 GU 10-100GU: 0.2GU 100-200GU: 0.2% of displayed value (Measured 30 times at 10-second intervals)		
	Inter-instrument agreement	0-10GU: ±0.2GU 10-100GU: ±0.5GU (MAV. Compared to values measured with a master body under Konica Minolta standard conditions)		
Size (W×H×D)		Approx. 248×250×498 mm	Approx. 300×677×315 mm	Approx. 248×250×498 mm
Weight		Approx. 8.4 kg	Approx. 14.0 kg	Approx. 8.3kg

\*5 Numerical adjustment of UV requires UV Adjustment Software (included with optional Konica Minolta SpectraMagic NX Pro Ver. 3.2 or later)

## About Konica Minolta's Sensing Business

Konica Minolta's Sensing Business offers various products and solutions in the fields of

light source color measurement and object color measurement based on the optical technologies developed in its former camera business and continually refined thereafter. The products and solutions offered by Konica Minolta contribute to ensuring quality and improving productivity at customers' manufacturing sites, and many products are used as de facto standard color measurement instruments. Notably, Konica Minolta has more than a 50% share in the global market for display image quality measurement and inspection (estimated by Konica Minolta), and has a solid presence as the market leader.

Konica Minolta has actively promoted investments to strengthen its competitiveness. In 2012, the company acquired Instrument Systems GmbH (Germany) which develops high-end optical measuring instruments and has an outstanding track record in the high-performance measurement of displays and LED lighting devices. In 2015, the company acquired Radiant Vision Systems, LLC (U.S.) which excels at high-resolution 2D measurement instruments for displays, image processing software, and automatic appearance inspection systems. In 2019, the company acquired Eines Systems (Spain), a market leader in the field of visual inspection of automobiles. Most recently, the company acquired Specim, Spectral Imaging Ltd. (Finland), a leading company in the field of hyperspectral imaging (HSI<sup>\*6</sup>).

Konica Minolta remains committed to developing its measuring instrument business as a market leader by offering various high value-added products and solutions that enable high-precision measurement of light and color for the ever-growing ICT, automobile, and materials supplier fields, continuously providing new customer value that surpasses the human eye in the areas of "safety," "security," and "hygiene" to contribute to the solution of global social issues.

<sup>\*6</sup> HSI is a method that uses a camera with narrow bandwidth over a wide spectral range from the visible to mid-infrared wavelength region to identify substances in an area. It is expected to be used for applications such as recycling, material/resource identification, food analysis, environmental safety, product surface condition analysis, etc.

###