

# Benchtop Spectrophotometer CWD 6060



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The CWD 6060 spectrophotometer belongs to the new generation of instruments for measuring and controlling color. It is equipped with LED technology and pre-installed Quality Control software. It is able to perform reflectance and transmittance measurements on liquid, solid, opaque, translucent and transparent samples. The compact and ergonomic instrument is equipped with a sample holder for transmittance, a 7-inch TFT color touch screen display and an integrated camera for color vision. Optical geometry  $d/8^\circ$ , in reflectance with specular mode included and excluded, and  $d/0^\circ$  in transmittance.

The CWD 6060 spectrophotometer allows high precision and great reliability and is the ideal partner for the laboratory and for production.



### MAIN FEATURES

**High-quality reflectance and transmittance measurements to perform quality control and color formulation**

**Automatic identification of the measuring aperture switchable between the 4 available apertures**

**Integrated temperature sensor to monitor and compensate the temperature ensuring more precise measurement**

**Wide wavelength range from 360nm-780nm with the possibility of cut off at 400 / 420 nm**

**Monitoring with a dedicated sensor of the light sources to ensure greater stability of the illumination**

**Equipped with accessories, sample holder and dedicated output for micro-printer**

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### TECHNICAL CHARACTERISTICS OF THE INSTRUMENT

<b>Optical Geometry</b>	Reflect: d / 8 ° (diffused illumination, 8 ° viewing angle); SCI & SCE / SPIN & SPEX; Include/excluded UV. Transmittance: d / 0 ° (diffused illumination, 0° viewing angle); SCI & SCE / SPIN & SPEX; Include/excluded UV.
<b>Light Source</b>	360 nm to 780 nm, Combined LED Light, 400nm cut-off light source, 420nm Cut-off light source
<b>Specular Component</b>	Reflect: SCI&SCE - Transmittance: SCI&SCE
<b>Color space</b>	CIE LAB,XYZ,Yxy,LCh,CIE LUV,Musell,s-RGB,HunterLab,βxy,DIN Lab99
<b>Color Difference Formula</b>	$\Delta E^*ab, \Delta E^*uv, \Delta E^*94, \Delta E^*cmc(2:1), \Delta E^*cmc(1:1), \Delta E^*00, \text{DIN}\Delta E99, \Delta E(\text{Hunter})$
<b>Observer Angle</b>	2°/10°
<b>Colorimetric Index</b>	WI (ASTM E313, CIE/ISO, AATCC, Hunter), YI (ASTM D1925, ASTM 313), MI (Metamerism Index), Staining Fastness, Color Fastness, Color Strength, Opacity, 8° Glossiness, Gardner Index, APHA/PT-Co Index, 555 Index, Haze(ASTM D1003), Saybolt, Color code (ASTM D1500)
<b>Illuminant</b>	D65,A,C,D50,D55,D75, F1,F2,F3,F4,F5,F6,F7,F8 ,F9,F10,F11,F12,CWF,DLF,TL83,TL84,TPL5,U30
<b>Displayed Data</b>	Spectrogram/Values, Samples Chromaticity Values, Color Difference Values/Graph, PASS/FAIL Result, Color Offset
<b>Spectrophotometric Mode</b>	Concave Grating
<b>Wavelength Range</b>	360 nm - 780 nm
<b>Wavelength Interval</b>	10 nm
<b>Semiband Width</b>	5 nm
<b>Measured Reflectance Range</b>	0 - 200%
<b>Integrating Sphere Size</b>	Ø154 mm
<b>Sensor</b>	256 Image Element Double Array CMOS Image Sensor
<b>Measuring Time</b>	3s (Measure SCI & SCE about 5s)
<b>Measuring Aperture</b>	Reflective: Φ30mm / Φ25.4mm, Φ 18mm/ Φ 15mm, Φ10mm / Φ8mm, Φ6mm / Φ4mm - Transmissive: Φ30mm / Φ25.4mm
<b>Repeatability</b>	Spectral reflectance: Φ25,4 mm / SCI, standard deviation within 0,04% (400 nm a 700 nm) Chromaticity value: Φ25.4mm / SCI, Standard deviation within $\Delta E^*ab$ 0.01 ( When a white calibration plate is measured 30 times at 5 second intervals after white calibration) Spectral Transmittance: Φ25.4mm / SCI, Standard deviation within 0.05% (400 nm to 700 nm) Chromaticity value: Φ25.4mm/SCI, Standard deviation within $\Delta E^*ab$ 0.02 ( When a white calibration plate is measured 30 times at 5 second intervals after white calibration)
<b>Inter-instrument Error</b>	Φ25.4mm / SCI, Within $\Delta E^*ab = 0.12$ (Average for 12 BCRA Series II color tiles)
<b>Data Port</b>	USB & Bluetooth & Print serial port
<b>Data Storage</b>	Standard 5 000 Pcs, Sample 40 000 Pcs
<b>Language</b>	Simplified Chinese, Traditional Chinese, English
<b>Power</b>	AC 24V, 3A Power adapter power supply
<b>Illuminant Life Span</b>	5 years, more than 3 million times measurements
<b>Display</b>	7-inch TFT color LCD, Capacitive Touch Screen
<b>Operating Environment</b>	0~40°C, 0~85%RH (no condensing)
<b>Storage Environment</b>	-20~50°C, 0~85%RH (no condensing)
<b>Dimension</b>	L*W*H=370x300x200mm
<b>Weight</b>	9,6 kg
<b>Standard Accessory</b>	Power Adapter, USB cable, Standard Calibration Board, Black Calibration Cavity, Transmission black baffle, Sample holder, 25.4 caliber, 15mm caliber, 8 caliber, 4 caliber, Transmissive Test Component, Micro Aperture(4mm) transmission test clamp component
<b>Optional Accessory</b>	Micro-printer, Instrument inversion components, culture dish