

01. Colour Meter :01 Nos.

Measuring Head:

Illuminating/viewing system:	Wide-area illumination/0° viewing angle; specular component included)
Detector:	Silicon photocells (6)
Display range:	Y: 0.01% to 160.00% (reflectance)
Light source:	Pulsed xenon lamp
Measurement time:	1 sec.
Minimum measurement interval:	3 sec.
Battery performance:	Approx. 800 measurements
Measurement/illumination area:	∅ 50mm/ ∅ 53mm
Repeatability:	Within ΔE^*_{ab} 0.07 standard deviation (when the white calibration plate is measured 30 times at intervals of 10 seconds)
Inter-instrument agreement:	ΔE^*_{ab} : Within 0.8 Average of 12 BCRA Series II colors Observer ² : Closely matches CIE 1931 Standard Observer ($x_{2\lambda}$, y_{λ} , z_{λ}) C, D65
Illuminant:	Chroma values, color difference values, PASS/WARN/FAIL display
Display :	Color difference tolerance (box tolerance and elliptical tolerance)
Tolerance judgement :	XYZ, Y x y, L*a*b*, Hunter Lab, L*C*h, Munsell
Color space/ colorimetric data:	(only illuminant C), CMC (1:c), CIE1994, Lab99, LCh99, CIE2000, CIE WI-Tw (only illuminant D65), WI ASTM E313 (only illuminant C), YI ASTM D1925 (only illuminant C), YI ASTM E313 (only illuminant C), User index (up to six can be registered from computer)
Languages :	Operating keys: English
LCD:	English (default) (LCD: German, French, Italian, Spanish, Japanese)
Storable data sets:	1000 (measuring head and data processor save different data)
Color difference target colors:	100
Calibration channels :	20 channels (ch00: white calibration, ch01 to ch19 : user calibration)
Display:	Dot-matrix LCD with back light (15 chars x 9 lines + 1 line for icon display)
Interface	RS0232C compliant (for data processor/PC)
Baud rate:	4800, 9600, 19200 (bps) set at 9600 bps when shipped from factory
Power source	4 AA size alkaline or Ni-MH batteries, AC230V 50-60Hz (including 4 AAA size batteries and RS-232C cable)
LCD back light ON/OFF function:	(when ON< back light stays ON for 30 seconds after last key or measurement operation)
Data Processor: (Printer)	
Data Processor	
Display range: Y:	0.01 to 160.00% (reflectance)
Measurement time *2:	1 Seconds.
Minimum measurement interval *2:	3 Seconds.
Battery performance:	Approx. 800 measurements (when using batteries under company testing Konica Minolta's conditions)
Illuminants:	C, D65
Display:	Chroma values, color difference values, color difference graphs, PASS/WARN/FAIL display

Tolerance judgment *2:	Color difference tolerance (box tolerance and elliptical tolerance) Only for the display function
Color space/ colorimetric data:	XYZ, Y x y, L*a*b*, Hunter Lab, L*C*h, Munsell (only illuminant C), CMC (1:c), CIE1994, Lab99, LCh99, CIE2000, CIE WI-Tw (only illuminant D65), WI ASTM E313 (only illuminant C), YI ASTM D1925 (only illuminant C), YI ASTM E313 (only illuminant C), Languages: Operating keys : English, LCD : English (default), German, French, Italian, Spanish, Japanese Max. 2000 pieces of data (divisible into 100 pages) Deletion and Undoing selected stored data (one piece of data or all data) are possible
Storable data sets:	
Color difference target colors :	Only for the operating function (100 pieces of data when the measuring head is connected; input of measurement values or numeric) (independent of page function)
Calibration channels :	Only for the operating function (20 channels when the measuring head is connected) (ch00: white calibration; ch01 to ch19: user calibration)
Page function:	100 pages
Display	Dot-matrix LCD with back light (16 chars x 9 lines + 1 line for icon display) Contrast adjustment
Printer:	384 dot line thermal printer (can also print graphs) Automatically prints out all measurement results (can be set not to print)Statistical function
Maximum, minimum, average, and standard deviation	
Automatic measurement *2:	Date and time display: year, month, day, hour, minute Timer: 3seconds. to 99 minutes. (Some measurement modes require more than 3 seconds.)
Interface:	RS-232C compliant Baud rate (bps) : 19200 fixed (when connected to PC) When measuring head is connected baud rate is automatically set to that of the measurement head
Power source:	4 AA size alkaline or Ni-MH batteries, AC230V 50-60Hz (for worldwide except N.America)
calibration function (multi-calibration/manual calibration) :	Measurements for automatic averagefunction, Print ON/OFF function. CR-400 measurement data import function *2, All color space print ON/OFF function, Data protection ON/OFF function. Back light ON/OFF function.
After Sales Services:	Should have a good after sales service. Please attach details of after sales service personnel, their qualifications and address of the after sales division etc. Letter of authority required from the manufacturer. Documentary evidence of requested specifications should be provided by marking on manufacturer's literature.

02. Kjeldhal complete system -A (1 Nos.)

Requested specifications

Digester

Number of samples;	Minimum 20 Nos. x 200-250 ml volume
Power supply:	230 V / 50 Hz
Display:	Digital
Temperature range:	Maximum 450 °C
Precision of heating block temperature:	± 0.5 °C
Temperature control:	by microprocessor electronic control
Timer	1 min. to 999 min.
Programmable programs:	At least 20 user-programmable programs
Heating block:	Aluminum
Ramp programs:	At least 4 ramp ranges for a program
Body:	Stainless steel
Safety:	Thermostat to protect from over temperature
System should be complete with:	Glassware handle with heat shield, suction cap, support system and 20 nos. of digestion tubes 200-250 ml (Ø 42 x 300 mm)

Scrubber unit

A suitable scrubber unit should be supplied for Digester system to neutralize corrosive and toxic fumes that develop during digestion process by condensation and neutralization.

It should be suitable for both basic and acid neutralization.

The structure of this unit should be resistant to corrosive chemical agents

It should include activated carbon and filters for neutralization

Recirculating Water Pump

A suitable water pump should be included to connect the digester in to the scrubber unit.

It should consist of a ABS structure to make it resistant to chemical corrosion.

It should include a built-in tank for recirculation of water to save on water consumption.

It should have a regulator to control flow from 0-30 Lts/min

It should be supplied with necessary tubes to connect between digester and scrubber unit.

It should operate with 230V; 50 Hz

Distillation unit

Should have Automatic distillation procedures: dilution of sample (water addition), alkali (sodium hydroxide) addition, distillation time, steam output regulation and tube drainage

Automatic waste removal facility via tube drainage after distillation

Should have chemical resistant plastic housing for durability

Recovery must be $\geq 99.5\%$ at nitrogen levels between 1-200 mg N

Relative standard deviation (RSD) must be $\leq 1\%$

Detection limit: ≥ 0.1 mg N

Should have fast steam distillation facility with Built-in steam generator Safety Thermostat

Should have a steam generator without pressure to increase the safety level

Steam output regulation between 10%-100%

Titanium or Gold condenser should be there to maintain distillate in very low temperature without using chiller

Alkali resistant technopolymer splash head for high durability

Water consumption of the unit should be very low value (max. 1 L/min. at 30 °C)

Should have a system to position the test tube without contact with dirty surfaces

Should have drip tray to collect any spillage during the steam distillation

Safety sensors should be there for electrical shutdown when accessing inside, test tube detection, cooling water flow-rate detection and visual reagent level warning

Should have alarm messages and audible signal for safety
Colored and interactive touch screen to easy operation.
Should have 2 or more USB connection for data transfer to pc or to a pen drive or data printing
shoud have on-board 10-program library to easy operation.
Should have Conformity with AOAC, EPA, DIN and ISO standards
Maximum power consumption not more than of 2.5KW
Suitable burette and kjeltabs (1000 tablets) should be supply with the system

After Sales Services:

Should have a good after sales service. Please attach details of after sales service personnel, their qualifications and address of the after sales division etc.

Letter of authority required from the manufacturer.

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03 Texture Analyzer 01 Nos.

Instrument Type: Stand-alone

Computer controllable/ Software controlling

Software: Test Modes Custom Testing, Data Analysis and decision making

Test Modes: Single Compression/compress and hold

Texture Profile Analysis

Multiple Compression Cycle

Tensile/Tension Test

Gelatin Strength/Gel Strength Analysis

Puncture Test for Hardness – Fruits and Vegetables, Small samples etc.,

Back Extrusion Test/Consistency Test

Deformation Test/Load Range: 4.0 kg – 5.0 kg approximately

Load Resolution: 0.5 g - 0.6 g approximately

Speed - Range: 0.1 - 10mm/s Approximately

Accuracy: +/- of 0.1% set speed

Position - Range: 0.1-10.0 cm

Resolution: 0.1 mm

Accuracy: 0.1 mm

Power: 220-240 V/50-60 Hz

Warranty: 12 Months

Delivery to Site: Required

Onsite Training for Instrument & Software: Required

After Sales Services:

Should have a good after sales service. Please attach details of after sales service personnel, their qualifications and address of the after sales division etc.

Letter of authority required from the manufacturer.

Documentary evidence of requested specifications should be provided by marking on manufacturer's literature.

Instrument Type:

Stand-alone

Computer controllable/ Software controlling

Software:

Test Modes Custom Testing,

Data Analysis and decision making

Test Modes:

Single Compression/compress and hold

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Multiple Compression Cycle

Tensile/Tension Test

Gelatin Strength/Gel Strength Analysis

Puncture Test for Hardness – Fruits and Vegetables, Small samples etc.,

Back Extrusion Test

Consistency Test Deformation Test

Load Range: 4.0 kg – 5.0 kg approximately

Load Resolution: 0.5 g - 0.6 g approximately

Speed -

Range: 0.1 - 10mm/s Approximately

Accuracy: +/- of 0.1% set speed

Position -

Range: 0.1-10.0 cm

Resolution: 0.1 mm

Accuracy: 0.1 mm

Power: 220-240 V/50-60 Hz

Warranty: 12 Months

Delivery to Site: Required

Onsite Training for Instrument & Software: Required

