

ARK-530A

It's Not Just Another AutoRefractor!

No one will ever be able to say that the Marco ARK-530A is just another autorefractor. The NEW ARK-530A is unlike any other. By using a Super Luminescent Diode (SLD) and Zonal Ring-Imaging Method, the ARK-530A assures accurate and fast refractions, but also measures patients with cataracts, IOLs, and media opacities that no other autorefractor can.

The ARK-530A Provides:

- Cataract Mark Detection
- Widest Measuring Range -30D to +25D
- World's Smallest Measurable Pupil Size
- Eye Tracking System
- Sagittal K Readings with Eccentricity Values
- Virtual Vision Comparison
- High Speed Micro-Processor with Flash Memory for Easy Upgrades
- Photopic and Scotopic Pupil Size Measurements
- Superior Accuracy and Speed
- IC Card Reader
- Confidence Index
- User-Friendly

Advanced SLD Technology...Reinventing The AutoRefractor



*The Accuracy You Expect From Marco,
With Innovative Features.*

ACCURATE

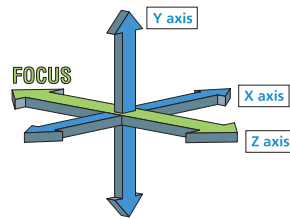
- **By Incorporating SLD (Super Luminescent Diode)** the ARK-530A offers superior Zonal Ring-Image Method Technology. The first instrument of its kind to accurately measure patients with cataracts, corneal opacities, IOLs, and post LASIK. With a range of -30D to +25D will easily measure virtually everyone.
- **Sagittal K readings with eccentricity values.** Eccentricity measurements are becoming more widely utilized in CRT, pre- and post-lasik evaluations, and contact lens fittings which are available on the ARK-530A.
- **Confidence index for each measurement.** All measurements are rated with a confidence index. Even when in the IOL mode, the measurements have a confidence index which helps to further clarify the reliability of the data obtained.

FAST

- **EyeTracking System.** This totally automatic system provides 3 axis: alignment, tracking and focusing.
- **Automatic fogging and high-speed measurements.**
The ARK-530A's automatic fogging minimizes accommodation and maintains fog through all measurement readings. This saves valuable time and is ideal for children and patients who find it difficult to fixate.

EYE TRACKING SYSTEM

The ARK-530A initiates automatic measurement at the optimum measurement point.



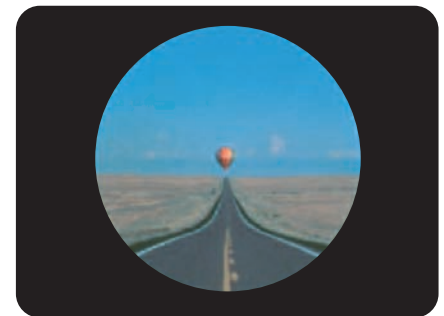
INTELLIGENT

- **Virtual vision comparison: near and distance vision.** Now, with the vision comparison button, the Marco LM-1200 or LM-1000 Automatic Lensmeter can be attached to the ARK-530A allowing you to compare the data from the lensmeter to the auto-refraction data. This allows the operator to ask the patient if the balloon is clear or not, providing important subjective information.

VIRTUAL VISION COMPARISON



Current vision without correction



Vision with correction

- **Compare auto refraction with or without ADD power.** The ARK-530A includes this valuable feature to help in determining whether the patient needs an exam for near vision. An easy parameter setting allows the working distance to be set between 35 and 70cm (5cm increments) or 14 and 28 inches (2 inch increments).

Start	Fogging	Measurement	Start	Fogging	Measurement	Start	Fogging	Measurement
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Conventional auto refractors employ a repeating sequence of fogging and measurement.

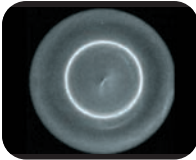
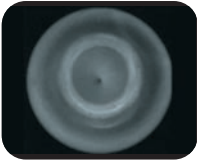
Start	Fogging	Measurement	Measurement	Measurement
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The ARK-530A maintains fogging throughout multiple measurements.

• **SLD vs. LED Technology.** Competitors' utilization of LED Technology to measure the refractive power of the optical system presents disadvantages including poor penetration of the LED through media opacities, limited data and accuracy of patients measured.

What's the difference?

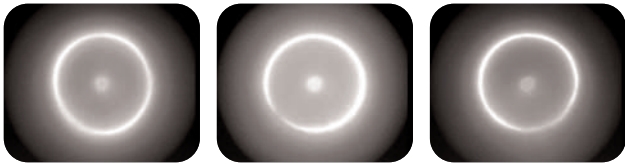
SLD VS. LED TECHNOLOGY
COMPARISON OF IMAGES ON CCD THROUGH CATARACT LED VS. CATARACT SLD

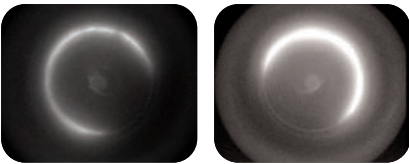



SLD LED

In-house trial data (model eye)

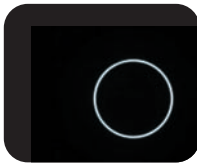


CATARACT IMAGES FROM THE ARK-530A OF THE HUMAN EYE





The Marco ARK-530A adopts the advanced Pupil Zone Imaging Method for refraction measurement, which analyzes a wider area (max. $\varnothing 4\text{mm}$) to obtain more reliable and realistic data that is closer to manifest refraction.

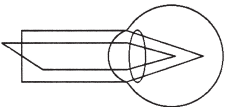
EXAMPLES OF ASTIGMATISM, HYPEROPIA AND MYOPIA

-6D +6D 6D Cyl

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-----0002-----
NAME                               M/F
MAR /15/2006                       4:10 PM
VD=13.75mm ①
WD=5cm ②
<R>   S      C      A
      - 1.75 -0.50 173 8
      - 1.25 -1.00 177 8
      - 1.25 -1.00   5 8
<- 1.25 -1.00 177> ③
<- 2.00 SE           > ④

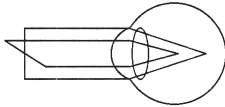
⑪ 

CL - 1.25 -1.00 177 ⑤
<R1  7.98 42.25 174>
<R2  7.65 44.00  84> ⑥
<AVE  7.82 43.25  >
<CYL  -1.75 174>

<SAGITTAL> FIX ANGLE=25
  SUP.  INF.  TEM.  NAS.  ⑫
  A 7.82  7.88  7.69  7.57
<TOPOMETRY OF CORNEA>
  SUP.  INF.  TEM.  NAS.
  S 7.58  7.64  7.93  7.81
  e+0.21 +0.36 +0.44 +0.17
  e h = +0.34 Rh = 7.84
  e v = +0.30 Rv = 7.59 ⑬
  E = +0.32 Re = 7.67
  ASTc = -1.38 dRe = +0.24
  ASTp = -1.47 dAST = +0.09

⑦ CS 12.5      PS 5.5 ⑧
      (LAMP=ON)


<L>   S      C      A
      - 0.50 -0.75  2 9
      - 0.50 -0.75  6 9
      - 0.50 -0.75  2 8
<- 0.50 -0.75  2> ③
<- 1.00 SE           > ④

⑪ 

CL - 0.50 -0.75  2 ⑤
⑦ CS 12.0      PS 6.0 ⑧
⑨ PD 68              ⑩ N 64

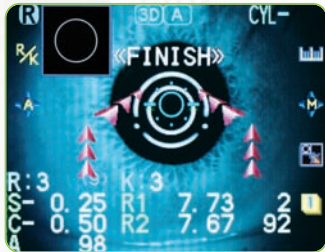
NIDEK  ARK-530A
    
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- 1 Vertex Distance
- 2 Near Working Distance
- 3 AR Median Value
- 4 SE Value
- 5 Contact Lens Data
- 6 KM Median Value
- 7 CS Measurement
- 8 PS Measurement
- 9 Distance PD
- 10 Near PD
- 11 Eyeprint
- 12 Sagittal Radius
- 13 Eccentricity Values

 = A sample printout when the sagittal radius parameter is used.

Measurement values are printed out using a high-speed printer. Trial lens and contact lens data can be included, as can eyeprint illustrations to aid in explaining myopia, hyperopia or astigmatism to the patient. Eyeprint-only printout is available.

ARK-530A Specifications



- Tilttable LCD
- Alignment Indicators
- Easy Load Paper
- Automatically Cuts Printer Paper
- Motorized Chinrest
- One-Touch Lock
- IC Card Reader
- Multiple USB Ports

Auto Refractor

Measurable Range

SPHERE

-30.00D to +25.00D (VD=12 mm)
(0.01 / 0.12 / 0.25D increments)

CYLINDER

0D to ± 12 D
(0.01/0.12/0.25D increments)

AXIS

0° to 180°
(1°/5° increments)

Measurable minimum pupil diameter

ϕ 2mm

Auto Keratometer

Measurable Range

RADIUS CURVATURE

5.00 to 13.00 mm
(0.01 mm increments)

REFRACTIVE POWER

25.96D to 67.50D (n=1.3375)
(0.01 / 0.12 / 0.25D increments)

ASTIGMATISM

0D to ± 12.00 D
(0.01 / 0.12 / 0.25D increments)

AXIS

0° to 180°
(1°/5° increments)

ORDINARY MEASUREMENT AREA PERIPHERAL MEASUREMENT AREA

ϕ 3.3mm (R=7.7mm)
 ϕ 6.0mm (R=7.7mm)
n=1.3375/1.336/1.332

PD Measurable Range

30 to 85mm (1mm increments)
(Near point PD: 28 to 80mm at WD=40cm)

Corneal Size Measurable Range

10 to 14mm (0.1mm increments)

Pupil Size Measurable Range

1 to 10mm (0.1mm increments)

Auto Tracking & Auto Shooting

X-Y-Z directions, Auto shooting

Virtual Vision Comparison

Range: -20 to +20D

Chart

Scenery chart

Display

Tilttable 5.7-inch color LCD

Printer

Built-in thermal-type line printer
(Easy loading and auto cutter)

Interface

RS-232C (IN/OUT)

USB

IC Card Reader* *Card is optional

Power Supply

AC100 - 240V $\pm 10\%$

50/60 Hz

Power Consumption

100 VA

Dimensions & Weight

260 (W) x 481 (D) x 455 (H)mm/20 kg

10.23 (W) x 18.93 (D) x 17.9 (H)"/44.1 lbs.

Standard Accessories

Spare Printer Paper, Power Cord, Dust Cover,
Chinrest Paper, Fixing Pins, Model Eye

Optional Accessories

Interface cable, Bar Code Scanner

The ARK-530A is manufactured by Nidek.



AUTOMATIC REFRACTOR/KERATOMETER

The ARK-530A can also
be interfaced with any
Marco Refraction Systems.



P073000 BR-ARK530A

T H E L E A D E R I N V I S I O N D I A G N O S T I C S[®]



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