

List of Equipments to be procured for year 2009-10

Sl. No.	Item Code No.	Equipment
1	MOH/GO/01	Ophthalmic Refraction Unit
2	MOH/GO/02	Auto Refractometer
3	MOH/GO/03	A-Scan for Biometry
4	MOH/GO/04	Slit Lamps
5	MOH/GO/05	Indirect Ophthalmoscope
6	MOH/GO/06/a	Operating Microscopes
7	MOH/GO/06/b	
8	MOH/GO/07	Basic Vitrectomy Equipment
9	MOH/COR/01	Corneal Topography
10	MOH/COR/02	Laminar Flow Cabinet
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12	MOH/COM/01	Fundus Camera
13	MOH/ST/01	Hand Held Keratometer
14	MOH/COM/02	Ultra Sound Pachymeter
15	MOH/GLU/01	Hand held Tonometer
16	MOH/GLU/03	Tonopen
17	MOH/VR/01	Inverter for wide angle viewing system

MEDICAL SUPERINTENDENT  
Minto Ophthalmic Hospital,  
Bangalore.

# **Minto Ophthalmic hospital, BMC &RI**

## **Technical specifications of ophthalmic refraction unit**

Fully upholstered chair with motorized recline and up/down facilities

Illuminating soft light

Controls for the vision drum and chair incorporated in the console

Vision drum with snellen charts in two or more languages, E charts and duochrome pattern

Compatible with 220-240V power source

## **Technical specifications for autorefractometer**

ISO and/or CE certified models using standard technology

Measurement range: Sphere Range: -25.0 D ~ +25 D (0.12/0.25Dsteps)

Cylinder range: 0 ~ +/-10 D (0.12/ 0.25Dsteps)

Axis: 1~180degrees

Minimum pupil diameter required for measurement: 2.0 mm

Pupil distance measurement: ~ upto 85mm

Auto fogging system for target fixation

Auto alignment and auto measurement

Thermal internal printer with auto cutter

Chin rest: vertical adjustment upto +/-30 mm

LCD monitor

Display upto 4 readings with the average

Power requirements: AC 100~240 V

50/60 Hz

## **Technical Specification of A-Scan**

CE/FDA approved models  
Consistent, operator independent measurements  
Proprietary pattern recognition algorithm eliminates corneal compression readings.  
Intuitive, user friendly interface.  
SRK/T, SRK II, Holladay, Binkhorst II formulas.  
Stores programmable data for eight IOLs.  
Internal graphics printer.  
Solid tip, 3mm diameter probe.  
Audible guidance to axial alignment.  
Automatic and manual gain control modes.  
Automatic measurements.

### **Technical specifications of Slit lamps**

**1. Model:** Haag strait type, ISO and/or CE certified models

**2. Illumination:**

Halogen or tungsten lamp illumination  
Adjustable Slit width (continuous) of at least 0-8mm  
Adjustable Slit length (continuous) of at least 1-8 mm  
Heat absorbing, cobalt blue and green filter

**3. Microscope:**

Convergent stereo view microscope  
Magnification: 10x, 16 x,  
Eyepieces 10x,  
PD adjustment 50mm-75 mm  
Diopter adjustment of at least +/- 6 D

**4. Range of movement:**

Back –forth, sideways ~80-100mm  
Vertical adjustments ~30mm (finer adjustments with joy stick)  
Tilting facility should be available

5. Compatible with 100-240V, 50/60 Hz Power source

6. Motorised table with foot switch control

### **Technical specifications for Indirect Ophthalmoscopes**

Light weight models

Durable, LED illumination

Red free, cobalt blue filter

Variable aperture size

Standard optics to provide clear binocular view.

20 D aspheric lens and scleral indentor to be provided with the ophthalmoscopes

Compatible with 220-240V power source.

Compatible with Rechargeable Battery as power source.

### **Technical specifications for Hand held tonometer**

Should be based on goldmann principles

Utilise the original Goldman or tonosafe prisms

Hand held, light weight model

Power source: durable, alkaline batteries

Light source: 2X 2.5 V bulbs with blue filters

Applanation area: 7.354 sq mm ( dia 3.06 mm)

Measurement range: 0-50 mm hg

Standard calibration required

### **Technical specifications for Operating Microscope(a)**

## **1. Microscope**

Apochromatic optics with antireflex multicoating

Eye pieces: 12.5X wide field

Diopter adjustment: +6 dioptres to -6 dioptres

Inclination to vertical: 45 degrees

Adjustable inter pupillary distance bwn 50mm to 70mm

Magnification: motorized zoom type

Working distance: 175 mm

Fine focusing: 30 mm adjustment by motorized foot control

XY movement: 25mm adjustment by motorized foot control

## **2. Illumination system**

Light source: 150W Halogen lamp with minimum 80,000 lux illumination

Continuously variable brightness

Light transmission via good quality fibreoptic cable

Heat absorbing filter, UV, green and cobalt blue filter

## **3. Microscope stand:**

Counter balanced spring arms

Sturdy base with a mobile floor stand

Arm rotation of atleast 350 degrees with lock

Compatible with 220-240 V power outlets

## **Technical specifications of vitrectomy machine**

Portable, lightweight console with ability to run with N<sub>2</sub>O or compressed air or electrically operated.

Should be usable in Single or multiport systems

Vacuum adjustable from 0-500 mmhg in Linear or nonlinear mode

Peristaltic or ventury system for aspiration

LED indicators with good visibility

Compatible with all known brands of pneumatically driven hand pieces

Should be able to provide optimum lensectomy, anterior vitrectomies, Irrigation and aspiration functions.

Multifunction Foot switch control

### **Technical specifications for Vision charts :**

Self illuminated box with standard snellen charts in at least two languages

Duochrome Test pattern required.

## **TOPOGRAPH**

### **Features:-**

- Placido based high resolution topographer, max. corneal; measuring area 10.6mm
- Axial, tangential, elevation & refractive maps in normalized absolute numeric and adjustable scales.
- 3D corneal maps & indices like eccentricity, asphericity shape factor.
- Laser beam assisted fully automatic image capture system for highest accuracy.
- Optional software for measurement of corneal aberrations
- KISA% index algorithm for keratoconus detection.
- Contact lens program with fluorescein pattern generation & for orthokeratology lenses.

Specifications:

- General
- Measuring area: 0.6mm in 43 D
- Measuring range: 9-99D
- Accuracy: +/- 0.125D.
- Ring arrangements: Placido head 20 rings
- Measuring points: 6344
- Alignment device: LCD monitor
- Alignment beam: 1 focusing laser class II 670nm
- Base lateral, vertical,
- Chin rest vertical.

Minimum req for PC:

Computer: Pentium 3 700 MHz.

OS: Win 95, 98, ME, XP

RAM: 64MB

Ports: parallel

Slots: PCI

## **TOPOGRAPH**

### **Anterior segment analysis system**

- 9000 data points in 1.5 seconds
- Elevation & Curvature measurements on both anterior & posterior surface of the cornea
- detection and analyzing posterior corneal abnormalities
- Customizable quad maps

#### **Features:-**

- Slit scanning technology with advanced placido disc system.
- Anterior corneal evaluation & elevation & curvature.
- Posterior corneal evaluation & elevation curvature.
- Full corneal pachymetry
- Simulated corneal pachymetry
- White – White diameter
- Pupil size (mesopic)
- Ac depth
- Angle Kappa
- Irregularity index

#### **Computer Req:**

Processing system: 2GHz  
Hard Disc capacity: 20GB, 40,000  
Floppy disc capacity: 650MB, CD-R W 1,3000  
Modem, bps (networking) – 14,400 (network card)  
Monitor size – 17”  
Type (Configuration) – SVGA  
Pixel matrix (resolution) 1024\*768 WinN T4.0

### **Synoptophore**

for all standard measurements and cyclo and vertical phorias and both horizontal and vertical vergences.

The flashing unit .dimming rheostats of standard controls required.

High intensity halogen light alternately and manual flashing unit dimming rheostats, high intensity halogen light for after images.

synoptophore slides.

treatments: angle alpha (kappa), objective angle, abnormal retinal correspondence

### **Fresnel prism trial set**

Thin optical quality acrylic, lightweight prisms should fit standard trial frame for testing strabismus, with display box. Two sets providing a full range of prism

### **Luneau loose Prism Set**

22 piece loose- prisms measuring 3 cm \* 0.5-3 cm

½,1,2,3,4,5,6,7,8,9,10,12,14,16,18,20,25,30,35,40,45,50, red lens

### **Distance Randot Stereotest**

4 tests in 1 booklet (400 sec of arc to 60 sec of arc)

1 pair of Pediatric 3-D Viewers

### **Stereo Fly SO-001**

Graded circle test (800 to 40 seconds of arc)

Animal test for children (400 to 100 seconds of arc)

One pair of standard 3-D viewers

### **Manual Hess Screen**

Made from high grade matte cloth, flint stitched with intersecting parabola at each 5 degree generated for use at 50 cm.

Supplied with one red and one green battery operated Foster torch, diplopia goggles, pad of charts, slats and cord suspension.

### **Colour vision charts**

Ishihara colour plates containing booklets.

### **Technical specifications for Hand held Keratometer**

Hand held ,portable ,lightweight model

Automated system

Clear LCD display of readings

Comfortable working distance

Radius of curvature: Range: 5.0 mm -10mm

Steps; 0.01mm

Refractive power: Range 33-67 D

Steps: 0.01/0.12/0.25 D

Astigmatism Range: +/- 10 D in steps 0.01/0.12/0.25 D

Axis: 0-180 degrees in steps of 1 degree

Accessories: Printer, Slit lamp arm, Carrying case,

Rechargeable battery pack, Battery charger

Compatible with 220-240V power source.

## Laminar air flow cabinet

### Salient Features

Ergonomic Design

Vertical Usage

Low noise

Vibration less

Stainless steel working Table

### Specifications:-

Vertical unit	HEPA filter	Ex. Dimension (W X D X H)
Sizes	2' X 2'	28" X 28" X 80"
	3' X 2'	40" X 28" X 60"
	4' X 2'	52" X 28" X 80"
	5' X 2'	75" X 28" X 80"

Filter assembly: - Fully washable synthetic prefilter units.

Air filter made of mini pleated nonwoven fabric

Hold a suspended particle > 0.3 micron

Front door systems with counter weight mechanism.

Illumination – Fluorescent light panel (concealed)

approx > 800 lux (guidelines of US federal standard)

Ultraviolet light – optimal wattage to take care of sterilization of existing air.

Body construction:-

MDF Construction

MS (Power coated)

G1 (galvanized steel)

SS (Complete unit)

# Laboratory microscope

## Specification:-

Microscope Frame  
Coaxial coarse/fine knobs.  
Fine focus knob graduated  
Stage movement (XY direction) on rack and pinion  
Quadruple revolving nose piece  
Plane stage 120 X 132 mm  
With right hand mechanical stage  
Abbe condenser N.A. 1.25 (oil immersion) with aperture iris diaphragm  
Blue Filter  
Universal Power Supply for 6 V 20W illuminator  
8cc immersion oil  
Dust cover  
Mirror unit (Plano-concave)  
Observation Tube: - Binocular observation tube (45° inclination, IPD Range 53-75 mm)

Objectives- iNEA Achromatic (Anti Fungus) 4x, 10x, 40x spring, 100x spring and oil.

Eyepiece- iCWHK 10x, (LB Eyepiece 10x), F N 18mm(x2)

Lamp- 6v 20w halogen lamp(x 2)

Attachments:-Phase contrast attachment  
Dark field attachment

## **Technical specifications for Green Laser**

**Model:** ISO/CE certified, standard models

### **Laser console:**

- a) **Laser type:** frequency doubled, solid state diode pumped laser, continuous wave
- b) **Wave length:** 532 nm
- c) **Laser output power:** 1.5 Watts at the tissue
- d) Portable light weight machine of 14 kgs or less
- e) **Aiming beam:** Diode laser, 635 nm
- f) **Electrical requirements:** 100-240 V, 50/60 Hz
- g) **Pulse interval:** 100ms -6000 ms
- h) **Pulse duration:** 10-2500 ms
- i) **Cooling:** thermoelectric

**Laser Delivery system:** Slit lamp delivery system, with standard Haag-streit model slit lamps

Should be compatible for future use as indirect ophthalmoscope delivery system

### **Laser link:**

Spot size: Continuously adjustable from 50-1000 microns, parfocal

Fiber :50 microns, N.A.0.1

**Accessories:** Laser safety glasses, Transport case with good cushioning required, Contact lenses: panfunduscope lens (Mainster or Volk) and Focal lens for macular lasers

## **Ultrasound pachymeter**

Probe Frequency: 20 MHZ

Measurement Range: 200-999 Microns

Accuracy: +/- 5 Microns

Battery operated or AC power

Parallel port for printer

Should be able to record from 1 to 10 measurements automatically and display the average and stand deviation.

Built in Test Block

Dedicated software for Glaucoma

## **CONFOCAL MICROSCOPE**

Features

Multiple applications:-

Cornea,  
Glaucoma,  
Retina

Easy Handling

No dilatation

Laptop/PC

Single/shared use

Software for acquisition & analysis-enables all users to access all images & patient data

Invivo imaging of cornea limbus & conjunctiva

One micron resolution which gives high definition analysis

Minute details of corneal structures in real time

Evaluate & Monitor corneal pathology, pre-post LASIK, Keratoplasty & corneal health in CL wearers.

Endothelial cell count & pachymetry.

Specifications:-

Field of view-15 degree X 15 degrees

Depth of focus-1.0-4.0 mm (automatic)

Focus range -12D to + 12D, -6D to + 6D (cylinder)

Pupil diameter->/1mm

Image requisition time – 1-6 sec/3D image

Optical resolution – 10m X 300m

Digital resolution – 10m pixel transverse to 62m pixel (longitudinal)

## **CLINICAL SPECULAR MICROSCOPE**

Easy photographing using touch alignment

Serial photographs of 15 shots

Wide photographing range and 7 capturing positions

Quick & automatic analysis of corneal endothelial cells

Various display functions

Manual photographing

LED light source

USB connector for printer & LAN connector for PC

## **Specifications:**

Photographing method-non contact

Photographing range-0.25mmx0.54mm

Measurement mode-Auto/Manual 1/Manual 2

Capturing position-center + 6 peripheral points

Corneal thickness measurement accuracy: +/-10microns

Analysis method-Automatic

Analysis values:

Number of analysed cells

CD(cell density) AVG (average cell area)

SD (std deviation of cell area)

CV(coefficien )

Max ( Max cell area)Min(min cell area)

Main unit

Display - LCD

Stroke of moving sections-80mm(x axis)40mm(y axis) 50mm(z axis)

Stroke of chin rest-70mm

Data output type printer/LAN/USB

## **Technical specifications for Fundus camera**

Model: ISO/CE certified models

Applicable capturing modes: colour, green, blue, red, fluorescien angiography

Field angles: ~ 45degree (37 degree masking)

Display: 15 inch LCD monitor

Working distance: ~40mm (bwn objective lens and cornea)

Ametropia compensation: +/-30 diopter

Capture:1 chip sensor, black and white

1 chip sensor, colour in flashless capturing mode

Continuous recording in colour and redfree mode

Operating system: windows XP

Filters: barrier and exciter filter, electronic powered insertion

Camera: Digital Camera of good resolution 1024 x768 pixels or more

Movement range: +/- 40 degrees, horizontal

*Software capability:*

Direct image printout

Easy archiving (CD-R DVD –RAM and removable hard disk)

Compatible with basic image processing techniques like brightness, sharpness, contrast adjustment, zoom, montage mapping, merge and subtract, noise reduction.

Multiple image display

*Printer:* High quality colour laser printer with supplement cartridges

*Instrument table:* Asymmetric motorized table

Compatible with the available power source

## **Technical specifications for short pulsed pattern scanning laser photocoagulator**

1. **Model:** Imported, pattern scanner technology incorporated, frequency doubled ND YAG laser
2. **Laser:** Frequency doubled ND: YAG Diode pumped, solid state
3. **Wavelength:** 532 nm
4. **Pre determined patterns:** Single spot, square arrays (2x2, 3x3, 4x4, 5x5) , Triple arcs and full circles, full and partial macular grid
5. **Power:** 0- 2000 mw (At the cornea)
6. **Pulse duration:** 10-1000ms
7. **Aim beam:** Diode laser (630 nm)
8. **Spot size:**
  - a) Variable 60, 100,200 or 400 microns diameter
  - b) Electronic micromanipulator
  - c) Touch screen control panel display
  - d) Custom slit lamp with standard optics integrated with the laser

9. **Table:** Motorized, Wheel chair accessible table
10. **Cooling:** air cooled
11. **Electrical power requirement:** 110 V, 50/60Hz.

### **Inverter for wide angle viewing system**

Good quality opticals compatible with Zeiss, OPMI microscope