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Government of India
Ministry of Home Affairs

26, Man Singh Road, Jaisalmer House,
New Delhi, 21.1.2011

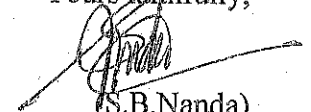
To
The ADG (Medical), Central Paramilitary Force Medical Services,
ITBP, TIGRI,
PO Madangir,
New Delhi-110016

Subject:- Specifications for **(i) Regular/Normal Dental Chair, and (ii) 25 Equipments**
for advanced dental laboratory for CPMFs Hospitals - approval thereof.

Sir,

The Specifications for the **(i) Regular/Normal Dental Chair, and (ii) 25 Equipments** for advanced dental laboratory for CPMFs Hospitals have been approved by the Competent Authority in MHA and the same are enclosed for information and Record.

Yours faithfully,


(S.B.Nanda)
Under Secretary

Encl. as above

SPECIFICATION FOR REGULAR/NORMAL DENTAL CHAIR

Unit should be ideal for the procedures to be used in two and four handed dentistry.

I. CHAIR

1. Should have seamless Upholstery for easy cleaning/disinfection purpose
2. Should have ergo motion mechanism of seat cushion & backrest for smooth and steeples moving
3. Should have articulated headrest ergonomically contoured to patient comfort
4. Should be multi programmable with zero position
5. Should have foot operated joystick for all chair movements.
6. Anti in built anti retraction valves and flush valve system for infection control

II UNIT

1 Dentist Element:-

- i) Should be hanging hose type with facility/provision to convert it into whip-arm (over head) type as & when requires.
- ii) Unit should be equipped with 5 seat instrument table with three way syringe, hand piece hose with high torque micro motor having speed range from 200-40,000 rpm, turbine hose for boarden connection hand piece and Ultrasonic Scalar with 3 tips.
- iii) Must have wide bracket for instrument tray
- iv) Should have touch panel to control all chair functions (manual as well as automatic) with sterilizable silicon protective sleeve.
- v) LED indication of speed of handpieces with speed control facility.
- vi) There must be provision for quickly & easily removing all instrument hose along with instrument holder for cleaning/disinfection purpose.
- vii) Should have reproducible speed & intensity settings with automatic memory function

2 ASSISTANT INSTRUMENTS:-

- i) Should have 3 way syringes with saliva ejector and high suction tip.
- ii) The assistant instruments should be on a swiveling arm with filter for suction System
- iii) High quality vinyl/silicon rubber suction hose, easily & quickly removable for cleaning & Disinfection.

3 Water Unit:-

- i) Should have one piece solid surface cuspidor bowl.

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- ii) Should have fresh water bottle with manual switch over facility
- iii) Should have provision for wet and dry suction.

III **Operating Light:** with dual intensity setting maximum up to 25,000 lux

IV Should have single foot control for both chair & instruments (electrically powered & air powered handpieces)

V. **Dental stool** -01 No

Should have height adjustable seat from 450-500 mm

VI **Hand pieces:**

1. **Contra-angle Hand piece:** Unit should be supplied with contra angle hand piece with speed range up to 40,000 rpm and having facility to change spray clip to easily convert it into either external spray or internal spray
2. **Straight Hand piece:** Straight hand piece with speed range up to 40,000 rpm should be supplied with unit.
3. **Turbine:** Air rotor with dual anti retraction protection & power 17 watts and speed 4, 00,000 rpm with quick coupling.


VII **Compressor:**

- 1 Should be oil-free medical grade compressor with membrane drying unit
- 2 Output at 5 bar : 70-80 ltr/min
- 3 Tank capacity : 20 ltrs with anti bacterial coating
- 4 Pressure range : 6-7 bar
- 5 Displacement : 100 Ltr/min

VIII. Other Essential Requirements:

- 1 Manufacturer must have ISO Certification /FDA/BIS/ISI/IEC/ CE Certification etc. and the unit should meet the international safety standards
- 2 List of installations in major Hospitals/Govt. Institutions.
- 3 Should provide minimum one year warranty and 5 years comprehensive maintenance contract.

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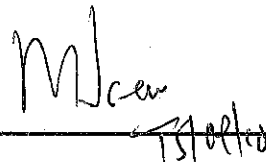
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Appendix-B

LIST OF EQUIPMENTS REQUIRED FOR STATE OF ART DENTAL LABORATORY

- 1 Induction Casting Machine
- 2 Pre-Heating Furnace
- 3 Ceramic/Porcelain Furnace
- 4 Welding Unit
- 5 Surveyor for Projecting & Milling
- 6 Milling unit for Plaster
- 7 Drilling unit with laser for dowel pins
- 8 Diamond saw cutter with Laser
- 9 Wax carving unit
- 10 Pneumatic Chisel
- 11 Sand Blasting Unit
- 12 Dispenser
- 13 Vibrator
- 14 Mixing Unit
- 15 Model Trimmer
- 16 Micro motor with straight and contra-angle handpieces
- 17 High Speed Grinder
- 18 Polishing Lathe with suction
- 19 Dewaxing Unit
- 20 Steam cleaner
- 21 Ultrasonic cleaner
- 22 Duplicating Unit
- 23 Polymerization Unit
- 24 Hydraulic Press
- 25 Working station

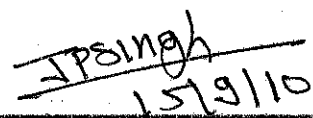
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ADC Medical CPMEs

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1 QR FOR INDUCTION CASTING MACHINE

- 1 The units should be sturdy
- 2 It should be possible to continuous reading control and stabilization of temperature in the range of 800 to 2000°C
- 3 It should be possible to cast precious and non precious metal
- 4 Should be equipped with motor acceleration regulator to control the metal flow to the ring
- 5 Should be equipped with high efficiency solid state generator having EBST technology so that to ensure at least 40 heavy duty continues castings
- 6 Should have provision for both manual and fully automatic casting cycles
- 7 Should have build in cooling system
- 8 Maximum power consumption should be less than 4.5 kw
- 9 Should be supplied with :

- Ring Holder
- Stainless steel ring
- Universal Rubber sprue former
- Ceramic stirring Rod
- Safety Goggle
- Crucible Holder
- Crucible Tong
- Self Locking Tong for Rings

- 10 The following crucibles should be supplied:

- Ceramic Crucibles for standard mix of non precious (12 Nos)
- Ceramic Crucibles with silicon nitride coating for non precious alloys (12nos)
- high quality ceramic crucible for non precious alloys(12nos)
- Crucible with isotatic graphite lining for precious alloys(12 Nos)
- Crucibles with isotatic graphite lining for precious alloys long nozzle(12 Nos)
- Crucible in vitreous graphite + C5 container with cover for precious and Palladium alloys (12 Nos)
- Ceramic crucible for standard mix of non precious alloys Long Nozzle(12 Nos)
- Ceramic crucible with silicon nitride coating for non precious alloys Long Nozzle(12 nos)

2 QR FOR PRE-HEATING FURNACE

- 1 Should be programmable
- 2 Should simultaneously display different time and temperature
- 3 Should have easy & smart 4-key board t program the heating cycle
- 4 Should display the cycle program during the program and at the execution
- 5 Should have the following heating cycle setting

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- Delayed with timer up to 100 Hrs
- Storage up to 10 Cycles
- Up to 9 independent temperature rate
- Up to 9 temperature steps
- Increase and/or decrease steps
- Acoustic and optical cycle and alarm
- On/Off option after alarm
- The cycle settings should be indefinitely stored until reprogrammed
- Should have self diagnostic of furnace status
- The exhaust pipe should be with fan
- Maximum temperature should be 1100°C
- Should have the capacity of 10 large rings

3. QR FOR CERAMIC / PORCELAIN FURNACE

- 1 Should be microprocessor controlled
- 2 Should be able to store 200 programs including idle and night cycle
- 3 Should be programmable with Air, Vacuum and Argon in each steps
- 4 Should be able to set 3 temperature on each cycle
- 5 It should be possible to progress heating cycle with increasing and or decreasing steps
- 6 Should have real time cycle status display (graphic as well as digital) with progress track LCD screen.
- 7 Acoustic and optical alarm at the end of heating cycle.
- 8 Should be possible to change the heating cycle during execution
- 9 The unit should start automatically in case of restoration of power in case mains power failure
- 10 Emergency manual vacuum release and plate lift/down
- 11 Should be supplied with vacuum pump.

4. QR FOR WELDING UNIT

- 1 Should be capable of spot welding and soldering
- 2 Should have at least 12 positions power regulator and 12 position timer
- 3 Should be supplied with the following standard accessories:
 - At least 10 types of spot welding electrodes for different type of application
 - Pair of handle cables to spot weld on the model directly with electrodes
 - One holding pincer for brazing
 - Carbon Holding cable for brazing
 - Allen wrench
 - Wire Hardening device

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5. QR FOR SURVEYOR FOR PROJECTING & MILLING

- 1 Milling surveyor should be with double articulated arm for moulding and positioning of attachment and supporting of any kind of turbine engine of micro motor with vertical micrometric adjustment
- 2 The unit should be equipped with milling device
- 3 Should have low voltage halogen lamp and air supply
- 4 Should be supplied with:
 - Model holder (01 no)
 - Wax Chisel (01 No)
 - Scanning Needle probe (01 No)
 - Undercut Gauges(03 Nos)
 - Carbon Marker Holder (01 No)
 - Collet Dia 3 and 2.5 mm (one each)

6. QR FOR MILLING UNIT FOR PLASTER

- 1 Should be able to fit most burs of different sizes and should be reliable precision milling on palatal and lingual areas on plaster or acrylic model
- 2 Should have noiseless and easy maintenance motor with the shaft mounted on dust protective ball bearing
- 3 Should be dynamically balanced rotor to be used with suction
- 4 RPM should be more than 2500

7. QR FOR DRILLING UNIT WITH LASER FOR DOWEL PINS

- 1 Should ensure highest drilling precision in dowel pins technique
- 2 Should be able to use with Plexiglas , poly carbonate and any suitable plastic material and plaster
- 3 Should be with laser beam pointer to give exact drilling point
- 4 Should have dynamically balanced rotor
- 5 Motor shaft should be mounted on dust protective ball bearing
- 6 RPM should be more than 2500

8. QR FOR DIAMOND SAW CUTTER WITH LASER

- 1 The unit should be with diamond blade disc for model stump technique
- 2 The DC motor should have constant torque with the DC motor of 6000 RPM
- 3 Should have tow hand safety protections with built in suction with filter
- 4 Bowl joint holder with magnetic locker
- 5 Should be equipped with high precision and laser beam showing exact cutting line.

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QR FOR WAX CARVING UNIT

- 1 The unit should have electric modeling tips heater suitable for dental wax carving
- 2 Temperature setting adjustment should be possible from 50° to 350°Centigrade
- 3 Should be with four carving tips and stainless steel holder.

10. QR FOR PNEUMATIC CHISEL

- 1 To be used for easy removing of investment from casting and plaster surplus and also for model shaping
- 2 Pneumatic chisel should operate up to 6 bar pressure
- 3 The hand piece should be light weight and easy to use
- 4 At least Three types of different chisel tips should be provided.

11. QR FOR SAND BLASTING UNIT

- 1 Unit should be designed for medium and large production laboratories and basket must hold up to 12 frameworks to be automatically sandblasted
- 2 Unit should have manual cycle for finishing and closed loop suction system to prevent the dust form scattering and should deposited into a movable filter-tray
- 3 Should have low voltage and Long life illumination
- 4 The unit should be fitted with long lasting tetrabor nozzle to prevent clogging of machine with foreign particles
- 5 Should have a metal screen to act as a barrier to the abrasion of the view glass.

Instrument:

Unit should be equipped with the following

- Tetrabor nozzle for use with abrasives up to 500 (grain 36)
- Timer of the automatic sandblasting cycle up to 30 min cycle time
- Nozzle pressure regulator and pressure gauge
- Dehumidifier filter
- Auto/Manual cycle changeover switch
- Air control push button in the manual working mode.

Features and Technical Data:

- Max Consumption : 180W
- W x D x H : 55 x 60 x 70 cm
- Net Weight/Gross Weight: 75 kg / 95 kg
- Power Supply : 220 / 240 volts – 50/60 Hz

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QR FOR DISPENSER

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- 1 Plaster Dispenser with capacity of 30 kg Inside rubber container should be sealed against humidity
- 2 During pouring of plaster vibrator should automatic start to ensure uniform flowing and to avoid plaster clogging .

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QR FOR VIBRATOR

- 1 It should be with removable rubber table for cleaning
- 2 Should have two intensity setting for vibration
- 3 Should be able to take fifteen rings

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QR FOR MIXING UNIT

- 1 It should have inbuilt powerful and silent vacuum pump
- 2 Should have double body bowl with built in filter tap for mixing and pouring in vacuum
- 3 Should have double timer with time delay switching on the vacuum pump
- 4 Should have adjustable vibration intensity
- 5 Should be provided with rubber former & set of 4 rings
- 6 Should have digital display

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QR FOR MODEL TRIMMER

- 1 It should be sturdy silent and have solenoid valve to control water inlet
- 2 Should be with dia of 26cm disc
- 3 Speed should be 1400 RPM
- 4 Should be quoted with standard grinding disc (02 nos) Medium Grinding Disc (02 Nos) Fine Grinding Disc (02 Nos) and Diamond Disc (02 Nos)
- 5 Should quote along orthodontic kit

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QR FOR MICROMOTOR WITH STRAIGHT & CONTRA-ANGLE HAND PIECE

- 1 It should be a latest technology with complies of all safety directives
- 2 For heavy duties
- 3 Power unit should be high frequency 3 phase signal for speed control for different type of working line resin gold chrome cobalt or titanium

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- 4 Should have variable controllable speed range from at least 3000 to 40000 rpm with uniform torque
- 5 Should have reverse rotation for left handed person

17. QR FOR HIGH SPEED GRINDER

- 1 Grinder should have variable speed up to 26000 rpm
- 2 Adjustable lamp and protection screen
- 3 Automatic spindle
- 4 Oil less maintenance free bearing
- 5 Should have provision to connect either to central suction or individual suction

18. QR FOR POLISHING LATHE WITH SUCTION

- 1 Bench type polishing lathe having 2 speed (1400 rpm and 2800 rpm)
- 2 Should have safety switch for protection against accidental start of motor
- 3 Should be with 2 wheels spindle cones
- 4 Should be fitted with stainless steel suction unit with filter for dust removal
- 5 Suction unit should have neon lamp for illumination
- 6 Provision should be there to closed suction of unused side
- 7 2 safety screen

19. QR FOR DEWAXING UNIT

- 1 Stainless steel multi purpose water bath for removal of wax from cylinder and flask
- 2 Could also be used as softener bath for plastic materials
- 3 The temperature range should be from 30° to 90°
- 4 The tank capacity should be at least 4 Ltrs.

20. QR FOR STEAM CLEANER

- 1 The steam cleaner should be of stainless steel capacity 4.5 ltrs
- 2 Heat protection with high insulating materials
- 3 Minimum level sensor switch
- 4 Should have following feature :-
 - Automatic Electric power cut out in case of water failure
 - Pipe fitting should be of stainless steel or copper
 - Provision for both manual as well as automatic refilling
 - Possible to emit dry steam wet steam (steam + hot water) water
 - Continues steam+water emission lasting upto 13 minutes.
 - Steam emission could take place via fixed nozzle or ergonomic gun with hot water dropping protection

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21 QR FOR ULTRASONIC CLEANER

- 1 It should be equipped with high output piezo-electric transducers with cone frustum shaped structure
- 2 The unit should have the feature of Automatic variation of the absorbed power according to the shape and size of the parts to be cleaned
- 3 It should have the following features
 - Automatic degassing at the cycle start
 - Fluid draining
 - Temperature setting range 20° to 70° C
 - Timer setting up to 22 min
- 4 Should be provided with steel basket plastic cover holder for 3 beakers 3 plexiglass beakers & drain with cock

22 QR FOR DUPLICATING UNIT

- 1 Model duplicating gel pouring unit should be with following features
 - Should have double safety cover with inter lock switch to prevent motor running when the lid is open
 - Pouring outlet conveniently away from bearing plate
 - Automating casting and Gelatin maintenance cycle
 - Should have quick cooling cycle
 - Continuous digital display of temperature
 - Should be of 6 kg. Gel capacity

23 QR FOR POLYMERISATION UNIT

- 1 It should be completely built in stainless steel and painted
- 2 No electrical component should come in contact even accidentally with H₂O or steam
- 3 The design of machine closing cover should be such that it avoids scattering of vapors on condensate dripping to ensure polymerization cycle is run in steam saturated air.
- 4 The unit should switch off automatically at the end of cycle
- 5 Should have capacity for at least 15 flasks
- 6 Should have the following working cycle:
 - Raising to the pre-polymerizing temperature
 - Pre polymerizing temperature
 - Pre polymerizing period

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- Raising to the polymerizing temperature
- Polymerizing temperature
- Polymerizing period
- Automatic switching off.

24. QR FOR HYDRAULIC PRESS

- 1 It should be oil pressure hydraulic press suitable for all dental mechanic laboratories
- 2 Should host at least 3 flask at a time
- 3 Should be so dimensioned as to work with half of its max. Load applied.

25. QR FOR DENTAL WORKING STATION

- Should be configured for 2-3 working personnell
- Should be made up of parkerized cold-rolled sheet & painted electrostatically with imported paints.
- Table board should be made of high-density fireproof material. Which has been parkerized.
- Should be equipped with
 - a. Cold light lamps-two numbers
 - b. StainlessSteel Working platform
 - c. Auto retrieve air gun
 - d. Vacuum device
 - e. Dust collector that can work continuously for 4 hours
 - f. Storage drawers

OTHER ESSENTIAL REQUIREMENTS:

- 1 Manufacturer must have ISO Certification /FDA/BIS/ISI/IEC/ CE Certification etc. and the unit should meet the international safety standards
- 2 List of installations in major Hospitals/Govt. Institutions.
- 3 Should provide minimum one year warranty and 5 years , comprehensive maintenance contract, *for equipments requiring regular maintenance, as well as costing more than Rs.2,00,000/-*

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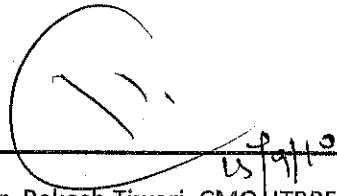
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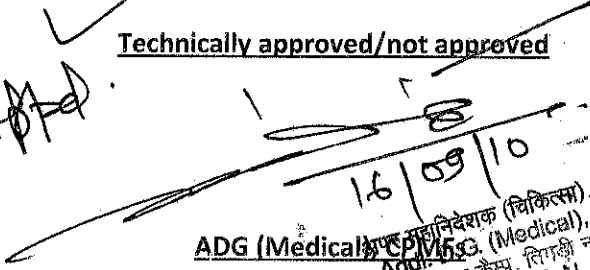

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