

**HexScan® Technique –
With acrylic teeth.
Instructions for use.**

HexScan® Technique.

1 Product name

HexScan®

2 Product description

The HexScan® technology includes a system of auxiliary parts for the laboratory. This system simplifies the production of dentures, as it contains standardized hex stumps in four different sizes for the connection between the artificial teeth and the framework.

3 General information

More information can be found free of charge under www.pekkton.com or www.cmsa.ch/dental.

⚠ Warning symbol for increased caution.

3.1 Intended use

HexScan® is a system of auxiliary parts intended to be used in the laboratory for the production of dentures.

3.2 Disposal

HexScan® waste can be disposed of along with normal household garbage.

4 Instructions for use

For detailed informations refer to page 9.

Indications		minimum length of the HexScan® pegs	maximum length* of the HexScan® pegs
HexScan® 3 mm	Incisor teeth in the lower and upper jaw Canine teeth in the lower jaw	3 mm	5 mm
HexScan® 4 mm	Incisor and canine teeth in the lower and upper jaw	3 mm	8 mm
HexScan® 5 mm	Premolar and molar teeth in the lower and upper jaw	3 mm	10 mm
HexScan® 6 mm	Molar teeth in the lower and upper jaw	3 mm	10 mm

* Valid for framework material in high-performance polymer
(Pekkton® ivory)

4.1 Contraindications

HexScan® Body Re-use
HexScan® Body 3 mm Not indicated for use with molar
teeth in the lower and upper jaw
Framework height in Pekkton® ivory of more than 24 mm.

4.2 Warnings

Not relevant, since the HexScan® products are only used
in the laboratory and are not in direct contact with the
patient.

4.3 Preventive measures

When grinding, wear protective goggles with a dust mask
and use a suction unit.

4.4 Side effects

No known side effects if used as intended.

5 Instructions for use.

(Based on an example of a milled framework in Pekkton® ivory as a removable partial denture and acrylic teeth)

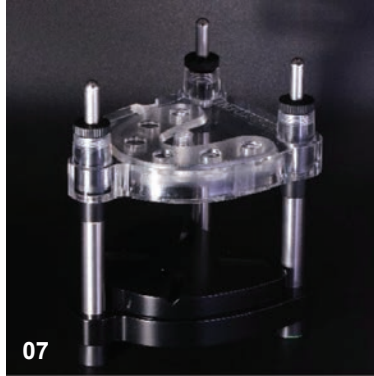


Create the master model using standard implant protocols. (In this example case an upper removable hybrid partial arch restoration on two fixtures with CM LOC® anchors. (It was to be created with HexScan® posts as abutments on a milled Pekkton® ivory framework). Fig. 01–04.

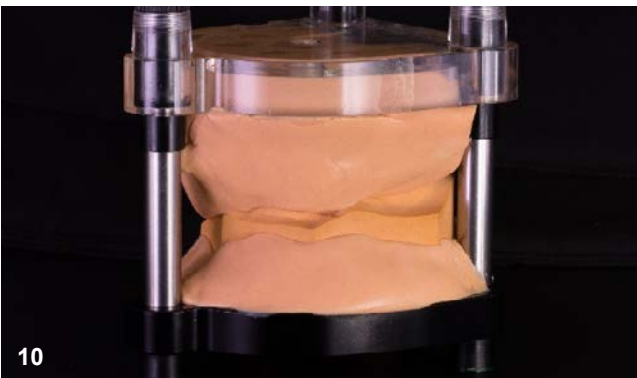


Set up the required situation with denture teeth as per requirements and record the information. Fig. 05–06. The ideal situation is to use a verticator to do so. Fig. 07–08. At this stage it is critical that an accurate lab putty index is recorded on the verticator. Fig. 09–10. It is advisable to use a pressure vessel during the setting of the lab putty to be used in the next step.





Record the position of your setup or wax up on a verticulator. (A good quality articulator can be used but extra care should be taken to preserve this position)



Recording the information

Use a pressure vessel during the setting stage of the putty to get an accurate reproduction of the set-up. This step preserves the set up information it is helpful to use at least a 70% sure hardness putty. A more rigid mould will increase safety during drilling of the teeth later.

Remove the set-up from the mould and trim it at least above of the Zenith of each tooth.





Making the base plate

Clip some CM LOC® spacers on the anchors.

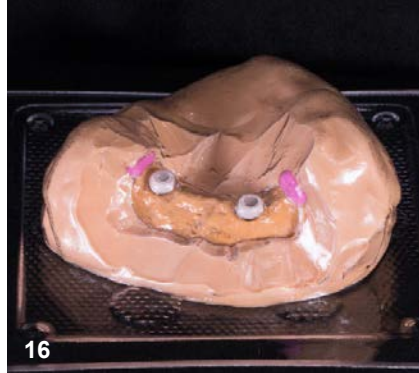
Put the set-up on the cast and make a putty key that extends 1mm up the periphery of the denture. This case is a partial denture so extra putty was positioned to preserve the cast during the manufacturing of the base plate.



Remove the denture and trim evenly leaving at least 1mm cuff. Fig. 14

The model ready for thermoforming of the base. Use a 2mm blank.

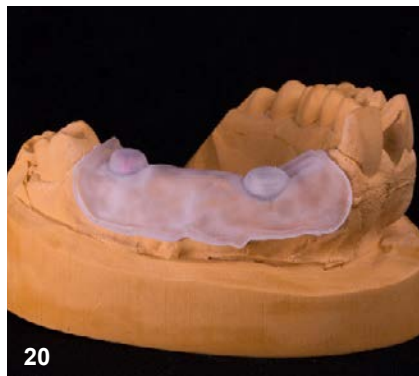
Put the spacers or the impression caps on the anchors the ones from the CM LOC® system. These spacers will be used later during the scanning stage.



Vacuum form a baseplate with 2mm clear blanks. Mark up the blank and trim. Fig. 15–18



After trimming the baseplate, sandblast occlusal facing surface with 50micron or more aluminium oxide. Fig. 19–20



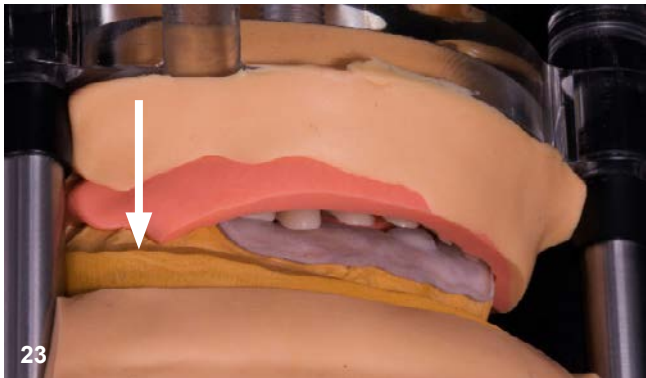


Preparing to drill each tooth where a HexScan® post will be required.

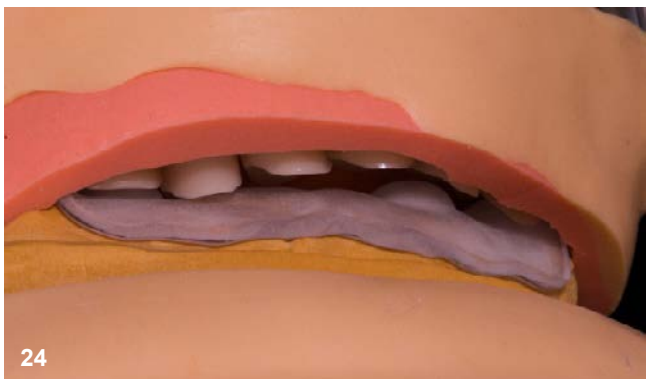
Remove the teeth from the set-up and insert them in the putty mould on the verticator. Fig. 21



Position the base plate on the cast in the verticator. Fig. 22

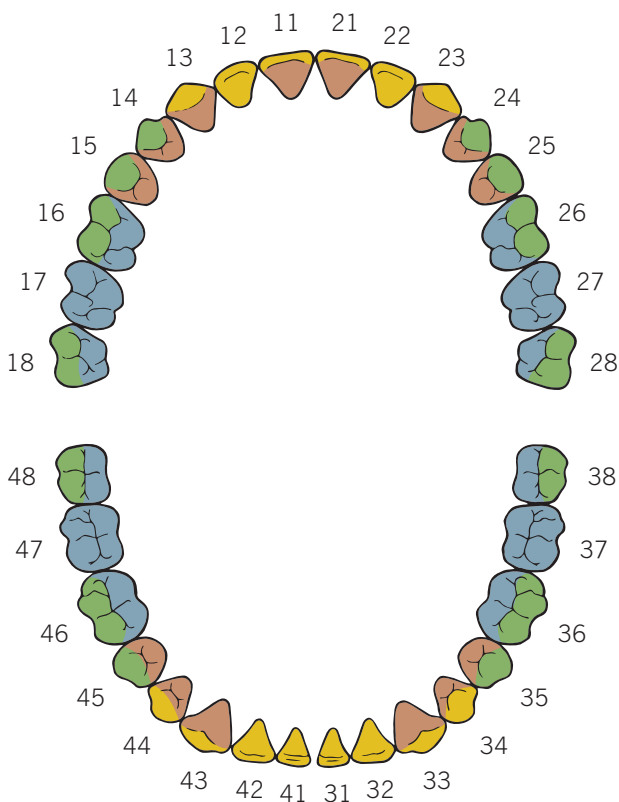


Close the verticalizer down and ensure there is clearance between the teeth and the base plate. Fig. 23 and Fig. 24. Always check that the verticalizer is completely down in its home position before proceeding. Fig. 25





Mount the model on a surveyor table of a parallelometer unit and select the correct direction of insertion using the HexScan® Positioner 3mm. Fig. 26. The so determined direction of insertion should then be valid for the rest of the teeth in the arch.



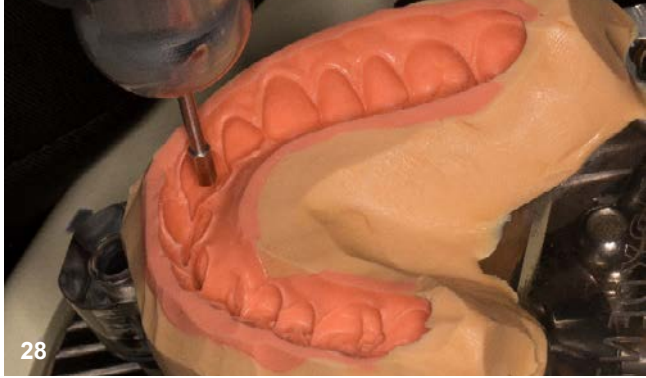
Drill out each tooth using the largest drill possible without compromising the ultimate strength of the denture tooth.

Prior to drilling the holes, use the centering drill first on each tooth (at 15 000 rpm) in order to have an exact positioning for the HexScan® Drill.

Ideal revolution of the HexScan® Drill is between 5 000 (HexScan® Drill 6 mm) to max. 10 000 rpm (HexScan® Drill 3 mm), thus depends on the diameter of the drill. When trimming PMMA use short bursts of pressure and ensure the drill bit does not get to warm.

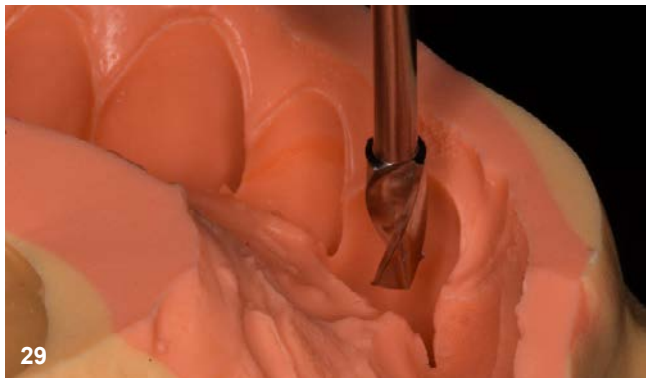
On a partial denture as shown care must be taken to select a path of insertion relative to the current standing dentition.

0700 0238	HexScan® Body 3 mm
0700 0238	HexScan® Body 4 mm
0700 0238	HexScan® Body 5 mm
0700 0238	HexScan® Body 6 mm

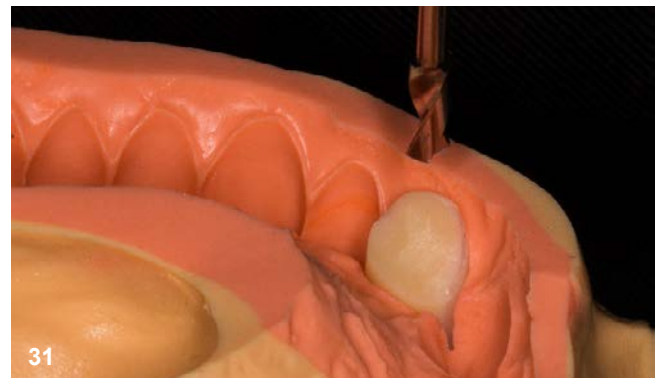
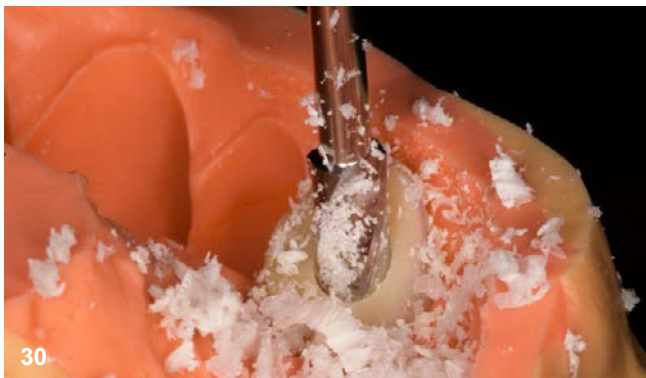


Drilling the holes & forming the HexScan® shape in the teeth

Use a drill bit to help establish the ideal position. Fig. 28. Care must be taken in the premolar region to fit the hole within the mesio-distal width of the tooth if a less vertical path of insertion is used. A narrower diameter may work better in this situation.

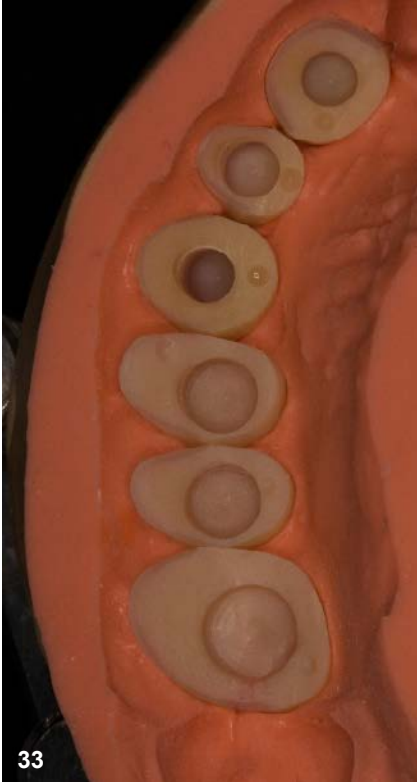


Drill each hole carefully. Find your maximum depths with the denture tooth removed and then replace it and drill. It is possible to drill by hand but you have to ensure the holes are as parallel as possible. In this situation a slightly larger hole than the required for the HexScan® body is desirable and will help in this situation. Fig. 29–30

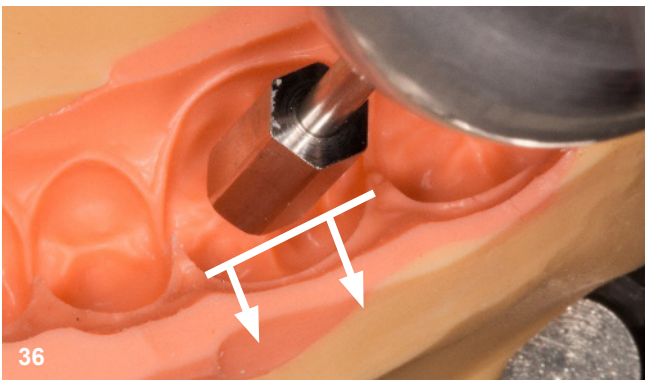


A helpful tip to hold the tooth in position while drilling. Use the centering drill to make a small hole to the side of the tooth. This will allow the tooth to be held in position safely.

Continue the process for each required tooth. Fig. 31–32

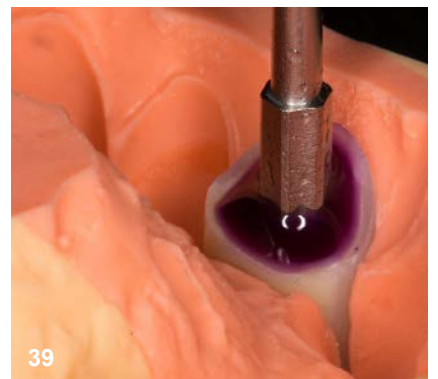
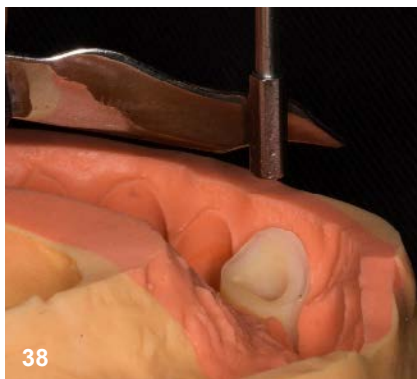
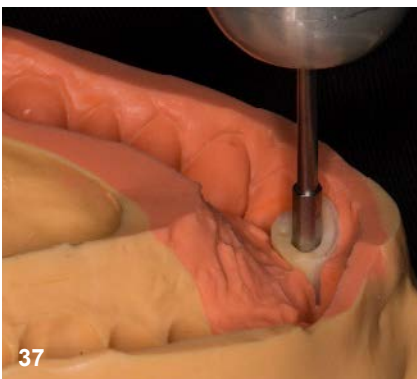


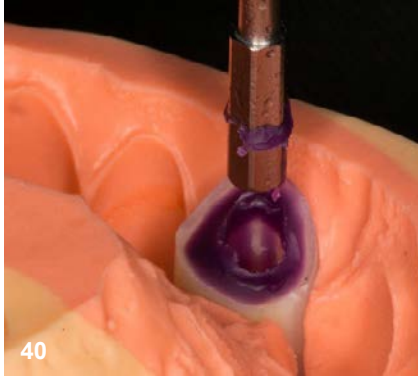
Drilled tooth. Fig. 33–35. There may be some discoloration where the hole is drilled too close to the labial aspect of the tooth. Care should be taken in this area.



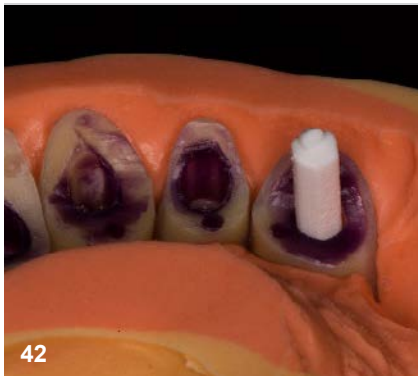
⚠ Avoid the positioning of one of the hex edges pointing towards labial/buccal of the tooth. Fig. 36

Line up the HexScan® Positioner with the drilled hole and drip some melted wax into the hole. It is helpful to warm up the HexScan® Positioner slightly before pouring the wax to compensate shrinkage and better flowing. Insert the tool into the material of choice while it is still fluid and wait for it to set. (Vaseline can be used as a separator). Fig. 37, 38, 39



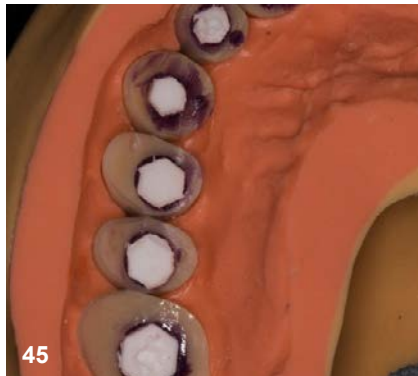


Drip wax in the hole and insert the HexScan® parallel tool. (A pattern resin can be used here but process will take longer due to setting times) Remove it while the wax is still warm but not fluid. Repeat this process for all the teeth. Fig. 40, 44

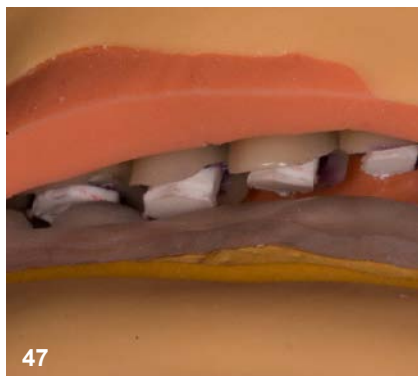


Trimming the HexScan® body
Insert the smooth end of the HexScan® into the required tooth and marry the verticulator halves. Mark the estimated amount to be cut off. Fig. 42, 43

Shorten the length of each HexScan® Body. There should be no contact with any of the HexScan® bodies and the surface of the base plate in order to maintain the vertical dimension.

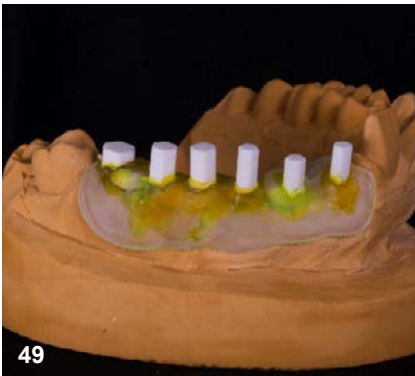


Repeat the process for the remaining teeth. Fig. 44, 45
Cut a small retentive groove at the base of the HexScan® body for retention. Fig. 46, 47





Linking in the HexScan® Body's to the base plate
 Connect each HexScan® Body to the thermoformed base plate using a self-curing resin (e.g.: Pi-Ku-Plast).
 Fig. 48–51



The scan frame before the volume is increased with Blu-Tack
 Note: At this stage the teeth will look discoloured from the wax. Fig. 50.
 This wax will be boiled or steamed out after the frame has been constructed. A dentine coloured dual cure composite can be used to bond the teeth to the frame.

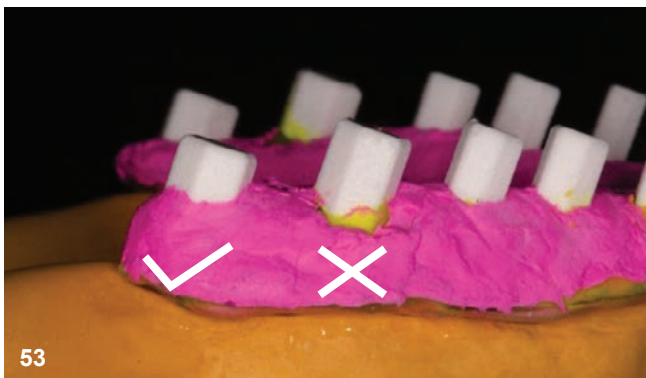




Positioning the Blu-Tack

Stretch and push the Blu-Tack to the desired position. The aim is to NOT make contact with the teeth. A small gap should be left between the Blu-Tack and the teeth. This will later be filled with composite. The frame is now ready to be copy scanned. Fig. 52

⚠ Note this is the maximum length of the HexScan® Body's. 3mm–5mm work the best.



The final contour and volume part of the frame is created with Blue-Tack. The blue tack is to create volume to speed up the digital process. A smoothing tool should be used once scanned.

⚠ Each HexScan® Body should have a smooth flowing emergence from the Blue-Tack or material of your choice. The curved radius will reinforce the connection itself. Sharp junctions or connections can cause pre-determined breaking points. Fig. 53 shows an example of a poor junction and a good junction.



⚠ When manufacturing a screw retained implant supported prosthesis and the screw channels compromise the HexScan® Body's it is important to link the adjacent crowns. A connector can be thickened and positioned subgingival. Linking units will make the frame more rigid. Fig. 54



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Scanning and Pressing the teeth

The teeth can now be sectioned and pressed or processed as required in a material of your choice. Linking of units will increase rigidity in the frame and speed up working times. This is very useful in a fixed case where a screw access hole has compromised the integrity of the pillar. This frame is also rigid enough to work on your teeth to completion while your frame is being milled.

Fig. 55



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Milling technique:

△ For milled Pekkton® ivory framework, please read the instructions for use CAD/CAM Technology.

For scanning of the frame add for example some Blu Tack to the frame to increase the volume of the frame to the required thickness within the parameters of the material being milled with Pekkton® ivory. Fig. 57–58

Press technique:

Short explanation

For the press technique please follow all the steps above except just add more Piku-Plast instead of Blu-Tack. The HexScan® Body's will burn out residue free. Please follow the Press instructions.



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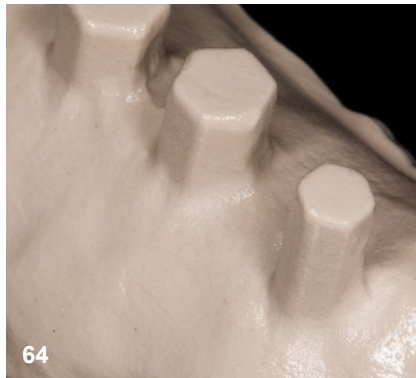
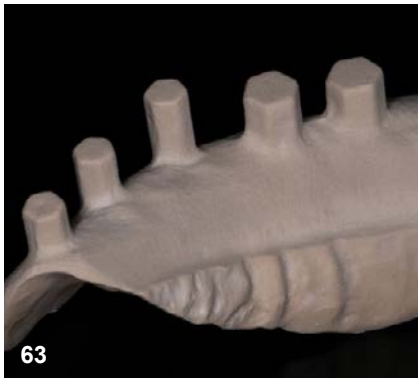
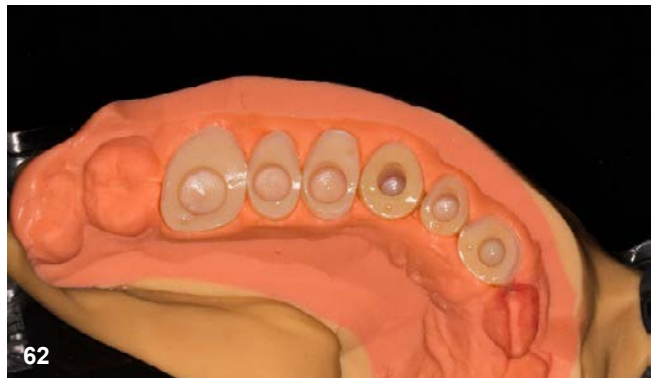
58

Refine your design on any CAD program and mill your frame in Pekkton® ivory. Pekkton® ivory milling blanks are available in different forms and thicknesses. Refer also to: www.pekkton.com. Fig. 58

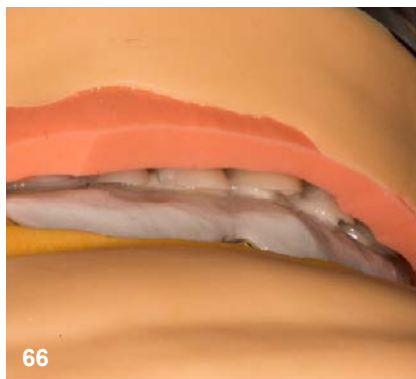


Prepare the frame and teeth for bonding

Boil or steam clean the wax out the teeth. Fig. 59–62. Sand blast or Rocatec the fitting surface of the teeth. Apply a PMMA bonder. Prepare the Pekkton® ivory frame as per instructions. Fig. 63–64



Pekkton® ivory frame ready to bond to.



Use the verticalizer to position the teeth on the frame.



Finished partial denture with the implant anchor CM LOC®.

6 Disinfection

Not relevant, since the HexScan® products are only used in the laboratory and are not in direct contact with the patient.








7 Cleaning and care

Not relevant, since the HexScan® products are only used in the laboratory and are not in direct contact with the patient.















8 Traceability of the batch numbers

Not relevant, since the HexScan® products are only used in the laboratory and are not in direct contact with the patient.

9 Ordering information

Order No.		Description	Contents
0700 0250		HexScan® Kit 4x Hexscan® Positioner (3 mm, 4 mm, 5 mm, 6 mm) 4x Hexscan® Drills (3 mm, 4 mm, 5 mm, 6 mm) 1x Hexscan® Centering bur 30x Hexscan® Bodies (12 x 3 mm, 6 x 4 mm, 6 x 5 mm, 6 x 6 mm)	39 pieces
0700 0238		HexScan® Body 3 mm	6 pieces
0700 0239		HexScan® Body 4 mm	6 pieces
0700 0240		HexScan® Body 5 mm	6 pieces
0700 0241		HexScan® Body 6 mm	6 pieces
0700 0246		HexScan® Drill 3 mm	1 piece
0700 0247		HexScan® Drill 4 mm	1 piece
0700 0248		HexScan® Drill 5 mm	1 piece
0700 0249		HexScan® Drill 6 mm	1 piece
0700 0259		HexScan® Centering bur	1 piece

10 Symbols

	Date of manufacture
	Manufacturer
	Patient No.
	Catalogue number
	Batch code
	Quantity
	Consult instructions for use URL: cmsa.ch/docs
Rx only	Attention: According to US federal law, this product may only be sold by or on behalf of a physician.
	 Cendres+Métaux SA products with CE labelling meet the requirements of the Medical Device Directive 93/42/EEC.
	Do not re-use
	Non-sterile
	Keep away from sunlight
	Attention (observe accompanying documents)
	Unique Device Identification – UDI

11 Disclaimer / Validity

The issuing of these instructions for use renders all previous versions invalid.

The manufacturer rejects any liability for damages resulting from non-compliance with these instructions for use. In case of complaints, please always include the batch number.

The latest instructions are available on the Cendres+Métaux homepage. www.cmsa.ch/dental

The product must be used exclusively by skilled persons.

12 Availability

Country-specific differences in product range are possible.

13 Copyright and trademarks

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14 Note of thanks

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