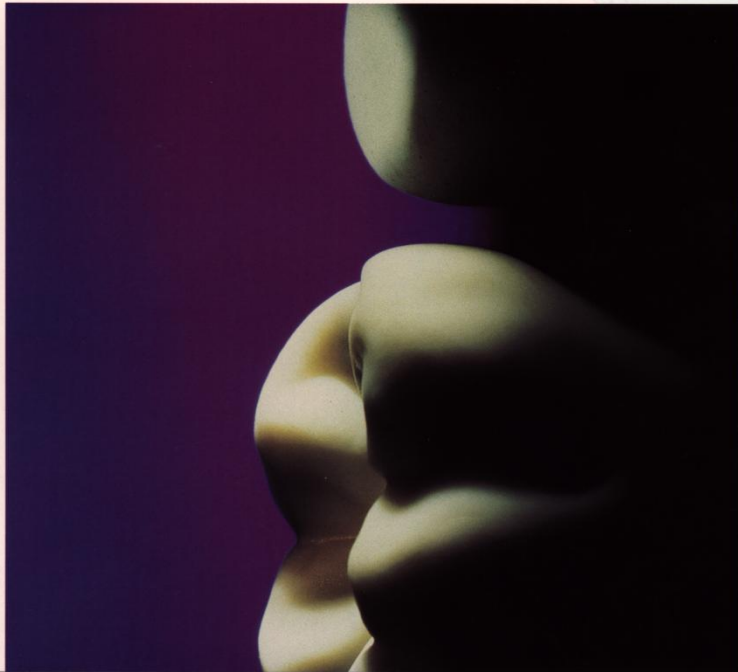


FROM THE KNOWN TO THE NEW: HIGH-EFFICIENCY AUTOMATION FOR THE DENTAL LABORATORY



NEW BUSINESS. AND NEW EFFICIENCY TO HANDLE IT.

For today's dental laboratory, success in attracting and retaining new clients has become increasingly important. That means finding compelling ways to stand out from your competitors. And finding more efficient ways to manage new work.

With the sophia-CAD/CAM system from sophia bioconcept, you have both.

A MORE EFFICIENT WAY TO HANDLE NEW WORK

sophia-CAD/CAM brings computer precision and speed to your laboratory. And with our complete training program, even your less experienced technicians can master the simple sequence of functions:

Opticast

A three-dimensional laser camera acquires multiple views of the prepared model. The user correlates the views by identifying commonly known landmarks on each.

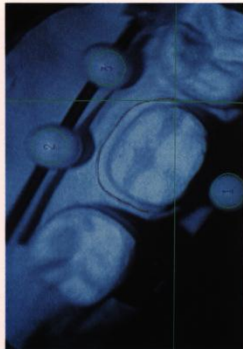
BioCAD

Using the correlated views, the design station creates a computer model of the preparation, then fits a textbook morphology for that tooth number to the model. The user makes fine modifications to customize the final design, as desired.

Dental Milling Station

The design is sent to the milling station, where a high-speed spindle and burs shape the selected material into the finished piece.

The result is a high-precision restoration, completed in less than 2 hours—potentially at a lower labor rate. You can handle your existing work more effectively, with the efficiency to take on new work as you capture it.



Imaging

ENHANCING YOUR IMAGE AS A MARKET LEADER

When you automate restoration design and fabrication with sophia-CAD/CAM, you send an important message to potential and existing clients.

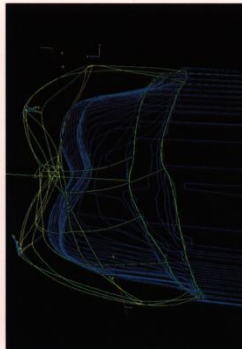
The message is: As a leader in the field of dental restorations, our laboratory continues to explore new ways to deliver higher quality and better service. We have acquired a powerful

new automation technology which will mean improved precision and faster turnaround for you. We invite you to see our new capabilities.

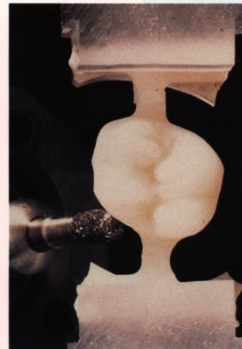
That's a message that will distinguish you from competitors. It will help you re-affirm your relationships with existing clients. And open discussions with new ones.

MATERIALS

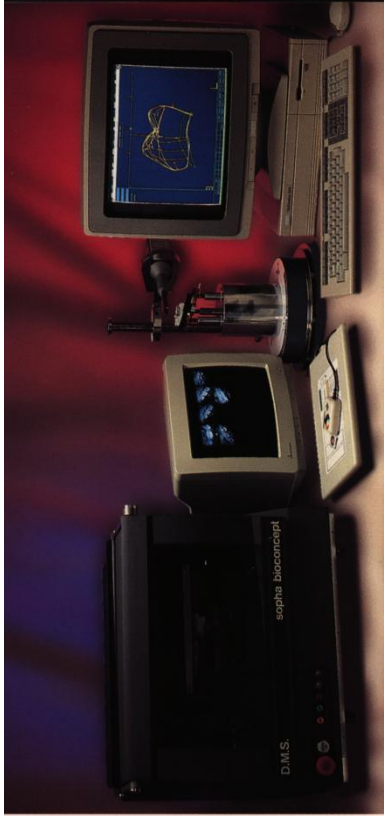
sophia bioconcept provides ceramic blanks for direct insertion in the Dental Milling System. Our ceramics are widely used in dentistry and have been subjected to rigorous acceptance testing by sophia bioconcept for use with the sophia-CAD/CAM system.



Design



Milling



TYPES OF RESTORATIONS

sophia-CAD/CAM permits the design and fabrication of posterior and anterior crowns and copings in ceramic materials.

SYSTEM CONFIGURATIONS

Several system configurations are available to match your production volume requirements. Our specialists will assist you in selecting the best configuration for your needs.

CUSTOMER SERVICE

sophia bioconcept's training courses will thoroughly familiarize you with system operation and the imaging, design, and milling processes for each type of restoration.

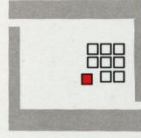
SOPHA GROUP

Founded in 1975, sophia group brings together a growing number of companies to address the specialized needs of health-care providers worldwide.

Markets include health engineering systems, management of medical institutions, x-ray head services and distribution of radiotherapy systems, nuclear medicine systems, and magnetic resonance imaging systems.

sophia bioconcept was founded in 1991 to develop and market dental CAD/CAM systems.

sophia group currently employs 500 people in 15 countries. Exports constitute 90% of sales.



s o p h a b i o c o n c e p t i n c .

sophia bioconcept inc., 11835 West Olympic Boulevard, Suite 400, Los Angeles, CA 90064 (310) 444-5944

STEP 1: OPTICAST 3-DIMENSIONAL LASER IMAGING



FROM STONE MODEL TO COMPUTER MODEL

The basic principle of sophisticated/CAM operation is that every step is based on skills you already have. And Step 1—Opticast imaging—begins with the conventional stone model.

The stone model is your primary source of information about the prepared tooth. The goal of Opticast imaging is to capture that information, so that it can be used to build a “computer model” of the prepared tooth. When you scan the model with the Opticast laser camera, the resulting high-precision images, presented on the Opticast imaging computer, reveal critical details of the model’s geometry. You then identify well-known anatomical landmarks on each image, providing reference points which will allow the system to correlate the images and build the computer model.

Opticast imaging is precise, straightforward, and fast. The entire procedure takes less than ten minutes to complete.

IMAGING WITH LASER PRECISION

Imaging is a simple matter of mounting the stone model on the model platform, scanning the model with the three-dimensional laser camera, and viewing the images on the imaging computer. The model platform easily adjusts

to achieve optimum viewing angles; as you move the platform, you will see the small reference spheres come into view. When all are visible, push one button and the image is acquired. The precision camera ensures high accuracy from the very beginning. Six to eight images are typically required.

SIMPLE CORRELATION USING WELL-KNOWN LANDMARKS

After you acquire the images, the imaging computer takes you through a simple correlation process in which you use the graphic pad and mouse to identify cusps, grooves, margins and other clinical landmarks. By moving the mouse over the image presented on the computer monitor. When the cursor is on the appropriate image landmark, simply click a mouse button and the item’s exact location is recorded.

THE NEXT STEP

Opticast imaging is an accurate, easy, and efficient method for capturing information about the patient’s prepared tooth. Upon completion, Opticast images are sent to the Biocad system, which builds a computer model of the prepared tooth and guides you through restoration design.

OPTICAST SPECIFICATIONS

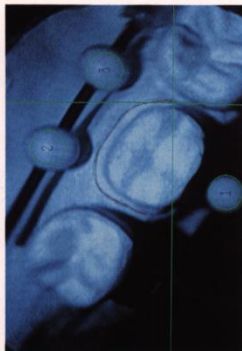
General Description

The Opticast system is a high-precision 3-dimensional laser camera linked with an easy-to-use imaging computer.

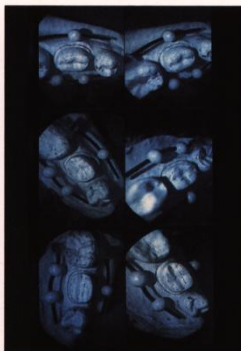
The laser camera acquires highly accurate images of the stone model. Average total acquisition time is three minutes for six to eight images.

The imaging computer permits the user to view and identify common landmarks on each image, using a graphic command tablet and mouse to control the computer. Average total processing time is five minutes for six to eight images.

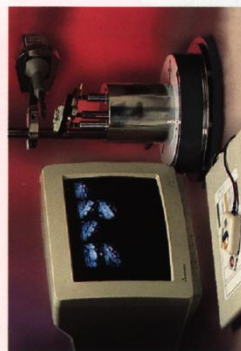
Images are then correlated and sent to the Biocad system for use during restoration design.



Imaging of Model



Summary View



Opticast Station

Technical Data

3-Dimensional Laser Camera Model Platform

- Model attaches to platform magnetically
- Platform moves vertically and inclines around all axes
- Platform includes controls for laser power, laser intensity, image acquisition

Laser Camera Platform

- Platform permits height and centering adjustments
- High-stability construction

Laser Camera

- High-resolution CCD camera
- Laser infrared source with automatic power cutoff

Imaging Computer Monitor

- 13-inch diagonal screen
- Controls for contrast, brightness, and picture height and width
- 850 x 560 pixel resolution

Graphic Command Tablet and Mouse

- Directly addresses monitor with zoom capability
- Point and click menu selection using mouse

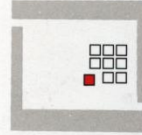
Processor

- Motorola 68020 CPU
- 5MB memory
- 70MB Winchester disk
- RS-232C link to Biocad system

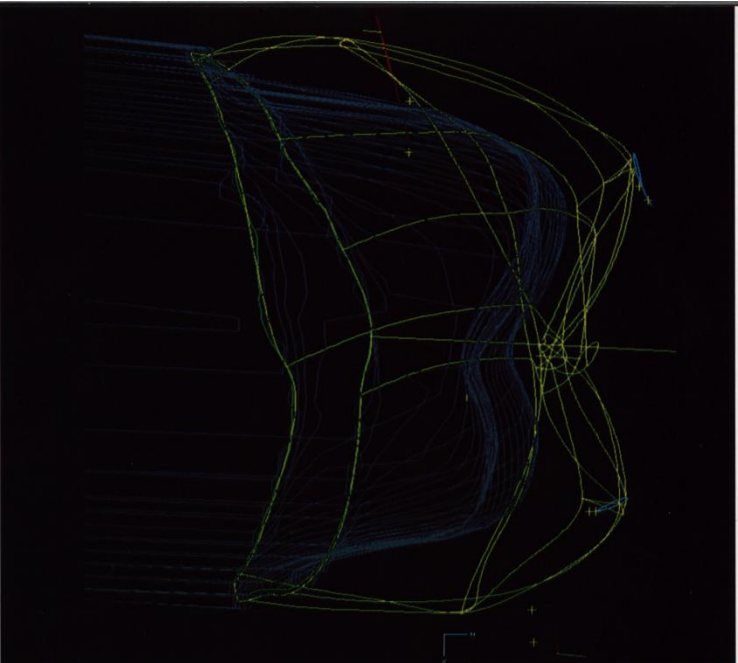
Installation

- 110V/60Hz input
- 800W power consumption
- Operating temperature 18°C to 24°C (64°F to 75°F)
- Humidity 40-60%
- Dimensions: compatible with dental technician's standard work area

All specifications are subject to change without notice.



STEP 2: BIOCAD COMPUTER-ASSISTED RESTORATION DESIGN



FROM TEXTBOOK MORPHOLOGY TO CUSTOMIZED RESTORATION

Step 2 of sophia-CAD/CAM operation—Biocad design—takes you from an established morphology for a defined tooth number to a customized restoration reflecting your own skill and expertise.

The Biocad computer uses correlated Opticast model images to build a three-dimensional computer model of the prepared tooth. The computer then fits a textbook morphology for that tooth number to the computer model, and presents the model and the morphology on the computer screen in a variety of perspectives, with zoom capabilities. In a simple sequence of steps, guided by the computer, you use the keypad and mouse to customize the morphology according to your own high standards. Powerful Biocad software requires no programming or computer experience, and provides automated functions to ensure high efficiency and superior quality control. The resulting design will incorporate all the technical characteristics of the very best restorations.

YOUR OWN PREFERENCES ARE BUILT IN

Biocad software is designed to learn your preferences and adhere

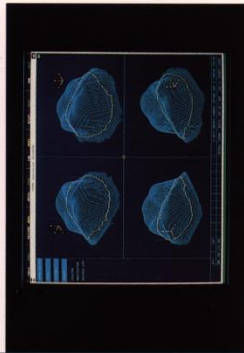
to them in case after case. During system set-up, you can specify standards for contours, cement space, and other important design characteristics. In all succeeding designs, these standards will automatically be used to define your restorations.

NEW QUALITY CONTROL CAPABILITIES

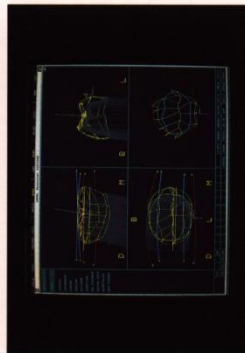
The system lets you perform analyses and safety checks that help ensure high quality restorations. For example, you may take a section at any angle through your design to inspect the restoration's adaptation to the preparation. You can check the fit at the margin, cement space, the thickness of the restoration material, and other important information. And when design is complete, the system performs a total material thickness check and automatically adds material where appropriate.

THE NEXT STEP

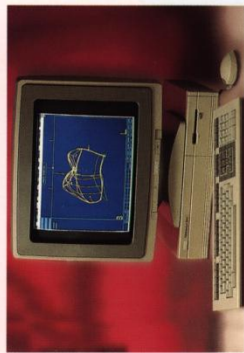
Biocad design combines automated efficiency and your own specialized knowledge and experience. It creates highly accurate and detailed designs, which are then translated into a set of parameters to control milling functions at the DMS system.



Computer Model of Preparation



Computer Model of Crown



Biocad Workstation

BIOCAD SPECIFICATIONS

General Description

The Biocad system is a high-speed dental restoration design computer with high-resolution monitor, keyboard and mouse, and powerful, "intuitive" design software.

Using correlated images provided by the Opticast system, the Biocad design computer creates a model of the preparation, fits a textbook morphology for that tooth number to the model, and presents both on the monitor.

With keyboard and mouse, the user has the option to make fine modifications to create a customized restoration design. The system's multi-window environment lets the user perform several operations simultaneously. The final design is then sent to the DMS milling station for fabrication.

The Biocad system may be configured with multiple Biocad, Opticast, or DMS systems, depending on production requirements. It may also be used for general business applications.

Technical Data

Design Computer

- High-speed processor
- Floating point accelerator
- 8MB central memory
- 2 x 140MB Winchester disks
- 1.4MB floppy disk
- Ethernet interface

Monitor

- 14-inch diagonal screen
- 1024 x 1024 pixel resolution
- 66Hz scanning frequency
- High-stability picture

Keyboard and Mouse

- 105 keys, including 35 function keys
- 3-button mouse

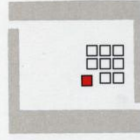
Operating System

- DEC VMS

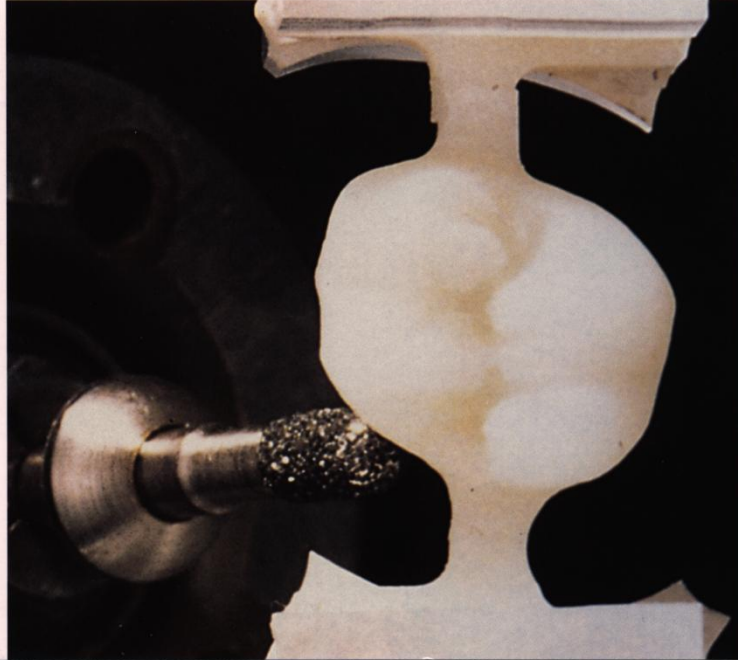
Installation

- 110V/60Hz input voltage
- 400W power
- Operating temperature 18°C to 24°C (64°F to 75°F)
- Tabletop or work surface installation

All specifications are subject to change without notice.



STEP 3: DMS PRECISION DENTAL MILLING



FROM CUSTOM DESIGN TO FINISHED RESTORATION

DMS milling—Step 3 of sophia-CAD/CAM operation—combines incredible power and delicacy to create beautiful finished restorations from your Biocad designs. The system brings together high-precision mechanical tooling with advanced electronic controls in a package which is totally automated and self-contained.

Design parameters sent from the Biocad computer guide DMS functioning. Stored in the memory of the DMS numerical control processor, these parameters define the movements of a set of high-resolution step motors, which drive a cutting spindle along three axes of travel. At the end of the spindle is one of eight milling burs, which shapes the selected restoration material mounted in the system.

sophia bioconcept service teams work closely with you to ensure proper installation and set-up of the DMS. Operation is safe, quiet, and draws from standard power and existing resources.

SELF-CALIBRATING TECHNOLOGY

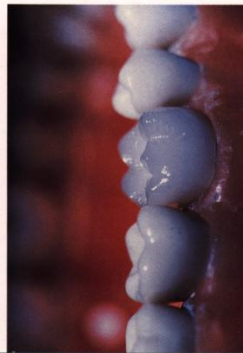
DMS is totally automated. To ensure consistent accuracy, it self-calibrates the tool length before each use and compensates for any variations. These and other safeguards ensure optimum results and no surprises.

A RETURN TO CONVENTIONAL PROCEDURES

At the completion of the milling process, the restoration is ready for staining; only the holding sprues must be ground off. (If requested, sophia bioconcept arranges for staining courses held by the ceramics manufacturers.) From that point on, it's business as usual—except that now you're achieving higher efficiency and higher precision than ever before.



DMS Milling System



Finished Crown

DMS SPECIFICATIONS

General Description

DMS is a high-speed, numerically controlled milling system created specifically for the fabrication of dental restorations.

Operation is totally automated and safe. Major DMS components include a high-precision spindle and burs driven by electronically controlled step motors, all enclosed in a heavy-duty housing which automatically locks during operation. The step motors move the spindle, burs and material blanks for 3 1/2 axes machining, guided by data defined during the Biocad design stage. Self-contained lubrication and cooling equipment automatically maintain optimum milling conditions. Burs are changed automatically during the milling process.

Finished restorations come out of the system ready for staining.

Technical Data

Spindle

- Speed: 25,000 to 60,000 rpm
- 300 to 700W power requirement
- Water-cooled

Lubrication

- Water or water plus additive
- Automatic selection and control
- Closed circuit water circulation through container

Burs

- 8 different types
- Bur tray with automatic changes
- Automatic tool length calibration

Numerical Control

- Motorola 68000 processor
- 8K RAM
- Motor power control

Input/Output

- RS-232C link to Biocad system
- Compressed air input
- Spindle coolant input/output
- Lubricant input/output

Additional equipment

- Lubricant containers and pumps
- Spindle coolant container and pump
- Electrical control box

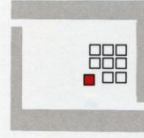
Safety

- Conforms to US safety specifications
- Cover automatically locks during milling
- Emergency stop control
- Milling stop/start control
- No electro-magnetic emissions

Installation

- Air pressure: 80-120 psi
- 110V/60Hz input
- 800W power consumption
- Operating temperature 18°C to 24°C (64°F to 75°F)
- Humidity 40 to 60%
- Dimensions: 620 x 400 x 800 mm (24.4 x 15.7 x 31.5 in.)
- Weight: 110kg (242 lbs)

All specifications are subject to change without notice.



sopha bioconcept inc.

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