

inLab MC X5 and inLab MC XL  
Efficient, systematic  
manufacturing

[dentsplysirona.com/inLab](https://dentsplysirona.com/inLab)



CAD/CAM manufacturing of prostheses in dental labs requires the highest possible productivity, efficient processes and safe, simple use. The equipment plays an important role in achieving these standards.

With the Dentsply Sirona inLab MC X5 and inLab MC XL milling and grinding units, many dental labs around the world benefit from a wide range of indications and materials according to their needs. The extensive CAM software, specifically designed for these machines, offers user-friendly and simple operation for all equipment functions along with dependable order processing and documentation security for all manufacturing processes.

Both inLab MC X5 and inLab MC XL provide a high degree of process reliability through compatible interfaces with the upstream inLab CAD component. In addition, you can process restoration data from other CAD software - in compatible or even open data formats.

Stay flexible with inLab.

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## inLab MC X5 systematic manufacturing versatility

The inLab MC X5 5-axis milling unit is specially designed to meet dental technology requirements and focuses on economic and effective production as a universal machine. Thanks to coordinated processes and thorough material validations, the unit guarantees high-quality results for a broad range of indications. Take advantage of Dentsply Sirona's materials expertise and its material partners, which are fully compatible with inLab MC X5 processing strategies - for greater flexibility in manufacturing prostheses.

## A well-designed production unit, from start to finish



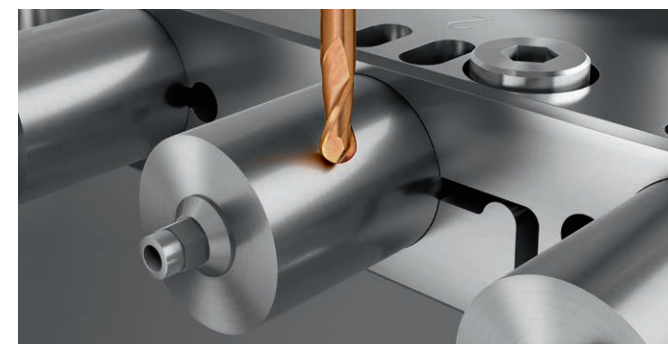
### Wet and dry

inLab MC X5 can be used for wet or dry processing, depending on the material and indication. Thanks to over 30 years of experience in the wet processing of glass ceramics, our machine is the ultimate pro when it comes to wet grinding fully anatomical restorations made of high-strength monolithic materials. Switching between wet and dry manufacturing, e.g. from glass ceramics to zirconium oxide, is quick and easy.



### Discs and blocs

inLab MC X5 processes standard discs (Ø 98.5 mm, up to 35 mm thick) as well as bloc materials. It takes just a few seconds to switch from discs to blocs. The specially designed multi-bloc holder can accommodate up to eight blocs of different materials and sizes to enable maximum productivity even with multiple single-tooth applications.



### Spindle Touch

The unique Spindle Touch Technology of inLab MC X5 captures the workpiece position with utmost precision. This ensures efficient material use and optimal processing of mesostructure blocs as well as pre-manufactured titanium abutment blanks.



# inLab MC X5 material class and tool concept

## Material-specific tools

A number of tools are used depending on the materials to be processed. The cutting geometries and coatings of cutters and diamond grinders are a perfect match for the respective materials and indications to produce outstanding surface and margin results. Coated cutting tools have considerably longer service lives and finer surfaces than uncoated tools.

## Optimum results with original tools

### Diamond-coated cutting tools for zirconium oxide

CAD/CAM-supported zirconium oxide processing requires premium milling results with minimal manufacturing times and long tool lives. High quality is a must for such milling tools. Dentsply Sirona developed the "Bur ZrO<sub>2</sub> DC" diamond-coated zirconium oxide burs for the inLab MC X5 based on extensive user feedback.

- optimized for zirconium oxide material properties
- considerably longer bur service life
- high-quality results throughout tool life

This quality has been proven using our own objective and reproducible test process - particularly in comparison with other manufacturers' burs. Test results clearly show that the original coated ZrO<sub>2</sub> DC bur provide reliable high-quality milling results throughout their tool life and are distinctly superior to other manufacturers' tools at all times. Accordingly, coated Dentsply Sirona burs are the most efficient option for processing zirconium oxide with the inLab MC X5.



### inLab MC X5 tool-changing concept

The fully automated tool changer can be fitted with up to six tools per process. The tool magazine can be prepared according to material requirements and is managed via the inLab CAM software. The intelligent sister tool management optimizes tool life and reduces downtime. The color coding for material classes, which is consistently used on tools, the tool magazine and in the inLab CAM software, offers additional ease of use and safety.

#### Diamond coated burs for zirconium oxide



Bur 0.5 ZrO<sub>2</sub> DC



Bur 1.0 ZrO<sub>2</sub> DC



Bur 2.5 ZrO<sub>2</sub> DC

#### Diamonds for grinding process



Diamond 0.6



Diamond 1.2



Diamond 1.4



Diamond 2.2

#### Burs for PMMA, wax, PEEK



Bur 0.5 PMMA



Bur 1.0 PMMA



Bur 2.5 PMMA

#### Burs for composites



Bur 0.5 Composite



Bur 1.0 Composite



Bur 2.5 Composite

#### Burs for sintering metal



Bur 0.5 Sintering Metal



Bur 1.0 Sintering Metal



Bur 2.5 Sintering Metal

#### Burs for titanium



Bur 1.0 Metal



Bur 2.0 Metal



## Safe, efficient manufacturing processes: inLab CAM software

### One perfect workflow:

The inLab CAM software was specifically developed for use with Dentsply Sirona CAD/CAM processing units. Thanks to the highly user-friendly interface, all necessary work steps, system configurations and integrated service functions can be carried out quickly and easily. Special manufacturing demands can be met with individualized settings. Additionally, the software offers a valuable documentation tool for the quality management of dental labs, with all essential information on job history, finished elements, and materials.

### Seamless integration

The data transfer from the inLab CAD software takes place automatically through compatible processes. All data concerning the dentist's order details, design parameters, material selection and machine type specifications are automatically transferred within the CAM software, eliminating the time-consuming need for repeated data entry.

### Validated and open

The inLab CAM software is open to the import of restoration data from other CAD software and offers the option of importing not only the open .stl and .3ox (3Shape®) data but also data from exocad® via a validated construction info interface.\* All readable metadata are then utilized to make the manufacturing process as convenient as possible.

The inLab CAM software's intelligent query system guides the user through a logical work process based on the chosen restoration type, regardless of the CAD data type.



Seamless



Validated



Open



# Everything at a glance with inLab CAM software

## Phase bar

The phase bar of the inLab CAM software provides clear, step-by-step guidance through the workflow for a dependable manufacturing process.

## Reading QR codes

A webcam offers the option to scan the QR code of Dentsply Sirona round discs\*. All material specifications such as name of the disc, color, thickness, lot number, shrinkage value and more are automatically transferred to the workpiece overview. Discs that have already been milled are traceable in the software by means of QR code. This avoids data entry errors and provides you with an optimal overview of the available round disc inventory at all times.

The screenshot displays the inLab CAM software interface. At the top, there is a phase bar with three stages: COLLECT, ARRANGE, and PRODUCE. Below this is a 'Blanks' section with a search bar and a 'Scan Blank' button. The main area contains a table of blanks with columns for Manufacturer, Material Name, Production Method, Blank ID, LOT-Number, Date, Enlargement, Fits, and a Preview column. The 'Preview' column shows a 3D model of a dental disc. At the bottom, there are buttons for 'Collect Items', 'Select Blank', and a double arrow icon. A 'Blanks' icon and an 'Archive' icon are also visible at the bottom left.

Manufactu...	Material Name*	Production Method*	Bla...*	Mate...	Blank ID	LOT-Number	Date	Enlargement	Fits	...	Preview
Dentsply Sirona	CELTRA DUO	Grinding	C 14		CELTRA DUO_3		14.02.2019		Yes		
Dentsply Sirona	Cercon base	Milling	∅ 98,0 x 25		Cercon base_1		20.02.2019	x,y = 1,234 z = 1,234	Yes (hei...		
Dentsply Sirona	Cercon ht	Milling	∅ 98,0 x 25		Cercon ht_2		20.02.2019	x,y = 1,234 z = 1,234	Yes (hei...		
Dentsply Sirona	Cercon ht	Milling	∅ 98,0 x 25		Cercon ht_8		20.02.2019	x,y = 1,234 z = 1,234	Yes (hei...		
Dentsply Sirona	Cercon xt	Milling	∅ 98,0 x 25		Cercon xt_1		20.02.2019	x,y = 1,234 z = 1,234	Yes (hei...		
Dentsply Sirona	Cercon xt-ML	Milling	∅ 98,0 x 18		Cercon xt-ML_3		20.02.2019	x,y = 1,234 z = 1,234	Yes (hei...		
Dentsply Sirona	inCoris CCB	Milling	∅ 98,5 x 20		inCoris CCB_1		12.03.2018	x,y = 1,235 z = 1,235	Yes (hei...		
Dentsply Sirona	Lucitone 199	Milling	∅ 98,5 x 25		Lucitone 199_5		21.01.2019		Yes (hei...		
Dentsply Sirona	Shaded PMMA Disc	Milling	∅ 98,0 x 12		Shaded PMM...		20.02.2019		Yes (hei...		
Dentsply Sirona	Wax Disc	Milling	∅ 98,0 x 25		Wax Disc_1		20.02.2019		Yes (hei...		

Planned workpiece  
preview

Integrated material class  
identification

Parallel creation of  
multiple orders

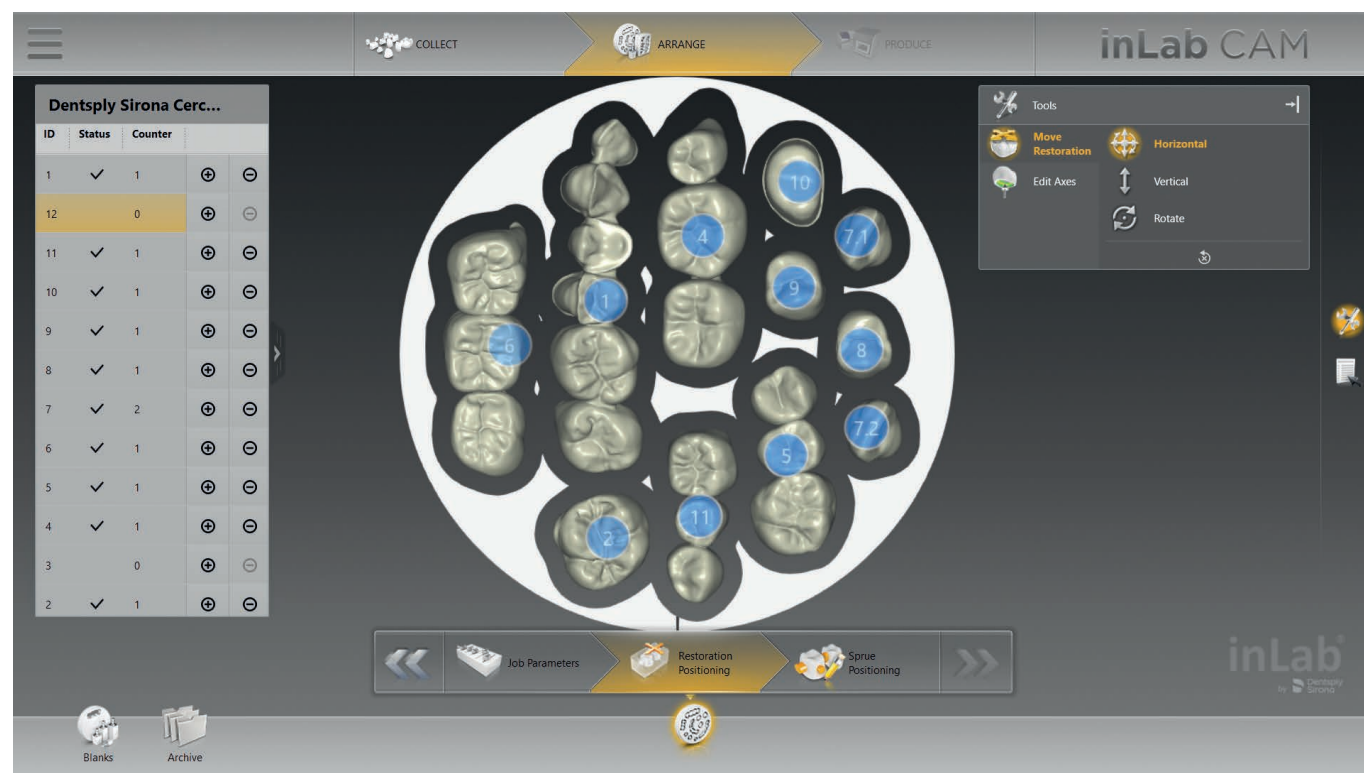
The inLab CAM software offers optimal efficiency and delegation options when preparing upcoming milling orders. Job lists can be generated during ongoing milling processes, to be started at a later point. In addition, multiple machines can grind and mill at the same time (e.g. inLab MC X5 and inLab MC XL).

\* Applicable for inCoris and Cercon xt ML materials. Additional materials are being prepared. This function is only available when a webcam is connected to the computer system.

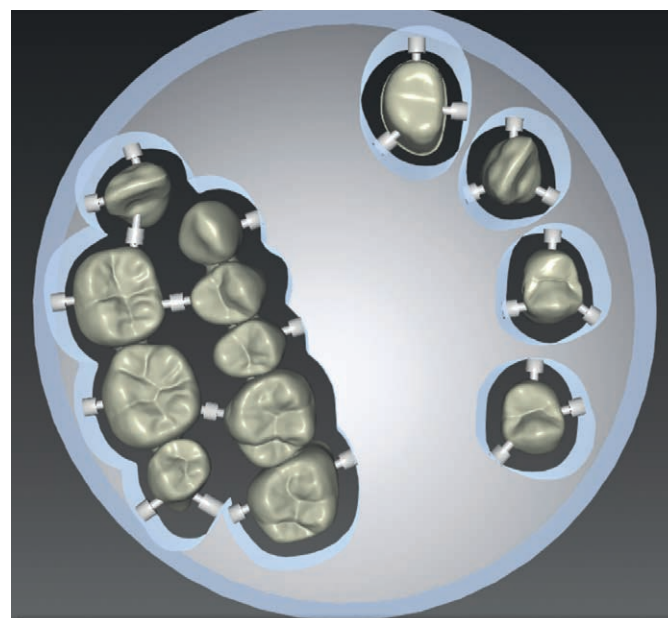
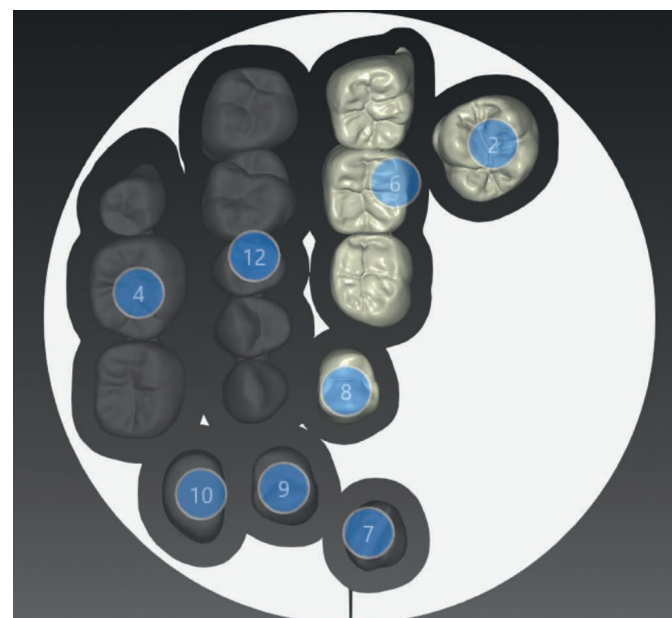


## Smart positioning in the workpiece

For efficient material use and optimal preparation, the inLab CAM software positions the restoration in the workpiece according to your specifications. This takes previously positioned or prepared objects into account. Users can make adjustments without restrictions in the individual arrangement - for maximum flexibility and according to individual demands.



Fully loaded workpiece with efficient material use.

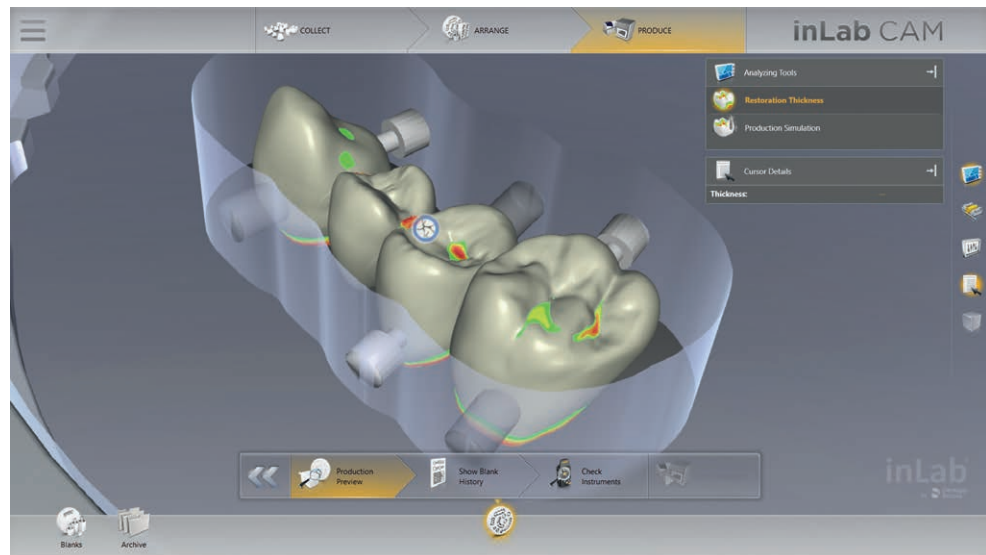


The workpiece status is considered during positioning and the restoration is positioned to ensure dependable manufacturing.

Objects can optionally be nested together for high material efficiency or positioned in separate nests for maximum safety and flexibility. Objects are simply "dragged" to change nest types.





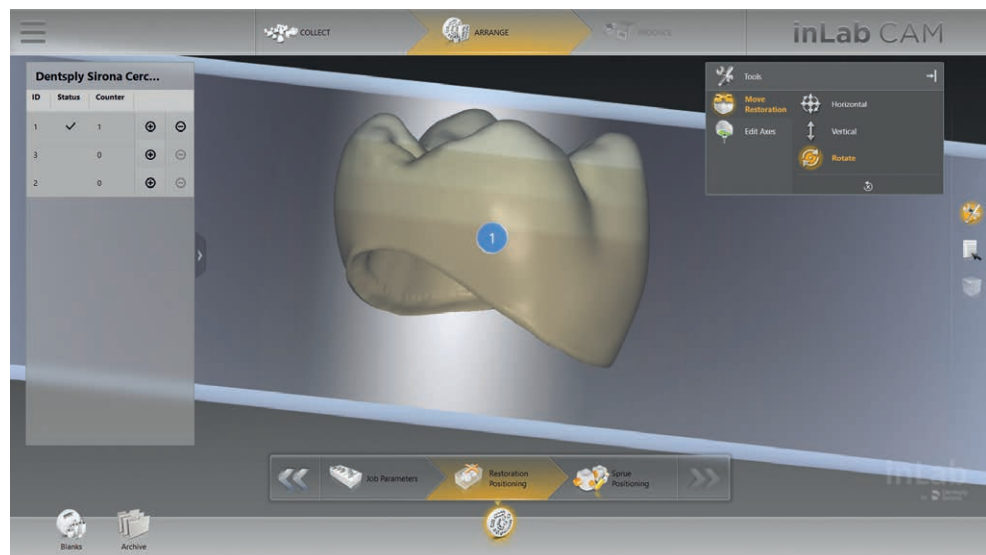


**Inspecting wall strength**

To guarantee the highest quality outcomes and optimal process safety for input data in .xml or .stl format, the wall strengths of an object can be inspected in a virtual model prior to processing. The system also displays the respective wall strengths for any given point.\*

**Positioning the tap site**

The sprue positions are initially placed at the object's equator and can be individually positioned.

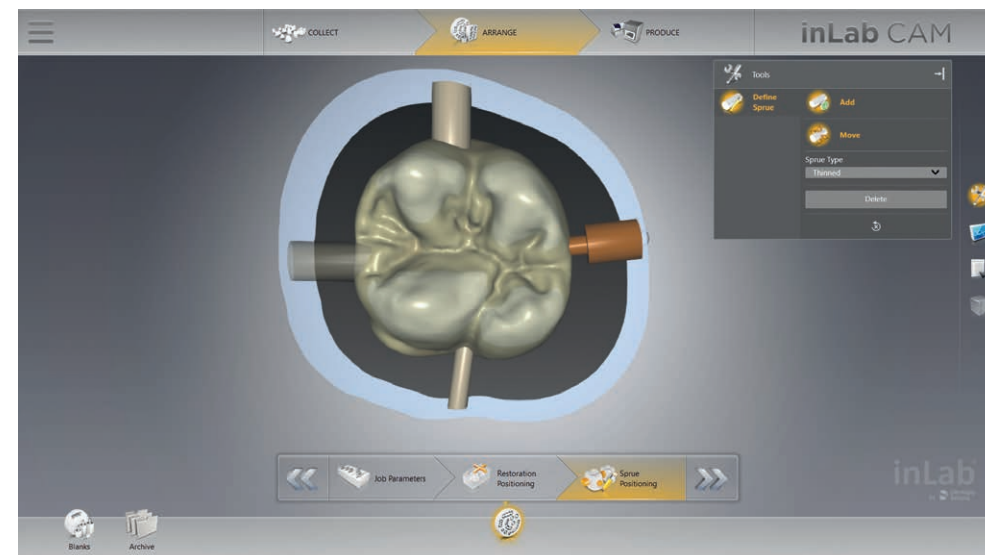


**Horizontal positioning on the x, y and z axes**

For optimal positioning within the workpiece (e.g. with multi-layer materials such as Cercon xt ML) the object can manually be shifted and rotated in all directions.

**Adjusting the tap site**

The sprue positions can be defined differently for individual demands. The available types are "Standard," "Thinned," "Heavily thinned" and "Separated." The final state is generated in the last manufacturing step to minimize manual retouching.\*



**Fitting surface**

When restoration design does not correspond to the configuration of the machine.\*



**Minimize undercuts**

The automatic reduction of undercuts is an option to guarantee the complete object preparation. Alternatively, users can make manual adjustments.

\* available from inLab CAM SW 19.0; expected to be launched in May 2019

\* available from inLab CAM SW 19.0; expected to be launched in May 2019



## Ready for Milling

Depending on the equipment and instrument configuration, you can define the contour detail level for each restoration in the workpiece in the inLab CAM Software production preview without affecting the precision and surface quality. In addition, you can individually specify the intended surface quality to match restoration requirements, for instance a rough finish for frameworks that are to be veneered or a smooth finish with low gap spacing for final surface quality of fully contoured crowns.

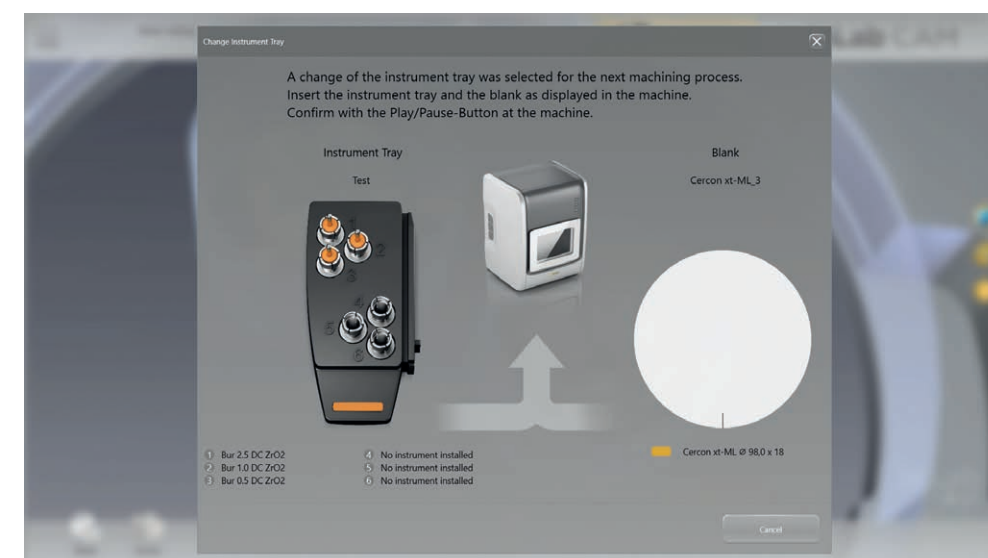
To ensure an optimal restoration fit, a tool-adjusted preparation of fitting surface is available for designed objects in which the machine/tool properties were not taken into consideration.\* Process safety is further enhanced by the software reminder to correctly load the machine before the production starts.



### Level of detail

The detail level can be set to three different stages (very high/high/low) and determines which tools are to be used during the milling process.

Setting the work mode (fast/rough/smooth) defines the process time and influences the surface texture of the restoration. The production result can be simulated.\*



### Preparing the machine

The inLab CAM software dialog window displays reminders for the proper loading of the necessary instrument magazine and workpiece before the manufacturing process can begin.

\* available from inLab CAM SW 19.0; expected to be launched in May 2019



## Safe processes for dependable production

Our extensive professional and technological dialog with dental technicians around the world has contributed to minute precision in the design and further development of the inLab MC X5 production unit, well beyond the grinding and milling processes – for simple and safe use.



### Equipment and instrument management

All service and maintenance functions of the inLab MC X5 can be carried out through the CAM software.



### Touch remote control

The steps and menus for operating the machines are designed for optimal touch control. The entire function range of the CAM software, such as tool management, equipment configuration, process initiation, service functions, etc. can be conveniently operated from a tablet PC directly at the machine.



### Documentation security

The inLab CAM software offers a PDF archiving function for traceable documentation of restorations and orders manufactured from a workpiece, including information on the manufacturer, material name and class, lot number and enlargement factors. That offers support to comply with modern quality management requirements.



### Easy Clean concept

The high-quality interior design of inLab MC X5 includes smooth surfaces and rounded contours. This reduces deposits and allows for easy cleaning. The intelligent suction concept, lid protected tool magazine and software-supported cleaning are all designed to make your work easier.



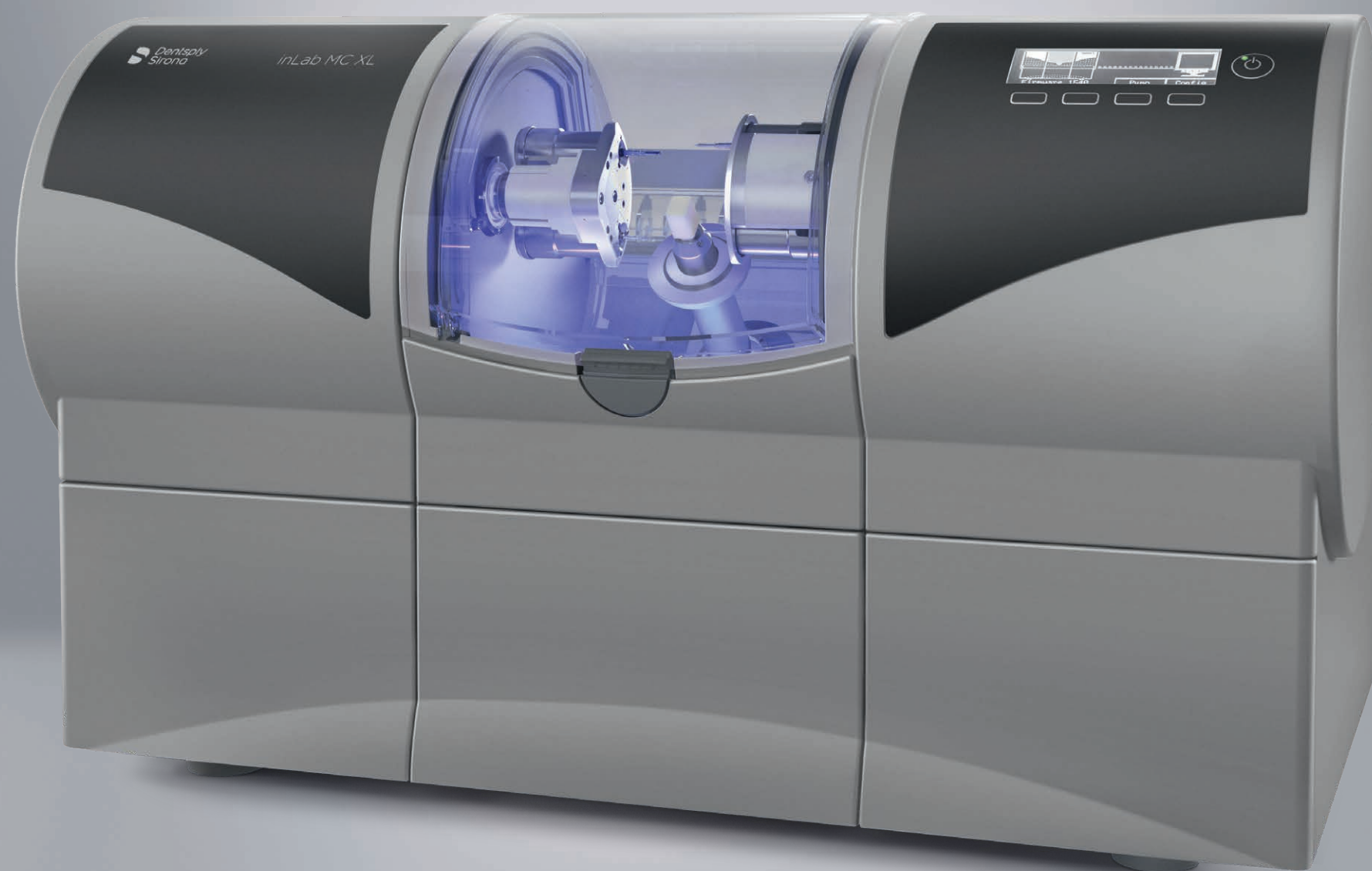
### inLab MC X5 suction device

The compact inLab MC X5 suction device with low-maintenance electronics is optimally configured to meet the demands of manufacturing units. The inLab CAM software automatically controls the communication between the suction device and the machine (start, stop, filter info, etc.).



## InLab MC XL – quick, accurate and open

inLab MC XL is a fast grinding and milling unit with a wide range of production options for your dental lab. It offers high speed and accuracy, with the option to quickly change from grinding to milling. The wide material selection and versatile applications provide particularly flexible and efficient manufacturing options.



### inLab high-speed grinding

Glass and hybrid ceramic restorations can be produced with unprecedented speed in simultaneous dual four-axis processing (for instance, a fully anatomical Celtra Duo crown in less than 10 minutes) – key to the success of many lab business models where digital impression orders need to be processed within the hour.

### Precision processing

The inLab MC XL stands out for its precise wet processing. The processing of glass ceramics involves grinders up to 0.6 mm Ø – for restorations with the highest attention to detail in occlusion, interdental areas and at the preparation margin.

### Wide range of materials

As with all CAD/CAM production units from Dentsply Sirona, inLab MC XL offers the choice from a wide range of materials. The materials of Dentsply Sirona and our material partners are optimally coordinated for high-speed processing.

### Compatible with imported restoration data

As in the case of the inLab MC X5, the inLab MC XL unit is controlled by the inLab CAM software. In the inLab system, inLab MC XL produces restorations perfectly in tune with the inLab CAD software. Alternatively, you can import restorations from other CAD software in open .stl or .3ox format (e.g. 3Shape®) or via a validated interface for construction info data from exocad®.\*



Seamless



Validated



Open

\* available from inLab CAM SW 19.0; expected to be launched in May 2019





## Technical specifications

General	inLab MC X5	inLab MC XL
Width x height x depth	590 x 810 x 580 mm	700 x 425 x 420 mm
Weight	87 kg	43 kg
Required compressed air pressure	min. 7 bar	-
Required compressed air volume	min. 50 l/min*	-
Noise level	<63dba	<65dba
Kinematics		
Axes	5	4
Setting angle for A axis	360°	+/-180°
Setting angle for B axis	+/-30°	15°
Material shapes		
Blocs	40 x 19 x 12 mm	85 x 40 x 22 mm
Max. number of blocs per process	8	1
Discs (shape)	98/98.5 mm with collar	-
Discs (thickness)	up to 35 mm	-
Open material choice	yes	not explicit
Tool management		
Automatic tool change	yes	no
Max. number of tools per process	6	2 (4)
Changeable tool magazines controlled in software	yes	no
Material types		
Zirconium oxide	x	x
PMMA	x	x
Wax	x	-
Composite	x	x
Hybrid ceramics	x	x
Glass ceramics (with wet option)	x	x
Lithium disilicate ceramics (with wet option)	x	x
CoCr sintered	x	x
Titanium preforms	x	-

\* 80l/min. recommended

Materialpartner:



VITA



3M



COLTENE

Kuraray  
Noritake

GC



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