

# Refraction unit

OPHTHALMIC UNITS





*C.S.O was established in 1967 as ophthalmological devices producer and soon becomes a world leader company for the production of a wide range of ophthalmological products.*

*The refraction units by C.S.O. are born at the beginning of the 90s to gather several ophthalmic devices in one solution characterized by harmonious lines, compact, ergonomic and long-lasting structure,*

*The C.S.O. refraction units are characterized by their practicality compatible with a wide range of devices for the modern ophthalmological diagnostic and they provide a pleasant daily working experience.*

*Thanks to an attentive selection of the materials used for the construction and a wide range of available colors and customizations, it is possible to realize a harmonious and comfortable working environment for the user and the patient.*

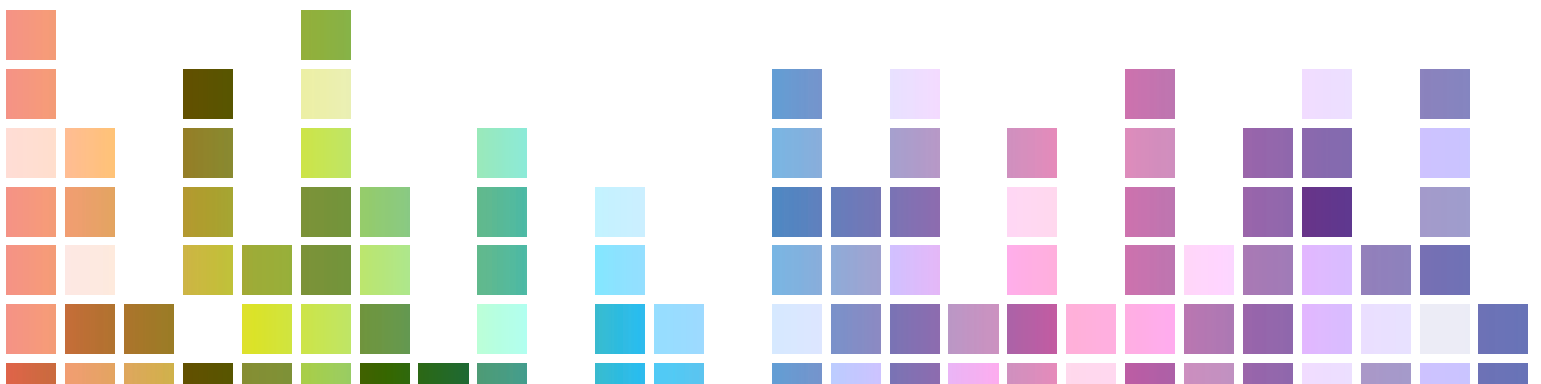


*Thank you for choosing C.S.O. as your supplier.*



REFRACTION UNIT

# Elegance



## REFRACTION UNIT

**ELEGANCE** it is a modern support station for 2 instruments fully compatible with a wide range of ophthalmic devices. The refraction unit is equipped with a practical and ergonomic command console which allows the optimal use of the instrumentation and gives the possibility to memorize all the working functions of the device for a fast and comfortable use. As the whole range of CSO ophthalmic units, ELEGANCE can be completely customized with a wide choice of colors.



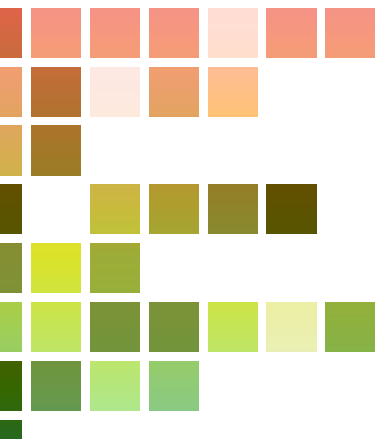
Eye charts projector support



Remote control compartment



Commands console

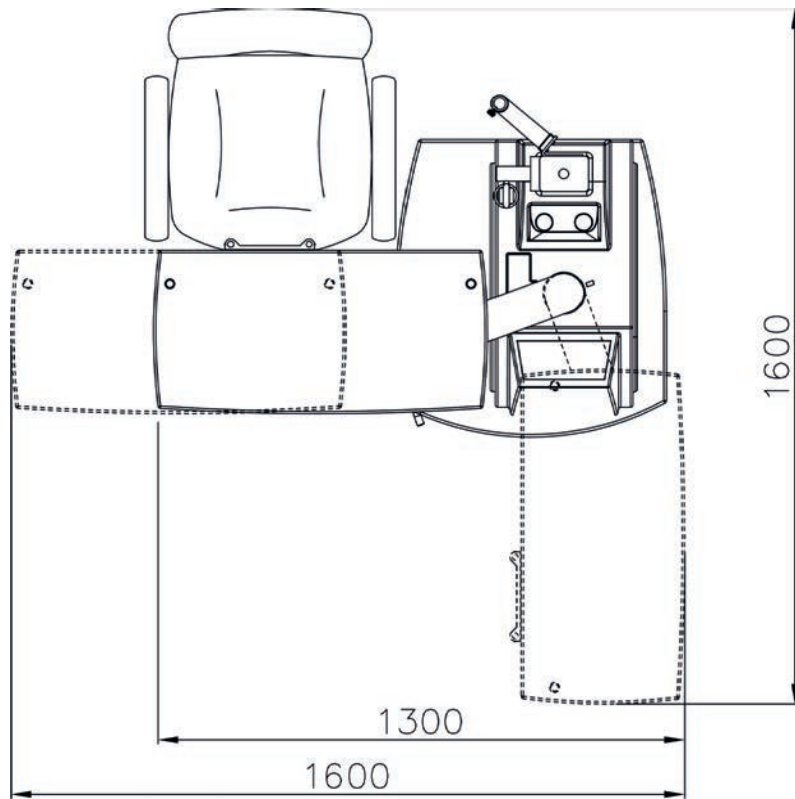


Ceiling light with three light sources suitable for every unit  
with:  
- LED light with adjustable intensity  
- with light spot  
- upper ambient LED light  
(optional)



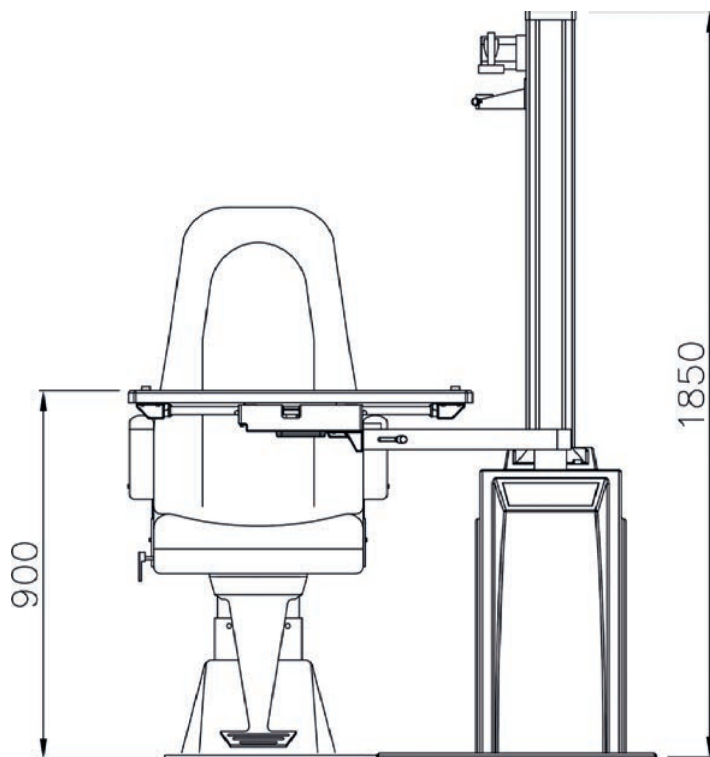
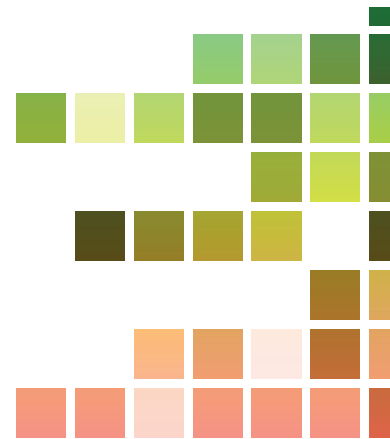
- Phoropter support  
(optional)





### STANDARD EQUIPMENT

- Central structure with command console
- Column with adjustable LED spotlight with variable intensity
- Eye charts projector support
- Plane with manual movement, 2 positions
- Retinoscope/ophthalmoscope compartment



### ACCESSORIES (OPTIONAL)

- Chair with electronic height adjustment
- Self-balancing arm for phoropter + support
- Ceiling light with 3 LED lights
- Movable LED spotlight
- Arrangement video system
- LCD monitor support
- Plane for auto refractometer
- Plane for column monitor
- Desk
- Drawers
- Version with opening on the left
- Special supports for chin rest

ELECTRICAL DATA	Version 230V	version 120V
Supply voltage	230 Vac ±10%	120 Vac ±10%
Power frequency	50Hz	60Hz
Network fuses	4A T 5x20mm	8A T 5x20mm
Auxiliary sockets (chair and devices)	230Vac 50Hz	120Vac 60Hz
Max power absorbed by the auxiliary sockets	100 VA	100 VA
Max power absorbed by the unit:	600 VA	600 VA
Voltage for the table instruments	6Vac or 12Vac Ophthalmometer   Slit Lamp 6Vac or 12Vac Fixation point of the Chin rest	

REFRACTION UNIT

# Fusion



## REFRACTION UNIT

**FUSION** it has all the features of a high-end ophthalmic unit in a very reduced space. It has a new generation shatterproof touch-pad console, backlit, easy to use and to clean. On the console there are all the main commands and it is also possible to memorize various functions for a fast and comfortable use. **FUSION** can be equipped with an electric lifting plan, the command for the management of the electric anteroposterior movement of the chair is available (optional).

The working plane for 2 instruments can be blocked and activated in any position. This feature makes the unit suitable for patients with motor difficulties. A wide range of accessories is available: chairs, ceiling lights, drawers and many other accessories to personalize the furnishing of the studio. As the whole range of CSO ophthalmic units, **FUSION** can be customized with a wide choice of colors.

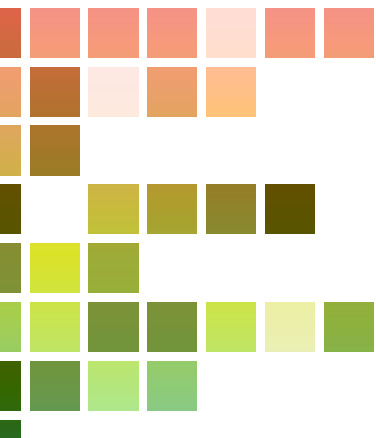


Spotlight support with CSO projector insert



Shatterproof touch-pad console, backlit

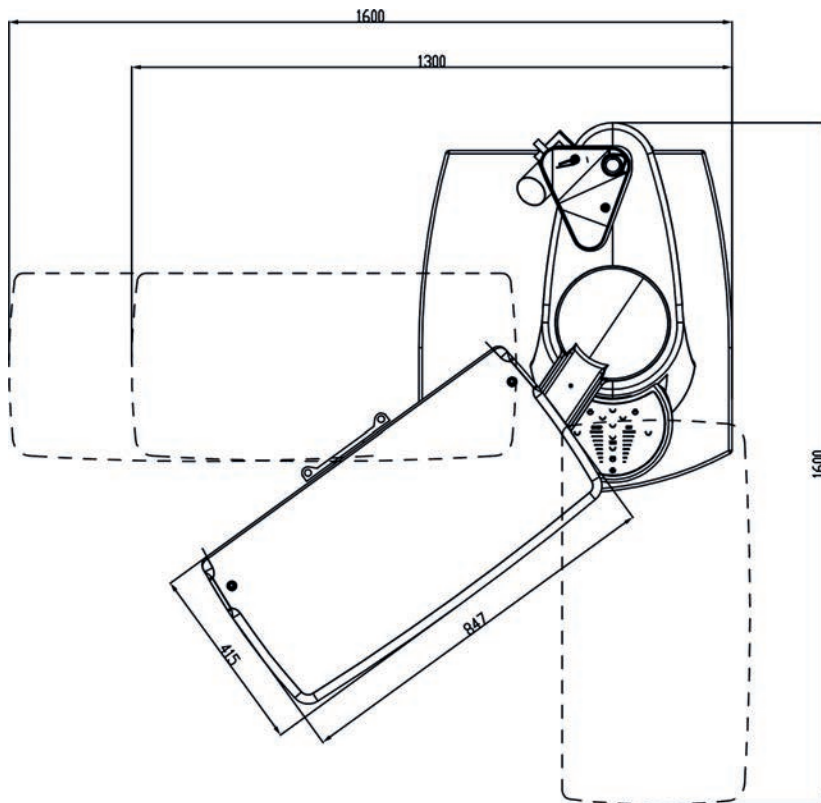




Special supports with objects storage compartment (optional)

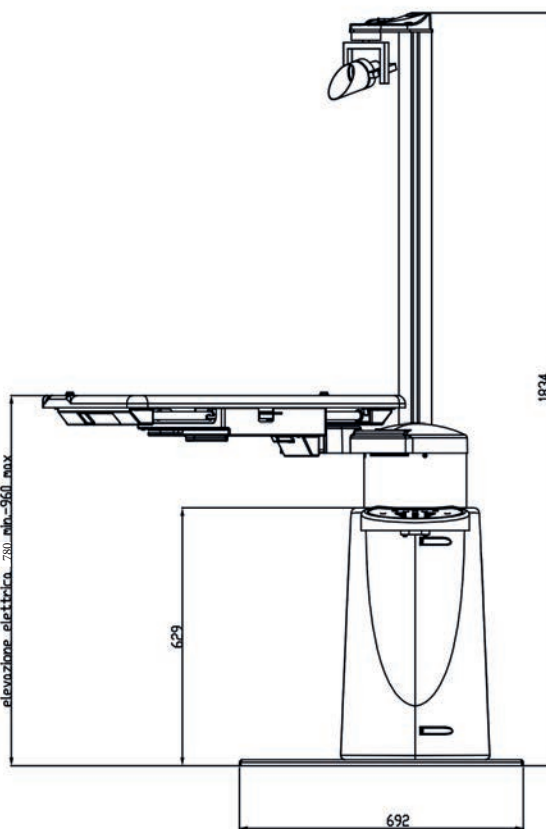
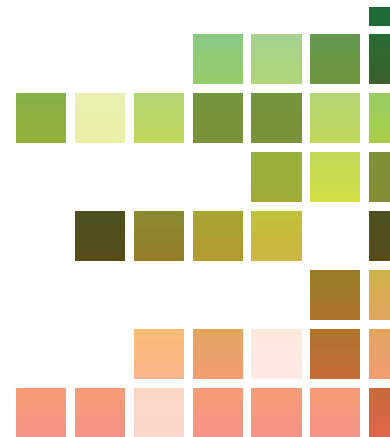


Ceiling light with three light sources suitable for every unit with:  
- LED light with adjustable intensity  
- with light spot  
- upper ambient LED light (optional)



### STANDARD EQUIPMENT

- Structure with command console
- Column with adjustable LED spotlight
- Eye charts projector support
- Plane with manual movement, 2 positions



### ACCESSORIES (OPTIONAL)

- Chair with electronic height adjustment
- Self-balancing arm for phoropter
- Support for phoropter arm
- Electrical elevation of the plane
- Wood's lamp with arm
- LED spotlight with fixed intensity
- LCD monitor arm
- Arm with plane for column
- Arrangement video system
- Special supports for chin rest
- Desk
- Drawers
- Various supports for column
- Version with opening on the left
- Support for storage compartment
- Ceiling light with 3 LED lights

### ELECTRICAL DATA

	From	To
Supply voltage	90 V	264 V
Power frequency	47Hz	63Hz
Network fuses	4A T 5x20mm	8A T 5x20mm
Auxiliary sockets (chair and auxiliaries)	110Vac 50Hz	230Vac 60Hz
Max power absorbed by the auxiliary sockets	100 VA	100 VA
Max power absorbed by the unit:	600 VA	600 VA
Voltage for the table instruments	from 0 Vac/DC to 24Vac/DC Ophthalmometer   Slit Lamp from 0Vac/DC or 24Vac/DC Fixation point of the Chin rest	

REFRACTION UNIT

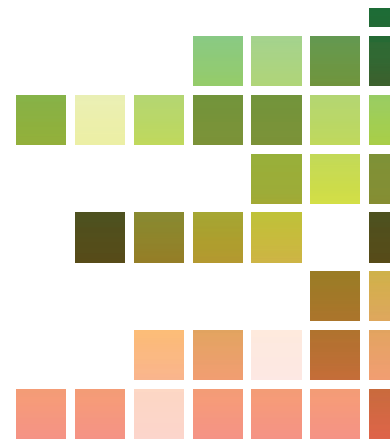
# Etoile II



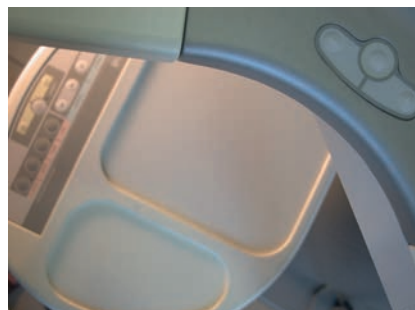
## REFRACTION UNIT

**ETOILE II** it is an ophthalmic unit with rotating plane designed for 3 ophthalmic instruments, it is available also in the version with a working plane with electronic height adjustment. ETOILE II offers the greatest functional capacity taking up a minimal amount of space and offers an absolute reliability in every working situation. IT IS available a version with minimum height of 74 cm, ideal to facilitate the entrance for disabled patients.

The standard version can accommodate: slit lamp, Ophthalmometer and an optional ophthalmic device. It is equipped with a lenses drawer under the instruments plane. The command consoles make it very comfortable for every day use and in all the working conditions. As the whole range of CSO ophthalmic units, ETOILE II can be customized with a wide choice of colors.



Version for patients with motoric difficulties



Commands console



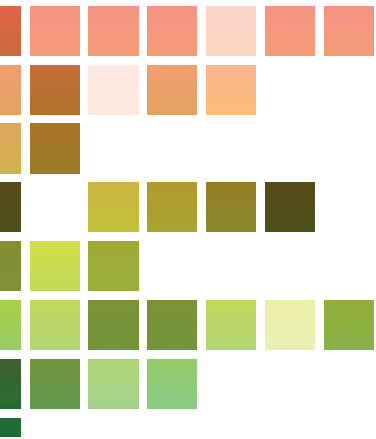
Plane for keyboard PC. (optional)



Eye charts projector support



Spotlight support with insert for CSO projector

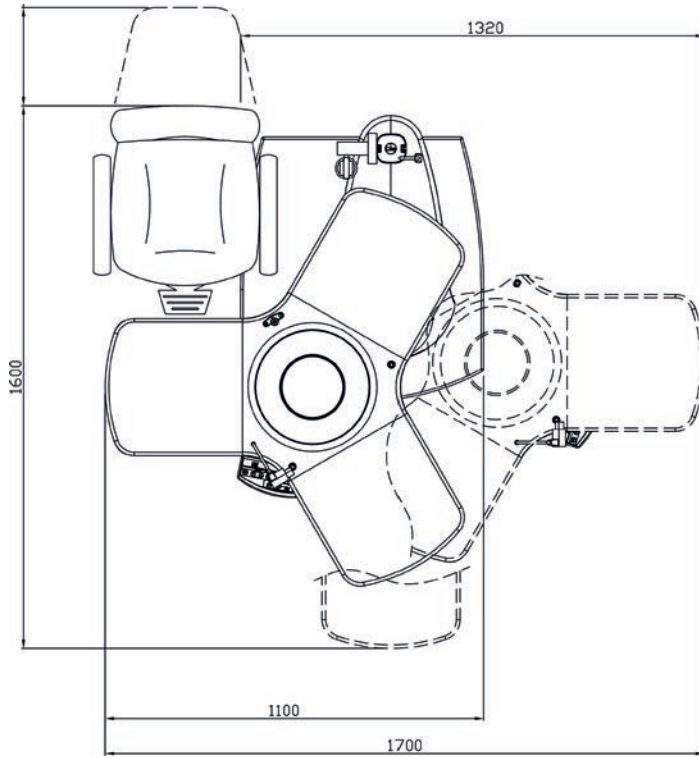


Lenses drawer. (not available in the disabled patients version)



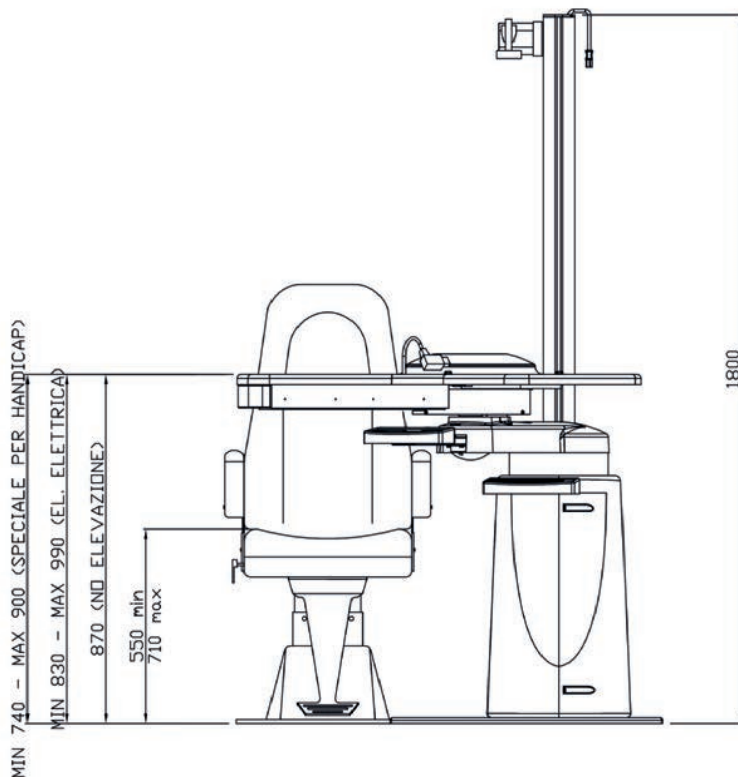
Ceiling light with three light sources suitable for every unit with:  
- LED light with adjustable intensity  
- with light spot  
- upper ambient LED light (optional)





## STANDARD EQUIPMENT

- Structure with 3 instruments plane
- Column with adjustable LED spotlight
- Column with projector compartment
- Drawer with lenses tray
- Three commands consoles



## ACCESSORIES (OPTIONAL)

- Chair with electronic height adjustment
- Working plane with electronic height djustment (from 84 cm to 100 cm and from 74 cm to 90 cm)
- LED spotlight
- Self-balancing arm for phoropter
- Support for phoropter arm
- Support for column plane
- Wood's lamp with arm
- Arrangement video system
- Arrangement for corneal topographer
- Various supports for column
- LCD monitor support
- Wheeled drawer and desk
- Version with opening on the left
- Finishing with special materials
- Plane for pc keyboard

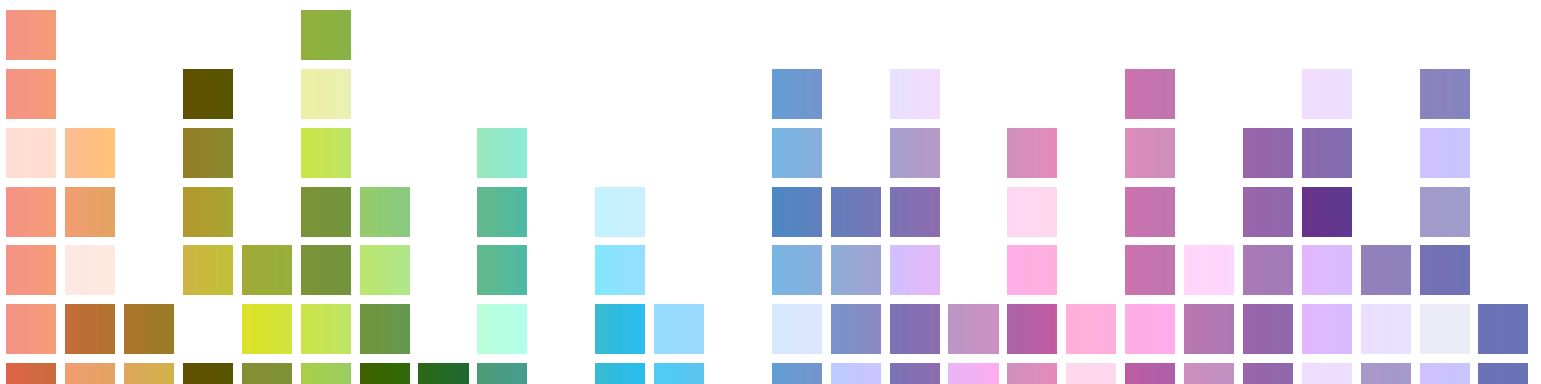
## ELECTRICAL DATA

	Version 230V	Version 120V
Supply voltage	230 Vac ±10%	120 Vac ±10%
Power frequency	50Hz	60Hz
Network fuses	4A T 5x20mm	8A T 5x20mm
Auxiliary sockets (chair and auxiliaries)	230Vac 50Hz	120Vac 60Hz
Max power absorbed by the auxiliary sockets	100 VA	100 VA
Max power absorbed by the unit:	600 VA	600 VA
Voltage for the table instruments	6Vac or 12Vac Ophthalmometer   Slit Lamp 6Vac or 12Vac Fixation point of the Chin rest 230 Vac for other diagnostic instrument	

REFRACTION UNIT

# Future

DELUXE 2 | DELUXE 3



## REFRACTION UNIT

**FUTURE DELUXE 2 - FUTURE DELUXE 3** it is a unit with electric actuator instruments plan available in two versions, with 2 or 3 ophthalmic devices (FUTURE 2 - FUTURE 3). The working plane is equipped with a drawer for the tonometer and a ceiling light with 3 LED lights. It is equipped with 2 new generation shatterproof touch-pad consoles, backlit, easy to use and to clean; on the consoles there are all the main commands and it is also possible to memorize

all the functions of the device for an easy and comfortable daily use. The FUTURE refraction units are customizable with special materials (glass, wood, Corian® etc.), and are characterized by an innovative and ergonomic design. As the whole range of CSO ophthalmic units, FUTUREit is customizable with a wide colors range.



Unit with desk and  
- customized drawer with wood marquetry



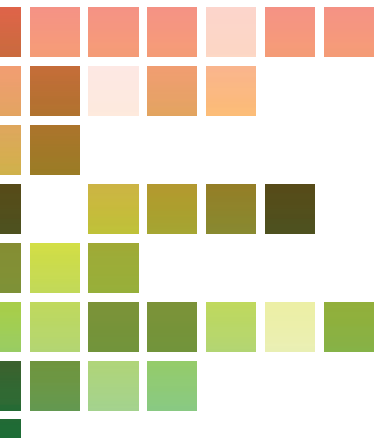
Touch-sensitive keyboard



Color and base backlit  
(optional)



Ceiling light with three light sources suitable for every unit  
with:  
- LED light with adjustable intensity  
- with light spot  
- upper ambient LED light  
(optional)



Refraction units with backlit base  
(optional)

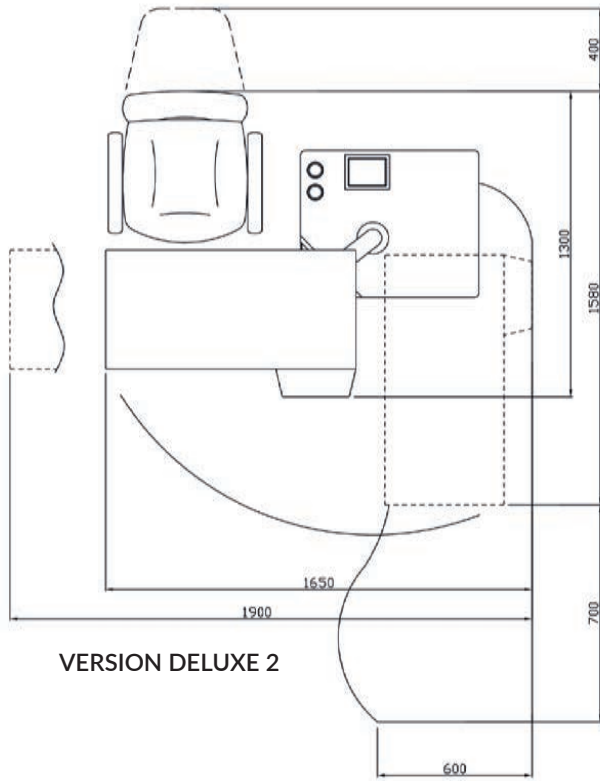


Wide range of available colors  
(optional)

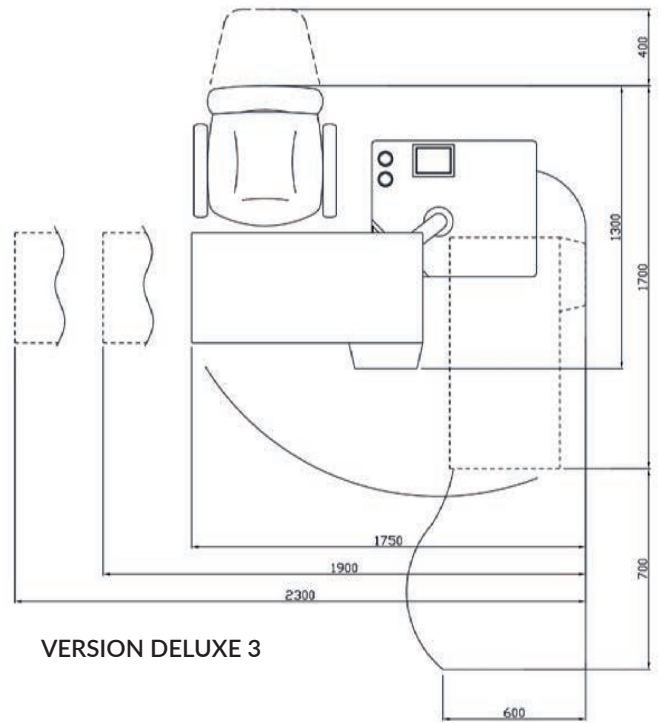


Drawer for Tonometer compartment

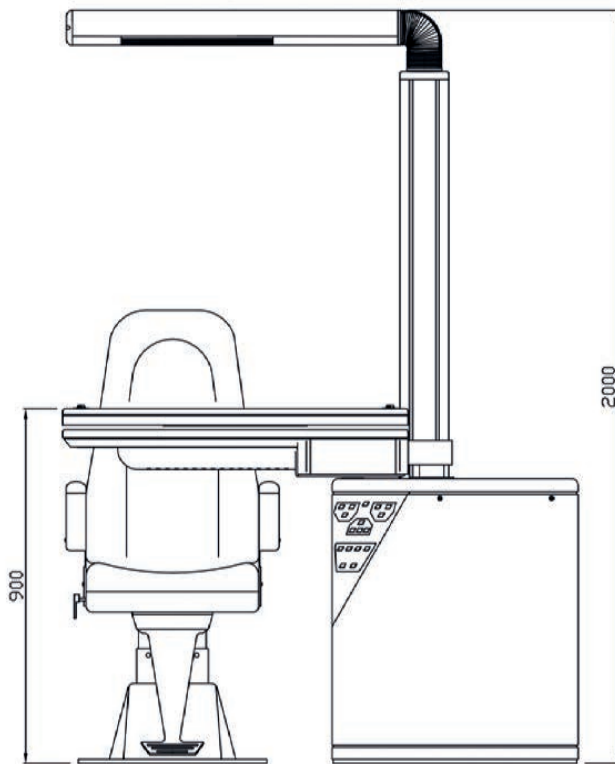




VERSION DELUXE 2

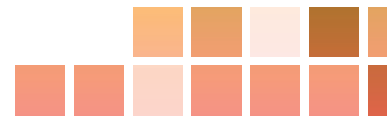


VERSION DELUXE 3



**STANDARD EQUIPMENT**

- Structure with support plane for 2 or 3 electronica movable instruments
- Ceiling light with 3 LED lights
- Column with projector compartment
- 2 commands consoles
- Drawer for Tonometer compartment



**ACCESSORIES (OPTIONAL)**

- Chair with electronic height adjustment
- Self-balancing arm for phoropter
- Wood's lamp with self-balancing arm
- Auxiliary spot
- Arrangement video system
- LCD monitor support
- Predisposition plane for auto refractometer
- Illuminated base
- Various supports for column
- Version with opening on the left
- Desk
- Drawers
- Finishing with special materials

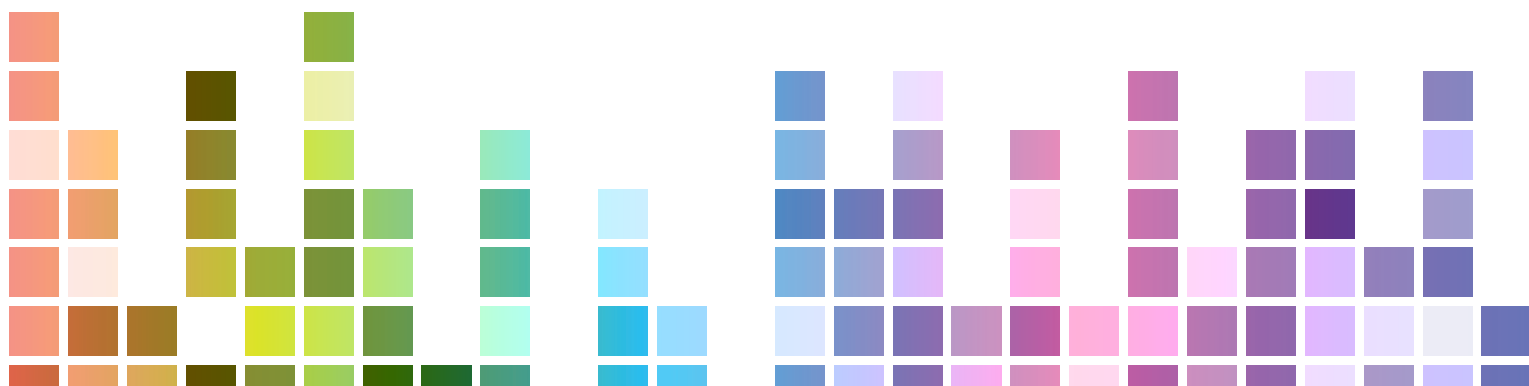
**ELECTRICAL DATA**

	From	To
Supply voltage	90 V	264 V
Power frequency	47Hz	63Hz
Network fuses	4A T 5x20mm	8A T 5x20mm
Auxiliary sockets (chair and auxiliaries)	110Vac 50Hz	230Vac 60Hz
Max power absorbed by the auxiliary sockets	100 VA	100 VA
Max power absorbed by the unit:	600 VA	600 VA
Voltage for the table instruments	from 0 Vac to 24Vac Ophthalmometer   Slit Lamp from 0Vac or 24Vac Fixation point of the Chin rest 230 Vac for other diagnostic instrument (3 instruments version)	



REFRACTION UNIT

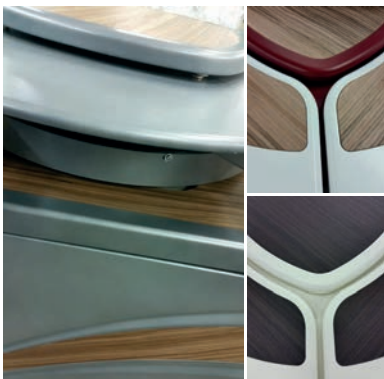
# Vintage



## REFRACTION UNIT

**VINTAGE** it is a unit for 4 independent instruments which can be used also in resting position. It is customizable with any device and thanks to a control tab with microprocessor, allows the user to program the best working conditions for a fast and comfortable use.

The movements are manual and the unit is equipped with the powered elevation of the electrical plane. The unit is equipped also with a lenses tray and 2 storage drawers. As the whole range of CSO ophthalmic units, **VINTAGE** can be customized with a wide choice of colors.



Wooden finishing  
(optional)



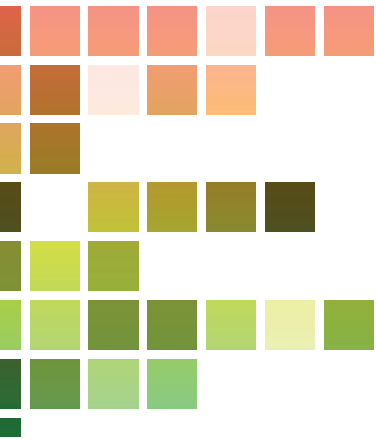
Commands console



Drawer for compartment  
of the accessories



Ceiling light with three light sources suitable for every unit  
with:  
- LED light with adjustable intensity  
- with light spot  
- upper ambient LED light  
(optional)



Lenses drawer



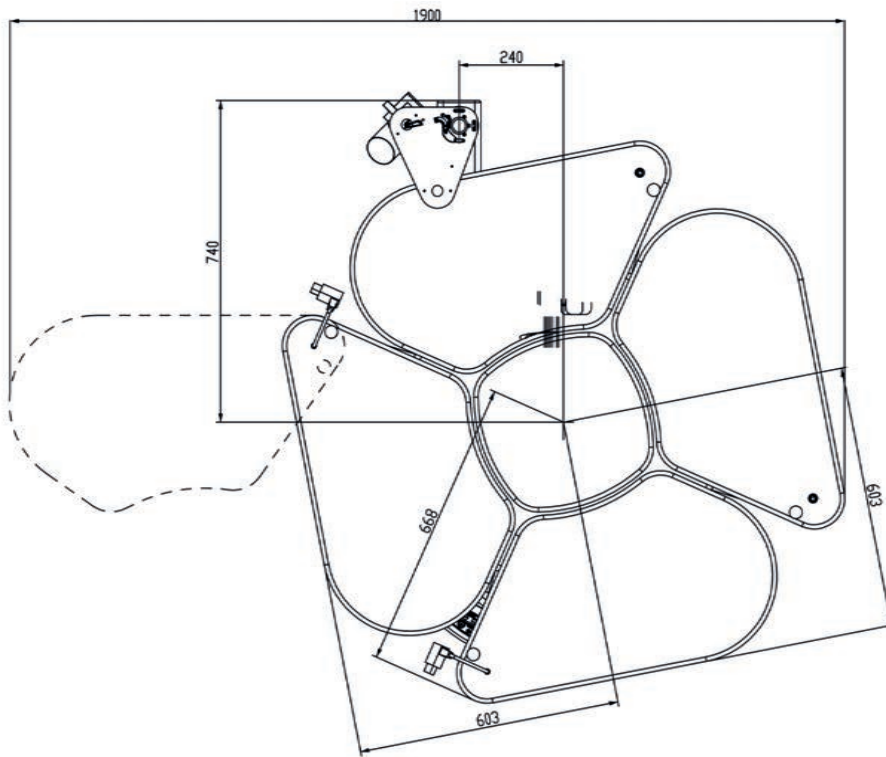
Commands console and drawers



Refraction units installed in the CSO mobile clinic

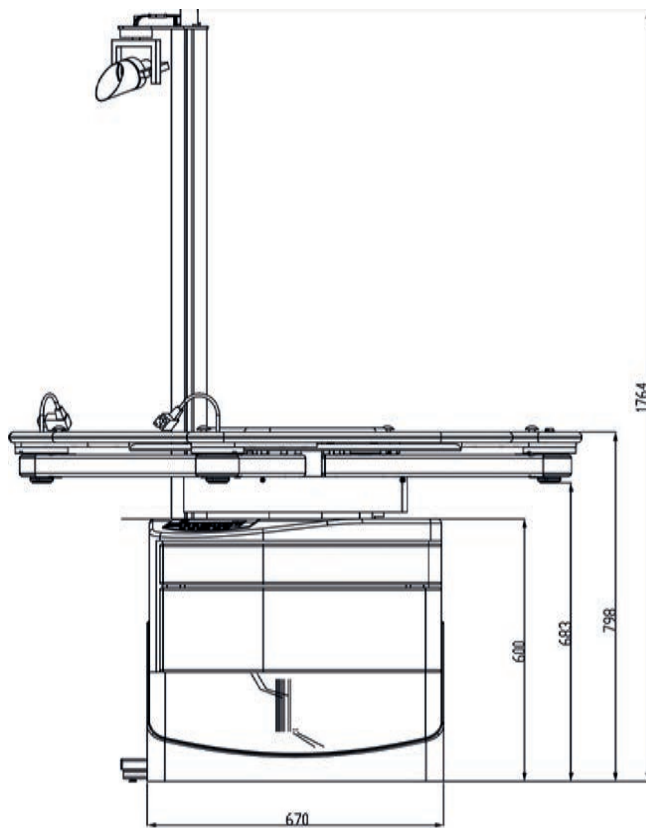
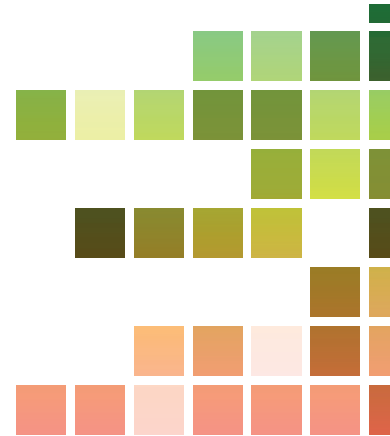


Compartment for 4 ophthalmic instruments



### STANDARD EQUIPMENT

- Working plane with
- electronic height adjustment (min 80 cm max 96 cm)
- Two planes with low tension supply
- Two planes 230V supply
- Central structure with command panel
- Column with spot light with variable intensity
- Eye charts projector support
- Integrated lenses drawer
- 2 storage drawers



### ACCESSORIES (OPTIONAL)

- Chair with electronic height adjustment
- Ceiling light with 3 LED lights with adjustable intensity
- Support for self-balancing arm for phoropter + support
- Arm with plane
- Wood's lamp with arm
- Arrangement video system
- LCD monitor support
- Arrangement for topographer
- Wheeled drawer and desk
- Drawer with commands in various configurations
- Hook for headband

### ELECTRICAL DATA

	From	To
Supply voltage	90 V	264 V
Power frequency	47Hz	63Hz
Network fuses	4A T 5x20mm	8A T 5x20mm
Auxiliary sockets (chair and auxiliaries)	110Vac 50Hz	230Vac 60Hz
Max power absorbed by the auxiliary sockets	100 VA	100 VA
Max power absorbed by the unit:	600 VA	600 VA
Voltage for the table instruments	from 0 Vac to 24Vac Ophthalmometer   Slit Lamp from 0Vac or 24Vac Fixation point of the Chin rest 2 x 220v for other diagnostic instrument	

# Accessories



**Phorofter arm**  
cod. 100805-02

**Plate for projector (not CSO)**  
cod. 100805-05



**Movable spotlight**  
cod. 100811550



**Plane for column monitor**  
cod. 100805-03



**Ophthalmic headband support**  
cod. 100805-21



**LCD monitor support**  
100805-24



**Phorofter support for square section column**  
cod. 100805-10



**Lamp with 3 LED lights**  
cod. 100819510



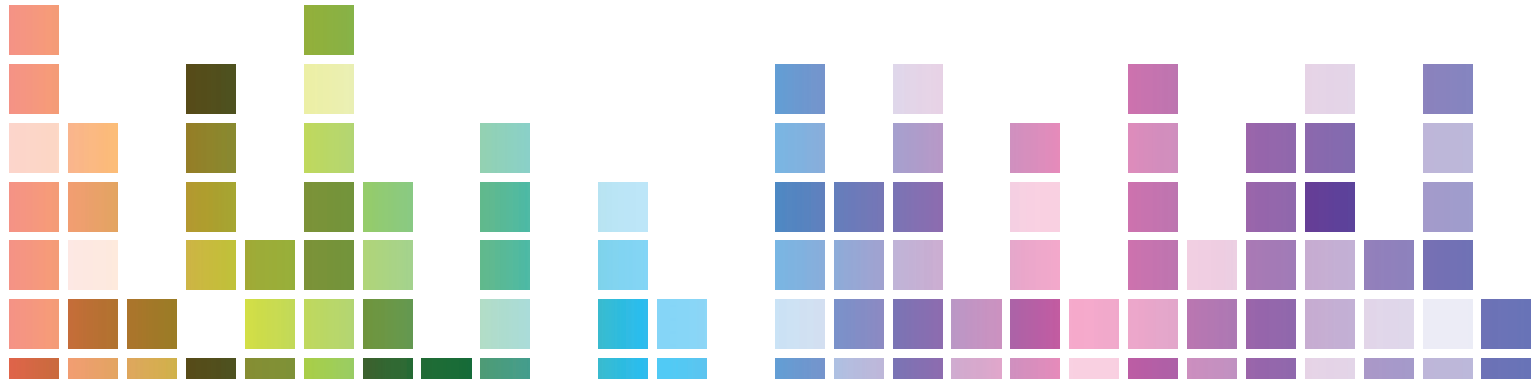
**Support for column  
retinoscope/ophthalmometer**  
cod. 10080518





# Chairs

UNITS



## CHAIRS FOR REFRACTION UNIT

The chairs for refraction units are conceived and realized by master craftsmen with top quality materials. The chairs can be customized with various kinds of fabrics and colors, and can be equipped with accessories and features such as: footrest, lifting movement, anteroposterior movement, reclinable backrest and adjustable headrest.



### 2100 TOP

Non reclinable chair with electronic height adjustment, armrest and footrest.



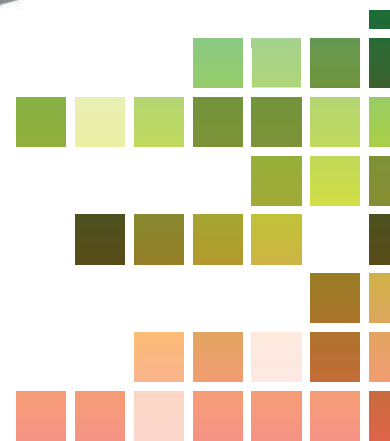
### R2000

Non reclinable chair with electronic height adjustment, armrest and footrest.



**F6000**

Reclinable chair with electronic height adjustment, movable armrest and reclinable baseplate.



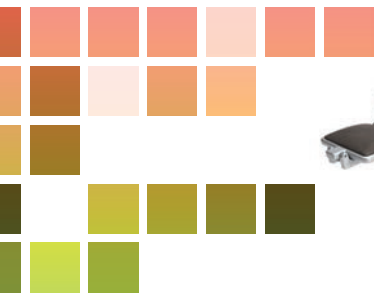
**R8000**

Reclinable chair with electronic height adjustment, movable armrest and footrest with reclinable baseplate.



**R9000-R9900**

Completely reclinable chair with electronic height adjustment and synchronized footrest. Reclinable armrest. R9900 is distinguished by the opening on the backrest.



R9900



**R10000**

Completely reclinable chair with electronic height adjustment, movable armrest, footrest and headrest with adjustable height. The chair can become a comfortable examination table.

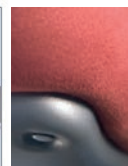
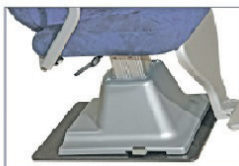
**CHAIRS ACCESSORIES**



Colors choice



Foot rest, anteroposterior movement manual or electric (see the models on which it s available)



Fabrics choice





# Drawers

FOR OPHTHALMIC UNITS





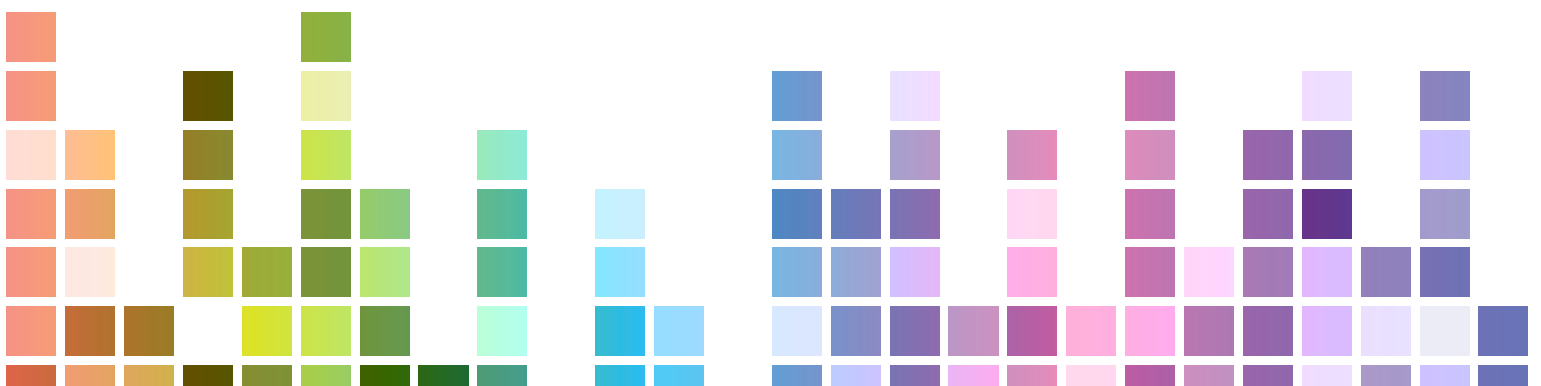
## REFRACTION UNIT

**DRAWERS** Many kinds of drawers are available, with or without wheels, to meet any specific user's demand. They are available in many colors and you can combine them with the various units to complete the furnishing of the studio. The drawers can accommodate the lenses tray and other accessories.





# Tables For contactology



**TABLES FOR CONTACTOLOGY** are conceived to complete the CSO accessories range. Everything in a very reduced space that scan be enlarged with specific drawers. In the basic version there are a mirror with height adjustment, a closed circuit hand basin with tap, everything powered from one single source.



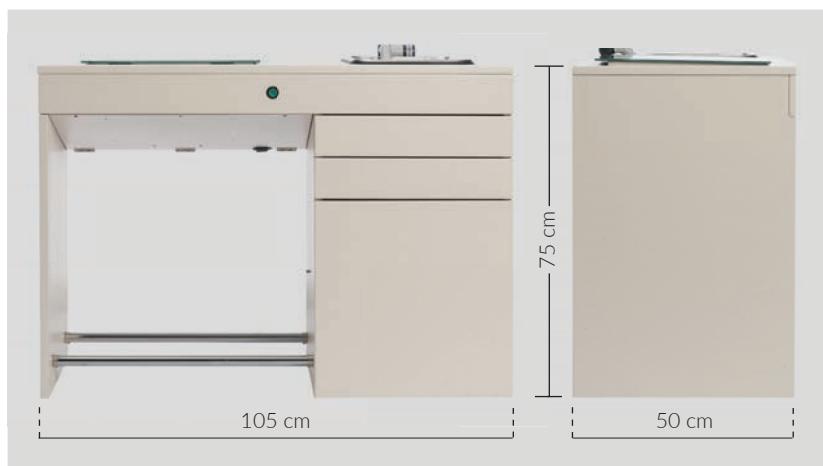
Stainless steel hand basin with tap, closed circuit



Mirror with neon light with height adjustment



Drawer with compartment for contact lenses






# COLORS\*

They make the difference and give personality to the studio furniture.

## COLORS LACQUERED - optional

		
cod. 107	cod. 132	cod. 135
		
cod. 156	cod. 162	cod. 223
		
cod. 218	cod. 208	cod. 187
		
cod. 757/296-D	cod. 182	cod. 131
		
cod. 118	cod. 120	cod. 130
		
cod. 228	cod. 236	cod. 849
		
cod. 945/C	cod. 244	cod. 259

## LACQUED COLORS - standard

		
cod. 757/296-E	cod. 889/F	cod. 857/C

\* The colors are just approximate.  
Intensity color variations can be caused by the chemicals reactions of the used matters.

*The specifications and the images are not contractually binding and can be modified without notice.*



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CERTIFIED  
QUALITY SYSTEM  
ISO 9001:2000  
ISO 13485



N° 9120 - CSO1  
N° 9124 - CSO2

