

# Surveyor B2



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## USER MANUAL



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## ► 1 - INTRODUCTION

Thank you for purchasing a product from Bio-Art.

The Surveyor B2 produced by Bio-Art is practical, simple and of high precision, and its design is unique and consolidated among the prosthetic dent professionals.

The main structure of the Surveyor B2 (base, column and moving arm), is manufactured in high strength aluminum with anodized finishing and electrostatic painting. Its exclusive vertical moving rod is made of carbon steel and grinded, ensuring convenience and perfect centrality.

Essential in the laboratory, the Bio-Art Surveyor B2 ensures precision and versatility, with the guarantee of a product of high technical quality.

The Bio-Art Surveyor B2 is delivered with the following accessories: a 1070 Table and a set of Standart tips. The 1070 table quickly and accurately allows the most various angles and models fixing forms.

Before installing and using your Surveyor B2, read all chapters of the user manual and if there is still any doubt, please contact the company via our website [www.bioart.com.br](http://www.bioart.com.br).

**Read the instructions of this manual before operating the equipment.**

## ► 2 - PACKAGE CONTENTS

Surveyor B2

1070 Table

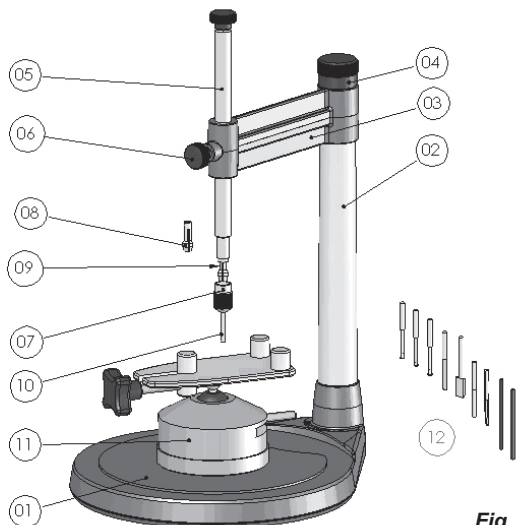
Set of Standard tips

Gripper Ø 2.4mm (extra)

Instructions manual

## ► 3 - MAIN ITEMS

- 01- Base;
- 02- Column;
- 03- Pivoting arm;
- 04- Fixing knob of the column arm;
- 05- Vertical moving rod;
- 06- Rod fixation knob;
- 07- Gripper fixation nut;
- 08- Gripper (diameter 2.4mm);
- 09- Gripper (diameter 3.1mm);
- 10- Gripper protection pin;
- 11- 1070 table;
- 12- Set of Standard tips:
  - Tip N° 01.
  - Tip N° 02.
  - Tip N° 03.
  - Vertical knife.
  - Horizontal knife.
  - Exploring tip.
  - Graphite support.
  - Graphite Ø2 x 45 mm.



**Fig. 01**

## ► 4 - TECHNICAL SPECIFICATIONS

Span of the Surveyor B2 pivoting arm:	110mm
Maximum vertical stroke of the rod:	105mm
Capacity of fixation of the Rod grippers:	Ø2,4mm and Ø3,1mm
Maximum radial movement of the arm:	360°
Capacity of 1070 table fixation:	from 45 to 70mm
Radial movement of the 1070 table model support:	360°
Max horizontal tilting of the 1070 table model support:	30°
Lock of the 1070 table model:	mechanical clamps type

Finishing the Surveyor base:.....	polycarbonate film
Surveyor B2 dimensions (WxDxH):.....	178 x 215 x 265mm (with down rod)
Packaging dimensions (WxDxH):.....	310 x 230 x 210mm
Surveyor B2 weight:.....	1,1 Kg
Accessories weight (1070 Table and set of tips) without packaging:.....	0,56 Kg
Surveyor B2 weight with accessories and packaging:.....	1,96 Kg

## ► 5 - IMPORTANT SAFETY INFORMATION ◀

1. Never fix the base of the Surveyor B2 on the table or bench with cleats or similar devices, because this action can affect the Surveyor accuracy.
2. All Surveyor B2 and 1070 table knobs and levers were designed for manual handling. Under no circumstances use any type of tool.
3. It is indispensable to use protective safety equipments and protection goggles for any work on the Surveyor B2.
4. Be careful when handling parts of the set of tips, mainly the horizontal and vertical knives, they can cause injury to the user by their tips and sharp edges.

## ► 6 - EQUIPMENT INSTALLATION ◀

The Surveyor B2 must be installed on a bench or a flat, leveled and vibrations proof table in a ventilated and free from moisture and dust location.

The Surveyor B2 base (01) has no fastening system on the bench, it only has one non-slip rubber ring for support on the table that ensures a stable handling, because of that make sure that the contact of the rubber ring on the bench is not sliding, if this occurs, the bench or the table top must be changed. In no circumstances, fix the Surveyor B2 base with cleats or similar, because this action can affect the Surveyor accuracy.

The Surveyor B2 moving vertical rod (05) is made of carbon steel and grinded to ensure a perfect operation and a smooth motion. Its cylindrical surface must be lubricated with thin lubricating oil in small quantities.

### **Warning:**

- Never tighten the grippers (08 or 09) with the nut (07) if they are empty. This operation will damage the grippers. The Surveyor B2 leaves the plant equipped with the Ø3,1mm gripper (09) fixed with a gripper protection pin (10). The Ø 2,4mm gripper (08) is spare and included.
- The bottom face coat is an adhesive polycarbonate film, do not use any metallic object to clean it or for any other procedures; do not use any chemicals on its surface. For cleaning only use a soft damp cloth.

### **Note:**

For operation comfort and precision, the Surveyor B2 must have a minimum radius of 0,50 meters exclusive free space.

## ► 7 - INSTRUCTIONS FOR USE ◀

For better understanding, be guided through the items of Figure 01.

### 7.1 – Installation of the Surveyor B2 tips.

The Surveyor B2 is delivered with two grippers (08 and 09) of 2,4 and 3,1 mm hole diameter. Only the tips of these two diameters values can be used.

**Warning:** Never use tips with diameters different from 2,4 and 3,1 mm, as this procedure will damage the gripper and therefore the fixation will be deficient.

To fix or remove the gripper tips, only use your hands, grasp with one hand the vertical moving rod (05) by its knob and with the other hand, rotate the gripper nut (07) to the left to release the tip and the right to lock it.

To change the grippers from 2.4 to 3.1 mm (08 and 09), or reverse, completely remove the nut (07) by turning it to the left, then carefully remove the gripper from the inside of the moving vertical rod (05) and perform the change. Put the nut (07) back, turning till finding a slight resistance.

**Warning:**

Never tighten the nut (07) with the grippers (08 or 09) empty; this procedure will damage the grippers.

### 7.2 – Vertical movement of the Surveyor B2 gripper rod.

The Surveyor B2 moving vertical rod (05) can be manually moved up to a 105 mm vertical stroke. To lock its movement at any point of the stroke, use the fixation knob (06) by turning it clockwise until it stops to lock. To unlock, rotate it counterclockwise.

### 7.3 – Rotating movement of the Surveyor B2 arm.

The Surveyor B2 arm (03) is designed to perform 360° rotating movements on its supporting column (02) and can be fixed at any point of its span using arm locking knob (04).

To release the arm (03), the knob (04) must not be detached from the column (02), only one counterclockwise turn is sufficient.

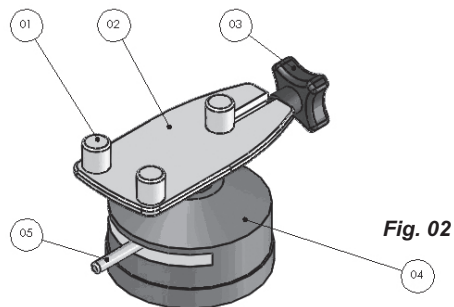
The arm (03) fixation on the column (02) is done using a Morse Taper system. Like that, after releasing the fixation, using the knob (04), the arm may still be adherent on the column, for its complete release, a light and quick hit on the arm may be necessary.

**Warning:**

- The tipping tapers between the column (02) and the arm (03) do not require lubrication.
- If the arm (03) is detached from the column (02), to reinstall it make sure that the tapers of both parts are clean and free from moisture and dust.

### 7.4 – Using the 1070 Table.

For better understanding, be guided through the items of Figures 02.



The fixation of the model on the 1070 Table is performed using the knob (03). The fastening system is similar to a bench. Turning the knob to the right it tightens and turning to the left it releases the model.

The 1070 Table is versatile and allows a multitude of movements according to the work to be performed. The models support (02) of the 1070 Table, in addition to the 360° radial movement, also enables an horizontal tilt, up to 30°, throughout the radial extent of movements. To make this possible, just release the models support using the lever (05).

The lever (05) has the function of lock and to release the models support on any point of its movement. Move the lever (05) to the right to lock and to the left to release the models support (guide yourself through the printed instruction on the label of the 1070 Table body).

In addition to the movements of the models support (02), the 1070 Table body (04) can be slidably moved throughout the area of the Surveyor B2 base, this movement is possible thanks to the fine finishing of the bottom face (04) of the 1070 table and to the polycarbonate film coating of the Surveyor B2 bottom face.

**Warning:**

To handle the knob (03) and the lever (05) of the 1070 Table only use your fingers. Never use any type of tool.

## ► 8 - MAINTENANCE AND CLEANING ◀

1. In case of moisture occurrence mainly on the Surveyor B2 moving parts or its accessories, immediately clean and dry the best you can with a dry cloth and lubricate the vertical rod (05 figure 01) and the gripper nut (07 Figure 01), under no circumstances use compressed air for cleaning.
2. The Surveyor B2 base coat is an adhesive polycarbonate film: do not use any metallic objects for cleaning or any other work procedures. For cleaning, only use soft damp cloth; do not use any chemicals on its surface.
3. The Surveyor B2 moving vertical rod (05 Figure 01) is made of carbon steel and grinded, to ensure a perfect operation and a smoothness of the movements, its cylindrical surface must be lubricated, for that, use oil thin lubricant in small quantity.
4. To clean the Surveyor B2 and the 1070 Table, do not use chemicals or solvents, only use a soft brush and a dry cloth. Under no circumstances perform the cleaning using compressed air.
5. The Surveyor B2 is a high precision device. Its main moving parts do not require periodic adjustments or maintenance, thus any maladjustment, looseness or operating difficulties should be referred to the Authorized Technical Assistance. Do not attempt to make repairs or adjustments not cited in this chapter under the risk of endanger the accuracy of the product.
6. The checking of the need for lubrication of the moving vertical rod (05 figure 01) is visual and according to the utilization frequency.

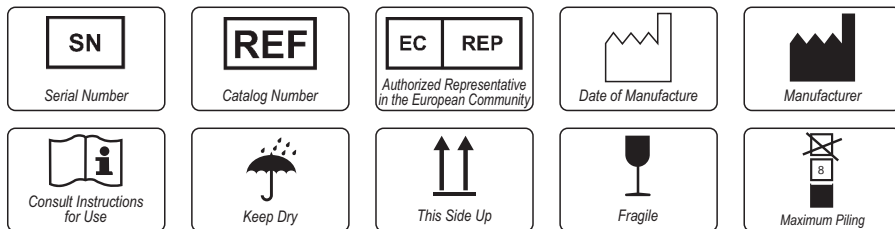
### 8.2 – Storage

1. For a longer durability of the Surveyor B2, we recommend covering it with some kind of protective cover (not included) to protect it from dust and moisture, or storing it in the original packaging.
2. Always store it in a cool, dry, dust free location. Far from chemicals, heat sources and direct sunlight.
3. If the Surveyor B2 remains unused for a long period, lubricate the moving vertical rod (05 Figure 01) of the gripper nut (07 figure 01).

## ► 9 - PROBLEMS AND SOLUTIONS ◀

Problem	Possible Cause	Solution
Vertical movement difficulty of the Surveyor B2 rod.	Rod locking knob (06 Figure 01) tighten.	Release the rod locking knob (06 Figure 01) by turning counterclockwise.
	Lack of lubrication.	Periodically lubricate the cylindrical face of the rod with light oil.
Surveyor B2 pivoting arm movement difficulty (03 Figure 01).	Arm fixation knob (Figure 04 01) tighten.	Release the knob (04 Figure 01) by turning one turn counterclockwise, and see instructions in chapter 5.3.
Operation difficulty of the 1070 Table models support movements	Table locked by the lever (05 Figure 02).	Move the lever (05 Figure 02) to release the models support, guide yourself through the instruction (release and lock), printed on the label of the 1070 Table body. To lock it back, move the lever to the left.
Clearance on Surveyor B2 moving or fixed parts	Wear or maladjustments.	Please contact the Authorized Technical Assistance
After releasing the locks, the Surveyor B2 or 1070 Table moving parts do not move smoothly	Adjustment or wear problems between the parts.	Please contact the Authorized Technical Assistance

## ► 10 - SIMBOLOGY ◀



## ► 11 - WARRANTY AND TECHNICAL ASSISTANCE ◀

BIO-ART Equipamentos Odontológicos Ltda., gives a 01 (one) year warranty for Surveyor B2 from its date of purchase. This warranty covers any manufacturing defect, except for the polycarbonate film coating of the Surveyor B2 base. The warranty will solely provided by the authorized dealer on repair of the equipment that is conditional upon the following requirements:

- That the product has been properly used in accordance with the provided instructions. We remember that the Surveyor B2 must be handled, transported and stored with care. The fall or knocks on the equipment will characterize misuse, resulting in the loss of this Warranty.
- That the claim is sent together with the product purchase invoice and registered within the warranty period, and with a report including the description of the defect and the product serial number.

### Limits of Warranty:

- Natural wear of the parts;
- Defects due to the improper use or storage of the product;
- Inadequate transportation;
- Use non compliant with the characteristics and purposes of the product, it is the reason why this manual must be read with great attention;
- Damage due to exposure to adverse conditions (humidity, intense heat, chemical interaction, etc.);
- Cleaning and/or disinfecting with unsuitable products.

To take advantage of this warranty in the domestic market (Brazil), the consumer will be in charge to send the product to the address below or to the nearest Bio-Art Authorized Technical Assistance. Look for the Authorized Technical Assistance offices on our website: [www.bioart.com.br](http://www.bioart.com.br).



### BIO-ART EQUIPAMENTOS ODONTOLÓGICOS LTDA.

Rua Teotônio Vilela, 120 – Jardim Tangará – CEP 13568-000 – São Carlos – SP – Brasil  
Tel. +55 (16) 3371-6502 – Fax +55 (16) 3372-5953 – [www.bioart.com.br](http://www.bioart.com.br)  
CNPJ 58.538.372/0001-56 – Insc. Estadual 637.034.447.113

For other countries, the warranty is solely provided by the authorized dealer (legal importer).

## ► 12 - AUTHORIZED REPRESENTATIVE IN EUROPE ◀



### Obelis s.a.

Boulevard Général Wahis 53 - 1030 Brussels, BELGIUM

Tel: +(32) 2.732.59.54 - Fax: +(32) 2.732.60.03

E-mail: [mail@obelis.net](mailto:mail@obelis.net)

The information provided in this manual is subject to changes that may be made without notice.

## ► 13 - AUTHORIZED TECHNICAL ASSISTANCE ◀

For your safety, the technical assistance of this product must be performed by authorized persons/companies. Look for the Authorized Technical Assistance offices on our website [www.bioart.com.br](http://www.bioart.com.br).



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Rua Teotônio Vilela, 120 - Jd. Tangará - CEP 13568-000 - São Carlos - SP - Brasil

Tel. +55 (16) 3371-6502 - Fax +55 (16) 3372-5953

[www.bioart.com.br](http://www.bioart.com.br)