

TECai



Element

Tecai electropneumatic brushing robot



user manual

ENG

Original manual translation



Dear customer:

Many thanks for having placed your trust in a quality product from TEINNOVA.

This product has been developed with modern manufacturing procedures and a range of measures to guarantee quality.

We endeavour to do everything possible so that you are satisfied with this product and can work with it without any problems.

If you have any questions about this product please contact your distributor or contact our company directly.

Before starting the machine, carefully read the usage instructions for your equipment.

Consider this manual as part of the machine and always have it to hand for future queries.



## Training services

Our training services have been designed to support our clients in achieving their objectives and together we develop training programmes that suit their strategy.

We offer the possibility of providing companies with specific training for using our equipment and training their operatives so that they can perform the best service and thus contribute to the success of their end clients. This includes aspects such as knowing how to draft a good and objective budget, responding to specific problems that might arise or offering a more professional and efficient service.



## Technical service

Thanks to manufacturing the cleaning equipment ourselves we can control the quality and the performance of each machine we manufacture at all times. This has allowed us to have very low repair rates which have always been resolved by our own Technical Assistance Service in very short time frames. The service is managed by the same human team as the factory.

We have every type of replacement available for your equipment as well as related accessories.

[teinnovacleaning.com](http://teinnovacleaning.com)

 **941445056**

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## symbols

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All of the graphic symbols shown in this manual as well as those indicated on the equipment itself are explained in this section. It is important to read the text relating to these symbols with special care as it concerns personal and equipment safety.



### DANGER!

This symbol warns of a potentially dangerous situation that could cause serious injuries or even death if the indicated instructions are not followed appropriately. Ensure that you read all the instructions described in the "Safety information" section.



### WARNING!

This symbol warns of a potentially dangerous situation that could cause mild or moderate injuries or damage to property and personal injuries if the indicated instructions are not followed appropriately.



### CAUTION!

This symbol warns of a situation that could cause damage to property without causing personal injuries if the indicated instructions are not followed appropriately.



### IMPORTANT NOTE!

This symbol warns of information relating to the optimal use of the equipment in order to avoid possible handling errors.

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## safety warnings

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- The TECAI ELEMENT AUTO equipment must NOT be used for anything other than the uses outlined in this instruction manual.
- Before starting up the equipment ensure that all connections are correct.
- Before starting up the equipment ensure that the brush is inside the duct to be cleaned.
- Take care to place your TECAI ELEMENT AUTO on a smooth and stable surface. Lock the front wheel brakes so that the machine remains stable while you work.
- Persons operating the TECAI ELEMENT AUTO equipment must be sufficiently trained.
- Hold the hose firmly before starting the motor for the pneumatic brush. Always keep a firm hold of the hose while working with the brush.
- It is mandatory to use safety glasses in order to avoid the possibility of dust splashing into the eyes of the operator.
- Adequately secure the TECAI ELEMENT AUTO and lock the wheels when transporting it in a vehicle.
- Do not open the control box on your TECAI ELEMENT AUTO duct cleaning robot. In the event of a breakdown, get in touch with TEINNOVA's Technical Assistance Service on telephone number: +34 941 44 50 56.





## conditions of use

TECAI ELEMENT AUTO is an electropneumatic brushing machine for performing duct cleaning in air conditioning systems, whether circular with diameters of 150-1000 mm or rectangular. The appropriate accessories shall be available for each type of duct.

A 20 metre hose is included so 40 metres of the same tube can be cleaned from the same point in the tube. It can be used in flues and extraction hoods.

It can be used in combination with the AIRNET320 compressed air generator or with the AR20 compressed air generator as shown in the usage diagram.



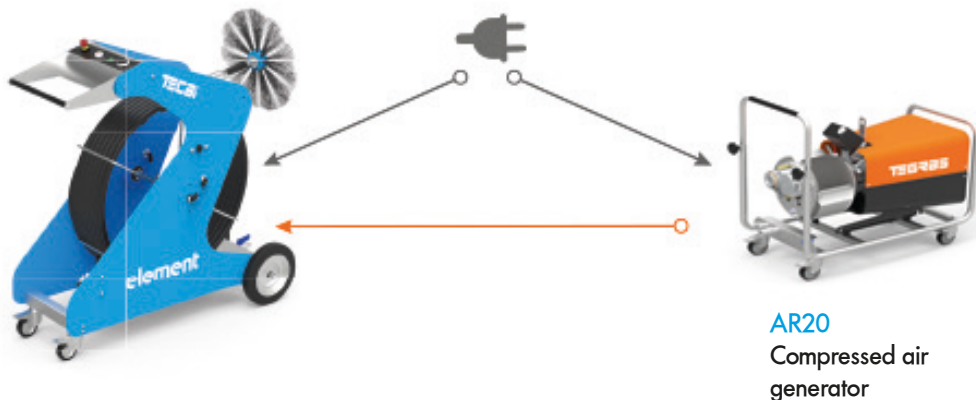
Any other use is completely prohibited without written permission from the manufacturer.



Do not, under any circumstances, place the TECAI ELEMENT AUTO in a horizontal position as this will cause the machine to break down

### TECAI ELEMENT AUTO

Electropneumatic brushing robot for cleaning ducts.



### KEY

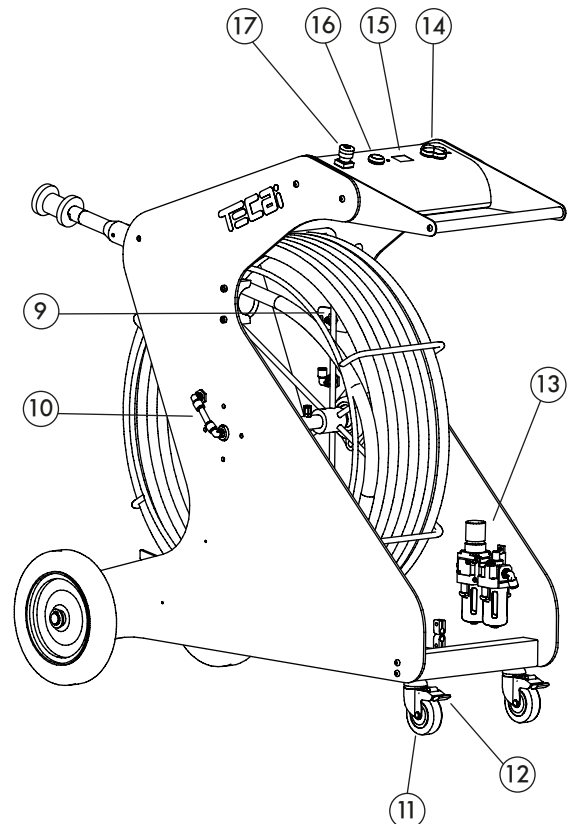
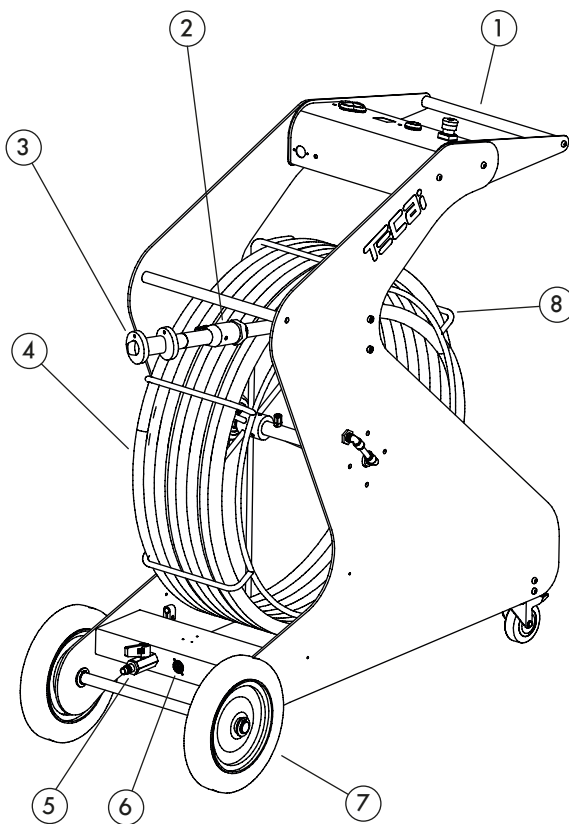
-  electric power supply
-  compressed air



# know your machine

## Components:

- 1- Carrying handle
- 2- Head
- 3- Simple brush coupler
- 4- Hose
- 5- Compressed air inlet
- 6- Power connection
- 7- Back wheel
- 8- Hose reel
- 9- Front brake
- 10- Compressed air duct
- 11- Front wheel
- 12- Front brake
- 13- Regulator system + lubricant
- 14- Compressed air duct
- 15- Display
- 16- ON / OFF
- 17- STOP (emergency stop)







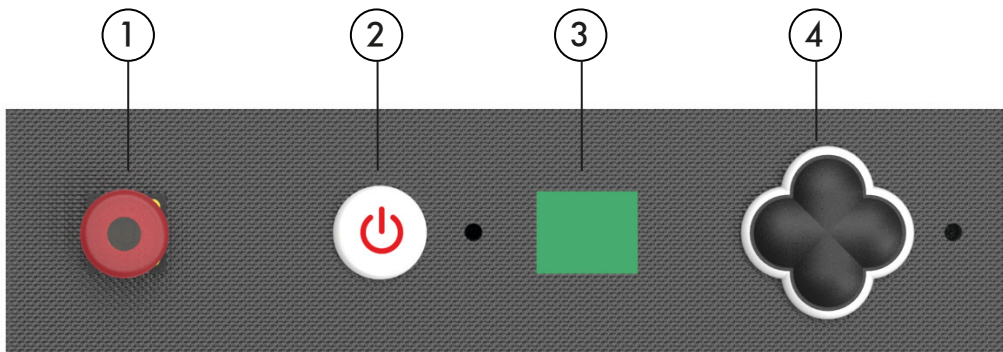




# control panel

## Main control panel:






①		STOP	Emergency stop.
②		ON / OFF	ON/OFF button for activating/deactivating the equipment.
③		Display	Control display (STOP, anti-clockwise rotation, clockwise rotation and AUTO mode).
④		Control arrow keys	↑ -STOP. ← -Anti-clockwise motor rotation. → -Clockwise motor rotation. ↓ -Automatic mode activation.





## remote control

### Remote control panel:

- |   |   |                         |  |
|---|---|-------------------------|--|
| ① |    | STOP                    | This is for stopping the machine immediately.  |
| ② |    | Release button          | This is a safety measure for when starting the functions from the control panel. The release button must be pressed in order to start any of the functions apart from the STOP button, which can be pressed without needing to press the release button. |
| ③ |    | Anti-clockwise rotation | Power up the Tecai brushing machine's motor so that its rotation movement is anti-clockwise.   |
| ④ |   | Clockwise rotation      | Power up the Tecai brushing machine's motor so that its rotation movement is clockwise.  |
| ⑤ |  | Timer                   | Operate the timer on the Tecai brushing machine so that its rotating movement lasts for the selected time.   |



A23 battery  
12V

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## accessories and related equipment

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### Accessories included:



#### **Pack of Allen keys**

Pack of Allen keys for assembling and disassembling the components.

Cod. AC3303102



#### **Lubricating oil**

Special oil for air circuit lubricators. We advise that you use oil with an SAE 20 classification in order to correctly maintain your TECAI ELEMENT AUTO's motor.

Cod. HE7300400



#### **Combined hose**

An 8 metre hose with standardised connectors, specifically for supplying both compressed air and electricity to your TECAI ELEMENT AUTO from the AR20 compressed air generator supplied by Teinova.

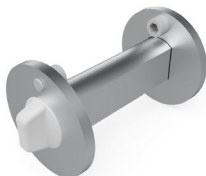
Cod. AC3303104



#### **Simple coupler for brushes**

A coupler where a specific type of brush is attached to the head of your TECAI ELEMENT AUTO machine. It is very simple to assemble this coupler and it is made up of four individual parts.

Cod. AC6470040



#### **Double coupler for brushes**

A coupler where two specific brushes are attached to the head of your TECAI ELEMENT AUTO machine. It is very simple to assemble this coupler and it is made up of four individual parts.

Cod. AC6470030

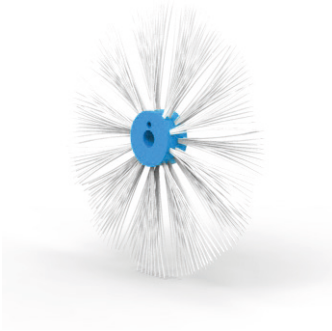
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## accessories and related equipment

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### Optional accessories:

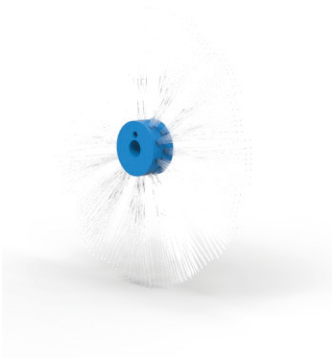
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#### **Fine Nylon Brushes**

Fine nylon brushes recommended for cleaning ducts with grade 1 dust (light soiling).

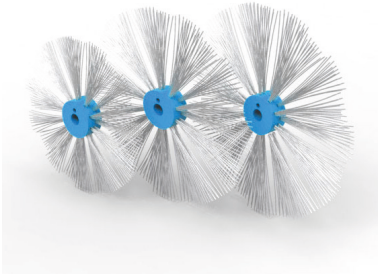
Dimensions		Code
mm	in	
200	7,87	CP2000520
250	9,84	CP2000525
300	11,81	CP2000530
350	13,78	CP2000535
400	15,75	CP2000540
450	17,72	CP2000545
500	19,69	CP2000550
600	23,62	CP2000560
700	27,56	CP2001070
800	31,5	CP2001080



#### **Thick Nylon Brushes**

Thick nylon brushes recommended for cleaning ducts with grade 2 dust (heavy soiling).

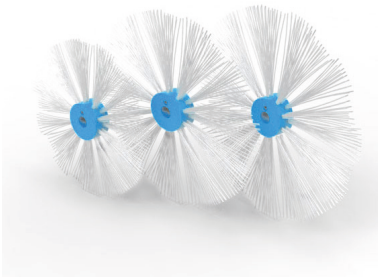
Dimensions		Code
mm	in	
200	7,87	CP2001020
250	9,84	CP2001025
300	11,81	CP2001030
350	13,78	CP2001035
400	15,75	CP2001040
450	17,72	CP2001545
500	19,69	CP2001550
600	23,62	CP2001560
700	27,56	CP2001570
800	31,5	CP2001580



### Pack of Fine Nylon Brushes

Five pack of fine nylon brushes recommended for cleaning ducts with grade 1 dust (light soiling). The measurements of the brushes range from a diameter of 200mm up to 600mm.

Mat.	Dimensions		Code
	mm	in	
Nylon fino	200	7,87	CP2000520
	300	11,81	CP2000530
	400	15,75	CP2000540
	500	19,69	CP2000550
	600	23,62	CP2000560



### Pack of Thick Nylon Brushes

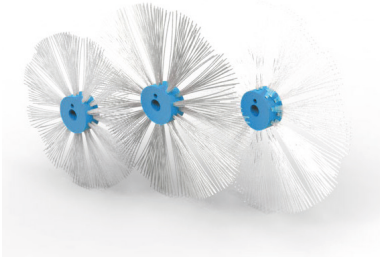
Five pack of thick nylon brushes recommended for cleaning ducts with grade 2 dust (heavy soiling). The measurements of the brushes range from a diameter of 200mm up to 600mm.

Mat.	Dimensions		Code
	mm	in	
Nylon grueso	200	7,87	CP2001020
	300	11,81	CP2001030
	400	15,75	CP2001040
	500	19,69	CP2001550
	600	23,62	CP2001560

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## accessories and related equipment

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### Square Pack

Pack of five fine nylon brushes and five thick nylon brushes recommended for cleaning square and rectangular ducts. The measurements of the brushes range from a diameter of 200mm up to 600mm.



These brushes are used in combination with the double brush adapter. This allows you to effectively clean the flat sides of the ducts and the corners.

Ducts		Code
mm	in	Thick nylon - Fine nylon
200x300	7,87x11,81	CP2001020 - CP1000530
300x400	11,81x15,75	CP2001030 - CP2000540
400x600	15,75x23,62	CP2001040 - CP2000560
500x700	19,69x27,56	CP2001550 - CP2001070
600x800	23,62x31,5	CP2001560 - CP2001080

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## accessories and related equipment

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### **Remote control**

A remote control which can be used to operate your TECAI ELEMENT AUTO.

Cod. AC3101205



### **Compressed air supply hose**

An 8 metre hose with standardised connectors, specifically for supplying compressed air to your TECAI ELEMENT AUTO. The connectors correspond to those found on the equipment provided by TEINNOVA.

Cod. AC3303101



### **Electric power supply cable**

1.5 8 metre cable. The machine's power supply is effected through a specific connector for supplying power to your TECAI ELEMENT AUTO. The connection to mains electricity corresponds to the standard outlets.

Cod. 999330053

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## accessories and related equipment

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Related equipment:

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### AR20

Vane compressor that generates an output of compressed air of 240 litres at 5 bar.

220V 50Hz; Cod. TG3330201

110V 60Hz; Cod. TG3330500



### Airnet 320

Oil-free double piston compressor that generates an output of compressed air of 200 litres at 5 bar.

220V 50Hz; Cod. TG3330100

110V 60Hz; Cod. TG3330101





# operating instructions

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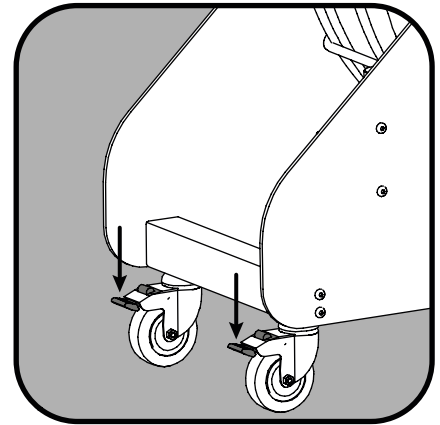
Steps to install the TECAI ELEMENT AUTO correctly:

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## 1 Positioning your TECAI ELEMENT AUTO:

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Place your TECAI ELEMENT AUTO on a smooth and stable surface. Once the machine has been positioned in the best place for performing the work, lock the front wheels so that the machine remains stable.



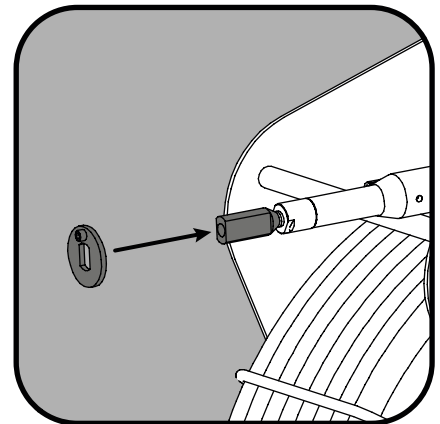
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## 2 Assembling the brush:

---

The head of your TECAI ELEMENT AUTO has been designed bearing in mind the possibility of incorporating special brushes. These allow the work to be carried out more efficiently and more comfortably. These brushes are supplied exclusively by Teinova.

Place the retention ring as shown in the image.



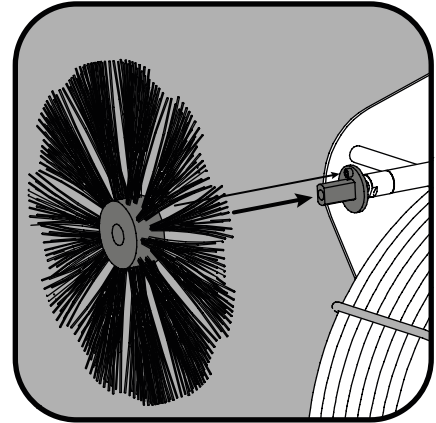


## operating instructions

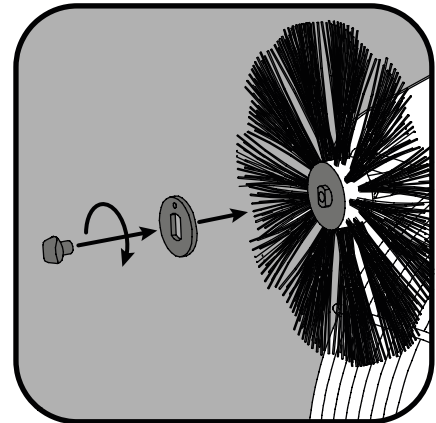
Place the brush as shown in the image.



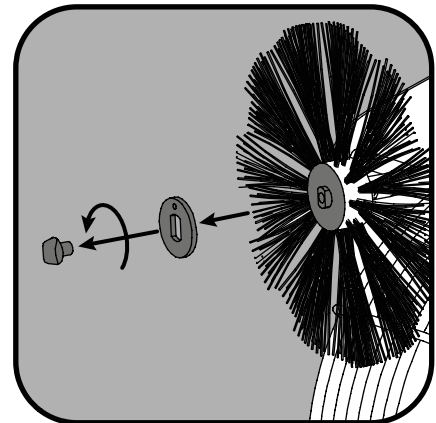
Align the retention hole on the brush with the retention pin on the ring that was placed in the previous step for assembly.



Place the second retention ring and press the closing knob into place as shown in the image.



Release the closing knob and remove the second retention disk as shown in the image.

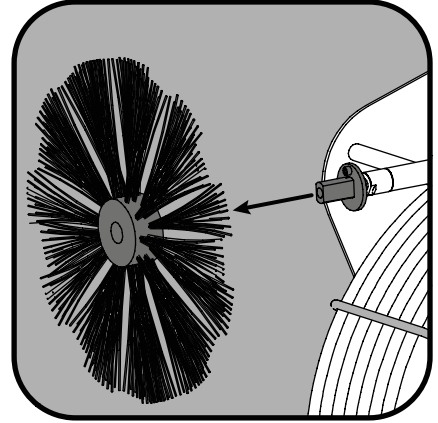




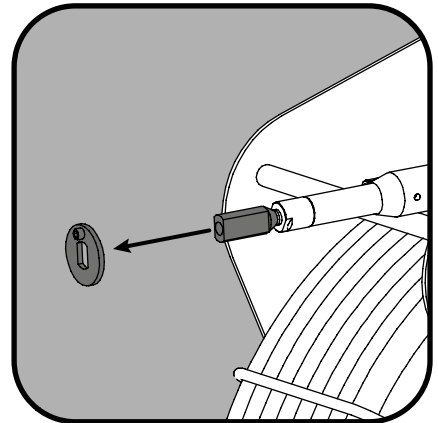
## operating instructions

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Remove the brush as shown in the image.



Remove the retention ring as shown in the image.





## operating instructions

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### 3 Connecting your TECAI ELEMENT AUTO to the compressed air generator:

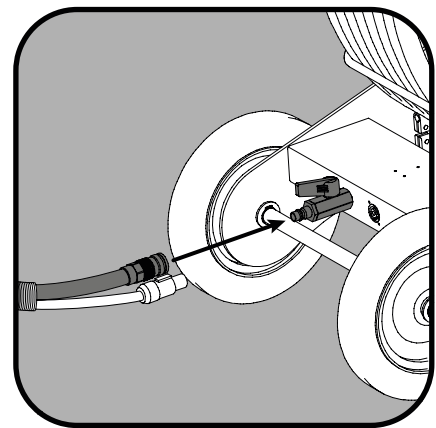
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The TECAI ELEMENT AUTO equipment must be used in combination with a compressed air generator in order to work. This compressed air generator should have a minimum output of 200/m at 5 bar. It is recommended to use a compressed air generator sold by TEINNOVA.

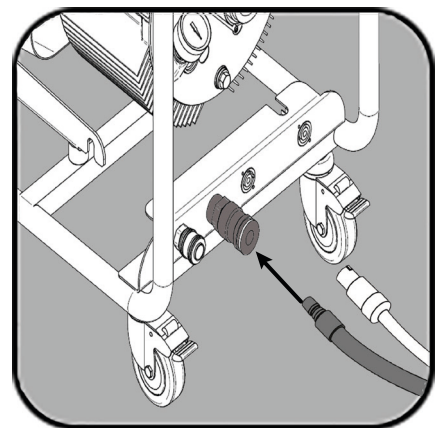
It is connected by using the compressed air supply hose. The connection should be made when your TECAI ELEMENT AUTO is switched off.

---

Connect the compressed air connector on the combined hose to your TECAI ELEMENT AUTO. After making the connection, open the shut off valve. In this image, the shut off valve is in the open position.



Connect the compressed air connector on the combined hose to the compressed air outlet on whichever compressor is going to be used. In this image, the connection is made with the AR20 compressed air generator.

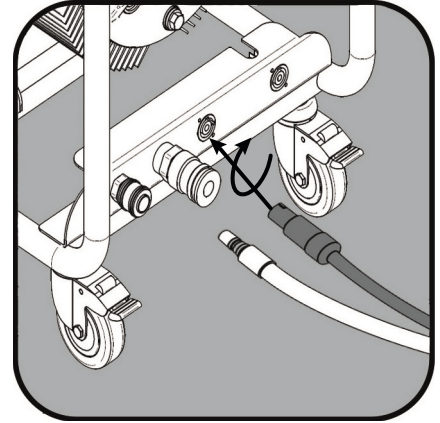




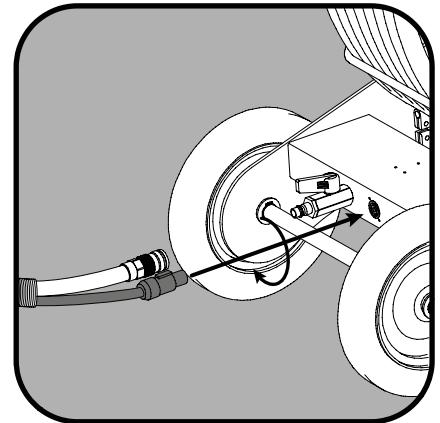
## operating instructions

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Connect the combined hose's electrical cable to the electrical outlet on the compressor to be used. In this image, the connection is made with the AR20 compressed air generator.



Connect the combined hose's electrical cable to your TECAL ELEMENT AUTO.





## operating instructions

### 4 Unlocking the hose reel brake:

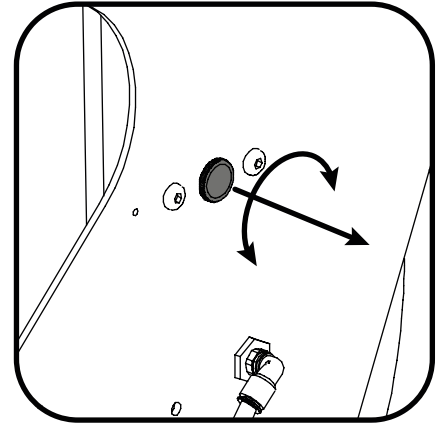
Unlock your TECAI ELEMENT AUTO's hose reel brake by pulling out the push-button and turning it 90° in any direction, as shown in the image. Once the reel is loose, release the necessary length for placing the brush inside the duct in order to be able to start the work.



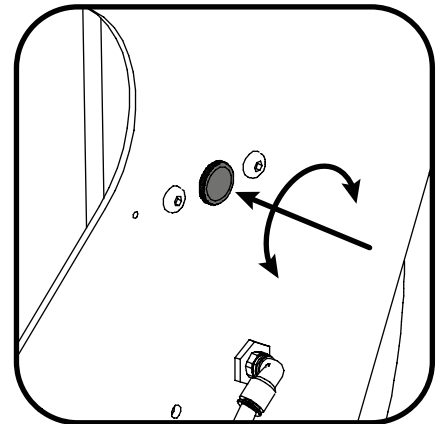
Remember not to operate the brush when it is outside the duct as this could cause damage to people or objects.



Do NOT bend the hose around very tight corners as this can break the backing guide on the inside.



After finishing work, reel in the hose and lock the reel brake on your TECAI ELEMENT AUTO by turning the push-button 90° and pushing it inwards as demonstrated in the image.





# operating instructions

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## 5 Selecting the function to be performed:

---

Your TECAI ELEMENT AUTO has some control arrow keys which are used to operate the rotation of the head's motor in the direction selected. Another function that is controlled from here is the automatic mode. This makes the motor rotate in both directions alternately and continuously for whatever time set.



In the event of the brush becoming stuck inside the duct, press stop immediately on the machine's control panel.

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To start up your TECAI ELEMENT AUTO, press the button shown in the image.



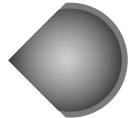
To stop your TECAI ELEMENT AUTO immediately, push the emergency stop button shown in the image.



Start the anti-clockwise rotation of the motor by pressing the arrow shown in the image.



Start the clockwise rotation of the motor by pressing the arrow shown in the image.



Stop the rotation of the motor by pressing the arrow shown in the image.



Activate automatic mode by pressing the arrow shown in the image. To modify the time that the motor turns in each direction, this button must be held down for 3 seconds until the period of time for the rotation appears on the display. Once this screen appears, the time can be increased by using the clockwise rotation arrow and decreased by using the anti-clockwise rotation arrow. When the time has been set, press the arrow shown in the image again.





# operating instructions

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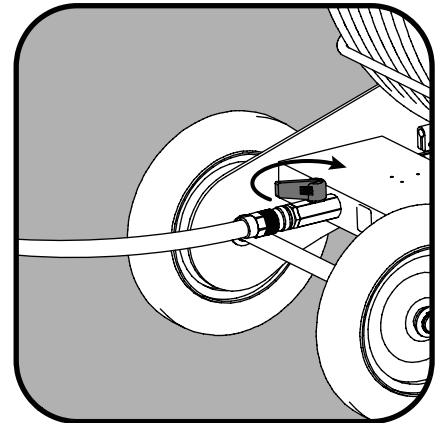
## 6 Stopping your TECAI ELEMENT:

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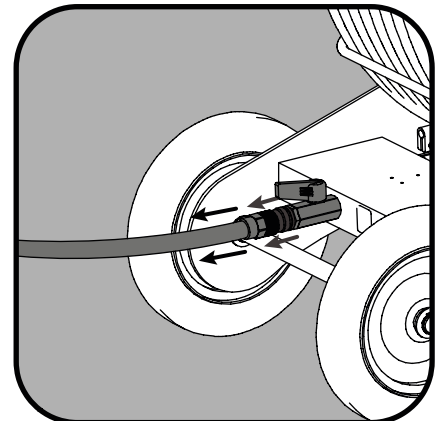
After finishing the job, place the selector button in STOP mode in order to be able to remove the brush from the duct and disassemble it.

---

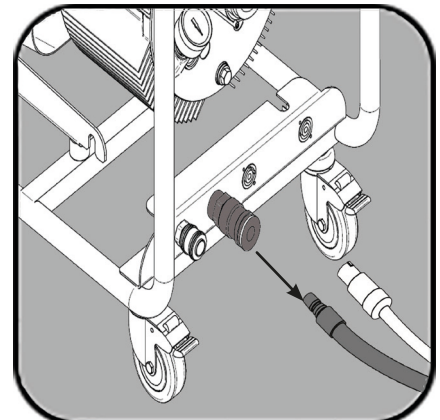
Once you have turned off your TECAI ELEMENT AUTO and you have turned off the compressed air generator, the brush rotation should be operated so as to release the compressed air that has remained trapped in the circuit. On having released the residual pressure from the circuit, remove the head with the brush from the duct, reel in the hose and then close the shut off valve for the compressed air inlet on your TECAI ELEMENT AUTO as shown in the image.



Remove the compressed air inlet connector from your TECAI ELEMENT AUTO in the way shown in the image.



Remove the connector from the outlet on the compressed air generator in the way shown in the image. An AR20 is shown in the image.



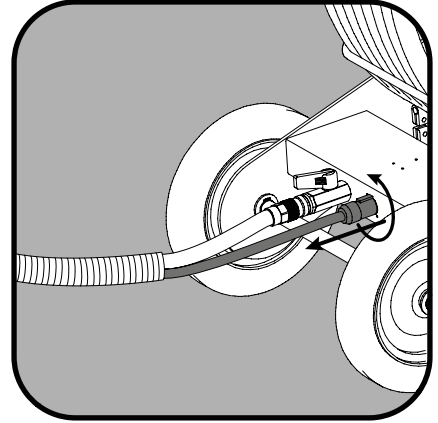




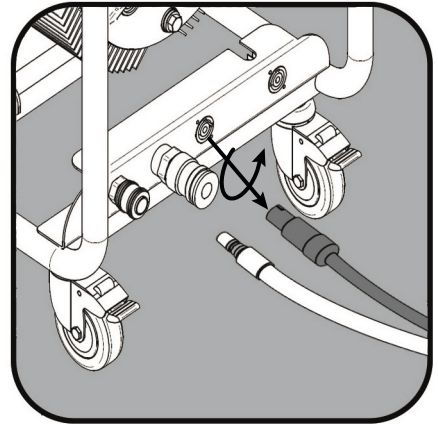
## operating instructions

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Remove the electrical connection powering your TECAI ELEMENT AUTO in the way shown in the image.



Remove the electrical connector from the electricity outlet on the AR20 compressor in the way shown in the image.





## transport

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The machine has been designed to be able to transport it in a small van.

When transporting the machine it should be firmly tied in order to prevent any type of damage. Additionally, it should be placed in its normal working position (vertical) and the front wheel brakes should be on.

Placing the machine on a transport pallet or anything similar is advised against. It is essential that the machine is stood on a completely flat and horizontal surface.



The machine should never be placed in a horizontal position (lying down) for transporting it. This would cause significant damage in the machine and consequently it would not function correctly.





## maintenance and care

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Keep the machine as clean as possible. Keep the equipment somewhere that is protected from the weather.

Maintain the machine in good condition and avoid knocking or overloading it.

Keep the connectors clean so as to avoid blockages in the conduits that might cause serious faults in the machine's main elements.



## maintenance and care

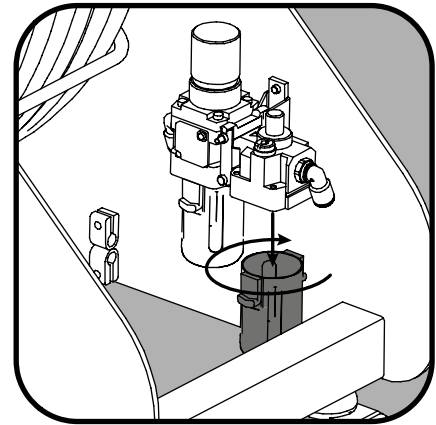
### Maintenance operations:

#### ① Filling your TECAI ELEMENT's filter with oil:

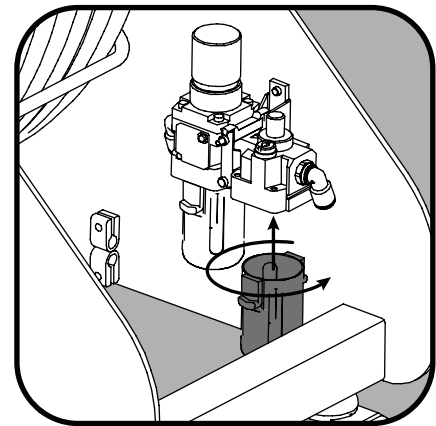
So that the pneumatic motor in the head of your TECAI ELEMENT is well lubricated, you should check that the level of oil in the filter is correct. Good lubrication is necessary for better efficiency and reduced wear of the machine's pneumatic components. To remove the filter's oil deposit, turn it anti-clockwise as shown in the image.



The level of oil always has to be between the minimum and maximum level.



Once the filter's oil deposit has been refilled, put it back in the filter by turning it clockwise as shown in the image.





## maintenance and care

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### Replacement parts:

TEINNOVA has replacements for all parts of the machine as well as for consumables for all the maintenance tasks mentioned in this manual.

In the event of needing any part or consumable, get in touch with TEINNOVA's Customer Service Department on telephone number: +34 941 44 50 56.



## waste management

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The materials used in the packaging are recyclable. Do not dispose of the packaging in household waste, but hand it in at official collection points for recycling.







Do not dispose of electrical equipment in the trash!  
We recommend that electrical tools and accessories are subjected to an environmentally friendly recovery process. Please dispose of the materials in the appropriate container or go to your local collection point.

Directive 2012/19/EU of 4 July 2012 on waste electrical and electronic equipment (WEEE).



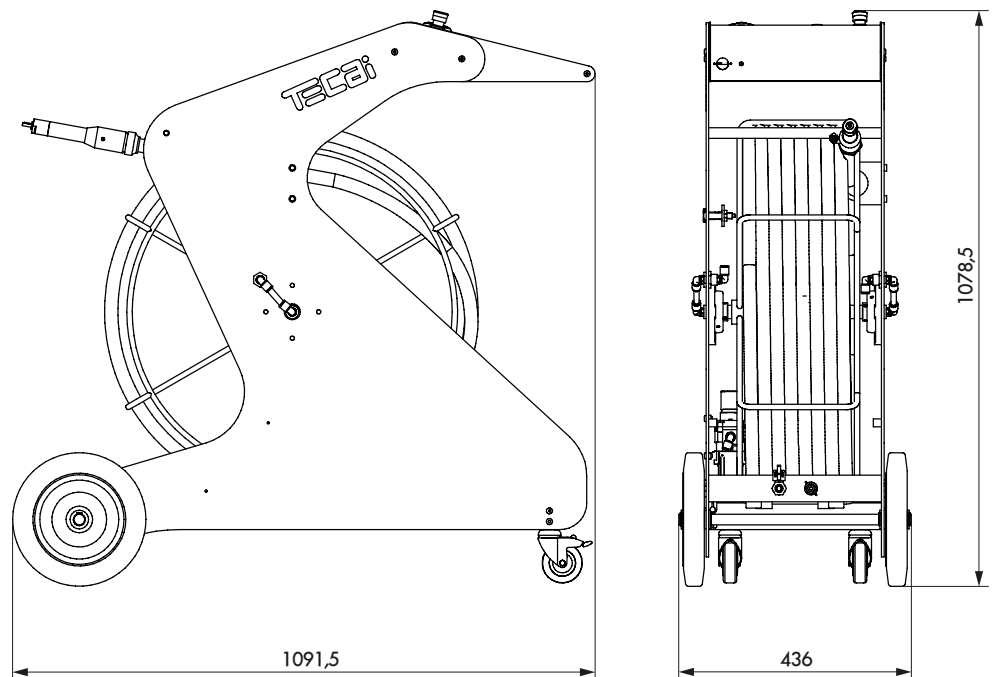
## problem solving guide

 problem	 possible cause	 solution	 look up
Motor does not rotate	Blocked motor	Check that the air inlet is open.	Page 20
		Contact the technical service at Tecai Innova S.L.	Page 29
The image cannot be seen	Insufficient airflow	Check the compressor's output	Page 31
		Check that the shut off valve is open.	Page 20
The panel will not turn on	No electricity supply	Check that the electric power supply is correctly connected.	Page 21



## technical specifications

TECAI ELEMENT	Features	
	220V / 50 - 60 Hz	110V / 50 - 60 Hz
Power:	5 W	
Power consumption:	50 mA	100 mA
Motor power supply (Full power):	Compressed air 220 l/min – 8 bar // 7,77 cfm – 8 bar	
Rotation speed when empty:	762 rpm	
Rotation Speed at full power:	379,2 rpm	
Torque at full power:	2,5 Nm // 22,13 lbf-in	
Minimum start torque:	3,1 Nm // 27,44 lbf-in	
Stall torque:	5 Nm // 44,25 lbf-in	
Noise level:	Under a 70 dB	
Direction of rotation:	Clockwise / Anti-clockwise / Auto	
Control system:	Electropneumatic	
Dimensions:	1091,5 x 436 x 1078,5 mm 43 x 17,17 x 42,46 inches	
Weight:	64 kg // 141,1 lb	
Length of hose:	20 m // 65,62 ft	
Structure material:	Aluminium	







## conditions of the guarantee

**1.** "TEINNOVA" guarantees its products for a period of 15 days as regards aesthetic defects or faults which are noticeable with the naked eye. In terms of all other manufacturing defects and faults in the products, the guarantee is of 1 year.

The "Buyer" must notify "TEINNOVA" of the existence of any defects as soon as they are observed and in any case within a maximum deadline of 5 days from when they become apparent. Notification thereof outside of said deadline shall lead to the non-application of the guarantee.

"TEINNOVA" reserves the right to request that the products be sent to the factory or the closest official Technical Support Service for their due inspection and the delivery costs are payable by the "Buyer". Said costs shall be reimbursed if the product is proven to be effectively non-conforming.

"TEINNOVA" will pick up and send the products to the factory or to the nearest official Technical Assistance Service for proper inspection. At that time, it will be determined whether the warranty will apply or it is within the warranty exclusions. If the guarantee is applicable, the transport, both collection at the customer's facilities and return of the product, will be borne by TEINNOVA. If it is excluded from guarantee (point 2), the transport, both collection at the customer's facilities and return of the product, will be borne by the customer.

"TEINNOVA" reserves the right to overrule the application of the guarantee when there is no evidence of the

product's non-conformity and it shall not apply said guarantee until coverage has been expressly proven.

In the case that the product is covered, "TEINNOVA" can replace it or determine the necessary repair method.

All repair works that are carried out under the product guarantee must be carried out in "TEINNOVA" facilities or in those of the party it designates.

The guarantee covers the materials and labour required to repair or replace the parts or elements considered as defective from origin. The maximum guaranteed amount or value shall be the maximum price of the sale of the product to the "Buyer".

Any claims made under the coverage of the guarantee shall not grant the right to delay and/or withhold payment of the corresponding invoice and/or any other pending invoices.

**2.** Guarantee Exclusions: the following are excluded from the guarantee: actions, alterations or manipulations of the product that are carried out without the prior express authorisation of the "Seller"; indirect and/or consequential damage; damage caused by negligence, by improper use or by usage that does not conform to the instructions and intentional damage; faults due to adaptations made to the products or the use of parts that were not previously and expressly certified or authorised by the Seller; costs for detection of the fault; costs for collection or replacement (the latter two are unless the non-conformity is proven and within the limits established in section 1).

TECAI INNOVA S.L.  
C/ Las Balsas 16-B, Pol. Ind. Cantabria.  
26009 LOGROÑO (La Rioja), Spain.



TEINNOVA reserves the right to make changes to the equipment without giving prior notice.



declaration of compliance "CE"

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**TEiNOVA**

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MODEL: **ELEMENT**

SERIAL NUMBER: TC31202000000 - TC31202009999

MANUFACTURER INFORMATION:

Manufacturer name: TECAI INNOVA S.L.

Telephone number: +34 941 44 50 56

Fax: +34 941 25 24 71

Web: [www.teinnova.net](http://www.teinnova.net)

TECAI INNOVA, SL, under its sole responsibility, certifies that the machine model described above complies with all the essential requirements of the following directives:

- Machinery directive 2006/42/CE
- Directive 2014/30/EU on electromagnetic compatibility and its amendments.
- Directive 2014/35/EU on the sale of electrical equipment.

RESPONSIBLE FOR THE TECHNICAL DOSSIER:

Technical Director

ARMANDO SÁENZ ANGULO

Pol. Ind. Cantabria, C/Las Balsas 16

26009 Logroño (La Rioja)

SIGNATURE: ARMANDO SÁENZ ANGULO  
Technical Director

Made in Logroño, 23 October 2015

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**Element**

Tecai electropneumatic brushing robot

