

USER
MANUAL

EN



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1. Overview

To use the product it's necessary to install the Favero Assioma app, which is available for free on the App Store and Google Play Store.

When using the product for the first time, you can find on the app an interactive quick start guide with all the steps necessary for the installation.

Nevertheless, we invite you to read this manual carefully for the correct use of Assioma PRO MX.

2. Models

ASSIOMA PRO MX-2 Art. 773-10-02

Left and right MTB pedals with power sensors on both sides.

ASSIOMA PRO MX-1 Art. 773-10-01

Left MTB pedal with power sensor.
Right MTB pedal without power sensor.

3. Package content

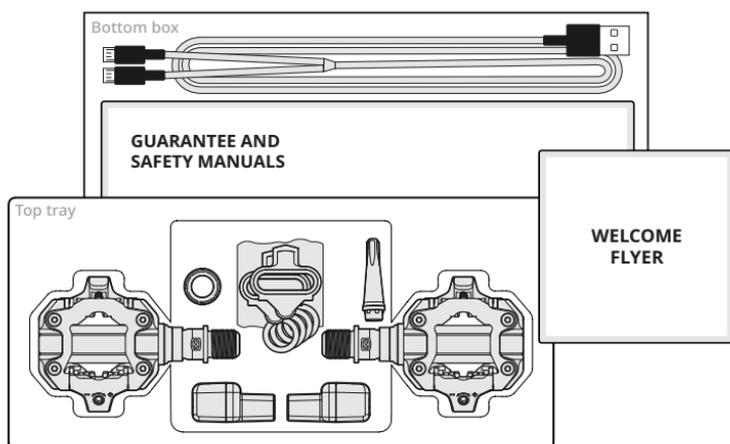


Fig. 1

ASSIOMA PRO MX-2

Power meter with sensors on both sides (773-10-02)

1 Micro USB 2-way charging cable

2 Magnetic connectors

MTB-compatible SPD® cleats

4 Washers

Greasing tools kit

Guarantee and safety manual

Welcome flyer

ASSIOMA PRO MX-1

Power meter with sensor on the left side only (773-10-01)

1 Micro USB 2-way charging cable

1 Magnetic connector

MTB-compatible SPD® cleats

4 Washers

Greasing tools kit

Guarantee and safety manual

Welcome flyer

4. Product description

Assioma PRO MX is a clip-less pedal with a sensor measuring the force applied to the pedal during the pedal stroke.

Assioma PRO MX is designed to be used in the following disciplines:

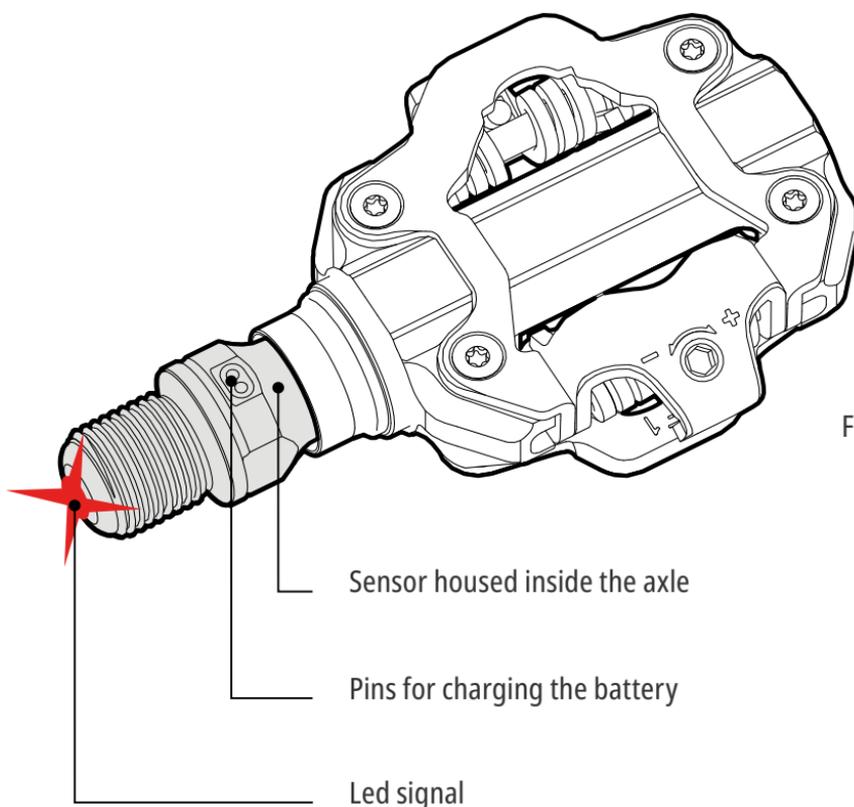
- Mountain Bike (MTB)
- Gravel (GR)
- Ciclocross (CX)
- Cross Country (XC)

It includes the function of cadence meter and calculates in real time the power output during a pedal stroke to transmit it to the bike computer or app it is paired with.

It is equipped with a rechargeable battery designed to guarantee an operating time of at least 60 hours.

Assioma PRO MX is resistant to water, mud and dust ingress (IP67) due to the housing of all the electronic parts and the rechargeable battery inside its spindle.

Assioma PRO MX features both ANT+ and Bluetooth technologies to interact and transmit data to external devices.



5. How to distinguish the left pedal from the right one

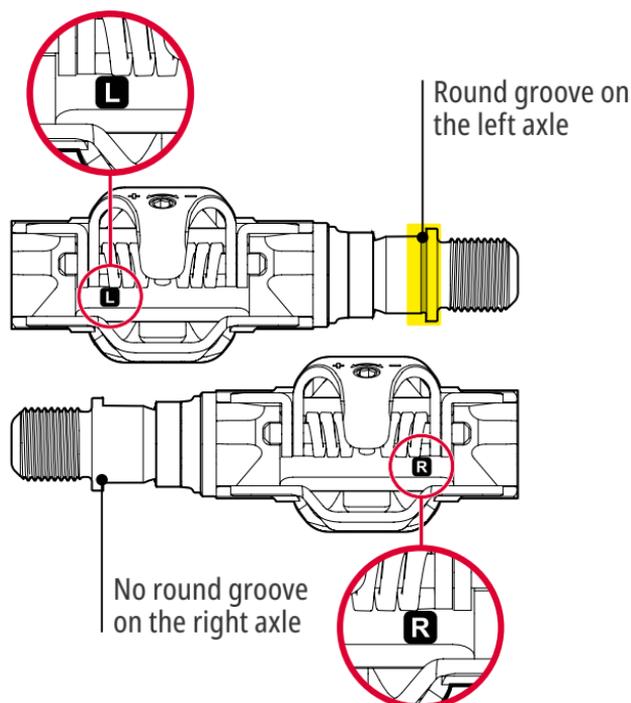


Fig. 3

Left pedal and spindle

- The left pedal is stamped “L” on one internal side of the clipless system
- The left spindle is marked with a round groove close to the threads.

Right pedal and spindle

- The right pedal is stamped “R” on one internal side of the clipless system
- The right spindle, unlike the left one, has no round groove close to the threads.

6. Warnings

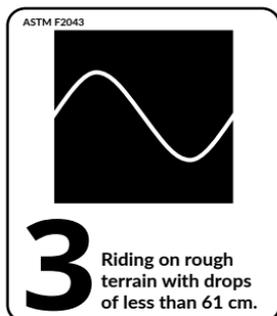
- ⚠ Carefully read the following user manual and the guarantee and safety manual provided within the box before installing the product.

A wrong installation and improper use of the product can cause accidents.

If you have any doubts about your ability to install the product, we recommend you to ask for the assistance of a specialized mechanic.

Before start riding, make sure that the force necessary to release your shoe from the pedal is suited to your needs.

7. Bike category



Assioma PRO MX has been designed for paths up to category 3 (standard ASTM F2043).

It meets the safety standard DIN EN ISO 4210.

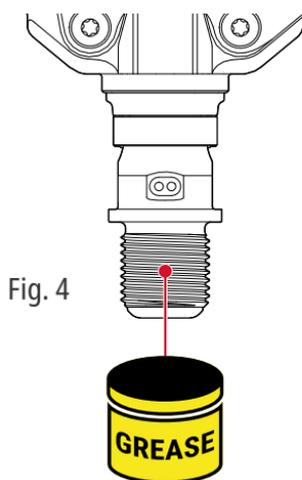
8. Installation

ASSIOMA PRO MX uses needle roller bearings, which offer a much higher load carrying capacity compared to the standard ball bearings.

Some cyclists more sensitive to the feeling with their bike may, however, note a small play in their pedals, which is to be considered as completely normal with the use of such bearings.

1. Thread greasing

Apply a thin layer of lithium grease to the spindle thread to ease potential future removals.



2. Check the distance between pedal and bike chain and pedal and frame

For the correct installation of the product, it's important to have enough space between spindle cap and bike chain and spindle cap and frame.

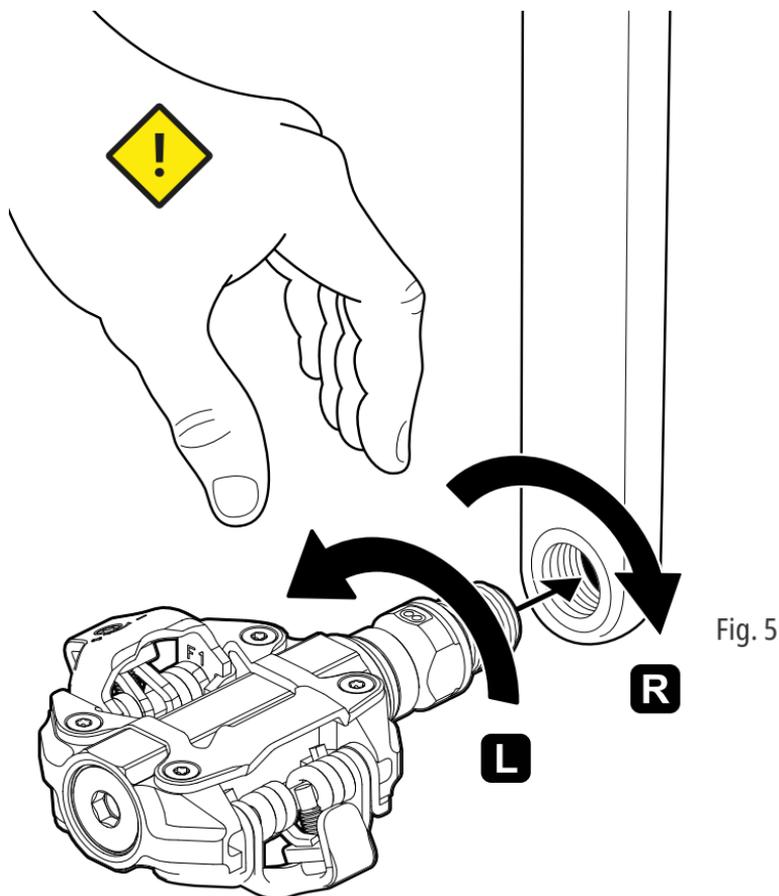
Proceed as described:

1. Screw the spindle into the crank-arm MANUALLY until complete insertion.

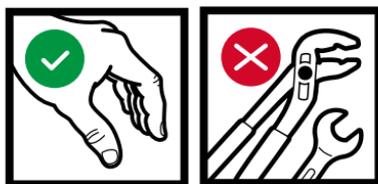
See Fig. 5

Left pedal (L) counter-clockwise

Right pedal (R) clockwise



 Carry out this operation MANUALLY, without any tools.



2. Make sure to shift the chain to the largest, outermost chainring and the smallest cassette sprocket.
See Fig. 6

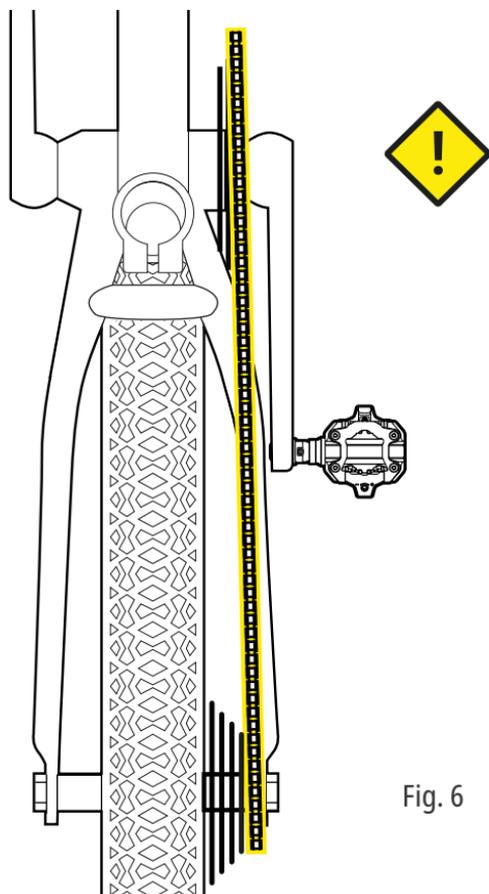


Fig. 6

3. Check the distances to avoid any kind of interference
- When stationary, rotate the crank-arm manually until performing a complete rotation
 - The spindle cap must be at a distance bigger than 4mm both from the bike chain and the frame
 - If you use crank boots, make sure they don't interfere with the bike chain or rear triangle.
- See Fig. 7.

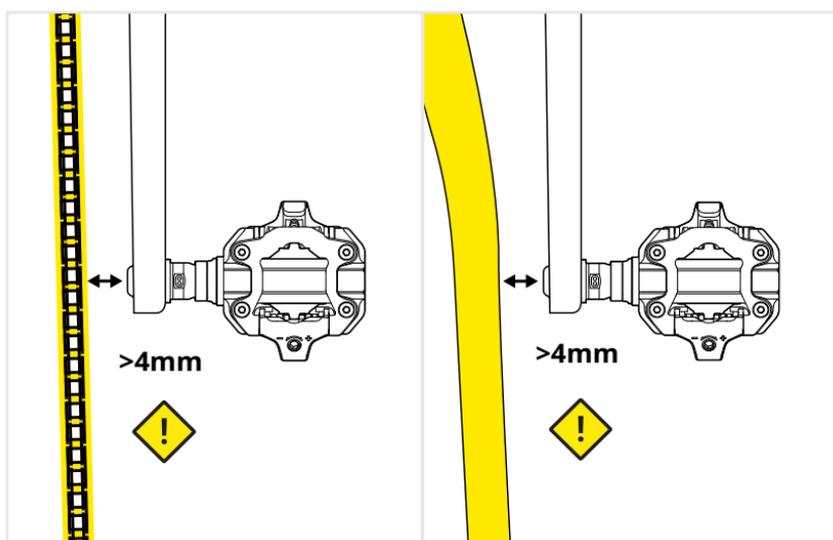


Fig. 7

If the distance is inferior to 4mm, use one or two washers (A1, A2).

Use only the washers provided by Favero Electronics.

See Fig. 8.

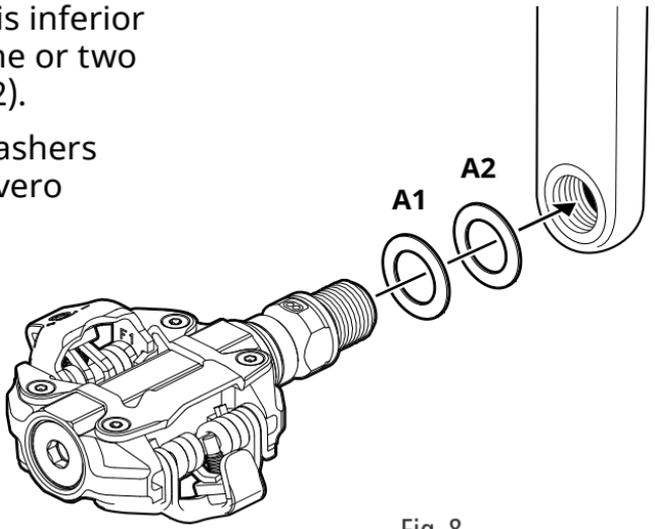


Fig. 8

3. Tightening on the crank-arm

Finish tightening with a torque wrench by applying a force of 30-40Nm.

Turn counter-clockwise for the left pedal (L), clockwise for the right (R).

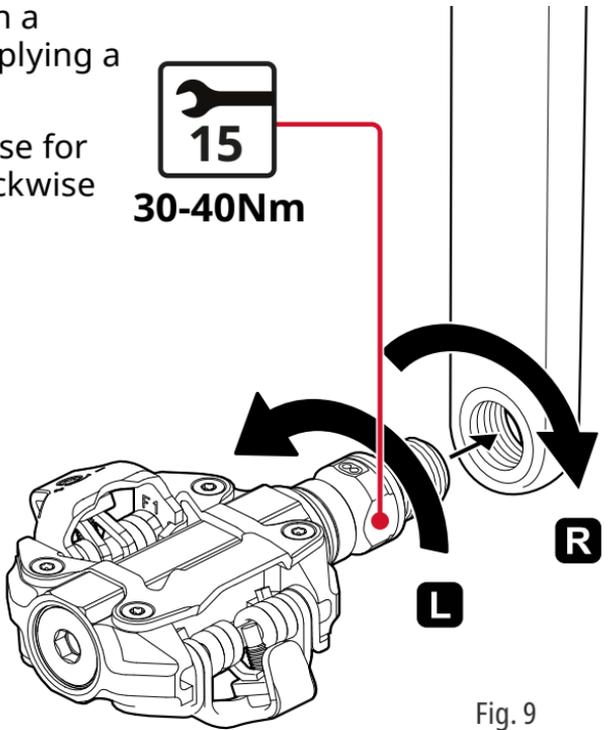
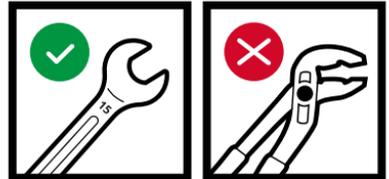


Fig. 9

⚠ Use a 15mm-open-end wrench.

Don't use spanners or adjustable wrenches.



⚠ Make sure the pedal is correctly tightened before use.
Read carefully the information in the guarantee and security manual provided within the box.

9. Installation of the cleats

Use only the cleats provided (SPD® compatible) or the original Shimano® SM-SH51 cleats.

Align the cleats properly according to your needs and tighten the mounting bolts with a torque of 4-6Nm.

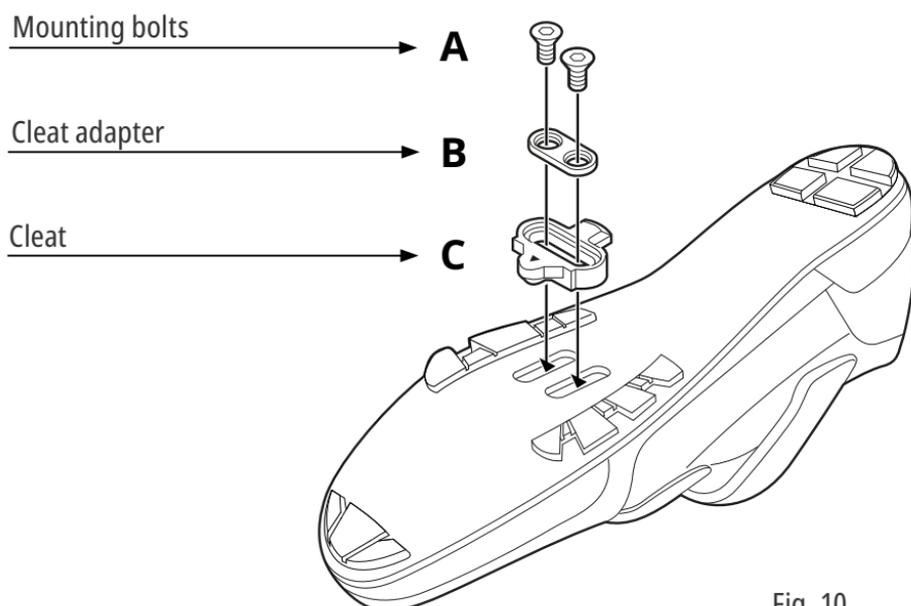
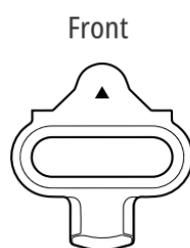


Fig. 10

 The use of other types of cleats might not be suitable, cause potential damage to the product and void the warranty.

To fix the cleats, use the mounting bolts provided with them.

Tightening torque: **4-6 Nm**

 **Regularly check the status of the cleats**

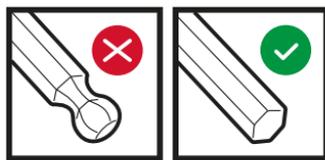
- Check that the holes where the mounting bolts are screwed in are not damaged/worn out
- Check that the cleats are well tightened to the shoes.

Carefully read the information contained in the guarantee and safety manual.

10. Release force adjustment

Adjust the tension of the spring with a 3mm hex key.

⚠ Don't use ball-end hex keys.



It is possible to check the regulation level by the position of the adjusting bolt or counting the number of clicks.

⚠ Before start pedaling, try to unclip the shoes several times to ensure that the release force of the pedal springs is suited to your needs.

If the release tension is too loose, the pedal may release unexpectedly.

If, on the contrary, it's too tight, shoe release may be impossible when needed.

Both conditions may cause accidents and possible damages to things and/or people.

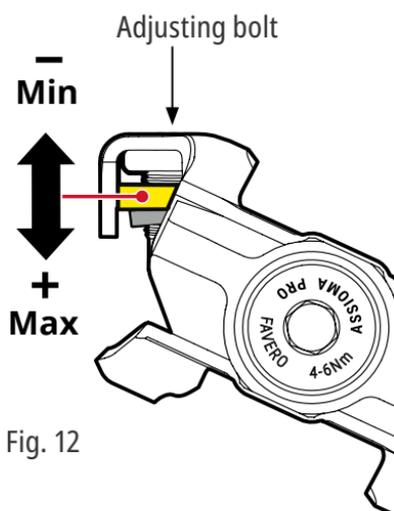
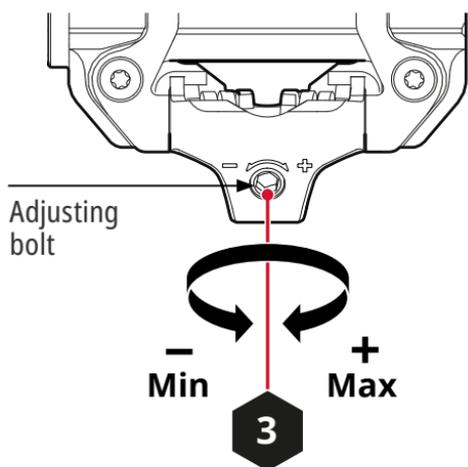


Fig. 12

The correct direction to clip-out is by twisting outward.

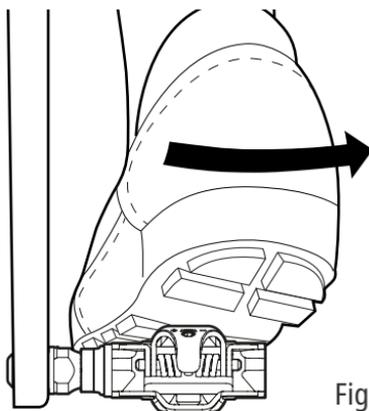
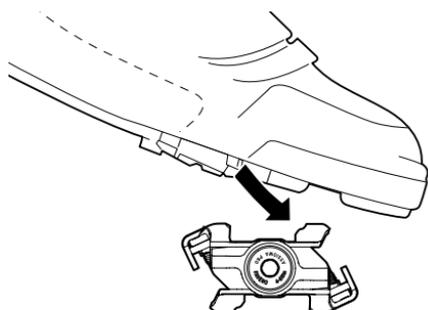


Fig. 13

11. Turn on

Assioma PRO MX automatically turns on by manually rotating the sensor or when you start pedaling, and automatically turns off after 5 minutes of inactivity to safeguard the battery duration.

- i** When using Assioma PRO MX for the first time, you must turn it on by plugging it into a charger plugged into a socket. The same procedure is necessary to exit the “travel mode” through the Favero Assioma app.

If you don't see the LEDs blinking, charge the battery as indicated in [Ch.17](#).

- !** Always clean the golden contacts present both on the sensors and the magnetic connectors with a damp cloth before charging to safeguard the correct functioning of the product.

To learn more about the LEDs' behaviour, see [Ch. 21](#).

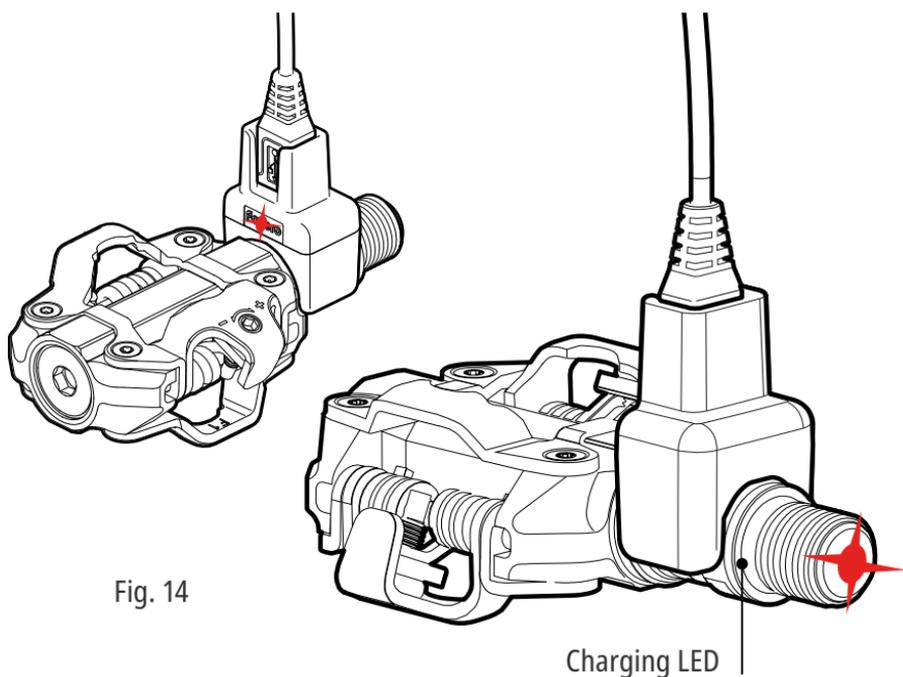


Fig. 14

Charging LED

12. Activation

Assioma PRO MX must be activated to start transmitting power data.

The activation happens through the Favero Assioma app, which is available for free on the App Store and Google Play Store.

The activation also determines the start of the warranty period, and the access to any future software updates.



- i Click or scan the QR code of the store most suited to your operating system to download the app.

Open the Favero Assioma app and follow the procedure to search for your pedals, connect them to your device and activate them.

If Assioma PRO MX doesn't appear on the search window, make sure it's not already connected via Bluetooth to another device (e.g. bike computer).

13. Pairing to your training device

Pairing is the procedure that allows you to match Assioma PRO MX to your training device to be able to register and read power data.

It can happen through the ANT+ or Bluetooth communication technologies.

This makes Assioma PRO MX compatible with any bike computers/smart watches featuring ANT+ with PWR Bike Power Profile and/or Bluetooth with CPP profile.

Assioma PRO MX can also be paired via Bluetooth to tablets and smartphones to use third-party training apps.

To see all the certified ANT+ products please browse:

<http://www.thisisant.com/directory>

(select "Bike Computers" on "Categories")

Both via ANT+ and Bluetooth, you only have to pair the left sensor to your training device.

Don't worry: If you use Assioma PRO MX-2 (with sensor on both sides), the left pedal will automatically transmit also the data collected by the right pedal it is coupled with.

1. Pairing Assioma PRO MX via ANT+

The data visible via the ANT+ communication channel are: Power, Cadence, L/R Balance (the latter is only available with Assioma PRO MX-2), Torque Efficiency (TE), Pedal Smoothness (PS) and the Cycling Dynamics such as PCO, Power Phase (PP) and Riding Position (RP).

Although the pairing procedure varies depending on the device you are using, at the end of the chapter we outline some generic guidelines.

For additional information, please refer to the manual of your bike computer's manufacturer.

We remind you that each Assioma has been assigned a 5-digit identification number (ANT+ ID) visible on the external side of the package and on the Favero Assioma app. This number is useful to identify the left sensor among all the devices available for the pairing via ANT+ with your bike computer.

-  We recommend you install the latest firmware version available from the bike computer manufacturer.

2. Pairing of Assioma PRO MX via Bluetooth (BLE)

The data visible via Bluetooth are: power, cadence and L/R balance (the latter is only available with Assioma PRO MX-2).

On the Favero Assioma app you can find some advanced training metrics, which are available in the "LIVE" section. These are: Torque Efficiency (TE), Pedal Smoothness (PS) and the Cycling Dynamics, such as PCO and Power Phase (PP).

Assioma PRO MX allows for the connection of up to 3 Bluetooth devices at the same time.

Should you encounter difficulties when pairing via Bluetooth, we suggest you unpair the pedals from any surrounding Bluetooth devices and try again.

Although the procedure varies depending on the device you are using, we outline hereafter some generic guidelines.

3. Guidelines for pairing via ANT+ and Bluetooth

Your training device must be turned on.

1. Manually rotate the crank-arms to activate the pedals
2. Open the “Settings” section on your training device
3. Select “Sensors” and “Add new sensor”
4. A list of the available devices will appear
5. Select the left sensor to proceed with the pairing.

14. Crank-arm length

The crank-arm length has an influence on power calculation.

Assioma PRO MX must, therefore, know its value: an incorrect value may result in incorrect power data. Please, refer to the manual of your bike computer’s manufacturer to understand how to correctly set the crank-arm length value.

Should it not be possible to set the crank-arm length on your bike computer/third-party app, insert it directly on the Favero Assioma app.

- ⚠ Do not set the crank-arm length on the Favero Assioma app but on your bike computer if the latter offers this feature, otherwise the value inserted on the Favero Assioma app would be overwritten.

15. Manual and automatic calibration

Each Assioma PRO MX sensor is factory calibrated to ensure its guaranteed precision under any operating conditions, including ambient temperature variations, for which automatic compensation from -10°C to $+55^{\circ}\text{C}$ is active.

Assioma PRO MX features the automatic calibration functionality (or zero-offset), a sophisticated algorithm taking into account different aspects over time and performing several periodic calibrations of the product.

- ⚠ Store the bike upright (not tilted), with no load applied on the pedals.
Automatic calibration is independent of the crank position.

Manual calibration is only required at first installation and any time you swap Assioma PRO MX between bikes.

It is, however, possible to keep on performing manual calibration on the Favero Assioma app or compatible bike computers following the procedure described below.

By so doing, the values already registered on the last automatic calibration will be overwritten.

To perform it:

1. Turn on Assioma PRO MX
2. Release the shoes from the pedals and make sure that no load is applied
3. Place the bike upright (not tilted) keeping it as still as possible. Otherwise, it is not possible to complete the calibration
4. Place the crank-arms in vertical position
5. Open the Favero Assioma app or bike computer and proceed with the calibration.
If Assioma PRO MX is not found, make sure it's not connected via Bluetooth to another device.

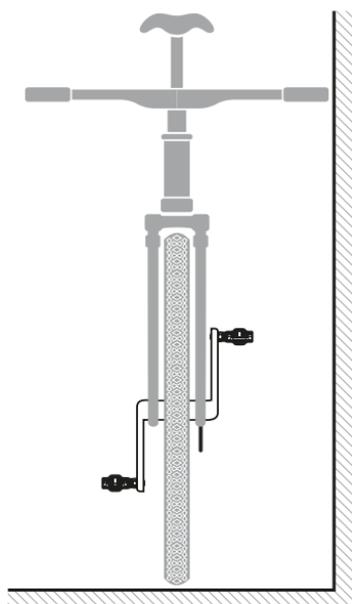


Fig. 15

The calibration procedure varies depending on whether it is performed on the Favero Assioma app or on your bike computer.

1. On the Favero Assioma app

1. Select "Settings"
2. Select "Manual calibration"
3. Select "Calibrate"
4. Make sure that manual calibration is successful
5. Repeat the operation if an error occurs.

2. On your bike computer (generic procedure which varies according to the model)

1. Access the power sensors menu
2. Select "Calibrate" o "Zero-offset"
3. Make sure that manual calibration is successful; normally, a confirmation message or a 0 (zero) appears on the display
4. Repeat the operation if an error occurs.

i Due to potential limitations of bike computers, sometimes manual calibration is slowed down or hindered if there are other ANT+ sensors enabled on the bike computer but not turned on (e.g. heart rate

monitor, cadence meter) as the bike computer keeps on looking for them but can't find them.

In any case, it's necessary to turn them on or temporary disable them on the bike computer.

16. First use

At first installation, Assioma PRO MX will not send any power data to the bike computer until it has completed an internal self-calibration.

Assioma PRO MX self-calibrates after a few dozen pedal strokes. To speed up the procedure, it is advisable to pedal seated, at a uniform pace and on a leveled road.

Self-calibration can be considered as complete once Assioma PRO MX starts sending power data to your device.



Fig. 16

17. Battery charge

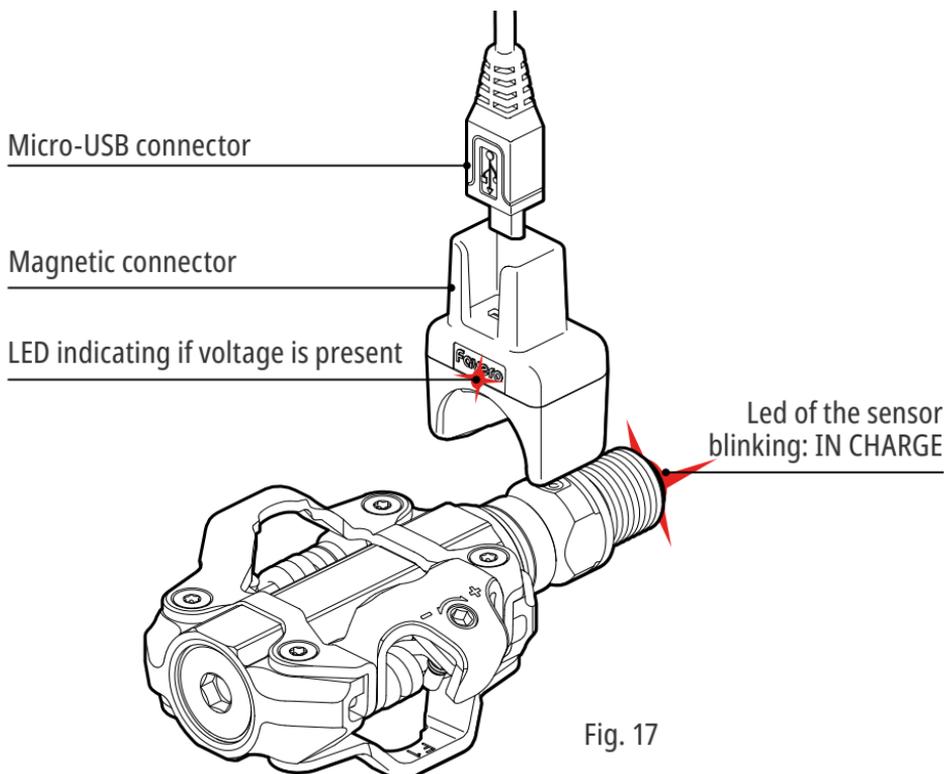
1. Warning for the charge

 Assioma PRO MX has an internal rechargeable lithium battery which allows for at least 60 operating hours.

 Always clean the golden contacts present both on the sensors and the magnetic connectors with a damp cloth before charging for the correct functioning of the product.

To learn more about the LED's behaviour, see [Ch. 21](#).

 If you don't use the product for a long period, we suggest charging it at least every 3 months to safeguard the performance of the battery. When the battery of a pedal runs low, the bike computer will display a warning. The remaining battery duration after such warning is of about 8 hours.



2. Charging procedure

To charge the batteries, you just need a standard USB-A charger or a common powerbank.

Some powerbanks might not charge the battery completely if they have a minimum charging voltage superior than what Assioma PRO MX needs.

To charge Assioma PRO MX, insert the magnetic connectors into a battery charger plugged into a socket and clip the magnetic ends on to the pedal as shown in the figure.

 Always clean the golden contacts present both on the sensors and the magnetic connectors with a damp cloth before charge for the correct functioning of the product.

To learn more about the LED's behaviour, see [Ch. 21](#).

The *sensors'* LEDs turn on and stay on during the whole charging process. Once the charge is completed, the LEDs start blinking every 0,5 sec.

The charging time, if the battery is drained, is of around 4 hours.

 Charge in an environment with a recommended temperature between +10°C and +45°C. Outside this range, charging may be blocked to preserve the functionality of the batteries.

18. From single to dual-sided

Assioma PRO MX-1 measures the power output of the left leg only and doubles it to offer total power data reading. Please note that you can always purchase the right power meter pedal at any time to change from a single to a double-sided power meter, **Assioma PRO MX-2**.

To convert Assioma PRO MX-1 into MX-2, once you've bought the product mentioned above, you need to open the Favero Assioma app and select Settings - From single to dual-sided.

19. Pedals removal

- ⚠ To remove the pedals, use a 15 mm-open-end wrench:
- Unscrew the LEFT pedal **CLOCKWISE** (facing the pedals)
 - Unscrew the RIGHT pedal **COUNTER-CLOCKWISE** (facing the pedals)

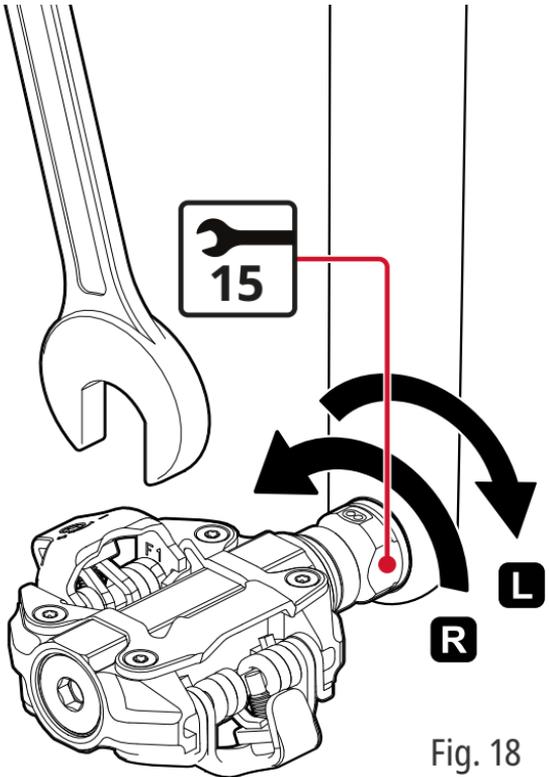
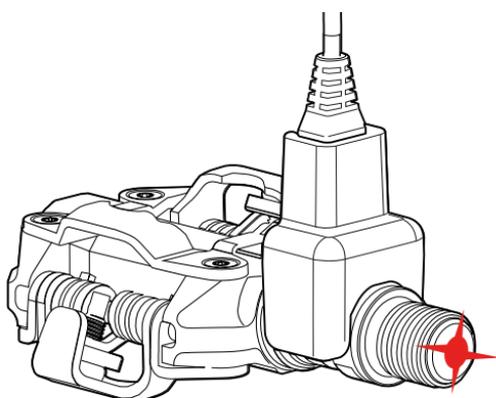


Fig. 18

20. Reinstalling the pedals (swap them between bikes)

1. Install the pedals as shown in [Ch. 8](#)
2. Correctly set the crank-arm length as in [Ch. 14](#)
3. Perform manual calibration as in [Ch. 15](#)
4. Start pedaling. As thoroughly explained in [Ch. 16](#), the product needs an initial self-calibration that will happen during a few dozen pedal strokes.
To speed it up, we suggest you pedal seated, at a uniform pace and on a leveled road.

21. Sensors' LEDs behaviour



Fast and continuous blinking for 3 seconds	Assioma PRO MX is being turned on
Short blinking every 3 seconds	Assioma PRO MX is turned on
Steady	The battery is charging
Short blinking every 0.5 seconds	The battery charge is completed
Two flashes every second	Search for the associated sensor
Automatic switch off of the LED while pedaling	While pedaling, the LED is off. When you stop pedaling, the LED starts blinking again.

22. Servicing

Carefully read the following user manual and the guarantee and safety manual provided within the box before using the product.

1. General check

-  To ensure the correct functioning of the product and avoid possible accidents caused by the loosening of the spindle, it is recommended to check periodically or, better yet, before every ride, that the spindle is

tightened with the required tightening torque of 30-40Nm.

Before every ride, make sure that both end cap and screw cap are tightened with a tightening torque of 4-6Nm and 5-7Nm respectively. See Ch.23 .

2. Cleaning

Clean Assioma PRO MX with a damp cloth.

Do not use aggressive chemicals such as: gasoline, gas oil and petrol by-products in general, alcohol, industrial or all-purpose degreasers, etc.

⚠ Do not use high pressure jets.

3. Greasing

Lube occasionally the spindle with a coat of grease to enhance performance over time.

Make sure you use the greasing tools kit provided within the box.

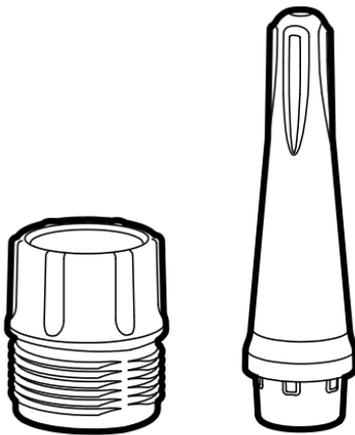


Fig. 19

All the information necessary for carrying out this process is available in the specific guide at the following link :

<https://cycling.favero.com/assiomapromx/manuals>

23. Spare parts

For more information on spare parts, visit the shop on the website <https://cycling.favero.com>

Exploded view of the components

PEDAL BODY:

Left Kit PRO MX

Art. 773-10-20

- 1x left pedal body
- 1x end cap
- 1x screw cap (black)
- 1x oil seal
- 1x axial washer
- 1x greasing kit tool

Right Kit PRO MX

Art. 773-10-21

- 1x right pedal body
- 1x end cap
- 1x screw cap (red)
- 1x oil seal
- 1x axial washer
- 1x greasing kit tool

Rings Set:

Art. 773-00-38

- 2x metal red rings
- 1x bushing only for Assioma PRO MX-1.

Repair kit:

Art. 773-00-50

- 2x end cap
- 1x screw cap (red)
- 1x screw cap (black)
- 2x axial washers
- 2x oil seals
- 4x washers
- 1x greasing tools kit
- 1x rings set

Washers set:

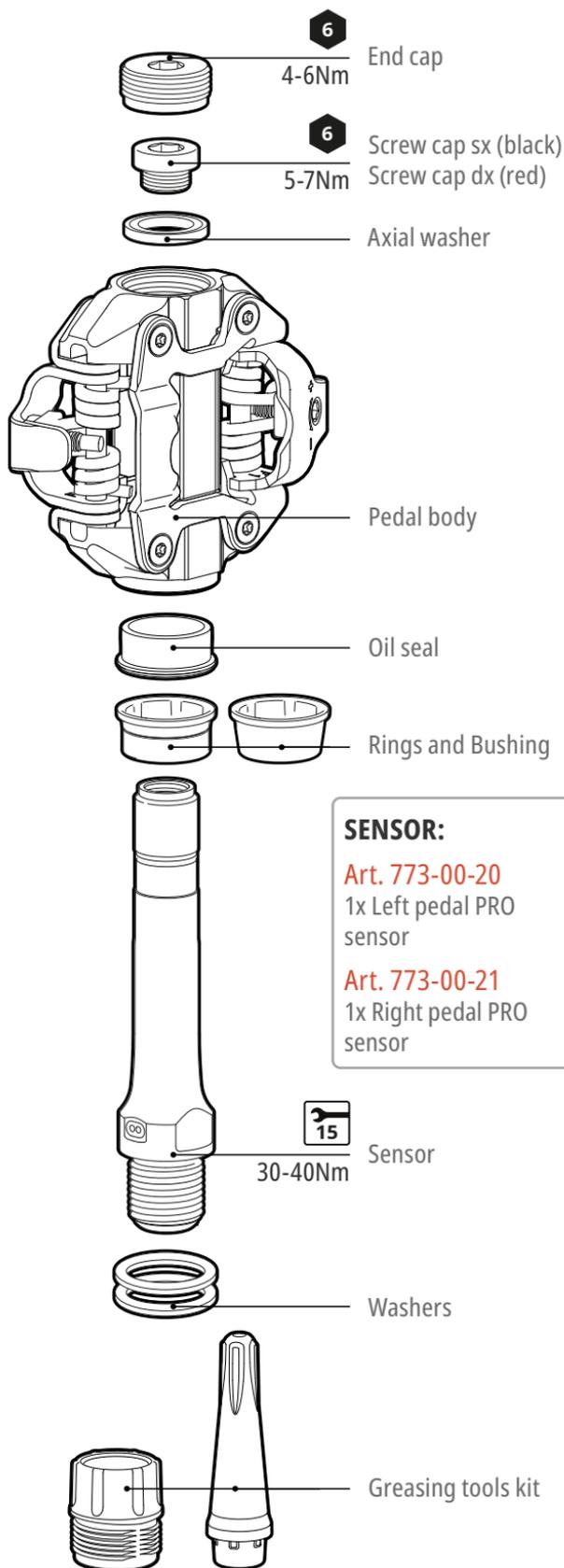
Art. 773-00-36

- 4x washers

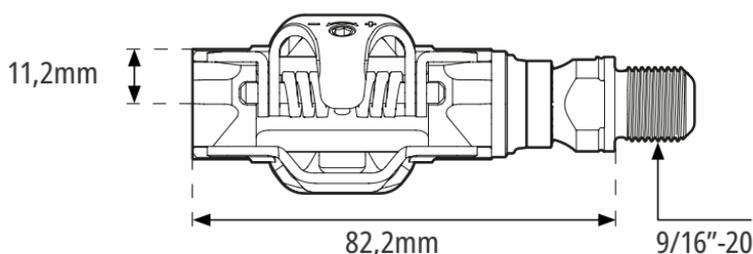
Greasing tools kit:

Art. 773-00-37

- Plastic tools for the greasing process



24. Stack height



25. Technical features

Product code:	ASSIOMA PRO MX-2 (art. 773-10-02), power sensors on both sides ASSIOMA PRO MX-1 (art. 773-10-01), power sensor on the left side only
Transmitted data:	ANT+, Bluetooth (bike PC) & Favero Assioma app <ul style="list-style-type: none"> • Power (watt) • Cadence (rpm) • L/R Balance (only with Assioma PRO MX-2) ANT+ & Favero Assioma app <ul style="list-style-type: none"> • Platform Center Offset (PCO) • Power Phase (PP) • Torque Efficiency (TE) • Pedal Smoothness (PS) • Rider Position (RP) - no Favero Assioma app
Radio protocol:	ANT+ PWR (PO) profile Bluetooth v4.2 Frequency 2402-2480 MHz RF power max 1,4dBm EIRP
Bluetooth connections:	Up to 3 devices simultaneously
Power:	0 - 3000 W
Cadence:	10 - 250 rpm
Power measurement accuracy:	± 1%
Gyroscope:	Integrated to account for instantaneous angular velocity variations
Cadence sensor:	Internal, integrated
Internal battery:	lithium, rechargeable, 4,2Vdc nominal voltage, at least 60 operating hours
Total pedal weight with sensor:	191,4 g
Pedal weight without sensor:	191,2 g

Stack height:	11,2 mm
Pedal axle material:	AISI 630 stainless steel
Bearings:	2x needle rollers (<i>Dynamic load > 400kg each needle roller</i>) 1x axial washer in technopolymer
Axle threads:	9/16"-20 tpi
Operating temperature:	-10 / +55 °C
Suggested battery charge temperature:	+10 / +45 °C
Protection degree:	IP67 (Indoor/Outdoor) use
Compatible cleats:	<ul style="list-style-type: none"> • Compatible cleats provided (art. 773-00-62) • Shimano® SM-SH51 original cleats
Max cyclist weight:	120 Kg ¹
Warranty:	2 years
Power meter:	Produced based on the F-PM2 sensor
Internal battery charger input:	5Vdc max 100mA

¹ This product has been designed for weights no higher than those clearly specified. A person exceeding the weight limit herein specified will use this product at his/her own risk.

This product is ANT+ certified and complies with the ANT+ specifications:

www.thisisant.com/directory



Bluetooth™

26. Favero Electronics

Assioma PRO MX is entirely designed, produced and assembled by Favero Electronics in Italy, according to rigorous quality and safety standards and using highly qualified personnel.

For more information, visit the page:

<https://cycling.favero.com/it/company>

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27. Warranty

All information relating to the product warranty is contained in the Warranty and Safety manual provided inside the product box or downloadable from the website cycling.favero.com.

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