

## Dealer's Manual

**Crank | Crankset | Chainring | Spiders | Sprocket | Chainguard | Bottom bracket**

**E-bike category**



**MGreen**



**XMOD**



**Hollowtube**

# Table of contents

<b>To ensure safety</b>	<b>3</b>
Important notice	3
Important safety information	4
Notice	5
Checks before riding the bicycle	5
<b>Compatibility</b>	<b>6</b>
<b>List of tools</b>	<b>7</b>
<b>Instructions</b>	<b>8</b>
for Bosch Gen4	8
for Bosch Gen3	14
for Bosch Gen2	18
for Shimano	22
for Yamaha	25
for MGreen	28
for XMOD	29
for Hollowtube	31
<b>Maintenance</b>	<b>33</b>

# To ensure safety

## Important notice

This Dealer's Manual is intended to be used only by professional bicycle mechanics.

Users who are not a professional bicycle mechanic or otherwise suitably qualified, should not install the components by themselves.

If anything in this Dealer's Manual is unclear to you, before or during installation, stop the installation and contact Miranda at [mirandabikeparts.com/en/contacts](http://mirandabikeparts.com/en/contacts)

For safety reasons and proper functioning of the components, please strictly follow the instructions of this Dealer's Manual.

Please make sure the user thoroughly reads and follows the User's Manual belonging to this product.

The User's Manual is included with the product and can be downloaded at <https://mirandabikeparts.com/en/downloads>

**At all times make sure you wear appropriate or legally required personal protective equipment while installing bicycle parts.**

**For the classification of product hazards,  
we use the following definitions:**



**DANGER** is used to indicate a hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** is used to indicate a hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** is used to indicate a hazardous situation which, if not avoided, could result in minor or moderate injury.

# Important safety information

## ⚠ WARNING

Improper installation of MIRANDA parts may cause an unexpected failure of the parts or the bicycle.

Only use MIRANDA parts in combination with compatible parts.

Do not touch a rotating chainring.

Keep objects and body parts away from a rotating chainring.

Do not modify the product.

Do not use a damaged chainring (other than by normal wear and tear).

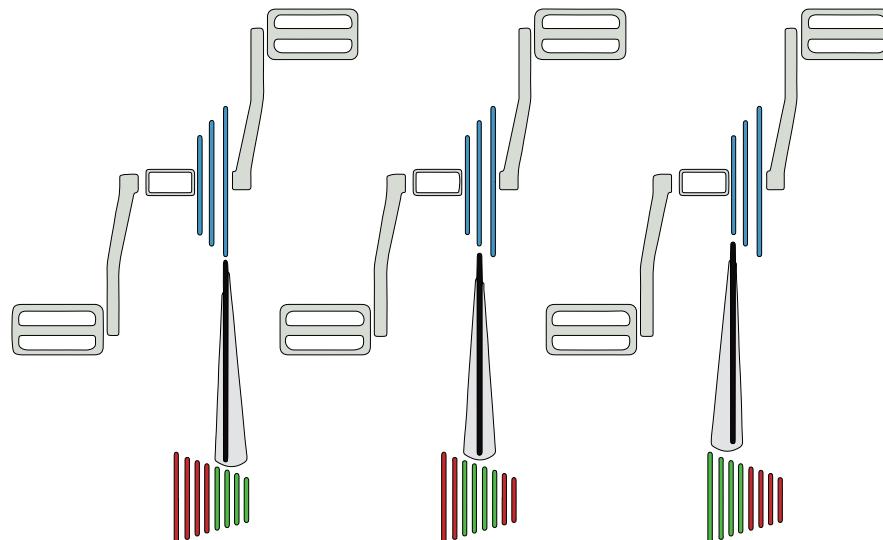
## ⚠ CAUTION

Be careful not to let your clothing, laces or any other object get caught in the chainring while riding.

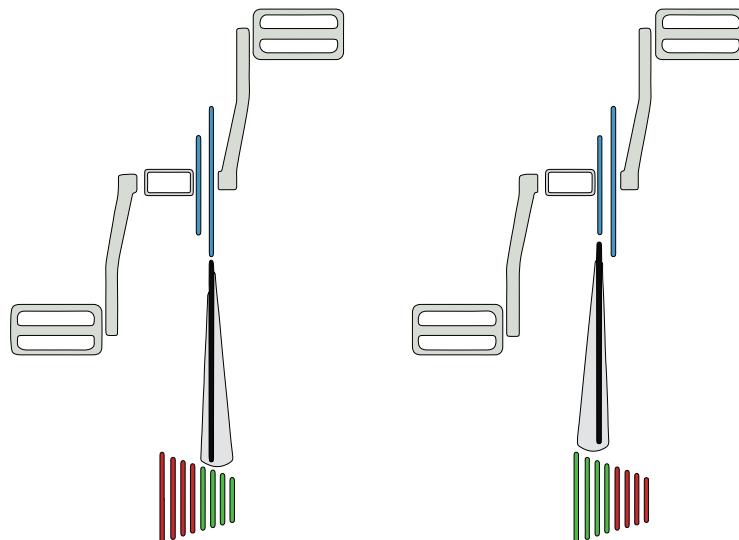
Do not touch the teeth of a chainring. They can be sharp.

Make sure to use the correct chainline as specified in the instruction manual of the bicycle. Incorrect chainline can damage the chainring, chain, the entire drive train and bicycle frame, and the rider may fall and be injured.

Gears usage recommendations - Triple crankset



Gears usage recommendations - Double crankset



# Notice

- Components are subject to wear and tear depending on their function and use.
- The proper functioning of the chainring in combination with the chain and other parts of the drivetrain must be tested before riding the bicycle.
- Choosing the right length for cranks depends on a variety of factors and personal preference. If you are unsure which crank length to choose, we recommend riders to have a professional bike fitting carried out.
- To ensure the best performance, use only a chain that is compatible with the chainring.
- To protect the chainring from damage in case of striking an object, we recommend using a bash guard or skid plate.
- Clean the chainring with a neutral detergent regularly, to extend its life and enhance its functioning.
- Clean the chain with a neutral detergent regularly and lubricate it, to extend its life and enhance its functioning.
- Do not use a water high-pressure cleaner to clean MIRANDA parts.

**For further instructions regarding maintenance, please carefully read the maintenance instructions in this Dealer's Manual and instruct the users accordingly.**

## Checks before riding the bicycle

Before riding the bicycle, please check the following items. If any problems are found, please make sure to solve them.

- Are any damages visible on the chainring, e.g. cracks, broken or bent teeth or deformations?
- Is shifting gear going smoothly?
- Is pedaling going smoothly?
- Do you hear any abnormal sound while riding?

# Compatibility

## Crank

Crank	Interfaces available
Alpha	   
Beta	   
Gamma	  
Delta	    
Classic	   
Psi	   
Epsilon	    
Omega	    
Kappa	    
Elegance	
Iota	    
Lambda	   
Zeta	    
Sigma	   
Kies	   
Strada	   
Crius	    
Mirage	    
Tethys	    
Delta LS	
Kronos	
Delta BFG	

## Chainrings and spiderless

<b>Tooth profile</b>		<b>NEW</b> 
<b>Tooth name</b>		
<b>Recommended chains</b>	9, 10, and 11 speed chains Sram Eagle 12 speed Sram 12 speed Road KMC MTB	Designed for 12 speed Shimano Hyperglide+
<b>Not recommended</b>	12 speed Shimano Hyperglide+	

# List of tools

COMPONENT	LOCATION USED/ SCREW TYPE	TOOL
Crank arm	Crank bolts	 8mm hex key + torque wrench
	Self-extracting Cap	 (2.3mm) Pin spanner
	Crank side screws	 5mm hex key + torque wrench
	Crank plastic cap	 10mm hex key + torque wrench
	Crank puller +wrench	 10mm hex key + torque wrench
Chainring	Lockring G2	 Bosch® 0275009003 tool
	Lockring G3 & G4	 Bosch® 2123266 tool
	Lockring SH	 TL-FC39 tool + torque wrench
	Chainring bolt	 6mm hex key + torque wrench
	Chainring nut	 Chainring nut wrench
	Directmount chainguard	 Cross head screwdriver
Chainguide	Chainguide screws	 4mm hex key + torque wrench

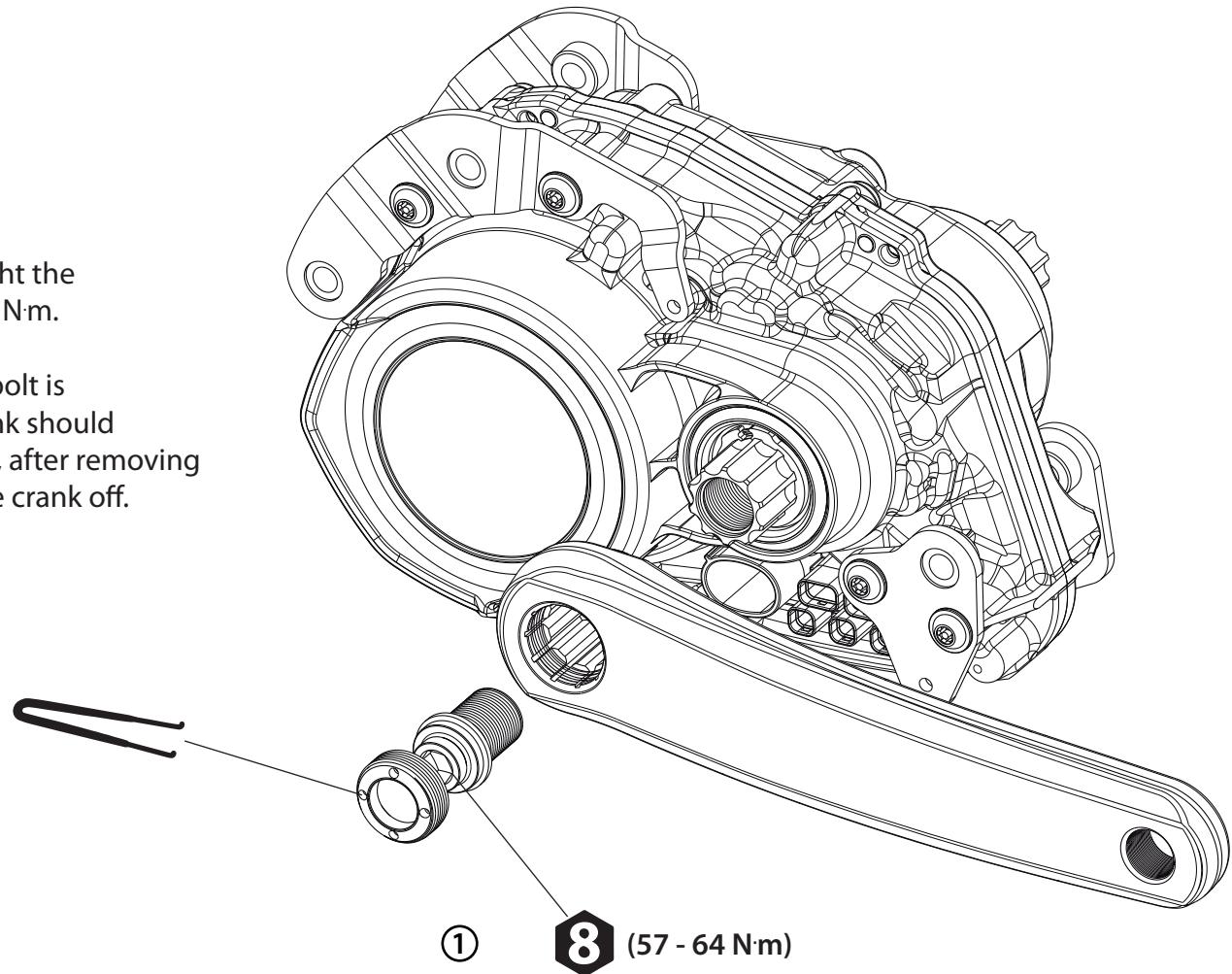
## Installation and removal of the left crank

If it is not already assembled, prepare the self-extracting crank bolt as illustrated.

If using the plastic cap, just insert the bolt.

1 - Using the 8mm hex and the torque wrench, tight the ISIS crank at the recommended torque of 57 to 64 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.

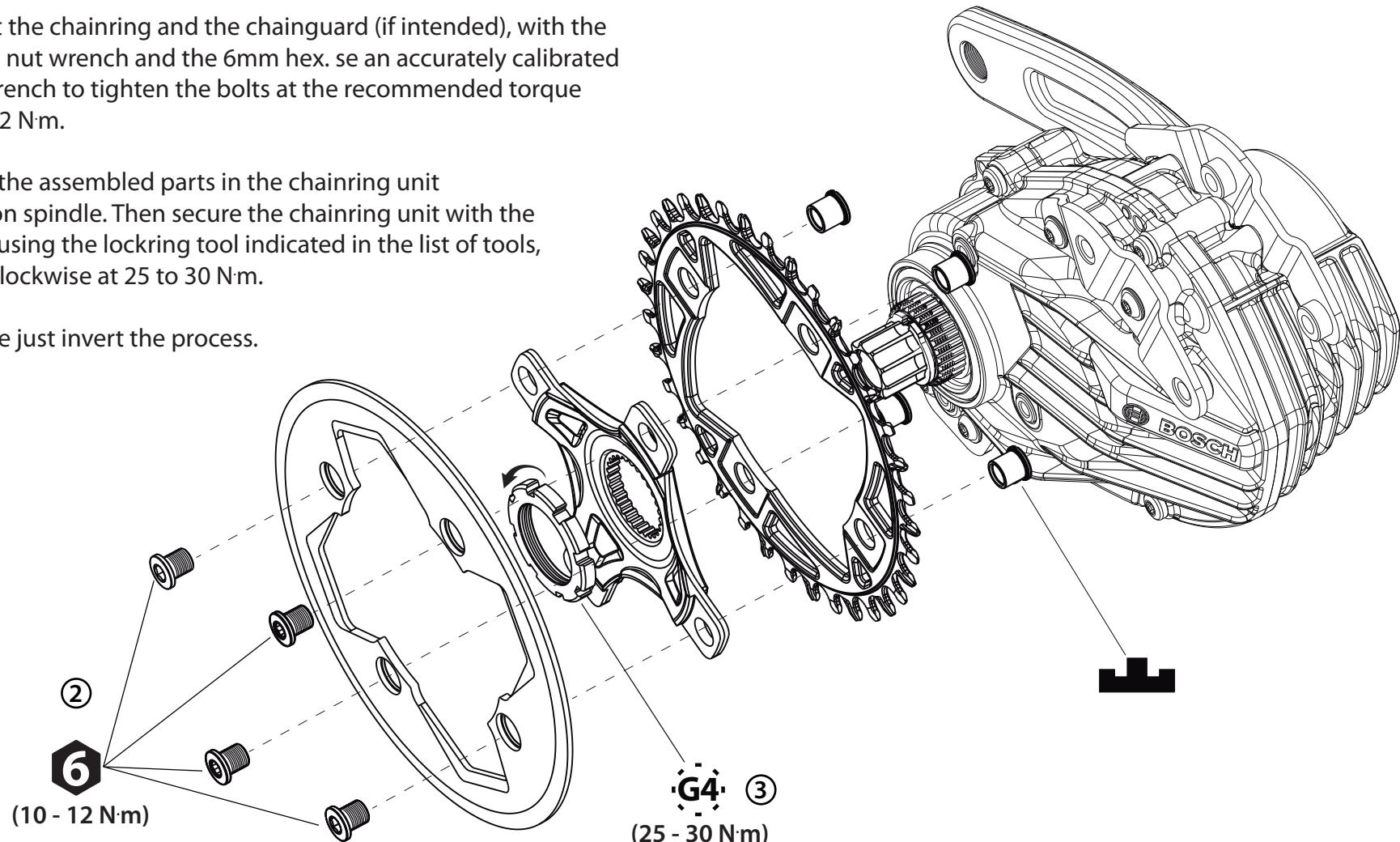


## Installation of the spider, chainring and chainguard

2 - Mount the chainring and the chainguard (if intended), with the chainring nut wrench and the 6mm hex. Use an accurately calibrated torque wrench to tighten the bolts at the recommended torque of 10 to 12 N·m.

3 - Insert the assembled parts in the chainring unit installation spindle. Then secure the chainring unit with the lockring, using the lockring tool indicated in the list of tools, counter clockwise at 25 to 30 N·m.

To remove just invert the process.

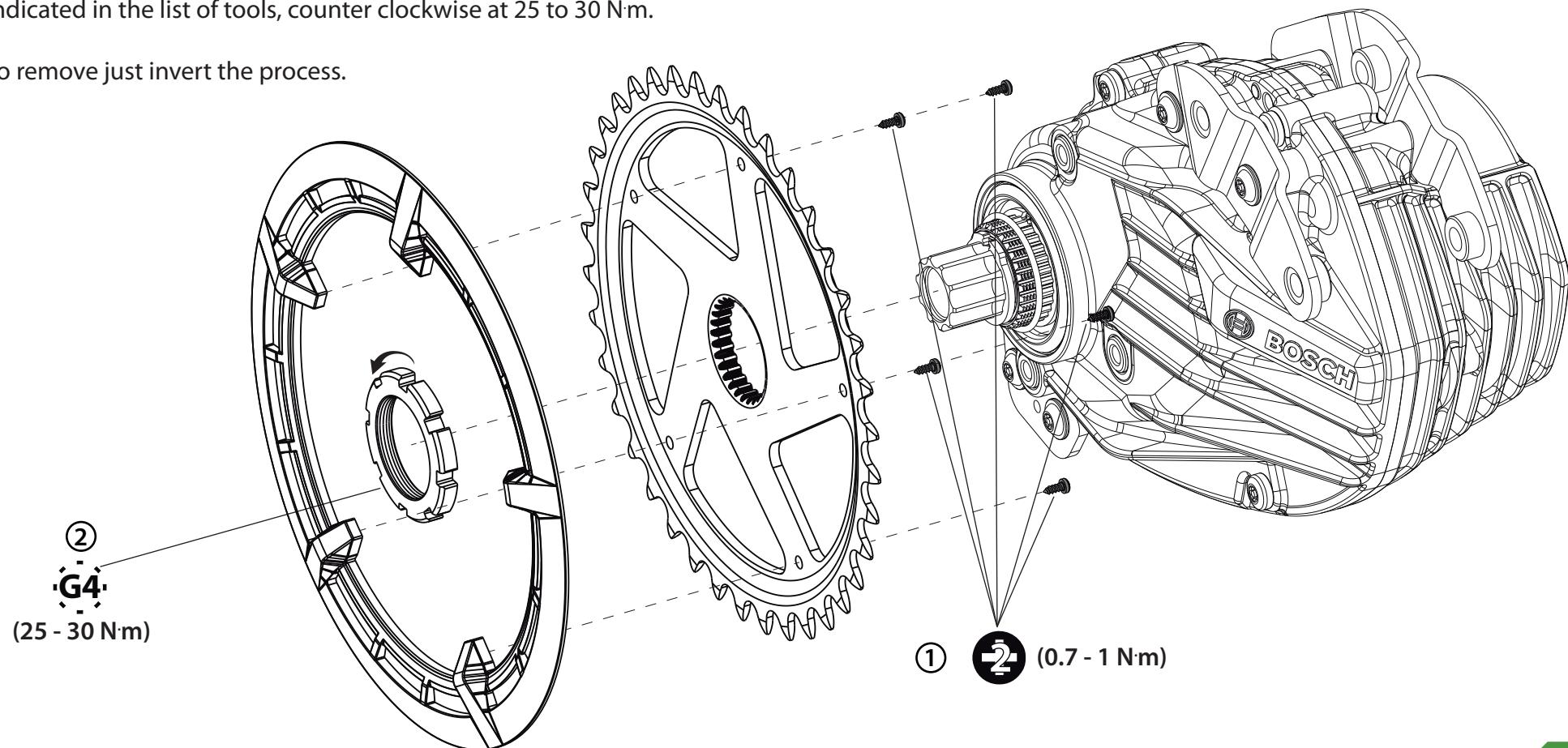


## Installation of the spiderless chainring and chainguard

1 - Mount the chainguard (if intended), to the direct mount chainring with the cross head screwdriver, and tight the screws at 0.7 N·m.

2 - Insert the assembled parts in the chainring unit installation spindle. Then secure the chainring unit with the lockring, using the lockring tool indicated in the list of tools, counter clockwise at 25 to 30 N·m.

To remove just invert the process.



## Installation of the spiderless chainring and chainguard

### ⚠ CAUTION

Assembling the wrong chainline can damage the chainring, chain, and all your drive train, which can cause an accident. Please make sure of the chainline you need, and choose the correct spiderless chainring for your ebike

- Standard 47,5mm;
- Boost 52mm.

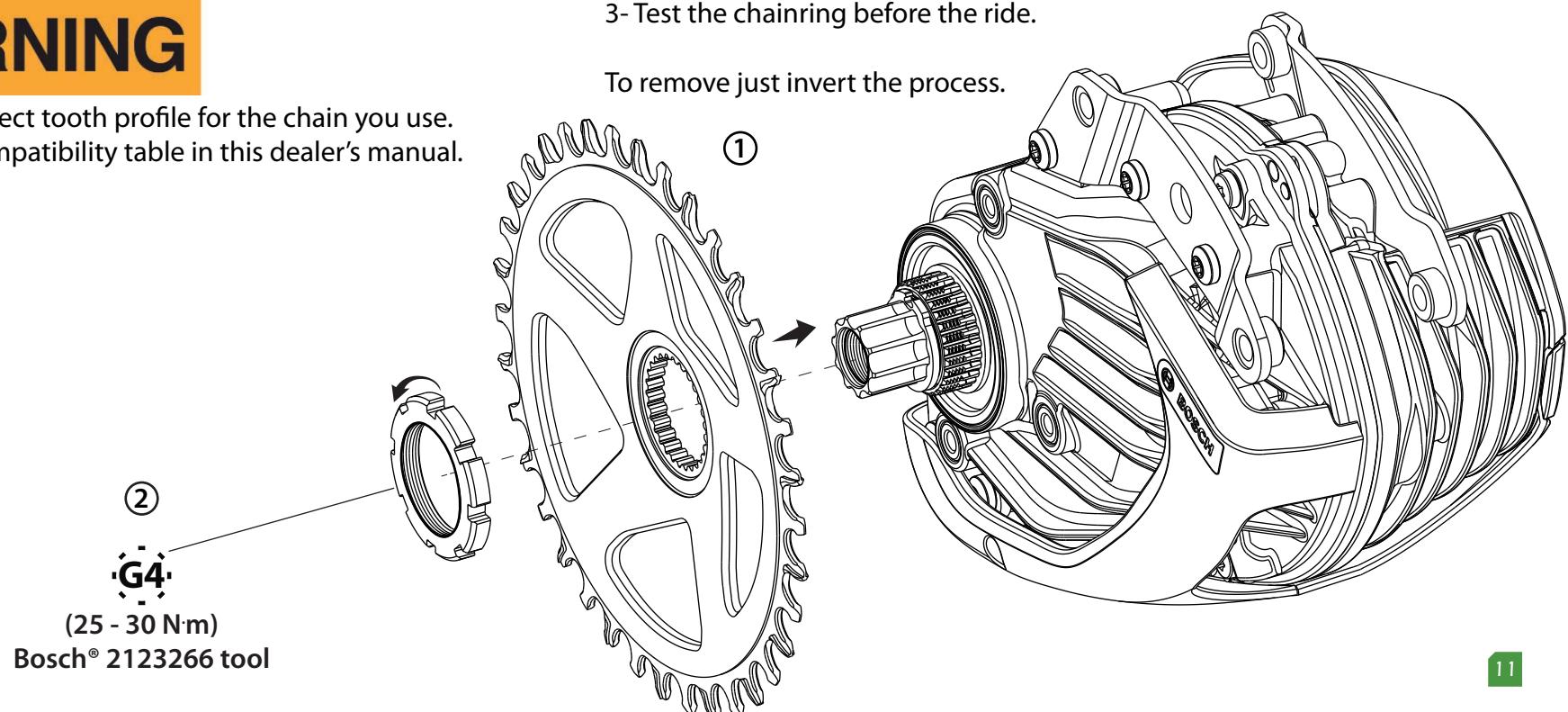
### ⚠ WARNING

Also choose the correct tooth profile for the chain you use. Please check the compatibility table in this dealer's manual.

Follow these steps for the installation:

- 1- Insert the spiderless chainring in the chainring unit installation spindle.
- 2- Then secure the spiderless chainring with the lockring, using the lockring tool Bosch® 2123266, counterclockwise at 25 to 30 N.m.
- 3- Test the chainring before the ride.

To remove just invert the process.



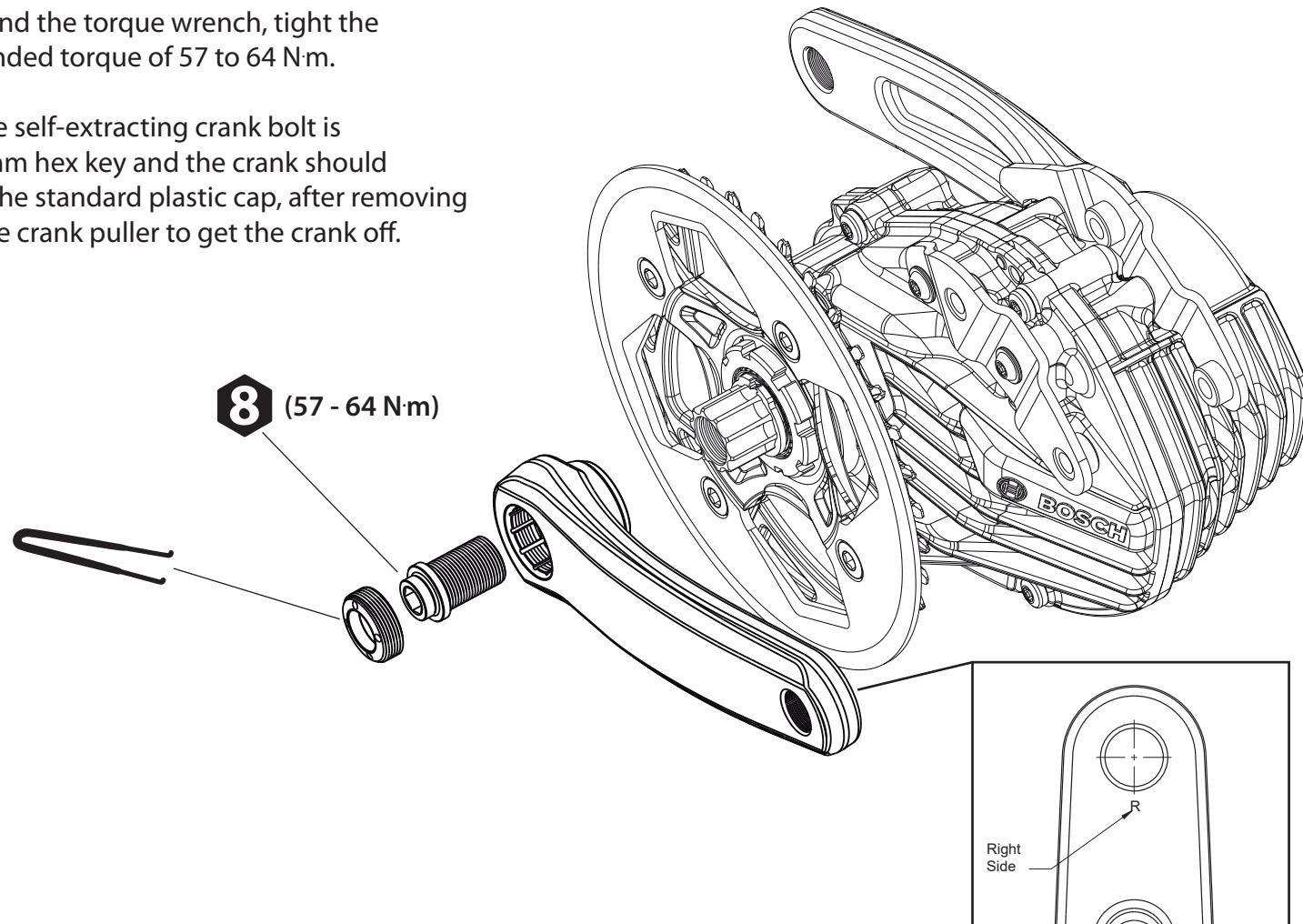
## Installation and removal of the right crank

If it is not already assembled, prepare the self-extracting crank bolt as illustrated.

If using the plastic cap, just insert the bolt.

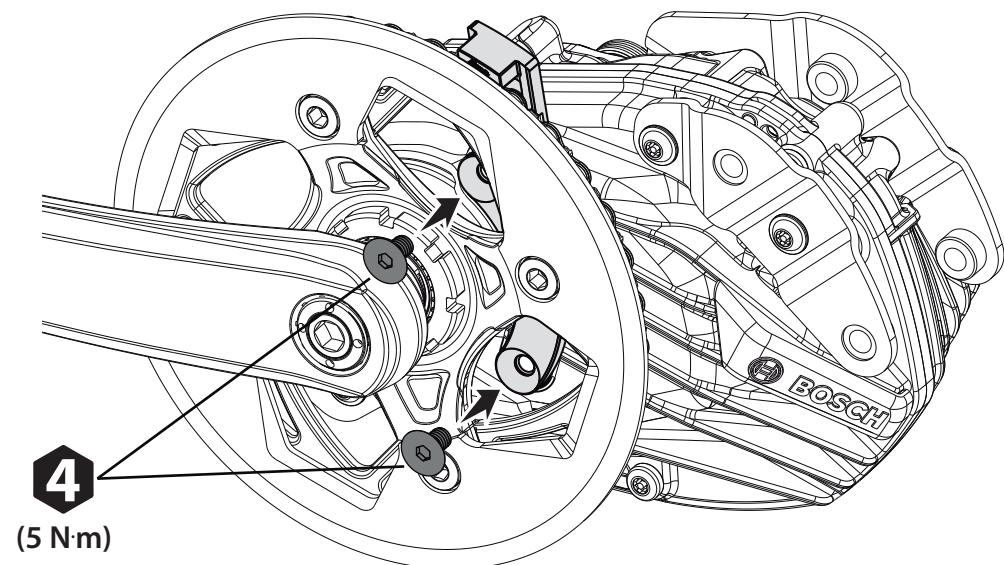
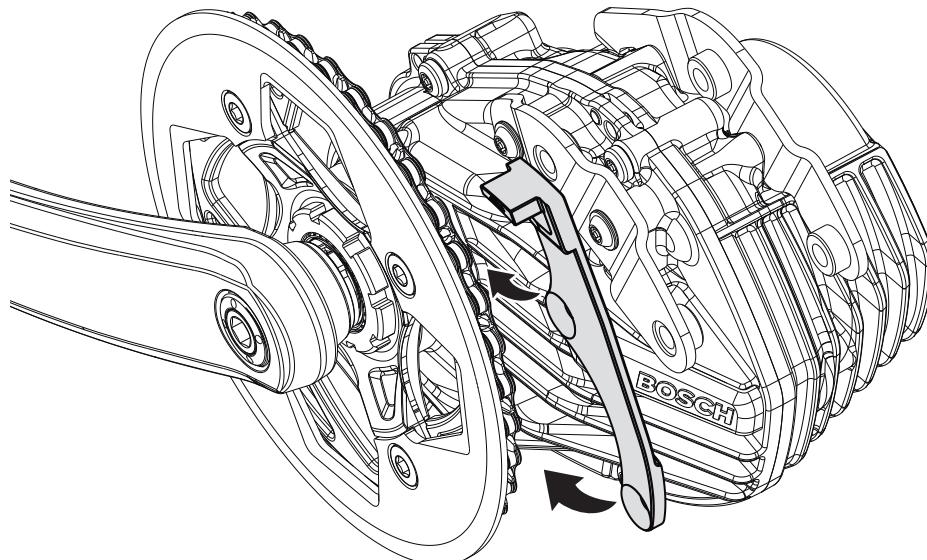
Then using the 8mm hex and the torque wrench, tight the ISIS crank at the recommended torque of 57 to 64 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.



## Installation of the chainguide G4

To install the chainguide just slide it in between the chainring and the motor, until aligned with the mounting holes. Then adjust the crankset until you have space to insert the screws. Tight the screws with the 4mm hex key, at 5 N·m.



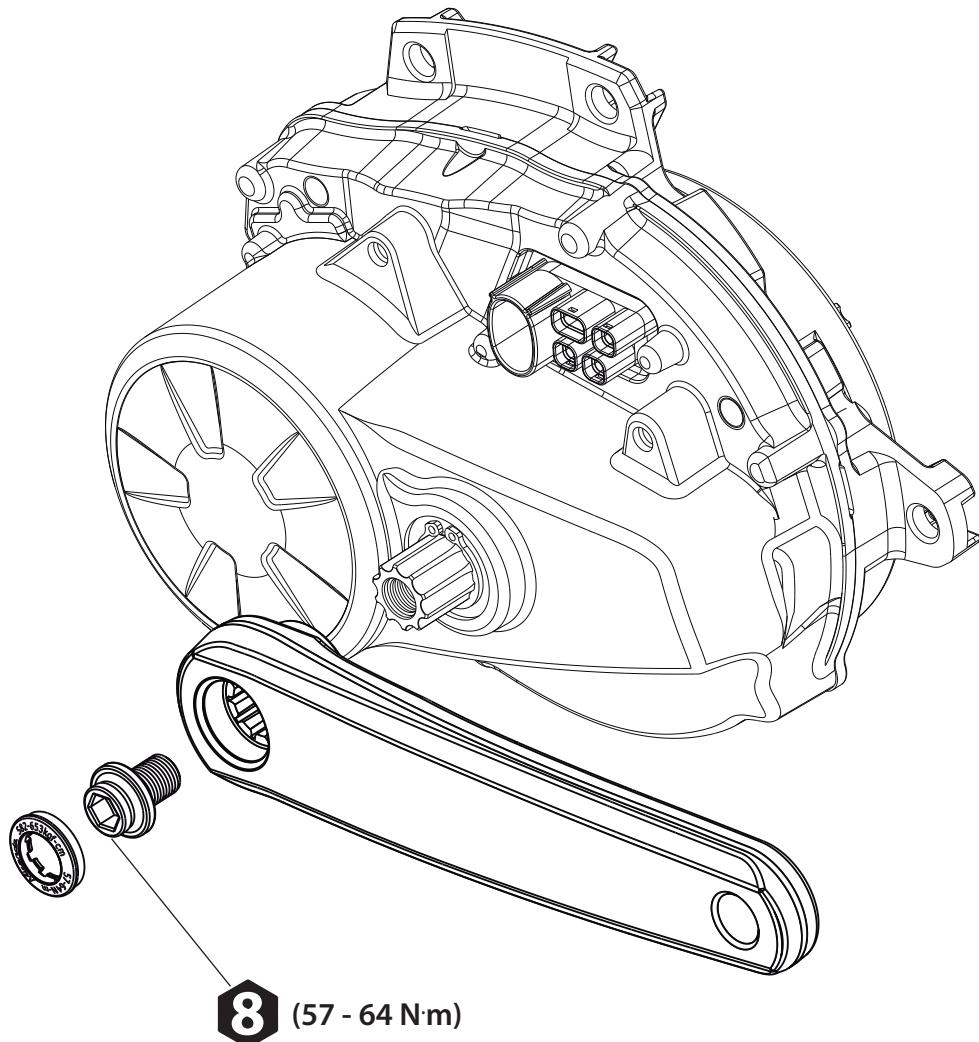
## Installation and removal of the left crank

If it is not already assembled, prepare the self-extracting crank bolt.

If using the plastic cap, just insert the cap in the bolt.

Then using the 8mm hex and the torque wrench, tight the BNI crank at the recommended torque of 57 to 64 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.

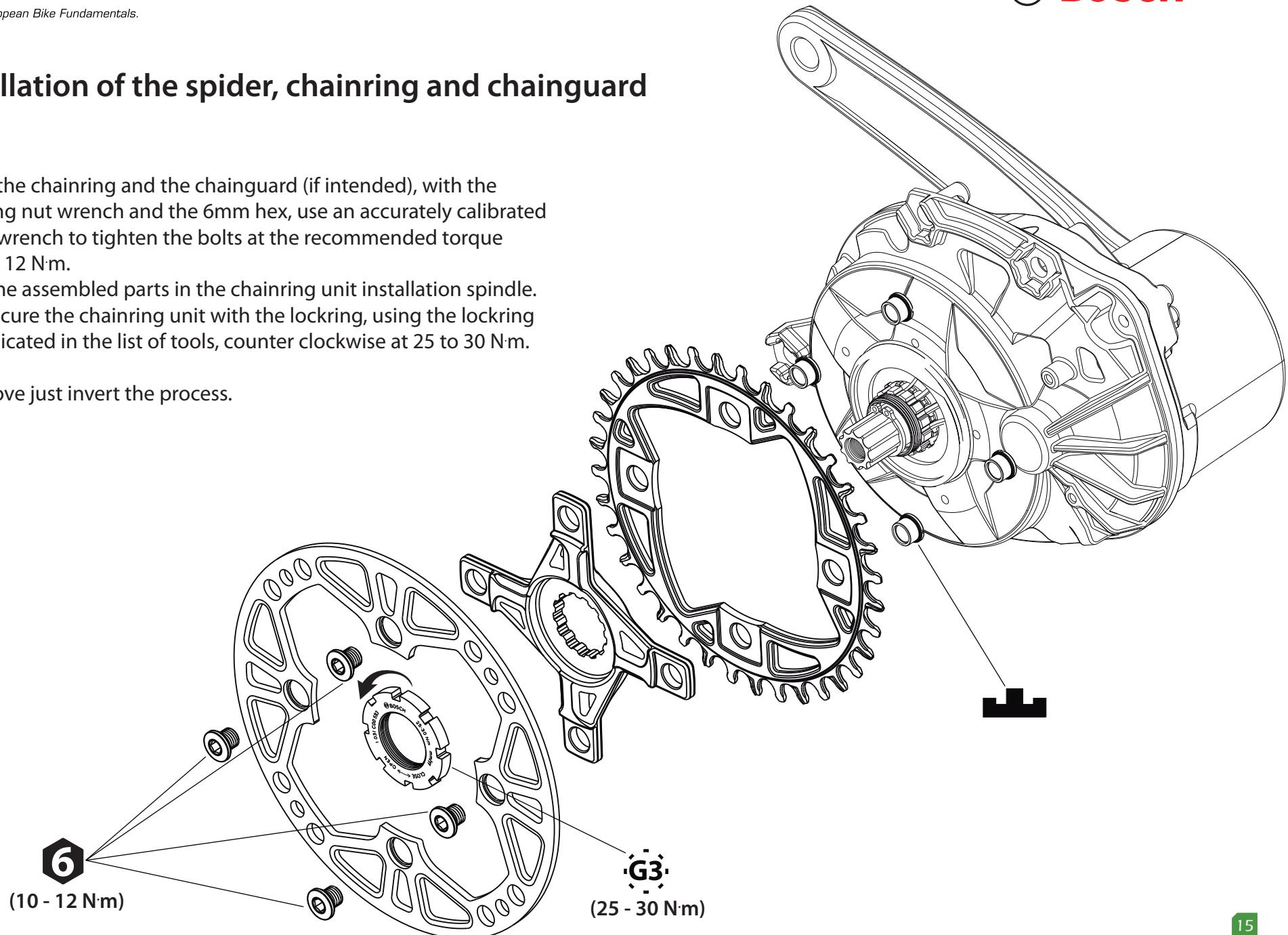


## Installation of the spider, chainring and chainguard

Mount the chainring and the chainguard (if intended), with the chainring nut wrench and the 6mm hex, use an accurately calibrated torque wrench to tighten the bolts at the recommended torque of 10 to 12 N·m.

Insert the assembled parts in the chainring unit installation spindle. Then secure the chainring unit with the lockring, using the lockring tool indicated in the list of tools, counter clockwise at 25 to 30 N·m.

To remove just invert the process.



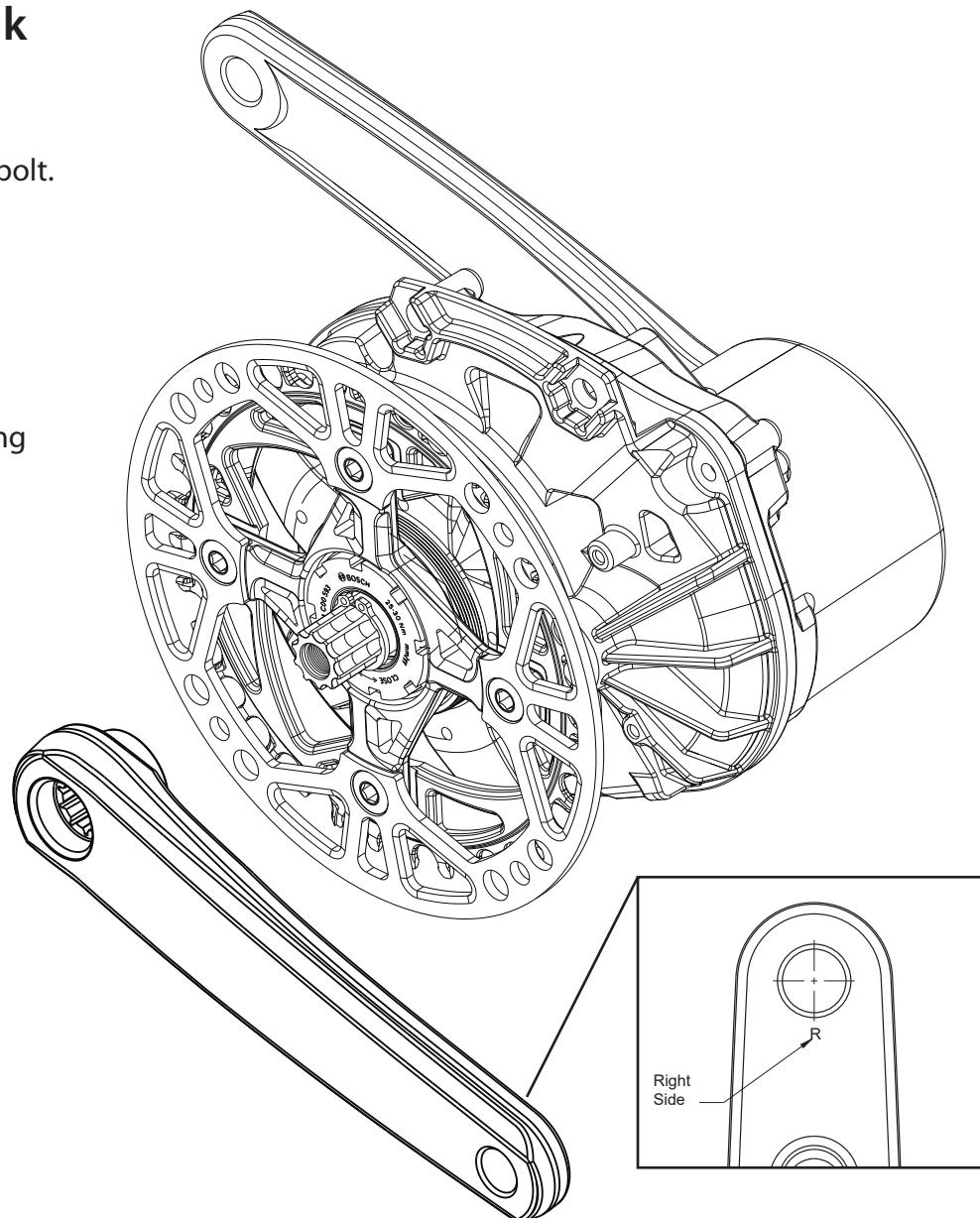
## Installation and removal of the right crank

If it is not already assembled, prepare the self-extracting crank bolt.

If using the plastic cap, just insert the cap in the bolt.

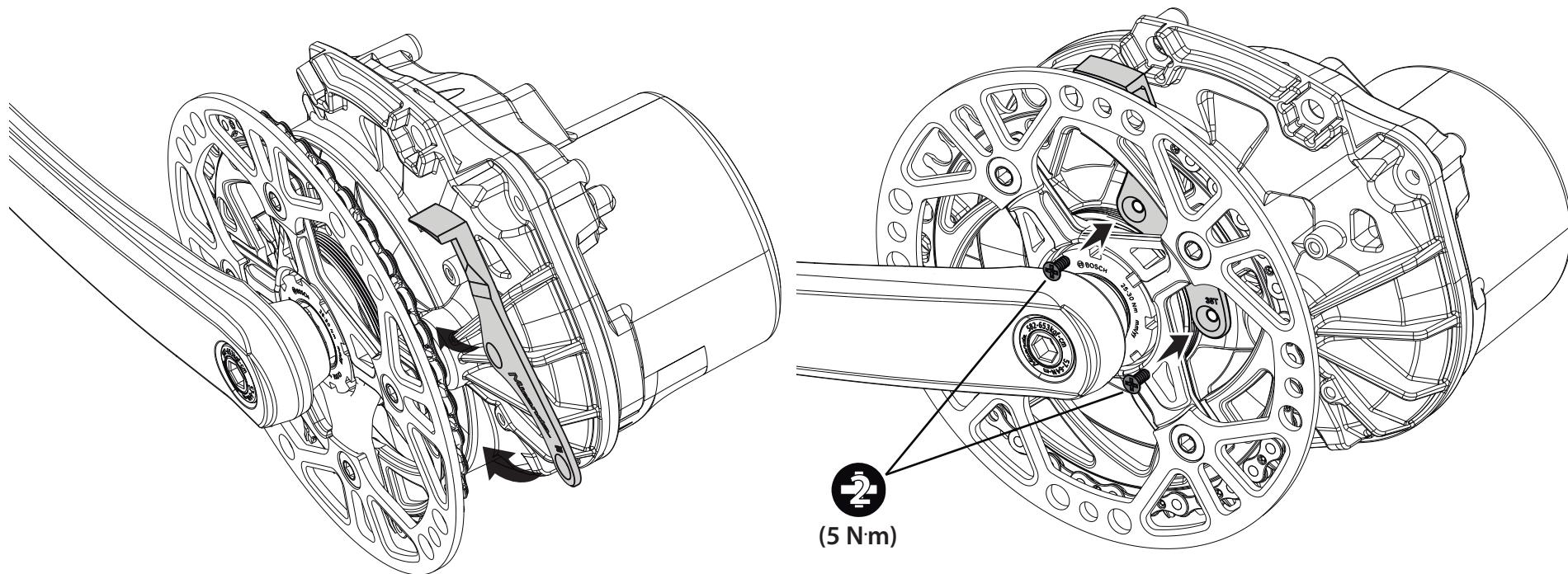
Then using the 8mm hex and the torque wrench, tight the BNI crank at the recommended torque of 57 to 64 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.



## Installation of the chainguide G3

To install the chainguide just slide it in between the chainring and the motor, until aligned with the mounting holes. Then adjust the crankset until you have space to insert the screws. Tight the screws with the crosshead screwdriver, at 5 N·m.



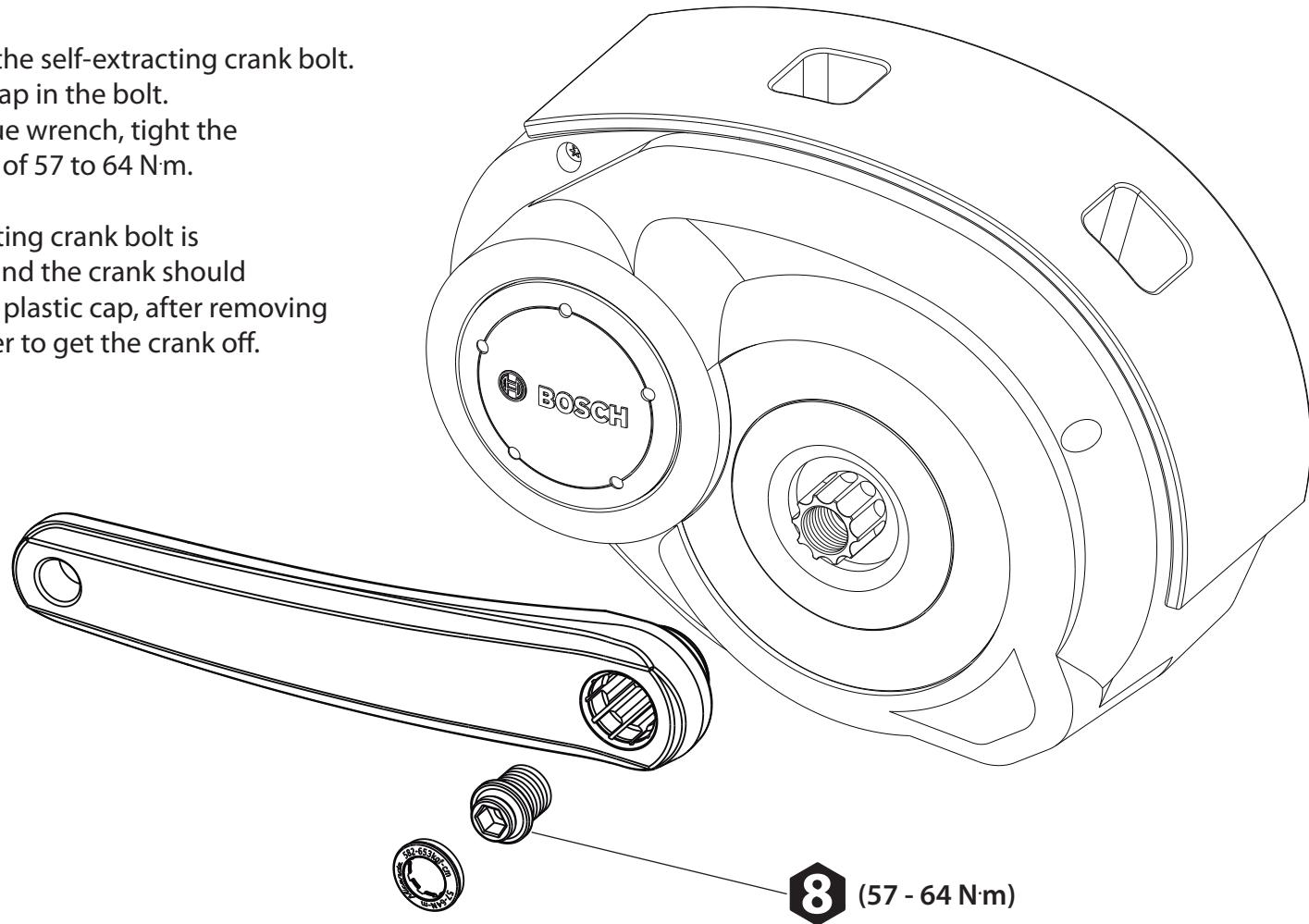
## Installation and removal of the left crank

If it is not already assembled, prepare the self-extracting crank bolt.

If using the plastic cap, just insert the cap in the bolt.

Then using the 8mm hex and the torque wrench, tight the ISIS crank at the recommended torque of 57 to 64 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.



## Installation of the Miranda sprocket and E-chainguard nut

Mount the Miranda sprocket or flat chainring on the motor shaft. Insert the oring in the motor shaft, and attach the E-chainguard nut or the Bosch locknut using the lockring tool indicated in the list of tools, counter clockwise at 25 to 30 N·m.

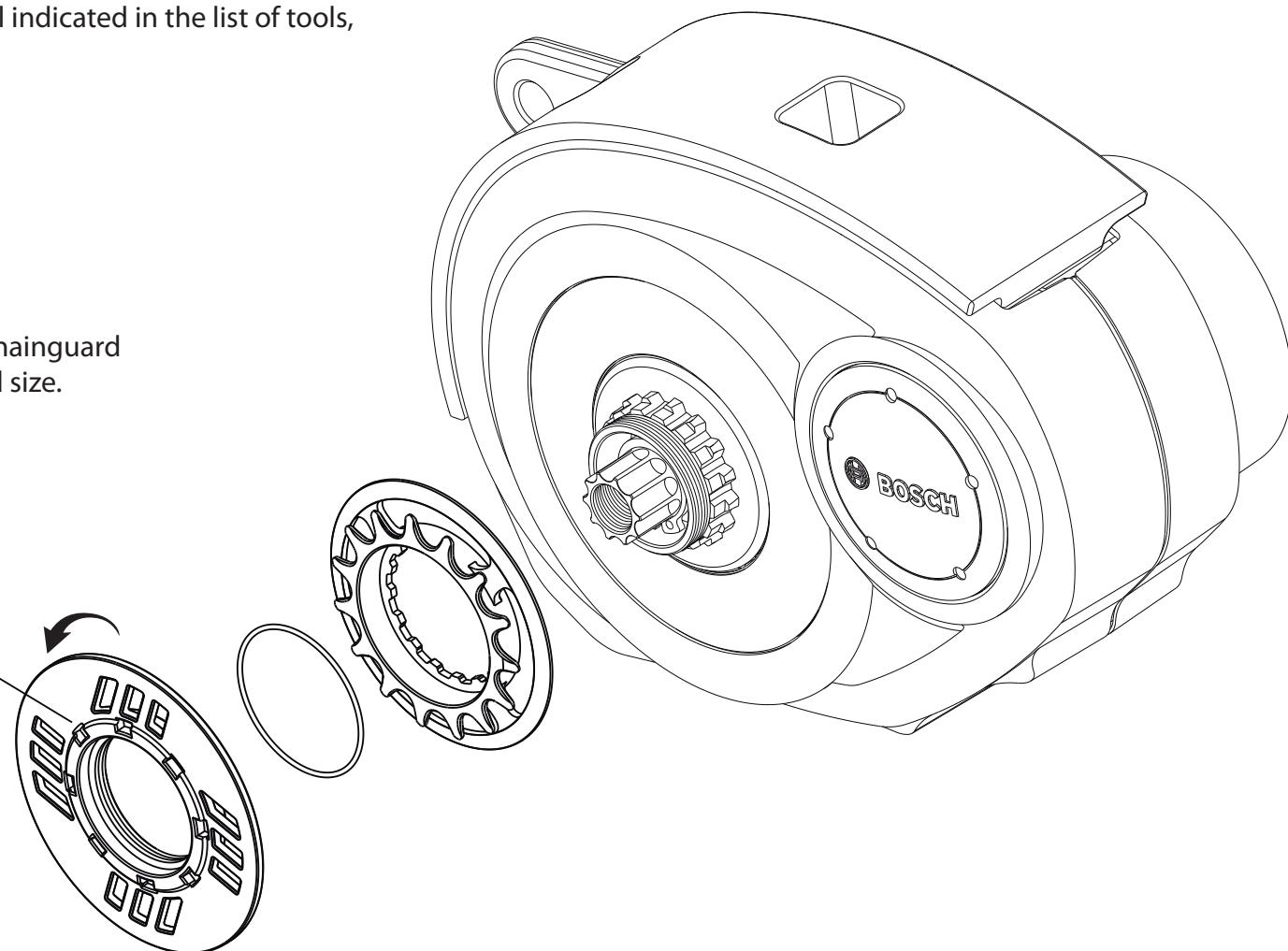
To remove just invert the process.

### **CAUTION**

Please make sure that the sprocket and E-chainguard nut are the corresponding pair in offset and size.

(25 - 30 N·m)

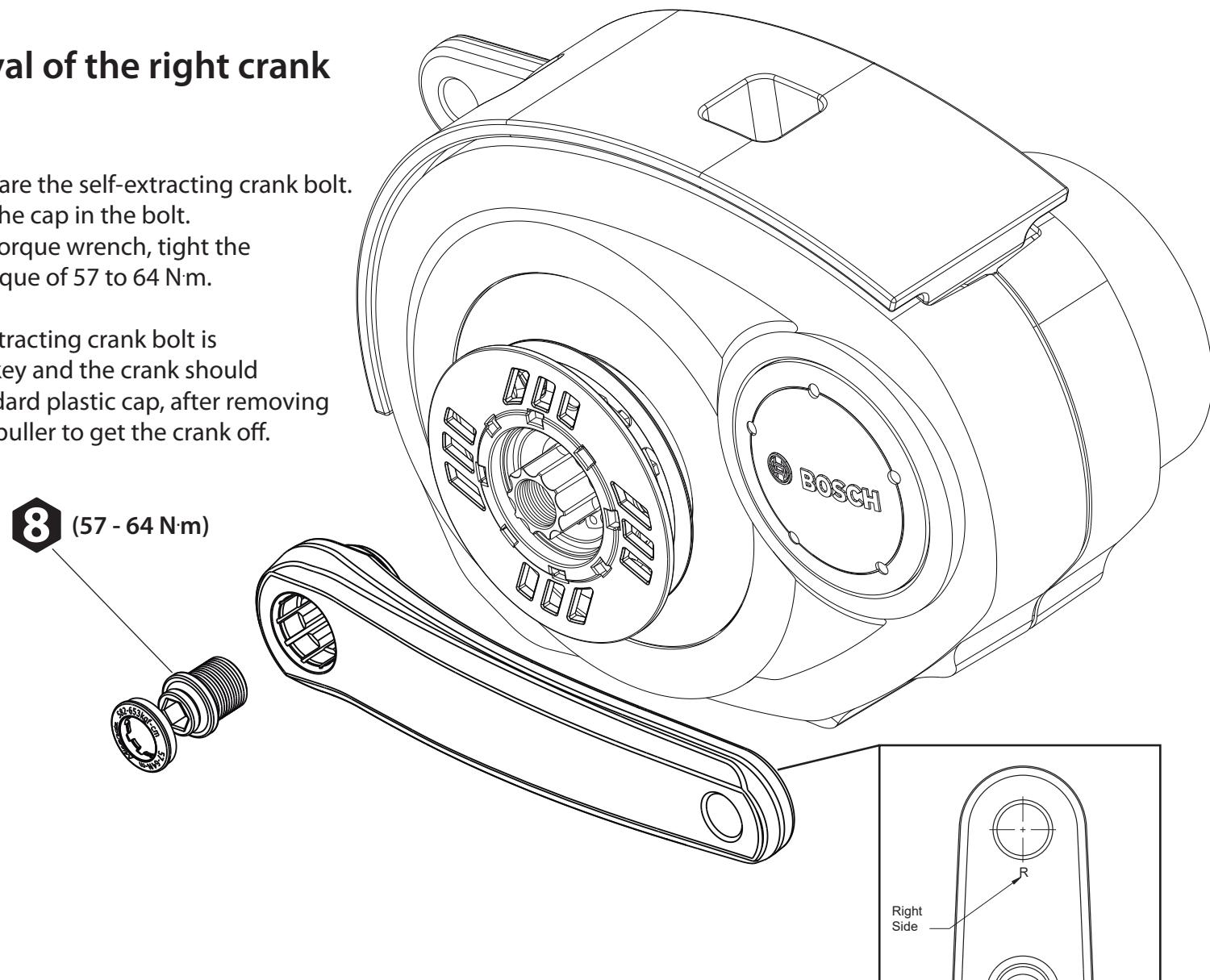




## Installation and removal of the right crank

If it is not already assembled, prepare the self-extracting crank bolt. If using the plastic cap, just insert the cap in the bolt. Then using the 8mm hex and the torque wrench, tight the ISIS crank at the recommended torque of 57 to 64 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.



## Installation and removal of the ICG right crank

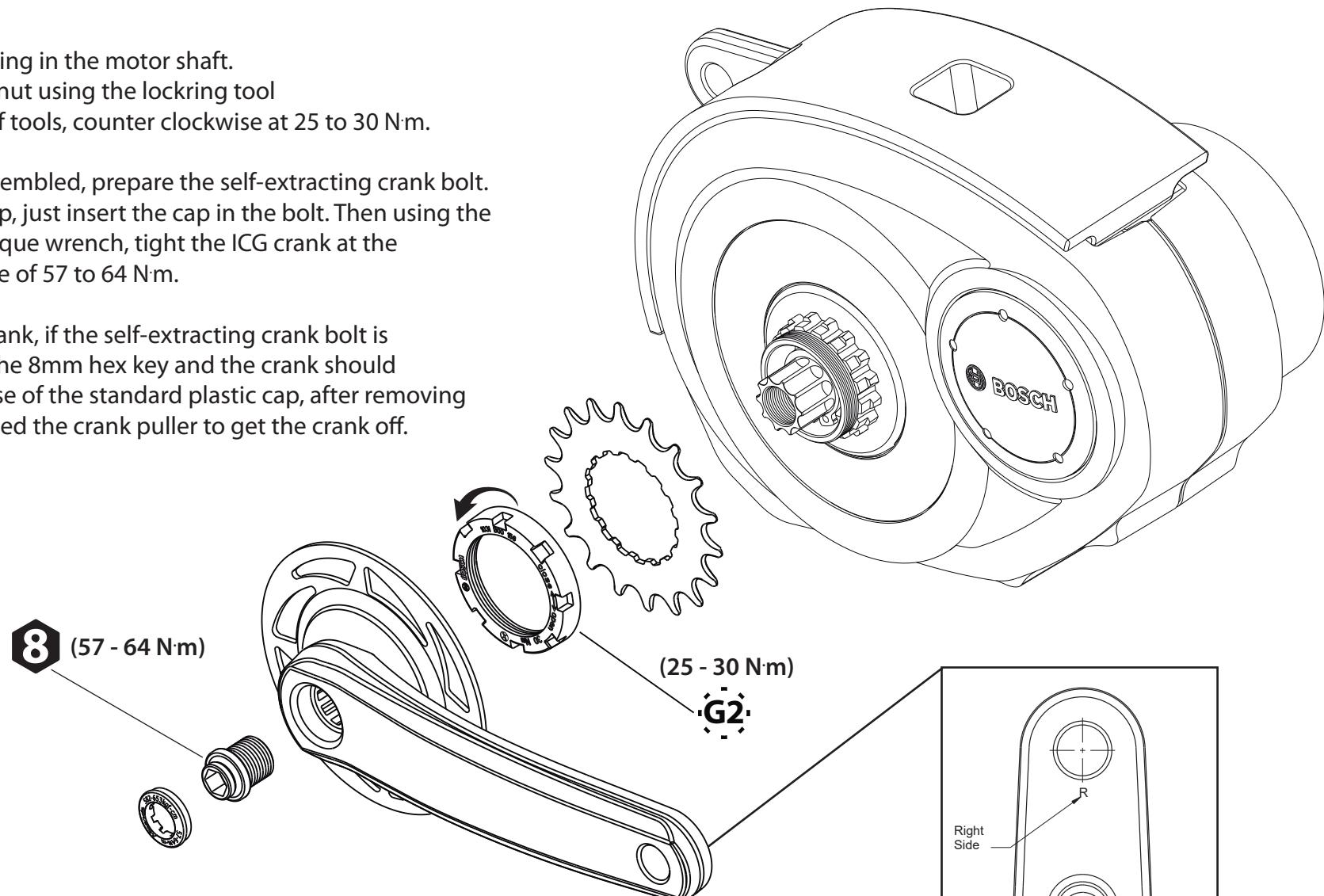
Mount the flat chainring in the motor shaft.

Insert the Bosch locknut using the lockring tool indicated in the list of tools, counter clockwise at 25 to 30 N·m.

If it is not already assembled, prepare the self-extracting crank bolt.

If using the plastic cap, just insert the cap in the bolt. Then using the 8mm hex and the torque wrench, tight the ICG crank at the recommended torque of 57 to 64 N·m.

To remove the ICG crank, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.



## Installation and removal of the left crank

Before beginning the installation process please check if you need SH (for E6100 / E7100 / E8000 motors) or EP8 cranks.

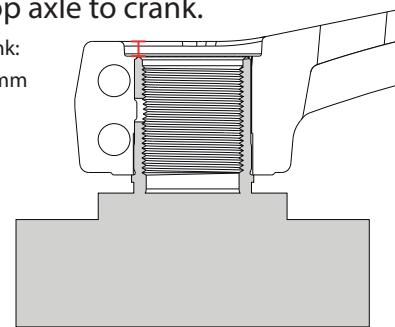
1 - Align the crank gap with the hole present in the motor shaft and insert the crank until the axle stopper zone. Please check the measure from top axle to crank.

Distance from top axle to crank:

E6100 and E7000 - Approx. 2mm

E8000 - Approx. 0,5mm

EP8 - Approx. 3mm



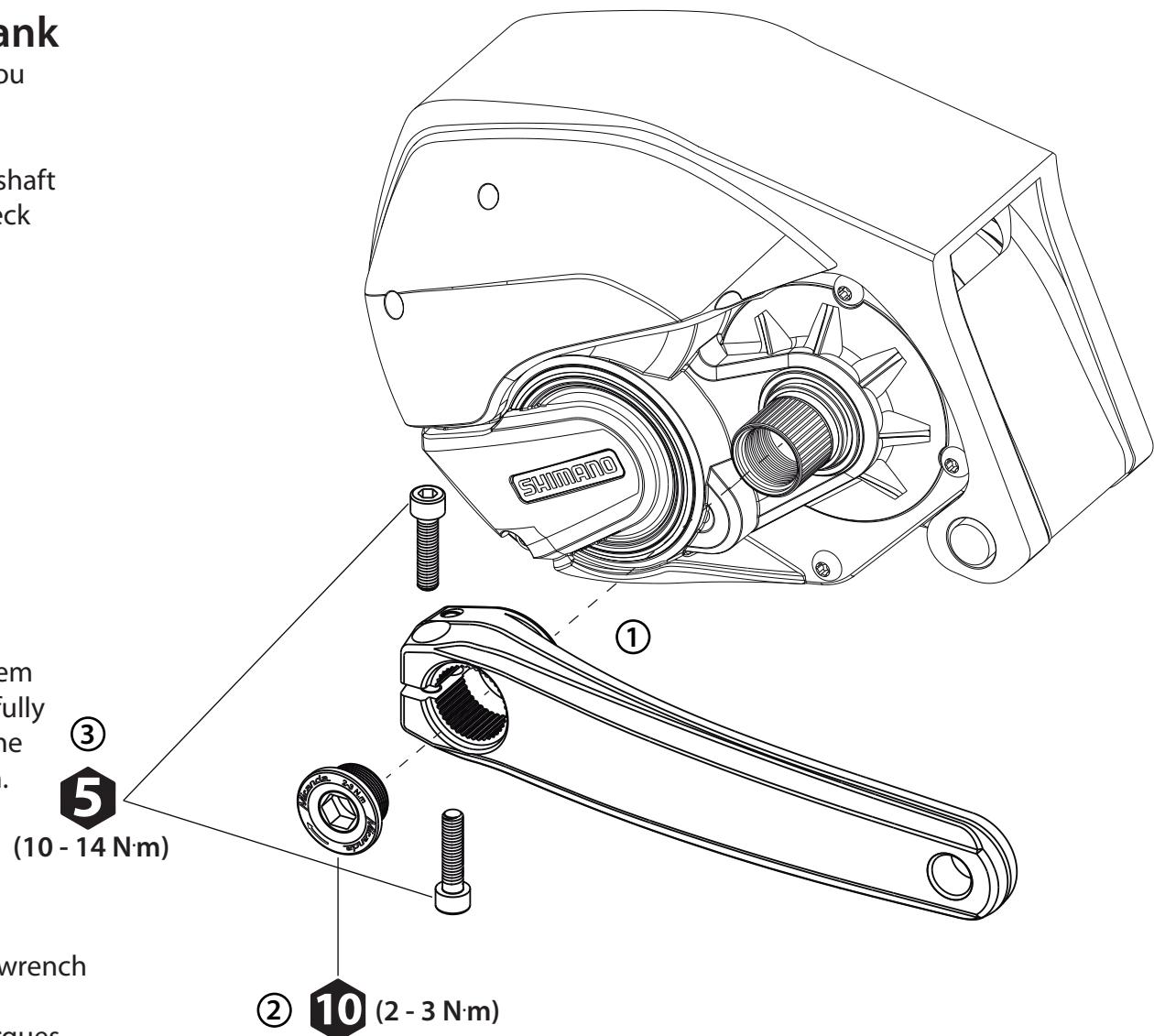
2 - Use the 10mm hex to install the crank cap at 2 to 3 N·m.

3 - Mount the two crank arms mounting bolts and tighten them alternately and incrementally rather than each bolt being fully tightened all at once. Use a torque wrench to check that the final tightening torques are within the range of 10 - 14 N·m.

### ⚠ CAUTION

After riding approximately 60 km (37 miles), use a torque wrench to re-check the tightening torques.

It is also important to periodically check the tightening torques. If the tightening torques are too low or if the mounting bolts are not tightened alternately in stages, the cranks may come off during the ride, causing the rider to lose control and fall. Please instruct the user accordingly.



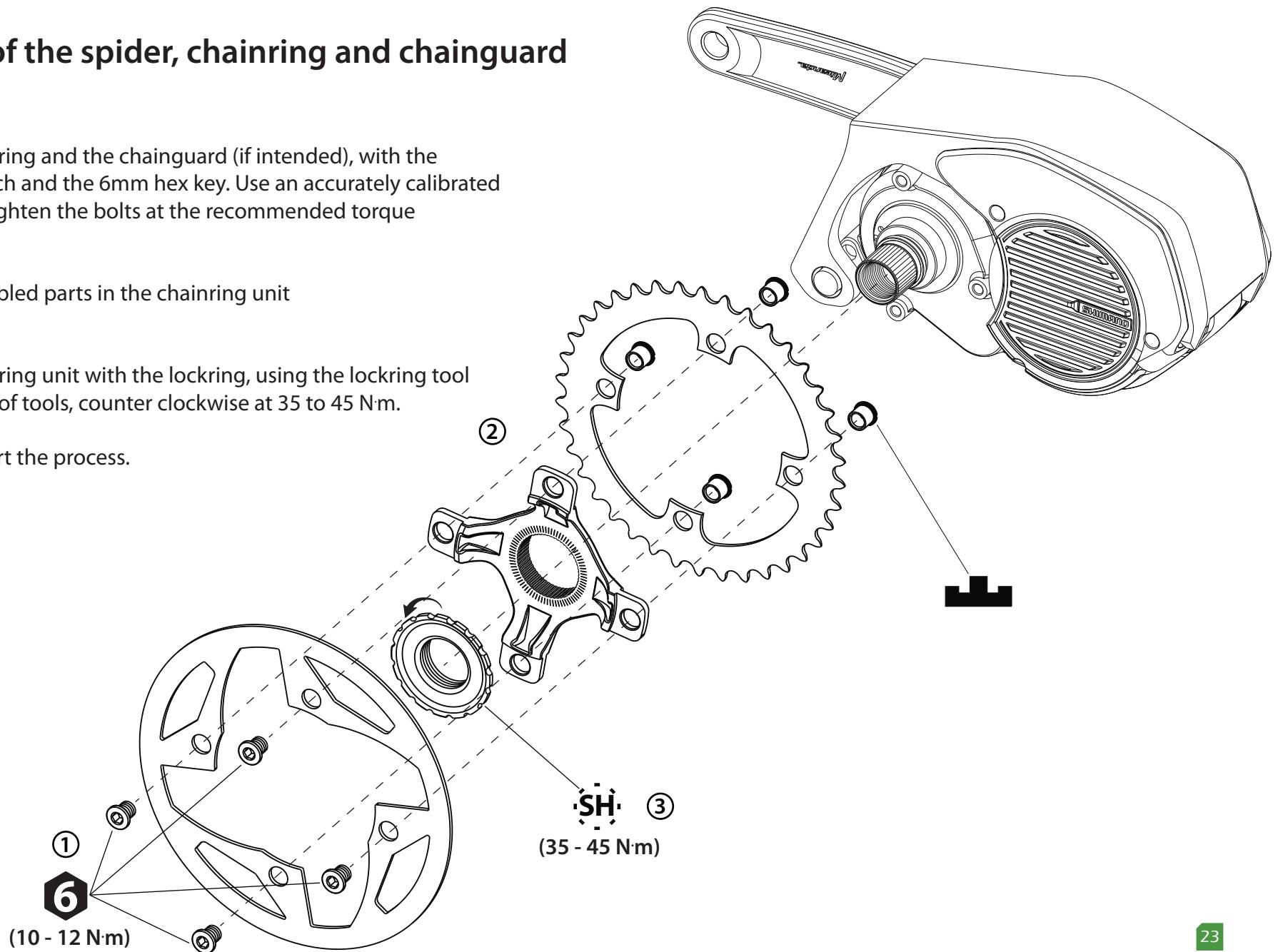
## Installation of the spider, chainring and chainguard

1 - Mount the chainring and the chainguard (if intended), with the chainring nut wrench and the 6mm hex key. Use an accurately calibrated torque wrench to tighten the bolts at the recommended torque of 10 to 12 N·m.

2 - Insert the assembled parts in the chainring unit installation spindle.

3 - Secure the chainring unit with the lockring, using the lockring tool indicated in the list of tools, counter clockwise at 35 to 45 N·m.

To remove just invert the process.



## Installation and removal of the right crank

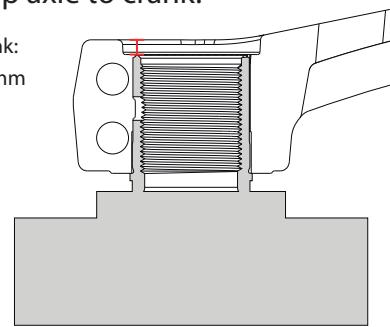
1 - Align the crank gap with the hole present in the motor shaft and insert the crank until the axle stopper zone. Please check the measure from top axle to crank.

Distance from top axle to crank:

E6100 and E7000 - Approx. 2mm

E8000 - Approx. 0,5mm

EP8 - Approx. 3mm



2 - Use the 10mm hex to install the crank cap at 2 to 3 N·m.

3 - Mount the two crank arms mounting bolts and tighten them alternately and incrementally rather than each bolt being fully tightened all at once. Use a torque wrench to check that the final tightening torques are within the range of 10 - 14 N·m.

### ⚠ CAUTION

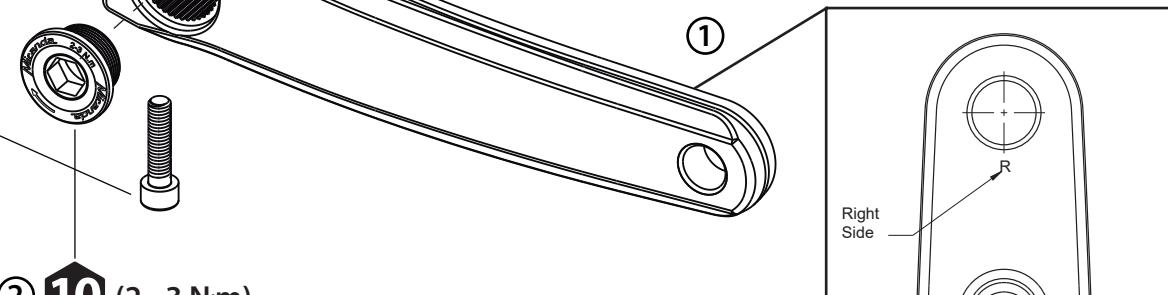
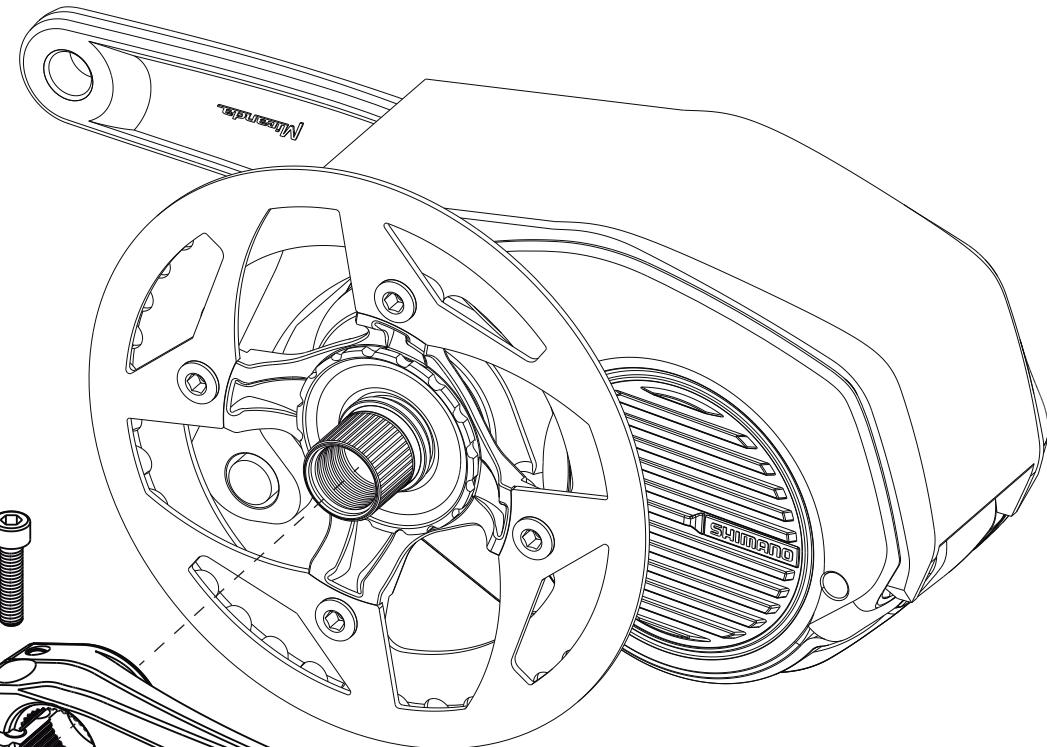
After riding approximately 60 km (37 miles), use a torque wrench to re-check the tightening torques.

It is also important to periodically check the tightening torques. If the tightening torques are too low or if the mounting bolts are not tightened alternately in stages, the cranks may come off during the ride, causing the rider to lose control and fall.

Please instruct the user accordingly.

③ **5**  
(10 - 14 N·m)

② **10** (2 - 3 N·m)



## Installation and removal of the left crank

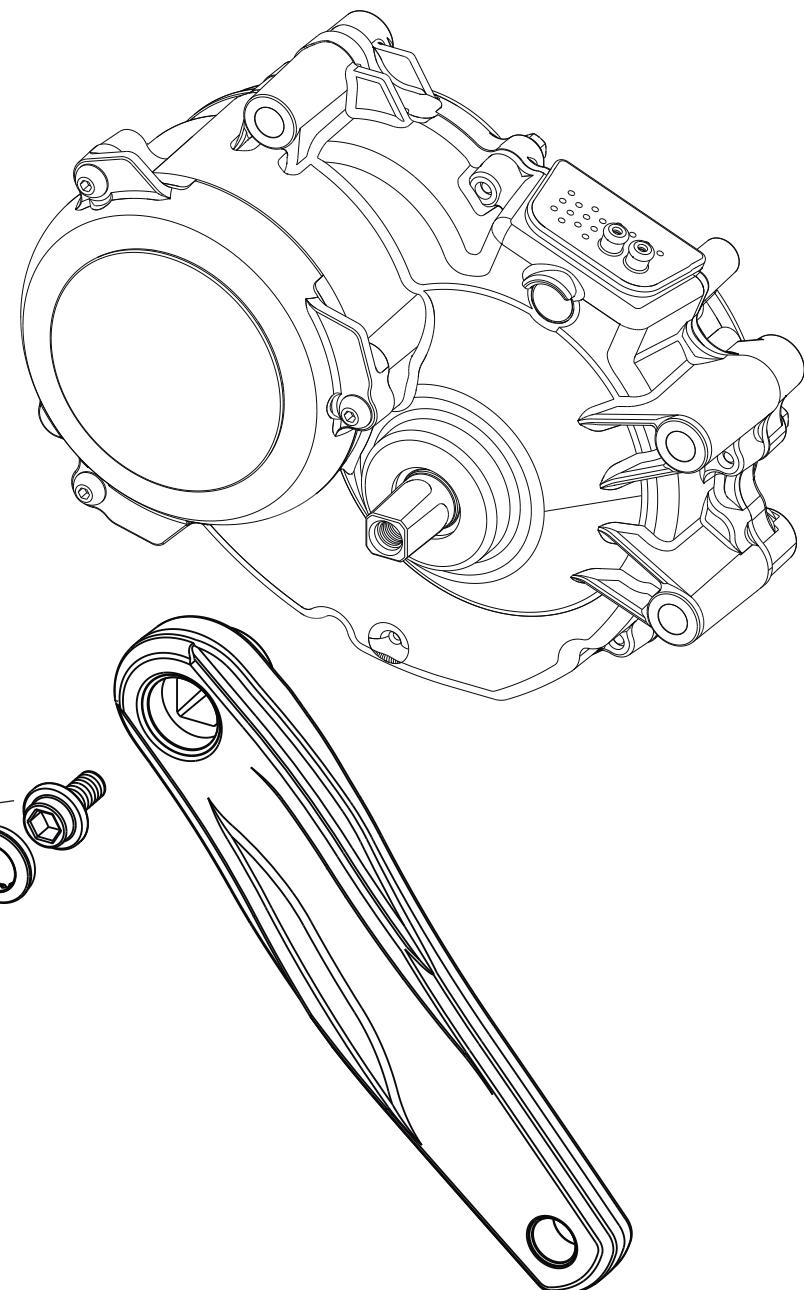
If it is not already assembled, prepare the self-extracting crank bolt as illustrated.

If using the plastic cap, just insert the bolt. Then using the 8mm hex and the torque wrench, tight the JIS crank at the recommended torque of 47 to 54 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.

(47 - 54 N·m)

8

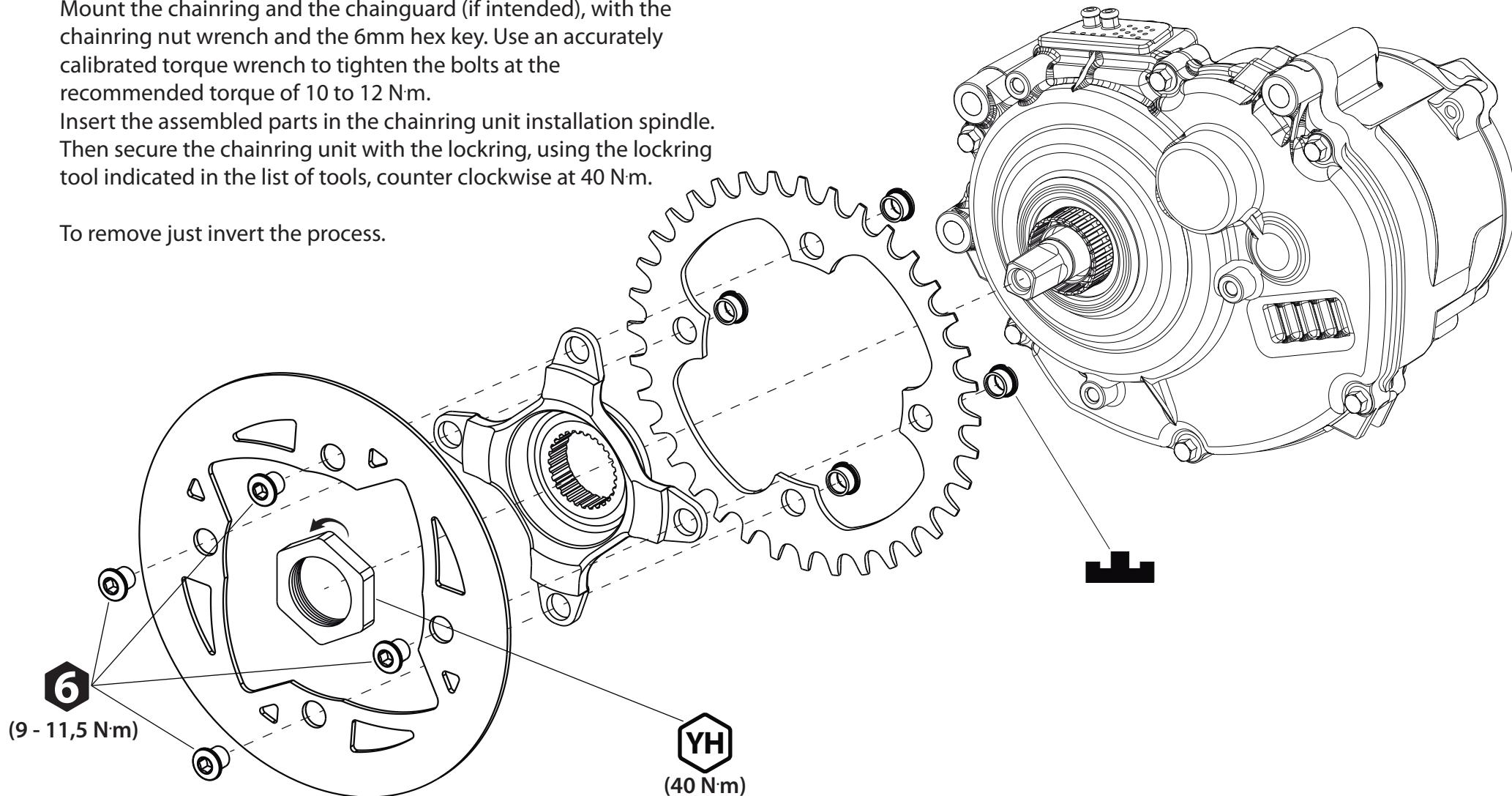


## Installation of the spider, chainring and chainguard

Mount the chainring and the chainguard (if intended), with the chainring nut wrench and the 6mm hex key. Use an accurately calibrated torque wrench to tighten the bolts at the recommended torque of 10 to 12 N·m.

Insert the assembled parts in the chainring unit installation spindle. Then secure the chainring unit with the lockring, using the lockring tool indicated in the list of tools, counter clockwise at 40 N·m.

To remove just invert the process.



## Installation and removal of the right crank

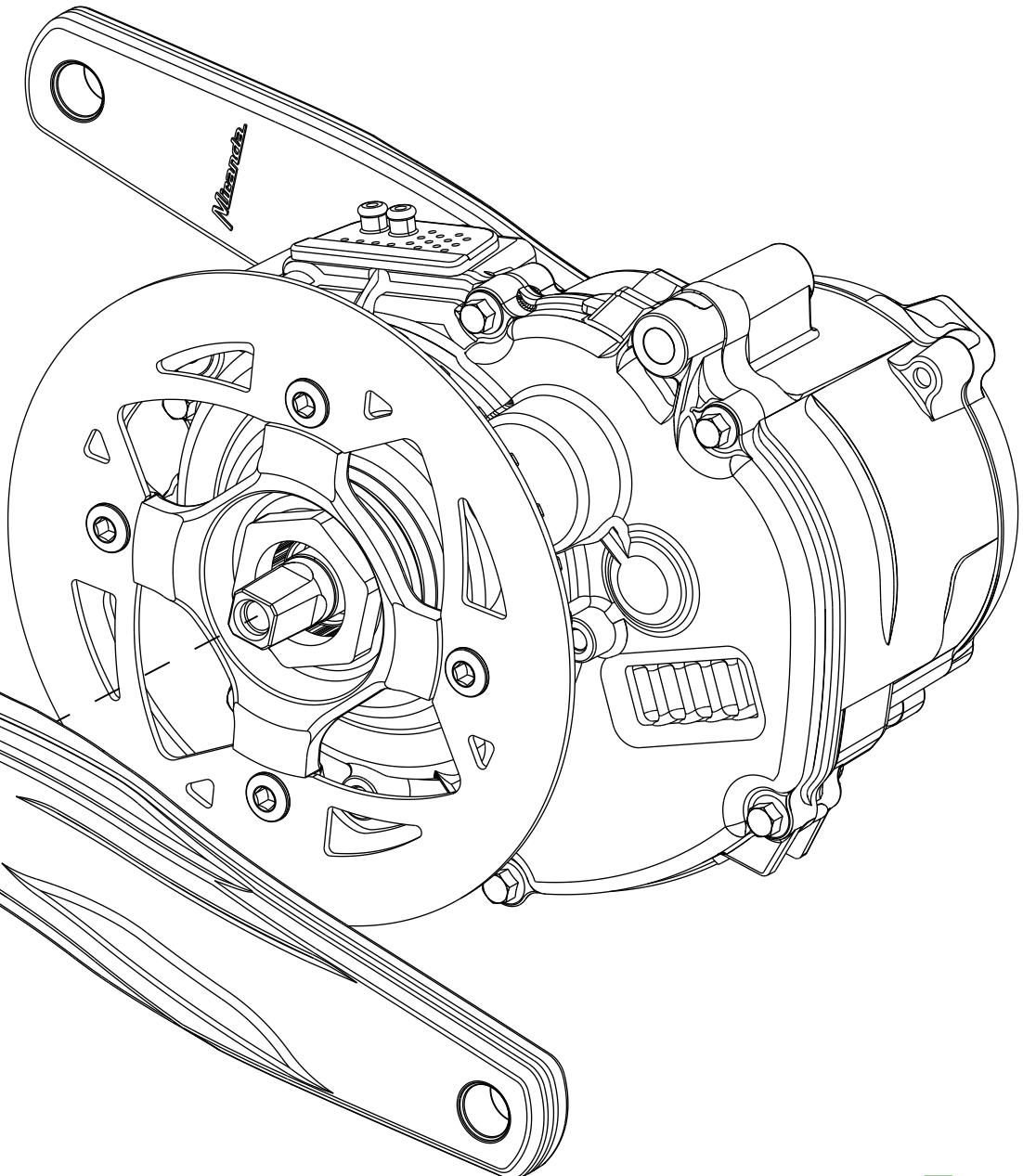
If it is not already assembled, prepare the self-extracting crank bolt as illustrated.

If using the plastic cap, just insert the bolt.

1 - Using the 8mm hex key and the torque wrench, tight the ISIS crank at the recommended torque of 47 to 54 N·m.

To remove the cranks, if the self-extracting crank bolt is assembled, just use the 8mm hex key and the crank should pull himself off. In case of the standard plastic cap, after removing the crank, you will need the crank puller to get the crank off.

①  
**8**  
(47 - 54 N·m)



## MGreen Installation

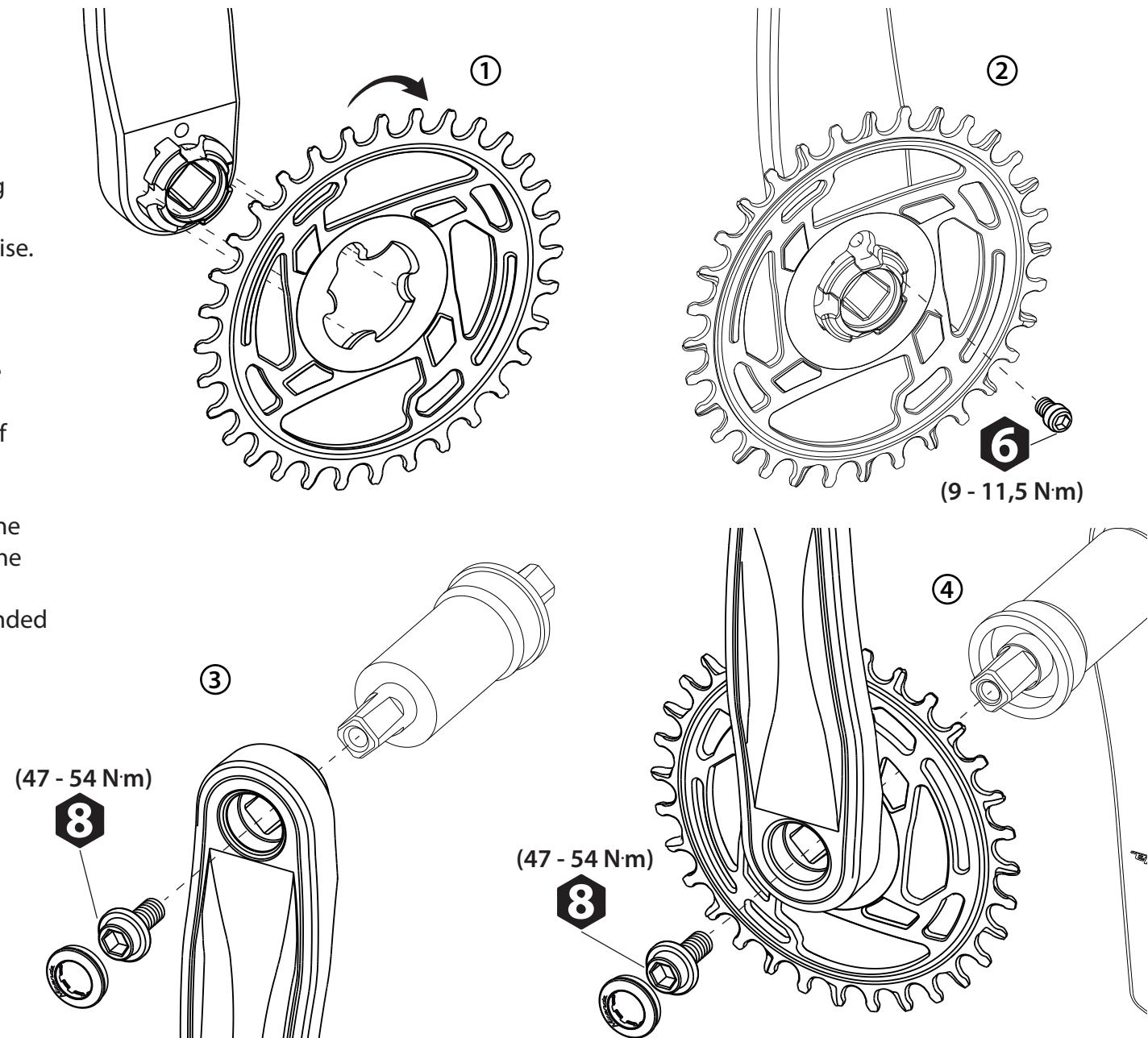
1 - Mount the MGreen chainring by aligning the chainring splines to the crank slots, inserting the chainring and rotating clockwise.

2 - Screw the M6 bolt with the hex key.

3 - Mount the left crank in the axle, with the 8mm hex key and the torque wrench, tight the JIS crank at the recommended torque of 47 to 54 N·m.

4 - Align the crankset the opposite way of the left crank and mount the right crankset in the axle, with the 8mm hex key and the torque wrench, tight the crankset at the recommended torque of 47 to 54 N·m.

To remove just invert the process.



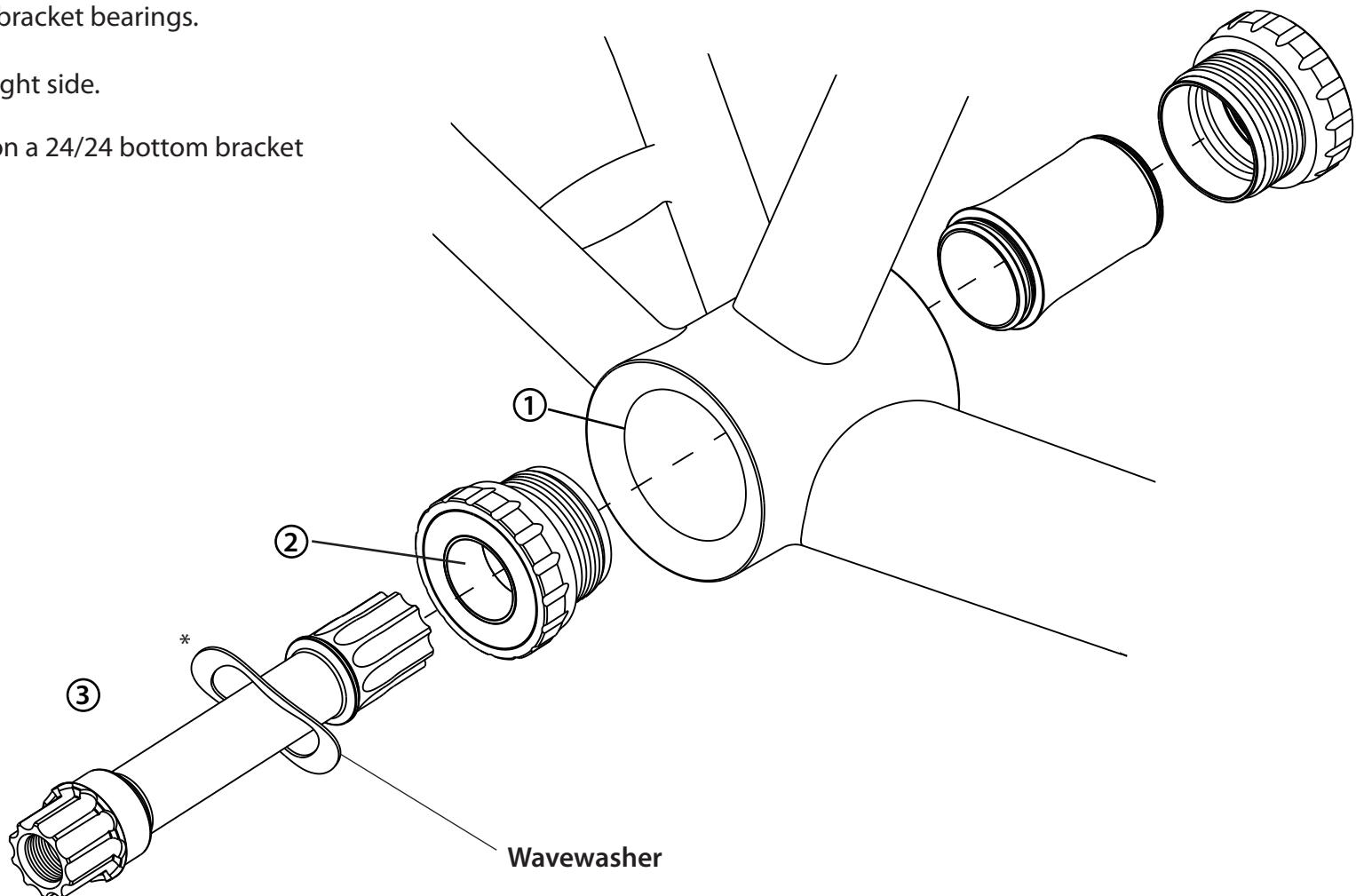
## XMOD installation

1 - Screw the bottom bracket cups to the frame shell.

2 - Apply grease to the bottom bracket bearings.

3 - Insert the spindle from the right side.

\*Use wavewasher if mounting on a 24/24 bottom bracket



## XMOD installation

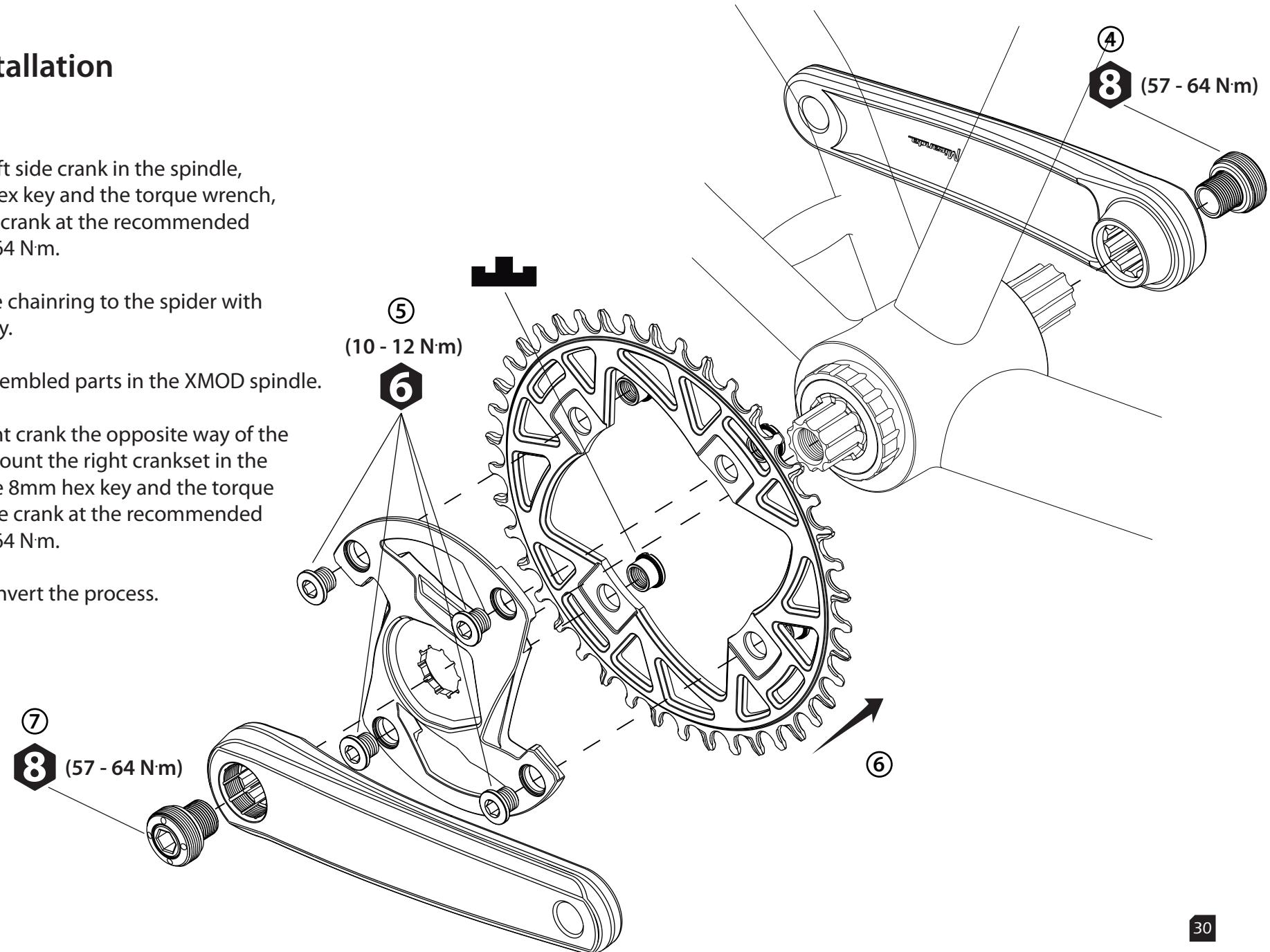
4 - Mount the left side crank in the spindle, with the 8mm hex key and the torque wrench, tight the XMOD crank at the recommended torque of 57 to 64 N·m.

5 - Assemble the chainring to the spider with the 6mm hex key.

6 - Insert the assembled parts in the XMOD spindle.

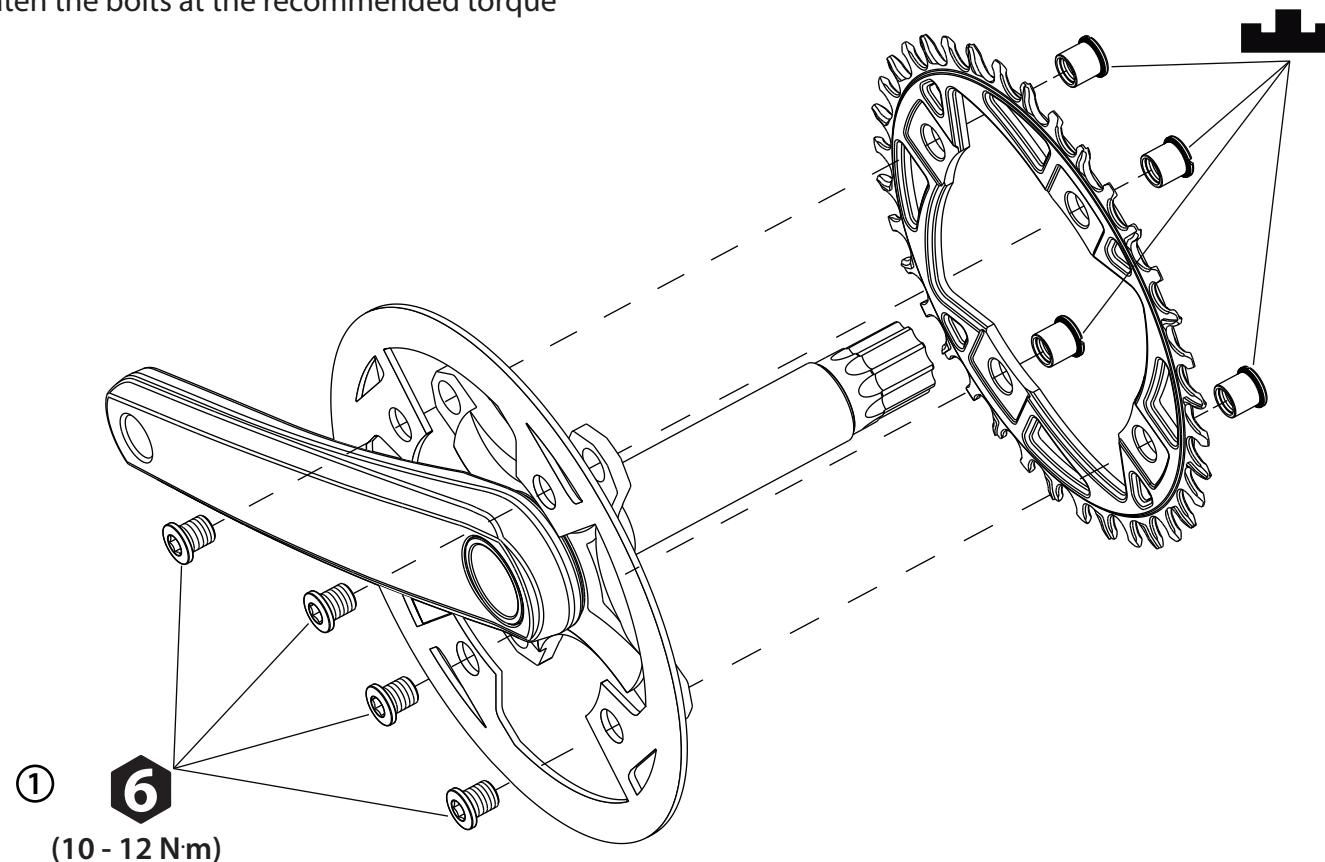
7 - Align the right crank the opposite way of the left crank and mount the right crankset in the spindle, with the 8mm hex key and the torque wrench, tight the crank at the recommended torque of 57 to 64 N·m.

To remove just invert the process.



## Hollowtube crankset installation

1 - Mount the chainring and the chainguard (if intended), with the chainring nut wrench and the 6mm hex, use an accurately calibrated torque wrench to tighten the bolts at the recommended torque of 10 to 12 N·m.



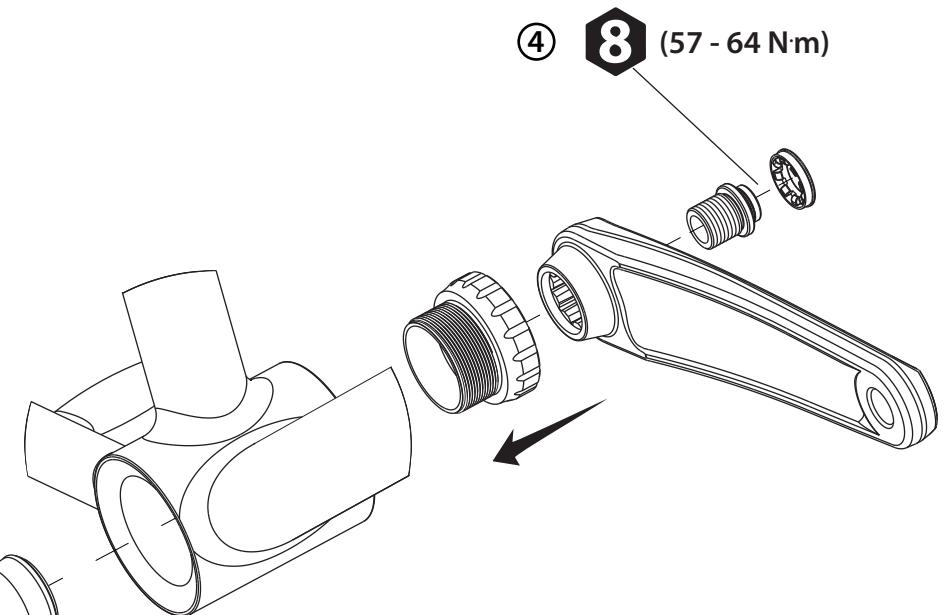
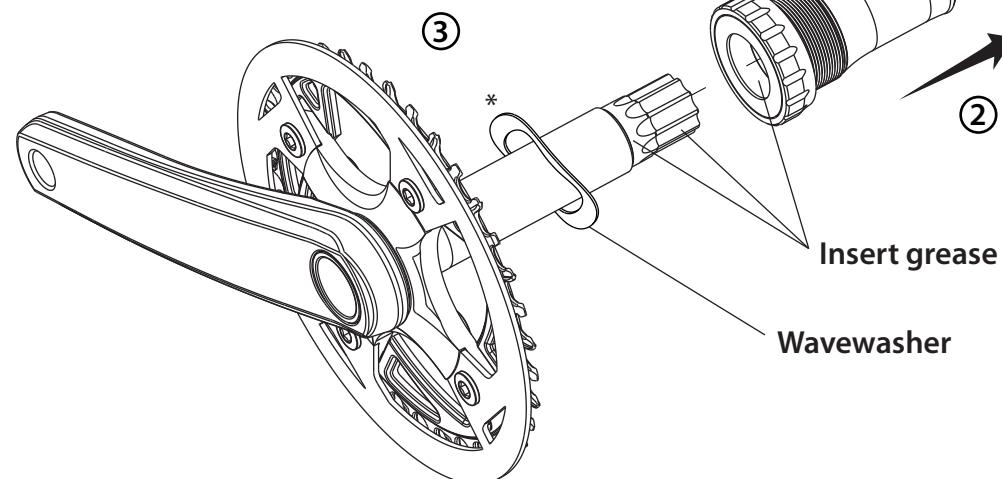
## Hollowtube crankset installation

2 - Apply grease to the bottom bracket bearings and the ISIS interface, then screw the bottom bracket cups to the frame shell.

3 - Align the right crankset the opposite way of the left crank and mount from the right side of the bottom bracket.

\*Use wavewasher if mounting on a 24/24 bottom bracket

4 - With the 8mm hex key and the torque wrench, tight the left crank at the recommended torque of 57 to 64 N·m.



# Maintenance

**Important notice: please carefully read the instructions for maintenance and instruct the users accordingly.**

- Bicycle parts are subject to wear and tear and ageing. The lifetime of components depends on many factors, including but not limited to:
  - . the material and function of the parts;
  - . the conditions of and during use;
  - . frequency of use of the parts;
  - . storage of the bicycle and its parts;
  - . the quality and frequency of cleaning the parts;
  - . the quality and frequency of the maintenance of the parts.
- Elements like e.g. sand, salt, mud, dirt, rain and water may have serious impact on the lifetime of bicycle parts. Depending on the type of bicycle and component, its use and the circumstances during use, appropriate cleaning needs to be done regularly or after each ride, as the case may be.
- To clean your MIRANDA parts, we recommend using a neutral detergent (e.g. water and soap), preferably a detergent that is safe to the environment.
- After cleaning, dry the parts with a suitable cloth.

**IMPORTANT: Do not use a water high-pressure cleaner to clean your MIRANDA parts. This may damage the parts.**

- After cleaning, lubricate the chain with an appropriate lubricant.



**Miranda & Irmão, Lda**  
EN1 Km228.9, Borralha  
3750-871 - Águeda, Portugal

[www.mirandabikeparts.com](http://www.mirandabikeparts.com)  
@mirandabikeparts

+351 234 612 796  
[help@miranda.pt](mailto:help@miranda.pt)

This Dealer's Manual is subject to change without notice.  
For the latest version (May, 2022), please check: <https://www.mirandabikeparts.com/en/downloads>

©2022 Miranda & Irmão, Lda