

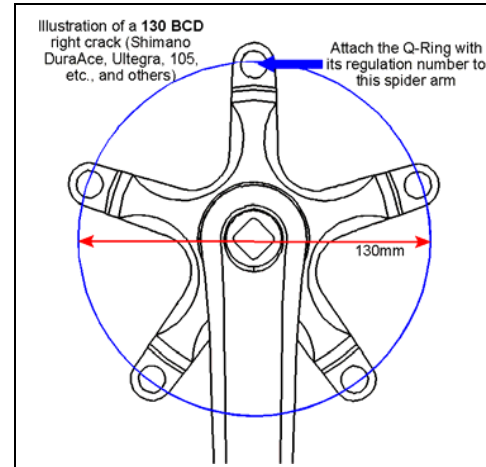


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## Installation Instructions and information for 130 BCD cranks (Shimano Durace, Ultegra, FSA, etc)

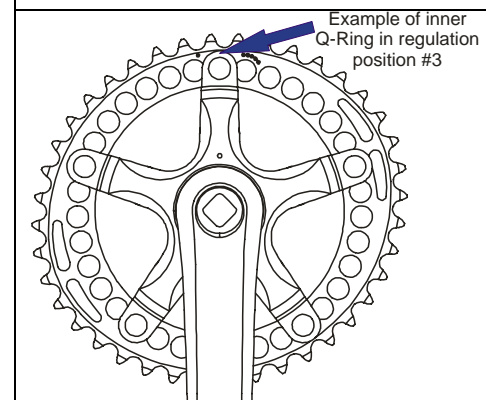
### Read this information completely before starting the installation of your Q-Rings

- As you can see there are many mounting holes in each Q-Ring. These different mounting holes are to be used to change the regulation point. This patented feature is referred to as the Rotor OCP System (Optimum Chaining Position).
- Notice there are numbers 1 ~ 5 marked close to some of the holes; these are regulation point numbers. Some numbers are marked with small indents (small dots machined into the chainring).
- For your initial use we suggest that you use the #3 regulation hole for both the inner and outer Q-Ring. After becoming adapted to Q-Rings you can change the regulation points to customize the Q-Rings to your specific cycling needs and habits including but not limited to; body geometry, bike geometry, strength, seating position and terrain. After riding in the #3 regulation position for about 400 miles we encourage you to try different regulation positions to optimize your performance and comfort.
- To obtain a smooth operation and perfect shifting it is necessary to use a new chain or one that is in perfect condition.
- After the Q-Ring installation is complete and before riding, check the position and adjustment of the front derailleur; you may need to lower or raise it on the seat-tube or readjust it.



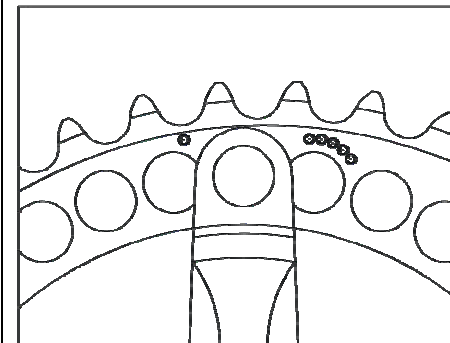
#### STEP-1: locating the spider arm to use for referencing the regulation point hole.

Be sure your right crank is similar to this illustration (five spider arms with one of them pointing in the opposite direction of the pedal hole). The hole in the spider arm that is opposite the pedal hole (and aligned with the crank) (see the arrow in this illustration) is the hole you will use for setting your regulation point. The hole in the Q-Ring with the regulation point number marked should be covering (on top of) this hole.



#### STEP-2: Inner Q-Ring placement.

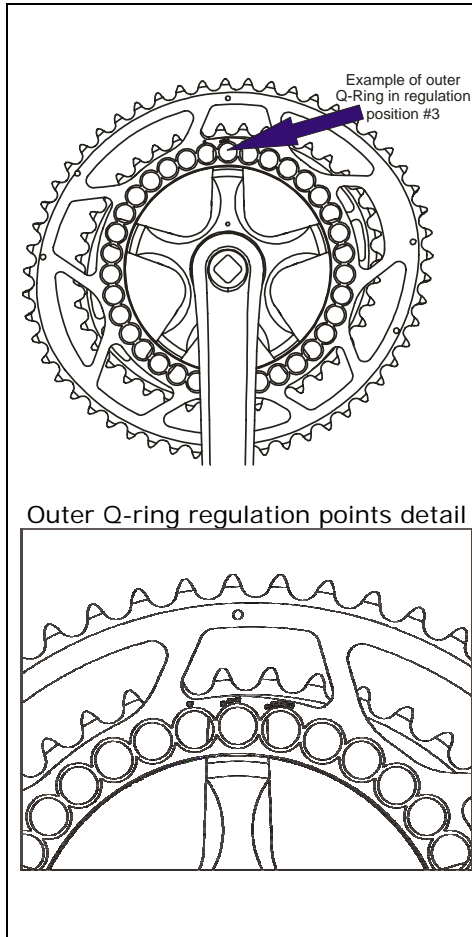
Point the right crank downward perpendicular to the floor so the spider arm aligned with the crank is pointing upward (this will provide a platform to rest the Q-Ring before bolting it in place). Notice that the regulation hole of the Q-Ring has machined insets on one side; these insets are for the heads of the chainring nuts. The insets of the inner Q-Ring should be facing the non-drive side (left side) of the bike. Place the Q-Ring hole with the desired regulation point number (in this instance #3) on top of the spider hole (see the arrow in this illustration).



Inner regulation points detail

This illustration shows the inner Q-Ring regulated at the #3 regulation point.

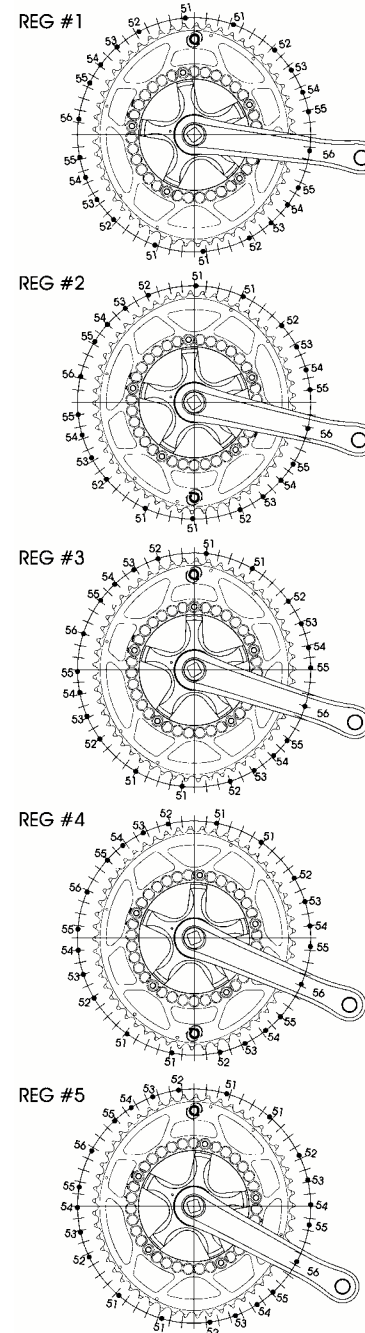
In order to change the regulation you only need to rotate the Q-Ring and align another possible regulation point hole with the reference spider arm. Now you can install some of the chainring nuts to temporarily hold the inner Q-Ring in position before installing the outer Q-Ring.



**STEP-3: Outer Q-Ring placement.**  
 The insets of the outer Q-Ring should be facing the drive side (right side) of the bike.  
 Place the Q-Ring hole with the desired regulation point number (in this instance #3) on top of the spider hole (see this illustration).  
 This illustration shows the outer Q-Ring regulated at the #3 regulation point. In order to change the regulation you only need to rotate the Q-Ring and align another possible regulation point hole with the reference spider arm.  
 Before installing the chainring bolts apply a small amount of grease to the threads of each bolt; this helps them to be fully tightened and enables you to remove them at a later date if desired. Fasten the chainrings to the spider arms using each of the five bolts and nuts. At first just make each bolt and nut finger tight. After all five are attached tighten each bolt & nut to 5.9 ft-lbs or 8 N-m.  
 Check the position and shifting of the front derailleur and readjust the front derailleur if necessary.  
 Enjoy your new upgrade as you ride more efficiently with more comfort.

**USEFUL TIPS**

- Is not necessary to regulate the inner & outer Q-rings at the same regulation point.
- Be sure there is enough space between the Q-rings and the chainstay tube of the frame.
- Due to the simple way to change the regulation point we recommend to try some different regulations, you'll feel the difference.
- Call or e-mail us if you have any question. We are here to make your pedalling experience the best.



**FREQUENTLY ASKED QUESTIONS (FAQ'S)**

**1- What is the recommended regulation point for the first installation?**

We recommend REG#3 for the first miles of riding. The test cyclists who have tested the Q-Rings felt the most improved performance and quick adaptation in this position.

**2- What regulation point is the best?**

The bike geometry, body strength, cycling habits and seating position of each cyclist can be different. Therefore it is not possible for us to say which regulation point is best for an individual. We suggest that you start with #3 for both Q-Rings. After about 400 miles in #3, experiment with different regulation point settings until you find the setting that is best for you.

**3- Why are there regulation points on the Q-Rings?**

The regulation points give you a point of reference for attaching the Q-Rings to your crank. You can use the holes with the regulation numbers or any of the holes that do not have numbers. The holes with numbers are the most popular for upright bikes.

**4- I have my Q-Ring regulated at the #3 (medium) regulation point but I don't feel comfortable pedalling standing up; what shall I do?**

You should try a lower regulation point, so regulate the Q-Ring at the #4 or #5 regulation point position.

**5- I have my Q-Rings regulated at the #3 (medium) regulation point but I don't feel comfortable pedalling seated; what can I do?**

You should try a higher regulation point, so regulate the Q-Ring at the #2 or #1 regulation point.

## **6- Do Q-Rings work with all cranks available in the market?**

The Q-Rings will work with all brands of road-double cranks with 130mm, 135mm or 110mm (compact) bolt patterns and 5 arms.

For Mountain Bikes, Q-Rings are available with 104/64 BCD.

Known incompatibilities: Campagnolo Record Carbon CT (compact) cranks.

## **7- What is the difference between Q-Rings and other ovalized chainrings such as Shimano Bio-pace, Osymetric, etc?**

**Basically there were two kinds of ovalized chainrings before 2005:**

**1. Classical oval chainrings since 1890:** Those chainrings tried to avoid the dead-spots by having the minimum equivalent chainring size at the dead-spots, and having the maximum equivalent chainring size when the crank was approximately at the horizontal. They basically consider the forces from your legs in static conditions, without considering the inertias of the cyclist & the bicycle, and of the cyclist legs. For example, the O.SYMETRIC. chainring which is asymmetric, enables you to push an effective a bigger circular chainring during the down stroke, but while doing so, it causes very high accelerations at the dead-spots, which is not in the best interest for the knees or for the rhythm of pedaling.

**2. The Shimano Bio-pace,** having the maximum equivalent chainring size at the dead-spots, seems to consider the inertias as the most important point and neglects the static abilities of the rider's legs to apply force. It sometimes caused pain to the cyclist's knees because it demands the maximum traction effort at the dead-spots, causing the knees to feel like they are pushing a bigger chainring at that moment.

**3. The Q-Rings comes from Rotor Cranks biomechanical technology** more so than from any previous oval type chainrings. From Rotor's experience, it is known that the maximum equivalent chainring size should happen later than the instant you have your maximum power; this delay is due to the inertia and is very important to be considered. This delay is approximately 20° of pedal (crank) motion; but greater when climbing and less when riding on flat terrain. In addition it is known that not all the riders apply the maximum power at the same place during the down stroke, and not all the riders involve the same inertia when pedaling. For that reason Rotor is convinced of the importance of having the freedom to choose where the rider wants to find the maximum equivalent chainring size during the down stroke.

The Q's have been designed imitating smaller regular (round) chainrings at the dead-spots. Using the Q's your knees will thank you in the same manner but your speed will remain the same at a given cadence.

## **8- How much do Q-Rings weigh?**

The Q-Rings weigh about the same as other high quality chainrings.

53/40 130 BCD is 153-grams (5.4 ounces).

53/41 135 BCD is 153-grams (5.4 ounces).

50/36 110 BCD is 147-grams (5.2 ounces).

44/34/24 MTB is 136-grams (4.8 ounces).



### WARRANTY REGISTRATION

Full name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Date of purchase: \_\_\_\_\_

Retailer seal: \_\_\_\_\_

Type of use: \_\_\_\_\_

<input type="checkbox"/>	recreational	<input type="checkbox"/>	advanced	<input type="checkbox"/>	professional
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Age: \_\_\_\_\_

Suggestions: \_\_\_\_\_

#### ROTOR WARRANTY POLICY:

- The Q-Rings and its components are guaranteed for **2 YEARS** against any manufacturer defects or defective materials. In the event of a warranty defect, Rotor's sole obligation under this warranty is to repair or replace, at its option, the defective part or product at no charge. Moreover, in some countries, Rotor is obliged to ensure any legal warranty defined by law for the customer's protection.
- Elements subject to wear and breakdowns that the manufacturer is not responsible for, are not covered by this warranty.
- Failures or breakdowns caused by improper use, poor assembly or inadequate maintenance as declared in the instructions or the user manual are not covered by this warranty.
- Always keep your receipt or invoice, this warranty does not cover products whose serial number or identification has been erased, damaged or modified.
- The following acts void this warranty:
  - ◆ Failure to fulfill the requirements above.
  - ◆ Improper installation.
  - ◆ Improper use or installation of inadequate parts.

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