

Scope Cycling

R-Series User Manual



Version 1.0

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1. How to reduce the free-wheel sound?

Question

I would like to reduce the sound of my Scope wheels while freewheeling.

Answer

Note: Please only use the official engagement grease from Scope (SC2021263) or the silence grease of Scope (SC2022350) and do not use any other type of grease or oil. The use of incorrect grease or oil can lead to problems with the engagement system.



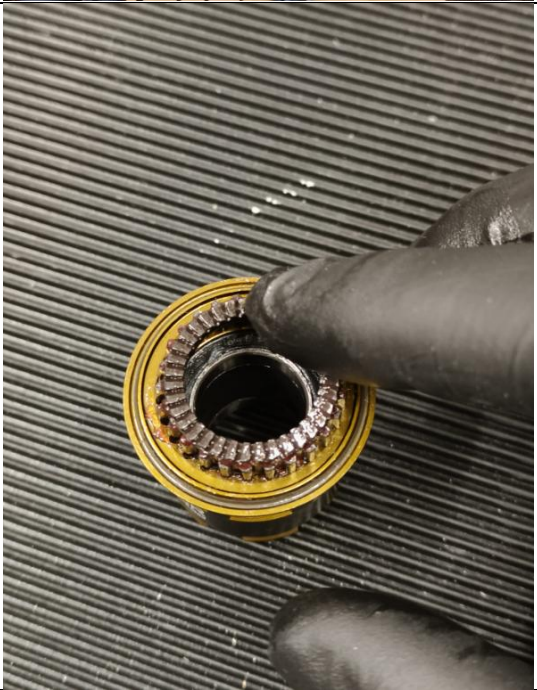
Scope Engagement Grease (SC2021263)



Scope Silence Grease (SC2022350)

In case you have an Artech or Race Series wheel, your rear wheel hub is equipped with the Diamond Ratchet system from Scope. The sound you hear while freewheeling is caused by the two ratchets that are disengaged while rotating in opposite directions over each other.

In order to reduce the noise, Scope offers Silence Grease (SC2022350). This Silence Grease can be used to replace the regular engagement grease of the Diamond Ratchet system in order to reduce the sound level of the engagement system. The steps to apply the Silence Grease are as follows:

Description	Picture
Remove the rear wheel from your bike by untightening the through axle.	
Remove the end-cap from the drive side, this can be done by pulling the body (including the cassette if mounted) from the hub. The end-cap will come loose and the body (including the cassette) can be taken off the axle of the hub.	
Typically the “small” ratchet will remain to be seated on the backside of the freehub body. If so, please remove the small ratchet from the freehub body by pulling it out of the freehub body.	

Remove the “large” ratchet which is located in the hub shell. Note that the large ratchet could have already come out of the hub shell when removing the body.



Place the large and small ratchet on a clean cloth and remove any old grease and dirt using a dry cloth.



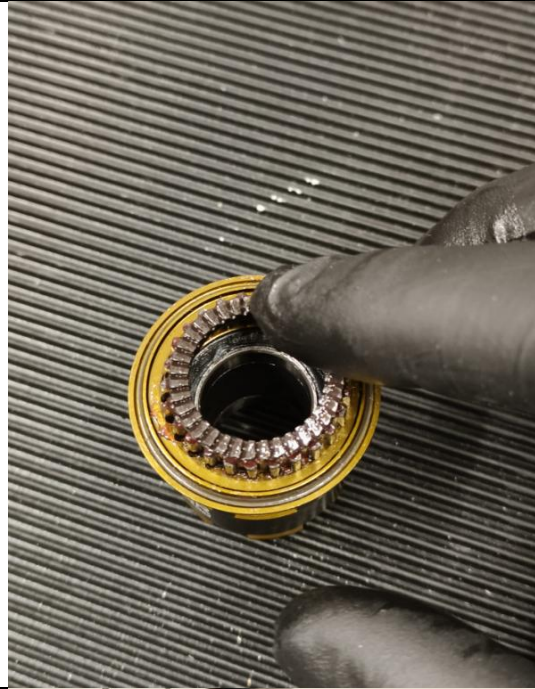
Now take the Silence Grease and apply some of the grease on top of both ratchets. Besides, apply some grease around the ratchets. We recommend to apply about 3 ml of grease, as an indication of the amount of grease please refer to the picture.



Next, first take the large ratchet and put it on the axle. Please note that the face teeth of the large ratchet should face outwards (meaning they point towards the direction of the drive side / cassette side). Next push the large ratchet into the hub shell against the spring. You should feel the spring pushing back the ratchet outwards.



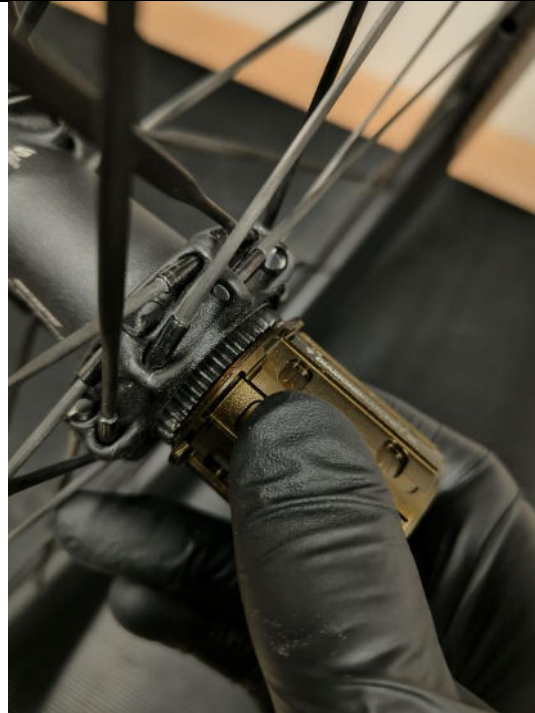
Take the small ratchet and assemble it back into the freehub body. The face teeth of the ratchet should face outwards, meaning that the face teeth should be visible.



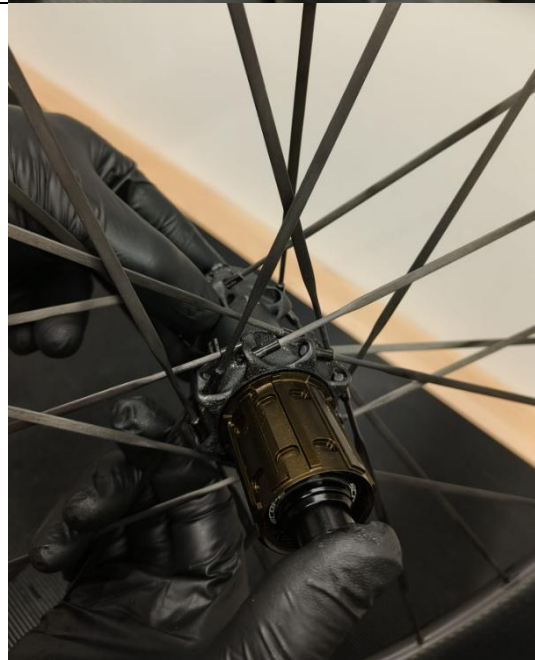
Next, put the freehub body onto the axle. You can guide the freehub body onto the axle by taking the body and focus on the bearings. The bearings should align with the axle, one could use the index finger to centre the body on the axle.



Now check whether the large ratchet is still seated in the hub shell, if not please guide the large ratchet back into position by slightly pushing it. Next push the freehub body towards the hub, please note that in case the large ratchet is not seated in the hub or the small ratchet is not seated in the freehub body one should stop pushing the body and first seat both ratchets properly.



Next put back the end-cap back onto the axle. While doing so, hold the axle from the disc side with your other hand. When pushing on the end-cap a clicking noise indicates that the end-cap is mounted correctly.



2.How to remove water from the rim of your wheel?

Question

There is water inside of my rim, is this normal and how can I remove it?

Answer

In cases of heavy rain or very wet conditions it is possible for some water to enter your carbon rims via the spoke and valve holes. From 2021 onwards, all Scope wheels do have a rim with a water hole that can be used to remove the water. Please follow the following steps:

1. Remove your wheel(s) from the bike.
2. Identify the location of the water hole. There is one water hole per rim which is located around the valve area on the non-drive side.
3. Hold the wheel such that the water hole is the lowest point, thereby ensure any water at the inside of the rim will leak out. In case there is a substantial amount of water in the rim, you could place the wheel in a similar position on the ground such that the water hole is the lowest point of the wheel.
4. After removing the water from the rim, you can mount the wheel back in your bike.

3.How to clean your wheels

Question

How should I clean my wheels?

Answer

In general, we recommend to clean your wheels with water and soap. It is possible to clean wheels with a high pressure cleaner, but please do not point the nozzle directly at the hub as this can cause water and dirt to enter the hubs. Also prevent any break cleaner from contacting your wheels. Below is our step-by-step guide to clean your wheels:

1. Please remove your wheels from the bike.
2. First clean the cassette, for this you could use a degreaser but please note not to spray the degrease on anything else than the cassette itself. Using a brush you can clean the cogs of the cassette. After cleaning the cassette rinse it off with water.
3. Now you can start to clean the rims and hubs by using a sponge or washing mitt. You may use water in combination with a soap to clean the wheels.
4. For the hub, please use a clean brush to clean the spoke flange area that are hard to reach with a sponge or washing mitt.
5. After cleaning both wheels, rinse them off with water so all soap and dirt is rinsed off.
6. Use a cloth or towel to dry the wheels completely.

4. Where to find the serial number on my Scope wheels?

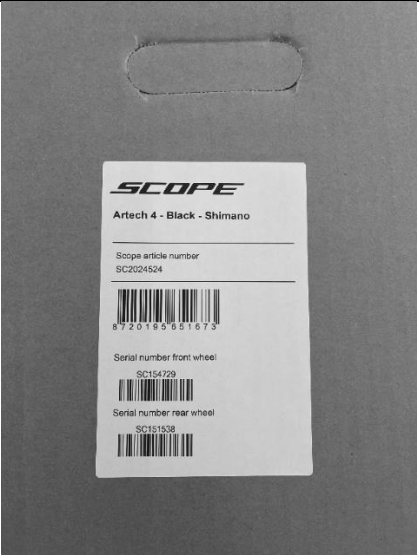
Question

Where can I find the serial number of my wheels?

Answer

There are multiple methods to identify the serial number of your wheels. First of all please note both the front and rear wheel do have a separate serial number. Each Scope Serial number starts with SC and exists out of 5 or 6 digits, for example SC123456.

You can find the serial number on the following places:

On the product registration card located on the free-hub body: Each new rear wheel is packaged with a product registration card containing both the serial number for the front and rear wheel.	
On the outer packaging of your wheels: Each Scope carton wheel box has a label including article number and both the serial number for the front and rear wheel.	

On the **tire bed of the rim**, near the valve hole: Please note that you have to remove the rim tape to read this serial number.



Furthermore, please note that each hub also comes with a unique serial number. The serial number of the hub is located on the flange and exists of a number and letter combination, please refer to below picture. In case it is impossible for you to find the serial number of the wheels, you can always ask Scope to identify your wheels based on the serial number of the hubs as we register each individual component in production.



Serial number of the hub

5. Identify the Race Series generation

To identify the model year of your Race Series, take a look at the spoke nipples. When your wheelset is using external spoke nipples, it looks like the picture on the left. When your wheelset is using internal spoke nipples, it looks like the picture on the right.



6. How to true my Race Series wheel?

6.1. Race Series with external spoke nipples

In case you have a Race series wheel with external spoke nipples please use the following steps to true the wheel.

1. Remove the wheel from your bike by untighten the through axle (or quick release in case of a rim brake wheel).
2. Remove the tire and rim tape of your wheel.
3. Mount the wheel in a truing stand and identify the position of the run-out in the rim.
4. Take a spoke key:
 - a. In the case of the Race Series Disc brake you can use a spoke key made for 1.3 mm thick spokes.
 - b. In the case of the Race Series Rim brake wheels you can use a spoke key made for 1 mm thick spokes.
5. Take a nipple key, that is compatible with 3.45 mm nipples.
6. Now using the nipple key, the nipple can be tightened (clockwise rotation) or untightened (counterclockwise).



6.2. Race Series with internal spoke nipples

In case you have a Race series wheel with internal spoke nipples please use the following steps to true the wheel.

1. Remove the wheel from your bike by untighten the through axle.
2. Remove the tire and rim tape of your wheel.
3. Mount the wheel in a truing stand and identify the position of the run-out in the rim.
4. Take a spoke key made for 1.1 mm thick spokes as indicated in the figure below.
5. Take an internal nipple spoke wrench in size 5.5 mm which is indicated below too.

6. While holding the spoke key on the spoke close to the rim, the nipple can be tightened (clockwise rotation) or untightened (counterclockwise) using the spoke wrench.



7. How to replace the bearings of my Race Series wheel?

Question

How should I replace bearings of my Race Series hubs? / How should I maintain my Race Series hubs?

Answer

In general we recommend to check the hubs of your Race Series wheels on a frequent basis by simply checking whether the wheels rotate smoothly in the bike. In case you observe that the wheels do not run smoothly, or in case you identify any noise- or visual issues it is recommended to perform the hub maintenance procedure.

Besides, we recommend to check your hubs with an interval of 5.000 KM or annually. Furthermore, we recommend to change the bearings based on an interval of 10.000KM (this interval is based on normal weather and usage conditions, in the case of usage in rainy conditions the interval should be lowered to 5.000 KM).

The procedure to maintain the hubs and replace the bearings of the Race hubs is as follows:

7.1. Race Series front hub

Description	Picture
a. Untighten the trough axle and remove the wheel from the fork. Next, remove the disc rotor by untightening the lockring.	
b. Remove the end-caps on both sides of the hub. This can be done by firmly pulling the end-cap. In case the end-cap is stuck, we recommend to rotate the end-cap slightly while pulling it.	
c. Next, the bearings and axle should be removed from the front hub. The first bearing and axle can be pushed out using a bearing press tool. Discard the removed bearing, it should not be re-used.	

- d. Using the axle, the second bearing can be pushed out

Discard the removed bearing, it should not be re-used.



- e. At this stage, we recommend to clean the hub, axle and end-caps with a dry cloth. You may use a degreaser to clean the components.

It is important that all parts are clean before the new bearings are installed.



- f. Take a bearing from bearing kit SC2021245. These bearings should be of the type 61803. Place it on top of the bearing seat at the drive side of the hub. Only use little force while placing the bearing on top of the bearing seat, too much force will damage the bearing or hub shell.



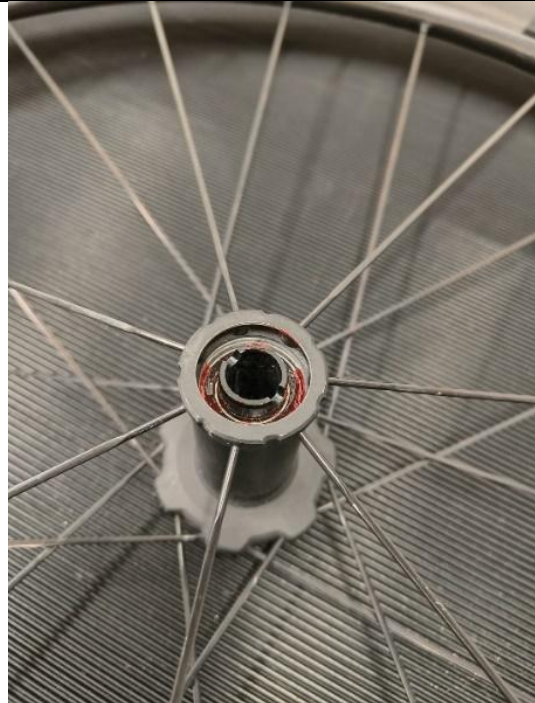
- g. Take the second bearing from bearing kit SC2021245 and slide it in the hub together with the axle to place it on top of the bearing seat at the non-drive side of the hub.



- h. Take a bearing press tool which is compatible with the 61803 bearings (outer width of 26mm and inner width of 17mm) and press the bearings into the hub shell.
It is important to not apply too much pressure, whenever the bearing is fully seated you will instantly feel that pressing in the bearing further requires more force. Please make sure to stop at this point.



- i. After installing the bearings, it is recommended to apply some grease on the outside of the bearings. Apply about 1 ML on each bearing as shown on the picture.



- j. Next, mount the end-caps on both sides by pushing it on the axle while holding the axle in place. A clicking noise will confirm that the end-cap is correctly assembled.



- k. Take the disc rotor and mount it onto the centerlock spline of the hub. Next take the lockring and screw it in position by hand and finally lock it with a suitable tool while respecting the torque as stated on the lockring.



I. Mount the wheel back in the fork.



7.2. Race Series rear hub

Description	Picture
a. Untighten the trough axle and remove the wheel from the frame. Next, remove the disc rotor by untightening the lockring.	
b. Remove the end-cap from the drive side, this can be done by pulling the body (including the cassette if mounted) from the hub. The end-cap will come loose and the body (including the cassette), spacer, spring, ratchets and endcap can be taken off the axle of the hub.	
c. Next, the bearings and axle should be removed from the rear hub. The first bearing and axle can be pushed out using a bearing press tool. Discard the removed bearing, it should not be re-used.	

- d. Using the axle, the second bearing can be pushed out

Discard the removed bearing, it should not be re-used.

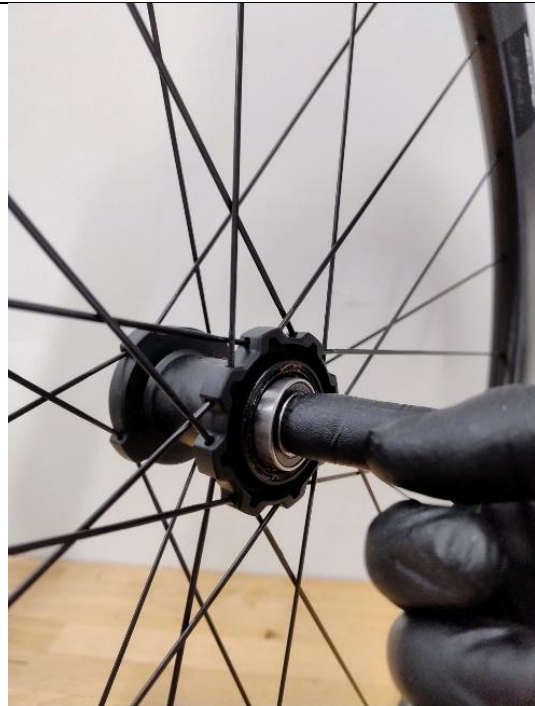


- e. At this stage, we recommend to clean the hub, axle and end-cap with a dry cloth. You may use a degreaser to clean the components.

It is important that all parts are clean before the new bearings are installed.



- f. The bearing kit SC2021246 contains two bearings of a different type. The drive side bearing is of type 61903 while the non-drive side is of type 61803. Place the drive side bearing on top of the bearing seat of the hub. Only use little force while placing the bearing on top of the bearing seat, too much force will damage the bearing or hub shell.



- m. Take the second bearing from bearing kit SC2021246 and slide it in the hub together with the axle to place it on top of the bearing seat at the non-drive side of the hub.



- g. Take a bearing tool which is compatible with the 61803 bearing (outer width of 26mm and inner width of 17mm) and the 61903 bearing (outer width of 30mm and inner width of 17mm) and press the bearings into the hub shell.

It is important to not apply too much pressure, whenever the bearing is fully seated you will instantly feel that pressing in the bearing further requires more force. Please make sure to stop at this point.



- h. After installing the bearings, it is recommended to apply some grease on the outside of the bearings. Apply about 1 ML on each bearing.



- i. Now place the spring back on the axle. A different spring than the one shown may be used in the wheelset.



- j. Install the engagement spacer on the axle.



- k. Next take the large ratchet and mount it with the face teeth pointing into the drive side direction of the hub.



- l. Now take the second smaller ratchet and mount it within the spline at the back of the freehub body.



- m. Put the freehub body (including cassette and endcap) onto the axle. You can guide the freehub body on the axle by taking the body and focus on the bearings. The bearings should align with the axle, one could use the index finger to center the body on the axle. A clicking noise will confirm that the end-cap is correctly assembled.



- n. Take the disc rotor and mount it onto the centerlock spline of the hub. Next take the lockring and screw it in position by hand and finally lock it with a suitable tool while respecting the torque as stated on the lockring.



- o. Mount the wheel back in the frame according to our instruction manual.



8.Spokes

The tables below indicate the spoke type, length and article codes for your wheelset. In the tables, DS refers to drive side while NDS refers to non-drive side. To identify if your wheelset uses internal or external spoke nipples, please refer to 5. The spoke tension on the DS should be at 120 kgf for all wheels.

8.1. Internal spoke nipples

Road / All-Road / Gravel			
Type	Description	Article code	Quantity
R4 R4.A R4.G	Front DS - Sapim CX-Ray oval head 272 - Straight pull black	SC2025001	7
	Front NDS - Sapim CX-Ray oval head 270 - Straight pull black	SC2025002	14
	Rear DS - Sapim CX-Ray oval head 267 - Straight pull black	SC2025003	16
	Rear NDS - Sapim CX-Ray oval head 273 - Straight pull black	SC2025004	8
	Sapim Internal Nipple	SC2025175	45
R6 R6.A	Front DS - Sapim CX-Ray oval head 254 - Straight pull black	SC2025005	7
	Front NDS - Sapim CX-Ray oval head 252 - Straight pull black	SC2025006	14
	Rear DS - Sapim CX-Ray oval head 249 - Straight pull black	SC2025007	16
	Rear NDS - Sapim CX-Ray oval head 255 - Straight pull black	SC2025008	8
	Sapim Internal Nipple	SC2025175	45

Triathlon / Time Trial			
Type	Description	Article code	Quantity
R8.T	Front DS - Sapim CX-Ray oval head 234 - Straight pull black	SC2025379	7
	Front NDS - Sapim CX-Ray oval head 232 - Straight pull black	SC2025380	14
	Rear DS - Sapim CX-Ray oval head 228 - Straight pull black	SC2025381	16
	Rear NDS - Sapim CX-Ray oval head 234 - Straight pull black	SC2025382	8
	Sapim Internal Nipple	SC2025175	45

8.2. External spoke nipples

Road – Disc Brake			
Type	Description	Article code	Quantity
R3 Disc	Front DS (CX-Sprint 280mm - Straight pull Black)	SC2021274	7
	Front NDS (CX-Sprint 281mm - Straight pull Black)	SC2021273	14
	Rear DS (CX-Sprint 277mm - Straight pull Black)	SC2021276	16
	Rear NDS (CX-Sprint 281mm - Straight pull Black)	SC2021275	8
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-
R4 Disc	Front DS (CX-Sprint 265mm - Straight pull Black)	SC2021285	7
	Front NDS (CX-Sprint 266mm - Straight pull Black)	SC2021284	14
	Rear DS (CX-Sprint 263mm - Straight pull Black)	SC2021287	16
	Rear NDS (CX-Sprint 268mm - Straight pull Black)	SC2021286	8
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-
R5 Disc	Front DS (CX-Sprint 254mm - Straight pull Black)	SC2021296	7
	Front NDS (CX-Sprint 255mm - Straight pull Black)	SC2021295	14
	Rear DS (CX-Sprint 251mm - Straight pull Black)	SC2021298	16
	Rear NDS (CX-Sprint 256mm - Straight pull Black)	SC2021297	8
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-

All Road – Disc Brake			
Type	Description	Article code	Quantity
R3.A Disc	Front DS (CX-Sprint 279mm - Straight pull Black)	SC2021281	7
	Front NDS (CX-Sprint 280mm - Straight pull Black)	SC2021280	14
	Rear DS (CX-Sprint 276mm - Straight pull Black)	SC2021283	16
	Rear NDS (CX-Sprint 281mm - Straight pull Black)	SC2021282	8
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-
R4.A Disc	Front DS (CX-Sprint 265mm - Straight pull Black)	SC2021292	7
	Front NDS (CX-Sprint 265mm - Straight pull Black)	SC2021291	14
	Rear DS (CX-Sprint 261mm - Straight pull Black)	SC2021294	16
	Rear NDS (CX-Sprint 266mm - Straight pull Black)	SC2021293	8
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-
R5.A Disc	Front DS (CX-Sprint 254mm - Straight pull Black)	SC2021303	7
	Front NDS (CX-Sprint 255mm - Straight pull Black)	SC2021302	14
	Rear DS (CX-Sprint 251mm - Straight pull Black)	SC2021305	16
	Rear NDS (CX-Sprint 256mm - Straight pull Black)	SC2021304	8
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-

Road – Rim Brake			
Type	Description	Article code	Quantity
R3 Rim	Front (CX-Ray 279mm - Straight pull Black)	SC2021277	18
	Rear DS (CX-Ray 280mm - Straight pull Black)	SC2021279	14
	Rear NDS (CX-Ray 279mm - Straight pull Black)	SC2021278	7
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-
	Front (CX-Ray 279mm - Straight pull Black)	SC2021277	18
R4 Rim	Front (CX-Ray 265mm - Straight pull Black)	SC2021288	18
	Rear DS (CX-Ray 266mm - Straight pull Black)	SC2021290	14
	Rear NDS (CX-Ray 265mm - Straight pull Black)	SC2021289	7
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-
	Front (CX-Ray 265mm - Straight pull Black)	SC2021288	18
R5 Rim	Front (CX-Ray 254mm - Straight pull Black)	SC2021299	18
	Rear DS (CX-Ray 254mm - Straight pull Black)	SC2021301	14
	Rear NDS (CX-Ray 253mm - Straight pull Black)	SC2021300	7
	Sapim Alu Black Hex 14G*14mm nipple with SILS	SC2021272	-
	Front (CX-Ray 254mm - Straight pull Black)	SC2021299	18

9. Other questions

In case the above explanation hasn't been sufficient answer your questions, please reach out by phone +31 (0)40 298 66 04 or mail info@scopecycling.com to get in touch with our customer service team.