

Q&A

VRC 2023-2024: Over Under

Tagged: R6

Welcome to the official VEX Robotics Competition Question & Answer system, where all registered teams have the opportunity to ask for official rules interpretations and clarifications. This Q&A system is the only source for official VRC Over Under rules clarifications, and the clarifications made here from the Game Design Committee (GDC) are considered as official and binding as the written [Game Manual](#) itself.

Please review the [Q&A Usage Guidelines](#) before posting. This system is only intended for specific VRC Over Under rules questions.

- For event, registration, or other competition support questions, please contact your [REC Foundation Manager](#).
 - For VEX technical support, contact support@vex.com or sales@vex.com.
- For game questions, suggestions, or concerns outside of specific and official rules questions, contact GDC@vex.com.

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995: Commercially Available Standoffs

5-Jan-2022

R6 R7 R8 R12

Hello,

This question comes with the changes to "identical parts" and standoffs not being considered under R12.

R12

Robots may use any commercially available #4, #6, #8, M3, M3.5, or M4 screw up to 2.5" (63.5mm) long (nominal), and any commercially available nut, washer, and / or non-threaded spacer (up to 2.5" (63.5mm) long) to fit these screws.

R6, R7 and R8 do not mention standoffs as an exception for what can be used from a third party.

Are standoffs purchased from third parties legal if they are identical in all ways besides color to what VEX Robotics / VEX Robotics resellers provide?

Thank you for your time!

Answered by committee

Yes. R12 will be updated to include standoffs in the February 1 Game Manual update.

942: Does using 393 motor controllers to control LED Strips violate rule R31c or R6b?

22-Nov-2021

R6

Hello,

Our team has wired up 5v LED strips to work with the vex v5 system. The LEDs are being run by the motor controllers for 393 motors, with LED cabling soldered to the output wires, and the neutral spliced into one of the 3 wire ends. Is this Legal? Would this be considered a violation of rule R13c, or R6b?

Thanks!

Here is R13c for reference: "VEX electronics may not be used as non-functional decorations"

And R6b: "Electronics from the VEX Cortex control system are not permitted. This includes the VEXnet Joystick, VEXnet Partner Joystick, VEX ARM® Cortex-based Microcontroller, VEXnet Key 1.0 and 2.0, 2-Wire Motor 393, and any other electronic components which are not compatible with the VEX V5 system"

Answered by committee

Thank you for quoting the relevant rules in your question. Per R13-c and R6-b, no, this would not be legal.

874: Problems with the new Cortex rule in VRC due to V5 system backordered

1-Oct-2021

R6

Background

We registered and activated an independent VRC team this season, but ran into some troubles. We bought an EDR super kit a few years ago before V5 was released, so the kit came with Cortex. New rules this season state that we are not allowed to use electronics from the Cortex system. I understand that VEX requires upgrade as technology advances and this will result in older versions to become obsolete. However, V5 EDR super kit, system bundle, and some separate electronics are backordered. I searched through the forum to see if other people encountered similar problems and this is what I found: <https://www.vexforum.com/t/problems-with-the-new-cortex-rule/93623>

They ordered V5 products before September 24 and the product will not arrive before M

Question

Is there any chance to allow Cortex for at least this year so VEX has more time to manufacture and ship V5, or is there anything we can do to get a V5 system bundle in time? Thanks.

Answered by committee

Is there any chance to allow Cortex for at least this year so VEX has more time to manufacture and ship V5, or is there anything we can do to get a V5 system bundle in time? Thanks.

There are no plans to change rule R6-b at this time. We would recommend contacting sales@vex.com or your [REC Foundation Team Engagement Manager](#) for assistance.

754: Dyeing Rubber

1-Mar-2021

R6 R13

Hello,

There has been debate in the community about the legality of dyeing rubber.

R6

Robots are built from the VEX V5 or Cortex system. Robots may be built ONLY using official VEX V5 and Cortex components, unless otherwise specifically noted within these rules. Teams are responsible for providing documentation proving a part's legality in the event of a question. Examples of documentation include receipts, part numbers, official VEX websites, or other printed documentation.

R6-D

Any parts which are identical to legal VEX parts are permitted. For the purposes of this rule, products which are identical in all ways except for color are permissible. It is up to inspectors to determine whether a component is "identical" to an official VEX component.

R13

Decorations are allowed. Teams may add non-functional decorations, provided that they do not affect Robot performance in any significant way or affect the outcome of the Match. These decorations must be in the spirit of the competition. Inspectors will have final say in what is considered "non-functional". Unless otherwise specified below, non-functional decorations are governed by all standard Robot rules.

2013 Q&A <https://www.vexforum.com/t/answered-boiling-wheels/23048>

Recently it has come to my attention that there is a way to modify the opaque green rubber of the dual roller omni wheels and high traction tires through the process of submerging the wheel in a pot of boiling water.

Dyeing Rubber wikiHow (Method 1) <https://www.wikihow.com/Dye-Rubber> Step 2

Fill a pot with water and heat it on a low to medium stove setting. The water should be hot, but not boiling—close to, but less than 212 °F (100 °C) is ideal.

Step 4

Place the object in the bowl and leave it to soak. Keep it in the pan for up to 2 hours, depending on how strong or bright you want the new color to be.

The 2013 Q&A states that “hyper-hydrating” rubber is illegal for use in VRC because it is ‘not safe’. Hyper-hydrating rubber only requires boiling water while teams are allowed to use more dangerous power tools like bandsaws and dremels.

The community would like an official test done by the GDC to see how “hyper-hydrating” 3.25, 4” and the different durometers of flex wheels modifies their properties.

1. Does “hyper-hydration” change the properties of rubber enough to affect the outcome of a match (and to break R13)?

a) If the answer to the bolded question is no, is boiling wheels with the intent of “hyper-hydrating” with no intent of modifying color legal?

b) If the answer to the bolded question is yes, is there a specified amount of time and water temperature that would be considered “hyper-hydration”? There have been teams who get a nice rubber color with water at 190F and a higher dye concentration.

2. Is there a preferred way teams should dye their omni-wheels and flex wheels that doesn’t cause it's properties to be changed enough to break any rules?

Thank you for your time

Answered by committee

First, thank you for the well-organized question and for quoting the relevant rules from the Game Manual.

is boiling wheels with the intent of “hyper-hydrating” with no intent of modifying color legal?

Yes.

708: <VUR6> Clarification

7-Dec-2020

R6 R7 R8 R10 R12 R20 R22 VUR2 VUR3 VUR5 VUR6 VUR8

In this previous ruling, it was determined that <VUR5> takes priority over <VUR6>:

<https://www.robotevents.com/VEXU/2020-2021/QA/674>

However, this is contradictory to every other instance of past rulings regarding <VUR6> and the wording of <VUR6> in the game manual.

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For example, consider a typical custom sensor such as the pixy camera:

<https://www.robotshop.com/en/charmed-labs-pixy-2-cmucam5-image-sensor.html>

This sensor violates <R6>, <R7>, <R8>, <R10>, <R12>, <R20>, <R22>, as well as <VUR3> and <VUR8>.

VUR3 restricts the materials allowed, but this sensor violates the allowed materials.

VUR8 restricts the screw sizes allowed, but this sensor may have smaller screws than the allowed limit.

As another example, consider a vex IQ sensor: <https://www.vexrobotics.com/228-3014.html>

This sensor would violate <R6>, <R7>, <R8>, <R10>, <R12>, <R20>, <R22>, as well as <VUR3> and <VUR2b>.

<VUR2b> restricts teams from using any vex IQ electronics, which would include this sensor.

?

Because <VUR6> specifically states "There is no restriction on sensors and other additional electronics that Robots may use for sensing and processing" it has been understood by most VexU teams that <VUR6> takes priority over all the other rules in the game manual. Logically this would also mean <VUR6> would take priority over <VUR5>.

?

Several other Q/As over the years have verified this as correct as the wording on <VUR6> has not significantly changed since these rulings:

<https://www.vexforum.com/t/answered-vexu-speakers-as-part-of-custom-sensor/42312>

<https://www.vexforum.com/t/answered-vex-u-old-college-q-a-updates/23810>

<https://www.vexforum.com/t/answered-custom-sensor-housing/19582/2>

These three Q/As verify that <VUR6> would take priority over <VUR3> and <VUR8> as well as all the regular game manual rules mentioned above.

Furthermore, the following Q/A shows that <VUR6> would also take priority over <VUR5>:

<https://www.vexforum.com/t/answered-vex-u-non-vex-servo-motors-for-a-custom-sensor/35538>

This allowed external non vex motors used solely for manipulating custom sensors.

If this were the case, it would agree with the wording of <VUR6>. There are numerous sensors and processing boards that rely on motors to operate.

For example, many full field lidar systems such as:

<https://www.robotshop.com/en/rplidar-a1-m8-360-degree-laser-scanner-development-kit.html>

rely on an integrated motor to spin the lidar enabling it to map the field. VexU teams have legally used similar lidar systems in the past and may plan to do so again this season.

Another example would be the Nvidia Jetson Xavier NX listed below:

<https://www.nvidia.com/en-us/autonomous-machines/embedded-systems/jetson-xavier-nx/>

This processing board has a built-in fan on its heatsink that is critical to its function as a processing unit.

A third example is the pixy tilt and pan kit: <https://pixycam.com/pixy2-pan-tilt-kit/> (ruled legal in the above Q/A linked).

Without these integrated motors, none of these sensors or processing units could function as intended.

?

Therefore, which rules, if any, restrict the "no restriction" clause of <VUR6>?

Furthermore, if <VUR5> does not apply to <VUR6>, then was the previous ruling in QA#674 an error?

If <VUR5> is applicable, are 360-degree Lidar sensors and the Nvidia Jetson processing boards also illegal? If all VexU appendix rules also apply to <VUR6>, then does that mean that there are no legal VexU custom sensors?

Answered by committee

If all VexU appendix rules also apply to <VUR6>, then does that mean that there are no legal VexU custom sensors?

Please see rule G3:

<G3> Use common sense. When reading and applying the various rules in this document, please remember that common sense always applies in the VEX Robotics Competition.

The intent of the answer in the linked Q&A was to prohibit using VUR6 as a loophole to install cooling fans on a Robot.

Sensors containing an internal motor which is integral to their operation, such as a LIDAR or pan-tilt Pixy, would be permissible. It would not be feasible for an inspector to take apart a LIDAR module to see if there is a motor inside of it. It is, however, feasible for an inspector to check if a fan is being used to cool a V5 Smart Motor.

To prevent confusion, we would advise Teams with external processors that require thermal protection to utilize a [passive heat sink](#) instead of an active cooling fan.

2098: 3x20 beam (228-2500-039) Part Legality

13-Aug-2024

R6

There are two (2) 3x20 beams (228-2500-039) included in the field kit for Rapid Relay that don't appear in the **VEX IQ Robotics Competition 2024-2025 Legal Parts** or the **VEX IQ Robotics Competition 2024-2025 Illegal Parts** appendix documents. Are those legal for competition use on robots?

It would appear R6 i. might address this but wanted to clarify here and possibly get an update to the respective appendix document above.

R6 1. Additional VEX IQ products that are released during the season are legal for use, unless otherwise noted on their product pages and/or in the VEX IQ Robotics Competition Legal Parts Appendix.

Answered by committee

Thank you for your question! Yes, the 3x20 beam (228-2500-039) is legal for use on competition Robots and will be added to the Legal Parts Appendix.

1940: Parts to build the robot

8-Feb-2024

R6

<R6><R6>My club has only the green high strength gears and sprockets to use to build their robot. Can these be used with the V5 kit for the 2023-2024 competition or will that be an illegal item? The sprocket and high strength gear they need are both sold out online so we have no way of purchasing the red one that comes in the starter and super kit.

Answered by committee

Green and red High Strength Gears and Sprockets are both legal for use on VRC competition Robots.

189: Flashlight for Vision Sensor Clarification

20-Dec-2018

R6 R8

"<R6> Official VEX products are ONLY available from VEX Robotics & official VEX Resellers. To determine whether a product is "official" or not, consult www.vexrobotics.com. A complete list of authorized VEX Resellers can be found at www.vexrobotics.com/find-a-reseller."

<R8 note G> "Decorations that visually mimic field elements or could otherwise interfere with an opponent's Vision Sensor are considered functional and are not permitted. This includes lights, such as the VEX Flashlight. The Head Inspector and Head Referee will make the final decision on whether a given decoration or mechanism violates this rule."

Vex flashlight: <https://www.vexrobotics.com/276-2210.html>

Provided that it does not mimic any field elements, is it legal to use the vex flashlight to increase the consistency of the V5 vision sensor in driver control? If so, is it legal to use reflective or opaque non-vex components to project the light more accurately onto the flag? Thank you!"

Answered by committee

Provided that it does not mimic any field elements, is it legal to use the vex flashlight to increase the consistency of the V5 vision sensor in driver control?

The color that a Vision Sensor "looks for" depends upon an expected lighting condition. This is why the same Sensor may require a re-calibration when looking at the same object in sunlight vs under a flashlight.

The intent of <R8g> was to prevent the scenario where a Robot's use of the Vision Sensor was impaired by an opponent's external and unpredictable light source. It should be an expected part of the design challenge to calibrate a Vision Sensor for a given event venue's lighting conditions. However, it would be impossible to prepare for lighting condition changes mid-match, such as an opponent introducing an external light source.

So - the use of a VEX Flashlight in conjunction with your own Vision Sensor is not, by itself, illegal. However, if your opponent is using a Vision Sensor to look at the same area that you are shining a flashlight on, this could be interpreted by a head referee as a violation of <R8g>. Thus, it is impossible to provide a blanket ruling that would cover all contexts.

is it legal to use reflective or opaque non-vex components to project the light more accurately onto the flag?

There are no rules preventing this, provided that no other rules are violated in the process. Specifically, the material must satisfy all of the constraints of <R7>, especially <R7e>.

1861: R6 - What is a "V5 Component"?

8-Jan-2024

R6

<R6> states (in part):

Robots are built from the VEX V5 system. Robots may be built ONLY using official VEX V5 components, unless otherwise specifically noted within these rules. Teams are responsible for providing documentation

proving a part's legality in the event of a question. Examples of documentation include receipts, part numbers, official VEX websites, or other printed evidence.

h. Official VEX products are ONLY available from VEX Robotics. All official products are listed on www.vexrobotics.com.

Red Box: Using VEX apparel, competition support materials, packaging, or other non-Robot products on a VEX Robotics Competition Robot goes against the spirit of this rule and is not permitted.

There is some confusion as to what exactly constitutes a "V5 component". For example, the V5 VersaPlanetary Mount (217-7762): <https://www.vexrobotics.com/ftc-motor-mounts.html>

Is this component legal for use in VRC? It says "Works **with** V5 and PRO products and accessories", but it is not clear if this label itself means that the component is a V5 component. Furthermore, the product description lists it as "VEX U, VAIRC, FTC, FRC legal.", but does not mention VRC. This is confusing, because if the part is a V5 component, then how would it be legal for VEXU and yet not legal for VRC?

As a further example, there is the GPS Field Code strip Set V2 (276-7823): <https://www.vexrobotics.com/276-7823.html>

My first reaction would be to say that this product is not legal for use on a competition robot because it is a "competition support material" and thus not legal due to the Red Box under R6. However, the description of the product itself states: "Works with VEX V5 products and accessories products and accessories. VRC, VEX U, VAIRC legal." Is this product legal for use on competition robots in VRC, VEXU, and VAIRC?

Some other miscellaneous examples:

- Smart Field Controller Kit (276-7741) - "Works with VEX V5 products and accessories products and accessories. VRC, VEX U, VAIRC legal."
- V5 Competition Field Controller Power Cable (276-7581) - "Works with VEX V5 products and accessories products and accessories. VRC, VEX U, VAIRC legal."
- Smart Field Controller (276-7577) - "Works with VEX V5 products and accessories products and accessories. VRC, VEX U, VAIRC legal."
- V5 Robot Battery Charger (276-4812) - "Works with VEX V5 products and accessories products and accessories. VRC, VEX U, VAIRC legal."
- License Plate Alphabet Sticker Sheet (276-3937) - "Works with VEX V5 products and accessories products and accessories. VRC, VEX U, VAIRC legal."

These parts are only a couple examples; there have been several other instances of product descriptions with similar issues in the past. Therefore, my goal isn't just to get an answer for these specific products only, but more to get clearer guidelines on what teams should be looking for in product descriptions on vexrobotics.com in order to determine if they can use a component or not.

Thank you.

Answered by committee

We apologize if this has caused any confusion for inspectors at an event. The GDC works alongside the VEX product and web teams to provide product legality clarifications on the VEX website wherever possible. However, due to the broad scope of the VEX customer base beyond VRC competitors, it is sometimes difficult to offer a "one size fits all" solution.

Although there are occasional exceptions, a "V5 robot part" in the context of VRC can usually be identified by some combination of the following.

- If the part number begins with 276- or 275- .
- If the part is listed on the VEX website under the [V5 product line filter](#).
- If the part is listed on the VEX website under the ["VRC competition legal" product filter](#). These will also say "VRC legal" on their product page.
- If the part is not "*apparel, competition support materials, packaging, or other non-Robot products*", as noted in the red box in [<R6>](#).
- If a product falls outside of these bullet points, it usually receives some clarification directly in the game manual, on the product website, or a Q&A.

To address the specific examples in your post:

V5 VersaPlanetary Mount (217-7762)

- This part has a 217 part number, and is found under the VEXpro product line. As you noticed, it is not listed as "VRC legal". However, V5 construction components can be used in applications outside of VRC (e.g. Workcell / FAC, FTC, PLTW or other classroom curricula). These groups also use the same website as VRC competitors, and is who the "works with V5 products" tags are intended for in this case.

Smart Field Controller Kit (276-7741), V5 Competition Field Controller Power Cable (276-7581), Smart Field Controller (276-7577)

- These would be considered "competition support materials", are not intended for competition Robot construction. The "VRC legal" tag is meant to show that these are the intended exclusive legal field control components. Third-party or unofficial field controllers are not permitted, per [<T23>](#).

V5 Robot Battery Charger (276-4812)

- This would be considered a "non-Robot product", and is not intended for competition Robot construction. Similar to the above, the "VRC legal" tag is meant to show that this is the intended exclusive legal battery charger. Third-party or unofficial battery chargers are not permitted, per [<R13>](#).

License Plate Alphabet Sticker Sheet (276-3937)

- As noted in the product name, these are intended to be a part of Robot License Plates, and are therefore governed by [<R9>](#). As noted in [<R9>](#), License Plates are considered non-functional decorations, which would also apply to this product. For example, if you are referring to the stickers' backing sheet, this would be considered a "non-Robot product", and only legal for use as a non-functional decoration.

1824: Discontinued parts not listed on vexrobotics.com

12-Dec-2023

R6

Are discontinued vex branded parts that are not listed here <https://www.vexrobotics.com/v5-discontinued.html> still legal? Such as the single-roller omni wheel shown here: <https://www.vexforum.com/t/2-75-single-roller-omni-cad/74322> [<R6>](#)

[<R6>](#) states that "Teams are responsible for providing documentation proving a part's legality in the event of a question. Examples of documentation include receipts, part numbers, official VEX websites, or other printed evidence." and point h. states that "Official VEX products are ONLY available from VEX Robotics. All official products are listed on www.vexrobotics.com."

If a team brings a 12 year old receipt for now-discontinued vex part no longer existing on the vex website, and the part is not explicitly listed in one of the charts of banned parts in [<R6>](#), can that team compete using that part?

thank you

Answered by committee

The intended definitive source for "discontinued but still legal" parts is this page: <https://www.vexrobotics.com/v5-discontinued.html>

The 276-2165 omni wheels are not listed on this page, and are considered a legacy part that is no longer official. Therefore, they are not legal. We will update R6 in the future to make this distinction more clear.

1794: Rubber bands identical to those in V5

27-Nov-2023

R6

<R6> Hi, Is it allowed to use rubber band that is identical to those in V5/VEX IQ kits to replace the bands in the kits but broken during usage.

It seemed that we need to use tons of rubber bands and they're so easily broken and expensive to buy in bulk.

Many thanks

Answered by committee

In the future, please review the [Q&A Usage Guidelines](#) before posting, specifically point 1, "Read and search the manual before posting," and point 3, "Quote the applicable rule from the latest version of the manual in your question." Often, you'll find that by quoting the rule, you'll answer your own question.

Clause H of rule <R7> permits the use of "Rubber bands that are identical in length and thickness to those included in the VEX V5 product line (#32, #64 and 117B)."

1740: VEX EXP Wheels

1-Nov-2023

R6

<R6> Can VEX EXP wheels be used in VRC competitions? I noticed a post in previous years regarding the legality of the smaller wheels, however can not locate anything specific to them in general. I can not locate them separately on the website either to cross reference. I am assuming they are not legal because they can only be purchased as part of an EXP kit.

Answered by committee

Per clause A of rule <R6>:

Products from the VEXpro, VEX EXP, VEX IQ, VEX GO, VEX 123, or VEX Robotics by HEXBUG* product lines cannot be used for Robot construction, unless specifically allowed by a clause of <R7> or "cross-listed" as part of the VEX V5 Product lines.

There are currently four types of wheel in the VEX EXP kits: 1.75" balloon tire & hub, 2.75" balloon tire & hub, 3.25" omni wheel, and 3.25" anti-static wheel.

The 3.25" omni wheel and 3.25" anti-static wheel are [cross-listed on the VEX Robotics website](#) as being legal for use on VRC Robots.

The 1.75" and 2.75" balloon tires and their hubs are not cross-listed on the above linked page, or anywhere as part of the V5 product line, and are not legal for use on VRC Robots.

1723: Using The Cortex Claw Peices

26-Oct-2023

R6

<R6>

My team and I would like clarification on whether or not the claw kit from the cortex competition kit can be used for this competition as long as we replace the motor with a V5 motor. It is not listed as permitted or not permitted and we don't want to make assumptions and then be wrong.

Answered by committee

Yes, the non-electronic components in the claw kit from the VEX Cortex competition kit are legal for use on VRC Robots. This part and other discontinued but competition-legal parts are listed on the VEX Robotics website at <https://www.vexrobotics.com/v5-discontinued.html>.

1692: legality of weighted disc housing v slapshot disc

12-Oct-2023

R6

<R6> Looking for guidance on this. The 5x pitch weighted disc housing (228-2500-2248) is a legal part. However, the Slapshot disc (228-7506-002) are not. Having both in my inventory, they seem identical. Why can we not use the casings for Slapshot pucks in designs? It seems like an oversight, especially considering the photo for the pucks shows them built instead of in components.

Answered by committee

Thank you for bringing this to our attention. Yes, the Slapshot Disc (228-7506-002) should be legal for use. We will make sure the Legal / Illegal Parts Appendices are updated accordingly.

1671: microSD

29-Sep-2023

R6

<R6> Rule R6 states:

Robots are built from the VEX V5 system. Robots may be built ONLY using official VEX V5 components, unless otherwise specifically noted within these rules.

A large number of teams make frequent use of microSD cards, as supported by the Vex API, for in-match file storage. However, Vex does not, as far as I can tell, manufacture these cards. Would using a third-party microSD card be acceptable within the bounds of R6? In addition, if this is an annual exception to the rule, can it be clarified in future documentation?

Answered by committee

Thank you for your question. Yes, this is legal. We will be sure to include this exception in a future Game Manual update.

1342: Legality of Field parts on robots

13-Dec-2022

Robot Rules and Inspection R6 R11

I have noticed in recent tournaments that some teams appear to have been using parts that originate from VRC field kits. I understand that polycarbonate can be legal assuming that it fits within the sizing restrictions but our question specifically

centers around Nuts. Rule R11 gives a detailed explanation of legal fasteners for robots as listed which seems pretty straightforward.

[<R11>](#)

I've noticed that some teams may be using larger nuts as part of their endgame expansion projectiles that look like they could be the 1/4" lock nuts used in the VRC field perimeter. What I would like to clarify is whether these nuts are competition legal. The VEX website lists the field perimeter as being VRC Legal under the V5 platform; however, I am unsure if this might fall into the bounds of the red box in rule R6 as listed below due to being "competition support materials".

[<R6>](#)

Clarification would be appreciated, thank you!

Answered by committee

Thank you for your question! 1/4" nuts, whether from the VRC field perimeter or any other source, are not legal for use on VRC Robots.

As you noted, 1/4" screws and nuts are not included in the list of legal commercially-available fasteners in rule [<R11>](#), and the use of competition support materials is prohibited by the red box following rule [<R6>](#).

1335: Versa Hub Adapters

9-Dec-2022

R6

[<R6>](#)

Under rule R6 it states that no VEX Pro parts are to be used. I am asking about Versa Hub Adapters that teams are using Part 217-8079 and 217-2592. They pull up as pro parts on VEX website. I also found the VEX library article that says they are legal. Here is that link: <https://kb.vex.com/hc/en-us/articles/10487034781076-Flex-Wheels-for-V5>. The section I found it on is the parts substitution. I am hosting a tournament tomorrow and the question is: Are the versa hub adapters listed above legal for VRC game play? Thank you for your time.

Answered by committee

Thank you for your question, and for pointing out this omission. The following VEX VersaHub product listings are legal for use in the VRC competition, as included on [this page of the VEX website](#):

- 1.125" Bearing Bore Plastic VersaHub Spacer (1/2" Wide); SKU#: 217-2591
- 1/2" Hex Bore Aluminum VersaHub; SKU#: 217-2592
- 1.125" Bearing Pilot Plastic VersaHub (1/4" Wide, w/ Plate Sprocket Mount); SKU#: 217-3234 (Discontinued)
- 1/2" Hex Bore Plastic VersaHub; SKU#: 217-4009 (Discontinued)
- 1/2" Hex Bore Plastic VersaHub v2; SKU#: 217-8079

Rule [<R6>](#) will be revised to reflect this in the next Game Manual update.

1300: Legal Wheels?

16-Nov-2022

R6

[<R6>](#) Can we use other flex / compliant wheels in the VEX VRC competition? Flex wheels from VEX are impossible to obtain. Other companies offer similar products (Andymark for instance). If all properties are equal with the exception of the color, can we use other wheels?

[<R6>](#)

Answered by committee

No. As described in rule [<R6>](#), all wheels must either be official VEX V5 components or be built using only official VEX V5 components or other legal materials (e.g., certain types of non-shattering plastic as allowed by rule [<R9>](#)). Wheels from other product lines, including flex / compliant wheels, are prohibited.

1291: How would referees know?

9-Nov-2022

Robot Rules Inspection R6

[<R6>](#)[<R6>](#) [<R6>](#) The Match configuration will be inspected. The Robot must be inspected in a configuration that will be used for pre-Match setup as described in [<G5>](#) and within the maximum allowed starting size.

How would referees know if a robot is expanding beyond the 11"x19"x15" size limit if the robot inspectors do not need to inspect this? As robots don't always start at the full size capacity, we cannot have referees constantly wondering if a robot is breaking a rule when they expand. It is not fair to the referees nor the students to always be questioned if their robot is legal once they are playing the game. Please elaborate on how we are expected to enforce the size limit considering your answer in the following: <https://www.robotevents.com/VIQC/2022-2023/QA/1260>

Answered by committee

Thank you for your question! In most cases, Referees can use the VEX IQ field tiles to estimate the size of a Robot during a Match. If a Head Referee believes that a Robot has expanded beyond 11"x19" in Violation of rule [<G13>](#), they should measure the Robot in that configuration following the Match. If the robot has expanded beyond the legal limits, the Team will earn a Minor or Major [<G13>](#) Violation based on whether the illegal expansion was Score Affecting.

If a Team's Robot has been believed to be out of size by a Head Referee during a previous event, they should consider asking the Head Referee at later events to measure the Robot in its expanded configuration before their first Match, just to avoid any question of its legality.