

Q&A

VEX U Robotics Competition 2024-2025: High Stakes

Welcome to the official VEX U 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 VURC High Stakes 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 VURC High Stakes rules questions.

- For event, registration, or other competition support questions, please contact your [REC Foundation Regional Support 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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2031: VUR12 Odometry Pod Kit Clarification

7-Jun-2024

VUR12

Relating to VUR12: Do odometry pods such as <https://www.gobilda.com/odometry-pod-43mm-width-48mm-wheel/> fall under the definition of a Sensor for the purposes of this rule? Would an Odometry Pod kit [an odometry pod that does not come pre-assembled] be legal under this rule? Would an odometry pod built by a team be legal under this rule, even if the components of the pod were purchased by a team individually (rather than as part of a kit)?

Answered by committee

Do odometry pods fall under the definition of a sensor, and does it make a difference whether the kit comes assembled or unassembled?

The odometry pod as a whole is not considered a sensor, and would instead be considered an assembled item or pre-arranged kit of unassembled items that form a single, more complex component. This type of component is specifically disallowed by the 3rd row of the table in rule [<VUR5>](#). An encoder, like the one integrated into this odometry pod, *is* a sensor and is permitted by rule [<VUR12>](#).

Would an odometry pod built by a team be legal under this rule, even if the components of the pod were purchased by a team individually (rather than as part of a kit)?

Use of this odometry pod after purchasing and assembling these separate, individual parts would still be illegal. Individual parts that are not considered legal raw stock (and which are not made legal under other rules) are illegal based on rule [<VUR5>](#).

2047: High Stake Bonus for VexU "Buddy Climb"

25-Jun-2024

[<VUG2>](#)

Rule VUG2b states:

A Robot which meets all other Climbing requirements, but is not contacting the Ladder at the end of the Match, will have their Climbing points doubled.

Rule SC9 (which I was unable to link) states:

A High Stake bonus is available to an Alliance that ends the Match with a Ring Scored on the High Stake. Each Robot from that Alliance which has earned points for a Climb will receive an additional two (2) points for that Climb.

If a robot has their climbing points doubled per rules VUG2b, is their high stake bonus considered climbing points and thus doubled from 2 to 4?

Answered by committee

Thank you for your question! The doubled score provided by clause B of [<VUG2>](#) applies to both the initial Climb points and the High Stake bonus.

For example, a VURC Robot supported only by their partner Robot for a Level 3 buddy Climb with the High Stake bonus would earn 28 points $((12+2)\times 2)$ for that Robot's Climb.

2057: Legality of non-homogeneous materials

7-Jul-2024

[<VUR4>](#)

Are non-homogeneous materials (such as granite and concrete) be legal assuming they meet all of the other material to be considered raw stock?

For example, the argument can be made that granite is 1 material and thus if it is bought in a cube, it is a legal material. However, the argument could also be made that since granite is a non-homogeneous materials, the VURC team is actually buying feldspar, quartz, mica, and amphibole minerals in a pre-assembled component. Which interpretation is correct? A link to an example material is provided: <https://www.grainger.com/product/STARRETT-Granite-6-Face-Cube-Grade-6RDH8>

Answered by committee

While we cannot provide a blanket answer for all non-homogeneous materials, they could be considered legal if they meet all of the rules for legal Raw Stock in [<VUR4>](#). As stated in that rule's red box, "unusual parts should be expected to receive increased scrutiny" and "If any materials do not easily fall into one of these categories, then that is probably an indication that it is not intended to be a legal type of Raw Stock." Raw Stock is also subject to safety rules when determining legality, including [<VUR6>](#). Final determination on the legality of a specific material must be made by the Head Referee at your event.

2058: 24" Horizontal Limit

7-Jul-2024

[<VUG1>](#) Different expansion. The intentions behind rules [<SG2>](#) and [<SG3>](#) apply, with the following clarifications: a. The 24" Robot may not expand horizontally outside this 24" x 24" limit at any time during the Match.

If the robot designated as the 24-inch robot is undersized relative to the 24-inch limit, does it imply that it is prohibited from: a. expanding at all, or b. expanding but not exceeding the 24-inch limit?

Answered by committee

If the 24" Robot is smaller than 24"x24"x24", it may expand horizontally in a single direction within the limits of [<SG2>](#).

2085: VUT7c Clarification

5-Aug-2024

Our community & technical college includes a "Workforce Initiative Academy" in which students simultaneously earn credit towards a high school diploma and an associate's degree.

The program is accredited by the state as a charter school, however students take classes on campus full-time. They are enrolled only at the college, not at any area high school or other school, thus are not "dual-enrolled" as described in VUT7c. Administratively, the program is considered a "division" of the college, on par with other divisions such as the

divisions of nursing or technology.

Would students in this program be eligible to compete on our VURC team?

[<VUT7>](#)

Answered by committee

The intent of Clause C of rule [<VUT7>](#) is that students who meet the age requirements for V5RC and who are simultaneously earning credits toward a secondary school diploma and enrolled in post-secondary courses are not eligible to join a VURC team. Students in the program you describe are **not** eligible to compete in VURC.

2111: Heatset Inserts clarification

26-Aug-2024

Per [<VUR9>](#) Teams may use commercially available fastener hardware and nuts, are heatset inserts considered legal nuts under [<VUR9>](#)? (Example of heatset insert to be used:<https://markforged.com/resources/blog/heat-set-inserts>)

Answered by committee

Because they are commercially available fastener hardware whose primary function is "fastening," heatset inserts are legal under rule [<VUR9>](#).

2112: Raw stock clarification

27-Aug-2024

(all questions assume adherence to Safety rules and the robot will not fall apart)

Per [<VUR4>](#), there are limits on the form the stock comes in.

1. are there any limits on raw stock material or its properties, eg: copper rod, a bar of superhydrophobic material, magnetic material or zinc.

Per [<VUR1a1i>](#) a robot can only be made from a fabricated part with [<VUR3>](#) listing the processes to turn raw stock into fabricated parts. (the idea behind this being: if i needed 20mm length of raw stock for an axil and i bought that stock as a 20mm piece, i cant use it because its not been "fabricated" yet)

2. to clarify for the purpose of the following questions, would raw stock that hasn't undergone some process be illegal to use?
3. would scratching the material be sufficient "subtractive manufacturing" to be considered a fabricated part?
4. would using a raw rod and epoxying it to another raw rod or raw plate be enough to have the 2 bonded parts be considered 1 "fabricated part"?
5. Would sourcing material from vex parts/electronics be considered raw stock? eg. the parts in sensors providing it meets the type/profile requirements (excluding the existing allowances for aluminum channel etc.)

Answered by committee

1. There aren't limits on raw stock material or properties, provided the material is purchased in one of the forms required by rule [<VUR4>](#) (e.g., sheet, billet, etc.) and is not prohibited by any other rules, including [<VUR5>](#) and [<VUR6>](#). The red box below [<VUR4>](#) applies, "Unusual parts will be given extra scrutiny and any material that doesn't easily fall into one of these categories is likely to be assumed not legal", and inspectors and

referees may also take into consideration whether the material is safe.

2. Raw stock is only legal for use on a Robot if it fits within one of the categories in clause A of rule [<VUR1>](#); Raw stock must have undergone an approved manufacturing process to be legal for use on a Robot.
3. No. Rule [<G3>](#) applies. Scratching Raw Stock should not be considered a manufacturing process.
4. Attaching materials to one another, such as welding or chemically bonding (e.g., epoxy), is listed as an approved manufacturing process for Fabricated Parts in clause D of rule [<VUR3>](#).
5. Maybe, but the red box for rule [<VUR4>](#) will apply, and you should expect increased scrutiny during inspection. If deconstructing a sensor is your best source for a part, it's likely because it's a Fabricated Part and not actually Raw Stock. [<G3>](#) applies.

2117: VURC Worlds Qualifying Event Autonomous Win Point

4-Sep-2024

[<SC8>](#)

Rule SC8 states that the AWP criteria is different at worlds qualifying events. However, details on which events for VURC are worlds qualifying are often assigned retroactively and are dependent on the number of teams attending the event. Which VURC events does the additional AWP criteria apply for and how will this information be communicated to teams?

Additionally, at worlds qualifying event one of the criteria is "A minimum of three (3) Stakes on the Alliance's side of the Autonomous Line with at least one (1) Ring of the Alliance's color Scored." However, in the VURC field set up, only 2 stakes start on each alliance's side of the starting line. Is this an oversight?

Answered by committee

Thank you for your question! After considering this feedback from multiple sources, we have decided to exempt VURC and VAIRC competitions from the expanded AWP criteria for events that qualify VURC or VAIRC teams to the VEX Robotics World Championship. All VURC and VAIRC events should use the standard set of AWP criteria. This change is effective immediately, and will be reflected in the next game manual update.

2171: Legality of carbon fiber when used as a filling in composite plastics

1-Oct-2024

[<VUR6>](#)

Carbon fiber sheet and tube stock are specifically called out as being likely to shatter, and therefore are illegal. Does this rule also outlaw the use of carbon fiber in every way, shape, and form? For example, there are common 3D printing filaments that incorporate carbon fiber fragments in a plastic matrix. Parts produced from these filaments do not have the same properties as raw carbon fiber, and are not likely to shatter or release carbon fiber dust. In theory, this would carry over to other forms of manufacturing, not just 3D printing, such as using a carbon fiber filler in an injection molded part.

Would the use of chopped carbon fiber as a filler be ruled as illegal because carbon fiber on its own is likely to shatter?

Or

Would the use of chopped carbon fiber as a filler be ruled as legal because the plastic matrix makes the material unlikely to shatter and create a hazard?

Answered by committee

Composite 3D printing filaments, such as Nylon or PLA material infused with carbon fiber additives, are legal, based on the examples in row 9 of rule [<VUR4>](#). The filament we list as an example (MarkForged Onyx) uses carbon fiber

additives.

For other manufacturing methods, as long as the material meets the criteria in [<VUR5>](#) and the manufacturing method is considered to be legal, there are no rules preventing fiber additives to part composition.

However, be prepared to undergo some tighter scrutiny during inspection, as stated in the red box below [<VUR4>](#). The Head Referee or inspector will have final say in decisions on legality of a given material, and Teams should be prepared to replace any potentially questionable parts/materials if asked to do so.

2205: Usage on linear rails

19-Oct-2024

commercial bearings are allowed, but does that include the linear rails also. <https://a.co/d/9hBfX0q>

Answered by committee

This part is legal under rule [<VUR14>](#).

2211: <SG7> Clarification and Climbing the Ladder in Autonomous

22-Oct-2024

Hello, we hope you have been enjoying the 2024-2025 season so far!

As per [<SG7>](#)

During the Autonomous Period, Robots may not contact foam tiles, Scoring Objects, or Field Elements which are on the opposing Alliance's side of the Autonomous Line.

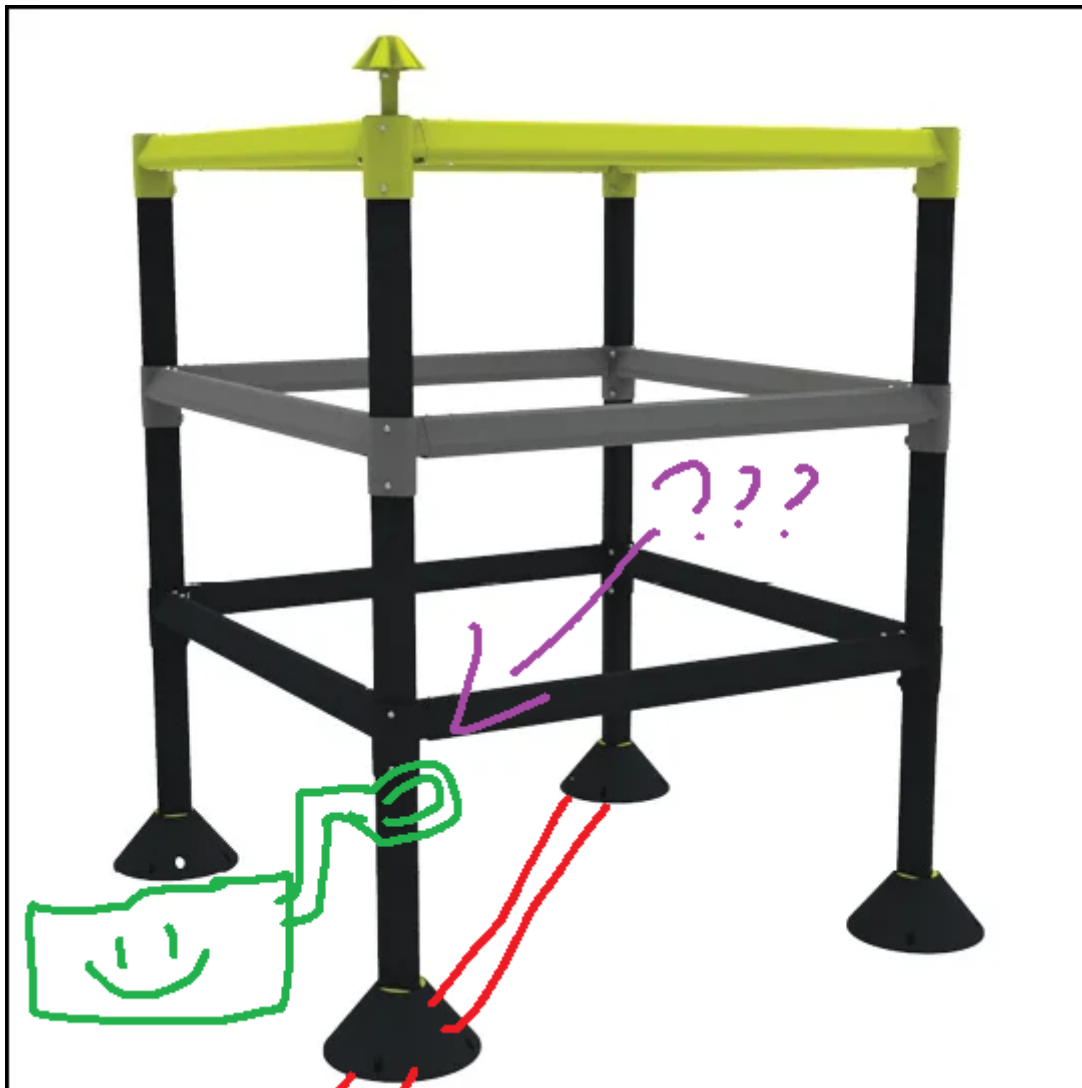
As the ladder is on both sides of the Autonomous line, would it be considered a violation of SG7 for a team to touch a part of a post that is on the other side of the autonomous line whilst attempting to grab onto the ladder to climb?

The scoring note under SG7 specifies that

Scoring objects and Wall Stakes that contact or are positioned above the Autonomous Line are not considered to be on either side, and may be utilized by either Alliance during the Autonomous Period.

As a Ladder is considered a Field Element and not a Scoring Element, we thought we'd seek further clarification.

See attached visual: <https://imgur.com/8kl3gc3>



Cheers

Answered by committee

Thanks for your question. We'll revise the note for [<SG7>](#) in the next game manual update as follows (bold added to emphasize new/revised text), and this change is effective immediately.

Note: Scoring Objects, **Wall Stakes, and portions of the Ladder** that contact or are positioned above the Autonomous Line are not considered to be on either side, and may be utilized by either Alliance during the Autonomous Period.

As a result, the only portions of the Ladder that are off limits during the Autonomous Period are the horizontals and one vertical that are fully on the other side of the Autonomous Line.