Q&A

VEXU 2022-2023: Spin Up

Tagged: VUG4

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 VEX U Spin Up rules clarifications, and the clarifications made here from the Game Design Committee (GDC) are considered as official and binding as the written Game Manual (including the VEX U Appendix C) itself.

Please review the Q&A Usage Guidelines before posting. This system is only intended for specific VEX U Spin Up 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.

VEX U Match Load Triballs

28-Jan-2024
SG6 VUG4

When our drive team member introduces a triball into the match load zone, the geometric shape of the triball rolls itself to our intake mechanism. It never touches the drive team member's hand and the intake mechanism at the same time. This case doesn't violate "Released from the drive team member's hand before being contacted by that team's robot" (VUG4) and "By placing the Match Load gently onto a Match Load Zone" (SG6). Are we right or are we missing something? <VUG4>

> **Answered by committee**
>
> Please see our response to Q&A 1857, which asks the same question.

VUR3 and VUR4 Follow Up (COTS Gears)

1-Nov-2022
VUG3 VUG4

Thank you for your clarification in Q and A entry 1235! To summarize, billets and sheets of material are classified as raw materials and considered legal, because even though they undergo some of the fabrication techniques listed in VUR3, they also undergo some of the finishing processes listed in VUR4. We would like to ask a follow up question, but first, here are rules VUR3 and VUR4 again.

VUR3:

> Fabricated Parts may be made using the following processes: a. Adding material, such as 3D printing. b. Removing material, such as cutting, drilling, or machining. c. Bending material, such as sheet metal breaking or thermoforming. d. Casting or molding material, such as injection molding or sand casting. e. Attaching materials to one another, such as welding or chemically bonding (e.g., epoxy).

VUR4:

> Fabricated Parts must be made from raw materials. For the purpose of this rule, a “raw material” is any material that would not be considered a “pre-fabricated” part (i.e., has not undergone any of the fabrication techniques listed in VUR3). a. Standard raw material finishing processes, such as extrusion, heat treating, or anodizing, are not considered pre-fabrication.

Our question is whether other parts that have undergone the listed finishing processes are also considered raw materials. For example, most COTS gears are cast, hobbed, or broached, all of which would be considered prefabrication techniques under VUR3. However, COTS gears are then heat treated and / or anodized, which are both considerd raw material finishing processes in VUR4. Are COTS gears therefore raw materials?

If not, what is the distinction between aluminum billets and (for instance) COTS cast aluminum gears? Both parts are cast and then heat treated.

Thank you for your time!

Answered by committee

> Our question is whether other parts that have undergone the listed finishing processes are also considered raw materials. [trimmed] Are COTS gears therefore raw materials?
>
> If not, what is the distinction between aluminum billets and (for instance) COTS cast aluminum gears? Both parts are cast and then heat treated.

No. COTS gears are not raw materials, and are disallowed by rule <VUR4>.

As to the distinction, an aluminum billet is a block of metal—a raw material that is designed to be fabricated into something else (for example, a gear); the other **is a gear**. which was fabricated for the sole purpose of being used as a gear.

We encourage you to consider rule <G3> and apply common sense when attempting to differentiate between raw materials and fabricated parts. If an item is generally intended to be used in the exact state in which it is sold & purchased, it is unlikely to qualify as a raw material under the VEX U competition rules.

VUR3 And VUR4 Clarification

13-Oct-2022
VUG3 VUG4

VUR3:

> Fabricated Parts may be made using the following processes: a. Adding material, such as 3D printing. b. Removing material, such as cutting, drilling, or machining. c. Bending material, such as sheet metal breaking or thermoforming. d. Casting or molding material, such as injection molding or sand casting. e. Attaching materials to one another, such as welding or chemically bonding (e.g., epoxy).

VUR4:

> Fabricated Parts must be made from raw materials. For the purpose of this rule, a “raw material” is any material that would not be considered a “pre-fabricated” part (i.e., has not undergone any of the fabrication techniques listed in <VUR3>

Because casting is a fabrication process listed under VUR3, any material that has undergone casting is not a raw material under VUR4. However, metal billets are cast, and sheet metal and plastic is cast before being rolled. Are billets and sheets of material considered raw material? If so, how does that square with the definition of a raw material given in VUR4?

Thank you!

Answered by committee

> Are billets and sheets of material considered raw material? If so, how does that square with the definition of a raw material given in VUR4?

As stated in <VUR4>, "For the purposes of this rule, a "raw material" is any material that would not be considered a "pre-fabricated" part." Most billets and sheets of material are made legal under <VUR4a>, as they are finished through standard raw material finishing processes.

If this answer is unsatisfactory and you'd like us to reconsider, please feel free to rephrase and resubmit your question.