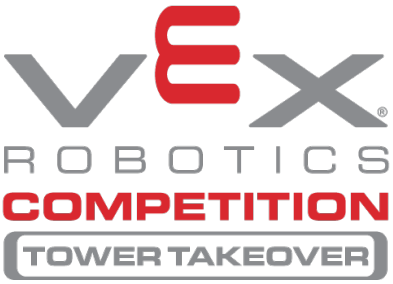
Q&A

VEXU 2019-2020: Tower Takeover

Tagged: R11



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 Tower Takeover 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 Tower Takeover 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.**

Shoulder Screws

R11 Other

Would commercially available shoulder screws, 8-32 thread, up to 2" long, for VRC be legal by R11? How about shoulder screws 1/4-20 thread, unlimited length, for VEX-U be legal by VUR8?

Thanks for you time!

> **Answered by Game Design Committee**
>
> In the future, please separate questions for VRC / VEX U into separate threads.
>
> > Would commercially available shoulder screws, 8-32 thread, up to 2" long, for VRC be legal by R11?

Rule R11 states the following, with a portion bolded for emphasis:

> <R11> Certain non-VEX screws, nuts, and washers are allowed. Robots may use any commercially available #4, #6, #8, M3, M3.5, or M4 screw up to 2” (50.8mm) long (nominal), and any commercially available nut, washer, and/or spacer (up to 2” / 50.8mm long) to fit these screws.
>
> The intent of the rule is to allow teams to purchase their own commodity hardware **without introducing additional functionality not found in standard VEX equipment**. It is up to inspectors to determine whether the non-VEX hardware has introduced additional functionality or not.

A shoulder bolt is a good example of a fastener that could introduce additional functionality in some cases, and could not in others. It is impossible to issue a blanket ruling that would apply to all use cases based on a snapshot description of a hypothetical Robot; therefore, it will be at the inspectors' discretion whether it has introduced additional functionality.

Examples of additional functionality could include (but are not limited to) using the shoulder as an attachment point for something else, using the shoulder to provide an additional bearing surface that a standard VEX screw would not provide.

> How about shoulder screws 1/4-20 thread, unlimited length, for VEX-U be legal by VUR8?

Rule VUR8 states the following:

> <VUR8> Teams may use the following fasteners on their Robot:
>
> a. Any commercially available #4, #6, #8, #10, M2, M2.5, M3, M4, or ¼-20 screw (of any length), and any commercially available nut, washer and/or spacer to fit these screws.
>
> b. Any commercially available aluminum or steel rivet, up to ¼” nominal diameter.

Therefore, yes, this would be legal.

> Thanks for you time!

You're welcome.

V5 Controller external power pack

R11

Given that the V5 game controller does not have user replaceable batteries, is it permissible to connect it to an external USB power pack during a match. The situation may arise that the team's controller runs out of power during the day and they have not the opportunity to charge it before a match.

> **Answered by Game Design Committee**
>
> Provided that this external power pack interfaced with the standard micro USB port on the Controller and did not involve any modification to the Controller, yes, this would be legal.

R11 Clarification

R11

Could we get clarification of rule R11 Certain non VEX screws, nuts, and washers are allowed. It says "Robots may use .....and any commercially available nut, washer, and/or spacer... The intent of the rule is to allow teams to purchase their own..... without introducing additional functionality not found in standard VEX equipment." Last year, commercial spacers had to be the same diameter as official VEX spacers. ie: to make cascade slides, the VEX spacers could be ground down but commercially available spacers with a smaller diameter could not be used. Does this fall under "introducing additional

functionality" and therefore cannot be used again under this years rule? Need to know for inspection purposes as expect to see elevator slides this year again. Thank you.

Answered by Game Design Committee

> Last year, commercial spacers had to be the same diameter as official VEX spacers. ie: to make cascade slides, the VEX spacers could be ground down but commercially available spacers with a smaller diameter could not be used. Does this fall under "introducing additional functionality" and therefore cannot be used again under this years rule?

First, please see this Q&A regarding previous rulings: www.robotevents.com/VRC/2019-2020/QA/281

R11 is a good rule to demonstrate the principle explained by that post. 2019-2020 is the first year that "spacers" have been explicitly included in this rule. Therefore, it should not be assumed that any previous rulings regarding spacers would apply.

Please also see R5d:

> 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.

In the context of this specific question, the following is a valid interpretation of R11 and R5d: "commercially available spacers that are functionally equivalent to spacers that could theoretically be made from legal VEX spacers are legal".

Therefore, yes, a spacer with a smaller outer diameter (i.e. "ground down") or a larger inner diameter (i.e. drilled out) would be legal.