

Introduction

This document will provide detailed specifications, a bill of materials (BOM), and assembly instructions for the Official Competition Field.

Please note that this field utilizes the VEX IQ Challenge – Full Field Perimeter & Tiles kit (228-2550) developed by VEX Robotics. Instructions and specifications for this field perimeter are available in a separate document, and are also important for field assembly.

This document is divided up into five sections:

1. Field Overview
2. Field Bill of Materials
3. Field Specifications
4. Field Assembly Instructions
5. Field & Game Element Kit Contents

Please note that the Field Assembly Instructions are also available for individual download. The Instructions are broken down by major field element and correspond to a colored polybag included in the VEX IQ Challenge – Ringmaster Full Field & Game Elements Kit (228-5371).

There is also an accompanying STEP file which can be imported into most 3D modeling programs. This 3D model not only shows the “official” setup of a *VEX IQ Challenge Ringmaster* Competition field, but also includes detailed models of all the individual field elements.

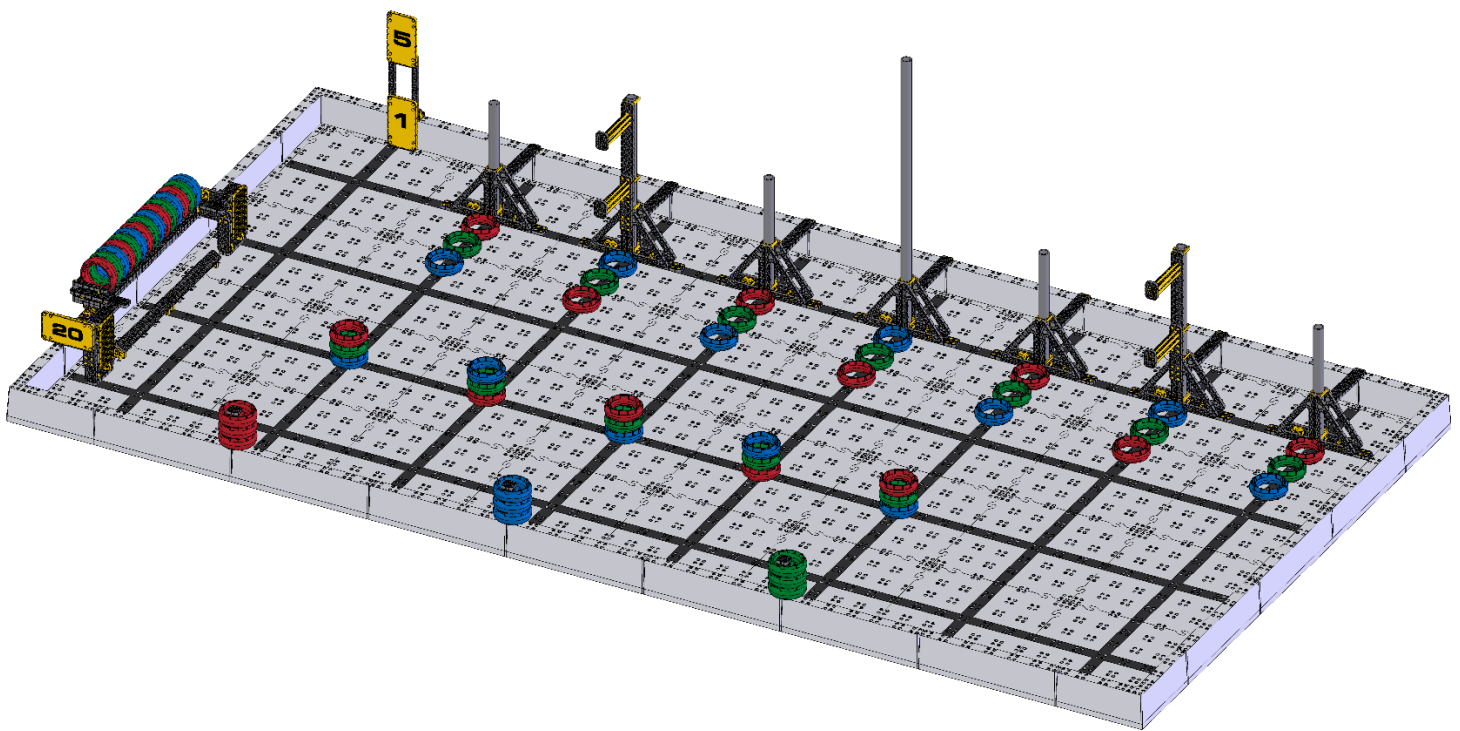
For additional game-play detail, please refer to the *VEX IQ Challenge Ringmaster* competition manual.

Field Appendix

Field Overview

The game *VEX IQ Challenge Ringmaster* is played on a 4ft x 8ft playing field, surrounded by 2-1/2 inch walls. The playing field floor tiles and walls are modular plastic tiles from the VEX IQ Challenge Field Perimeter & Tiles kit (228-2550) with integrated mounting holes for VEX IQ structural elements. (4X) *Low Posts*, (2X) *Horizontal Posts*, and (1X) *Tall Post* line the side of the field. (60X) *Rings* start on the field to use as scoring objects. (15X) *Rings* start in the *Bonus Tray* which is activated via (2X) *Triggers* by *Robots*. (9X) *Rings* begin on (3X) *Starting Pegs*. The remaining (36X) *Rings* are positioned across the field.

For more details and specific game-play rules, please refer to the *VEX IQ Challenge Ringmaster* manual.





Game Objects & Field Bill of Materials

All items are available for purchase from www.vexiq.com

Standard Playing Field – Reusable Each Year

There are two options available for the official *VEX IQ Challenge* playing field. The field is sold as a half field option and as a full field option. Two Half Field kits can be combined to equal a Full Field kit. The *Playing Field* is a standard configuration that will be reusable each year.

Part Number	Product Name
228-2550	VEX IQ Challenge – Full Field Perimeter & Tiles
228-3051	VEX IQ Challenge – Half Field Perimeter & Tiles

Official *VEX IQ Challenge Ringmaster* Specific Elements

Part Number	Product Name	Quantity per Full Field
228-5371	VEX IQ Challenge – Ringmaster Full Field & Game Elements Kit	1
228-5372	VEX IQ Challenge – Ringmaster Ring Kit VIQC 2017-2018 Game Element Kit	20

Detailed Bills of Materials for each Game Element Kit can be found at the beginning of each Field Assembly Instructions book. The *VEX IQ Challenge – Ringmaster Ring Kit* consists of (1x) *Red Ring*, (1x) *Green Ring*, and (1x) *Blue Ring*, or 1/20th of the *Rings* required for a full field. The *VEX IQ Challenge – Ringmaster Full Field & Game Elements Kit* includes (20x) *Red Rings*, (20x) *Green Rings*, (20x) *Blue Rings*, and all parts needed to make the *High Post*, (2x) *Horizontal Posts*, (4x) *Low Posts*, the *Bonus Tray*, and *Latches*.



Field Specifications

Introduction

This section will outline the specifications which are most important to teams designing a robot to compete in *VEX IQ Challenge Ringmaster*.

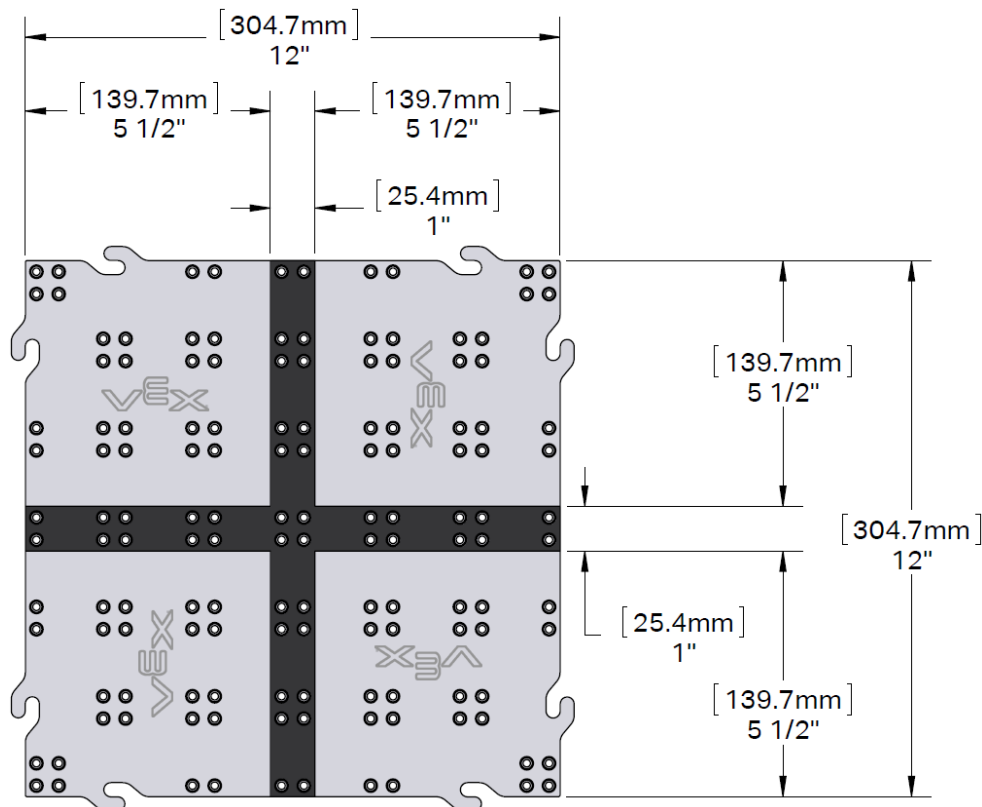
Field components may vary slightly from event to event. This is to be expected; teams will need to adapt accordingly. It is good design practice to create mechanisms capable of accommodating variances in the field and game pieces.

Field Appendix

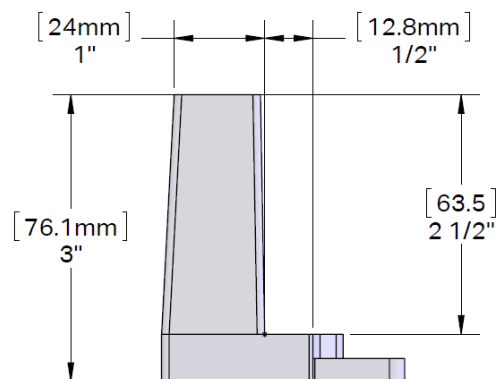
Field Element Dimensions

The standard VEX IQ Challenge playing field is composed of (32x) floor tiles, (20x) straight wall segments, and (4x) corner wall segments. Each floor tile is 1 foot (305mm) square and molded in a Very Light Grey plastic. Black lines 1 inch (25mm) wide create a "+" sign over the top of the tile. These lines are used to mark areas of the field such as starting or scoring zones, and can be read by sensors on your robot to aid autonomous navigation. Metric dimensions in millimeters are shown in [brackets].

Floor Tile Dimensions



Perimeter Dimensions (Side View)

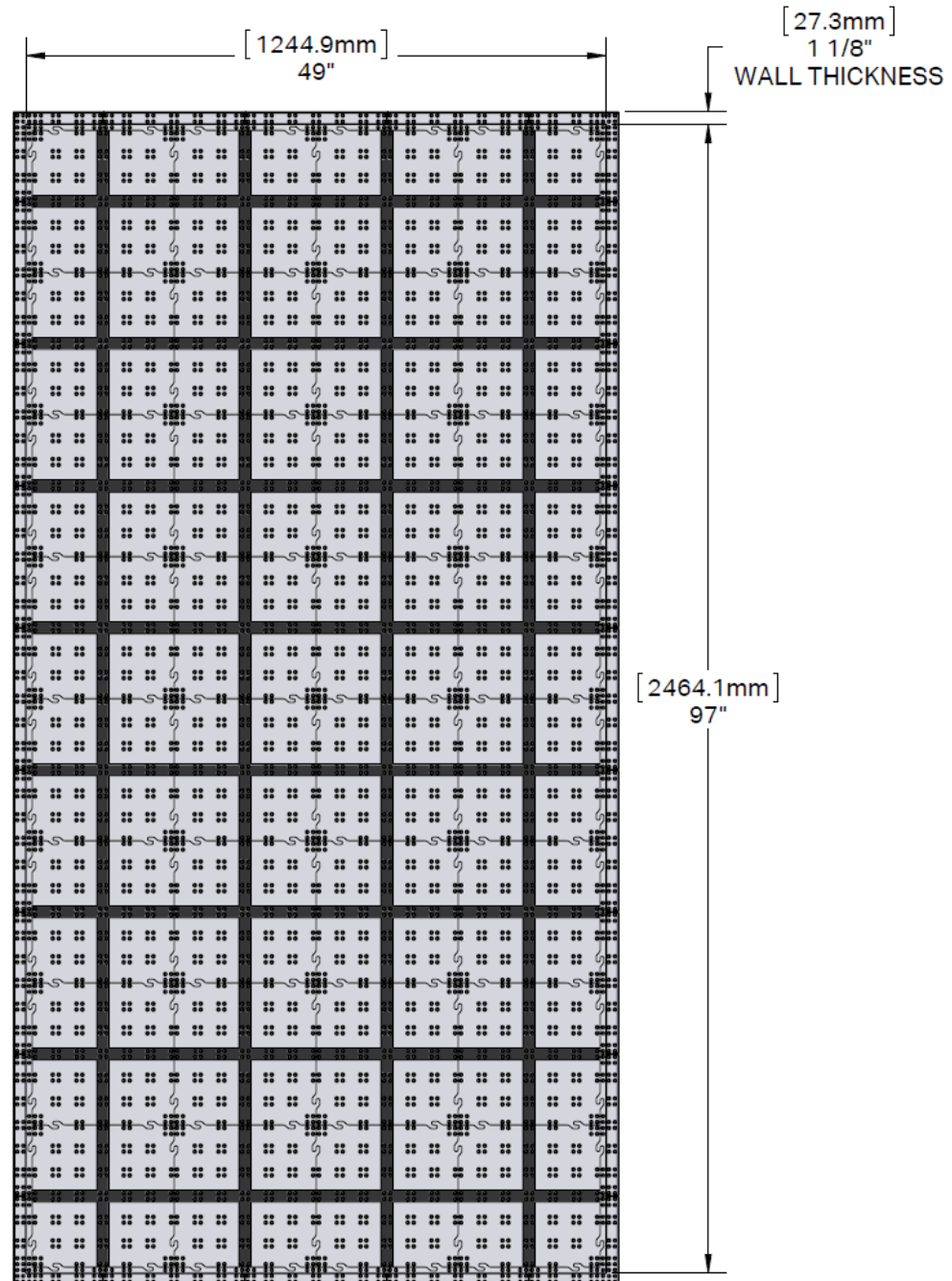


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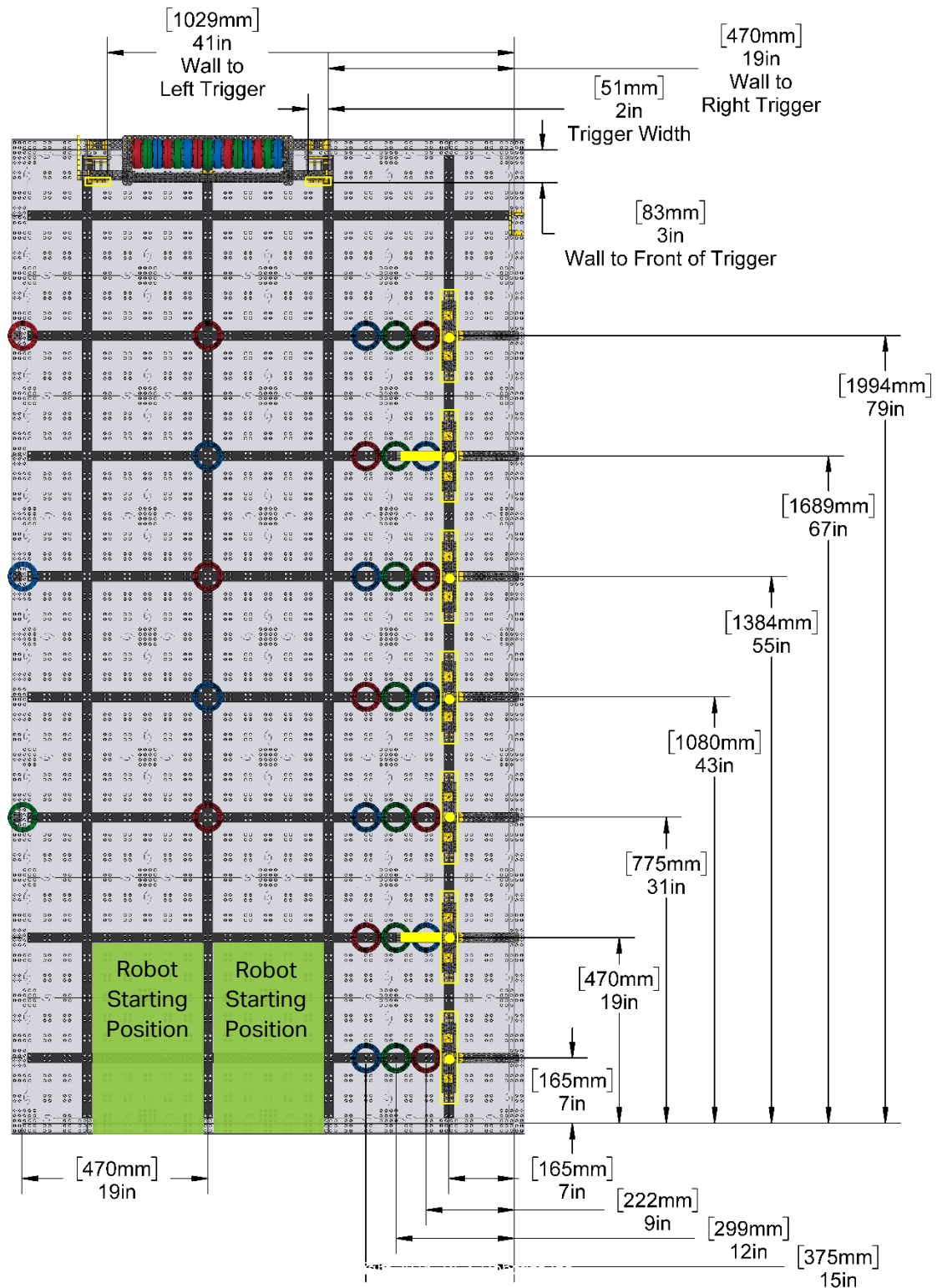
Assembled Field Dimensions

The standard VEX IQ Challenge playing field is composed of (32x) 1ft square tiles. These tiles are arranged in a rectangle that is (4x) tiles wide by (8x) tiles long. A 2-1/2" (64mm) high wall is assembled onto the outside of these tiles. All floor tiles and wall sections easily and quickly snap together.

Inside Dimensions (Between Walls)



Game Element Locations

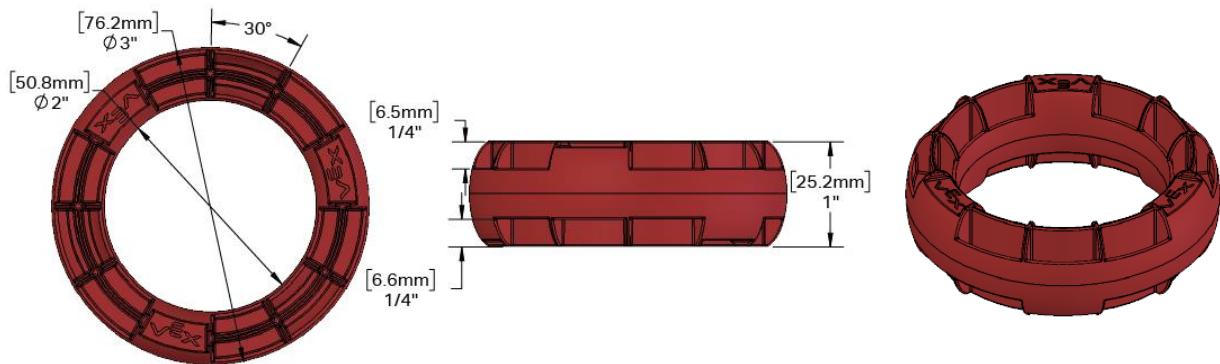


Field Appendix

Ring Specifications

The *Rings* in *VEX IQ Challenge Ringmaster* are a single colored plastic "O" shape. *Red*, *Blue*, and *Green Rings* are identical except for color. Each Ring weighs approximately 0.04 pounds (16 grams).

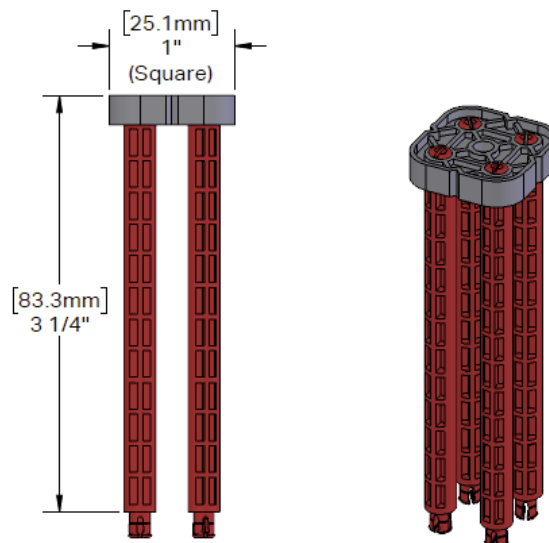
Ring Dimensions:



Starting Peg Specifications

The *Starting Pegs* in *VEX IQ Challenge Ringmaster* consists of several VEX IQ pieces assembled as shown in the Field Assembly Instructions. *Red*, *Blue*, and *Green Starting Pegs* are identical except for color. (3x) *Rings* begin the match on each *Starting Peg*.

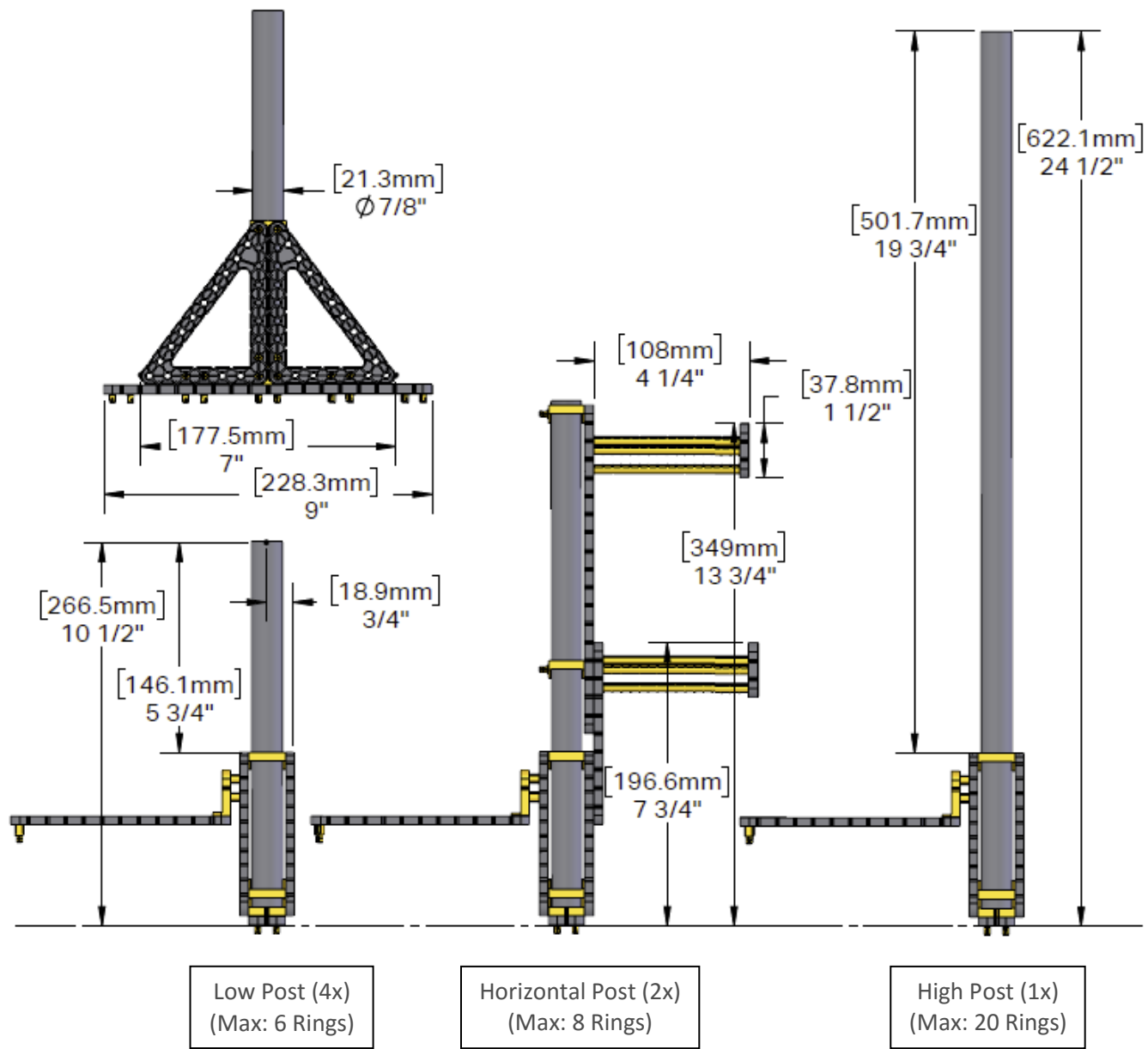
Starting Peg Dimensions:



Scoring Post Specifications

The *Low Post*, *High Post*, and *Horizontal Post* in VEX IQ Challenge Ringmaster consist of many VEX IQ pieces assembled as shown in the Field Assembly Instructions. The *Low Post*, *High Post*, and *Horizontal Post* snap onto the VEX IQ Challenge Field and serve as the primary places to place *Rings* to score points.

Scoring Post Dimensions:

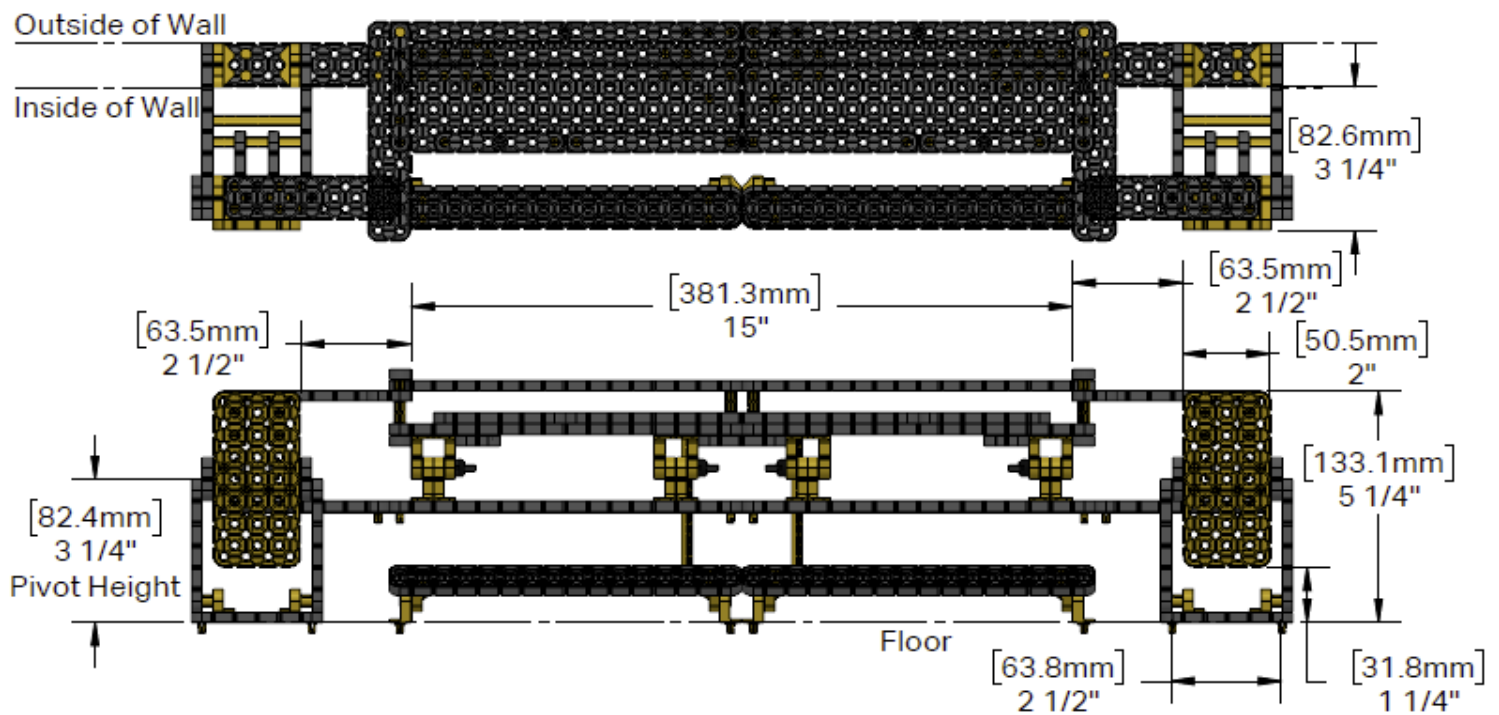


Field Appendix

Bonus Tray and Trigger Specifications

The *Bonus Tray* and *Triggers* in *VEX IQ Challenge Ringmaster* consist of many VEX IQ pieces assembled as shown in the Field Assembly Instructions. When both *Triggers* are activated the *Bonus Tray* is Released, cascading 15 *Rings* onto the field.

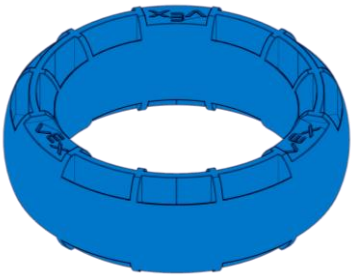
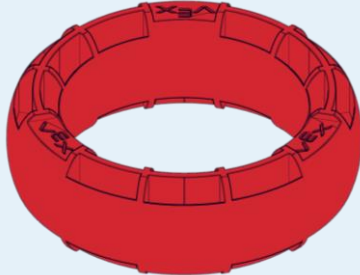
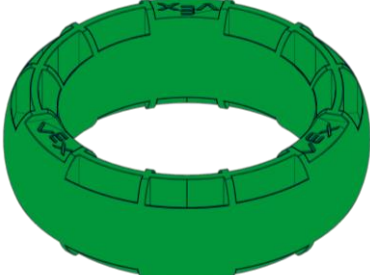
Bonus Tray and Trigger Dimensions:



Field Appendix

Field & Game Element Kit Contents

228-5372 VEX IQ Challenge – Ringmaster Ring Kit

Part Number	Picture	Name	QTY
228-5371-001		Blue Ring	1
228-5371-002		Red Ring	1
228-5371-003		Green Ring	1

Some extra VEX IQ parts have been included with the Field & Game Element Kits as spares. Not all included VEX IQ parts are required to assemble the field elements.



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