

Field Appendix



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 – Crossover Full Field & Game Elements Kit (228-4844).

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 Crossover* Competition field, but also includes detailed models of all the individual field elements.

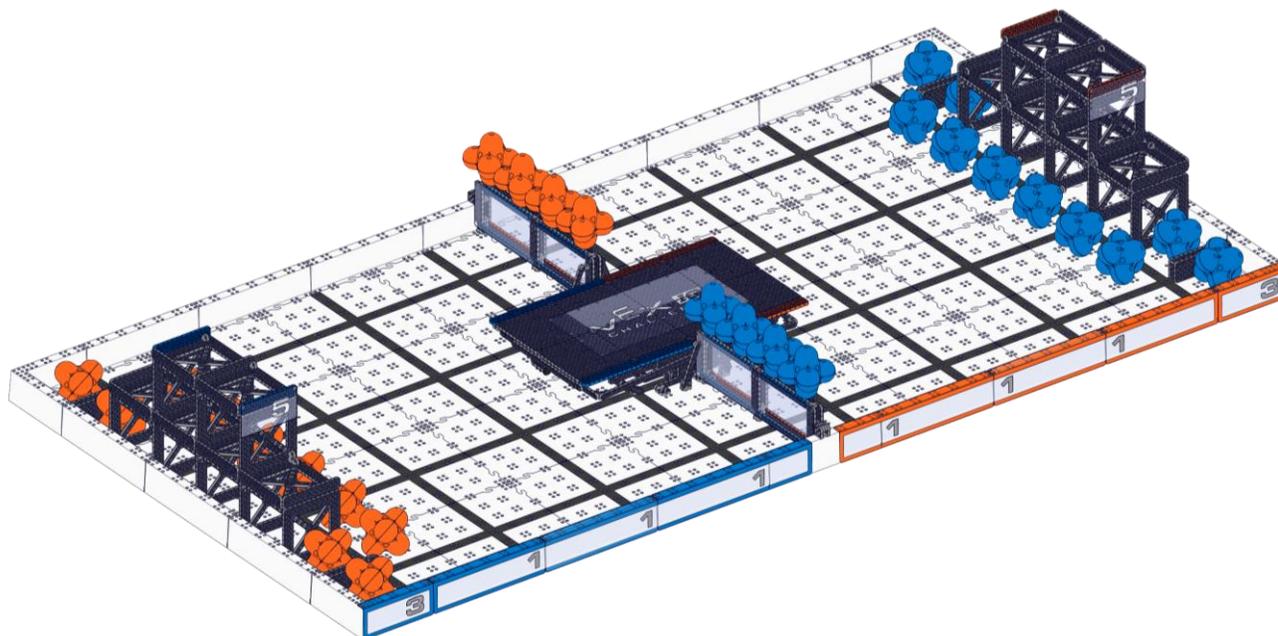
For additional game-play detail, please refer to the *VEX IQ Challenge Crossover* competition manual.

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Field Overview

The game *VEX IQ Challenge Crossover* is played on a 4ft x 8ft playing field, surrounded by 2-1/2" 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. A three-position *Bridge* and *Fence* bisect the field. Orange and blue *Low Goals* and *Elevated Goals* are on opposite sides of the field. (14x) *Orange Hexballs* and (14x) *Blue Hexballs* are arranged in front of the *Low Goals* and on top of the *Fence* for use as scoring objects.

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



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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.

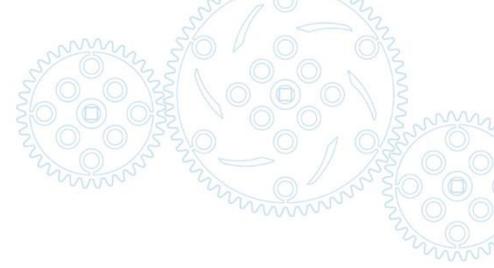
Part Number	Product Name
228-2550	VEX IQ Challenge – Full Field Perimeter & Tiles
228-3051	VEX IQ Challenge – Half Field Perimeter & Tiles

Official *VEX IQ Challenge Crossover* Specific Elements

Part Number	Product Name	Quantity per Full Field
228-4844	VEX IQ Challenge – Crossover Full Field & Game Elements Kit	1
228-4845	VEX IQ Challenge – Crossover Hexball Kit VIQC 2016-2017 Game Element Kit	2

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 – Crossover Hexball Kit* consists of (7x) *Blue Hexballs* and (7x) *Orange Hexballs*, or half of the *Hexballs* required for a full field. The *VEX IQ Challenge – Crossover Full Field & Game Elements Kit* includes (14x) *Blue Hexballs*, (14x) *Orange Hexballs*, and all components of the *Fence*, *Low Goals*, *Elevated Goals*, and *Bridge*.

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Field Specifications

Introduction

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

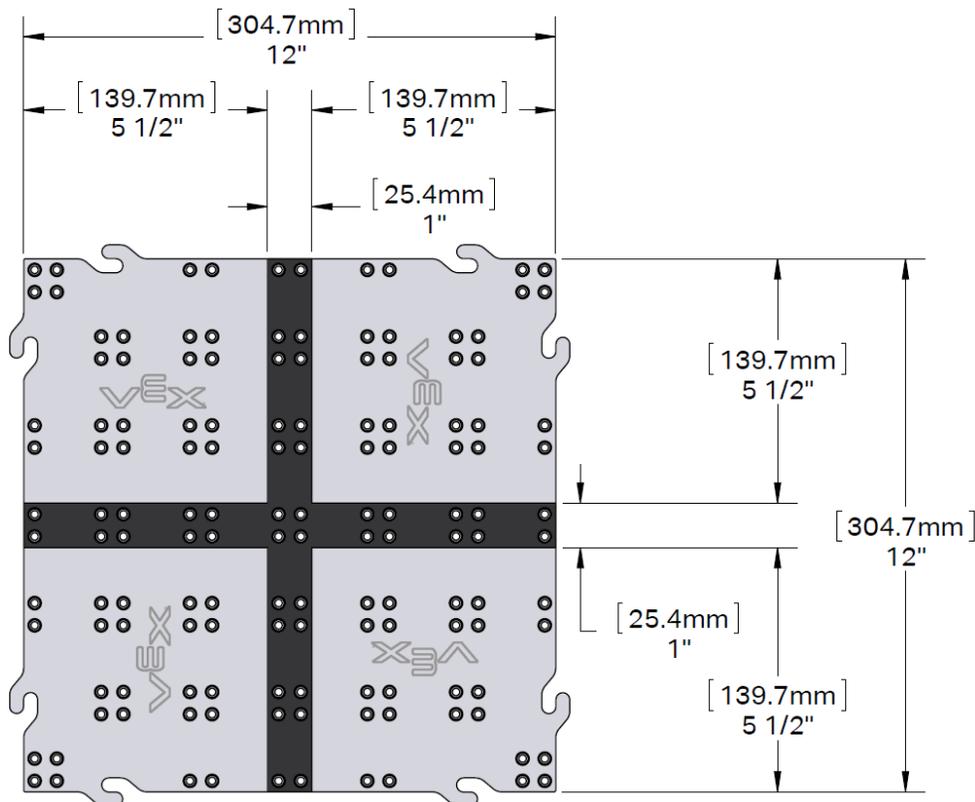
Field components may vary slightly from event to event. This is to be expected; teams will need to adapt accordingly. It is good design practice to create mechanisms capable of accommodating variances in the field and game pieces.

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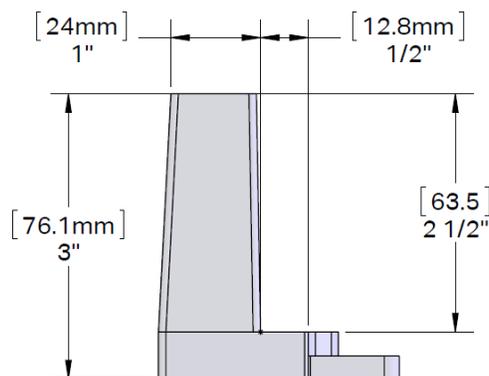
Field Element Dimensions

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)

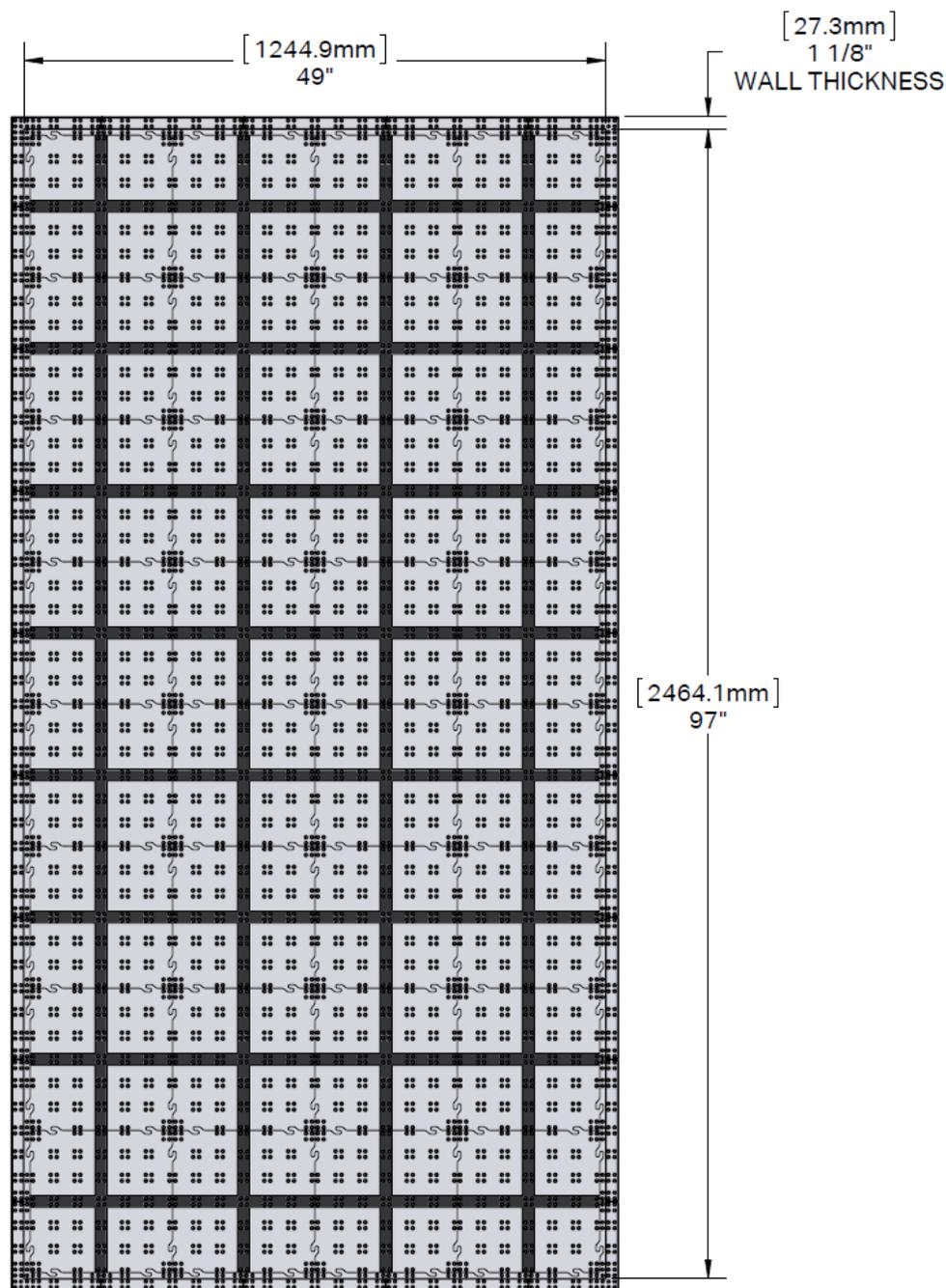


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Assembled Field Dimensions

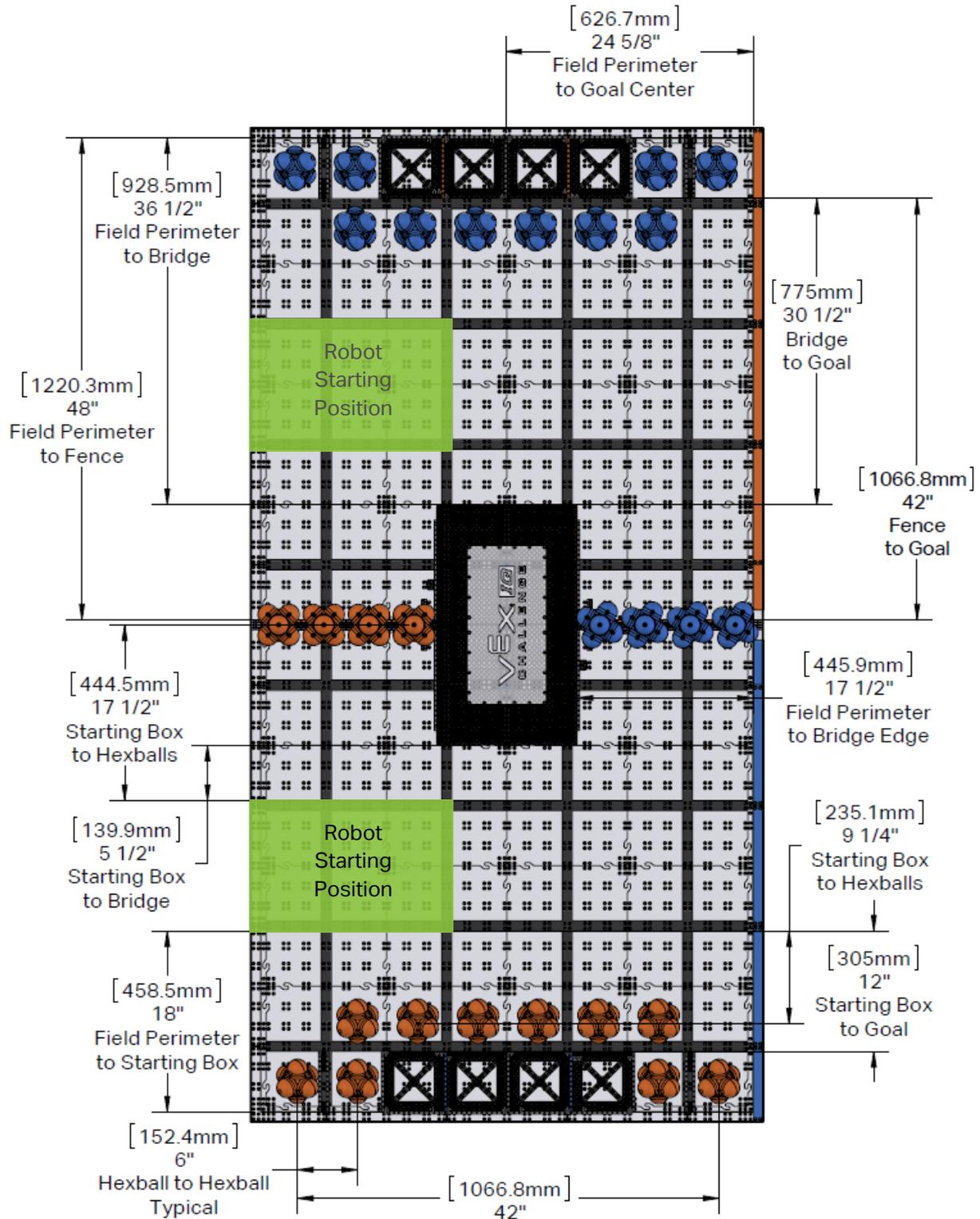
The standard VEX IQ Challenge playing field is composed of (32x) 1ft square tiles. These tiles are arranged in a rectangle that is (4x) tiles wide by (8x) tiles long. A 2-1/2" (64mm) high wall is assembled onto the outside of these tiles. All floor tiles and wall sections easily and quickly snap together.

Inside Dimensions (Between Walls)

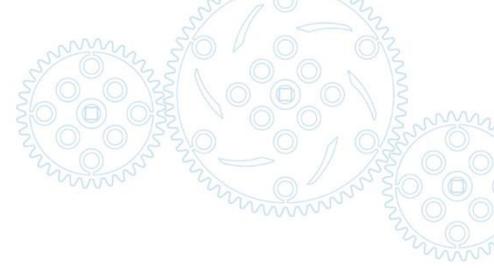


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Game Element Locations



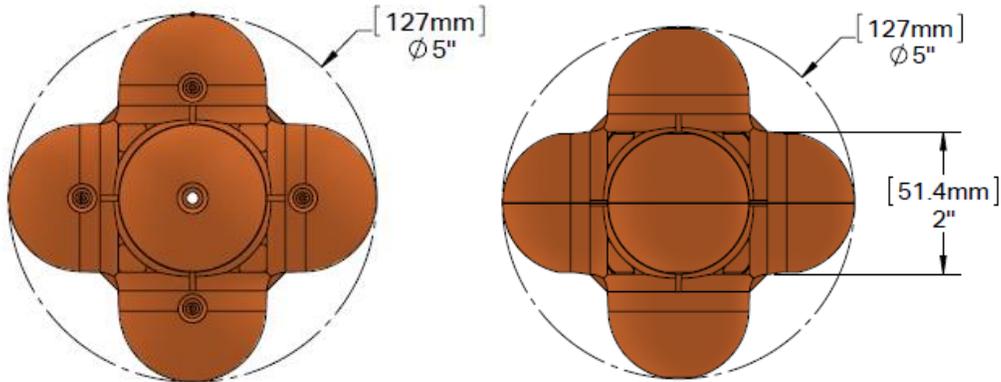
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Hexball Specifications

The *Hexballs* in *VEX IQ Challenge Crossover* are two hollow plastic "+" shaped halves that are snapped together with (4x) 0.25x Pitch Standoffs. *Blue Hexballs* and *Orange Hexballs* are identical except for color. Each *Hexball* weighs approximately 0.19 pounds (86 grams).

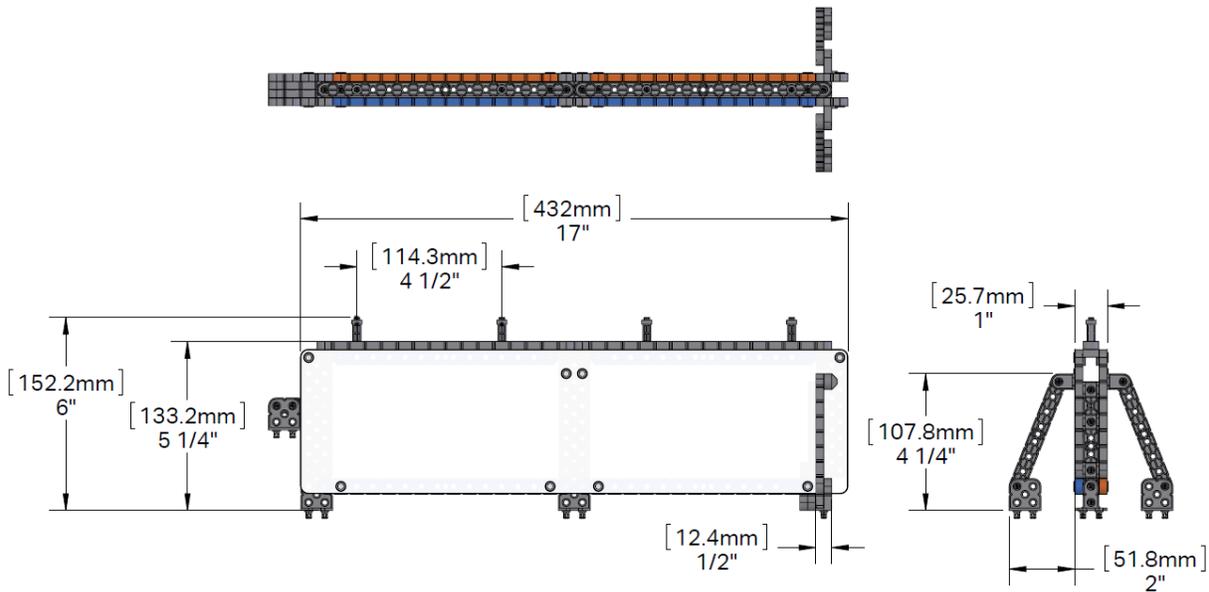
Hexball Dimensions:



Fence Specifications

The *Fence* in *VEX IQ Challenge Crossover* consists of many VEX IQ pieces assembled as shown in the Field Assembly Instructions. A *Fence Segment* is attached on either side of the *Bridge* to bisect the field.

Fence Dimensions:

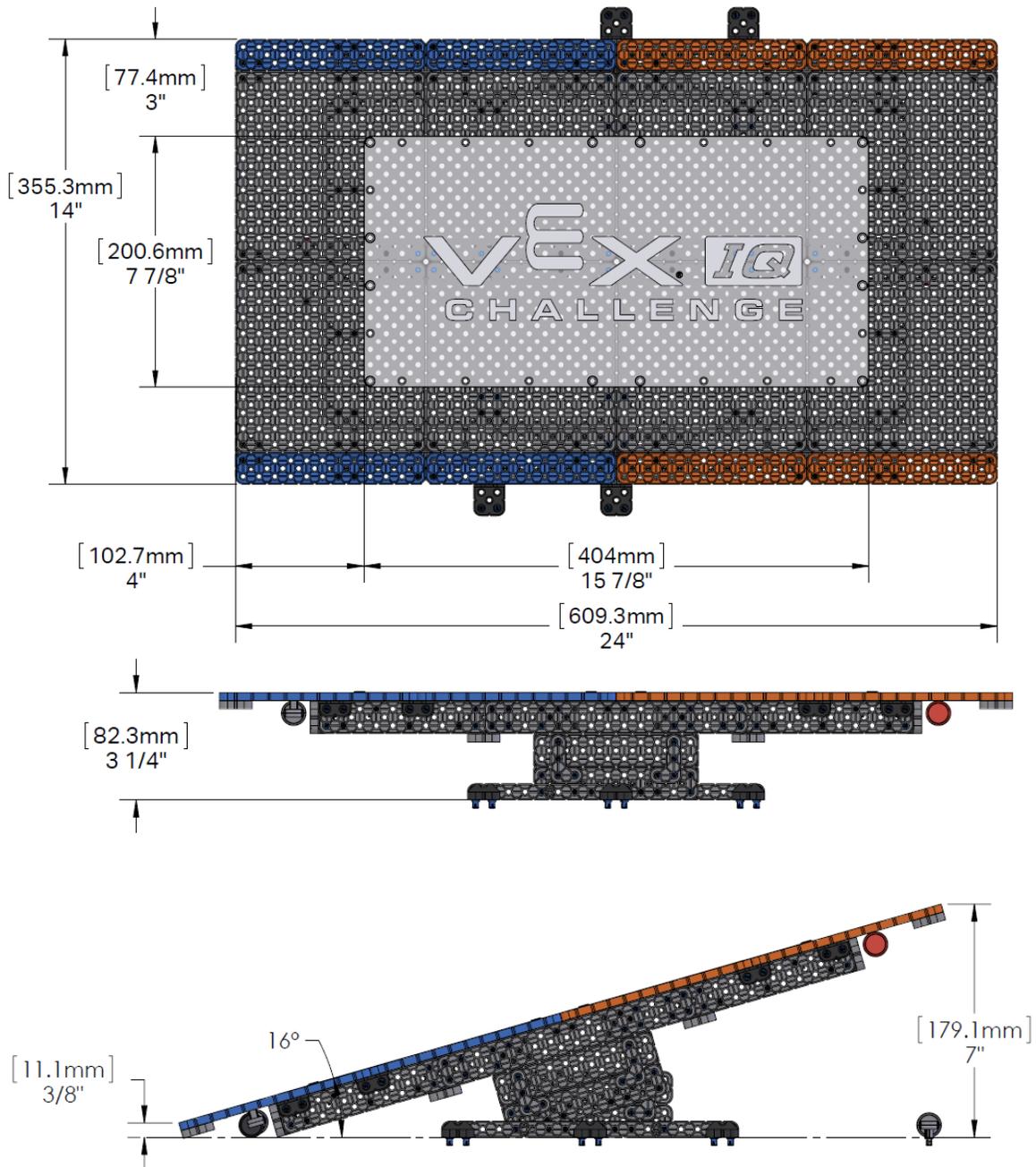


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Bridge Specifications

The *Bridge* in *VEX IQ Challenge Crossover* consists of many VEX IQ pieces assembled as shown in the Field Assembly Instructions. Part of the *Bridge* surface is covered in a thin plastic sheet with white printing. The *Bridge* snaps onto the VEX IQ Challenge Field and pivots to 3 positions.

Bridge Dimensions:

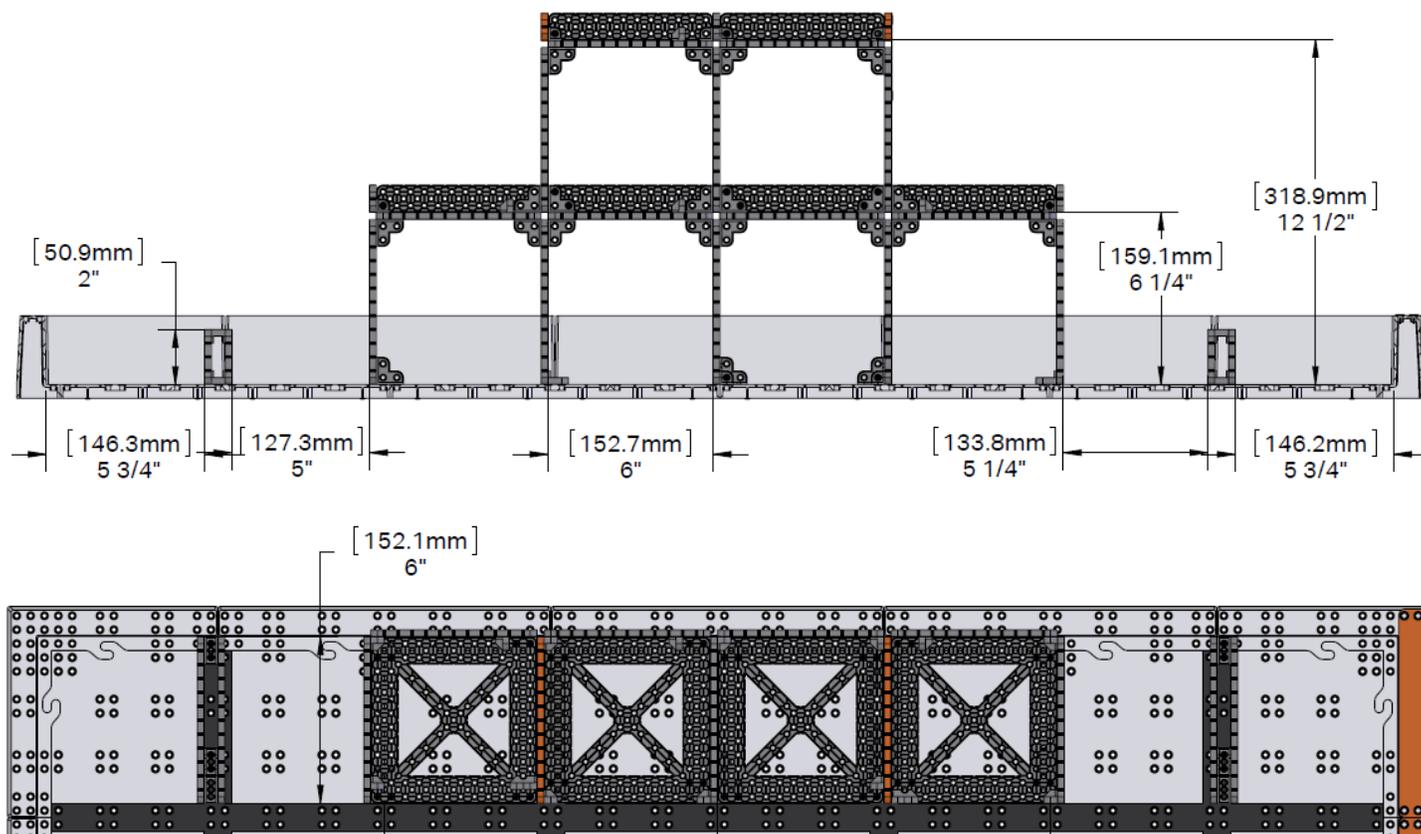


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Low and Elevated Goal Specifications

The *Low Goals* and the *Elevated Goals* in *VEX IQ Challenge Crossover* consist of many VEX IQ pieces assembled as shown in the Field Assembly Instructions. The *Goals* are approximately square and have short backboards to assist in scoring *Hexballs*.

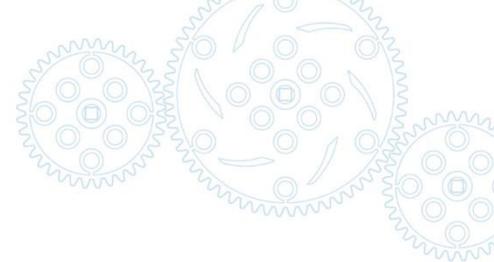
Goal Dimensions:

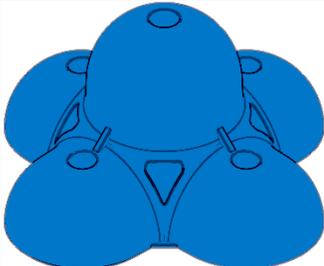
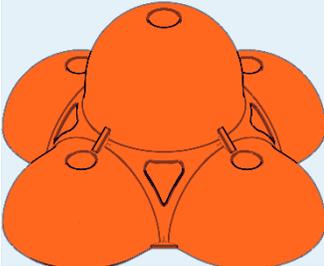
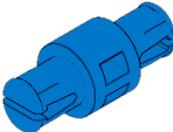
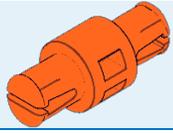


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Field & Game Element Kit Contents

228-4845 VEX IQ Challenge – Crossover Hexball Kit



Part Number	Picture	Name	QTY
228-4844-001		Blue HexBall Half	14
228-4844-011		Orange HexBall Half	14
228-3196-063		0.25x Pitch Standoff	28
228-3446-063		0.25x Pitch Standoff	28

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