



Low Cost Field Options

Introduction

The field components and game objects used in VEX Clean Sweep are all available for purchase from www.VEXrobotics.com (P/N 278-1001), however not every team needs the exact objects which will be used at official VEX Robotics Competition Tournaments. This section will outline some options for teams wishing to use lower-cost substitutes for field objects.

Field Perimeter Cost Reduction

VEX Clean Sweep utilizes the VL-FIELD-FRAME as the playing field perimeter. This custom sheet-metal and lexan frame is robust and designed to be a high-end solution for anyone holding a VEX Robotics Competition. In some cases however, having a high-end rigid perimeter wall isn't important. Some teams may wish to practice with something as simple as a perimeter of tape laid out on the floor. For information on cost reducing the field perimeter and for detailed plans to construct a sample low-cost perimeter consult the Low-Cost Field Perimeter Guide.

Field Object Cost Reduction

The field objects specific to playing VEX Clean Sweep are also available from www.VEXrobotics.com. These objects include the field wall assembly, the (4) triangular goals, and all the game balls.

The key things to think about when cost reducing these field objects are the following two questions:

1. What field functionality do I actually need?
2. How can I achieve this functionality with the minimum effort & cost?

The simplest way to cost reduce is to use less. Does every team need a full set of game balls? Maybe a handful is enough for prototyping and practicing. Does each team need a full field wall? Does it need to be made entirely of lexan?

There are a variety of reasons to build or purchase field objects, in many of these cases the official spec field components are unnecessary. By analyzing the functionality needed for an application, one can build a "stand-in" object which will interact with robots in the same manner as an 'official' component. These "stand-in" objects can be extremely useful during the prototyping phase of the design process.

Example Prototyping Ideas

As discussed above, when considering building unofficial field objects, consider the functionality required. A mock-up goal could be as simple as a trashcan propped up to the correct height. A prototype center wall could be constructed out of plywood. Or maybe even a simple bar held at 11.5 inches high, it depends what is being tested.

Every school will receive a sampling of game objects in their welcome kit. These samples should help teams to learn about the nature of the objects, but also to find things they can use to simulate objects. The samples will provide a good benchmark as teams look for “placebo” objects.

Note that the small balls are about 4” in diameter and weigh approximately 0.125 lbs. The medium balls are about 5.25” at the widest point, 9” long and weigh approximately 0.4 lbs. The large balls should be inflated to about 9.5” in diameter and weigh approximately 0.55 lbs. Teams may be able to find suitable “placebo” balls if they don’t want to purchase official ones. A team prototyping a mechanism to lift balls could use weights for simulation purposes (to test gearing design).

VRC Clean Sweep Game Elements

VEX Robotics is happy to offer a lower-cost game elements kit to VEX Robotics Competition participants who do not wish to purchase a full field. This kit includes a ball tee, and a sampling of game objects. This kit does not contain a full field’s worth of objects, but has everything to get a team started practicing and prototyping. The Game Elements Kit (P/N: 275-1399) is available from www.VEXrobotics.com.

Further Questions

Any further questions should be directed to the VEX Technical Support & Community Forum at www.VEXforum.com. There is a section specifically for the VEX Robotics Competition.