Products Provided By AndyMark

- Game Piece
- Swag Pack
- Pneumatic Cylinder Ends
- 12 AWG Silicon Wire
- 2x1x1/16” Aluminum Box Tube
- Peanut Extrusion
- ½” Churro
- 2” Omni Wheels
- 2.25” & 3” Compliant Wheels
- 2” Stealth Wheels
- Flyer Overdrive Gearbox

Use of each provided product during Ri3D 2020 is covered in this document

Check out our video series here: https://www.youtube.com/playlist?list=PLkZ6_Ld1x9Y8ll0Qrzvx3vujqxQbAT9o2

Over 60 Videos!
Game Piece

• Having a 2\textsuperscript{nd} game piece (including 225’s game piece and the AndyMark game piece) was incredibly valuable for showing teams interactions between balls
  • Especially international teams, who might wait weeks to get their game pieces

• Thank you AndyMark for providing us with a game piece this year!
Swag Pack

• Our viewers got win some AndyMark swag - we gave away the shirts provided on our live shows for the viewers and provided additional promotion for AndyMark!

• The AndyMark Goat accompanied us throughout the build, several times hanging out in the goal or on the robot
Pneumatic Cylinder Ends

- Awesome utility for teams
  - Aluminum, lighter than traditional pneumatic clevises provided with cylinders
  - Ball end makes them easier to attach to mechanisms
- We used a rod end to drop our intake with a 7” pneumatic cylinder
12 AWG Silicon Wire

• Super useful and easy to use
  • Wire is able to curl around corners much easier than traditional zip cord frequently used in FRC

• Made it super easy to run wire deep in our robot - used to make several connections between PDP and various mechanisms
2x1x1/16” Aluminum Box Tube

- Very useful for robot structure
  - Thin and lightweight, can use for almost any robot structure
  - 6061 is good quality aluminum for robot-building vs. worse grades like 6063 you might find at the hardware store
  - Potentially can be used for drivetrains in some games
- We used this aluminum to build the majority of our indexer structure, our climber structure and our intake arms
  - *(almost the whole robot)*
Peanut Extrusion

- Useful for making standoffs that don’t twist
  - Tap the 2 holes in the peanut to make a quick standoff
  - Lightweight compared to other solutions like 80/20 and less complicated than making plugs for tube
  - Often easier than gussets

- We used the peanut extrusion to connect our climber superstructure to our shooter superstructure
½” Churro

• Useful as hex shaft or as a standoff
  • End is easily tapped to ¼”-20
  • Useful as a roller in intakes
  • Comes in many colors!
• We used many churro rollers as rollers for moving the ball between our initial intake roller and the indexer
  • The ball rode directly against the metal churro, so it was a true ”roller”
2” Omni Wheels

- Very useful in intakes
  - Allows teams to move a ball without sideways resistance
  - Small, useful 2” profile
  - 35A and 60A options - AM provided the 60A versions this year
- We used the Omni wheels in the center of our front intake roller
2.25” & 3” Compliant Wheels

- Incredibly useful for ball movement in robots
  - Multiple different durometers for whatever the need
- Wheels can also be used for crowned rollers for flat belt
  - Our belt pulleys were 2.25” compliant wheels surrounded by 2 2” stealth wheels
- Did not use 3” compliant wheels on final robot, but did use for prototyping
  - Many 4” green compliant wheels were used on the indexer to manage ball transitions
2” Stealth Wheels

• Also incredibly useful for ball movement in robots
  • Multiple different durometers for whatever the need

• Useful for when compliance is not needed

• Wheels can also be used for crowned rollers for flat belt
  • Our belt pulleys were 2.25” compliant wheels surrounded by 2 2” stealth wheels
Flyer Overdrive Gearbox

• Very useful for teams looking to overdrive their shooter wheels
  • Teams looking to use 2 shooter motors geared faster can use 1 on each side

• FIRST Capital Ri3D felt showing rapid-fire shooting was important and felt we needed 2 brushless motors to do this in a way most useful to teams. With only 1 flyer gearbox, we were unable to show the gearbox as designed during the stream
  • However, we used the AM gears from the gearbox for reversing direction on our indexer belts
Thank You

AndyMark

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