

# Team 1987 Broncobots



## Specifications

- Overall height: 4' 11"
- Wheelbase: 32"
- Track width: 22"
- Clearance: 2.0" front, 3.0" rear
- Total weight: ~135 lbs.
- Four driving motors, IFI Traction wheels

## Capabilities

- Places rings at all heights
- Elevates two maximum sized robots
- Accommodates many widths of alliance robots
- Provides U-shaped ramps with side rails for support
- Offers gradual entry ramp incline
- Drives up steep and various styles of ramps

## Chassis

- Kit-of-parts chassis, lightening holes
- IFI Robotics 2" wide traction wheels
- Andy Mark 6" dia. Omni wheels
- BaneBots Dual CIM Kit
- 4 CIM Motors
- 12:1 BaneBots transmission
- BaneBots bearing blocks
- Compressor and two accumulators
- 1/8" polycarbonate sides & top
- Herders, actuated w/Bimba cylinders
- Standard bumpers, painted numbers

## Ring Lifting Mechanism

- Arm: 0.060" wall carbon fiber tubes; outer tube is epoxy bonded to 6061-T6 aluminum pivot assembly
- Inner tube is extended 32" by 36:1 BaneBots motor driving 1" pitch lead screw
- Arm is elevated by 125:1 BaneBots motor, chain-driven, further reduced 4:1
- Pivot assembly is counterbalanced with 30 inch-pound constant torque spring
- Arm assembly is supported on 1.5" OD, 0.059" wall 4130 chrome moly tube
- Vacuum cup: PIAB silicone w/ screen, angled 45 degrees

## Robot Lifting Ramp/Assembly

- Designed to safely support **two** 150 pound robots 12.125" above surface
- Four rails, 12.125" overall height, 7.0" wide by 1.0" tall by 47.0" long, 0.0625" thick, 6061-T6 aluminum
- Will accommodate robots with nominal track width of 13" to 27"
- Rails have 1.0" side walls to safely direct and contain alliance robots
- Entry ramps have mild 17° incline
- Dual-acting, 0.75" diameter pneumatic actuator holds and releases locking pins
- Spring-loaded (30 inch-pound torque) hinges, deploy ramps in ~ 2.0 seconds
- Ramp support beams, 12.125" tall, deploy by cable system in ~ 0.5 seconds