

Just wondering how many teams out there use a rack & pinion steering vs. other methods such as a column with a steering arm attached. Is it worth the \$90+ for a rack? Does it make the steering setup much easier or help with getting better geometry?

arekowski

With a rack and pinion, the required effort to turn the wheels will be less due to the increase in mechanical advantage. Do you HAVE to run one, no. It just makes it easier to package your steering and still have the correct Ackerman steering geometry. I will say that using a rack and pinion will reduce the "twitchiness" of the steering, as opposed to a go-kart style steering system, at higher speeds. This sensitivity to steering increases with your wheelbase if you run a go-kart style steering. This happens because the longer wheelbase vehicle needs the wheels to turn a greater amount to get the same turning radius as a shorter wheelbase vehicle. With a go-kart steering system, this means a little steering wheel movement in that long wheelbase vehicle equals a bigger change in wheel angle, thus making a greater change in direction

Watertown is running rack & pinion in two of our three cars this year. Last year our car also had Rack & Pinion. All of our Rack & Pinions have been made by us with the purchase of a gear or two, but we are machining our own steering designs. I am sure that a \$100 purchased one might be a bit better, but ours is pretty solid and good still AND the students learn much more about what goes into steering, even down to making sure the keyways are the right fit! Takes a lot longer than just purchasing one. (The students presented at SkillsUSA in the Engineering Contest last year with the Electrathon Car's Steering System and did very well!)

We are running our Varsity car with go-kart style steering this year to save on weight, but the goal of that car is not to take first place in maneuverability. We just need to be able to slalom the cones at 1mph according to the rules seen as there is no minimum turning radius this year yet.

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www.GoslingElectric.com

No rack and pinion steering at Janesville Tech Ed, just a steering knuckle.

Dave