

### **What is a Del-Sphere pivot joint?**

#### **Why Should You Use Del-Sphere Pivot Joints from Spohn Performance?**

The suspension bushings on your vehicle have a significant impact on your vehicle's ride, comfort, handling, acceleration, noise and vibration. When the vehicle leans (rolls) in a turn, one side of the chassis moves up relative to the rear axle and the other side moves down. The suspension's arms must twist to allow for the axle to articulate, this causes the bushings to bind. If this bind becomes excessive, it will raise the wheel rate and produce sudden and uncontrolled changes in handling such as snap oversteer. The factory minimizes this suspension bind by using compliant rubber bushings. These soft bushings help accommodate the necessary motion of the suspension's arms during body roll. However, the rubber bushings do not provide much in the way of forward and aft support which can cause wheel hop during hard acceleration and braking.

It is common to replace the stock rubber bushings with polyurethane bushings to resolve the shortcomings of the factory's soft rubber bushings. Polyurethane bushings eliminate wheel hop, reduce axle deflection, and improve straight line traction. However, the downside of polyurethane bushings is they prevent the necessary movement of the suspension's arms during body roll, which in turn produces significant binding in the suspension when the vehicle is cornering. The polyurethane bushings also place high stresses on the suspension arm mounts on the vehicle. Polyurethane bushed suspension arms do not allow for rotation of the arm during cornering because of the stiffness of the bushings.

#### **The Del-Sphere Pivot Joint Design:**

The Spohn Performance Del-Sphere pivot joint solves the shortcomings of the factory rubber and aftermarket polyurethane bushings. Our Del-Sphere pivot joint incorporates a spherical ball which is surrounded by delrin bushing cups. This combination allows the control arm to articulate like a spherical rod end (28 degrees of available rotation) during cornering but the spherical ball does not allow the bushing to deflect during acceleration. This provides for great straight line traction like polyurethane bushed control arms but remains completely bind free like a spherical rod end during cornering for predictable traction in the corners.

Think of the Del-Sphere pivot joint as a Delrin bushed spherical rod end. After over a year of R&D testing here at Spohn Performance on a streetable spherical joint the Del-Sphere pivot joint is the final result. Designed and manufactured exclusively by Spohn Performance, we have taken street suspension performance to the next level. Our Del-Sphere pivot joint features a one piece forged and heat treated chrome moly housing, a heat treated and chrome plated chrome moly spherical ball, Delrin bushing cups, heat treated retainer washer and snap ring, heat treated and chrome plated chrome moly threaded adjuster ring, an external grease fitting and a beautiful silver zinc plated housing finish.

The Delrin bushing cups absorb shock and road noise so you get the quiet and smooth ride of a bushing as well as 28 degrees of rotation! Our Del-Sphere pivot joints will always ship to you fully assembled, however, we also offer an optional adjusting tool that will allow you to do two things. First, you can disassemble the Del-Sphere pivot joint for cleaning, inspection, etc. Second, you can adjust the amount of friction on the spherical ball. Do you want a very low friction pivot joint or a very tight pivot joint? It's up to you, the amount of tension can be easily adjusted by using our adjustment tool to tighten or loosen the end retainer ring. What that also means is if over time and miles the tolerances open up you can simply re-adjust the retainer ring and have your pivot joint as tight as it was the day it was brand new. We doubt you'll ever need to replace the Delrin bushing cups, but they certainly can be. Unlike a spherical rod end, the Del-Sphere pivot joint is 100%

rebuildable.

What is Delrin, and why did you choose to use it? Delrin is an acetal homopolymer made by DuPont. It is characterized as having an excellent combination of physical properties that make it suitable for numerous applications. With extremely low moisture absorption and a low coefficient of friction (self-lubricating), Delrin is uniquely tailored for wear applications in high humidity or moisture environments. Delrin will maintain constant physical properties under high moisture conditions and out-perform nylon or polyurethane under these conditions. Delrin has a 10,000 psi tensile strength and a 120 Rockwell Hardness rating making it ideal for our Del-Sphere application.

<https://www.spohn.net/support/questions/12/>