RCV ULTIMATE CV AXLES

CHAMPION'S CHOOSE RCV AXLES, YOU CAN TOO.

JOIN THE RCV REVOLUTION

RCV
Performance
Products

rcvperformance.com

ULTIMATE CV AXLES PROVIDE STRENGTH AND SMOOTHNESS FOR EXTREME OFF ROAD PERFORMANCE

RCV Performance Ultimate CV Axles deliver the strength and smoothness you need for wheeling on the most extreme trails. Our CV axles are available in configurations to replace universal jointed front axle shafts, as well as IFS CV axle shafts, and eliminate the weak link in your drive train. Ultimate CV Axles provide previously unheard of strength - even when your steering and suspension are at radical angles and you're giving it heavy throttle. With RCV there is no worry about joint or axle shaft breakage. RCV joint design also eliminates universal joint binding to provide smoothness in operation and help you get engine power to the ground.

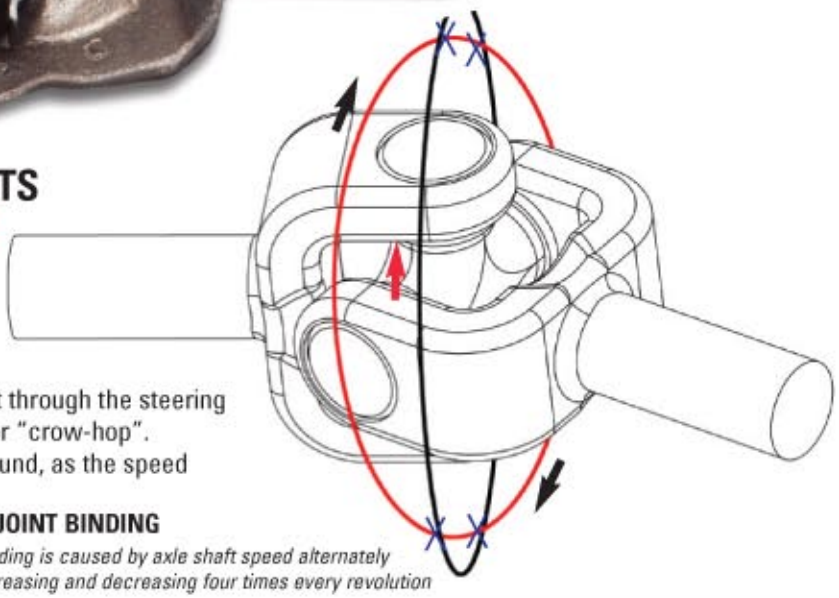
Whether you're replacing broken axle shafts, or upgrading to stronger shafts before a breakdown leaves you on the side of the trail, RCV provides the strength and smoothness you need.

THE LIMITATIONS OF UNIVERSAL JOINTED AXLE SHAFTS

RCV Performance Products is a division of Aircraft Gear Corporation, a company that has been manufacturing drive train components for over 60 years. Our experience has shown us that in extreme off road conditions the universal jointed front axle shafts used in trucks and SUV's are prone to breakage, and compromise traction. These problems usually occur when under throttle in a turn, and are magnified by use of large wheels and tires, increased engine power, and high axle gear ratios. Upon analysis, we found major points of weakness with front axle shaft design: Axle shaft yoke ears are made thin due to space constraints and often break as they can't handle the stress imposed by extreme off road use. Furthermore, U-joints often break because they aren't engineered to handle hard-core off road use. As well, the C-clips that hold the U-joint place can come off while under load, thereby causing failure. Problems are compounded as broken or unfastened U-joints can catastrophically damage the axle shaft yoke ears. While heavy duty U-joints are available, yoke ears still limit the strength of the axle shaft assembly.

INHERENT BINDING ISSUES OF UNIVERSAL JOINTED FRONT AXLE SHAFTS

When operating at an angle, the geometry of a U-joint is such that the speed of the axle shaft alternately increases and decreases four times every revolution. As you turn the steering wheel the operating angle of the joint becomes tighter, and the speed variation of the shaft increases. This condition can be felt through the steering wheel as an oscillation, and is often termed as "knuckle-bind" or "crow-hop". Ultimately, this can break traction between the tires and the ground, as the speed of the driven wheels are rhythmically accelerated and decelerated. The resultant shaking can also cause damage to driveline components.

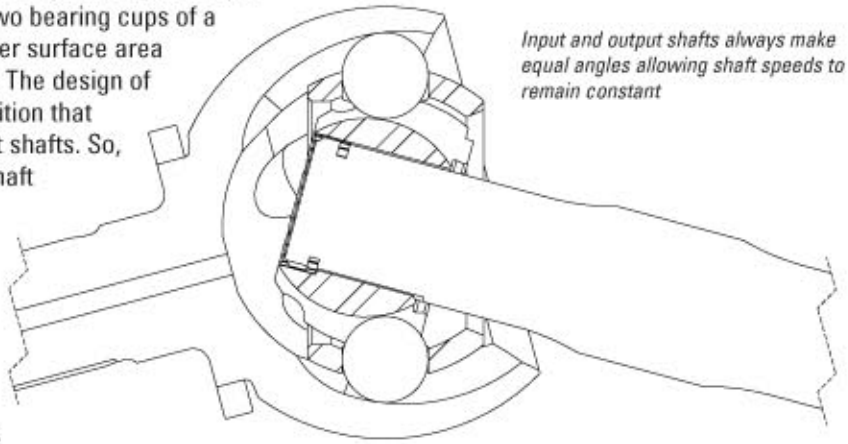


U-JOINT BINDING

Binding is caused by axle shaft speed alternately increasing and decreasing four times every revolution

CONSTANT VELOCITY JOINTS OVERCOME THE LIMITATIONS OF U-JOINTS

RCV identified the Constant Velocity (CV) joint as a potential solution for the binding and strength issues associated with universal jointed front axle shafts. With the Rzeppa type CV joint, engine torque is spread over six bearings, rather than the two bearing cups of a U-joint. Thereby distributing force over a larger surface area and making the CV joint intrinsically stronger. The design of the CV joint allows it to always assume a position that makes equal angles with the input and output shafts. So, when the joint is operating at an angle, the shaft speeds remain constant - hence the term Constant Velocity Joint. The CV joint allows smooth application of power while the steering wheel is turned, which maximizes traction between the tire and the ground. There is no oscillation felt through the steering wheel, and the resultant smoothness is easy on driveline components.



Input and output shafts always make equal angles allowing shaft speeds to remain constant

RCV ULTIMATE CV AXLES ARE THE ULTIMATE SOLUTION

While we identified the CV joint as a potential solution for binding and strength issues, we found there were no existing CV joints that could be used in place of universal jointed axle shafts which would withstand the rigors of extreme off road use. To provide a strong solution, we took what we learned and engineered RCV Ultimate CV Axles for AAM, Dana and GM axle applications. Even with big tires, big power, and short gears there are no worries. With RCV you can put the power down with confidence.

SUPER DUTY CHROMOLY DOME-MASS CAGE AND RACE WITH SPHERICAL SEALING TECHNOLOGY

Housing, bearing cage, inner-race, and axle shaft are manufactured with aircraft quality high alloy steel, and proprietary construction techniques to make them highly resistant to bursting and fracture.

Design allows tight steering angles up to 45 degrees, and provides high strength throughout range of motion.

Low maintenance - Unlike U-joints that must be greased almost every time you go out, Ultimate CV axles only need grease a couple times a year, and are easily serviced via a zerk fitting.

Spherical Sealing Technology (SST) utilizes a cast polyurethane cap to provide far greater resistance to punctures and tears than a rubber CV boot. SST is rock-proof, and will not bunch or balloon. This is a patented RCV technology.

REM Polished for reduced friction, smooth-action, and decreased wear.

Constant Velocity joint eliminates U-joint binding - allowing smooth transfer power to the ground, and eliminating steering wheel oscillation.

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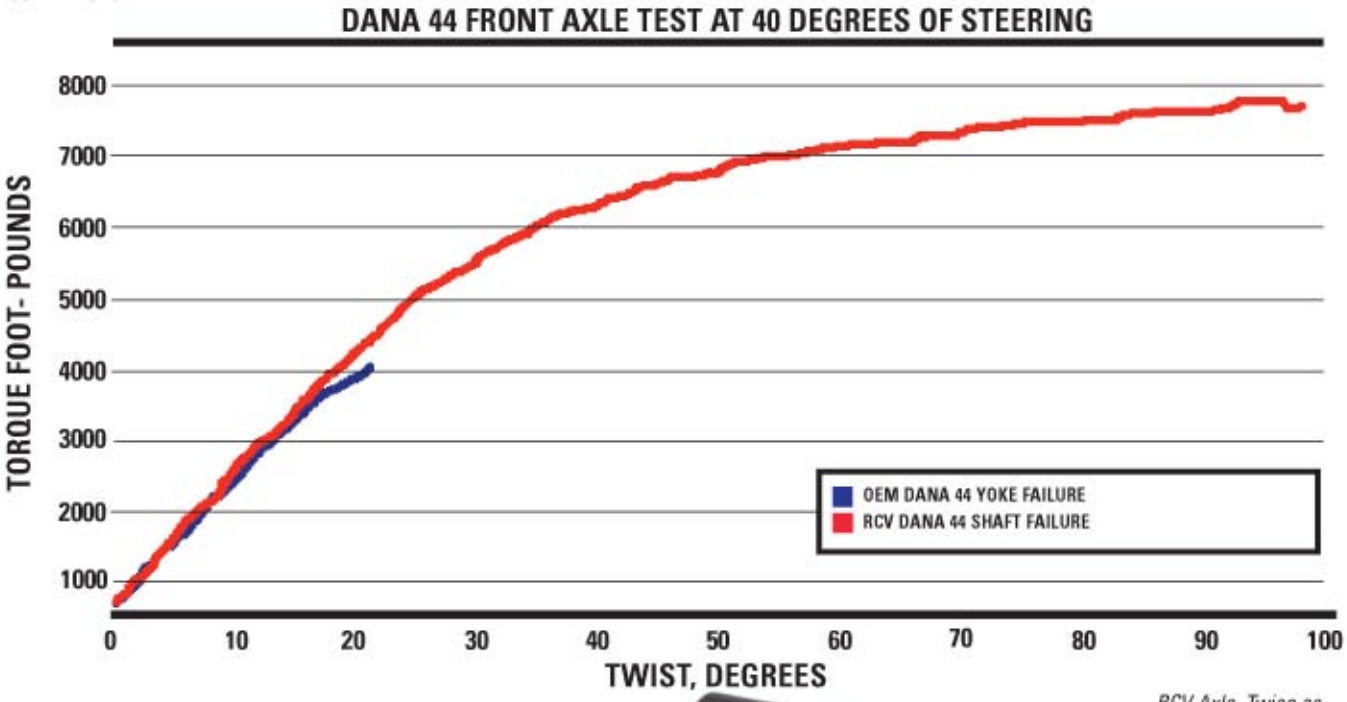
RCV ULTIMATE CV AXLES ARE TWICE AS STRONG AS OE AXLE SHAFTS

RCV Performance Ultimate CV Axles replace the weak axle shafts on your truck or SUV - providing strength that U-joints can't match.

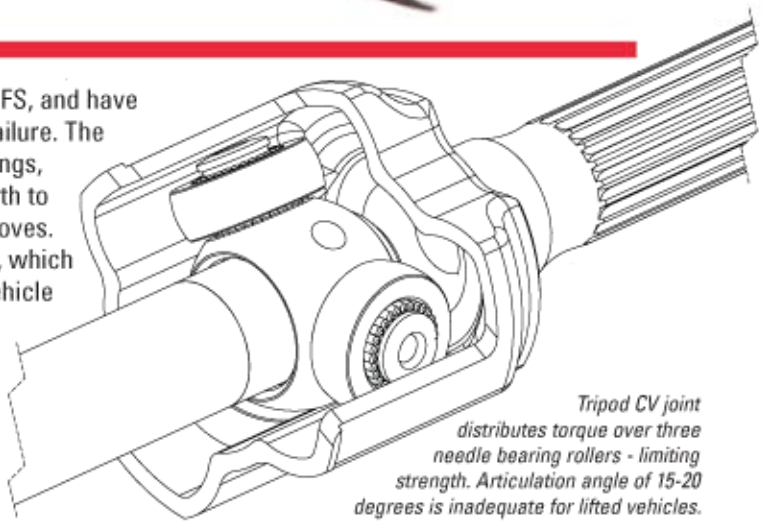


Test results show RCV Ultimate CV Axles for Dana 44 to be twice as strong as OEM axle shafts. They're just as tough at a straight angle as they are at extreme angles - where U-jointed axles are at their weakest. An RCV equipped Dana 44 is effectively as strong as a Dana 60, without the extra weight or loss of ground clearance.

RCV ULTIMATE IFS CV AXLES

LIMITATIONS OF INDEPENDENT FRONT SUSPENSION CV AXLES

Chances are good that if you have a lifted Ford, GM, or Toyota with IFS, and have subjected it to hardcore off road use, you have witnessed CV joint failure. The IFS inner CV joint is a "tripod" design, which does not use ball bearings, but instead uses three needle-bearing rollers that slide back and forth to allow the joint to make changes in shaft length as the suspension moves. The joint is designed to provide articulation angles of 15-20 degrees, which is adequate for the stock suspension settings. However, once the vehicle is modified with a lift kit or long-travel suspension the articulation angle required increases greatly, and the joint often fails while operating at greater angles than it is capable. The problem is exaggerated when tires taller than 37 inches are used and the vehicle is high powered. Even under light duty use, over extension of the joint can severely diminish its lifespan, as well as create drive train vibration.



Tripod CV joint distributes torque over three needle bearing rollers - limiting strength. Articulation angle of 15-20 degrees is inadequate for lifted vehicles.

RCV ULTIMATE IFS CV AXLES ARE THE ULTIMATE SOLUTION

To overcome the limitations of the stock IFS CV axle shafts, we designed RCV Ultimate IFS Custom CV Axles for GM, Ford and Toyota trucks and SUV's. Rather than using a tripod type inner CV joint, our Ford and GM axles use RCV's Pro 4 Super Inboard Joint, while Toyota applications use RCV's Ultimate 930 Inboard Joint. The joints distribute torque over six ball bearings, increase the articulation angle to 28 degrees, and are much stronger throughout their range of motion than the tripod design.

For strength and durability that far exceed OE specifications, the outer joints utilize RCV's Super Duty Chromoly Dome-Mass Cage and Race with Spherical Sealing Technology. Our IFS CV axles meet and exceed the strength of offered by a straight axle swap, while allowing you to maintain the traction, smoothness and control of your IFS. The Ultimate IFS Custom CV Axle Set is race proven, and used by racers in XRRA, Off Road Racing and the TORC series.

RCV inboard CV joints distribute torque over six ball bearings for optimum strength, and provide joint articulation angle up to 28 degrees

HIGH STRENGTH AND INCREASED ARTICULATION

Housing, bearing cage, inner-race, and axle shaft are manufactured with aircraft quality high alloy steel, and proprietary construction techniques to make them highly resistant to bursting and fracture.

Articulation Angle of 28 Degrees

Spherical Sealing Technology (SST) utilizes a cast polyurethane cap to provide far greater resistance to punctures and tears than a rubber CV boot. SST is rock-proof, and will not bunch or balloon. This is a patented RCV technology.

Design allows tight steering angles up to 45 degrees, and provides high strength throughout range of motion.

Micro Polished for Reduced Friction

Low maintenance - Unlike U-joints that must be greased almost every time you go out, Ultimate CV axles only need grease a couple times a year, and are easily serviced via a zerk fitting.

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"NO QUESTIONS ASKED" LIMITED LIFETIME WARRANTY

We are so confident in the quality and reliability of Ultimate CV Axles that we provide a "No Questions Asked" lifetime warranty. You break it we replace it. Have you ever been on the trail and your U-joint breaks and damages your axle shaft- What happens if two different companies manufacture the joint and the shaft- Which one do you call for the warranty? With our product there is not any confusion: One manufacturer, one warranty.

CUSTOM APPLICATIONS AND OTHER PRODUCTS

RCV specializes in custom solutions to meet your specific needs. We can develop CV axles to fit unique combinations of axle components, dimensions and spline counts. In addition to Ultimate CV Axles, RCV offers a variety of driveline components.

EASY INSTALLATION

RCV Ultimate CV axles for Jeeps are designed to simply fit in place of your OE axle shafts. Minor clearance modifications are only needed for a few Dana axle applications. The process is simplified with use of an RCV clearance gauge included with the axle set.

RCV CUSTOMER SERVICE

At RCV we understand the value of excellent service, and strive to promptly provide you with expert technical and sales support. Our staff is comprised of off road enthusiasts who fully understand the products we manufacture, the vehicles in which they will be installed, and the conditions in which you will use them.

RCV ULTIMATE CV AXLES SAVE MONEY

Users have found our axles to not only provide far better performance and reliability than U-jointed axle shafts - they have found them to be cost effective as well. A set of high performance yoked axle shafts and U-joints cost about the same as a pair of RCV Ultimate CV axles. Yet, once those yoked shafts or U-Joints break they will need to be replaced, thereby exceeding the cost of the RCV axles.

So go ahead and give it all you got - big tires, big torque, big steering angles. No binding, or breakage. Only smoothness you can feel. Whether you are a hardcore competitor, or just out wheeling for fun, you can be confident RCV Ultimate CV axles won't let you down.

Ultra4 Champion Kevin Sacalas depends on RCV Performance axles because heknows they are the strongest on the planet.

TESTIMONIALS

TIM CAMERON
Extreme Hill Climber

I used to have bad wheel hop when turning at full lock and giving it full throttle. With RCV it's smooth as glass. I feel no shake through the steering wheel, and the steering is very smooth.

SCOTT DOUGLAS
Douglas Motorsports
Ford F-150 Pro4

86 Career Wins
8 Desert Championships
2 Short-Course Championships
2 Time Borg Warner Champion

RCV made a big difference in our program. They always supply us with the highest quality materials and craftsmanship, and were instrumental in solving a driveline problem we were having. With simple maintenance RCV operates with no problems.

DAVE COLE
Dave Cole Motorsports
Ultra4 Buggy

Long list of podium wins in rock crawling
Winner W.E.Rock Pro-Mod World Championship
Winner Vegas 2 Reno
Co-founder of Hammerking Productions

I have been running RCV Performance products since 2004, and their parts have never failed me. RCV products have gotten me through some of the most grueling desert races in the United States, and helped me win several championships.

RCV Performance Products

PROUDLY MADE IN USA

611 Beacon Street
Loves Park, IL 61111
Phone: 815.877.7473
Fax: 815.877.1218

rcvperformance.com

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