Velorex fittings and the fake copies that could kill you

Velorex have been making sidecars in Czechoslovakia/Czech Republic since about 1954. They have developed a strong yet simple set of fittings allowing their sidecars to be fitted to most steel framed motorcycles. When used correctly these fitting form an incredibly strong and rigid attachment system for Velorex sidecar. An example is shown here.

This system has been used by thousands of home mechanics and professional sidecar installers throughout the world. Put simply, it works.

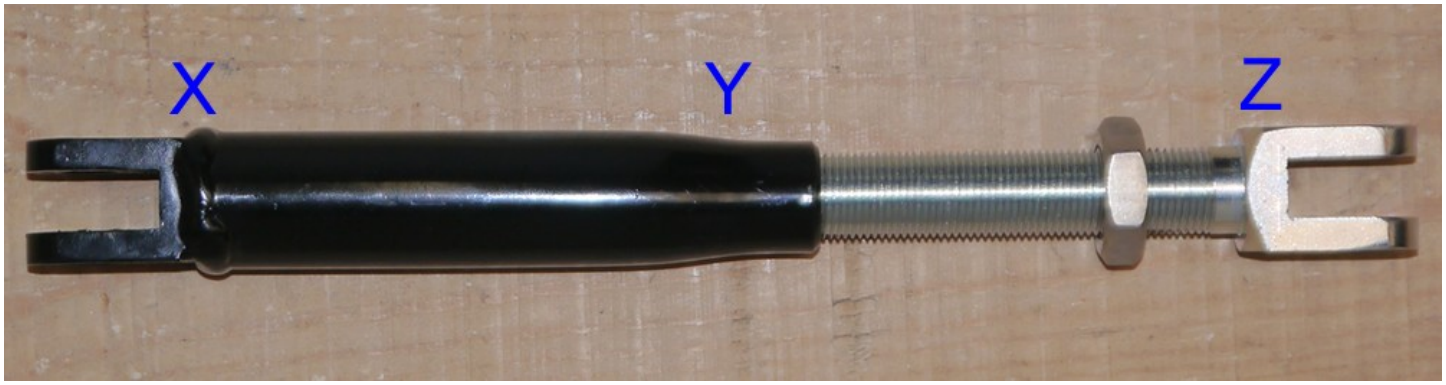
But there is a problem, and this problem is the introduction of copy and fake parts into the market. Manufacturers that do not understand sidecars or indeed mechanical forces are happy to knock out these fake parts and sell them on popular online auction sites as well as a through a few dealers who either don't know the difference or don't care as long as they can make some money.

I hope this little guide will help you understand why the original Velorex parts are better than any of the fake parts and how to spot the difference.

One major difference is that all Velorex parts are made from a mix of seamless tubing and a specific low yield steel grade known as S355J2C+C. None of the fakes are.

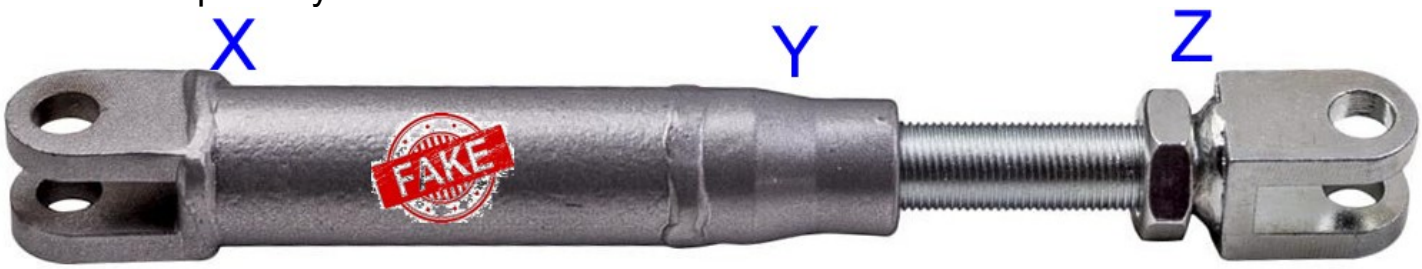
The Props and Adjusters.

Firstly let's take a close look at the genuine Velorex prop and adjuster. It does look simple and fairly easy to fake, but it has features which add considerably to its strength and longevity.
The clevis (X) is machined from a larger single piece of steel that is a press fit into the seamless tube. This ensures perfect alignment of the clevis as well as excellent resistances to fatigue cracking near the weld point.
The transition from the larger to the smaller diameter (Y) is formed smoothly with no sharp angles. This is formed from a single piece of seamless tubing. There are no stress points introduced into the metal during the manufacturing process.
The threaded adjuster and clevis are machined from a single piece of S355J2C+C steel. The threaded area is cut in a single pass.



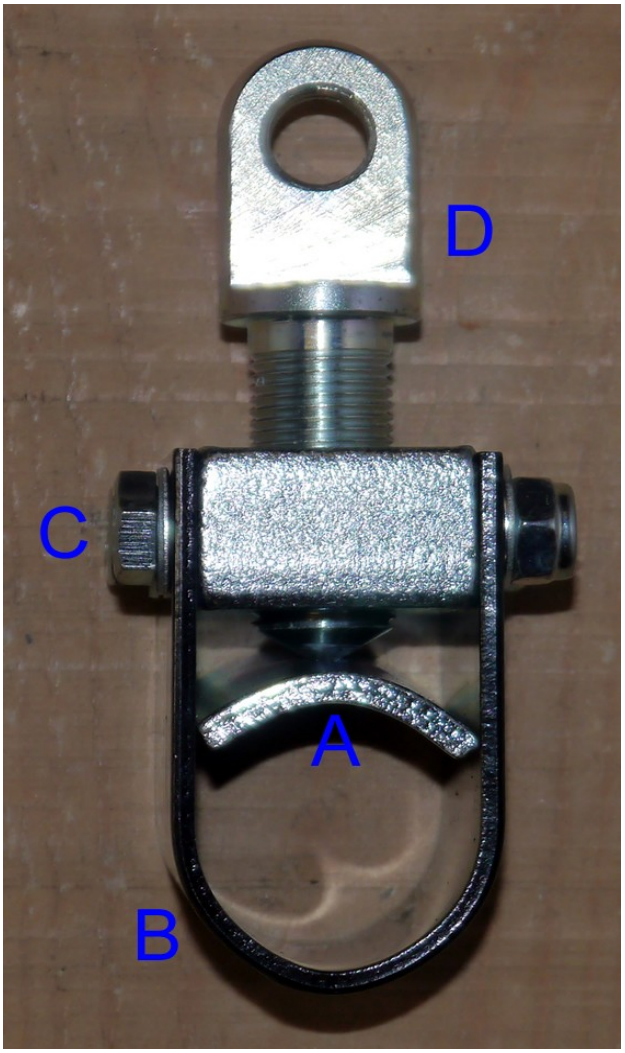
Now let's compare this genuine Velorex part with a couple of fake ones found online.
In the first example the clevis (X) appears to be a simple U shape welded to the end of the tube. It is neither in line with the tube or even central. This will be under constant stress and may fail. The transition in diameter is in two sharp angles introducing stress points right there at the factory, before it has even been sold. In this case the threaded adjuster does appear to be machined from one piece of steel, although it is anyone's guess what grade of steel it is.

This second example is very worrying indeed. It pretty much demonstrates how not to make this part. The clevis X is again surface welded rather than press fitted, the transition (Y) has stress introduced by the sharp angles during manufacturing. It appears in order to save a little in the production costs the transition parts are made in bulk separately to the main tube and then welded on later. The clevis (Z) has been produced separately to the thread section and then welded on.



So far, it's not looking good for the fake parts, and hopefully it is clear that the decades of experience by Velorex has paid off in a decent product that is fit for purpose.

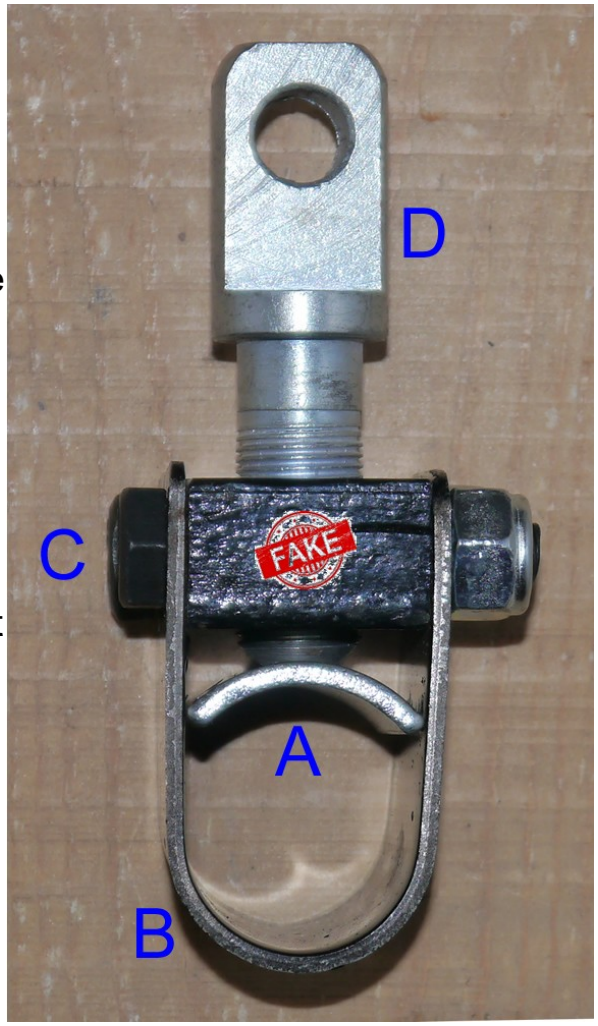
Moving on to the frame clamps. The genuine Velorex part has a number of features that make it work well.
The thrust plate (A) is 4 mm thick and has a counter sunk location point in the centre. The pointed eye-bolt has a corresponding taper angle so it sits nicely in the location point.
The saddle (B) is 3mm steel with near parallel sides for a good secure fit to the frame.
The bolts (C) are 8.8 tensile and marked as such.
The eye-bolt is machined from a single piece of grade S355J2C+C low yield steel, this will not stretch, yield, or neck. This steel is carefully chosen for its properties.
The block, eye-bolt and thrust plate are all accurately machined and in line, to ensure the pressure at the contact area on the frame is even and consistent.
Fitted in the correct position and tightened correctly they do not more.



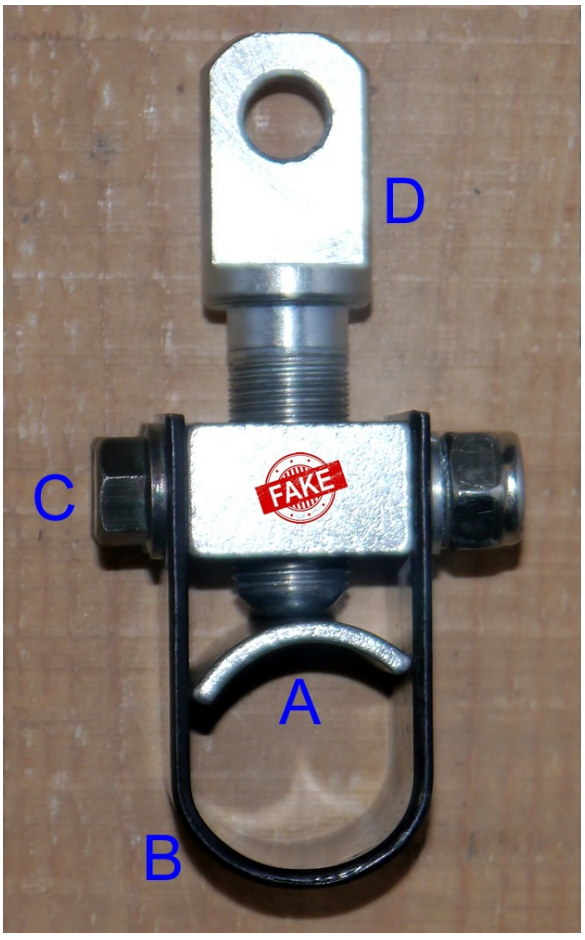
The fake parts may look similar at first glance, but they are not.

Let's take a look at a couple of clamps that were found online.

Honestly, it's hard to know where to start with this one. The thrust plate (A) is only 3 mm thick and the saddle (B) is just 2.5 mm thick, the bolts (C) are unmarked so the assumption has to be they are normal mild steel and not high tensile at all. There appears to be no corrosion resistant plating on the bolts, but strangely there is on the nuts.
The sides of the saddle (B) are tapered from their widest at the block down to the curved area. Nothing is in line, even the thread on the block isn't straight. There is no possibility of this providing a strong and secure fitting.



In this second fake clamp again the thrust plate (A) is just 3 mm and to make things worse it is too wide to fit squarely inside the saddle (B). The counter sunk location is not central and the eye-bolt has a domed end rather than a matching taper so it puts all of the load on the edge of the counter sunk location point. It is pretty much built to fail. The bolts (C) are unmarked and don't even appear to have any corrosion protection. At least the saddle is close to the 3 mm of the genuine part, but that really is the only thing that is similar.



Velorex have genuine factory supported agents in many countries. If the parts came from one of them and are sold as Velorex parts, you can be pretty certain they are. All Velorex parts are made by Velorex in the Czech Republic. They do not have factories in India or China. If your parts came from an auction site or a supplier who does not sell genuine Velorex sidecars please inspect them carefully. Stay safe and enjoy the ride.