



Roller Spearguns

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Roller spearguns are no novelty. They have been around since the original invention around the late 1950s. The reality is that, although the concept was invented quite a while back, it has only been revived again in the last 5 years. The reason for this is that up until recently, it was simply too difficult to make work properly with the available materials and technology.

In recent years, a few manufacturers in Europe have managed to improve the old roller design. The result is something functional and practical for the everyday spearo. Their roller spearguns have turned into one of the most talked about topics of discussions on spearfishing forums around the globe.

Why then is this 'new' concept growing rapidly all over the planet? Well, the reality is that a roller speargun lets you do what a bigger/longer conventional speargun does, but with a much shorter gun and with much greater efficiency.

The basic concept, is that the rubbers are attached underneath the gun's barrel and then are stretched around rollers at the muzzle, back to the loading notch on the spear. This means that the rubbers are stretched right from the muzzle back to the loading notch, which increases the distance the spear is driven as compared to conventional rubber driven spearguns.

So, what are the benefits over a traditional rubber setup? The first 3 that spring to mind would have to be:

1. More power,
2. Little to no recoil,
3. Improved maneuverability.

Let's analyse how each of these advantages are achieved. The extra power advantage on a roller speargun is achieved in 3 ways -

1. More Power

- Longer power stroke (See figure 1):

On a conventional speargun, rubbers occupy on average 30 - 35% of the barrel length, therefore utilizing effectively only 65 - 70% of the barrel length to propel the spear shaft. Effectively it means that on a 100cm speargun, you are only using 70cm of its length. On a rollergun 100% of the barrel is used to push the spear shaft all the way to the end of the barrel.

- Pre-tensioned rubbers:

On a conventional speargun, when the rubbers are at rest (unloaded), the wishbone has zero force. The power starts from zero all the way to where the wishbone hooks on the spear shaft. This means that towards the end of the power stroke on a normal speargun, the rubber isn't pushing the spear shaft with much force at all.

On a rollergun, the wishbone is already under force at rest. A force of 10 - 20kg is achieved depending on how much the rubbers have been pre-tensioned by adjusting how much they are stretched under the barrel. This also gives you the flexibility to easily adjust the power of the gun.

As the rubbers are pre-tensioned, they push hard all the way to the end of the power stroke at the end of the muzzle. This is unlike a normal gun where the power stroke is reduced to zero long before the end of the gun. This means that the roller rubbers are pushing the spear shaft out with greater force, especially at the end. This allows the shaft to develop more speed and momentum, resulting in greater range and punching power at the end of the range. This plays a big advantage in giving the rollerguns extra power on top of the already longer power stroke mentioned in point 1.

- Shorter spear shafts compared to rubber stretch ratio:

This last power advantage is something that is often overlooked and missed on roller spearguns. For the same rubber stretch, a roller speargun pushes a shorter spear shaft. For example: a 110cm speargun with the Roller Power Head Kit fitted, will have the power stroke of a traditional single rubber 160cm rail gun. The difference though is that the 110cm rollergun pushes a 150cm spear shaft vs. the 160cm normal gun that pushes a 200cm shaft with the same rubber stretch. This gives the rollergun a greater power to weight ratio and this is what makes the roller system exceptionally more efficient than a standard gun.

2. Less Recoil

With roller spearguns, the physics work a bit different to the traditional setup, and the rollerguns have loads more power, but far less recoil. The lack of recoil is due to two factors. Firstly, the wishbone comes to an instant halt on the muzzle. Unlike conventional guns where the rubbers shoot

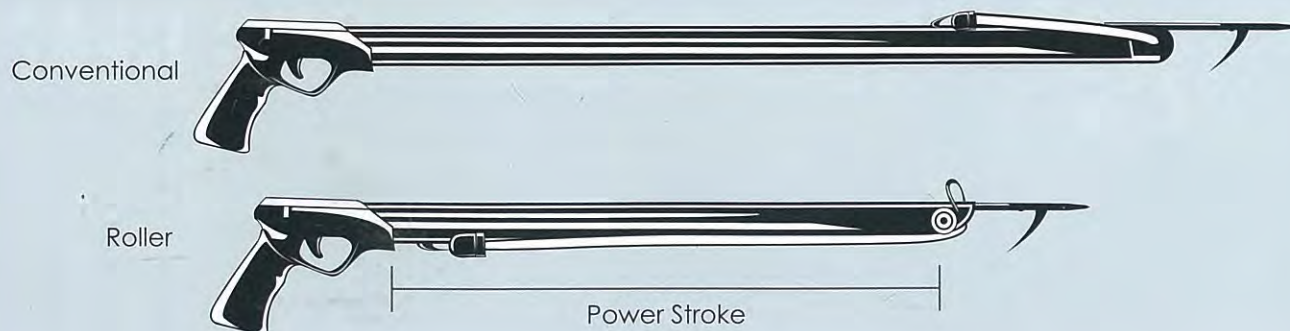


Figure 1