

## Specifying the Right Cable Tie For Your Application & Budget: 3 Key Considerations

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Typically, the cable tie is one of the very last items specified in any given design. Probably because of this fact, there is often cost-savings to be found in cable ties...*after the fact*. For example, on more than one occasion I've toured a contract manufacturer's factory and noticed excessive amounts of cable tie clippings on the production floor. The reason for this waste is obvious; the cable tie is too long. Correcting this problem – which needn't have happened in the first place – can generate cost-savings in several ways.

So today, I'm going to focus on three key considerations to take into account when specifying cable ties. These straightforward considerations won't require a lot of time or thought. Keep them in mind though and you'll design in a cable tie that is optimum for both your application and your budget.

- **Key consideration # 1: Length** – Your cable tie length is determined by the diameter of your cable or wire bundle. (I told you this stuff was straightforward.) Simply put, you want your cable tie to be as long as it needs to be to do the job – and no more.

In addition, to maximize your savings look for every opportunity to standardize on a specific cable tie and length. For instance, take the situation I alluded to with the contract manufacturers. A shorter, less expensive cable tie is only one way to cut costs. Other potential cost-related benefits are as follows:

- To the extent that you can standardize on fewer cable tie SKUs, the fewer part numbers you'll have to deal with and the lower your material management costs will be.
- Increased volume will result in even lower pricing. Plus, you may be able to switch your cable assembly manufacturing operation over to automated tooling.

**Automated tooling** – This volume-related (think a million cable ties a year) benefit isn't applicable in every setting. That said, I've been involved in enough situations where it *has* been applicable – and it really paid off for the customer. So it's definitely worth mentioning in this post. Automated tooling equipment will apply cable ties much more efficiently and quickly than manual labor, resulting in faster production times and in some cases enabling a reduction in personnel.

- **Key consideration # 2: Width** – The width of your cable tie determines its tensile strength – the outward force it takes to break the tie. Too narrow and the cable tie will break. This can cause performance issues and worst case, a product recall. In any case, you're probably looking at the expense of additional engineering time to refit the cable tie or source a new one. On the other hand, if your cable tie is too wide it can cause damaging pressure to your harness and possibly impair the wires in the bundle. Again, possible performance issues. Plus, the wider your cable tie, the more material involved in producing it, the more it will cost.

In short, the thickness of the bundle and the gauge of wire are two of three factors determining not only the width of your cable tie, but also the choice of material for your cable tie.

- **Key consideration # 3: Operating environment** – Say for instance your cable harness will be used in the automotive or aerospace industry or in a military application. In settings like these (and others) it's likely to be in a high-vibration environment. So you'd want a sturdier, more robust cable tie.

Here are four more examples:

- If the end product will be used indoors, for example in a slot machine, an inexpensive nylon 6.6 cable tie will serve you just fine.
- In a corrosive environment, such as running a bundle of wires through some type of manufacturing floor, you want a stainless steel cable tie. Very expensive, but experience tells me it's well worth it.
- Exposure to direct sunlight as in a solar application would require a nylon 12 material with UV protection.
- Continuous exposure to heat, cold, humidity, wind, moisture will call for yet another type of cable tie.

In my fourteen years in this business I've had a lot of wins where I've been able to go in *after the fact* and help customers reduce production costs or applied costs. It's a great feeling. At the same time, I love working with customers on the front end – *before the fact* – helping them select and source the right connector right from the get-go. That way the customer achieves maximum efficiency and cost-savings. All that said, what I want, and what we all want at Heilind is that every connector you specify be the optimum component for your application and your budget. In this regard, I hope you've found my post today helpful.