Transparent Guide Wraps

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How To Library **Custom Rod Builders Guild**

Translucent vs transparent. What's the difference? With guide wraps, "translucent" refers to a wrap that you can almost see through, and retains most of the original thread color. It allows the blank and any colors underneath (including the guide feet) to show through to a large degree. We commonly see this on many top-shelf fly rods, and is desired by some fishermen on other rods as well, though it's a nightmare with some types of threadwork like crosswraps. (with the exception of Tartans and such, where some translucency is desired) This is why we use CP- to prevent that from happening, and helps keep the thread looking true to color - opaque and bright.

"Transparent" guide wraps appear transparent to the point of the thread appearing completely invisible. For years, transparent guide wraps were not commonly known to the average rod builder. Outside of some bamboo rod makers, it's still pretty much a mystery to most as to how it's done. Some have speculated that it's done with no thread at all and that there must be some kind of magical technique or epoxy used.

While it *is* done with materials and techniques that are different compared to what the average rod builder uses, the technique can be mastered by anyone – it's all in the specific

application of a few different materials than what we're used to, and nothing more.

There are very few tutorials online that explain how it's done, and apparently not everyone can find them, so I've been asked by many as to how I do it. I'll do my best to explain and hopefully cover as many of the questions about it as I can. I must note here that this is not a guide wrapping that I'd recommend for use on heaver rods such as bass rods in the 15-17lb range and above. While it is considered fine for most fly rods and lite spinning/casting rods, I personally wouldn't use it on fly rods 8wt and above or Muskie rods and the like - and definitely not on any off-shore rods. Regarding that, I've encountered many different camps of thought concerning thread strength and their "correct" application. Let's discuss thread size to strength ratio a bit so you can be the judge.

Thread size and strength.

Size	Tensile Strength	Wrap Strength
00 Silk	2.0lbs	160lbs/cm
00 Nylon	1.8lbs	159lbs/cm
A Nylon	2.7lbs	154lbs/cm
D NCP	5.1lbs	155lbs/cm

According to the old Gudebrod thread size/strength chart that could be found online years ago, one may assume that silk is just a bit stronger than nylon per given thread size. While they do not say what silk they're referring to in that comparison, one might also assume it was Gudebrod brand - but that's only speculation on my part.

In the example above, size 00 nylon has a tensile strength of 1.8 lbs, whereas size 00 silk is rated at 2.0 lbs.

Again, according to Gudebrod, a wrap of 00 silk 1cm long has a wrap strength of 160lbs (pounds/centimeter) and 00 nylon has a wrap strength of 159lbs. Size A nylon has a higher tensile strength of 2.7lbs, but has a wrap strength of only 154lbs/cm. So, according to this, size 00 nylon is stronger in a given wrap than size A nylon – even though A breaks at 2.7lbs and 00 breaks at 1.8. Why is it "stronger"? Because it's thinner, it can wrap more turns around the blank per centimeter of wrap length.

Size D NCP nylon has 5.1lbs of tensile strength, but only 155 lbs/cm wrap strength– 5lbs less than size 00 silk. So why not use fine silk on off-shore rods and such? Because of single-thread strength... the physics behind the forces applied to the wrap by the guide are such that the actual wrap strength will be less than those listed here, due to the guide foot acting as a simple lever. For example, a sheet of steel with thousands of pounds of tensile strength might be torn with a crow bar- a simple lever.

I'm not trying to start a physics debate here and I don't want go into grand detail- this is not a Physics class. As I said above – "I've encountered many different camps of thought concerning thread strength..." I'm just trying to make you aware of why silk should probably not be used on heavy rods.

Why go into all this about silk's strength? Because I want you to know that you can use it with confidence too... just remember to use it within its realistic capabilities. But most of all, fine natural colored silk is the key to making Transparent wraps look "transparent". It simply can't be done with nylon. Regular nylon (not NCP) will go translucent without CP, some colors more so than others- but it will not appear "transparent" like natural-colored silk will. That being said, not all silks will go transparent either. The

following is what I use, and how I use it to obtain the look of "no thread".

The Guides

I hope you have a good method for preparing the guide feet- because they are going to show- just like there's no thread covering them. That's the effect we're after, remember? So take the time to do it right, and make them look as good as you can. A note about colored guides frames; I personally use stainless or titanium guides, in their natural color because the black or other-colored guides will require some touch-up painting after the final dressing of the guide feet. When a client wants colored guides, I use pigmented Permagloss.

I've had dismal luck with regular paint not being durable to survive this process and still look good, so after I dress the guide feet I mix a very small dab of Testor's pigment into a shot glass with some Permagloss until uniform in color, paint it on the feet and allow to dry for a day or two. After I'm satisfied with the color and see no metal showing through, I'll sometimes add a sealing coat of Permagloss and let them cure for a few days before wrapping. Allowing them to finish curing *before* wrapping is very important- trust me on that one. Acetone can soften it, but not the alcohol we will be using here.

The silk

While some other silk thread brands/sizes will allow you to achieve the same results, I used YLI silk, size #100, #212 "Natural" and get outstanding results with it. (Bullard Int. S-101 is the same silk, just different label – it was not available at the time this was written) Other silks may work fine, and some say even better, such as Pearsall Gossamer or Naples (size 6/0 and 4/0 respectively), but it's a real bear for me to work with due to its micro size- very difficult for aging eyes to see. Its other properties are difficult to explain – you'll have to work with it yourself to understand – but I guarantee, you'll either love it or hate it.

As a plus, YLI or Bullard Int. is readily available and affordable for rod builders, and you get much more for the money. (200m BI/YLI spools vs 50m spools of Pearsall)

Once again, **for this tutorial**, I used **YLI size #100 in "Natural" #212 color** – it has no dyes or pigments to show through and ruin the effect once epoxied or finished. **Bullard S-101 is the same quality silk, just different packaging and label.**

The Finish

Normally, bamboo rod makers use a varnish of some type, but I started out using two-part epoxy rod finish like the rest of us, and that's what I still use to this day. Why? Convenience and familiarity I suppose, but it gives me consistent results without the fumes and other hassles that come with varnish. You can use any two-part epoxy rod finish you prefer, but I use two; a thin formula for the first coat, and regular for the leveling coats. Against traditional recommendations, the first coat **must** be thinned with a solvent to make this technique work – I use Denatured Alcohol (DNA) because I'd just rather not subject the blank and my lungs to more aggressive solvents like Acetone.

Others use Acetone with great results, but I must ask "why?" when DNA is safer and will do the same thing. With a 'lite' version of finish, I thin it with DNA like so - 3cc of resin, 3cc of hardener – and 3cc of DNA, AFTER the two-part finish is mixed and has sit for about 5 min. to rest.

This allows covalent bonds to start forming in the finish, and prevents the DNA from interfering with the process. (That's my theory, but I'm no Chemical Engineer) DO NOT HEAT THE FINISH- that will cause it to cure faster, and we don't want that! If you don't have a "lite" version of rod finish to create this first coat, you will not have the working time as with the lite version of finish.

Again, I mix the finish, *allow it to sit for 5 min*, and *then* I add the DNA to thin it, stirring gently. Bubbles aren't really an issue while mixing, as the stuff is so thin that they break almost as quickly as they form, so a flame or heat isn't necessary at all. Be sure to mix thoroughly.

Wrapping the silk

This part is critical too, and probably the hardest to explain. The thread must be wrapped under very low tension, but tight enough to maintain and hold the wrap together. You see, wrapping or packing too tightly will compress the silk fibers and prevent the finish from easily displacing any trapped air. Trapped air will ruin the desired look of the wrap and create "shimmers" that almost look like ultra-fine silver metalflake. So, wrap the silk loosely and then burnish very gently to make the overall tension as even as possible across the wrap. Wrap it too loose however, and it may come apart during the burnishing – silk is very slippery stuff. Experimentation is the key.

The more you burnish, the more chances of creating 'fuzzies', so remember to be brief and gentle with it. Again, try not to pack the thread too tight either. That would further compress the fibers, and we don't want that either. The individual threads of silk (in this case) won't be visible when finished like it would be with nylon thread, so don't fret over it being "perfect" like you normally would. Fine silk can be a bit taxing to work with, so don't get discouraged if you find yourself stripping it all down and starting over- this step is critical enough that you'll want to get it just right.

Experimentation here is the key, so give this process a few tries on a scrap blank before committing to a rod.

To summarize;

1. Wrap as loosely and even as possible so you little or no packing to do.
2. Burnish gently- just to make the wrap tension consistent across the length of the wrap.
3. Don't worry if it's not as perfect as your nylon wrap would be- if we're successful, no one will see the silk anyway. (But don't take this statement as permission to throw wrapping neatness out the window- we don't want big gaps in the wrap either)

4. Don't try to include a trim band yet- the color might bleed into the silk and ruin the effect. We can add a trim band later, after the first coat has cured. Others add the trim band before the first coat, but I don't risk it.
Also, try to keep the wrap as short as possible- begin the wrap as close as you can to the guide foot's 'toe'. This will give us the room we need to add a trim band later if desired.

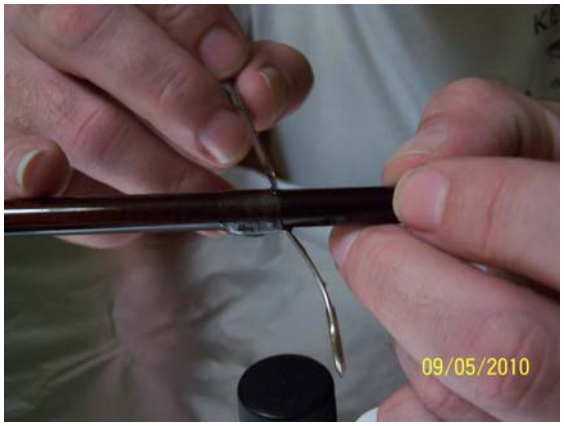
Applying the finish

Here's the real tricky part. But first, forget what you know about applying finish. The average rod builders finishing technique will trap air and ruin the effect here. I'm not poking anyone in the eye, but this isn't nylon, and we're trying to achieve a specific result here. You will need a spatula or needle to apply this finish technique.
I use a spatula, and apply the thinned finish with its edge. Here's why; the thinned finish, if applied over a broad area at once, can trap air- so we need to keep the contact area as small as possible while applying the finish. What we want to do is chase the air out of the thread, little by little as we go along, displacing it with the finish. To do that, we start applying the thinned finish at the area of the wrap where we normally have a trim band- the outer edge of the wrap- and work it inward towards the other end of the wrap *using the edge of the spatula.*

Make sure that the rod is level, and work the finish towards the guide foot. This is also very important. The reason is so that the finish will displace the trapped air and force it towards the guide foot- little by little, as we inch it along across the wrap. You see, the guide foot beneath the silk creates a 'tent' of sorts, and a place for the air to go as it's displaced out of the silk.

I apply the finish at the bottom of the wrap first(opposite side of the guide), with the guide pointed down, allowing the finish to flow so that the guide foot "tent" doesn't trap any air. Done in this manner, the "tent" is the last part of the wrap to receive finish.

When it gets to the "tent", work the finish from the toe of the guide's foot towards the front (guide ring-portion), working slowly as you go, and with very small amounts of finish at a time. Don't try to finish more than two or three wraps per mix – it WILL thicken and be useless for this technique long before it looks too thick. It will still appear thin, but will be too thick to penetrate the silk properly. You'll learn with experimentation as to how long your mix will have a usable pot-life for this technique.



Once the entire wrap is covered, allow it to sit for about 20 minutes with the blank level and the guide *pointed down*, and then gently wick off the excess finish sagging at the bottom with the spatula. Be careful not to move the silk when doing this – it's wrapped loosely, remember? Rotate and repeat to remove the sags as they form, until no more finish drips or sags. Inspect for bubbles and pop them with a needle, or remove by suction with a straw- but DON'T use heat.

If you're going to add trim-bands later, remove any finish that has flowed over and onto the blank at the wrap's edge. I use a lint-free coffee filter, folded in half and wrapped around the blank to do this. Forget this step and you'll have a small ramp at the edge of the wrap that will make adding the trim-band difficult. Continue rotating 180 degrees every 20 minutes or so, for about 4 hours.

Allow the thinned finish to cure for about two days, because the DNA will slow down the cure rate considerably. After it's cured, inspect the wrap for 'fuzzies' sticking out, and trim off any with a razor blade. You may have to apply another coat of thinned finish again if any areas of silk aren't completely sealed by the first coat.

Once no fuzzies remain and the sealing coat is cured, add a trim band if desired, and apply a few finishing coats of "lite" or regular finish without the DNA. Use the same 'wait until sags form, then wick off' technique- there really is no need to use a rod dryer - this whole process can be done by hand, turning 180 degrees every 15-20 minutes or so. Don't try to get it done with just one coat or you will get "footballs".

This entire process is one that CAN NOT BE RUSHED. Get in a hurry and you will mess it up. The end result is worth the patience and care required to do it right.

That's really all there is to it, other than a few tips on bubbles and shimmers by the masters;

World-renowned rod builder and thread artist Doc Ski recommended using a blow dryer to gently heat the wraps before applying the first coat of finish. This should help "pull" the finish in and displace the trapped air that can cause the micro-bubbles we call "shimmers". This technique may work if you wrap the silk too tightly. Give it a try.

Bamboo rod maker Chris Carlin uses a small diameter hollow coffee stir stick to gently suck out trapped air bubbles if they form, as noted in his helpful tutorial. While I haven't tried it myself, it must work well- his incredible work speaks for itself and is without peer. His transparent wraps appear flawless, and are truly a sight to behold.

One thing to note – while this technique will work on any color/type blank, black or dark blue blanks will really test your skills. They tend to show "shimmers" more so than lighter colored blanks. It can be done, but I wouldn't recommend a dark blank for your first attempt. Shimmers are caused by using the wrong type of silk, wrapping it too tight, or using finish that's too thick – or by a combination of one or more of these factors. Once you get the hang of it however, a dark blank will show if have the technique perfected or not.

So give it a try, and don't worry if you make mistakes at first – that's what the scrap practice blanks are for. But by all means, show us your work- good or bad. We all learn from each other's successes AND mistakes… as long as we share them. That's a big part of what makes this craft so great.