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SPORTING TRADITIONS  
Since 1856

*technical manual*

2009

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# ZG Helios Switch Rods

## Tech Information

### Hot New Helios Switch Rods

Switch rods are a new type of fly rod that is lighter and shorter than traditional two-handed rods, and thus can be used in places where delicacy and accuracy are paramount, while still employing the advantages of two-handed rods. They can be used with a traditional overhead casting style, where their length allows longer casts and much greater line control on the water, yet can also be used with Spey casting styles where lack of back cast room, wind, or just a tired angler makes two-handed casting more desirable.



### IN SHORT

- Switch rods are excellent for nymph fishing with or without an indicator, long-line dry-fly fishing, stillwater fishing, and salmon and steelhead fishing during low water conditions. Some fly fishers even use them in the surf to get long casts over the last wave without false casts.
- The main drawback to conventional switch rods are that they are heavy, and when constantly mending line or high-stick nymphing, the caster's arm can get very tired holding a rod that weighs almost 6 ounces high above the water all day long. With Helios technology, our exclusive aerospace-derived graphite resin systems allow us to build a switch rod that's lighter than any other.

### Switch rod weight comparison, all rods 11-foot 7-weight

Brand	Model	Actual Weight	Levered Weight*
Orvis	Helios	4.75 oz.	169
Loomis	Native Run GLX	5.50 oz.	204
Sage	Native Run GLX	5.38 oz.	218
TFO	Deer Creek	7.08 oz.	242

\* Levered weight in grams is measured as the load on the butt section when the rod is balanced at the point on the grip where the casting hand would be placed (all rods are measured at the exact same point) and gives a comparison of how light the rod feels during casting.

Here is the current lineup of Orvis Switch rods. You can be assured that you'll be using the lightest switch rod in the world and will have more fun fishing with Helios rods than any other.

### Orvis Helios Switch Rods

Model	Series	Length	Actual Weight
1C16-5157	Helios	11'	4.25oz
1C17-5157	Helios	11'	4.3oz
0H46-5157	Helios	11'	4.75oz
1C19-5157	Helios	11'	4.63oz

## ZG Helios Switch Rods Tech Information cont.

<b>Helios Switch load range in grains</b>					
Item #	Rod	Load Range	Sweet Spot	Beulah Line	Rio Line
1C16-5157	115-4	240-325	295	Beulah Elixr 5/6 - 295 gr.	Rio AFS 4/5 - 300 gr.
1C17-5157	116-4	280-375	335	Beulah Elixr 6/7 - 335 gr.	Beulah Elixr 5/6 - 340 gr.
0H46-5157	117-4	320-425	380	Beulah Elixr 7/8 - 380 gr.	Beulah Elixr 6/7 - 400 gr.
1C19-5157	118-4	360-485	420	Beulah Elixr 8/9 - 420 gr.	Beulah Elixr 7/8 - 460 gr.

### **GUIDES AND TESTERS ON THE NEW HELIOS SWITCH RODS**

*I think anyone will be a better caster with this rod and a little time on the water.*

-Mike Schultz, Michigan steelhead guide and tester

*I have cast the Sage Z-Axis rods and I think that the 11' 8wt Helios is a better rod. Not only is it lighter, better action, but the top and bottom handles are much better than the Sage switch rods that I cast. This rod is going to be incredible for those who want to use switch rods for trout. They can have the best of both worlds and have an awesome high stick or indicator rod, or swing flies with two hands.*

-Doug Duncan, tournament Spey caster (in 2007 and 2008 he placed second at the International Spey Competition in San Francisco) and manager of the Orvis Retail Store in Rosedale (Sacramento), California

*In all my 27 years of fly fishing, no other fly rod has offered the versatility and performance of the Orvis Helios Switch Rods. In a league of their own, the Helios Switch Rods emerge as a true one- or two-handed fly rod. Its superior lightweight design allows me to cast single-handed to rising rainbows during a stonefly hatch. After the hatch is over and the fish go back down, I use Spey casting to launch streamers to the other side of the river. When I use them to teach casting lessons, my students prove... not all rods are created equal. They learn faster and perform better.*

*Thanks, Orvis for making my job easier.*

-Jeff Putnam, one of the finest Spey casting teachers in North America





## ZG Helios Switch Rods Tech Information cont.

### **GUIDES AND TESTERS ON THE NEW HELIOS SWITCH RODS CONT.**

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*I think it is exceptional; my clients are going to love the rod because it won't intimidate them. When I put a longer and heavier rod in their hands, many clients don't like the idea of learning to Spey cast. This Helios can be fished one handed and still provide the advantages of an 11 foot length.*

-Chuck Hawkins, Hawkins Outfitters, Michigan

*The rod just loves to mend line, never have I mended with such a sweet stick.*

-Tommy Lynch, steelhead and trout guide, Michigan

*WOW! Those rods are unbelievable.*

-Dave Hise, Caster's Fly Shop, North Carolina

*What a great Nymphing rod! And the really good thing was, at the end of the day, my tendinitis in my right arm was not flaring up...the Helios is so much lighter than the Z-axis switch rod!*

-Steve Gossage, Angler's Covey, Colorado



## ZG Helios Tech Information

Introduced in late 2007 with only four models, the Helios fly rod became the most talked-about piece of tackle in the 21st century. Anglers around the world clamored for Helios models that ranged across the board, because the new rods were so much lighter and so much more fun to fish that everyone wanted one for his or her fishery.

“How do you get them so light?” “Are they going to be strong enough?”

These are the questions we get asked the most after anglers cast them. The reason Helios rods are so light is that we get the same strength as other rods using less graphite. We have access to fiber technology and resin cures that no one else (besides the military) has, because of our special relationship with a top defense contractor. The secret is in the thermoplastic, thermoset resins we use to hold the graphite fibers together. It gives us a thinner, lighter blank. It's a patent-pending process, and beyond that we can't tell you much.

Helios rods, despite their super light weight, are as strong as any graphite rod on the market. We run each model through exhaustive tests that mimic repetitive casting, yanking a fly out of a tree, and high-sticking a rod on a big fish under a boat. And then we send them out in the field—our 12-weight rods were tested by horsing 100-pound-plus tarpon on straight 60-pound fluorocarbon—an abuse of a fly rod no civilian should try!

Helios fly rods now cover the gamut of fly-fishing rods so that everyone can enjoy one, including:

### IN SHORT

- The super lightweight Helios Ion small-stream rods, with a tiny 2-weight that weighs less than a pair of forceps
- All the basic single-handed models from 3- to 12-weight
- 11 and 12-weight big-game sticks that feature an extra-long grip for putting extra power on giant fish, and two different interchangeable fighting butts.
- 10-foot rods in 4-, 5-, and 7-weight models, for extra-long casts and terrific line handling characteristics
- 11-foot switch rods in 5, 6, 7, and 8-weight designs that can be used either with either single- or double-handed casts and weigh up to 35% less than the competition.
- Spey rods in 8, 9, and 10-weight available in Fall 09



**Field & Stream**  
Best of the Best



**MidCurrent**  
Best of Show



**Fly Rod & Reel**  
Kids Awards



**Wall Street Journal's**  
Smart Money



**Fly Fish America**  
Editors Choice Award



**Gray's Sporting Journal**  
BEST



# ZG Helios

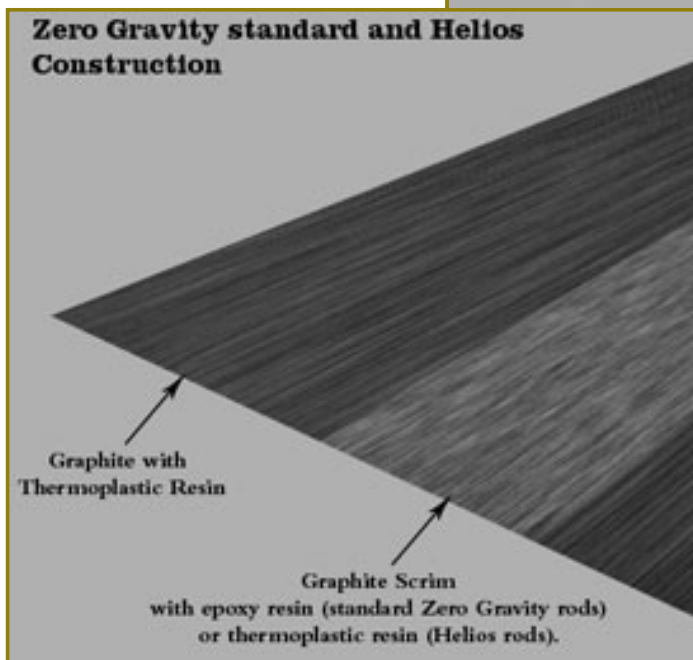
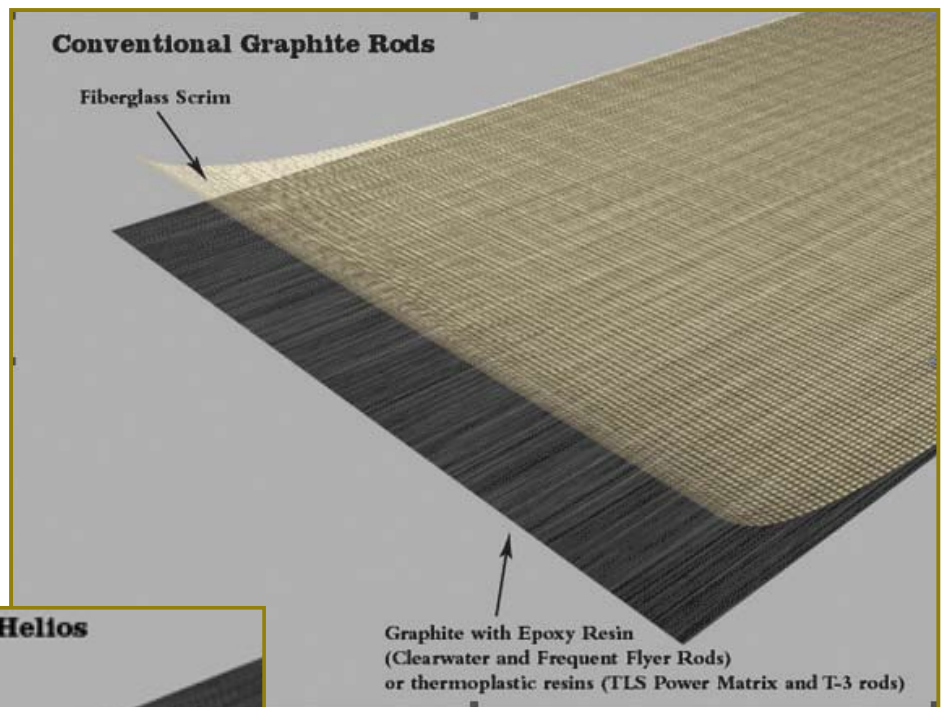
## Tech Information cont.

### Construction

Helios rods are lighter and feel different from any other rod because their materials and construction methods are different. For the first time, the scrim used to augment hoop strength in a fly rod is made from a unidirectional carbon fiber and held together with a thermoplastic resin. Why is this different and why should it matter to the fly fisher?

Historically, even “100% graphite” rods were almost 50% fiberglass. Rod manufacturers were using 100% graphite for the power fibers of the rod, but an equal amount of cross-weave fiberglass scrim was rolled into the blank. (Scrim is necessary for hoop strength, or keeping the hollow rod tube from collapsing under stress as the rod bends.) Was ignoring this fiberglass misleading? No more than ignoring the epoxy and paint on the outside of a rod, or the resin that held the graphite together. A 100% graphite rod would merely be like a hank of loose hair in your hand.

Orvis’s first modern breakthrough in graphite rods was the T-3 rod. Heavier, more brittle epoxy resins used to hold the graphite fibers were replaced with lighter, more durable thermoplastic resins, which encased the fibers instead of just sticking to them like epoxy. Next were the Zero Gravity rods, where the cross-weave fiberglass/epoxy scrim was replaced by a unidirectional graphite/epoxy scrim. This made rods lighter and more durable. Finally, the Helios, which replaces the graphite/epoxy scrim with unidirectional graphite/thermoplastic scrim.





## Battenkill® Reels

There are now three members of the Battenkill fly reel family. These aluminum bar stock reels are known for their durability, dependability, and value. They are the most popular fly reels in the mid-price range in the world.

### IN SHORT

- Battenkill Bar Stock Reels are designed for smaller, lighter rods. They are the lightest of the Battenkill reels because of their smaller foot print and because the offset drag is a lighter, simpler drag mechanism. They are perfect for small-stream trout, where a strong drag is not needed, backing capacity is not critical, and the faster retrieve of a larger arbor is not needed.
- Battenkill Mid-Arbor reels feature a stronger center-line drag system. They are best for fish such as larger trout, redfish, striped bass, and freshwater bass, where a faster retrieve and a stronger drag is needed.
- Battenkill Large Arbor Reels have the fastest retrieve of the series. They also feature a center-line drag for more stopping power. They are designed for situations where a quick retrieve of line is critical without sacrificing backing capacity. These reels are best for the fastest gamefish such as bonefish, permit, small tunas, steelhead, and Atlantic salmon. The Battenkill Large Arbor VI model has a super high-range drag that will stop a tarpon or sailfish.



Example of retrieve speed of the three models. All are Battenkill III models loaded with 100 yards of 20 pound backing. Retrieve speed in inches for one revolution of the reel handle. (For comparison purposes only—retrieve speeds with line on the reel will be much quicker.)

	Reel Diameter	Retrieve Speed in Inches
Battenkill Bar Stock III	3"	5.1
Battenkill Mid Arbor III	3¼"	7.5
Battenkill Large Arbor III	3⅝"	10.2



# Pro Guide Wading Rain Jacket Tech Information

(The wading jacket formerly known as Deluge)

The Pro Guide Rain Jacket is an advanced model that is totally waterproof and breathable and is designed especially for fly fishing. Its clean design means it can be worn over a fishing vest without bulging pockets getting in the way; and when a vest or chest pack is worn over the top of it, there is no bulk to get in the way. There is no rain jacket more comfortable when rowing a drift boat.



## IN SHORT

- The front pockets are large and roomy yet lie flat if empty, so there is less to get in your way.
- Slim waterproof zippers on all pockets
- Stretch fabric allows much greater freedom of movement
- Front waterproof zipper has a fold-over rain gutter and it stays closed without the added bulk of Velcro or snaps.
- Fleece hand-warmer pockets above chest wader line ensure you can access them at all times. Hand-warmer pockets have water-proof zippers, so they are dry when you need them.
- Dolphin Skin dry cuff keeps wrists and arms dry even in a heavy rain storm or when reaching underwater. Special fabric does not wick moisture up your sleeve.
- Snag-free over-cuff keeps fly line from tangling at the wrists



handy lunch and map pocket, and net snap



waterproof laser-cut pockets



angler's pocket design

lightweight, breathable, rugged, and waterproof stretch fabric

Dolphin Skin Dry Cuff keeps you dry

special snag-free over cuff prevents fly line tangles





## Pro Guide<sup>3</sup> Tech Information

Pro Guide III waders are our toughest waders. The upper material is a dense, double-weave fabric that prevents punctures from tough brush, even blackberry thorns, and the fabric is double-layer from knees to feet for extra protection where you need it. They have been further improved for both comfort and durability for 2009.

### IN SHORT

- New, slimmer fit means more comfort when walking and less water resistance when wading.
- Unique roll-down feature—suspenders can be completely removed when worn as waist waders. There is no bulk at the waist (unlike with other roll-down waders) and these waders truly feel like waist waders in the rolled-down configuration.
- Exclusive lightweight stretch upper gives complete freedom of movement. The lightweight material allows us to use very lightweight suspenders. You barely know the suspenders are on your shoulders.
- Seams along the legs have been moved to the back, for easier walking and greater durability.



- Pro Guide III material is 59% more waterproof than Simms 3-layer and 17% more waterproof than Patagonia wader fabric (hydrostatic resistance).
- Pro Guide III material is 30% more breathable than Simms 5-layer fabric and 26% more breathable than Patagonia wader body fabric (upright cup test)
- Dual wader-belt tunnels, dual elastic chest-high draw cords, and adjustable suspenders for custom fit
- Attached gravel guards never get lost or separated; rubberized strips inside prevent ride-up



## Silver Label<sup>3</sup> Waders

### Tech Information

Silver Label Waders have long been recognized as the world's most comfortable wader. They have been further improved for both comfort and durability for 2009. In addition, each pair of Silver Label 3 waders is tested three times before they leave the factory: Uppers are tested with compressed air, booties are tested with compressed air, and once the waders are assembled, the completed product is filled with water to test for leaks. We also spot-check each shipment of waders for leaks in our Roanoke repair facility.

#### IN SHORT

- Unique roll-down feature—suspenders can be completely removed when worn as waist waders. There is no bulk at the waist (unlike with other roll-down waders) and these waders truly feel like waist waders in the rolled-down configuration.
- Exclusive lightweight stretch upper gives complete freedom of movement. The lightweight material allows us to use very lightweight suspenders. You barely know the suspenders are on your shoulders.
- Seams along the legs have been moved to the back, for easier walking and greater durability.



- Silver Label material is 37% more waterproof than Simms 3-layer (hydrostatic resistance)
- Silver Label material is 25% more breathable than Patagonia wader body fabric (upright cup test)
- Laser-cut waterproof pocket with vertical waterproof zipper for quick access
- Easy conversion to a waist wader—remove suspenders and fold upper into waist
- New lightweight “Y” suspenders are easily adjustable for a custom fit and can be removed when used as a waist wader
- Attached gravel guards never get lost or separated; rubberized strips inside prevent ride-up

*The Silver Label performs well under a wide range of circumstances, from weathering cold and blustery conditions to beating the hot and dry summer heat. It's hard to imagine improving the old Silver Label wader, but with the recent innovation of adding an extra layer of No Sweat fabric from the knees down, and the new seam design—moving the inner leg seam to the rear of the leg—the Silver Label has literally become bombproof.*

-Pat Dorsey, head guide, Blue Quill Anglers, Colorado





## Clearwater Stockingfoot Endura Waders Tech Information

Clearwater Endura Waders are a great value. They have been further improved for both comfort and durability for 2009, so they are perfect for rental programs or loaners. In addition, each pair of Clearwater Endura waders is tested three times before they leave the factory: Uppers are tested with compressed air, booties are tested with compressed air, and once the waders are assembled, the completed product is filled with water to test for leaks. We also spot-check each shipment of waders for leaks in our Roanoke repair facility.

### IN SHORT

- Lower legs are now 5-layer fabric for improved durability and puncture resistance
- Seams along the legs have been moved to the back, for easier walking and greater durability.
- Improved slimmer fit for easier walking and less resistance in the water
- The new fabric is 36% more waterproof, 1% more breathable, and 26% more abrasion resistant than fabric used in the previous Endura stockingfoot waders.





# Tri-Spectrum Sunglasses

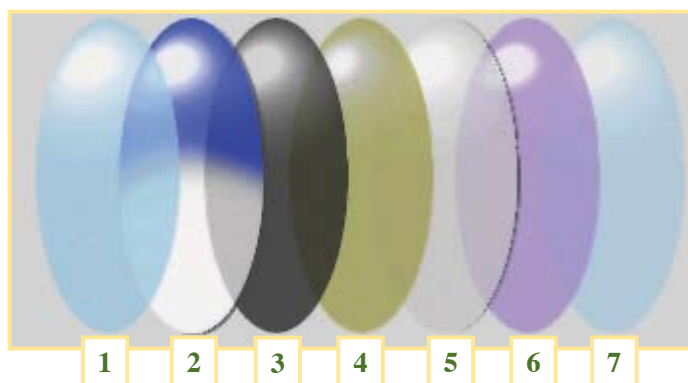
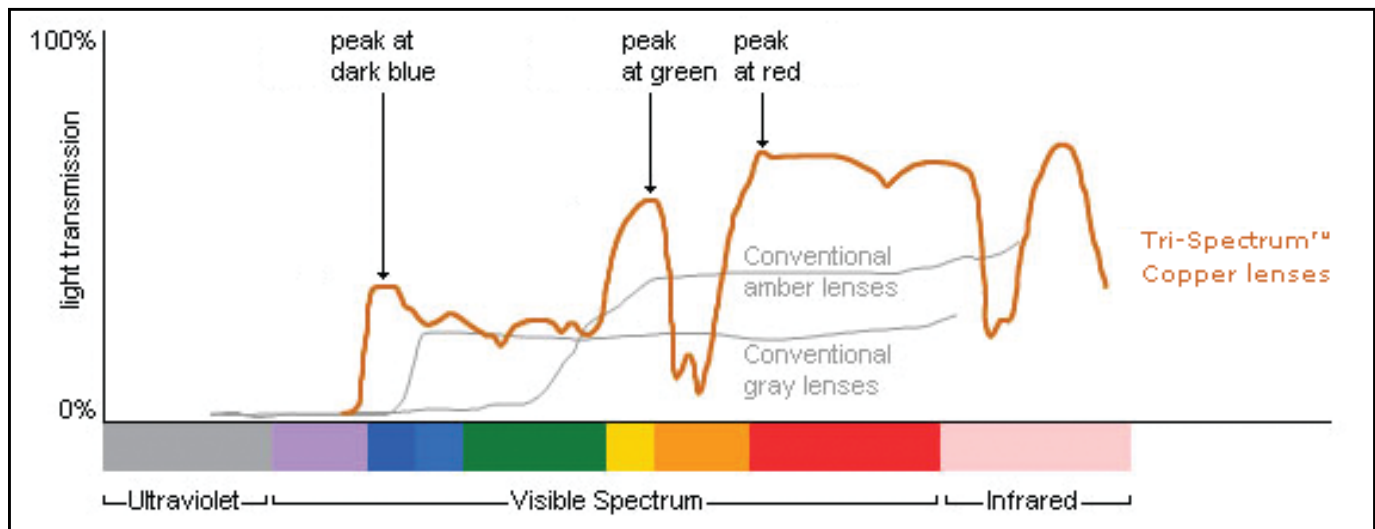
## Tech Information

Tri-Spectrum Sunglasses are simply the finest fishing glasses ever made. Their optical glass clarity, polarizing properties, anti-reflective coatings, and patented contrast-enhancing glass enable fly fishers to see distant and indistinct objects better than with the naked eye, or with any other kind of fishing glasses.



### IN SHORT

- The patented glass process used in these lenses (U. S. Patent Number 6,773,816) utilizes rare earth elements, including neodymium oxide, which attenuate certain wavelengths of visible light, achieving peaks of light transmission that enhance contrast—similar to the way digital photographs are sharpened to enhance contrast. The process is melted into the glass of the lenses, not applied as a coating, so it will never wear out.
- Three layers of anti-reflective coatings on both the back and front side of the contrast-enhancing glass and polarizing film eliminate flare and further enhance vision clarity. Most sunglasses only have a single coating.
- Three layers of hydrophobic coatings on both the back and front of the lenses make them easy to clean, even if smeared with grease or saltwater.
- All coatings are baked onto the lenses at high temperatures, which means they will not wear off as do inferior coatings.
- Lenses provide 100% protection from both UV A and UV B light rays for maximum eye protection and relief from eye fatigue.
- Highest quality Japanese lenses and Italian frames mean you get the world's finest optics in great-looking, quality frames.



**Layer 1 – Super hydrophobic coatings front side (3 layers)**

**Layer 2 – Ultra Violet UV 400 cut-glass wafer**

**Layer 3 – Polarized film layer**

**Layer 4 – Anti-reflection - 3 layers**

**Layer 5 – Tri-Spectrum glass with rare earth elements**

**Layer 6 – Anti-reflection - 3 layers**

**Layer 7 – Super hydrophobic coatings on the back (3 layers)**

## Super Strong Tippet Material Tech Information

How often do you use tippet material that is dry and not tied in a knot? That's the "breaking strength" that by convention is listed on all tippet spools. But at Orvis we never evaluate tippet material by dry tensile strength. We label it that way because everyone else does, but the true test of tippet material is: how much strength does it retain when wet and knotted?

### IN SHORT

- Based on a test by an independent lab, where various brands of tippet material were soaked in water and tied in an overhand knot (used because it can be tied consistently without variation in the knot-tier's ability), the chart below shows how Orvis Super Strong Nylon stacks up against other materials. It is, clearly, still the strongest tippet material in the field.
- And don't forget it's available in 40 meter and 100-meter spools for guides, which makes it easier for you and cuts the amount of plastic spools in landfills in half.



Brand and stated diameter	Measured Diameter	Wet knot strength
Orvis Super Strong 5x	0.006	3.41
Umpqua 5x	0.006	3.26
Frog Hair 5x	0.006	3.22
Scientific Anglers Freshwater 5x	0.006	3.16
Maxima 3#	0.007	3.09
Rio Powerflex 5x	0.006	2.99



## Mirage Tippet Material Tech Information

Fluorocarbon (or PVDF) tippet material is superior to nylon in many respects:

### IN SHORT

- It is more abrasion resistant and thus lasts longer when playing fish with sharp teeth or when fished around rocks or coral.
- It is more dense than nylon, so it sinks quicker.
- Its index of refraction is closer to water than nylon's index, so it is less obvious in the water.

Orvis offers two varieties of fluorocarbon: standard Mirage and Mirage Max Knot. Which one should you use?

### IN SHORT

- Standard Mirage is stiffer and is better for streamer fishing, stillwater fishing, and saltwater fishing because it straightens easier.
- Max Knot is more flexible and is thus better for nymph and dry fly fishing, where a natural drift is important.
- Max Knot knots easier than standard Mirage because of a slicker finish. It is better when tying knots in a hurry, or for those who don't always tie knots consistently.
- Max Knot has a slightly higher wet knot strength, thus is better where big fish are played on light tippets.









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