

## USING DENIER TO STANDARDIZE FLY TYING THREAD

By. Christopher Helm

In the late 1930's, the Chenille Company created the "aught"( 3/0,6/0, 8/0, etc.) system to indicate the size of thread. This was based on a system where the number or "aught" was the base point and as the thread became smaller additional zeros were added indicating that the thread was finer. As an example, a thread with six zeros ( 000000) translated to a 6/0 thread. As other thread distributors were born after the early 1960's, they followed the same system which was assigning a standard that does not provide as accurate a measurement for the fly tier as denier.

In 1988, Tom Schmucker of WAPSI Fly, Inc. in Mountain Home, Arkansas introduced a nylon thread simply called 70 UTC and 140 UTC based on denier, which is the method of measuring thread. This is the system that the garment industry uses for thread to sew clothing. Denier is defined as the weight in grams of 9000 meters of nylon, polyester, rayon thread, etc. There is a correlation between denier and breaking strength of nylon and polyester thread, the smaller the denier number the lower pound/ounce breaking strength of the thread. At the present time, about the smallest denier nylon or polyester for fly tying thread is 40, which would be used for tying midges. *The one exception to this denier vs. breaking strength rule is that gel spun polyethylene thread is two to three times stronger than nylon or polyester of the same denier.*

This transition to a denier rating system will take several years to be completed. Danville and Gudebrod are committed to making changes as they order new labels. UNI-Products has already begun the transition. The following information groups thread by the type of fly most suitable to narrow denier range. There is some flexibility allowed in using lighter thread for larger flies depending on the skill and artistic taste of the tier. Included in this information is the "aught" rating as well as the denier plus the type of material used in the thread.

(N) = nylon, (P) = polyester, (GSP) = Gel Spun Polyethylene, (M) = Monofilament

### VERY SMALL FLIES --18-28

- Gudebrod 10/0 45 denier
- UNI 17/0 (N) 40 denier
- Roman Moser Power Silk 8/0 (GSP) 55 denier
- WAPSI 50 denier (GSP)

- UNI Cord 12/0 (GSP) 50 denier
- Benecchi Ultra Strong (GSP) 50 denier
- Danville Spider Web (M) 30 denier
- Benecchi Ghost Thread (M) 60 denier
- Gudebrod 10/0 (M) 91 denier
- UNI-Caenis (N) 20 denier

#### SMALL FLIES -- 10-16

- Gudebrod 8/0 (P) 67 denier
- Benecchi 12/0 (P) 70 denier
- Danville 6/0 (N) 70 denier
- UNI 8/0 (P) 72 denier
- WAPSI Ultra 70 (N) 70 denier

#### MEDIUM TROUT FLIES

(Streamers, large nymphs and dries, small saltwater patterns)

- Gudebrod 6/0 (P) 143 denier
- Benecchi 10/0 (P) 120 denier
- Danville Monocord 3/0 (N) 116 denier
- UNI 6/0 (P) 135 denier
- WAPSI 140 (N) 140 denier
- Danville 140 (N) 140 denier
- UNI Cord 7/0 (GSP) 100 denier
- WAPSI (GSP 100) 100 denier
- Gudebrod GX2 (GSP) 130 denier
- Roman Moser Power Silk 6/0 (GSP) 115 denier
- Gudebrod 6/0 (M) 131 denier

#### LARGE TROUT FLIES, MEDIUM SIZE HAIR FLIES, LARGE SALTWATER PATTERNS

- Danville Flat Waxed Nylon (N) 210 denier
- Danville Flymaster Plus (N) 210 denier
- UNI 210 (N) 210 denier
- Gudebrod 3/0 (P) 176 denier
- WAPSI 210 (N) 210 denier
- Gudebrod "G" (M) 272 denier

#### SUPER HEAVY THREAD

- Gudebrod "G" 303 denier

- UNI Big Fly Thread 400 denier
- Wapsi 280 (N) 280 denier

In the Summer 2004 issue of Fly Tye magazine, Morgan Lyle wrote an article entitled "Selecting the Right Thread". This article discusses the pros and cons of thread standardization. In conjunction with this article, a web poll was available to the readership. The results appeared in the Autumn 2004 issue with 252 of 284 readers voting in favor of standardization of fly tying thread.

Additional information on thread is contained in an extensive article of this material in the Summer 1996 issue of Fly Tye entitled "Testing the Ties That Bind" written by Christopher Helm and Bill Merg. Included in this article is a chart listing the type of thread such as twisted, flat, or round, the breaking strength, discussion of the merits of waxed vs. thread, etc.

Another thread article by Ed Engle in the Spring 2000 issue of Fly Tye entitled "Hanging by a Thread" compares twelve different threads for tying small flies and then he rates the threads in a manner similar to how Consumer Reports evaluates products. This same article appears in Ed's book "Tying Small Flies". Ed describes the characteristics of twelve threads and discusses the pros and cons of each.

Darrel Martin wrote an excellent article on thread in the March/April 2000 issue of Fly Rod and Reel entitled "A Thread of An Idea". He discusses silk thread and its history along with numerous facts about thread sizing, characteristics of the each material used in thread, along with comments on thread pressure applied when tying, characteristics of waxing thread, etc.

Matching the thread to size of the fly and the material is extremely important in achieving both functional and aesthetically pleasing flies. The more a tier understands about all the materials used in tying the fly the more efficient and effective he or she will become.

The following definitions and table come from different sources than the above article by Chris Helms, but there is no fundamental contradiction.

#### denier (noun)

1. (Mathematics & Measurements / Units) (Clothing, Personal Arts & Crafts / Textiles) a unit of weight used to measure the fineness of silk and man-made fibers, especially when woven into women's tights, etc. It is equal to 1 gram per

9000 meters

2. Weight per unit length (linear density) measure of a continuous filament or yarn, used traditionally in textile industry. It expresses weight in grams of nine kilometers (9000 meters) length of the material. Therefore lower the denier number, finer the material; and higher the denier number, coarser the material.

3. A unit of fineness for yarn equal to the fineness of a yarn weighing one gram for each 9000 meters <100-denier yarn is finer than 150-denier yarn>

4. Denier provides a scale for the heaviness (largely related to thickness) of fibers in a fabric. The higher the denier, the thicker the fiber. The denier value is defined as the mass in grams per 9000 meters of yarn. Contrary to some claims, the unit is not "mostly obsolete", but still finds much use in the fiber industry.

Hook Size	Thread Size	Thread Denier
Hairbugs	A or Monocord	280
6 and larger	A or Monocord	280
6-10	3/0	213
12-18	6/0	135
20 and smaller	8/0	72