

Harp Strings

This article sets out to clear up some of the confusion about harp strings and give some understanding of the effects that different strings have on the design of the harp.

This should be especially useful when ordering replacement strings.

Material

Leaving the bass or metal strings until later we can generally say harp strings come in three different materials – natural gut, nylon or fluorocarbon. At the moment we only use natural gut as we believe they have by far the sweetest, most musical sound. Natural gut strings these days are made from the intestines of cows. We use strings made by Bow Brand International Ltd. We have at times fitted nylon to our harps when specifically asked for, and we did produce a nylon strung harp called the Lismore but it was by request from the Belfast Harp Orchestra. While not sounding as sweet as gut, nylon strings are initially cheaper, and rarely break, so cost less to maintain than gut. While there has been a large amount of development of fluorocarbon strings and some players think they feel better than nylon, they still do not have the musical qualities of gut. They are however very hardwearing.

Gauge

In Europe, there are two gauges of string used, concert gauge and folk gauge. There are variations of concert gauge (Light and Heavy) used in America but we will stick to describing European folk and concert gauge as that is what we use here at Starfish. Bow Brand calls these Pedal (concert which corresponds to American Light) and Non Pedal (folk).

Until comparatively recently only concert gauge strings have been available. Celtic harps therefore had to be designed to take the high tension of these strings with string lengths similar to the concert harp albeit over a smaller range. On a celtic harp this gives quite a mellow sound, perhaps more suited to classical pieces.

The only alternative at this time was to string a harp with 'octave light' concert strings. This meant moving the strings all down one octave and made a very light (low tension) harp. One advantage of this is that the harp could be made in a lighter construction and so could be allowed to resonate more. Strung like this the strings feel floppy with not enough tension to develop good technique.

Then in the early nineties we at Starfish decided what was needed was a string gauge in between these variations and folk gauge stringing was born. With its medium tension it still provides the resistance to pull that is required to learn correct technique. It is bright and clear sounding and especially good for playing traditional music with its fast jigs etc. As the strings are smaller in diameter they can be positioned slightly closer (about one tenth closer than concert gauge). This means that the hand stretch needed is less and also helps when playing faster pieces.

Harps need to be designed and made to suit a string gauge. This is not only from a constructional strength point of view but because of the mathematical relationship between frequency (the note), string diameter, string density and string length. This formula gives the optimum tension in the string to make it ring correctly.

If you string a harp that has been designed for concert with folk gauge the string lengths are too short, the strings are comparatively floppy and the construction is too heavy. The result is a dull or dead sounding harp. If on the other hand you string a harp designed for folk gauge with concert the strings will be too tight, sound strident and break all the time. This is assuming the harp doesn't just explode with the extra tension which it probably would!

You have probably guessed by now we are advocates of folk gauge gut strings. Almost all our harps are strung with this gauge. The only exception is the Lochaber which is strung in concert gauge gut. This harp is important to our range as some people just prefer the sound or feel of concert gauge.

Bass Strings

If using the formula mentioned earlier you plot out the string lengths for a given gauge starting at the top you discover that it is not linear but produces a curve. This is called the harmonic curve and it is this that gives the harp arm its shape. This curve is asymmetric with it getting much steeper towards the bottom i.e. the longer strings. This curve is the reason concert harps are so tall. If the strings continued in gut below 4th Octave F (5th D on the Mamore) they would need to be extremely long to sound acceptable and so to make the celtic harp remain a sensible size we use metal for the last 8 to 10 strings at the bottom. This is because metal strings can cheat and use different constructions to work well at a given note on a shorter length (because they have a different density). The variables include different diameters and materials of core (usually metal or nylon) different amounts of silking and different diameters and materials of wrapping. The silking is longitudinal strands packed around the core inside the spiral outer wrapping.

Metal cored strings can be quite twangy, at least initially, and feel tighter than gut or nylon. They play in well quickly losing their metallic sound and have a good lifespan.

1			A
2	1	1st Octave	G
3	2		F
4	3	2nd Octave	E
5	4		D
6	5		C
7	6		B
8	7		A
9	8		G
10	9	F	
11	10	3rd Octave	E
12	11		D
13	12		C
14	13		B
15	14		A
16	15		G
17	16		F
18	17	4th Octave	E
19	18		D
20	19		C
21	20		B
22	21		A
23	22		G
24	23		F
25	24	5th Octave	E
26	25		D
27	26		C
28	27		B
29	28		A
30	29		G
31	30		F
32	31	6th Octave	E
33			D
34			C
35			B
36			A
37			G

Nylon cored strings have a sound which is closer to that of the gut strings higher up, feel softer, but can become dead sounding with use. They do not have the lifespan of metal cored strings. Some players don't like the way these strings roll against the fingers when playing.

Describing strings

The way celtic harp strings are described is exactly the same as concert harp strings except there are less! The main area of confusion is the fact that harp octaves change on the Fs. A concert harp usually starts on 0 octave G (depending on the number of strings) so there is only the F and G in 0 octave. Below this F the 1st octave starts and so on down the harp. Our celtic harps start in the 1st octave on G or A depending on the model.

Hopefully this makes sense and it can be seen that when people phone up for a 1st C and a 2nd C it takes a bit of explaining as our harps don't have a 1st C! What they tend to be describing is the 1st and 2nd C they come to on the harp which is in fact 2nd and 3rd octave C! The easiest way to cross reference the strings when ordering is to just count down from the top (short strings) so for instance 2nd C would be string number 6 on a Glencoe harp.

Hopefully this has given you some background to what is essentially the power plant of your harp!

Starfish Designs January 2006

Harp-strings.pdf.