# STANDARD HERRINGBONE-PINEAPPLE KNOTS TYPES and PASS

The topic of **PASS** is treated at length elsewhere so, if needed, consult the appropriate PDF and web pages I already wrote. The present document is just the result of easy but attentive observations and abstract thinking.

Here I am using the VERTICAL CYLINDER frame of reference with **BIGHT-BORDER** at TOP and **BOTTOM** as the HORIZONTAL MANDREL frame of reference has **BIGHT-BORDERS** on the **LEFT** and RIGHT side **-- Mandrel is Cylinder after a Pi/2 or 90° trigonometric or anti-clockwise rotation** )

As everyone with any knowledge about those SHPK knows
--- the BIGHT-RIMS on each **BIGHT-BORDER** are numbered from ***1*** *to* ***A*** (***A*** denotes the number of **PASS** in SHKP which number is also the total number of **BIGHTS** in each **BIGHT-NEST** )
--- that the **TYPE** of the SHPK is determined by the Number attributed to the **BIGHT-RIM** where the **HALF-PERIOD N°1** of the **FOUNDATION or BASE THK COMPONENT** which starts on **BIGHT-RIM N° 1** arrives on the other **BIGHT-BORDER.**

Read the appropriate topics in this page and in that page.

In ***Fig 1*** though it is limited to the **1-PASS** to **5-PASS** cases is a complete dissection of the possible **TYPES** for each case.

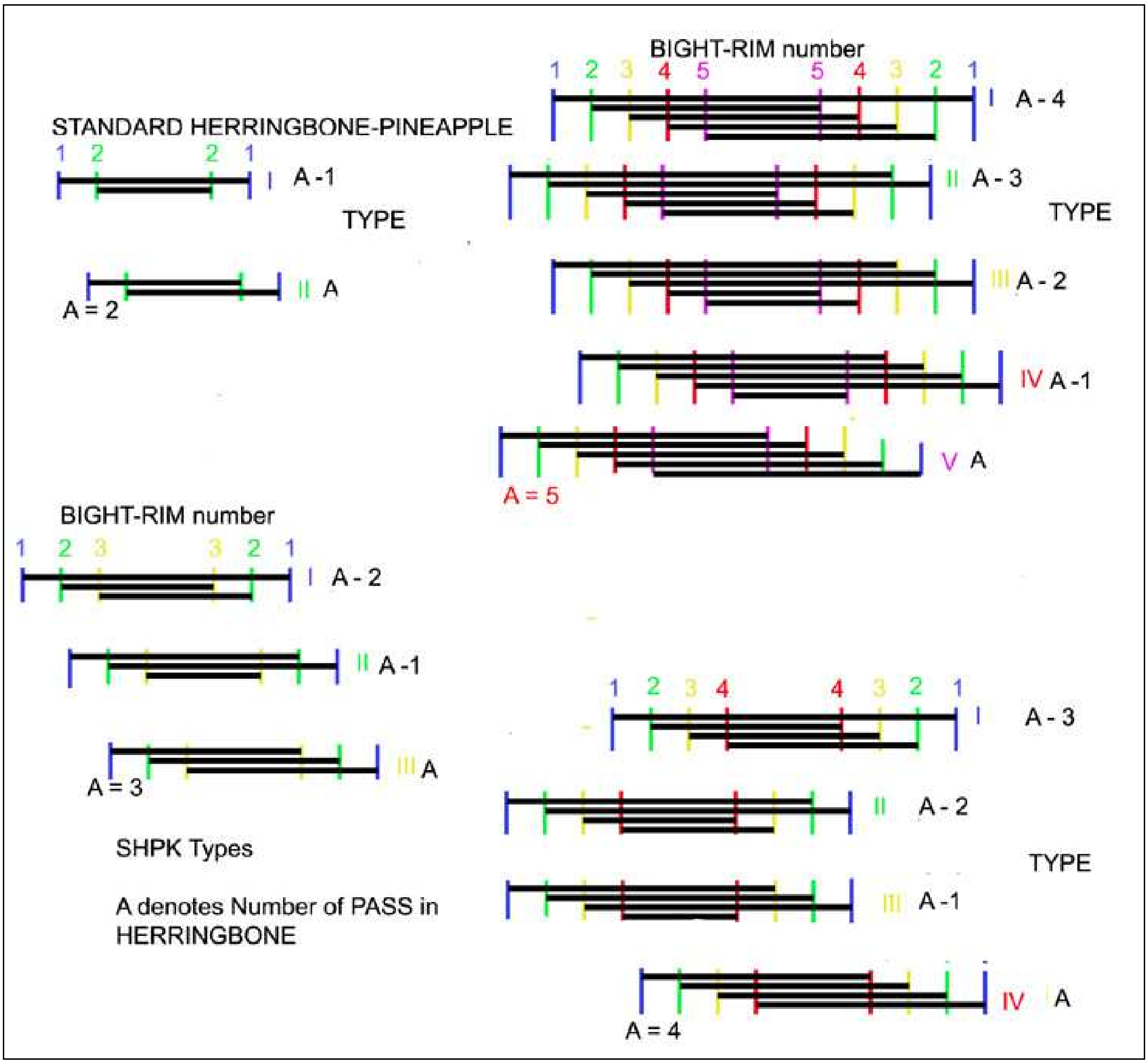
From observations easy to make it is plain to see there are as many **TYPES** of a given **SHPK** that the knot has **PASS.** ( Number of **PASS** is denoted by ***A*** )

***A* = 2** implies that you can make a **TYPE I** and a **TYPE II**
***A*= 4** implies that you can make a **TYPE I**, a **TYPE II**, a **TYPE III** and a **TYPE IV.**

**SHPK** are arrangements of **THK COMPONENTS** having an **ODD** number of **LEAD,** those components are distributed among **TWO SETS.** The difference of the Number of **LEAD** in each THK between the **TWO SETS** is *"2"*

The 2 SETS can be both "populated" but in some case one of the **SET** may be "**empty**".
As can be easily deduced the **case where one of the SET IS EMPTY ALWAYS CORRESPONDS TO TYPE** '*A*'
**TYPE II** for a **2-PASS**
**TYPE III** for a **3-PASS**
**TYPE IV** for a **4-PASS**
.... TYPE ***A*** in an ***A*-PASS** SHPK has one "**empty**" **SET** and a "populated" **SET** containing as many identical THK COMPONENTS as there are **PASSes**

***Fig 1***




For those not at ease with "abstract thinking" ***Fig 1*** will offer only 'obscurity' so for them I put, at the end of the document, "visual aids" under the form of diagrams of cordage routes of all the cases shown in ***Fig 1***.

As you can easily observe there is
--- one SET of the LARGER component in term of LEAD
--- one SET of the SMALLER component in term of LEAD

Let us denote the larger has having **5 + ( *n* * 2 ) LEAD** ,
the smaller has having **3 + ( *n* * 2 ) LEAD**
with ***n*** taking value from ***0*** to ***m***

***n= 0 3L and 5L*** ***n= 1 5L and 7L*** ***n= 7 17L and 19L***

## ***TYPES are A – 0 , A – 1 , A – 2 , A – 3…….A - k***

With generalisation the **TYPE** is ***A – k*** with ***k*** taking value from ***0*** to ( ***A – 1*** )

Try and remember that for **ANY TYPE T** ( **T** being : I II II IV V……..XX….XXVI…)

One **SET** contains : **T THK COMPONENTS**

One **SET** contains : ***A*** **– T THK COMPONENTS** ( A – T > -1 )

***Fig Type I 2-PASS***

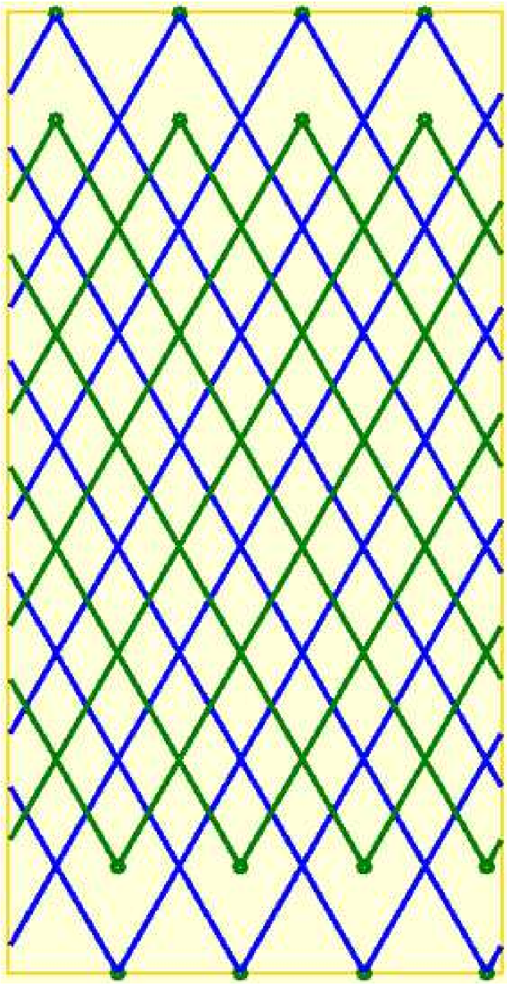
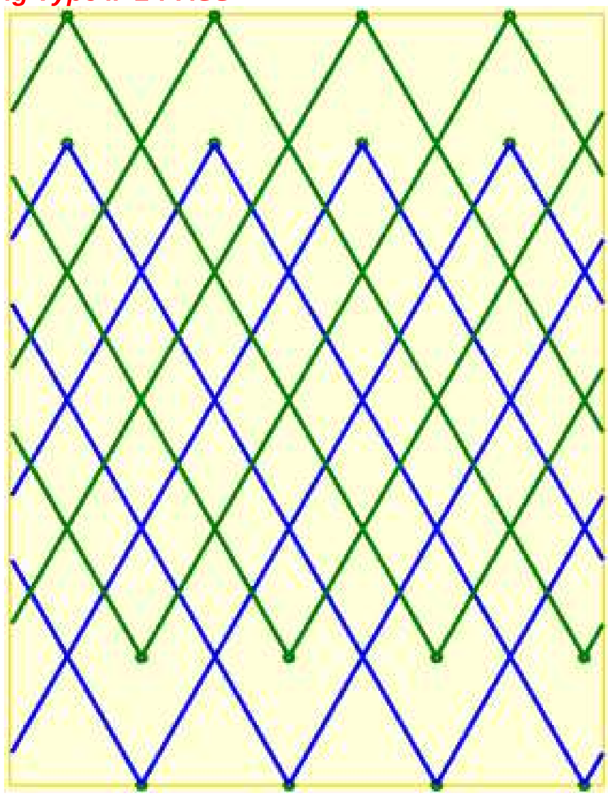


***Fig Type II 2-PASS***



The "reference" is the **BLUE FOUNDATION KNOT** with **ODD** numbered HALF-PERIODS going from **BOTTOM RIGHT** to **TOP LEFT**

**Type I 2-PASS**
One SET== ONE THK **9L 4B**
One SET== ONE THK **7L 4B**

**Type II 2-PASS**
One SET==**TWO** THK **5L 4B**
One SET == ***EMPTY*** or *NONE*

*Fig Type I 3-PASS*

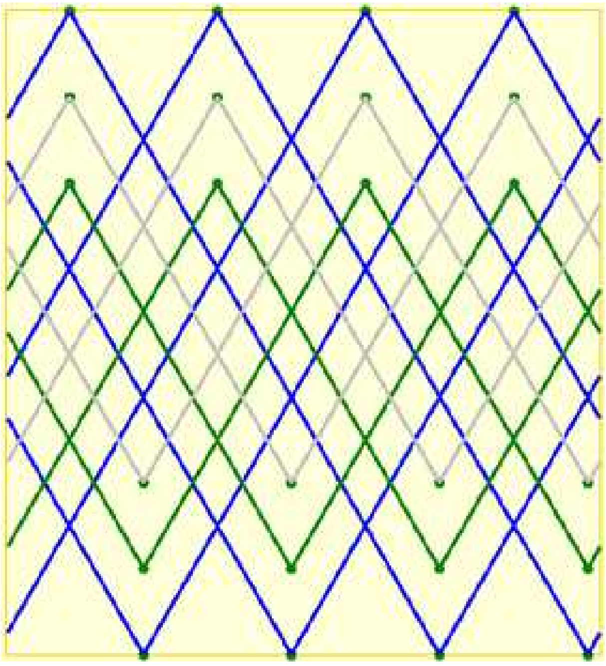


*Fig Type II 3-PASS*

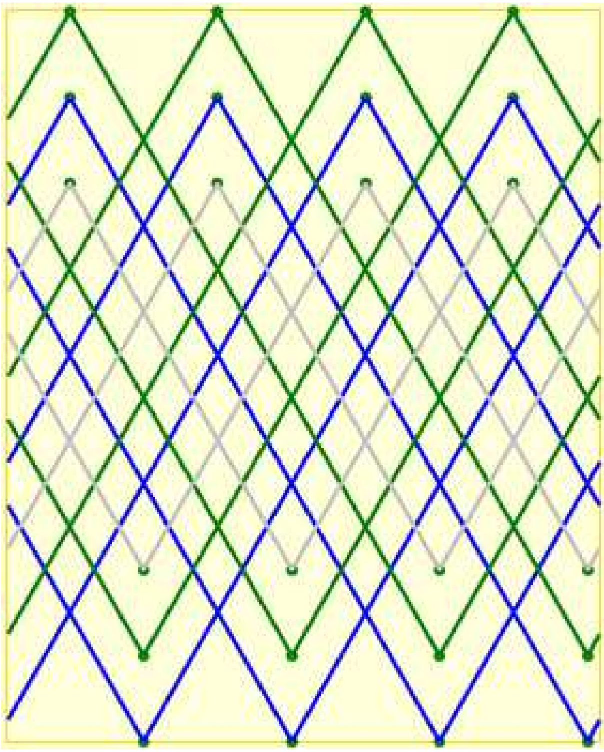
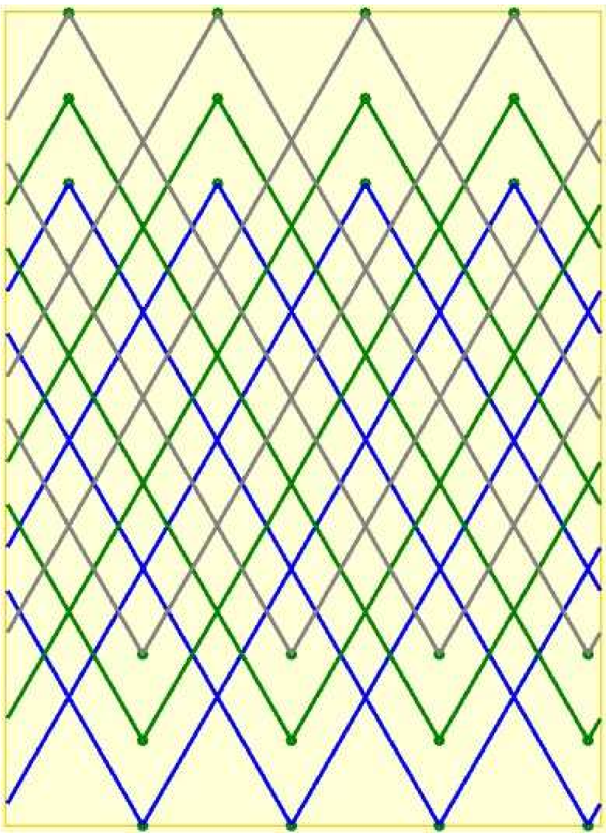


*Fig Type III 3-PASS*



**Type I 3-PASS**
One SET == **ONE** THK component **5L 4B**
One SET== TWO THK component **3L 4B**

**Type II 3-PASS**
One SET == **TWO** THK component **5L 4B**
One SET== ONE THK component **3L 4B**

**Type III 3-PASS**
One SET == **THREE** THK **5L 4B**
One SET== ***EMPTY or NONE***

***Fig Type I 4-PASS***

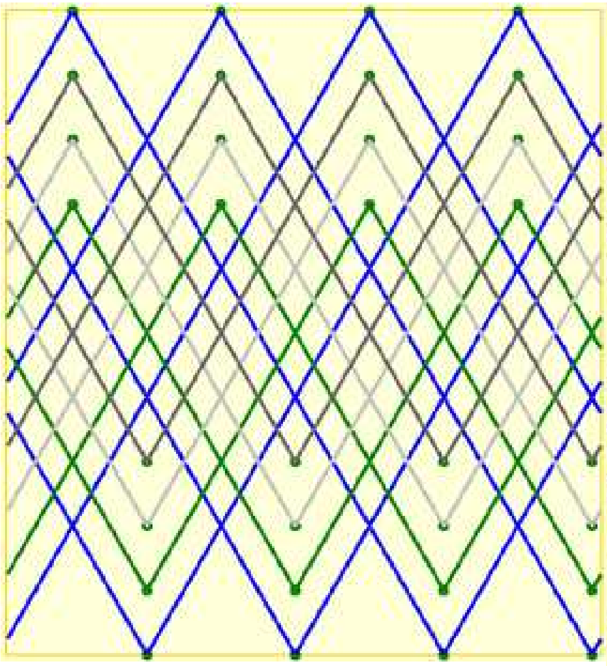


***Fig Type II 4-PASS***

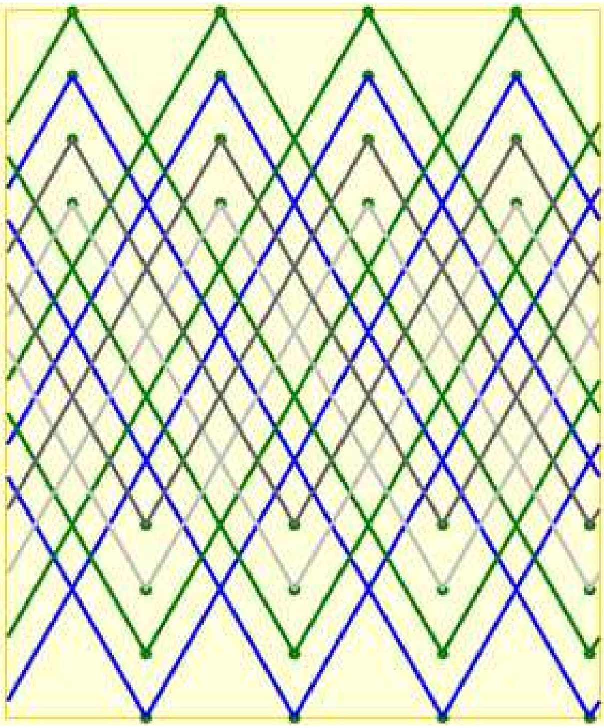


***Fig Type III 4-PASS***

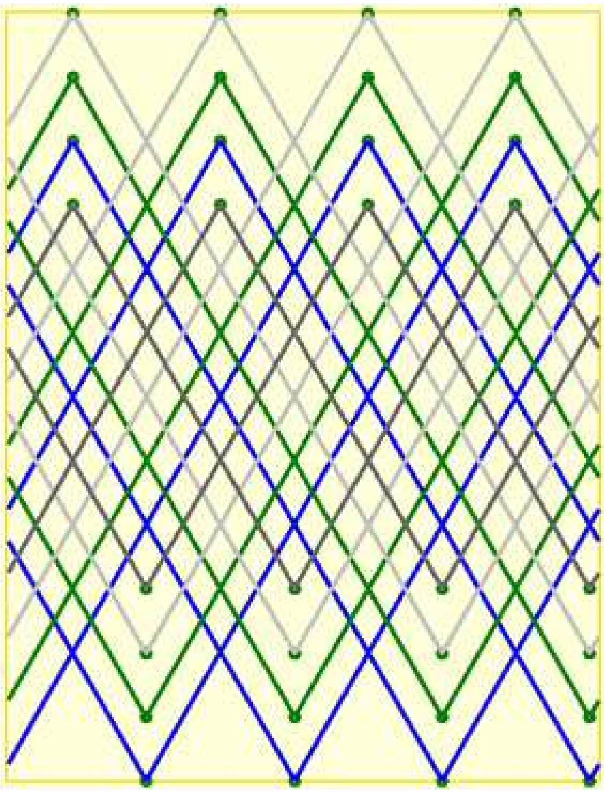
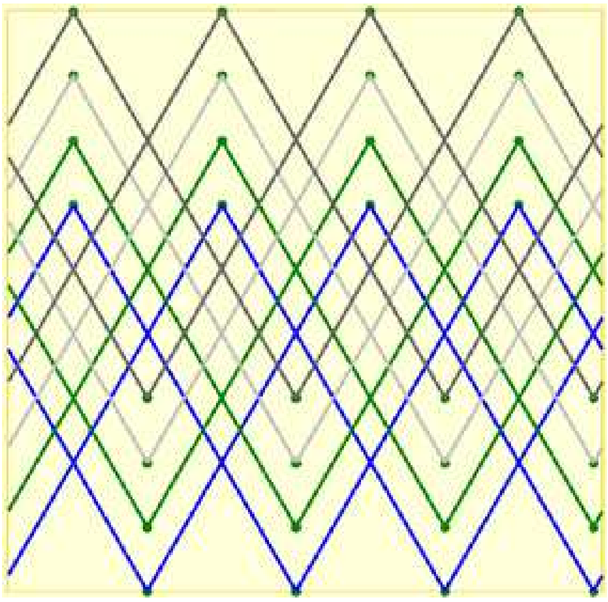


***Fig Type IV 4-PASS***



**Type I 4-PASS**
One SET== **ONE** THK **5L 4B**
One SET== THREE THK 3L 4B
**Type II 4-PASS**
One SET== **TWO** THK **5L 4B**
One SET== TWO THK 3L 4B

**Type III 4-PASS**
One SET== **THREE** THK **5L 4B**
One SET== ONE THK **3L 4B**

**Type IV 4-PASS**
One SET== **FOUR** THK **3L 4B**
One SET == ***EMPTY*** **or** ***NONE***

*Fig Type I 5-PASS*

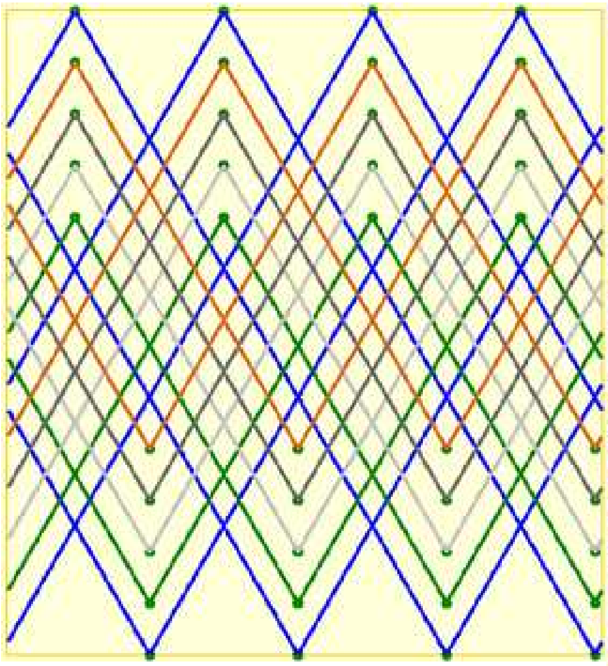


*Fig Type II 5-PASS*

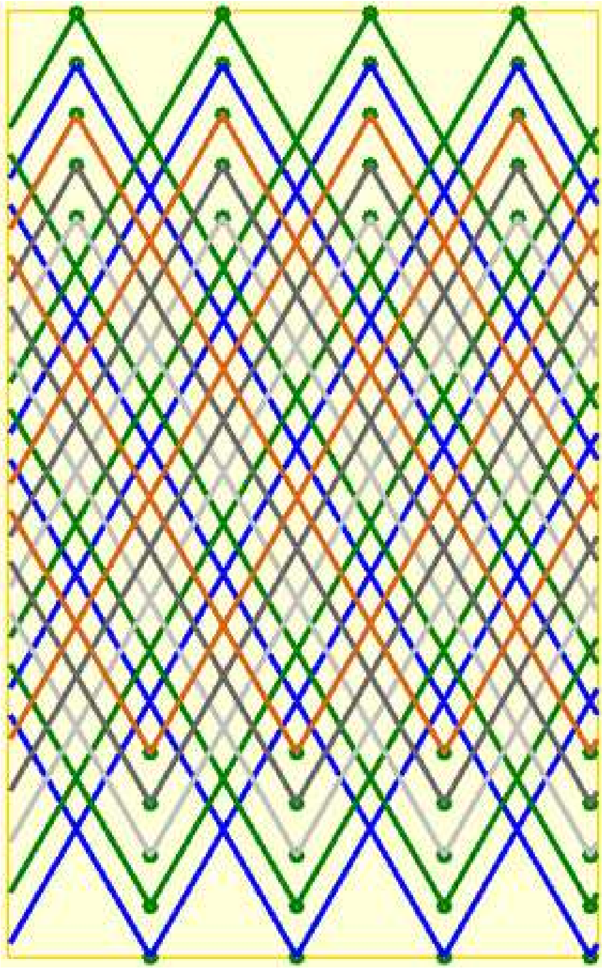
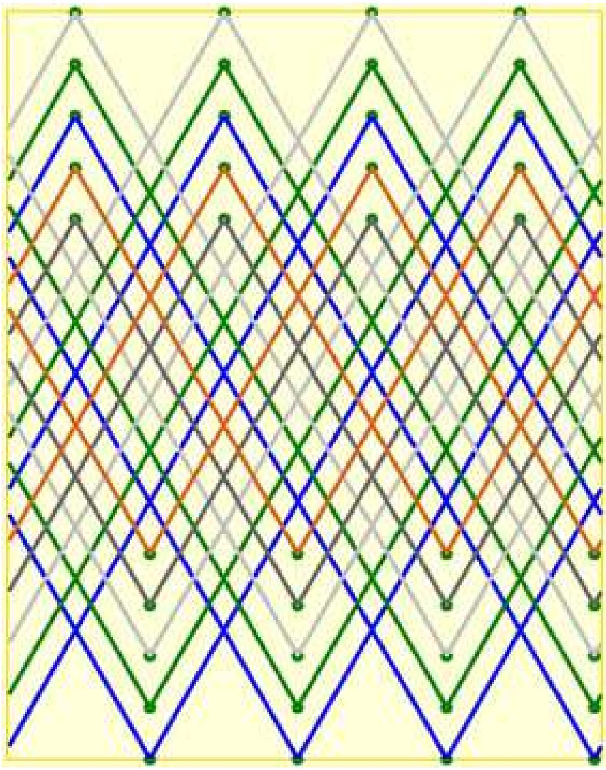


*Fig Type III 5-PASS*



**Type I 5-PASS**
One SET == **ONE** THK component **5L 4B**
One SET== FOUR THK component **3L 4B**

**Type II 5-PASS**
One SET == **TWO** THK component **7L 4B**
One SET== THREE THK component **5L 4B**

**Type III 5-PASS**
One SET == **THREE** THK **5L 4B**
One SET== TWO THK component **3L 4B**

***Fig Type IV 5-PASS***

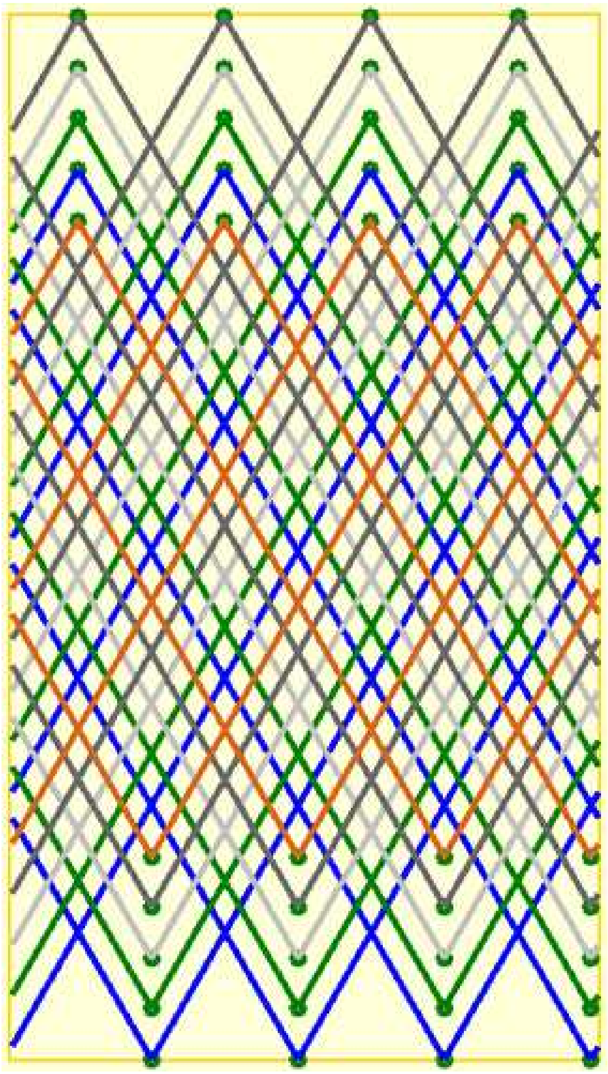
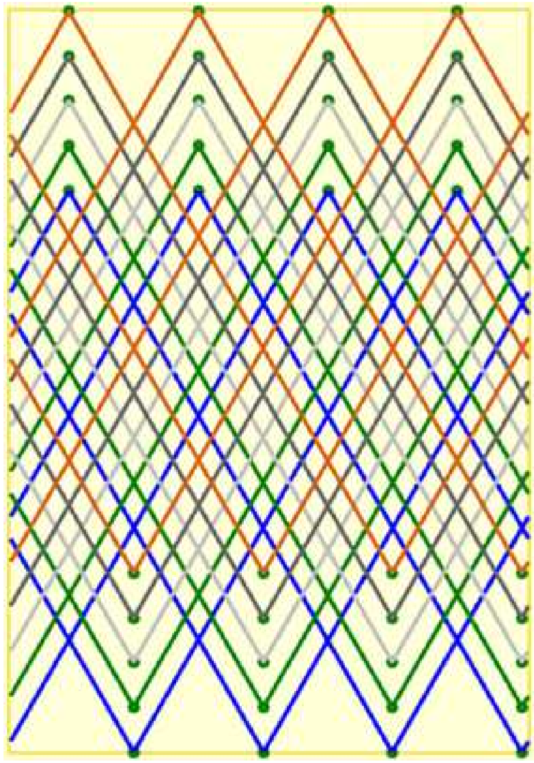


***Fig Type V 5-PASS***

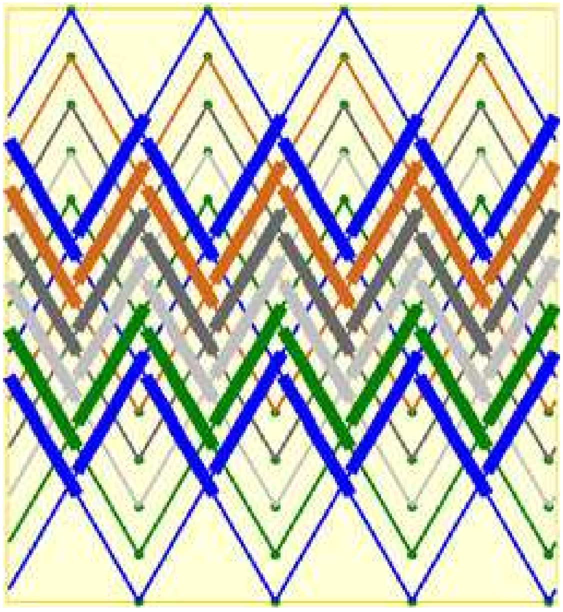


**Type IV 5-PASS**
One SET == **FOUR** THK **7L 4B**
One SET== ONE THK component **5L 4B**

**Type V 5-PASS**
One SET == **FIVE** THK component **5L 4B**
One SET== ***EMPTY or NONE***

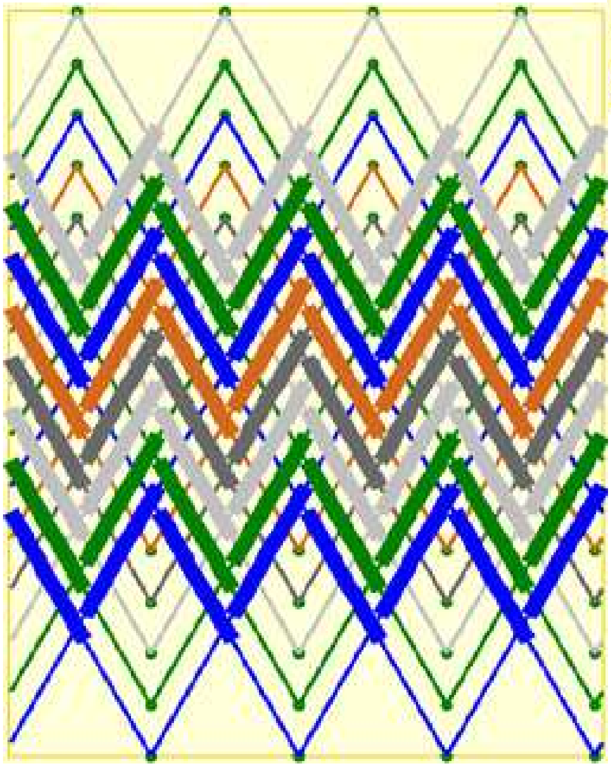
Till now we have seen things from the **CORDAGE ROUTE** point of view, let us see them from the **COLOUR PATTERN** point of view.

**PATTERN TYPE I 5-PASS**



**PATTERN TYPE II 5-PASS**

**PATTERN TYPE III 5-PASS**



***PATTERN TYPE IV 5-PASS***

***PATTERN TYPE V 5-PASS***

I do hope that the “rule of thumb” to visually find the TYPE of a SHPK immediately jumped to your eyes !

Order ( **VERTICAL CYLINDER** frame of reference ) of the **BIGHT-RIM** “in colour of strand”)

**Λ BLUE Λ**
**Λ DARK GREEN**
**Λ LIGHT GRAY**
**Λ DARK GRAY**
**Λ LIGHT BROWN**
VVVVVVVVVVVV
**V LIGHT BROWN**
**V DARK GRAY**
**V LIGHT GRAY**
**V DARK GREEN**
**V BLUE**

Still the same ‘system’ : you take as « start » the BOTTOM BIGHT-RIM N°1 and you immediately « see » the result at the TOP ( it is easy to do it in the other direction )

| **FIRST BOTTOM** COLOUR | ***LAST* TOP** COLOUR | TYPE | **FIRST TOP** COLOUR | ***LAST* BOTTOM** COLOUR |
|---|---|---|---|---|
| **BLUE** | **BLUE** Colour N° **1** | **I** | **BLUE** Colour N° **1** | **BLUE** |
| **BLUE** | **DARK GREEN** Colour N° **2** | **II** | **DARK GREEN** Colour N° **2** | **BLUE** |
| **BLUE** | **LIGHT GRAY** Colour N° **3** | **III** | **LIGHT GRAY** Colour N° **3** | **BLUE** |
| **BLUE** | **DARK GRAY** Colour N° **4** | **IV** | **DARK GRAY** Colour N° **4** | **BLUE** |
| **BLUE** | **LIGHT BROWN** Colour N° **5** | **V** | **LIGHT BROWN** Colour N° **5** | **BLUE** |

**AT LEAST ONE OF** the extremity has colour N°**1** and at the other extremity is the colour the number of which is the same as the one for the **TYPE**.