

# ***How to make the VNA Directional Coupler Step by step in full colour!***

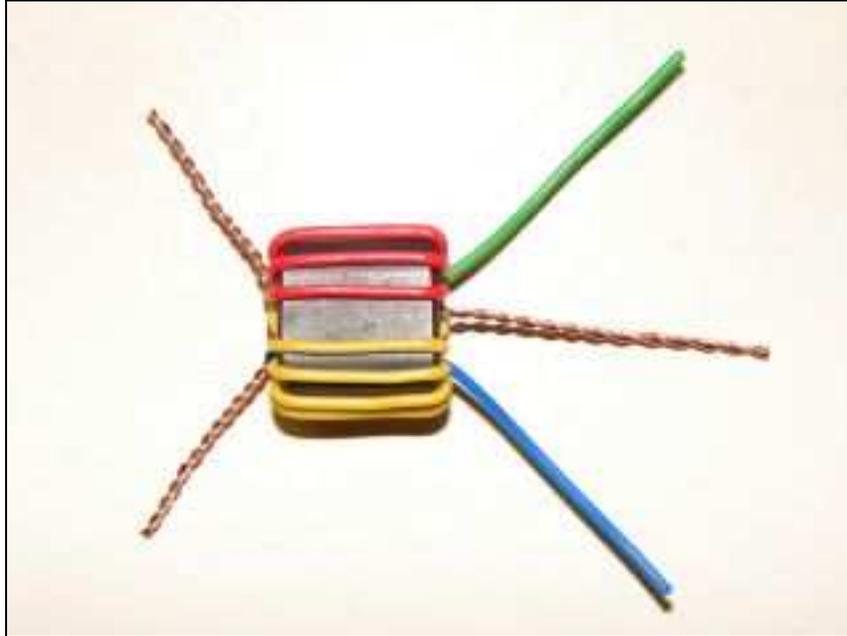
Please read this Tutorial over and over before starting to make the coupler.

It really looks very simple, but mistakes are easily made!

Please note that the coupler is the most important part of the VNA.

If not well wound, the VNA will not be working properly!

So read carefully and look at the pictures STEP by STEP!



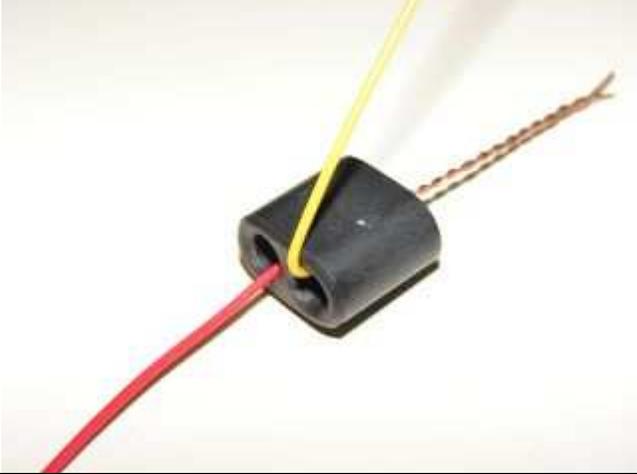
First prepare some 25cm / 0.5mm core diameter kynar/teflon wires.  
I have used different colors so you can easier follow each winding.

## **Let's Go!**

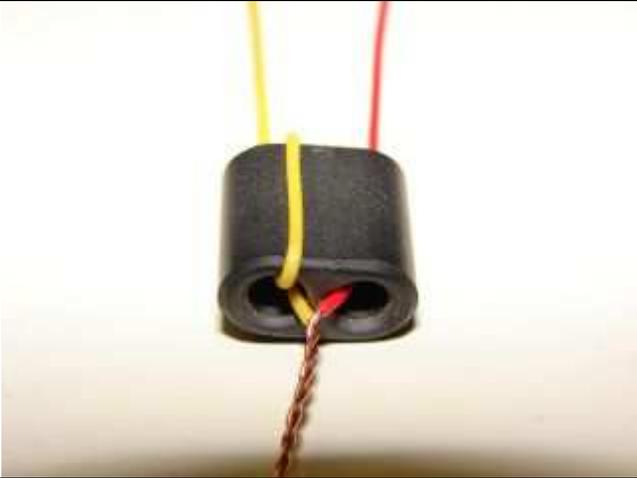
# STEP 1

	
<b>Picture 01</b>	<b>Picture 02</b>
<p>First off all strip 2 wires for about 5cm and twist them together like in the pictures 1 and 2. Then feed the twisted pair of wires with each wire thru each hole of the ferrite.</p>	

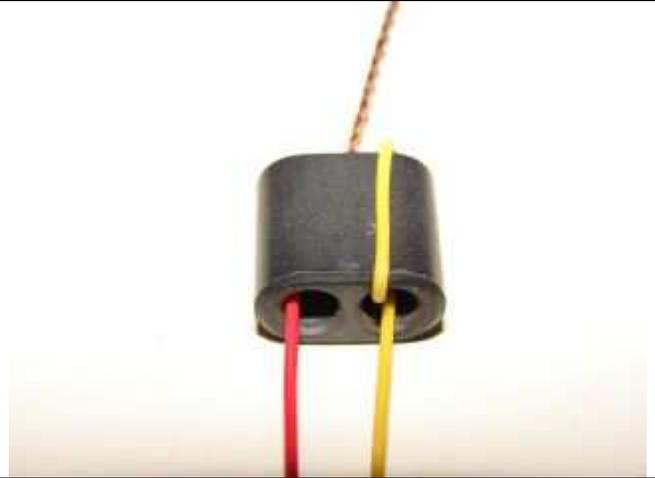
# STEP 2

	
<b>Picture 03</b>	<b>Picture 04</b>
<p>Wind the wire as shown in picture 3. When winding keep the wire tight, so that the wire will also be winded tight to the ferrite. When done feed it back thru on the other side shown on picture 4.</p>	

## STEP 3



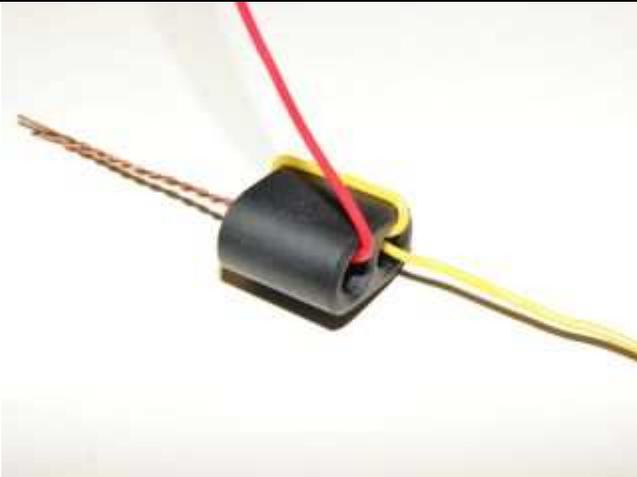
Picture 05



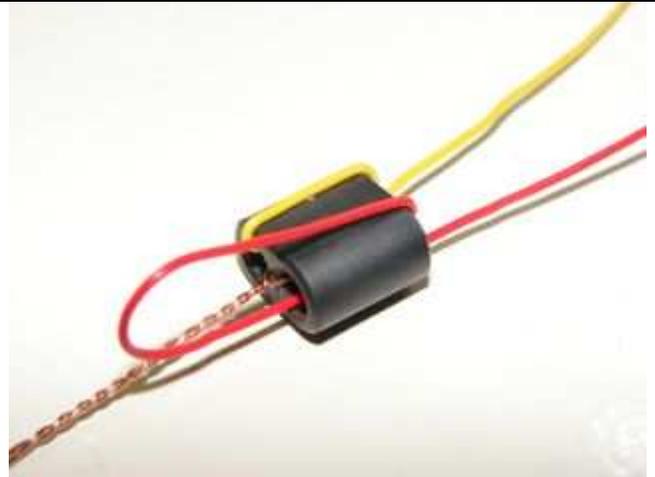
Picture 06

You now will have your 1<sup>st</sup> winding complete. Proceed to next step.

## STEP 4



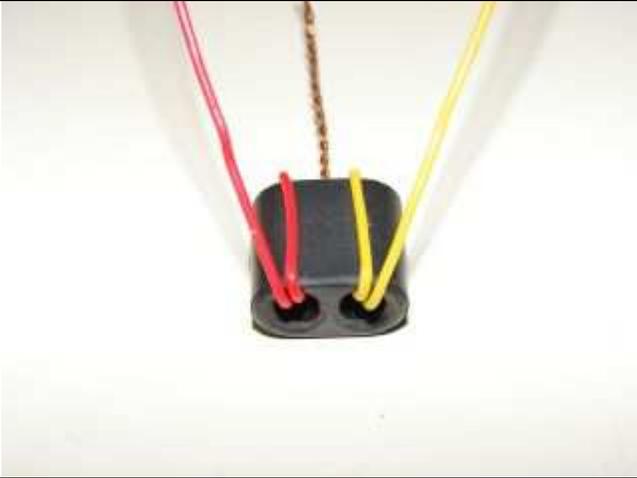
Picture 07



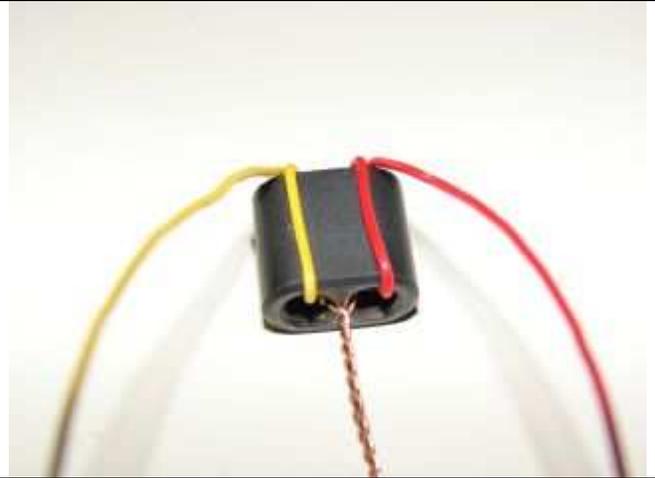
Picture 08

Do the same winding for the other wire in picture 7. Here shown in RED.  
When winding keep the wire tight, so that the wire will also be wined tight to the ferrite.  
When done feed it back thru on the other side shown on picture 8.

## STEP 5



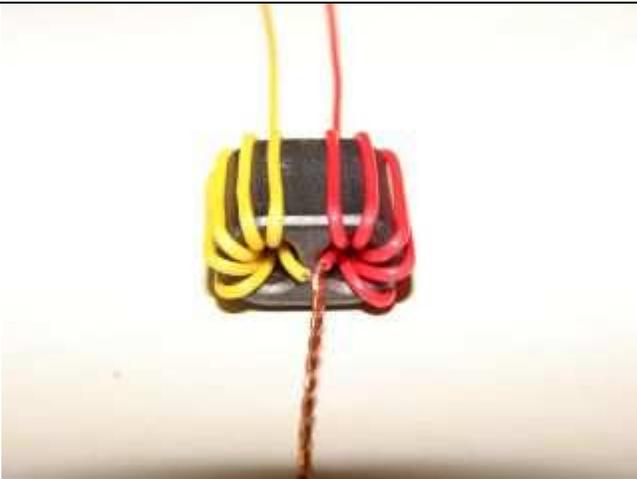
**Picture 09**



**Picture 10**

Notice picture 9 and 10. You will see the 2 windings YELLOW and RED are wound in mirror.  
This is very important!!!

## STEP 6



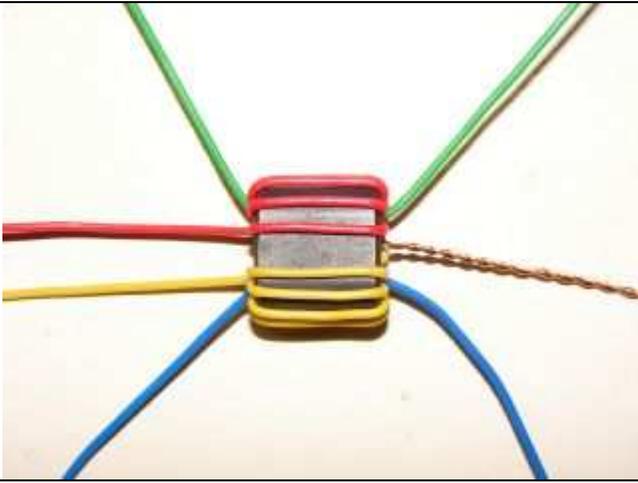
**Picture 11**



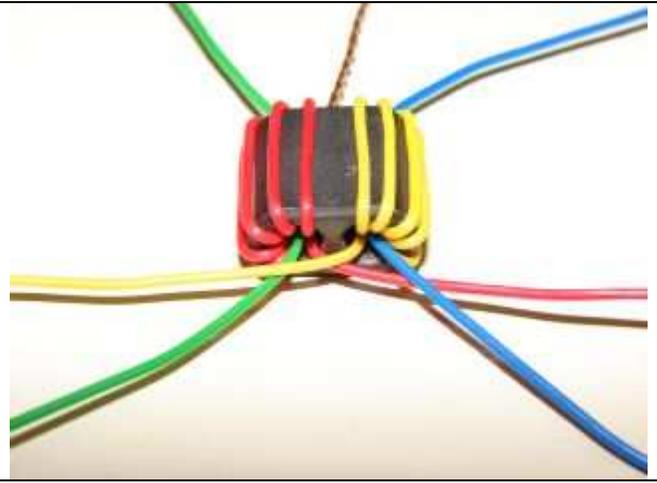
**Picture 12**

Complete both sides with a total of 5 windings.  
Make sure all windings are symmetrical to the opposite picture 11 and 12.

## STEP 7



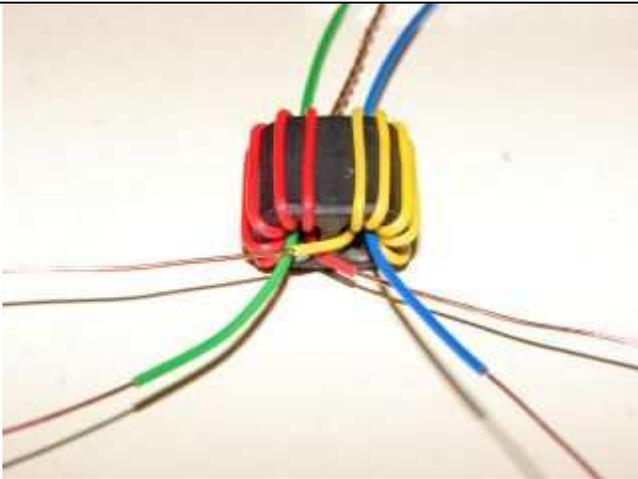
Picture 13



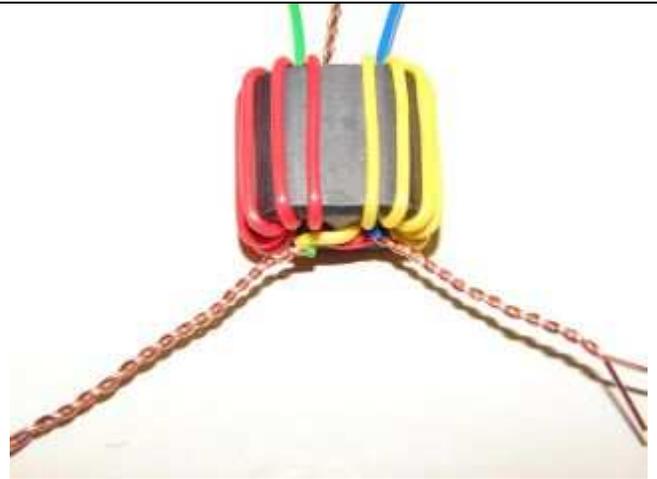
Picture 14

Now it is time to feed 2 other wires thru the ferrite show in the pictures 13 and 14 as GREEN and BLUE  
Look closely to picture 14, make sure YELLOW and RED are crossed.

## STEP 8



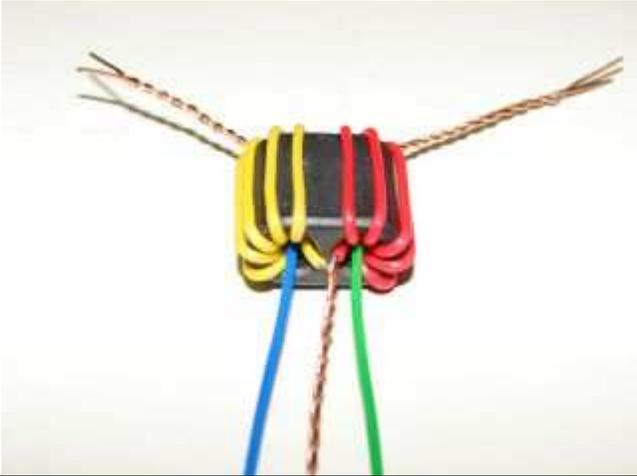
Picture 15



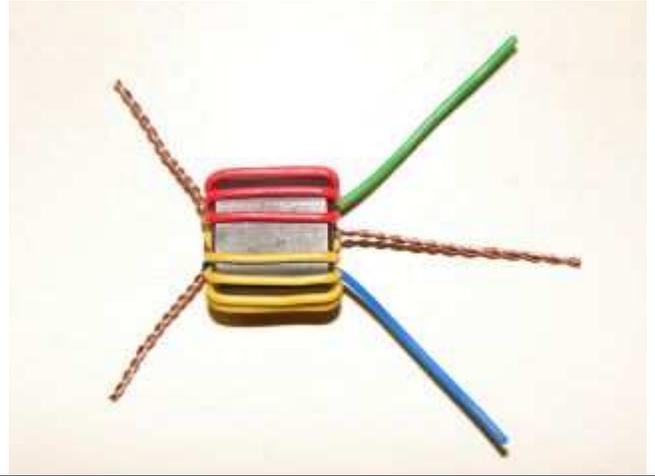
Picture 16

Strip all wires like in picture 15 and twist them together like in picture 16.  
So GREEN twisted with YELLOW and RED twisted with BLUE.

## STEP 9



Picture 17



Picture 18

Now your directional VNA coupler should be ready and looking like the one in picture 17 and 18

# Goodluck!

73'  
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