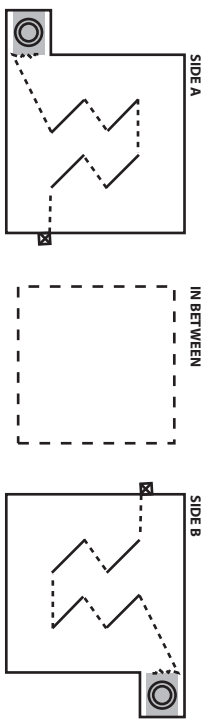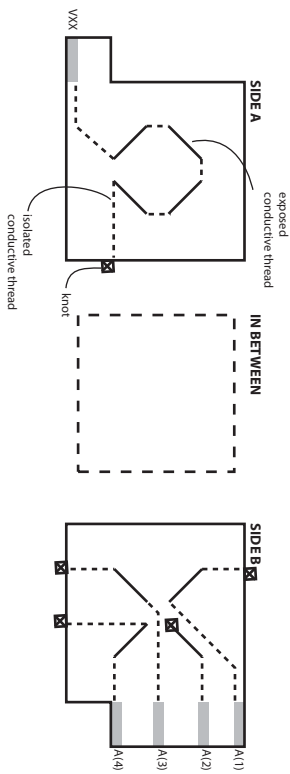# NEOPRENE PRESSURE SENSOR/MATRIX KIT

Using neoprene, Velostat, conductive thread and stretch conductive fabric to construct a fabric bend sensor. Velostat is a piezoresistive plastic film that reacts to pressure with a decrease in resistance. This sensor can be constructed to be a single pressure sensor or a pressure sensor matrix comprising four seperate sensors.
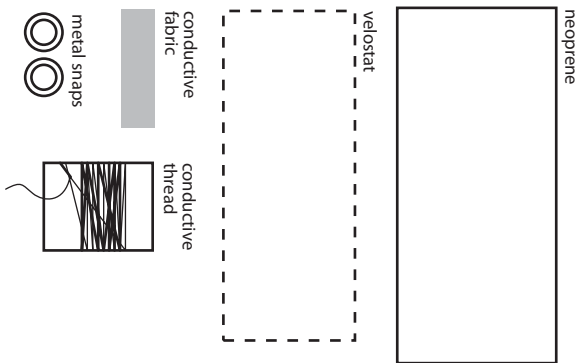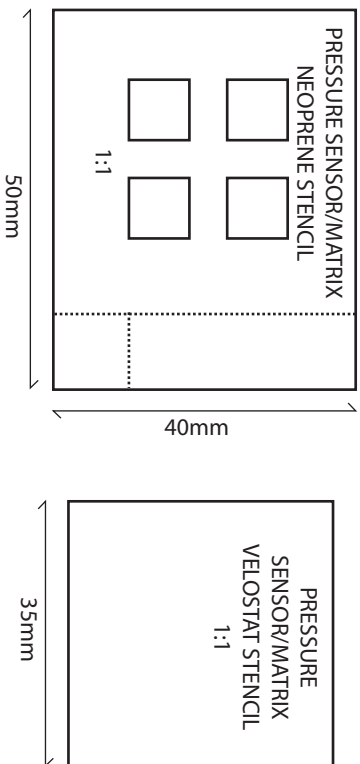
LAYERING

PRESSURE SENSOR

SIDE A

IN BETWEEN

SIDE B

PRESSURE SENSOR MATRIX

VXX

SIDE A

exposed conductive thread

isolated conductive thread

knot

IN BETWEEN

SIDE B

A(4) A(3) A(2) A(1)

CONTENTS

neoprene

velostat

conductive fabric

metal snaps

conductive thread

STENCIL 1:1

PRESSURE SENSOR/MATRIX
NEOPRENE STENCIL

1:1

50mm

40mm

PRESSURE
SENSOR/MATRIX
VELOSTAT STENCIL
1:1

35mm

INSTRUCTIONS

The following instructions explain the basic assembly of this sensor kit. For more detailed instructions see the following links:

>> ***www.kobakant.at/DIY/?p=65***
>> ***www.kobakant.at/DIY/?p=213***

In additon to the contents of this kit you will need the following items to complete the sensor:

- *pen or pencil*
- *scissors*
- *iron*
- *regular thread*
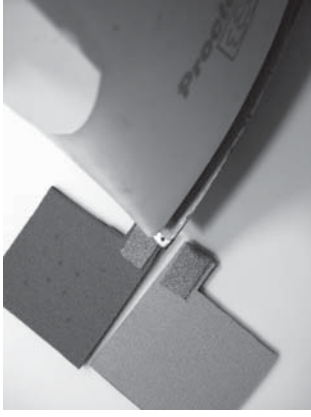- *sewing needle*

TRACE THE STENCIL | 1

Decide if you want to make the single sensor or the matrix. Cut or trace the stencils from the other side of this instruction sheet and transfer them to the apropriate materials - neoprene and Velostat, marking the stitches on the neoprene with a pen or pencil.
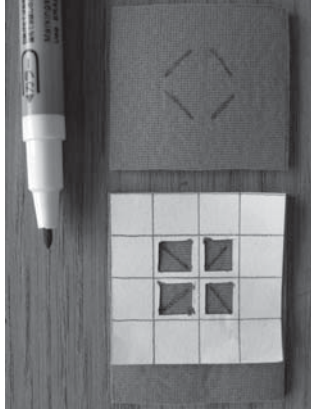
FUSE CONDUCTIVE FABRIC | 2

Cut the conductive fabric tabs to size, peel off the paper backing and place them with the glue side facing the neoprene. Set you iron to a medium-high heat. Iron over the conductive fabric to melt the glue and fuse the fabrics together.


STITCH CONDUCTIVE THREAD | 3

Thread the needle with conductive thread and tie a knot on one end. Stitch into the neoprene, exposing the thread in diagonal stitches as shown. When sewing the matrix, make sure that the individual stitches don't touch eachother. Finish by stitching the thread to the conductive fabric tab (or directly to a metal snap).

LAYER MATERIALS | 4

Layer one or two pieces of Velostat between the neoprene with the conductive stitches facing eachother.
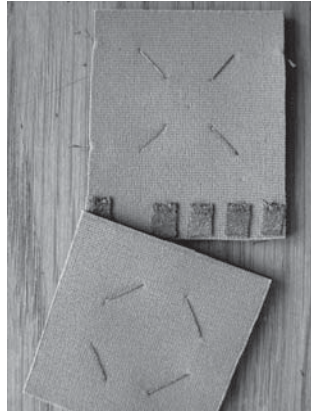

CLOSE SENSOR | 5

Thread the needle with regular sewing thread. Holding the materials in place, stitch around the edges of the neoprene. Don't sew through the Velostat, but surround it with stitches.

ATTACH SNAPS | 6

If you want to use snaps to attach the sensor to your circuit you should sew these on with conductive thread. The conductive thread must make contact between the metal snap and the conductive fabric tab.
The matrix is intended to be interfaced with alligator clips.
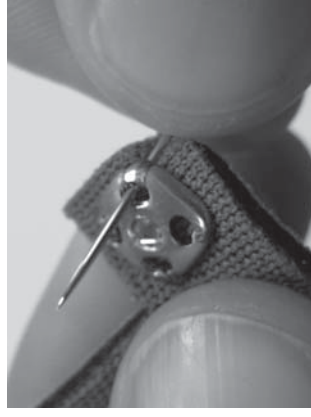
TEST FINSIHED SENSOR | 7

Connect the ends of your sensor to a multimeter set to measure resitance. As you pressure the layers of the sensor together the resistance should decrease. Your range should be about 2K Ohm.