quarantine+

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DIY protective facial mask knit in double layer, with an opening to insert a layer of added filtering material

yarns, outer layer: knit in stocking stitch with plaiting feeder using three strands of 30/3 (8400 YPP) cotton and one strand of 2/8 wool

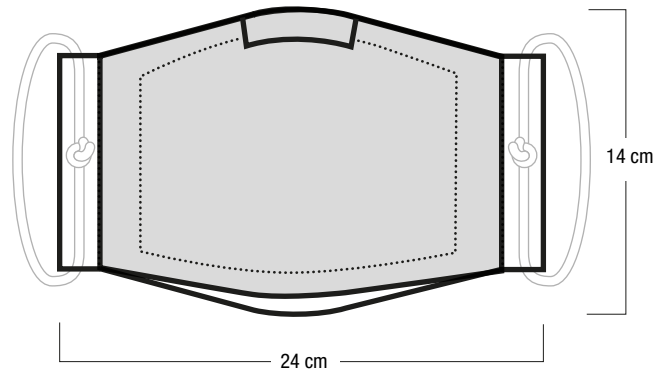gauge, outer layer: 32 sts x 53 rs (10 cm/4 in) at tension 6

yarn, inner layer: three strands of 30/3 cotton at tension 4.I

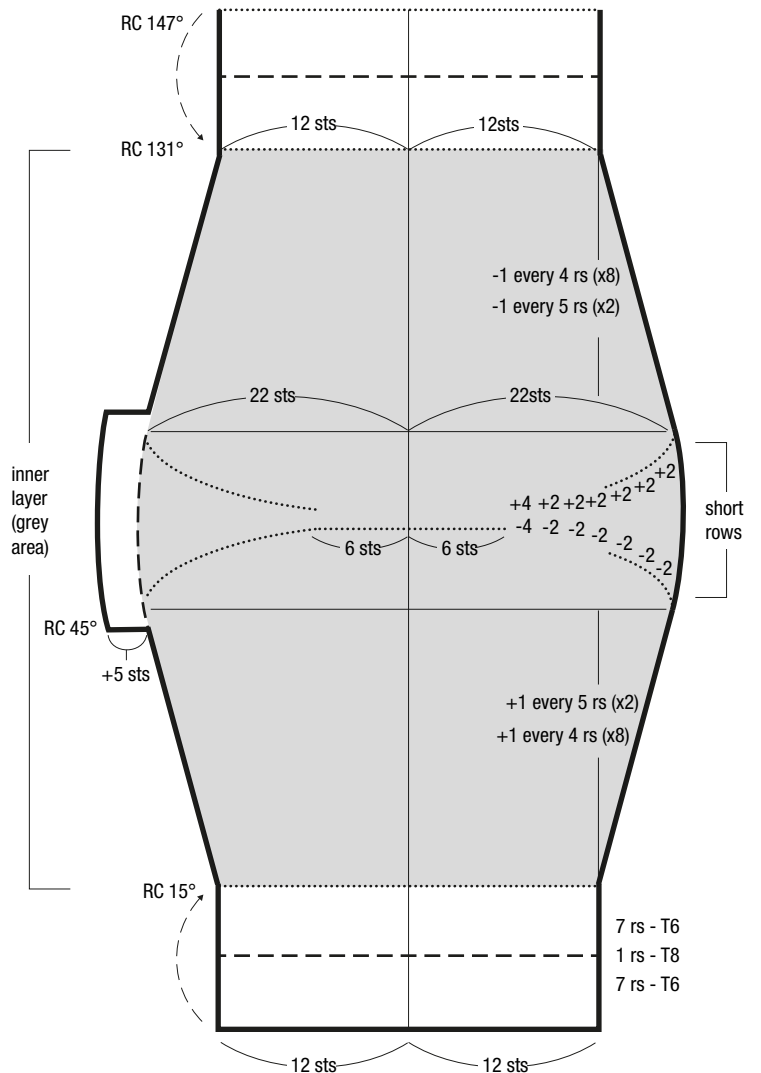knitting machine: standard gauge, single bed

after assembling the mask, wash it at high temperature with agitation to felt the wool and sterilize the material. Wash again at 90° after each use

abbreviations

sts: stitches
rs: rows
T: tension
RC: row count
COR: carriage on the right
COL: carriage on the left
R: right
L: left
YPP: yards per pound

14 cm

24 cm

try different yarns/tension to obtain different sizes

RC 147°

RC 131°

12 sts   12sts

-1 every 4 rs (x8)
-1 every 5 rs (x2)

22 sts   22sts

inner layer (grey area)

+4 +2 +2 +2 +2 +2
-4 -2 -2 -2 -2 -2 -2

6 sts   6 sts

short rows

RC 45°

+5 sts

+1 every 5 rs (x2)
+1 every 4 rs (x8)

RC 15°

7 rs - T6
1 rs - T8
7 rs - T6

12 sts   12 sts

first piece (plating)

insert the thicker yarn in front of the plating feeder, thinner in back: in this way the main (cotton) yarn will appear on the plain side of the fabric and the plating (wool) yarn will appear on the purl.
The wool will serve to thicken the fabric, thanks to the capability of felting after washing at high temperatures

double hem
e-wrap cast on 24 stitches, 12 each side of 0, use cast-on comb and weigh evenly if preferred

RC 0, COR: 7 rs at T6;
RC 7, COL: increase tension to T8 for a fold line, knit back to the right;
RC 8, COR: decrease tension back to T6, knit 7 rs;

RC 15, COL: rehang the cast on row on needles in work; increase tension to T8 and knit one row to the right to seal the hem

fully fashioned increases
at RC 49 and RC 54, move the 8 sts on the left side using a 5 prong transfer tool plus a 3 prong one

RC 16, COR: decrease tension back to T6, *increase 1 st on both sides, knit 4 rs** [13+13 sts];

repeat RC 16 from * to **, until **RC 40** [19+19 sts];

RC 44, COR: increase 1 st on both sides [20+20 sts], knit one row to the L;
RC 45, COL: cast on 5 sts on the L side [25+20 sts], knit 4 rs;
RC 49, COL: *increase 1 st (with the 5+3 prong tool on the L side and 3 prong tool on the R side) [26+21 sts], knit 5 rs**;
RC 54, COR: repeat RC 49 from * to ** [27+22 sts]

short rows shaping (hold needles)
set the knit carriage to hold and decrease alternately on both sides, bringing the external needles into D/E position (opposite the carriage), in this way:

RC 59 COL: -2 sts on the R side
[you'll have 27+20 sts in B position]
RC 60 COR: -7 sts on the L [20+20 sts]
RC 61 COL: -2 sts on the R [20+18 sts]
RC 62 COR: -2 sts on the L [18+18 sts]

RC 63, COL: repeat the last two rs until the RC 71 [10+10 sts];

RC 71 COL: -4 sts on the R [10+6 sts]
RC 72 COR: -4 sts on the L [6+6 sts]

reverse shaping by pushing needles back to B in the reverse order, on the carriage side

RC 73, COL: push back all the needles on the R side in B position and knit one row [6+22 sts in B];
RC 74, COR: all the needles on the L side in B position and knit one row [27+22 sts in B];
RC 75, COL: hold again in D/E position 12 sts on the R side and knit one row [27+10 sts];
RC 76, COR: hold again in D/E position 17 sts on the L side and knit one row [10+10 sts];

RC 77, COL: push back in B position 2 sts on the R side and knit one row [10+12 sts];
RC 78, COR: push back in B position 2 sts on the L side and knit one row [12+12 sts];

RC 79, COL: repeat the last two rows until RC 88 [22+22 sts];

RC 88, COR: push back in B position 5 sts on the L side and knit one row [27+22 sts];
RC 89, COL: knit more 4 rs

fully fashioned decreases
at RC93 and RC98, move the 8 sts on the left side using a 5 prong transfer tool plus a 3 prong one

RC 93, COL: *decrease 1 st (with the 5+3 prong tool on the left side and 3 prong one on the R side)**; knit 5 rs [26+21 sts];
RC 98, COR: repeat RC 93 from * to ** [25+20 sts], knit one row;
RC 99, COL: bind off 5 sts on the L side [20+20 sts], knit 4 rs;
RC 103, COL: with three prong tool on both sides *decrease -1 st; knit 4 rs ** [19+19 sts]

repeat RC 103 from * to **, until **RC 131**: you'll have 12+12 sts in working position, then you'll need to work the second closing hem; increase tension to 8 and knit one row to the right

second double hem (closing)

RC 132, COR: set the tension to T6; *with a tapestry needle create a life line passing a contrasting color yarn through the stitches of the previous round, every 3-4 needles; in this way it will be easier to identify which stitches to bring back to work, to close the hem in the machine;* knit 7 rs;

RC 139, COL: increase tension to 8 and knit one row to the R (for a fold line);
set the tension back to 6 and knit 7 rs;

RC 147, COL: rehang the sts above the safety line (RC132) on needles in work position, increase tension to 8 and knit one row [12+12 sts]

second layer (cotton)

(do not bind-off) continue kitting the lining piece matching the shaping in the first and excluding the hems. Use the three prong transfer tool on both sides at a time to increase

RC 148 (16), COR: set the tension to T4.I, take out the wool thread and continue to knit the second piece just with the cotton yarn, repeating from RC 16, until RC 44, then:

RC 44, COR: increase 1 st on both sides [20+20 sts], knit 5 rs;
RC 49, COL: increase 1 st on both sides [21+21 sts], knit 5 rs;
RC 54, COR: increase 1 st on both sides [22+22 sts], knit 5 rs;

short rows shaping (second piece)
to shape the curve, set the carriage for short rows shaping (aka holding) and decrease alternately on both sides, bringing the external needles into D/E position, in this way:

RC 59 COL: 2 sts on the R side [you'll have 22+20 sts in B position]
RC 60 COR: 2 sts on the L side [20+20 sts]

RC 61 COL: repeat the last two rs until RC 71 [10+10 sts];
RC 71 COL: 4 sts on the R side [10+6 sts];
RC 72 COR: 4 sts on the L side [6+6 sts];

reverse shaping by pushing needles back to B in the reverse order, on the carriage side

RC 73, COL: push back all the needles on the R side in B position and knit one row [6+22 sts in B];
RC 74, COR: all the needles on the L side in B position and knit one row [22+22 sts];

RC 75, COL: hold again in D/E position 12 sts on the R side and knit one row [22+10 sts];
RC 76, COR: hold again in D/E position 12 sts on the L side and knit one row [10+10 sts];

RC 77, COL: push back in B position 2 sts on the R side and knit one row [10+12 sts];
RC 78, COR: push back in B position 2 sts on the L side and knit one row [12+12 sts];

RC 79, COL: repeat the last two rows until RC 88 [22+22 sts];
RC 89, COL: knit 4 rs;

fully fashioned decreases (second piece)
use the three prong transfer tool on both sides at a time

RC 93, COL: decrease 1 st, knit 5 rs [21+21 sts];
RC 98, COR: repeat RC 93 [20+20 sts];
RC 103, COL: *decrease 1 st, knit 4 rs** [19+19 sts];

repeat the last row from * to ** until **RC 131** [12+12 sts]; knit one row to the right

scrap off on a waste yarn, keeping the tail of the main yarn long enough so you can join the two sides of the mask

finishing
with the tapestry needle close the last 24 sts of the RC 132 (below the waste yarn) weaving them to the sealing row of the first double hem; unravel and remove the waste yarn. Continue to sew the two layers of the mask (without cutting the tail) along the edge that will cover the nose, using mattress stitch. Weave the excess thread tails on the inside of the mask.

blocking
wash the mask at high temperature, in order to felting the wool part. Let it dry on a clean and disinfected surface. When it is dry, give it a shot of very hot steam.

optional: 20-22-gauge wire, floral wire, or even grocery ties to insert into the hem at the bridge of the nose making for a better fit