

(shape weaving),

3

1.

(shape weaving process)

(deep drawing)

3

```
(shell)
```

3

(preform)

2. 3 (shell)

, < 1>

가



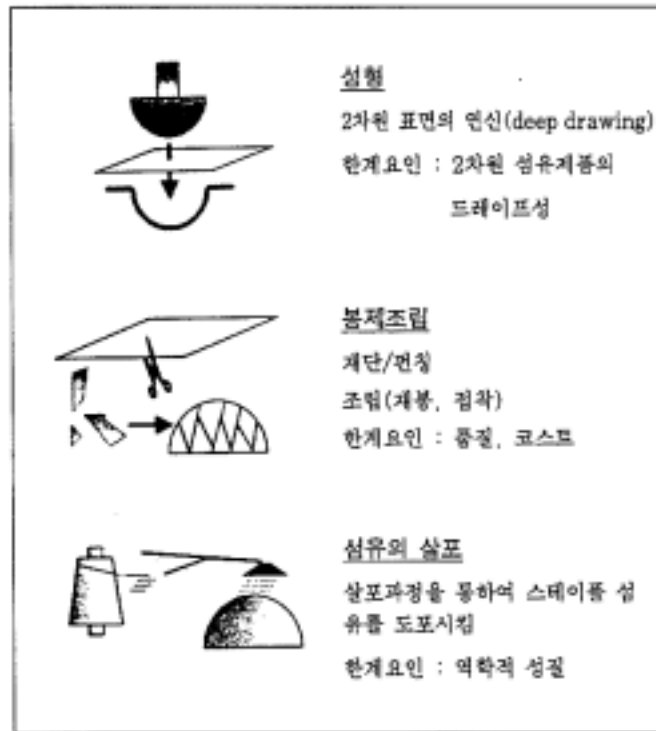
< 1>

3 (bending axes) 2

가 , 2

가

(2).



< 2> 3

2.1 2

(moulding)

가 가

가

30%

○

○

○

○

○

○

○

가

2.2 2

(laying)

가

(piece)

3

가

3

가

가 , 가
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2.3 3 (preform)

25~125mm
(sheet)
가
3 ,

2.4 3 ()
가
3
3
가
.
3
가
.
3

3. :

3 1989 Aachen

. 1993

3 가 ,

NRW(Nordrhein-westfalen) . 1994

(3)



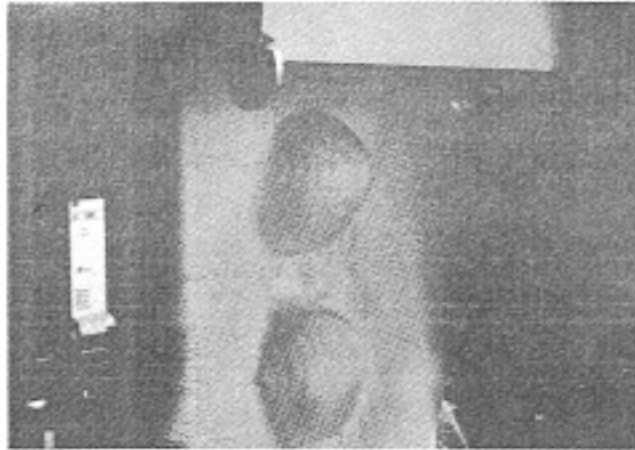
< 3>

, 가 ()

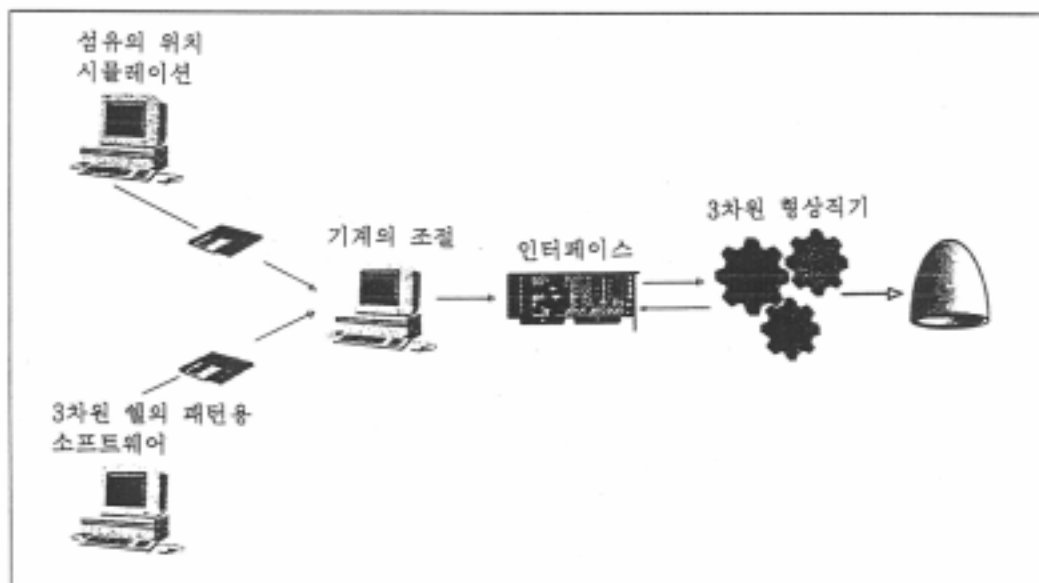
3

가 (3),

3 (4),
. 3 가
가 < 5 >.



< 4> 3 가



< 5>

LED 가 가 3

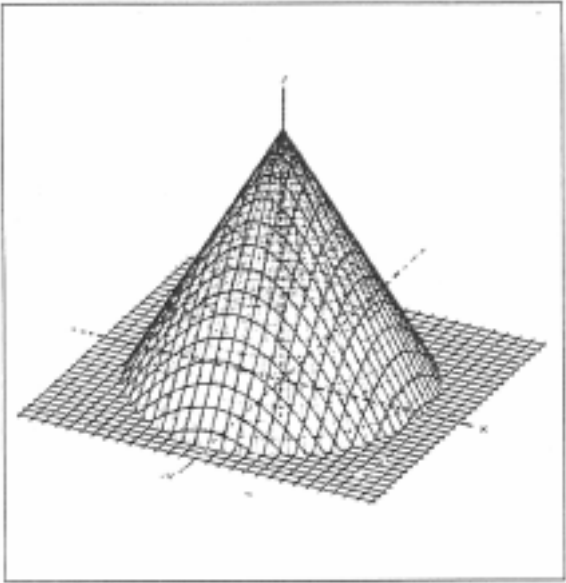
(6).

3

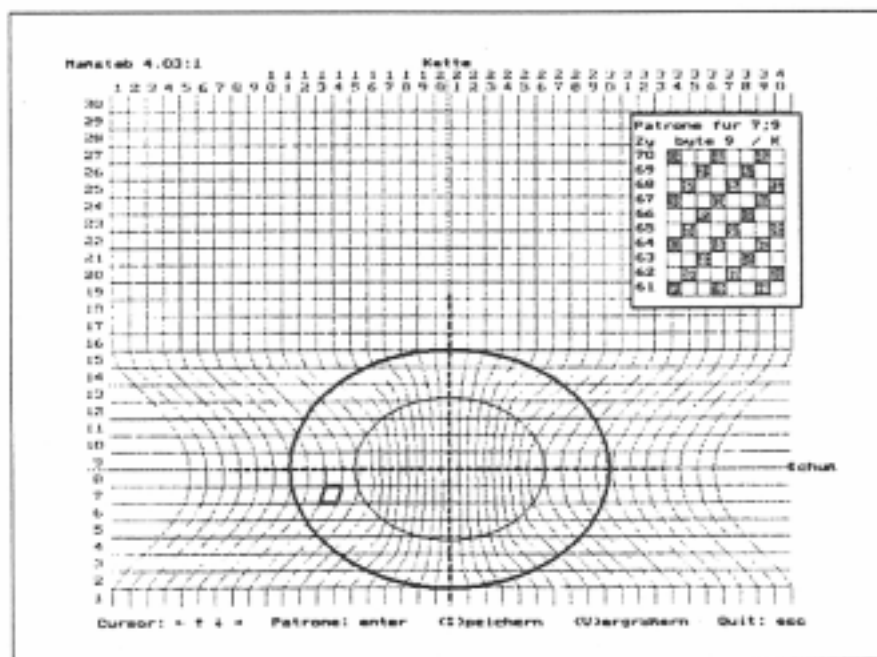
(7).

(floating length)

가 (shear resistance)



< 6 >



< 7>

4.

3 , 2

가 (seam)

2

3

○ ()

○ ()

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3

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○ (/ /)

○ (가)

○

3

(thermo-set system) (, RTM, S-RIM)

가 .

(thermo-plastic system) 가 가 가

3 (,

,) . , 2

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(

, , , , ,) 가 .

(seam) .

CFR- 가 . ,

가 .

,

3 . ♣

(Shape weaving - new invention for producing 3D-shaped woven shells ; Melliand
English, March 1995)