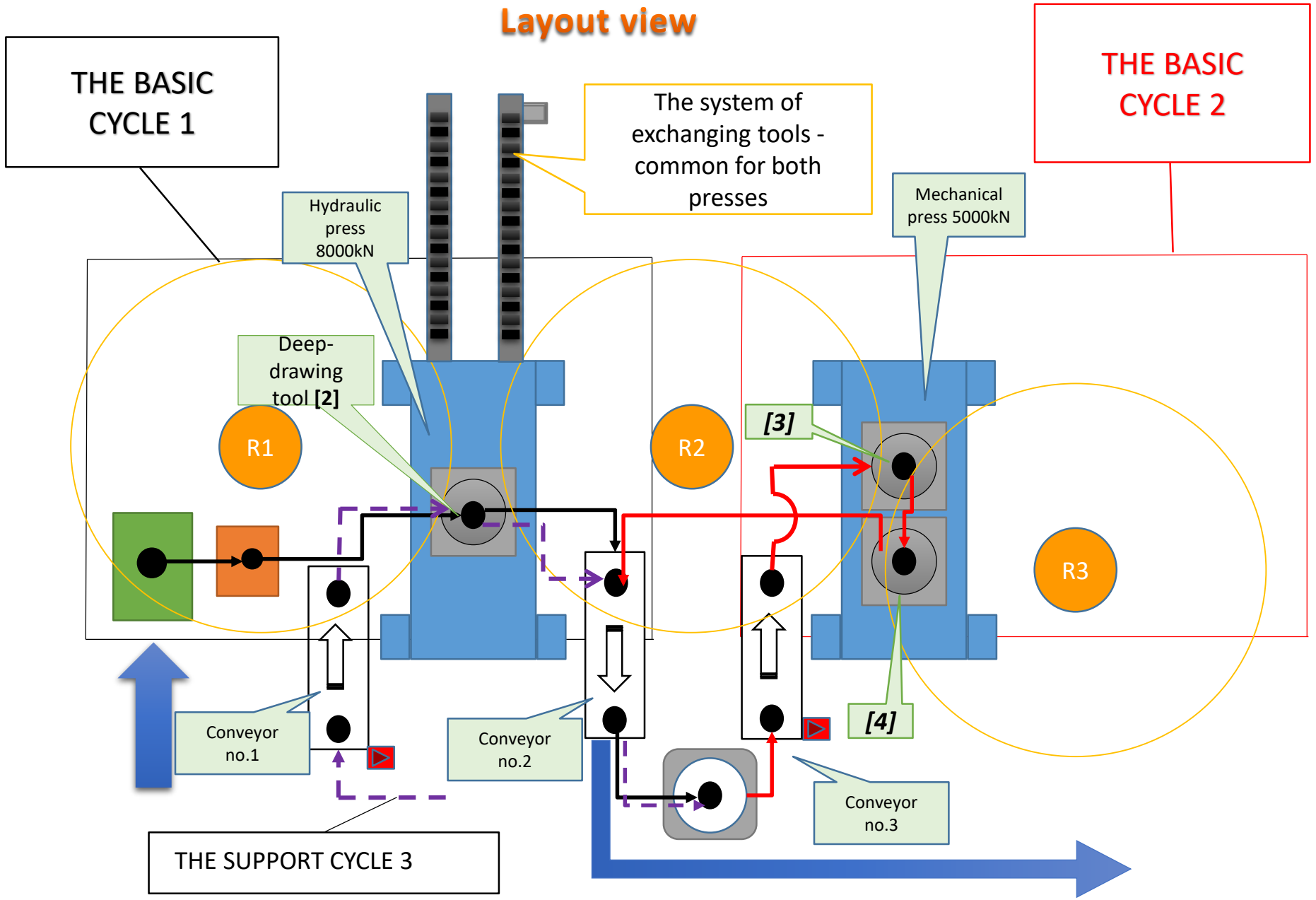
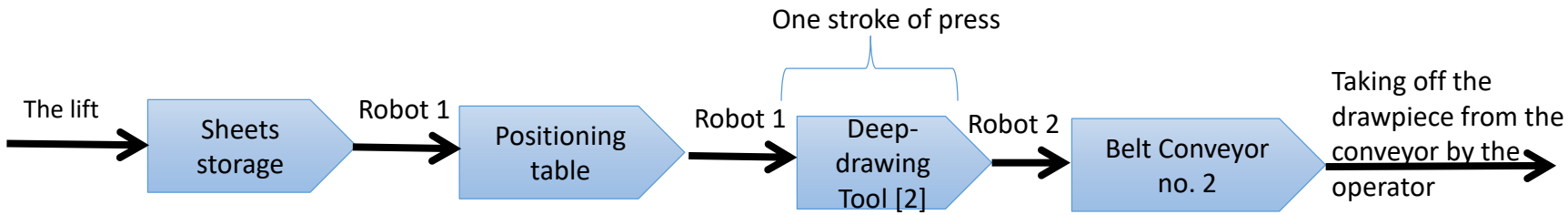
LAYOUT

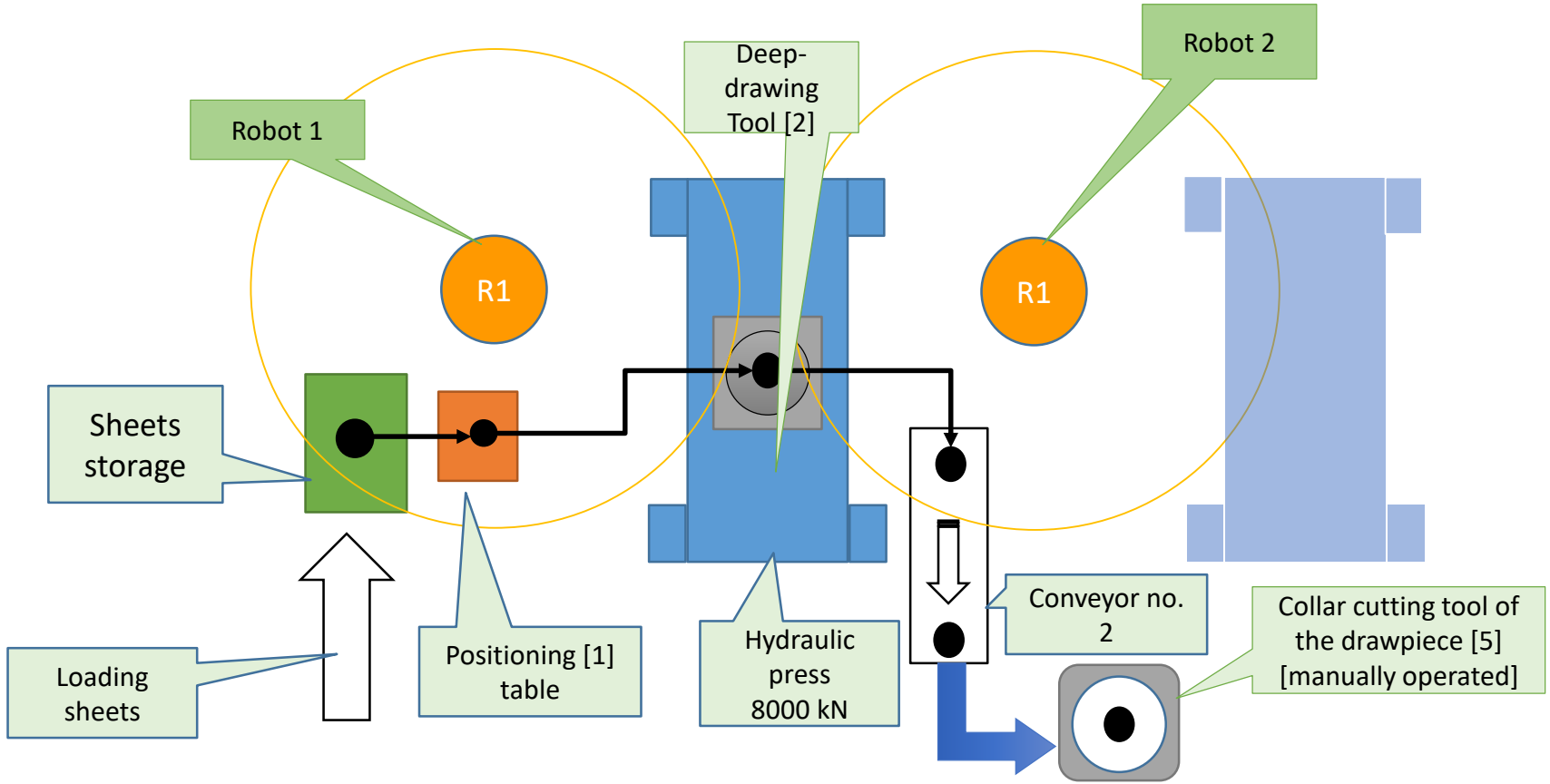
Technological process for parts FAN COVER

Layout view


THE BASIC CYCLE 1
THE BASIC CYCLE 2
The system of exchanging tools - common for both presses
Hydraulic press 8000kN
Mechanical press 5000kN
Deep-drawing tool [2]
R1
R2
R3
[3]
[4]
Conveyor no.1
Conveyor no.2
Conveyor no.3
THE SUPPORT CYCLE 3

BASIC CYCLE 1





BASIC CYCLE 2

One stroke of press

Four strokes of press

Loading the drawpiece on the conveyor no. 3 by the operator and start-up the conveyor

Robot 2

Side holes punching tool [3]

Robot 2

Perforation punching tool[4]

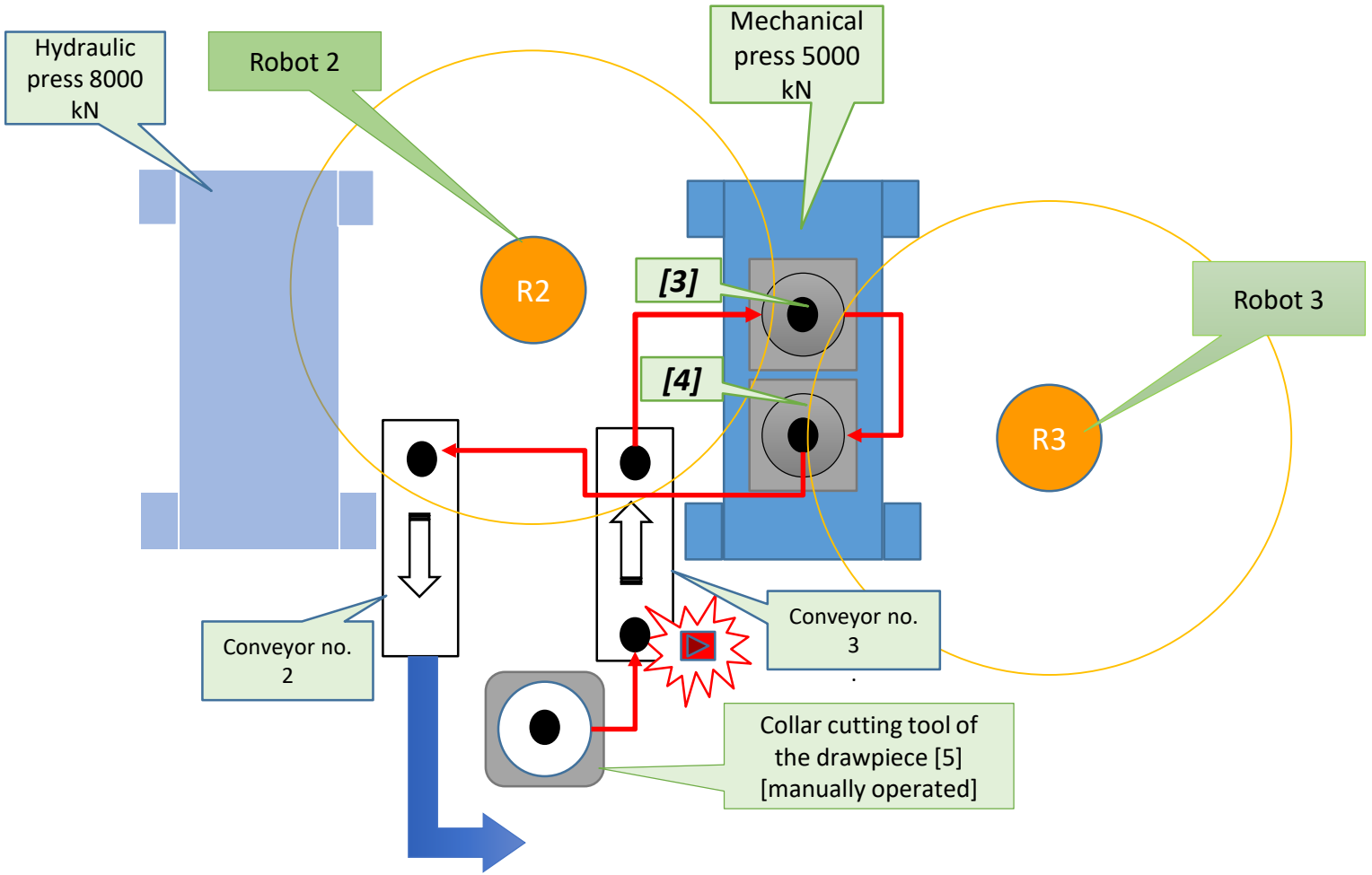
Robot 3

Drawpiece turn on the perforation punching tool 3 times 90° within 3 strokes of press

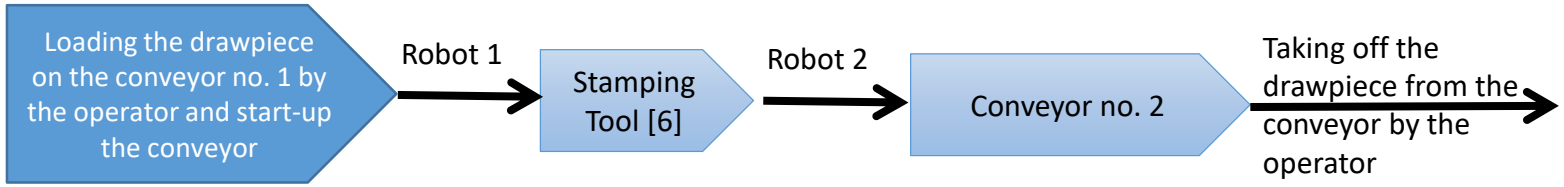
Robot 2

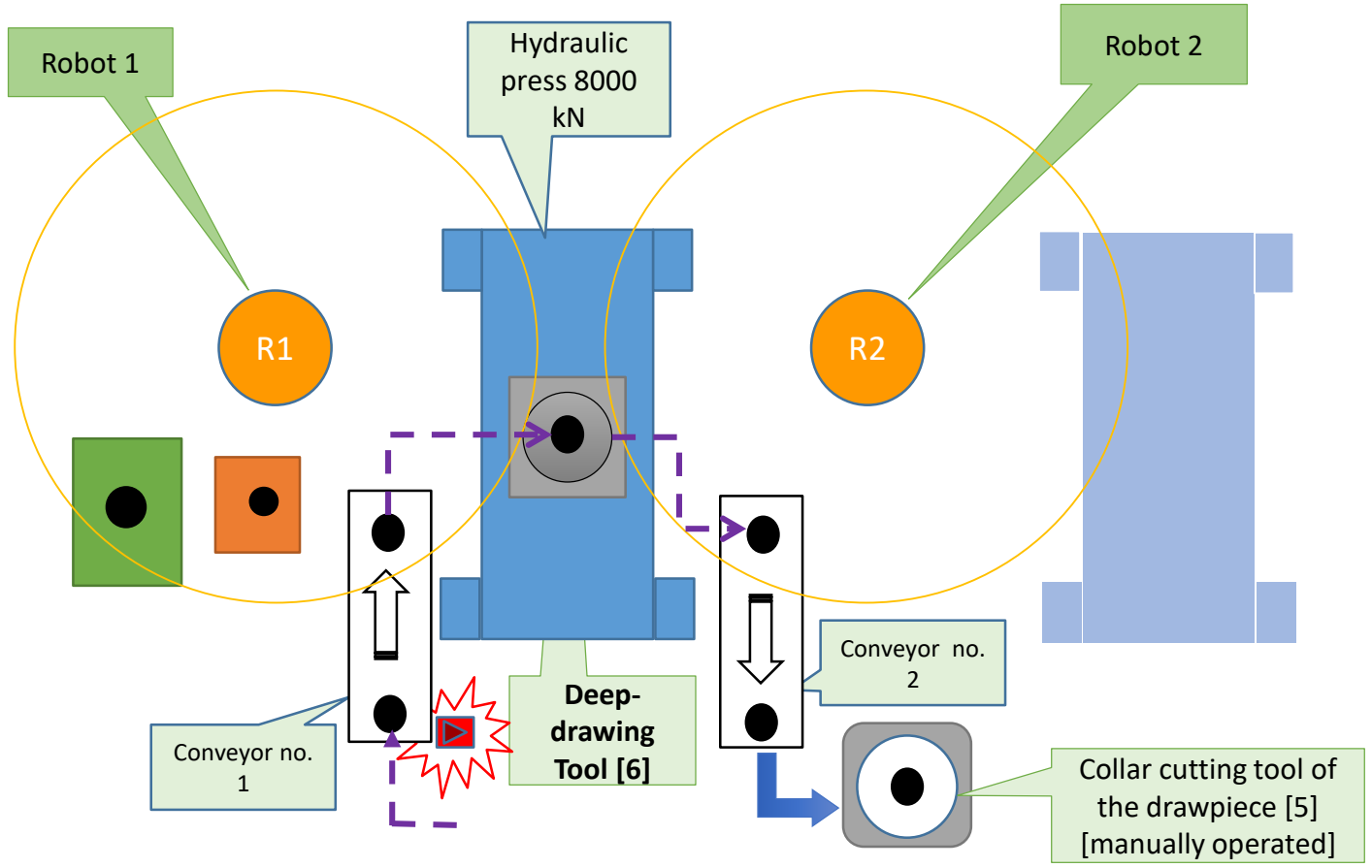
Conveyor no. 2

Taking off the drawpiece from the conveyor by the operator



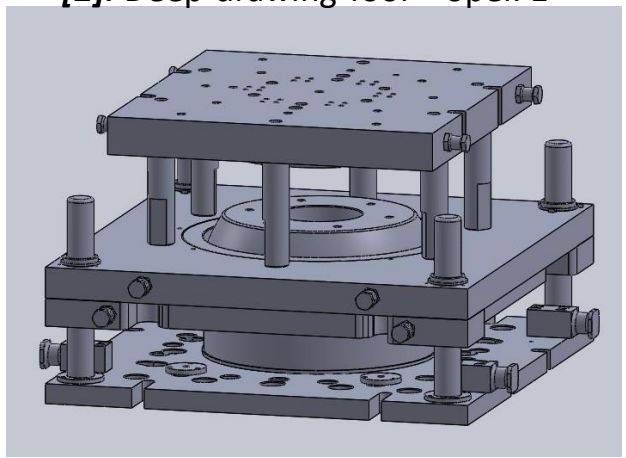
THE SUPPORT CYCLE 3



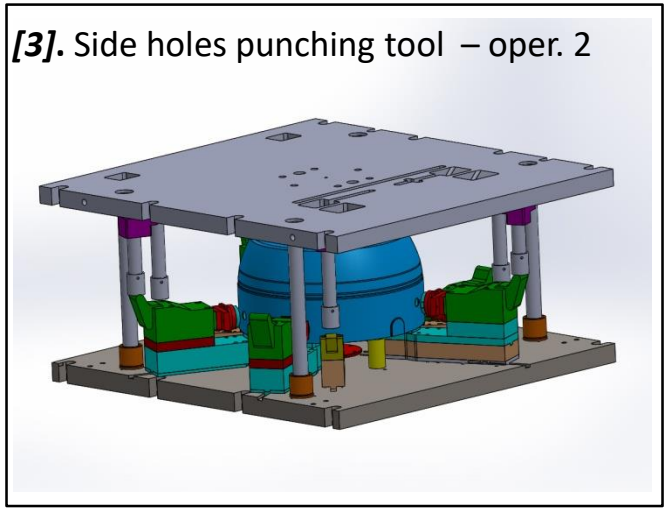


Tools and selected schema elements

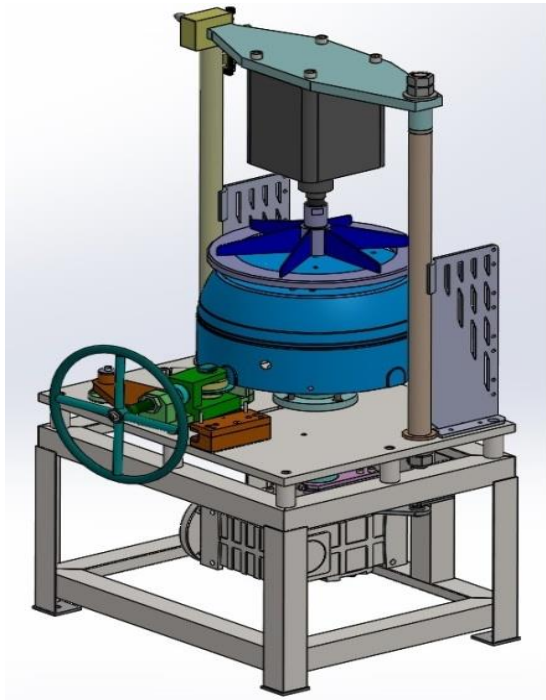
[2]. Deep-drawing Tool - oper. 1



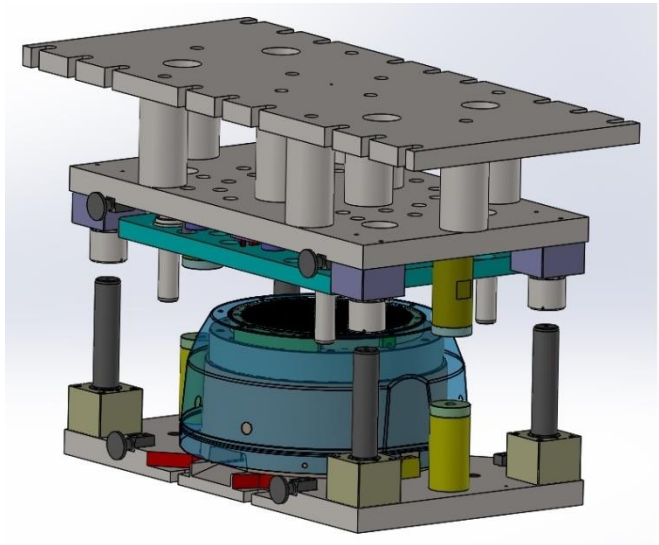
[3]. Side holes punching tool – oper. 2



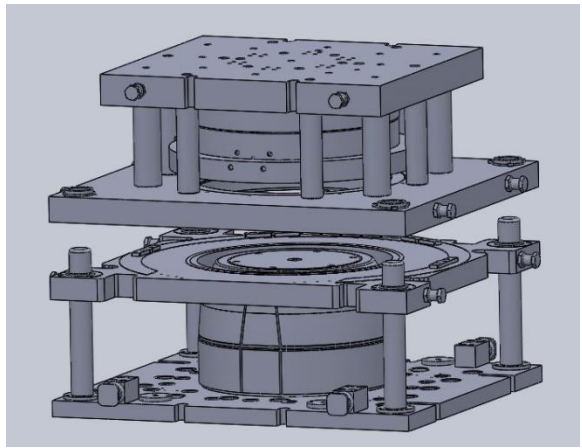
[5]. Collar cutting tool



[4].Perforation punching tool



[6] Stamping tool [spreading]



Tools and selected schema elements

[1]. Table positionig of the sheet

[7] Conveyor

THE DRAWPIECES

Fig.1 The drawpiece after the first operation of the deep-drawing

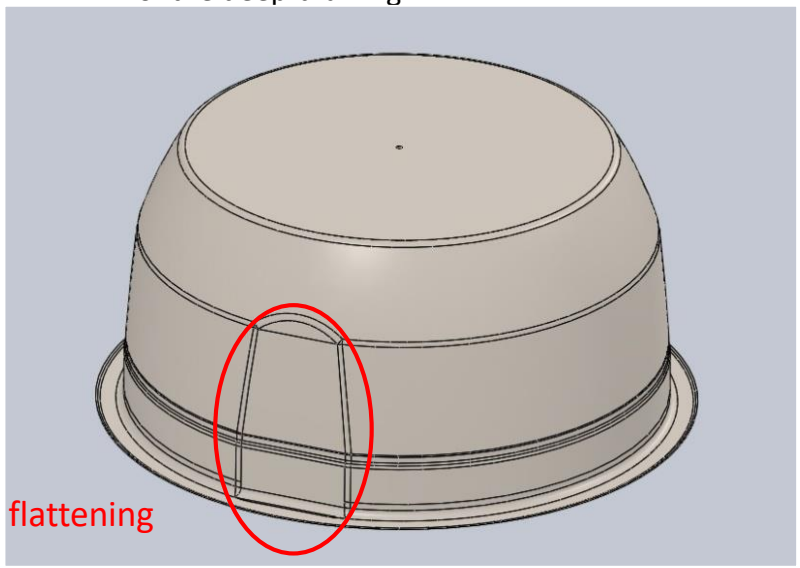


Fig.2 The drawpiece after collar cutting operation 2 – showing the base of operation for punching side holes.

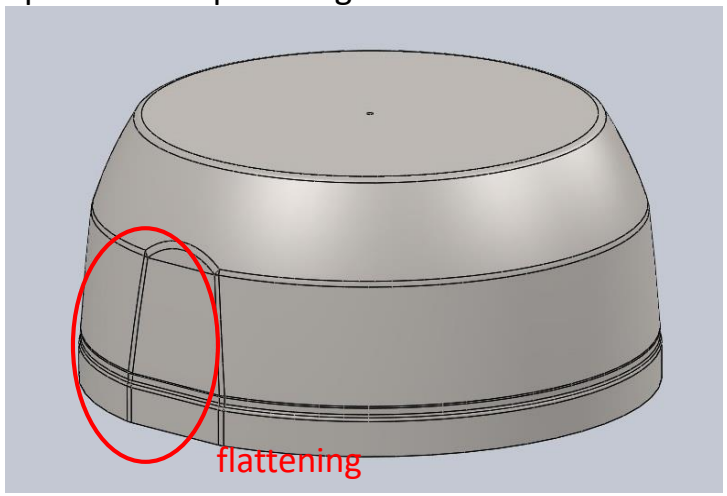


Fig.3 The drawpiece after punching side holes operation 3 – showing the base for the operation of punching in the first assumption

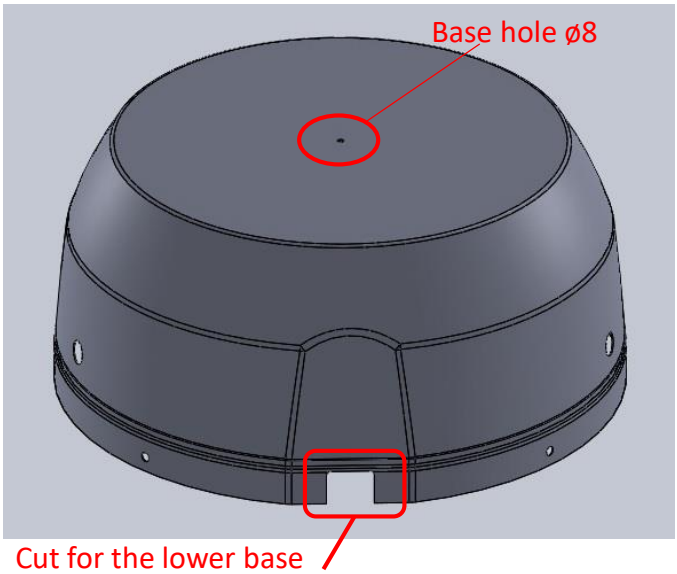
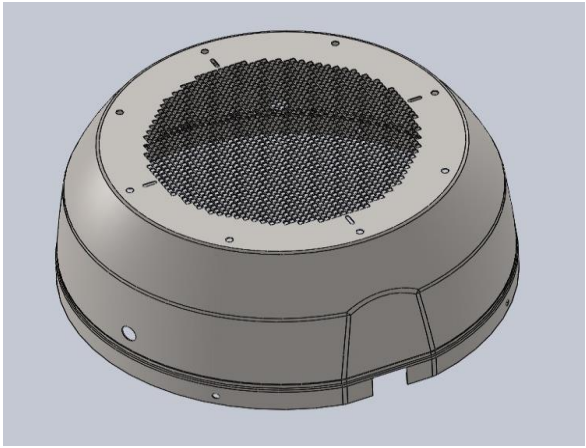
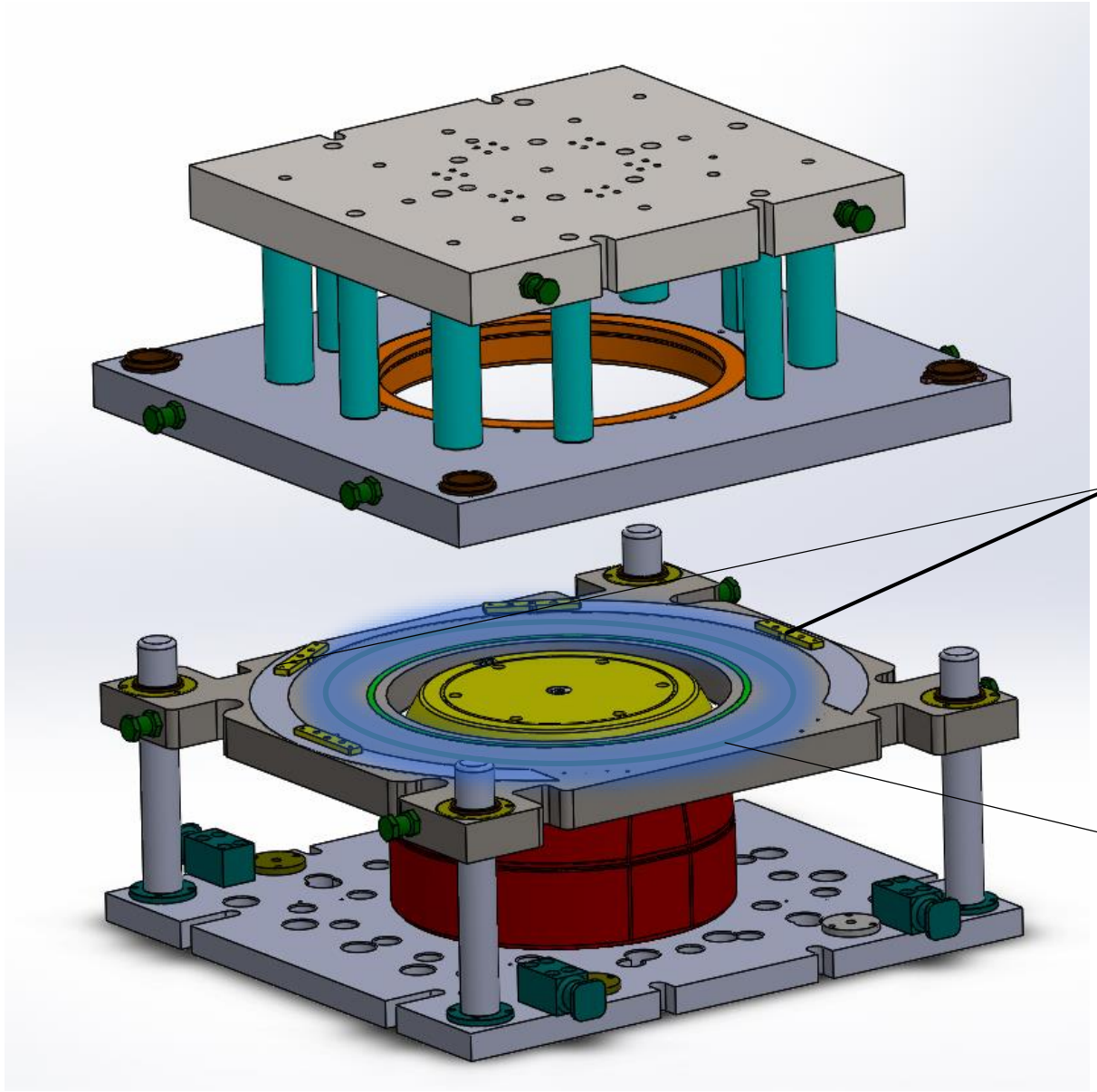


Fig.4 The drawpiece after perforation



The basing sheet on the deep-drawing tool [2]- basic cycle 1

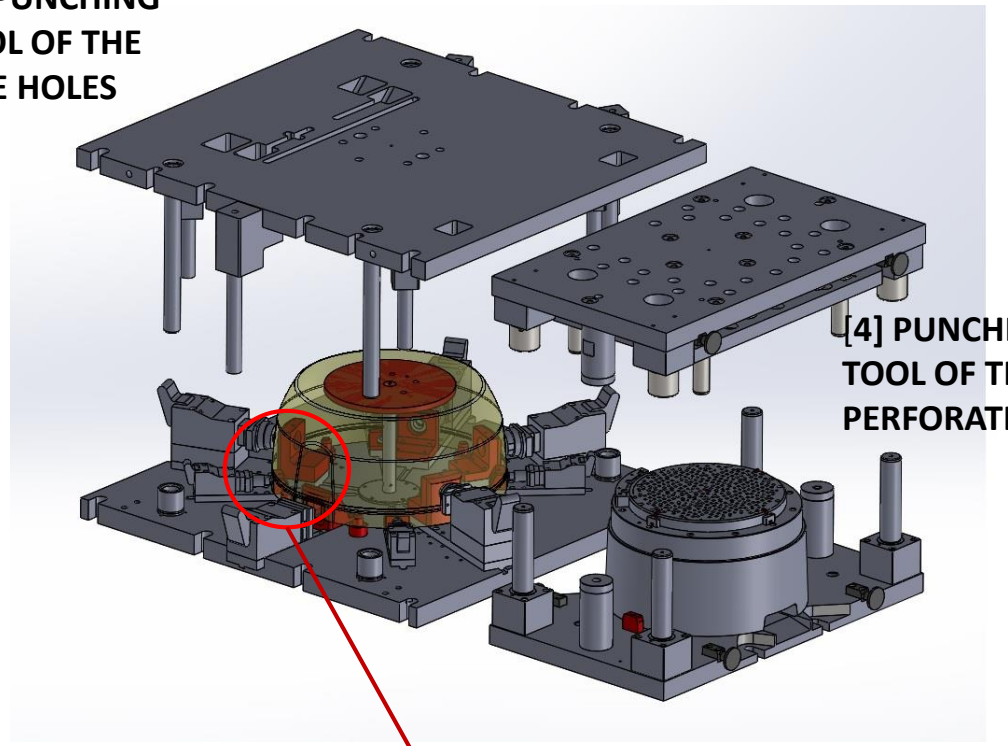


THE BASING SHEET
WITH PLATE

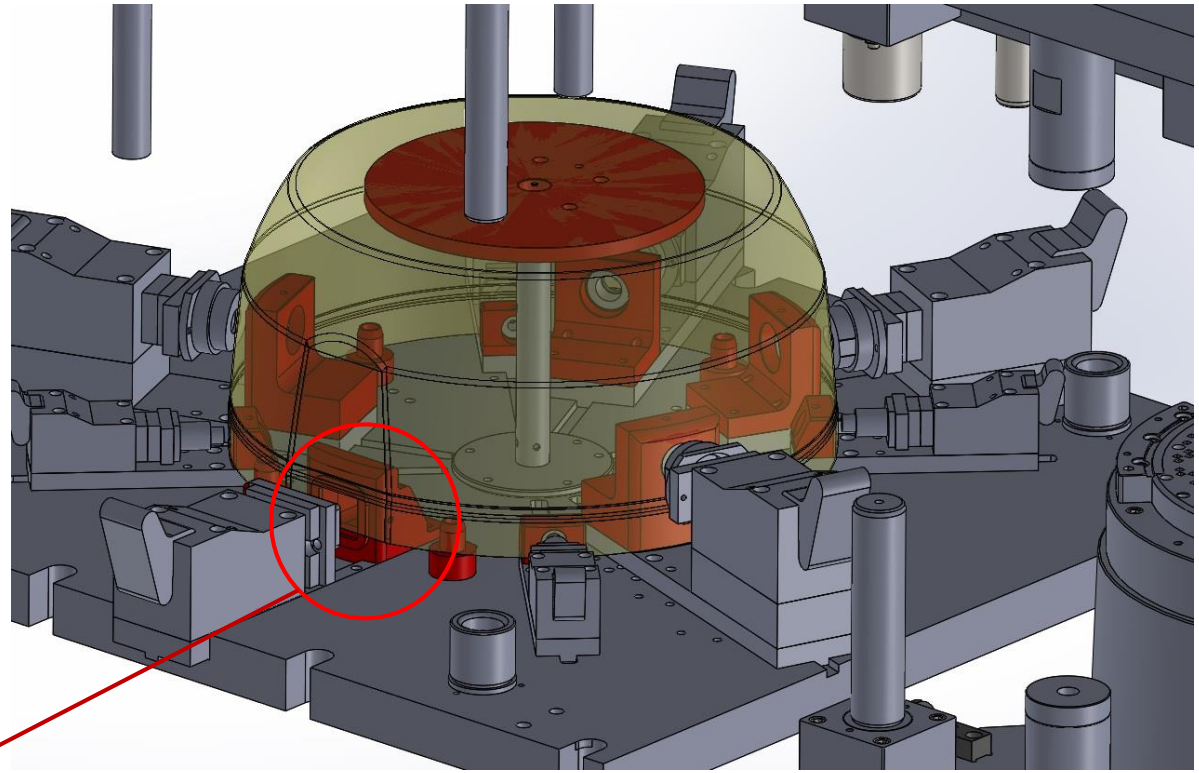
LUBRICATION AREA

The drawpiece base on the side holes punching tool [3] – basic cycle 2

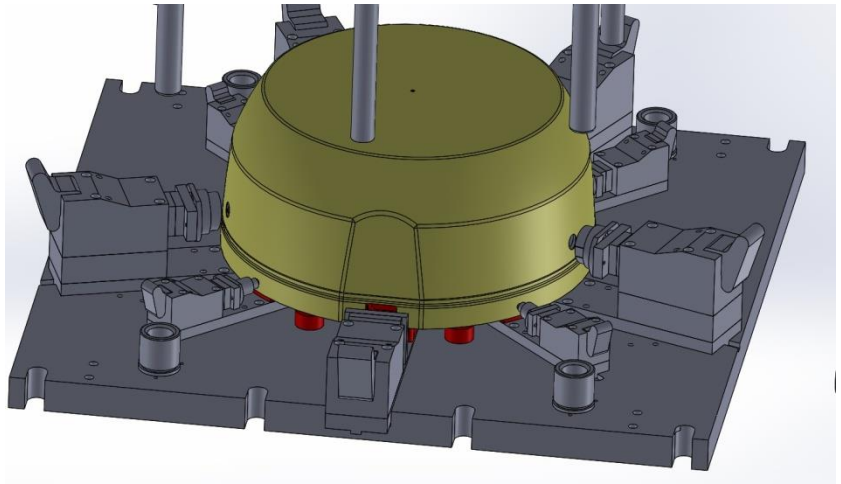
[3] PUNCHING TOOL OF THE SIDE HOLES



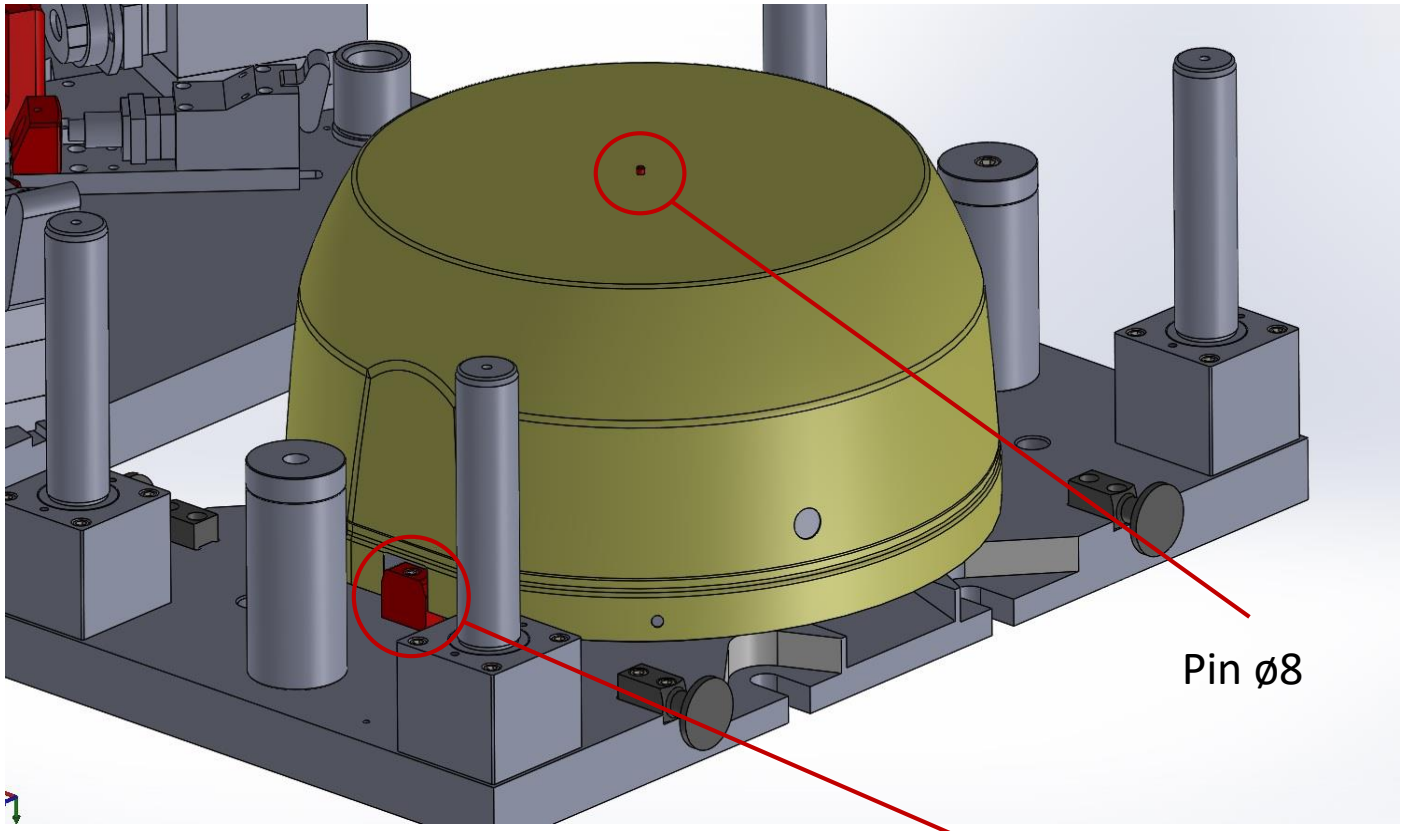
[4] PUNCHING TOOL OF THE PERFORATION

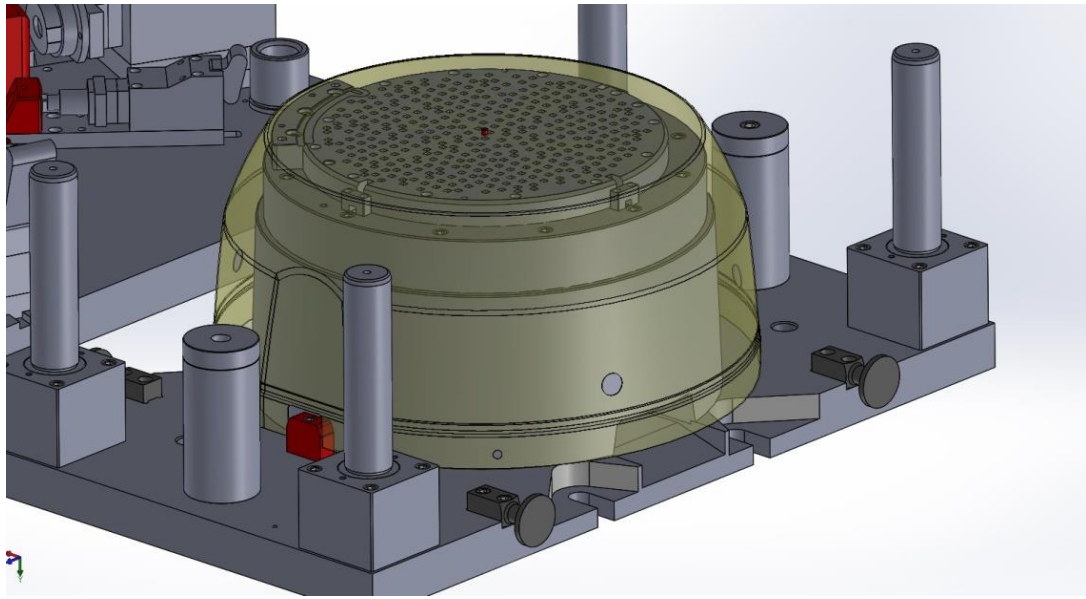


PLACE OF BASE OF THE FLATTENING

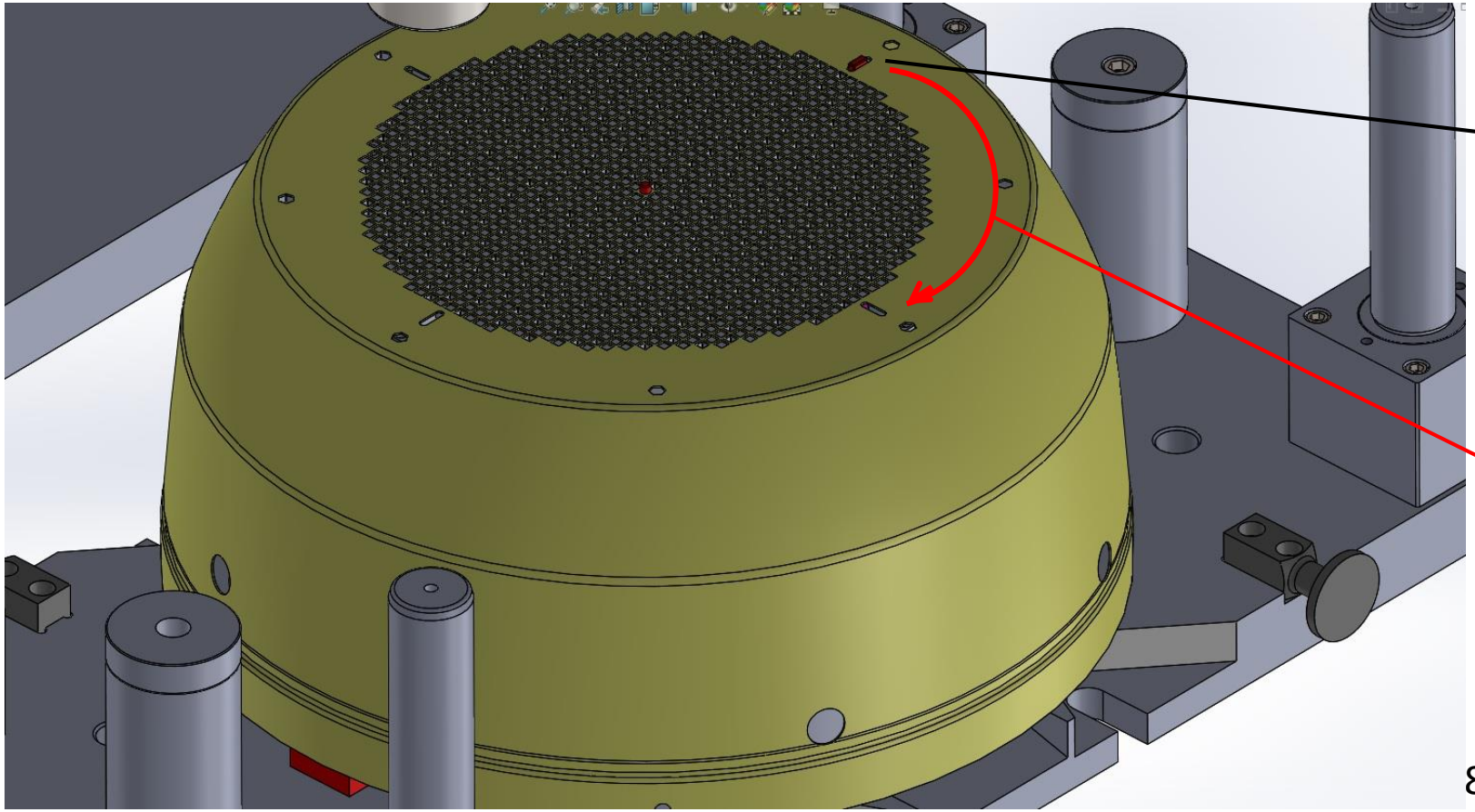


The drawpiece base on the perforation punching tool [4]- in the first assumption – basic cycle 2

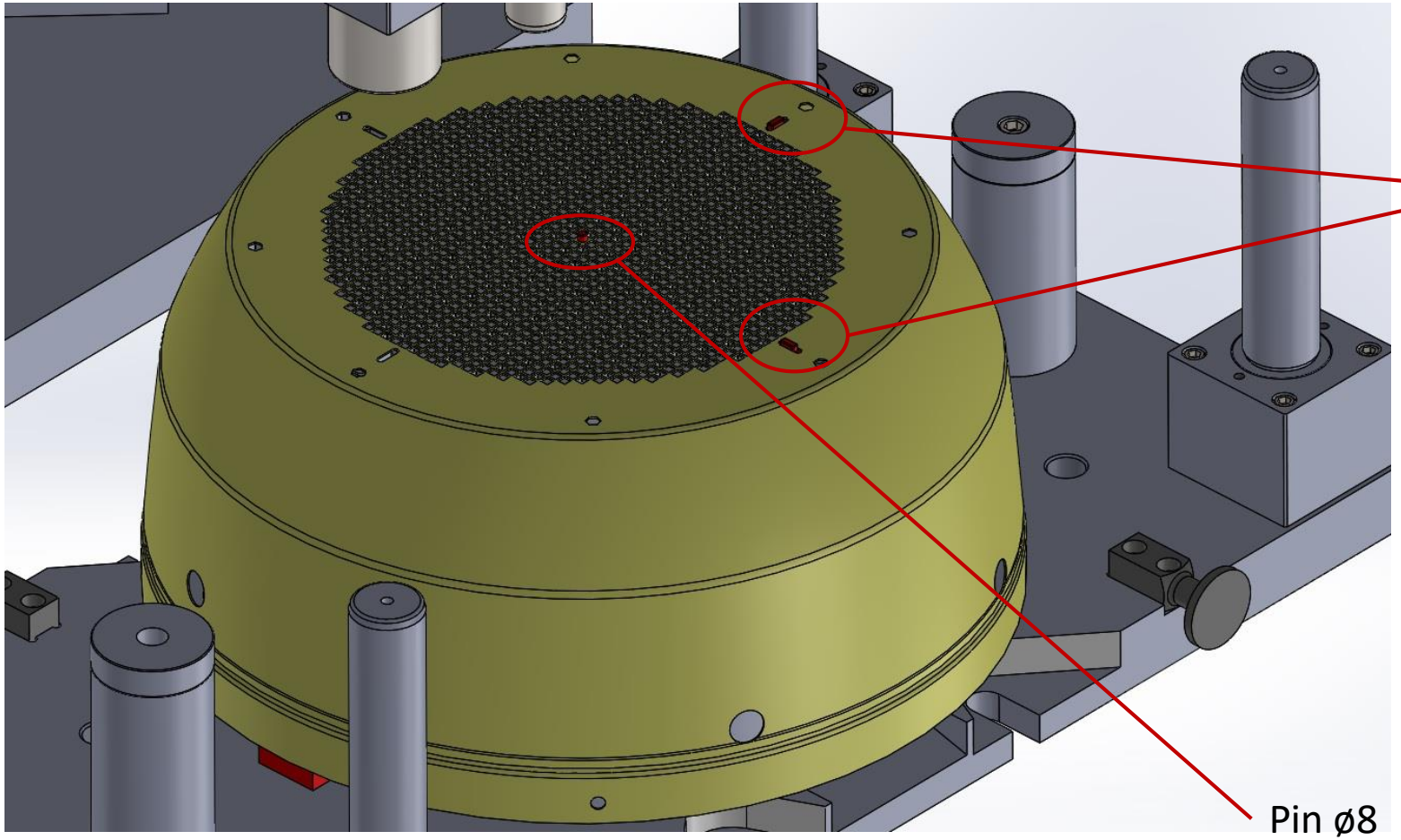




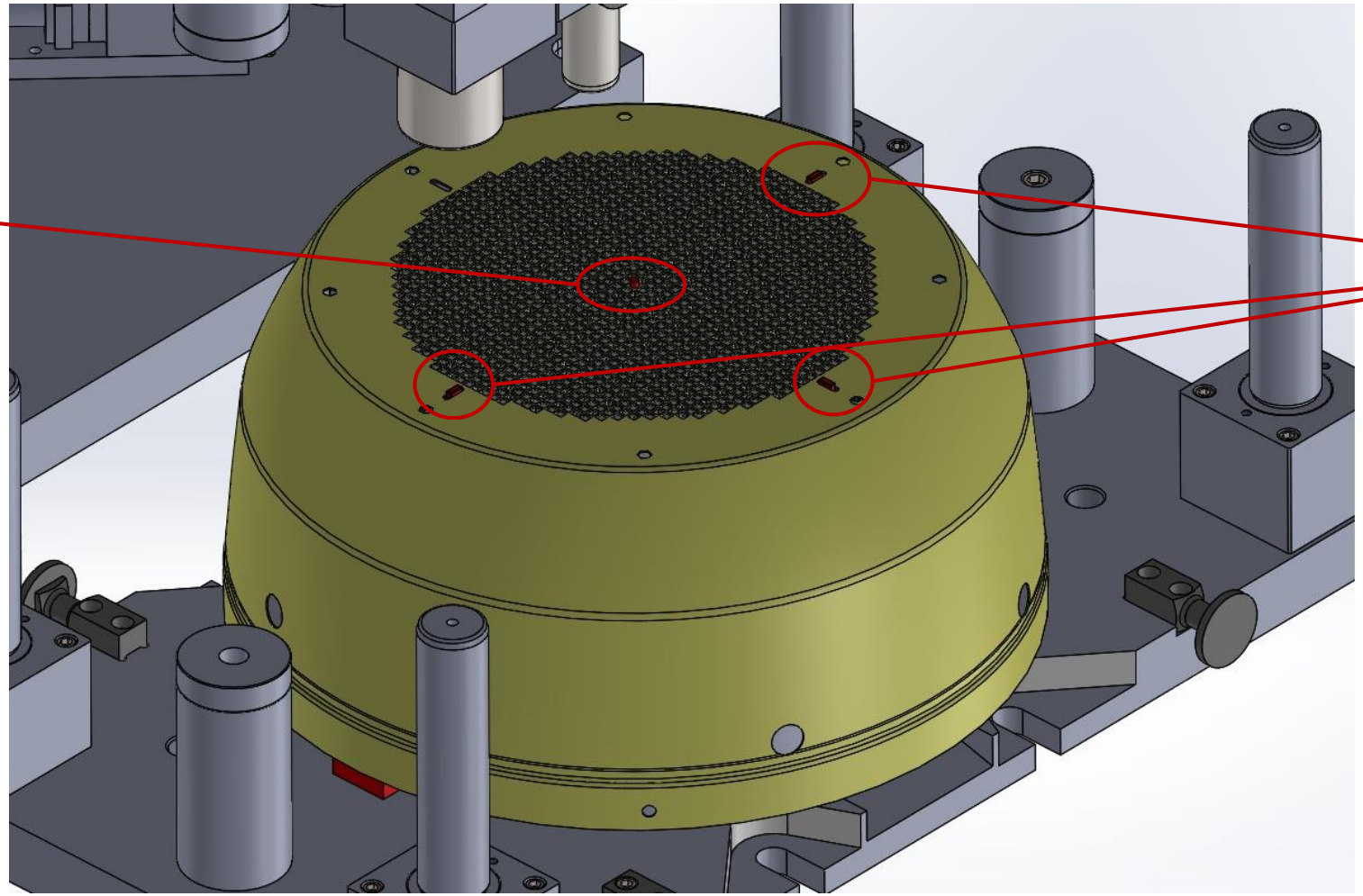
The drawnpiece base on the perforation punching tool [4]- in the second assumption – basic cycle 2



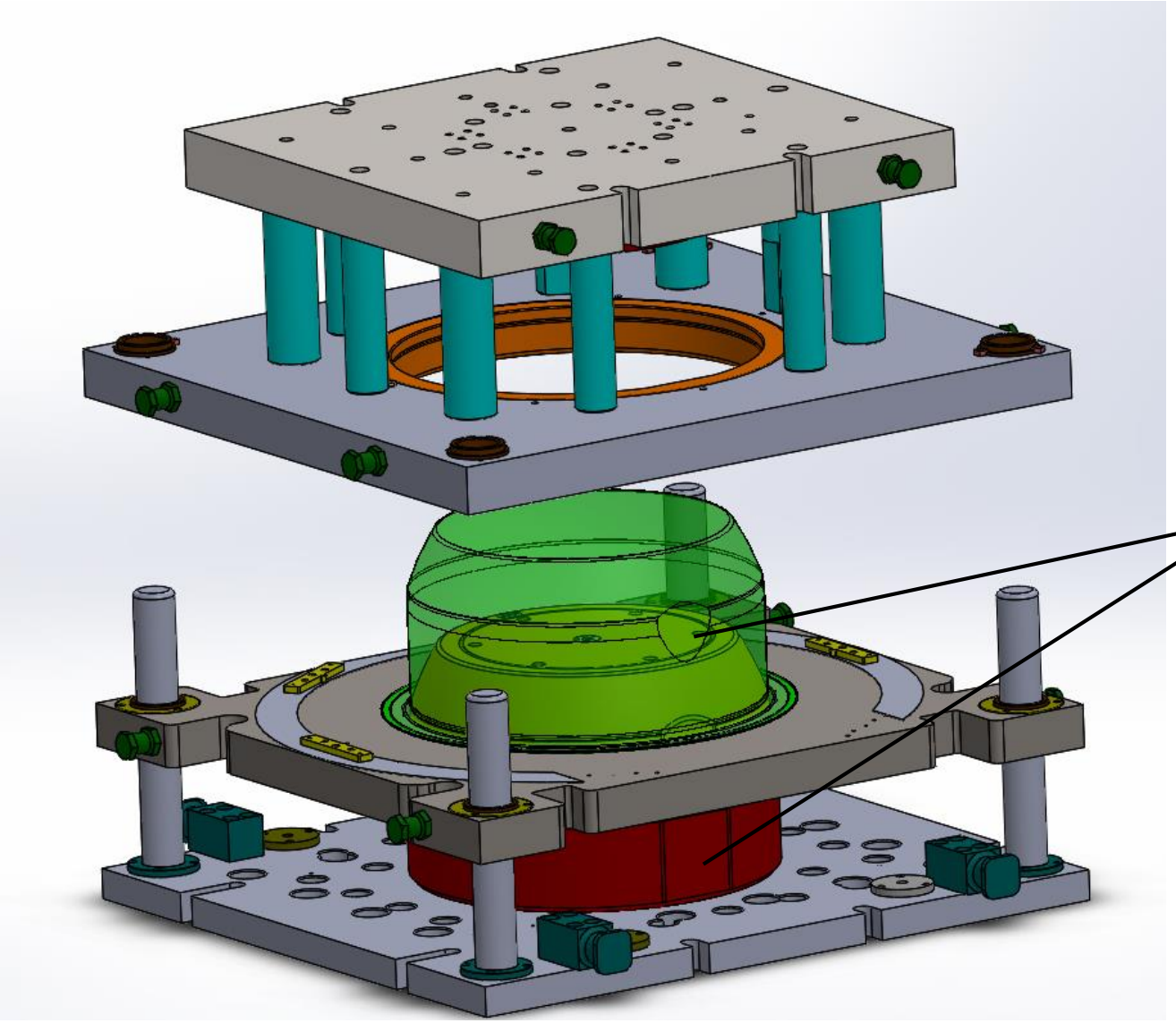
The drawpiece base on the perforation punching tool [4]- in the third assumption– basic cycle 2



The drawpiece base on the perforation punching tool [4]- in the fourth assumption – basic cycle 2

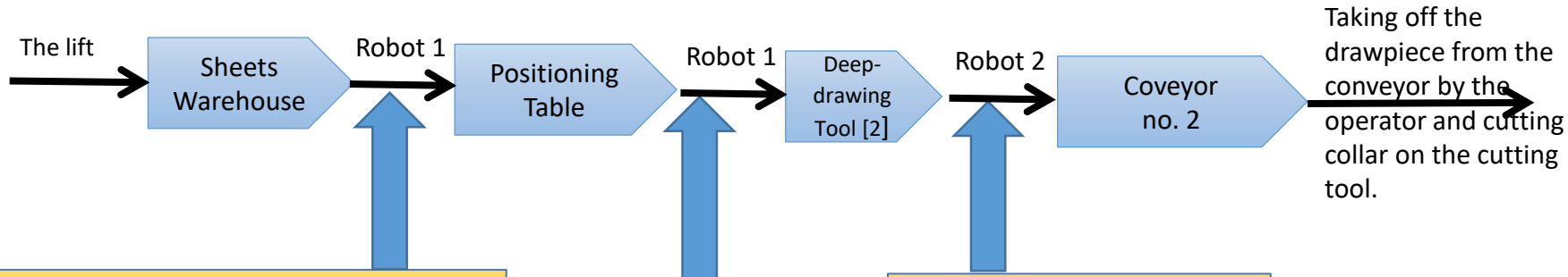


The drawpiece base on the deep-drawing tool [6]- support cycle 3



PLACE OF DRAWPIECE FLATTENING SET IN PLACE OF THE FLATTENING OF THE PUNCH

CYCLE 1 DESCRIPTION

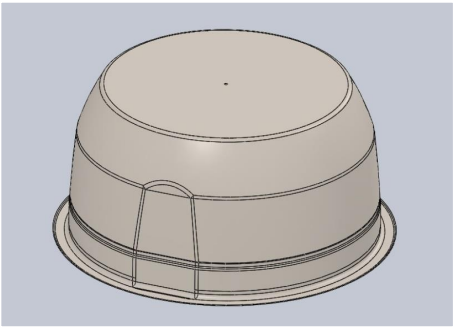


Taking the sheet ≠1,5 x ø1115 by **robot 1** from the stack of blanks and placing it on the positioning table [control system for taking one sheet is obligatory].

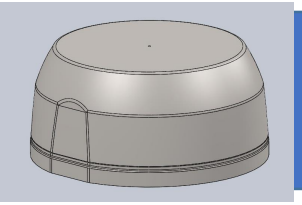
Lubrication of sheet [besides of central zone about ø 500].

Lubrication of the shedder plate in the deep-drawing tool. [slide 9] Taking the sheet by **robot 1** from the positioning table and placing it in the basis of the deep-drawing tool [press shedder device in upper position]. **1st press stroke** activation

Taking the die off the tool by **robot 2** and placing it on the belt conveyor. The drawpiece in the safe zone is taken off by the operator.



Cycle 2 description



Loading the drawnpiece on the conveyor no. 3 by the operator and start-up the conveyor

Robot 2

One stroke of press

Side holes punching tool [3]

Robot 2

Four strokes of press

Perforation punching tool [4]

Robot 3

Drawpiece turn on the perforation punching tool 3 times 90° within 3 strokes of press

Robot 2

Conveyor no. 2

Placing the die on the belt conveyor in the set flattened position on the drawpiece circumference
After conveyor activation by the operator the drawpiece must be stopped in the strictly defined position **[this condition must be included in the conveyor construction]**

Taking and moving the drawpiece by **robot 2** from the tool and placing it in the basis of perforation punching tool **[4]** with the required positioning [two bases for the first assumption - slide 12] **2nd press stroke** activation

Lifting the drawpiece up by the **robot 3** , 90° rotation and placing the drawpiece in the punching tool bases with the required drawpiece positioning [bases for the second assumption – slide 12]. **3rd press stroke** activation.
Lifting the drawpiece up , 90° rotation and placing the die in the punching tool bases with the required drawpiece positioning [bases showed in slide 13]. **4th press stroke** activation.
Lifting the drawpiece up , 90° rotation and placing the drawpiece in the punching tool bases with the required die positioning [bases showed in slide 14]. **5th press stroke** activation.

Taking the drawpiece by **robot 2** from the conveyor and placing it in the bases of the punching tool **[3]** with the required positioning of flattened drawpiece area [slide 10] **1st press stroke** activation

Taking the drawpiece off the punching tool by **robot 2** and placing it on the conveyor. The drawpiece in the safe zone is taken off by the operator.

Technological line contractor will together with Firma Tarapata agree on the equipment of tools with necessary sensors and instalations.

Cycle 3 description