



**Sistem modular flexibil de fixare a semifabricatelor pentru  
procedeul de deformare incrementală**

**Flexible modular system for fixing workpieces for the  
incremental forming process**

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**DESCRIPTION**

The incremental forming process is a flexible alternative to conventional cold metal forming processes. One of the main disadvantages of the process is that it allows the processing of a single type of workpiece size, because the working area and implicitly the size of the workpiece sheet that can be processed is fixed. To eliminate this disadvantage, a flexible modular system for fixing the workpiece is proposed.

The active plate 9 is characterized in that it is provided with five intermediate seating positions, both in the X-axis and in the Y-axis direction, in which modular active elements can be mounted, on both axes, 10, 11. Intermediate seating positions provided in the active plate, together with the modular active elements allow the user to adjust the size of the workspace and thus the size of the workpiece. The active plate is also provided with holes for mounting the clamping screws.

The figures on the right show the mounting of the modular active elements in the X-axis, 10, as well as a modular active element in the Y-axis, 11. It is also necessary to use a retaining plate to fix the sheet metal workpiece. For the proposed system, it is also characterized by a modular construction.

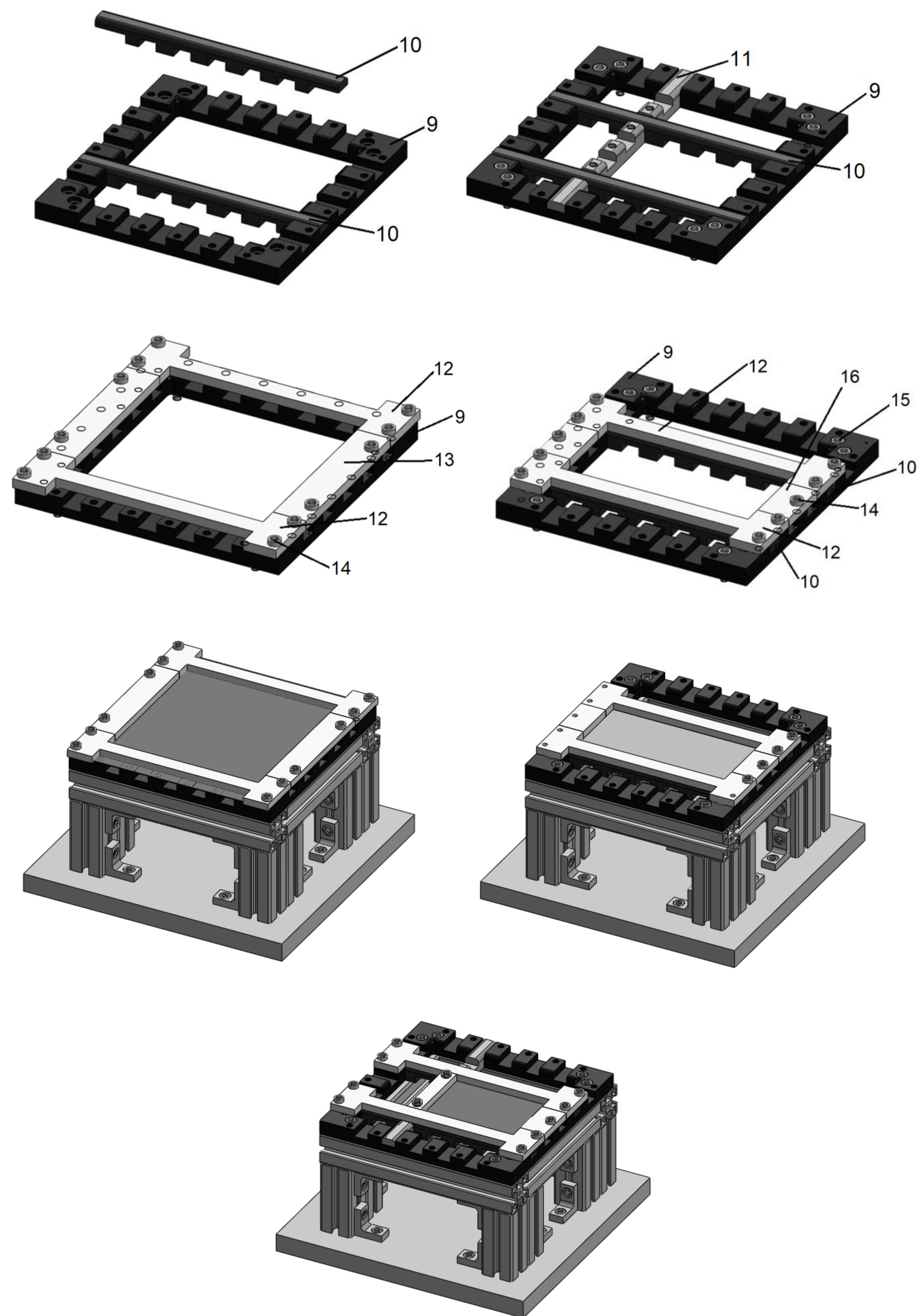
Thus, the retaining plate consists of two retaining elements in the shape of the letter I, 12, which can be mounted parallel to the X-axis direction and can occupy any of the six available positions above the active plate 9. The retaining elements in the shape of the letter I are provided with threaded holes, for the purpose of their removable connection with the active plate. In addition to the elements marked with 12, intermediate restraint elements, marked with 13, are also required.

These elements have a simple construction, being made of plates of the same width and height, but of different lengths, allowing the modular fixation of the workpiece, between the active and the retaining elements. They are also fitted with threaded holes, for the purpose of their removable connection with the active plate, by means of fixing screws 14.

An example of the combination of the active plate 9 with retaining elements in the shape of letter I 12, with intermediate retaining elements 16 on the right side is shown on the right side. The screws used to assemble the assets and restraints 14, 15 are also shown.

It can be seen how the adjustment of the working area and implicitly of the size of the workpiece can be done using both modular active elements and intermediate restraint elements mounted in the direction of the Y axis.

Finally, the modular fixing system of the workpiece is presented, including both the support structure and the active plate (together with the modular active elements) and the retaining plate (consisting of the I-shaped retaining elements and the intermediate retaining elements). In the figure one can also notice the sheet metal workpiece.



**ADVANTAGES**

The system allows the user to adjust the size of the workspace and implicitly the size of the workpiece. Consequently, the flexibility of the incremental forming process is significantly increased.

**APPLICATIONS**

The system can be used in the manufacturing, automotive and aeronautical industries to process complex shape sheet metal parts in a flexible and accurate manner.

**CONTACT**

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