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MECHANIZATION AND CONTROL OF THE WELDING FOR AUTO SEATS STRUCTURE

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Abstract: The paper presents the fabrication technology for metal frame chairs of the rear seatback Dacia Sandero car.

The achievement is made using welded construction mechanization devices, which allows fixing the metal frame and wire mesh. In order to avoid rejects, caps were fitted with sensors connected to the welding station machine, which validates the points of welding in place. Welding is done by pressure points using welding clamps, whose action is blocked if the welding point was incorrect. The control system of welding points removes scrap and validates the correct welding process.

Keywords: car seats, control devices, system validation of mechanization devices.

1. INTRODUCTION

The Dacia Sandero car seats in the front and back are welded rear pressure into points.

Seats in the rear seat backrest of the car are manufactured Sandero Design legally in three variants: RSB 40, RSB 60, RSB100.

The paper presents the process of manufacturing the valves of the rear backrest RSB100 type of project B90 (Sandero).

Pressure welding technology in the points is completed by the validation of welding points, using a control system that avoids welding scraps and confirm that it was well executed.

2. STEEL STRUCTURE COMPONENTY CAR SEATS.

The three types of auto parts backrest are shown in Figure 1.

The building consists of a metal frame made of pipe that are welded fasteners, hinges, reinforcement bar and wire mesh to secure a trim.

Preparing reinforced backrest for variant RSB 100 requires the execution of 24 welding seams on the front of the weld reinforcement and 18 points on the main tube axis.

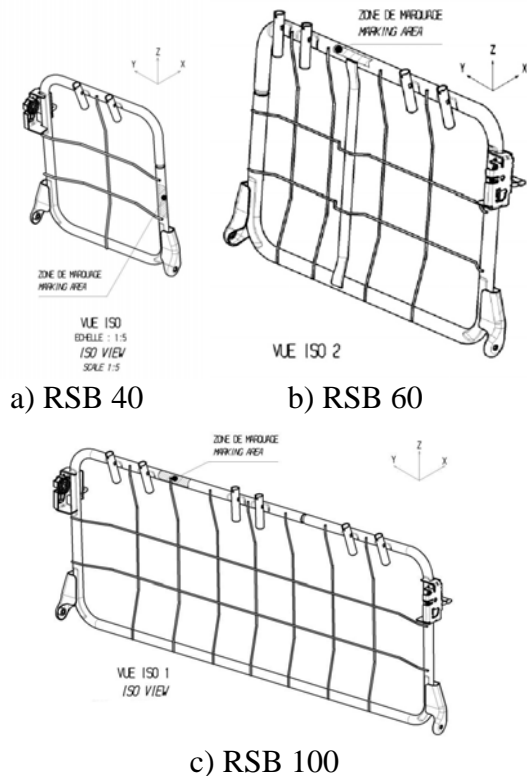


Fig. 1 A car in three versions Backrest.

Welding is done using a clamp device for determining the positioning elements and components of rear seat backrest, shown in Figure 2.

In the process of welding operators working with certified welders and validated according to current regulations.

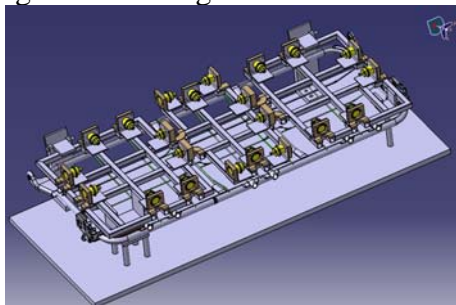


Fig. 2 Device for fixing.



Fig. 3 Settlement framework in device

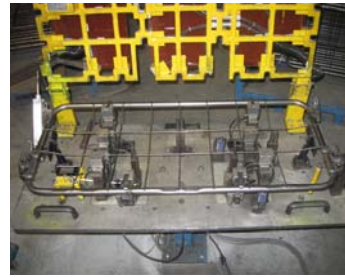


Fig. 4 Metal head in up position

3. MANUFACTURING TECHNOLOGY

Before the start of preparatory work to run these operations:

- Opens valve on compressed air column. Press the button next to the gauge. Check this compressed air - 4 bar;
- Valves are opened round-trip from the cooling water supply columns and the welding tongs;
- It continues with the TPM checks according to the job position;
- It continues with the execution of a sample which is subject to testing and destructive testing is performed;
- If the result is consistent (surrender shall be made by wire breakage) to begin the work. Otherwise, it informs the head of a team; In mass production begins execution by placing backrest frame;
- In mass production begins execution by placing backrest frame;
- Pneumatic pressing and fix the clasp left four pneumatic driven to the left;
- Place the back of the net for RSB 100, ensuring that it is positioned on aluminum limitatorii positioning and limiters;
- Fix pneumatic pressing left latches corresponding net;
- The lock down cover song (Fig. 4);

Execution of welding operation is done in stages as follows:

- Net frame welding is executed according to the sequence indicated in the welding procedure. The device rotates as needed;



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- After taking the number of points, automatically unlocks the metal cap;
- Lift the metal cover upright (Fig. 5);
After welding control operations are performed as follows:
- Is checking visual the 18 points of welding and their position to be on the tube axis;
- Check visual presence and appearance of the 24 welding seams on the front of reinforcement;
- It eliminates part of the device and visually check the presence and appearance of the 8 welding seams on the back of the reinforcement;
- Check this visually marking the right bottom bracket. The text must be clearly marked;
- Arrange for all the support, the finished parts warehouse. Welding is performed with a source and welding clamps.



Fig.5 Detector for workpiece.



Fig. 6 Details including plastic wear plates, due to friction welding electrodes.

Note the wear on the friction caused by plastic welding gun electrodes points. Were attached to plastic parts to avoid direct contact with the metal electrodes.

4. DESTRUCTIVE TESTING OF WELDED STRUCTURES RESISTANCE POINTS

After completion of the first reinforcements to the beginning of each shift, is taken samples to be tested under the destructive ISO 10447 2006 - Resistance welding — Peel and chisel testing of resistance spot and projection welds.

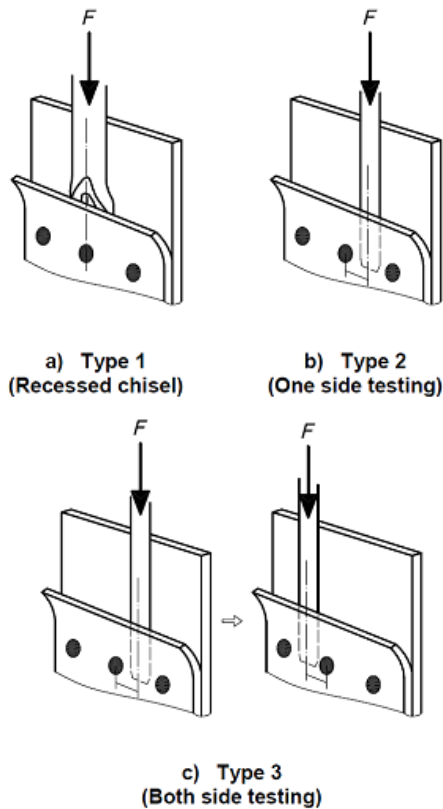
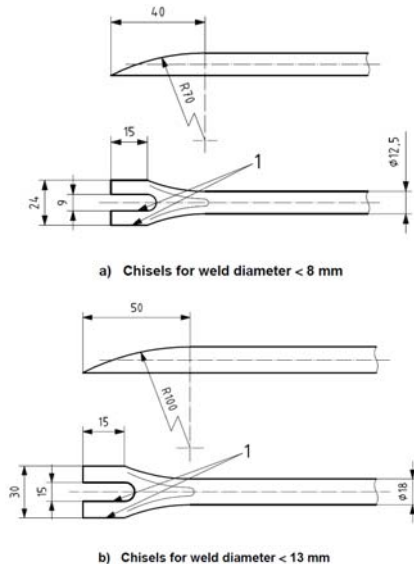


Fig.7 Chisel routine test on resistance spot and protection welded joints.



c) Tools used for testing.

Fig.8 tools used in the production flow for destructive tests.

In Figure 7 are presented by combining three types of points which are measured by welding adhesion tested using different types of chisel-type tools, shown in Figure 8.

4. CONCLUSIONS.

Spot Welding for Sandero seat backrest is made using a series of mechanized devices, using sensors of position and helping to prepare the development of weld quality.

Using an auxiliary frame enables the execution of welding points only in avoiding rebaturiile locuriile well established.

5. REFERENCES.

1. Georgescu, V., Mircea, O., et al.: *Sudarea prin presiune. Metode clasice (Pressure welding. Classical Methods)*. Brasov. Lux Libris Publishing House, 2002.
2. Iovanas, R.: *Sudarea electrica prin presiune (Pressure electric welding)*. Timisoara. Sudura Publishing House, 2005
3. Joni, N. Trif, I. N.: *Sudarea robotizata cu arc electric (Robotic arc welding)*. Brasov. Lux Libris Publishing House, 2005.
4. I.Uncu, S. Gansca, F. Sapariuc, N. Trif, A new system for controlling the car seats welding points, Bulletin of the



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