Innovated molds to produce Glass Vents for architecture

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Summary:

The molds may sometimes be similar to some of the glass products molds used in the pressing method, but they are different from them at other times to ensure the safety of the glass exit from the mold that has a different nature from the products produced by the traditional pressing molds such as tiles and glass bricks used in architecture, so Several experiments are required to find suitable parts of the molds with which these voids can be obtained.

Research problem:

The lack of common molds suitable for the production of glass hollows due to their special nature.

Research objective:

Design a methodology for arriving to produce glass hollows that serve architecture.

Achieve development and production considerations for the design of glass vacuums.

research importance:

Finding molds suitable for the production of glass vacuums for use in architecture as an architectural element that has different architectural properties.

First: The levels of the strategy: (Business Strategy, Job strategy, Operations Strategy, Product development strategies)

Second: Design considerations for glass vacuums: (Stable design, Mass design, Computer aided design, Virtual reality technology, Simplification, Profiling, Quality, Value analysis, Economy, Environment friendly)

Third: A productive study of a vent glass unit by pressing method: (Design Idea, Design study of the template, Apply a prototype template and unit, Mold production, Production of the glass unit)

Fourth: Considerations for the production of the glass unit by pressing method

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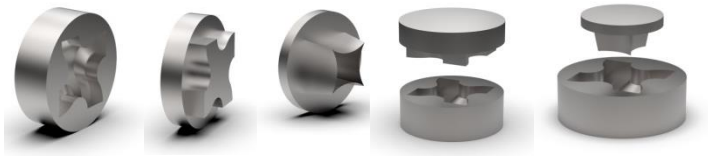
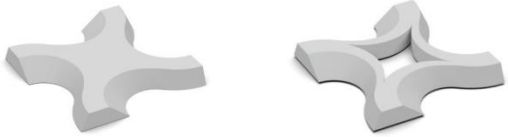
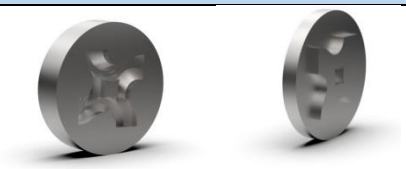
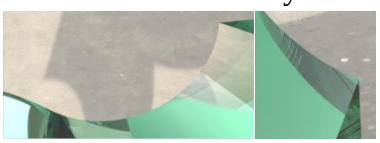
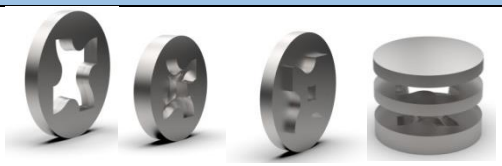
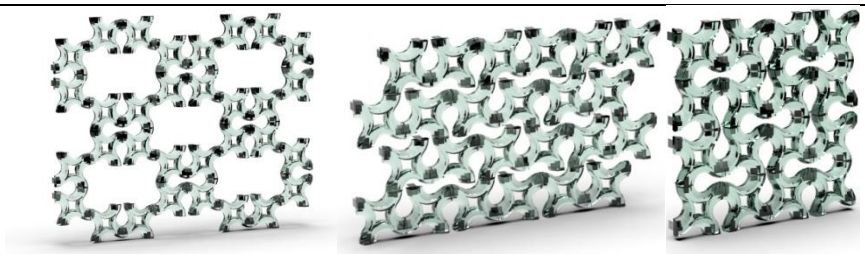
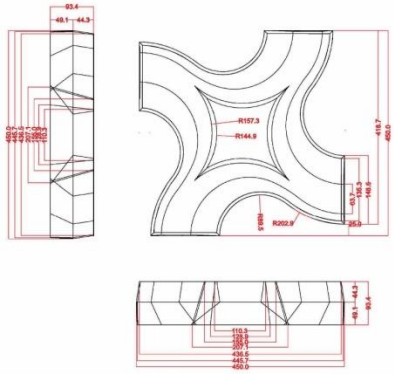
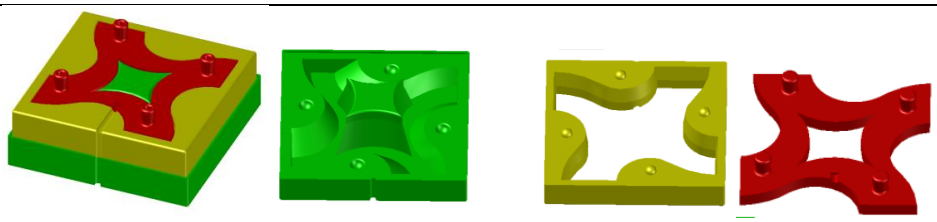
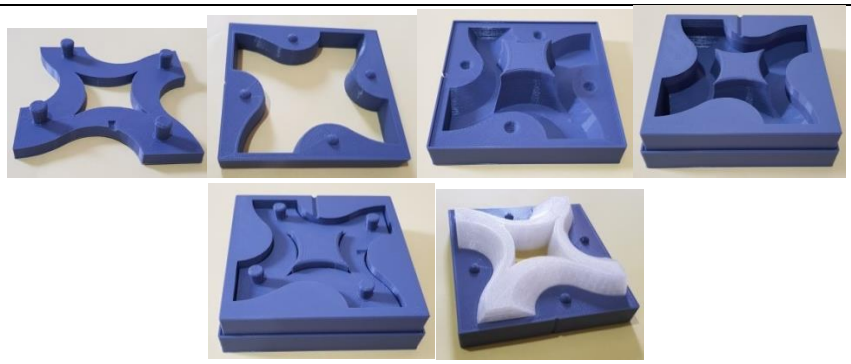
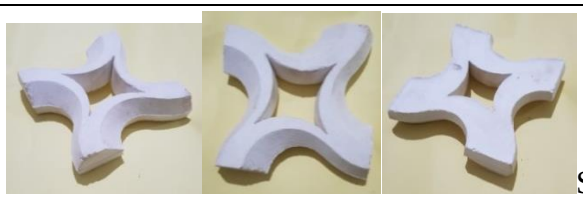
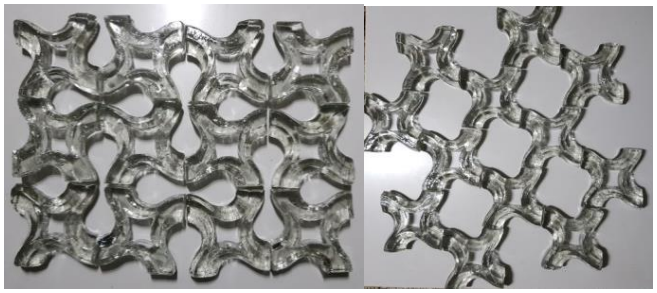
Production study for a glass unit		
Vent Type	solid units Vent and Non hollow	
Mold design		
1)Pressing in one mold then discharging		
Mold section		 Pressing Vent
The mold		
Unit shape		 Before vent After vent
The result of the pressing process		 Unsatisfactory
2) Press in one piece mold and vent		
The mold	 section	
Unit shape		Unsatisfactory 
3)Press in a multi-part mold and vent		
The mold		

Unit shape	successful 
Unity combined	
The prototype	
Executive drawing	 scale 1 : 4
Prototype Unit	
Drowing Mold	
Prototype Mold	

Testing mold	 Successful
Production vent glass unit	
1) production mold	
Casting Mold	Unsuccessful 
C.N.C. Mold	 Successful
2)The stages of glass production	
Fixing mold	
Pressing glass	
The cooling	
The vent glass unit	

Glass vent unit combined	

Production considerations for pressing the vent glass unit:

1- Design subject to production.
2- Adaptability of the molten glass to form.
3- Realization of template requirements.
4- Safe exit of the product.
5- Product movement in production and preparation for cooling.
6- Cooling quality.
7- Submission to standard specifications and achieving quality standards
8- Packaging, transportation and storage.

The Results:

1- From theoretical analytical and experimental studies it was possible to reach a template design used to produce a quantum glass unit.

2-Demonstrate the success of the theoretical study through practical application of the implementation of the mold and its submission to the stages of production by the semi-automatic method and the production of the vent glass unit that was studied.

3- 3- The study reached the most important productive considerations for the glass vent unit produced by pressing method.

The Recommendations:

1- Completing the research system in the fields of designing and producing vents glass of all kinds and their different production methods.

2- The research recommends the necessity of conducting joint research between the scientific specialty and the glass production factories due to the presence of many related professional problems.

3- Including the subject of the study within the decisions of the industrial glass design program, as the labor market needs it

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