

**ROBOTIZED ISLAND (CELL) FOR THE PRODUCTION OF PARTS FOR THE AUTOMOTIVE INDUSTRIES****Rear bellows, front bellows, car door bellows**

The robotized island for the production of parts for the automotive industry integrates the various production phases from pressing to the finished product. It is used for automatically drawing, trimming and fitting up the injection peduncles.

Bellows are pressed by a rubber injection press equipped with a DELIA thermo-regulated block, which allows saving material, a 12-openings mould with a double males series to carry out the removal and finishing in masked time, so remarkably reducing the cycle time.

The island (cell) translates the male holder bars alternatively outside the injection press through both electrical and pneumatic movements. While the injection press is pressing a new series of parts outside a cutting group cuts the small injection peduncles from the bellow collar, In the meantime, a trimming head removes the residual burr on the piece perimeter. At the end of the cutting and trimming operations the male holder bar with the pressed pieces is drawn by means of electrically controlled axes and placed in the drawing head area, which removes simultaneously rows of six pieces each by means of special taking groups.

After drawing the pieces the male holder bar is turned and placed again on the electrical translation device from and to the press.

The global cycle time will be defined by the press according to the injection, vulcanization and frame exchange time.

**ADVANTAGES:**

- **REDUCED THE TIME OF ITEMS REMOVE**, because it's made at the same time for all the items and not one by one as in a manual removing cycle.
- **REDUCED MANUAL LABOUR:** cycles are completely automated and therefore one operator can control several machines.
- **REDUCED OPEN MOULD TIME**, then smaller moulds cooling and smaller vulcanization time.
- **ELIMINATION OF UNDUE CYCLE STOPS** and their pertinent problems due to moulds cooling down, such as scraps due to insufficient heating, moulds cleaning and eventual removing of them, purges for cleaning the nozzle from prevulcanized material.
- **REDUCED MACHINE DOWN TIME:** it is no longer necessary to wait for the operator to remove moulded items.
- **IMPROVED QUALITY AND CONSISTENCY OF MOULDED ITEMS:** continuous extractor cycles eliminate hazardous open machine down time due to operator absence and/or extraction speed, thus preventing the mould from cooling off and/or the compound from curing in the injection pot and extruder, which may change the physicalchemical properties of the moulded item.
- **THEY PROVIDE A RAPID RETURN ON INVESTMENT.**
- **IMPROVED PLANT OPERATING TIME:** simplifying the machine work load programming, it's eally easier to programm, because of costant cycle times.
- **REDUCING LABOR FOR THE TRIMMING OF PIECES:** the use of a mechanical hand consents to automatically remove and separate the burr from the pieces that have been directly pressed during the drawing phase.

<b>DESCRIPTION OF THE MACHINE AND TECHNICAL SPECIFICATONS</b>	<b>I</b>
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- **INCREASING THE NUMBER OF PRESSING OPERATIONS PRODUCED IN THE TIME UNIT:** it is possible to draw the pieces in masked time, that is with closed press during vulcanization, so increasing the number of pressing operations in the time unit.
- **CAREFULLY DRAWING THE COMPLEX AND DIFFICULT PIECES** like curved rubber sleeves for household appliances without affecting the global cycle time because the operation is carried out outside the press in masked time, that is during the vulcanization phase.
- **FINISHING (TRIMMING)** on the machine edge without affecting the global cycle time because the operation is carried out outside the press in masked time, that is during the vulcanization phase.
- **REDUCING THE COST** for drawing heads: the head is built with a minimum number of adequate takes to draw a single raw of pieces and is then used also to draw the pieces that are in the other draws placed on the same male holder bar and on the other bars of the same mould.
- **REDUCING TOOLING TIME** for production change: it is possible to place more than one drawing head inside the same island; their use can be selected by digiting the reference code in the man-machine dialogue terminal.
- **PERFORMING** checks of the external quality of the manufactured items inside the island, as well as seal checks and assembling rubber pieces with plastic or metal inserts.

The basic system is composed of:

- a cartesian mechanical hand with:
  - an axis for exchanging and translating the male holder bars outside the press
  - a horizontal axis
  - a vertical axis
  - an axis for the taking of the mail holder bars
  - an axis for the rotation of the male holder bars
  - two heads for the removal of the injection peduncles on two rows
  - a head for the removal of the pieces on a single raw
  - a cartesian mechanical hand for the removal of injection channels to be used in case the press and/or the mould is not designed with a thermo-regulated channel system.
- a press for injection pressing
- two frames for moving the frames containing the male holder bars
- a mould with two male holder bars, one inside the press and one outside for drawing and trimming the pieces
- a thermo-regulated DELIA block