

<b>DESCRIPTION OF THE MACHINE AND TECHNICAL SPECIFICATIONS</b>	<b>I</b>
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## **MANIPULATOR FOR LOADING METAL INSERTS (SCREWS) ONTO A 399 PIECES TRAY.**

The MANIPULATOR IS a machine for automatically loading and unloading moulding presses. THE HANDLERS are stand alone electric pneumatic and/or hydraulic units which are coupled to vertical and horizontal injection compression presses to remove moulded pieces and to load inserts. Because they require very limited installation space, the standard tools which are used to automate the insert loading operations, to remove moulded items, to remove and separate flashes from extracted items and to positions such articles in a precise order, can be mounted easily on the compact base of the handlers

### **HANDLER USE 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 really easier to programm, because of costant cycle times.
- **MORE FLEXIBILITY**: the handlers can be simply coupled to similar machines, compatible to their pertinent electric and pneumatic connections taps: they can be used on several similar moulds with small differences in tap positions.
- **REDUCED MANUAL LABOUR DEDICATED TO ITEMS TRIMMING**: the handlers use allows to remove and part automatically the moulded items burr straight through during the removing cycle.

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## 1 General description of the machine

The manipulator for loading metal inserts (screws) is used for loading – both in line and off line – metal inserts (screws) onto trays to be employed in a second phase for loading the screws onto moulds for the production of rubber and metal pieces. In the tray a series of pits have been obtained, which have been distributed according to the configuration of the mould to be loaded.

The manipulator is composed of:

- A feeding hopper
- A group for orienting the pieces
- A group for loading inserts onto the tray in rows of 10 or 21 pieces at a time
- A group for the tray step-by-step handling
- A group for drawing the empty trays from a bed, which is tidily pre-loaded and located at the left bottom of the machine and for positioning the tray on the mobile table with step-by-step handling
- A group for drawing the tray loaded with screws from the mobile table and for tidily positioning the tray onto a bed located at the right bottom of the machine
- A control box

The work-cycle phases of the manipulator:

- Taking the empty tray from the store (pre-loaded bed with about 50 trays)
- Depositing the empty tray onto a step-by-step handling group
- Orienting and preparing the row of pieces to be loaded
- Moving the tray towards the loading station
- Moving the row of pieces towards the loading station
- Loading the tray by rows
- Moving the tray towards the full trays unloading station
- Gripping the full tray
- Depositing the full tray on the accumulation bed

The work-cycle is completely automatic. The operator is only required to carry out the feeding hopper unloading operations, as well as the change of empty tray beds and the change of full tray beds operations.

Productivity: 6500pcs/h – autonomy 25kg approx.