

DESCRIPTION OF THE MACHINE AND TECHNICAL SPECIFICATIONS	I
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MANIPULATOR FOR THE INTERLOCKING OF A PRESS FOR RUBBER WHEELS PRODUCTION

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 position 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 program, because of constant 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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The manipulator has the function to load raw rubber pre-formed items on a multi-opening moulder located in the press and automatically remove the moulded pieces at the end of the vulcanization cycle.

Raw rubber pre-formed items are pre-loaded either manually or by means of an automatic pre-former on trays with a series of pits distributed according to the configuration of the mould to be loaded.

The manipulator is made of:

- One linear horizontal unit with 2000mm travel
- One linear vertical unit with 1200mm travel
- One unit for flash taking
- One multiple unit for taking the moulded pieces (adjustable from 50 to 130mm according to the diameter)
- Preloaded tray-holder unit
- Unit for taking full trays from one pallet and depositing empty trays on another pallet
- Unit for unloading raw pieces from the tray to the mould cavities
- Protections for accident prevention on the operator's side
- Equipment for silicone application to the mould
- Air blow for mould cleaning
- Transversal conveyor belt for flash and moulded pieces evacuation
- Transversal unit for the automatic handling of the pallets with full/empty trays
- One electronic control panel
- Memorization of formulas
- One pneumatic system

Steps of the manipulator working cycle:

- Taking of the full tray
- Entrance into the press
- Trimming of the mould pieces
- Loading of raw pieces
- Extraction of the baked pieces
- Press exit
- Beginning of the press cycle
- Unloading of the baked pieces evacuation belt
- Depositing of the empty tray

Indicative cycle timing:

- About 8 seconds to remove flashes from the moulded pieces
- About 12 seconds for the extraction of the first row of pieces
- Extraction of subsequent rows about 5 seconds each

Loading autonomy from 1 or more pallets with 18 trays each according to the raw material height.