

COMPACT MOULDING MACHINE

During the last years Belloi & Romagnoli has developed, together with the above-mentioned multi-piston technology, also the moulding principle based on air impact + high pressure. This choice has been made in order to make a modern and cost-effective technology available to all foundries, also to smallest ones.

The B&R COMPACT 4 moulding machine was designed for foundries that require high quality moulds at low-medium production rates. This machine will provide better quality and faster production rates than the typical jolt squeeze moulding machine. The machine uses air impact and a hydraulic squeeze to make the mould. The moulding media for this machine is green sand.



Operating principle

To make the mould, the compaction of the sand into the flask is first made with an air impact; the mould is then finished with a hydraulic squeeze. This process allows for a uniform distribution of the sand during the air impact. The hydraulic squeeze provides a uniform mould hardness for all of the surfaces and also around the edges of the flask.

The operational settings for the Air Impact and the Hydraulic Squeeze are adjustable through the operator interface. The cope and drag moulding operations can have different moulding parameters. This machine can be used with your existing patterns. There are no problems with using wooden, urethane, aluminium etc. types of patterns.

The noise level emitted from this machine is less than 80 dB(A). This is a very quiet machine and will provide a notable reduction in the noise levels in the foundry relative to a typical jolt squeeze moulding.

The sequence of operation for the machine consists of:

Rotating Table:

The machine produces the cope/drag flasks in succession. While one flask is being compressed, the other is being filled with sand in preparation for transfer to the moulding position. The transfer rotates the table 180 degrees.

Sand Charging Position:

The green sand is charged directly into the flask. This can be in the normal method for the foundry, charging hopper or by charging belt or manually with shovels by the operator. The entire area of the flask is open to the operator so it is very easy to place insulators or facing sand, etc..

Moulding Position:

After the flask has been filled with sand, the table rotates into the moulding position where the lower hydraulic cylinder raises the flask into contact with the air impact surface. Once the flask is in position with the head, there is a special seal that is engaged to prevent the leakage of sand and air during the air impact phase of the moulding. After the impact is complete, the hydraulic squeeze is engaged.

Mould Drawing:

After the completion of the hydraulic squeeze, the ram is retracted. The completed flask is maintained in position by the rollers on the indexing conveyor. The Indexing hydraulic cylinder pushes in the next empty flask, which pushes the completed flask out onto the core setting line.

Changing Patterns:

There is a special cycle for changing patterns that will leave the sand containment frame at the moulding station while the bolster is rotated to the sand filling station. The bolster can then be changed out very easily.

Bolster:

The bolster is designed to receive the patterns of the foundry. There are vents installed around the outside of the bolster to assist in venting the air during the moulding process. Additional vents are not normally necessary, except for patterns that have deep pockets or have a complicated surface.

“COMPACT” MOULDING MACHINE (AIR-IMPACT + HYDRAULIC SQUEEZE)

Technical Data

- Flask size: from 500 x 400 to 1200 x 1000 mm
- Type of Moulding: Air Impact and Hydraulic Squeeze
- Squeeze pressure: adjustable from 2 to 10 Kg per Sq Cm
- Air impact force: adjustable
- Bolster for patterns steel fabricated
- Pattern plates in all standard materials
- Operational Controls: SIEMENS S7/300 PLC

The basic design of the moulding machine consist of:

- base frame, 3 supporting columns
- high pressure moulding system by hydraulic driven squeeze plate head
- air-impact moulding system
- rotative transfer device for pattern bolsters changing.