
Production of rubber mouldings by
using the injection compression
moulding procedure

Production of rubber mouldings
by using the injection compression moulding procedure / ICM

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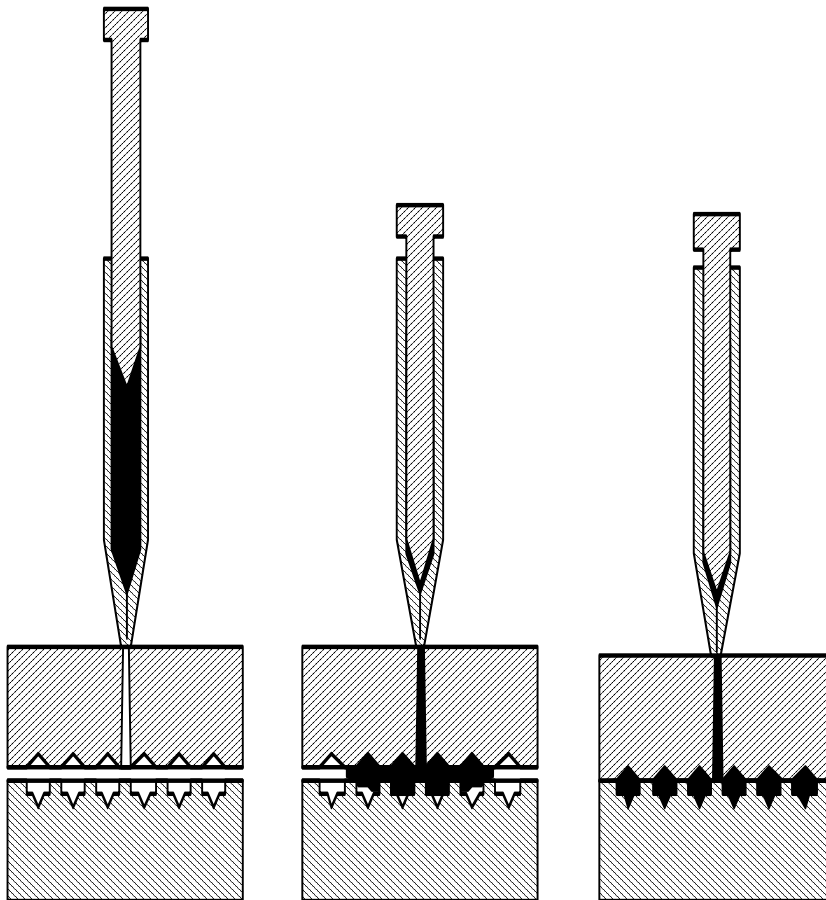
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Head of development / design

1. General

Precision parts like seals or other small parts often cannot be produced efficiently by injection moulding because high output rates at constantly good quality are required. Due to the high piece numbers, a multi-cavity production is inevitable. Especially in regards to smaller parts it is not possible to fill the cavities by runners (cold runner system or star-shaped runner).

Today the greater part of all O-rings is produced by ICM and also seals and other small parts are more and more manufactured by this production method. Moreover, also extensive, thin-wall parts like membranes can be produced efficiently by injection compression moulding.

2. Process Sequence



In contrast to the normal injection moulding process, the moulding in the mould is realized in two steps.

The liquefied elastomer is injected into a slightly open mould. This material spreads like a slab over the parting line and the cavities are not completely filled. Then the mould is closed with full clamping force. The cavities are filled and the articles are cured under temperature and pressure.

The compression edges of the moulds approach up to distances smaller than 0,1 mm.

After the mould opens, the articles are removed together with the compression pad. Article and pad are separated by means of cryogenic deflashing, ejection devices or manually.

3. Production Example

The below gasket is produced by means of ICM.

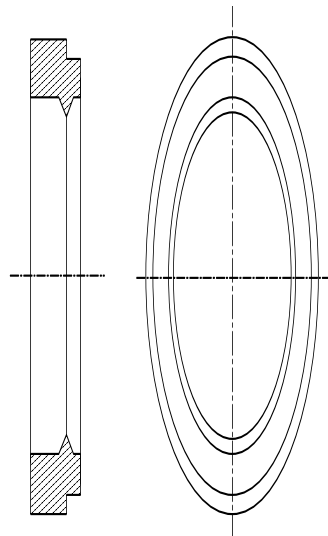


Fig. 2: Gasket

The cavities are arranged in a ring-shaped manner around the mould centre. In order to separate article (1) and compression pad (3), each article has a surrounding inner and outer compression edge (2). At these spots the article can be separated from the compression pad.

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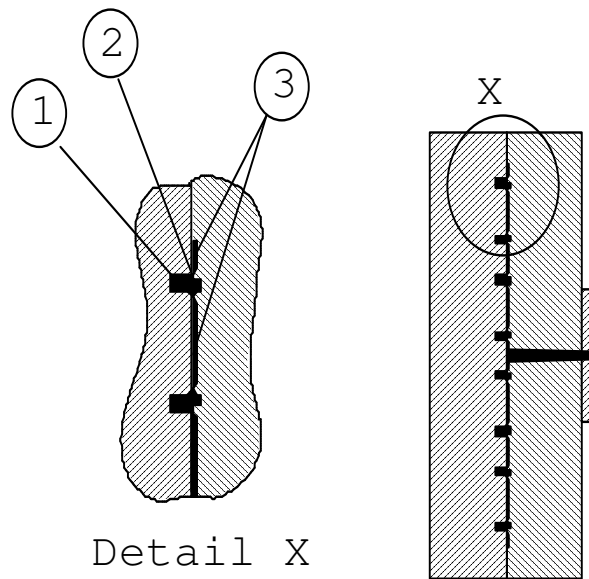


Fig. 3: Injection compression mould with moulded article

In the ICM production a direct contact between the compression edges absolutely must be avoided. Any contact between these hard, sharp-edged components may cause mould damages.

For the fully automatic production of this gasket the below production equipment is needed. Besides the described mould (3) and an injection moulding machine, ideally equipped with fully hydraulic clamping system (1), FIFO-injection unit (4) and DRC machine control including software for injection compression moulding (5), a brushing device is used for demoulding.

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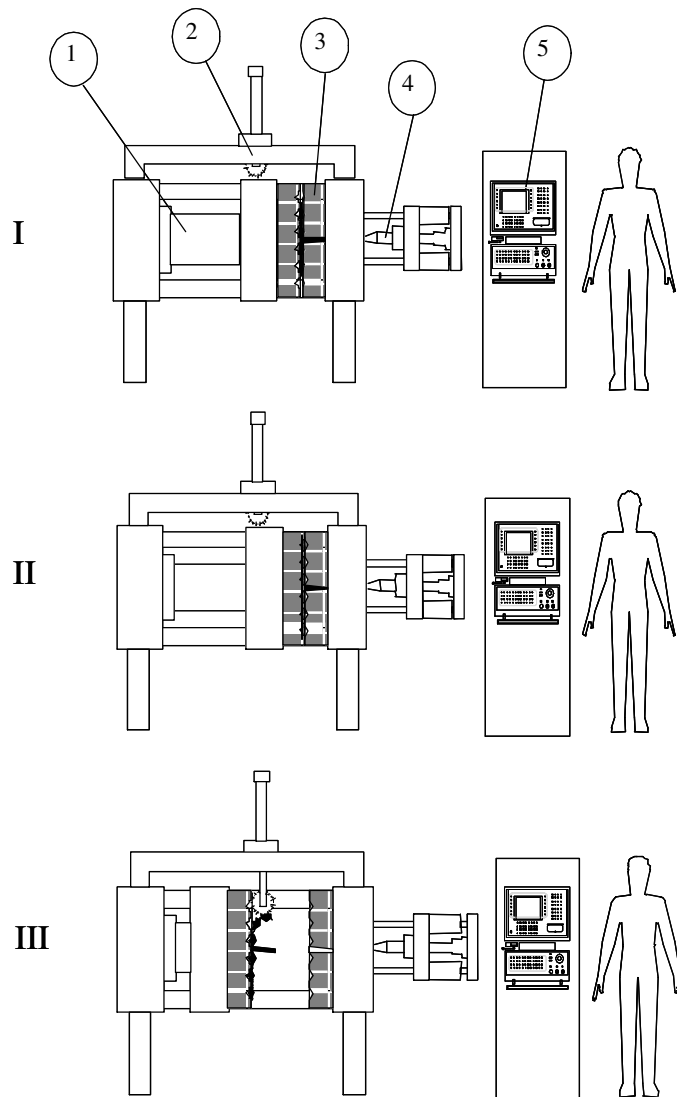


Abb. 4: Vollautomatische Fertigungsanlage#