Ulisses

UNIVERSITY OF LISBON
INTERDISCIPLINARY STUDIES
ON SUSTAINABLE ENVIRONMENT AND SEAS

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Blow Moulding

Blow moulding is a moulding process in which air pressure is used to inflate soft plastic inside a mould cavity.
It is an important industrial process for making one-piece hollow plastic parts with thin walls, such as bottles and similar containers.
Blow moulding is limited to thermoplastics.

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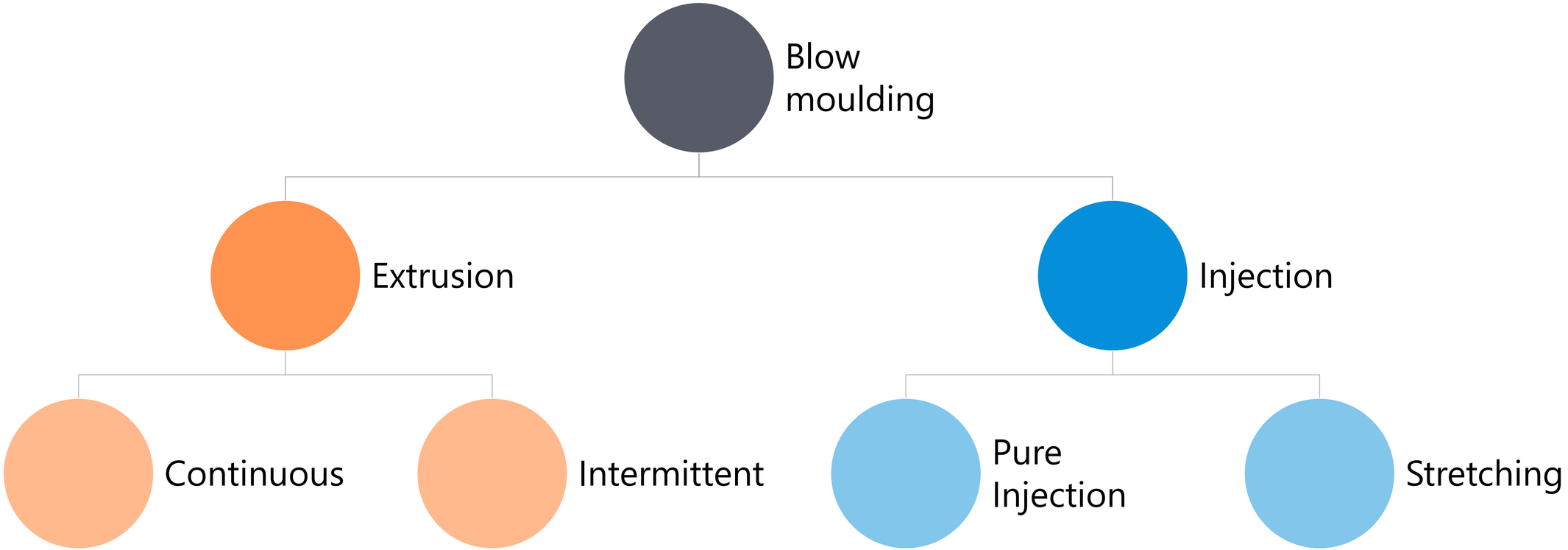
Blow Moulding



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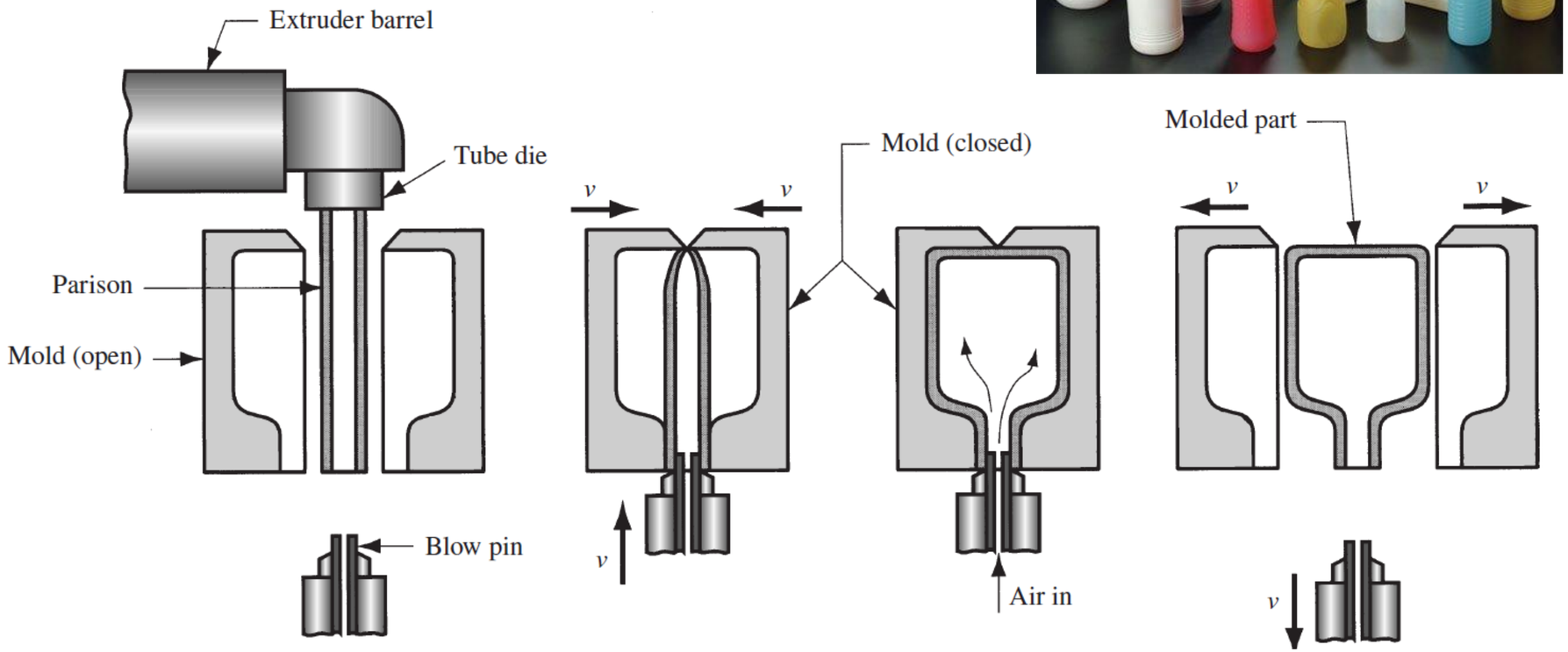
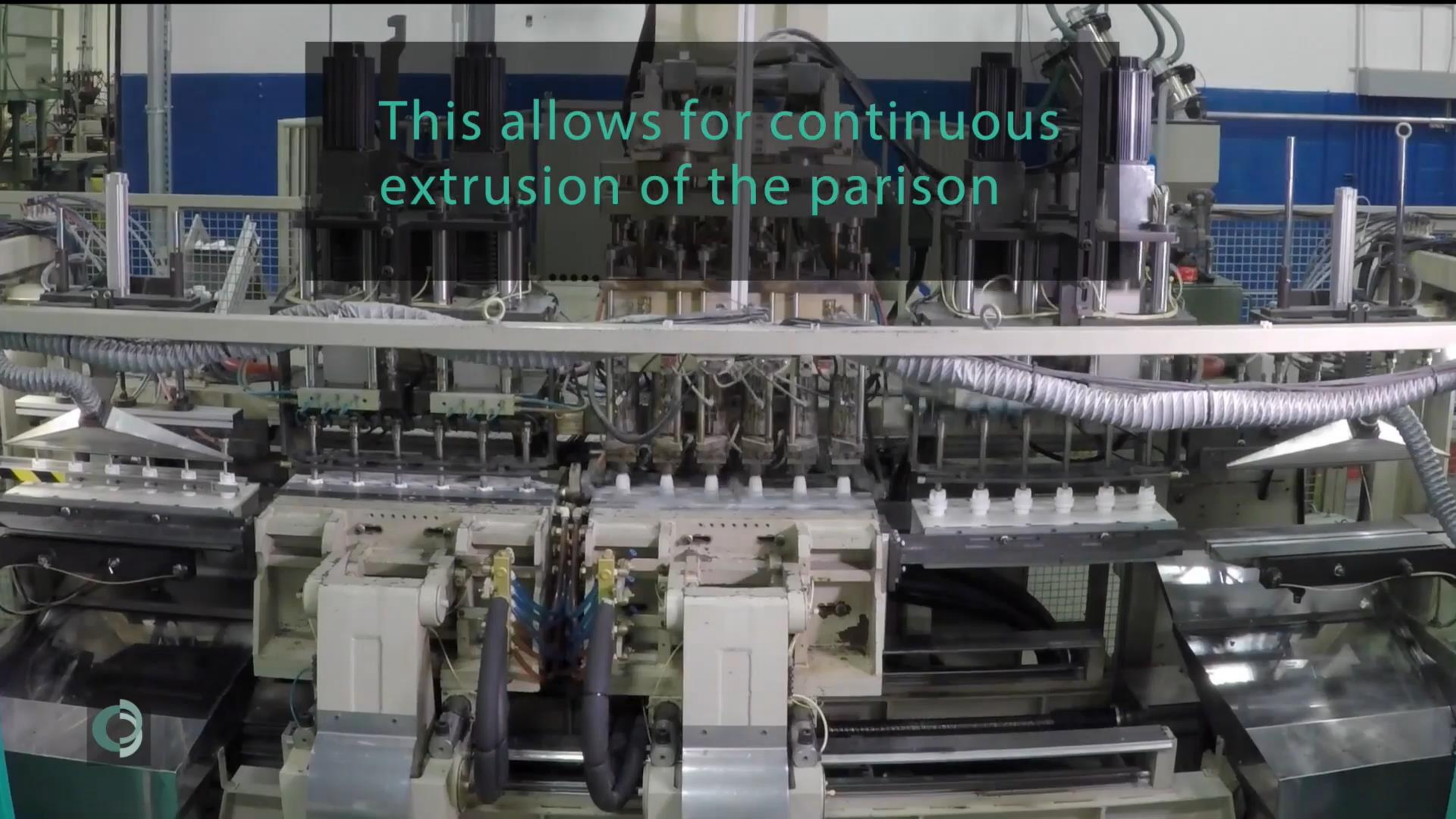
Blow Moulding

Extrusion Blow Moulding

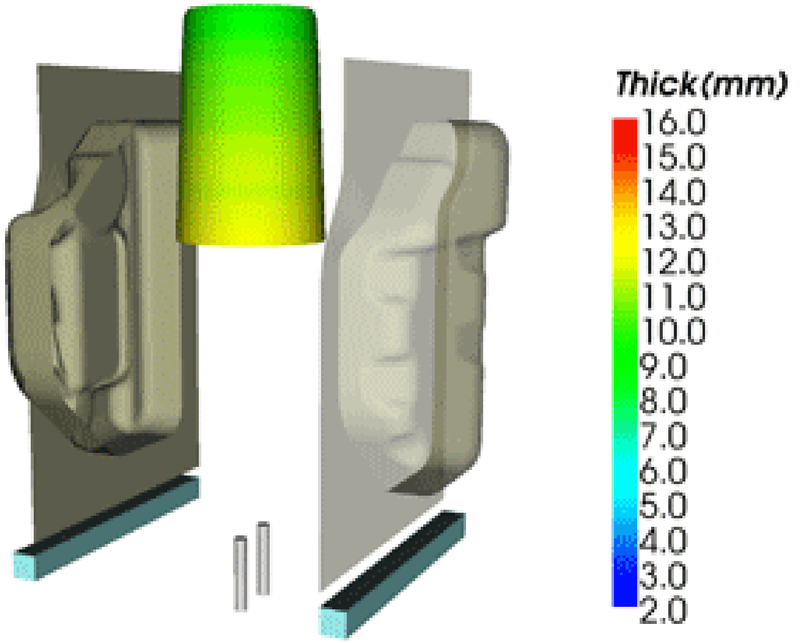
1. Extrusion
2. Sealing
3. Inflation
4. Opening



Extrusion Blow Molding


This allows for continuous
extrusion of the parison

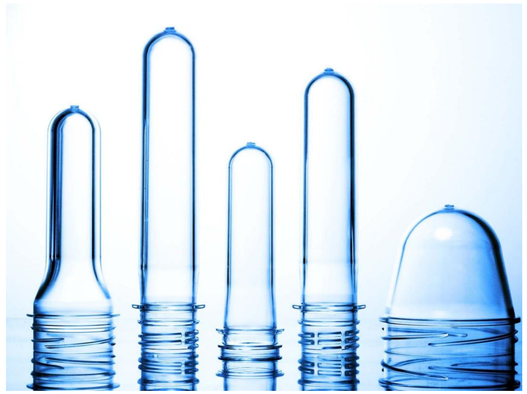
Extrusion Blow Moulding

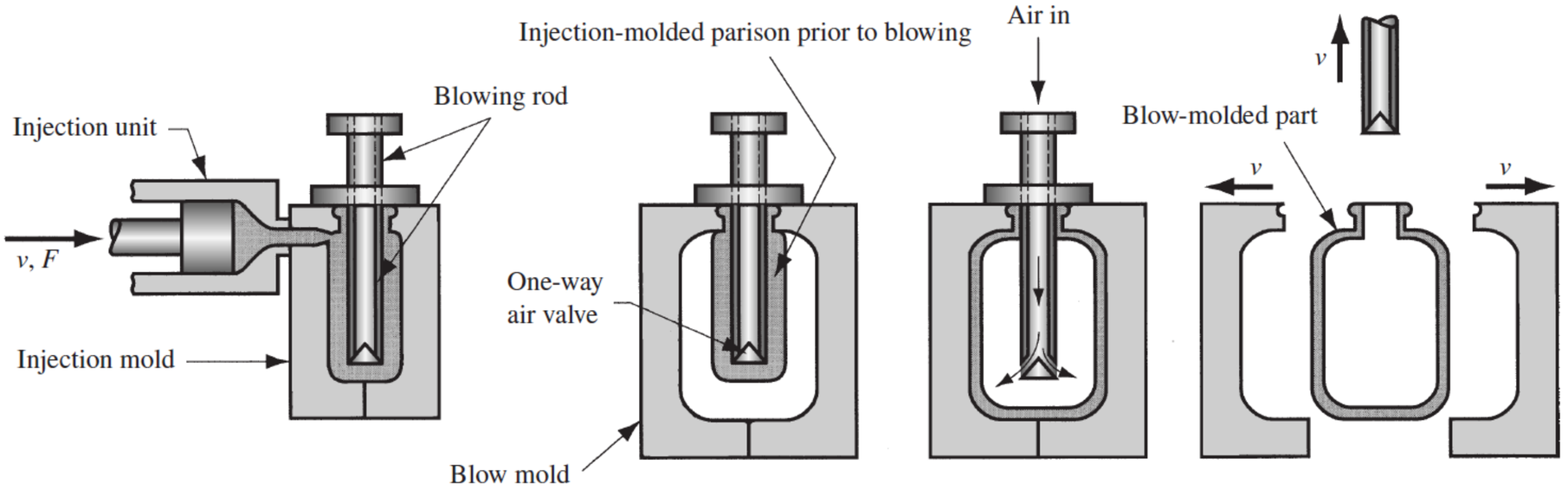


Injection Blow Moulding

Injection Blow Moulding

1. Injection
2. Blow mould
3. Inflation
4. Opening





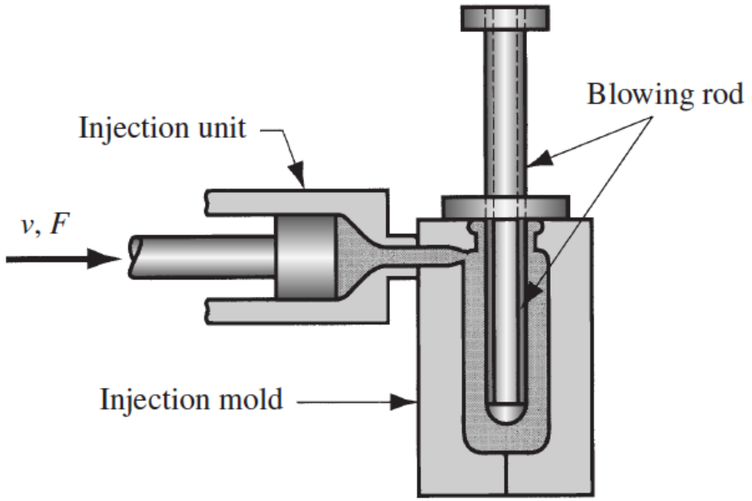
Injection Blow Molding

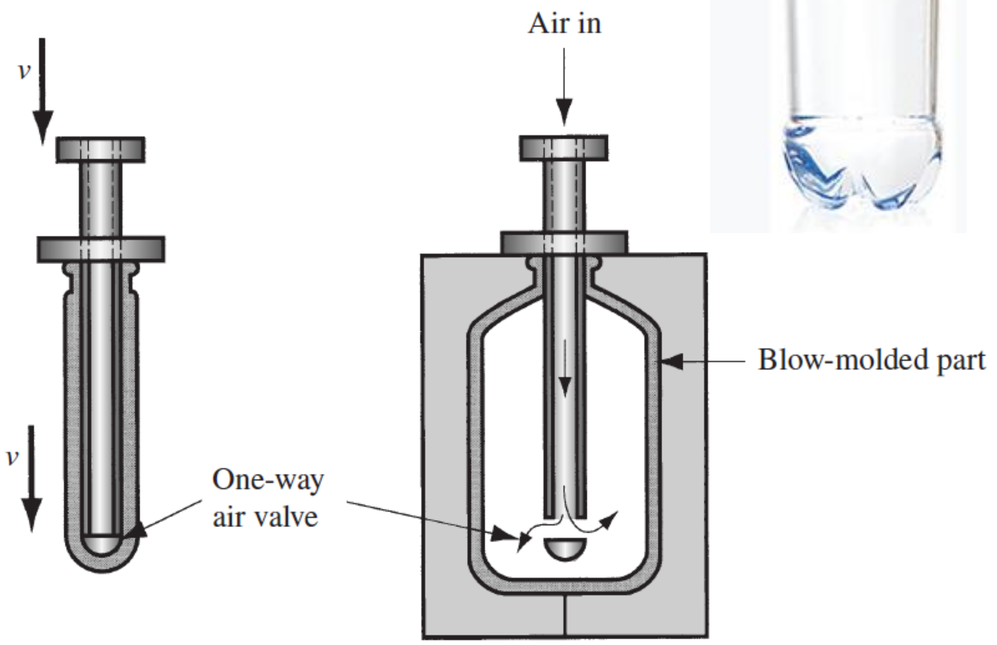

The pellets are fed from
the hopper into the extruder

Stretch Blow Moulding

Injection Stretch Blow Moulding

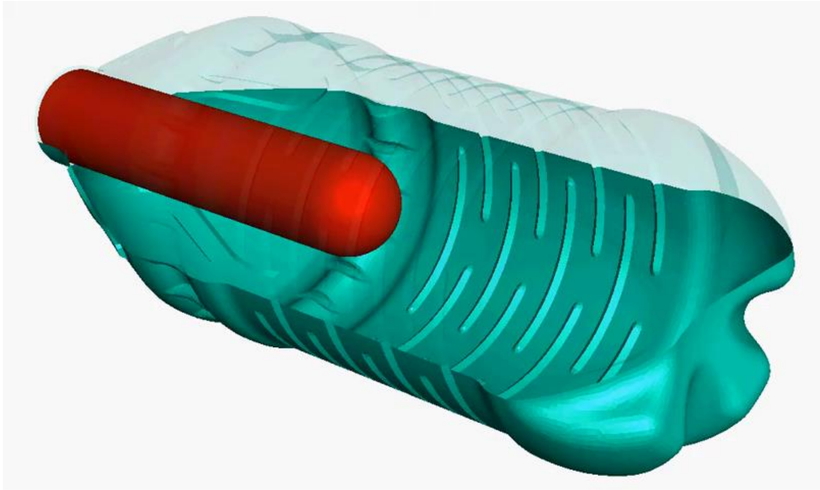
1. Injection
2. Stretching
3. Blowing

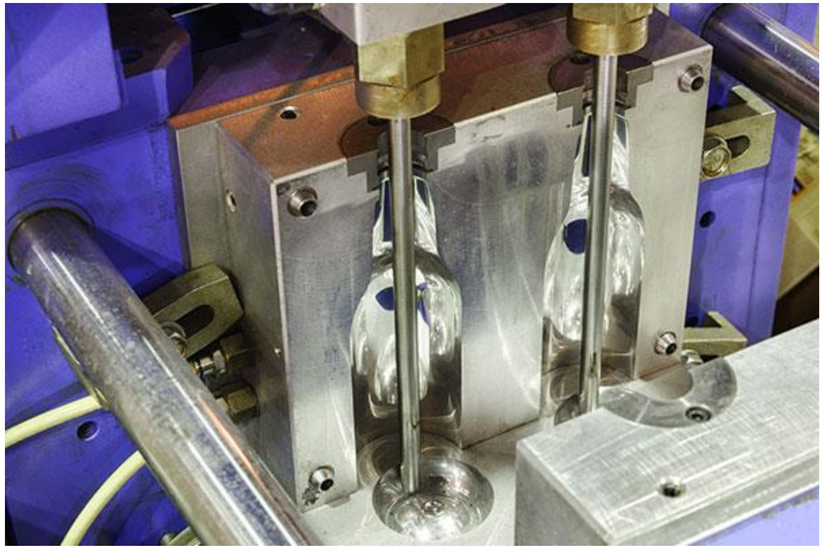


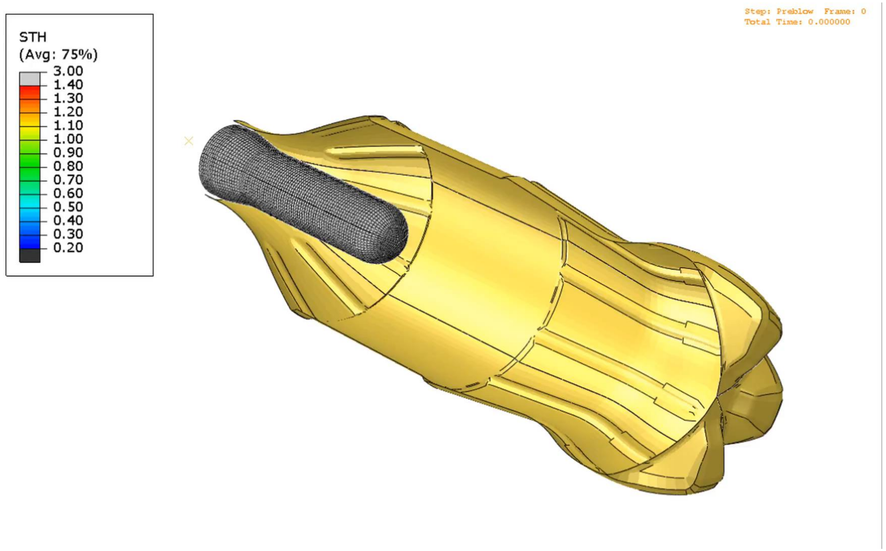


Stretch Blow Molding

Injection Blow Moulding







Blow Moulding

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Blow Moulding

Extrusion Blow Moulding

+ High production rate
+ Low cost of mould and tooling
+ Ability to mould complex parts

- Recycling of scrap is needed
- Low strength of the product

Injection Blow Moulding

+ Higher accuracy in final part
+ Threaded mould neck
+ No trim scrap
+ Improve mechanical properties

- Two moulds are needed
  - Preform
  - Air blowing

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Blow Moulding

Advantages

- High productivity
- Mould costs relatively low
- Mould complex parts
- Scrap non-existent or reusable
- Produced parts can be recycled
- Produce large hollow parts

Disadvantages

- Non biodegradable products
- Defects may be seen
- Limited to hollow parts
- Thick parts cannot be manufactured
- Machines dedicated to a narrow range of sizes

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