TECH SUPPLY

PLASTIC – TOOLS – SOURCING

E-book about Quick Mould Insert tools

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Introduction

With this e-book we want to give you a little insight into our world of plastics. Plastics are used in all areas of our daily life and serve many different purposes.
In this e-book we will highlight the tool part of the injection moulding, with detailed focus on using insert tools.

Enjoy your read.

Injection moulding

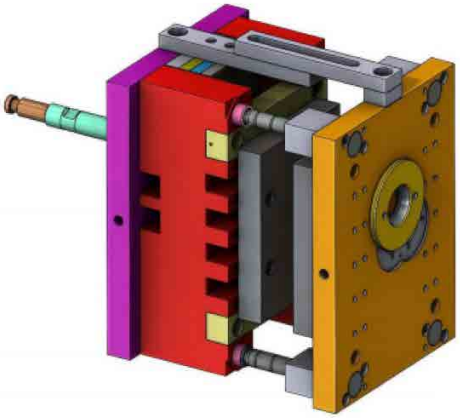
Injection moulding is a process in which plastic granulates are melted and pressed with the help of an injection moulding machine into a mould. Afterwards, the plastic mass cools down, the mould is opened and the item is removed from the form for further cooling. Injection moulding can be done with most thermoplastic materials. In the injection moulding process it's possible to produce very simple items and it's also possible to produce very complex articles with great complexity. In the injection molding process it's possible to produce very simple articles, but it's also possible to produce very complex ones with a complicated structure. Modern injection moulding companies have typically installed removal robots to reduce production costs. Metal parts or a second material / colour can also be added to the item in the same workflow.

The tool design and the production process are basically adapted to the requirements of the component. In practice, this means that different requirements are placed on machines, moulds, materials and, last but not least, on the employees in order to achieve the desired quality at the right price.

Injection moulds compared to insert moulds

Basically, the function of injection moulds and insert moulds are the same. The question is, how much of the tool I – as a customer – would want to buy.
Both tool types contain form plates. Form plates are the part of the tool that are required to create the item. Form plates usually consist of several parts, depending on what is necessary for the item. With an insert mould, only the form plates are acquired as a starting point. In order to be able to use the form plates, the moulding company must have a mother tool into which the insert mould can be mounted. A complete tool on the other hand, also has base panels, column guides, injection nozzles and other elements, so that it can be mounted directly into an injection moulding machine.

Injection moulding tool

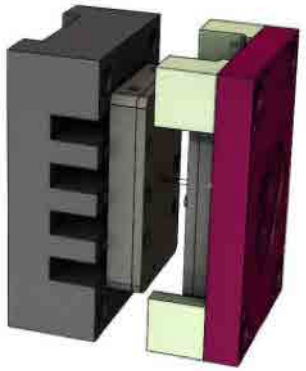


Insert mould / tool

Fast mould part

Moving mould part

Output sheet



Insert mould mounted in a mothertool.

Frequently asked questions

Can insert tools produce articles in different materials or colours in the same process?

Basically, there is no problem in applying multiple materials or colours to the component manufacturing process. This is also called 2K injection moulding. However, this requires that both the moulding machine and the insert tool are designed for this purpose..

Can you produce more components in one application at the same time?

Yes – there is no difference here to a traditional tool.

Can you realize sliders and side pulls in the insert tool?

It's very common to use sliders, side pulls and fittings in insert tools. However, this presupposes that the injection moulding machine, the mother tool and the insert tool are designed for this purpose.

What is the quality of the item compared to a item from a complete tool?

There is no difference between using one or the other – the tool quality and the employees who operate the machine are the important factors affecting the quality of the items.

What is the durability of the insert tool compared to a complete tool?

Both types of tools are manufactured on the same machines and with the same quality requirements. In principle, there is no difference.

If I want to use the insert at some point with another injection moulding company, what should I consider?

With us it is absolutely no problem to hand out the insert. In order for another injection moulding company to be able to use the insert tool for the production of components, the tool must be extended to a complete tool. This has delayed the investment of the difference between the insert tool and the complete tool for the time . We can help you in the given case to convert the tool.

Why should you choose an insert tool?

There are several reasons why you should choose insert tools.

Prototypes

Prototypes can be produced, for example, with: 3D printing, mechanical machining with CNC machines, or with injection moulding. There's not always a clear answer of when to choose what. We have therefore compiled a few facts here that can facilitate this decision.

	3 D-printing	CNC processing	Injection moulding
Setup costs	Small	Medium	Medium for inserting tools
Tooling	Mostly none	Mostly none	Yes, but the insert tool can also be used for later serial production
Material	Has gotten much better in recent years	Medium	Very large
Complexity of the component	Depending on the printing method, it can be very complex	Medium	Depending on the tool
Insert of metal parts	Possible, but not in all 3D printers	No, only afterwards as a separate mounting of, for example,thread bushes	Yes
Item price for simple components	Medium	Medium	Low
Part price for complex components	Medium	High	Low, if it can be done in the machine
Recommended series size	Few pieces	Small and medium series, in special cases also single piece production and large series	From small to large series, a lot depends on the setup costs
Production time of prototypes	Short	Short	Short, if you have prefabricated tool parts in stock and there is enough capacity in the moulding department

If you expect series sizes of more than 100 - 500 pieces, you should always consider injection moulding. If you plan to use series production later on, you can produce prototypes in exactly the same quality as the later series. However, if you choose injection moulding you should be reasonably clear about the choice of material – a material change is not always possible without changing the tool (extra costs).

Which requirements should you have for your injection moulder?

As a starting point, they should be the same as for all other injection moulded parts.

- The item must meet the agreed quality and be delivered at the agreed time.
- The manufacturer's injection moulding machines must have sufficient capacity and be of the right size.
- There should be enough mother tools available.
- It is always advantageous (especially in these Corona times) if the manufacturer has several production sites that can produce the same items.

In most cases the critical point is the quantity of mother tools.

FACTLINE

Quick Tool Insert Tools

- 34 different standard sizes
- 13 different sizes of mother tools
- Over 30 mother tools
- All mother moulds can be installed on different injection moulding machines to ensure sufficient capacity

Our possibilities

We have a choice of 34 insert sizes in 13 different size mother tools. With these we can produce many different components including 2K and metal insert items. With more than 30 mother tools and more than 50 injection moulding machines, there is always enough capacity to produce both new and existing items at short notice.
We have many tool sizes as semi-finished products in stock. For you, this means that we can realize new projects at very short notice if required.

FACTLINE

In-house competences and production

- DFM and product optimization
- Construction and manufacture of injection moulds
- Design and manufacture of Quick Mould Tools
- Design and production of Real Micro Moulding tools
- Injection moulding, also as 2K and with inserts
- Real micro moulding
- 3d print
- CNC machining of demanding plastic workpieces
- Fully automatic bag pack

FACTLINE

Our capacity

- 50+ injection moulding machines (electric + hydraulic)
- Handling robots on many machines
- 2 fully automatic packaging machines
- 15+ eroding Machines
- 15+ turning/milling machines with up to 9 axes
- Various grinding machines
- Various welding and engraving equipment

Quick Moulds from Trend Mould

	Flex 1	Flex 2	Flex 3	Flex 4	Flex 5	Flex 6	Flex 7	Round	2K
Size:	125x125	196x196 - 196x496	246x246 - 246x496	296x296 - 296x496	346x346 - 346x496	396x396 - 396x496	446x446 - 446x496	ø196 x ø196	250x350
Number of different sizes	1	6	6	6	4	3	2	1	1
Possibility as a prototype tool	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multiple cavities in the tool possible	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Possibility of 2K components	No	No	No	No	No	No	No	No	Yes
Possibility of sliders and side pulls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Variable injection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Heat nozzle	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Hot runner	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Pin-point injection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Possibility of pipe ejector	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
3-plate tool	No	No	No	No	No	No	No	No	No
Laser engraving	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date mark	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Batch number	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Dencker tools

	DV MINI	DVMIDI	DV MAXI	DV VARIO
Max. Size	-	-	-	-
Length	60	150	175**	250
With	45	65	100**	150
High	30	50	65**	80
Prototype tool	yes	yes	yes	yes
Multiple cavities	variable	variable	variable	variable
2K Moulding	no	no	no	yes
Slides and side pulls	yes	yes	yes	yes
Variabel injection	yes	yes	yes	yes
Heat nozzle	no	yes	no	yes
Hot runner	no	no	no	yes
Pin-point injection	no	yes	yes	yes
Pipe ejector	no	yes***	yes	yes
3-plate tool	no	no	no	yes
Threated item	no	yes***	yes***	yes***
Turnable injection	no	yes	yes	yes
Laser engraving	yes	yes	yes	yes

* indicative size

** Item size can in specific cases increases

*** Special equipment necessary

Om A Tech Supply ApS, Trend Mould ApS og Dencker A/S

We are the export-oriented sales organization for Dencker A/S (www.dencker.net) and Trend Mould ApS (www.trendmould.dk), which sells injection moulded plastic solutions and tools.
A Tech Supply is responsible for technical sales and product optimization (DFM); Dencker A/S and Trend Mould ApS are responsible for the production of tools and items. In this way we create optimal solutions for customer-specific parts and system deliveries.
In our state-of-the-art production in Skals and Nyköbing / Mors in Denmark, we produce both injection moulds and prototypes (3D printet, injection moulded or CNC machined). We produce the injection moulded parts in various sizes, from real micro moulding processes to parts in a size of approximately 1 x 1 meter.
Depending on the customers' requirements, we work with tolerances from a few micrometers to simple form fit and function tolerances. Due to the long-standing focus on automation, optimization and efficiency, as well as the primary use of mould inserts, we can offer solutions at very short notice and – even in a worldwide comparison – at extremely competitive prices.

TECH SUPPLY

Injection moulded solutions • Quick Tool insert tool system • Real Micro Moulding