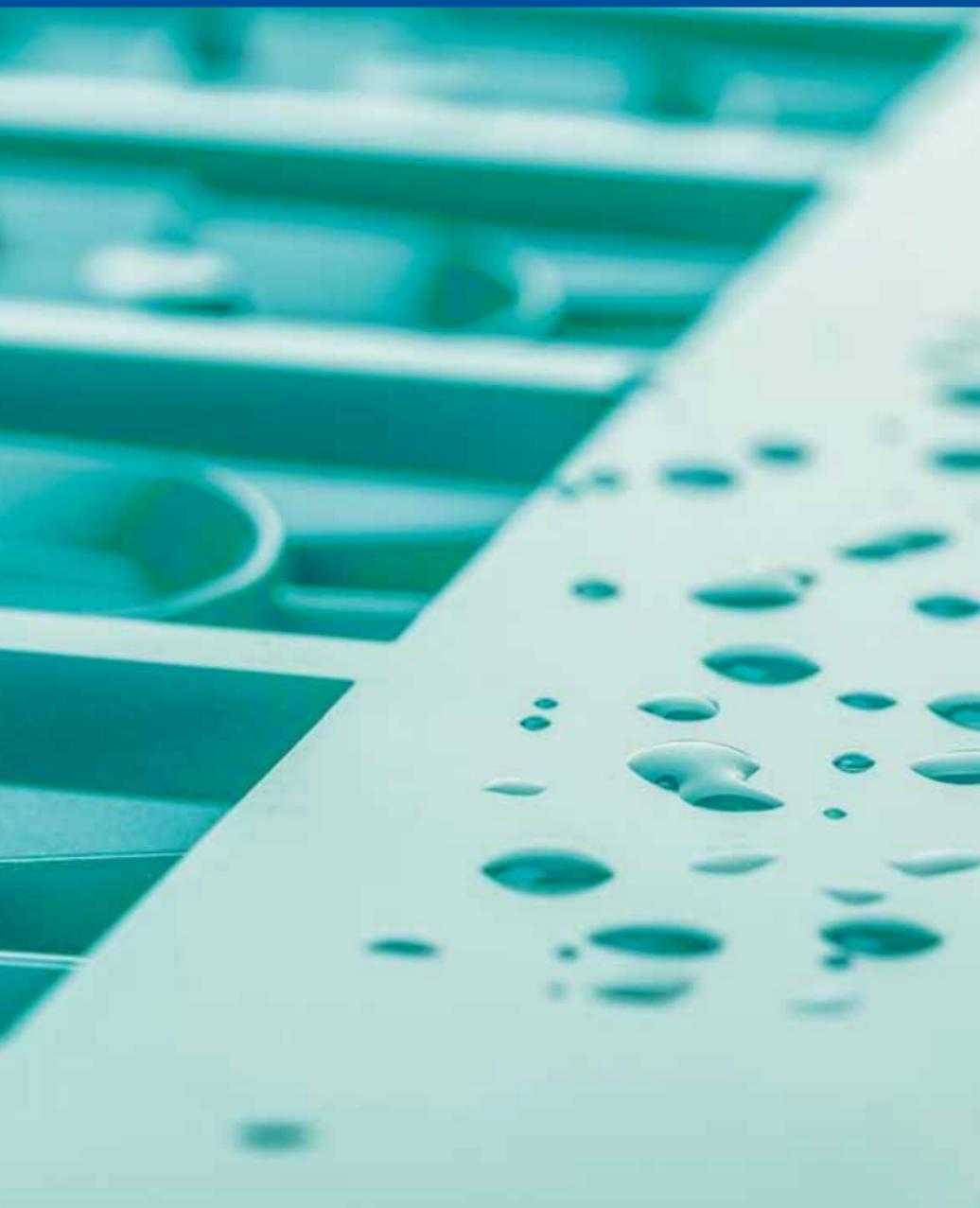


BRUNNER[®]

Schokoladenformen
Chocolate Moulds

www.hansbrunner.de

Tips for handling and caring of chocolate moulds



Your purchase of Brunner chocolate moulds is an important step towards manufacturing chocolate products in an efficient and professional way.

Brunner's chocolate moulds are manufactured using the latest injection moulding or thermo-press processes. The materials used are proven, tested and specially approved for the manufacture of chocolate products.

Brunner chocolate moulds are made from high-performance polycarbonate plastic; provided they are treated properly, the moulds are robust and extremely durable.

These instructions contain advice on how to look after your moulds and information on what should be avoided.

Keeping these tips in mind will ensure you get optimum results from your purchase.

General information and precautions to be taken prior to use

- Clean the moulds prior to using them for the first time.
- Polycarbonate is stable against stress of most chemicals. However, some flavourings have an adverse effect on the material. Since there are many different flavourings, and the effect of each is dependent on concentration and contact time, it is best wherever possible to avoid any contact whatsoever.
- Apart from flavourings, this also applies to pure raw materials, such as lecithin, milk fat, cocoa butter, oils derived from nuts, etc.
- This means that, as far as possible, your moulds should only come into contact with chocolate. It is important therefore to check your dosing equipment and dosing procedures before using the moulds.
- In addition, all contact with the following substances should be avoided:
 - Undiluted cleaning, rinsing and de-foaming agents
 - Any materials containing softeners
 - Lubricants of any kind
- Polycarbonates are susceptible to notching. Therefore we avoid scratches, sharp edges and grooves in the mould design. Similarly, all objects and instruments, which are brought into contact with the moulds must on no account be sharp edged.

Precautions to be taken during use



Surface damage

- Basically plastic surfaces are susceptible to scratching. Contact should therefore be avoided with any other objects but, more especially, with hard objects. This includes, for example, cleaning cloths.
- Scrapers and licking rollers are a special case. These should be made from a soft material. Moulds should not be exposed to high compressive stresses.



Vibration

- Vibration should be kept at the minimum necessary level. Vibration allows the chocolate to flow into the mould cavities and enables entrapped air to escape. But vibrations also mean high levels of mechanical stress for the plastic. The number of load cycles is very high. Long, narrow moulds are particularly susceptible, especially when made to vibrate at their resonant frequencies.



Twisting/distorting

When twisting or distorting the moulds, in order to eject the chocolate products, only use the minimum necessary angle of distortion or deflection.

Use the maximum deflection as a rule of thumb. This value is dependent on mould geometry and should not be exceeded: Maximum deflection $< (\text{length of the mould} + \text{width of the mould})/20$. For a mould with length 275 mm and width 175 mm, a deflection of 22,5 mm is allowable.

In some cases, this value may be a lot lower – in very stiff moulds, such as cold stamp moulds, for example.



Knocking for demoulding

- As with all types of mechanical loading, the stresses caused by knocking out should be kept to the absolute minimum necessary.
- Always knock flat onto the ribs or rib's crossings on the lower side of the moulds. In our experience, light strokes repeated continuously are more effective than attempting to knock with one heavy stroke. However, do not allow the repetitions to set the mould into vibrations.
- Always ensure that the moulds are knocked out with an instrument made of softer material than the mould polycarbonate (e.g. PA, POM or rubber). Also ensure that the knocking device has no sharp edges.
- Similarly, check for sharp edges before knocking the mould by striking it onto the surface of an object. The object should also be made of a softer material than the mould polycarbonate.



Over-heating

- Be aware, that moulds can easily be over heated during pre-heating. Heating devices should not be designed or set, such that the surfaces of the mould can attain a temperature in excess of more than 60°C.

Washing



Polycarbonate chocolate moulds are sensitive to both physical and chemical stress.

We therefore recommend that the moulds are washed as infrequently as possible. Washing instructions should be carefully complied with.

When washing, please observe the following:

- Mould surfaces should not be exposed at any stage of the cleaning process (e.g. pre-rinsing, main wash, final rinsing and drying) to temperatures of more than 60°C (140°F).
- In particular, ensure that moulds are not brought into contact with any mechanically abrasive cleaning devices (e.g. cotton wool, brush, scrubber or sponge). Even the smallest, barely visible scratches reduce the gloss of the mould surface and worsen removal of the chocolate.
- Moulds should be cleaned by water with the following properties:
 - Water hardness: between approx. 0.18 - 0.36 mol/m³ (1-2°d). For final rinsing, only use de-mineralised water. (water conductivity: <20µS/cm)
 - Do not apply water with high pressure – this can damage the mould surface.
- Ensure that you only use cleaning agents, detergents and de-foamers that are suitable and verified for use with polycarbonates.
- Pay particular attention to the detergent manufacturer's dosing instructions and regularly check the settings on your metering device. It is normally advisable, to retain the manufacturer's default dosing settings. These may in any case be password protected on automatic systems.
- Ensure that the moulds are thoroughly rinsed at the end of the cleaning process. After cleaning, check that the moulds are free of any residual cleaning agent.
- Always comply with the user instructions provided by the cleaning system supplier and the cleaning agent manufacturer.
- Never use disinfectants on polycarbonate moulds.

- The presence of stains or blemishes on the mould surface after washing should immediately be investigated; once the cause is identified, it should be remedied.
- Never exceed the maximum degree of contamination recommended by the washing system manufacturer - ensure that chocolate residuals are removed from the mould cavities prior to washing.
- After washing, ensure that the moulds are quickly and thoroughly dried. Do not allow any residual water - particularly water containing rinsing agents - to dry out on the mould surface. On drying out of solution, rinsing agent becomes concentrated and can irreversibly damage the mould (mould corrosion).
- De-mineralised water should be used throughout the washing process, but especially when rinsing the moulds.
- Only allow the moulds to be cleaned by trained personnel and arrange for regular inspection of the moulds after cleaning. Incorrect cleaning can result in damage evidenced by mould fracture, corrosion of mould surface, reduction of surface gloss, staining and de-moulding difficulties.
- Pay special attention to the servicing instructions and maintenance intervals of the cleaning system manufacturer.



Appropriate detergents can be purchased (among others) from:

- Hildebrand Industry, Switzerland (www.hildebrandindustry.ch)
- Hildebrand GmbH, Konstanz, Germany. Products for the cleaning of moulds and other containers (www.hilwa.de)
- Ecolab, Germany (www.ecolab.com)
- Chemical plant: Dr. Weigert GmbH & Co.KG, Germany (www.drweigert.de)
- Diversey Deutschland GmbH, Mannheim (www.diversey.com)
- Newsmith, United Kingdom (www.newsmiths.co.uk)

We recommend the use of cleaning systems specially developed for use on chocolate moulds. These can be purchased (among others) from:

- Hildebrand Industry, Switzerland (www.hildebrandindustry.ch)
- Colussi Ermes, Italy (www.colussiermes.com)
- Newsmith, United Kingdom (www.newsmiths.co.uk)
- Mafo, Netherlands (www.mafo.nl)
- Nerkon, Czech Republic (www.nerkon.cz)

Storage



- When storing, care should be taken to ensure that any moulds which have been previously washed are completely free of moisture.
- When stacking, ensure that the moulds are completely free of any compressive loads or deformations.
- Store the moulds in a dry, dark place; on no account should moulds be exposed to UV radiation during storage.
- Double moulds should be stored in the closed condition.

Disposal



- Moulds which are no longer used can be recycled for other purposes. Clean moulds may be returned to Brunner free of charge following prior evaluation and agreement.



Miscellaneous

- When opening and closing double moulds, take care to avoid trapping or injuring your fingers due to the high clamping force of the magnets!
- Moulds should be regularly inspected for breakage, cracks and missing components (magnets, plastic or metal parts). Damaged moulds should not be used!
Damage is best visible if the moulds are inspected immediately after washing.
- Please be aware, that even just one single neglect of the care and maintenance recommendations provided herein may result in irreversible damage to the moulds. This especially applies to the dosing of cleaning agents, incorrect water temperature, abrasive cleaning action, inadequate rinsing with de-mineralised water and the storage of moulds under less than completely dry conditions.
- Polycarbonate moulds have the capacity to store static electrical charge. This is a normal physical occurrence.
Static charges may cause dust or remnant chocolate particles to adhere to mould surfaces.
Static charges tend to form at locations, in which the moulds are made to run across rails (friction), where the mould halves are separated (during the opening of double moulds), or where the chocolate is separated from the mould (during the de-moulding of the chocolate products). Temperature fluctuations can themselves lead to the build up of static charge.
In the majority of cases, the relative humidity of the atmosphere is so high, that static charges are prevented. However, relative humidity may fluctuate according to season.
Potential grounding (earthing) to surfaces, or to other metal components with mould contact, is normally insufficient to allow the discharge of static. Polycarbonate is a poor conductor (a good insulator) and static electricity is therefore unable to discharge from the moulds.
De-ionisation devices (bars) are effective, but must be deployed correctly (immediately following build up of the charge, in the correct location and in close proximity to the mould).

Should you have any further questions, our team at Brunner will be more than happy to assist.

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