

Installation instructions DM-qode Gen1

NOTE

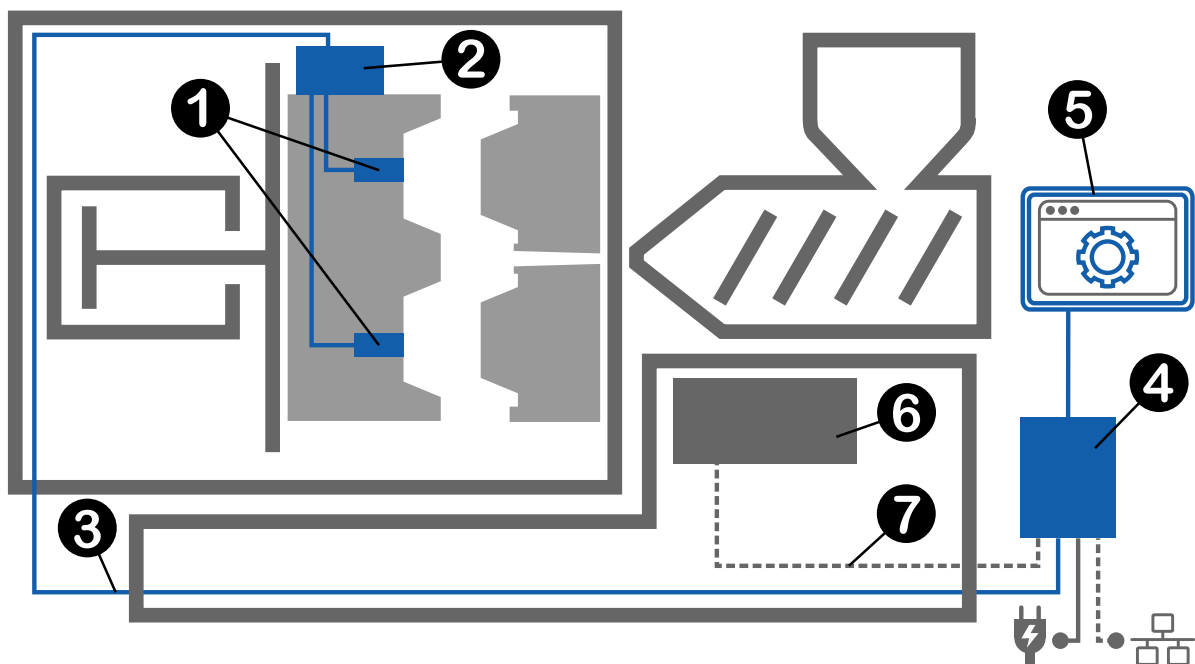


The positioning of the DynamicMold® Insert has a major influence on the marking quality achieved. In the worst-case scenario, an unfavorable installation can lead to illegible markings. It is therefore essential to follow this instructions during the design phase.

System Description

The DM-qode Gen1 is an in-cavity marking solution for plastic products produced by injection molding, blow molding or other plastic manufacturing processes. One DynamicMold® **Insert** ① is mounted in each mold cavity. As soon as an Insert gets into contact with the melt during the plastic manufacturing process, a marking process is triggered automatically and independently of any machine signal. The Inserts are connected to the DynamicMold® **Controller** ②, which is itself mounted on the outside of the mold and can control up to four Inserts. The Controller is connected to the DynamicMold® **LinQ** ④ using the **Controller Cable** ③. The LinQ is the communication hub of the system. It is connected to a 230 V power source via the supplied power supply and can be either attached to the outside of the injection molding machine using the backside magnets or it can be installed on a top-hat rail using the optionally available bracket. A **Tablet** ⑤ is used for the browser-based configuration of the system. In addition, the LinQ features connections to a local network and a **potential-free switch** ⑦ for error handling, e.g. the transmission to the **machine controller** ⑥.

Specifications and dimensions of the individual devices can be found in the technical data sheet.

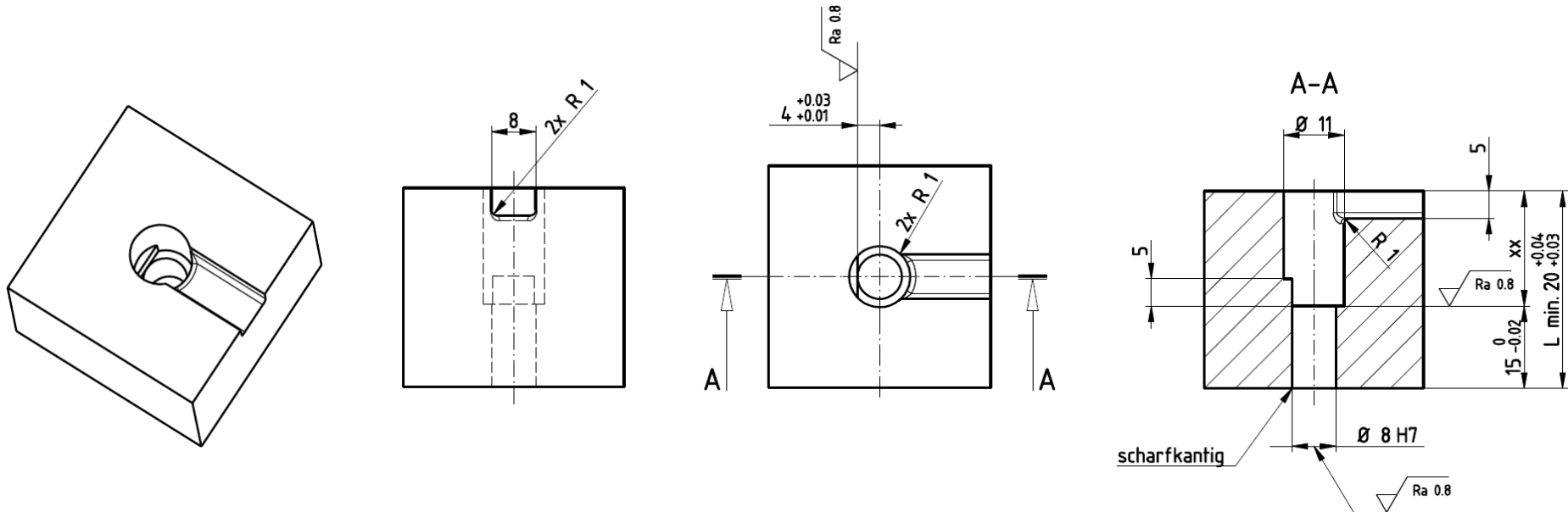


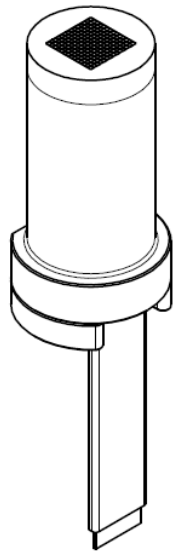
DynamicMold® Insert installation instructions

The DynamicMold® **Insert** consists of a steel housing with a ceramic chip embedded on the front and a ribbon cable for connection to the DynamicMold® **Controller**. The Insert **must not** be processed mechanically! The cable **must not** be shorted!

The Insert is installed from the mold exterior. This requires a recess, as shown in the illustration. A spacer is necessary to compensate for the distance between the back of the Insert and the adjacent plate. The spacer is **not** supplied.

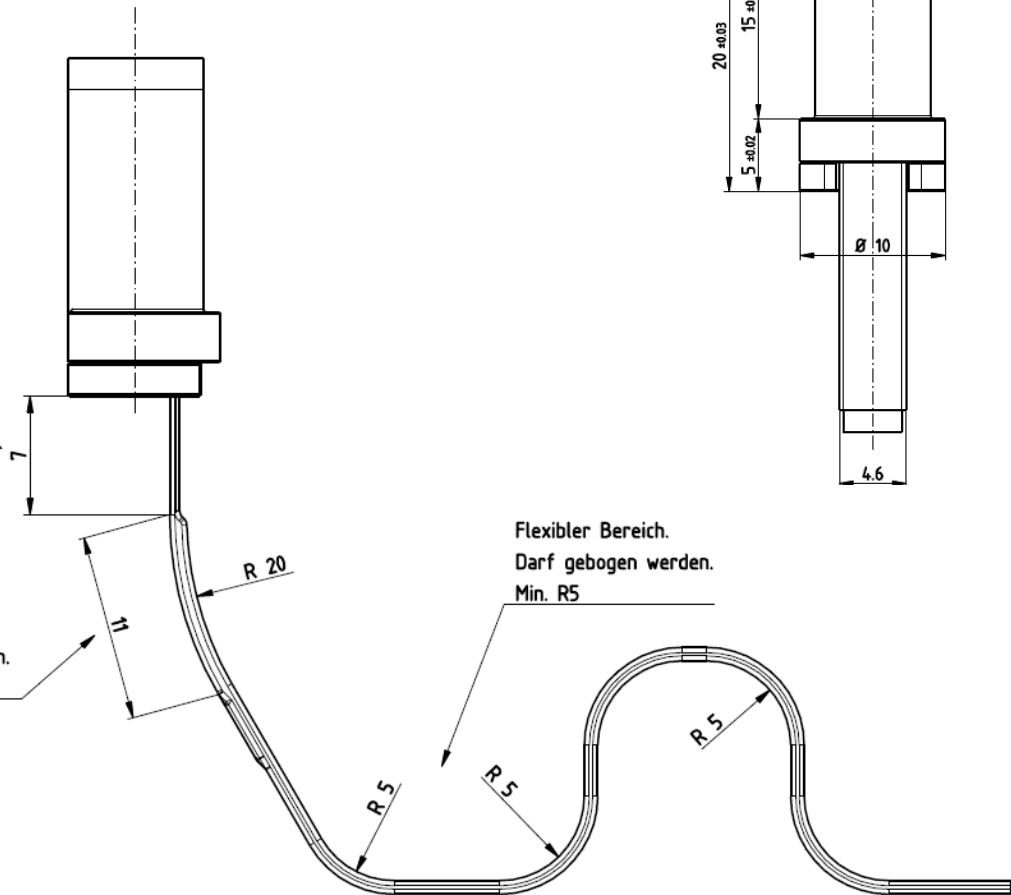
A cable duct must be realized in the mold to route the cable to the Controller. The minimum dimensions of the cable duct must be 8 mm x 5 mm. The area marked in the technical drawings may only be slightly bent and has a minimum bending radius of 20 mm (semi-dynamic). The bending radius of the remaining flat ribbon cable is 5 mm (semi-dynamic). Dynamic bending is not allowed. We strongly recommend fixing the cable with at least one cable holder (e.g. Meusburger E27652) to provide additional strain relief for the cable to the insert and to reduce the risk of crashing the cable between the mold plates.



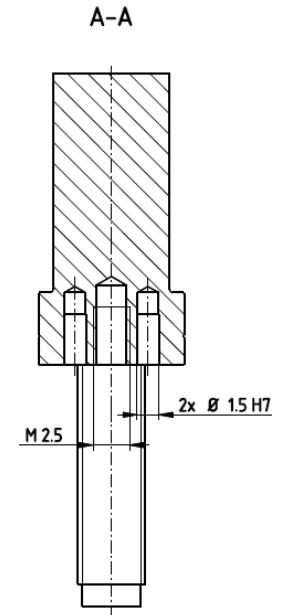
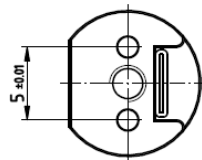
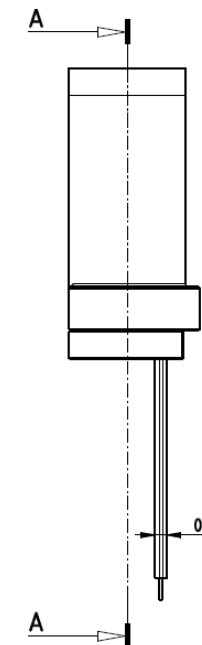
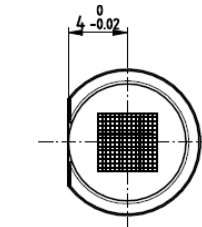
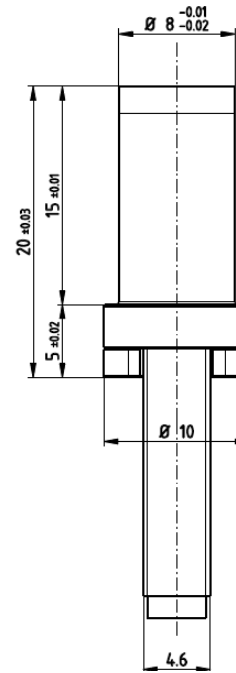


Flexibler Bereich.
Darf gebogen werden.
Min. R5

Verstärkter Bereich.
Darf gebogen werden.
Min. R20



Flexibler Bereich.
Darf gebogen werden.
Min. R5



Factors influencing the marking quality

The quality of the markings applied using DynamicMold® technology depends not only on the type of plastic itself but also on additives, the melt temperature, the mold temperature, the internal cavity pressure and the local flow behavior of the melt. In order to achieve a high marking quality, it is therefore important to select the best possible installation position for the insert.

Amorphous plastics

For **amorphous plastics** (e.g. PC/ABS, COC), the local viscosity is an important factor influencing the marking quality. The higher the local viscosity, the better the marking quality. The following points can **increase markability**:

- **Low local temperatures** and **low pressure**, for example when the insert is installed **away from the sprue** or at low mold and melt temperatures
- The absence of **additives that reduce the viscosity**

NOTE



In the case of amorphous plastics with a rather low modulus of elasticity (e.g. ABS, PC/ABS), installation close to the sprue can result in the marking no longer being legible.

Semi-crystalline plastics

For **semi-crystalline plastics** (e.g. PP, PBT), a sufficiently long contact time between the melt and the insert, in combination with sufficient pressure is important. If the contact time or pressure is too low, markability may be limited or impossible. The following points can **increase markability**:

- **High pressure** at the installation position, ideally in combination with a **high wall thickness**, for example in the case of installation **close to the sprue**
- **A long holding pressure phase**
- **Late symmetrical shrinkage** at the installation position

NOTE



In the case of semi-crystalline plastics, very early shrinkage at the installation position can lead to illegible markings or problems with the stability of the marking quality.

General notes

In addition to the above mentioned points, the quality of the component surface is also decisive for the legibility of the marking. To increase legibility, the background should be as homogeneous as possible. It is therefore important to **avoid** the following **in the marking area**:

- **sink marks**
- **weld lines**
- **streaking**

It is generally possible to mark filled plastics. However, the fillers that lead to a rough surface (e.g. glass fiber) can have a negative effect on the marking quality.

Contact

matriq AG
Lerchenfeldstrasse 3
CH - 9014 St. Gallen

Internet: matriq.ch
E-Mail: contact@matriq.ch
Phone: +41 71 571 48 50



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This document has been prepared carefully and to the best of our knowledge. The original instructions were written in German. In the case of any discrepancies, the German version prevails.

DynamicMold® and matriq® are registered trade names of matriq AG (Switzerland). The DynamicMold® technology is internationally patented by matriq.