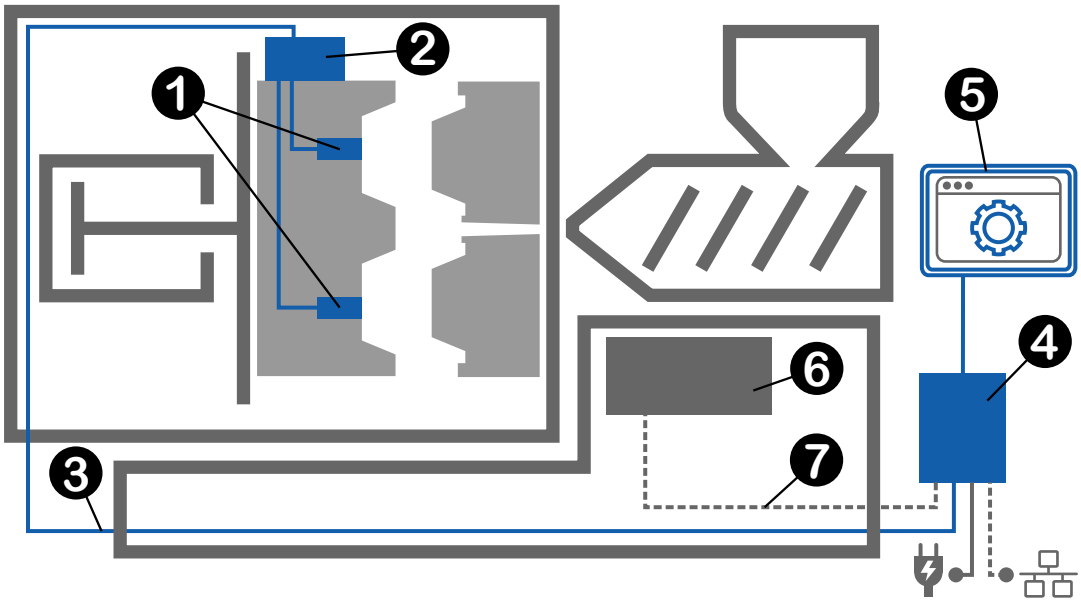
datasheet **DM-qode Gen1**

1. system description

With **DynamicMold®,** part-specific, individual markings can be applied to plastic parts directly during the injection molding process, changing automatically from shot to shot. **Serialization and traceability right from the start!**

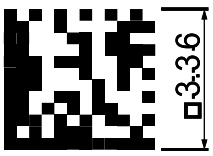
A DynamicMold® **Insert** ① is mounted into each cavity wall. If the insert senses the hot plastic melt during the molding process, a trigger activates the marking process machine-independently. The inserts are connected to the DynamicMold® **Controller** ②, which can handle up to four inserts, and is permanently mounted on the injection molding tool. The **Controller Cable** ③ connects the Controller with the DynamicMold® **LinQ** ④. The LinQ is the control unit of the system and is connected to a local area network (optional) and electricity. Via the **Tablet** ⑤ settings can be made and the status of the system can be monitored. A **potential-free contact** (error switch) ⑦ enables the system status to be passed on, for example to the **machine control system** ⑥.



2D code marking

This version of the mold insert refers to a 144-pixel code in the format 12 x 12 Data Matrix.

Data Matrix Code	module size	data capacity numbers	data capacity text	version
12 x 12	*0.28 mm*	*10 digits*	*6 characters*	*ECC 200*



code reading

It is a DPM code (direct part marking – based on ISO/IEC 16022:2006 and ISO/IEC TR 24720:2008). Common code reader cameras with adapted lighting are suitable to read the code.

DynamicMold® Software

The DynamicMold® software controls the correct mapping of the marking. Two use cases are supported:

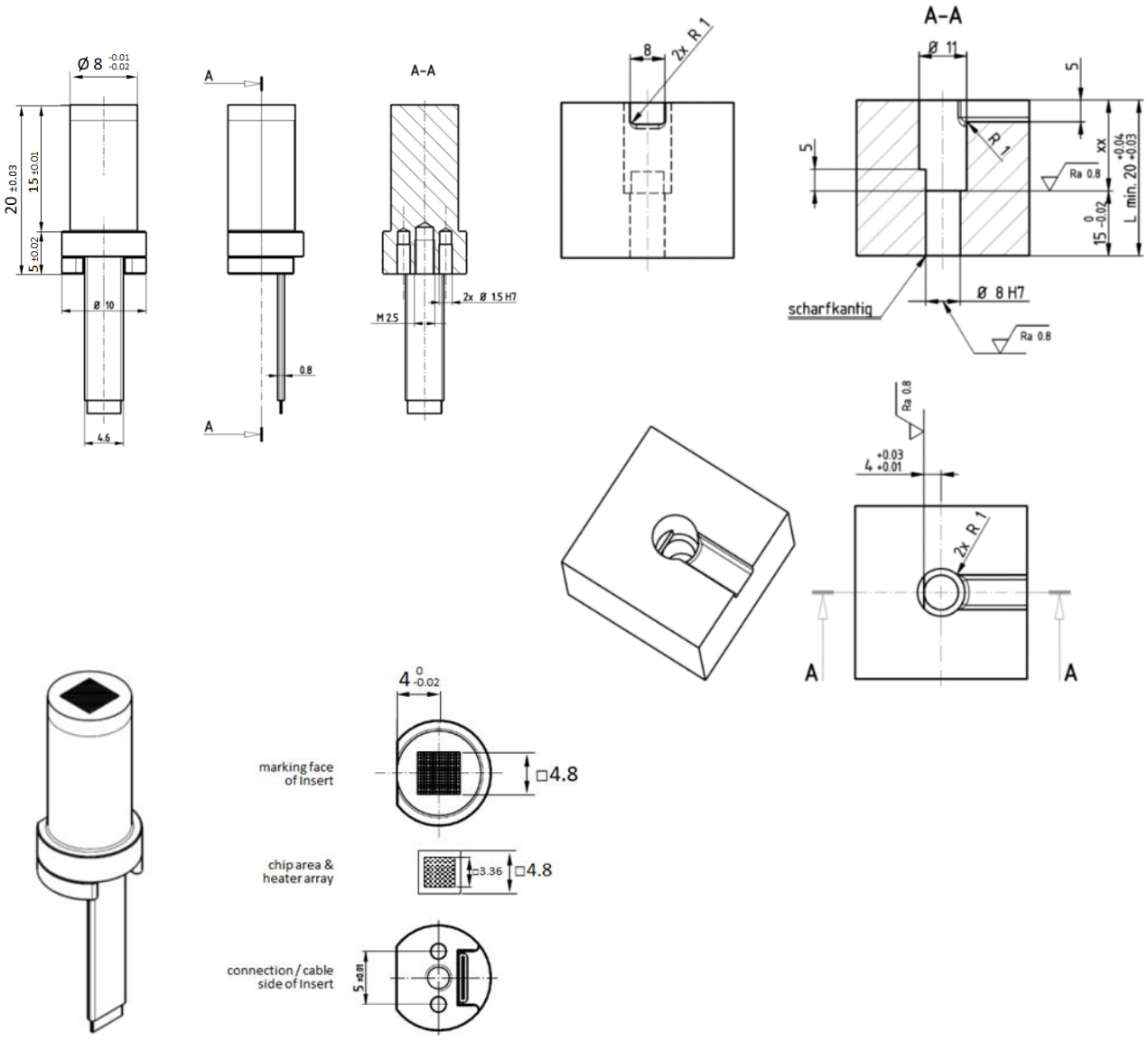
- **front-end mode**: allows the customer to configure code allocation via the tablet. The operator has full control over the marking process.
- **local-remote mode**: the LinQ receives the codes from a third-party system (e.g. MES) via OPC-UA. The latter is responsible for assigning the code.

DynamicMold® installation instructions

DynamicMold® Insert

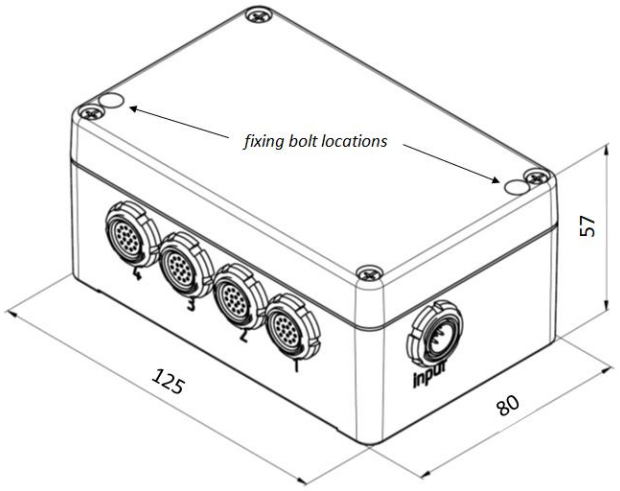
The DynamicMold® **Insert** consists of a steel housing with a ceramic chip embedded on the front and a ribbon cable for connection to the DynamicMold® **Controller**. The mold insert ***must not*** be processed mechanically! The cable ***must not*** be shortened!

The mold insert is installed from the mold tool exterior. This requires a machined recess, as shown in the illustration. A spacer is required to compensate for the distance between the back of the mold insert and the adjacent plate. The spacer is ***not*** included in the scope of delivery. A cable channel must be installed in the mold to route the cable to the **controller**. It is recommended to use cable ties to secure the cable and provide strain relief.



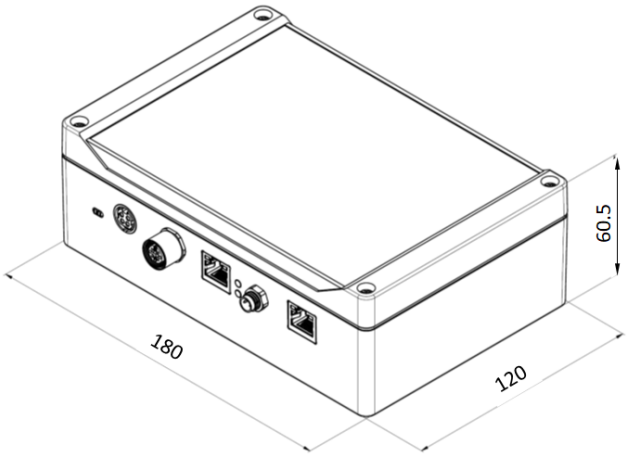
DynamicMold® Controller

The DynamicMold® **Controller** is the control unit for DynamicMold® **Inserts** and is mounted permanently on the injection molding tool. Two fixing bolts are at the edges of the Controller housing. Up to four I**nserts** can be connected to the **Controller**. In cases where the tool temperature exceeds 60 °C, spacers must be used between the tool and the **controller** to provide thermal insulation.



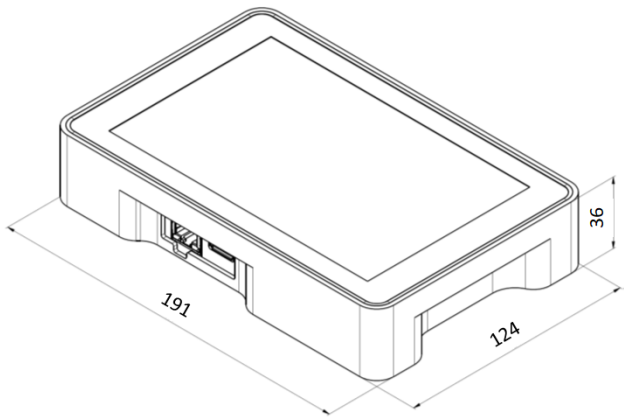
DynamicMold® LinQ

The DynamicMold® **LinQ** is the central control unit and interface between the **controller** and the company network (via OPC UA) or the injection molding machine. The **LinQ** is connected to the controller via a cable, but it remains outside the machine. It can be installed directly on the machine using the integrated magnets. The necessary settings can be made via the tablet, which can be connected to the **LinQ**. A potential-free contact (fault switch) can be used to report faults that occur in the DM-qode Gen1 system.



Tablet

The marking process is started via the **Tablet's** user interface, and the marking parameters are adjusted to optimize the code quality. The USB interface on the **Tablet** enables software updates and data export. The **Tablet** is powered directly by the **LinQ** via the connection cable (Ethernet cable via PoE).



2. technical specifications

process data

version	***DM-qode Gen1***
process	*plastic injection molding, blow-molding (stretch, extrusion);* *on demand: thermoforming*
injection molding machine	*machine-independent (no connection to machine needed)*
triggering	*self-triggering (internal temperature sensor triggers marking)*
minimal cycle time	*3 s (including ca. 0.1 s marking duration)*

DynamicMold® Insert

dimensions	*frontal Ø 8 mm, length 20 mm (see CAD data)*
working temperature	*max 100°C / 212 °F (molding tool body),* *max 300°C / 527 °F (molding compound)*
pressure stability	*up to 2000 bar (29.000 psi)*
cable length	*ca. 750 mm*
weight	*40 g*

DynamicMold® LinQ

dimensions	*ca. 180 mm x 120 mm x 61 mm (see CAD data)*
temperature	*0-40° C (32-104 °F)*
humidity	*not condensing*
IP rating	*IP40*
power supply	*24V/5A (power supply included for 100-240VAC 50Hz/60Hz, 1.4A-0.7A)*
connections	*power supply: 24V DIN 4 Pin (cable included)* *network: RJ45 Ethernet* *tablet connection: RJ45 Ethernet with PoE (cable included)* *DynamicMold® Controller: M12 (cable included)* *Error switch: M8 male 3PIN, max. 3m*
connectivity	*OPC UA*
mounting	*magnetically*
weight	*1.05 kg **LinQ*** *ca. 800 g power supply* *ca. 400 g – 1.2 kg Controller Cable (depending on length)*

DynamicMold® Controller

dimensions	*ca. 125 mm x 80 mm x 57 mm (see CAD data)*
surface temperature injection molding tool	*0-60°C (32-140 °F)* *up to 80°C (176 °F) using separators,* *up to 100°C (212 °F) using spacer with convection*
humidity	*not condensing*
IP rating	*IP65*
connections	*1 to 4 DM-qode Insert connectors, DynamicMold® LinQ input port*
weight	*530 g*

Tablet

dimensions	*ca. 191 mm x 36 mm x 124 mm (see CAD data)*
temperature	*0-40° C (32-104 °F)*
humidity	*not condensing*
IP rating	*front IP65, plug outlet IP40*
connections	*Ethernet with PoE, USB 2.0*
mounting	*magnetically*
weight	*1.15 kg*

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This document has been prepared carefully and to the best of our knowledge. Chapter 1 is purely descriptive and therefore non-binding.