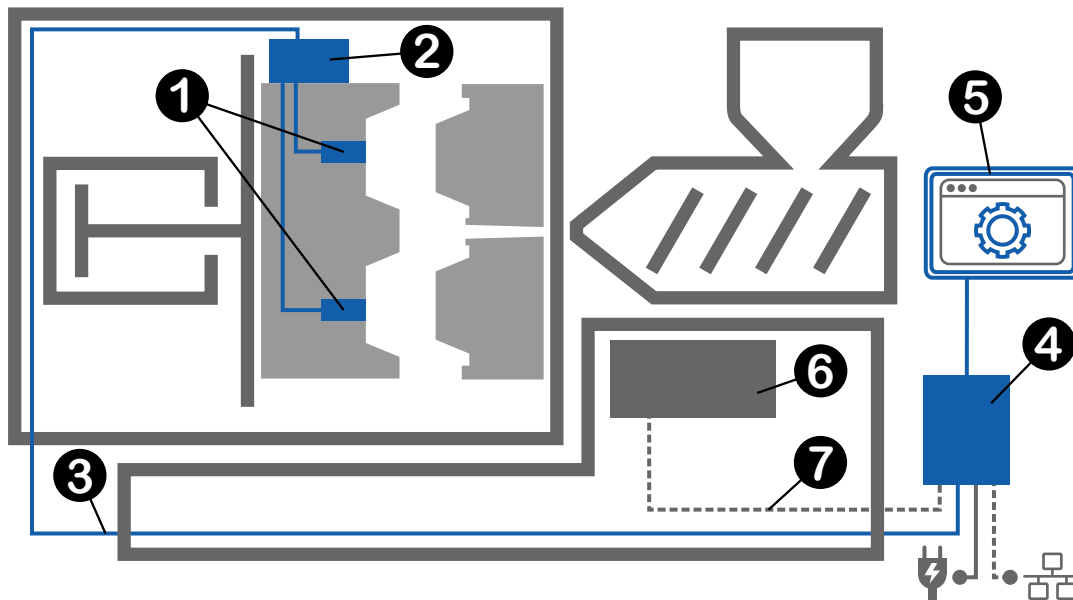


## system description

With DynamicMold® technology, individual markings are generated on a plastic part during the injection molding process. A DynamicMold® **Insert** (mold insert) ❶ is mounted in each cavity wall so that the active face contacts the plastic during the molding process. The mold inserts are connected to a DynamicMold® **Controller** ❷, which is permanently mounted on the injection molding tool. Up to four inserts can be connected by one controller. The control is carried out by the DynamicMold® **LinQ** ❸, which is connected to the DynamicMold® Controller, installed next to the injection molding machine and connected normally to the network. The necessary settings can be made via the tablet ❹. The LinQ can be connected directly to the machine control ❺ via a potential-free contact (error switch) ❻.



## 2D code marking

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

DataMatrix 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:

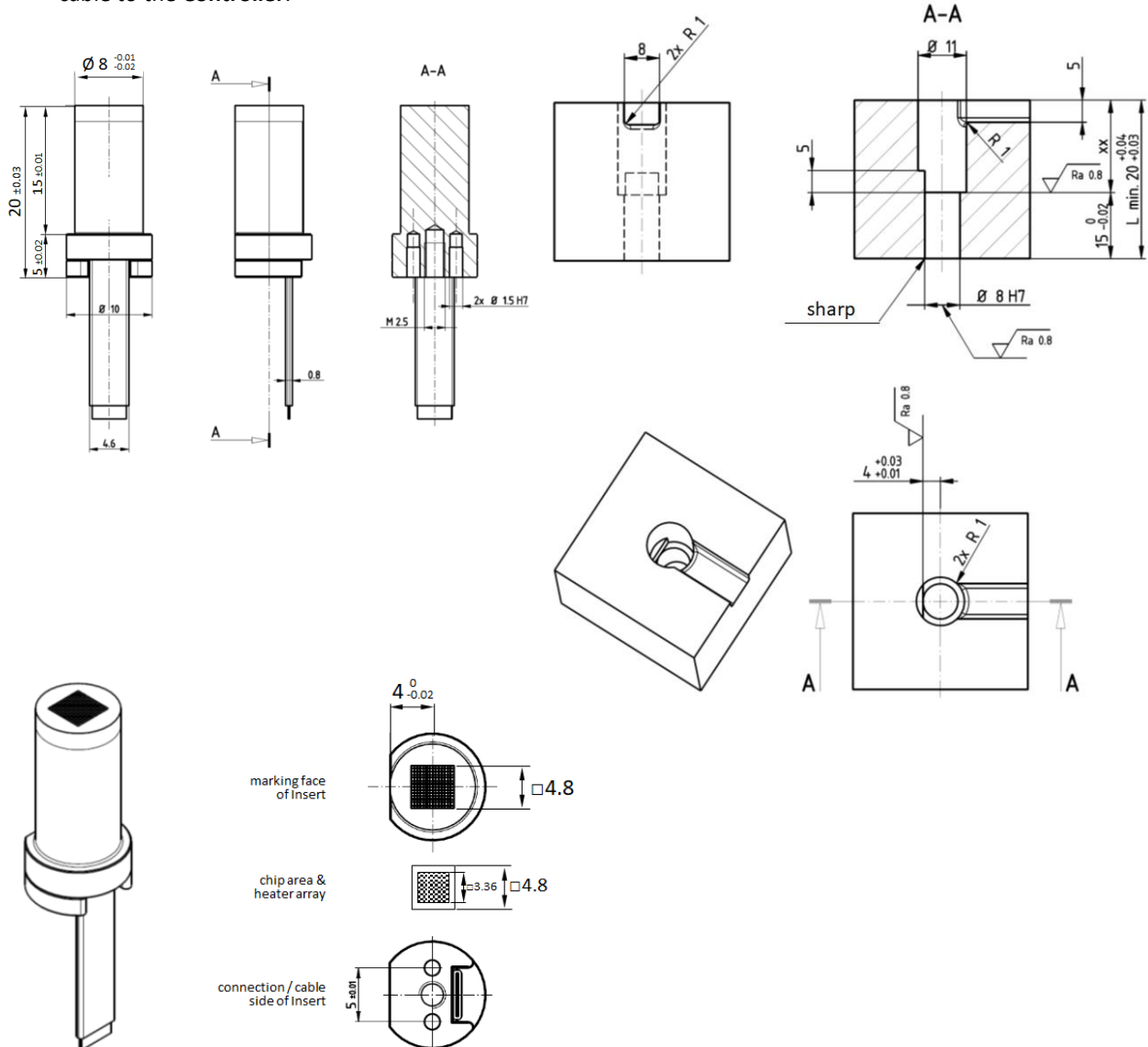
- **front-end mode:** allows the customer to configure code allocation via the tablet. The operator has full control over the marking process.
- **local-remote mode:** the LinQ receives the codes from a third-party system (e.g. MES) via OPC-UA. The latter is responsible for assigning the code.

## DynamicMold® installation instructions

### DynamicMold® Insert

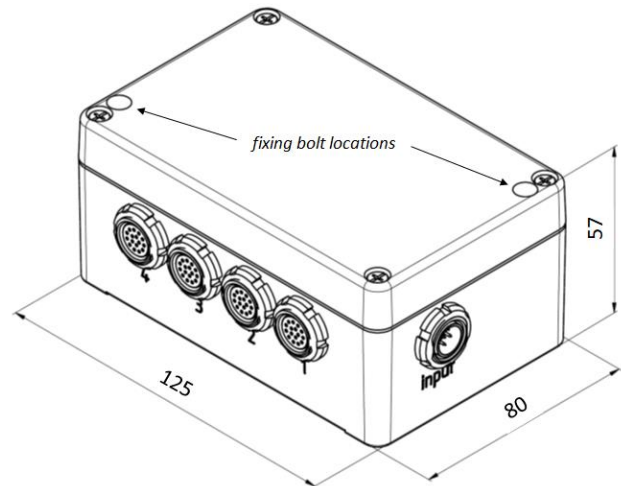
The DynamicMold® **Insert** consists of a steel housing with a ceramic chip embedded on the front and a ribbon cable for connection to the DynamicMold® **Controller**. The mold insert **must not** be processed mechanically! The cable **must not** be shortened!

The mold insert is installed from the mold tool exterior. A machined recess is required for this, as shown in the illustration. A spacer is necessary to compensate for the distance between the back of the mold insert and the adjacent plate. The spacer is **not** included in the delivery. A cable duct must be installed in the tool to route the cable to the **Controller**.



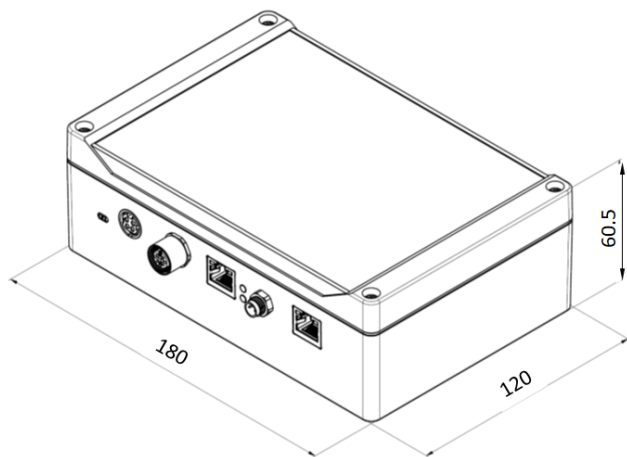
## DynamicMold® Controller

The DynamicMold® **Controller** is the control unit for DynamicMold® **Inserts** and is mounted permanently on the injection molding tool. Two fixing bolts are in the edges of the Controller housing. Up to four **Inserts** can be connected to the **Controller**. If the tool temperature is over 60°C, an insulation plate must be used between the tool and the **Controller**.



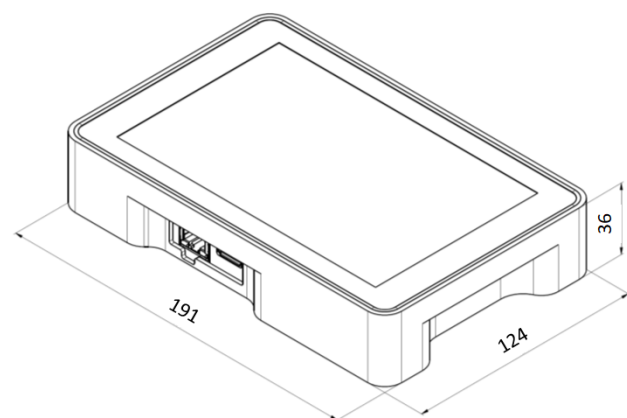
## DynamicMold® LinQ

The DynamicMold® **LinQ** is the central control unit and the interface between the **Controller** and the company network (via OPC UA) or the machine. The **LinQ** is connected to the controller via a cable but remains outside the machine. Installation can be done directly on the machine using the magnets integrated on the back. The necessary settings can be made via the tablet, which can be connected to the **LinQ**.



## Tablet

The marking process is started via the **Tablet's** user interface and fine settings are entered to optimize the code quality. The USB interface on the **Tablet** enables software updates of the entire system and data export.



## technical specifications

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### process data

<b>version</b>	<b>DM-qode Gen1</b>
<b>process</b>	<i>plastic injection molding; on demand: thermoforming, blow-molding (stretch, extrusion)</i>
<b>polymers</b>	<i>PS, PP, PA, ABS, PC-ABS, PC-PET; other polymers on request filled materials on request</i>
<b>injection molding machine</b>	<i>machine independent</i>
<b>triggering</b>	<i>self-triggering (internal temperature sensor triggers marking)</i>
<b>minimal cycle time</b>	<i>3 s (including ca. 0.1 s marking duration)</i>

### DynamicMold® Insert

<b>dimensions</b>	<i>frontal Ø 8 mm, length 20 mm</i>
<b>working temperature</b>	<i>max 80°C (molding tool body), max 300°C (molding compound)</i>
<b>pressure stability</b>	<i>up to 2000 bar</i>
<b>cable length</b>	<i>750 mm (currently fixed)</i>

### DynamicMold® LinQ

<b>dimensions</b>	<i>180 mm x 120 mm x 61 mm</i>
<b>ambient temperature</b>	<i>0-40°C</i>
<b>IP rating</b>	<i>IP40</i>
<b>power supply</b>	<i>24V/5A (power supply included for 100-240VAC 50Hz/60Hz, 1.4A-0.7A)</i>
<b>connections</b>	<i>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</i>
<b>interface connection</b>	<i>OPC UA</i>
<b>mounting</b>	<i>magnetically</i>

## DynamicMold® Controller

<b>dimensions</b>	<i>125 mm x 80 mm x 57 mm</i>
<b>ambient temperature</b>	<i>0-60°C up to 80°C using a thermal isolation plate</i>
<b>IP rating</b>	<i>IP65</i>
<b>connections</b>	<i>1-4 DM-qode Insert connectors, DynamicMold® LinQ input port</i>

## Tablet

<b>dimensions</b>	<i>191 mm x 36 mm x 124 mm</i>
<b>ambient temperature</b>	<i>0-40°C</i>
<b>IP rating</b>	<i>front IP65, plug outlet IP40</i>
<b>connections</b>	<i>Ethernet with PoE, USB 2.0</i>
<b>mounting</b>	<i>magnetically</i>

This document was created carefully and is accurate to the best of our knowledge. The design and technical specifications are subject to change without prior notice. DynamicMold® and matriq® are registered trade names of matriq AG (Switzerland). The DynamicMold® technology is internationally patented by matriq.