# EUROMAP 9

**Injection moulding machines**
**Testing the parallelism of the platens during closing**

September, 1998
(4 pages)

This recommendation has been prepared by the Technical Commission of EUROMAP.

## 1 Scope

In this recommendation a method to measure the deviation from the parallel during closing of the platens is defined for comparison reasons.

Measuring under the full clamping force is not considered because when the clamping force is applied, the platens will (and have to) follow the mould; and only the deviation of the parallelism of the mould will be measured.

Moreover the permissible deviations are indicated to protect the mould and limit mould wear.

It is expected that the mould overall deviation from the parallel does not exceed the permissible deviation from the parallel of the machine platens, regardless of the clamping force applied.

## 2 Measuring method

### 2.1 Accuracy of the measuring instrument

The necessary accuracy shall be 0,01 mm or 5 % of the permissible deviations, whichever value is larger.

### 2.2 Measurement

The distances $d_1$ - $d_4$ between the platens shall be either measured directly or determined by an angle measurement in the platen centre without applying any clamping force at the four measuring points as defined in figure 1 while the moveable platen without mould or test block shall be at a distance d to the fixed platen according to table 1.

In the case of a clamping unit with a toggle mechanism the toggle shall be in the extended position.

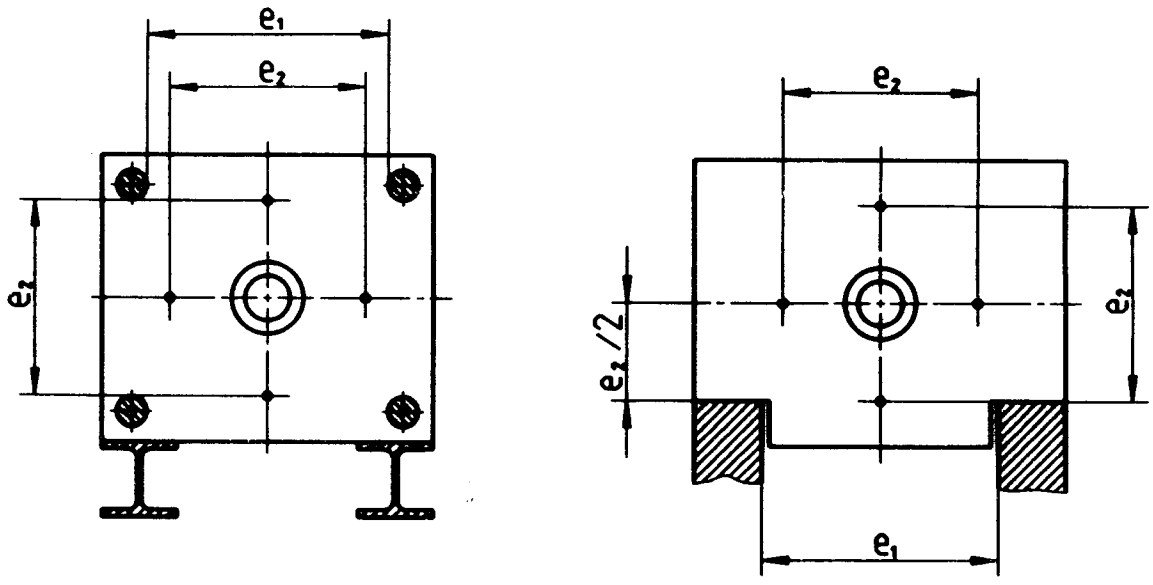
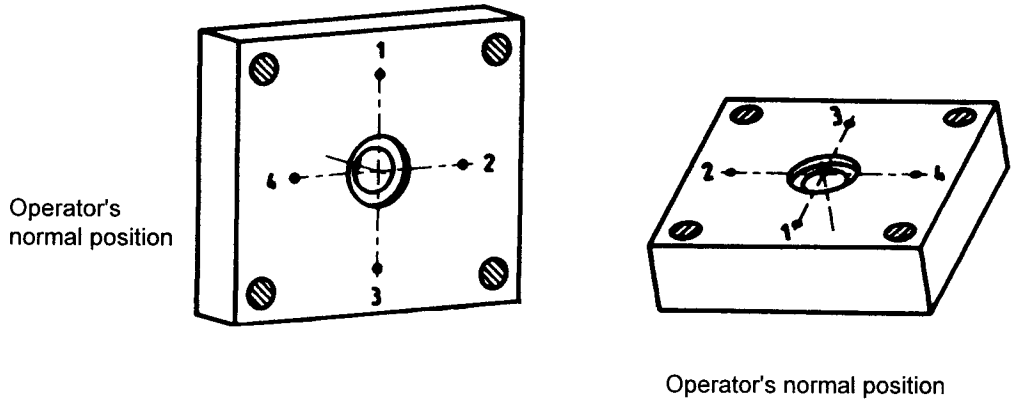



*Figure 1: Measuring points*

For machines with 2 or 3 tiebars the measuring points shall be defined accordingly.




Horizontal clamping unit

Vertical clamping unit

*Figure 2: Numbering of the measuring points*

**Table 1:** **Distance (d) between the moveable and the fixed platen and permissible deviation | δ | (all in mm)**

| $e_2$ | d | \| δ \| |
|---|---|---|
| 200 | 160 | 0,10 |
| 224 | 200 | 0,10 |
| 250 | 200 | 0,15 |
| 280 | 250 | 0,15 |
| 315 | 250 | 0,15 |
| 355 | 315 | 0,15 |
| 400 | 315 | 0,20 |
| 450 | 400 | 0,20 |
| 500 | 400 | 0,20 |
| 560 | 500 | 0,25 |
| 630 | 500 | 0,25 |
| 710 | 630 | 0,25 |
| 800 | 630 | 0,30 |
| 900 | 800 | 0,35 |
| 1000 | 800 | 0,35 |
| 1120 | 1000 | 0,40 |
| 1250 | 1000 | 0,45 |
| 1400 | 1120 | 0,50 |
| 1600 | 1120 | 0,55 |
| 1800 | 1250 | 0,60 |
| 2000 | 1250 | 0,70 |
| 2240 | 1400 | 0,75 |
| 2360 | 1400 | 0,80 |
| 2500 | 1400 | 0,85 |
| 2650 | 1400 | 0,90 |
| 2800 | 1600 | 0,95 |
| 3000 | 1600 | 1,00 |
| 3150 | 1600 | 1,05 |
| 3350 | 1600 | 1,10 |
| 3550 | 1600 | 1,15 |

Note: If the value for d is not achieveable it's value during the measurement shall be indicated (see clause 3).

2.3 Evaluation

The following deviations shall be determined:

$$\delta_1 = d_3 - d_1$$

$$\delta_2 = d_4 - d_2$$

For the numbering of the measuring points, see figure 2.

## 3 Indication of values

The maximum value of the deviation determined ( $\delta_1$ or $\delta_2$ ) shall be indicated as follows, e.g.:

maximum deviation (EUROMAP 9) : +0,24 mm or
maximum deviation (EUROMAP 9) : -0,32 mm

This value shall not exceed the permissible deviation | δ | according to table 1.

Where the distance between the moveable and the fixed platen was different from the one specified in table 1, this shall be indicated as follows, e.g.:

maximum deviation (EUROMAP 9) : -0,22 mm (width d = 400 mm).

# EUROMAP

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