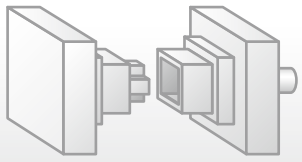
FUJIFILM

PRESCALE

Pressure Measurement Film

PRESCALE Application Examples [No.14]

Measured Object



Injection Molding Machines, Molds

Uses

Adjustment of molds and injection molding machines

Benefits

- Longer mold life
- Higher component yield
- Malfunction analysis

Industry

Molding, mold making, injection molding machine manufacture

Applications

Checking for PL (Parting Line) surface contact, checking for distortion of molds and molding machines

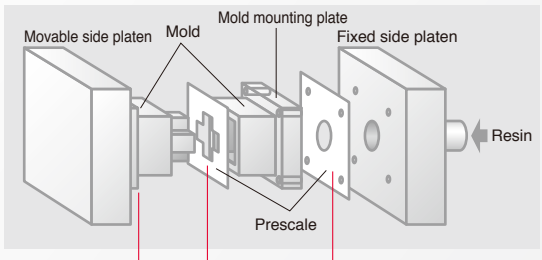
Challenges

1) Since molds are composed of multiple parts, dimensional errors of each part tend to accumulate in the thickness direction. This means that the precision of the height of each part of the PL surface can deviate significantly from its intended value, resulting in excessive contact pressure, the failure of parts to make necessary contact, or the generation of burrs.
2) When force is applied to clamp a mold, the platen tends to bend, which in turn causes the mold to bend. As a result, the thickness precision of the molded product deteriorates, leading to uneven wear and shortened mold life.

Measure-ment

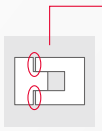
Product used: Prescale (LW, MS, HS)

1) When a new mold has been fabricated, or during production, insert the Prescale between the PL surfaces and measure the pressure distribution. (Application Example 1)
2) To check the impact of platen bending, insert Prescale between the platen and the mold and measure the pressure distribution. (Application Example 2)



Application Example 1

Checking mold PL surface contact

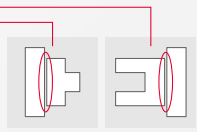


Insert the Prescale between PL surfaces and clamp the mold.
The Prescale must be cut to fit the shape of the PL surfaces. The pressure can be visualized in accordance with the density distribution of the color-developed Prescale. The following checks can be made:

- Check that PL surfaces are even
- Check that contact is not one-sided
- Find the points where contact is stronger than intended
- Check that there is no risk of burr formation, due to failure of contact where contact is necessary

Application Example 2

Checking contact between mold and fixed side platen (movable side platen)



Insert Prescale between the mold and fixed side platen (movable side platen) and clamp the mold. The Prescale must be cut to fit the shape of the locating ring and screw holes. The pressure can be visualized by the density distribution of the color-developed Prescale, thereby making it possible to assess the degree of distortion of the molding machine when the mold is clamped.

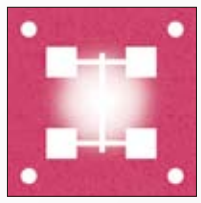
Results (images)

Application Example 1 **Checking mold PL surface contact**

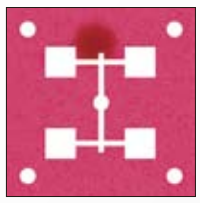
[Not Good]

Mold pressure is biased to one side.

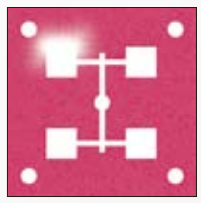
Pressure is not evenly applied to the mold. (Insufficient pressure in the central part.)



Pressure is stronger than intended at one point.

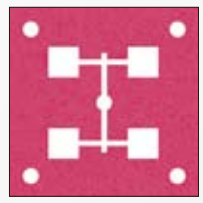


There is no contact at a point where contact is necessary.



[Good]

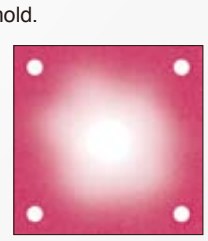
Pressure is applied to the mold evenly.



Application Example 2 **Checking contact between mold and fixed side platen (movable side platen)**

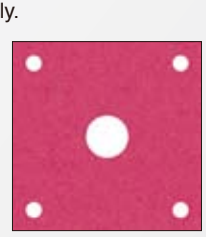
[Not Good]

Contact is weak around the central locating ring and pressure is not evenly applied to the mold.



[Good]

Pressure is applied to the mold evenly.



Benefits of Prescale

1. **When fabricating new molds, it is possible to produce ideal molds with even contact over PL surfaces.**
2. **Thickness precision and prevention of burring is improved, resulting in finished products of higher quality.**
3. **Effective mold life is lengthened.**
4. **The degree of platen bending and contact with mold can be easily checked.**

Without using Prescale

Since PL surface contact cannot be checked or adjusted, burring of finished products occurs easily, and thickness precision is limited. In addition, **mold life tends to be relatively short**.

With Prescale

The ability to check contact using Prescale and thereby adjust PL surfaces makes it **possible to determine the causes of defects in finished products**, and to **increase mold life**. Prescale also makes it easy to check the degree of platen bending and contact with the mold.

*Note that the specifications and performance data described in this catalog are subject to change without notice for the purpose of improvement. Since images are used for illustration purposes, they may differ slightly from the actual product.

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http://www.fujifilm.com/products/prescale/

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