

# GUIDE FOR ECOLOGY SPRUE BUSHINGS

## Features

Most critical point in cost saving and productivity improvement is to reduce mold material and shorten the cycle time as well. With its main feature to make diameter of the sprue thinner than the diameter of nozzle tip of molding machine, Ecology Sprue Bushings are available to provide following advantages.

### ① Reducing resin material in the sprue runner

Available to reduce the resin material per one mold processing by making sprue diameter thinner and setting the minimum required runner size for the molding.

**Example : Reduced resin amount at sprue and runner parts : 70% approx.**

### ② Shortening the cycle time

By making sprue and runner parts thinner, this cooling effect improvement enables to shorten the cycle time.

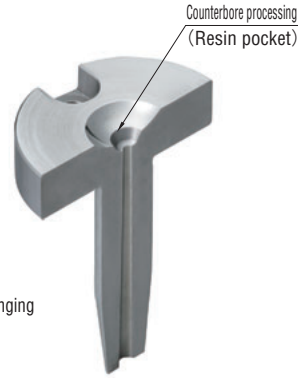
**Example : Cooling time saving : 3 seconds, instead of 6 seconds**

### ③ Reducing the stringing

Thinner diameter of sprue improves in quicker cooling and solidification which can reduce and eliminate the stringing

**Example : No stringing occurred**

※For the details of practical examples, refer to the molding examples of Ecology Sprue Bushing.



Ecology Sprue Bushings

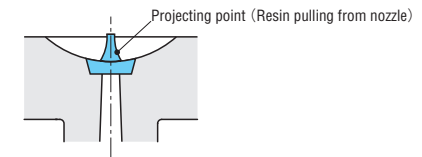
Conventional type Sprue Bushings	Ecology Sprue Bushings
<ul style="list-style-type: none"> <li>Conventional sprue bushing is generally <math>P=d+(0.5\sim 1.0)</math>.</li> <li>Avoid situations of resin leakage from nozzle touch part and mold release trouble from the sprue.</li> <li>Sprue diameter (P) is determined by nozzle diameter of molding machine (d), therefore, thicker runner diameter is applied when smaller molded articles shaped.</li> </ul>	<ul style="list-style-type: none"> <li>Sprue bushing with special counterbore processing (resin pocket) in nozzle touch part.</li> <li>Available to make <math>P &lt; d</math> (<math>P_{min.} = 2.0</math>)</li> <li>Available to apply sprue diameter from the size or specifications of the molding article, instead of deciding from the nozzle diameter of molding machine.</li> </ul>
<p>Molding by conventional Sprue Bushing (ABS resin)</p>	<p>Molding by Ecology Sprue Bushing (ABS resin)</p> <p>Resin at resin pocket part (Enlarged view)</p>

## Notes on usage

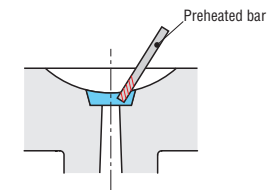
- Ecology Sprue Bushing is for the molding machines with nozzle tip diameter as approx 3mm.
- Suitable depth of resin pocket (F) varies from applied resin and molding condition. Refer to selection of resin pocket depth F.
- By using Ecology Sprue Bushing, you may select thinner sprue and runner, however, make sure to set minimum runner size required for stable mold processing.
- Molding condition set on the conventional sprue bush may not meet to the molding condition using this part. Due to narrowing the resin pathway by thinning the size of sprue and runner, you may need to change injection pressure or mold temperature according to resin material.
- At the time of starting mold processing, put the nozzle of mold machine to sprue bushing and preheat for approx one minute before using. Without any preheating, sprue releasing trouble may be occurred due to quicker time in cooling and solidification for the resin in the resin pocket.
- In case of lower temperature at the nozzle tip of the mold machine, resin at sprue end part and resin pocket may be solidified before filling up to cavity.
- Do not carry back the nozzle during mold processing. When the mold machine nozzle leaves away from the nozzle touch part, resin in the resin pocket becomes solid and resin filling will not be available.
- When the nozzle continues touching to the sprue bushing without any mold injection, the resin in resin pocket may be carbonized by nozzle heat. On this occasion, take away the resin in resin pocket before starting mold injection.
- At the time of discontinuation or completion of the mold injection work or resin material change, make sure to take away the resin in resin pocket before starting mold injection. Easier to take it away before the resin comes in completely solid. When the resin solidified, heat the resin again and take it away. When using tool for taking the resin away, take extra care avoiding scratch the surface of sprue ion bushing. Also, pay attention for injuries or burn with the nozzle or mold base at the time of taking the resin away.

[How to take away resin from resin pocket]

Example 1) In case of the resin in the resin pocket with projecting point, take it away from the nozzle side of the mold machine. By using a tool of needle-nose pliers, you may easily nip the tip part.



Example 2) Attach preheated bar with burner and melt the resin in resin pocket. Then, take off after the resin becomes solid. Easier to take off when the bar attaches at an angle position against the resin.



Example 3) In case of the resin without any projecting point, push out the resin in the resin pocket by using bar from parting side.

