

MULTICOMPOUND® SCREW



The new **Green Module** is equipped with Brixia Plast's high plasticising **MultiCompound®** screw, designed and developed by our experienced Technical Department.

It can also be supplied with a final mixer (depending on the application)

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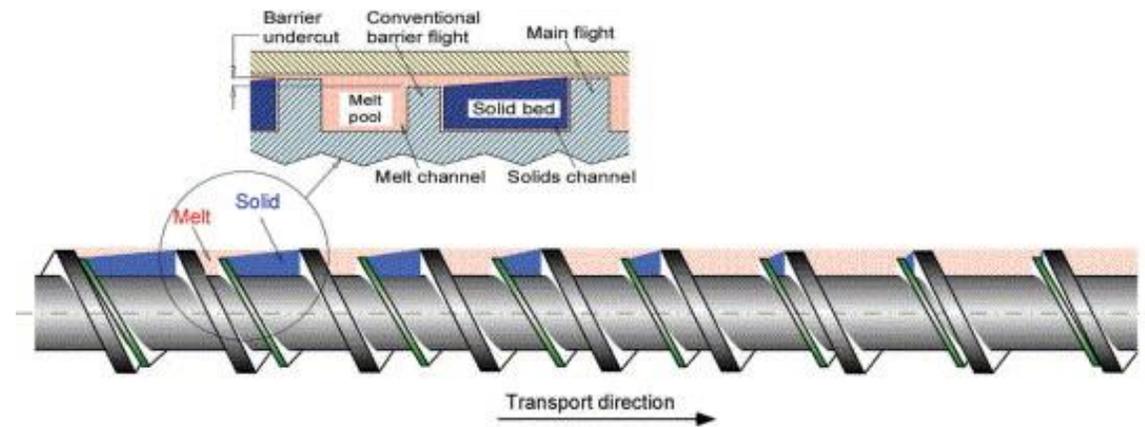
The **MultiCompound®** screw has been designed in order to obtain better and faster plasticising of the widest range of polymer (PP, PE, PC, ABS, PMMA, POM, PA, PPS, PSU, etc).

With this geometry, in the central zone (plasticising zone) a second helix starts from the primary thread, creating two separated channels with different depth: one for the melted polymer and one for the solid polymer. The concept is very similar to the barrier concept.

Since the two channels have different diameter, the unmelted material is separated from the melted one, allowing the unmelted polymer to remain in the solid channel until it is completely melted. In the final part of the screw the two channel join back in the metering zone.

With this special geometry, the effect of cutting and stressing caused by the compression is lower, and the plasticisation is "more gentle" being the melted material separated from the unmelted one.

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In order to have the best performances, with the **MultiCompound®** screw it is necessary to modify the process parameters, otherwise not all the improvement might be noticed

Set temperature of the barrel: the temperature set should be decreasing, meaning that the higher temperatures have to be set in the first zones and has to be reduced in the remaining zones.

Back pressure: the back pressure has to be reduced as much as possible, starting from 3 bar until the perfect parameter is found.

Screw rotation speed: thanks to the geometry of the screw, the stress generated from the rotation is lower, thus allowing an increase in the screw rotation that might lead to a dosing time reduction.

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The advantages of the **MultiCompound®** screw are the following:

- Higher plasticising capacity
- Better homogenization of the melt
- Better dispersion of masterbatch and other additives
- Reduction of the back pressure
- **Reduction of the engine torque required for the rotation of the screw**
- Increases the lifetime of the plasticising unit
- Possibility to reduce melt temperature
- **Possibility to reduce the cycle time** (due to higher plasticising capacity)
- Possibility to reduce cooling time
- Lower shear value, allowing the process of a variety of polymer, such as PC, ABS, PMMA, PSU
- Improved quality of the final products and reduction of the waste
- **Reduction of the energy consumption**