

TWIST KNEADING DISC “TKD”

With advantages of both kneading discs and rotor elements

Outline

In plastics compounding by twin screw extruders, kneading discs or rotor elements are generally used for mixing section of the screws depending on the material and the application.

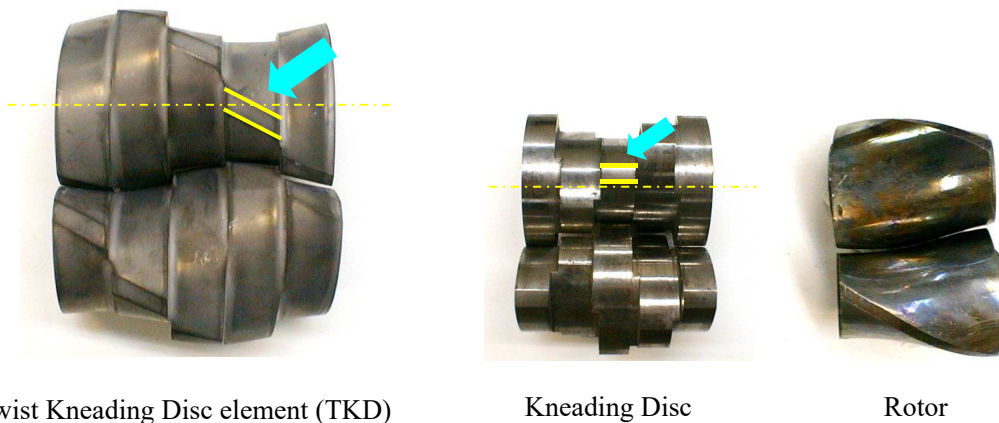
Now, JSW has developed “Twist Kneading Disc (TKD)” so as to combine the strong points of both kneading blocks and rotor elements, which enables more energy-saving mixing than conventional kneading discs.

Features of TKD

- 1) Mixing with less energy consumption at lower temperature can be achieved with TKD.
- 2) A disc element is divided into several discs and staggered at a relative angle.
- 3) Both forward and reverse flight combinations are available.
- 4) Disc tips provide adequate compression and shearing effect to the polymer.
- 5) Mixing effect of a kneading block can be obtained with TKD as polymer passes through the gaps between staggered disc tips.
- 6) Disc tips provide good milling effect to improve filler dispersion or to eliminate gels in the products.
- 7) Discontinuous disc tips will be advantageous to better dispersive mixing and higher processing rate.

Appearance and effects

With “Twist Kneading Disc”, energy consumption and polymer temperature can be reduced by approx. 10 % compared to a conventional kneading block. Furthermore, the combination of TKD and “Special Kneading Cylinder (NIC)” can reduce energy consumption and polymer temperature by approx. 15 %.



Twist Kneading Disc element (TKD)

Kneading Disc

Rotor

Photo 1. Screw geometry

Technical Information

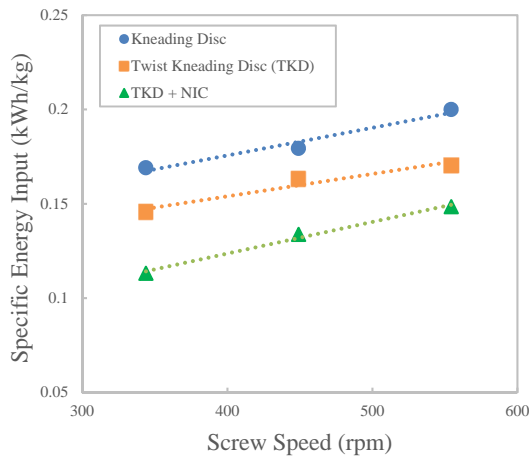


Fig. 1 Specific Energy Input (ABC compounding) TEX65 (1,000 kg/h)

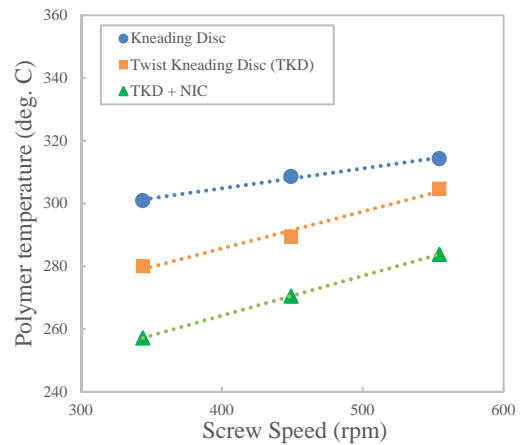


Fig. 2 Polymer temperature (ABC compounding) TEX65 (1,000 kg/h)

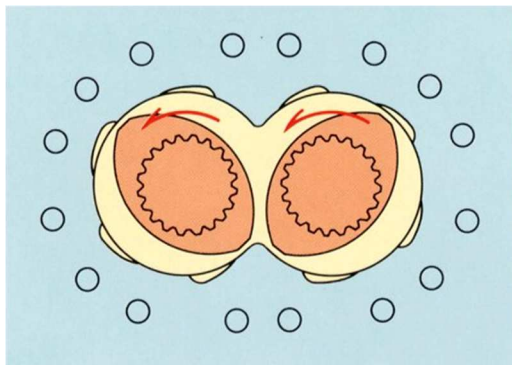


Fig. 3 Section of NIC (Special Kneading Cylinder)

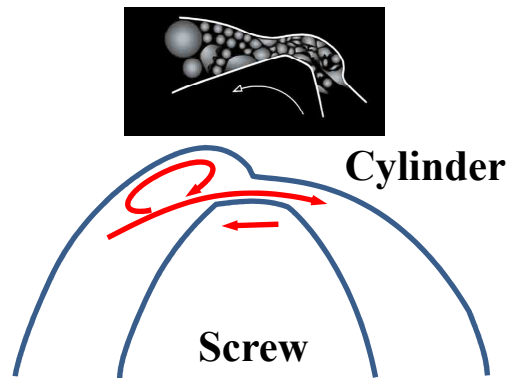


Fig. 4 Kneading effect in tip clearance with NIC

Postscript

We believe that Twist Kneading Disc (TKD) must become a major technology in high-quality dispersive compounding of the time. We have the test equipment in our Plastics Machinery Developing Center in Hiroshima, Japan, which is available for your trial. If you are not satisfied with the conventional compounding system, please contact us any time!