

1. What is Switl

Movement of objects is an operation performed on a daily basis, without particular attention. However, no one ever thought of the possibility of moving soft and sol-gel condition objects without deforming their shape. Switl is a base technology for a scooping operation that has hitherto not existed, to transfer objects in sol-gel condition without deforming them.



Image 1 Movement of maynaise and ketchup

2. Basic Structure and Operation

1)Basic Structure

Switl is made up of the following 2 components.

1] Mechanism for slider advancement and retreating

Due to rotation of a motor fixed unto the main instrument, the slider makes a stright line movement along with a timing belt and screw nut.

2]Sheet deployed on the slider

Both edges of the Sheet are fixed unto the instrument front part, this sheet mechanism enables rolling in the direction of the slider straight line movement

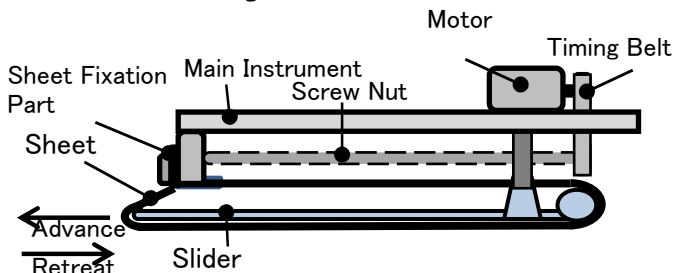


Figure 1 Structural Pattern Diagram

2)Operation

- 1] When the slider makes a straight-line movement, because the sheet is fixed at both edges, while the slider tip slides, [in case of forward movement, it is pushed from the lower to the upper surface.] Alternatively, [in case of backward movement, it is pushed from the upper surface to the lower surface.
- 2]The length to which the sheet is pushed upward and the slider advancement distance is the same. The lower surface moves twice that length.
- 3] The slider movement distance and the length to which the sheet is pushed upward as well as pushed backward are the same, therefore the material can be transferred [scooped up and dropped down] without deforming its shape.

3. Applications

The basic operation of moving objects from one to place to another is the same in all fields and sectors. However, the concept of moving objects in sol-gel condition without has not been developed until now. A new and easy way to move such objects without deforming their shape would involve new ideas, new production methods as well as extensive research and development. Looking at Switl from this point of view, we feel that applications for the product can span into a wide variety of fields that are way beyond our imagination.

Starting from 2007, when this equipment was first used for moving bread dough, in addition to the food industry, we have had inquiries and supplied the equipment for transferring or removal of seal materials, transferring or removal of solder paste, as well as inquiries from companies and research institutions related to jelly like onjects in the fields of automobile, electronics, chemical, pharmaceuticals etc.



Bread dough transfer

Handy-Type Switl

Image 2 Sample Equipment and handy type Switl

4. Development Background

Our company develop, design and manufacture "only one" manufacturing equipment and systems to meet individual needs of our customers mainly in the food industry. Switl development is the result of a customers request in 2007 for a solution for transferring bread dough without deforming or denting its shape. In 2009, we released and started marketing the portable handy type Switl as a tool for developing other applications as well as a tool for publicizing the Switl technology.

5. Sales Figures

Sales Figures up tp October 2011.

- 1) Handy type Switl 285 pieces
- 2)Machinery 20 units

Both the handy type and machinery maintain a growth rate of 200%/per year.

6. Summary

Switl is a technology for moving objects in sol-gel condition that was hitherto not possible, made out in a simple structure as well as good cost performance. Additionally, the part for scooping the work piece is made of SUS and teflon sheet which can withstand a temperature of 260°C and is also environmentally friendly. For all industry fields, we hope that utilization of Switl will be useful for development of new ideas, new production methods and new product development.