FOR IMMEDIATE RELEASE

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New Product Release

Greatly Improved Productivity with World's Best Molding Stability and High-cycle*1

Sodick Releases New V-LINE®*2 Vertical Type Single-Action Injection Molding Machine "VT50"

Sodick Co., Ltd. is launching a new V-LINE® Vertical Type Single-Action Injection Molding Machine "VT50" from November 1, 2019.

The VT50 is a high-cycle vertical type single-action injection molding machine with a mold clamping force of 490 kN (50 tons), developed based on the concept of further improvement in the productivity of precision molded products realized by the repeated stability of the V-LINE®. This model contributes to improvement in productivity in the precision molding field including precision connectors, which conquers the narrow pitch and low profile where the demand for autonomous driving, sensing, and 5G communication, etc. continues to increase.

Sodick developed a new hybrid toggle mechanism with a unique mold open/close mechanism and control function which increases the opening/closing speed of the mold, targeting insert molding which integrates plastic and metal components, which realized a cycle reduction of 20% compared to conventional *3, *4. This model is also equipped with various new technology compatible with IoT, such as monitoring, maintenance and analysis that is directly linked to improvement in production efficiency and quality.

*1: Sodick's research

*2: V-LINE® is a registered trademark of Sodick Co., Ltd.

*3: Sodick's comparison value in an actual molding cycle of same molded product

*4: When the mold opening/closing stroke is 140 mm

■ Main Features of VT50

(1) Equipped with plasticization and injection unit "V-LINE®"

The VT50 is equipped with the plasticization and injection unit "V-LINE®" independently developed and manufactured by Sodick. The "V-LINE®" is a plasticization and injection unit which consists of a plasticization unit that only performs plasticization, and an injection unit which performs measurement and injection, which enables stable measurement and injection realized by excluding the unstable factors that occur during plasticization measurement and injection, realized by separating the plasticization and injection functions. The independently developed control technology enables plasticization and injection at an optimal timing, which realizes accurate molding with high repeatability. The optional high-speed and high-pressure injection specification, and the high-response specification equipped with a super high-response "Linear Direct Double Valve (LDDV)" is also available.

(2) High-cycle specification

The adoption of Sodick's unique hybrid toggle mechanism realized a reduction of the mold open/close and mold clamping operation times, as well as a cycle reduction of 20% compared to conventional, which contributes to further improvement in productivity.

(3) Expanded platen size

Compared to a conventional machine, the distance between the tie bars was expanded 60 mm in the horizontal direction to 420 mm x 360 mm (W x L), and the internal area of the tie bars is now 116% compared to conventional. The expanded size supports the upsizing of molds accompanying the complicated shapes of molded products, and molds with slide cores.

(4) Improved operability

The adoption of a 15-inch operation screen allows for the basic setting of the injection, mold opening/closing and temperature of the injection molding machine in one screen, which realizes labor savings in the operation and improved operability. The cycle time chart screen where the overall molding cycle can be checked at a glance, clearly shows the molding operations that can be shortened, which reduces time loss.

(5) IoT compatible

A system to set the molding environment and molding conditions for each molded product can be constructed by connecting to peripheral devices and numerous other equipment via the network, which is suitable for advanced production systems that are compatible with IoT and big data. The standardly equipped LAN port for connection to other equipment and data communication complies with the "EUROMAP63/77 Standard," as well as connection to Sodick's Quality Control System "V-Connect."

■ VT50 External View

■ Main Specifications of VT50

Model Name	VT50		
Maximum clamping force (kN)	490		
Tie bar distance (mm) W x L	420 x 360		
Daylight (mm)	600		
Minimum/Maximum mold thickness (mm)	250 / 350		
Screw diameter (mm)	18	22	28
Plunger diameter (mm)	16	22	28
Theoretical shot capacity (cm^3)	14	27	83
Maximum injection speed (mm/sec)	400	300	200
Maximum injection pressure (MPa)	262	256	252
Machine dimensions (L x W x H) (mm)	1934 x 1643 x 3275		1934 x 1643 x 3502
Machine weight (kg)	3000		3150

■ Inquiries

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■ Reference Material

<Easy terms related to injection molding>

Injection molding method	A processing method which injects thermoplastic resin melted by heating into a closed mold to create plastic molded products.
Horizontal type molding machine / Vertical type molding machine	Horizontal type molding machine: A molding machine equipped with both an injection unit and mold clamping unit horizontally. Vertical type molding machine: A molding machine with the mold clamping unit installed vertically.
Insert molding	A molding method which inserts metal components into a mold before molding, and injects resin to cover the edges of metal components to integrate the metal and resin. Vertical type injection molding machines are used to mold products in many cases in consideration of the moldability.
Mold clamping, injection, plasticization	Mold clamping: Refers to the clamping of molds to prevent molds from opening by the injection pressure. Injection: Refers to the injection of melted plastics into a closed mold. Plasticization: Refers to the melting of thermoplastic resins.
V-LINE®	V-LINE® is Sodick's unique injection and plasticization method where the plasticizing screw and injection plunger are separated into individual processes. The separation of these processes demonstrates excellent performance which makes the (1) melted condition of the resin, (2) density of the measured resin, and (3) actual filling volume in the filling process extremely stable.
Injection speed	Refers to the speed of injecting (filling) the melted resin into a cavity
Injection pressure	The injection pressure refers to the pressure for filling the resin into a mold, and is also called the primary pressure. Refers to the maximum pressure applied to the melted resin at the tip of the plunger, and indicates the value where the force applied (injection force) to the overall plunger is divided by the plunger cross-section area.
Shot capacity	The injection capacity (Unit: cm_3) is the volume of the molding material which the injection molding machine is able to inject in a single injection process.
Platens	Refers to the stationary platen and movable platen where the mold is to be mounted in the injection molding machine.