

Press Release K 2019

September 2019

WOOJIN PLAIMM at K 2019
Hall 15, Stand D58



Woojin Plaimm technologically combines the best of both worlds

Boeun-gun (Republic of Korea, ROK), Leobersdorf (Austria) in September 2019 – The Korean machine manufacturer Woojin Plaimm Co. Ltd, Boeun-gun, and its Austrian research and development centre Woojin Plaimm GmbH, Leobersdorf, presents three live demonstrations and a new vertical injection molding machine at the K 2019 in Düsseldorf, Germany. All product series, which were exhibited at the show, were developed entirely at the Korean machine manufacturer's research and development site in Leobersdorf (Lower Austria) and demonstrate the company's competence in producing precision molded parts, physical foaming and 2-K technology in conjunction with water injection and vertical machines.

Fully hydraulic 3-platen injection molding machine series HD-A5

The fully hydraulic HD-A5 series injection molding machine, which was presented last year, is one of the exhibits at the exhibition stand. The HD-A5 machines are equipped with three-platen clamping units as well as an energy-saving and thus cost-efficient hydraulic system. They are operated via the web-based IMC 500/501 machine control unit, which has a full-HD touch screen. The series will be represented at the trade fair by the HD220A5-IH930-D50 injection molding machine with 2200 kN of clamping force. Partners are Wittmann (extraction robot), Haidlmair (tool) and Mol-Group (polypropylene).

The machine produces a "crumple box mini" with a tool from Haidlmair GmbH Werkzeugbau from Nußbach in Upper Austria, which is equipped with a FDU (Flat Die Unit). This is an open hot runner nozzle system in the injection mold for which the distribution channel in the nozzle is projected onto a flat nozzle. As a result, the melt is evenly distributed and flows through a long narrow gap into the cavity. The concept combines the advantages of injection molding with those of extrusion, which, for example, results in reduced shear and thus reduced shear heat. At the same time, energy consumption, injection pressure and cycle time are reduced.

The crumple boxes are removed with a W821 robot, which is supplied by Wittmann and is suitable for handling weights of up to 12 kg and high traversing speeds.

The new HD-A5 injection molding machines are designed primarily for producing high-precision molding parts needed for technical components in areas such as the automotive and electronics sectors, as well as in many other areas of application. The machines are, of course, also suitable for use with special injection molding processes such as gas- or water-injected injection molding.

Fully hydraulic 2-platen DL-A5 injection molding machine in 2-K application with water injection technology

During the show, a segment of the wheelchair wheel (“Chap wheel”) will be produced in 2-component technology on a DL500-A5-2K using the transfer process. One of the first 2-K applications from the DL-A5 series, which was developed in Austria, can be seen at the exhibit. The hub segment is made from a PP GF 50 recyclate from Aurora, which is then inserted into the cavity of the actual wheel segment – here it is partially encapsulated with an unreinforced PP recyclate from Aurora when the wheel segment is injected. By means of water injection (WIT), the mass is pressed back into the molding machine's injection unit in cycle, creating a circumferential cavity, which ensures high rigidity at low weight. In order to intensify the cooling effect after the cavity has been generated, further rinsing with cold water is carried out. In the same tool, the handrail is produced at the same time, thus simultaneously forming one side of the base of the rim. Thus a complete wheel segment is manufactured with each shot. Three such segments, together with the wheel hub and the tyres, form a complete wheel after assembly.

The “Chap Wheel” is the world’s first dismantable wheelchair wheel, which maintains its form and stability, even when segments have been removed. It enables the user to make a barrier-free transition when position changes occur. The upper segment of the wheel can be removed by turning the wheel hub slightly. The two lower segments are automatically locked. The stability of the wheelchair remains unaffected. The ability to dismantle the wheels is also a great help during transport.

The water injection unit was supplied by the company PME Fluidtec, which is focussed on the development, process support and production of components and systems for fluid-assisted injection molding using internal pressure technology based on water or gas. A WP843pro robot from Wittmann automates the exhibition exhibit.

Low-pressure physical foaming on a fully electric TE350A5 Super Foam

An automotive application will be shown at K 2019 on a fully electric TE A5 series toggle machine. The suction bridge, which is made from a PP with 20% talcum content, is

particularly dimensionally stable and low-distortion due to the Super Foam technology used. In this physical foaming process, a propellant gas in the low-pressure range (less than 10 Mpa) is introduced directly into the plastic melt and then injected into the mold. The advantages are obvious:

- Cost reduction due to lower material consumption
- The molded part has a reduced weight
- Reduction of sink marks and improvements to dimensional stability thanks to high foaming rates
- Energy savings thanks to the ability to reduce clamping force
- Reduction of cooling time leads to shorter cycle time and increased productivity
- Improved sound-damping and thermal insulation of the molded part
- Low investment and system maintenance costs.

The parts are removed by a Sepro Success 22 R003475-19 robot, an economical and universally applicable robot that can offer the complete performance spectrum of a 3-axis robot.

New vertical hydraulic injection molding machine VH100RS-A5 IH230 / IH230

The vertical machine from Woojin Plaimm has been completely redeveloped. In the past, the Korean machine manufacturer already had a high level of expertise in rotary table machines. The machine will be available in sizes ranging from 50 to 300 tonnes.

The VH100RS-A5 machine shown is suitable for insert molding solutions, can be easily automated and makes excellent use of space thanks to its compact design. The new development offers interesting advantages for customers:

- Low operating height, even at high clamping forces
- Energy-efficient servo hydraulics for all machine movements
- Conversion of the injection unit from vertical to horizontal possible (retrofit kit required)
- Automatic mold height adjustment of the horizontal injection unit (optional)
- Easy accessibility of the tool installation space, especially for automation
- Easy maintenance due to machine components being easily assessable
- Second horizontal injection unit (2-K) possible
- Low maintenance (no lubrication points)
- User-friendly control concept (IMC500).

Future-proofed, web-based control concept

The web-based IMC500/501 control system, which is also installed on all Woojin trade show exhibits, interfaces via a user-friendly full-HD touch screen. The controller was developed in close cooperation with the control specialist B&R, also in the Austrian development centre.

By utilising web standards and a range of open-standard data interfaces (OPC-UA, SQL, CSV) together with the relevant Euromap interfaces, the control unit permits extensive networking of machine functions - at the heart of Industry 4.0 - together with data output to end-devices such as PCs, smartphones or tablets. This gives operators, production managers and employees access to the data relevant to them.

Hall 15, Stand D58

About Woojin Plaimm

With its new HD-A5 series, Woojin Plaimm unites European technology with South Korean production expertise. The team at the Woojin Plaimm R&D centre in Leobersdorf, Austria, is very familiar with the technological requirements of the European market.

The 700,000 m² production facility at the Woojin Plaimm headquarters in Korea, equipped with the latest production technology, has an annual capacity of up to 6000 injection molding machines. The range includes hydraulic, toggle and full servo-electric injection molding machines for both horizontal and vertical injection molding, with clamping forces ranging from 300 to 43,000 kN.

The company is characterised by a high degree of vertical integration with almost everything coming from a single source, from the castings to the mechanical processing through to final assembly. All the core technologies in the machines – such as hydraulics, control systems, drives, electrical systems and displacement measurement – are sourced from European suppliers. With its highly-integrated production structure, Woojin Plaimm can offer its customers very short delivery times – the manufacturer quotes 12–17 weeks from a European port, depending on the machine version.

Since 2014 the company has combined injection molding technology from its Korean industrial facility with European machine and mold designs from its research and development site at Leobersdorf (Lower Austria). And since 2016 the Leobersdorf site has also been serving as the European service and sales centre. Woojin Plaimm has around 1000 employees worldwide and recorded global turnover of around EUR 250 million.

Contacts

Woojin Plaimm GmbH
Aumühlweg 3
A-2544 Leobersdorf
Austria

Tel.: +43 (0) 2256 20413

E-mail: Office@woojin.at

Web: www.woojin.eu

Senior management:

Dietmar L. Morwitzer, CEO

Gregor Göbel, MD

Press contact:

Andreas Brettner

Tel.: +43 (0) 2256 20413300

E-mail: Andreas.Brettner@woojin.at

Headquarters in South Korea:

Woojin Plaimm Co. Ltd.

100, Woojinplaimm-Ro, Jangan-Myeon

376-840 Boeun-gun, Chungbuk-Do

Republic of Korea (ROK)

Tel.: +82 43 5409504



Figure 1: A fully hydraulic HD 220 A5 injection molding machine is used to produce a “crumple box mini” with a tool from Haidlmair.



Figure 2: With the help of water injection technology, the segment of a wheelchair wheel is produced in 2-K technology on a DL500A5-2K using the transfer process.



Figure 3: On a fully electric TE350A5 Super Foam, a suction bridge is produced using the foaming process.



Figure 4: Newly developed vertical machine VH100RS-A5.

Photos: *Woojin Plaimm*

www.wojin.eu