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## KraussMaffei launch of all-electric AX series at Fakuma 2008

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# Injection moulding for energy savers: KraussMaffei launch of all-electric AX series at Fakuma 2008

With up to 60 per cent greater energy efficiency and a 25 per cent smaller footprint for a fully automated, completely enclosed production cell, KraussMaffei's new AX injection moulding machine series will help to slash manufacturing costs in standard applications.

The all-electric injection moulding machines from 50 to 350 tonnes combine proven toggle mechanics with extreme operator friendliness. Competitive pricing policy and short set-up times for AX machines will deliver further reductions in total cost of ownership. The AX rounds out the company's product range, adding a lower-priced electric machine series for standard applications to its portfolio of highly customisable solutions. The new series seamlessly continues the company's reputation for engineering excellence.

The AX features a centrally lubricated, low maintenance, five-point toggle for the clamp and a moving platen on precision roller bearing guides with friction up to 80 per cent lower than a sliding support design. The high precision platen guides guarantee very high platen parallelism, helping to prolong mould service life. The water cooled converters are regenerative capable, harvesting braking energy and controlling the servomotors with high efficiency.

A number of energy saving engineering measures have made the AX series over 50 per cent... and in many cases up to 60 per cent more energy efficient than a comparable modern hydraulic machine. This is a major success in the drive towards energy efficiency BluePower from KraussMaffei.

The super slim machine can be supplied as a complete production cell, with an integrated linear robot and safety housing, that shrinks space requirements by around 25 per cent.

The user-friendly MC5 Touch control system coordinates all machine functions and the integrated robot via a real-time Varan bus. This simplifies operation and full fault diagnosis for all machine functions, boosting safety and reliability for operators and machine.

By fitting uniform connectors, the company opens up to AX customers its premium plasticising units, tried-and-tested in the company's CX and EX machines.

These screws have extended service lives, due to outstanding resistance to abrasion and corrosion, and deliver very high plasticising performance and a homogenous melt. Screw performance teamed with electric drive technology enables the AX to deliver precisely repeatable shot weights.

Easy access to all machine modules and the swing-out injection unit make for shorter set-up times. This

improves the productivity of the AX machines, especially for processing small batches. With the launch of the AX machines in Q3 2008, three clamp sizes will initially be on offer... 80, 100 and 180 tonnes... covering a wide range of applications. Within a short time, the company expects to be offering a finely scaled range of machines spanning 50 to 350 tonnes.

At the Fakuma, a combined AX 100-380 and fully integrated LRX 50 linear robot produced PA 66 connector strips for automotive electrical systems in a cycle time of just eleven seconds. The robot, which is integrated into the machine housing, removes the parts and sprue, tosses the sprue into a container and drops the parts on a conveyor belt.



## AX series

The AX series utilises a simple, tried-and-tested clamp design, based on an optimised 5-point toggle, that ensures constant reproducibility on the clamp side and low energy consumption. AX machines feature proven plasticising units made from high quality components and reliable drives and deliver consistent parts quality under standardised production conditions whilst being versatile and easy to maintain. They offer affordable entry to the world of all-electric injection moulding machines, all the while giving plastics moulders the reassurance that they are using KraussMaffei technology.

### Technology

With clamp sizes ranging from 500 to 3500 kN, the AX series covers a wide production spectrum.

It is designed around a proven clamp design that features a 5-point

double toggle drive. This type of drive is perfect for all-electric standard machines because of its optimum force/ path transmission. The electric drives offer compelling dynamics and low energy consumption.

### Enhanced clamp design ensures high precision

There is a long tradition of using 5-point double toggles in all-electric injection moulding machines because of their high positioning accuracy and repeatability. For the AX series, the kinematics have been extensively overhauled. Optimally designed joints and a powerful ball screw provide variable force transmission at high opening and closing speeds. The spindle is driven by a timing belt. Consequently, it now only takes a small motor output to generate high speeds and forces. An automated central lubrication system ensures that the toggle moves extremely smoothly. The benefits to users of this rugged design are low power consumption, high precision and long term reliability.

### Proven plasticising unit for accustomed production quality

The plasticising unit of the AX series offers the same superior quality for which the CX and EX series are already known on the market. Its back-flow valve, screw and barrel offer identical wear protection and are precision manufactured to the same high standard, a guarantee that they all deliver the same outstanding performance.

The wear parts in the plasticising units accordingly have high life times.

The AX plasticising unit is interchangeable with those from the EX and CX series. Users can therefore draw on equipment and know-how which they already have. This boosts flexibility, because they can lay their hands much faster on the required components. The outcome is shorter downtimes and, conversely, longer machine uptimes. Moreover, the plasticising units are characterised by their broad spectrum processing, good quality melt and their versatility for all kinds of plastics.

### Intelligent drive concept: efficient, compatible, responsive

Like the EX series, the AX machines feature electric drive technology with optimised servo motors for converting the braking

energy into electricity. This solution further reduces power consumption by up to 10 per cent anywhere in the world. Thanks to the implicit converter technology, the machines can operate on any power supply on Earth. The smooth, belt-driven, precision transmission provides low moved masses and further reduces energy consumption. Leak-monitored, water cooled type HT11 converters lessen the burden on the indoor climate, because the water removes the heat. The servo motors have a compelling high response and, in conjunction with an MC5 controller, offer high precision control. Exactly reproducible movements are the outcome.

### AX-machine + LRX robot = More productivity per square metre

The AX enclosure has been extended to accommodate the conveyor belt and serves to protect the robot as well. Thus, there is no need to additionally isolate the robot with safety fence and gate. This integrated, compact design saves around 25 per cent of production space over comparable systems. The parts are removed at the end of the machine on the non-operator side... offering increased flexibility as regards positioning of the machine.

Customer benefits include low energy consumption through electric drive technology featuring optimised servo motors, which convert the braking energy into electricity.

The AX series reduces power consumption by up to 60 per cent, depending on the part, relative to hydraulic machines... and demonstrates even greater potential savings on water consumption... up to 70 per cent compared to hydraulic machines.

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HBM Plastics & Packaging  
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Ph +61 2 8814 3100**

