

**Industry: Automation**

**Products: Frequency Inverter Drives**

# Maximum Availability

The advantages of asynchronous motors and frequency inverter drives for the plastics processing industry are demonstrated by a new system that drives three extruder worms installed at the works of the German Forum Plast company. The system was designed by GF-I and is fully fitted out with FR-A500 inverter drives and modular controllers from Mitsubishi Electric.



The individual components of the blown film plant are decentralised and connected via a Profibus network. The control gear for each extruder is installed locally in a switchgear cabinet. All the components, including the inverters, are connected via the bus, which makes it easy to read all the necessary parameters. Each 120kW extruder is driven by an FR-A540 inverter with an output of up to 450kW. These inverters are among the more high-end products currently available. Their outstanding features include the combination of sensorless vector control (SLV), automatic motor data registration with the online Autotuning function and a special technology called Advanced Magnetic Flux Vector Control, which generates maximum torque even at low output frequencies. For example, at 0.5Hz this system can deliver 150% of the motor's rated torque to the motor shaft.

In addition to this, the inverter also features automatic slip compensation and an improved version of Soft PWM for quieter running. Three additional internal slots enhance the inverter's expansion options – for example, users can add additional I/Os and connect the system to current field bus systems like Profibus, CANopen, CC-Link and DeviceNet.

The successors of these inverters, the new FR-A700 series, have new technology for even lower power consumption, which predestines them for pump and fan applications. Inverters in this series are available with outputs from 0.4 to 630kW and have an integrated PLC that enables direct access to all drive parameters. A wide range of intelligent maintenance and diagnostics functions ensure maximum availability.

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**„The advantages of the Mitsubishi frequency inverters are their excellent availability thanks to the cooled capacitors and their control stability in the low speed range, even without a tachometer. Very few manufacturers can offer this kind of performance in combination with such high service-friendliness – that is clearly moving towards the domain of servo technology.“**

Marcus Gut  
CEO of GF-I

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Application story first released in September 2006