

maax® 100S for rapid and safe retro-fitting

Retro-fitting a gear pump or other components into an existing extrusion or compounding plant requires control-system adaptation. The integration of these components represents a considerable challenge to the plant operator. The maax® 100S automation system is particularly suited to the retro-fitting of a gear pump or a screen changer. The operation, control and regulation as well as the monitoring of the operating parameters are simplified. This provides optimum protection for the gear pump and the screen changer and the service life of the plant is extended.

Method of operation

- At start/stop semi-automatic start-up and shut-down of the extruder and gear pump
- Fast error recognition with plain text messages
- Operation with pre-pressure regulation from the start is possible
- Integrated filter monitoring
- Monitoring of all desired process values to prevent damage to the plant components (Quality Assurance)
- Integrated temperature regulation of the plant components (heating and cooling)
- Rapid and exact regulation of the extruder or pump speed, depending on the application
- Trend, graphical representation
- Online language change-over

Control unit

Siemens S7-300

Screen

Siemens 5,7" LCD with Touch Function (resolution 320x240 pixel with 256 colours)

Analogue inputs

0–10 V for drive actuation: 4

Analogue outputs

0–10 V for drive actuation: 2

Melt pressure measurements

3

Melt temperature measurements

1

Temperature control (heating/cooling)

up to 16 zones

Types of temperature sensor

Thermo-element Typ J, K, R, S, T, PT100, 0/4 – 20mA

Configurable control circuits

1 pump inlet pressure

Interfaces

MPI, Profibus DP, USB, Profinet / Ethernet

Auxiliary energy

24 VDC, -15% to +20%, approx. 2,5 A

Operating/storage temperature

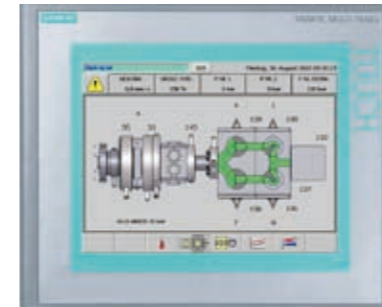
0 to +50°C / -20 to +60°C

Recipe memory

Internal Flash memory, MMC memory card

Reports

Alarm, pressure and process data report



maax® 400S for a better overview

Larger plants with multiple heating zones, filter monitoring or additional drives cannot really be regulated using a small operating unit.

The operator will lose his overview and in moments when rapid action is required, it will be difficult to take control of the processes. Maag has developed a control unit which is very user-friendly and clear. The operating data is displayed clearly and operation is simple and intuitive. In addition, this type of equipment is used to control and monitor our High-Tech Product, the extrex® synchro gear pump system.

- At start/stop semi-automatic start-up and shut-down of the extruder and gear pump
- Fast error recognition with plain text messages
- Operation with pre-pressure regulation from the start is possible
- Integrated filter monitoring and control
- Monitoring of all desired process values to prevent damage to the plant components (Quality Assurance)
- Integrated temperature regulation of the plant components (heating and cooling)
- Rapid and exact regulation of the pump pre-pressure
- Increased productivity - operating data once used can called up again by pushing a button, avoidance of long start-up phase when changing products - extrusion line is soon ready for running (cost-saving)
- Trend, graphical representation
- Flexible system construction
- Online language change-over

Siemens S7-300

Siemens 10" LCD with Touch Function

0–10 V for drive actuation: 8

0–10 V for drive actuation: 4

6

2, executable for heating zone or analogue input

up to 32 zones

Thermo-element Type J, K, R, S, T, PT100, 0/4 – 20mA

2 (1 x pump inlet pressure, 1 x available to configure at will)

1xEthernet, 2xUSB, Profibus DP, Profinet

24 VDC, 20,4V – 28,8V, approx. 2,5 A

0 to +50°C / -20 to +60°C

Internal Flash memory, MMC memory card, USB

Alarm, pressure and process data report



maax® 600S customer-specific plant automation and optimisation

Improvement of existing extrusion plants, or completely new concepts, require made-to-measure solutions which can be applied flexibly. The maax® 600S automation system is particularly suited to the equipping of complete complex extrusion and compounding plants. The operation, control and regulation of operating data are shown clearly and the operation is simple and intuitive. Also, protection of the expensive plant components is guaranteed. The modular and project-specific structure facilitates highest flexibility in the design and execution.

- At start/stop semi-automatic start-up and shut-down of the extruder and gear pump
- Fast error recognition with plain text messages
- Operation with pre-pressure regulation from the start is possible
- Integrated filter monitoring
- Monitoring of all desired process values to prevent damage to the plant components (Quality Assurance)
- Integrated temperature regulation of the plant components (heating and cooling)
- Rapid and exact regulation of the pump pre-pressure
- Increased productivity - operating data once used can called up again by pushing a button, avoidance of long start-up phase when changing products - extrusion line is soon ready for running (cost-saving)
- Trend, graphical representation
- Flexible system construction
- Online language change-ove

Siemens Microbox IPC 427C

Siemens Thin Client 15" LCD with Touch Function

0–10 V for drive actuation: 16

0–10 V for drive actuation: 8

13

10, executable for heating zone or analogue input

up to 48 zones

Thermo-element Type J, K, R, S, T, PT100, 0/4 – 20mA

2 (1 x pump inlet pressure, 1 x available to configure at will)

2xEthernet, 4xUSB, RS232, Profibus DP, Profinet, DVI

24 VDC, 20,4V – 28,8V, approx. 2,5 A

0 to +50°C / -20 to +60°C

Internal Flash memory, USB, network

Alarm, pressure and process data report

A maax® as a constituent part of the expac®

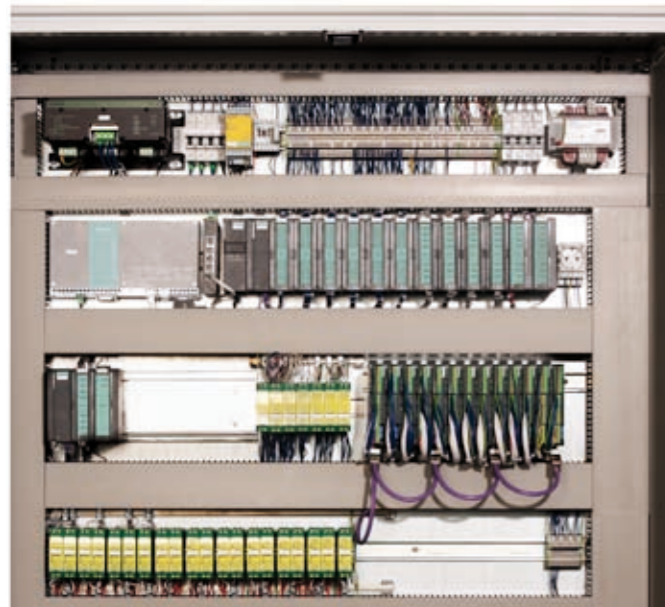
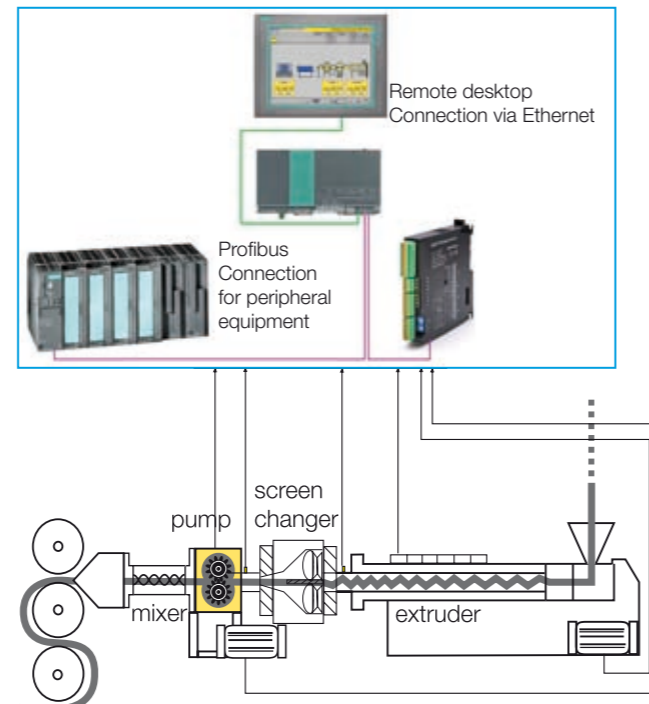
Maag, as the system provider, offers complete modules consisting of screen changers and gear pumps (extrex® und trudex®), pelletizer, automation (module maax®) units and working units, consisting of the geared motor and frequency converter for extrusion plant. As the sum of the individual parts, the expac® system increases the productivity of the process and thus increases production.

Maag's experience makes it possible to connect all the components together in a meaningful way to achieve an optimum solution. This also increases operating safety to a considerable degree. Integrated statistical functions and a process data memory facilitate traceable quality management. Influencing additional degrees of freedom, such as the pump pre-pressure via the target value (pump pre-pressure regulation) also increases the flexibility of the plant.

In combination with a granulation system from our partner Automatik Plastics Machinery, the system can be set up for compounding regulation (pump speed is regulated by the pre-pressure of the pump).

Power cabinet

All our automation systems are provided with an appropriate power cabinet. They are manufactured in accordance with all legal and safety regulations. Maag dedicated themselves early on to the subject of EMC, and they have done everything to manufacture perfect electrical equipment which does not create faults in neighbouring equipment. Our specialists support our customers, even if they have difficult questions and they can work out a clean and perfect electrical solution.

**Automation system****With a maax® control unit you get the full service:**

- Delivery of the complete electrical equipment including the automation system
- Delivery and design of all necessary mechanical modules and components, such as connections, flanges, support structures etc.
- Delivery and control system integration of melt filtration and pelletizing systems
- Assembly of the electrical and mechanical components
- Process-technology optimisation and guidance
- Commissioning, including training the operators
- Service with rapid response times

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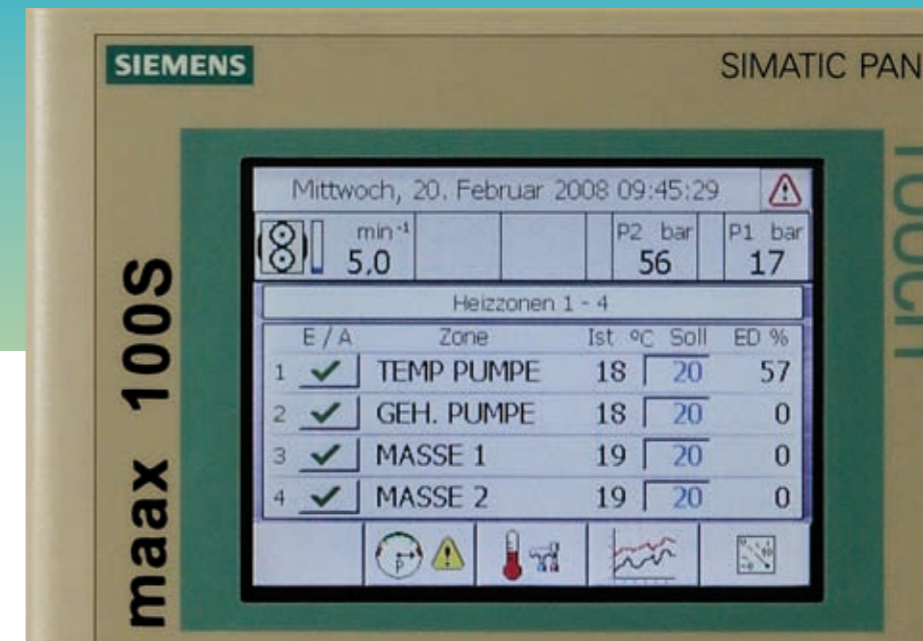
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maax® series

**Typical applications**

Extrusion plant for the manufacture of:

- Tube
- Film
- Profiles
- Sheets
- Others on request

Compounding applications**Highest levels of flexibility as a result of a wide product range**

Decades of technical experience and innumerable products in hundreds of plants around the world make Maag one of the most reliable partners in the field of applications and process-technology.

As a one-stop provider, we build made-to-measure systems and plant-specific modules - from the support base with gear pump in the extrex® or trudex® ranges via the screen changers to the adapters, sensors, granulators and other accessories.

In order to ensure that these systems are used in an optimum manner, and that expensive individual components are protected from damage, we recommend the use of an automation system from the maax® product range.

The maax® permits us to offer our customers optimised automation systems, matched precisely to their individual requirements. Together with our partner Siemens, we have developed three systems, which - in close collaboration with our specific customers - are precisely matched to the specific plant in question, and which can be extended if required. We offer you the support of a competence team specifically created for design and the guidance of our customers. These qualified technical experts can answer any question you may have, and will provide advice on an individual basis - so that we can produce the perfect control system for you. Thanks to this comprehensive support we are able to confront even the most difficult of requirements with technically perfect solutions.

The world leader for proven processing solutions.

maag pump systems