

Press force monitoring system
Force-displacement
measurement system
maXYmos BL
and **maXYmos TL**



NEW



The maXYmos BL is a modern 3.5" color touch screen monitor which guides you quickly and simply with the menu through the process information.

The newly-developed system can be used with all manual and pneumatic GECHTER presses, and is, of course, also compatible with all third-party manual toggle presses generally available on the market.

The maXYmos process monitoring system can use a profile to monitor and assess the quality of a product or a production step. To achieve this, the system interrelates all the measurands: those captured via the Y channel with force pressure sensors and those acquired via the X channel with displacement sensors.

maXYmos uses defined evaluation objects (EOs) to analyze quality-relevant sections of the measured curves that are captured by the measuring functions. To do this, the maXYmos monitoring system verifies whether the curves pass through the evaluation objects in the predefined manner. If so, maXYmos generates an "OK" result; otherwise, the result is "Not OK" (NOK).



The functions of this XY monitor range from simple, single-channel force-displacement monitoring to complex multi-channel applications for use in assembly and product testing.

Operation via the 10.4" color touch screen monitor and the front-mounted USB slot.

Additional features compared to maXYmos BL:

- 8 evaluation objects per curve
- 128 measurement programs for 128 part types
- Multiple data export formats, e.g. Q-DAS, QDA-9, IPM 5.0, XML, CSV, PDF
- Informative NOK cause diagnosis, process value trend patterns, etc.
- Process value table with free choice of contents
- Access protection with various levels of access
- Display module (DIM) with 10,4" color touch screen and front-mounted USB slot
- 16 measurement programs



Technical data of maXYmos

- 4 evaluation objects per curve
- 16 measurement programs for 16 different types of parts
- Ethernet TCP/IP for measurement data and remote maintenance
- PROFIBUS DP, EtherNet/IP, EtherCAT, PROFINET or CC-Link for process values and control*
- Dig. IO (24 V) for control and results
- 2 switching signals in real time for X- and Y-threshold*
- USB for notebook (PC program: maXYmos PC)
- Sensor for channel X: potentiometer and ± 10 V
- Sensor for channel Y: piezo or strain gage and ± 10 V
- Desktop or wall-mounting
- Information pages for NOK cause diagnosis
- Freely allocatable warning messages and alarms
- Access protection for different user groups
- 3.5" color touch screen display
- 24 VDC power supply
- Sequencer mode (optional)

* Functionality changes with maXYmos BL sequencer mode

Technical data of maXYmos TL

- Dynamic referencing of evaluation objects in X and Y directions
- Measurement curve with up to 8 000 XY value pairs
- Short evaluation time
- EtherNet TCP/IP for measurement data, remote maintenance and channel cascading
- Choice of bus types available via menu: PROFIBUS DP, EtherNet/IP, PROFINET, EtherCAT, CC-Link
- Dig-IO (24 V) for control and results
- 2 switching signals on X or Y threshold
- 2+1 USB for USB stick and notebook
- Channel X: Pot, ± 10 V, LVDT, incremental, SSI
- Channel Y: Strain gauge, ± 10 V or piezoelectric sensors
- Multiple data export formats, e.g. Q-DAS, QDA-9, IPM 5.0, XML, CSV, PDF
- Desktop, wall or front panel mounting; can be repositioned in a few easy steps
- Informative NOK cause diagnosis, process value trend patterns, etc.
- Process value table with free choice of contents
- Selected process values for the curve graph
- Warning and alarm messages, e.g., NOK in series
- Access protection with various levels of access
- Display module (DIM) with 10,4" color touch screen and front-mounted USB slot

Force sensors integrated into the ram

The following components can be, optionally or in accordance with the expressed wish of the customer, added on, as packages, to the basic machines so as to create a press of the HMS or HKP/L-DS-MS type:

- a digital display device maXYmos with adjustable displacement and force thresholds in an attachment housing with support foot
- a force sensor (measuring range corresponding to press force) integrated into the press ram
- a PFE fine tuning device (optional)
- a PC software (starter version)
- **optional** a displacement sensor for additional displacement measurement

- In the case of the HMS types, there results from the integration of the force sensor a centre-offset eccentricity, toward the front, of the holding fixture bore in the press ram in the middle of the table.
- The height of installation is lower as compared to the types belonging to the HKPV series.

See table on the right.



HMS

Centre-offset eccentricity, toward the front, of the holding fixture bore in the press ram. Dimension E

Lowering of installation height Dimension X

Maximum deviation Nominal range in %

HMS		
Type 5 HKPV max. force 14 kN	Type 8/12 HKPV max. force 20 kN	Type 8/16 HKPV max. force 32 kN
Possible strain gage force sensors		
2 kN Sensor Measurement range 0.3-2 kN	10 kN Sensor Measurement range 1-10 kN	
or	or	or
5 kN Sensor Measurement range 0.5-5 kN	20 kN Sensor* Measurement range 2-20 kN	50 kN Sensor Measurement range 5-50 kN
or		
10 kN Sensor* Measurement range 1-10 kN		
	+7 mm	0 mm
	58 mm	41 mm
		46 mm
	2,50 %	

* Standard Sensor



HKP/L-DS-MS

LP MS



Force sensor

Force sensor integrated into the ram so that during the measuring process it is resistant to laterally affecting forces

HKP/L-DS-MS/MC and LP-MS							
Type 4 kN	Type 8 kN	Type 12 kN	Type 13 kN	Type 20 kN	Type 33 kN	Type 45 kN	Type 56 kN
Possible strain gage force sensors							
2 kN Sensor Measurement range 0.3-2 kN	10 kN Sensor Measurement range 1-10 kN	20 kN Sensor Measurement range 2-20 kN	20 kN Sensor Measurement range 2-20 kN	20 kN Sensor Measurement range 2-20 kN	50 kN Sensor Measurement range 5-50 kN	50 kN Sensor Measurement range 5-50 kN	50 kN Sensor Measurement range 5-50 kN
or							
5 kN Sensor Measurement range 0.5-5 kN							
		+7 mm				0 mm	
	41 mm			46 mm		66 mm	
				2,50 %			

Centre-offset eccentricity, toward the front, of the holding fixture bore in the press ram. Dimension E

Lowering of installation height Dimension X

Maximum deviation Nominal range in %

The force and displacement measurement system for retrofitting all presses

NEW

Thanks to solution packages from **GECHTER**, quality control using force-displacement monitoring can now be integrated for manually or pneumatically operated presses.

Evaluation of the resultant force-displacement curve then provides the basis for good/bad assessment, making it is a key factor in achieving zero-defect production.



maXYmos



Measurement system BL
Basic Level



Measurement system TL
Top Level

The **Platform force sensor** is mounted onto the press table and measures the pressure forces between the contact areas of the sensor surface and the press subtool (bottom side).

Advantages

- Simple assembly and disassembly
- Dirt- and dust-resistant



Platform force sensor
0 - 20 kN or 21-60 kN

The **Clamping force sensor** measures the pressure forces between the contact areas of the sensor surface and the press subtool (bottom side).

- Measurement range 500N to 100kN
- With mechanical overload protection
- Simple assembly at the press ram
- Compact and robust
- Compatible with all generally-available manual toggle presses



Clamping
force sensors
500 N - 1000 kN

The **Displacement sensor** of the series SPI18 is very robust and the housing corresponds to the industrial standard.

- Different measurement lengths possible
- Type of Protection IP40 (IP54 optional on request)
- Machine compatible design
- Compatible with all generally-available manual toggle presses



Displacement
sensor

**Solution packages
for manual
presses**

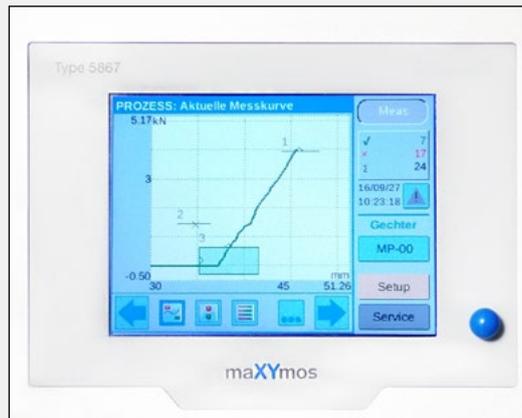
Force shut-off mechanism

There serves as a basis here our proven HKP/L-DS-MS system of presses! This system, however, has now been thoroughly modified, so that we can offer a very interesting alternative to screw presses / servo-presses / join-up modular presses. Furthermore, it also forms a good alternative in terms of value for money.

NEW



HKP/L-DS-MS



LP-MS

Positioning on the Market/Competition

Function

By the establishing of a force threshold it is signalled to the press that:

- the force threshold must be reached (the press shuts down when threshold is reached)
- or
- the force threshold must be exceeded (the press continues to build up force until the threshold is exceeded)

Reproducibility of the results

By setting the press during the set-up process, the degree of deviation is determined and stored within the monitoring system. This means that the process can always be repeated with extreme precision. (< 3% deviation, depending on stroke-speed)

This option is available for all HKP/L-DS-MS systems:

Advantages at a Glance:

- Cost-saving in comparison to join-up modular presses
- Quickly available
- Safe process
- High quality
- Takes up little space
- 100% control and supervision possible
- Several programmes can be stored
- Stroke speed adjustable
- No expensive control system necessary

The function of the Force shut-off mechanism

Together with the maXYmos force-displacement measuring system, the user can trigger the return stroke of the press once a defined force threshold has been reached. It can be defined what should happen on reaching this pre-defined force-level.

Option 1:

The pre-defined force must be reached, then the press should change to return stroke and the component is declared OK. If the force has not been reached within a pre-defined timeout, the press also changes to return stroke until the start position, but the component is declared NOK (force not reached).

Option 2:

The pre-defined force may not be reached. In this case the function of the force shut-off mechanism serves as security function. Therefore it is necessary to set a measuring-stop-criterion, e.g. the timeout or a defined displacement (e.g. tool closed). If e.g. the component is jammed in the tool and so the force is reached before the measuring-stop-criterion is reached, the press starts automatically the return stroke to avoid damage of the components or of the tool. The measurement then signals NOK (force exceeded). If the force has not been reached before reaching the measuring-stop-criterion, the press opens and the component is declared OK.

CE-certified control palette for all pneumatic and hydro-pneumatic **GECHTER** presses



SpiceFlex modular – the new generation of press control systems

Our new control system expands to meet each new task assigned to it and adjusts to fit your requirements. "Today you need a smaller range of options. The order right after this one will require additional parameter-retrieval, handling devices, or an altered work sequence!"

SpiceFlex modular offers you, thanks to its expansion modules, the possibility of doing justice to all these new requirements.

Standard Scope Press Control System

SpiceFlex Basic:

- Two-handed operation – Triggering must be activated within 0.5 sec.
- Set-up operation – after triggering, the ram descends to Bottom Dead Centre and remains there; when activated again, the ram rises to its end-position at Top Dead Centre and remains there.
- Touch display – several structural levels for setting of press, with malfunction signal displayed in clear text
- Counter function
- Adjustable stopping-time for remaining at rest position
- Retrieval of external start-release

These expansion levels can also be selected:

Spice Flex safety

- for light curtain or safety-door operation – the press is released for activation only after the retrieval of

safety-related information (e.g. "safety-door closed" etc.). This expansion also places the "automatic continuous stroke" function at your disposal. Two-handed triggering is not required. Triggering can be effected either by foot switch or by Nagara switch.

Spice Flex MS

- The control system interacts with the force-displacement measurement system (optional). In the case of a "not OK" part, production is halted. The error must be documented.

Spice Flex advanced

- The control system can be expanded to include additional inputs and outputs, so that your handling devices or sensors etc. interact with the control system and can themselves be controlled. There can also be implemented, at this expansion level, a change in the work-sequence cycle.

Spice FlexPro

- Here you have the possibility of controlling also a sliding table or a NC rotary indexing table.

The expansion levels are combinable, or extensible in modular form.

Programming occurs specifically for the desired work-sequence of the unit.

ES06

This is a simple two-hand safety control and the only operating mode that it allows is two-hand operation. This means that the press only moves downwards as long as both two-hand switches are pushed simultaneously (0.5 sec.). As soon as one of the two-hand switches is released, the press immediately moves upwards again. The control is operational immediately after connecting to the operating voltage (110 - 230 V AC) and the air supply (6 bar).



ES06 Control

Control panel with integrated control

Maintenance unit

Valve block

ZS06

The **ZS06 control** according to the current machinery directive actually valuable. Based on a safety plc, it adds the following functions to the ES control:

a) Setup operation:

If the two-hand switches are pushed simultaneously (0.5 sec), the press will move downwards. The press will stop at the bottom dead center and stay there until the two-hand switches are pushed again.

b) Two-hand operation with hold time

If the two-hand switches are pushed simultaneously (0.5 sec), the press will move downwards. The two-hand switches can be released after the bottom dead center has been reached, when a sensor for "tool closed" is assembled. The press will stay there until the adjustable hold time has elapsed, and then move upwards automatically. A sensor for "tool closed" according to EN 13736 is supplied. It has to be mounted by the customer in a way that it is activated when the tool is closed. The sensor is monitored dynamically.



ZS06 Control

c) Piece counter

Each press stroke is counted, the counter can be equipped with or without resetting facility. For usage with a closed tool, the control is also available with a footswitch instead of the twohand operation panel. Optionally, the maXYmos BL/TL measuring system can be mounted.

Presses with Light Curtain

Spice Flex safety for light curtain or safety-door operation

Gechter presses can, if the customer wishes it, be equipped with light curtains. In this case, there is applied the Gechter SpiceFlex modular control system in its "Safety" expansion level, with corresponding extensions especially for the work-process desired by the customer.

The types of operation are then, among others:

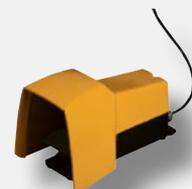
- Set-up operation
- Rotary table or sliding table operation
- Foot operation
- Continuous-stroke operation
- Automatic work-sequence
- Customer-specific work-sequence



Adjustable joint for press ram fine tuning.
Adjustable range:
16 mm



GECHTER rotary indexing table
(see description)



Electric footswitch