BRANKAMP

PROCESS MONITORING

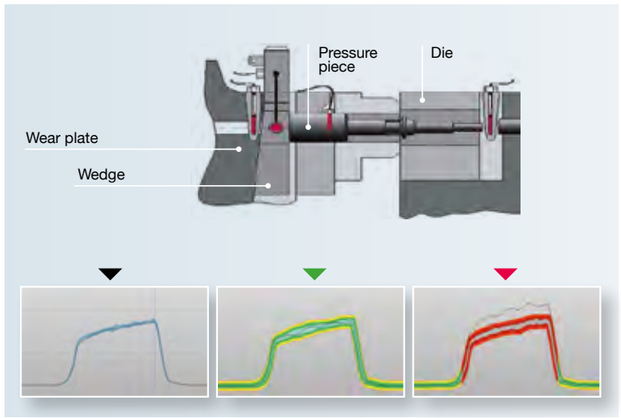
SINGLE AND DOUBLE BLOW HEADER
MULTI BLOW HEADER • ROTARY HEADER
MULTI STATION HEADER • BOLTMAKER

MARPOSS

PROCESS MONITORING

Failure detection of:

- **Tool breakage**
- **Turned parts**
- **Short parts**
- **Head cracks**
- **Cracks**



FUNCTIONALITY

The principle of process monitoring

▶ At each stroke a sensor measures the occurring process signals (e.g. forming force).

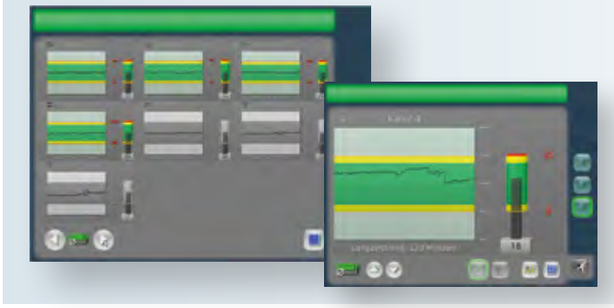
▶ The process signals are taught-in during good part production and limits (envelope curves, etc.) of faultless production are calculated automatically.

▶ If one of the monitoring limits (e.g. envelope curve) is exceeded, the part is sorted out or the machine is stopped.

SENSOR POSITION

is determined by the production task

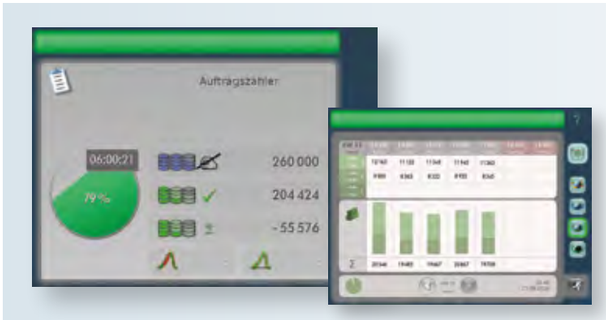
Force sensors are installed in the hard plate, machine bed or the frame of the machine. For products such as rivets, a large part of the forming force is lead to the ejector. This is why, in these instances, an additional force measurement on the ejector or machine frame is advantageous. Chippings on dies or backward extrusion punches and damages of the wire can be detected on the ejector.



TREND MONITORING

detects long-term process changes

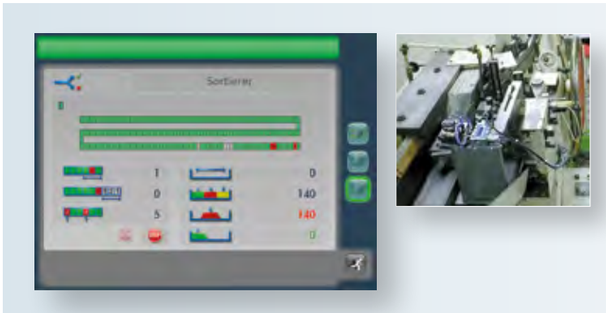
Fixed adjustable trend limits allow to detect slow process changes. The trend can be displayed stroke or time related.
If the set warning limits (yellow) are exceeded or undercut, a warning message is issued first, followed by a machine stop if the trend limits are violated. The trend monitoring is carried out in parallel as a short-term (500 strokes) or long-term trend (2 hours) to make different temporal influences visible.



COUNTER

a variety of counters provide real-time information on the current production situation

Comprehensive counting functions indicate the current counter status, e.g. of orders, run time of tools, shift performances, quality controls, container status, maintenance intervals and produced good and scrap parts, indicate remaining run times and can trigger a machine stop when the specified number of parts are reached.



SORTING

for separation of good and scrap parts

Several sorters (transfer fingers, flaps behind the press and/or roller) can be controlled to discharge individual scrap. If the inner envelope curve is exceeded, the sorting flap is quickly activated, which rejects scrap parts reliable.
An additional flap monitoring system checks the correct movement of the flap.

DOSAGE

for separation of production batches

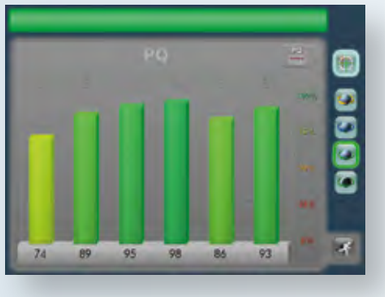
Flexible, comfortable and easy adjustment and control of various dosage systems (endless dosage, linear and rotary dosage units). Subdivision of the production into partial lots and safe separation in case of scrap production.

PROCESS MONITORING SPECIAL

STOP PROTOCOL

for precise failure analysis

Each time the machine is stopped by the process monitor, the reason for stopping is recorded in a stop protocol with date, time, duration of stoppage, tool number, reason for stopping and channel. This makes it easy to analyze which reasons for stopping occurred in the past production/shift or in the tool.



PQ-FACTOR

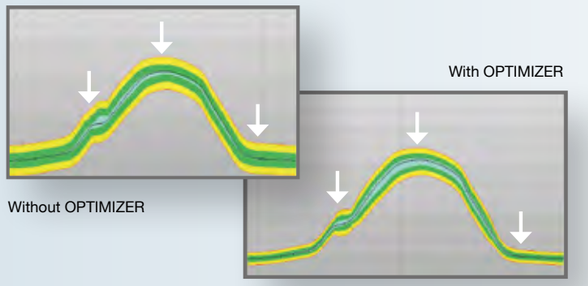
Indicator for signal stability

The **PQ**-factor mask (**PQ** = **P**rocess **Q**uality) indicates directly the signal stability of each individual sensor signal. It provides information about the quality of the process in the respective station or about the function of the sensor. For high-quality monitoring, the sensor signals of the main forming stages should have a stability value over 75%. In this case the bar graph display changes from yellow to green.

QUATTROMATIC

for the highest quality and productivity

Higher benefit through four envelope curves. The inner envelope curve identifies small defects and sorts out scrap parts. The outer envelope curve stops the machine in the event of more serious defects, e.g. transfer failures. In addition, the optimum setting for the envelope width is displayed. QUATTROMATIC on the first blow identifies failures during introduction of the cut-off and chippings of the die. QUATTROMATIC on the second blow identifies chippings on the punch and in head-forming.



OPTIMIZER PLUS

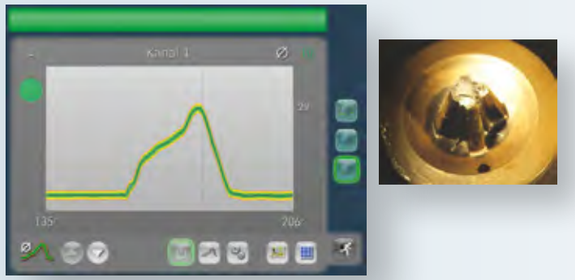
for automatic setting of the envelope sensitivity

The Optimizer Plus calculates automatically the optimal sensitivity of the envelope curve from the existing signal variation for each sensor and each point of the process curve. The operating effort is reduced and the monitoring accuracy is improved.

HD ZOOM

monitoring of fault-critical signal sections

Individual failure-critical forming operations can be monitored additionally and more detailed with the HD Zoom. With a failure specific monitoring window and adapted envelope curve range, this relevant signal sections are monitored with high resolution of the entire channel (X5/X7). Sensitive forming operations can thus be optimally monitored.



SYSTOMATIC

for detailed monitoring of systematic process faults

Monitoring method for the detection of systematic (permanent) process faults. The special monitoring method reduces random fluctuations of process signals and can therefore use tighter envelopes for precise monitoring. This makes it possible to detect tool damage in particular, such as chipping on punches or dies.

ROTATOR

detects incorrectly inserted parts

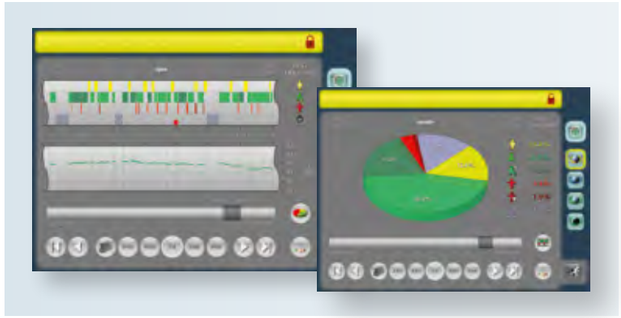
The transfer of parts in the correct position is prone to errors, especially at high stroke rates. With the Rotator special monitoring, turned or incorrectly inserted parts are reliably detected. A powerful sensor registers transfer failures so that subsequent final quality checks are not necessary.

WIRE FEED AIDE

for correct adjustment of the feed length

Wire Feed Aide offers wire stop monitoring with absolute force measurement. It displays the stop force which is actually being generated. Unnecessary overfeed and out of round transfer rolls which are out of shape can be identified accurately. Wire Feed Aide offers an optimum setting on the feeding mechanism.

RECORDING OF RUNTIMES AND PRODUCTION DATA



STOP & GO DIAGRAM

documents machine runtime behavior

The detailed documentation of runtime and productivity of the machine during adjustable time periods (up to 90 days) creates transparency about the production process. In addition to the runtime behavior, the production speed of the machine is also recorded.

C-THRU4.0

networking of all manufacturing areas

- C-THRU4.0 – the intelligent networking of all monitoring devices with the production management system
- C-THRU4.0 – online recording of current production data and interfaces to higher-level ERP/MES systems
- C-THRU4.0 – makes production processes more transparent, faster and more cost-effective

XBROWSER, XVIEWER & TUNING BOARD

Process Data Collection - Industry 4.0

XBrowser

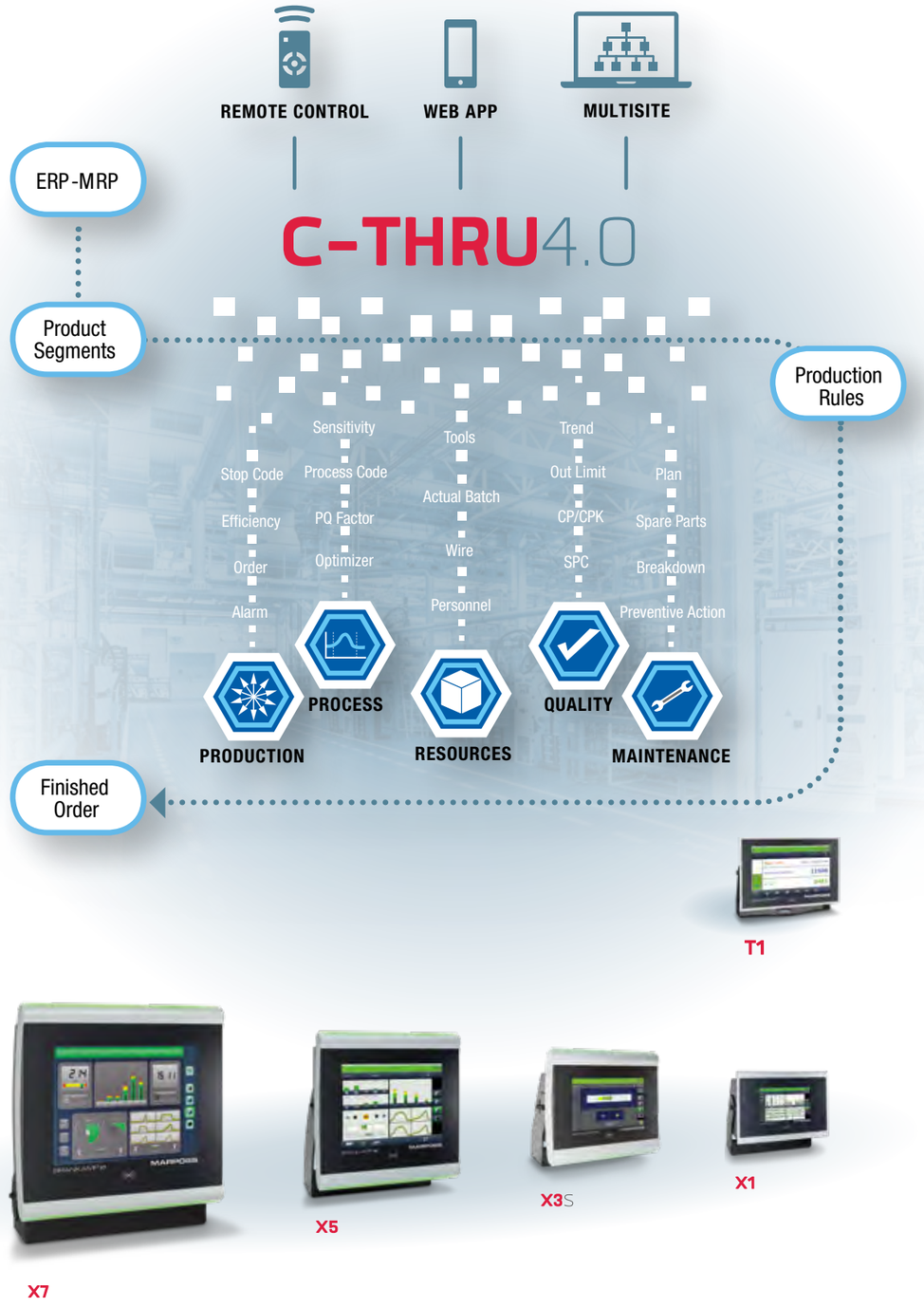
- all data at a glance
- settings of all networked devices can be controlled from the office
- tour of production is no longer necessary

XViewer

- stored data can be recalled
- conclusions possible in the event of production problems
- behavior of machine and tool can be evaluated more easily at a later stage

Tuning Board

- all relevant process and monitoring data at a glance
- identify problems during production and immediately initiate improvement measures
- detection and improvement of unstable processes



www.marposs.com

For a full list of address locations, please consult the Marposs official website

ODN6B00EN12 - *Edition 04/2023 - Specifications are subject to modifications.*

Marposs has an integrated system for Company quality, environmental and safety management, with ISO 9001, ISO 14001 and OHSAS 18001 certification. Marposs has further been qualified EAQF 94 and has obtained the Q1-Award.

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