

Predictive Statistical Process Control. Act instead of react.

Know about quality problems before they occur.
For less scrap, more process capability & stability.



Reduced quality issues, better resource allocation

Get alerts about predicted specification violations. Act instead of react.

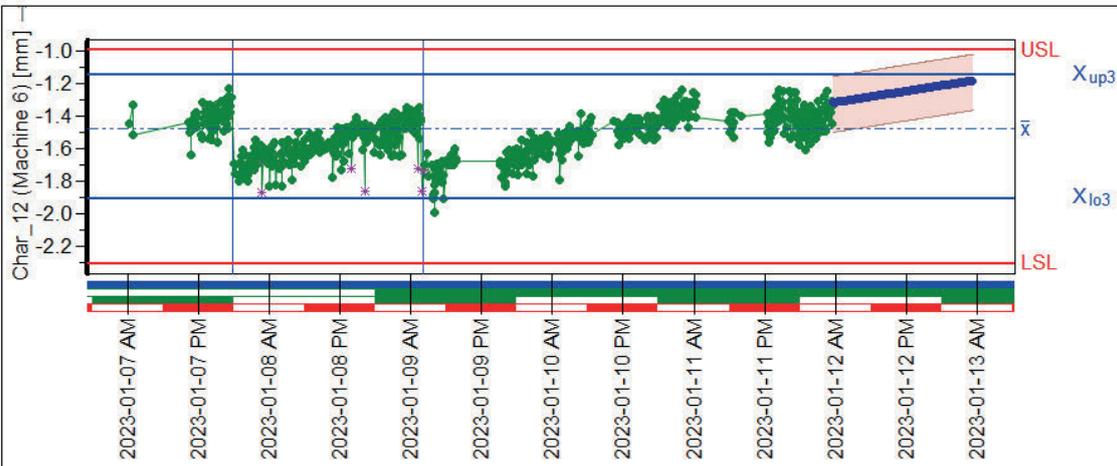
Problem: For quality engineers, SPC software tells whether a process is instable or crosses warning limits. Keeping a continuous overview of when a process is likely to exceed the tolerance limit is difficult, especially with many processes.

Solution: Get an alert if the forecasted quality values of a characteristic cross a specification limit even before the process gets problematic. See when limits will be crossed to take actions in advance.

Value: Reduced quality costs and scrap rates. Improved resource allocation for production & quality managers by allowing them to focus on processes at risk, to ensure maximum efficiency.



| HEXAGON | | Process Capability Analysis | | | | Date | 2023-03-10 | Page | 7 / 9 |
|--------------|------------------------|-----------------------------|---------------------|---------------------|--------|---------------------|------------|------|-------|
| Op.Name. | NN | Evaluation | from | 2023-01-07 06:14:05 | to | 2023-01-13 05:20:57 | | | |
| Part no. | Demo-Teilenummer | OP no. | | | | | Drw.No. | Demo | |
| Part descr. | Demo-Maschine TSAF_New | Mach.Descr. | | | | | | | |
| Char.No. | 12 | Char.Descr. | Char_12 (Machine 6) | | | | | | |
| Char.Class | significant | Calc.Tol. | 1.300 | USL | -1.000 | Subgr.size | 5 | | |
| Nom.val. | -1.500 | Unit | mm | LSL | -2.300 | Subgr.type | fixed | | |
| Char. Remark | | | | | | | | | |



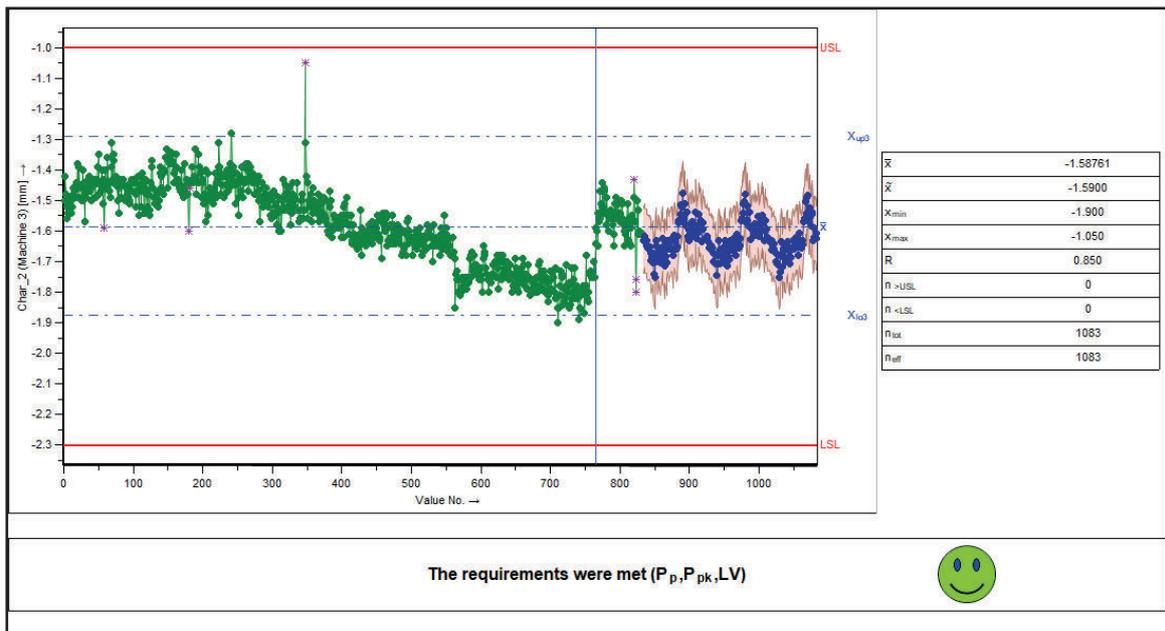
Predicted process capabilities, ensured reporting goals

Get evaluations of the process capabilities of tomorrow to ensure the reporting goals already today.

Problem: Quality managers want to ensure capable processes and report reliable metrics, but process capabilities are impossible to predict with current SPC and react with a certain latency to quality value trend changes. To know if and when a process will become incapable is very difficult.

Solution: Predict cp/cpk values automatically based on forecasted quality values to know if processes remain capable or turn incapable.

Value: Ensure that reporting targets are met by knowing future process capabilities beforehand and acting if required. Improved process control.



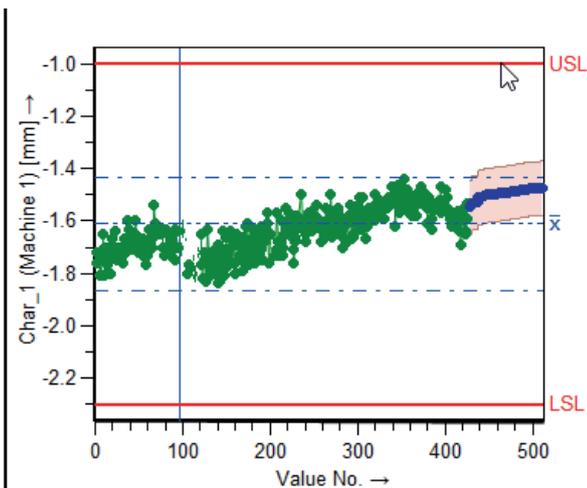
Example: Tool wear forecasting

Apply tool compensations or tool changes based on forecasted quality to prevent quality/ scrap costs.

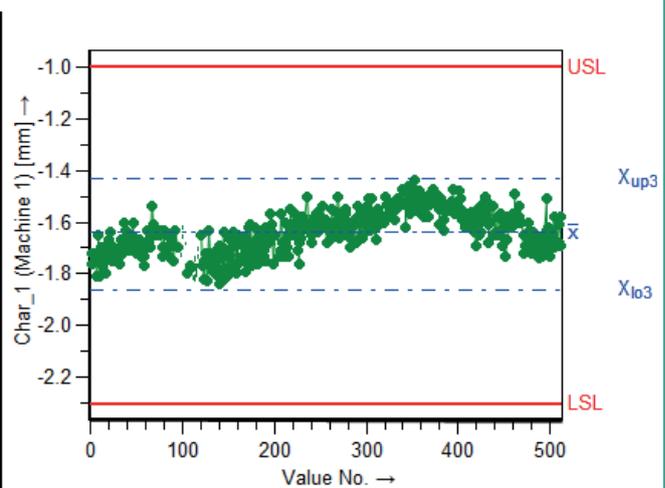
Problem: Machine has a natural tool wear and produces lower quality or scrap if tool compensations or changes are not done timely by the operator.

Solution: TSAF in qs-STAT provides a forecast when tool wear-induced trend changes of quality values lead to a violation of specification limits.

Value: Fewer quality problems and scrap due to unnoticed tool wear. Tool corrections are carried out in time. Tools are changed in a cost-efficient and timely manner.



Forecast of toolware



Toolcorrection has been applied

Detect process trend changes in time, uncover and eliminate hidden root causes

Automatically display trend changes and receive notifications to improve towards more capable processes.

Problem: Trend changes of processes remain often unnoticed before the process turns instable or not capable.

Solution: Automated changepoint detection via qs-STAT or M-QIS to interact in time to ensure process capability. Perform root cause analysis with qs-STAT to eliminate problems sustainably.

Value: Fewer unexpected quality problems and scrap. Ensured process capability. More process understanding for sustainable improvements.





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Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Manufacturing Intelligence division provides solutions that use data from design and engineering, production and metrology to make manufacturing smarter.

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