

# CONFIGURATION MMP

## CONSIDERATION OF THE MMP BONUS IN CMM REPORTING AND QS STAT

87298374 0987298374982739  
8470 2 **Q-DBM** 7 1545 82138 12  
7198723987 987239 98729872  
**PROCELLA** 234 154 13 544 565  
9872 2719827 7 27198723987  
45 8912 687723 **VIDARA** 27198  
21245 666 1214432 329 **O-QIS**  
928 234 345 344 4718723987  
0187309 445 455 4877298374  
**M-QIS DASHBOARD** 772728498  
81 4981 **DESTRA** 918 2589 23  
59 **QS-STAT** 49814981 45598  
**M-QIS ENGINE** 49983 259 1547  
7487 29837409872 98374982  
73984702 **SOLARA.MP** 987349  
9283 120 38 485 0 2 38 49081



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YOUR  
STATISTICS



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# 1 PREFACE

As a prerequisite for using this available option, the user must be familiar with the basic use of the bonus for a maximum material condition.

The options offered in the software access the written bonus data, that was generated by measuring systems and measuring software packages. The measurement data is basically 100% data acquisition, as there is no statistical evaluation to carry out process capabilities on the basis of MMC characteristics, of which only random samples are recorded.

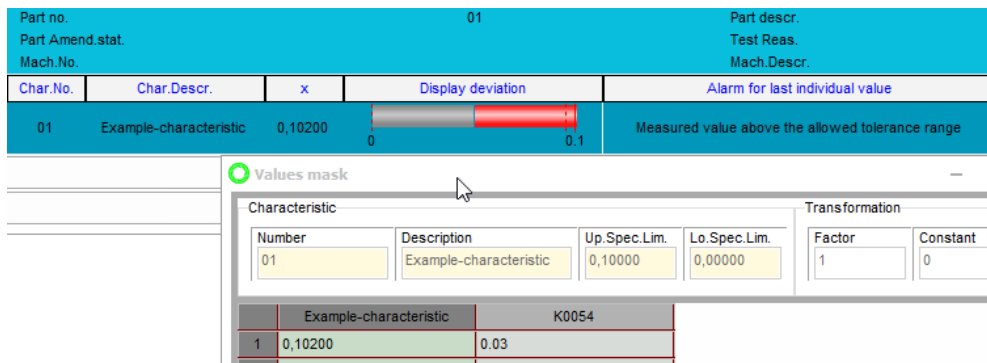
The option offered by the Q-DAS software must be checked by the user for its suitability in the current environment. Q-DAS GmbH does not guarantee the correctness of the bonus information in the data sets.

## 2 BASIC IDEA

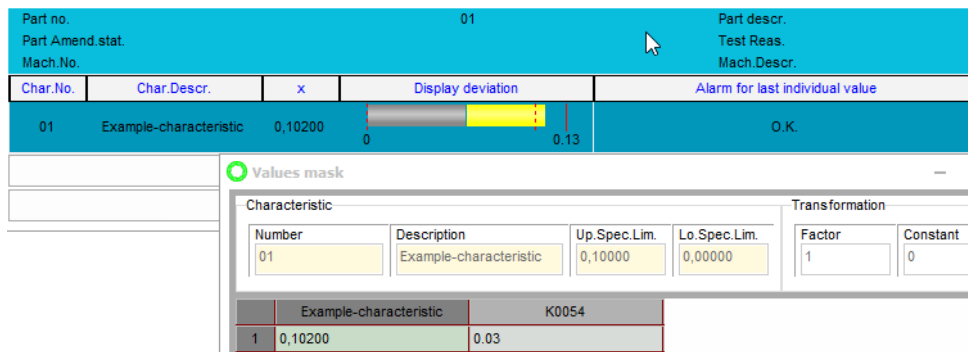
The basic idea here is to leave the specification limits of the actual features of the drawing unchanged. The calculated bonus, which is valid for a single measurement result, is transferred in an additional alphanumeric data field (e.g., K0054) separately and without any dependencies on other characteristics.

### 2.1 Mode in CMM-Reporting

The settings for the CMM reporting (O-QIS) module are explained using a simple example based on a shape and positional tolerance. The actual measured value is outside the specified specification limit. In this case, the bonus is stored in the additional data field K0054



The actual measured value is outside the specification limit (red in the picture above). When the bonus calculation is activated within the application, the display in the parts-protocol and the alarm for this measured value are adjusted based on the bonus information. Here the bonus is then added to the tolerance.



By expanding the tolerance by the bonus, the tolerance changes to 0.13 (0.1 + bonus in K0054). If the measured value is now below the newly determined tolerance (only valid for this individual measured value), it is now displayed in yellow.

In the case of positional tolerances, the calculation is identical to the variable characteristics.

View and alarming of the measurement without bonus offset with a 2D positional tolerance

Parts protocol (1)

Part no. 1			Part descr.		
Part Amend.stat.			Test Reas.		
Mach.No.			Mach.Descr.		
Char.No.	Char.Descr.	x	Display deviation		Alarm for last individual value
1	Position 1 (MMC)	0,252			Measured value above the allowed tolerance range
1.x	1.x-Position	-0,095			Measured value below warning limit
1.y	1.y-Position	-0,083			O.K.

Values mask

Characteristic						Transformation					
Number	Description	Up.Spec.Lim.	Lo.Spec.Lim.	Factor	Constant						
1	Position 1 (MMC)	0,220	0,000	1	0						

	Position 1	K0054	1.x-Position	K0054	1.y-Position	K0054	Position 1 (MMC)	K0054	1.x-Position	K0054	1.y-Position	K0054
1	0,073		-0,035		-0,010		0,252		-0,095		-0,083	
2												

View and alarming of the measurement with bonus offset with a 2D positional tolerance

Part no. 1			Part descr.		
Part Amend.stat.			Test Reas.		
Mach.No.			Mach.Descr.		
Char.No.	Char.Descr.	x	Display deviation		Alarm for last individual value
1	Position 1 (MMC)	0,252			O.K.
1.x	1.x-Position	-0,095			Measured value below warning limit
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Values mask

Characteristic						Transformation					
Number	Description	Up.Spec.Lim.	Lo.Spec.Lim.	Factor	Constant						
1	Position 1 (MMC)	0,220	0,000	1	0						

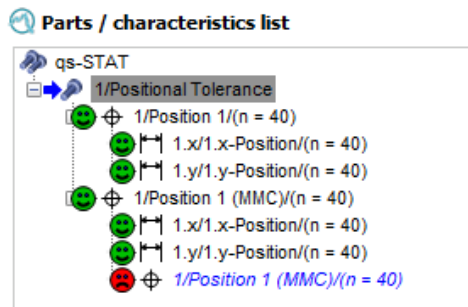
	Position 1	K0054	1.x-Position	K0054	1.y-Position	K0054	Position 1 (MMC)	K0054	1.x-Position	K0054	1.y-Position	K0054
1	0,073		-0,035		-0,010		0,252	0.2	-0,095		-0,083	
2												

When assessing the coordinates and the tolerance ellipse, the bonus (as of April 2021) is always halved. (regardless of the settings in the evaluation strategy used)

## 2.2 Mode in qs-STAT for a long-term-view

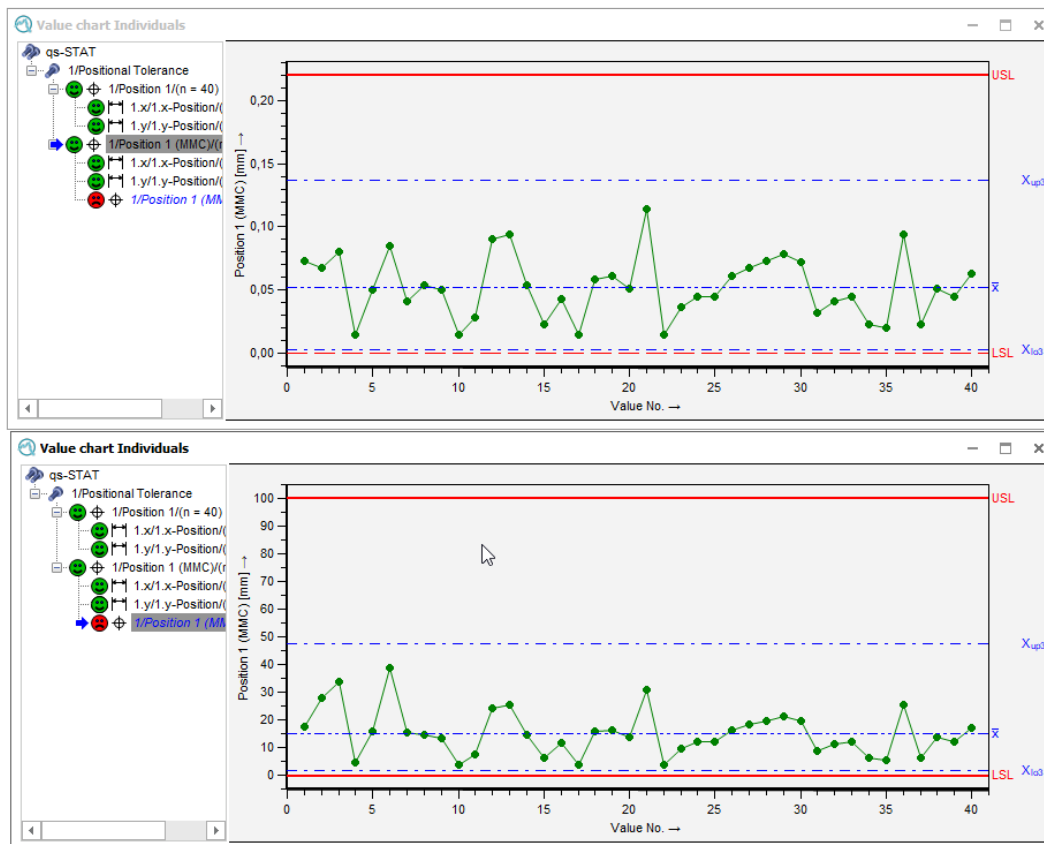
The consideration of the characteristics in qs-STAT for long-term consideration requires that a virtual characteristic is generated in addition to the actual recorded characteristic. This additional characteristic must contain standardized specification limits

For each feature that is defined as an MMP feature, a virtual, subordinate feature is generated. In this example, only the feature "Position 1 (MMC)" is defined as such:



In comparison, the difference with regard to the approach can be seen as follows:

The virtual features have specification limits from 0 to 100, the measured values including their bonus are then displayed as tolerance utilization



### 3 DATA STRUCTURE

The following data structure is required in order to be able to use the bonus settlement:

A corresponding feature (shape or positional tolerance) must be marked in the K field K2020 with one of the following entries:

- Maximum material condition (MMC)
- Least material condition (LMC)
- Regardless of feature size (RFS)

	K2020
Maximum-Material-Bedingung (MMC)	4
Minimum-Material-Bedingung (LMC)	5
Unabhängig von der Merkmalsgröße (RFS)	6

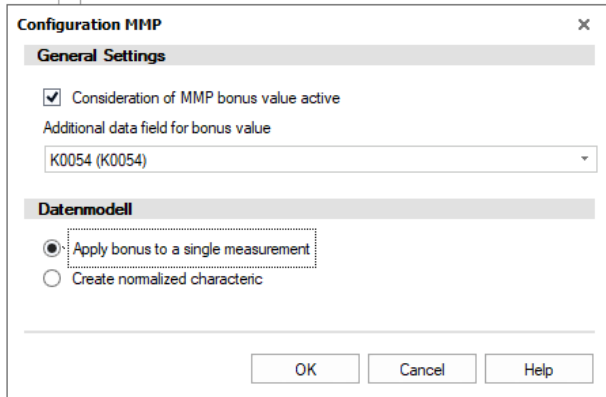
The bonus must be written as a floating-point number in an alphanumeric K field. E.g., in K0054. The bonus must always be written, even if it is "0". An empty field is not permitted.

It must be ensured that the same additional data field is always used.

# 4 ACTIVATION

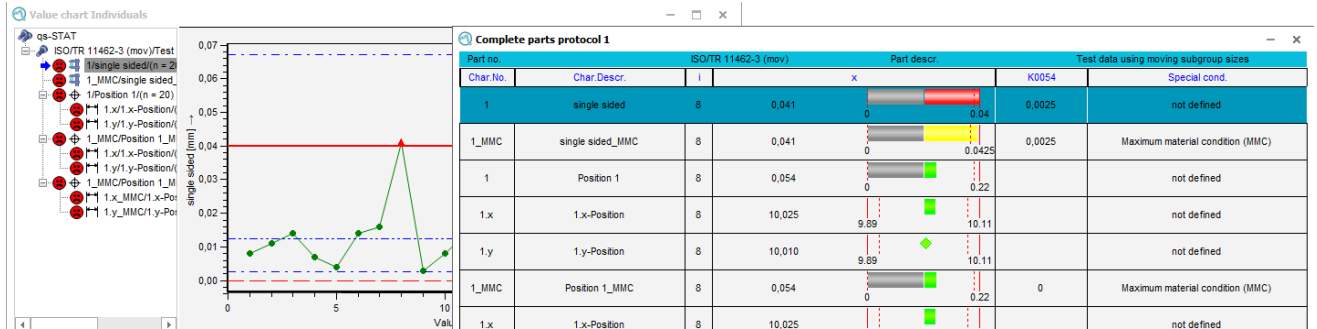
The option to offset the bonus in MMC features is available via *File | Configuration | additional settings | MMP configuration* activated

## 4.1 Mode in the CMM-Reporting



In CMM reporting (O-QIS), the conversion and visualization for the user takes place directly in the parts protocol and during the alarm, in that the tolerance of this measured value is automatically converted including the bonus.

Here, for example, with measured value number 8, 2 identical characteristics, the first defined as a normal characteristic, the second as an MMP characteristic. The second characteristic shows the conversion of the specification limit of this characteristic by the bonus that was written in K0054





## 4.2 Mode in qs-STAT for a long-term-view

**Configuration MMP** ✕

**General Settings**

Consideration of MMP bonus value active

Additional data field for bonus value

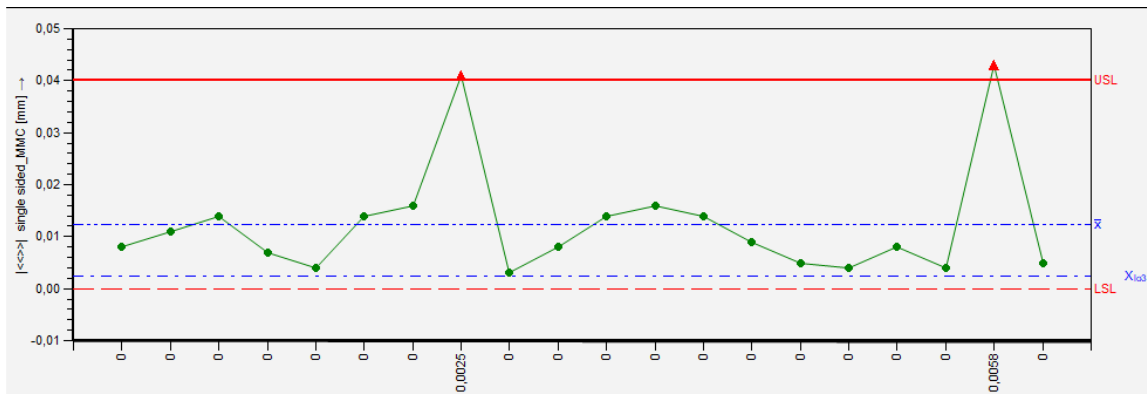
**Datenmodell**

Apply bonus to a single measurement

Create normalized characteristic

In the mode for long-term observation, a virtual standardized characteristic is created for each MMP characteristic (characteristics, with the K field K2020 content 4, 5 or 6) when the data record is opened. The lower and upper specification limits are set to 0 to 100% in order to represent the theoretical tolerance utilization

The following example shows the original feature with the bonus information in the corresponding additional data field (Y-axis)



Here the standardized feature is shown with the theoretical tolerance utilization (Y-axis).

