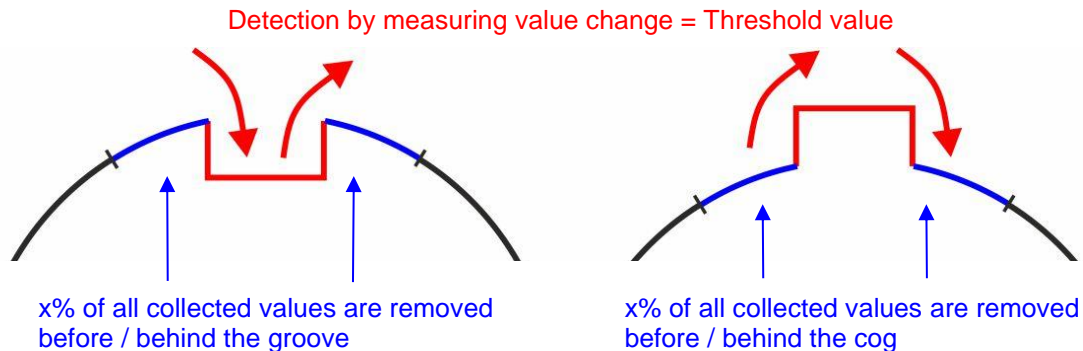


1. Introduction

By the ComGage special measurement mode *Dynamic measurement with groove removing (Type II)*, a dynamic measurement can be performed. For computing the measurement result, the measurement values e.g. inside a groove, on a cog, ... are not used. The detection is done by a programmable measurement value difference (hysteresis). It is possible to remove several grooves, cogs,



Important notes :

- In the following, only grooves are mentioned to shorten the text. But cogs, ... are always meant, too.
- The software license 72 (ComGage Special Modules) is required to use this special measurement mode.
- The usage of characteristics for diagnosis has a negative impact on the measurement rate.

Differences to the wgl006 (Dynamic measurement with groove removing (Type I))

During a *Dynamic measurement with groove removing (Type I)*, every measuring value is directly used to calculate the measuring result. The software evaluates if the value lies in a groove, if it is a value which is discarded or if the value is used to determine Min, Max, Because each value is directly evaluated, the measurement mode could run for an infinite time, independent from the number of turns.

The *Dynamic measurement with groove removing (Type II)* saves all measuring values in a table during the dynamic measurement. After the dynamic measurement has been ended, the saved values are used for the calculations.

The advantage is that additional calculations, e.g. a Gaussian filter, can be used. But the disadvantage is, that this measurement mode can run only for a limited time, until the table is completely filled.

If possible, the measurement should run for one turn only and with constant rotation speed.

2. Configuration

For this special measurement mode, the formula for the measuring input has to be entered in the drawing data of a characteristic. The special measurement mode has to be selected as measurement mode :

MEA. VALUE COLLECTION	
Measurement inputs	M1 Setup
Measurement mode	Dyn. mea. with groove removing (Type II) Setup

By clicking the Setup button, the following configuration dialogue can be opened.



- **Measuring mode**

Selects the measuring mode (measurement result). The following options for *Measuring mode* are available :

- **Min**
Minimum of all collected measurement values without values inside the grooves.
- **Max**
Maximum of all collected measurement values without values on the cogs.
- **TIR (Max – Min)**
TIR of all collected measurement values without values inside the grooves / on the cogs.
- **MEAN ((Max + Min) / 2)**
Area means of all collected mea. values without values inside the grooves / on the cogs.
- **MEAN ((X1 + ... + Xn) / n)**
Arithmetic mean of all collected mea. values without values inside the grooves / on the cogs.

- **Removing of the grooves on the following mea. mode**

Defines the measurement type to determine the grooves / cogs. This allows not only to detect pits, but also rises :

Min – Each groove is detected as local minimum.

Max – Each cog is detected as local maximum.

- **Threshold value for detecting grooves**

Threshold value for the groove detection (see *Measuring mode*).

- **Removed values behind the groove in percent**

The number of values (in percent) can be selected, which shall be removed behind a detected groove. The percentage refers to the number of all collected measuring values.



- **Removed values before the groove in percent**

The number of values (in percent) can be selected, which shall be removed before a detected groove. The percentage refers to the number of all collected measuring values.

- **Apply gaussian filter to measuring values**

If this option is active, a gaussian filter (centre point correction) is applied to all collected measuring values, which are not inside of a groove.

The gaussian filter is applied under the assumption that the measuring values were collected over 360°.

- **Characteristic to save all values**

To check the measuring result, a characteristic can be selected to output all collected measuring values. This characteristic can be displayed graphically in a run chart or a polar diagram.

- **Characteristic to save all values with marking of removed values**

To check the measuring result, a characteristic can be selected to output the groove marking which is applied to all collected measuring values.

Note :

If the *Characteristic to save all values* and the *Characteristic to save all values with marking of removed values* are displayed in 2 run charts below each other, it becomes apparent where exactly the grooves are detected, i.e. which measuring values are removed.

- **Characteristic to save filtered values**

To check the measuring result, a characteristic can be selected to output the filtered measuring values which were used to calculate the measuring result.

- **Set Registers for Polar Diagram Output**

If this option is active, several parameters for controlling the output of a polar diagram are written into the registers R500, R501, R502.

R500 : 0 = Dyn. measurement is stopped. / 1 = Dyn. measurement is currently active.

R501 : Value number at the beginning of groove 1

R502 : Value number at the beginning of groove 3

If the part has 2 grooves and is turned more than once, the result of this option is, that the registers R501 and R502 contain the value numbers in the table at 0° / 360°.

The surplus values can then be deleted by the test step function SFct033.

- **Register for measuring mode status**

A register (R1..R2000) can be configured to output the current measuring mode status. The register can have the following values :

(0) = no error

(1) = no groove found !

(2) = The measuring result cannot be calculated, because less than 10 measuring values were detected outside of a groove.

3. Usage of the special measurement mode

This special measurement mode is controlled via the test step functions “Dynamic measurement on”, “Dynamic measurement off” and “Dynamic measurement on/off”. The dynamic measurement has to be started and stopped in the same test step.

After the dynamic measurement is started, the special measurement mode collects measuring values. These measuring values are evaluated after the dynamic measurement is finished. The measuring result is a single measuring value.