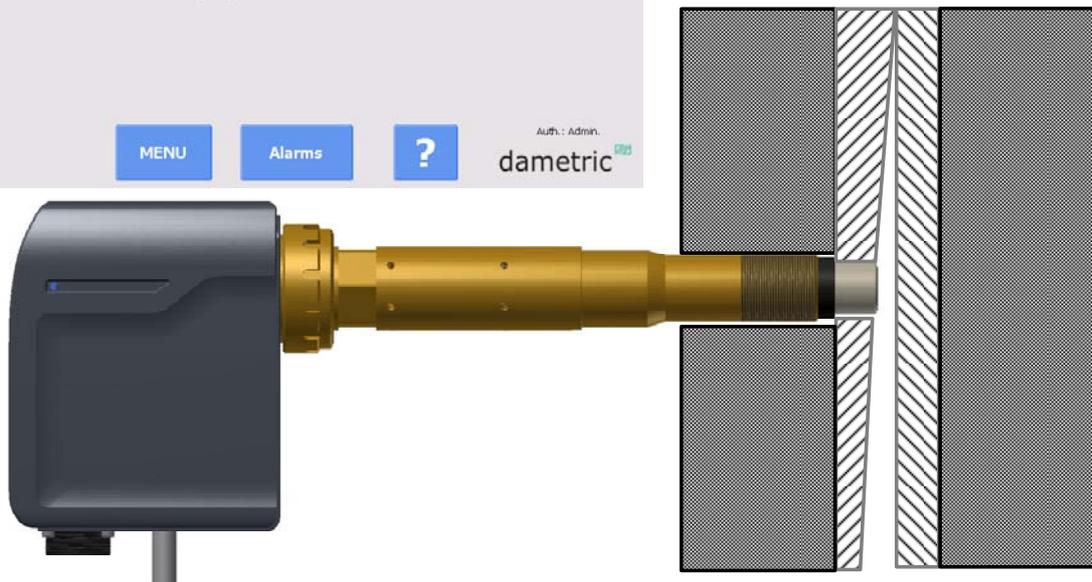




GMS - AGS



Handling of AGS-sensors and large segment-taper



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1. General

When a considerable segment taper is used and the AGS sensor (or a TDC sensor) is placed away from the periphery, the RMS/GMS system is indicating a larger gap than the actual gap in the periphery.

The higher taper value the higher gap is indicated. The true taper values is decreased if the rotor or stator (or both) bends backwards during axial loads.

A way to manually and initially handle this is to include a taper compensation offset. This offset decreases the indicated gap value which then instead reflects the gap at the periphery, and not at the AGS tip position.

The offset is static and does not change due to actual refiner axial load.

When the segment and taper wears, it is probably desired to slightly decrease the offset.

The taper compensation offset has to be tested out for each refiner type and type of segment used.

This is a trial and will give us information on how the refiner operates in production.

A higher offset value gives higher safety because it decreases the reading. A too large offset will decrease the operating window due to the refiner control logic.

A software upgrade is necessary and the feature is implemented in November 2014. Panel-PC with 2.6.5439 and a DCM-DM1 unit with 1.90 revision or later is needed.

2. GAP – TDC – APO and taper offset parameter

A GMS/RMS measure system indicates both the GAP (plate gap) and the TDC value. This values has up to now always been identical except during AGS tip calibration. A tip calibration moves the tip forward which means that the TDC value drops. The moved distance (APO-value) increases so the GAP-value (TDC+APO) is maintained.

A parameter to compensate for the segment-taper is introduced. This value decreases the GAP-value relative the TDC value. This offset is used at all times, even during APS tip calibration. If two nodes are used, each node can have its own set value.

3. Panel-PC main view

This example shows a Twin-60 refiner. The compensation values are shown in two fields just above the gaps. The Disc GAP is decreased with the set parameter. The TDC is in this case 1.30 mm (0.80 + 0.50) but it is not shown. The current signal from the GMS system to the DCS reflects the GAP (0.80 mm).



4. Handling

Remember that the taper offset is manual so the wear of the segment should call for a small decrease of the parameter value.

This should then be done in small steps according to production time used and has to be tried out for each installation.

The taper can be measured manually when the refiner is standing still and the rotor and stator is moved together at a certain force. This is achieved by moving the tip at a low torque towards the rotor until it touches. The moved distance will indicate the taper offset. Repeat this with maximum and a very small axial load to check for flexing rotor or stator. Also take into consideration if the rotor flexes backward when rotating.

The taper offset has to be reset when new plates are installed.

This means a lot of hands on to be able to run this, but when identified, it can be automated.

5. AGS tip calibration

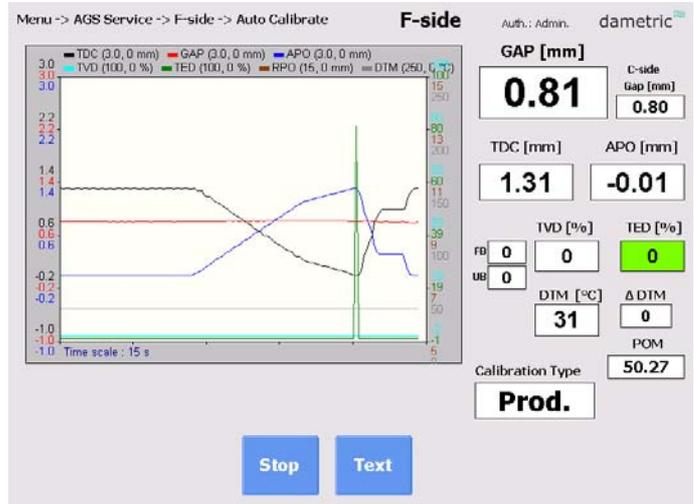
During calibration

The graph shows the GAP and the TDC values. The GAP is compensated for 0.50 mm taper offset.

Plate GAP (red) indicates 0.81 mm while the TDC (black) decreases from 1.31 mm down to 0.00 mm where the touch-point is reached. The peak of the TED-signal (green) generates the touch in this example.

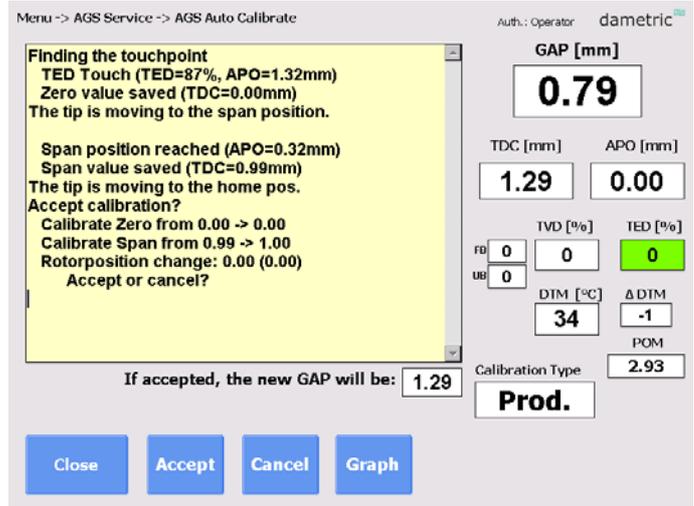
The APO-signal (blue) increases from 0.00 to about 1.30 mm at the touch-point.

The GAP-value is during calibration the sum of the TDC and the APO-signals minus the taper offset value.



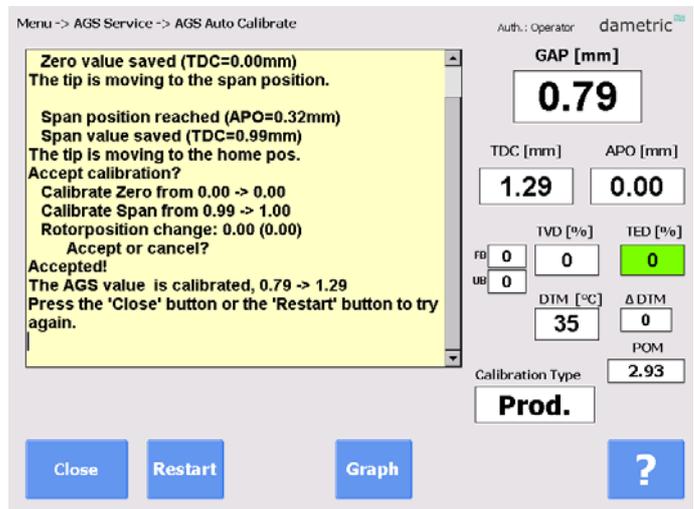
Accept calibration.

The TDC-value is indicated as the new GAP-value. This is misleading and will be corrected if the taper offset feature is accepted. In this case we have to deduct 0.50 mm to see the new GAP-value.



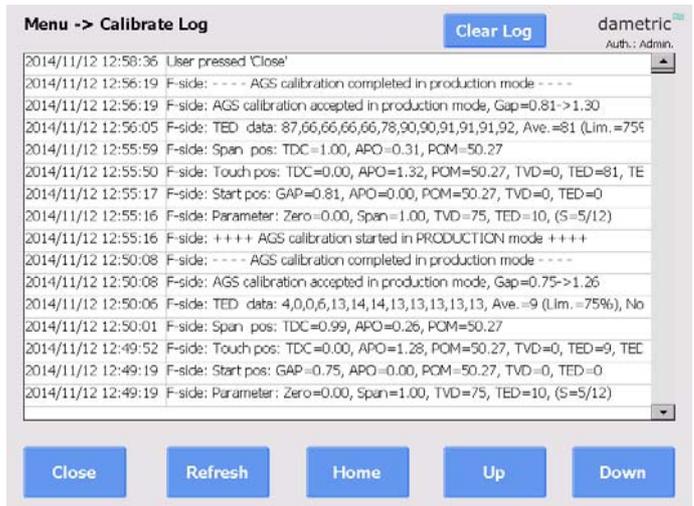
Calibration accepted.

We read "The AGS-value is calibrated, 0.79 - > 1.29". It should be 0.79 -> 0.79 (1.29 - 0.50).



Calibration log

The log also shows "GAP= 0.81 -> 1.30" where it should be "GAP= 0.81 -> 0.81".



6. Parameter

The taper offset parameter is reached from the DCA-function: **Menu -> Service -> DCA -> Parameters**. Log in with the service-code. Allowed range is -1.00 to +2.00 mm but the negative range is not recommended to use.

Värde på segment taper från periferi till radie för måtspets. Parametern är normalt positiv och detta värde minskar visat värde för malspalt (GAP). (-1.00mm-2.00mm)

dametric
Auth.: Admin.

Parameter	Node	Value
DCA - Max-gräns för registrering av produktionst	C-side	2.00
DCA - Segment-taper	C-side	0.50
TDC - Analog utgång offset	C-side	0.00
TDC - Analog utgång område	C-side	3.00
TDC - Filter	C-side	2.0
TDC - Gränsvärde -	C side	0.50
TDC - Gränsvärde - -	C side	0.30
TDC - Gränsvärde - L	C side	0.40
TDC - Gränsvärde +	C side	1.10
TDC - Gränsvärde ++	C side	1.20
TDC - Grovkalibrering förregling	C side	0.00
TDC - Raffinörvarvtal	C side	1500

Close C-side F-side Edit

7. Contact

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