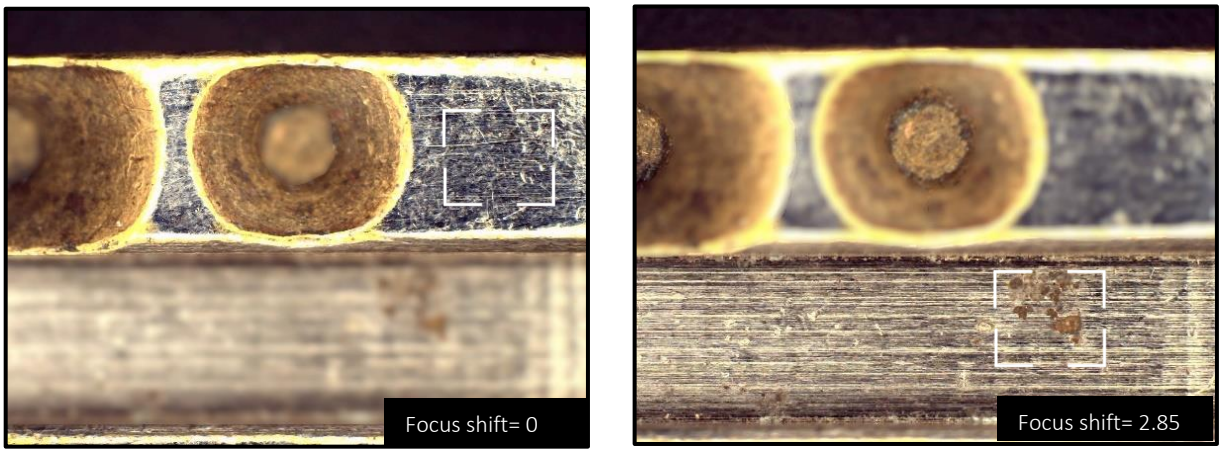
Depth Acquisition (DPQ) with Edge^{PLUS} AM4917 and Edge 3.0 AM73915 Series

Ver. 2

Introduction

With the Edge^{PLUS} AM4917 and Edge 3.0 AM73915 series, Dino-Lite has taken its Depth Acquisition (DPQ) capability and accuracy to the next level. In contrast to previous models that obtained depths from EDOF stacked images, the AM4917 and AM73915 series' delicate focus adjustment acquires more accurate depths from the minute increments of change in focus.



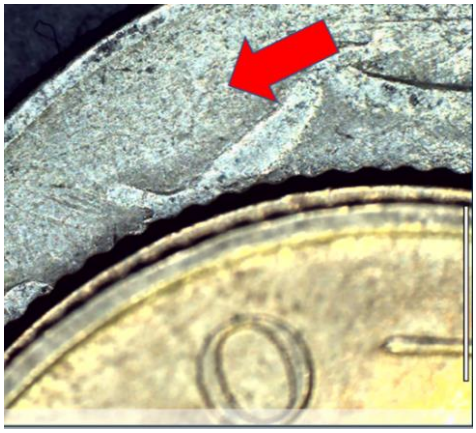
Acquire depths of grooves, holes, and other types of topographical variations with Edge^{PLUS} AM4917 series.

Requirements

The DPQ functionality applies to Dino-Lite Edge^{PLUS} AM4917MZT, AM4917MZTL, and Edge 3.0 AM73915MZT(R10) and AM73915MZTL(R10A). Also, please make sure to have DinoCapture 2.0 ver. 1.5.39 or later version installed. If you need to update DinoCapture 2.0, click here and download the latest version.

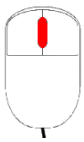
How to Acquire Depths

1. **Adjust the focus to a plane of interest.** This position will be considered the reference plane as 0.



2. To acquire depths, readjust the focus by:

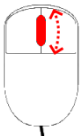
Middle-clicking on a point of interest to autofocus, if necessary, scroll the mouse wheel to readjust the focus.

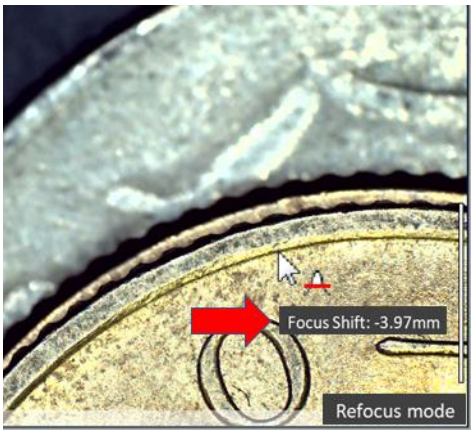


Or.

Press the "Ctrl" key and scroll the mouse wheel to change focus manually.

"Ctrl" +





This cursor [ ] indicates that refocus mode is active and that the focus can be readjusted. A positive focus shift refers to a plane below the reference plane.

3. To exit Refocus mode, **left-click anywhere on the preview window or press the "ESC" key.**



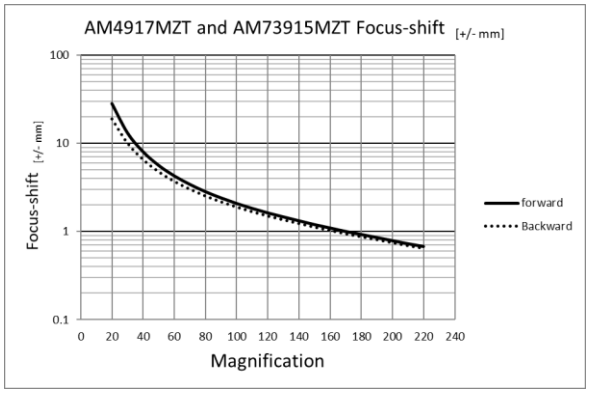


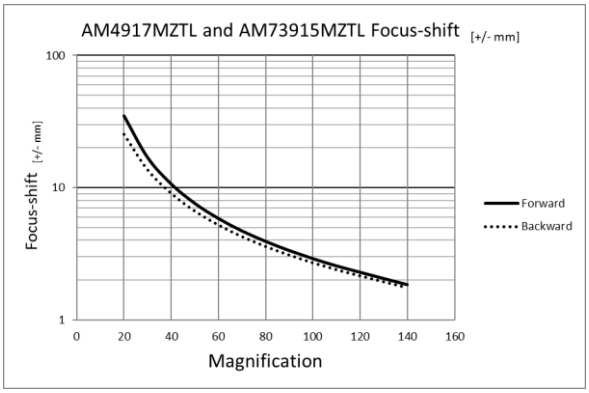
DPQs Maximum Depth Range and Accuracy

When performing DPQ, its maximum depth range and tolerance are determined by the magnification being used. This section shows the variations in maximum depths and tolerance at different magnifications in AM4917 and AM73915 models.

Maximum Depth Range

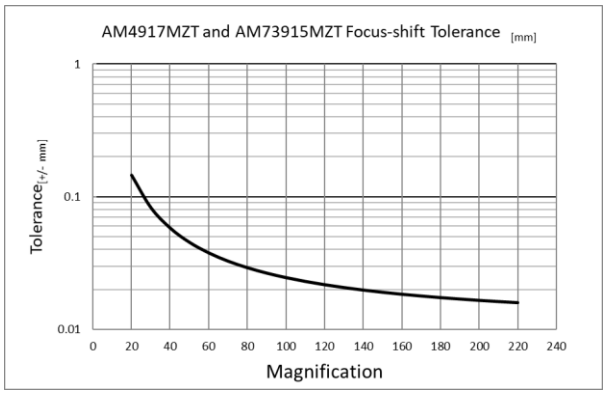
The maximum measurable depths that the device can perform is referred to as maximum depth range. Usually, the higher the magnification, the lower the maximum depth range, and vice versa. The maximum depth range may also vary with depth acquisition direction (upward or downward).





Tolerance

The tolerance is the allowable variance in DPQs. The higher the magnification, the lower the tolerance, and vice versa.



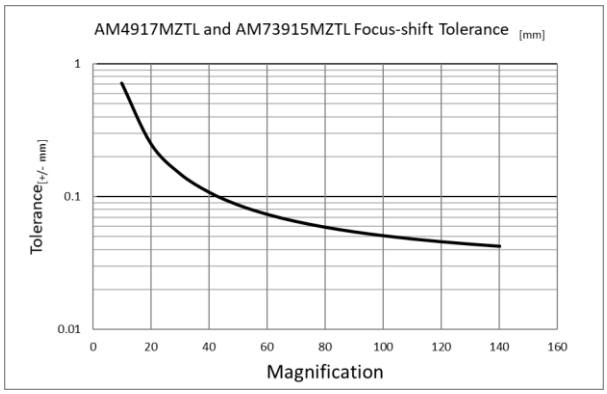


Table with Focus Shift Parameters of AM4917MZT, AM4917MZTL, AM73915MZT(R10), and AM73915MZTL(R10A)

Below is a table providing all the relevant parameters when acquiring depths with AM4917MZT, AM4917MZTL, AM73915MZT(R10) and AM73915MZTL(R10A) microscope models.

AM4917MZT and AM73915MZT(R10)			
Magnification	Max. Depth Range (+/- mm) (Down)	Max. Depth Range (+/- mm) (Up)	Tolerance (+/- mm)
20	28.14	19.00	0.146
30	13.06	10.10	0.083
40	7.99	6.58	0.058
50	5.60	4.79	0.045
60	4.25	3.73	0.038
70	3.41	3.04	0.033
80	2.81	2.55	0.029
90	2.39	2.19	0.027
100	2.07	1.91	0.025
110	1.82	1.69	0.023
120	1.62	1.51	0.022
130	1.46	1.37	0.020
140	1.32	1.24	0.02
150	1.19	1.13	0.019
160	1.09	1.04	0.019
170	1.00	0.95	0.018
180	0.92	0.88	0.017
190	0.85	0.82	0.017
200	0.78	0.75	0.017
210	0.72	0.70	0.016
220	0.67	0.65	0.016

AM4917MZTL and AM73915MZTL(R10A)			
Magnification	Max. Depth Range (+/- mm) (Down)	Max. Depth Range (+/- mm) (Up)	Tolerance (+/- mm)
20	34.94	25.25	0.251
30	16.89	13.62	0.149
40	10.65	9.04	0.108
50	7.59	6.65	0.087
60	5.83	5.22	0.074
70	4.69	4.26	0.065
80	3.91	3.59	0.059
90	3.34	3.09	0.054
100	2.90	2.70	0.051
110	2.55	2.40	0.048
120	2.28	2.16	0.046
130	2.05	1.94	0.044
140	1.84	1.75	0.042