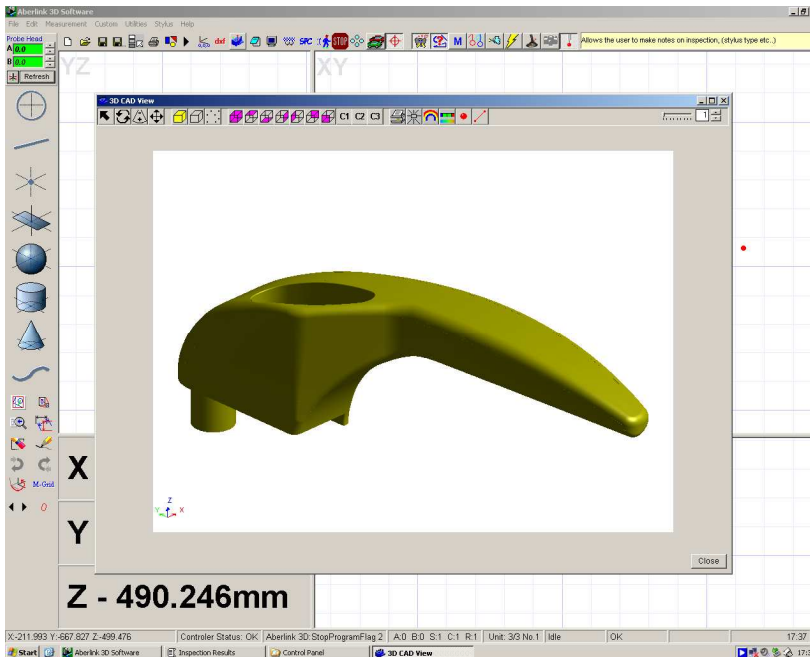


Aberlink 3D CAD Comparison

ABERLINK 
Innovative Metrology

...sometimes measuring to CAD is the only solution.

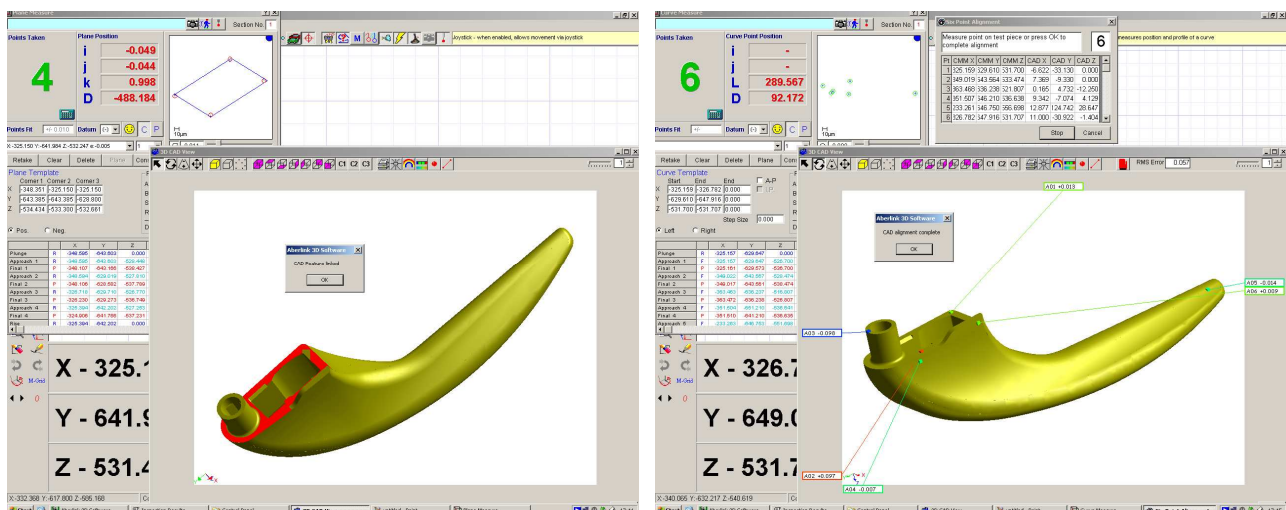
Aberlink 3D geometric measurement software has become the industry standard, easy-to-use software when geometric features need to be measured against a drawing. However, sometimes components also contain complex surfaces, or maybe conventional drawings for a component simply don't exist. In this situation the only way to inspect a part maybe against its CAD model.



Aberlink's CAD comparison module allows users of the Aberlink 3D software to import a solid model from CAD in either a STEP or an IGES format, and then take measurements using the CAD model as master data. This can be done on either a manual CMM or in full CNC mode.

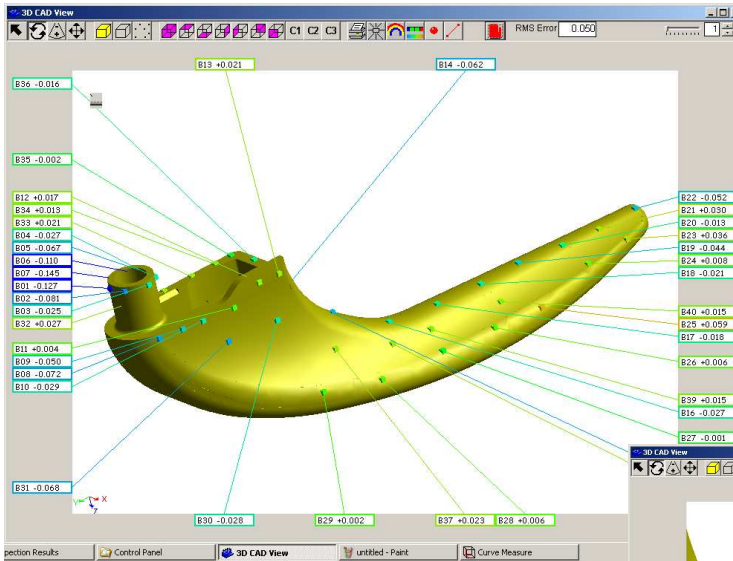
The solid model appears in an additional floating window on top of the main Aberlink 3D screen. The user can manipulate the view of the model by rotating, zooming, panning or simply use the buttons provided to produce a standard isometric view, one of six 2D views, or alternatively up to three custom views that can be saved as required.

Alignment of the part to the CAD model can be done in a number of ways using either geometric features, or by best-fitting through measured points on the component's surface, or by a combination of both methods.



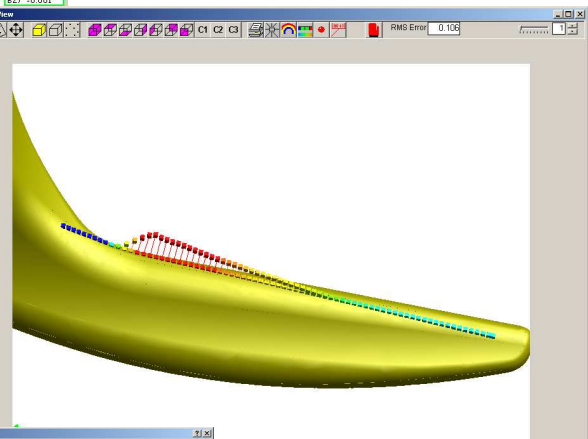
Having aligned to the CAD model, any points taken in any measured feature will now appear in the CAD window. These points will be displayed as a colour-coded dot on the model, and can either have a line leading to a box showing the error of the measured point, or alternatively the length of the attached line can be proportional to the error. In this way it is easy to visualise the distortion of a surface relative to the theoretical model.

Aberlink 3D CAD Comparison



Detailed information about each point can be viewed simply by clicking on the error box:

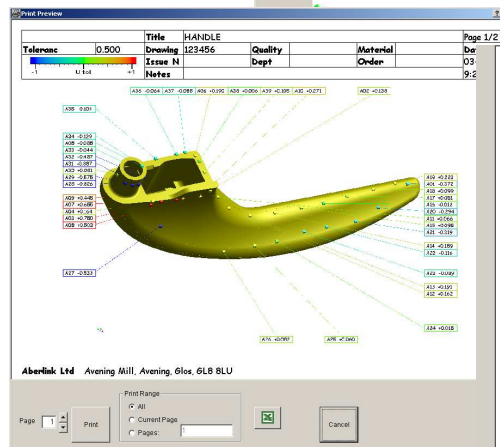
3D CAD Model Point Information			
Point ID	B14		
	Mapped CMM	Model Closest	Delta
X	7.281	7.281	0.000
Y	-36.595	-36.652	-0.057
Z	4.985	4.961	-0.024
Distance			-0.062



The colours used to represent the error can be displayed either as a colour spectrum (green = zero error, blue = out of tolerance below limit and red = out of tolerance above limit, with different shades of colours in between) or as distinct colour bands. The colour spectrum or bands are fully configurable by the user, together with other variables such as tolerance and scale.

The best-fit function allows full 3D re-alignment of the model in order to minimise the RMS errors of any set of measured points within a curve unit.

Reports can be prepared at the click of a mouse button and can be either graphical or a tabulated format, or printed as a combination of both. Reports can be built up from multiple features or multiple inspections, which can be printed from within the Aberlink software or alternatively exported as an Excel file.



Point ID	X	Y	Z	dx	dy	dz	Distance
B01	10.700	-48.866	19.284	-0.009	0.168	0.210	0.239
B02	12.710	-48.236	20.829	-0.039	0.154	0.210	0.235
B03	10.308	-49.742	20.224	-0.014	0.178	0.210	0.237
B04	10.005	-51.816	17.886	-0.005	0.138	0.174	0.214
B05	9.900	-52.463	17.673	0.000	0.089	0.191	0.210
B06	9.795	-53.217	17.028	0.000	0.074	0.214	0.250
B07	9.710	-54.860	17.497	0.018	0.077	0.174	0.189
B08	9.795	-58.817	17.842	0.018	0.096	0.169	0.218
B09	9.820	-60.810	17.370	0.029	0.098	0.099	0.207
B10	9.895	-60.897	17.663	0.018	0.076	0.099	0.184
B11	9.820	-60.930	17.717	-0.003	0.001	-0.004	0.003
B12	9.895	-60.912	17.928	-0.014	-0.006	-0.019	0.019
B13	9.820	-61.019	18.073	-0.018	-0.011	-0.077	0.077
B14	9.895	-62.139	18.162	-0.018	-0.014	-0.109	0.109
B15	9.895	-63.168	18.162	-0.041	-0.012	-0.139	0.139
B16	9.795	-64.306	18.162	-0.041	-0.009	-0.166	0.166
B17	9.810	-65.444	18.399	-0.016	-0.007	-0.144	0.144
B18	9.895	-66.582	18.399	-0.016	-0.007	-0.139	0.139
B19	9.895	-67.720	18.462	-0.016	-0.009	-0.139	0.139
B20	9.895	-68.858	18.697	-0.019	-0.006	-0.139	0.139
B21	9.895	-69.996	18.888	-0.018	-0.006	-0.139	0.139
B22	10.014	-70.391	18.812	-0.018	-0.007	-0.139	0.139
B23	10.027	-71.977	18.499	-0.020	-0.007	-0.139	0.139
B24	10.139	-73.092	18.719	-0.018	-0.007	-0.139	0.139
B25	10.170	-73.974	18.773	-0.018	-0.006	-0.139	0.139
B26	10.211	-74.848	18.899	-0.018	-0.006	-0.139	0.139
B27	10.257	-75.811	18.834	-0.011	-0.006	-0.139	0.139
B28	10.311	-76.863	18.842	-0.009	-0.006	-0.099	0.099
B29	10.366	-77.969	18.954	-0.007	-0.006	-0.099	0.099
B30	10.400	-79.111	19.049	-0.006	-0.006	-0.099	0.099
B31	10.442	-79.972	19.010	-0.004	-0.006	-0.099	0.099
B32	10.500	-80.960	19.070	-0.003	-0.006	-0.099	0.099
B33	10.528	-81.984	19.127	-0.003	-0.004	-0.074	0.074
B34	10.560	-82.960	19.168	-0.004	-0.004	-0.062	0.062
B35	10.571	-83.944	19.244	0.000	-0.004	-0.062	0.062
B36	10.571	-84.960	19.404	0.000	-0.004	-0.062	0.062
B37	10.571	-85.960	19.462	0.000	-0.005	-0.061	0.061
B38	10.571	-86.960	19.500	0.000	-0.005	-0.061	0.061
B39	10.571	-87.960	19.500	0.000	-0.004	-0.044	0.044
B40	10.571	-88.960	19.500	0.000	-0.004	-0.044	0.044
B41	10.571	-89.960	19.712	0.001	-0.002	-0.038	0.038
B42	10.571	-90.960	19.712	0.000	-0.002	-0.038	0.038
B43	10.571	-91.978	19.807	0.001	-0.001	-0.033	0.033
B44	10.571	-92.994	19.890	0.001	-0.001	-0.033	0.033
B45	11.010	-93.978	19.993	0.001	-0.001	-0.017	0.017
B46	11.010	-94.962	19.970	0.001	-0.001	-0.017	0.017
B47	11.010	-95.978	19.970	0.001	0.000	-0.007	0.007
B48	11.010	-96.942	19.890	0.000	0.000	-0.000	0.000
B49	11.290	-97.984	19.233	0.000	0.000	0.000	0.000

For more information visit

www.aberlink.com

or contact your local Aberlink representative.

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