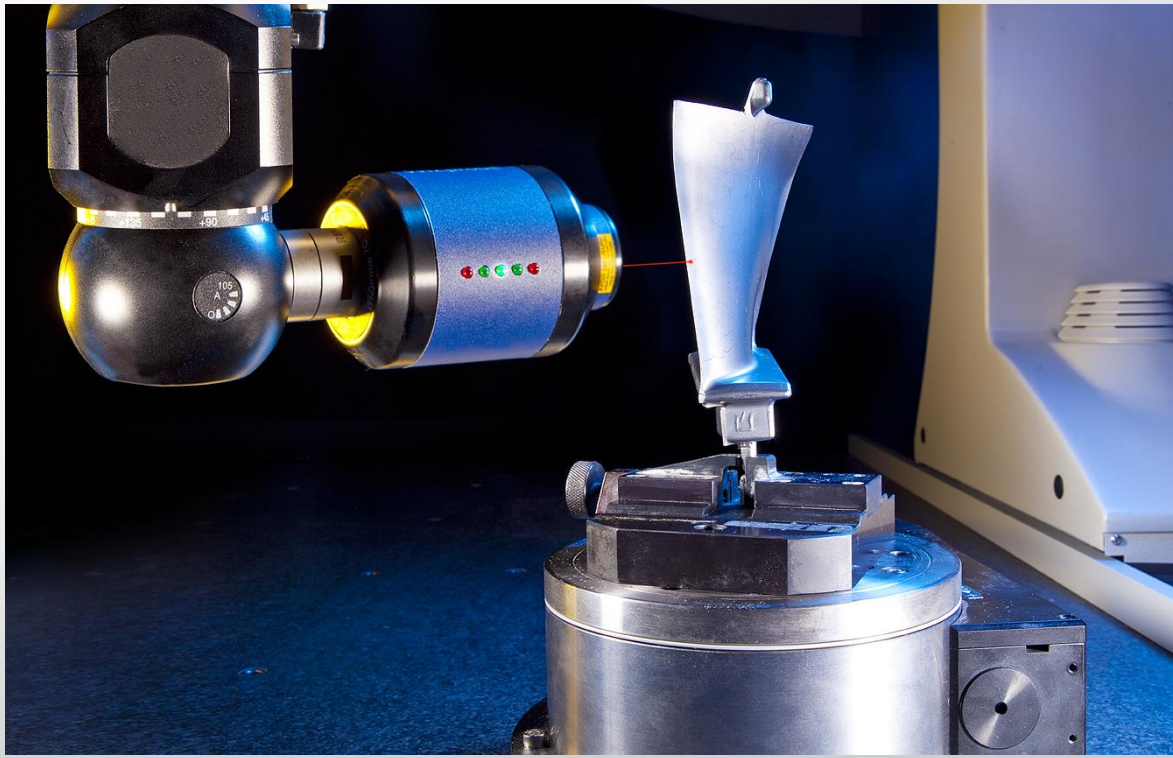
Blade inspection highlights

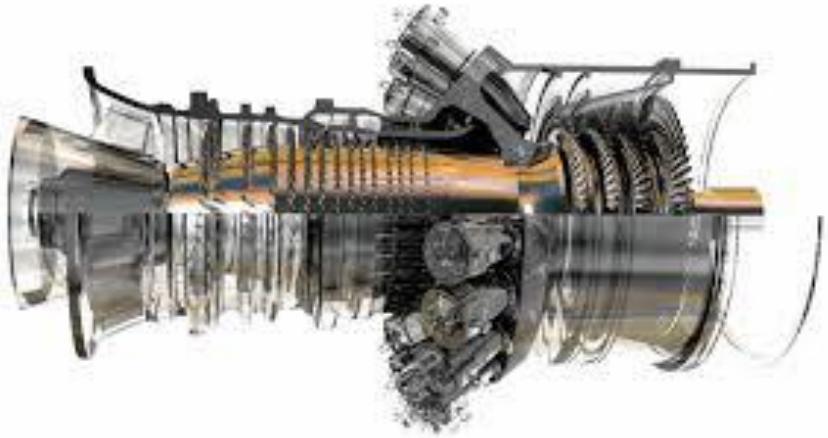


Nextec

WIZblade software

1. Easy and fast creation of inspection program

- WIZblade software allows to create inspection programs, based on built-in known vendors specifications. Software enables methods of best fitting, calculations and reports suiting a defined vendor : GE, Pratt and Whitney, Rolls-Royce, Snecma etc. It is also possible to define any new custom vendor specifications for any specific reference.
- Creation of inspection program is intuitive. Blade inspection toolbar logic is simple and user-friendly.
- Short software training allows the end-user to be fully independent in creation of blade inspection applications

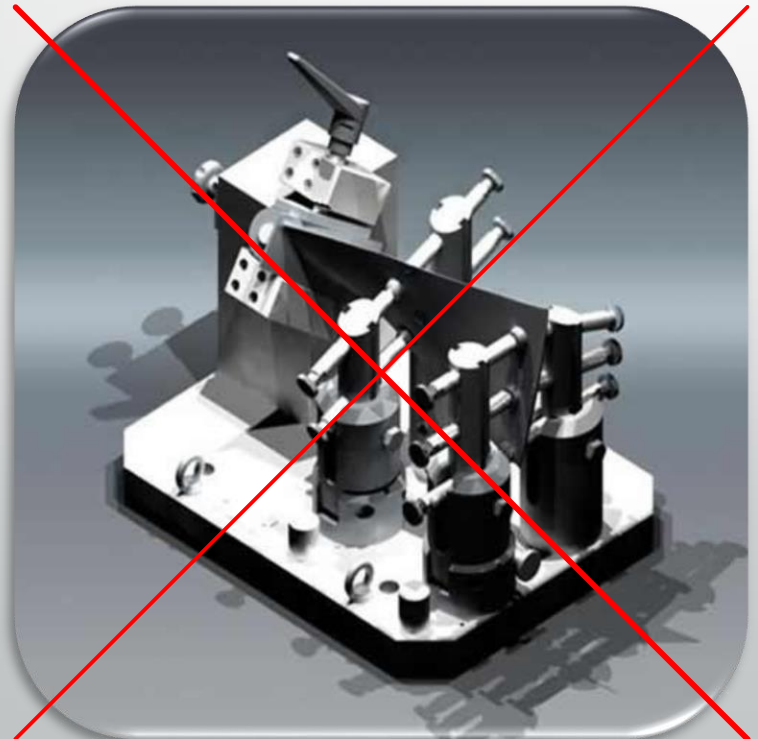


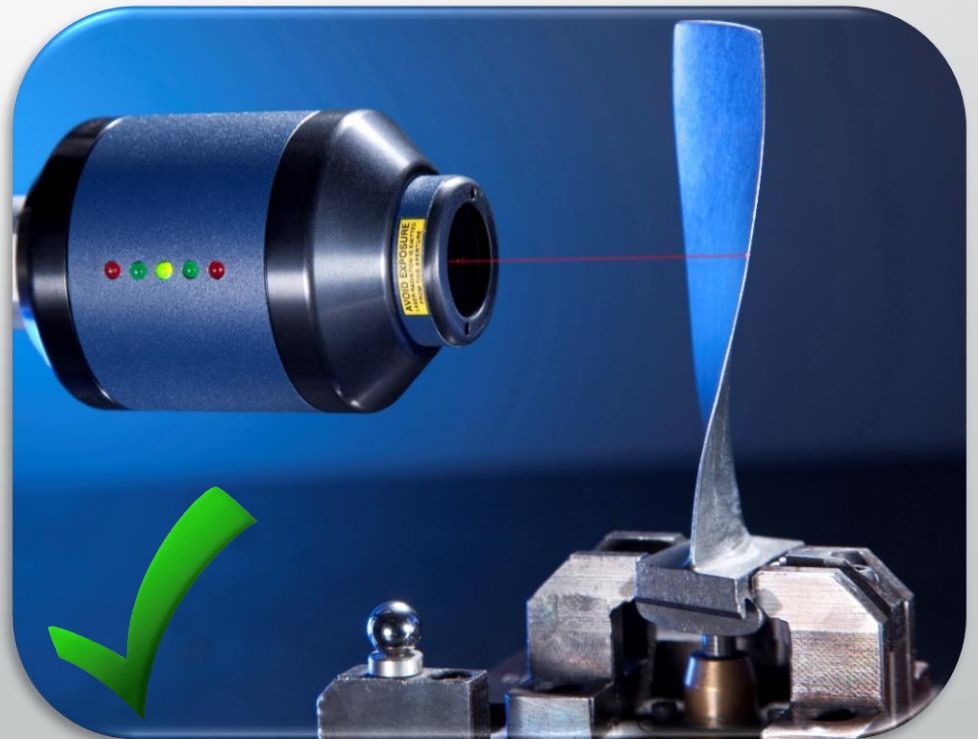
2. Creation of inspection programs with or without a CAD model

- WIZblade software allows to create inspection programs based on pre-loaded CAD model, using its definition of coordinate system, cross-sections and predefined inspection points
- WIZblade software allows to change CAD model coordinate system, cross-sections height and normal, location of inspection points on the CAD
- WIZblade software allows to create inspection programs without a CAD model, based on partial reverse engineering of desired cross-sections. This method allows to build reference cross-sections based on real shape of the blade airfoil. Reference cross-sections used for inspection of repaired parts as nominals.
- Large deviation of the real blade part from the nominal is acceptable. Blade after operation can be significantly twisted and has a much smaller chord length. WIZblade software allows to find the real shape and to perform adaptation of scanning on the fly

3. Simple (cost effective) inspection clamping fixtures

- WIZblade software allows to simulate any fixture using free-form alignment on the blade
- WIZblade does not require usage of complicated clamping fixtures and methods.
- WIZblade software compensates fixture position error
- WIZblade software enables one single inspection program for all inspection parameters instead of several mechanical stages





4. Short Cycle Time

- Non contact probe and path tracking algorithm allows shorter cycle time of blade part inspection. WIZblade systems inspect blades up to 10 times faster than conventional CMM systems
- Nextec WIZprobe combines single point measurement and scanning methods, allowing faster and more efficiently inspection of blades
- WIZprobe dynamic range of ± 5 mm allows to inspect blades with large deviation from the nominal without any additional adaptation
- Calculation and reporting done in no-time : several seconds

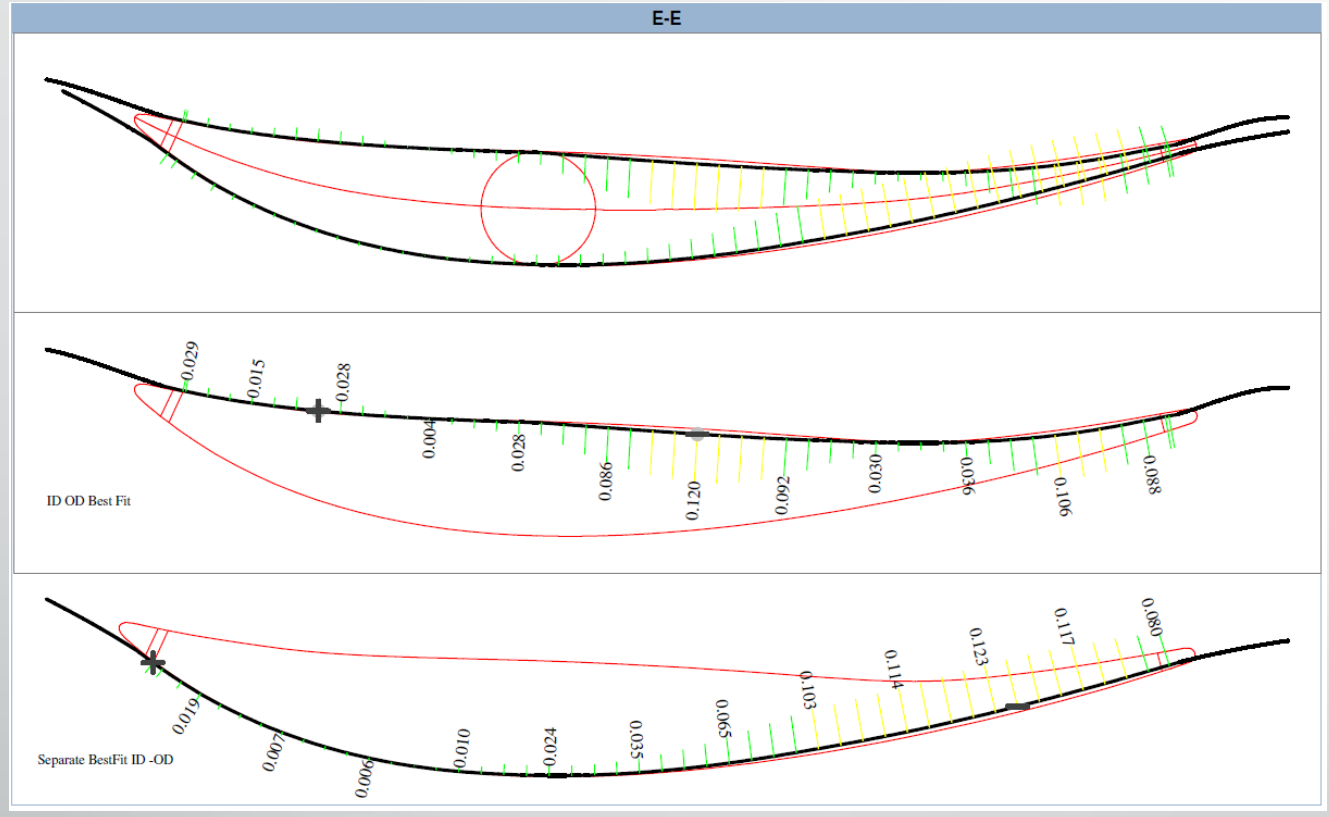
5. Output and Reporting

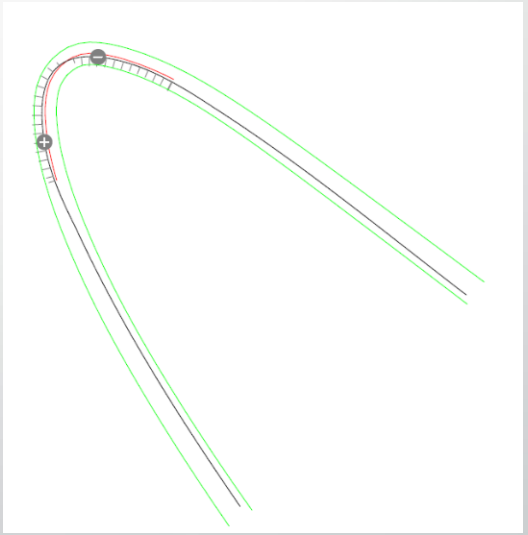
- WIZblade allows to export scanned data and created geometrical objects in following formats : IGES, STL, TXT
- WIZblade works with following CAD formats: IGES,STEP,UA
- WIZblade enables automatically save scanned data and required geometrical objects, directly from inspection program
- WIZblade allows to work with several CAD models in one project
- Inspection reports are generated automatically in default format or using predefined report templates
- Inspection reports can be saved in Excel, PDF,TXT or built-in RPT formats
- WIZblade allows to select the required blade repair type, based on the inspection results plus

5. Output and Reporting (continue)

- Using WIZblade it is possible to sign the line of edge cut by marking the points on the blade airfoil, based on performed inspection
- WIZblade graph reports represent each cross-section on separate page, including all necessary information regarding the cross-section
- WIZblade graphical report enables to show Actual, Nominal and Best Fit curves in different colors and thicknesses
- WIZblade software allows to define graphical representation of tolerance band
- WIZblade software enables to calculate and to represent Min/Max deviation points and its values
- WIZblade software enables to represent full deviation scale between selected curves
- WIZblade software enables automatic saving and printing of reports directly from the inspection program

5. Output and Reporting (Graph)





5.3. Output and Reporting (Grid)

DATE:
TIME:
PROJECT : _FORGED(oversize)
HOLDER NUMBER :

CMM Name : NEXTEC
REPORT TYPE : REGULAR
BLADE NUMBER : 0

NEXTEC

AIRFOIL Report

CS Name	Pitch	LE Thk	TE Thk	OD Prof	ID Prof	Bow Y	OD S max	OD S min	ID S max	ID S min	Nangle	OD Twist	ID Twist
90-90	0.018	-0.052	-0.040	0.138	0.096	0.000	0.093	-0.045	0.013	-0.083	0.000	0.000	0.000
70-70	0.015	0.004	-0.034	0.137	0.109	-0.077	0.111	-0.026	0.017	-0.092	0.206	0.076	0.133
50-50	0.022	0.000	-0.017	0.058	0.059	-0.110	0.055	-0.002	0.019	-0.039	0.219	0.173	0.219
30-30	0.033	0.013	0.016	0.054	0.042	-0.182	0.054	-0.000	0.009	-0.034	0.589	0.539	0.539
10-10	0.009	0.007	0.071	0.078	0.046	0.000	0.051	-0.026	0.048	0.003	1.075	1.070	1.027
03-03	0.024	-0.107	0.009	0.082	0.159	0.262	0.024	-0.058	0.099	-0.060	1.498	1.533	1.350