List of Functions

●File Reading
Measurement data (.ptx .fws .zfs .olv (*) .glx (*))
(*) Measurement data of our products, OLIVIA-XYZ and Galaxy-Eye
・・・・・Point group coordinates (x, y, z, reflection energy
densities or R, G, B) Shape file (.stl)
・・・・・Shape (triangular elements)

●File Writing
Shape file (.iges .stl)
・・・・・Shape (shape of triangular elements, basic shapes)
Options (CATIA V5、CATIA V4、Pro/E、STEP、VDA-FS、Parasolid)

●Drawing Functions
Point Group Display
・・・・・Switching between display/not display
STL Displays
・・・・・Display/Not display
・・・・・Display color setting
・・・・・Curvature calculation contour display
CAD Displays
・・・・・Display/Not display
・・・・・Display color setting
・・・・・Difference contour display

●View Operation Function
Basic Operations
・・・・・Rotation (centered on viewpoint),
rotation (specified rotation position)
Translation, forward, backward
●Point Group Operation Function
・・・・・Automatic STL

●STL Operation Functions
・・・・・STL automatic thinning
・・・・・Curvature calculation

●Feature Lines Operation Functions
・・・・・Manual generation of surfaces
・・・・・Control point adjustment
・・・・・Morphing of feature lines

●CAD Operation Functions
・・・・・Automatic generation of surfaces from
feature lines
・・・・・Manual generation of surfaces
・・・・・Morphing of surfaces
・・・・・Surface quality inspection
・・・・・Surface quality adjustment

Recommended Hardware Specifications

Hardware	
CPU	Intel Core 5 or more
Memory	2GB or more
Free disc space	1GB or more at installation
Graphics card	Compatible to OpenGL 2.0 or later
Display	1024×768 or more
Others	Mouse, CD-ROM drive (at installation)
Software	
OS	Windows XP(64bit,SP2,32bit SP3 or more) Windows 7(64bit,32bit)

MIRAGE SHAPE

Reverse Engineering Support Software
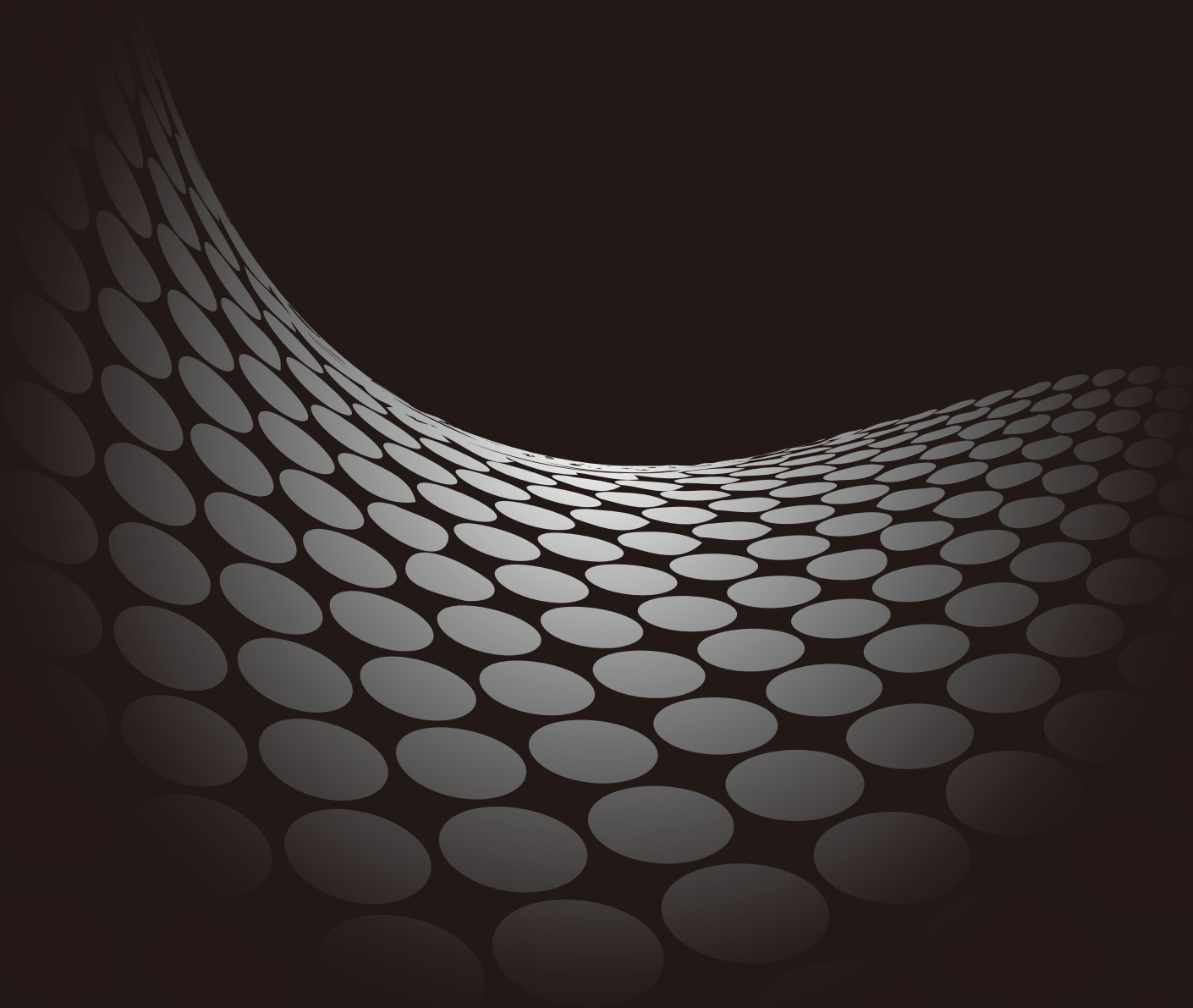
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FTR
Fuji Technical Research

Ideal feature lines and CAD surfaces **quickly** generated by **simple** operation!!

MIRAGE SHAPE is a CAD generation processor which easily generates free-form surfaces in CAD, just by creating feature lines from 3D point cloud data.
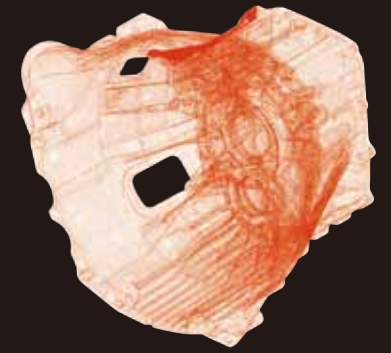
Main Features

1. Simple and speedy operability
2. Compatible to data from various scanners
3. Simple creation and editing of feature lines
4. Automatically generates surfaces after extraction of feature lines
5. CAD surface quality check function
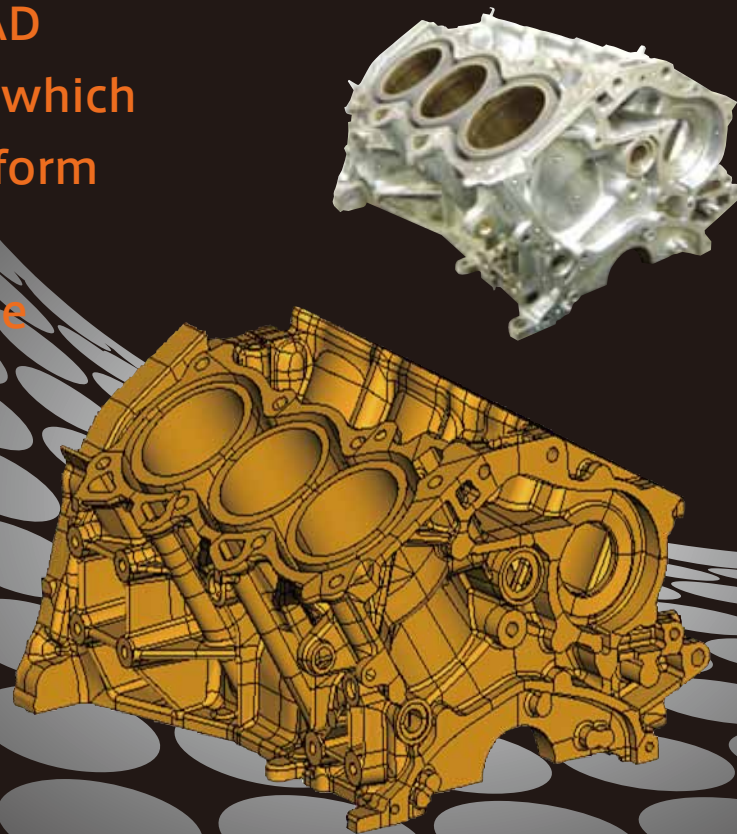
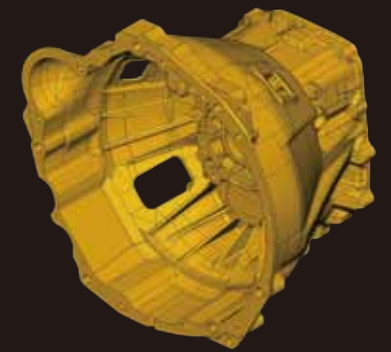| Process	Description
Point Cloud Reading	Reads the point cloud data output from various 3D measuring devices.
STL Data Creation	Automatically creates STL shape data from the measured 3D point group.
STL Data Editing	Automatically simplifies large-scale STL data, and converts it into an ideal data size.
Extraction of Feature Lines	Displays a contour map according to the curvature of the STL shape, and the user can draw feature lines referring to the boundaries classified by color.
CAD Surface Generation	Automatically generates CAD surfaces from the drawn feature lines.
CAD Surface Quality Inspection	Displays the difference between the CAD surfaces and STL data by contour, and performs corrections.
CAD Output	Outputs CAD data in various output formats

STL Data Edit Function

In the automatic thinning function of the STL data, the data can be converted into ideal STL data in which the unnecessary elements are thinned out, by specifying the triangular surface reduction rate, curved surface retention rate, and keeping the edge length.

Before Thinning

After Thinning
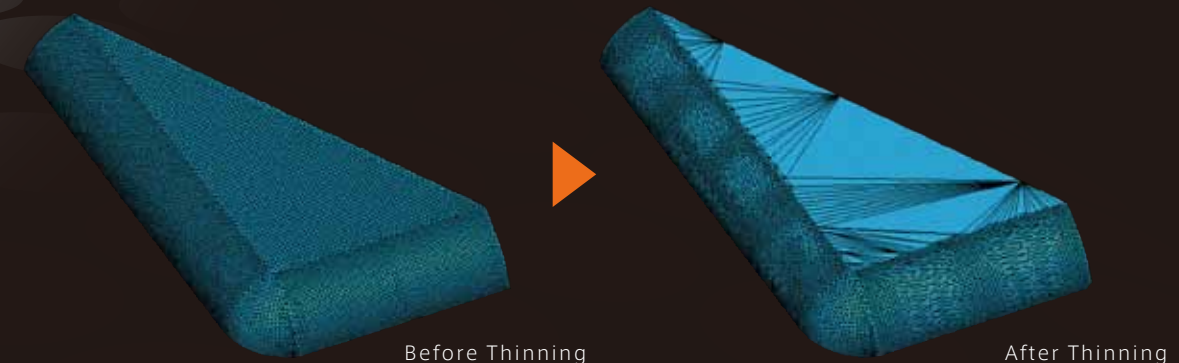
Feature Line Extraction

The STL shape data will be displayed classified by color according to the curvature of the surface The user can create feature lines accurately capturing the curvature, by drawing the feature lines according to the classified color display. The feature lines can be freely edited even after creation.

Draws feature lines on STLDisplays curvature classified by color

Displays feature lines only
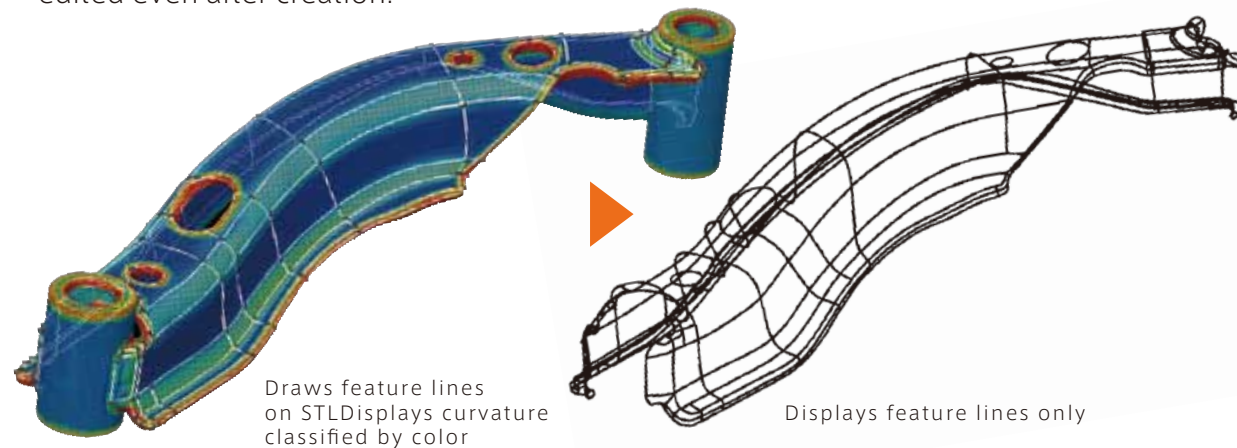
CAD Surface Generation

The surfaces are generated from the feature lines. The surfaces can be generated by manually selecting the feature lines, or the surfaces can also be created automatically from all the feature lines.

Manual

Select the feature lines like making an enclosure
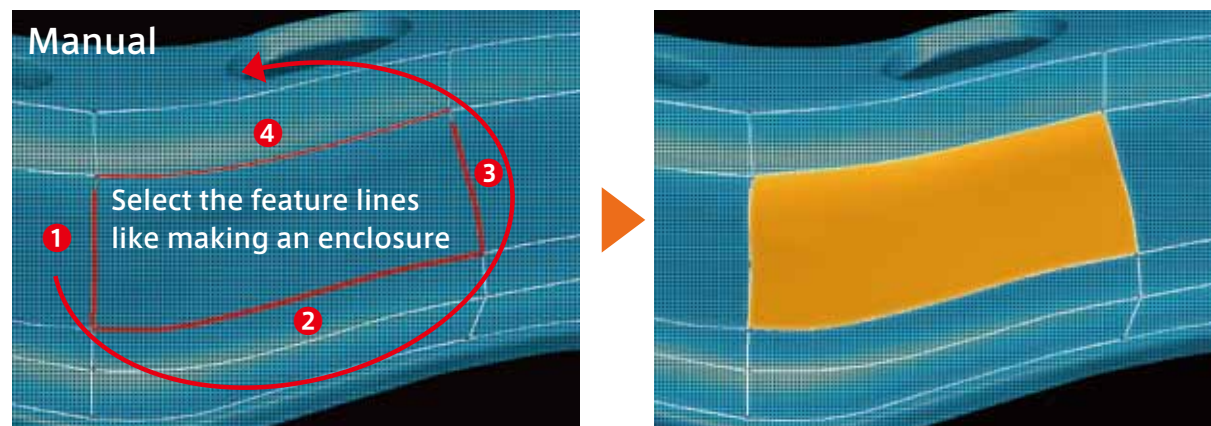
Select the feature lines of the four sides to generate the surface individually
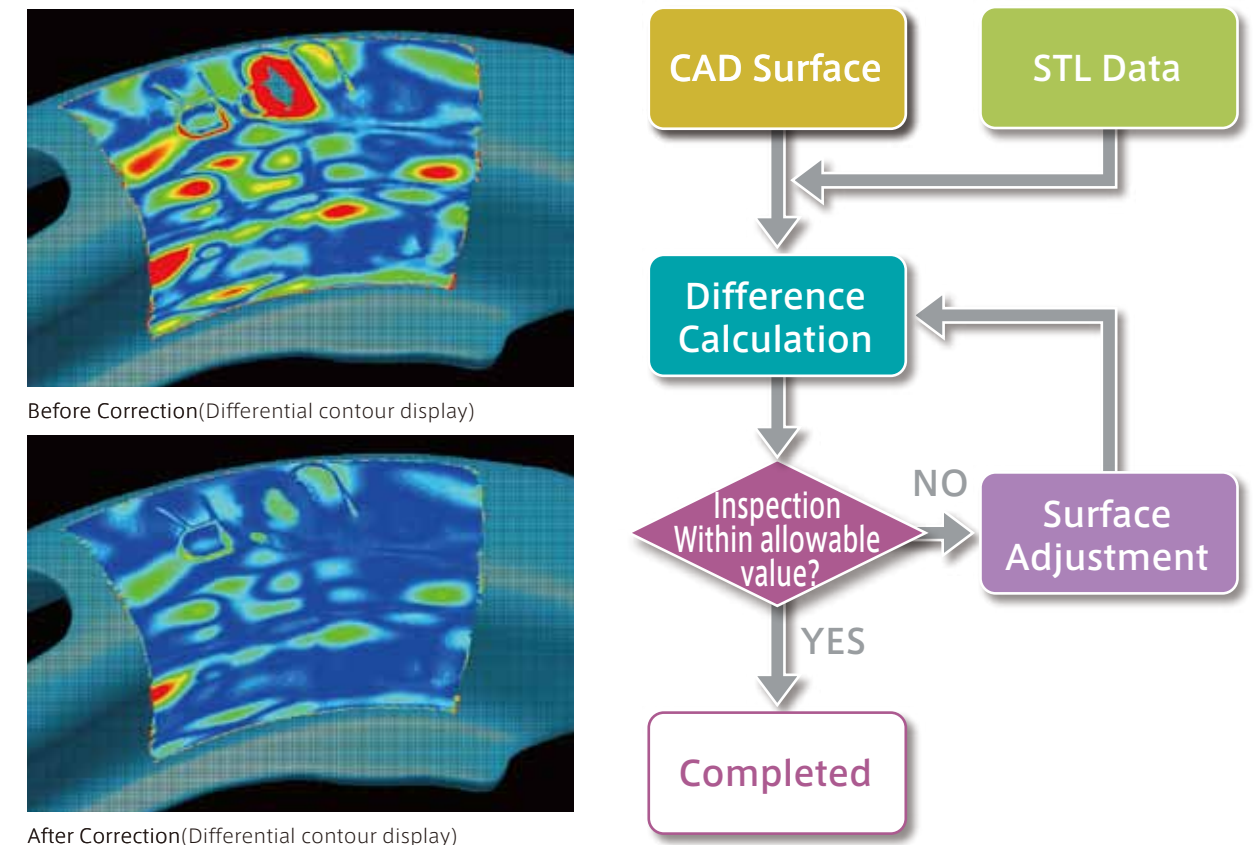
Generated surface
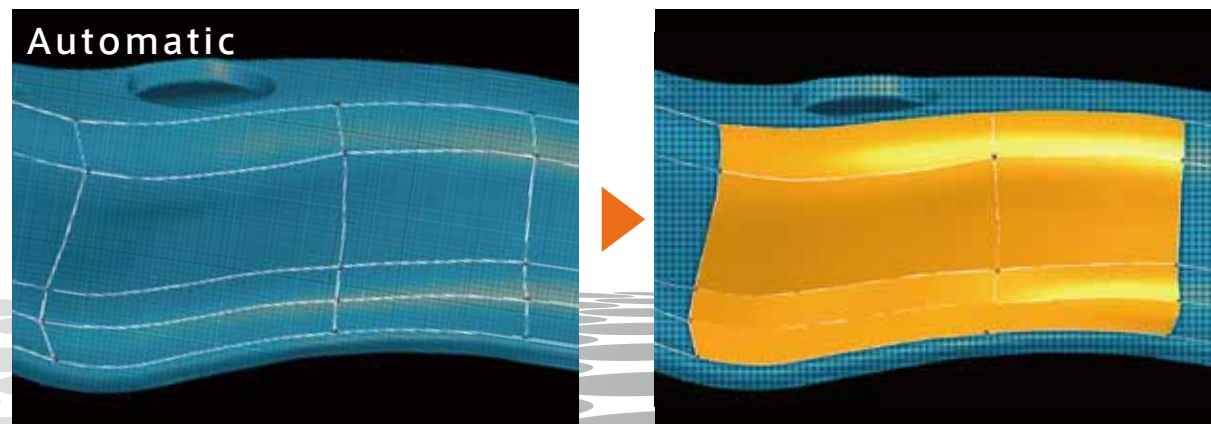
Automatic

Create the feature lines in the location to be surfaced

Automatically generates all surfaces where the feature lines are created
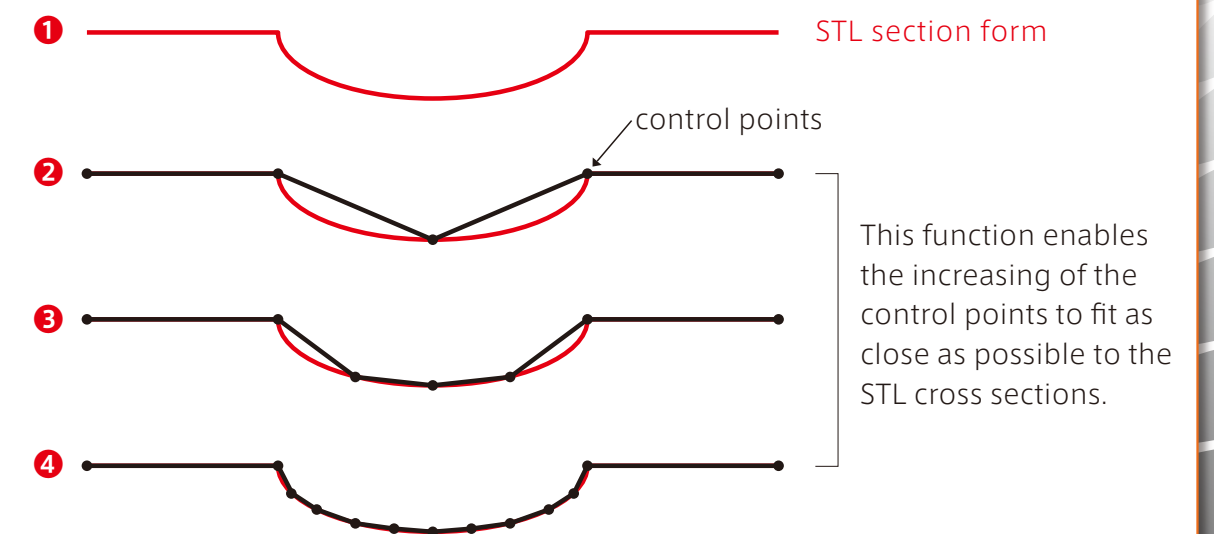
CAD Surface Quality Inspection

The difference (amount of deviation) between the generated CAD surface and the STL data is calculated and displayed by contour.
The CAD surface can be freely edited even after generation, and ideal CAD surfaces can be generated by understanding and adjusting the locations which require corrections from the results of the contour display.

Before Correction(Differential contour display)

After Correction(Differential contour display)

CAD Surface

STL Data

Difference Calculation

Inspection Within allowable value?

NO

Surface Adjustment

YES

Completed

■CAD Surface Fitting Function

❶ STL section form

control points

❷

❸

❹

This function enables the increasing of the control points to fit as close as possible to the STL cross sections.

Example of Adaptation of MIRAGE SHAPE

Gear Box

Oil Pan

Bracket

Crankshaft

Cylinder Block: 6 cylinders

Camera Casing

Turbocharger

Cylinder Block: 3 cylinders

Transmission

Front Cover(V-type)

Front Cover(L-type)

White Body