

Streamline

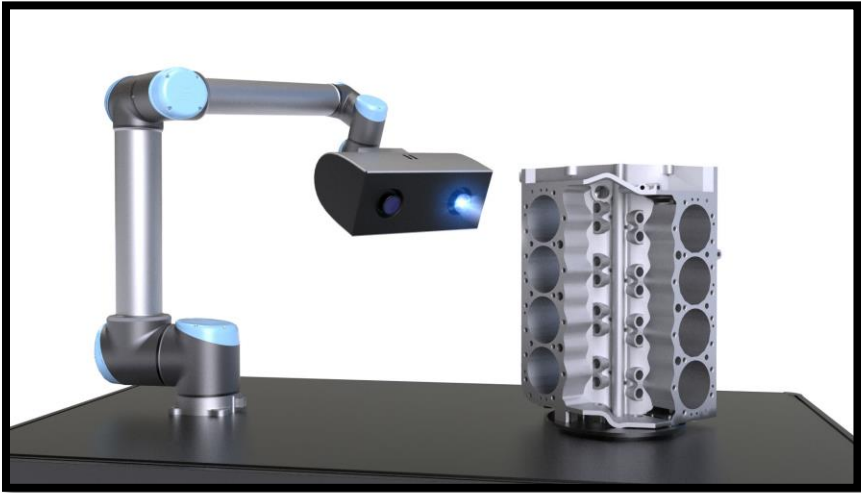


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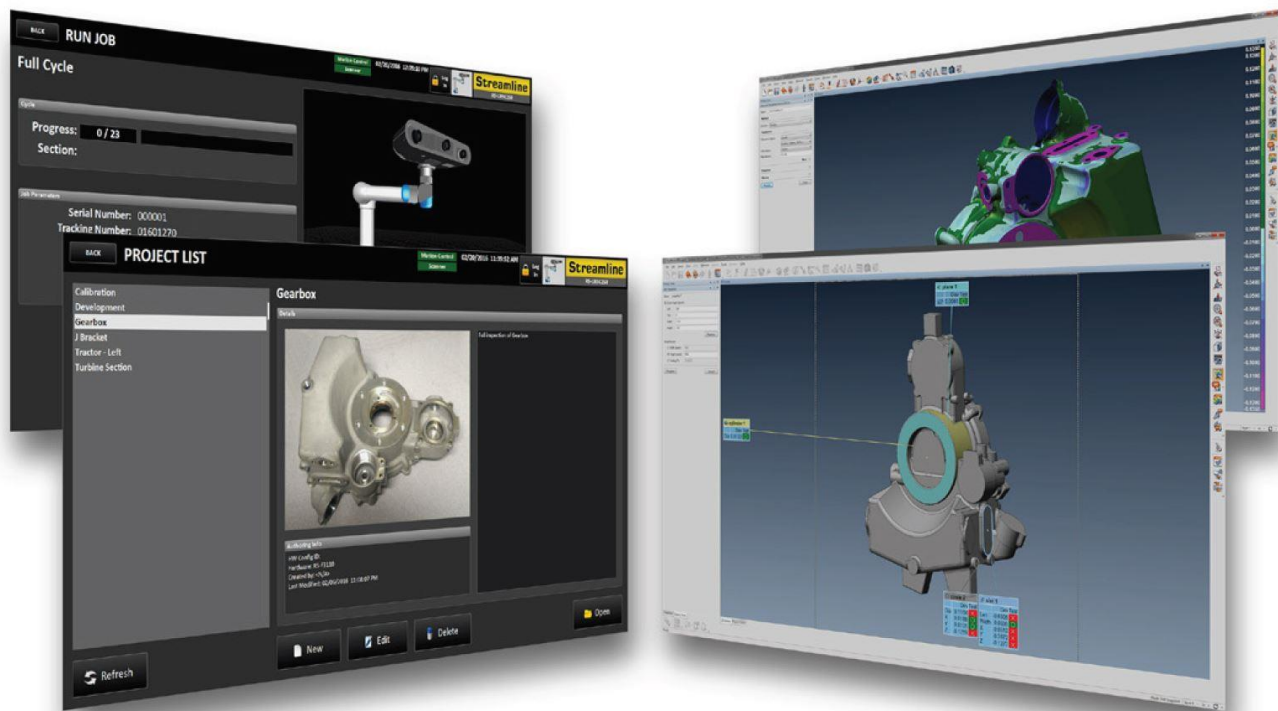
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Introduction to Streamline

Streamline is 3D Infotech's software platform for automated 3D scanning and inspection. The software allows motion control systems, 3D scanners, robots, and inspection software to all work seamlessly together. PolyWorks is used for analysis and reporting because of its superior point cloud handling capability, GD&T implementation and advanced reporting tools.

Streamline is compatible with most enterprise systems:

- Databases using SQL
- Product Lifecycle Management (PLM) software
- Quality Management Systems (QMS)
- Programmable Logic Controllers (PLC)
- Custom interfaces using XML



Universal Metrology Automation®

Universal Metrology Automation® (UMA) is the integration of robots, motion control systems, 3D scanners, and inspection software to create a scalable metrology solution. Non-contact 3D measurement captures dense, high quality data for analysis which will allow a company to make intelligent, data driven decisions.

UMA increases throughput and productivity by automating quality control processes. This has a direct impact on cost and time reduction, while maintaining or improving current quality standards in place. Automated metrology enables real-time visibility across the enterprise and supply chain.

Benefits:

- Rapid deployment (1-2 weeks versus 6-12 months)
- In-process inspection cell
- Decreased labor costs
- More repeatable compared to labor intensive methods
- Higher through-put of parts
- Enhanced accuracy and visibility of defects
- Real-time visibility into production quality through automated reporting
- Process Monitoring and Control built-in
- Intelligent decision making

An Ideal Solution for YOUR Application

Whether you want a solution that rolls up to your machine or you are designing a purpose-built inspection cell, with Streamline you are free to consider the best approach without the risks incurred with a custom integration of hardware and software. Some organizations feel they simply need a solution today that can scan a part and get automated reports. But ultimately, manufacturers will likely want to expand the solution to include automated pick, place, and binning of parts based upon the inspection result achieved. Whether it's large or small parts, UMA can typically be deployed in a few weeks or less.

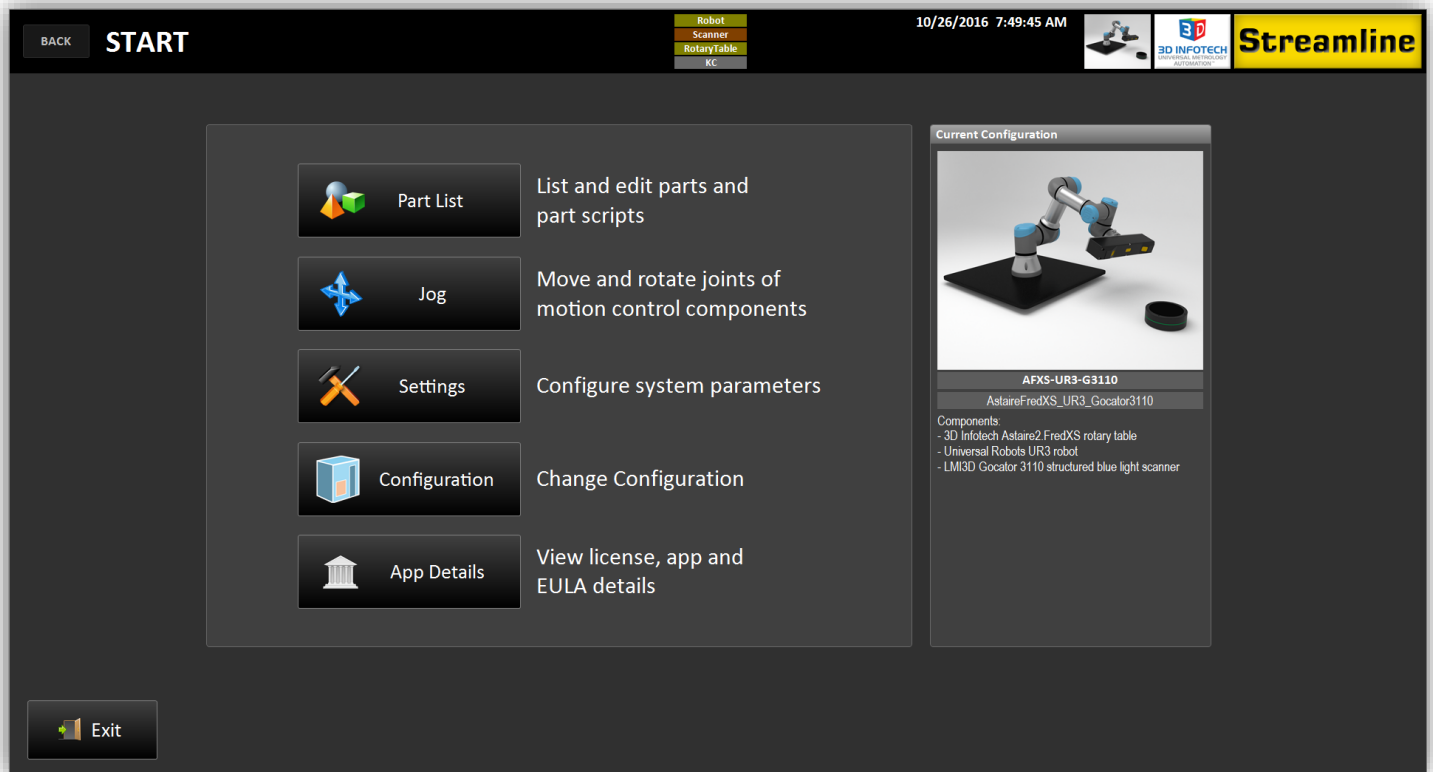


Streamline Interface and Features

Streamline's user friendly interface allows your operators to easily set up and manage automated inspection projects. A robot's position, scanner exposure settings, and motion control positions can all be programmed simultaneously within Streamline. The entire inspection process, including scanning, analysis and reporting is automated at the push of a button.

Feature highlights:

- Touch screen interface
- Easy robot teaching
- Permission based
- Traceability inputs
- Remote operation capabilities
- Enterprise database integration
- PLC compatible
- Supports multiple configurations
- Photogrammetry not required



BACK PART LIST Robot Scanner RotaryTable KC 10/26/2016 7:51:24 AM **Streamline**

Parts

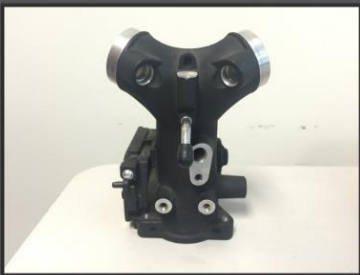
Filter: Clear

- CDF Mold
- DC Scanning
- Plastic Body Scan
- Rotary Table Alignment
- Throttle Body

Selected Part

Throttle Body

Picture



Info

Created: 09/02/2016 4:39:01 PM

Summary

Complete Inspection of Throttle Body Piece

BACK RUN CYCLE Robot Scanner RotaryTable KC 11/01/2016 2:40:22 PM **Streamline**

Path 2 (Rotary)

Cycle

Progress: 11 / 20

Line: kc set_pose[[287.930, -271.221, -82.018, -122.095, -18.610, 106.835, -10.920]]

Section: Scanning

User Inputs

Serial Number: te

HeatMap

Points Scanned

Cycle Times

Start: 11/01/2016 2:39:18 PM

Finish:

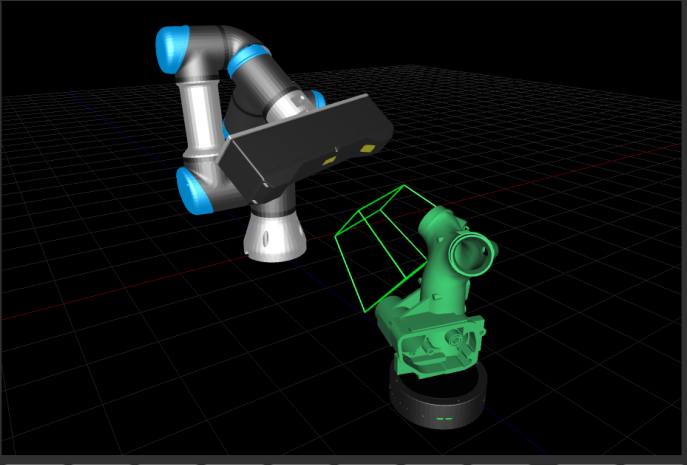
Elapsed: 00:00:03

Section Times

Initialization: 00:00:01

Scanning: 00:00:02

Interaction Mode: Mouse Touch
 Touch Mode: Pan Zoom



Automation, Made Easy

Teaching and playing scanning sequences is easy in Streamline. There is no need for a teach pendant. The user simply jogs the robot using the buttons on the screen or interactively to various poses and records the settings for that position. A preview of the scan is available to determine the best scanner settings. If a rotary table is being used, this can also be configured at each pose.

The following screen shot shows the one screen approach to robot teaching. Everything a quality department needs to set up a part for inspection is available here. If you have a collaborative robot, it helps reduce this set up time drastically, removing the need for any off-line programming that is typical in robotic installations.

EDIT PROGRAM 10/26/2016 8:12:35 AM

*** Path 2 (Rotary)**

#	Action	Parameters
1	Pose	J:304.102, -270.005, -35.004, -119.995, -25.006, 90.000, -0.0...
2	PoseScan(Orbit)	O:#6x60; S:0.10; Exp:30,60;
3	PoseScan(Orbit)	O:#6x60; S:0.10; Exp:30,100,60;
4	PoseScan(Orbit)	O:#4x90; S:0.10; Exp:30,60;
5	PoseScan(Orbit)	O:#6x60; S:0.10; Exp:30,60;
6	PoseScan(Orbit)	O:#6x60; S:0.10; Exp:30,60;
7	Pose	J:287.754, -204.110, -133.764, -86.180, -117.678, 29.883, 163...
8	Pose	J:304.102, -270.002, -35.004, -119.994, -25.005, 89.997, -0.0...

2: Alignment

Workspace: C:\Users\Chris\Documents\3D Infotech\Streamline\Parts\Throttle Body\Programs\Path 2 (Rotary)\PolyWorks\blank.pwk

Macro: []

Subsampling: 4 Iterations: 100 Convergence: 0.0010

Best-Fit [] Close App []

Apps closed before starting PW: polyworks:\imalign\jminspect

3: Inspection

Workspace: C:\Users\Chris\Documents\3D Infotech\Streamline\Parts\Throttle Body\Programs\Path 2 (Rotary)\PolyWorks\blank.pwk

Macro: []

Close App []

Apps closed before starting PW: []

Motion Control

Rotary	-	+	0.000
Robot J1	-	+	-269.032
Robot J2	-	+	-78.866
Robot J3	-	+	-120.014
Robot J4	-	+	-21.660
Robot J5	-	+	93.763
Robot J6	-	+	-0.003

Speed: -% +% 100%

Move To Home Reset

