Измерители внешнего вида Rhopoint TAMS
Технические характеристики

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RHOPOINT TAMS™

Rhopoint TAMS™ (Total Appearance Measurement System)

Measure the Quality of Automotive coatings with the best match to the visual perception

360°

Introduction

Instrumental analysis of surfaces appearance, roughness and waviness in the automotive painting process

The ultimate quality control instrument that handles:

- ☑ Raw Material
- ☑ E-Coat
- ☑ C-Coat

This innovative device is the result of years of development collaboration between Rhopoint, Volkswagen AG and AUDI AG. Not only does it model human perception of final surface appearance quality, but at the same time can be used to judge topographic information from surfaces ranging from totally matt to high gloss.

Unlike systems that are currently in use, the Rhopoint TAMS™ is able to capture surface data for mid gloss and high gloss surfaces and therefore all surfaces throughout the automotive coating manufacturing process - steel and aluminum, E-Coat as well as filler, base coat and topcoat.

Features

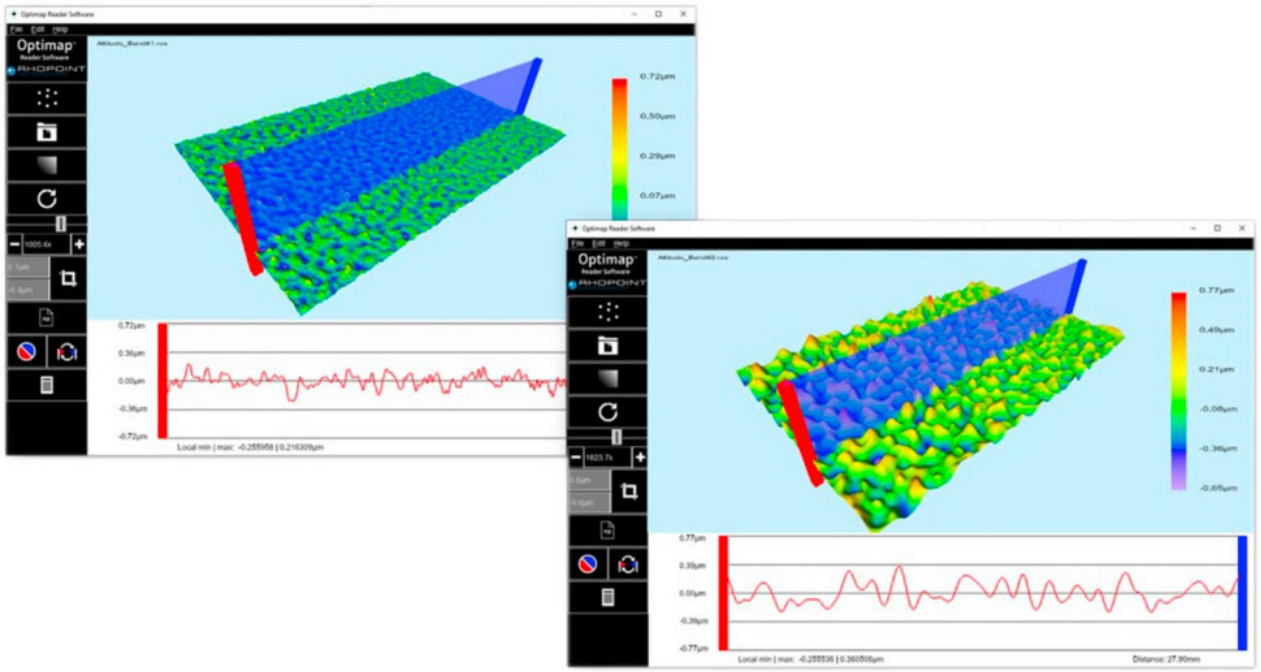
Take it right from the source

To evaluate the suitability of raw materials, to optimize individual processes and to build a complete picture of how the quality of the final product is influenced at each paint stage, analytical data is needed to understand

how each paint process fills, smooths and masks the underlying roughness from the base material such as steel and aluminum.

The image-acquiring Rhopoint TAMS™ utilizes Phase Measurement Deflectometry (PMD) as one of its measurement technologies and provides ISO 16610 compliant high-resolution 3D altitude maps of raw materials and all surfaces in the painting process in less than five seconds.

Measurements are taken according to DIN EN ISO 4287 (like optical Ra), or DIN EN ISO 25178 for areal topographic information (like Sa).



Analyzing two band filtered surfaces
with the included Optimap Reader Software.

Everything under control - in all intermediate steps

The intermediate production step of E-coating is a high-tech process that has a huge impact on the final quality and thus requires as much control as any other production step.

Controlling the E-coat with Rhopoint TAMS™ and its advanced quality parameters, e.g. ISO GPS texture analysis compliant topographic roughness indices, gives you complete documentary overview of your paint process. This will result not only in better final quality but also in lower unit costs.

But not only can relevant topographic indices be analyzed. If you want to keep it simple, Rhopoint TAMS™ enables easy documentation and reporting by using Rhopoint Quality indices to judge overall quality of an E-coat.

Clear coat measurement - judge the perceived Quality as your customer does

For maximum visual impact, an automotive paint finish must instantly produce an appealing visual sensation for the customer. Improved correlation to visual perception and its easily communicated parameters gives the Rhopoint TAMS™ a major advantage over methods that are currently in use.

Clear coat measurements are made by the Rhopoint TAMS™ by measuring a 2D area of the surface from a fixed measurement position. In addition to providing major surface parameters such as Contrast, Sharpness, Waviness and Dominant Structure Size, customer visual preferences are shown by “Quality” and “Harmony” indices. The Quality indices express the overall quality level of the surface, whereas the Harmony value indicates how well adjunct parts will are be perceived as harmonious in quality.

Specifications

Specifications Rhopoint TAMS™	
Menu Interface	5 Capacitive Sense buttons
Measurement Operation	Tactile button capacitive sensor push & start auto measurement system
Measurement Time	4 Second Image Capture 4 Second Processing
Colour Screen	Full colour IPS screen
Power	Removeable and rechargeable lithium polymer batteries
Operation	Up to 5 hours/charge
Memory	>100,000 readings 8GB internal / 8GB SD card
Data Transfer	SD Card (Ethernet upon request)
Optical System	Variable Focus Machine Vision
Spatial Resolution (surface)	37µm/pixel
Field of View (surface)	27 x 16mm

Specifications Rhopoint TAMS™	
Production Integration	RFID TAG Reader (optional)
Dimensions / Weight	172 x 136 x 56 mm / approx 1000g
Additional Sensors	Accelerometer Orientationsensor 4 x Pressure (measurement)
Construction	Aluminium instrument case

WS-Bands (C-/E-Coat)	Sa_A	Sa_B	Sa_C	Sa_D	Sa_E	Sa_SW	Sa_LW
Bandpass Filter [mm]	0.1 - 0.3	0.3 - 1.0	1.0 - 3.0	3.0 - 10.0	10.0 - 13.5	0.3 - 1.2	1.2 - 12.0
Resolution (on display)	0.1						
Repeatability [SD]	0.1						
Reproducibility [SD, max]	0.3						

C-Coat	Contrast	Sharpness	Waviness	Dominant Structure Size	Quality	Harmony
Index [units]	C [%]	S [%]	W [„W“ units]	D [mm]	Q [%]	H [„H“ units]
Minimum	0.0	0.0	0.0	0.5	0.0	0.5
Maximum	100.0	100.0	30.0	6.8	100.0	8.9
Resolution (on display)	0.1	0.1	0.1	0.1	0.1	0.1
Repeatability [SD]	0.5	0.5	0.5	0.5	0.5	0.2
Reproducibility [SD, max]	1.5	1.5	1.5	0.5	2.0	0.3

E-Coat / R-Mat (O-Rough)	Arithmetical mean height of surface area	Roughness Average in X-direction	Roughness Average in Y-direction	Mean width of profile elements
Index [units]	Sa [µm]	RaX [µm]	RaY [µm]	RsM [mm]
Minimum	0			0.3

E-Coat / R-Mat (O-Rough)	Arithmetical mean height of surface area	Roughness Average in X-direction	Roughness Average in Y-direction	Mean width of profile elements
Maximum	20			9
Resolution (on display)	0.1			
Repeatability	0.1			
Reproducibility [SD, max]	0.3			

Accessories

Standard accessories

- Calibration Plate
- Certificate
- Cleaning Cloth
- Batteries (2x)
- Full size SD card
- AC Adapter
- Carrying Case
- Optimap Reader Surface Analysis Package license
- Rhopoint TAMS Docking Station

Optional

- Docking station
- Batteries (2x)
- Optimap reader license

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