



ENGINEERED ART

PASSION. PERFORMANCE. PRECISION.



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# OUR FACTORY

—— *Miami, Florida, USA*

After three years of research and development,  
Vossen is proud to be one of the few companies in the  
world manufacturing forged wheels entirely in-house.  
Headquartered in Miami, Florida, Vossen's state-of-the-  
art, TUV Verified facility features a comprehensive array  
of brand new machinery.





## Machine Shop

The Vossen Forged Factory uses ten brand new CNC machines to manufacture wheels. Vertical lathes use gravity to achieve superior concentricity and runout while mills with high rigidity and spindle speeds reduce cycle time and produce smoother surface finishes. An internal network is used to store and distribute CNC programs, accessible from any machine.









## **Hand Prep Department**

The Hand Prep Department is responsible for prepping the wheel for its final surface finish. Wheels with brushed or polished finishes undergo an additional amount of hand prep, creating a very artisanal look that can only come from an educated hand.



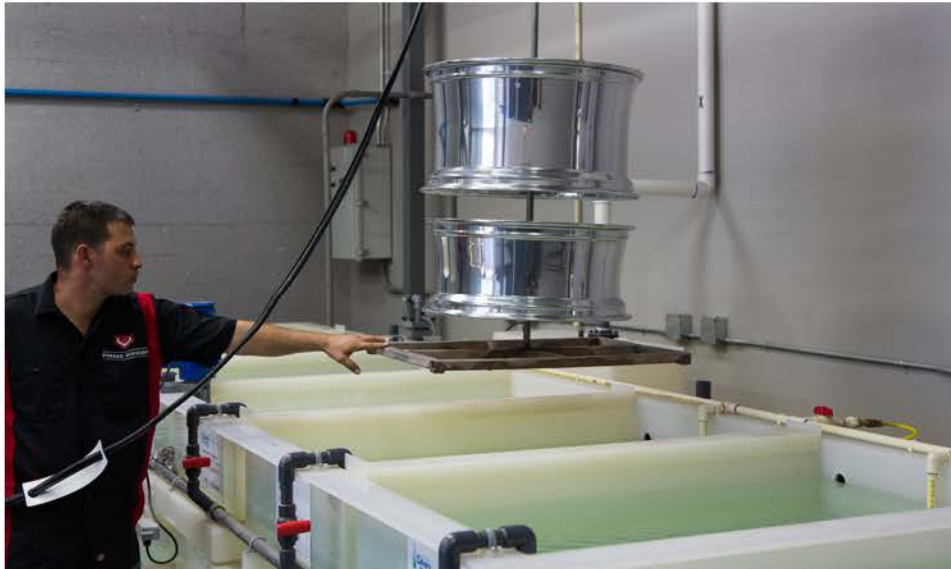






## Finishing Department

Vossen's manufacturing facilities include a wide array of finishing options, such as ceramic polishing, hand-brushing, and powder coating. By bringing every facet of wheel production in-house, Vossen has full control of the finished product, guaranteeing that every wheel that ships is of exceptional quality and precision.







# DESIGN

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Many forged wheel manufacturers utilize the simplest and most common machining techniques to increase production volume. The Vossen Forged lineup, particularly the Precision Series, does not compromise its exclusive and complex features for manufacturing ease.





## Design Process

The design process begins with identifying the end goal. Gaps in both our product line and the market help guide the direction of new designs. We try to see what's missing and fill in the blanks from there, typically beginning with a 3D model.





## **Infini-Lip**

The signature feature of the Precision Series is the Infini-Lip barrel, embodying simplistic elegance and purity of design. Without the utmost precision throughout the entire manufacturing process, a seamless and unobstructed transition from the wheel face to barrel would be impossible.





## Vehicle Optimized Aesthetics

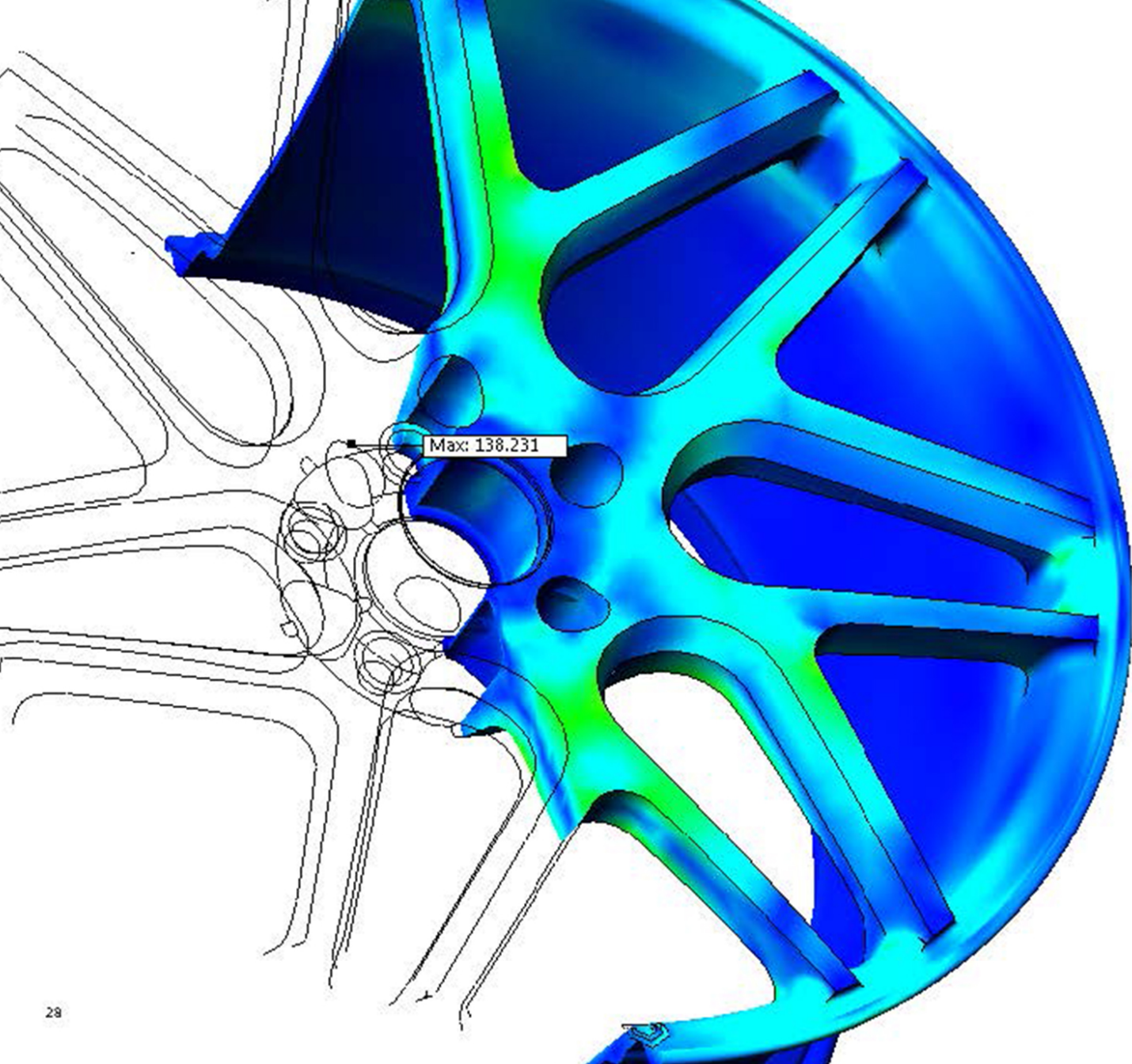
Every car make and model has different parameters and clearances as well as different general aesthetics. Utilizing our extensive measuring process and Vehicle Tailored Engineering, Vossen Forged wheels are optimized specifically for each vehicle, maximizing concavity and perfecting overall fit.



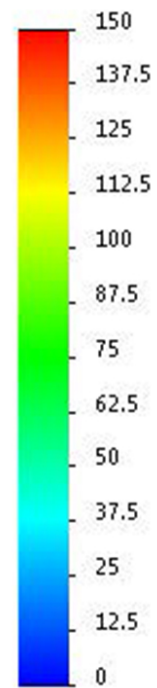
# ENGINEERING

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Precise fitments are achieved by taking measurements from over 100 different data points around the car. Those measurements lead to CAD models that are tested using Finite Element Analysis (FEA) to ensure SAE and TUV compliance while maximizing concavity. Each wheel is specifically made for each vehicle make and model.

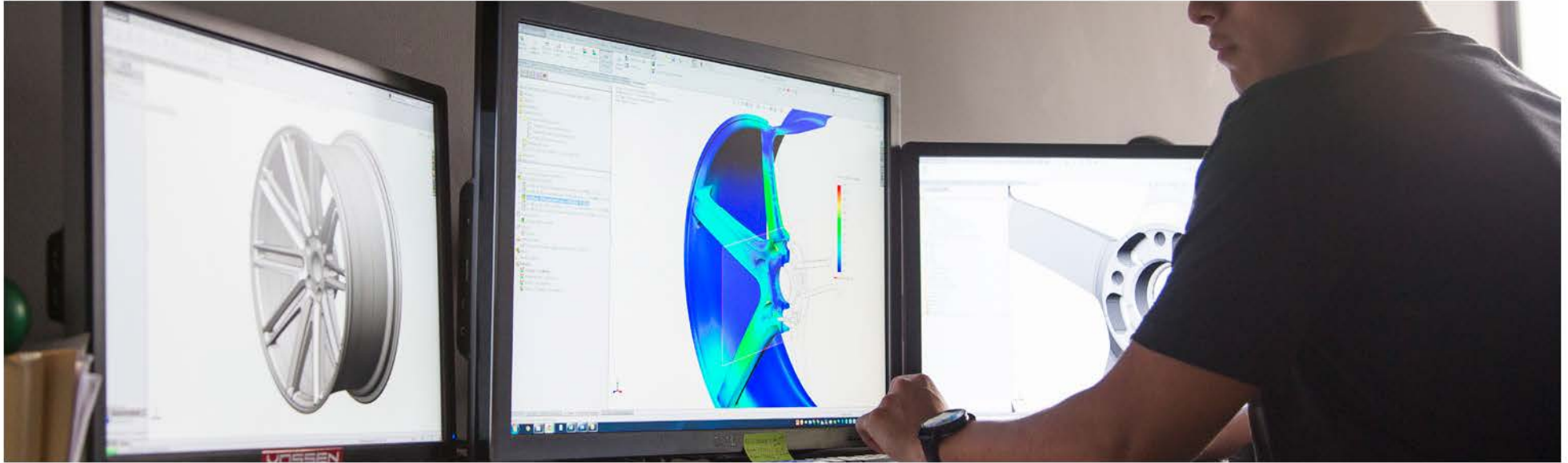


von Mises (N/mm<sup>2</sup> (MPa))



→ Yield strength: 275

\*Simulation of dynamic cornering test



## Testing

Every Vossen Forged wheel design is physically tested in compliance with SAE and TUV standards. Using Finite Element Analysis (FEA) software each wheel undergoes simulated cornering, radial, and impact testing specific to the vehicle.





## Measurements

Over 100 measurements are collected from each vehicle, including the weight rating and distribution, to determine each wheel's minimum material requirement. Exclusive to the Precision Series, the center drop, hub, and mounting surface diameters are specific to the bolt pattern of the vehicle, allowing for further weight reduction.





## **Vehicle Tailored Engineering**

Vossen's Vehicle Tailored Engineering ensures that your vehicle will attain its optimal style and performance.

Every Precision Series wheel is engineered to be superior to the OEM wheel it is replacing and the ultimate fit is achieved by considering the maximum width, offset, and concavity that the car's dimensions will allow.



# MANUFACTURING

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Vossen Forged wheels utilize a manufacturing process developed to achieve the most uncompromising design and quality standards for forged wheels. In order to produce the most precise wheels in the industry, Vossen has developed a proprietary eight-step machining process.



#### MANUFACTURING

## Material

Manufacturing the best wheels in the industry begins with nothing but the finest raw materials, made in California. Vossen Forged wheels are made of aerospace-grade 6061-T6 aluminum forged into a proprietary forging design. Heat-treated for additional integrity, these monoblock forgings yield quality equal to and sometimes greater than the raw materials used by the world's top OEM automakers.

## STEP 1

## Programming

Once engineered, each wheel's CAD model is programmed for machining using computer-aided manufacturing software (CAM). The program, or G-Code, is developed using CAM to guide each machine's tool paths while ensuring that the final wheel precisely matches what the engineered CAD model intended.





#### MANUFACTURING

## STEP 2 Initial Lathe Turning

The second step in manufacturing a forged wheel is lathe turning. The raw forging is lathe-turned inside, then flipped 180-degrees and turned outside, creating the rough profile of the final wheel. In this step over 70% of the original material is removed.

MANUFACTURING

## STEP 3 CNC Milling

In this phase of production the wheel's design is revealed while the CNC machines remove as little as 0.02" of material per pass to achieve the utmost precision.

An array of exclusive and intricate milled features characterize the Precision Series, while other Vossen Forged series have similar details echoed throughout.





#### MANUFACTURING

## STEP 4 **Lightening**

Once the face design is complete, the wheel is rotated 180-degrees for additional milling. The lightening pockets are milled into the back pad of the wheel, shaving weight wherever possible.

#### MANUFACTURING

## STEP 5

### Engraving

The specifications of each wheel, such as serial number, vehicle application, size, offset, and load rating, are engraved on the inboard lip, marking each new wheel as a genuine and individualized Vossen Forged product.





#### MANUFACTURING

## STEP 6 **Finish Lathe Turning**

The last step of the machining process is the final inner and outer lathe turning, the most critical in achieving the highest overall precision. The wheel is centered within .001" of its spindle axis and all remaining excess material is removed. The final runout of the wheel after lathing will be less than .01" and the wheel's roundness is within the thickness of three sheets of paper overall.

## STEP 7 Quality Control

Precision requires consistency and consistency requires control, which is why Vossen meticulously inspects every wheel during every step of the process. Vossen machinists conduct inspections on every wheel to ensure precision before proceeding to the next step.

The quality control team confirms every critical dimension according to detailed engineering schematics. Runout, a measurement of a rotating wheel's roundness, is the most critical measurement. Vossen Forged wheels are checked to confirm that the runout is within tolerance.





#### MANUFACTURING

## STEP 8

### Finishing

Vossen's in-house finishing facility utilizes state-of-the-art equipment to produce only the highest quality finishes. From ceramic polishing to powder coating, all Vossen Forged wheels maintain industry-leading quality by monitoring every step of the process with the utmost scrutiny.

FINISHING STEP 1

## Hand Prep

To achieve the highest quality finish, each wheel is hand-sanded and deburred after machining. Wheels receiving a brushed finish undergo an extended hand-sanding process, taking up to five hours each, to produce an even, brushed facade throughout the wheel.





#### FINISHING STEP 2

## Brushing & Polishing

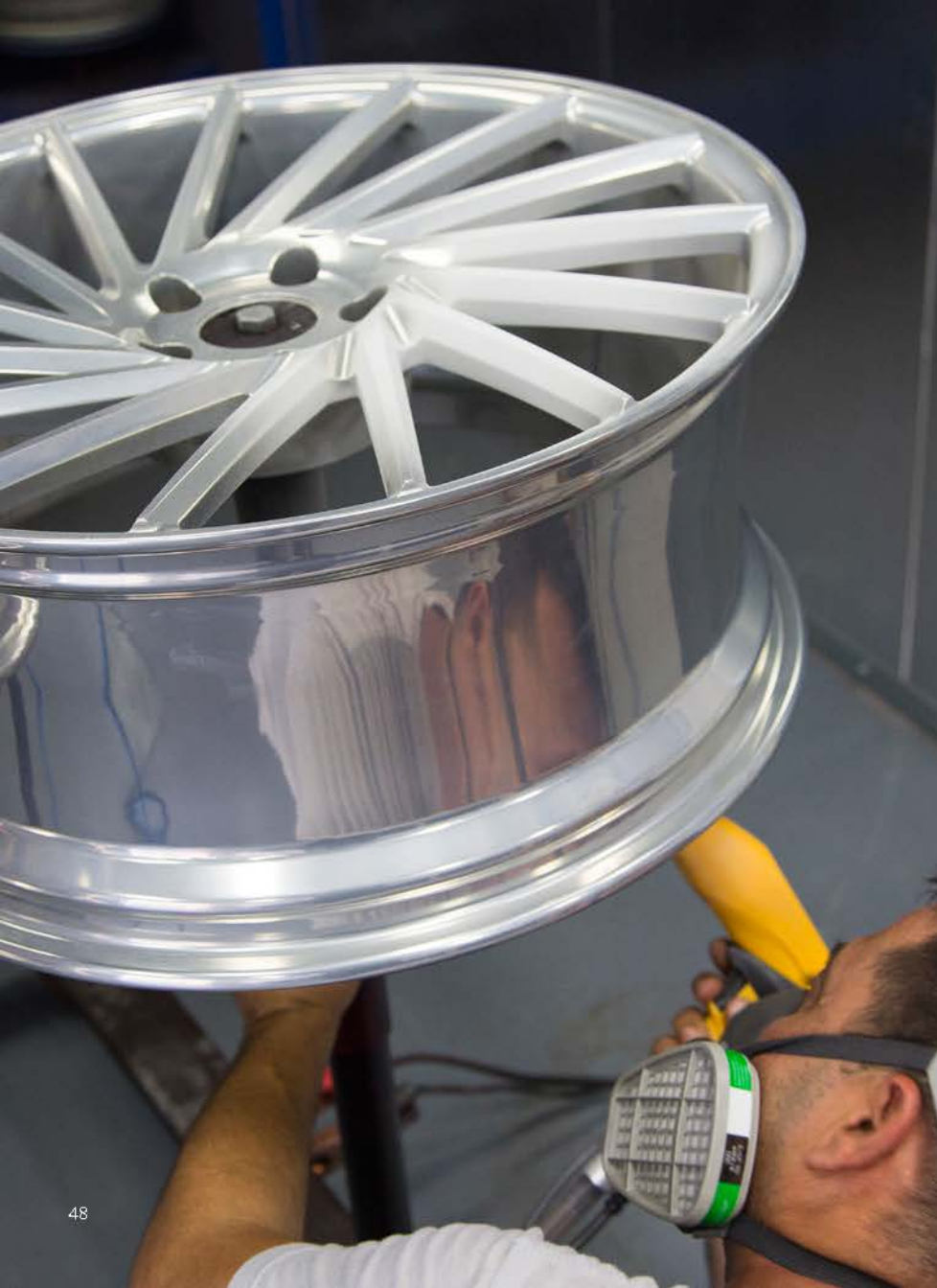
The most time-consuming-yet-rewarding part of the finishing process is brushing and polishing. Offered as upgrade options in every Vossen Forged line, brushed wheels reveal the beauty in the forged aluminum grain while full ceramic polishing creates a mirror-like finish. Brushing and polishing can also be mixed for the best of both worlds.

FINISHING STEP 3

## Pre-Treatment

After hand prep, all wheels undergo a 7-stage pre-treatment cleansing process to remove any impurities prior to powder coating. This pre-treatment process allows for a stronger and more consistent finish once powder coated.





FINISHING STEP 4

## Powder Coating

Vossen's in-house powder coating facility has been developed specifically for handling wheels, utilizing state-of-the-art components and the highest quality powders to produce an elegantly uniform finish that stands the test of time.

FINISHING STEP 5

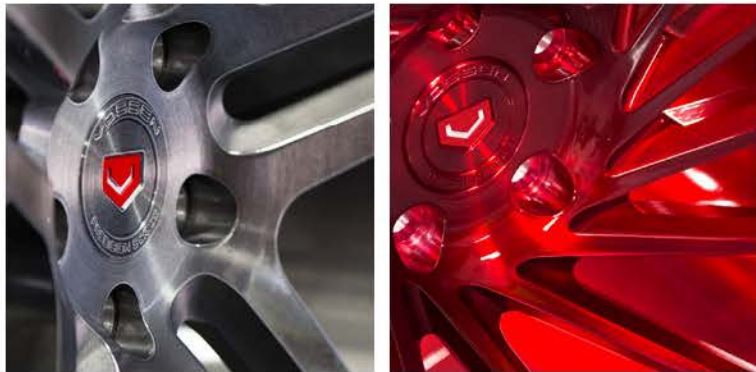
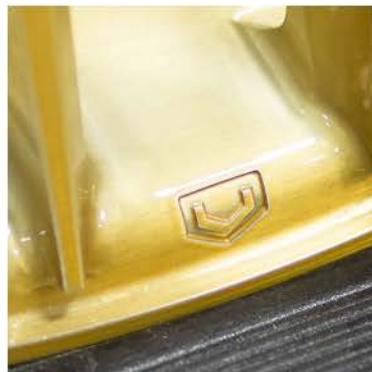
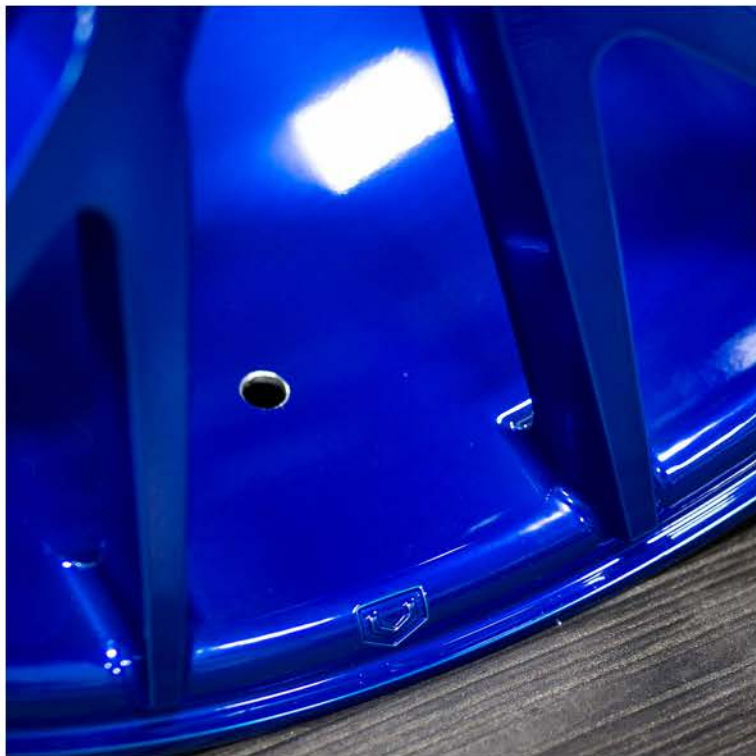
## Final Visual Inspection

After powder coating is complete, a final inspection is conducted. While the obvious inspection includes the quality and consistency of the finish's aesthetic, a film thickness gauge is also used to ensure that the powder coat is uniform in thickness.

Once inspected, each wheel is cleaned and packaged for shipping to the customer.











FORGED WHEEL LINES

# VOSSEN FORGED: PRECISION SERIES

The flagship of Vossen Forged, the Precision Series is distinguished by signature 30-degree cut angles combined with the perfect lip-to-barrel transition of the Infini-Lip.



VPS-301



VPS-302



VPS-302T



VPS-303



VPS-305



VPS-305T



VPS-306



**VPS-307**



**VPS-307T**



**VPS-308**



**VPS-310**



**VPS-310T**



**VPS-312**



**VPS-313T**



VPS-314



VPS-314T



VPS-315



VPS-315T



VPS-316



VPS-317



VPS-318

# VOSSEN FORGED: CG SERIES

The CG Series is defined by the Closed  
Geometry and elegantly-confined patterns  
created by the monoblock spoke designs.



**CG-201**



**CG-202**



**CG-203**



**CG-204**



**CG-205**



**CG-207**

# VOSSEN FORGED: LC SERIES

The Lip Concept Series is aimed at emulating the lip transition of a multi-piece wheel while maintaining a single-piece monoblock forged construction.



**LC-101**



**LC-102**



**LC-103**



**LC-104**



**LC-105T**



**LC-106T**



**LC-107**



MADE IN MIAMI, FL

Proudly  
**MADE IN  
THE USA**

*Authentic*  
EST. 1988

