

TRUEBIKE 2018 Catalogue



TRUEEBIKE
 Bicycle brand with Innovative Technology
 from Automotive Industry Solutions

2017.11 TRUEEBIKE U1 Mass production model being produced
 2016.10 Urban electric bicycle TRUEEBIKE U1 20 Prototypes
 production complete

- 2018**
 - TRUEEBIKE U1 released in First Half
 - Enforcement of electric bicycle laws since March 2018
- 2017**
 - Mass production system in Second Half, Supply of parts, KC certification proceeding
- 2016**
 - Exhibition of Seoul Smart Mobility International Conference, mass production bicycle and stamping frame exhibition
 - Completed the mass production of electric bike U1 test co-developed with Klio Design, completed 2 domestic and 2 international trademark registration
 - Four patents on bike frame production using press and robotic welding
- 2015**
 - Patent of bike frame production technology using press and robotic welding
 - 2 joint registration with domestic large corporation
- 2013 – 2015**
 - Carrying out the Governmental Project <Development of Bicycle Frame Production Technology for 6UPH by Shape Stamping and Welding Automation with 780 MPa High Strength Steel>



Innovative Technology from Automotive Industry Solutions

The bicycle industry is an assembly industry that requires hundreds of parts.

The main technology of the main parts is owned by Japan, Europe and Taiwan, and the high-priced bicycle market occupies most of them.

Low-cost parts market is occupied by low-wage laborers in China, Southeast Asia and other countries.

Among the major parts of the bicycle, especially the frame is an important part of the design and technology to represent the bike brand. Although the quality of the frame is the most important factor, in the case of a metal frame, the level is determined according to the welding skill of the operator. Even in the case of composite frames, the quality of products varies depending on the operator.

In order to overcome the limitation of this labor-oriented industrial structure, TRUBIKE will contribute to the revitalization of the domestic bicycle industry through the production of stamping frame using the domestic industrial infrastructure and to secure industrial competitiveness through export.

Bicycle Frame Production Technology for 6UPH by Shape Stamping and Welding Automation with 590 MPa High Strength Steel

- Same Expression as Carbon Composite Frame
- Same Lightweight Level to Aluminum Alloy Frame
- EN 14764, 14766, 14781 frame test pass
- DP590 1.0mm Thickness Thin Sheet Metal Material Frame
- Thin sheet metal, low temperature welding process with minimum deformation
- 6 Unit per Hour of Automation Welding Productivity with minimum human labor
- Reducing Frame Cost to Aluminum Alloy One
- Quality Control Process with Automotive Industry Standards
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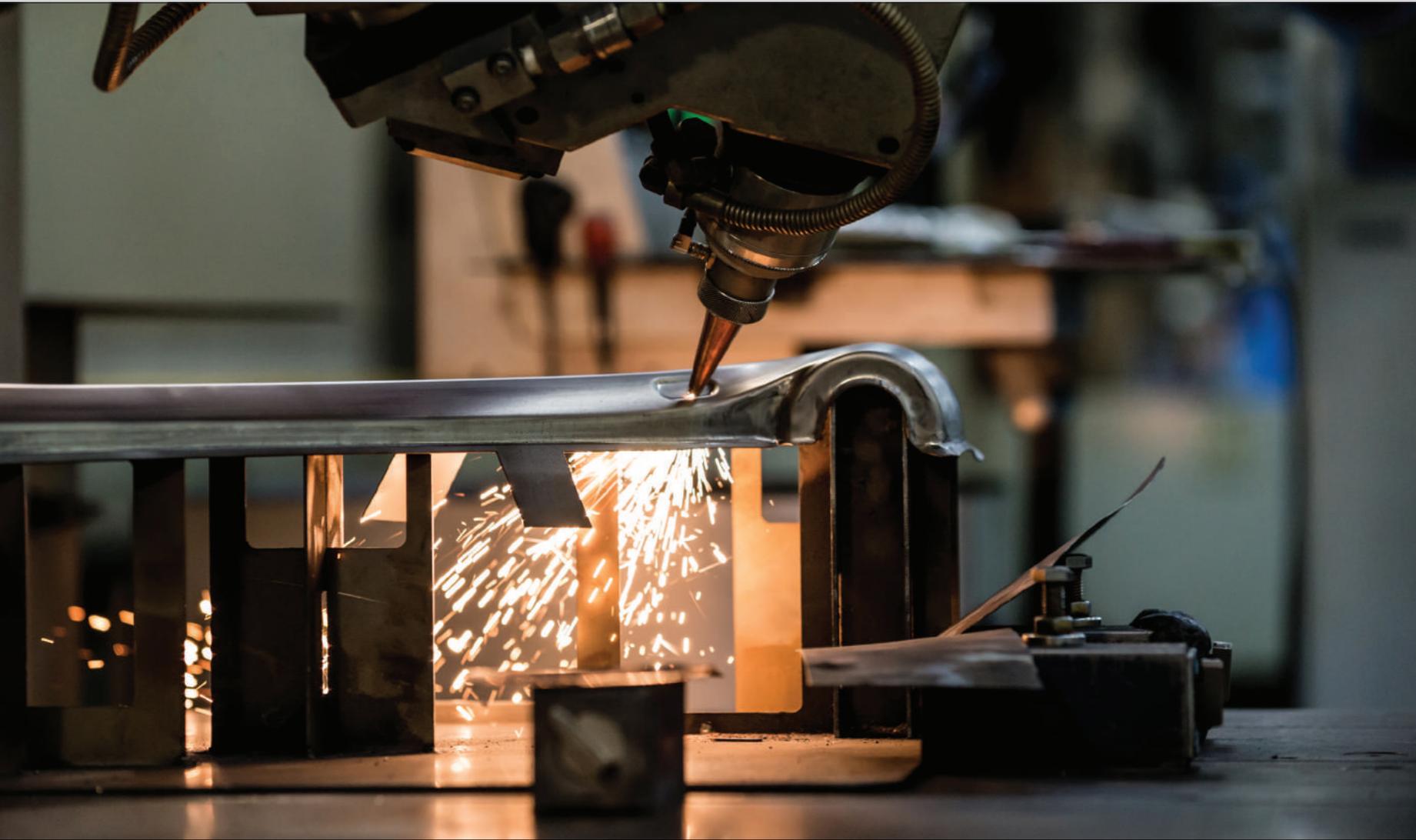
① Using High Strength Steel

- Highly flexible curved surface design of bicycle frame that can be implemented only with existing Carbon Composite
- Achieve high rigidity of 590 MPa
- Compared to existing carbon frame or aluminum frame, competitive production cost, high performance, uniform quality can be secured



② Deep Press Forming

- Mold design and manufacturing technology for deep press forming
- Technique to form integral body from head tube to chain stay for full monocoque structure



③ Three-dimensional laser cutting technology for 4-piece panels

- Teaching 3D laser cutting robot to produce error-free panels
- Quality inspection of single panel by Checking Fixture
- Eliminate Human errors



④ Robotic Automation Welding Process for 1.0mm Thickness Thin Sheet Metal Material

- Minimizing weld distortion for 1.0mm Thickness Thin Sheet Metal
- In order to weld a bicycle frame, which is a shell of the structure, a uniform weld bead should be realized.
- To realize a perfect welding bead on the assembly of 4 panels, we design and fabricate turning jig that works with robot



The Class A surface is the surface that determines the exterior style of the car, and it means the highest quality surface with the curved surface reflecting both the designer's intention and the production condition.

⑤ **Apply Class A surfaces to bicycle frames**

- Existing Class A surfaces were only available on carbon bike frames, but with TRUEBIKE technology, the Class A surface was implemented with the DP590 High Strength Steel
- There is continuity in the flow of highlights, smooth light flow, no breaks or splashes in the middle
- TRUEBIKE's DP590 stamping frame is a high-quality surface of the car exterior

TRUEBIKE stamping frame development performance



❶ Unique weld bead for frame rigidity and design style



❷ Surface design with curvature continuity



❸ Implementation of smooth weld bead through robotic welding

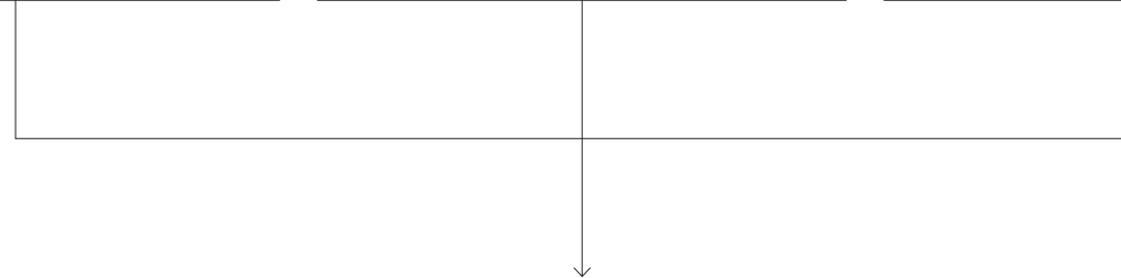
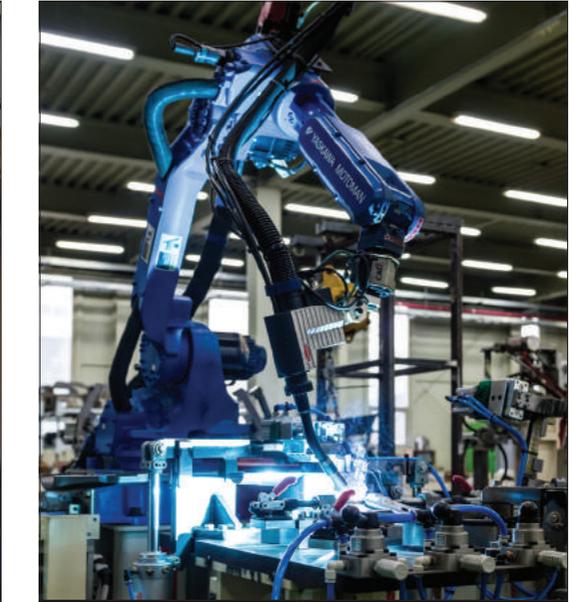


❹ Full monocoque frame realized by joining four high strength steel sheets



Conclusion

- ❶ Ensure quality and price competitiveness through mass production using automobile industry infrastructure
- ❷ Design Freedom through DP590 High-Strength Steel Sheet Automobile Forming Technology
- ❸ Application of 6UPH automated production process using robotic welding technology



New way to Create Bicycle Frame
 Bicycle Innovation of Production with Automotive Standards
 Realization of Unique and Agile Design

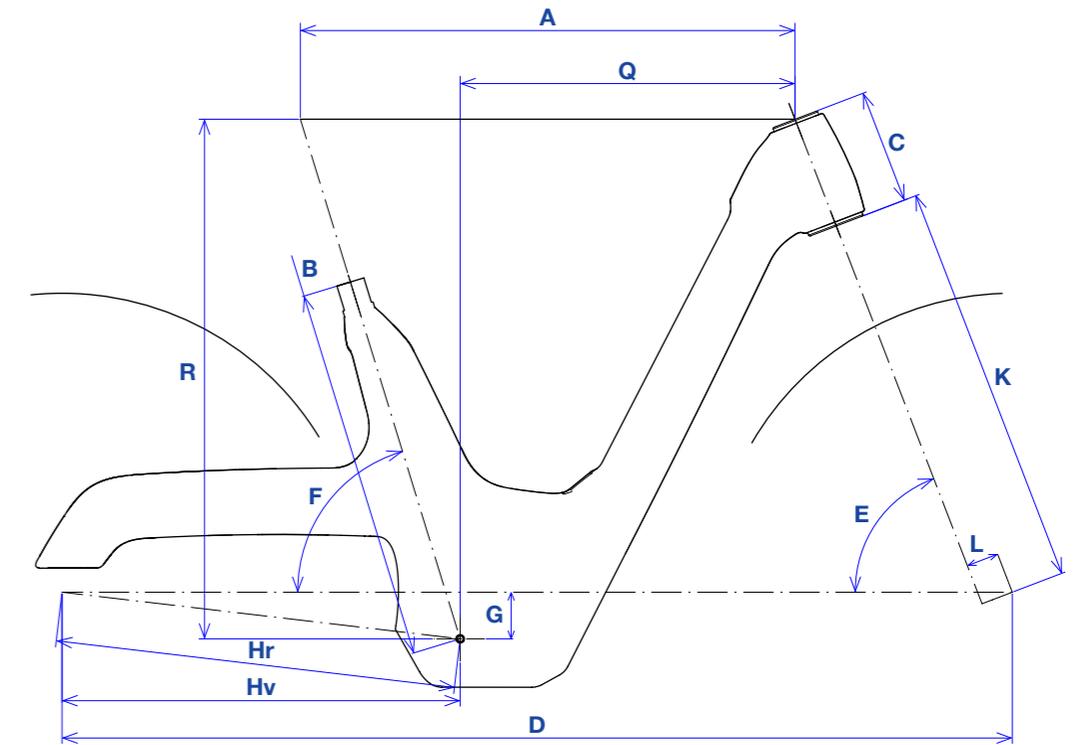


TRUEBIKE U1



U1-Pilot 1 Frame Geometry

A	Top tube length	580mm
B	Seat tube length	440mm
C	Head tube length	135mm
D	Wheel base	1114mm
Q	Reah	393mm
R	Stack	613mm
E	Head angle	69°
F	Seat angle	73°
G	Bottom bracket height to axle	55mm
Hr	Chain stay length	470mm
Hv	Effective chain stay length	467mm
K	Fork referring measurement	477mm
L	Fork offset	38mm



FRAME	U1 - DP590
FORK	ROCKSHOX - PARAGON GOLD
HEADSET	1.5" 1-1/8" SEMI INTEGRATED
MOTOR	SHIMANO STEPS E6000 MODEL
BATTERY	SHIMANO STEPS BATTERY
HMI	SHIMANO STEPS CYCLE COMPUTER
SWITCH	SHIMANO STEPS SWITCH
CHAINRING	SHIMANO STEPS CHAINRING 38T
CHAIN	FOR E-BIKE, REAR 10 SPEED/FRONT SINGLE, 116 LINKS
CRANKARM	CRANK ARM SET FOR STEPS, FC-E6000, 170MM
DISC BREAK	SHIMANO - DISC BRAKE ASSEMBLED SET

DISC ROTOR	ROTOR FOR DISC BRAKE, 160MM
WHEELS	SHIMANO MT500 27.5" or MT35 26"
TIRE	SCHWALBE MOTO-X 2.4
SPROCKET	SHIMANO CASSETTE SPROCKET, 10-SPEED
DERAILLEUR	REAR DERAILLEUR, DEORE, SGS 10-SPEED
SHIFT LEVER	SHIFT LEVER, DEORE 10-SPEED
HANDLE BAR	31.8x720mm
PEDAL	WELLGO
STEM	31.8x90mmx28.6
GRIP	VELO
QUICK STAND	PLETSCHER OPTIMA FLEX SWISS MADE
LIGHT F/R	SUPERNOVA E3 E-BIKE V6S







U1 Model Variation



Azure Blue



Carmine Red



Zinc White



Pastel Mint



Bee Yellow



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