QUESTIONS ANSWERS

Kona Technical Information Archive

FRAME MATERIALS

STEEL

· While the term "steel frame" can cover anything from the stamped high tensile rig sold at Toys-R-Us, to the custom chromoly handbuilt, we'll limit this to just the quality end of the range. In general, steel is appealing because it's durable, easy to work with, repairable and fairly inexpensive.

· The basic components of 4130 Chromoly steel are Chromium, Molybdenum, Manganese and Carbon along with traces of a few other elements. The ratio of these elements combined with extrusion techniques is what makes a Columbus or Reynolds steel tube different from each other. If made properly, a 4130 CroMo frame can last a lifetime. Unless a steel frame of this quality is pushed beyond its maximum yield, it should not fail. Of special note; the Yield strength of "standard" CroMo is @760N\mm2 compared to a quality cold worked 3-2.5 Titanium's number of 792N\mm2. Steel is durable. Steel can also be comfortable and efficient. The reason that companies make springs out of steel is because the material can retain energy and expend it back. A steel frame doesn't absorb the force of a pedal stroke or the impact of a water bar, it stores it. The gathering of force is what makes a frame comfortable and it is the return of that energy that gives a steel frame it's lively feel.

COLUMBUS NIVACROM & REYNOLDS 853 TUBING

· During the last fifteen years, bicycle manufacturers have made more advances in steel tubing technology than in all the 90 years before. Kona utilizes two of the most impressive advancements.

· The Columbus Nivacrom tubing used in the Kilauea, Explosif and Kapu are examples of an exceptionally strong, non-heat treated steel. Because of its peculiar chemistry, Nivacrom is resistant to overheating during brazing and welding. "Some alloying elements in it, such as Vanadium and Niobium, precipitate into the metal matrix, thus preventing grain enlargement and the degradation of mechanical properties even at temperatures exceeding 1000°C." What does all that mean to you? It means that some guy can get a little too happy on the TIG welder and not ruin your expensive frame. The other benefit of Nivacrom's structure is strength. With a Yield Strength of 1030 N/mm2 , or @150,000psi, this Columbus tubing exceeds the numbers of 6-4 Titanium tubing without the cost and building difficulties.

· A steel with even more impressive numbers is the new 853 tubing from Reynolds. This material is a high strength, heat treated, air hardening steel. The main advantage of 853 is its ability to air harden after jointing. "When building frames (with 853) using either TIG welding, or high temperature brazing above 850°C (1560°F), the joints increase in strength as the frames cools to room temperature." This is exactly the opposite of what occurs in most frames. The additional benefits gained by the composition of 853 include stiffer, more efficient frames and resistance to denting.

HOT

· Constructed entirely of Reynolds 853 tubing, made in England.

· The top tube has an O.D. of 28.6 and is double butted .7/.5/.7

· The down tube on 14"-18" frames have an O.D. of 31.7 with a .7/.5/.7 wall thickness. The 19"-20" frames have a downtube with a 34.9 O.D. and a wall thickness of .8/.5/.8

· The seat tube is drawn specifically for Kona with an external reinforcement in the seat tube extension area; wall thickness 1.3/.6/.9

· The seat stays are double tapered 18mm tubes and the chain stays are ovalized with a taper ranging from 27.5 to 17.0.

· Made for 27.0mm seat post, 28.6mm front derailleur, 68mm bottom bracket, & 1-1/8" headset.

· Made in the USA by Altitude Cycle.

· 3.6 lbs for an 18" frame.

CALDERA

· Constructed entirely of Altitude Cromoly Heat-treated tubing.

· The top tube is butted .8/.5/.8, the down tube .9/.6/.9 and the seat tube is 1.5/.9 with an external seat tube reinforcement.

· Made for 27.0mm seat post, 28.6mm front derailleur, 68mm bottom bracket, & 1-1/8" headset.

· Made in USA by Altitude.

· 4.0 lbs for an 18" frame.

EXPLOSIF

· Constructed entirely of Columbus Nivacrom Max OR tubing.

· Tubing wall thickness: Top - .7/.4/.7, Down - .8/.5/.8

· The seat tube is custom drawn for Kona by Columbus with a wall thickness of 1.3/.6/.9

· Columbus drawn, oversized seat stays dramatically improve braking performance.

· Made for 27.0mm seat post, 28.6mm front derailleur, 68mm bottom bracket, & 1-1/8" headset.

· Made with Italian tubing.

· 4.0 lbs for an 18" frame.

KILAUEA

· Constructed entirely of Columbus Cyber MTB tubing.

· Tubing wall thickness: Top - .7/.4/.7, Down - .8/.5/.8

· The seat tube is custom drawn for Kona by Columbus with a wall thickness of 1.3/.6/.9

· Made for 27.0mm seat post, 28.6mm front derailleur, 68mm bottom bracket, & 1-1/8" headset.

· Columbus drawn, oversized seat stays dramatically improve braking performance.

· Made with Italian tubing.

· 3.9 lbs for an 18" frame.

CINDER CONE & LAVA DOME

· Constructed with chromoly double-butted tubing.

· The top tube and down tube are butted .9/.6/.8 and the seat tube is 1.0/.7 with an external seat tube reinforcement.

· Made for 27.0mm seat post, 28.6mm front derailleur, 68mm bottom bracket, & 1-1/8" headset.

· 4.5 lbs for an 18" frame.

KAPU

· Constructed entirely of Columbus Nivacrom OR tubing.

· Genius tubing is directionally butted. Top - .7/.4/.7, Down - .8/.5/.8

· Seat tube is custom drawn for Kona by Columbus with wall thickness of 1.3/.6/.9

· Designed for 27.0mm seat post, 68mm bottom bracket lug width and 1" headset.

· Made with Italian tubing.

· 3.1 lbs for an 56cm frame.

LAST PAGE | TABLE OF CONTENTS | NEXT PAGE

BACK TO TECH AREA

Kona Factory Team Roster & Schedule

Kona 1997 Bike Info & Specs

K-Nine Clothing and Accessories

Authorized Kona Dealers

Kona World Control Center

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