

Technical
Manual
2000

KLEIN[®]
Handcrafted Science[™]

The importance of good fit

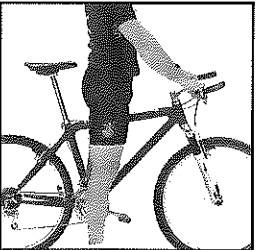
It's an easy concept to grasp: for a bike to be comfortable, it must fit well.

Good fit is also a major part of performance. With a poor fit, the rider's weight balance may be off, degrading handling. If the rider is not correctly positioned for power, a bike may feel (and be) slow. And an uncomfortable cyclist wastes a great deal of muscle energy coping with the discomfort, slowing them and bringing on early fatigue.

A slow, poor handling bike that is uncomfortable makes for an unhappy cyclist. Or worse, an ex-cyclist. If we're lucky, this sad cyclist may stick with it long enough to perhaps find another bike that makes them happier, or another shop who will correctly fit them to their existing bike. In each case way we both stand to lose.

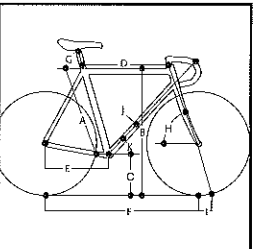
Old fitting methods

Some people still use standover clearance to size bikes. It wasn't many years ago that almost all bikes had horizontal top tubes. If we assume that those bikes had a fairly narrow range of bottom bracket heights, and that all stems were pretty similar in the amount of height adjustment they offered, that meant that the top tube could be used as an indicator of handlebar height, as well as seat height. Even so, standover did not take into account reach, an important part of fit that accounts for the distance from the saddle to the handlebars. Especially with modern frame design, standover can't tell us where either the seat or the handlebar goes. So standover only sort of worked as a fitting guide in the past, and for modern bikes doesn't work at all.



Another old bike fitting maxim was that to correctly fit a racer on a road bike, there should be about four inches of seatpost showing, and the top of the stem should be no lower than two inches below the top of the saddle. While this may not be universally true, it brings up several important points in bike fitting that are largely overlooked today. This 'four inches of post' fit rule is for a road racer, who (may) be comfortable in a bent over, aero position. The average cyclist is likely to be more comfortable with their bars even with the top of their saddle. With sloping top tubes, wildly varying saddle designs, and modern stem configurations, this method can't tell us where the seat or bars go either, so the seatpost rule can't be used.

Some people use a geometry chart to fit bikes. Since most geometry charts don't list head tube length or the fork's axle-to-crown dimensions, there is no way to know how high the handlebars are. The charts usually list seat tube angle and top tube length, but without some complex math you can't know the relationship of the bars to the bottom bracket. And all those angles don't tell you much either. As an example, varying the seat tube angle a degree effectively changes the top tube length by around a centimeter (depending on frame size) without actually moving the rider any closer or further from the bars. So basically, standard geometry charts tell you very little about a bike's fit.



Fitting modern bikes

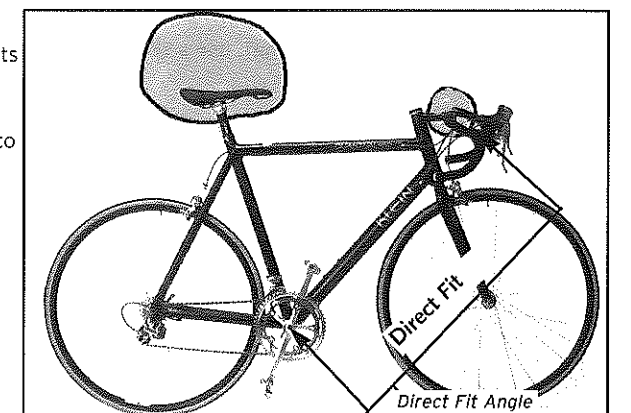
Today's bikes have lots of bottom bracket height variation, they use sloping top tubes, and many of them use Ahead or Airheadset™ type stems with varying rise, or riser bars. But talking about where the frame tubes are overlooks what's really important in bike fit: the location of the rider contact points of hands, feet, and seat. If these points are correct, the bike will be comfortable, the rider more efficient, and assuming they are properly balanced over the wheels the bike will handle its best.

If you force a rider into an uncomfortably bent-over position, their back will curve excessively and cut off their breathing. A stiff neck may prevent them from seeing the road well, and since head position is important to balance they may have problems steering. If they place too much weight on their hands, they may fatigue early or suffer from excessive pressure on their hand tissues. Basically, having a poorly fitted bike is a pain.

Direct Fit

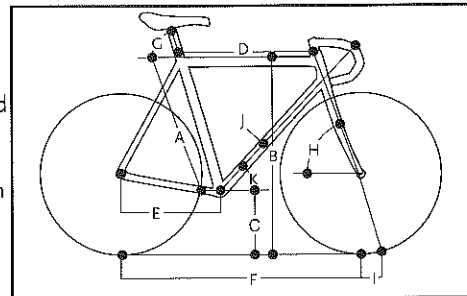
To properly fit a rider, you have to define the location of the three points of contact: the seat, the hands, and the feet. On a bike, these points correspond to the saddle, the grips (or top of the lever hoods on a road bike) and the pedals. To make the pedal location easier to locate, and since there is scant variation in crank length, we use the bottom bracket to reference foot position.

Of the three points on the bike, the hardest to adjust is the bottom bracket, having no adjustability. Next is the grips which have limited adjustability, even if parts are substituted.



The part with the most adjustment is the saddle, which can be moved up and down, or back and forth, a great deal. Since the seat has the widest range of adjustment and is the easiest to adjust, seat tube length should be the least of our worries in selecting frame size.

Since the hardest part of bike fit to adjust is the relationship between the bottom bracket and handlebars, the most efficient way to fit a bike should be to choose a bike with a frame design and size that places the handlebars where the customer wants them. In Klein's new Direct Fit system, we define this relationship in both distance and angle. For those of you who have sold Kleins for some time, you will remember that Klein ATBs used to be sized in inches corresponding to an imaginary horizontal line from the top of the head tube. Direct Fit is based on the same principle: hand position above the bottom bracket is critical for good fit.



Direct Fit
Geometry Details
on Page 23.

Defining a good fit

We've all seen the pictures of Greg LeMond time trialing in the Tour de France. His back is so flat he could balance dinner service for four without spilling the Perrier. This obviously worked for Greg, but most cyclists don't have that kind of flexibility.

When looking at a cyclist's positions, we don't go by leg length or where the knee is over the pedal. Instead, we look for body shapes. Here we'll discuss those shapes in terms of the appropriate adjustments. Also bear in mind the needs of the customer; their fitness, experience, age, sex, and personal riding style. Each person is different, so there really are no rules, just guidelines.

Since the seat has the most adjustment, we may as well make those adjustments first. The fore/aft adjustment must be made in conjunction with seat height. As you move the saddle in any direction, it will effect the angles of the lower limbs. Start with the saddle level, or slightly nose-down.

• Seat height

The foot (from ball to heel) should be flat at the bottom of the pedal stroke, with a slight bend in the knee. Check that the rider does not roll their hips side to side when they pedal. For novice riders, those without a lot of cycling fitness, or inexperienced off-road riders, go slightly lower. Runners may find a higher position allows them better usage of their running-trained muscles.

• Seat fore/aft

On an average rider of average build on some bikes, the KOPS (Knee Over Pedal Spindle) rule may work. But don't feel tied to this. There are a lot of reasons why. Consider two riders of exactly the same proportions and skill level, except one has small feet and the other has large feet; using the KOPS method would put very different angles in their ankles, knees and hips. Now consider two riders with exactly the same leg dimensions, except one has a lean physique with a lot of shoulder mass, while the other has more girth at the hips and stomach; the difference in their center of gravity will make the bike handle differently. And consider a road racer who wants to take up mountain bikes; to use those well trained cycling muscles for power they need to maintain similar angles and range of motion, so as they rotate their upper body into a mountain bike position, they need to rotate their lower body as well which moves their knees back.

So when considering fore/aft position, adjust for center of gravity and handling. Look at the angle between the torso and thigh at both the bottom and the top of the pedal stroke. Watch the rider transition between sitting and standing on the bike; it should be natural when standing to move forward of the saddle. Consider their foot size. And take into account the balance between the seat and bars; if they complain of excess hand pressure, one way to alleviate it is to move them back on the bike, putting more weight on the saddle. Re-check the seat height.

• Handlebar height

The back should be mostly straight, with no sudden curves. Any sudden curves indicate the bar needs to be raised. Lower back pain generally means the same thing, although lower back pain also comes from excessive saddle height.

Generally, the handlebars should be lowered as far as they can go without being too low as indicated above.

• Stem length

Arms should be slightly bent at the elbow. This allows the muscles to work as shock absorbers and prevents the ground from steering the bike by transmitting shock directly to the rider's torso. Elbow should be forward of the shoulder, allowing the arms and torso to form an 'arch' between the bars and saddle.

If the elbow is too far rearward, use a longer stem. If the shoulders roll forward (toward the middle of the chest) from their normal orientation (like when standing), use a shorter stem.

Determining what bike will fit

We've now defined the three fit dimensions to meet our goal of fitting the customer comfortably. To realize this goal, we need to have tools. We have provided you in the following pages with Klein Direct Fit information on all models, as well as a comparison to models from a popular bike brand, Trek. We even show some of the variations possible by changing stem lengths, rises, and spacer stacks on our year 2000 models.

Fine tuning

The Direct Fit chart only gets you to frame size. Past this recommendation, we leave it to your expertise to determine if the customer needs additional fitting. At this point, saddles may be changed to personal preference. Stems and seatposts can be raised and lowered, or parts changed to accommodate additional adjustment. With the Direct Fit chart getting you this far so fast, you will have more time for that personal, expert touch that defines you as the service oriented bike dealer in your area.

Other Direct Fit details

One of the problems for an active cyclist is getting both their road and mountain bikes to fit right. The problem is that most riders sit differently on a road bike than on a mountain bike. On a road bike, aerodynamics are very important and the terrain (pavement) is fairly consistent. On a mountain bike, handling and control are more important and the terrain is pretty unpredictable. With these differences, riders generally lean over more on road bikes than on mountain bikes. However, if a person is trained to pedal efficiently on one bike, they need to mirror the angles of their joints, and the range of motion of their muscles, on both bikes. To do this, use the Direct Fit from one bike and apply it to the other. By rotating the rider about the bottom bracket, their musculature can be used in much the same way on two very different bikes.

It's normal to find slight variations in Direct Fit measurements, since stems come in large increments. Variations in Direct Fit of less than 10mm are probably not noticeable to most riders.

Final adjustments (a disclaimer)

Like all sizing systems, ours is not 100%. There is enough variance in both human anatomy and riding styles that some people won't quite fit our recommendations. Any system which is based on body dimensions is going to fail, for the simple reason that length of limbs is not the only factor in fitting a bike.

- Flexibility is very important to bike fitting. Even some very fit racers cannot touch the floor with their knees locked. They certainly won't find it comfortable to be in a laid-out, aero position for long. Consider the lack of flexibility of Joe Average, and the aero position is intolerable.

- Cycling familiarity. If a rider hasn't spent a lot of time on a bike, they may find it difficult to balance when bent over.

- Body weight effects position. If a rider is, ummmm, stout, those bars can be hard to reach.

- A fitter rider may be able to ride a higher saddle position more comfortably.

- People vary. Different people of the same height can have different length of limbs. People of similar dimensions can have differing muscle attachments. Varying levels of strength or fitness can mean the same person may not be comfortable with their racing position after a long layoff from cycling.

These are just a few of many more variables. The important thing is not that Direct Fit eliminates the need for custom fitting. Direct Fit just better describes how a bike fits, giving a basis for picking the right frameset in the first place.

Confusion over Klein fit

Some of our dealers have had a hard time picking the right size of Klein bike. Stuck in the land of seat tube lengths, it can be bewildering finding the right bike. So here we give the comparison of Direct Fit of Klein platforms to a few popular Trek models.

Quantum	51	53	55	57	59	61	
	765	797	834	854	883	902	
	43.1	42.9	41.9	42.5	42.6	43.0	
Trek 5200	50	52	54	56	58	60	62
	767	791	802	835	850	884	898
	47.1	44.9	44.7	43.7	44.9	44.5	45.6
Mantra	S	M	L	XL			
	802	832	866	898			
	47.2	43.3	42.4	44.0			
Attitude Comp	XS	S	M	L	XL		
	773	813	839	860	907		
	53.3	50.6	47.5	47.4	48.5		
Trek 7000	XS	S	M	L	XL		
	770	801	832	851	882		
	53.6	49.7	48.9	49.2	49.2		

You can also measure other brands or models of bikes in your store for comparison. These dimension are calculated from the center of the bottom bracket to the center of the hand position- the grips on a mountain bike, or the bars just behind the lever hoods on a road bike. All you need is a metric tape measure and a \$1.99 protractor. The Direct Fit angle is easy to measure by placing the protractor on the floor and pulling a string from the protractor, through the centerline of the bottom bracket, to the hand position.

All dimension are given with the bars in the highest position, with all spacers under the stem.

Suspension bikes should be measured in a sagged position.

Comparing size ranges with parts variations

Here's what's possible in adapting the Direct Fit by changing a few parts or moving spacers. There are even more adjustments possible, such as riser bars. Note that these changes can create the equivalent of the next bike size.

Quantum (spec)	51	53	55	57	59	61
	80	90	110	110	120	120
	0	0	0	0	0	0
(small setup)	25	25	25	25	25	25
	765	797	834	854	883	902
	43.1	42.9	41.9	42.5	42.6	43.0
(large setup)	60	70	70	90	90	100
	-17	-17	-17	-17	-17	-17
	0	0	0	0	0	0
(small setup)	723	753	773	805	826	851
	40.1	39.7	40.1	39.0	39.8	39.5
(large setup)	90	110	120	130	140	150
	0	0	0	0	0	0
	25	25	25	25	25	25
(small setup)	773	814	842	870	899	927
	42.4	41.6	41.3	41.3	41.4	41.2
Mantra (spec)	S	M	L	XL		
	105	120	135	135		
	7	7	7	7		
(small setup)	25	25	25	25		
	802	832	866	898		
	47.2	43.3	42.4	44.0		
(large setup)	75	90	105	105		
	7	7	7	7		
	0	0	0	0		
(small setup)	761	791	826	858		
	46.4	42.3	41.4	43.1		
(large setup)	120	135	150	150		
	15	15	15	15		
	25	25	25	25		
(small setup)	822	852	888	920		
	48.2	44.5	43.8	45.3		
Attitude Comp (spec)XS	S	M	L	XL		
	90	105	120	120	135	
	15	15	15	15	15	
(small setup)	25	25	25	25	25	
	773	813	839	860	907	
	53.3	50.6	47.5	47.4	48.5	
(large setup)	75	90	105	105	105	
	7	7	7	7	7	
	0	0	0	0	0	
(small setup)	740	780	806	827	859	
	50.7	47.7	44.3	44.2	46.1	
(large setup)	105	120	135	150	150	
	15	15	15	15	15	
	25	25	25	25	25	
(small setup)	787	827	853	889	921	
	52.7	50.0	47.0	46.4	48.0	

Overall body height compared to Direct Fit dimensions

To make this system easy to use, we rely on overall body height. At first glance, this may seem inaccurate or oversimplified. Here's why we chose to use it this way.

- 1. Most customers already know how tall they are. You don't have to measure them, which takes time and may invade their sense of privacy.
- 2. Measuring body dimensions requires skill and training. Even with both, two different people may measure the same person differently. Another factor is clothing and body weight. Its easy to find specific points on a person with low body fat. It can be much more difficult on someone of higher body fat.
- 3. As explained earlier, as riders grow older, more experienced, or change fitness levels, their bodies change. These changes require their position to change. But the length of their limbs probably has not changed. So physical measurements are not an accurate method of adjusting bikes anyway.

So lets keep it simple. Ask them how tall they are. Ask them what kind of riding they want to do. Then look on the chart to see what Direct Fit dimension comes closest. Adjust according to their experience level, fitness, and age. And remember that custom fitting the right size frame is much easier than trying to fit someone on a too small or too large frame.

For a given level of rider, the Direct Fit measurement should be the same whether on a road bike with drop bars, or a mountain bike. But for two riders of the same height of differing riding styles, a more upright position will measure longer by about 5mm per degree. As an example, a 5'6" racer may fit a 44 degree bike of 790mm. But a 5'8 casual rider on a 50 degree bike should try a 820mm Direct Fit. Also note that women, due to their different body structure, may find it more comfortable to ride bikes with a higher angle.

Most people will fit more than one frame size. When faced with a choice, don't fall for the old "buy the smallest bike you can ride". Instead, focus on finding the bike that puts the handlebars in the customers preferred position. Remember that a higher (larger) Direct Fit Angle means a more upright position.

	Racer (40-48° angle)	Recreational (over 50° angle)
4'8"	<720	<750
4'10"	700-735	725-760
5'	720-750	740-780
5'2"	735-765	755-795
5'4"	745-780	775-810
5'6"	765-800	790-830
5'8"	805-840	805-870
5'10"	825-865	825-895
6'	845-890	865-920
6'2"	875-910	890-940
6'4"	885-930	910+
6'6"	905+	

Our Price: \$

Attitude

Main tubes	Klein Power tubing				22 32 44
Stays	Klein Gradient aluminum				11 52 76 105
Fork	Rock Shox Judy XC	80mm travel			12 48 70 96
Headset	Dia-Compe SE-1 Aheadset	25.4/34.0/30.0, 25.5mm stack			14 41 60 82
Handlebars	ICON Onyx, 6061, 5° bend	25.4mm clamp diameter			16 36 52 72
Stem	ICON Onyx, direct connect	41.0mm steerer clamp height			18 32 47 64
Grips	Bontrager Ergo				21 27 40 55
Shifters	Shimano Deore RapidFire+				24 24 35 48
Front derailleur	Shimano Deore	Down pull, 34.9 mm/ 1 3/8"			28 21 30 41
Rear derailleur	Shimano Deore LX SGS				32 18 26 36
Brakes	Lee Chi TX22 direct pull				
Brake levers	Lee Chi LV77E, direct pull				
Crankset	ICON Onyx, 4 arm 44/32/22	64/104 mm bolt hole circle			
Bottom bracket	Shimano BB-LP27	73 x 113			
Pedals	Bontrager RE-1, clipless	9/16" axle			
Cassette	Shimano HG50 11-32	9spd			
Chain	Shimano HG72	108 length, 9 speed			
Front wheel	Bontrager Superstock	Velox 19mm rimstrip			
Front tire	Bontrager Super-X, folding	49/48			
Rear wheel	Bontrager Superstock	Velox 22mm rimstrip			
		HyperGlide cassette, 8/9spd, 135mm O.L.D.			
Rear tire	Bontrager Super-X, folding	47/46			
Tubes	Presta valve, ultra light				
Spokes	DT 14G stainless	24 spoke Radial Front	28 spoke 3x / radial Rear		
		254	267/251 rear (D/ND)		
Saddle	SDG Satellite Comp, CrMo				
Seatpost	SP-312 alloy micro-adjust	31.6mm diameter			
Seat binder	Alloy w/integral bolt	36.4 clamp diameter			
Additional	3 water bottle mounts, CCD, replaceable derailleur hanger				
Colors	Light Blue / Black fork • Black decal				
Frame sizes	S M L XL				
Direct Fit	808 838 859 906				
Fit angle	51.1 47.4 47.3 48.4				
Handlebar width	580 580 580 580				
Stem length	105 120 120 135				
Stem angle	15 15 15 15				
Crank length	170 175 175 175				
Seatpost length	320 370 370 370				
Steerer, mm	193 193 213 253				
Fork length	442 mm axle-crown race				
Head angle	70.8 71.3 71.4 71.4				
Seat angle	72.8 72.8 72.8 72.8				
MM	Standover	707 739 775 818			
	Seat tube	400 445 489 533			
	Head tube	105 105 125 165			
	Eff top tube	574 595 611 627			
	Reach	642 683 699 727			
	Chainstays	417 417 417 417			
	BB height	295 300 303 305			
	Offset	42 42 42 42			
	Trail	72 69 69 69			
	Wheelbase	1037 1055 1072 1090			
IN	Standover	27.8 29.1 30.5 32.2			
	Seat tube	15.7 17.5 19.3 21.0			
	Head tube	4.1 4.1 4.9 6.5			
	Eff top tube	22.6 23.4 24.1 24.7			
	Reach	25.3 26.9 27.5 28.6			
	Chainstays	16.4 16.4 16.4 16.4			
	BB height	11.6 11.8 11.9 12.0			
	Offset	1.7 1.7 1.7 1.7			
	Trail	2.9 2.7 2.7 2.7			
	Wheelbase	40.8 41.5 42.2 42.9			

26.5 lb.
12.03 kg

Attitude Comp

Our Price: \$

Main tubes	Klein Gradient aluminum					22 32 44
Stays	Klein Gradient aluminum					11 52 76 105
Fork	Manitou SX					80mm travel
Headset	Dia-Compe SA Aheadset, alloy					25.4/34.0/30.0, 27.0mm stack
Handlebars	ICON Onyx, 6061, 5° bend					25.4mm clamp diameter
Stem	ICON Onyx, direct connect					41.0mm steerer clamp height
Grips	Bontrager Ergo					16 36 52 72
Shifters	Shimano Deore LX RapidFire+					18 32 47 64
Front derailleur	Shimano Deore LX					Down pull, 34.9 mm/ 1 3/8"
Rear derailleur	Shimano Deore XT SGS					21 27 40 55
Brakes	Avid Single Digit 10, direct pull					24 24 35 48
Brake levers						28 21 30 41
Crankset	ICON Onyx, 4 arm 44/32/22					Integrated brake/shift 64/104 mm bolt hole circle
Bottom bracket	Shimano BB-UN52					73 x 113
Pedals	Bontrager RE-1, clipless					9/16" axle
Cassette	Shimano HG70 11-32					9spd
Chain	Shimano HG72					108 length, 9 speed
Front wheel	Bontrager Superstock					Velox 19mm rimstrip
Front tire	Bontrager Super-X, folding					49/48
Rear wheel	Bontrager Superstock					Velox 22mm rimstrip
						HyperGlide cassette, 8/9spd, 135mm O.L.D.
Rear tire	Bontrager Super-X, folding					47/46
Tubes	Presta valve, ultra light					
Spokes	DT 14G stainless					24 spoke Radial Front 254
						28 spoke 3x / radial Rear 267/251 rear (D/ND)
Saddle	SDG Satellite Comp, CrMo					
Seatpost	ICON Onyx, 6061					31.6mm diameter
Seat binder	Alloy w/integral bolt					36.4 clamp diameter
Additional	3 water bottle mounts, CCD, replaceable derailleur hanger					
Colors	Yellow/Red Linear / Red fork • Black logo					
Frame sizes	XS	S	M	L	XL	
Direct Fit	773	813	839	860	907	
Fit angle	53.3	50.6	47.5	47.4	48.5	
Handlebar width	580	580	580	580	580	
Stem length	90	105	120	120	135	
Stem angle	15	15	15	15	15	
Crank length	170	170	175	175	175	
Seatpost length	270	270	350	350	350	
Steerer, mm	179	194	194	214	254	
Fork length	442 mm axle-crown race					
Head angle	70.2	70.8	71.3	71.4	71.4	
Seat angle	72.8	72.8	72.8	72.8	72.8	
Standover	673	707	739	775	818	
Seat tube	356	400	445	489	533	
Head tube	90	105	105	125	165	
Eff top tube	551	574	595	611	627	
Reach	605	648	682	699	727	
Chainstays	417	417	417	417	417	
BB height	290	295	300	303	305	
Offset	38	38	38	38	38	
Trail	80	77	74	73	73	
Wheelbase	1017	1037	1055	1072	1090	
Standover	26.5	27.8	29.1	30.5	32.2	
Seat tube	14.0	15.7	17.5	19.3	21.0	
Head tube	3.5	4.1	4.1	4.9	6.5	
Eff top tube	21.7	22.6	23.4	24.1	24.7	
Reach	23.8	25.5	26.9	27.5	28.6	
Chainstays	16.4	16.4	16.4	16.4	16.4	
BB height	11.4	11.6	11.8	11.9	12.0	
Offset	1.5	1.5	1.5	1.5	1.5	
Trail	3.2	3.0	2.9	2.9	2.9	
Wheelbase	40.0	40.8	41.5	42.2	42.9	

25.3 lb.
11.46 kg.

Our Price: \$

Attitude Race

Main tubes	Klein Gradient aluminum				22 32 44
Stays	Klein Gradient aluminum				11 52 76 105
Fork	Manitou Mars				80mm travel
Headset	Dia-Compe SA Aheadset, alloy				25.4/34.0/30.0, 27.0mm stack
Handlebars	ICON Graphite, 2014, 7° bend				25.4mm clamp diameter
Stem	ICON Graphite, direct connect				39.5mm steerer clamp height
Grips	Bontrager Ergo				16 36 52 72
Shifters	Shimano Deore LX RapidFire+				18 32 47 64
Front derailleur	Shimano Deore LX				21 27 40 55
Rear derailleur	Shimano XTR				24 24 35 48
Brakes	Avid Single Digit 20, direct pull r				28 21 30 41
Brake levers					32 18 26 36
Crankset	ICON Graphite, 4 arm 44/32/22				Integrated brake/shift
Bottom bracket	Shimano BB-UN52				64/104 mm bolt hole circle
Pedals	Time Atac, clipless				73 x 113
Cassette	Shimano HG70 11-32				9/16" axle
Chain	Shimano HG72				9spd
Front wheel	Bontrager Race				108 length, 9 speed
Front tire	Bontrager Super-X, 127tpi, folding				Velox 19mm rimstrip
Rear wheel	Bontrager Race				49/48
					Velox 22mm rimstrip
					HyperGlide cassette, 8/9spd, 135mm O.L.D.
Rear tire	Bontrager Super-X, 127tpi, folding				47/46
Tubes	Presta valve, ultra light				
Spokes	DT 14/15G butted stainless, alloy nips				24 spoke Radial Front
					255
					28 spoke 3x / radial Rear
					267/251 rear (D/ND)
Saddle	SDG Satellite Comp, CrMo/leather				
Seatpost	ICON Graphite, 2014				31.6mm diameter
Seat binder	Alloy w/integral bolt				36.4 clamp diameter
Additional	3 water bottle mounts, CCD, replaceable derailleur hanger				
Colors	Dark Blue/Light Blue Linear / Blue fork • White logo				
Frame sizes	S	M	L	XL	
Direct Fit	803	832	853	899	
Fit angle	49.7	45.8	45.8	46.7	
Handlebar width	580	580	580	580	
Stem length	105	120	120	135	
Stem angle	7	7	7	7	
Crank length	170	175	175	175	
Seatpost length	270	350	350	350	
Steerer, mm	193	193	213	253	
Fork length	442 mm axle-crown race				
Head angle	70.8	71.3	71.4	71.4	
Seat angle	72.8	72.8	72.8	72.8	
MM Standover	707	739	775	818	
Seat tube	400	445	489	533	
Head tube	105	105	125	165	
Eff top tube	574	595	611	627	
Reach	649	691	707	736	
Chainstays	417	417	417	417	
BB height	295	300	303	305	
Offset	38	38	38	38	
Trail	77	74	73	73	
Wheelbase	1037	1055	1072	1090	
IN Standover	27.8	29.1	30.5	32.2	
Seat tube	15.7	17.5	19.3	21.0	
Head tube	4.1	4.1	4.9	6.5	
Eff top tube	22.6	23.4	24.1	24.7	
Reach	25.6	27.2	27.8	29.0	
Chainstays	16.4	16.4	16.4	16.4	
BB height	11.6	11.8	11.9	12.0	
Offset	1.5	1.5	1.5	1.5	
Trail	3.0	2.9	2.9	2.9	
Wheelbase	40.8	41.5	42.2	42.9	

24.5 lb.
11.12 kg.

Adroit Race

Our Price: \$

Main tubes	Klein Gradient aluminum				22 32 44
Stays	Klein Gradient aluminum				11 52 76 105
Fork	Manitou Mars C				13 44 65 89
Headset	Klein Airheadset				15 38 56 77
Handlebars	Klein MC3, 2014, 9° bend				17 34 49 68
Stem	Klein MC3				20 29 42 58
Grips	Bontrager Ergo				23 25 36 50
Shifters	Shimano Deore XT RapidFire SL				26 22 32 44
Front derailleur	Shimano Deore XT				30 19 28 38
Rear derailleur	Shimano XTR SGS				34 17 25 34
Brakes	Avid Single Digit 25, linear pull				
Brake levers	Integrated brake/shift				
Crankset	ICON Sterling, 4 arm 44/32/22				
Bottom bracket	Shimano BB-UN72				
Pedals	Time Atac, clipless				
Cassette	Shimano XT 11-34				
Chain	Shimano HG72				
Front wheel	Bontrager Race Modified				
Front tire	Bontrager Super-X, 127tpi, folding				
Rear wheel	Bontrager Race Modified				
Rear tire	Bontrager Super-X, 127tpi, folding				
Tubes	Presta valve, ultra light				
Spokes	DT 14/15G butted stainless, alloy nips				
Saddle	SDG Satellite Comp, CrMo/leather				
Seatpost	Thomson Elite				
Seat binder	Alloy w/integral bolt				
Additional	3 water bottle mounts, CCD, replaceable derailleur hanger				
Colors	Black / Red fork • Red logo				
Frame sizes	S	M	L	XL	
Direct Fit	797	827	848	894	
Fit angle	49.6	45.5	45.5	46.5	
Handlebar width	580	580	580	580	
Stem length	105	120	120	135	
Stem angle	6	6	6	6	
Crank length	170	175	175	175	
Seatpost length	330	330	330	330	
Steerer, mm	193	193	213	253	
Fork length	442 mm axle-crown race				
Head angle	70.8	71.3	71.4	71.4	
Seat angle	72.8	72.8	72.8	72.8	
MM Standover	707	739	775	818	
MM Seat tube	400	445	489	533	
MM Head tube	105	105	125	165	
MM Eff top tube	574	595	611	627	
MM Reach	647	690	706	735	
MM Chainstays	417	417	417	417	
MM BB height	295	300	303	305	
MM Offset	38	38	38	38	
MM Trail	77	74	73	73	
MM Wheelbase	1037	1055	1072	1090	
IN Standover	27.8	29.1	30.5	32.2	
IN Seat tube	15.7	17.5	19.3	21.0	
IN Head tube	4.1	4.1	4.9	6.5	
IN Eff top tube	22.6	23.4	24.1	24.7	
IN Reach	25.5	27.1	27.8	29.0	
IN Chainstays	16.4	16.4	16.4	16.4	
IN BB height	11.6	11.8	11.9	12.0	
IN Offset	1.5	1.5	1.5	1.5	
IN Trail	3.0	2.9	2.9	2.9	
IN Wheelbase	40.8	41.5	42.2	42.9	

23.8 lb.
10.78 kg.

Our Price: \$

Adroit Pro

Main tubes	Klein Gradient aluminum				24 34 46
Stays	Klein Gradient aluminum				11 57 81 110
Fork	Manitou Mars CL				13 48 69 93
Headset	Klein Airheadset				15 42 59 80
Handlebars	Klein MC3, 2014, 9° bend				17 37 52 71
Stem	Klein MC3				20 31 45 60
Grips	Bontrager Ergo				23 27 39 52
Shifters	Shimano XTR RapidFire SL				26 24 34 46
Front derailleur	Shimano XTR				30 21 30 40
Rear derailleur	Shimano XTR SGS				34 19 26 35
Brakes	Avid Single Digit Mag, linear pull				
Brake levers	Integrated brake/shift				
Crankset	Shimano XTR 4 arm 46/34/24				
Bottom bracket	Shimano XTR, cartridge				
Pedals	Time Atac Carbon, clipless				
Cassette	Shimano XTR 12-34				
Chain	Shimano Dura-Ace				
Front wheel	Bontrager Race Lite				
Front tire	Bontrager Super-X, 127tpi, folding				
Rear wheel	Bontrager Race Lite				
Rear tire	Bontrager Super-X, 127tpi, folding				
Tubes	Presta valve, ultra light				
Spokes	DT Revolution 14/17G, alloy nips				
Saddle	SDG Satellite Comp, Ti/leather				
Seatpost	Thomson Elite				
Seat binder	Alloy w/integral bolt				
Additional	3 water bottle mounts, CCD, replaceable derailleur hanger				
Colors	Orange/Red Linear / Red fork • Black logo				
Frame sizes	S	M	L	XL	
Direct Fit	797	827	848	894	
Fit angle	49.6	45.5	45.5	46.5	
Handlebar width	580	580	580	580	
Stem length	105	120	120	135	
Stem angle	6	6	6	6	
Crank length	170	175	175	175	
Seatpost length	330	330	330	330	
Steerer, mm	193	193	213	253	
Fork length	442 mm axle-crown race				
Head angle	70.8	71.3	71.4	71.4	
Seat angle	72.8	72.8	72.8	72.8	
MM Standover	707	739	775	818	
MM Seat tube	400	445	489	533	
MM Head tube	105	105	125	165	
MM Eff top tube	574	595	611	627	
MM Reach	647	690	706	735	
MM Chainstays	417	417	417	417	
MM BB height	295	300	303	305	
MM Offset	38	38	38	38	
MM Trail	77	74	73	73	
MM Wheelbase	1037	1055	1072	1090	
IN Standover	27.8	29.1	30.5	32.2	
IN Seat tube	15.7	17.5	19.3	21.0	
IN Head tube	4.1	4.1	4.9	6.5	
IN Eff top tube	22.6	23.4	24.1	24.7	
IN Reach	25.5	27.1	27.8	29.0	
IN Chainstays	16.4	16.4	16.4	16.4	
IN BB height	11.6	11.8	11.9	12.0	
IN Offset	1.5	1.5	1.5	1.5	
IN Trail	3.0	2.9	2.9	2.9	
IN Wheelbase	40.8	41.5	42.2	42.9	

22.3 lb.
10.10 kg.

Mantra

Our Price: \$

Main tubes	Klein Gradient aluminum				22 32 44
Stays	Klein Gradient aluminum				11 52 76 105
Fork	Manitou SX				12 48 70 96
Rear shock	Fox Float, air/oil				14 41 60 82
Headset	Dia-Compe SA Aheadset, alloy				16 36 52 72
Handlebars	ICON Graphite, 2014, 7° bend				18 32 47 64
Stem	ICON Graphite, direct connect				21 27 40 55
Grips	Bontrager Ergo				24 24 35 48
Shifters	Shimano Deore LX RapidFire+				28 21 30 41
Front derailleur	Shimano Deore LX				32 18 26 36
Rear derailleur	Shimano Deore XT SGS				
Brakes	Avid Single Digit 10, direct pull				
Brake levers					
Crankset	ICON Onyx, 4 arm 44/32/22				
Bottom bracket	Shimano BB-UN52E				
Pedals	Bontrager RE-1, clipless				
Cassette	Shimano HG70 11-32				
Chain	Shimano HG72				
Front wheel	Bontrager Superstock				
Front tire	Bontrager Super-X, folding				
Rear wheel	Bontrager Superstock				
Rear tire	Bontrager Super-X, folding				
Tubes	Presta valve, ultra light				
Spokes	DT 14G stainless				
Saddle	SDG Satellite Comp, CrMo				
Seatpost	ICON Graphite, 2014				
Seat binder	Alloy w/integral bolt				
Additional	1 water bottle mount, CCD, replaceable				
Colors	Black / Black fork • Red logo				
Frame sizes	S	M	L	XL	
Direct Fit	802	832	866	898	
Fit angle	47.2	43.3	42.4	44.0	
Handlebar width	580	580	580	580	
Stem length	105	120	135	135	
Stem angle	7	7	7	7	
Crank length	170	175	175	175	
Seatpost length	350	350	350	350	
Steerer, mm	193	193	213	253	
Fork length	442 mm axle-crown race				
Head angle	71.2	71.7	71.8	71.8	
Seat angle	73.2	73.2	73.2	73.2	
MM	Standover	726	738	778	791
	Seat tube	444	448	489	533
	Head tube	105	105	125	165
	Eff top tube	573	594	610	626
	Reach	649	690	720	736
	Chainstays	417	417	417	417
	BB height	310	315	319	323
	Offset	38	38	38	38
	Trail	74	71	70	70
	Wheelbase	1042	1062	1076	1095
IN	Standover	28.6	29.1	30.6	31.1
	Seat tube	17.5	17.6	19.3	21.0
	Head tube	4.1	4.1	4.9	6.5
	Eff top tube	22.6	23.4	24.0	24.6
	Reach	25.5	27.2	28.4	29.0
	Chainstays	16.4	16.4	16.4	16.4
	BB height	12.2	12.4	12.6	12.7
	Offset	1.5	1.5	1.5	1.5
	Trail	2.9	2.8	2.8	2.8
	Wheelbase	41.0	41.8	42.4	43.1

Our Price: \$

Mantra Comp

Main tubes	Klein Gradient aluminum				22 32 44
Stays	Klein Gradient aluminum				11 52 76 105
Fork	Manitou Mars				12 48 70 96
Rear shock	Fox Float R, air/oil				14 41 60 82
Headset	Dia-Compe SA Aheadset, alloy				16 36 52 72
Handlebars	ICON Graphite, 2014, 7° bend				18 32 47 64
Stem	ICON Graphite, direct connect				21 27 40 55
Grips	Bontrager Ergo				24 24 35 48
Shifters	Shimano Deore LX RapidFire+				28 21 30 41
Front derailleur	Shimano Deore LX				32 18 26 36
Rear derailleur	Shimano XTR SGS				
Brakes	Avid Single Digit 20, direct pull				
Brake levers					
Crankset	ICON Graphite, 4 arm 44/32/22				
Bottom bracket	Shimano BB-UN52E				
Pedals	Time Atac, clipless				
Cassette	Shimano HG70 11-32				
Chain	Shimano HG72				
Front wheel	Bontrager Race				
Front tire	Bontrager Super-X, folding				
Rear wheel	Bontrager Race				
Rear tire	Bontrager Super-X, folding				
Tubes	Presta valve, ultra light				
Spokes	DT 14/15G butted stainless, alloy nips				
Saddle	SDG Satellite Comp, CrMo/leather				
Seatpost	ICON Graphite, 2014				
Seat binder	Alloy w/integral bolt				
Additional	1 water bottle mount, CCD, replaceable				
Colors	Mediterranean Blue / Manitou Blue fork • Manitou Blue logo				
Frame sizes	S	M	L	XL	
Direct Fit	802	832	866	898	
Fit angle	47.2	43.3	42.4	44.0	
Handlebar width	580	580	580	580	
Stem length	105	120	135	135	
Stem angle	7	7	7	7	
Crank length	170	175	175	175	
Seatpost length	350	350	350	350	
Steerer, mm	193	193	213	253	
Fork length	442 mm axle-crown race				
Head angle	71.2	71.7	71.8	71.8	
Seat angle	73.2	73.2	73.2	73.2	
MM	Standover	726	738	778	791
	Seat tube	444	448	489	533
	Head tube	105	105	125	165
	Eff top tube	573	594	610	626
	Reach	649	690	720	736
	Chainstays	417	417	417	417
	BB height	310	315	319	323
	Offset	38	38	38	38
	Trail	74	71	70	70
	Wheelbase	1042	1062	1076	1095
IN	Standover	28.6	29.1	30.6	31.1
	Seat tube	17.5	17.6	19.3	21.0
	Head tube	4.1	4.1	4.9	6.5
	Eff top tube	22.6	23.4	24.0	24.6
	Reach	25.5	27.2	28.4	29.0
	Chainstays	16.4	16.4	16.4	16.4
	BB height	12.2	12.4	12.6	12.7
	Offset	1.5	1.5	1.5	1.5
	Trail	2.9	2.8	2.8	2.8
	Wheelbase	41.0	41.8	42.4	43.1

Mantra Race

Our Price: \$

Main tubes	Klein Hexcel carbon fiber composite				22	32	44
Stays	Klein Gradient aluminum				11	52	76 105
Fork	Manitou Mars C				80mm travel	13	44 65 89
Rear shock	Fox Float R, air/oil				2.5" stroke, 178mm rear wheel travel	15	38 56 77
Headset	Klein Airheadset				7.875" eye to eye, 7/8" ends	17	34 49 68
Handlebars	Klein MC3, 2014, 9° bend				33.3/ 1.75-2" /39.7, 0mm stack	20	29 42 58
Stem	Klein MC3				25.4mm clamp diameter	23	25 36 50
Grips	Bontrager Ergo				45.0mm steerer clamp height	26	22 32 44
Shifters	Shimano Deore XT RapidFire SL					30	19 28 38
Front derailleur	Shimano Deore XT				Down pull, Plate style	34	17 25 34
Rear derailleur	Shimano XTR SGS						
Brakes	Avid Single Digit 25, direct pull						
Brake levers					Integrated brake/shift		
Crankset	ICON Sterling, 4 arm 44/32/22				64/104 mm bolt hole circle		
Bottom bracket	Shimano BB-UN72E				73 x 110		
Pedals	Time Atac, clipless				9/16" axle		
Cassette	Shimano XT 11-34				9spd		
Chain	Shimano HG72				108 length, 9 speed		
Front wheel	Bontrager Race Modified				Velox 19mm rimstrip		
Front tire	Bontrager Revolt ST-2, 127tpi, folding				49/48		
Rear wheel	Bontrager Race Modified				Velox 22mm rimstrip		
Rear tire	Bontrager Revolt ST-2, 127tpi, folding				HyperGlide cassette, 8/9spd, 135mm O.L.D.		
Tubes	Presta valve, ultra light				47/46		
Spokes	DT 14/15G butted stainless, alloy nips				24 spoke Radial Front	28 spoke 3x/Radial Rear	
					255	267/251 rear (D/ND)	
Saddle	SDG Satellite Comp, CrMo/leather						
Seatpost	Thomson Elite				31.6mm diameter		
Seat binder	Alloy w/integral bolt				39.85 clamp diameter		
Additional	1 water bottle mount, CCD, replaceable				derailleur hanger, shock pump		
Colors	Silver Cloud / Red fork • Red logo						
Frame sizes	S	M	L	XL			
Direct Fit	796	826	861	893			
Fit angle	47.1	43.0	42.0	43.6			
Handlebar width	580	580	580	580			
Stem length	105	120	135	135			
Stem angle	6	6	6	6			
Crank length	170	175	175	175			
Seatpost length	290	330	370	410			
Steerer, mm	193	193	213	253			
Fork length	442 mm axle-crown race						
Head angle	71.2	71.7	71.8	71.8			
Seat angle	73.2	73.2	73.2	73.2			
MM	Standover	726	738	778	791		
	Seat tube	444	448	489	533		
	Head tube	105	105	125	165		
	Eff top tube	573	594	610	626		
	Reach	647	689	719	735		
	Chainstays	417	417	417	417		
	BB height	310	315	319	323		
	Offset	38	38	38	38		
	Trail	74	71	70	70		
	Wheelbase	1042	1062	1076	1095		
IN	Standover	28.6	29.1	30.6	31.1		
	Seat tube	17.5	17.6	19.3	21.0		
	Head tube	4.1	4.1	4.9	6.5		
	Eff top tube	22.6	23.4	24.0	24.6		
	Reach	25.5	27.1	28.3	28.9		
	Chainstays	16.4	16.4	16.4	16.4		
	BB height	12.2	12.4	12.6	12.7		
	Offset	1.5	1.5	1.5	1.5		
	Trail	2.9	2.8	2.8	2.8		
	Wheelbase	41.0	41.8	42.4	43.1		

Our Price: \$

Mantra Pro

Main tubes	Klein Hexcel carbon fiber composite				24	34	46
Stays	Klein Gradient aluminum				12	52	74 101
Fork	Manitou Mars CL				14	45	64 86
Rear shock	Cane Creek AD-10, air/air				16	39	56 75
Headset	Klein Airheadset				18	35	50 67
Handlebars	Klein MC3, 2014, 9° bend				20	31	45 60
Stem	Klein MC3				23	27	39 52
Grips	Bontrager Ergo				26	24	34 46
Shifters	Shimano XTR RapidFire SL				30	21	30 40
Front derailleur	Shimano XTR				34	19	26 35
Rear derailleur	Shimano XTR SGS				24.0 lb. 10.90 kg.		
Brakes	Avid Single Digit Mag, linear pull						
Brake levers					24.0 lb. 10.90 kg.		
Crankset	Shimano XTR 4 arm 46/34/24						
Bottom bracket	Shimano XTR				24.0 lb. 10.90 kg.		
Pedals	Time Atac Carbon, clipless						
Cassette	Shimano XTR 12-34						
Chain	Shimano Dura-Ace				24.0 lb. 10.90 kg.		
Front wheel	Bontrager Race Lite						
Front tire	Bontrager Super-X, 127tpi, folding						
Rear wheel	Bontrager Race Lite						
Rear tire	Bontrager Super-X, 127tpi, folding				24.0 lb. 10.90 kg.		
Tubes	Presta valve, ultra light						
Spokes	DT Revolution 14/17G, alloy nips						
Saddle	SDG Satellite Comp, Ti/leather				24.0 lb. 10.90 kg.		
Seatpost	Thomson Elite						
Seat binder	Alloy w/integral bolt						
Additional	1 water bottle mount, CCD, replaceable						
Colors	Silver/Blue Linear / Red fork • Red logo						
Frame sizes	S M L XL				24.0 lb. 10.90 kg.		
Direct Fit	796 826 861 893						
Fit angle	47.1 43.0 42.0 43.6						
Handlebar width	580 580 580 580				24.0 lb. 10.90 kg.		
Stem length	105 120 135 135						
Stem angle	6 6 6 6						
Crank length	170 175 175 175						
Seatpost length	290 330 370 410						
Steerer, mm	193 193 213 253						
Fork length	442 mm axle-crown race						
Head angle	71.2 71.7 71.8 71.8						
Seat angle	73.2 73.2 73.2 73.2						
MM	Standover	726	738	778	791	28 spoke 3x/Radial Front 252	
	Seat tube	444	448	489	533		
	Head tube	105	105	125	165		
	Eff top tube	573	594	610	626		
	Reach	647	689	719	735		
	Chainstays	417	417	417	417		
	BB height	310	315	319	323		
	Offset	38	38	38	38		
	Trail	74	71	70	70		
	Wheelbase	1042	1062	1076	1095		
IN	Standover	28.6	29.1	30.6	31.1	28 spoke 3x/Radial Rear 267/251 rear (D/ND)	
	Seat tube	17.5	17.6	19.3	21.0		
	Head tube	4.1	4.1	4.9	6.5		
	Eff top tube	22.6	23.4	24.0	24.6		
	Reach	25.5	27.1	28.3	28.9		
	Chainstays	16.4	16.4	16.4	16.4		
	BB height	12.2	12.4	12.6	12.7		
	Offset	1.5	1.5	1.5	1.5		
	Trail	2.9	2.8	2.8	2.8		
	Wheelbase	41.0	41.8	42.4	43.1		

Quantum

Our Price: \$

Main tubes	Klein Gradient aluminum						39 53
Stays	Klein Gradient aluminum						12 86 117
Fork	ICON Air Rail						13 79 108
Headset	Cane Creek Aheadset						14 74 100
Handlebars	ICON Onyx, ergo bend						15 69 93
Stem	ICON Graphite, direct connect						17 61 82
Grips	ICON Powercork						19 54 74
Shifters	Shimano 105 STI						21 49 67
Front derailleur	Shimano 105						23 45 61
Rear derailleur	Shimano 105						25 41 56
Brakes	Shimano 105						
Brake levers	Integrated brake/shift						
Crankset	Shimano 105 53/39						
Bottom bracket	Shimano 105						
Pedals	-						
Cassette	Shimano HG70 12-25						
Chain	Shimano HG72						
Front wheel	Rolf Vector						
Front tire	Michelin Axial Pro, folding						
Rear wheel	Rolf Vector						
Rear tire	Michelin Axial Pro, folding						
Tubes	Presta valve, 48mm stem						
Spokes	DT 14/15G butted stainless						
Saddle	Selle Italia Flite, Gel, Ti/leather						
Seatpost	ICON Graphite, 2014						
Seat binder	Alloy w/integral bolt						
Additional	2 water bottle mounts						
Colors	Blastberry • Metallic Silver logo						
Frame sizes	51	53	55	57	59	61	
Direct Fit	765	797	834	854	883	902	
Fit angle	43.1	42.9	41.9	42.5	42.6	43.0	
Handlebar width	400	420	420	440	440	440	
Stem length	80	90	110	110	120	120	
Stem angle	0	0	0	0	0	0	
Crank length	170	172.5	172.5	172.5	175	175	
Seatpost length	270	270	270	270	270	270	
Steerer, mm	178	200	223	244	268	288	
Fork length	370 mm axle-crown race						
Head angle	73.5	73.5	73.5	74.0	74.0	74.0	
Seat angle	74.0	74.0	74.0	74.0	74.0	74.0	
MM	Standover	757	777	800	823	843	866
	Seat tube	539	559	571	597	616	635
	Head tube	91	113	136	157	181	201
	Eff top tube	535	547	559	571	583	595
	Reach	595	622	654	666	688	700
	Chainstays	414	414	414	414	414	414
	BB height	267	267	272	274	277	279
	Offset	47	47	43	43	43	43
	Trail	51	51	56	53	53	53
	Wheelbase	975	987	1000	1008	1023	1033
IN	Standover	29.8	30.6	31.5	32.4	33.2	34.1
	Seat tube	21.2	22.0	22.5	23.5	24.3	25.0
	Head tube	3.6	4.4	5.4	6.2	7.1	7.9
	Eff top tube	21.1	21.5	22.0	22.5	23.0	23.4
	Reach	23.4	24.5	25.7	26.2	27.1	27.6
	Chainstays	16.3	16.3	16.3	16.3	16.3	16.3
	BB height	10.5	10.5	10.7	10.8	10.9	11.0
	Offset	1.9	1.9	1.7	1.7	1.7	1.7
	Trail	2.0	2.0	2.2	2.1	2.1	2.1
	Wheelbase	38.4	38.9	39.4	39.7	40.3	40.7

19.0 lb.
8.63 kg.

Our Price: \$

Main tubes	Klein Gradient aluminum						30 42 52
Stays	Klein Gradient aluminum						12 66 93 115
Fork	ICON Air Rail						13 61 85 106
Headset	Cane Creek Aheadset						14 57 79 98
Handlebars	ICON Onyx, ergo bend						15 53 74 92
Stem	ICON Graphite, direct connect						17 47 65 81
Grips	ICON Powercork						19 42 58 72
Shifters	Shimano 105 STI						21 38 53 65
Front derailleur	Shimano 105 T						23 35 48 60
Rear derailleur	Shimano 105 GS						25 32 44 55
Brakes	Shimano 105						
Brake levers	Integrated brake/shift						
Crankset	Shimano 105 52/42/30						
Bottom bracket	Shimano 105						
Pedals	-						
Cassette	Shimano HG70 12-25, 9spd						
Chain	Shimano HG72						
Front wheel	Rolf Vector						
Front tire	Michelin Axial Pro, folding						
Rear wheel	Rolf Vector						
Rear tire	Michelin Axial Pro, folding						
Tubes	Presta valve, 48mm stem						
Spokes	DT 14/15G butted stainless						
Saddle	Selle Italia Flite, Gel, Ti/leather						
Seatpost	ICON Graphite, 2014						
Seat binder	Alloy w/integral bolt						
Additional	2 water bottle mounts						
Colors	Blastberry • Metallic Silver logo						
Frame sizes	51	53	55	57	59	61	
Direct Fit	765	797	834	854	883	902	
Fit angle	43.1	42.9	41.9	42.5	42.6	43.0	
Handlebar width	400	420	420	440	440	440	
Stem length	80	90	110	110	120	120	
Stem angle	0	0	0	0	0	0	
Crank length	170	170	175	175	175	175	
Seatpost length	270	270	270	270	270	270	
Steerer, mm	178	200	223	244	268	288	
Fork length	370 mm axle-crown race						
Head angle	73.5	73.5	73.5	74.0	74.0	74.0	
Seat angle	74.0	74.0	74.0	74.0	74.0	74.0	
MM	Standover	757	777	800	823	843	866
	Seat tube	539	559	571	597	616	635
	Head tube	91	113	136	157	181	201
	Eff top tube	535	547	559	571	583	595
	Reach	595	622	654	666	688	700
	Chainstays	414	414	414	414	414	414
	BB height	267	267	272	274	277	279
	Offset	47	47	43	43	43	43
	Trail	51	51	56	53	53	53
	Wheelbase	975	987	1000	1008	1023	1033
IN	Standover	29.8	30.6	31.5	32.4	33.2	34.1
	Seat tube	21.2	22.0	22.5	23.5	24.3	25.0
	Head tube	3.6	4.4	5.4	6.2	7.1	7.9
	Eff top tube	21.1	21.5	22.0	22.5	23.0	23.4
	Reach	23.4	24.5	25.7	26.2	27.1	27.6
	Chainstays	16.3	16.3	16.3	16.3	16.3	16.3
	BB height	10.5	10.5	10.7	10.8	10.9	11.0
	Offset	1.9	1.9	1.7	1.7	1.7	1.7
	Trail	2.0	2.0	2.2	2.1	2.1	2.1
	Wheelbase	38.4	38.9	39.4	39.7	40.3	40.7

19.5 lb.
8.85 kg.

Quantum T

Quantum Race

Our Price: \$

Main tubes	Klein Gradient aluminum						39	53	
Stays	Klein Gradient aluminum						12	86 117	
Fork	ICON Air Rail						13	79 108	
Headset	Cane Creek Aheadset						22.2/30.2/26.4, 26.5mm stack	14	74 100
Handlebars	ICON Sterling, 7075, ergo bend						26.0mm clamp diameter	15	69 93
Stem	ICON Graphite, direct connect						39.5mm steerer clamp height	17	61 82
Grips	ICON Powercork						Flite Deck compatible	19	54 74
Shifters	Shimano Ultegra STI						Braze-on type w/34.9mm clamp	21	49 67
Front derailleur	Shimano Ultegra						Integrated brake/shift	23	45 61
Rear derailleur	Shimano Ultegra						130 mm bolt hole circle	25	41 56
Brakes	Shimano Ultegra						68 x 109.5	18.5 lb. 8.40 kg.	
Brake levers	Shimano Ultegra 53/39						9spd		
Crankset	Shimano Ultegra						108 length, 9 speed		
Bottom bracket	Shimano Ultegra						Velox 16mm rimstrip		
Pedals	-						700 x 23c		
Cassette	Shimano Ultegra 12-25						Velox 16mm rimstrip		
Chain	Shimano HG92						HyperGlide cassette, 8/9spd, 130mm O.L.D.		
Front wheel	Rolf Vector Comp						700 x 23c		
Front tire	Michelin Axial Pro, folding						18 spoke Radial Front	20 spoke 2x Rear	
Rear wheel	Rolf Vector Comp						270	290/288 rear (D/ND)	
Rear tire	Michelin Axial Pro, folding						31.6mm diameter		
Tubes	Presta valve, 48mm stem						36.4 clamp diameter		
Spokes	DT Aero 2.0/1.3								
Saddle	Selle Italia Flite, Gel, Ti/leather								
Seatpost	ICON Graphite, 2014								
Seat binder	Alloy w/integral bolt								
Additional	2 water bottle mounts								
Colors	Silver Cloud • Metallic Silver logo								
Frame sizes	51	53	55	57	59	61			
Direct Fit	765	797	834	854	883	902			
Fit angle	43.1	42.9	41.9	42.5	42.6	43.0			
Handlebar width	400	420	420	440	440	440			
Stem length	80	90	110	110	120	120			
Stem angle	0	0	0	0	0	0			
Crank length	170	172.5	172.5	172.5	175	175			
Seatpost length	270	270	270	270	270	270			
Steerer, mm	178	200	223	244	268	288			
Fork length	370 mm axle-crown race								
Head angle	73.5	73.5	73.5	74.0	74.0	74.0			
Seat angle	74.0	74.0	74.0	74.0	74.0	74.0			
MM Standover	757	777	800	823	843	866			
Seat tube	539	559	571	597	616	635			
Head tube	91	113	136	157	181	201			
Eff top tube	535	547	559	571	583	595			
Reach	595	622	654	666	688	700			
Chainstays	414	414	414	414	414	414			
BB height	267	267	272	274	277	279			
Offset	47	47	43	43	43	43			
Trail	51	51	56	53	53	53			
Wheelbase	975	987	1000	1008	1023	1033			
IN Standover	29.8	30.6	31.5	32.4	33.2	34.1			
Seat tube	21.2	22.0	22.5	23.5	24.3	25.0			
Head tube	3.6	4.4	5.4	6.2	7.1	7.9			
Eff top tube	21.1	21.5	22.0	22.5	23.0	23.4			
Reach	23.4	24.5	25.7	26.2	27.1	27.6			
Chainstays	16.3	16.3	16.3	16.3	16.3	16.3			
BB height	10.5	10.5	10.7	10.8	10.9	11.0			
Offset	1.9	1.9	1.7	1.7	1.7	1.7			
Trail	2.0	2.0	2.2	2.1	2.1	2.1			
Wheelbase	38.4	38.9	39.4	39.7	40.3	40.7			

Our Price: \$

Quantum Race T

Main tubes	Klein Gradient aluminum						30	42	52
Stays	Klein Gradient aluminum						12	66	93 115
Fork	ICON Air Rail						13	61	85 106
Headset	Cane Creek Aheadset						22.2/30.2/26.4, 26.5mm stack	14	57 79 98
Handlebars	ICON Sterling, 7075, ergo bend						26.0mm clamp diameter	15	53 74 92
Stem	ICON Graphite, direct connect						39.5mm steerer clamp height	17	47 65 81
Grips	ICON Powercork						Flite Deck compatible	19	42 58 72
Shifters	Shimano Ultegra STI						Braze-on type w/34.9mm clamp	21	38 53 65
Front derailleur	Shimano Ultegra T						Integrated brake/shift	23	35 48 60
Rear derailleur	Shimano Ultegra GS						74/130 mm bolt hole circle	25	32 44 55
Brakes	Shimano Ultegra						68 x 118		
Brake levers									
Crankset	Shimano Ultegra 52/42/30								
Bottom bracket	Shimano Ultegra								
Pedals	-								
Cassette	Shimano Ultegra 12-25						9spd	19.0 lb. 8.63 kg.	
Chain	Shimano HG92						108 length, 9 speed		
Front wheel	Rolf Vector Comp						Velox 16mm rimstrip		
Front tire	Michelin Axial Pro, folding						700 x 23c		
Rear wheel	Rolf Vector Comp						Velox 16mm rimstrip		
							HyperGlide cassette, 8/9spd, 130mm O.L.D.		
Rear tire	Michelin Axial Pro, folding						700 x 23c		
Tubes	Presta valve, 48mm stem								
Spokes	DT Aero stainless, alloy nips						18 spoke Radial Front	20 spoke 2x Rear	
							270	290/288 rear (D/ND)	
Saddle	Selle Italia Flite, Gel, Ti/leather								
Seatpost	ICON Graphite, 2014						31.6mm diameter		
Seat binder	Alloy w/integral bolt						36.4 clamp diameter		
Additional	2 water bottle mounts								
Colors	Silver Cloud • Metallic Silver logo								
Frame sizes	51	53	55	57	59	61			
Direct Fit	765	797	834	854	883	902			
Fit angle	43.1	42.9	41.9	42.5	42.6	43.0			
Handlebar width	400	420	420	440	440	440			
Stem length	80	90	110	110	120	120			
Stem angle	0	0	0	0	0	0			
Crank length	170	172.5	172.5	172.5	175	175			
Seatpost length	270	270	270	270	270	270			
Steerer, mm	178	200	223	244	268	288			
Fork length	370 mm axle-crown race								
Head angle	73.5	73.5	73.5	74.0	74.0	74.0			
Seat angle	74.0	74.0	74.0	74.0	74.0	74.0			
MM Standover	757	777	800	823	843	866			
Seat tube	539	559	571	597	616	635			
Head tube	91	113	136	157	181	201			
Eff top tube	535	547	559	571	583	595			
Reach	595	622	654	666	688	700			
Chainstays	414	414	414	414	414	414			
BB height	267	267	272	274	277	279			
Offset	47	47	43	43	43	43			
Trail	51	51	56	53	53	53			
Wheelbase	975	987	1000	1008	1023	1033			
IN Standover	29.8	30.6	31.5	32.4	33.2	34.1			
Seat tube	21.2	22.0	22.5	23.5	24.3	25.0			
Head tube	3.6	4.4	5.4	6.2	7.1	7.9			
Eff top tube	21.1	21.5	22.0	22.5	23.0	23.4			
Reach	23.4	24.5	25.7	26.2	27.1	27.6			
Chainstays	16.3	16.3	16.3	16.3	16.3	16.3			
BB height	10.5	10.5	10.7	10.8	10.9	11.0			
Offset	1.9	1.9	1.7	1.7	1.7	1.7			
Trail	2.0	2.0	2.2	2.1	2.1	2.1			
Wheelbase	38.4	38.9	39.4	39.7	40.3	40.7			

Quantum Pro

Our Price: \$

Main tubes	Klein Gradient aluminum					39 53
Stays	Klein Gradient aluminum					12 86 117
Fork	Klein Aeros Carbon					13 79 108
Headset	Klein Airheadset					14 74 100
Handlebars	ICON Sterling, 7075, ergo bend					15 69 93
Stem	Klein MC3					16 64 88
Grips	ICON Powercork					17 61 82
Shifters	Shimano Dura-Ace STI					19 54 74
Front derailleur	Shimano Dura-Ace					21 49 67
Rear derailleur	Shimano Dura-Ace					23 45 61
Brakes	Shimano Dura-Ace					
Brake levers						
Crankset	Shimano Dura-Ace 53/39					
Bottom bracket	Shimano Ultegra					
Pedals						
Cassette	Shimano Dura-Ace 12-23					18.0 lb.
Chain	Shimano Dura-Ace					8.17 kg.
Front wheel	Rolf Vector Pro					
Front tire	Michelin Axial Pro, folding					
Rear wheel	Rolf Vector Pro					
Rear tire	Michelin Axial Pro, folding					
Tubes	Presta valve, 48mm stem					
Spokes	DT Blades, locking alloy nips					
Saddle	Selle Italia Flite, Gel, Ti/leather					
Seatpost	Thomson Elite					
Seat binder	Alloy w/integral bolt					
Additional	2 water bottle mounts					
Colors	Orange/Red Linear • Black logo					
Frame sizes	53	55	57	59	61	
Direct Fit	793	827	847	876	896	
Fit angle	44.2	41.6	42.2	42.2	42.8	
Handlebar width	420	420	440	440	440	
Stem length	90	110	110	120	120	
Stem angle	6	0	0	0	0	
Crank length	172.5	172.5	172.5	175	175	
Seatpost length	287	287	287	287	287	
Steerer, mm	196	218	239	262	284	
Fork length	370 mm axle-crown race					
Head angle	73.5	73.5	74.0	74.0	74.0	
Seat angle	74.0	74.0	74.0	74.0	74.0	
MM	Standover	777	800	823	843	866
	Seat tube	559	571	597	616	635
	Head tube	113	135	156	179	201
	Eff top tube	547	559	571	583	595
	Reach	612	652	664	686	698
	Chainstays	414	414	414	414	414
	BB height	267	272	274	277	279
	Offset	38	38	38	38	38
	Trail	61	61	58	58	58
	Wheelbase	987	1000	1008	1023	1033
IN	Standover	30.6	31.5	32.4	33.2	34.1
	Seat tube	22.0	22.5	23.5	24.3	25.0
	Head tube	4.4	5.3	6.1	7.0	7.9
	Eff top tube	21.5	22.0	22.5	23.0	23.4
	Reach	24.1	25.7	26.1	27.0	27.5
	Chainstays	16.3	16.3	16.3	16.3	16.3
	BB height	10.5	10.7	10.8	10.9	11.0
	Offset	1.5	1.5	1.5	1.5	1.5
	Trail	2.4	2.4	2.3	2.3	2.3
	Wheelbase	38.9	39.4	39.7	40.3	40.7

Our Price: \$

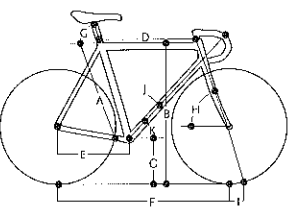
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Stays	
Fork	
Rear shock	
Headset	
Handlebars	
Stem	
Grips	
Shifters	
Front derailleur	
Rear derailleur	
Brakes	
Brake levers	
Crankset	
Bottom bracket	
Pedals	
Cassette	
Chain	
Front wheel	
Front tire	
Rear wheel	
Rear tire	
Tubes	
Spokes	
Saddle	
Seatpost	
Seat binder	
Additional	
Colors	
Frame sizes	
Direct Fit	
Fit angle	
Handlebar width	
Stem length	
Stem angle	
Crank length	
Seatpost length	
Steerer, mm	
Fork length	
Head angle	
Seat angle	
MM	Standover
	Seat tube
	Head tube
	Eff top tube
	Reach
	Chainstays
	BB height
	Offset
	Trail
	Wheelbase
IN	Standover
	Seat tube
	Head tube
	Eff top tube
	Reach
	Chainstays
	BB height
	Offset
	Trail
	Wheelbase

Our Price: \$

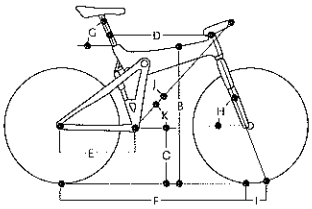
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	Stays	
	Fork	
	Rear shock	
	Headset	
	Handlebars	
	Stem	
	Grips	
	Shifters	
	Front derailleur	
	Rear derailleur	
	Brakes	
	Brake levers	
	Crankset	
	Bottom bracket	
	Pedals	
	Cassette	
	Chain	
	Front wheel	
	Front tire	
	Rear wheel	
	Rear tire	
	Tubes	
	Spokes	
	Saddle	
	Seatpost	
	Seat binder	
	Additional	
	Colors	
	Frame sizes	
	Direct Fit	
	Fit angle	
	Handlebar width	
	Stem length	
	Stem angle	
	Crank length	
	Seatpost length	
	Steerer, mm	
	Fork length	
	Head angle	
	Seat angle	
MM	Standover	
	Seat tube	
	Head tube	
	Eff top tube	
	Reach	
	Chainstays	
	BB height	
	Offset	
	Trail	
	Wheelbase	
IN	Standover	
	Seat tube	
	Head tube	
	Eff top tube	
	Reach	
	Chainstays	
	BB height	
	Offset	
	Trail	
	Wheelbase	

Frame Geometries

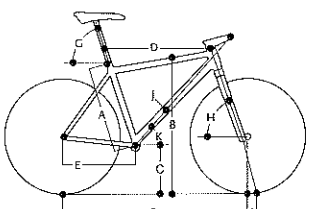
	Size	Seat Tube Center to Top (in./cm)	Top Tube Standover (in./cm)	Bottom Bracket (in./cm)	Effective Top Tube Length (in./cm)	Chainstay Length (in./cm)	Wheelbase (in./cm)	Fork Rake (in./cm)	Fork Travel (mm)	Seat Tube Angle	Head Tube Angle	Trail (in./cm)
		A	B	C	D	E	F			G	H	I
Mantra	S	N/A	28.6/72.6	12.2/31.0	22.7/57.3	16.4/41.7	41.1/104.3	1.5/3.8	80.0	64.6°	71.2°	2.9/7.3
Mantra Comp	M	N/A	29.0/73.8	12.4/31.5	23.4/59.4	16.4/41.7	41.8/106.2	1.5/3.8	80.0	66.1°	71.7°	2.8/7.1
	L	N/A	30.6/77.8	12.6/31.9	24.0/61.0	16.4/41.7	42.4/107.6	1.5/3.8	80.0	65.1°	71.8°	2.7/6.9
	XL	N/A	30.6/77.8	12.7/32.3	24.7/62.6	16.4/41.7	43.1/109.5	1.5/3.8	80.0	66.4°	71.8°	2.7/6.9
Mantra Race	M	N/A	29.0/73.8	12.4/31.5	23.4/59.4	16.4/41.7	41.8/106.2	1.5/3.8	80.0	66.1°	71.7°	2.8/7.1
Mantra Pro	L	N/A	30.6/77.8	12.6/31.9	24.0/61.0	16.4/41.7	42.4/107.6	1.5/3.8	80.0	65.1°	71.8°	2.7/6.9
	XL	N/A	31.2/79.1	12.7/32.3	24.7/62.6	16.4/41.7	43.1/109.5	1.5/3.8	80.0	66.4°	71.8°	2.7/6.9
Attitude*	XS	14.0/35.6	26.3/66.9	11.3/28.8	21.7/55.0	16.4/41.7	40.7/103.4	1.5/3.8	70.0	73.2°	70.7°	3.0/7.6
Attitude Comp	S	15.8/40.0	27.7/70.3	11.5/29.2	22.6/57.3	16.4/41.7	41.3/104.8	1.5/3.8	70.0	73.2°	71.2°	2.9/7.3
Attitude Race	M	17.5/44.5	28.9/73.5	11.7/29.7	23.4/59.4	16.4/41.7	41.8/106.1	1.5/3.8	70.0	73.2°	71.7°	2.8/7.1
Adroit Race	L	19.3/48.9	30.4/77.2	11.8/30.0	24.0/61.0	16.4/41.7	42.1/106.9	1.5/3.8	70.0	73.2°	71.8°	2.7/6.9
Adroit Pro	XL	21.0/53.3	32.1/81.5	11.9/30.3	24.7/62.6	16.4/41.7	42.5/107.9	1.5/3.8	70.0	73.2°	71.8°	2.7/6.9
Quantum	51cm	21.2/53.9	29.8/75.7	10.5/26.7	21.1/53.5	16.3/41.4	38.1/96.8	1.9/4.7	N/A	74.0°	73.5°	N/A
Quantum Race	53cm	22.0/55.9	30.6/77.7	10.6/26.9	21.5/54.7	16.3/41.4	38.6/98.0	1.9/4.7	N/A	74.0°	73.5°	N/A
	55cm	22.5/57.1	31.5/80.0	10.7/27.2	22.0/55.9	16.3/41.4	39.1/99.3	1.7/4.3	N/A	74.0°	73.5°	N/A
	57cm	23.5/59.7	32.4/82.3	10.8/27.4	22.5/57.1	16.3/41.4	39.4/100.1	1.7/4.3	N/A	74.0°	74.0°	N/A
	59cm	24.3/61.6	33.2/84.3	10.9/27.7	23.0/58.3	16.3/41.4	40.0/101.6	1.7/4.3	N/A	74.0°	74.0°	N/A
	61cm	25.0/63.5	34.1/86.6	11.0/27.9	23.4/59.5	16.3/41.4	40.4/102.6	1.7/4.3	N/A	74.0°	74.0°	N/A
	63cm	25.5/64.8	34.8/88.4	11.0/27.9	23.9/60.7	16.3/41.4	40.9/103.9	1.7/4.3	N/A	74.0°	74.0°	N/A
Quantum Pro	51cm	21.2/53.9	29.8/75.7	10.5/26.7	21.1/53.5	16.3/41.4	38.4/97.5	1.5/3.8	N/A	74.0°	73.5°	N/A
	53cm	22.0/55.9	30.6/77.7	10.6/26.9	21.5/54.7	16.3/41.4	38.9/98.7	1.5/3.8	N/A	74.0°	73.5°	N/A
	55cm	22.5/57.1	31.5/80.0	10.7/27.2	22.0/55.9	16.3/41.4	39.4/100.0	1.5/3.8	N/A	74.0°	73.5°	N/A
	57cm	23.5/59.7	32.4/82.3	10.8/27.4	22.5/57.1	16.3/41.4	39.7/100.8	1.5/3.8	N/A	74.0°	74.0°	N/A
	59cm	24.3/61.6	33.2/84.3	10.9/27.7	23.0/58.3	16.3/41.4	40.3/102.3	1.5/3.8	N/A	74.0°	74.0°	N/A
	61cm	25.0/63.5	34.1/86.6	11.0/27.9	23.4/59.5	16.3/41.4	40.7/103.3	1.5/3.8	N/A	74.0°	74.0°	N/A
	63cm	25.5/64.8	34.8/88.4	11.0/27.9	23.9/60.7	16.3/41.4	41.2/104.6	1.5/3.8	N/A	74.0°	74.0°	N/A



Quantum Series frame Line drawings correspond to chart dimensions.



Mantra Series frame Line drawings correspond to chart dimensions.



Attitude and Adroit frame Line drawings correspond to chart dimensions.

Direct Fit (mm)/Direct Fit Angle (J and K)

	XS(51)	S(53)	M(55)	L(57)	XL(59)	(61)
Mantra	N/A	802/47.3°	832/43.4°	867/42.4°	899/44°	N/A
Mantra Comp	N/A	803/47.4°	833/43.5°	868/42.6°	900/44.1°	N/A
Mantra Race	N/A	795/47°	826/43°	860/42°	892/43.6°	N/A
Mantra Pro	N/A	795/47°	826/43°	860/43°	892/43.6°	N/A
Attitude*	N/A	810/51.2°	840/47.6°	861/47.5°	908/48.5°	N/A
Attitude Comp	775/53.4°	815/50.8°	841/47.7°	862/47.6°	909/48.6°	N/A
Attitude Race	N/A	804/49.9°	833/46°	854/45.9°	900/46.9°	N/A
Adroit Race	N/A	798/49.7°	828/45.7°	849/45.6°	895/46.6°	N/A
Adroit Pro	N/A	798/49.7°	828/45.7°	849/45.6°	895/46.6°	N/A
Quantum	765/43.1°	797/42.9°	834/41.9°	854/42.5°	883/42.6°	902/43°
Quantum T	765/43.1°	797/42.9°	834/41.9°	854/42.5°	883/42.6°	902/43°
Quantum Race T	762/42.6°	794/42.4°	831/41.4°	851/42.1°	880/42.1°	899/42.6°
Quantum Race	762/42.6°	794/42.4°	831/41.4°	851/42.1°	880/42.1°	899/42.6°
Quantum Pro	N/A	793/44.2°	827/41.6°	847/42.2°	876/42.2°	896/42.8°

*Attitude is not available in the U.S. market.

Direct Fit (J) The distance from the center of the bottom bracket spindle to the rider's hand position.

Direct Fit Angle (K) The angle created by the "direct fit" line and the horizontal line of the ground.

Visit your Klein dealer for more information about Klein's Direct Fit program or visit our web site at www.kleinbikes.com.