



**E**



**E-MTB**

# SPECIFIC E-DESIGN





The E-MTB movement has gone from a small niche in the market to a market almost in and of itself. With the number of pedal-assisted mountainbikes on the trails growing exponentially a specific task force within the Fulcrum R+D department set forth to find solutions specific to the unique needs of an E-MTB wheelset. While the engineers of the E-MTB frames have been successful in producing bikes that look very similar to their leg-powered counterparts, the demands they place on drivetrains and wheels are distinctly different. With this in mind Fulcrum set forth to produce an entire line of E-MTB wheels that address the specific needs of the pedal assist off road bike while guaranteeing the performance and reliability that has become synonymous with the brand.

To push the limits and create a fantastic riding experience without compromising anything in terms of reliability or durability was to be a difficult task, especially considering the extreme forces applied to the wheel via an E-MTB transmission. The engineers at Fulcrum HQ worked tirelessly to combine prior expertise in traditional MTB wheel production with knowledge gathered studying the unique forces, movements and needs that the E-MTB represents. Increased bike weight and a great deal more force generated by the drivetrain translates into increased speed, stronger impacts and overall greater forces to contend with. These more extreme riding dynamics make a stronger and more resilient structure necessary but to do so without adding excessive weight would make for products that set the standard for both riding experience and solid construction.

Every single part of each wheel in the Fulcrum E-MTB line-up was designed specifically to ensure resistance to stronger impacts, to transfer the extreme power from such powerful drivetrains in an efficient manner and to do so in a lightweight yet sturdy package that allows for a reactive and agile riding performance without rival. The Fulcrum E-MTB wheels are the result of years of expertise in boundary pushing wheel design combined with the new knowledge gained from intensive studies on this relatively new discipline. To create the performance and reliability standard for E-MTB wheels the Fulcrum engineers have incorporated tons of new technology and construction methods:






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## **REINFORCED HEAD SPOKES**

**13% MORE RESISTANT**

The entire range of E-MTB wheels from Fulcrum uses specifically developed oversized spokes exclusively. These spokes, with a specially developed head design for maximum strength, confer not only extreme resistance and durability but also contribute to the wheels fantastic power transfer and reactivity. The complex spoke design varies from 2.2mm to 1.8mm to ensure maximum strength while eliminating superfluous material... keeping things strong but as light as possible.







## **REINFORCED DISC FLANGE**

**5% MORE RIGID**

The increased speeds, weights and forces produced by the E-MTB mean that braking becomes even more critical. The braking system is put under a great deal more stress and as such the disc flange on the hub must not only resist but respond perfectly to increased braking forces. The Fulcrum E-MTB flange is substantially larger to ensure greater integrity but also 5% more rigid for robust and uniform performance under heavy braking.



## **REINFORCED COMPLETE HUB BODY SYSTEM**

**4X MORE RELIABLE**

Adding a powerful motor to the transmission means not only increased torque applied to the drivetrain but also more extreme peaks in applied power transferred upon the hub body and its internal parts. Such forces made a more resilient freehub system and body necessary. Fulcrum engineers developed the internal teeth in tempered steel to resist such extreme forces and guarantee uniform performance and longer lifespan of a vital part of the drivetrain. The system is 30% more resistant to breakage with respect to alternative designs. Tested on over a billion cycles the tempered steel ensures a lifetime 4 times longer than that associated with Ergal models used in traditional MTB models.

# DIFFERENTIATED PROFILE DELTA

DELTA 5 MM

The front and rear wheels of a mountain bike have two very distinct roles. While they both must roll in an efficient manner the front wheel is tasked more with rideability and handling while the rear must carry more weight and transfer power from the drivetrain. The increased weight, added power and more extreme forces represented by the E-MTB only serve to make great design for the specific needs of each wheel all the more necessary. As a result, Fulcrum E-MTB wheels incorporate specific profiles for front and rear. The 23mm front rim is more rigid and aids in maneuverability while the 18mm rear rim (5mm lower in profile) is flatter and reinforced to deal with the larger impacts in a more efficient and comfortable manner.

## IN-FRAME

12% MORE RIGID

### INTERNAL RIM SUPPORT STRUCTURE

The first point of contact between the MTB and the terrain below it is the wheel and as such, it receives a great deal of shock, which is only increased when considering the force and speed behind the E-MTB. The E-MTB wheel must guarantee structural integrity and stability during repeated and elevated stress, above and beyond what traditional MTB wheels are exposed to. Fulcrum engineers developed an internal rim support structure that takes the form of a diagonally positioned bridge of sorts. This advanced structure distributes load throughout the entire rim thus alleviated excessive compression in one single area. Thanks to the incorporation of this structural development, rigidity is increased laterally by 10% and vertically by 14%, thus changing the overall performance drastically.

# **SPECIFIC NIPPLE AND NIPPLE HOUSING**

**7% MORE RELIABLE**

The nipple, an extremely small part with an extremely important role. Oftentimes overlooked, the nipples and their housing are one of the most fundamental parts to consider when developing a new wheel. The E-MTB wheels from Fulcrum incorporate a special housing with lateral guides on both sides that allow the nipple to sit upon a stable base, oriented in a perfect position toward the spoke angle. Such a design permits a more even distribution of spoke tensions. The resulting structure is a more rigid, reactive wheel that resists torsion and misalignment or deformation under even the heaviest load.

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# E-MTB OVERVIEW

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**TRAIL**

**30 mm**

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**E-METAL 3**  
**29"**



**E-METAL 5**  
**29"**



**E-METAL 3**  
**27,5"**



**E-METAL 5**  
**27,5"**

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**ENDURO**

**35 mm**

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**E-FIRE 3**  
**27,5"**



**E-FIRE 5**  
**27,5"**





# E-METAL 3 29"



<b>Tyre Type</b>	2-Way Fit™ Ready (Clincher/Tubeless ready)
<b>Tyre Size</b>	29"
<b>Discipline</b>	Trail/Enduro
<b>ASTM Category</b>	3 (4 weight limit 130kg)
<b>Weight</b>	2050 g
<b>Rim material</b>	Aluminum
<b>Rim material details</b>	Aluminum, welded joint
<b>Profile height</b>	/
<b>Rim height</b>	Front 23 mm / Rear 18 mm
<b>Rim width</b>	35 mm
<b>Inner rim width (channel)</b>	30 mm
<b>Braking system</b>	Disc brake
<b>Brakes Options</b>	6 bolts

<b>Front axle compatibility</b>	HH15-110 Boost
<b>Rear Axle compatibility</b>	HH12-148 Boost
<b>Front wheel spokes</b>	28, Left 14 - Right 14
<b>Rear wheel spokes</b>	28, Left 14 - Right 14
<b>Spokes: material</b>	Inox bluing
<b>Spokes: profile</b>	Rounded, straight pull. Reinforced head
<b>Nipples</b>	Aluminum, self-lock
<b>Front Hub</b>	Aluminum, Aluminum flanges
<b>Rear Hub</b>	Aluminum, Aluminum flanges
<b>Bearings</b>	Sealed cartridge bearings, adjustable
<b>Others</b>	/
<b>Weight limit (system)</b>	150 kg
<b>FWB Version</b>	HG11      Optional: XD

# E-METAL 3 27,5"



<b>Tyre Type</b>	2-Way Fit™ Ready (Clincher/Tubeless ready)
<b>Tyre Size</b>	27.5"
<b>Discipline</b>	Trail/Enduro
<b>ASTM Category</b>	3 (4 weight limit 130kg)
<b>Weight</b>	1990 g
<b>Rim material</b>	Aluminum
<b>Rim material details</b>	Aluminum, welded joint
<b>Profile height</b>	/
<b>Rim height</b>	Front 23 mm / Rear 18 mm
<b>Rim width</b>	35 mm
<b>Inner rim width (channel)</b>	30 mm
<b>Braking system</b>	Disc brake
<b>Brakes Options</b>	6 bolts

<b>Front axle compatibility</b>	HH15-110 Boost
<b>Rear Axle compatibility</b>	HH12-148 Boost
<b>Front wheel spokes</b>	28, Left 14 - Right 14
<b>Rear wheel spokes</b>	28, Left 14 - Right 14
<b>Spokes: material</b>	Inox bluing
<b>Spokes: profile</b>	Rounded, straight pull. Reinforced head
<b>Nipples</b>	Aluminium, self-lock
<b>Front Hub</b>	Aluminum, Aluminum flanges
<b>Rear Hub</b>	Aluminum, Aluminum flanges
<b>Bearings</b>	Sealed cartridge bearings, adjustable
<b>Others</b>	/
<b>Weight limit (system)</b>	150 kg
<b>FWB Version</b>	HG11      Optional: XD

# E-METAL 5 29"



<b>Tyre Type</b>	2-Way Fit™ Ready (Clincher/Tubeless ready)
<b>Tyre Size</b>	29"
<b>Discipline</b>	Trail/Enduro
<b>ASTM Category</b>	3 (4 weight limit 130kg)
<b>Weight</b>	2170 g
<b>Rim material</b>	Aluminum
<b>Rim material details</b>	Aluminum, sleeved joint
<b>Profile height</b>	/
<b>Rim height</b>	Front 23,5 mm / Rear 18,5 mm
<b>Rim width</b>	35 mm
<b>Inner rim width (channel)</b>	30 mm
<b>Braking system</b>	Disc brake
<b>Brakes Options</b>	6 bolts

<b>Front axle compatibility</b>	HH15-110 Boost
<b>Rear Axle compatibility</b>	HH12-148 Boost
<b>Front wheel spokes</b>	28, Left 14 - Right 14
<b>Rear wheel spokes</b>	28, Left 14 - Right 14
<b>Spokes: material</b>	Inox bluing
<b>Spokes: profile</b>	Rounded, straight pull. Reinforced head
<b>Nipples</b>	Brass, self-lock
<b>Front Hub</b>	Aluminum, Aluminum flanges
<b>Rear Hub</b>	Aluminum, Aluminum flanges
<b>Bearings</b>	Sealed cartridge bearings, adjustable
<b>Others</b>	/
<b>Weight limit (system)</b>	150 kg
<b>FWB Version</b>	HG11      Optional: XD

# E-METAL 5 27,5"



<b>Tyre Type</b>	2-Way Fit™ Ready (Clincher/Tubeless ready)
<b>Tyre Size</b>	27.5"
<b>Discipline</b>	Trail/Enduro
<b>ASTM Category</b>	3 (4 weight limit 130kg)
<b>Weight</b>	2070 g
<b>Rim material</b>	Aluminum
<b>Rim material details</b>	Aluminum, sleeved joint
<b>Profile height</b>	/
<b>Rim height</b>	Front 23,5 mm / Rear 18,5 mm
<b>Rim width</b>	35 mm
<b>Inner rim width (channel)</b>	30 mm
<b>Braking system</b>	Disc brake
<b>Brakes Options</b>	6 bolts

<b>Front axle compatibility</b>	HH15-110 Boost
<b>Rear Axle compatibility</b>	HH12-148 Boost
<b>Front wheel spokes</b>	28, Left 14 - Right 14
<b>Rear wheel spokes</b>	28, Left 14 - Right 14
<b>Spokes: material</b>	Inox bluing
<b>Spokes: profile</b>	Rounded, straight pull. Reinforced head
<b>Nipples</b>	Brass, self-lock
<b>Front Hub</b>	Aluminum, Aluminum flanges
<b>Rear Hub</b>	Aluminum, Aluminum flanges
<b>Bearings</b>	Sealed cartridge bearings, adjustable
<b>Others</b>	/
<b>Weight limit (system)</b>	150 kg
<b>FWB Version</b>	HG11      Optional: XD

# E-FIRE 3 27,5"



<b>Tyre Type</b>	2-Way Fit™ Ready (Clincher/Tubeless ready)
<b>Tyre Size</b>	27.5"
<b>Discipline</b>	Trail/Enduro
<b>ASTM Category</b>	3 (4 weight limit 130kg)
<b>Weight</b>	2150 g
<b>Rim material</b>	Aluminum
<b>Rim material details</b>	Aluminum, welded joint
<b>Profile height</b>	/
<b>Rim height</b>	Front 23 mm / Rear 18 mm
<b>Rim width</b>	40 mm
<b>Inner rim width (channel)</b>	35 mm
<b>Braking system</b>	Disc brake
<b>Brakes Options</b>	6 bolts

<b>Front axle compatibility</b>	HH15-110 Boost
<b>Rear Axle compatibility</b>	HH12-148 Boost
<b>Front wheel spokes</b>	28, Left 14 - Right 14
<b>Rear wheel spokes</b>	28, Left 14 - Right 14
<b>Spokes: material</b>	Inox bluing
<b>Spokes: profile</b>	Rounded, straight pull. Reinforced head
<b>Nipples</b>	Aluminium, self-lock
<b>Front Hub</b>	Aluminum, Aluminum flanges
<b>Rear Hub</b>	Aluminum, Aluminum flanges
<b>Bearings</b>	Sealed cartridge bearings, adjustable
<b>Others</b>	/
<b>Weight limit (system)</b>	150 kg
<b>FWB Version</b>	HG11      Optional: XD



# E-FIRE 5 27,5"



<b>Tyre Type</b>	2-Way Fit™ Ready (Clincher/Tubeless ready)
<b>Tyre Size</b>	27.5"
<b>Discipline</b>	Trail/Enduro
<b>ASTM Category</b>	3 (4 weight limit 130kg)
<b>Weight</b>	2200 g
<b>Rim material</b>	Aluminum
<b>Rim material details</b>	Aluminum, sleeved joint
<b>Profile height</b>	/
<b>Rim height</b>	Front 23,5 mm / Rear 18,5 mm
<b>Rim width</b>	40 mm
<b>Inner rim width (channel)</b>	35 mm
<b>Braking system</b>	Disc brake
<b>Brakes Options</b>	6 bolts

<b>Front axle compatibility</b>	HH15-110 Boost
<b>Rear Axle compatibility</b>	HH12-148 Boost
<b>Front wheel spokes</b>	28, Left 14 - Right 14
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<b>Spokes: material</b>	Inox bluing
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<b>Nipples</b>	Brass, self-lock
<b>Front Hub</b>	Aluminum, Aluminum flanges
<b>Rear Hub</b>	Aluminum, Aluminum flanges
<b>Bearings</b>	Sealed cartridge bearings, adjustable
<b>Others</b>	/
<b>Weight limit (system)</b>	150 kg
<b>FWB Version</b>	HG11      Optional: XD