

Midas Charges Forward



Rapid manufacture helps Chargemaster get to market with their first in-house system - The Ultracharge

Global warming is driving forward the need to reduce carbon dioxide in our atmosphere and with figures approaching 4000 new **electric cars** being registered each month, it seems consumers are now starting to embrace cleaner and more efficient electric cars.

However, with this rapid growth comes increased focus on infrastructure and **charge point availability** and that's where **Chargemaster**, the UK's largest provider of electric vehicle charging infrastructure, have very cleverly positioned themselves.

In 2015 Chargemaster decided to make its own rapid charger - having previously used units from other suppliers. They chose to work with an award-winning UK **industrial design company** to develop a completely new design and new product for the company, having previously made fast charging posts

and wall-mounted units. This new **electric vehicle** rapid charger was set to be significantly more complicated than anything they had ever been involved with before and led the project team towards rapid prototyping to initially prove all aspects of the design and assembly content.

With an agreed concept, Chargemaster tasked Midas with producing a **rapid prototype** assembly in conjunction with the industrial design company. Parts were manufactured using CNC machining for the outer panels as this provided the speed and accuracy for the size of parts involved and then painted to a high gloss finish. Having significant CNC machine infrastructure, model making and paint facilities under one roof enabled Midas to meet the very strict lead-times, quality of finish and cost criteria set by Chargemaster. With an upcoming tradeshow timescales were crucial to the product launch.



In addition to speed, the ability to produce just one set of parts, very accurately and to a very high standard which could be used for the exhibition launch, photographic shoots as well as the on-going technical assessment and usability tests proved incredibly valuable but also made commercial sense.

The manufacture of the prototype housing was key to Chargemaster understanding the functionality of the unit, which also featured an iPad-sized touchscreen interface to provide an intuitive,



customer-friendly user experience. The Ultracharge rapid charger was designed to use all three standards for electric vehicle rapid charging, including a 50kW DC CHAdeMO connector, a 50kW DC CCS connector and a 43kW AC Type 2 connector so the prototype unit provided essential feedback on how the tethered cables would work in practice.



Following the first prototype, improvements were made before a final design was agreed and the production housings could be manufactured by Midas using their MRIM™ production tooling system. The assembly included seven individual RIM mouldings with the front and rear mouldings (1500 mm high by 500mm wide and 150 mm deep) finished in a two colour, white gloss and anthracite spatter finish. The benefit of using the Midas MRIM™ composite tooling system was both speed of manufacture and that the most complex of forms could be produced accurately, quickly and above all very competitively. Square faces, undercuts, metal inserts, bushes and features that would normally need to be machined, can all be cast into PU mouldings. It was imperative that these large panels would align accurately on the chassis each and every time to avoid quality issues, water ingress and delays in assembly.

As well as being suitable for **external environments** and virtually all weathers, the Ultracharge was required to carry significant power, running off a three-phase 400V electricity supply with 80A per phase. Rapid chargers form a critical part of electric vehicle infrastructure, allowing most **pure electric cars** to be charged to around 80% in just 30 minutes.



To date, more than 200 Ultracharge units have been manufactured and installed in housings manufactured by Midas, with more in the pipeline. They are being received incredibly well by electric vehicle drivers across the UK as the Ultracharge is more compact, stylish and easier to install than other rapid chargers and, in most cases, falls below the height threshold for planning permission.

The Ultracharge rapid charger was recently shortlisted for a major industry award with many more opportunities on the horizon. If you wish to find out more about the Ultracharge product, take a look on the [Chargemaster site](#).

If you feel the Midas team can support you with your next project, why not get in [touch](#)