

LIGHT-WEIGHT KING



| GP INSIGHTS

**MEET THE DRIVERS**

**Tom Bräuer**

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In this episode of Meet the Drivers, I got to talk to Tom. I already saw his Mini a couple of times on Social Media, but it was during our Track Day at Mettet in October, when I had the chance to have a closer look - and I was in for a big surprise. Not only does the car run an interesting engine concept for a Track-Mini, it is also incredibly light - below 1000kg!

**Hi Tom! Thank you for taking the time to be our third guest in our "Meet the Drivers" series. Let us start with the obligatory first question: How and especially when did you get into motorsport?**

I honestly cannot put a date on it exactly. I started Karting (Slalom) when I was 10 years old. After around two years and limited success, I discovered RC racing.

What started as a hobby, quickly developed into something more and fun club racing became fierce international competition. However, the high-pressure environment across these kinds of championships, spoiled the fun in the long-run.



Coming closer to the end of my RC racing "career", I already started doing the first laps on the Nordschleife. In 2011, I decided to quit RC racing altogether and focus on the real cars instead.

It took a while until I did my first Track Day in 2013 at Spa in a Clio 3RS, but from then on it just got more!

Since 2018, I am also part of a VLN-Team, not as a driver, but as a part of the pit-crew.

**Did you always drive a Mini, or have you tried some other brands as well?**

For the very first laps on the Nordschleife I used a Polo 9N3 - my daily driver at the time.

The year after, I got my first Mini. After an accident at the Ring, I bought the current (second) one with a broken transmission and electric issues and used some parts of my crashed car to get it in good shape.

Also, I regularly drive a Clio RS 3 which I am sharing with my dad on different Track Days.

**I had the chance to have a closer look at your Mini last October in Mettet. It is naturally aspirated! Definitely not the most common choice for a Mini Tracktool. Besides, you went to great length, making it as light as possible. Why did you go down this route?**



My obsession with weight reduction started while I was racing RC cars. Being 13, it was hard to come by a good RC engine, but we had a toolbox at home for all the other things. In addition, adding a lot of power sure makes you faster but it comes at a cost. More wear, more expenses and often less reliable.

Colin Chapman summed it up perfectly:

**"Adding power makes you faster on the straights; subtracting weight makes you faster everywhere"**  
The n/a engine was born out of necessity. As a



student, I simply did not have the means to go for a Cooper S or JCW straight away.

However, I learned to love the n/a and would not want to swap it for a super or turbocharged engine!

Of course, I am lacking power on long straights, but on twisty tracks like Mettet, it is not an issue at all. And if I am slower than the others, I always have a good excuse!

Besides, I love the challenge of getting the maximum out of the car, as you really have to fight for every bit of power - a turbocharged engine would be easier.

**It is just impressive to see the attention to detail and effort you put into reducing the weight of your car. Can you tell us some examples of what you have done so far?**

Thank you! I started with the obvious parts: lighter seats, battery, carpets and sound deadening, as well as eliminating all unnecessary bits of metal and interior trim.

I analysed every part I got out of the car and tried to make it lighter. Sure, most of the times you will just save a couple of hundred grams, but it adds up.

One of my favourite bits was cutting the excess rubber along doors. You just need carpet knife and an hour of your time and you will save 438g (Yes, Tom is this meticulous!).

In comparison, stripping the wire-harness saved 4kg!



Another thing I did was optimising the mechanism for the boot lift. I saved 80g by optimising the hinges and getting rid of the lifters - every little helps!

Drilling holes in the dash and getting every bit of material out that is not necessary saved another 1kg.



I also changed the inside mirror as I found out, that the pre-facelift one is 207g lighter!



Surely some parts helped to lose weight much quicker such as R53 GP control arms (2.5kg per arm) as well as aluminium wishbones (750g p.p)

That is just a small selection of the work I did. So if you are interested to find out more, just meet me on one of the Track Days!

**Crazy! Are you doing everything by yourself or are you getting yourself some help?**

Most things I can do myself in my garage. Also, I try to build most parts on my own. I usually only outsource work if I do not have the right (precision) tools, for example to working on the cylinder head.

Sometimes my dad or some friends help me with certain things - I think a project like this simply does not work without that. Oh, and last year I got my ECU reprogrammed by someone as I cannot do it myself.

**That is just great! Do you know how many kilos you were able to get rid of until this point?**

I started at 1,120kg with a full tank and without a driver. The last time I weighed it, I got 970kg. So 150kg reduction in the end.





My 6 gear transmission added 10kg to the older 5 gear one though. Except for the bonnet, I do not have any fibre-glass parts or Makrolon screens. However, I also do not have a roll-cage yet which will definitely add some weight.

## **B**ut you probably still did some work on the engine, right?

Of course, I did. It is not stock by any means. It is a W11 engine (Cooper S) as it has piston-cooling. However, the pistons, rods and crankshaft are from the Cooper and are fitted with valve recesses and other modifications.



To increase the compression (12:1), the cylinder head and engine block have been modified as well. In addition, I have fitted an improved camshaft.

The highlight is the individual throttle body system I developed. Together with the reprogrammed ECU, it is the only way to get the current power out of the engine. The airbox is also developed by myself and 3D printed.

Another 8kg were saved by optimising some engine parts such as the flywheel, electronic water pump etc.

## **W**ow! So I guess you are not going to tackle another project any time soon?

No. I will stick with the Mini for now. I wanted to build another one but I cannot really let go after putting so much work into it.

During the winterbreak, I will fit a roll cage and a new suspension (KW Competition).

To compensate for the weight of the roll cage, I will add some more fibre-glass parts (boot lid, roof lining etc.). In addition, I will add Makrolon screens as well as a heated windscreen so I can get rid of the entire ventilation system.

My goal is to get it down to 950kg including the roll cage.

There is still so much potential and it is just fun to push it to the max. In the future, I might have a look at an MX-5 though!

## **J**ust impressive! Looking at my Mini that just shows how much there is to do still! Last but not least I want to ask you about your plans for the Track Day Season 2021. What is in store?



I am going to be in Mettet again for sure! But Spa and the Nordschleife are also on the list.

I would love to experience some new tracks like Zandvoort and Charade but I am not sure whether I will manage this year.

