

# Bicycle Test Newsletter 2010/1

2010-03-08

## EFBe has a new address



Illustration: The EFBe test laboratory

After several delays, we have finally moved from our old premises on the grounds of the old coal mine in Waltrop to a new development. Having outgrown our old location, the new building provides ample space for our test lab and affords an attractive view of the historic mine buildings.



Illustration: The old mine in Waltrop

Our new contact details are:

EFBe Prüftechnik GmbH  
Landabsatz 25  
D-45731 Waltrop

Tel: +49 (0)2309 78407 0  
Fax: +49 (0)2309 78407 10  
E-mail: info@efbe.de

## TRI TEST now for all parts

Having proven itself in practice for frames and forks, we have now extended the TRI TEST concept to encompass other safety-critical components – handlebars, saddle pillars and crank unit. The TRI TEST comprises a combination of fatigue, maximum load and overload tests that have proven to provide particularly relevant and useful information about the tested components' resistance to failure (see Newsletter 2008-02). We recommend this test programme for all safety-relevant components and especially carbon fibre parts.

Customers can choose from among 25 different tests for load-bearing parts:

EFBe-standard testing

Component	Test type	Load condition	TRI TEST
Frame	Rigidity	Track rigidity	
		Out-of-saddle rigidity	
	Fatigue	Rear wheel axle load	
		Rear wheel brake load	
Max. load/overload	Out-of-saddle*	Saddle load*	Frame TRI TEST
		Drop, etc. (head tube)*	
	Drop (bottom bracket)	One-sided pedal load	
Frame-fork unit	Rigidity	Track rigidity	
	Out-of-saddle rigidity		
Max. load/overload	Front wheel braking		
Fork	Rigidity	Track rigidity	
		Road surface loads	
	Fatigue	Road surface loads*	Fork
		Front wheel braking	TRI TEST
Max. load/overload	One-sided rider weight		
	Antiphase and in phase*	Handlebar/stem	
	One-sided rider weight	TRI TEST	
Crank unit	Rigidity	Out-of-saddle	
	Fatigue	Out-of-saddle*	Crank unit
	Max. load/overload	Out-of-saddle	TRI TEST
Saddle pillar	Rigidity	Saddle load, back	
	Fatigue	Saddle load, back*	Saddle pillar
	Max. load/overload	Saddle load, back	TRI TEST

\*Requirements following EFBe Performance level and bicycle type

Table: EFBe-standard test programme

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## Full EN testing now available

Many of our partners come to us because they know that the EFBe standard provides them with test results that closely reflect parts' performance under real-life conditions. Increasingly, however, they also need a full component test according to one of the EN standards, for example for exports to France, where EN testing is a legal requirement.

Responding to this need, we are extending out EN fatigue testing programme to include all relevant tests for

- frames
- forks
- steering
- crank units and
- saddle pillars

according to

- EN 14764 (trekking/city bikes)
- EN 14766 (MTB) and
- EN 14781 (racing bikes).

Keep in mind, however, that some of the standards tests have proven inadequate in practice, placing sometimes insufficient and sometimes excessively stringent requirements on the component; in some cases the prescribed methods are also inappropriate.

## Second DVM workshop in Berlin

Following the previous year's successful event, the working committee for bicycle safety of the German association for materials research (DVM) has again held a workshop last November.

The interesting contributions, covering science and bicycle testing, this time focussed on quality assurance for carbon parts. The manuscript of EFBe's contribution, titled "Testing of carbon fibre bicycle components

– experiences in practical testing" is available (in German language only) on the Internet under [www.efbe.de/presse/index.php](http://www.efbe.de/presse/index.php).



Illustration: Speaker Manfred Otto

The event's highlight was a guided tour of the test laboratories of the German Federal Institute for Materials Research and Testing (BAM), which boasts an impressive testing station for wind turbine rotor blades made from matrix materials.

## Current frame test statistics

For an objective assessment of EFBe's test results, it is helpful to know the results of all performed tests. The table below gives an overview of fatigue tests, grouped by frame type and performance level. The figures show the percentage of passed tests relative to the total number of tests in each category based on 358 full tests (out-of-saddle + saddle load + drop).

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	MTB	Racer	Trekk./ city
TP	62	64	49
HP	66	55	88
SP	71	85	-

Statistics: Passed full tests in % of performed full tests (status: 2010-01-01). Data includes only categories for which more than ten tests were carried out.

Most specimen passed the maximum load and overload tests:

- Overload, drop (based on 100 tests): 90 %
- Overload, pedal (based on 90 tests): 87 %

For the rigidity tests, all bicycle types were included in the analysis. The following tables shows the percentage distribution of all measured frame rigidity values, with notes given from 1 to 5 as introduced in the Newsletter of 16 February 2006.

Note	1	2	3	4	5	Σ
Track rigidity (N/mm)	≥ 10	8–10	6.5–8	5–6.5	0–5	
%	8	32	29	25	6	100

Table: Frame track rigidity based on 190 tests (status: 2010-01-01)

Note	1	2	3	4	5	Σ
Out-of-saddle rigidity (N/mm)	≥ 150	120–150	100–120	80–100	0–80	
%	10	34	36	8	12	100

Table: Frame out-of-saddle rigidity based on 181 tests (status: 2010-01-01)

Note that these figures, while providing general guidance, are not representative.

## VAT-free test service for non-EU customers

While it has not been necessary to charge value-added tax (VAT) for test services within the EU for some time now, customers outside the EU (for example in Switzerland) have had to be charged VAT. Although the invoice re-

ipient was able to recover this tax from the German tax authority, this involved a complex process and was therefore rarely done. As of 1 January of this year, VAT is also being omitted from test services for customers outside the EU. For many of our partners this means that the effective cost of our testing services has dropped by the current rate of VAT in Germany of 19 percent.