

#### **Tear and Fatigue Analyzer**

Measurement of Crack Growth Rate on Rubber

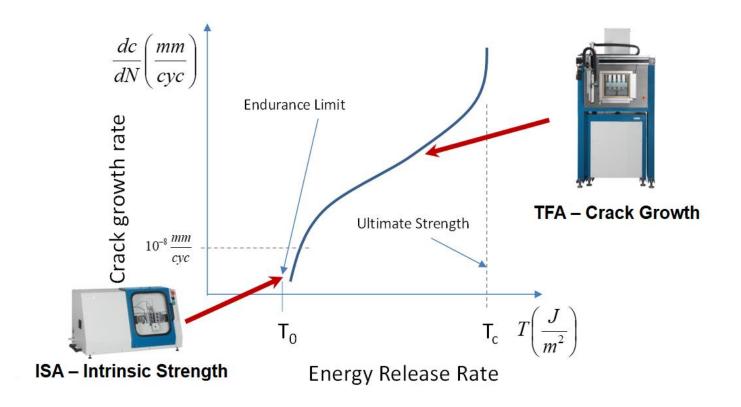
www.coesfeld.com

#### **Measurement Goal**



Prediction of operational lifetime of rubber products

by **measurement of crack growth rate**, which is a characteristic material constant.



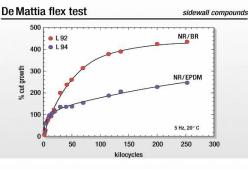
### **Proofed Correlation**



**TFA vs Tire Crack Growth Measurement** 

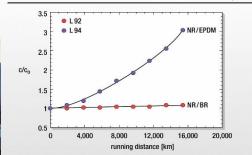
Alternative Lab Tests - DeMattia



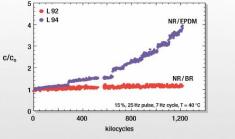


Tire machine test

sidewall compounds



#### Pulsed load crack propagation sidewall compounds



Tire Drum Lab Test

• TFA Lab Test



# System Features



Automatic crack growth measurement



- Direct Electro Drive
  - high dynamics
  - programmable loading sequences
  - Iow energy consumption, ~1/10 of hydraulic
- Multi-Station Control of Stress-Level
- Automatic Digital Crack Measurement
- Temperature Chamber
  - Tight sealings for N2 or O3 atmospheres

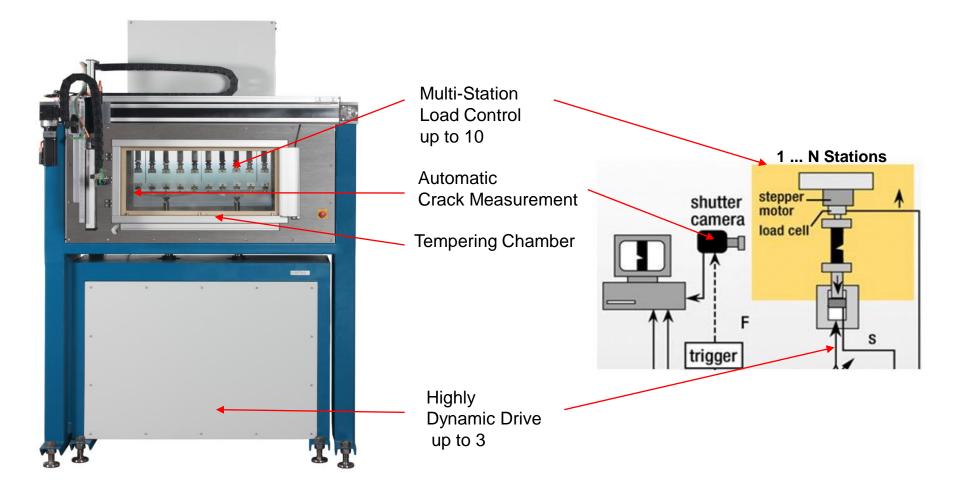
Efficient Endurica Test Protocols



### System Features



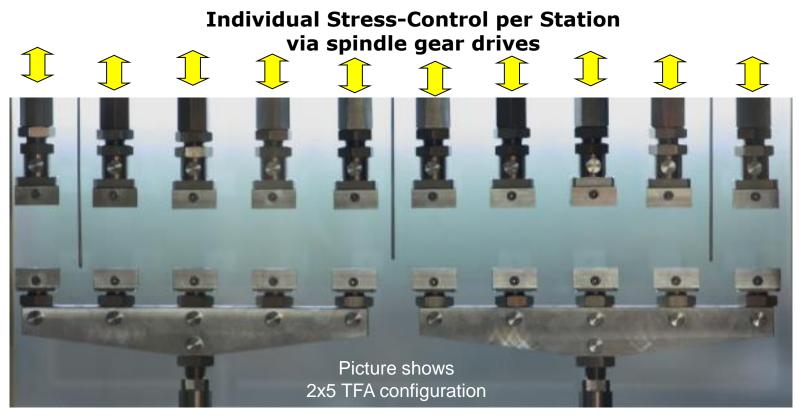
#### Automatic crack growth measurement



# **Multi-Station Set-Up**



1 x Dynamic Loading with up to 10 x Measuring Station per Dynamic Drive



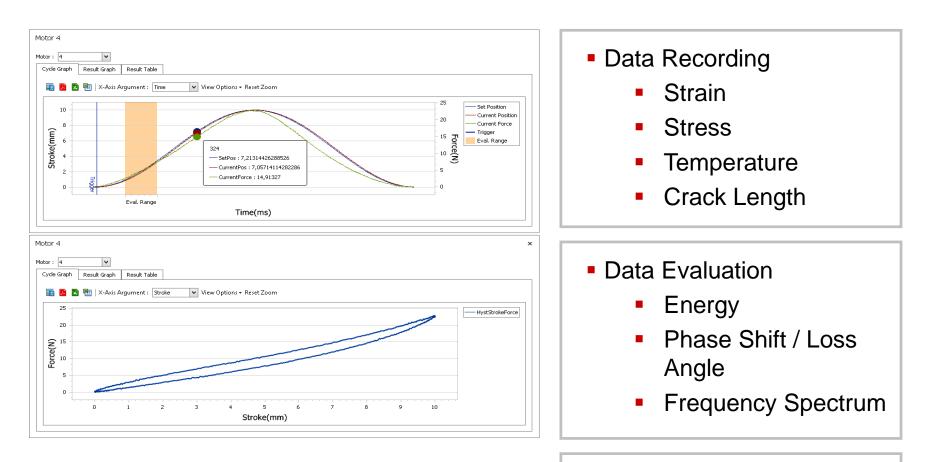


Universal Dynamic Loading via dynamic drive

### Windows Software



PC controlled application and digital data recording

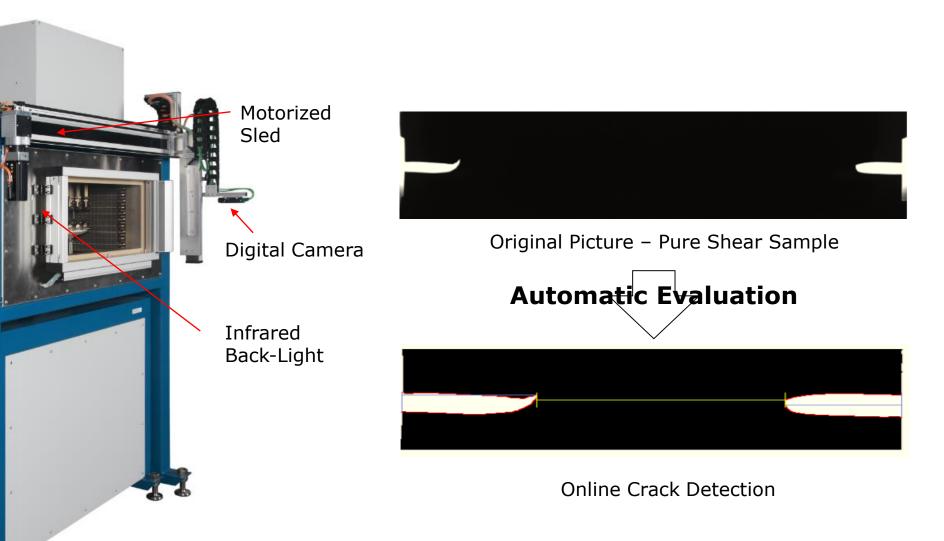


Full Raw Data Export

# **Online Crack Measurement**



1x Camera -> up to 20 x automatically captured pictures





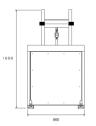
# Online Built of Thomas/ Paris-Erdogan Diagram

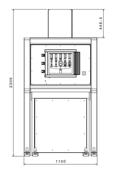
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Paris-Erdogan Diagram				Crack History	Crack Image				
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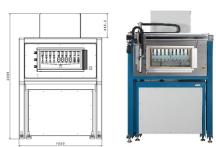
Picture shows Optional Enduica Software ADD-IN

# Configurations









Technical Data						
Specimen	SEN 65x15/ PS 15x120/ Mini-PS 4x40 mm (hxw)					
Load per station	200 N					
Span distance	1 to 65 mm					
Dynamic Stroke	up to 50 mm					
Frequency	0 to 50 Hz					
Temperature	(-30°C)* / +35 to +150°C * with external cooling supply					
Stations	1 to 10					
Dimensions and Connection						
Mains	3 ~ 400 V / 50 Hz N/PE					
	1 station	3/5 station	10 station			
Power	18 kVA	30 kVA	40 kVA			
Dimensions (h x w x d)	2.3x0.9x1.1 m	2.3x1.2x1.1 m	2.3x1.6x1.1 m			
Weight	800 kg	1500 kg	1900 kg			







#### **MATERIAL TESTING EQUIPMENT**

#### for plastics and rubber

Coesfeld GmbH & Co. KG

Tronjestr. 8 44319 Dortmund

T +49 231 91 29 80-0 F +49 231 17 98 85

mail@coesfeld.com

www.coesfeld.com