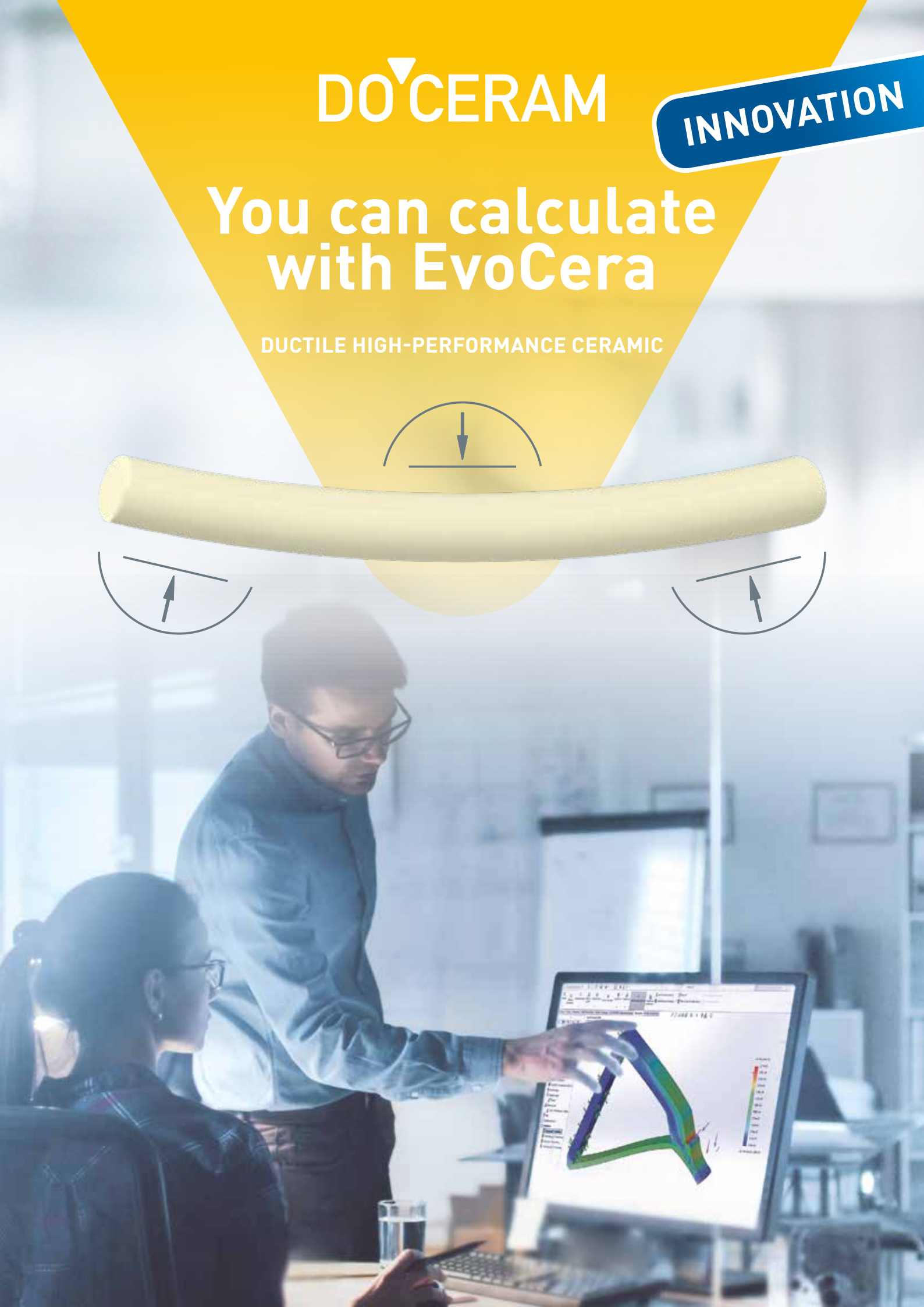
DOCERAM

INNOVATION

You can calculate with EvoCera

DUCTILE HIGH-PERFORMANCE CERAMIC



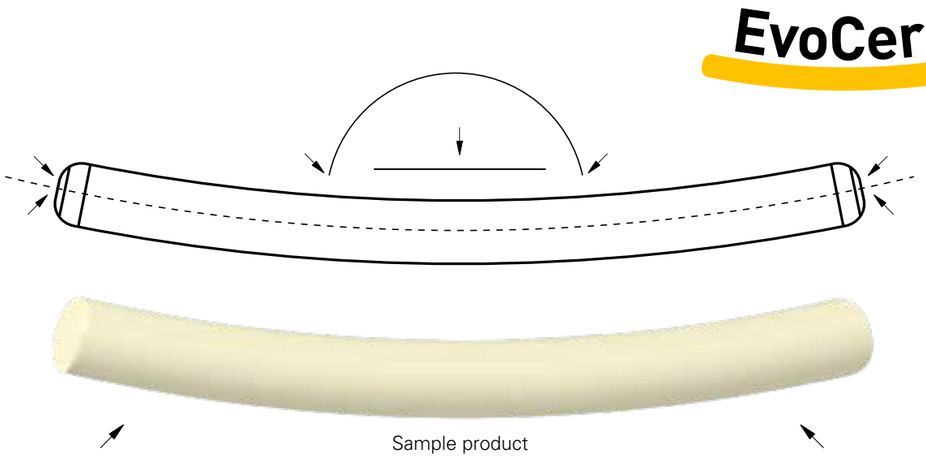
AN EVOLUTION IN HIGH-PERFORMANCE CERAMIC.

NO UNPLANNED MACHINE DOWNTIME THANKS TO THE FEM DESIGN

EvoCera is a totally innovative material combining the properties of the latest high-performance ceramic with the ductility of steel. Parts from **EvoCera** can be designed and manufactured based on the finite element method (FEM). This was only typical for steel materials up until now.

Construction elements made of **EvoCera** retain their uniquely high strength and dimensional stability even under continuous cyclic loads. They are therefore also suitable for critical areas of applications thanks to their innovative ductile properties. This enables the design of safety-relevant components in ceramic quality for the first time.

EvoCera is far superior to typical metal and plastic materials in terms of strength as well as abrasion, corrosion and temperature resistance. In addition, **EvoCera** has non-magnetic, non-magnetisable and high electrically insulating qualities.



THE CERAMIC ALTERNATIVE: FOR SPECIAL APPLICATIONS.

While conventional ceramic materials can break in the event of overloading, **EvoCera** is predictably ductile in accordance with the FEM calculation. This innovative plastic behaviour based on elastic elongation gives **EvoCera** an important reserve for safety-relevant components.

In addition, analyses show that components made of **EvoCera** have a significantly lower material strength variation (Weibull modulus > 50) than conventional industrial ceramic, such as zirconium oxide (ZrO_2).

	Unit		
Material		**EvoCera**	**Industrial ceramic (MgO-PSZ)**
Density	g/cm³	5.9	>5.7
Flexural strength σ_e (yield stress)	MPa	400	500
Flexural strength σ_m	MPa	600	500
Weibull modulus		50	15
Plastic deformation ε	%	0.8	/

EVOLUTIONARY ADVANTAGES:

- **Flexibility and plastic ductility**
- **Outstanding strength and dimensional stability**
- **High abrasion, corrosion and temperature resistance**
- **Non-magnetisable and electrically insulating qualities**
- **Calculation and design in accordance with the FEM**
- **Significantly lower strength distribution**

AS STRONG AS CERAMIC. AS RELIABLE AS STEEL.

The plasticity and strength of **EvoCera** allow the simulation and design of components in accordance with the FEM, which was only possible up until now with other materials, such as steel or special plastics.

This means: when designing components and parts, you can now take advantage of the unique advantages of industrial high-performance ceramic with **EvoCera**, even in safety-critical areas of application.

Requirement	EvoCera	Industrial steel (St52)
Corrosion resistance	✓	x
Abrasion resistance	✓	x
Design based on the FEM	✓	✓
Chemical resistance	✓	x
Hardness	✓	x
Thermal expansion	=	=
No electrical conductivity	✓	x
No magnetisability	✓	x
No thermal conductivity	✓	x
Ductility	✓	✓

✓ optimally suited x less suited = equally suited

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ADVANCED CERAMIC SOLUTIONS

DISCOVER NEW POSSIBILITIES!

You already have an idea of how and where you want to use **EvoCera** high-performance ceramic? Then request our **EvoCera** information pack with all the data and facts for developers, application engineers and engineering offices.

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