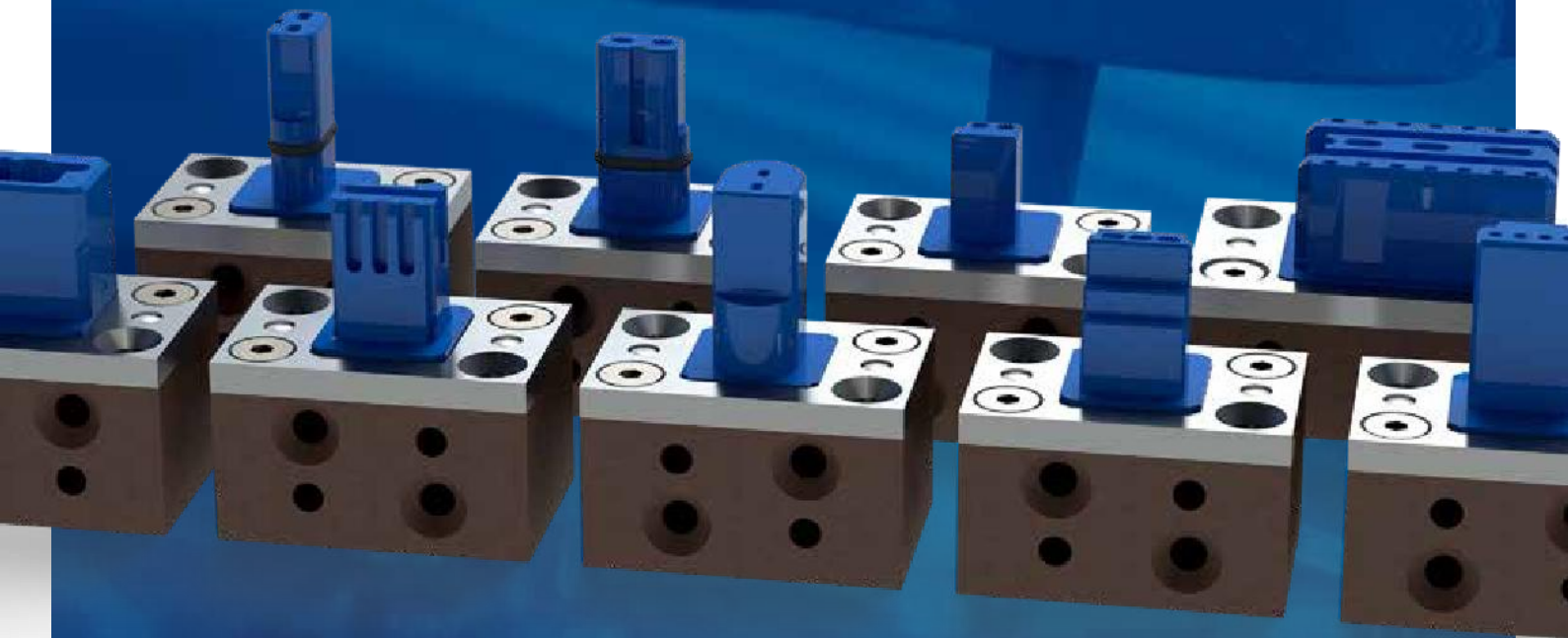


EXTREMELY ANTI-WEAR HIGH-PERFORMANCE CERAMIC



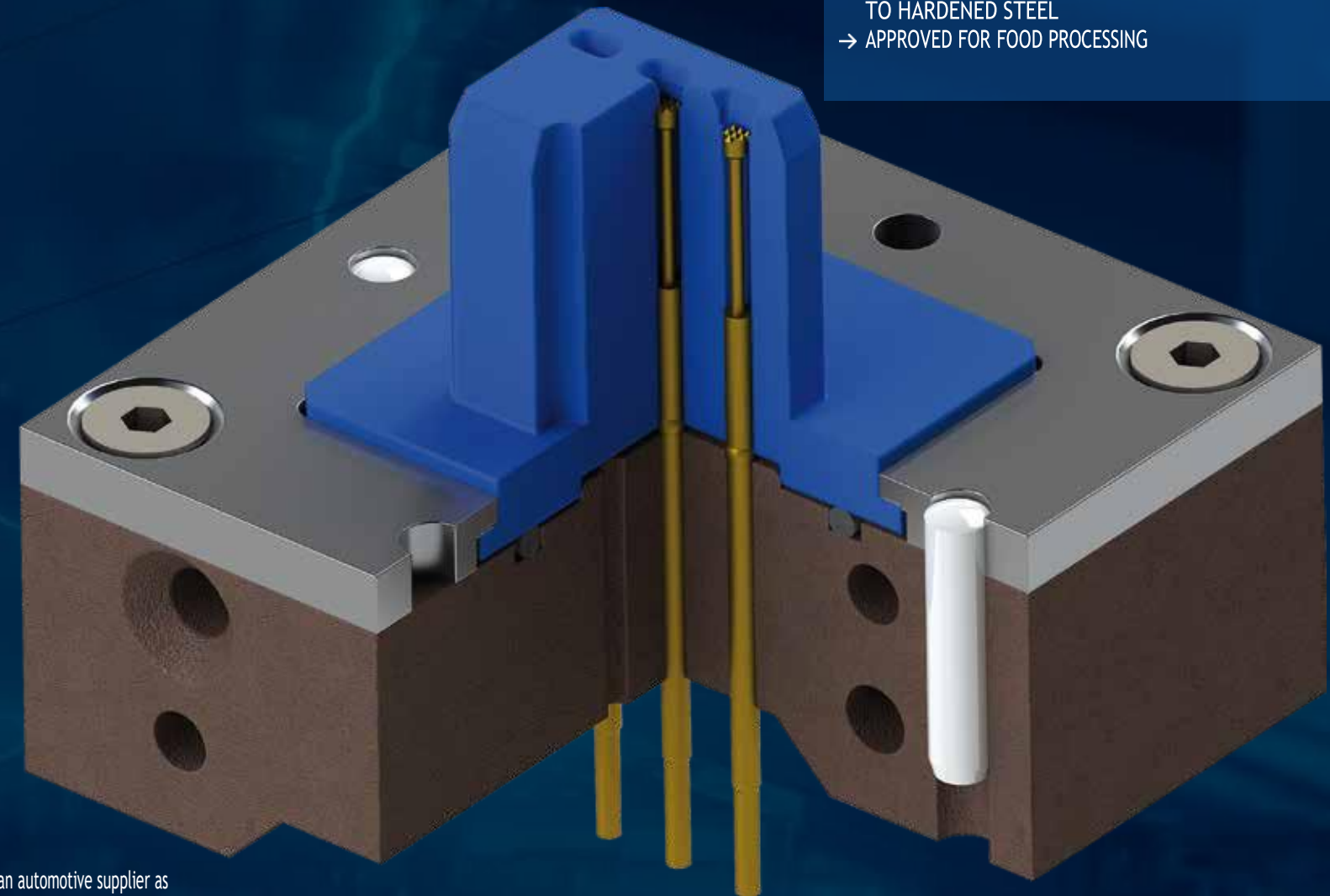
DEVELOPED AS PART OF 5 YEARS' INTENSIVE RESEARCH.
SUCCESSFULLY IN USE FOR 16 YEARS.

CERAMIC: TODAY!

- EXCEPTIONALLY WEAR-RESISTANT
- EXTREMELY TEMPERATURE-STABLE
- ELECTRICALLY AND MAGNETICALLY NEUTRAL
- FREQUENCY-NEUTRAL
- SOLDER-RESISTANT AND ABRASION-RESISTANT
- RESISTANT AGAINST GALLING, PREVENTS ANY MATERIAL ACCUMULATION
IDEAL FOR CLEAN ROOMS
- CHEMICALLY INERT
- MORE THAN 20 TIMES THE SERVICE LIFE COMPARED TO HARDENED STEEL
- APPROVED FOR FOOD PROCESSING

CERAMIC: IN THE PAST!

Example: test plug for an automotive supplier as an assembly with components made of high-performance ceramic, plastic and metal



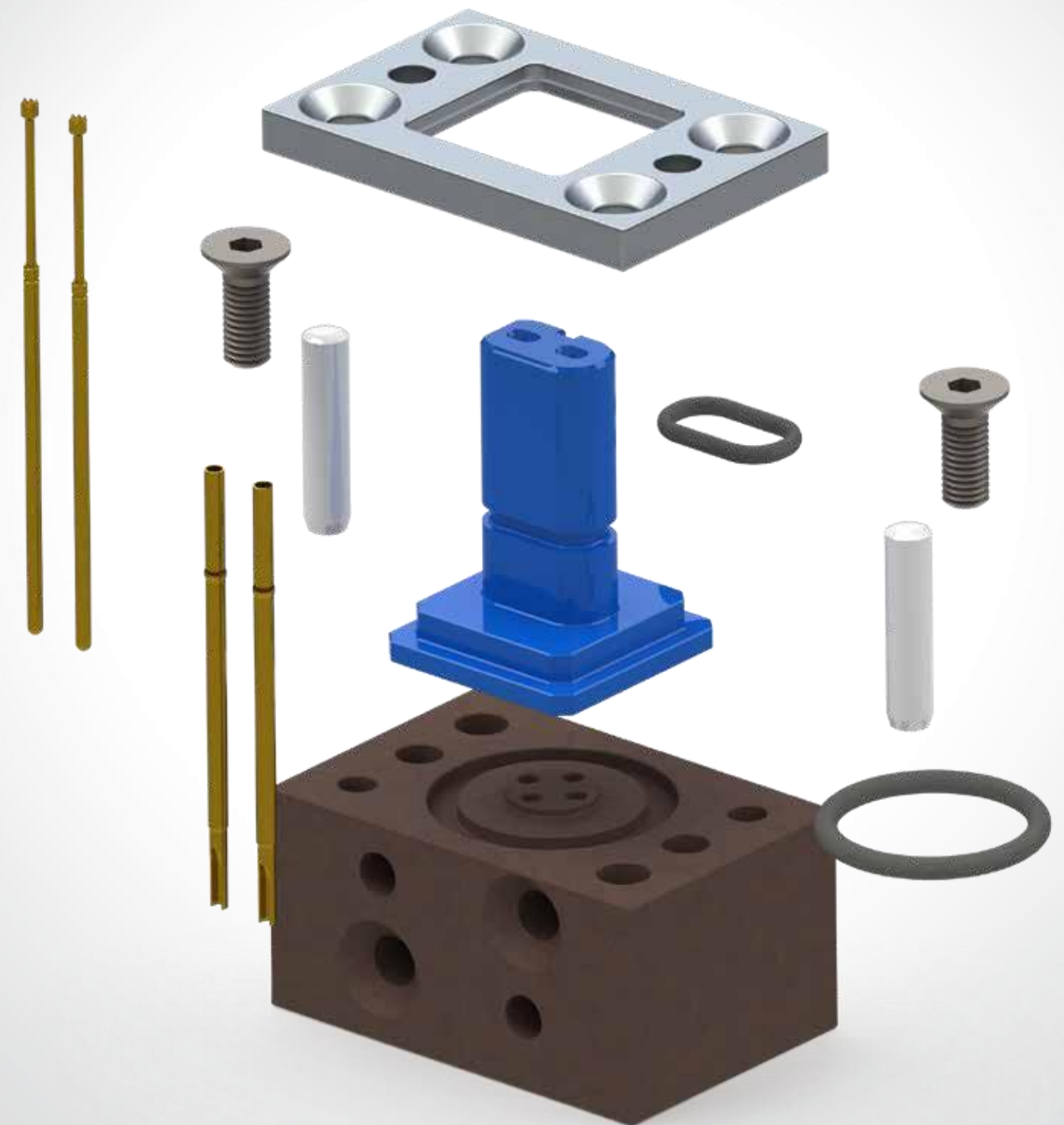
WHY CERAMIC COULD TRANSFORM YOUR TESTING ONCE AND FOR ALL

THE SUPERIOR PROPERTIES OF DOCERAM HIGH-PERFORMANCE CERAMIC WITH REGARD TO HARDNESS, WEAR RESISTANCE, TEMPERATURE RESISTANCE, IMPACT STRENGTH, ABRASION RESISTANCE AND ANTI-ADHESION CONTRIBUTE TO MAKING PROCESSES AND SEQUENCES OF MACHINES AND PLANTS MORE SECURE AND QUALITY-FOCUSSED. COMPONENTS MADE OF HIGH-PERFORMANCE CERAMIC ARE INCREASINGLY REPLACING CONVENTIONAL MATERIALS SUCH AS METAL AND PLASTIC.

BENEFITS OF TEST PLUGS MADE OF HIGH-PERFORMANCE CERAMIC:

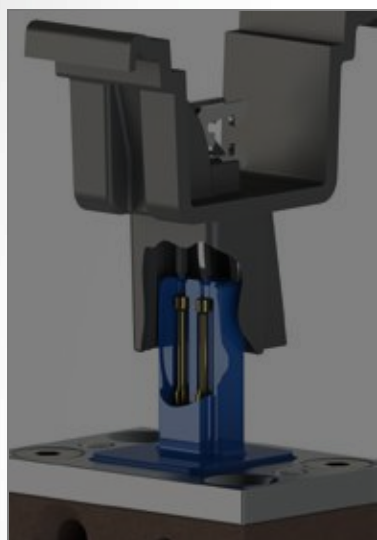
- EXTREME ANTI-WEAR PROPERTY, LEADING TO SIGNIFICANTLY EXTENDED SERVICE LIVES
- IDEAL ALSO FOR COMBINED FUNCTION / SWASH CIRCUMFERENCE TESTS
- CAN BE REALISED EVEN FOR THE SMALLEST OF GEOMETRIES: 0.3 MM WALL THICKNESS
- HIGH TECHNICAL PURITY: THE COMPONENT IS NOT SUBJECT TO ABRASION OR INCORRECT MEASUREMENTS; THE SPRING CONTACT PINS DO NOT BECOME PREMATURELY FAULTY
- OPTIONALLY WITH INFED CHAMFER (FOR TESTING SWASH CIRCUMFERENCE)
- THE PLUG CAN BE CONSTRUCTED USING THE COUNTERPART (SOCKET)

TEST PLUG ASSEMBLY FROM DOCERAM, COMPLETELY ASSEMBLED WITH CERAZUR COMPONENT. SUPPLIED EX WORKS AS AN INSTALLATION-READY MODULE IN CUSTOMER-SPECIFIC CONFIGURATION.

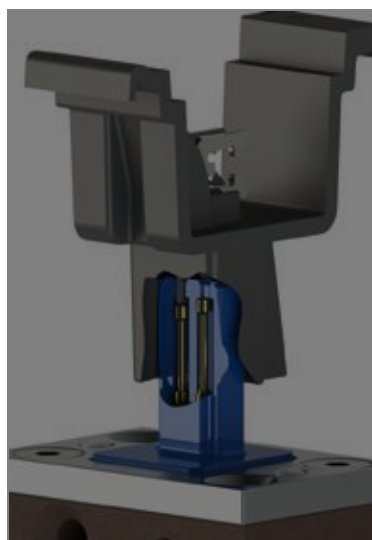


PROCESS SECURITY, PRODUCT QUALITY - WE KNOW WHAT IS IMPORTANT

TESTING SWASH CIRCUMFERENCE PLUGGABILITY



Contact pin outside of the swash circumference = not OK



Not OK contact pin is bent
No contact possible

CERAMIC

DOCERAM TEST PLUGS MADE OF HIGH-PERFORMANCE CERAMIC ARE ALREADY BEING USED AS STANDARD BY RENOWNED CAR MANUFACTURERS FOR DEPENDABLE 100% TESTING OF CAR ELECTRONICS.

SIGNS OF ABRASION/WEAR

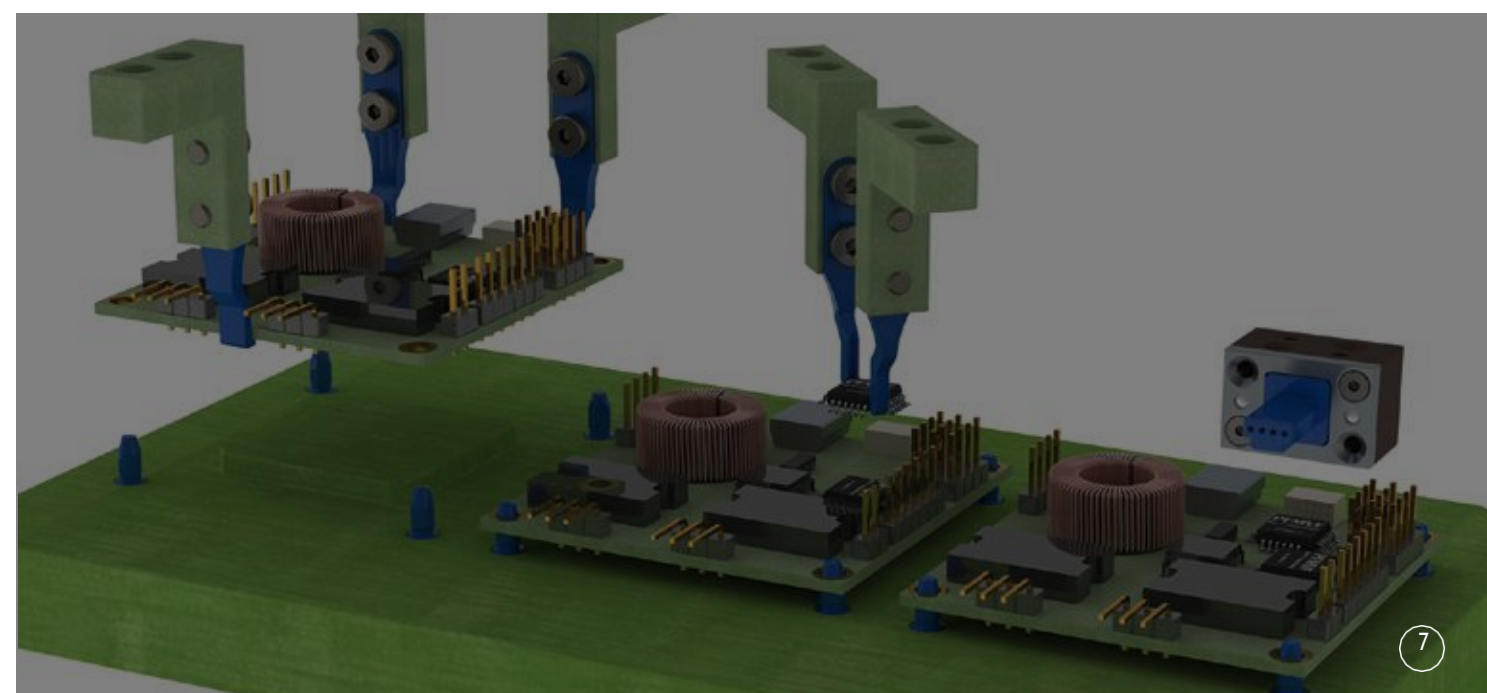
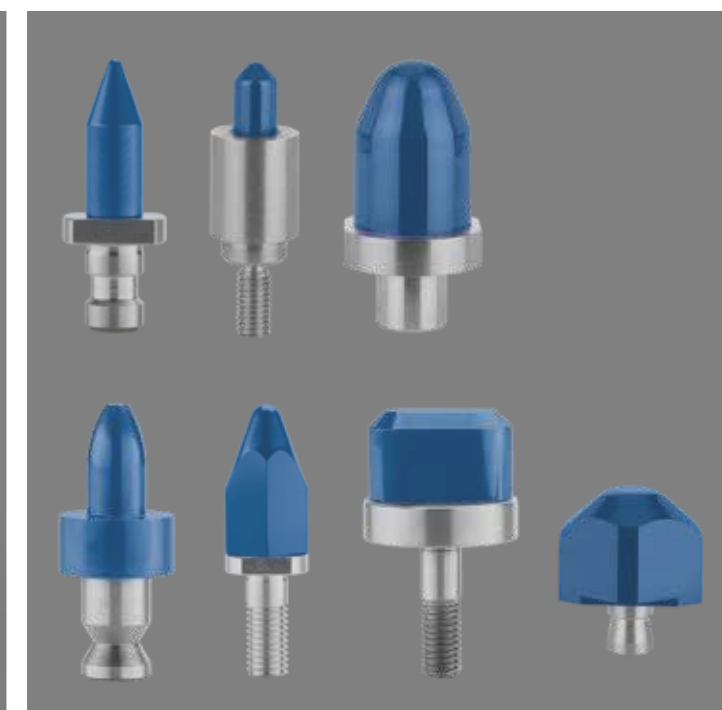
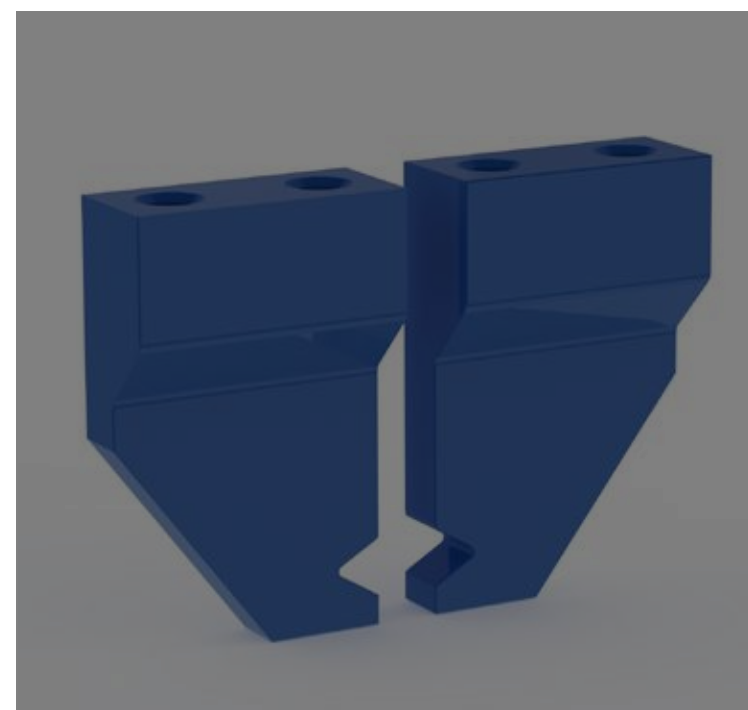
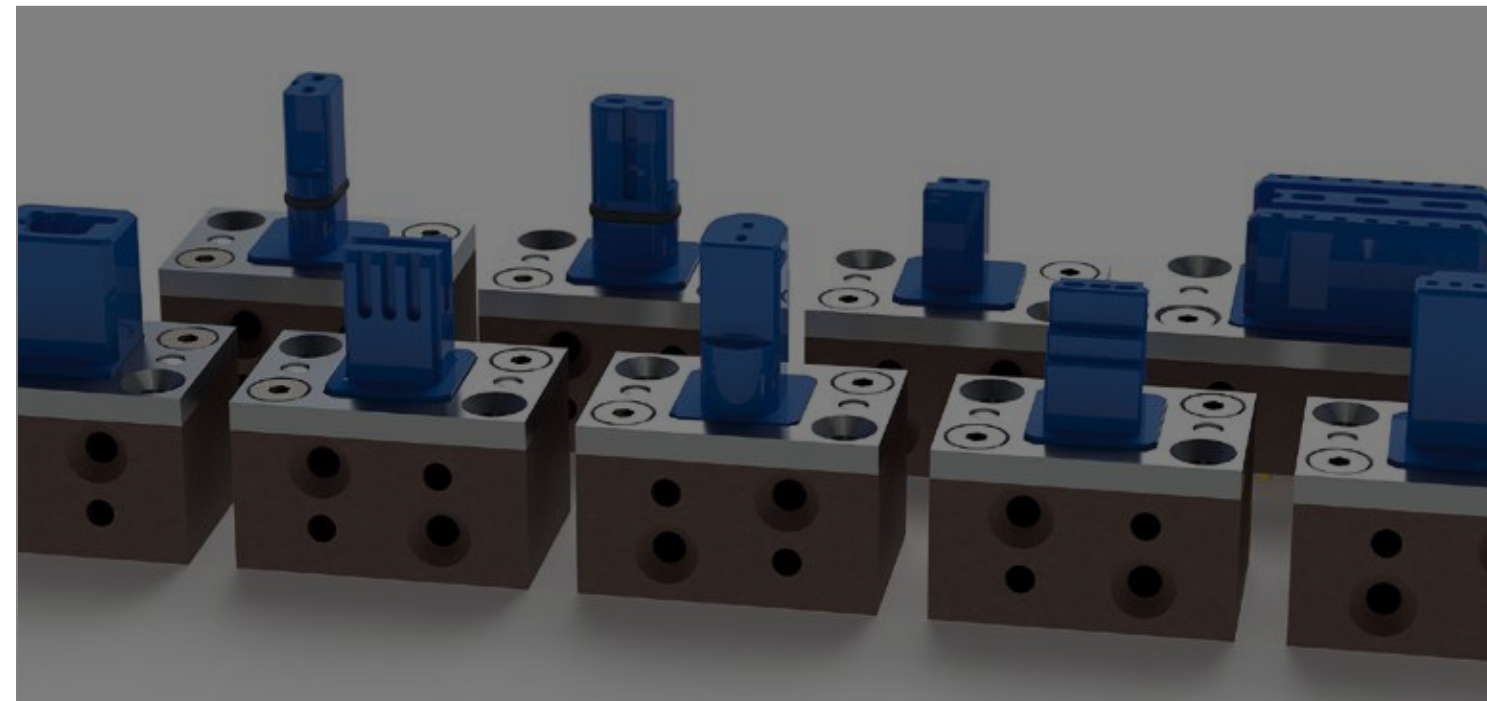
PLASTIC



Not OK contact pins
= abrasion/dirt



Abrasion/dirt
= Spring contact pins' service life
massively reduced
= Plug's shape/tolerance not OK



PROPERTIES	Unit	Cerazur	Aluminium oxide
Composition	-	ZrO ₂ Y-PSZ	Al ₂ O ₃ >99.7%
Colour	-	blue	ivory
Density	(g/cm ³)	6	3.9
Bending strength	(MPa)	1300	390
Compressive strength	(MPa)	3000	3900
E-modulus	(Gpa)	205	390
Impact strength	(Mpa m ^{1/2})	12	5.2
Weibull modulus	-	25	12
Vickers hardness	(HV 0.5)	1150	2000
Thermal expansion	(10 ⁻⁶ K ⁻¹)	10	5.5-8.4
Thermal conductivity	(W/mK)	<2	28
Thermal shock resistance	(ΔT °C)	280	120
Maximum operating temperature	(°C)	1000	1700
Specific resistance at 20 °C	(Ω cm)	>10 ¹⁰	>10 ¹⁷
strength	(kV/mm)	-	22

THIS IS THE REAL VALUE

SUMMARY: FOR USE IN TECHNICAL APPLICATIONS, CERAZUR® OFFERS YOU AN VAST RANGE OF OPPORTUNITIES TO DESIGN PROCEDURES AND PROCESSES IN A MORE STABLE, LONG-LASTING AND SECURE MANNER. YOU CAN FIND OUR PRODUCTS IN THE FOLLOWING INDUSTRIES:

- ✓ MECHANICAL AND PLANT ENGINEERING
- ✓ AUTOMOTIVE AND SUPPLIERS
- ✓ WELDING TECHNOLOGY
- ✓ FIXTURE CONSTRUCTION
- ✓ FOOD INDUSTRY
- ✓ MEDICAL TECHNOLOGY
- ✓ CHEMICAL INDUSTRY
- ✓ METAL FORMING
- ✓ ELECTRICAL/ELECTRONICS INDUSTRY AND MECHATRONICS
- ✓ TESTING TECHNOLOGY
- ✓ PUMP INDUSTRY
- ✓ PAPER INDUSTRY
- ✓ TEXTILE INDUSTRY
- ✓ WIND POWER PLANTS
- ✓ OTHER INDUSTRIES