

COORSTEK
Amazing Solutions.®



CERASURF®
WIRE PRODUCTS

**FOR NON-FERROUS
APPLICATIONS**

CERASURF® WIRE PRODUCTS FOR

Dedicated Specifically to Wire Products

The Wire Products Group is a strategic business unit within CoorsTek® staffed with sales, engineering, manufacturing, and field personnel dedicated to serving the wire and cable industry with legendary customer service.

Retrofitted Custom and Standardized OEM-Specification Components

CoorsTek wire experts help retrofit steel-type drawing capstans, pulleys, or roller equipment (from rod breakdown to ultra-fine machines) with long-wearing, cost-effective CeraSurf ceramic components and coatings. From standard designs to special applications, we have the knowledge and expertise to solve wear, corrosion, and maintenance problems. Reduce overall costs, lengthen wear, and improve quality with CoorsTek CeraSurf wear products.



a CeraSurf ceramic ring lasts up to **seven times** longer than a hardened steel ring.



Capstans

For over three decades, we have supplied quality capstan assemblies and rings for wire drawing equipment. Our bolt-together design joins solid ceramic rings between metal flanges and allows non-tapered rings to be rotated in the carrier (doubling the life), and permits replacing only the grooved ring. This makes our components extremely long lived, very cost effective, and easy to service. The useful life of our CeraSurf ceramic ring is approximately four times longer than carbide coated and up to seven times that of a hardened steel ring.



Guide Rolls

CoorsTek innovative engineering has enabled the replacement of tool-steel guides and pinch rolls. The use of CeraSurf TTZ and other ceramic materials have eliminated sources of ferrous inclusions in copper continuous casting equipment. Most copper rod producers are now using these ceramic rolls and obtain better efficiencies, reduce maintenance, increase quality, and reduce scrap. Contact us for information about our standard designs or let us solve your wear problems with a custom design for your specific application.



Pulleys

CoorsTek supplies a wide range of low inertia, lightweight pulleys that provide vibration-free performance required for high-speed processing. Pulley flanges are available in plastic materials that are non-conductive, will not corrode, are not affected by most wire drawing solutions, and do not need the frequent maintenance required for phenolic materials.

Our bolt-together design pulleys are available with aluminum and plastic flanges along with either CeraSurf Alumina or TTZ ceramic replaceable rings to provide a smooth, wear-resistant surface. In certain applications these pulleys will provide complete electrical insulation. Contact CoorsTek to put our innovative engineering team to work for you.

We are **dedicated** to excellence for the Wire Products Industry.

Call our experts today for more information
+1.405.601.4371

SUPERIOR WEAR & COMPONENT LIFE



Advanced Ceramic Materials Shatter Performance Limits

The impact of ceramics on the wire and cable industry is being felt in virtually every category of performance. Product quality and productivity are being maximized, wear problems and surface defects are being reduced, and costs of manufacturing, maintenance, and equipment replacement are being controlled as never before. CoorsTek boasts the largest selection of advanced ceramic materials, state-of-the-art design capabilities, application engineering, and rapid-turn prototyping. Let our experts show you how we provide Amazing Solutions to our customers worldwide.

CeraSurf Transformation Toughened Zirconia

Not all zirconias are alike – CoorsTek TTZ (transformation-toughened zirconia, ZrO_2) is distinguished by its natural ivory color obtained by utilizing only high-purity zirconia.

- **Extremely durable** – High fracture toughness allows TTZ to absorb the energy of impacts that would cause most other ceramic materials to shatter.
- **Superior surface finish** – Our highly polished surface finish (8 Ra) eliminates scratching and marring of wire; producing better wire surface quality and longer die life.
- **Heat resistance** – Excellent thermal characteristics provide resistance to thermal-shock cracking. The coefficient of thermal expansion is similar to steel, allowing for better performance in metal and ceramic composite designs. TTZ can also withstand temperatures up to 700° F (371° C).

CeraSurf High-Purity Alumina

Our CeraSurf AD-90 (90% alumina ceramic, Al_2O_3) is specially formulated for wire drawing applications. This fine-grained ceramic material provides extreme hardness, exceptional corrosion resistance, withstands temperatures up to 1600° F (871° C), and offers a light-weight alternative to steel (approximately 50% lighter). These physical characteristics and its lower cost make CeraSurf AD-90 an extremely cost-effective ceramic.

CeraSurf Tungsten Carbide (WC)

Sintered and finished tungsten carbide offers superior wear resistance, good compression strength, good corrosion resistance, and resistance to thermal shock – withstanding temperatures up to 1200° F (648° C).

CoorsTek is
the largest
technical ceramics
manufacturer in
North America and
serves customers
worldwide.

Ceramic components
last longer, reduce
maintenance, and
improve quality.

Call our experts today
for more information
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PROVEN PERFORMANCE FOR WIRE PRODUCTS

Worldwide Leaders in Technical Ceramics

A recognized leader in the engineering and manufacturing of technical ceramics, CoorsTek provides advanced materials and design configurations for superior wire manufacturing components.

Expert Design Assistance for Amazing Performance

CoorsTek engineers offer assistance:

- Selecting the BEST material for YOUR application
- Designing for long-term reliability
 - Optimize performance
 - Minimize manufacturing cost
 - Reduce recurring maintenance

Quality with a Passion for Excellence

CoorsTek OpX™ Operational Excellence quality and manufacturing system blends proven best-practice techniques like lean, six-sigma, on-line SPC, and ISO 9000-2000 certification to ensure exceptional product quality and traceability.

For Nearly 100 Years...

Since 1910, CoorsTek has solved technical challenges for innovative customers like you. With over three decades of experience in ceramic components for use in wire manufacturing, our experts help you lower production and maintenance costs.

Discounts Available

CoorsTek Wire Products Group offers the following discounts based on annual sales volume (right).

Pricing Tier	Annual Sales
Standard	less than \$10,000
Bronze	\$10,000 to \$29,999
Silver	\$30,000 to \$49,999
Gold	\$50,000 to \$69,999
Platinum	\$70,000 or more

Discounts and relevant sales volumes:

- Commence upon achievement and remain in effect throughout the next calendar year
- Apply only for items purchased from the Wire Products Group of CoorsTek
- Are only available to customers with approved credit and whose accounts are current with CoorsTek
- Are only available to customers who agree to net 30 days payment terms
- For more information on discounts, please contact us.

CoorsTek exclusive OpX manufacturing and quality system

Quick-Turn Prototyping and Manufacturing

Properties*	Units	Test	CeraSurf® Ceramic Wire Materials			
			AD-90	TTZ	WC	
			Nom. 90% Al ₂ O ₃	MgO Partially Stabilized Zirconia	Tungsten Carbide	
Density	gm/cc	ASTM-C20	3.60	5.72	14.90	
Color	–	–	WHITE	IVORY	GRAY	
Flexural Strength (MOR)	20° C	MPa (psi x 103)	338 (49)	1240 (180)	1550 (225)	
Elastic Modulus	20° C	GPa (psi x 106)	276 (40)	200 (29)	627 (91)	
Compressive Strength	20° C	MPa (psi x 103)	2482 (360)	1750 (254)	5000 (725)	
Hardness	GPa (kg/mm ²)	KNOOP 1000 gm	10.4 (1058)	11.8 (1200)	16 (1630)	
		ROCKWELL 45 N	75	77	–	
Tensile Strength	25° C	MPa (psi x 103)	221 (32)	352 (62)	–	
Fracture Toughness	KIC	Mpa mL/2	NOTCHED BEAM	3 - 4	11	> 6
Coefficient of Thermal Expansion	25-1000° C	1X 10 ⁻⁶ /°C	ASTM-C372	8.1	10.2	5.1
Specific Heat	100° C	J/kg*K	ASTM-E1269	920	400	–
Thermal Shock Resistance	ΔTc	°C	NOTE 3	250	350	–
Maximum Use Temperature		°C	NO-LOAD COND.	1500	500	1000

Amazing Solutions!

Reduce wear, extend product life, improve quality, and reduce maintenance with CeraSurf ceramic components for wire manufacturing. Call our experts today for more information:

+1.405.601.4371

Or, send us an e-mail:
wiresales@coorstek.com

The chart is intended to illustrate typical properties. Engineering data is representative. Property values vary somewhat with method of manufacture, size, and shape of part. Any suggested applications are not made as a representation or warranty that the material will ultimately be suitable for such applications. The customer is ultimately responsible for all design and material suitability decisions. Data contained herein is not to be construed as absolute and does not constitute a representation or warranty for which CoorsTek assumes legal responsibility. ANY WARRANTY OR REPRESENTATION FOR WHICH COORSTEK IS RESPONSIBLE SHALL BE SUBJECT TO A SEPARATELY NEGOTIATED AGREEMENT.

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