

Wire Industry Applications



Applications within the wire industry call for materials with good wear resistance and good surface properties so that the quality of the drawn product is not compromised by contact with dies, cones, guides or pulleys.

Technox[®] cones and guides have been available for many years, operating with a high degree of success. The revolutionary new Technox[®] advanced ceramic surpasses all previously available grades in the following areas:

Wear Behaviour

Comparative tests by wire manufacturers have shown that Technox[®] guides and rolls can outlast a conventional high-speed steel by a factor of >20. Depending on the shape and complexity of the part, the price is rarely more than four times more than the steel part. Consequently the cost benefit analysis is very favourable, even without taking into account the cost of machine downtime.

Strength

Technox[®] materials are up to five times stronger than conventional alumina ceramics and display bending strengths similar to the yield strength of low-alloy steels.

Surface Finish

With a sub-micron grain size and near-zero porosity, Technox[®] materials can be finished so as to display the highest degrees of surface finish, polish and precision, with surface roughness values less than 0.05 μm Ra being attainable. The highly polished surface finish achievable with Technox[®] zirconia eliminates scratching and marring of wire, producing better-quality wire and giving increased die life. The use of Technox[®] zirconia in place of more traditional materials also reduces the level of friction on the wire being drawn, so fewer metal fines are generated, with less contamination of the drawing lubricant.

Impact Resistance

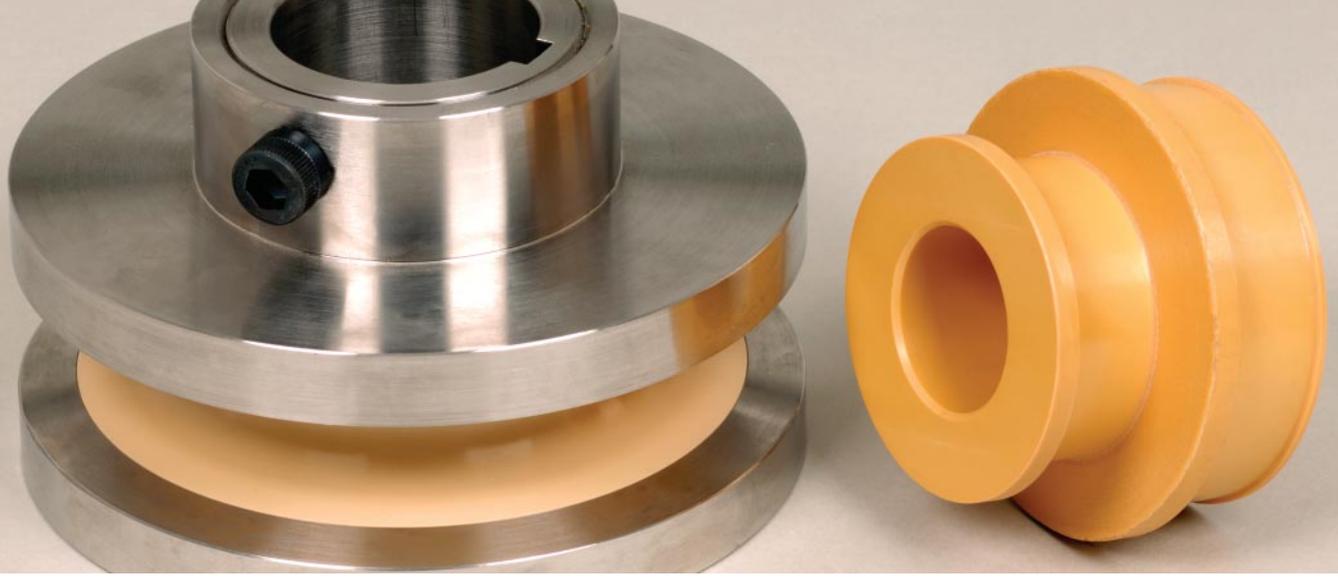
Unlike the brittle behaviour displayed by conventional alumina materials, Technox[®] advanced ceramics can withstand severe impacts and mechanical shocks. Transformation Toughening ability allows Technox[®] to successfully absorb impact energy that would cause most other ceramic materials to shatter.

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Dynamic-Ceramic Ltd

Crewe Hall Enterprise Park, Weston Road, Crewe, Cheshire CW1 6UA, United Kingdom

Tel: +44 (0)1270 501000 Fax: +44 (0)1270 501423 Email: sales@dynacer.com Web: www.dynacer.com



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Corrosion Resistance

In acid or alkali media, Technox® ceramics display excellent resistance to the most hazardous of environments.

Thermal Resistance

Technox® zirconia has good thermal characteristics which provide resistance to thermal shock cracking. With a coefficient of thermal expansion similar to steel, Technox® and steel composite designs can be used over a wide range of thermal conditions.

Advantages of Technox®

- 1 Minimises possible damage to the wire surface during drawing
- 2 Assurance of wire surface quality due to the improved sliding characteristics of ceramic materials
- 3 Improved production reliability, especially for thin wires, due to the reduced adhesion between wire and pulley
- 4 Reduced abrasion, leading to improved product quality and increased tool and die life

Customer Support

Dynamic-Ceramic manufactures custom-made parts to our customers' specifications. For more details of our products and services or to discuss your specific requirements, please contact one of our Sales Engineers.

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