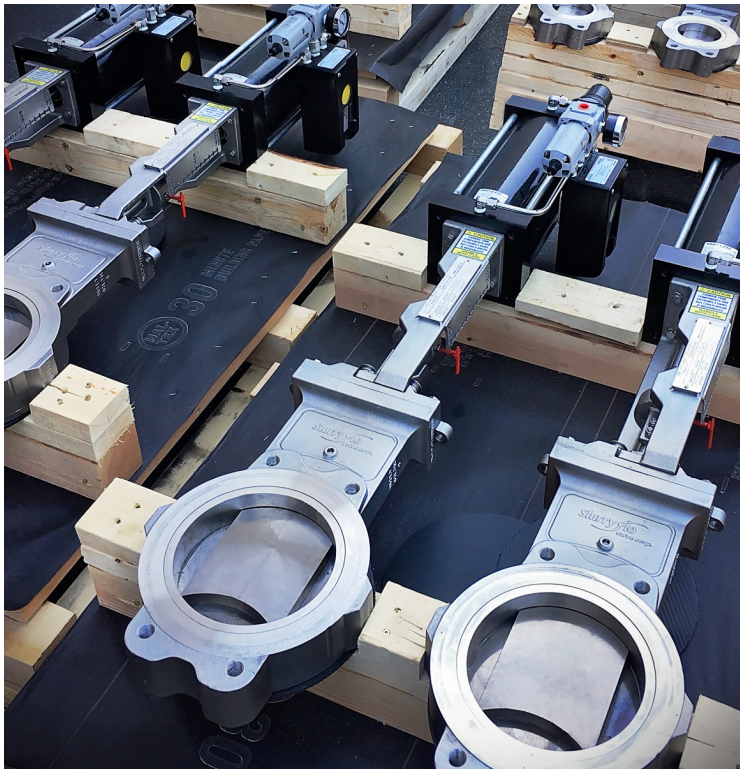
SINTERED CARBIDE vs. CERAMIC
(CONTROL VALVE TRIMS)

SlurryFlo's design philosophy is to custom engineer linear control valves for their specific application and process conditions. There are several key design features that back our claim of producing the 'toughest control valves in the world', such as a patented trim geometry, centered flow, replaceable wear components, and **abrasion resistant materials**.



This document outlines the fundamental differences between a SlurryFlo linear control valve with **sintered tungsten carbide** trim and common slurry control valves with **Ceramic** trim (such as a V-port ball valves, plug valves or butterfly valves).

SILICON CARBIDE
(COMMON CERAMIC FOR CONTROL VALVES)

For severe service applications, control valve manufactures often specify various Ceramics for their trim components (ball, plug or disk). Ceramics have excellent wear resistance, however due to their extreme hardness, these materials can be fragile. Therefore, Ceramics are prone to cracking upon impact from solids (e.g. rocks in the process). Cracking can lead to a shattered trim and valve failure.

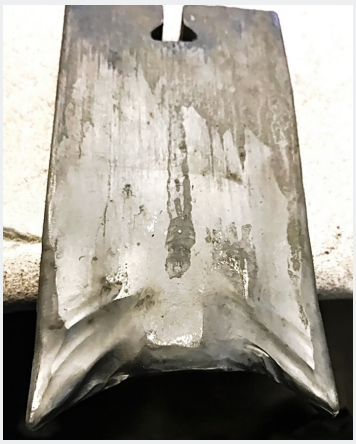
Additionally, the valve's complex trim geometry and varying material thickness make it susceptible to cracking under thermal shock and thermal gradient. Therefore, it is possible to experience Ceramic failure without impact from solids in the fluid. These events typically occur suddenly and without warning, often resulting with broken pieces of Ceramic flowing downstream.

SINTERED TUNGSTEN CARBIDE (STC)

SlurryFlo's wear material of choice is Sintered Tungsten Carbide (STC). With an HRA hardness of 89 and average grain size is 1-3 micron, our proprietary blend of STC has exceptionally high wear resistance. It also yields a transverse rupture strength that is 5x greater than common Ceramics, making for a tough material that is far less prone to fracturing upon impact.

When considering thermal shock and thermal gradient, SlurryFlo's simple trim geometry, thick plate design, and high density STC matrix provides a robust material that performs well during rapid process temperature fluctuations. Maintenance crews can expect their SlurryFlo STC trim to provide slow and predictable wear, without fear of sudden catastrophic failure.

	Sintered Tungsten Carbide (Proprietary SlurryFlo blend)	Silicon Carbide (Common Ceramic blend for control valves)
Transverse Rupture Strength (PSI)	375,000	65,000
Compressive Strength (PSI)	490,000	363,000



QUICK CASE STUDY

After eight (8) months in a highly erosive mining application, this SlurryFlo control valve began showing signs of predictable erosion on its STC trim.

As these components had significant service life remaining, they were returned to service (Note: the valve had already outlasted the previously installed V-port ball valve by 4x times).

For additional information on SlurryFlo's control valve technology,
and why they will outlast anything you've ever used, please visit **www.slurryflo.com**