

Electronics Cable Engineering Lab Testing

Belden 8760 vs.
Competitive Substitute

BELDEN
SENDING ALL THE RIGHT SIGNALS

Belden 8760 vs. Competitive Substitute:

Applications Test

The Scope:

Belden put its optimized electronics design to the test, comparing the performance of our best-selling industrial cable, 8760, against its most cited competitive substitute. Both cables are 18 AWG 2C shielded electronics designs and are offered as the lead multi-use industrial solution.

The Process:

Both Belden 8760 and the competing cable were tested on as many relevant electrical, physical, and cable life tests as we could think of. Everything from oven aging, to cold bend, to capacitance, impedance, and oil resistance were measured in Belden's state of the art engineering center.

The Result:

Belden's cable wins out on all three major parameters against the competitive alternative, displaying a **longer cable life, superior physical toughness, and optimized electrical performance**

Belden 8760 vs. Competitive Substitute:

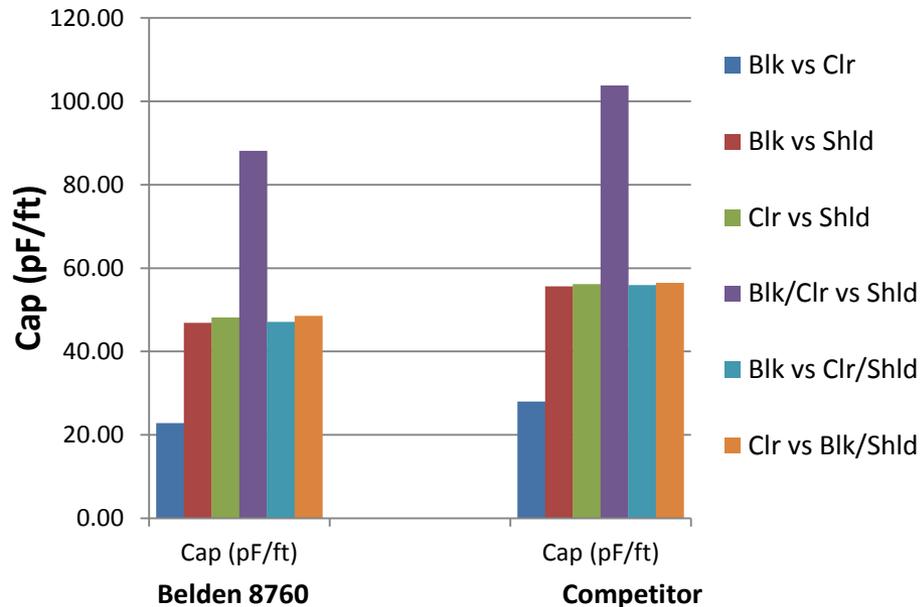
Applications Test

Electrical Performance:

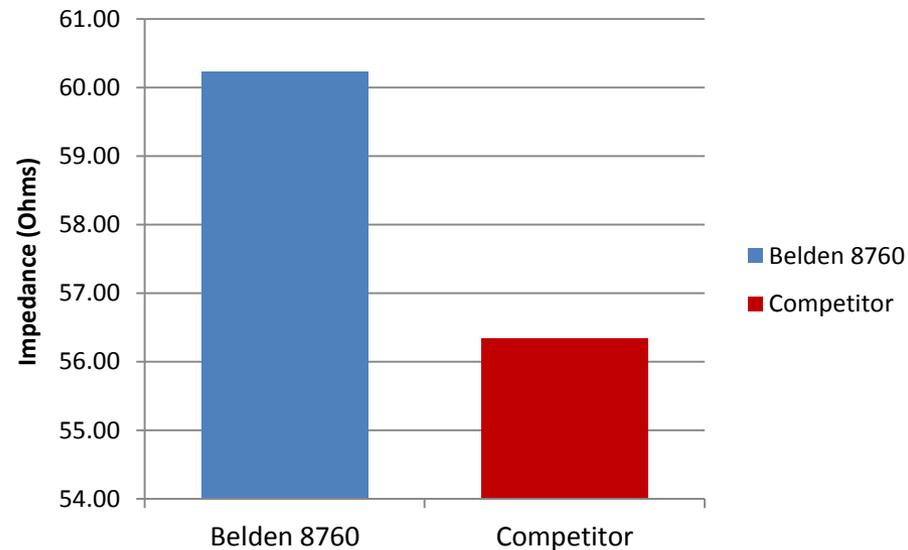
Low capacitance is especially important for digital signal being carried over extended distance. Belden demonstrates superior capacitance (15% lower on average) across all comparison points (conductor vs. conductor, and conductor vs. shield)

Matching the impedance between the cable and the signal source is important for minimizing signal reflection from the load. **60 Ohms** is the spec target, and Belden accurately matches the spec while the competitive alternate misses by 6%

Capacitance (pF/ft)



Impedance @ 1 MHz



Belden 8760 vs. Competitive Substitute:

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Physical Toughness:

Oil Resistance: Belden better retains tensile and elongation after extended submersion in oil

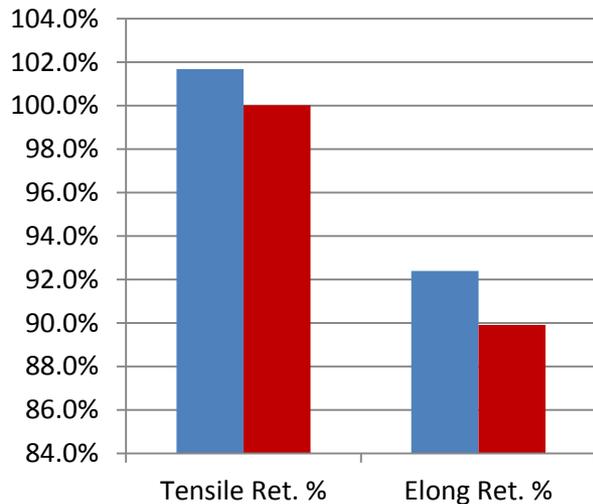
Cold Bend: 3/3 Belden samples withstand 5x bend after cold conditioning; Competitor: 1/3 has cracked jacket

Cold Impact: Belden retains signal integrity after more repeated impact cycles in -10° C cold climate

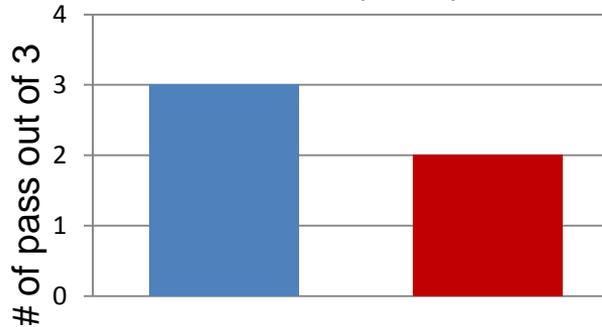
Voltage Breakdown: Belden insulation holds up to higher voltages indicating material quality

■ Belden 8760 ■ Competitor

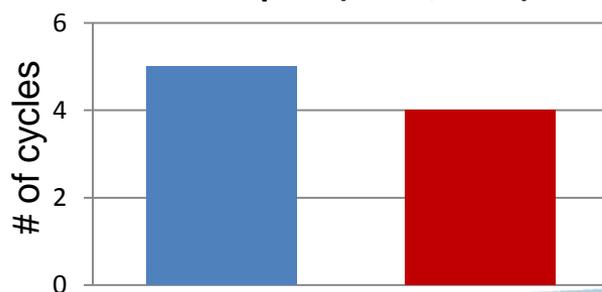
2C #18 OS PE/PVC Oil Retention



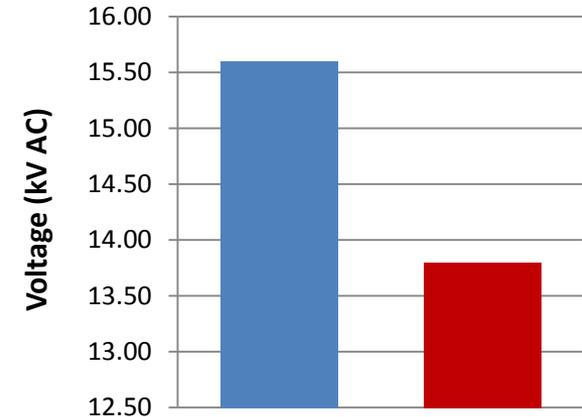
Cold Bend (-30°C)



Cold Impact (-10°C, 3 lbs)



Breakdown Voltage

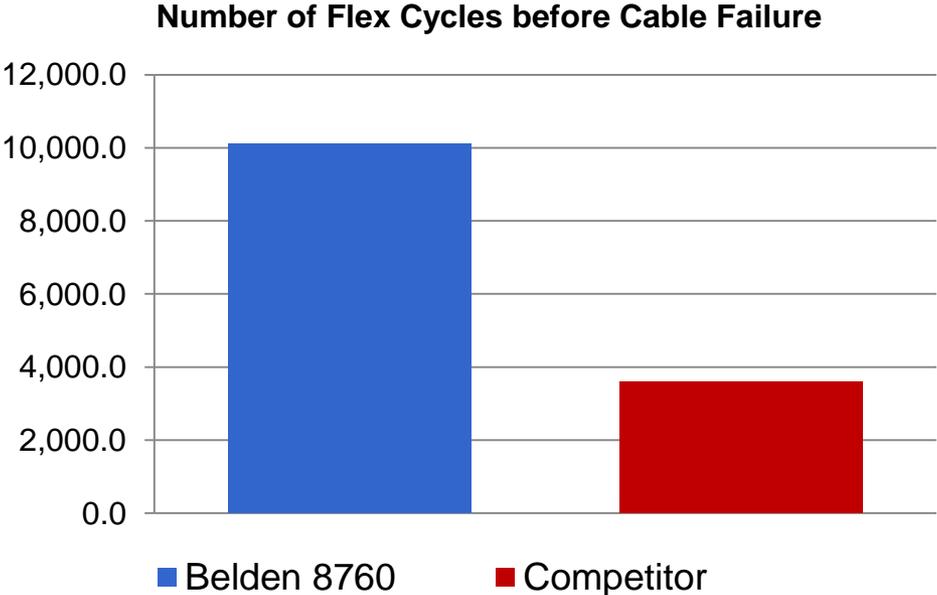


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Cable Life:

Flex Testing is another method for simulating a cable's ability to physically endure stress over an extended installed life. In this test, three samples each of Belden 8760 and the Competitive Substitute are flexed back and fourth while connected to a circuit until the point of failure. Belden's design which is optimized for toughness lasts 2.8 times longer than the competition.



Competitor cables after failing in flex test. Belden retains circuit 2.8 times longer

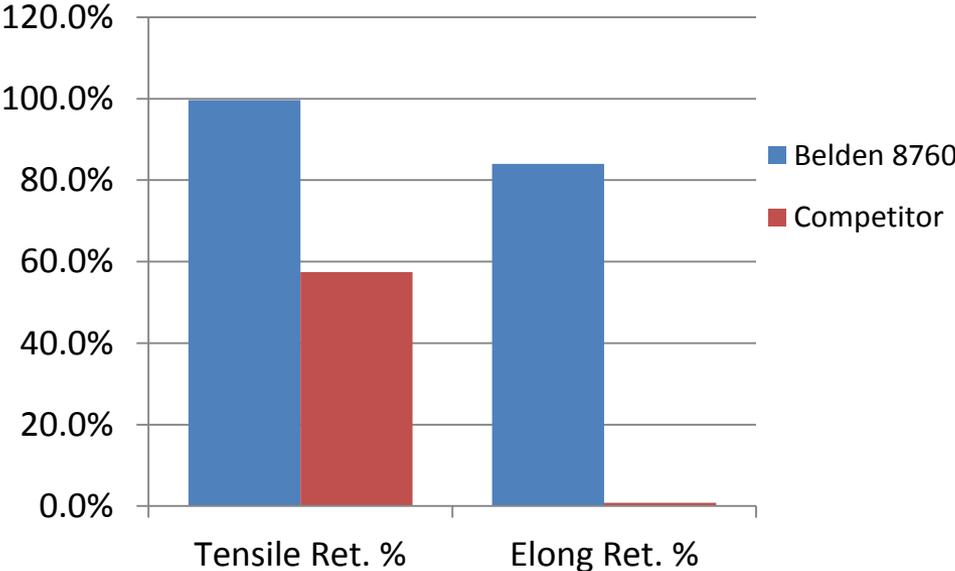
Belden 8760 vs. Competitive Substitute:

Applications Test

Cable Life:

Oven aging is a great test for simulating the degradation of cables over extended installation life. Cables are exposed to heat (121° C for 7 days), and then tensile and elongation are measured to determine the degree of degradation over time. The test simulates a typical 20 year cable life span. Belden retains 99.7% tensile strength after oven again, and 84% elongation after aged. The competitor degrades drastically, retaining only 57% tensile and 1% elongation displaying inferior ability to withstand a 20 year installed life.

Oven Aging Retention



Cable Samples Post-Aging

Belden 8760 vs. Competitive Substitute:

Conclusions

Durability: Belden Ensures a Longer Cable Life

- Belden retains tensile strength and elongation after simulating a 20-year life using oven aging
- The competitive substitute degrades significantly after aged, risking premature cable failure and costly downtime
- Belden lasts 2.8 times longer than the competitor when repeatedly flexed

Physical Toughness: Belden Withstands Harsh Environments

- Belden stands up to Oil, Extreme Cold, and Voltage spike situations better than the competing cable
- Ruggedness in industrial conditions allows for standardization around a single reliable cable spec

Electrical Performance: Belden Ensures Signal Integrity and Prevents Downtime

- Belden has 15% lower capacitance than the competitor, allowing for longer digital signal transmission
- Belden accurately matches the industry standard impedance spec of 60 Ohms at 1 MHz