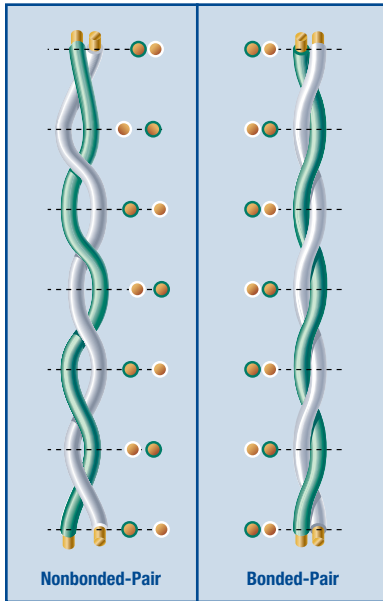




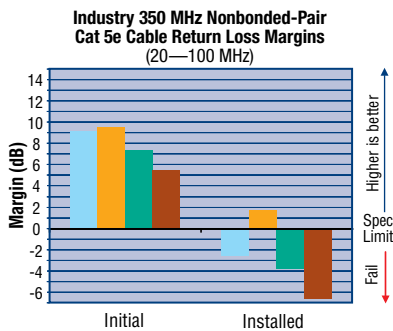
About Belden Bonded Twisted Pair Cable



Installed and manipulated nonbonded-pairs (left) have a tendency to gap, varying the centricity of the two conductors. Bonded-Pairs (right) do not gap so the physical integrity of the pair is maintained.



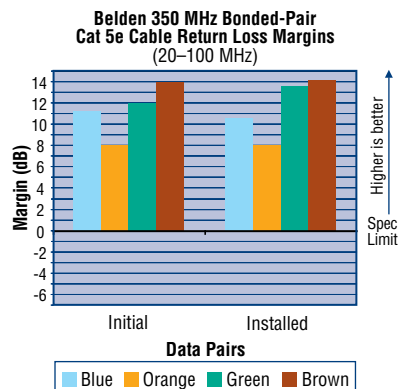
A cable prep tool is included in each reel of Bonded-Pair products. The tool is sold separately as 1797B.



Choose from a Complete Range of High-Quality, High-Reliability Industrial Ethernet Cables

Over the past five years or so, Ethernet has moved increasingly from the office environment into the industrial world – mainly for control and automation applications. But the two environments couldn't differ more: the office environment offers its cabling system a relatively safe harbor and should a signal transmission fault occur, retries are generally acceptable. The industrial world presents a different reality: the cabling system can be integral to a harsh and hazardous environment and yet there's no margin for error since the cables typically carry signals between devices that make events happen on a very exacting schedule.

To ensure successful Ethernet signal transmissions in an industrial environment you need high performance cables designed specifically for the environment. Commercial off-the-shelf (COTS) Cat 5e UTP Ethernet cable just can't stand up. It is quite fragile when compared to an industrial-grade cable, meaning that any number of stresses and challenges encountered in the industrial environment could result in one of the classic failure models: catastrophic failure, intermittent operation, incremental failure and degradation of performance. The result could be a loss of data, process downtime or a drop in the safety level of your operation.



Belden's answer is to offer a complete range of high quality, high reliability DataTuff® Industrial Ethernet cables that have been designed for industrial use and tested using state-of-the-art testing equipment. Belden DataTuff cables are also field-proven relative to exceptional day-in/day-out performance.

So, even if your cabling system is exposed to the following conditions you can turn to Belden for the right solution:

- Oil, sunlight and gasoline
- Temperature variations
- Abrasion, crushing and burial
- Flexing
- Presence of EMI/RFI (electromagnetic interference or radio frequency interference)
- MSHA mining approval
- Red jackets designating safety network

Only DataTuff Cables with Belden's Patented Bonded-Pair Technology Offer the Benefit of Installable Performance

Most versions of DataTuff cables feature Belden's patented Bonded-Pair technology. This construction feature affixes the conductor insulation of the cable pairs along their longitudinal axes to ensure that no performance-robbing gaps can develop between the conductor pairs. Since no gaps can occur, and the conductor-to-conductor spacing, or centricity, is always uniform, the cable offers excellent and consistently reliable electrical performance – even after the cable has been subjected to the bending, pulling and twisting that is inherent in the installation process. Belden calls this unique after-installation performance capability Installable Performance.

Additionally, when the nonbonded pairs gap, an impedance mismatch occurs. When the transmitted signal encounters this mismatch, portions of the signal are reflected back toward the receiver. This is called return loss, or RL. A cable with poor RL values can significantly impact the performance of an active network, reduce network efficiency and lead to excessive bit error rates.

In an Installation Stress Test that simulates the installation process, the Cat 5e nonbonded-pair cables (left) showed an RL degradation of more than 12 dB. The Bonded-Pair cables (right) exhibited little change in RL performance.



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About Belden Bonded Twisted Pair Cable

In tests performed by Belden that simulate the effects of the installation process, both an industry-leading 350 MHz Cat 5e cable (a nonbonded-pair cable) and a Belden 350 MHz Cat 5e Bonded-Pair cable were tested right off the reel and then for the sake of comparison, they were subjected to an Installation Stress Test. This Stress Test simulated just some of the stresses that a cable experiences as it is installed (being bent around corners, creating a service loop and being stuffed into an outlet box). The results? The nonbonded-pair cable showed an RL degradation greater than 12 dB – over 15 times worse than its before-installation value. The Bonded-Pair cables showed little change in RL performance. *(For more detailed information, request the Technical Bulletin TB-66 "The Impact of Installation Stresses on Cable Performance.")*

Quality You Can Trust

These Belden products are RoHS compliant, plus they are manufactured to the industry's highest standards of quality, utilizing the most advanced equipment, systems, controls and processes. In fact, Belden has long been a pioneer in production processes, such as statistical process control (SPC), that have become industry standards. And Belden was the first major designer and manufacturer of cable products to achieve ISO 9000 registration for the majority of its domestic and overseas facilities.



Belden Quality Means Uptime and Superior Safety Performance

Today's critical industrial networking applications can't afford data transmission errors that can cause downtime, delays, and even safety concerns. Belden quality gives you the performance and reliability you need on a day-by-day basis.