

PB 324

## **Belden BNC High-Definition Broadcast Connectors**

Belden, the brand Broadcast Engineers and A/V professionals trust, brings you innovation and superior performance with a new line of Belden Brilliance® Broadcast High-Definition BNC Connectors.



### **Belden HD Brilliance Connectors with Belden Brilliance Coax Cables deliver unparalleled end-to-end performance for Broadcast Engineers and A/V Professionals**

#### **A New Standard**

Designed specifically for Belden Brilliance Broadcast and Professional A/V coaxial cables, HD Brilliance Connectors maximize broadcast signal integrity, quality, performance and durability.

All Belden HD Brilliance connectors exceed SMPTE return loss standards, providing excellent headroom and true 75 ohm performance for those instances when Broadcasters need to push the limits. Durability is excellent, with brass construction and patented compression rings ensuring pullout forces exceeding 100 lbs, depending on the cable. Experts can choose from three Belden HD Brilliance connector platforms to find the right solution for their broadcast needs.

#### **Best: Locking 1-Piece HD Brilliance BNC Compression Connectors**

The patent-pending locking design features a screw-lock collar to physically “lock” the bayonet nut of the BNC in position. This limits movement of the BNC head and creates coaxial alignment from the cable through the BNC center pin, delivering superior return loss performance.

#### **Better: 1-Piece HD Brilliance BNC Compression Connectors**

The 1-piece design simplifies and speeds the installation by eliminating loose pins and sleeves. This allows for repeatable and consistent installations every time while delivering return loss performance on par with more time consuming, traditional 3-piece designs.

#### **Good: 3-Piece HD Brilliance BNC Crimp Connectors**

The traditional 3-piece design many have come to know over the years, enhanced to fit perfectly with Belden Brilliance Cable, for strong and dependable signal delivery and performance.

#### **Key Benefits**

- True 75  $\Omega$  performance
- Extended BNC head knurl nut design to ease identification and installation
- Superior return loss through 4.5 GHz
- Excellent holding force exceeding 100 lbs, depending on cable type
- Fast installation with 1-piece design

Connectors should be invisible to your signal performance, and Belden delivers this with unsurpassed return loss performance, faster, easier installations, excellent durability and innovative features.

## Testing and Innovation

Belden understands that the industry is familiar and comfortable with 3-piece broadcast connector designs, which is why we included a 3-piece HD Connector in our offering. But we also know there are those out there who enjoy the benefits of innovation, and recognize new and better ways of installing connectors.

Belden has built its reputation by consistently delivering innovation, quality and performance — exactly what is needed in the Broadcast and Professional A/V industry. And we deliver again with the addition of the Belden HD Brilliance Connector family. Belden engineers performed over 1600 tests, including hundreds of competitors' connectors, to establish a "real" performance baseline for the industry. The findings helped Belden identify opportunities for improvement, resulting in the products you see today. It also proved that using the innovation of compression technology really can produce a better solution.



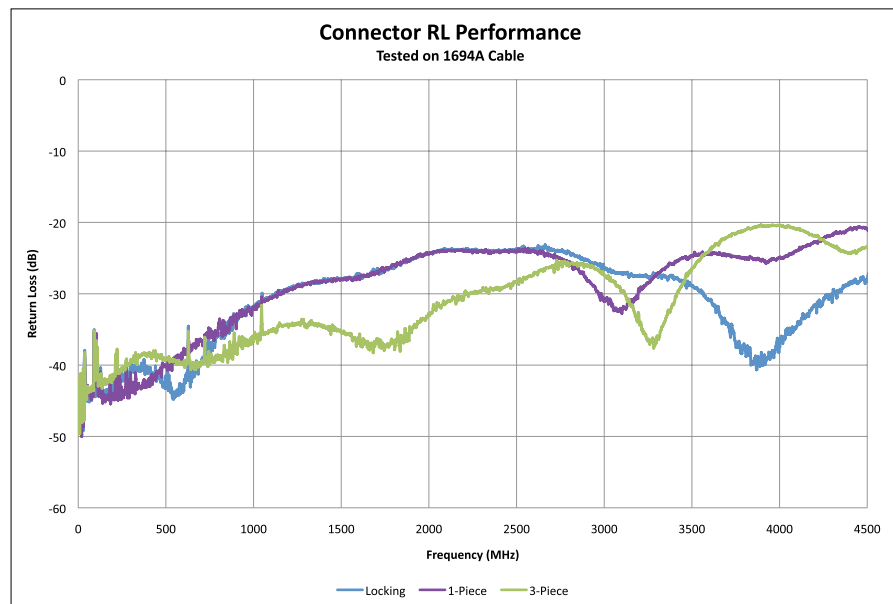
## Return Loss Performance

A major concern of the engineer is signal loss. Signal loss occurs two ways: Attenuation and return loss. Return loss (RL) is a good way to represent the quality and consistency of the signal path. Better (more negative) RL measurements are the result of better impedance stability within the signal path and, therefore, lower reflected signal loss in the path.

The data below represents the typical performance you can expect from the Belden line of HD Brilliance BNC Connectors. Again, this is not the maximum reading of a single connector, but rather the combined average of over sixty repeat tests.

Offered in the traditional 3-piece design and easier to install 1-piece design, the performance of these connectors is better than -20 dB through 4.5 GHz, meeting the most stringent demands of the Broadcast Industry and exceeding the SMPTE specification requirements.

Additionally, the unique Locking BNC by Belden offers not only assurance of the connection, but provides for superior electrical performance at high frequencies, further enhancing the signal transmission path provided by the Belden HD Brilliance solution.



For more details on RL Performance, see the "Precision Video Coaxial Cables - Return Loss" and "High-Definition and Return Loss" technical papers available on [www.belden.com](http://www.belden.com).



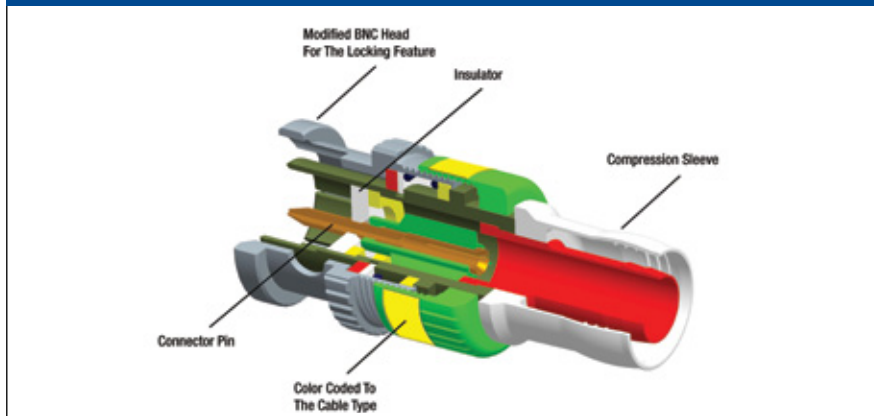
## Product Overview

Belden HD Brilliance Connectors include three connector types, each offering varying levels of electrical performance and installation speed:

### Locking 1-Piece Design

- Screw-Lock Collar provides superior electrical signal performance by creating coaxial alignment between the cable and connector center pin, delivering return loss results that exceed -20 dB at 4.5 GHz
- A non-blind entry provides the assurance that the center conductor is properly inserted into the BNC center pin, making connector installation easy and repeatable on every installation
- Improved insulator materials sustain maximum return loss performance
- 1-Piece design eliminates pin, collar and connector as separate components, simplifying and speeding connection installation time
- Internal 360 ° compression rings provide excellent holding strength and eliminate ingress and egress from the back of the connector

### Internal Depiction of a Belden HD Brilliance Connector



#### 1-Piece Design

Offers excellent return loss performance comparable with our 3-piece design, but with a faster, simpler installation, and the benefit of a custom fit with Belden Brilliance cable tolerances. Same great 1-piece design features of non-blind entry, compression rings and improved insulator, providing easy and repeatable installation every time. The Belden 1-Piece compression technology is a fast and proven approach to a Belden end-to-end solution.

#### 3-Piece Design

Traditional pin, collar and connector approach, but designed specifically for Belden cable tolerances for better performance and durability. Compatible with select competitive crimp tools and die sets.



179DTBHD1 179 Digital Truck BNC with Locking Connector



Non-Blind Entry



1695ABHD1 RG6 Plenum Size 2 BNC HD Connector



1505ABHD3 RG59 BNC HD Connector

## Color Coding

All Belden HD BNCs come with Belden's patented extended head knurl nut design for easy gripping when installing. The connector color band also makes matching the proper connector with proper cable size simple.

## Product Warranty

- Limited Lifetime Connector Warranty when partnered with Belden Brilliance Cable
- 10-Year Connector Warranty when used with other brands of cable

**Belden branded with part number and color coded to the cable:**

- = RG6 (Belden 1694A)
- = RG59 (Belden 1505A)
- = 28.5 AWG RGB/Mini Coax (Belden 179DT)
- = 23 AWG RGB/Mini Coax (Belden 1855A)

## Product Offering:

The Belden HD Brilliance Connector offering currently targets Belden Brilliance Coaxial Cables most frequently used by Broadcast and Professional AV engineers worldwide. Connector part numbers reflect corresponding cable part numbers, but are not limited to these cables only.



## Locking 1-Piece Compression

| Part Number | Description                           | Type            | Finish          | Color Band | Impedance (ohms) | Pullout Strength       | RL@3 GHz | RL@3.5 GHz | RL@4 GHz | RL@4.5 GHz | QTY |
|-------------|---------------------------------------|-----------------|-----------------|------------|------------------|------------------------|----------|------------|----------|------------|-----|
| 1505ABHDL   | RG59BNC HD Connector                  | 1-Piece Locking | Polished Nickel | Red        | 75               | 73(+)                  | -26 dB   | -29 dB     | -39 dB   | -29 dB     | 50  |
| 1506ABHDL   | RG59 Plenum Size 2/4 BNC HD Connector | 1-Piece Locking | Polished Nickel | Red        | 75               | 73(+)                  | -26 dB   | -29 dB     | -39 dB   | -29 dB     | 50  |
| 1694ABHDL   | RG6BNC HD Connector                   | 1-Piece Locking | Polished Nickel | Green      | 75               | 103(+)                 | -26 dB   | -29 dB     | -39 dB   | -29 dB     | 50  |
| 1695ABHDL   | RG6 Plenum Size 2 BNC HD Connector    | 1-Piece Locking | Polished Nickel | Green      | 75               | 103(+)                 | -26 dB   | -29 dB     | -39 dB   | -29 dB     | 50  |
| 1855ABHDL   | 22-24 AWG BNC HD Connector            | 1-Piece Locking | Polished Nickel | Purple     | 75               | 67(+)                  | -26 dB   | -29 dB     | -39 dB   | -29 dB     | 50  |
| 179DTBHDL   | 179 Digital Truck BNC Connector       | 1-Piece Locking | Polished Nickel | Yellow     | 75               | Exceeds Cable Strength | -26 dB   | -29 dB     | -39 dB   | -29 dB     | 50  |

## 1-Piece Compression

| Part Number | Description                           | Type                | Finish          | Color Band | Impedance (ohms) | Pullout Strength       | RL@3 GHz | RL@3.5 GHz | RL@4 GHz | RL@4.5 GHz | QTY |
|-------------|---------------------------------------|---------------------|-----------------|------------|------------------|------------------------|----------|------------|----------|------------|-----|
| 1505ABHD1   | RG59BNC HD Connector                  | 1-Piece Compression | Polished Nickel | Red        | 75               | 73(+)                  | -31 dB   | -31 dB     | -25 dB   | -21 dB     | 50  |
| 1506ABHD1   | RG59 Plenum Size 2/4 BNC HD Connector | 1-Piece Compression | Polished Nickel | Red        | 75               | 73(+)                  | -31 dB   | -31 dB     | -25 dB   | -21 dB     | 50  |
| 1694ABHD1   | RG6BNC HD Connector                   | 1-Piece Compression | Polished Nickel | Green      | 75               | 103(+)                 | -31 dB   | -31 dB     | -25 dB   | -21 dB     | 50  |
| 1695ABHD1   | RG6 Plenum Size 2 BNC HD Connector    | 1-Piece Compression | Polished Nickel | Green      | 75               | 103(+)                 | -31 dB   | -31 dB     | -25 dB   | -21 dB     | 50  |
| 1855ABHD1   | 22-24 AWG BNC HD Connector            | 1-Piece Compression | Polished Nickel | Purple     | 75               | 67(+)                  | -31 dB   | -31 dB     | -25 dB   | -21 dB     | 50  |
| 179DTBHD1   | 179 Digital Truck BNC Connector       | 1-Piece Compression | Polished Nickel | Yellow     | 75               | Exceeds Cable Strength | -31 dB   | -31 dB     | -25 dB   | -21 dB     | 50  |

## 3-Piece Crimp

| Part Number | Connector Description           | Type          | Finish          | Color Band | Impedance (ohms) | Pullout Strength | RL@3 GHz | RL@3.5 GHz | RL@4 GHz | RL@4.5 GHz | QTY |
|-------------|---------------------------------|---------------|-----------------|------------|------------------|------------------|----------|------------|----------|------------|-----|
| 1505ABHD3*  | RG59BNC HD Connector            | 3-Piece Crimp | Polished Nickel | Red        | 75               | 72(+)            | -27 dB   | -27 dB     | -21 dB   | -23 dB     | 50  |
| 1694ABHD3*  | RG6BNC HD Connector             | 3-Piece Crimp | Polished Nickel | Green      | 75               | 90(+)            | -27 dB   | -27 dB     | -21 dB   | -23 dB     | 50  |
| 1855ABHD3   | 22-24 AWG BNC HD Connector      | 3-Piece Crimp | Polished Nickel | Purple     | 75               | 75(+)            | -27 dB   | -27 dB     | -21 dB   | -23 dB     | 50  |
| 179DTBHD3   | 179 Digital Truck BNC Connector | 3-Piece Crimp | Polished Nickel | Yellow     | 75               | See Cable Spec   | -27 dB   | -27 dB     | -21 dB   | -23 dB     | 50  |

\* These connectors can be used with a Plenum Cable

## 1-Piece Compression Tools

| Part Number                                      | Tool Description                                                                                   | QTY |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------|-----|
| BBRGST (Equivalent ICM Part Number: PSA59/6)     | 59/6 Strip Tool for RG59 or RG6 Cable                                                              | 1   |
| BBRGST (Equivalent ICM Part Number: PSA59/6/RGB) | RGB Strip Tool for Mini RGB Cable 22-26 AWG                                                        | 1   |
| BBCOMT (Equivalent ICM Part Number: CPLCRBC-B)   | Compression Tool for BB Series F, RCA and BNC Connectors                                           | 1   |
| BBTEKIT                                          | Tool Express Kit w/ Compression Tool for BB Series Connector and Strip Tool for RG 59 & RG 6 Cable | 1   |

## 3-Piece Compression Tools

| Part Number | Tool Description                                    | QTY |
|-------------|-----------------------------------------------------|-----|
| BB3PHCT     | Belden HD Brilliance Three-Piece Hex Connector Tool | 1   |
| BB3PHCT-D   | Replacement Die for BB3PHCT                         | 1   |
| BB3PST      | Belden HD Brilliance Three-Piece Strip Tool         | 1   |
| BB3PST-C    | Replacement Cassette for BB3PST                     | 1   |