



THE BATTLE OF THE BANDS

YOU'RE UNDER ARREST, SURGE!

WORRY-FREE 5G

PIM SHIELD® PAINT & PIM SEAL™ CAULK

PIM Shield® Paint & PIM Seal™ Caulk are ConcealFab's new liquid RF barrier products designed specifically for reducing external PIM at cell sites. These new materials are easy to apply and create effective, reliable RF shields able to reduce energy arriving at covered PIM sources.



PRODUCT OVERVIEW



901087-x
PIM Mitigation Paint



901088
PIM Mitigation Caulk

KEY FEATURES:

- Low PIM
- High RF Attenuation
- Crack Resistant
- UV Stable Acrylic
- Water Based
- Non-Flammable

WELCOME TO COMS MEDIA!

Welcome to COMS Media! COMS Media is a central hub bringing the telecommunications industry together with the latest updates, technology, and news!

We are dedicated to keeping you informed and connected in regards to the latest and greatest in telecommunications policy, advocacy, innovations, infrastructure, essential parts and equipment, and much more. Be sure to follow us as we bring you global infrastructure updates to US Big Tech news.

Please enjoy the content we have assembled and be sure to follow the QR Codes to link to our online information hub and to connect with essential vendors to keep your next project thriving.

We would like to extend a 'thank you' to our premier partner, Talley, Inc. and its network of leading telecommunications vendors for helping us make this launch possible, and we look forward to many more successful partnership opportunities in the future.



A Quarterly Publication

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THE BATTLE OF THE BANDS

Dual-Band Antennas Take the Stage

How to squeeze more juice from limited infrastructure.

One of the most difficult challenges facing the telecom industry is how to meet growing demand without significantly expanding infrastructure. Many cell towers are at or near full capacity already.

Investing in infrastructure upgrades or acquiring additional sites can be costly, not to mention the delays that can come with acquiring, permitting, and building new sites. There is a real need for solutions that can meet the demand without overloading towers.

Enter dual-band microwave systems. By combining multiple bands in a single antenna, they offer ultrahigh capacity backhaul to help operators address the capacity problems they face. Dual-band systems reduce tower loads by replacing two single-band antennas, requiring less equipment providing increasingly robust microwave solutions.

Large, dual-band antennas are ideal for long-haul applications where ultrahigh capacity is not possible with a single-frequency operation. The antennas enable multiple-signal propagating in two different frequency bands by one set of feed and reflector.

Dual-band antennas reduce:

- tower load
- tower rental space
- transportation cost
- installation time

RFS (Radio Frequency Systems), a leading manufacturer of cable and antenna systems, offers an antenna covering the two most popular frequency bands, 6 GHz and 11 GHz. The PrimeLine TowerBooster microwave antennas deliver the capacity and performance needed to backhaul large volumes of 5G data over long distance with low total cost of ownership. With support for horizontal and vertical polarization in each band, the PrimeLine TowerBooster antennas offer 4X capacity compared with single-band, single-polarized microwave antennas, and 2X that of double-polarized microwave antennas.

RFS antennas are available for shipping from Talley, one of the nation's largest distributors of wireless infrastructure, communications, and mobile products.

[View Product Information](#)

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SMART AS PAINT

New Liquid Solutions to Eliminate PIM interference and Improve Network Performance

This isn't about your favorite color of paint, but more so your favorite functional paint. PIM Shield® Paint & PIM Seal™ Caulk are new liquid RF barrier products from ConcealFab designed specifically for reducing external PIM at cell sites. These new materials create effective and reliable RF shields able to reduce energy arriving at covered PIM sources. Lab tests have demonstrated >30dB IM3 reduction on PIM sources covered with a single bead of PIM Seal™ Caulk or with two coats of PIM Shield® Paint.

The challenge with this product was not finding a conductive paint. EMI shielding paints are readily available that are designed to be painted on interior walls to provide shielding from cell phone towers, radio broadcasting antennas, etc. The challenge was finding a conductive paint that was also “stretchy” enough to not crack when used in outdoor environments. The existing paints that ConcealFab tested were relatively brittle and cracked easily when deployed in thick sections or when exposed to thermal cycling.

Small cracks may not be a problem when you are creating an EMI shield to block weak signals far away from a radio transmitter. Cracks are a problem, however, when trying to mitigate PIM near high power base station antennas. Cracks in conductive coatings create lightly touching metal to-metal surfaces that can become PIM sources. ConcealFab has seen cases where cracks in a conductive coating created worse PIM than the original PIM source we were trying to mitigate!

ConcealFab worked with industry experts to tackle the cracking problem and after years of codevelopment is now able to offer

highly elastic conductive coatings able to withstand harsh outdoor environments. An application note is available from ConcealFab that describes the extensive testing done to validate the RF as well as mechanical performance of these new materials.

PIM Shield® Paint can be applied by brush or roller to a wide variety of surfaces near base station antennas. PIM Seal™ Caulk is a thickened version of PIM Paint designed for filling small gaps and for direct application to metal interfaces on the antenna mounting frame. PIM Seal™ Caulk comes in 10.5 oz tubes and can be applied using a standard caulk gun. Surface preparation requirements as well as application information are provided on the product labels as well as in the technical datasheets.

While slathering everything on the antenna mounting frame with paint to eliminate PIM sounds tempting, operators should continue to replace “PIM Prone” cable support hardware with proven low PIM alternatives. ConcealFab's new liquid solutions should only be applied at locations that are difficult or expensive to mitigate using other methods. PIM Seal™ Caulk and PIM Shield® Paint are not magic solutions for solving all external PIM problems at cell sites. They are, however, important “tools in the tool bag” in the ongoing battle to cost effectively eliminate PIM interference and improve network performance.

[View Product Information](#)

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RF Coax Connectors

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Adapters and Adapter Kits

[View Adapters and Adapter Kits](#)



TALLEY®



Laird External Antennas is now part of TE Connectivity. The same products and service are still available to our customers including:

- Antennas
- Mounts
- Cables
- Connectors

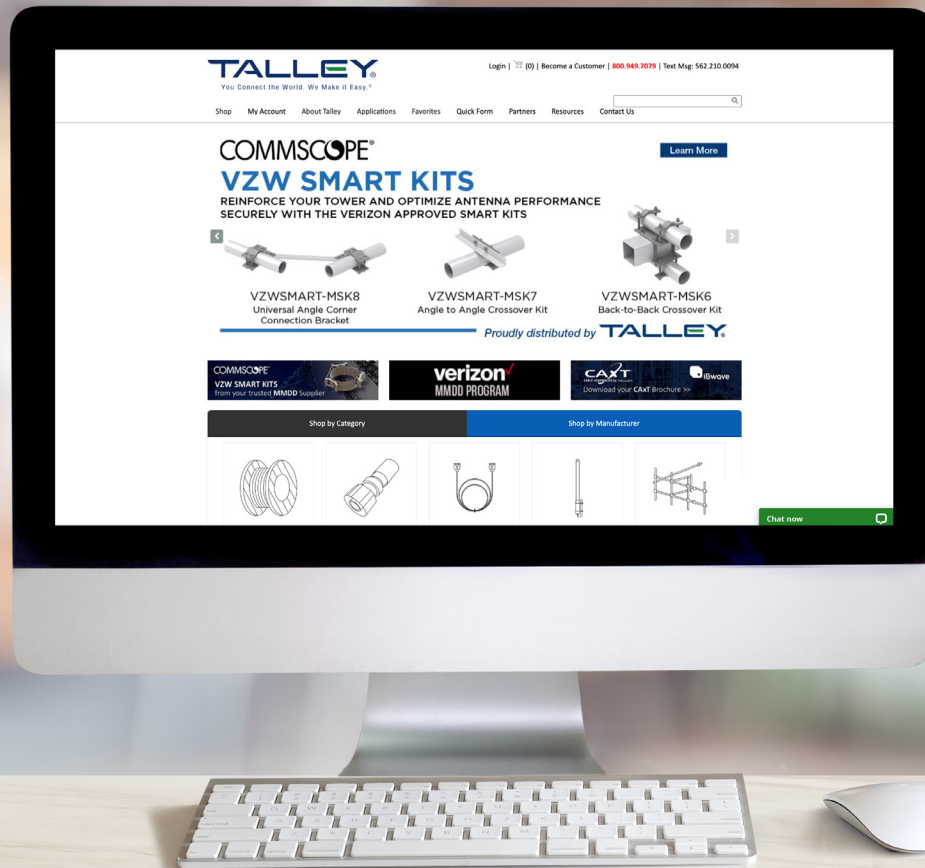
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THE 5G PHANTOM ON-GROUND PLANE ANTENNA SERIES COVER EITHER 617-7125 OR 698-7125 MHZ.

Based on our popular Phantom series the highly-popular 5G Phantom antennas are widely used in applications such as utilities, vehicular, public safety, and other IoT installations.



TALLEY®



WHY TALLEY?

Talley offers our customers an opportunity to develop a supply chain solution that meets their business model needs. We value and service customers who only need a few items each year as well as those whose needs are complex, cover large geography, and experience daily challenges. We offer live chat service, Will Call service, and an evolving eCommerce platform.

Our key deliverables- ease of order, product availability, and service excellence- provide a guiding focus upon which we measure our results and drive the pursuit of continuous improvement which our customers have enjoyed. We will guide you to the right products for your projects. From towers to grounding, antennas to fiber connectivity, you'll find everything you need.

You'll enjoy fast and economical delivery, thanks to our unmatched eleven distribution centers strategically located around the country.

At Talley, our number one goal is to help make your job easy. Everything we offer, from expert guidance and training seminars to an extensive customer service staff, we strive to deliver only the best experience possible.

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CONGESTED NETWORK?

Breathe easy.
We've got you covered.

Learn more at Talleycom.com
or call 800.949.7079

Enable new links with RFS' 6ft super high-performance antennas

Interference issues on microwave links are no longer limited to urban and suburban networks. As microwave users densify their networks end-to-end, minimizing interference on long haul microwave links has become a critical requirement.



SerenityLine 6ft ETSI CLASS 4 ANTENNAS

- Ideal for 6 & 11 GHz long haul links in North America
- ETSI Class 4 performance
- Best-in-class gain and XPD
- Spun back-ring design
- Fast and easy to install
- Single- and dual-polarized models

Densify already-congested long-haul networks without increasing tower space requirements or leasing costs.

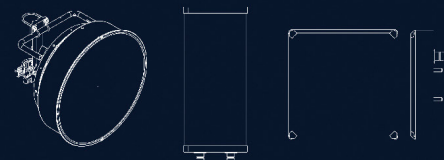


RadioWaves offers a diverse product range of high-quality microwave antennas from 1.3 GHz to 86 GHz for Point-to-Point and Point-to-Multipoint applications supporting all unlicensed and licensed band requirements.

Learn
More



THE LEADER IN
MICROWAVE ANTENNA
INNOVATION



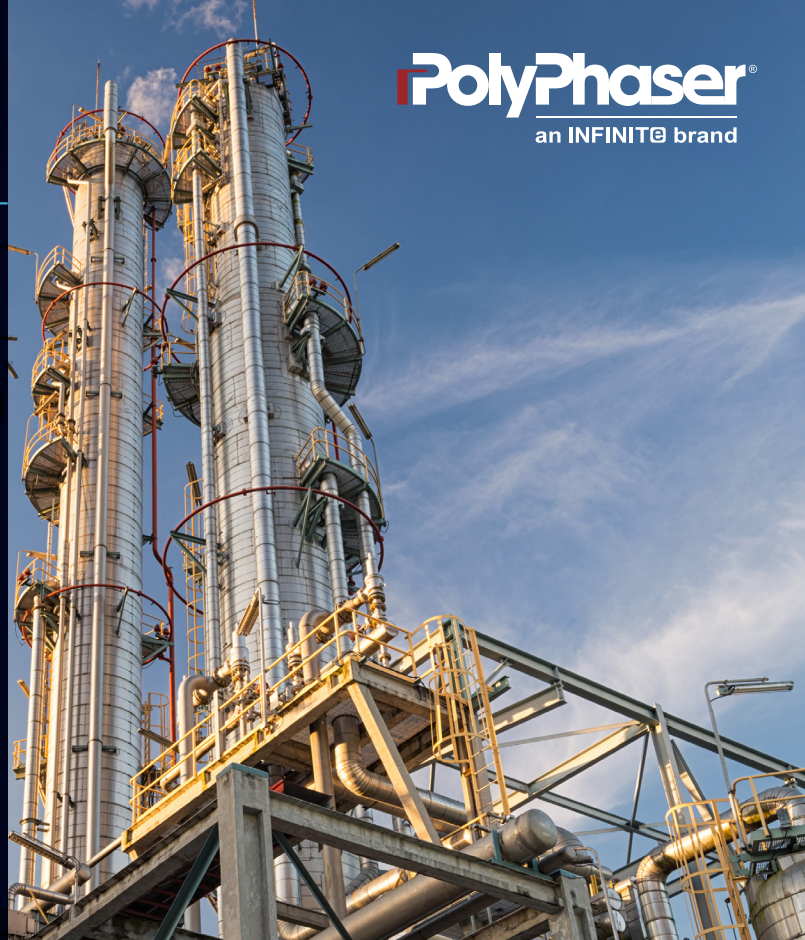
PARABOLICS | SECTORS | FLAT PANELS

FASTEST TIME TO TOWER

HAZARDOUS LOCATIONS

RF SURGE PROTECTORS

TSX SERIES



YOU'RE UNDER ARREST, SURGE!

Coaxing more RF protection with coaxial surge protectors

A common challenge facing radio and antenna installers is sites that leave equipment exposed to the elements. How do you protect sensitive equipment and avoid costly repairs?

Depending on the location, installations face a number of environmental threats:

- Power surges caused by lightning strikes
- Risk of fires or explosions
- Flammable gasses or vapors at hazardous sites

A proven way to guard against power surges is to use coaxial RF surge protectors, also known as radio frequency lightning surge protectors, or lightning surge arrestors/suppressors. They are designed with components to pass desired frequencies while suppressing electromagnetic pulse (EMP), high-altitude EMP (HEMP), or power surges caused by lightning or other strong electrical changes.

Inline RF surge protectors made by such manufacturers as PolyPhaser are similar in size and appearance to an RF adapter. The TSX surge arrestor has a patented spiral inductor inside.

It provides nearly instantaneous response to a lightning or other destructive surge while maintaining RF performance.

TSX surge arrestors have a broadband frequency range from 698 MHz to 2.7 GHz. They perform to National Fire Protection Association (NFPA) requirements for flammable gasses or vapors.

Providing protection from transients and built for hazardous locations, the PolyPhaser TSX series provides reliable RF surge protection when you need it most.

*For More
Information*

*Click
Here*

WORRY-FREE 5G

Set It and Forget It with Antennas that Are Up to the Task

As the need for more antenna infrastructure increases, reliability and performance in a sea of multiple antennas is a continuing concern. Laird External Antenna's OC Series of rugged infrastructure antennas provides superior performance, reliability, and quality.

Laird's OC69421 CBRS Multiband Omni Antenna offers expanded bandwidth omnidirectional coverage of global cellular bands, including 4G, 5G, and CBRS frequencies (698 MHz to 4200 MHz). The antenna has a rugged outdoor construction in an IP67-rated polycarbonate radome for high network reliability.

Its wideband cellular coverage and inclusion of multiple frequencies provides a versatile solution for multiple applications including public safety, Internet-of-Things (IoT), smart utilities, industrial, agricultural, remote monitoring and control (RMAC).

The OC69421 will provide years of reliable operations without degradation to either mechanical properties or aesthetics. It offers superior omnidirectional radiation patterns across the horizon without performance degrading radiation nulls.

Features

- Applicable for 4G, 5G, and CBRS solutions
- Rugged outdoor construction
- Omni-directional patterns
- 5-year warranty
- Wideband operation: 698 MHz to 4200 MHz
- Weatherproof UV-stable radome
- Mast mounting hardware included

Visit the OC Series product page of the Laird Connectivity website to learn more.

**View Product
Information**

**Click
Here**



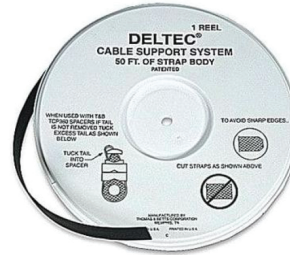
ELIMINATE PIM FROM EVERY HANGER, BRACKET, AND MOUNT PIM-GUARD



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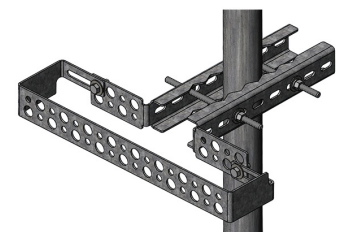
ANDSA-1TR
Multifunction
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Member Adapter



ANDSA-3C
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MTSPG-CS23
Cable Support Bracket



ARE YOU WITH THE BAND?

Considerations and Strategies for Maximizing C-band Deployment

The recently concluded C-band auction has created new opportunities to help mobile operators address the ever growing need for network capacity, spectral efficiency and a migration path to 5G and beyond. As with all mobile technology innovations, the benefits the new C-band spectrum provides will depend on how operators plan for and implement it into their existing legacy networks. There are a number of key challenges, including the integration of advanced beamforming technologies, the rise of massive and multi-user MIMO, site architecture issues, potential interference with fixed satellite services and use with small cells, to name a few. This white paper provides a wide angle perspective of some of the major challenges facing operators as they consider the strategies for deploying new C-band capabilities. It also shines a light on some of the innovative developments from leading network OEMs like CommScope.

As we begin 2021, the first commercial 5G networks are well over a year into operation. During the past year, 5G activities have accelerated and now outpace the growth rate of all past generations of mobile technology. While 5G global deployments have utilized a wide range of the spectrum, from 600 MHz to 40 GHz, special focus is being paid to mid-band frequencies in the 3.3–4.2 GHz range. Most European nations have now assigned 3.5 GHz spectrum to operators and several networks have progressed beyond initial build-out and commercial launch. Likewise, in Asia-Pacific and the Middle East, 5G at 3.5 GHz continues to expand and mature.

3.5 GHz allocations in the United States now include the 150 MHz CBRS band which is designated for shared use with limited transmit power. As such, it is not ideally suited for macro deployment on existing sites. In December 2020, the C-band auction added another 280 MHz. This latest addition to the spectrum is regulated by rules to enable its use as a capacity overlay on macro sites with coverage characteristics similar to mid-bands around 2 GHz. Using Time Division Duplex (TDD), C-band will operate as bands n77/n78 and be fully compatible with global 3.5 MHz 5G networks. Beyond C-band, an additional 100 MHz allocation at 3.45–3.55 GHz is planned for release in 2021.

The U.S. C-band 3.7–4.2 GHz is currently used primarily for Fixed Satellite Service (FSS) downlink from space to earth. FSS includes about 20,000 operational earth station receivers which cannot coexist in the same band as 5G. Fortunately, technology advancements enable these services to continue unimpaired using just 200 MHz of bandwidth at 4.0–4.2 GHz. FSS operators will relocate to this frequency range as part of C-band rearming. The transition will take place in two phases, with a first phase of 100 MHz bandwidth (3.7–3.8 GHz) expected to be cleared for 5G use in 46 major markets in late 2021. The remaining 180 MHz (3.8–3.98 GHz) will be added nationwide in a second phase on a timeline to be agreed upon by the parties in each market.

(Article continues on the next page.)

Propagation path loss increases with frequency and the loss at C-band is about 6–8 dB higher than at the mid-bands around 2 GHz. Building penetration loss also increases by some 4 dB but this varies with building materials. The building’s impact on signal loss is less severe for a wood framed home, but an industrial or office building can be left without C-band coverage throughout much of its interior. This is due to the larger building size and use of wall and window materials with higher RF attenuation characteristics.

To match the coverage at lower frequencies from existing sites, the C-band path loss deficit must be compensated.

The solution to the coverage problem is beamforming. The 5G NR standard supports beamformed control channels and traffic channels; whereas, beamforming in LTE is limited to traffic channels. Downlink (DL) coverage is defined by the control (broadcast) channel. Beamforming allows C-band coverage to closely match that of LTE at 2 GHz. The C-band uplink (UL) budget is still more limited, however. It is sufficient for maintaining a connection (control plane signaling) but may need help with uplink traffic (user plane) around the cell edge. In these cases, a common solution is dual connectivity, where LTE at the lower bands complements the 5G UL. As lower bands migrate to 5G NR, the same or better improvement can be achieved with carrier aggregation.

Learn more about Beamforming, Site Architecture, Co-Existence with FSS, Supply Power, Small Cells, Fronthaul and Backhaul, the importance of putting plans and partnerships in place now instead of later.

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Bird SiteHawk™
Test & verify critical
radio & mobile
communications
systems

RF Cable & Antenna Analyzer 1 MHz - 6 GHz



*RFS designs and
manufactures end-to-end
RF solutions for wireless and
broadcast networks*

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TALLEY HAS LIVE CHAT!

Let's pretend you're shopping online and you come across a question. Will this fit, is it the right size, do they have it in stock, can this ship today? The list goes on but your eyes catch a little popup that says "Chat With Us" so you proceed to click it with a glimmer of hope. You type in your question, eagerly hit "enter," and are met with an automated Chatbot that does not answer a single thing you asked. We all know this feeling a little too well and can agree that it drives us away in frustration. At Talley, we pride ourselves in delivering service excellence to our customers, especially in HUMAN form!

In addition to the hundreds of orders released daily, our team of nationwide Sales Operations representatives provide virtual frontline service as active chatters. Available from 8am EST to 5pm PST, the team provides 12 uninterrupted hours of support

and knowledge for new and revisiting customers online while also being met with a few comics along the way. A little laughter never hurt and we're always up for a good time! Join the fun by chatting on www.talleycom.com or texting 562.210.0094 today.

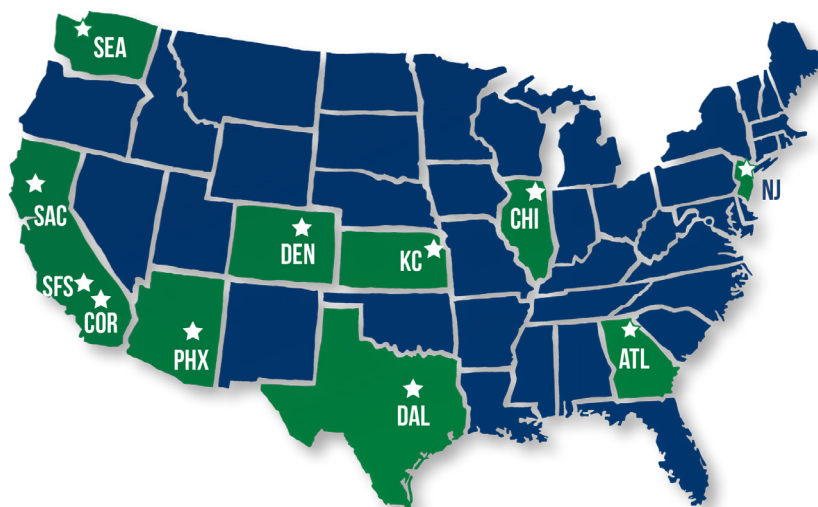
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Talley Inc. is a premier distributor of Wireless Infrastructure, Communications and Mobile Products. Talley serves the needs of wireless communications professionals in a wide range of industries from Private and Public Safety networks to nationwide Cellular Carrier networks. With 11 strategically located facilities in the US and nearly four decades of experience, Talley is now one of the nation's largest wireless distributors in the industry. Talley services customers in several focused industry segments, stocking inventory from over 300 top suppliers that continue to support the demands of our evolving wireless network.

Our website provides instant access, expanded capabilities and increased connection to Talley's huge inventory of Wireless Infrastructure and Mobile Products. Everything Talley sells is at your fingertips even faster and more efficient than ever. Your next project is only a click away. Visit www.Talleycom.com today and see how we make shopping easy.



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