

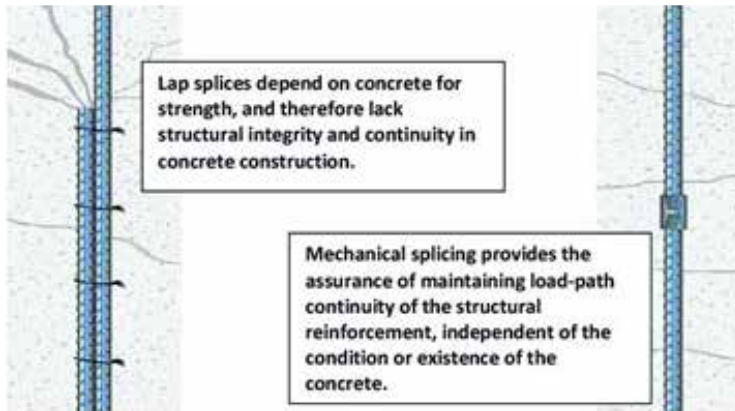
PRODUCT  
CATALOG



**RHINO**

MECHANICAL CONNECTIONS

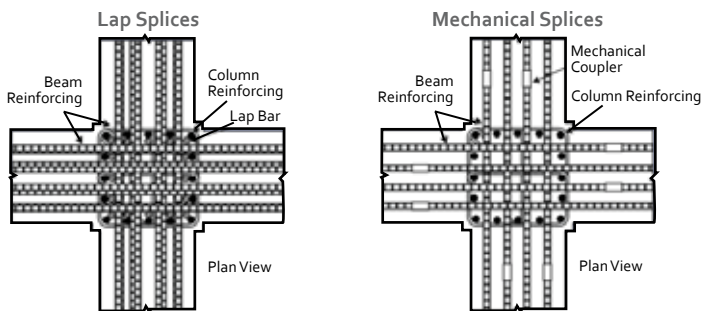
[WWW.RHINOCONNECTIONS.COM](http://WWW.RHINOCONNECTIONS.COM)



## Structural Integrity

Mechanical splices offer greater structural integrity and deliver higher performance than lap splices. Mechanical splices do not rely on the concrete and offer greater strength, toughness and dynamic performance during seismic or man made events. This capacity is verified by third party testing and is typically 125% to 150% greater capacity provided by the mechanical splice versus the lap splice.

- RHINO Couplers provide a continuous load path and exceed Type 1 & Type 2 requirements including cyclic dynamic testing. Type 2 connections are suitable for use in seismic structures when inelastic yielding may occur and may be used anywhere in the structure.
- RHINO Couplers meet the toughest requirements for slip and do not require staggering.
- RHINO Couplers develop their strength independently from the concrete and are more reliable than lap systems which require the concrete for load transfer.
- RHINO Couplers do not alter the reinforcing steel metallurgy and allow for the full strength and ductility of the reinforcement to be developed.

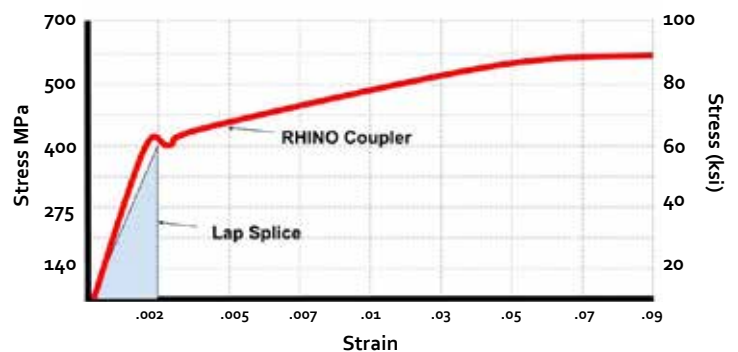


## Congestion

Working with small diameter reinforcing bars may require the use of larger column dimensions to accommodate a greater quantity of bars. Using mechanical splices allows the option of larger diameter rebar in a smaller column while minimizing congestion. This reduced column size results in a more efficient design, reduced labor costs and crane time, while providing for optimized use of floor space.

- RHINO Couplers reduce congestion, whereas, lap splicing increases rebar congestion at the lap zone and is one of the major causes for forming rock pockets and voids in the concrete. Mechanical splices eliminate these congestion problems and will make the overall job more cost effective through minimized job site problems.
- Building codes stipulate a steel ratio of under 8% and this makes it very difficult to achieve a balanced design with lap splicing. RHINO Couplers allow the designer to achieve an ideal balance of steel and concrete by eliminating the additional rebar in the lap zone.

## Stress - Strain Diagram





## Cost

The ability to save time and labor on job sites is critical in meeting the project cost targets. Mechanical splicing systems provide an opportunity to save labor, time and material on construction projects.

- RHINO Couplers are fast and easy to install and require no specialized skilled labor, power tools or power at jobsite.
- RHINO Couplers eliminate tedious lap calculations.
- RHINO Couplers install in approximately 6 turns.
- RHINO Couplers reduces the amount of crane time at job site.
- Pre-assembly work is done at RHINO facility which allows construction schedules to be accelerated.

## Additional RHINO Coupler Advantages

- RHINO Couplers and rebar provide excellent current carrying capacity that allows for grounding structures.
- RHINO Couplers increase column shear load capacity and allow for the structural design engineer more opportunities.
- RHINO Couplers promote low cycle fatigue performance.
- RHINO Couplers are applicable to all types and grades for reinforcing steel and are available in a variety of coating options.
- RHINO's unique taper thread design prevents cross threading.

RHINO Couplers are a taper threaded splicing system for steel reinforcement that assures a positive locking connection, providing continuity and structural integrity to reinforced concrete construction. RHINO spliced bars behave as continuous lengths of reinforcement by providing "full strength" in tension, compression and stress reversal applications.



## The Unique Taper Threaded Design

The RHINO self-aligning, taper threaded design provides ease of installation, consistent performance and durability. It also develops higher tensile strength than lap splicing and provides full load transfer with the slimmest and shortest coupler possible.

## Design Benefits

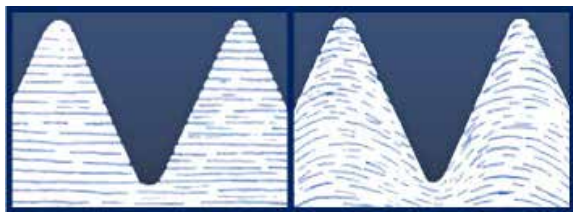
- Allows maximum bar cross-section to be used.
- Smallest diameter in the industry reduces need for concrete cover and eliminates rebar congestion.
- Short length and slim design ensure the least disturbance to uniform stiffness.
- Splice strength is independent of rebar deformation.
- Unique tapered thread requires no lock nuts and provides a positive locking, no-slip connection.
- Any length, shape, diameter or combination of bar sizes can be mechanically spliced.



RHINO's Ultra System combines our unique Taper Threaded Splicing System and our Cold Rolling Threader (CRT) technology to deliver a superior mechanical splicing system that meets the most stringent codes around the world. RHINO's Ultra Splicing System consistently develops full bar tension under load. The RHINO Ultra System utilizes a specially engineered coupler which can be used with a wide variety of rebar grades and deformation patterns and provides for quick alignment, elimination of cross threading and fast installation.

### RHINO Ultra Delivers:

- High Performance Rebar/Coupler System
- 4.5 Degree Taper Connection
- Cold Roll Technology & Performance
- Process Consistency & Repeatability
- Quality System Controls
- Consistently develops full capacity of the reinforcement



Cut Thread

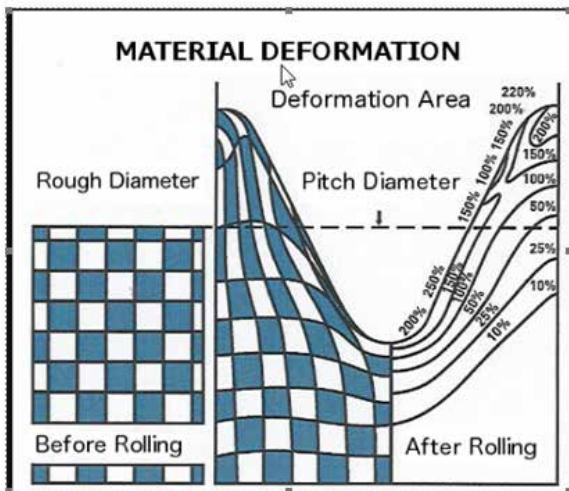
Rolled Thread

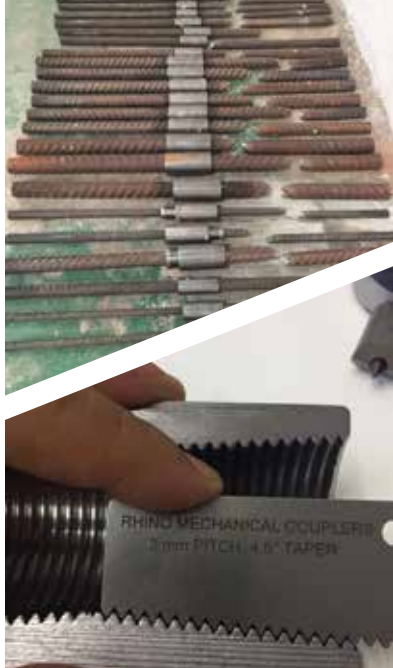
### Cold Rolling Technology:

RHINO's engineered cold rolling process delivers threads that are stronger and smoother than cut threads. RHINO's Cold Rolling Technology strengthens the root and flank of the rebar threads and provides for a significantly stronger rebar/coupler connection. Cold rolling is the preferred method for forming threads and delivers superior tensile strength, shear strength, resistance to fatigue and thread accuracy. All of these features are incorporated into the RHINO Ultra process.

### Benefits of RHINO's Cold Rolling Technology:

- Tensile Strength – Cold working increases the material strength by 20%.
- Shear Strength – Rolled threads resist the stripping do to increased thread strength.
- Resistance to Fatigue – Smooth surface from rolling prevents focal points for stress risers.
- Accuracy - Superior life of the dies and process controls allow for consistent accuracy in thread profiles.





## High Performance System

- RHINO connections are designed to deliver superior performance compared to other systems.
- RHINO connections are engineered to deliver full bar tension, low slip, superb cyclic and excellent fatigue performance.

## 4.5 Degree Taper Thread

- RHINO's splicing system is designed around a 4.5 degree taper thread which allows for self alignment of the rebar into the coupler providing a fast installation.
- The 4.5 degree taper is designed to minimize material removal during the threading process.

## Process Consistency

- RHINO's manufacturing process is designed around a CNC threading mill which gives a robust and repeatable process on every thread.
- The repeatability of the computer controlled cold rolling process delivers a more consistent thread and the long life of the cold rolling dies allows for sustained, consistent thread quality.

## Cold Rolled Thread

- The uninterrupted micro-structure of the RHINO Cold Rolling Threading process provides superior tensile and fatigue properties.
- The cold rolling process work hardens flank and roots of the rebar thread to provide increased strength, yield and shear properties. When compared to a cut thread, the cold rolling process improves the overall load capacity by 20%.

## Quality System Controls

- RHINO's quality management system is an approved ISO 9001 -2015 quality system which focuses its business processes on consistently meeting code and customer requirements and enhancing their satisfaction.
- RHINO's organization, purpose and strategic direction are aligned with delivering high quality products.

## Experience Of Team

- RHINO has a combined experience of 100 years in the commercial concrete construction industry.
- RHINO's team is active in code development and participates on multiple worldwide code committees and approval bodies.

The RHINO ST series couplers are designed to join any bar to bar connection that is the same size of rebar, where one bar is free to rotate. The coupler has machined taper threads at both ends connecting two ends of rebar to make a mechanical splice. This simplifies rebar splicing in areas where steel congestion makes it difficult for long lap splices. The taper thread design allows for quick alignment and engagement of the bar within the coupler.

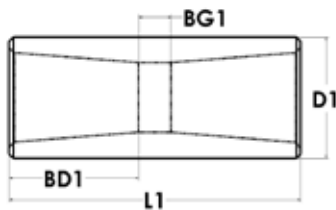
## Features and Benefits

- Can be used in a wide variety of global rebar grades and deformation patterns
- Meets or exceeds international building codes including ACI 318 Type 1 & Type 2, BS8110, DIN1045, Hong Kong Building Department Type 2 and many others
- Taper design allows for quick alignment and installation while eliminating cross threading
- Slim design frees up space in congested area
- Superior slip performance that meets all international slip criteria



## Typical Applications

- Column Bar Splicing
- Beam and Slab Bar Splicing
- Future Extensions
- Segmental Construction
- Core wall and shear wall bar splicing
- Top down construction



DIMENSIONS ARE FOR REFERENCE ONLY.

Part Number	US Rebar Size	Metric Rebar Size	Canada Rebar Size	L1 (in)	L1 (mm)	D1 (in)	D1 (mm)	BD1 (in)	BD1 (mm)	BG1 (in)	BG1 (mm)	Weight (lbs)	Weight (kg)
ST12	#4	12mm	10M	2.09	53	.67	17	.84	22	.36	9	.17	.08
ST16	#5	16mm	15M	2.38	61	.95	24	1.10	28	.20	5	.2	.10
ST20	#6	20mm	20M	2.86	73	1.14	29	1.28	33	.31	8	.44	.20
ST25	#8	25mm	25M	3.29	84	1.46	37	1.50	38	.31	8	.88	.40
ST32	#10	32mm	-	4.14	105	1.77	45	1.87	48	.39	10	1.54	.70
ST40	-	40mm	-	5.12	130	2.24	57	2.36	60	.39	10	3.08	1.4
ST50	-	50mm	-	5.59	142	2.76	70	2.58	66	.44	11	4.63	2.1

The RHINO RC series couplers are designed to quickly join two curved, bent or straight bars, when neither bar can be rotated and where the ongoing bar is restricted in its axial direction. A typical application for these couplers is for the splicing of prefabricated cages.

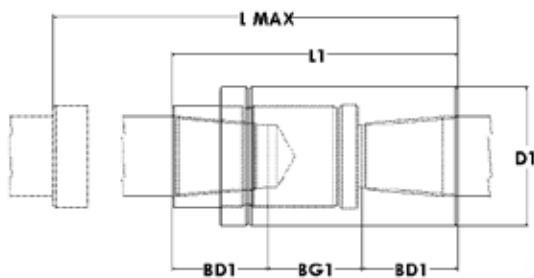
## Features and Benefits

- Can be used in wide variety of global rebar grades and deformation patterns
- Meets or exceeds international building codes including ACI 318 Type 1 & Type 2, BS8100, DIN1045, Hong Kong Building Department Type 2 and many others
- Rebar does not need to be rotated - designed to join two curved, bent or straight bars where neither can rotate
- Lock nut provided to eliminate slip of the parallel thread
- Slim design frees up space in congested areas
- Superior slip performance that meets all international slip criteria
- Taper design allows for quick alignment and installation while eliminating cross threading
- Built-in coupler extension provides greater field adjustability



## Typical Applications

- Prefabricated cages
- Bent bars splicing



DIMENSIONS ARE FOR REFERENCE ONLY.



Part Number	US Rebar Size	Metric Rebar Size	Canada Rebar Size	L1 (in)	L1 (mm)	D1 (in)	D1 (mm)	BD1 (in)	BD1 (mm)	BG1 (in)	BG1 (mm)	Lmax (in)	Lmax (mm)	Weight (lbs)	Weight (kg)
RC20	#6	20	20M	4.13	105	1.77	45	1.28	33	1.57	40	1.1	28	2.42	1.1
RC25	#8	25	25M	5.00	127	2.16	55	1.50	38	2.00	51	.98	25	3.97	1.8
RC32	#10	32	-	5.43	138	2.56	65	1.87	48	1.69	43	1.26	32	4.63	2.1
RC40	-	40	-	6.30	160	2.95	75	2.36	60	1.57	40	.87	22	5.95	2.7
RC50	-	50	-	7.12	183	3.74	95	2.58	66	1.96	50	1.34	34	11.9	5.4



The RHINO WC series couplers are designed to splice rebar to structural steel through a weldable coupler. The coupler has a machined taper thread at one end and a prepared weldable surface on the other. The taper thread design allows for quick alignment and engagement of the bar within the coupler. The weld size is to be determined by the structural engineer in according with prevailing code, structural steel grade, and electrode type.

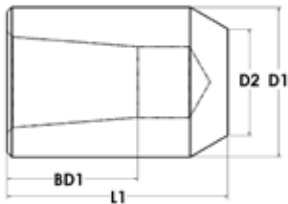
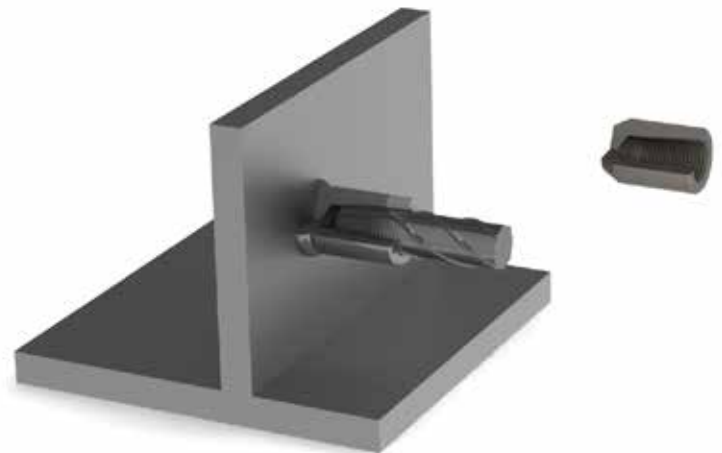
## Features and Benefits

- Can be used in a wide variety of global rebar grades and deformation patterns
- Meets or exceeds international building codes including ACI 318 Type 1 & Type 2, BS8110, DIN 1045, Hong Kong Building Department Type 2 and many others
- Machined from weldable steel (A.I.S.I 1030 or similar)
- Taper design allows for quick alignment and installation while eliminating cross threading
- Superior slip performance that meets all international slip criteria



## Typical Applications

- Connecting rebar to structural steel sections or plates
- Composite construction
- Stanchion of composite columns
- Structural liner plate to rebar continuity



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Part Number	US Rebar Size	Metric Rebar Size	Canada Rebar Size	L1 (in)	L1 (mm)	D1 (in)	D1 (mm)	D2 (in)	D2 (mm)	BD1 (in)	BD1 (mm)	Weight (lbs)	Weight (kg)
WC12	#4	12mm	10M	1.18	30	.98	25	.71	18	.83	21	.17	.09
WC16	#5	16mm	15M	1.39	35	.98	25	.71	18	1.06	27	.2	.09
WC20	#6	20mm	20M	2.17	55	1.18	30	.91	23	1.38	45	.46	.27
WC25	#8	25mm	25M	2.52	64	1.58	40	1.12	28	1.77	45	.9	.41
WC32	#10	32mm	-	2.95	75	2.00	51	1.38	35	1.89	48	1.6	.73
WC40	-	40mm	-	3.74	95	2.36	60	1.64	42	2.40	61	2.9	1.32
WC50	-	50mm	-	4.49	114	2.95	75	2.09	51	3.07	78	5.4	2.45

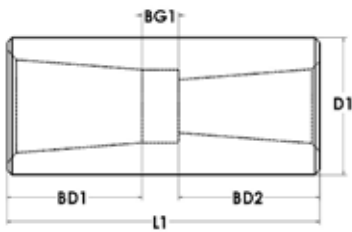
The RHINO TC series couplers are designed to join any bar to bar connection with different sizes of rebar where one bar can be rotated. The coupler has machined taper threads at both ends connecting two ends of rebar to make a mechanical splice. This simplifies rebar splicing in areas where steel congestion makes it difficult for long lap splices. The taper thread design allows for quick alignment and engagement of the bar within the coupler.

## Features and Benefits

- Can be used in a wide variety of global rebar grades and deformation patterns
- Meets or exceeds international building codes including ACI 318 Type 1 & Type 2, BS8110, DIN1045, Hong Kong Building Department Type 2 and many others
- Taper design allows for quick alignment and installation while eliminating cross threading
- Slim design frees up space in congested areas
- Superior slip performance that meets all international slip criteria

## Typical Applications

- Column Bar Splicing
- Beam Bar Splicing
- Future Extensions



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Part Number	Metric Rebar Size	L1 (in)	L1 (mm)	D1 (in)	D1 (mm)	BD1 (in)	BD1 (mm)	BD2 (in)	BD2 (mm)	BG1 (in)	BG1 (in)	Weight (lbs)	Weight (kg)
TC2520	25mm-.20mm	2.87	73	1.46	37	1.47	37	1.12	29	.51	13	1.0	.45
TC3225	32mm-25mm	3.27	83	1.77	45	1.47	37	1.46	37	.51	13	1.7	.77
TC4032	40mm-32mm	3.86	98	2.25	57	1.71	43	1.46	37	.71	18	2.9	1.31
TC5040	50mm-40mm	4.80	122	2.75	70	2.40	61	1.71	43	.71	18	6.4	2.90

## Bar End Protectors

RHINO bar end protectors are placed onto the ends of threaded reinforcing steel bars. These protective caps help prevent damage to the threads and help keep dirt and water out of the threads during storage, transportation and installation. The color coding helps to easily identify bar sizes in the field.



Part Number	US Rebar Size	Metric Rebar Size	Canada Rebar Size	Color
BE12	#4	12mm	10M	Red
BE16	#5	16mm	15M	White
BE20	#6	20mm	20M	Yellow
BE25	#8	25mm	25M	Green
BE32	#10	32mm	-	Black
BE40	-	40mm	-	Red
BE50	-	50mm	-	White

## Torque Wrench

RHINO couplers are installed with a standard pipe wrench. The RHINO inspection wrench is provided to periodically check tightness of connections. The frequency of inspection is set by the governing building codes or the inspector.

When installing RHINO couplers, refer to the specific RHINO INSTALLATION INSTRUCTIONS and/or Governing Building Codes and Approvals for the proper wrench setting. The specified torque value is easily set using the scale attached to the wrench.





## ABOUT US

We are a manufacturing and distribution company started in 2017 that specializes in superior, engineered steel based mechanical connections for the commercial, concrete construction business. Our vast background includes over 100 years of combined experience within the commercial, concrete construction industry. Our brand is based upon key core values that drive our strategies, policies and processes.

## RHINO CORE VALUES

### Respect

We strive to develop respect for, and long term relationships with, our employees, suppliers, end users and customers.

### High Quality

We take pride in providing high quality and value added products that ensures customer satisfaction.

### Integrity

We act with honesty, integrity and truthfulness.

### rhiNOvation

Our goal is to develop innovative, technical, high quality products through our culture, strategy and work processes. RHINO's experts have developed and engineered its products and processes to set the standard in technical performance.

### Opportunity

RHINO believes in the value of opportunity because each person's success enriches us all. We create opportunities every day and make investments in each other that create a wealth of opportunities for our customers, end users, suppliers and employees.