



BUILDING STRENGTH™

**BAR LOCK®
REBAR COUPLER**

**CONCRETE
CONSTRUCTION
SOLUTIONS**

BROCHURE



**DAYTON®
SUPERIOR**

The Dayton Superior Bar Lock Coupler System provides a simple, quick, cost effective method for splicing smooth or deformed rebar in tension and/or compression applications. Bar Lock couplers are effective when used as a “positional” coupler when the rebar is fixed in place or when the rebar is free to rotate. BarLock couplers utilize lock-shear bolts and serrated grip rails to mechanically splice the rebar. The serrated grip rails are embedded in the rebar as the lock-shear bolts are tightened. The heads of the lock-shear bolts are designed to shear off at a prescribed torque to ensure proper installation.

System Advantages

- Quick and easy to install to save time and money.
- Eliminates bar threading or special bar-end treatment.
- No special installation equipment required.
- High strength in tension, compression and seismic applications.
- Available in standard, transition, weldable, and end anchor versions in sizes #4 through #18.
- Ideal for new construction and rehab projects.

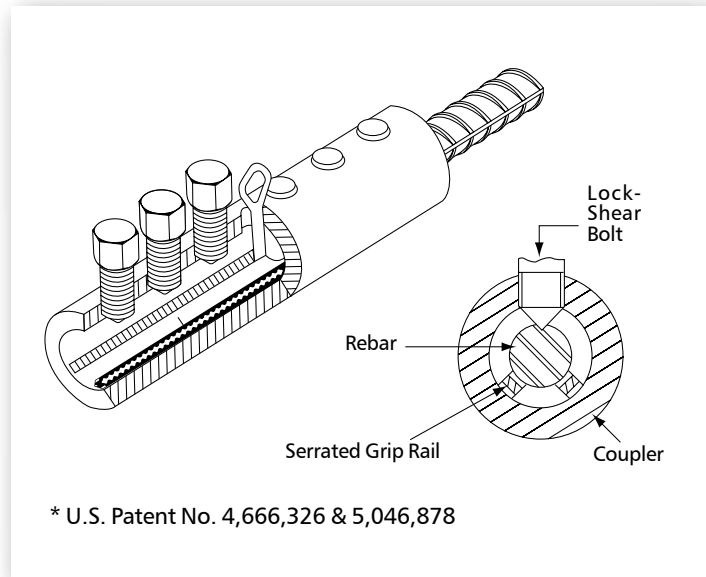
System Compliance

Bar Lock couplers are test-certified to exceed the requirements of, and are pre-qualified, approved or recognized by the following building approval agencies:

- ACI 318 Type 1 and Type 2
- IAPMO UES Listed ER-245 and ER-319
- Caltrans Service Splice
- Ministries of Transportation, Canada
- State Departments of Transportation
- AASHTO
- International Building Code (IBC)
- City of Los Angeles Department of Building and Safety

System Testing

Bar Lock couplers are tested by independent, certified testing laboratories in four modes of testing: tension, compression, fatigue and cyclic. All tests are done to the requirements of ICC and/or Caltrans. BarLock source materials are fabricated under ISO9001 quality standards.



How to Specify

- A. By specific name: "Bar Lock® mechanical coupler system manufactured by Dayton Superior."
- B. By generic description: "Mechanical butt splices utilizing lock-shear bolts and internal serrated grip rails within the coupling sleeve. They shall exceed the specification requirements for both tension and compression specified by ACI 318 and the International Building Code and be recognized by the International Code Council (ICC), or IAPMO-UES."

Specific:

Mechanical connections shall be Bar Lock® lockshear bolt couplers as manufactured by Dayton Superior Corporation.

Generic:

The mechanical connection shall meet building code requirements of developing in tension and compression as required by _____ (*insert name here*). The mechanical connection shall be the positive butt splices utilizing lockshear bolts and internal serrated grip rails within the coupling sleeve manufactured from high quality steel. All couplers shall be installed per the manufacturer's approved procedures.

How to Order

Specify: (1) quantity, (2) name, (3) rebar size, (4) style, if other than standard.

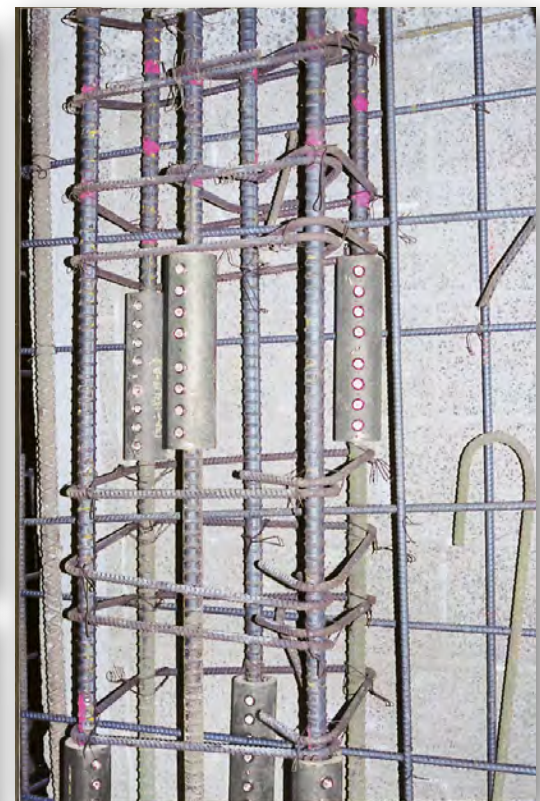
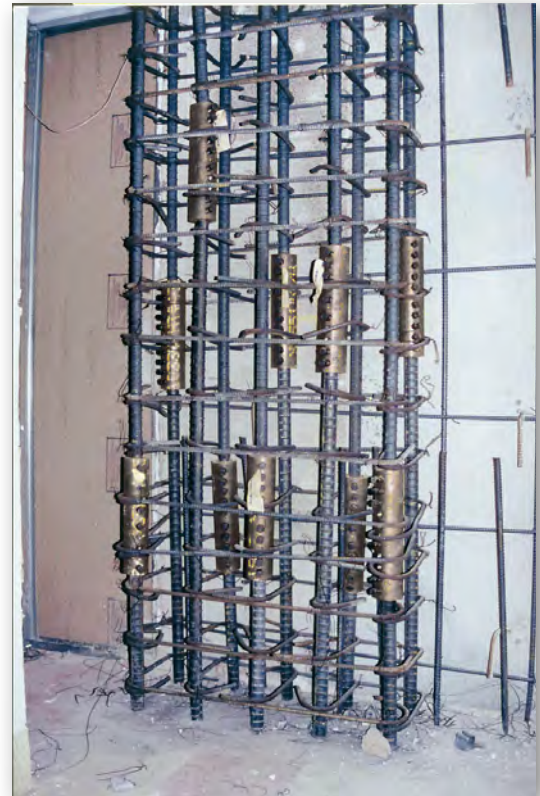
Example: 200, D250L Bar Lock Couplers, #8 rebar size, epoxy coated.

Made in America

Bar Lock is 100% made in America. Raw materials used in its manufacturing are melted and rolled in America. This makes Bar Lock fully compliant with Department of Transportation, American Recovery and Reinvestment Act (2009), Buy America Act (1983), and Buy American Act (1933).

[See the Bar Lock introduction video on YouTube!](#)

Go to the 'Dayton Superior' channel on YouTube and search for Bar Lock Couplers System.



<https://www.youtube.com/watch?v=n90Nyazyek&t=30s>

D250SCA Bar Lock® S/CA Series Couplers

The Bar Lock S/CA Series Couplers (D250SCA) are designed for use in most tension and compression applications. They are available in rebar sizes #4 through #18 and exceed ACI 318 requirements as a Type 1 splice for grade 60 rebar. S/CA couplers are an approved Caltrans "Service" splice and are recognized by most State Departments of Transportation. D250SCA couplers are available plain or epoxy coated.

D250L Bar Lock® L-Series Couplers

The Bar Lock L-Series Coupler (D250L) is similar to the D250SCA, but is designed for use when higher loads are required, such as extreme tension/compression applications and/or seismic loading conditions. D250L couplers are available in rebar sizes #4 through #18 and exceed ACI 318 requirements as a Type 2 splice for grade 60 rebar. D250L couplers are approved for use by most state DOTs. L-Series couplers are also available plain or epoxy coated.

D250XL Bar Lock® XL-Series Couplers

The D250XL Bar Lock XL-Series Coupler is similar to the L-Series Coupler but is designed for higher loads and higher strength rebar. XL-Series couplers are available in rebar sizes #4 through #18 and exceed ACI 318 requirements for a Type 2 splice for grade 80 rebar. XL-Series Couplers are approved for use by most DOTs.

D220 Bar Lock® Transition Couplers

Bar Lock Transition Couplers are used to splice two rebars of different diameters. Transition couplers are available in S/CA, L and XL-Series, plain or epoxy coated. Note sizes and other information about the respective couplers versions above.

D260 Bar Lock® Structural Steel Connectors

Bar Lock Structural Steel Connectors (weldable) are designed to provide welded connections to structural steel members such as piles, weld plates, beams, columns, etc. Structural Steel Connectors are fabricated with a 45° chamfer to facilitate the welding operation. They are available in rebar sizes #4 through #18 in the S/CA Series and the #4 through #14 in the L-Series.

D251 Bar Lock® End Anchors

Bar Lock End Anchors are designed to provide anchorage of structural steel. End Anchors are fabricated with a structural steel connector, factory-welded to round plate steel. They are available in rebar sizes #4 through #18 in the L-Series.



Typical Coupler Installation

Bar Lock couplers are easy to install and normally do not require any special training or rebar preparation. A typical installation procedure is:

A. Procedure:

1. Insert end of the first bar halfway into the coupler to the center pin. Hold bar in place and hand-tighten all bolts.
2. Insert end of the second bar halfway into the coupler to the center pin. Hold bar in place and hand-tighten all bolts.
3. In a random alternating pattern, tighten all bolts to approximately 50% of the specified bolt torque value.
4. In a random alternating pattern, tighten all bolts to approximately 75% of the specified bolt torque value.
5. Tighten all bolts in a random alternating pattern until all bolt heads shear off.

IMPORTANT NOTES:

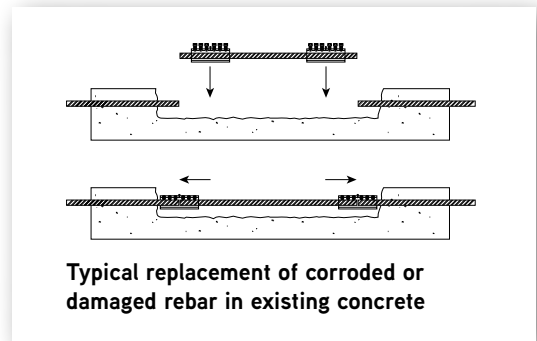
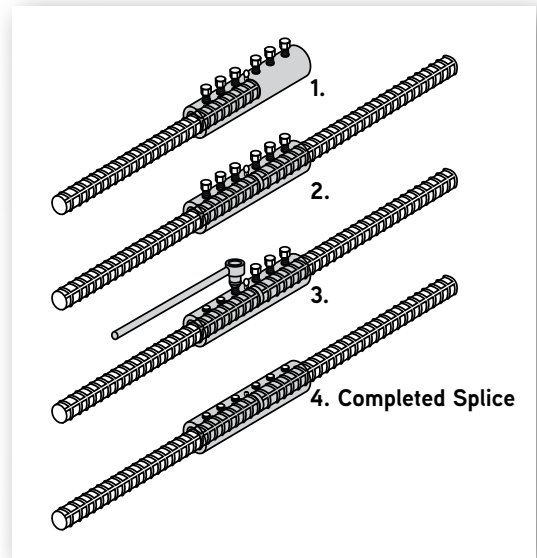
- a. Prior to bolt tightening the serrated rails **MUST** remain aligned in the same position as they were manufactured. If damaged or knocked out of alignment while positioning, installation **MUST** cease and a new coupler used to replace damaged coupler.
- b. Bolt tightening **MUST** be done in a *random alternating pattern* similar to tightening the lug nuts on an automobile wheel (i.e., 2-4 , 1-3).

B. Installation Tools:

A high-quality 1" - drive pneumatic impact wrench is required for sizes #8 thru #18. The requirements for air flow is 100 psig of operating pressure and 185 cfm of delivered air to the impact wrench through a 3/4" - 1" air hose. Sizes #4 thru #7 may be installed with smaller impact wrenches.

C. Answers to Frequently Asked Questions:

1. Approvals: Bar Lock couplers exceed the requirements of the International Building Code and state DOTs and are certified by IAPMO UES ER-319.
2. Center-pin: Bar Lock couplers are manufactured with a removable center-pin for easy reference to the center of the coupler. As each bar is inserted into the coupler it will butt against the center pin providing the confirmation the the rebar is inserted the proper distance within the coupler. The bar ends might not actually butt against one another.
3. Serrated rails: The internal grip rails are held into place by a simple "positional weld" only. During bolt tightening it is common this position weld may break loose, but this will not affect performance.
4. Shear bolts: The shearing of the bolt-heads simply confirms adequate torque has been achieved.
5. Bar-ends: The rebar may be shear cut, flame cut or sawn and generally require no special bar-end preparation for use with Bar Lock couplers.



D250SCA Bar Lock S/CA-Series Couplers

Product Code		Coupler Designation	Bar Size Designation			Barrel Stamp Identification	Product Specifications			Bolt Specifications			Meets or Exceeds		
Black	Epoxy		US	Metric (mm)	CN (M)		Outside Diameter (in.)	Length (in.)	Weight (lbs.)	Bolt Qty.	Head Size (in.)	Nominal Shear Torque*	Min % Fy**	CAL TRANS Service	Type 1
400200	400210	3 S/CA	#3	[10]	—	3S...CA	1.3	3.9	1.24	4	0.5	40	125	YES	YES
400200	400210	4 S/CA	#4	[13]	[10]	4S...CA	1.3	3.9	1.24	4	0.5	40	125	YES	YES
400201	400211	5 S/CA	#5	[16]	[15]	5S...CA	1.7	4.5	2.11	4	0.5	80	125	YES	YES
400202	400212	6 S/CA	#6	[19]	[20]	6S...CA	1.9	6.3	3.57	6	0.5	80	125	YES	YES
400203	400213	7 S/CA	#7	[22]	—	7S...CA	1.9	8.0	4.30	8	0.5	80	125	YES	YES
400204	400214	8 S/CA	#8	[25]	[25]	8S...CA	2.4	10.2	6.10	8	0.625	180	125	YES	YES
400205	400215	9 S/CA	#9	[29]	[30]	9S...CA	2.9	9.0	11.88	6	0.75	350	125	YES	YES
400206	400216	10 S/CA	#10	[32]	—	10S...CA	2.9	11.5	15.17	8	0.75	350	125	YES	YES
400207	400217	11 S/CA	#11	[36]	[35]	11S...CA	3.1	14.0	20.50	10	0.75	415	125	YES	YES
400208	400218	14 S/CA	#14	[43]	[45]	14S...CA	3.5	16.5	27.57	12	0.75	475	125	YES	YES
400209	400219	18 S/CA	#18	[57]	[55]	18S...CA	4.3	27.2	62.00	20	0.75	475	125	YES	YES

Note in place of the "...", each Bar Lock Coupler is marked with a tracking code used for full manufacturing traceability.

* Foot pounds.

** When used in conjunction with epoxy-coated Grade 60 rebar, 125% Fy strength is developed.

D250L Bar Lock L-Series Couplers

Product Code		Coupler Designation	Bar Size Designation			Barrel Stamp Identification	Product Specifications			Bolt Specifications			Meets or Exceeds			
Black	Epoxy		US	Metric (mm)	CN (M)		Outside Diameter (in.)	Length (in.)	Weight (lbs.)	Bolt Qty.	Head Size (in.)	Nominal Shear Torque*	Min % Fu**	CAL TRANS Service	Type 1	Type 2
400327	144988	3 L	#3	[10]	—	3L...	1.3	4.0	1.67	4	0.5	40	100	YES	YES	YES
400226	400235	4 L	#4	[13]	[10]	4L...	1.3	5.5	1.67	6	0.5	40	100	YES	YES	YES
400227	400236	5 L	#5	[16]	[15]	5L...	1.7	6.3	2.90	6	0.5	80	100	YES	YES	YES
400228	400237	6 L	#6	[19]	[20]	6L...	1.9	8.0	4.44	8	0.5	80	100	YES	YES	YES
400229	400238	7 L	#7	[22]	—	7L...	1.9	9.8	5.10	10	0.5	80	100	YES	YES	YES
400230	400239	8 L	#8	[25]	[25]	8L...	2.4	12.3	8.94	10	0.625	180	100	YES	YES	YES
400231	400240	9 L	#9	[29]	[30]	9L...	2.9	11.5	15.07	8	0.75	350	100	YES	YES	YES
400232	400241	10 L	#10	[32]	—	10L...	2.9	14.0	18.50	10	0.75	415	100	YES	YES	YES
400233	400242	11 L	#11	[36]	[35]	11L...	3.1	16.5	23.75	12	0.75	415	100	YES	YES	YES
145831	145832	14 L	#14	[43]	[45]	14L...	3.5	19.1	31.60	20	0.75	475	100	YES	YES	YES
142996	142996	18 L	#18	[57]	[55]	18L...	4.3	32.2	97.80	24	0.75	475	100	YES	YES	YES

Note in place of the "...", each Bar Lock Coupler is marked with a tracking code used for full manufacturing traceability.

* Foot pounds.

** When used in conjunction with epoxy-coated Grade 60 rebar, 135% Fy strength is developed.

D250XL Bar Lock XL-Series Couplers

Product Code			Coupler Designation	Bar Size Designation			Barrel Stamp Identification	Product Specifications			Bolt Specifications			Meets or Exceeds			
Black	Epoxy	Galvanized		US	Metric (mm)	CN (M)		Outside Diameter (in.)	Length (in.)	Weight (lbs.)	Bolt Qty.	Head Size (in.)	Nominal Shear Torque*	Min % Fu	CAL TRANS Service	Type 1	Type 2
145314	145324	145147	4 XL	#4	[13]	[10]	4XL....	1.3	10.2	3.10	12	0.5	40	100	YES	YES	YES
145315	145325	145148	5 XL	#5	[16]	[15]	5XL....	1.7	11.5	5.29	12	0.5	80	100	YES	YES	YES
145316	145326	145149	6 XL	#6	[19]	[20]	6XL....	1.9	13.2	7.33	14	0.5	80	100	YES	YES	YES
145317	145327	145150	7 XL	#7	[22]	—	7XL....	1.9	15.0	7.81	16	0.5	80	100	YES	YES	YES
145318	145328	145151	8 XL	#8	[25]	[25]	8XL....	2.4	18.7	13.59	16	0.625	180	100	YES	YES	YES
145319	145329	145152	9 XL	#9	[29]	[30]	9XL....	2.9	19.1	25.03	14	0.75	350	100	YES	YES	YES
145320	145330	145153	10 XL	#10	[32]	—	10XL....	2.9	21.6	28.54	16	0.75	415	100	YES	YES	YES
145321	145331	145154	11 XL	#11	[36]	[35]	11XL....	3.1	24.1	34.69	18	0.75	415	100	YES	YES	YES
145322	145332	145155	14 XL	#14	[43]	[45]	14XL....	3.5	29.1	48.14	22	0.75	475	100	YES	YES	YES
145323	145333	145156	18 XL	#18	[57]	[55]	18XL....	4.3	44.8	101.00	34	0.75	475	100	YES	YES	YES

Note in place of the "...", each Bar Lock Coupler is marked with a tracking code used for full manufacturing traceability.

* Foot pounds.

D220 Bar Lock Transition Couplers

SCA Transition Size	Side A (small side)				Side B (large side)				Total Length
	Barrel Size	Length (in.)	Bolt Qty.	Head Size (in.)	Barrel Size	Length (in.)	Bolt Qty.	Head Size (in.)	
#4 - #5	#4	2.22	2	0.5	#5	2.53	2	0.5	4.75
#5 - #6	#6	3.15	2	0.5	#6	3.15	3	0.5	6.30
#7 - #8	#7	5.08	4	0.5	#8	5.08	4	0.625	10.16
#8 - #10	#8	5.33	4	0.625	#10	6.00	4	0.75	11.33
#9 - #10	#9	5.75	3	0.75	#10	5.75	4	0.75	11.50
#9 - #11	#11	7.01	3	0.75	#11	7.01	5	0.75	14.02
#10 - #14	#10	6.00	4	0.75	#14	9.52	6	0.75	14.52
#11 - #14	#11	7.26	5	0.75	#14	9.52	6	0.75	15.78
#14 - #18	#14	8.52	6	0.75	#18	13.83	10	0.75	22.35

This table lists commonly ordered transition sizes. Other sizes available.

Transition Couplers are available in S/CA-Series (shown above) sizes #4 - #18 and in L-Series sizes #4 - #18.

D260 Bar Lock Structural Steel Connectors (Weldable)

Bar Size Designation			S/CA-Series			L-Series		
US	Metric (mm)	CN (M)	Structural Steel Connector Designation	Finished Length with Chamfer (in.)	Coupler Outside Diameter (in.)	Structural Steel Connector Designation	Finished Length with Chamfer (in.)	Coupler Outside Diameter (in.)
#4	[13]	[10]	#4-SCA	2.7	1.3	#4-L	3.5	1.3
#5	[16]	[15]	#5-SCA	3.0	1.4	#5-L	3.9	1.4
#6	[19]	[20]	#6-SCA	3.9	1.6	#6-L	4.75	1.6
#7	[22]	—	#7-SCA	4.75	1.6	#7-L	5.65	1.6
#8	[25]	[25]	#8-SCA	5.85	2.2	#8-L	6.85	2.2
#9	[29]	[30]	#9-SCA	5.25	2.6	#9-L	6.5	2.6
#10	[32]	—	#10-SCA	6.5	2.6	#10-L	7.75	2.6
#11	[36]	[35]	#11-SCA	7.75	3.1	#11-L	9.0	3.1
#14	[43]	[45]	#14-SCA	9.0	3.5	#14-L	10.3	3.5
#18	[57]	[55]	#18-SCA	14.3	4.3	#18-L	20.9	4.3

Ultimate strength depends on the strength of the field weld and the material to which the coupler is welded.

D251L/252L Bar Lock End Anchor Connectors

Bar Size Designation			Connector Designation	D251L		D252L	
US	Metric (mm)	CN (M)		Plate Thickness	Plate Diameter	Plate Thickness	Plate Diameter
#4	[13]	[10]	4 L	0.44	1.75	0.56	3.00
#5	[16]	[15]	5 L	0.50	2.00	0.69	3.75
#6	[19]	[20]	6 L	0.56	2.38	0.81	4.25
#7	[22]	—	7 L	0.63	2.88	1.00	4.25
#8	[25]	[25]	8 L	0.63	3.25	1.06	5.50
#9	[29]	[30]	9 L	0.69	3.63	1.19	6.50
#10	[32]	—	10 L	0.75	4.25	1.38	6.50
#11	[36]	[35]	11 L	0.81	4.50	1.50	7.00
#14	[43]	[45]	14 L	1.25	5.38	1.81	8.00
#18	[57]	[55]	18 L	1.63	7.25	2.38	10.00

End Anchors are available in L-Series.

See the Dayton Superior Rebar Splicing Handbook online for the most up-to-date information.

Please go to DaytonSuperior.com, select Resources-Publications-Handbooks.



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1125 Byers Road
Miamisburg, OH 45342
937-866-0711
888-977-9600
WWW.DAYTONSUPERIOR.COM

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