Bar Lock® S/CA-L & XL Series

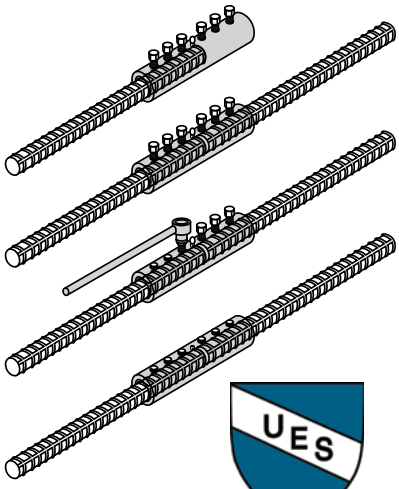
Coupler System

USER GUIDE

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

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%.
4. In a random alternating pattern, tighten all bolts to approximately 75%.
5. Tighten all bolts in a random alternating pattern until all bolt heads shear off.



B. INSTALLATION TOOLS:

A high-quality, 1" - drive pneumatic, impact wrench and towable air compressor are 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 ¾" - 1" air hose. Sizes #4 thru #7 may be installed with smaller impact wrenches.

IMPORTANT NOTES:

- 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.
- 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).
- ***By using the recommended and required tools, installers will see a minimization of installation time and energy. This translates to increased efficiency and cost savings.***

C. FREQUENTLY ASKED QUESTIONS:

Specifications and literature are subject to change without notice. Go to www.daytonsuperior.com for the most up-to-date information.

1. **Approvals:** Bar Lock couplers are test-certified to exceed the requirements of, and are pre-qualified, approved, or recognized by ACI 318, ICC AC-133, Caltrans Service Splice, Ministries of Transportation Canada, IAPMO UES Listed-ER-319, Army Corps of Engineers CW 03219, State DOTs, AASHTO, IBC, and City of Los Angeles.
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 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.
6. **Transportation:** Assembled coupler samples must be restricted from rotation when transporting to a testing facility. It is recommended that samples be strapped to a skid lined with damping material like packing or egg crate foam.

D. EPOXY-COATED REBAR APPLICATIONS

Bar Lock Couplers can be used in conjunction with epoxy-coated rebar. When used with epoxy-coated, Grade 60 rebar, Bar Lock L-Series couplers develop 135% Fy strength and Bar Lock S/CA-Series Couplers develop 125% Fy strength. To achieve the full performance strengths the epoxy must be completely removed from the rebar in the region where the coupler engages the rebar.

E. LAB TEST GUIDELINES

Note: These guidelines address important issues when conducting "in-air" laboratory testing of Bar Lock® rebar couplers. Dayton Superior Bar Lock Couplers are very simple and easy to install and normally do not require any special equipment or operator training. However, since the length of some Bar Lock couplers is often greater than other rebar coupling systems, Dayton Superior recommends certain guidelines for laboratory "in-air" testing. A variation from these guidelines may affect coupler performance and test results.

Important — Test Machine Grip Clearance:

An assembled test splice of two rebars joined by any connector may not always achieve exact axial alignment. When the spliced system is placed under high tensile force, this misalignment will create artificial, secondary bending stresses as the spliced system straightens out. However, when the splice is embedded in concrete the tendency for the splice to straighten is restricted by the surrounding concrete. This reduces the secondary bending forces. Consequently, when testing "in-air" in a laboratory without the surrounding concrete, even the slightest misalignment will create secondary bending stresses which will affect tension and slip test readings.

A minimum grip-clear-length for Bar Lock couplers is:

Size	Grip Clear Length	Each rebar length (min.)	Resulting overall splice length
#3-6	12"	24"	24"+24"=48"
#7-10	18"	30"	30"+30"=60"
#11	20"	36"	36"+36"=72"
#14	30"	48"	48"+48"=96"
#18	30"	54"	54"+54"=108"

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 Dia. (in.)	Length (in.)	Weight (lbs.)	Bolt Qty.	Head Size (in.)	Shear Torque (ft. lbs)	Min % Fy*	Caltrans Service	ICC 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	415	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	19.1	31.75	14	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.
* 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 Dia. (in.)	Length (in.)	Weight (lbs.)	Bolt Qty.	Head Size (in.)	Shear Torque (ft. lbs)	Min % Fu*	Caltrans Service	ICC Type 1	ICC 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	21.58	35.14	16	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.
* 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	ICC Type 1	ICC 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	136.06	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.
** When used in conjunction with epoxy-coated Grade 75/80 rebar, 135% Fy strength is developed.

CERTIFICATION:

Bar Lock couplers meet or exceed applicable engineering requirements for tensile and compressive strength when spliced to rebar conforming to ASTM A615 grades 40, 60, 75, and 80; A706 grades 60 and 80. Bar Lock couplers are manufactured from U.S. steel, conforming to ASTM-A-519 specification.

RETURNS:

Returns must be pre-authorized by Dayton Superior who will issue credit for resalable couplers less an inspection and restocking charge of 25%. All unusable materials (including material of obsolete specifications) will be scrapped and will not be subject to any credit allowance. D ayton Superior will accept for credit only returns made within six months of the original shipment date. Returns must be returned to Dayton Superior Freight Prepaid; Freight Collect shipments will not be accepted. Any specialty orders, obsolete sizes, and non-stock items are not returnable for credit.

WARRANTY; CLAIMS; EXCLUSIVE REMEDY:

Bar Lock products at the time of shipment are warranted to conform to any applicable written description furnished to buyer by Dayton Superior and to be free from defects in material and workmanship. No other warranty, whether expressed or implied (including any warranty or merchantability of fitness), shall exist in connection with the sale or use of any Bar Lock product. Claims for errors, shortages, defects, or nonconformity's ascertainable upon inspection must be made in writing within 15 days after buyer's receipt of products. All other claims must be made in writing to Dayton Superior within 120 days from date of shipment. P roducts claimed nonconforming or defective must upon Dayton Superior's request be promptly returned to Dayton Superior for inspection. Claims not made as provided above and within the applicable time period may be excluded. Dayton Superior shall in no event be responsible if the products have not been stored or used in accordance with its specifications and recommended procedure. Dayton Superior will, at its option, either repair or replace nonconforming or defective products for which it is responsible or return to buyer their purchase price. The foregoing states buyers exclusive remedy for any breach of Dayton Superior's warranty and for loss or injury caused by the sale or use on any product. Without limiting the generality of the foregoing, Dayton Superior shall in no event be responsible for any loss of business or profits, downtime or delay, labor, repair, or material costs or any similar or dissimilar consequential loss or damage incurred by buyer.

SHIPMENT, PERFORMANCE, LIMITATIONS OF LIABILITY:

Any specified date or dates are estimates only. Dayton Superior shall have no liability on account of any delay or failure to manufacture, ship, or deliver any products or furnish any service, due directly or indirectly to fire, act of God, accident, illness, labor dispute, material shortage, inadequate transportation, government order, or other similar or dissimilar cause beyond Dayton Superior's reasonable control. Dayton Superior shall in no event be liable for any incidental loss or damage of any kind arising out of any delay or failure to perform, whether or not due to Dayton Superior's negligence or other causes within its control. Without limiting the generality of the foregoing, Dayton Superior shall not be responsible for any loss of business or profits, claims of buyer's customers or other third parties, downtime, delay, labor, repair, or material costs or any similar or dissimilar loss or damage incurred by buyer.

SHIPPING DAMAGES:

Accept shipment subject to inspection by noting on bill of Lading that "Carton was Broken or Damaged" in transit.

Notify carrier and shipper in writing (listing damaged materials) within 5 days after receipt.

Concealed damages must be reported in writing to the carrier and shipper within 30 days after receipt.

CORPORATE HEADQUARTERS:

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ACCESSORIES AND CHEMICALS:

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