

INSTALLATION INSTRUCTIONS FOR ZAP SCREWLOK STRUCTURAL CONNECTORS ON GRADE 60 REBAR [U.S. METRIC GRADE 420]

STORE CONNECTORS IN A CLEAN, DRY PLACE UNTIL READY TO INSTALL.

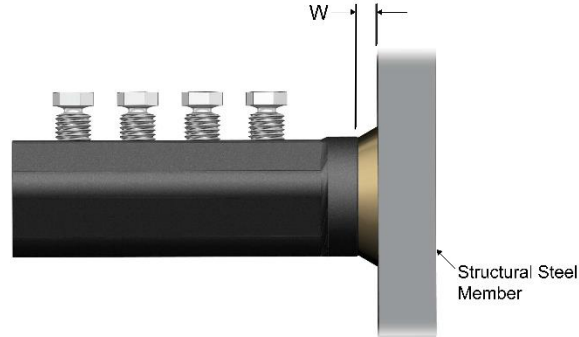
STEP 1:

The following recommendations apply consistent with BPI and/or other publications:

- Weld surfaces should be cleaned as needed
- Use electrode E7018, E7026 or equivalent for low carbon steel, grades 1018 or 1026
- Fillet weld entire circumference of the connector using weld bevel size "W" per Chart 1.
- Welding to conform to AWS D1.1, Structural Welding Code

FIGURE 1: WELDED CONNECTION

For illustration purposes only.
See **CHART 1** on page 2 for number of screws and twist-off torque.



STEP 2:

Measure and mark the rebar for the minimum insertion length (I) before inserting it into the connector per Figure 4 and Chart 1. Slide the rebar into the **ZAP SCREWLOK STRUCTURAL CONNECTOR** to at least the insertion length (I) as shown in Figure 2. Do not under-insert, as shown in Figure 3. Using an **impact wrench** and a **socket "S"** per Chart 1, tighten the twist-off screws starting **at the end** of the connector and working your way **toward the weld** on the connector. Tighten each screw until the head of the screw **twists off**. See Chart 1 for approximate twist-off torque.

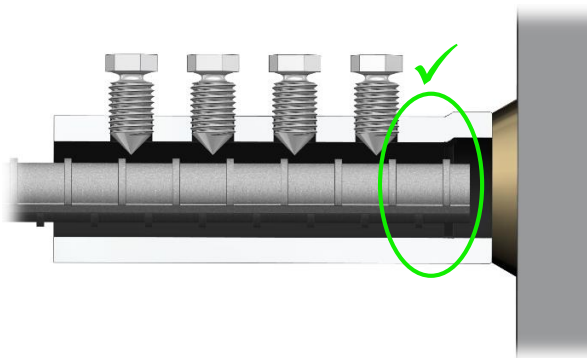


Figure 2. **Correct** Rebar Insertion Depth

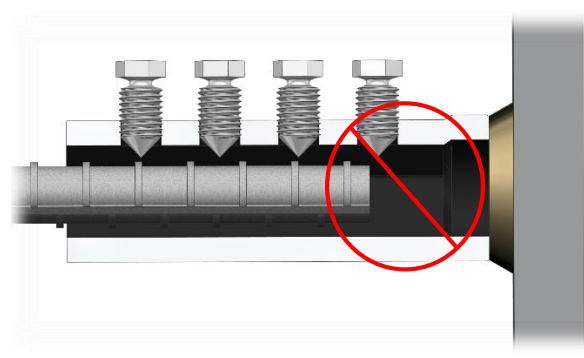


Figure 3. **Incorrect** Rebar Insertion Depth

DO NOT USE THESE CONNECTORS IN CONJUNCTION WITH REBAR WHICH IS LARGER OR SMALLER THAN THE INTENDED BAR SIZE.

FIGURE 4: TIGHTENING ORDER

For illustration purposes only.
See **CHART 1** on page 2 for number of screws and twist-off torque.

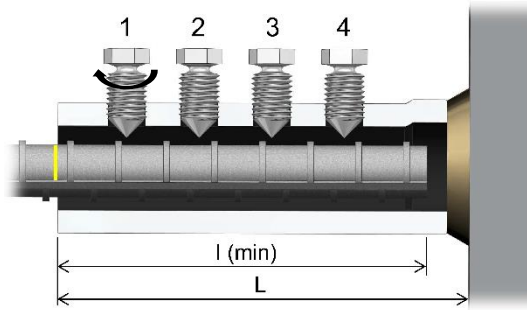
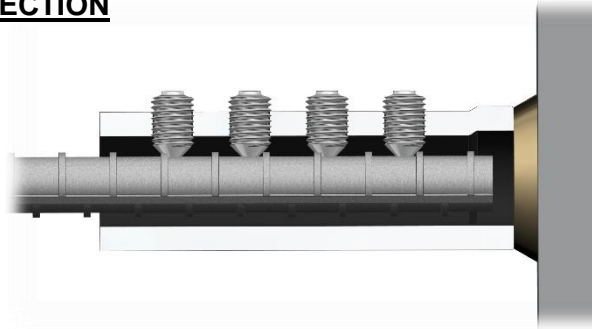


FIGURE 5: WELDED, ASSEMBLED CONNECTION

For illustration purposes only.
See **CHART 1** on page 2 for number of screws and twist-off torque.



KEEP COUPLERS CLEAN AND KEEP THREADS RUST FREE, PER FIGURE 6. STORE COUPLERS IN A CLEAN, DRY PLACE UNTIL READY TO INSTALL. RUST IN THE THREADS PRIOR TO ASSEMBLY, PER FIGURE 7, IS UNACCEPTABLE BECAUSE IT COULD RESULT IN LOWER PERFORMANCE OF THE ASSEMBLED SPLICE.



Figure 6. Clean **Acceptable** Coupler



Figure 7. **Unacceptable** Rust in Coupler Threads

CHART 1

REBAR SIZE US [metric]	APPROXIMATE STRUCTURAL CONNECTOR LENGTH "L" (in.)	WELD BEVEL SIZE "W" (in.)	REBAR INSERTION LENGTH "I" (in.)	NUMBER OF SCREWS PER CONNECTOR	SOCKET SIZE "S"	AVERAGE SCREW TWIST-OFF TORQUE "T" (ft-lb)	MINIMUM IMPACT WRENCH TORQUE RATING (ft-lb)
#4 [13]	2 7/8	3/16	2 1/2	2	1/2	60	250
#5 [16]	4 1/8	1/4	3 1/2	3	1/2	60	250
#6 [19]	5 3/8	1/4	4 1/2	4	1/2	60	250
#7 [22]	6 3/8	5/16	5 3/8	4	5/8	105	500
#8 [25]	7 7/8	3/8	6 1/2	5	5/8	105	500
#9 [29]	7 1/2	7/16	6 7/8	4	3/4	215	750
#10 [32]	8 7/8	1/2	8 1/4	5	3/4	215	750
#11 [36]	10 1/2	9/16	9 1/2	6	3/4	215	750

▼ Example of suitable impact wrench is Ingersoll Rand, IR 261

CAUTIONS AND SUGGESTIONS

1. For **best performance** and **ease of installation**, Barsplice recommends the use of a $\frac{3}{4}$ inch drive pneumatic **impact wrench** ▼ and suitable socket. Make sure the impact wrench is rated to achieve at least the minimum impact wrench torque specified in **CHART 1** to avoid stalling. The **air supply** line should have a minimum diameter of $\frac{1}{2}$ **inch**. The air compressor should be large enough to provide **100 psi** (7 bar) gauge pressure & deliver 45 cfm of air flow.
2. **Do not use** an open-ended wrench or an adjustable wrench because of the risk of rounding-out the hexagon head prior to reaching the torque needed to twist off the head.
3. Prior to assembly, straighten excessively bent rebar ends so that proper wedge contact is made between rebar and coupler. If necessary, grind off large shear lips that prevent proper insertion of rebar into coupler. **DO NOT USE THIS PRODUCT ON CURVED REBARS.**
4. Replace missing screws immediately with BPI special screws only. **DO NOT ALLOW THREADED HOLES TO RUST.**
5. If bars are corroded, removal of rust/corrosion must be performed to the same degree as that required to bond with concrete prior to installing the Zap structural connector. Testing of old or severely corroded bars is recommended to ensure the integrity of the adjoining bars and compliance to design requirements. Performance statements of Zap structural connectors are based upon the use of ASTM **A 615/A 706**, Grade 60 rebar.
6. This product is NOT suitable for use on EPOXY COATED or GALVANIZED REBARS. **DO NOT ATTEMPT TO EPOXY COAT OR HOT-DIP GALVANIZE THIS PRODUCT IN ANY WAY. DO NOT ALLOW ABRASIVE BLAST MATERIAL TO COME INTO CONTACT WITH UNASSEMBLED THREADS.**
7. Weld quality, integrity and inspection are the responsibility of others. Use only qualified welders and weld procedures that are in accordance with AWS D1.1.
8. In all cases, consider your own **personal safety**. Make sure you are securely positioned and that you will not slip or fall during installation.

Please direct all assembly questions to BarSplice Products, Inc.