



Our Vibration Resistant Thread (VRT[®]) is designed to significantly increase back-out torque and reduce the potential for leaks.

VRT[®] keeps the fastener tighter in applications where expansion, contraction and vibration are a concern.









Independent tests verify that VRT[®] produces 3-1/2 times more back-out resistance than a standard thread.



Sizes and Technical Data Sheet

Light Gauge Applications

Maximum Drilling Thickness: .090"

Description	Part Number	Carton Quantity	WT Per M Pcs
 1/4" -14 X 7/8" DP1/LAP w/VRT [®] CONCEALOR [®] Pancake Head w/Bonded Sealing Washer TRI-SEAL [™] Coated 1,000Hrs Salt Spray	14087C1TSVBW	2,500 pcs 250/Bag	13.5#
 1/4" -14 X 7/8" DP1/LAP w/VRT [®] BLAZER [®] Flange Head w/Sealing Washer TRI-SEAL [™] Coated 1,000Hrs Salt Spray	14087HW1CSTS VW	2,500 pcs 250/Bag	13.5#
 1/4" -14 X 7/8" DP1/LAP w/VRT [®] BLAZER [®] TRI-SEAL [™] Coated 1,000Hrs Salt Spray	14087HW1CSTSV	2,500 pcs 250/Bag	10.2#
 1/4" -14 X 7/8" DP1/LAP w/VRT [®] BLAZER [®] w/Bonded Sealing Washer TRI-SEAL [™] Coated 1,000Hrs Salt Spray	14087HW1CSTSVBW	2,500 pcs 250/Bag	13.5#
 1/4" -14 X 7/8" DP1/LAP w/VRT [®] BLAZER [®] Stainless Cap Head w/Sealing Washer TRI-SEAL [™] Coated 1,000Hrs Salt Spray	14087HW1CSTSVWSC	2,500 pcs 250/Bag	13.5#
 1/4" -14 X 7/8" DP1/LAP w/VRT [®] BLAZER [®] Zinc Cap Head w/Sealing Washer TRI-SEAL [™] Coated 1,000Hrs Salt Spray	14087HW1CSTSVWZC	2,000 pcs 250/Bag	13.5#
 1/4" -14 X 1-1/8" DP1/LAP w/VRT [®] BLAZER [®] Stainless Cap Head w/Sealing Washer TRI-SEAL [™] Coated 1,000Hrs Salt Spray	14112HW1CSTSVWSC	2,000 pcs 250/Bag	19.3#
 #17-14 X 1" TYPE AB w/VRT [®] TAPPER w/Bonded Sealing Washer (3/4"OD) TRI-SEAL [™] Coated 1,000Hrs Salt Spray	17100HHACSTSVOW	2,000 pcs 250/Bag	20#

Technical Data

Specifications

BLAZER Drill Screws conforms to SAE J-78 for self-drilling tapping screws.

#17 TAPPER conforms to ANSI/ASME B18.6.4 for tapping screws.

Material

Carbon Steel: C1022
Stainless Cap: 304 SS
Zinc Cap: Zamac 5

Tensile Strength

1/4-14: 4,275 lbs.
#17-14: 5,200 lbs.

Torsional Strength

1/4-14: 150 lbs-inch
#17-14: 175 lbs-inch

*Pullout (Pounds)

	1/4-14	#17-14
26ga	173	201
24ga	240	280
22ga	337	342
20ga	387	395
18ga	657	725
16ga	1,250	1,345

Corrosion Resistance

TRI-SEAL
Salt Spray: 1,000 hrs minimum.
No Red Rust

Sealing Washers

Flange Head:
EPDM Cut Tubular

Bonded Washer:

EPDM Vulcanized to G-90 Galvanized Steel. (15MM O.D.).

* Pullout values are ultimate averages based on laboratory tests. Appropriate factors of safety should be used. TFC assumes no liability for the use if this information.

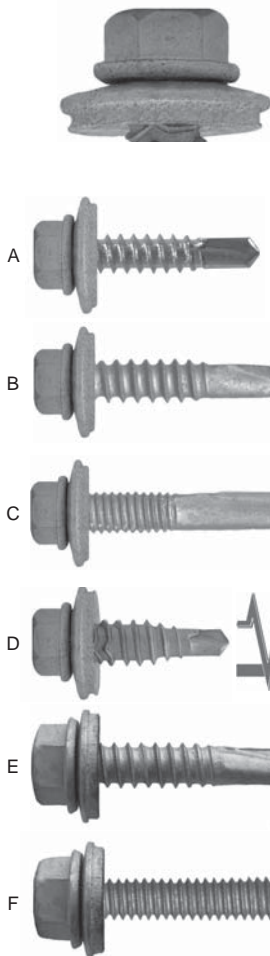
BLAZER® WITH BONDED SEALING WASHER

- ▶ **BOND-SEALER™** is a sealing washer that has EPDM vulcanized to a 20 Gauge galvanized backing that will withstand harsh weather conditions.
- ▶ **TRI-SEAL™** long life coated for superior corrosion protection.

SIZES AND PERFORMANCE SPECIFICATIONS

	Size	Point Type	Drilling Thickness	Attachment Thickness	Box Quantity
A	#10-16 x 1"	DP3	.036" - .175"	.575"	5M
	#10-16 x 1-1/2"	DP3	.036" - .175"	1.075"	3M
B	#12-14 x 3/4"	DP3	.036" - .210"	.290"	5M
	#12-14 x 1"	DP3	.036" - .210"	.525"	3.5M
	#12-14 x 1-1/4"	DP3 LP	.036" - .210"	.750"	3.5M
	#12-14 x 1-1/2"	DP3	.036" - .210"	1.000"	2.5M
	#12-14 x 2"	DP3	.036" - .210"	1.500"	2M
	#12-14 x 2-1/2"	DP3	.036" - .210"	2.000"	1M
C	#12-24 x 1-1/4"	DP5	.250" - .500"	.375"	3.5M
	#12-24 x 1-1/2"	DP5	.250" - .500"	.625"	2.5M
	#12-24 x 2"	DP5	.250" - .500"	1.125"	2M
D	1/4-14 x 7/8"	DP1 W/VRT*	.036" - .090"	.325"	2.5M
	1/4-14 x 3/4"	DP3	.036" - .250"	.210"	2.5M
E	1/4-14 x 1"	DP3	.036" - .250"	.460"	2.5M
	1/4-14 x 1-1/4"	DP3	.036" - .250"	.710"	2M
	1/4-14 x 1-1/2"	DP3	.036" - .250"	.960"	2M
	1/4-14 x 2"	DP3	.036" - .250"	1.460"	1.5M
	1/4-14 x 2-1/2"	DP3	.036" - .250"	2.460"	1M
	1/4-14 x 4"	DP3	.036" - .250"	3.460"	500
	1/4-14 x 5"	DP3	.036" - .250"	4.460"	500
	1/4-14 x 6"	DP3	.036" - .250"	5.460"	250
F	1/4-20 x 4"	DP5	.250" - .500"	3.000"	500
	1/4-20 x 5"	DP5	.250" - .500"	4.000"	500
	1/4-20 x 6"	DP5	.250" - .500"	5.000"	250
	1/4-20 x 7"	DP5	.250" - .500"	6.000"	150
	1/4-20 x 8"	DP5	.250" - .500"	7.000"	150

MATERIAL: C1018-1022 Carbon Steel
PLATING: .0003" Min. Zinc w/TRI-SEAL™ Coating (1,000hrs Salt Spray)



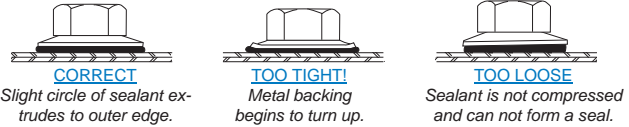
LP denotes long-pilot design for metal roofing and siding

WASHER DETAILS
20 ga G-90 Galvanized Steel
Vulcanized to .062" thick EPDM
15MM OD Washer

HEAD TYPE
#10 dia: 5/16" HWH
#12 dia: 5/16" HWH
*1/4 dia: 5/16" HWH
1/4 dia: 3/8" HWH



Proper Fastener Installation



To assure a proper seal, torque the fastener until the EPDM sealant extrudes to the outer edge of the backing material.

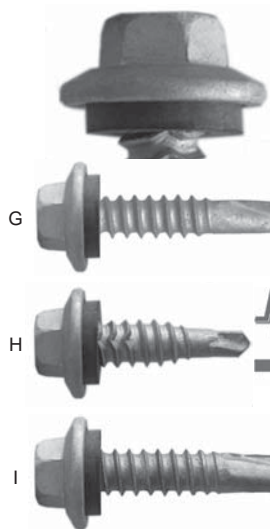
BLAZER® FLANGE-SEAL HEAD WITH EPDM WASHER

- ▶ **FLANGE-SEAL™** self-sealing fastener has a deep undercut head that entraps the EPDM sealing washer to assure a leak free seal.
- ▶ **TRI-SEAL™** long-life coated for superior corrosion protection.

SIZES AND PERFORMANCE SPECIFICATIONS

	Size	Point Type	Drilling Thickness	Attachment Thickness	Box Quantity
G	#12-14 x 3/4"	DP2/DP3	.036" - .210"	.290"	5M
	#12-14 x 1"	DP2/DP3	.036" - .210"	.525"	3.5M
	#12-14 x 1-1/4"	DP2/DP3 LP	.036" - .210"	.750"	3.5M
	#12-14 x 1-1/2"	DP2/DP3	.036" - .210"	1.000"	2.5M
	#12-14 x 2"	DP2/ DP3	.036" - .210"	1.500"	2M
	#12-14 x 2-1/2"	DP2/DP3	.036" - .210"	2.000"	1M
H	1/4-14 x 7/8"	DP1 W/VRT*	.036" - .090"	.325"	2.5M
I	1/4-14 x 3/4"	DP3*	.036" - .250"	.210"	2.5M
	1/4-14 x 1"	DP3*	.036" - .250"	.460"	2.5M
	1/4-14 x 1-1/2"	DP3*	.036" - .250"	.960"	2M

MATERIAL: C1018-1022 Carbon Steel
PLATING: .0003" Min. Zinc w/TRI-SEAL™ Coating (1,000hrs Salt Spray)



LP denotes long-pilot design for metal roofing and siding

HEAD TYPE
#12 dia: 5/16" HWH
1/4 dia: 5/16" HWH

WASHER DETAILS
.125" Thick EPDM



BLAZER® STAINLESS CAP HEAD WITH EPDM SEALING WASHER



- ▶ 304 stainless steel cap head for exceptional corrosion resistance.
- ▶ Our special head is designed to produce maximum torsional strength and a leak free seal.
- ▶ TRI-SEAL™ long life coated shank for superior corrosion protection.

SIZES AND PERFORMANCE SPECIFICATIONS

	Size	Point Type	Drilling Thickness	Attachment Thickness	Box Quantity
	#12-14 x 1"	DP2/DP3	.036" - .210"	.525"	3.5M
F	#12-14 x 1-1/4"	DP2/DP3 LP	.036" - .210"	.750"	3.5M
	#12-14 x 1-1/2"	DP2/DP3	.036" - .210"	1.000"	2.5M
	#12-14 x 2"	DP2/DP3	.036" - .210"	1.500"	2M
G	1/4-14 x 7/8"	DP1 W/VRT	.036" - .090"	.325"	2.5M
	1/4-14 x 3/4"	DP3	.036" - .250"	.210"	2.5M
H	1/4-14 x 1"	DP3	.036" - .250"	.460"	2.5M
	1/4-14 x 1-1/4"	DP3	.036" - .250"	.375"	2M
	1/4-14 x 1-1/2"	DP3	.036" - .250"	.960"	2M
I	#17-14 x 1"	TYPE AB W/VRT	20ga or less	.750"	2.5M



LP denotes long-pilot design for metal roofing and siding



WASHER DETAILS
.100" Thick EPDM



HEAD TYPE
#12 dia: 5/16" HWH
1/4 dia: 5/16" HWH
#17 dia: 5/16" HWH

MATERIAL

HEAD: 302 Stainless Steel
THREAD: Carbon Steel

PLATING

HEAD: Passivated
THREAD: .0003" Min. Zinc with TRI-SEAL™ Long-life Coating

CORROSION

HEAD: >2,000hrs Salt Spray
THREAD: 1,000hrs Salt Spray

BLAZER® ZINC CAP HEAD WITH EPDM SEALING WASHER



- ▶ ZAMAC 5 zinc alloy cap head for premium corrosion resistance **WILL NOT RED RUST!**
- ▶ Special head is designed to produce maximum torsional strength and a leak free seal.

SIZES AND PERFORMANCE SPECIFICATIONS

	Size	Point Type	Drilling Thickness	Attachment Thickness	Box Quantity
	#12-14 x 1"	DP2/DP3	.036" - .210"	.525"	3.5M
A	#12-14 x 1-1/4"	DP2/DP3 LP	.036" - .210"	.750"	3.5M
	#12-14 x 1-1/2"	DP2/DP3	.036" - .210"	1.000"	2.5M
	#12-14 x 2"	DP2/DP3	.036" - .210"	1.500"	2M
B	1/4-14 x 7/8"	DP1 W/VRT	.036" - .090"	.325"	2.5M
	1/4-14 x 3/4"	DP3	.036" - .250"	.210"	2.5M
C	1/4-14 x 1"	DP3	.036" - .250"	.460"	2.5M
	1/4-14 x 1-1/4"	DP3	.036" - .250"	.375"	2M
	1/4-14 x 1-1/2"	DP3	.036" - .250"	.960"	2M
D	1/4-14 x 1"	TYPE AB	20ga or less	.750"	2.5M
E	#17-14 x 1"	TYPE AB	20ga or less	.750"	2.5M



LP denotes long-pilot design for metal roofing and siding



WASHER DETAILS
.125" Thick EPDM



HEAD TYPE
#12 dia: 5/16" HWH
1/4 dia: 5/16" HWH
#17 dia: 5/16" HWH



MATERIAL

HEAD: Zamac 5 Zinc Alloy
THREAD: Carbon Steel

PLATING

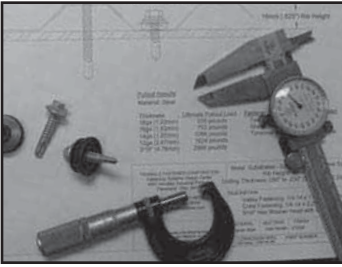
HEAD: Plain Finish
THREAD: .0003" Min. Zinc with TRI-SEAL™ Long-life Coating.

CORROSION RESISTANCE

HEAD: No Red Rust
THREAD: 1,000hrs Salt Spray

**Need a 3/8" Hex Washer Head?
Contact us for available sizes.**

BLAZER® ENGINEERING DATA

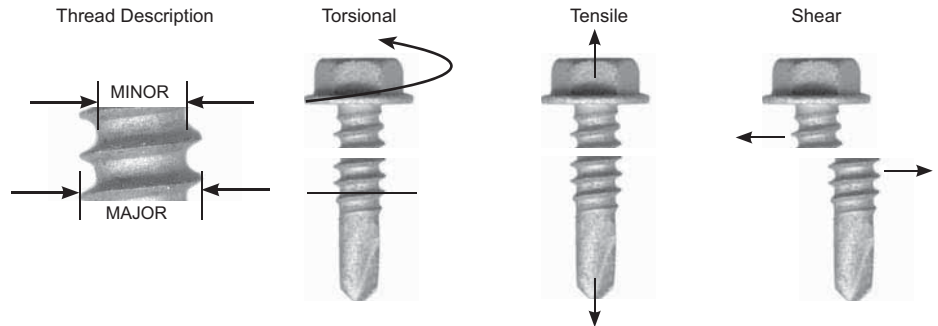


The following information is compiled to assist the design professional in selecting the appropriate fastener for the application. Data supplied is compiled from fastener standards and independent tests. An engineering professional should be consulted to determine expected loads on the connection, environmental effects, and any other conditions that could effect the performance of the fastener. Selecting a fastener is the responsibility of the engineer and changes to a fastener should not be made without approval. Using the wrong fastener can lead to failure. TFC WILL NOT WARRANTY, EITHER EXPRESSED OR IMPLIED, THE USE OF THIS INFORMATION.

TECHNICAL DATA



BLAZER® self-drilling fasteners are produced and perform to SAEJ78, ASME/ANSI 18.18. and AISI TS-4-02 specifications. Conforms to ICCESAC18 acceptance criteria for tapping screw fasteners.



Fastener Diameter	Nominal Screw Diameter	Major Diameter (inch)		Minor Diameter (inch)		Area Of Minor Dia. (sq in.)	Torsional (Lb-In.)	Tensile (Pounds)	Shear (Pounds)
		Max	Min	Max	Min				
#6-20	0.138	0.139	0.135	0.104	0.099	0.0077	25	1,125	750
#8-18	0.164	0.166	0.161	0.122	0.116	0.0106	42	1,575	1,000
#10-16	0.190	0.189	0.183	0.141	0.135	0.0143	61	2,100	1,400
#10-24	0.190	0.190	0.182	0.144	0.137	0.0147	65	3,400	2,275
#12-14	0.216	0.215	0.209	0.164	0.157	0.0194	92	2,778	2,000
#12-24	0.216	0.216	0.209	0.189	0.185	0.0269	100	3,188	2,100
1/4-14	0.250	0.246	0.240	0.192	0.185	0.0269	150	4,275	2,600
1/4-20	0.250	0.250	0.242	0.218	0.214	0.0360	156	4,275	2,700
#18-9	0.306	0.306	0.300	0.217	0.209	0.0343	170	4,550	2,576
5/16-12	0.313	0.329	0.327	0.309	0.299	0.0702	250	8,550	5,700

Material: C1018-C1022 / 410 SS
 Heat Treatment: Case Harden
 Case Hardness: 52-58 Rockwell C
 Case Depth:
 #6 Dia = .002" - .007"
 #8, #10, #12 Dia = .004" - .009"
 1/4" = .005" - .011"
 Core Hardness
 Carbon Steel: 32-40 Rockwell C
 410 Stainless: 42-48 Rockwell C
 Ductility: 5 Degree minimum bend

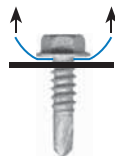
English to Metric	Formula to Use
Decimal to Millimeters	Decimal x 25.4
PSI to Newton / Millimeters ²	PSI x .007
Pounds Force to Newtons	Pounds Force x 4.448

Gauge Thickness	Decimal	Metric
29 GA	.013"	.33mm
28 GA	.015"	.38mm
26 GA	.018"	.46mm
24 GA	.024"	.61mm
22 GA	.030"	.76mm
20 GA	.036"	.91mm
18 GA	.048"	1.22mm
16 GA	.060"	1.52mm
14 GA	.075"	1.91mm
12 GA	.105"	2.67mm
1/8"	.125"	3.18mm
10 GA	.135"	3.43mm
1/4"	.250"	6.35mm
5/16"	.312"	7.92mm
3/8"	.375"	9.53mm
1/2"	.500"	12.7mm

DISCLAIMER: ALL TEST RESULTS AND SPECIFICATIONS ARE A RESULT OF LABORATORY TESTS. APPROPRIATE SAFETY FACTORS SHOULD BE USED BY THE USER OR SPECIFIER. DETERMINING THE PROPER FASTENER IS THE RESPONSIBILITY OF THE USER OR SPECIFIER. SINCE APPLICATION CONDITIONS VARY AND ARE UNCONTROLLABLE BY TFC, WE ASSUME NO LIABILITY FOR THE USE OF THIS INFORMATION.

PULLOVER TEST RESULTS

These pullover results are for self-sealing fasteners listed in this catalog.



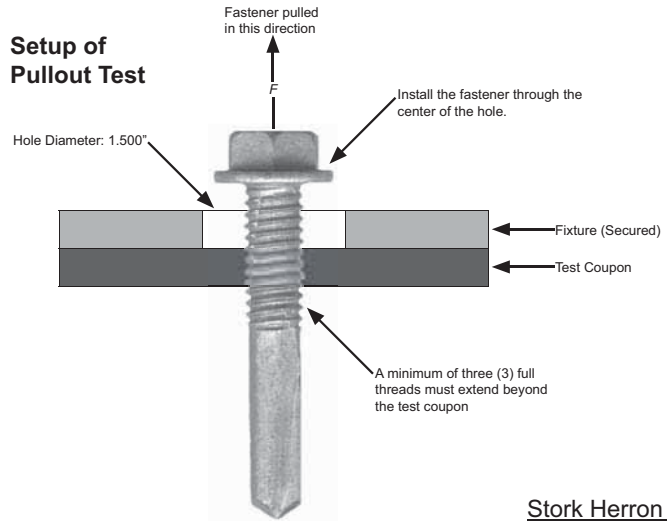
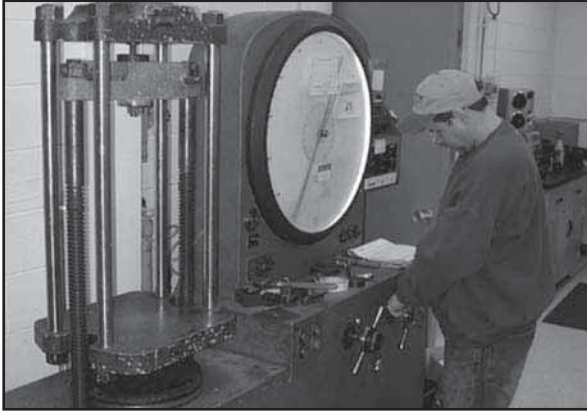
Note: Estimated pullover for fasteners without sealing washers can be calculated using the following formula per AISI.

Pounds - Ultimate Average

Steel Thickness	BOND-SEALER		FLANGE SEALER	ZINC CAP HEAD	STAINLESS CAP HEAD
	12.7MM OD	15MM OD			
22 ga	945	1,249	1,298	1,647	1,298
24 ga	704	1,056	1,102	1,310	1,102
26 ga	519	654	692	794	692

Pullover force = 1.5 -x- Thickness of the member in contact with the screw head.
 -x- Larger of the screw head diameter or washer diameter. -x- Tensile strength of the member in contact with the screw head.

PULLOUT TEST RESULTS



The following fastener pullout loads are a result of independent tests conducted at Stork Herron Testing Laboratories. The results are ultimate averages as a result of conducting three pullouts per fastener size in each material thickness.

Stork Herron Report #
TRI081-05-01-88910-1
Test Material: 55ksi - 100ksi

Pullout Test Result - Ultimate Average in Pounds

Fastener Size	GAGE THICKNESS & ROCKWELL HARDNESS OF THE TEST PLATE											
	26 Ga. (.018") 45-49Rb	24 Ga. (.024") 46-52Rb	22 Ga. (.030") 61-67Rb	20 Ga. (.036") 54-62Rb	18 Ga. (.048") 64-73Rb	16 Ga. (.060") 65-67Rb	14 Ga. (.075") 68-70Rb	12 Ga. (.105") 74-86Rb	1/8" (.125") 75-91Rb	3/16" (.188") 83-85Rb	1/4" (.250") 92-96Rb	1/2" (500") 92-93Rb
#6-20 DP2	120	183	248	296	241	679	847					
#8-18 DP2	120	193	243	297	447	703	910					
#10-16 DP3	153	207	243	293	487	710	900	1327	1503			
#10-24 DP2	161	238	293	324	517	1096	1544	1906				
#12-14 DP2					577	790	1137	1697	1920			
#12-14 DP3					533	752	1163	1947	2250	2870		
#12-24 DP5						687	986	1850	1670	2673	3844*	1873
1/4-14 DP1	173	240	337	387	657	1250						
1/4-14 DP3				343	533	886	1077	2170	2060	3863	4493*	
1/4-20 DP5						708				3853	4283*	4680*
5/16-12 DP3				457	706	1609	1707	2831	2915	3745		

* Exceeds Tensile Strength

SHEAR TEST RESULTS



Size	26 Ga. (.018")	24 Ga. (.024")	22 Ga. (.030")	20 Ga. (.036")	18 Ga. (.048")	16 Ga. (.060")	14 Ga. (.075")	12 Ga. (.105")
#6-20 DP2	278	466	526	758	845			
#8-18 DP2	294	496	560	740	1,060			
#10-16 DP3				728	1,266	1,540	1,552	
#12-14 DP3				769	1,358	1,620	1,970	1,986
#12-24 DP5								2,650
1/4-14 DP3				930	1,442	2,100	2,584	2,650
1/4-20 DP4								2,650

Shear tests are a result of installation of the fastener in the noted gauge thickness and applying load until failure occurs.

DISCLAIMER: ALL TEST RESULTS AND SPECIFICATIONS ARE A RESULT OF LABORATORY TESTS. APPROPRIATE SAFETY FACTORS SHOULD BE USED BY THE USER OR SPECIFIER. DETERMINING THE PROPER FASTENER IS THE RESPONSIBILITY OF THE USER OR SPECIFIER. SINCE APPLICATION CONDITIONS VARY AND ARE UNCONTROLLABLE BY TFC, WE ASSUME NO LIABILITY FOR THE USE OF THIS INFORMATION.



CORROSION PROTECTION INFORMATION

The following information was compiled from known data that compares various finishes in a controlled environment. The material set forth herein is for general information only and cannot be construed as a substitute for competent professional advice or service. Any part considering application use of this information does so at their own risk and assumes any and all liability from application or use. Consult a corrosion specialist to determine the best fastener for your condition.

SALT SPRAY RESULTS

The chart to the right provides general information with regard to corrosion resistance of various plating and coatings. Contact TFC for detailed information.



SALT SPRAY Per ASTM B117 (Hours to red rust) Carbon steel and 410 stainless steel materials

Coating	Salt Spray
.00015" min. (3 um) zinc plate with clear chromate	24hrs
.0002" min. (6um) zinc with clear chromate	32hrs
Passivated 410 Stainless Steel	48hrs
.0003" min. (8 um) zinc plating with clear chromate	48hrs
.0003" min. (8 um) zinc plating with yellow di-chromate	144hrs
.0005" min. (12 um) zinc plating with clear chromate	60hrs
.0007" min. (14 um) mechanical zinc with clear chromate	72hrs
Epoxy (E-Coat)	500hrs
TRI-SEAL™ Long-life coating	1,000hrs

FASTENER COMPATIBILITY FOR METAL ROOFING AND WALL CLADDING

Table developed by the Metal Construction Association Members

Metal Roof or Wall Cladding Material	Fastener Material								
	Zinc Plated Steel Screws ²	Organic Coated Steel Screws ²	Hot-Dip Galvanized Steel Nails ³ and Screws	Zinc-Alloy Head Steel Screws	Stainless Capped Head Steel Screws	Aluminum	Copper and Copper Alloys	300 Series Stainless Steel	400 Series Stainless Steel
Unpainted Galvanized Steel	Yes ⁴	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Painted Galvanized Steel	Yes ⁴	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Unpainted Galvalume Steel	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Painted Galvalume Steel	Yes ⁴	Yes	Yes	Yes	Yes	No	No	Yes ⁴	Yes ⁴
Aluminum	No	No	No	No	No	Yes	No	Yes	No
Copper & Copper Alloys	No	No	No	No	No	No	No	Yes	Yes ⁴
Stainless Steel	No	No	No	Yes	Yes	No	Yes	Yes	Yes
Zinc alloy	No	No	No	No	No	No	No	Yes	Yes

Note 1: Cautionary Guideline: This table serves as a guideline for the selection of fasteners used with metal roofing. The performance of compatible fasteners shown in this table matches the expected life of the metal roof or wall cladding materials. However, in highly corrosive environments such as heavy industrial, coastal marine, high airborne pollutants or salt spray, preservative treated lumber or fire-retardant lumber, the compatibility of certain fasteners with metal roofing or wall cladding materials may be affected. In those types of applications, the manufacturers of the fastener and metal panel will have specific and unique recommendations.

In addition, in the event that certain coating barriers are damaged or scratched through to the substrate there is increased potential for premature corrosion. Care should be taken during installation and during routine maintenance of the panels in order to protect the integrity of the coatings used for metal panels.

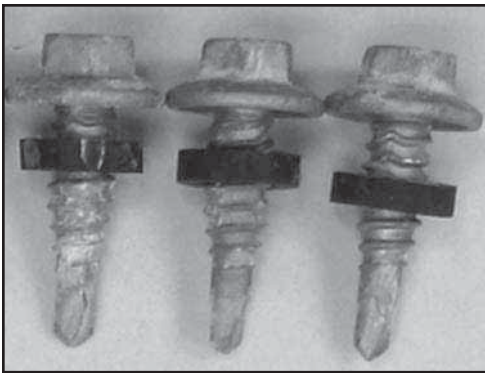
Note 2: Screws should be plated/coated per ASTM F1941

Note 3: Nails should be galvanized per ASTM A153

Note 4: Not recommended for coastal and heavy industrial environments

Special Note: Preservative-Treated Lumber Applications

ACQ, Penta, CA or CBA preservative-treated lumber can be incompatible with certain types of fasteners. In those cases where any type of metal roof or wall cladding materials are being attached to preservative treated lumber, the following fasteners are not compatible: zinc plated screws, zinc-alloy headed screws, stainless capped screws, aluminum, copper and copper alloy. When attaching metal panels to those types of preservative-treated lumber, a moisture barrier should be used between the lumber and the panel material. Metal panel fasteners that are compatible with preservative-treated lumber are stainless steel fasteners, or hot dip galvanized nails manufactured to ASTM A153 class D or heavier. Other types of fasteners coated with proprietary anti-corrosive technologies are also available for use with preservative-treated lumber. In addition, zinc-plated screws can be used in CCA and MCQ pressure-treated lumber.



TRI-SEAL™ LONG-LIFE COATING

TRI-SEAL™ Long-Life Coating is a high performance dip spin finish, developed to minimize corrosion when used in exterior building applications. It consists of three layers; the first layer is a metallic zinc layer, the second layer is a high-grade anti-corrosion chemical conversion film and the third, outer layer, is a baked ceramic surface coating.

The distinguishing feature of **TRI-SEAL™** is the tight joining of the baked ceramic surface coating and the chemical conversion film. These two layers are bonded together through chemical reactions, and this unique method of combining layers result in a rigid combination of the coating films.

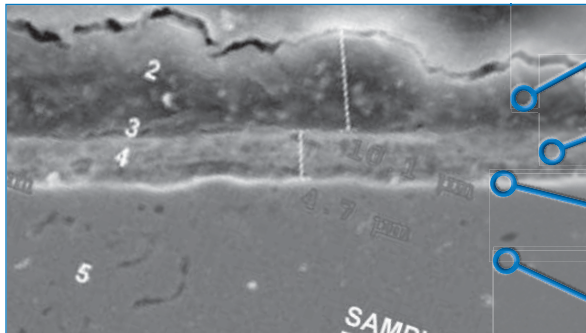
- Excellent resistance against gas, weather, and other kinds of corrosion factors, including salt water.
- Compatible for use in ACQ and Fire Treated Lumber.
- Composite layers minimize the effect of scratches on the protection coating.

Salt Spray Test Results

1,000hrs Per ASTM B117

Compatible for use in treated lumber

SEM IMAGING



Layer 1 - Baked Ceramic Surface Coating Layer

Corrosive elements are intercepted by the strong paint film made of ceramic materials.

Layer 2 - Chemical Conversion Coating Layer

Rust proof performance is improved as the chemical conversion inactivates the zinc plated surface and creates a tight adhesion between the chemically converted layer and the paint layer.

Layer 3 - Metallic Zinc Layer

The steel / iron substrate is protected from corrosion by the self-sacrificial galvanic effect of the zinc coating.

Layer 4 - Fastener

MATERIAL PROPERTIES

Test Items	Test Methods	Test Results
Hardness	Peeling test by pencil hardness	Over 4H
Adhesion	Peeling test by adhesive tape on cross scribed test piece in 1 mm width	Nothing abnormal
Acid Resistance	Immersion in 5% sulfuric acid solution for 24 hours	Nothing abnormal
Alkali Resistance	Immersion in 5% sodium hydroxide solution for 72 hours	Nothing abnormal
Heat Resistance	Exposure to 250 C (482 F) heat for an hour	Nothing abnormal
Accelerated Weathering	Sunshine weather-0-meter test for 1,000 hours	Free from red rust
Contact Corrosion w/other Metals	Corrosive investigation after Salt Spray Test (JIS Z2371) done comparatively on surface treated steel bolts/nuts tightened on a stainless steel plate	Clearly superior to zinc electroplated (colored chromate) and hot dip galvanizing

Corrosion Testing

Salt Spray: 1,000hrs. Per ASTM B117. No red rust

Kesternich: 30 cycles. Per DIN 50018

Contact TFC for additional details on TRI-SEAL™.

DISCLAIMER: ALL TEST RESULTS AND SPECIFICATIONS ARE A RESULT OF LABORATORY TESTS. APPROPRIATE SAFETY FACTORS SHOULD BE USED BY THE USER OR SPECIFIER. DETERMINING THE PROPER FASTENER IS THE RESPONSIBILITY OF THE USER OR SPECIFIER. SINCE APPLICATION CONDITIONS VARY AND ARE UNCONTROLLABLE BY TFC, WE ASSUME NO LIABILITY FOR THE USE OF THIS INFORMATION.