ICC EVALUATION SERVICE

ICC-ES Evaluation Report

ESR-4009

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DIVISION: 05 00 00—METALS
Section: 05 05 23—Metal Fastenings

REPORT HOLDER:

EJOT FASTENING SYSTEMS L.P.

EVALUATION SUBJECT:

EJOT SUPER-SAPHIR® JT3 AND EJOFAST® JF3 SCREWS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012 and 2009 *International Building Code®* (IBC)
- 2018, 2015, 2012 and 2009 *International Residential Code®* (IRC)

Properties evaluated:

- Fastener shear and tension strength
- Pull-out strength

2.0 USES

EJOT Super-SAPHIR® JT3 and EJOFAST® JF3 screws are used to connect miscellaneous building materials to steel base material. For structures regulated under the IRC, the screws may be used when an engineered design is submitted in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 General:

The EJOT Super-SAPHIR® JT3 and EJOFAST® JF3 screws are bi-metal screws consisting of a hardened carbon steel tip welded to a stainless steel body. Screws with a designation such as "E16" in the metric product designation or "S$^{5}/_{8}$" in the standard product designation have a premounted, stainless steel bonded EPDM rubber sealing washer. The screws are available in multiple lengths, some of which are partially threaded.

3.2 Super-SAPHIR® JT3 Screws:

The Super-SAPHIR® JT3 screws have a self-drilling point. Several families of JT3 screws are available with different head styles and drilling points. See Table 1 for descriptions of these screw families, including intended uses, dimensions, drilling capacities and figure references.

3.3 EJOFAST® JF3 Screws:

The EJOFAST® JF3 screws have a hex washer head or a truss head and a self-piercing point. See Table 2 for descriptions of these screw families, including intended uses, dimensions, drilling capacities and figure references.

3.4 Screw Material:

The EJOT Super-SAPHIR® JT3 and EJOFAST® JF3 bi-metal screws consist of a hardened carbon steel drilling or piercing tip welded to a stainless steel body. The stainless steel conforms to DIN EN ISO 3506. The carbon steel tip is made from steel conforming to DIN EN 10263-4 and hardened, with a minimum surface hardness of 580 HV. The screws have a zinc coating to protect the carbon steel drill tip. When tested for corrosion resistance in accordance with ASTM B117, the screws show no white corrosion after three hours and no red rust after 12 hours.

3.5 Steel Base Material Requirements:

Steel base material must have thicknesses and minimum tensile strengths as indicated in Table 4, as applicable.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General: The design values in this report are intended to aid the designer in meeting the requirements of IBC Section 1604.2. Determination of the suitability of a particular screw recognized in this report for the specific application is the responsibility of the registered design professional and is outside of the scope of this report. The registered design professional is responsible for determining the available strengths for the connection, considering all applicable limit states such as pull-over or pull-through and tilting and bearing, and for considering serviceability issues, such as fastener slip. The registered design professional is responsible for determining the required spacing, edge distance and end distance for the fasteners, based on the characteristics of the steel base material and the attached building material.

4.1.2 Fastener Shear and Tensile Strengths: The EJOT Super-SAPHIR® JT3 and EJOFAST® JF3 screws have the fastener strengths shown in Table 3.

4.1.3 Pull-out Strength: Available pull-out strengths for EJOT Super-SAPHIR® JT3 and EJOFAST® JF3 screws installed into steel base material have been determined by testing and are shown in Table 4.

4.2 Installation:

Installation of EJOT self-drilling tapping screws must be in accordance with the report holder's published installation

instructions and this report. The report holder's published installation instructions must be available at the jobsite at all times during installation.

The screws must be installed perpendicular to the work surface, using a variable speed screw driving tool set to not exceed 1,800 rpm.

Screw length must be adequate to accommodate the thickness of the connected building material, the thickness of the steel base material and the minimum required protrusion past the back side of the supporting steel base material. The minimum required protrusion dimensions are shown in Tables 1 and 2. The screw point style must be selected on the basis of the qualified drilling/piercing capacity, which is shown in Table 1 or 2, as applicable. The tabulated drilling/piercing capacity refers to the thickness of the supporting steel member. Evaluation of the ability of the screw to self-drill or self-pierce through the attached building material and then into the steel base material is outside the scope of this report.

The required edge distance, end distance and spacing for the attached building material are outside the scope of this report. For the supporting steel base material, screws must be spaced a minimum of three times the nominal diameter of the screw and must be located not less than 1.5 times the diameter of the screw from any end or edge of the steel base material.

5.0 CONDITIONS OF USE

The EJOT Super-SAPHIR® JT3 and EJOFAST® JF3 screws described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Fasteners must be installed in accordance with the report holder's published installation instructions, this report and the approved plans. In the event of a conflict between this report and the report holder's published installation instructions, the more restrictive requirements govern.

5.2 The screws have only been evaluated for fastener shear and tension strength, pull-out strength and manufacturing quality control. Evaluation of other applicable limit states for connections of building materials to the steel base material is outside the scope of this report.

5.3 Design of the connection of attached material to the steel base material, taking into account the properties of the attached material, must comply with the applicable requirements of the IBC, and be justified to the satisfaction of the code official.

5.4 The screws may be used in structures regulated under the IRC when an engineered design is submitted for review in accordance with IBC Section R301.1.3.

5.5 The screws are manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Self-drilling Tapping Screws Used to Attach Miscellaneous Building Materials to Steel Base Material (AC500), dated October 2017 (editorially revised December 2017).

7.0 IDENTIFICATION

7.1 The heads of the EJOT Super-SAPHIR® JT3 and EJOFAST® JF3 screws are stamped with "J3", as shown in the figures in this report. Each container of fasteners has a label bearing the company name (EJOT), fastener description (family designation, diameter, length, and washer size, as applicable), and the evaluation report number (ESR-4009).

7.2 The report holder's contact information is the following:

EJOT FASTENING SYSTEMS L.P.
9900 58TH PLACE, SUITE 100
KENOSHA, WISCONSIN 53144
(262) 612-3550
www.ejot-usa.com

TABLE 1—SUPER-SAPHIR® JT3 SCREWS

FASTENER FAMILY	INTENDED ATTACHED MATERIAL/USE	DESIGNATION	SCREW DESCRIPTION [Nom. Size – tpi – length (inches)]	BASIC/ NOMINAL SCREW DIAMETER (inch)	HEAD STYLE[2]	NOMINAL HEAD / WASHER DIAMETER (inch)	MINIMUM REQUIRED PROTRUSION PAST BACK SIDE OF SUPPORTING STEEL (inch)	APPLICABLE FIGURE
Drill Point 1 – Drilling Capacity 0.028 to 0.079 inch								
JT3-2H-4,8	Laps of roofing or cladding sheets and flashings	JT3-2H-4,8 x 19	#10-16 x 3/4	0.190	HWH	0.413	0.47	1
		JT3-2H-4,8 x 19 E14				0.551		
JT3-FR-2H-4,8		JT3-FR-2H-4,8 x 19	#10-16 x 3/4	0.190	Button	0.472		8
		JT3-FR-2H-4,8 x 19 E11				0.472		
JT3-2H Plus-5,5		JT3-2H-Plus-5,5 x 25 E16	#12-14 x 1	0.216	HWH	0.630	0.59	1
		JT3-2H-Plus-5,5 x 35	#12-14 x 1 3/8			0.413	0.63	
		JT3-2H-Plus-5,5 x 35 E16				0.630	0.63	
JT3-FR-2H-Plus-5,5		JT3-FR-2H-Plus-5,5 x 25	#12-14 x 1	0.216	Button	0.472	0.59	8
		JT3-FR-2H-Plus-5,5 x 25 E11				0.472		
Drill Point 2 – Drilling Capacity 0.047 to 0.118 inch								
JT3-3-5,5	Roofing or cladding sheets	JT3-3-5,5 x 25	#12-14 x 1	0.216	HWH	0.413	0.59	2
		JT3-3-5,5 x 25 E16				0.630		
		JT3-3-5,5 x 35	#12-14 x 1 3/8			0.413	0.63	
		JT3-3-5,5 x 35 E16				0.630		
		JT3-3-5,5 x 50	#12-14 x 2			0.413		
		JT3-3-5,5 x 50 E16				0.630		
		JT3-3-5,5 x 70	#12-14 x 2 3/4			0.413		
		JT3-3-5,5 x 70 E16				0.630		
JT3-FR-3-5,5		JT3-FR-3-5,5 x 50	#12-14 x 2	0.216	Button	0.472	0.63	9
		JT3-FR-3-5,5 x 50 E11				0.472		
JT3-LT-3-5,5	Metal roofing clips	JT3-LT-3-5,5 x 25	#12-14 x 1	0.216	Pancake	0.472	0.59	12
JT3-3-6,3	Roofing or cladding sheets	JT3-3-6,3 x 38	#14-14 x 1 1/2	0.250	HWH	0.512	0.59	2
		JT3-3-6,3 x 38 E16				0.630		
		JT3-3-6,3 x 50	#14-14 x 2			0.512	0.51	
		JT3-3-6,3 x 50 E16				0.630		
Drill Point 3 – Drilling Capacity 0.059 to 0.236 inch								
JT3-6-5,5	Roofing or cladding sheets	JT3-6-5,5 x 25	#12-14 x 1	0.216	HWH	0.413	0.59	3
		JT3-6-5,5 x 25 E16				0.630		
		JT3-6-5,5 x 30	#12-14 x 1 1/4			0.413	0.63	
		JT3-6-5,5 x 30 E16				0.630		
		JT3-6-5,5 x 35	#12-14 x 1 3/8			0.413		
		JT3-6-5,5 x 35 E16				0.630		
		JT3-6-5,5 x 50	#12-14 x 2			0.413		
		JT3-6-5,5 x 50 E16				0.630		
		JT3-6-5,5 x 70 (Partial Thread)	#12-14 x 2 3/4			0.413		
		JT3-6-5,5 x 70 E16 (Partial Thread)				0.630		
		JT3-6-5,5 x 90 (Partial Thread)	#12-14 x 3 1/2			0.413		
		JT3-6-5,5 x 90 E16 (Partial Thread)				0.630		
		JT3-6-5,5 x 110 (Partial Thread)	#12-14 x 4 5/8			0.413		
		JT3-6-5,5 x 110 E16 (Partial Thread)				0.630		
		JT3-6-5,5 x 130 (Partial Thread)	#12-14 x 5 1/8			0.413		
		JT3-6-5,5 x 130 E16 (Partial Thread)				0.630		
		JT3-6-5,5 x 150 (Partial Thread)	#12-14 x 6			0.413		
		JT3-6-5,5 x 150 E16 (Partial Thread)				0.630		
		JT3-6-5,5 x 170 (Partial Thread)	#12-14 x 6 3/4			0.413		
		JT3-6-5,5 x 170 E16 (Partial Thread)				0.630		
		JT3-6-5,5 x 190 (Partial Thread)	#12-14 x 7 1/2			0.413		
		JT3-6-5,5 x 190 E16 (Partial Thread)				0.630		
JT3-FR-6-5,5	Roofing or cladding sheets	JT3-FR-6-5,5 x 25	#12-14 x 1	0.216	Button	0.472	0.63	10
		JT3-FR-6-5,5 x 25 E11				0.472		
		JT3-FR-6-5,5 x 35	#12-14 x 1 3/8			0.472		
		JT3-FR-6-5,5 x 35 E11				0.472		

Continued on following page

TABLE 1—SUPER-SAPHIR® JT3 SCREWS (cont.)

FASTENER FAMILY	INTENDED ATTACHED MATERIAL/USE	DESIGNATION	SCREW DESCRIPTION [Nom. Size – tpi – length (inches)]	BASIC/ NOMINAL SCREW DIAMETER (inch)	HEAD STYLE[2]	NOMINAL HEAD / WASHER DIAMETER (inch)	MINIMUM REQUIRED PROTRUSION PAST BACK SIDE OF SUPPORTING STEEL (inch)	APPLICABLE FIGURE
Drill Point 3 (cont.)								
JT3-D-6H-5,5/6,3[(1)]	Sandwich panels	JT3-D-6H-5,5/6,3 x 67	#12/14-14 x $2^5/_8$	0.216/ 0.250	HWH	0.413	0.63	6
		JT3-D-6H-5,5/6,3 x 67 E16				0.630		
		JT3-D-6H-5,5/6,3 x 87	#12/14-14 x $3^3/_8$			0.413		
		JT3-D-6H-5,5/6,3 x 87 E16				0.630		
		JT3-D-6H-5,5/6,3 x 107	#12/14-14 x $4^1/_4$			0.413		
		JT3-D-6H-5,5/6,3 x 107 E16				0.630		
		JT3-D-6H-5,5/6,3 x 127	#12/14-14 x 5			0.413		
		JT3-D-6H-5,5/6,3 x 127 E16				0.630		
		JT3-D-6H-5,5/6,3 x 147	#12/14-14 x $5^7/_8$			0.413		
		JT3-D-6H-5,5/6,3 x 147 E16				0.630		
		JT3-D-6H-5,5/6,3 x 167	#12/14-14 x $6^1/_2$			0.413		
		JT3-D-6H-5,5/6,3 x 167 E16				0.630		
		JT3-D-6H-5,5/6,3 x 197	#12/14-14 x $7^7/_8$			0.413		
		JT3-D-6H-5,5/6,3 x 197 E16				0.630		
		JT3-D-6H-5,5/6,3 x 237	#12/14-14 x $9^3/_8$			0.413		
		JT3-D-6H-5,5/6,3 x 237 E16				0.630		
		JT3-D-6H-5,5/6,3 x 267	#12/14-14 x $10^5/_8$			0.413		
		JT3-D-6H-5,5/6,3 x 267 E16				0.630		
JT3-6-6,3	Roofing or cladding sheets	JT3-6-6,3 x 25	#14-14 x 1[(3)]	0.250	HWH	0.512	0.59	3
		JT3-6-6,3 x 25 E16				0.630		
Drill Point 5 – Drilling Capacity 0.157 to 0.472 inch								
JT3-12-5,5	Roofing or cladding sheets	JT3-12-5,5 x 40	#12-14 x $1^1/_2$	0.216	HWH	0.413	1.02	4
		JT3-12-5,5 x 40 E16				0.630		
		JT3-12-5,5 x 58	#12-14 x $2^1/_4$			0.413	0.94	
		JT3-12-5,5 x 58 E16				0.630		
		JT3-12-5,5 x 78 (Partial Thread)	#12-14 x 3			0.413		
		JT3-12-5,5 x 78 E16 (Partial Thread)				0.630		
		JT3-12-5,5 x 98 (Partial Thread)	#12-14 x 4			0.413		
		JT3-12-5,5 x 98 E16 (Partial Thread)				0.630		
		JT3-12-5,5 x 118 (Partial Thread)	#12-14 x $4^5/_8$			0.413		
		JT3-12-5,5 x 118 E16 (Partial Thread)				0.630		
		JT3-12-5,5 x 138 (Partial Thread)	#12-14 x $5^3/_8$			0.413		
		JT3-12-5,5 x 138 E16 (Partial Thread)				0.630		
		JT3-12-5,5 x 158 (Partial Thread)	#12-14 x $6^1/_4$			0.413		
		JT3-12-5,5 x 158 E16 (Partial Thread)				0.630		
		JT3-12-5,5 x 178 (Partial Thread)	#12-14 x 7			0.413		
		JT3-12-5,5 x 178 E16 (Partial Thread)				0.630		
		JT3-12-5,5 x 198 (Partial Thread)	#12-14 x $7^3/_4$			0.413		
		JT3-12-5,5 x 198 E16 (Partial Thread)				0.630		
JT3-FR-12-5,5	Roofing or cladding sheets	JT3-FR-12-5,5 x 40	#12-14 x 1	0.216	Button	0.472	1.02	11
		JT3-FR-12-5,5 x 40 E11				0.472		

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FASTENER FAMILY	INTENDED ATTACHED MATERIAL/USE	DESIGNATION	SCREW DESCRIPTION [Nom. Size – tpi – length (inches)]	BASIC/ NOMINAL SCREW DIAMETER (inch)	HEAD STYLE[2]	NOMINAL HEAD / WASHER DIAMETER (inch)	MINIMUM REQUIRED PROTRUSION PAST BACK SIDE OF SUPPORTING STEEL (inch)	APPLICABLE FIGURE
Drill Point 5 (cont.)								
JT3-D-12H-5,5/6,3 [(1)]	Sandwich panels	JT3-D-12H-5,5/6,3 x 75	#12/14-14 x 3	0.216/ 0.250	HWH	0.413	0.94	7
		JT3-D-12H-5,5/6,3 x 75 E16				0.630		
		JT3-D-12H-5,5/6,3 x 95	#12/14-14 x $3^3/_4$			0.413		
		JT3-D-12H-5,5/6,3 x 95 E16				0.630		
		JT3-D-12H-5,5/6,3 x 115	#12/14-14 x $4^1/_2$			0.413		
		JT3-D-12H-5,5/6,3 x 115 E16				0.630		
		JT3-D-12H-5,5/6,3 x 135	#12/14-14 x $5^3/_8$			0.413		
		JT3-D-12H-5,5/6,3 x 135 E16				0.630		
		JT3-D-12H-5,5/6,3 x 155	#12/14-14 x $6^1/_4$			0.413		
		JT3-D-12H-5,5/6,3 x 155 E16				0.630		
		JT3-D-12H-5,5/6,3 x 175	#12/14-14 x $6^7/_8$			0.413		
		JT3-D-12H-5,5/6,3 x 175 E16				0.630		
		JT3-D-12H-5,5/6,3 x 195	#12/14-14 x $7^3/_4$			0.413		
		JT3-D-12H-5,5/6,3 x 195 E16				0.630		
		JT3-D-12H-5,5/6,3 x 245	#12/14-14 x $9^3/_4$			0.413		
		JT3-D-12H-5,5/6,3 x 245 E16				0.630		
		JT3-D-12H-5,5/6,3 x 275	#12/14-14 x $10^7/_8$			0.413		
		JT3-D-12H-5,5/6,3 x 275 E16				0.630		
Drill Point 7 – Drilling Capacity 0.175 to 0.709 inch								
JT3-18-5,5	Roofing or cladding sheets	JT3-18-5,5 x 55	#12-14 x $2^1/_4$	0.216	HWH	0.413	1.34	5
		JT3-18-5,5 x 55 E16				0.630		
		JT3-18-5,5 x 115 (Partial Thread)	#12-14 x $4^1/_2$			0.413		
		JT3-18-5,5 x 115 E16 (Partial Thread)				0.630		
		JT3-18-5,5 x 155 (Partial Thread)	#12-14 x 6			0.413		
		JT3-18-5,5 x 155 E16 (Partial Thread)				0.630		
		JT3-18-5,5 x 195 (Partial Thread)	#12-14 x $7^3/_4$			0.413		
		JT3-18-5,5 x 195 E16 (Partial Thread)				0.630		
		JT3-18-5,5 x 235 (Partial Thread)	#12-14 x $9^1/_4$			0.413		
		JT3-18-5,5 x 235 E16 (Partial Thread)				0.630		
		JT3-18-5,5 x 275 (Partial Thread)	#12-14 x $10^7/_8$			0.413		
		JT3-18-5,5 x 275 E16 (Partial Thread)				0.630		

For **SI:** 1 inch = 25.4 mm, 1 tpi = 0.0394 thread per mm.

[1]Split thread. Thread under head has a nominal diameter of 0.250 inch. The primary thread has a nominal diameter of 0.216 inch.
[2]Head styles: HWH = Hex washer head
[3]Threads are notched.

TABLE 2—EJOFAST® JF3 SCREWS

FASTENER FAMILY	INTENDED ATTACHED MATERIAL/USE	DESIGNATION	SCREW DESCRIPTION [Nom. Size – tpi – length (inches)]	BASIC/ NOMINAL SCREW DIAMETER (inch)	HEAD STYLE[2]	NOMINAL HEAD / WASHER DIAMETER (inch)	MINIMUM REQUIRED PROTRUSION PAST BACK SIDE OF SUPPORTING STEEL (inch)	APPLICABLE FIGURE
Self-piercing Point – Piercing Capacity 0.028 to 0.079 inch								
JF3-2H-5,5	Laps of roofing or cladding sheets and flashings	JF3-2H-5,5 x 25	#12-18 x 1	0.190	HWH	0.413	0.59	13
		JF3-2H-5,5 x 25 E16				0.630		
		JF3-2H-5,5 x 35	#12-18 x $1^3/_8$			0.413	0.63	
		JF3-2H-5,5 x 35 E16				0.630		
JF3-FR-2-5,5		JF3-FR-2-5,5 x 25	#12-18 x 1	0.190	Button	0.472	0.59	14
		JF3-FR-2-5,5 x 25 E11				0.472		

For **SI:** 1 inch = 25.4 mm, 1 tpi = 0.0394 thread per mm.

TABLE 3—FASTENER STRENGTHS

FASTENER FAMILY	DESCRIPTION (Nom. Size - tpi)	BASIC/ NOMINAL SCREW DIAMETER (inch)	ALLOWABLE FASTENER STRENGTH (lbf)		DESIGN FASTENER STRENGTH (lbf)	
			Tension, (P_{ts}/Ω)	Shear, (P_{ss}/Ω)	Tension, (ϕP_{ts})	Shear, (ϕP_{ss})
JT3-2H-4,8 JT3-FR-2H-4,8	#10-16	0.190	600	445	950	695
JT3-2H Plus 5,5 JT3-FR-2H Plus-5,5 JT3-3-5,5 JT3-FR-3-5,5 JT3-LT-3-5,5 JT3-6-5,5 JT-FR-6-5,5 JT3-12-5,5 JT3-FR-12-5,5 JT3-18-5,5	#12-14	0.216	720	555	1135	875
JT3-3-6,3 JT3-6-6,3	#14-14	0.250	1040	740	1635	1165
JT3-D-6H-5,5/6,3 JT3-D-12H-5,5/6,3	#12/14-14	0.250/0.216	690	605	1085	955
JF3-2H-5,5 JF3-FR-2-5,5	#12-18	0.216	910	635	1365	955

For **SI:** 1 inch = 25.4 mm, 1 lbf = 4.4 N

TABLE 4—AVAILABLE PULL-OUT STRENGTH[1], lbf

FASTENER FAMILY	DESCRIPTION (Nom. Size - tpi)	BASIC/ NOMINAL DIAMETER (inch)	POINT NUMBER	MINIMUM THICKNESS OF SUPPORTING STEEL MEMBER (inch)								
				0.018	0.027	0.033	0.054	0.068	0.118	0.125	0.188	0.250
Allowable Strength (ASD)												
JT3-2H-4,8 JT3-FR-2H-4,8	#10-16	0.190	#1	49	79	106						
JT3-2H-Plus-5,5 JT3-FR-2H Plus-5,5	#12-14	0.216	#1	35	57	88	176					
JT3-3-5,5 JT3-FR-3-5,5 JT3-LT-3-5,5	#12-14	0.216	#2				125	191	373			
JT3-3-6,3	#14-14	0.250	#2					216	449			
JT3-6-5,5 JT3-FR-6-5,5	#12-14	0.216	#3				125	191	373			
JT3-D-6H-5,5/6,3	#12/14-14	0.250/0.216	#3				125	191	373			
JT3-6-6,3	#14-14	0.250	#3					216	449	718	971	
JT3-12-5,5 JT3-FR-12-5,5	#12-14	0.216	#5						250	443	704	811
JT3-D-12H-5,5/6,3	#12/14-14	0.250/0.216	#5						250	443	704	811
JT3-18-5,5	#12-14	0.216	#7						250	443	704	811
JF3-2H-5,5 JF3-FR-2-5,5	#12 - 18	0.216	n/a	61	106	129						
Design Strength (LRFD)												
JT3-2H-4,8 JT3-FR-2H-4,8	#10-16	0.190	#1	74	119	159						
JT3-2H-Plus-5,5 JT3-FR-2H Plus-5,5	#12-14	0.216	#1	52	85	133	264					
JT3-3-5,5 JT3-FR-3-5,5 JT3-LT-3-5,5	#12-14	0.216	#2				187	287	559			
JT3-3-6,3	#14-14	0.250	#2					323	674			
JT3-6-5,5 JT3-FR-6-5,5	#12-14	0.216	#3				187	287	559			
JT3-D-6H-5,5/6,3	#12/14-14	0.250/0.216	#3				187	287	559			
JT3-6-6,3	#14-14	0.250	#3					323	674	1,077	1,456	
JT3-12-5,5 JT3-FR-12-5,5	#12-14	0.216	#5						376	664	1,055	1,217
JT3-D-12H-5,5/6,3	#12/14-14	0.250/0.216	#5						376	664	1,055	1,217
JT3-18-5,5	#12-14	0.216	#7						376	664	1,055	1,217
JF3-2H-5,5 JF3-FR-2-5,5	#12 - 18	0.216	n/a	91	160	193						

For **SI:** 1 inch = 25.4 mm, 1 lbf = 4.4 N, 1 ksi = 6.89 MPa.

[1]Values are based on steel members with having a minimum tensile strength of F_u = 45 ksi for thicknesses from 0.018 to 0.118 inch, or having a minimum tensile strength of F_u = 58 ksi for thicknesses of 0.125 inch and 0.250 inch.

FIGURE 1—JT3-2H SCREW

FIGURE 2—JT3-3 SCREW

FIGURE 3—JT3-6 SCREW

FIGURE 4—JT3-12 SCREW

FIGURE 5—JT3-18 SCREW

FIGURE 6—JT3-D6-H SCREW

FIGURE 7—JT3-D-12H SCREW

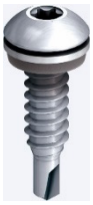

FIGURE 8—JT3-FR-2H SCREW

FIGURE 9—JT3-FR-3 SCREW

FIGURE 10—JT3-FR-6 SCREW

FIGURE 11—JT3-FR-12 SCREW

FIGURE 12—JT3-LT-3 SCREW

FIGURE 13—JF3-2 SCREW

FIGURE 14—JF3-FR-2 SCREW