ELECTRICAL SYSTEMS SUBMITTAL

A Submittal Guide for Electrical & Mechanical Fastening Applications

MADE IN AMERICA Ramset

ITW Ramset
1.800.RAMSET6 (1.800.726.7386)
www.ramset.com

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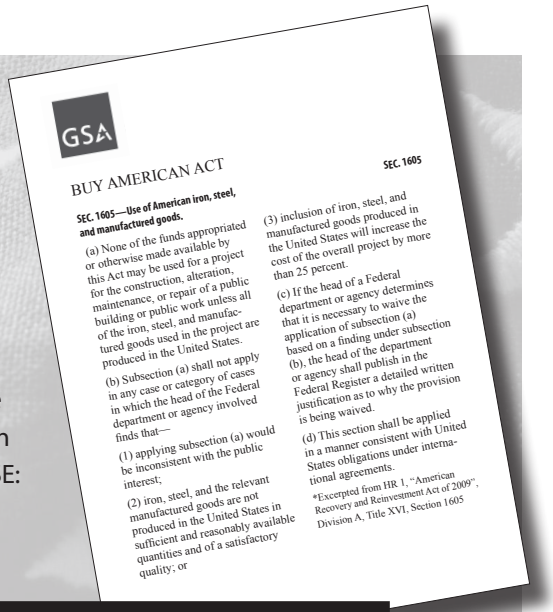
MADE IN AMERICA Ramset®

The American Recovery and Reinvestment Act of 2009 requires that all construction materials for federal, state and local stimulus projects must be manufactured in the United States.

Ramset is unique in the world of construction tools, fasteners and sealant manufacturing. Overall, 98% of Ramset fasteners and accessories are made in the USA.

Unlike our competitors you know you are buying American made products and supporting the American economy and workers when you buy Ramset. Ramset's parent company, Illinois Tool Works (NYSE: ITW) employees more than 25,000 Americans.



GSA

BUY AMERICAN ACT SEC. 1605

SEC. 1605—Use of American iron, steel, and manufactured goods.

(a) None of the funds appropriated or otherwise made available by this Act may be used for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States.

(b) Subsection (a) shall not apply in any case or category of cases in which the head of the Federal department or agency involved finds that—

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron, steel, and the relevant manufactured goods are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron, steel, and manufactured goods produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the head of a Federal department or agency determines that it is necessary to waive the application of subsection (a) based on a finding under subsection (b), the head of the department or agency shall publish in the Federal Register a detailed written justification as to why the provision is being waived.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

*Excerpted from HR 1, "American Recovery and Reinvestment Act of 2009", Division A, Title XVI, Section 1605

Manufacturer	Tools	Fasteners
Ramset Tools:		
TrakFast	Glendale Heights, IL	Paris, KY
GypFast	Glendale Heights, IL	Itasca, IL
T3SS	Glendale Heights, IL	Paris, KY
T3Mag	Glendale Heights, IL	Paris, KY
Rocket	Glendale Heights, IL	Paris, KY
Rocketmag	Glendale Heights, IL	Paris, KY
D45A	Glendale Heights, IL	Paris, KY
Hilti	**Austria**	**Liechtenstein/ China**
Powers	**Japan/ China**	**China**
Tyrex	**Taiwan**	**China**
Simpson	**China**	**China**
Ramset Manufacturing:		
Powder Loads Manufacturing		St Louis, MO
Gas Fuel Cells Production		Pontotoc, MS
Sealant Manufacturing		Rockland, MA
Spring Steel Manufacturing		Addison, IL
Wedge Anchors and LDT Anchors Manufacturing		Michigan City, IN
Tapcon Manufacturing		Itasca, IL
EZ Anchor Manufacturing		Elk Grove Village, IL

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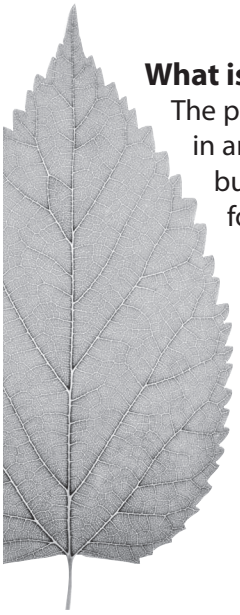


What is LEED

The purpose of Leadership in Energy and Environmental Design (LEED) is to construct buildings in an energy efficient manner and reduce the buildings' energy consumption. As a result, these buildings can help conserve non-renewable energy resources; decrease dependence on foreign oil; and lower greenhouse gas emissions.

Ramset LEED Credit EQ 4.1

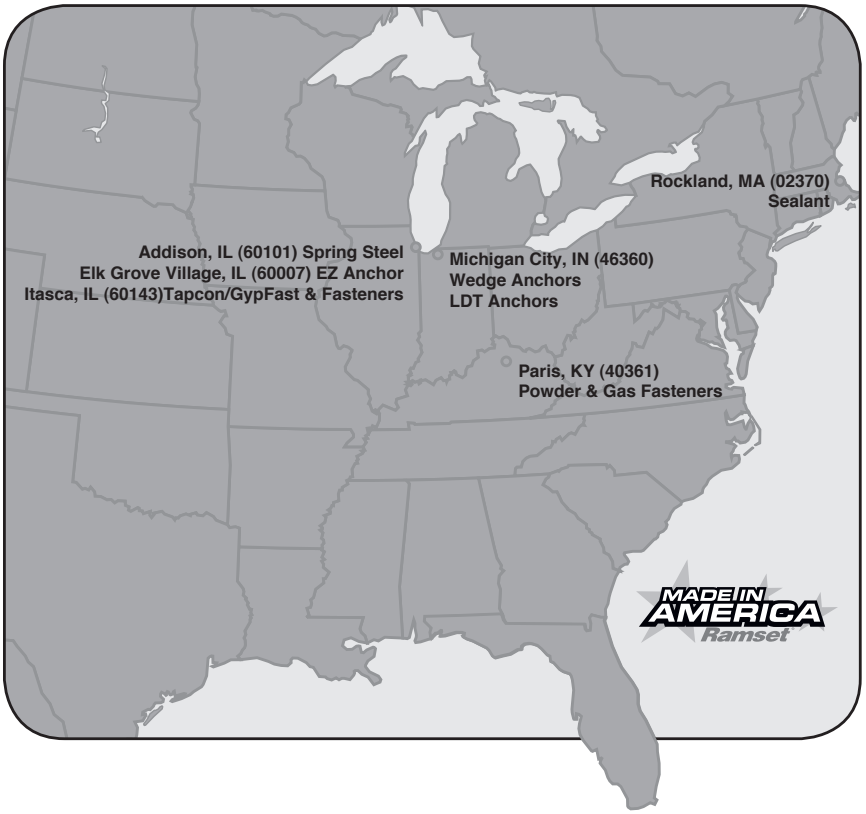
EQ 4.1 was developed with the intent to reduce the quality of indoor air contaminants that are odorous, irritating, and/or harmful to the comfort and well being of installers and occupants.

Ramset's SC200 sound control sealant meets LEED EQ credit 4.1 for low emitting VOC materials and earns 1 LEED point.

Ramset LEED Credit MR 5.1

MR 5.1 was developed with the intent to increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impact resulting from transportation.

Ramset's pins, sealants, spring steel products, electrical accessories and anchors may meet the requirements for LEED MR 5.1 if your project falls within 500 miles of our manufacturing facilities.



How to calculate LEED MR 5.1

LEED MR Credit 5.1 is calculated on a 500 mile radius from/to distribution points. Use Google Maps to calculate the distance to your project from:

Location	Zip Code	Product
Addison, IL	60101	Spring Steel
Elk Grove Village, IL	60007	EZ Anchor
Itasca, IL	60143	Tapcon/GypFast & Fasteners
Michigan City, IN	46360	Wedge & LDT Anchors
Rockland, MA	02370	Sealant
Paris, KY	40361	Powder & Gas Fasteners

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APPLICATION GUIDE

The T3ss is the most versatile gas technology tool in the industry. It provides contractors with a revolutionary new way to fasten to concrete, hollow block, pan deck and steel.....without the need to change power levels or color loads.

The T3ss is a complete fastening system, including a variety of preassembled fasteners, clips, washered pins and threaded studs.

The following pages list just some of the applications contractors can use this versatile system for and includes the best accessory for the fastening.

ELECTRICAL CONTRACTORS

APPLICATION	BASE MATERIAL	ACCESSORY	PART NO.
Conduit Attachment	Concrete and masonry	One-hole strap	38HSMP034 – 3/8" Strap 12HSMP034 – 1/2" Strap 34HSMP034 – 3/4" Strap 10HSMP034 – 1" Strap 114HSMP034 – 1-1/4" strap
		Conduit clamp	12CCMP034L – 1/2" strap 34CCMP034L – 3/4" strap
Junction Box Attachment	Concrete and masonry	Threaded stud	14STUD – ¼-20 threaded stud
		"M" pin w/washer	M034 – ¾" pin M100 – 1" pin
		Top hat pin	MP034TH – ¾" top hat pin
	Hard concrete	"M" pin w/washer	M034BB – premium ¾" pin
	Steel	"M" pin w/washer	M012 – ½" pin
Temporary Lighting & Data/Com Low Voltage Attachment	Concrete and masonry	Tie-strap holder	TSHMP034
Uni-strut Attachment	Concrete and masonry	"M" pin w/washer	M034 – ¾" pin M100 – 1" pin
	Hard concrete	"M" pin w/washer	M034BB – premium ¾" pin
	Steel	"M" pin w/washer	M012 – ½" pin
Ceiling Fixture Attachment & Conduit Drop Supports	Concrete and masonry	Threaded rod hanger	4TRHMP034 – ¼-20 rod hanger 38TRHMP034 – 3/8-16 rod hanger
		Ceiling clip assembly	34CLIP – 90 degree angle clip w/ pin
		Threaded Stud	14STUD –¼-20 threaded stud
Low voltage, datacom, signal and control cable attachment	Concrete , masonry and steel	Bridle Ring and Bridle Ring Saddle	BR2 – 2" ring w/fastener assembly BR2S - saddle for bridle ring

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APPLICATION GUIDE


HVAC CONTRACTORS

APPLICATION	BASE MATERIAL	ACCESSORY	PART NO.
Duct Strap Attachment	Concrete and masonry	"M" pin w/washer	M034 – ¾" pin M100 – 1" pin
	Hard Concrete	"M" pin w/washer	M034BB – premium ¾" pin
	Steel	"M" pin w/washer	M012 – ½" pin
HVAC Control Boxes	Concrete and masonry	Threaded stud	14STUD – ¼-20 threaded stud
		"M" pin w/washer	M034 – ¾" pin M100 – 1" pin
		Top hat pin	MP034TH – ¾" top hat pin
	Hard concrete	"M" pin w/washer	M034BB – premium ¾" pin
	Steel	"M" pin w/washer	M012 – ½" pin


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PERFORMANCE SUBMITTAL

PIN SPECIFICATIONS

- Made from AISI 1060-1065 steel. Austempered to a core hardness of 52-56 Rc
- Typical tensile strength: 270,000 psi
- Typical shear strength: 162,000 psi
- STANDARD FINISHES
  - Proprietary black
  - Mechanical zinc plate to a minimum thickness of .0002 meets requirements of ASTM B695
- All clips are electroplated zinc with yellow cromate and meet ASTM B633 requirements

APPROVALS/LISTINGS

- **ICC Evaluation Service, Inc.**
  #ESR-1955 T3 Fasteners

FASTENERS IN CONCRETE

	FASTENER PART NUMBER	SHANK DIA. (INCH)	MINIMUM PENETRATION (INCH)	INSTALLED IN STONE AGGREGATE CONCRETE CONCRETE COMPRESSIVE STRENGTH **ALLOWABLE LOAD** – *Ultimate Load*						HOLLOW BLOCK Grade N, Type 1	
				4000 PSI		6000 PSI		3000 PSI Lightweight LOWER FLUTE		FACE SHELL Min 1-1/4" face thickness	
				TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)
GAS ASSEMBLIES	MP034TH*, M034* M100*, BR2*	0.125	5/8	**78** *426*	**80** *574*	**62** *308*	---- ----	**72** *361*	**242***1210*	**133** *691*	---- ----
			3/4	**104** *593*	**195** *977*	**132** *658*	**206** *1057*	**93** *470*	**288** *1442*	**84** *444*	**87** *446*
	14STUD	0.125	5/8	**91** *454*	---- ----	**57** *373*	---- ----	---- ----	---- ----	---- ----	---- ----
	M034BB	0.104/ .118	3/4	**51** *256*	**83** *418*	---- ----	---- ----	---- ----	---- ----	**36** *184*	**58** *290*
	34CLIP	0.104/ .125	5/8	**62** *310*	---- ----	**106** *528*	---- ----	**44** *220*	---- ----	---- ----	---- ----
	38HSMP034, 12HSMP034 34HSMP034, 10HSMP034 114HSMP034, 14TRHMP034 38TRHMP034, TSHMP034 12CCMP034L, 34CCMP034L	0.104/ .125	5/8	**60** *357*	**117** *587*	**107** *533*	**191** *957*	**54** *269*	**230** *1150*	**71** *357*	**123** *613*
POWDER ASSEMBLIES	M100BB, 38HSSS10 12HSSS10, 34HSSS10 10HSSS10, TSHSS10 14TRHSS10, 38TRHSS10	0.125/ .150	3/4	**107** *559*	**213** *1067*	**161** *803*	**248** *1240*	**96** *478*	**231** *1156*	**102** *512*	**166** *831*

* ESR-1955 pin specs apply. Note 1: **ALLOWABLE** loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *italic* font. Note 2: Testing conducted in accordance with ICC AC70 & ASTM E1190. Note 3: Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. Note 4: Values shown in concrete are for fastener only. Connected members must be investigated separately. Note 5: Cyclic, fatigue, shock loads and other design criteria may require a different safety factor. Note 6: Jobsite testing may be required to determine actual jobsite values. Note 7: Minimum edge distance is 3 inches unless otherwise approved. In hollow block applications, no more than one fastener per cell. Note 8: For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa. Tables converted to metric are available on our website.

GAS FASTENERS IN STEEL

PART NUMBER	SHANK DIA. (INCH)	TYPE OF SHANK	INSTALLED IN A36 STRUCTURAL STEEL STEEL THICKNESS INCHES **ALLOWABLE LOAD** – *Ultimate Load*							
			11 Gauge (.119)		3/16 (.1875)		1/4 (.250)		3/8 (.375)	
			TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)
M012	0.104/.118	SMOOTH	----- -----	----- -----	----- -----	----- -----	**148** *744*	**157** *787*	**166** *832*[7]	**157** *787*[7]

** Fasteners shall have minimum 0.32-inch penetration when installed into 3/8-inch thick steel.

Note 1: **ALLOWABLE** loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *italic* font. Note 2: Testing conducted in accordance with ICC AC70 & ASTM E1190. Note 3: Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. Note 4: Cyclic, fatigue, shock loads and other design criteria may require a different safety factor. Note 5: Jobsite testing may be required to determine actual jobsite values. Note 6: Values shown are for fastenings that have the entire pointed end of the fastener driven through the steel plate; except as noted below. Note 7: Fastener penetration is .31 inch minimum. Note 8: For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa. Tables converted to metric are available on our website.

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T3 SS

T3ss ADVANTAGES

- ***Versatile*** – Fastens into many different base materials without the need to change power or loads
- ***Safe*** – no tool licensing required
- ***Quiet*** – Silent enough to work in occupied buildings
- Reduced operator fatigue
- Low Recoil

3000 Shot Battery
Battery does not need to be removed. The easy on-off switch locks into place to extend battery life.

T3ss SPECIFICATIONS

- Length: 13-1/2 inches
- Height: 15 inches
- Weight: 7.0 pounds
- Pin Guide Outside Diameter
  - 1/2" Standard
  - 7/8" Magnetic
- Maximum Pin Length: 1-1/2"
- Shots per Fuel Cell: 1000 min
- Shots per charge on Battery: 3000
- Battery Charge Time: 1-1/2 hours for one, 3 hours for two

WHAT IS SILICOSIS?

Silicosis is permanent lung damage caused by breathing dust containing extremely fine particles of crystalline silica. Crystalline silica is found in materials such as concrete and masonry. When these materials are made into a fine dust they become suspended in the air. Breathing in these find particles can produce lung damage. Silicosis can be totally disabling and may lead to death. Ramset Fastening Systems directly reduce crystalline silica exposure by eliminating the need to drill through concrete for light duty fastening.

HOW DO WORKERS GET EXPOSED?

Some activities in which silica dust may be present in the air include:

- Chipping, hammering, drilling, sawing, and grinding concrete or masonry
- Demolition of concrete and masonry structures
- Abrasive blasting of concrete

HOW IS SILICOSIS PREVENTED?

The key to silicosis prevention is to prevent dust from being in the air. The Occupational Safety and Health Administration (OSHA) requires dust to be controlled whenever possible.

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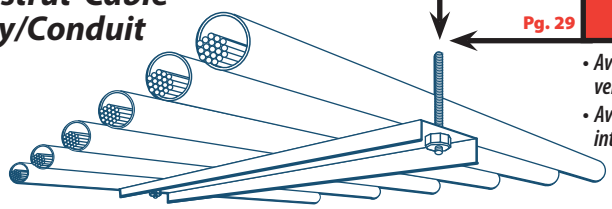
Unistrut-Cable Tray/Conduit

- Used with rod coupler
- 1/4" to 1" diameters
- ICC recognized for seismic zones (formerly ICBO)

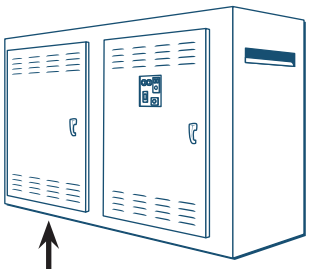
TRUBOLT Pg. 28

MULTI-SET Pg. 29

- Available in special 3/8" version for precast planks
- Available in sizes 1/4" to 3/4" internal thread diameters



Transformers Switch Gear Electrical Enclosures



Pg. 28

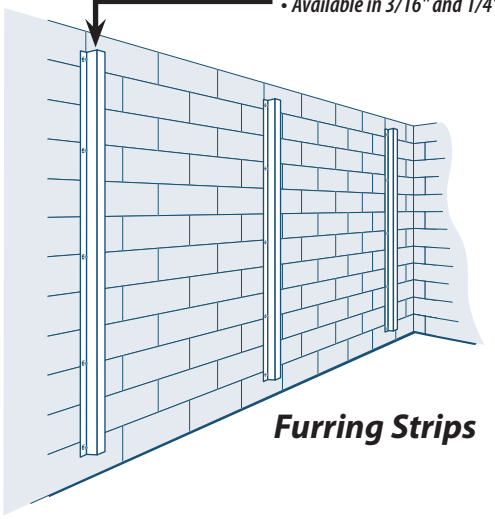
TRUBOLT

- Available in carbon, hot dipped galvanized, 304 and 316 stainless steel
- ICC recognized for seismic zones (formerly ICBO)

Pg. 31

TAPCON

- Counter sunk flathead style for flush installation
- Works in concrete or block
- Available in 3/16" and 1/4" diameters

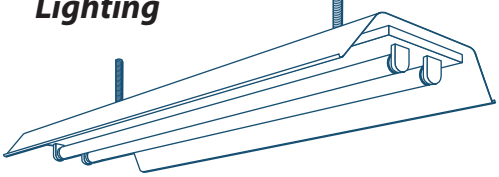


Furring Strips

- Available in special 3/8" version for precast planks
- Available in sizes 1/4" to 3/4" internal thread diameters

MULTI-SET Pg. 29

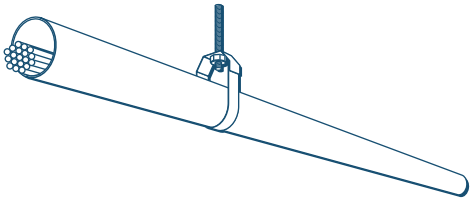
Suspended Lighting



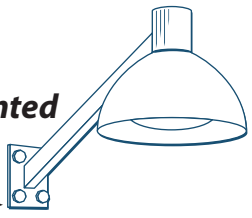
- Available in special 3/8" version for precast planks
- Available in sizes 1/4" to 3/4" internal thread diameters

MULTI-SET Pg. 29

Suspended Pipe or Conduit



Wall Mounted Lighting



DYNABOLT Pg. 30

- Counter sunk and threshold head styles also available
- Works in concrete, block and brick

MADE IN AMERICA Ramset

For installation guidelines for your application, please contact our Technical Services Department at 1-800-899-7890.

SELECTION CHART

Trubolt Carbon Steel with Zinc Plating

Made in the U.S.A.

Meets ASTM B633 SC1, Type III specifications for electroplating of 5μm = .0002" thickness. This material is well suited for non-corrosive environments.

PART NUMBER	THREAD LENGTH In. (mm)	ANCHOR DIA. & DRILL BIT SIZE (THREADS) PER INCH	OVERALL LENGTH In. (mm)	MAX. THICKNESS OF MATERIAL TO BE FASTENED In. (mm)	QTY./WT. PER BOX lbs.	QTY./WT. PER MASTER CARTON lbs.
WS-1416	3/4 (19.1)	1/4" - 20	1-3/4 (44.5)	3/8 (9.5)	100/ 3.1	1000/ 32
WS-1422	1-1/4 (31.8)		2-1/4 (57.2)	7/8 (22.2)	100/ 3.6	1000/ 37
WS-1432	2-1/4 (57.2)		3-1/4 (82.6)	1-7/8 (47.6)	100/ 4.7	800/ 39
WS-3830	1-3/4 (44.5)	3/8" - 16	3 (76.2)	1-1/8 (28.6)	50/ 5.0	400/ 41
WS-3836	2-1/2 (63.5)		3-3/4 (95.3)	1-7/8 (47.6)	50/ 5.9	300/ 36
WS-1226	1-1/4 (31.8)	1/2" - 13	2-3/4 (69.9)	1/8 (3.2)	25/ 4.6	200/ 38
WS-1236	2-1/4 (57.2)		3-3/4 (95.3)	1 (25.4)	25/ 5.7	150/ 35
WS-1242	2-3/4 (69.9)		4-1/4 (108.0)	1-1/2 (38.1)	25/ 6.2	150/ 38
WS-1254	4 (101.6)		5-1/2 (139.7)	2-3/4 (69.9)	25/ 7.7	150/ 47
WS-5842	2-1/2 (63.5)	5/8" - 11	4-1/4 (108.0)	7/8 (22.2)	10/ 4.1	100/ 42
WS-5850	3-1/4 (82.6)		5 (127.0)	1-5/8 (41.3)	10/ 4.7	100/ 48
WS-5860	4-1/4 (107.9)		6 (152.4)	2-5/8 (66.7)	10/ 5.4	50/ 28
WS-3442	2-3/8 (60.3)	3/4" - 10	4-1/4 (108.0)	1/4 (31.8)	10/ 6.8	60/ 42
WS-3454	3-5/8 (92.1)		5-1/2 (139.7)	1-1/2 (38.1)	10/ 8.1	50/ 41

PERFORMANCE TABLE

Ultimate Tension and Shear Values (Lbs/kN) in Concrete*

ANCHOR DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	EMBEDMENT DEPTH In. (mm)	ANCHOR TYPE	f'c = 2000 PSI (13.8 MPa		f'c = 4000 PSI (27.6 MPa)		f'c = 6000 PSI (41.4 MPa)	
				TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6.4)	8 (10.8)	1-1/8 (28.6)	WS-Carbon or WS-G Hot-Dipped Galvanized or WW-304 S.S. or SWW-316 S.S.	1,180 (5.2)	1,400 (6.2)	1,780 (7.9)	1,400 (6.2)	1,900 (8.5)	1,400 (6.2)
		1-15/16 (49.2)		2,100 (9.3)	1,680 (7.5)	3,300 (14.7)	1,680 (7.5)	3,300 (14.7)	1,680 (7.5)
		2-1/8 (54.0)		2,260 (10.1)	1,680 (7.5)	3,300 (14.7)	1,680 (7.5)	3,300 (14.7)	1,680 (7.5)
3/8 (9.5)	25 (33.9)	1-1/2 (38.1)		1,680 (7.5)	2,320 (10.3)	2,240 (10.0)	2,620 (11.7)	2,840 (12.6)	3,160 (14.1)
		3 (76.2)		3,480 (15.5)	4,000 (17.8)	5,940 (26.4)	4,140 (18.4)	6,120 (27.2)	4,500 (20.0)
		4 (101.6)		4,800 (21.4)	4,000 (17.8)	5,940 (26.4)	4,140 (18.4)	6,120 (27.2)	4,500 (20.0)
1/2 (12.7)	55 (74.6)	2-1/4 (57.2)		4,660 (20.7)	4,760 (21.2)	5,100 (22.7)	4,760 (21.2)	7,040 (31.3)	7,040 (31.3)
		4-1/8 (104.8)		4,660 (20.7)	7,240 (32.2)	9,640 (42.9)	7,240 (32.2)	10,820 (48.1)	8,160 (36.3)
		6 (152.4)		5,340 (23.8)	7,240 (32.2)	9,640 (42.9)	7,240 (32.2)	10,820 (48.1)	8,160 (36.3)
5/8 (15.9)	90 (122.0)	2-3/4 (69.9)		6,580 (29.3)	7,120 (31.7)	7,180 (31.9)	7,120 (31.7)	9,720 (43.2)	9,616 (42.8)
		5-1/8 (130.2)		6,580 (29.3)	9,600 (42.7)	14,920 (66.4)	11,900 (52.9)	16,380 (72.9)	12,520 (55.7)
		7-1/2 (190.5)		7,060 (31.4)	9,600 (42.7)	15,020 (66.8)	11,900 (52.9)	16,380 (72.9)	12,520 (55.7)
3/4 (19.1)	175 (237.3)	3-1/4 (82.6)		7,120 (31.7)	10,120 (45.0)	10,840 (48.2)	13,720 (61.0)	13,300 (59.2)	15,980 (71.1)
		6-5/8 (168.3)		10,980 (48.8)	20,320 (90.4)	17,700 (78.7)	23,740 (105.6)	20,260 (90.1)	23,740 (105.6)

* Allowable values are based on a 4 to 1 safety factor. Divide by 4 for allowable load values.

* For Tie-Wire Wedge Anchor, TW-1400, use tension data from 1/4" diameter with 1-1/8" embedment.

* For continuous extreme low temperature applications, use stainless steel.

LENGTH INDICATION CODE*

Code	Length of Anchor
A	1-1/2 < 2 (38.1 < 50.8)
B	2 < 2-1/2 (50.8 < 63.5)
C	2-1/2 < 3 (63.5 < 76.2)
D	3 < 3-1/2 (76.2 < 88.9)
E	3-1/2 < 4 (88.9 < 101.6)
F	4 < 4-1/2 (101.6 < 114.3)

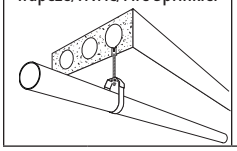
* Located on top of anchor for easy inspection.

MADE IN AMERICA Ramset

For installation guidelines for your application, please contact our Technical Services Department at 1-800-899-7890.

Multi-Set II Drop-In Anchors

SELECTION CHART

USER TYPE / APPLICATION	BASE MATERIAL	CORROSION RESISTANCE LEVEL	DROP-IN ANCHOR TYPE	PART NUMBER	SETTING TOOL PART NUMBER*	BOLT SIZE-THREADS PER INCH	DRILL BIT SIZE In. (mm)	THREAD DEPTH In. (mm)	EMBEDMENT MIN. HOLE DEPTH In. (mm)	QTY./WT. PER BOX lbs.	QTY./WT. PER MASTER CTN lbs.
Trapeze/HVAC/Fire Sprinkler 	Solid concrete/ lightweight fill deck	Low	RM 	RM-14	RT-114	1/4" - 20	3/8 (9.5)	3/8 (9.5)	1 (25.4)	100/ 2.6	1000/ 28
				RM-38	RT-138	3/8" - 16	1/2 (12.7)	1/2 (12.7)	1 - 5/8 (41.3)	50/ 3.4	500/ 36
				RM-12	RT-112	1/2" - 13	5/8 (15.9)	3/4 (19.1)	2 (50.8)	50/ 5.8	400/ 49
				RM-58	RT-158	5/8" - 11	7/8 (22.2)	1 (25.4)	2 - 1/2 (63.5)	25/ 7.8	125/ 41
Concrete Cutting/Sawing Contractor/Misc. Metal 	Solid concrete/ lightweight fill deck	Low	RL (w/o lip) 	RL-14	RT-114	1/4" - 20	3/8 (9.5)	3/8 (9.5)	1 (25.4)	100/ 2.6	1000/ 28
				RL-38	RT-138	3/8" - 16	1/2 (12.7)	1/2 (12.7)	1 - 5/8 (41.3)	50/ 3.4	500/ 36
				RL-12	RT-112	1/2" - 13	5/8 (15.9)	3/4 (19.1)	2 (50.8)	50/ 5.8	400/ 49
				RL-58	RT-158	5/8" - 11	7/8 (22.2)	1 (25.4)	2 - 1/2 (63.5)	25/ 7.8	125/ 41
Trapeze/HVAC/Fire Sprinkler 	Hollow-core precast or Post-tension	Low	RX 	RX-38	RTX-138	3/8" - 16	1/2 (12.7)	1/2 (12.7)	3/4 (19.1)	100/ 3.5	1000/ 36

* 1 setting tool per master carton.

** For continuous extreme low temperature, use stainless steel.

To set anchor below surface:

Drill hole deeper than anchor length. Thread bolt into anchor. Hammer anchor into hole until bolt head is at desired depth. Remove bolt and set anchor with setting tool.

PART NUMBER RT-138

For use with RM and RL.

PART NUMBER RTX-138

For use with RX-38 only.

PERFORMANCE TABLES

Ultimate Shear and Tension Values (Lbs/kN) in Concrete*

BOLT DIA. In. (mm)	ANCHOR DIA. In. (mm)	MIN. EMBEDMENT DEPTH In. (mm)	ANCHOR TYPE	TENSION Lbs. (kN) f'c = 2000 PSI (13.8 MPa)	TENSION Lbs. (kN) f'c = 4000 PSI (27.6 MPa)	TENSION Lbs. (kN) f'c = 6000 PSI (41.4 MPa)	SHEAR Lbs. (kN) f'c ≥2000 PSI (13.8 MPa)
1/4 (6.4)	3/8 (9.5)	1 (25.4)	RM, RL or CL-Carbon or SRM-18-8 S.S. or SSRM-316 S.S.	1,680 (7.5)	2,360 (10.5)	2,980 (13.3)	1,080 (4.8)
3/8 (9.5)	1/2 (12.7)	1-5/8 (41.3)		2,980 (13.3)	3,800 (16.9)	6,240 (27.8)	3,160 (14.1)
1/2 (12.7)	5/8 (15.9)	2 (50.8)		3,300 (14.7)	5,840 (26.0)	8,300 (36.9)	4,580 (20.4)
5/8 (15.9)	7/8 (22.2)	2-1/2 (63.5)		5,500 (24.5)	8,640 (38.4)	11,020 (49.0)	7,440 (33.1)
3/4 (19.1)	1 (25.4)	3-3/16 (81.0)		8,280 (36.8)	9,480 (42.2)	12,260 (54.5)	10,480 (46.6)

** Allowable values are based upon a 4 to 1 safety factor. Divide by 4 for allowable load values.*

Ultimate Shear and Tension Values (Lbs/kN) in Lightweight Concrete*

BOLT DIA. In. (mm)	ANCHOR DIA. In. (mm)	MIN. EMBEDMENT DEPTH In. (mm)	ANCHOR TYPE	LIGHTWEIGHT CONCRETE f'c = 3000 PSI (20.7 MPa) TENSION Lbs. (kN)	LIGHTWEIGHT CONCRETE f'c = 3000 PSI (20.7 MPa) SHEAR Lbs. (kN)	LOWER FLUTE OF STEEL DECK WITH LIGHTWEIGHT CONCRETE FILL f'c = 3000 PSI (20.7 MPa) TENSION Lbs. (kN)	LOWER FLUTE OF STEEL DECK WITH LIGHTWEIGHT CONCRETE FILL f'c = 3000 PSI (20.7 MPa) SHEAR Lbs. (kN)
3/8 (9.5)	1/2 (12.7)	1-5/8 (39.7)	RM, RL or CL-Carbon or SRM-18-8 S.S. or SSRM-316 S.S.	3,860 (17.2)	4,420 (19.6)	3,340 (14.9)	4,420 (19.6)
1/2 (12.7)	5/8 (15.9)	2 (50.8)		4,080 (18.1	5,640 (25.1)	3,200 (14.2)	4,940 (22.0)
5/8 (15.9)	7/8 (22.2)	2-1/2 (63.5)		6,280 (27.9)	10,440 (46.4)	5,960 (26.5)	5,840 (26.0)
3/4 (19.1)	1 (25.4)	3-3/16 (81.0)		11,000 (48.9)	15,780 (70.2)	8,180 (36.4)	9,120 (40.6)

** Allowable values are based upon a 4 to 1 safety factor. Divide by 4 for allowable load values.*

Recommended Spacing and Edge Distance Requirements*

BOLT DIA. In. (mm)	ANCHOR DIA. In. (mm)	EMBEDMENT DEPTH In. (mm)	ANCHOR TYPE	EDGE DISTANCE REQUIRED TO OBTAIN MAX. WORKING LOAD In. (mm)	MIN. EDGE DISTANCE AT WHICH LOAD FACTOR APPLIED =.80 FOR TENSION =.70 FOR SHEAR In. (mm)	SPACING REQUIRED TO OBTAIN MAX. WORKING LOAD In. (mm)	MIN. ALLOWABLE SPACING BETWEEN ANCHORS LOAD FACTOR APPLIED =.80 FOR TENSION =.55 FOR SHEAR In. (mm)
1/4 (6.4)	3/8 (9.5)	1 (25.4)	RM, RL or CL-Carbon or SRM-18-8 S.S. or SSRM-316 S.S.	1-3/4 (44.5)	7/8 (22.2)	3-1/2 (88.9)	1-3/4 (44.5)
3/8 (9.5)	1/2 (12.7)	1-5/8 (41.3)		2-7/8 (73.0)	1-7/16 (36.5)	5-11/16 (144.5)	2-7/8 (73.0)
1/2 (12.7)	5/8 (15.9)	2 (50.8)		3-1/2 (88.9)	1-3/4 (44.5)	7 (177.8)	3-1/2 (88.9)
5/8 (15.9)	7/8 (22.2)	2-1/2 (63.5)		4-3/8 (111.1)	2-3/16 (55.6)	8-3/4 (222.3)	4-3/8 (111.1)
3/4 (19.1)	1 (25.4)	3-3/16 (81.0)		5-5/8 (142.9)	2-13/16 (71.4)	11-3/16 (284.2)	5-5/8 (142.9)

** Spacing and edge distances shall be divided by 0.75 when anchors are placed in structural lightweight concrete. Linear interpolation may be used for intermediate spacing and edge distances.*

For installation guidelines for your application, please contact our Technical Services Department at 1-800-899-7890.

Dynabolt

Carbon Steel with Zinc Plating

Typical Applications—Shelf ledgers, electrical boxes, conduit

Environment—Interior (non-corrosive)

Level of Corrosion—Low

SELECTION CHART

HEAD STYLE	PART NUMBER	ANCHOR DIA. & DRILL BIT SIZE	EFFECTIVE ANCHOR LENGTH* In. (mm)	BOLT DIA./ THREAD PER INCH	MIN. EMBEDMENT In. (mm)	MAX. THICKNESS OF MATERIAL TO BE FASTENED In. (mm)	QTY./WT. PER BOX lbs.	QTY./WT. PER MASTER CARTON lbs.
ACORN NUT	AN-1413	1/4"	1-3/8 (34.9)	3/16" /24	1-1/8 (28.6)	1/4 (6.4)	100/ 2.6	1000/ 27
HEX NUT	HN-1413	1/4"	1-3/8 (34.9)	3/16" /24	1-1/8 (28.6)	1/4 (6.4)	100/ 2.3	1000/ 24
	HN-1422		2-1/4 (57.2)	3/16" /24	1-1/8 (28.6)	1-1/8 (28.6)	100/ 3.4	1000/ 35
	HN-1614	5/16"	1-1/2 (38.1)	1/4" /20	1-1/4 (31.8)	1/4 (6.4)	100/ 4.0	1000/ 41
	HN-1624		2-1/2 (63.5)	1/4" /20	1-1/4 (31.8)	1-1/4 (31.8)	100/ 5.9	800/ 47
	HN-3817	3/8"	1-7/8 (47.6)	5/16" /18	1-1/2 (38.1)	3/8 (9.5)	50/ 3.5	500/ 36
	HN-3830		3 (76.2)	5/16" /18	1-1/2 (38.1)	1-1/2 (38.1)	50/ 4.9	400/ 40
	HN-1222	1/2"	2-1/4 (57.2)	3/8" /16	1-7/8 (47.6)	3/8 (9.5)	25/ 3.3	250/ 34
	HN-1230		3 (76.2)	3/8" /16	1-7/8 (47.6)	1-1/8 (28.6)	25/ 4.0	200/ 33
	HN-1240		4 (101.6)	3/8" /16	1-7/8 (47.6)	2-1/8 (54.0)	25/ 5.3	200/ 44
	HN-5822	5/8"	2-1/4 (57.2)	1/2" /13	2 (50.8)	1/4 (6.4)	25/ 6.3	150/ 38
	HN-5830		3 (76.2)	1/2" /13	2 (50.8)	1 (25.4)	25/ 7.0	150/ 46
	HN-5842		4-1/4 (108.0)	1/2" /13	2 (50.8)	2-1/4 (57.2)	10/ 3.9	100/ 41
TIE WIRE	TW-1614	5/16"	1-1/2 (38.1)	1/4" /20	1-1/2 (38.1)	9/32 hole (7.1)	100/ 4.9	1000/ 50

PERFORMANCE TABLE

Ultimate Shear and Tension Values in Concrete (Lbs/kN)*

ANCHOR DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	BOLT DIA. In. (mm)	MINIMUM EMBEDMENT DEPTH In. (mm)	ANCHOR TYPE (STEEL)	f'c = 2000 PSI (13.8 MPa)		f'c = 3000 PSI (20.7 MPa)		f'c = 4000 PSI (27.6 MPa)	
					TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6.4)	3.5 (4.7)	No.10	1-1/8 (28.6)	Carbon or Stainless	1,200 (5.3)	1,620 (7.2)	1,600 (7.1)	1,620 (7.2)	2,100 (9.3)	1,620 (7.2)
5/16 (7.9)	8 (10.8)	1/4 (6.4)	1-1/4 (31.8)		1,400 (6.2)	2,040 (9.1)	1,920 (8.5)	2,220 (9.9)	2,600 (11.6)	2,400 (10.7)
3/8 (9.5)	14 (19.0)	5/16 (7.9)	1-1/2 (38.1)		1,620 (7.2)	2,560 (11.4)	2,240 (10.0)	2,800 (12.5)	3,100 (13.8	3,040 (13.5)
1/2 (12.7)	20 (27.1)	3/8 (9.5)	1-7/8 (47.6)		2,220 (9.9)	4,000 (17.8)	3,140 (14.0)	4,500 (20.0)	4,400 (19.6)	5,000 (22.2)
5/8 (15.9)	48 (65.1)	1/2 (12.7)	2 (50.8)		3,080 (13.7)	6,440 (28.6)	4,400 (19.6)	7,240 (32.2)	6,120 (27.2)	8,080 (35.9)

Ultimate Shear and Tension Values in Lightweight Concrete (Lbs/kN)*

ANCHOR DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	BOLT DIA. In. (mm)	MINIMUM EMBEDMENT DEPTH In. (mm)	ANCHOR TYPE (STEEL)	f'c = 4000 PSI (27.6 MPa)		f'c = 6000 PSI (41.4 MPa)	
					TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6.4)	3.5 (4.7)	No.10	1-1/8 (28.6)	Carbon or Stainless	1,080 (4.8)	1,160 (5.2)	1,220 (5.4)	1,940 (8.6)
5/16 (7.9)	8 (10.8)	1/4 (6.4)	1-1/4 (31.8)		1,260 (5.6)	1,680 (7.5)	1,440 (6.4)	2,220 (9.9)
3/8 (9.5)	14 (19.0)	5/16 (7.9)	1-1/2 (38.1)		1,620 (7.2)	2,300 (10.2)	2,240 (10.0)	2,800 (12.5)
1/2 (12.7)	25 (33.9)	3/8 (9.5)	1-7/8 (47.6)		2,600 (11.6)	3,920 (17.4)	3,160 (14.1)	4,840 (21.5)
5/8 (15.9)	48 (65.1)	1/2 (12.7)	2 (50.8)		3,240 (14.4)	5,600 (24.9)	4,300 (19.1)	7,840 (34.9)

Ultimate Shear and Tension Values in Masonry Units (Lbs/kN)*

ANCHOR DIA. In. (mm)	INSTALLATION TORQUE Ft. Lbs. (Nm)	BOLT DIA. In. (mm)	MINIMUM EMBEDMENT DEPTH In. (mm)	ANCHOR TYPE (STEEL)	LIGHTWEIGHT				MEDIUM WEIGHT			
					HOLLOW CORE		GROUT FILLED		HOLLOW CORE		GROUT FILLED	
					TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
1/4 (6.4)	3.5 (4.7)	3/16 (4.8)	1-1/8 (28.6)	Carbon	1,120 (5.0)	1,360 (6.0)	1,120 (5.0)	1,360 (6.0)	1,120 (5.0)	1,620 (7.2)	1,120 (5.0)	1,360 (6.0)
				Stainless	640 (2.8)	1,620 (7.2)	640 (2.8)	1,620 (7.2)	640 (2.8)	1,620 (7.2)	640 (2.8)	1,620 (7.2)
3/8 (9.5)	15 (20.3)	5/16 (7.9)	1-1/2 (38.1)	Carbon	1,360 (6.0)	2,560 (11.4)	1,360 (6.0)	2,560 (11.4)	1,360 (6.0)	2,560 (11.4)	1,360 (6.0)	2,560 (11.4)
				Stainless	1,160 (5.2)	2,560 (11.4)	1,160 (5.2)	2,560 (11.4)	1,160 (5.2)	2,560 (11.4)	1,160 (5.2)	2,560 (11.4)
1/2 (12.7)	25 (33.9)	3/8 (9.5)	1-7/8 (47.6)	Carbo	-- --	-- --	2,220 (9.9)	4,000 (17.8	-- --	-- --	2,220 (9.9)	4,000 (17.8)
				Stainless	-- --	-- --	2,100 (9.3)	4,000 (17.8	-- --	-- --	2,100 (9.3)	4,000 (17.8)
5/8 (15.9)	55 (74.6)	1/2 (12.7)	2 (50.8)	Carbon	-- --	-- --	3,080 (13.7)	6,440 (28.6)	-- --	-- --	3,080 (13.7)	6,440 (28.6)
				Stainless	-- --	-- --	3,080 (13.7)	6,440 (28.6)	-- --	-- --		6,440 (28.6)

* Allowable values are based upon a 4 to 1 safety factor. Divide by 4 for allowable load values. **The tabulated values are for anchors installed in a minimum of 12 diameters on center and a minimum edge distance of 6 diameters for 100 percent anchor efficiency. Spacing and edge distance may be reduced to 6 diameter spacing and 3 diameter edge distance, provided the values are reduced 50 percent. Linear interpolation may be used for intermediate spacings and edge distances.**

Combined Shear and Tension Loading—for Dynabolt Anchors

Allowable loads for anchors subjected to combined shear and tension forces are determined by the following equation: $(Ps/Pt) + (Vs/Vt) \leq 1$

Ps = Applied tension load Vs = Applied shear load Pt = Allowable tension load Vt = Allowable shear load

For installation guidelines for your application, please contact our Technical Services Department at 1-800-899-7890.

SELECTION CHART

Tapcon Anchors

The "Original" Tapcon

Climaseal™ coating for corrosion resistance.

PART NO. 3/16" HEX HEAD	PART NO. 1/4" HEX HEAD	PART NO. 3/16" FLAT HEAD	PART NO. 1/4" FLAT HEAD	RECOMMENDED TAPCON LENGTH In. (mm)	FIXTURE THICKNESS INCHES	BIT LENGTH In. (mm)	BITS FOR 3/16" TAPCON PART NO.	BITS FOR 1/4" TAPCON PART NO.
HW3-114	HW4-114	PF3-114	PF4-114	1-1/4 (31.8)	0" - 1/4"	3-1/2 (88.9)	7900814	7901014
HW3-134	HW4-134	PF3-134	PF4-134	1-3/4 (44.5)	1/4" - 3/4"	3-1/2 (88.9)	7900814	7901014
HW3-214	HW4-214	PF3-214	PF4-214	2-1/4 (57.2	3/4" - 1-1/4"	4-1/2 (114.3)	7900818	7901018
HW3-234	HW4-234	PF3-234	PF4-234	2-3/4 (69.9)	1-1/4" - 1 -3/4"	4-1/2 (114.3)	7900818	7901018
HW3-314	HW4-314	PF3-314	PF4-314	3-1/4 (82.6)	1-3/4" - 2-1/4"	5-1/2 (139.7)	7900822	7901022
----	HW4-400	----	----	4 (101.6)	2-1/2" - 3"	5-1/2 (139.7)	7900822	7901022

All boxes of ITW Tapcon come packaged with matching carbide-tipped bit. Tapcon is packaged 100 pieces per box and 500 pieces per master carton.

PERFORMANCE TABLE

Ultimate Shear and Tension Values (Lbs/kN) in Concrete

ANCHOR DIA. In. (mm)	MIN. DEPTH OF EMBEDMENT In. (mm)	f'c = 2000 PSI (13.8 MPa)		f'c = 3000 PSI (20.7 MPa)		f'c = 4000 PSI (27.6 MPa)		f'c = 5000 PSI (34.5 MPa)	
		TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)	TENSION Lbs. (kN)	SHEAR Lbs. (kN)
3/16 (4.8)	1 (25.4)	240 (1.1)	740 (3.3)	320 (1.4)	840 (3.7)	400 (1.8)	840 (3.7)	440 (2.0)	860 (3.8)
	1-1/4 (31.8)	440 (2.0)	780 (3.5)	560 (2.5)	840 (3.7)	600 (2.7)	840 (3.7)	640 (2.8)	860 (3.8)
	1-1/2 (38.1)	640 (2.8)	820 (3.6)	840 (3.7)	860 (3.8)	880 (3.9)	880 (3.9)	920 (4.1)	900 (4.0)
	1-3/4 (44.5)	760 (3.4)	920 (4.1)	1,040 (4.6)	1,020 (4.5)	1,120 (5.0)	1,020 (4.5)	1,240 (5.5)	1,020 (4.5)
1/4 (6.4)	1 (25.4)	520 (2.3)	1,120 (5.0)	720 (3.2)	1,460 (6.5)	800 (3.6)	1,560 (6.9)	920 (4.1)	1,660 (7.4)
	1-1/4 (31.8)	840 (3.7)	1,280 (5.7)	1,120 (5.0)	1,600 (7.1)	1,240 (5.5)	1,660 (7.4)	1,400 (6.2)	1,740 (7.7)
	1-1/2 (38.1)	1,120 (5.0)	1,280 (5.7)	1,520 (6.8)	1,620 (7.2)	1,600 (7.1)	1,680 (7.5)	1,680 (7.5)	1,760 (7.8)
	1-3/4 (44.5)	1,320 (5.9)	1,500 (6.7)	1,840 (8.2)	2,140 (9.5)	2,040 (9.1)	2,160 (9.6)	2,240 (10.0)	2,200 (9.8)

Safe working loads for single installation under static loading should not exceed 25 percent of the ultimate load capacity.
The tabulated values are for anchors installed in a minimum of 12 diameters on center and a minimum edge distance of 10 diameters for 100 percent anchor efficiency.
Space and edge distance may be reduced to six diameters spacing and five diameter edge distance provided values are reduced 50 percent. Linear interpolation may be used for intermediate spacing and edge margins.

Ultimate Tension Value (Lbs/kN) in Hollow Block

ANCHOR DIA. In. (mm)	DEPTH OF EMBEDMENT IN SOLID MATERIAL In. (mm)			
	1" (25.4) Lbs. (kN)	1-1/4" (31.8) Lbs. (kN)	1-1/2" (38.1) Lbs. (kN)	1-3/4" (44.5) Lbs. (kN)
3/16 (4.8)	209 (0.9)	357 (1.6)	468 (2.1)	547 (2.4)
1/4 (6.4)	406 (1.8)	615 (2.7)	851 (3.8)	984 (4.4)

Safe working loads for single installation under static loading should not exceed 25 percent of the ultimate load capacity.

Ultimate Shear Strength

ANCHOR DIA. In. (mm)	ANCHOR EMBEDMENT In. (mm)	SHEAR STRENGTH LIGHTWEIGHT HOLLOW BLOCK Lbs. (kN)
3/16 (4.8)	1-1/4 (31.8)	731 (3.3)
1/4 (6.4)	1-1/4 (31.8)	1,058 (4.7)

Safe working loads for single installation under static loading should not exceed 25 percent of the ultimate load capacity.

MADE IN AMERICA Ramset

For installation guidelines for your application, please contact our Technical Services Department at 1-800-899-7890.

SUSPENDED ANCHORING SYSTEMS
SAMMYS®

MADE IN AMERICA Ramset

SPECIAL NUT DRIVER SYSTEM: The nut drivers were designed with a unique spin-off feature which provides a fast and safe installation each time. When the face of the driver comes into contact with the material you are installing into, continue drilling until nut driver spins free. Installation is then complete. Warranty requires the use of the appropriate nut driver for installations.

8113910 #14 NUT DRIVER (black)

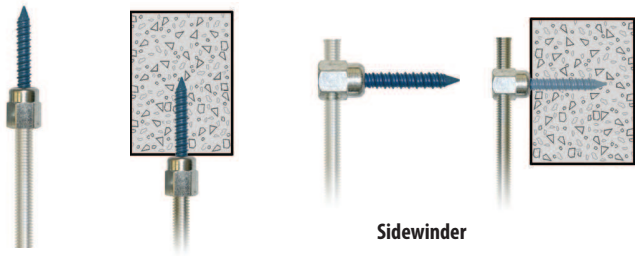
8114910 #14SW NUT DRIVER (red)

CONCRETE

MADE WITH Tapcon

Rod Size	Part Number	Description	Installs	Ultimate Pullout (lbs)	Qty	Nut Driver
1/4"	CST 10	1-1/4 X 5/16" SAMMY FOR CONCRETE 3/8" ROD	Vertically	825	125	#14 Black
3/8"	CST 100	1-1/4 X 5/16" SAMMY FOR CONCRETE 1/4" ROD	Vertically	825	125	#14 Black
1/4"	CST 200	1-3/4" SAMMY FOR CONCRETE 1/4" ROD	Vertically	2400	125	#14 Black
3/8"	CST 20	1-3/4" SAMMY FOR CONCRETE 3/8" ROD	Vertically	2400	125	#14 Black
1/2"	CST 2	1-3/4" SAMMY FOR CONCRETE 1/2" ROD	Vertically	2400	125	#14SW Red
3/8"	SWC 20	1-3/4" SIDEWINDER FOR CONCRETE 3/8" ROD	Horizontally	2450	125	#14SW Red
1/4"	SWC 200	1-3/4" SIDEWINDER FOR CONCRETE 1/4" ROD	Horizontally	2450	125	#14SW Red
3/8"	CST 20-SS	1-3/4" SAMMY FOR CONCRETE 3/8" ROD	Vertically	2400	125	#14 Black

- ¼" pre-drilled pilot hole required.
- Concrete Installation Tool available for a one tool installation process.



Sidewinder

STEEL

MADE WITH Teks

Rod Size	Part Number	Description	Installs	Ultimate Pullout (lbs)	Qty	Nut Driver
1/4"	DSTR 100	1" SAMMY FOR STEEL 1/4" ROD W/NUT	Vertically	1510 (20 ga.)	125	#14 Black
1/4"	DST 150	1-1/2" SAMMY FOR STEEL 1/4" ROD	Vertically	970 (16 ga.)	125	#14 Black
1/4"	DST 200	2" SAMMY FOR STEEL 1/4" ROD	Vertically	446 (20 ga.)	125	#14 Black
1/4"	TEK 500	1-1/2" (12X24) SAMMY FOR STEEL 1/4" ROD	Vertically	3125 (3/16")	125	#14 Black
1/2"	DST 2.0	2" SAMMY FOR STEEL 1/2" ROD	Vertically	446 (20 ga.) 970 (16 ga.)	125	#14SW Red
3/8"	DSTR 1-1/2	1-1/2" (12X24) SAMMY FOR STEEL 3/8" ROD	Vertically	1510 (3/16")	125	#14 Black
3/8"	DSTR 1	1" SAMMY FOR STEEL 3/8" ROD W/NUT	Vertically	1510 (20 ga.)	125	#14 Black
3/8"	DSTR 516	1-1/4" SAMMY FOR STEEL 3/8" ROD W/NUT	Vertically	2200 (20 ga.)	125	#14 Black
3/8"	DST 10	1" SAMMY FOR STEEL 3/8" ROD	Vertically	446 (20 ga.) 970 (16 ga.)	125	#14 Black
3/8"	DST 25	2-1/2" SAMMY FOR STEEL 3/8" ROD	Vertically	446 (20 ga.) 970 (16 ga.)	125	#14 Black
3/8"	TEK 50	1-1/2" (12X24) SAMMY FOR STEEL 3/8" ROD	Vertically	3125 (3/16")	125	#14 Black
1/4"	SWD 100	1" SIDEWINDER FOR STEEL 1/4" ROD	Horizontally	1477 (16 ga.)	125	#14SW Red
3/8"	SWD 15	1-1/2" SIDEWINDER FOR STEEL 3/8" ROD	Horizontally	1477 (16 ga.)	125	#14SW Red
3/8"	SWDR 516	1-1/4" SIDEWINDER FOR STEEL 3/8" ROD W/NUT	Horizontally	2480 (20 ga.)	125	#14SW Red
3/8"	SH-DSTR 1	1" SWIVEL HEAD FOR STEEL 3/8" ROD	Vertically	3220(3/16")	125	#14 Black

- Install into steel range from 22 gauge – 1/2" thick.
- Quick to install using the Sammy Nut Driver with an 18V cordless drill/driver.

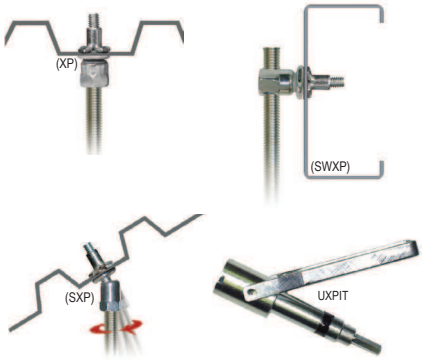
Sidewinder

Swivel Head

METAL DECK, PURLIN, OR TUBULAR STEEL

Rod Size	Part Number	Description	Installs	Ultimate Pullout (lbs)	Qty
1/4"	XP 200	X-PRESS FOR METAL DECK 1/4" ROD	Vertically	1146 (22 ga.)	125
3/8"	XP 20	X-PRESS FOR METAL DECK 3/8" ROD	Vertically	283	125
3/8"	XP 35	X-PRESS FOR PURLIN 3/8" ROD	Vertically	1783 (16 ga.)	125
3/8"	SWXP 35	SIDEWINDER X-PRESS FOR PURLIN 3/8" ROD	Horizontally	1798 (16 ga.)	125
3/8"	SXP 20	SWIVEL X-PRESS	Vertically	1061 (22 ga. Vert.) 829 (45° Off Vert.)	125
3/8"	SXP 35	SWIVEL X-PRESS	Vertically	2400	125
—	XPDB	25/64" X-PRESS DRILL BIT	—	—	1
—	UXPIT	X-PRESS UNIVERSAL INSTALLATION TOOL	—	—	1

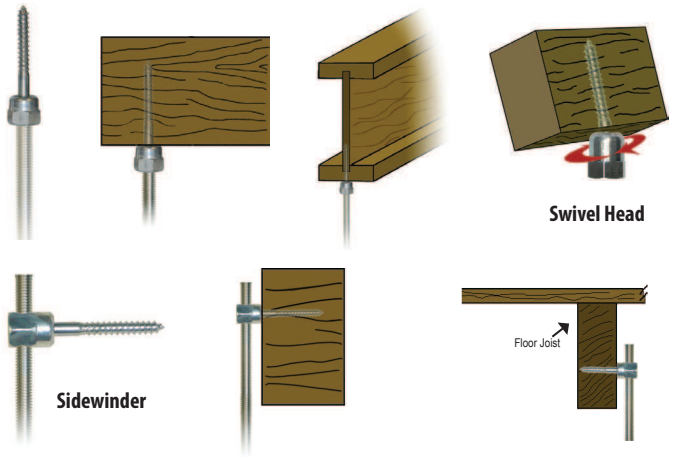
- The **Sammy X-Press** expands to provide direct vertical attachment in:
  - Metal Deck (22-16 gauge)
  - Z-Purlin (18-16 gauge)
- The **Sammy X-Press Swivel** allows you to hang plumb in extreme roof pitches:
  - 89° in Z-Purlin
  - 45° in metal deck for 12/12 pitch
- The **Sammy X-Press Sidewinder** expands to provide horizontal attachment in:
  - 16 ga - 3/16" steel - purlin, tubular steel.
- Use in applications where access to the back of the installed fastener is unreachable. ie. metal roof deck, tubular steel, or vapor barrier fabric.



WOOD

Rod Size	Part Number	Description	Installs	Ultimate Pullout (lbs)	Qty	Nut Driver
1/4"	GST 100	1" SAMMY FOR WOOD 1/4" ROD	Vertically	210 (7/16" OSB) 670 (3/4" Ply)	125	#14 Black
1/4"	GST 200	2" SAMMY FOR WOOD 1/4" ROD	Vertically	1760 (Fir)	125	#14 Black
3/8"	GST 20	2" SAMMY FOR WOOD 3/8" ROD	Vertically	1760 (Fir)	125	#14 Black
1/2"	GST 3	3" SAMMY FOR WOOD 1/2" ROD	Vertically	2275(Fir)	125	#14SW Red
1/4"	SWG 100	1" SIDEWINDER FOR WOOD 1/4" ROD	Horizontally	622 (Fir)	125	#14SW Red
1/4"	SWG 200	2" SIDEWINDER FOR WOOD 1/4" ROD	Horizontally	1725 (Fir)	125	#14SW Red
3/8"	SWG 20	2" SIDEWINDER FOR WOOD 3/8" ROD	Horizontally	1725 (Fir)	125	#14SW Red
3/8"	SH-GST 20	2" SWIVEL HEAD FOR WOOD 3/8" ROD	Vertically	1257(Fir)	125	#14 Black
3/8"	SH-GST 30	3" SWIVEL HEAD FOR WOOD 3/8" ROD	Vertically	1720 (Fir)	125	#14 Black

No pre-drilling required.



Swivel Head

Sidewinder

Standard Powder Clip Assemblies

ANGLE CLIP IN CONCRETE

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	INSTALLED IN STONE AGGREGATE CONCRETE – CONCRETE COMPRESSIVE STRENGTH **ALLOWABLE LOAD** – *Ultimate Load*					
			4000 PSI					
			TENSION (LBS)		SHEAR (LBS)		OBLIQUE (LBS)	
SDC100 / SDC125	0.145	7/8	**115**	*575*	**120**	*1014*	**145**	*726*
SDC125	0.145	1-1/8	**130**	*744*	**167**	*1090*	**205**	*1032*

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	ALLOWABLE WORKING VALUES – INSTALLED IN 3000 PSI LIGHTWEIGHT CONCRETE **ALLOWABLE LOAD** – *Ultimate Load*									
			3000 PSI LIGHTWEIGHT WITH METAL DECKING									
			LOWER FLUTE TENSION (LBS)		LOWER FLUTE SHEAR (LBS)		LOWER FLUTE OBLIQUE (LBS)		UPPER FLUTE TENSION (LBS)		UPPER FLUTE SHEAR (LBS)	
SDC100	0.145	7/8	**67**	*335*	**237**	*1186*	**90**	*448*	**104**	*571*	**310**	*1678*
SDC125	0.145	1-1/8	**94**	*471*	**276**	*1378*	**119**	*596*	**106**	*528*	**319**	*1597*

Note 1: ALLOWABLE loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Testing conducted in accordance with ICC AC70 & ASTM E1190. **Note 3:** Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. **Note 4:** Values shown in concrete are for the clip assembly only. Connected members must be investigated separately. **Note 5:** Cyclic, fatigue, shock loads, and other design criteria may require a different safety factor. **Note 6:** Job site testing may be required to determine actual job site values. **Note 7:** Minimum edge distance is 3 inches unless otherwise approved. **Note 8:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa. Tables converted to metric are available on our website.

Power Point Powder Clip Assemblies —

Designed for difficult overhead applications

ANGLE CLIP IN CONCRETE

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	INSTALLED IN STONE AGGREGATE CONCRETE – CONCRETE COMPRESSIVE STRENGTH **ALLOWABLE LOAD** – *Ultimate Load*									
			4000 PSI						6000 PSI			
			TENSION (LBS)		SHEAR (LBS)		OBLIQUE (LBS)		TENSION (LBS)		SHEAR (LBS)		OBLIQUE (LBS)	
SPC78	0.150	3/4	**155**	*897*	**188**	*1050*	-----	-----	**150**	*788*	**153**	*949*	**140**	*769*
SPC114	.150/.180	1-1/8	**127**	*811*	**226**	*1130*	**181**	*904*	**169**	*853*	**300**	*1500*	**223**	*1114*

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	ALLOWABLE WORKING VALUES – INSTALLED IN 3000 PSI LIGHTWEIGHT CONCRETE **ALLOWABLE LOAD** – *Ultimate Load*									
			3000 PSI LIGHTWEIGHT WITH METAL DECKING									
			LOWER FLUTE TENSION (LBS)		LOWER FLUTE SHEAR (LBS)		LOWER FLUTE OBLIQUE (LBS)		UPPER FLUTE TENSION (LBS)		UPPER FLUTE SHEAR (LBS)	
SPC78	0.150	3/4	**59**	*293*	**202**	*1109*	**65**	*323*	**84**	*419*	**324**	*1622*
SPC114	150/.180	1-1/8	**157**	*786*	**272**	*1358*	**153**	*766*	**180**	*899*	**334**	*1673*

Note 1: ALLOWABLE loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Testing conducted in accordance with ICC AC70 & ASTM E1190. **Note 3:** Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. **Note 4:** Values shown in concrete are for the clip assembly only. Connected members must be investigated separately. **Note 5:** Cyclic, fatigue, shock loads, and other design criteria may require a different safety factor. **Note 6:** Job site testing may be required to determine actual job site values. **Note 7:** Minimum edge distance is 3 inches unless otherwise approved. **Note 8:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa. Tables converted to metric are available on our website.

ITW Ramset
1.800.RAMSET6 (1.800.726.7386)
www.ramset.com

Gas Clip Assembly —

Designed for projects where use of powder is not permissible

FASTENERS IN CONCRETE

FASTENER PART NUMBER	SHANK DIA. (INCH)	MINIMUM PENETRATION (INCH)	INSTALLED IN STONE AGGREGATE CONCRETE CONCRETE COMPRESSIVE STRENGTH **ALLOWABLE LOAD** – *Ultimate Load*						HOLLOW BLOCK Grade N, Type 1	
			4000 PSI		6000 PSI		3000 PSI Lightweight LOWER FLUTE		FACE SHELL Min 1-1/4" face thickness	
			TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)
34CLIP	0.104/.125	5/8	**62** *310*	---- ----	**106** *528*	---- ----	**44** *220*	---- ----	---- ----	---- ----

***** ESR-1955 pin data applies. **Note 1: ALLOWABLE** loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Testing conducted in accordance with ICC AC70 & ASTM E1190 **Note 3:** Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. **Note 4:** Values shown in concrete are for fastener only. Connected members must be investigated separately. **Note 5:** Cyclic, fatigue, shock loads and other design criteria may require a different safety factor. **Note 6:** Job-site testing may be required to determine actual job site values. **Note 7:** Minimum edge distance is 3 inches unless otherwise approved. In hollow block applications, no more than one fastener per cell. **Note 8:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa. Tables converted to metric are available on our website.

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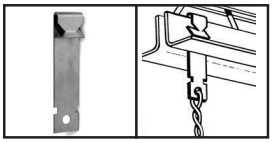
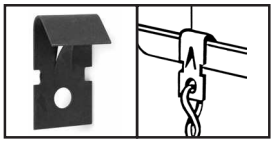
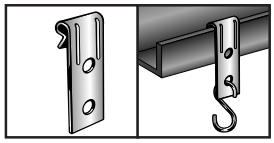
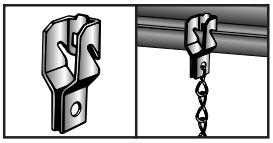
Purlin Clips —


L1701 (J-CLIP)

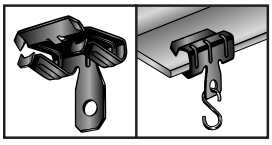

L1801 (CLIP-PUR)


FH116 / FH532


PH

PART NUMBER	DESCRIPTION	ALLOWABLE LOAD
L1701 (J-CLIP)	1/16" TO 1/4" FOR VERTICAL FLANGE	252 LBS
L1801 (CLIP-PUR)	1/16" TO 1/4" ANGLED Z-PURLIN	217 LBS
FH116	1/16" TO 5/16" VERTICAL FLANGE	160 LBS (STATIC)
FH532	5/32" TO 1/4" VERTICAL FLANGE	160 LBS (STATIC)
PH	Z-PURLIN WITH 1/4" BOTTOM HOLE	100 LBS (STATIC)

Beam Clamps —


SFC18

PART NUMBER	DESCRIPTION	ALLOWABLE (STATIC) LOAD
SFC18	1/8" TO 1/4" FLANGE BEAM CLAMP Ⓤ	200 LBS
SFC516	5/16" TO 1/2" FLANGE BEAM CLAMP Ⓤ	200 LBS
SFC916	9/16" TO 3/4" FLANGE BEAM CLAMP Ⓤ	200 LBS

MADE IN AMERICA Ramset

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