

# T4 I-F Insulation Fastening System

## SELECTION CHART

### FASTENERS FOR STEEL STUDS

PART NUMBER	DESCRIPTION	INSULATION THICKNESS	BOX QTY
T4IFS-100	1" Insulation Fastener w/fuel	1" (25 mm)	500
T4IFS-112	1-1/2" Insulation Fastener w/fuel	1-1/2" (38 mm)	500
T4IFS-200	2" Insulation Fastener w/fuel	2" (50 mm)	500
T4IFS-212	2-1/2" Insulation Fastener w/fuel	2-1/2" (63 mm)	500
T4IFS-300	3" Insulation Fastener w/fuel	3" (75 mm)	500
T4IFS-312	3-1/2" Insulation Fastener w/fuel	3-1/2" (89 mm)	500
T4IFS-400	4" Insulation Fastener w/fuel	4" (100 mm)	500
T4IFS-500	5" Insulation Fastener w/fuel	5" (125 mm)	500
T4IFS-600	6" Insulation Fastener w/fuel	6" (150 mm)	400
T4IF	T4 I-F Insulation Tool (6" Capacity)		1

### FASTENERS FOR CONCRETE AND CMU

PART NUMBER	DESCRIPTION	INSULATION THICKNESS	BOX QTY
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## PERFORMANCE TABLE

### STEEL STUDS

FASTENERS	ALLOWABLE/ULTIMATE PULLOUT LOAD LBS (kN)			
	22GA	20GA	18GA	16GA
T4IFS-100 - T4IFS-600	20/120 (0.09/0.53)	33/200 (0.15/0.89)	46/280 (0.20/1.25)	60/360 (0.27/1.60)

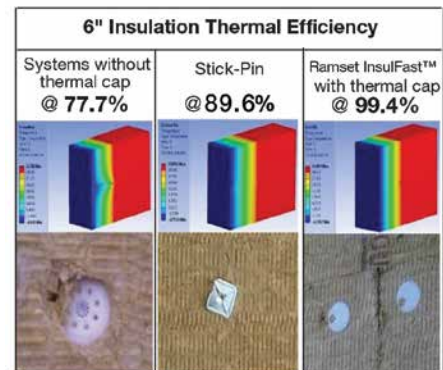
### CONCRETE

FASTENERS	CONCRETE STRENGTH PSI (Mpa)	ALLOWABLE/ULTIMATE TENSION LOADS Lbs (kN)
T4IFC-100 - T4IFC-600	3600-6500 (25-45)	35/211 (0.15/0.94)

### HOLLOW CONCRETE BLOCK

FASTENERS	ALLOWABLE/ULTIMATE TENSION LOADS Lbs (kN)
T4IFC-100 - T4IFC-600	35/184 (0.15/0.82)

Reference	U – Factor (W/m <sup>2</sup> °C)	Insulation Thickness					
		1 in	2 in	3 in	4 in	5 in	6 in
Stick Pin	U – Factor (W/m <sup>2</sup> °C)	1.1786	0.7122	0.5103	0.3976	0.3257	0.2758
	Efficiency (%)	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
InsulFast™	U – Factor (W/m <sup>2</sup> °C)	1.2422	0.7706	0.5597	0.4397	0.3621	0.3078
	Efficiency (%)	94.88%	92.42%	91.17%	90.43%	89.94%	89.59%
InsulFast™	U – Factor (W/m <sup>2</sup> °C)	1.1845	0.7162	0.5132	0.3999	0.3276	0.2773
	Efficiency (%)	99.50%	99.45%	99.44%	99.43%	99.42%	99.42%



These thermal bridges contribute to a multitude of problems, including, but not limited to:

- Added energy use during heating and cooling seasons
- Interior surface condensation which leads to:
  - High humidity levels that can lead to unusual concentrations of airborne contaminants and microbial growth
  - Rusting issues that can damage the structure

# T4 I-F FASTENERS

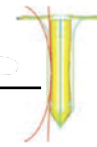
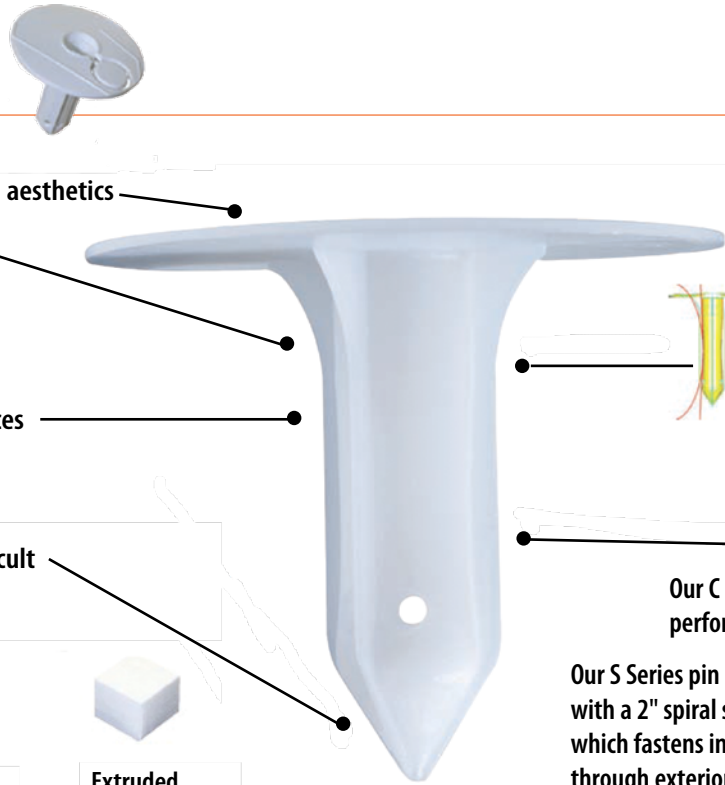
## INTEGRATED THERMAL CAP

For improved thermal efficiency and aesthetics

**FLANGES** to ensure the insulation remains perfectly in place, the insulation panel won't flip around during the fastening process

**SPECIALLY SHAPED SHAFT** – Reduces friction and force required to insert fastener into insulation

**POINT** designed to pierce most difficult insulation material with little effort



Engineered curved design limits insulation compression which enables full thermal efficiency



Our C Series pin provides exceptional performance in the hardest concrete.

Our S Series pin is equipped with a 2" spiral steel stud pin which fastens insulation through exterior gypsum sheathing to exterior steel studs in one simple action.



Rockwool / Fiberglass

Expanded Polystyrene

Extruded Polystyrene



The T4 I-F Fastener™ will not spall the hollow block like powder actuated fasteners.



Damaged insulation by wind loads using stick pin fasteners. T4 I-F Fasteners™ eliminate this problem.

## FASTENER SPECIFICATIONS

- Pin Material: Heat treated carbon steel
- Pin Finish: Mechanical Zinc Plated
- Washer Material: High Density Polyethylene (HDPE)
- 2-3/8" Holding Diameter
- Made in Canada
- The fastener assembly is clearly branded Ramset along with the length of the fastener assembly



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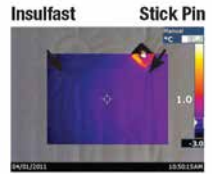
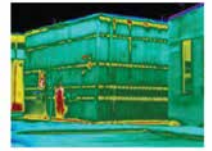
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## THERMO BRIDGING

### Thermal Performance of Building Envelope Assemblies

In buildings, when insulating material is interrupted by a highly conductive material, thermal bridging takes place. Examples of thermal bridges include steel pins that interrupt the continuity of batt insulation and go through heavily insulated exterior walls. Simply put, thermal bridges occur where differences in material thermal conductivities result in significant lateral heat flow; e.g. heat flowing along the surface of a wall and then flowing through the wall via a steel pin.

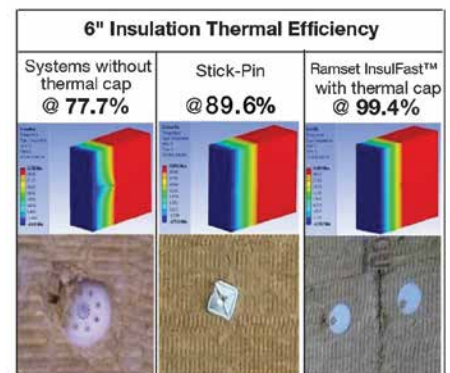
The Calculations performed by the Advanced Thermal/Fluids Optimization, Modeling and Simulation (ATOMS) Laboratory, Department of Mechanical & Industrial Engineering, University of Toronto show that the Ramset T4 I-F is over 99% efficient whereas the stick pins can downgrade the efficiency by more than 10%.



### Suggested Specification

The fasteners used to attach Insulation (Rockwool, Expanded Polystyrene and Extruded Polystyrene) into Solid Masonry, Hollow Concrete Block and Steel Studs shall be a Ramset T4 I-F Fastener. The T4 I-F Fastener shall be fastened using the Ramset T4 I-F Gas Tool. The T4 I-F Fastener is made from High Density Polyethylene (HDPE) plastic and has a holding diameter of 2-3/8" (60mm) with the Ramset logo marking.

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### Ramset T4 I-F Overview



Operating temp.: -15 C to 50 C

Light-weight: Only 3.6 Kg

Compact & light-weight lithium battery provides 3,000 shots per charge

Compact fuel cell (T4FUEL) provides approx. 500 - 750 shots

Fuel and battery gauges