



# **INSULFAST**



THE NEW AND IMPROVED  
INSULATION FASTENING SYSTEM

# **RAMSET T4 I-F**



## Insulation Fastening System

### FASTEN INSULATION IN ONE STEP

The T4 I-F System is 4 times faster than the traditional stick pin installation method. It allows the installer to attach insulation in one simple step without the use of adhesives or cutting spindle insulation anchors anymore.

### ADVANTAGES

- Saving time and labour cost over the traditional insulation fastening method.
- Fasten the insulation directly to concrete, hollow block and steel studs. No need to glue and stick pin insulation anchors anymore.
- The fastening is constant and clean looking.
- Light weight of 3.6kg means lower operator fatigue.
- The tool allows you to fasten the insulation in tight spaces through pipes and sprinkler systems.
- The T4FUEL can shoot approx. 500-750 shots before replacing.
- The system can be used year round; unlike stick pins, you won't be restricted by cold temperature or wet surfaces.
- Operating temperature from -15 C to 50 C
- Thermal bridging: 99.5% efficiency.
- 1" - 6" insulation pin capacity.
- Depth of drive adjuster.
- Fuel and battery gauges.
- Compact and lightweight lithium ion battery provides 3,000 shots per charge.

### APPLICATIONS

**MOST COMMON APPLICATION IS FASTENING INSULATION TO CONCRETE, HOLLOW BLOCK AND STEEL STUDS**



Exterior Walls - Insulation to Steel



Exterior Walls - Insulation to Concrete



Foundation Walls

Other applications include: Parking Garages, Heated Floors, Balcony Insulation, Block Walls and Ceiling Acoustical Insulation



## 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



Rockwool Mineral Wool



Extruded Polystyrene



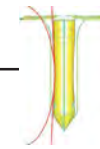
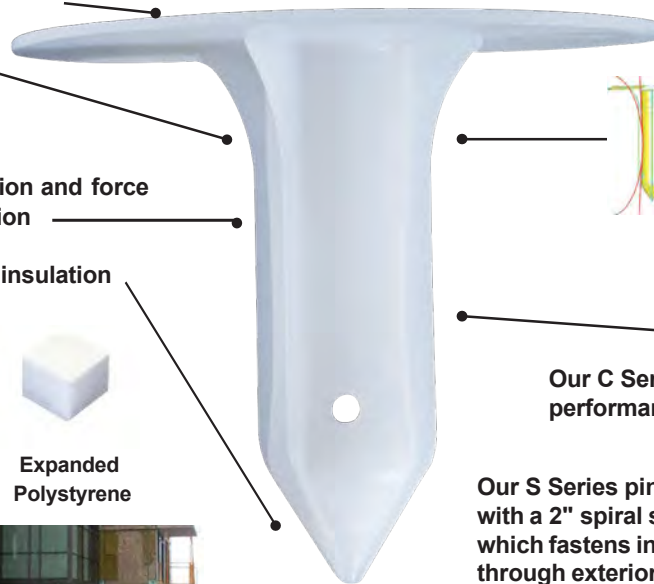
Expanded Polystyrene



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.



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.



### 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



### SELECTION CHARTS:

#### FASTENERS FOR STEEL STUDS

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



Steel

### PERFORMANCE TABLES:

#### STEEL STUDS

FASTENERS	ALLOWABLE/ULTIMATE PULLOUT LOAD LBS(kN)				
	Steel Gauge	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

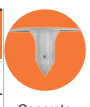
FASTENERS	CONCRETE STRENGTH PSI(Mpa)	ALLOWABLE/ULTIMATE TENSION LOADS Lbs(kN)
T4IFC-100 - T4IFC-600	3600-6500 (25-45)	35/211 (0.15 / 0.94)

#### HOLLOW CONCRETE BLOCK

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

#### FASTENERS FOR CONCRETE AND CMU

PART NUMBER	DESCRIPTION	INSULATION THICKNESS	BOX QTY
T4IFC-100	1" Insulation Fastener w/fuel	1" (25mm)	500
T4IFC-112	1-1/2" Insulation Fastener w/fuel	1-1/2" (38mm)	500
T4IFC-200	2" Insulation Fastener w/fuel	2" (50mm)	500
T4IFC-212	2-1/2" Insulation Fastener w/fuel	2-1/2" (63mm)	500
T4IFC-300	3" Insulation Fastener w/fuel	3" (75mm)	500
T4IFC-312	3-1/2" Insulation Fastener w/fuel	3-1/2" (89mm)	500
T4IFC-400	4" Insulation Fastener w/fuel	4" (100mm)	500
T4IFC-412	4-1/2" Insulation Fastener w/fuel	4-1/2" (114mm)	500
T4IFC-500	5" Insulation Fastener w/fuel	5" (125mm)	500
T4IFC-600	6" Insulation Fastener w/fuel	6" (150mm)	400
T4IF	T4 I-F Insulation Tool (6" Capacity)	-	1



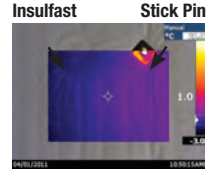
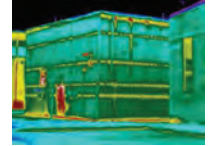
Concrete



## 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.

		Insulation Thickness					
		1 in	2 in	3 in	4 in	5 in	6 in
Reference	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%
Stick Pin	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%

6" Insulation Thermal Efficiency		
Systems without thermal cap @ <b>77.7%</b>	Stick-Pin @ <b>89.6%</b>	Ramset InsulFast™ with thermal cap @ <b>99.4%</b>

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

## Ramset T4 I-F Overview



**Operating temp.:** -15 C to 50 C

**Light-weight:** Only 3.6 Kg



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