



# X-IE-GS AND X-IE-GSP INSULATION FASTENER

Technical Supplement

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# X-IE-GS AND X-IE-GSP INSULATION FASTENER

## PRODUCT DESCRIPTION

The X-IE-GS and X-IE-GSP Insulation Fastening system consists of Gas-Actuated Fastener pre-mounted in a non-metallic insulation fastener assembly and installed using the Hilti GX-IE Gas-Actuated tool. The resulting fastener assembly allows various insulation boards to be attached rapidly and securely to steel studs, providing more efficient and safer installation.



X-IE-GS



X-IE-GSP

### Product Features and benefits

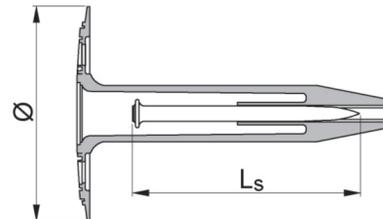
- X-IE-GS is designed for insulation fastening to cold formed steel studs with sheathing backing and X-IE-GSP is designed for applications without sheathing backing
- Suitable for wide range of steel stud thicknesses from 18 gauge to 12 gauge
- Suitable for wide range of insulation materials
- Insulation thickness range from 1" to 4" (through 8" for mineral wool with sheathing backing)
- Designed to work with water proofing membranes and vapor permeable air barriers
- Solid fastener shank helps prevent water and moisture penetration in the insulation material

## SPECIFICATIONS

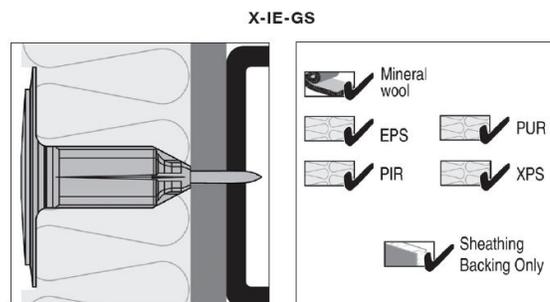
Material specification		
Body / Plate	<b>X-IE-GS</b>	<b>X-IE-GSP</b>
	Material: HDPE Color: Grey Other properties: UV stabilized material	Material: HDPE Color: Beige Other properties: UV stabilized material
Nail	<b>X-GS 57</b>	<b>X-GS 44</b>
	Carbon steel shank: HRC 57.5 Zinc-Nickel coating: 5-25µm	Carbon steel shank: HRC 57.5 Zinc-Nickel coating: 5-25 µm

### Dimensions

Description	Diameter Ø	Nail Length L <sub>s</sub>
X-IE-GS	2.36"	2.31"
X-IE-GSP	2.36"	1.73"

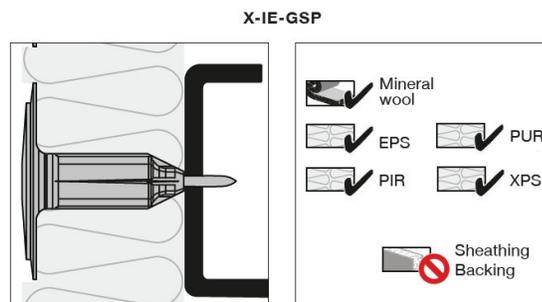


### Applications



Exterior wall insulation on cold formed steel studs with sheathing backing

Insulation materials  
Note: For insulation thicknesses of 5-8", X-IE-GS fastener is suitable for Mineral Wool only. Not suitable for hard insulation boards.



Exterior wall insulation on cold formed steel studs without sheathing backing

Insulation materials

## Environmental Conditions

- During construction, exposure to moisture and water of the fixing element shall not exceed 40 days.
- During construction, exposure to UV due to solar radiation of the fixing element not protected by rendering shall not exceed 40 days.
- The temperature during installation of the fixing element shall not be less than 14°F (-10°C)

These conditions apply only to fixing element. Follow board manufacturers recommendations in regard to environmental exposure of other wall components.

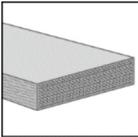
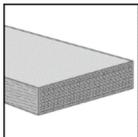
## TECHNICAL DATA

### Dimensions for X-IE-GS and X-IE-GSP

Fastened Material	Compressive Strength	Fastened Material Thickness $t_f$
Rigid mineral wool	< 70 psi	1" – 8" <sup>1</sup>
EPS, XPS, PIR, PUR	< 70 psi	1" – 4"
PIR, PUR with foil facing	< 70 psi	1" – 4"

<sup>1</sup>Thickness limited to 4" with X-IE GSP fastener.

### Sheathing backing properties for use with X-IE-GS

Sheathing Material <sup>1,2,3</sup>	Sheathing Material Thickness, $t_s$
 Gypsum	1/2" – 5/8"
 Plywood (OSB)	1/2" – 5/8"

<sup>1</sup>Stacking multiple sheathing layers is not recommended.

<sup>2</sup>For suitability of other sheathing materials than described above, contact Hilti.

<sup>3</sup>For application without sheathing backing, use I-IE-GSP.

### Waterproofing Membrane Properties

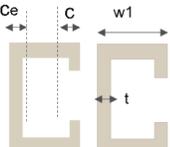
WPM Material <sup>1,2,3</sup>	Max. WPM thickness Inch (mm)
Liquid Applied and Sheet Based (bitumen or paper wrap)	0.08 (2)
Sprays	

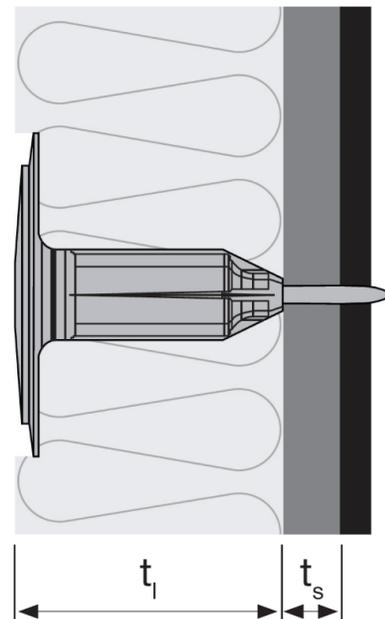
<sup>1</sup>WPM sprays should be installed according to manufacturers' instructions.

<sup>2</sup>No more than 2 layers of wrap WPM's.

<sup>3</sup>WPM between stud and insulation is only allowed for the X-IE-GS fastener.

### Base Material Properties

Base Material <sup>1</sup>	Material Strength	Base Metal Thickness $t_f$	Web Width $w_1$	Minimum Corner Distance $c_e$	Minimum Edge Distance $c$
 <p>Cold formed steel studs</p>	$f_{cc} = 30-60$ ksi	18ga (43 mils) – 12ga (97 mils)	1-3/8" – 3"	0.2"	0.2"



Base Material <sup>1</sup>	Material Strength	Base Metal Thickness $t_1$	Web Width $w_1$	Minimum Corner Distance $c_e$	Minimum Edge Distance $c$	
	Track sections	$f_{cc} = 30-60$ ksi	18ga (43 mils) – 12ga (97 mils)	1-3/8" – 3"	0.2"	0.2"

<sup>1</sup>Fastening should be done on cold-formed steel or track sections, not at intersection between studs and tracks at corners.

### Fastening Pattern, Edge Distance and Spacing on Insulation Materials

Fastened Material	Minimum Number of Fasteners Per Square-Foot	Pattern, Edge Distance and Spacing
Rigid mineral wool EPS, XPS, PIR, PUR, PIR/PUR with foil facing	0.6	Follow insulation board manufacturer's recommendations

<sup>1</sup>Required even if ancillary support is provided, or if the board manufacturer's minimum spacing is greater.

### Performance Data

	Recommended resistance under tension and shear load	
	Tension lb (kn) $N_{rec}$	Shear lb (kn) $V_{rec}$
	45 (0.2)	45 (0.2)

Fastened Material	Minimum Number of Fasteners Per Square-Foot	Pattern, Edge Distance and Spacing
Rigid mineral wool EPS, XPS, PIR, PUR, PIR/PUR with foil facing	0.6	Follow insulation board manufacturer's recommendations

<sup>1</sup>Required even if ancillary support is provided, or if the board manufacturer's minimum spacing is greater.

- Minimum cold-formed steel base material strength 33ksi.
- Minimum base material thickness 18ga (43 mils).
- The above data is valid when fasteners are installed according to edge and corner distance specifications and all successful fastening points have nail at least 0.36" nail protrusion.
- The above data values are for cold formed steel studs and track sections based on laboratory and field testing.
- The above data refers to the fastener pull-out failure mode.
- For pull-over capacity please consult insulation material supplier.

### Fastening Quality Assurance

	Fastening System	Minimum acceptable nail protrusion $L_p$ for successful fastenings on cold form steel studs and track sections
	X-IE-GS X-IE-GSP	0.36"

- Visible setting failures **must be replaced with a new fastener**, not in the same hole.

## ADDITIONAL SYSTEM REQUIREMENTS

### Tool and Energy Recommendation



**\*NOTE:** GX-IE and GX-IE XL tools need to have an X-IE-GS and X-IE-GSP enabled fastener guide which is indicated by a red ring as the picture below. If the fastener guide doesn't have the red ring, please contact Hilti for support.



Fastener	GX-IE*	GX-IE XL*	GC 52
X-IE-GS	✓	✓	✓
X-IE-GSP	✓	✓	✓

\*For insulation thicknesses > 6", GX-IE XL tool is required.

## ORDERING INFORMATION

Fastened Material	Insulation Thickness <sup>1</sup> t <sub>i</sub>	X-IE-GS			X-IE-GSP		
		Designation	Nail	Item No.	Designation	Nail	Item No.
Rigid mineral wool; EPS, XPS, PIR, PUR, PIR/PUR with foil facing	1"	X-IE-GS 1"	X-GS 57	2299884	X-IE-GSP 1"	X-GS 44	2375249
	1.5"	X-IE-GS 1-1/2"	X-GS 57	2293071	X-IE-GSP 1-1/2"	X-GS 44	2325570
	2"	X-IE-GS 2"	X-GS 57	2293072	X-IE-GSP 2"	X-GS 44	2323571
	2.5"	X-IE-GS 2-1/2"	X-GS 57	2293073	X-IE-GSP 2-1/2"	X-GS 44	2325572
	3"	X-IE-GS 3"	X-GS 57	2293074	X-IE-GSP 3"	X-GS 44	2325573
	3.5"	X-IE-GS 3-1/2"	X-GS 57	2299885	X-IE-GSP 3-1/2"	X-GS 44	2325574
Rigid mineral wool only	4"	X-IE-GS 4"	X-GS 57	2293075	X-IE-GSP 4"	X-GS 44	2325575
	5"	X-IE-GS 5"	X-GS 57	2385699	-	-	-
	6"	X-IE-GS 6"	X-GS 57	2386280	-	-	-
	7"	X-IE-GS 7"	X-GS 57	2386281	-	-	-
	8"	X-IE GS 8"	X-GS 57	2362644	-	-	-

<sup>1</sup>Insulation board thickness tolerance +/- 1/8"



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The data contained in this literature was current as of the date of publication. Updates and changes may be made based on later testing. If verification is needed that the data is still current, please contact the Hilti Technical Support Specialists at 1-800-879-8000. All published load values contained in this literature represent the results of testing by Hilti or test organizations. Local base materials were used. Because of variations in materials, on-site testing is necessary to determine performance at any specific site. Printed in the United States.