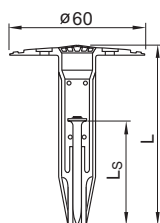
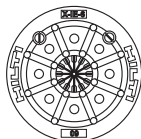


X-IE Wall Insulation Fastener

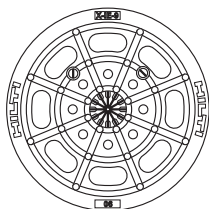
Product data

Dimensions

X-IE 6



HDT 90



General information

Material specifications

Plate:	HDPE, colourless
	HDPE, black (BK)
Nail:	Carbon steel shank: HRC 58
	Zinc coating: 5–13 µm

Fastening tool

DX 460 IE

See fastener selection for more details.

Approvals

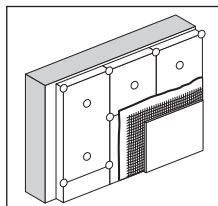
SOCOTEC WX 1530 (France)

Comment: European Technical Approvals for the fasteners **XI-FV** (ETA-03/0004) and **SX-FV** (ETA-03/0005) for use in ETICS are available

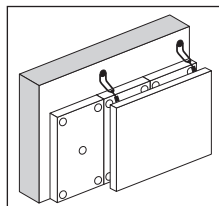
Note: technical data presented in these approvals and design guidelines reflect specific local conditions and may differ from those published in this handbook.

Applications

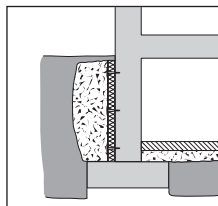
Examples



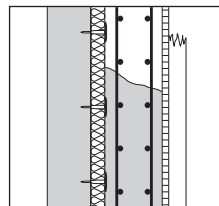
Composite thermal insulation (XI-FV)



Insulation behind curtain walls



Moisture barriers / drainage plates



Expansion joint material

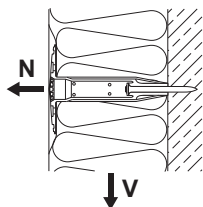
Load data

Recommended loads

	Insulation thickness t_i [mm]									
	40	45	50	60	70	75	80	100	120	140
X-IE 6	Shear, V_{rec} [N]									
Polystyrol [15 kg/m ³]	150	200	250	300	300	325	350	350	350	350
Styrofoam [30 kg/m ³]	600	600	600	600	600	600	600	600	600	600
	Pullover, N_{rec} [N]									
Polystyrol [15 kg/m ³]	250	270	290	300	300	300	300	300	300	300
Styrofoam [30 kg/m ³]	300	300	300	300	300	300	300	300	300	300
HDT 90	Pullover, N_{rec} [N]									
Mineral wool [≥ 7.5 kN/m ²]*	–	–	–	135	135	135	135	135	135	135
Mineral wool [≥ 15 kN/m ²]*	–	–	–	250	250	250	250	250	250	250

*) Tensile Strength σ_{mt} according to DIN EN 1607

When base material properties are questionable, jobsite qualification is necessary



Application requirements

Thickness of base material

Concrete: $h_{min} = 80$ mm

Steel: $t_{fl} \geq 4$ mm

Thickness of fastened material

Insulation thickness: $t_i = 25$ –140 mm

Spacing and edge distances

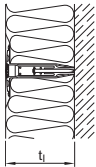
For setting instructions please inquire at the insulation material supplier.

Application limits

Concrete:	$f_{cc} = 15\text{--}45 \text{ N/mm}^2$ aggregate size $\leq 32 \text{ mm}$
Sand-lime masonry:	$f_{cc} = 15\text{--}45 \text{ N/mm}^2$
Clinker brick work:	$f_{cc} = 28\text{--}45 \text{ N/mm}^2$
Steel:	$f_u = 360\text{--}540 \text{ N/mm}^2$ $t_{II} = 4\text{--}6 \text{ mm}$

Fastener selection and system recommendation

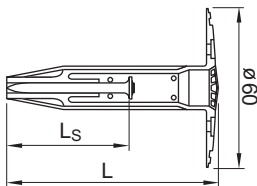
Fastener selection



Select $L = t_f$

For intermediate thicknesses inquire at Hilti for job site qualification.

Use extension plate **HDT 90 / HDT 90 BK** for soft insulation.



Designation	Fastener	Item no.	L_s [mm]	L [mm]
X-IE 6-25	PH 47	283990	47	25
X-IE 6-30	PH 52	283991	52	30
X-IE 6-35	PH 52	283992	52	35
X-IE 6-40	PH 52	376466	52	40
X-IE 6-45	PH 52	376467	52	45
X-IE 6-50	PH 52	376468	52	50
X-IE 6-60	PH 52	376469	52	60
X-IE 6-70	PH 52	376470	52	70
X-IE 6-75	PH 52	376471	52	75
X-IE 6-80	PH 52	376472	52	80
X-IE 6-90	PH 52	376473	52	90
X-IE 6-100	PH 52	376474	52	100
X-IE 6-120	PH 72	376475	72	120
X-IE 6-140	PH 72	283339	72	140

System recommendation

Tool

DX 460 IE

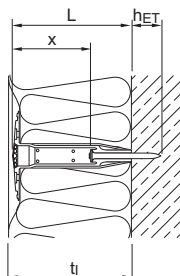
Cartridge selection and tool energy setting

Cartridge recommendation:	Steel:	6.8/11M yellow or red cartridge
	Concrete	6.8/11M yellow or red cartridge
	Masonry:	6.8/11M yellow or green cartridge

Tool energy adjustment by setting tests on site.

Fastening quality assurance

Fastening inspection



Insulation thickness t_i [mm]

40	45	50	60	70	75	80	100	120	140
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Concrete $h_{ET} = 25-29$ mm

x_{min} [mm]	10	15	20	30	40	45	50	70	70	90
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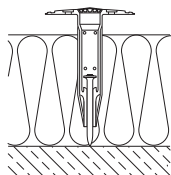
x_{max} [mm]	14	19	24	34	44	49	54	74	74	94
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Steel and sand-lime $h_{ET} = 20-24$ mm

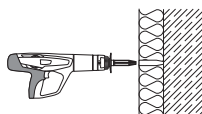
x_{min} [mm]	5	10	15	25	35	40	45	65	65	85
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x_{max} [mm]	9	14	19	29	39	44	49	69	69	89
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Recognition of placing failures



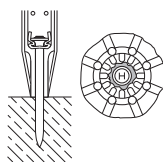
Fastener rebounds



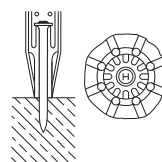
Fastener remains on tool*

*) **XI-FV** with placing failure indication

Visual check immediately after fastening



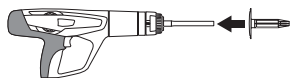
Correct:
Top hat crushed



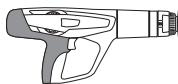
Incorrect:
Top hat not crushed

Installation

1. Load **X-IE** on cycled tool



2. Push the X-IE all the way into the insulation



3. Pull the trigger to fasten

