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PRODUCT DATA SHEET – ThermoDrive V2

Section 1. PRODUCT DESCRIPTION

SCREWED-IN FASTENER WITH METAL PIN AND ELASTIC EXPANSION ZONE –

ThermoDrive V2

Screwed-in fastener ThermoDrive V2 with steel pin and elastic expansion zone from 25mm is made of polyethylene, and its pin is made of zinc-plated steel. ThermoDrive V2 has a minimum point thermal conductivity of 0,001 W/K over the entire thickness of thermal insulation material in immerged installation. Fastener ThermoDrive V2 should be used to transfer loads of wind suction forces and applied as an additional mechanical fixing for the whole system, recommended for:

- **expanded polystyrene EPS**
- **extruded polystyrene XPS**
- **mineral wool (with optional collar TDX-90/TDX-140)**




Elastic universal anchorage zone 25-65mm


Low point thermal conductivity of only 0,001 W/K in immerged installation


Very high collar stiffness 1 kN/mm


Screwed-in steel pin (TX-30) - fixing polystyrene foam and mineral wool and ETICS on ETICS

Very high pull-out strengths for all substrate types: A,B,C,D,E.



Types of substrates on which fastener ThermoDrive V2 can be installed according to EAD 330196-01-0604:

A	B	C	D	E
				
Concrete	Solid brick, silicate brick	Verticaly perforated ceramic brick	Lightweight concrete block	Autoclaved aerated Brick

Fasteners have European Technical Assessment: ETA-22/0611



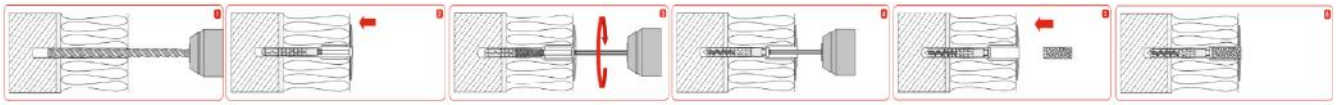
Section 2. METHOD OF INSTALLATION

1. Before installation identify the substrate and select suitable fasteners
2. Select adequate length of the fastener so that expansion zone is in the construction material of the wall
3. Minimum length of the fastener is: $L_d=t_{fix}+t_{tol}+h_{eff}$, where: t_{fix} - thickness of thermal insulation material to be fixed, t_{tol} - thickness of sub-crusts (adhesive + existing plaster), h_{eff} - depth of fastener anchorage in the substrate (given in the sheet and in European Technical Assessment ETA)
4. Before installation prepare the substrate as recommended by ETICS manufacturer
5. Fix thermal insulation panels correctly using an adhesive
6. Diameter of drilled holes should match diameter of the fasteners used
7. Drilled holes in substrates of solid materials should be deeper by min. 10 mm compared to the fastener anchorage depth or should be deeper by min. 30 mm using installation Tool ThermoDrive-V2 only in case of immerged installation
8. Clean the holes drilled in solid materials by removing drillings with a back and forth motion of the drill at a reduced speed, repeating it four times
9. Drill the holes in substrates of hollowed bricks and aerated concrete without impact as otherwise this will cause breakage of inner walls of the substrate and reduce pull-out resistance of fasteners
10. Fix the fasteners so that the installation spot matches the area where adhesive is placed on a thermal insulation board
11. Embed the fastener body so that the fastener collar is flush with thermal insulation material
12. Then screw in the pin by tightening the anchor to the thermal insulation material (TORX-30 socket)
13. After the pin is screwed-in, place polystyrene disc **KSV** – only for surface installation
14. Fasteners can be installed in holes cut with cutter for polystyrene **WK-FT** or cutter for mineral wool **WK-FM** – for immerged installation
15. Immerged installation also can be carried out without cutting holes with use of separate cutters for polystyrene or wool, using installation Tool ThermoDrive-V2 – alternatively for immerged installation
16. After installing the fastener, the installation spot should be covered with polystyrene disc **KS/KSG or** mineral wool disc **EDMW** – for immerged installation

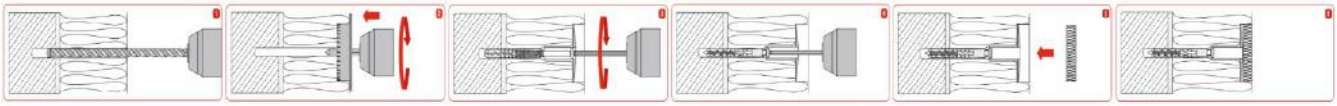
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PRODUCT DATA SHEET – ThermoDrive V2

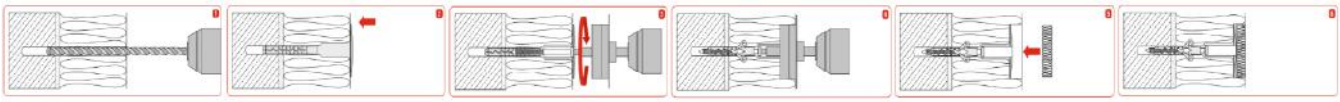
I. INSTALLATION INSTRUCTION – SURFACE MOUNT



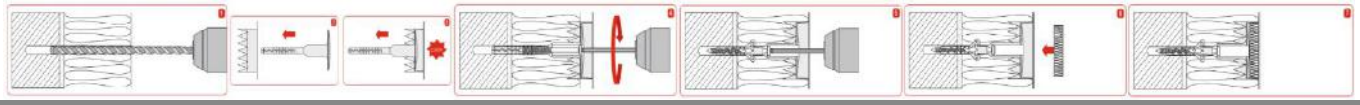
II. INSTALLATION INSTRUCTION – IMMERGED MOUNT WITH INSULATION CAP



III. INSTALLATION INSTRUCTION – IMMERGED MOUNT USING TOOL THERMODRIVE-V2 WITH INSULATION CAP



VI. INSTALLATION INSTRUCTIONS - RECESSED INSTALLATION USING CUTTER-V2 WITH INSULATING DISC



Section 3. TECHNICAL DATA

TECHNICAL PARAMETERS		
Parameter	Unit	Value
Fastener diameter	d_k [mm]	8
Collar diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	25/45*
Drilled hole depth surface/immerged installation immerged installation with tool Thermodrive-V2	h_0 [mm]	35/55* 55/75*
Point thermal conductivity	χ [W/K]	0,001(1) 0,001(2) 0,002(3)
Collar stiffness	S [kN/mm]	1,00
Use categories	[-]	A B C D E
Fastener material	[-]	PE
Pin material	[-]	Zinc-plated steel
European Technical Assessment	[-]	ETA-22/0611

* for substrate category E (aerated concrete)

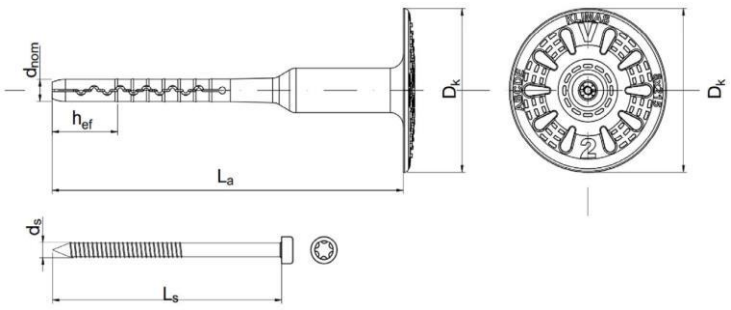
(1) immerged installation

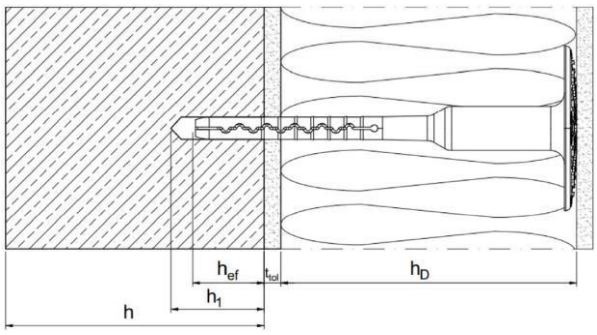
(2) surface installation for thermal insulation material 100mm and 410÷430mm

(3) surface installation for thermal insulation material 110÷400mm

RESISTANCE			
Substrate category	Substrate type	Density [kg/dm^3]	Characteristic resistance [kN]
A	Concrete C12/15	≥ 2,20	1,50
A	Concrete C16/20 – C50/60	≥ 2,25	1,50
A	Thin curtain walls made of concrete C16/20 – C50/60, thickness 40mm÷100mm	≥ 2,00	1,50
B	Solid clay brick MZ	≥ 2,00	1,50
B	Solid sand-lime brick KS	≥ 2,00	1,50
C	Hollow sand-lime block KSL	≥ 1,60	1,50
C	Vertically perforated clay brick HLZ	≥ 1,20	1,50
C	Hollow clay brick Porotherm 25 and MAX 250	≥ 0,80	1,20
C	Lightweight concrete hollow blocks HBL	≥ 0,80	1,50
D	Lightweight concrete blocks LAC	≥ 0,88	1,20
C	Tekno Amer Block PK17,8	≥ 1,50	1,50
C	Tekno Amer Block PK19	≥ 1,10	1,50
E	Autoclaved aerated concrete AAC2	≥ 0,35	1,20
E	Autoclaved aerated concrete AAC5	≥ 0,65	1,50

Partial safety factor γ_M=2 in the absence of regulations





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PRODUCT DATA SHEET – ThermoDrive V2

Product code	Fastener diameter and length (d_k x L_k)	Table of selection of fastener for surface installation				
		SUBSTRATE CATEGORIES ABCD (t_{tol} adhesive layer of 10mm included*)		SUBSTRATE CATEGORY E (t_{tol} adhesive layer of 10mm included*)		Number of pieces in a box
		Range of thickness of thermal insulation material [mm]	Effective anchorage depth [mm]	Range of thickness of thermal insulation material [mm]	Effective anchorage depth [mm]	
ThermoDrive-V2-08135(200)		80-100	45-25	80	45	200
ThermoDrive-V2-08155(200)	8x155	80-120	65-25	80-100	65-45	200
ThermoDrive-V2-08175(200)	8x175	100-140	65-25	100-120	65-45	200
ThermoDrive-V2-08195(200)	8x195	120-160	65-25	120-140	65-45	200
ThermoDrive-V2-08215(100)	8x215	140-180	65-25	140-160	65-45	100
ThermoDrive-V2-08235(100)	8x235	160-200	65-25	160-180	65-45	100
ThermoDrive-V2-08255(100)	8x255	180-220	65-25	180-200	65-45	100
ThermoDrive-V2-08275(100)	8x275	200-240	65-25	200-220	65-45	100
ThermoDrive-V2-08295(100)	8x295	220-260	65-25	220-240	65-45	100
ThermoDrive-V2-08315(100)	8x315	240-280	65-25	240-260	65-45	100
ThermoDrive-V2-08335(100)	8x335	260-300	65-25	260-280	65-45	100
ThermoDrive-V2-08355(100)	8x355	280-320	65-25	280-300	65-45	100
ThermoDrive-V2-08375(100)	8x375	300-340	65-25	300-320	65-45	100
ThermoDrive-V2-08395(100)	8x395	320-360	65-25	320-340	65-45	100
ThermoDrive-V2-08415(100)	8x415	340-380	65-25	340-360	65-45	100
ThermoDrive-V2-08435(100)	8x435	360-400	65-25	360-380	65-45	100
ThermoDrive-V2-08455(100)	8x455	380-420	65-25	380-400	65-45	100

*with thickness of adhesive >10mm include a difference in the selection of fastener length

Product code	Fastener diameter and length (d_k x L_k)	Table of selection of fastener for immerged installation				
		SUBSTRATE CATEGORIES ABCD (t_{tol} adhesive layer of 10mm included*)		SUBSTRATE CATEGORY E (t_{tol} adhesive layer of 10mm included*)		Number of pieces in a box
		Range of thickness of thermal insulation material [mm]	Effective anchorage depth [mm]	Range of thickness of thermal insulation material [mm]	Effective anchorage depth [mm]	
ThermoDrive-V2-08135(200)	8x135	100-120	45-25	100	45	200
ThermoDrive-V2-08155(200)	8x155	100-140	65-25	100-120	65-45	200
ThermoDrive-V2-08175(200)	8x175	120-160	65-25	120-140	65-45	200
ThermoDrive-V2-08195(200)	8x195	140-180	65-25	140-160	65-45	200
ThermoDrive-V2-08215(100)	8x215	160-200	65-25	160-180	65-45	100
ThermoDrive-V2-08235(100)	8x235	180-220	65-25	180-200	65-45	100
ThermoDrive-V2-08255(100)	8x255	200-240	65-25	200-220	65-45	100
ThermoDrive-V2-08275(100)	8x275	220-260	65-25	220-240	65-45	100
ThermoDrive-V2-08295(100)	8x295	240-280	65-25	240-260	65-45	100
ThermoDrive-V2-08315(100)	8x315	260-300	65-25	260-280	65-45	100
ThermoDrive-V2-08335(100)	8x335	280-320	65-25	280-300	65-45	100
ThermoDrive-V2-08355(100)	8x355	300-340	65-25	300-320	65-45	100
ThermoDrive-V2-08375(100)	8x375	320-360	65-25	320-340	65-45	100
ThermoDrive-V2-08395(100)	8x395	340-380	65-25	340-360	65-45	100
ThermoDrive-V2-08415(100)	8x415	360-400	65-25	360-380	65-45	100
ThermoDrive-V2-08435(100)	8x435	380-420	65-25	380-400	65-45	100
ThermoDrive-V2-08455(100)	8x455	400-440	65-25	400-420	65-45	100

*with thickness of adhesive >10mm include a difference in the selection of fastener length

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Product code	Fastener diameter and length (d_k x L_k)	Table of selection of fastener for immerged installation with use of tool ThermoDrive-V2				
		SUBSTRATE CATEGORIES ABCD (t_{tol} adhesive layer of 10mm included*)		SUBSTRATE CATEGORY E (t_{tol} adhesive layer of 10mm included*)		Number of pieces in a box
		Range of thickness of thermal insulation material [mm]	Effective anchorage depth [mm]	Range of thickness of thermal insulation material [mm]	Effective anchorage depth [mm]	
ThermoDrive-V2-08135(200)	8x135	100	25	-	-	200
ThermoDrive-V2-08155(200)	8x155	100-120	45-25	100	45	200
ThermoDrive-V2-08175(200)	8x175	120-140	45-25	110-120	55-45	200
ThermoDrive-V2-08195(200)	8x195	120-160	65-25	120-140	65-45	200
ThermoDrive-V2-08215(100)	8x215	140-180	65-25	140-160	65-45	100
ThermoDrive-V2-08235(100)	8x235	160-200	65-25	160-180	65-45	100
ThermoDrive-V2-08255(100)	8x255	180-220	65-25	180-200	65-45	100
ThermoDrive-V2-08275(100)	8x275	200-240	65-25	200-220	65-45	100
ThermoDrive-V2-08295(100)	8x295	220-260	65-25	220-240	65-45	100
ThermoDrive-V2-08315(100)	8x315	240-280	65-25	240-260	65-45	100
ThermoDrive-V2-08335(100)	8x335	260-300	65-25	260-280	65-45	100
ThermoDrive-V2-08355(100)	8x355	280-320	65-25	280-300	65-45	100
ThermoDrive-V2-08375(100)	8x375	300-340	65-25	300-320	65-45	100
ThermoDrive-V2-08395(100)	8x395	320-360	65-25	320-340	65-45	100
ThermoDrive-V2-08415(100)	8x415	340-380	65-25	340-360	65-45	100
ThermoDrive-V2-08435(100)	8x435	360-400	65-25	360-380	65-45	100
ThermoDrive-V2-08455(100)	8x455	380-420	65-25	380-400	65-45	100

*with thickness of adhesive >10mm include a difference in the selection of fastener length

Section 4. REMARKS

1. All previous versions of this Product Data Sheet shall cease to be valid
2. Data given in this Product Data Sheet is in accordance with current knowledge and published in good faith. KLIMAS Sp. z o.o. is not responsible for correctness and quality of the fixing if recommendations regarding method of use and installation are not followed.

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