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European Technical Assessment

**ETA-15/0578
of 30/09/2015**

General part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	Wkręt-Met Flat Roof Fasteners
Product family to which the construction product belongs	Fasteners for flexible roof waterproofing systems
Manufacturer	Klimas Sp. z o.o. ul. Wincentego Witosa 135/137 Kuźnica Kiedrzyńska 42-233 Mykanów Poland
Manufacturing plant	Klimas Sp. z o.o. ul. Wincentego Witosa 135/137 Kuźnica Kiedrzyńska 42-233 Mykanów Poland
This European Technical Assessment contains	32 pages including 28 Annexes which form an integral part of this Assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	Guideline for European Technical Approval ETAG 006, edition March 2000, amended November 2012, "Systems of mechanically fastened flexible roof waterproofing membranes", used as European Assessment Document (EAD)

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Specific part

1. Technical description of the product

The construction products are mechanical fasteners Wkręt-Met Flat Roof Fasteners. The fasteners comprise a screw made of carbon steel protected by ceramic coating and a washer or washer with integral sleeve. Washer is made of stainless steel. Washer with integrated sleeve is made of plastic material: polypropylene (PP), polyethylene (PE) or polyamide (PA).

The fasteners shall correspond to the drawings and information given in Annexes 1 to 28.

2. Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The fasteners Wkręt-Met Flat Roof Fasteners are intended to be used for the fastening of flexible roof waterproofing membranes according to ETAG 006. The possible substructures are steel sheets, concrete, precast concrete slab, plywood and timber boards including OSB.

The provisions made in this European Technical Assessment are based on an assumed working life of the fasteners of 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or Technical Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3. Performances of the product and references to the methods used for their assessment

3.1. Performance of the product

3.1.1. Safety in case of fire (BWR 2)

Reaction to fire: No performance assessed.

3.1.2. Hygiene, health and the environment (BWR 3)

Regarding the dangerous substances clauses contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

3.1.3. Safety in use (BWR 4)

The characteristic values and mean values of the axial load resistance of the fasteners are given in Annex 26 to 28. The values were determined by axial loading tests according to ETAG 006.

The fasteners are deemed to satisfy the requirements of ETAG 006 concerning unwinding. This was evaluated on the basis of existing field experience of the manufacturer.

3.1.4. Sustainable use of natural resources (BWR 7)

No performance assessed.

3.1.5. General aspects relating to fitness for use

The durability requirements of ETAG 006 (resistance to corrosion of metallic parts, impact resistance and brittleness of plastic parts before and after heat ageing, requirements for results of Charpy tests for plastic parts before and after heat ageing) are satisfied for the coated carbon steel and the polypropylene, polyethylene or polyamide parts of the fasteners.

All parts made of carbon steel protected by ceramic coating resisted to 15 cycles of the test procedure described in ETAG 006 (Kaesternich test) and did not show more than 15% surface corrosion.

The test results of the impact resistance and brittleness of plastic parts showed a drop height more than 1,0 m before and after heat ageing of these parts. Furthermore the results of the corresponding Charpy tests after heat ageing did not show any significant decline compared to the results before heat ageing.

3.2. Methods used for the assessment

The assessment of fitness of the fasteners for the declared intended use has been made in accordance with ETAG 006.

4. Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base


According to Decision 98/143/EC of the European Commission the system 2+ of assessment and verification of constancy of performance applies (see Annex V to Regulation (EU) No 305/2011).

5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

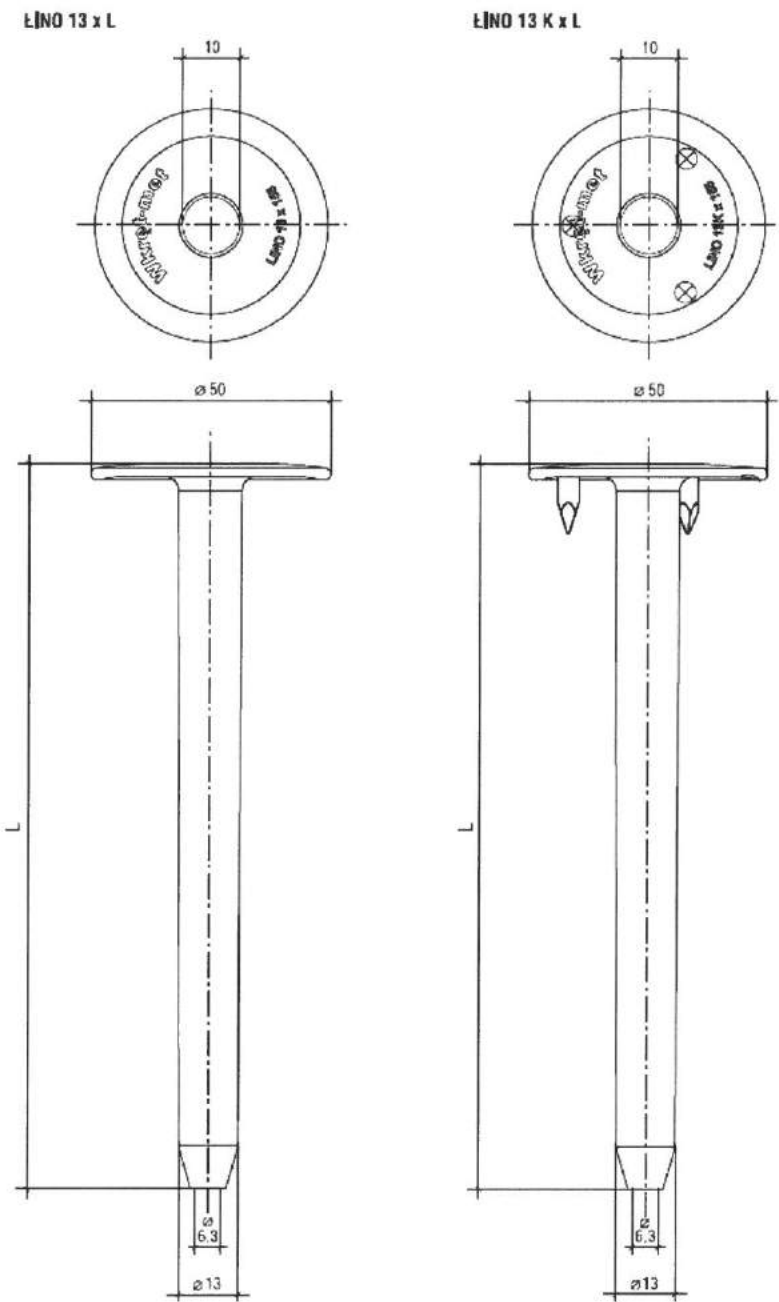
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at the Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

Issued in Warsaw on 30/09/2015 by Instytut Techniki Budowlanej



Marcin M. Kruk, PhD
Director of ITB

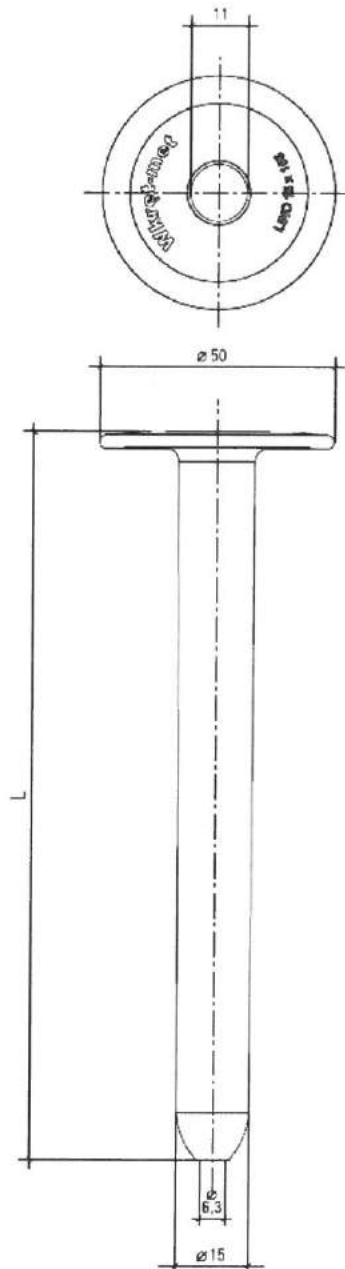


Wkręt-Met Flat Roof Fasteners

Plastic sleeves: LINO 13 and LINO 13 K

Annex 1
of European
Technical Assessment
ETA-15/0578

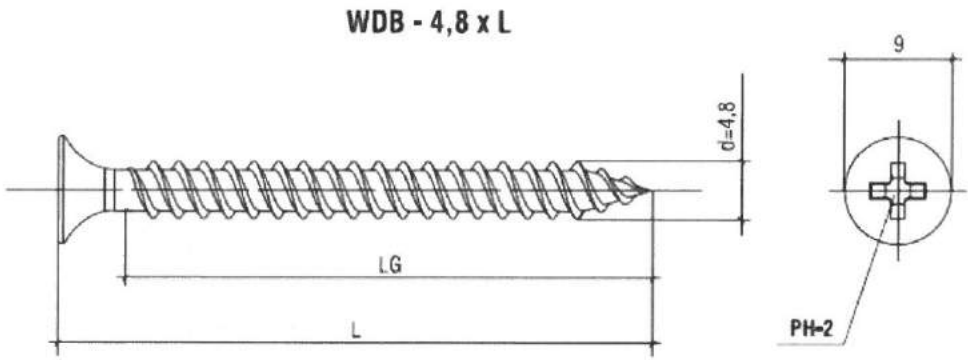
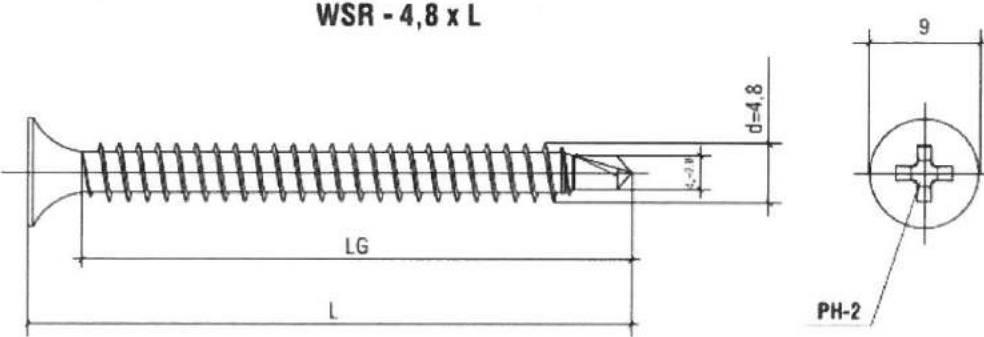
LINO 15 x L

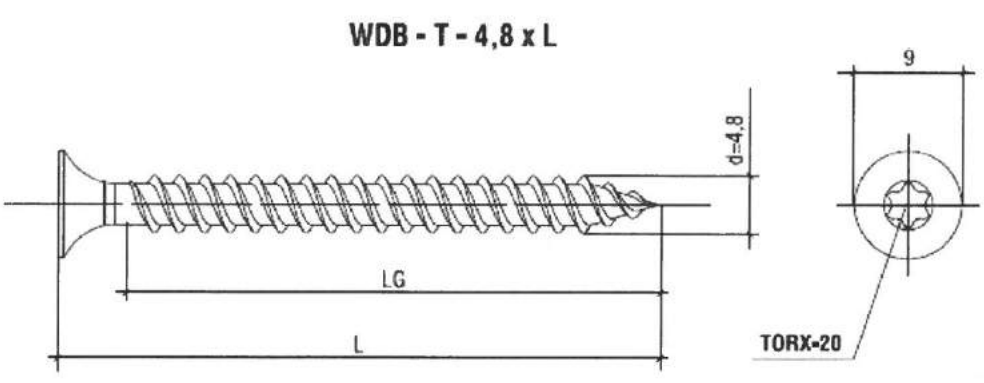
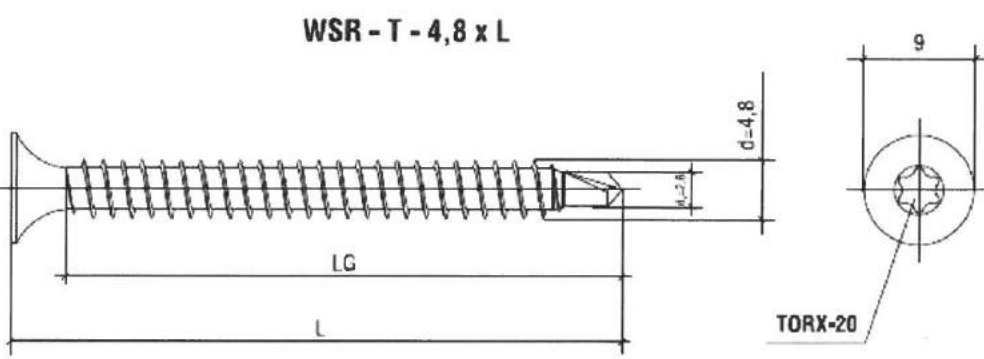


Wkręt-Met Flat Roof Fasteners

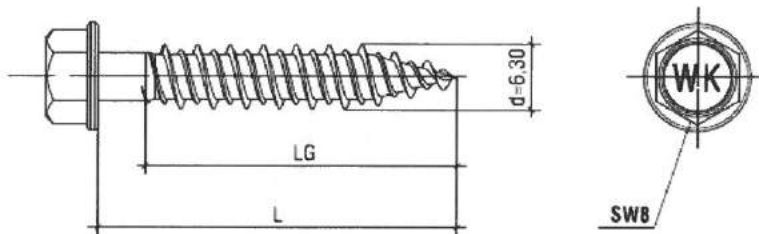
Plastic sleeves: LINO 15

Annex 2
of European
Technical Assessment
ETA-15/0578

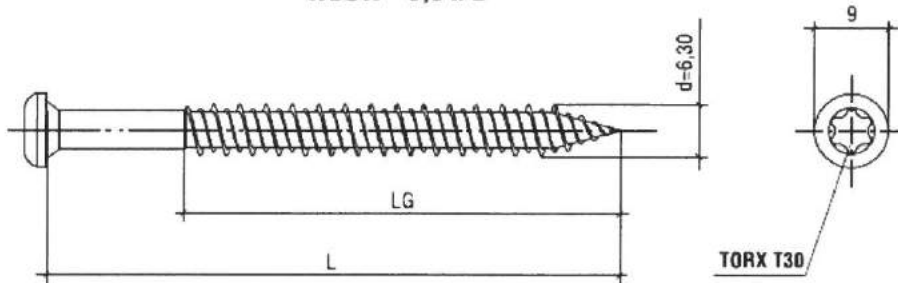
<p>WDB - 4,8 x L</p> 	
<p>WSR - 4,8 x L</p> 	
<p>Wkręt-Met Flat Roof Fasteners</p>	<p>Annex 3 of European Technical Assessment ETA-15/0578</p>
<p>Self-tapping screw WDB-4,8xL Self-drilling screw WSR-4,8xL</p>	

<p>WDB - T - 4,8 x L</p> 	
<p>WSR - T - 4,8 x L</p> 	
<p>Wkręt-Met Flat Roof Fasteners</p>	<p>Annex 4 of European Technical Assessment ETA-15/0578</p>
<p>Self-tapping screw WDB-T-4,8xL Self-drilling screw WSR-T-4,8xL</p>	

WB6 - C - 6,3 x L



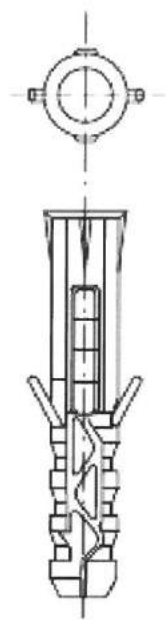
WBSW - 6,3 x L



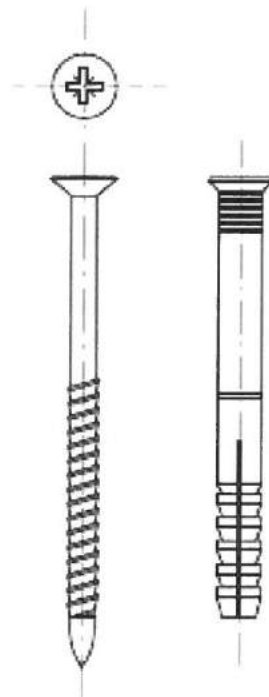
Wkręt-Met Flat Roof Fasteners

- Self-tapping screw WB6-C-6,3xL
- Self-tapping screw WBSW-6,3xL

Annex 5
of European
Technical Assessment
ETA-15/0578



KNX 8 x 50

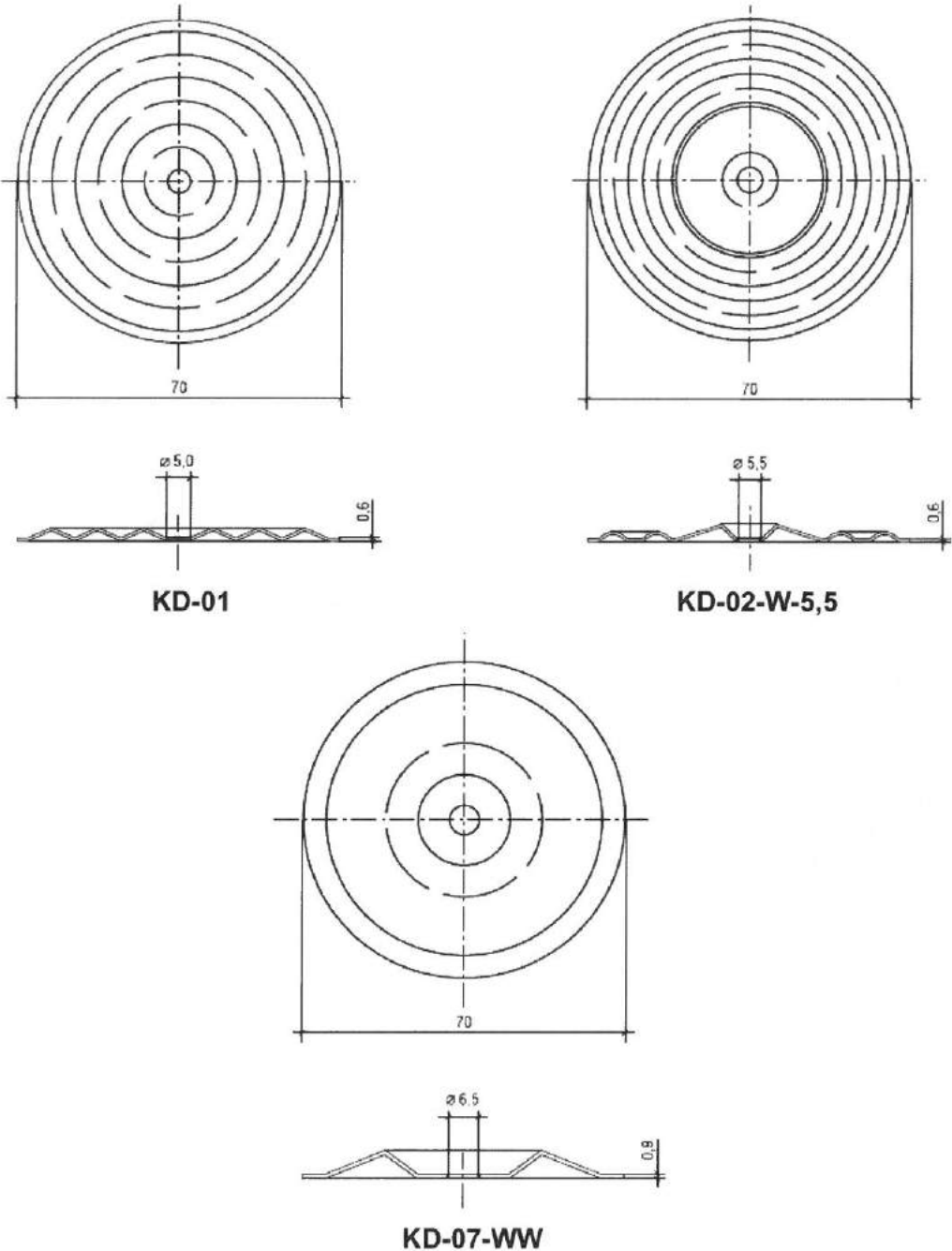


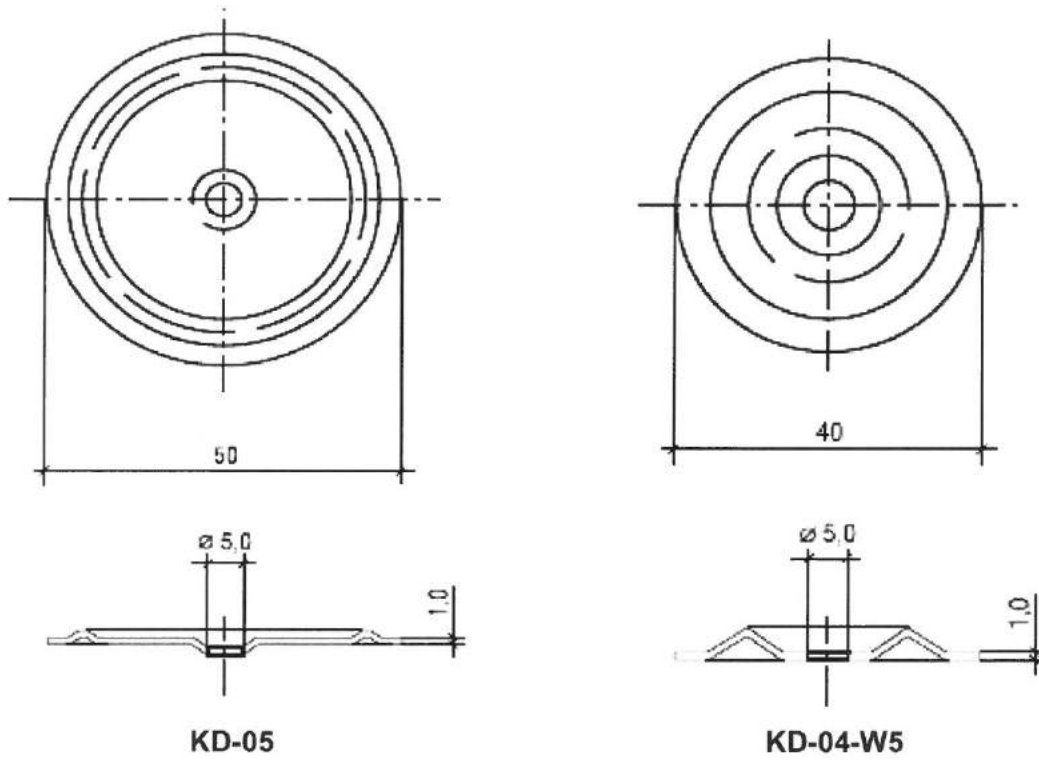
SMN 6 x 50
SMN 8 x 60

Wkręt-Met Flat Roof Fasteners

KNX 8 x 50
SMN 6 x 50 and SMN 8 x 60

Annex 6
of European
Technical Assessment
ETA-15/0578

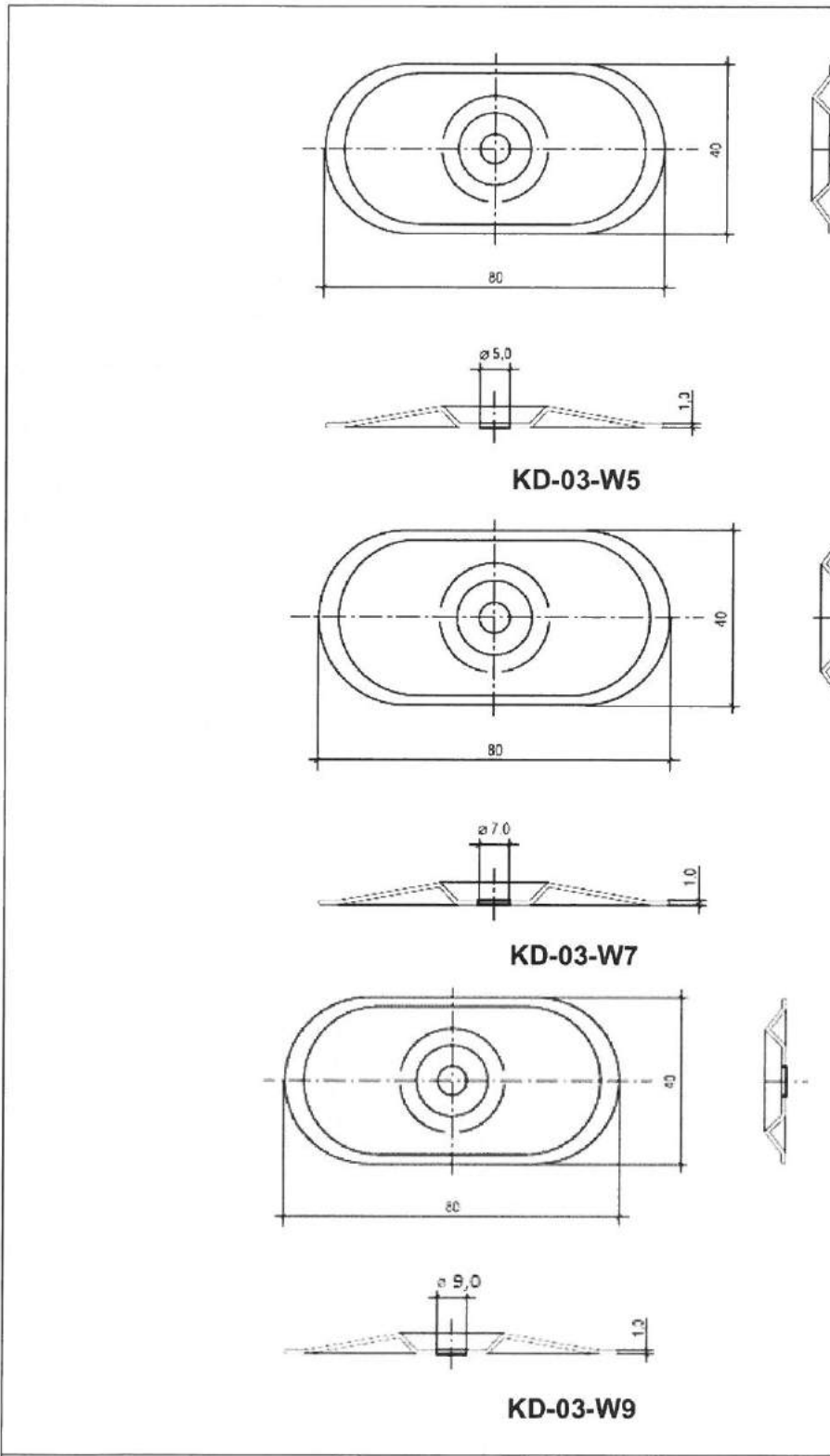
 <p>KD-01</p> <p>KD-02-W-5,5</p> <p>KD-07-WW</p>	<p>Annex 7</p> <p>of European Technical Assessment ETA-15/0578</p>
<p>Wkręt-Met Flat Roof Fasteners</p> <p>Stainless steel washer pads: KD-01, KD-02-W-5,5 and KD-07-WW</p>	

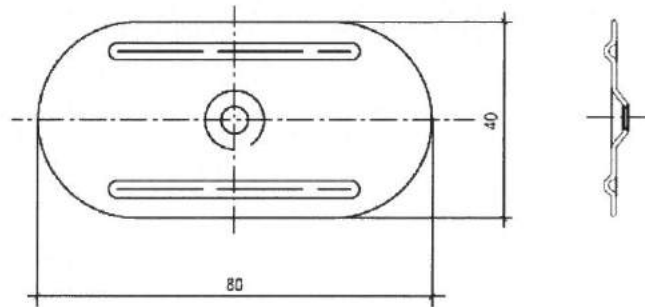


Wkręt-Met Flat Roof Fasteners

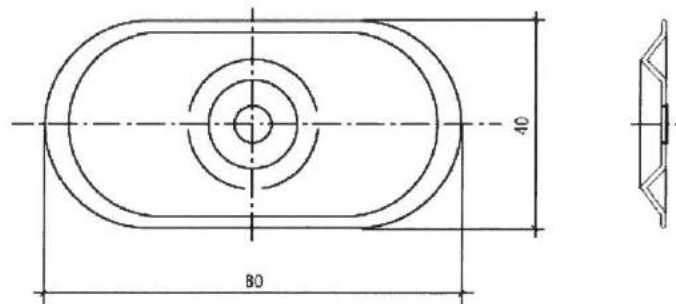
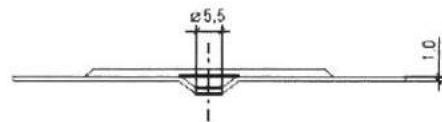
Stainless steel washer pads: KD-05 and KD-04-W5

Annex 8
of European
Technical Assessment
ETA-15/0578

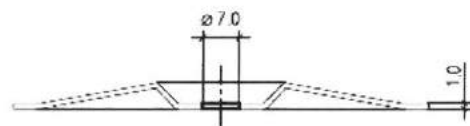
 <p>KD-03-W5</p> <p>KD-03-W7</p> <p>KD-03-W9</p>	
<p>Wkręt-Met Flat Roof Fasteners</p>	<p>Annex 9</p>
<p>Stainless steel washer pads: KD-03-W5, KD-03-W7 and KD-03-W9</p>	<p>of European Technical Assessment ETA-15/0578</p>



KD-03-P



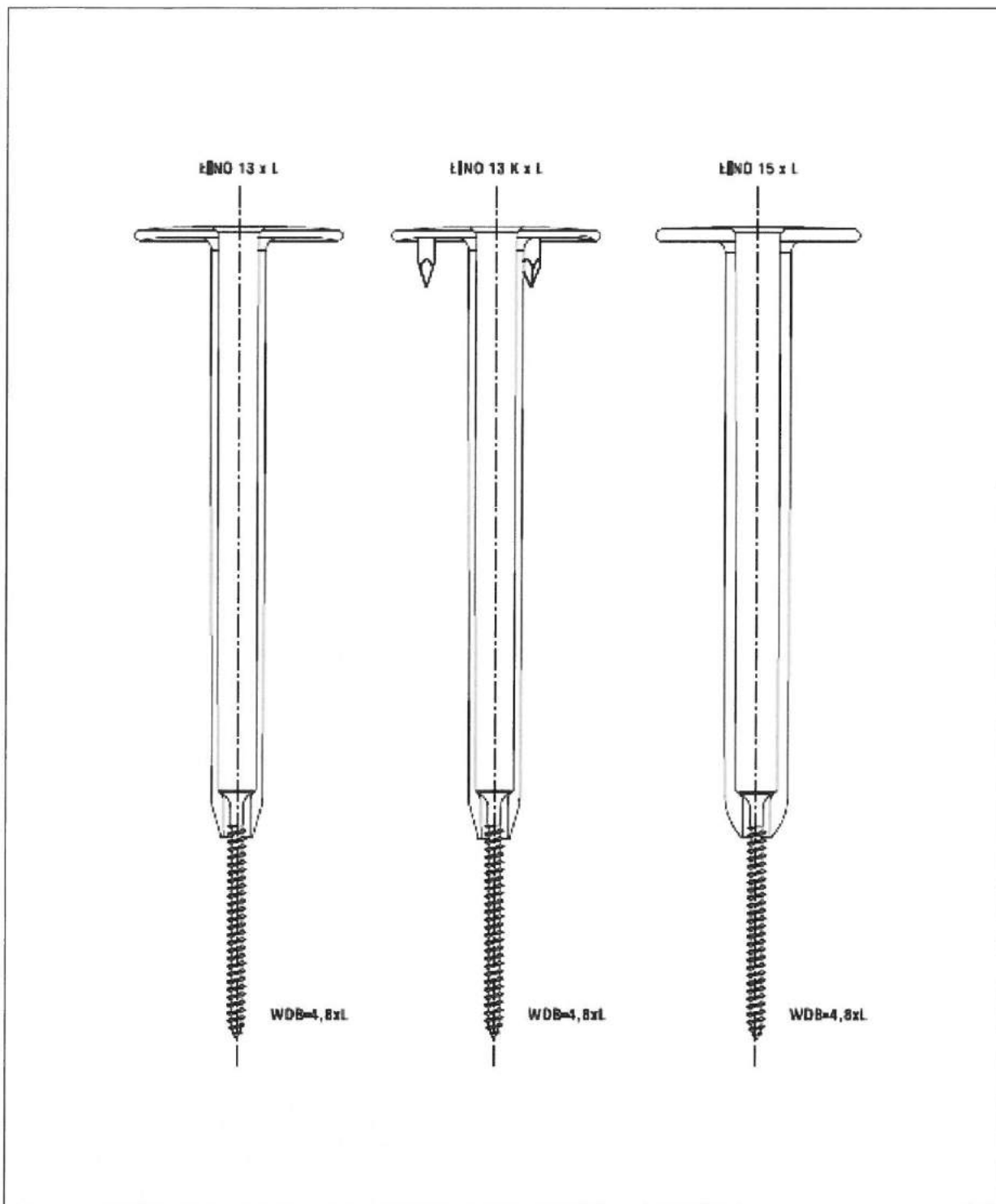
KD-03-WW7



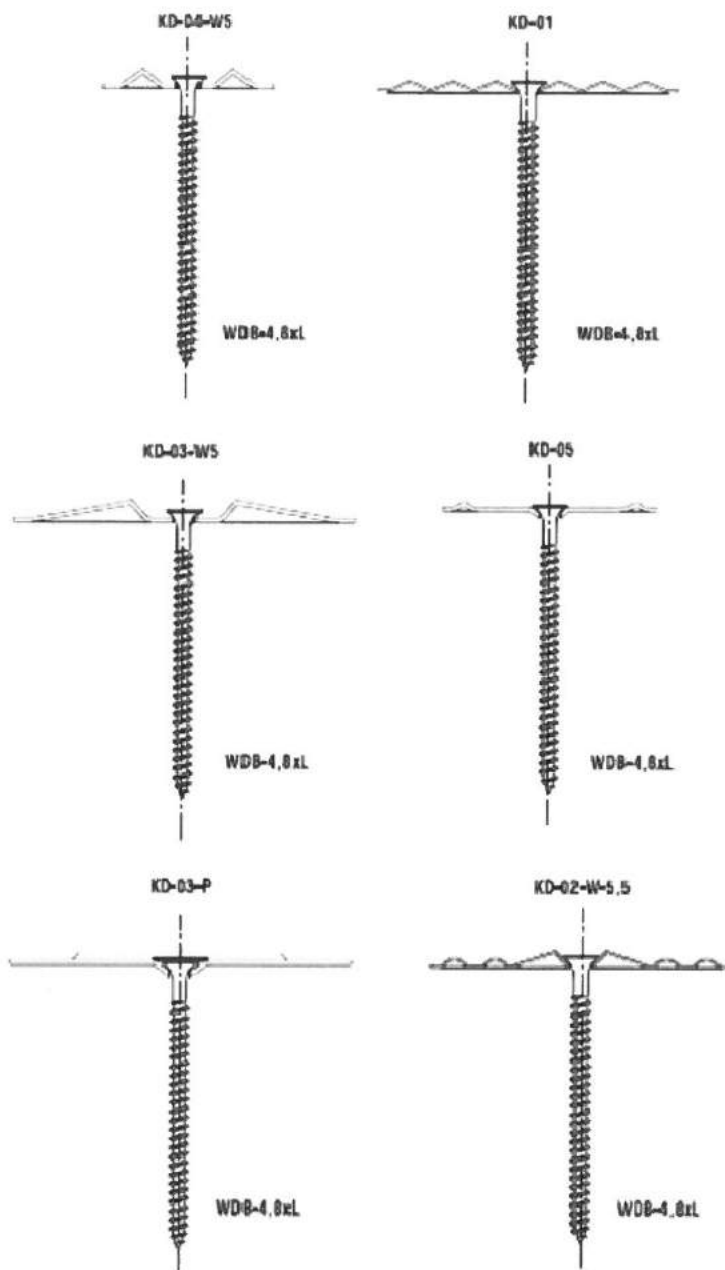
Wkręt-Met Flat Roof Fasteners

Stainless steel washer pads: KD-03-P and KD-03-WW7

Annex10
of European
Technical Assessment
ETA-15/0578



<p>Wkręt-Met Flat Roof Fasteners</p>	<p>Annex 11 of European Technical Assessment ETA-15/0578</p>
<p style="text-align: center;">Combination 1 ÷ 3</p> <p style="text-align: center;">LINO 13 and WDB-4,8×L or WDB-T-4,8×L</p> <p style="text-align: center;">LINO 13 K and WDB-4,8×L or WDB-T-4,8×L</p> <p style="text-align: center;">LINO 15 and WDB-4,8×L or WDB-T-4,8×L</p>	



Wkręt-Met Flat Roof Fasteners

Combination 4 + 9

KD-04-W5 and WDB-4,8xL or WDB-T-4,8xL

KD-01 and WDB-4,8xL or WDB-T-4,8xL

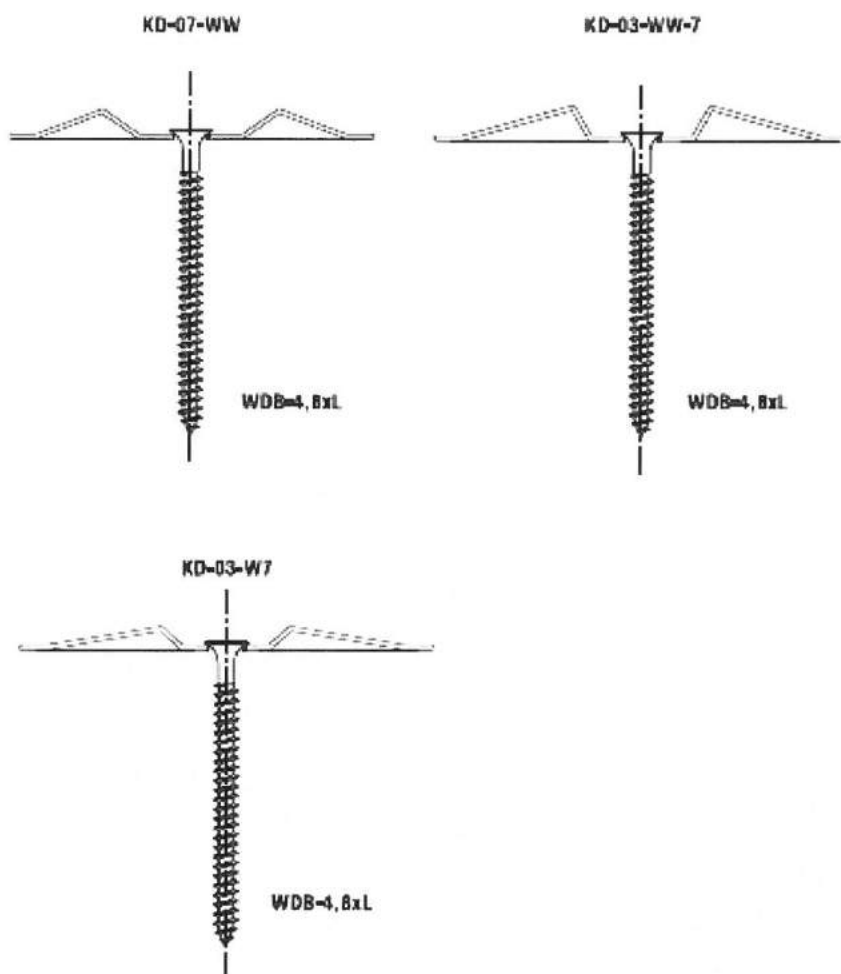
KD-03-W5 and WDB-4,8xL or WDB-T-4,8xL

KD-05 and WDB-4,8xL or WDB-T-4,8xL

KD-03-P and WDB-4,8xL or WDB-T-4,8xL

KD-02-W5,5 and WDB-4,8xL or WDB-T-4,8xL

Annex 12
of European
Technical Assessment
ETA-15/0578

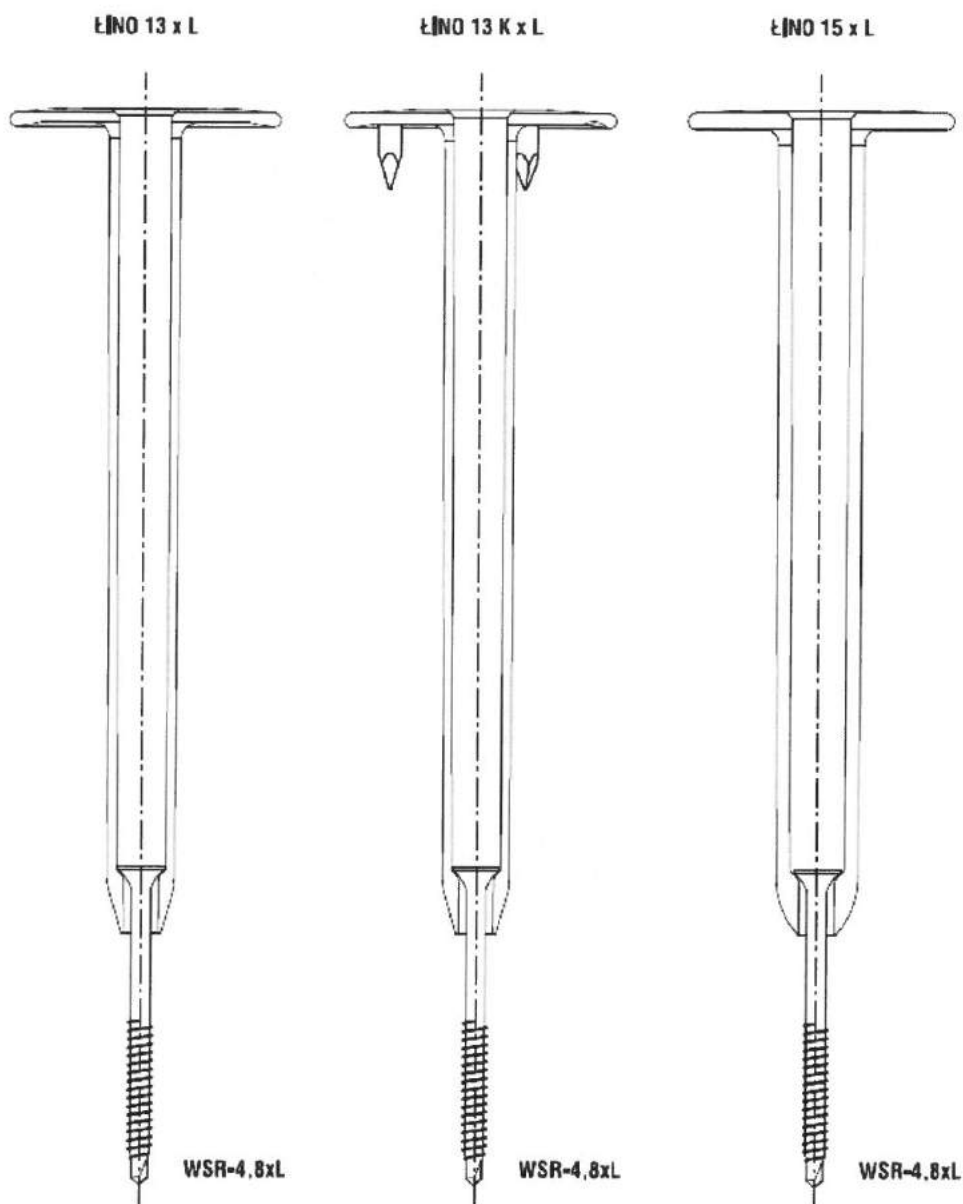


Wkręt-Met Flat Roof Fasteners

Combination 10 ÷ 12

KD-07-WW and WDB-4,8×L or WDB-T-4,8×L
 KD-03-WW-7 and WDB-4,8×L or WDB-T-4,8×L
 KD-03-W7 and WDB-4,8×L or WDB-T-4,8×L

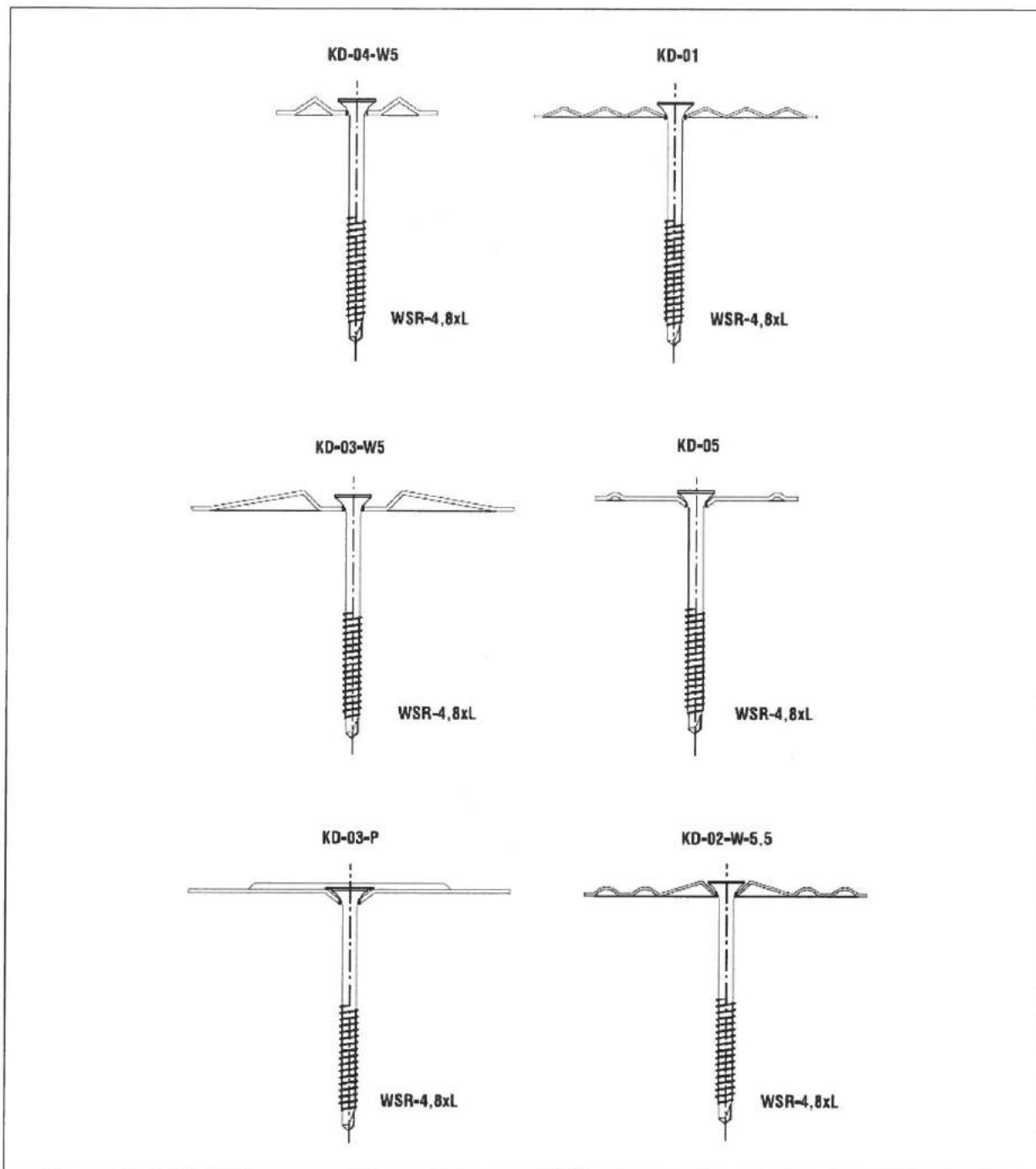
Annex 13
 of European
 Technical Assessment
 ETA-15/0578



Wkręt-Met Flat Roof Fasteners

Combination 13 + 15
 LINO 13 and WSR-4,8xL or WSR-T-4,8xL
 LINO 13 K and WSR-4,8xL or WSR-T-4,8xL
 LINO 15 and WSR-4,8xL or WSR-T-4,8xL

Annex 14
 of European
 Technical Assessment
 ETA-15/0578

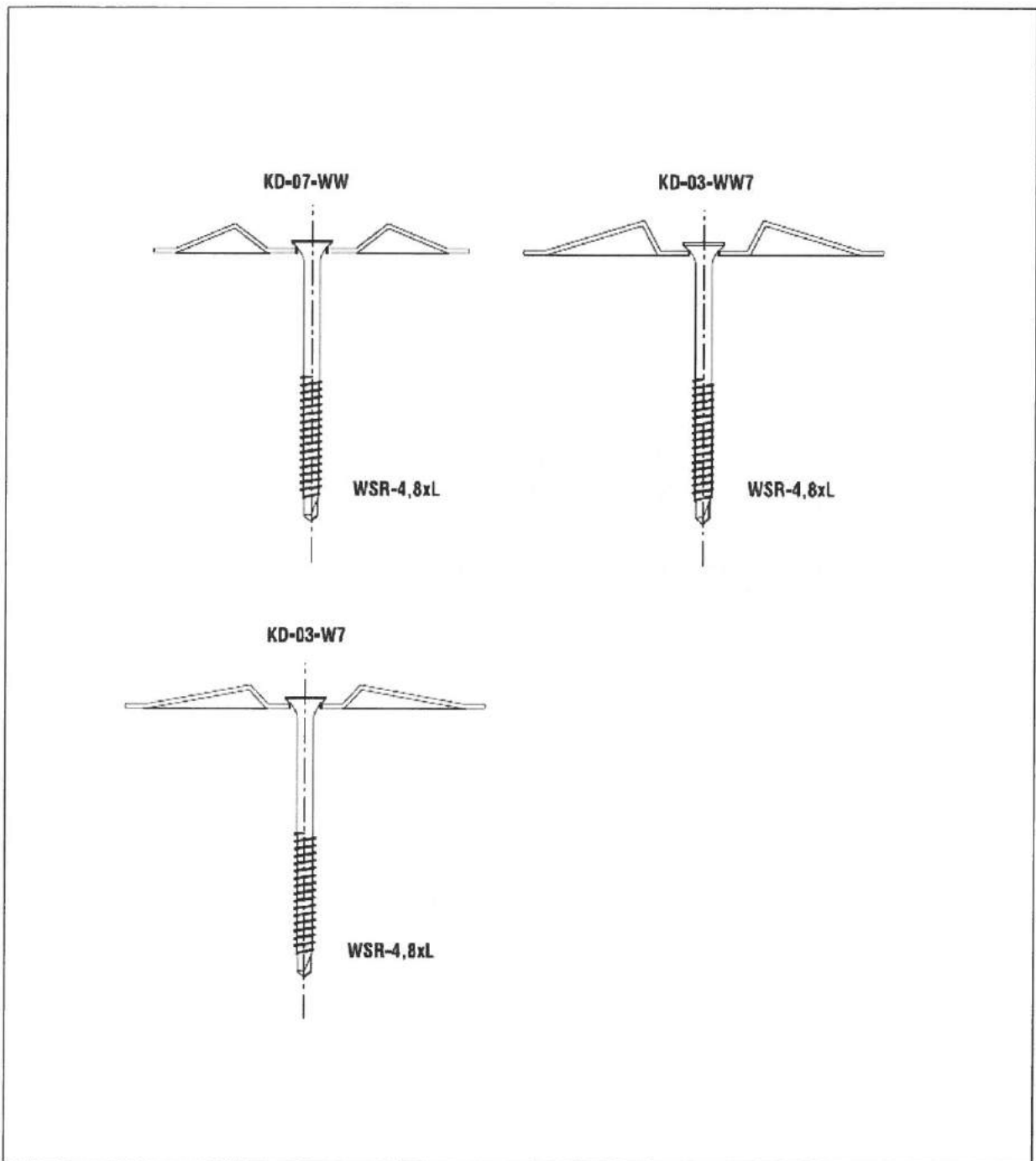


Wkręt-Met Flat Roof Fasteners

Combination 16 + 21

- KD-04-W5 and WSR-4,8xL or WSR-T-4,8xL
- KD-01 and WSR-4,8xL or WSR-T-4,8xL
- KD-03-W5 and WSR-4,8xL or WSR-T-4,8xL
- KD-05 and WSR-4,8xL or WSR-T-4,8xL
- KD-03-P and WSR-4,8xL or WSR-T-4,8xL
- KD-02-W-5,5 and WSR-4,8xL or WSR-T-4,8xL

Annex 15
of European
Technical Assessment
ETA-15/0578

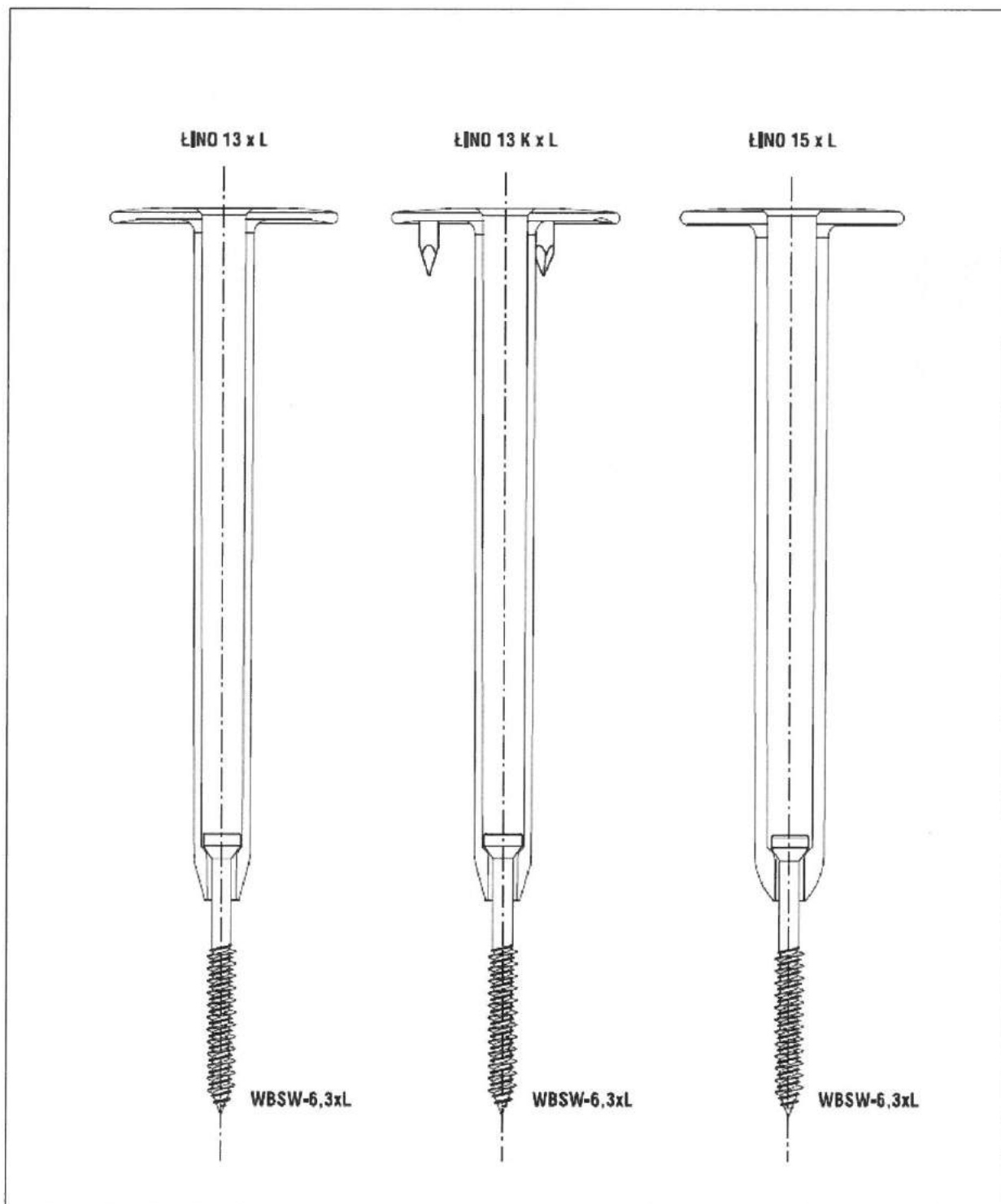


Wkręt-Met Flat Roof Fasteners

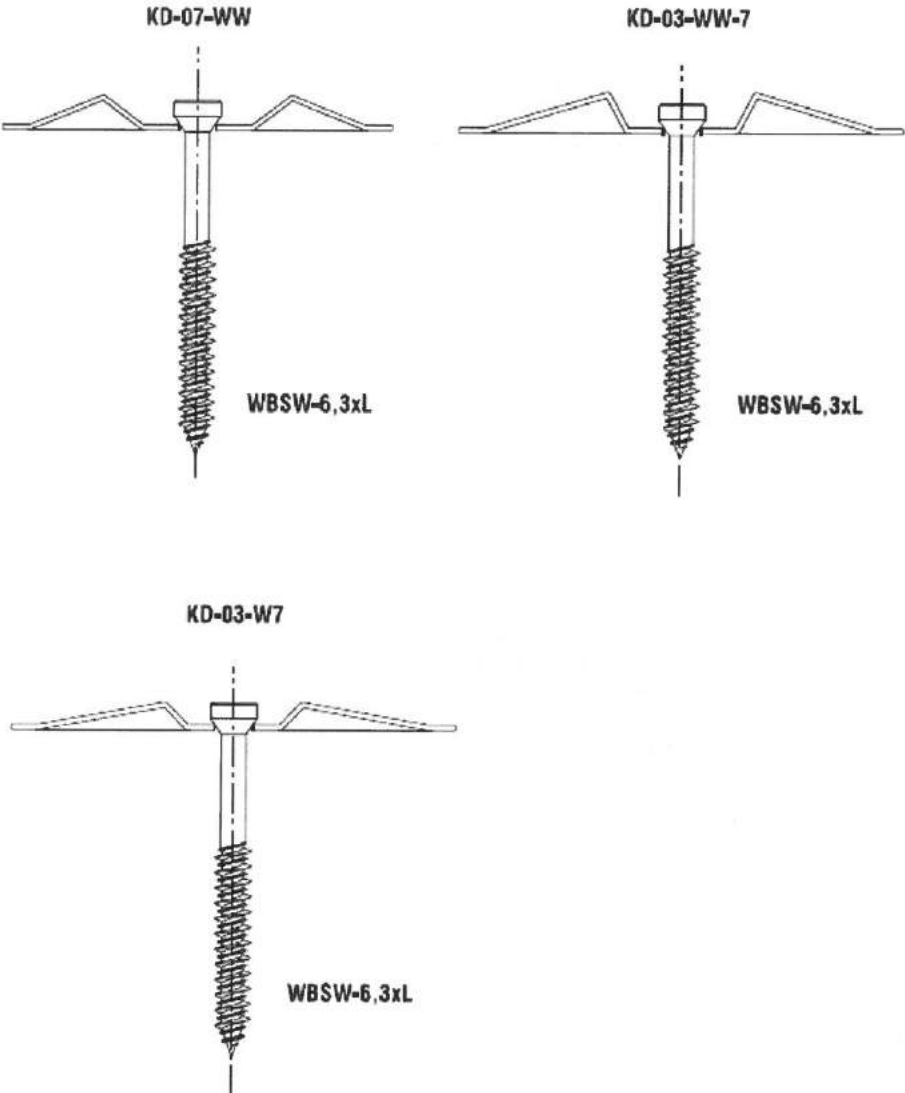
Combination 22 ÷ 24

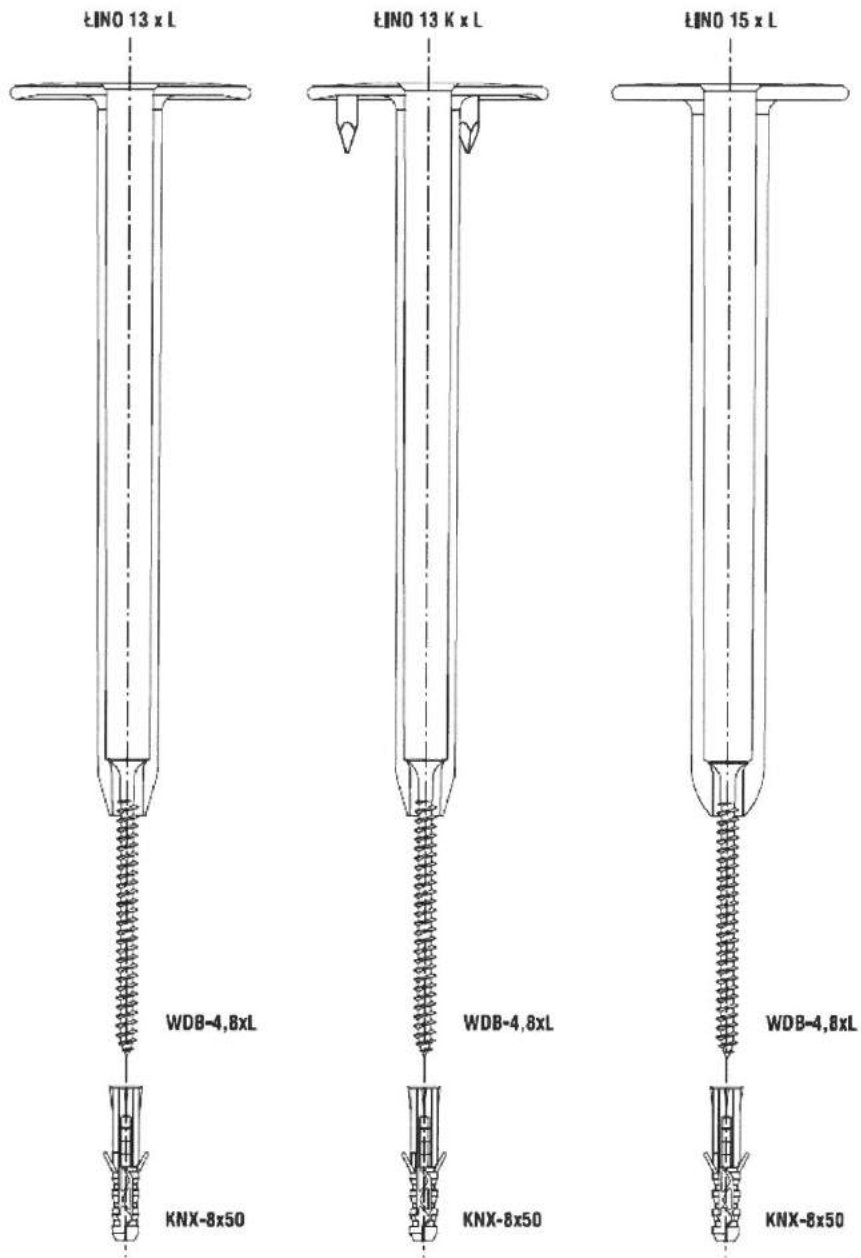
KD-07-WW and WSR-4,8xL or WSR-T-4,8xL
KD-03-WW7 and WSR-4,8xL or WSR-T-4,8xL
KD-03-W7 and WSR-4,8xL or WSR-T-4,8xL

Annex 16
of European
Technical Assessment
ETA-15/0578



Wkręt-Met Flat Roof Fasteners		Annex 17 of European Technical Assessment ETA-15/0578
Combination 25 ÷ 27 LINO 13 and WBSW-6,3xL LINO 13 K and WBSW-6,3xL LINO 15 and WBSW-6,3xL		

 <p data-bbox="438 376 550 403">KD-07-WW</p> <p data-bbox="917 376 1045 403">KD-03-WW-7</p> <p data-bbox="534 761 670 795">WBSW-6,3xL</p> <p data-bbox="1029 761 1165 795">WBSW-6,3xL</p> <p data-bbox="478 974 582 1003">KD-03-W7</p> <p data-bbox="582 1355 718 1388">WBSW-6,3xL</p>	<p data-bbox="406 1624 837 1657">Wkręt-Met Flat Roof Fasteners</p> <p data-bbox="486 1691 758 1736">Combination 28 ÷ 30</p> <p data-bbox="422 1747 821 1780">KD-07-WW and WBSW-6,3xL</p> <p data-bbox="414 1792 829 1825">KD-03-WW7 and WBSW-6,3xL</p> <p data-bbox="422 1836 821 1870">KD-03-W7 and WBSW-6,3xL</p> <p data-bbox="1173 1691 1308 1724">Annex 18</p> <p data-bbox="1093 1736 1388 1836">of European Technical Assessment ETA-15/0578</p>
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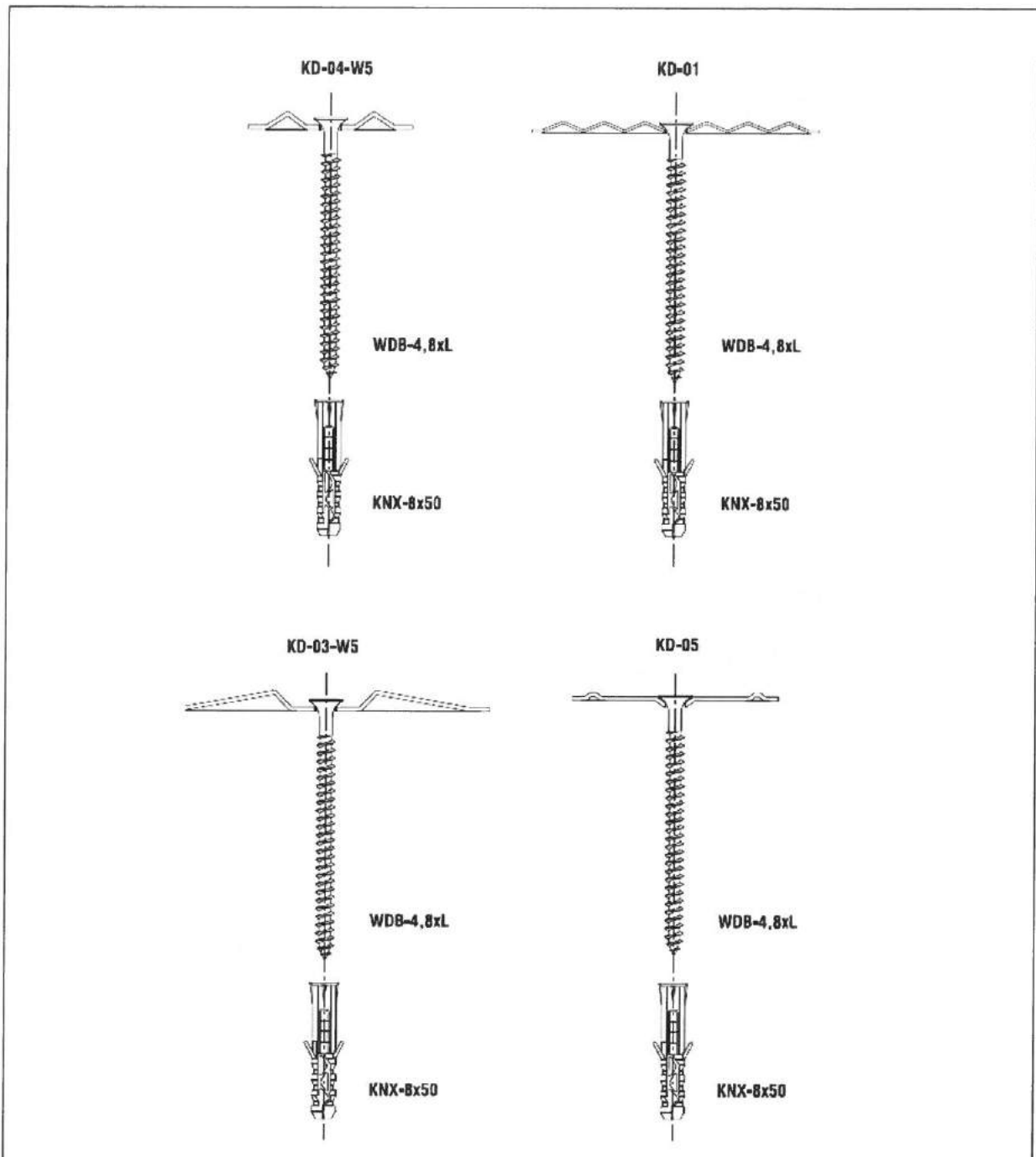


Wkręt-Met Flat Roof Fasteners

Combination 31 + 33

LINO 13 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50
 LINO 13 K and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50
 LINO 15 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50

Annex 19
 of European
 Technical Assessment
 ETA-15/0578



Wkręt-Met Flat Roof Fasteners

Combination 34 ÷ 37

KD-04-W5 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50

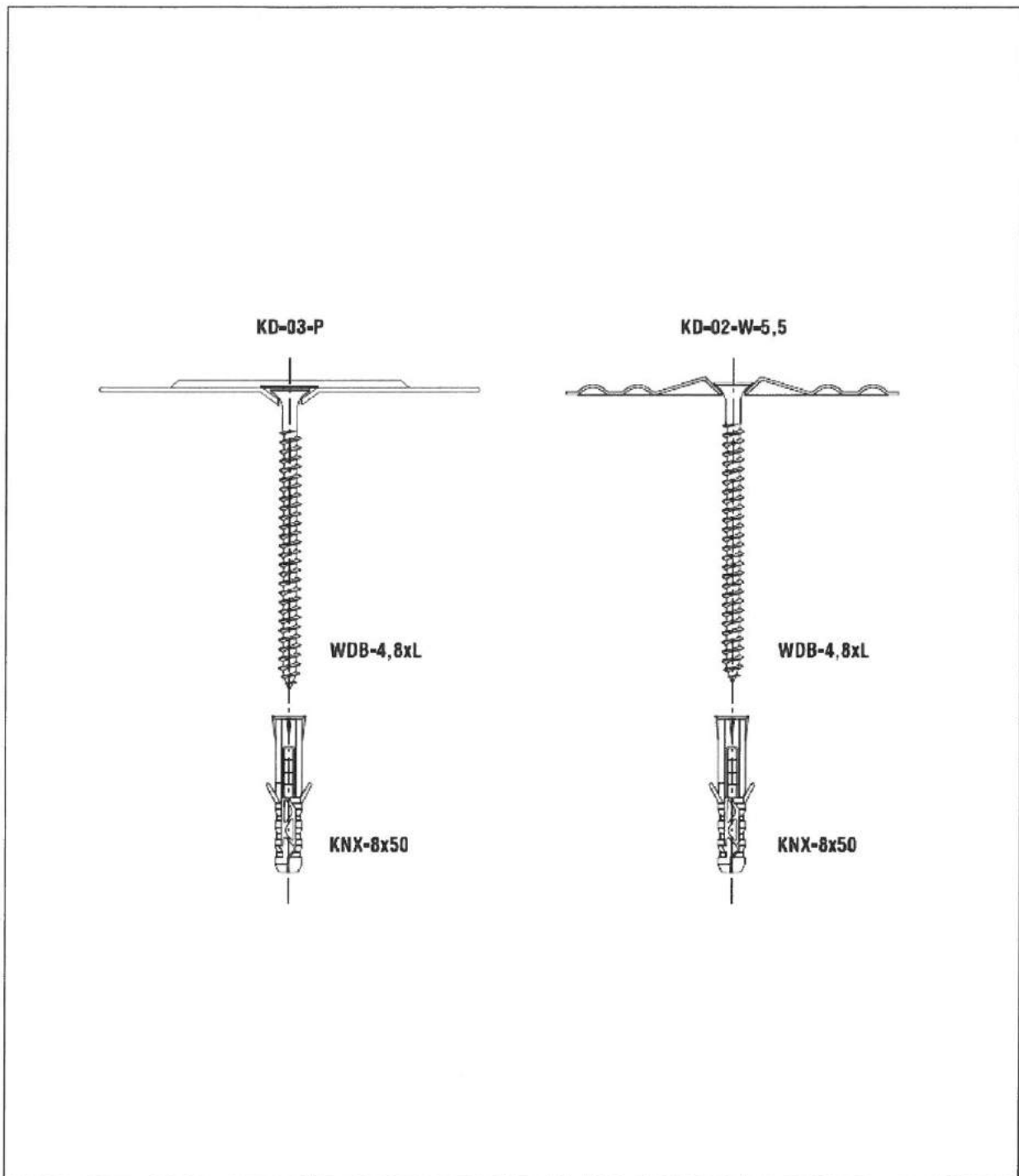
KD-01 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50

KD-03-W5 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50

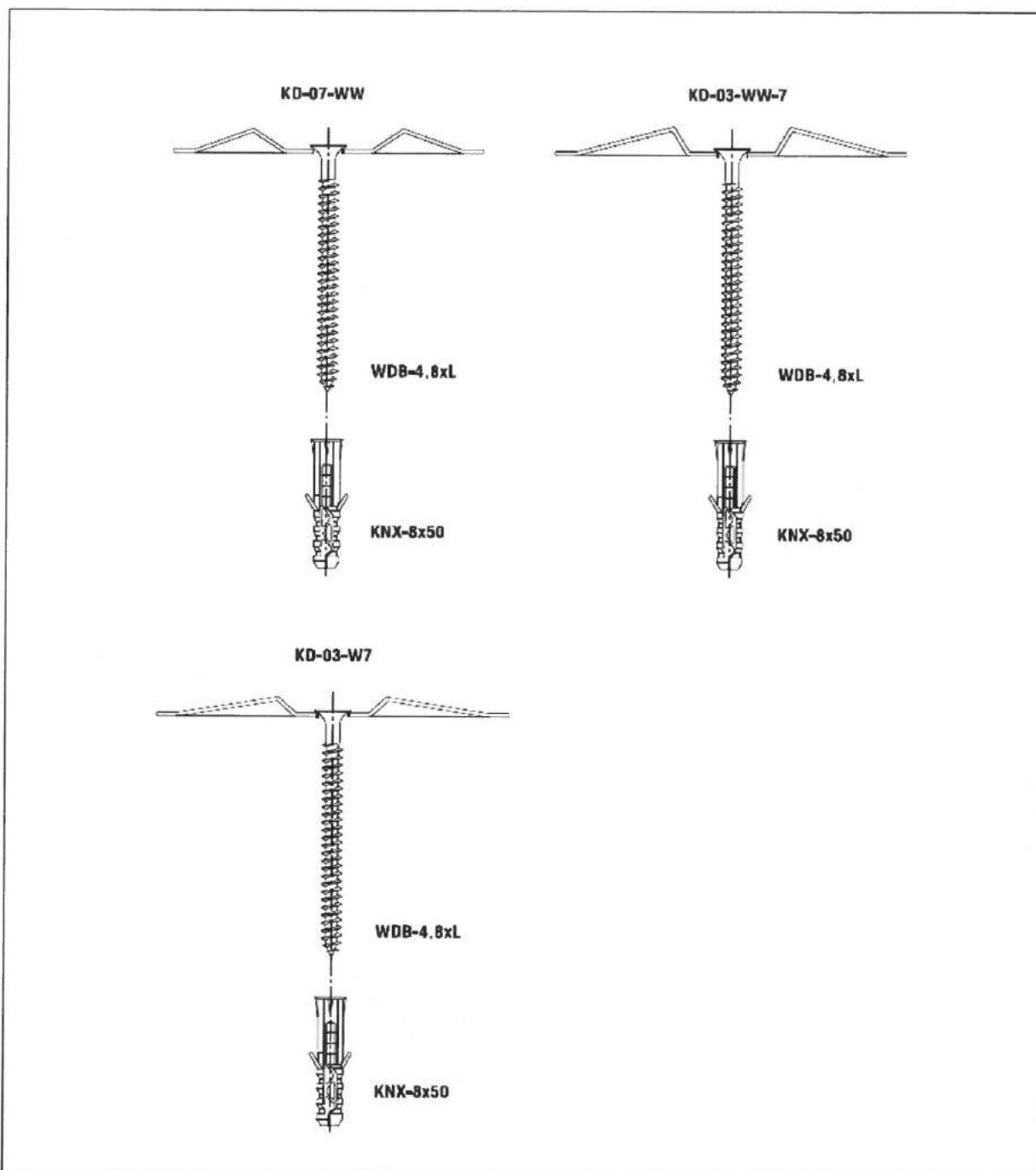
KD-05 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50

Annex 20

of European
Technical Assessment
ETA-15/0578



Wkręt-Met Flat Roof Fasteners		Annex 21 of European Technical Assessment ETA-15/0578
Combination 38 + 39 KD-03-P and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50 KD-02-W-5,5 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50		

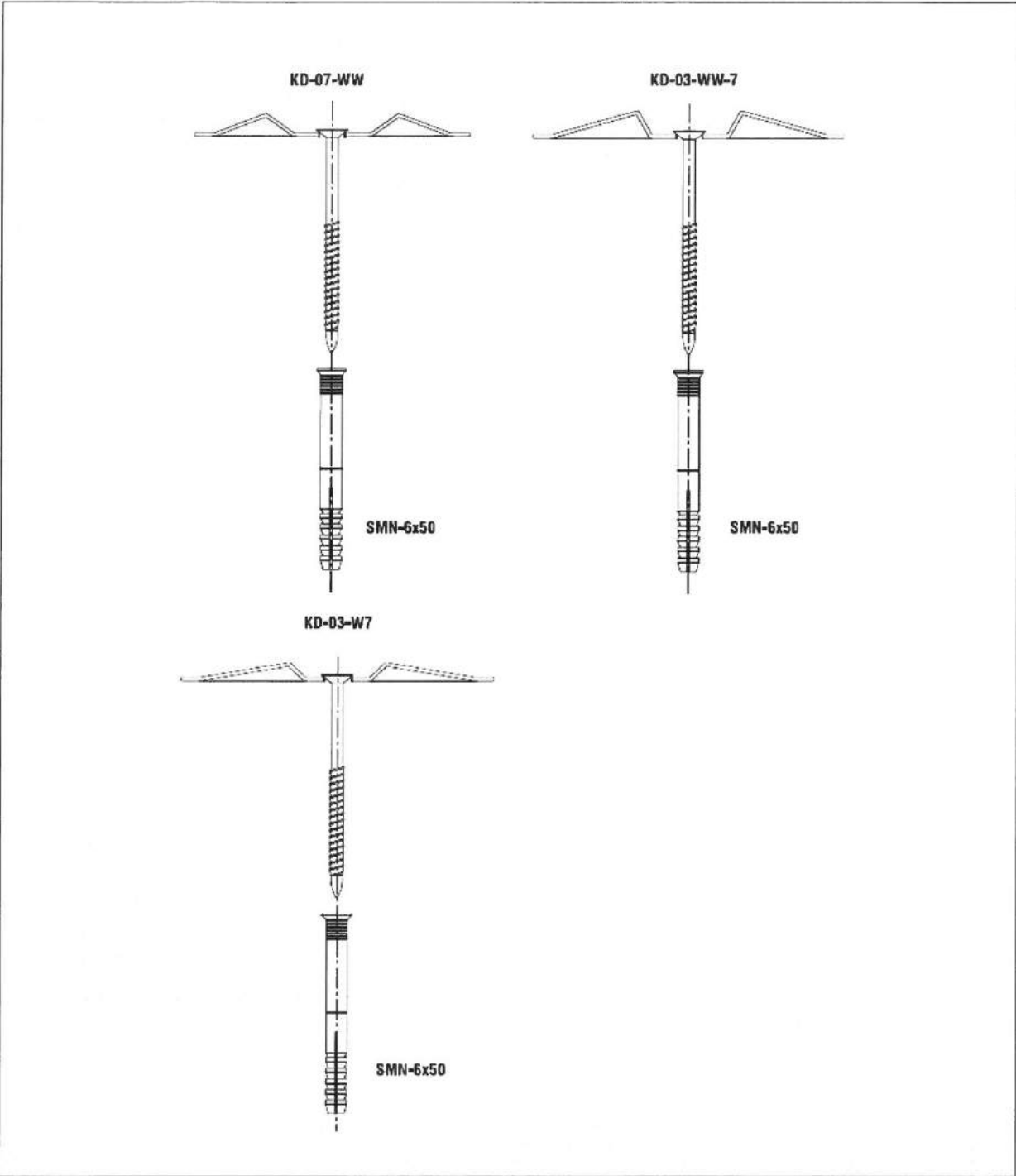


Wkręt-Met Flat Roof Fasteners

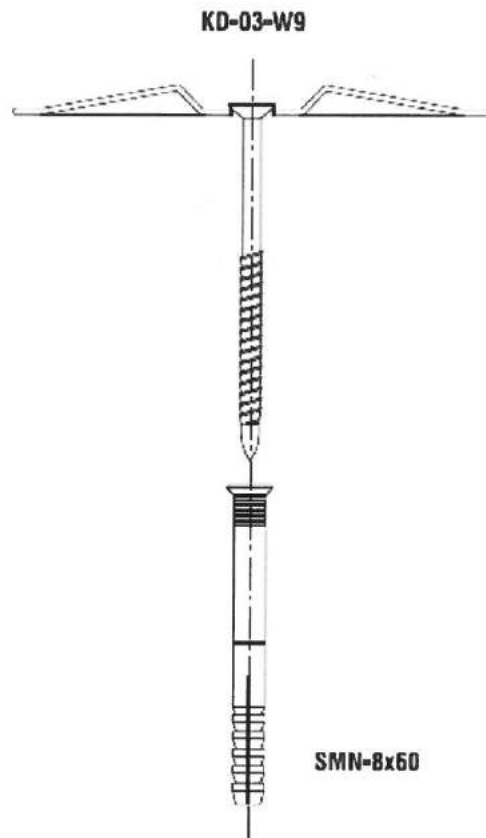
Combination 40 ÷ 42

KD-07-WW and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50
 KD-03-WW-7 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50
 KD-03-W7 and WDB-4,8xL or WDB-T-4,8xL and KNX-8x50

Annex 22
 of European
 Technical Assessment
 ETA-15/0578



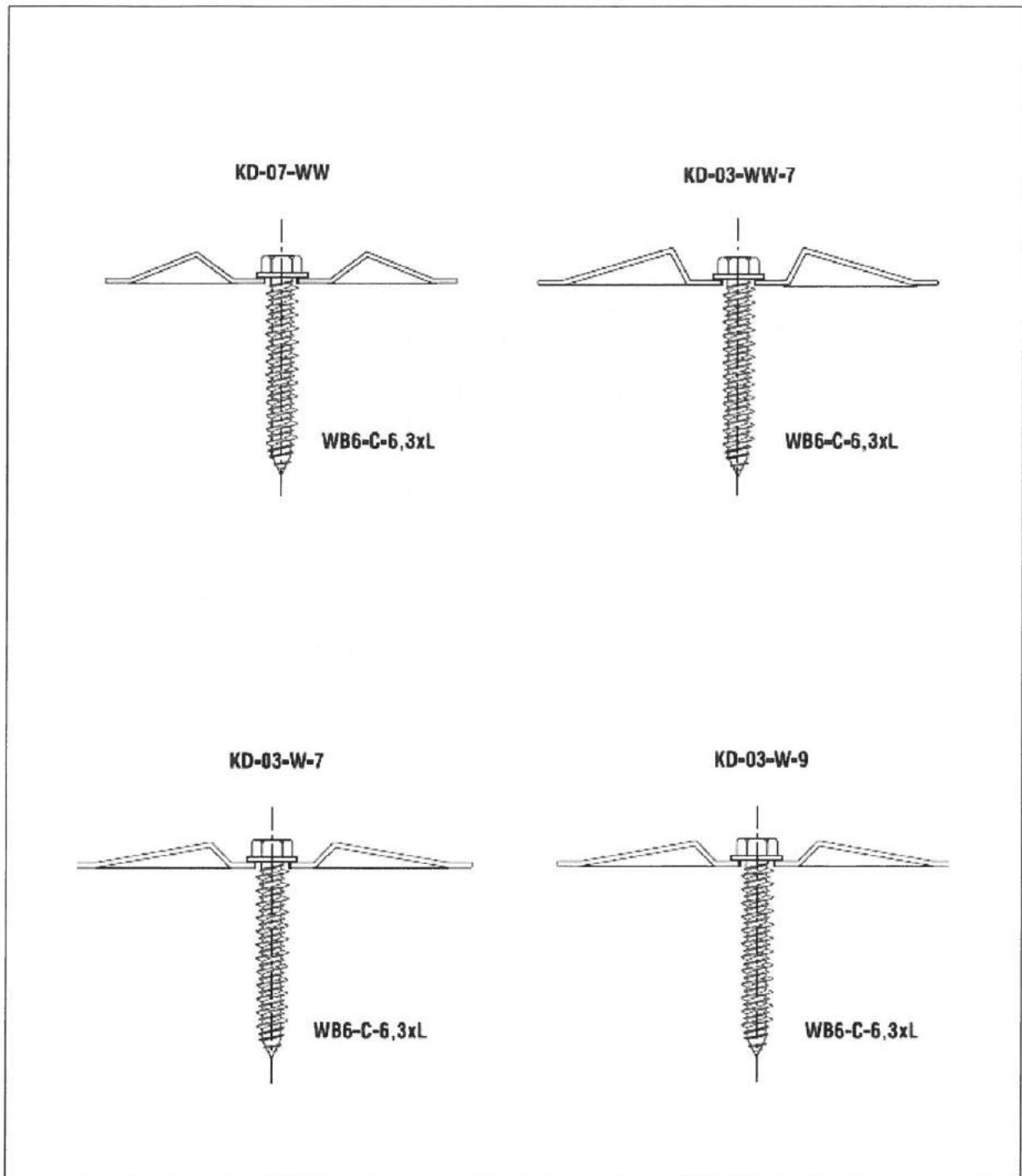
<p>Wkręt-Met Flat Roof Fasteners</p>	<p>Annex 23 of European Technical Assessment ETA-15/0578</p>
<p>Combination 43 ÷ 45 KD-07-WW and SMN-6×50 KD-03-WW7 and SMN-6×50 KD-03-W7 and SMN-6×50</p>	



Wkręt-Met Flat Roof Fasteners

Combination 46
KD-03-W9 and SMN-8x60

Annex 24
of European
Technical Assessment
ETA-15/0578



<p>Wkręt-Met Flat Roof Fasteners</p>	<p>Annex 25 of European Technical Assessment ETA-15/0578</p>
<p>Combination 47 ÷ 50 KD-07-WW and WB6-C-6,3xL KD-03-WW7 and WB6-C-6,3xL KD-03-W7 and WB6-C-6,3xL KD-03-W9 and WB6-C-6,3xL</p>	

Characteristic values of axial load resistance [kN]								
Ann. No.	Wkręt-Met Flat Roof Fasteners		Substrate					
			Steel sheet S280GD acc. to EN 10346			Wood class \geq C24 acc. to EN 14081	OSB acc. to EN 300	Plywood acc. to EN 313
			Screw	Washer with slave Washer	$t \geq 0,50$ mm	$t \geq 0,63$ mm	$t \geq 0,75$ mm	$h_{ef} = 30$ mm
11	WDB-4,8 or WDB-T-4,8	LINO 13 PA	0,78	0,99	1,17	2,37	1,06	0,98
11		LINO 13K PA	0,78	0,99	1,17	2,37	1,06	0,98
11		LINO 15 PE	0,78	0,99	1,17	1,70	1,06	0,98
11		LINO 15 PP	0,78	0,99	1,17	1,95	1,06	0,98
12		KD-01	0,78	0,99	1,17	1,67	1,06	0,98
12		KD-02-W-5,5	0,78	0,99	1,17	2,06	1,06	0,98
12		KD-03-P	0,78	0,99	1,17	2,50	1,06	0,98
12		KD-03-W5	0,78	0,99	1,17	2,84	1,06	0,98
12		KD-04-W5	0,78	0,99	1,17	3,23	1,06	0,98
12		KD-05	0,78	0,99	1,17	3,12	1,06	0,98
13		KD-03-W7	0,78	0,99	1,17	2,46	1,06	0,98
13		KD-03-WW7	0,78	0,99	1,17	3,45	1,06	0,98
13		KD-07-WW	0,78	0,99	1,17	2,90	1,06	0,98

Characteristic values of axial load resistance [kN]							
Ann. No.	Wkręt-Met Flat Roof Fasteners		Substrate				
			Steel sheet S280GD acc. to EN 10346				
			Screw	Washer with slave Washer	$t \geq 0,50$ mm	$t \geq 0,63$ mm	$t \geq 0,75$ mm
14	WSR-4,8 or WSR-T-4,8	LINO 13 PA	0,84	1,03	1,20	1,53	1,61
14		LINO 13K PA	0,84	1,03	1,20	1,53	1,61
14		LINO 15 PE	0,84	1,03	1,20	1,53	1,61
14		LINO 15 PP	0,84	1,03	1,20	1,53	1,61
15		KD-01	0,84	1,03	1,20	1,53	1,61
15		KD-02-W-5,5	0,84	1,03	1,20	1,53	1,61
15		KD-03-P	0,84	1,03	1,20	1,53	1,61
15		KD-03-W5	0,84	1,03	1,20	1,53	1,61
15		KD-04-W5	0,84	1,03	1,20	1,53	1,61
15		KD-05	0,84	1,03	1,20	1,53	1,61
16		KD-03-W7	0,84	1,03	1,20	1,53	1,61
16		KD-03-WW7	0,84	1,03	1,20	1,53	1,61
16		KD-07-WW	0,84	1,03	1,20	1,53	1,61

Wkręt-Met Flat Roof Fasteners	Annex 26 of European Technical Assessment ETA-15/0578
Characteristic values of axial load resistance	

Characteristic values of axial load resistance [kN]								
Ann. No.	Wkręt-Met Flat Roof Fasteners		Substrate					Precast concrete slab \geq C20/25 acc. to EN 206
			Wood class \geq C24 acc. to EN 14081	OSB acc. to EN 300	Plywood acc. to EN 313	Concrete \geq C12/15 acc. to EN 206	Concrete \geq C20/25 acc. to EN 206	
	Screw	Washer with slave /Washer	$h_{ef} = 30$ mm	$h_{ef} = 18$ mm	$h_{ef} = 20$ mm	$h_{ef} = 30$ mm	$h_{ef} = 30$ mm	$h_{ef} = 20$ mm
17	WBSW	LINO 13 PA	2,32	1,68	2,32	1,64	2,12	1,92
17		LINO 13K PA	2,32	1,68	2,32	1,64	2,12	1,92
17		LINO 15 PE	2,03	1,68	2,03	1,57	2,03	1,92
17		LINO 15 PP	2,16	1,68	2,16	1,64	2,12	1,92
18		KD-03-W7	3,04	1,68	3,56	1,64	2,12	1,92
18		KD-03-WW7	3,04	1,68	3,62	1,64	2,12	1,92
18		KD-07-WW	3,04	1,68	3,30	1,64	2,12	1,92
Characteristic values of axial load resistance [kN]								
Ann. No.	Wkręt-Met Flat Roof Fasteners		Substrate					
			Concrete \geq C12/15 acc. to EN 206	Concrete \geq C20/25 acc. to EN 206	Precast concrete slab \geq C20/25 acc. to EN 206			
	Screw	Washer with slave /Washer	$h_{ef} = 30$ mm	$h_{ef} = 30$ mm	$h_{ef} = 20$ mm			
19	WDB-4,8 +KNX 8x50 or WDB-T-4,8 +KNX 8x50	LINO 13 PA	1,12	1,45	1,20			
19		LINO 13K PA	1,12	1,45	1,20			
19		LINO 15 PE	1,12	1,45	1,20			
19		LINO 15 PP	1,12	1,45	1,20			
20		KD-01	1,12	1,45	1,20			
20		KD-03-W5	1,12	1,45	1,20			
20		KD-04-W5	1,12	1,45	1,20			
20		KD-05	1,12	1,45	1,20			
21		KD-02-W-5,5	1,12	1,45	1,20			
21		KD-03-P	1,12	1,45	1,20			
22		KD-03-W7	1,12	1,45	1,20			
22		KD-03-WW7	1,12	1,45	1,20			
22		KD-07-WW	1,12	1,45	1,20			
25		WB6	KD-03-W7	2,31	2,98	2,10		
25	KD-03-WW7		2,31	2,98	2,10			
25	KD-07-WW		2,31	2,98	2,10			
25	KD-03-W9		2,31	2,98	2,10			

Wkręt-Met Flat Roof Fasteners

Characteristic values of axial load resistance

Annex 27

of European
Technical Assessment
ETA-15/0578

Characteristic values of axial load resistance [kN]				
Ann. No.	Wkręt-Met Flat Roof Fasteners		Substrate	
			Concrete \geq C12/15 acc. to EN 206	Concrete \geq C20/25 acc. to EN 206
	Screw	Washer	$h_{ef} = 30$ mm	$h_{ef} = 30$ mm
23	SMN 6×50	KD-03-W7	0,79	1,02
23		KD-03-WW7	0,79	1,02
23		KD-07-WW	0,79	1,02
24	SMN 8×60	KD-03-W9	1,18	1,52

Wkręt-Met Flat Roof Fasteners	Annex 28 of European Technical Assessment ETA-15/0578
Characteristic values of axial load resistance	