



INSTYTUT TECHNIKI BUDOWLANEJ



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European Technical Assessment

**ETA-16/0716
of 28/03/2024**



General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

MRP[®] types: KW, KW/A, KB, KB/A, KK, KS, KS/A, KM, KM/A, KL, KL/A, KR, KR/A, KP, KP/A, WB, WB/A, LK, LK/A, PS, PS/A and PSP

Product family to which the construction product belongs

Three-dimensional nailing plates

Manufacturer

MARCOPOL Sp. z o.o. Producent Śrub
ul. Oliwska 100, 80-209 Chwaszczyno,
Poland

Manufacturing plants

Marcopol manufacturing plant 1
Marcopol manufacturing plant 2
Marcopol manufacturing plant 3
Marcopol manufacturing plant 4
Marcopol manufacturing plant 5

This European Technical Assessment contains

36 pages including 2 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

European Assessment Document (EAD) 130186-00-0603 „Three-dimensional nailing plates”

This version replaces

ETA-16/0716 issued on 29/09/2016



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Specific Part

1 Technical description of the product

The three-dimensional nailing plates MRP[®] are one-piece, non-welded elements (KW, KW/A, KB, KB/A, KK, KS, KS/A, KM, KM/A, KL, KL/A, KR, KR/A, KP, KP/A, WB, WB/A, LK and LK/A) and welded elements (PS, PS/A and PSP), made of:

- Q235B steel according to GB/T 700 (minimum yield strength $R_e = 235$ MPa, minimum tensile strength $R_m = 370$ MPa) in case of KW, KB, KK, KS, KM, KL, KL/A, KR, KR/A, KP, WB, LK, PS and PSP) with minimum 12 μm of zinc layer (KW, KB, KK, KS, KM, KL, KL/A, KR, KR/A, KP, WB and LK) or with minimum 20 μm of zinc layer (PS and PSP),
- SPHC steel according to JIS G 3131 (minimum tensile strength $R_m = 270$ MPa) in case of KW, KB, KK, KS, KM, KL, KR, KP, WB and LK with minimum 12 μm of zinc layer,
- DX51D+Z275 (minimum 275 g/m²) according to EN 10346 (minimum tensile strength $R_m = 270$ MPa) in case of KW, KW/A, KB, KB/A, KK, KS, KS/A, KM, KM/A, KL, KL/A, KR, KR/A, KP, KP/A, WB, WB/A, LK, LK/A, PS, PS/A and PSP,
- S250GD+Z275 (minimum 275 g/m²) according to EN 10346 (minimum yield strength $R_e = 250$ MPa, minimum tensile strength $R_m = 330$ MPa) in case of KW, KK, KS, KM, KL/A, KR/A, KP, LK and PSP,
- SGH340+Z27 (minimum 275 g/m²) according to JIS G 3302 (minimum yield strength $R_e = 245$ MPa, minimum tensile strength $R_m = 340$ MPa) in case of KW, KB, KK, KS, KM, KL, KR, KP, WB, LK, PS and PSP,
- DC01 steel according to EN 10130 (minimum yield strength $R_e = 140$ MPa, minimum tensile strength $R_m = 270$ MPa) in case of KW/A, KB/A, KS/A and KR/A with minimum 12 μm of zinc layer.

The steel bars of three-dimensional nailing plates PS and PS/A are made of reinforcing bars with minimum yield strength $R_e = 235$ MPa and minimum tensile strength $R_m = 360$ MPa.

The range of the MRP[®] three-dimensional nailing plates is given in Annex A. The characteristic material values, dimensions and tolerances of the three-dimensional nailing plates not indicated in that Annex shall correspond to the respective values laid down in the technical documentation of this European Technical Assessment. The dimension tolerances shall meet the requirements of EN 22768-1.

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

The MRP[®] three-dimensional nailing plates are intended to be used for connecting the mutually perpendicular load-bearing solid timber elements, in side-grain to side grain configurations.

The timber structures shall be made of solid timber of strength class C24 or higher according to EN 338. Minimum dimensions of the elements have to be considered (Annex A).

Ring shank nails according to EN 14592 with the diameter of 4 mm and characteristic tensile capacity $F_{ax,Rk}$ not less than 1,70 kN shall be used for joints made with the MRP[®] three-dimensional nailing plates.

The design of the joints shall be in accordance with EN 1993-1-1 (Eurocode 3) and EN 1995-1-1 (Eurocode 5).

The provisions made in this European Technical Assessment are based on an assumed working life of the three-dimensional nailing plates of 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or the 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 Performance of the product and references to the methods used for its assessment

3.1 Performance of the product

3.1.1 Joint strength

The characteristic load-carrying capacities of joints loaded according to static diagrams (see Annex B1 and B2), determined by tests, are given in Annex B.

3.1.2 Joint stiffness

No performance assessed.

3.1.3 Joint ductility

No performance assessed.

3.1.4 Resistance to seismic actions

No performance assessed.

3.1.5 Resistance to corrosion and deterioration

In respect to the requirements concerning corrosion resistance, the MRP® three-dimensional nailing plates are intended to be used in timber structures subject to the internal conditions defined by service classes 1 and 2 according to EN 1995-1-1 (Eurocode 5).

3.2 Safety in case of fire (BWR 2)

3.2.1 Reaction to fire

The three-dimensional nailing plates are classified as Class A1 of reaction to fire in accordance with EN 13501-1 and European Commission Decision 96/603/EC amended by European Commission Decision 2000/605/EC.

3.2.2 Resistance to fire

No performance assessed.

3.3 Methods used for the assessment

The assessment has been made in accordance with EAD 130186-00-0603.

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

According to Decision 97/638/EC of the European Commission the system 2+ of assessment and verification of constancy of performance (see Annex V to the regulation (EU) No 305/2011) applies.

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

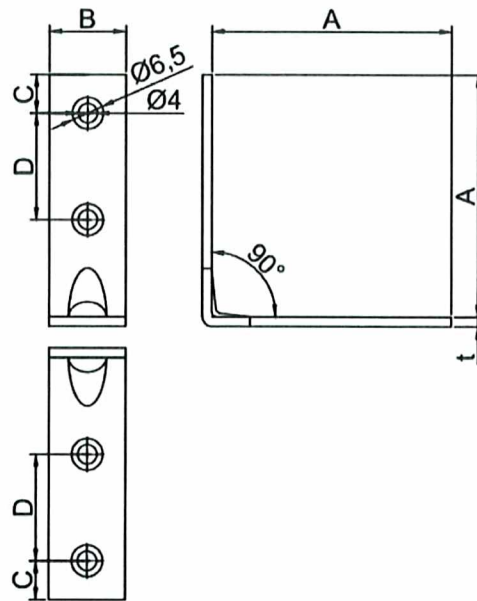
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited in Instytut Techniki Budowlanej.

For the 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 28/03/2024 by Instytut Techniki Budowlanej



Anna Panek, MSc
Deputy Director of ITB

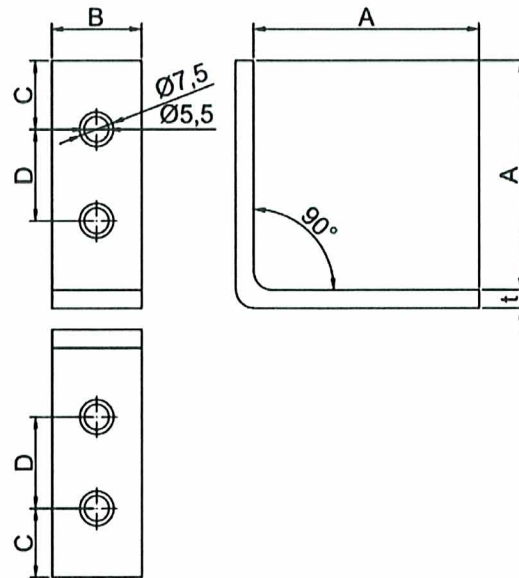


Symbol	A, mm	B, mm	C, mm	D, mm	t, mm (± 0,05)	Number of holes, Ø, mm (± 0,5)
KW1	25 (± 1)	17 (± 1)	8 (± 1)	10 (± 1)	2,0	4 x Ø 4,5 / 4 x Ø 6,5
KW2A	30 (± 1)	15 (± 1)	8 (± 1)	14 (± 1)	2,0	4 x Ø 4,5 / 4 x Ø 6,5
KW2	40 (± 1,5)	17 (± 1)	8 (± 1)	18 (± 1)	2,0	4 x Ø 4,5 / 4 x Ø 6,5
KW3	50 (± 1,5)	17 (± 1)	8 (± 1)	22 (± 1)	2,0	4 x Ø 4,5 / 4 x Ø 6,5
KW4	75 (± 1,5)	17 (± 1)	8 (± 1)	54 (± 1,5)	2,0	4 x Ø 4,5 / 4 x Ø 6,5

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Product description
KW1 - KW4, KW2A

Annex A1
of European
Technical Assessment
ETA-16/0716

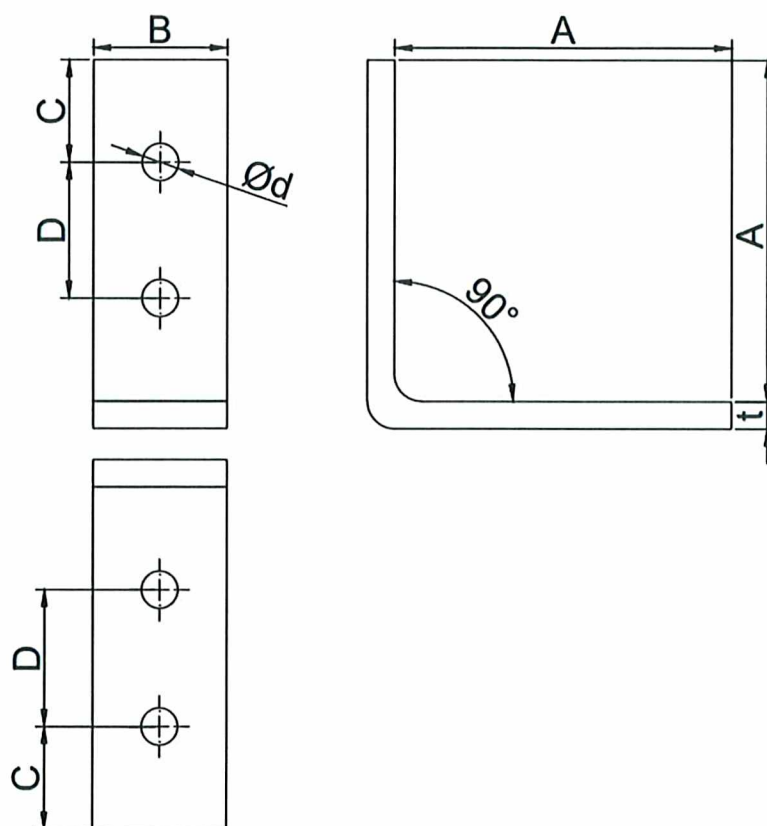


Symbol	A, mm (± 1,5)	B, mm (± 1,0)	C, mm (± 1,0)	D, mm (± 1,5)	t, mm (± 0,10)	Number of holes, Ø, mm (± 0,5)
KW5	100	20	12,5	63	4,0	4 x Ø (5,5 / 7,5)
KW6	125	20	15	78	4,0	4 x Ø (5,5 / 7,5)
KW7	145	25	12	78	5,0	4 x Ø (5,5 / 7,5)

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 Product description
 KW5 - KW7

 Annex A2
 of European
 Technical Assessment
 ETA-16/0716

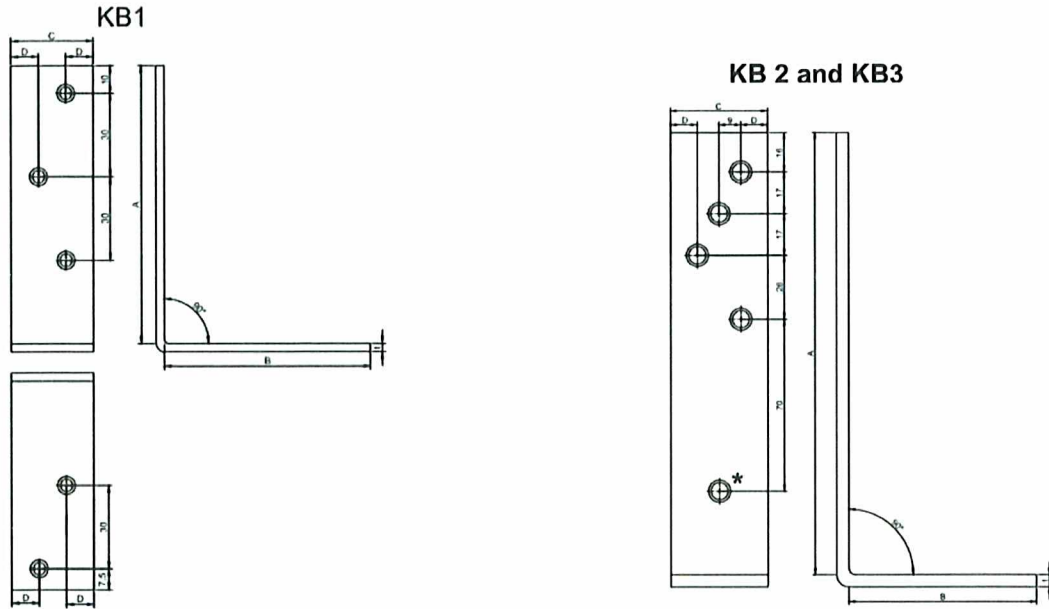


Symbol	A, mm	B, mm	C, mm	D, mm	t, mm (± 0,10 mm)	Number of holes, Ø, mm (± 0,5)
KW1/A	19,5 (± 1,5)	17 (± 1)	8 (± 1)	-	2,0	2 x Ø 4,5
KW2/A	30 (± 1,5)	17 (± 1)	7 (± 1)	12 (± 1)	2,0	4 x Ø 4,5
KW3/A	40 (± 1,5)	18 (± 1)	9 (± 1)	20 (± 1)	2,0	4 x Ø 4,5
KW4/A	50 (± 1,5)	18 (± 1)	9 (± 1)	23 (± 1,5)	2,0	4 x Ø 4,5
KW5/A	60 (± 1,5)	20 (± 1)	10 (± 1)	35 (± 1,5)	2,0	4 x Ø 4,5
KW6/A	80 (± 1,5)	20 (± 1)	10 (± 1)	50 (± 1,5)	4,0	4 x Ø 4,5
KW7/A	100 (± 1,5)	20 (± 1)	10 (± 1)	70 (± 1,5)	4,0	4 x Ø 4,5

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Product description
KW1/A - KW7/A

Annex A3
of European
Technical Assessment
ETA-16/0716

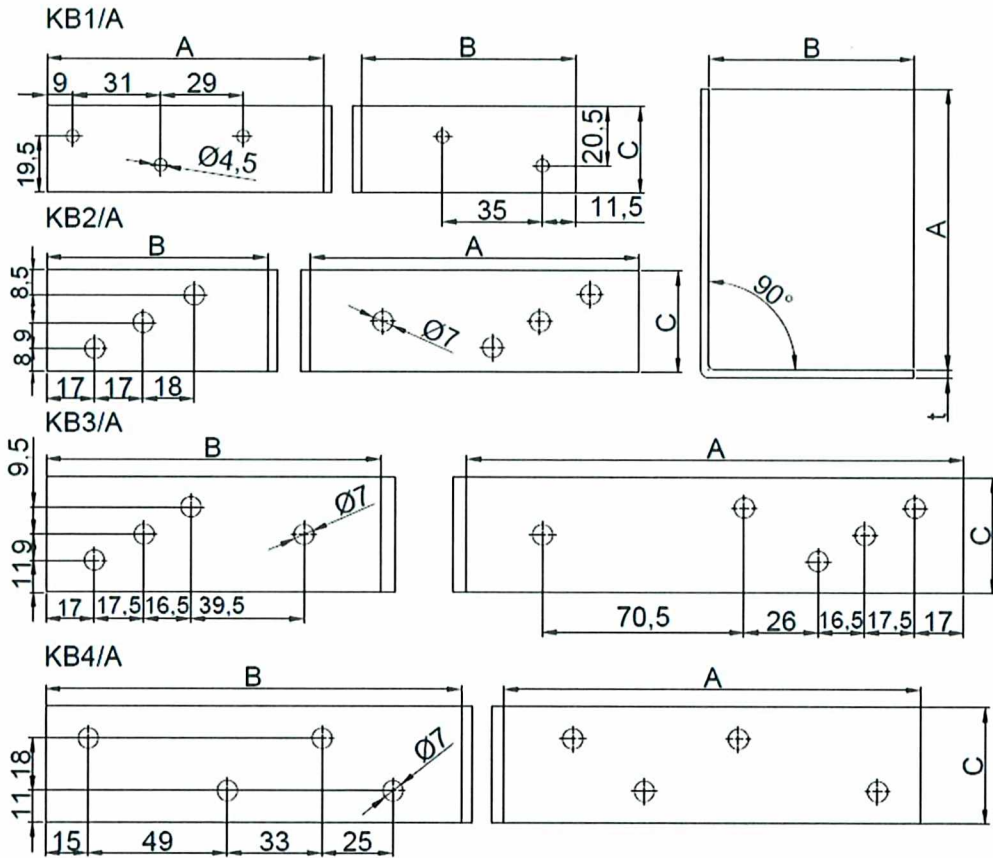


Symbol	A (mm) (± 1,5)	B (mm) (± 1,5)	C (mm) (± 1,5)	D (mm) (± 1,0)	t (mm) (± 0,25 mm)	Number of holes, Ø, mm (± 0,5)
KB1	100	75	30	10	3,0	5 x Ø 4,5
KB2	120	80	35	8,5	3,5	7 x Ø 4,5
KB3	180	120	40	11	5,0	8 x Ø 4,5

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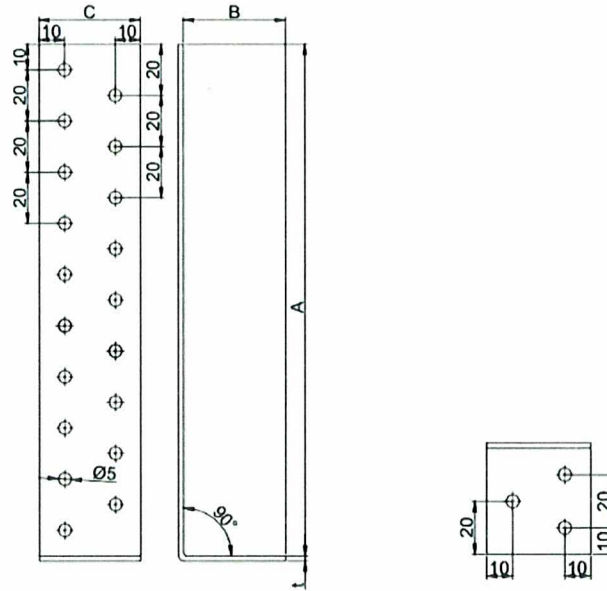
 Product description
 KB1, KB2, KB3

 Annex A4
 of European
 Technical Assessment
 ETA-16/0716



Symbol	A, mm (± 1,5)	B, mm (± 1,5)	C, mm (± 1,5)	t, mm (± 0,25)	Number of holes, Ø, mm (± 0,5)
KB1/A	100	75	30	3,0	5 x Ø 4,0
KB2/A	120	80	35	3,5	7 x Ø 7,0
KB3/A	180	120	40	4,0	9 x Ø 7,0
KB4/A	150	150	40	4,0	8 x Ø 7,0

MRP®	Annex A5 of European Technical Assessment ETA-16/0716
Product description KB1/A, KB2/A, KB3/A, KB4/A	

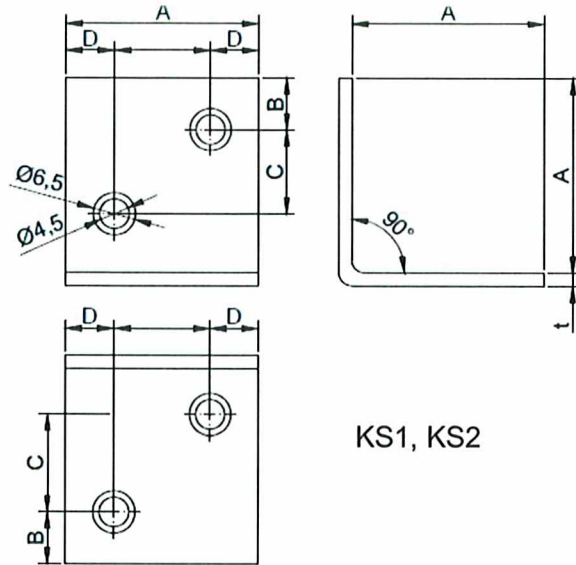
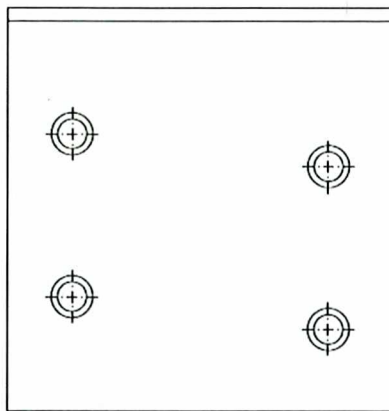


Symbol	A (mm) ($\pm 2,5$)	B (mm) ($\pm 1,5$)	C (mm) ($\pm 1,5$)	t (mm) ($\pm 0,15$)	Number of holes, \varnothing , mm ($\pm 0,5$)
KK1	200	40	40	2,0	22 x \varnothing 5,0
KK2	300	40	40	2,0	32 x \varnothing 5,0

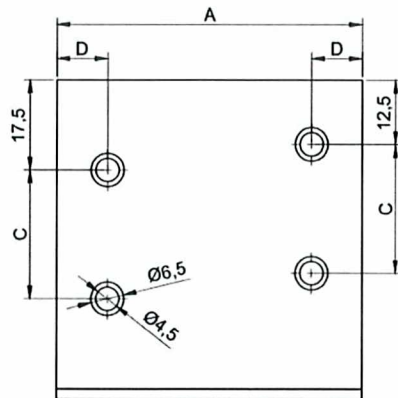
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 Product description
 KK1, KK2

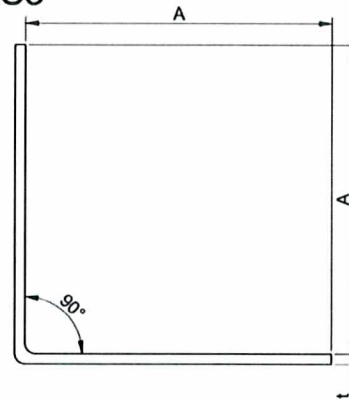
 Annex A6
 of European
 Technical Assessment
 ETA-16/0716



KS1, KS2



KS3

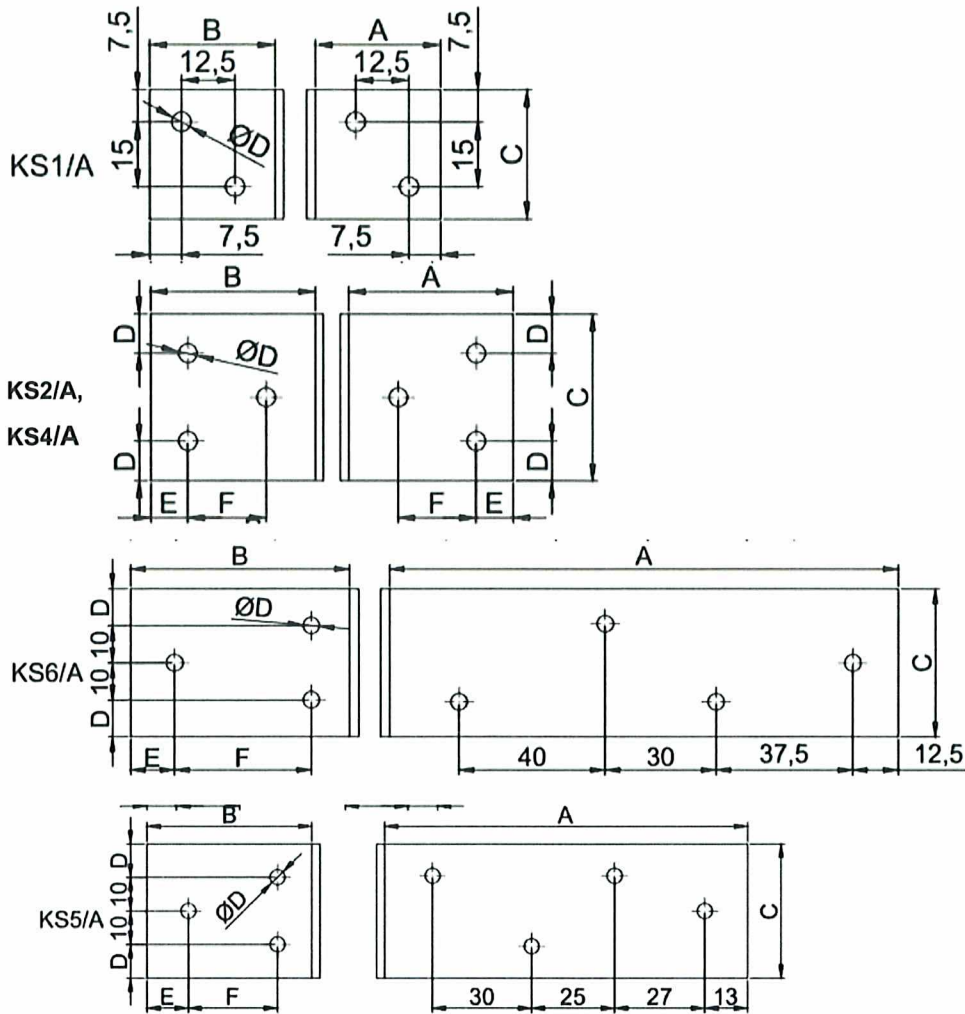


Symbol	A, mm (± 1,0)	B, mm (± 1,0)	C, mm (± 1,0)	D, mm (± 1,0)	t, mm (± 0,05)	Number of holes, Ø, mm (± 0,5)
KS1	30	8	13	7,50	2,0	4 x Ø 4,5 / 4 x Ø 6,5
KS2	40	10	15	10	2,0	4 x Ø 4,5 / 4 x Ø 6,5
KS3	60	-	25	10	2,0	4 x Ø 4,5 / 4 x Ø 6,5

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Product description
KS1, KS2, KS3

Annex A7
of European
Technical Assessment
ETA-16/0716

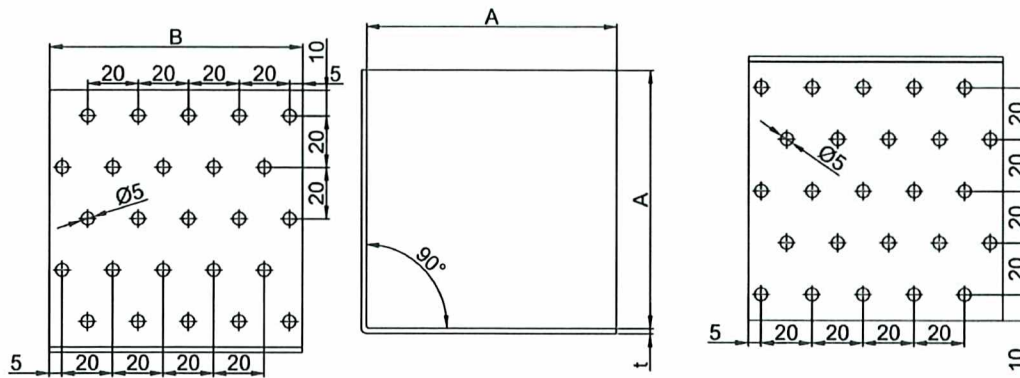


Symbol	A, mm (± 1,5)	B, mm (± 1,0)	C, mm (± 1,0)	D, mm (± 1,0)	E, mm (± 1,0)	F, mm (± 1,0)	t, mm (± 0,05)	Number of holes, Ø, mm (± 0,5)
KS1/A	30	29,5	30	7,5	7,5	12,5	2	4 x Ø 4,5
KS2/A	40	40	40	9,5	7,5	19	2	6 x Ø 4,5
KS4/A	40	80	40	10	10	20	2,5	6 x Ø 4,5
KS5/A	50	109,5	40	10	12,5	27	2,5	7 x Ø 5,0
KS6/A	60	139	40	10	12	37,5	2,5	7 x Ø 5,0

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Product description
KS1/A, KS2/A, KS4/A, KS5/A, KS6/A

Annex A8
of European
Technical Assessment
ETA-16/0716

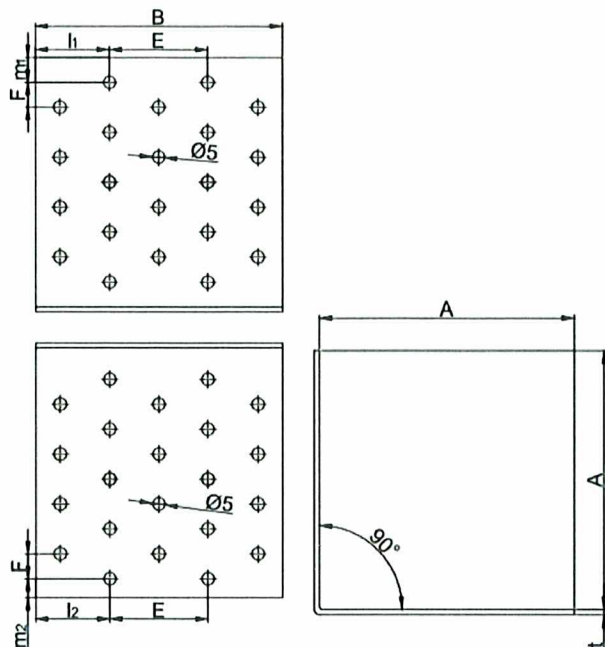


Symbol	A, mm ($\pm 1,0$)	B, mm ($\pm 1,0$)	t, mm ($\pm 0,05$)	Number of holes, \varnothing , mm ($\pm 0,5$)
KM1	40	40	2,0	8 x \varnothing 5,0
KM2	40	60	2,0	12 x \varnothing 5,0
KM3	60	40	2,0	12 x \varnothing 5,0
KM4	60	60	2,0	18 x \varnothing 5,0
KM5	60	80	2,0	24 x \varnothing 5,0
KM6	60	100	2,0	30 x \varnothing 5,0
KM7	80	40	2,0	16 x \varnothing 5,0
KM8	80	60	2,0	24 x \varnothing 5,0
KM9	80	80	2,0	32 x \varnothing 5,0
KM10	80	100	2,0	40 x \varnothing 5,0
KM11	100	60	2,0	30 x \varnothing 5,0
KM12	100	80	2,0	40 x \varnothing 5,0
KM13	100	100	2,0	50 x \varnothing 5,0
KM14	40	100	2,0	20 x \varnothing 5,0
KM15	40	200	2,0	40 x \varnothing 5,0

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Product description
KM1 - KM15

Annex A9
of European
Technical Assessment
ETA-16/0716

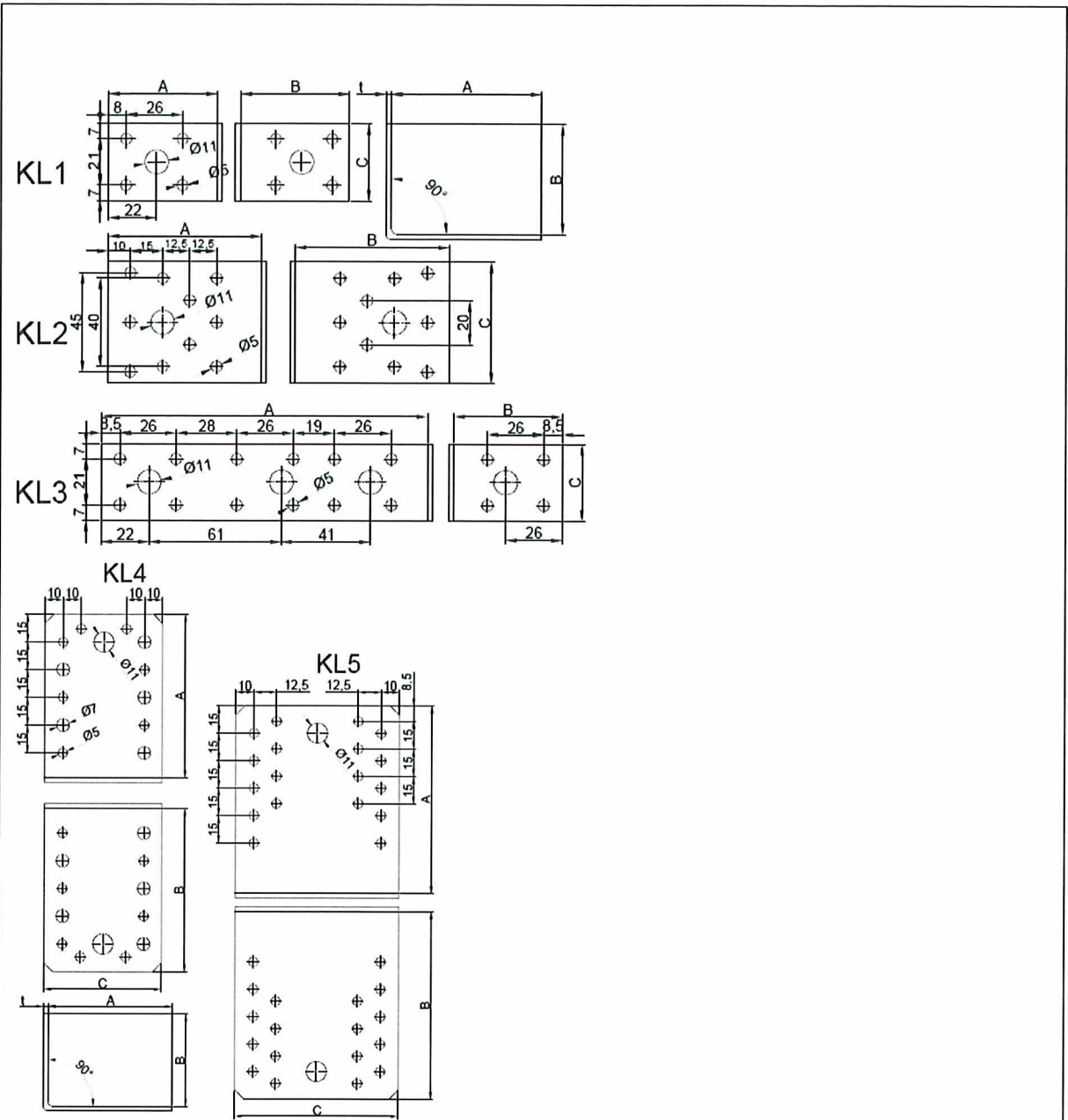


Symbol	A, mm ($\pm 1,5$)	B, mm ($\pm 1,5$)	E, mm ($\pm 1,5$)	F, mm ($\pm 1,0$)	t, mm ($\pm 0,05$)	Number of holes \varnothing , mm ($\pm 0,5$)
KM2/A	40	60	19	20	2	12 x $\varnothing 5,0$
KM3/A	40	80	40	10	2	12 x $\varnothing 5,0$
KM4/A	40	100	40	10	2	14 x $\varnothing 5,0$
KM5/A	40	140	40	10	2	22 x $\varnothing 5,0$
KM6/A	40	200	20	20	2	40 x $\varnothing 5,0$
KM8/A	60	60	19	20	2	18 x $\varnothing 5,0$
KM9/A	60	80	20	10	2	20 x $\varnothing 5,0$
KM10/A	60	100	40	10	2	24 x $\varnothing 5,0$
KM12/A	80	60	19	20	2	24 x $\varnothing 5,0$
KM13/A	80	80	20	10	2	28 x $\varnothing 5,0$
KM14/A	80	100	40	10	2	34 x $\varnothing 5,0$
KM15/A	100	60	19	20	2	30 x $\varnothing 5,0$
KM16/A	100	80	40	10	2	36 x $\varnothing 5,0$
KM17/A	100	100	40	10	2	44 x $\varnothing 5,0$

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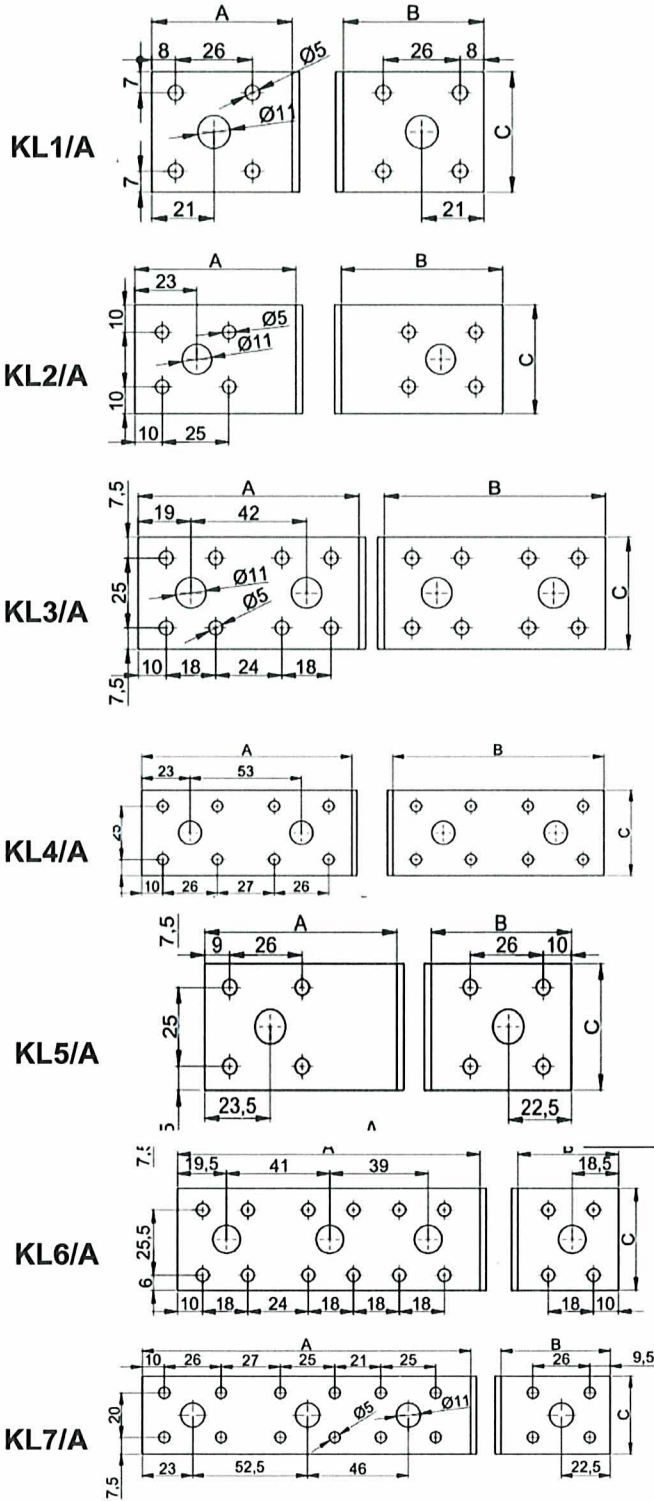
Product description
 KM2/A, KM3/A, KM4/A, KM5/A, KM6/A, KM8/A, KM9/A, KM10/A,
 KM12/A, KM13/A, KM14/A, KM15/A, KM16/A, KM17/A

Annex A10
 of European
 Technical Assessment
 ETA-16/0716



Symbol	A, mm (± 1,5)	B, mm (± 1,5)	C, mm (± 1,5)	t, mm (± 0,15)	Number of holes, Ø, mm (± 0,5)			
					8 x Ø 5,0	2 x Ø 11,0	-	-
KL1	50	50	35	2,5	8 x Ø 5,0	2 x Ø 11,0	-	-
KL2	70	70	55	2,5	20 x Ø 5,0	2 x Ø 11,0	-	-
KL3	150	50	35	2,5	16 x Ø 5,0	4 x Ø 11,0	-	-
KL4	90	90	65	2,5	16 x Ø 5,0	2 x Ø 11,0	12 x Ø 7,0	-
KL5	105	105	90	2,5	36 x Ø 5,0	-	-	2 x Ø 14,0

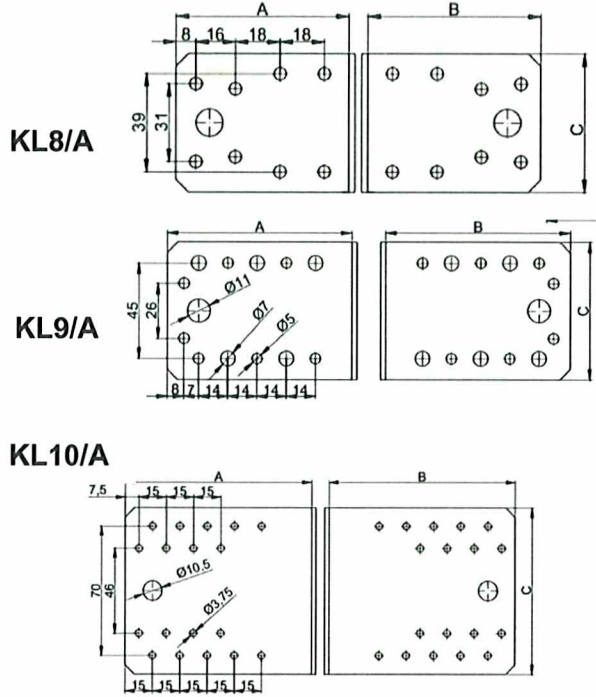
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Product description KL1 - KL5	



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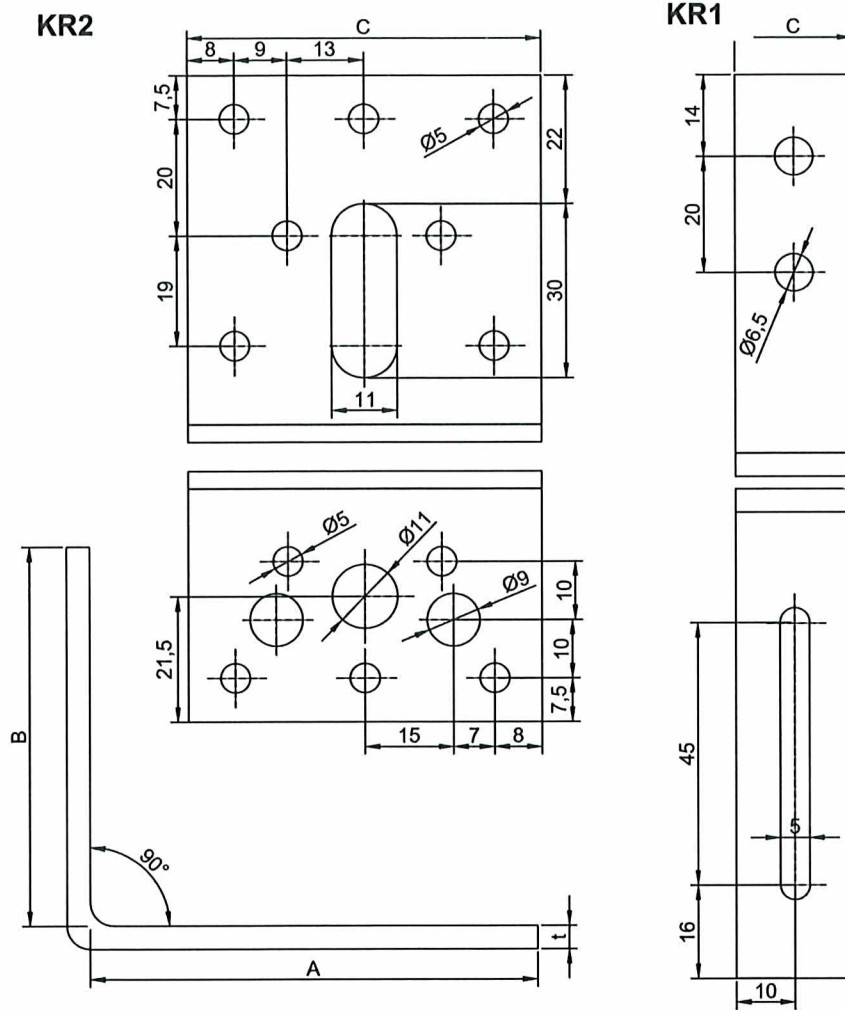
Product description
KL1/A - KL10/A

Annex A12
of European
Technical Assessment
ETA-16/0716



Symbol	A, mm (± 1,5)	B, mm (± 1,5)	C, mm (± 1,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)				
					Ø 3,5	Ø 5,0	Ø 7,0	Ø 11,0	Ø 10,5
KL1/A	47,5	47,5	40	2,5	-	8	-	2	-
KL2/A	60	60	40	2,5	-	8	-	2	-
KL3/A	80	80	40	2,5	-	16	-	4	-
KL4/A	100	100	40	2,5	-	16	-	4	-
KL5/A	50	69	40	2,5	-	16	-	4	-
KL6/A	120	40	40	2,5	-	16	-	4	-
KL7/A	150	50	40	2,5	-	16	-	2	-
KL8/A	70	70	55	2,5	-	8	-	2	-
KL9/A	88,5	88,5	65	2,5	-	14	10	2	-
KL10/A	102,5	102,5	90	2,5	36	-	-	-	2

MRP®	Annex A13 of European Technical Assessment ETA-16/0716
Product description KL1/A - KL10/A	

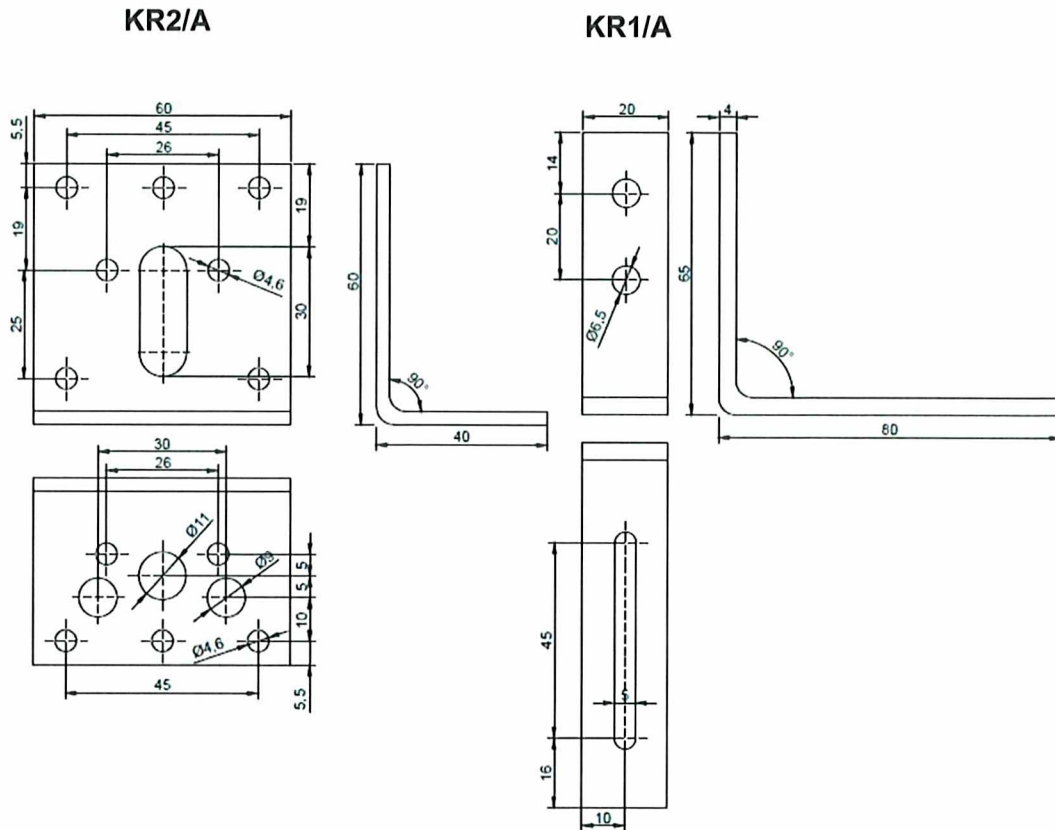


Symbol	A, mm (± 2,5)	B, mm (± 1,5)	C, mm (± 2,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)				Slotted hole, mm
					Ø 5,0	Ø 6,5	Ø 9	Ø 11	
KR1	80	65	20	4,0	-	2	-	-	5 x 50
KR2	60	40	60	3,5	12		2	1	11 x 30

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 Product description
 KR1, KR2

 Annex A14
 of European
 Technical Assessment
 ETA-16/0716

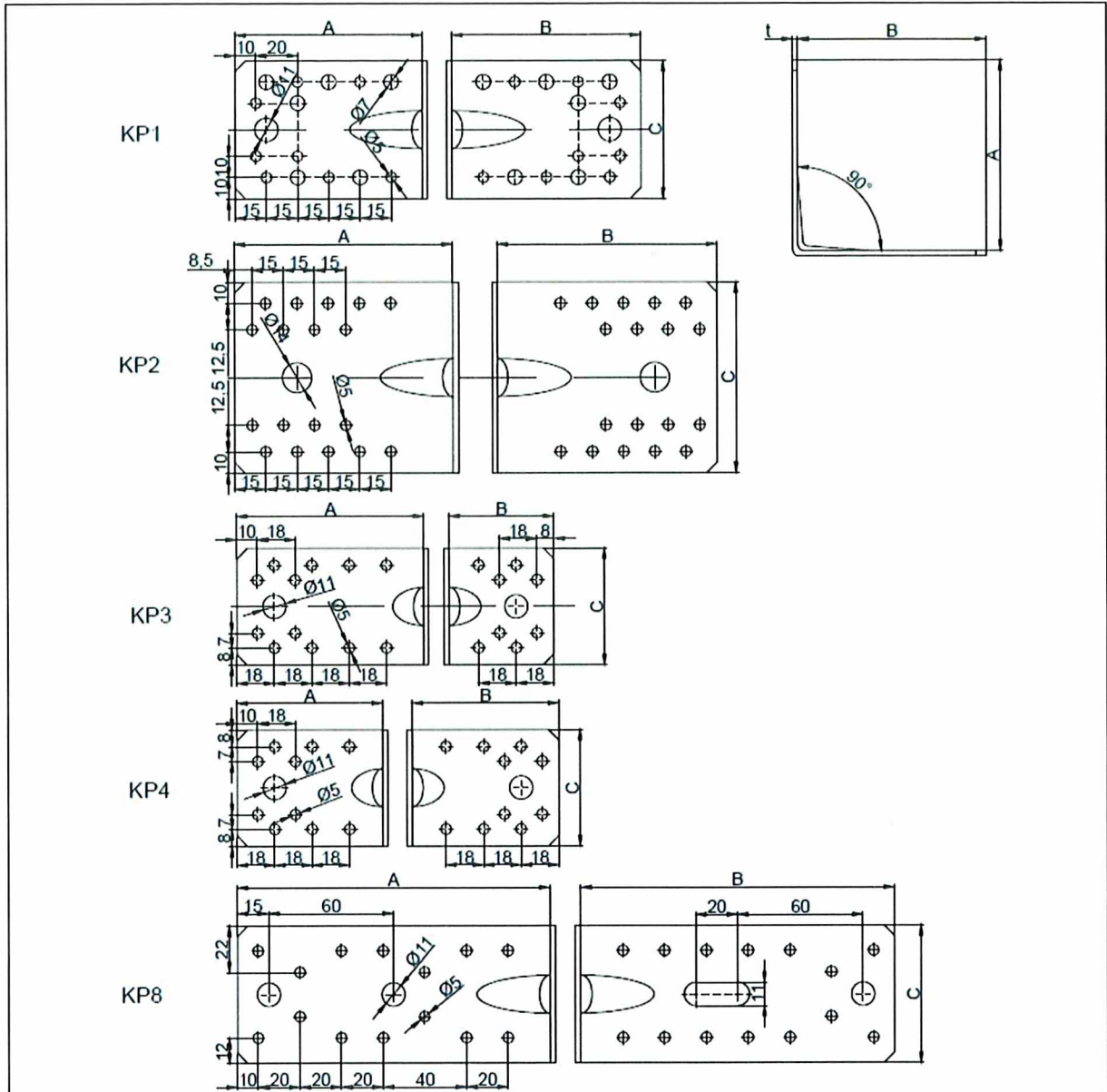


Symbol	A, mm (± 2,5)	B, mm (± 1,5)	C, mm (± 2,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)				Slotted hole, mm
					Ø 4,6	Ø 6,5	Ø 9	Ø 11	
KR1/A	80	65	20	4	-	2	-	-	5 x 45
KR2/A	60	40	60	3,0	12	-	2	1	11 x 30

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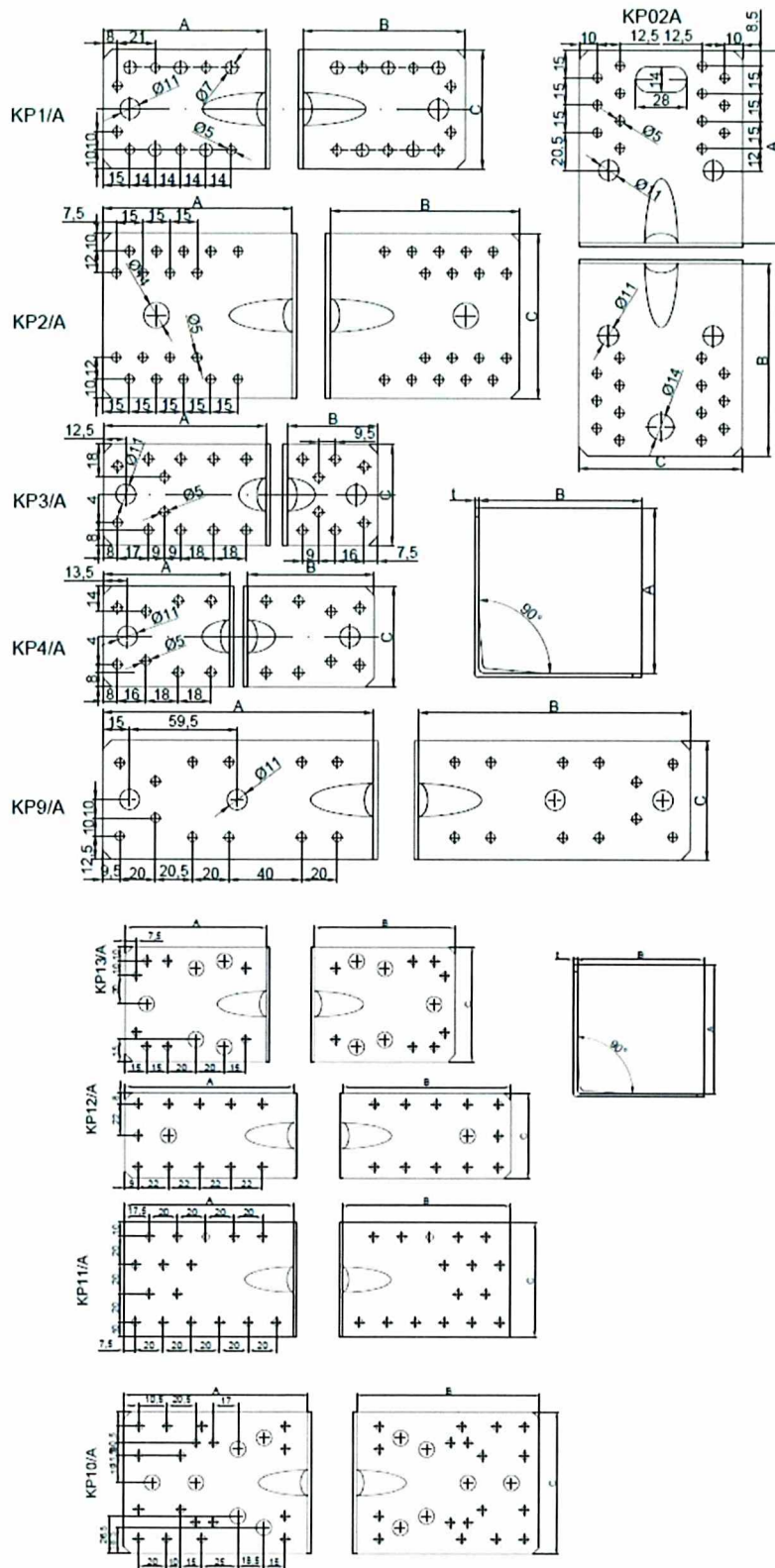
Product description
KR1/A, KR2/A

Annex A15
of European
Technical Assessment
ETA-16/0716



Symbol	A, mm (± 1,0)	B, mm (± 1,0)	C, mm (± 1,0)	t, mm (± 0,10)	Number of holes Ø, mm, (± 0,5)				Slotted hole, mm
					Ø 5,0	Ø 7,0	Ø 11,0	Ø 14,0	
KP1	90	90	65	2,5	16	12	2	-	-
KP2	105	105	90	2,5	36	-	-	2	-
KP3	90	50	55	2,5	20	-	2	-	-
KP4	70	70	55	2,5	20	-	2	-	-
KP8	150	150	65	2,5	28	-	3	-	11 x 31

MRP®	Annex A16 of European Technical Assessment ETA-16/0716
Product description KP1 - KP4, KP8	



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Product description
KP1/A - KP18/A

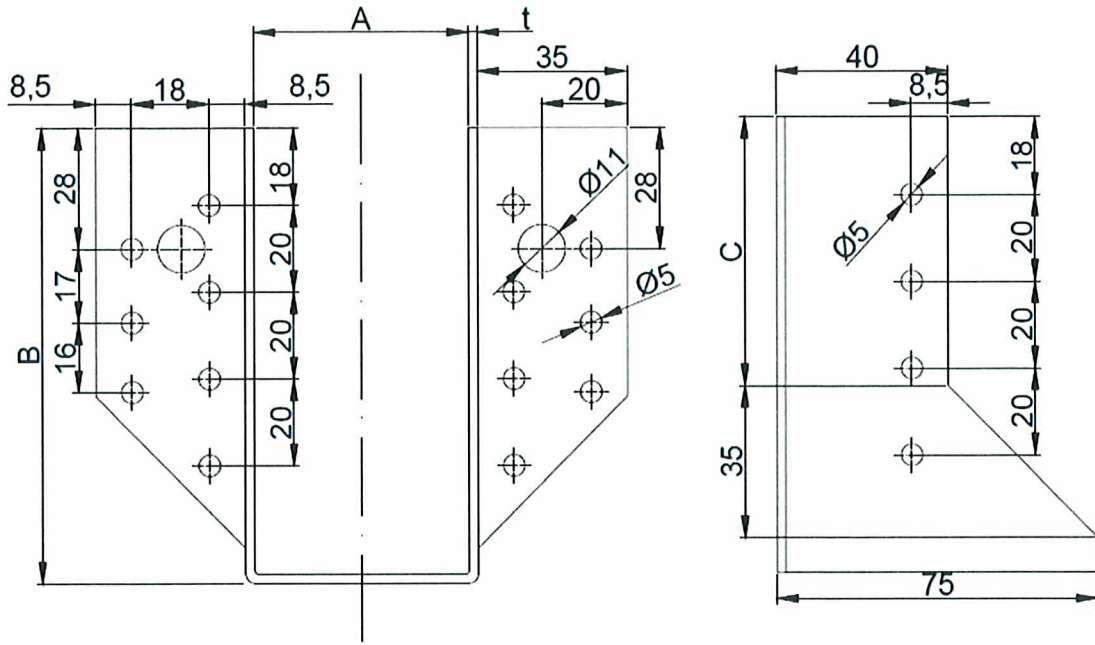
Annex A17
of European
Technical Assessment
ETA-16/0716

Symbol	A, mm (± 1,0)	B, mm (± 1,0)	C, mm (± 1,0)	t, mm (± 0,10)	Number of holes Ø, mm (± 0,5)			
					Ø 5,0	Ø 7,0	Ø 11,0	Ø 14,0
KP1/A	90	90	65	2,5	14	10	2	-
KP2/A	105	105	90	2,5	36	-	-	2
KP02/A	105	105	90	2,5	28	-	4	1
KP3/A	90	50	55	2,5	20	-	2	-
KP4/A	70	70	55	2,5	16	-	2	-
KP5/A	175	175	90	2,5	56	-	10	2
KP6/A	172	105	90	2,5	46	-	7	2
KP7/A	160	100	100	2,5	36	-	9	-
KP8/A	150	150	80	2,5	46	-	-	-
KP9/A	150	150	65	2,5	24	-	4	-
KP10/A	130	130	100	2,5	36	-	12	-
KP11/A	120	120	80	2,5	32	-	-	-
KP12/A	120	120	60	2,5	24	-	2	-
KP13/A	100	100	80	2,5	16	-	10	-
KP14/A	100	100	60	2,5	24	-	-	-
KP15/A	90	60	60	2,5	9	-	1	-
KP16/A	120	80	60	2,5	22	-	1	-
KP17/A	75	75	60	2,5	20	-	2	-
KP18/A	60	60	60	2,5	16	-	-	-

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Product description
KP1/A - KP18/A

Annex A19
of European
Technical Assessment
ETA-16/0716

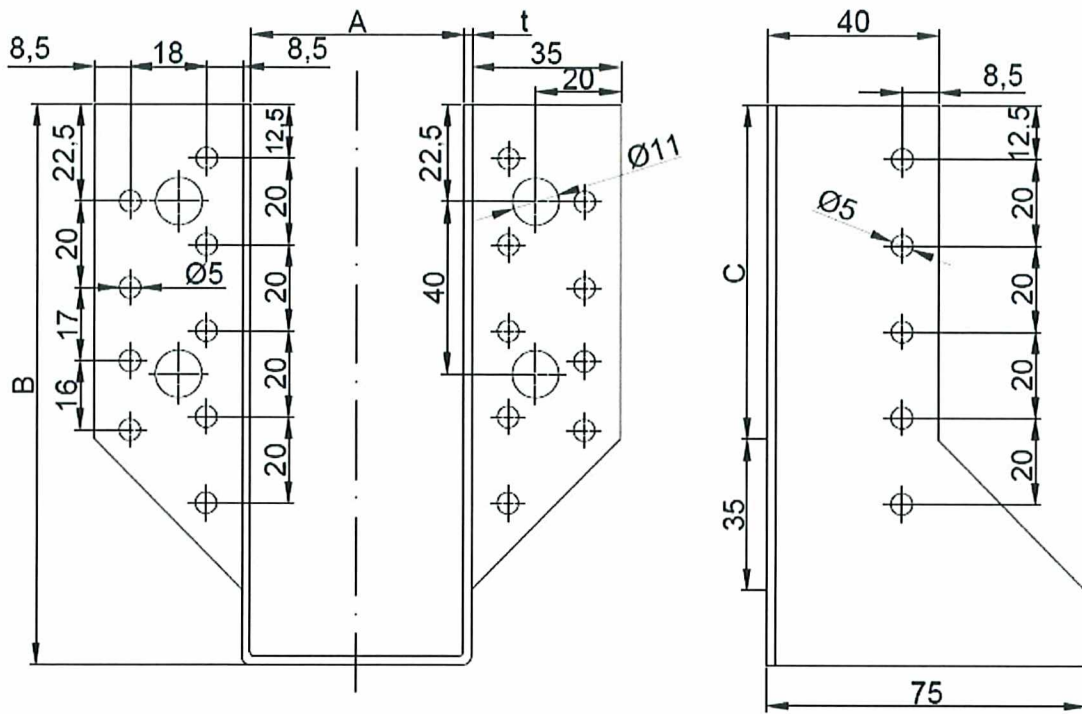


Symbol	A, mm (± 1,5)	B, mm (± 2,5)	C, mm (± 1,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)	
					Ø 5,0	Ø 11,0
WB1	25	118	62	2,0	22	2
WB5	41	110	62	2,0	22	2
WB10	51	105	62	2,0	22	2
WB14	60	100	62	2,0	22	2

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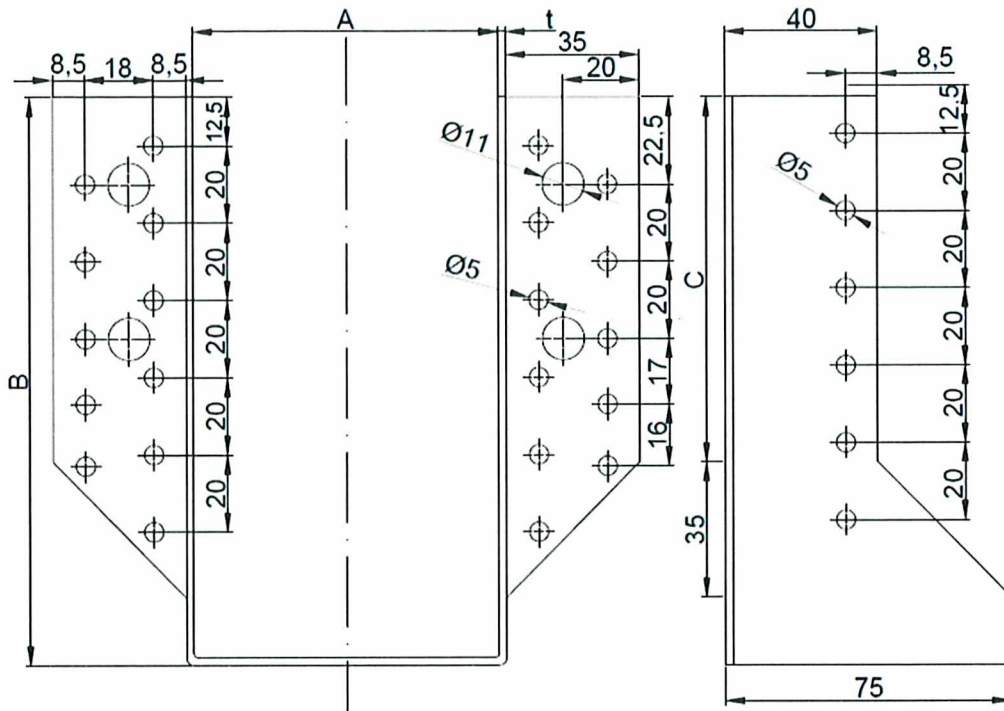
Product description
WB1, WB5, WB10, WB14

Annex A20
of European
Technical Assessment
ETA-16/0716



Symbol	A, mm (± 1,5)	B, mm (± 2,5)	C, mm (± 1,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)	
					Ø 5,0	Ø 11,0
WB9	45	138	77,5	2,0	28	4
WB11	51	135	77,5	2,0	28	4
WB15	60	130	77,5	2,0	28	4
WB21	70	125	77,5	2,0	28	4
WB26	80	120	77,5	2,0	28	4

MRP®	Annex A21 of European Technical Assessment ETA-16/0716
Product description WB9, WB11, WB15, WB21, WB26	

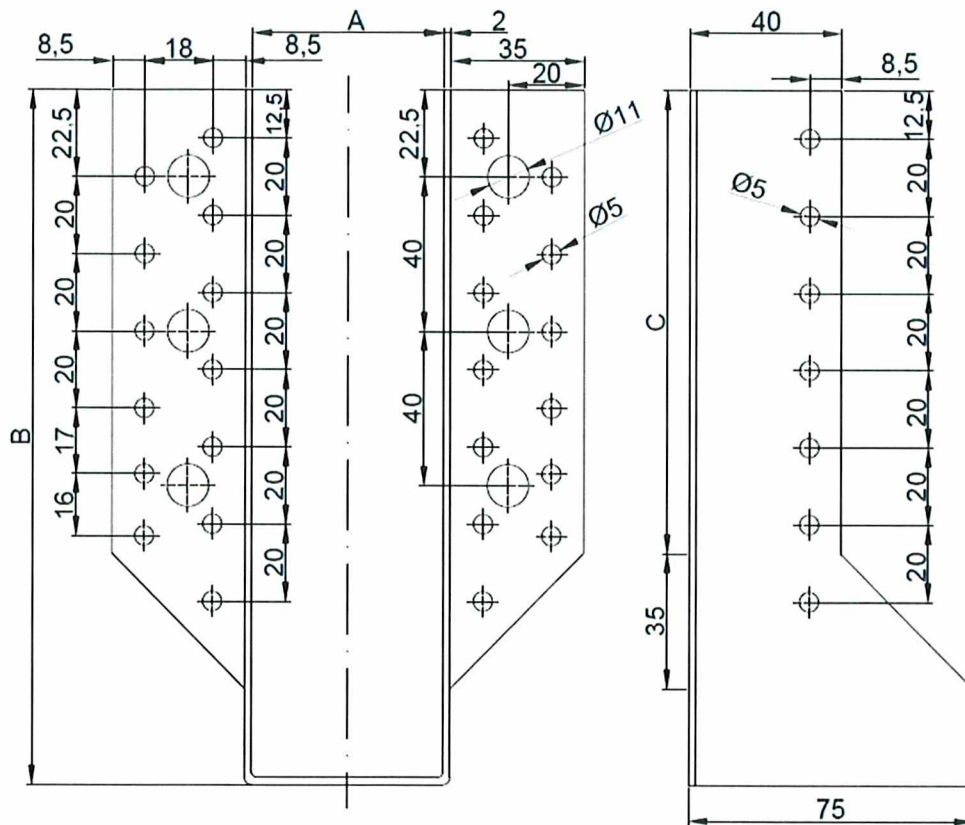


Symbol	A, mm (± 1,5)	B, mm (± 2,5)	C, mm (± 1,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)	
					Ø 5,0	Ø 11,0
WB16	60	160	94,5	2,0	34	4
WB27	80	150	94,5	2,0	34	4
WB30	100	140	94,5	2,0	34	4

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Product description
 WB16, WB27, WB30

Annex A22
 of European
 Technical Assessment
 ETA-16/0716

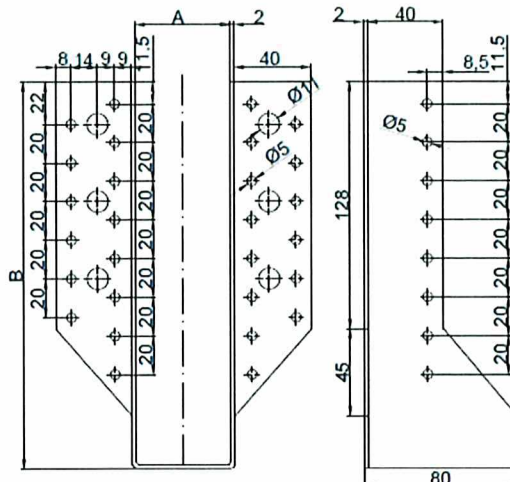
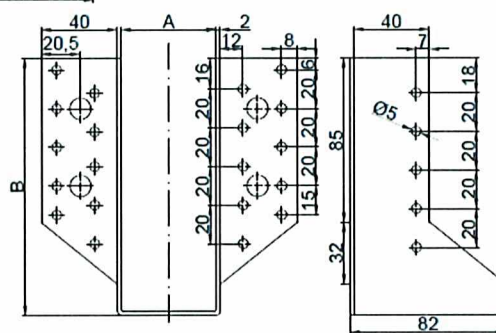


Symbol	A, mm (± 1,5)	B, mm (± 2,5)	C, mm (± 1,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)	
					Ø 5,0	Ø 11,0
WB13	51	195	120	2,0	40	6
WB28	80	180	120	2,0	40	6
WB31	100	170	120	2,0	40	6

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Product description
WB13, WB28, WB31

Annex A23
of European
Technical Assessment
ETA-16/0716

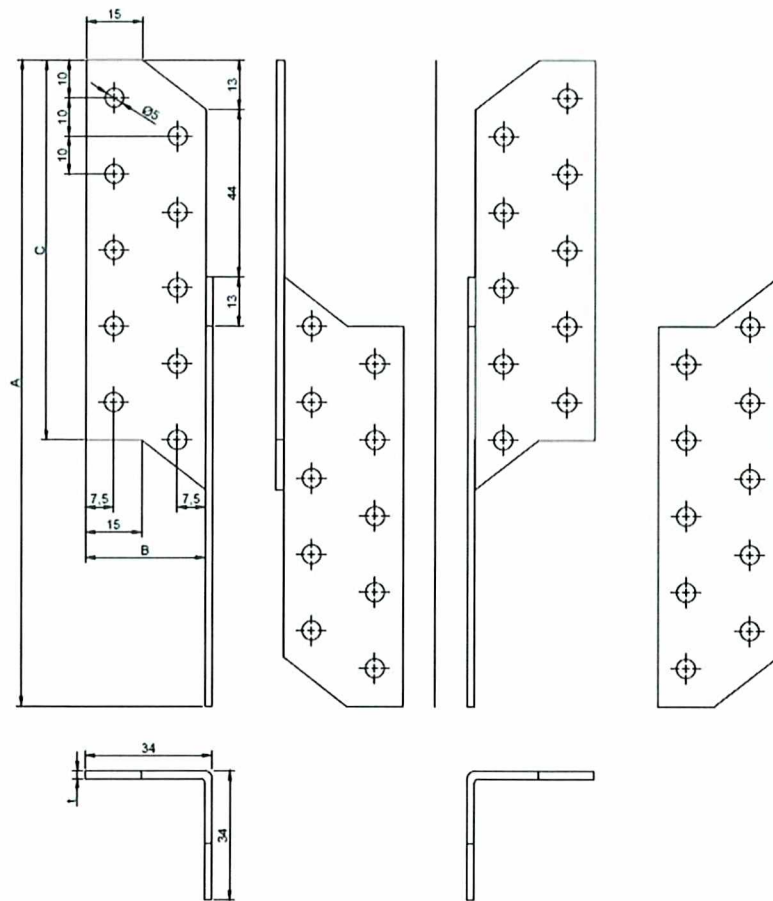
WB10/A, WB12/A, WB14/A, WB16/A

WB50/A, WB60/A, WB70/A, WB80/A


Symbol	A, mm (± 1,5)	B, mm (± 2,5)	C, mm (± 1,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)	
					Ø 5,0	Ø 11,0
WB10/A	100	202	128	2,0	44	6
WB12/A	120	192	128	2,0	44	6
WB14/A	140	182	128	2,0	44	6
WB16/A	160	172	128	2,0	44	6
WB50/A	50	133	85	2,0	30	4
WB60/A	60	131	85	2,0	30	4
WB70/A	70	126	85	2,0	30	4
WB80/A	80	122	85	2,0	30	4

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Product description
 WB10/A, WB12/A, WB14/A, WB16/A, WB50/A, WB60A, WB70A,
 WB80/A

Annex A24
 of European
 Technical Assessment
 ETA-16/0716



LK2, LK4, LK6, LK8

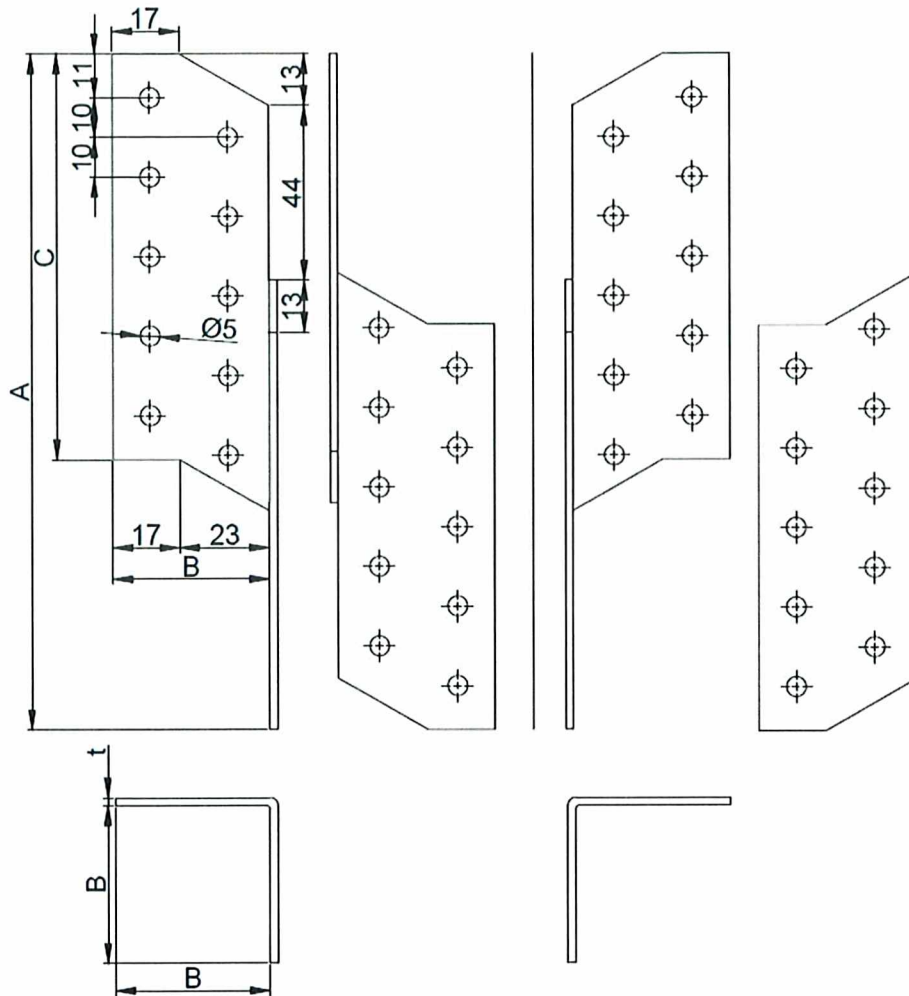
LK1, LK3, LK5, LK7

Symbol	A, mm (± 2,5)	B, mm (± 1,5)	C, mm (± 2,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)	Type
					Ø 5,0	
LK1	170	32	100	2,00	20	Left
LK2	170		100		20	Right
LK3	210		140		28	Left
LK4	210		140		28	Right
LK5	250		180		36	Left
LK6	250		180		36	Right
LK7	290		220		44	Left
LK8	290		220		44	Right

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Product description
LK1 - LK8

Annex A25
of European
Technical Assessment
ETA-16/0716



LK2/A, LK4/A, LK6/A, LK8/A

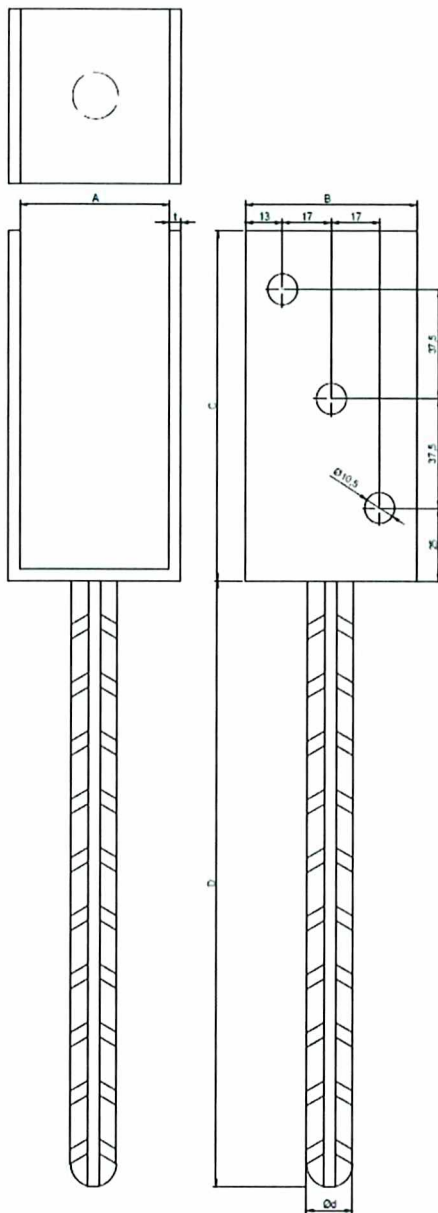
LK1/A, LK3/A, LK5/A, LK7/A

Symbol	A, mm (± 2,5)	B, mm (± 1,5)	C, mm (± 2,5)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)	Type
					Ø 5,0	
LK1/A	170	40	102	2,00	20	Left
LK2/A	170	40	102		20	Right
LK3/A	210	40	140		28	Left
LK4/A	210	40	140		28	Right
LK5/A	250	40	202		36	Left
LK6/A	250	40	202		36	Right
LK7/A	290	40	222		44	Left
LK8/A	290	40	222		44	Right

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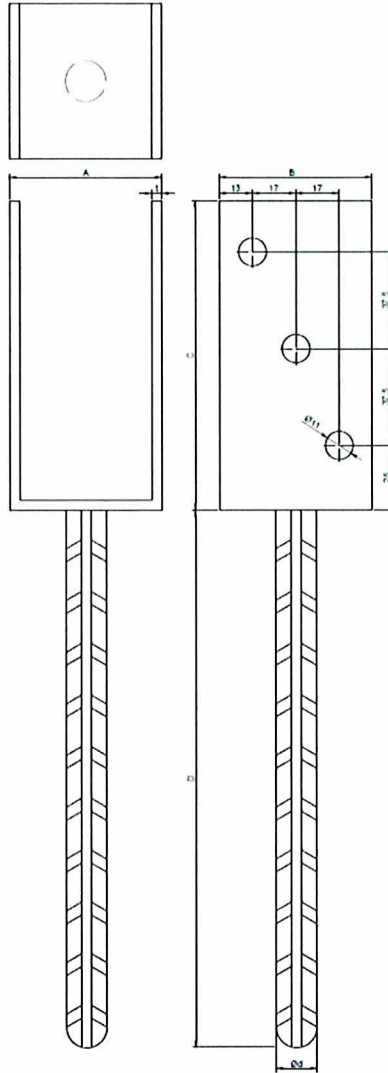
Product description
LK1/A - LK8/A

Annex A26
of European
Technical Assessment
ETA-16/0716



Symbol	A, mm ($\pm 1,5$)	B, mm ($\pm 1,5$)	C, mm ($\pm 1,5$)	D, mm ($\pm 0,5$)	t, mm ($\pm 0,15$)	$\varnothing d$, mm ($\pm 0,1$)	Number of holes \varnothing , mm ($\pm 0,5$)
PS1	60	60	120	200	4	16	6 x $\varnothing 10,5$
PS2	70	60	120	200	4	16	6 x $\varnothing 10,5$
PS3	80	60	120	200	5	16	6 x $\varnothing 10,5$
PS4	90	60	120	200	5	20	6 x $\varnothing 10,5$
PS5	100	60	120	200	5	20	6 x $\varnothing 10,5$
PS6	120	60	120	200	5	20	6 x $\varnothing 10,5$
PS8	140	90	126	200	5	20	6 x $\varnothing 10,5$

MRP®	Annex A27 of European Technical Assessment ETA-16/0716
Product description PS1 - PS8	

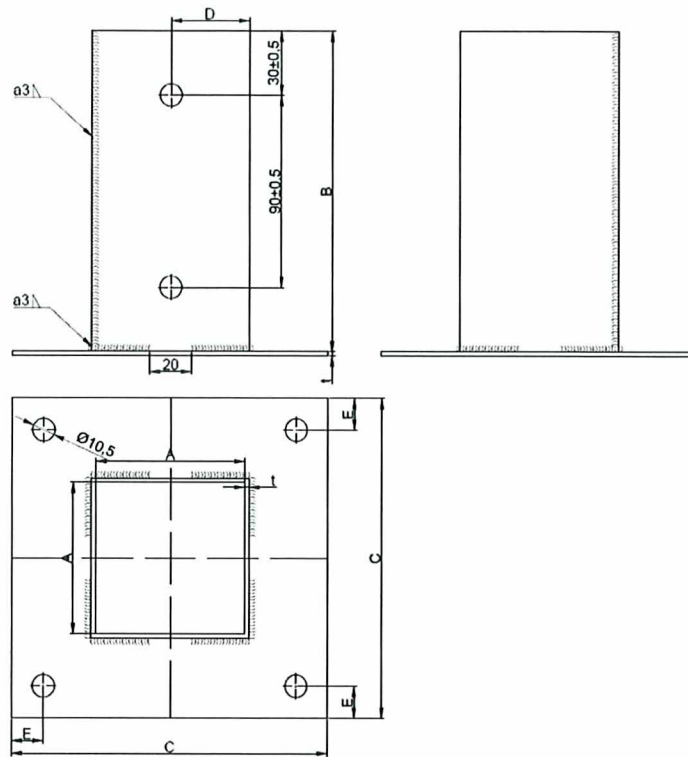


Symbol	A, mm (± 1,5)	B, mm (± 1,5)	C, mm (± 1,5)	D, mm (± 0,5)	t, mm (± 0,15)	Ø d, mm (± 0,1)	Number of holes Ø, mm (± 0,5)
PS2/A	70	60	120	200	4,0	20	6 x Ø11,0
PS3/A	80	60	120	200	4,0	20	6 x Ø11,0
PS4/A	90	60	120	200	4,0	20	6 x Ø11,0
PS5/A	100	60	120	200	4,0	20	6 x Ø11,0
PS6/A	120	60	120	200	4,0	20	6 x Ø11,0
PS8/A	140	90	120	200	4,0	20	6 x Ø11,0
PS9/A	160	60	120	200	4,0	20	6 x Ø11,0

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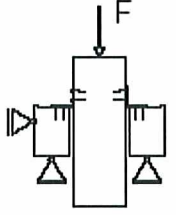
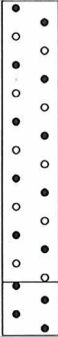
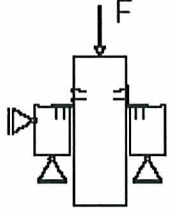
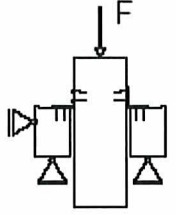
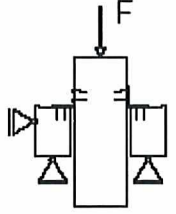
 Product description
 PS2/A - PS9/A

 Annex A28
 of European
 Technical Assessment
 ETA-16/0716

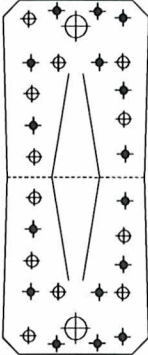
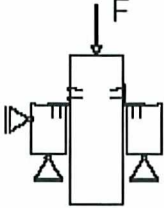
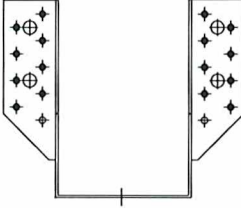
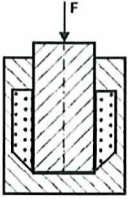
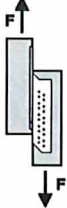
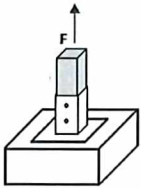


Symbol	A, mm (± 1,5)	B, mm (± 2,5)	C, mm (± 2,5)	D, mm (± 1,5)	E, mm (± 1,0)	t, mm (± 0,15)	Number of holes Ø, mm (± 0,5)
PSP1	71	150	150	37,5	15	2,0	12 x Ø10,5
PSP2	91	150	150	47,5	15	2,0	12 x Ø10,5
PSP3	101	150	150	52,5	15	2,0	12 x Ø10,5

MRP®	Annex A29 of European Technical Assessment ETA-16/0716
Product description PSP1 - PSP3	

MRP [®] symbol	Nailing*	Characteristic load-carrying capacity, R_k , kN	Static diagram of loading
KW1 - KW7 KW2A KW1/A - KW7/A KB1 - KB3 KB1/A - KB4/A	full nailing	1,35	
KK1- KK2		7,47	
KS1- KS3 KS1/A - KS6/A	full nailing	2,16	
KM1 - KM15 KM/2A - KM17/A KL1 - KL5 KL1/A - KL10/A KR1 - KR2 KR1/A - KR2/A	full nailing	2,34	
* Ring shank nails with the diameter $d \geq 4$ mm and the length ≥ 40 mm. Timber grade at least C24 according to EN 338			

MRP[®]	Annex B1 of European Technical Assessment ETA-16/0716
Characteristic load-carrying capacity of joints made with MRP [®] three-dimensional nailing plates KW, KW/A, KK, KS, KS/A, KM, KM/A, KL, KL/A, KR and KR/A	

MRP [®] symbol	Nailing*	Characteristic load-carrying capacity, R _k , kN	Static diagram of loading
KP1 - KP8 KP1/A - KP18/A KP02/A		18,42	
WB1 - WB31 WB10/A - WB80/A		26,69	
LK1 - LK8 LK1/A - LK8/A	full nailing	17,91	
PS1 - PS8 PS2/A - PS9/A PSP1 - PSP3	full nailing	4,70	
* Ring shank nails with the diameter $d \geq 4$ mm and the length ≥ 40 mm. Timber grade at least C24 according to EN 338			
MRP[®]			Annex B2 of European
Characteristic load-carrying capacity of joints made with MRP [®] three-dimensional nailing plates KP, KP/A, WB, WB/A, LK, LK/A, PS, PS/A and PSP			Technical Assessment ETA-16/0716