Anstar®
40 YEARS

PRODUCT CATALOGUE

2021

APPROVALS AND QUALITY CONTROL

Our products have the necessary official approvals,
and external quality control is carried out by Kiwa Inspecta Sertifiointi Oy.
We have been granted the ISO 9001 and ISO 14001 quality and environmental certificates. Our production is certified according to EN 1090-1 and EN 3834-2.

PRODUCT LABELLING

Anstar Oy products are labelled with the manufacturer, metal part type, approval and week of manufacture.

TECHNICAL SPECIFICATIONS

The technical specifications of the products can be found in the user manuals, which are available for download on our website at www.anstar.fi. You can also find the user manuals in a product binder available upon order.

DELIVERY TERMS

Small-invoice surcharge
€10 + VAT on orders under €100.

Pallets
For pallets, we charge €10 + VAT.

Material certificates
For material certificates, we charge a processing fee of €20 + VAT.

Returns
Returns are agreed on a case-specific basis.

Other terms
In other respects, we follow the General procurement and delivery terms for construction products (RYHT 2000) of the Confederation of Finnish Construction Industries.

Anstar Oy is not liable for any errors in the product catalogue.

ANSTAR OY

Sales personnel can be found on our website
www.anstar.fi

Requests for quotes on steel parts
orders@anstar.fi

Requests for quotes on composite beams
abeam@anstar.fi

Erstantie 2, FI-15540 VILLÄHDE, FINLAND
tel. +358 3 872 200
anstar@anstar.fi

Anstar®

ANSTAR 40 YEARS

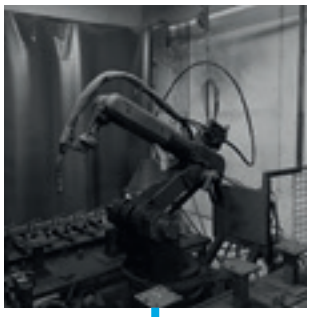
1981 – 2021

1981, HOLLOLA

Kari Viljakainen establishes Anstar Ky in Alikartano in Hollola. Personnel: 2.

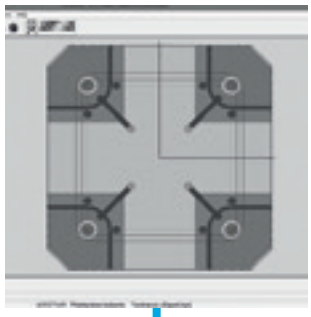
1989, ANSTAR OY

From Ky (limited partnership) to Oy (limited company). Automation of production started by acquiring the first welding robot.



1992, COLJOINT

Quick dimensioning software Coljoint for bolt and column shoe dimensioning.



1980s

Main products include fastening plates, APK® column shoes and ATP and ALP® anchor bolts.

1988, VILLÄHDE

New facilities in Villähde in the municipality of Nastola. Personnel: 10.

1990s

AEP® hidden brackets launched, becomes the most used connection on the market.

2000, GROWTH

New production building with focus on the production of ties, anchor bolts and column shoes.

2003, NEW PRODUCTS

A-type composite beam manufacture begins, A-BEAM® and quick dimensioning software launched.

2007, EXTENSION

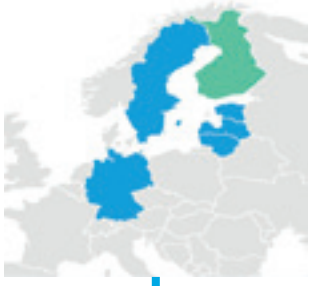
Building extension for the growing composite beam production.

2010 – 2020, NEW PRODUCTS AND UPDATES

Products in compliance with the European standards, time for intense development and launching of new products and design software.

2012, EUROPE

Anstar internationalisation continues: Sweden, Germany, the Baltic countries.



2021, ANNIVERSARY YEAR

Anstar Oy celebrates its 40th anniversary. Personnel: 70. Deliveries to 30 countries.

SMART STEEL™

Anstar's SMART STEEL™ concept enables efficient, modern construction even in difficult conditions. SMART STEEL™ means smart construction. Anstar provides designers and builders with products and dimensioning software that can be used to design structural solutions and connections in accordance with the latest design standards. Make use of the best design tools and our technical support. Beam spans, building floor heights and façade solutions can be implemented with high quality and modern results. Making the right choices during the design phase can influence up to 80%of the costs. Our Finnish background, lengthy experience and excellent location ensure reliable deliveries on time. The construction process is made easier and quicker by mutually agreed technical solutions. Our A-BEAM® products and Anstar connection technology form part of the frame system, offering cost-efficiency and flexibility for construction.

ANSTAR WAY – FROM DESIGN TO PRODUCTION

1. CHOOSE

80% of the final costs are decided in the project design phase.

2. DESIGN

Make use of the best design tools and technical support.

3. ORDER

Our Finnish background, lengthy experience and location ensure reliable deliveries on time.

4. IMPLEMENT

The construction process is made easier and quicker by mutually agreed technical solutions.

CONTENTS

SOFTWARE

Anstar has developed dimensioning software for designing the load-bearing frames of buildings. The software applications are used to specify the resistance and utilisation rates of the frame connections with Anstar products.

- The software has been designed for easy use and illustrative presentation.
- The dimensioning of the structure is illustrated using colour graphics, showing the resistance of the structure and connection pieces as well as the utilisation rates and whether they are exceeded.
- The software dimensions the connection according to the latest European standards.
- The software performs the calculation for the erection stage, final stage and accident situations.
- The software produces strength calculation materials for building control.

All software applications are available for download on our website at **www.anstar.fi**

- The user interface and printing language options are Finnish, Swedish and English.
- The software can be used on Windows 7, 8 and 10.
- The use of the software applications is facilitated by the product-specific design instructions available on the website.

For structural design, Anstar has made Revit blocks, ACAD blocks and Tekla Structures components for its products, enabling the flexible use of Anstar products in the design work.

Standards used by the software:

- Design standards Eurocode 1, 2 and 3
- Finnish, Swedish and German NA

ACOLUMN

The ACOLUMN software is used to design shoe/anchor bolt connections for concrete elements. The software is used for designing the following types of element connections:

- Element column coupler and foundation connections
- Rectangular and round columns
- Shear wall coupler and foundation connections
- Moment stiff beam-to-column connections

ASTEEL

The ASTEEL software is used for designing the following connections:

- Steel column bolt connections to concrete
- Fastening plates
- Concrete frame bracing truss connections ADE® and ADK®

ABEAM

The ABEAM software is used for preliminary design of A-BEAM S® - and W® -type composite beams in hollow-core slab floors for design-and-build deal reference plans.

- The software calculates the preliminary dimensions for composite beams based on the loads.
- The software uses the A-BEAM W® - and A- BEAM S® -type beam selection.
- Anstar is responsible for the final dimensioning of the beams.

PRODLIB BIM-PRODUCT LIBRARY

Anstar's products are available in a ProdLib product library. ProdLib is a free service that supports AutoCAD, AutoCAD LT, Revit and ArchiCAD software.

TEKLA'S 3D COMPONENTS FOR ANSTAR PRODUCTS

Components for Anstar products have been prepared in the Tekla Structures 3D modelling software and can be used for modelling the products. Downloads available on the Tekla Warehouse website.

FASTENING PLATES

Fastening plates manufactured by Anstar Oy are steel plates equipped with bonds and installed in the concrete before it hardens. Adjoining structural fastenings are made by welding directly onto the steel plate.

Standard fastening plates: AKL®, KL, JAL®, AKLP, AKLJ, AKKT, AKT, AUKT

Standard fastening plates are used on cast-in-place and prefabricated structures to provide a mounting surface for welding. Wide range of sizes and capacities.

Customised fastening plate AKLC-Custom

NEW!

Special plate with dimensions, number of pins and materials according to your needs. Anstar designs the plates based on the initial data provided.

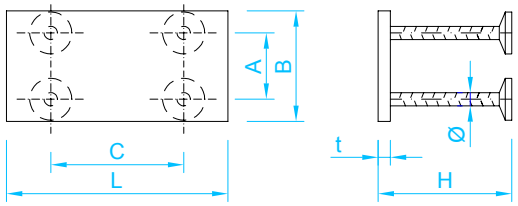
Fastening plates

AKL® fastening plates

Code B/L	Dimensions						Resistances						Fastening area
	H	t	A	C	Ø	weight	N_{Rd}	V_{RdB}	V_{RdL}	M_{RdL}	M_{RdB}	T_{Rd}	calculation profile
	mm	mm	mm	mm	mm	kg	kN	kN	kN	kNm	kNm	kNm	mm x mm
AKL 100/100*	68	8	60	60	12	1,0	28	40	40	0,9	0,9	2,0	P60 x 60 x 4
AKL 100/150*	70	10	60	90	12	1,5	31	37	43	0,7	1,4	2,5	P60 x 90 x 4
AKL 150/150	162	12	90	90	12	2,8	84	70	70	5,7	5,7	5,2	P100 x 100 x 4
AKL 100/200	162	12	60	120	12	2,3	70	49	65	2,8	5,5	5,5	P60 x 120 x 4
AKL 100/300	165	15	60	180	16	4,7	103	96	123	6,1	12,7	13,7	P80 x 160 x 4
AKL 200/200	162	12	120	120	16	5,0	113	123	123	10,0	10,0	11,3	P140 x 140 x 4
AKL 250/250	165	15	170	170	16	8,6	102	129	129	16,3	16,3	16,3	P160 x 160 x 4
AKL 200/300	165	15	120	180	16	8,4	112	88	128	11,7	16,1	15,8	P120 x 180 x 4
AKL 300/300	165	15	180	180	16	9,8	135	128	128	21,5	21,5	17,0	P180 x 180 x 4

SBKL plates are delivered as AKL® fastening plates.

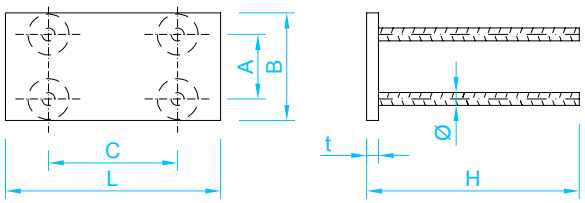
	Plate	Bonds
AKL	S355J2+N	B500B / 235JR+AR*
AKLR	1.4301	B500B
AKLRr*	1.4301	1.4301
AKLH	1.4401	B500B



KL fastening plates

Code B/L	Dimensions						Resistances						Fastening area
	H	t	A	C	Ø	weight	N_{Rd}	V_{RdB}	V_{RdL}	M_{RdL}	M_{RdB}	T_{Rd}	calculation profile
	mm	mm	mm	mm	mm	kg	kN	kN	kN	kNm	kNm	kNm	mm x mm
KL 100/100	218	8	60	60	12	1,4	55	53	53	1,8	1,8	3,1	P60 x 60 x 4
KL 100/150	220	10	60	90	12	2,0	69	45	53	2,0	3,2	4,3	P60 x 90 x 4
KL 150/150	222	12	90	90	16	3,6	90	74	74	4,9	4,9	6,7	P90 x 90 x 4
KL 100/200	222	12	60	120	16	3,4	87	60	74	3,0	6,5	7,0	P60 x 120 x 4
KL 100/300	315	15	60	180	20	6,8	140	115	125	6,0	20,0	18,0	P60 x 180 x 4
KL 200/200	312	12	120	120	20	7,0	146	125	125	8,5	8,5	16,7	P120 x 120 x 4
KL 250/250	315	15	150	150	20	10,5	146	125	125	16,0	16,0	21,0	P140 x 140 x 4
KL 200/300	315	15	120	180	20	10,4	165	115	125	12,0	22,6	18,0	P120 x 180 x 4
KL 300/300	315	15	180	180	20	14,0	165	133	133	24,0	24,0	26,0	P180 x 180 x 4

	Plate	Bonds
KL	S355J2+N	B500B
KLR	1.4301	B500B
KLH	1.4401	B500B

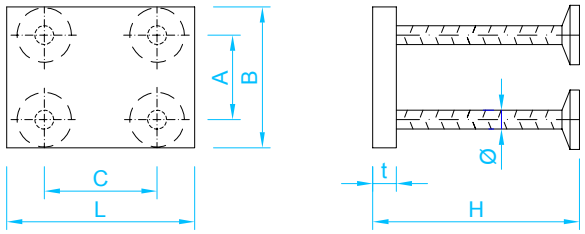


JAL® fastening plates

Code L/B	Dimensions						Resistances						Fastening area
	H	t	A	C	Ø	weight	N_{Rd}	V_{RdB}	V_{RdL}	M_{RdL}	M_{RdB}	T_{Rd}	calculation profile
	mm	mm	mm	mm	mm	kg	kN	kN	kN	kNm	kNm	kNm	mm x mm
JAL 150/150	220	25	90	90	16	6,0	161	125	125	13,5	13,5	8,9	P90 x 90 x 4
JAL 150/200	220	25	90	120	20	8,5	173	145	187	16,9	17,0	17,2	P80 x 120 x 5
JAL 150/250	220	25	90	190	20	10,0	154	155	195	15,0	15,8	24,0	P100 x 120 x 4
JAL 200/200	220	25	120	120	20	10,3	192	195	195	26,0	26,0	19,5	P120 x 120 x 4
JAL 200/250	220	25	120	190	20	12,4	193	150	198	21,0	37,0	25,8	P120 x 180 x 4
JAL 250/250	220	25	190	190	20	14,9	200	204	204	40,0	40,0	30,5	P180 x 180 x 4
JAL 200/300	280	25	120	200	25	17,0	262	230	310	24,0	45,0	41,9	P120 x 180 x 5
JAL 300/300	280	25	200	200	25	23,0	310	327	327	52,0	52,0	50,5	P200 x 200 x 4
JAL 400/400	285	30	300	300	25	43,0	365	335	335	100	100	76,0	P300 x 300 x 4
JAL 500/500	285	30	400	400	25	64,0	425	340	340	140	140	100	P400 x 400 x 4

Larger fastening plates are designed case-specifically using the AKLC type.

	Plate	Bonds
JAL	S355J2+N	B500B
JALR	1.4301	B500B
JALH	1.4401	B500B

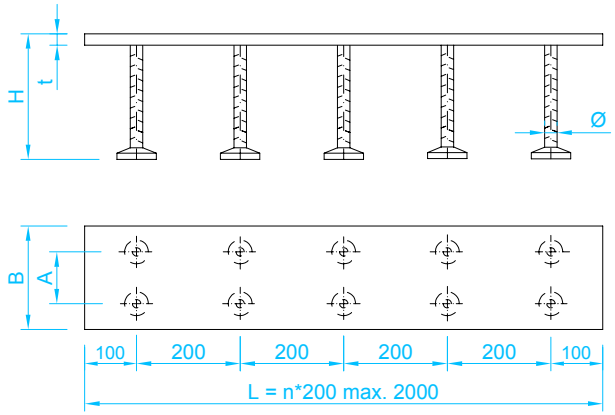


AKLP and AKLJ fastening plates

Code B/L	Dimensions					Resistances						Fastening area
	t	Ø	A	H	weight	N_{Rd}	V_{RdB}	V_{RdL}	M_{RdL}	M_{RdB}	T_{Rd}	calculation profile
	mm	mm	mm	mm	kg	kN	kN	kN	kNm	kNm	kNm	mm x mm
AKLP 100/L	12	16	60	115	11,6	66	34	37	2,5	7,0	4,0	P90 x 90 x 4
AKLP 150/L	12	16	90	115	16,4	70	30	32	3,6	6,9	3,7	P80 x 120 x 5
AKLP 200/L	12	16	100	115	21,2	90	43	46	5,0	8,5	5,5	P100 x 120 x 4
AKLP 300/L	12	16	200	115	30,2	82	44	46	8,5	7,7	8,8	P120 x 120 x 4
AKLP 400/L	12	16	200	115	40,0	92	44	46	9,1	9,1	8,8	P120 x 180 x 4
AKLJ 300/L	20	20	200	215	54,0	160	44	45	15,4	16,0	8,9	P120 x 180 x 5
AKLJ 400/L	25	20	300	220	86,0	150	45	45	26,0	16,6	9,7	P200 x 200 x 4
AKLJ 500/L	25	20	200	220	109,0	225	67	67	40	20	12,0	P300 x 300 x 4
AKLJ 600/L	25	20	250	220	129,0	230	67	68	50	22	12,0	P400 x 400 x 4

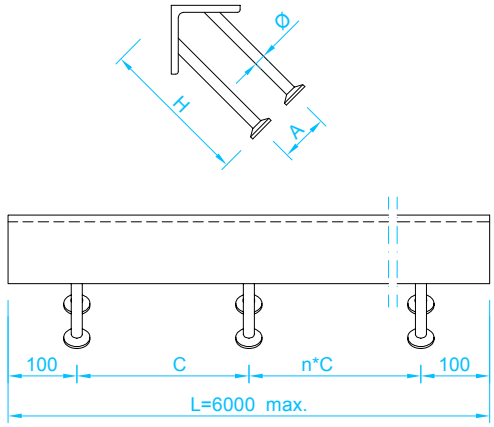
Not a standard product in stock.

	Plate	Bonds
AKLP/AKLJ	S355J2+N	B500B
AKLPR/AKLJR	1.4301	B500B
AKLPH/AKLJH	1.4401	B500B



AKKT fastening angle bars

Type	Dimensions					
	L-steel	Ø	A	C	H	weight
		mm	mm	mm	mm	kg
AKKT 50	50 x 50 x 5	12	55	250	160	5,3
AKKT 80	80 x 80 x 8	12	60	250	185	11,2
AKKT 100	100 x 100 x 10	16	80	200	195	18,0



METSÄ GROUP BIO PRODUCT MILL, ÄÄNEKOSKI

Building owner: Metsä Fibre Oy

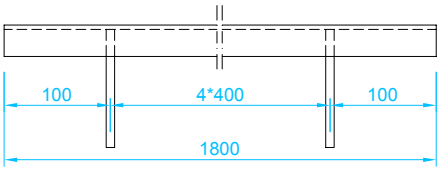
PUUVILLA SHOPPING CENTRE, PORI

Builder: Skanska Talonrakennus Oy

Standard steel parts

AVT 57 corner protector

Type	Dimensions weight kg
AVT 57	6,3



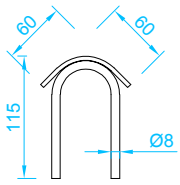
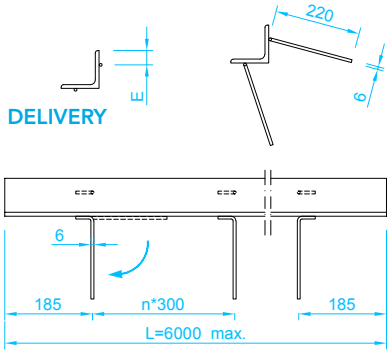


	Plate	Anchors
AVT	S235JR+AR	B500B
AVTR	1.4301	B500B

ASKT corner anchor

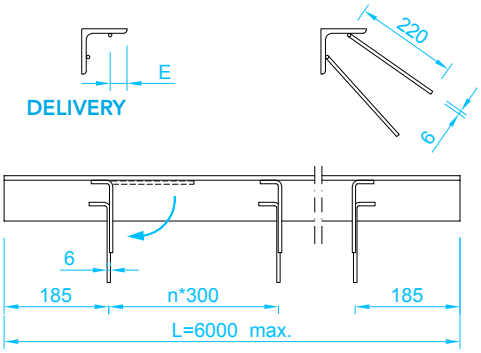
Type	Dimensions L-steel	E mm	weight kg
ASKT 50	50x50x5	25	26,6
ASKT 80	80x80x8	30	62,0
ASKT 100x50	100x50x8	30/20	58,0
ASKT 100	100x100x10	30	94,6



	Angle bar	Anchors
ASKT	S235JR+AR	B500B
ASKTR	1.4301	B500B

AUKT corner anchor

Type	Dimensions L-steel	E mm	weight kg
AUKT 50	50x50x5	25	26,6
AUKT 80	80x80x8	30	62,0
AUKT 100x50	100x50x8	30/20	58,0
AUKT 100	100x100x10	30	94,6



	Angle bar	Anchors
AUKT	S235JR+AR	B500B
AUKTR	1.4301	B500B

SOLO SOKOS HOTEL TORNI, TAMPERE

Builder: SRV Construction Ltd

CENTRAL FINLAND HOSPITAL, JYVÄSKYLÄ

Builder: SRV Construction Ltd

MATKUS SHOPPING CENTRE, KUOPIO

Builder: Rakennusliike Lehto Oy

BOLTS AND SHOES

Anchor bolts and column shoes can be used in concrete element frame connections to foundations and column extensions. Column shoes are used in light and heavy-duty column extension and foundation connections; wall shoes are used in tension connections of stiffening wall and shaft elements, retaining walls and earth pressure walls; and bolts are used in the foundation connections of column and wall shoes.

AHK® column shoe

AHK® column shoes are used in light and heavy-duty column extension and foundation connections of concrete frames, in corner connections of rectangular columns. AHK® -K middle shoes are suitable for use in the middle of the sides of rectangular columns and in round columns. Shoe connections are designed using the ACOLUMN dimensioning software. The bolts used for the shoes are ATP and AHP® rebar bolts.

APK®-C column shoe

APK®-C column shoes are used in heavy-duty foundation connections of industrial concrete element frames, in the corners of rectangular columns. The shoes are suitable for connections where the proportion of bending moment is dominant in the loads. APKK-C middle shoes are used in the middle of the sides of rectangular columns. The bolts used for the shoes are ALP®-C anchor bolts.

APK®-CM

APK®-CM beam shoes are used in moment stiff beam-to-column connections of industrial concrete element frames. The beam shoes are also suitable for heavy-duty concrete element frame connections in office, commercial and public buildings. The beam shoe anchoring bolts are ALP®-P2S and ALP®-P2SM.

ASL wall shoe

Wall shoes are used in tension connections of stiffening wall and shaft elements, retaining walls and earth pressure walls.

ATP and AHP® rebar bolts

Rebar bolts are used in the foundation connections of AHK® shoes and ASL-H wall shoes. The bolts are also suitable for foundation connections of steel and composite columns as well as light equipment and machinery connections to concrete structures. The ATP bolt is suitable for shallow foundations with space for the bolt's dowel anchor. The AHP® bolt can be used in narrow foundations near the edge of the structure. The bolts are designed using the ACOLUMN dimensioning software. The bolt size selection is M16–M45.

ALP® anchor bolts

ALP®-C series anchor bolts are used in heavy-duty foundation connections of industrial concrete element and steel frames. Connection solutions have been made for the bolts for connecting APK®-C series column shoes and ASL-P series wall shoes to cast-in-place foundations.

Anchor bolts

ATP and AHP® anchor bolts

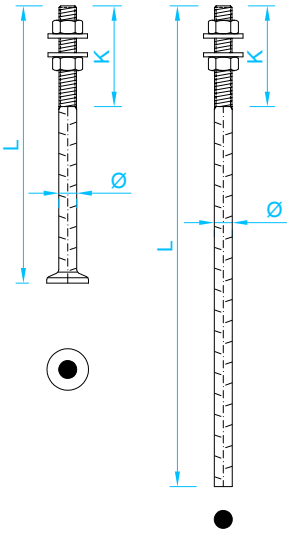
Type and colour code	Dimensions L	K	M	Ø	weight	Resistances N_{Rd} C25/30	V_{Rd} C25/30	Width across flats	Tightening torgue
	mm	mm	mm	mm	kg	kN	kN	mm	Nm
ATP16	280	100	M16	16	0,6	61,6	20,5	24	85
ATP20	350	120	M20	20	1,2	96,3	32,0	30	170
ATP24	430	140	M24	25	2,2	138,7	46,2	36	290
ATP30	500	170	M30	32	4,1	220,3	73,4	46	580
ATP36	600	170	M36	32	5,6	321,0	107,0	55	1000
ATP39	700	190	M39	40	9,4	383,4	127,7	60	1300
ATP45	760	190	M45	40	11,4	513,1	171,8	70	2000
AHP16	800	100	M16	16	1,4	61,6	20,5	24	85
AHP20	1000	120	M20	20	2,7	96,3	32,0	30	170
AHP24	1150	140	M24	25	4,8	138,7	46,2	36	290
AHP30	1400	170	M30	32	9,6	220,3	73,4	46	580
AHP36	2000	170	M36	32	13,4	321,0	107,0	55	1000
AHP39	2000	190	M39	40	21,5	383,4	127,7	60	1300
AHP45	2700	190	M45	40	28,4	513,1	171,8	70	2000

Anchor	B500B
Nuts	Strength m8
Washers	S355J2+N

Extra-long bolts

Type	Length
AHP 16	L = 1500
AHP 20	L = 1500
AHP 24	L = 1500 L = 2000
AHP 30	L = 2000 L = 2500 L = 3000

ATP AHP®

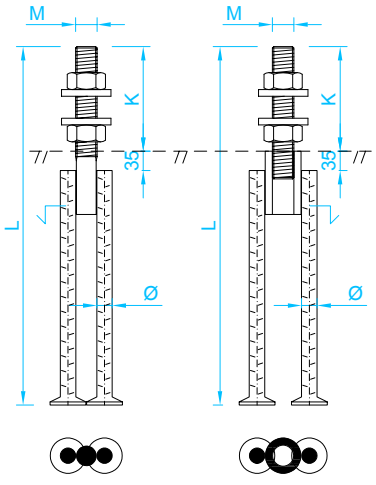


ALP® anchor bolts

ALP®-LC anchor bolts

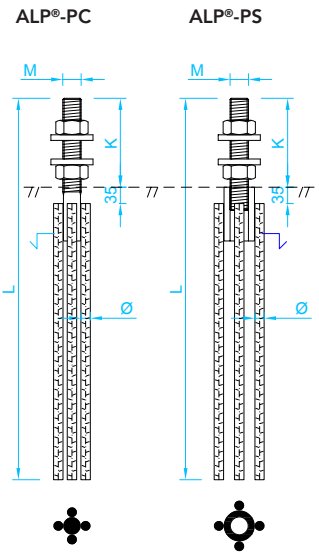
Type and colour code	Dimensions L	K	M	Ø	weight	Resistances N_{Rd} C25/30	V_{Rd} C25/30	Width across flats	Tightening torgue
	mm	mm	mm	mm	kg	kN	kN	mm	Nm
ALP22LC, ALP22LS	480	130	M22	2x16	2,0	161,0	57,7	32	200
ALP27LC, ALP27LS	550	150	M27	2x20	3,5	244,5	87,4	41	370
ALP30LC, ALP30LS	600	150	M30	2x25	5,5	299,2	106,8	46	500
ALP36LC, ALP36LS	690	170	M36	2x28	8,4	435,7	155,6	55	880
ALP39LC, ALP39LS	790	190	M39	2x28	10,3	520,5	185,9	60	1140
ALP45LC, ALP45LS	900	200	M45	2x32	15,3	696,5	248,7	70	1760
ALP52LC, ALP52LS	1035	235	M52	2x40	25,4	937,6	334,8	80	2740
ALP60LC, ALP60LS	1160	260	M60	4x32	37,1	1259,7	450,0	90	4250

ALP®-LC ALP®-LS



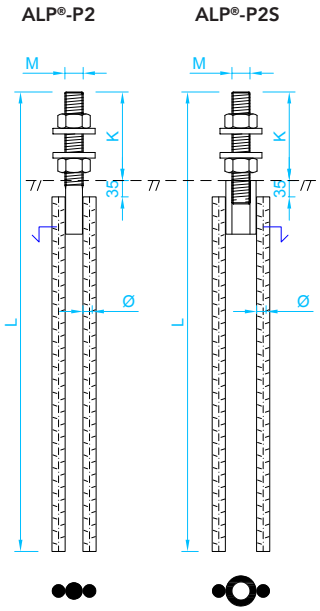
ALP®-PC anchor bolts

Type and colour code	Dimensions L	K	M	Ø	weight	Resistances N_{Rd} C25/30	V_{Rd} C25/30	Width across flats	Tightening torgue
	mm	mm	mm	mm	kg	kN	kN	mm	Nm
ALP22PC, ALP22PS	845	130	M22	3x14	3,4	161,0	57,7	32	200
ALP27PC, ALP27PS	1085	150	M27	3x16	6,4	244,5	87,4	41	370
ALP30PC, ALP30PS	1085	150	M30	3x20	8,7	299,2	106,8	46	500
ALP36PC, ALP36PS	1205	170	M36	4x20	14,4	435,7	155,6	55	880
ALP39PC, ALP39PS	1375	190	M39	4x20	17,2	520,5	185,9	60	1140
ALP45PC, ALP45PS	1475	200	M45	4x25	27,5	696,5	248,7	70	1760
ALP52PC, ALP52PS	1750	235	M52	4x28	41,3	937,6	334,8	80	2740
ALP60PC, ALP60PS	2045	260	M60	4x32	60,5	1259,7	450,0	90	4250



ALP®-P2 anchor bolts

Type and colour code	Dimensions L	K	M	Ø	weight	Resistances N_{Rd} C25/30	V_{Rd} C25/30	Width across flats	Tightening torgue
	mm	mm	mm	mm	kg	kN	kN	mm	Nm
ALP22P2, ALP22P2S	1065	130	M22	2x16	3,8	161,0	57,7	32	200
ALP27P2, ALP27P2S	1335	150	M27	2x20	7,2	244,5	87,4	41	370
ALP30P2, ALP30P2S	1245	150	M30	2x25	10,2	299,2	106,8	46	500
ALP36P2, ALP36P2S	1585	170	M36	2x28	16,6	435,7	155,6	55	880
ALP39P2, ALP39P2S	1875	190	M39	2x28	20,3	520,5	185,9	60	1140
ALP45P2, ALP45P2S	2165	200	M45	2x32	30,6	696,5	248,7	70	1760
ALP52P2, ALP52P2S	2530	235	M52	2x40	53,2	937,6	334,8	80	2740

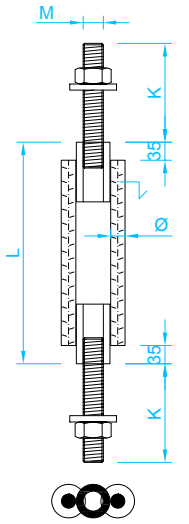


Anchor	B500B
Threaded bolt	ImacroM / 8.8
Nuts	Strength m8
Washers	S355J2+N

ALP®-P2SM anchor bolts

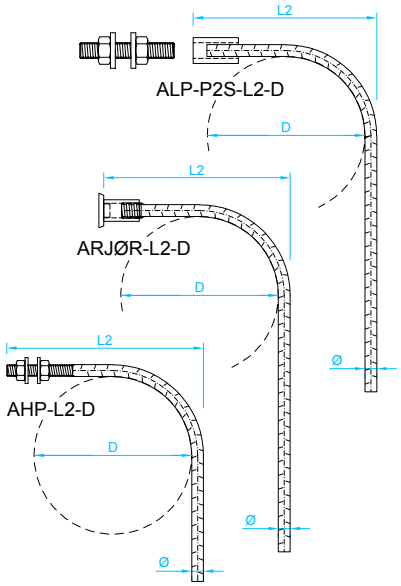
Type and colour code	Dimensions K mm	M mm	Ø mm	Resistances N_{Rd} C25/30 kN	V_{Rd} C25/30 kN	Width across flats mm	Tightening torgue Nm
ALP22P2SM	130	M22	2x16	161,0	57,7	32	200
ALP30P2SM	150	M30	2x25	299,2	106,8	46	500
ALP36P2SM	170	M36	2x28	435,7	155,6	55	880
ALP39P2SM	190	M39	2x28	520,5	185,9	60	1140
ALP45P2SM	200	M45	2x32	696,5	248,7	70	1760
ALP52P2SM	235	M52	2x40	937,6	334,8	80	2740

ALP®-P2SM-L



Bending rebar

Anchor	Dimension D mm
Ø16	200
Ø20	300
Ø25	300
Ø28	300
Ø32	400
Ø40	500

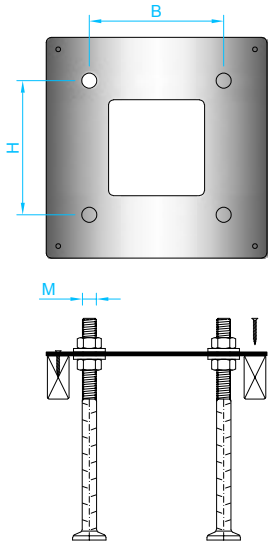


For more specific instructions, refer to the user manual for the product.

Bending mandrel diameter D according to the table
or as indicated case-specifically in the order code.

AAK installation frame

The order code for the installation frame is AAK-M-H*B, where M is the bolt size and H*B are the distances between bolts in the frame.



HELSINKI OUTLET, VANTAA

Builder: Fira Oy

T1 TERMINAL EXTENSION, VANTAA

Builder: Fira Oy

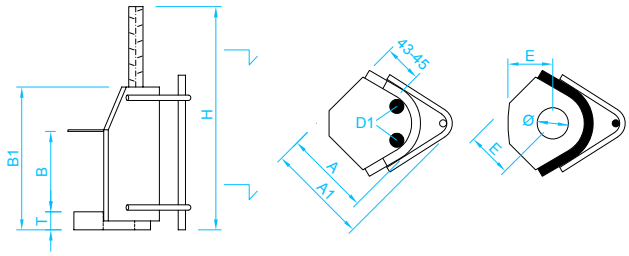
HOUSING ASSOCIATION JÄTKÄSAAREN POLLARI, HELSINKI

Builder: Hartela Etelä-Suomi Oy

Column shoes

AHK® column shoes for rebar bolts

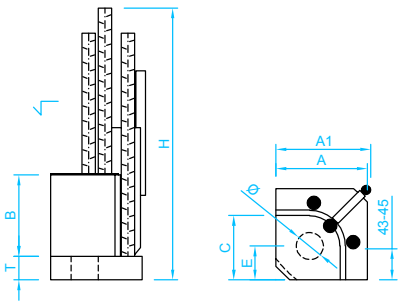
Type and colour code	Dimensions										Resistances N_{Rd}	Anchor bolt
	A	A1	B	B1	E	H	D1	Ø	T	weight	C30/37	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kN	
AHK16	80	95	80	136	50	795	10	25	12	2,2	61,6	AHP16
AHK20	86	105	95	162	50	890	14	30	15	3,7	96,3	AHP20
AHK24	95	115	110	192	50	1130	16	35	20	6,5	138,7	AHP24
AHK30	107	133	120	227	50	1565	20	40	25	12,1	220,3	AHP30
AHK36	130	162	130	262	60	1800	25	50	30	21,5	321,0	AHP36
AHK39	138	173	140	277	60	2165	25	54	35	26,5	383,4	AHP39
AHK45	160	205	140	307	60	2465	32	60	45	41,0	513,1	AHP45



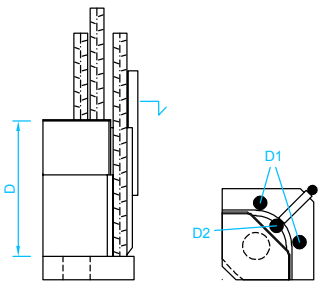
APK®-C column shoes and APK®-CM beam shoes

Type and colour code	Dimensions											Resistances N_{Rd}	Anchor bolt
	A	A1	B	E	H	D	D1	D2	Ø	T	weight	C30/37	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	
APK24C, -M	115	125	110	50	935	170	2x16	16	32	25	7,9	161,0	ALP22
APK30C, -M	135	140	120	50	1365	200	2x20	20	40	35	16,7	299,2	ALP30
APK36C, -M	160	180	130	60	1540	230	2x25	20	46	40	27,3	435,7	ALP36
APK39C, -M	165	180	140	60	1540	250	2x25	25	50	40	31,4	520,5	ALP39
APK45C, -M	180	230	140	60	1850	270	2x32	28	56	50	49,4	696,5	ALP45
APK52C, -M	190	280	160	60	2410	310	2x32	32	64	60	68,0	937,6	ALP52
APK60C	225	305	175	70	2970	-	2x40	32	73	70	109,3	1260	ALP60

APK®-C column shoe



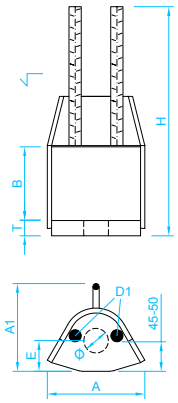
APK®-CM beam shoe



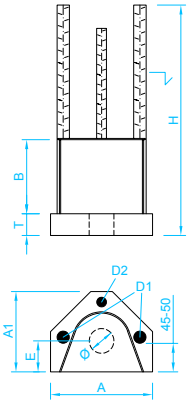
AHK®-K and APKK-C middle shoes

Type and colour code	Dimensions A mm	A1 mm	E mm	H mm	B mm	Ø mm	T mm	weight mm	Resistances N_{Rd} C30/37 kN	Anchor bolt
AHK16K	113	110	50	795	80	25	12	2,3	61,6	AHP16
AHK20K	122	115	50	890	95	30	15	3,7	96,3	AHP20
AHK24K	133	121	50	1130	110	35	20	5,8	138,7	AHP24
AHK30K	159	143	50	1565	120	40	25	12,0	220,3	AHP30
AHK36K	190	165	60	1800	130	50	30	21,0	321,0	AHP36
AHK39K	202	170	60	2165	140	54	35	25,1	383,4	AHP39
AHK45K	234	207	60	2465	140	60	45	37,3	513,1	AHP45
APKK24C	135	120	50	825	110	32	25	6,7	161,0	ALP22
APKK30C	165	130	50	1235	120	40	35	12,6	299,2	ALP30
APKK36C	200	145	60	1680	130	46	40	21,9	435,7	ALP36
APKK39C	205	155	60	1840	140	50	40	25,4	520,5	ALP39
APKK45C	235	175	60	2050	140	56	50	38,7	696,5	ALP45
APKK52C	250	190	60	2460	160	64	60	56,5	937,6	ALP52
APKK60C	310	215	70	2970	175	73	70	99,3	1260	ALP60

AHK®-K



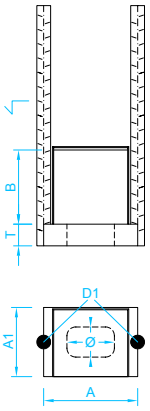
APKK-C



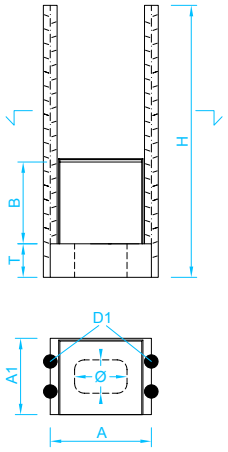
ASL-H and ASL-P wall shoes

Type and colour code	Dimensions A mm	A1 mm	B mm	D1 mm	Ø mm	H mm	T mm	kg	Resistances N_{Rd} C25/30 kN	Anchor bolt	Washer ASL-AL t x C mm
ASL16H	125	80	95	2x14	36x76	600	25	3,5	61,6	AHP16	12 x 65
ASL20H	135	90	100	2x16	40x80	850	30	5,5	96,3	AHP20	15 x 70
ASL24H	150	110	115	2x20	49x84	1000	35	9,3	138,7	AHP24	20 x 85
ASL30H	170	120	130	2x25	55x90	1150	45	15,5	220,3	AHP30	25 x 95
ASL36H	190	140	150	2x28	61x96	1350	50	22,8	321,0	AHP36	30 x 110
ASL39H	195	150	165	2x28	64x99	1600	55	27,2	383,4	AHP39	30 x 120
ASL45H	215	160	175	2x32	70x103	1800	60	37,6	513,1	AHP45	35 x 130
ASL30P	170	120	130	4x20	55x90	1420	50	21,3	299,2	ALP30	25 x 95
ASL36P	185	140	150	4x25	61x96	1640	55	35,5	435,7	ALP36	30 x 110
ASL39P	190	150	160	4x25	64x99	1800	60	40,0	520,5	ALP39	30 x 120
ASL45P	210	160	170	4x28	70x103	2100	70	57,2	696,5	ALP45	35 x 130
ASL52P	235	190	190	4x32	80x110	2500	80	88,3	937,6	ALP52	40 x 155

ASL-H

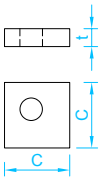


ASL-P



Base plate, housing	Anchor
S355J2+N	B500B

ASL-AL

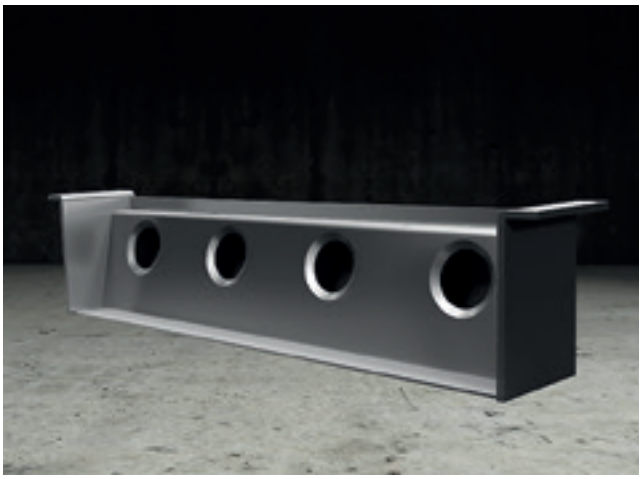


BRACKETS AND SUPPORTS

Anstar has developed bracket and support systems for efficient and affordable construction. The connection parts are easy to install both at the prefabrication factory and on site.

AEP® hidden bracket

AEP® hidden brackets are used to fasten a concrete beam or steel beam to the side of a concrete element column, wall or another beam. The bracket acts as a swivel joint for the bending of the head of the beam, transferring the beam's torsional moment to the column without support during installation.

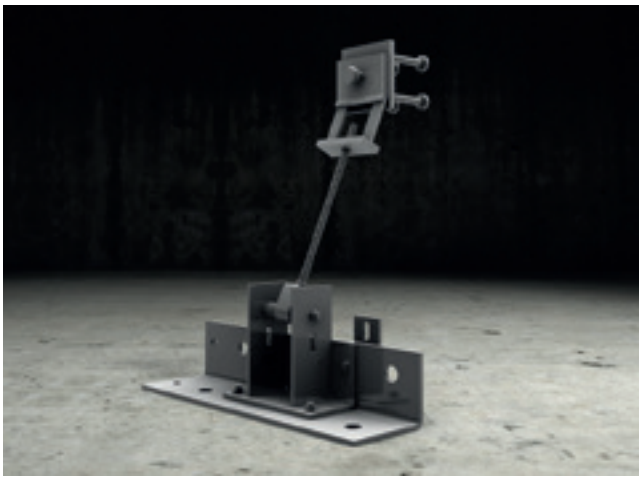


AOK® support

AOK® support is used in a hollow-core slab floor opening as the load-bearing structure for the end of the slab.

AR suspended connection

Fastened using threaded connections, the system can be used for concrete façade elements or supports of brick walls built on the site to suspend them from the building frame. AR suspension parts are used to fasten skin elements to the building frame.



AR masonry support

A member of the AR product family, the square-edged ARMK angle profile supports brickwork and transfers its weight to the load-bearing structure behind it. Masonry supports are designed on a project-specific basis, and suspension parts are ready-welded to the angle profile.

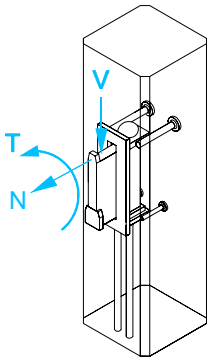
HUS BRIDGE HOSPITAL, HELSINKI

Builder: SRV

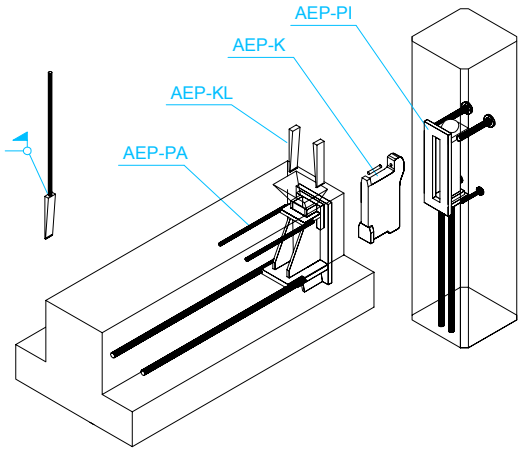
Hidden brackets

AEP® hidden brackets

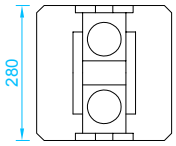
Type and colour code	Resistances Shear, torsional, tensile			Resistances, erection stage Shear, torsional, tensile		
	V_{Rd} kN	T_{Rd} kNm	N_{Rd} kN	V_{Rda} kN	T_{Rda} kNm	N_{Rda} kN
AEP400	400	10	50	200	15	100
AEP600	600	20	60	300	30	120
AEP800	800	30	80	400	50	160
AEP1100	1100	50	100	550	80	200
AEP1600	1600	60	160	800	100	320
AEP2200	2200	100	200	1100	160	400



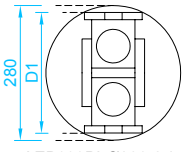
AEP®-KL wedges (2 pcs) are delivered with the beam component. With high beams, extension arms can be welded to the wedges using rebar, for example, to facilitate installation.



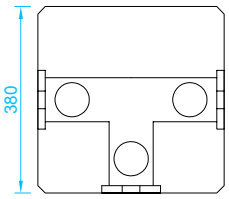
AEP®600PI-280-2



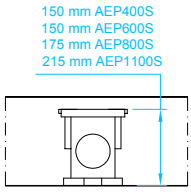
AEP®600PI-Ø280-2 or AEP®600PI-250-2



AEP®600PI-380-190-3



AEP®600S



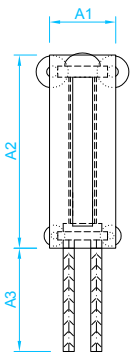
AEP® column component

Type	Dimensions							
	A1 mm	A2 mm	A3 mm	A4 mm	A5 mm	A6 mm	Ø mm	weight kg
AEP400PI	120	240	585	210	170	85	1T20	7,9
AEP600PI	120	310	585	215	175	95	2T20	11,3
AEP800PI	120	350	740	240	175	100	2T25	16,4
AEP1100PI	150	390	910	250	180	125	2T32	29,2

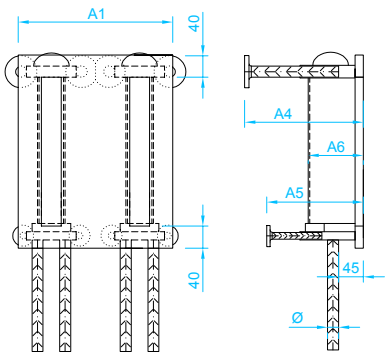
For a beam-to-beam connection and the wall part, refer to the user manual!

Plates	Anchors
Domex 500ML, S355J2+N	B500B

AEP®-PI



AEP®1600PI (2 x AEP®800PI)
AEP®2200PI (2 x AEP®1100PI)

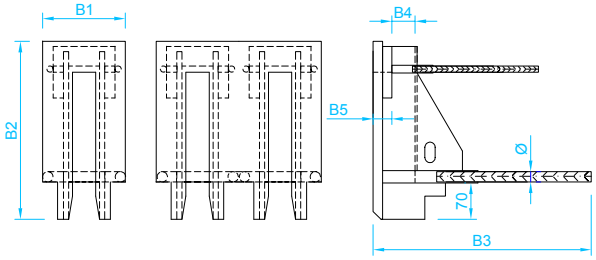


AEP® beam component

Type	Dimensions						
	B1	B2	B3	B4	B5	Ø	weight
	mm	mm	mm	mm	mm	mm	kg
AEP400PA	150	215	1025	45	20	20	12,7
AEP600PA	150	275	1035	45	30	20	18,8
AEP800PA	150	335	1240	50	45	25	29,2
AEP1100PA	190	380	1240	50	45	25	39,5

Plates	Anchors
Domex 500ML, S355J2+N	B500B

AEP®-PA **AEP®1600PA (2 x AEP®800PA)**
AEP®2200PA (2 x AEP®1100PA)

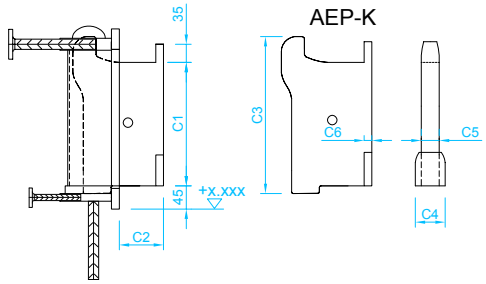


AEP® bridge part

Type	Dimensions						
	C1	C2	C3	C4	C5	C6	weight
	mm	mm	mm	mm	mm	mm	kg
AEP400K	125	70	192	56	35	15	5,6
AEP600K	180	80	260	56	35	15	8,6
AEP800K	230	100	305	56	35	20	12,7
AEP1100K	260	100	350	71	50	20	22,3

Bracket
Domex 500ML

AEP®-K



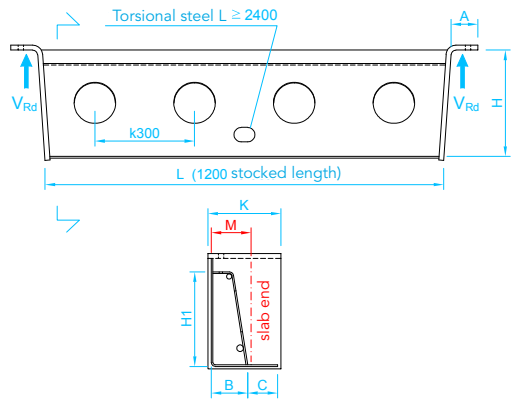
Supports for hollow-core slabs

AOK® supports for hollow-core slabs

Type	Dimensions						Resistance
	A	B	C	H1	K	M	V_{Rd}
	mm	mm	mm	mm	mm	mm	kN
AOK200	80	80	90	180	190	90	36
AOK265	80	100	90	230	210	110	58
AOK320	80	110	90	280	220	120	70
AOK370	100	120	120	330	260	130	80
AOK400	100	135	120	360	275	145	110
AOK500	100	150	120	460	290	160	130

Plates	Anchor
S355J2+N	B500B

AOK®

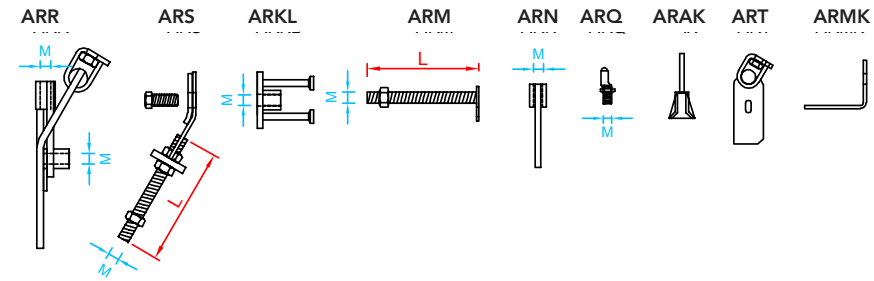


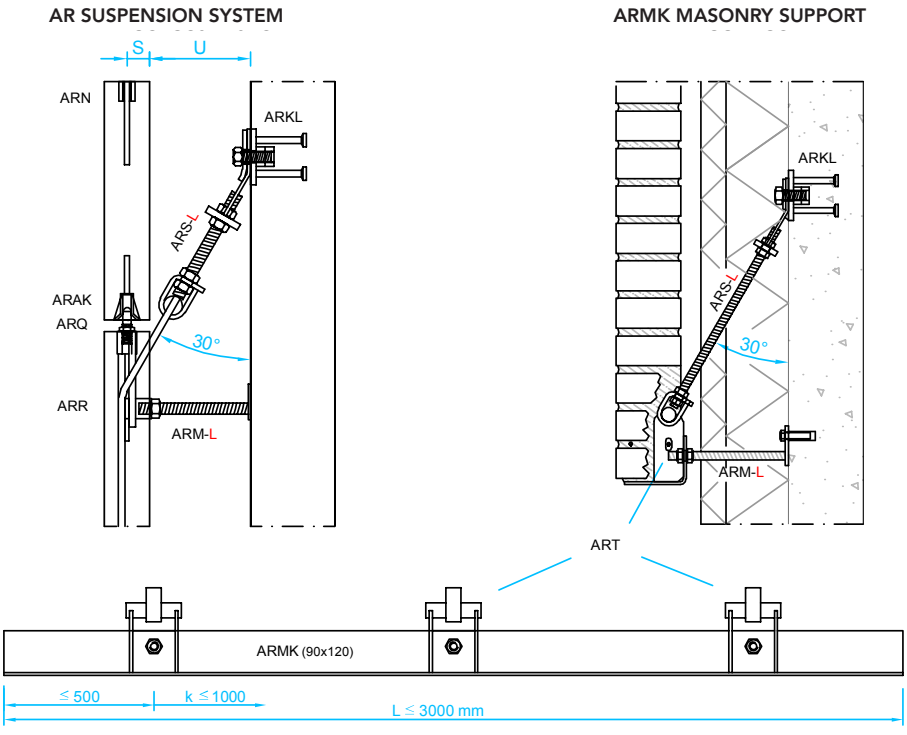
Suspension components

AR suspension system and masonry support

Allowable loads	ARR	ARS			ARKL	ARM		ARN	ARQ +ARAK
	thread	bar	length	screw	thread	bar	length		
7 kN	M16	M12	L=2*(S+U)-225	M16-40	M16	M16	L=S+U-15	M16	M16
14 kN	M16	M16	L=2*(S+U)-240	M20-50	M20	M16	L=S+U-15	M16	M16
24 kN	M20	M20	L=2*(S+U)-255	M24-60	M24	M20	L=S+U-15	M20	M20

All connection pieces are made of stainless steel.
Strength class of threaded sections A2-70.





TIKKURILAN CHURCH, VANTAA

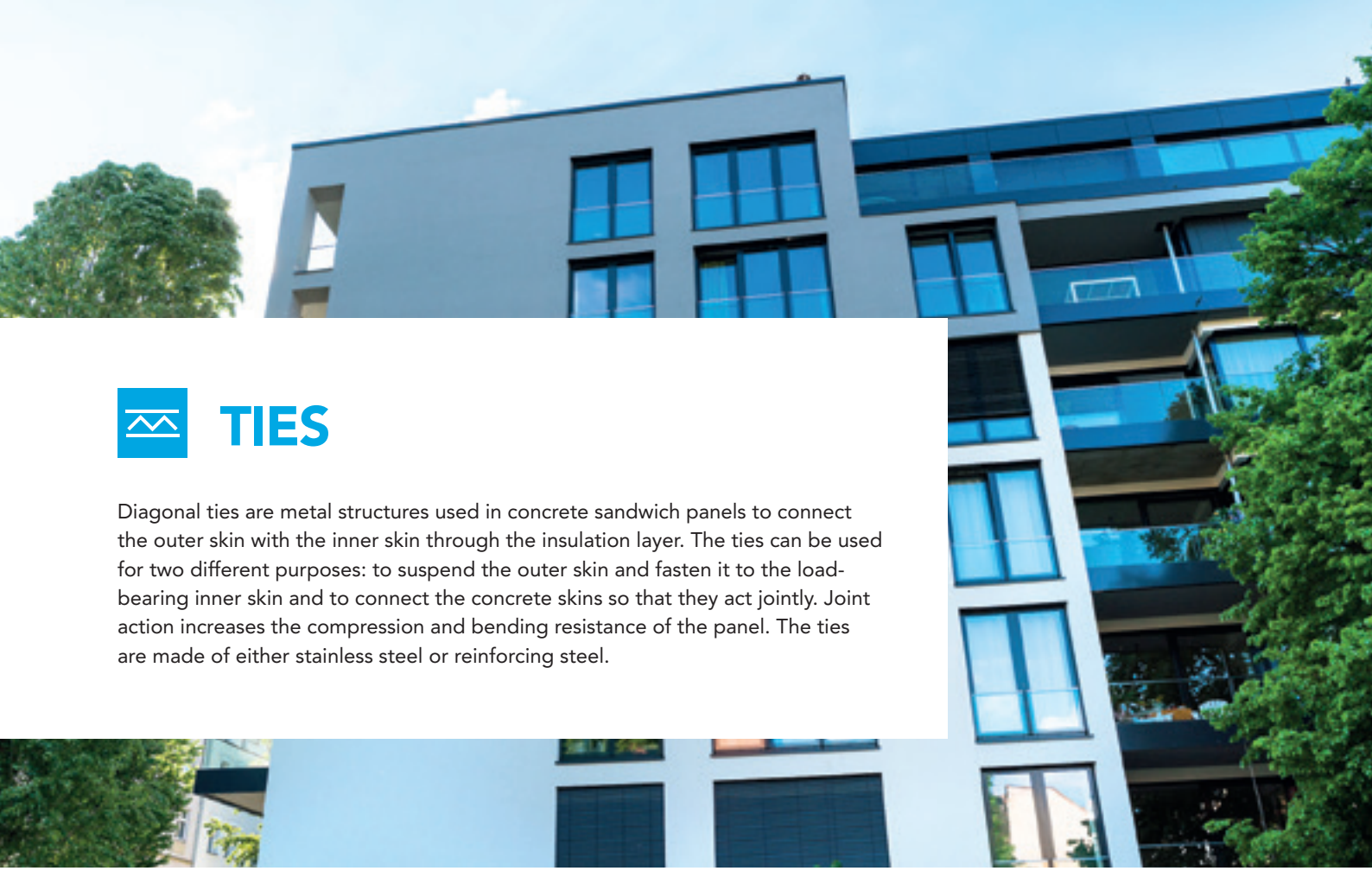
Builder: Lujatalo Oy

RANTATIE BUSINESS PARK, HELSINKI

Builder: YIT Oy

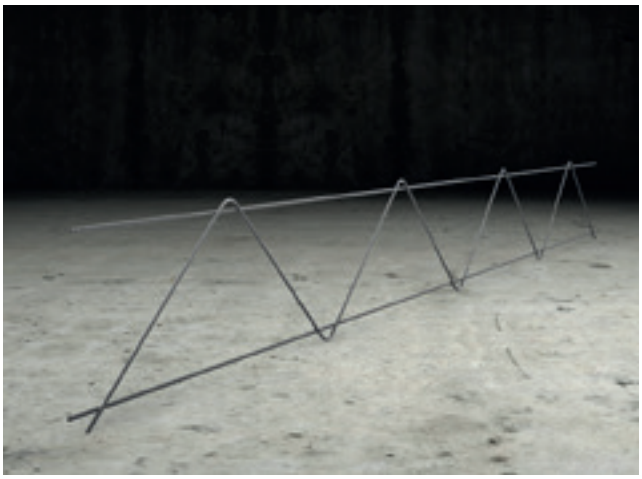
AALTO UNIVERSITY, HELSINKI

Builder: SRV Construction Ltd



TIES

Diagonal ties are metal structures used in concrete sandwich panels to connect the outer skin with the inner skin through the insulation layer. The ties can be used for two different purposes: to suspend the outer skin and fasten it to the load-bearing inner skin and to connect the concrete skins so that they act jointly. Joint action increases the compression and bending resistance of the panel. The ties are made of either stainless steel or reinforcing steel.



AD diagonal tie

Diagonal ties are used in concrete sandwich panels to connect the outer skin with the inner skin through the insulation layer. The ties transfer the self-weight and wind loads of the outer skin to the inner skin. In addition, the ties bind the concrete skins, increasing the compression and bending resistance of the panel.

APA beam tie

APA beam ties are used in the inner and outer skins of concrete sandwich panels to tie the structures together. The product is suitable for low structures for which AD diagonal ties cannot be used. The product is made entirely of stainless steel.

Ties

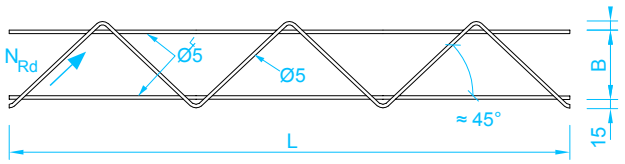
AD diagonal tie and APA beam tie

AD diagonal tie		Recommended insulation thickness	APA beam tie			
Standard products [Code B-L]	Resistance N_{Rd} kN	mm	Order code APA-B	L1 mm	L2 mm	Resistance V_{Rd} kN
AD 150-2400 (2700)	5,6	90				
AD 180-2400 (2700)	5,6	120	APA 180	225	115	1,5
AD 200-2400 (2700)	5,6	140	APA 200	235	120	1,5
AD 210-2400 (2700)	5,6	150	APA 210	250	135	1,5
AD 220-2400 (2700)	5,6	160	APA 220	250	125	1,5
AD 240-2400 (2700)	5,6	180	APA 240	260	130	1,5
AD 260-2400 (2700)	5,6	200	APA 260	275	135	1,5
AD 280-2400 (2700)	5,6	220	APA 280	290	140	1,5
AD 300-2400 (2700)	5,6	240	APA 300	305	145	1,5
AD 330-2400 (2700)	5,6	270	APA 330	325	155	1,5
AD 360-2400 (2700)	5,6	300	APA 360	340	160	1,5

Package size 400 pcs/pallet.

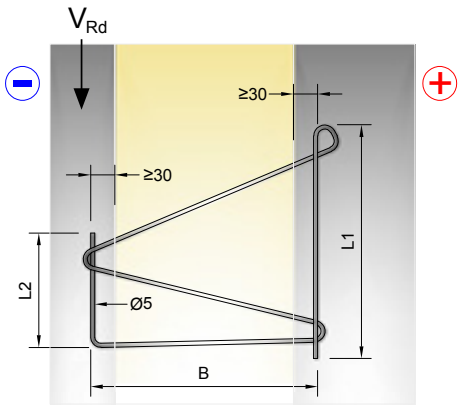
Package size 900 pcs/pallet and 25 pcs/box.

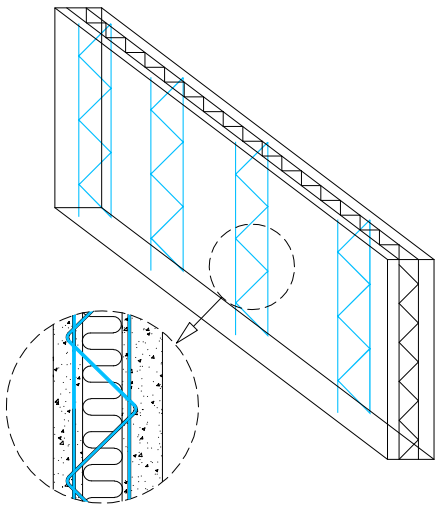
AD DIAGONAL TIE

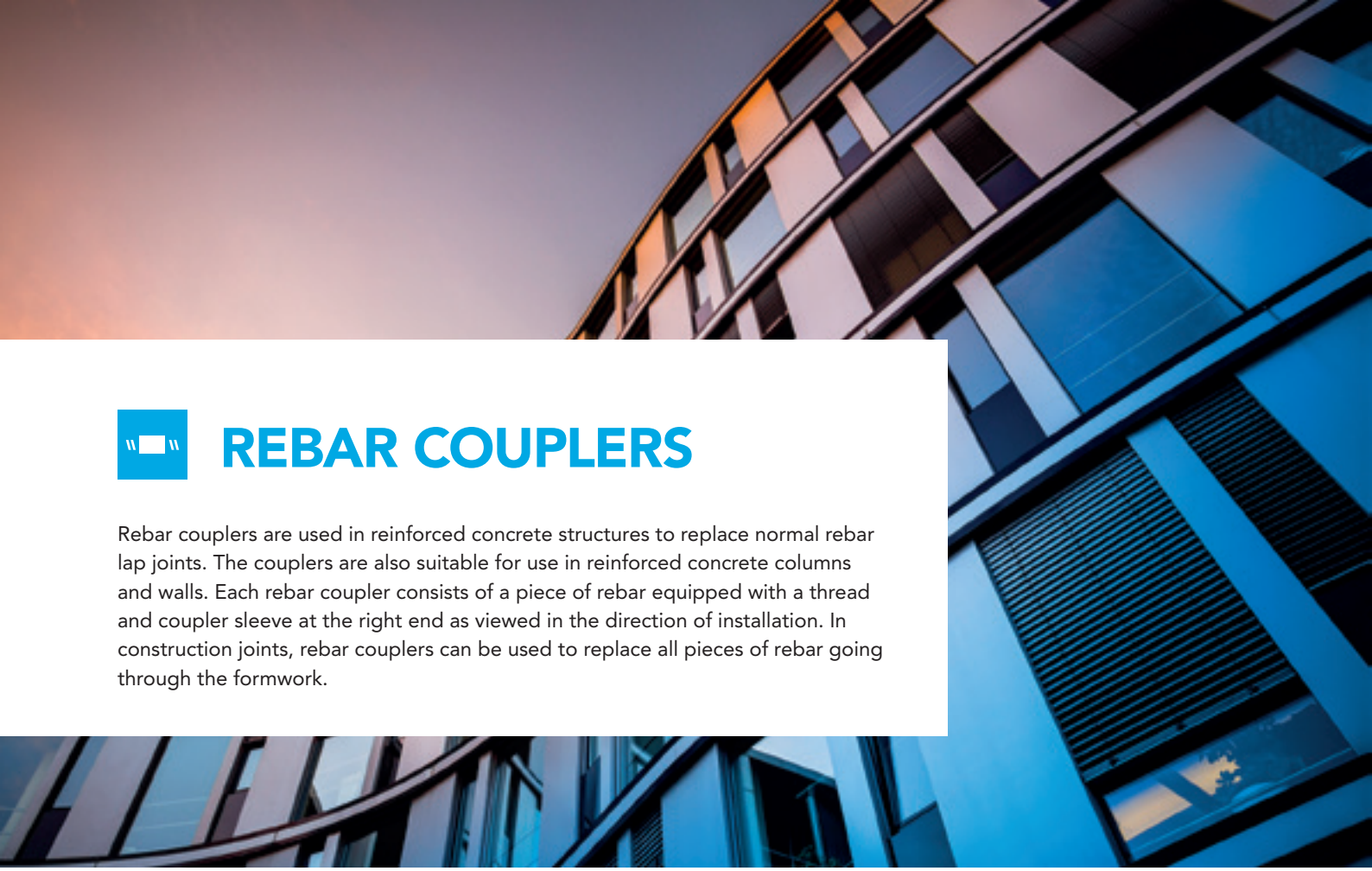


	Diagonal brace	Outer chord	Inner chord
AD	1.4301	1.4301	B500K
ADR	1.4301	1.4301	1.4301
ADM	1.4301	B500K	B500K

APA BEAM TIE

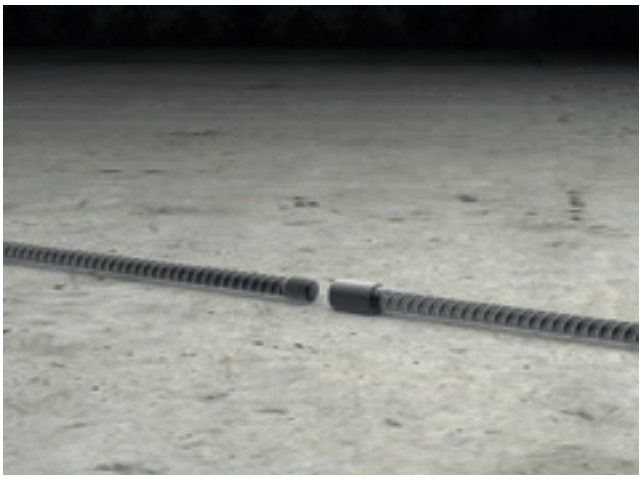






REBAR COUPLERS

Rebar couplers are used in reinforced concrete structures to replace normal rebar lap joints. The couplers are also suitable for use in reinforced concrete columns and walls. Each rebar coupler consists of a piece of rebar equipped with a thread and coupler sleeve at the right end as viewed in the direction of installation. In construction joints, rebar couplers can be used to replace all pieces of rebar going through the formwork.



ARJ® rebar coupler

Rebar couplers are used for joining rebars with full tension capacity. The ends of bars to be joined are provided with threads, and the bars are joined using a coupler sleeve that transfers the force on the rebar across the connection.

Rebar couplers

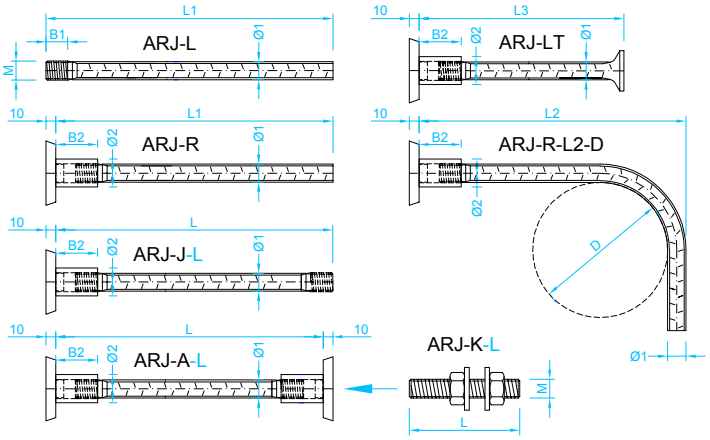
ARJ® rebar couplers

Type	Dimensions								Resistances
	ø1	M	L1	L3	B1	B2	ø2	D	N_{Rd}
	mm	mm	mm	mm	mm	mm	mm	mm	kN
ARJ16	16	M20	1200	220	25	50	30	200	87,4
ARJ20	20	M24	1500	290	30	60	35	200	136,5
ARJ25	25	M30	1700	360	35	70	40	300	213,5
ARJ32	32	M39	2400	500	45	90	55	400	349,6
ARJ40	40	M48	3500	600	55	110	70	500	546,1

Threaded coupler for joining rebars with full tension capacity! ARJ®40 by special order.

Anchor	Coupler sleeve
B500B	25CrMo4

REQUEST A QUOTE
for tension bars made of rebar.



TRIPLA, PASILA, HELSINKI

Builder: YIT Corporation

BALCONY CONNECTIONS

The balcony hinge allows for vertical movement between the balcony slab element and the building frame.

AVTR balcony hinge

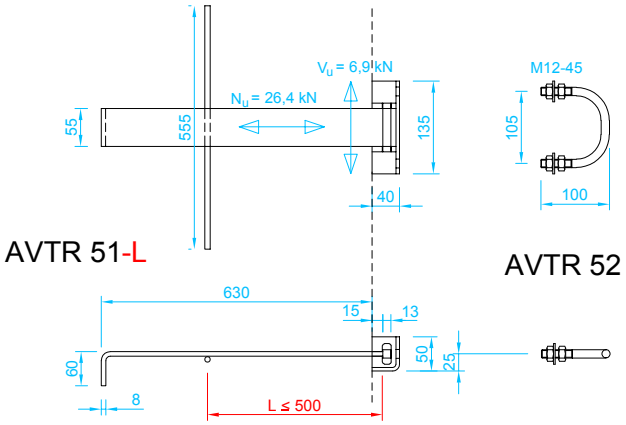
Balcony hinges are used to transfer horizontal forces from the balcony to the building frame. The hinged connection enables vertical movement. The AVTR 52 slab part is fastened to the balcony slab at the prefabrication factory and the AVTR 51 frame part to the building's floor slab casting on the site.

Balcony connection

AVTR 51, AVTR 52 balcony slab connection

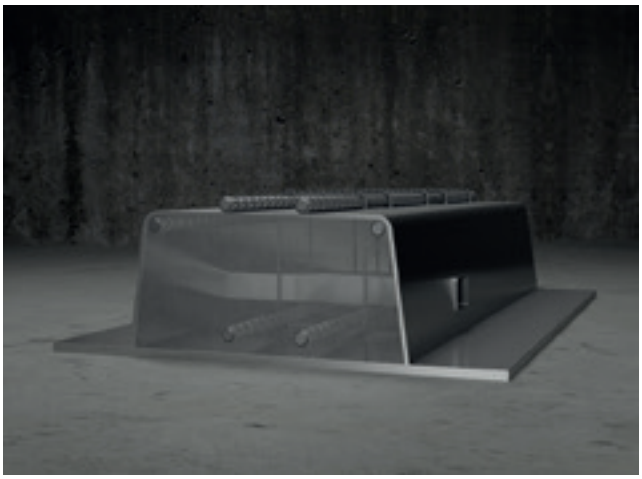
Type	Dimensions Weight kg
AVTR 51	3,3
AVTR 52	0,3

Plates, square bar and rebar	M12 nuts and stainless washers
1.4301	1.4301



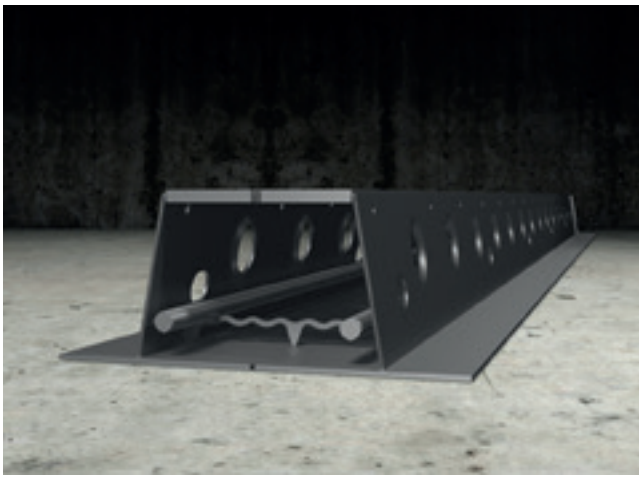
A-BEAM®

A-BEAM® and Anstar's connection technology form part of the frame system, offering cost-efficiency and flexibility for construction. The beams are used as both a single-span and continuous-span structure and designed without separate fire protection up to fire resistance class R120. The standard connection is the AEP® hidden bracket to a reinforced concrete column and the AEL hidden bracket to a composite column. A connection library has also been prepared for the beam for typical connections to various frame structures. The beam type selection and preliminary dimensioning of the composite structure are performed using the ABEAM software.



A-BEAM W®

The W-type composite beam has been particularly designed for winter construction conditions. The beam acts as the load-bearing composite structure of a low intermediate floor. The housing is made of steel plate, and its bending resistance is adjusted by means of reinforcement and lower flange thickness. The W beam housing is filled with concrete at the machine shop. In the final stage, the beam acts as a composite structure with the hollow-core slabs and the surface casting. The bending resistance of the beam is sufficient for the loads on the hollow-core slabs during installation.



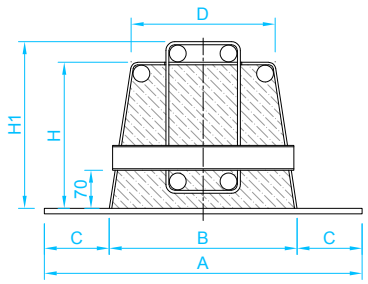
A-BEAM S®

The S-type beam acts as the load-bearing composite structure of a low intermediate floor. The housing is made of steel plate, and its bending resistance is adjusted by means of plate thickness. The beam is delivered without grouting inside, and the grouting is performed on the site. In the final stage, the beam acts as a composite structure with the hollow-core slabs and the surface casting. The bending resistance of the beam is sufficient for the loads on the hollow-core slabs during installation.

A-BEAM®

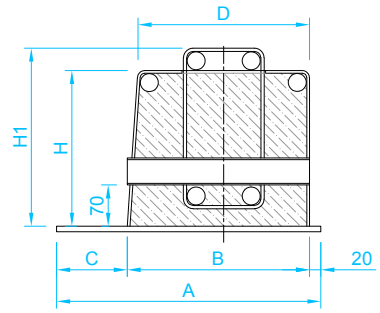
A-BEAM W® intermediate beam

Normal	Low	Dimensions			Normal			Low		
		A	B	C	D	H	H1	D	H	H1
		mm	mm	mm	mm	mm	mm	mm	mm	mm
	A200W-200m	395	200	97,5				160	160	190
A200W-280	A200W-280m	495	280	107,5	220	180	210	210	150	185
A200W-380	A200W-380m	660	380	140	320	180	210	310	150	185
A265W-280	A265W-280m	495	280	107,5	195	240	275	225	220	255
A265W-380	A265W-380m	660	380	140	275	240	275	310	220	255
A320W-280	A320W-280m	495	280	107,5	225	295	330	225	270	305
A320W-380	A320W-380m	660	380	140	290	295	330	300	270	305
A320W-480	A320W-480m	760	480	140	390	295	330	400	270	305
A370W-380	A370W-380m	660	380	140	295	335	380	280	315	355
A370W-480	A370W-480m	760	480	140	350	330	375	380	315	355
A400W-380	A370W-380	660	380	140	310	370	410	295	335	380
A400W-480	A370W-480	760	480	140	375	370	410	350	330	375
A400W-580		860	580	140	475	370	410			
A500W-480	A500W-480m	760	480	140	380	465	505	370	440	480
A500W-580	A500W-580m	860	580	140	435	465	505	475	440	480



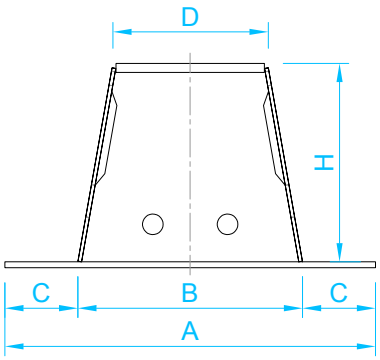
A-BEAM W® edge beam

Normal	Low	Dimensions				Normal		Low	
		A	B	C	D	H	H1	H	H1
		mm	mm	mm	mm	mm	mm	mm	mm
	AR200W-200m	300	180	100	160			160	190
AR200W-280	AR200W-280m	395	260	115	240	180	210	155	185
AR200W-380	AR200W-380m	495	360	115	340	180	210	155	185
AR265W-280	AR265W-280m	395	260	115	240	240	275	220	255
AR265W-380	AR265W-380m	495	360	115	340	240	275	215	250
AR320W-280	AR320W-280m	395	260	115	240	290	325	265	300
AR320W-380	AR320W-380m	495	360	115	340	290	325	270	305
AR320W-480	AR320W-480m	595	460	115	440	290	325	270	305
AR370W-380	AR370W-380m	520	360	140	340	335	375	315	355
AR370W-480	AR370W-480m	620	460	140	440	330	375	315	355
AR400W-380	AR370W-380	520	360	140	340	370	410	335	375
AR400W-480	AR370W-480	620	460	140	440	370	410	330	375
AR400W-580		720	560	140	540	370	410		
AR500W-480	AR500W-480m	620	460	140	440	465	505	440	480
AR500W-580	AR500W-580m	720	560	140	540	465	505	440	480



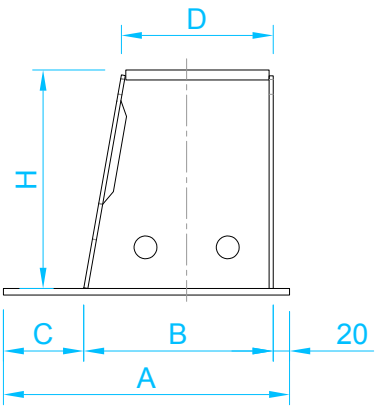
A-BEAM S® intermediate beam

	Dimensions				
	H	A	B	C	D
	mm	mm	mm	mm	mm
A200S-200	200	395	200	97,5	130
A200S-300	200	495	300	97,5	230
A200S-400	200	660	400	130	330
A265S-300	265	495	300	97,5	205
A265S-400	265	660	400	130	305
A265S-500	265	760	500	130	405
A320S-300	320	495	300	97,5	185
A320S-400	320	660	400	130	285
A320S-500	320	760	500	130	385
A370S-400	370	660	400	130	270
A370S-500	370	760	500	130	370
A400S-400	400	660	400	130	260
A400S-500	400	760	500	130	360
A500S-500	500	760	500	130	325
A500S-600	500	860	600	130	425

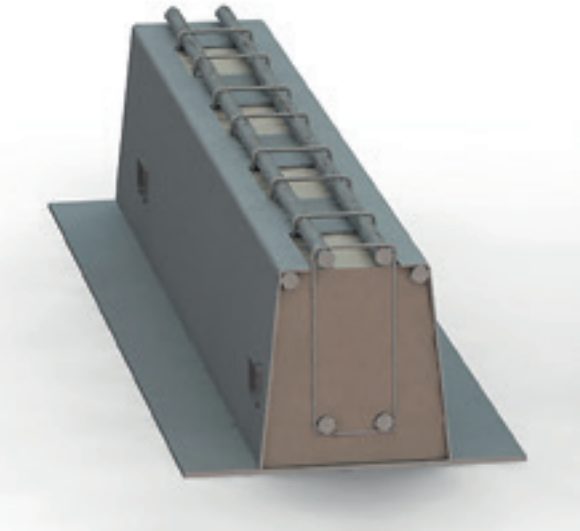


A-BEAM S® edge beam

	Dimensions				
	H	A	B	C	D
	mm	mm	mm	mm	mm
AR200S-200	200	300	180	100	145
AR200S-250	200	350	230	100	195
AR265S-250	265	350	230	100	183
AR265S-300	265	400	280	100	233
AR320S-300	320	400	280	100	224
AR320S-350	320	450	330	100	274
AR370S-350	370	480	330	130	265
AR370S-400	370	530	380	130	315
AR400S-350	400	480	330	130	259
AR400S-400	400	530	380	130	309
AR500S-400	500	530	380	130	292
AR500S-450	500	580	430	130	342

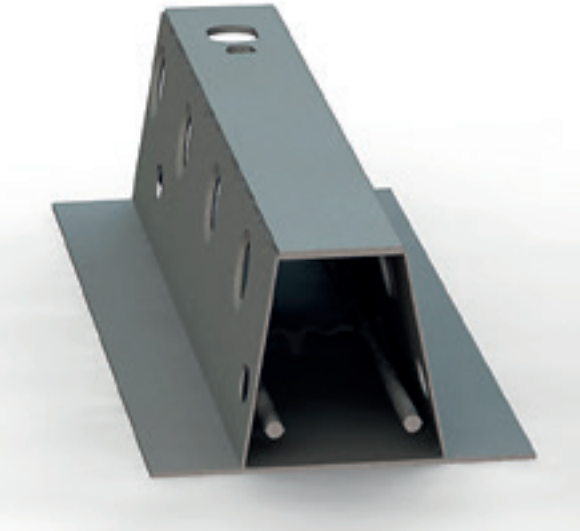


A-BEAM W®



The beam housing is filled with concrete at the machine shop.

A-BEAM S®



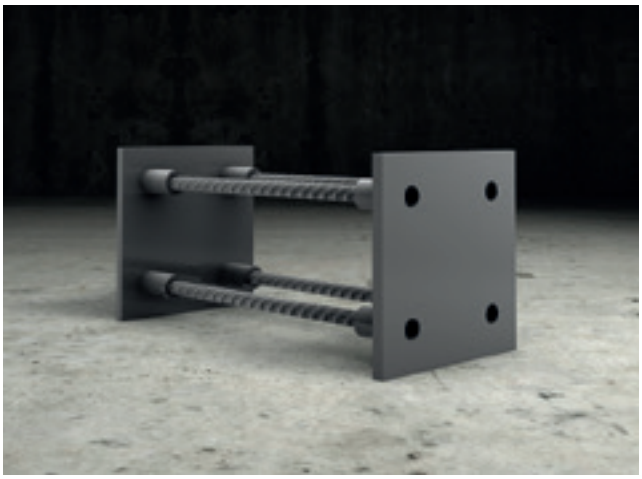
The beam housing is grouted after installation on the site.

KEILANIEMI NEXT, ESPOO

Builder: NCC Suomi Oy

BRACING CONNECTIONS

Anstar's bracing connections have been designed for quick installation and for the requirements of winter installation in particular. These connections are used in the joints between concrete columns and stabilising steel bracings. All bracing connections have been tested and dimensioned to withstand high loads.



ADE® connection

ADE® horizontal couplers are used for buckling support of element columns and transferring the horizontal forces to the bracing vertical structures.

ADK® connection

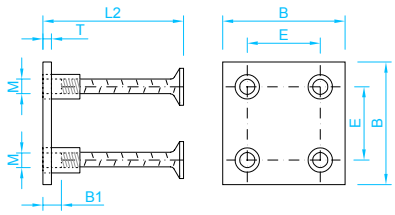
ADK® truss connections are used in stiffening truss structures where concrete columns are used as chords and steel pipes as diagonals. ADK® is designed as a swivel joint.

Bracing connections

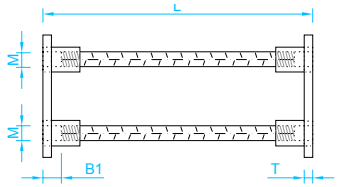
ADE® horizontal rod connection

Type	Dimensions					Resistances
	L2	B	E	M	B1	N_{Rd}
	mm	mm	mm	mm	mm	kN
ADE20T, ADE20P-L	220	190	110	20	25	200
ADE24T, ADE24P-L	220	200	120	20	25	250
ADE30T, ADE30P-L	290	200	120	24	30	400
ADE36T, ADE36P-L	360	250	150	30	35	550
ADE39T, ADE39P-L	500	300	180	39	40	700

ADE®-T



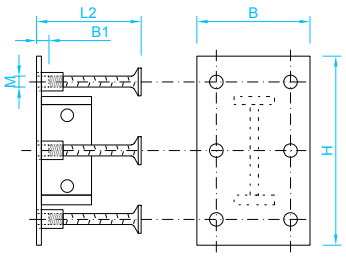
ADE®-P-L



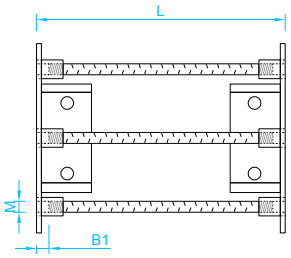
ADK® truss connection

Type	Dimensions					Resistances
	L2	H	B	M	B1	N_{Rd}
	mm	mm	mm	mm	mm	kN
ADK500T, ADK500P-L	290	440	280	24	30	500
ADK700T, ADK700P-L	290	510	280	24	30	700
ADK900T, ADK900P-L	360	550	280	30	35	900
ADK1100T, ADK1100P-L	360	600	320	30	35	1100
ADK1500T, ADK1500P-L	500	600	320	39	40	1500

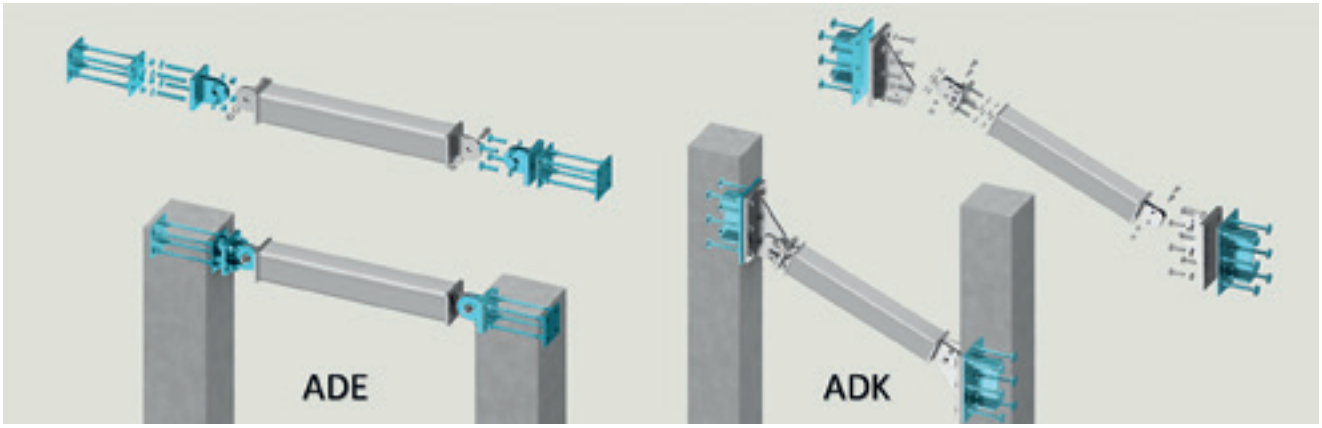
ADK®-T



ADK®-P-L



Plates	Bonds	Coupler sleeves
S355J2+N	B500B	25CrMo4



Anstar Oy is a Finnish family business specialising in the sales and manufacture of concrete structure connections and composite beams. We are an international operator, and one of the pioneers in the field. Anstar will help you with all your questions relating to concrete connections. Anstar's specialists may also develop solutions to customer-specific connection problems.

Anstar®

SMART STEEL.
SINCE 1981.

www.anstar.fi