

E45

EB48

# TECHNICAL CATALOGUE

CURTAIN WALL SYSTEM

E52

Q72

**EF50**

E19

ES70

E75

E85

E68

E30

EW70

E50



# EF50

CURTAIN WALL SYSTEM

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# ETEM HISTORY

ETEM is a leading aluminium extrusion company. It was founded in 1971 as a part of the largest metal manufacturing holding on the Balkans. With over 40 years of experience ETEM is a fully integrated designer and producer of architectural systems and aluminium profiles for industrial applications.

Our mission is to listen and promptly respond to our customers' requests and design and manufacture aluminium products and systems, taking into consideration technical and aesthetic requirements.

ETEM focuses on sustainable development and has proven its concern about the protection of the natural environment by making considerable investments in anti-pollution measures and by optimizing production processes following the applicable standards of the European Union.

## SERVICES WE PROVIDE

- ▷ design of conventional and bespoke architectural system solutions
- ▷ innovative engineering in the field of curtain walls, ventilated facades, doors, windows
- ▷ professional consultation and adequate technical advices ensured by our engineering team with wide experience in the field of profile extrusion as well as architectural systems' engineering
- ▷ reliable customer care constant support
- ▷ trainings, technical support and audits on site
- ▷ high quality engineering which guarantees offering the best solution according to the specific features of every single project
- ▷ managing the process of certification in accordance with the applicable European standards in Notified Bodies
- ▷ production of non-standard length profiles and non-standard processing; high quality powder coating

# ETEM PRODUCTS AND SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT IS DEVELOPMENT THAT MEETS THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS.\*

For many, sustainable development is about environmental conservation. This is true but it also includes two other aspects: a social aspect and an economic aspect.

Sustainable development means striking the right balance between economic development, social equity and environmental protection.

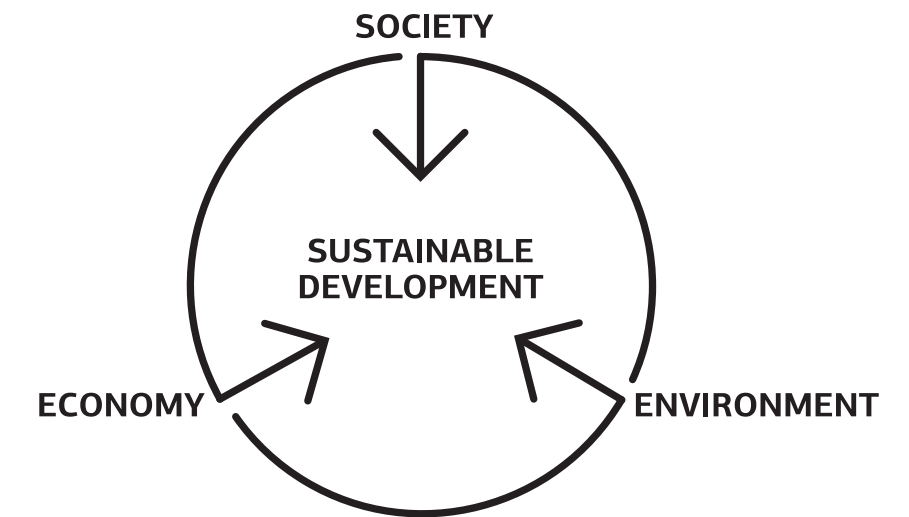
For us meeting this objective translates into the challenge of satisfying market demands at the lowest economic, social and environmental cost possible.

ETEM has always designed architectural systems which are in compliance with all requirements for achieving high energy efficiency.

In order to assure the comfort of the building inhabitants, ETEM systems adapt their functions to the changing environment.

As a moderator between outside and inside our systems provide:

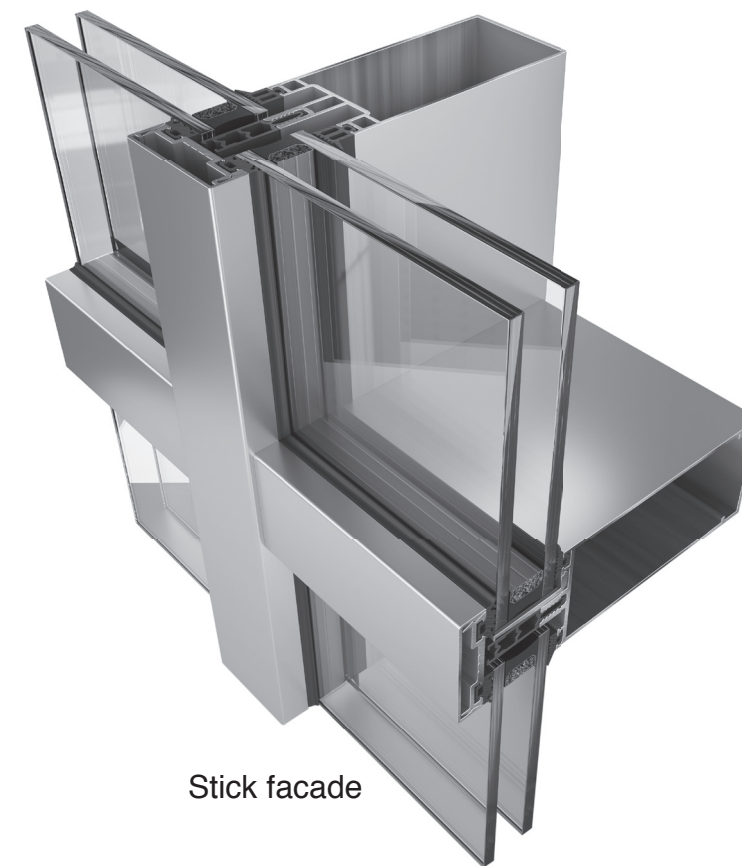
- > ENERGY EFFICIENCY
- > DAYLIGHT
- > SUN-SHADING
- > VENTILATION AND GOOD AIR QUALITY
- > SAFETY AND SECURITY



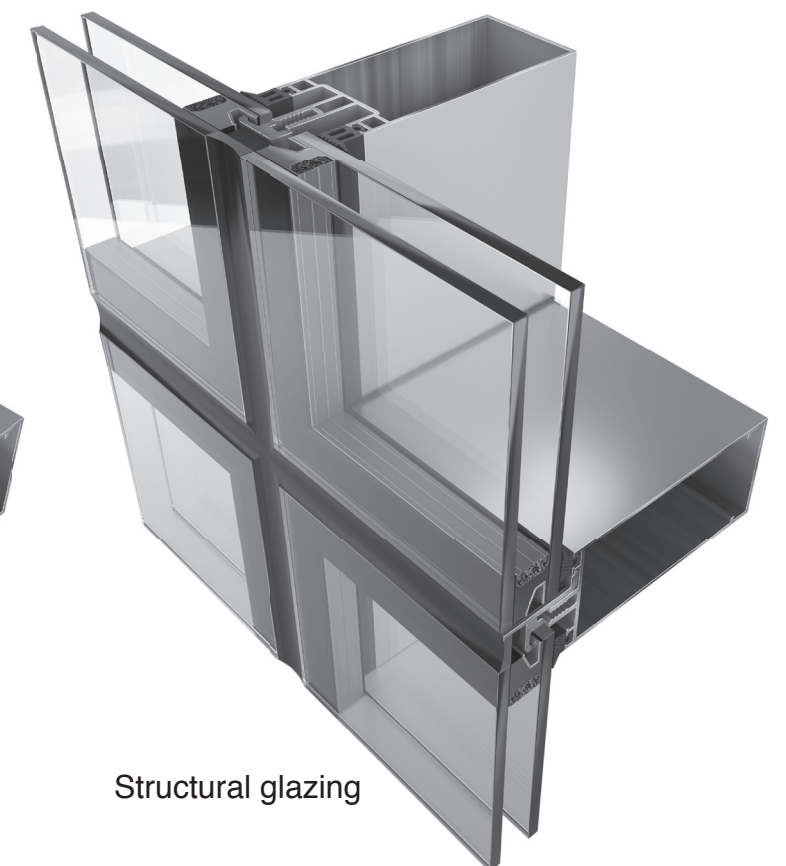
\* Extract from Brundtland Report, from the United Nations World Commission on Environment and Development WCED

# GENERAL INFORMATION

CONCEPT / ADVANTAGES / CERTIFICATES



Stick facade



Structural glazing

# EF50 CURTAIN WALL CONCEPT

EF50 IS A HIGHLY FLEXIBLE CURTAIN WALL SYSTEM

- 50 mm system width
- Easy production and rapid installation onsite
- Highest structural stability achieved with lowest weight of profiles
- Wide variety of profiles
- Solutions for structural and cover assembly options
- Structural vents
- Compatible with E85 curtain wall systems and all ETEM window systems
- QUALICOAT and QUALANOD certified powder coating and anodising

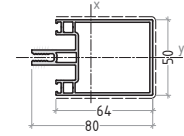
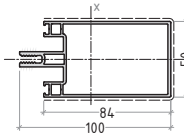
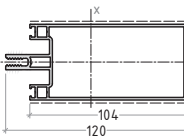
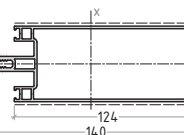
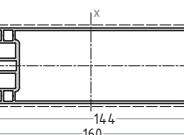
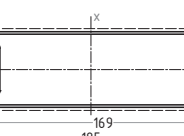
TEST CERTIFICATES SYSTEM EF50			
Test sample	Characteristic	Result	Standards
EF50 with cover caps	Air permeability	AE (up to 900 Pa)	EN 12152
	Water tightness - static	RE 1950	EN 12154
	Resistance to wind load, Design load, Safety load	±2,0 kN/m <sup>2</sup> ; ±3,0 kN/m <sup>2</sup>	EN 13116
	Impact resistance	I5 / E5	EN 14019
EF50 with structural glazing	Air permeability	AE (up to 900 Pa)	EN 12152
	Water tightness - static	RE 1500	EN 12154
	Resistance to wind load, Design load, Safety load	±1,6 kN/m <sup>2</sup> ; ±2,4 kN/m <sup>2</sup>	EN 13116
	Impact resistance	I4 /	EN 14019

# TABLES

TYPOLOGIES / LIST OF PROFILES / CHARACTERISTICS

# curtain wall system

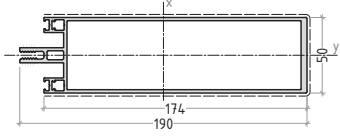
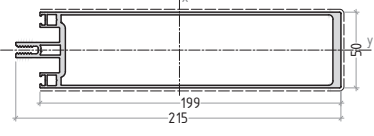
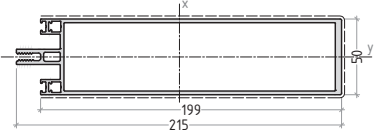
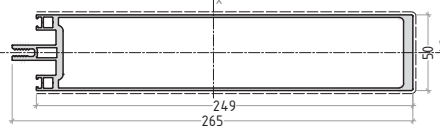
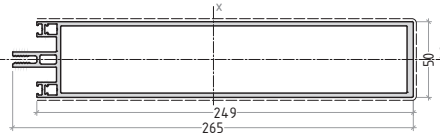
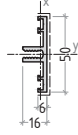
EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values			
E8050102 mullion		6,6 m 1571 g/m 363 mm 177 mm	lx= 36,12 cm <sup>4</sup> Wx= 8,85 cm <sup>3</sup> ex= 2,50 cm ix= 2,50 cm	ly= 17,56 cm <sup>4</sup> Wy= 7,02 cm <sup>3</sup> ey= 4,08 cm iy= 1,74 cm		
E8050103 mullion		6,6 m 1755 g/m 403 mm 217 mm	lx= 67,30 cm <sup>4</sup> Wx= 12,75 cm <sup>3</sup> ex= 2,50 cm ix= 3,22 cm	ly= 21,53 cm <sup>4</sup> Wy= 8,61 cm <sup>3</sup> ey= 5,28 cm iy= 1,82 cm		
E8050104 mullion		6,6 m 1963 g/m 443 mm 257 mm	lx= 114,65 cm <sup>4</sup> Wx= 18,03 cm <sup>3</sup> ex= 2,50 cm ix= 3,97 cm	ly= 25,66 cm <sup>4</sup> Wy= 10,26 cm <sup>3</sup> ey= 6,36 cm iy= 1,88 cm		
E8050105 mullion		6,6 m 2206 g/m 483 mm 297 mm	lx= 183,91 cm <sup>4</sup> Wx= 25,08 cm <sup>3</sup> ex= 2,50 cm ix= 4,74 cm	ly= 29,99 cm <sup>4</sup> Wy= 12,00 cm <sup>3</sup> ey= 7,33 cm iy= 1,92 cm		
E8050106 mullion		6,6 m 2565 g/m 523 mm 337 mm	lx= 295,80 cm <sup>4</sup> Wx= 36,44 cm <sup>3</sup> ex= 2,50 cm ix= 5,58 cm	ly= 35,00 cm <sup>4</sup> Wy= 14,00 cm <sup>3</sup> ey= 8,12 cm iy= 1,92 cm		
E8050107 mullion		6,6 m 3013 g/m 573 mm 387 mm	lx= 481,46 cm <sup>4</sup> Wx= 52,03 cm <sup>3</sup> ex= 2,50 cm ix= 6,57 cm	ly= 41,36 cm <sup>4</sup> Wy= 16,55 cm <sup>3</sup> ey= 9,25 cm iy= 1,93 cm		



# curtain wall system

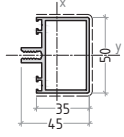
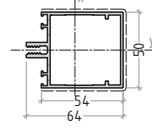
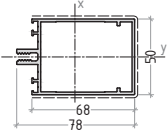
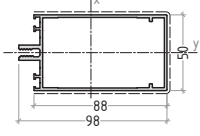
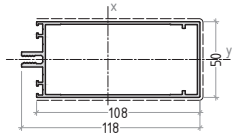
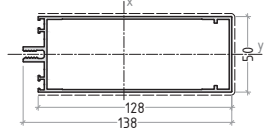
EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values			
E8050127 mullion		6,6 m 3391 g/m 585 mm 397 mm	lx= 529,06 cm <sup>4</sup> Wx= 55,64 cm <sup>3</sup> ex= 2,50 cm ix= 9,51 cm	ly= 50,23 cm <sup>4</sup> Wy= 20,09 cm <sup>3</sup> ey= 9,51 cm iy= 2,00 cm		
E8050108 mullion		6,6 m 3475 g/m 633 mm 447 mm	lx= 767,00 cm <sup>4</sup> Wx= 70,84 cm <sup>3</sup> ex= 2,50 cm ix= 7,72 cm	ly= 48,76 cm <sup>4</sup> Wy= 19,50 cm <sup>3</sup> ey= 10,83 cm iy= 1,95 cm		
E8050128 mullion		6,6 m 3907 g/m 635 mm 447 mm	lx= 761,08 cm <sup>4</sup> Wx= 70,57 cm <sup>3</sup> ex= 2,50 cm ix= 7,25 cm	ly= 60,37 cm <sup>4</sup> Wy= 24,15 cm <sup>3</sup> ey= 10,785 cm iy= 2,04 cm		
E8050109 mullion		6,6 m 4153 g/m 733 mm 547 mm	lx= 1411,38 cm <sup>4</sup> Wx= 106,00 cm <sup>3</sup> ex= 2,50 cm ix= 9,58 cm	ly= 60,08 cm <sup>4</sup> Wy= 24,03 cm <sup>3</sup> ey= 13,32 cm iy= 1,98 cm		
E8050129 mullion		6,6 m 5111 g/m 735 mm 547 mm	lx= 1435,78 cm <sup>4</sup> Wx= 108,07 cm <sup>3</sup> ex= 2,50 cm ix= 7,71 cm	ly= 83,56 cm <sup>4</sup> Wy= 33,42 cm <sup>3</sup> ey= 13,29 cm iy= 2,10 cm		
E85350 3rd level transom		6,01 m 605 g/m 204 mm 62 mm	lx= 0,41 cm <sup>4</sup> Wx= 0,35 cm <sup>3</sup> ex= 2,50 cm ix= 0,43 cm	ly= 3,78 cm <sup>4</sup> Wy= 1,51 cm <sup>3</sup> ey= 1,18 cm iy= 1,30 cm		

EF50\_P3.0.2

# curtain wall system

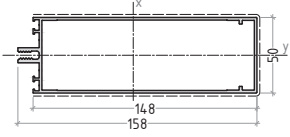
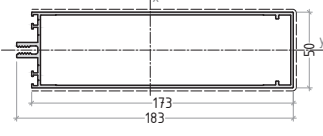
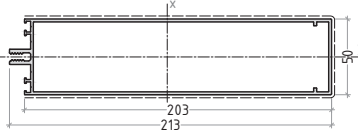
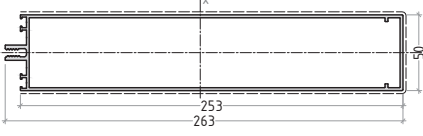
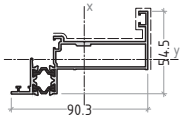
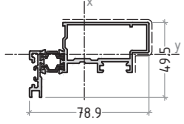
EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values			
E85351 3rd level transom		6,01 m 1164 g/m 261 mm 119 mm	lx= 8,70 cm <sup>4</sup> Wx= 3,69 cm <sup>3</sup> ex= 2,50 cm ix= 1,42 cm	ly= 12,03 cm <sup>4</sup> Wy= 4,81 cm <sup>3</sup> ey= 2,36 cm iy= 1,67 cm		
E8050351 3rd level transom		6,01 m 1229 g/m 300 mm 157 mm	lx= 21,31 cm <sup>4</sup> Wx= 6,62 cm <sup>3</sup> ex= 2,50 cm ix= 2,16 cm	ly= 15,16 cm <sup>4</sup> Wy= 6,06 cm <sup>3</sup> ey= 3,22 cm iy= 1,83 cm		
E8050352 3rd level transom		6,01 m 1355 g/m 328 mm 185 mm	lx= 36,26 cm <sup>4</sup> Wx= 9,19 cm <sup>3</sup> ex= 2,50 cm ix= 2,69 cm	ly= 17,86 cm <sup>4</sup> Wy= 7,15 cm <sup>3</sup> ey= 3,95 cm iy= 1,89 cm		
E8050353 3rd level transom		6,01 m 1534 g/m 368 mm 225 mm	lx= 66,18 cm <sup>4</sup> Wx= 13,17 cm <sup>3</sup> ex= 2,50 cm ix= 3,42 cm	ly= 21,72 cm <sup>4</sup> Wy= 8,69 cm <sup>3</sup> ey= 5,03 cm iy= 1,96 cm		
E8050354 3rd level transom		6,01 m 1731 g/m 408 mm 265 mm	lx= 107,73 cm <sup>4</sup> Wx= 17,71 cm <sup>3</sup> ex= 2,50 cm ix= 4,10 cm	ly= 25,97 cm <sup>4</sup> Wy= 10,39 cm <sup>3</sup> ey= 6,08 cm iy= 2,01 cm		
E8050355 3rd level transom		6,01 m 1914 g/m 448 mm 305 mm	lx= 161,92 cm <sup>4</sup> Wx= 22,71 cm <sup>3</sup> ex= 2,50 cm ix= 4,78 cm	ly= 29,94 cm <sup>4</sup> Wy= 11,98 cm <sup>3</sup> ey= 7,13 cm iy= 2,06 cm		

EF50\_P3.0.3

# curtain wall system

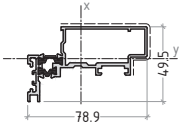
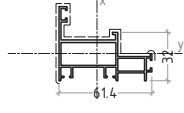
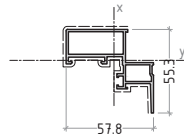



EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values			
E8050356 3rd level transom		6,01 m 2098 g/m 488 mm 345 mm	lx= 230,27 cm <sup>4</sup> Wx= 28,18 cm <sup>3</sup> ex= 2,50 cm ix= 5,45 cm	ly= 33,91 cm <sup>4</sup> Wy= 13,56 cm <sup>3</sup> ey= 8,17 cm iy= 2,09 cm		
E8050357 3rd level transom		6,01 m 2327 g/m 538 mm 395 mm	lx= 337,50 cm <sup>4</sup> Wx= 35,68 cm <sup>3</sup> ex= 2,50 cm ix= 6,26 cm	ly= 38,87 cm <sup>4</sup> Wy= 15,55 cm <sup>3</sup> ey= 9,46 cm iy= 2,12 cm		
E8050358 3rd level transom		6,01 m 2808 g/m 598 mm 455 mm	lx= 528,80 cm <sup>4</sup> Wx= 48,68 cm <sup>3</sup> ex= 2,50 cm ix= 7,13 cm	ly= 48,58 cm <sup>4</sup> Wy= 19,43 cm <sup>3</sup> ey= 10,86 cm iy= 2,16 cm		
E8050359 3rd level transom		6,01 m 3321 g/m 698 mm 555 mm	lx= 926,15 cm <sup>4</sup> Wx= 69,10 cm <sup>3</sup> ex= 2,50 cm ix= 8,68 cm	ly= 59,58 cm <sup>4</sup> Wy= 23,83 cm <sup>3</sup> ey= 13,40 cm iy= 2,20 cm		
E85410 frame for double glazing projected/parallel window		6,01 m 1329 g/m 363 mm 148 mm	lx= 34,60 cm <sup>4</sup> Wx= 7,17 cm <sup>3</sup> ex= 3,19 cm ix= 2,77 cm	ly= 8,12 cm <sup>4</sup> Wy= 2,55 cm <sup>3</sup> ey= 4,83 cm iy= 1,34 cm		
E85250 sash for double glazing projected window with insert		6,01 m 1389.3 g/m 352 mm 100 mm	lx= 29,17 cm <sup>4</sup> Wx= 6,82 cm <sup>3</sup> ex= 2,84 cm ix= 2,49 cm	ly= 7,95 cm <sup>4</sup> Wy= 2,80 cm <sup>3</sup> ey= 4,28 cm iy= 1,30 cm		

EF50\_P3.0.4

# curtain wall system

EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values			
E85251 sash for double glazing parallel window with insert		6,01 m 1392.5 g/m 345 mm 99 mm	lx= 29,51 cm <sup>4</sup> Wx= 6,75 cm <sup>3</sup> ex= 2,84 cm ix= 2,49 cm	ly= 7,92 cm <sup>4</sup> Wy= 2,79 cm <sup>3</sup> ey= 4,37 cm iy= 1,29 cm		
E85400 frame for double glazing projected window non-thermally broken		6,01 m 886 g/m 339 mm 185 mm	lx= 12,87 cm <sup>4</sup> Wx= 3,55 cm <sup>3</sup> ex= 3,10 cm ix= 1,98 cm	ly= 4,62 cm <sup>4</sup> Wy= 1,49 cm <sup>3</sup> ey= 3,62 cm iy= 1,19 cm		
E85200 sash for double glazing projected window non-thermally broken		6,01 m 934 g/m 287 mm 209 mm	lx= 11,78 cm <sup>4</sup> Wx= 3,72 cm <sup>3</sup> ex= 3,49 cm ix= 1,84 cm	ly= 6,71 cm <sup>4</sup> Wy= 1,92 cm <sup>3</sup> ey= 3,17 cm iy= 1,39 cm		
E70650 supplementary anodized profile		6,01 m 103 g/m 55,5 mm 0 mm				
E85806 external glass support for cover cap		6,01 m 156 g/m 76 mm 40 mm				
E85614 external glass support for bonded glazing		6,01 m 208 g/m 99 mm 43 mm				

EF50\_P3.0.5

curtain wall system

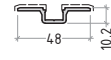
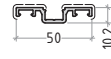
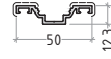
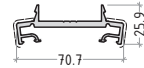
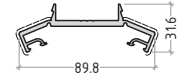
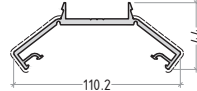
EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85615 external glass support		6,01 m 200 g/m 101 mm 46 mm	
E2308 operating rod		4,4 m 159 g/m 48 mm 0 mm	
E85915 spacer		6,01 m 130 g/m 66 mm 0 mm	
E85700 pressure plate		6,01 m 435 g/m 151 mm 0 mm	
E85745 pressure plate		6,01 m 655 g/m 205 mm 0 mm	
E85809 pressure plate		6,01 m 218 g/m 174 mm 0 mm	

EF50\_P3.06

curtain wall system

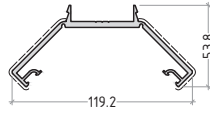

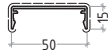



EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85750 pressure plate		6,01 m 348 g/m 130 mm 40 mm	
E85753 pressure plate		6,01 m 418 g/m 170 mm 50 mm	
E85709 pressure plate		6,01 m 384 g/m 169 mm 39 mm	
E85703 pressure plate for 7,5° angle		6,01 m 1034 g/m 305 mm 50 mm	
E85705 pressure plate for 22,5° angle		6,01 m 1204 g/m 349 mm 73 mm	
E85707 pressure plate for 37,5° angle		6,01 m 1455 g/m 413 mm 106 mm	

EF50\_P3.07

curtain wall system

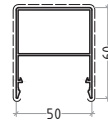

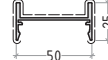
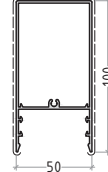
EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85708 pressure plate for 45° angle		6,01 m 1620 g/m 455 mm 127 mm	
E85711 cover cap for E85700		6,01 m 289 g/m 144 mm 75 mm	
E85712 cover cap for E85700		6,01 m 332 g/m 166 mm 81 mm	
E85713 cover cap for E85700		6,01 m 400 g/m 191 mm 91 mm	
E85714 cover cap for E85700		6,01 m 432 g/m 211 mm 101 mm	
E85715 cover cap		6,01 m 467 g/m 231 mm 111 mm	

EF50\_P3.08

curtain wall system

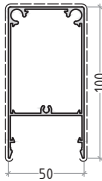

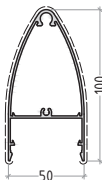
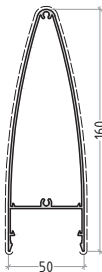
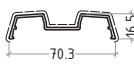

EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85716 cover cap		6,01 m 821 g/m 291 mm 171 mm	
E85728 cover cap		6,01 m 749 g/m 391 mm 191 mm	
E85721 cover cap		6,01 m 281 g/m 150 mm 77 mm	
E85722 cover cap		6,01 m 462 g/m 231 mm 110 mm	
E85720 cover cap		6,01 m 467 g/m 206 mm 121 mm	
E85727 cover cap		6,01 m 1312 g/m 388 mm 251 mm	

EF50\_P3.09

curtain wall system







EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85717 cover cap		6,01 m 1426 g/m 371 mm 251 mm	
E85718 cover cap		6,01 m 1779 g/m 506 mm 381 mm	
E85723 cover cap		6,01 m 1207 g/m 337 mm 216 mm	
E85724 cover cap		6,01 m 1627 g/m 453 mm 333 mm	
E85808 cover cap for E85809		6,01 m 449 g/m 220 mm 108 mm	
E85751 cover cap for E85750 and E85753		6,01 m 54 g/m 45 mm 14 mm	

EF50\_P3.10

curtain wall system

EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85719 cover cap for E85709		6,01 m 126 g/m 87 mm 34 mm	
E85640 spacer 6mm		6,01 m 96 g/m 59 mm 6 mm	
E8611 spacer 10mm		6,01 m 129 g/m 82 mm 10 mm	
E85641 spacer 12mm		6,01 m 141 g/m 90 mm 12 mm	
E85642 spacer 18mm		6,01 m 200 g/m 98 mm 18 mm	
E85643 spacer 26mm		6,01 m 286 g/m 119 mm 26 mm	

EF50\_P3.11

# curtain wall system

EF50

code description	profile	length	weight	ext.perimeter	vis.perimeter	static values			
E85650 spacer 7,5°		6,01 m	101 g/m	61 mm	6 mm				
E85652 spacer 22,5°		6,01 m	117 g/m	69 mm	7 mm				
E85654 spacer 37,5°		6,01 m	141 g/m	82 mm	8 mm				
E85655 spacer 45°		6,01 m	161 g/m	93 mm	9 mm				
E8050951 mullion connector		2,01 m	7887 g/m	697 mm	0 mm	lx= 91,49 cm <sup>4</sup> Wx= 42,16 cm <sup>3</sup> ex= 2,17 cm ix= 1,77 cm	ly= 2296,31 cm <sup>4</sup> Wy= 166,42 cm <sup>3</sup> ey= 137,99 cm iy= 8,87 cm		
E85906 transom connector		6,01 m	724 g/m	251 mm	0 mm	lx= 3,93 cm <sup>4</sup> Wx= 1,39 cm <sup>3</sup> ex= 2,30 cm ix= 1,21 cm	ly= 8,95 cm <sup>4</sup> Wy= 3,90 cm <sup>3</sup> ey= 2,83 cm iy= 1,83 cm		







# curtain wall system

EF50

code description	profile	length	weight	ext.perimeter	vis.perimeter	static values			
E85994 transom connector for variable angle		2,01 m	1557 g/m	261 mm	0 mm	lx= 10,31 cm <sup>4</sup> Wx= 4,25 cm <sup>3</sup> ex= 2,25 cm ix= 1,34 cm	ly= 12,85 cm <sup>4</sup> Wy= 5,71 cm <sup>3</sup> ey= 2,43 cm iy= 1,49 cm		
E85912 glazing support		6,01 m	245 g/m	79 mm	0 mm				
E85917 glazing support		6,01 m	266 g/m	86 mm	0 mm				
E85929 glazing support		6,01 m	278 g/m	89 mm	0 mm				
E85914 glazing support		2,01 m	296 g/m	96 mm	0 mm				
E85931 glazing support up to 80kg		6,01 m	384 g/m	121 mm	0 mm				

# curtain wall system

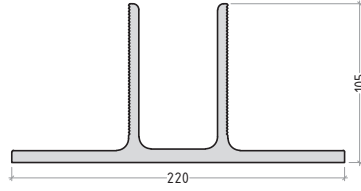
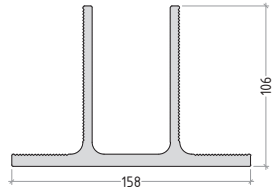
EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85932 glazing support up to 80kg		6,01 m 422 g/m 133 mm 0 mm	
E85804 glazing support for heavy glass		6,01 m 889 g/m 165 mm 0 mm	
E85807 glazing support for heavy glass		6,01 m 1311 g/m 206 mm 0 mm	
E85805 additional shim to glazing support for heavy glass		6,01 m 210 g/m 44 mm 0 mm	
E85924 TR spacer for structural glazing		6,01 m 70 g/m 53 mm 0 mm	
33881 glazing clip		6,01 m 307 g/m 68 mm 0 mm	


EF50\_P3.14

# curtain wall system

EF50

code description	profile	length weight ext.perimeter vis.perimeter	static values
E85925 glazing clip		6,01 m 407 g/m 95 mm 0 mm	
E85900 fixing bracket		2,01 m 8396 g/m 871 mm 0 mm	lx= 822,14 cm <sup>4</sup> ly= 279,77 cm <sup>4</sup> Wx= 74,74 cm <sup>3</sup> Wy= 37,20 cm <sup>3</sup> ex= 8,00 cm ey= 11,00 cm ix= 5,14 cm iy= 3,09 cm
E85993 fixing bracket		2,01 m 10261 g/m 1032 mm 0 mm	lx= 836,65 cm <sup>4</sup> ly= 842,12 cm <sup>4</sup> Wx= 79,68 cm <sup>3</sup> Wy= 78,27 cm <sup>3</sup> ex= 10,76 cm ey= 10,50 cm ix= 4,69 cm iy= 4,71 cm
E8050913 fixing bracket		2,01 m 4990 g/m 562 mm 0 mm	lx= 242,50 cm <sup>4</sup> ly= 300,41 cm <sup>4</sup> Wx= 29,27 cm <sup>3</sup> Wy= 34,93 cm <sup>3</sup> ex= 8,60 cm ey= 8,28 cm ix= 3,62 cm iy= 4,03 cm
E85992 fixing bracket		2,01 m 6464 g/m 776 mm 0 mm	lx= 348,10 cm <sup>4</sup> ly= 254,56 cm <sup>4</sup> Wx= 44,06 cm <sup>3</sup> Wy= 32,82 cm <sup>3</sup> ex= 7,76 cm ey= 7,90 cm ix= 3,81 cm iy= 3,26 cm
E85967 fixing bracket		2,01 m 3458 g/m 415 mm 0 mm	lx= 85,63 cm <sup>4</sup> ly= 135,56 cm <sup>4</sup> Wx= 13,96 cm <sup>3</sup> Wy= 17,89 cm <sup>3</sup> ex= 7,58 cm ey= 6,13 cm ix= 2,59 cm iy= 3,25 cm

EF50\_P3.15

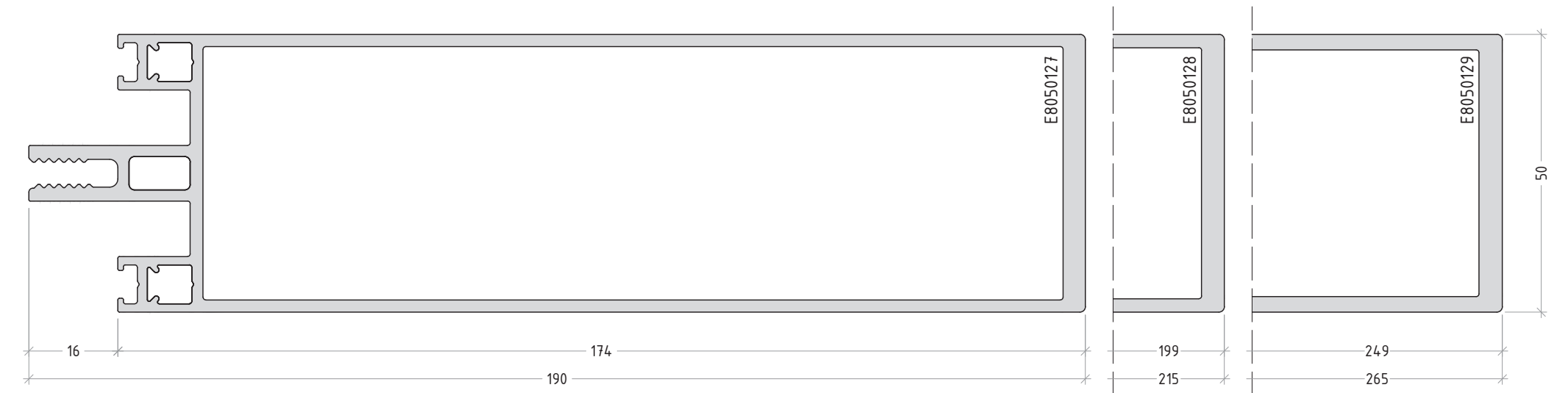
code description	profile	length weight ext.perimeter vis.perimeter	static values
E85901 suppl. profile for fixing bracket		6,01 m 313 g/m 65 mm 0 mm	

# PROFILES

DRAWINGS / SCALE 1:1

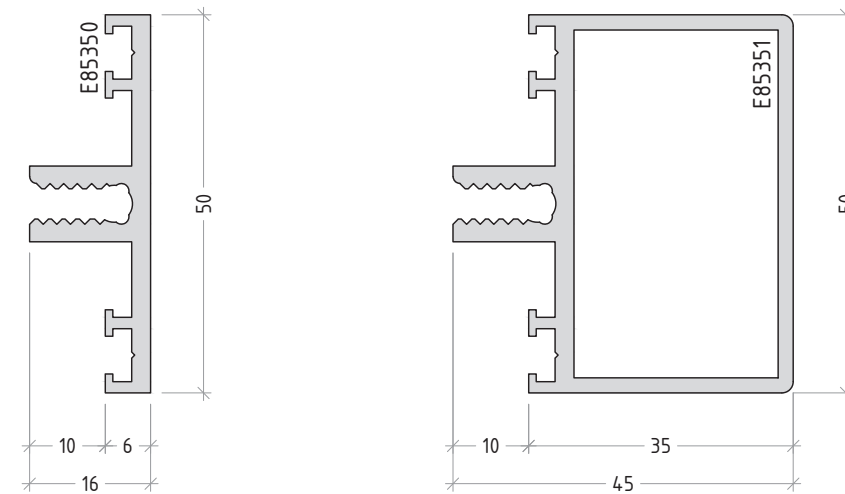


mullions



scale 1:1

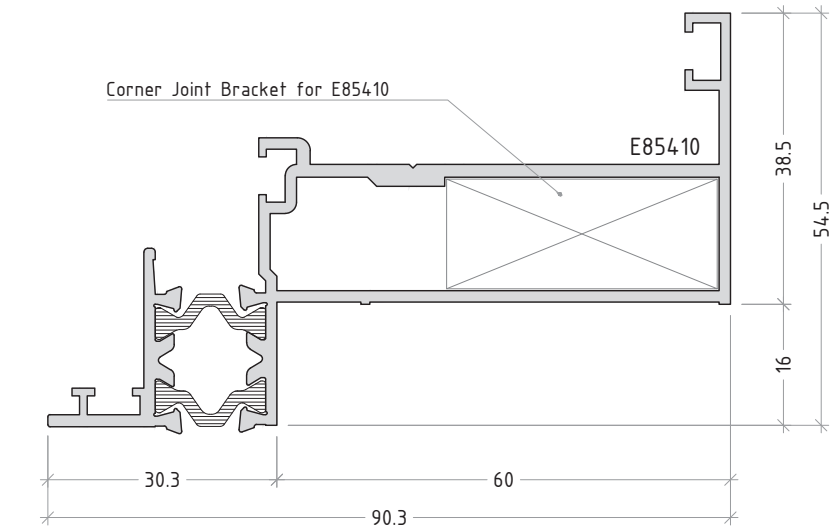
transoms



combinations of mullions and transoms with same depth

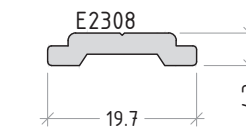
mullion		transom	split mullion
E85350	-	E85350	-
-	-	E85351	-
-	-	E8050351	-
E8050102	-	E8050352	-
E8050103	-	E8050353	-
E8050104	-	E8050354	-
E8050105	-	E8050355	-
E8050106	-	E8050356	-
E8050107	-	E8050357	-
-	E8050127	-	E8050187
E8050108	E8050128	E8050358	-
E8050109	E8050129	E8050359	-

frame for double glazing projected / parallel window

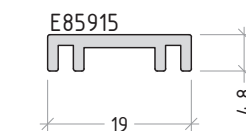


- frame E85410 is used in combination with sash E85250 and E85251
- available corner joint brackets - crimping ET054457.00 and mechanical ET053302.00
- combined with transoms from E8050352 up to E8050359

operating rod



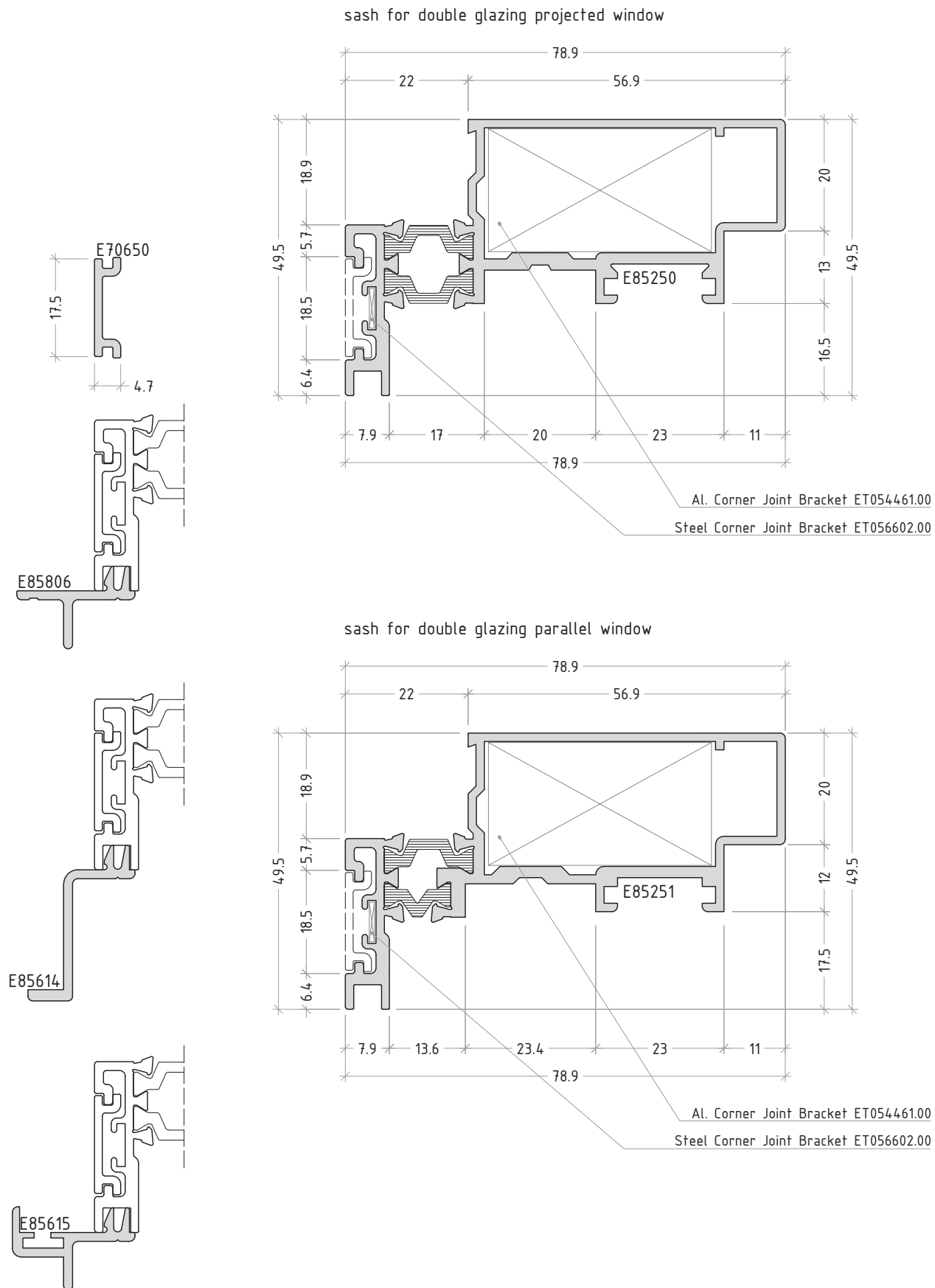
spacer



Note:  
d

scale 1:1

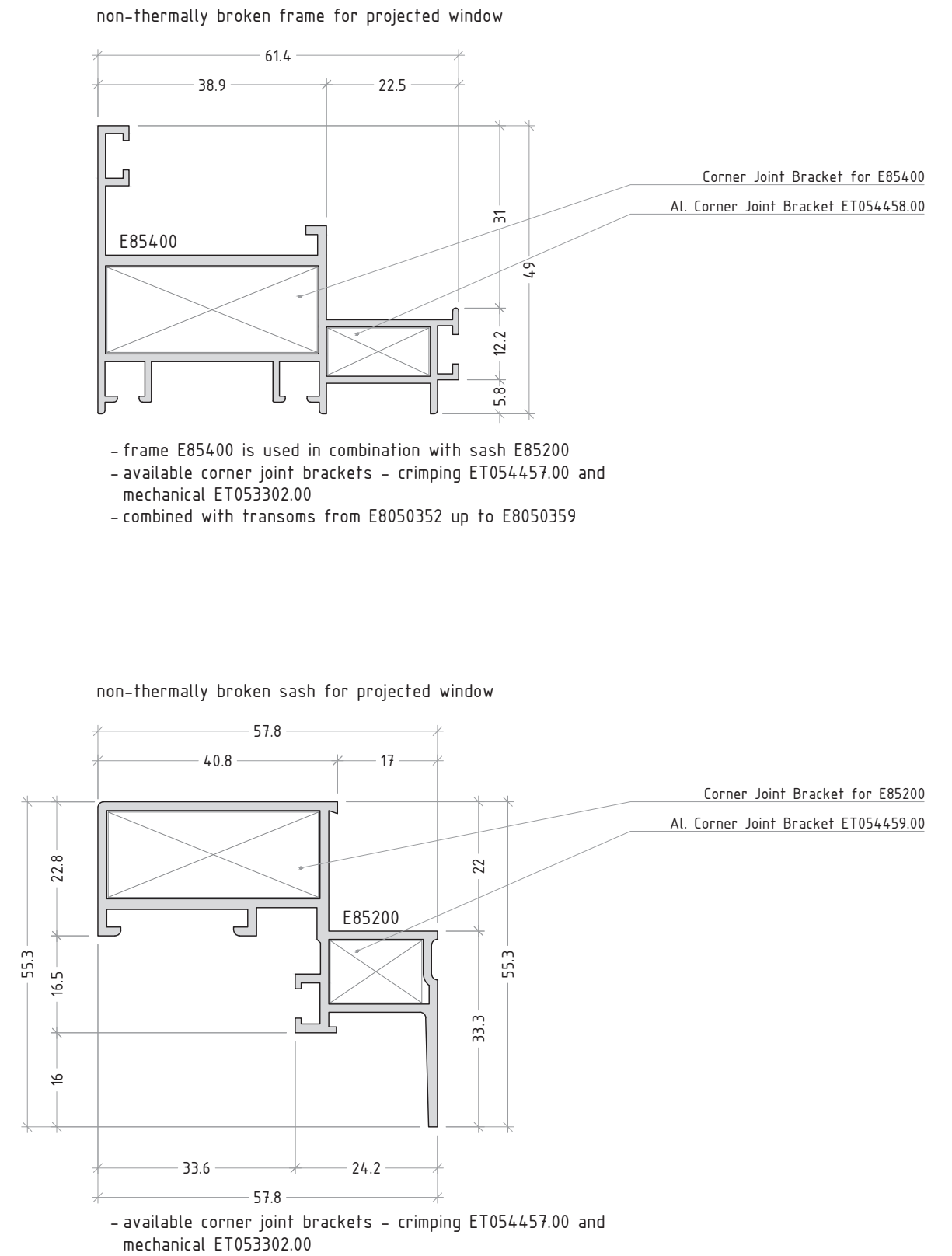
sash for double glazing projected / parallel window



scale 1:1

EF50\_P4\_06

non-thermally broken projected window

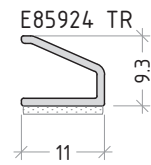


scale 1:1

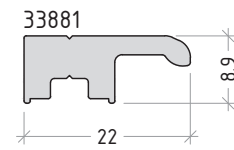
EF50\_P4\_07

structural glazing

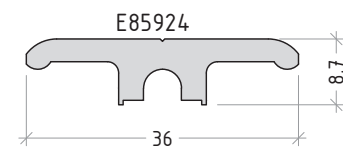
spacer for structural glazing



glazing clip for E85924 TR

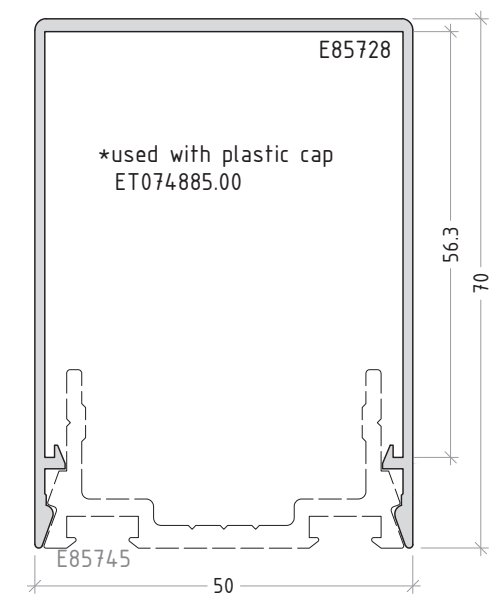
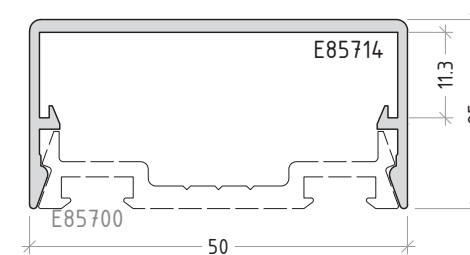
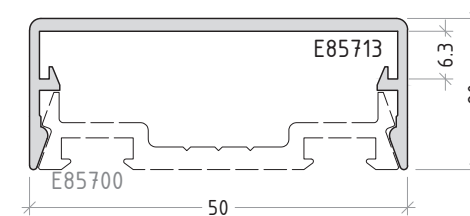
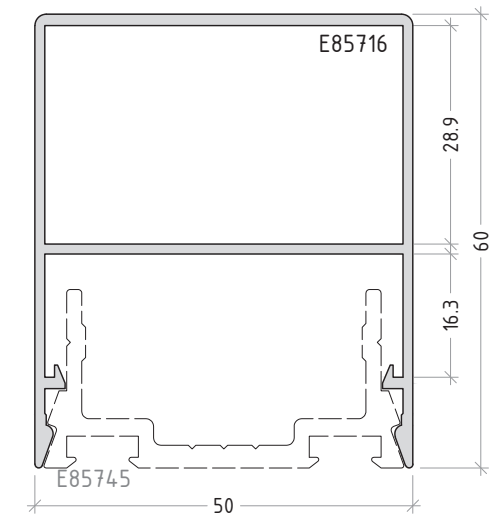
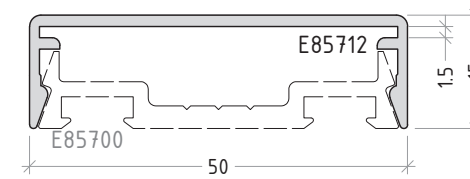
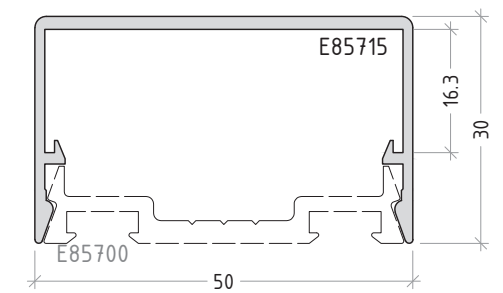
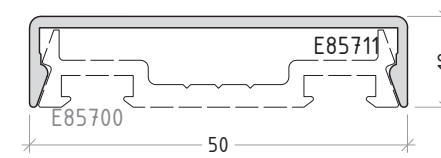


glazing clip for E85924 TR



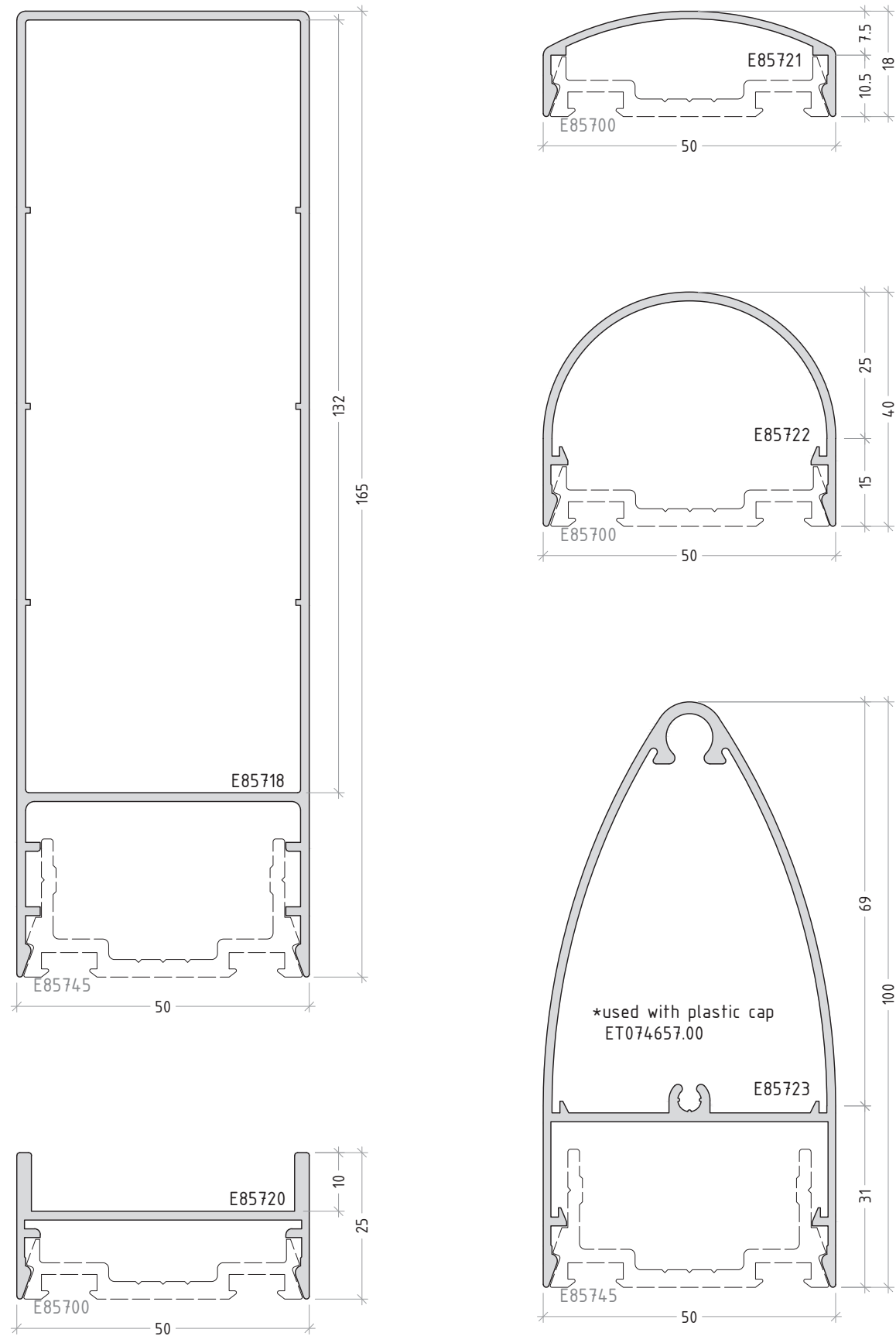
scale 1:1

cover caps



scale 1:1

cover caps

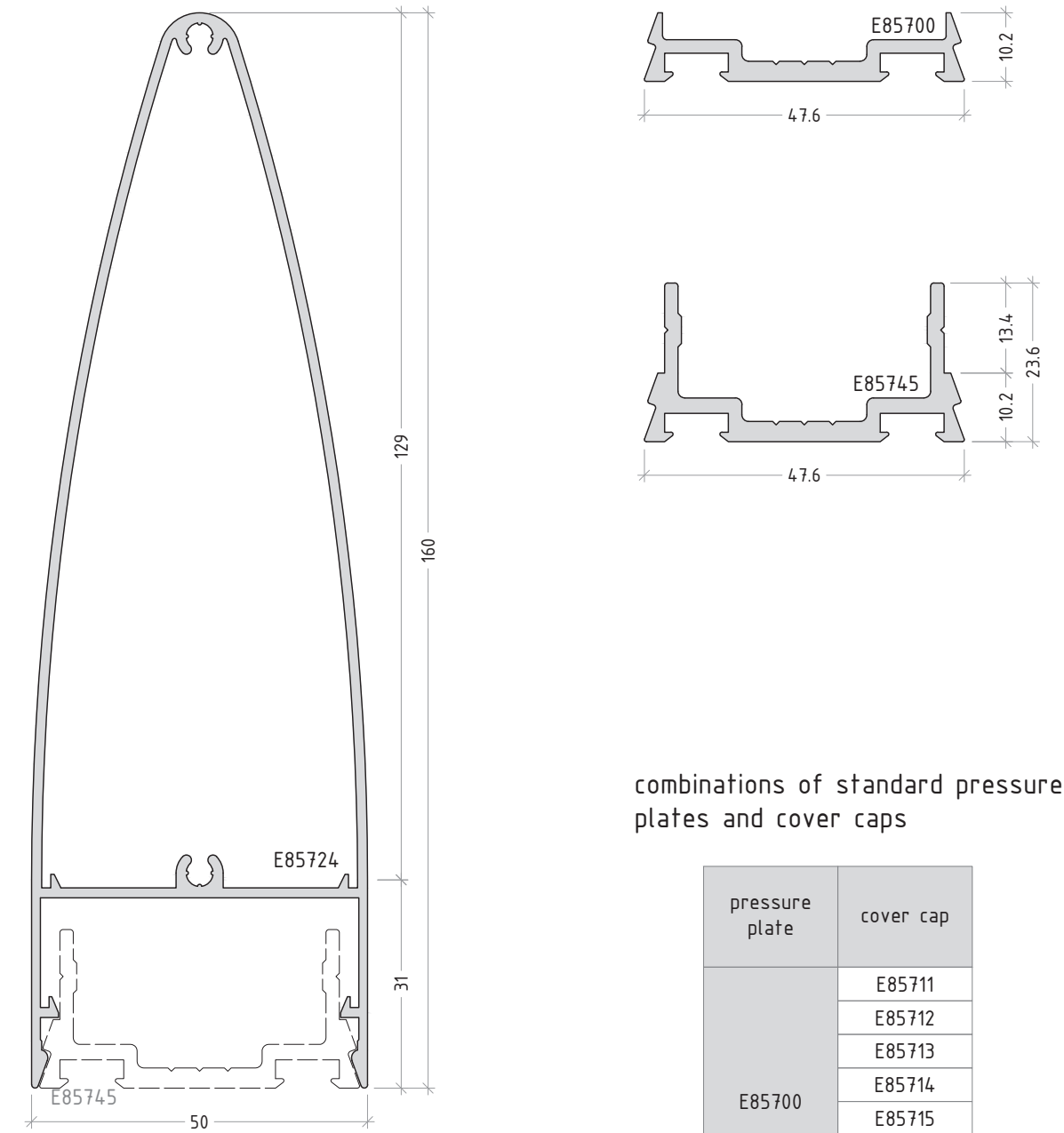


scale 1:1

EF50\_P4.10

cover caps

pressure plates



scale 1:1

EF50\_P4.11

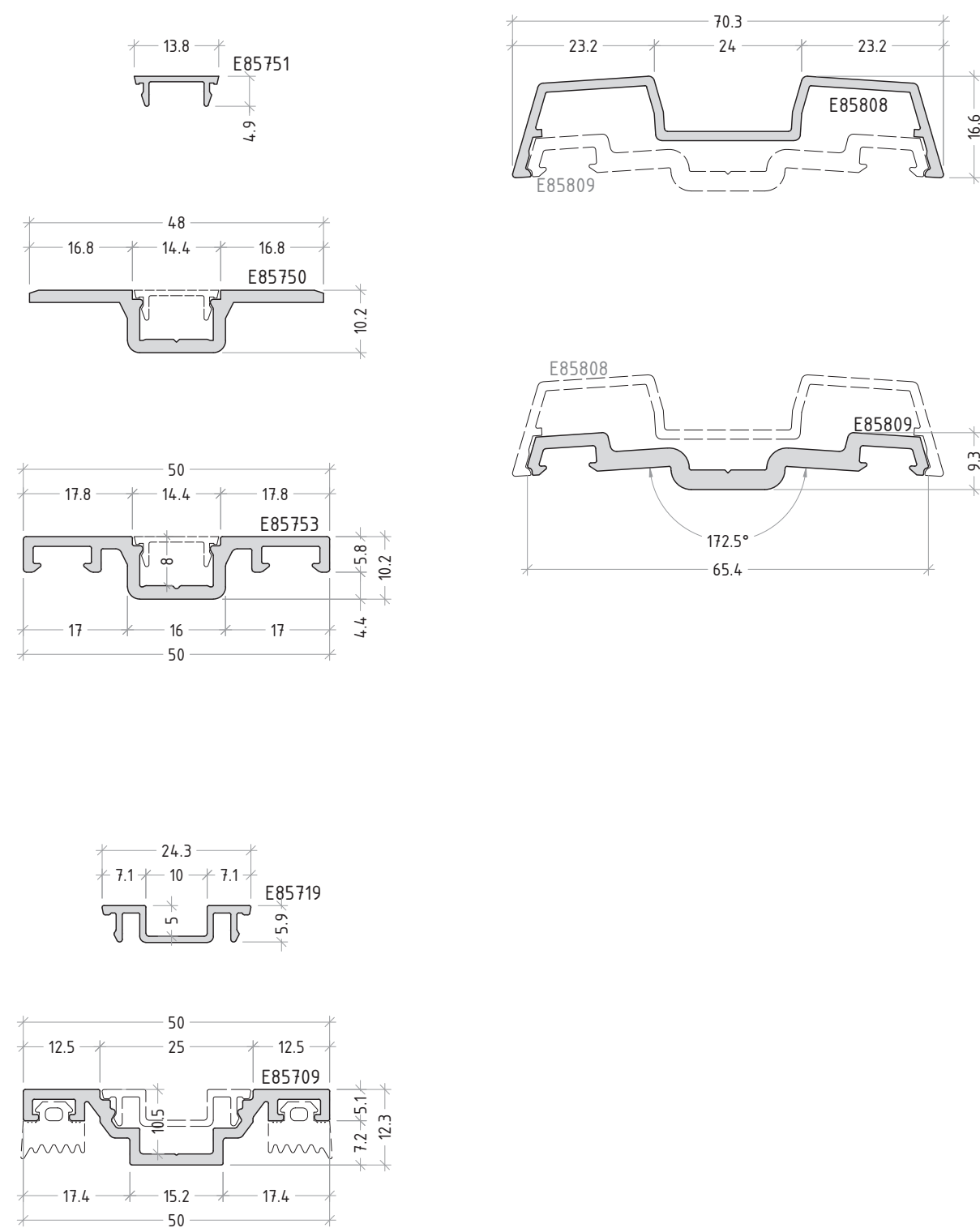
combinations of standard pressure plates and cover caps

pressure plate	cover cap
E85700	E85711
	E85712
	E85713
	E85714
	E85715
	E85720
	E85721
E85745	E85716
	E85718
	E85723
	E85724
	E85728

curtain wall system

EF50

pressure plates and cover caps



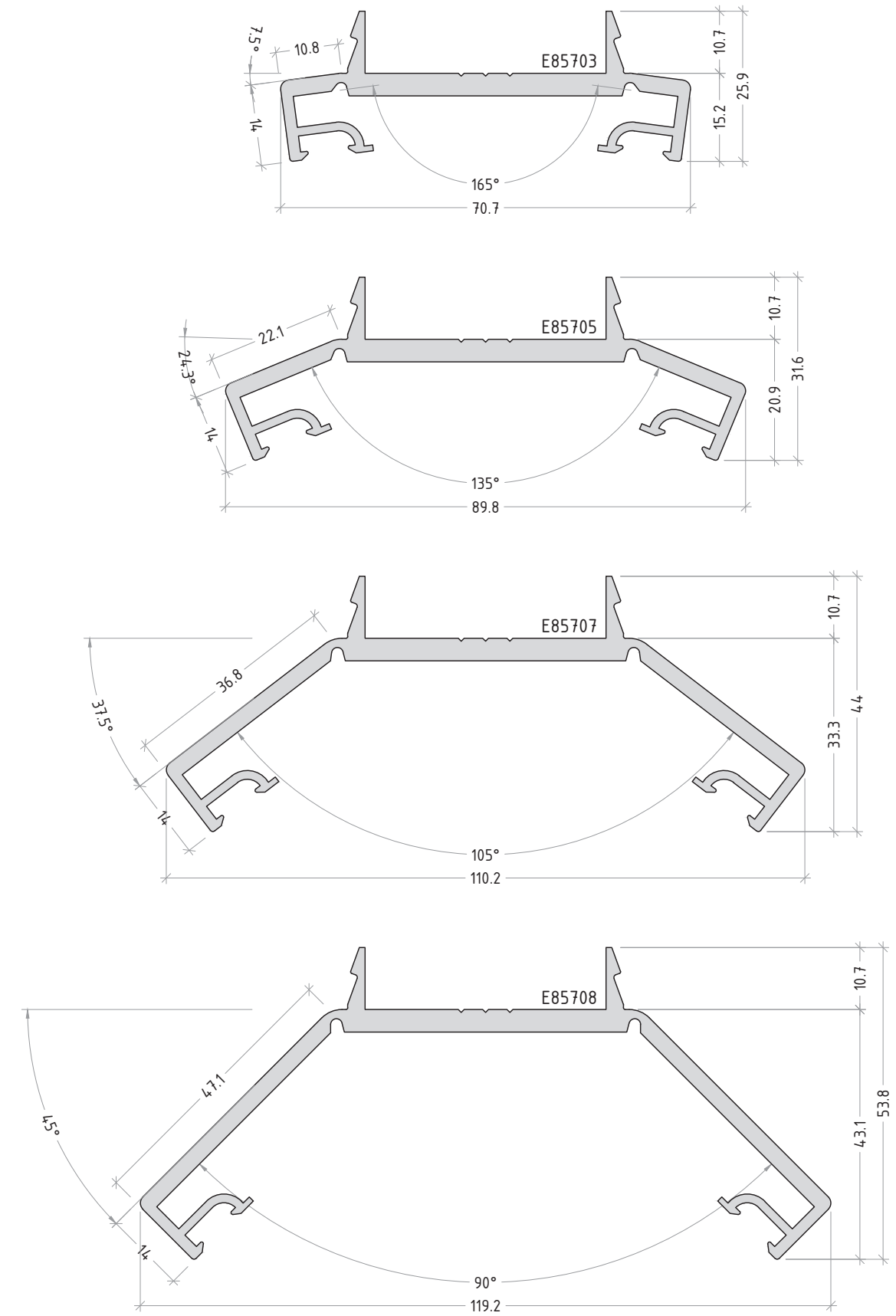
EF50\_P4.12

scale 1:1

curtain wall system

EF50

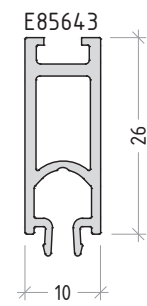
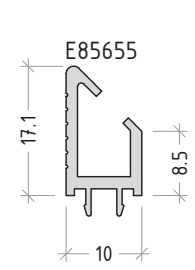
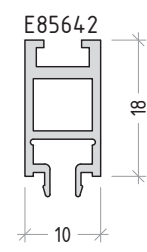
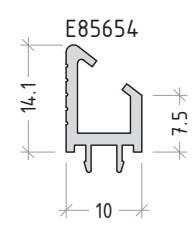
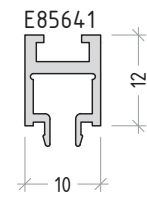
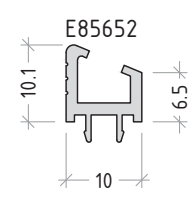
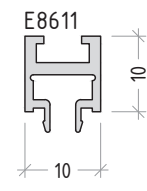
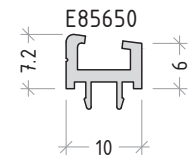
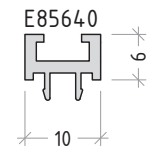
pressure plates for polygonal zones



EF50\_P4.13

scale 1:1

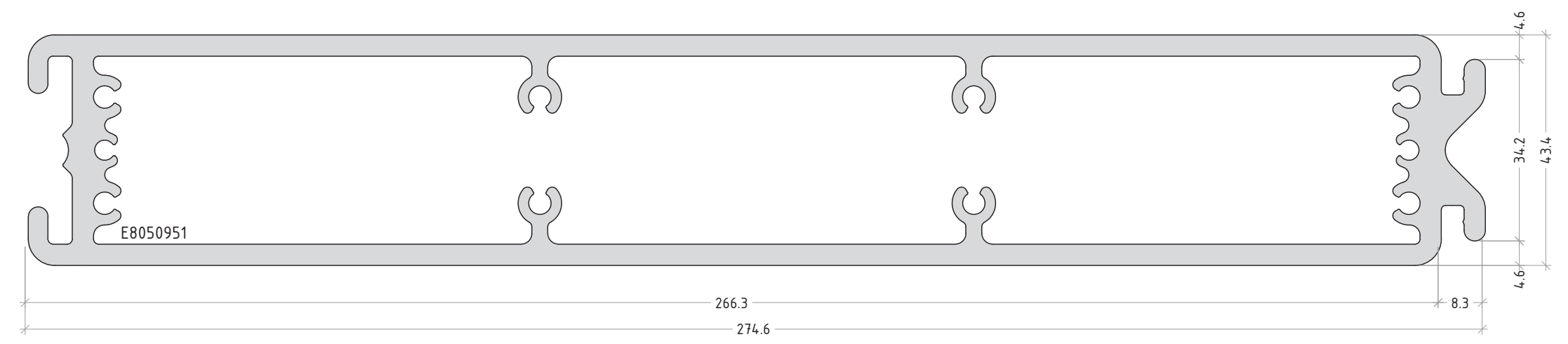
spacers



EF50\_P4\_14

scale 1:1

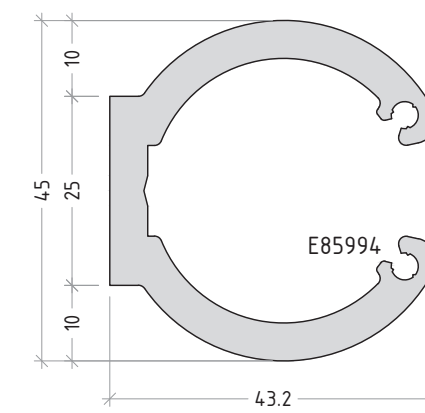
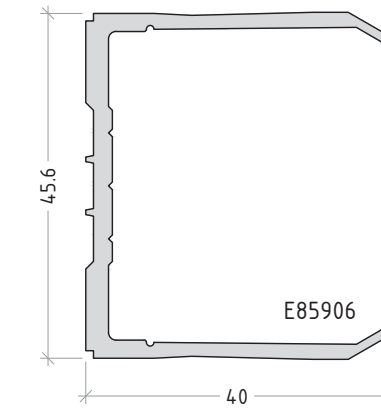
mullion connector



EF50\_P4\_15

scale 1:1

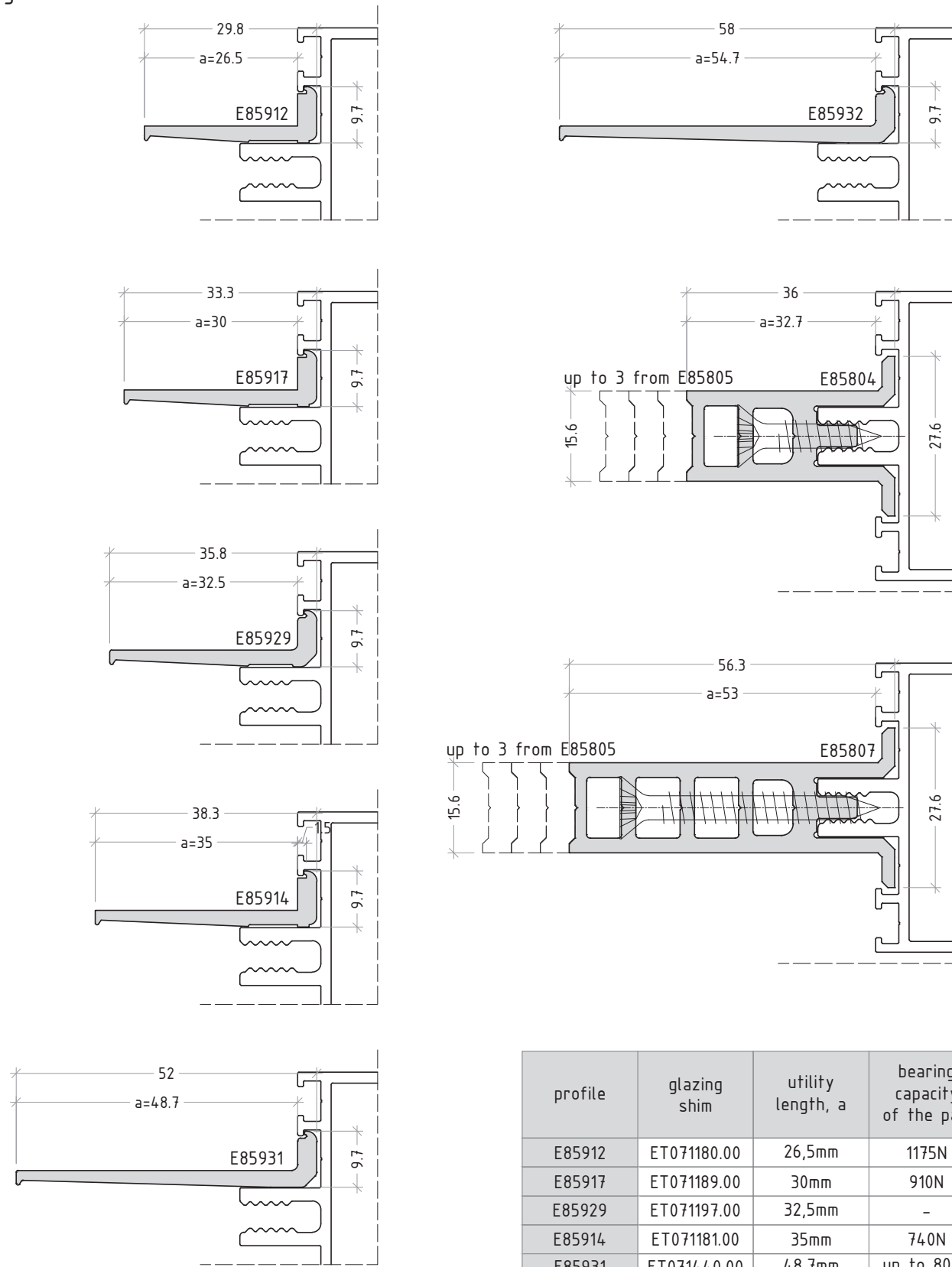
transom connectors



scale 1:1



glazing shims

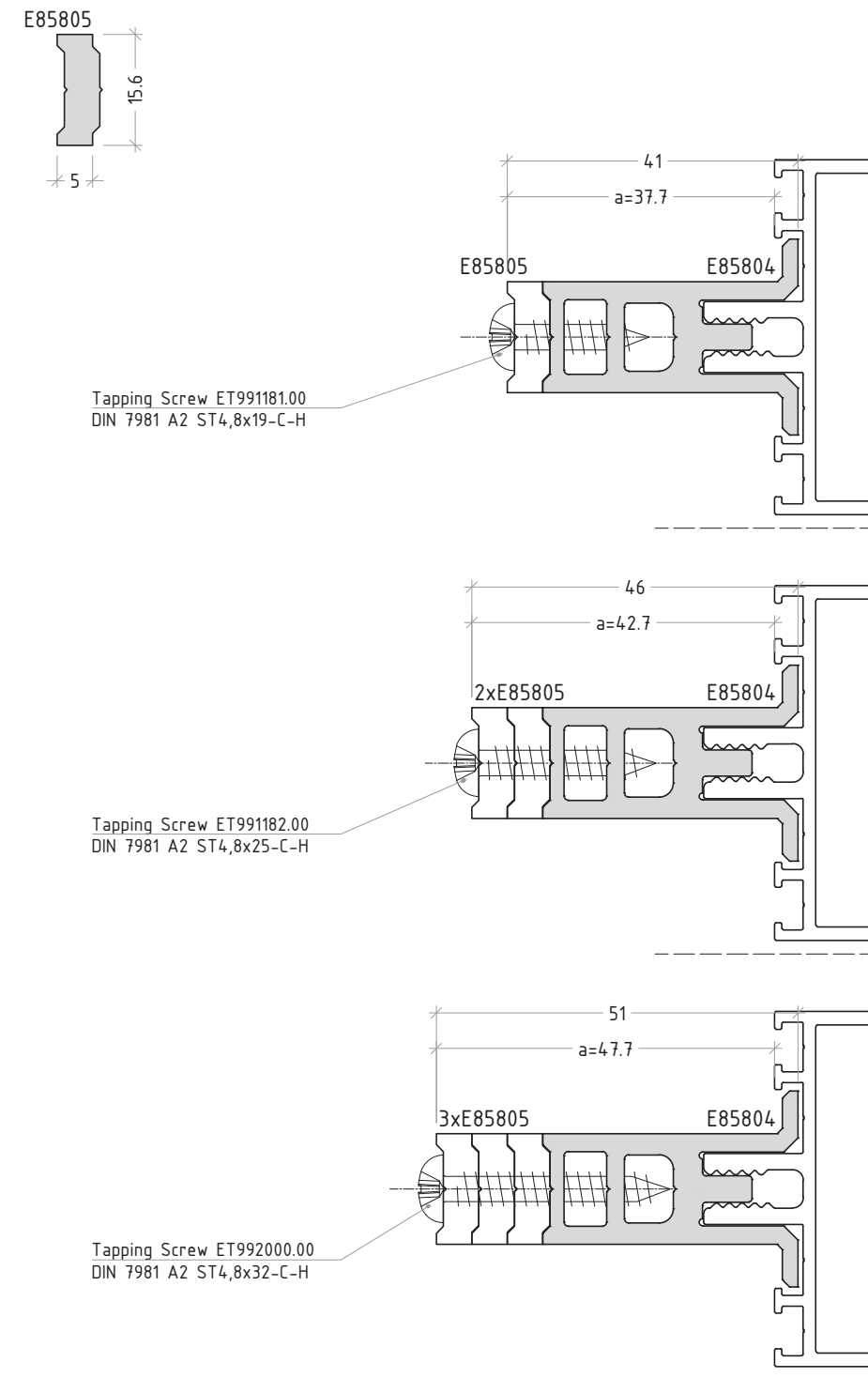


profile	glazing shim	utility length, a	bearing capacity of the pair
E85912	ET071180.00	26,5mm	1175N
E85917	ET071189.00	30mm	910N
E85929	ET071197.00	32,5mm	-
E85914	ET071181.00	35mm	740N
E85931	ET071440.00	48,7mm	up to 800N
E85932	ET071441.00	54,7mm	up to 800N
E85804	ET071191.00	32,7mm	2800N
E85807	ET071200.00	53mm	-

ATTENTION:  
Recommended placement of the glazing shims is 150mm axial from the edge of the transom.

scale 1:1

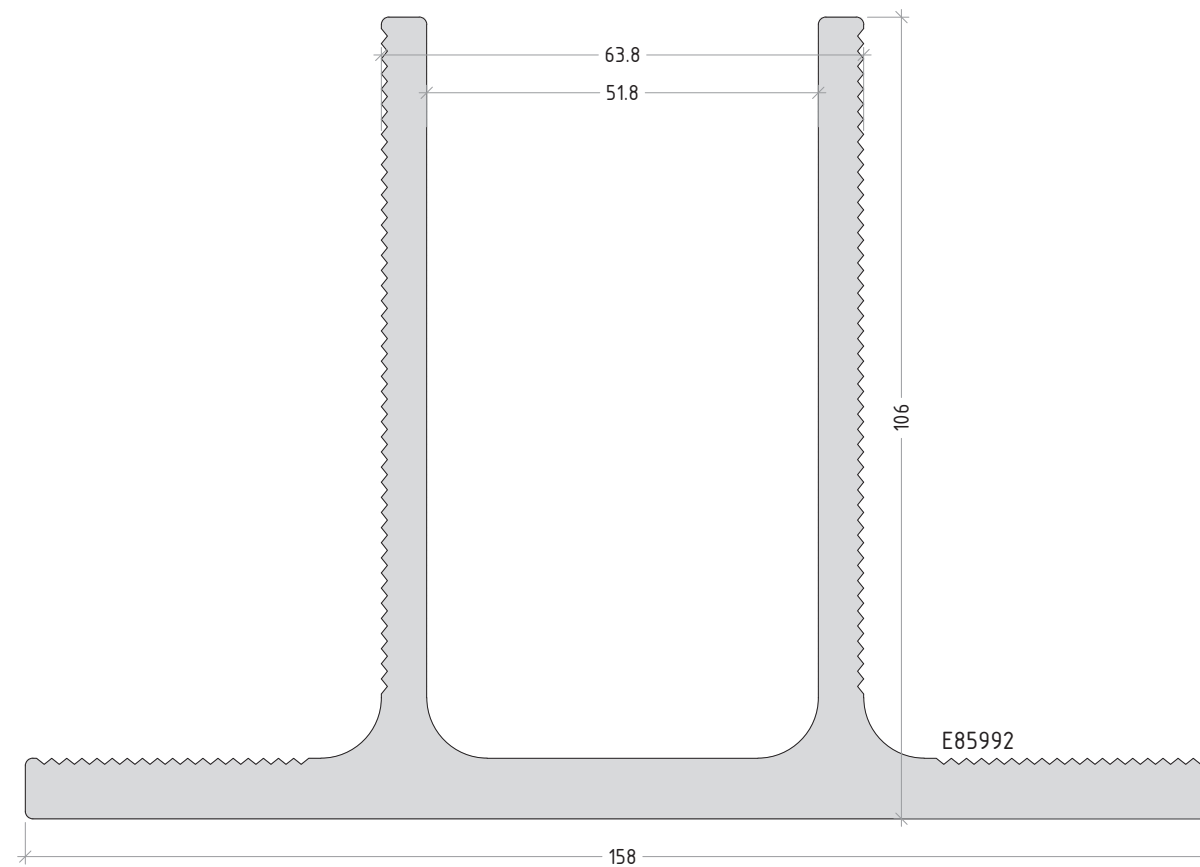
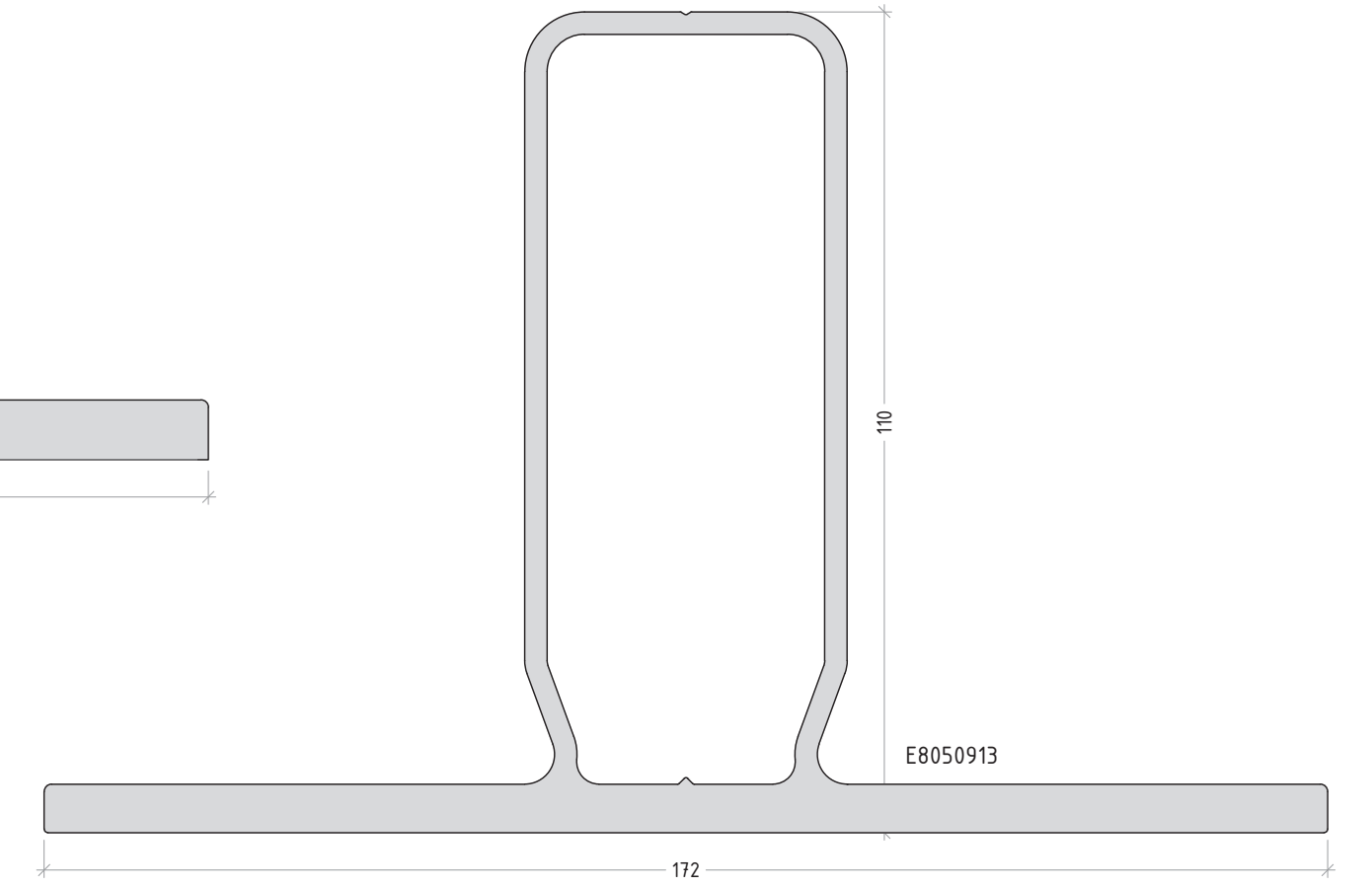
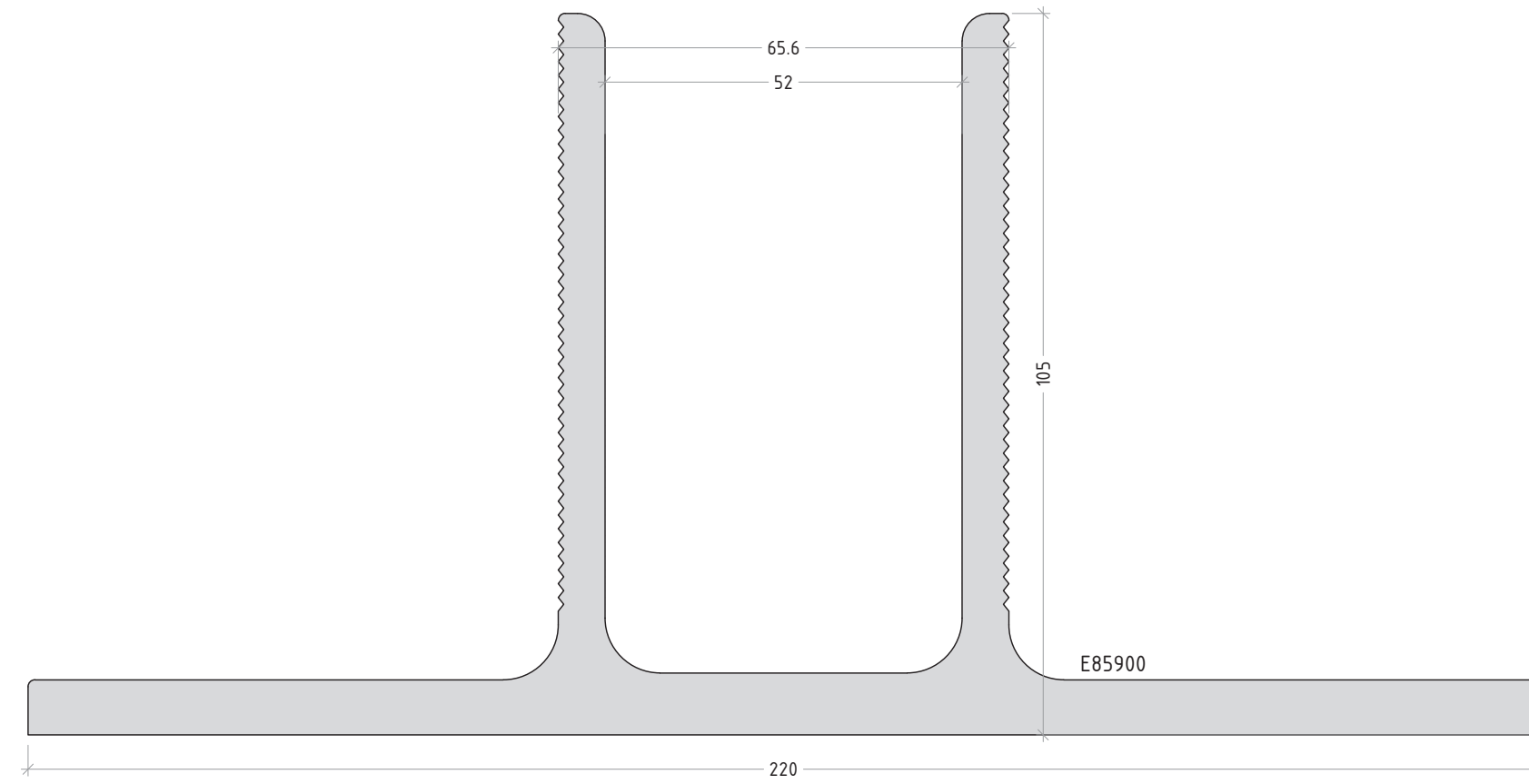
glazing shim for heavy glass with add-on



Note:  
for each glazing shim two tapping screws are required to attach the add-on  
the same add-on and tapping screws are use with glazing shims from profiles E85804 and E85807

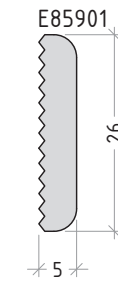
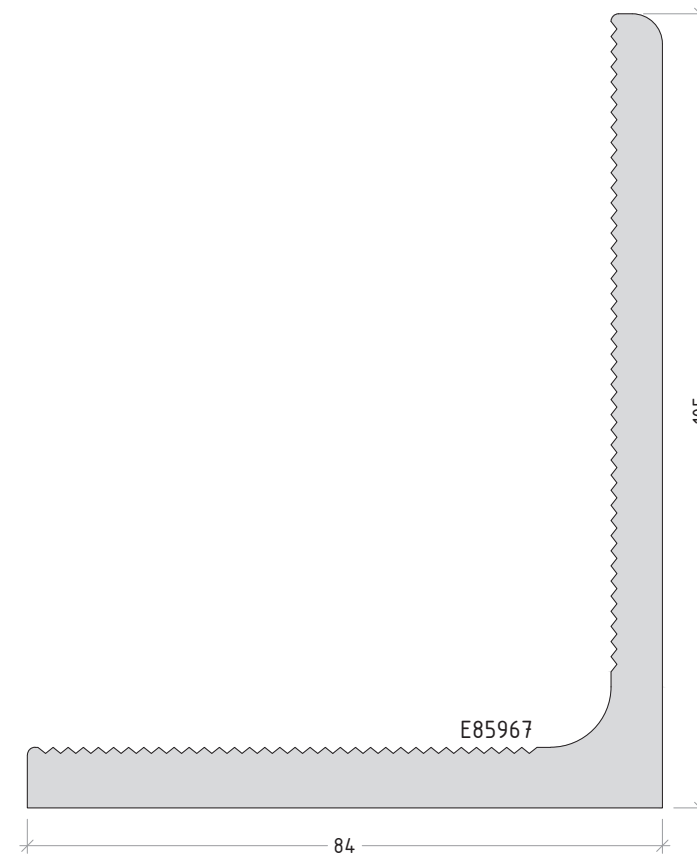
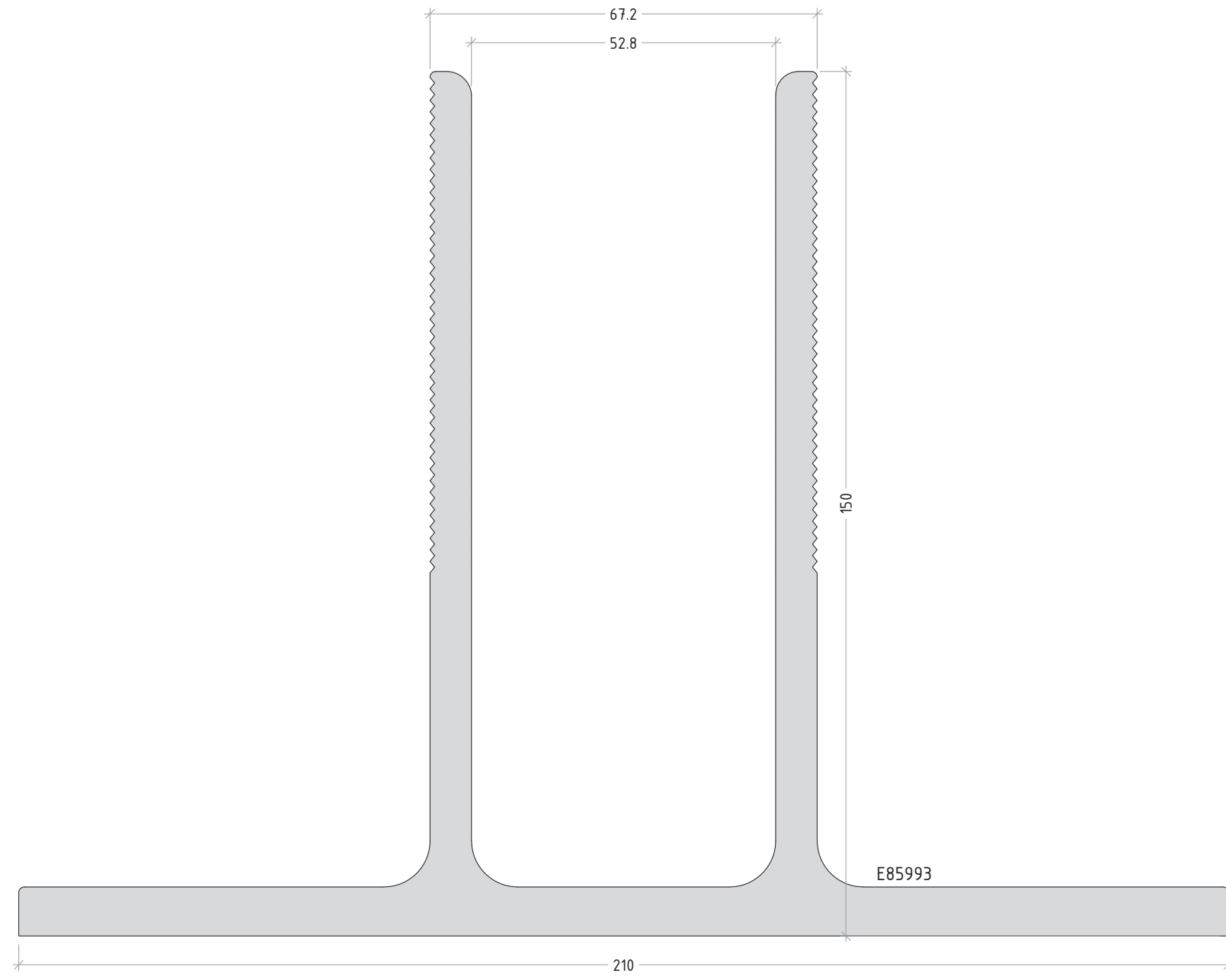
scale 1:1

fixing brackets



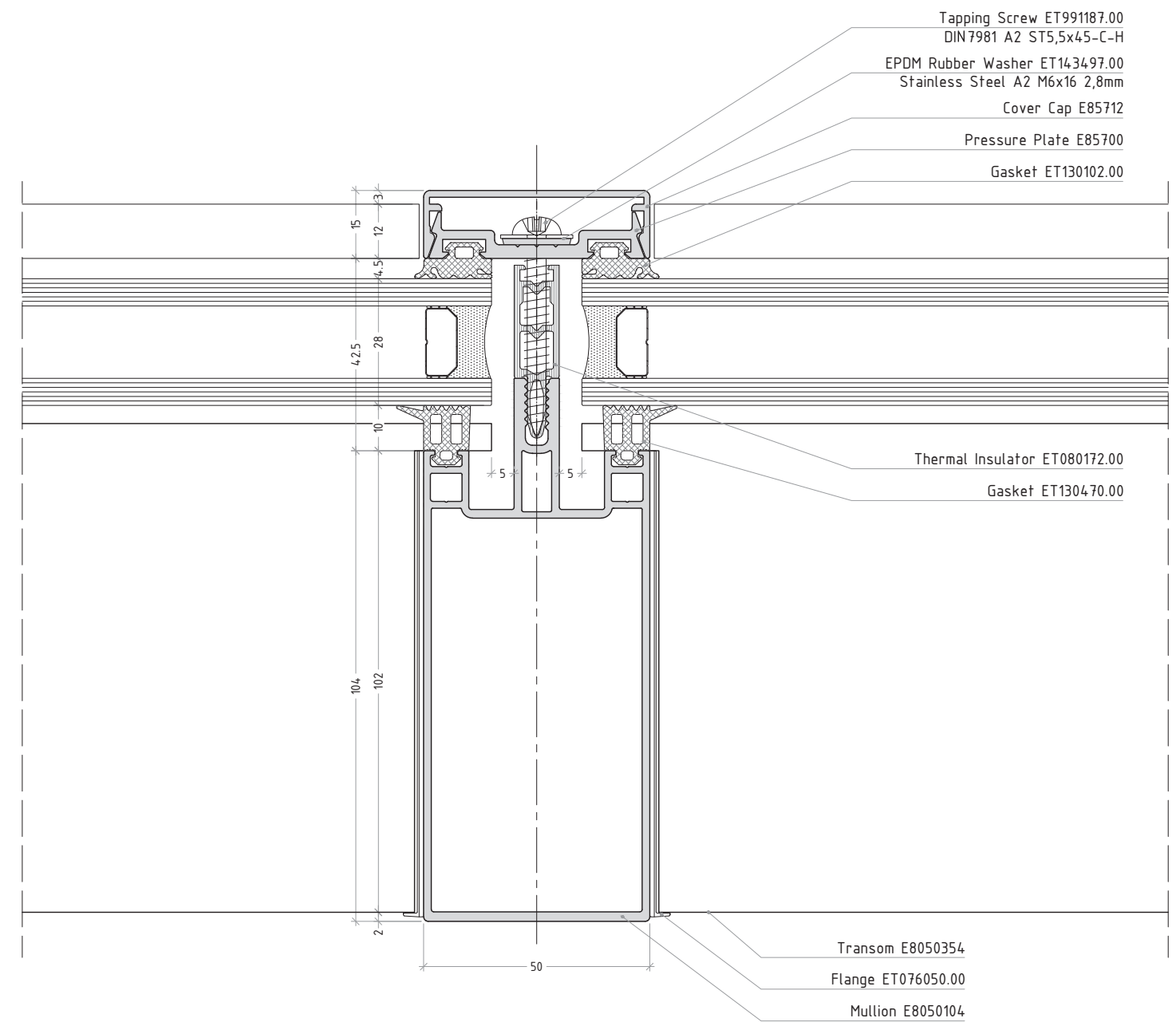
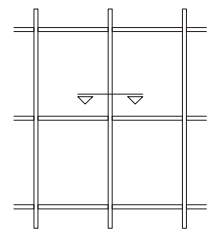
scale 1:1

fixing brackets

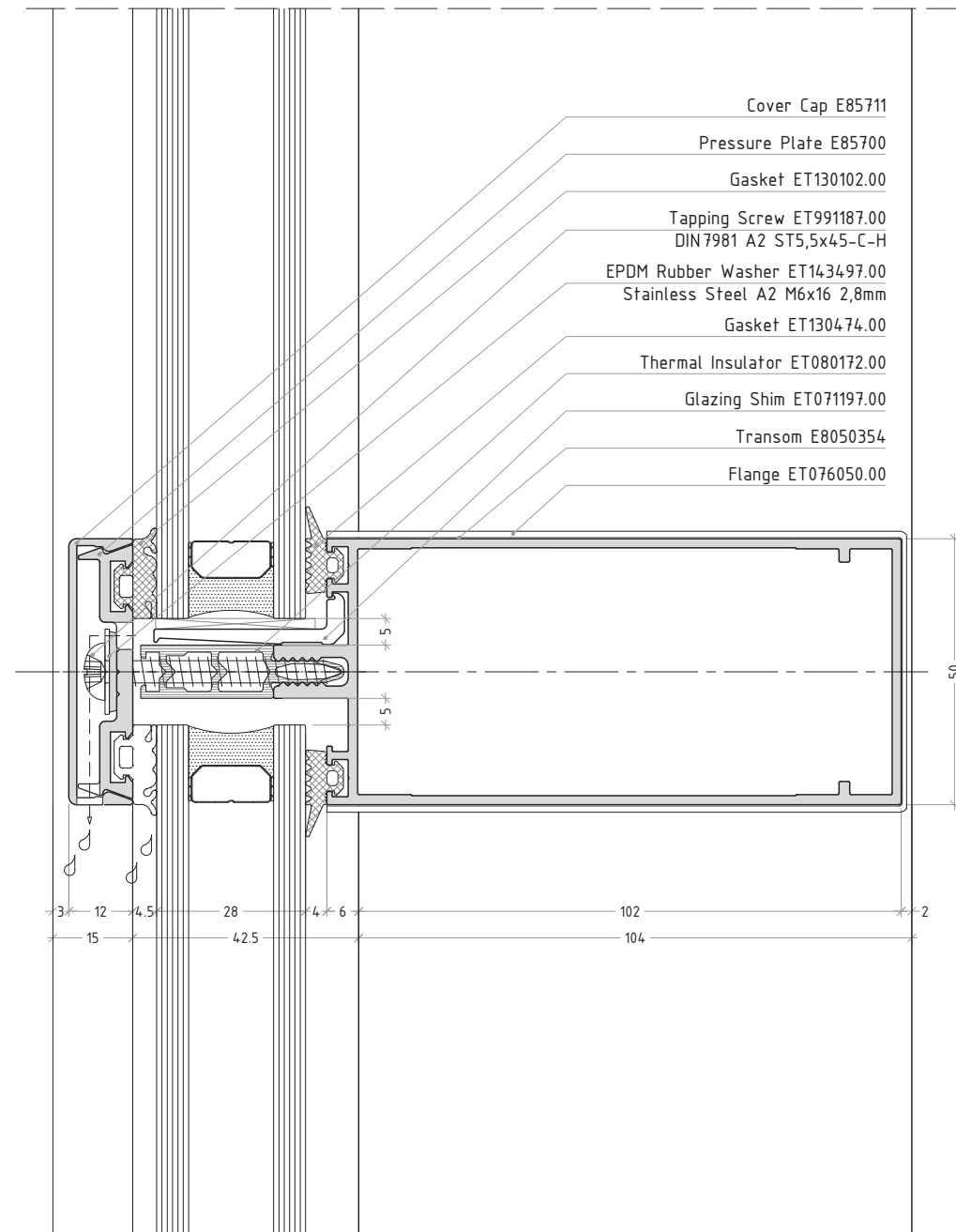
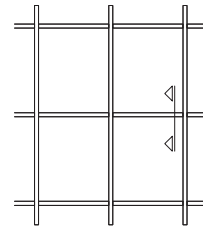


# STICK FACADE

SECTIONS / DETAILS

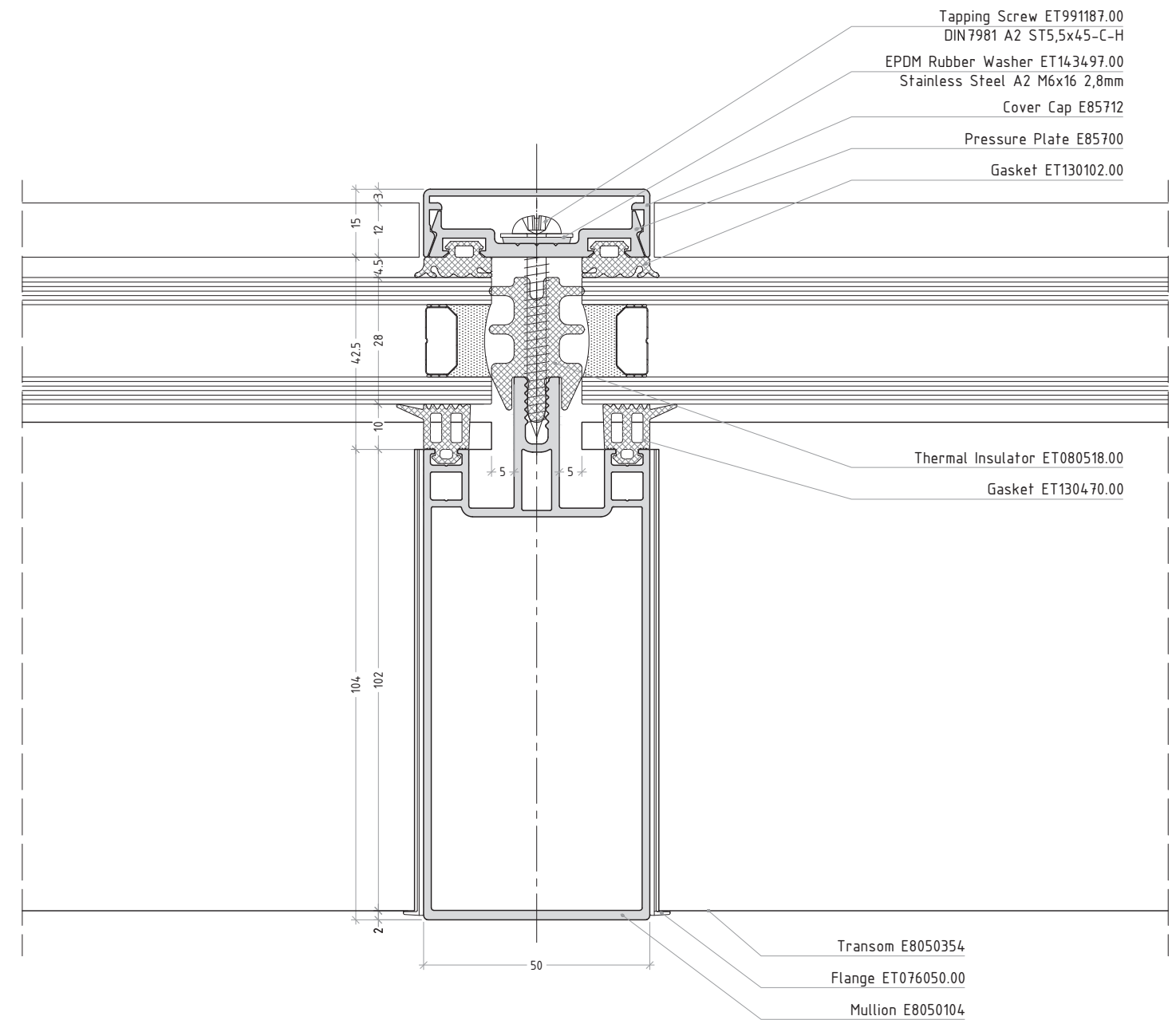
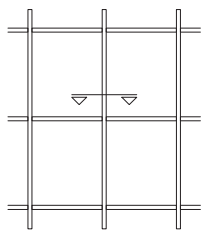


scale 3/4



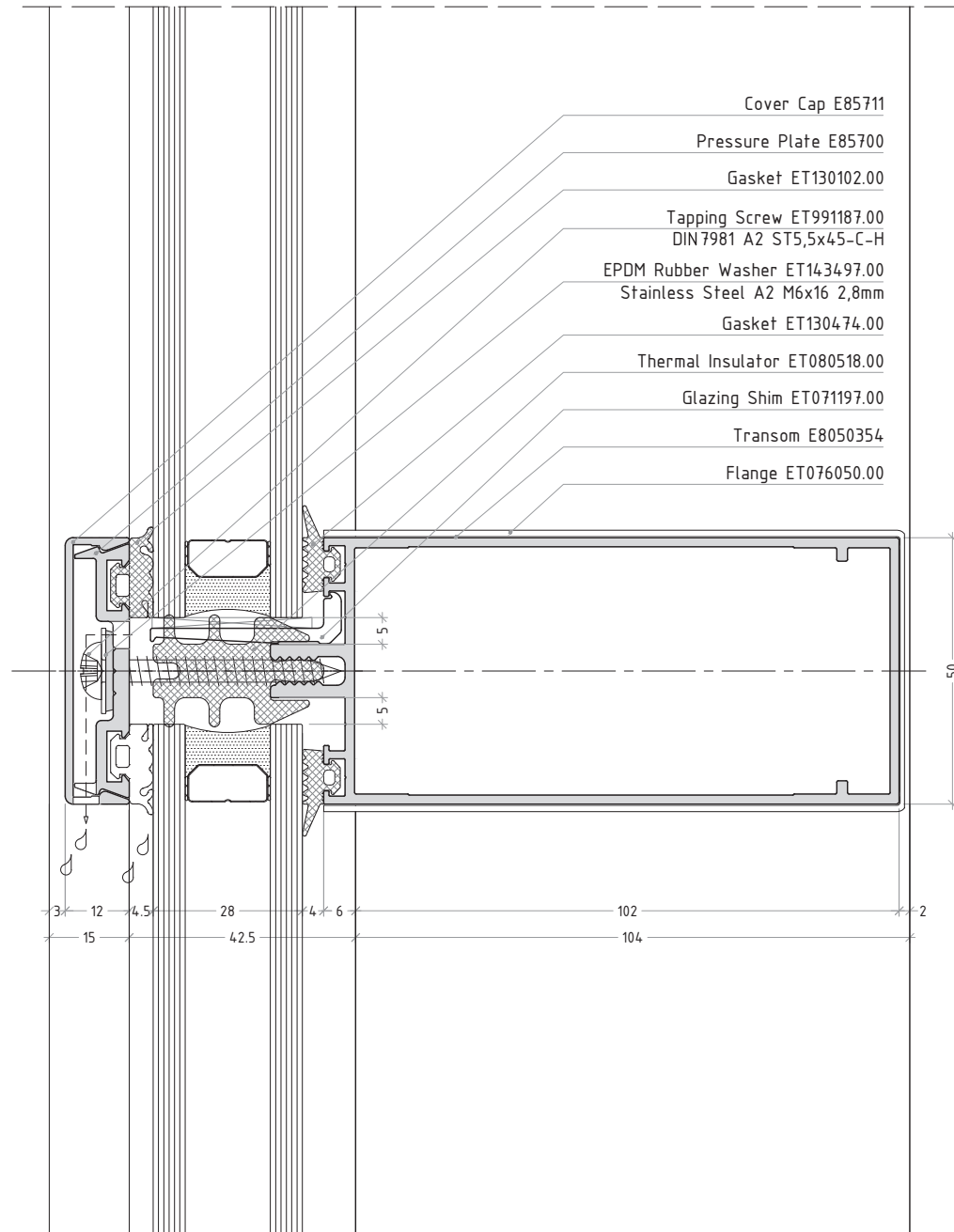
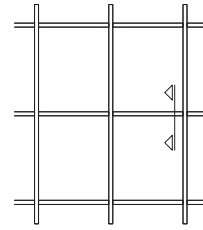
EF50\_SF5.1\_02

scale 3/4



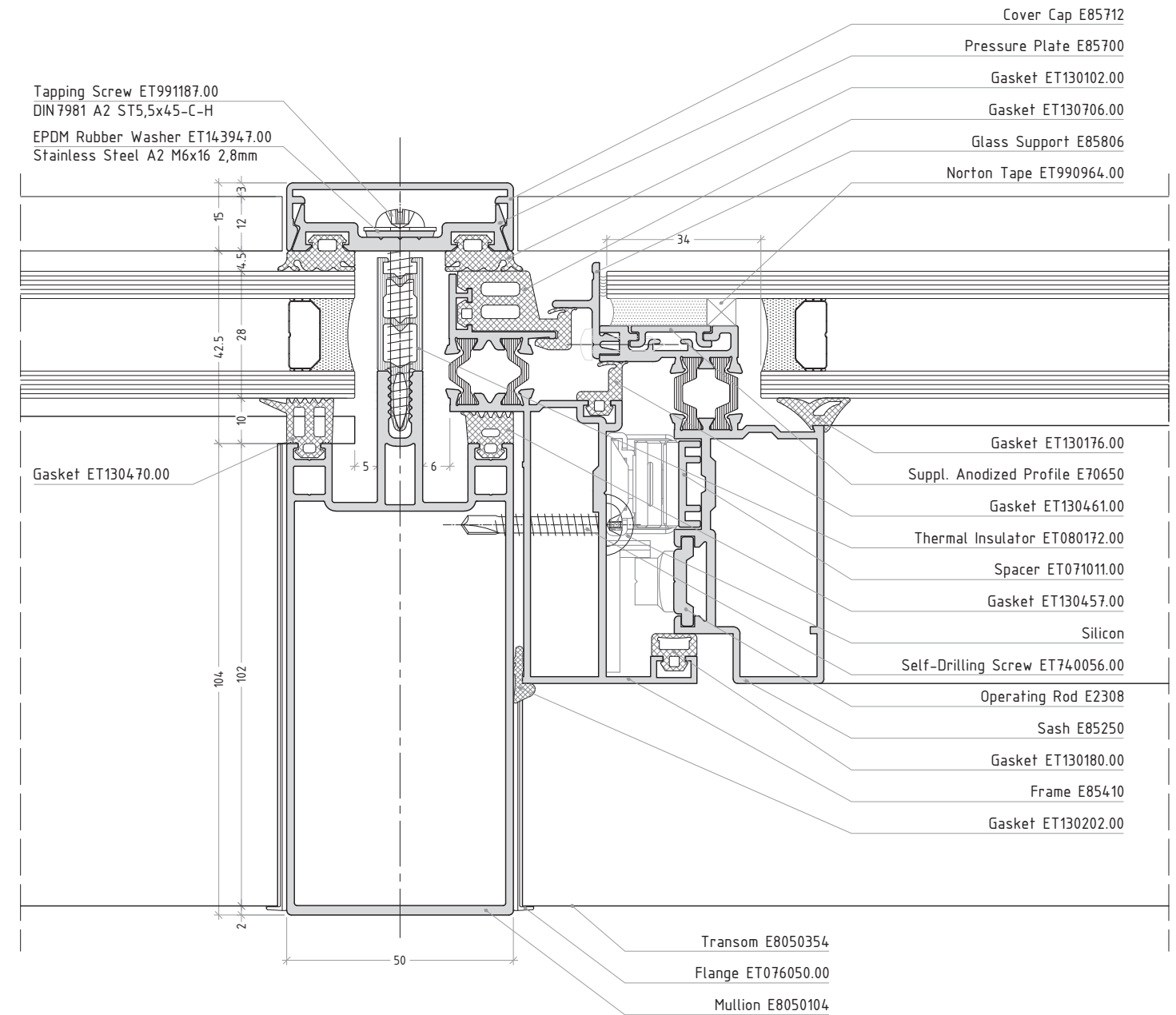
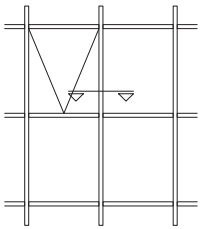
EF50\_SF5.1\_03

scale 3/4



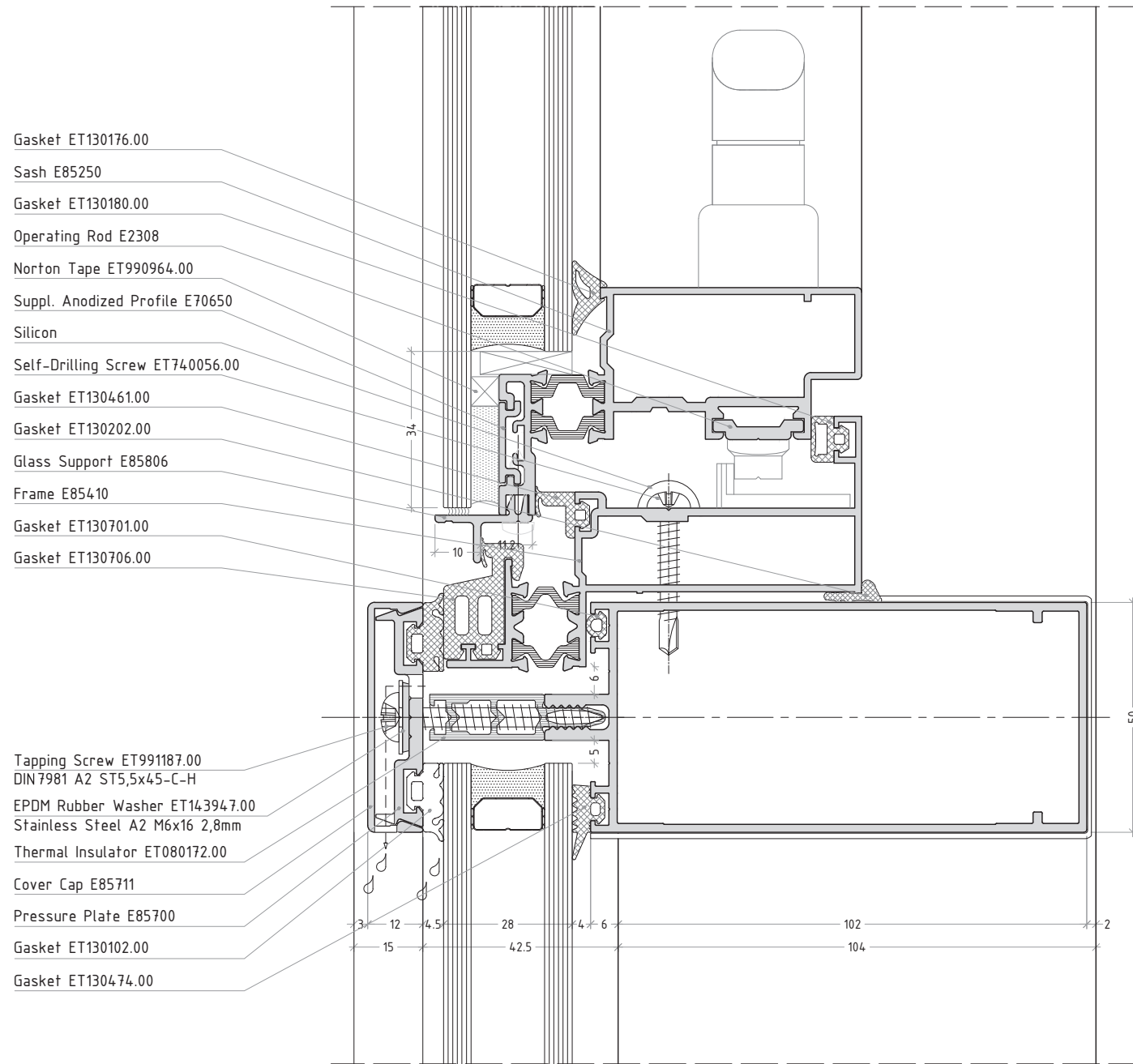
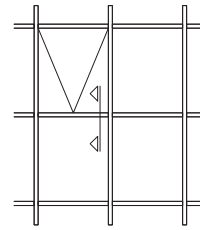
EF50\_SF5.1\_04

scale 3/4



EF50\_SF5.1\_05

scale 3/4

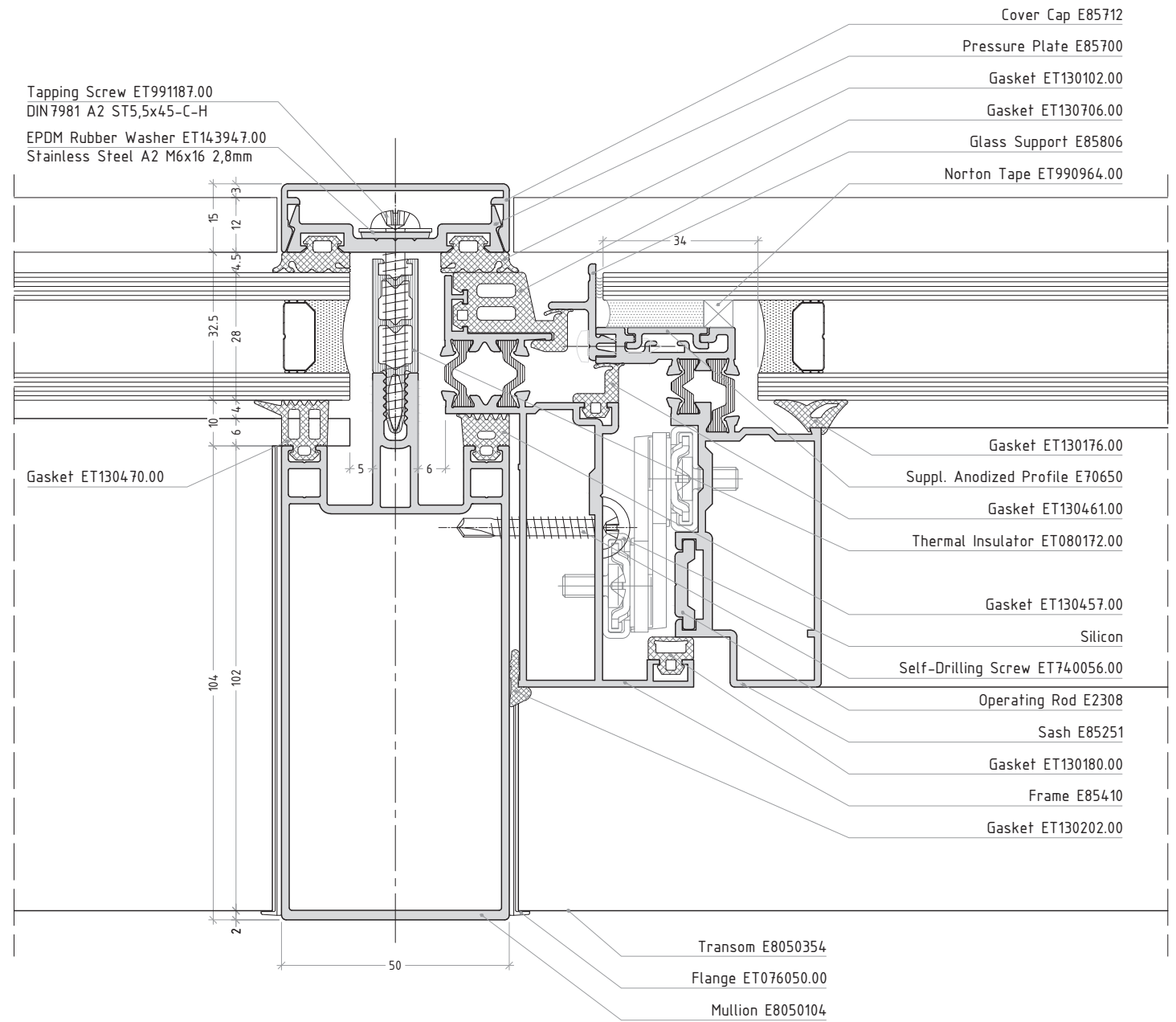
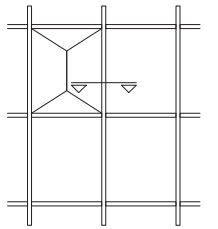


- Gasket ET130176.00
- Sash E85250
- Gasket ET130180.00
- Operating Rod E2308
- Norton Tape ET990964.00
- Suppl. Anodized Profile E70650
- Silicon
- Self-Drilling Screw ET740056.00
- Gasket ET130461.00
- Gasket ET130202.00
- Glass Support E85806
- Frame E85410
- Gasket ET130701.00
- Gasket ET130706.00

- Tapping Screw ET991187.00  
DIN 7981 A2 ST5,5x45-C-H
- EPDM Rubber Washer ET143947.00  
Stainless Steel A2 M6x16 2,8mm
- Thermal Insulator ET080172.00
- Cover Cap E85711
- Pressure Plate E85700
- Gasket ET130102.00
- Gasket ET130474.00

EF50\_SF5.1\_06

scale 3/4



- Tapping Screw ET991187.00  
DIN 7981 A2 ST5,5x45-C-H
- EPDM Rubber Washer ET143947.00  
Stainless Steel A2 M6x16 2,8mm

- Gasket ET130470.00

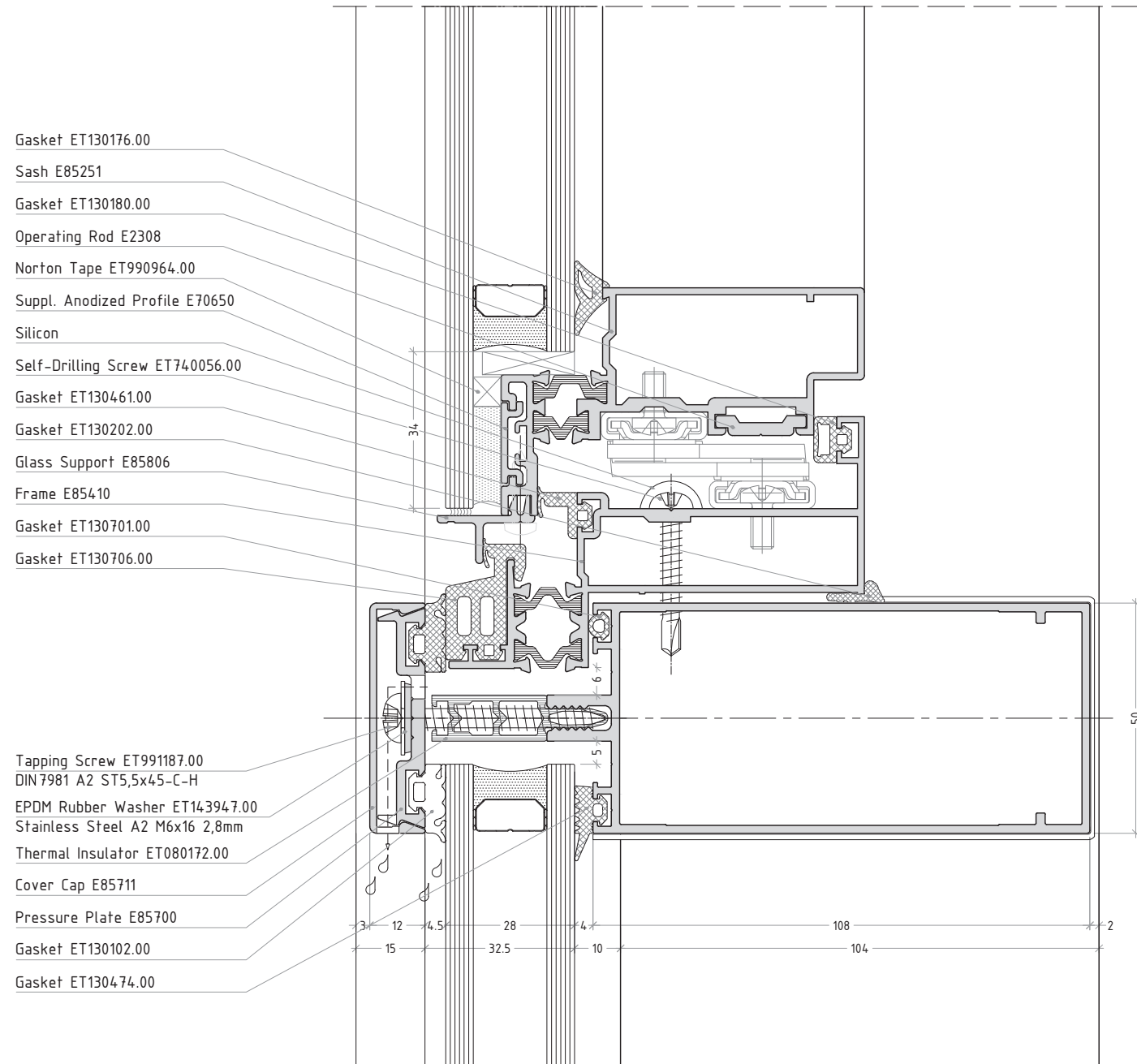
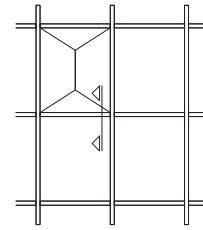
- Cover Cap E85712
- Pressure Plate E85700
- Gasket ET130102.00
- Gasket ET130706.00
- Glass Support E85806
- Norton Tape ET990964.00

- Gasket ET130176.00
- Suppl. Anodized Profile E70650
- Gasket ET130461.00
- Thermal Insulator ET080172.00
- Gasket ET130457.00
- Silicon
- Self-Drilling Screw ET740056.00
- Operating Rod E2308
- Sash E85251
- Gasket ET130180.00
- Frame E85410
- Gasket ET130202.00

- Transom E8050354
- Flange ET076050.00
- Mullion E8050104

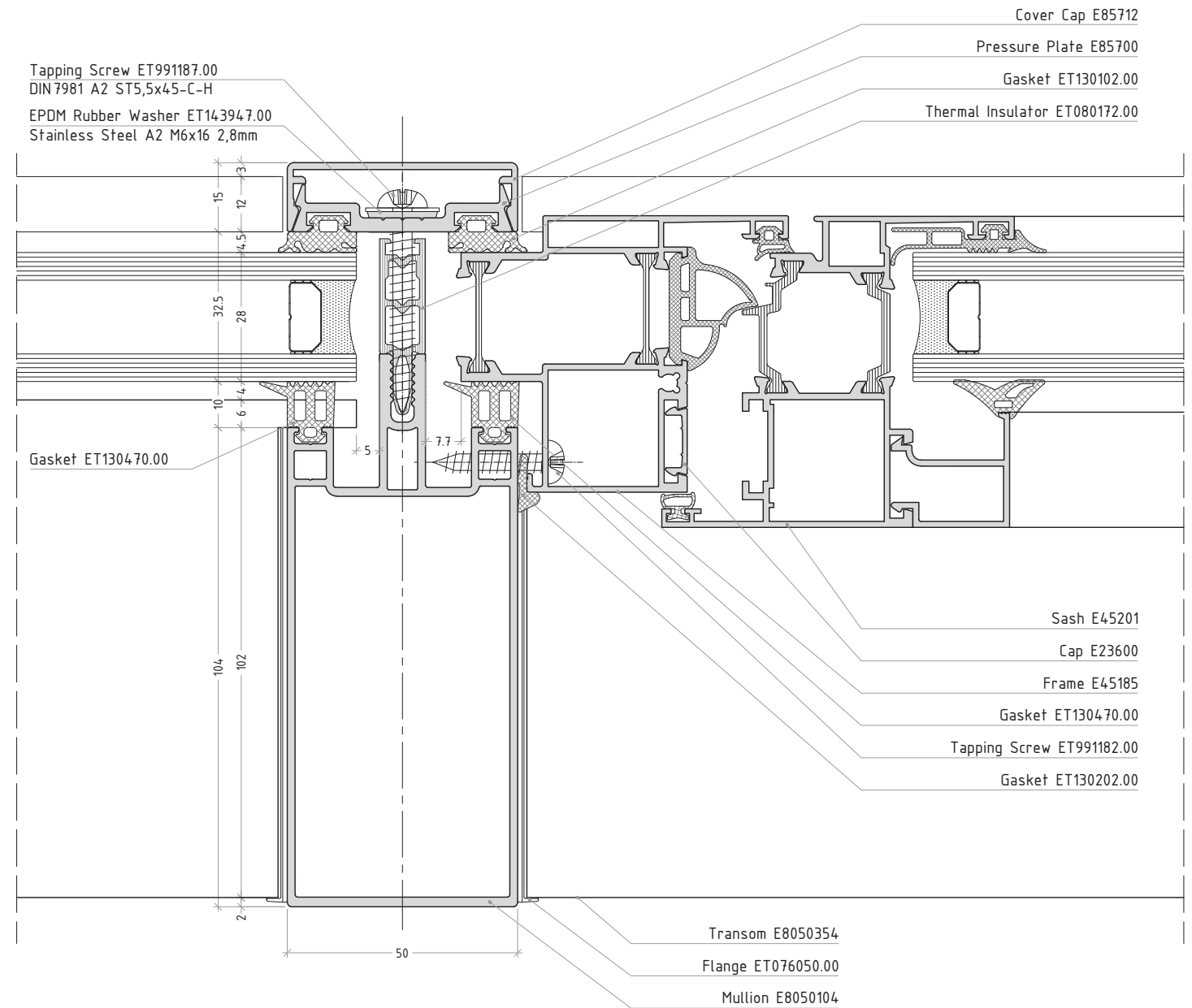
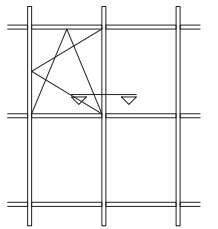
EF50\_SF5.1\_07

scale 3/4



EF50\_SF5.1\_08

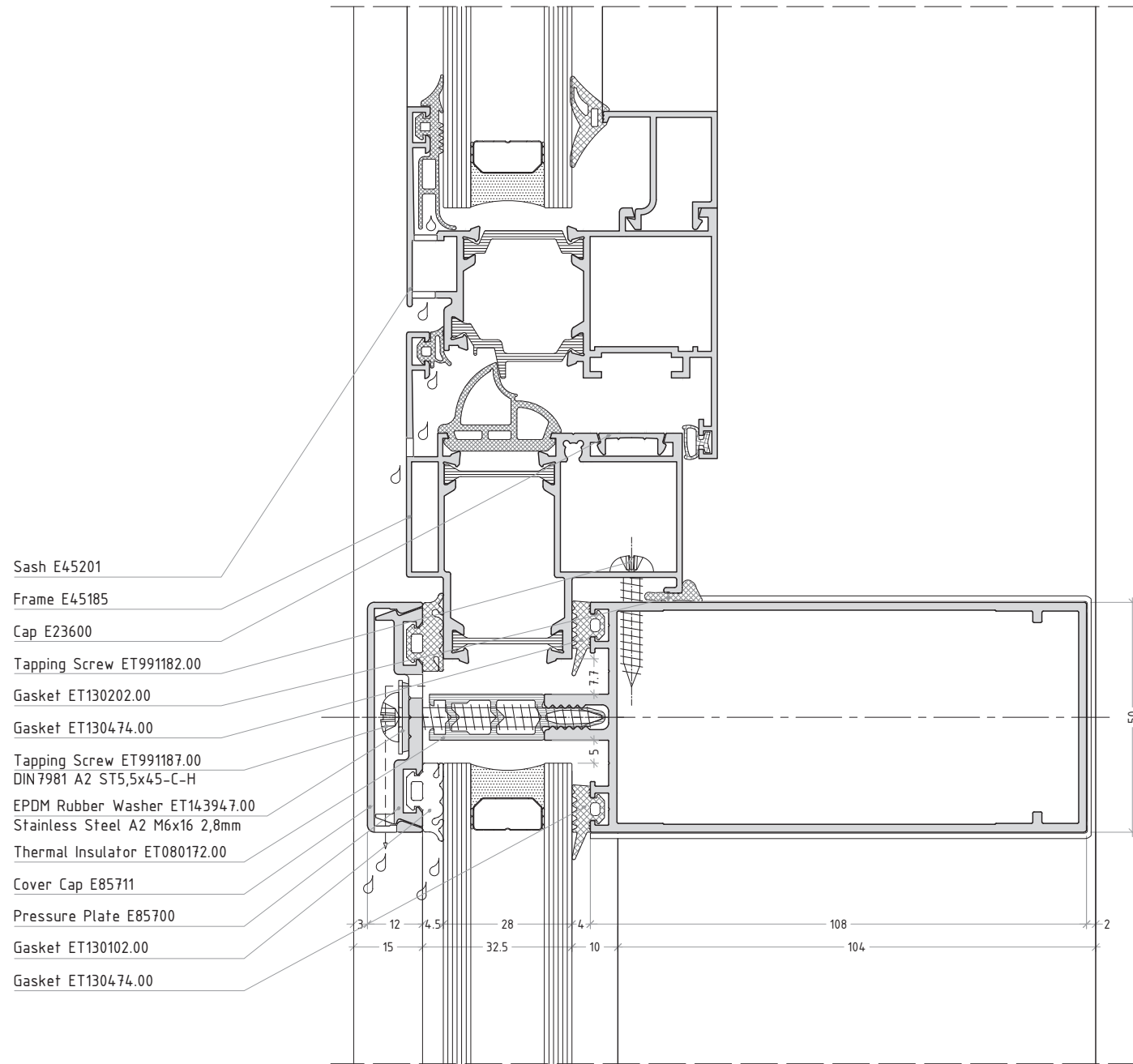
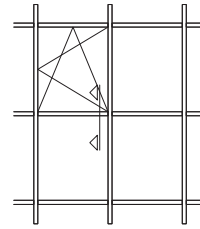
scale 3/4



EF50\_SF5.1\_09

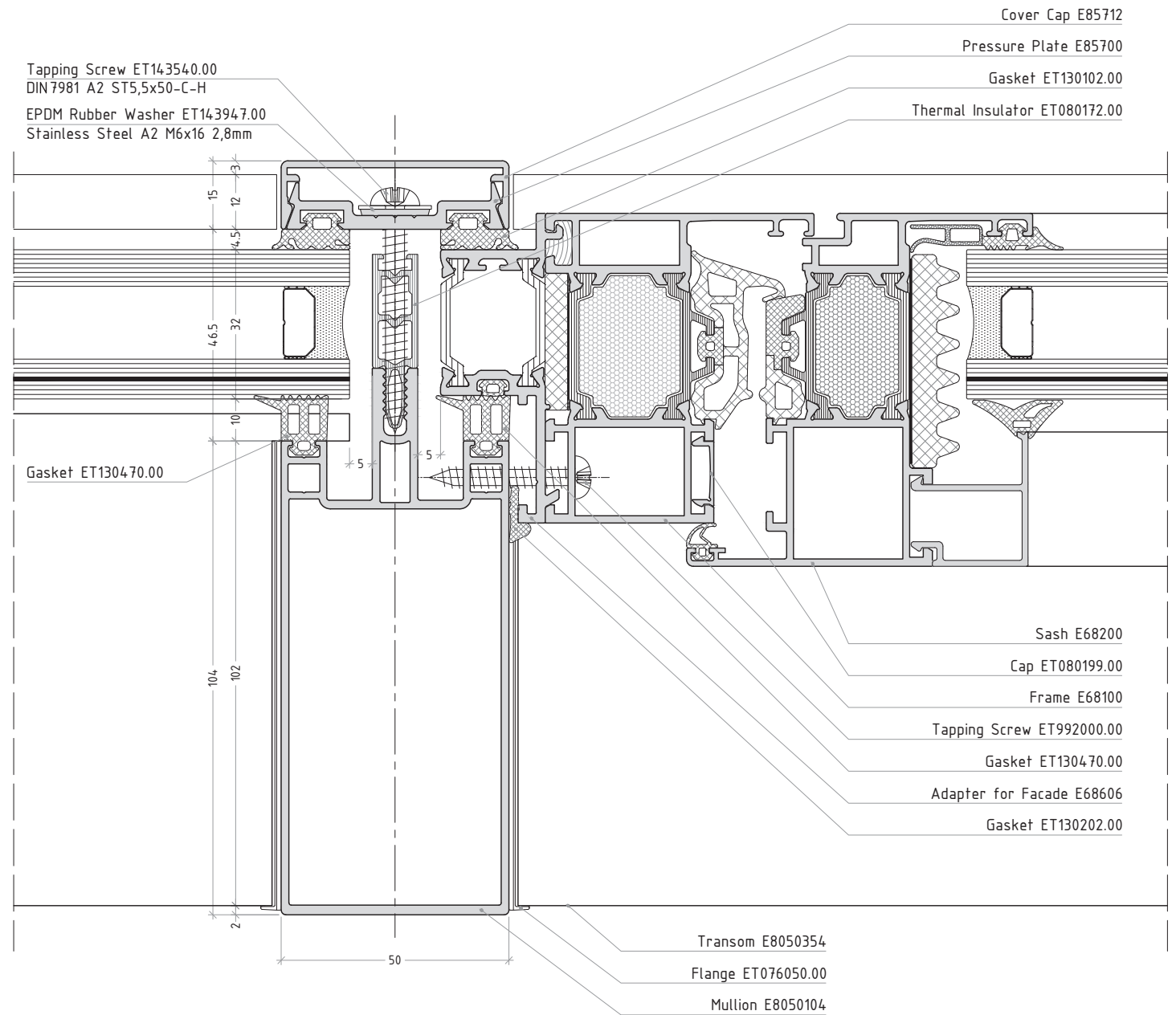
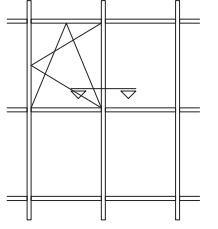
scale 3/4





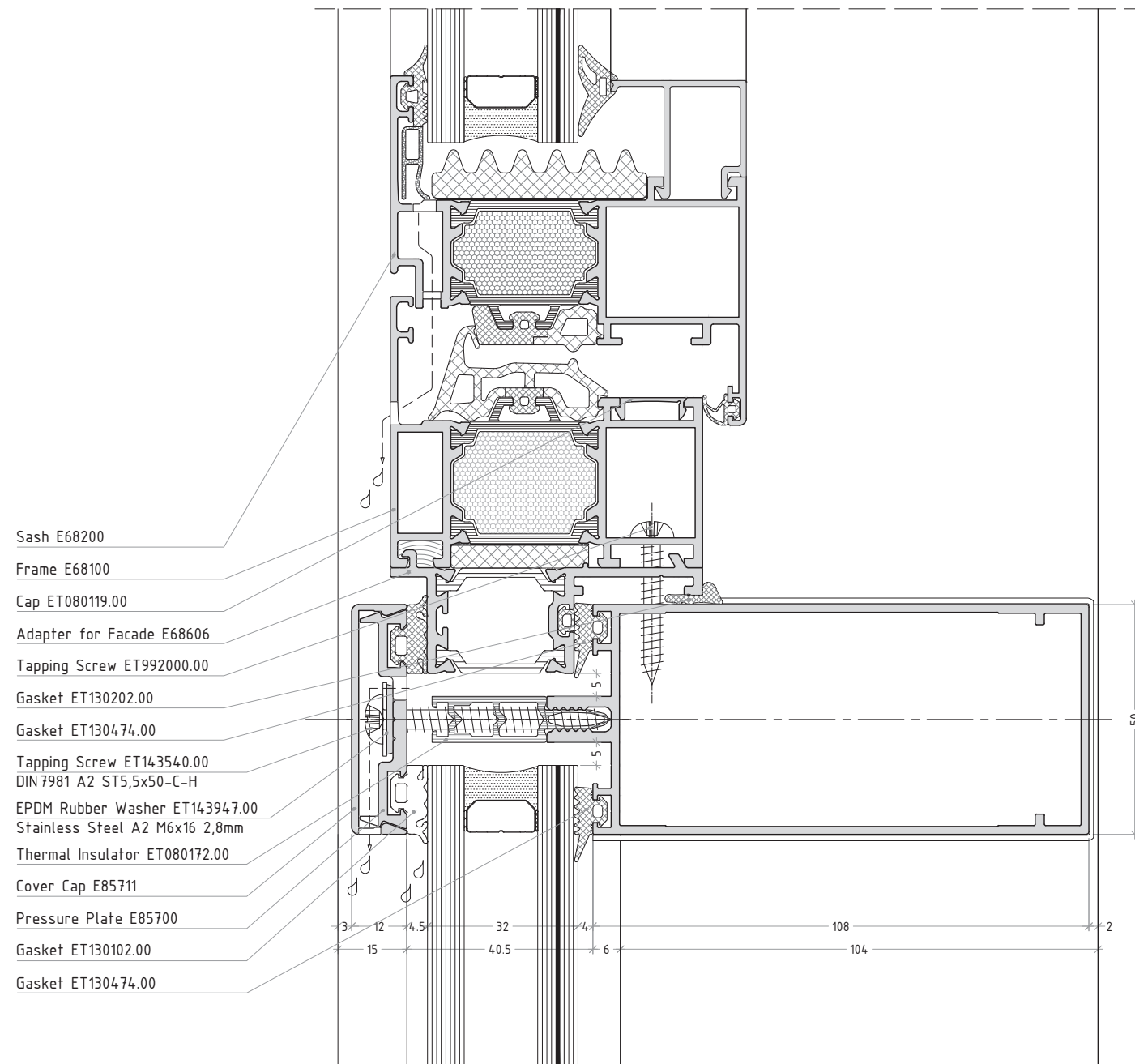
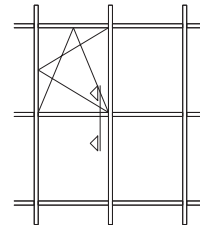
EF50\_SF5.1\_10

scale 3/4



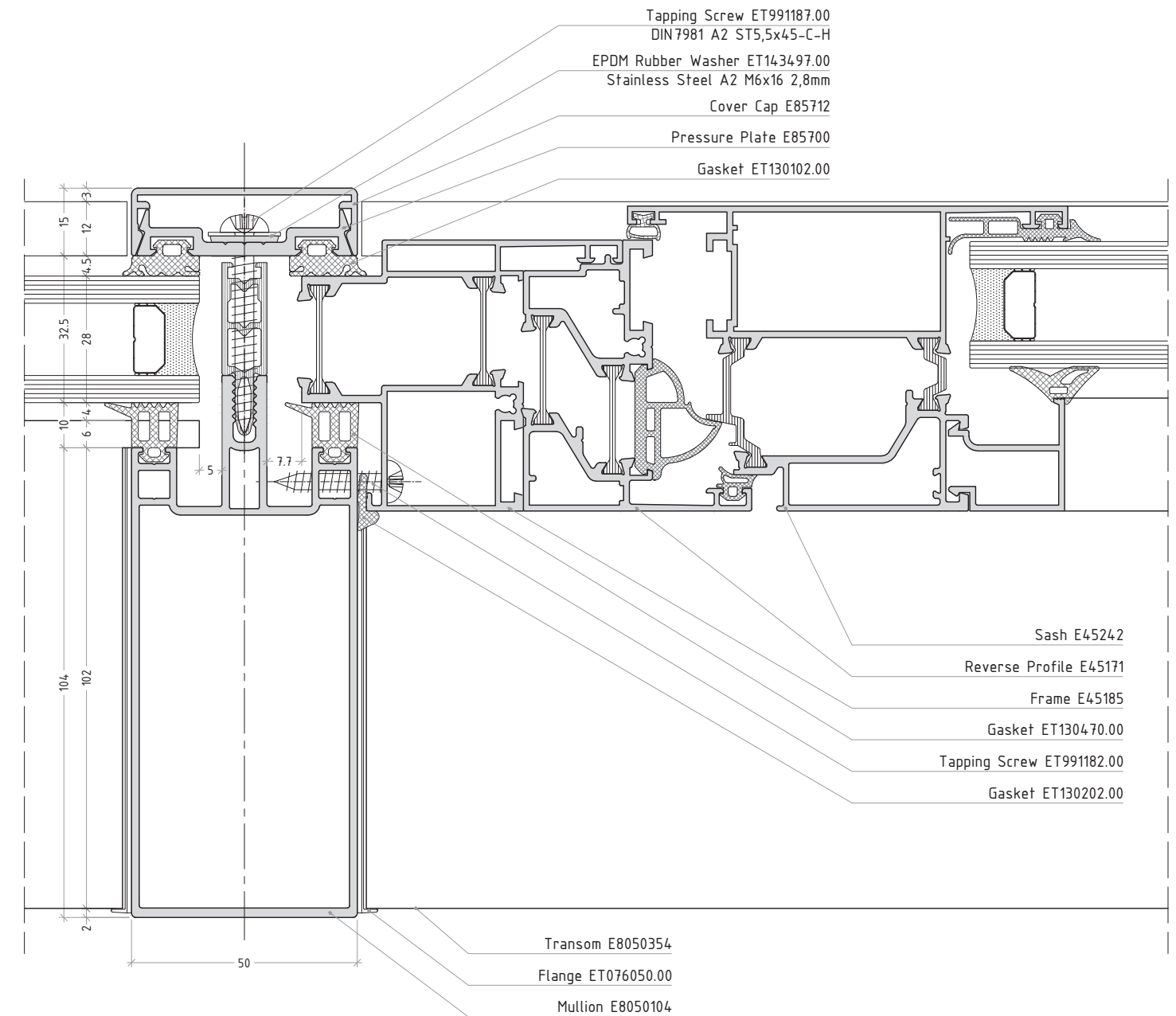
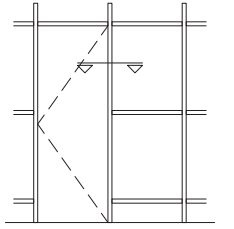
scale 3/4

EF50\_SF5.1\_11



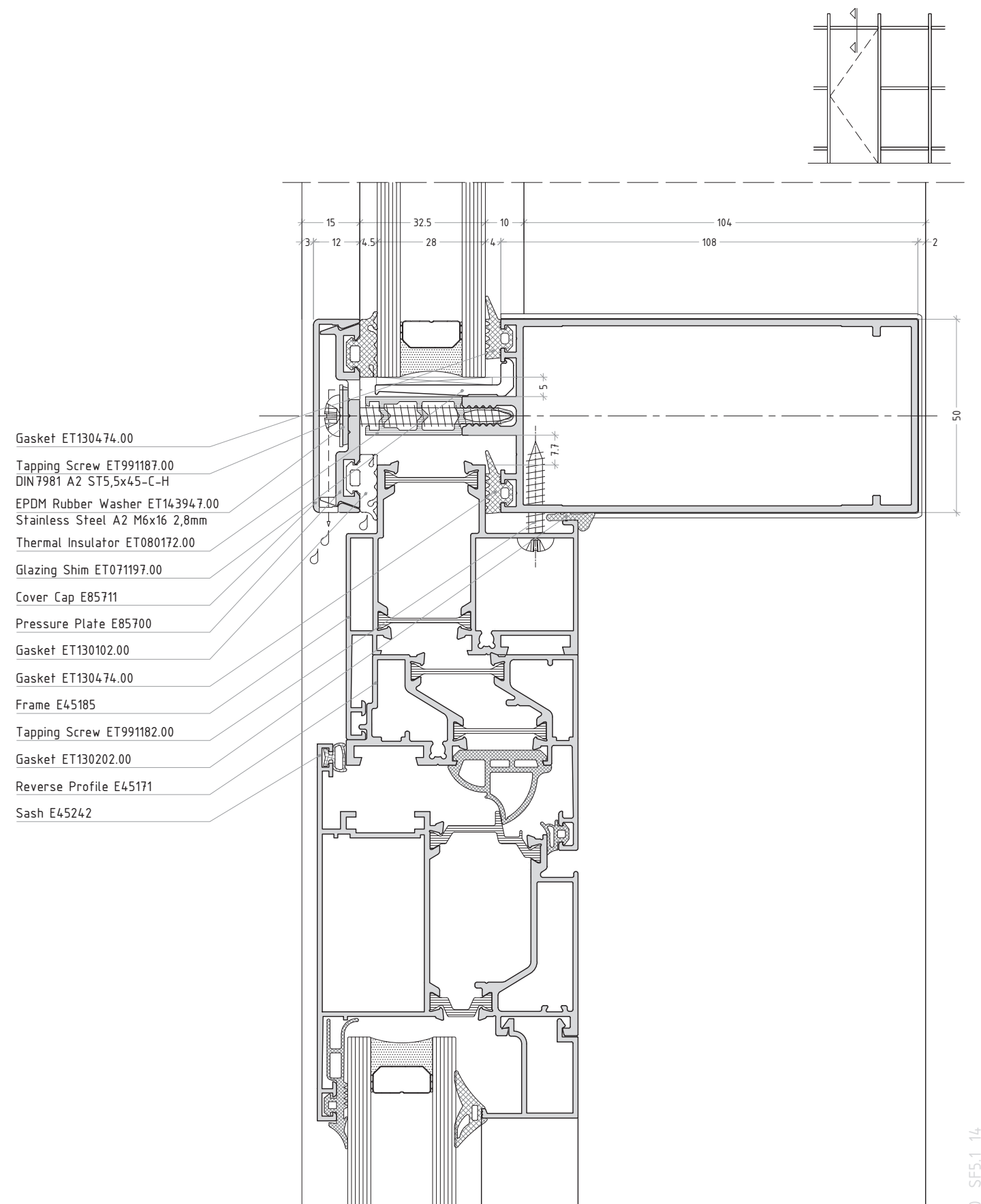
EF50\_SF5.1\_12

scale 3/4



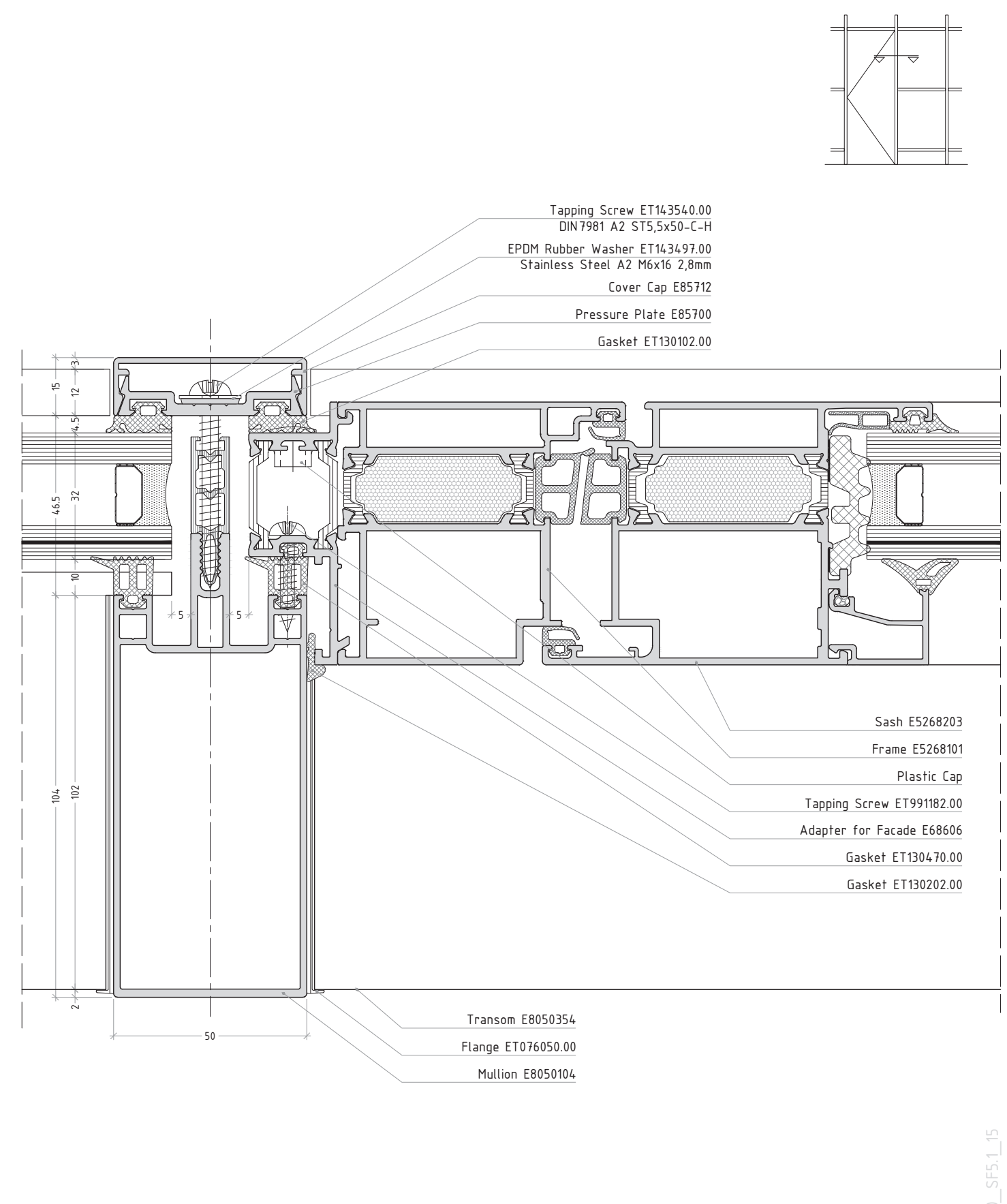
EF50\_SF5.1\_13

scale 3/4



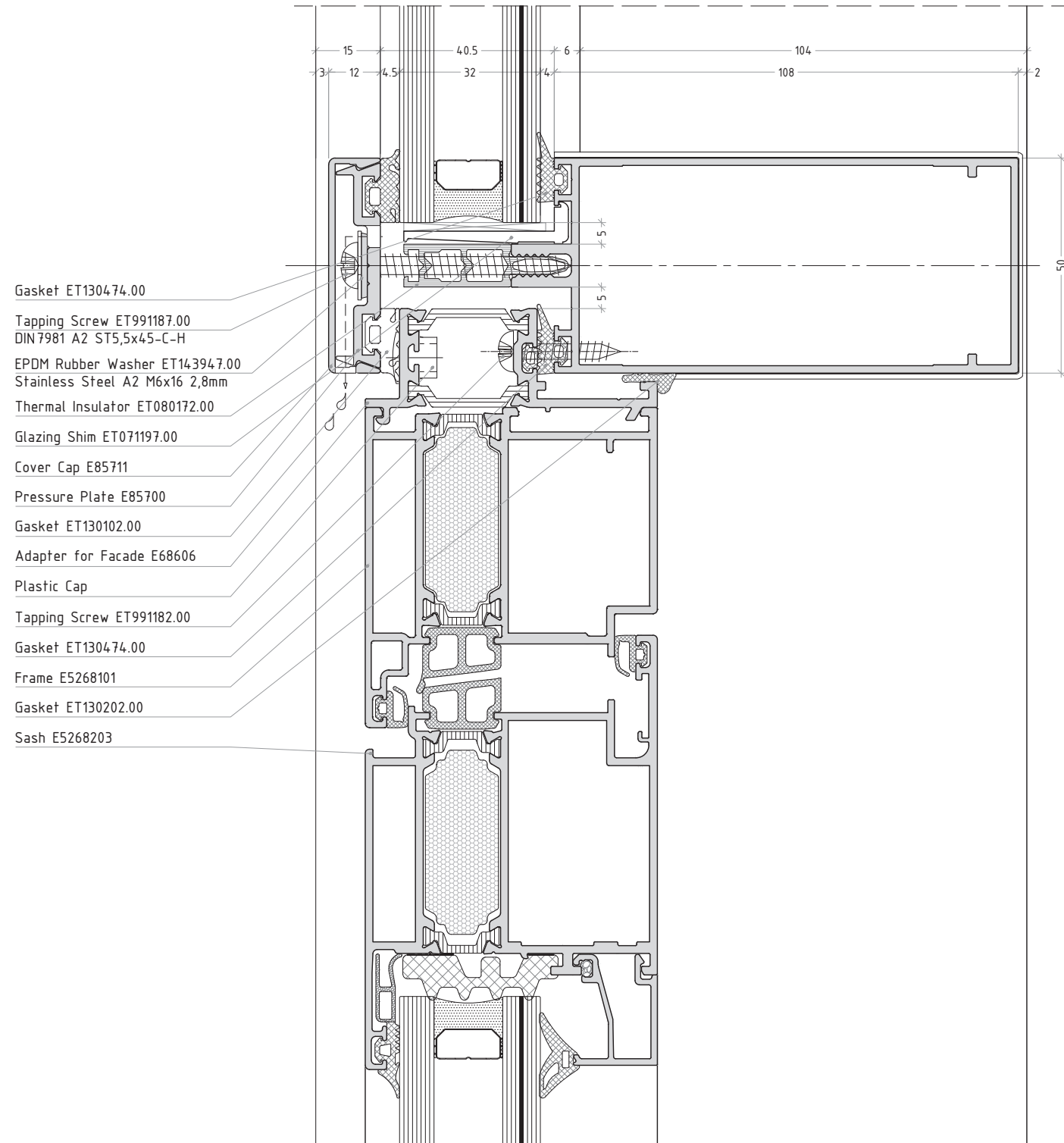
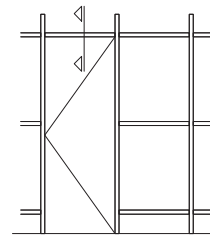
EF50\_SF5.1\_14

scale 3/4



EF50\_SF5.1\_15

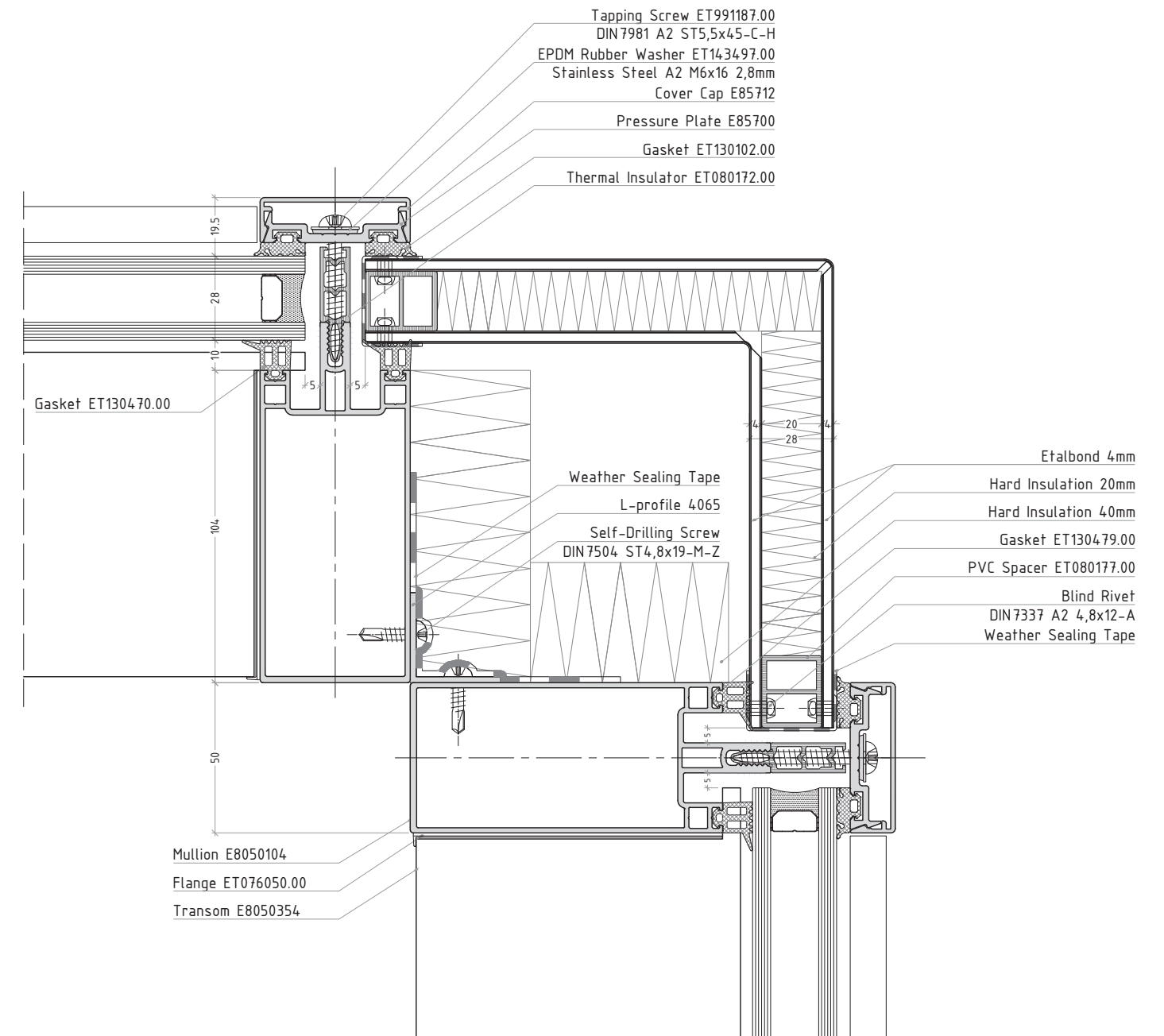
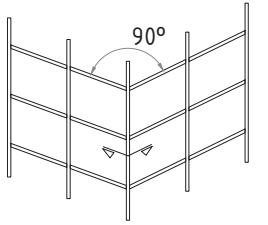
scale 3/4



EF50\_SF5.1\_16

scale 3/4

outer corner 90°



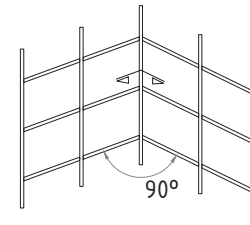
EF50\_SF5.1\_19

Note:  
PVC spacer ET080177.00 should be welded in the corners of the frame  
scale 1/2

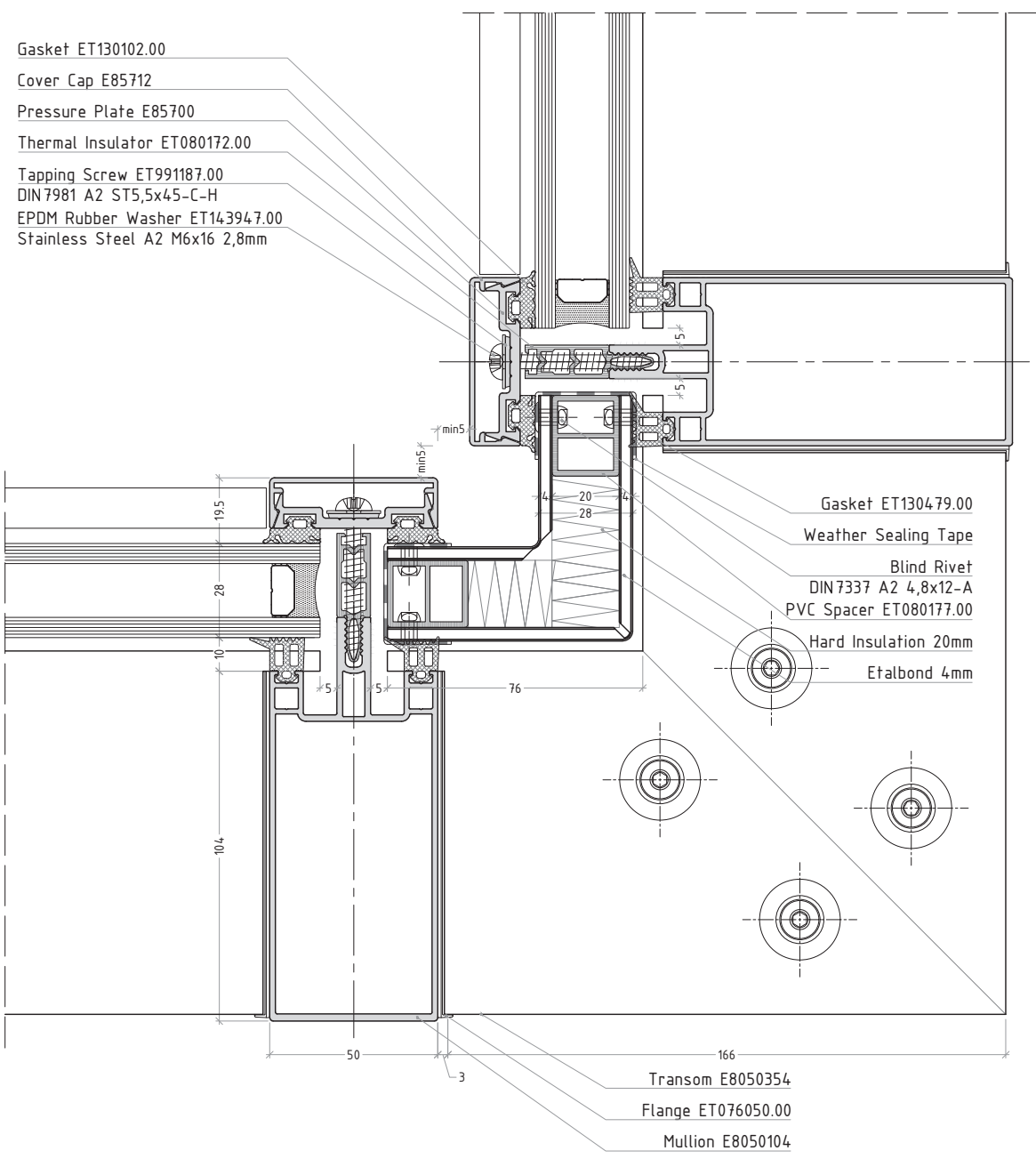
curtain wall system

EF50

inner corner 90°



- Gasket ET130102.00
- Cover Cap E85712
- Pressure Plate E85700
- Thermal Insulator ET080172.00
- Tapping Screw ET991187.00  
DIN 7981 A2 ST5,5x45-C-H
- EPDM Rubber Washer ET143947.00
- Stainless Steel A2 M6x16 2,8mm



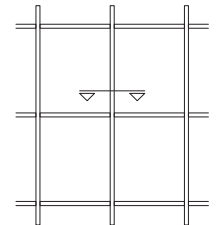
scale 1/2

EF50\_SF5.1\_21

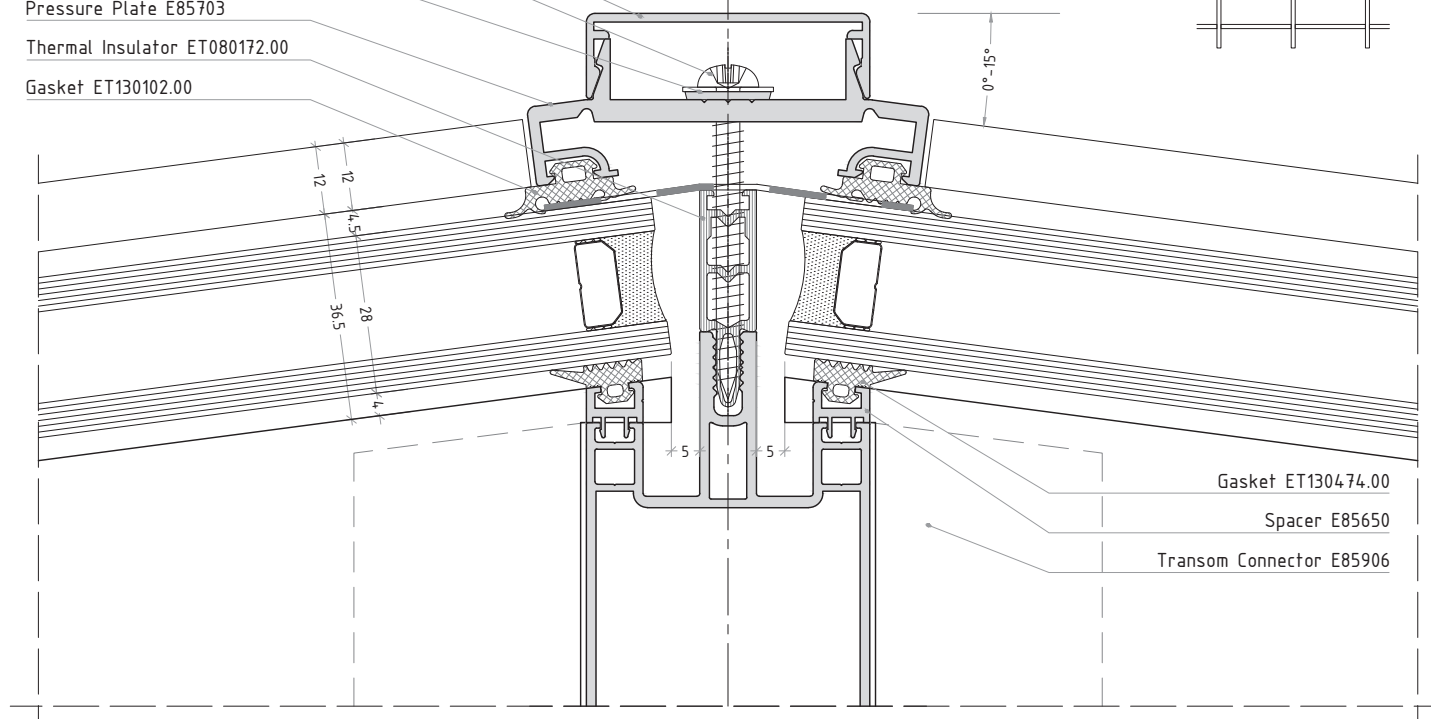
curtain wall system

EF50

pressure plate for outer angle 5°-15°

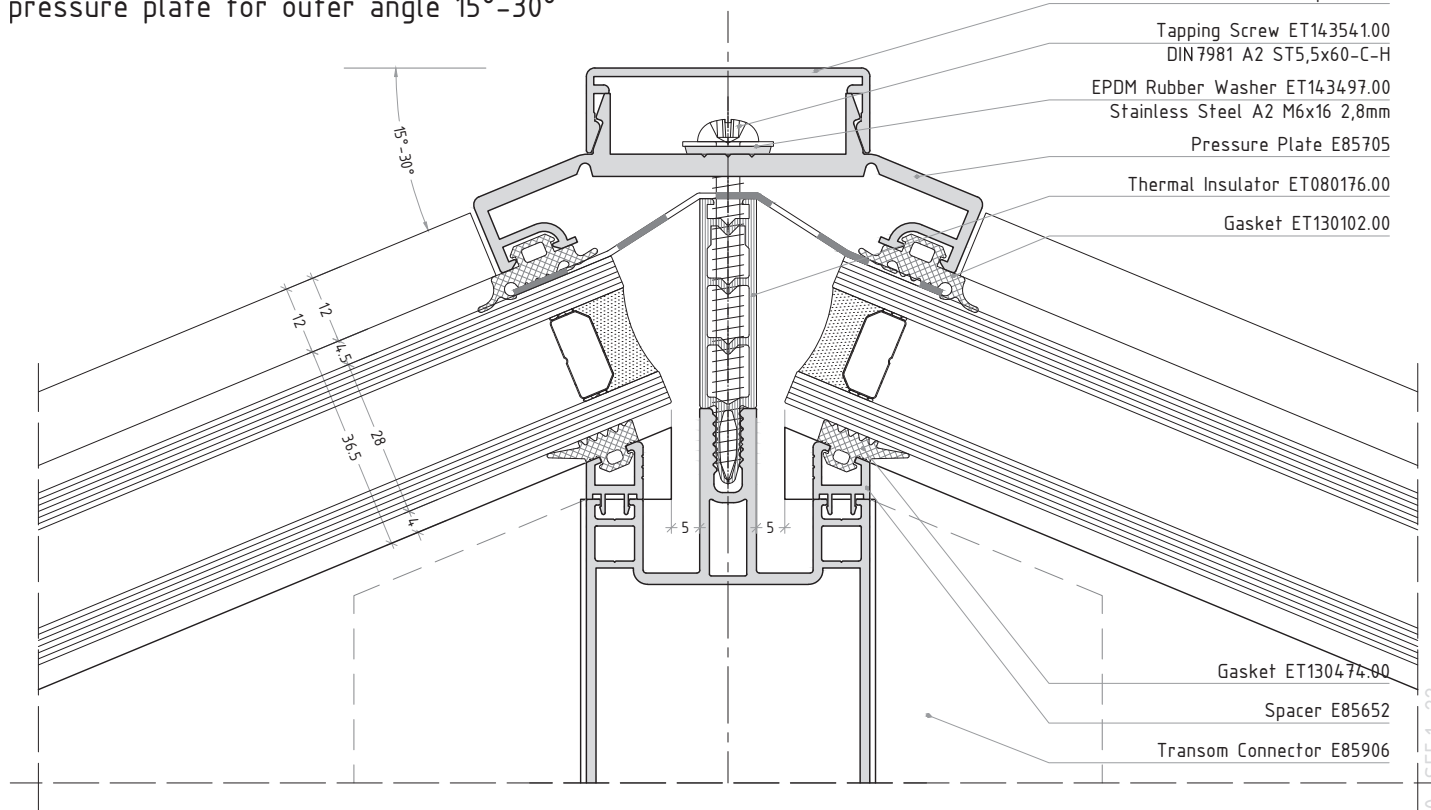


- Cover Cap E85712
- Tapping Screw ET991187.00  
DIN 7981 A2 ST5,5x45-C-H
- EPDM Rubber Washer ET143947.00
- Stainless Steel A2 M6x16 2,8mm
- Pressure Plate E85703
- Thermal Insulator ET080172.00
- Gasket ET130102.00



pressure plate for outer angle 15°-30°

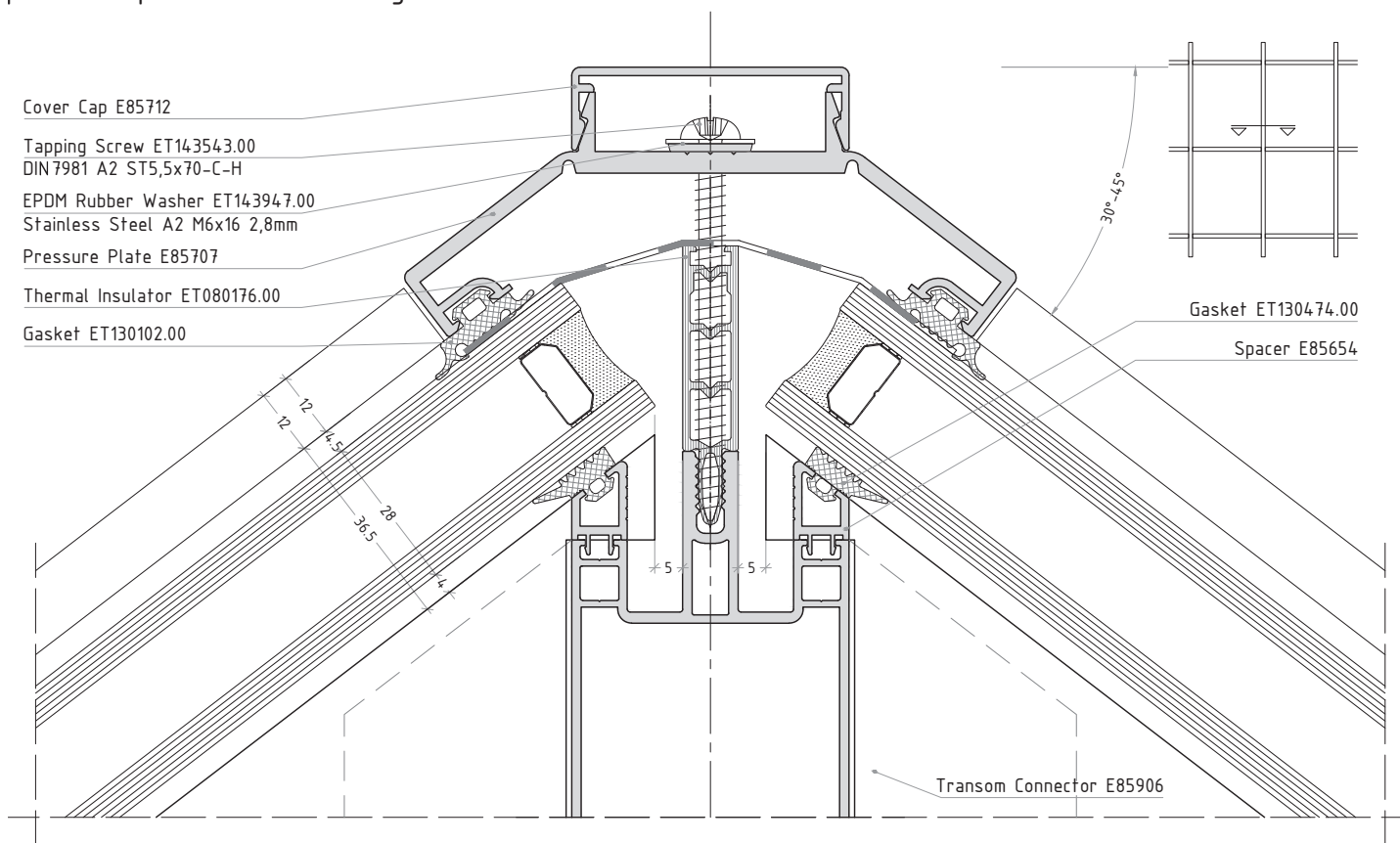
- Cover Cap E85712
- Tapping Screw ET143541.00  
DIN 7981 A2 ST5,5x60-C-H
- EPDM Rubber Washer ET143497.00
- Stainless Steel A2 M6x16 2,8mm
- Pressure Plate E85705
- Thermal Insulator ET080176.00
- Gasket ET130102.00



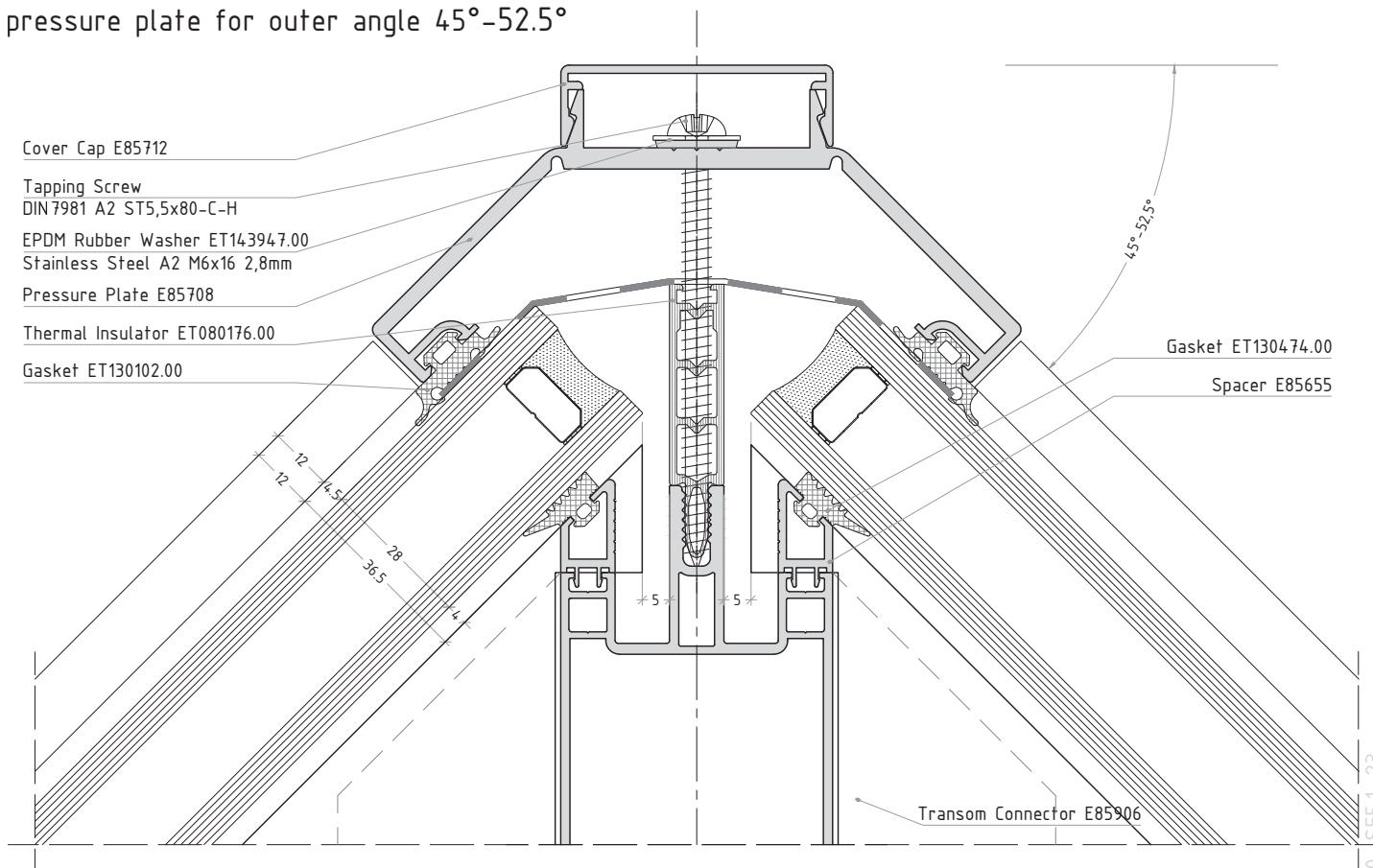
scale 3/4

EF50\_SF5.1\_22

pressure plate for outer angle 30°-45°



pressure plate for outer angle 45°-52.5°

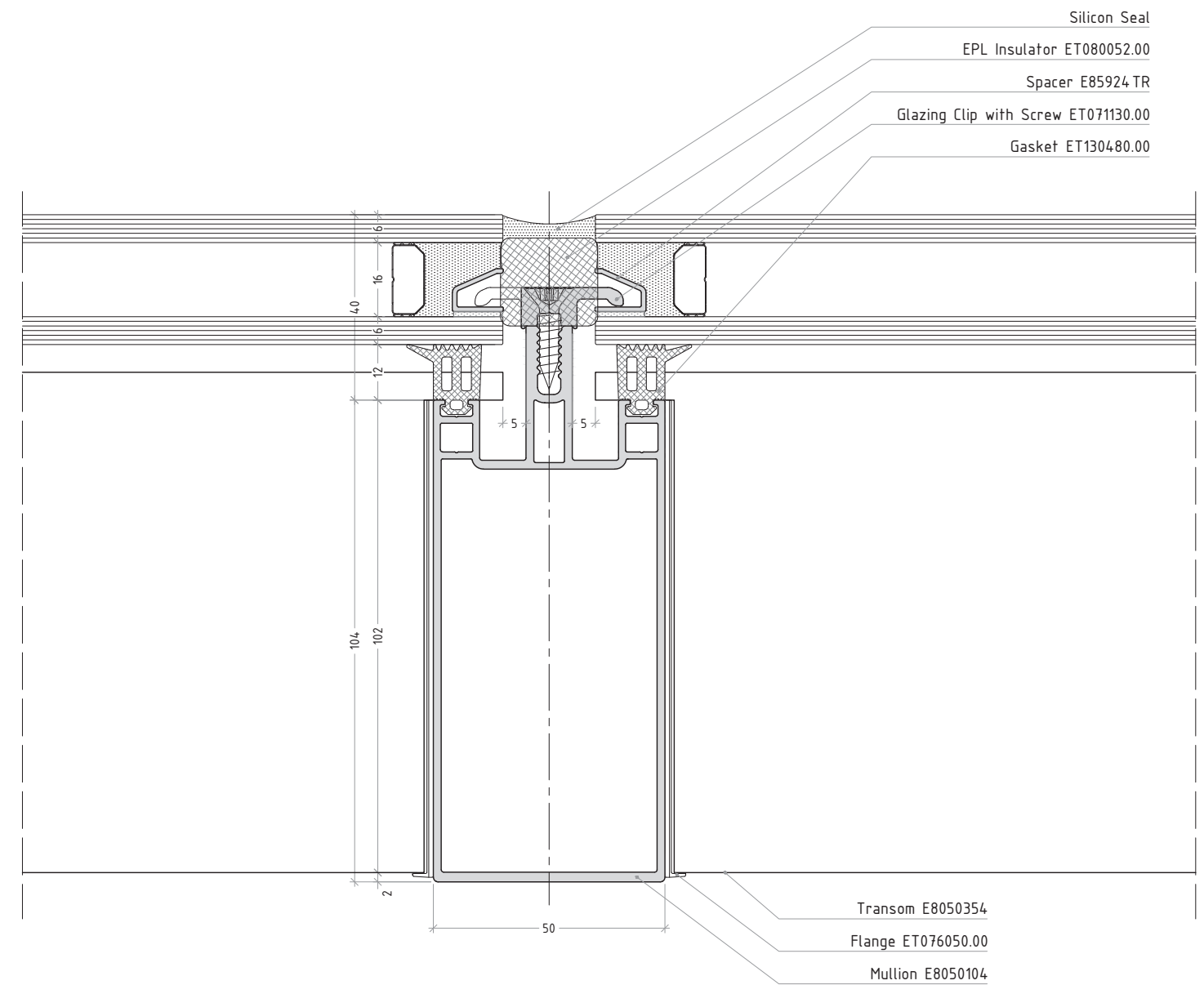
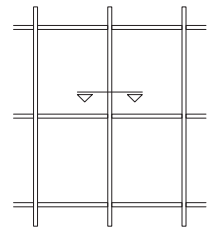


scale 3/4

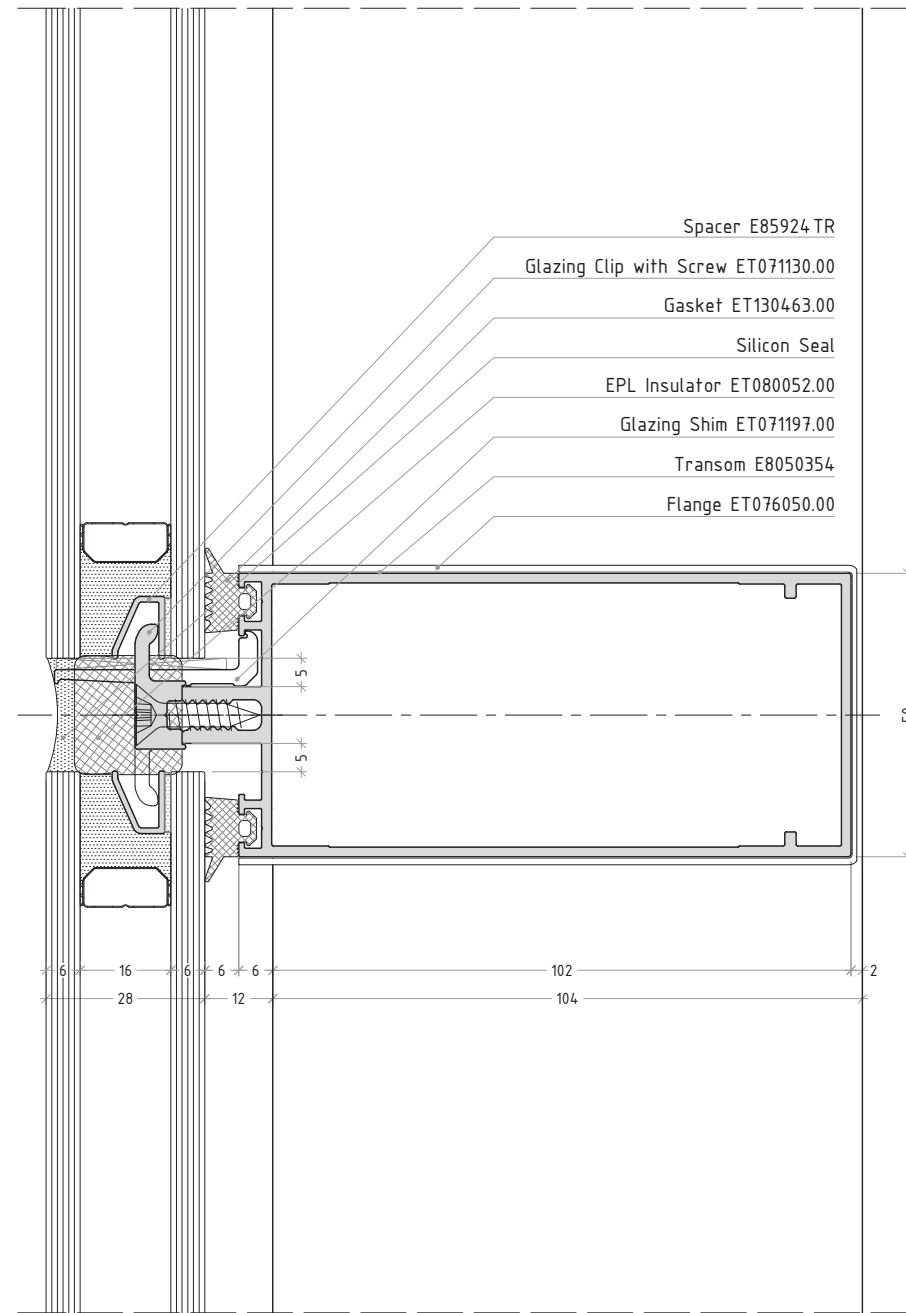
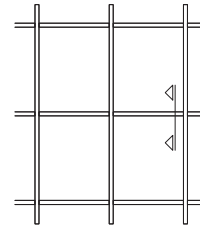
EF50\_SF5\_1\_Z3

# STRUCTURAL GLAZING

SECTIONS / DETAILS

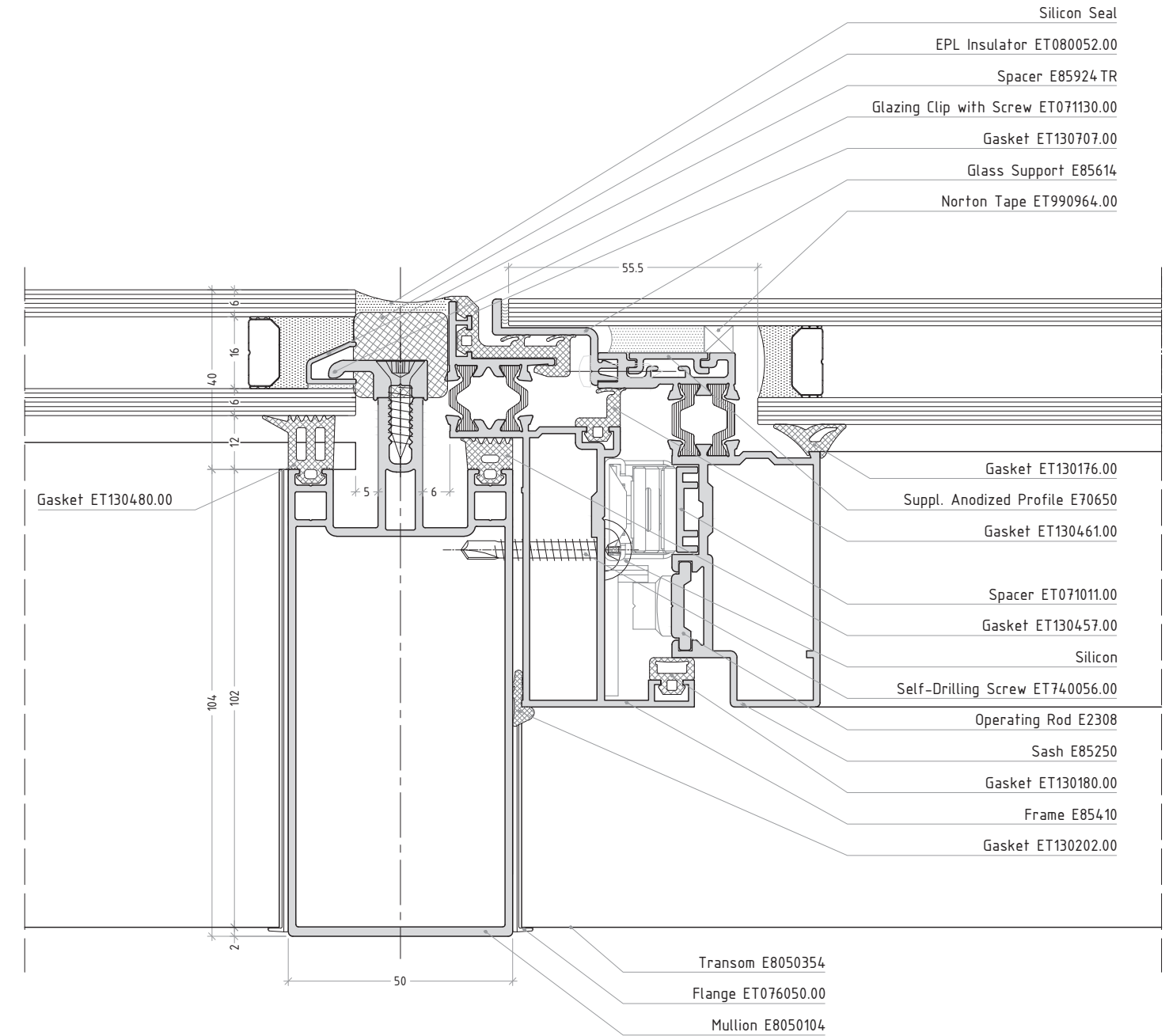
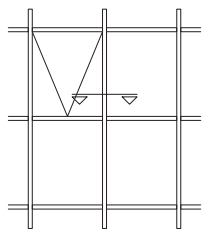


scale 3/4



EF50\_SG5.2\_02

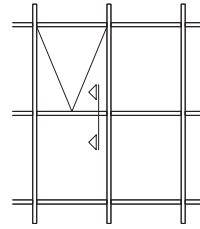
scale 3/4



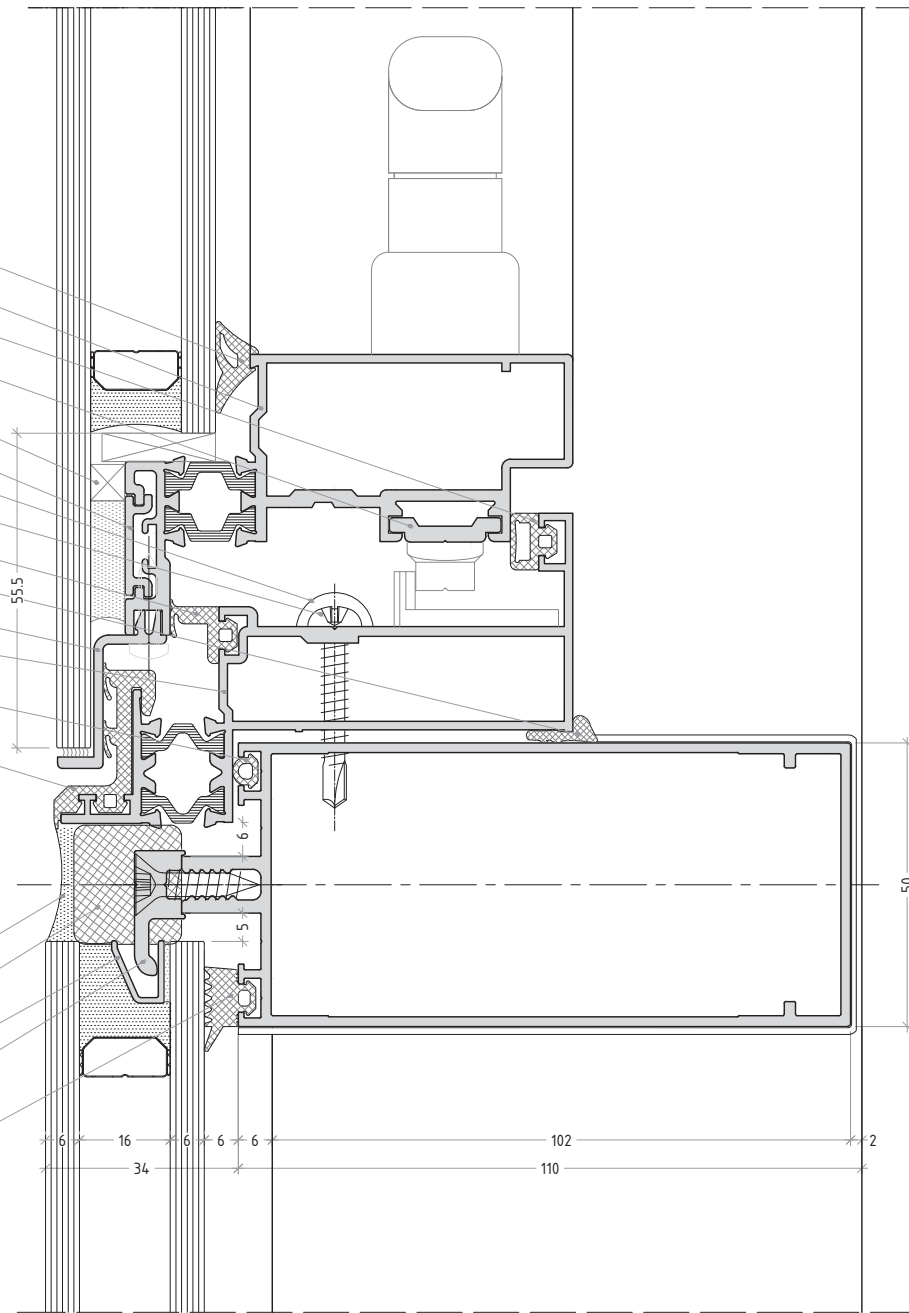
EF50\_SG5.2\_05

scale 3/4



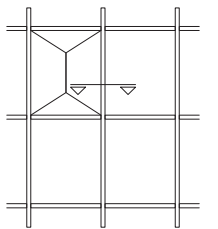


- Gasket ET130176.00
- Sash E85250
- Gasket ET130180.00
- Operating Rod E2308
- Norton Tape ET990964.00
- Suppl. Anodized Profile E70650
- Silicon
- Self-Drilling Screw ET740056.00
- Gasket ET130461.00
- Gasket ET130202.00
- Glass Support E85614
- Frame E85410
- Gasket ET130701.00
- Gasket ET130707.00
- Silicon Seal
- EPL Insulator ET080052.00
- Spacer E85924 TR
- Glazing Clip with Screw ET071130.00
- Gasket ET130463.00

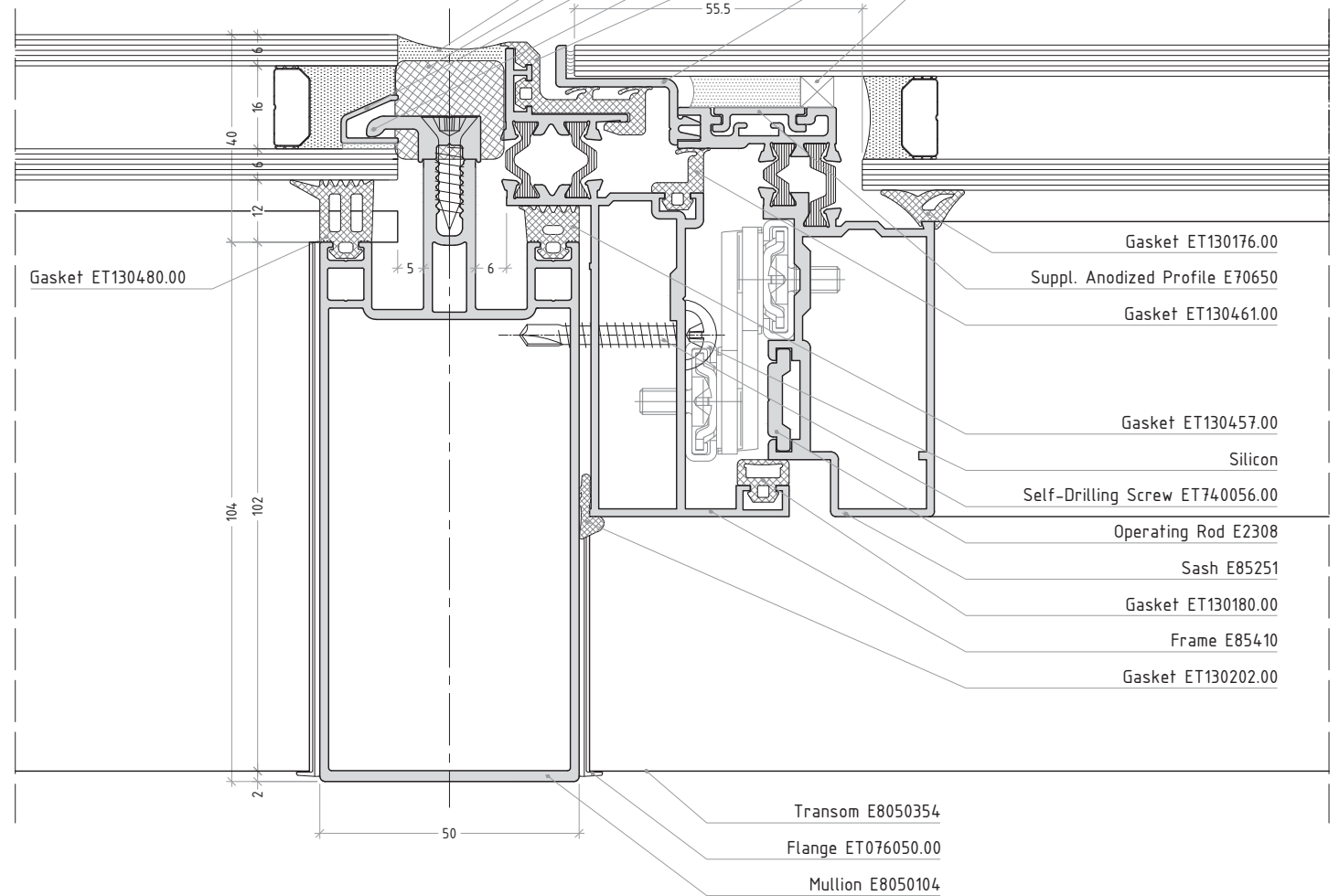


EF50\_SG5.2\_06

scale 3/4



- Silicon Seal
- EPL Insulator ET080052.00
- Spacer E85924 TR
- Glazing Clip with Screw ET071130.00
- Gasket ET130707.00
- Glass Support E85614
- Norton Tape ET990964.00

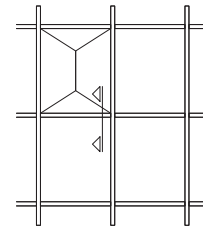


- Gasket ET130176.00
- Suppl. Anodized Profile E70650
- Gasket ET130461.00
- Gasket ET130457.00
- Silicon
- Self-Drilling Screw ET740056.00
- Operating Rod E2308
- Sash E85251
- Gasket ET130180.00
- Frame E85410
- Gasket ET130202.00

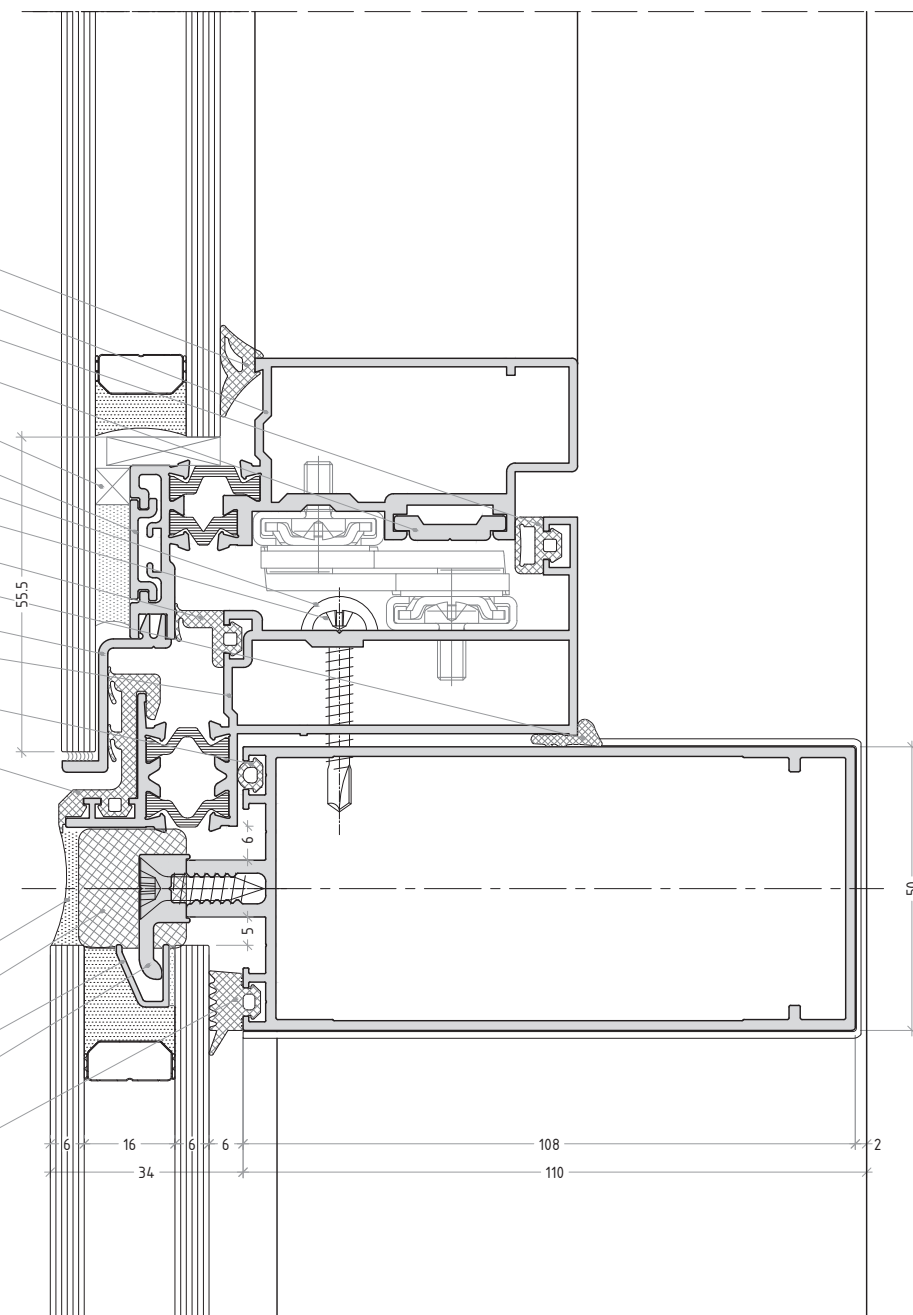
- Transom E8050354
- Flange ET076050.00
- Mullion E8050104

EF50\_SG5.2\_07

scale 3/4



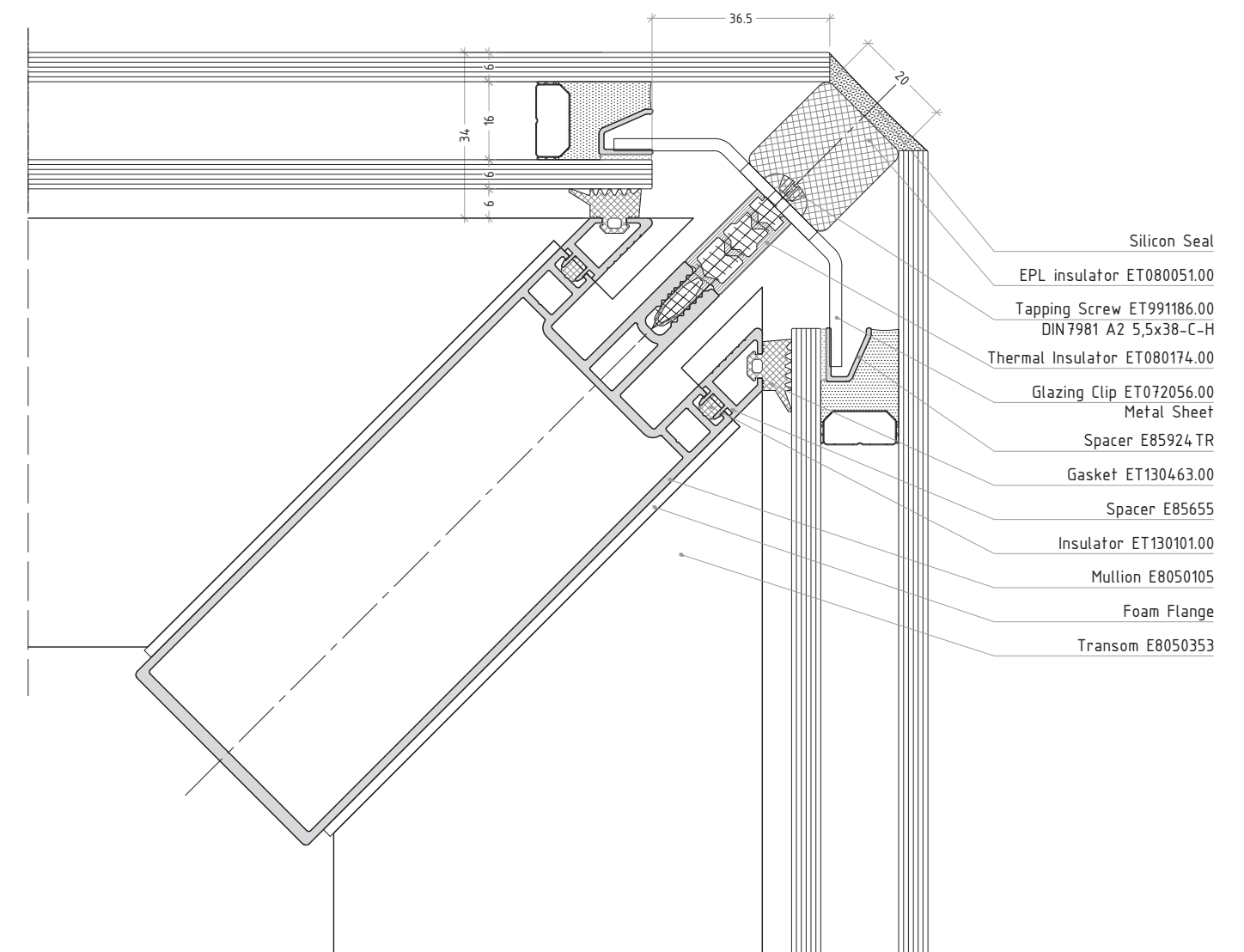
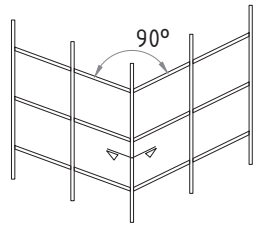
- Gasket ET130176.00
- Sash E85251
- Gasket ET130180.00
- Operating Rod E2308
- Norton Tape ET990964.00
- Suppl. Anodized Profile E70650
- Silicon
- Self-Drilling Screw ET740056.00
- Gasket ET130461.00
- Gasket ET130202.00
- Glass Support E85614
- Frame E85410
- Gasket ET130701.00
- Gasket ET130707.00
- Silicon Seal
- EPL Insulator ET080052.00
- Spacer E85924 TR
- Glazing Clip with Screw ET071130.00
- Gasket ET130463.00



EF50\_SG5.2\_08

scale 3/4

outer corner 90° with single mullion



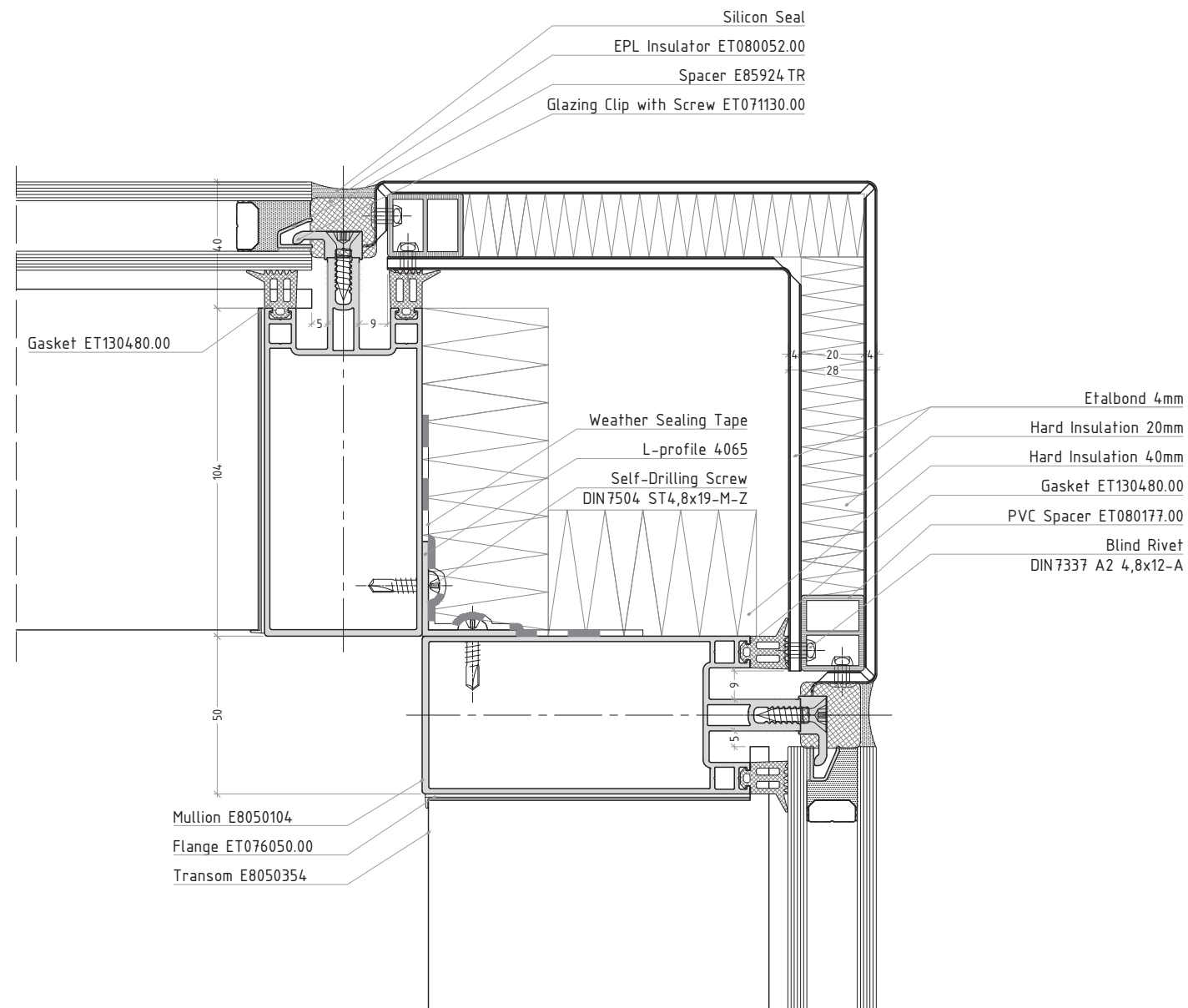
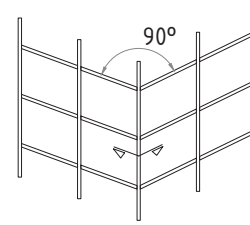
EF50\_SG5.2\_09

scale 3/4

curtain wall system

EF50

outer corner 90°



Note:  
PVC spacer ET080177.00 should be welded in the corners of the frame

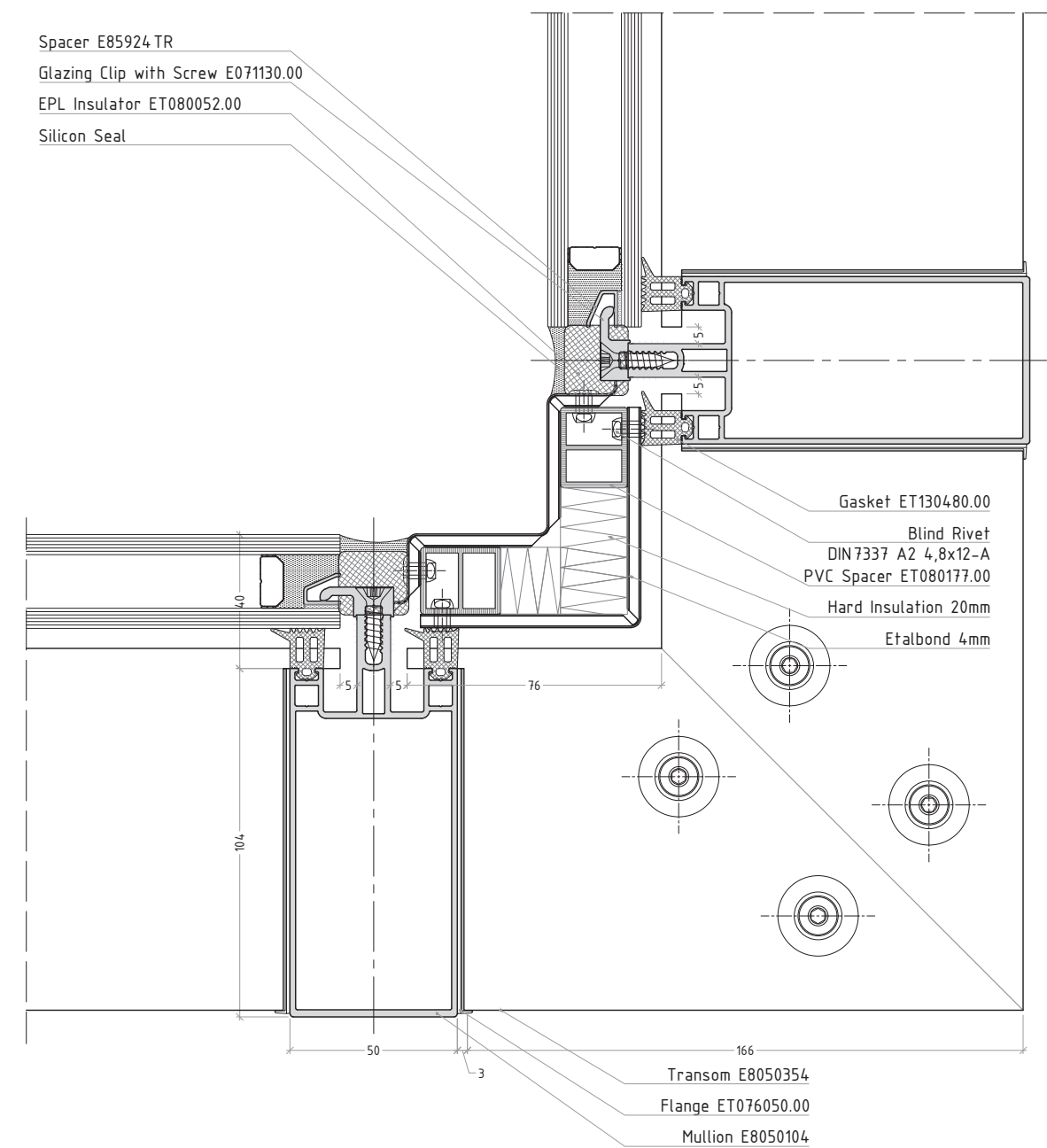
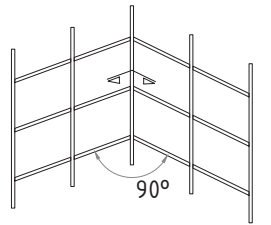
scale 1/2

EF50\_SG5.2\_10

curtain wall system

EF50

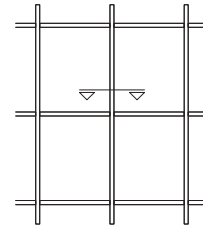
inner corner 90°



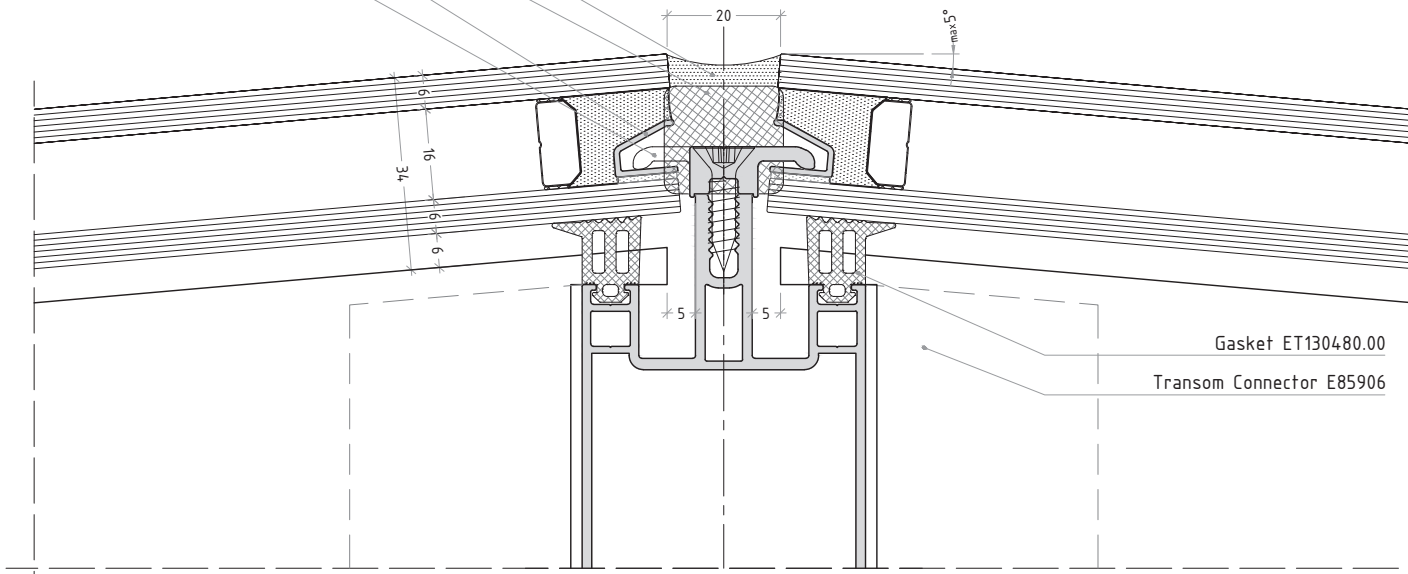
scale 1/2

EF50\_SG5.2\_11

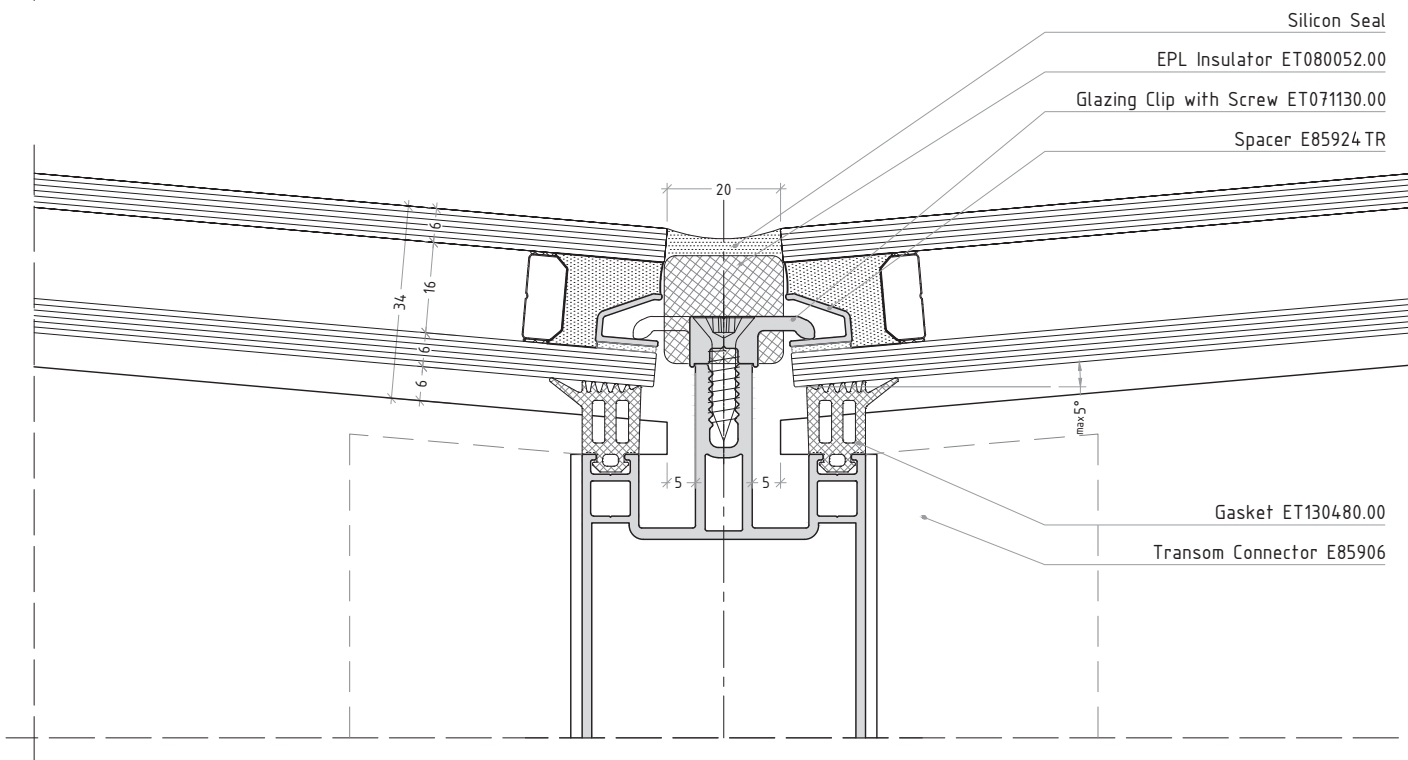
polygonal facade with angle up to 5°



- Silicon Seal
- EPL Insulator ET080052.00
- Spacer E85924 TR
- Glazing Clip with Screw ET071130.00



- Gasket ET130480.00
- Transom Connector E85906



- Silicon Seal
- EPL Insulator ET080052.00
- Glazing Clip with Screw ET071130.00
- Spacer E85924 TR

- Gasket ET130480.00
- Transom Connector E85906

Note:  
glazing clip ET071130.00 could be used for angles up to 5°  
greater angles are implemented by using bended metal sheet

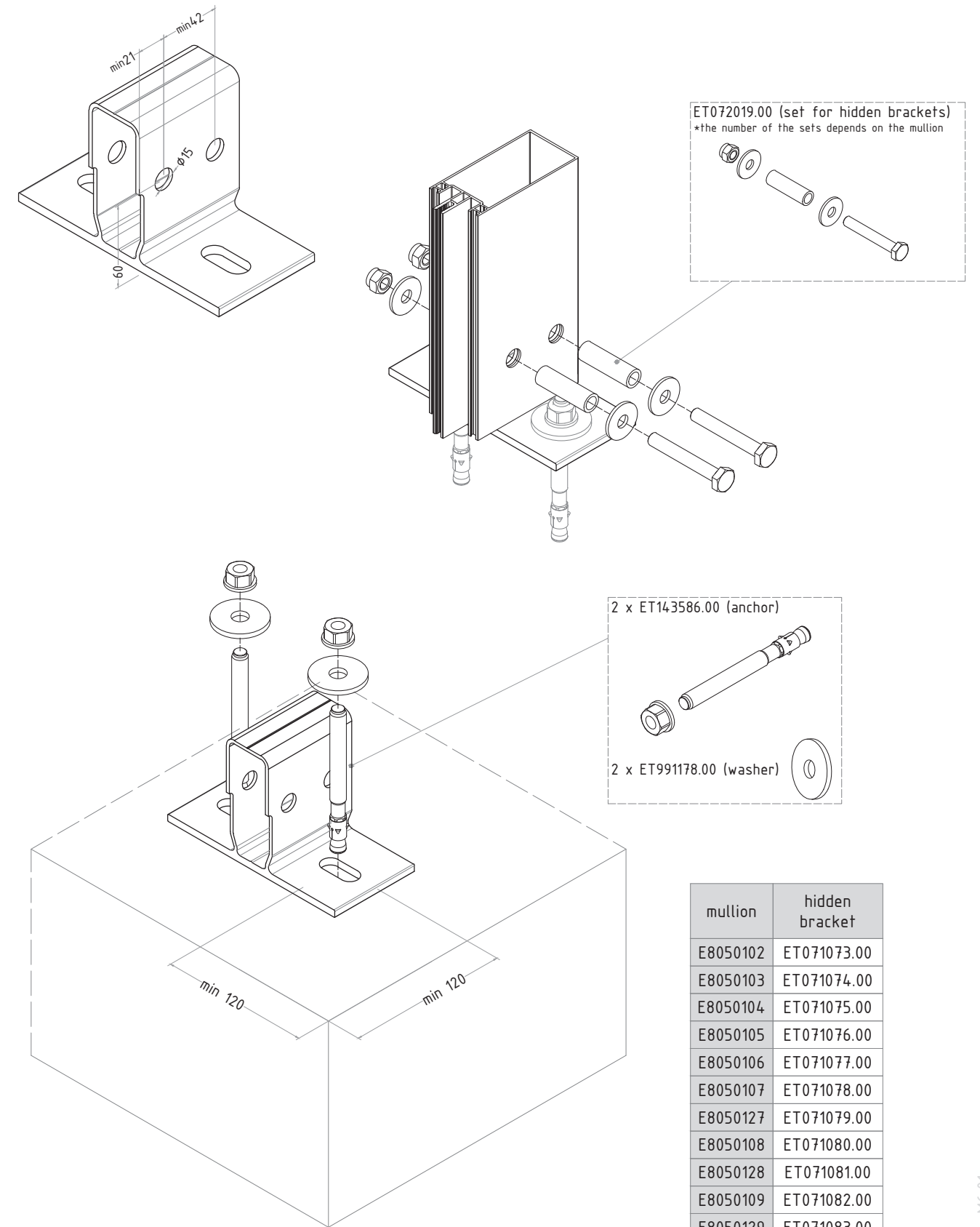
scale 3/4

EF50\_SG5.2\_12

# MACHININGS

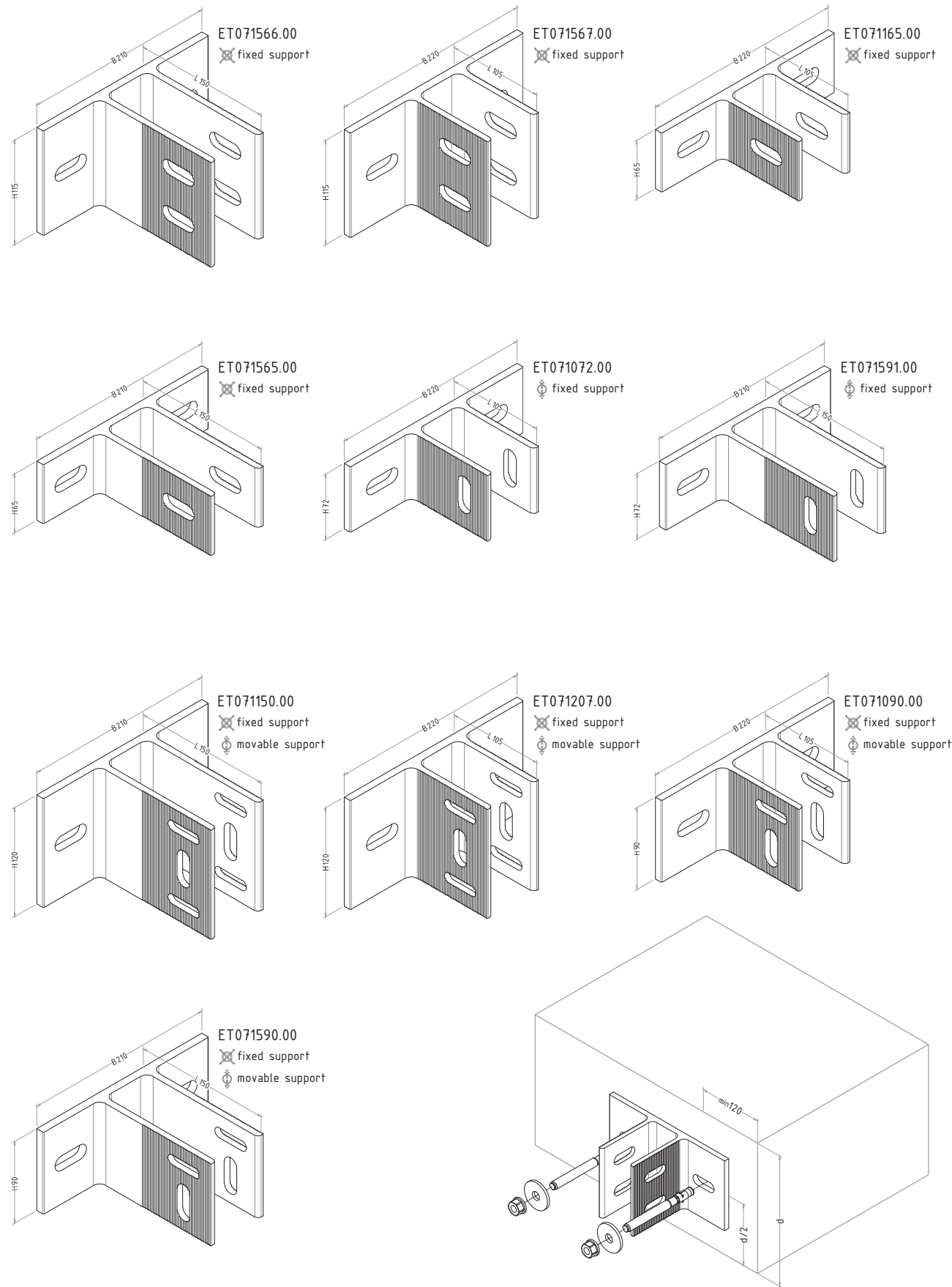
MACHININGS / PROCESSING

hidden fixing brackets



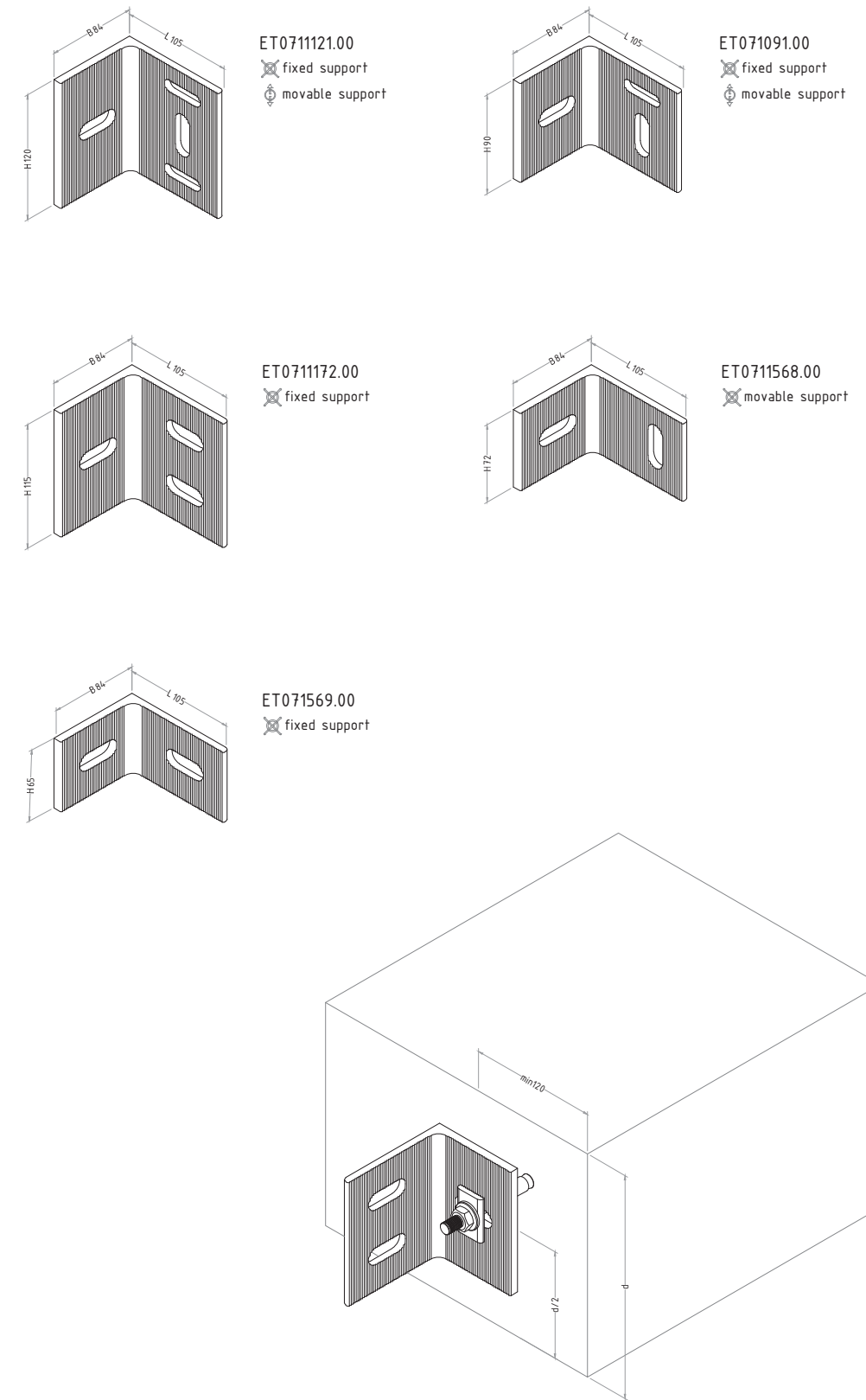
Note:  
hidden bracket accessories are sold without drill holes for fixing to the mullion  
not to scale

fixing brackets



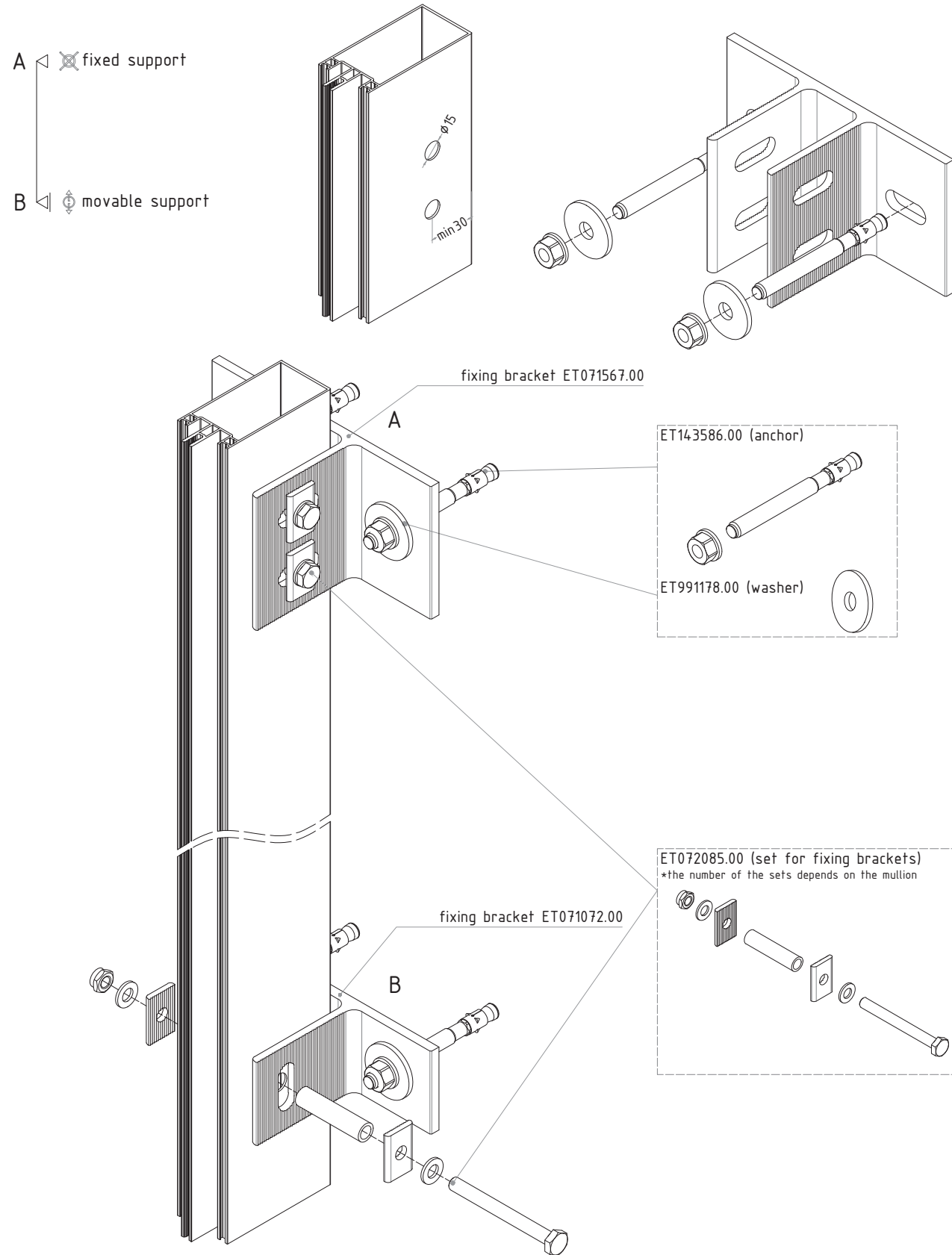
not to scale

fixing brackets



not to scale

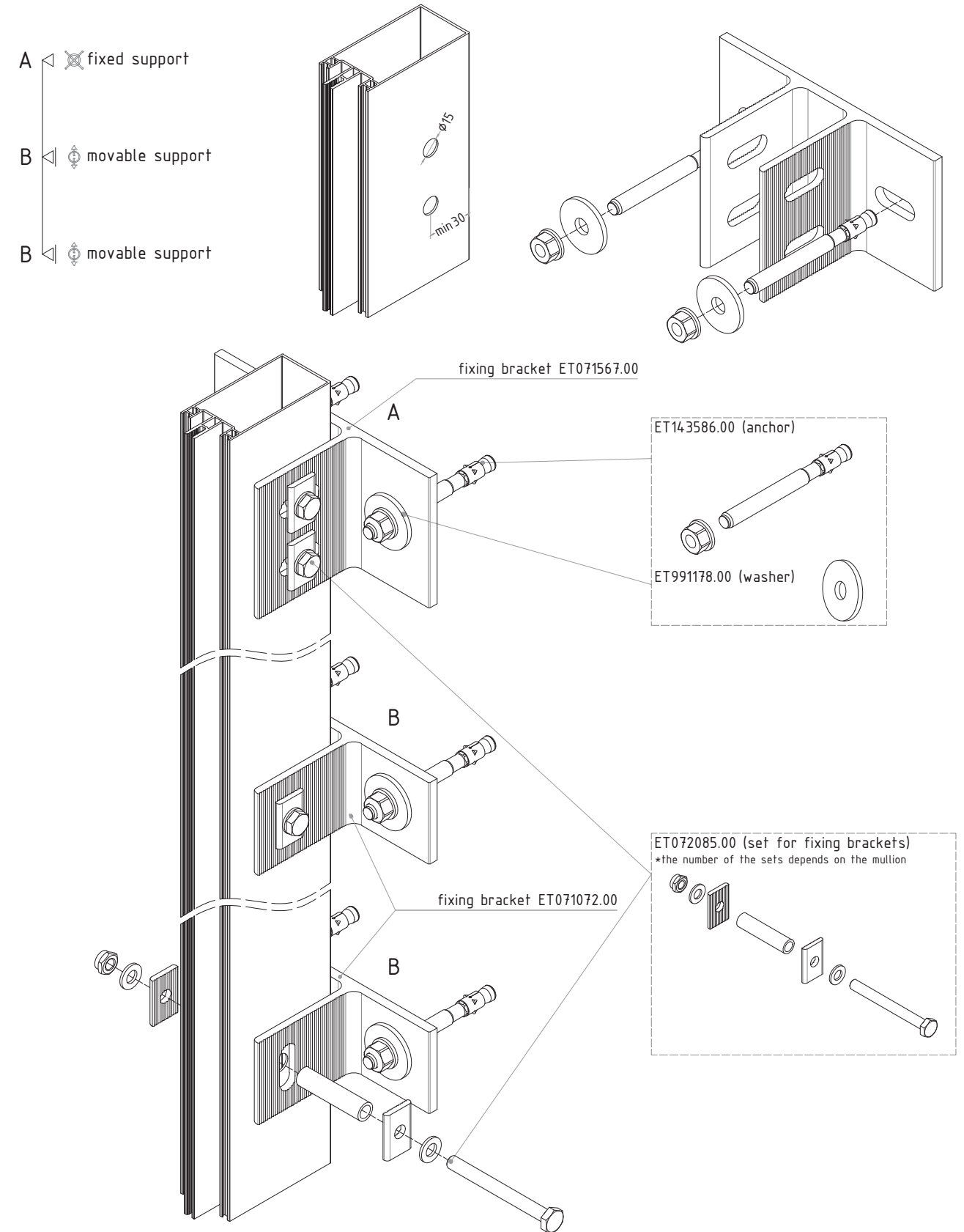
machining for fixing brackets of simply supported beam



Note:  
different fixing brackets are used with different sets and number of sets - for more information check out chapter accessories  
not to scale

EF50\_M6.04

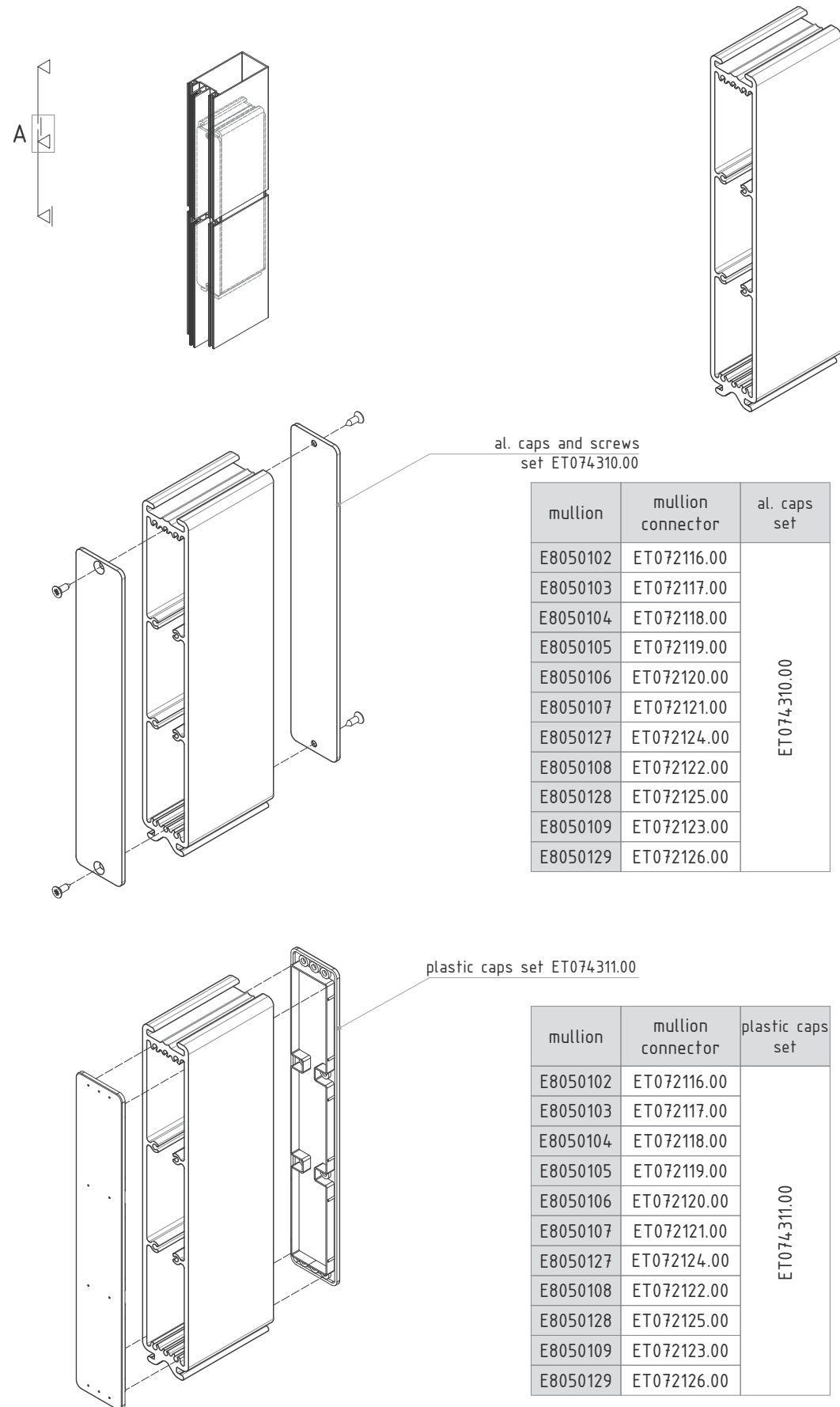
machining for fixing brackets of continuous beam



Note:  
different fixing brackets are used with different sets and number of sets - for more information check out chapter accessories  
not to scale

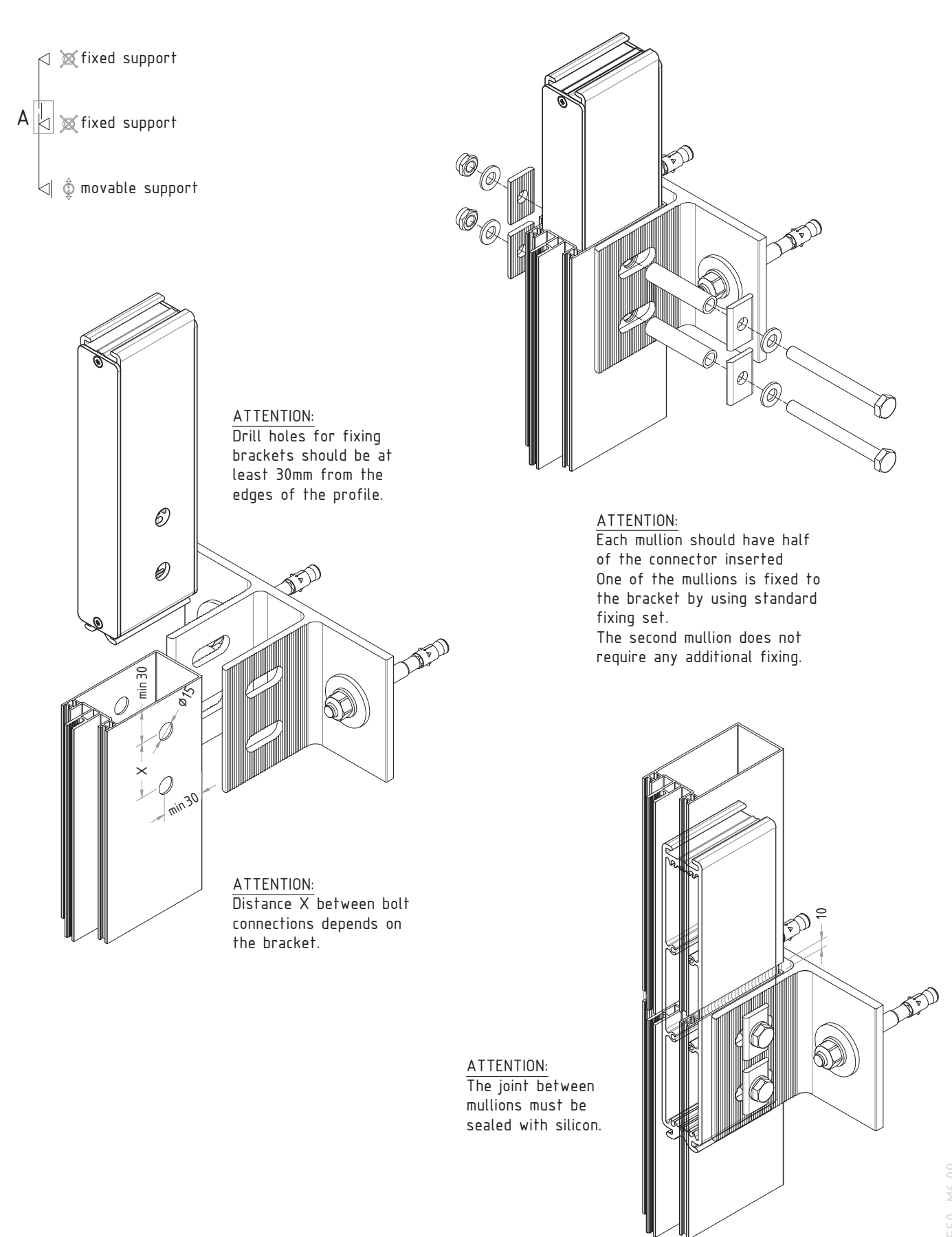
EF50\_M6.05

mullion connector



not to scale

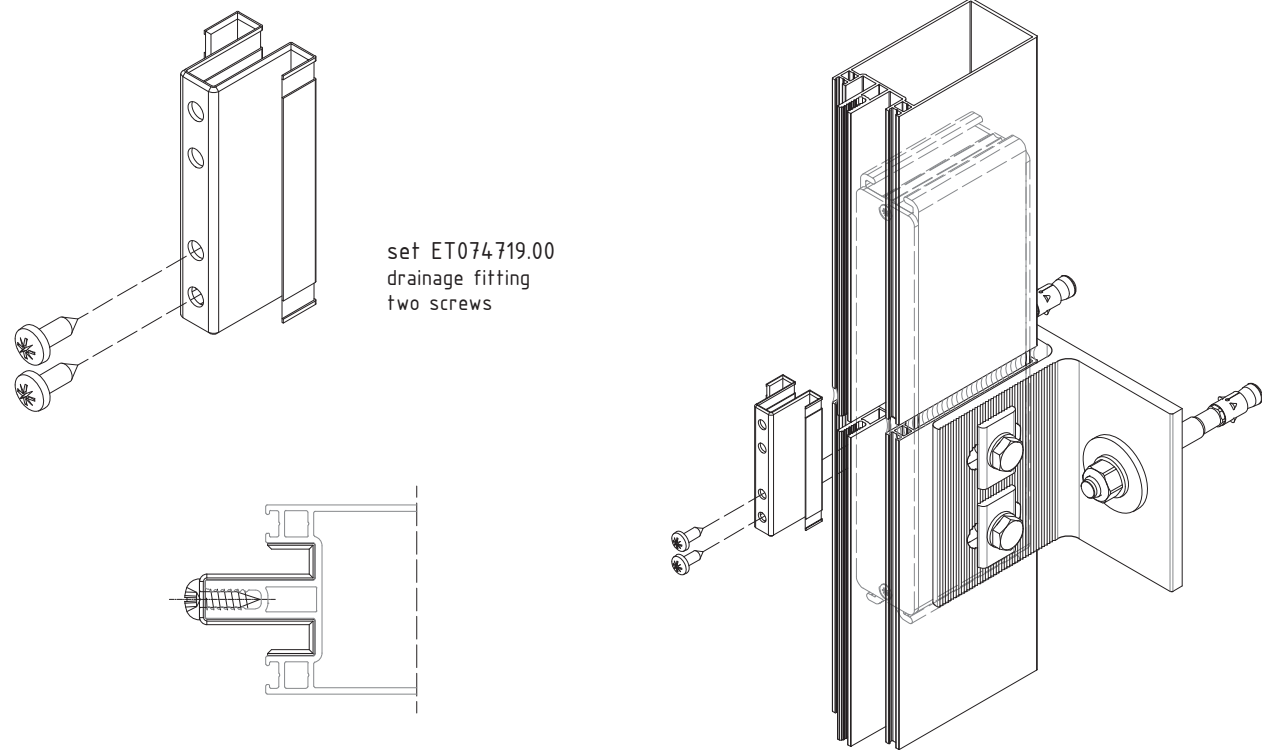
connection between mullions



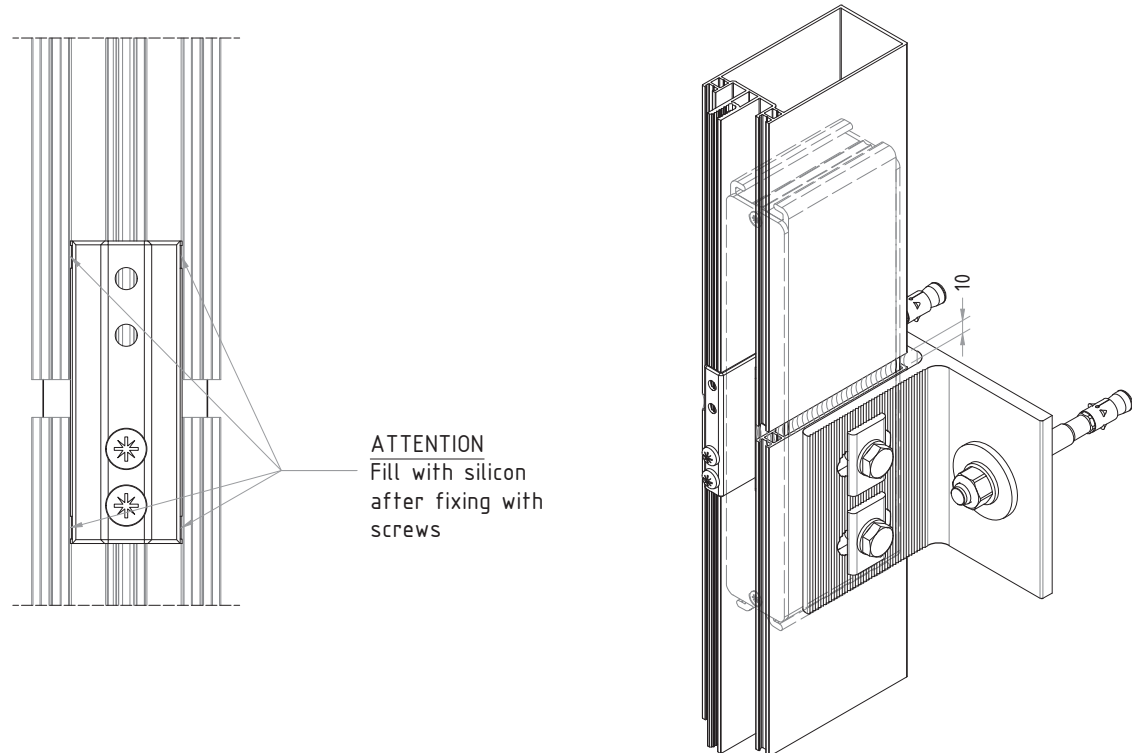
not to scale



joint between mullions



set ET074719.00  
drainage fitting  
two screws

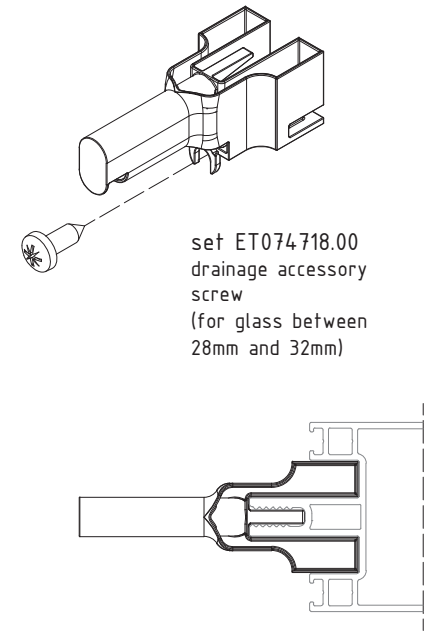


ATTENTION  
Fill with silicon  
after fixing with  
screws

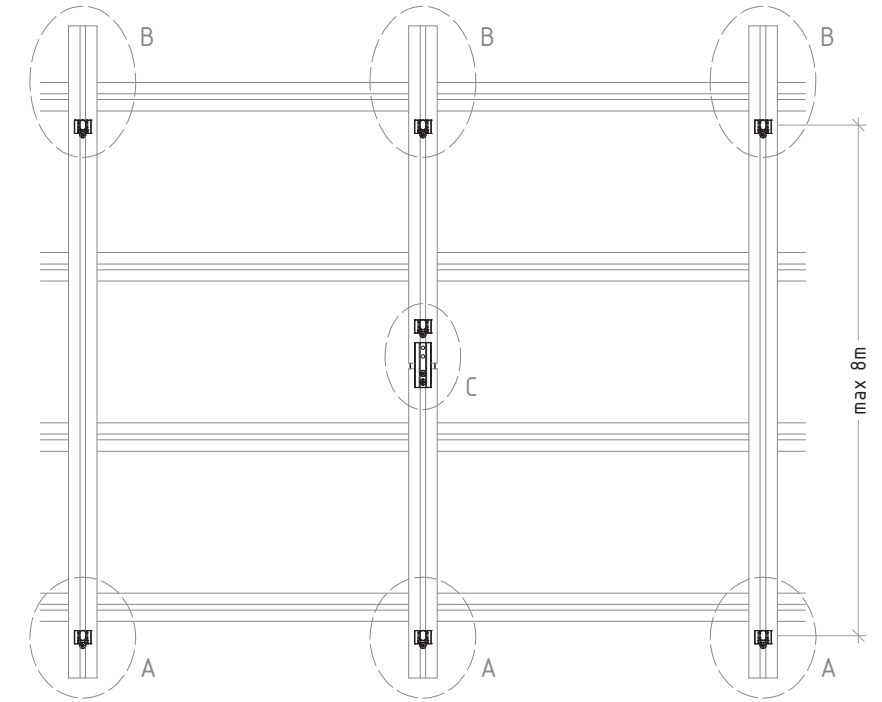
EF50\_M6.10

not to scale

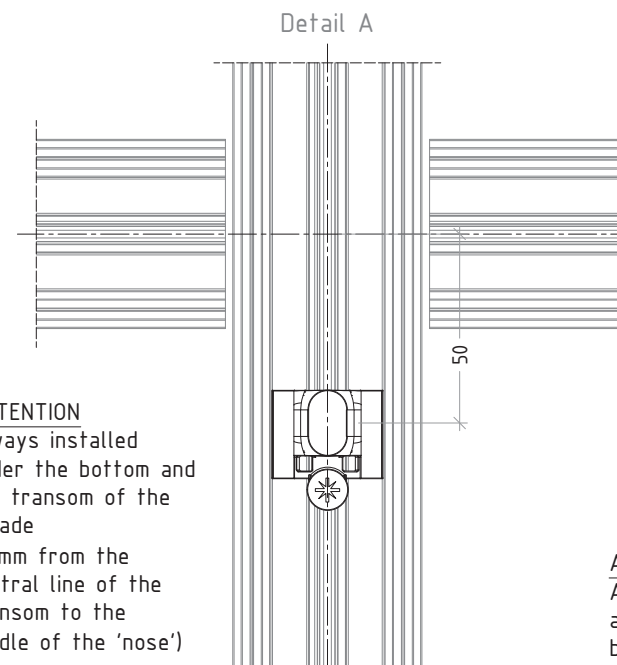
positioning of ET074718.00



set ET074718.00  
drainage accessory  
screw  
(for glass between  
28mm and 32mm)

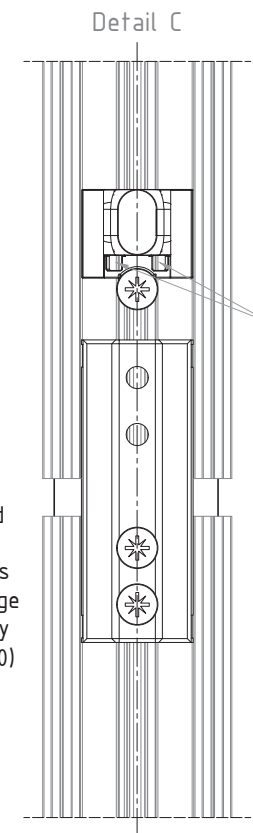


ATTENTION  
Vertical distance  
between the  
accessories should  
not exceed 8m



ATTENTION  
Always installed  
under the bottom and  
top transom of the  
facade  
(50mm from the  
central line of the  
transom to the  
middle of the 'nose')

Detail B is analogical  
to Detail A

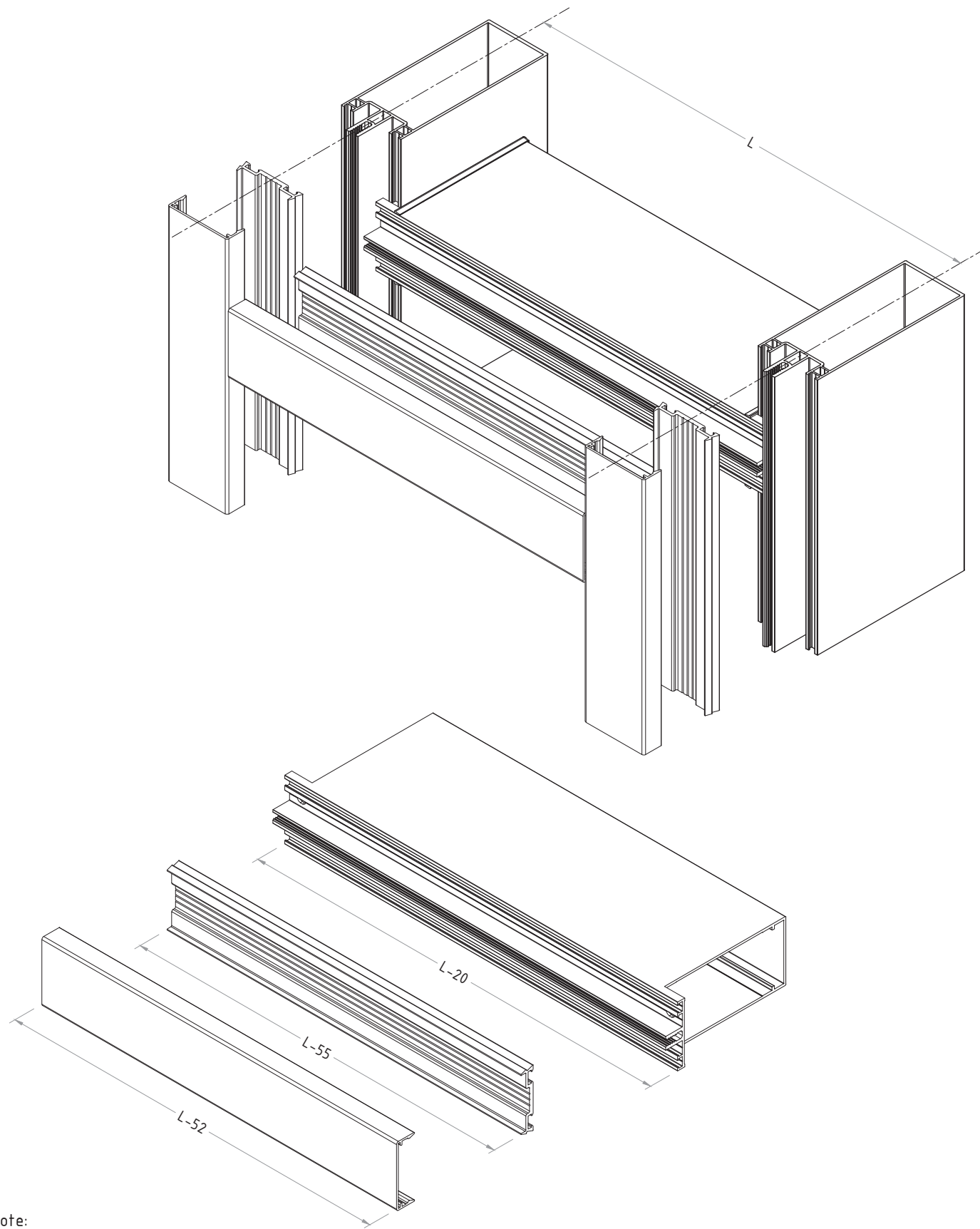


ATTENTION  
Always installed  
above the joint  
between mullions  
over the drainage  
fitting accessory  
(set ET074719.00)

ATTENTION  
Fill with silicon  
after fixing  
with screw

EF50\_M6.11

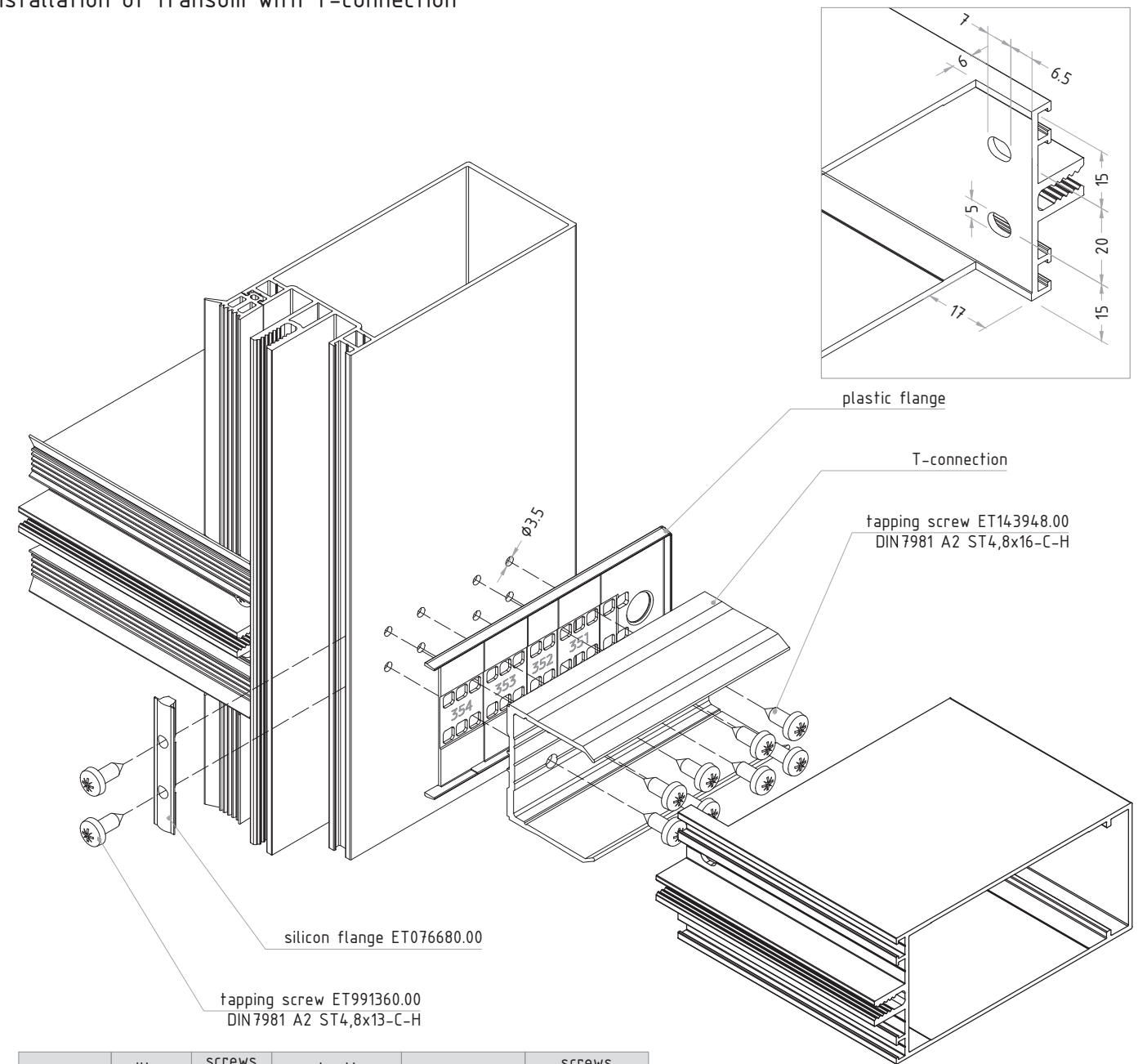
not to scale



Note:  
all lengths are tentative  
the designer / facade engineer responsible for the project should take into consideration all specifics  
of the project - location of the building, local temperature difference, etc.  
not to scale

EF50\_M6.12

installation of transom with T-connection



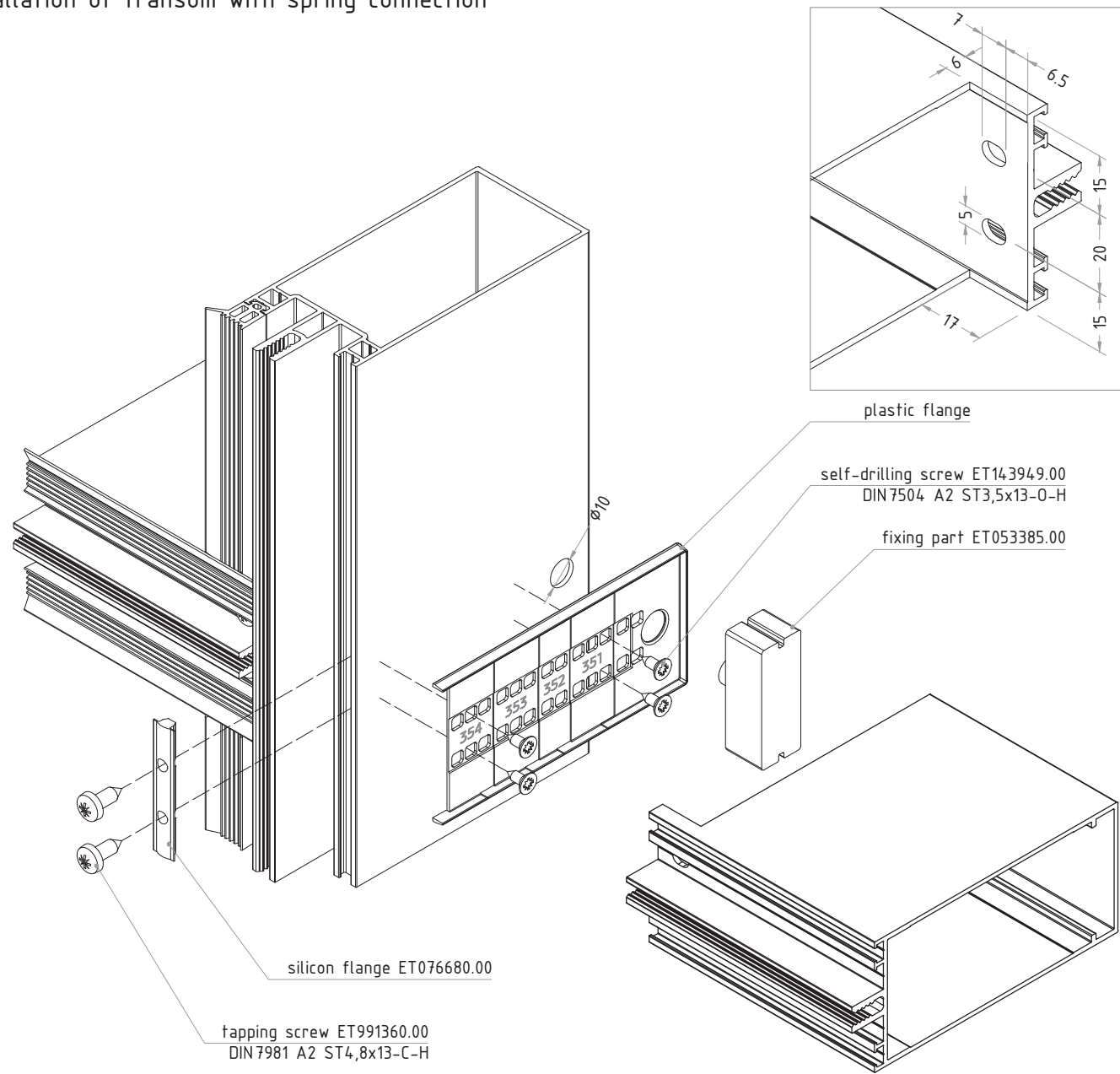
transom	silicon flange	screws for silicon flange	plastic flange	T-connection	screws for T-connection
E85351	ET076680.00	2 x ET991360.00	ET076661.00	ET071131.00	2
			ET076050.00*	ET072104.00	2
E8050351			ET076050.00*	ET072105.00	4
E8050352			ET076050.00*	ET072106.00	6
E8050353			ET076050.00*	ET072107.00	8
E8050354			ET076050.00*	ET072108.00	8
E8050355			ET076050.00*	ET072109.00	8
E8050356			ET076051.00	ET072110.00	12
E8050357			ET076051.00	ET072113.00	12
E8050358			ET076051.00	ET072114.00	12
E8050359					

\* ET076050.00 could be replaced with ET076051.00

not to scale

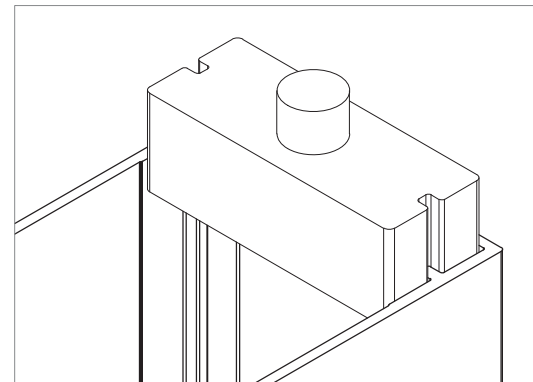
EF50\_M6.13

installation of transom with spring connection



transom	silicon flange	screws for silicon flange	plastic flange	screws for plastic flange	fixing part
E8050351	ET076680.00	2 x ET991360.00	ET076050.00*	4 x ET143949.00	ET053385.00
E8050352			ET076050.00*		
E8050353			ET076050.00*		
E8050354			ET076050.00*		
E8050355			ET076050.00*		
E8050356			ET076050.00*		
E8050357			ET076051.00		
E8050358			ET076051.00		
E8050359			ET076051.00		

\* ET076050.00 could be replaced with ET076051.00

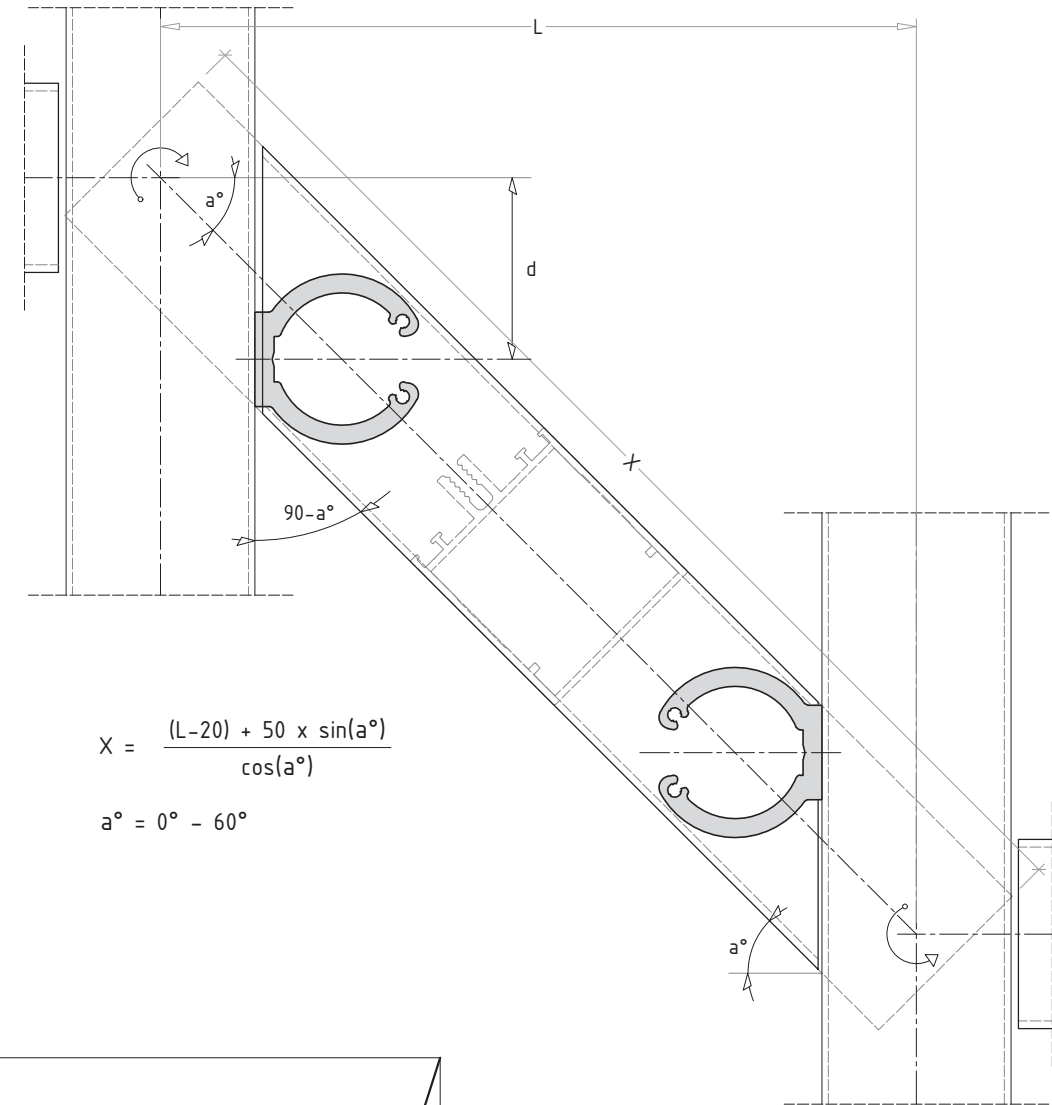


\*before installing the transom to the mullion fixing part ET083385.00 is placed onto the channel of the transom  
\*use rubber hammer and wooden piece to flatten the plane of the section and the accessory

EF50\_M6.15

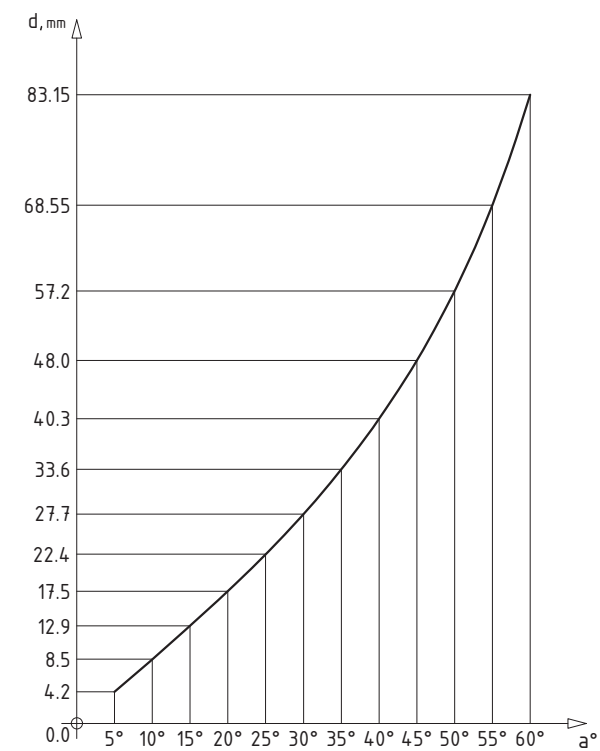
not to scale

transom connector for variable angle



$$X = \frac{(L-20) + 50 \times \sin(a^\circ)}{\cos(a^\circ)}$$

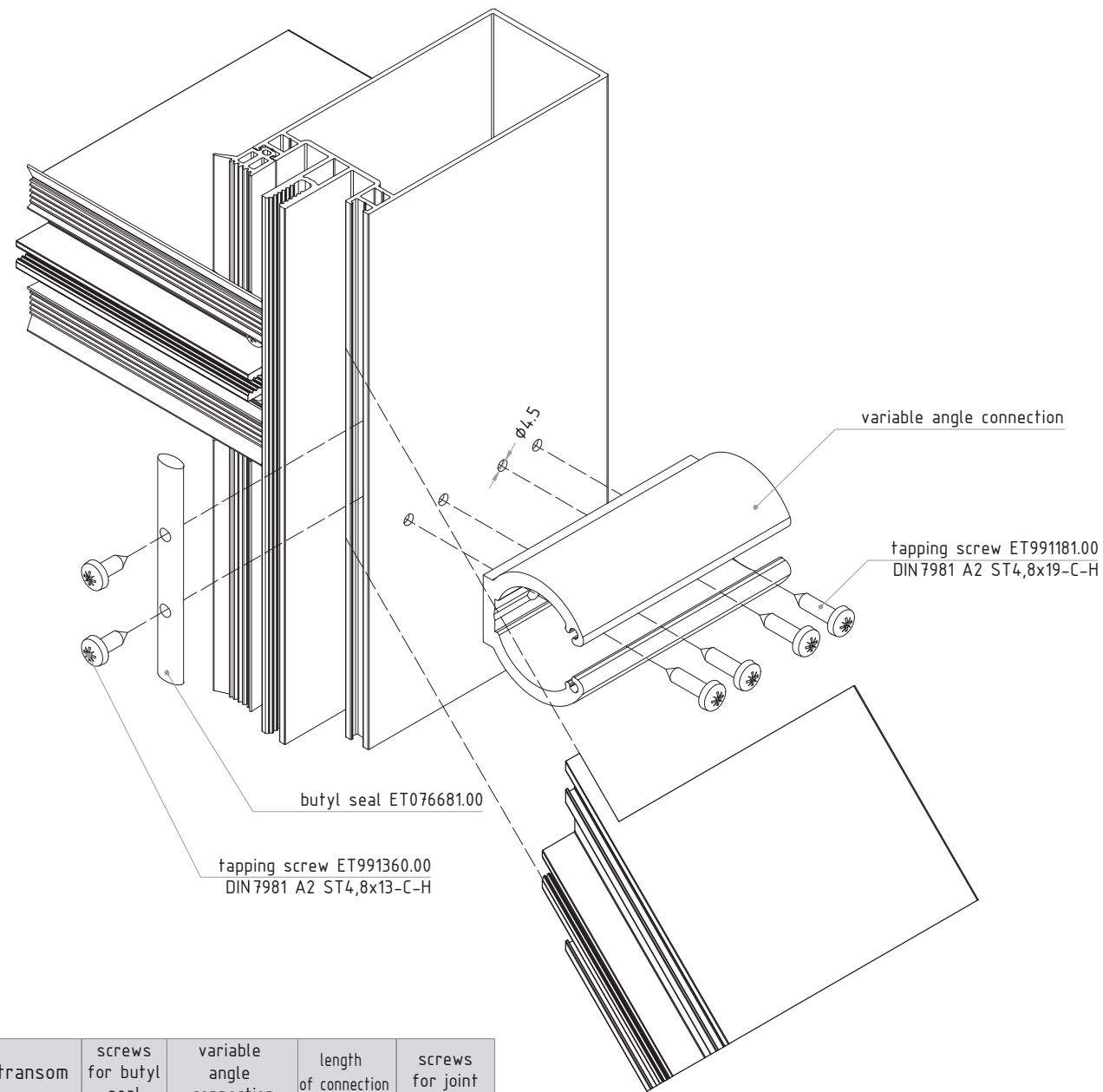
$$a^\circ = 0^\circ - 60^\circ$$



not to scale

EF50\_M6.16

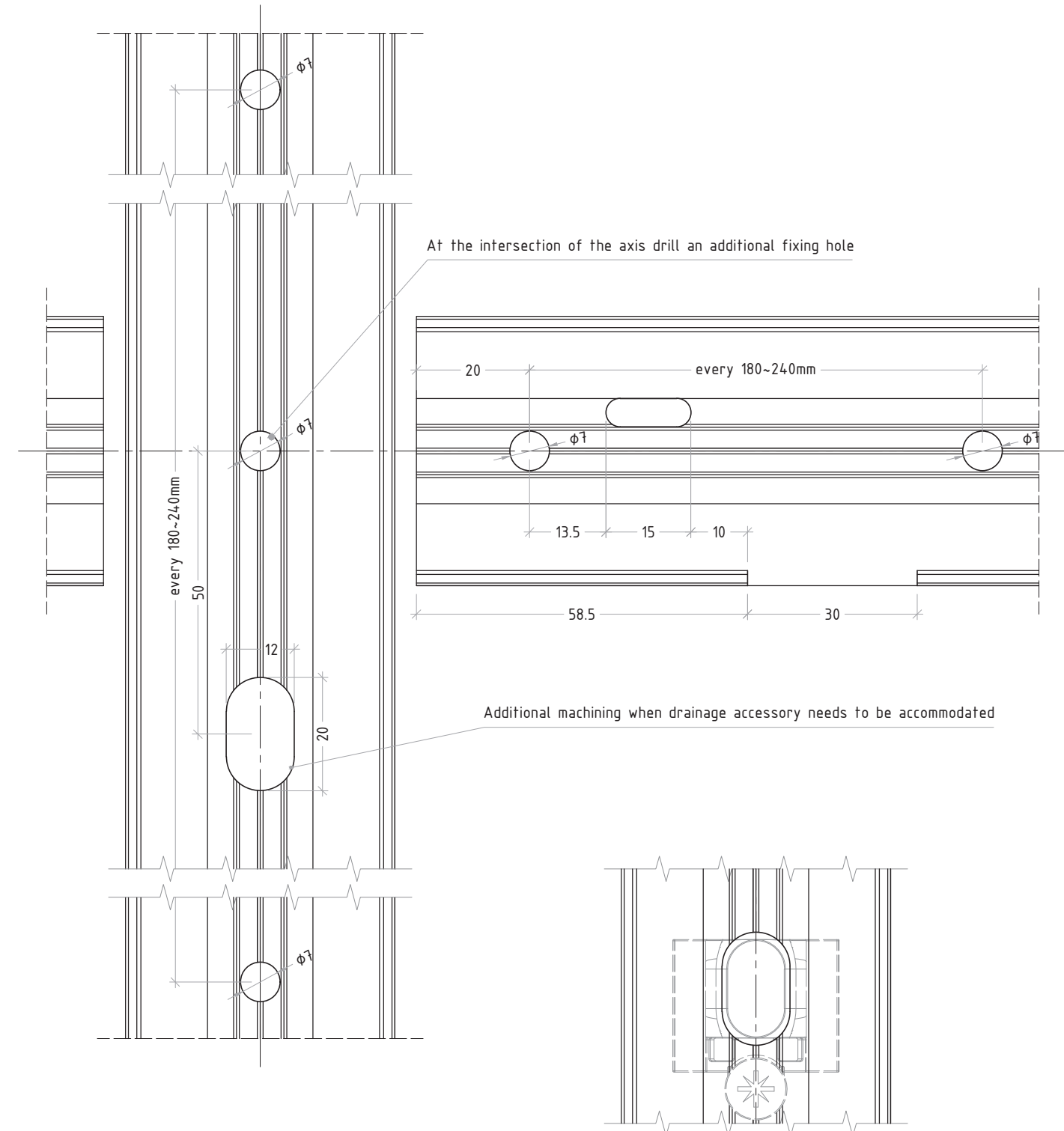
installation of transom with variable angle connection



transom	screws for butyl seal	variable angle connection	length of connection	screws for joint
E8050351	2 x ET991360.00	ET072127.00	35,5mm	2
E8050352		ET072128.00	39,5mm	2
E8050353		ET072154.00	69,5mm	3
E8050354		ET072155.00	89,5mm	4
E8050355		ET072156.00	109,5mm	4
E8050356		ET072157.00	129,5mm	4
E8050357		ET072158.00	154,5mm	6
E8050358		ET072159.00	184,3mm	6
E8050359		ET072160.00	234,3mm	6

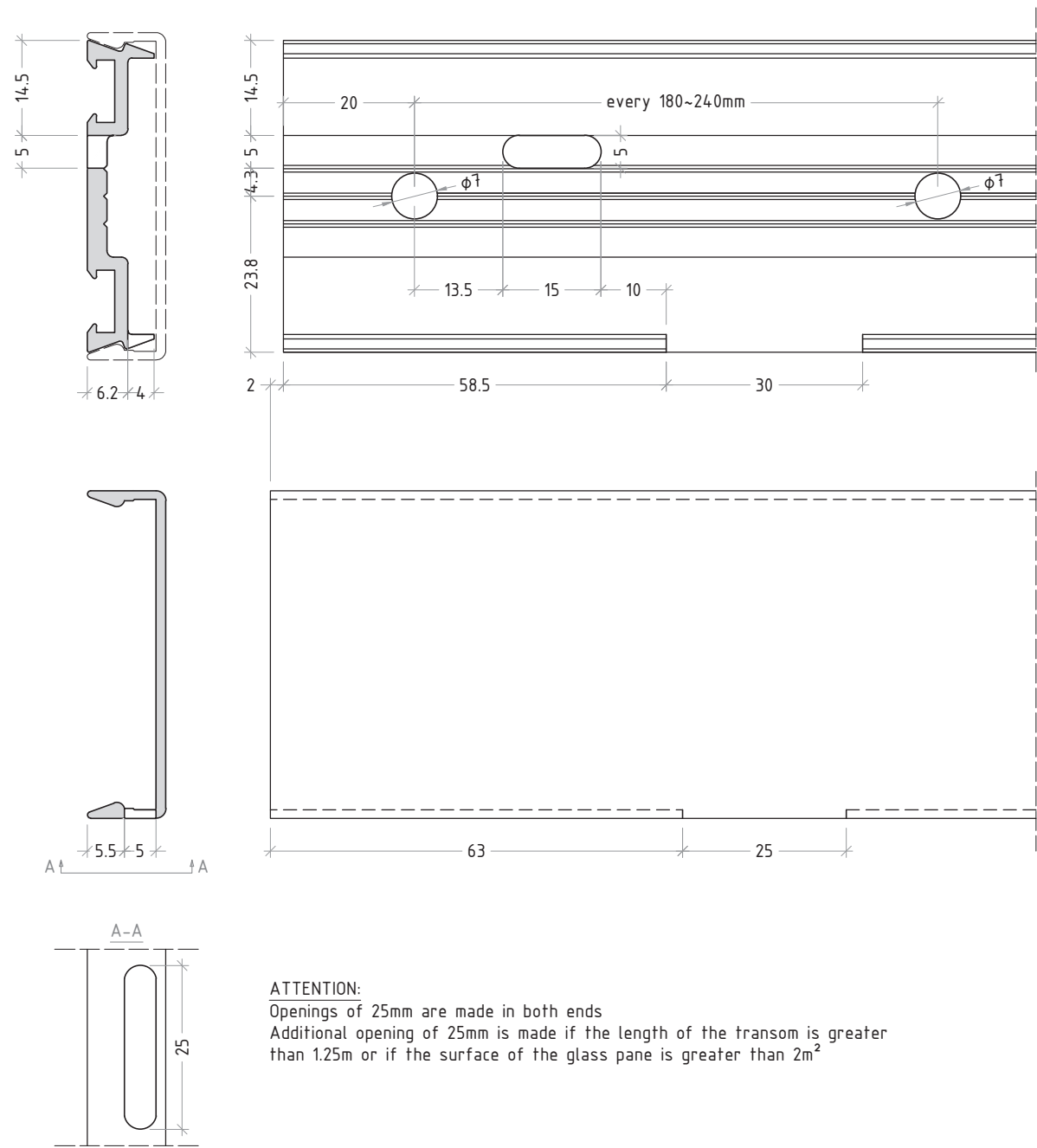
not to scale

machining of pressure plate



not to scale

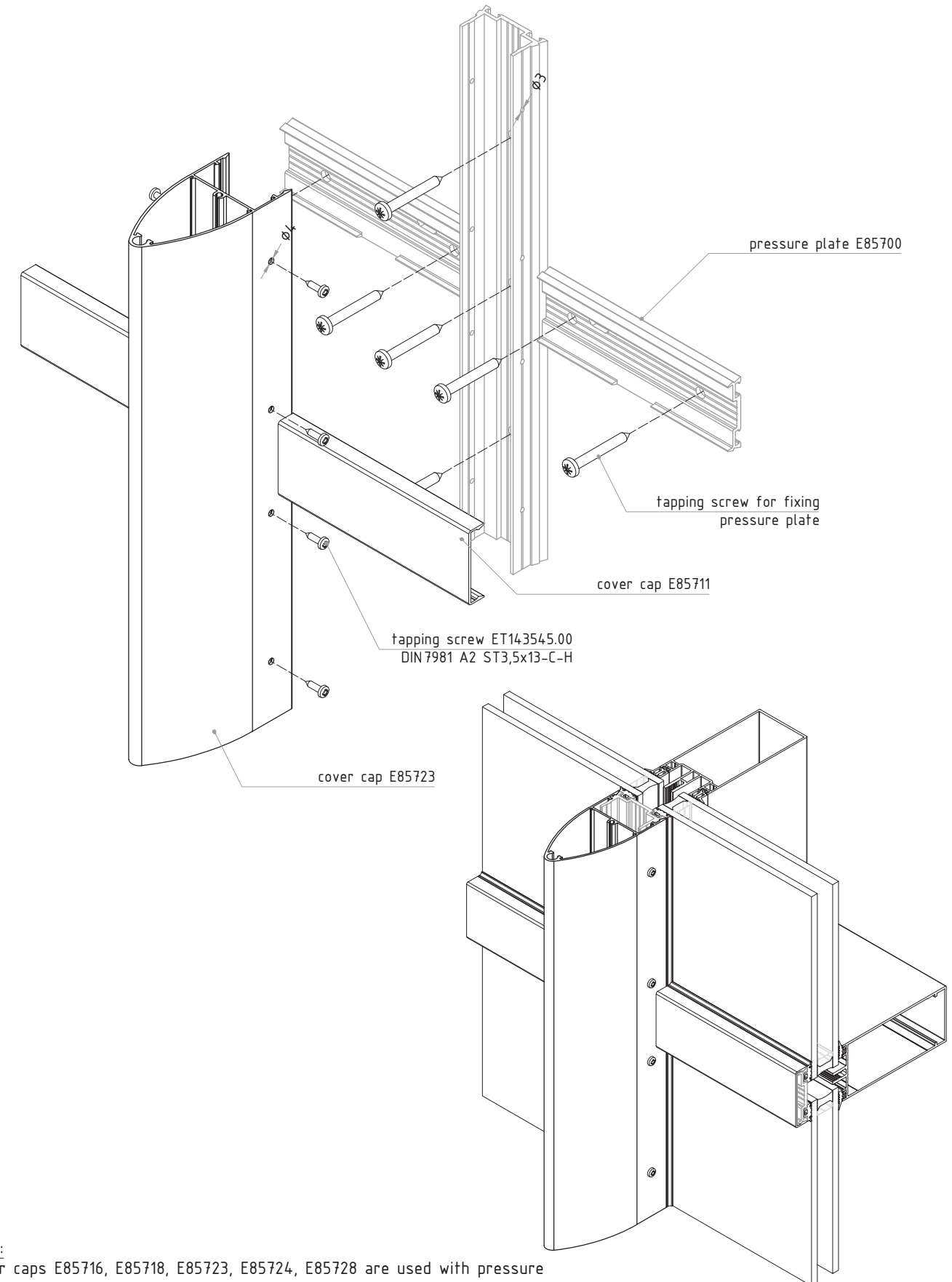
drainage of pressure plate and cover cap



Note:  
drainage openings are made only for horizontal pressure plates and cover cap  
drainage scheme is applicable for all pressure plates  
not to scale

EF50\_M6.23

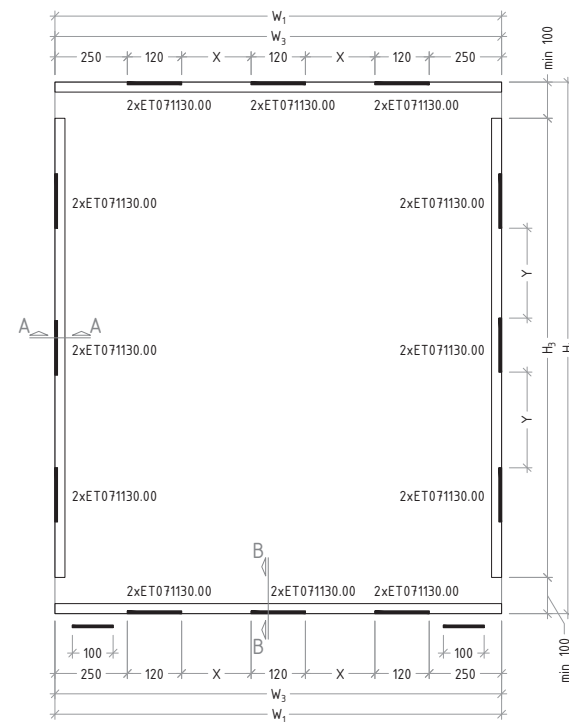
fixing of cover cap to pressure plate E85745



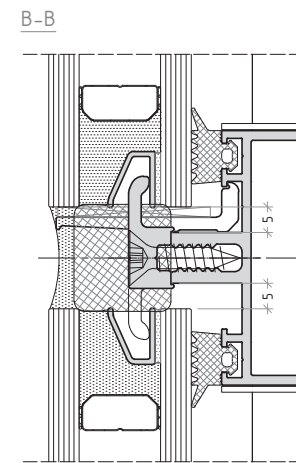
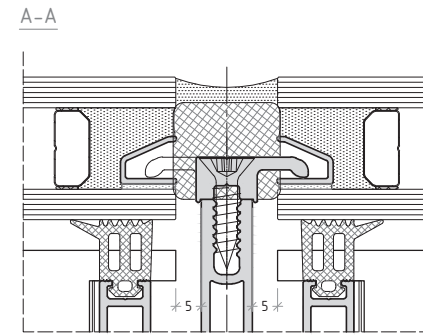
Note:  
cover caps E85716, E85718, E85723, E85724, E85728 are used with pressure plate E85745 and fixed with screws each 500mm  
not to scale

EF50\_M6.25

positioning of fixing part for structural glazing

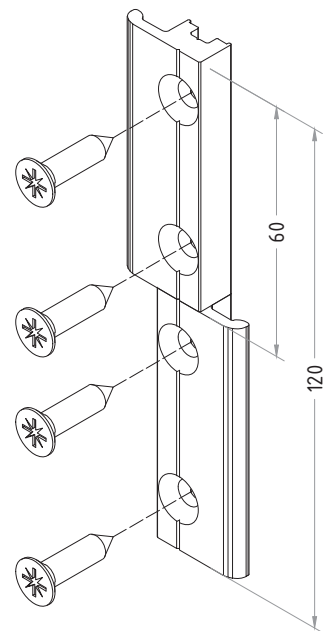


X = 250 ~ 300 mm (depends on the overall dimensions and wind load)



cutting of spacer E85924TR	
width of spacer	$W_3 = W_1$
height of spacer	$H_3 = H_1 - 200$

**ATTENTION:**  
The scheme applies to consecutive glasses. Analogical scheme is applied for the perimeter of the facade - the space for the fixing part is 60mm

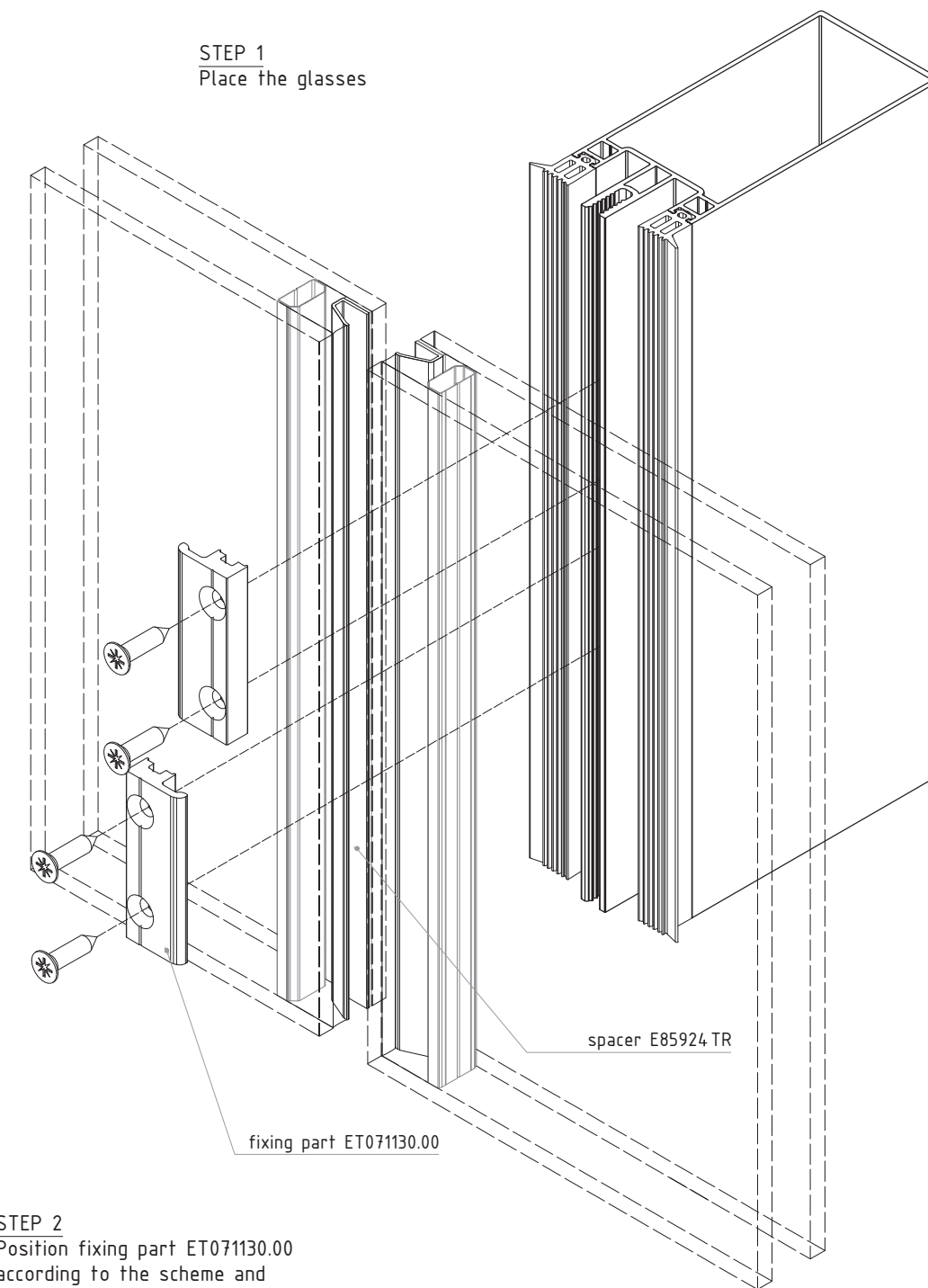


fixing part ET071130.00  
fixing accessory  
two screws

EF50\_M6.26

not to scale

installation of glass with fixing part ET071130.00



**STEP 2**  
Position fixing part ET071130.00 according to the scheme and screw with the provided fastening elements

EF50\_M6.27

not to scale

glazing options with cover cap

glass thickness <i>t</i> [mm]	gasket for mullion	gasket for transom	spacer	thermal insulator	glazing shim for transom	gasket for pressure plate	tapping screw for pressure plate
1	2	3	4	5	6	7	8
8	ET130470.00	ET130474.00	E85641	ET080171.00	ET071180.00	ET130102.00	ET991186.00
10	ET130470.00	ET130474.00	E8611	ET080171.00	ET071180.00		ET991186.00
12	ET130470.00	ET130474.00	E8611	ET080171.00	ET071180.00		ET991186.00
14	ET130470.00	ET130474.00	E85460	ET080171.00	ET071180.00		ET991186.00
16	ET130470.00	ET130474.00	E85460	ET080171.00	ET071180.00		ET991186.00
18	ET130480.00	ET130463.00	-	ET080171.00	ET071180.00		ET991186.00
20	ET130470.00	ET130474.00	-	ET080171.00	ET071180.00		ET991186.00
22	ET130470.00	ET130474.00	-	ET080171.00	ET071180.00		ET991186.00
24	ET130479.00	ET130473.00	-	ET080174.00	ET071180.00		ET991186.00
26	ET130480.00	ET130463.00	-	ET080172.00 ET080518.00	ET071197.00		ET991187.00
28	ET130479.00	ET130473.00	-	ET080172.00 ET080518.00	ET071189.00		ET991187.00
	ET130470.00	ET130474.00	-	ET080172.00 ET080518.00	ET071197.00		ET991187.00
	ET130480.00	ET130463.00	-	ET080172.00 ET080518.00	ET071197.00		ET991187.00
30	ET130479.00	ET130473.00	-	ET080172.00 ET080518.00	ET071197.00		ET991187.00
	ET130470.00	ET130474.00	-	ET080172.00 ET080518.00	ET071197.00		ET991187.00
	ET130480.00	ET130463.00	-	ET080172.00* ET080518.00	ET071181.00		ET143540.00
32	ET130479.00	ET130473.00	-	ET080172.00 ET080518.00	ET071181.00		ET991187.00
	ET130470.00	ET130474.00	-	ET080172.00* ET080518.00	ET071181.00		ET143540.00
	ET130480.00	ET130463.00	-	ET080172.00* ET080518.00	ET071181.00		ET143540.00
34	ET130479.00	ET130473.00	-	ET080172.00* ET080518.00	ET071181.00		ET143540.00
	ET130470.00	ET130474.00	-	ET080172.00* ET080518.00	ET071181.00		ET143540.00

(4), (5), (7), (8) are valid for both the mullion and the transom  
 (5) two options for insulators are available in some glazing cases - choose one  
 (5) \* possibility of using add-on ET080173.00 together with the PVC insulator  
 (8) all screws for the pressure plate are applied together with washer ET143947.00

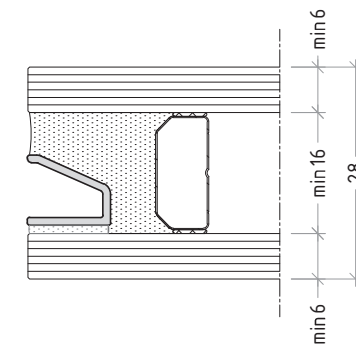
EF50\_M6.30

Note:  
double glazing for facade should be 28mm  
not to scale

glazing options with structural glazing

glass thickness <i>t</i> [mm]	inner glass thickness	gasket for mullion	gasket for transom	glazing clip	EPL insulator	glazing shim for transom
1	2	3	4	5	6	7
28	6	ET130480.00	ET130463.00	ET071130.00	ET080052.00	ET071197.00
30	8	ET130470.00	ET130474.00			ET071197.00
	6	ET130480.00	ET130463.00			ET071181.00
32	8	ET130470.00	ET130474.00			ET071181.00
	6	ET130480.00	ET130463.00			ET071181.00
34	8	ET130470.00	ET130474.00			ET071181.00

(5) and (6) are valid for both the mullion and the transom



ATTENTION:  
minimum thickness of inner and outer glass is 6mm and minimum thickness of the spacer between the glasses 16mm

not to scale

EF50\_M6.31

# ACCESSORIES

IMAGES / DESCRIPTIONS



# curtain wall system

EF50

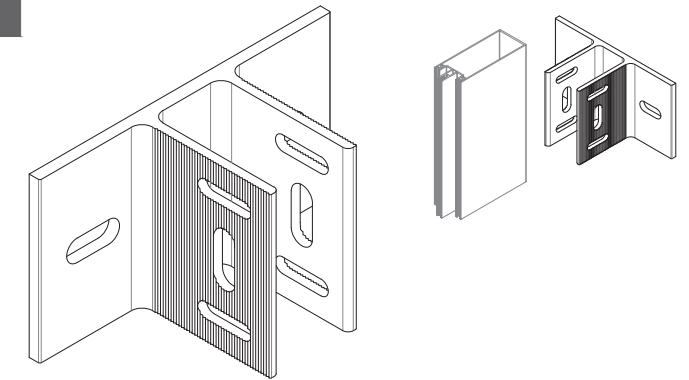
code/description	package/pcs	colour
ET <b>071207.00</b>	1	MF

ET071207 old code

 if support is fixed:  
2 x ET072084.00

fixing bracket 120 mm

 if support is movable:  
1 x ET072085.00



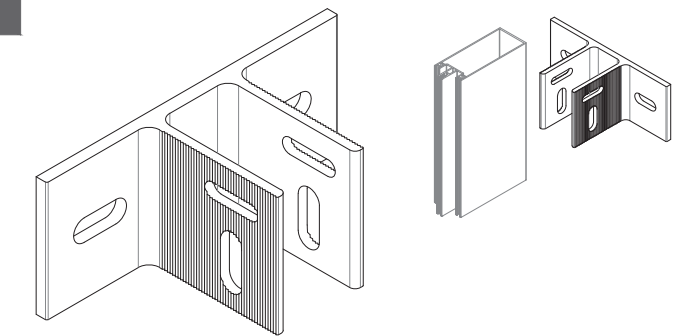
ET <b>071090.00</b>	1	MF
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ET071090 old code

 if support is fixed:  
1 x ET072084.00

fixing bracket 90 mm

 if support is movable:  
1 x ET072085.00



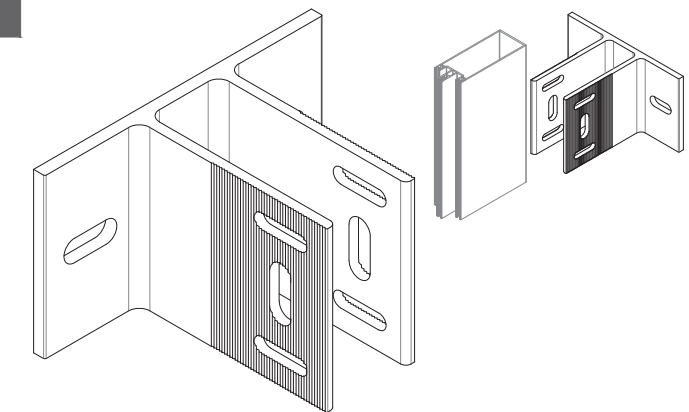
ET <b>071150.00</b>	1	MF
---------------------	---	----

ET071150 old code

 if support is fixed:  
2 x ET072084.00

fixing bracket 120 mm

 if support is movable:  
1 x ET072085.00



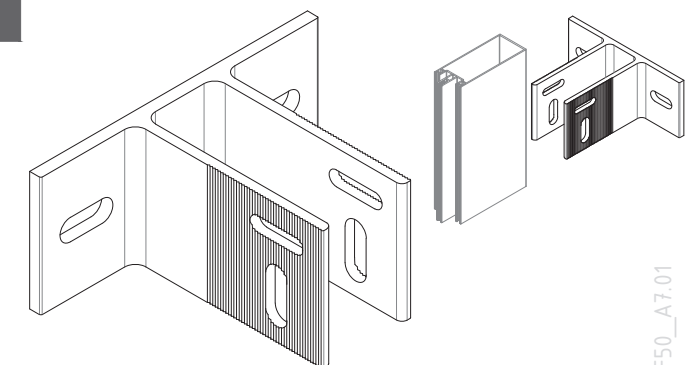
ET <b>071590.00</b>	1	MF
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ET071590 old code

 if support is fixed:  
1 x ET072084.00

fixing bracket 90 mm

 if support is movable:  
1 x ET072085.00



EF50\_A7.01

# curtain wall system

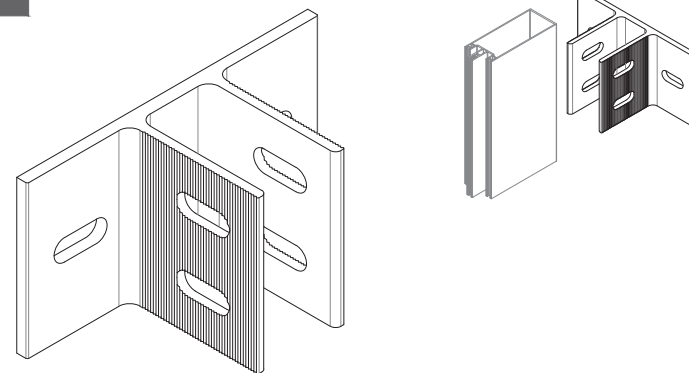
EF50

code/description	package/pcs	colour
ET <b>071567.00</b>	1	MF

ET071270 old code

if support is fixed:  
2 x ET072085.00

fixing bracket 115 mm

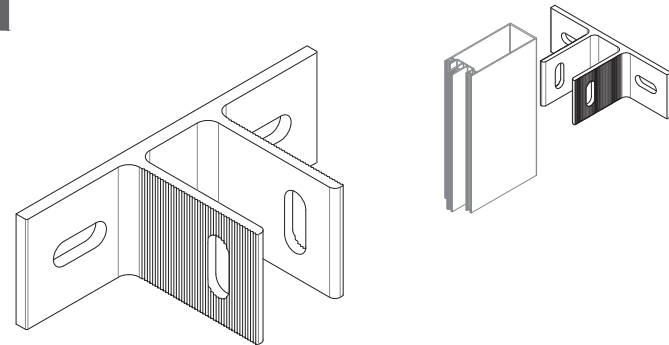


ET <b>071072.00</b>	1	MF
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ET071072 old code

if support is movable:  
1 x ET072085.00

fixing bracket 72 mm

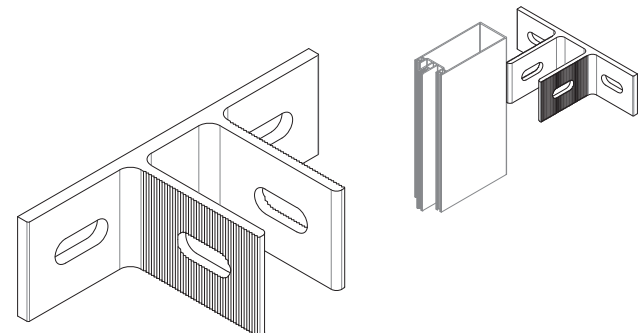


ET <b>071165.00</b>	1	MF
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ET071265 old code

if support is movable:  
1 x ET072085.00

fixing bracket 65 mm

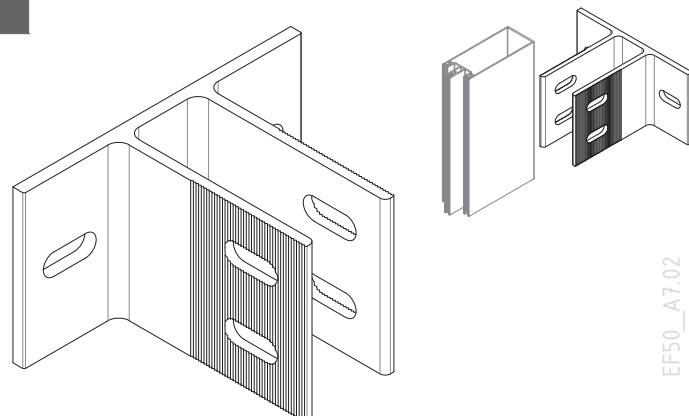


ET <b>071566.00</b>	1	MF
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ET071250 old code

if support is fixed:  
2 x ET072085.00

fixing bracket 115 mm



EF50\_A7.02

# curtain wall system

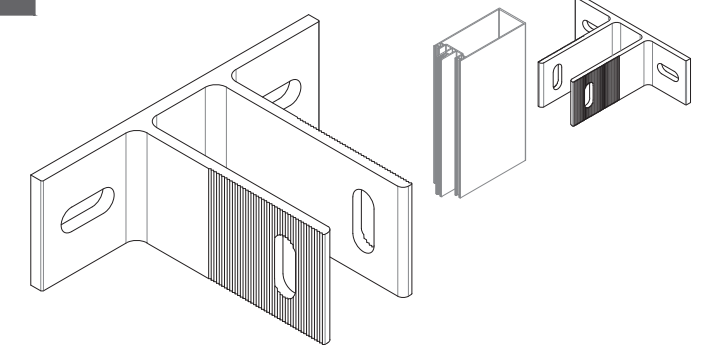
EF50

code/description	package/pcs	colour
ET <b>071591.00</b>	1	MF

ET071572 old code

if support is movable:  
1 x ET072085.00

fixing bracket 72 mm

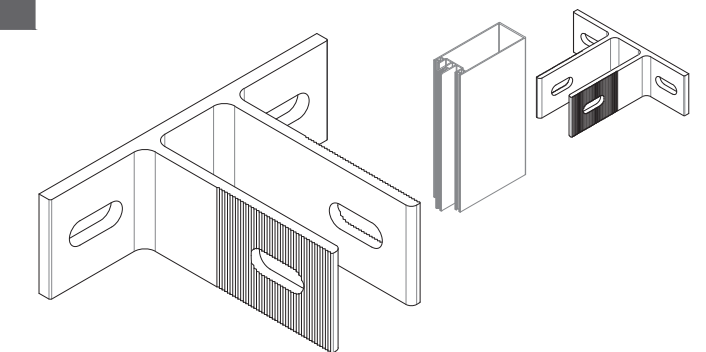


ET <b>071565.00</b>	1	MF
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ET071565 old code

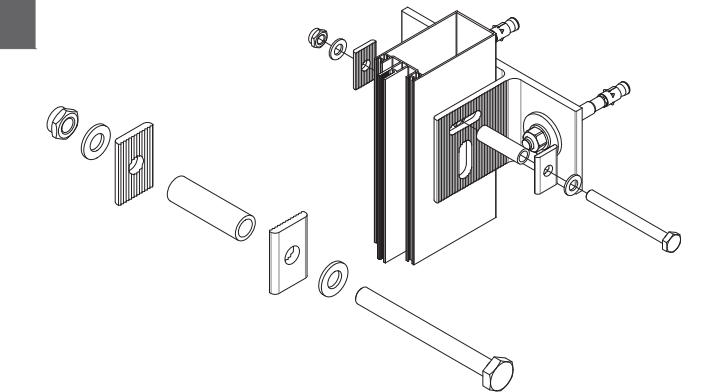
if support is fixed:  
1 x ET072085.00

fixing bracket 65 mm



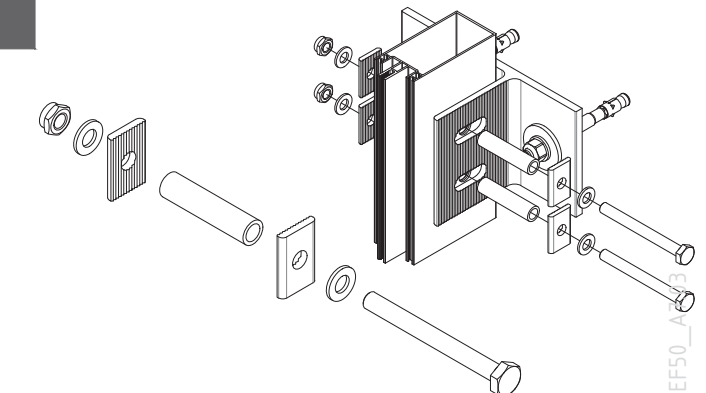
ET <b>072084.00</b>	1	MF
---------------------	---	----

set for bracket



ET <b>072085.00</b>	1	MF
---------------------	---	----

set for bracket



EF50\_A7.03

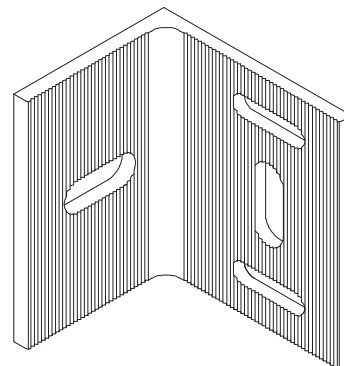
**curtain wall system**

**EF50**

code/description	package/pcs	colour
ET <b>071121.00</b>	1	MF

ET071121 old code

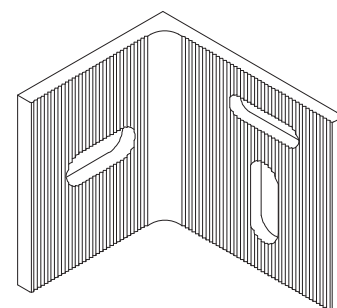
fixing bracket 120 mm



ET <b>071091.00</b>	1	MF
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ET071091 old code

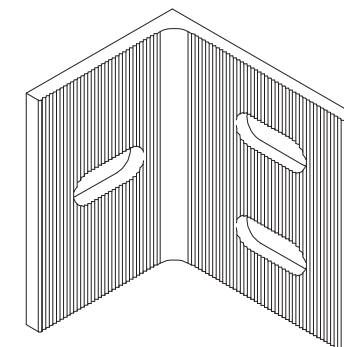
fixing bracket 90 mm



ET <b>071172.00</b>	1	MF
---------------------	---	----

ET071172 old code

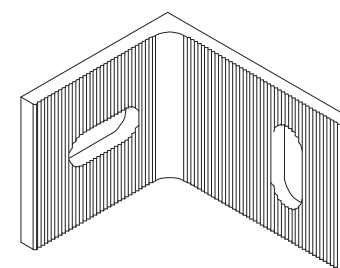
fixing bracket 115 mm



ET <b>071568.00</b>	1	MF
---------------------	---	----

ET071372 old code

fixing bracket 72 mm



EF50\_A7.04

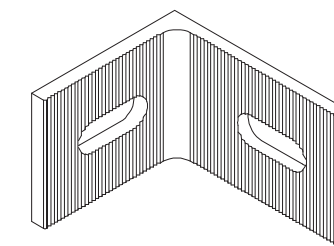
**curtain wall system**

**EF50**

code/description	package/pcs	colour
ET <b>071569.00</b>	1	MF

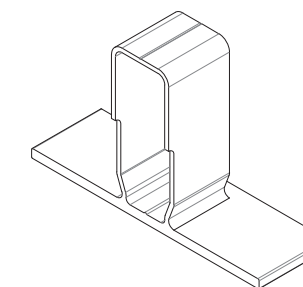
ET071165 old code

fixing bracket 65 mm



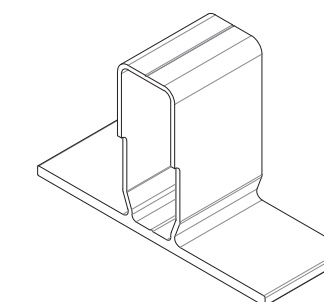
ET <b>071073.00</b>	1	MF
---------------------	---	----

hidden bracket  
for E8050102



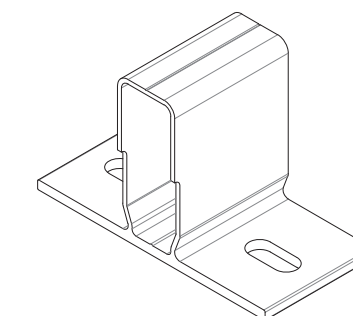
ET <b>071074.00</b>	1	MF
---------------------	---	----

hidden bracket  
for E8050103



ET <b>071075.00</b>	1	MF
---------------------	---	----

hidden bracket  
for E8050104



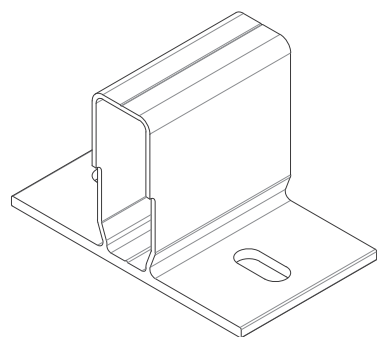
EF50\_A7.05

**curtain wall system**

**EF50**

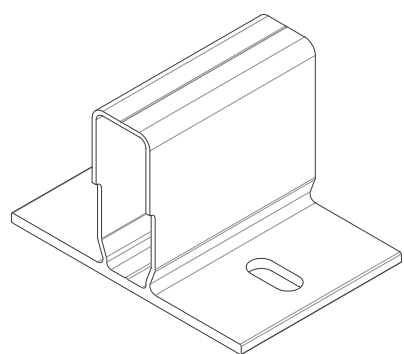
code/description	package/pcs	colour
ET <b>071076.00</b>	1	MF

hidden bracket  
for E8050105



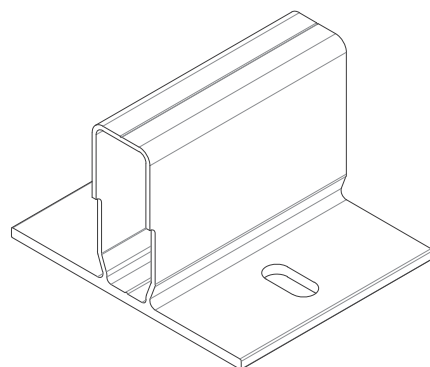
ET <b>071077.00</b>	1	MF
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hidden bracket  
for E8050106



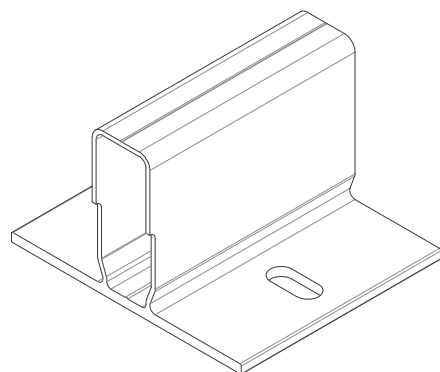
ET <b>071078.00</b>	1	MF
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hidden bracket  
for E8050107



ET <b>071079.00</b>	1	MF
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hidden bracket  
for E8050127



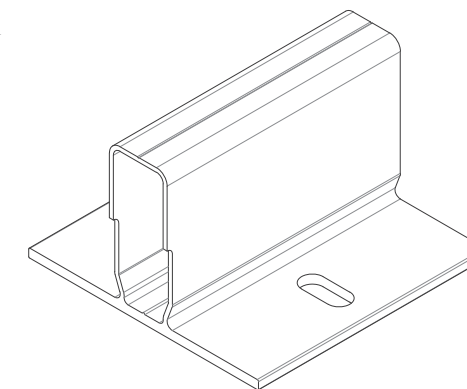
EF50 A7.06

**curtain wall system**

**EF50**

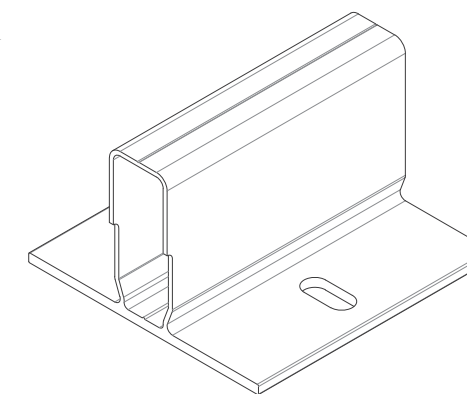
code/description	package/pcs	colour
ET <b>071080.00</b>	1	MF

hidden bracket  
for E8050108



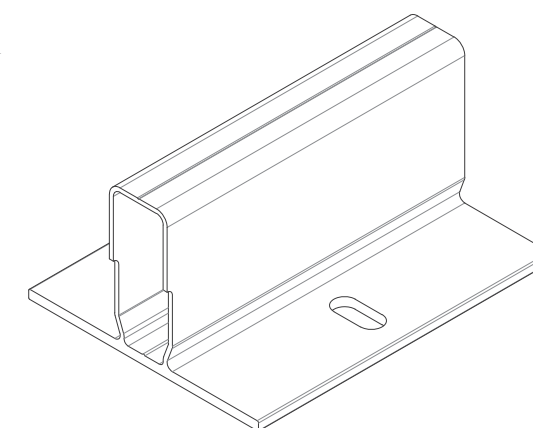
ET <b>071081.00</b>	1	MF
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hidden bracket  
for E8050128



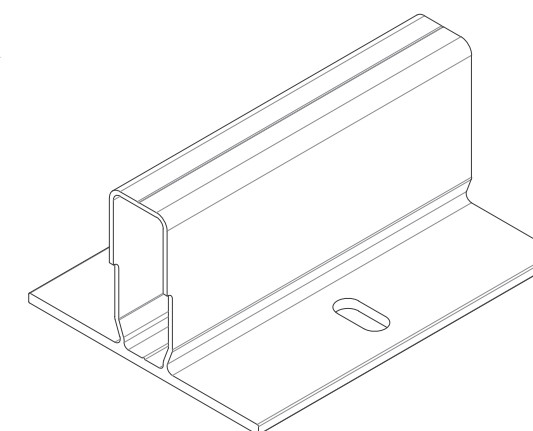
ET <b>071082.00</b>	1	MF
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hidden bracket  
for E8050109



ET <b>071083.00</b>	1	MF
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hidden bracket  
for E8050129



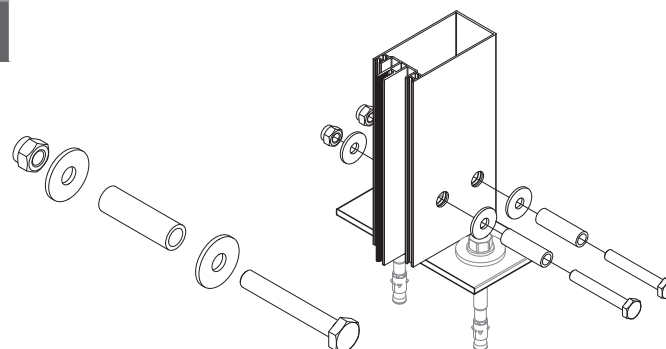
EF50 A7.07

**curtain wall system**

**EF50**

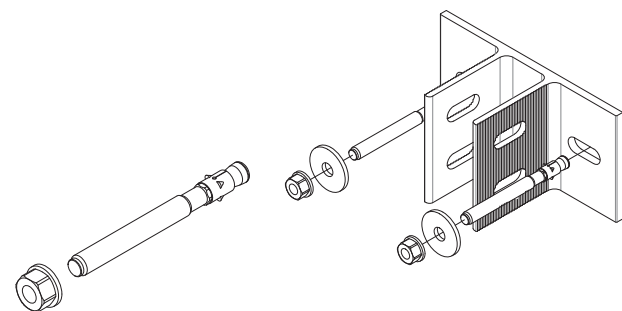
code/description	package/pcs	colour
ET <b>072019.00</b>	1	MF

set for hidden bracket



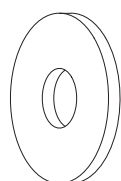
ET <b>143586.00</b>	1	MF
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abchor for fixing brackets



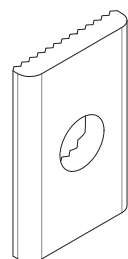
ET <b>991178.00</b>	-	MF
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washer



ET <b>071208.00</b>	-	MF
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washer



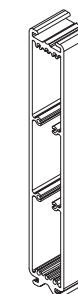
EF50 A7.08

**curtain wall system**

**EF50**

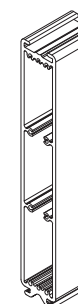
code/description	package/pcs	colour
ET <b>072116.00</b>	1	MF

mullion connection  
for E8050102



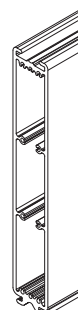
ET <b>072117.00</b>	1	MF
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mullion connection  
for E8050103



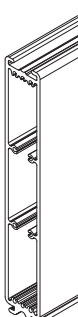
ET <b>072118.00</b>	1	MF
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mullion connection  
for E8050104



ET <b>072119.00</b>	1	MF
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mullion connection  
for E8050105



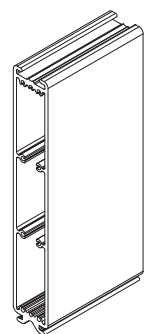
EF50 A7.09

**curtain wall system**

**EF50**

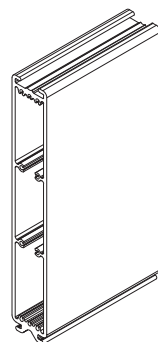
code/description	package/pcs	colour
ET <b>072120.00</b>	1	MF

mullion connection  
for E8050106



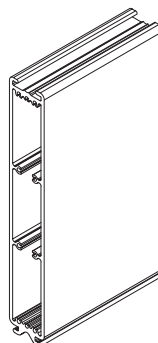
ET <b>072121.00</b>	1	MF
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mullion connection  
for E8050107



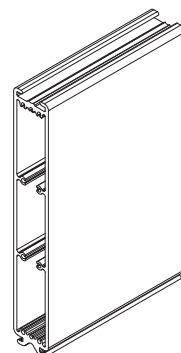
ET <b>072124.00</b>	1	MF
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mullion connection  
for E8050127



ET <b>072122.00</b>	1	MF
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mullion connection  
for E8050108



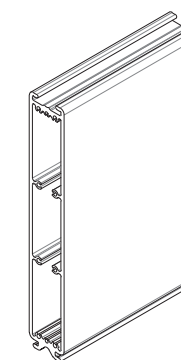
EF50 A7-10

**curtain wall system**

**EF50**

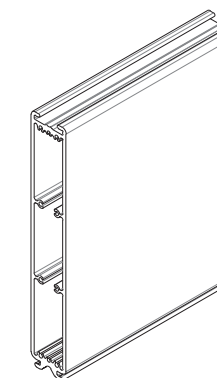
code/description	package/pcs	colour
ET <b>072125.00</b>	1	MF

mullion connection  
for E8050128



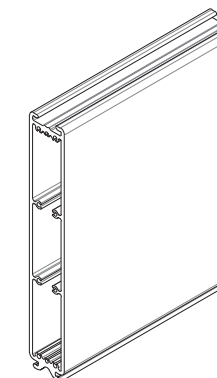
ET <b>072123.00</b>	1	MF
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mullion connection  
for E8050109



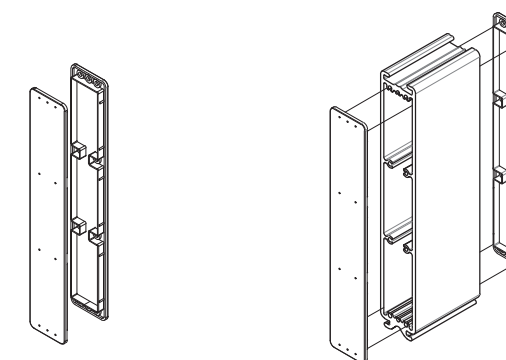
ET <b>072126.00</b>	1	MF
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mullion connection  
for E8050129



ET <b>ET074311.00</b>	1	MF
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set of plastic caps  
for mullion connection



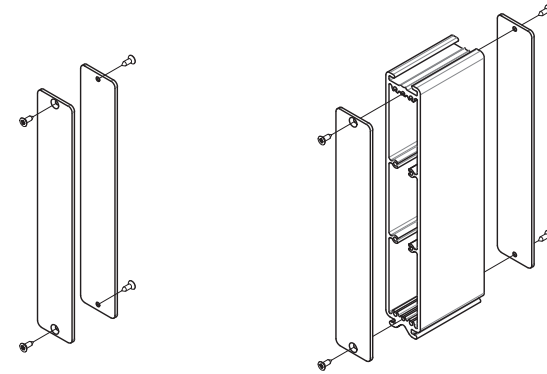
EF50 A7-11

**curtain wall system**

**EF50**

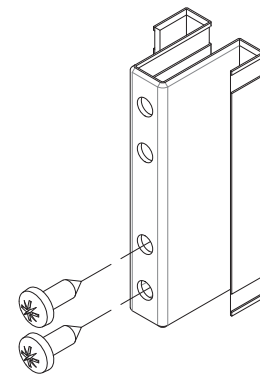
code/description	package/pcs	colour
ET <b>074310.00</b>	1	MF

set of aluminium caps with screws for mullion connection



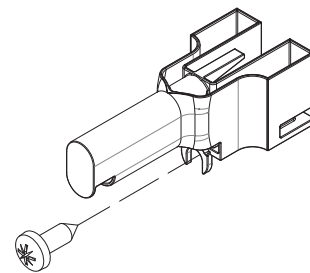
ET <b>074719.00</b>	1	MF
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set of drainage fitting with screws between mullions



ET <b>074718.00</b>	1	MF
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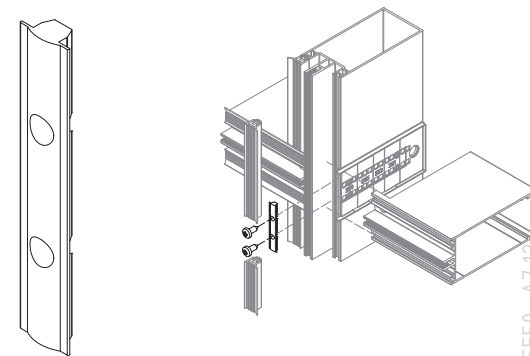
set of drainage accessory with screw



ET <b>076680.00</b>	200	●
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ET076680 old code

silicon flange between mullion and transom



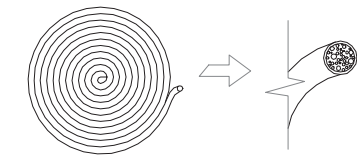
**curtain wall system**

**EF50**

code/description	package/pcs	colour
ET <b>076681.00</b>	6	●

ET076681 old code

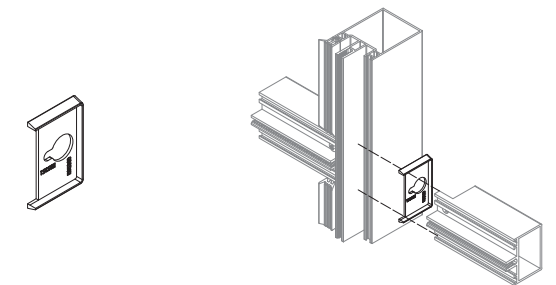
seal between mullion and transom



ET <b>076661.00</b>	100	●
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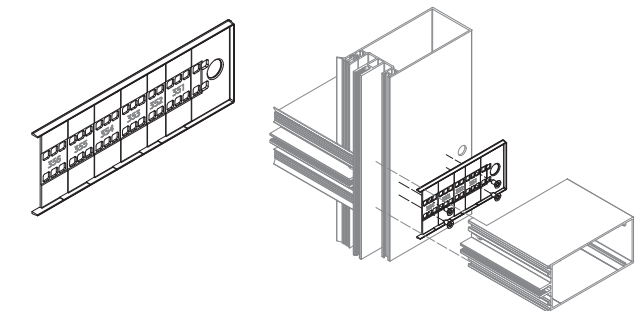
ET076661 old code

Plastic flange for transom E85351



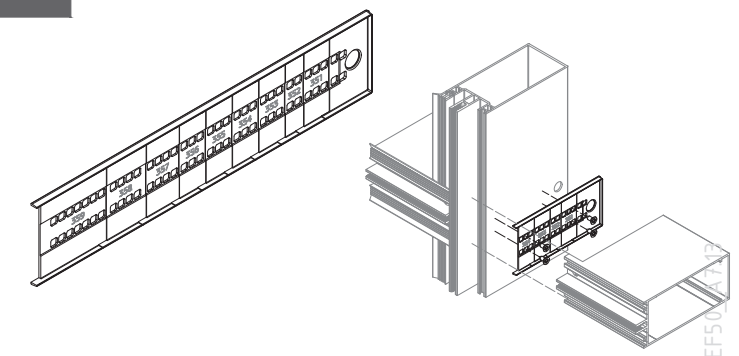
ET <b>076050.00</b>	20	●
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PA6 flange for EF50 transoms E8050351 to E8050356



ET <b>076051.00</b>	20	●
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PA6 flange for EF50 transoms E8050351 to E8050359

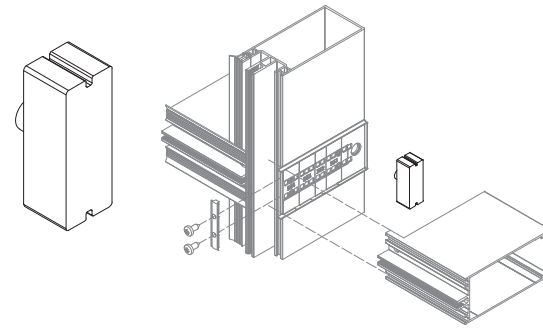


**curtain wall system**

**EF50**

code/description	package/pcs	colour
ET <b>053385.00</b>	1	MF

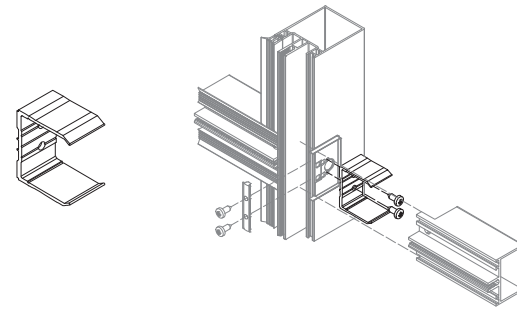
spring connection  
for EF50 transoms



ET <b>071131.00</b>	400	MF
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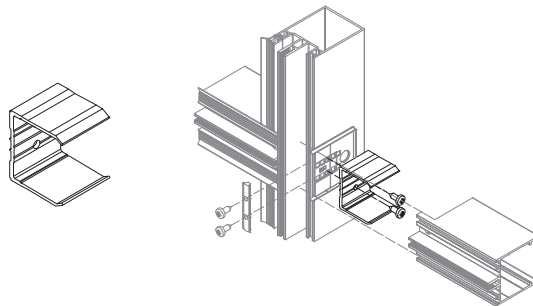
ET071131 old code

T-connection  
for transom E85351  
L=26mm



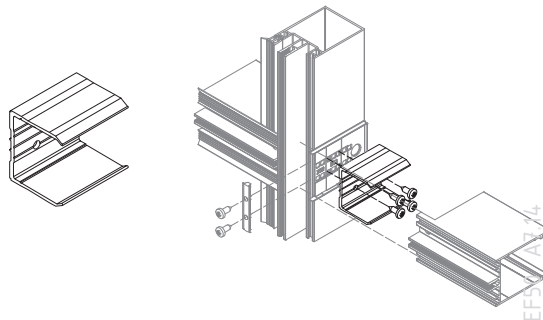
ET <b>072104.00</b>	1	MF
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T-connection  
for transom E8050351  
L=35.5mm



ET <b>072105.00</b>	1	MF
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T-connection  
for transom E8050352  
L=49.5mm

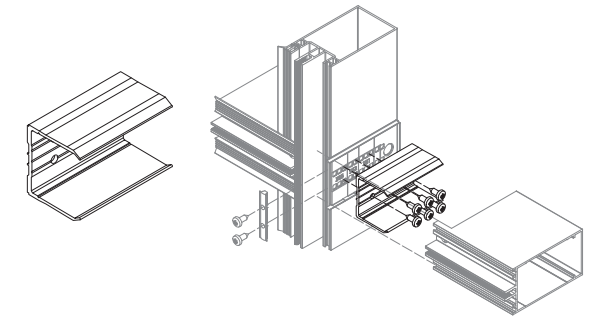


**curtain wall system**

**EF50**

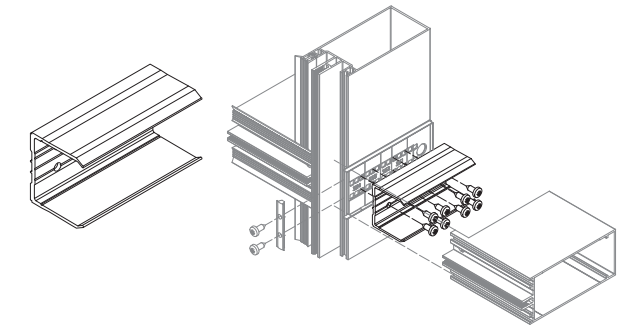
code/description	package/pcs	colour
ET <b>072106.00</b>	1	MF

T-connection  
for transom E8050353  
L=69.5mm



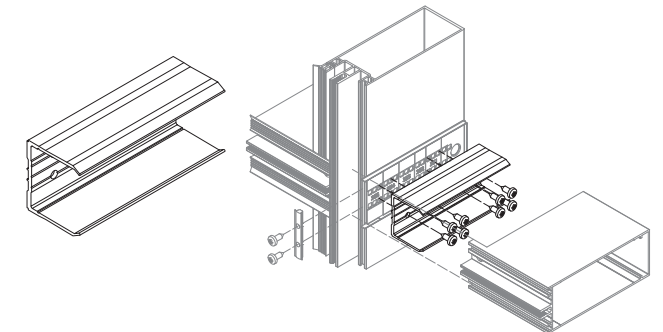
ET <b>072107.00</b>	1	MF
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T-connection  
for transom E8050354  
L=89.5mm



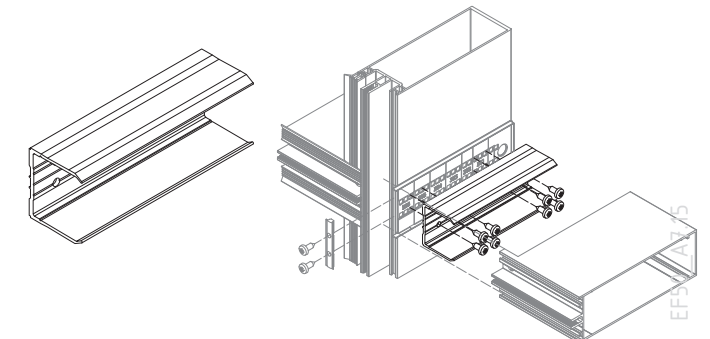
ET <b>072108.00</b>	1	MF
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T-connection  
for transom E8050355  
L=109.5mm



ET <b>072109.00</b>	1	MF
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T-connection  
for transom E8050356  
L=129.5mm



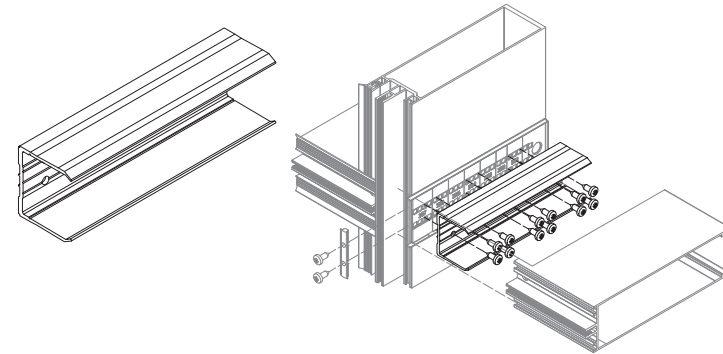


**curtain wall system**

**EF50**

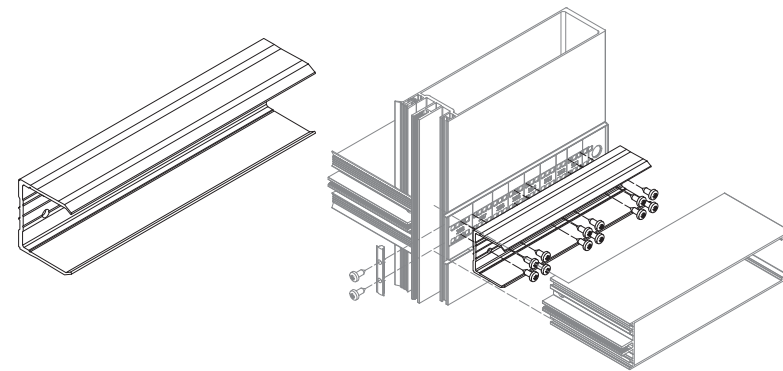
code/description	package/pcs	colour
ET <b>072110.00</b>	1	MF

T-connection  
for transom E8050357  
L=154.5mm



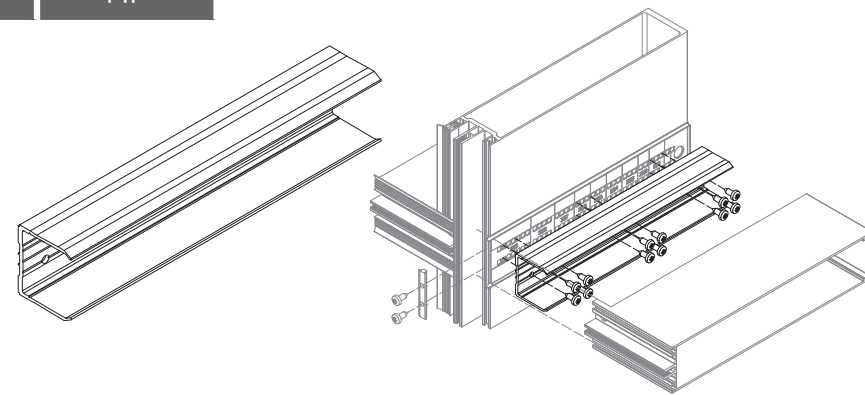
ET <b>072113.00</b>	1	MF
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T-connection  
for transom E8050358  
L=184.3mm



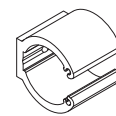
ET <b>072114.00</b>	1	MF
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T-connection  
for transom E8050359  
L=234.3mm



ET <b>072127.00</b>	1	MF
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variable angle connection  
for transom E8050351  
L=35.5mm



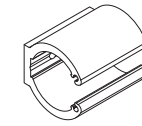
EF50\_A7.16

**curtain wall system**

**EF50**

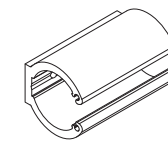
code/description	package/pcs	colour
ET <b>072128.00</b>	1	MF

variable angle connection  
for transom E8050352  
L=49.5mm



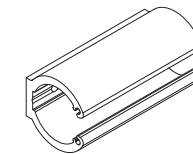
ET <b>072154.00</b>	1	MF
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variable angle connection  
for transom E8050353  
L=69.5mm



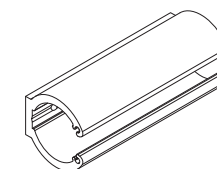
ET <b>072155.00</b>	1	MF
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variable angle connection  
for transom E8050354  
L=89.5mm



ET <b>072156.00</b>	1	MF
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variable angle connection  
for transom E8050355  
L=109.5mm



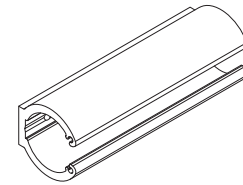
EF50\_A7.17

**curtain wall system**

**EF50**

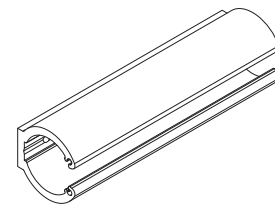
code/description	package/pcs	colour
ET <b>072157.00</b>	1	MF

variable angle connection  
for transom E8050356  
L=129.5mm



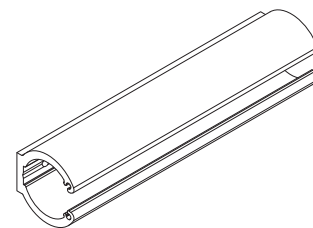
ET <b>072158.00</b>	1	MF
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variable angle connection  
for transom E8050357  
L=154.5mm



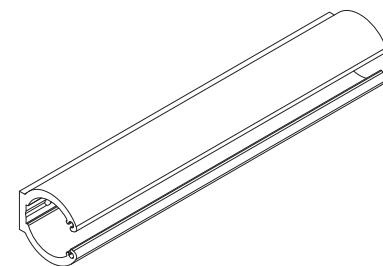
ET <b>072159.00</b>	1	MF
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variable angle connection  
for transom E8050358  
L=184.3mm



ET <b>072160.00</b>	1	MF
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variable angle connection  
for transom E8050359  
L=234.3mm



EF50\_A7:18

**curtain wall system**

**EF50**

code/description	package/pcs	colour
ET <b>143947.00</b>	-	MF

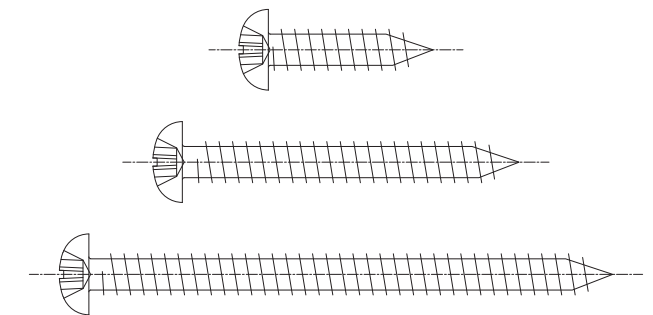
EPDM rubber sealing washer  
stainless steel A2 M6x16  
2,8mm



DIN 7981	100	MF
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tapping screw

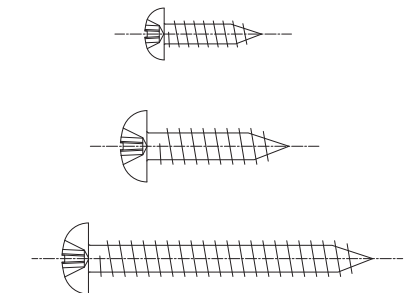
ST5.5x19-C-H	ET991183.00
ST5.5x22-C-H	ET143539.00
ST5.5x25-C-H	ET991184.00
ST5.5x32-C-H	ET994494.00
ST5.5x38-C-H	ET991186.00
ST5.5x45-C-H	ET991187.00
ST5.5x50-C-H	ET143540.00
ST5.5x60-C-H	ET143541.00
ST5.5x70-C-H	ET143543.00



DIN 7981	100	MF
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tapping screw

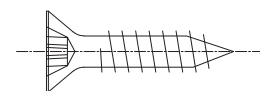
ST3.5x13-C-H	ET143545.00
ST4.2x16-C-H	ET994933.00
ST4.2x22-C-H	ET994965.00
ST4.8x13-C-H	ET991360.00
ST4.8x16-C-H	ET143948.00
ST4.8x19-C-H	ET991181.00
ST4.8x25-C-H	ET991182.00
ST4.8x32-C-H	ET992000.00
ST4.8x38-C-H	ET143538.00



DIN 7982	100	MF
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tapping screw

ST3.5x13-C-H	ET991189.00
ST4.8x19-C-H	ET994499.00
ST5.5x22-C-H	ET143544.00
ST5.5x25-C-H	ET993031.00



EF50\_A7:19

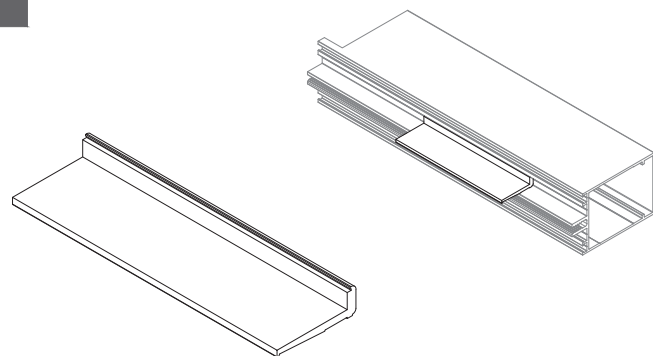
curtain wall system

EF50

code/description	package/pcs	colour
ET <b>071180.00</b>	500	MF

ET071180 old code

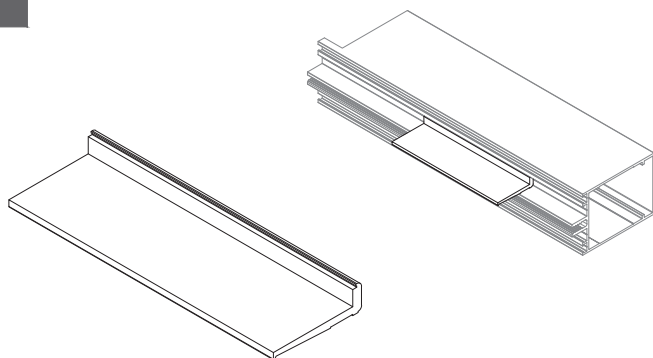
aluminium glazing shim  
a=26.5mm



ET <b>071189.00</b>	200	MF
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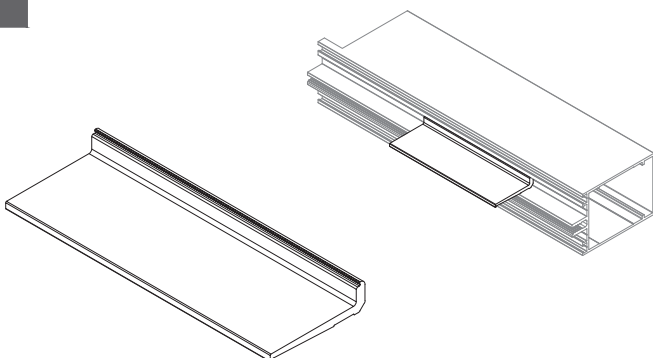
ET071185 old code

aluminium glazing shim  
a=30mm



ET <b>071197.00</b>	200	MF
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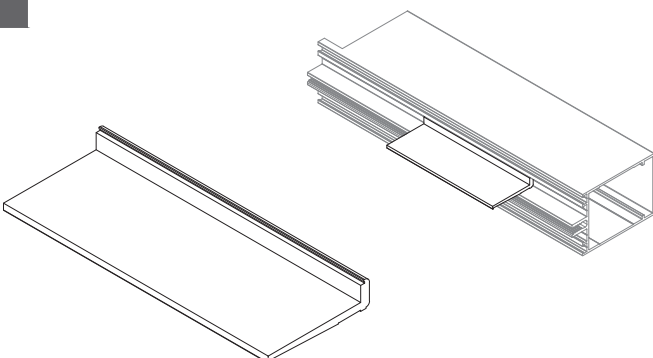
aluminium glazing shim  
a=32.5mm



ET <b>071181.00</b>	200	MF
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ET071181 old code

aluminium glazing shim  
a=35mm



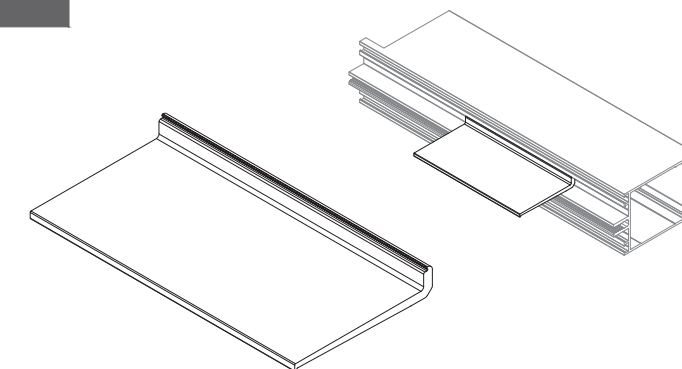
EF50\_A7.20

curtain wall system

EF50

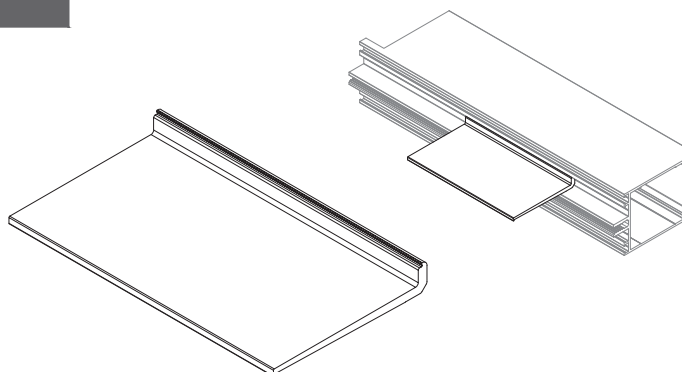
code/description	package/pcs	colour
ET <b>071440.00</b>	200	MF

aluminium glazing shim  
a=48.7mm



ET <b>071441.00</b>	200	MF
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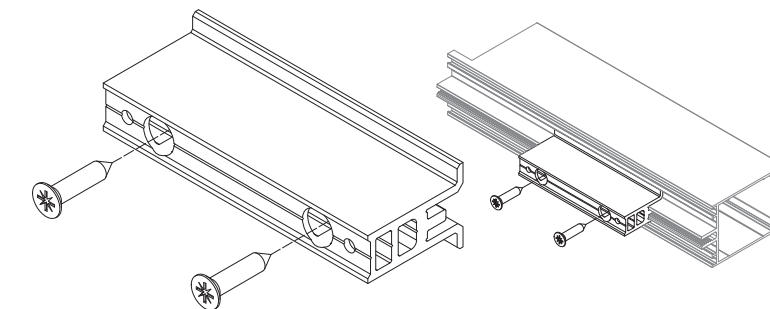
aluminium glazing shim  
a=54.7mm



ET <b>071191.00</b>	200	MF
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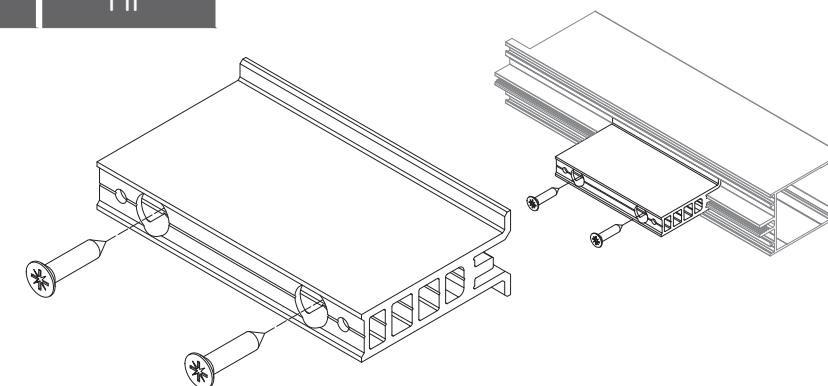
ET071188 old code

aluminium glazing shim  
for heavy glass  
a=32.7-47.7mm



ET <b>071200.00</b>	200	MF
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aluminium glazing shim  
for heavy glass  
a=53-68mm



EF50\_A7.21

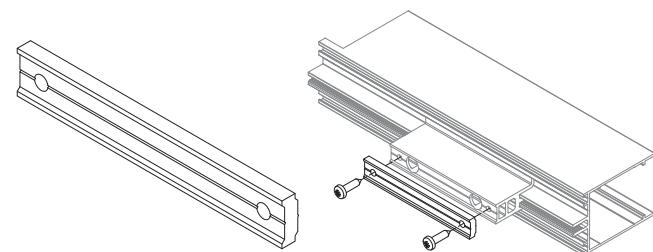
curtain wall system

EF50

code/description	package/pcs	colour
ET <b>994471.00</b>	100	MF

ET071186 old code

additional aluminium shim  
to aluminium glazing shim  
for heavy glass



ET <b>130102.00</b>	100	●
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EPDM gasket for  
pressure plate



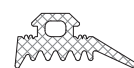
ET <b>130107.00</b>	150	●
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EPDM gasket 2mm  
for insertions



ET <b>130473.00</b>	150	●
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EPDM gasket 3mm  
for glazing



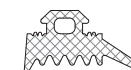
EF50\_A7.22

curtain wall system

EF50

code/description	package/pcs	colour
ET <b>130474.00</b>	125	●

EPDM gasket 4mm  
for glazing



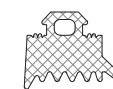
ET <b>130455.00</b>	150	●
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EPDM gasket 5mm  
for glazing



ET <b>130463.00</b>	100	●
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EPDM gasket 6mm  
for glazing



ET <b>130457.00</b>	100	●
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EPDM gasket 7mm  
for glazing



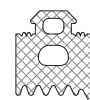
EF50\_A7.23

curtain wall system

EF50

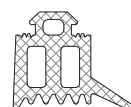
code/description	package/pcs	colour
ET <b>130458.00</b>	80	●

EPDM gasket 8mm  
for glazing



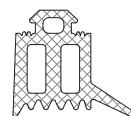
ET <b>130479.00</b>	100	●
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EPDM gasket 9mm  
for glazing



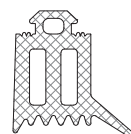
ET <b>130470.00</b>	90	●
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EPDM gasket 10mm  
for glazing



ET <b>130480.00</b>	65	●
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EPDM gasket 12mm  
for glazing



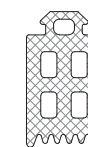
EF50\_A7.24

curtain wall system

EF50

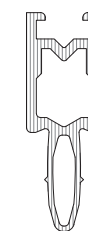
code/description	package/pcs	colour
ET <b>130997.00</b>	50	●

EPDM gasket 15mm  
for glazing



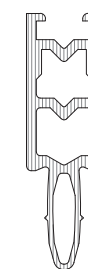
ET <b>080171.00</b>	6	●
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thermal insulator  
PVC 16mm



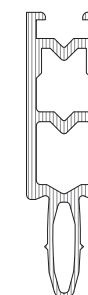
ET <b>080174.00</b>	6	●
---------------------	---	---

thermal insulator  
PVC 21mm



ET <b>080172.00</b>	6	●
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thermal insulator  
PVC 25mm



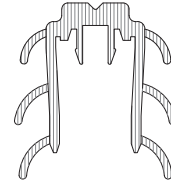
EF50\_A7.25

**curtain wall system**

**EF50**

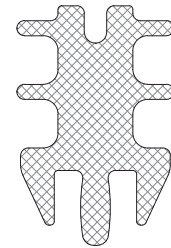
code/description	package/pcs	colour
ET <b>080173.00</b>	6	●

additional (optional)  
PVC thermal insulator



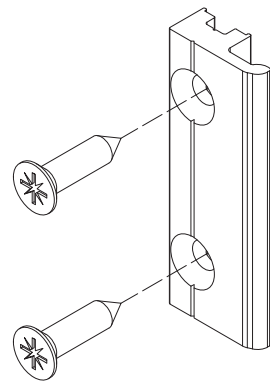
ET <b>080518.00</b>	250	●
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thermal insulator  
EPL 22mm



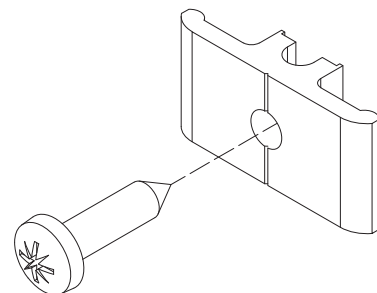
ET <b>071130.00</b>	100	MF
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glazing clip 60mm  
with screws



ET <b>072130.00</b>	100	MF
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glazing clip 18mm  
with screw



EF50\_A7.26

**curtain wall system**

**EF50**

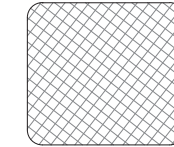
code/description	package/pcs	colour
ET <b>072056.00</b>	-	MF

metal sheet glazing clip  
for 90° corner



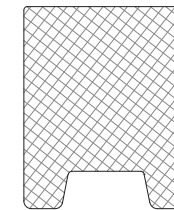
ET <b>080052.00</b>	-	●
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EPL insulator 19x21 for  
structural glazing



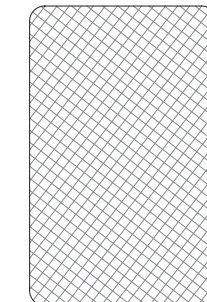
ET <b>080050.00</b>	2	●
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EPL insulator 22x22 for  
structural glazing



ET <b>080051.00</b>	-	●
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EPL insulator 25x40 for  
structural glazing



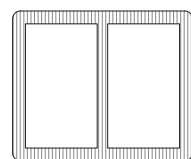
EF50\_A7.27

**curtain wall system**

**EF50**

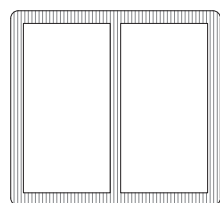
code/description	package/pcs	colour
ET <b>080177.00</b>	6	●

spacer  
PVC 20x24mm



ET <b>080165.00</b>	6	●
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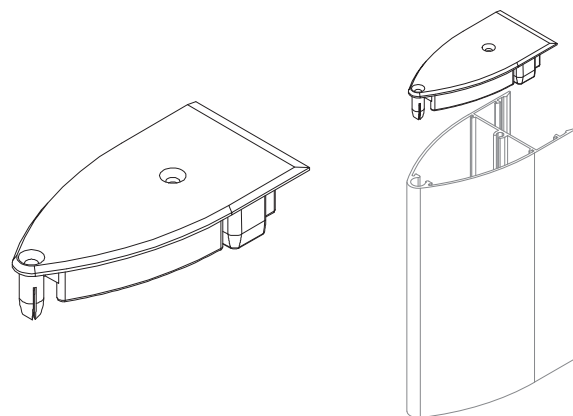
spacer  
PVC 26x28mm



ET <b>074657.00</b>	50	●
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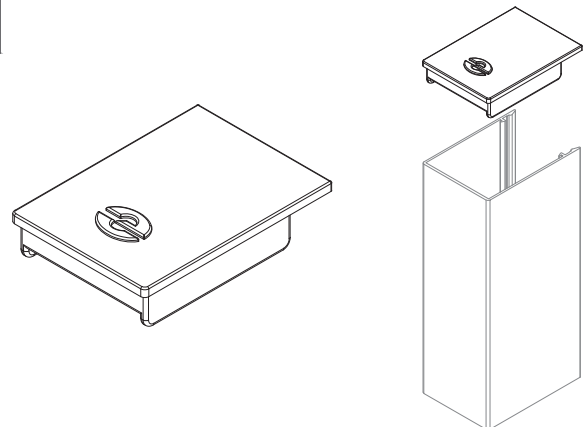
ET074657 old code

plastic cap  
for cover cap E85723



ET <b>074885.00</b>	50	●
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plastic cap  
for cover cap E85728



EF50\_A728

# CE MARKING

STANDARDS / REQUIREMENTS

# CE MARKING

## WHAT DOES THE SIGN CE MEAN?

It is an abbreviation of the French "Conformite Europeene"- i.e. European Conformity. By placing the CE marking the manufacturer declares that the product complies with the general safety requirements set out in the Construction Product Regulation 305/2011.

## WHAT IS THE PURPOSE OF CE MARKING?

The CE marking represents "the European passport" of the product, its main objectives are:

CE is a declaration by the manufacturer that the product meets the essential requirements of relevant European legislation relating to health, safety and environmental protection;

CE indicates to officials in relevant ministries and departments that the product can be put on the market lawfully in the country;

CE ensures free movement of goods within the EU and the European Free Trade Association (EFTA);

CE permits the withdrawal of products that do not meet the standards by monitoring and custom authorities;

Marking with the CE mark is necessary in cases where the product is distributed within the internal market.

## WHAT ARE THE REQUIREMENTS FOR THE CE MARKING?

Doors, windows and gates (except those intended to be used for internal communication only, for fire/smoke compartmentation and on escape routes) are covered by System 3 of assessment and verification of constancy of performance.

According to the Construction Product Regulation 305/2011, this system sets the following duties:

Tasks to be performed by the manufacturer	Tasks to be performed by Notified testing laboratory	Conformity assessment (the basis for CE marking, which is set by the final producer)
factory production control - FPC	Determination of the product type on the basis of type testing, type calculation, tabulated values, etc.	Declaration of performance issued by the manufacturer or his authorized representative based on test results.

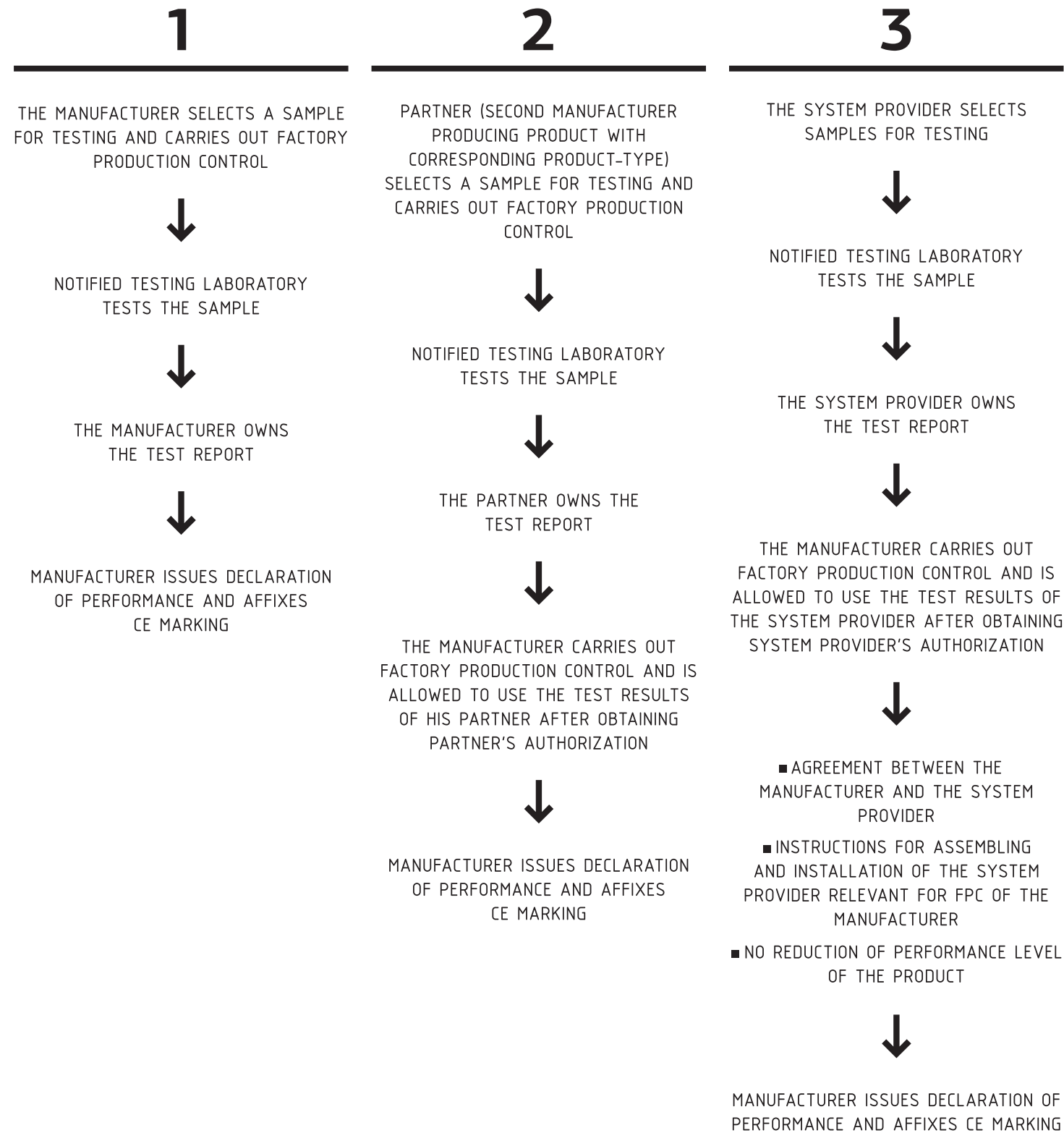
## LEGAL ACTS

- Construction Products Regulation (305/2011/EU - CPR) - replacing the Construction Products Directive (89/106/EEC - CPD)
- EN 14351-1:2006+A1:2010 - Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics



# MAIN METHODS FOR OBTAINING TEST RESULTS BY THE MANUFACTURER

According to the Construction Product Regulation 305/2011 there are three main options for the manufacturers of windows and doors to obtain test results.



# SAMPLE DECLARATION FOR CURTAIN WALLS

## Declaration of Performance

Manufacturer's corporate name

DoP: No EF50XX01

Intended use: Curtain Walling

Essential Characteristics	Performance	Notified Body	AVCP	hEN
Reaction to fire of profile	NPD	-	3	EN 13830:2003
Fire resistance	NPD	-		
Fire propagation	NPD	-		
Watertightness	RE <sub>1950Pa</sub>	0757		
Resistance to own dead load: [kN]	NPD	-		
Wind load resistance: [kN/m <sup>2</sup> ]				
Design load	±2.00	0757		
Safety load	±3.00	0757		
Impact resistance	I5/E5	-		
Thermal shock resistance	NPD	-		
Resistance to horizontal loads: [kN at m sill height]	NPD	-		
Air permeability	AE <sub>900Pa</sub>	0757		
Thermal transmittance U <sub>ew</sub> [W/(m <sup>2</sup> K)]	1.2	0757		
Airborne sound insulation [dB]	NPD	-		

The performance of the product(s) identified above is in conformity with the set of declared performances. This declaration of performance is issued in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Name	Place and date of issue	Signature

Signed for and on behalf of the manufacturer by:



20

No EF50XX01

Window for communication in domestic and domestic locations

Manufacturer's corporate name

EN 13830:2003

Essential Characteristics	Performance
Watertightness	RE <sub>1950Pa</sub>
Wind load resistance: [kN/m <sup>2</sup> ]	
Design load	±2.00
Safety load	±3.00
Impact resistance	I5/E5
Air permeability	AE <sub>900Pa</sub>
Thermal transmittance	1.2 (W/m <sup>2</sup> K)

Notified Body 0757

# STANDARDS

## GENERAL

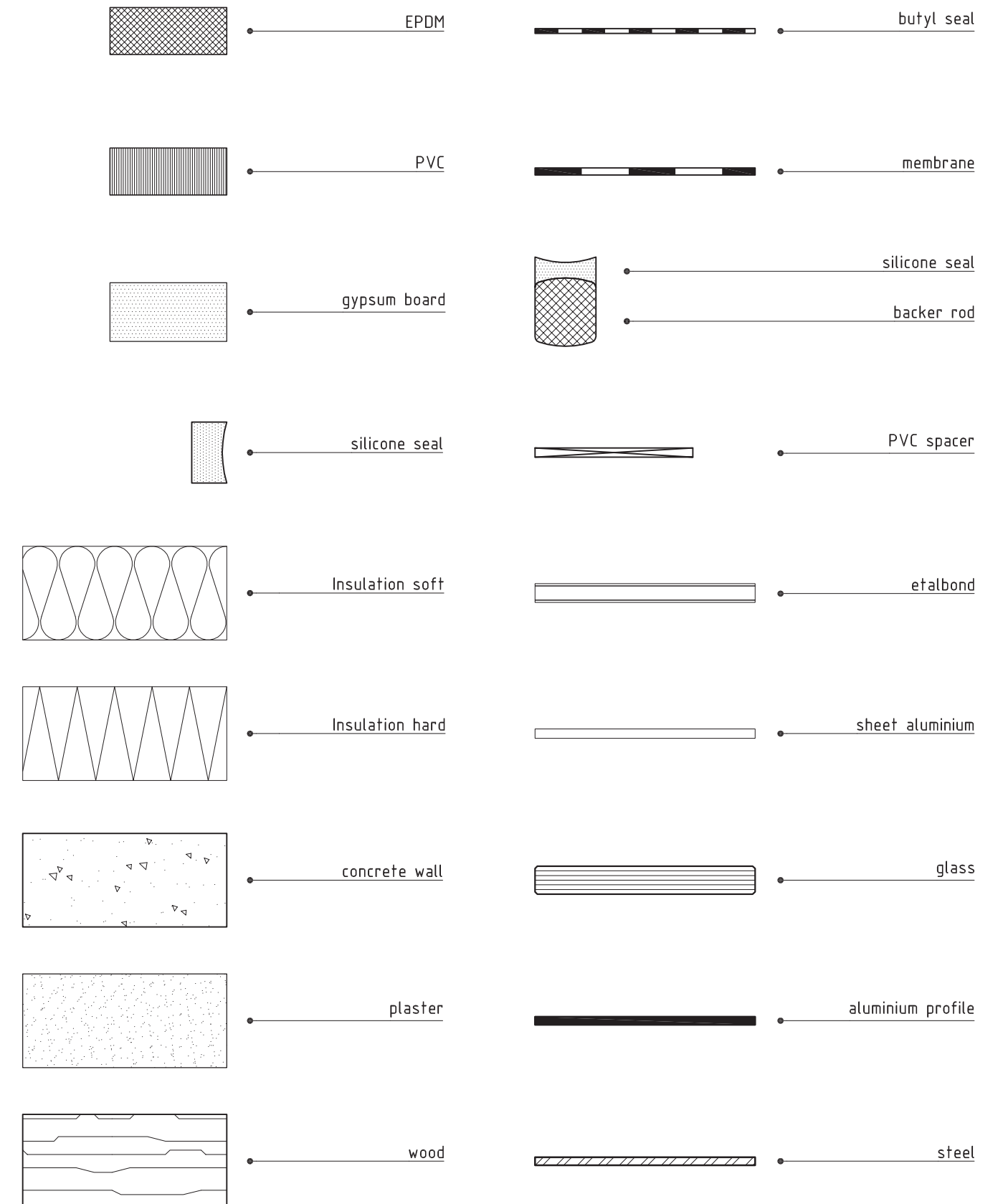
- EN 12020 (1+2) - ALUMINIUM AND ALUMINIUM ALLOYS - EXTRUDED PRECISION PROFILES IN ALLOYS EN AW-6060 AND EN AW-6063
- EN 755 (1+9)- ALUMINIUM AND ALUMINIUM ALLOYS - EXTRUDED ROD/BAR, TUBE AND PROFILES
- EN 573 (1+3) - ALUMINIUM AND ALUMINIUM ALLOYS - CHEMICAL COMPOSITION AND FORM OF WROUGHT PRODUCTS
- EN 1990 EUROCODE - BASIS OF STRUCTURAL DESIGN
- EN 1991 EUROCODE 1 - ACTIONS ON STRUCTURES
- EN 1998 EUROCODE 8 - DESIGN OF STRUCTURES FOR EARTHQUAKE RESISTANCE
- EN 1999 EUROCODE 9 - DESIGN OF ALUMINIUM STRUCTURES

## CURTAIN WALLING

1. EN 13830 - CURTAIN WALLING - PRODUCT STANDARD
2. EN 13119 - CURTAIN WALLING - TERMINOLOGY
3. CWCT STANDARD FOR SYSTEMIZED BUILDING ENVELOPES
4. EN 12152 - CURTAIN WALLING - AIR PERMEABILITY - PERFORMANCE REQUIREMENTS AND CLASSIFICATION
5. EN 12153 - CURTAIN WALLING - AIR PERMEABILITY - TEST METHOD
6. EN 1026 - WINDOWS AND DOORS - AIR PERMEABILITY - TEST METHOD
7. EN 12154 - CURTAIN WALLING - WATERTIGHTNESS - PERFORMANCE REQUIREMENTS AND CLASSIFICATION
8. EN 12155 - CURTAIN WALLING - WATERTIGHTNESS - LABORATORY TEST UNDER STATIC PRESSURE
9. EN 13050 - CURTAIN WALLING - WATERTIGHTNESS - LABORATORY TEST UNDER DYNAMIC CONDITION OF AIR PRESSURE AND WATER SPRAY
10. EN 1027 - WINDOWS AND DOORS - WATER TIGHTNESS - TEST METHOD
11. EN 13116 - CURTAIN WALLING - RESISTANCE TO WIND LOAD - PERFORMANCE REQUIREMENTS
12. EN 12179 - CURTAIN WALLING - RESISTANCE TO WIND LOAD - TEST METHOD
13. EN 14019 - CURTAIN WALLING - IMPACT RESISTANCE - PERFORMANCE REQUIREMENTS
14. EN ISO 10077 (12) - THERMAL PERFORMANCE OF WINDOWS, DOORS AND SHUTTERS - CALCULATION OF THERMAL TRANSMITTANCE
15. EN 12412-2 - THERMAL PERFORMANCE OF WINDOWS, DOORS AND SHUTTERS - DETERMINATION OF THERMAL TRANSMITTANCE BY HOT BOX METHOD - PART 2: FRAMES
16. EN ISO 10140-1- ACOUSTICS - LABORATORY MEASUREMENT OF SOUND INSULATION OF BUILDING ELEMENTS - PART 1: APPLICATION RULES FOR SPECIFIC PRODUCTS
17. EN ISO 717-1 - ACOUSTICS - RATING OF SOUND INSULATION IN BUILDINGS AND OF BUILDING ELEMENTS - PART 1: AIRBORNE SOUND INSULATION

# HATCHES

## Hatches for different materials



# LIABILITY

The stated data and calculating methods are provided by ETEM as a guideline only. The information given in this catalogue does not substitute all applicable regulations – Eurocodes, harmonized European standards, national or regional building codes.

The specific conditions and technical details of every particular project have to be taken into consideration.

The right choice of all elements as well as any special requirements regarding stability of the structure must always be considered by the structural/façade engineer, responsible for the project.

The solutions presented in these pages are indicative and can not cover all possible project cases. Because of that every single project has to be evaluated by the structural/facade engineer in charge taking into consideration the specific features, such as climate conditions, location, orientation, etc.

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