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Τεχνικές Πληροφορίες Technical Information

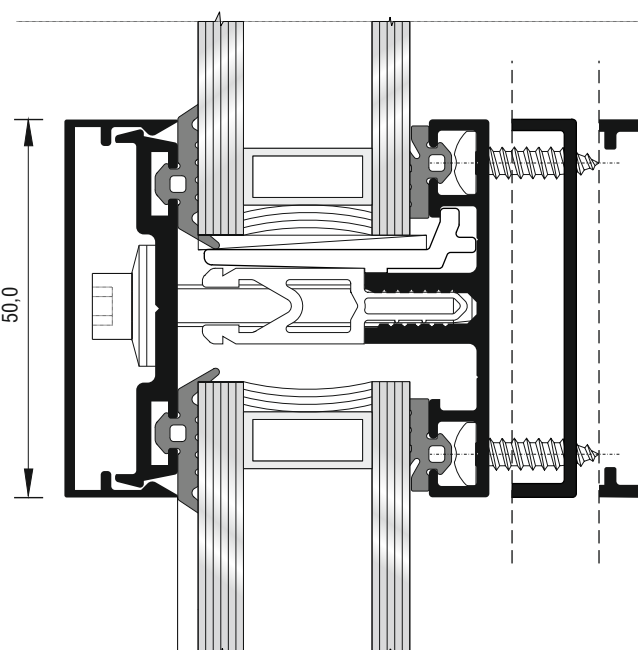
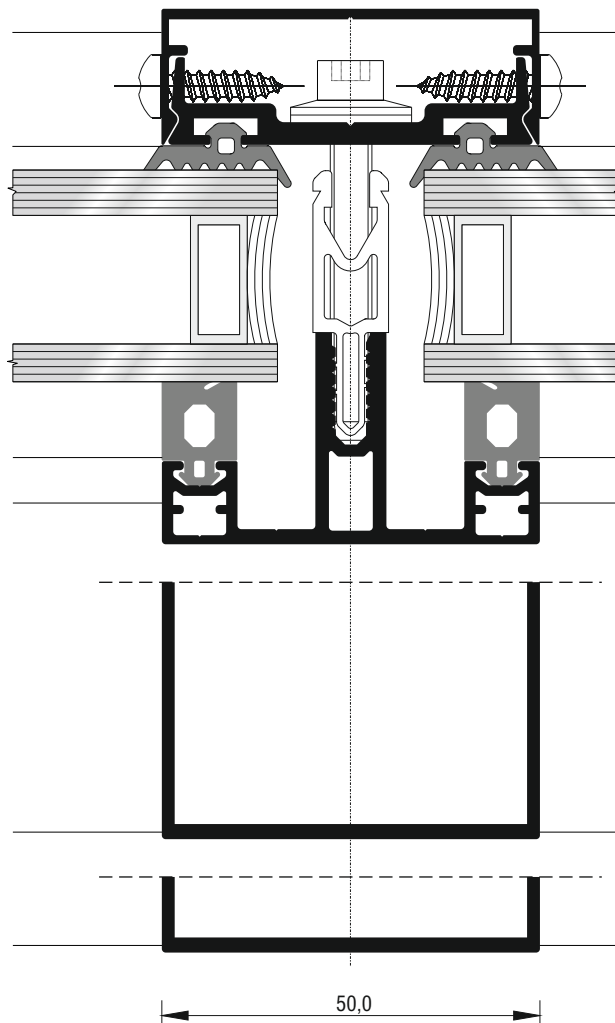
Βασικά χαρακτηριστικά | Basic characteristics

- Κολώνες και τραβέρσες κατασκευάζονται από διαφορετικά προφίλ, με πλάτος 50 χιλιοστών
- Ειδικά μονωτικά υλικά και λάστιχα EPDM για μέγιστη θερμική και ακουστική μόνωση
- Αποτελεσματικό σύστημα αποστράγγισης για μέγιστη στεγανοποίηση
- Δέχεται υαλοπίνακες έως 54mm
- Δοκιμές από αναγνωρισμένα εργαστήρια δοκιμών συμβάλλουν στη διαδικασία εναπόθεσης της Σήμανσης CE
- Προσφέρεται η δυνατότητα κατασκευής υαλοπετασμάτων Structural Silicon Glazing (SSG)
- Δυνατότητα ενσωμάτωσης του συστήματος σκιάστρων M5600
- Δυνατότητα ενσωμάτωσης όλων των συστημάτων της ALUMIL
- Μεγάλη εξοικονόμηση ενέργειας χάρις στις εξαιρετικά χαμηλές τιμές U_f , ($U_f = 1,0 - 2,4 \text{ W/(m}^2 \cdot \text{K)}$) - IFT Rosenheim)

Πιστοποιητικά:

- Ο σχεδιασμός, η διαδικασία παραγωγής, και ο ποιοτικός έλεγχος όλων των διατομών της ALUMIL είναι πιστοποιημένα με το Ευρωπαϊκό πρότυπο ISO 9001.
- Η διαδικασία της ηλεκτροστατικής βαφής που διεξάγεται στις εγκαταστάσεις της ALUMIL είναι πιστοποιημένη από QUALICOAT και RAL (GSB).

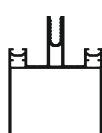
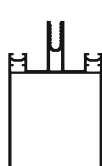
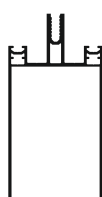
- Mullions and transoms are made with the different profiles with 50mm sightlines
- Special isolator, and EPDM gaskets for high thermal and sound insulation
- High weathertightness
- Glazing up to 54mm
- Comprehensive testing from recognized testing institutions contribute to the issuing of the CE mark
- Structural Silicon Glazing (SSG)
- Incorporates the M5600 Solar Shading system
- Incorporates all vent systems Alumil
- High energy savings thanks to extremely low U_f values ($U_f = 1,0 - 2,4 \text{ W/(m}^2 \cdot \text{K)}$) - IFT Rosenheim)



Επεξήγηση Συμβόλων Symbol Explanation

 = Γωνία επιπεδότητας	 = Σύνδεσμος ταυ αλουμινίου	 = Πρεσάκι
 = Γωνία σύνδεσης	 = Σύνδεσμος	 = Μονωτικό υλικό
 = Γωνία σύνδεσης πρεσαριστή	 = Γέφυρα τακαρίσματος	 = Στιγμιαία κόλλα
 = Γωνία σύνδεσης με διπλό χτύπημα	 = Ρυθμιζόμενος σύνδεσμος τραβέρσας	 = Μονωτική ταινία
 = Γωνία σύνδεσης καρφωτή	 = Πλάκα ενίσχυσης για γωνίες	 = Μέγιστο πλάτος
 = Γωνία σύνδεσης χυτή	 = Πλάκα ενίσχυσης σύνδεσης "Τ"	 = Μέγιστο ύψος
 = Γωνία σύνδεσης μηχανική	 = Ειδικό	 = Εξωτερική περίμετρος
 = Γωνία σύνδεσης βιδωτή	 = Προφίλ ενίσχυσης	 = Κύρια περίμετρος
 = Γωνία σύνδεσης με REIZ	 = Τάπα	 = Ροπή αδρανείας x-x
 = Γωνία σύνδεσης ανοξείδωτη μηχανική	 = Kooltherm	 = Ροπή αδρανείας y-y
 = Γωνία σύνδεσης πλαστική	 = Πριόνι	 = Βάρος
 = Γωνία για πηχάκι	 = Κονδύλι	 = Προφίλ
 = Γωνία σύνδεσης ρυθμιζόμενη	 = Ματσόλα από καουτσούκ	 = Αριθμός σελίδας
 = Σύνδεσμος ταυ χυτός	 = Οδηγός διάτρησης	 = Δεν υπάρχει απόθεμα
 = Alignment corner	 = Aluminium T - cleat	 = Punch press
 = Corner cleat	 = T - cleat	 = Sealant
 = Crimp corner cleat	 = Glazing bridge	 = Instant glue
 = Double crimp corner cleat	 = Adjustable transom-mullion cleat	 = Sealing tape
 = Nail corner cleat	 = Reinforcement plate for corners	 = Width
 = Cast mechanical corner cleat	 = Reinforcement plate for joints	 = Height
 = Mechanical corner cleat	 = Special	 = External perimeter
 = Screw corner cleat	 = Reinforcement profile	 = Primary perimeter
 = Press corner REIZ	 = End cover	 = Moment of inertia x-x
 = Inox mechanical corner cleat	 = Kooltherm	 = Moment of inertia y-y
 = Plastic corner cleat	 = Saw	 = Weight
 = Glazing holder corner	 = Milling bit	 = Profile
 = Corner cleat, adjustable	 = Rubber mallet	 = Page number
 = Cast T - cleat	 = Drill jig	 = Not a stock item

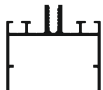
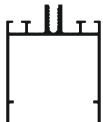
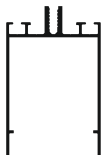
Ευρετήριο Προφίλ Profile Index

									
		mm	mm	mm	mm	cm ⁴	cm ⁴	gr/m	
	M70001	50	28	248	72	1,9	5,4	817	26
	M70002	50	67	326	150	22,2	14,9	1426	26
	M70003	50	82	356	180	39,3	17,8	1564	26
	M70004	50	102	396	220	72,0	21,8	1748	26
	M70005	50	122	436	260	120,9	25,9	1956	27
	M70006	50	142	474	300	193,4	30,4	2247	27

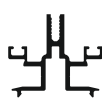
									
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	M70007	50	167	524	349	318,3	35,9	2583	28
	M70034	50	192	588	417	505,2	43,1	3033	28
	M70008	50	217	626	450	805,0	49,9	3595	29
	M70009	50	267	726	550	1475,2	61,0	4268	29

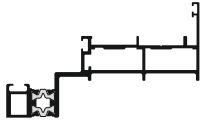
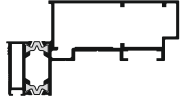
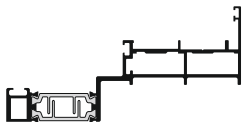
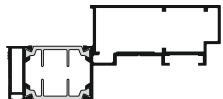
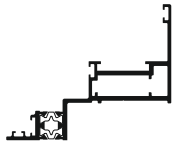
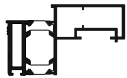
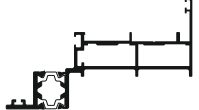
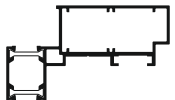
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	M70036	33,1	51,8	204	0	4,8	1,3	818	30
	M500055	33,1	23,5	111	0	0,6	1,1	430	30
	M70037	22,5	65	251	88	15,9	2,0	1027	30
	M70038	22,5	85	291	108	34,5	2,8	1295	30
	M70039	22,5	105	331	128	62,5	3,5	1544	30
	M70040	22,5	125	371	148	100,9	4,2	1770	30

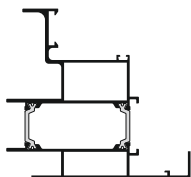
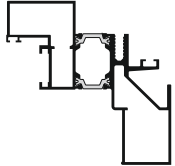
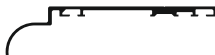
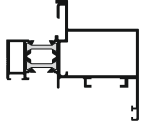
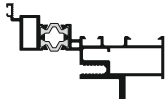
									
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	M70041	22,5	150	435	173	178,9	5,1	2127	31
	M70042	22,5	175	471	198	265,8	5,9	2357	31
	M70043	22,5	200	521	223	420,2	7,0	2863	31
	M70044	22,5	250	621	273	774,3	8,6	3430	31

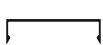
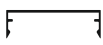
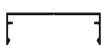
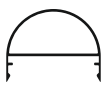
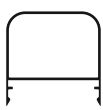
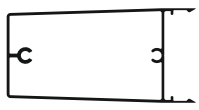
									
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	M70010	50	16,5	237	66	0,4	3,8	584	32
	M70011	50	28	260	89	2,0	7,5	895	32
	M70012	50	47	298	127	9,0	11,5	1084	32
	M70013	50	66	336	165	22,9	15,2	1254	32
	M70014	50	81	366	195	39,7	18,1	1387	33
	M70015	50	101	406	235	70,1	21,9	1566	33
	M70016	50	121	446	275	113,8	26,3	1764	33

		mm	mm	mm	mm	cm ⁴	cm ⁴	gr/m	
	M70017	50	141	486	315	176,4	32,9	2079	34
	M70018	50	166	536	365	271,4	38,4	2336	34
	M70055	50	191	586	415	404,7	44,1	2628	35
	M70019	50	216	636	465	559,9	49,6	2884	35

									
		mm	mm	mm	mm	cm ⁴	cm ⁴	gr/m	
	M70020	266	50	736	565	973,5	60,6	3397	36
	M70098	260	50	720,3	535	2788	131,18	9661	37
	M70021	50	44	385	111	5,2	6,4	1160	36
	M70045	10,0	13,5	62	4	0,1	0,1	116	36
	M70046	10,0	12,4	60	5	0,1	0,1	113	36
	M70047	10,0	11,8	59	5	0,1	0,1	111	37
	M70048	10,0	11,0	58	6	0,1	0,1	109	37
	M70022	11,5	10,9	70	9	0,1	0,1	120,5	37

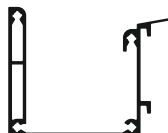
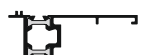
									
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	M70023	102,2	61	417	46	14,3	75,5	1846	37
	M70024	91,5	50,5	329	90	15,4	55,4	1767	37
	M70050	124,2	61	461	46	17,0	123,8	1995	38
	M70051	113,5	50,5	329	90	18,3	95,0	1923	38
	M109426	87,3	72,0	415	59	19,1	47,0	1702	39
	M109910	62,9	37,6	254	58	17,4	6,1	1229	39
	M70032	98,5	58,6	426	46	12,0	55,4	1665	40
	M70033	86,5	50,5	326	80	12,8	44,7	1544	40

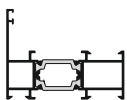
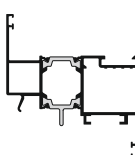
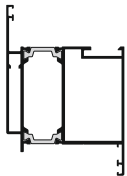
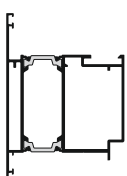
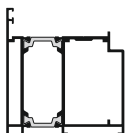
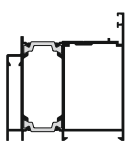
									
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	M10840	86,9	86,8	495	70	39,8	47,0	2191	41
	M10841	111,5	26	319	130	0,8	34,0	835	43
	M500126	70,2	63,9	390	110	9,1	29,8	1490	42
	M500129	83,6	52,9	391	23	8,0	33,2	1650	42
	M9984	45,4	37,6	198	64	3,4	7,4	800	39
	M10982	56,7	54,5	279	59	7,3	12,8	1145	40
	M500130	135,9	15,3	303	135	0,3	68,4	1037	43
	M70052	207,3	15,3	254	58	0,3	227,0	1518	43
	M70025	47,4	11,6	164	0	0,1	4,1	481	44
	M510007	47,4	8,3	147	0	0,1	3,1	429	44
	M109401	79,5	21,6	339	86	1,3	31,7	1342	45

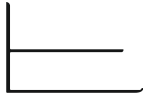
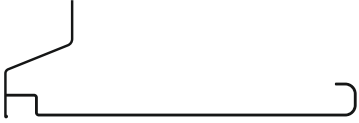
									
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	M109402	93,7	25,3	372	104	2,1	48,4	1508	45
	M109403	106,8	29,4	405	123	3,6	68,8	1660	45
	M109404	128,6	39,3	477	159	9,9	121,4	1978	45
	M70031	50	13,2	150	76	0,1	3,1	264	46
	M500053	50	15	166	79	0,2	3,7	292	46
	M500063	50	18	178	85	0,3	4,0	307	46
	M500077	50	38,6	192	105	2,4	6,6	570	46
	M500078	50	50	228	141	6,7	10,0	705	46
	M500079	50	100	302	216	43,4	13,2	1119	47
	M70054	50	100	333	243	54,5	18,2	1316	59

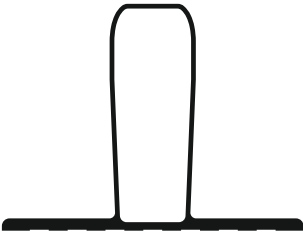
									
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	M10940	55,0	6,3	163	68	0,1	6,0	554	44
	M500113	50	6,8	137	59	0,1	4,6	619	44
	M500018	48,2	8,5	116	52	0,1	2,2	558	44
	M500082	50,0	13,5	140	70	0,2	2,8	257	44
	M500081	46,4	12,9	147	0	0,1	3,6	507	44
	M9935	55,2	14,1	195	72	0,2	2,7	295	47
	M9934	52,3	12,5	195	0	0,1	3,2	457	47
	M9932	48,7	16,7	175	57	0,2	1,5	260	47
	M9931	47,0	14,7	197	0	0,2	2,6	484	47
	M109421	36,0	12,1	107	23	0,1	1,0	276	48
	M500122	55,0	10,0	138	43	0,1	2,9	368	49

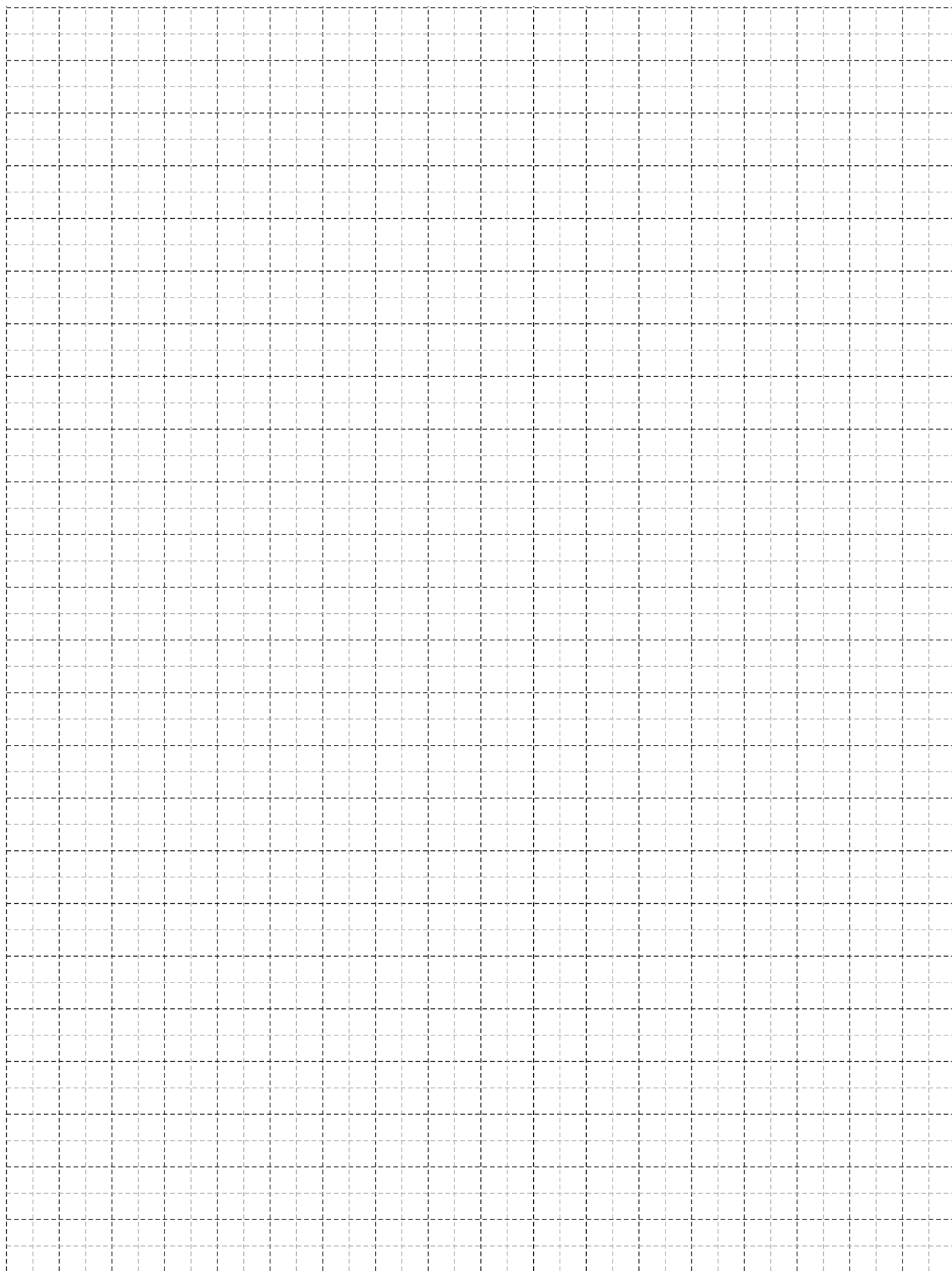
									
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	M9351	16,9	4,6	48	17	0	0,1	70	48
	M109422	20,5	7,0	78	21	0	0,3	263	48
	M70026	35,9	8,6	85	0	0	1,0	262	48
	M70049	57,9	8,6	129	0	0	3,7	365	48
	M109683	24,8	21,3	124	0	0,5	0,6	348	49
	M10969	20	10	88	0	0,1	0,2	174	48
	M109690	26,8	21,3	154	0	0,5	0,6	327	48
	M109685	22,5	26,7	127	29	1,2	0,9	526	49
	M10968	29,7	15,8	107	0	0,3	1,2	366	48
	M109680	45,2	14,6	144	0	0,3	3,9	491	48
	M500097	20,9	4,5	50	0	0	0,2	128	48
	M500135	20,9	7,2	55	0	0	0,2	218	48

									
		mm	mm	mm	mm	cm ⁴	cm ⁴	gr/m	
	M500098	8,6	4,4	37	0	0	0	45	48
	M10963	84,8	68,5	506	139	36,2	63,7	1871	49
	M10964	14,3	49,3	160	0	5,6	0,5	539	49
	M500099	93,3	25,7	262	10	3,0	17,7	935	49
	M500070	80,5	25,7	239	5	2,9	15,1	892	50
	M500071	76,5	25,7	231	5	2,7	12,8	870	50
	M500072	74,5	25,7	227	5	2,6	11,8	860	50
	M500073	72,5	25,7	223	5	2,5	10,8	850	50
	M500074	68,5	25,7	230	5	2,1	9,0	806	50

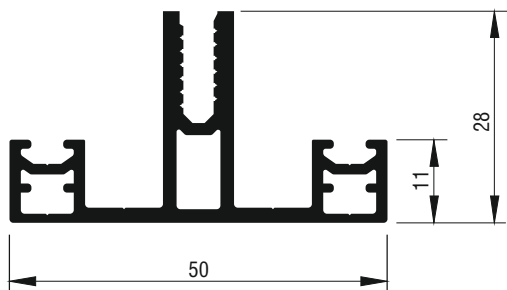
									
		mm	mm	mm	mm	cm ⁴	cm ⁴	gr/m	
	M11008	62,5	48	329	78	4,9	18,4	1143	51
	M11434	69,9	76	429	105	14,0	31,4	1545	51
	M11082	62,5	90,4	395	145	33,7	32,3	1799	52
	M11084	62,5	90,4	395	115	34,0	30,4	1818	53
	M11086	62,5	68	343	118	25,2	27,2	1656	52
	M11088	62,5	68	345	118	24,7	28,5	1631	53
	M11184	50,8	17,5	158	90	0,8	6,7	784	51
	M11170	59,8	21,8	315	22	1,2	12,5	926	51

									
		mm	mm	mm	mm	cm ⁴	cm ⁴	gr/m	
	M11053	22,5	26,6	175	44	0,8	0,6	294	54
	M11054	30,5	26,6	196	52	0,9	1,2	330	54
	M10957	50,1	15,7	141	0	0,3	4,4	562	54
	M10958	52,8	16,1	142	0	0,3	4,2	563	54
	M9317	21,0	15,9	85	29	0,1	0,3	180	54
	M9010	25,0	7,2	75	27	0,1	0,3	132	54
	M10960	10,0	11,6	57	0	0,1	0,1	122	55
	M9970	36,6	51,7	181	74	2,4	2,2	313	55
	M9962	72,6	48,0	359	121	5,1	14,4	783	55
	M9961	186,5	62,5	606	84	9,7	170,9	1178	55
	M70078	250,0	45,6	771	0	43,6	2781,7	12521	59
	M70079	35,9	23,6	158	0	1,0	3,4	847	59

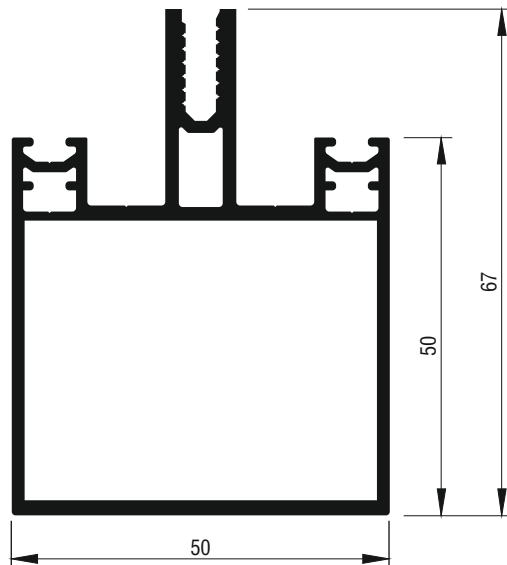
									
		mm	mm	mm	mm	cm ⁴	cm ⁴	gr/m	
	M500080	50	21	190	91	0,47	4,38	324	54
	M70029	250	45,6	700	0	94,5	1798,2	7530	56
	M70030	165,8	45,6	484	0	82,5	789,7	7672	57
	M70053	159,6	120	555	0	250,7	233,9	4265	57
	M70027	31,8	45,6	227	0	11,8	3,3	1138	56
	M70028	38,2	45,6	230	0	14,4	8,5	1717	56
	M70097	32,5	49,0	188	0	13,6	4,3	1273	56
	AI500001	4,5	34,8	84	0	1,0	0,1	287	56
	M500087	50,0	13,6	178	0	0,6	8,6	824	58
	M500088	70,0	13,6	271	0	0,9	21,6	1236	58
	M500065	110,0	13,6	371	0	1,2	70,6	1641	58
	M500089	140,0	13,6	431	0	1,3	132,0	1884	57
	20x15x1,3	20,0	15,0	70	0	0,3	0,5	227	58
	30x15x2,0	30,0	15,0	90	0	0,6	1,8	443	58



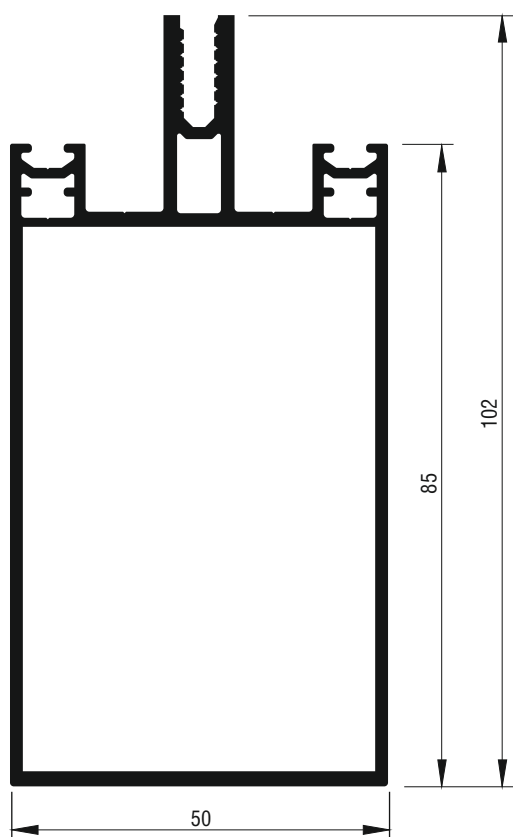
Προφίλ 1:1
Profiles 1:1



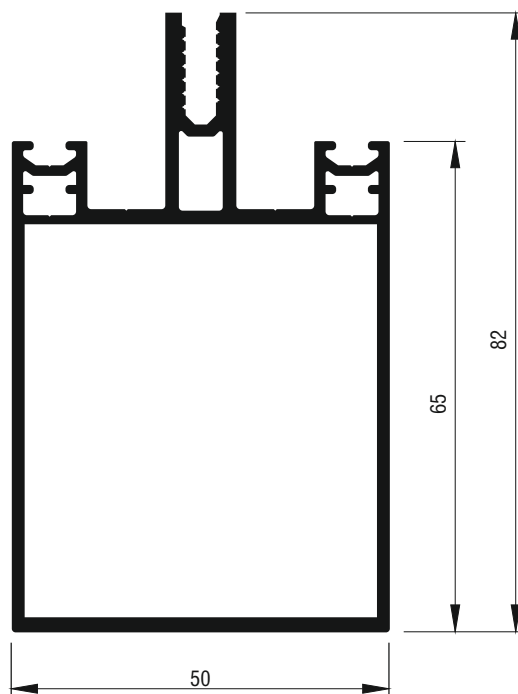
M70001	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	817 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	1,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	5,4 cm ⁴



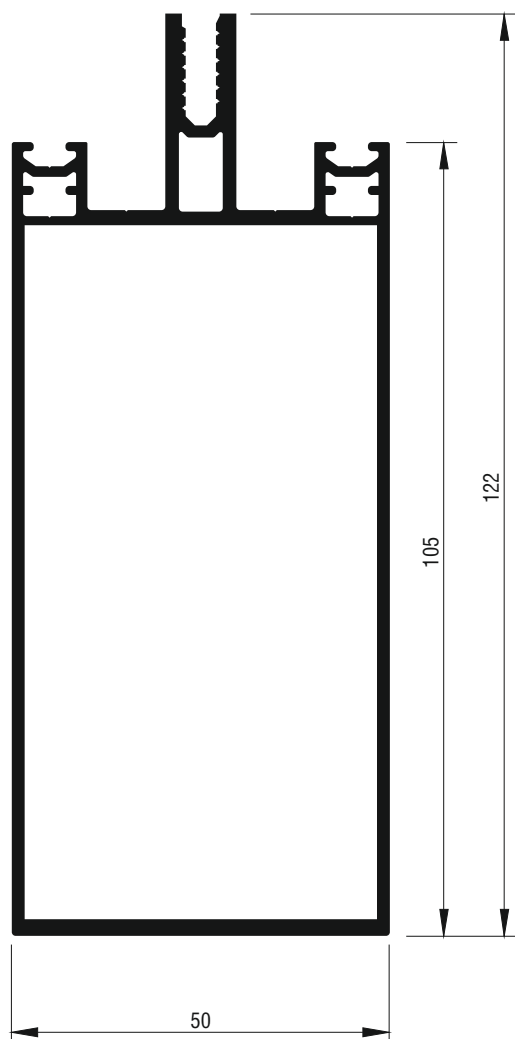
M70002	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	1426 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	22,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	14,9 cm ⁴



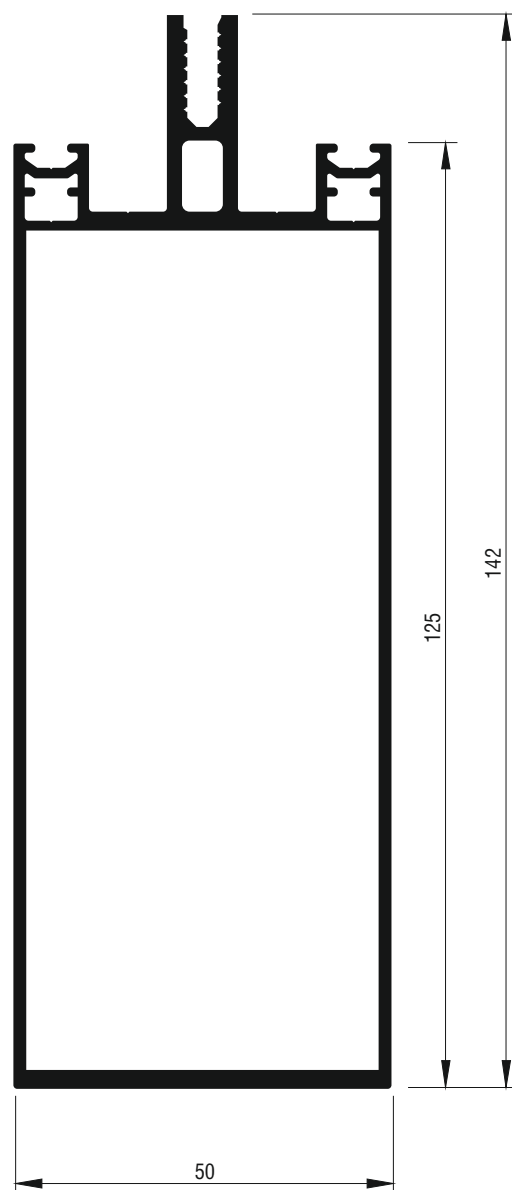
M70004	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	1748 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	72,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	21,8 cm ⁴



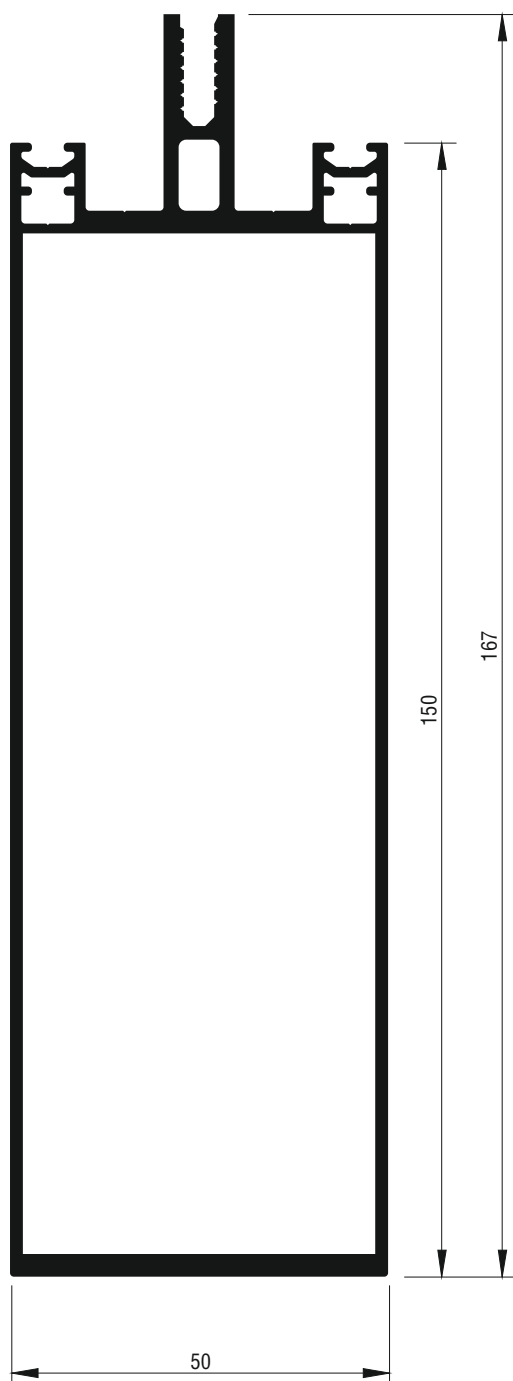
M70003	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	1564 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	39,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	17,8 cm ⁴



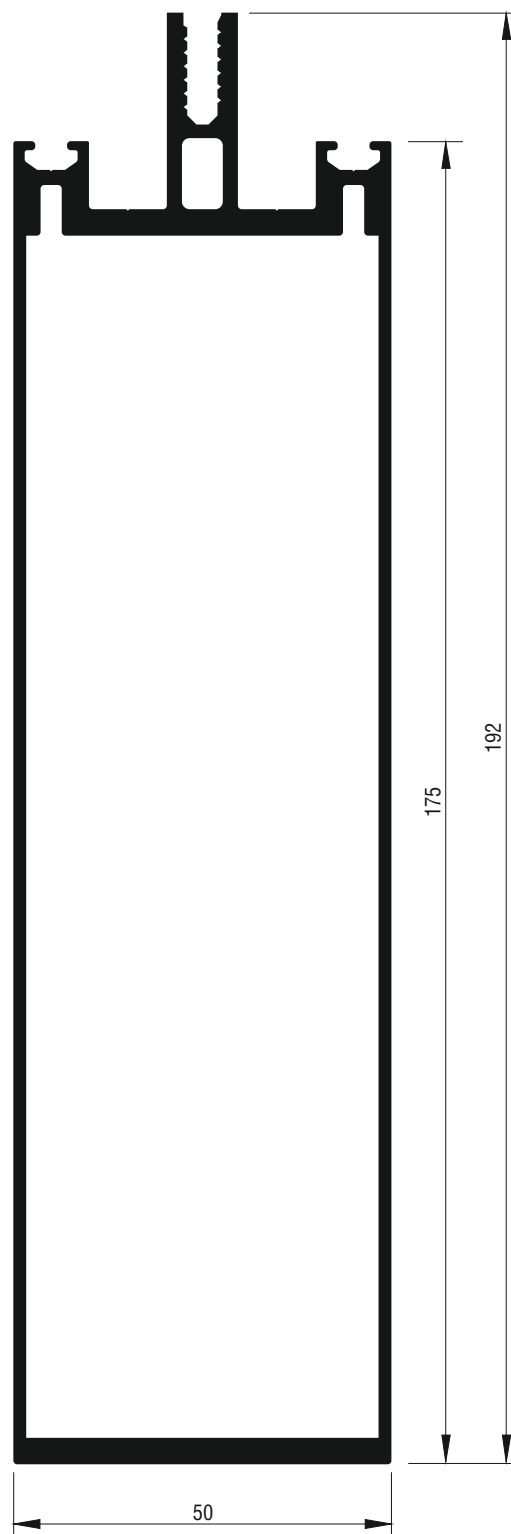
M70005	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	1956 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	120,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	25,9 cm ⁴



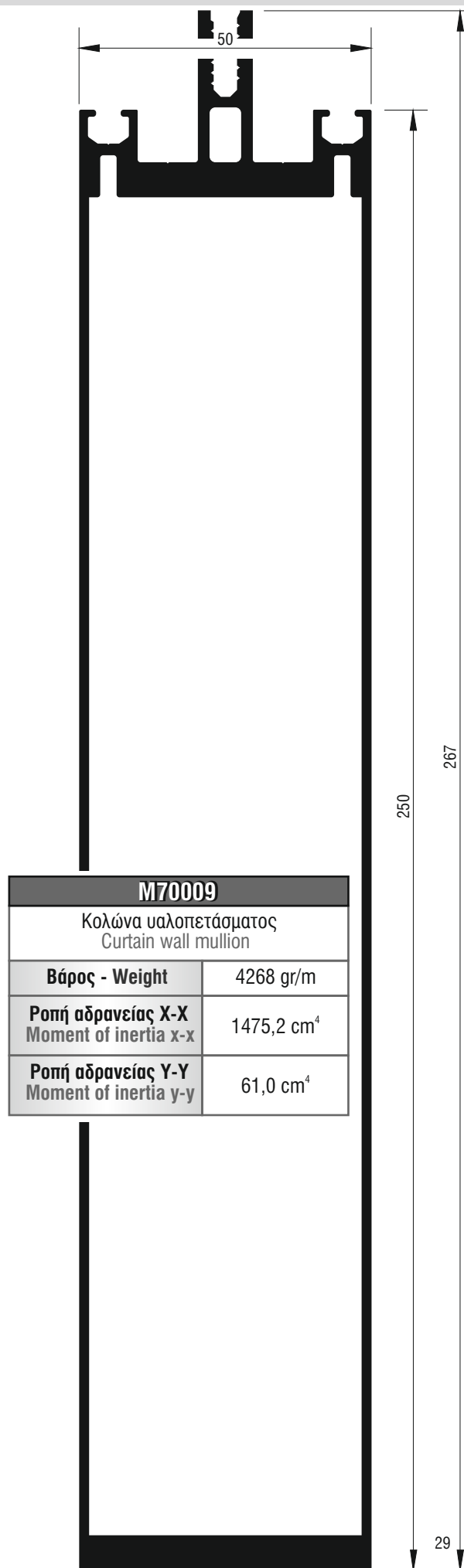
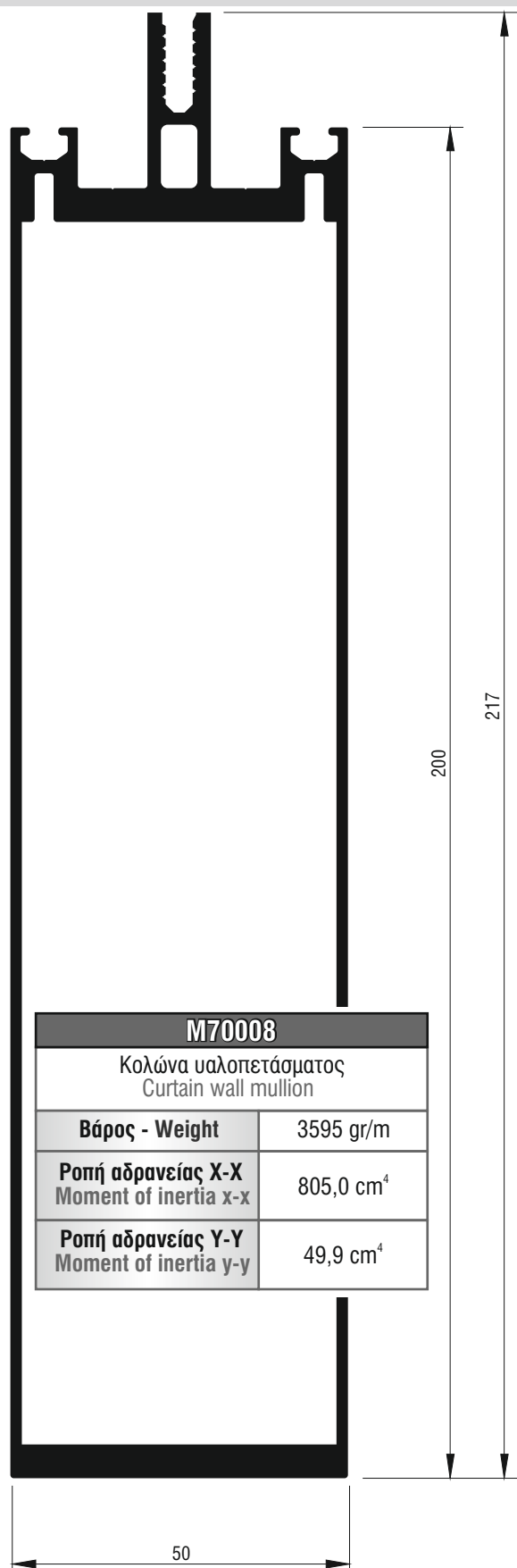
M70006	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	2247 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	193,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	30,4 cm ⁴

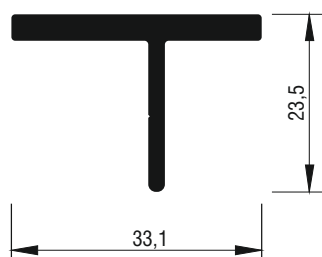


M70007	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	2583 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	318,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	35,9 cm ⁴

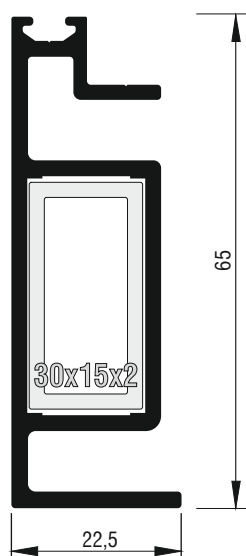


M70034	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	3033 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	505,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	43,1 cm ⁴

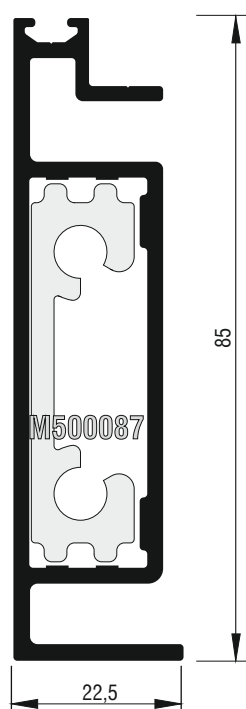




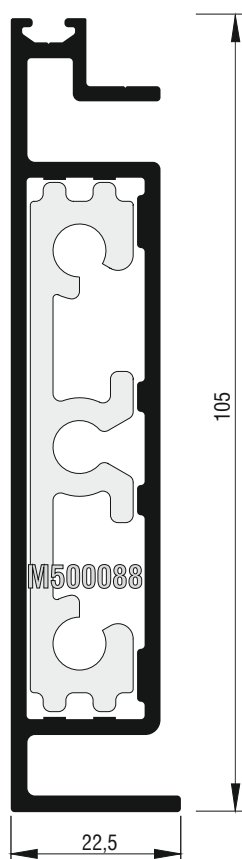
M500055	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	430 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,1 cm ⁴



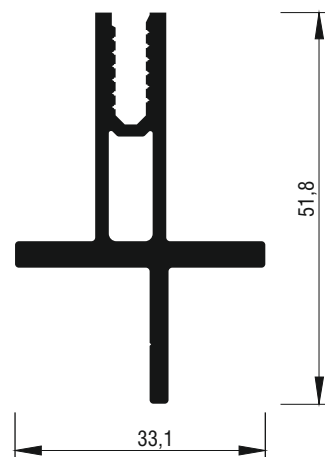
M70037	
Κολώνα διαιρούμενη υαλοπετάσματος Split curtain wall mullion	
Βάρος - Weight	1027 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	15,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,0 cm ⁴



M70038	
Κολώνα διαιρούμενη υαλοπετάσματος Split curtain wall mullion	
Βάρος - Weight	1295 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	34,5 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,8 cm ⁴

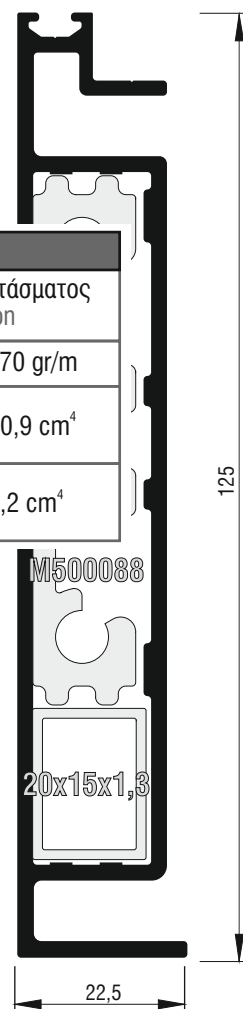


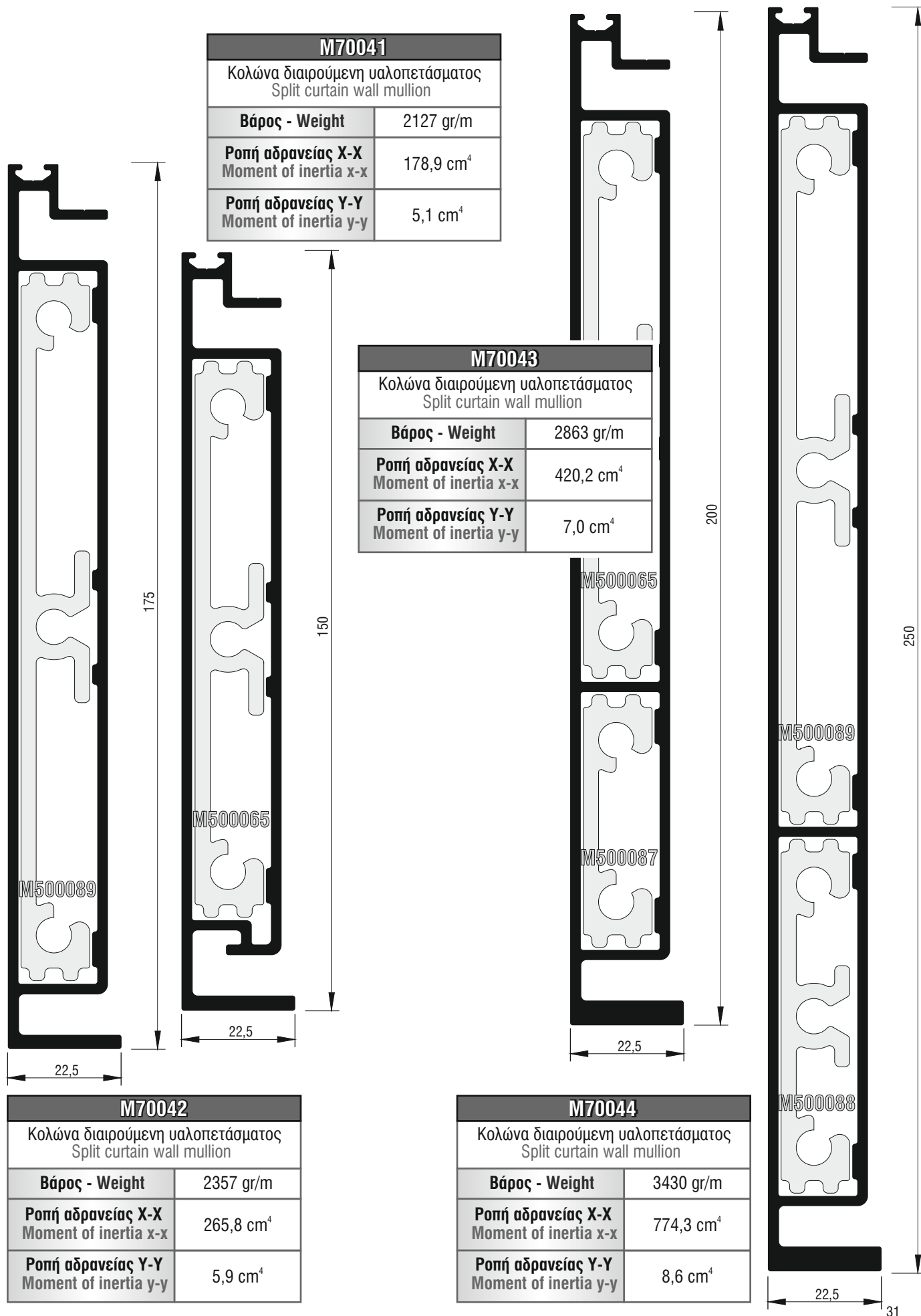
M70039	
Κολώνα διαιρούμενη υαλοπετάσματος Split curtain wall mullion	
Βάρος - Weight	1544 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	62,5 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,5 cm ⁴

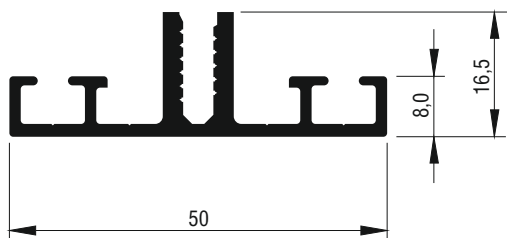


M70036	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	818 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	4,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,3 cm ⁴

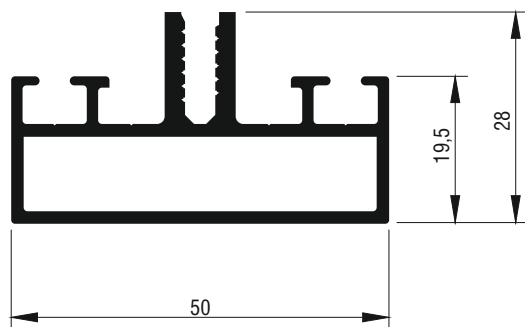
M70040	
Κολώνα διαιρούμενη υαλοπετάσματος Split curtain wall mullion	
Βάρος - Weight	1770 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	100,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	4,2 cm ⁴



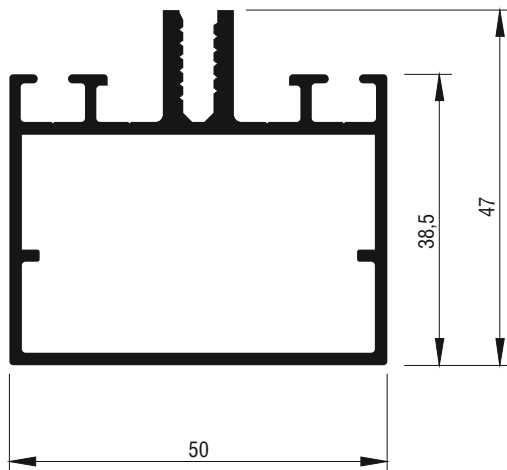




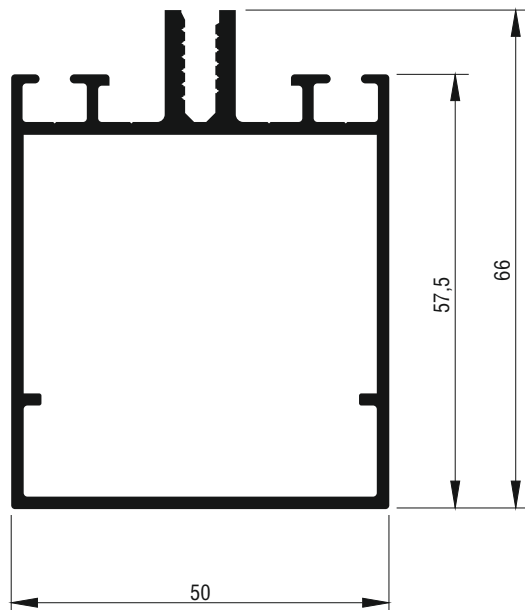
M70010	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	584 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,8 cm ⁴



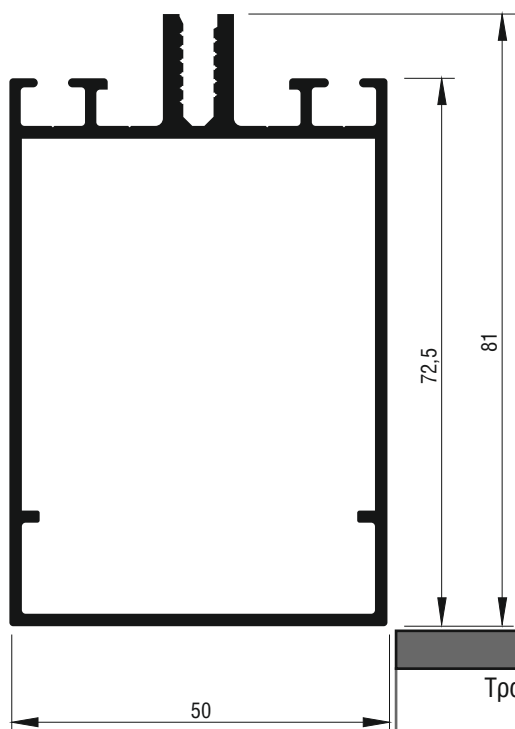
M70011	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	895 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	7,5 cm ⁴



M70012	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	1084 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	9,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	11,5 cm ⁴

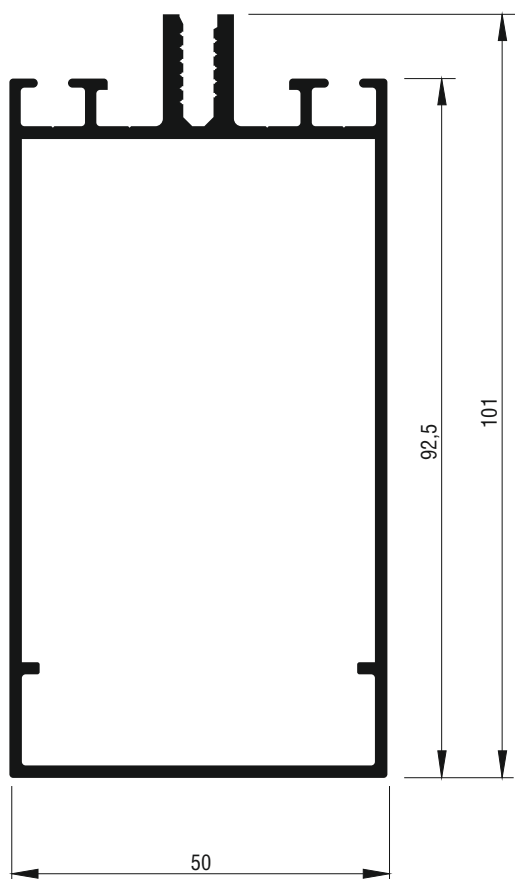
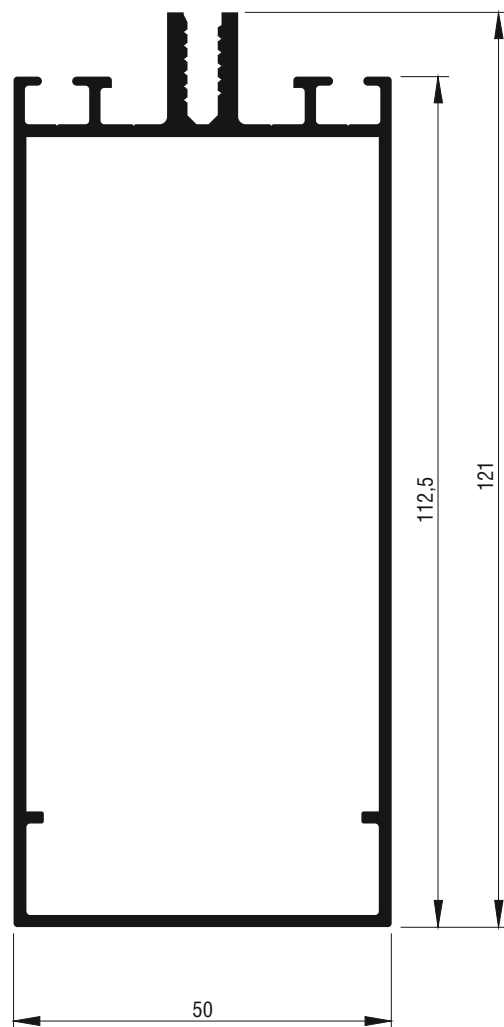


M70013	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	1254 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	22,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	15,2 cm ⁴

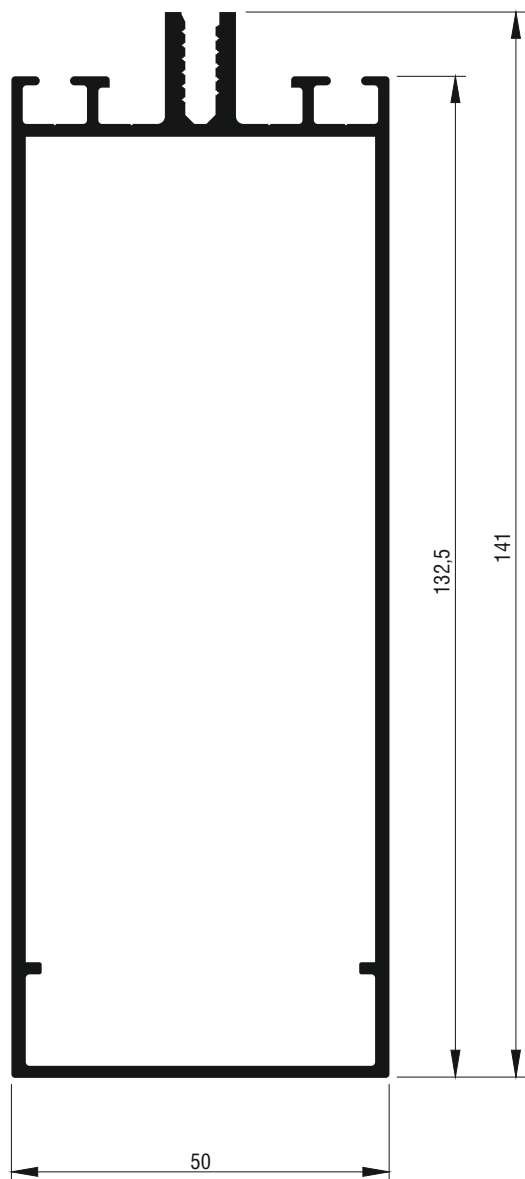


M70014	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	1387 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	39,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	18,1 cm ⁴

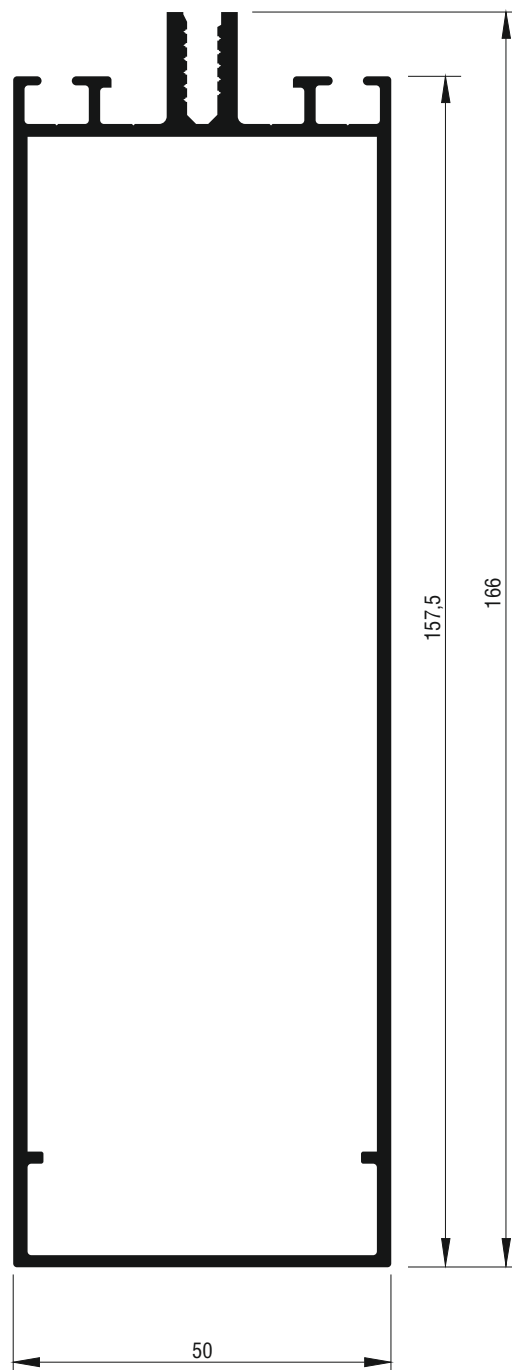
M70016	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	1764 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	113,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	26,3 cm ⁴



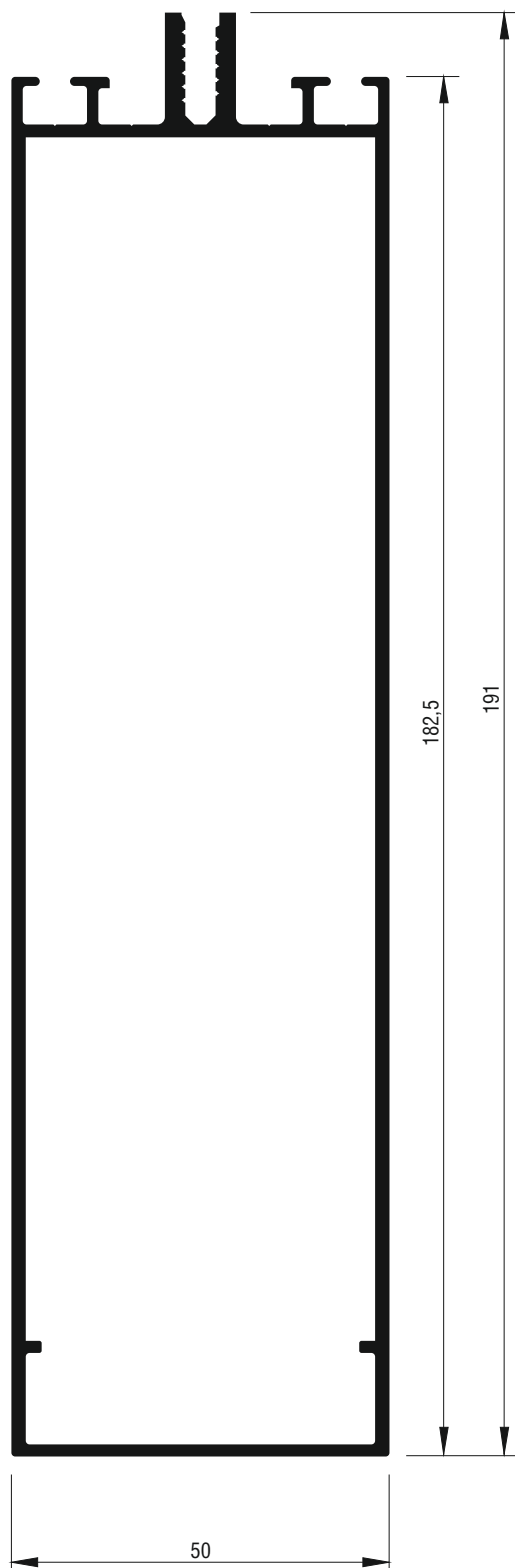
M70015	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	1566 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	70,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	21,9 cm ⁴



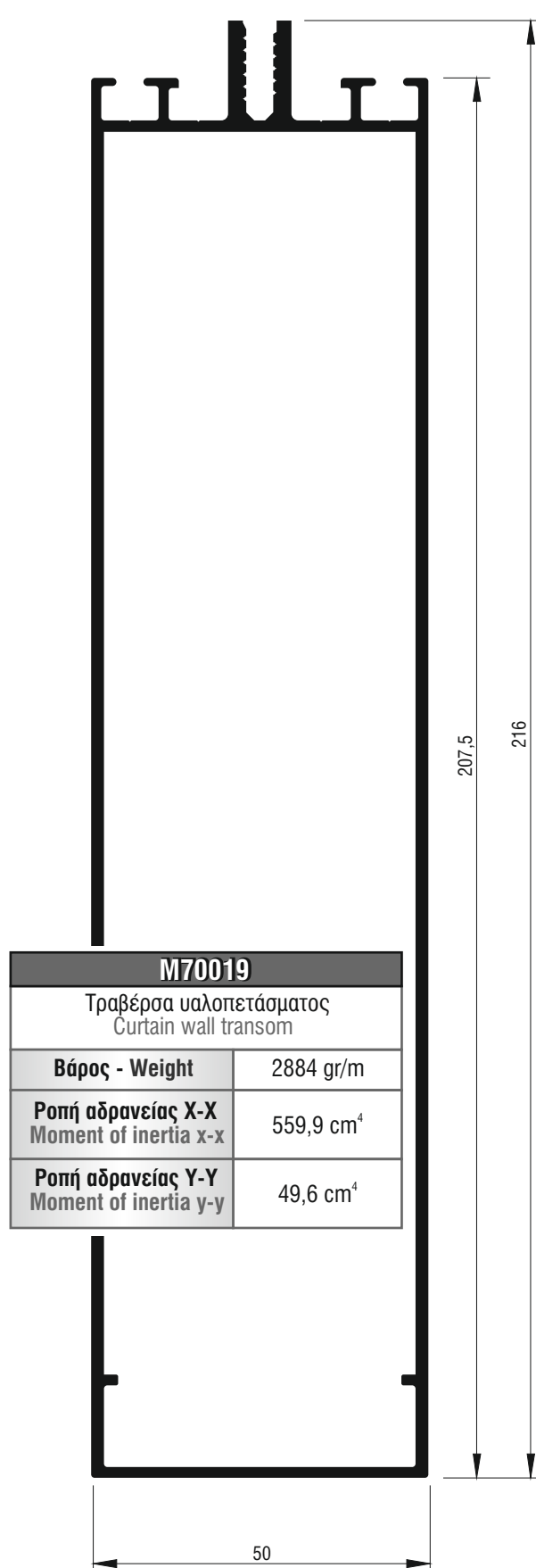
M70017	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	2079 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	176,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	32,9 cm ⁴



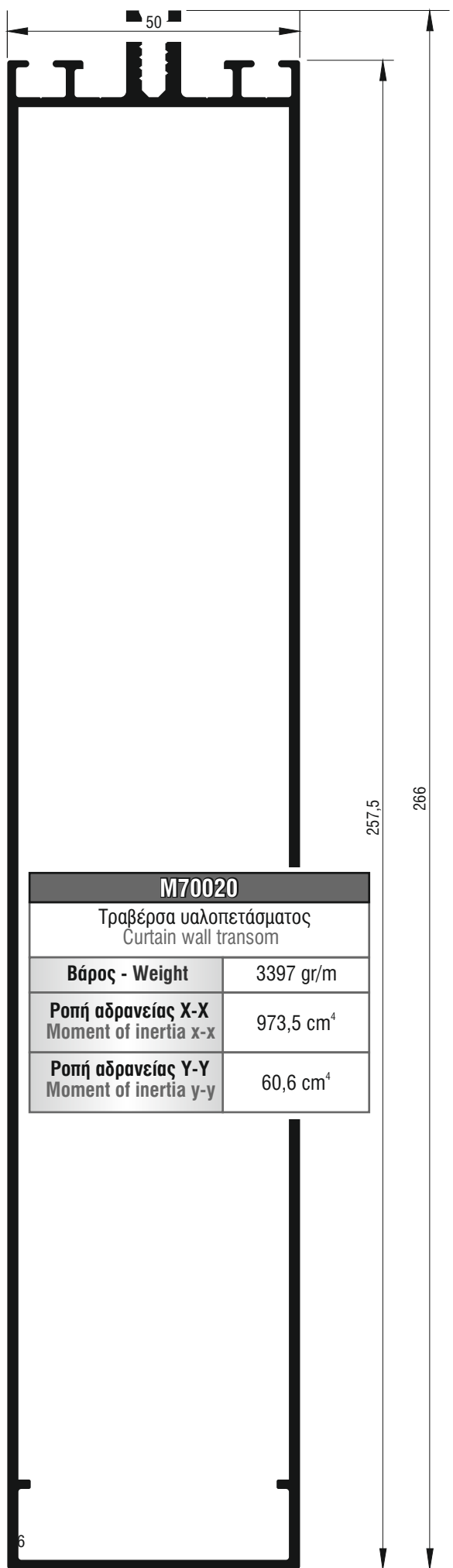
M70018	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	2336 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	271,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	38,4 cm ⁴



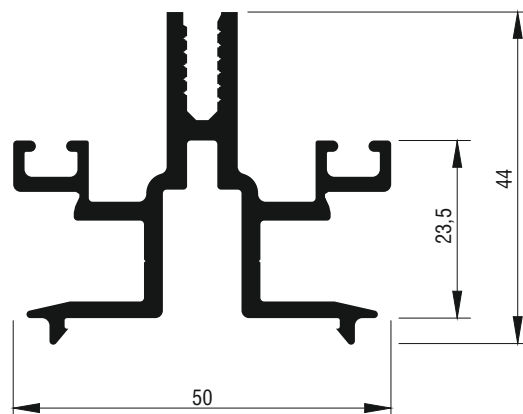
M70055	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	2628 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	404,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	44,1 cm ⁴



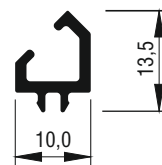
M70019	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	2884 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	559,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	49,6 cm ⁴



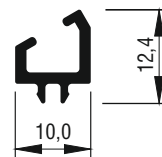
M70020	
Τραβέρσα υαλοπετάσματος Curtain wall transom	
Βάρος - Weight	3397 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	973,5 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	60,6 cm ⁴



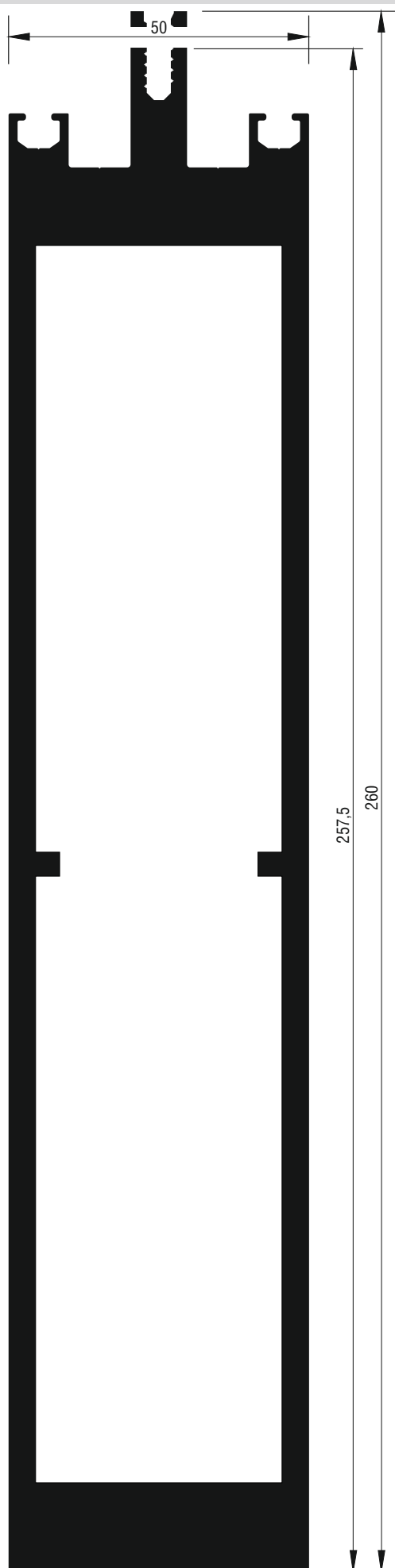
M70021	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	1160 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	5,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	6,4 cm ⁴



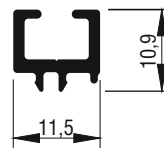
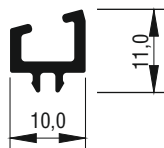
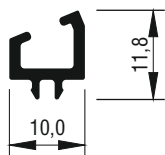
M70045	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	116 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴



M70046	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	113 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴



M70098	
Κολώνα υαλοπετάσματος Curtain wall mullion	
Βάρος - Weight	9661 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2788 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	131,18 cm ⁴

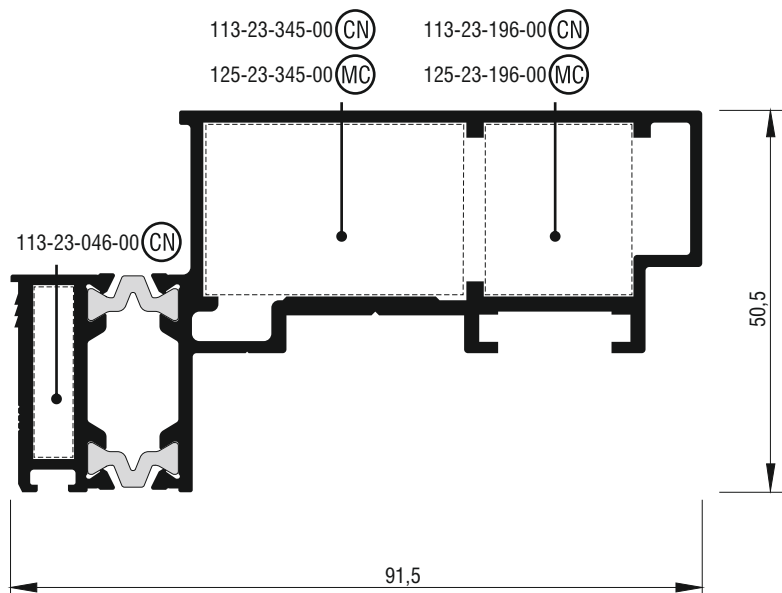


M70047	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	111 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴

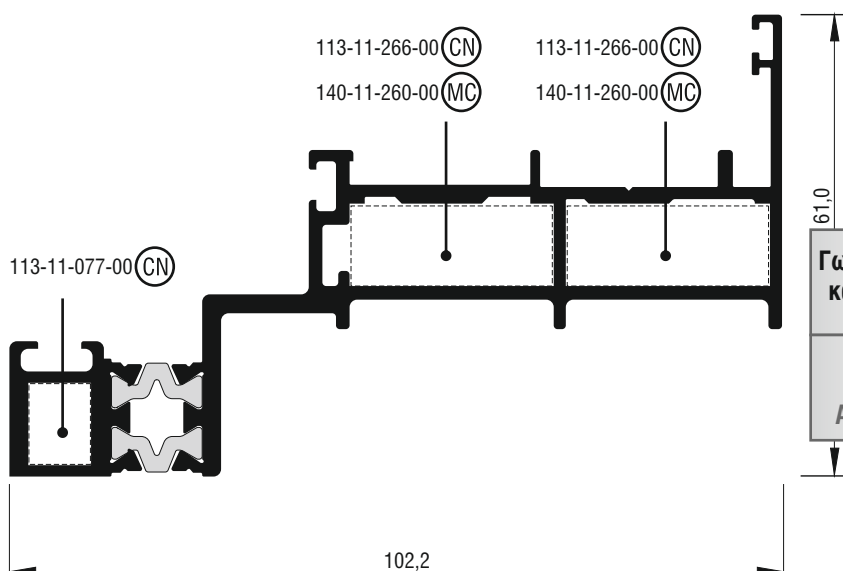
M70048	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	109 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴

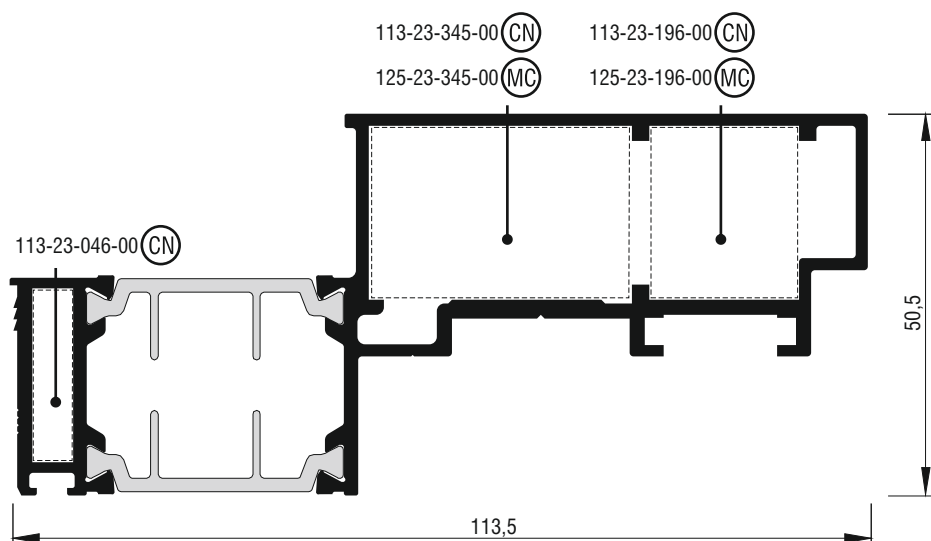
M70022	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	120,5 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴

M70024	
Φύλλο προβαλλομένου υαλοπετάσματος Curtain wall projected sash profile	
Βάρος - Weight	1767 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	15,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	55,4 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-23-046-00 έξω outer 113-23-196-00 μέσα inner 113-23-345-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-23-196-00 μέσα inner 125-23-345-00 μέσα inner

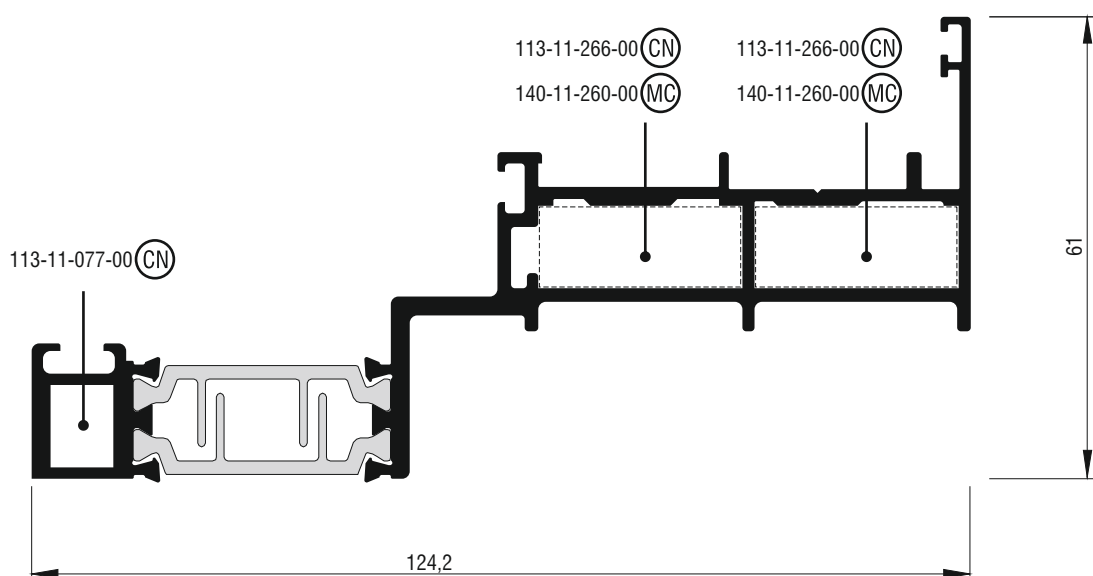


M70023	
Κάσα προβαλλομένου υαλοπετάσματος Curtain wall projected frame profile	
Βάρος - Weight	1846 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	14,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	75,5 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-11-077-00 έξω outer 113-11-266-00 μέσα inner 113-11-266-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	140-11-260-00 μέσα inner 140-11-260-00 μέσα inner

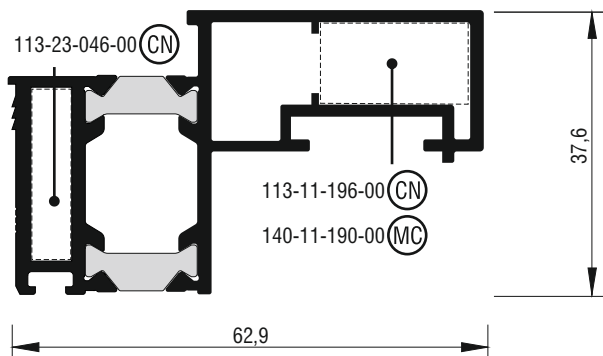




M70051			
Φύλλο προβαλλομένου υαλοπετάσματος Curtain wall projected sash profile			
Βάρος - Weight	1923 gr/m	Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-23-046-00 έξω outer
Ροπή αδρανείας X-X Moment of inertia x-x	18,3 cm ⁴		113-23-196-00 μέσα inner
Ροπή αδρανείας Y-Y Moment of inertia y-y	95,0 cm ⁴	Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	113-23-345-00 μέσα inner
			125-23-196-00 μέσα inner
			125-23-345-00 μέσα inner



M70050			
Κάσα προβαλλομένου υαλοπετάσματος Curtain wall projected frame profile			
Βάρος - Weight	1995 gr/m	Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-11-077-00 έξω outer
Ροπή αδρανείας X-X Moment of inertia x-x	17,0 cm ⁴		113-11-266-00 μέσα inner
Ροπή αδρανείας Y-Y Moment of inertia y-y	123,8 cm ⁴	Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	113-11-266-00 μέσα inner
			140-11-260-00 μέσα inner
			140-11-260-00 μέσα inner


M109910

Φύλλο προβαλλομένου υαλοπετάσματος
Curtain wall projected sash profile

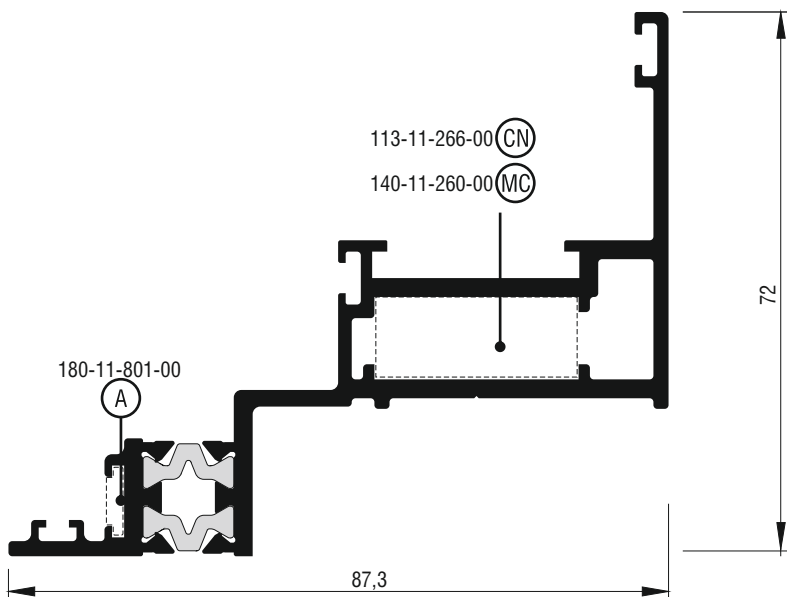
Βάρος - Weight 1229 gr/m

Ροπή αδρανείας X-X
Moment of inertia x-x 17,4 cm⁴

Ροπή αδρανείας Y-Y
Moment of inertia y-y 6,1 cm⁴

**Γωνία σύνδεσης πρεσαριστή
καρφωτή | Crimp nail cleat** 113-23-046-00 έξω | outer
113-11-196-00 μέσα | inner

**Γωνία σύνδεσης
κουμπωτή αλουμινίου
Aluminium spring cleat** 140-11-190-00 μέσα | inner


M109426

Κάσα προβαλλομένου υαλοπετάσματος
Curtain wall projected frame profile

Βάρος - Weight 1702 gr/m

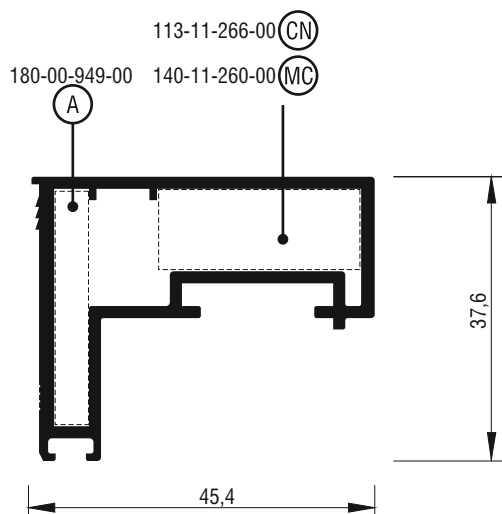
Ροπή αδρανείας X-X
Moment of inertia x-x 19,1 cm⁴

Ροπή αδρανείας Y-Y
Moment of inertia y-y 47,0 cm⁴

**Γωνία σύνδεσης πρεσαριστή
καρφωτή | Crimp nail cleat** 113-11-266-00

**Γωνία σύνδεσης
κουμπωτή αλουμινίου
Aluminium spring cleat** 140-11-260-00

**Γωνία επιπεδότητας
Alignment corner** 180-11-801-00


M9984

Φύλλο προβαλλομένου υαλοπετάσματος
Curtain wall projected sash profile

Βάρος - Weight 1702 gr/m

Ροπή αδρανείας X-X
Moment of inertia x-x 19,1 cm⁴

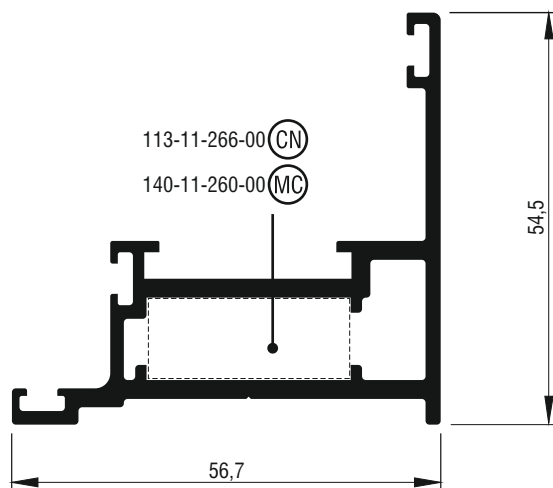
Ροπή αδρανείας Y-Y
Moment of inertia y-y 47,0 cm⁴

**Γωνία σύνδεσης πρεσαριστή
καρφωτή | Crimp nail cleat** 113-11-266-00

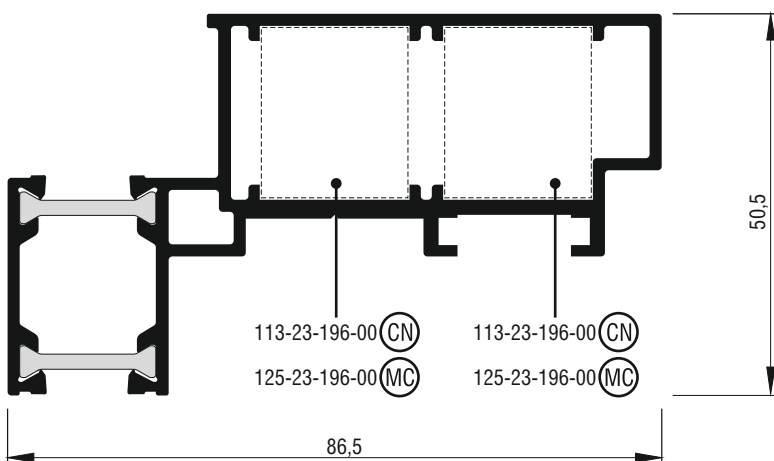
**Γωνία σύνδεσης
κουμπωτή αλουμινίου
Aluminium spring cleat** 140-11-260-00

**Γωνία επιπεδότητας
Alignment corner** 180-00-949-00

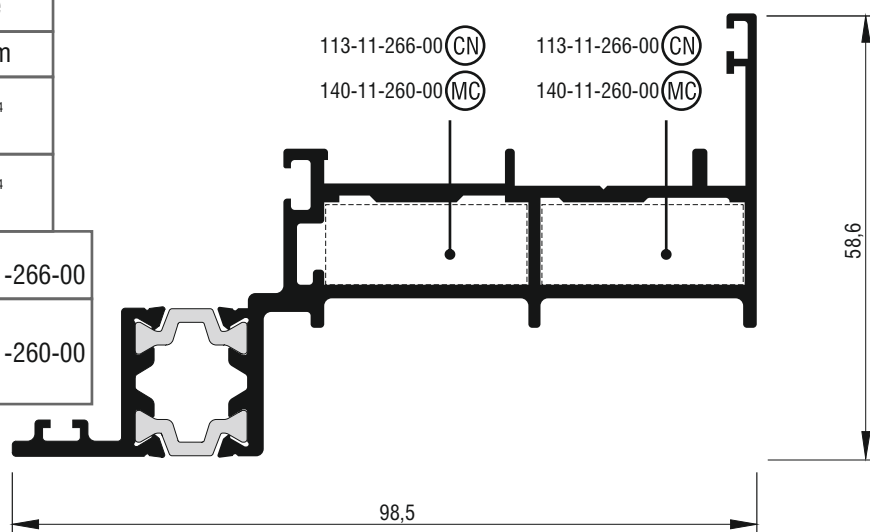
M10982	
Κάσα προβαλλομένου υαλοπετάσματος Curtain wall projected frame profile	
Βάρος - Weight	1145 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	7,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	12,8 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-11-266-00
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	140-11-260-00

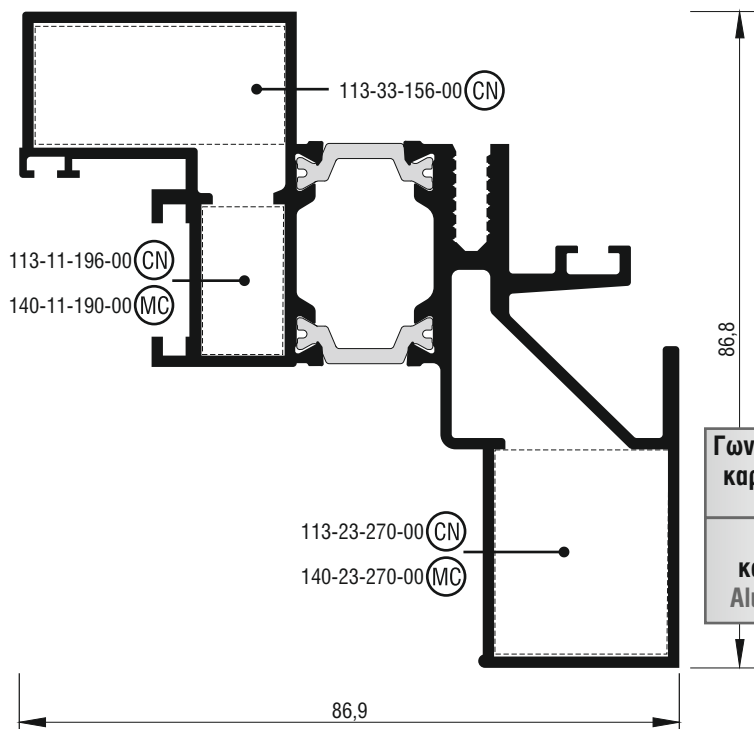


M70033	
Φύλλο προβαλλομένου υαλοπετάσματος Curtain wall projected sash profile	
Βάρος - Weight	1544 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	12,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	44,7 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-23-196-00
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-23-196-00

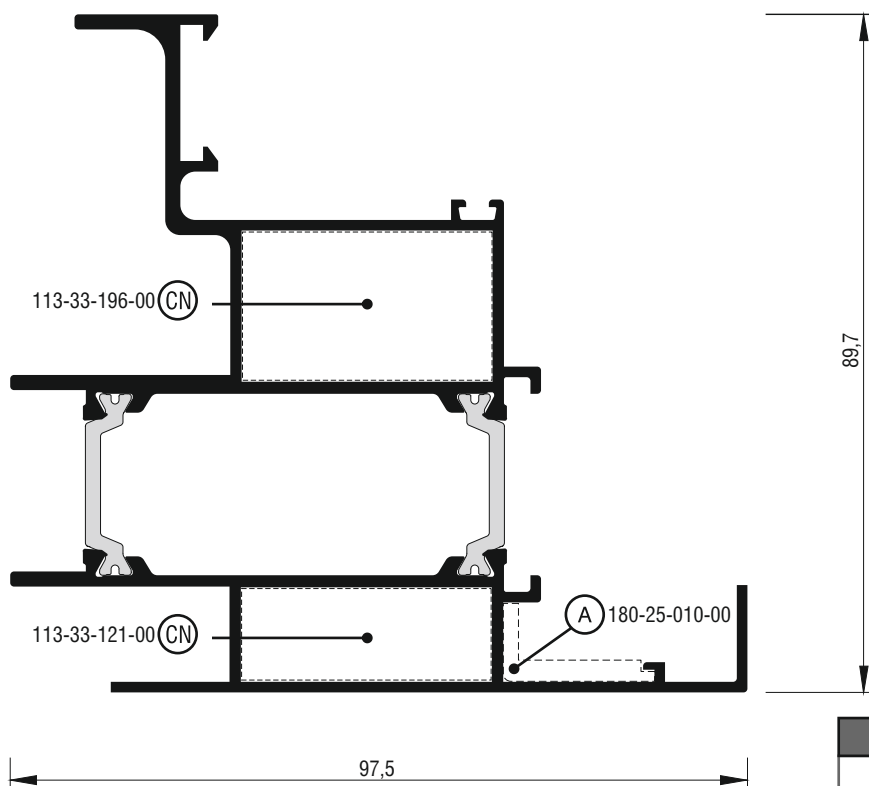


M70032	
Κάσα προβαλλομένου υαλοπετάσματος Curtain wall projected frame profile	
Βάρος - Weight	1665 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	12,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	55,4 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-11-266-00
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	140-11-260-00



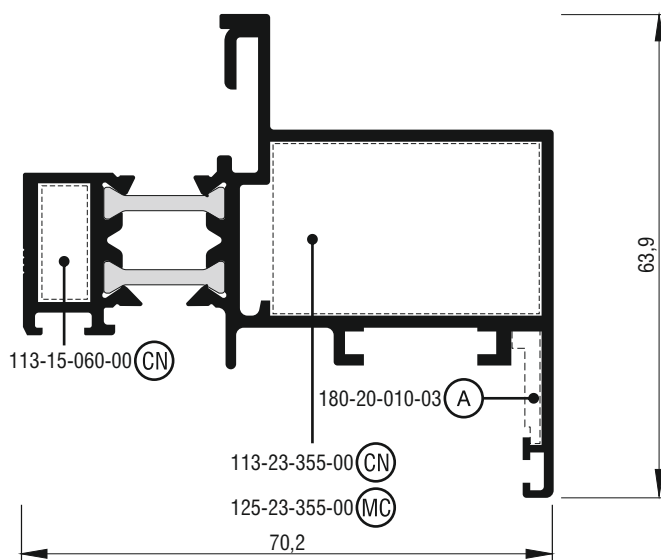


M10840	
Φύλλο προβαλλομένου M10800 Projected sash profile M10800	
Βάρος - Weight	2191 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	39,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	47,0 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-33-156-00 έξω outer 113-11-196-00 113-23-270-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	140-11-190-00 140-23-270-00 μέσα inner

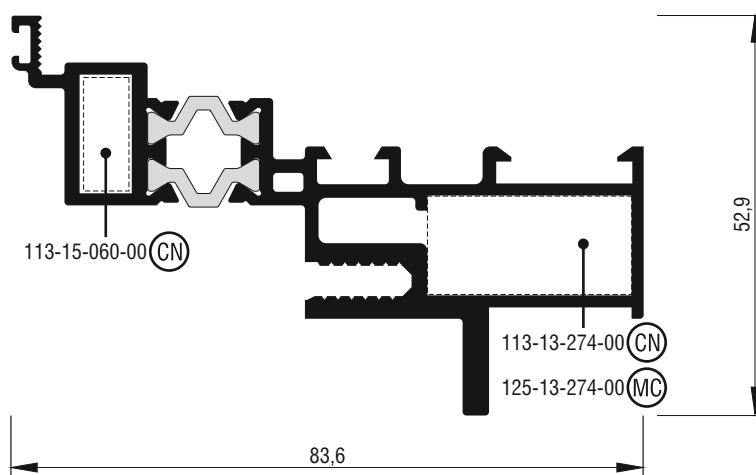


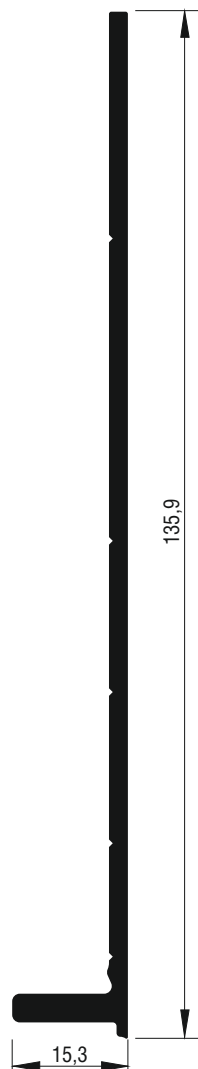
M10837	
Κάσα προβαλλομένου M10800 Projected frame profile M10800	
Βάρος - Weight	2114 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	54,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	48,7 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-33-196-00 έξω outer 113-33-121-00 μέσα inner
Γωνία επιπεδότητος Alignment corner	180-25-010-00 μέσα inner

M500126	
Φύλλο ανοιγομένου υαλοπετάσματος Curtain wall hinged sash	
Βάρος - Weight	1490 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	9,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	29,8 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-15-060-00 έξω outer 113-23-355-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-23-355-00 μέσα inner
Γωνία επιπεδότητας Alignment corner	180-20-010-03 μέσα inner



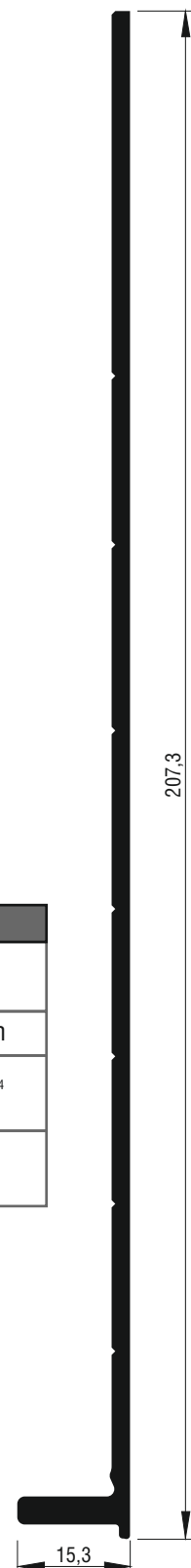
M500129	
Κάσα ανοιγομένου υαλοπετάσματος Curtain wall hinged frame profile	
Βάρος - Weight	1650 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	8,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	33,2 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-15-060-00 έξω outer 113-13-274-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-13-274-00 μέσα inner



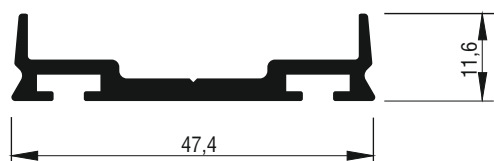


M500130	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	1037 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	68,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,3 cm ⁴

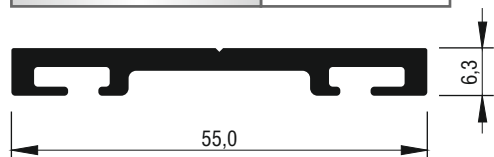
M70052	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	1518 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	227,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,3 cm ⁴



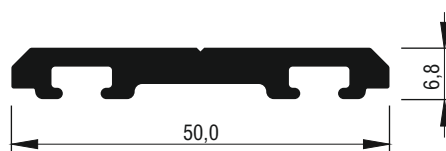
M10841	
Πλάκα πίεσης M10800 Pressure plate profile M10800	
Βάρος - Weight	835 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	34,0 cm ⁴



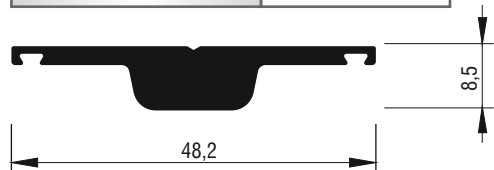
M70025	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	481 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	4,1 cm ⁴



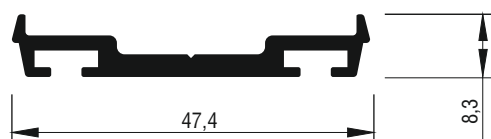
M10940	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	554 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	6,0 cm ⁴



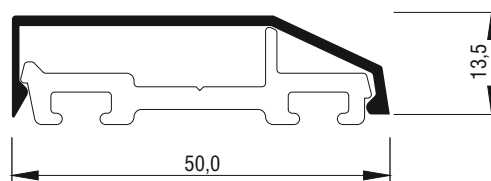
M500113	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	619 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	4,6 cm ⁴



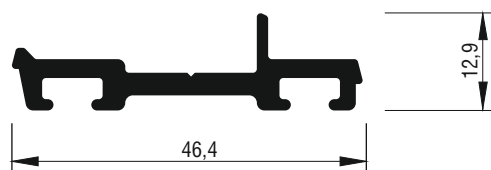
M500018	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	558 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,2 cm ⁴



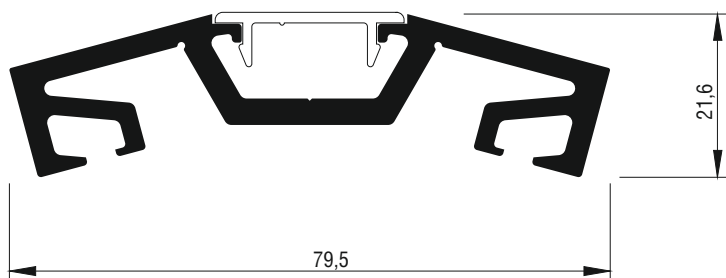
M510007	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	429 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,1 cm ⁴



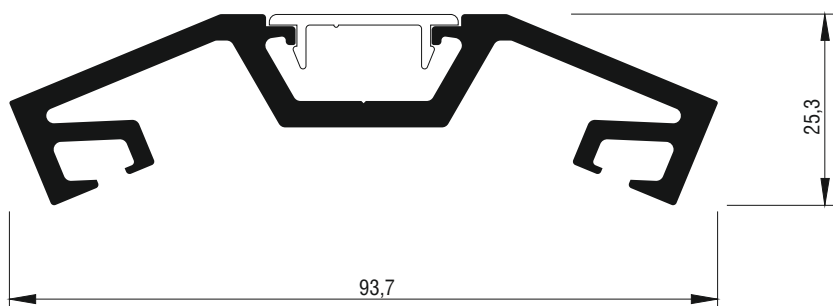
M500082	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	257 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,8 cm ⁴



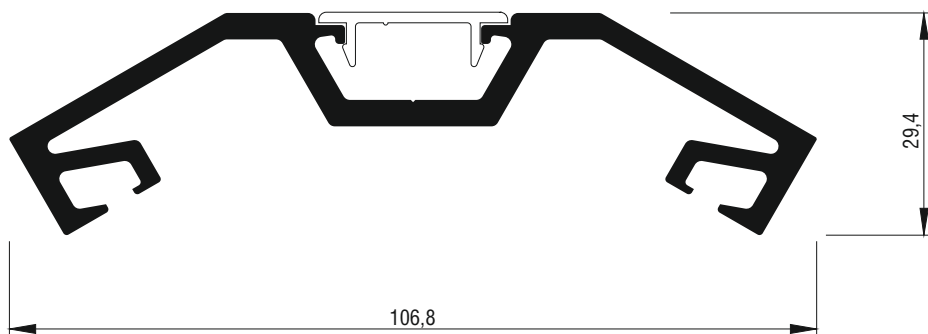
M500081	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	507 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,6 cm ⁴



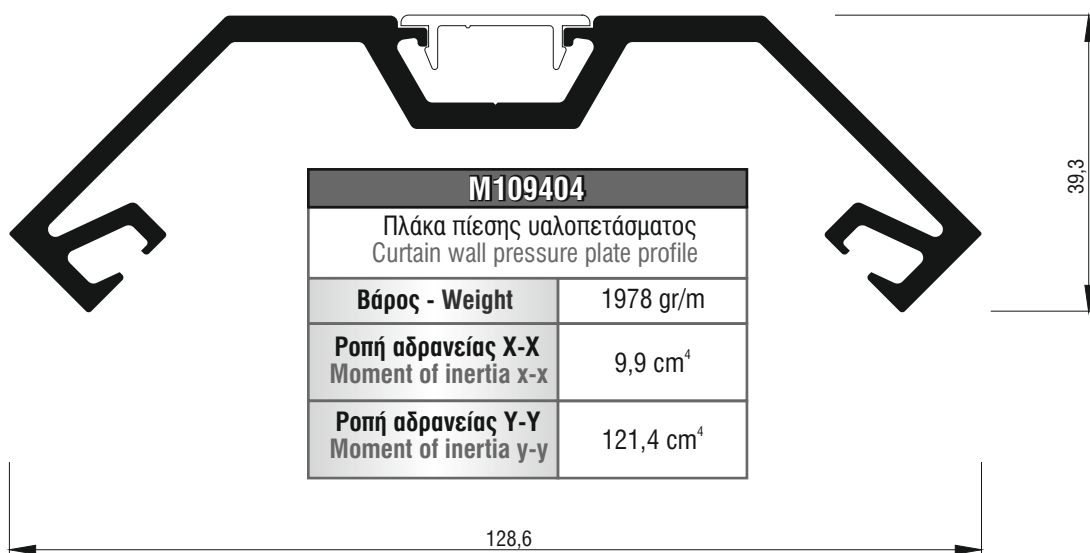
M109401	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	1342 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	1,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	31,7 cm ⁴



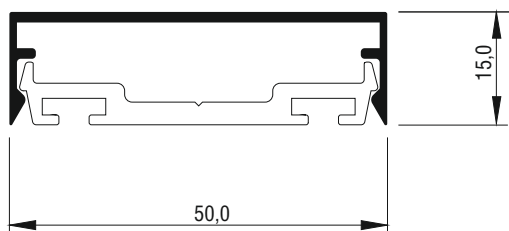
M109402	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	1508 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	48,4 cm ⁴



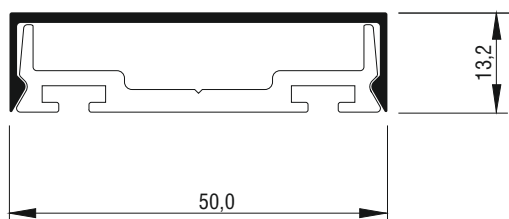
M109403	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	1660 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	3,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	68,8 cm ⁴



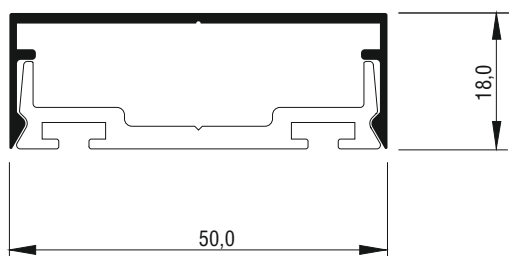
M109404	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	1978 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	9,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	121,4 cm ⁴



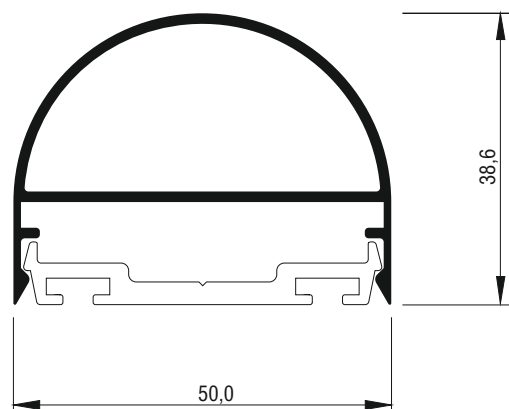
M500053	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	292 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,7 cm ⁴



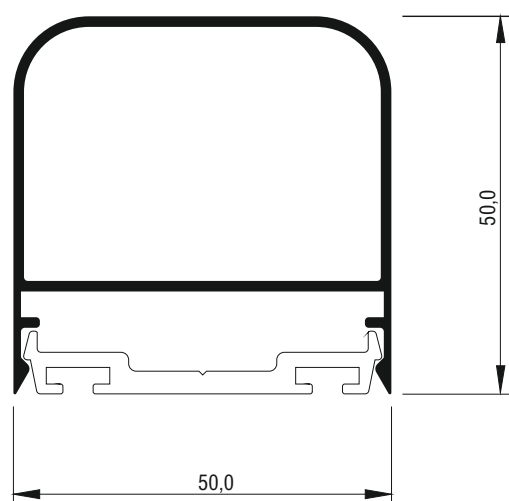
M70031	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	264 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,1 cm ⁴



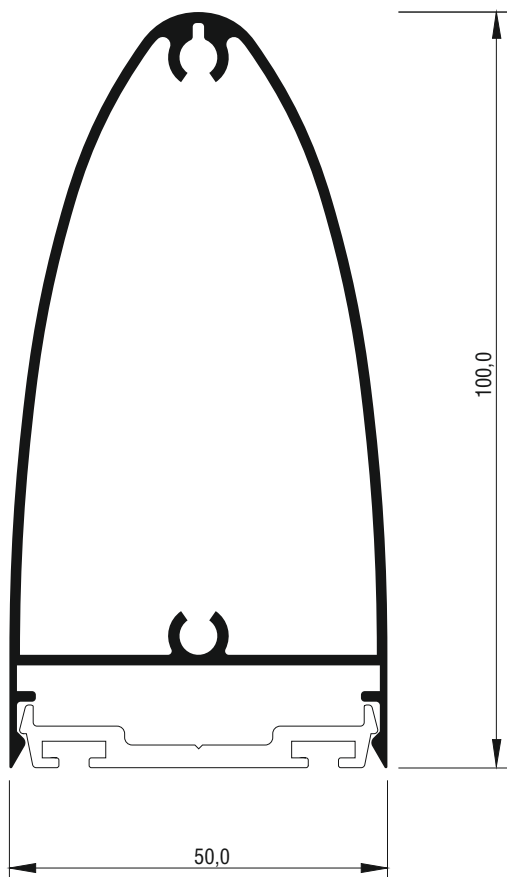
M500063	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	307 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	4,0 cm ⁴



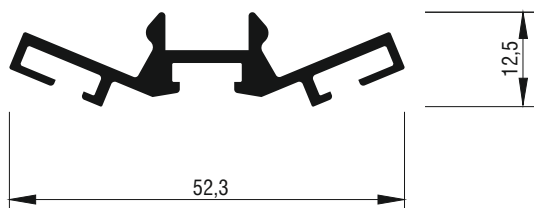
M500077	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	570 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	6,6 cm ⁴



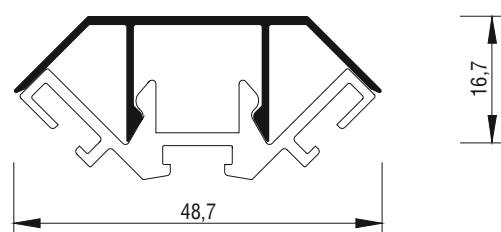
M500078	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	705 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	6,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	10,0 cm ⁴



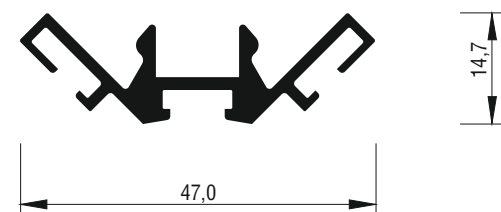
M500079	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	1119 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	43,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	13,2 cm ⁴



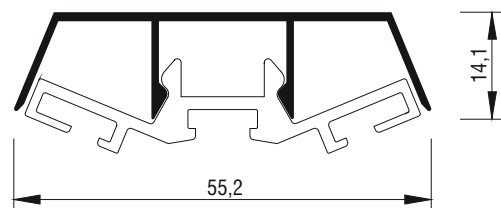
M9934	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	457 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,2 cm ⁴



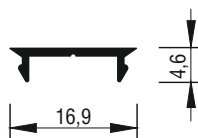
M9932	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	260 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,5 cm ⁴



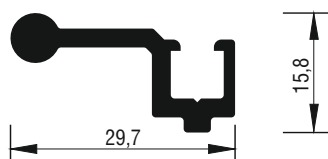
M9931	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	484 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,6 cm ⁴



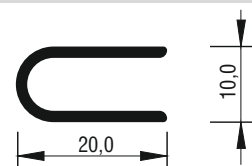
M9935	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	295 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,7 cm ⁴



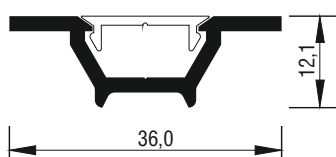
M9351	
Καπάκι Cover cap	
Βάρος - Weight	70 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴



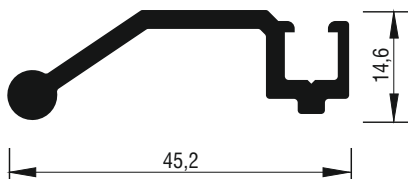
M10968	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	366 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,2 cm ⁴



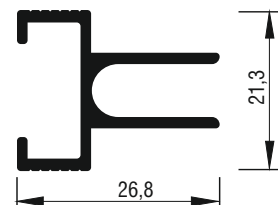
M10969	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	174 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,2 cm ⁴



M109421	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	276 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,0 cm ⁴



M109680	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	491 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,9 cm ⁴



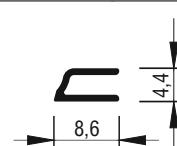
M109690	
Αποστάτης υάλωσης υαλοπινάκα Glazing spacer	
Βάρος - Weight	327 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,5 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,6 cm ⁴



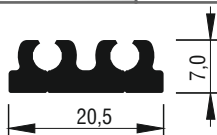
M500135	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	218 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,2 cm ⁴



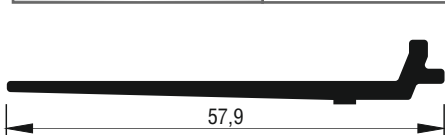
M500097	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	128 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,2 cm ⁴



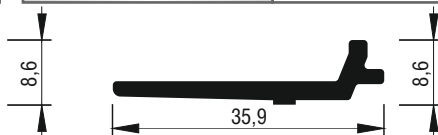
M500098	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	45 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,0 cm ⁴



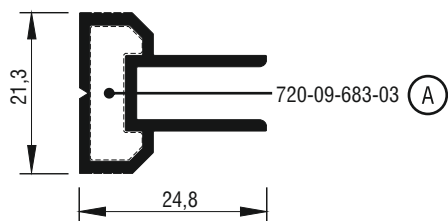
M109422	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	263 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,3 cm ⁴



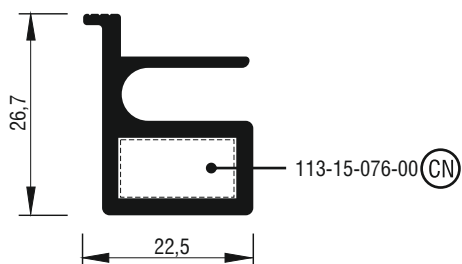
M70049	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	365 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,7 cm ⁴



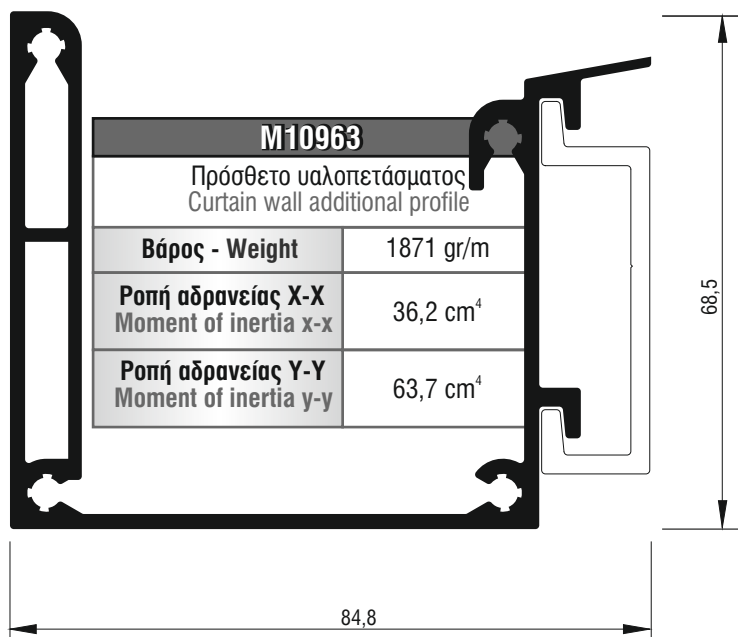
M70026	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	262 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,0 cm ⁴



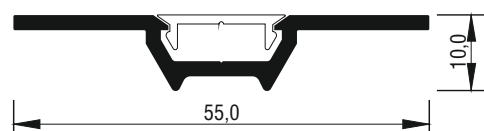
M109683	
Αποστάτης υάλωσης υαλοπινάκα Glazing spacer	
Βάρος - Weight	348 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,49 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,64 cm ⁴
Γωνία επιπεδότητας Alignment corner	720-09-683-03



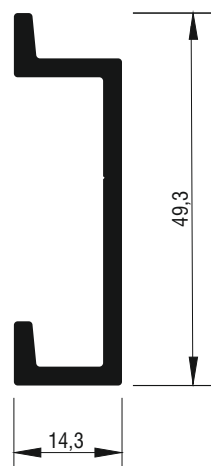
M109685	
Αποστάτης υάλωσης υαλοπινάκα Glazing spacer	
Βάρος - Weight	526 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	1,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,9 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-15-076-00



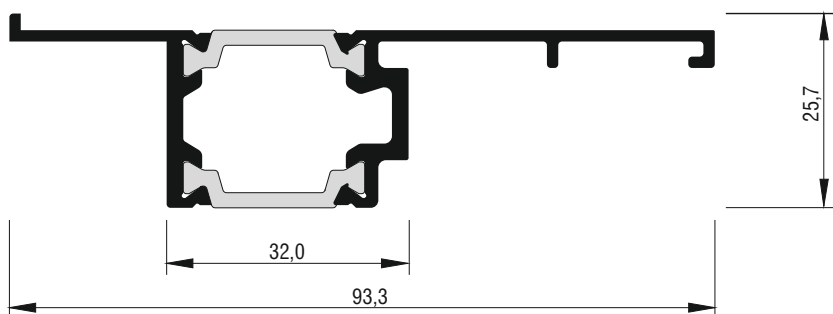
M10963	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	1871 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	36,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	63,7 cm ⁴



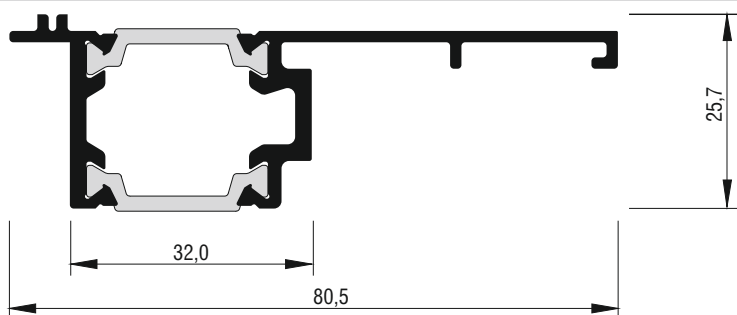
M500122	
Πλάκα πίεσης υαλοπετάσματος Curtain wall pressure plate profile	
Βάρος - Weight	368 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,9 cm ⁴



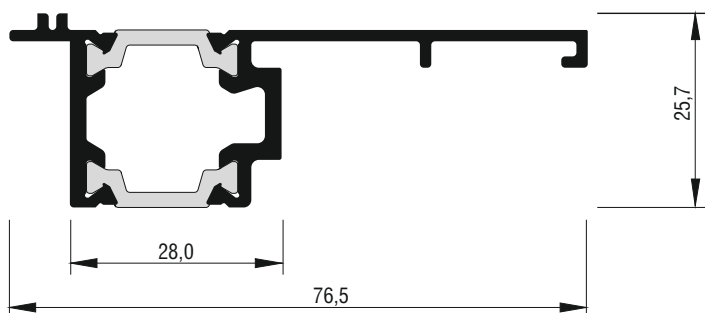
M10964	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	539 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	5,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,5 cm ⁴



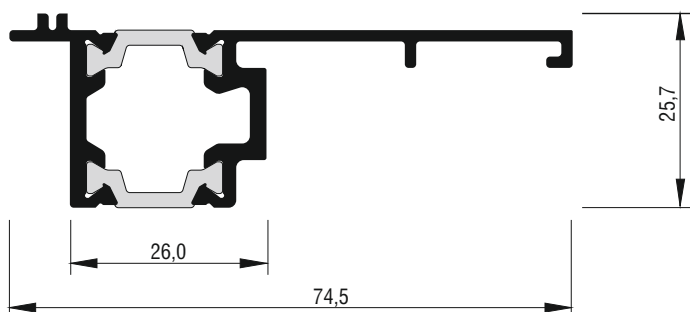
M500099	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	935 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	3,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	17,7 cm ⁴



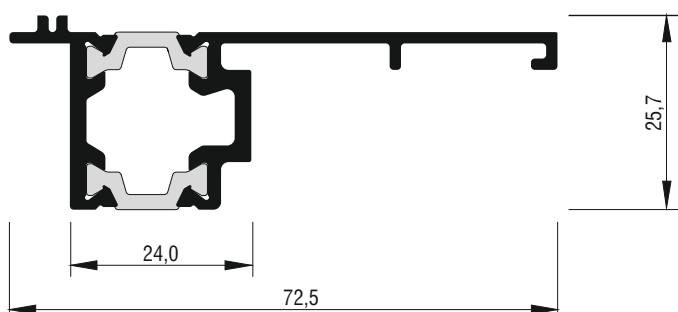
M500070	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	892 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	15,1 cm ⁴



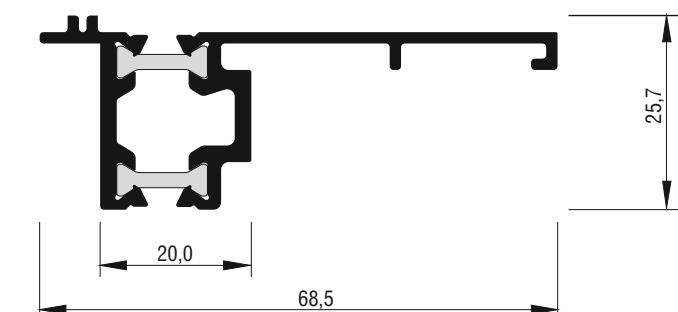
M500071	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	870 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	12,8 cm ⁴



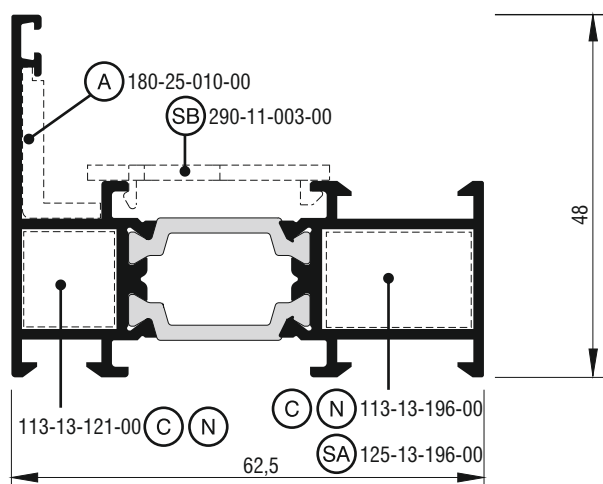
M500072	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	860 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	11,8 cm ⁴



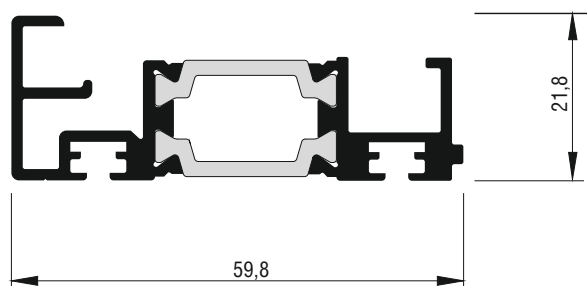
M500073	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	850 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,5 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	10,8 cm ⁴



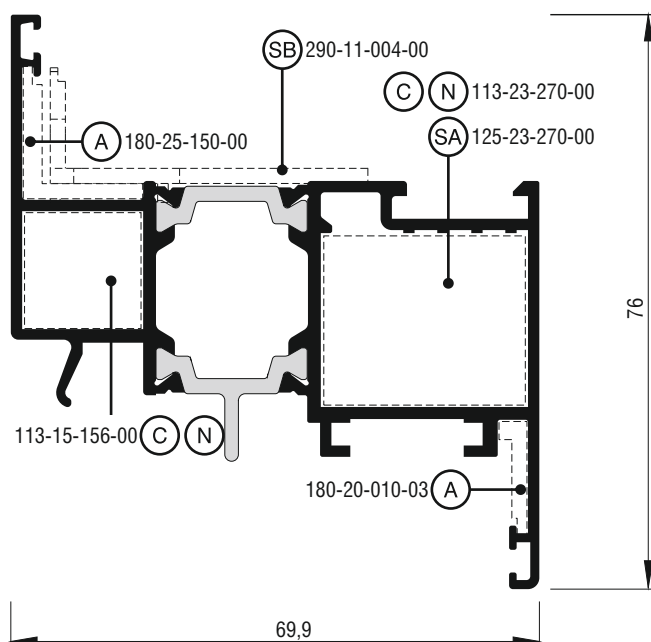
M500074	
Πρόσθετο υαλοπετάσματος Curtain wall additional profile	
Βάρος - Weight	806 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	9,0 cm ⁴



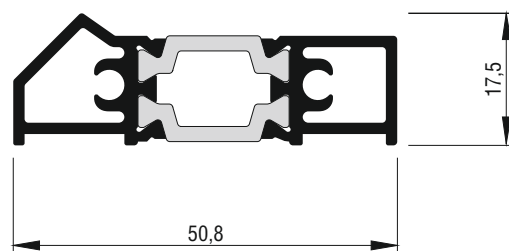
M11008	
Κάσα ανοιγομένου Hinged frame	
Βάρος - Weight	1143 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	4,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	18,4 cm ⁴
Γέφυρα τακαρίσματος Setting block	290-11-003-00
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-13-121-00 έξω outer 113-13-121-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-13-196-00 μέσα inner
Γωνία επιπεδότητος Alignment corner	180-25-010-00 έξω outer



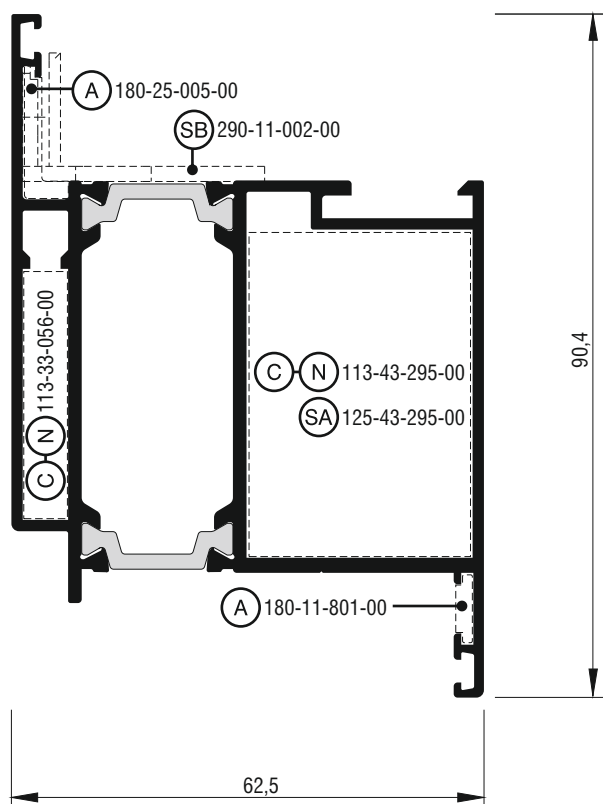
M11170	
Πρόσθετο Additional profile	
Βάρος - Weight	926 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	1,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	12,5 cm ⁴



M11434	
Φύλλο ανοιγομένου υαλοπετάσματος Curtain wall hinged sash	
Βάρος - Weight	1545 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	14,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	31,4 cm ⁴
Γέφυρα τακαρίσματος Setting block	290-11-004-00
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-15-156-00 έξω outer 113-23-270-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-23-270-00 μέσα inner
Γωνία επιπεδότητος Alignment corner	180-25-150-00 έξω outer 180-20-010-03 μέσα inner

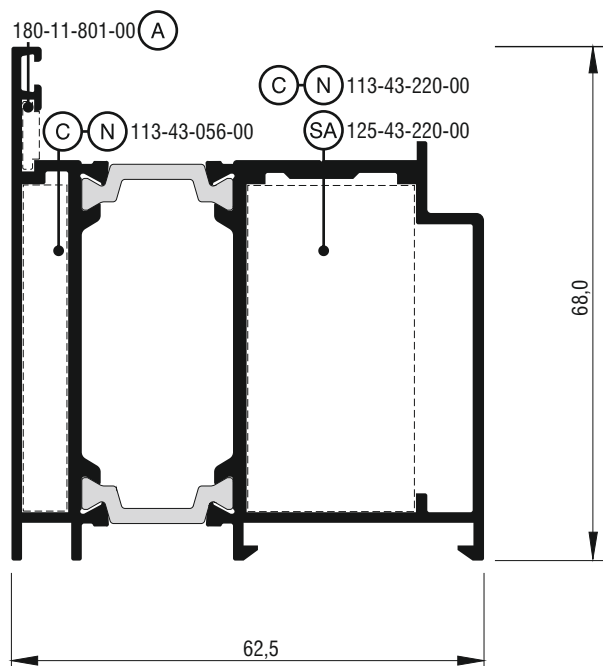


M11184	
Κατωκάσι Threshold	
Βάρος - Weight	784 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	6,7 cm ⁴



M11082	
Φύλλο κύριας εισόδου ανοιγόμενης μέσα Hinged sash for entrance door opening inside	
Βάρος - Weight	1799 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	33,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	32,3 cm ⁴

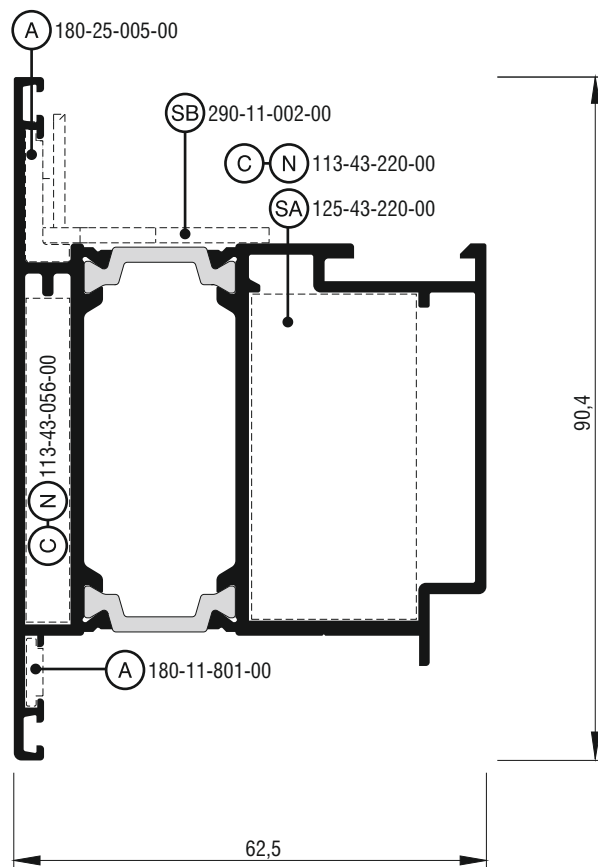
Γέφυρα τακαρίσματος Setting block	290-11-002-00
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-33-056-00 έξω outer 113-43-295-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-43-295-00 μέσα inner
Γωνία επιπεδότητος Alignment corner	180-25-005-00 έξω outer 180-11-801-00 μέσα inner



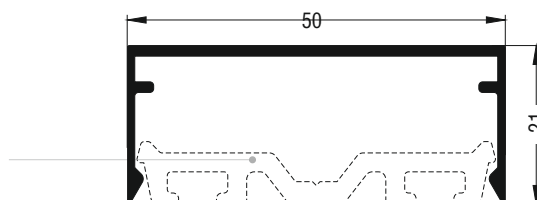
M11086	
Κάσα κύριας εισόδου Hinged frame for entrance door	
Βάρος - Weight	1656 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	25,2 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	27,2 cm ⁴

Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-43-056-00 έξω outer 113-43-220-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-43-220-00 μέσα inner
Γωνία επιπεδότητος Alignment corner	180-11-801-00 έξω outer

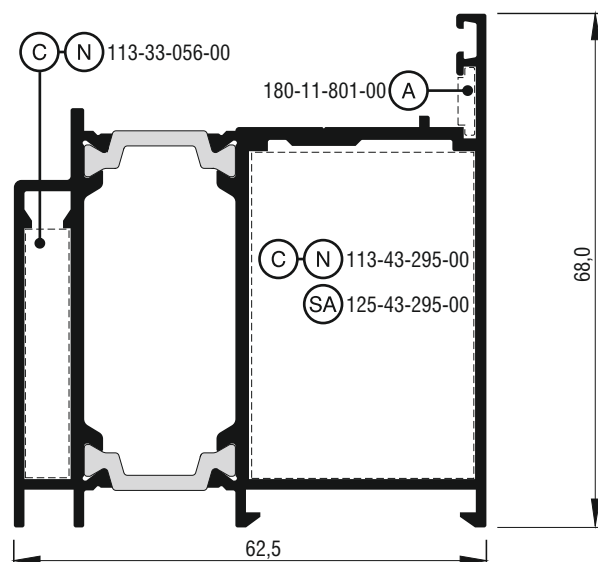
M11084	
Φύλλο κύριας εισόδου ανοιγόμενη έξο Hinged sash for entrance door opening outward	
Βάρος - Weight	1818 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	34,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	30,4 cm ⁴
Γέφυρα τακαρίσματος Setting block	290-11-002-00
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-43-056-00 έξω outer 113-43-220-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-43-220-00 μέσα inner
Γωνία επιπεδότητος Alignment corner	180-25-005-00 έξω outer 180-11-801-00 έξω outer

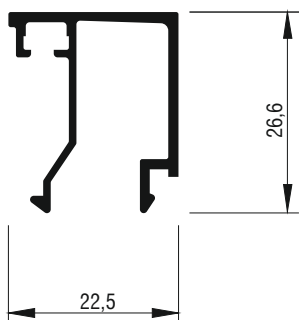


M500080	
Curtain wall cover cap	
Weight	324 gr/m

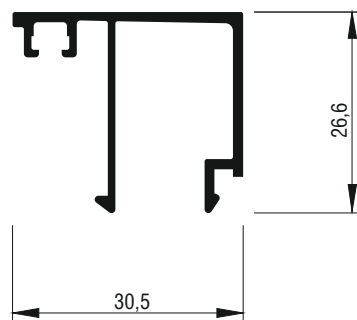


M11088	
Κάσα κύριας εισόδου ανοιγόμενης έξο Hinged frame for entrance door opening outward	
Βάρος - Weight	1631 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	24,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	28,5 cm ⁴
Γωνία σύνδεσης πρεσαριστή καρφωτή Crimp nail cleat	113-33-056-00 έξω outer 113-43-295-00 μέσα inner
Γωνία σύνδεσης κουμπωτή αλουμινίου Aluminium spring cleat	125-43-295-00 έξω outer
Γωνία επιπεδότητος Alignment corner	180-11-801-00 μέσα inner

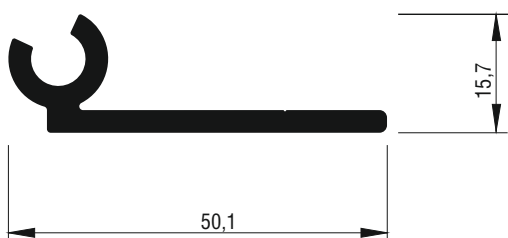




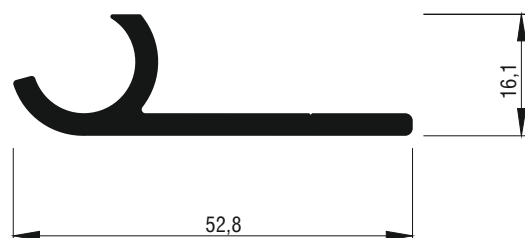
M11053	
Πηχάκι Glazing bead	
Βάρος - Weight	294 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,6 cm ⁴



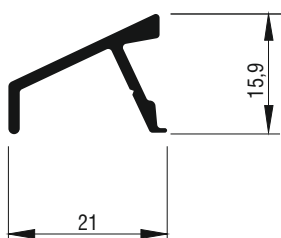
M11054	
Πηχάκι Glazing bead	
Βάρος - Weight	330 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,9 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,2 cm ⁴



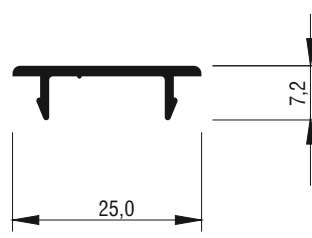
M10957	
Πρόσθετο Additional profile	
Βάρος - Weight	562 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	4,4 cm ⁴



M10958	
Πρόσθετο Additional profile	
Βάρος - Weight	563 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,3 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	4,2 cm ⁴

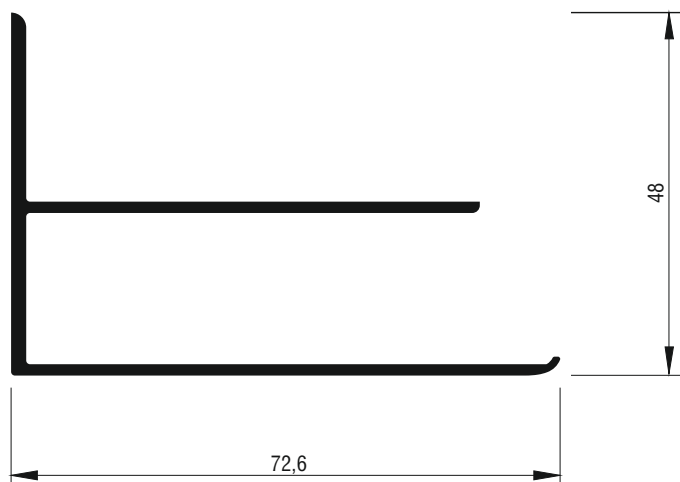


M9317	
Νεροσταλάκτης Waterproofing profile	
Βάρος - Weight	180 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,3 cm ⁴

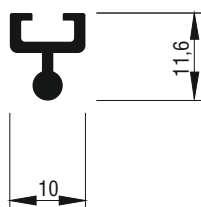
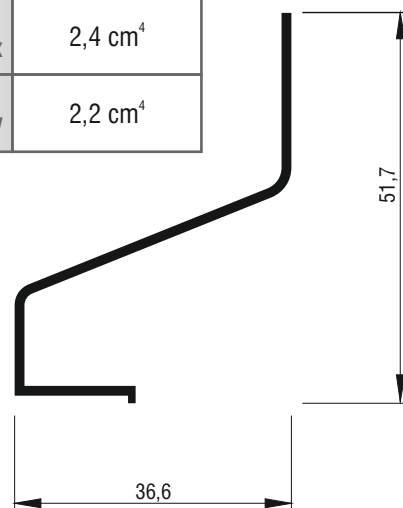


M9010	
Πρόσθετο Additional profile	
Βάρος - Weight	132 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,3 cm ⁴

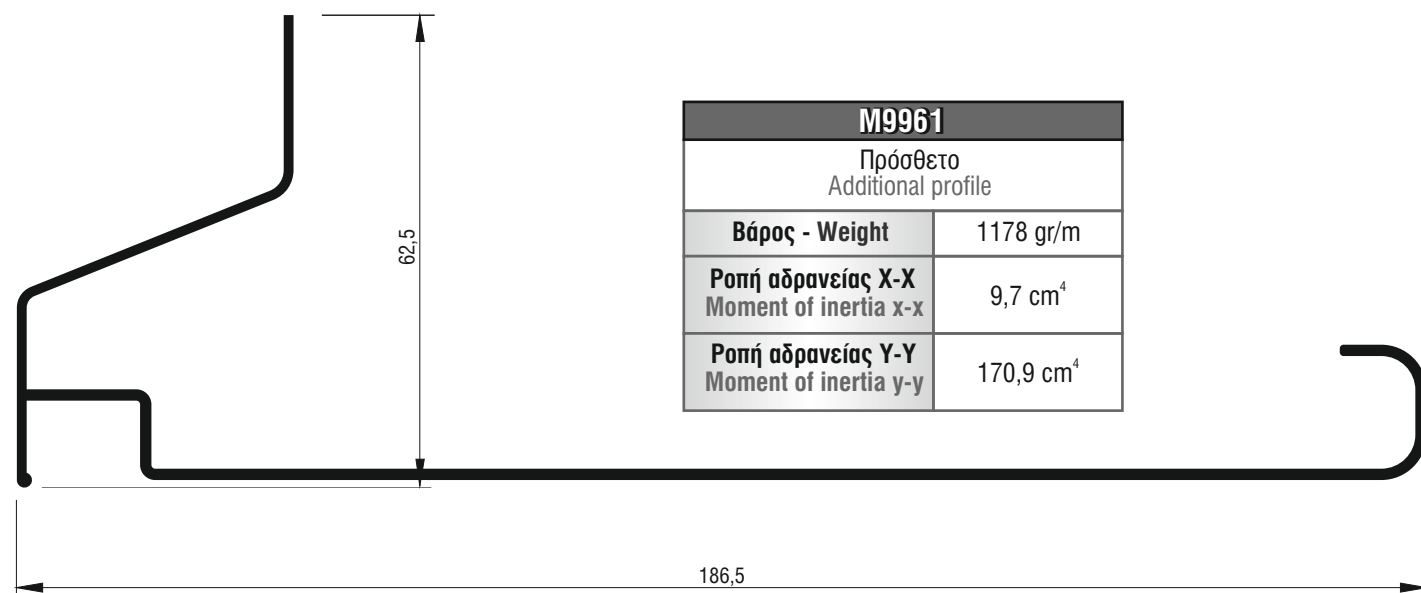
M9962	
Πρόσθετο Additional profile	
Βάρος - Weight	783 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	5,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	14,41 cm ⁴



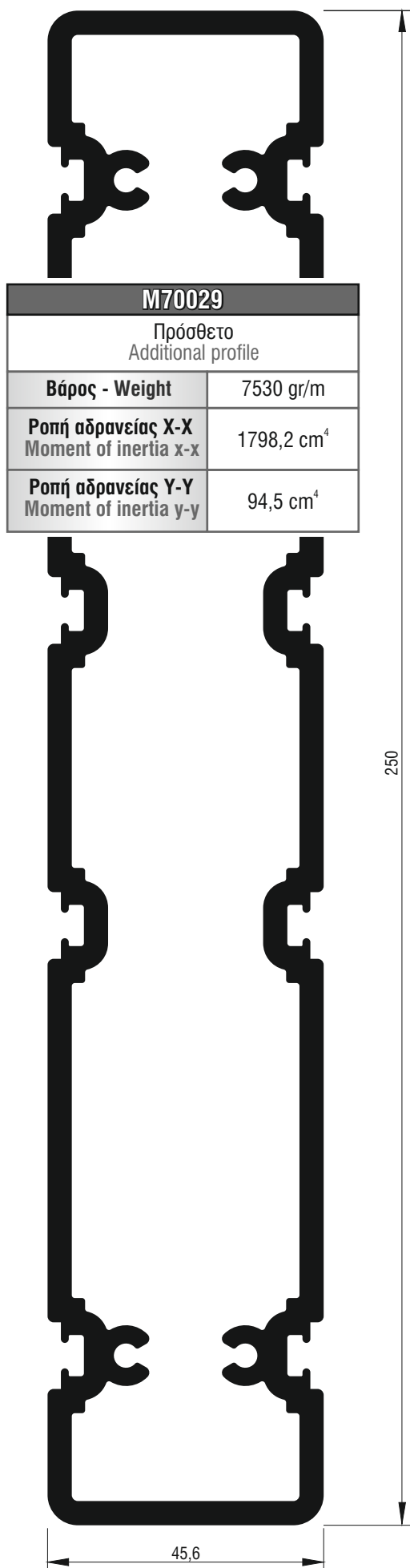
M9970	
Πρόσθετο Additional profile	
Βάρος - Weight	313 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	2,2 cm ⁴



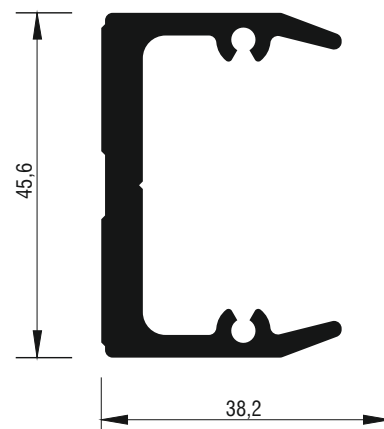
M10960	
Πρόσθετο Additional profile	
Βάρος - Weight	122 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,1 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴



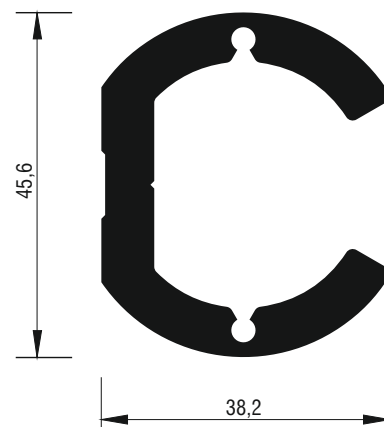
M9961	
Πρόσθετο Additional profile	
Βάρος - Weight	1178 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	9,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	170,9 cm ⁴



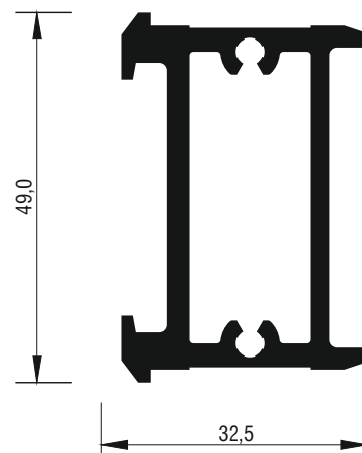
M70027	
Πρόσθετο Additional profile	
Βάρος - Weight	1138 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	11,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,3 cm ⁴



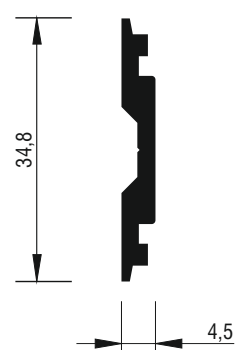
M70028	
Πρόσθετο Additional profile	
Βάρος - Weight	1717 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	14,4 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	8,5 cm ⁴

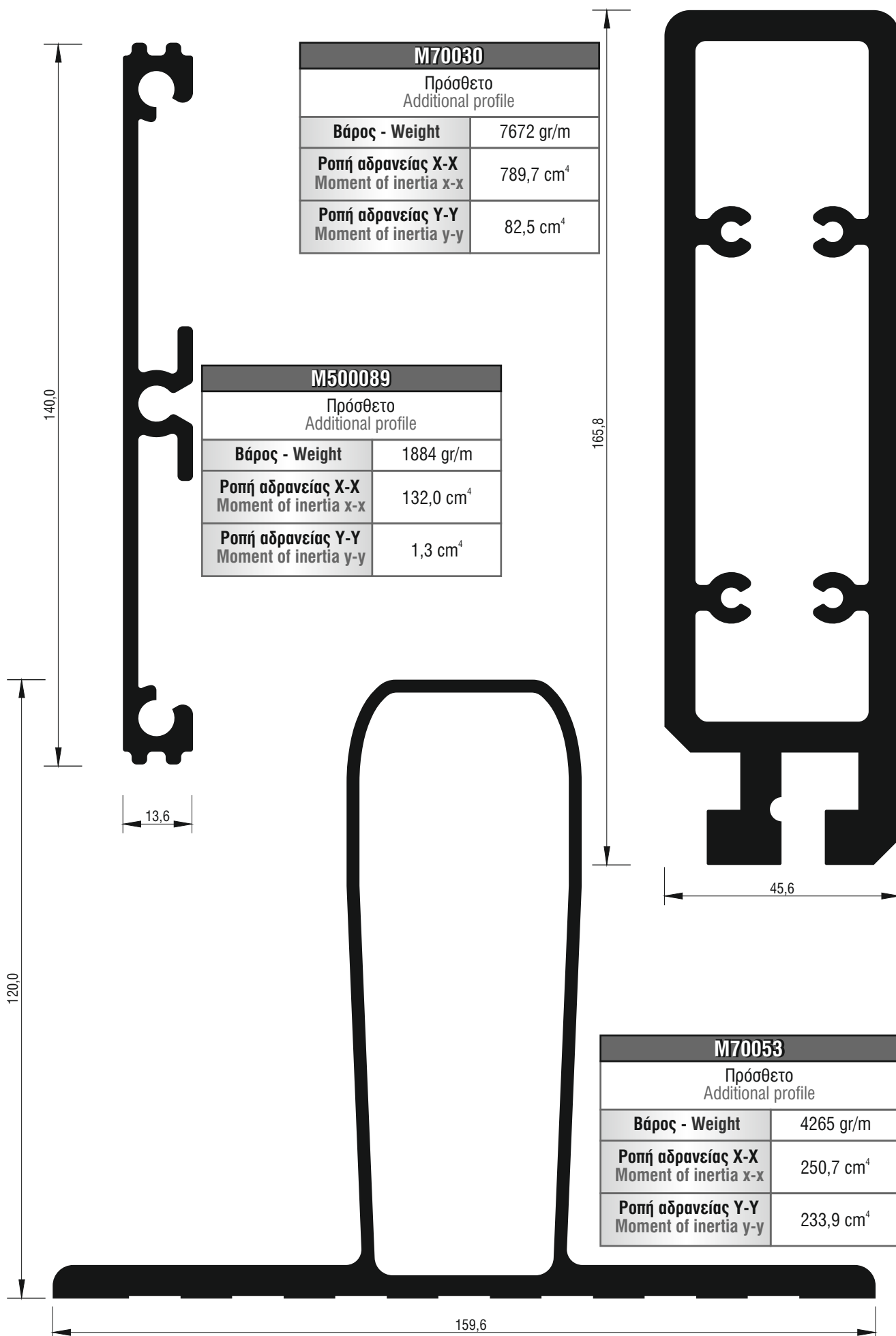


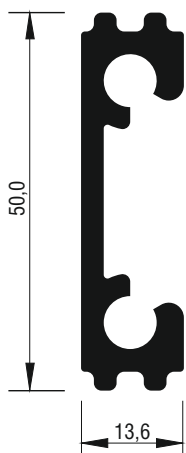
M70097	
Πρόσθετο Additional profile	
Βάρος - Weight	1273 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	13,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	4,3 cm ⁴



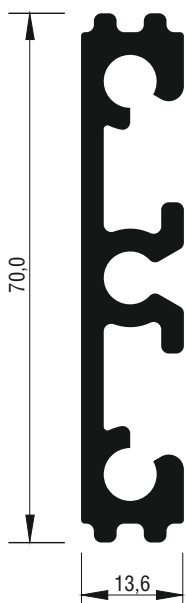
AL500001	
Πρόσθετο Additional profile	
Βάρος - Weight	287 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	1,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,1 cm ⁴







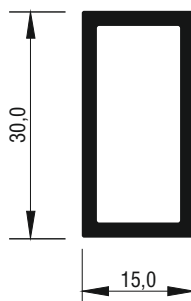
M500087	
Πρόσθετο Additional profile	
Βάρος - Weight	824 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	8,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,6 cm ⁴



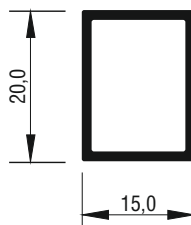
M500088	
Πρόσθετο Additional profile	
Βάρος - Weight	1236 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	21,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,9 cm ⁴



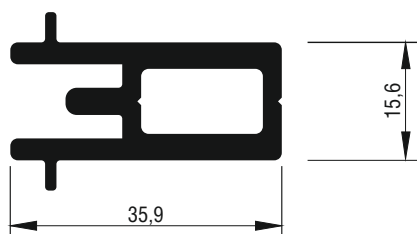
M500065	
Πρόσθετο Additional profile	
Βάρος - Weight	1641 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	70,6 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	1,2 cm ⁴



30x15x2	
Πρόσθετο Additional profile	
Βάρος - Weight	443 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	1,8 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,6 cm ⁴

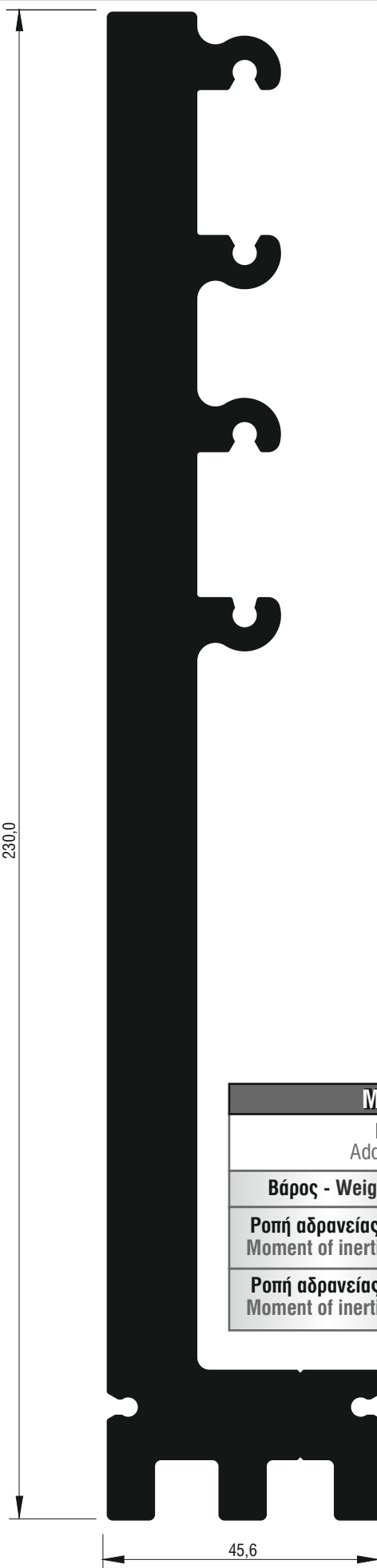
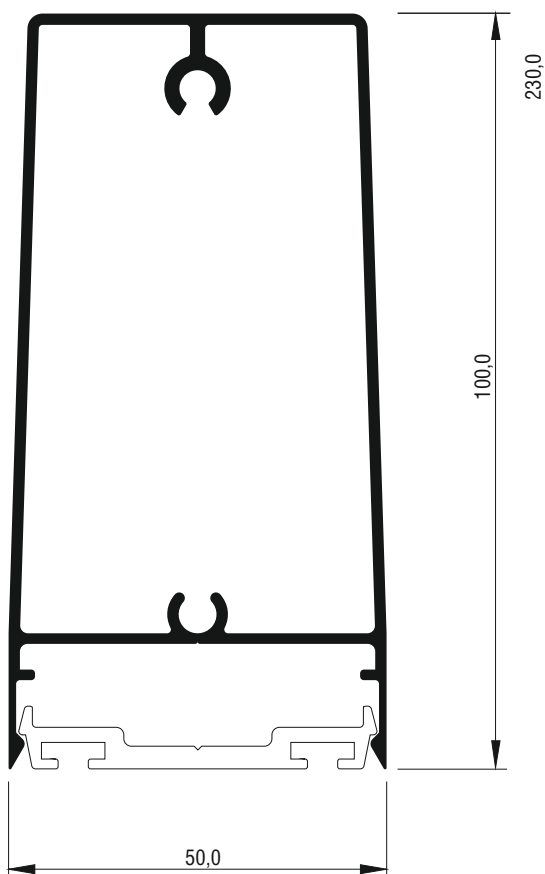


20x15x1,3	
Πρόσθετο Additional profile	
Βάρος - Weight	227 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	0,5 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	0,3 cm ⁴



M70079	
Πρόσθετο Additional profile	
Βάρος - Weight	847 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	1,0 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	3,4 cm ⁴

M70054	
Καπάκι υαλοπετάσματος Curtain wall cover cap	
Βάρος - Weight	1316 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	54,49 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	18,19 cm ⁴



M70078	
Πρόσθετο Additional profile	
Βάρος - Weight	12521 gr/m
Ροπή αδρανείας X-X Moment of inertia x-x	2781,7 cm ⁴
Ροπή αδρανείας Y-Y Moment of inertia y-y	43,6 cm ⁴

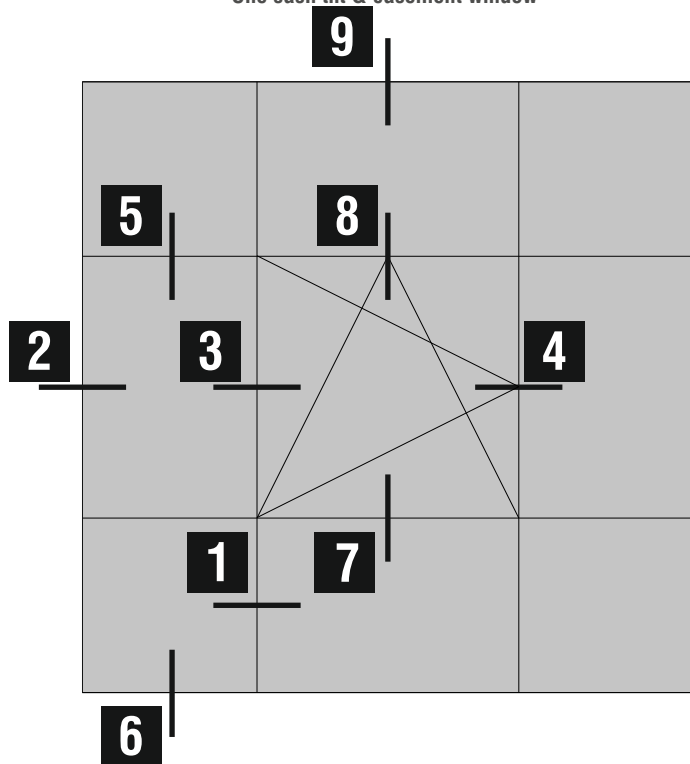
Βασικές Τυπολογίες

Basic Typologies

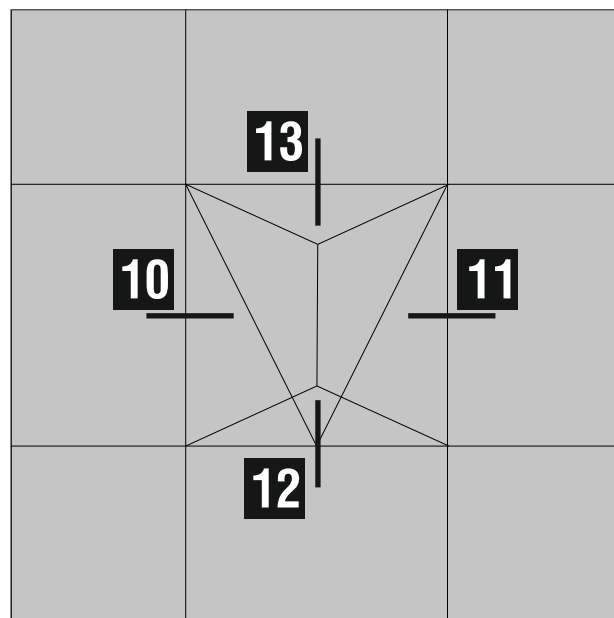
ALUMIL M7 Standard

Βασικές Τομές - Standard sections

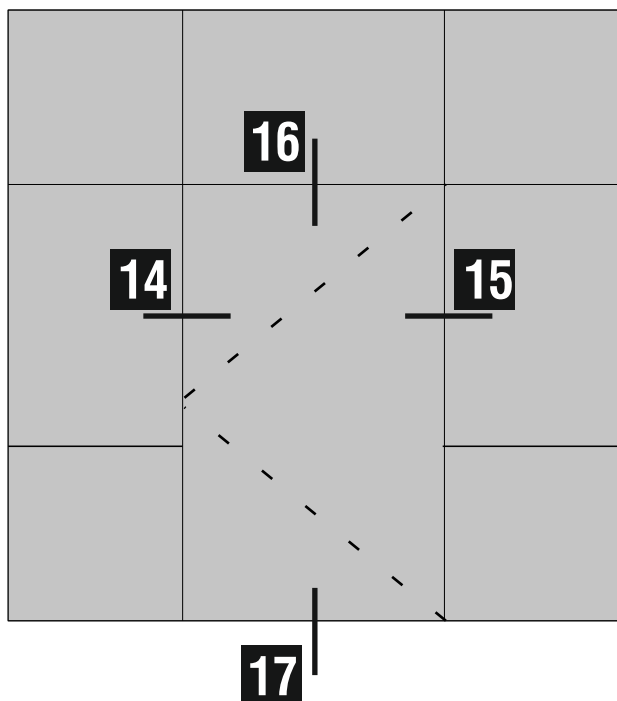
Ανοιγόμενο - ανακλινόμενο παράθυρο
One sash tilt & casement window



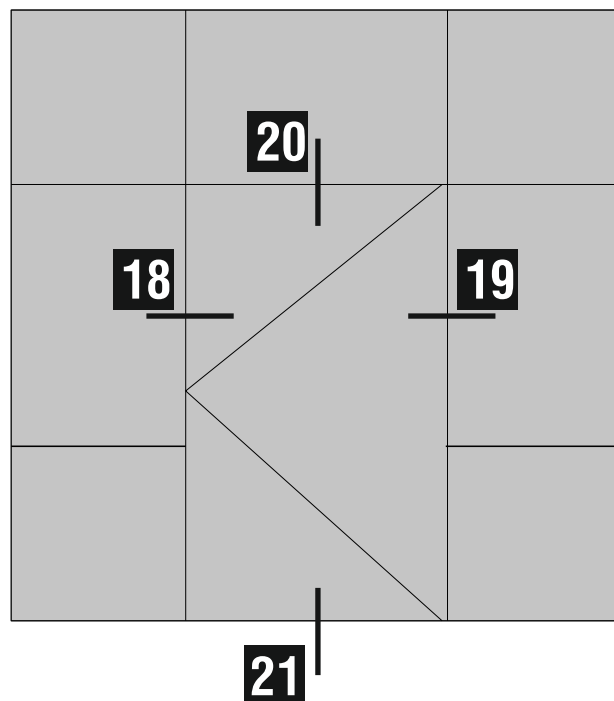
Προβαλόμενο παράθυρο , παράθυρο παράλληλης προβολής
Projected window & Parallel projected window



Εξωτερικά ανοιγόμενη πόρτα
Opening outside door



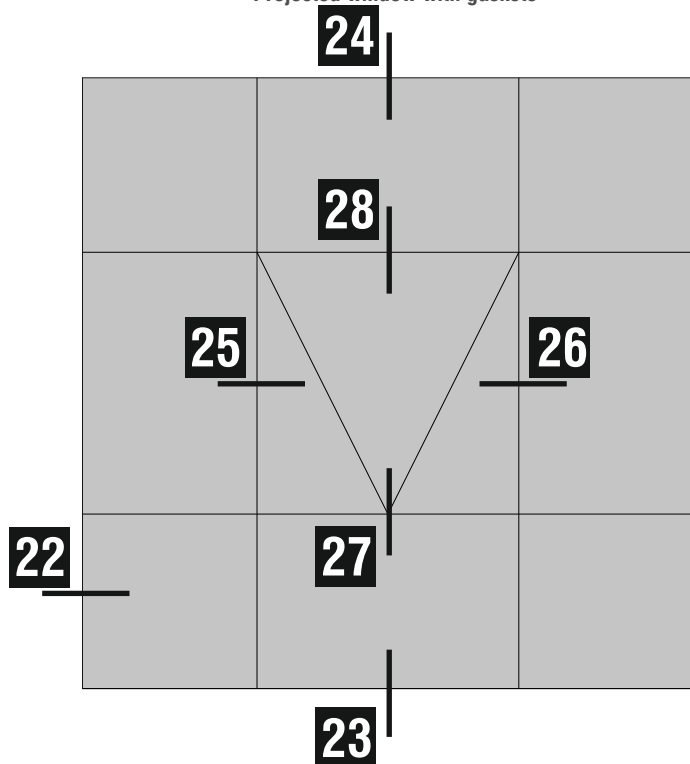
Εσωτερικά ανοιγόμενη πόρτα
Opening inside door



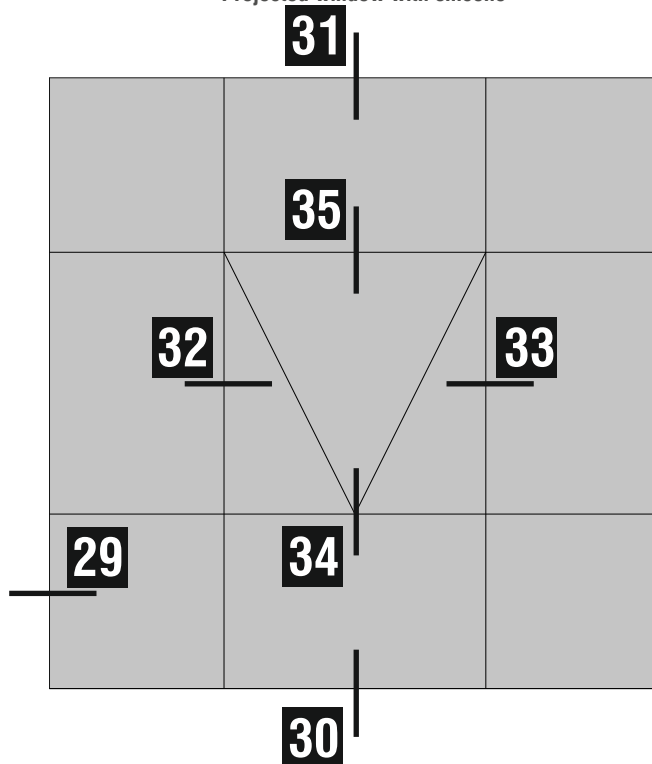
Alumil M7 Structural

Βασικές Τομές - Standard sections

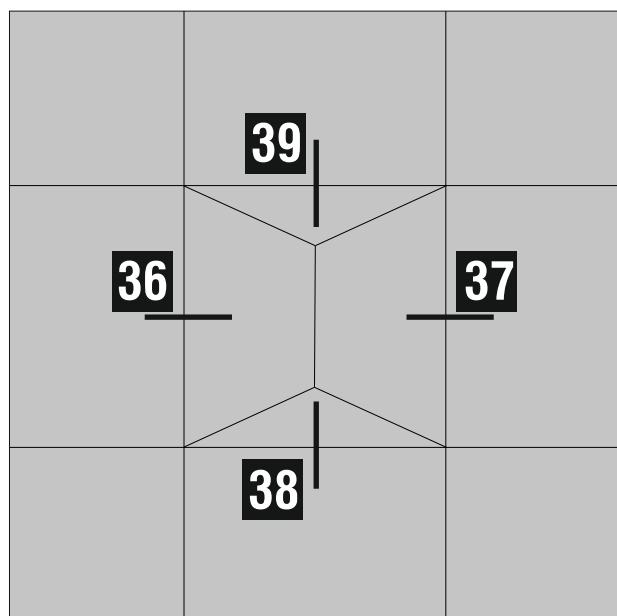
Προβαλόμενο παράθυρο με λάστιχα
Projected window with gaskets



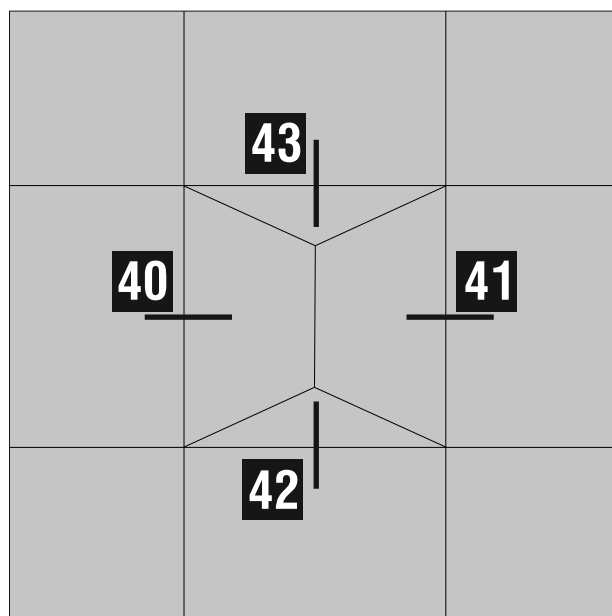
Προβαλόμενο παράθυρο με σιλικόνη
Projected window with silicone

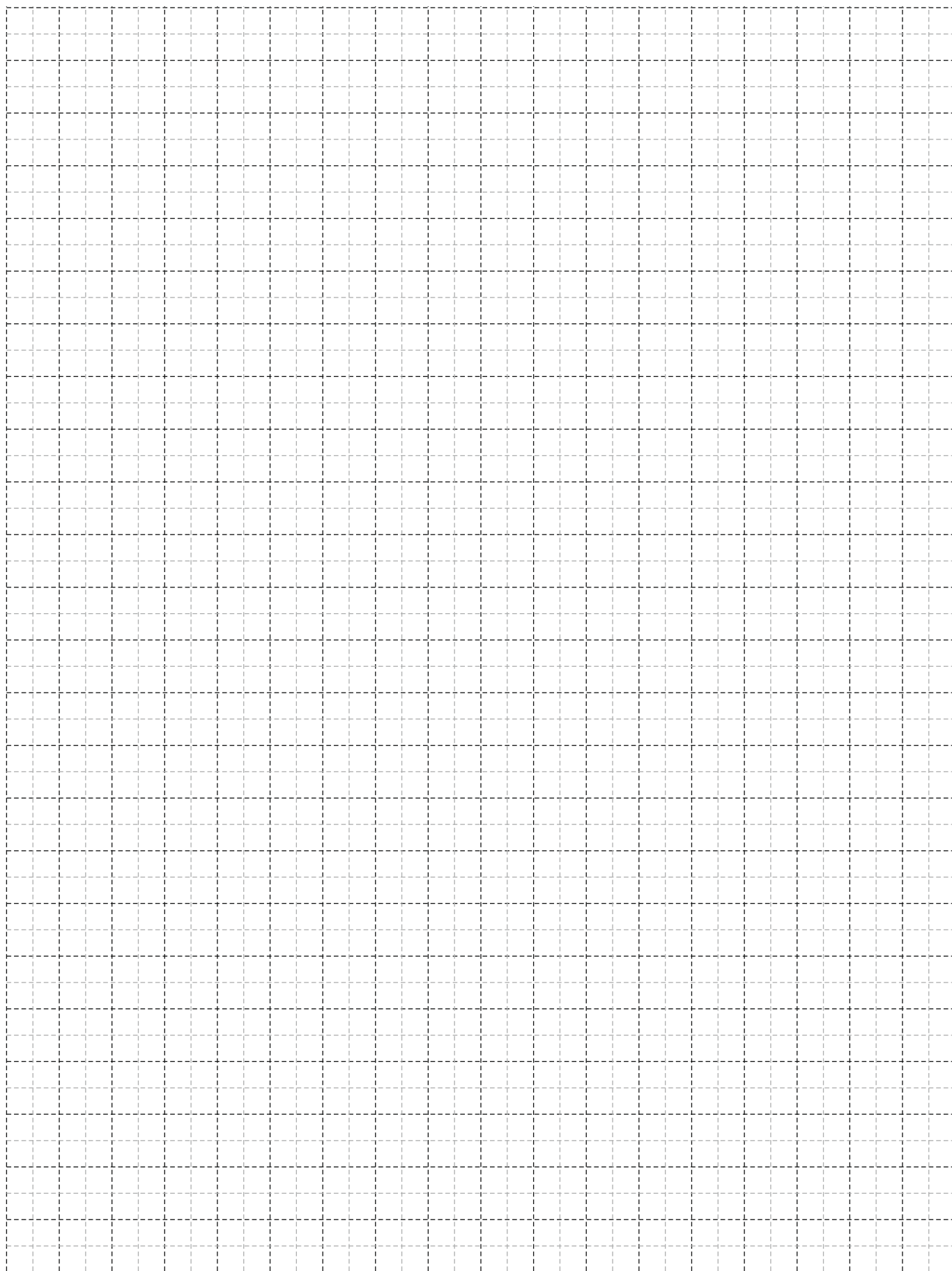


Παράθυρο παράλληλης προβολής με λάστιχα
Parallel projected window with gaskets

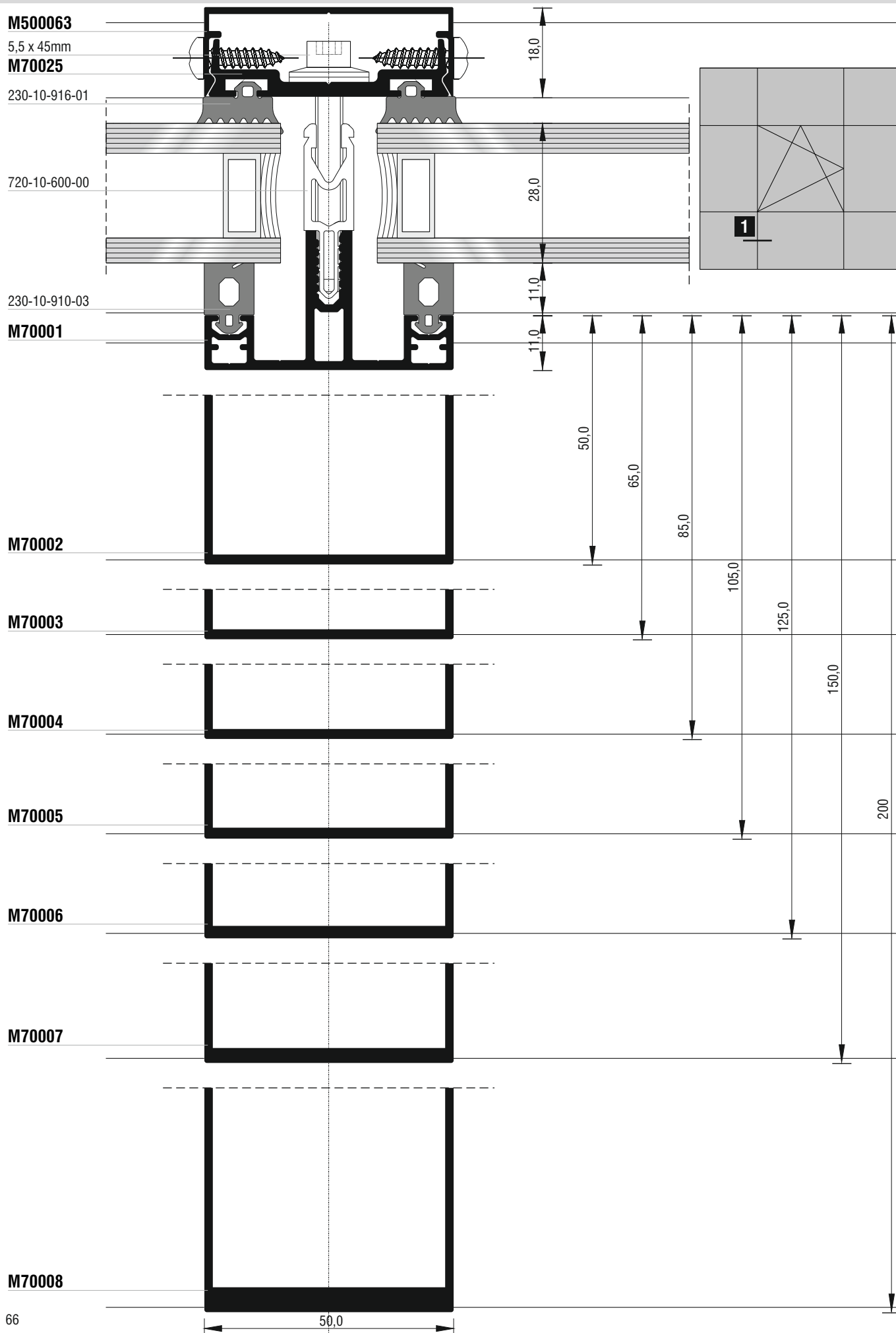


Παράθυρο παράλληλης προβολής με σιλικόνη
Parallel projected window with silicone





Τομές 1:1
Sections 1:1



M500063

5,5 x 45mm

M70025

230-10-916-01

720-10-600-00

230-10-910-03

M70001

M500071

M70002

M70003

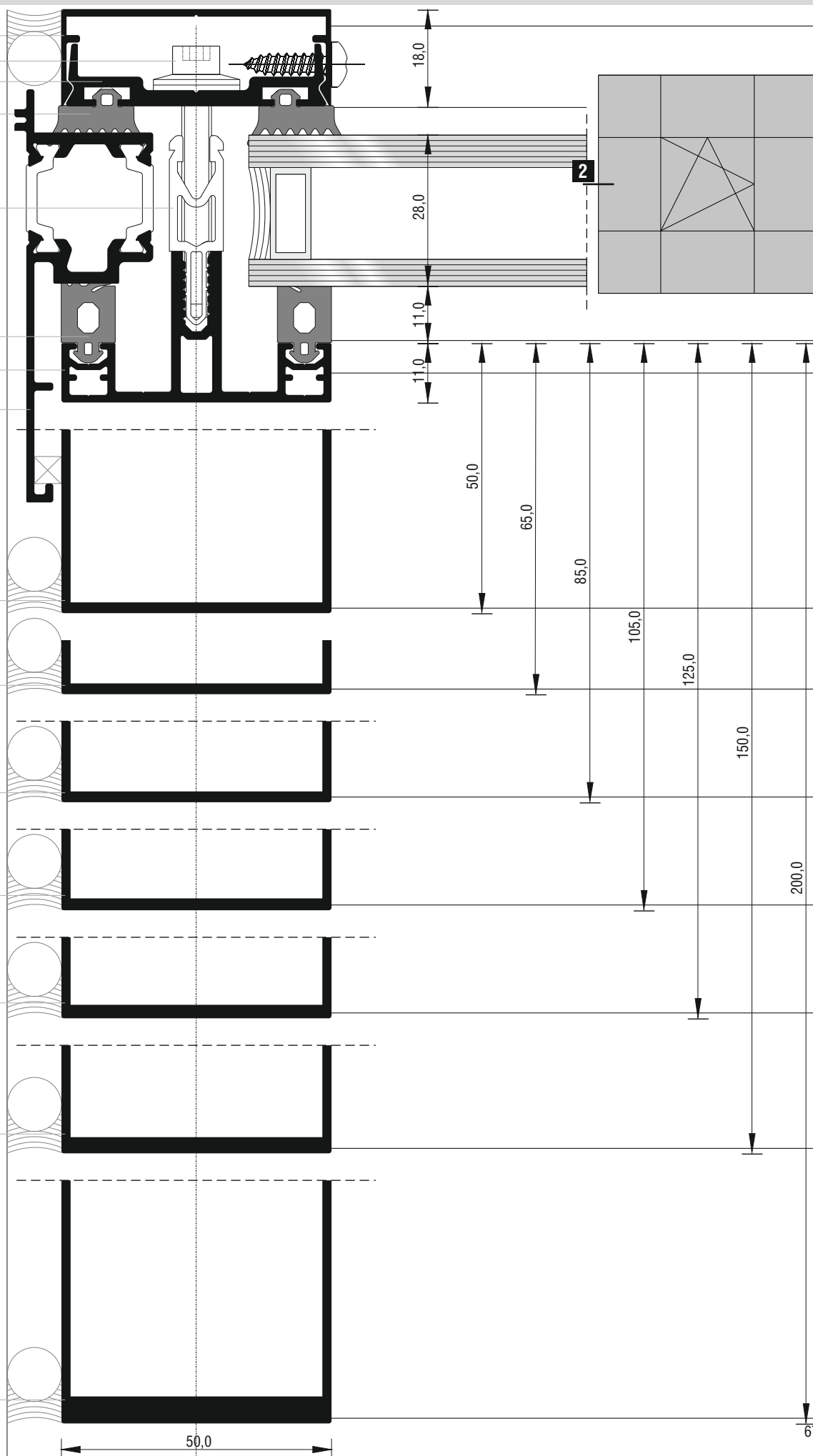
M70004

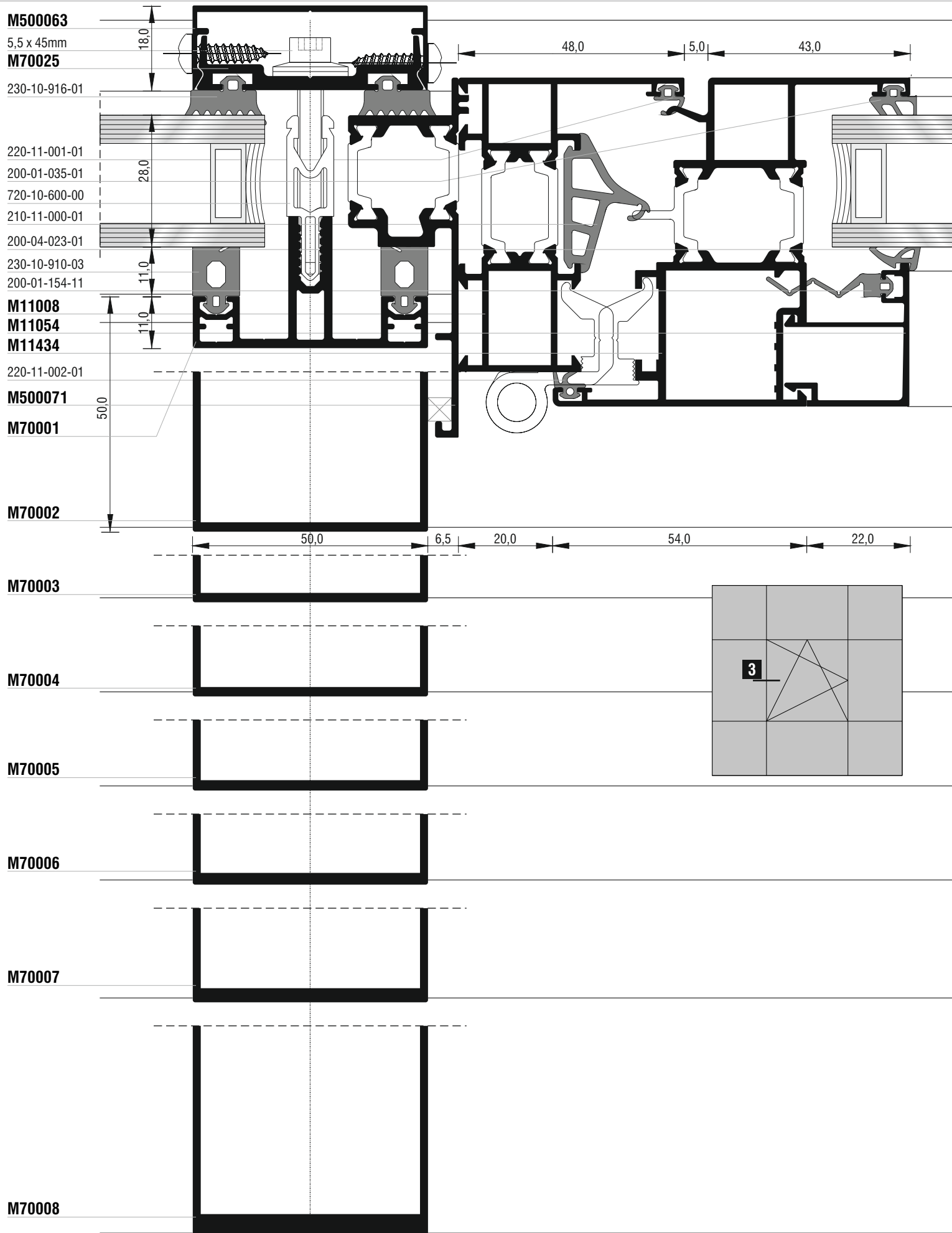
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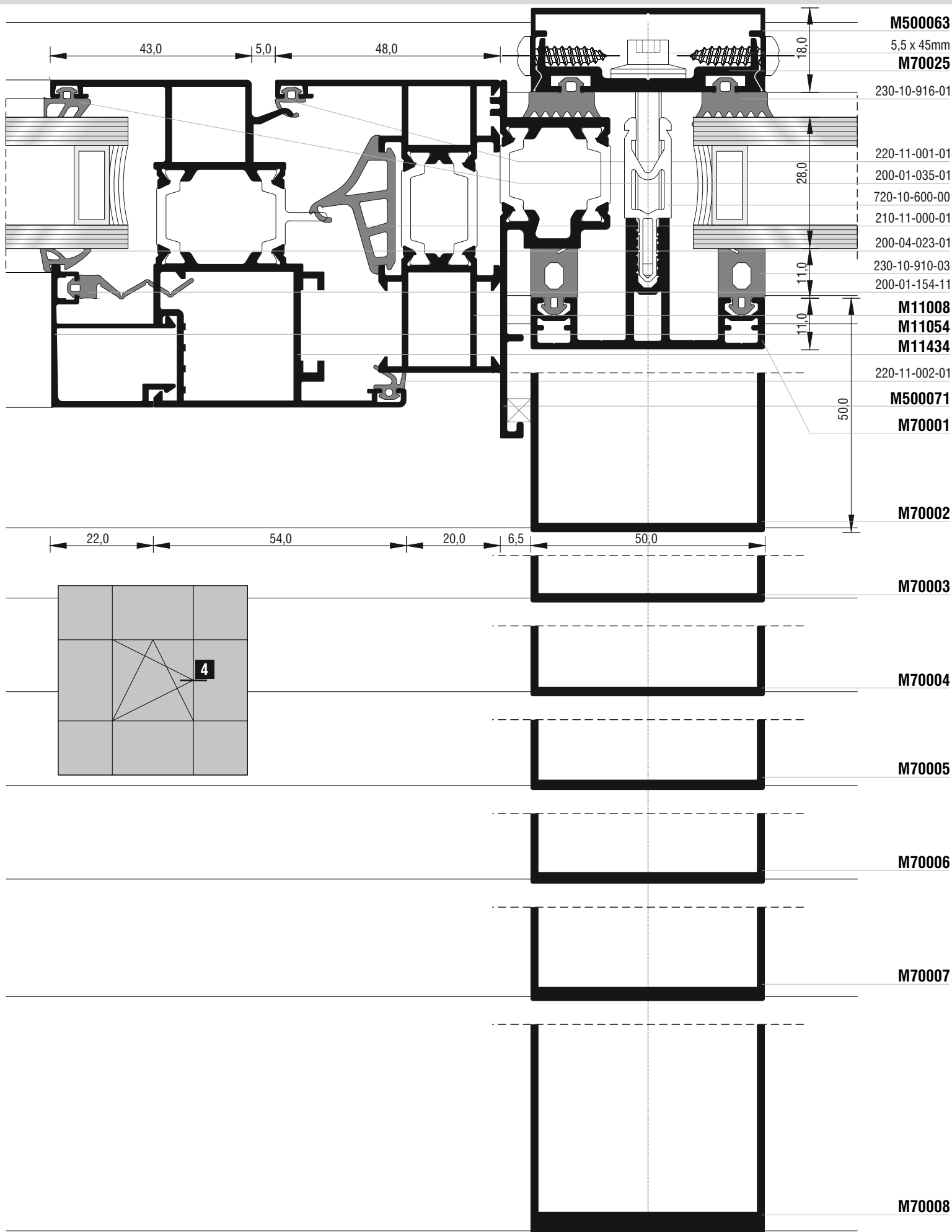
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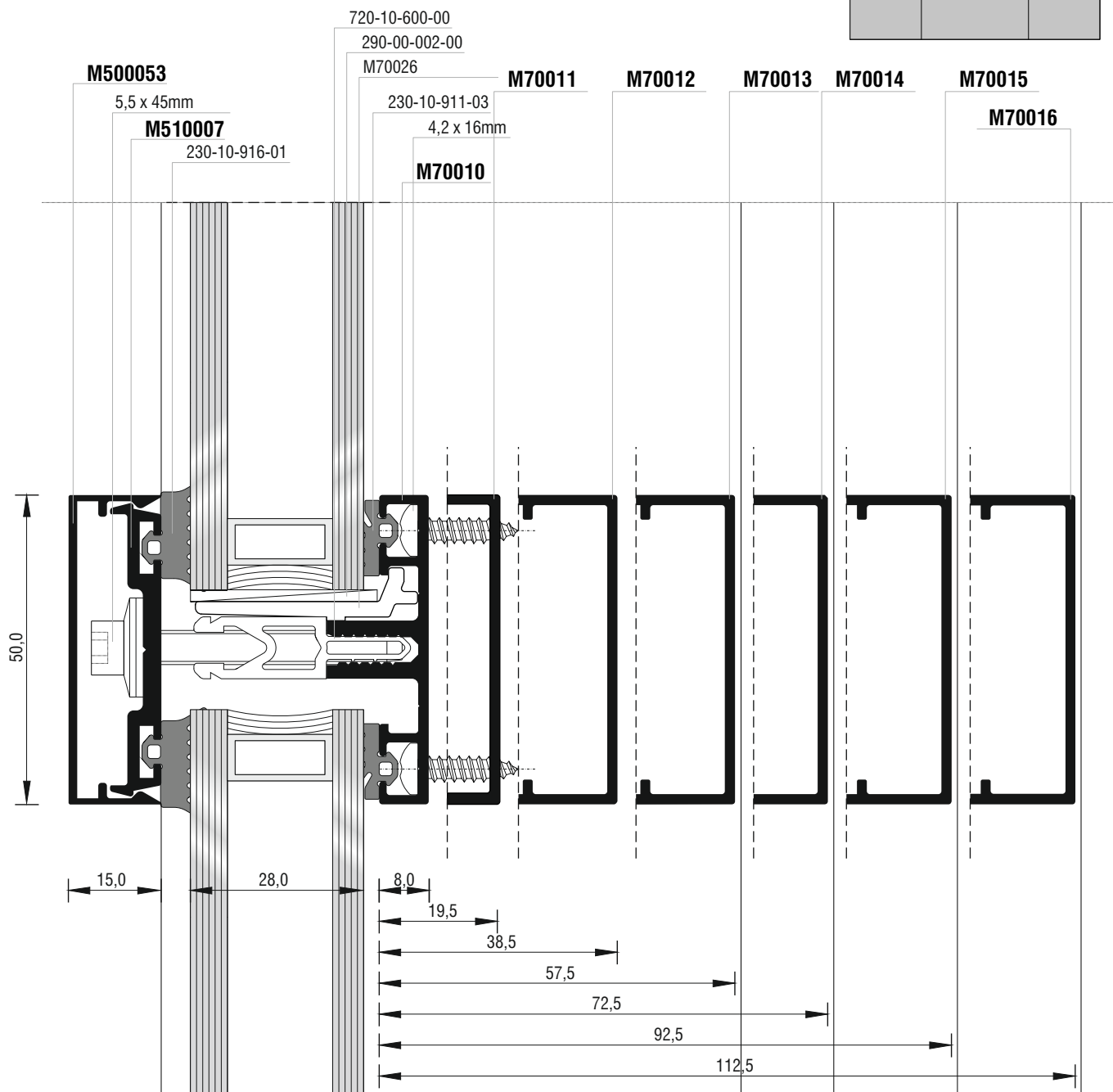
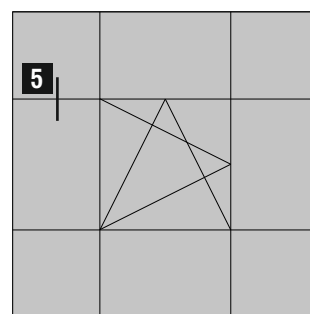
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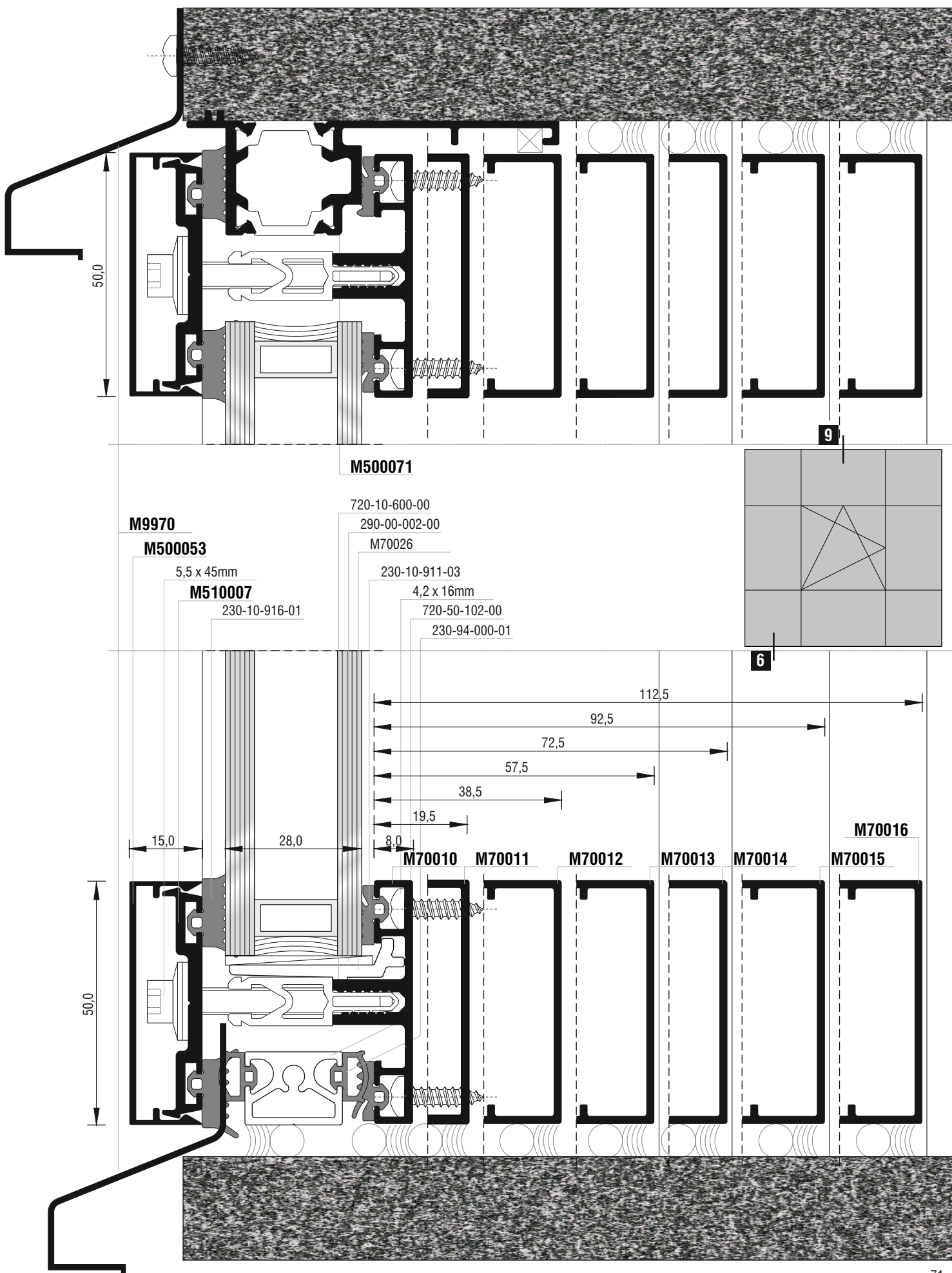
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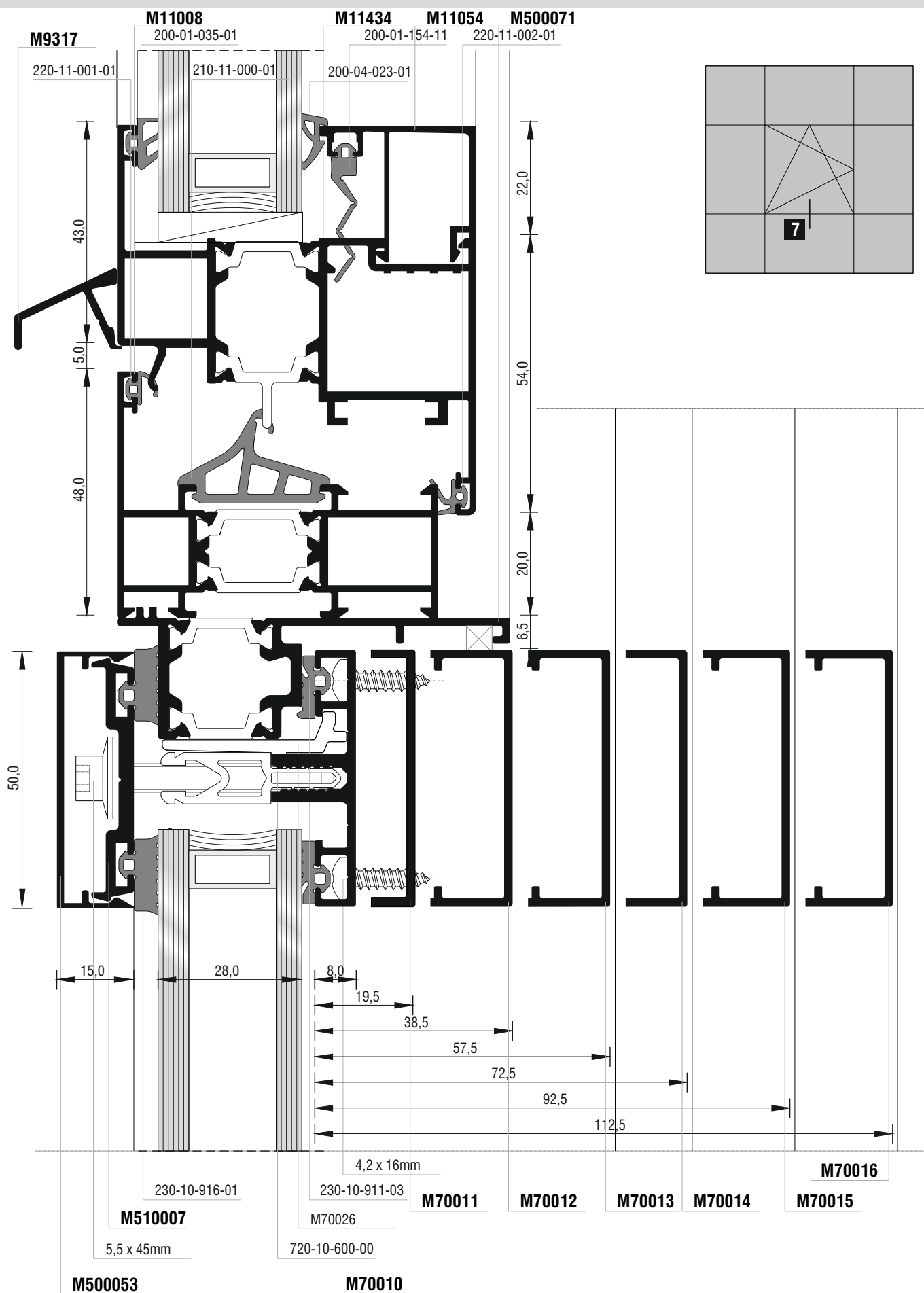


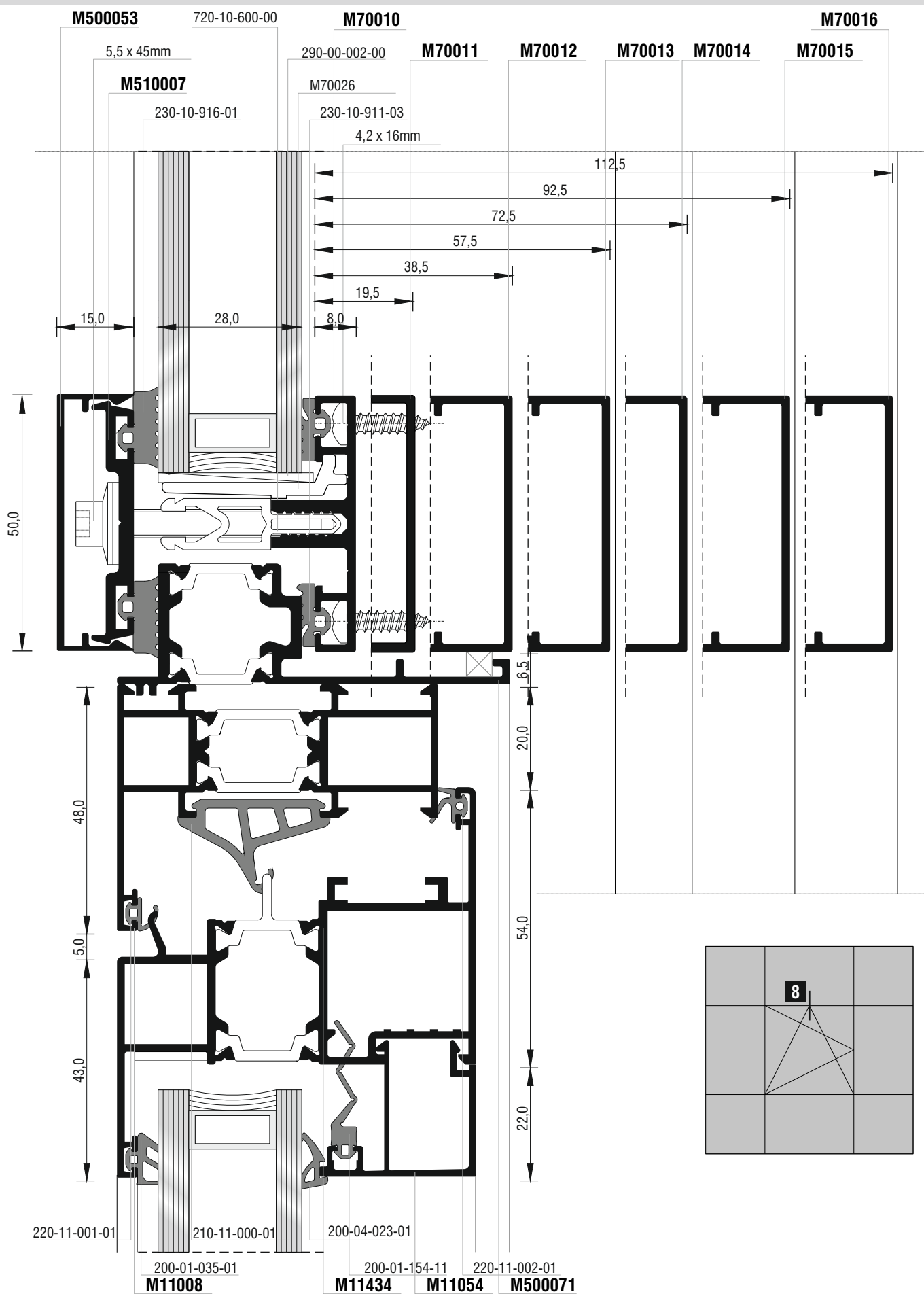












M500063

5,5 x 45mm

M70025

230-10-916-01

113-11-077-00

720-27-150-00

230-10-956-01

720-10-600-00

113-23-046-00

200-04-045-01

230-10-910-03

230-65-005-01

M70001

M70024

113-23-345-00

125-23-345-00

M70023

113-11-266-00

140-11-260-00

M70002

113-23-196-00

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113-11-266-00

140-11-260-00

220-11-002-00

M70003

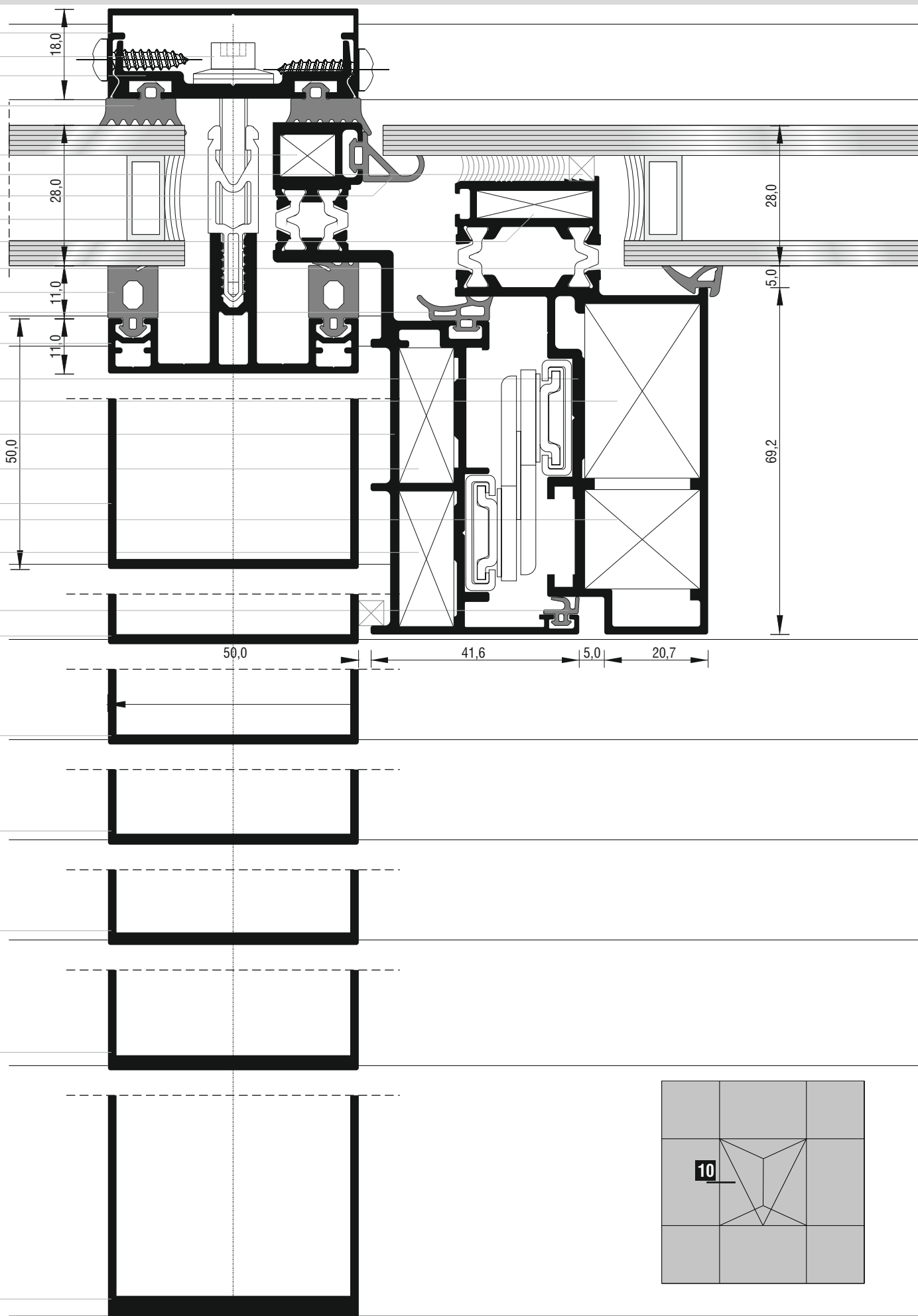
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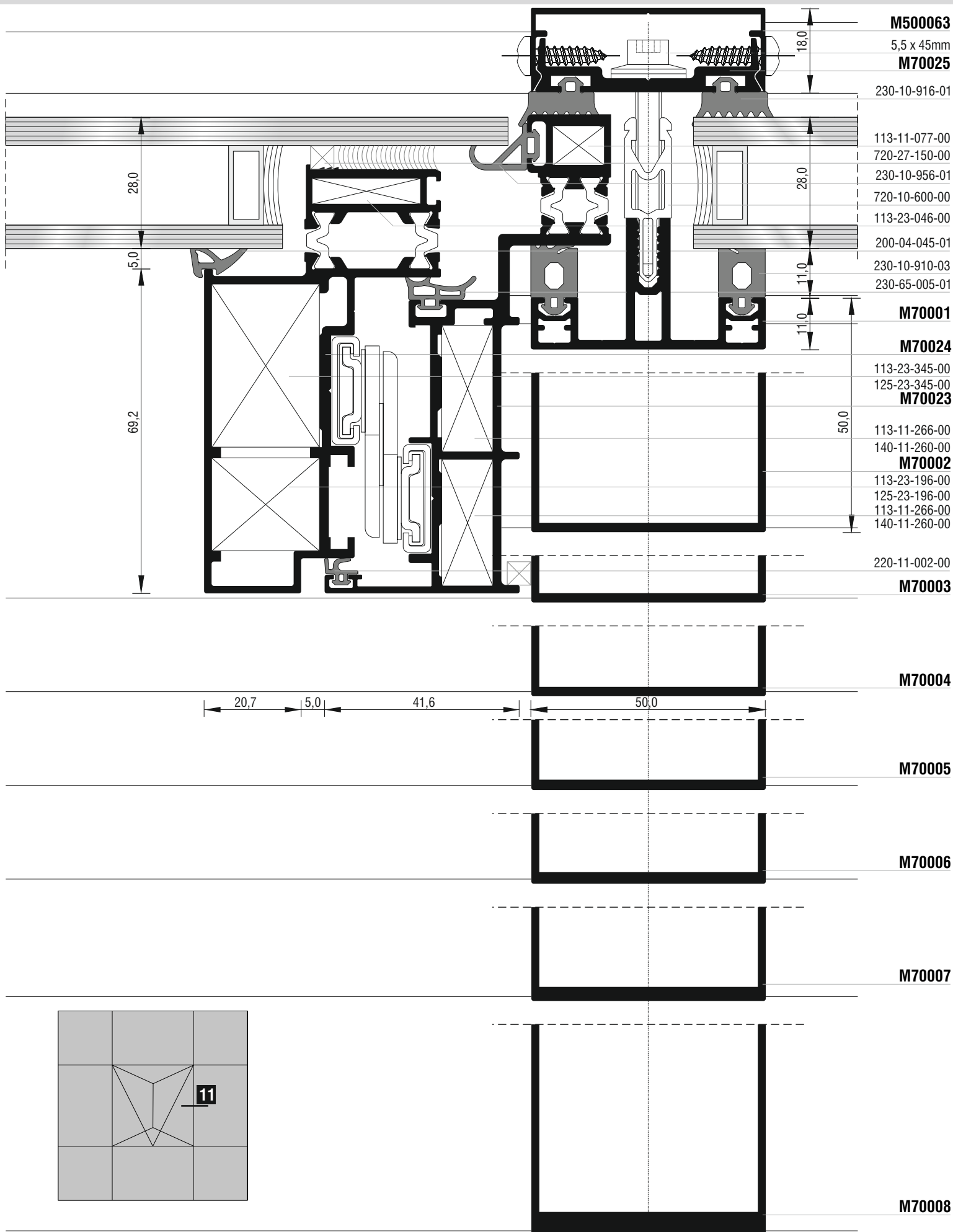
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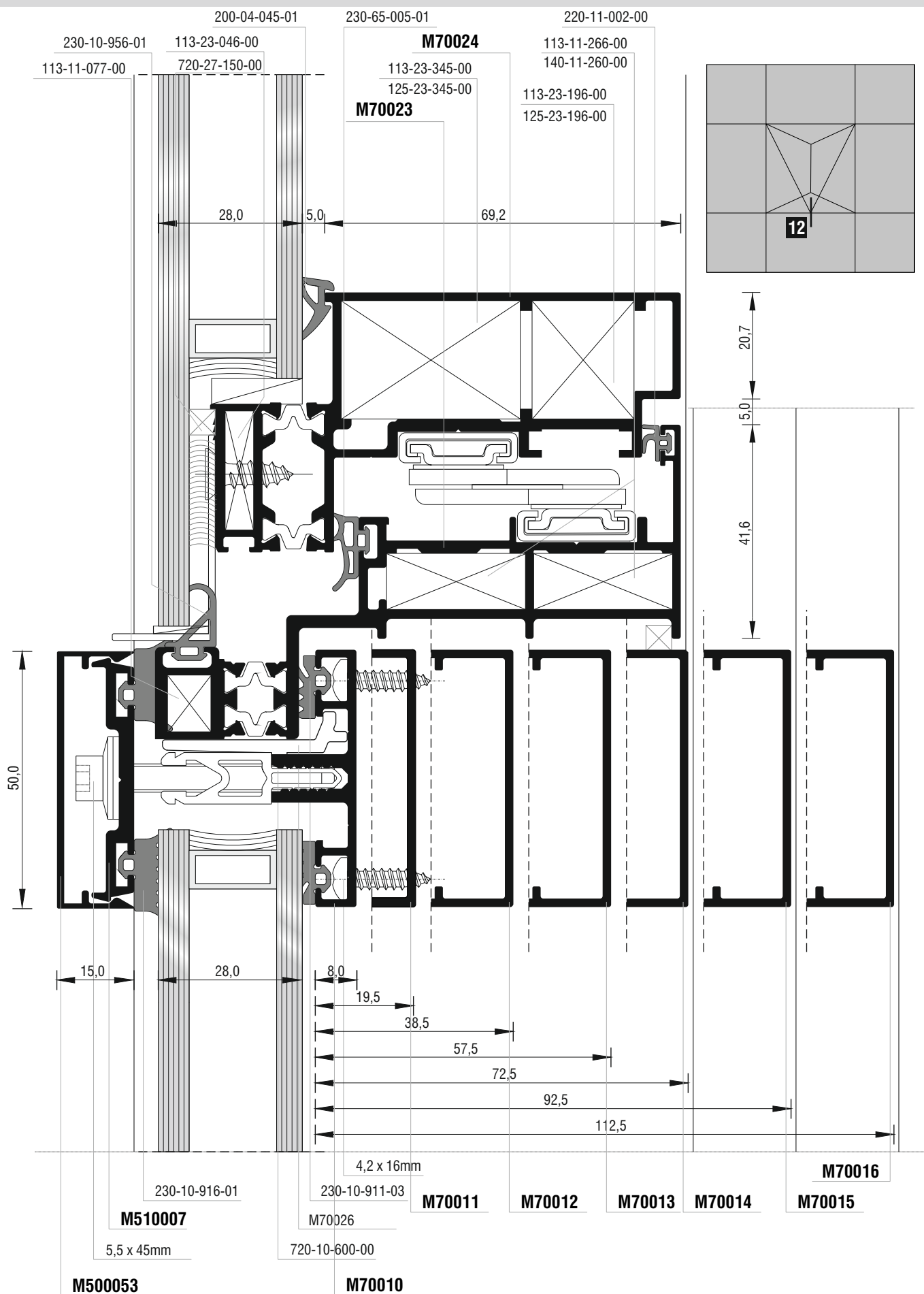
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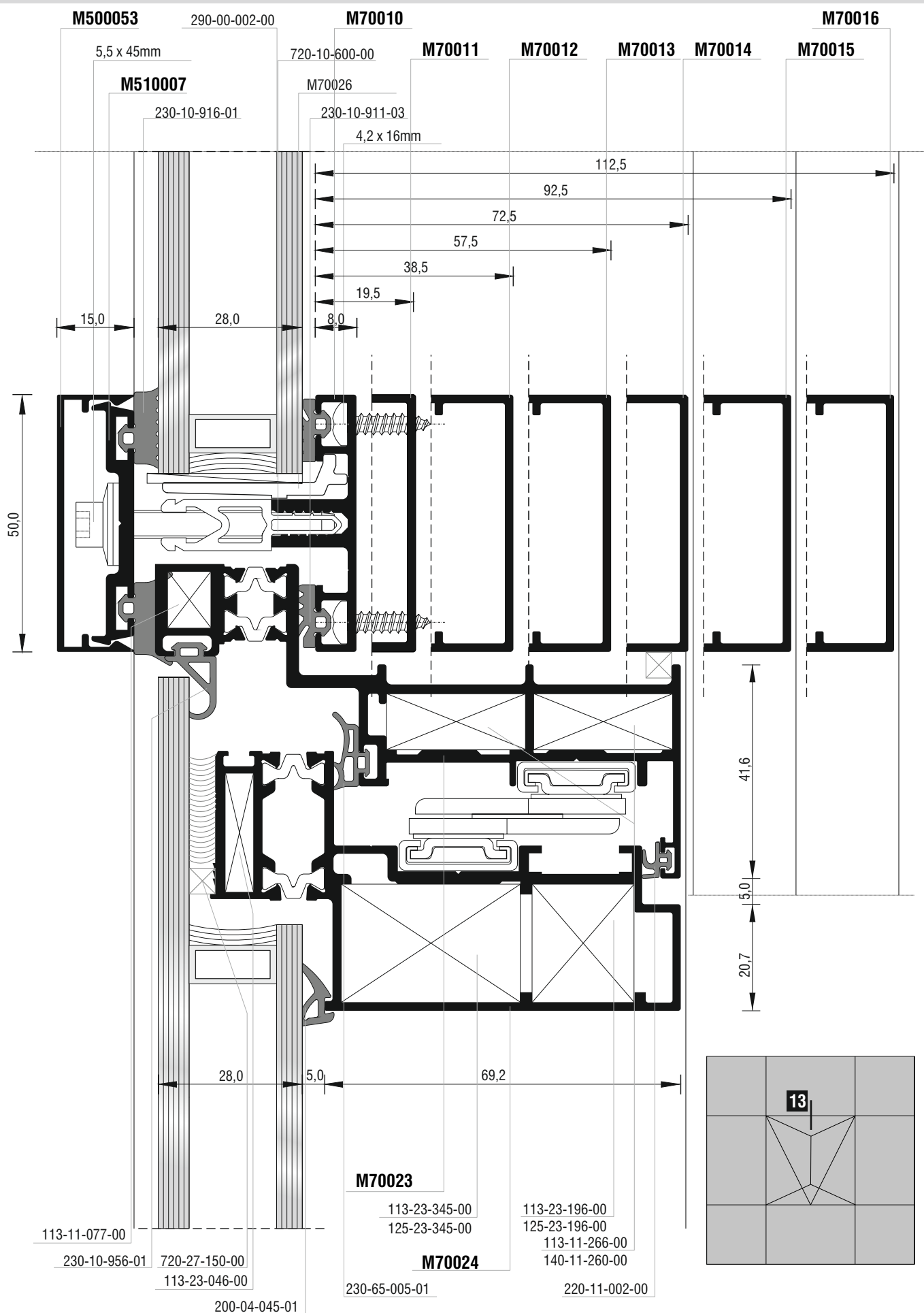
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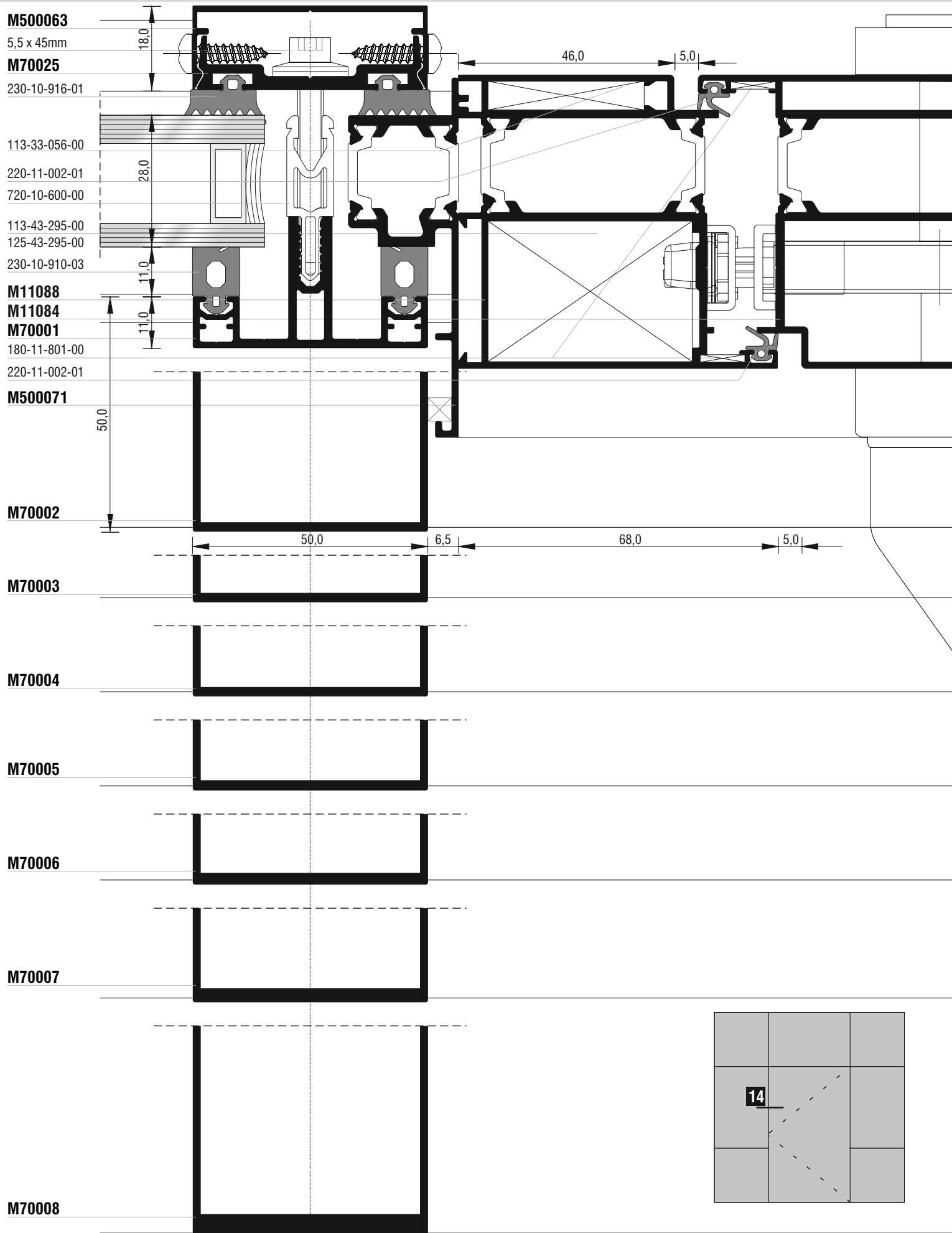
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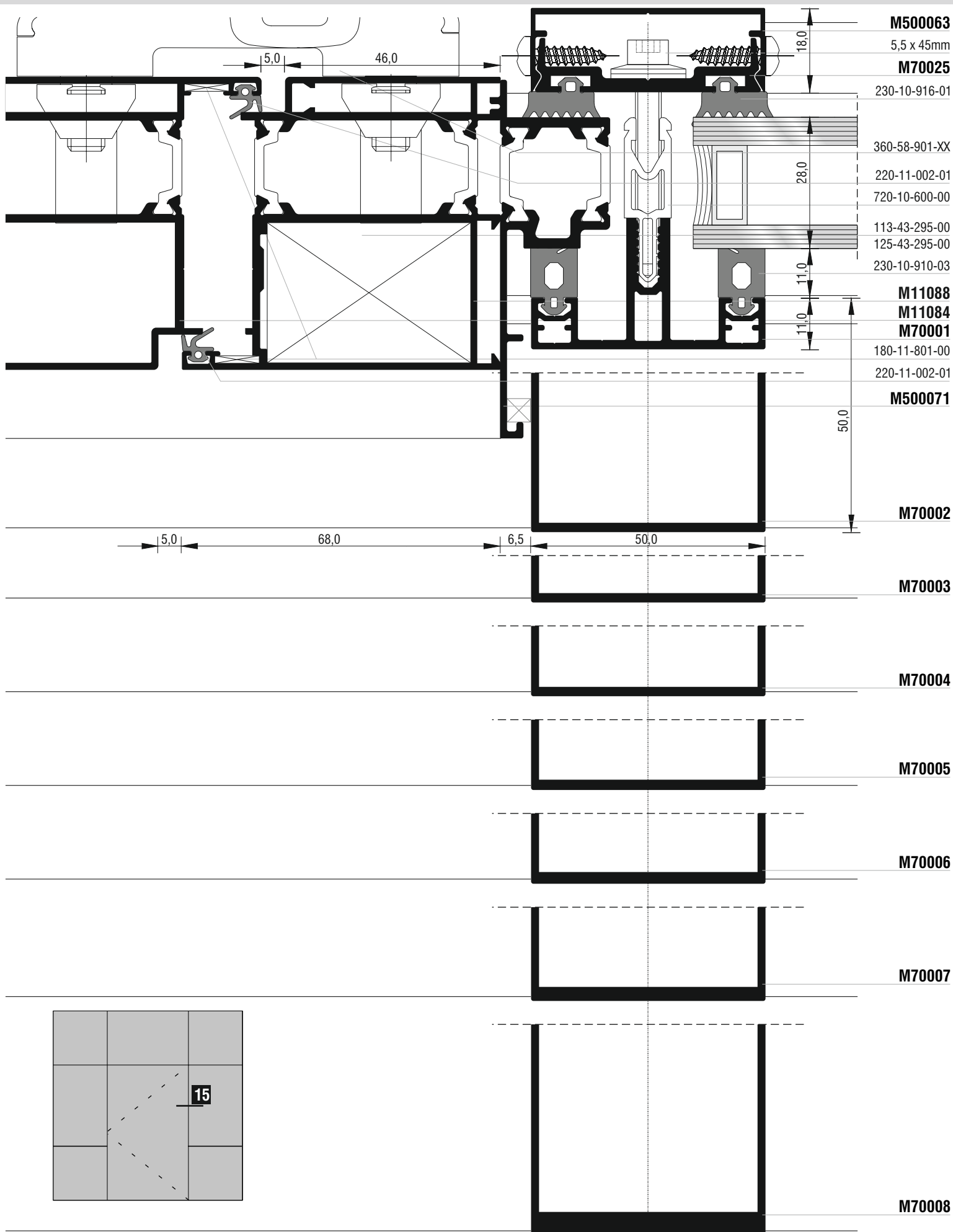




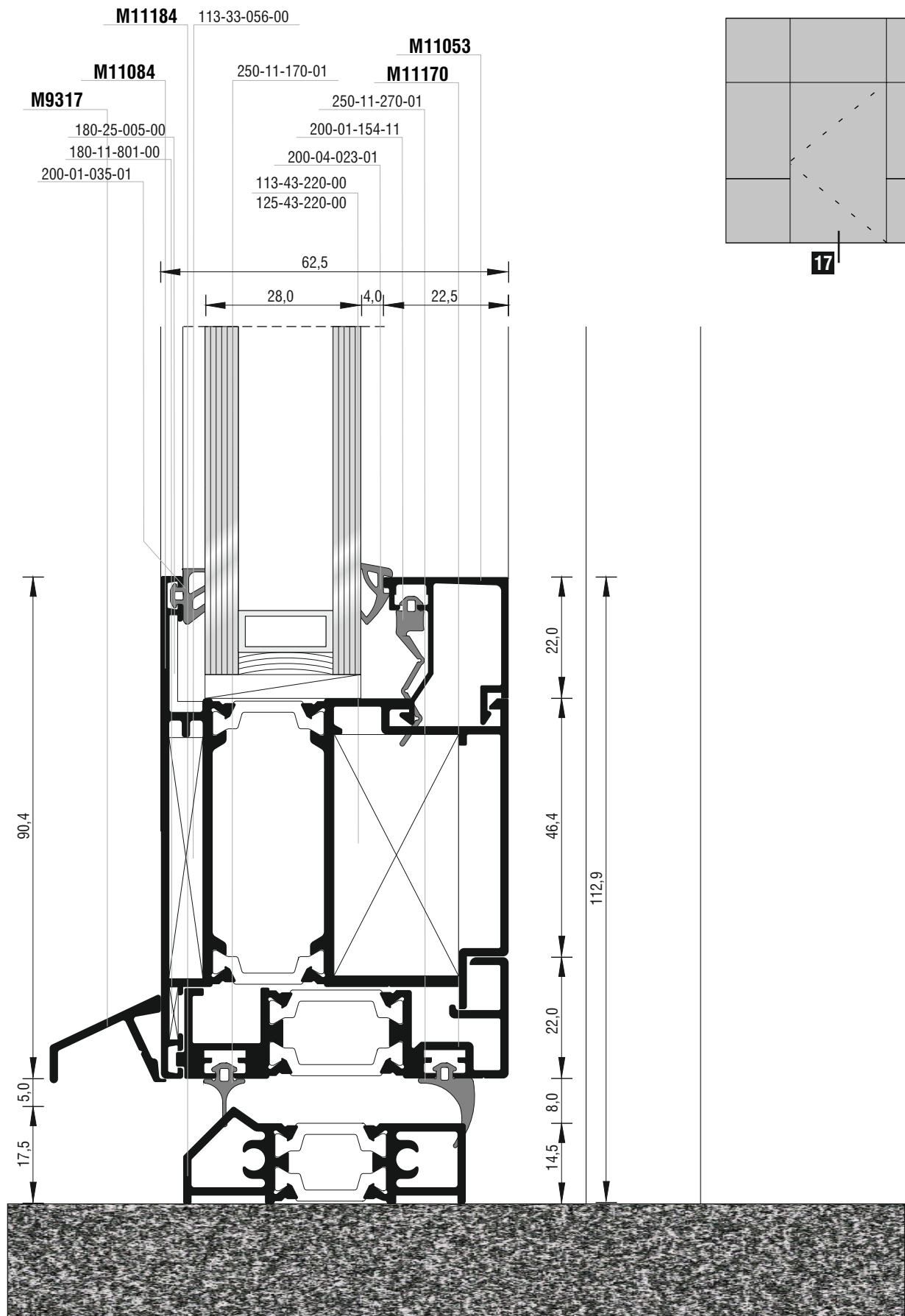


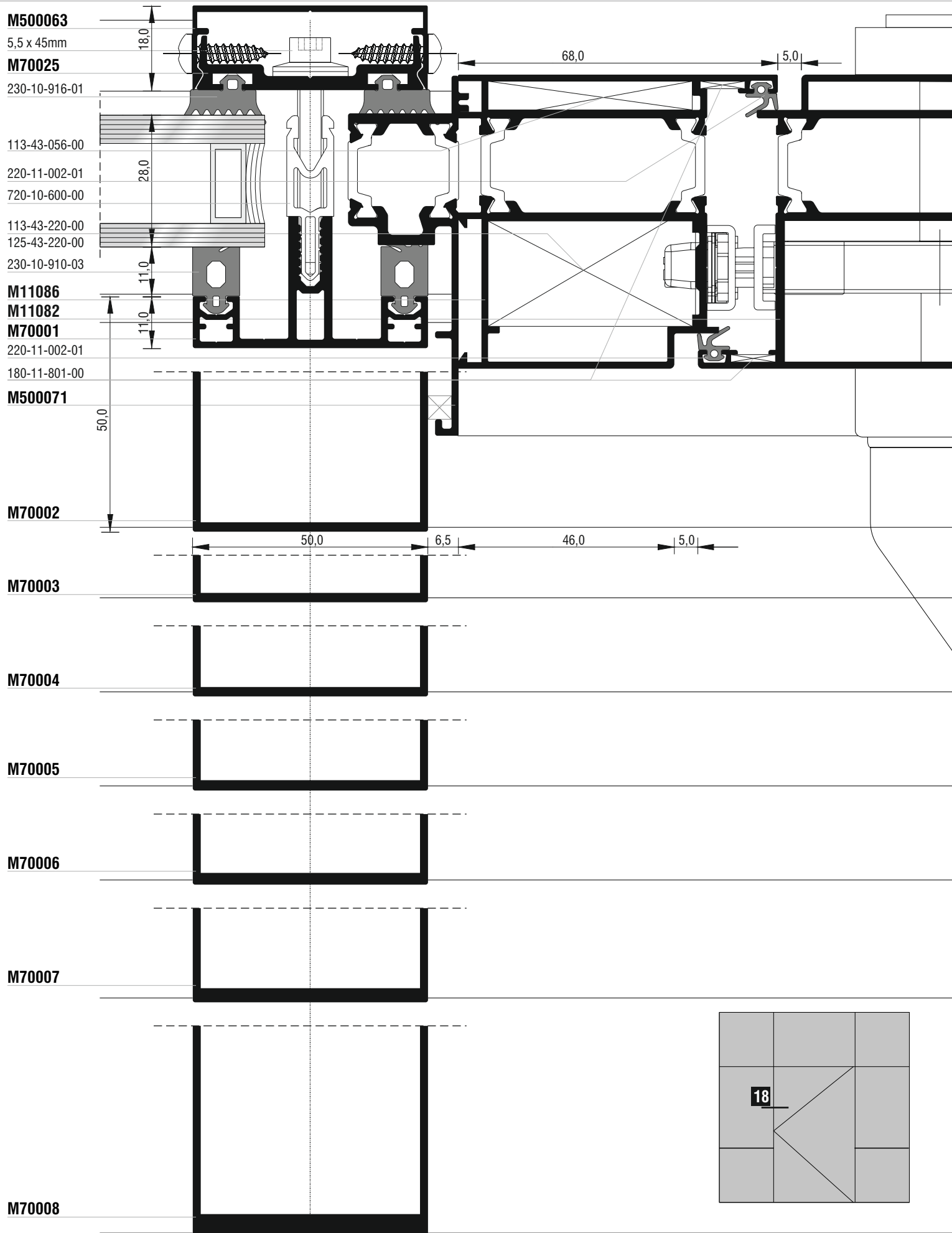


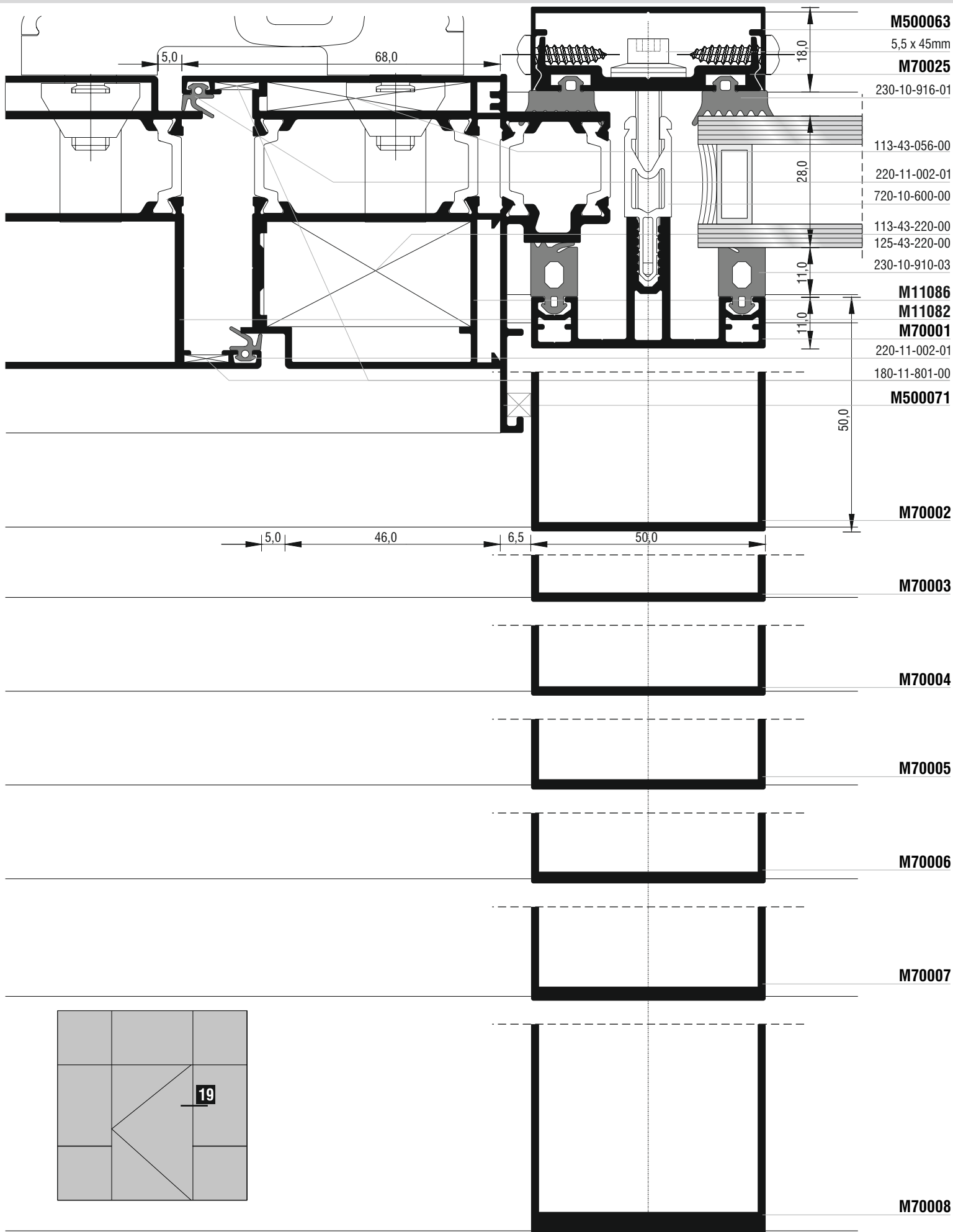




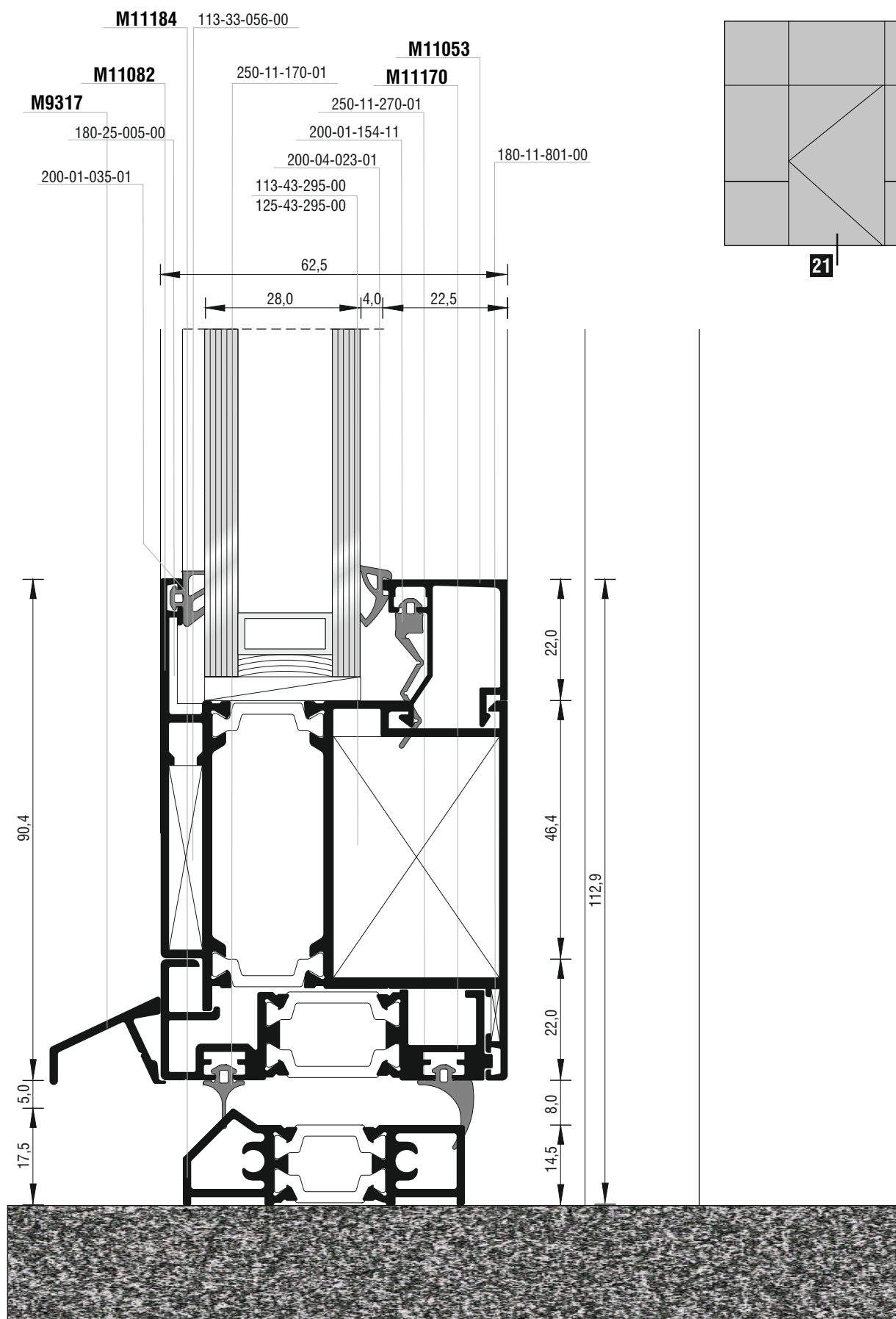












230-10-971-03
720-27-150-00

230-00-959-01
720-10-968-00

M109683

5,5 x 16mm

720-10-910-03

230-10-910-03

M70001

M500070

M70002

M70003

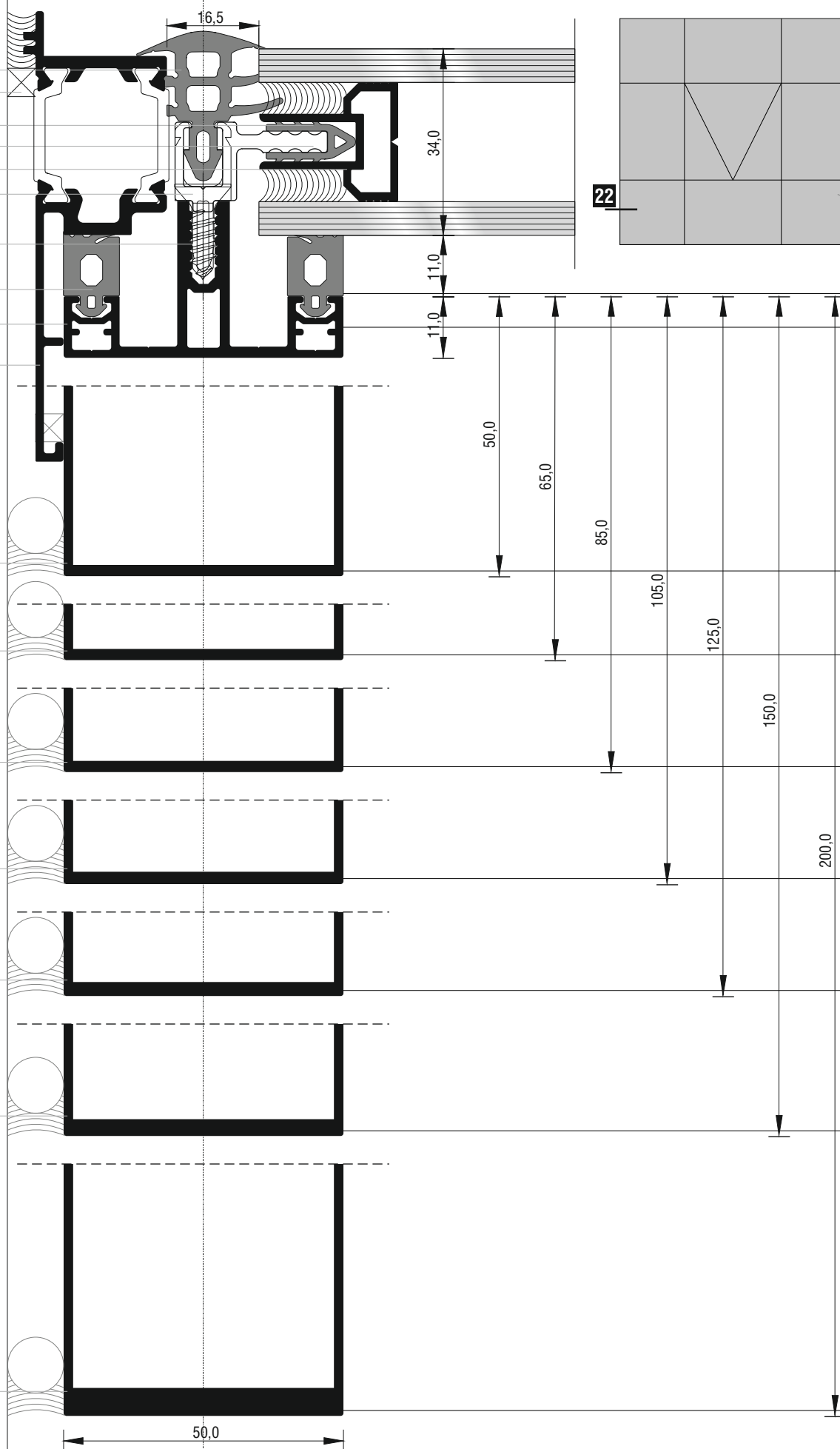
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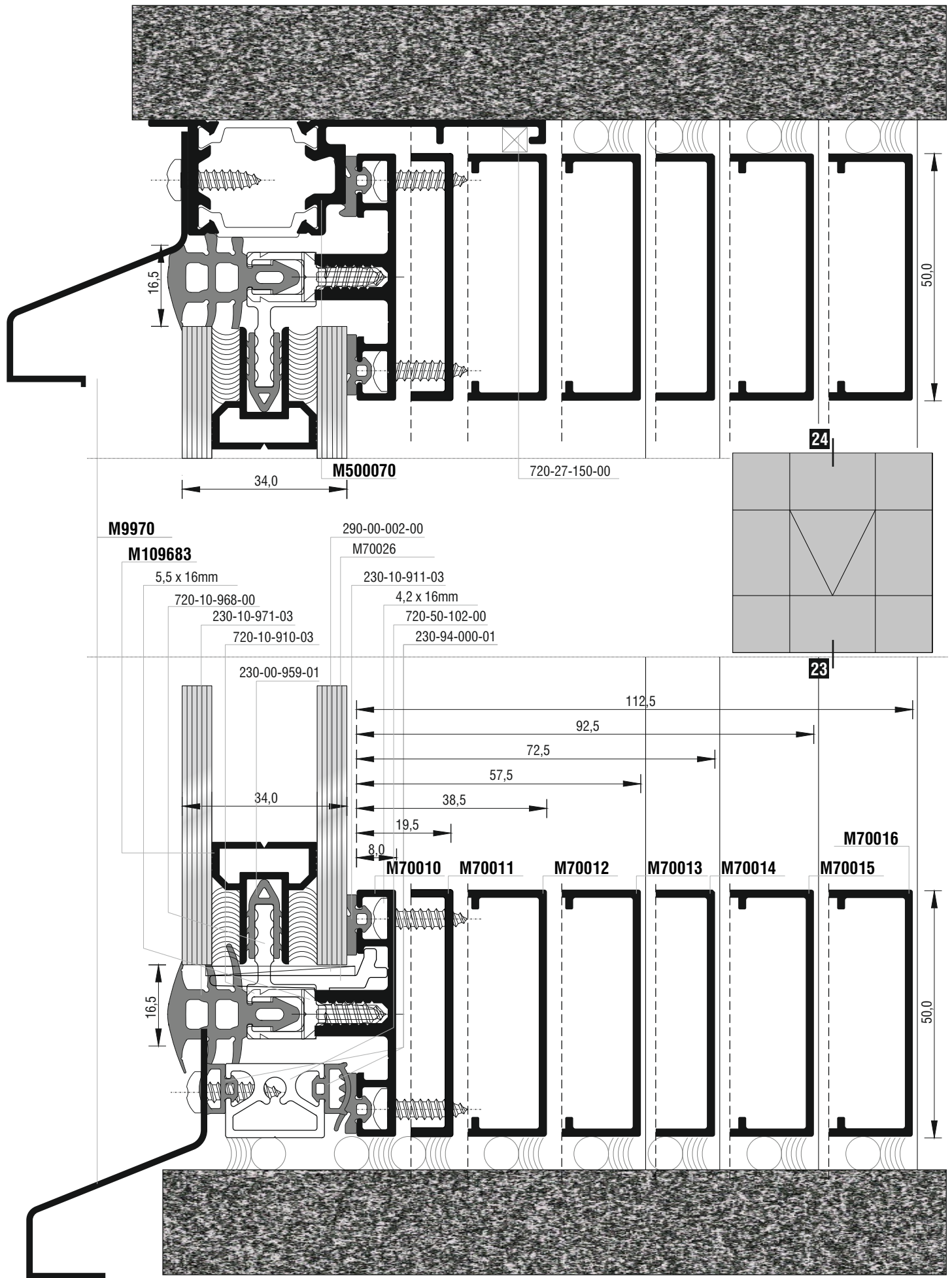
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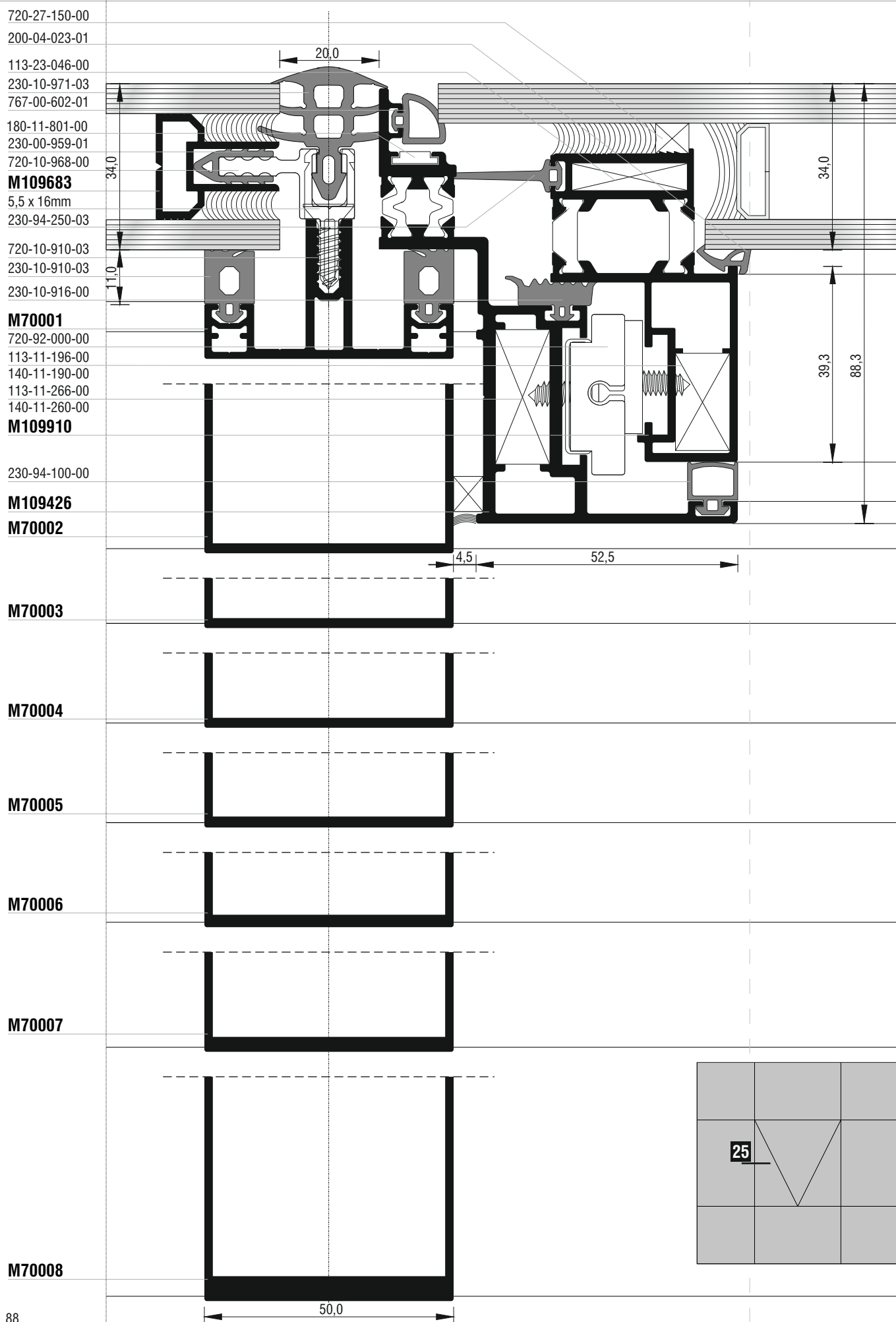
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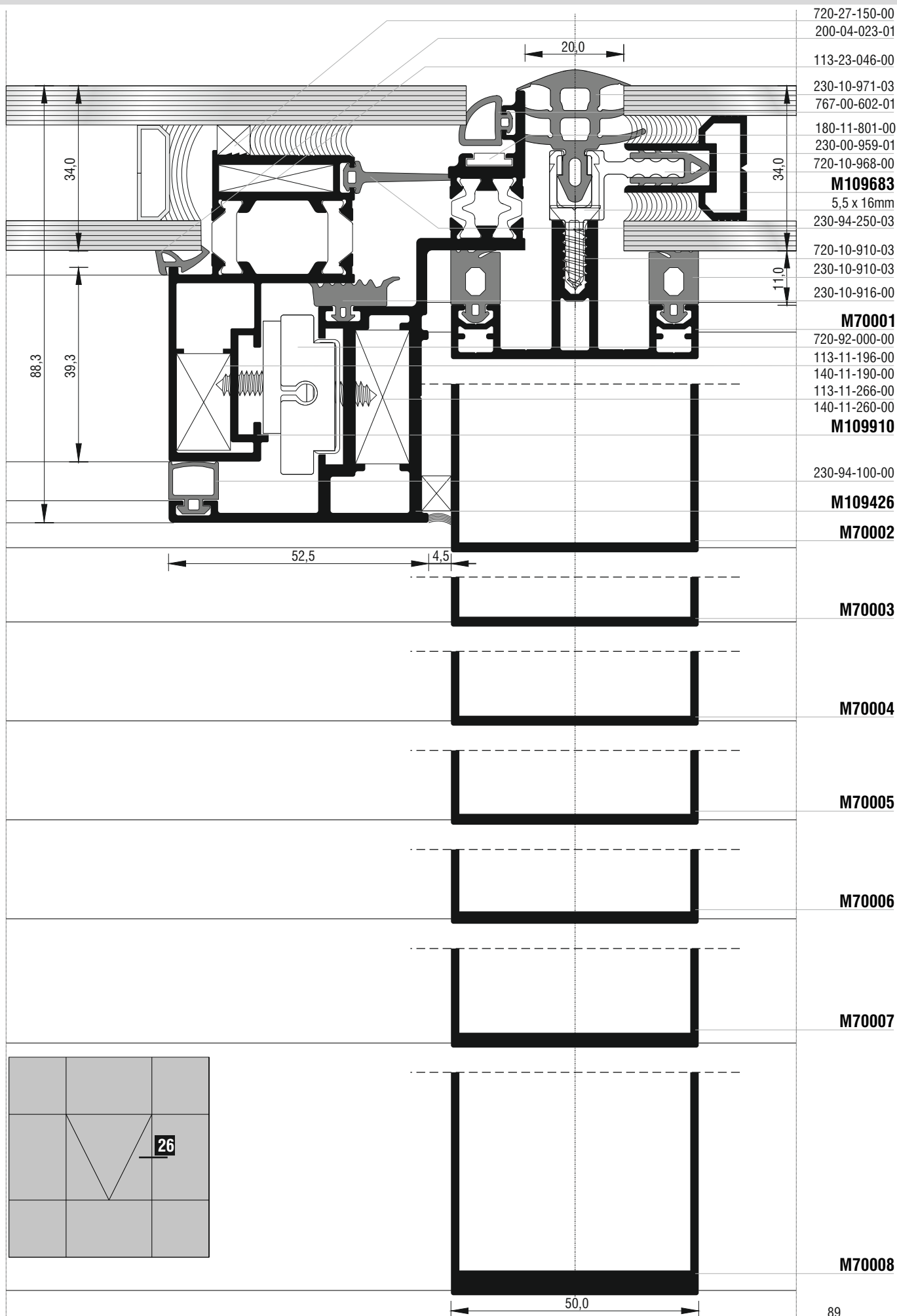
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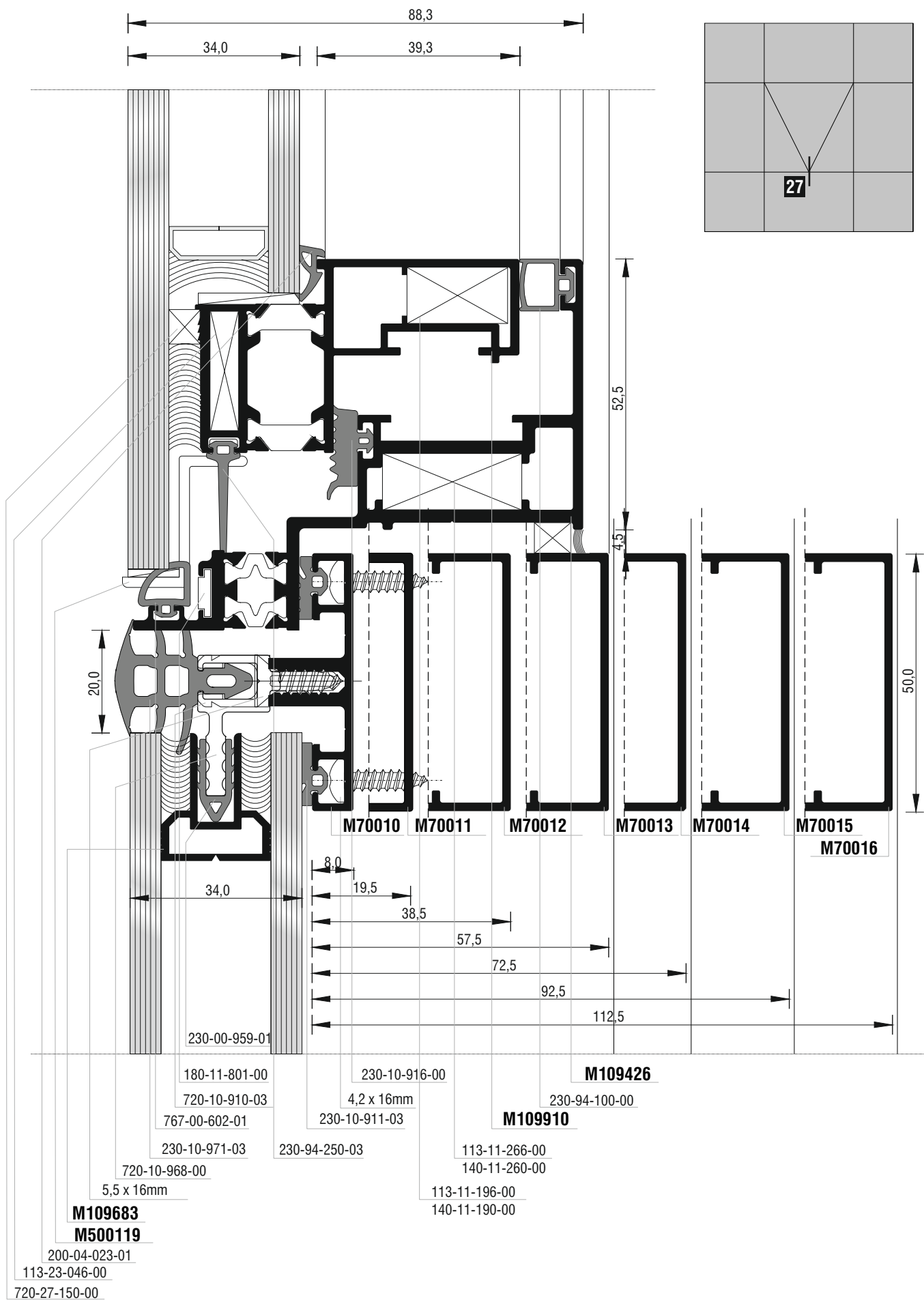
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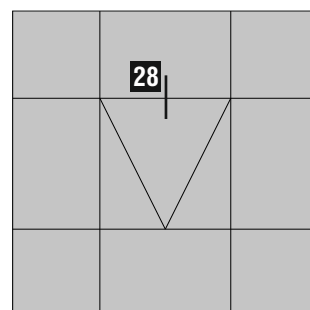
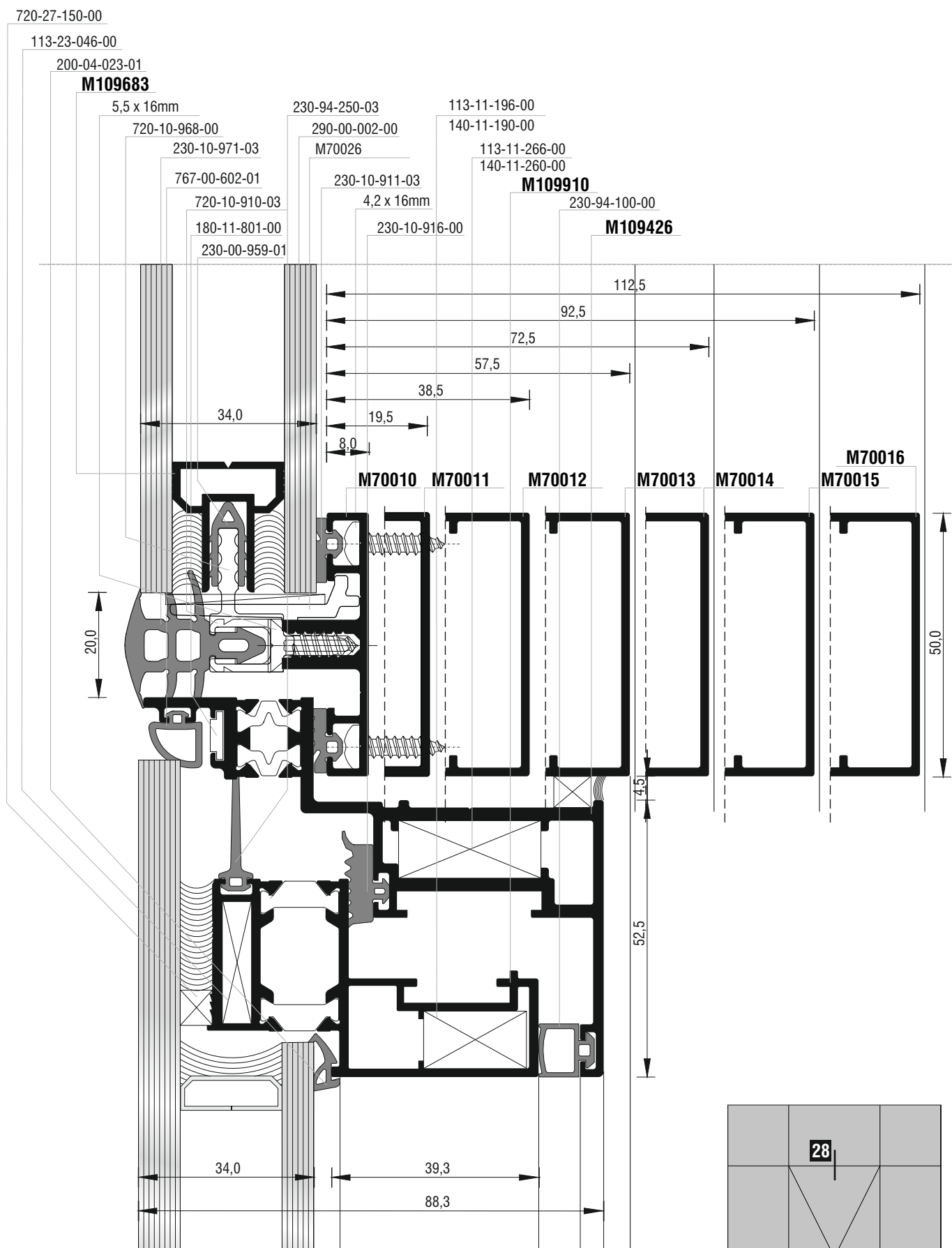












720-27-150-00

720-18-075-03

230-00-959-01

720-10-968-00

M109683

5,5 x 16mm

720-10-910-03

230-10-910-03

M70001

M500070

M70002

M70003

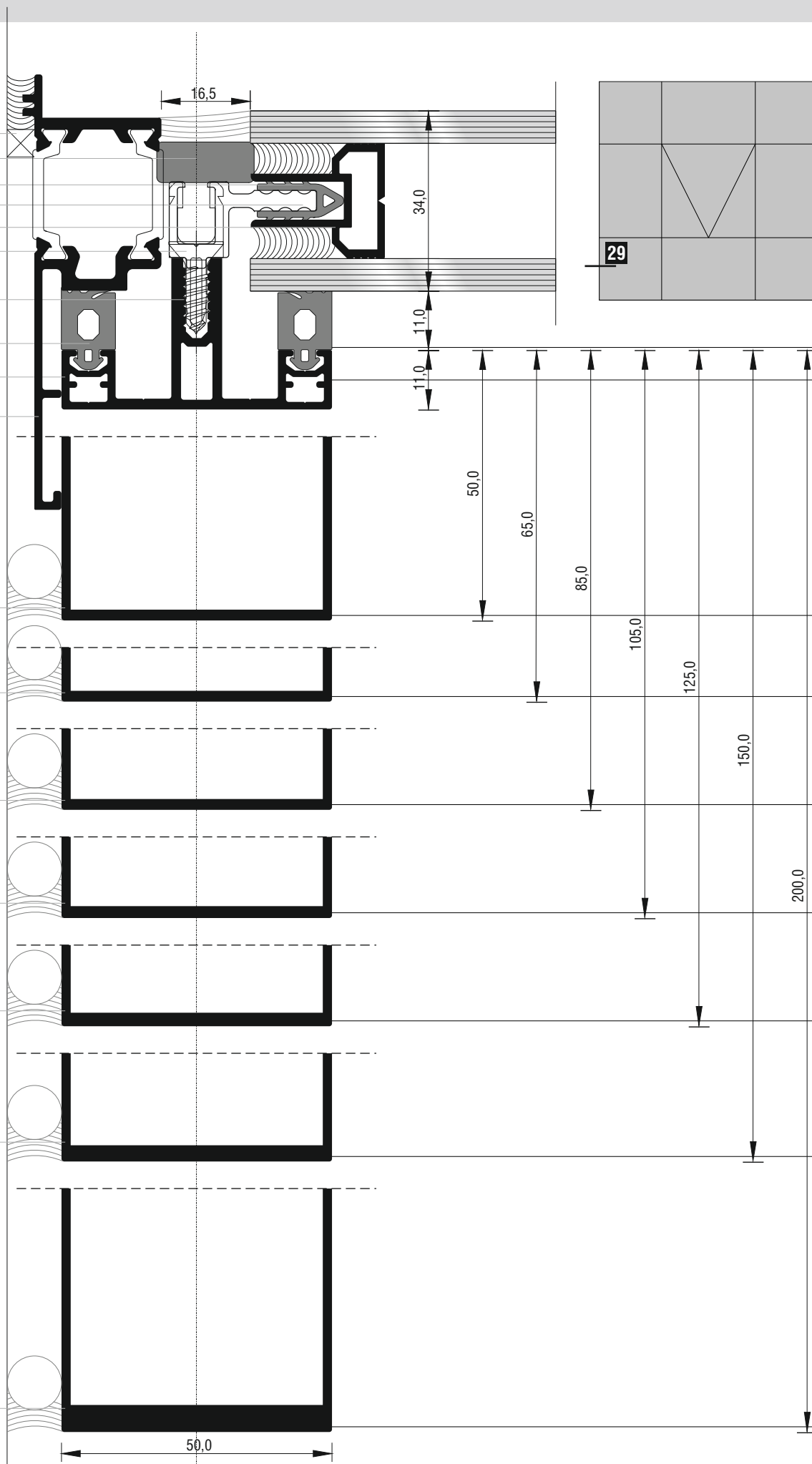
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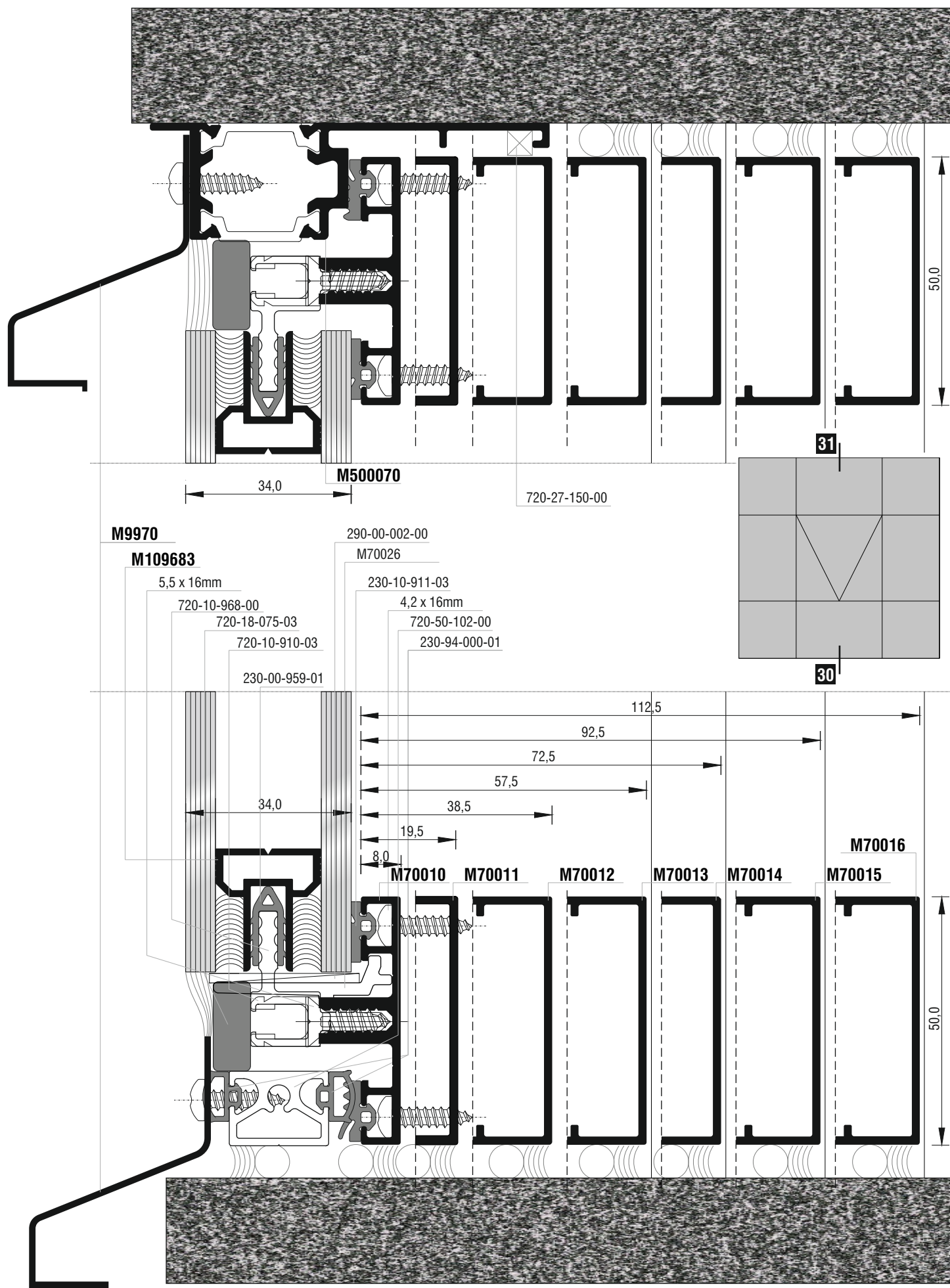
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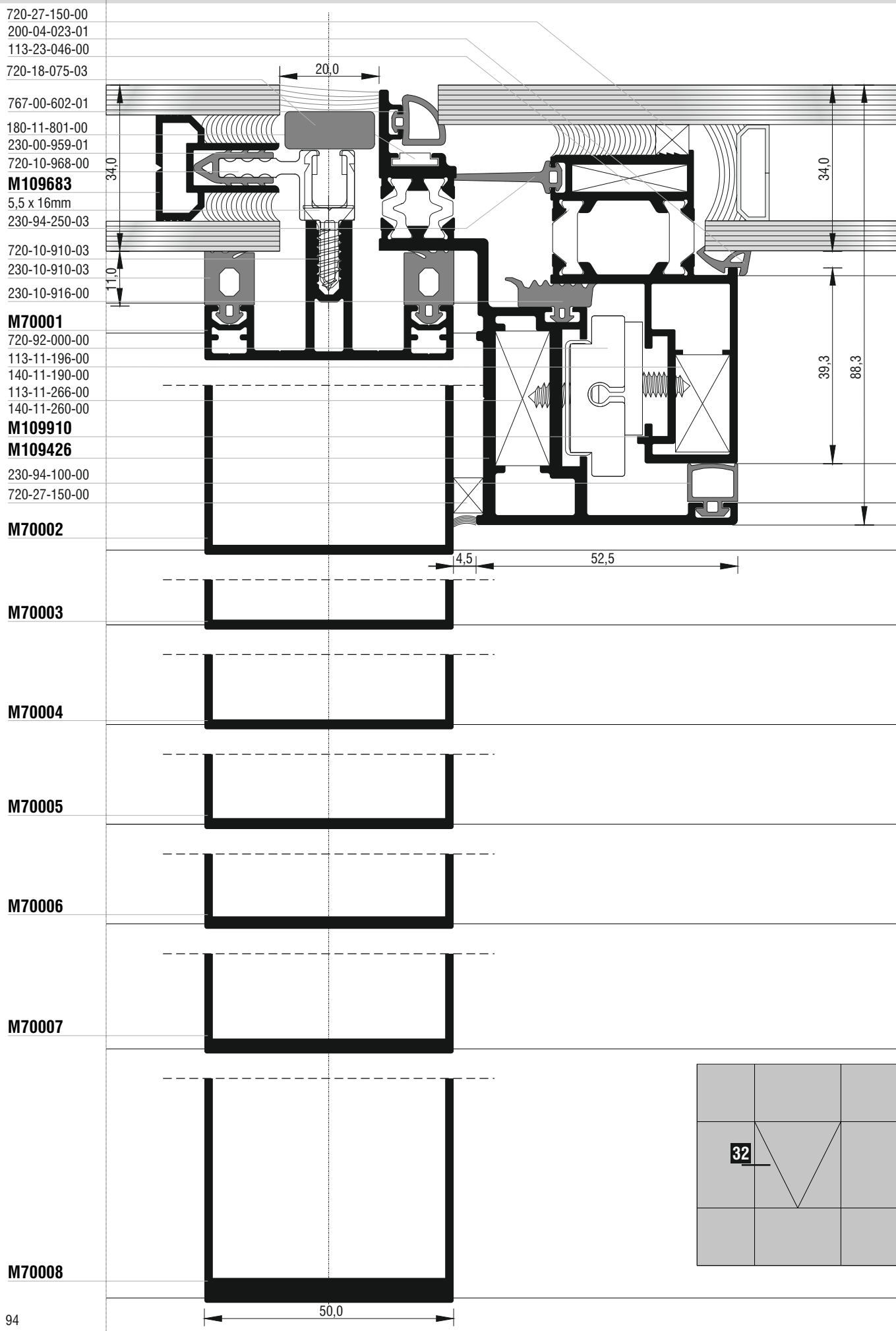
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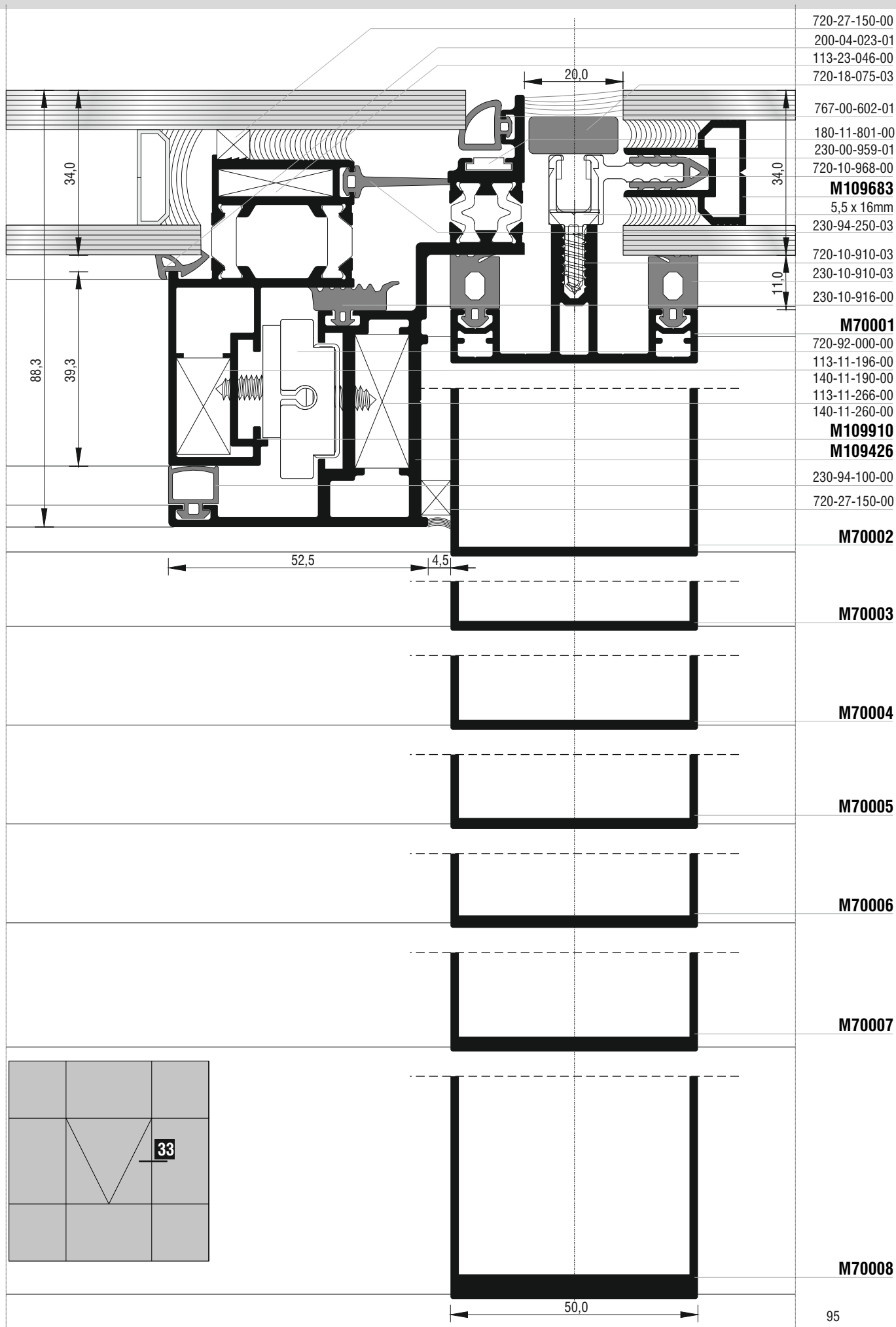
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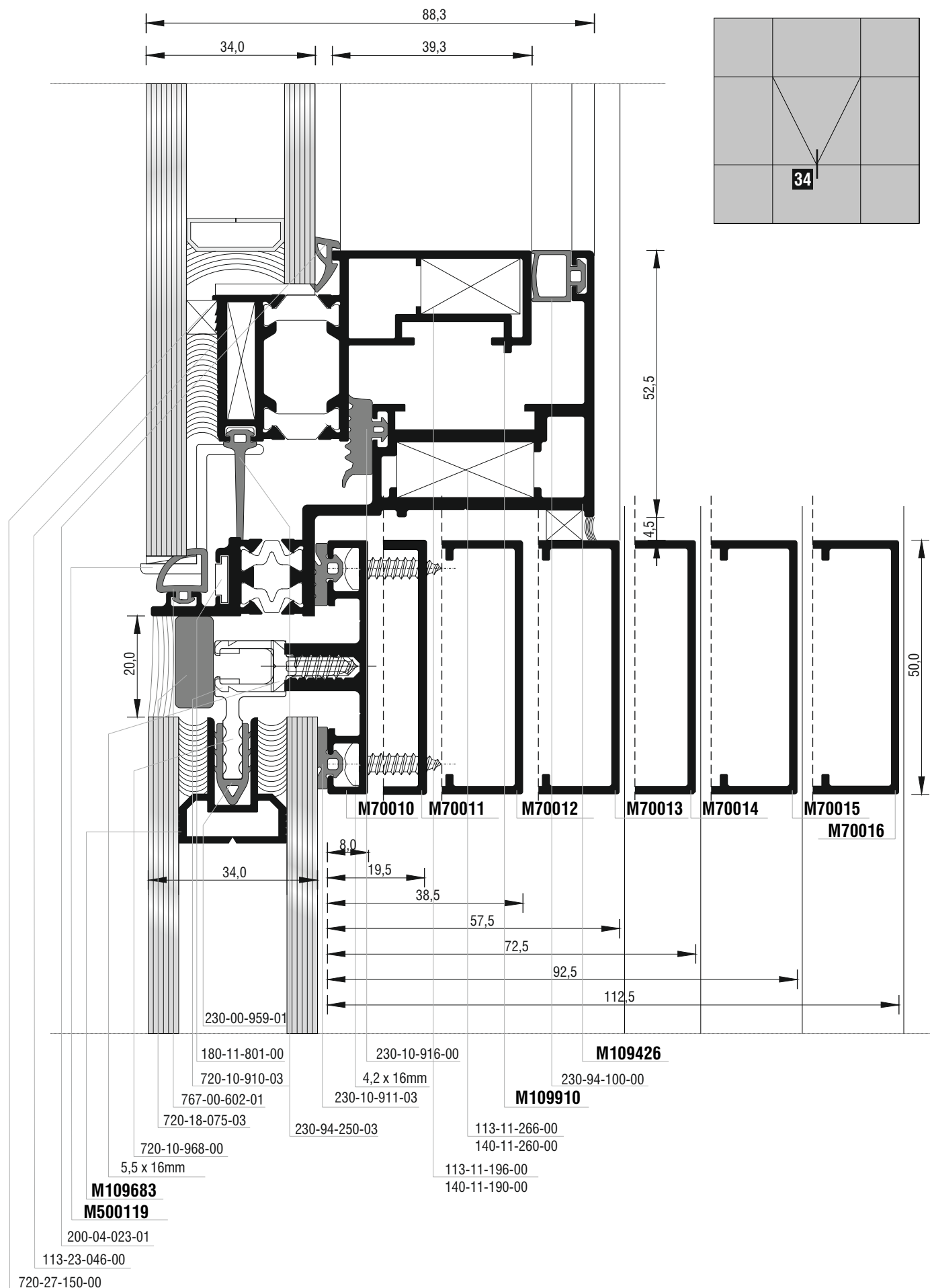
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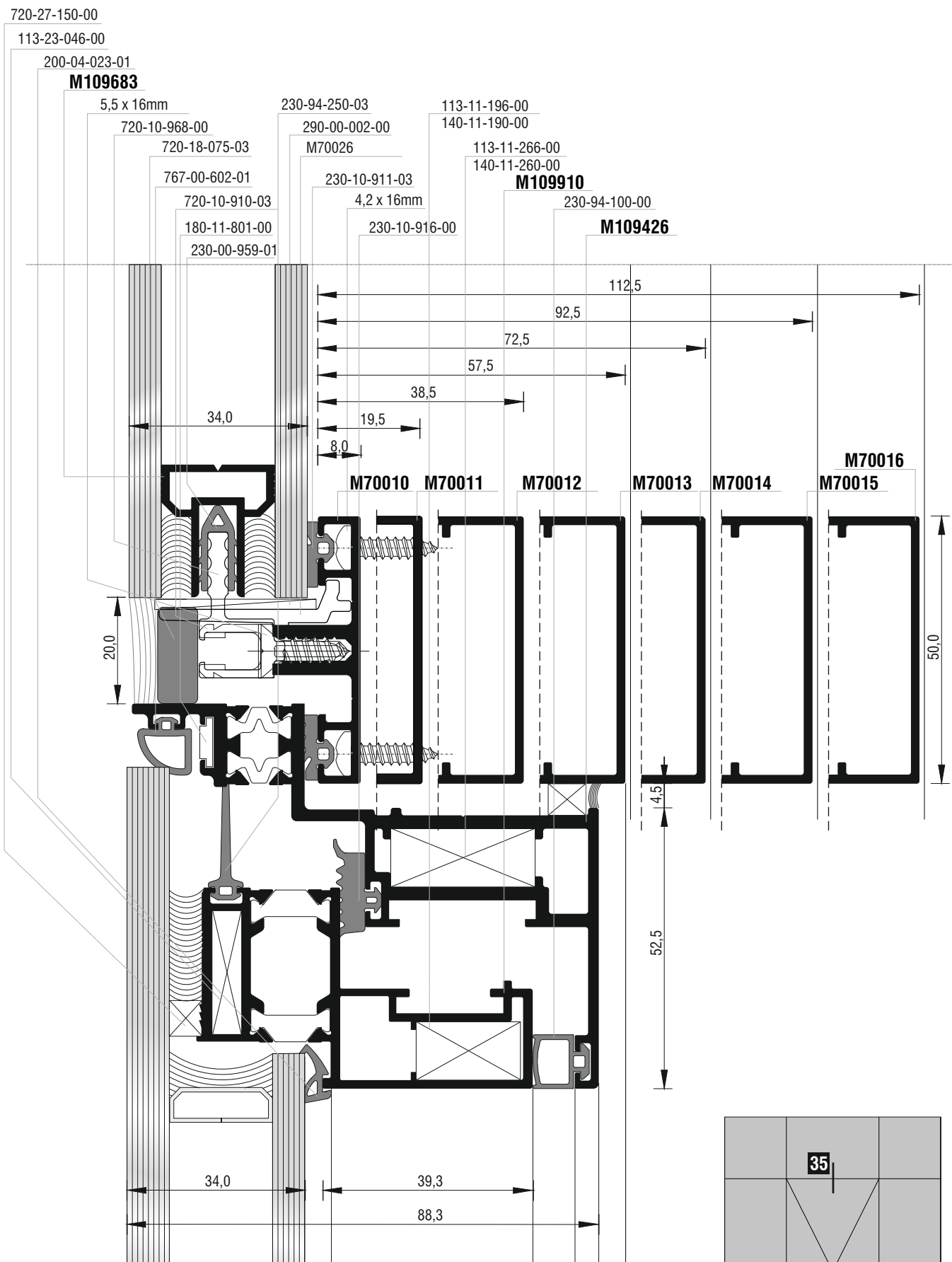


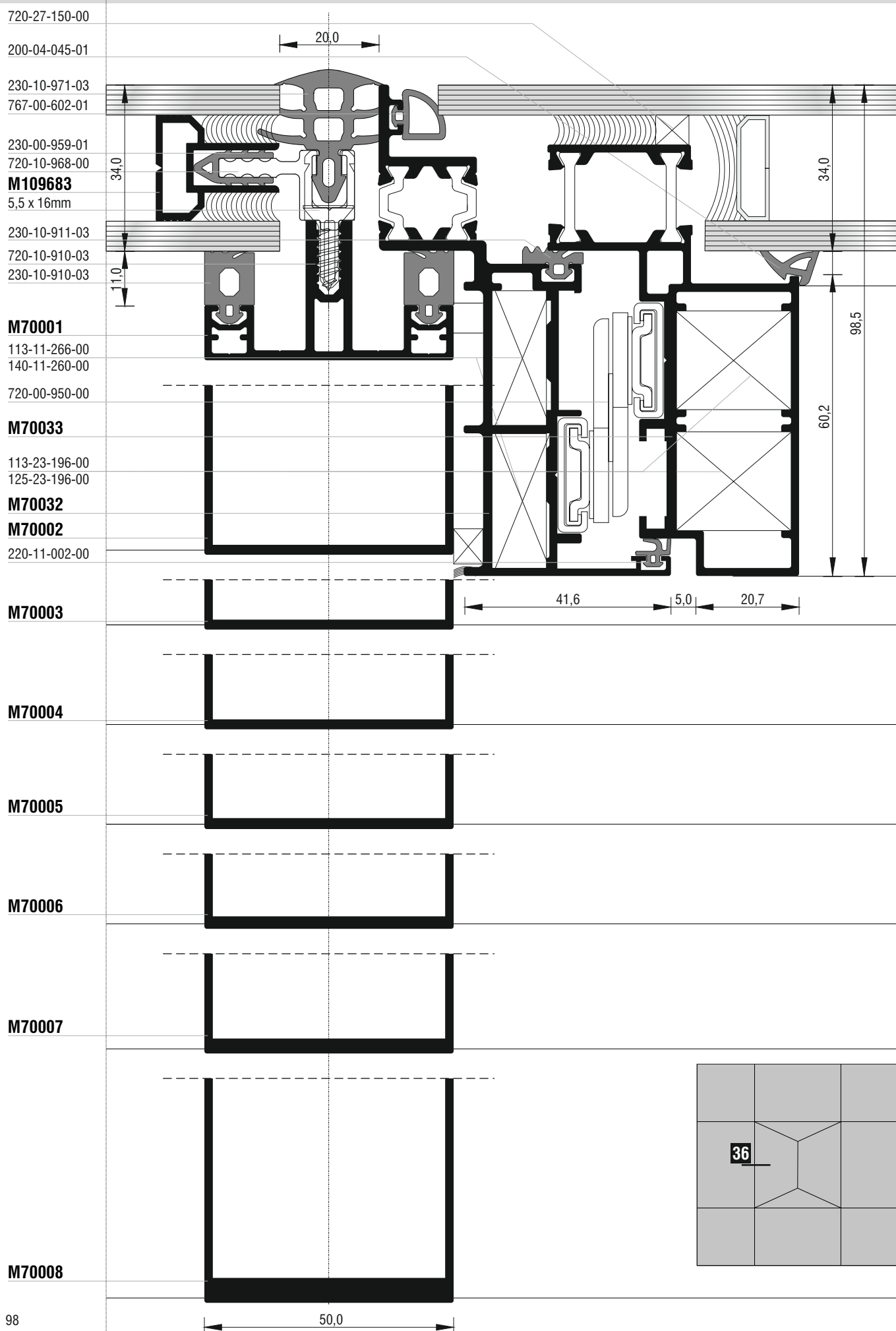


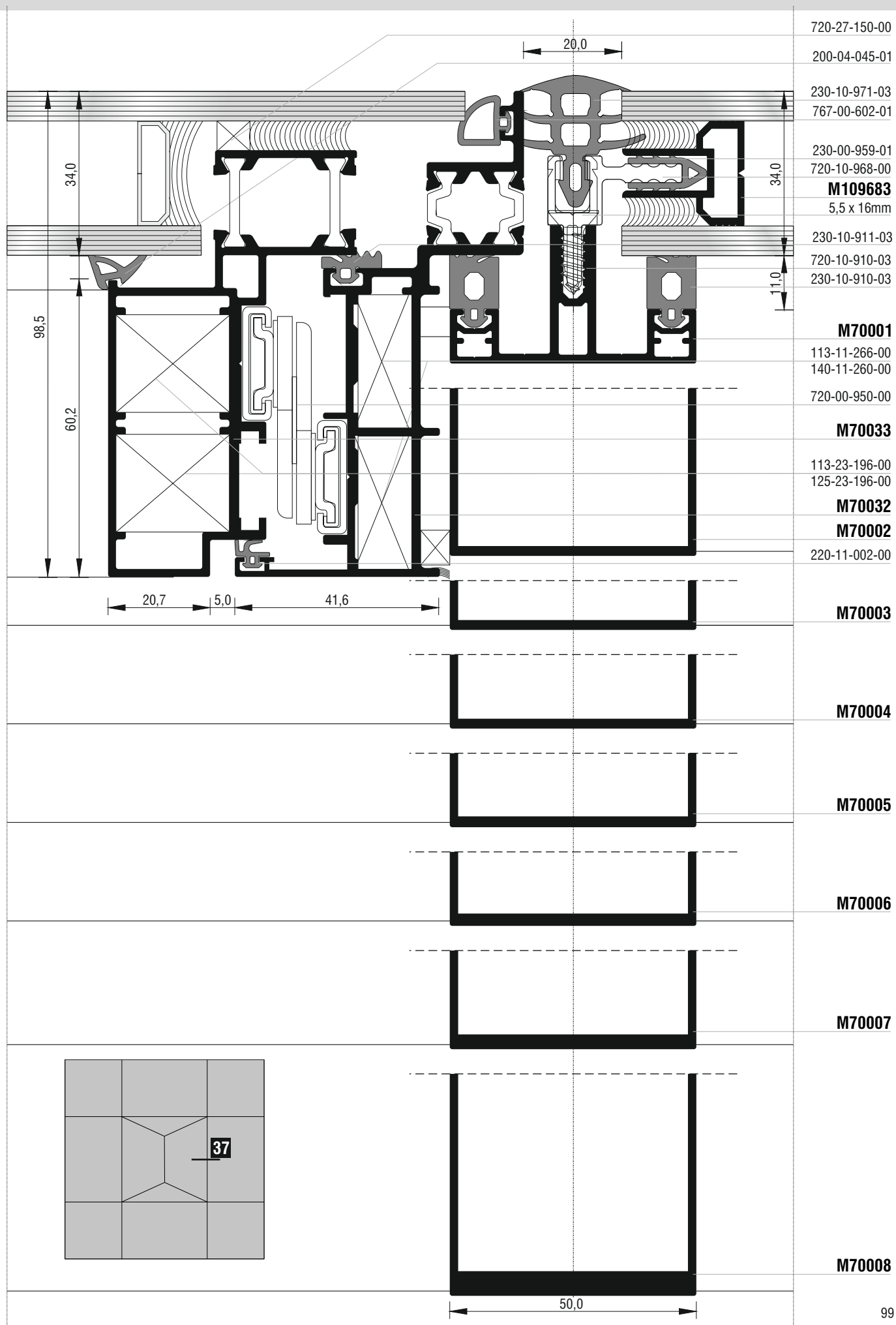


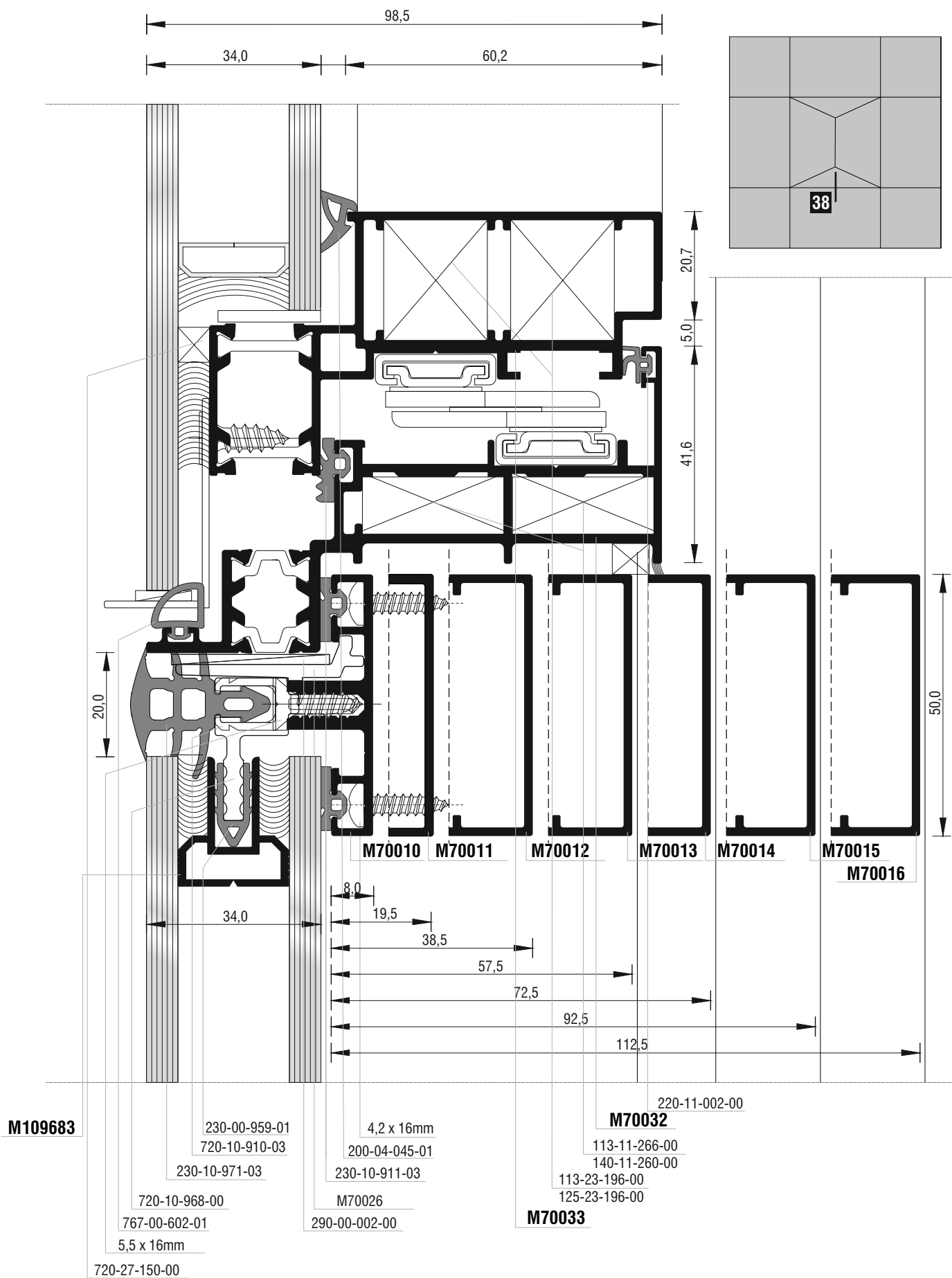


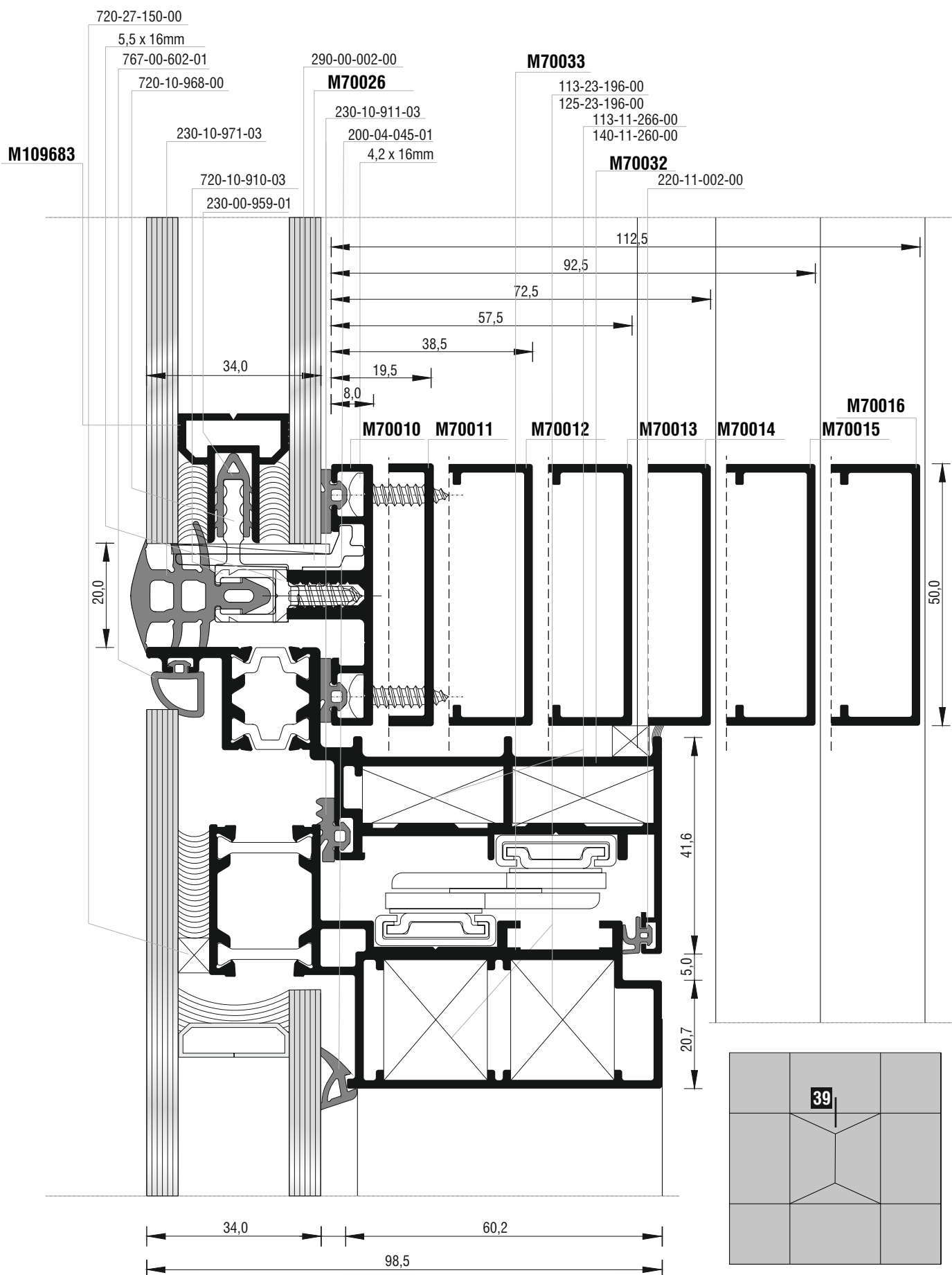


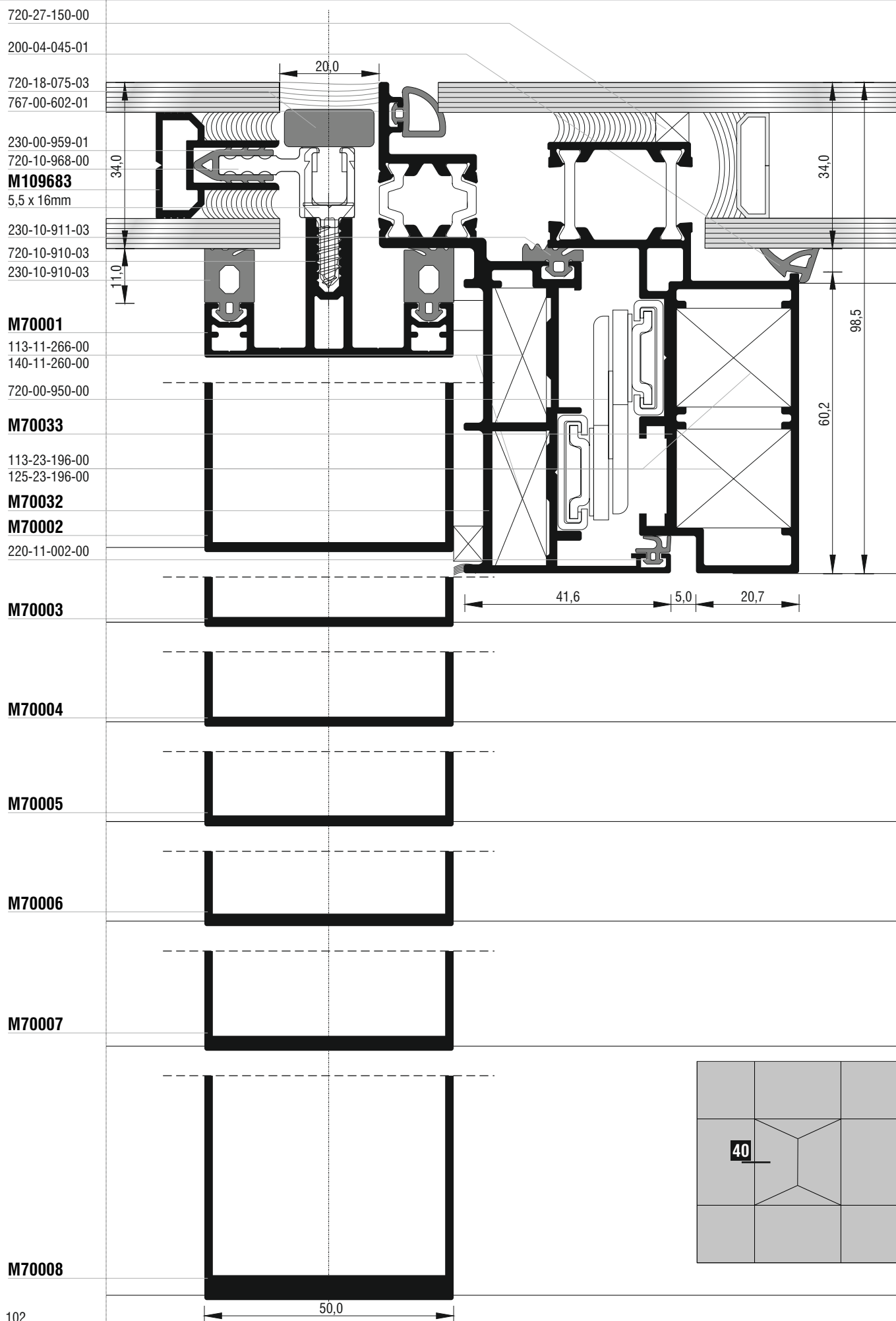


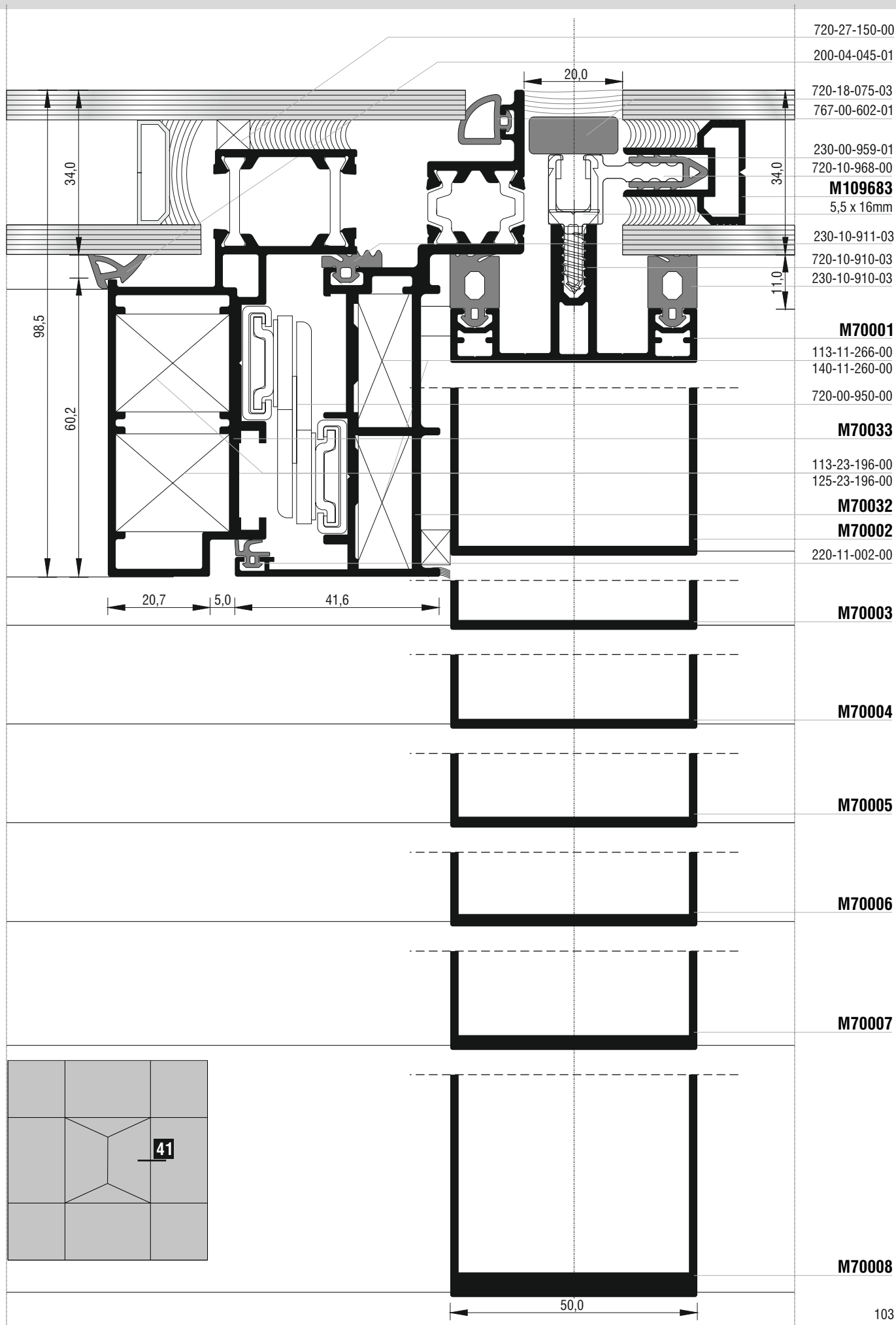


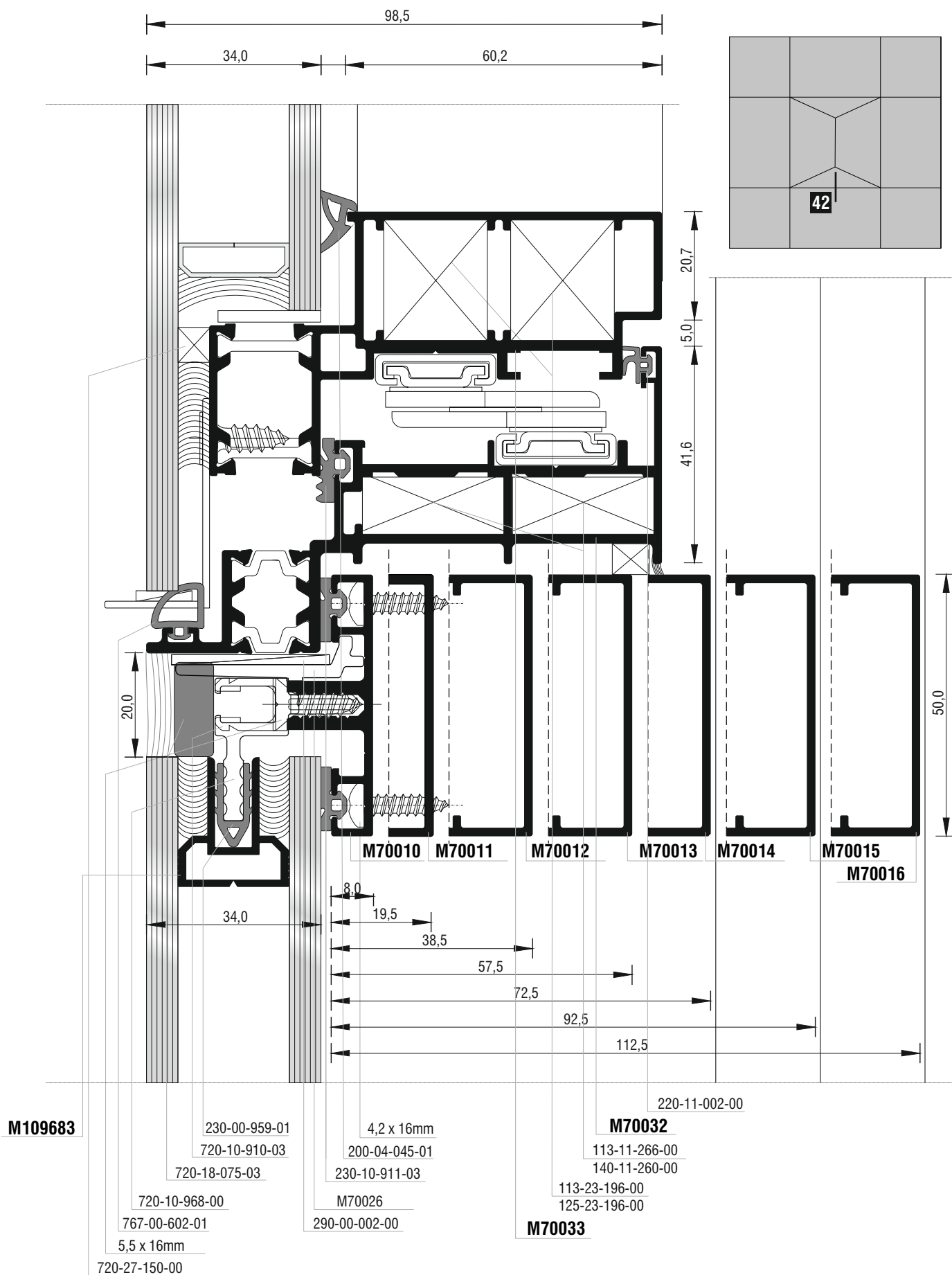


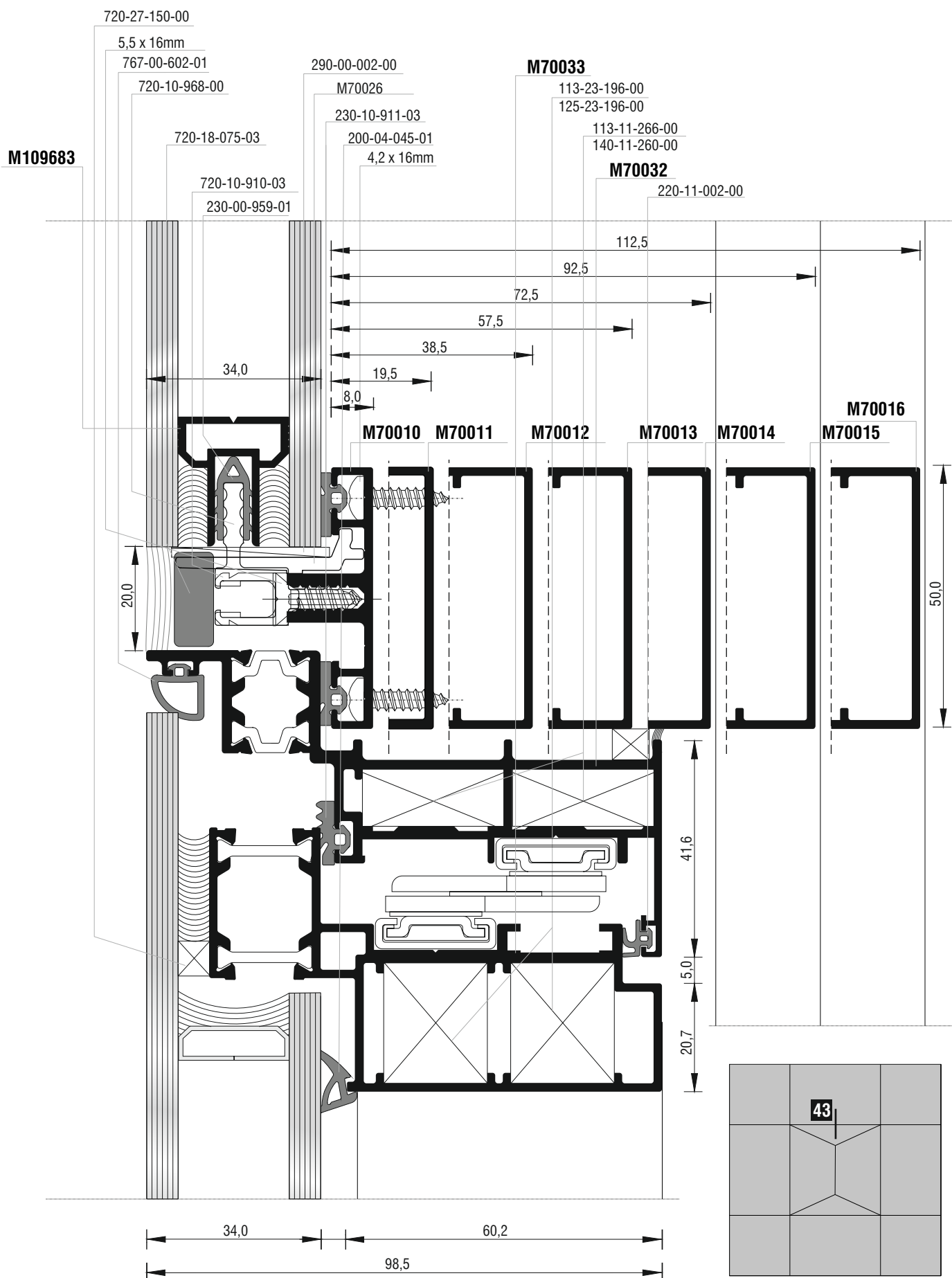


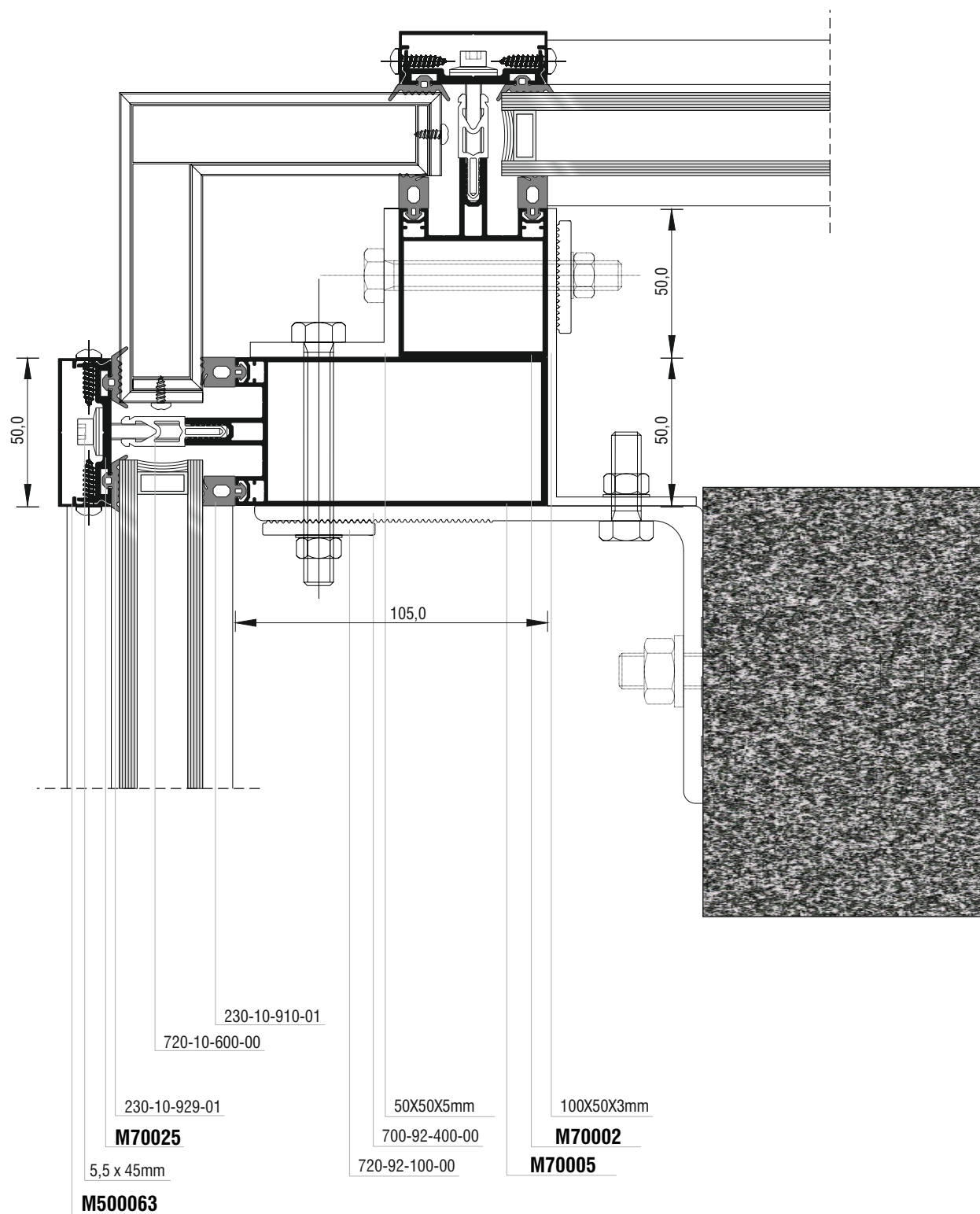


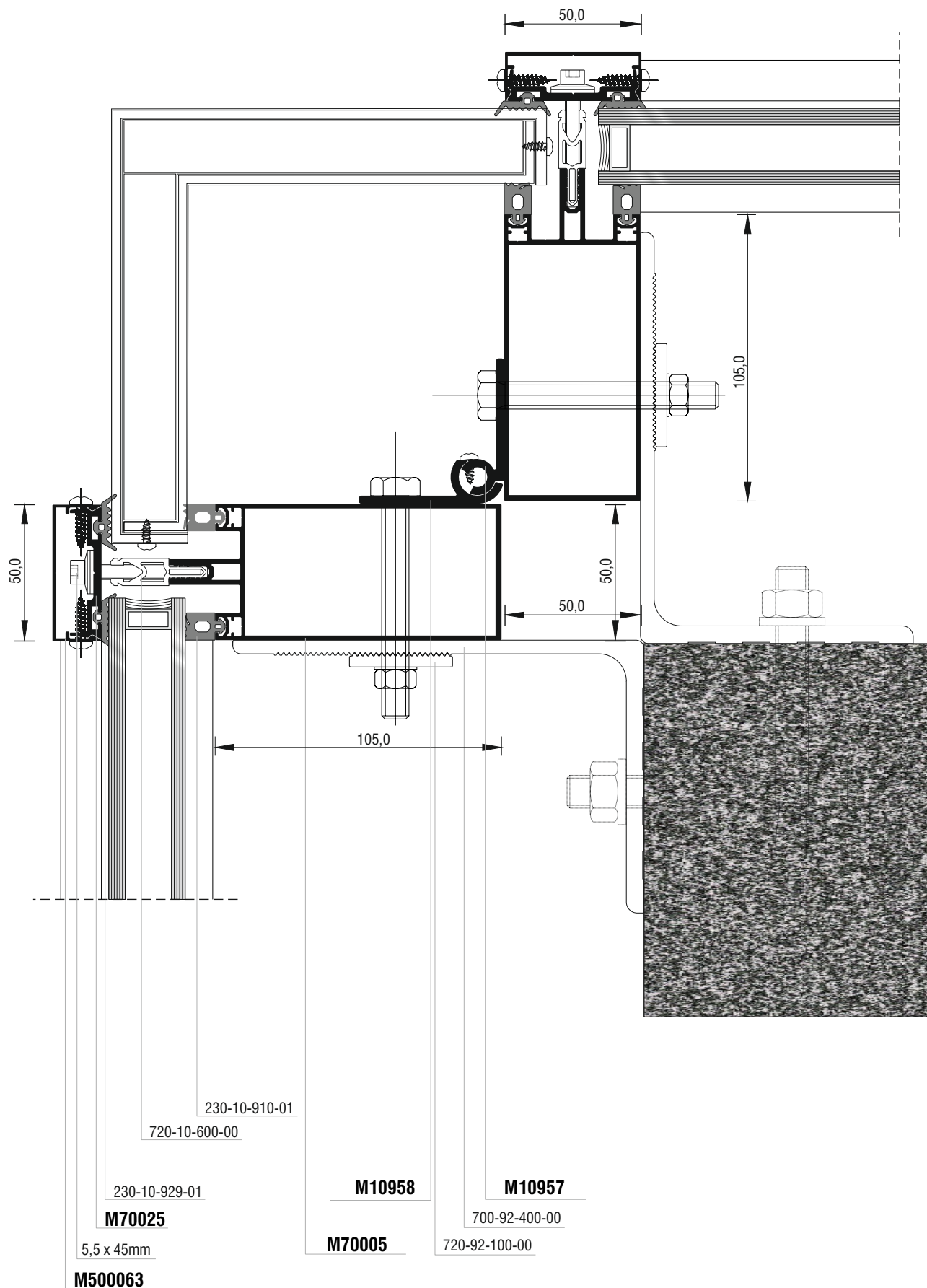


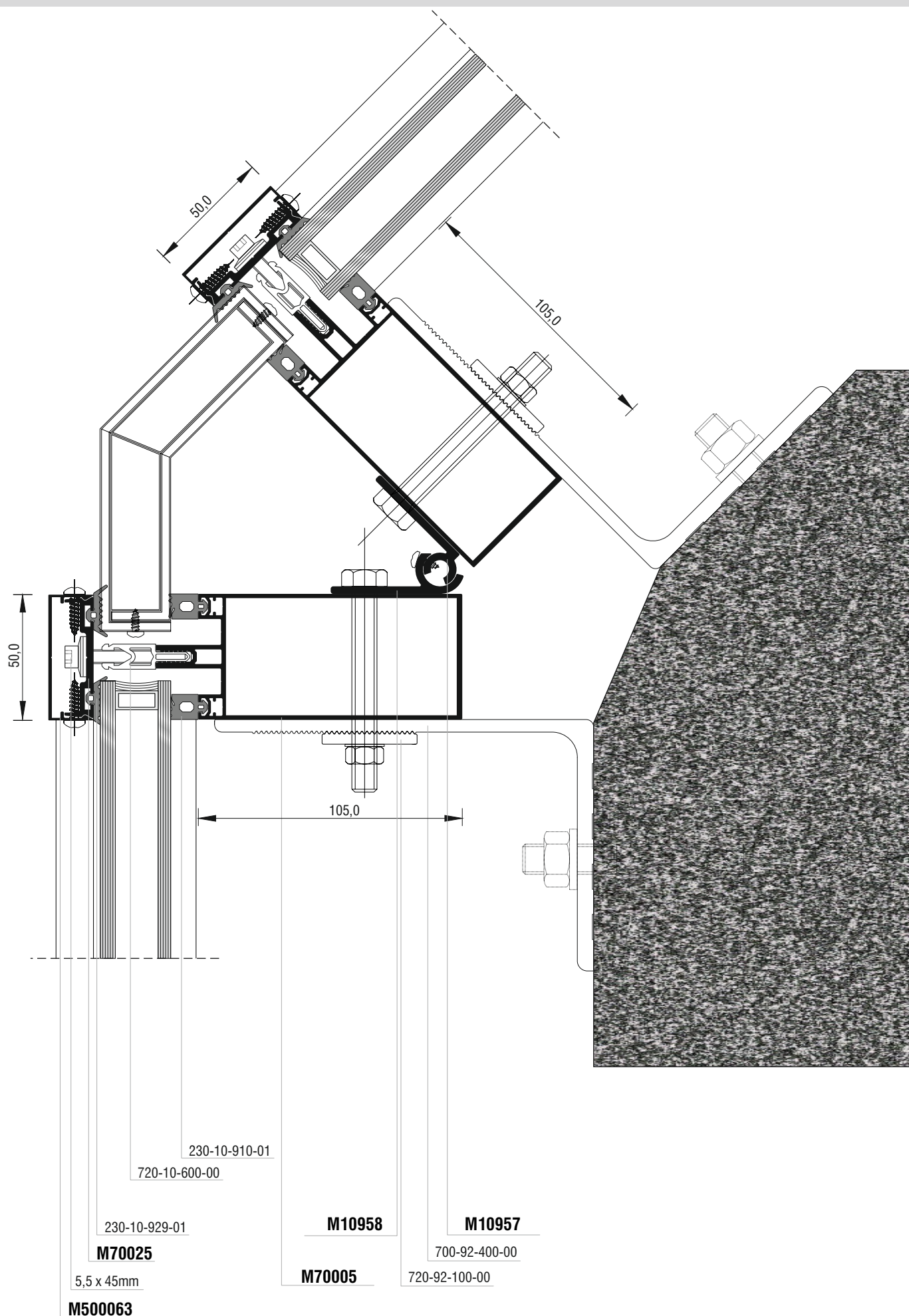


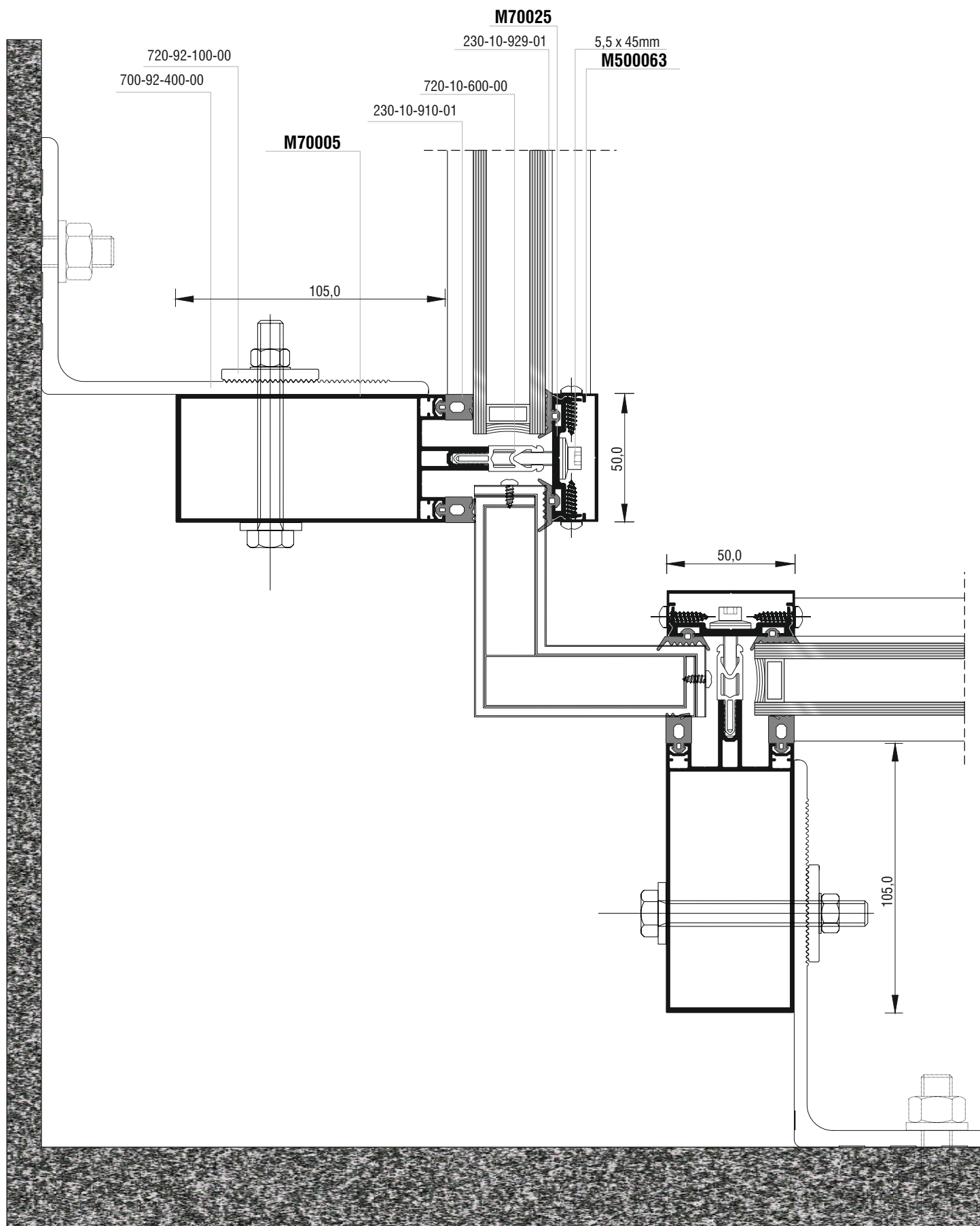


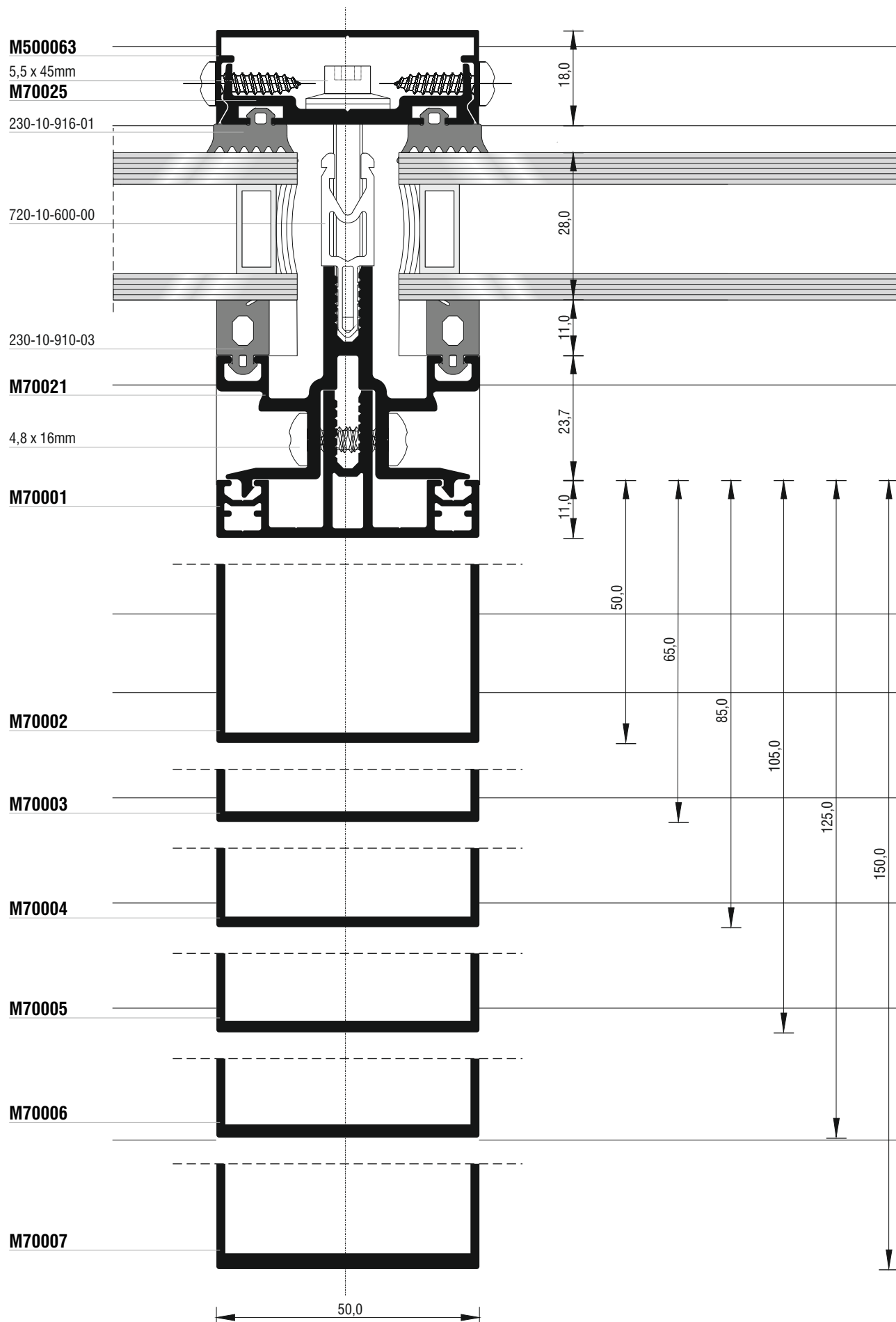












150°

M9010

5,5 x 45mm

M109401

230-10-929-01

720-10-600-00

230-10-910-03

M70021

4,8 x 16mm

M70001

M70002

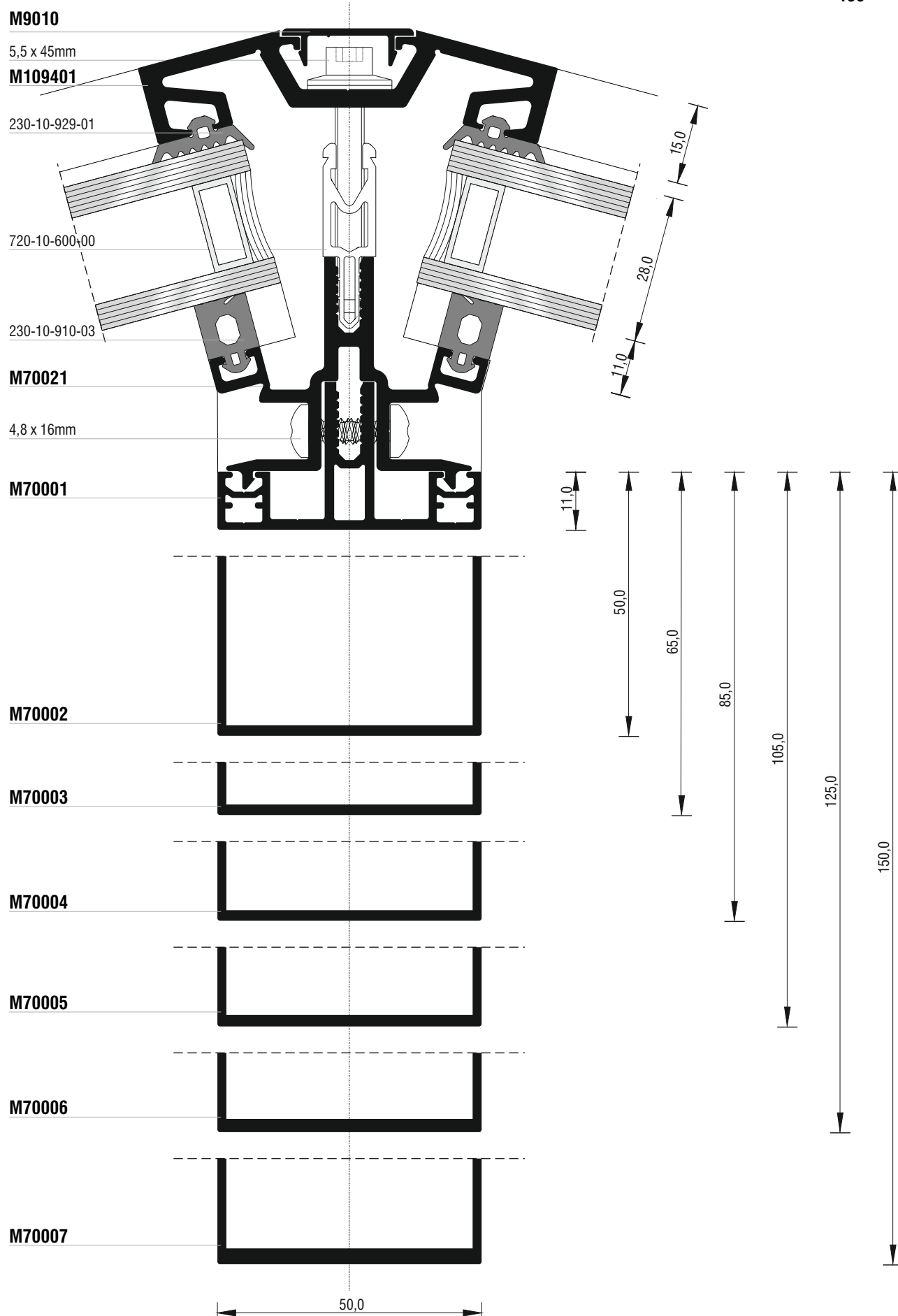
M70003

M70004

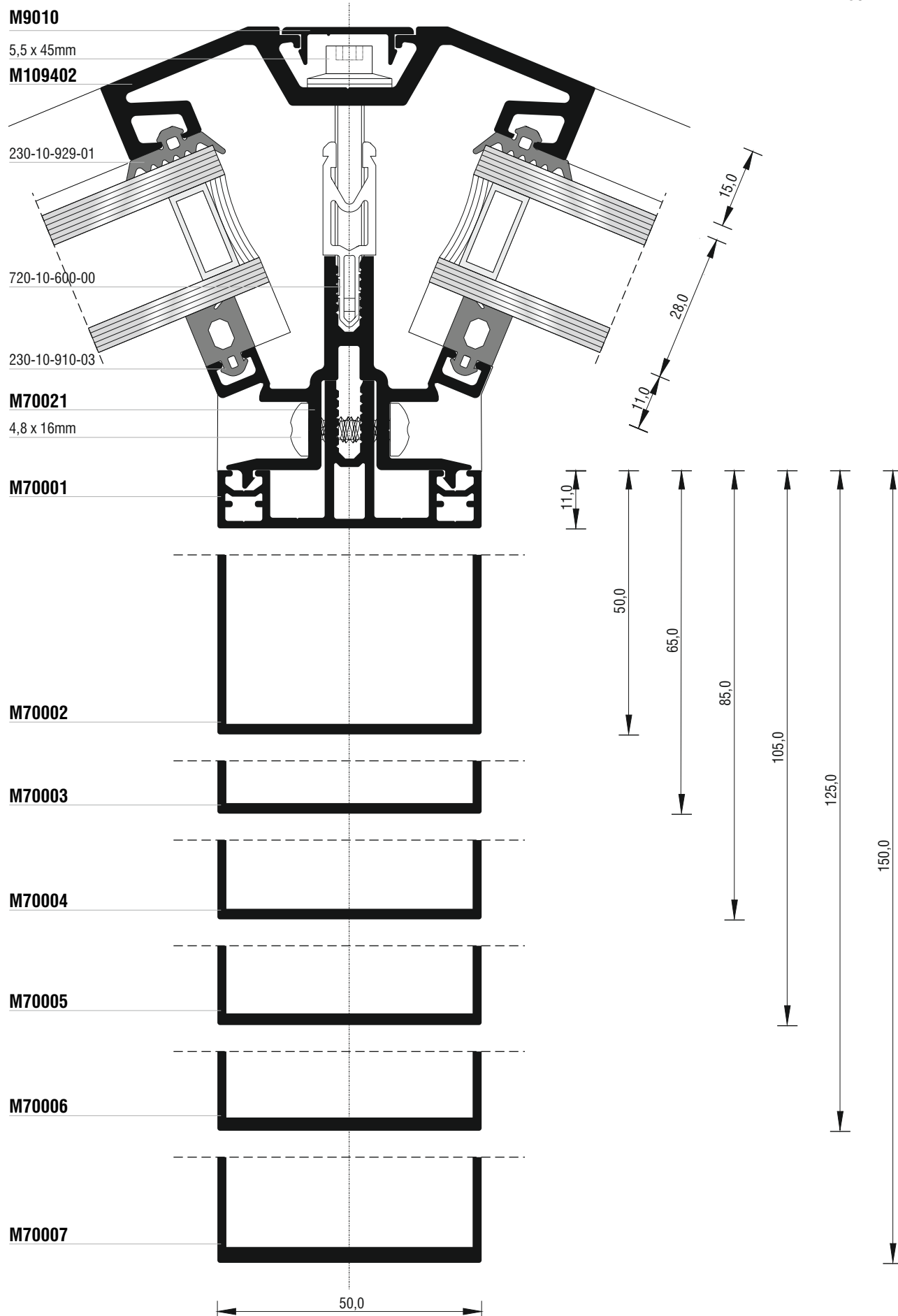
M70005

M70006

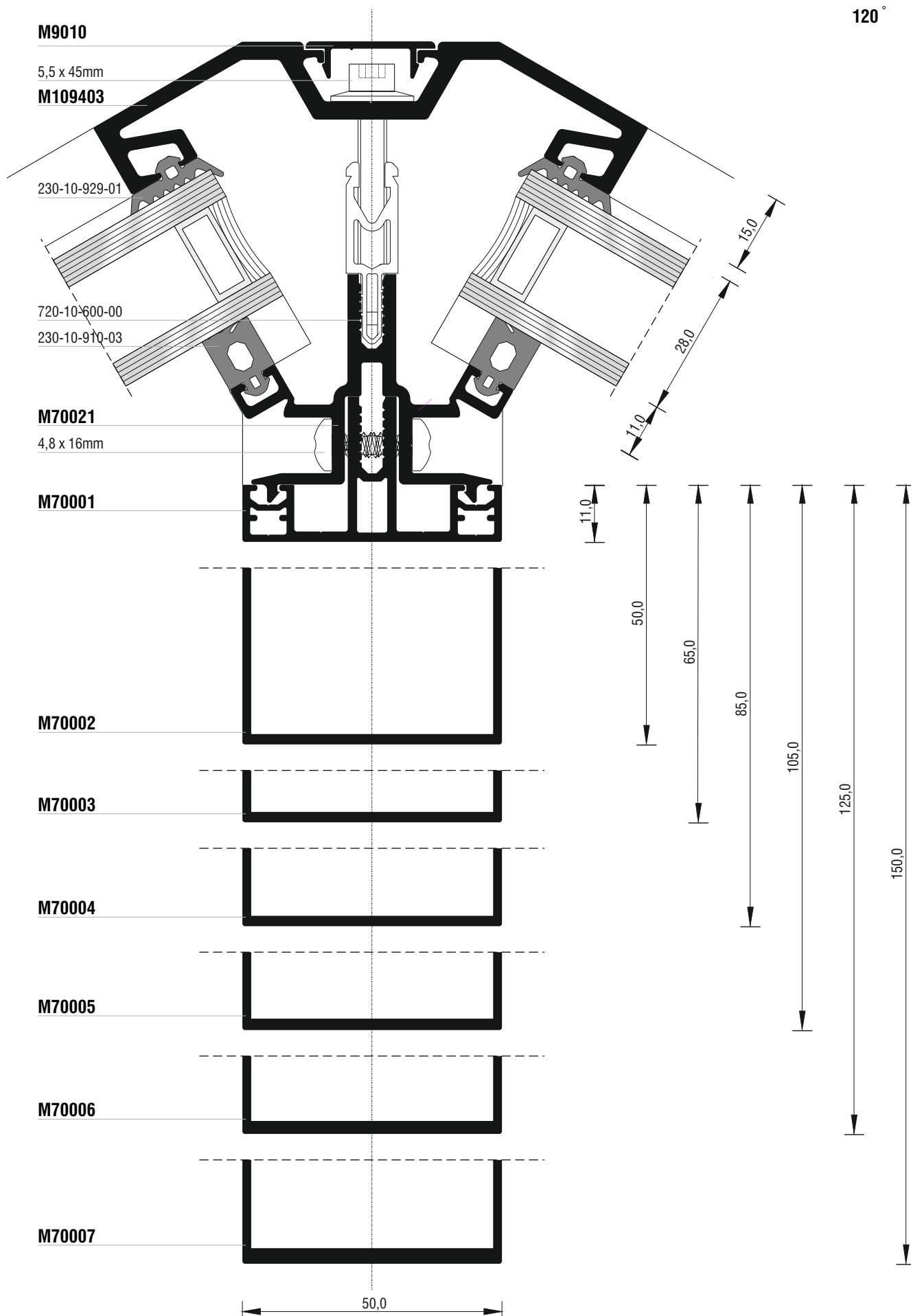
M70007

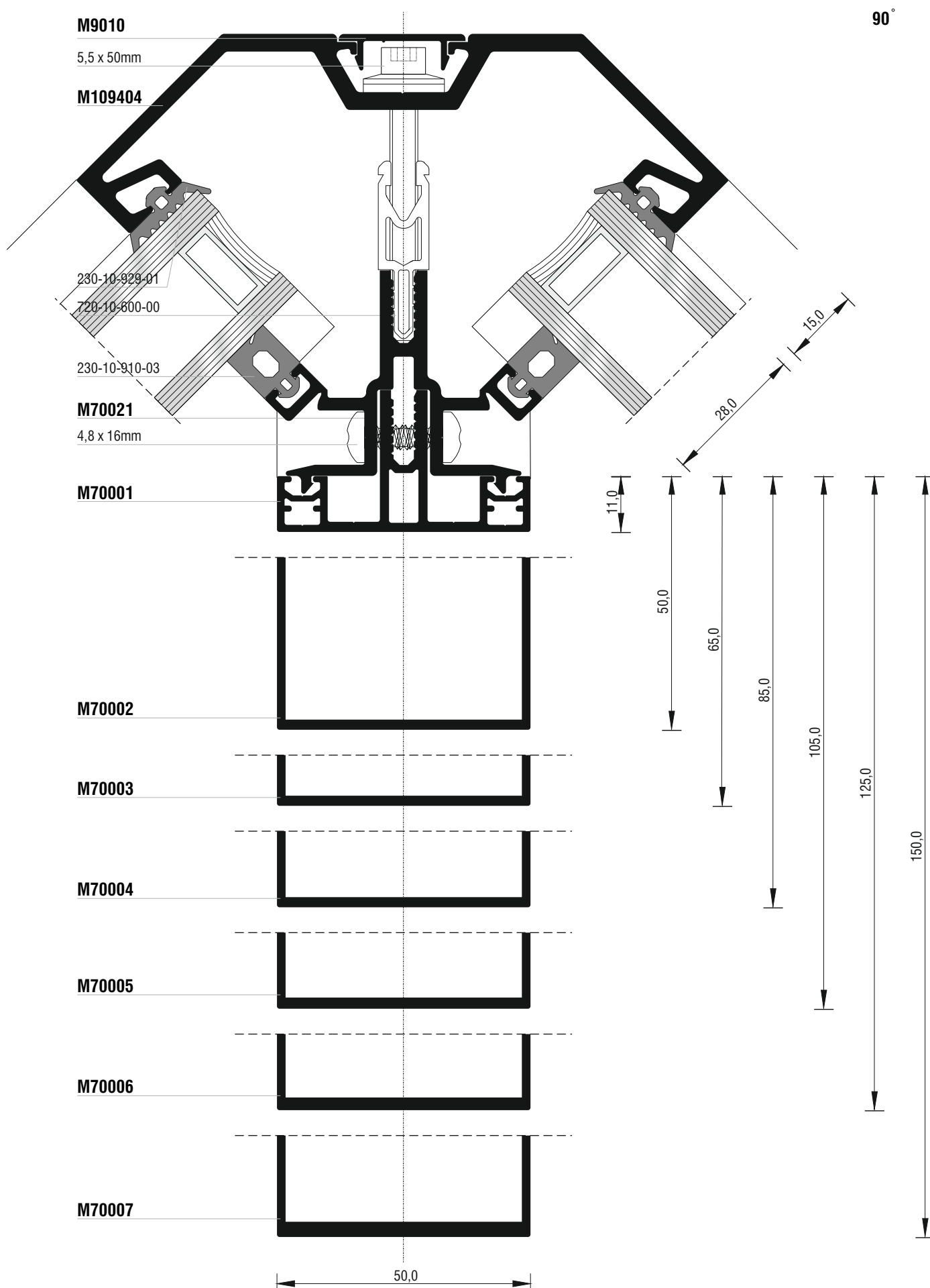


135°

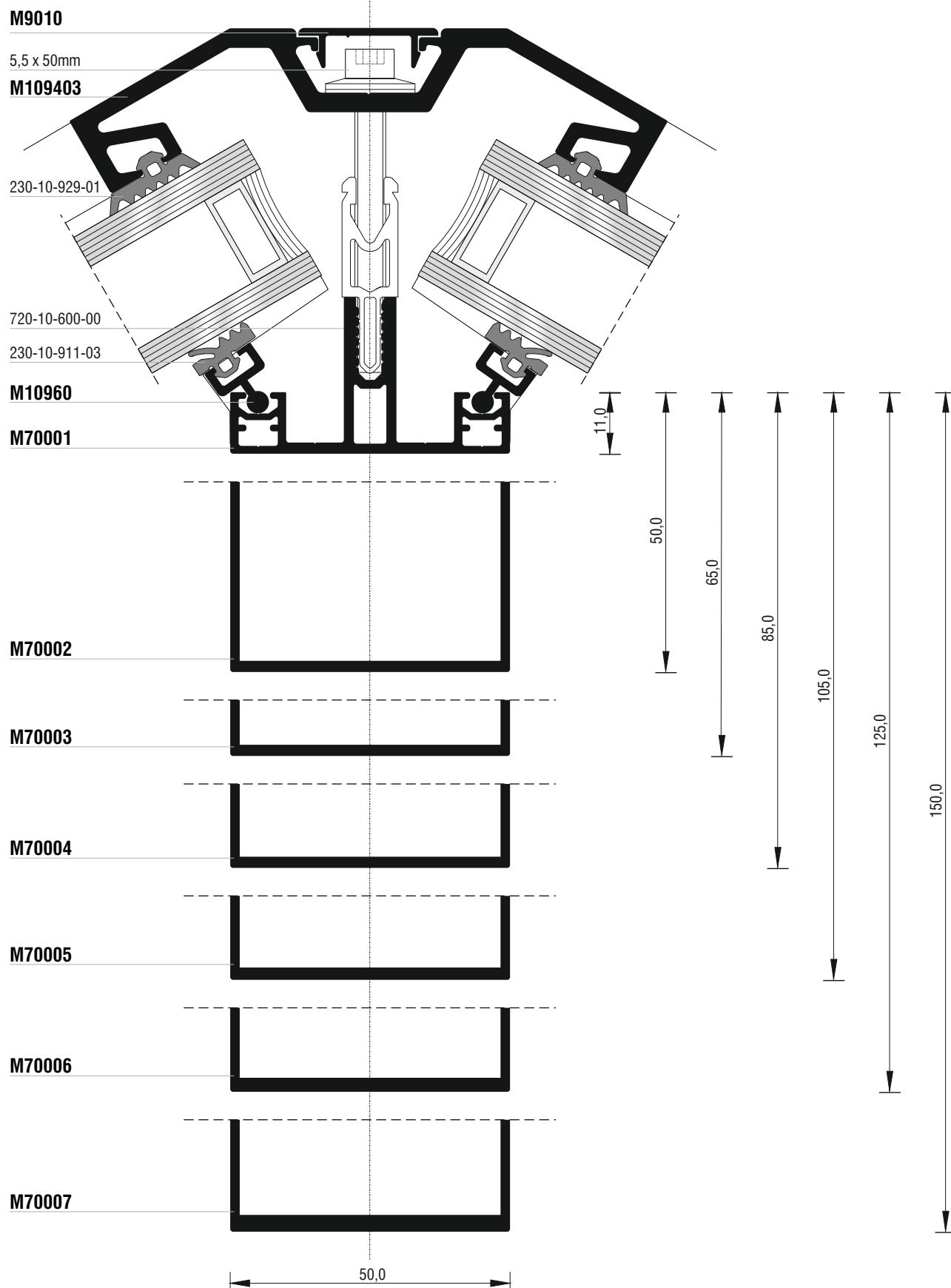


120°

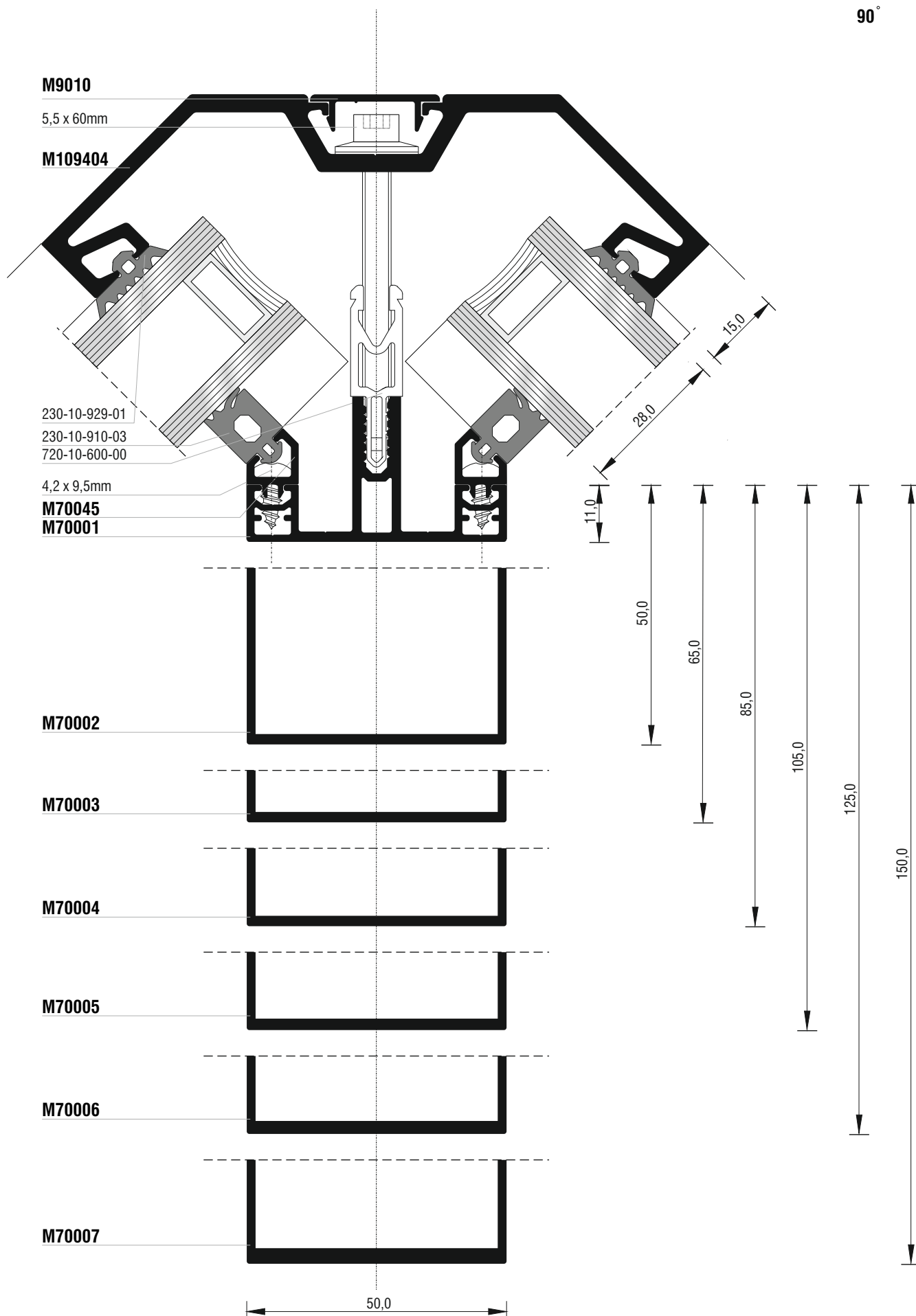




- 90° ÷ 90°



90°



120°

M9010

5,5 x 60mm

M109403

230-10-929-01

720-10-600-00

230-10-910-03

M70046

4,2 x 9,5mm

M70001

M70002

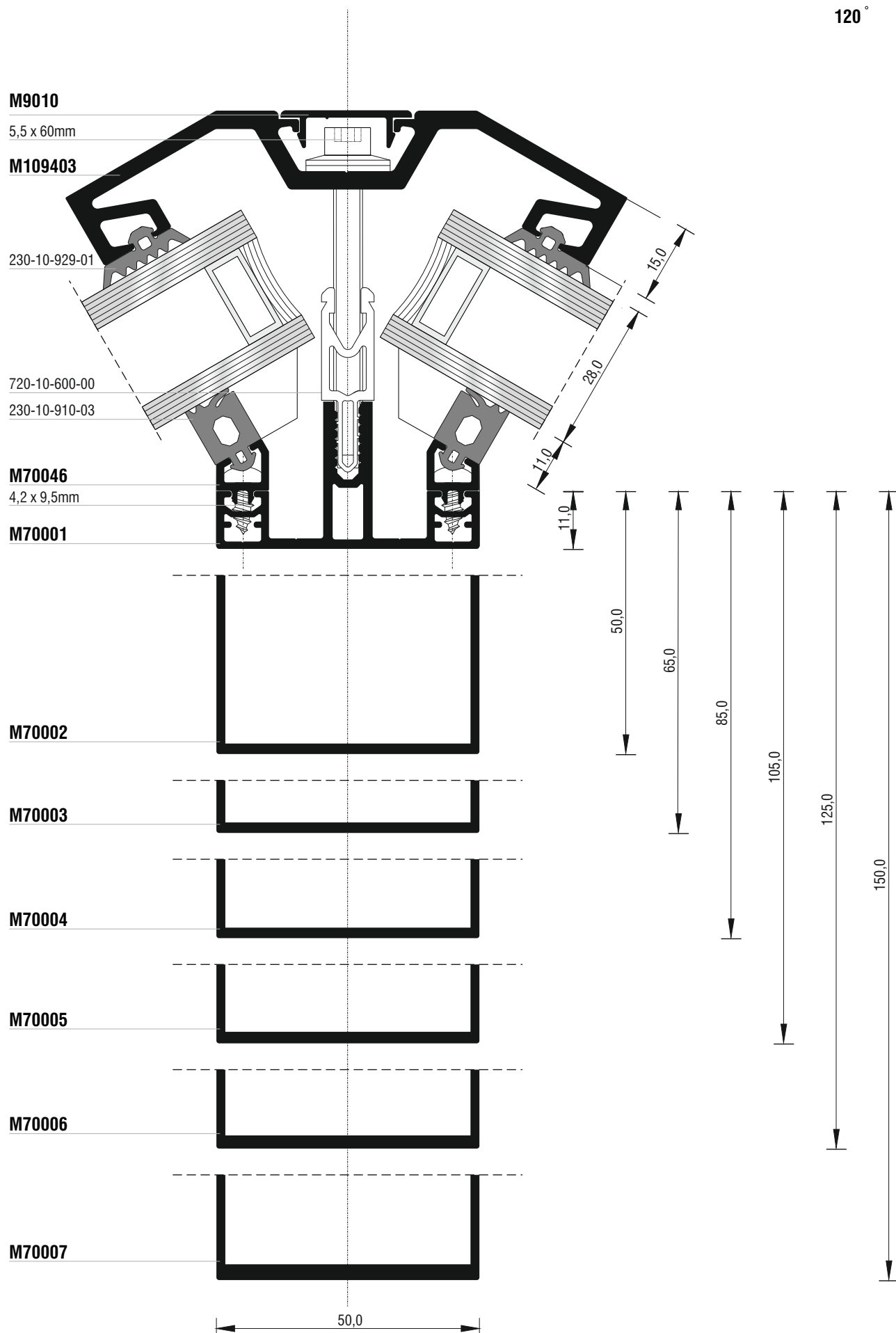
M70003

M70004

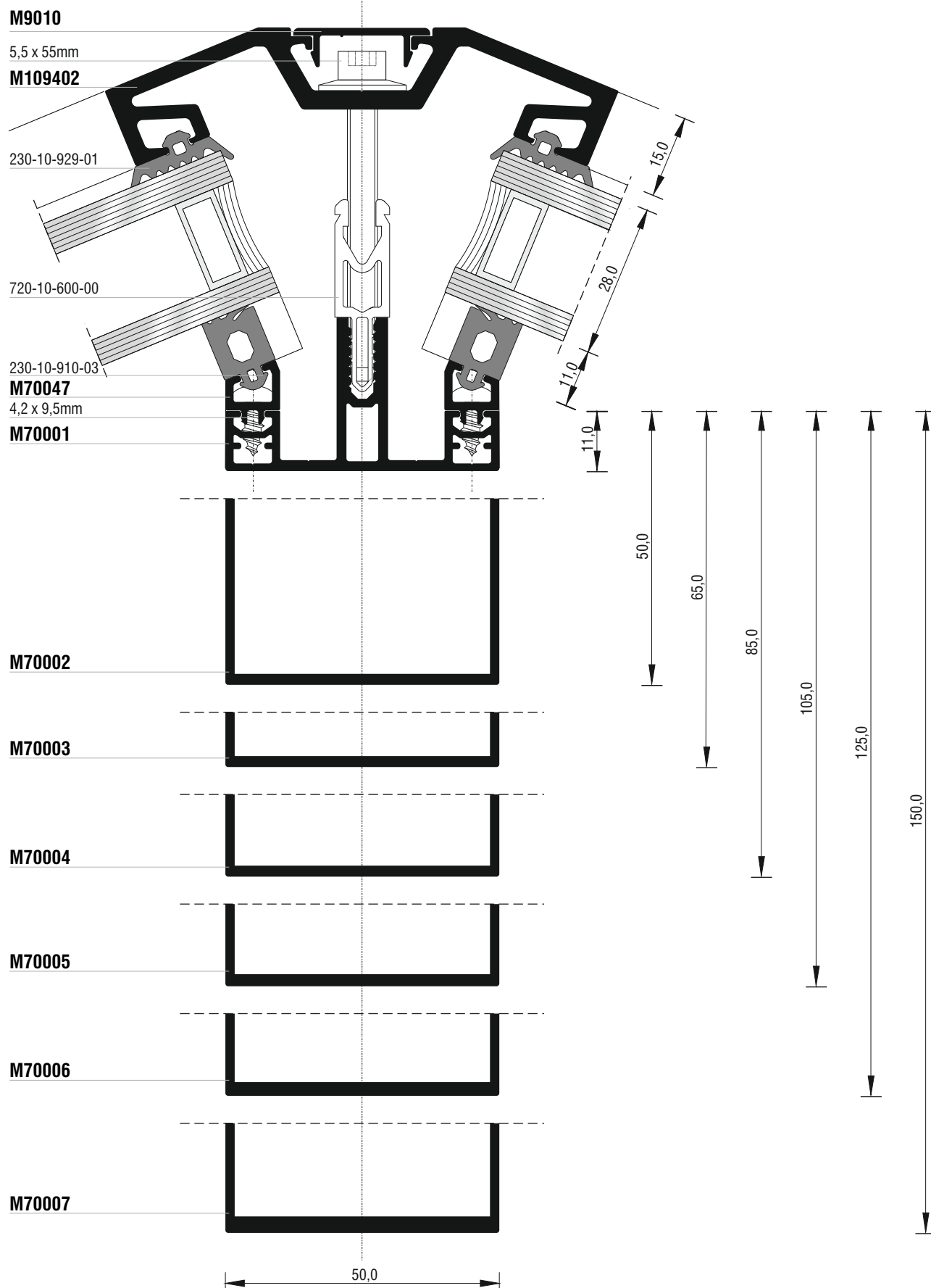
M70005

M70006

M70007



135°



150°

M9010

5,5 x 55mm

M109401

230-10-929-01

720-10-600-00

230-10-910-03

M70048

4,2 x 9,5mm

M70001

M70002

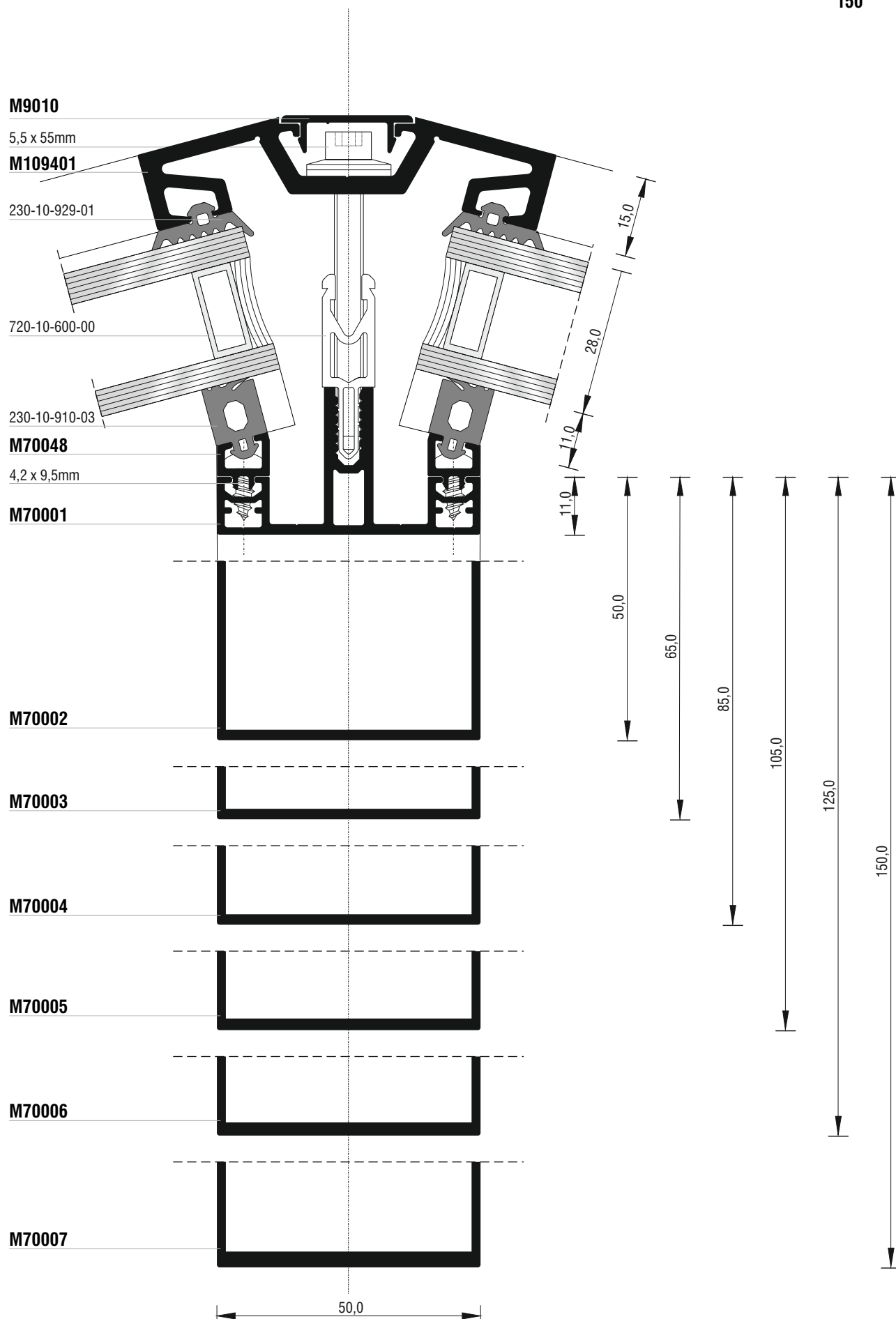
M70003

M70004

M70005

M70006

M70007



150°

M9935

5,5 x 55mm

M9934

230-10-929-01

720-10-600-00

230-10-910-03

M70048

4,2 x 9,5mm

M70001

M70002

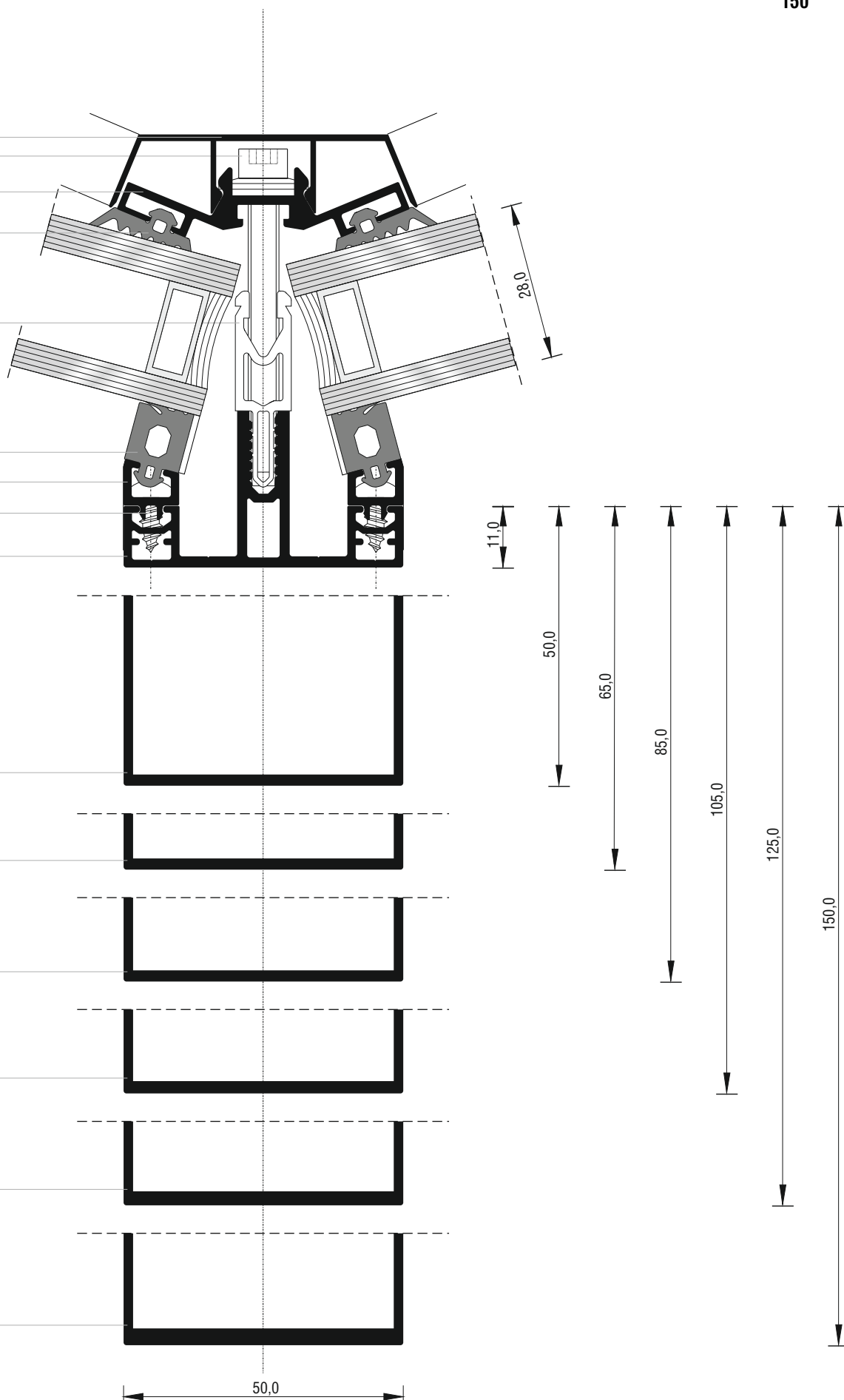
M70003

M70004

M70005

M70006

M70007



135°

M9935

5,5 x 55mm

M9934

230-10-929-01

720-10-600-00

230-10-910-03

M70047

4,2 x 9,5mm

M70001

M70002

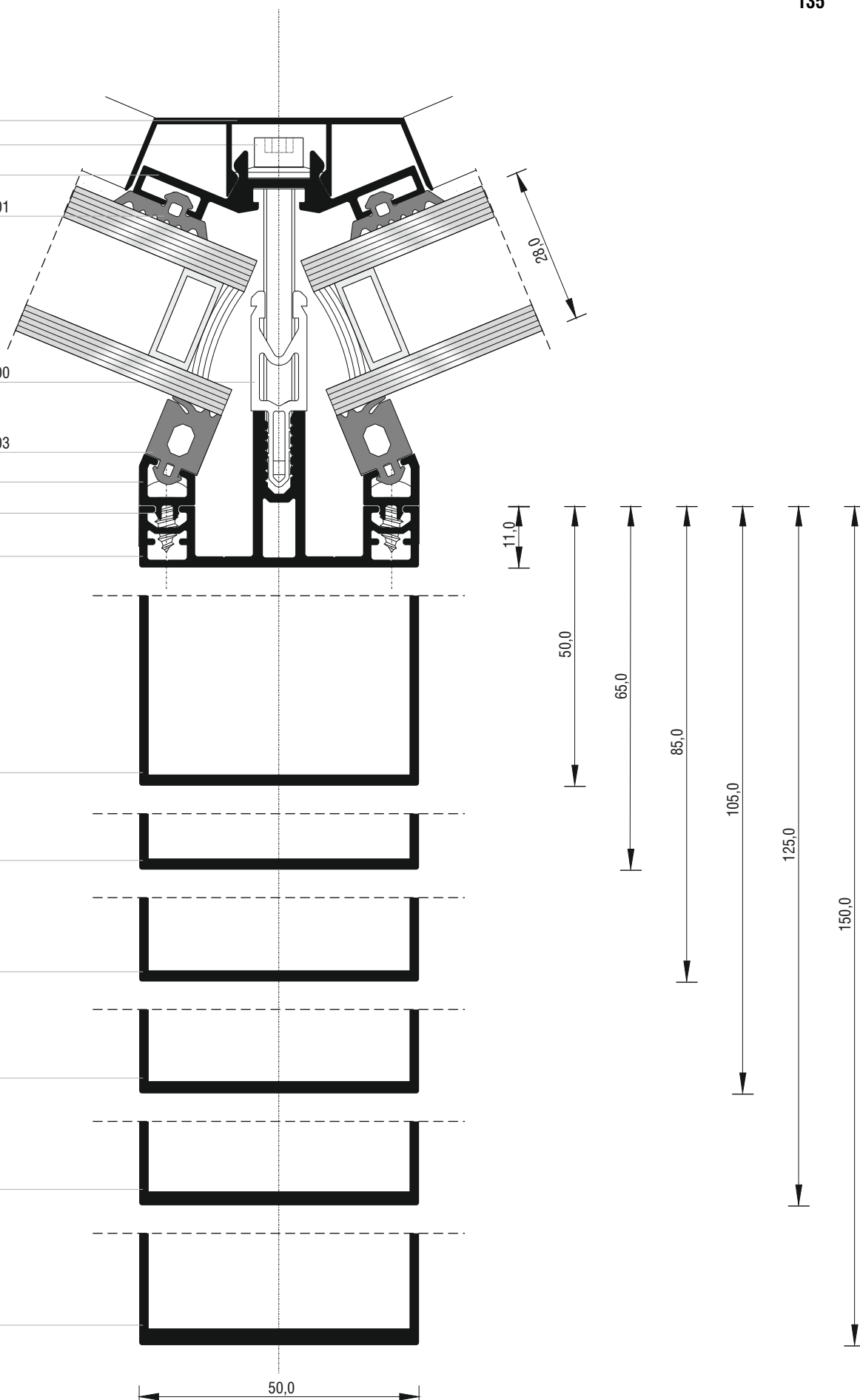
M70003

M70004

M70005

M70006

M70007



120°

M9932

5,5 x 55mm

M9931

230-10-929-01

720-10-600-00

230-10-910-03

M70046

4,2 x 9,5mm

M70001

M70002

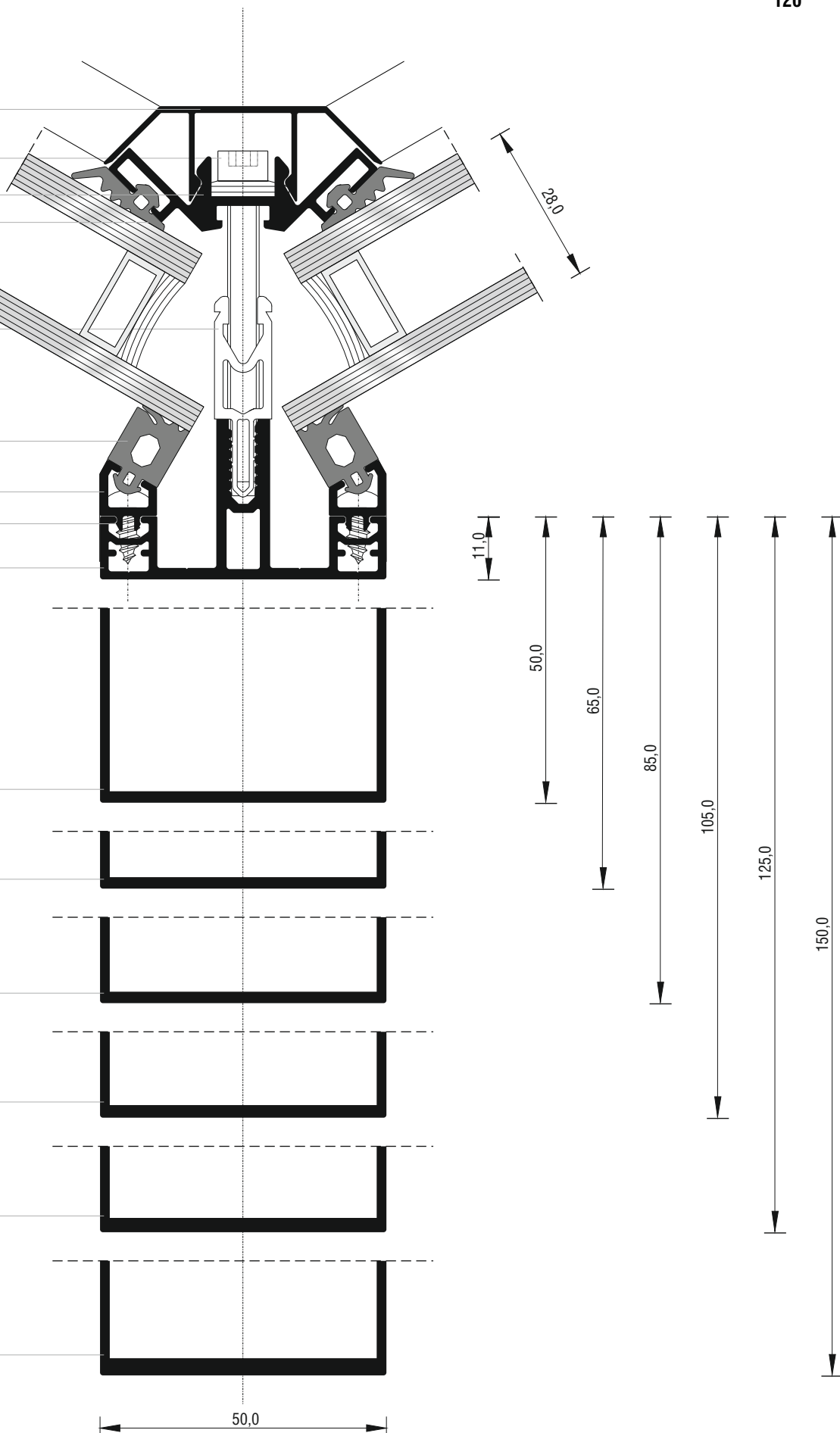
M70003

M70004

M70005

M70006

M70007



90°

M9932

5,5 x 60mm

M9931

230-10-929-01

720-10-600-00

230-10-910-03

M70045

4,2 x 9,5mm

M70001

M70002

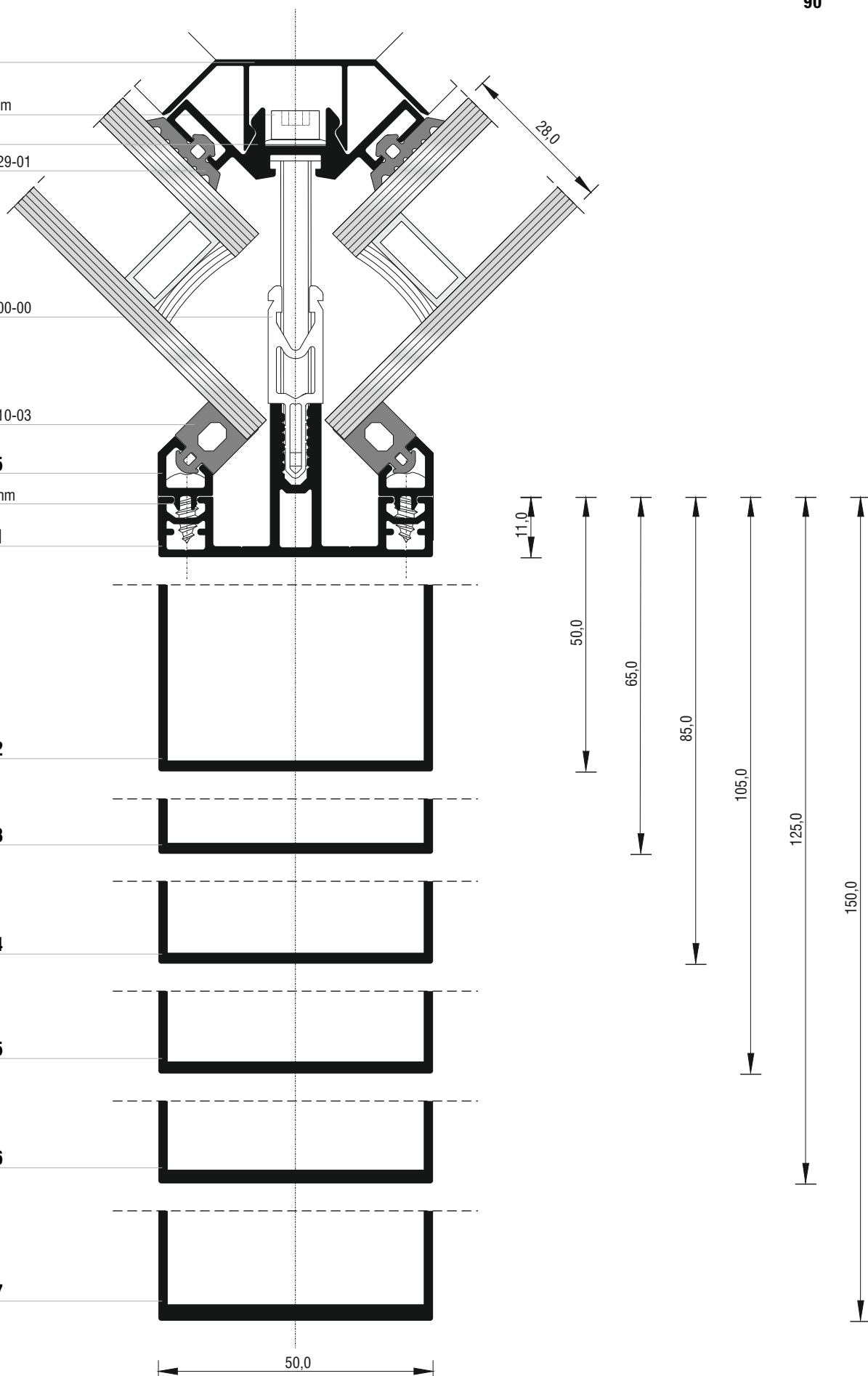
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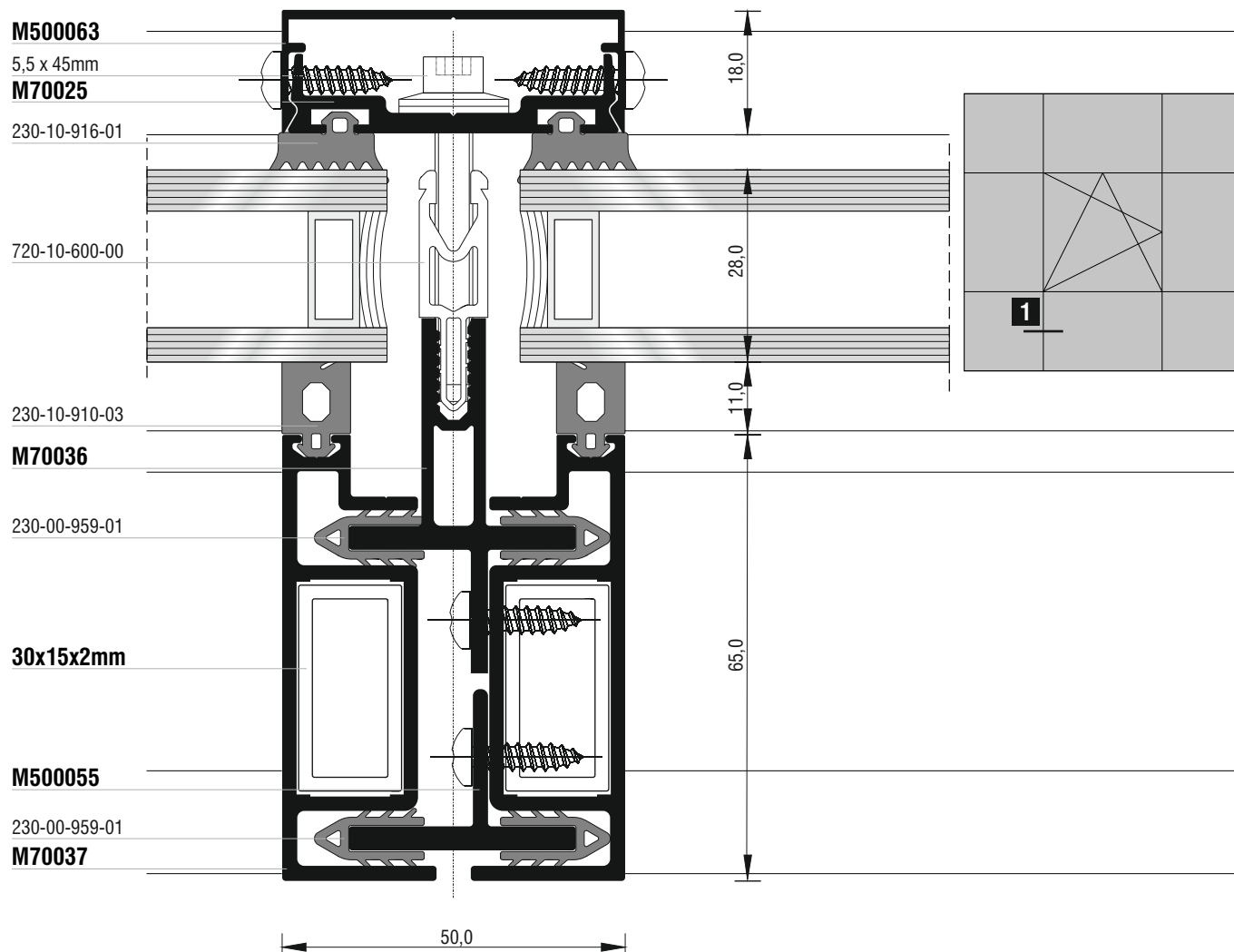
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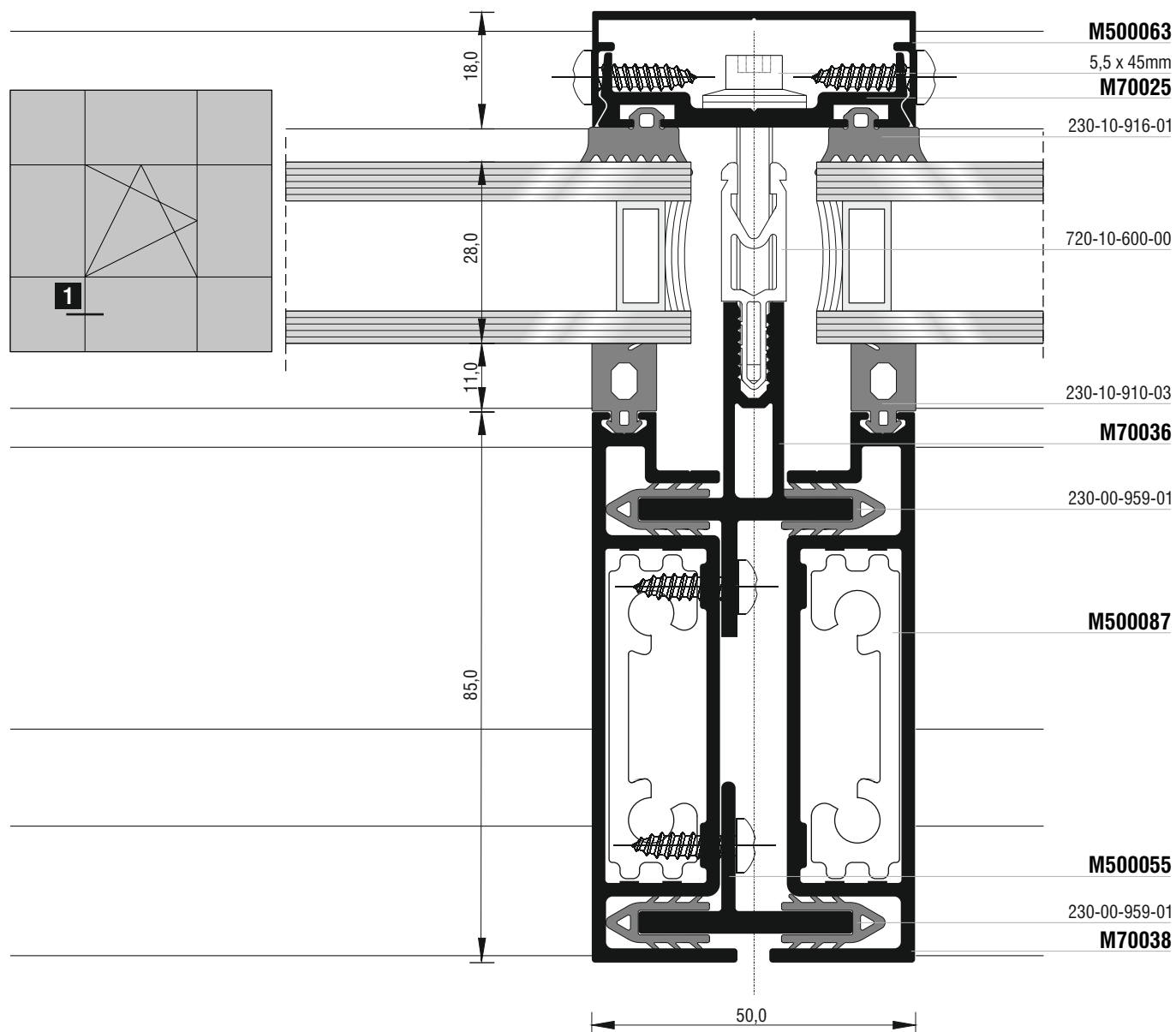
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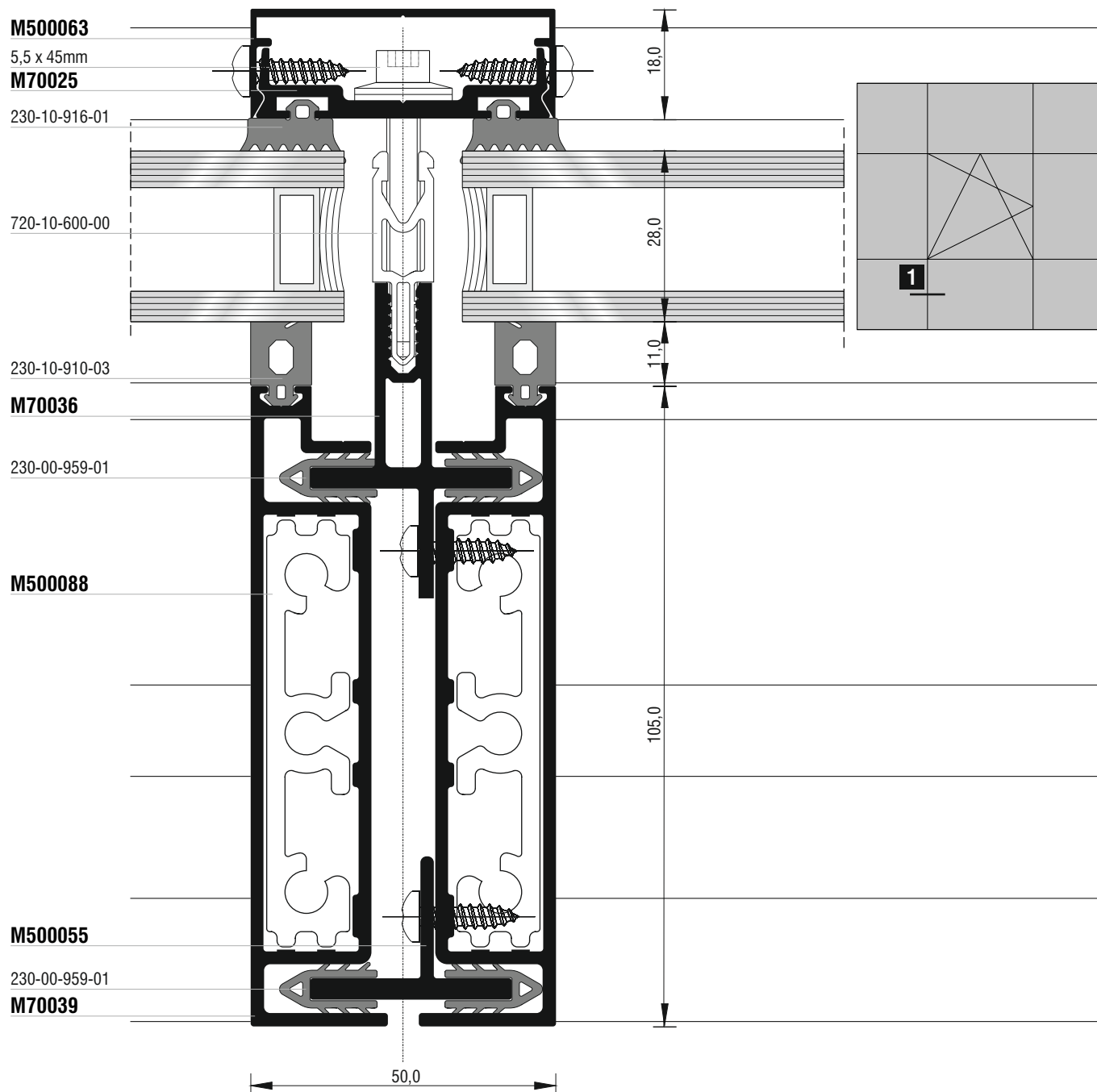
M70006

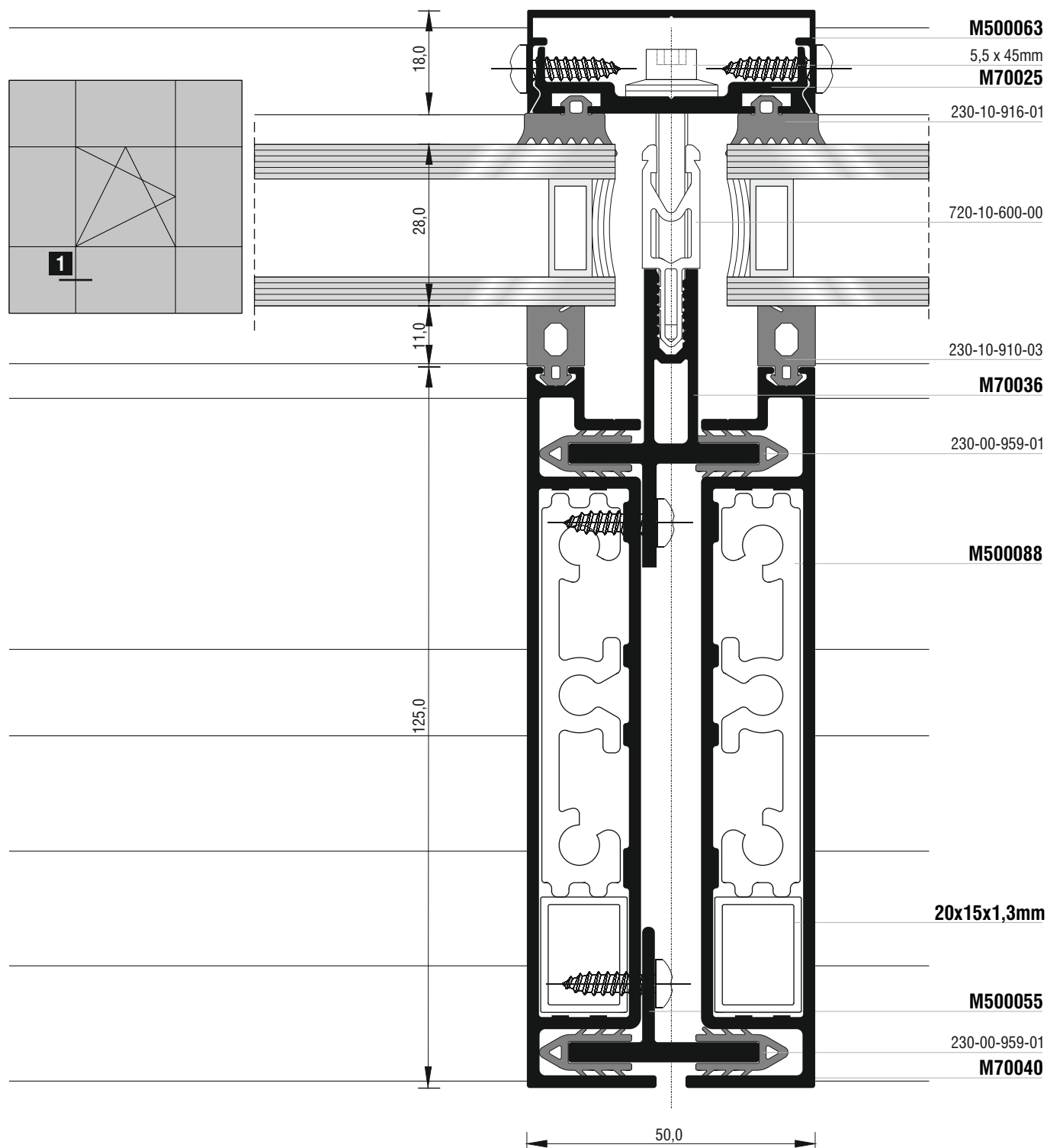
M70007

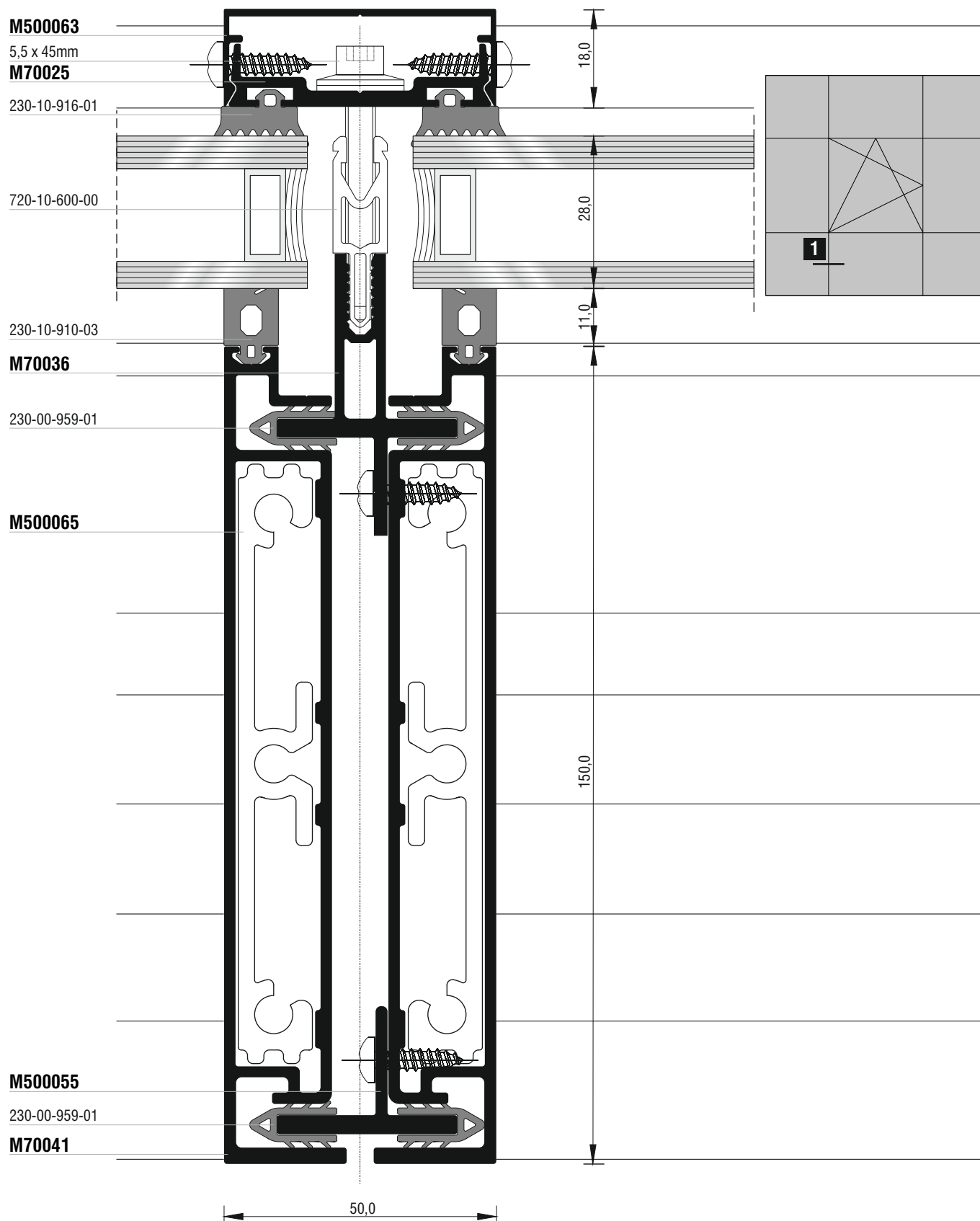


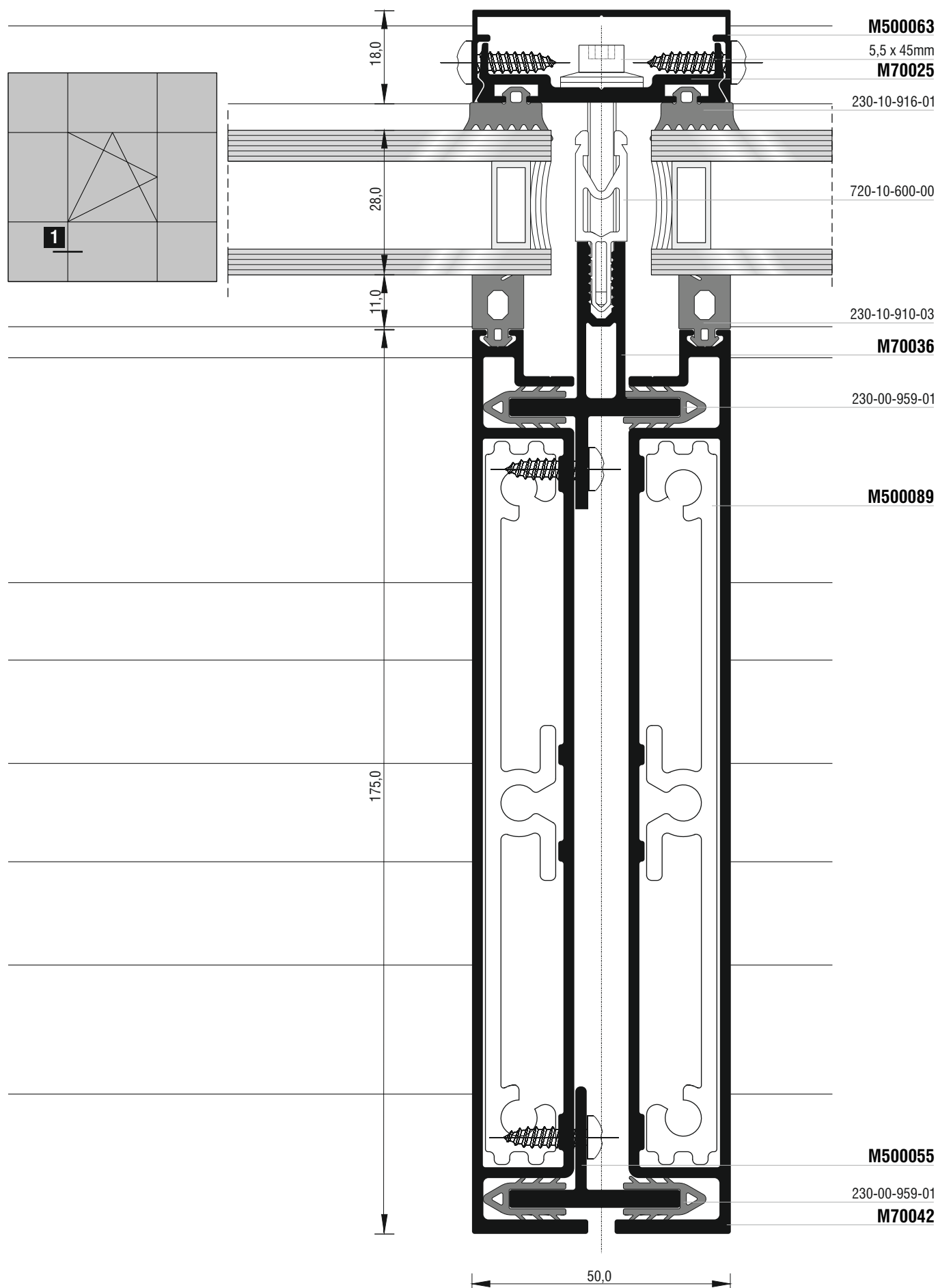












M500063

5,5 x 45mm

M70025

230-10-916-01

720-10-600-00

230-10-910-03

M70036

230-00-959-01

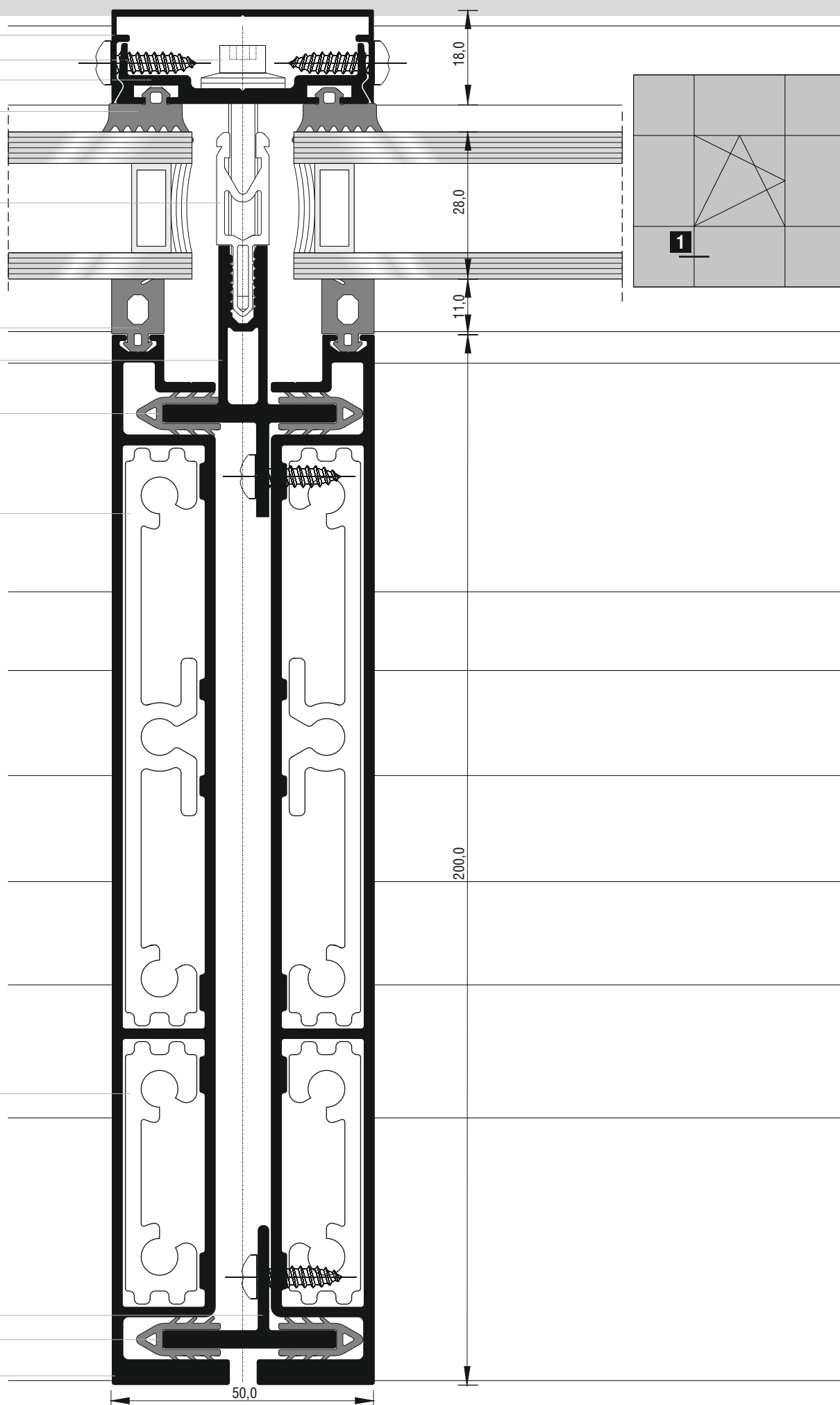
M500065

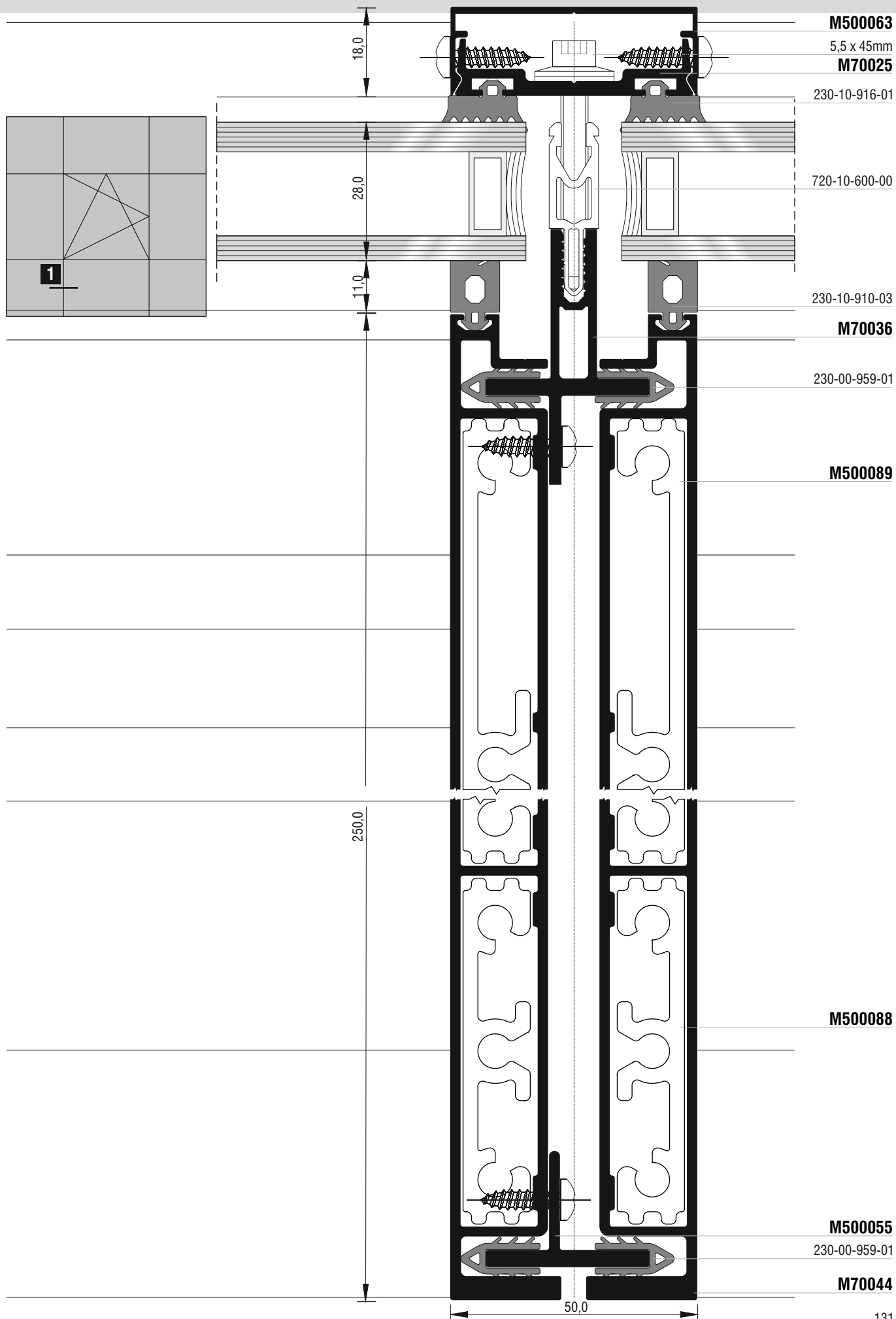
M500087

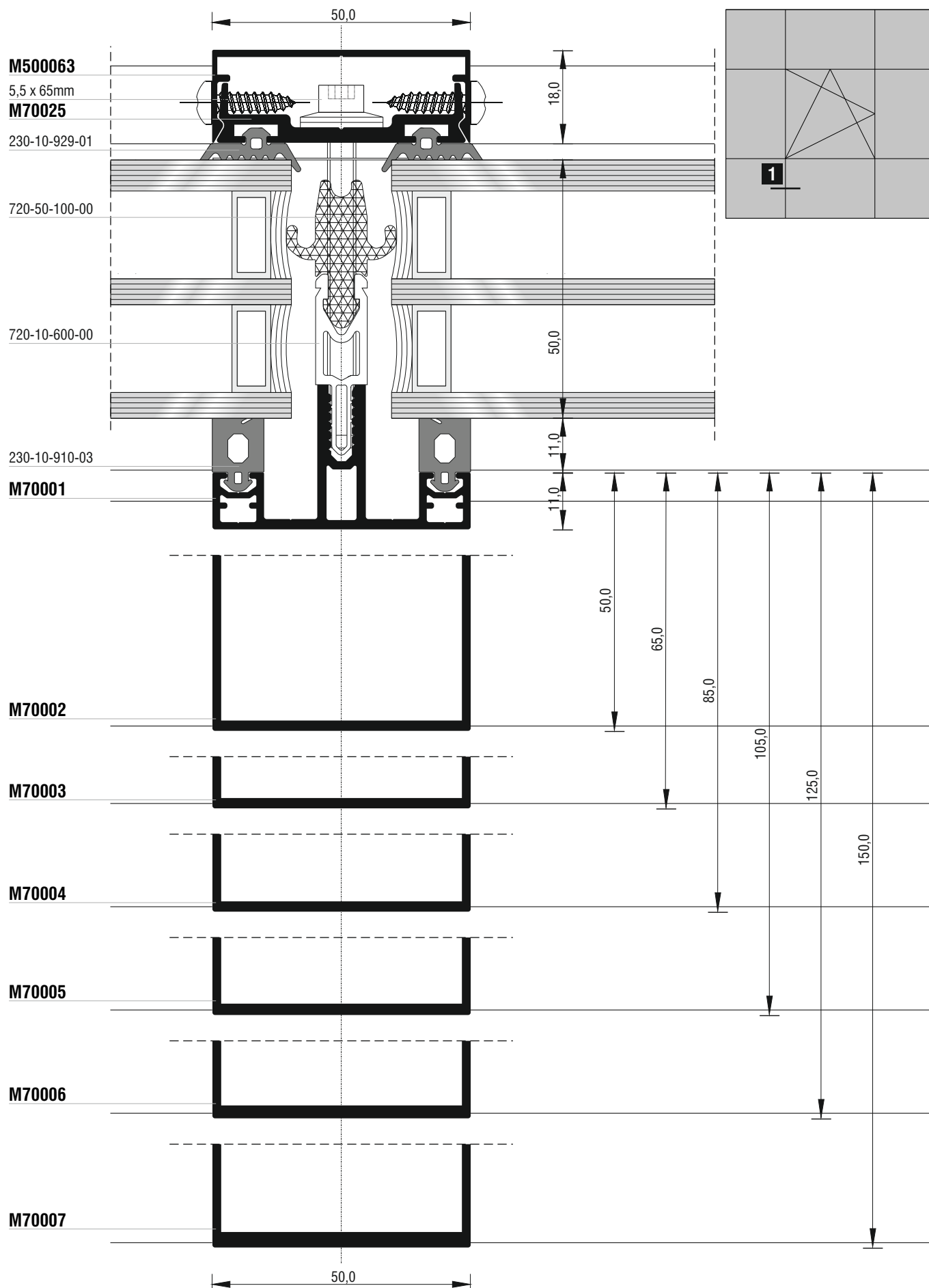
M500055

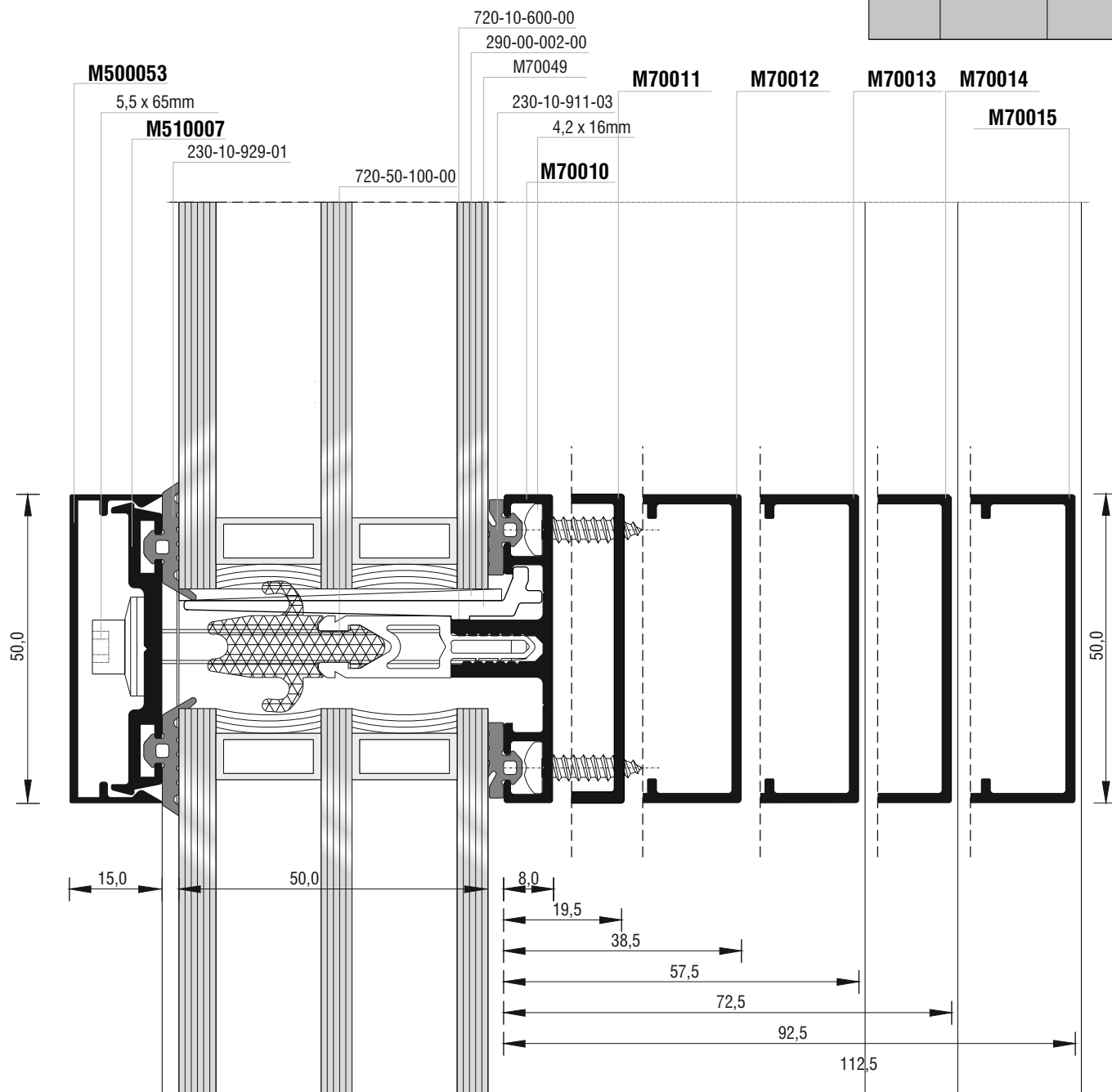
230-00-959-01

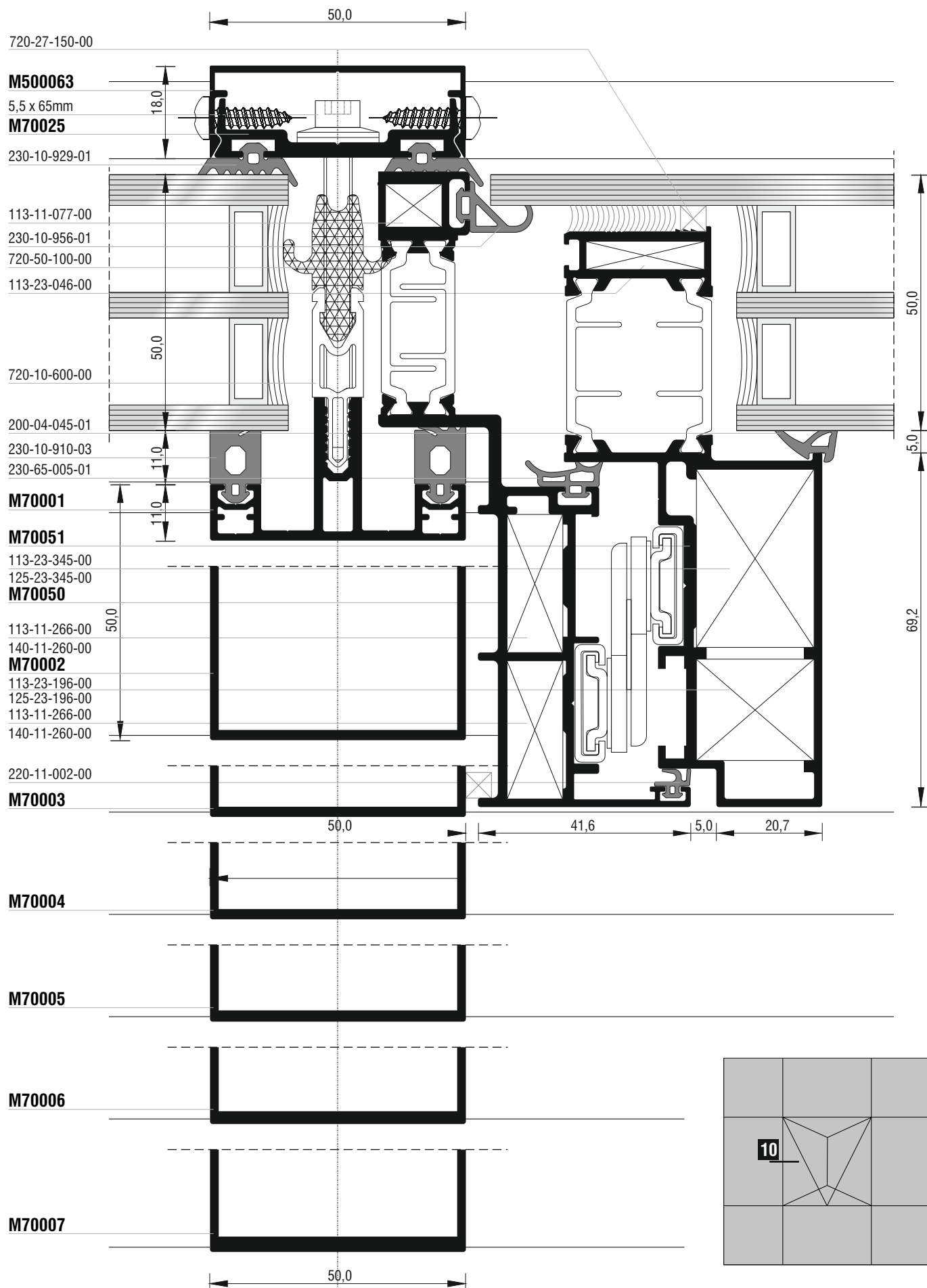
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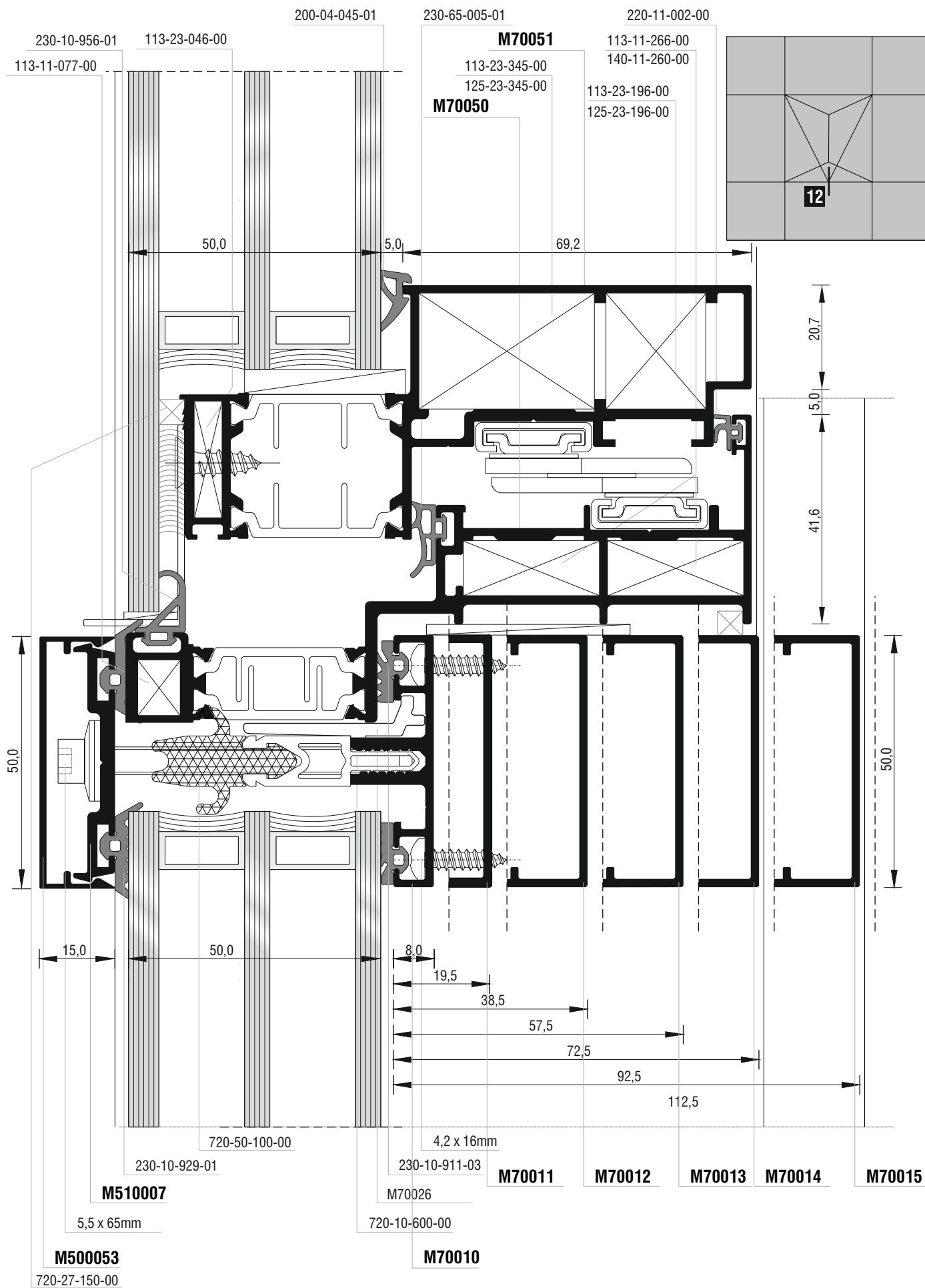


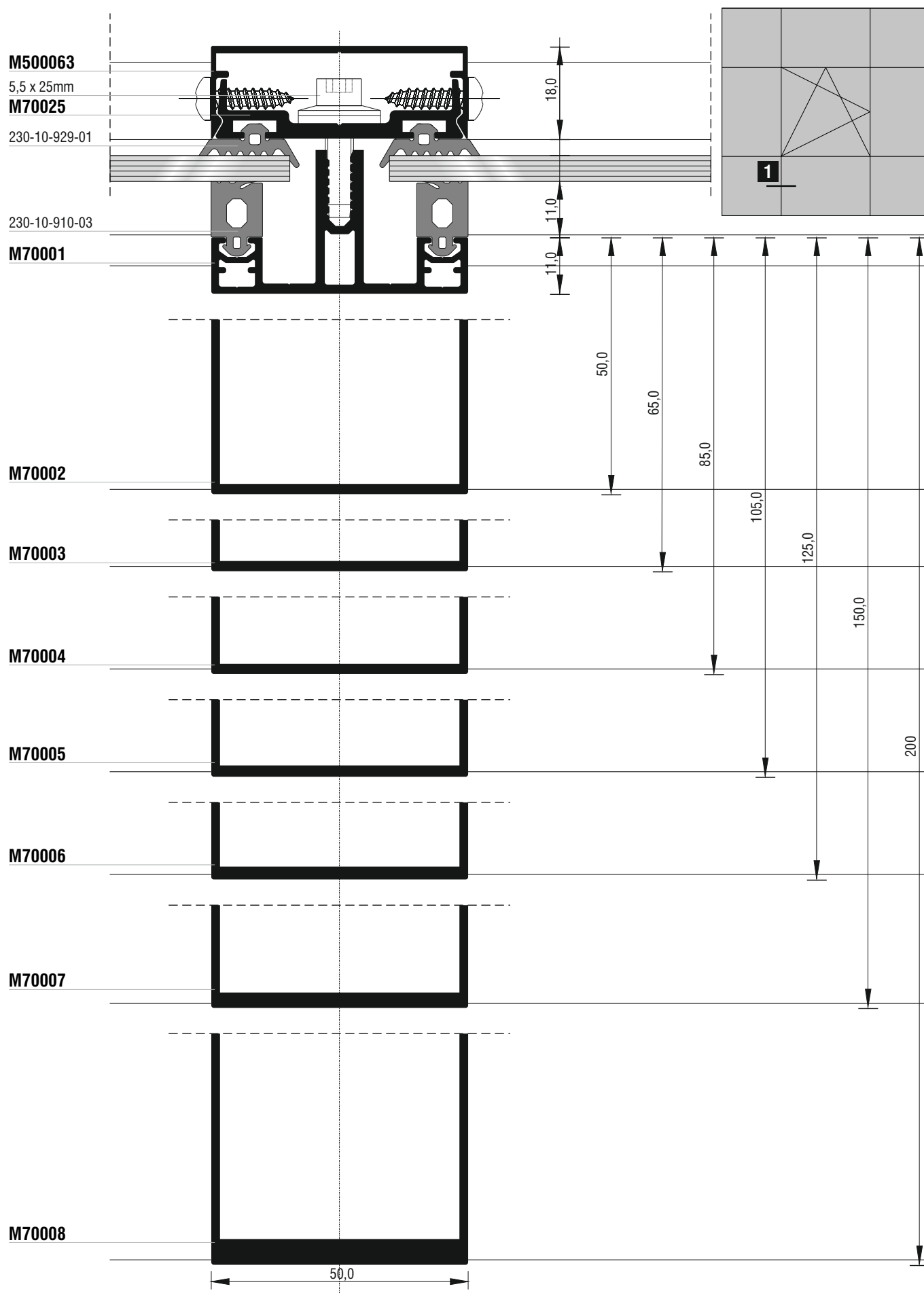


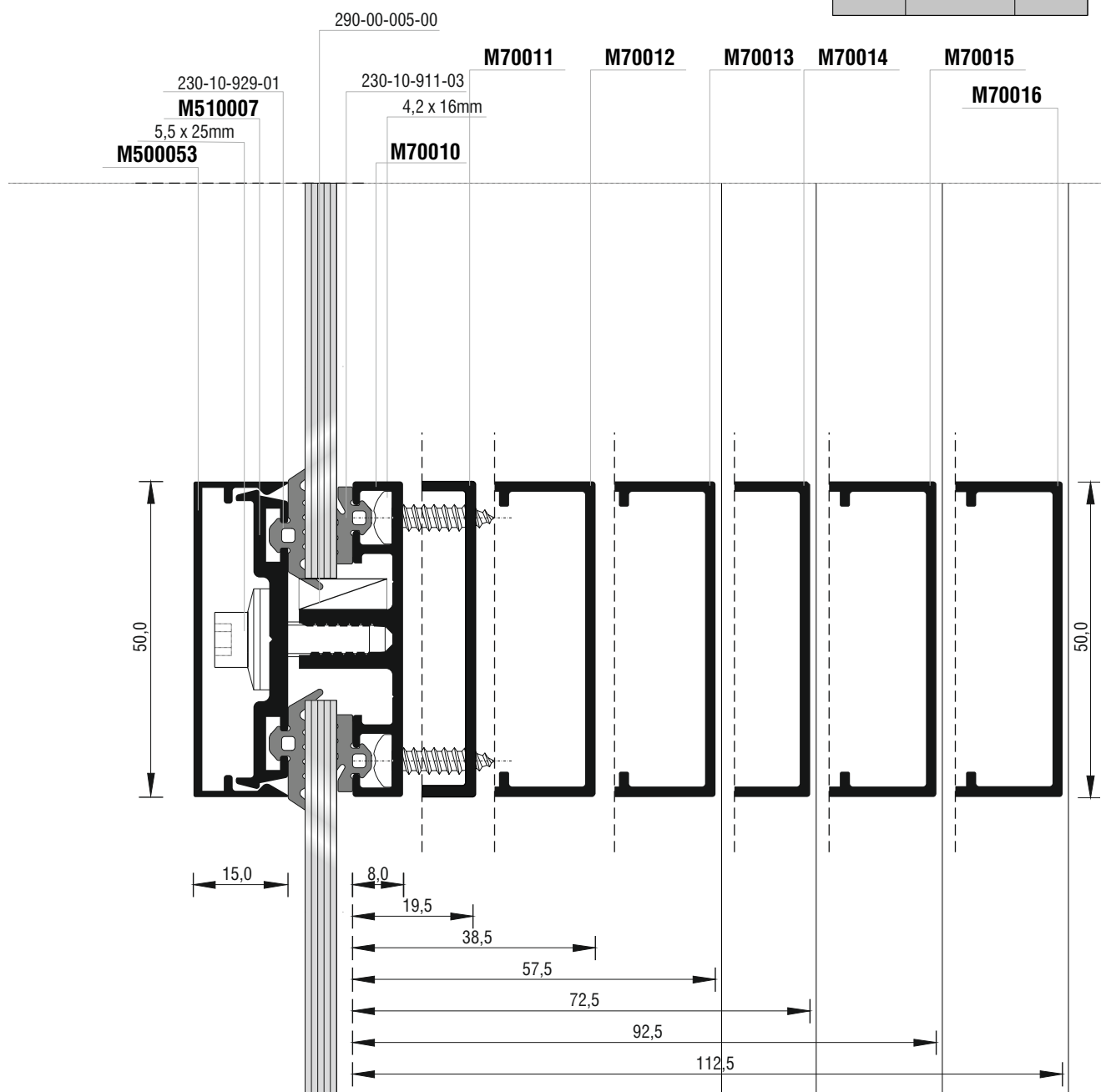
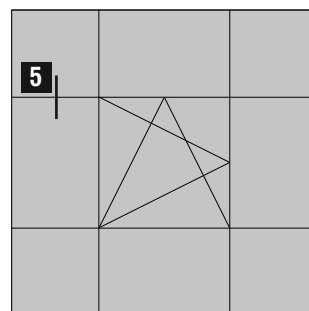


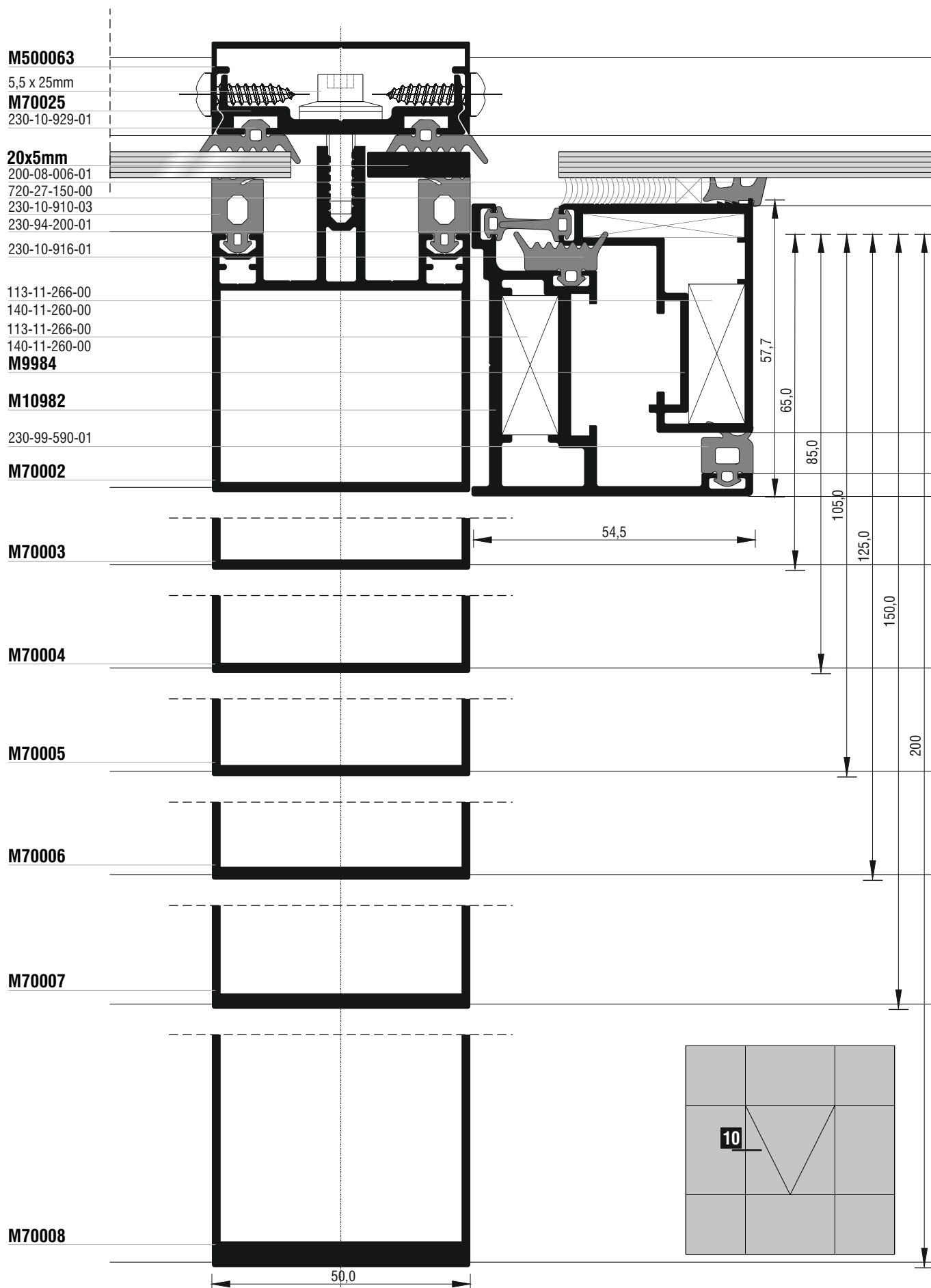


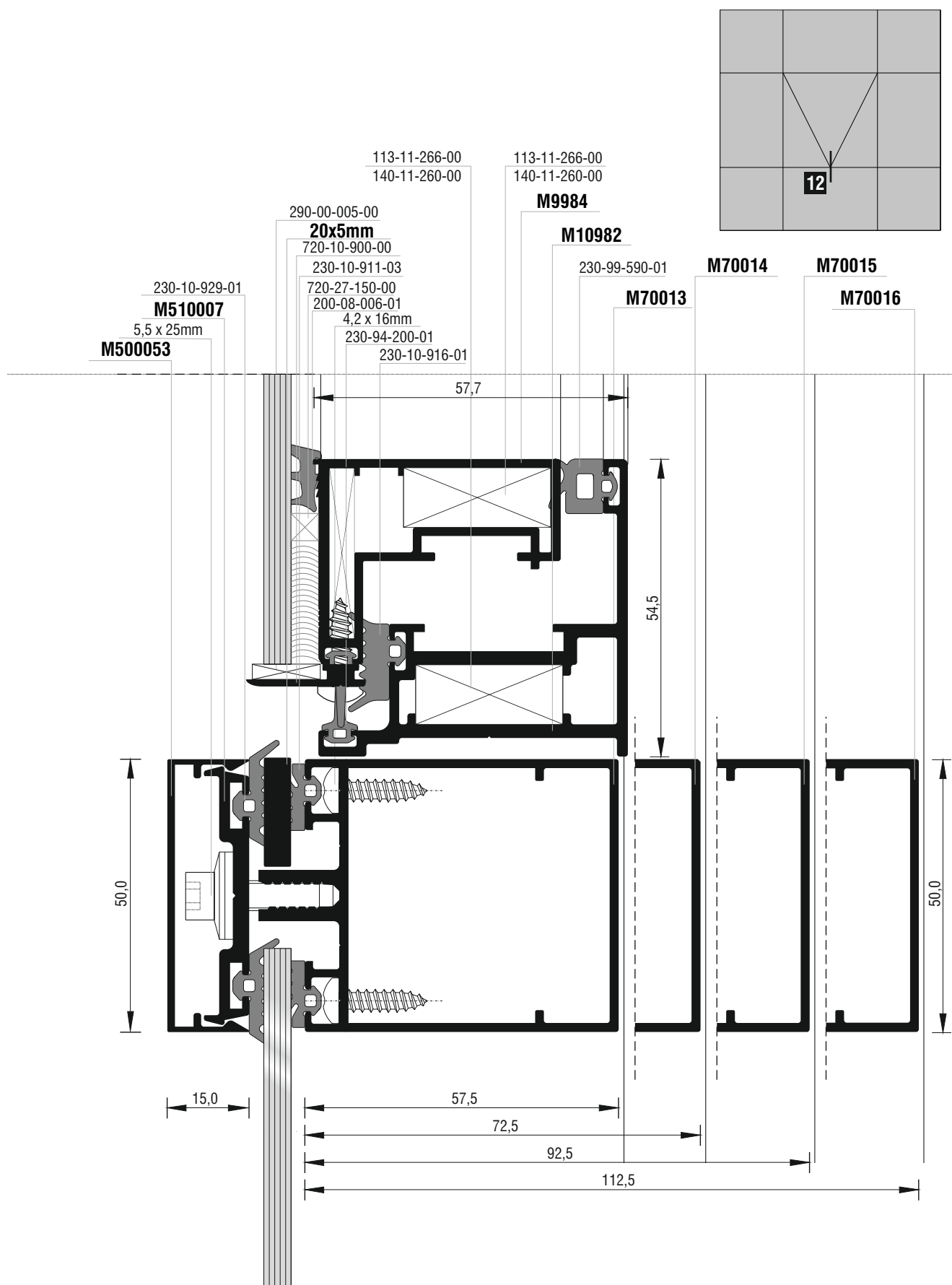


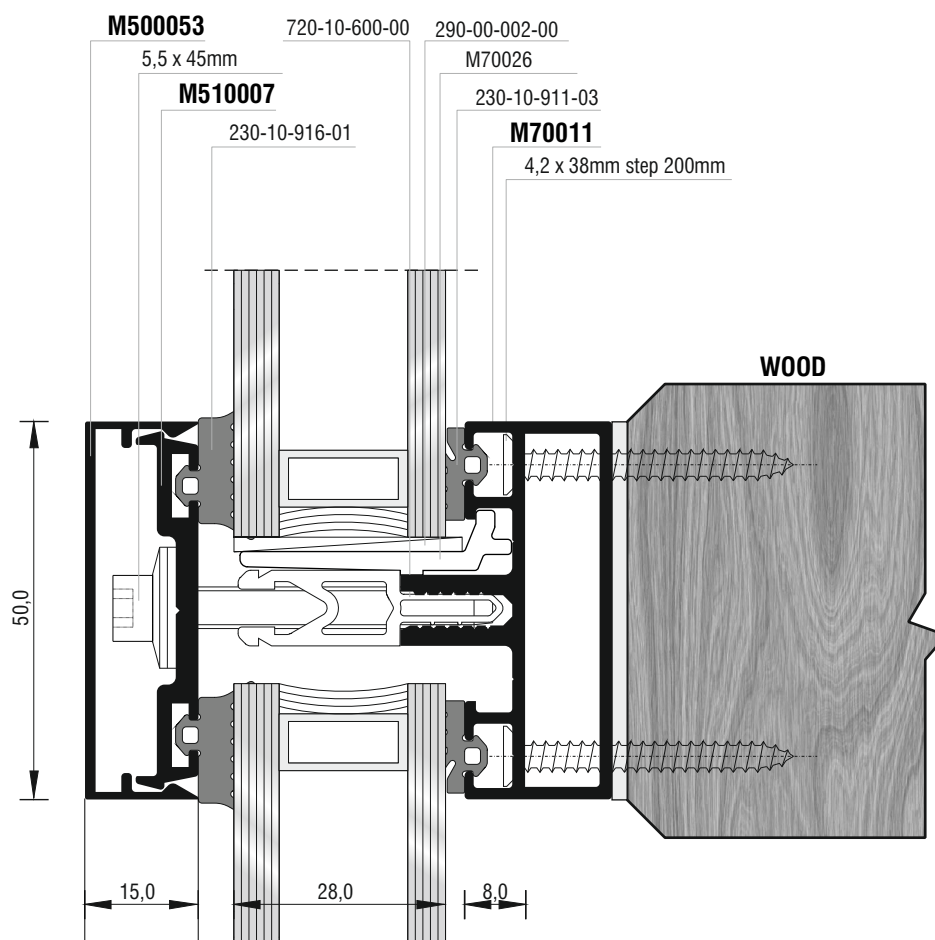
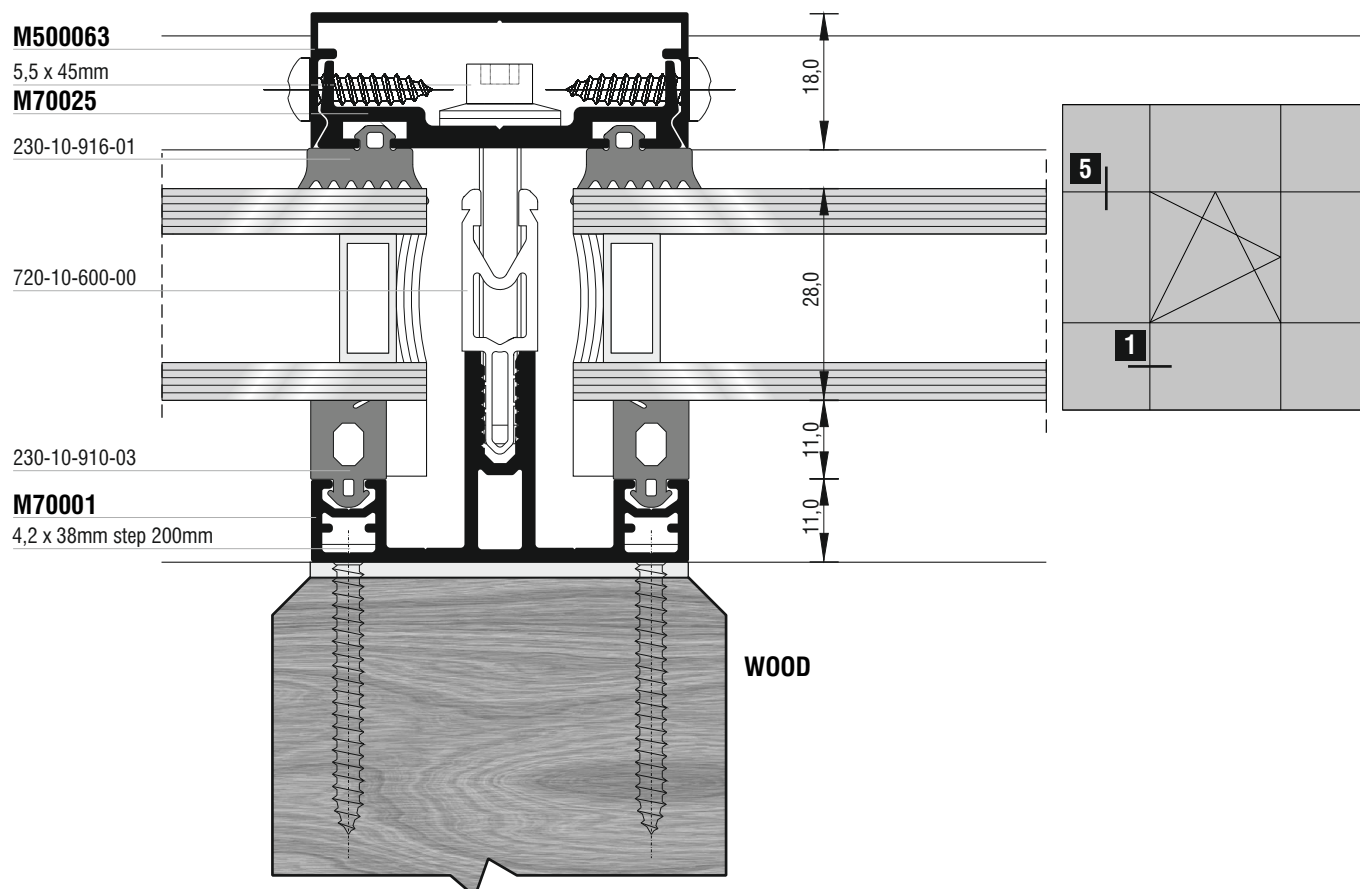


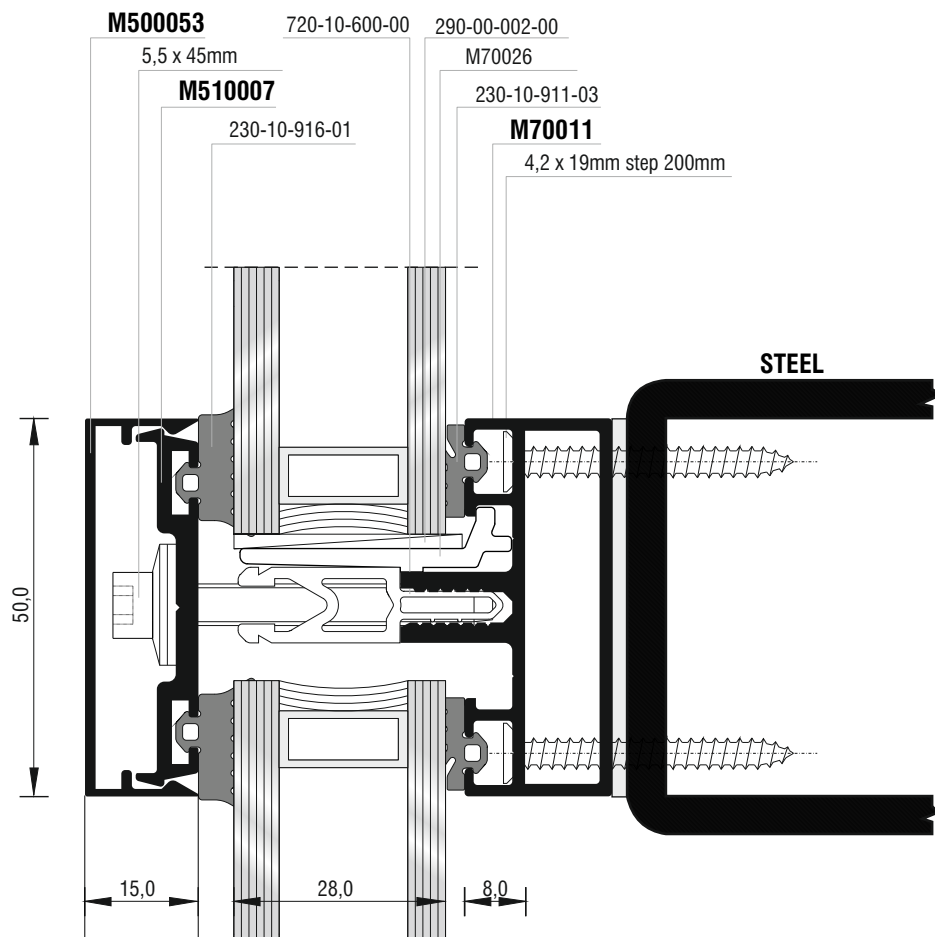
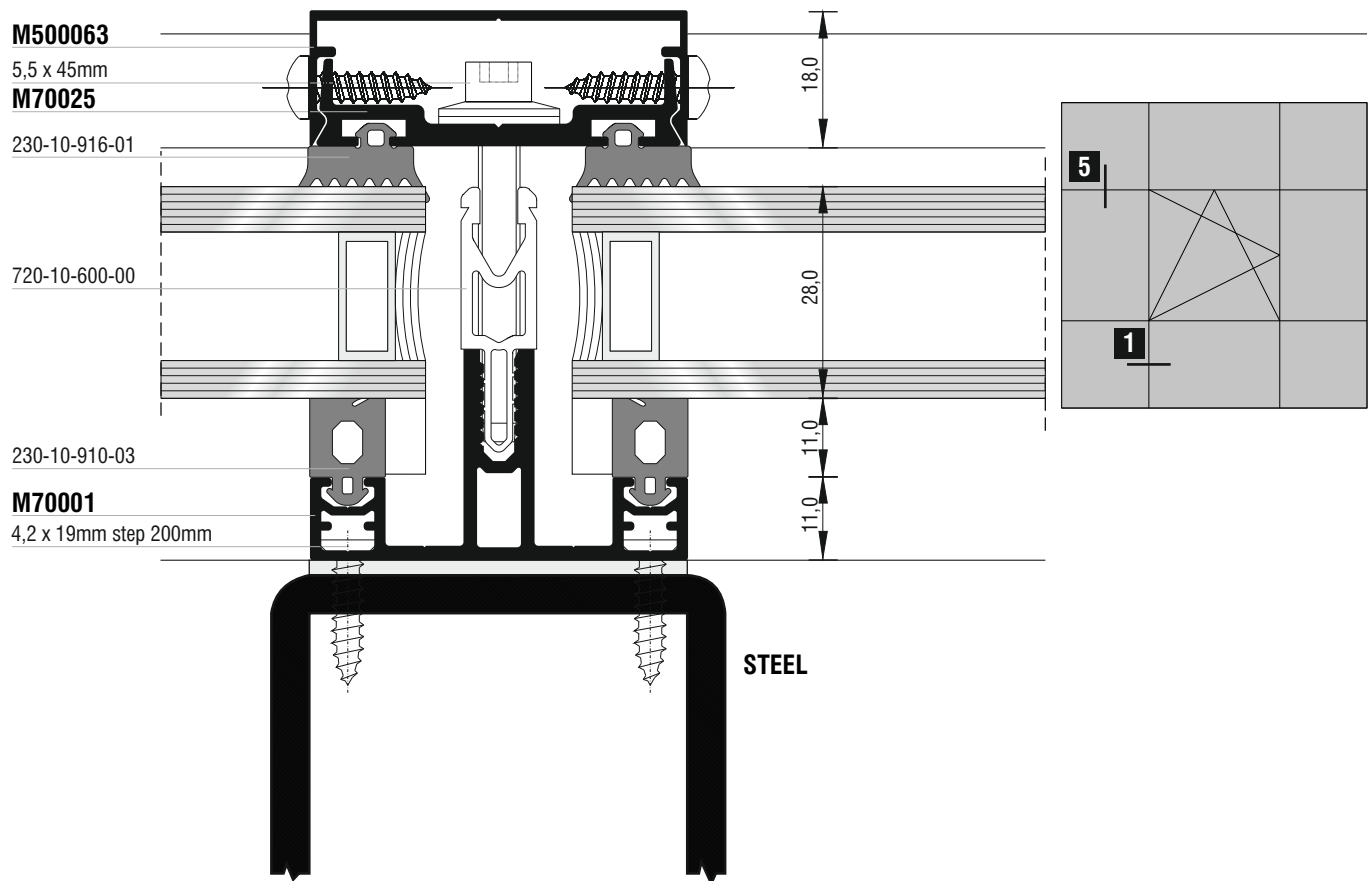


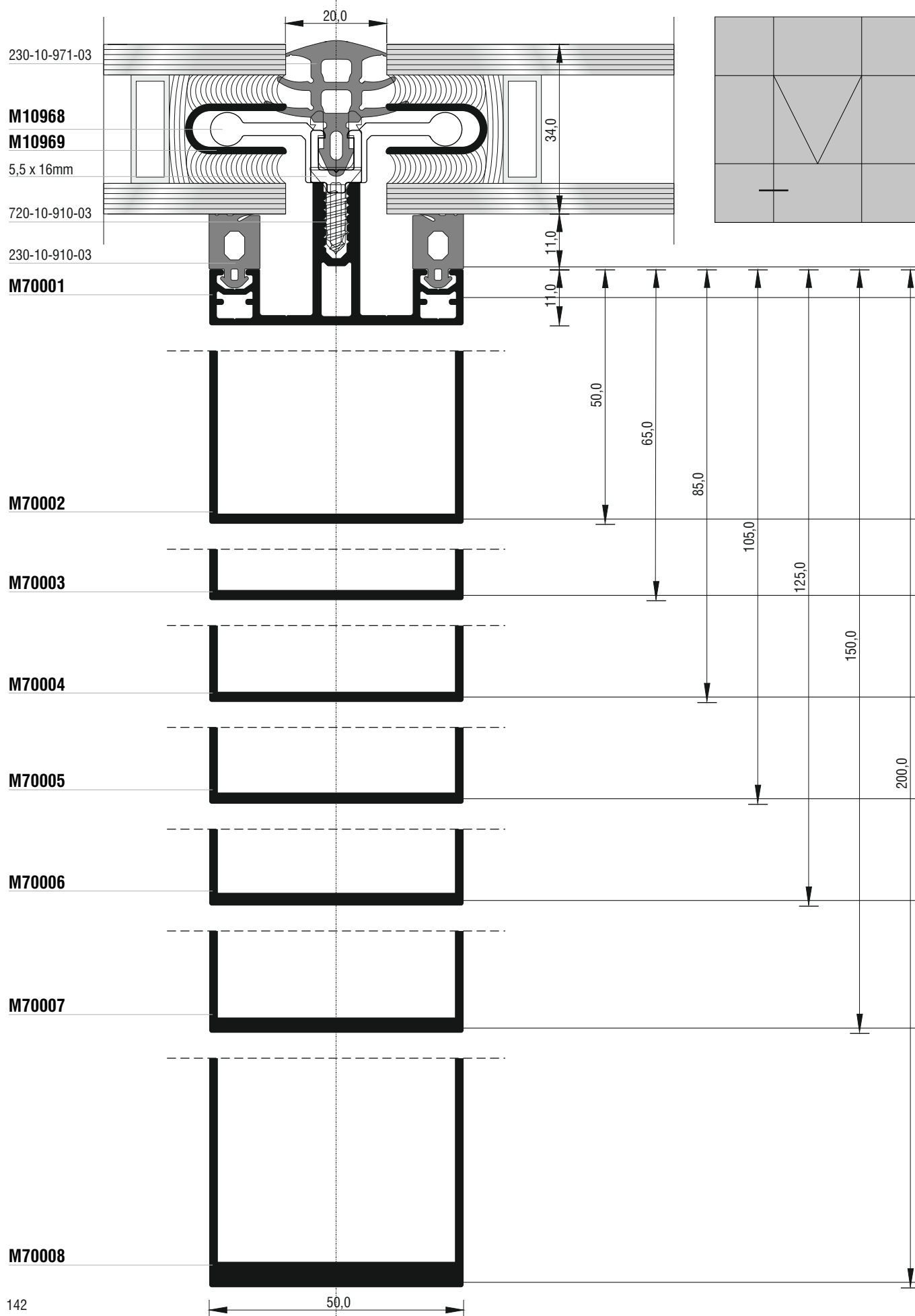


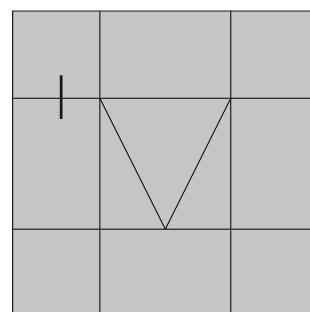
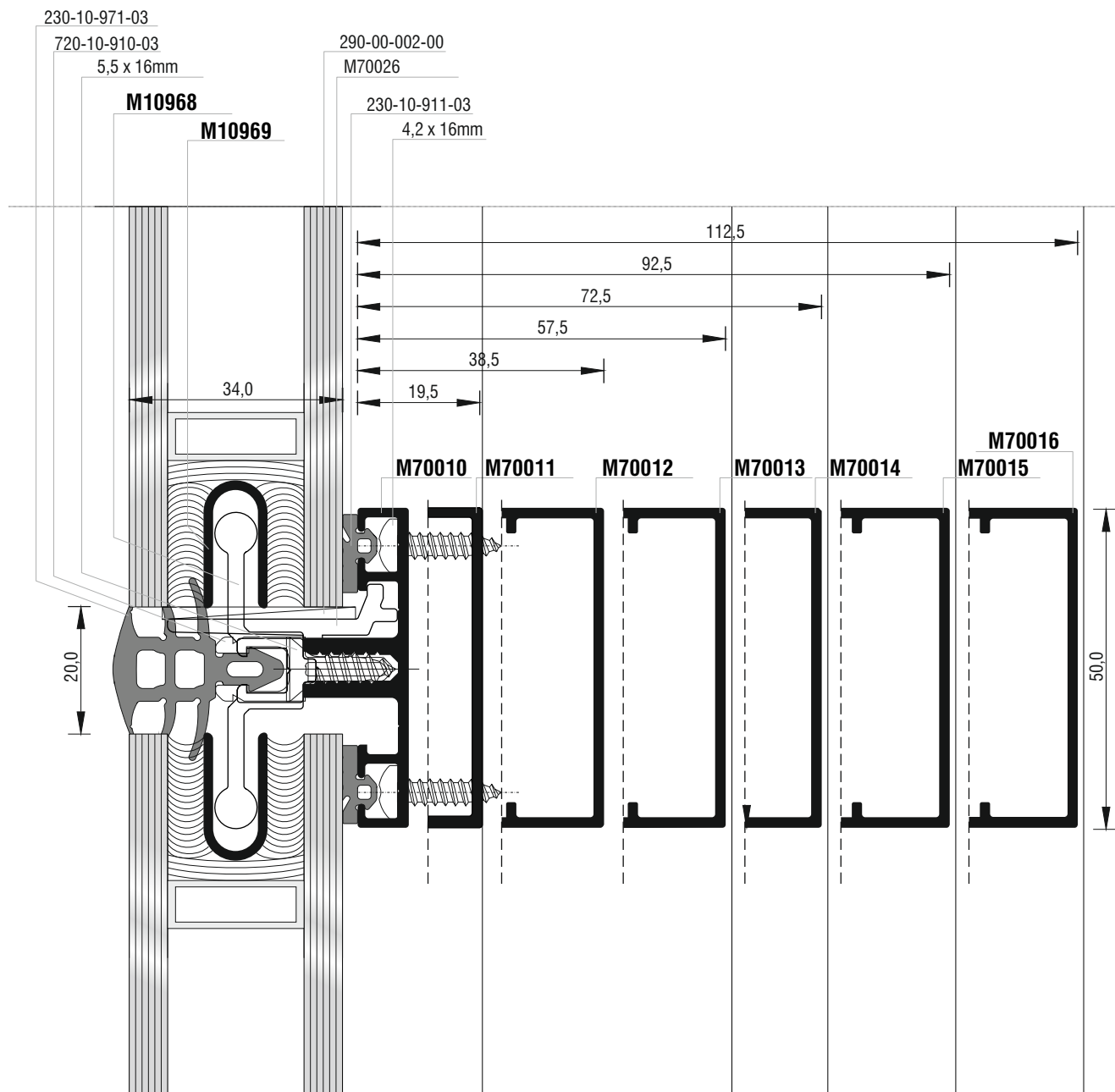


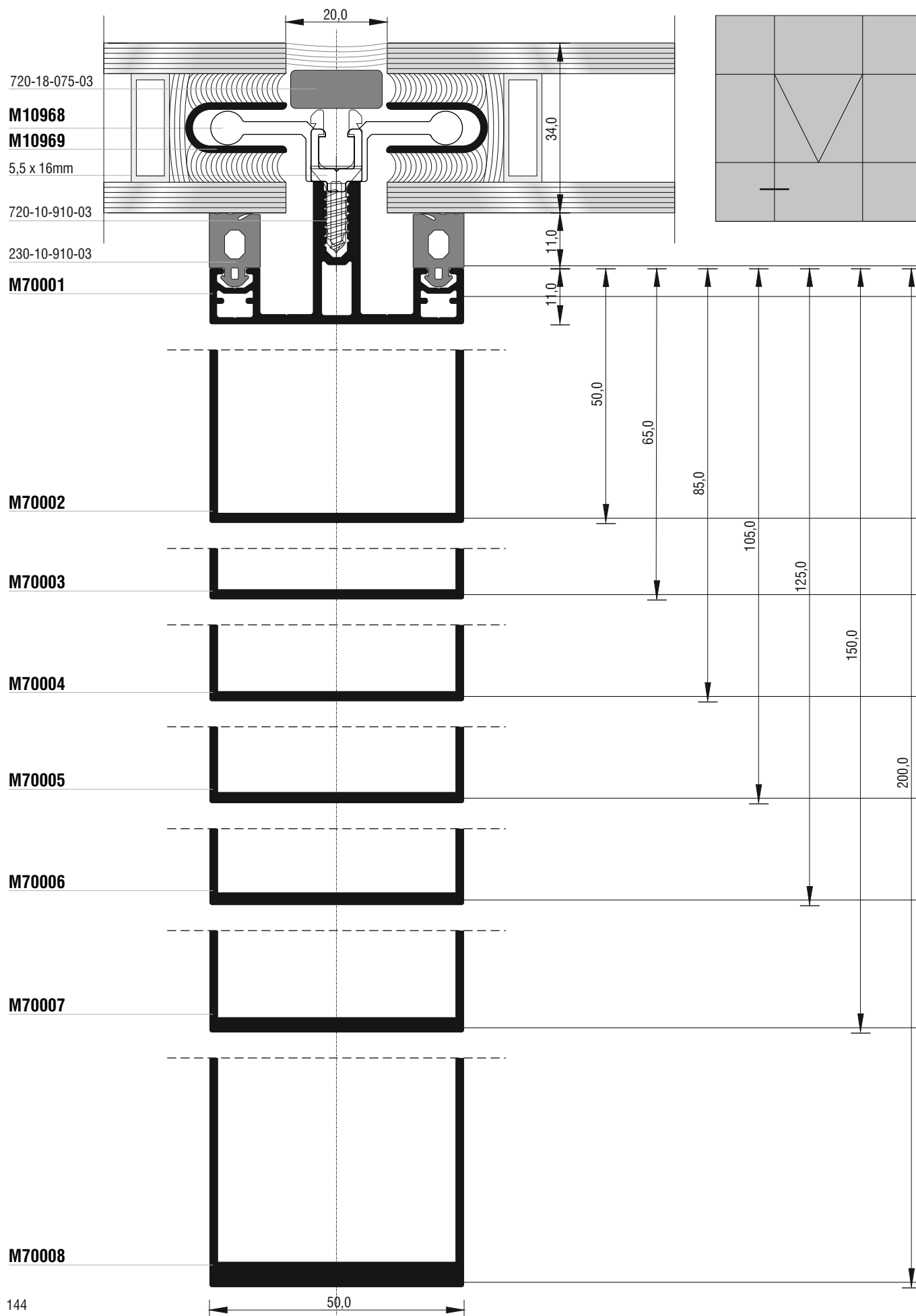


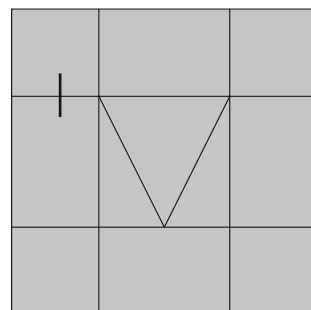
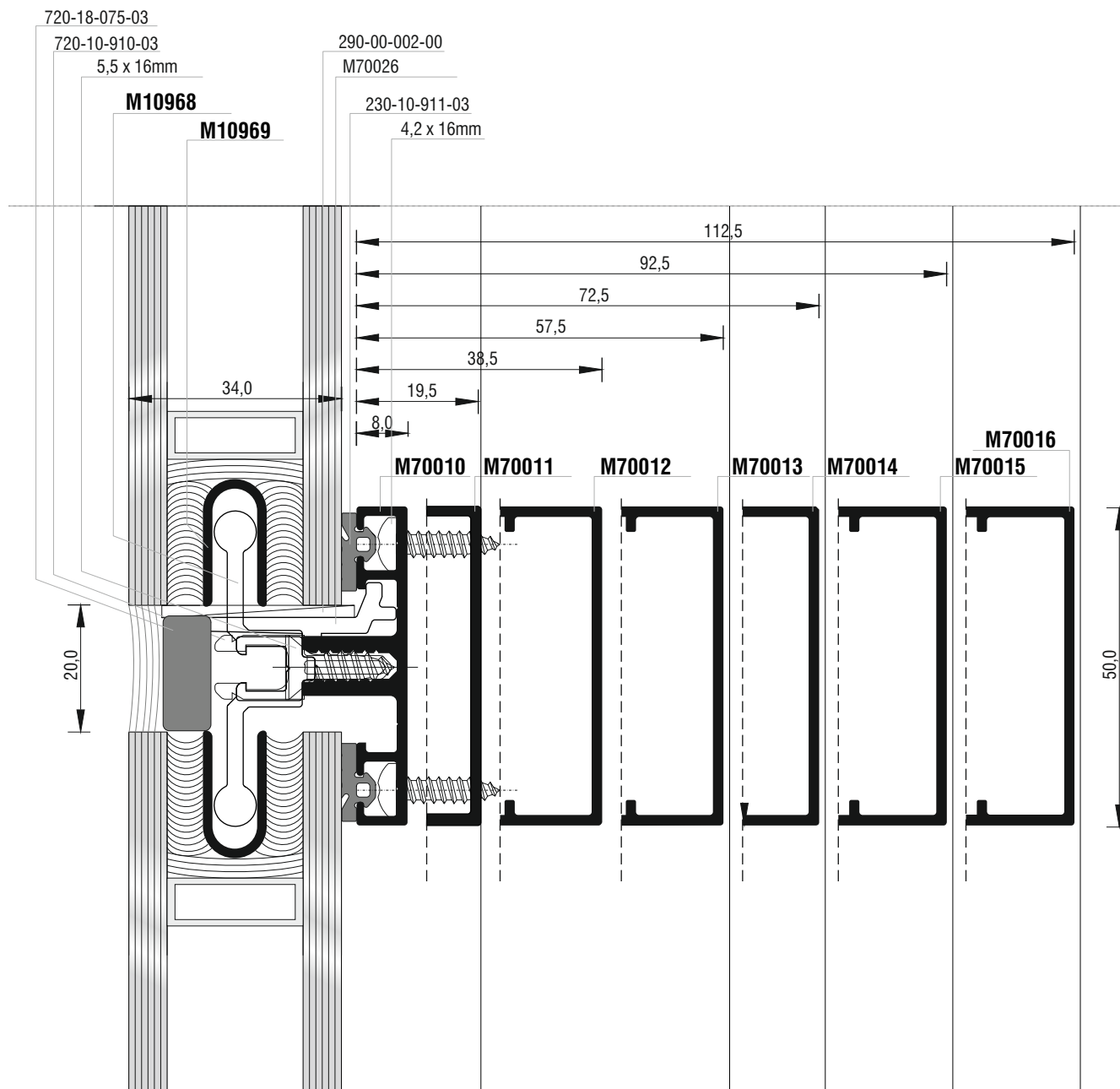


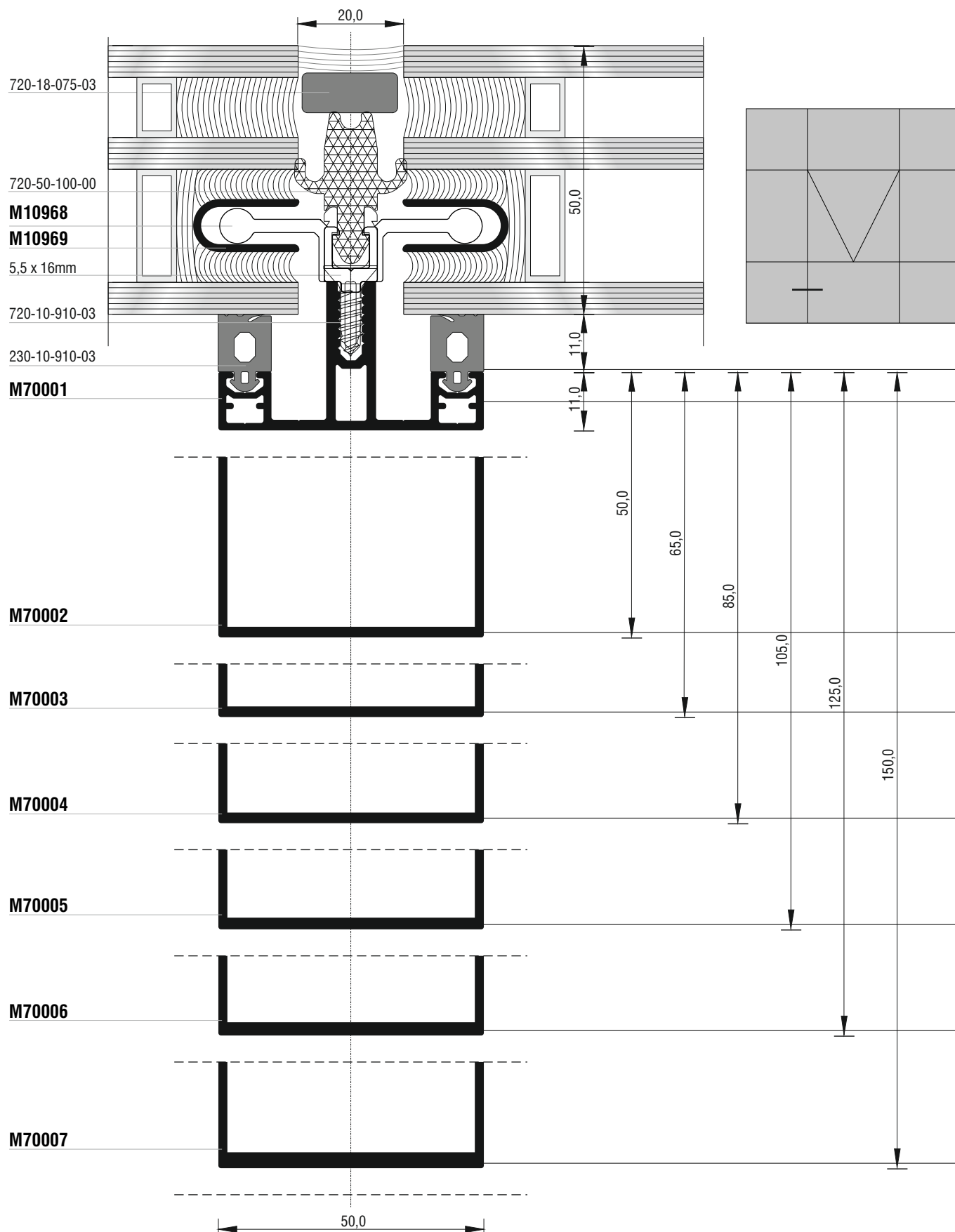


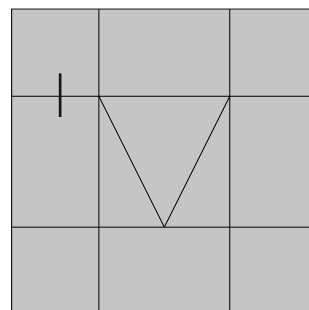
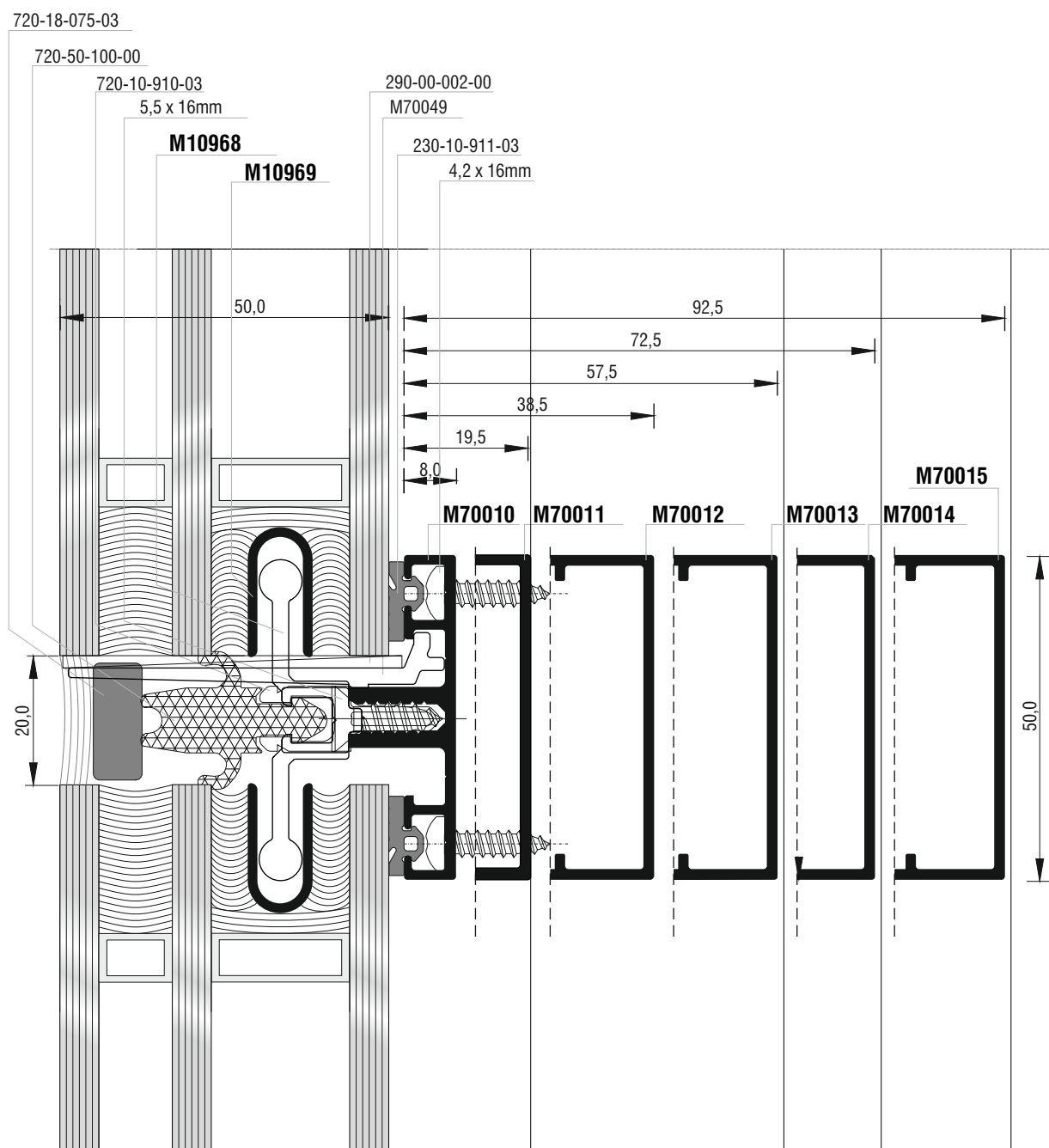


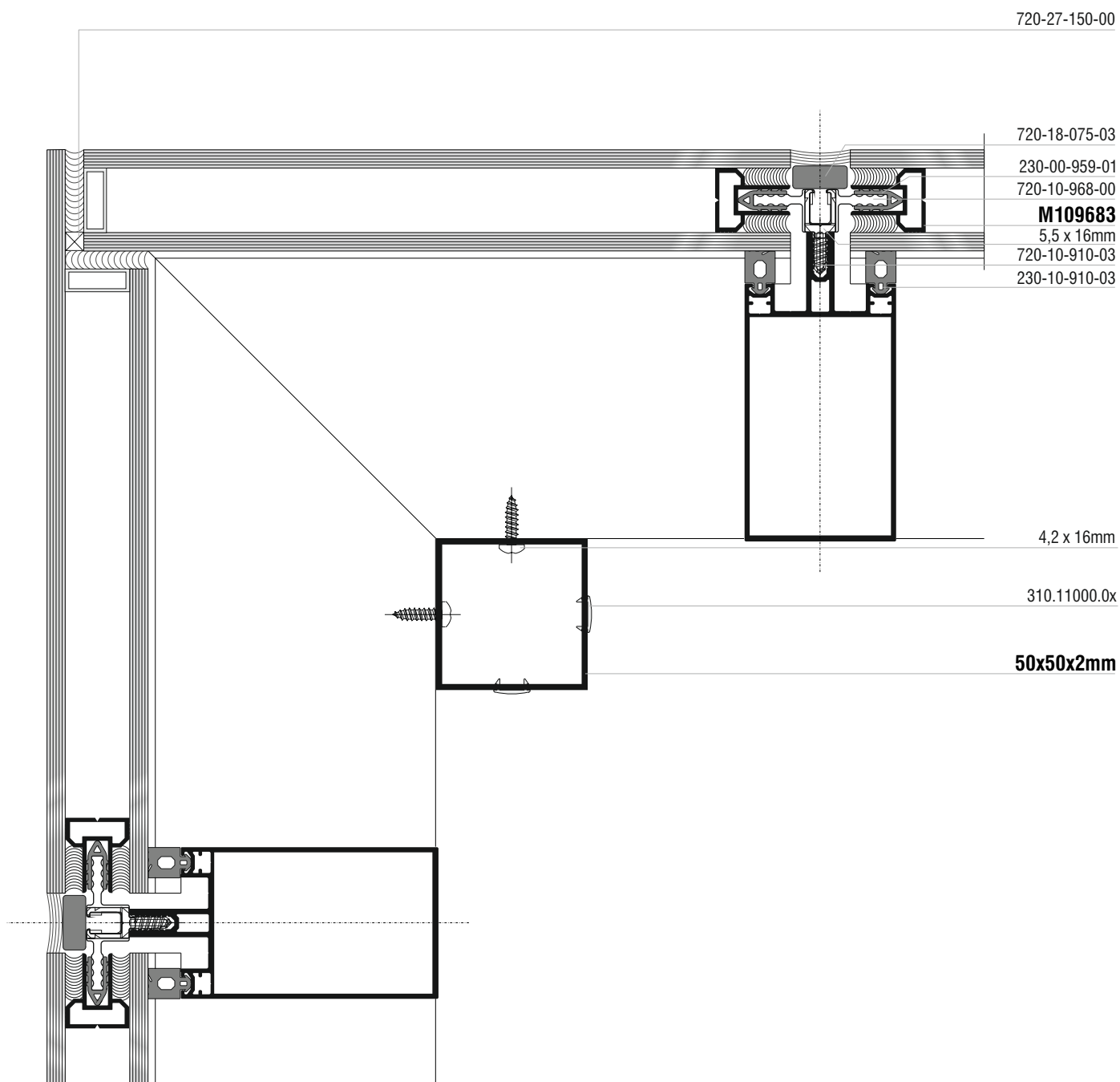


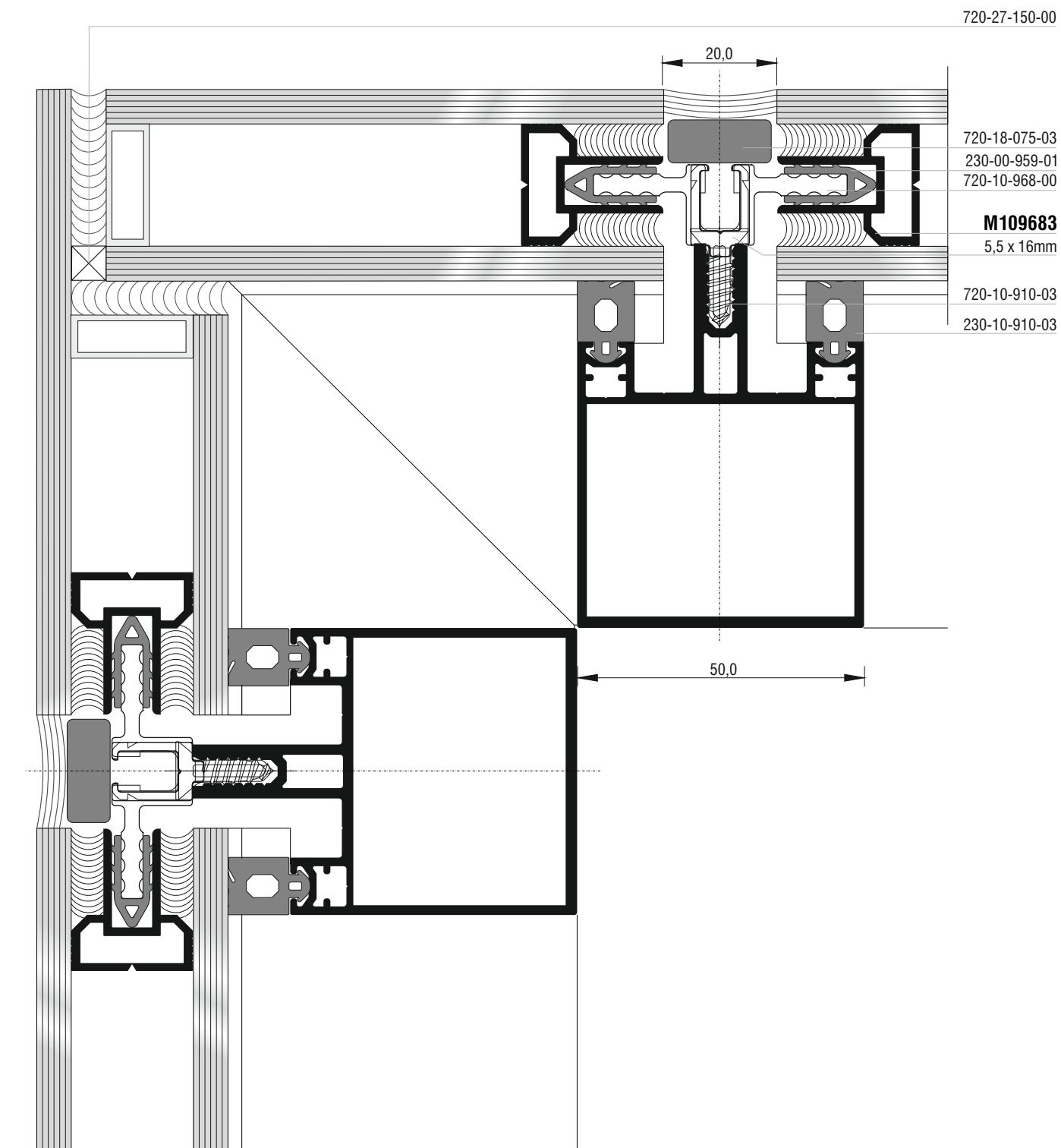


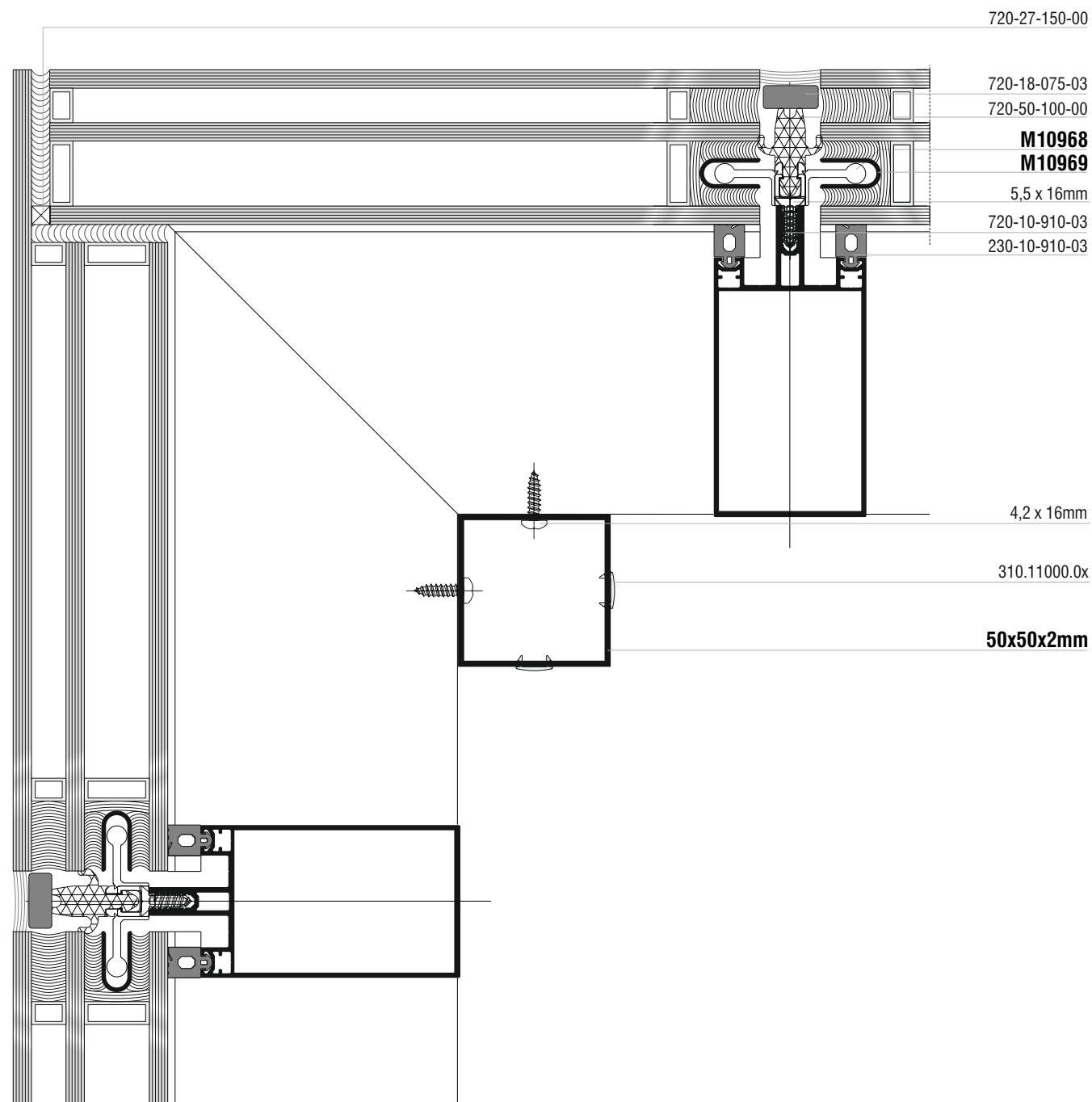


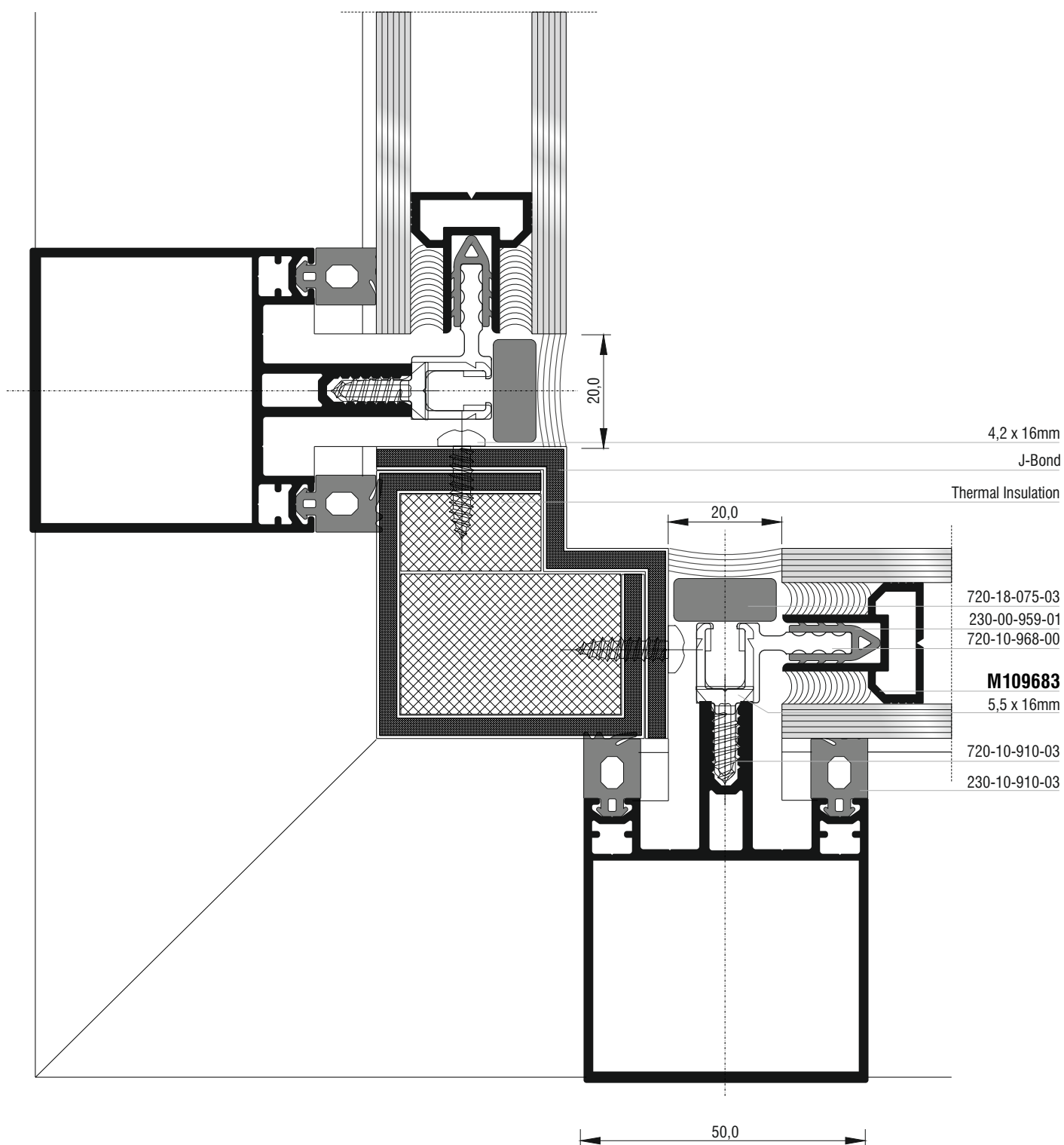


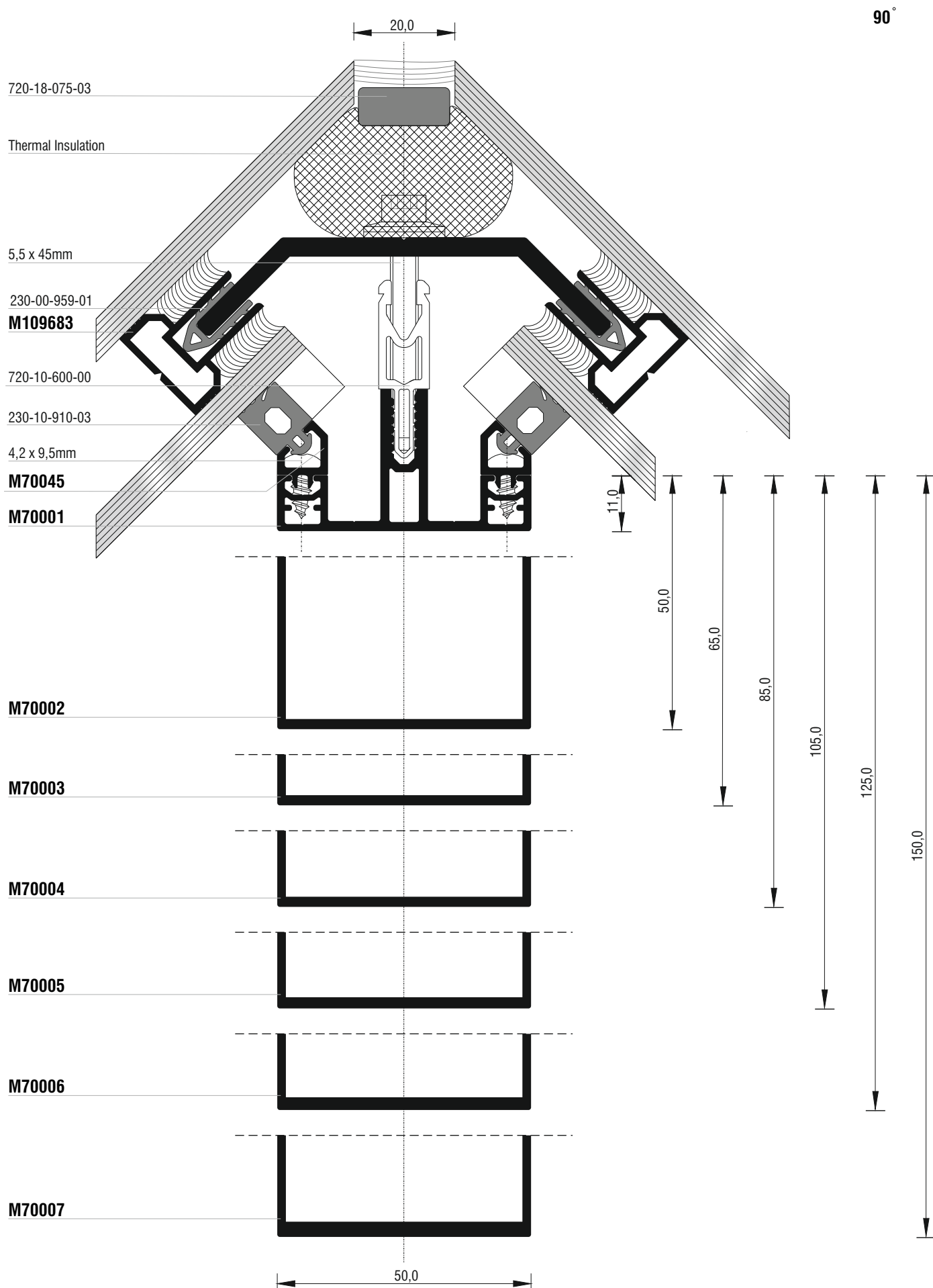




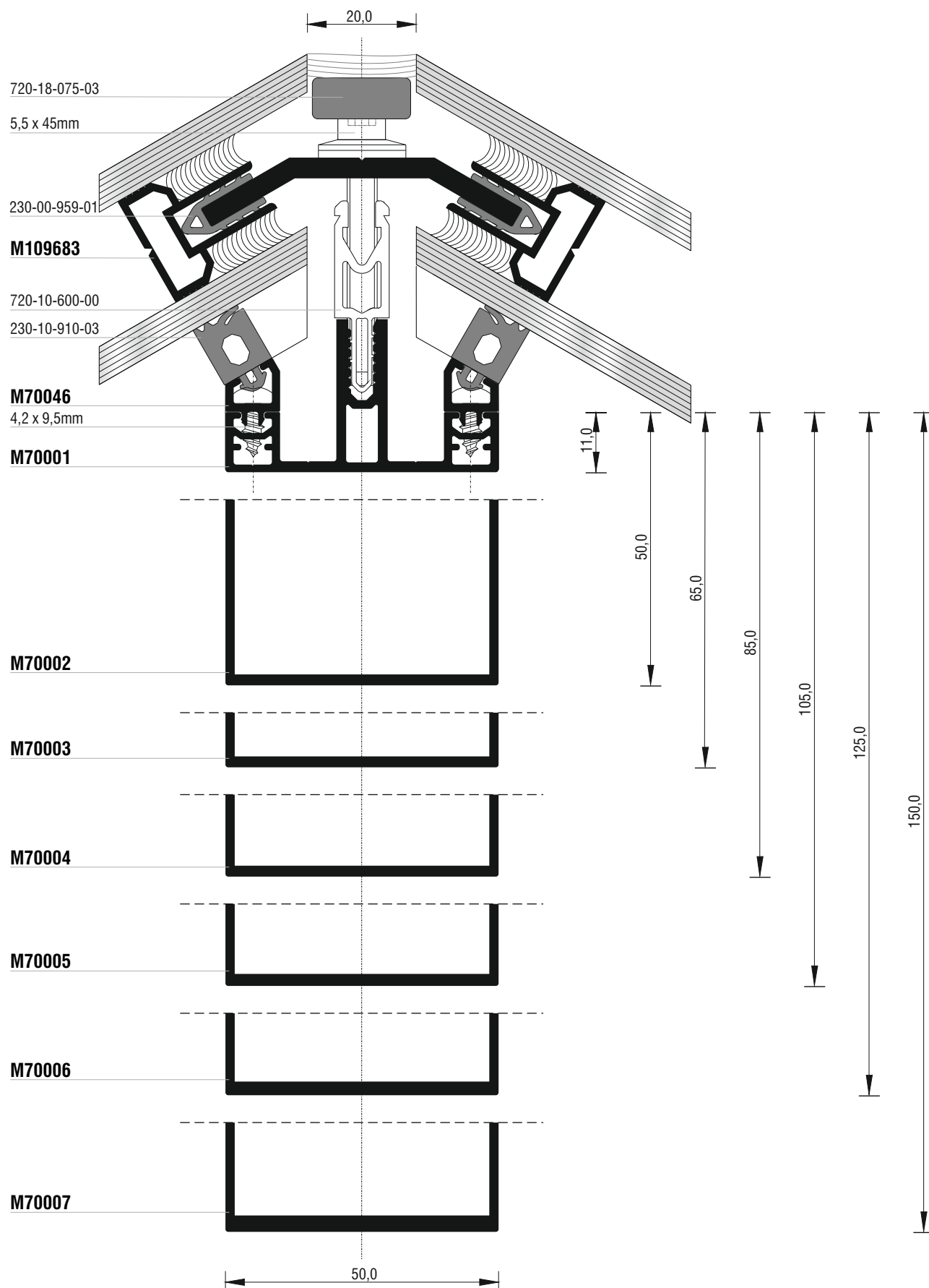




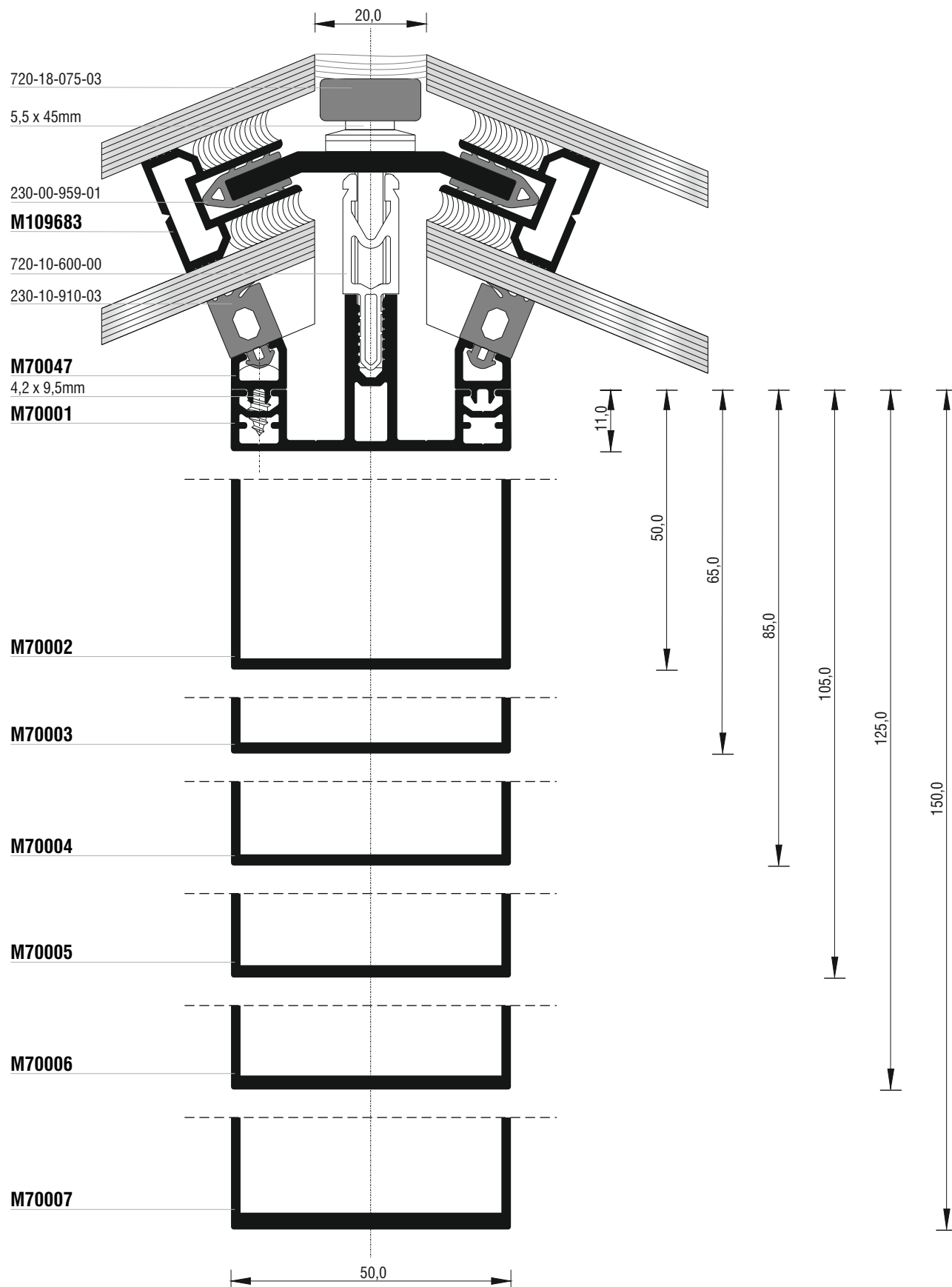




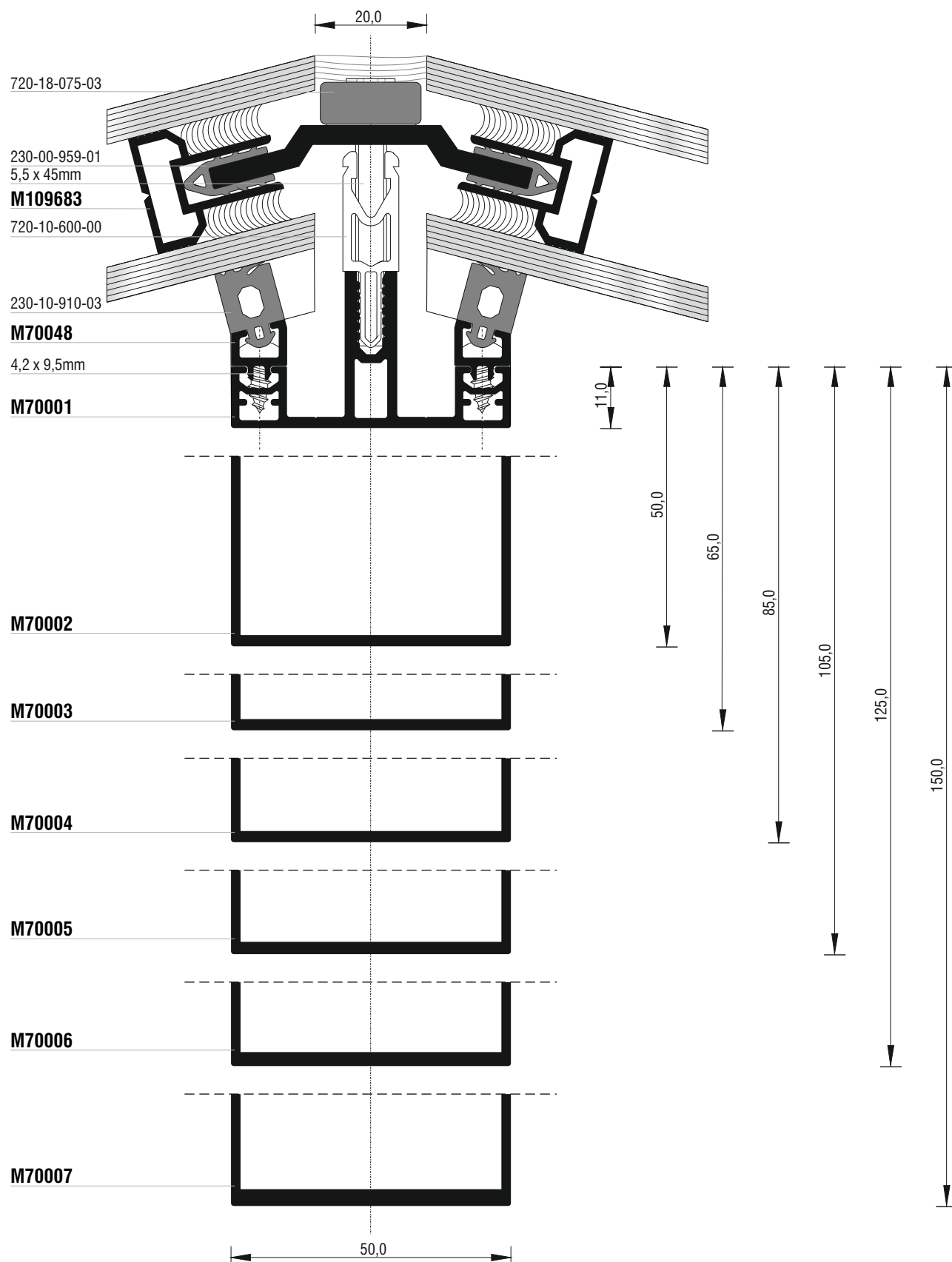
120°

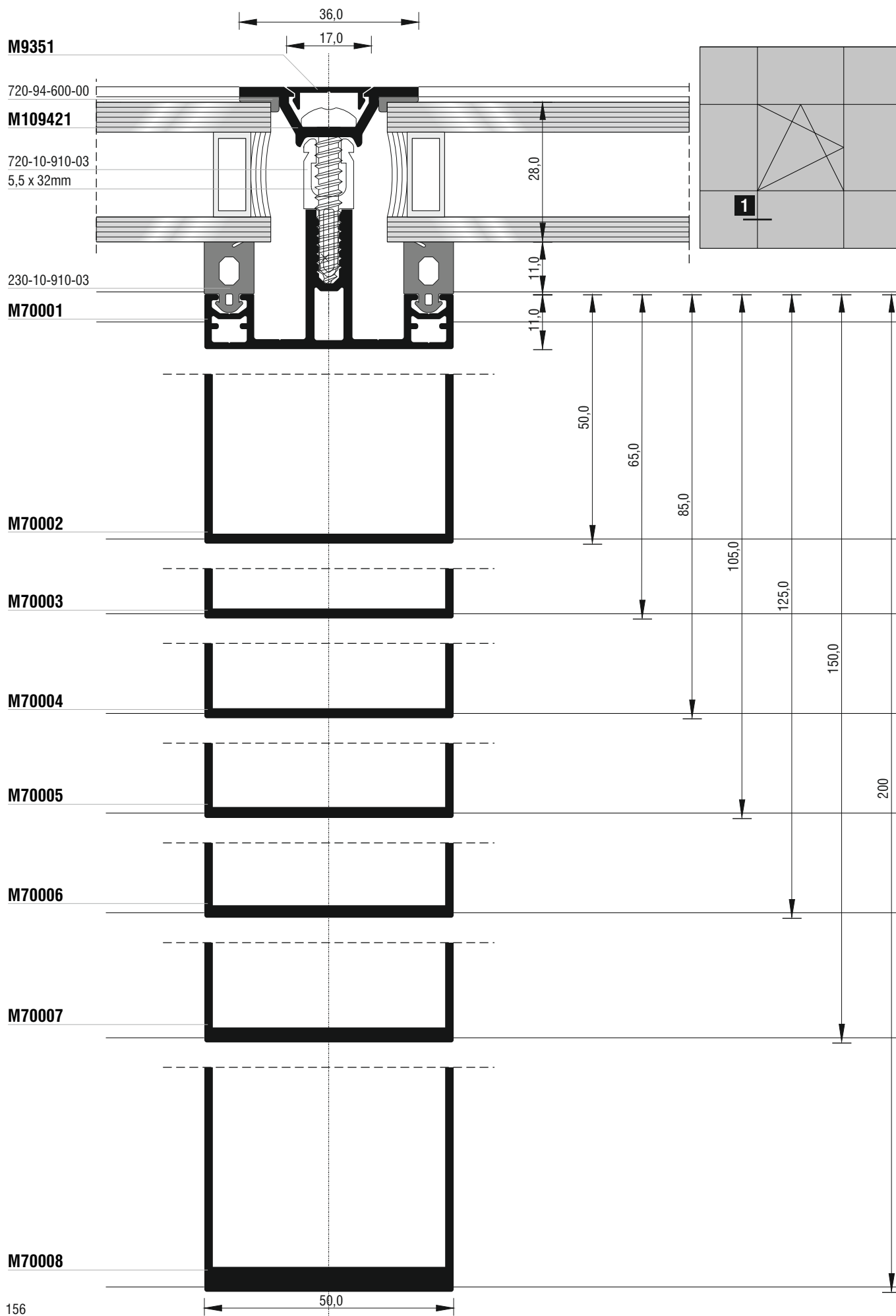


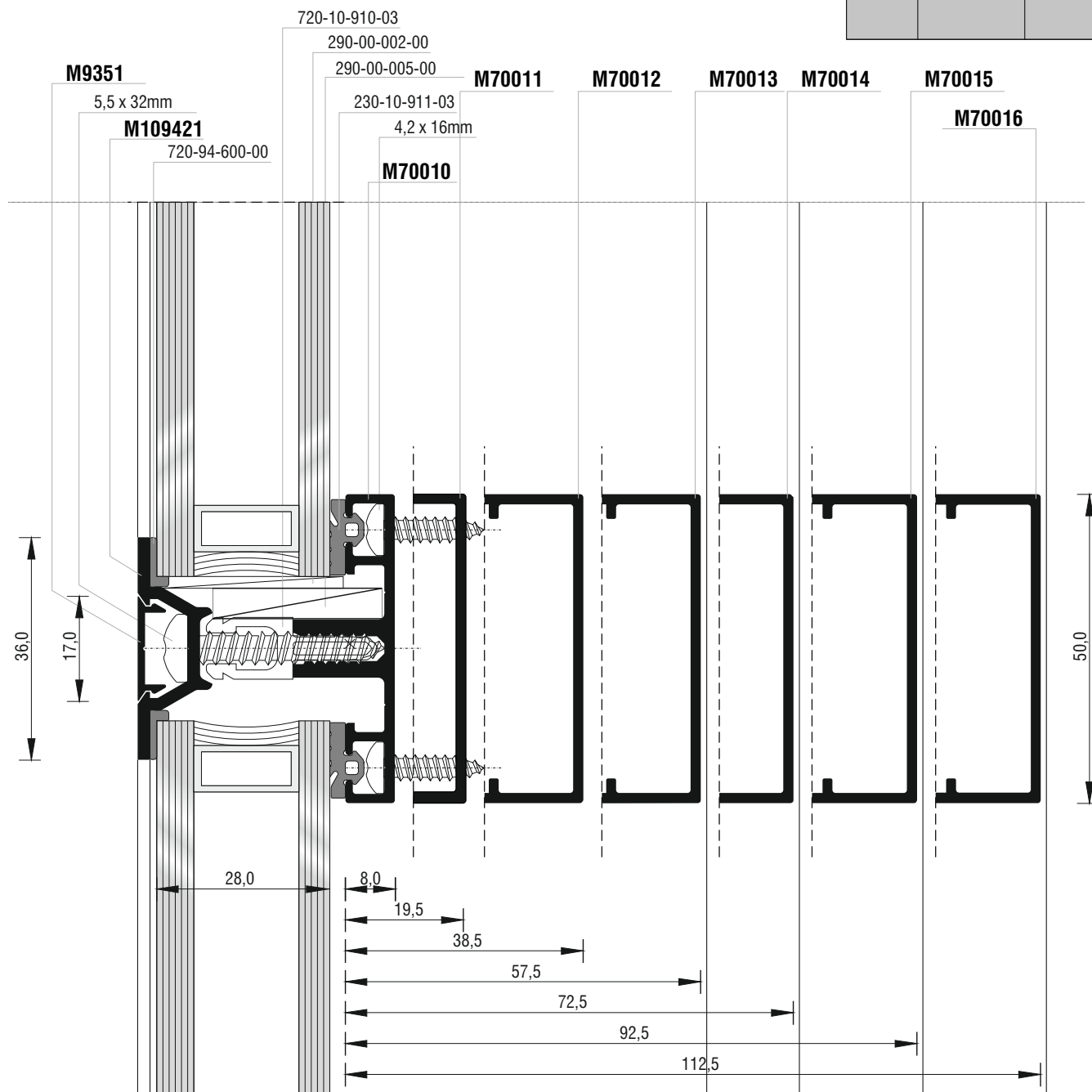
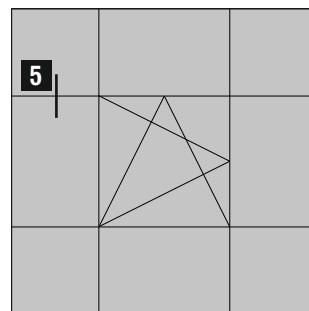
135°

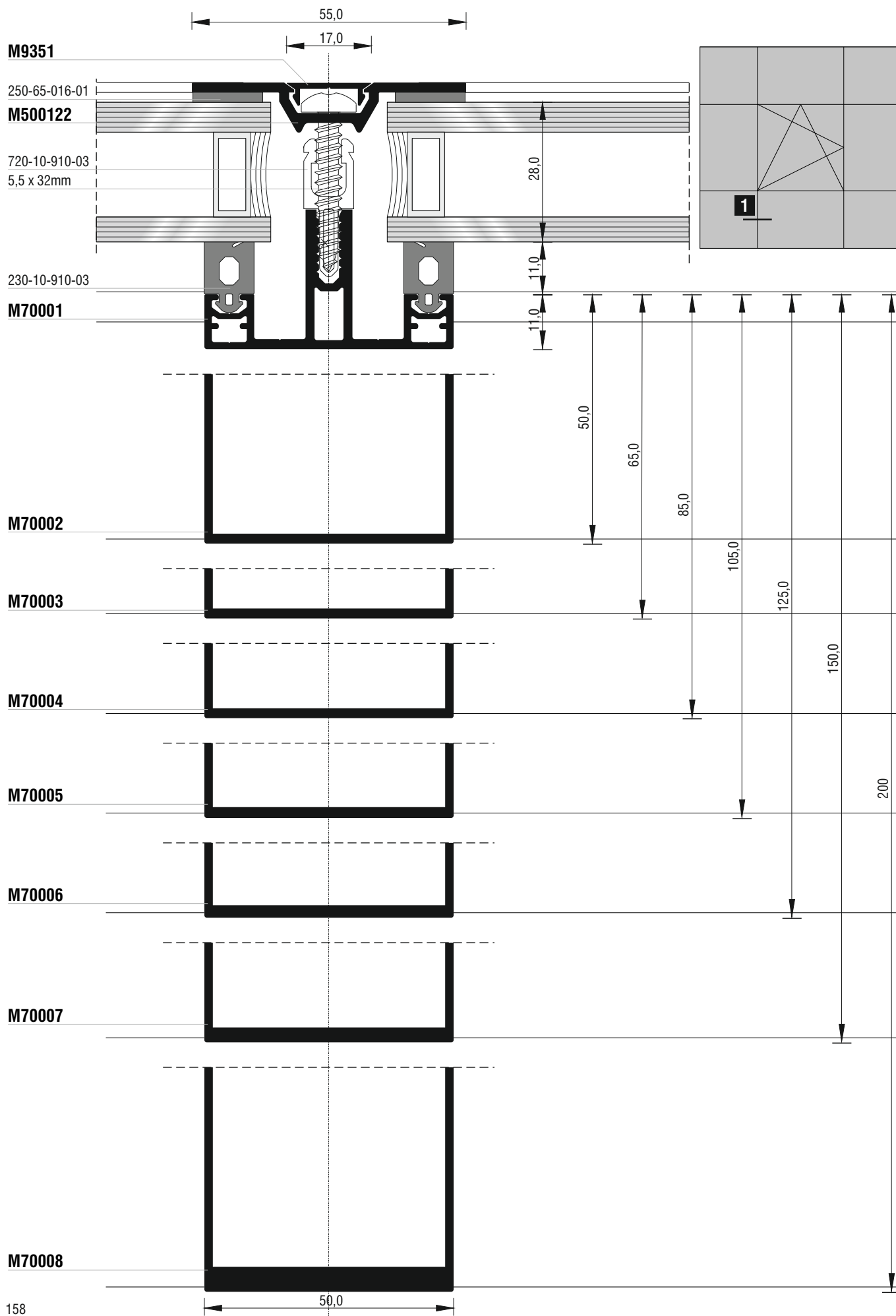


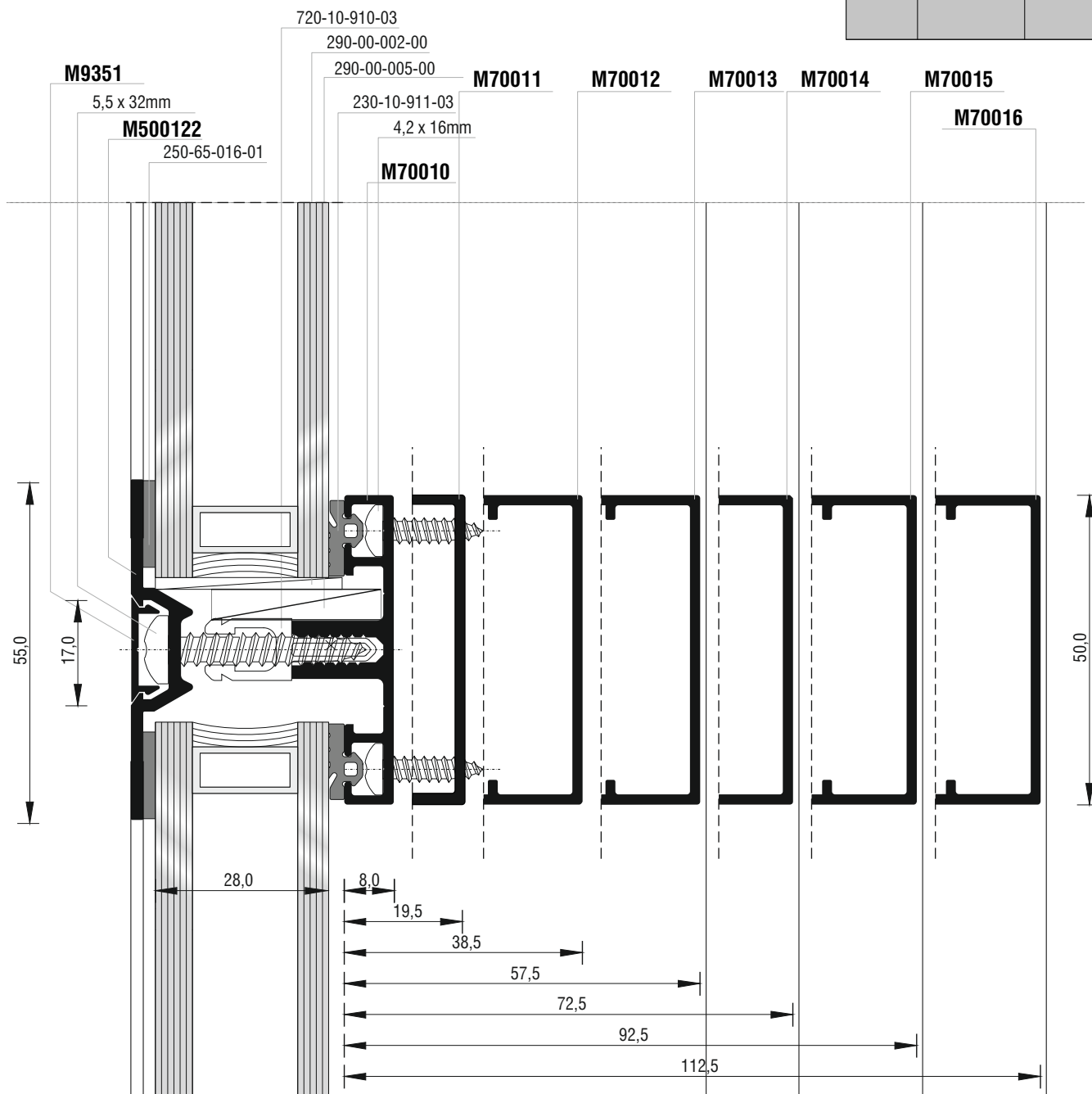
150°

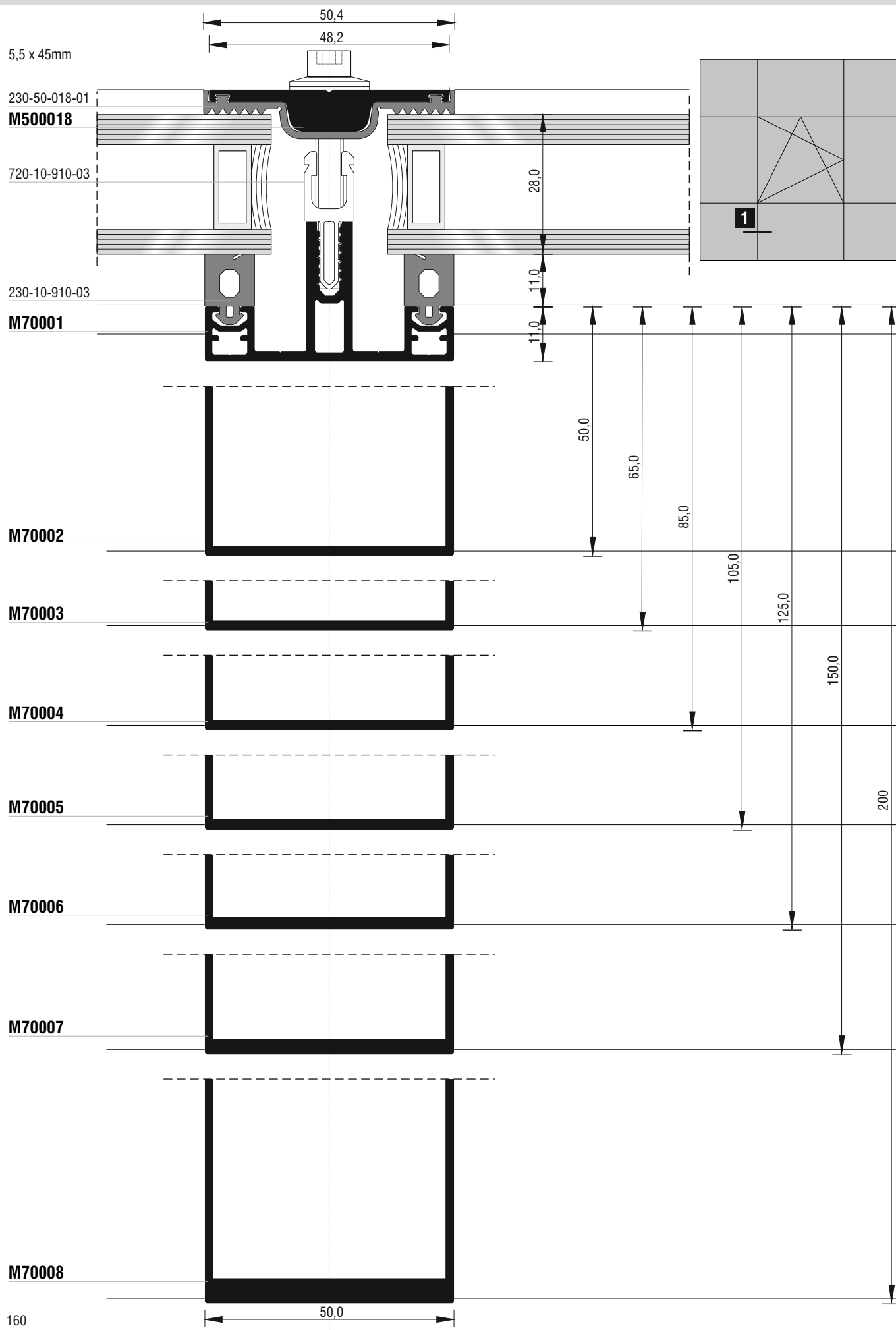


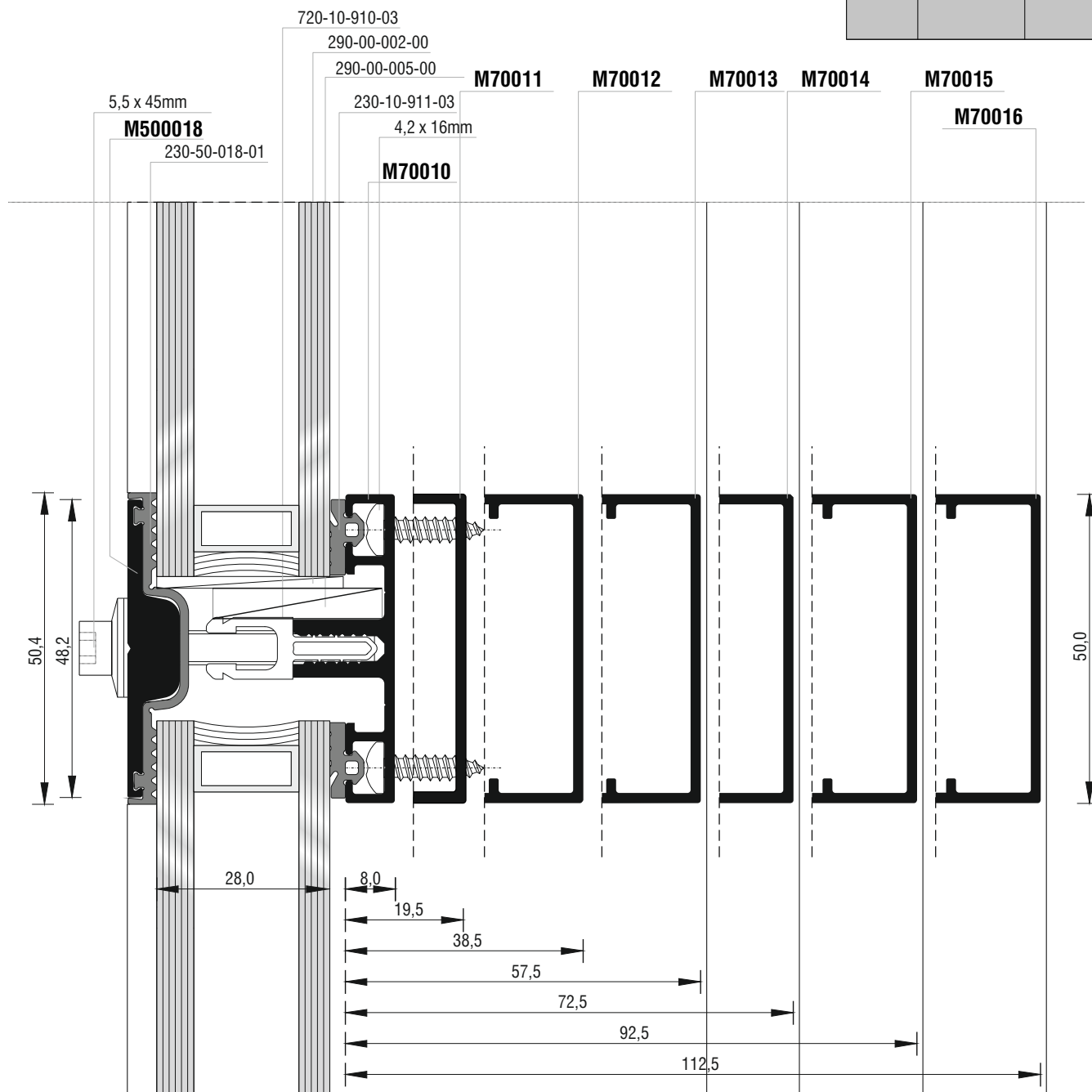
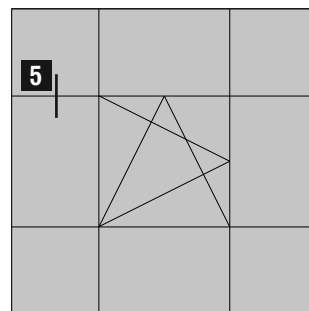


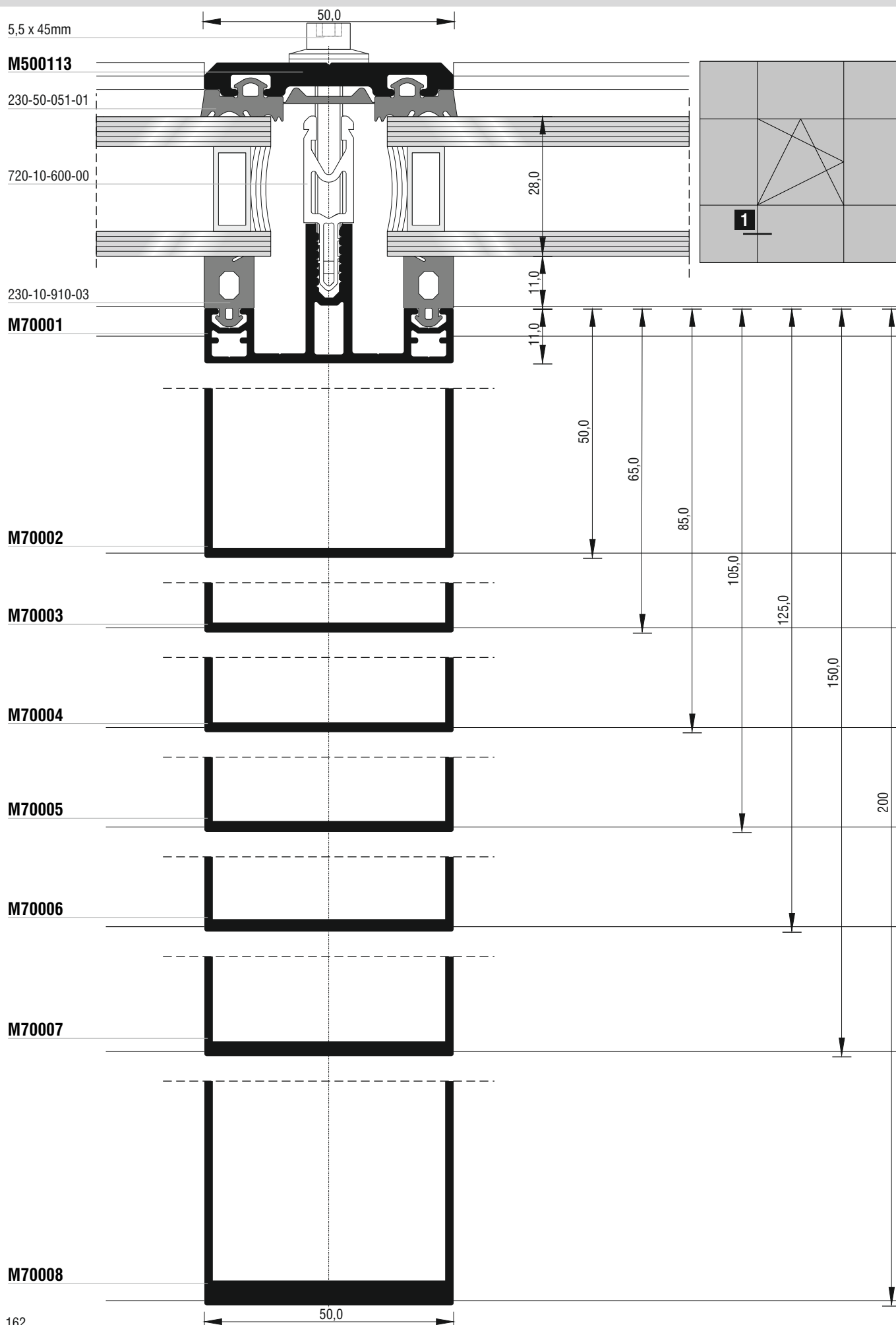


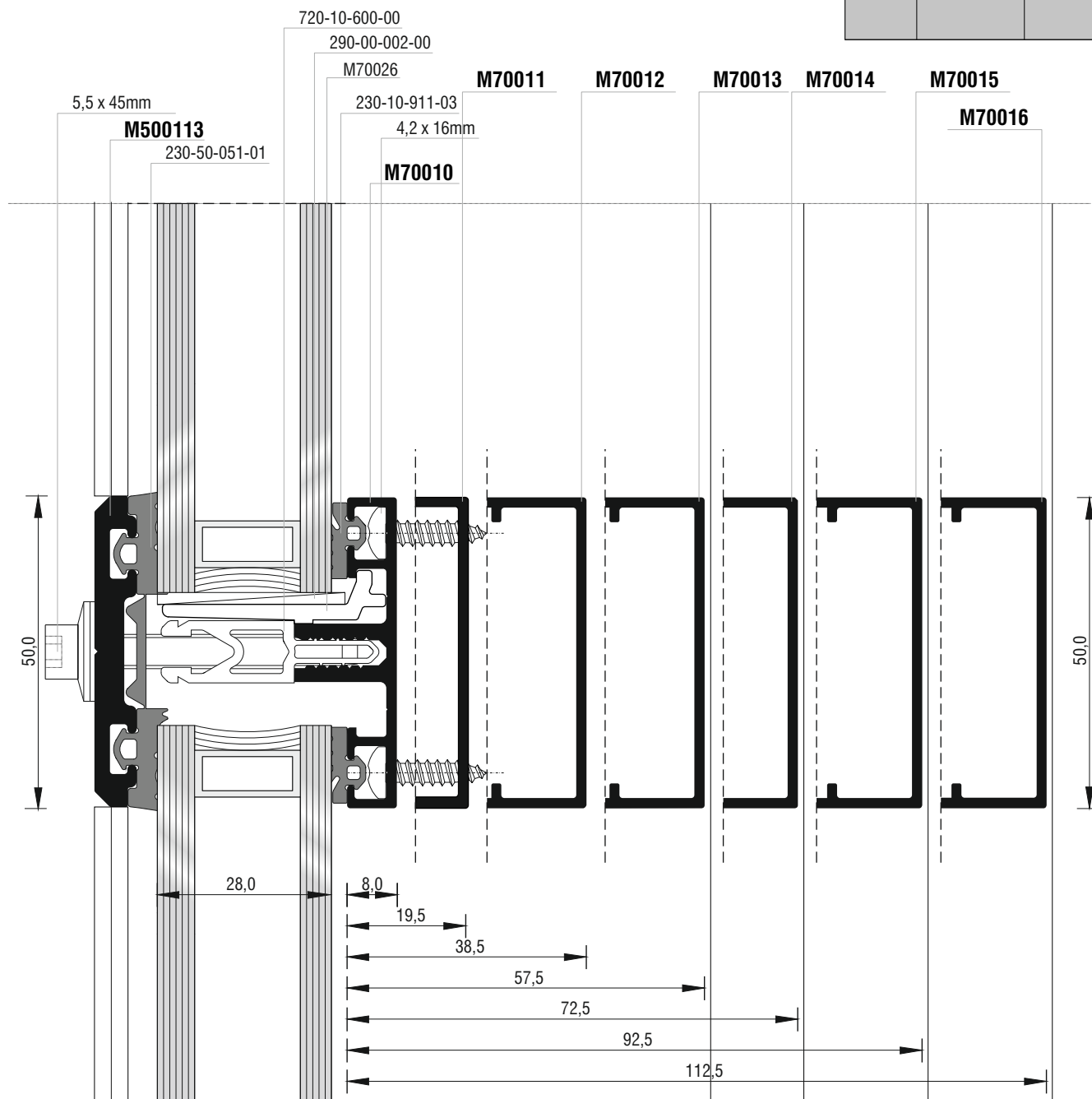


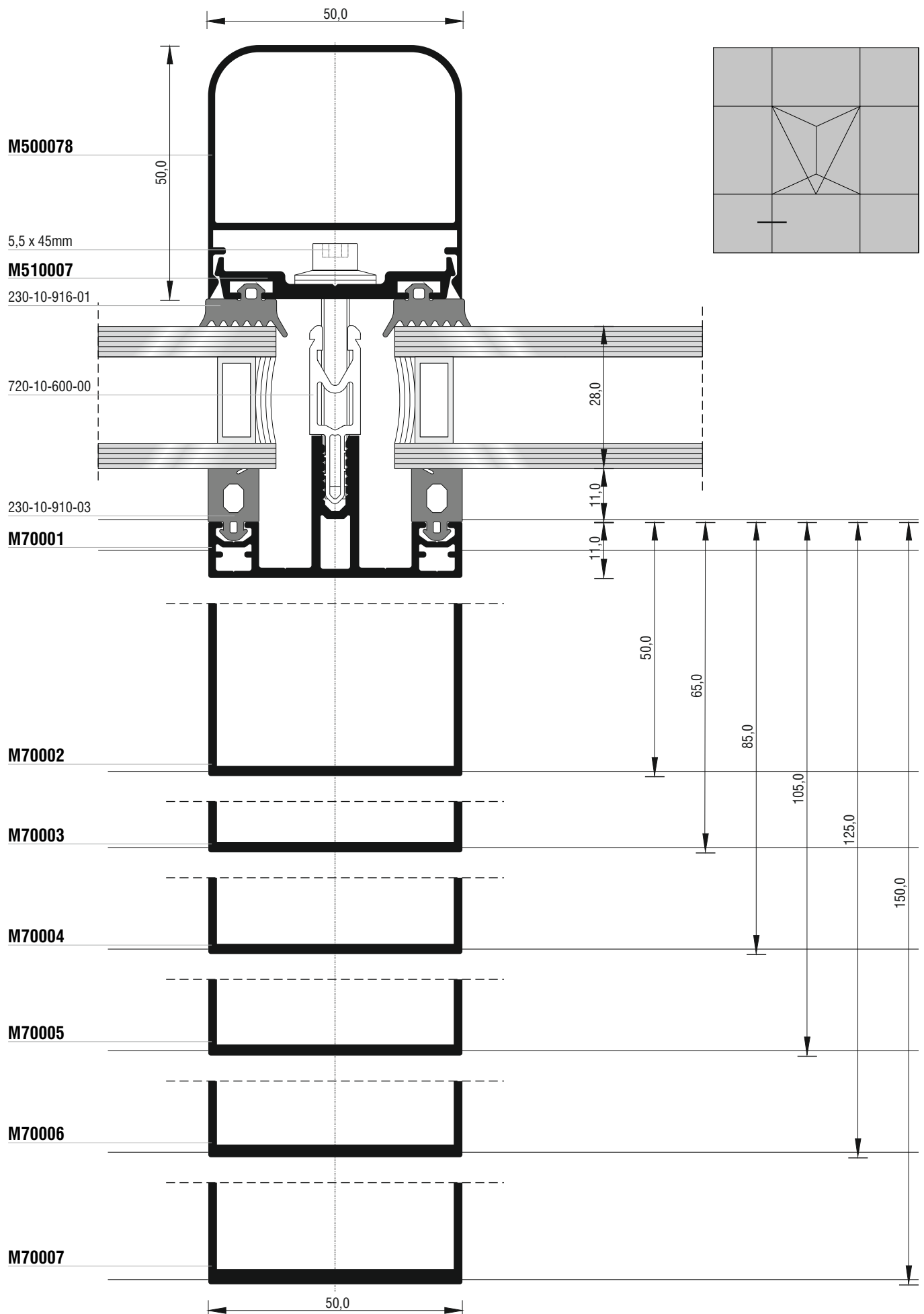


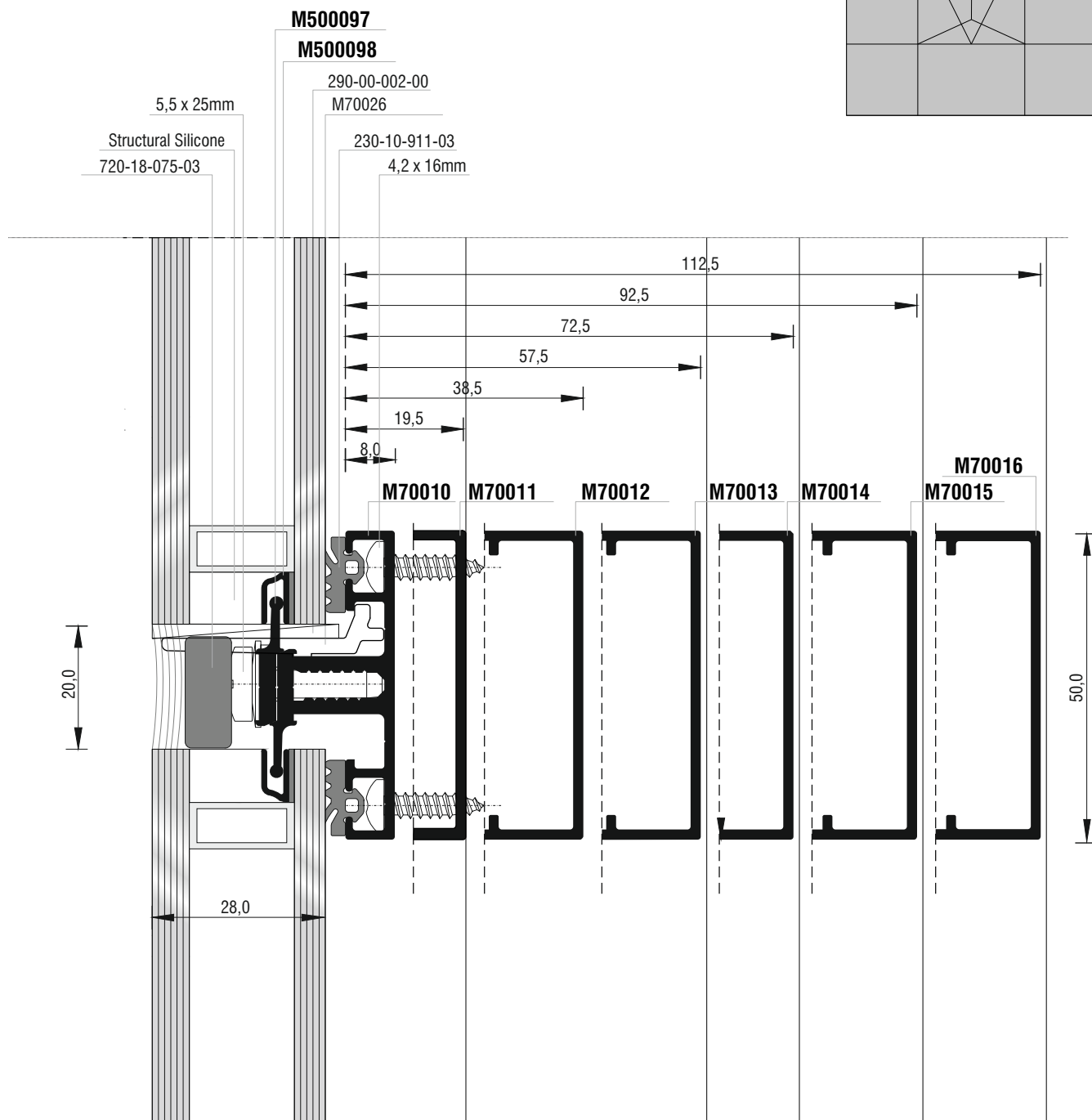


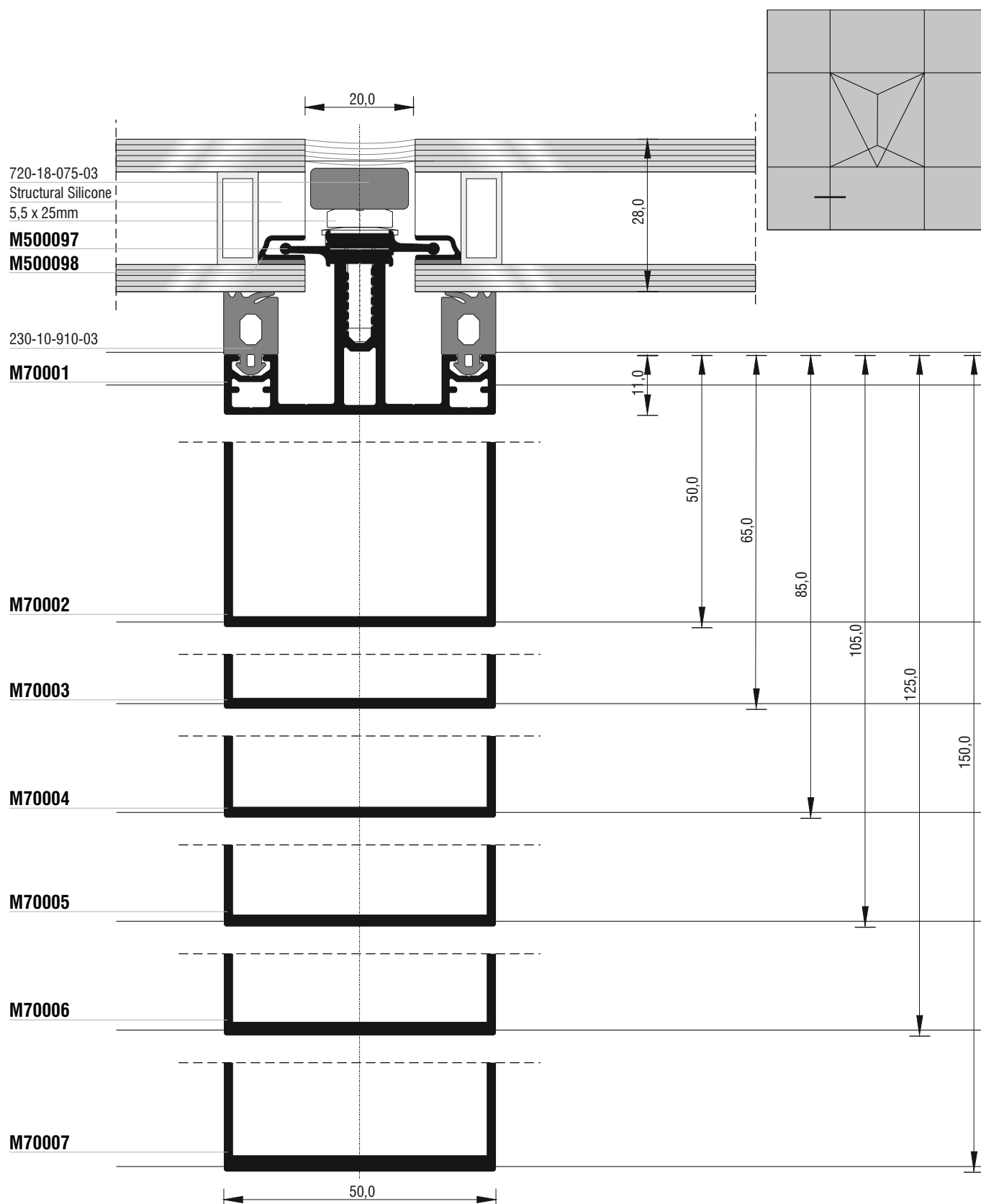


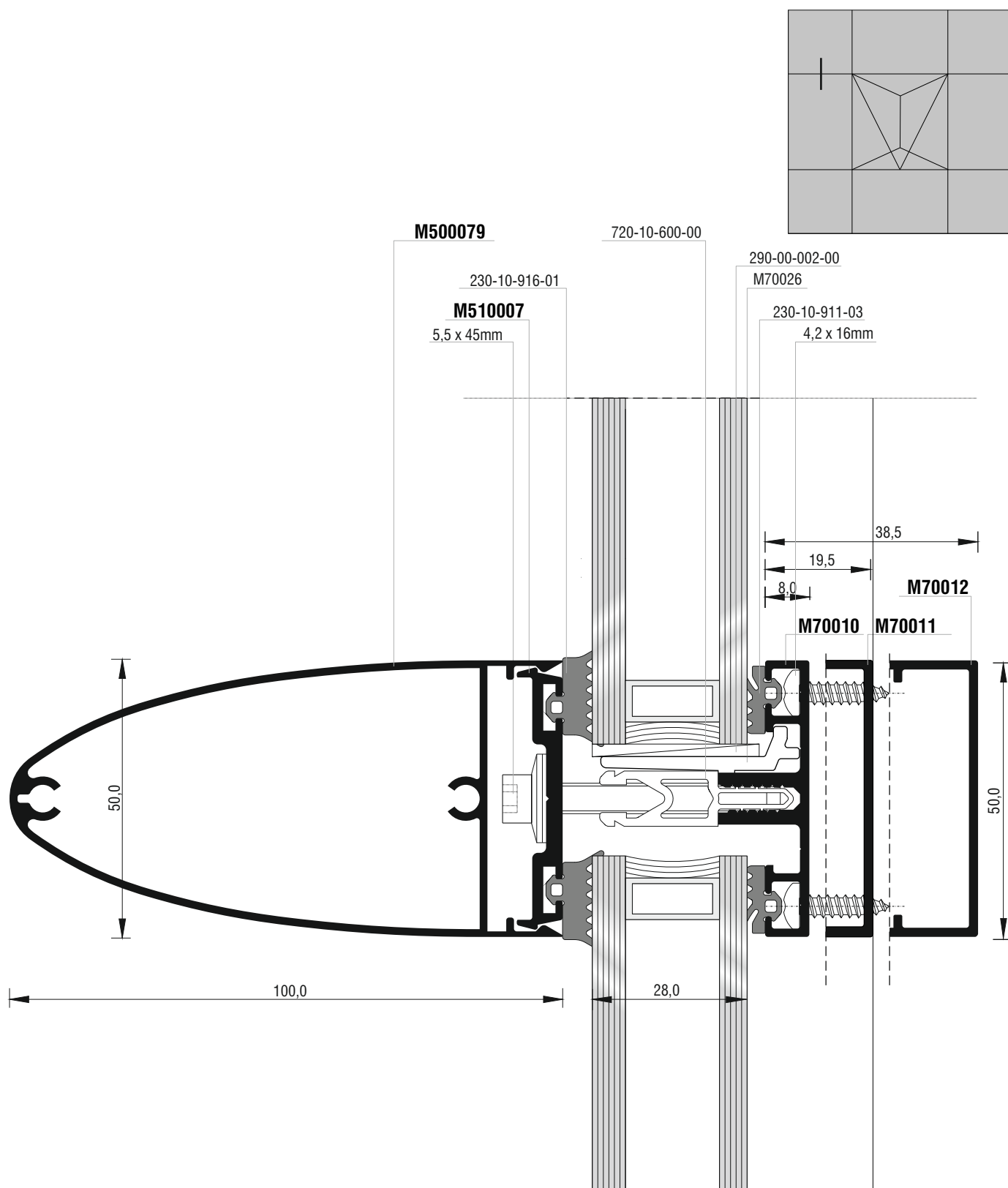


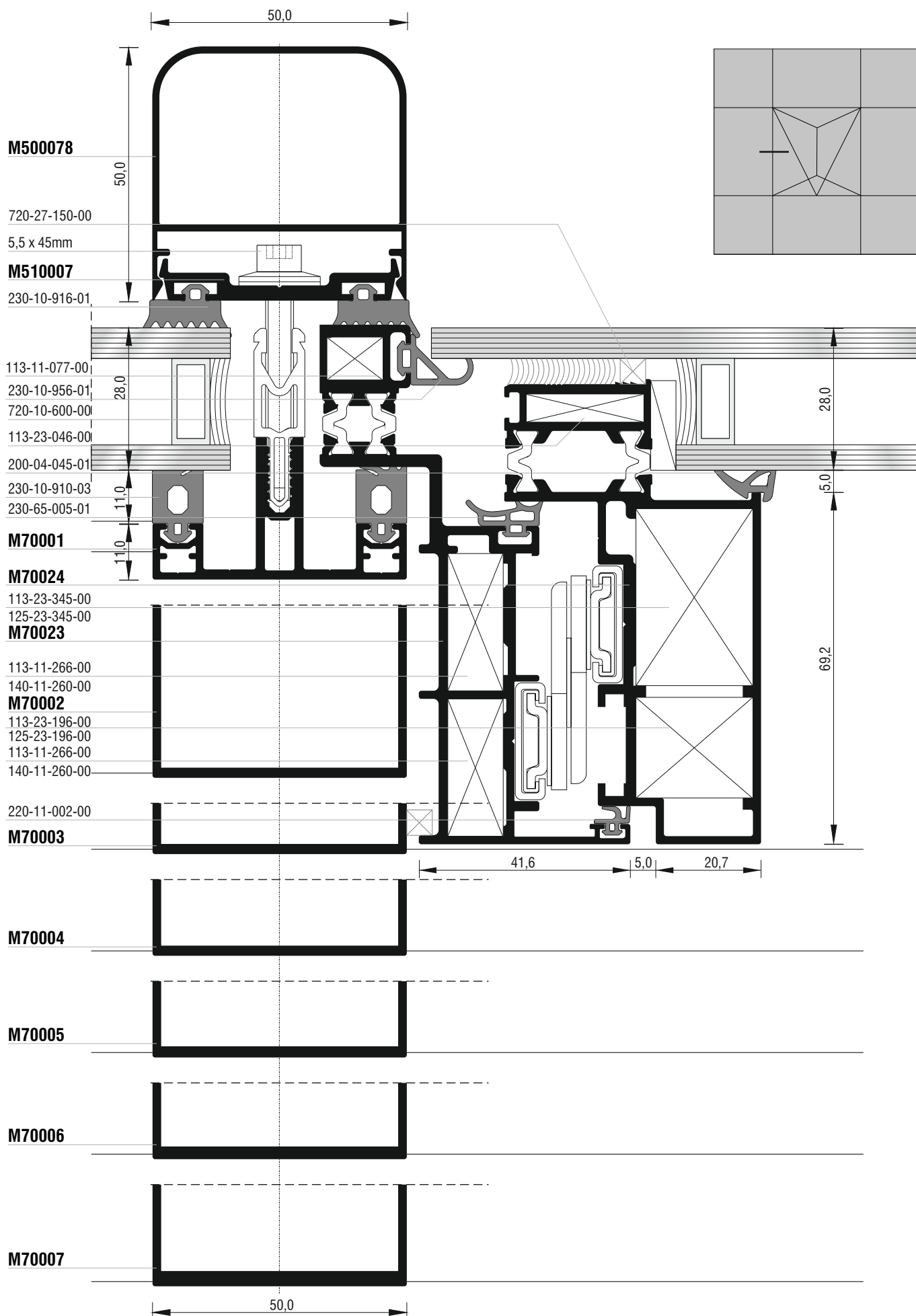


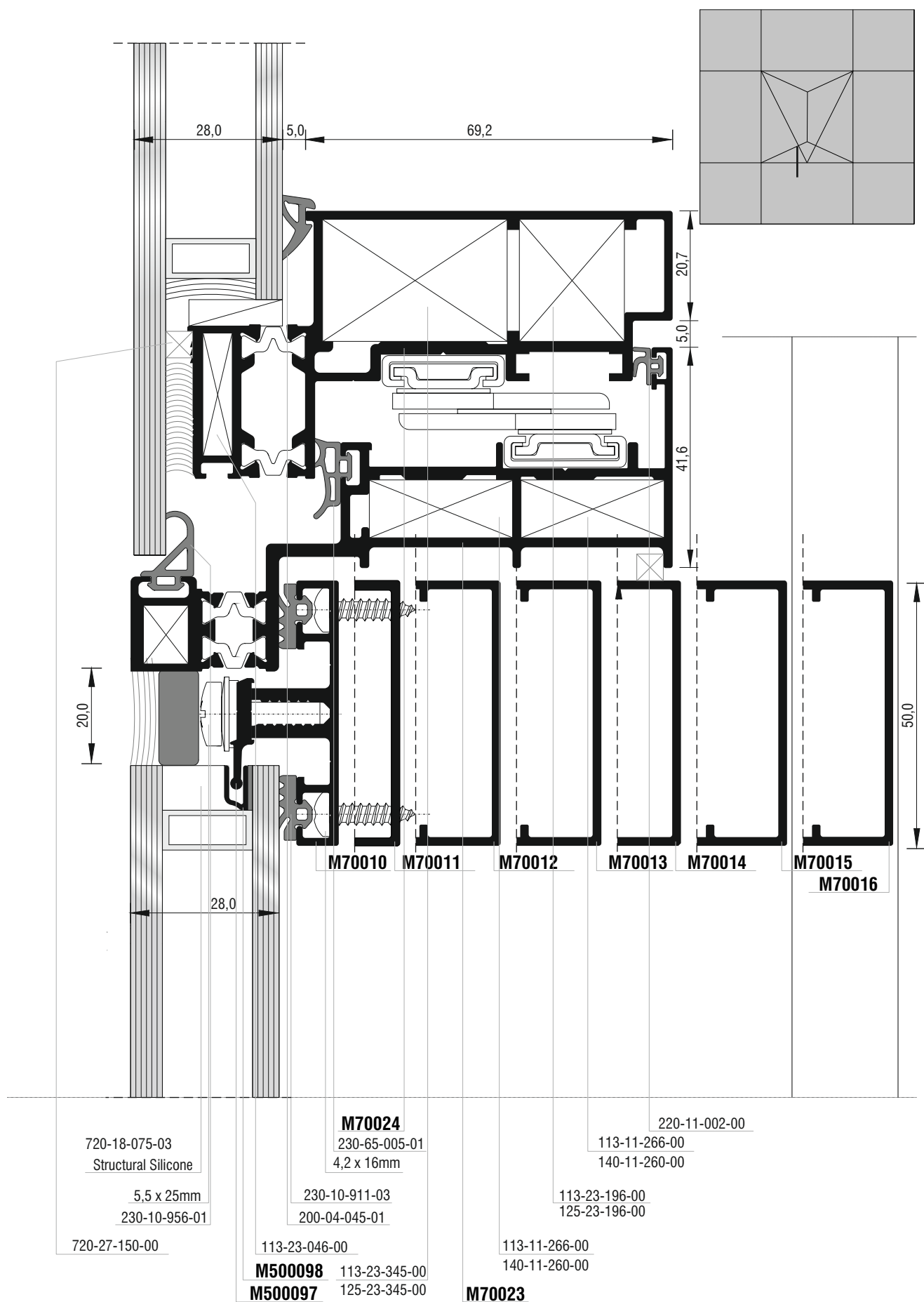


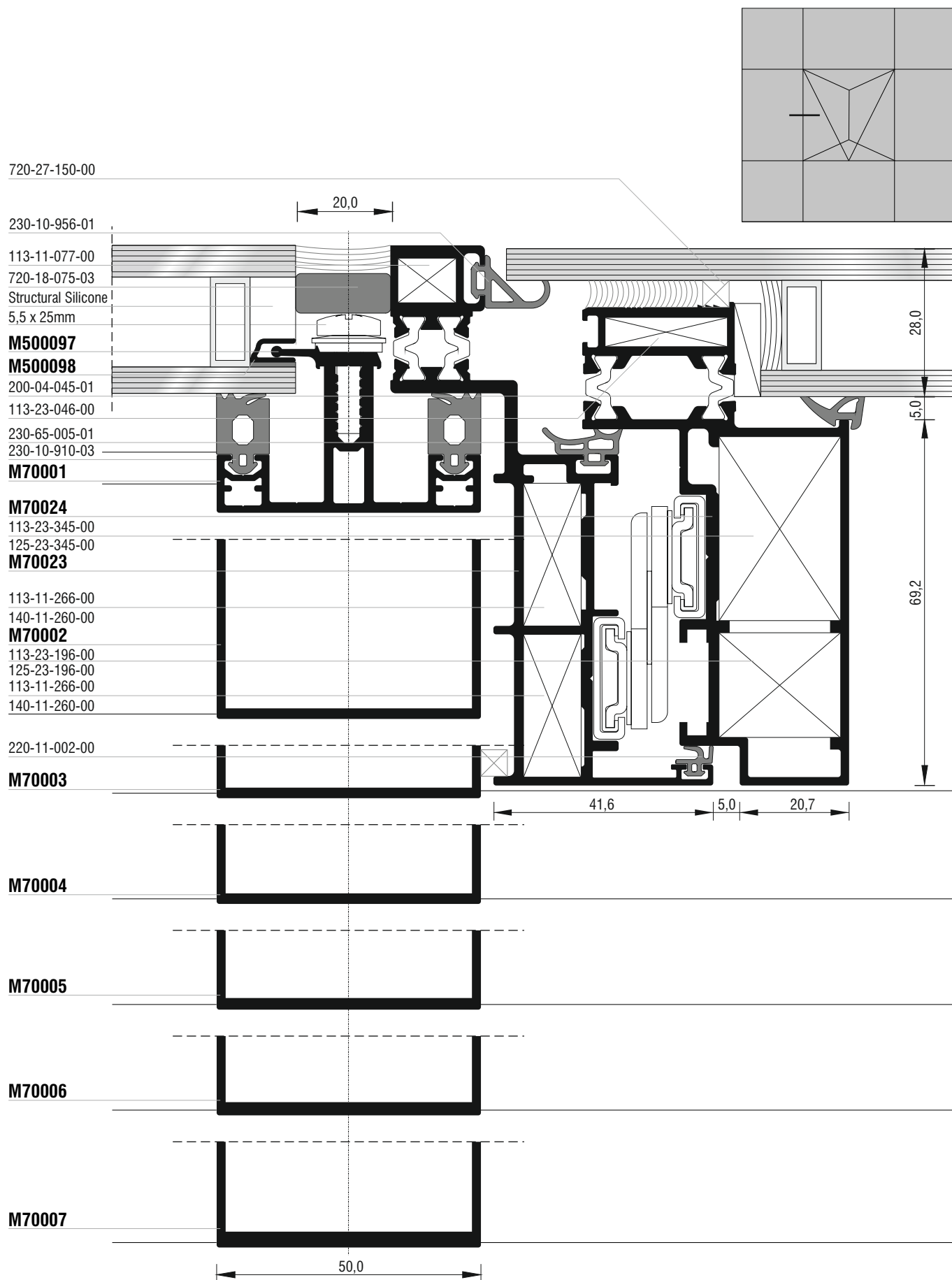


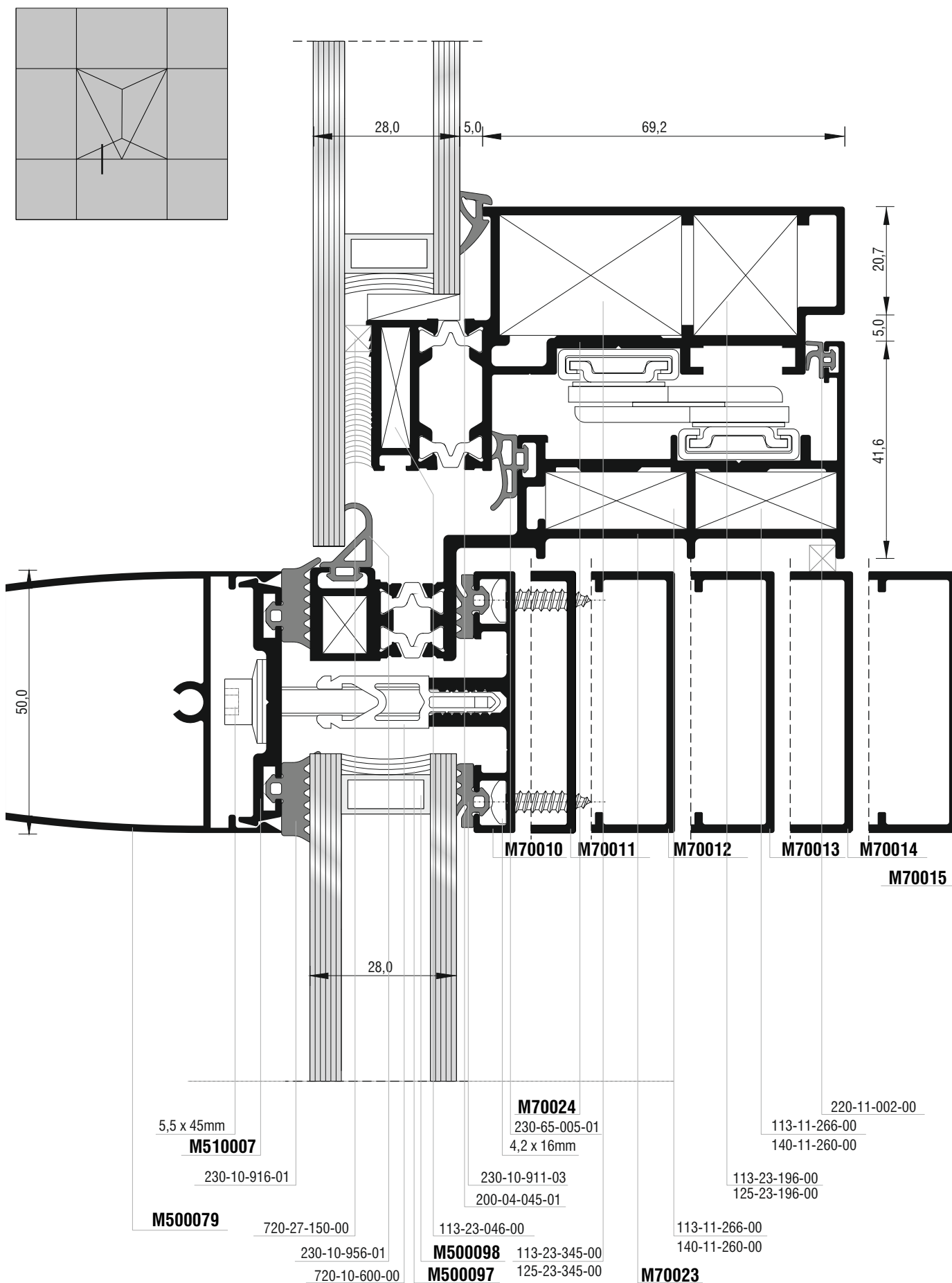


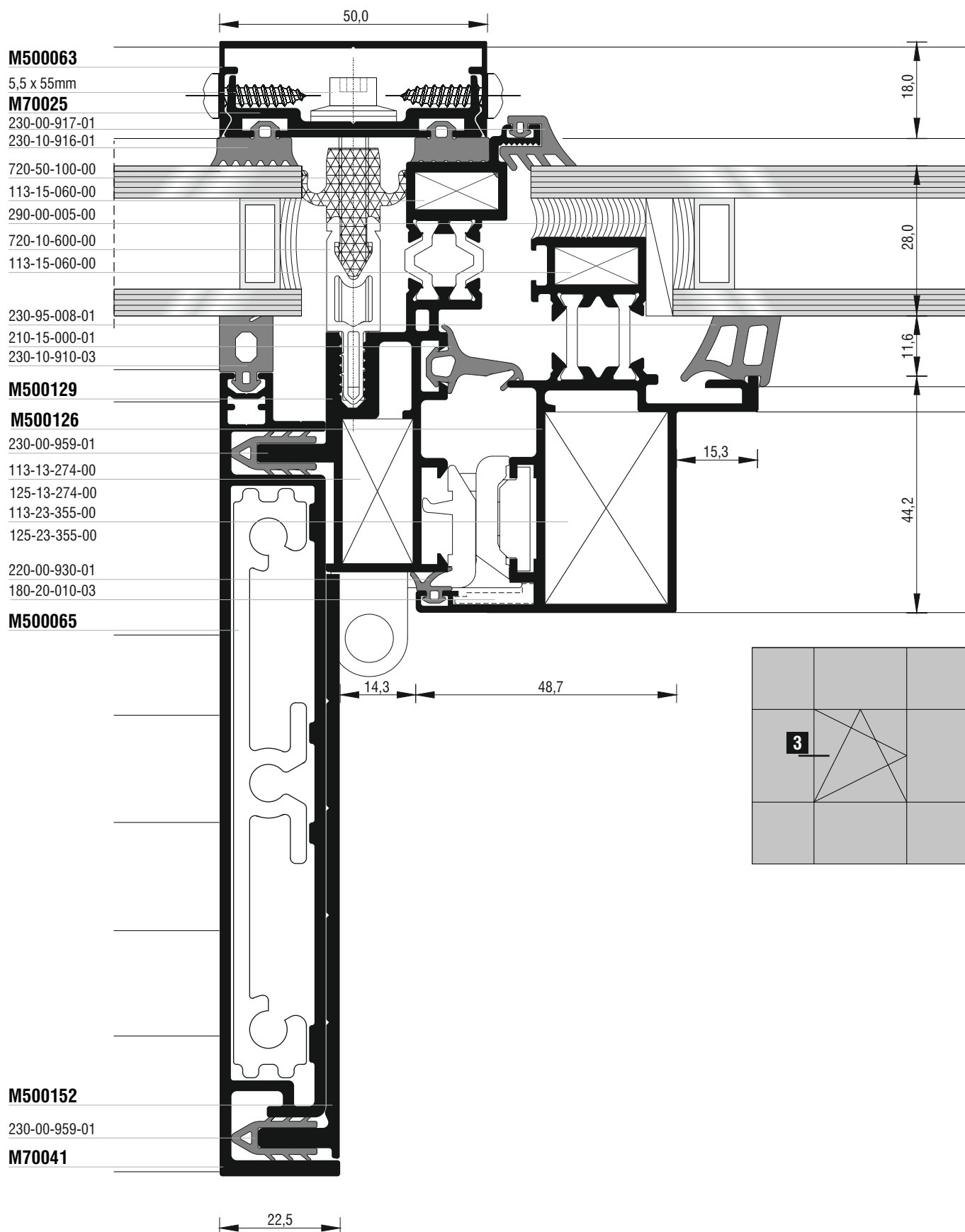


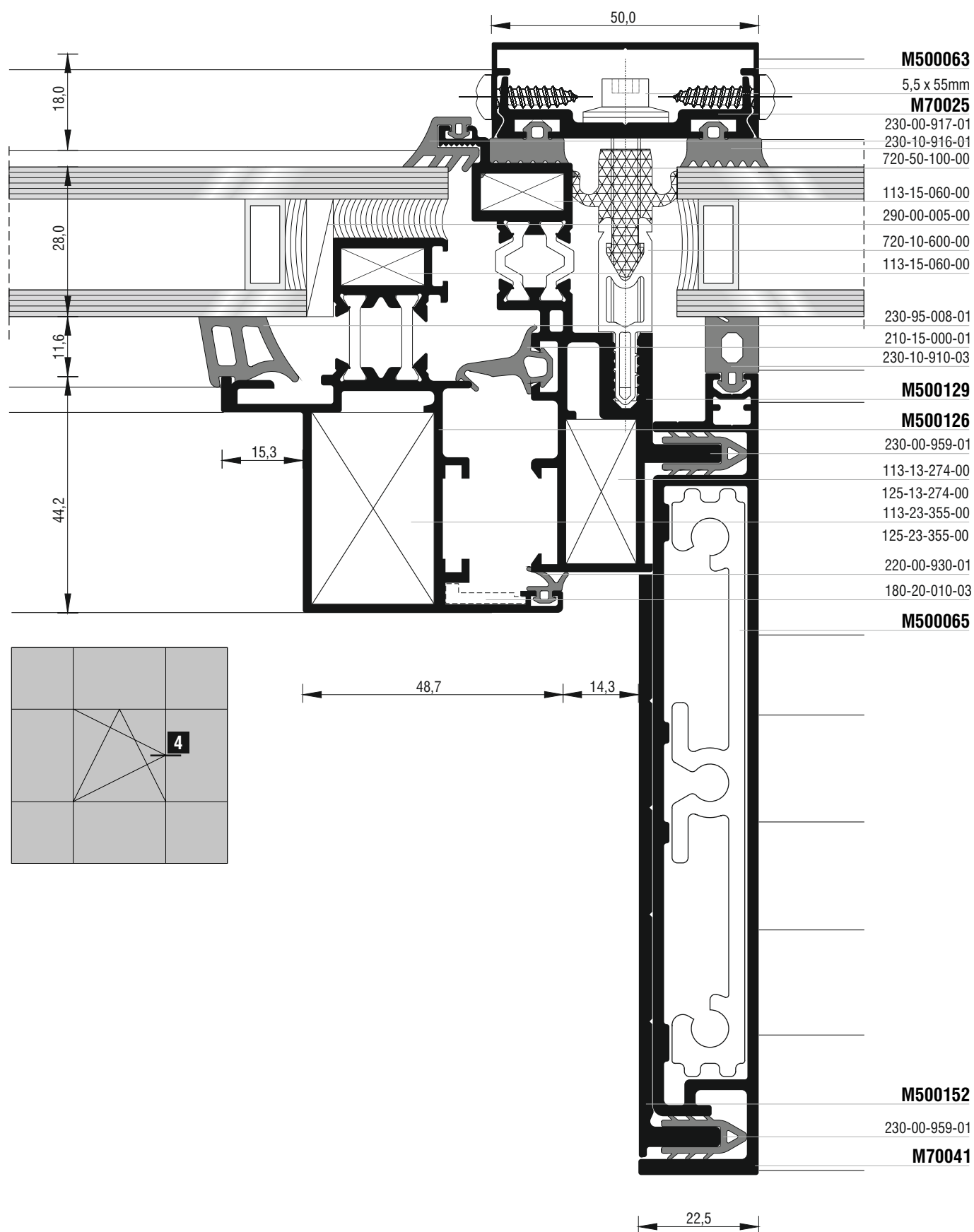


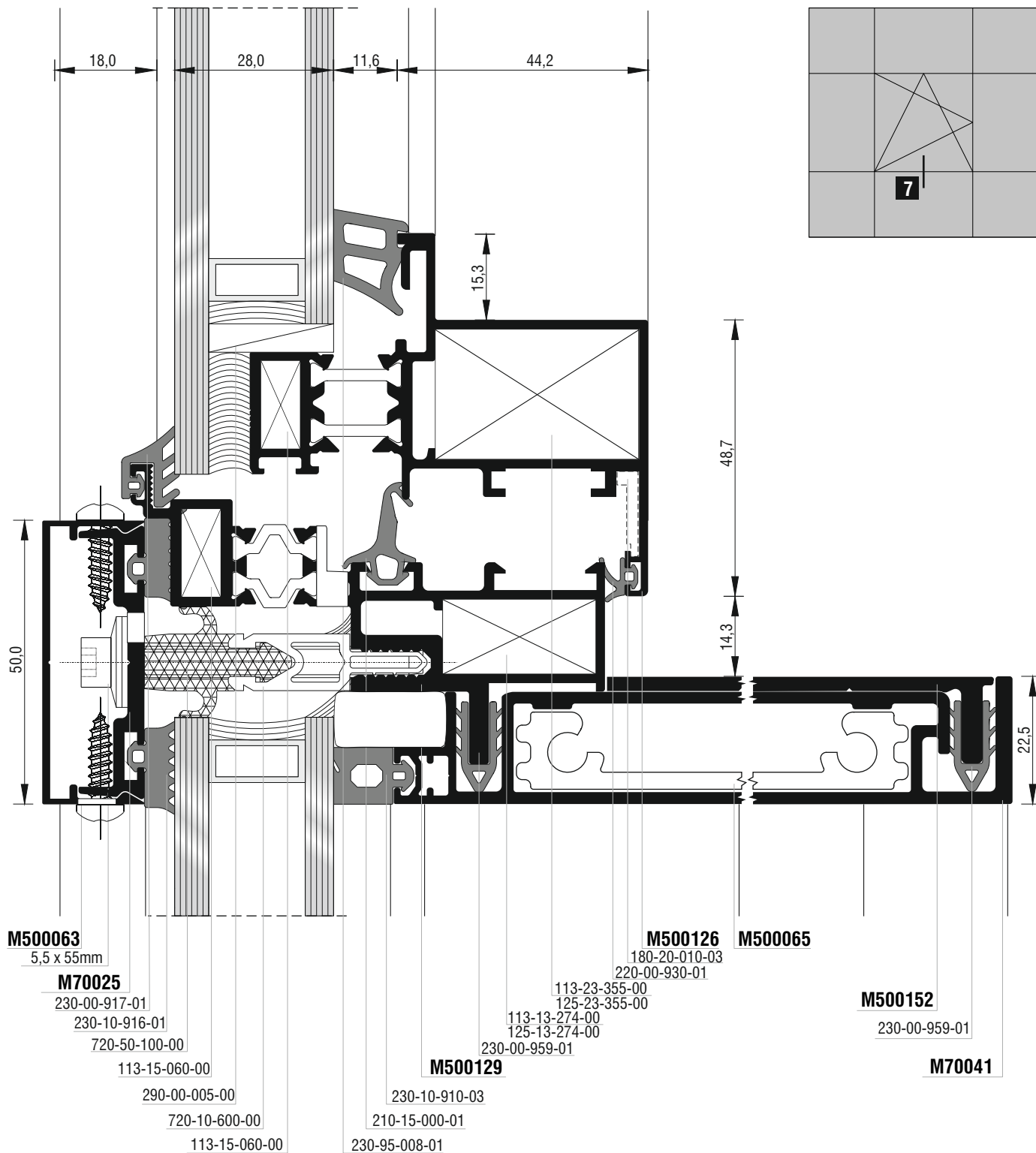


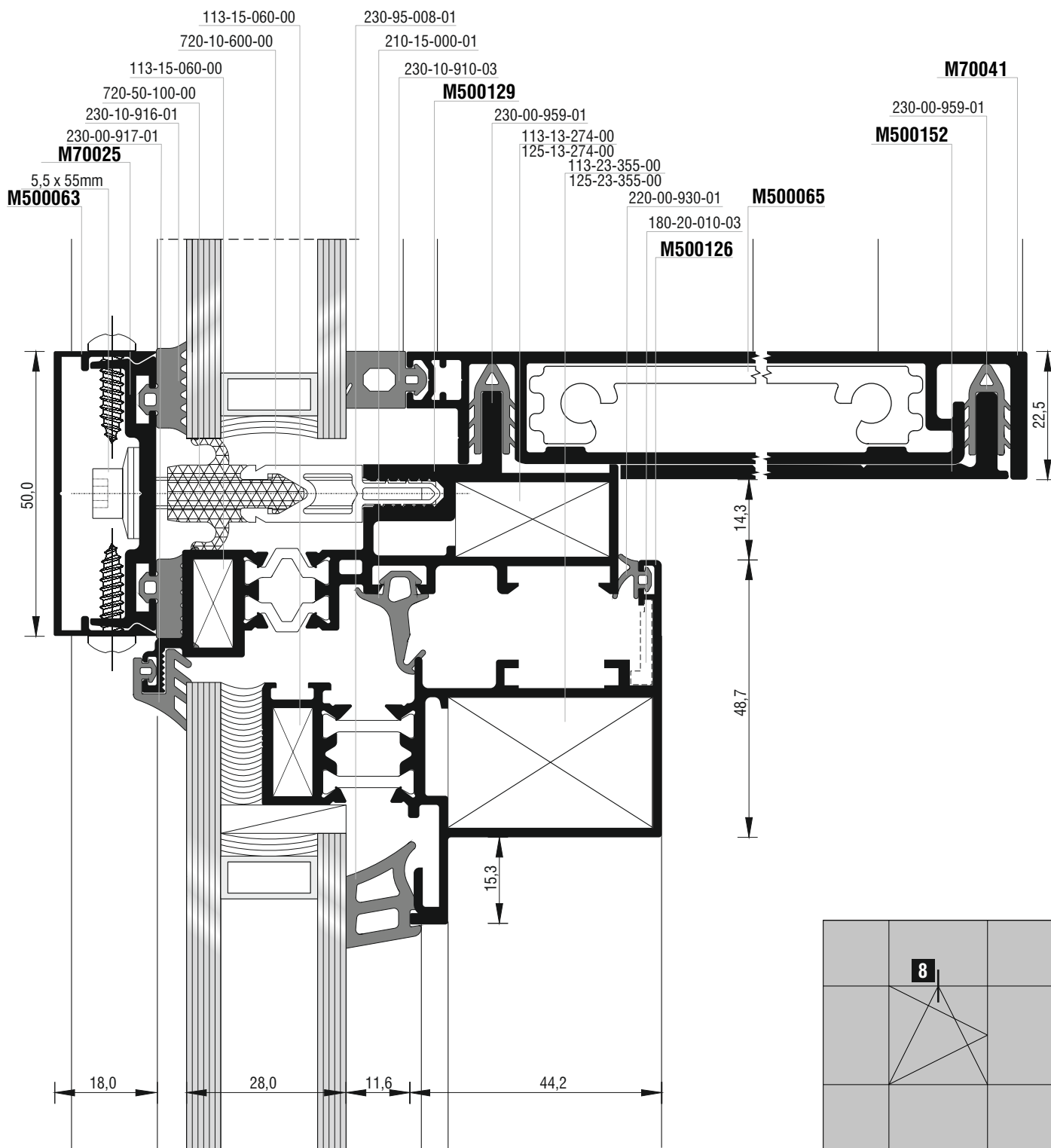


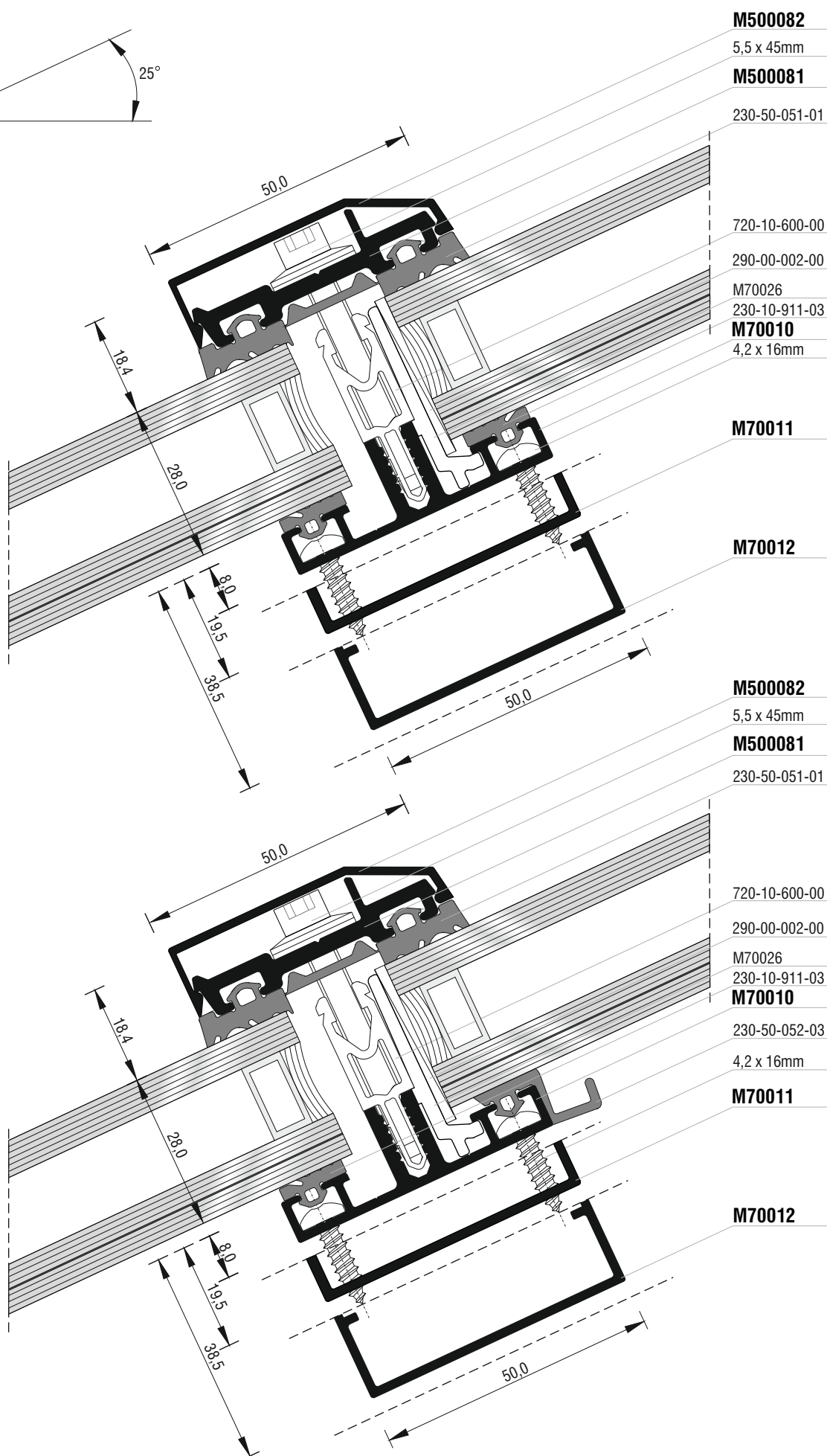
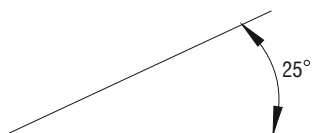


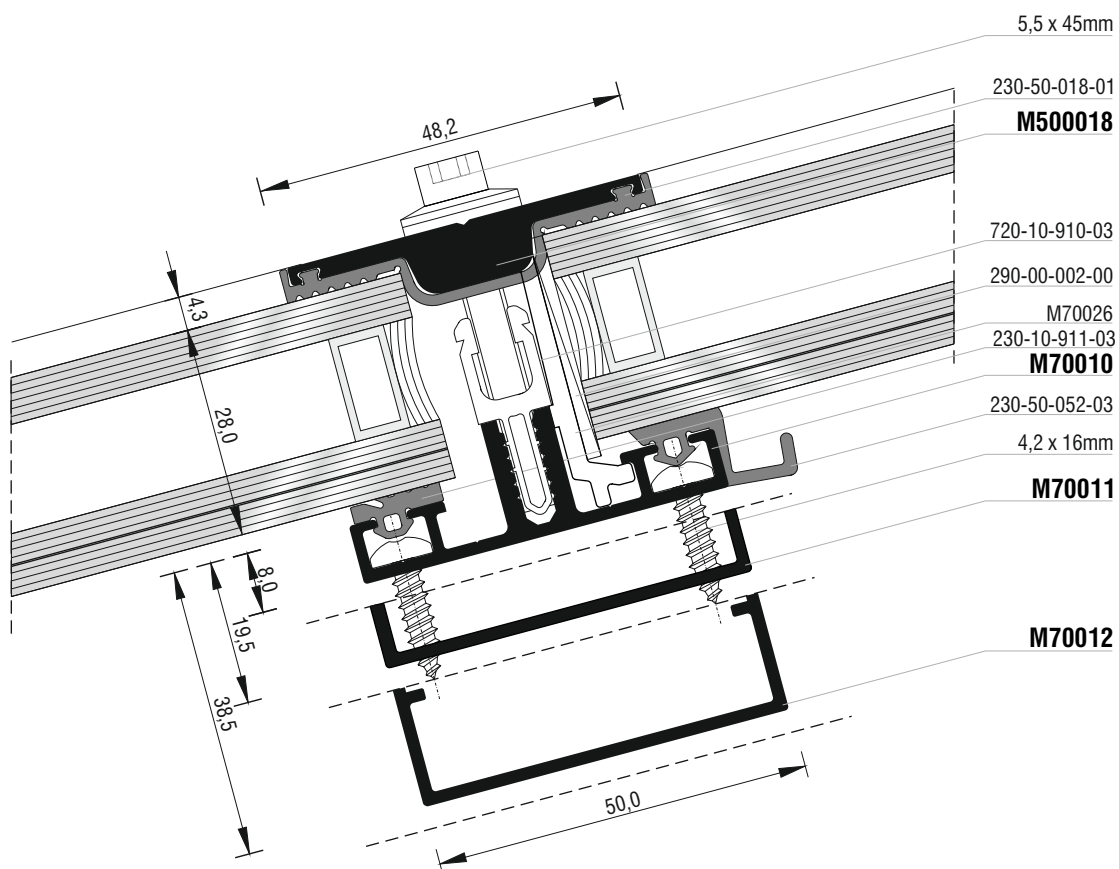
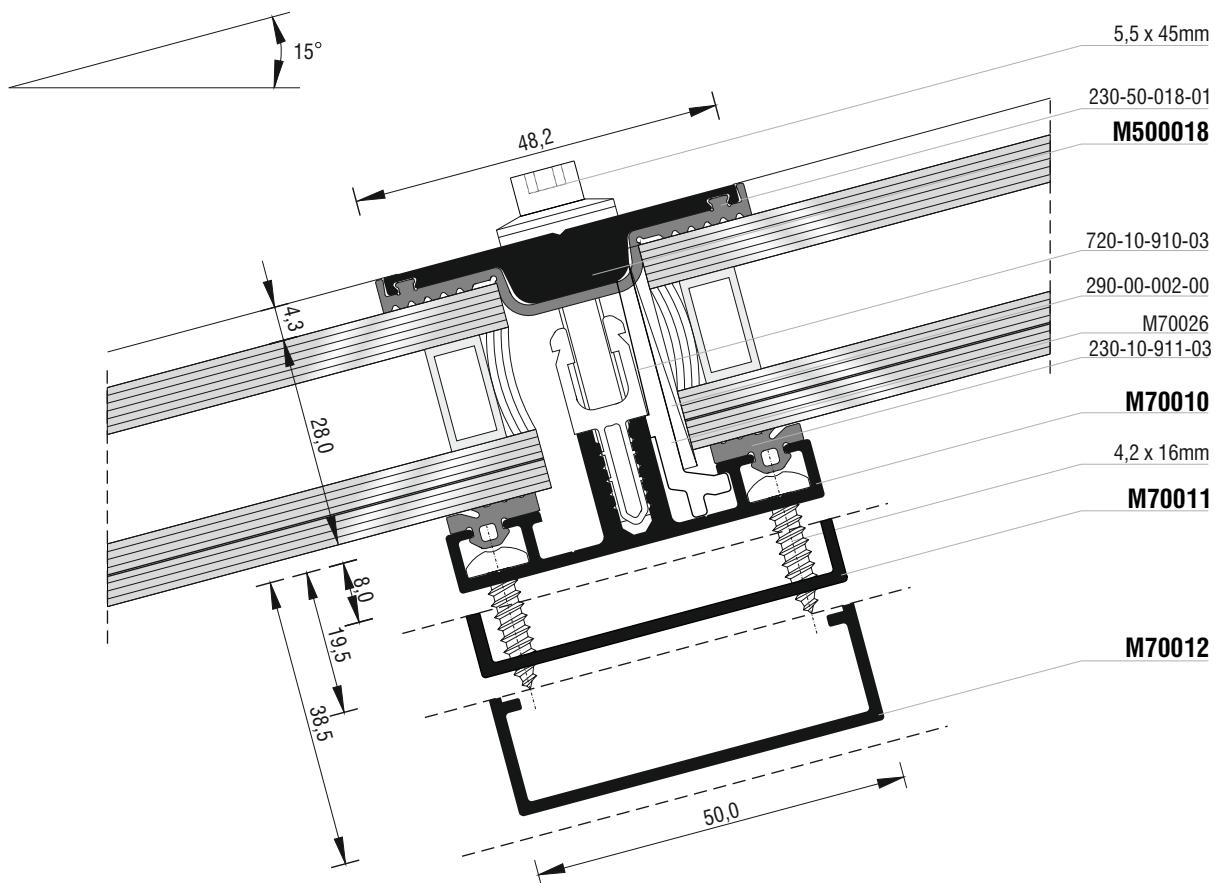


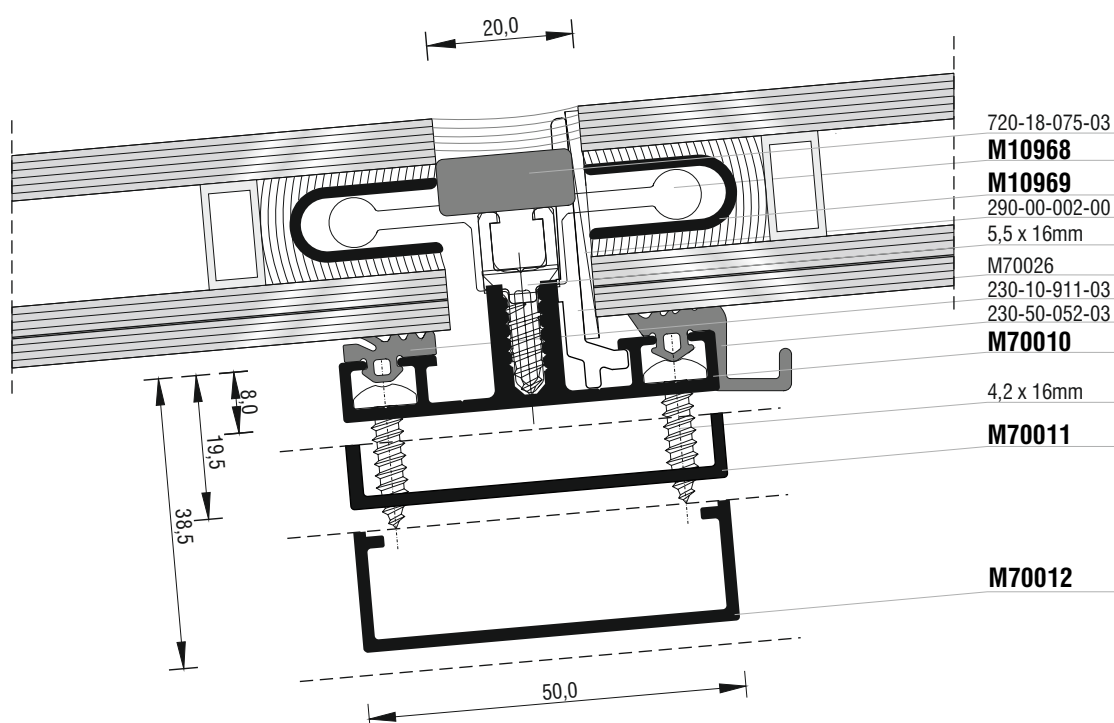
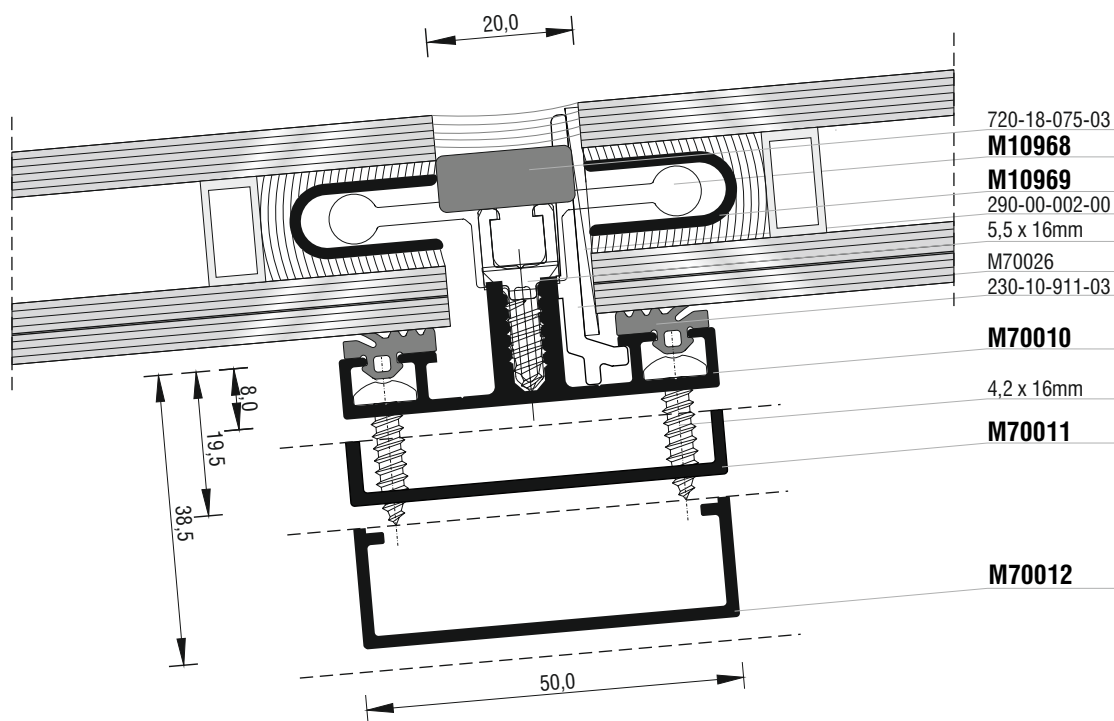
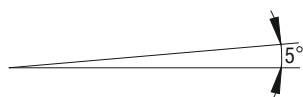


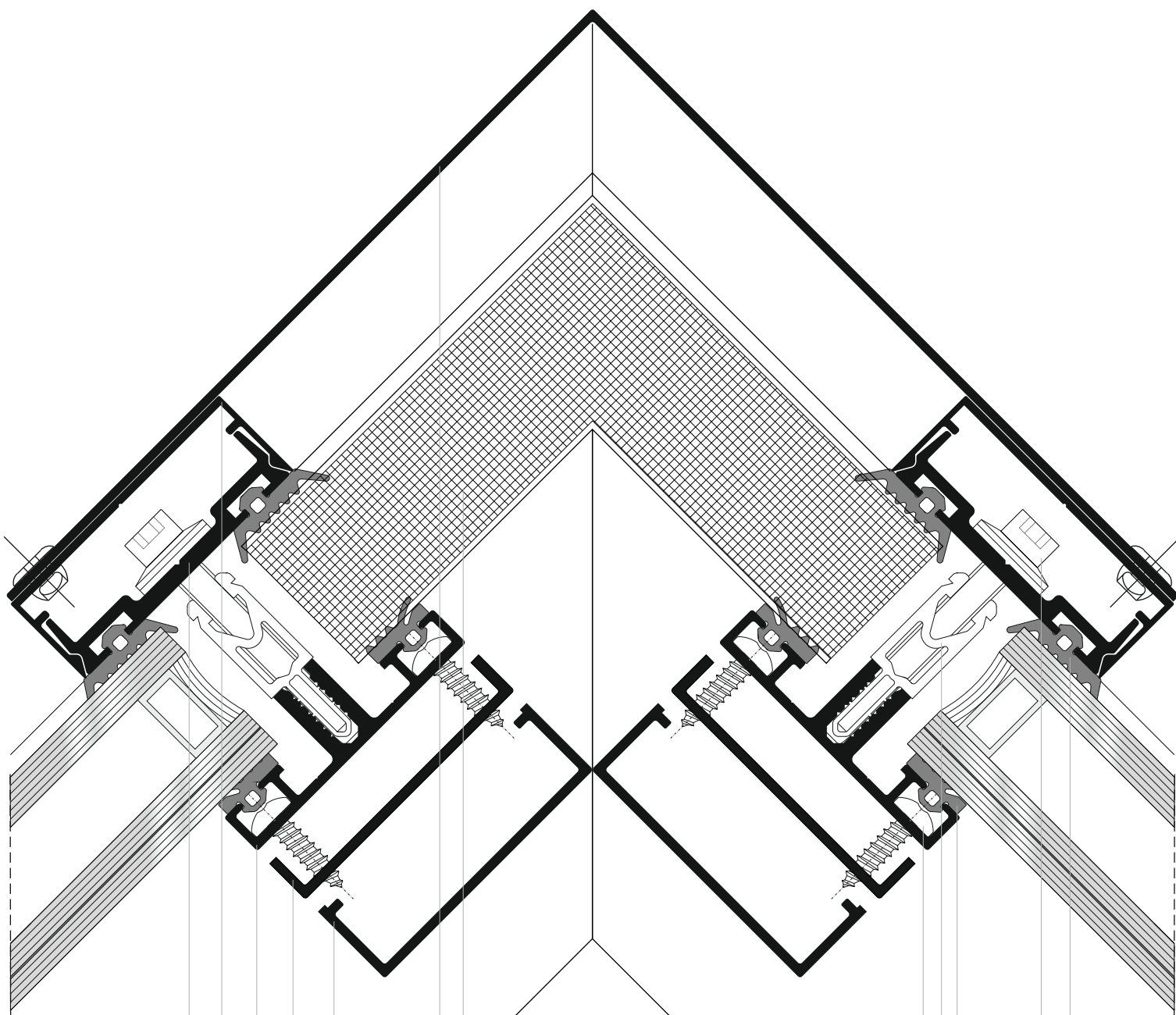












Thermal Insulation

Aluminium Sheet

M70012

M70011

M70010

M500063

M70025

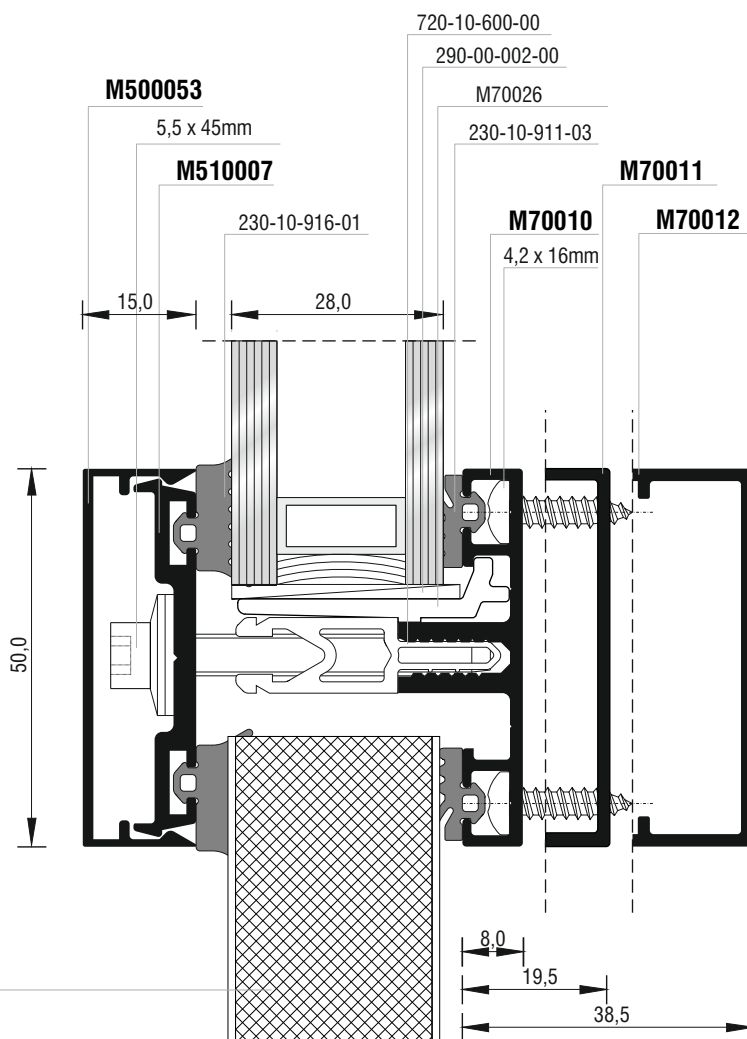
4,2 x 16mm

720-10-600-00

230-10-911-03

5,5 x 45mm

230-10-929-01



Thermal Insulation

M500082

5,5 x 45mm

M500081

230-50-051-01

290-00-002-00

720-10-600-00

M70026

230-50-052-03

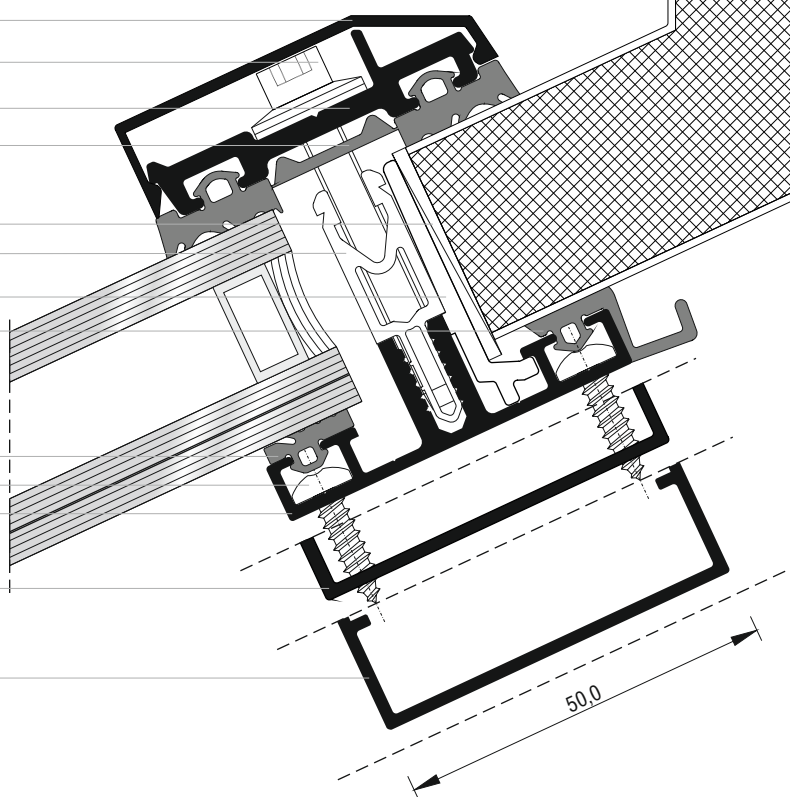
230-10-911-03

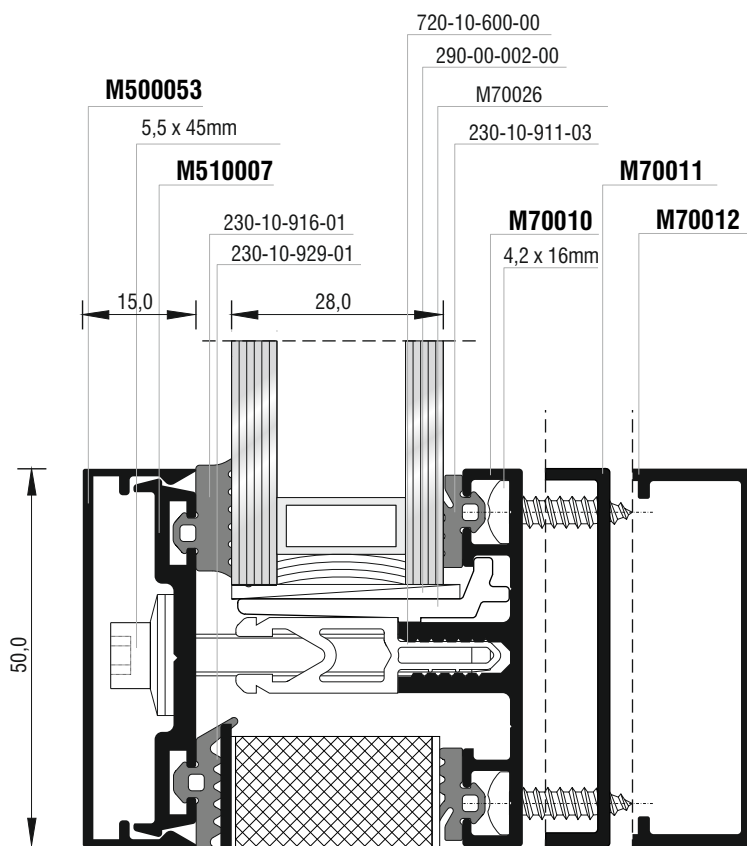
4,2 x 16mm

M70010

M70011

M70012





Aluminium Sheet

Thermal Insulation

M500063

5,5 x 45mm

M500025

290-00-002-00

230-10-929-01

720-10-600-00

M70026

230-50-052-03

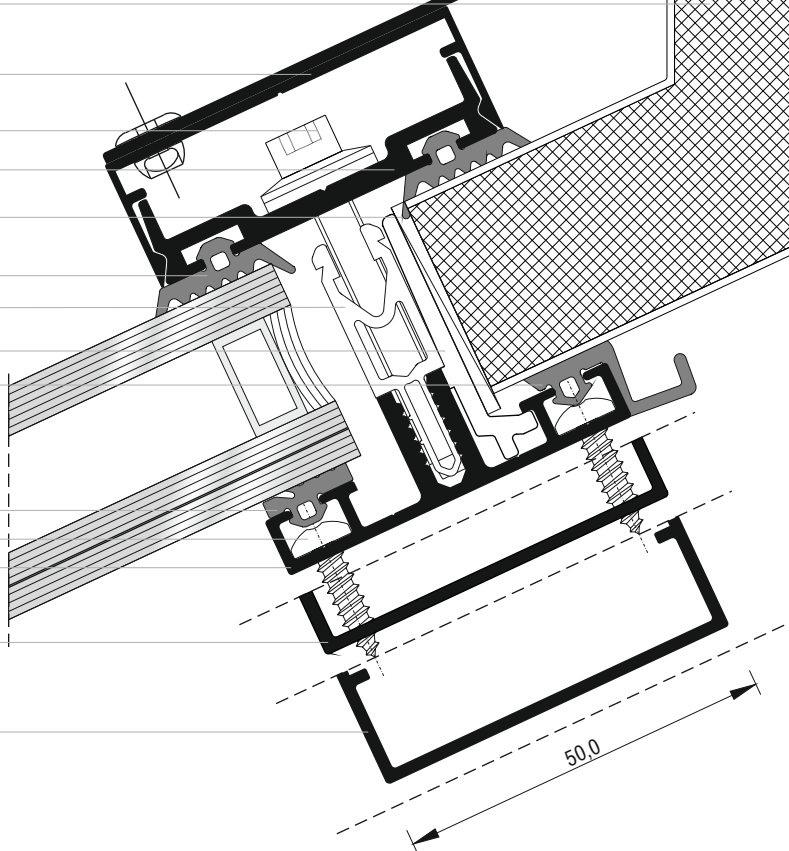
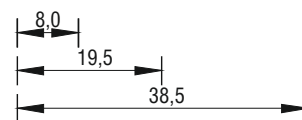
230-10-911-03

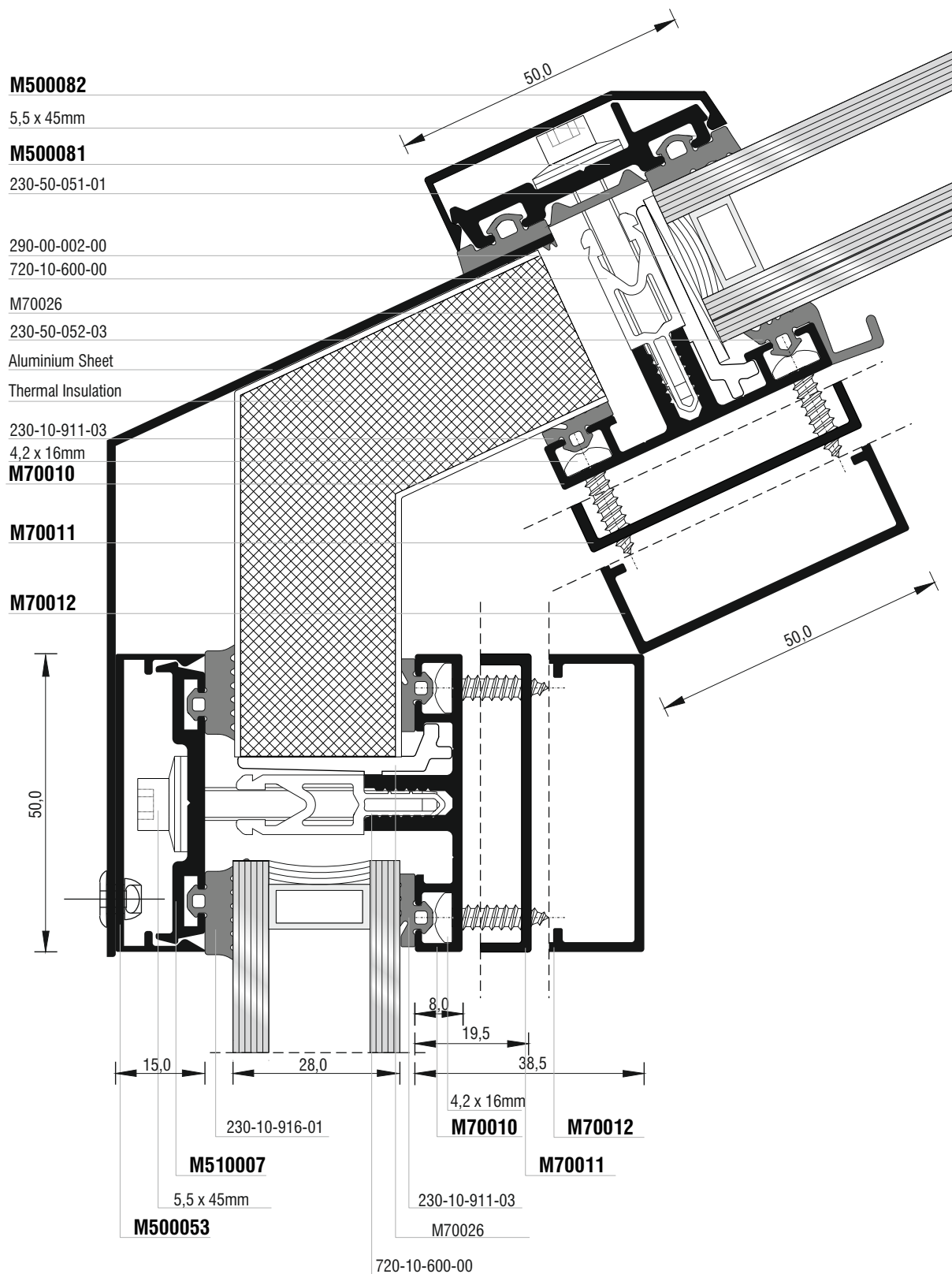
4,2 x 16mm

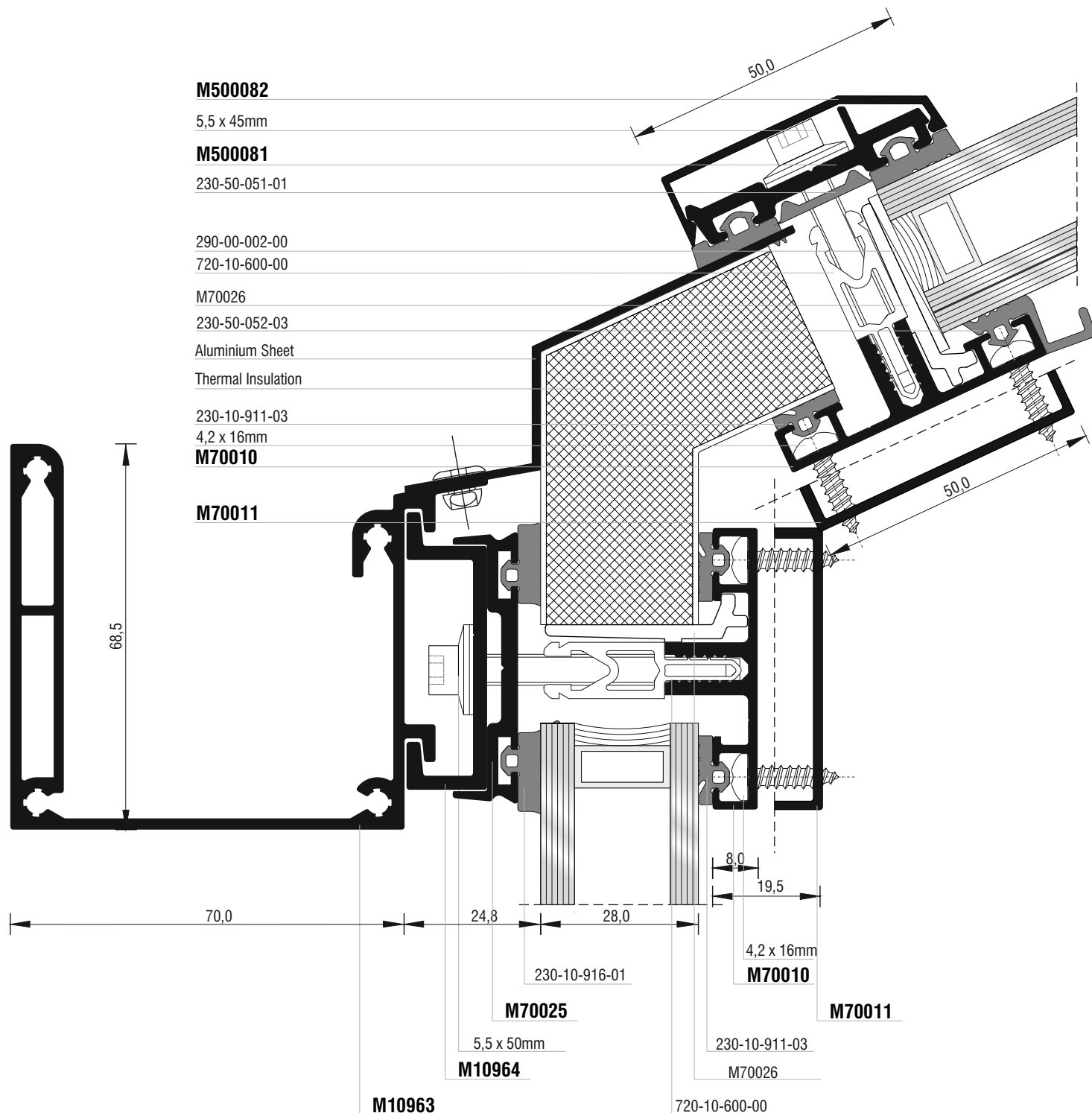
M70010

M70011

M70012







5,5 x 45mm

290-00-002-00

720-10-600-00

M10841

230-10-929-01

230-10-911-03

113-33-156-00

220-00-930-01

113-11-196-00

140-11-190-00

220-00-930-01

M10840

113-23-270-00

140-23-270-00

113-33-196-00

210-11-000-01

M10837

M500082

5,5 x 45mm

M500081

230-50-051-01

180-25-010-00

290-00-002-00

720-10-600-00

113-33-121-00

230-50-052-03

M70026

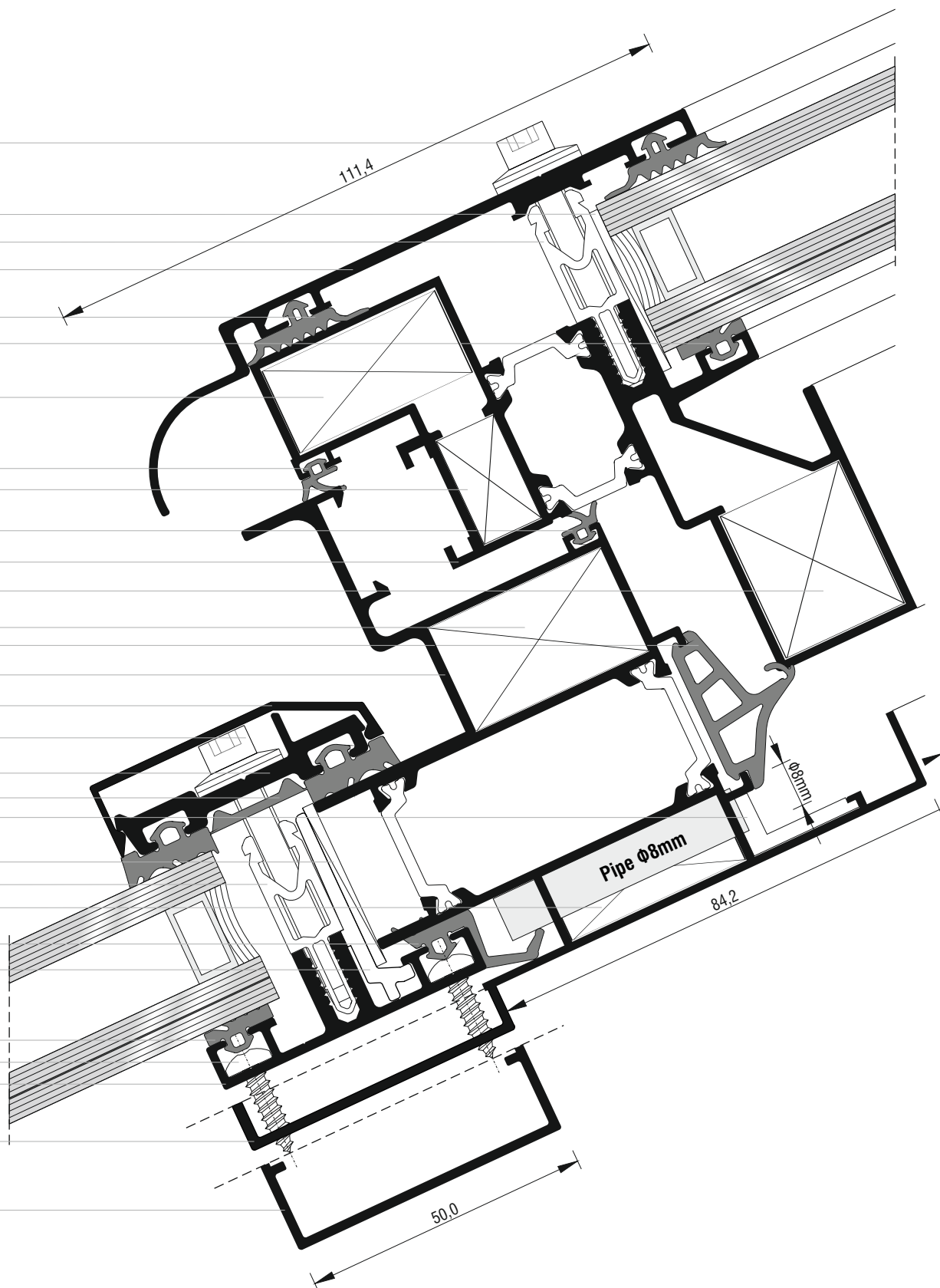
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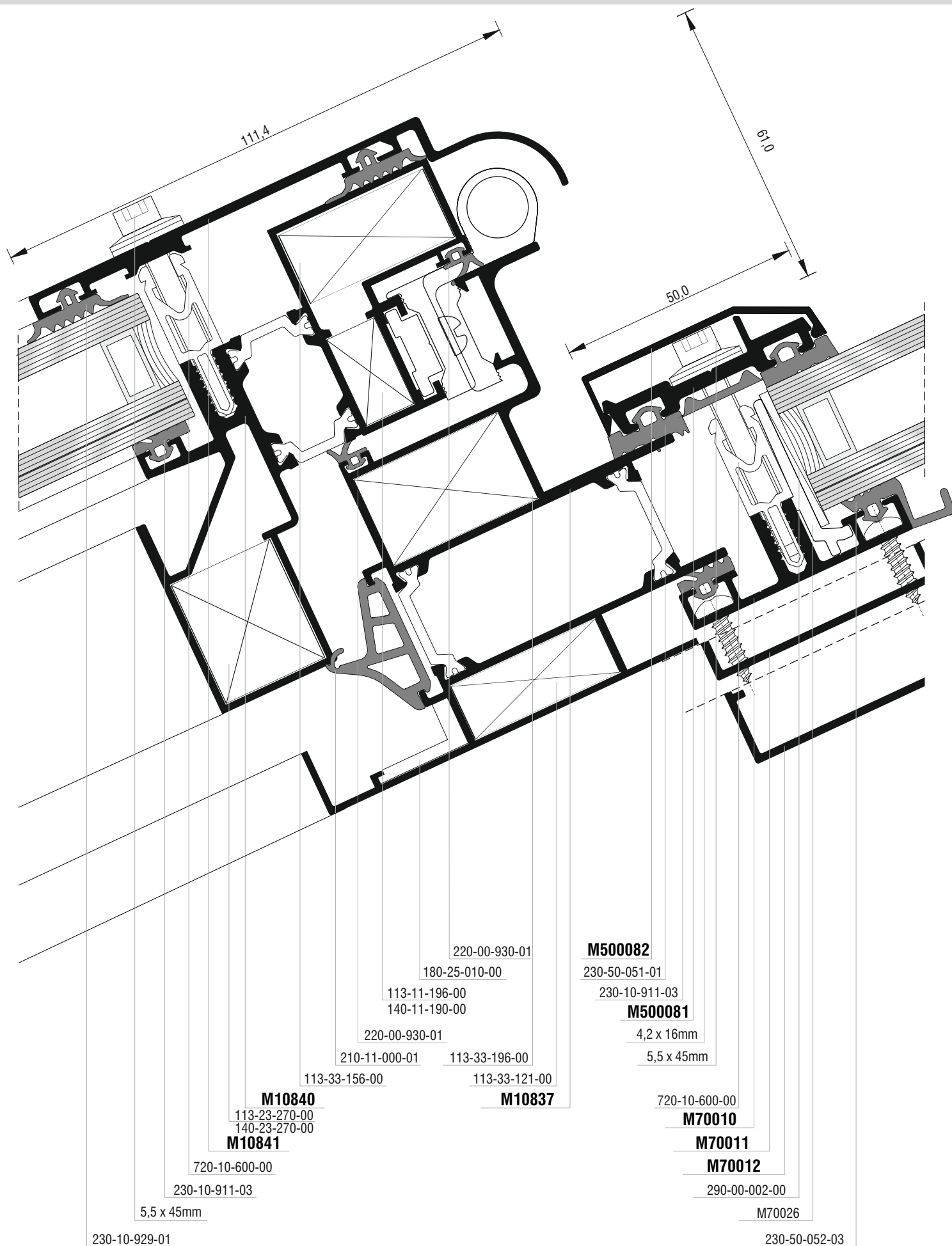
4,2 x 16mm

M70010

M70011

M70012





5,5 x 45mm

M10841

230-10-929-01

720-10-600-00

113-33-156-00

M10840

230-00-930-03

230-10-911-03

113-11-196-00

140-11-190-00

230-00-930-03

M500063

113-33-196-00

5,5 x 45mm

113-23-270-00

140-23-270-00

M70025

230-10-916-01

720-10-600-00

210-11-000-01

M10837

230-10-910-03

113-33-121-00

180-25-010-00

M70001

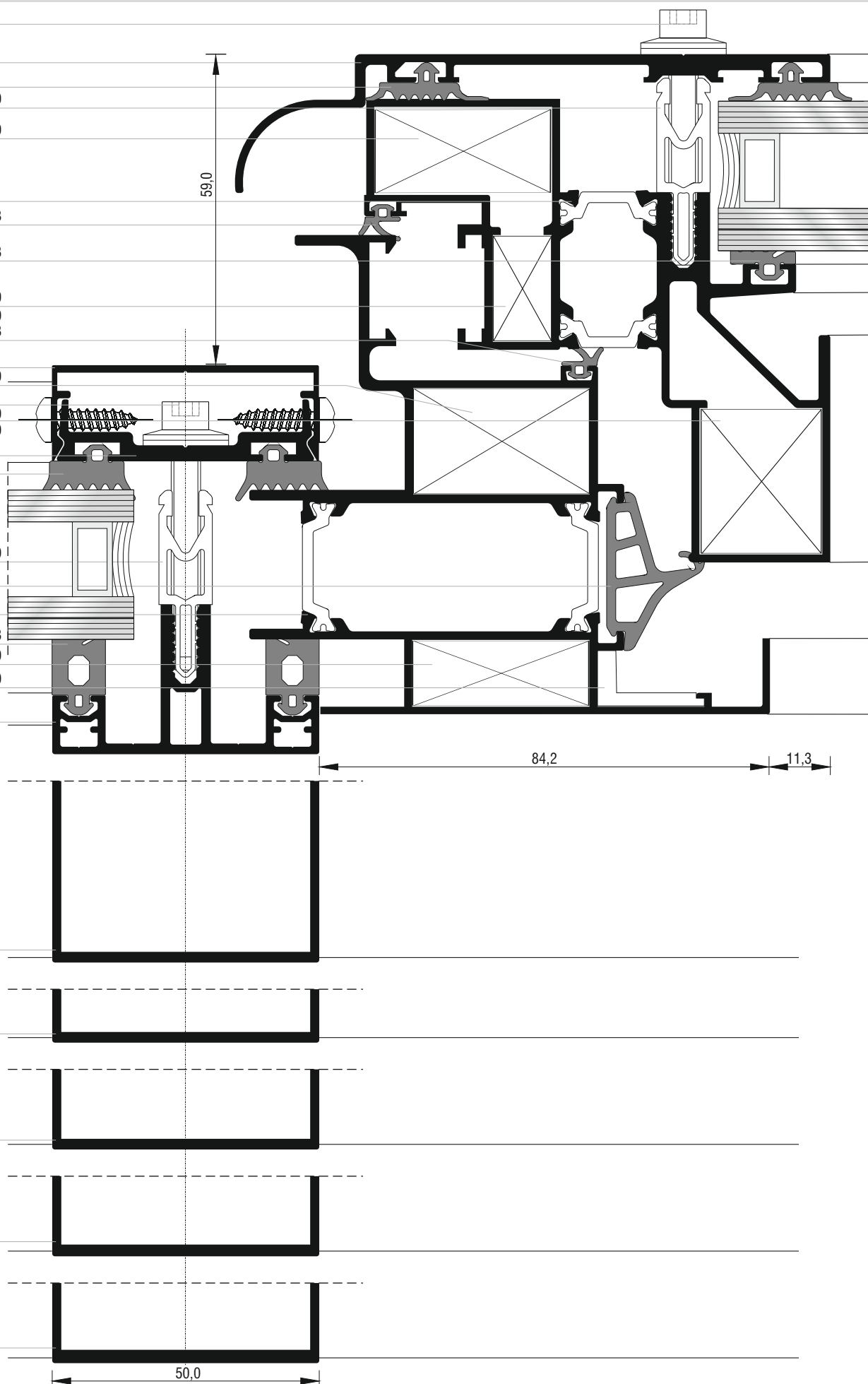
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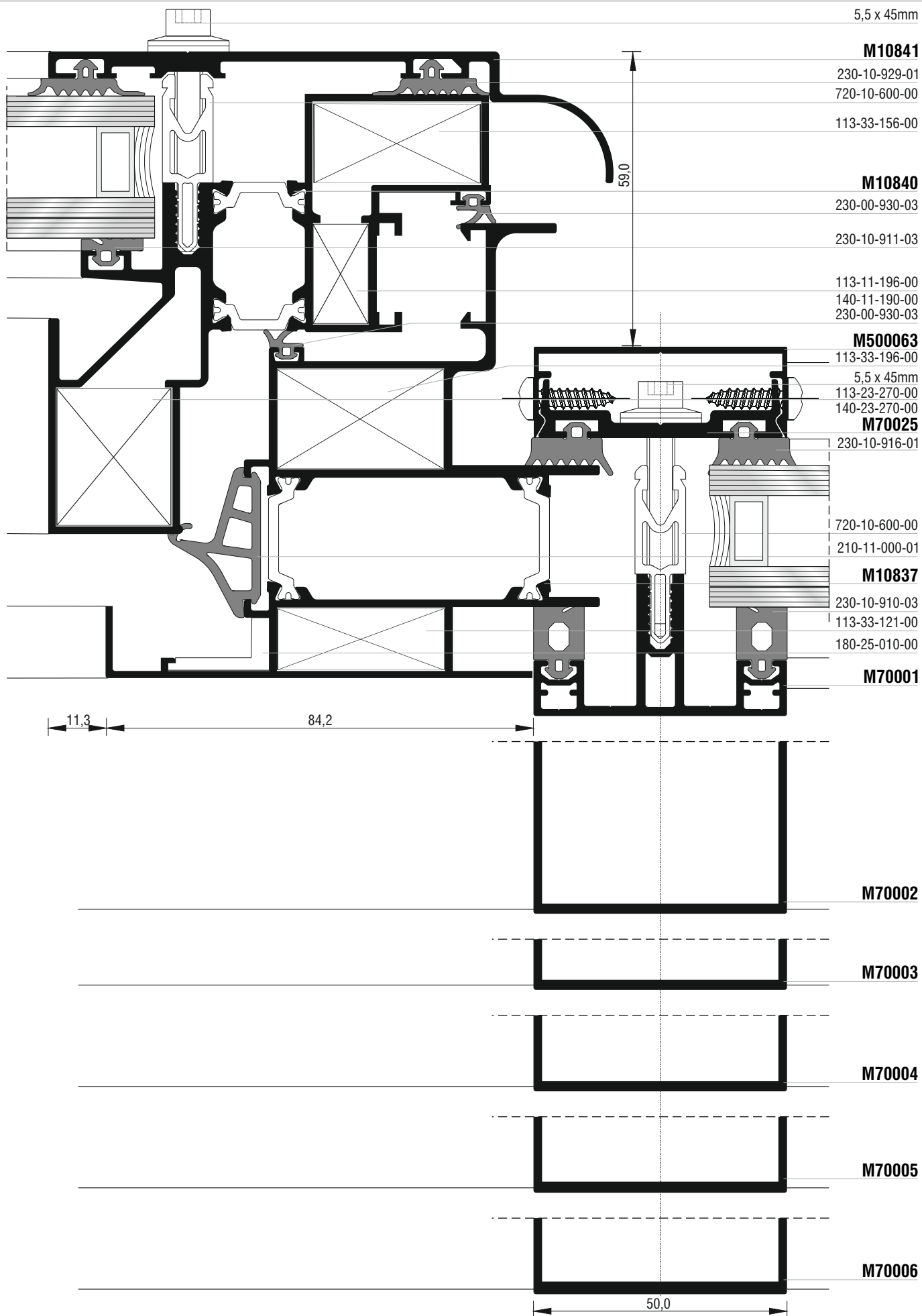
M70004

M70005

M70006



5,5 x 45mm



M500063

5,5 x 45mm

M70025

230-10-916-01

230-10-801-01

720-10-600-00

720-10-931-01

Thermal Insulation

M70022

230-10-910-03

M70001

M70002

M70003

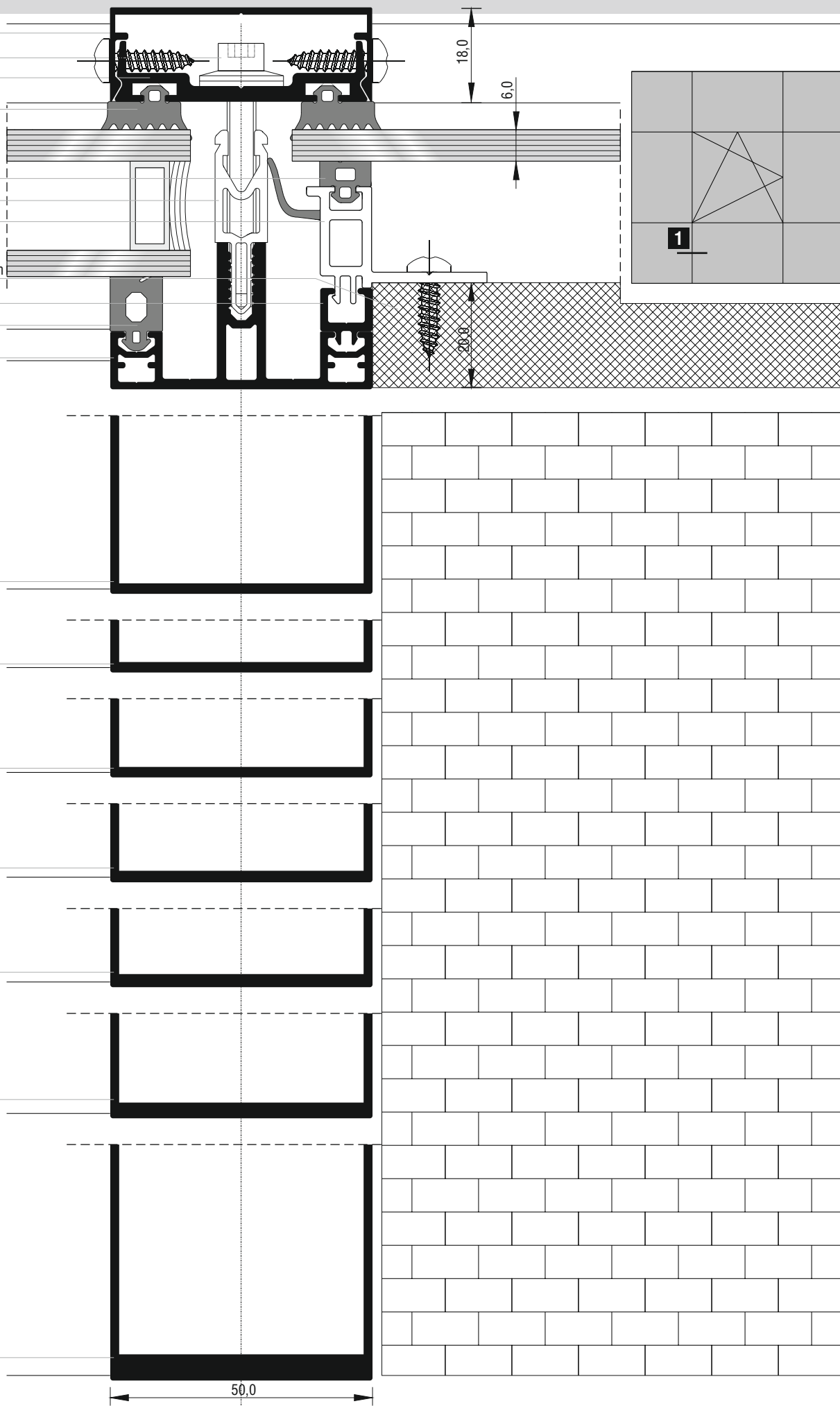
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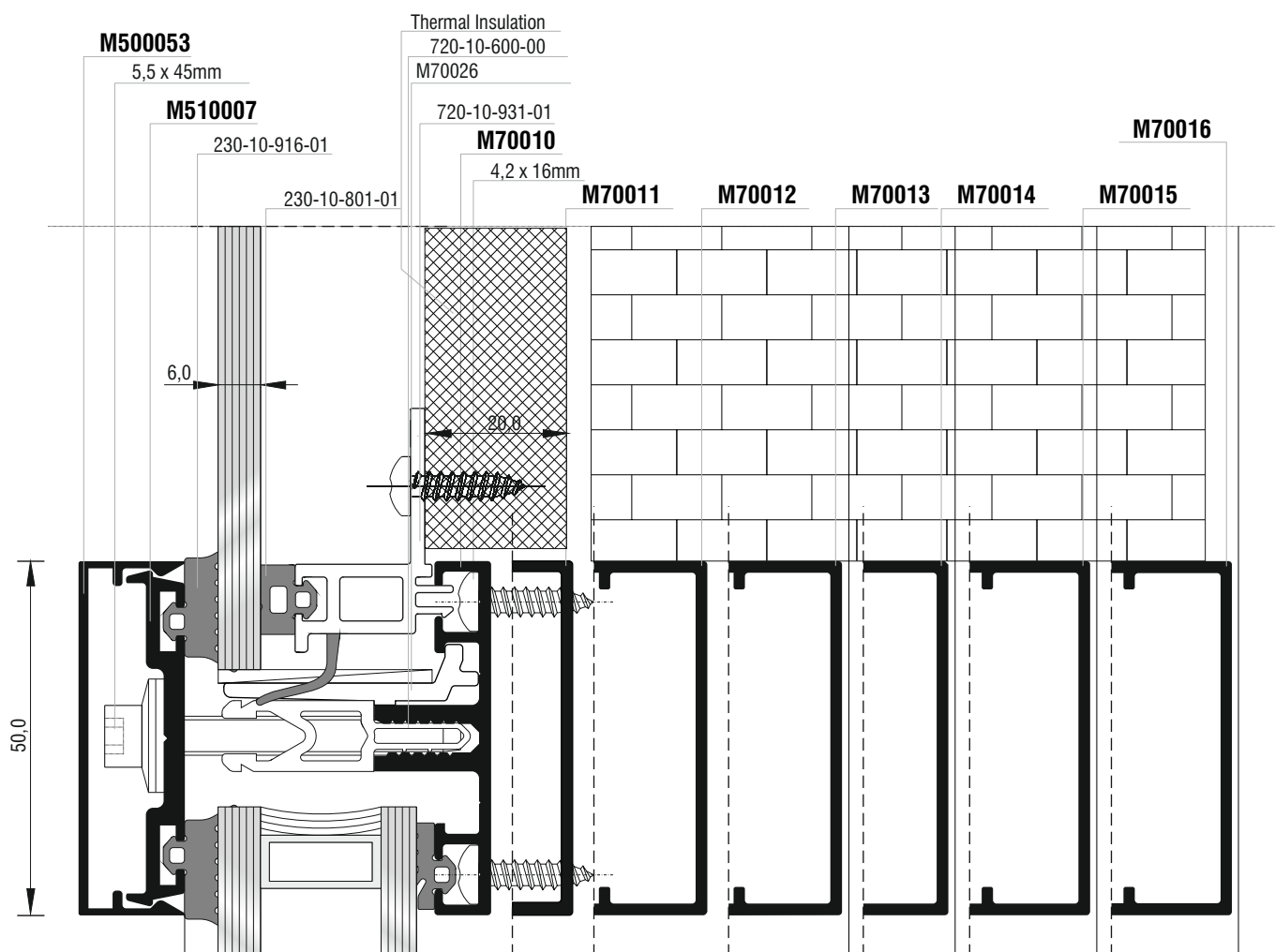
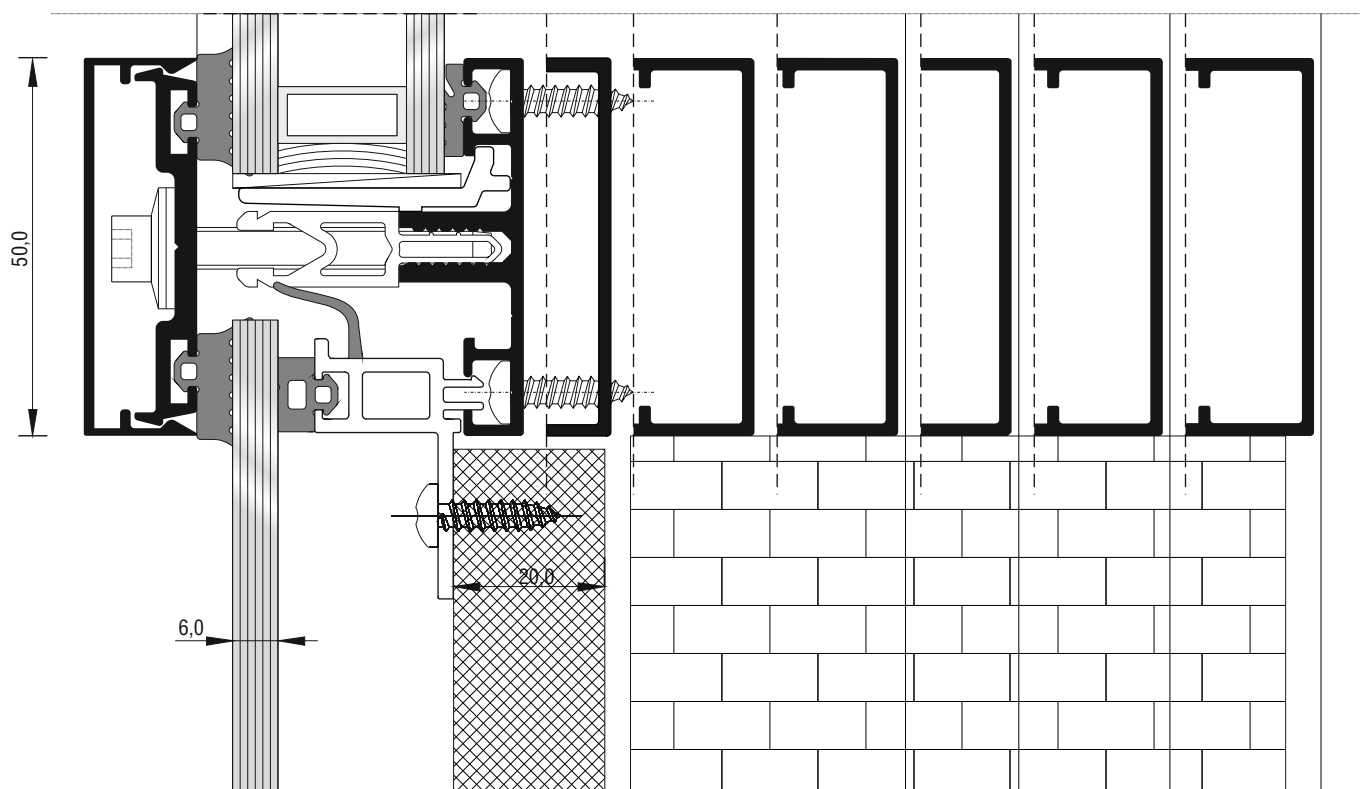
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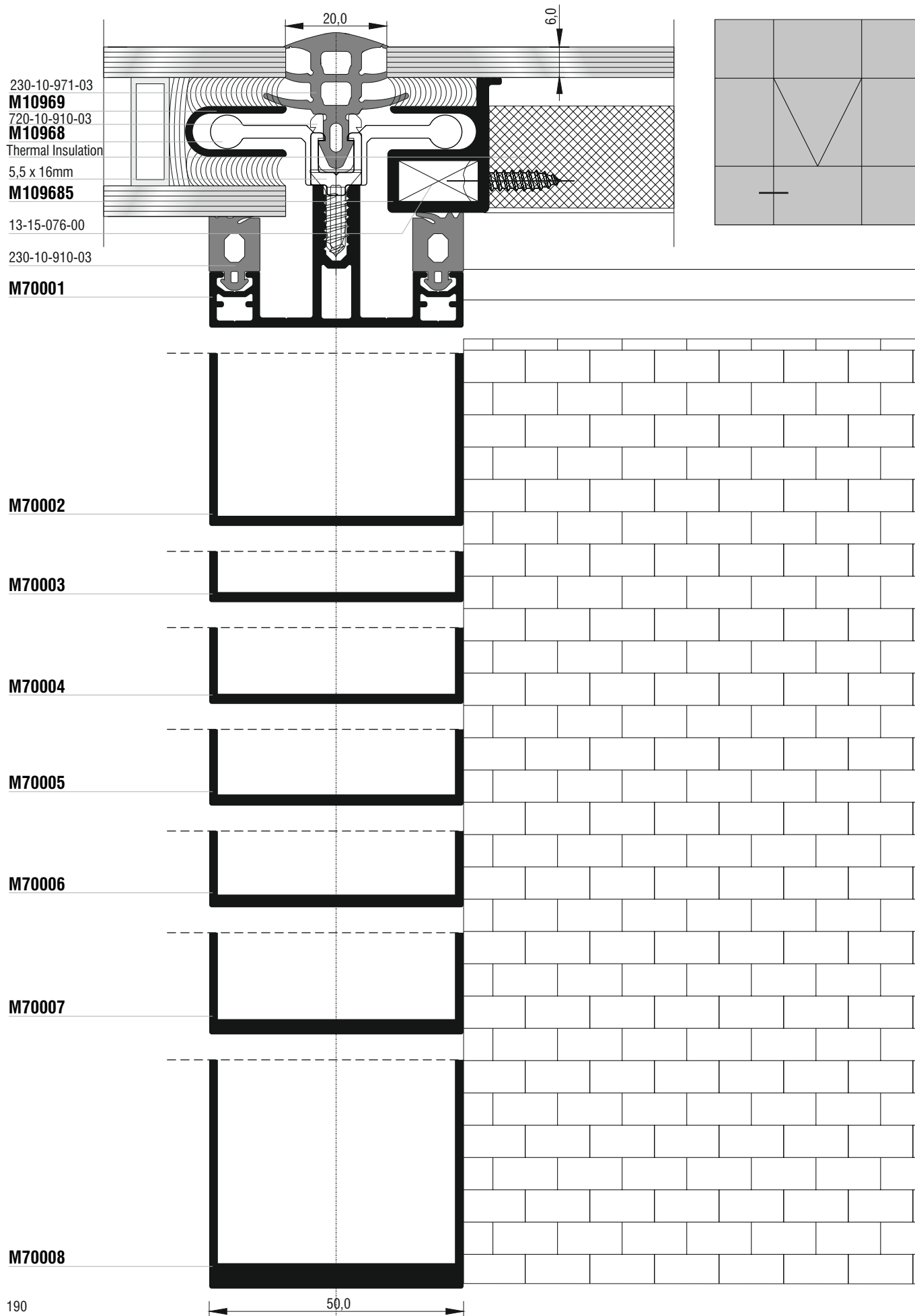
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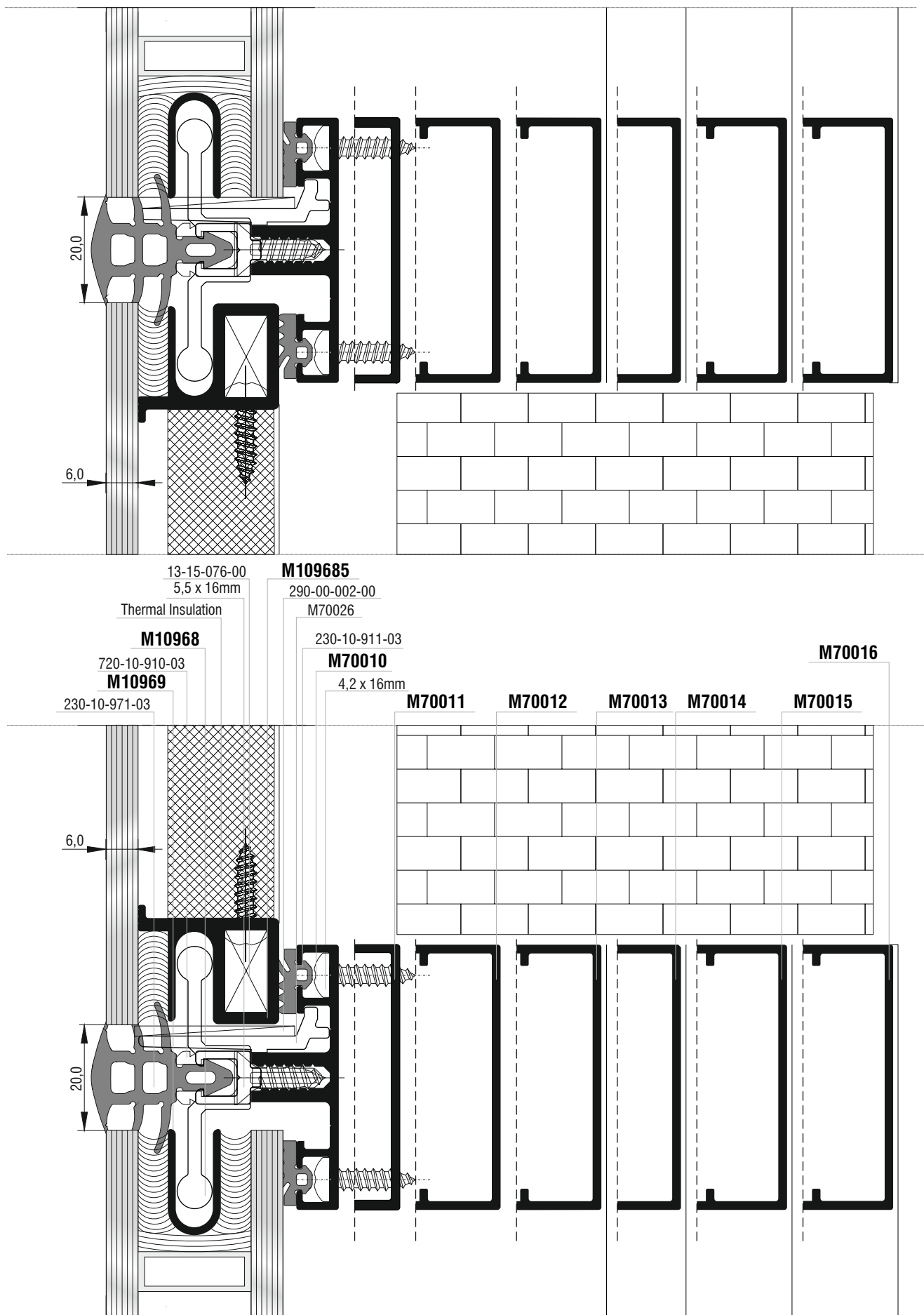
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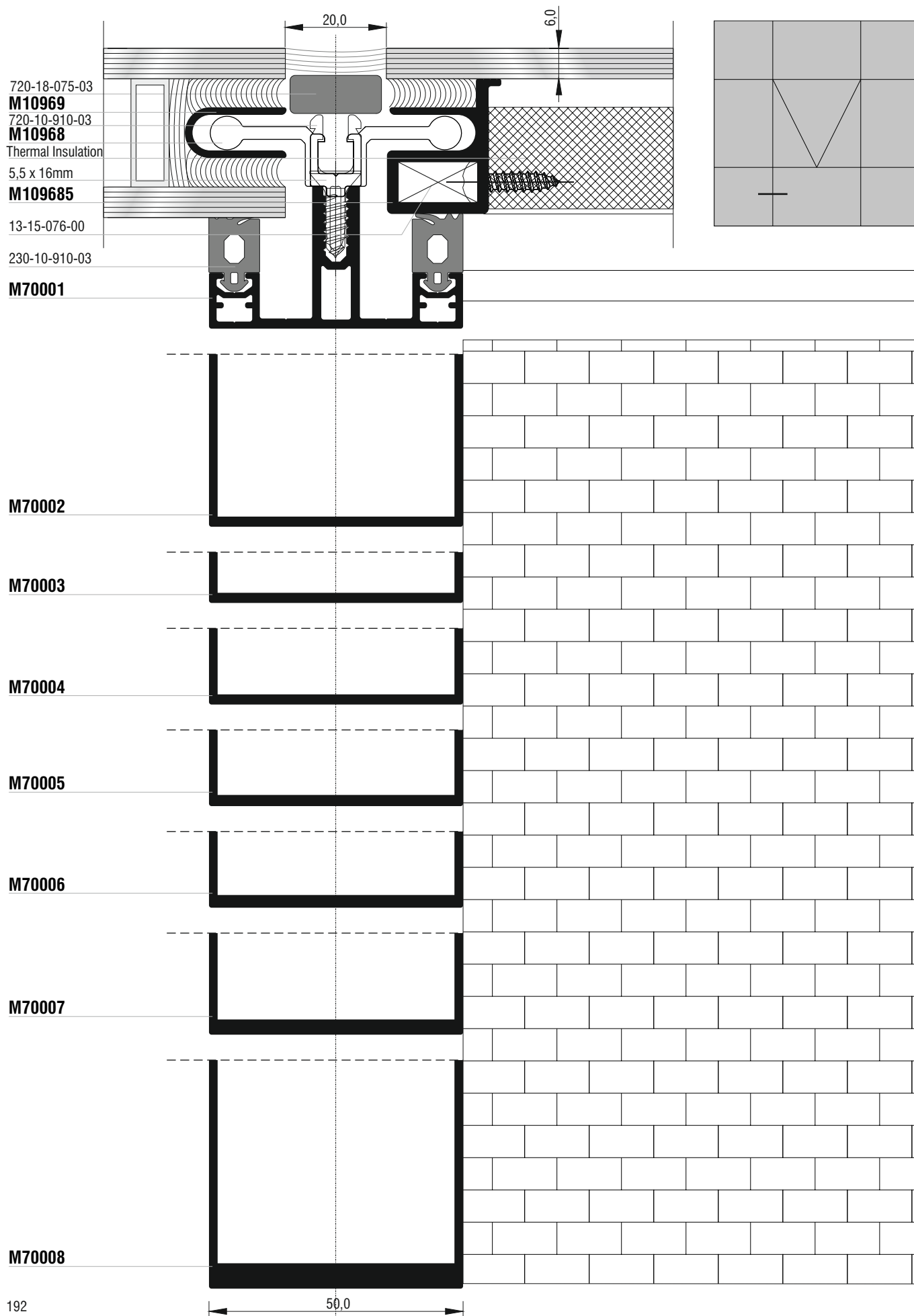
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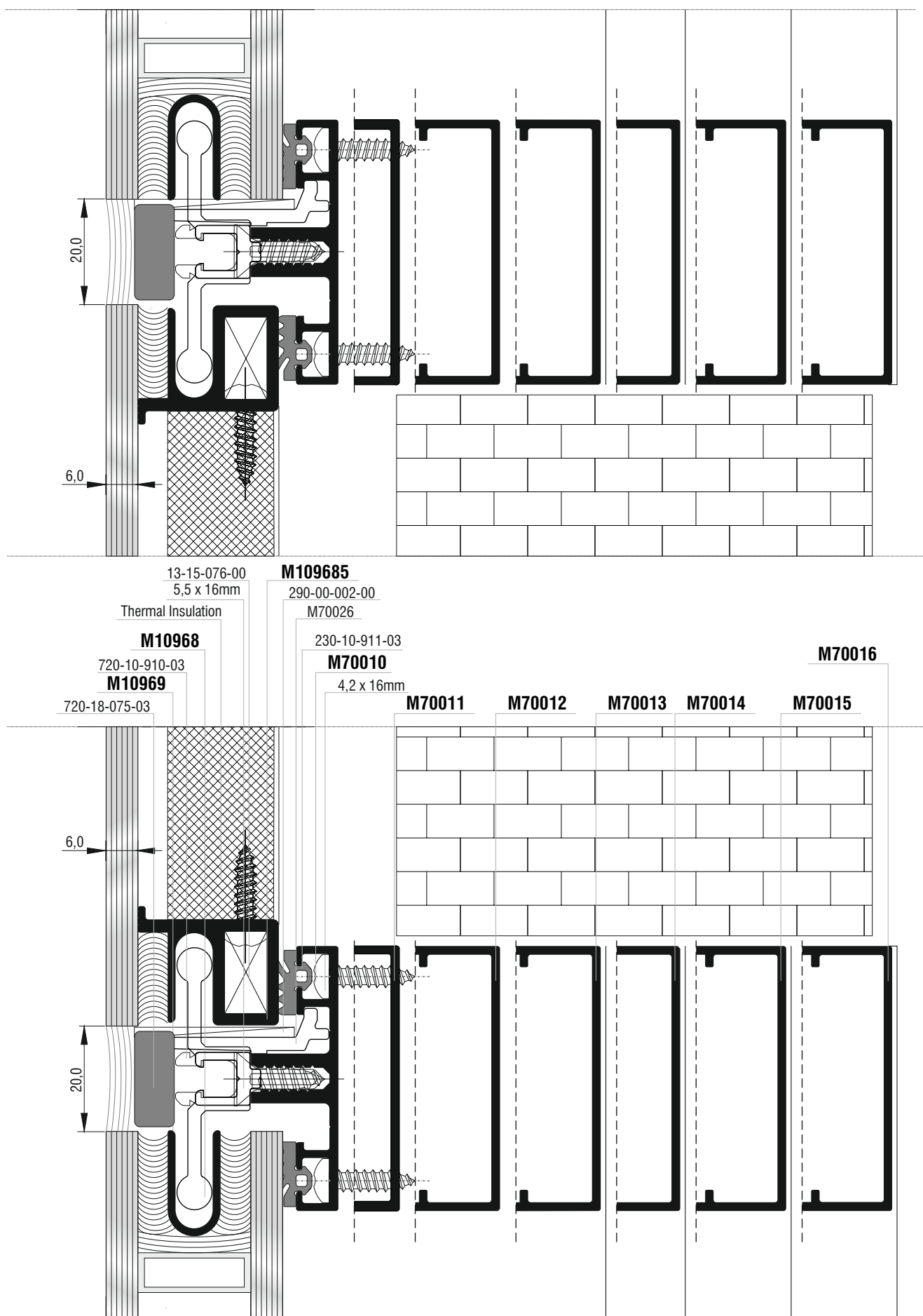


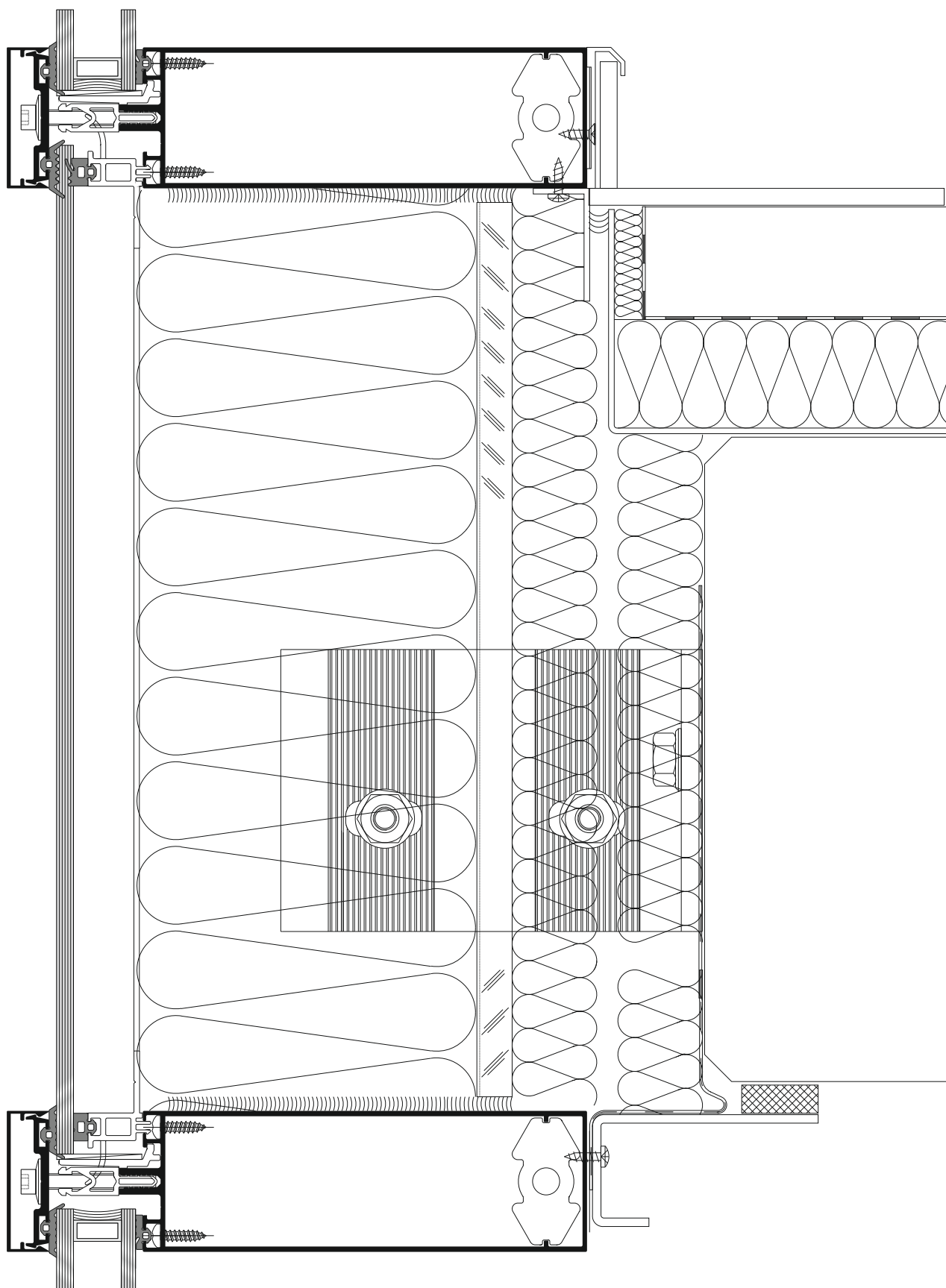


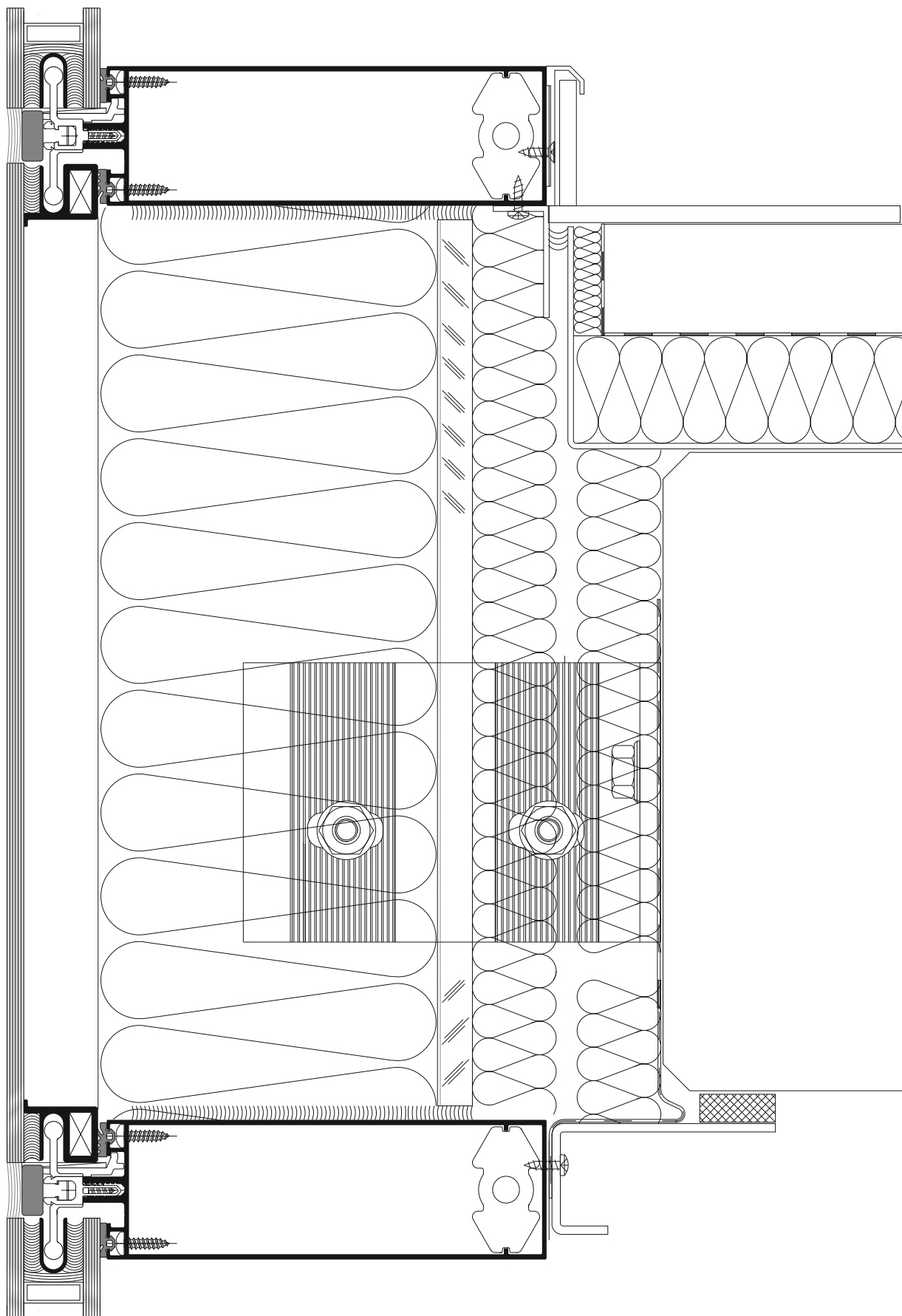


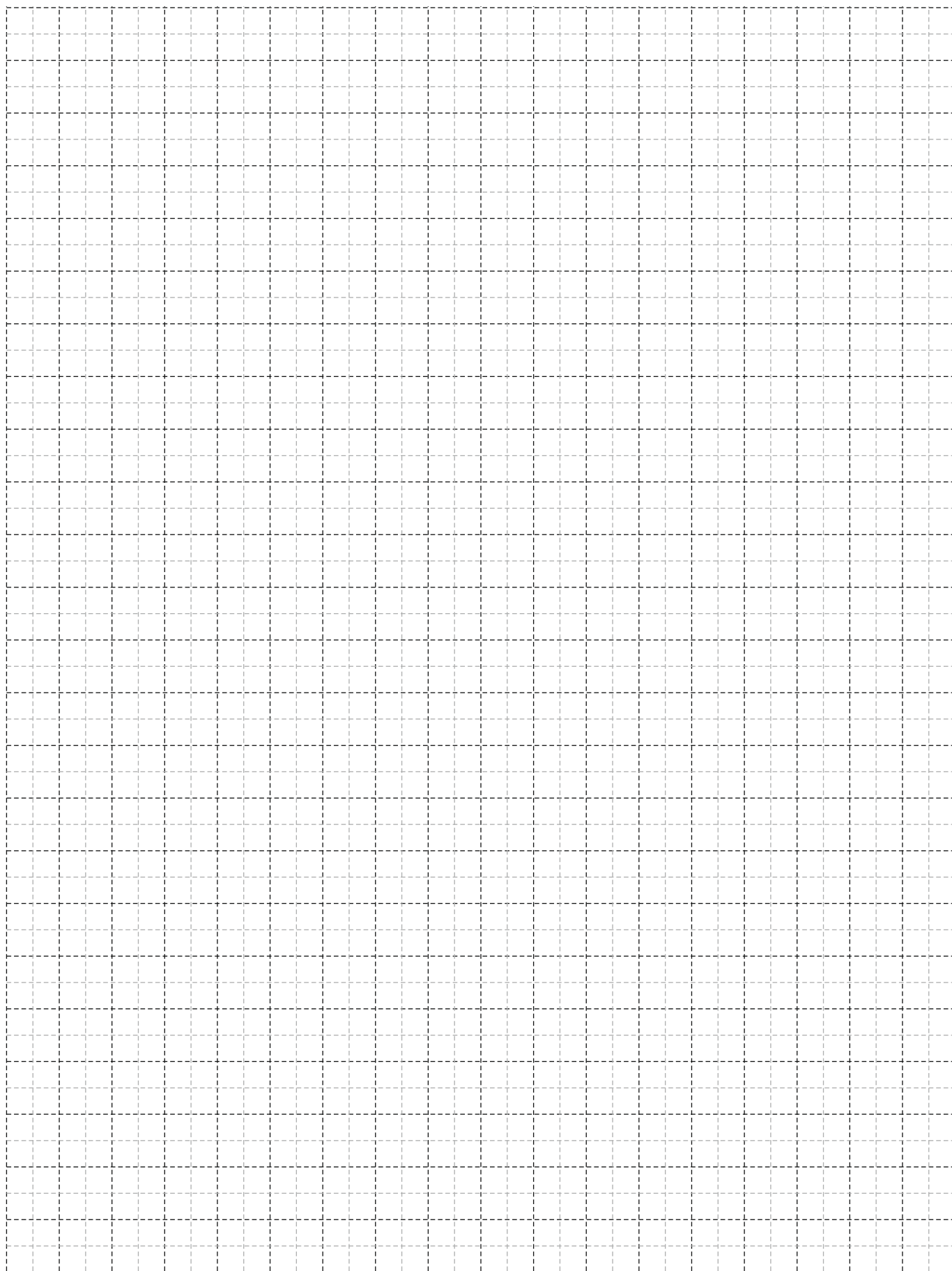






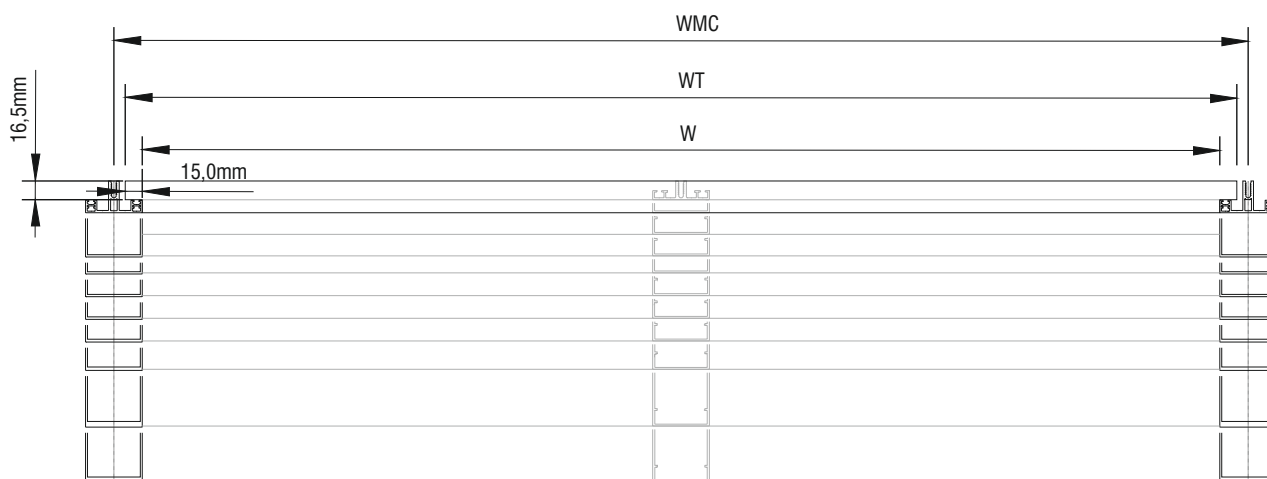
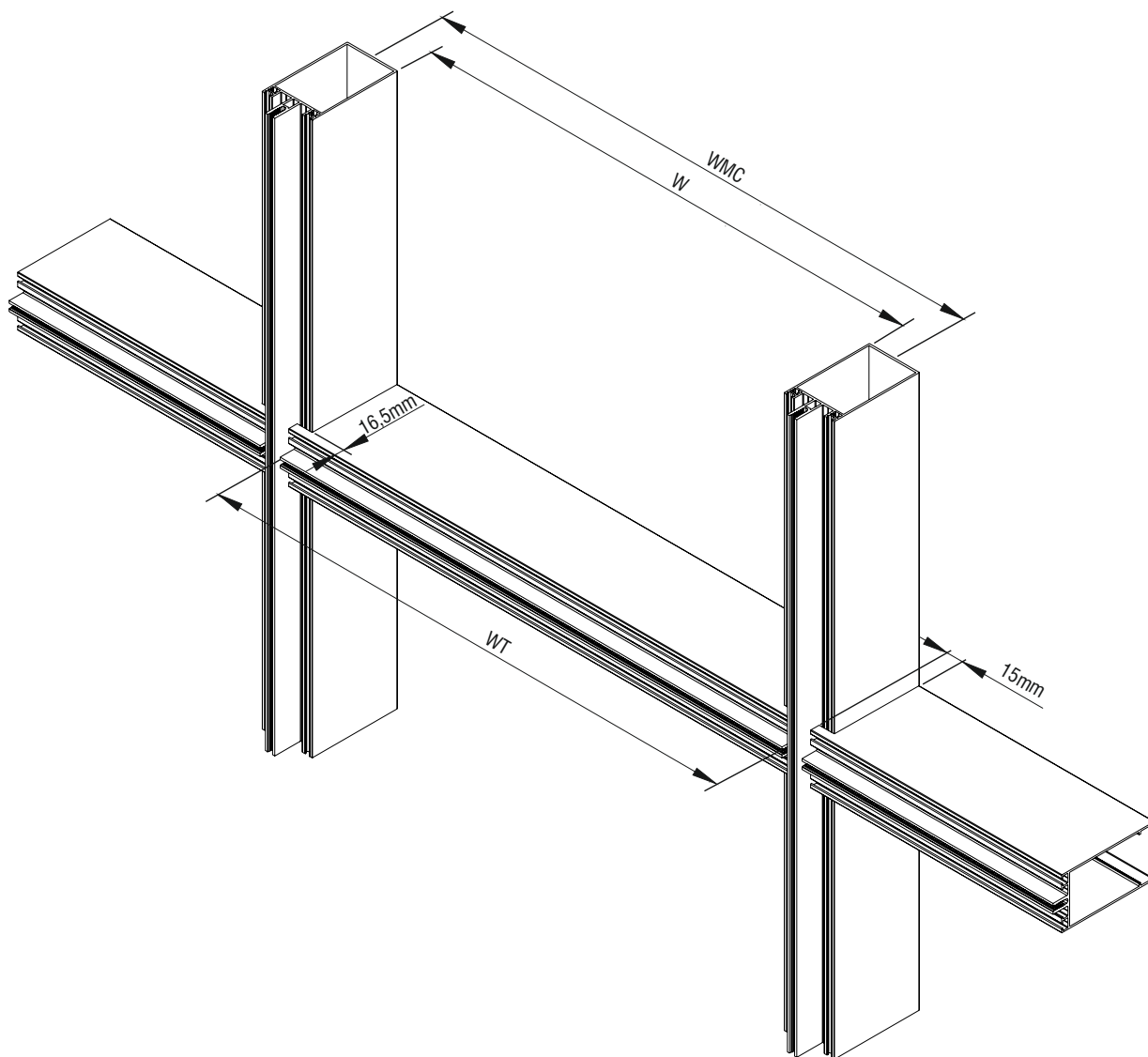




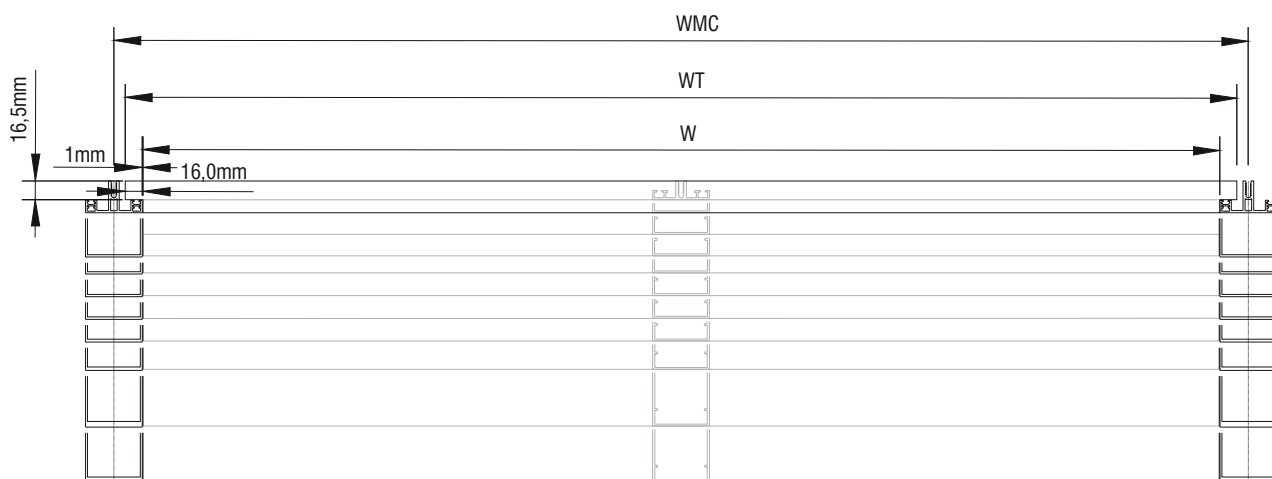
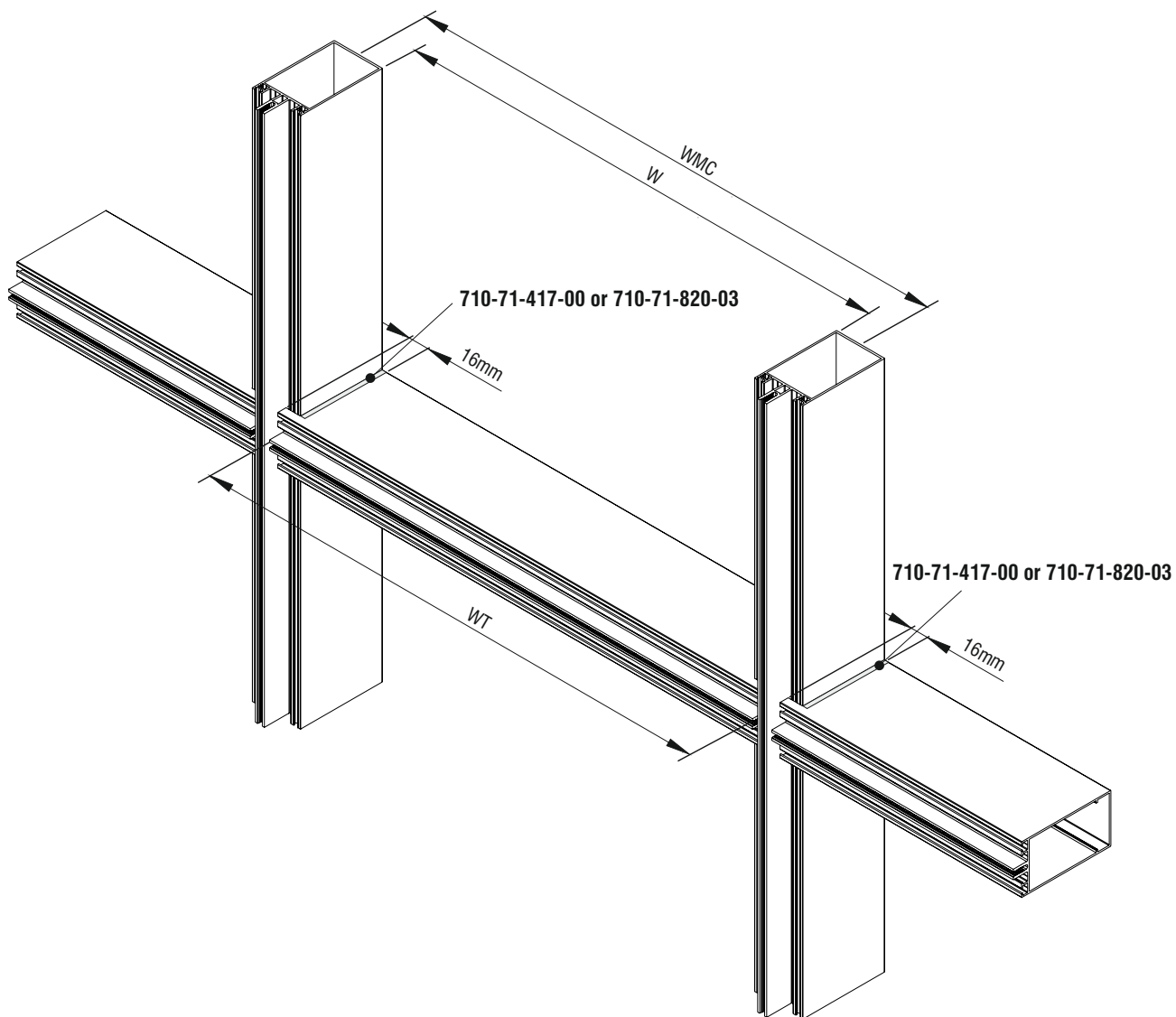


Κοπές Cuttings

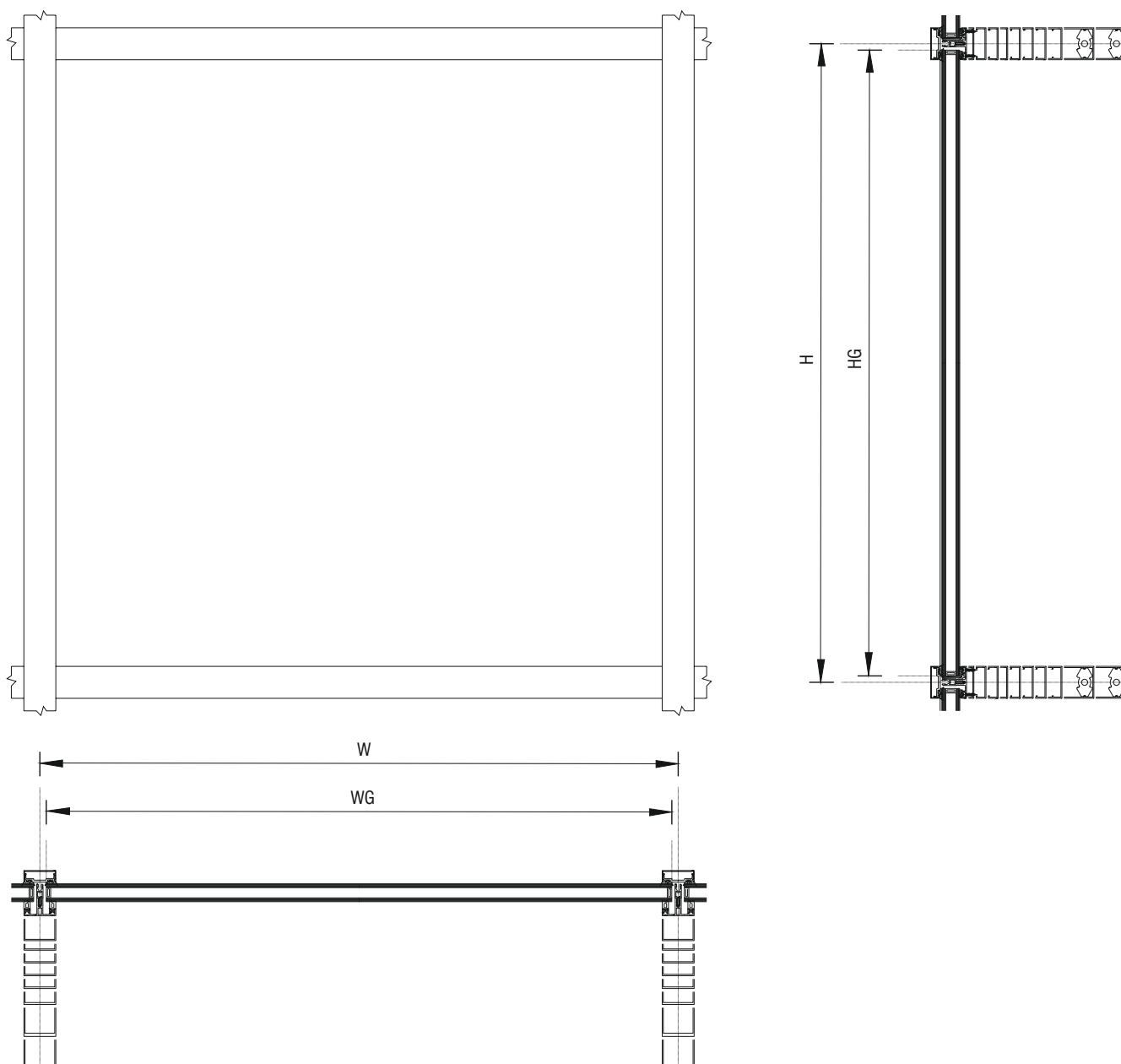
Πλάτος κέντρο κολόνας - κέντρο κολόνας Mullion center - mullion center width	WMC
Πλάτος κολόνα - κολόνα , μέσα Mullion - mullion width inside	W
Πλάτος τραβερσας Transom width	WT=W+30mm
Πλάτος τραβερσας Transom width	WT = WMC - 20,0mm



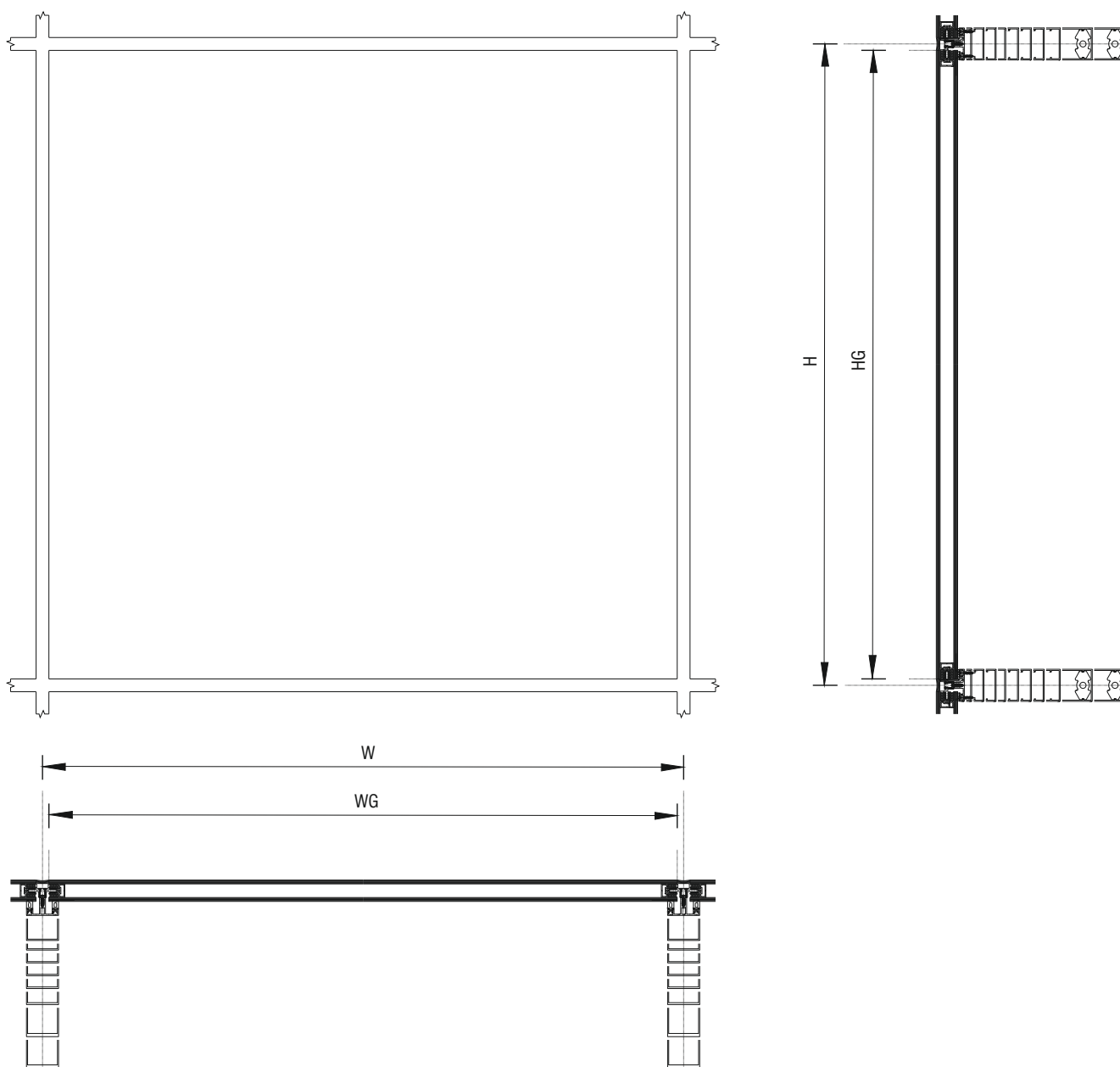
Πλάτος κέντρο κολόνας - κέντρο κολόνας Mullion center - mullion center width	WMC
Πλάτος κολόνα - κολόνα , μέσα Mullion - mullion width inside	W
Πλάτος τραβερσας Transom width	WT=W+30mm
Πλάτος τραβερσας Transom width	WT = WMC - 20,0mm



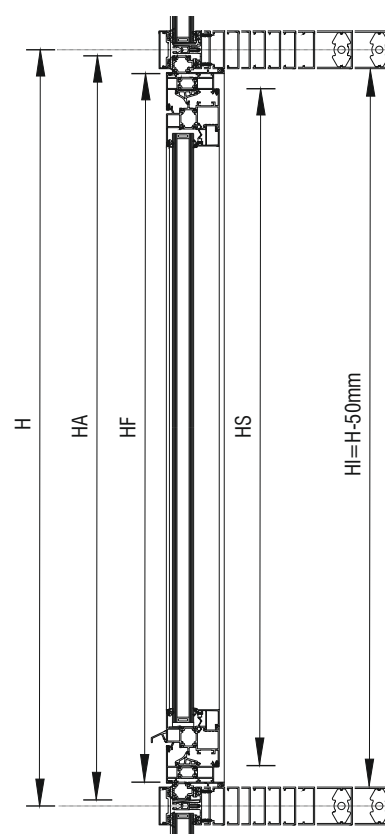
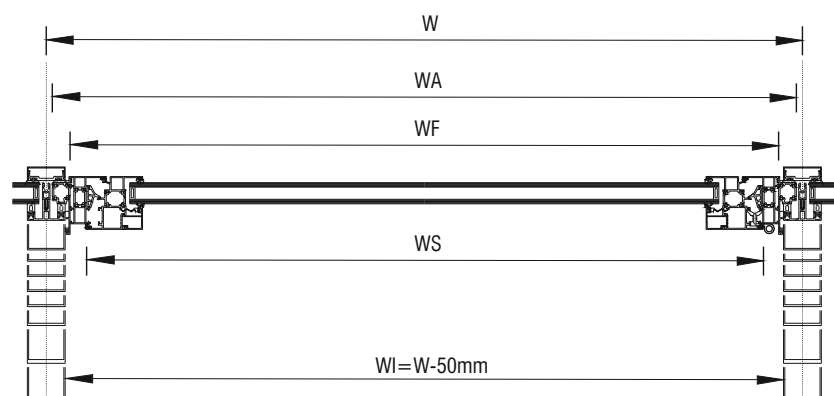
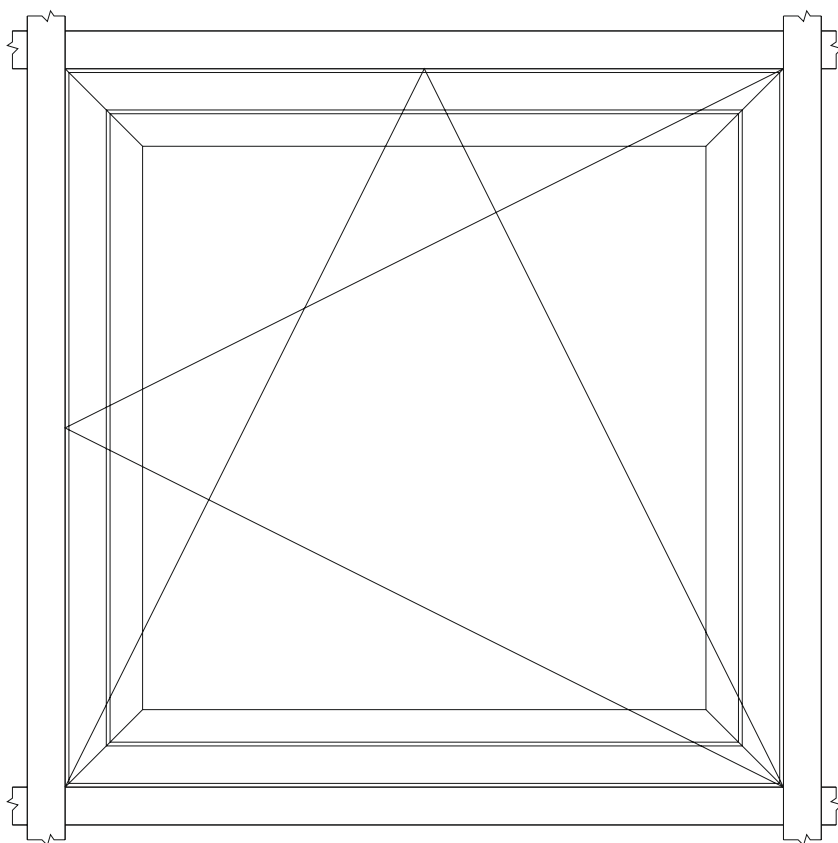
Πλάτος κέντρο κολόνας Mullion center width	W
Ύψος κέντρο τραβερσας Transom center height	H
Πλάτος Τζαμιού Glazing width	WG=W-20,0mm
Ύψος Τζαμιού Glazing height	HG=H-20,0mm



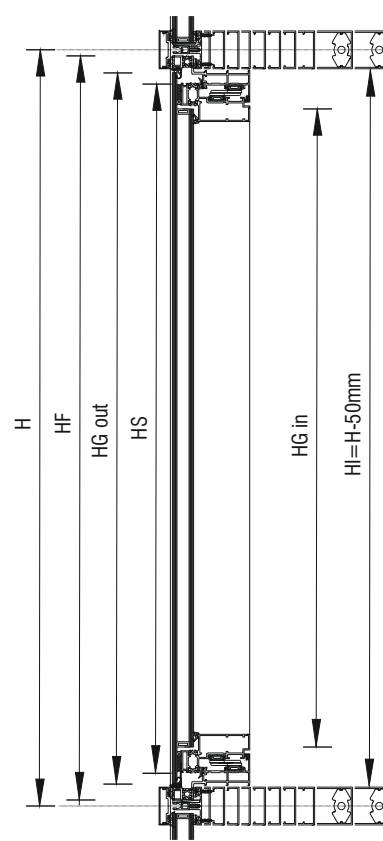
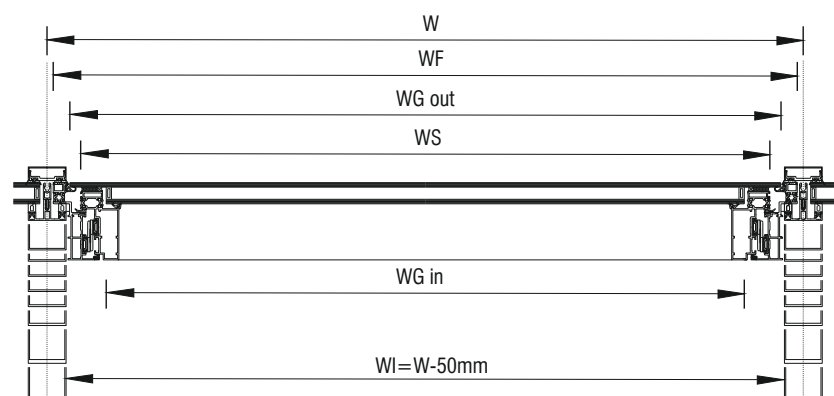
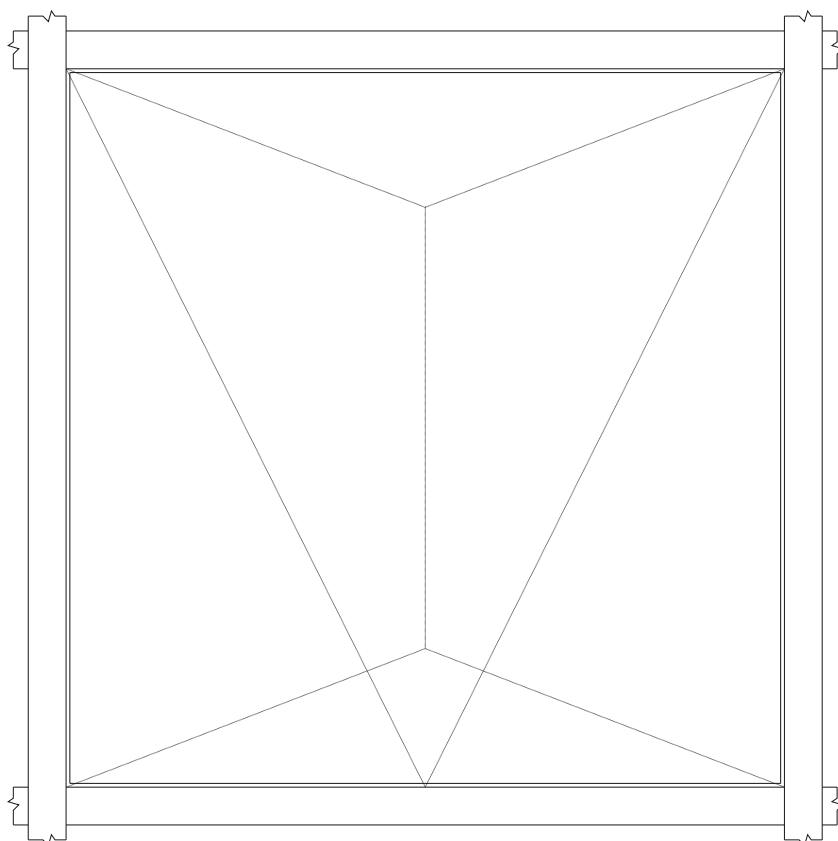
Πλάτος κέντρο κολόνας Mullion center width	W
Ύψος κέντρο τραβερσας Transom center height	H
Πλάτος Τζαμιού Glazing width	WG=W-20,0mm
Ύψος Τζαμιού Glazing height	HG=H-20,0mm



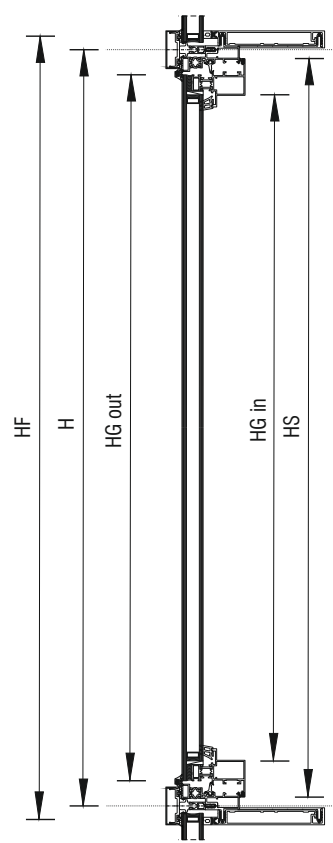
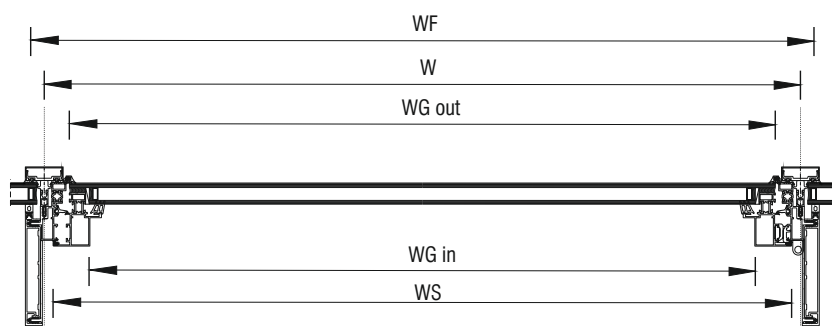
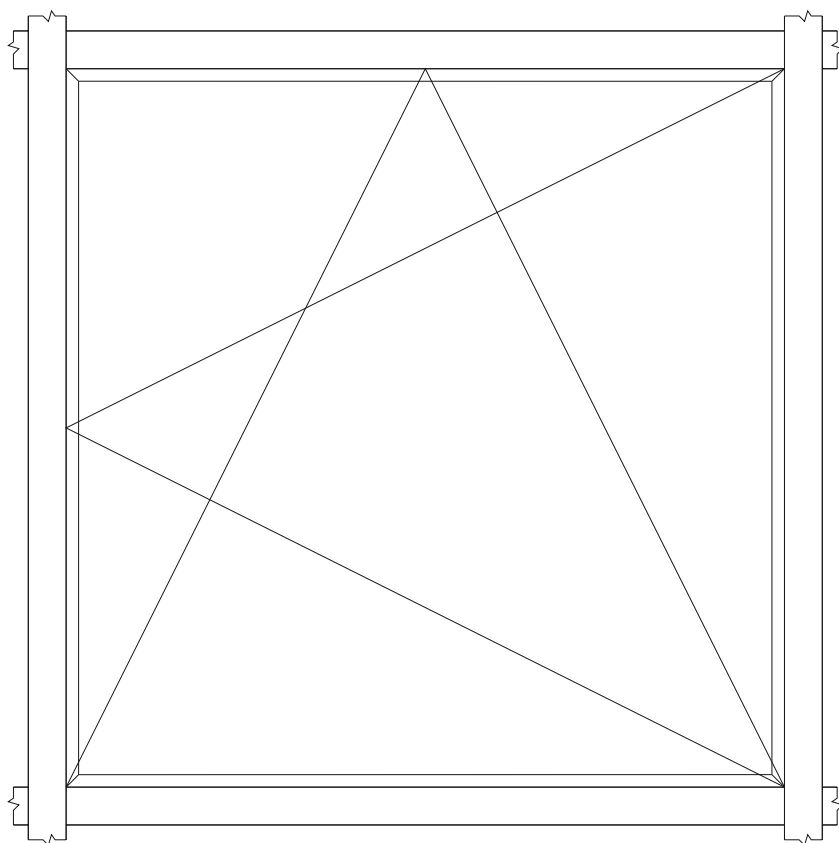
Πλάτος κέντρο κολόνας ; Mullion center width	W
Ύψος κέντρο τραβερσας ; Transom center height	H
Πλάτος Πρόσθετου ; Additional profile width	WA=W-16,0mm
Ύψος Πρόσθετου ; Additional profile height	HA=H-16,0mm
Πλάτος Κάσας ; Frame width	WF=W-63,0mm
Ύψος Κάσας ; Frame height	HF=H-63,0mm
Πλάτος Φύλλου ; Sash width	WS=W-103,0mm
Ύψος Φύλλου ; Sash height	HS=H-103,0mm



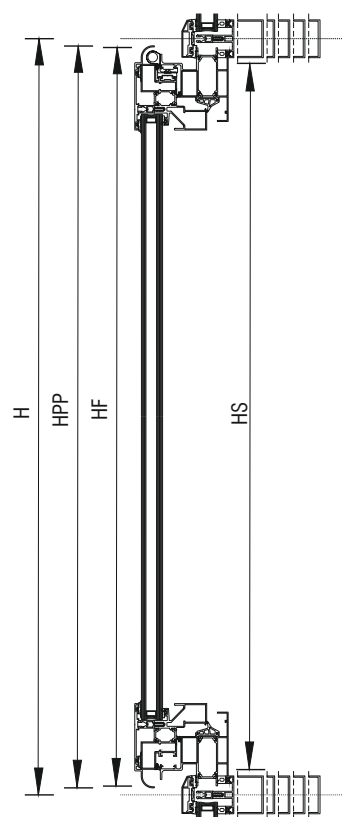
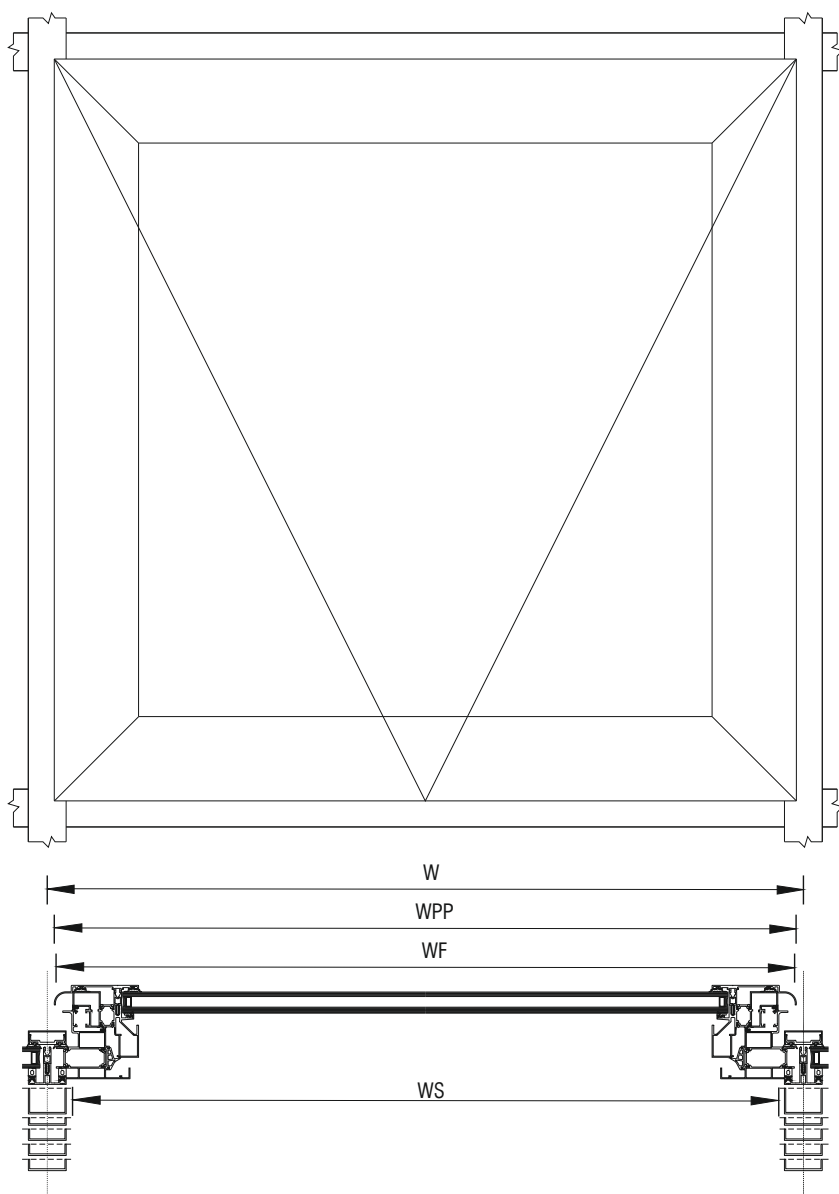
Πλάτος κέντρο κολόνας ; Mullion center width	W
Ύψος κέντρο τραβερσας ; Transom center height	H
Πλάτος Κάσας ; Frame width	WF=W-16,0mm
Ύψος Κάσας ; Frame height	HF=H-16,0mm
Πλάτος Φύλλου ; Sash width	WS=W-88,6mm
Ύψος Φύλλου ; Sash height	HS=H-88,6mm
Πλάτος Τζαμιού (έξω) ; Glazing width (out)	WG out = W-60,0mm
Ύψος Τζαμιού (έξω) ; Glazing height (out)	HG out=H-60,0mm
Πλάτος Τζαμιού (μέσα) ; Glazing width (in)	WG in = W-156,2mm
Ύψος Τζαμιού (μέσα) ; Glazing height (in)	HG in=H-156,2mm



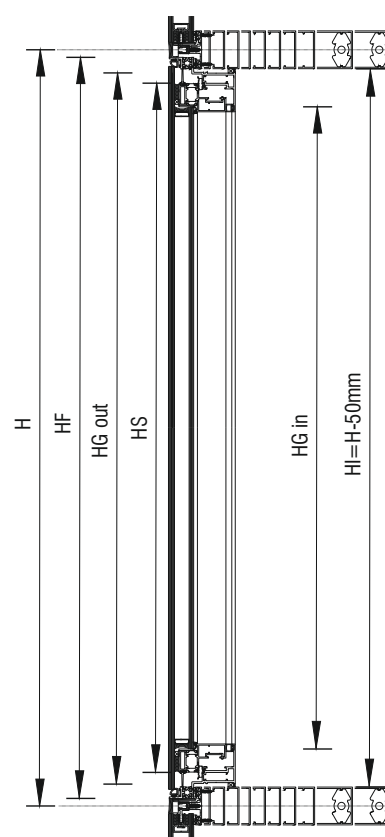
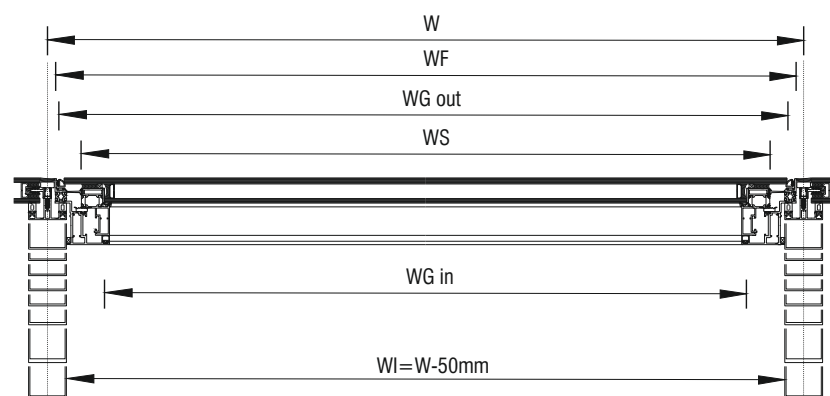
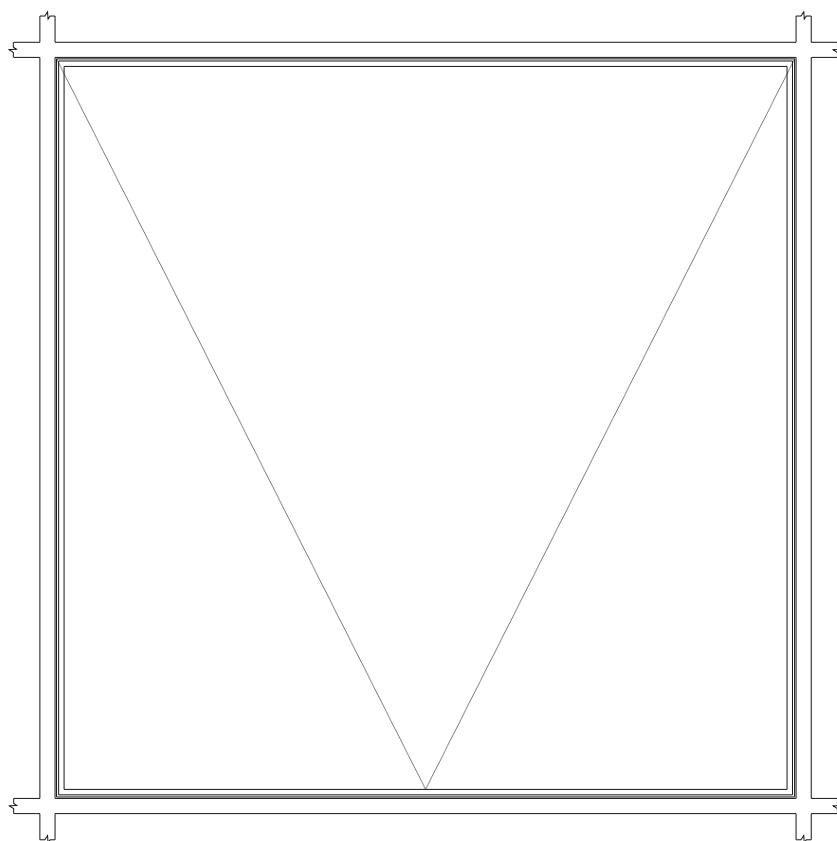
Πλάτος κέντρο κολόνας ; Mullion center width	W
Ύψος κέντρο τραβερσας ; Transom center height	H
Πλάτος Κάσας ; Frame width	WF=W+35,6mm
Ύψος Κάσας ; Frame height	HF=H+35,6,0mm
Πλάτος Φύλλου ; Sash width	WS=WF-59,2mm=W-23,6mm
Ύψος Φύλλου ; Sash height	HS=HF-59,2mm=H-23,6mm
Πλάτος Τζαμιού (έξω) ; Glazing width (out)	WG out = WS-47,0mm
Ύψος Τζαμιού (έξω) ; Glazing height (out)	HG out=HS-47,0mm
Πλάτος Τζαμιού (μέσα) ; Glazing width (in)	WG in= WG out-49,0mm=WS-96,0mm
Ύψος Τζαμιού (μέσα) ; Glazing height (in)	HG in=HG out-49,0mm=HS-96,0mm



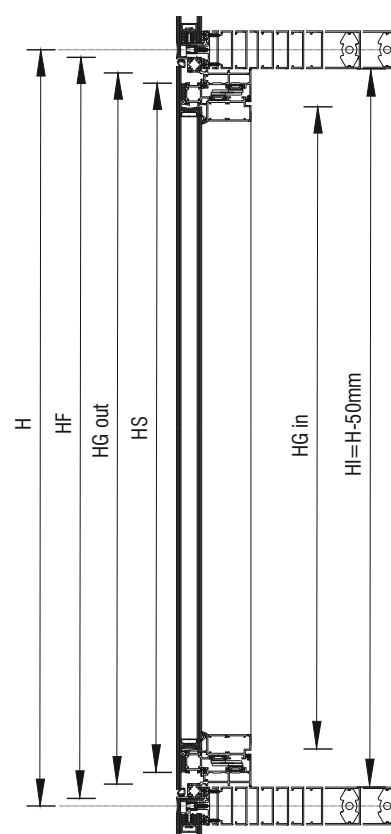
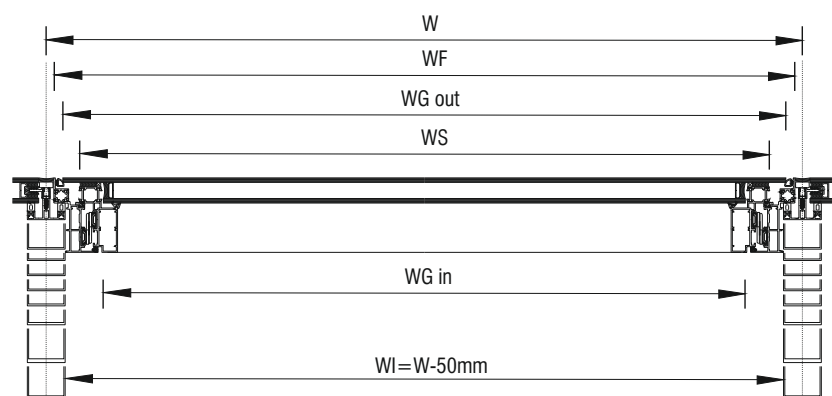
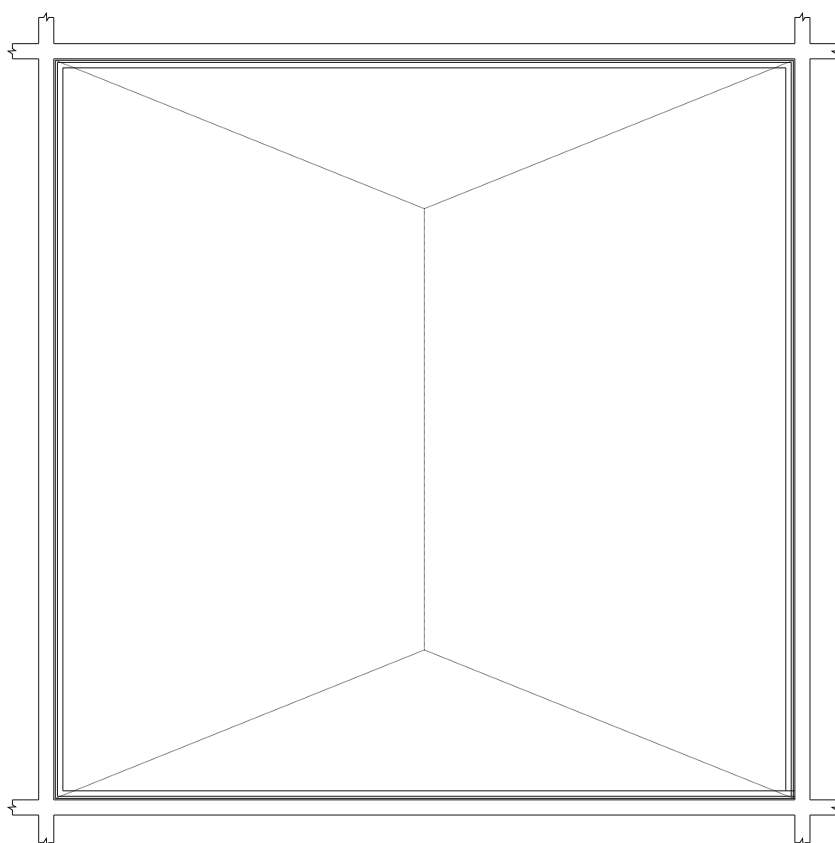
Πλάτος κέντρο κολόνας ; Mullion center width	W
Ύψος κέντρο τραβερσας ; Transom center height	H
Πλάτος πλάκας πίεσης ; Pressure plate width	WPP=W-18,4mm
Ύψος πλάκας πίεσης ; Pressure plate height	HPP=H-18,4mm
Πλάτος Κάσας ; Frame width	WF=W-23,8mm
Ύψος Κάσας ; Frame height	HF=H-23,8mm
Πλάτος Φύλλου ; Sash width	WS=WF-43,0mm
Ύψος Φύλλου ; Sash height	HS=HF-43,0mm

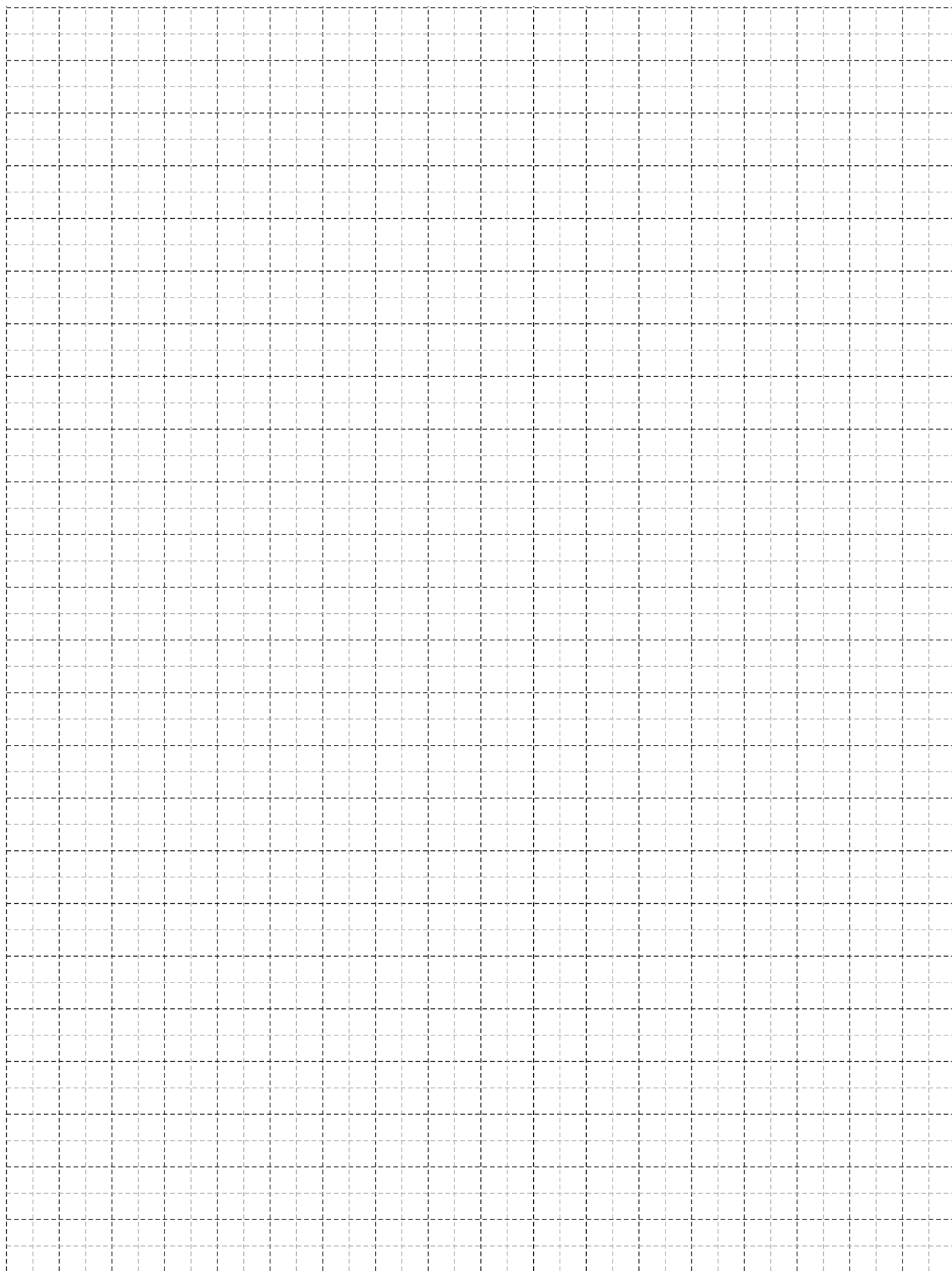


Πλάτος κέντρο κολόνας Mullion center width	W
Ύψος κέντρο τραβερσας Transom center height	H
Πλάτος Κάσας Frame width	WF=W-20,0mm
Ύψος Κάσας Frame height	HF=H-20,0mm
Πλάτος Φύλλου Sash width	WS=W-88,8mm
Ύψος Φύλλου Sash height	HS=H-88,8mm
Πλάτος Τζαμιού (έξω) Glazing width (out)	WG out = W-44,0mm
Ύψος Τζαμιού (έξω) Glazing height (out)	HG out=H-44,0mm
Πλάτος Τζαμιού (μέσα) Glazing width (in)	WG in = W-150,8mm
Ύψος Τζαμιού (μέσα) Glazing height (in)	HG in=H-150,8mm

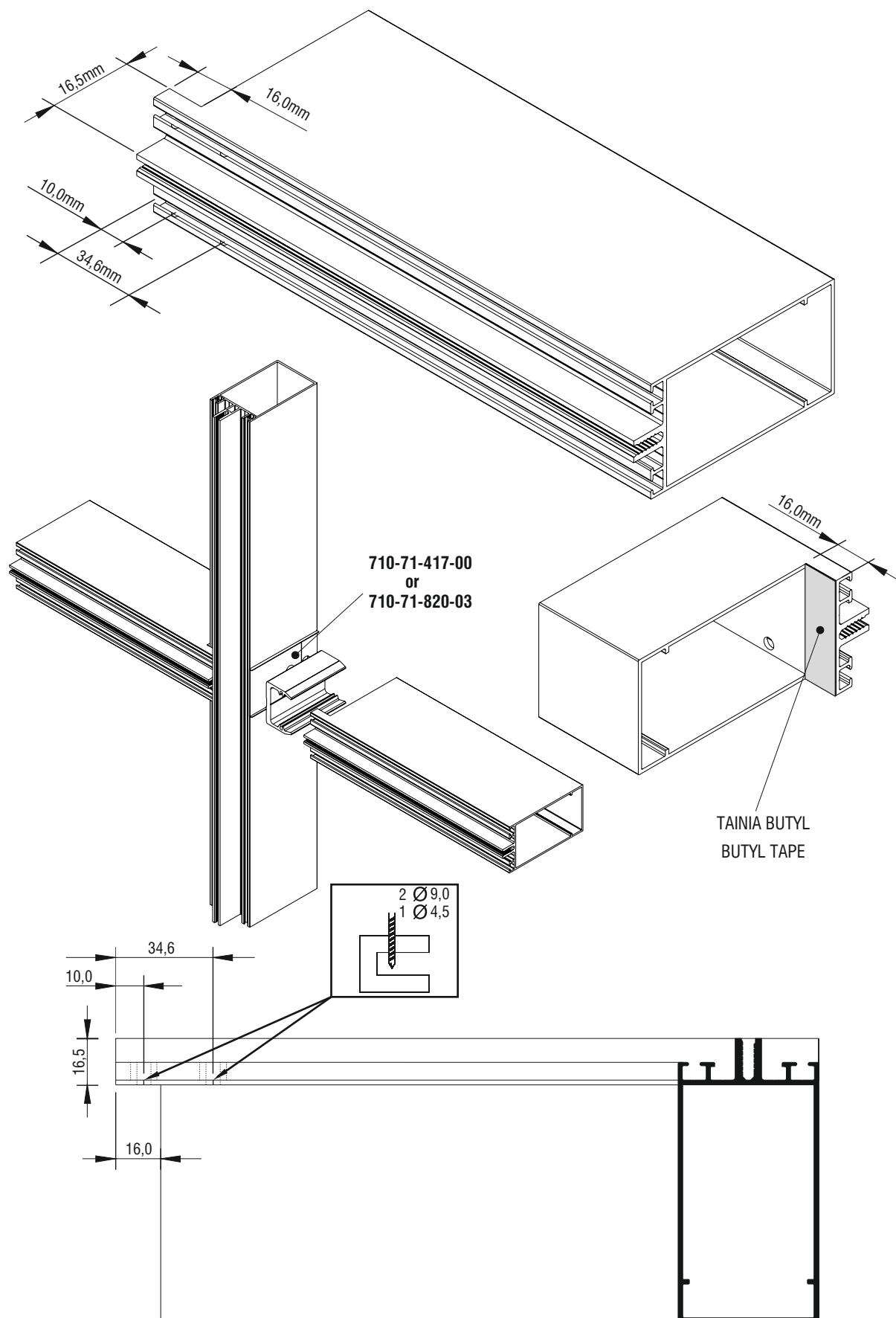


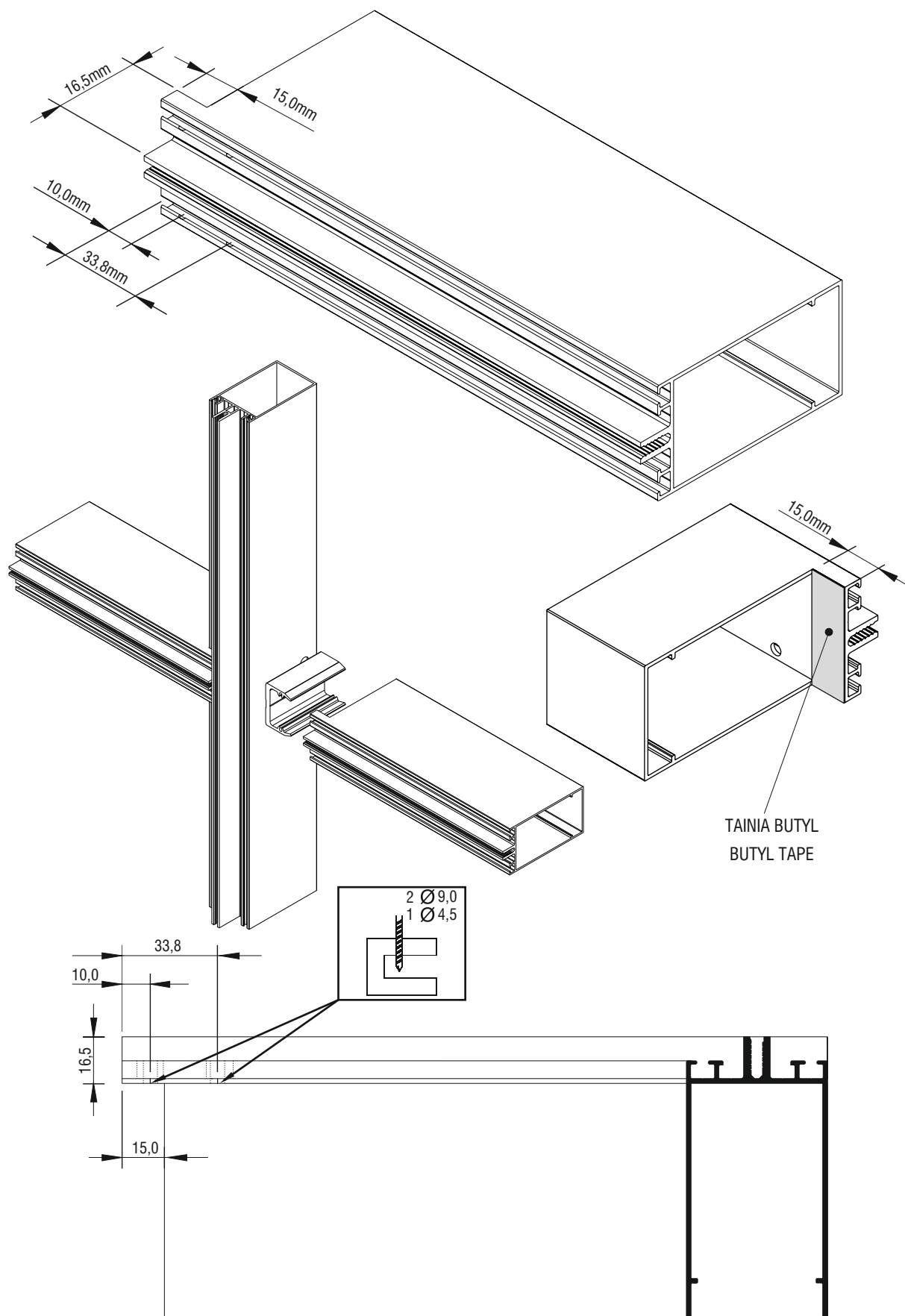
Πλάτος κέντρο κολόνας ; Mullion center width	W
Ύψος κέντρο τραβερσας ; Transom center height	H
Πλάτος Κάσας ; Frame width	WF=W-20,0mm
Ύψος Κάσας ; Frame height	HF=H-20,0mm
Πλάτος Φύλλου ; Sash width	WS=W-87,6mm
Ύψος Φύλλου ; Sash height	HS=H-87,6mm
Πλάτος Τζαμιού (έξω) ; Glazing width (out)	WG out = W-44,0mm
Ύψος Τζαμιού (έξω) ; Glazing height (out)	HG out=H-44,0mm
Πλάτος Τζαμιού (μέσα) ; Glazing width (in)	WG in = W-151,2mm
Ύψος Τζαμιού (μέσα) ; Glazing height (in)	HG in=H-151,2mm

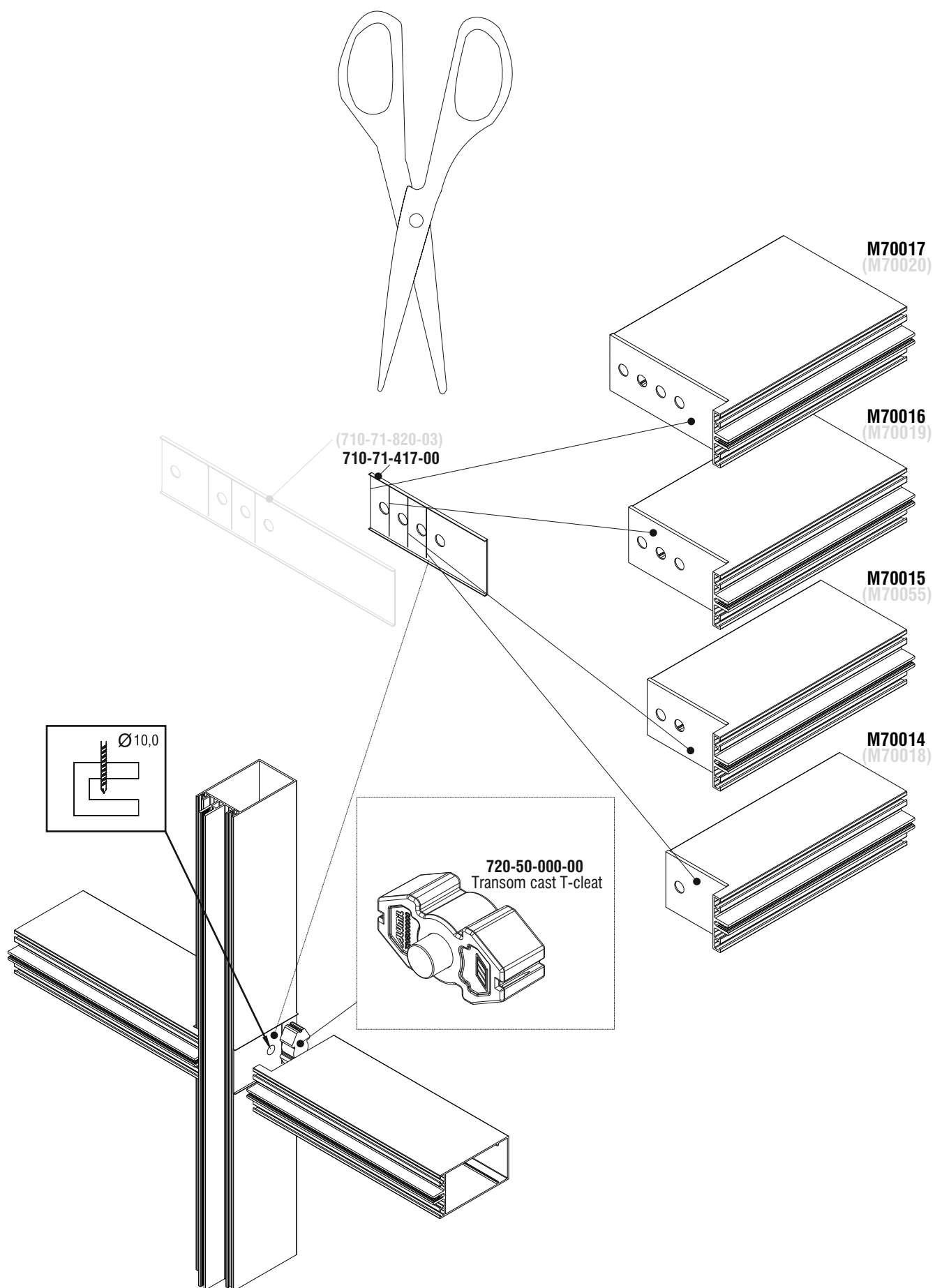


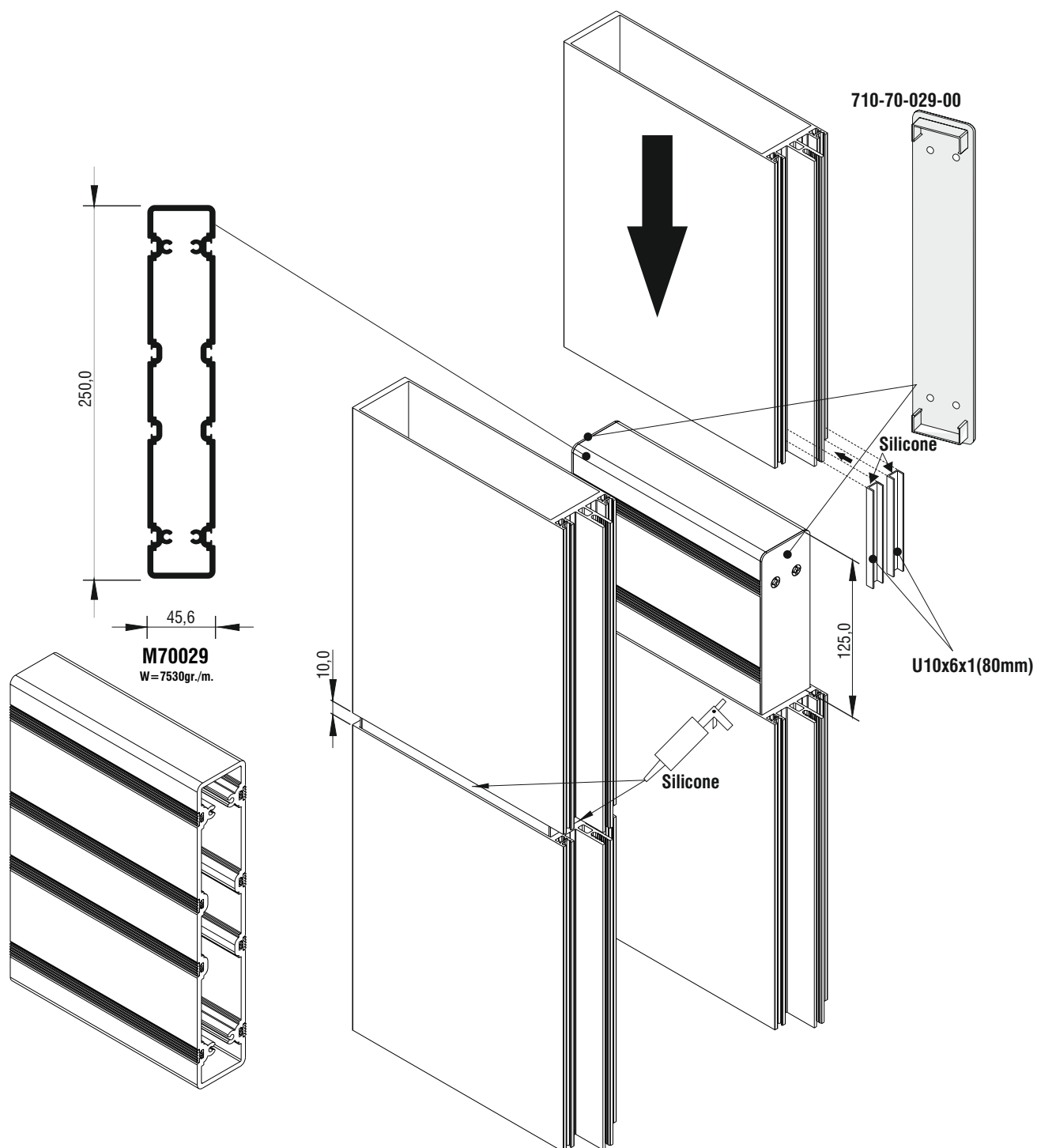


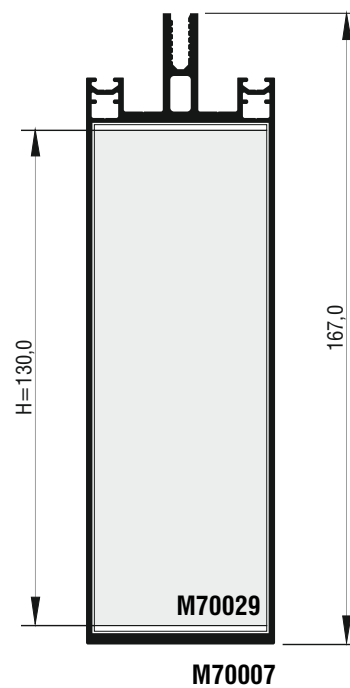
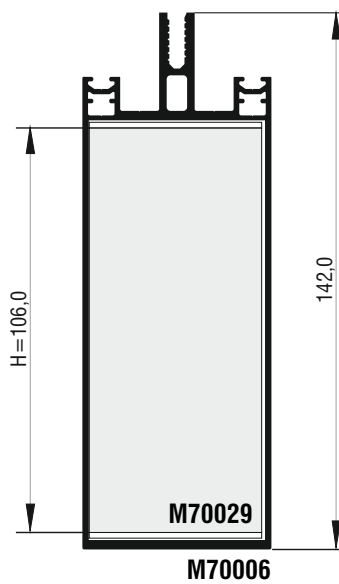
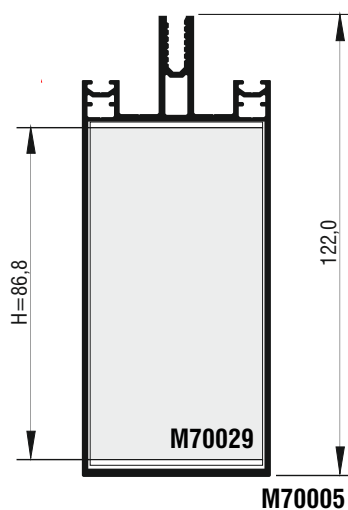
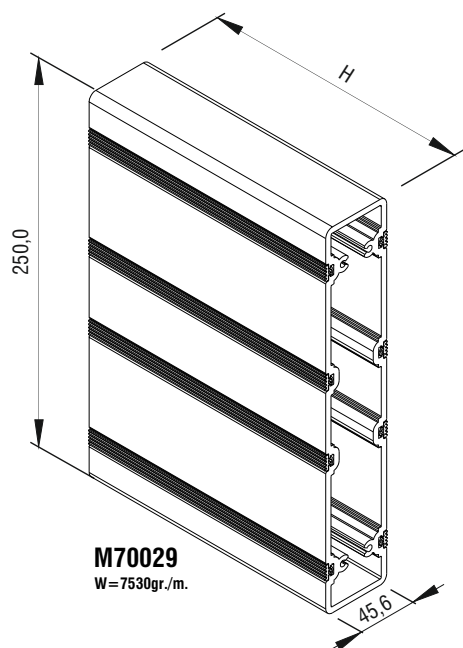
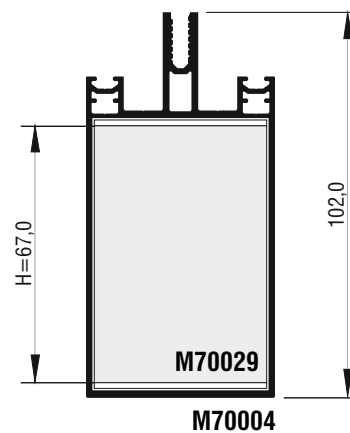
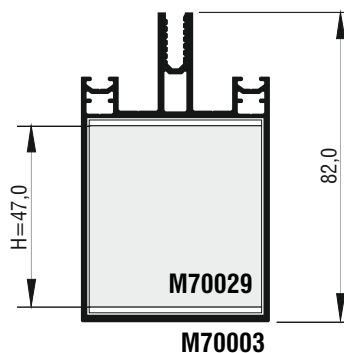
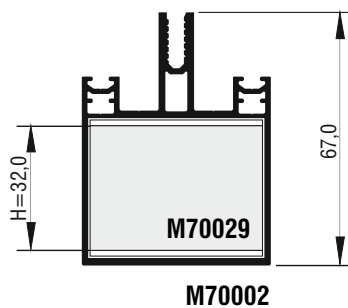
Κατεργασίες Milling-Tooling Operations

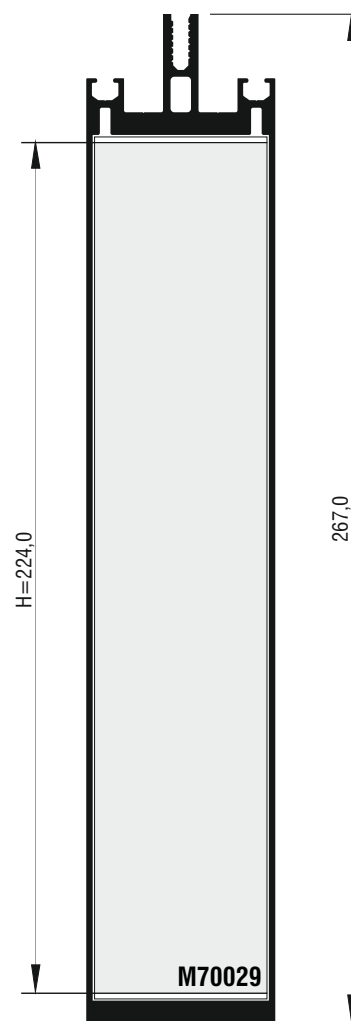
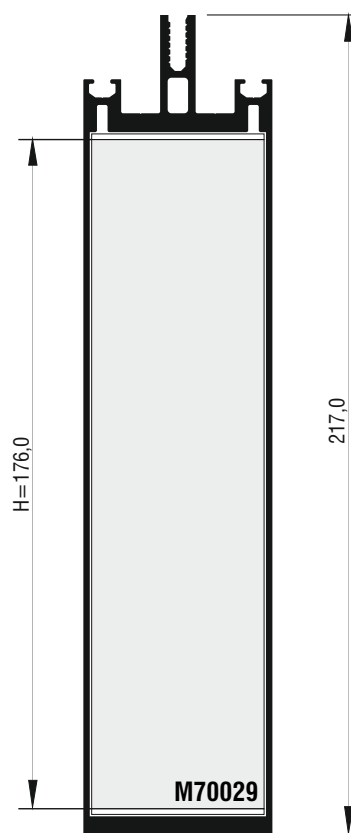
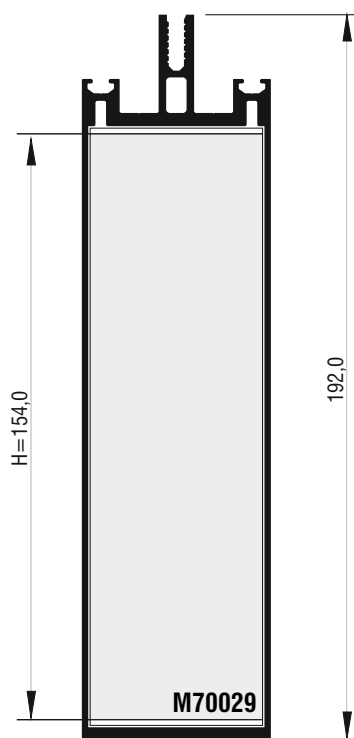
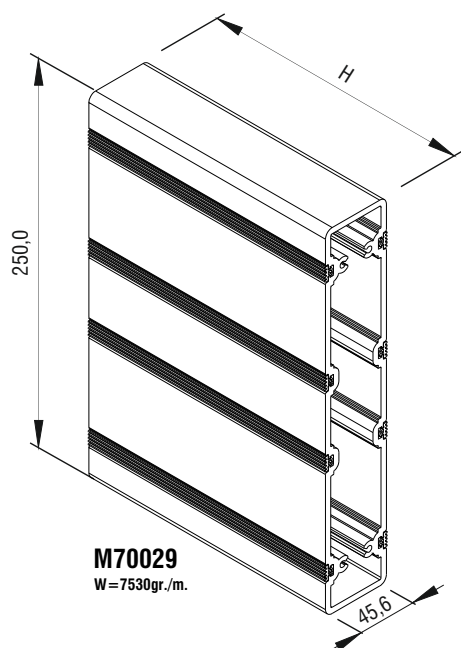


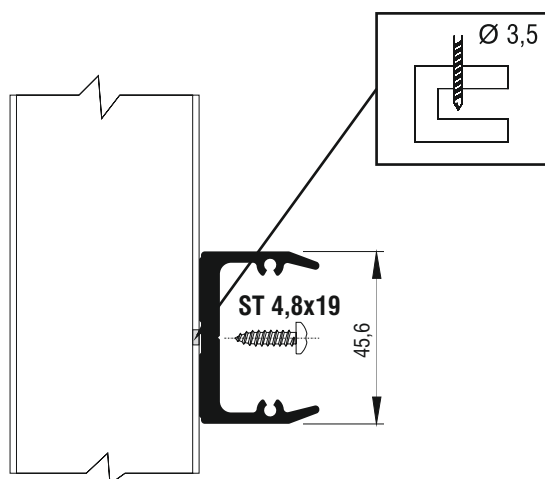




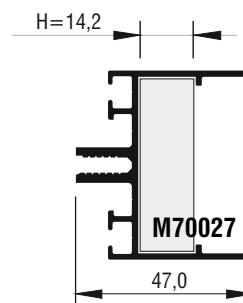
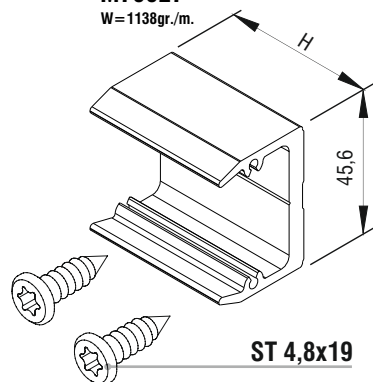




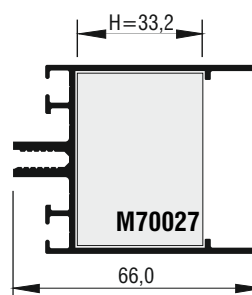




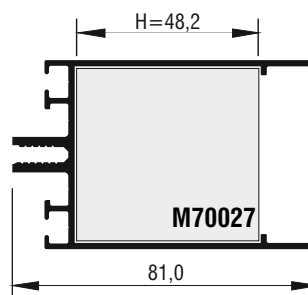
M70027
W = 1138gr./m.



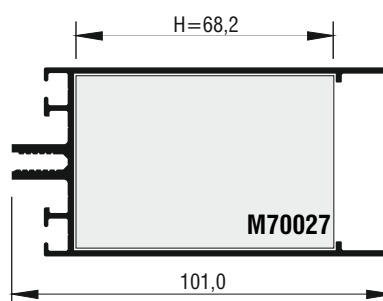
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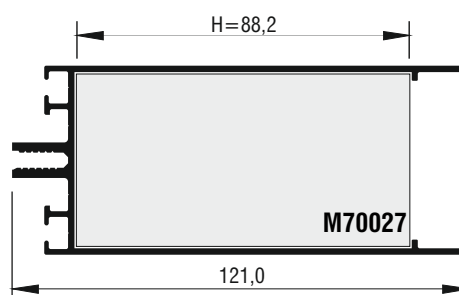
M70013



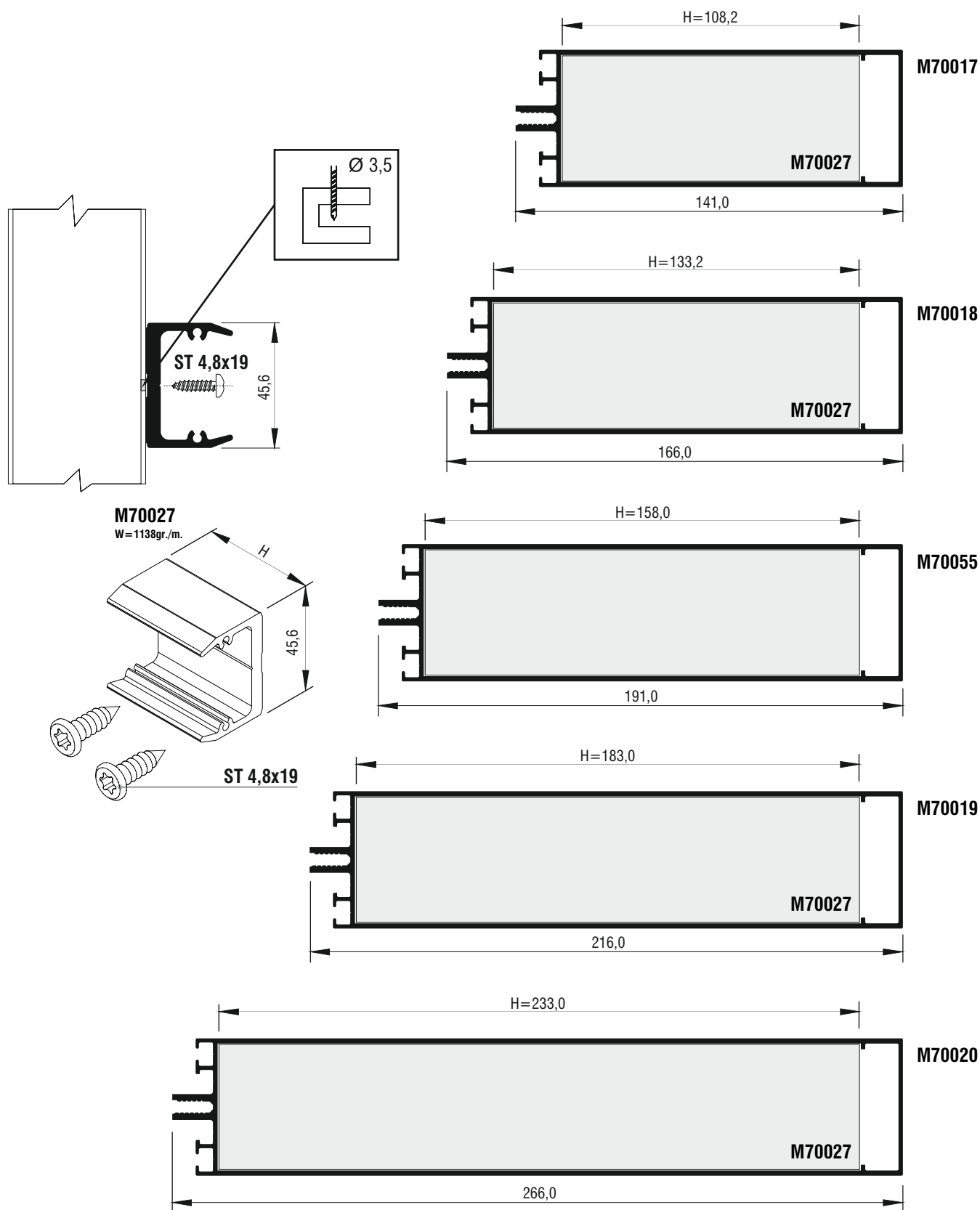
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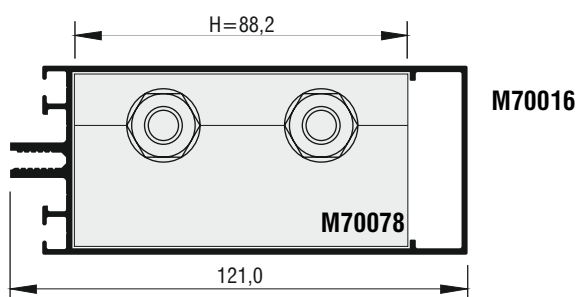
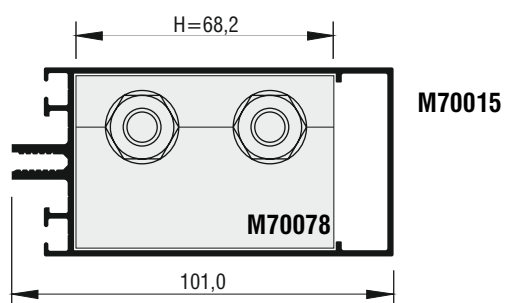
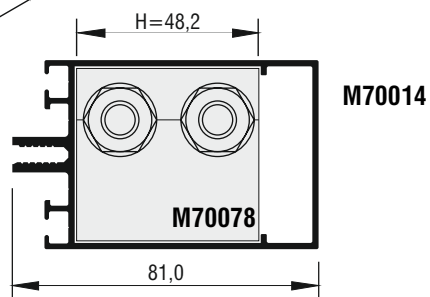
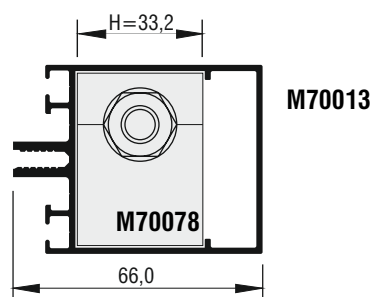
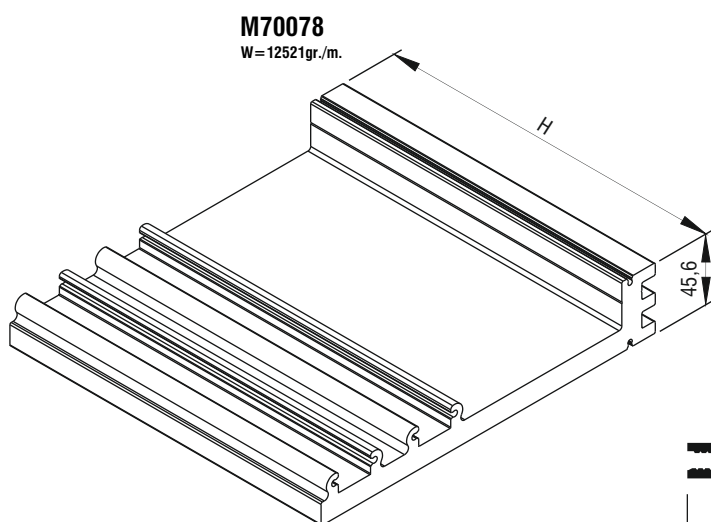
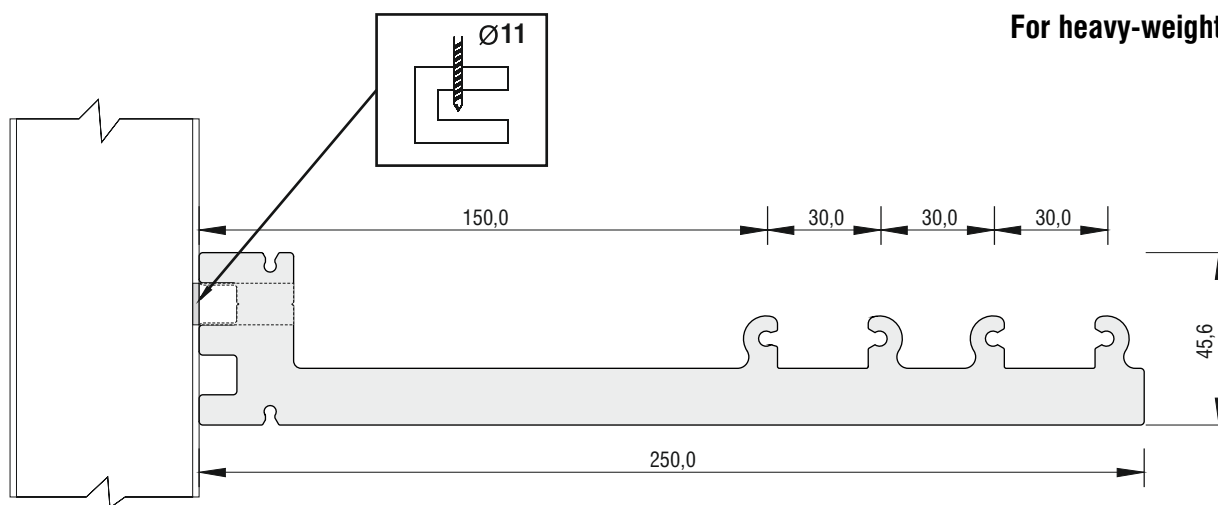
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M70016

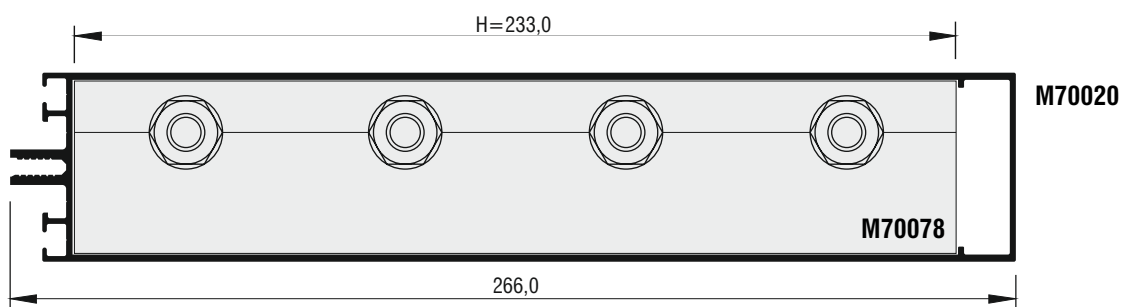
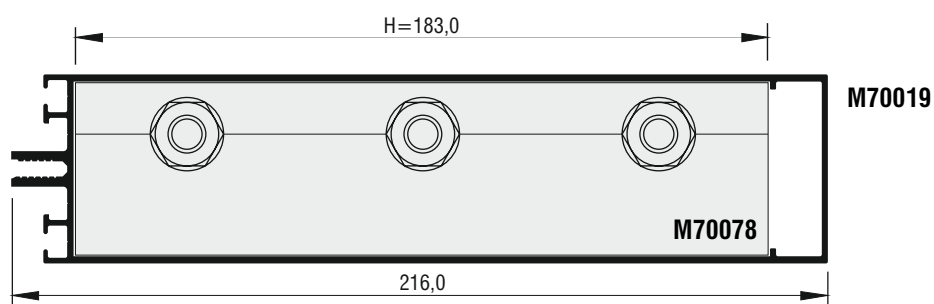
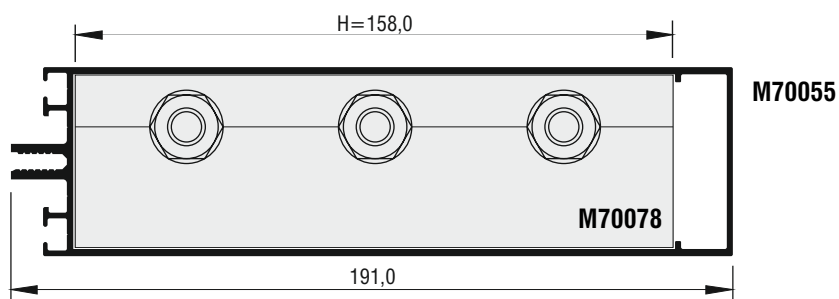
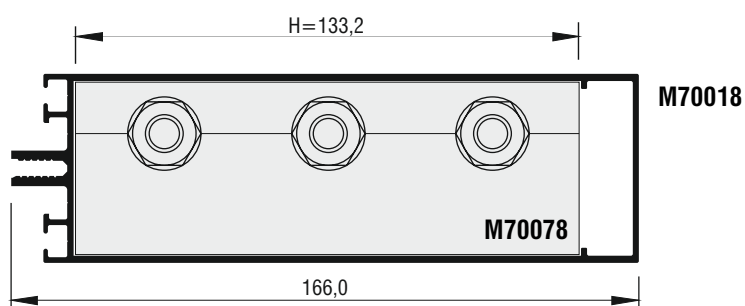
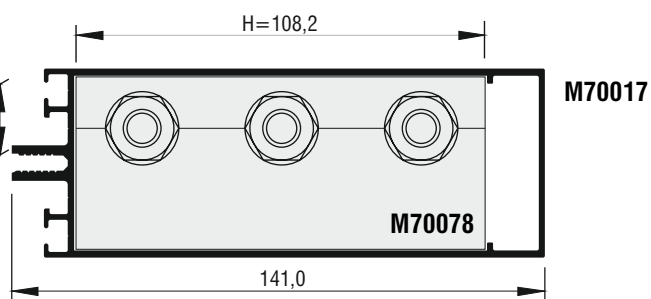
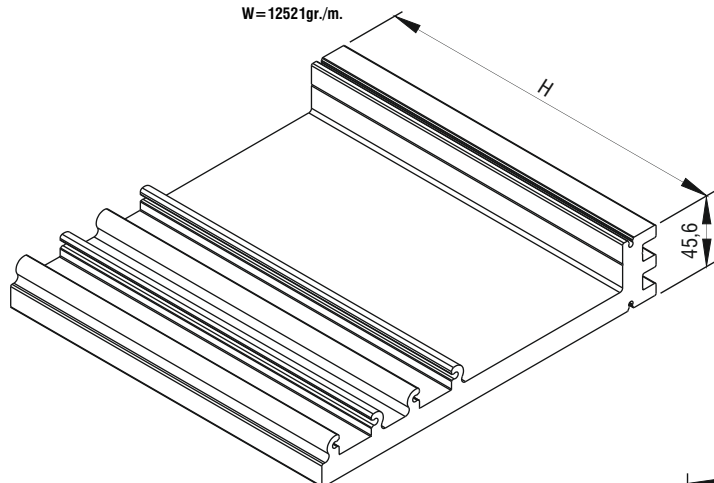


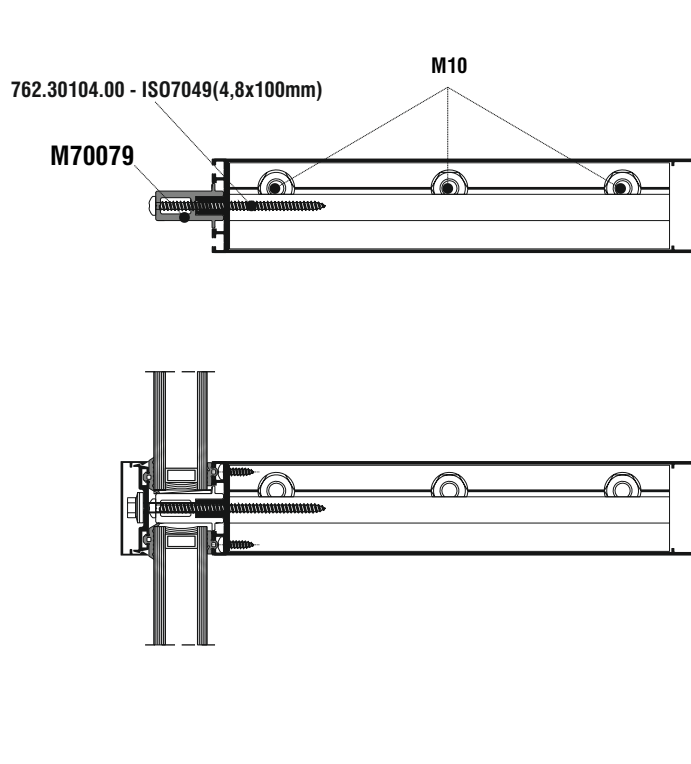
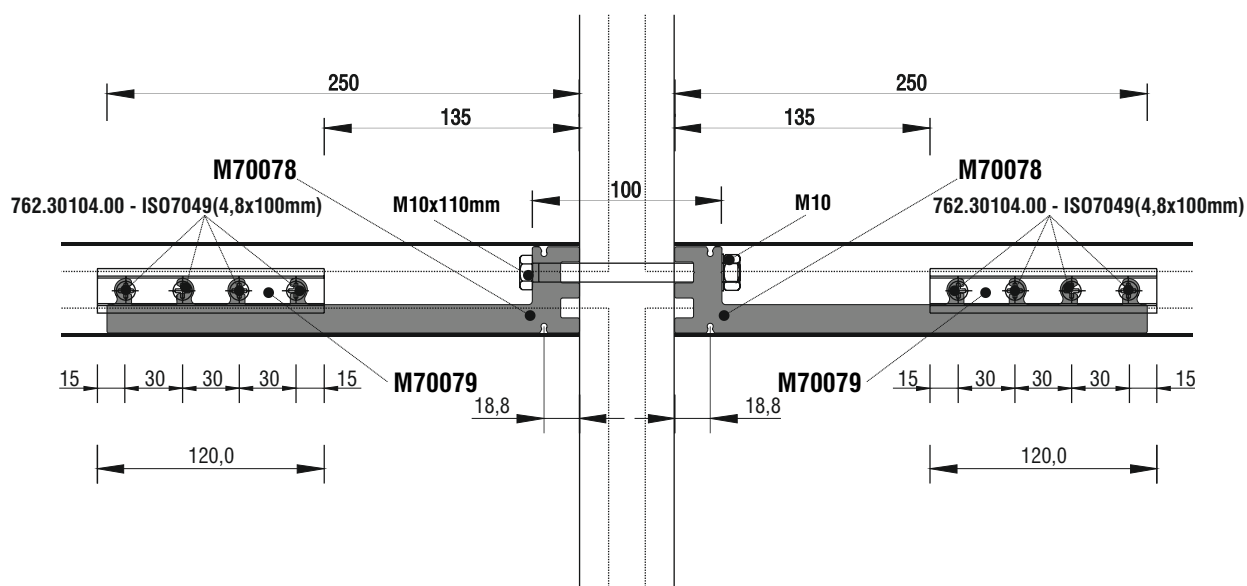
For heavy-weight glass



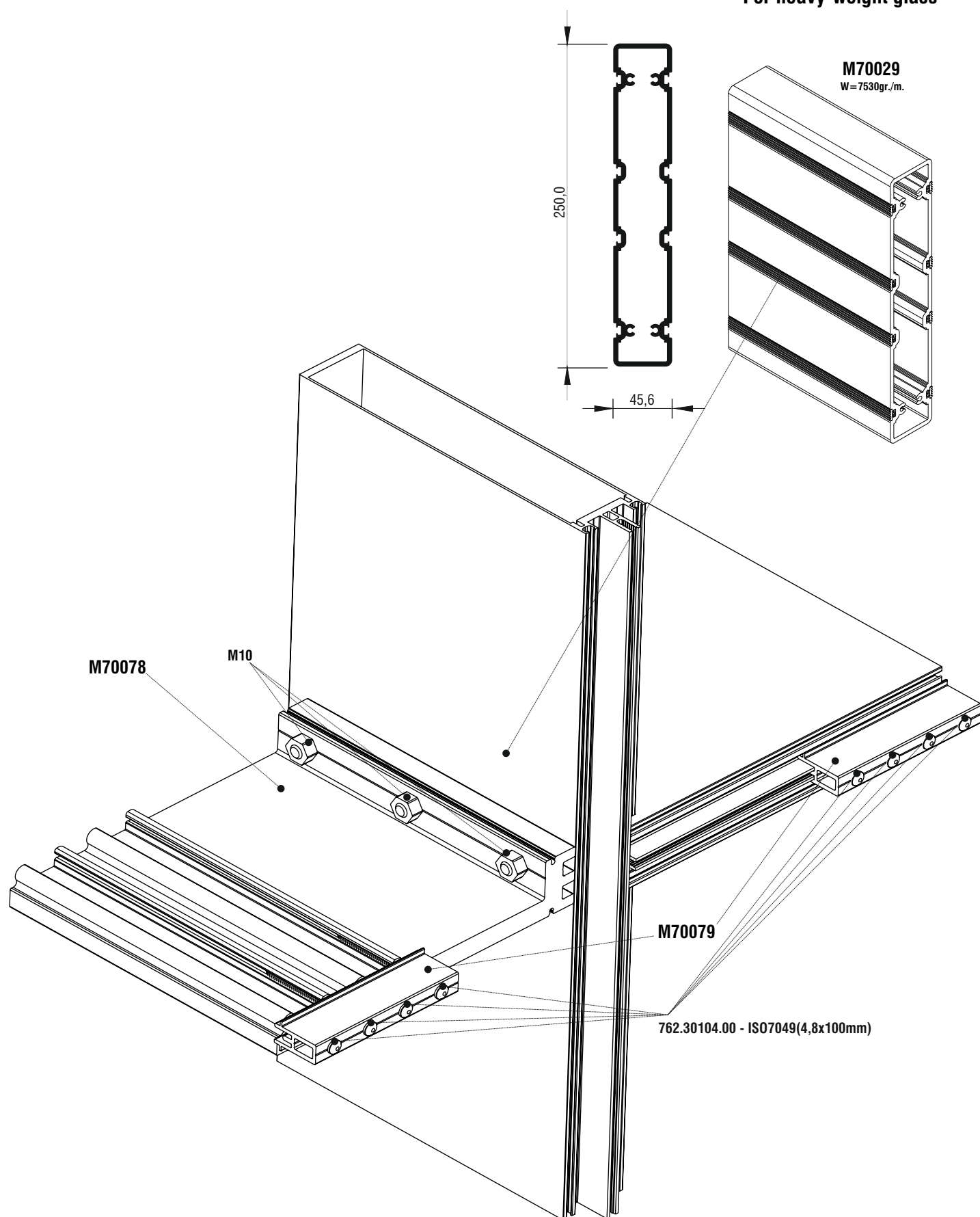
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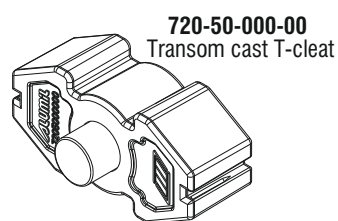
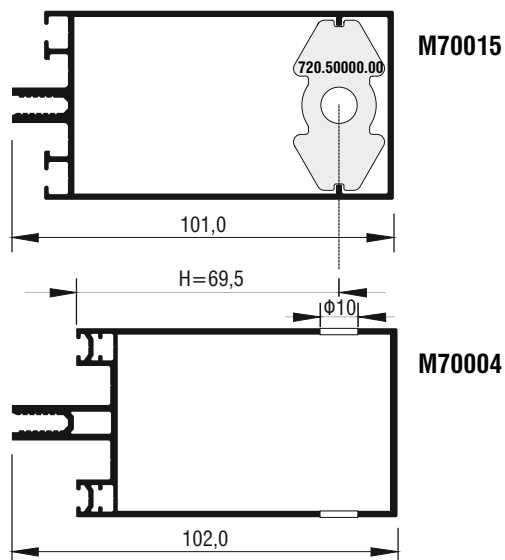
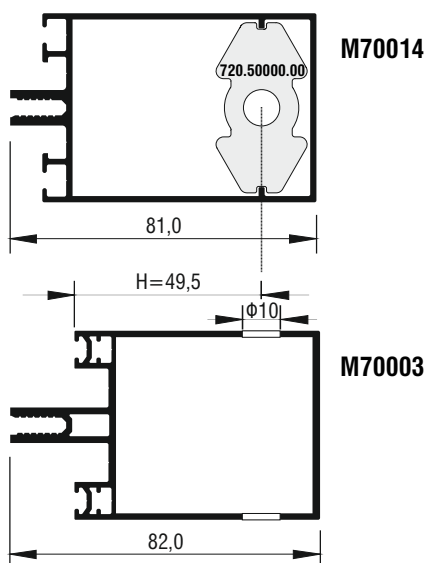
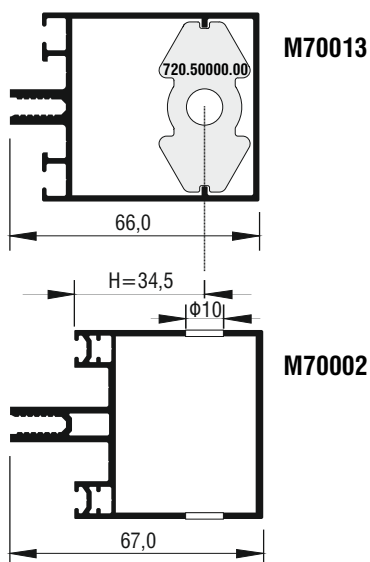
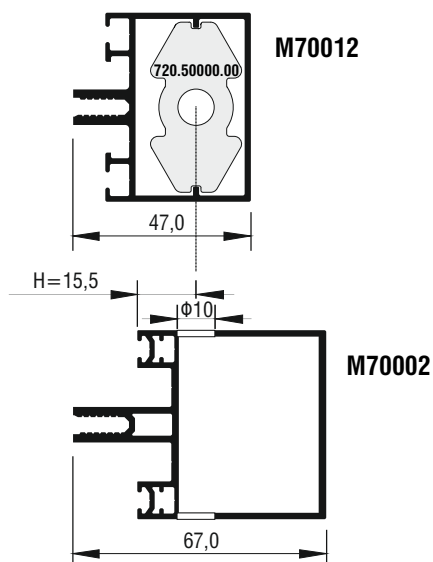
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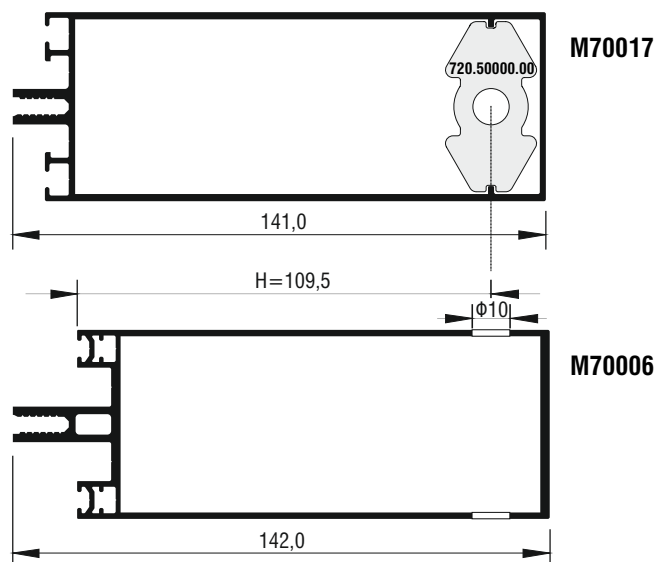
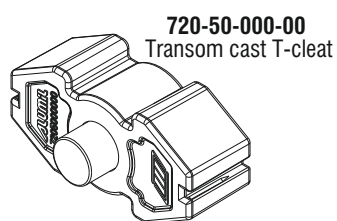
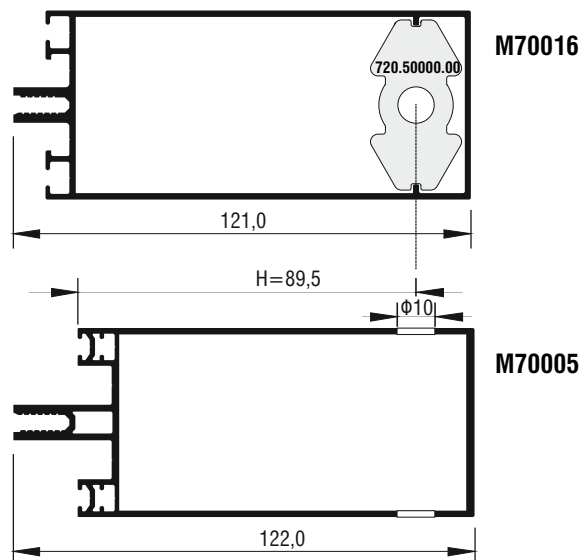


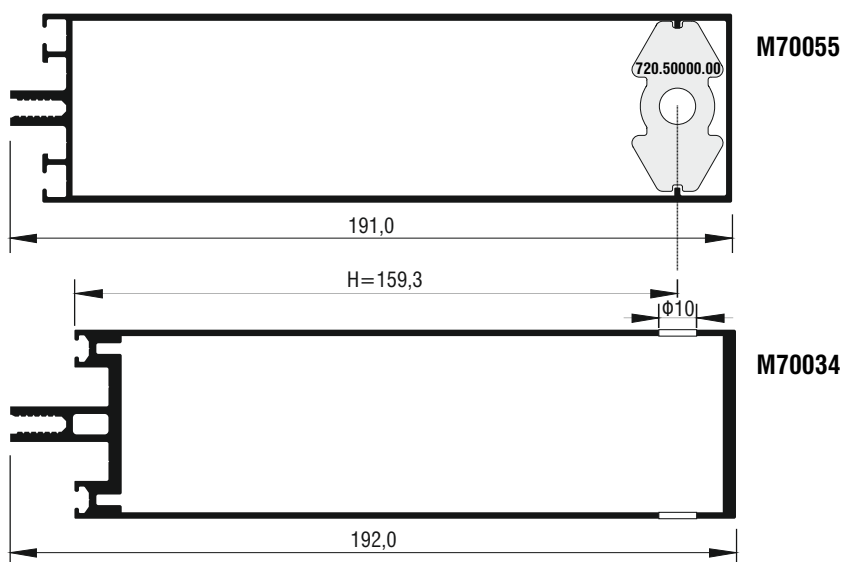
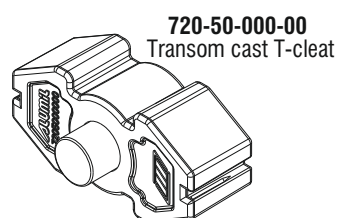
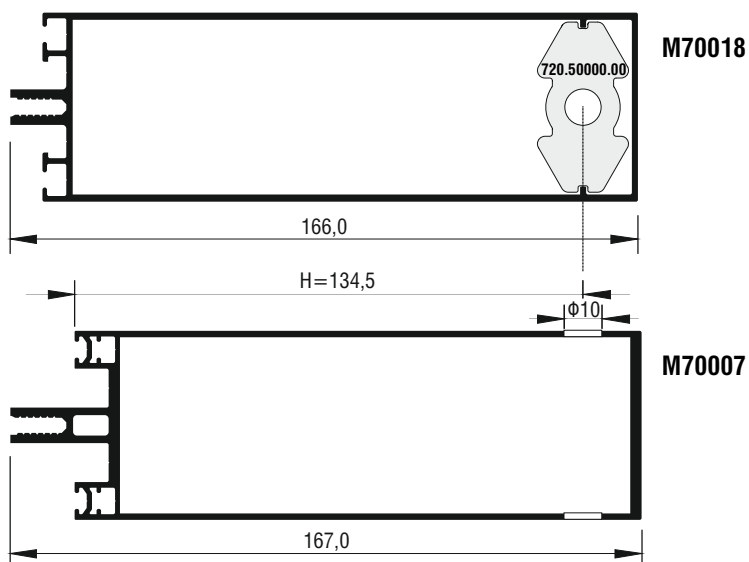


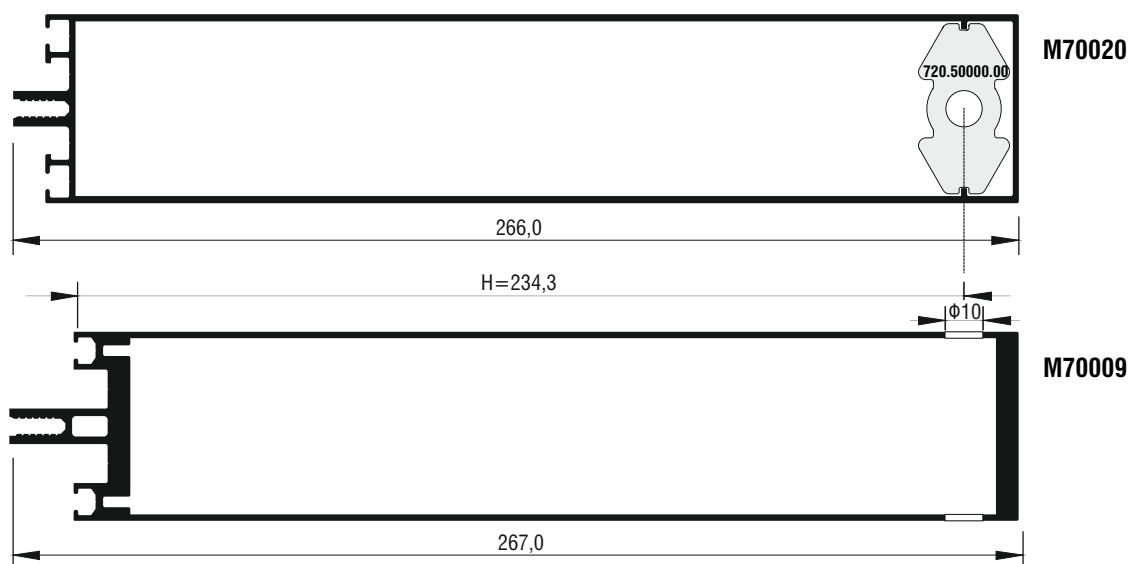
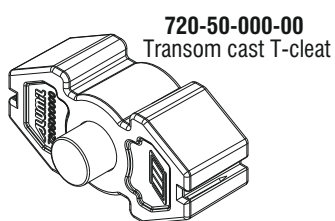
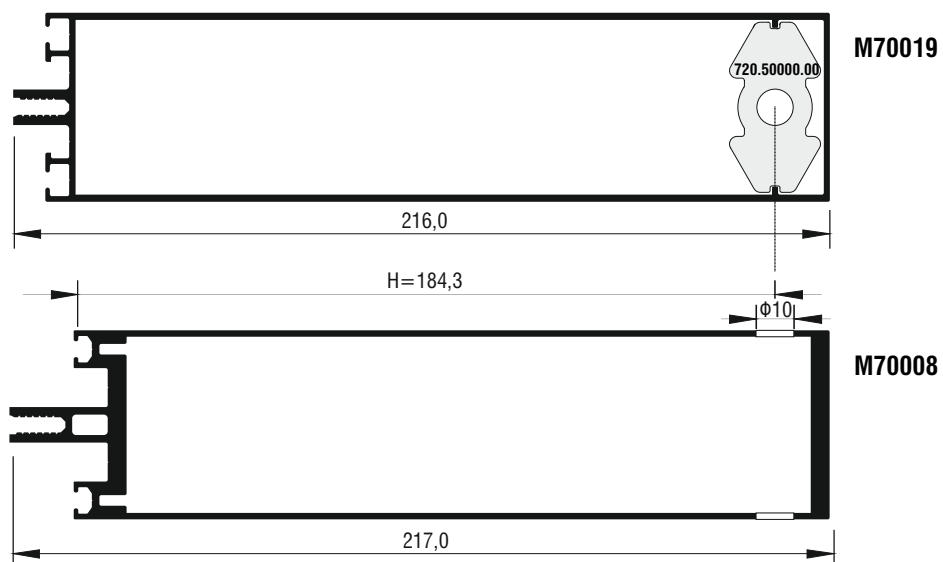
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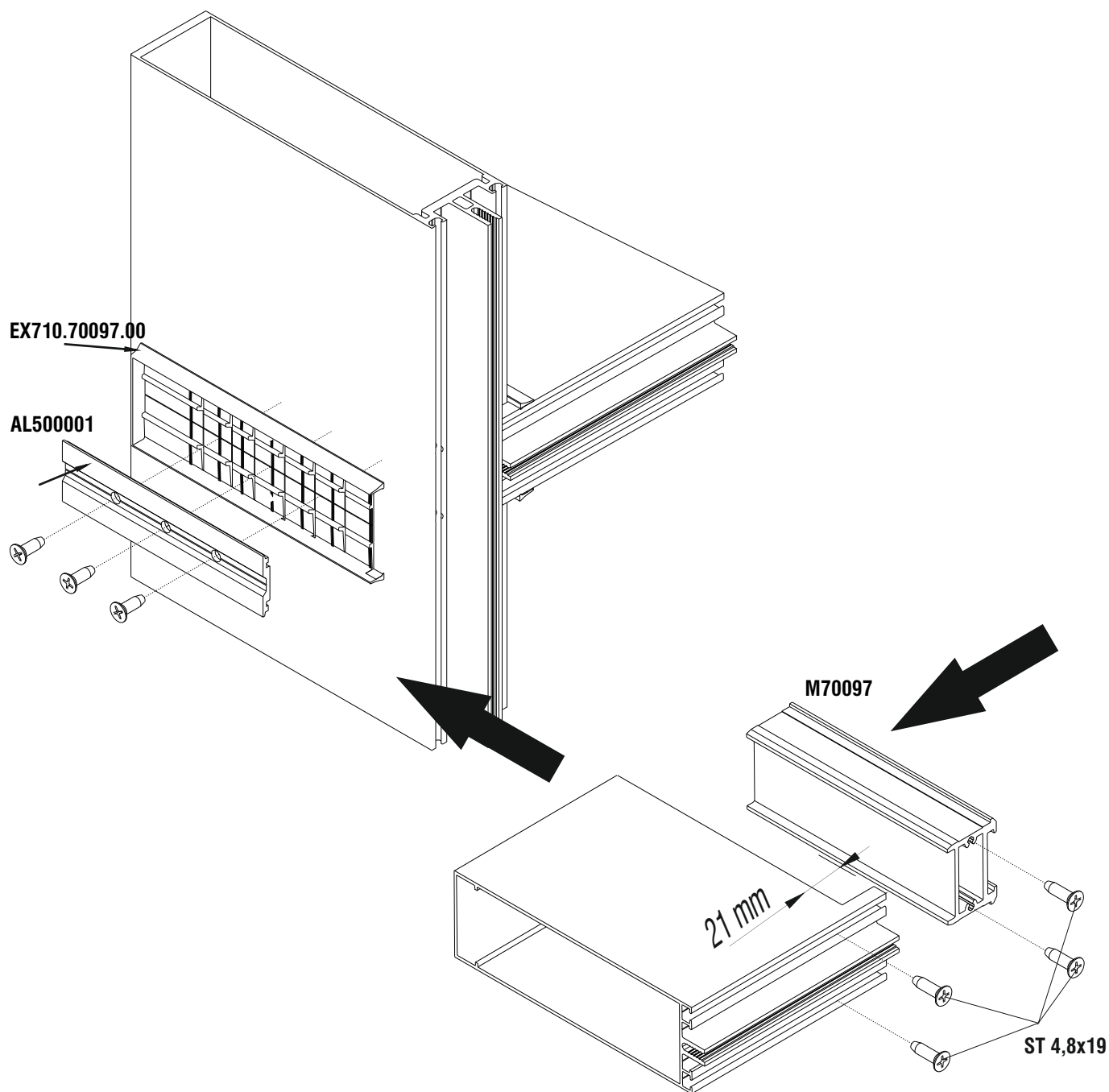


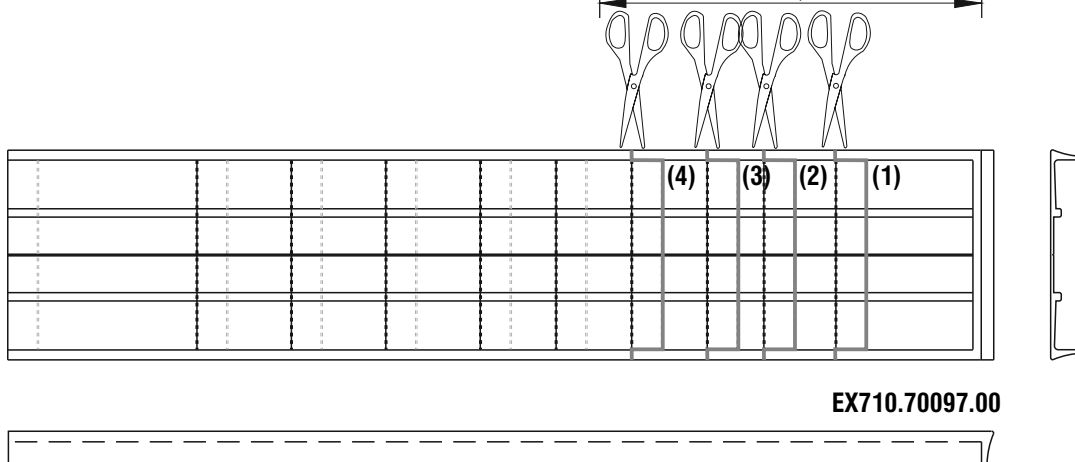
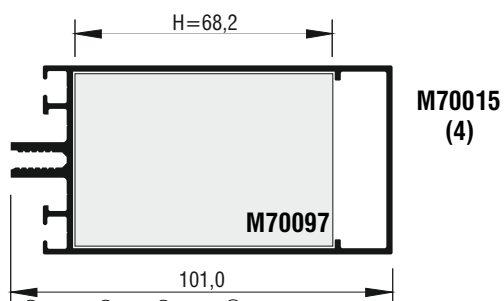
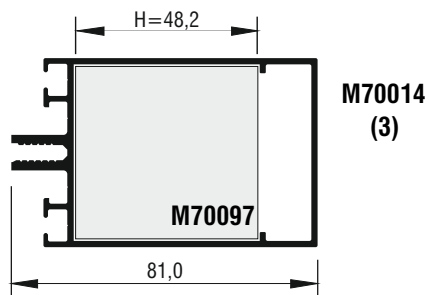
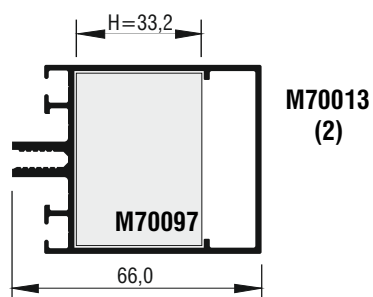
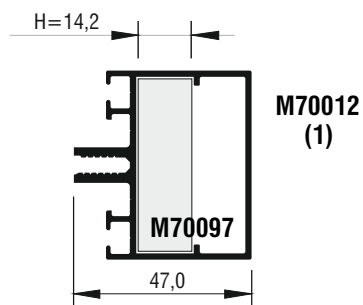
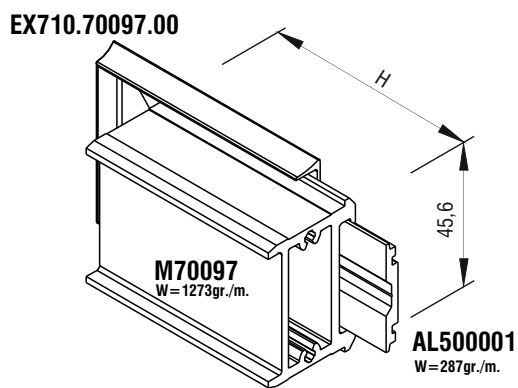
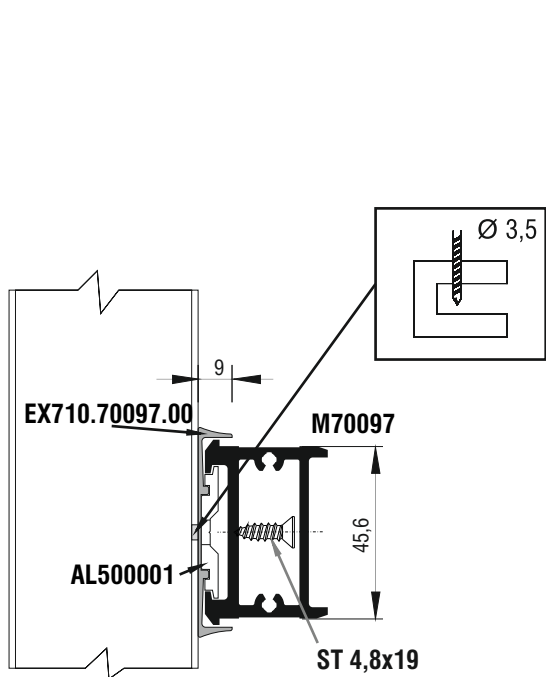


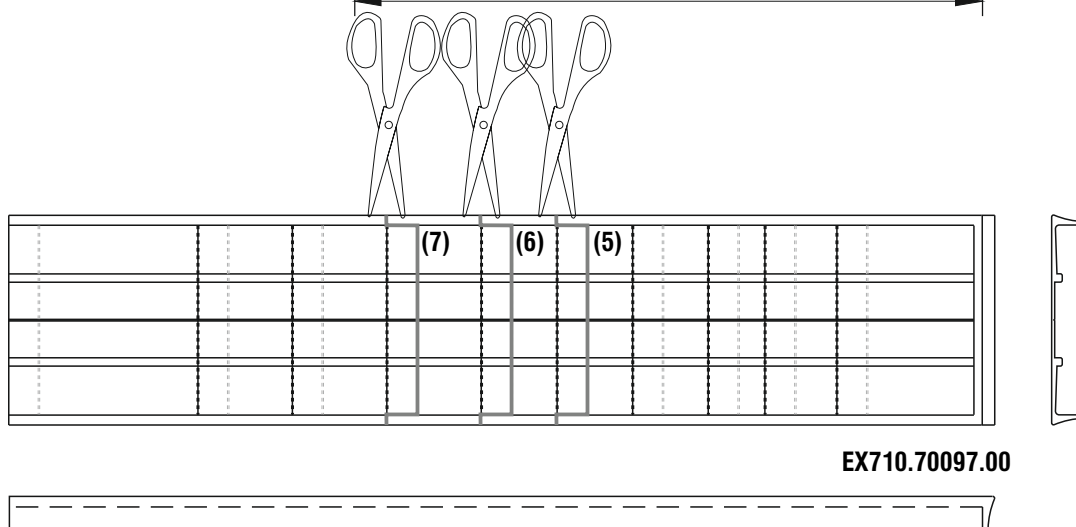
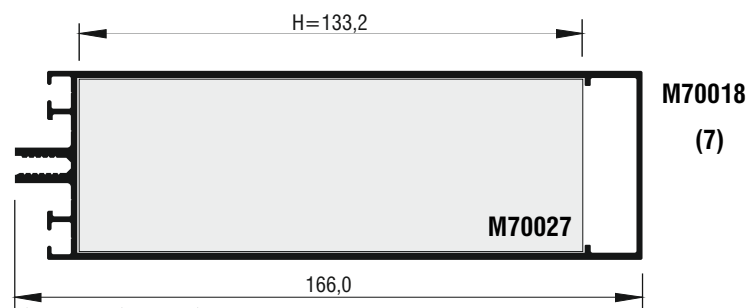
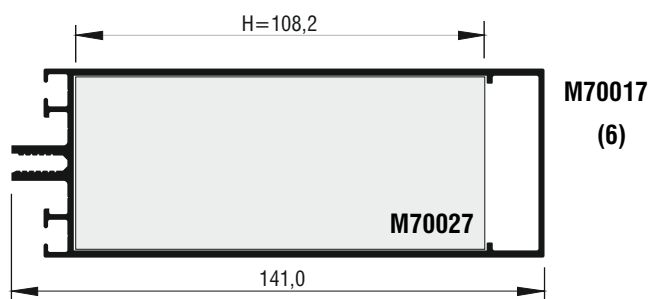
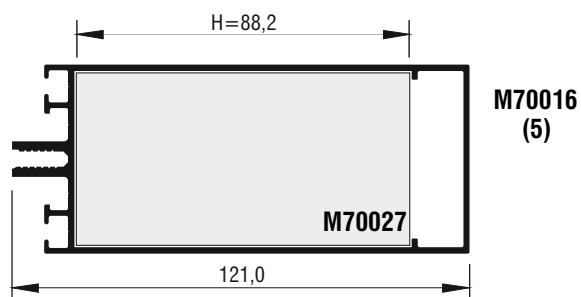


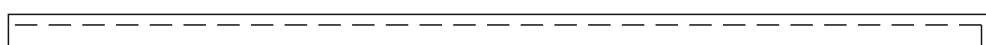
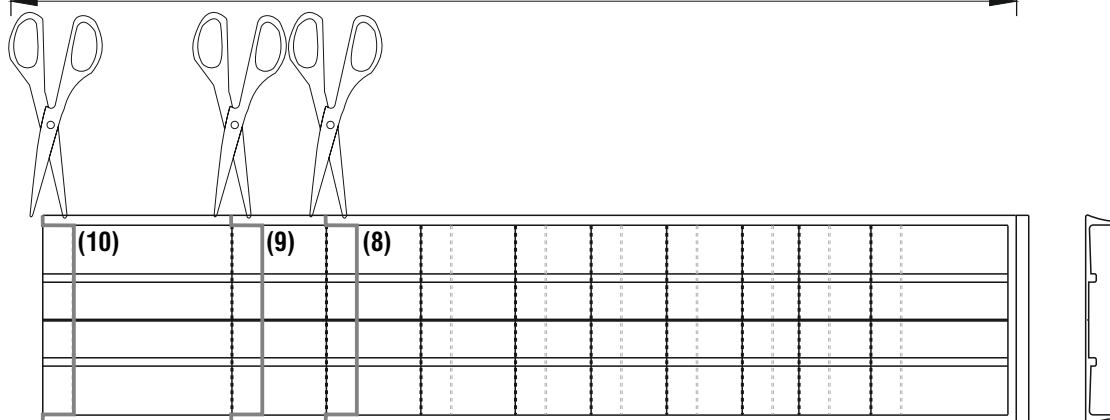
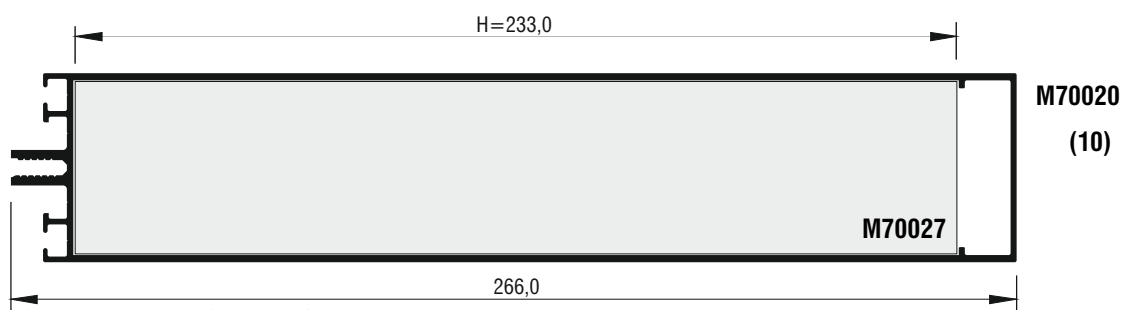
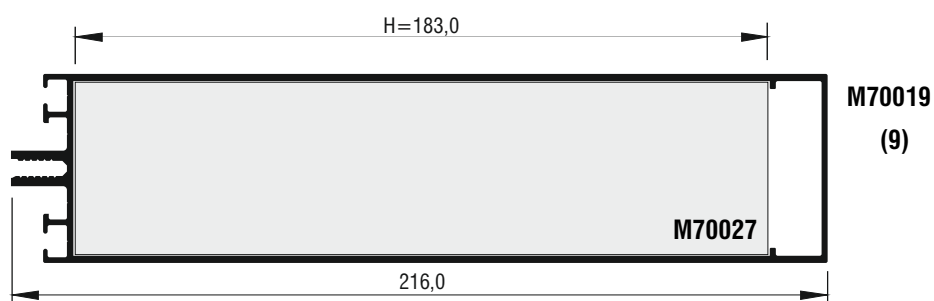
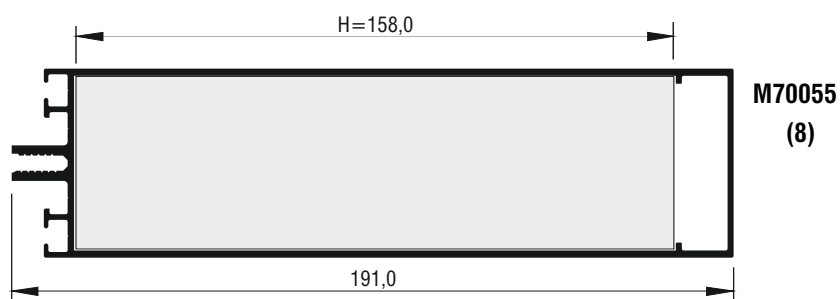


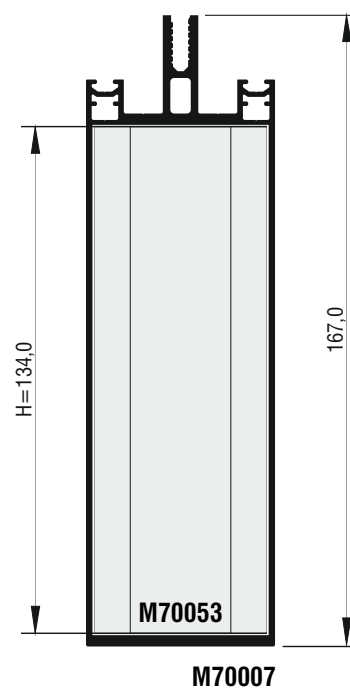
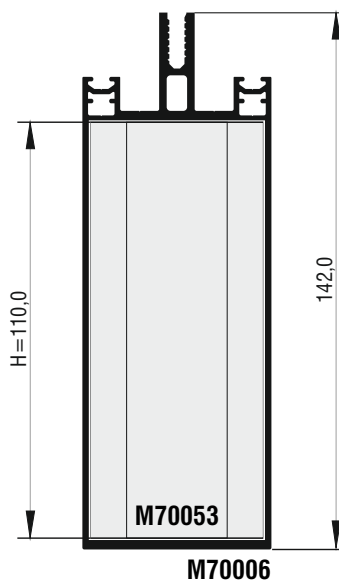
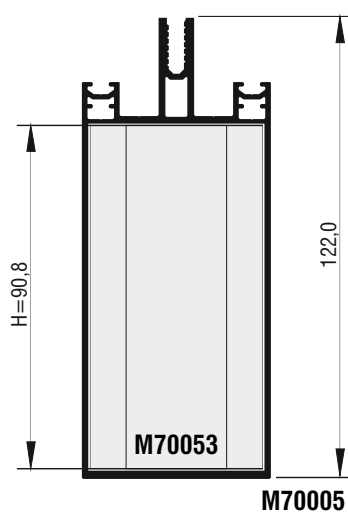
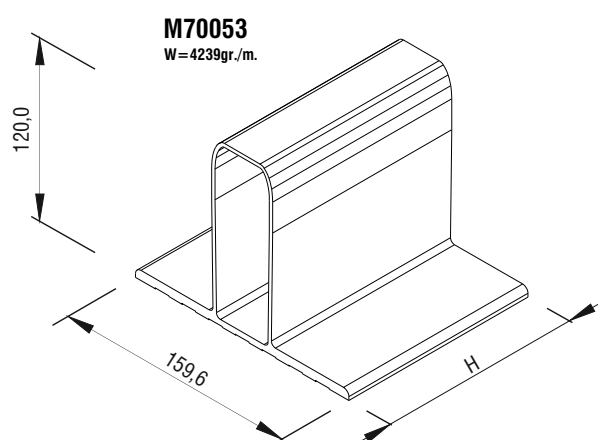
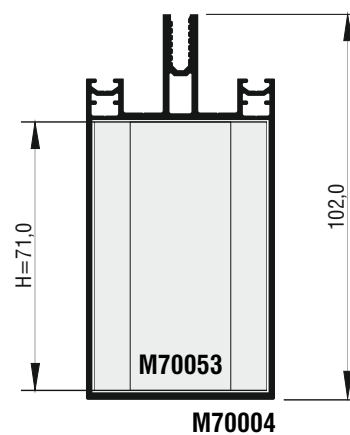
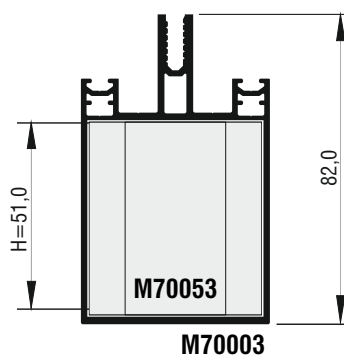
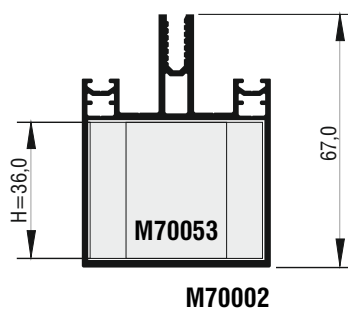


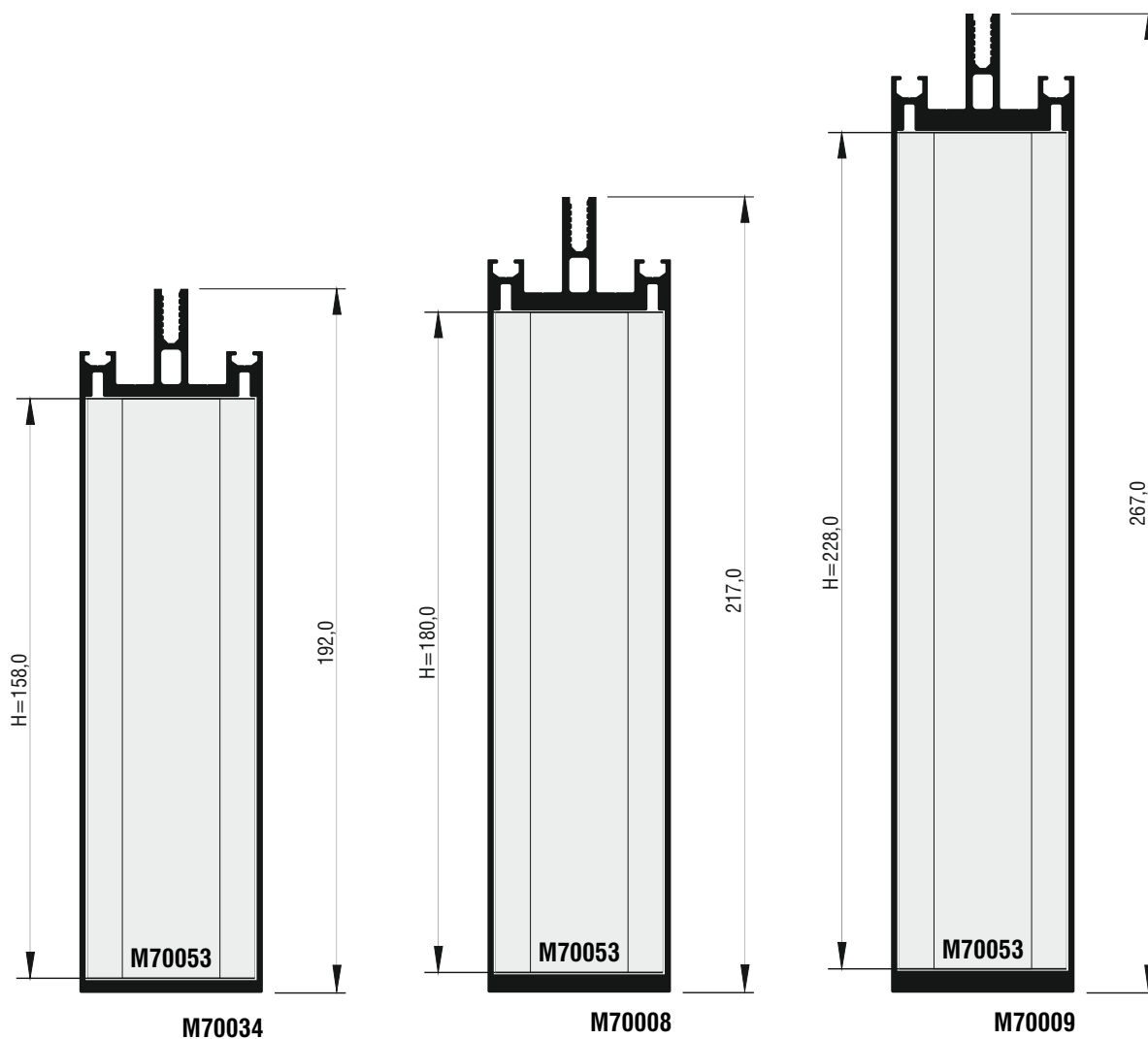
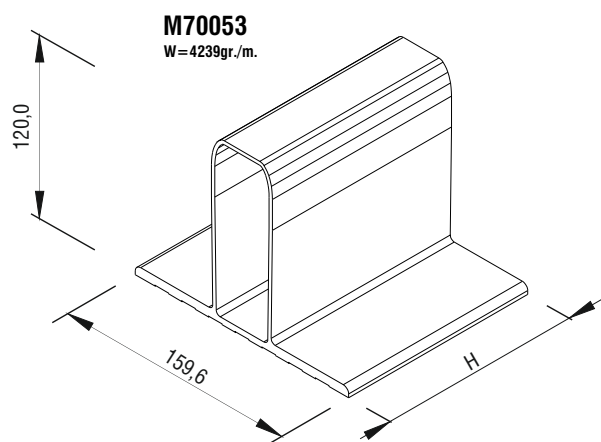


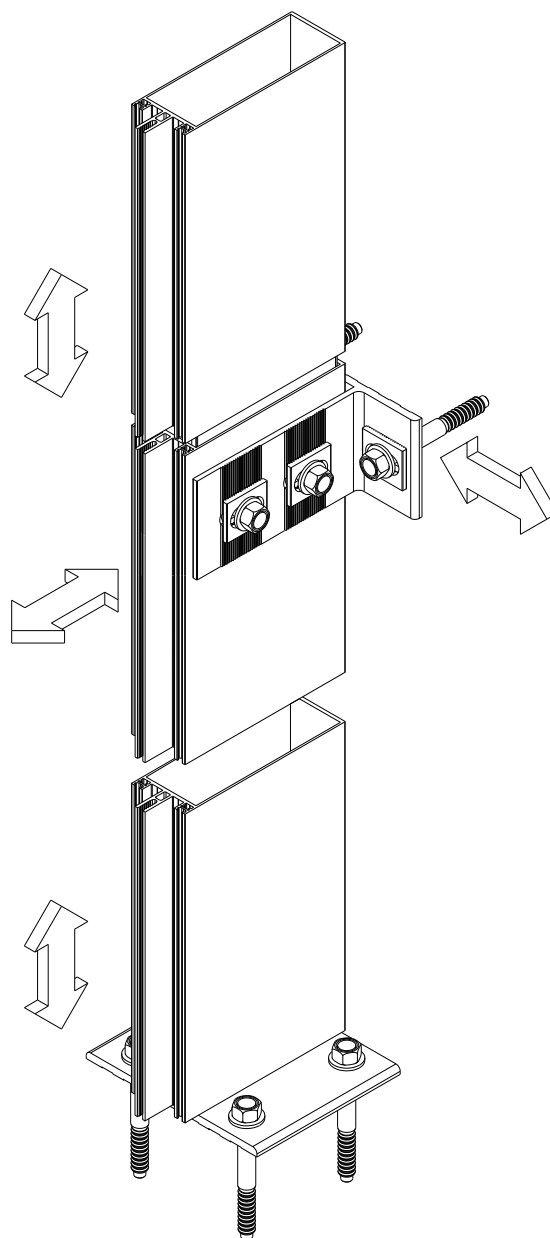
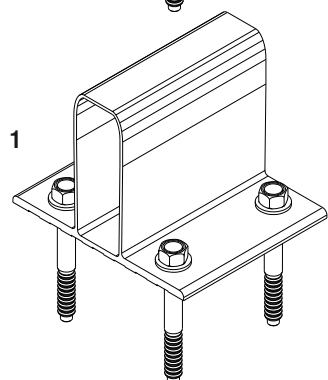
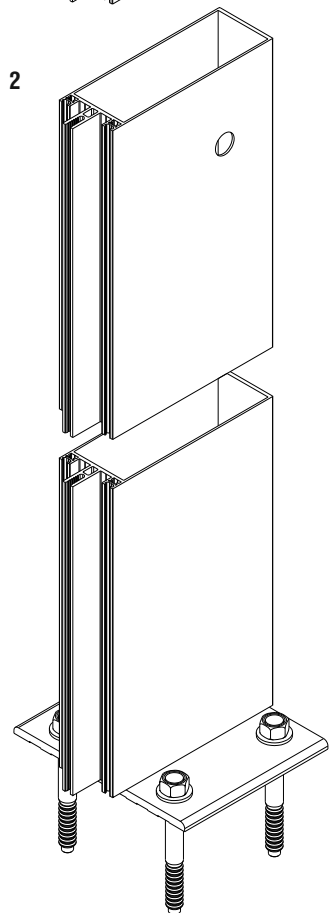
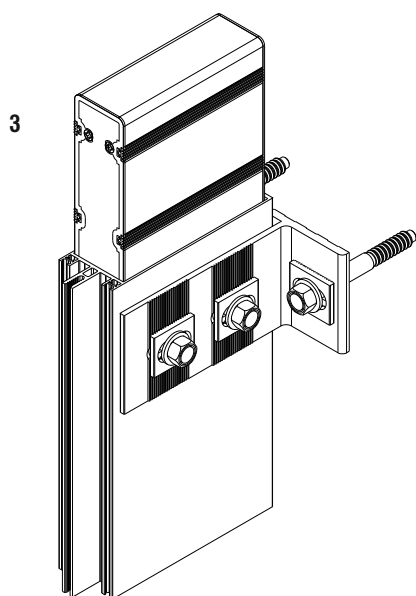


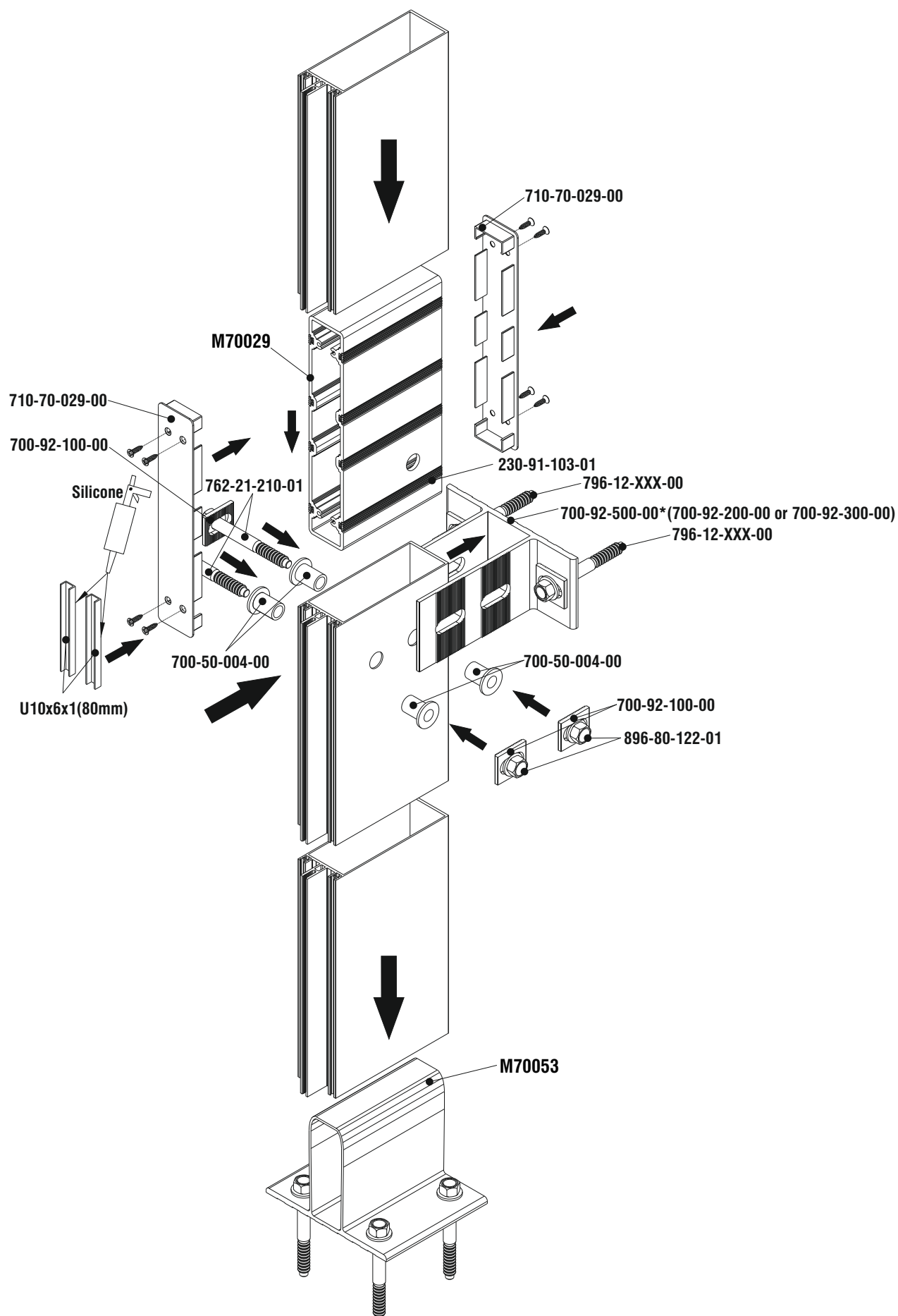


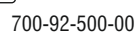


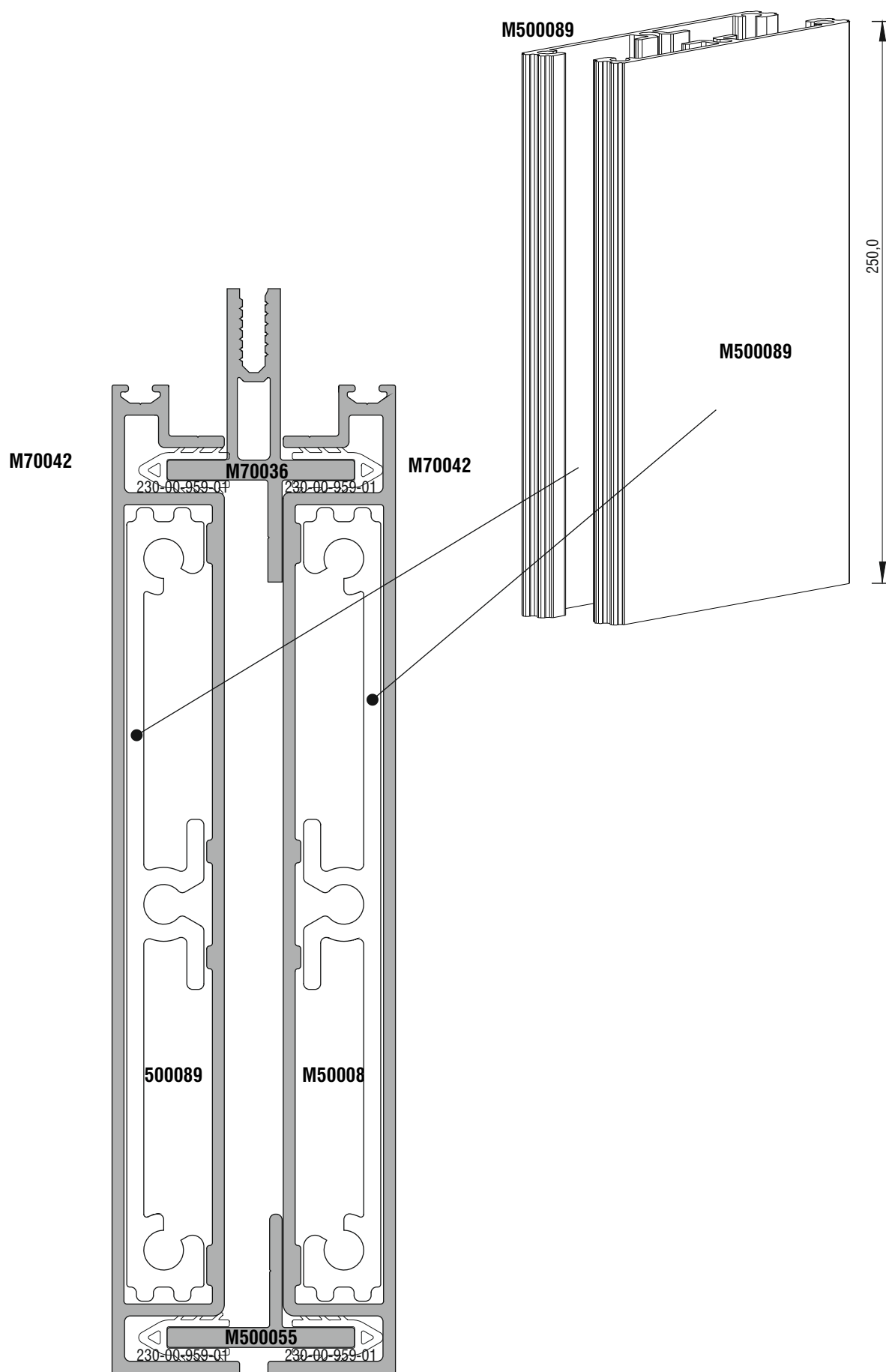


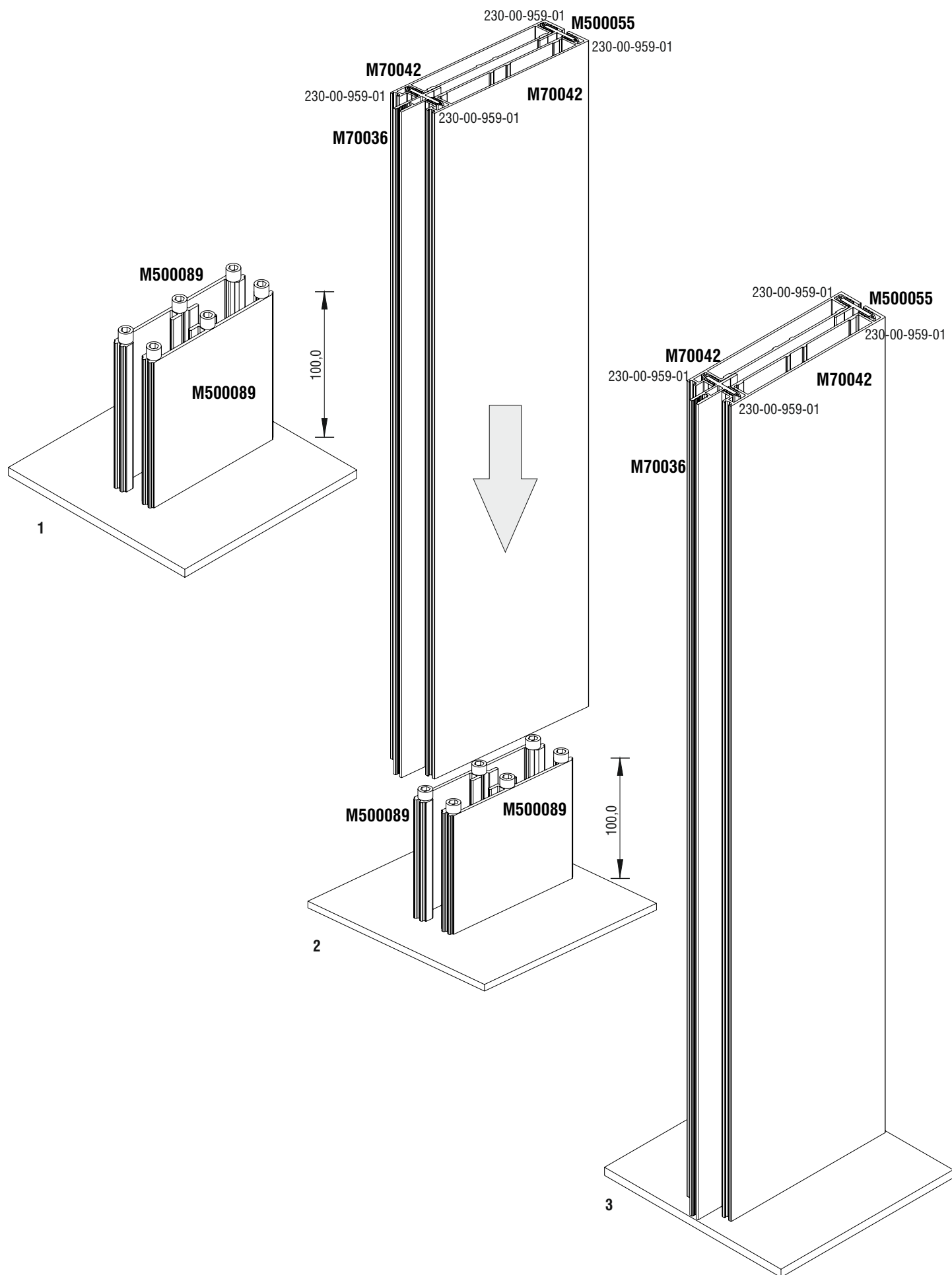


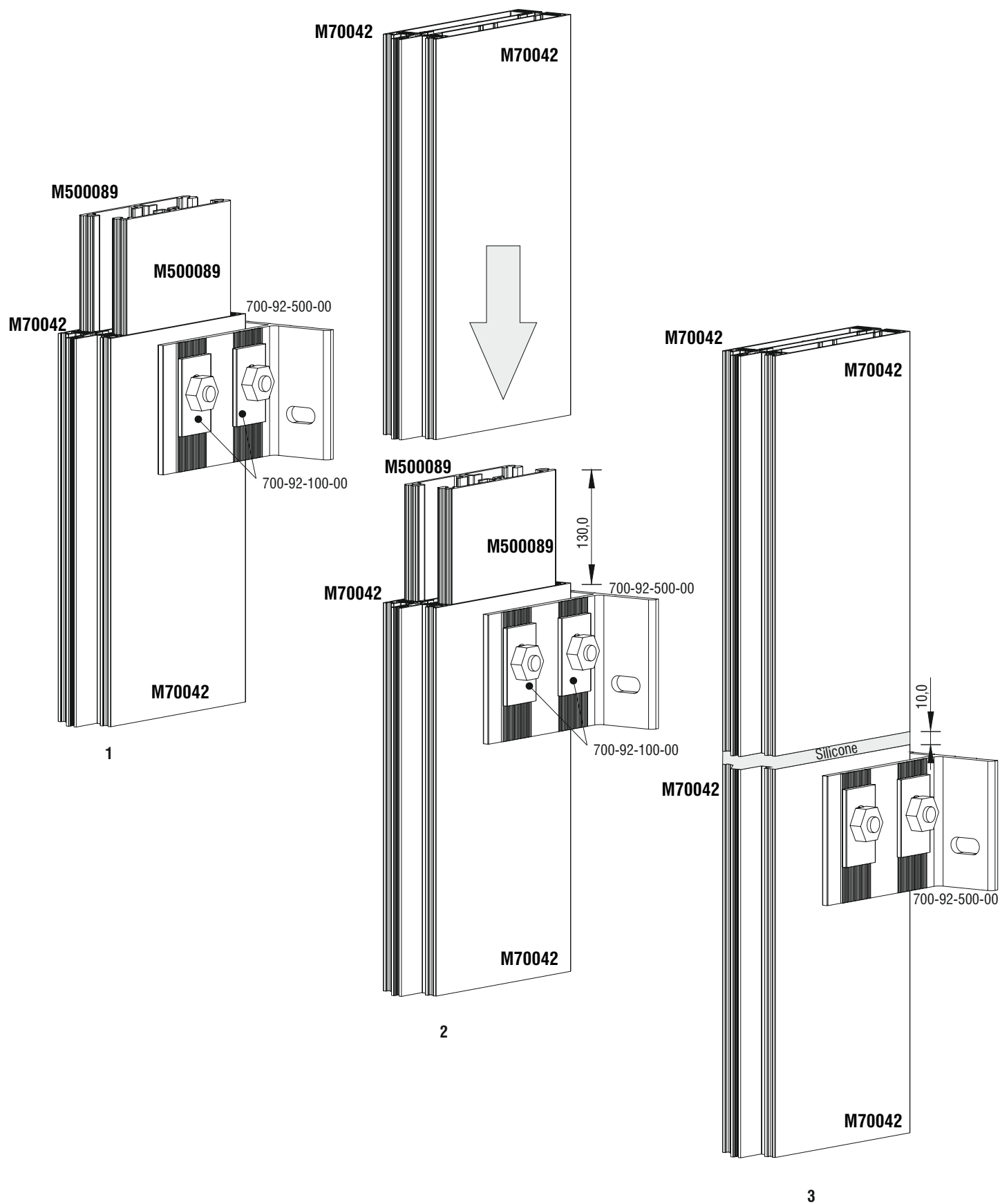




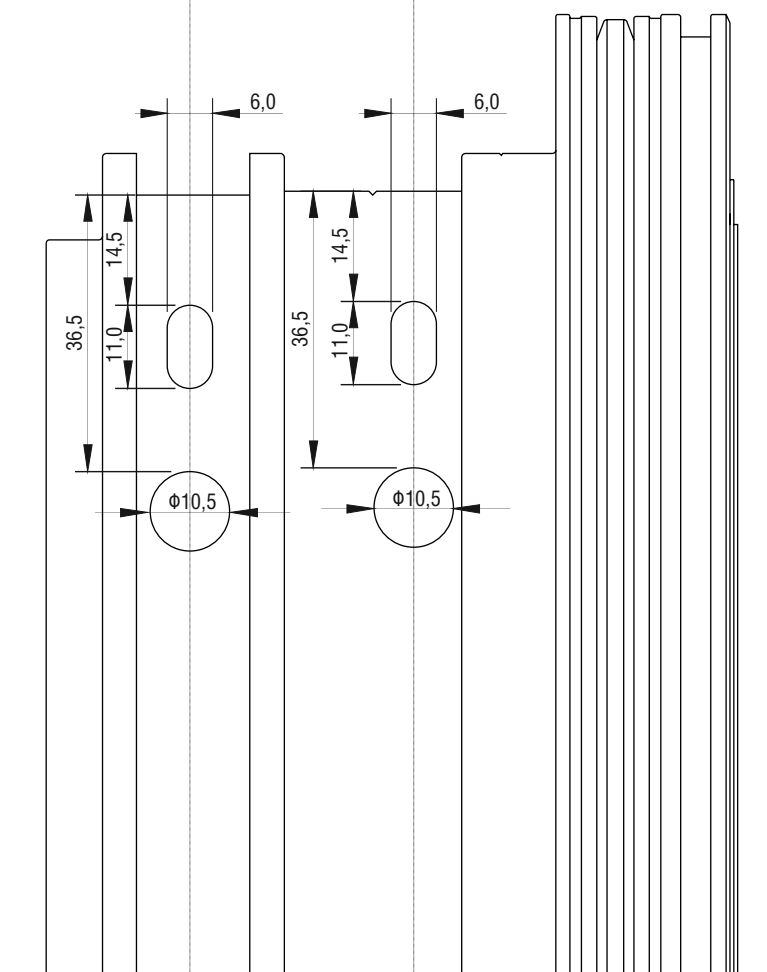
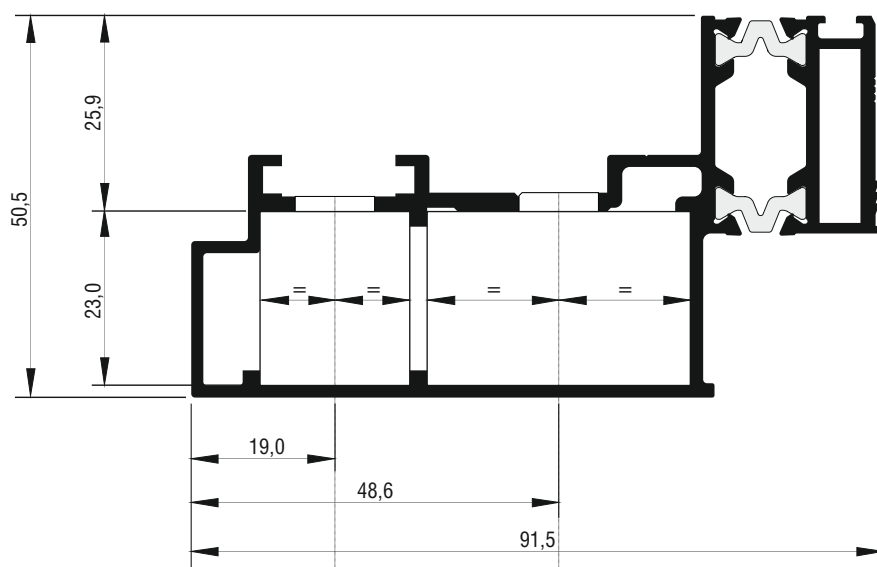




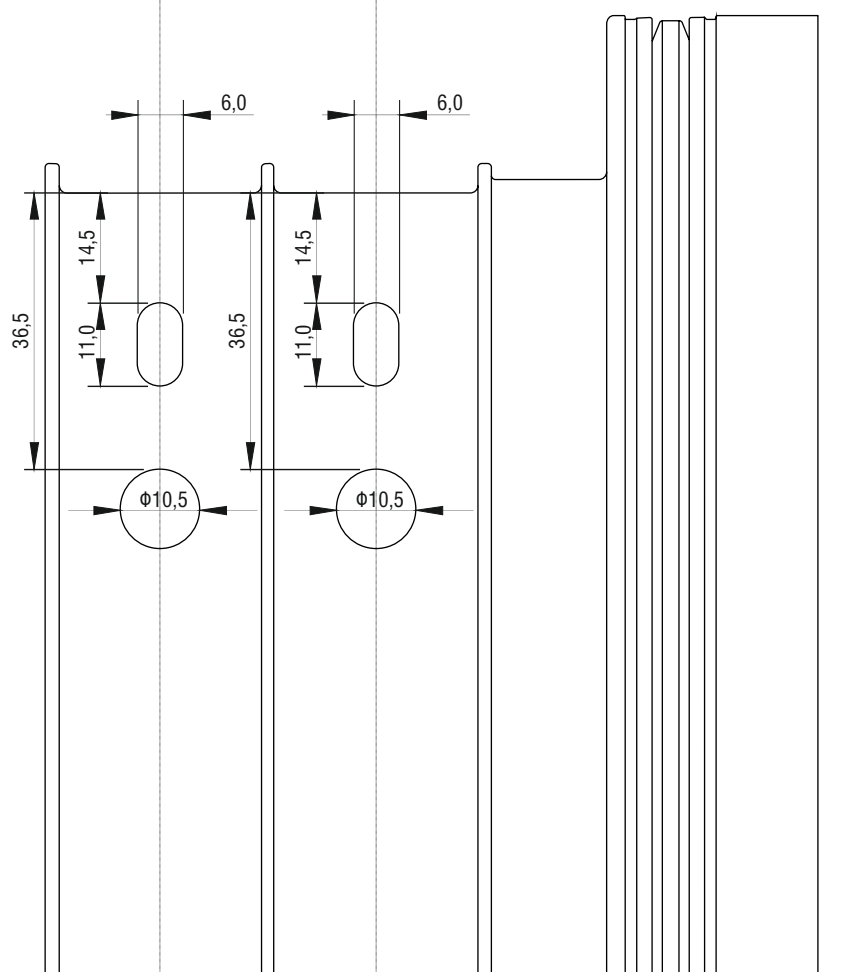
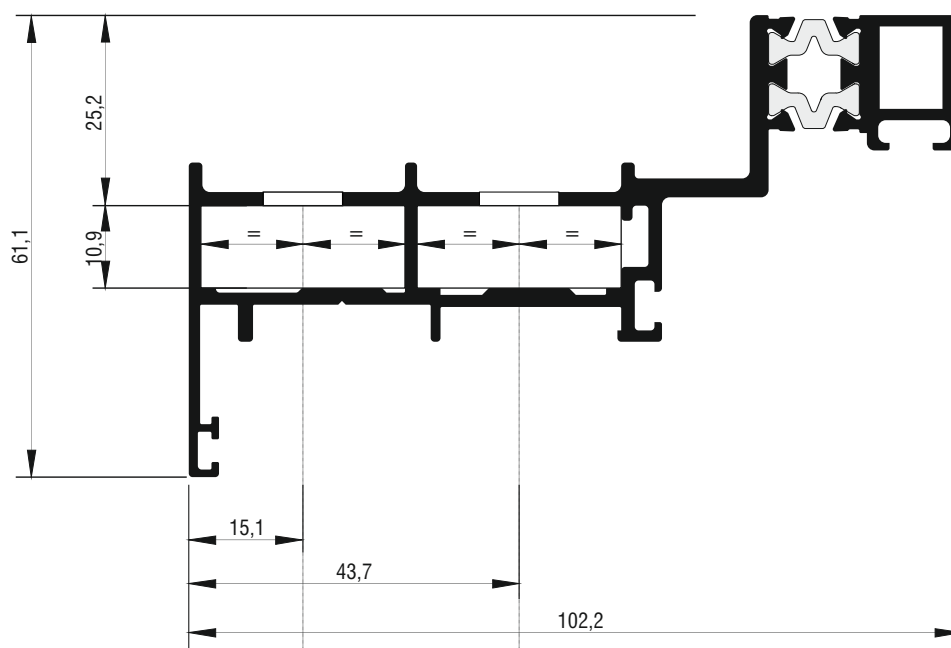




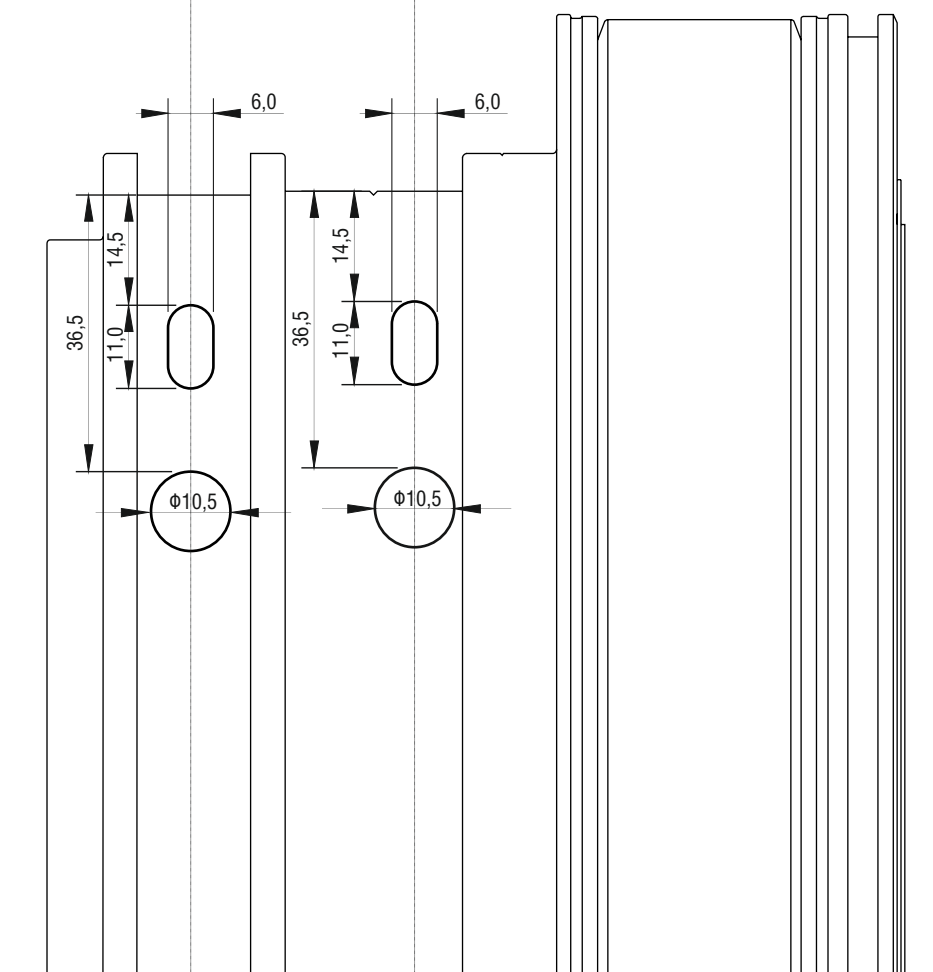
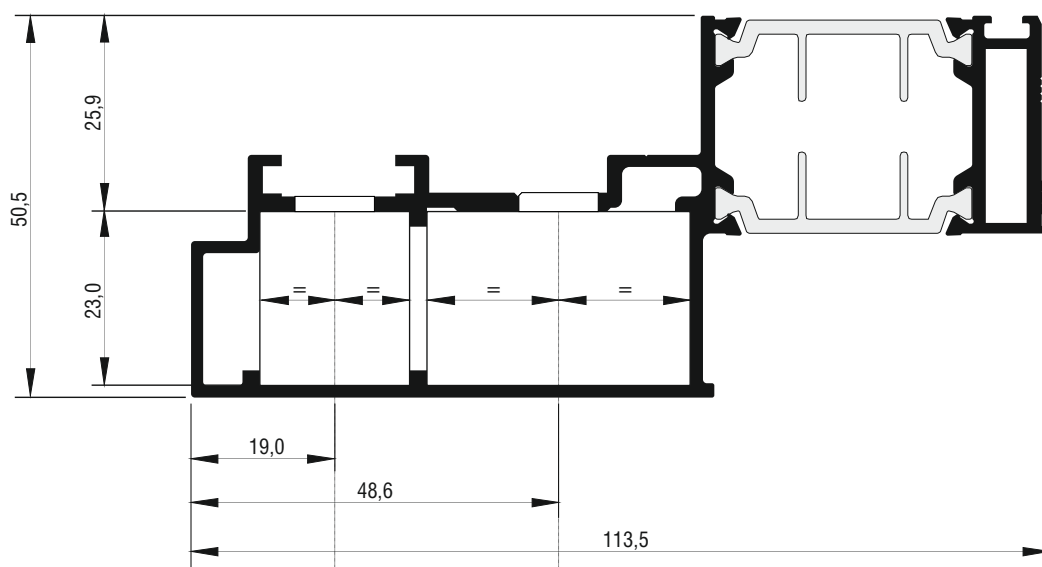
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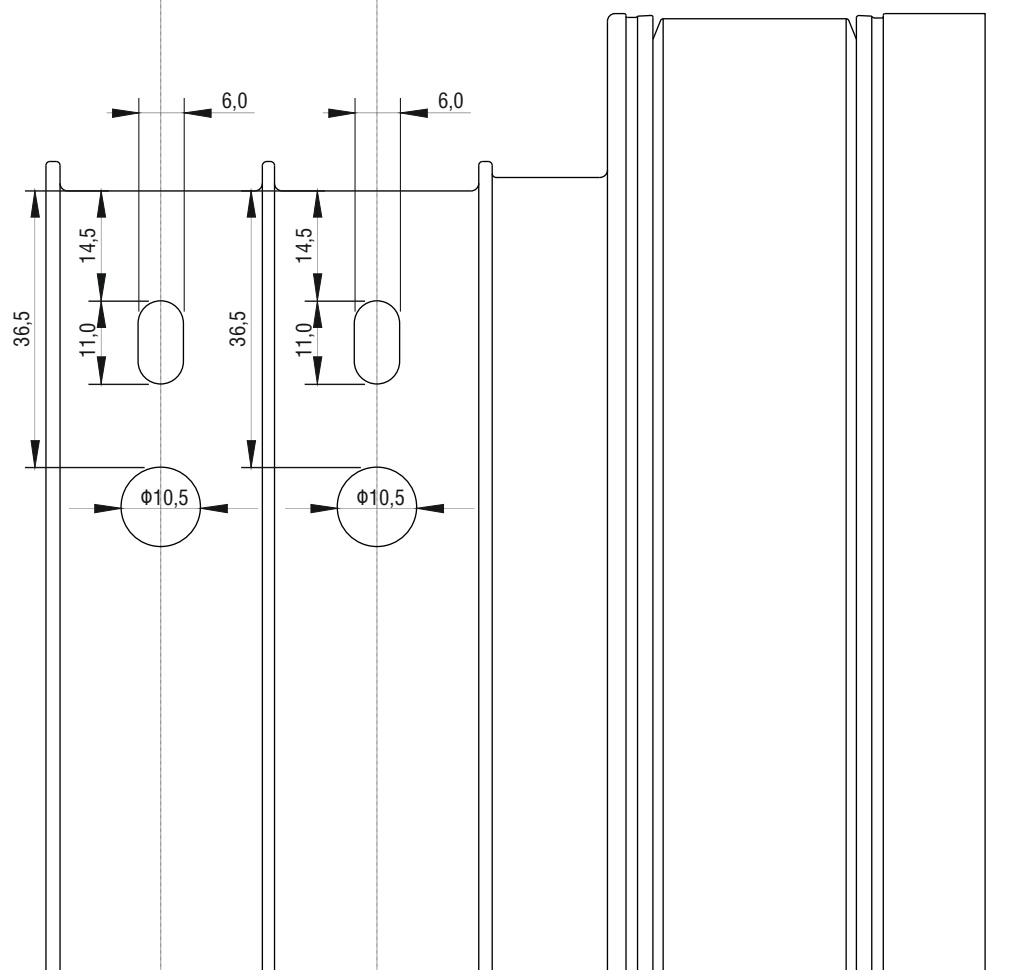
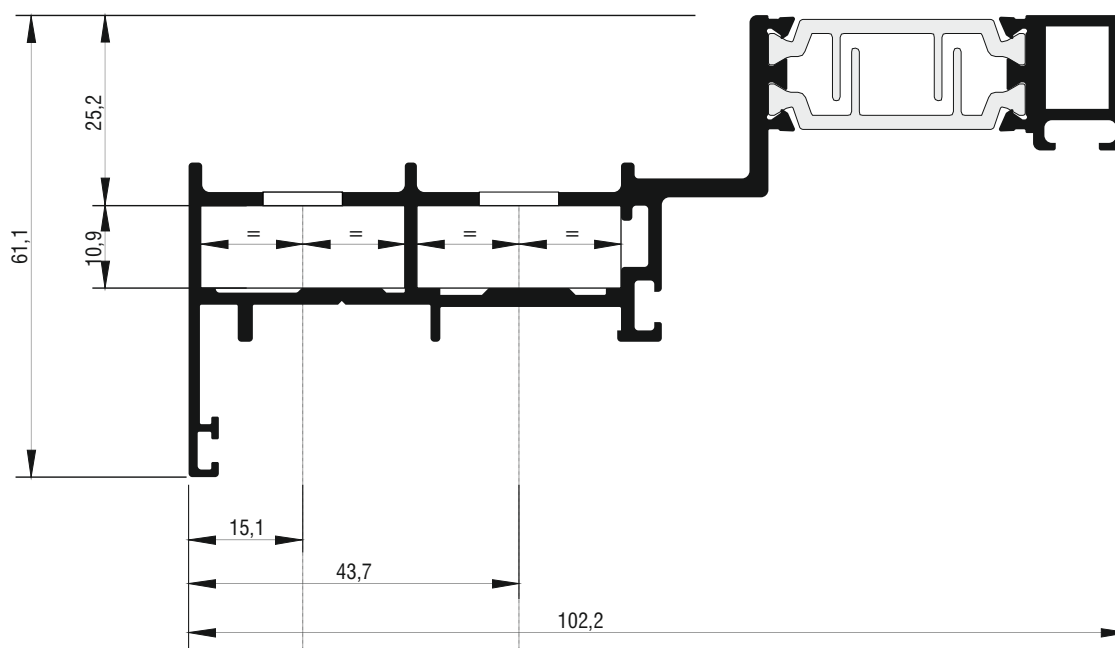
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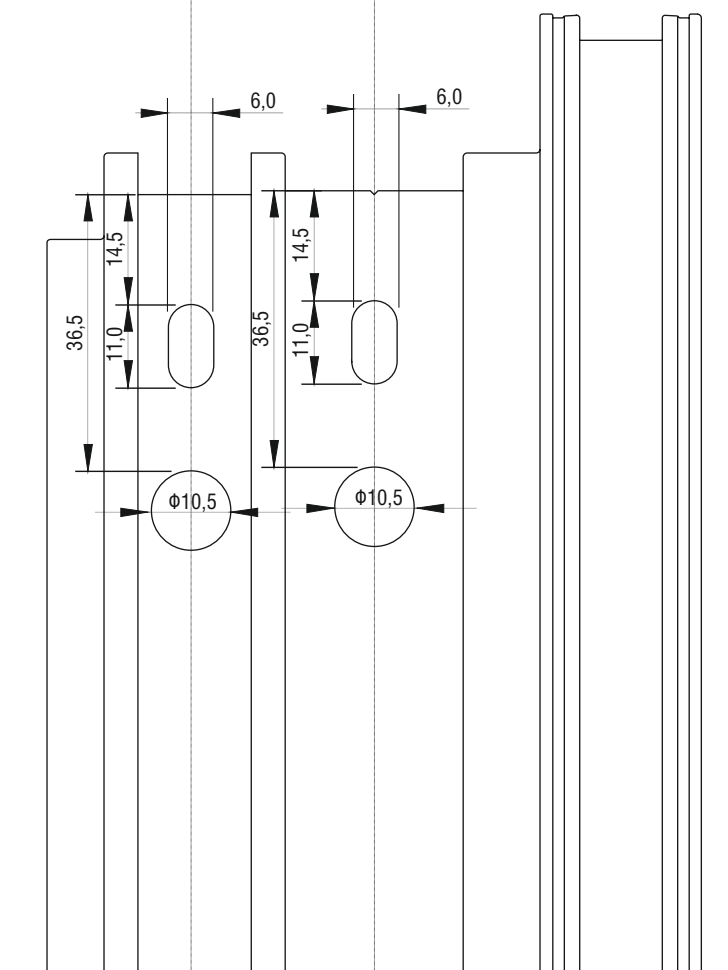
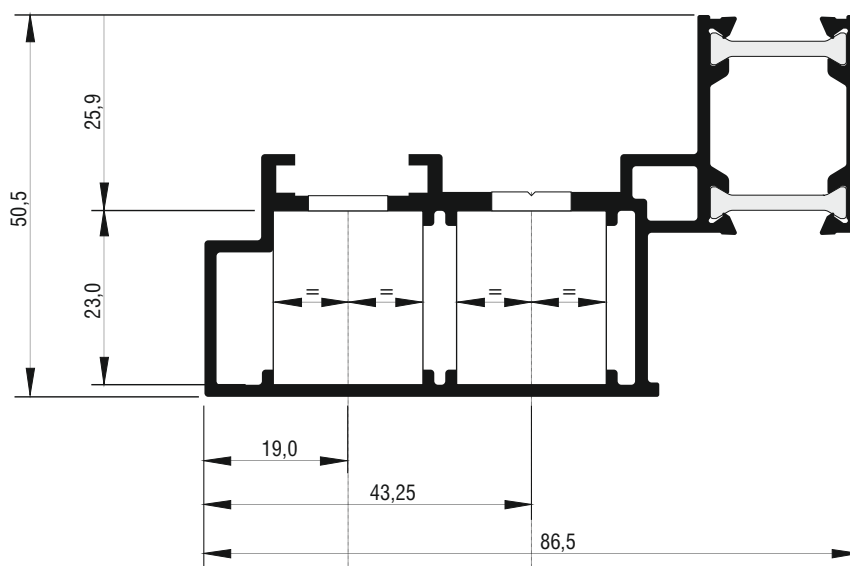
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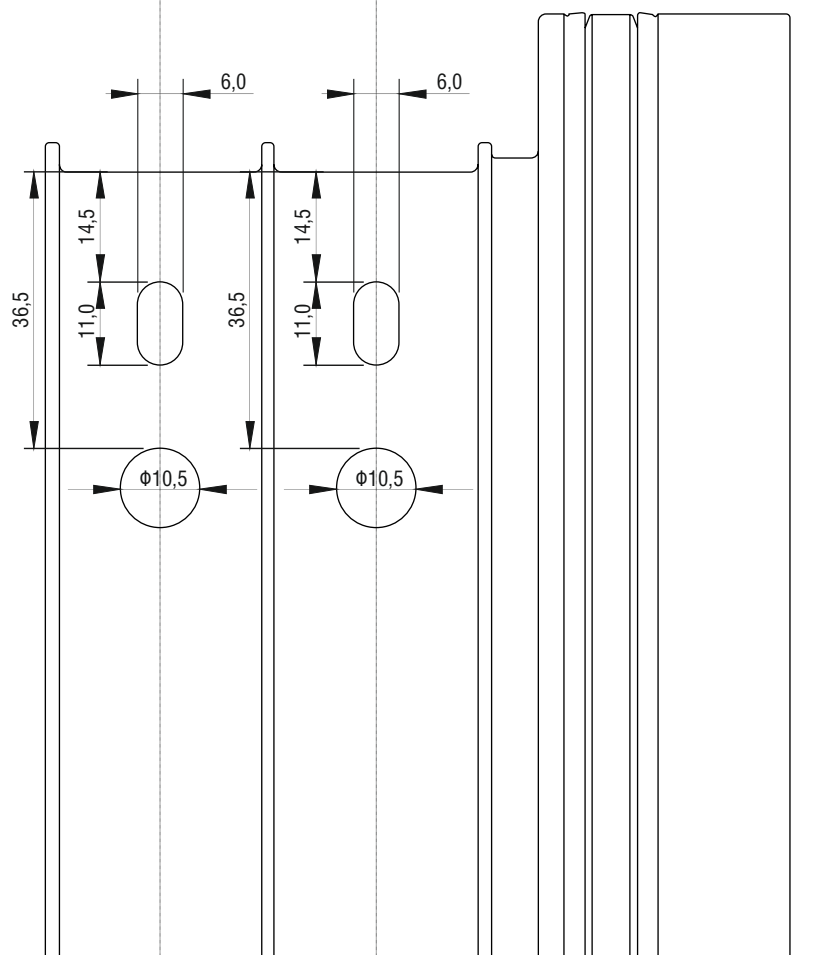
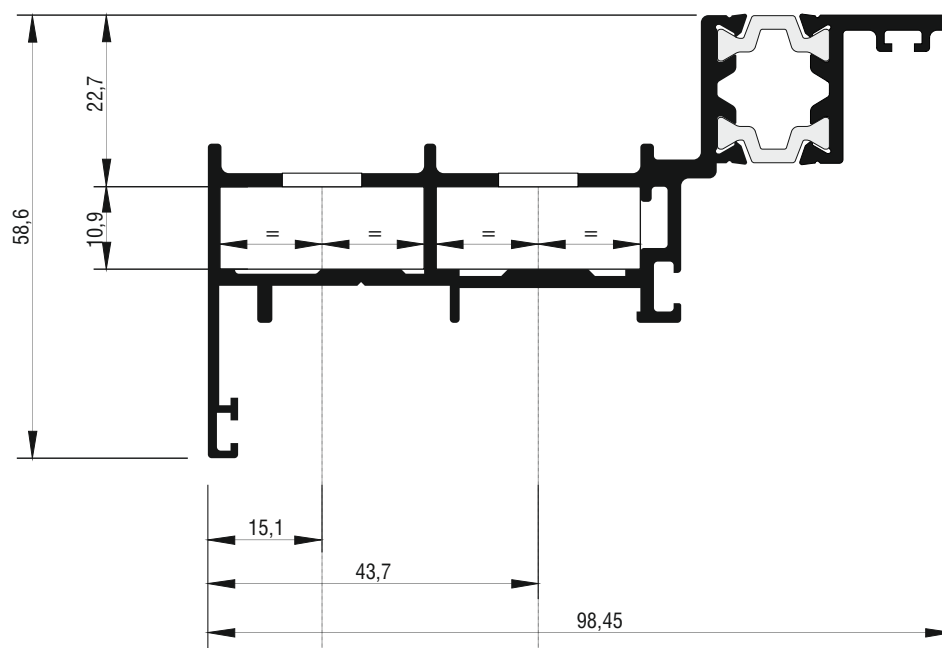
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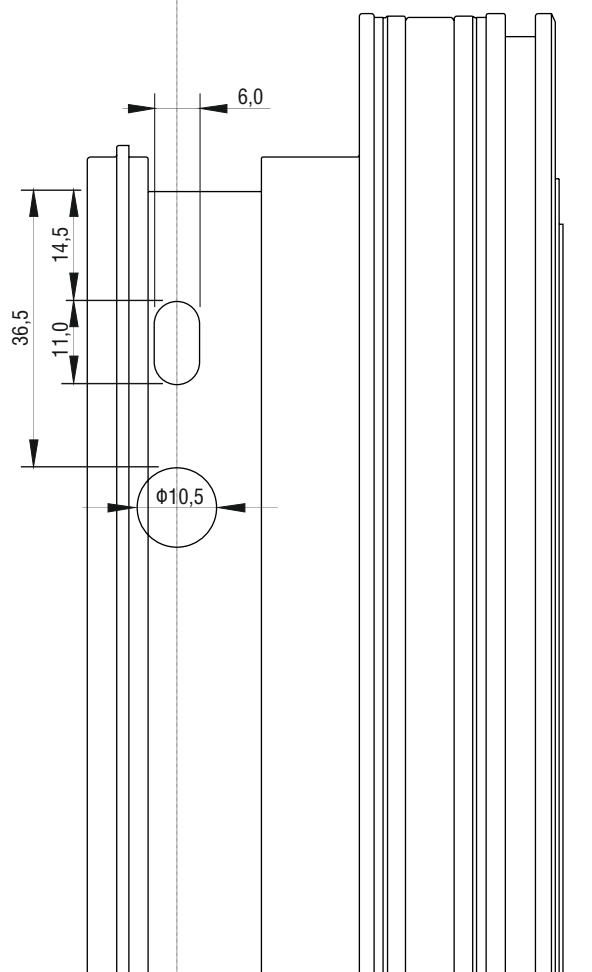
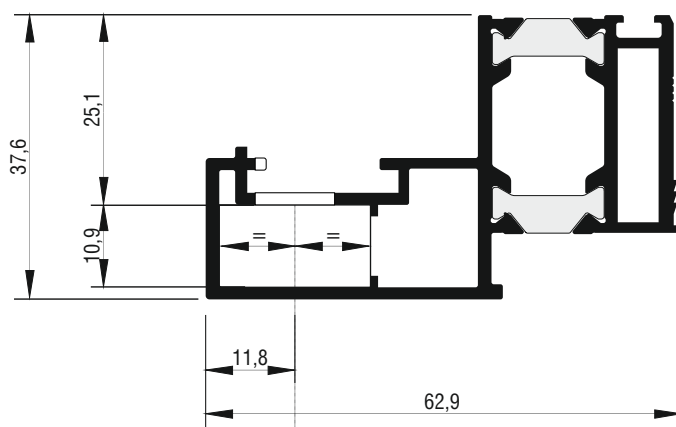
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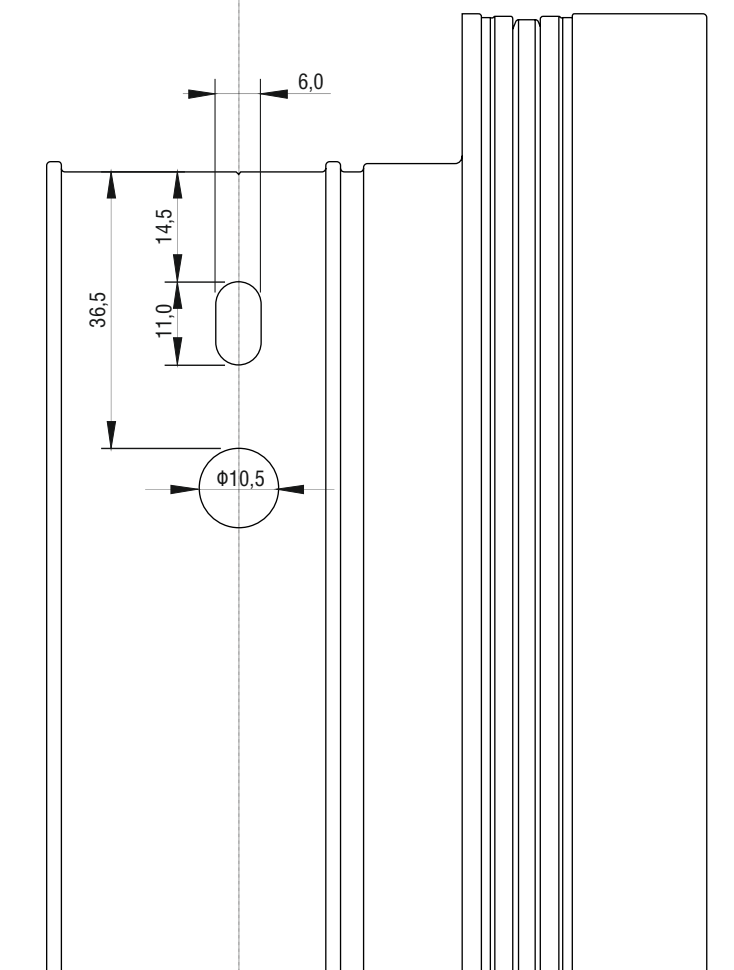
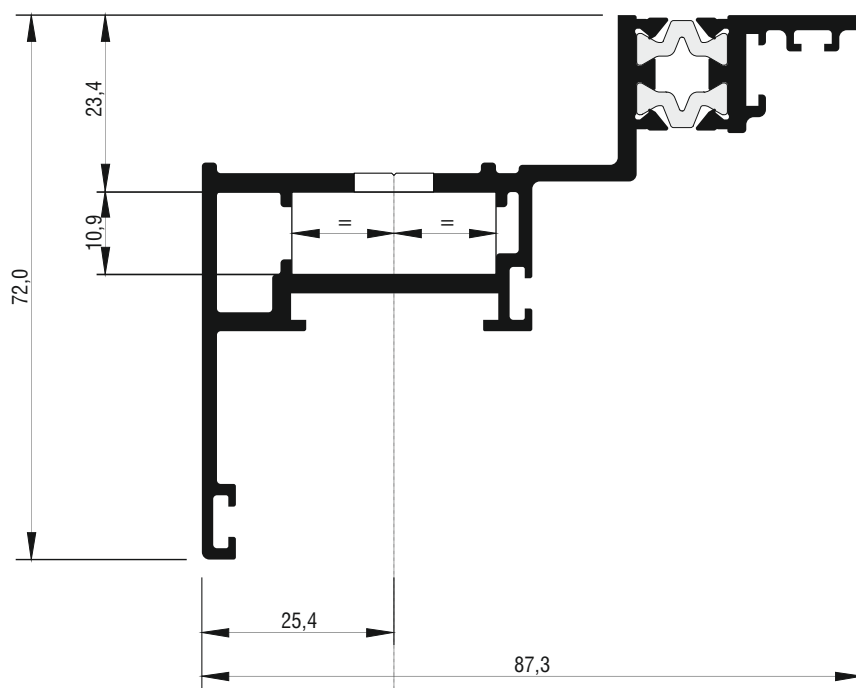
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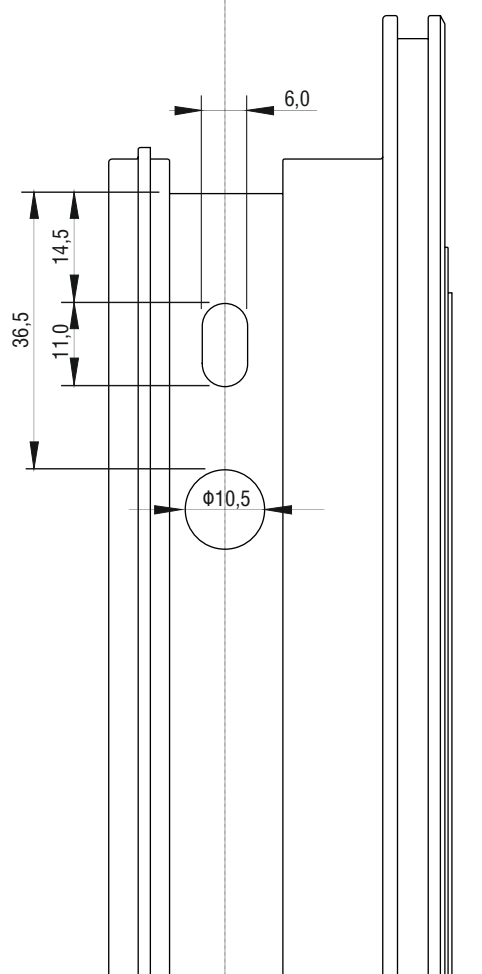
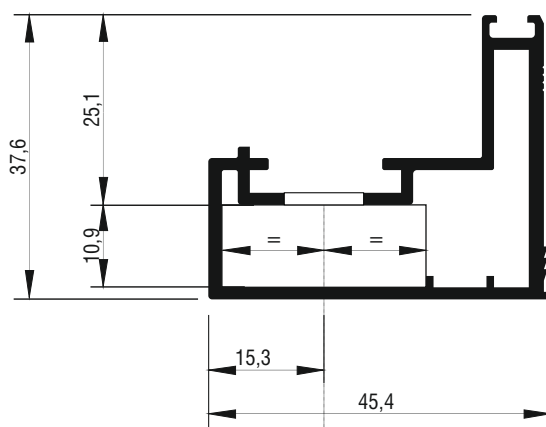
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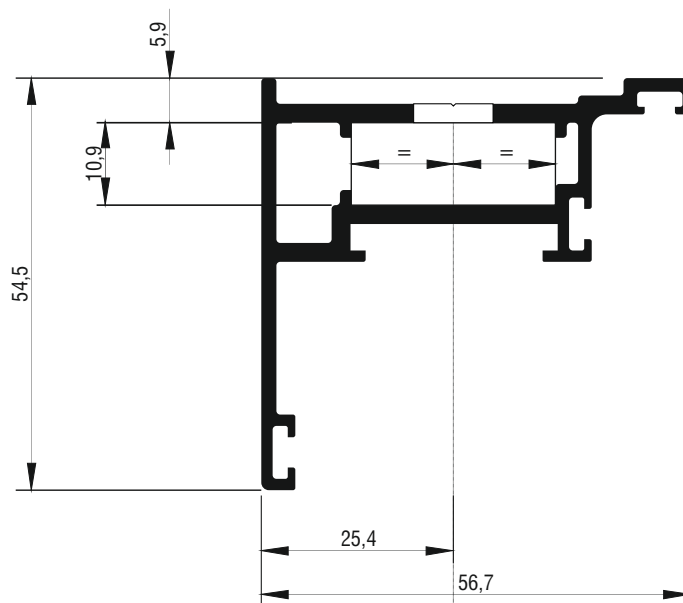


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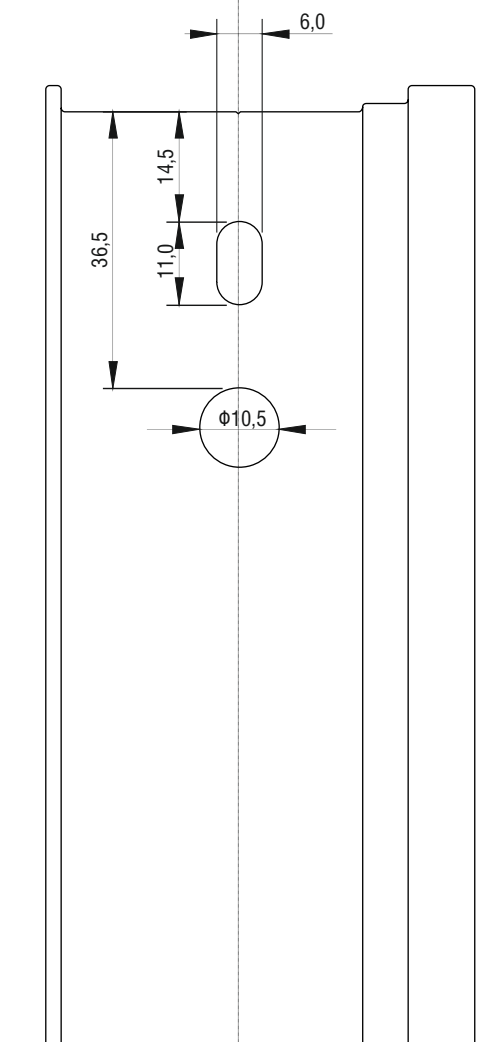


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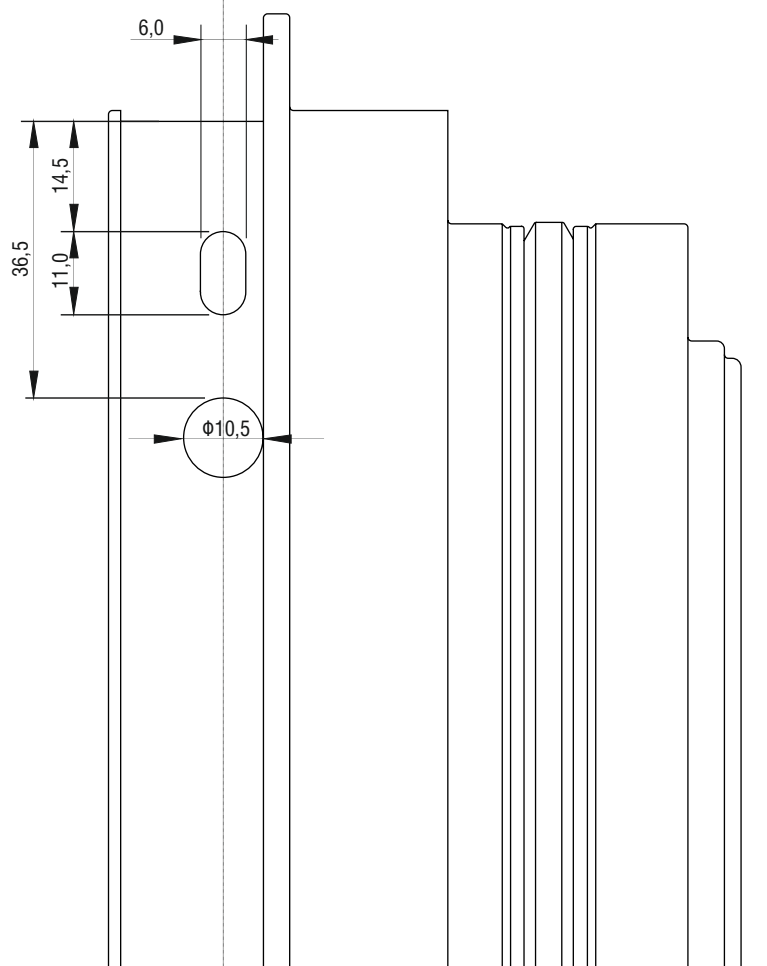
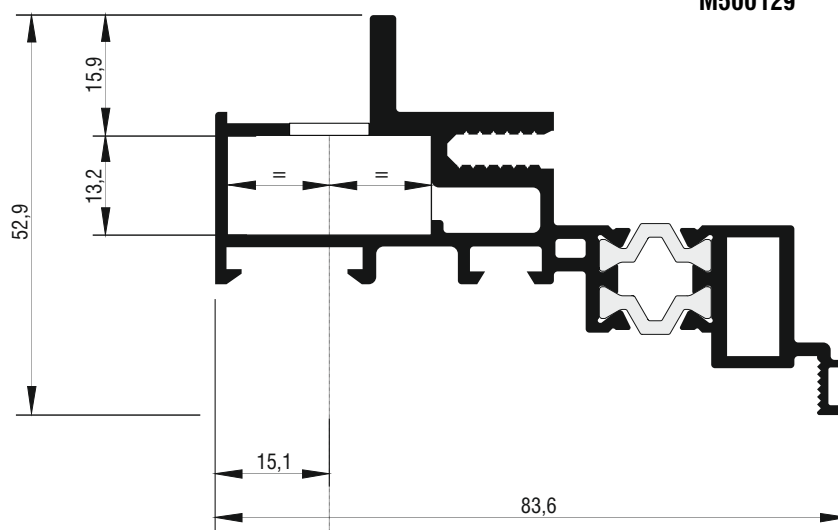




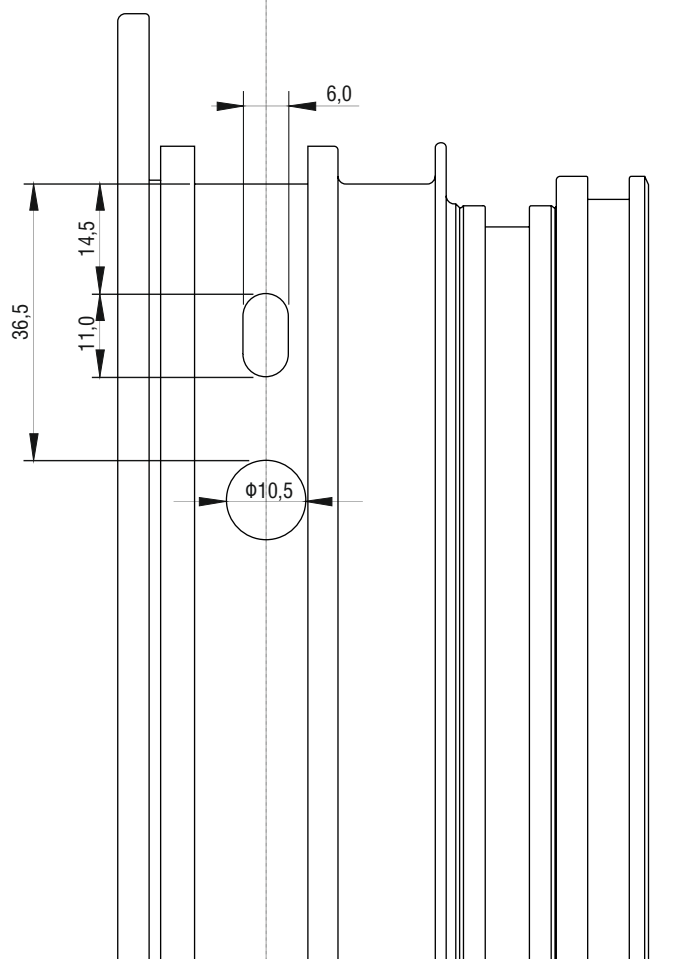
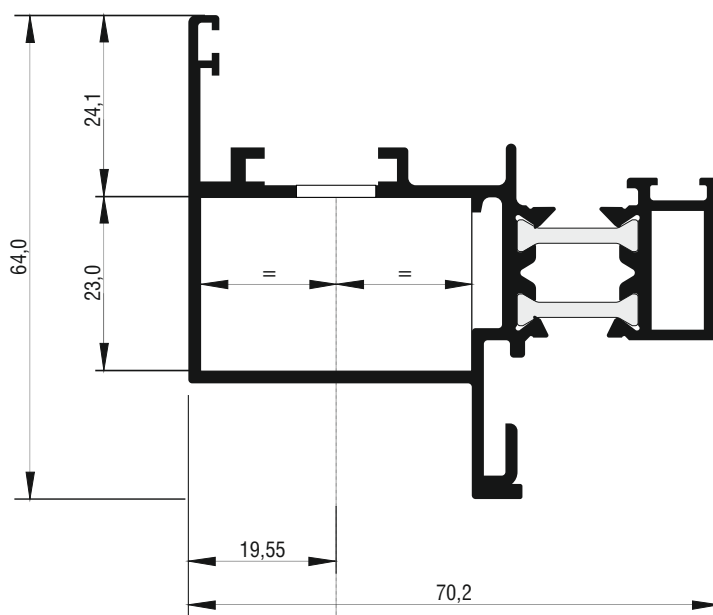
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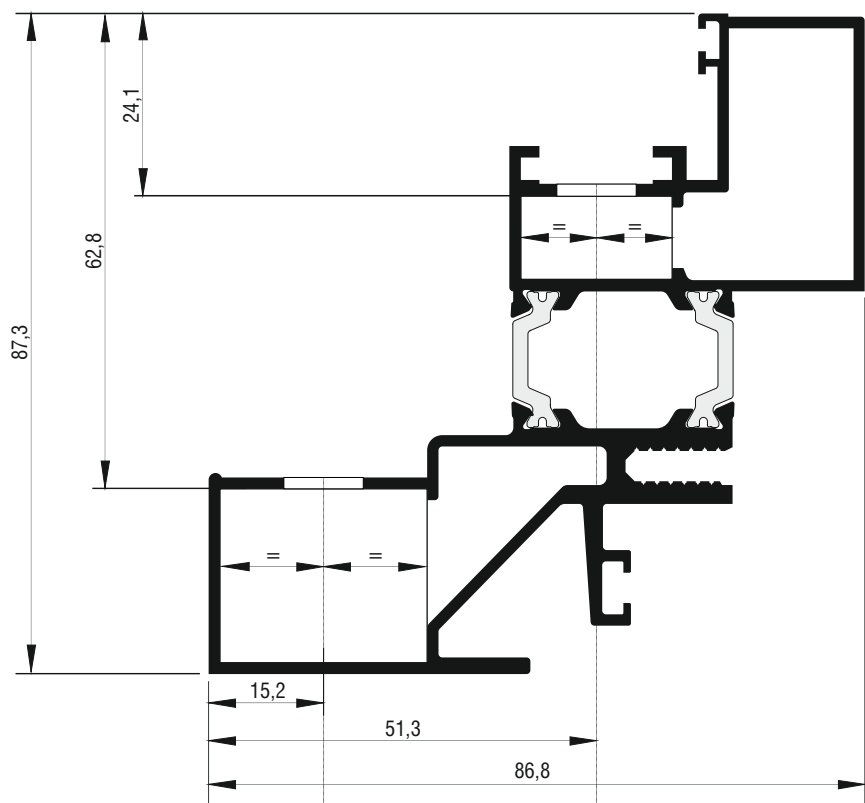


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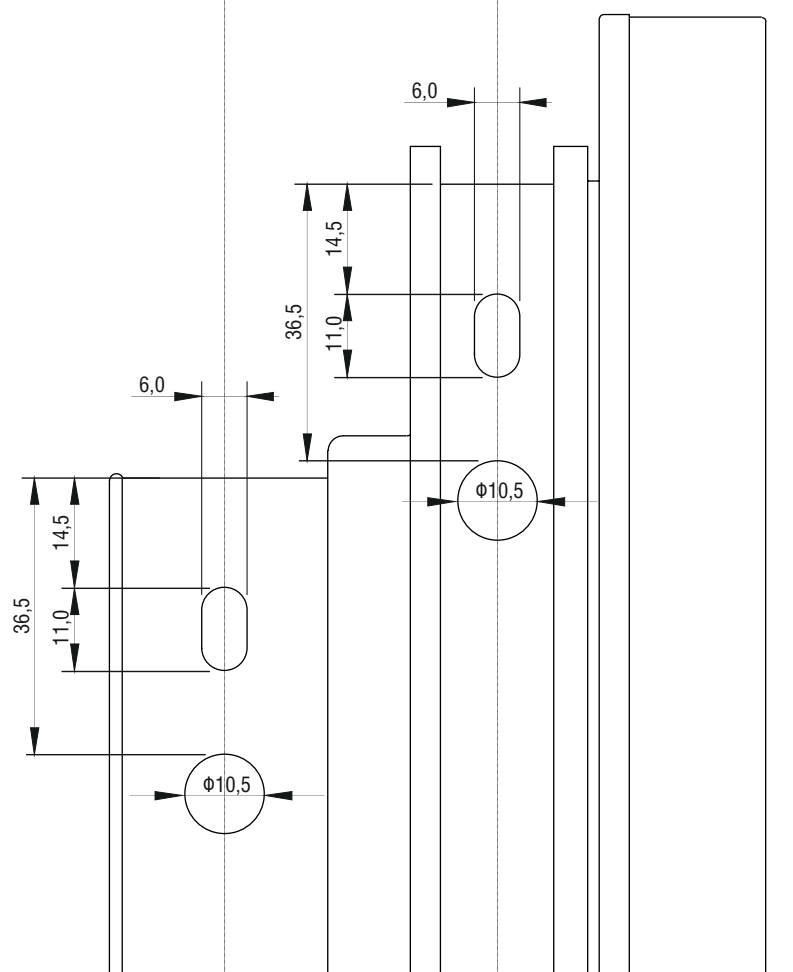


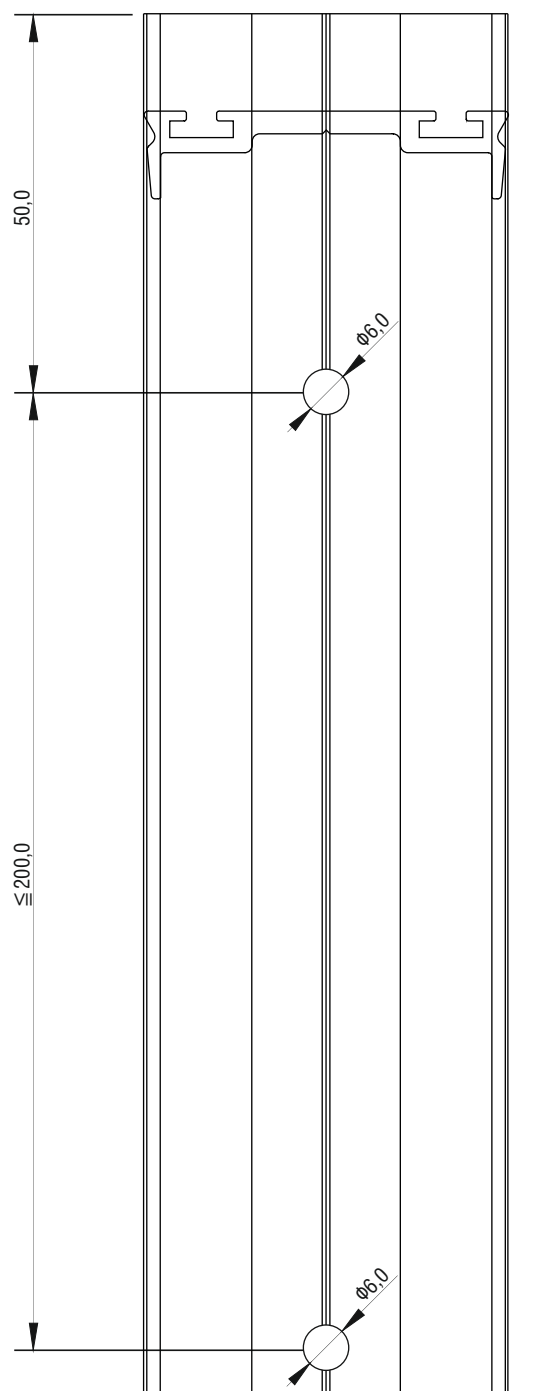
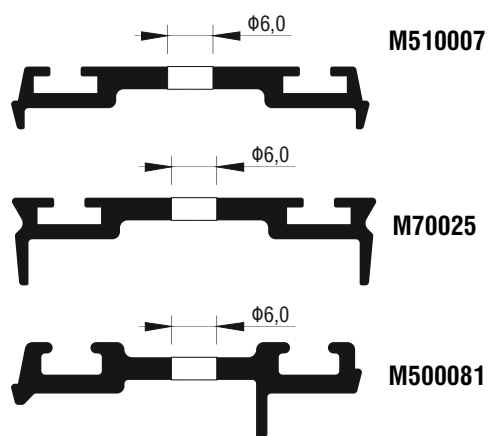
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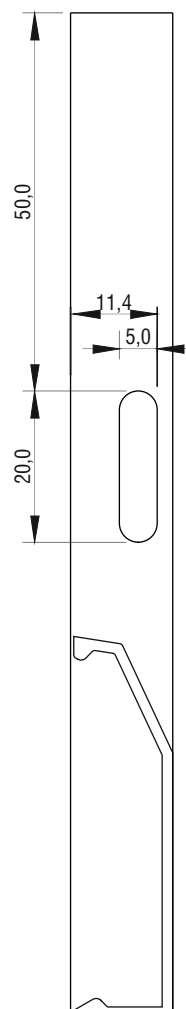
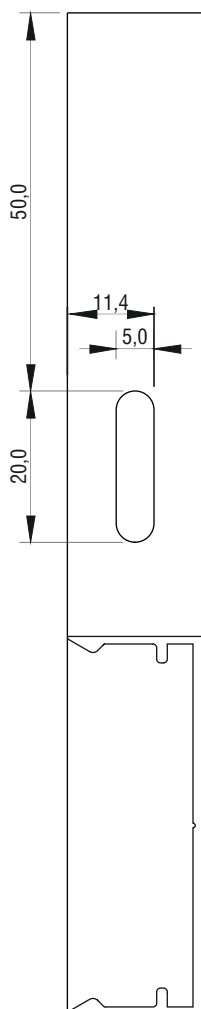
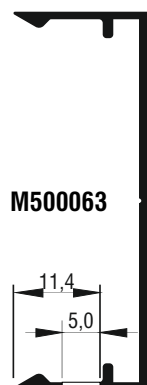


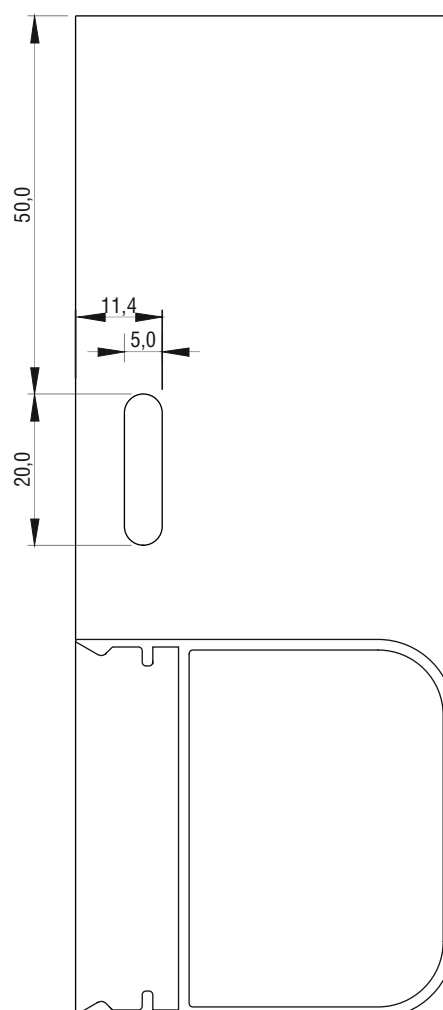
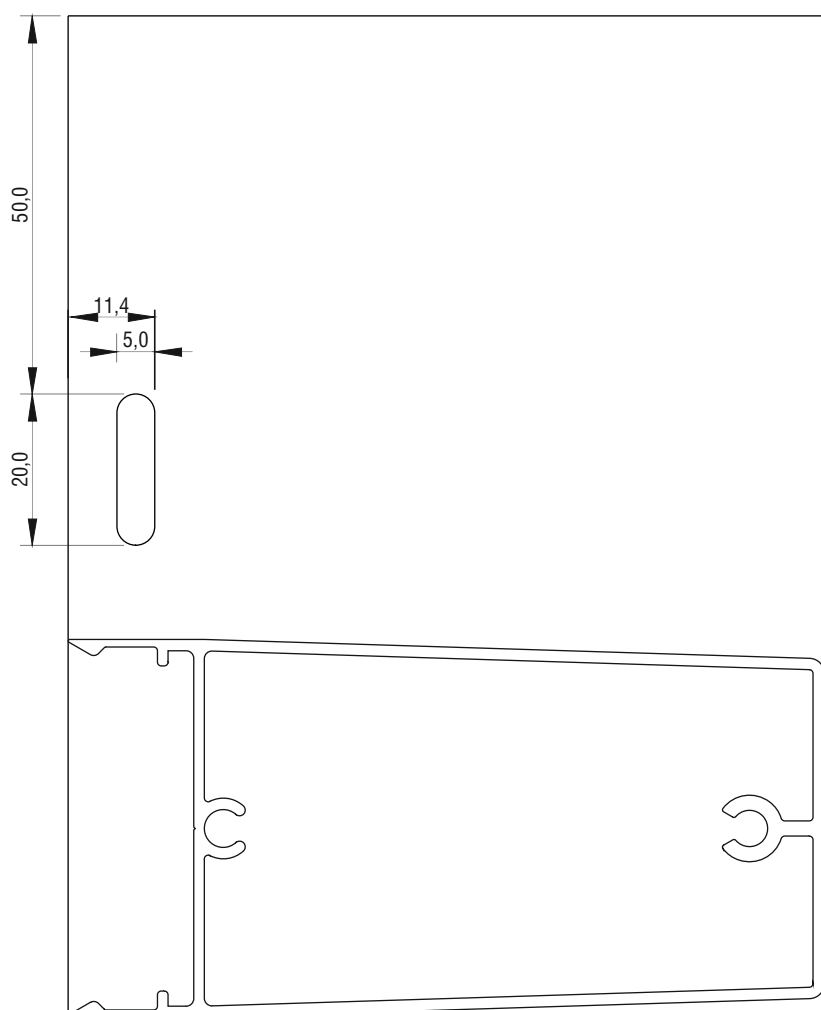
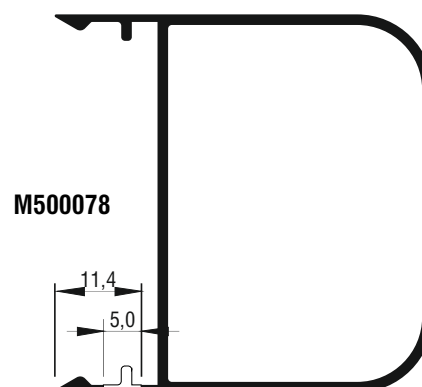
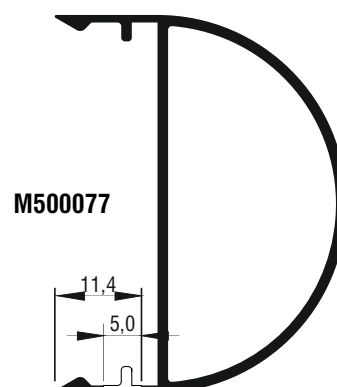
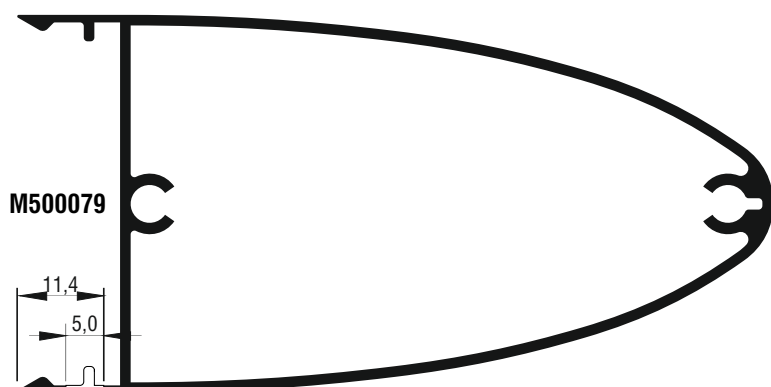


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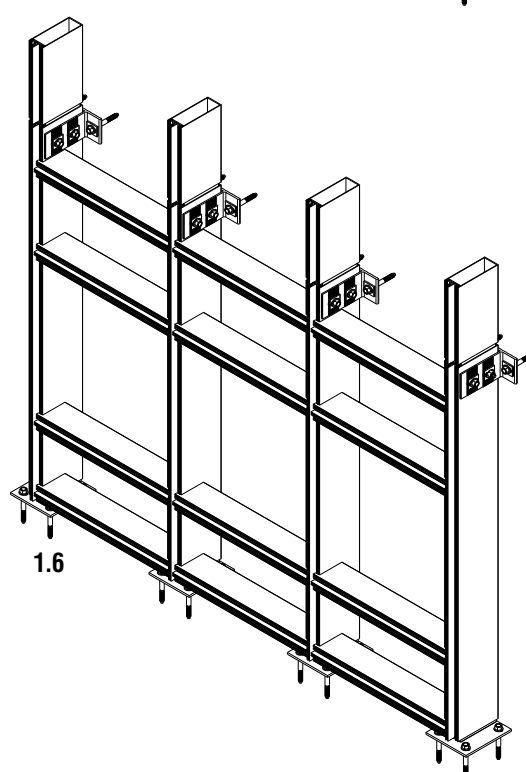
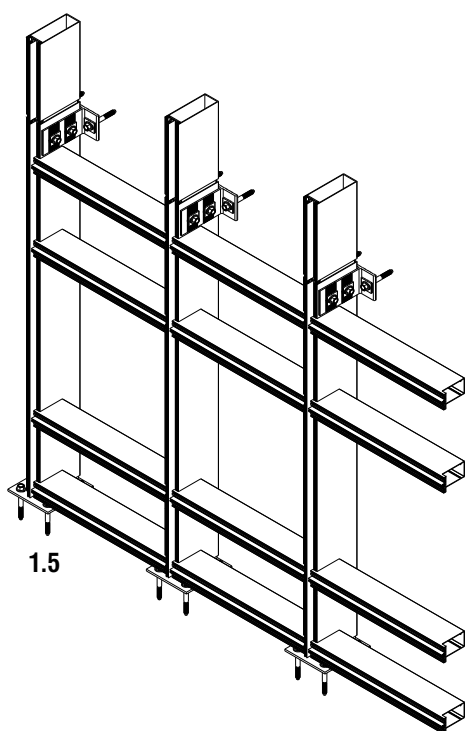
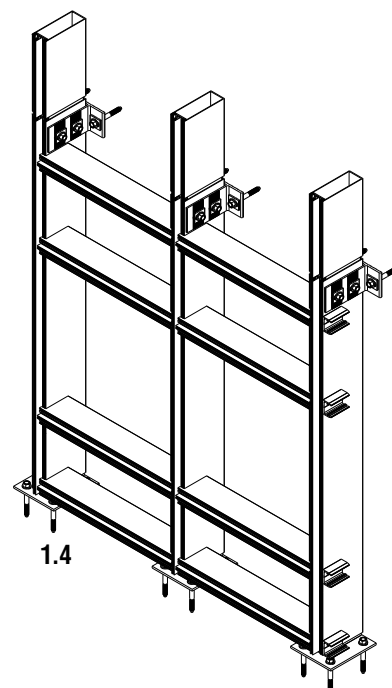
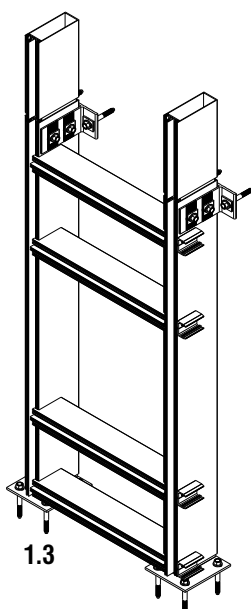
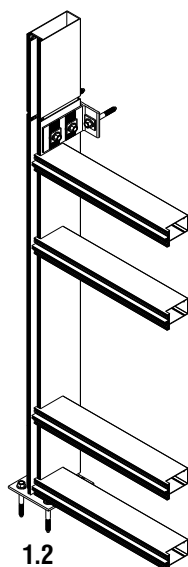
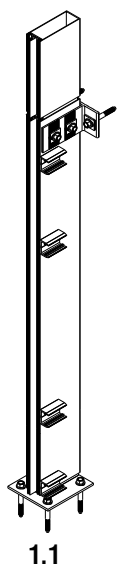




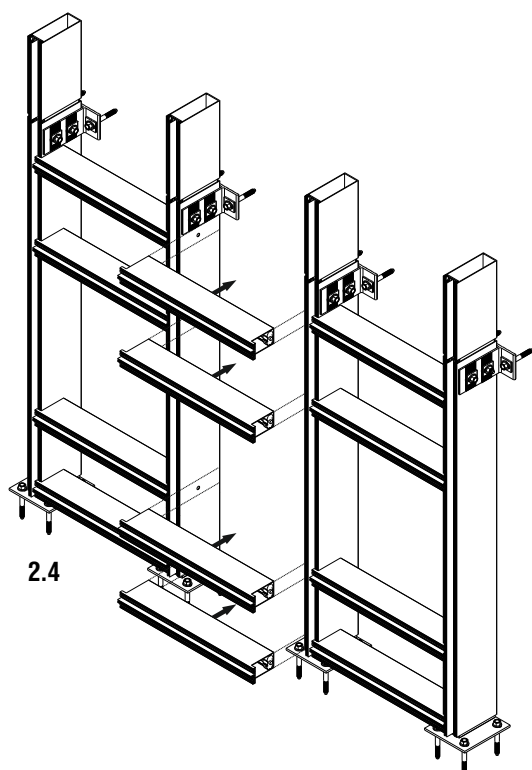
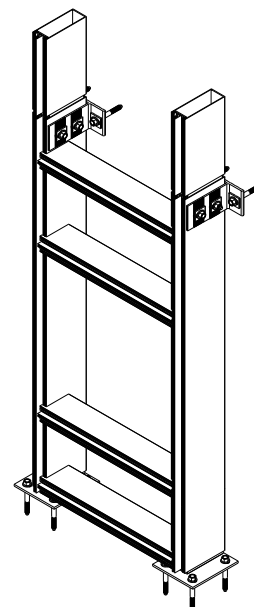
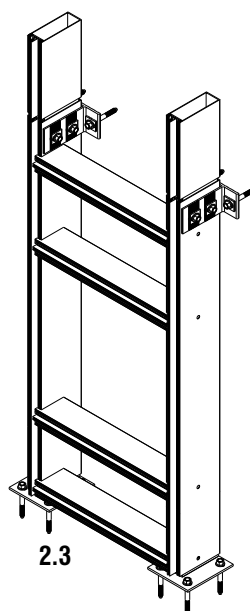
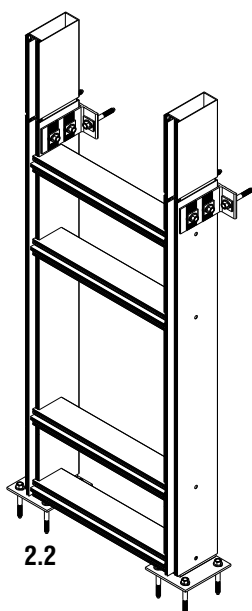
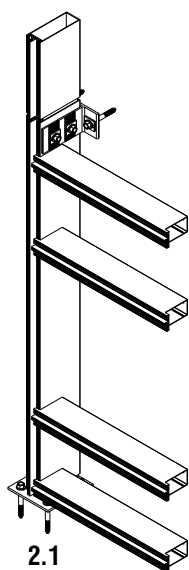


Align and anchor support brackets
to building structure.

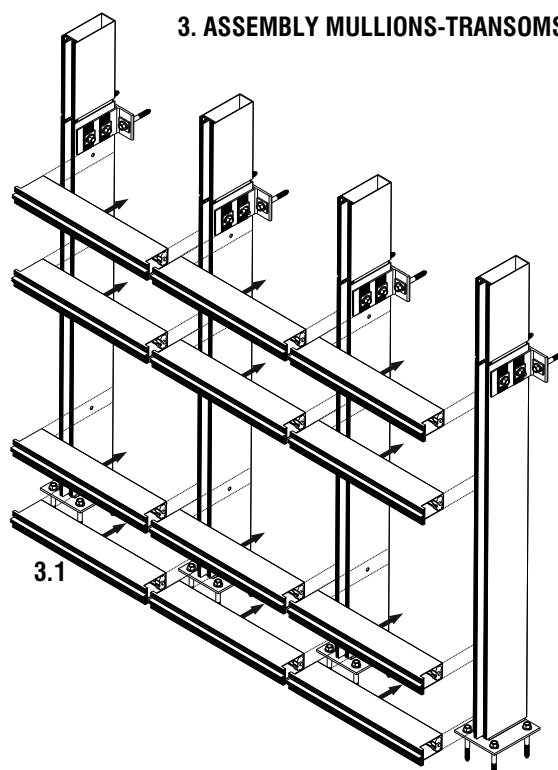
1. ASSEMBLY MULLION-TRANSOMS-MULLION



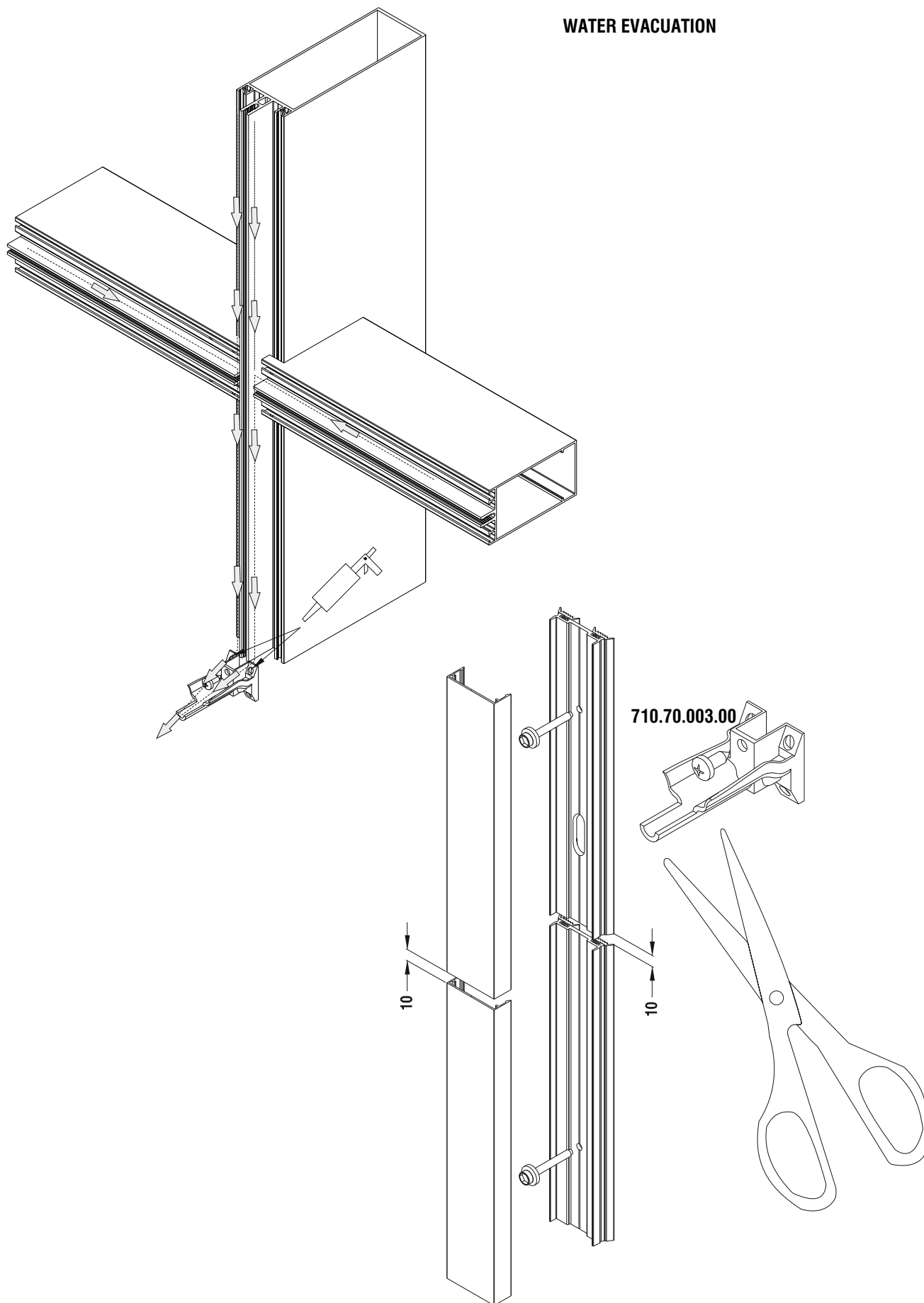
2. ASSEMBLY LADDER ELEMENTS



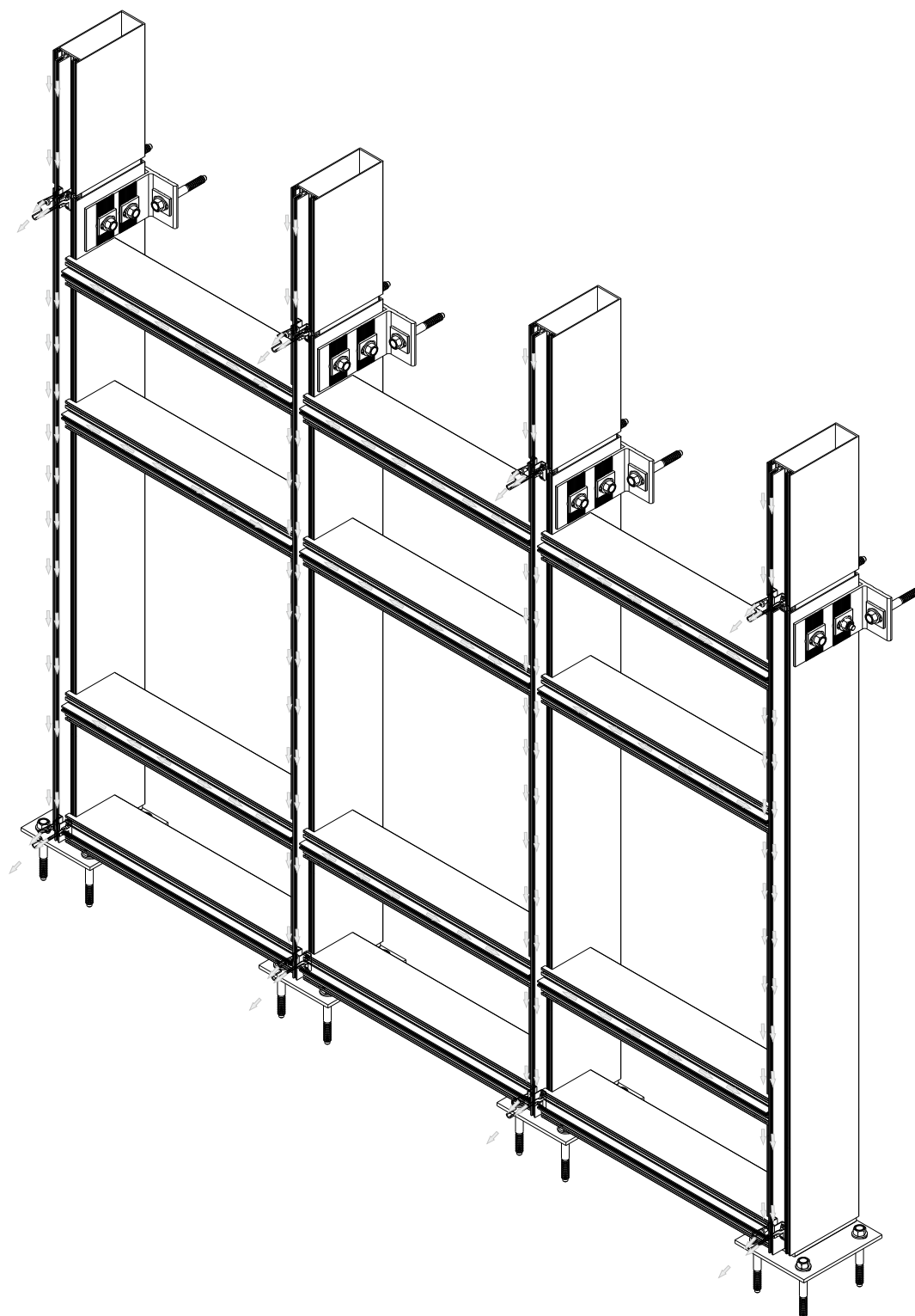
3. ASSEMBLY MULLIONS-TRANSOMS



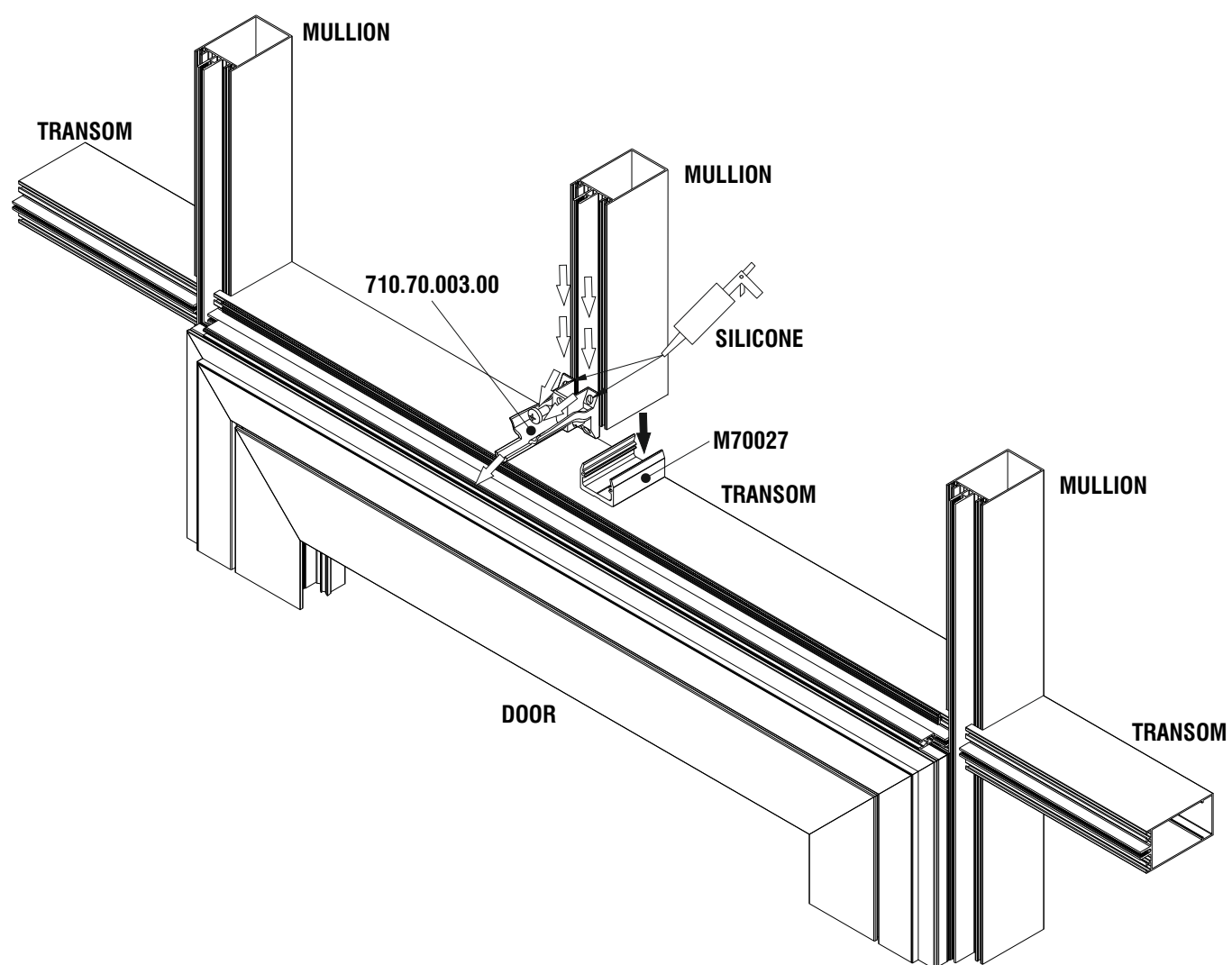
WATER EVACUATION



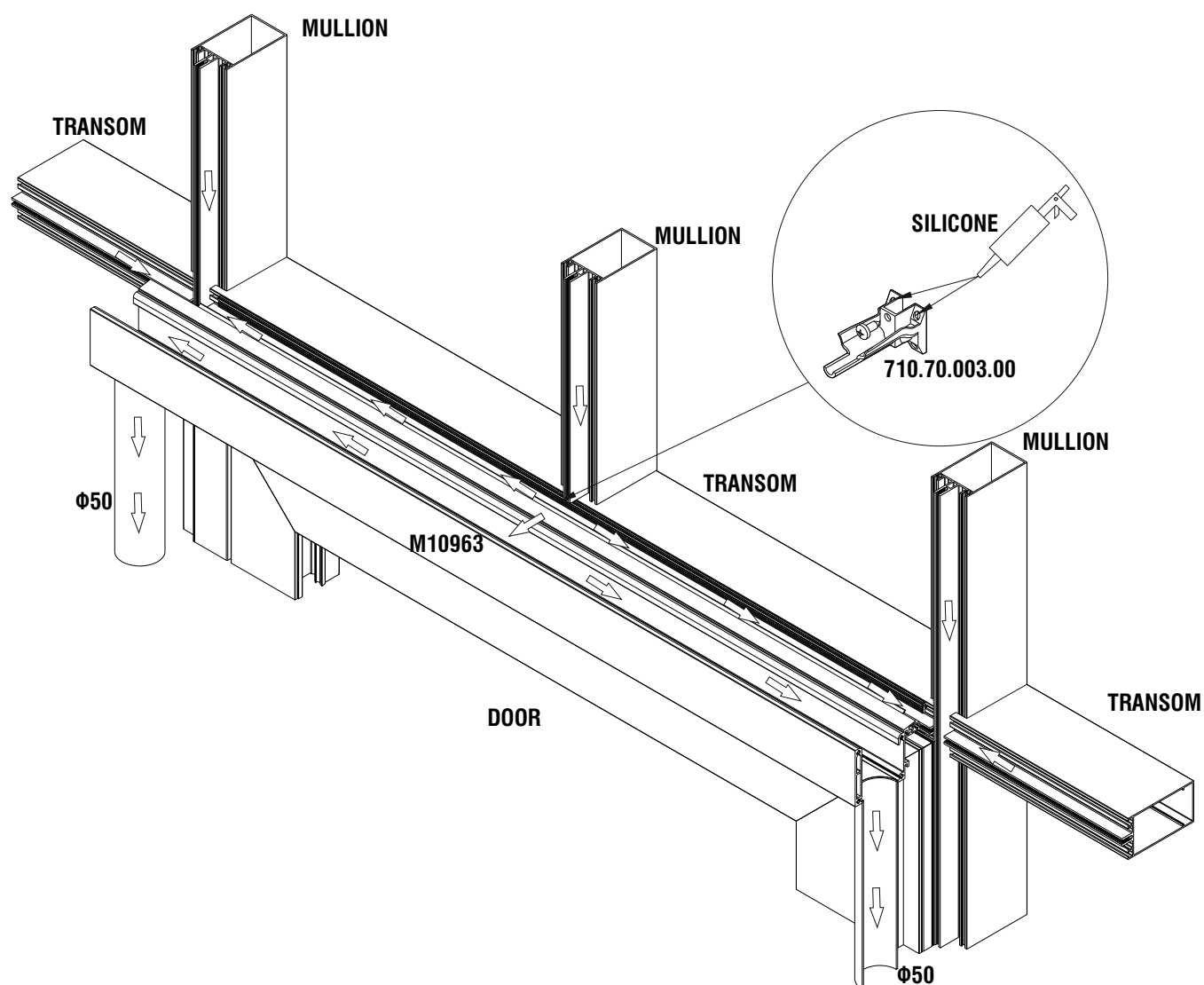
WATER EVACUATION

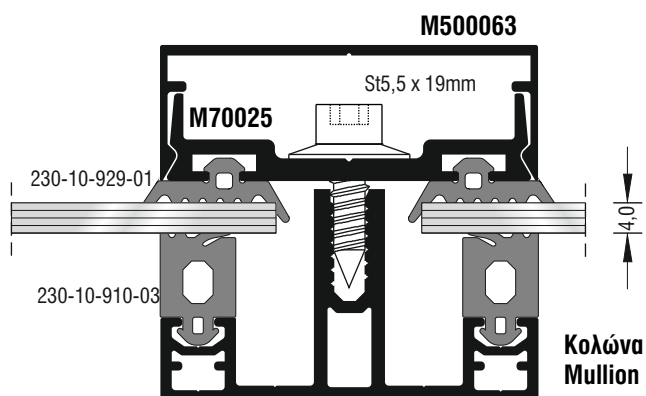


WATER EVACUATION

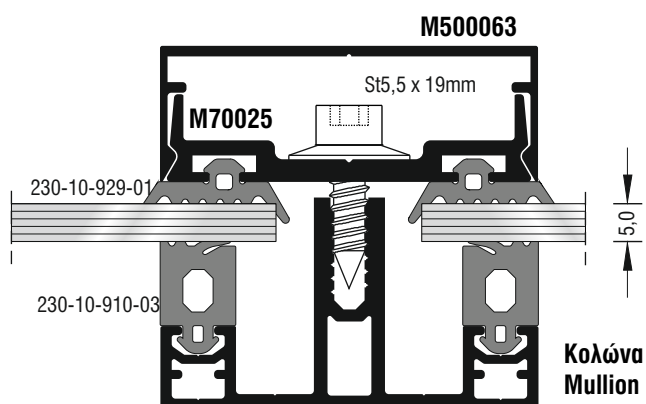
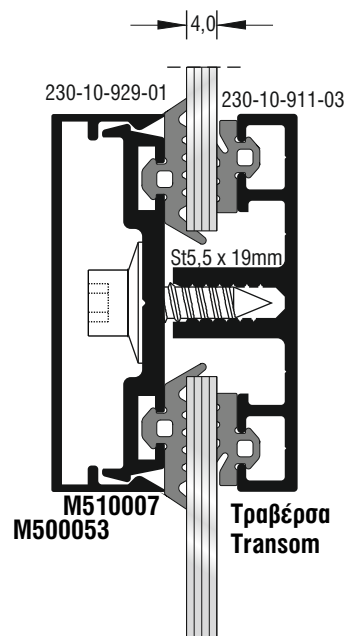


WATER EVACUATION

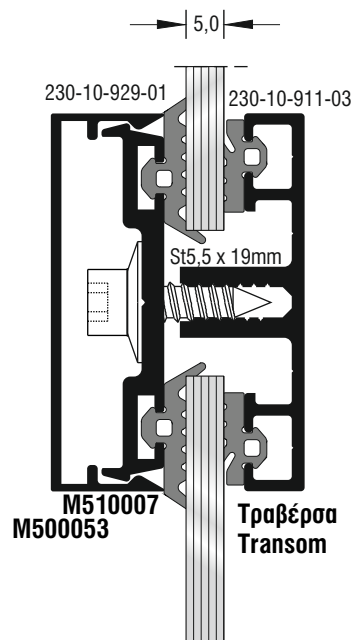


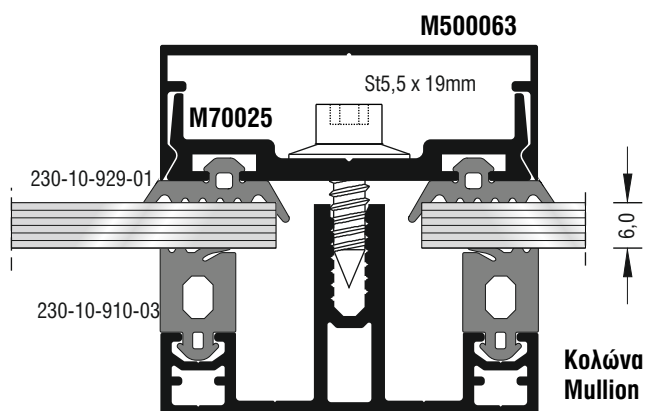


4mm Glass

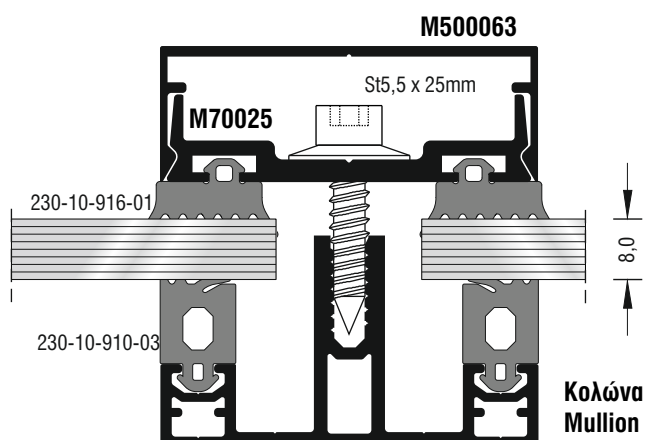


5mm Glass

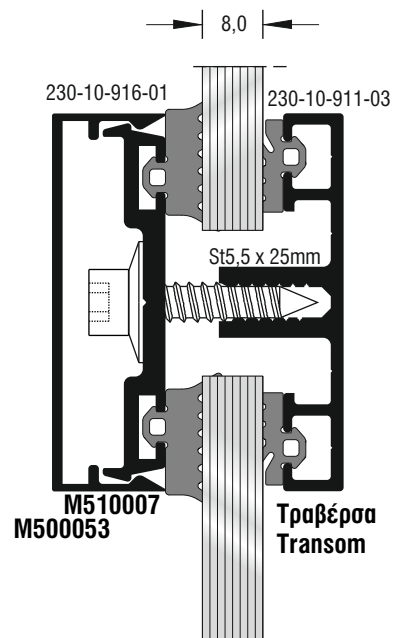
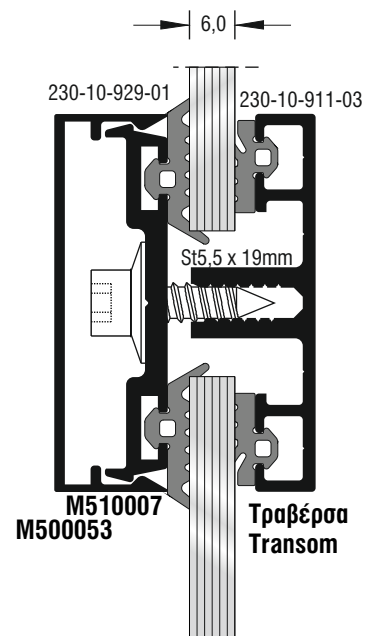


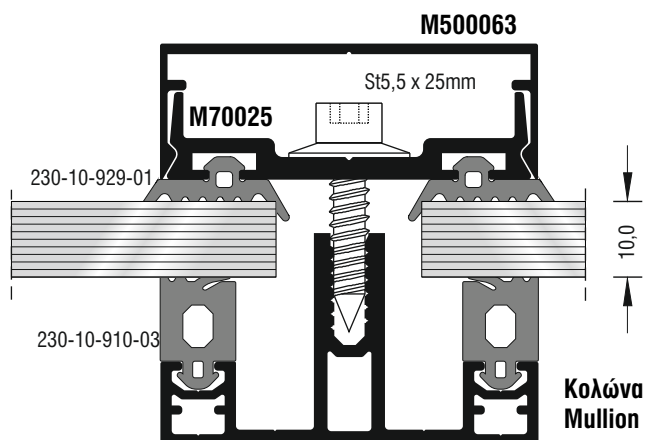


6mm Glass

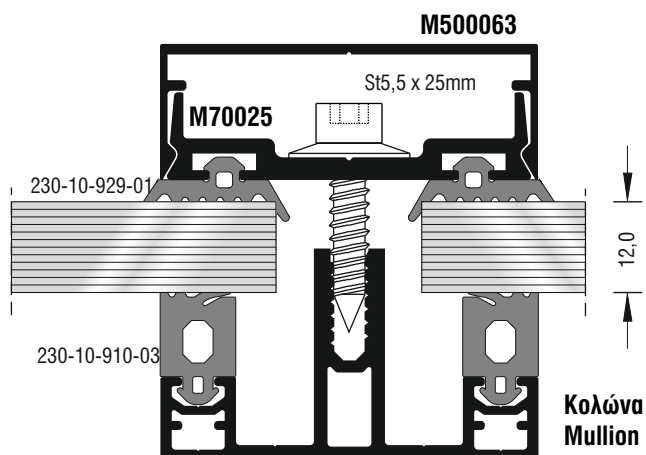
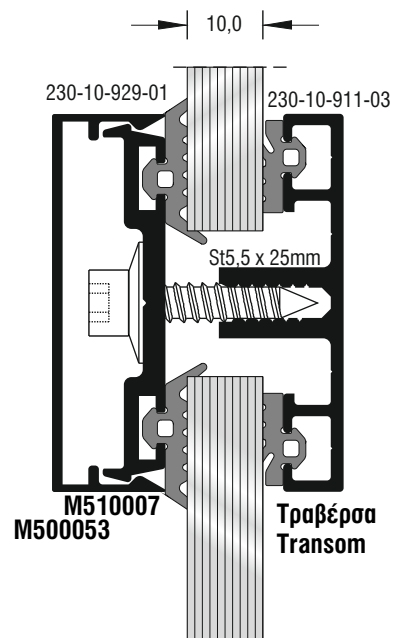


8mm Glass

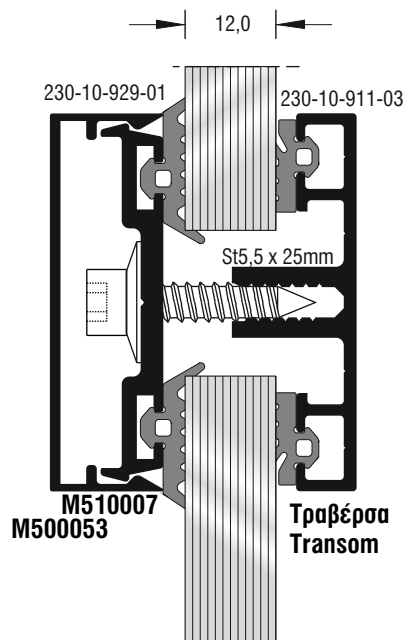


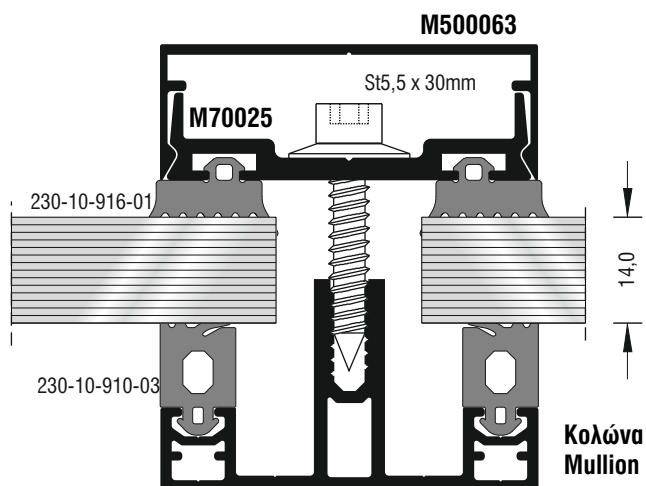


10mm Glass

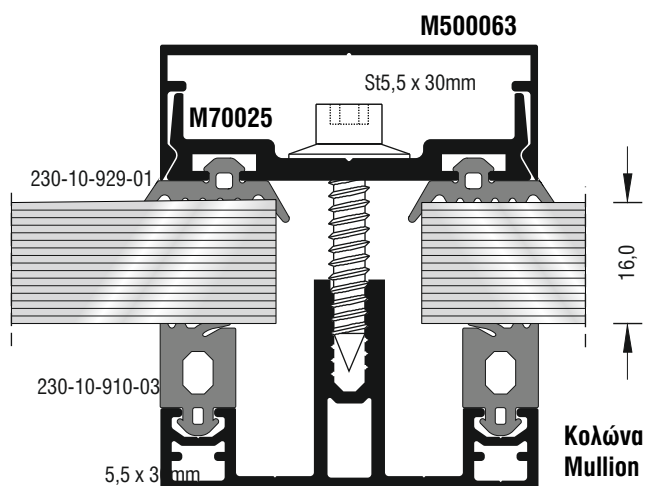
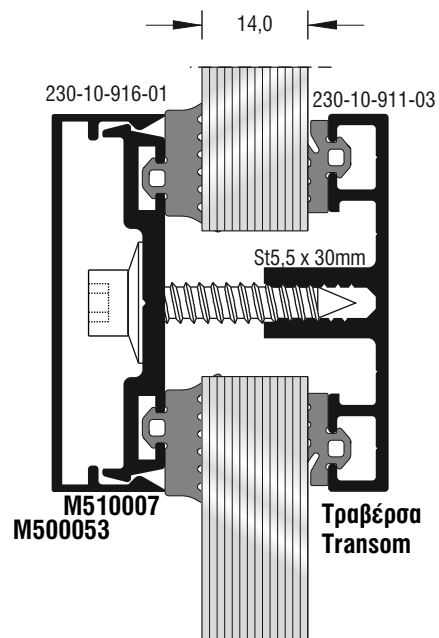


12mm Glass

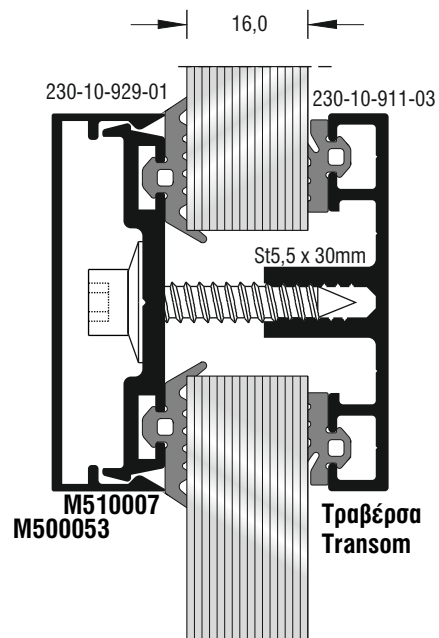


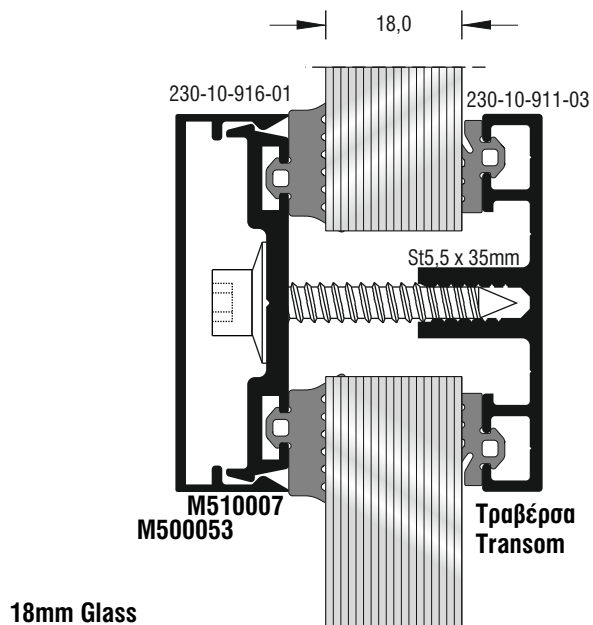
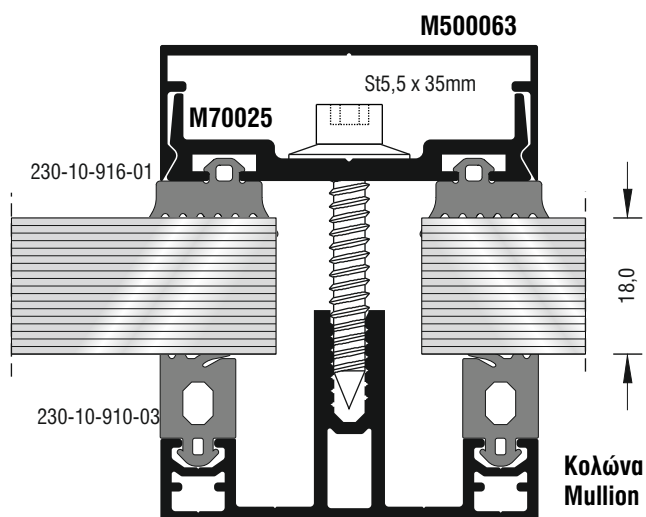


14mm Glass

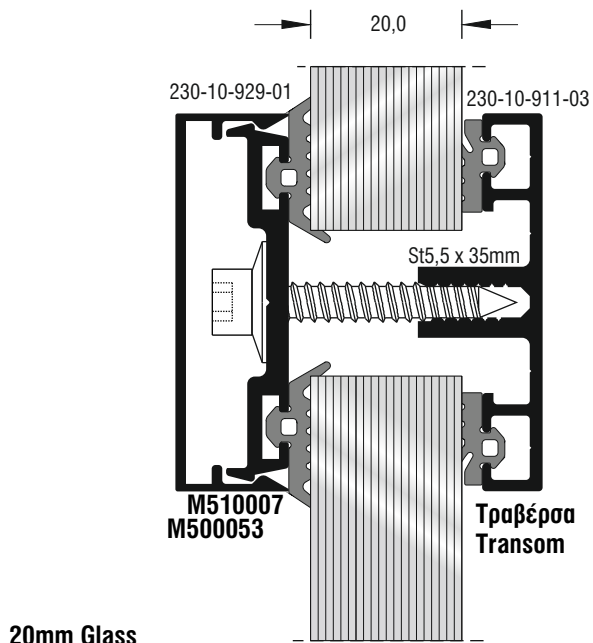
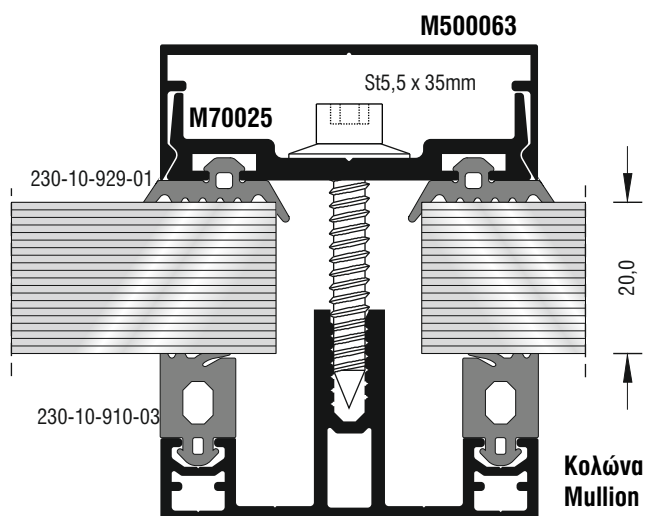


16mm Glass

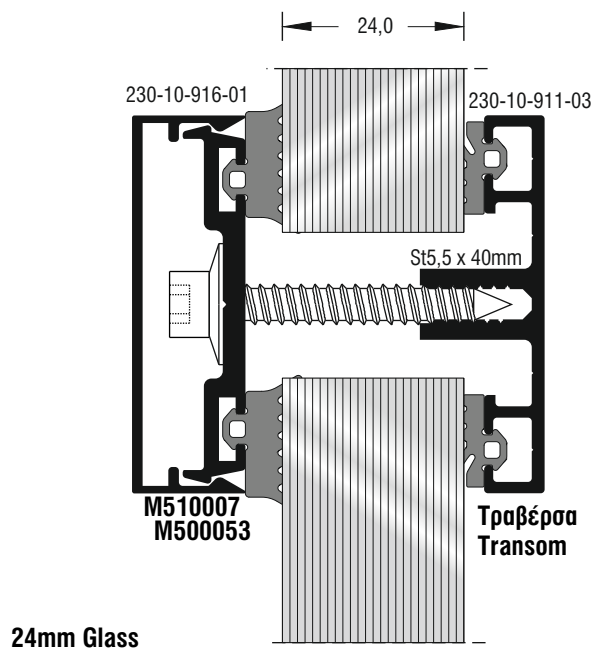
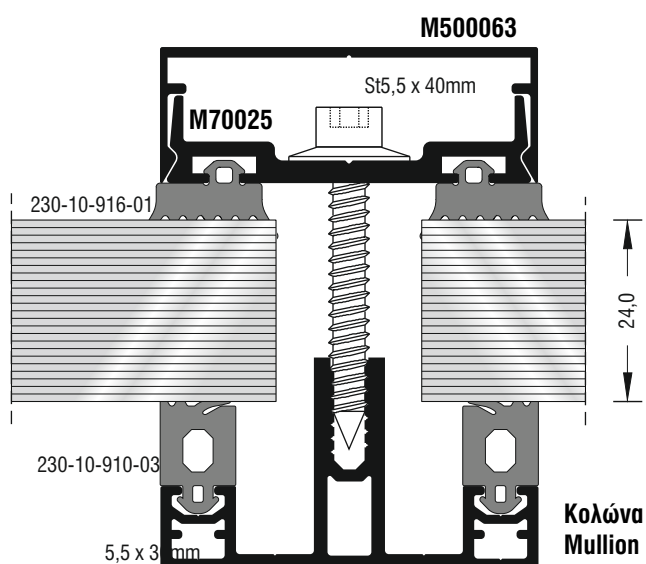
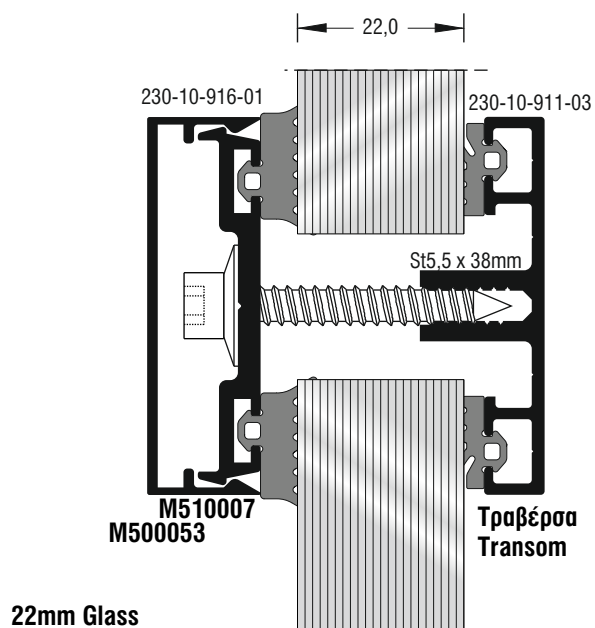
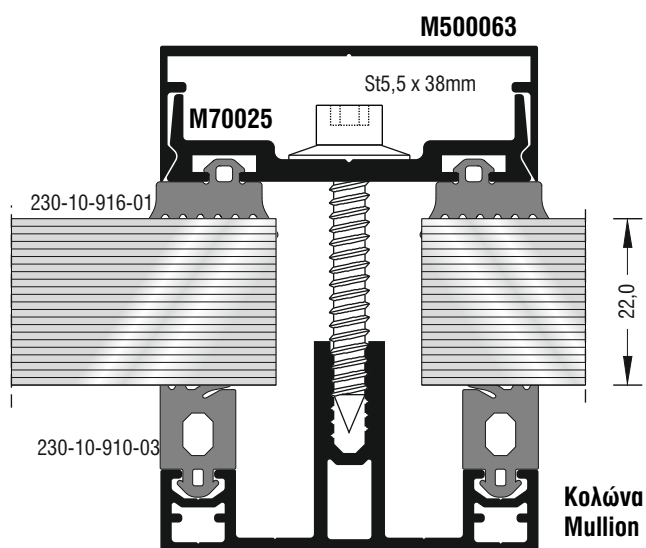


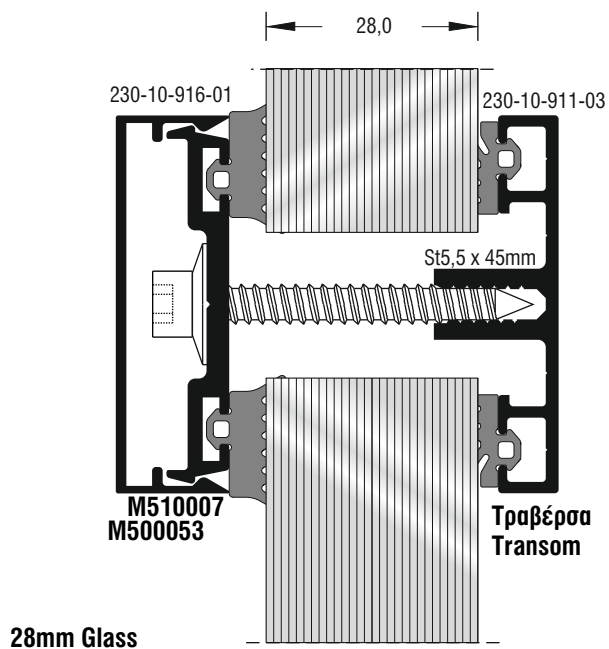
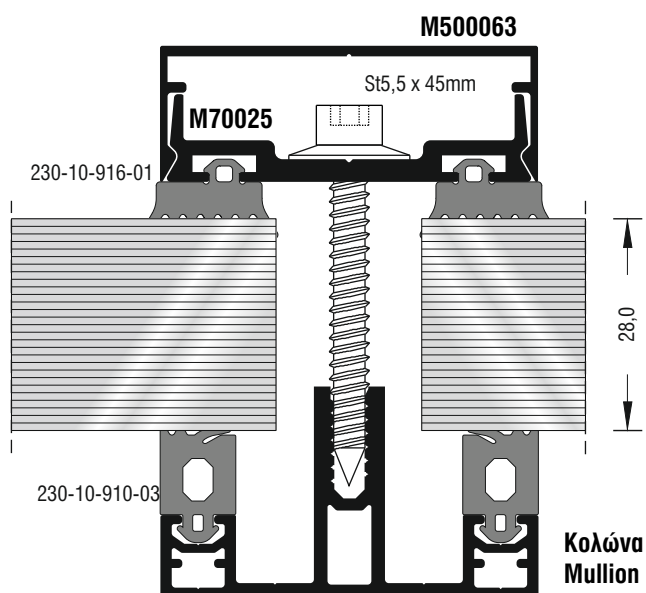
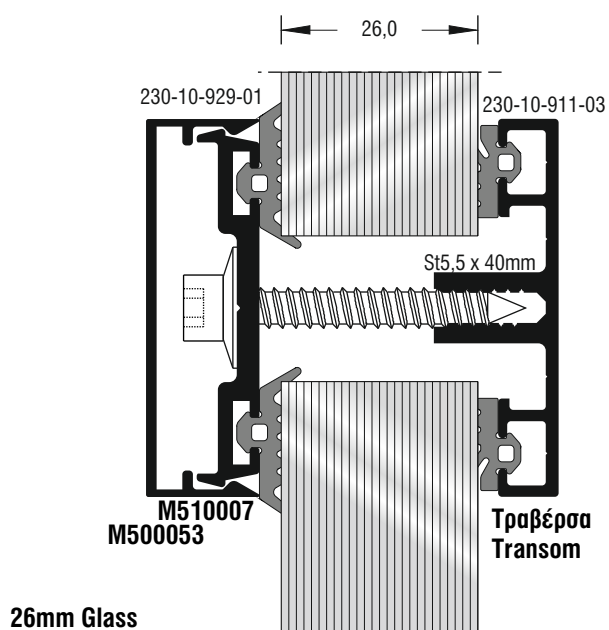
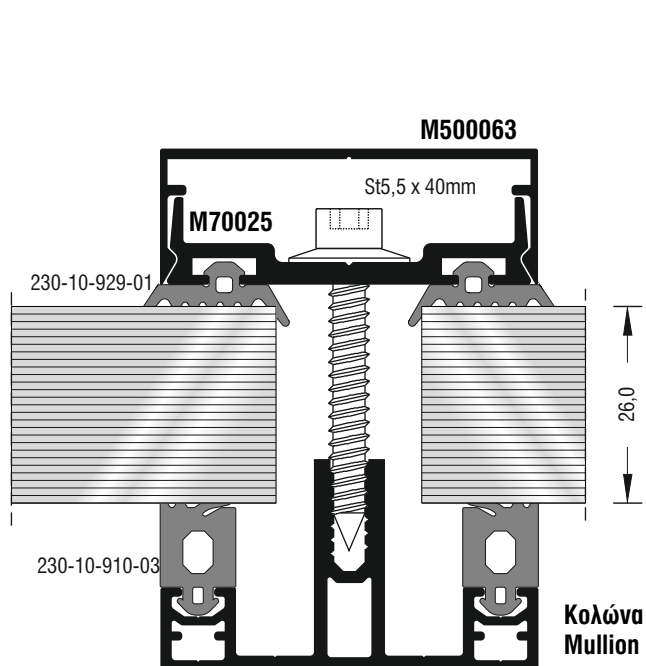


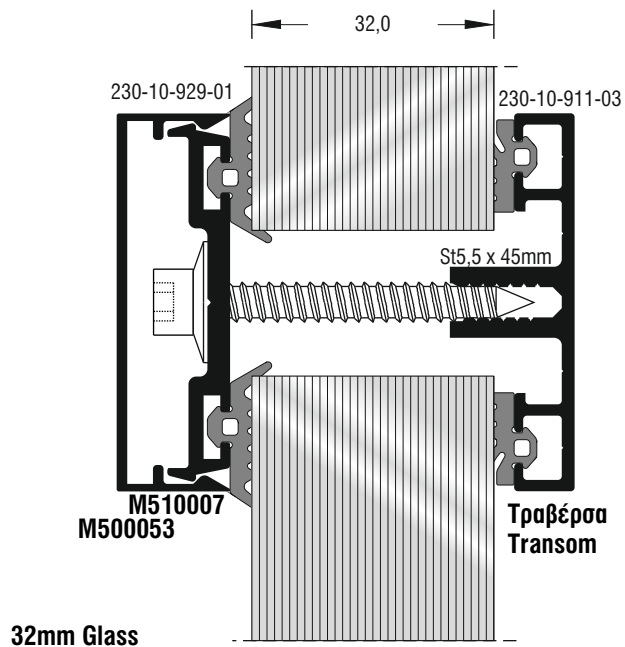
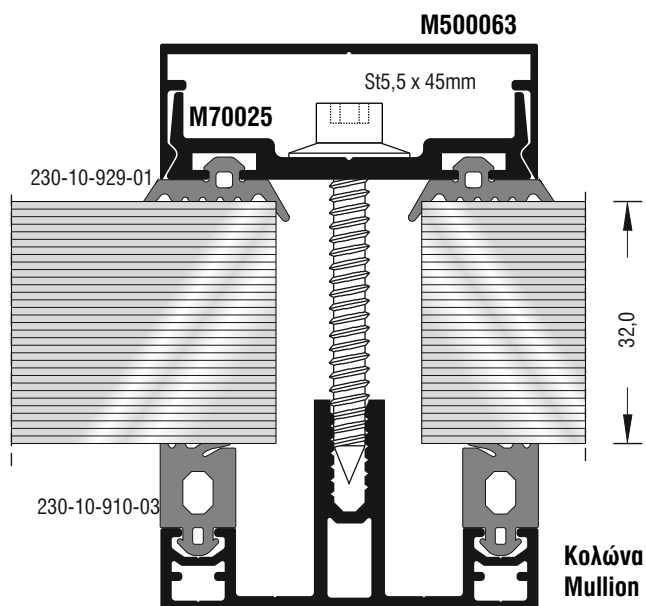
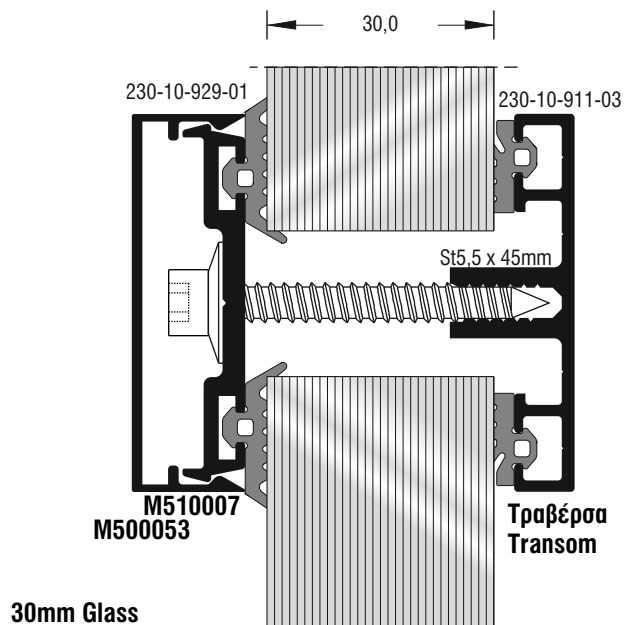
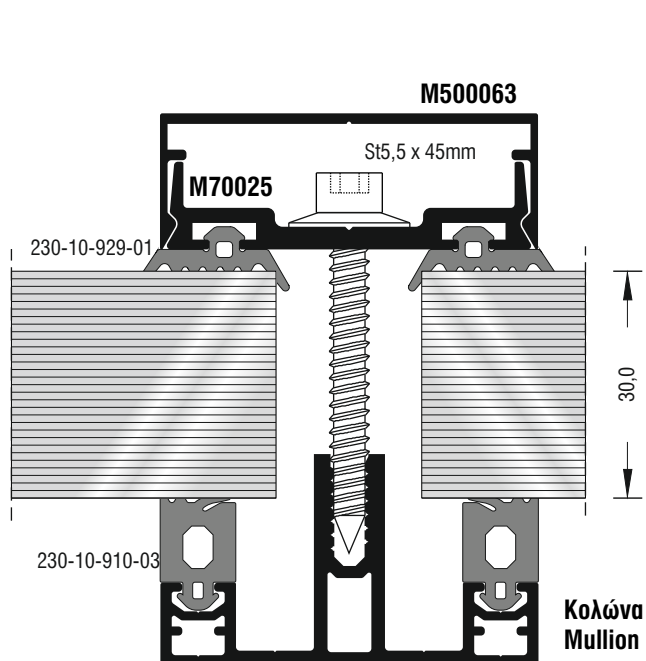
18mm Glass

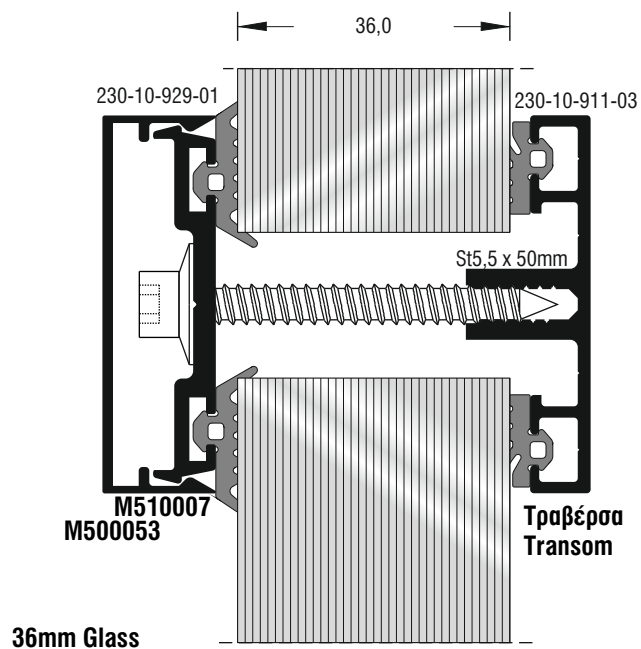
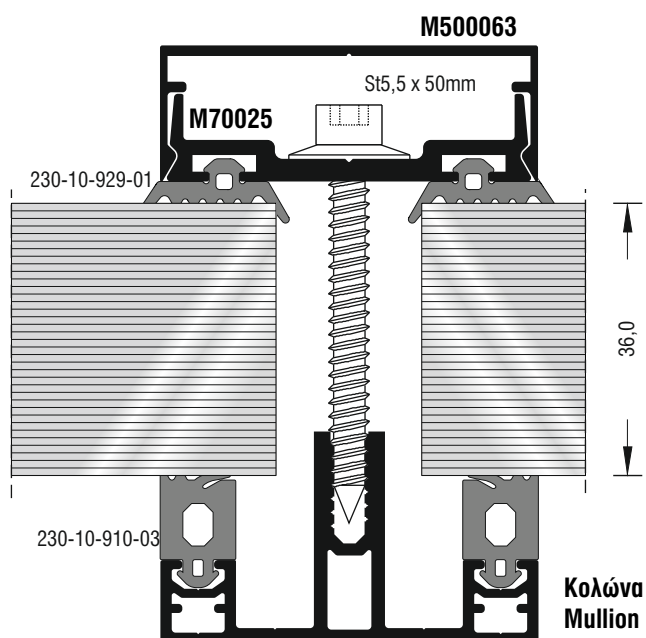
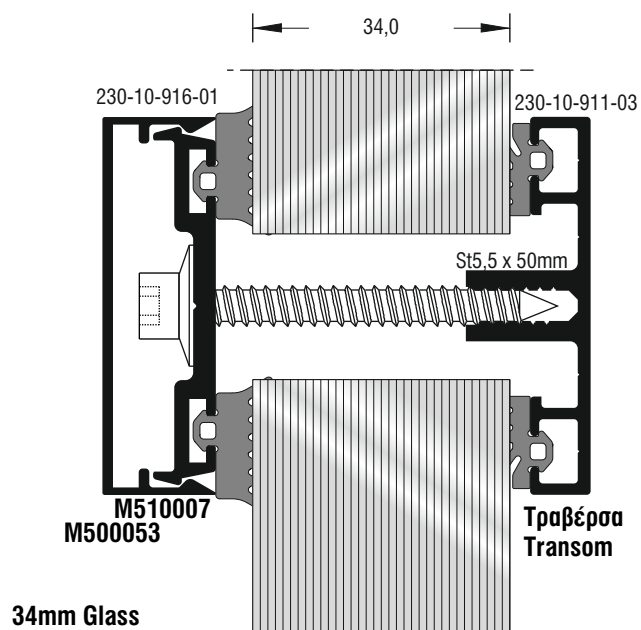
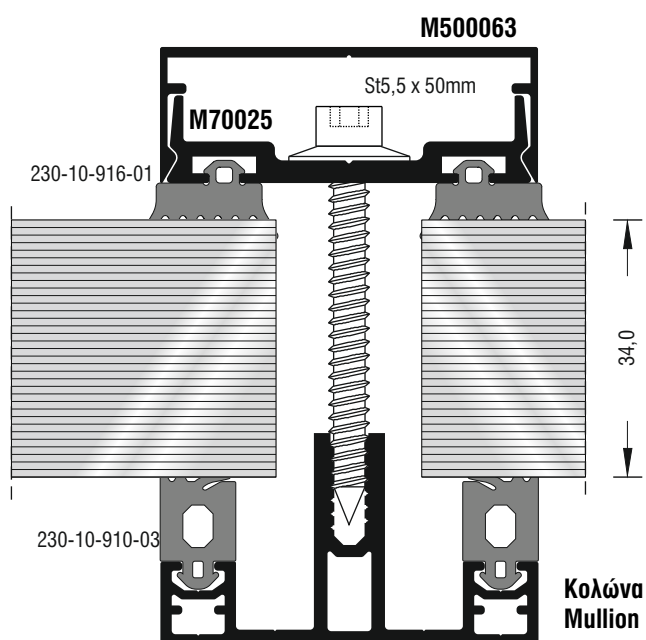


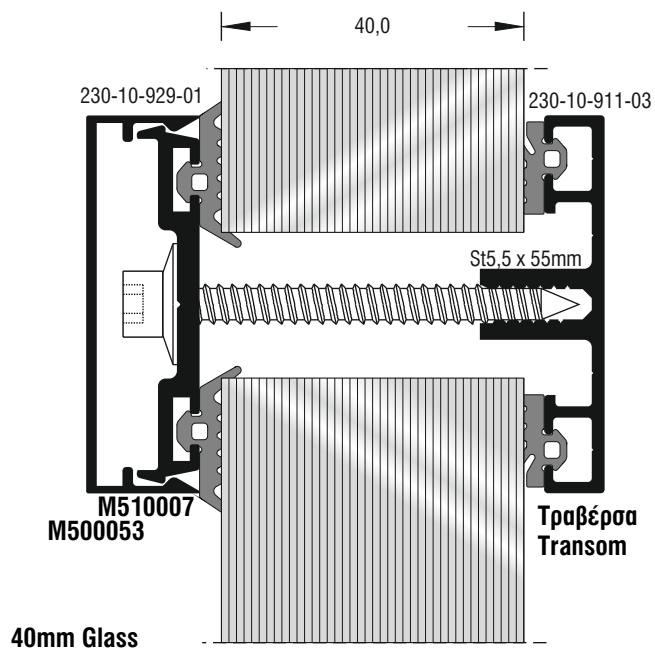
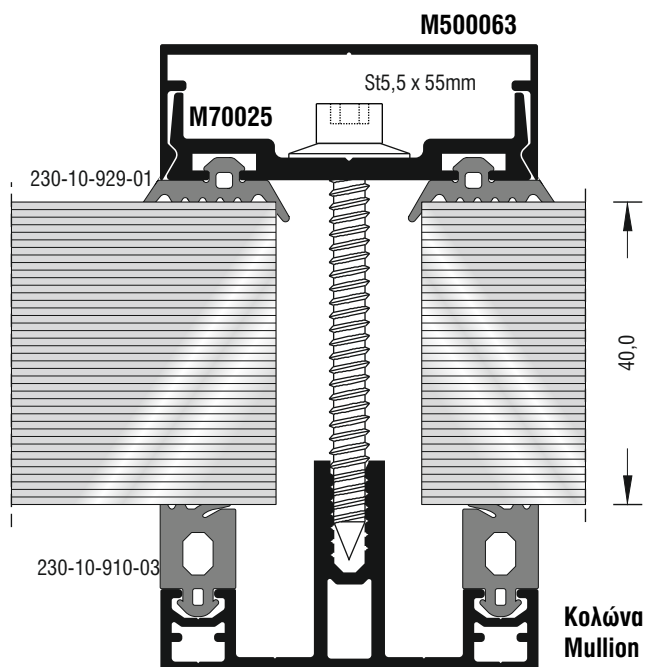
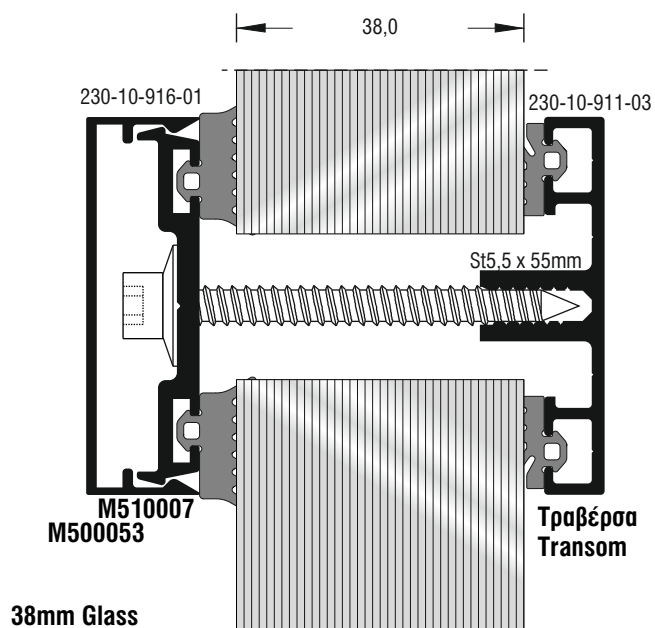
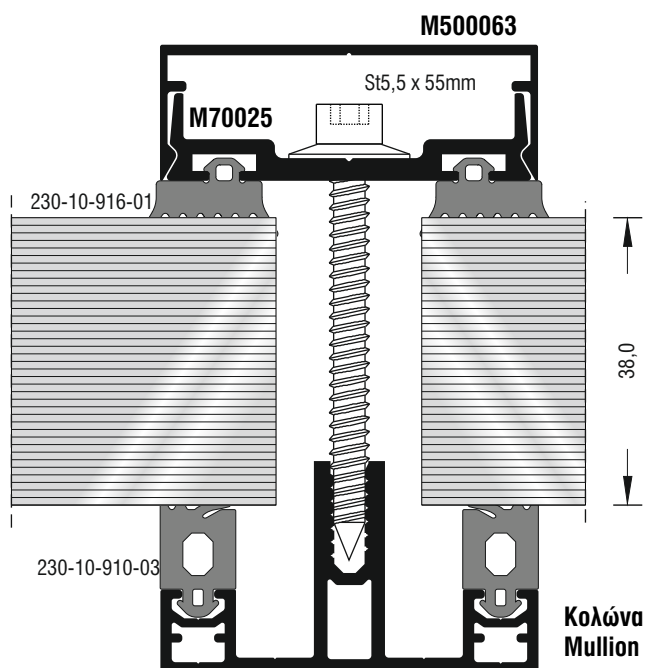
20mm Glass

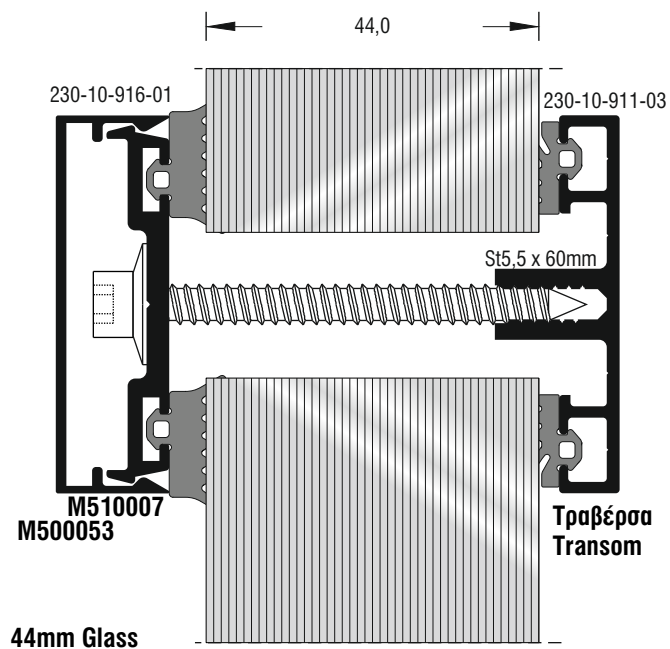
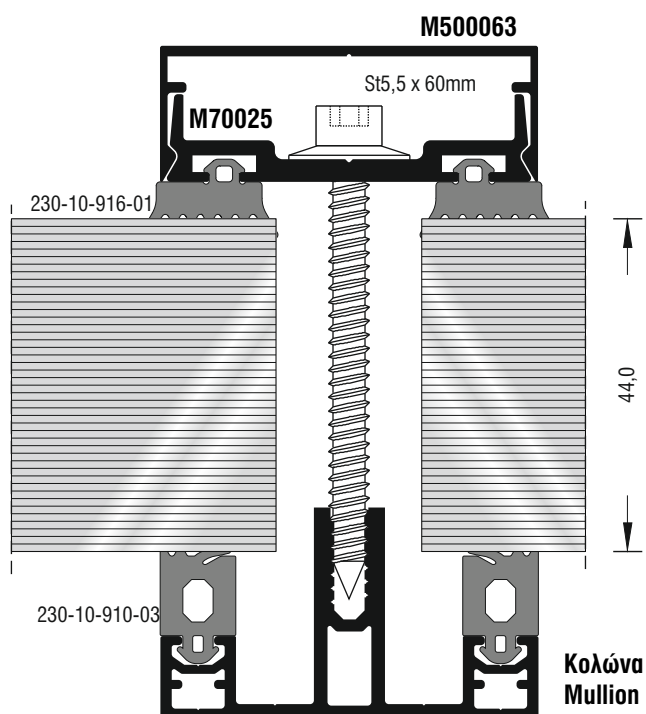
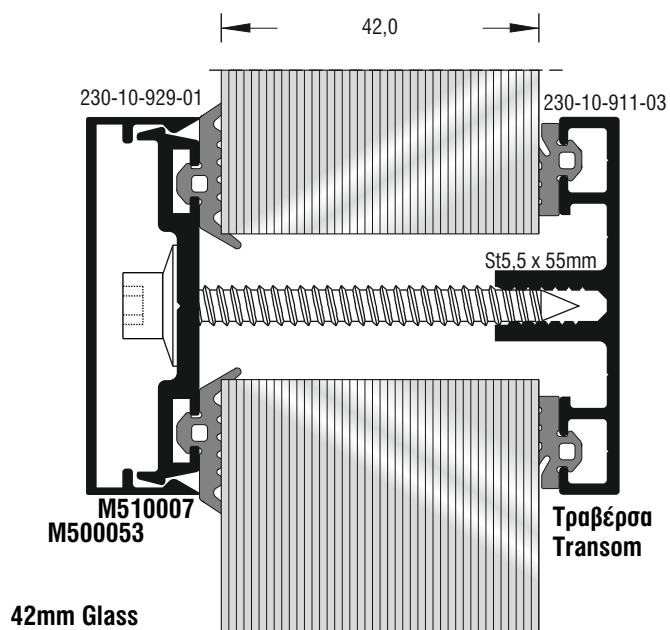
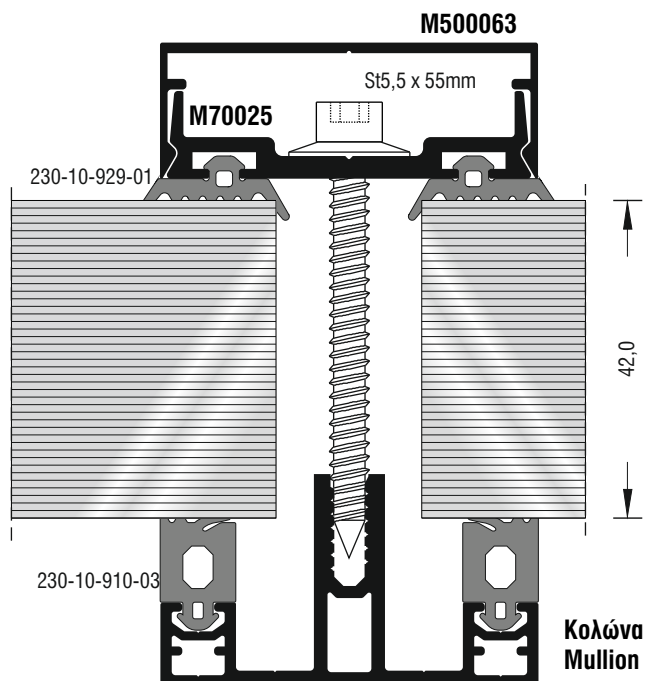


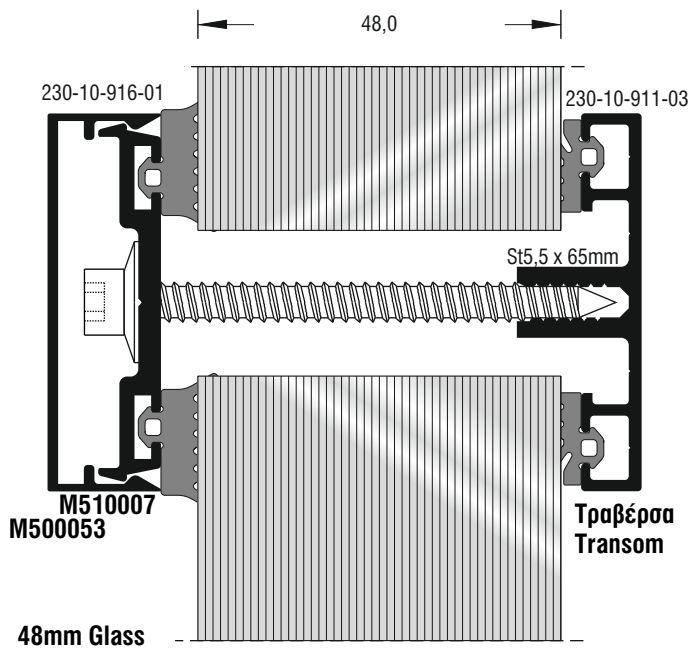
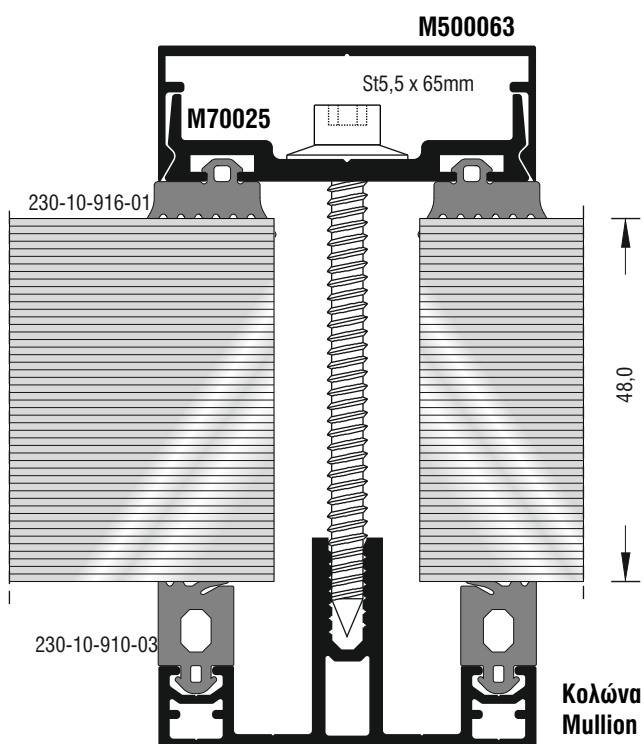
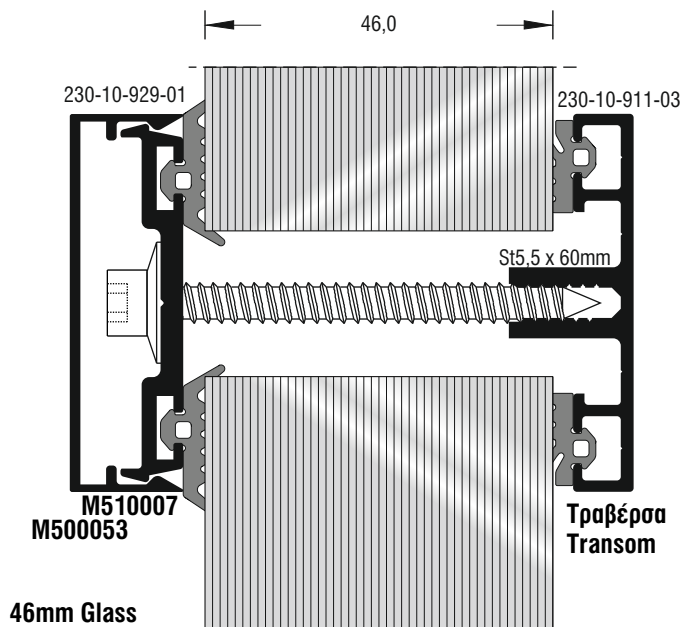
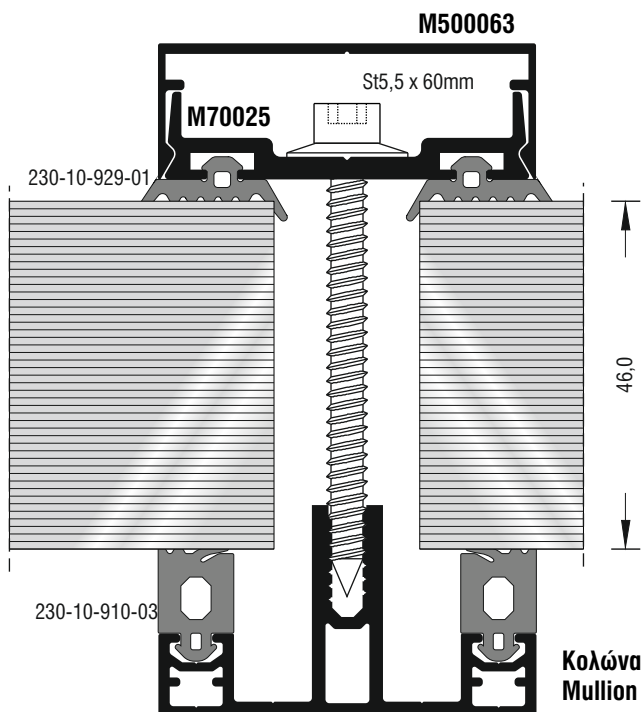


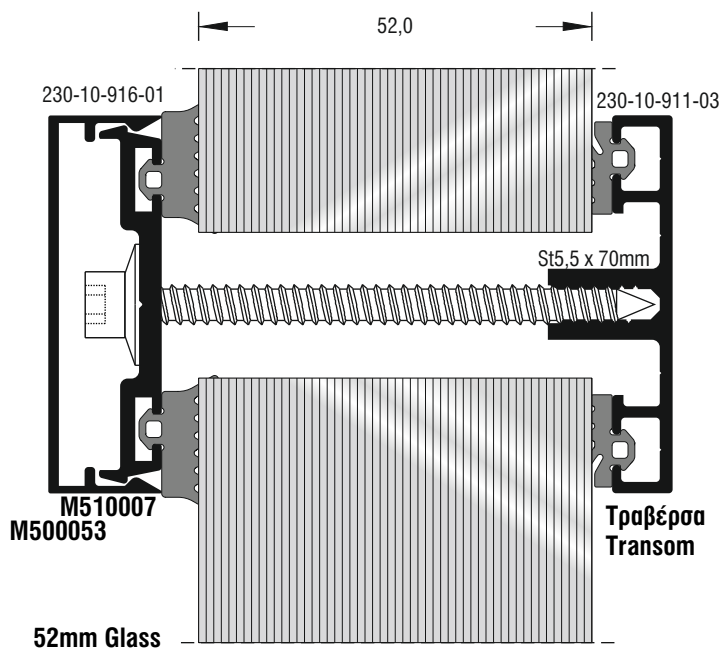
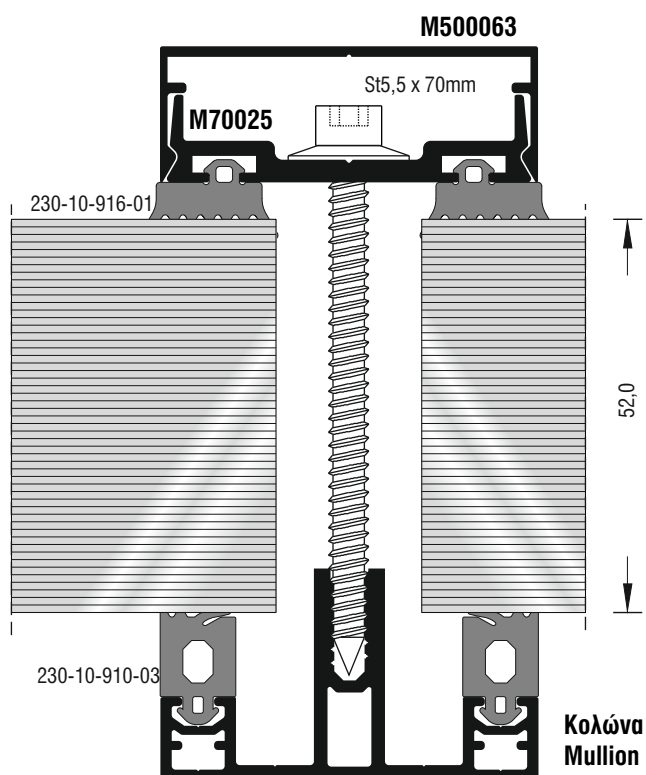
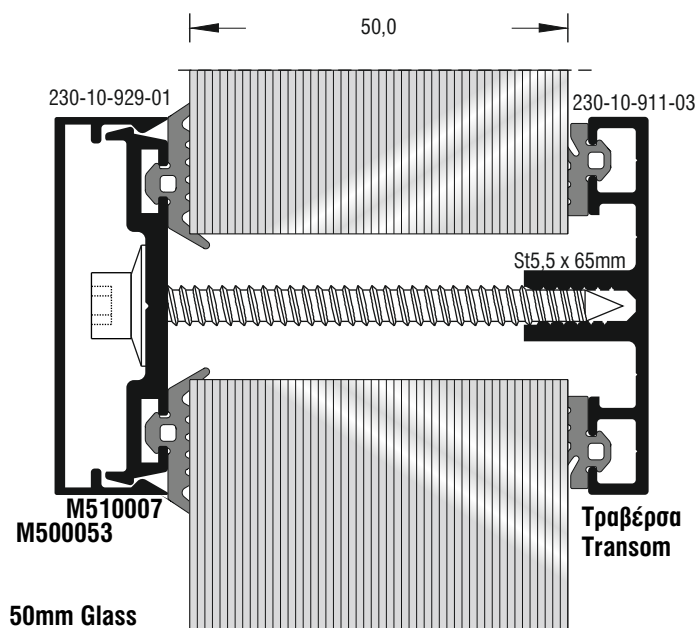
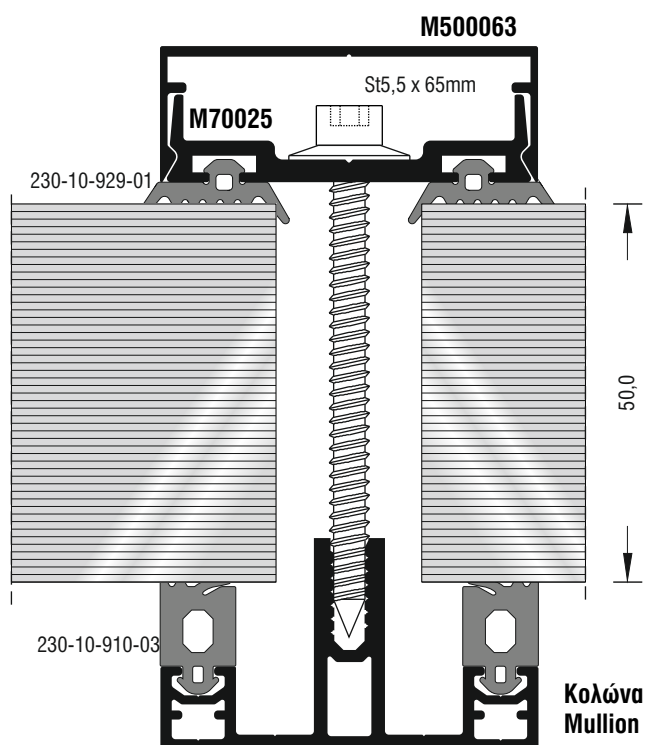


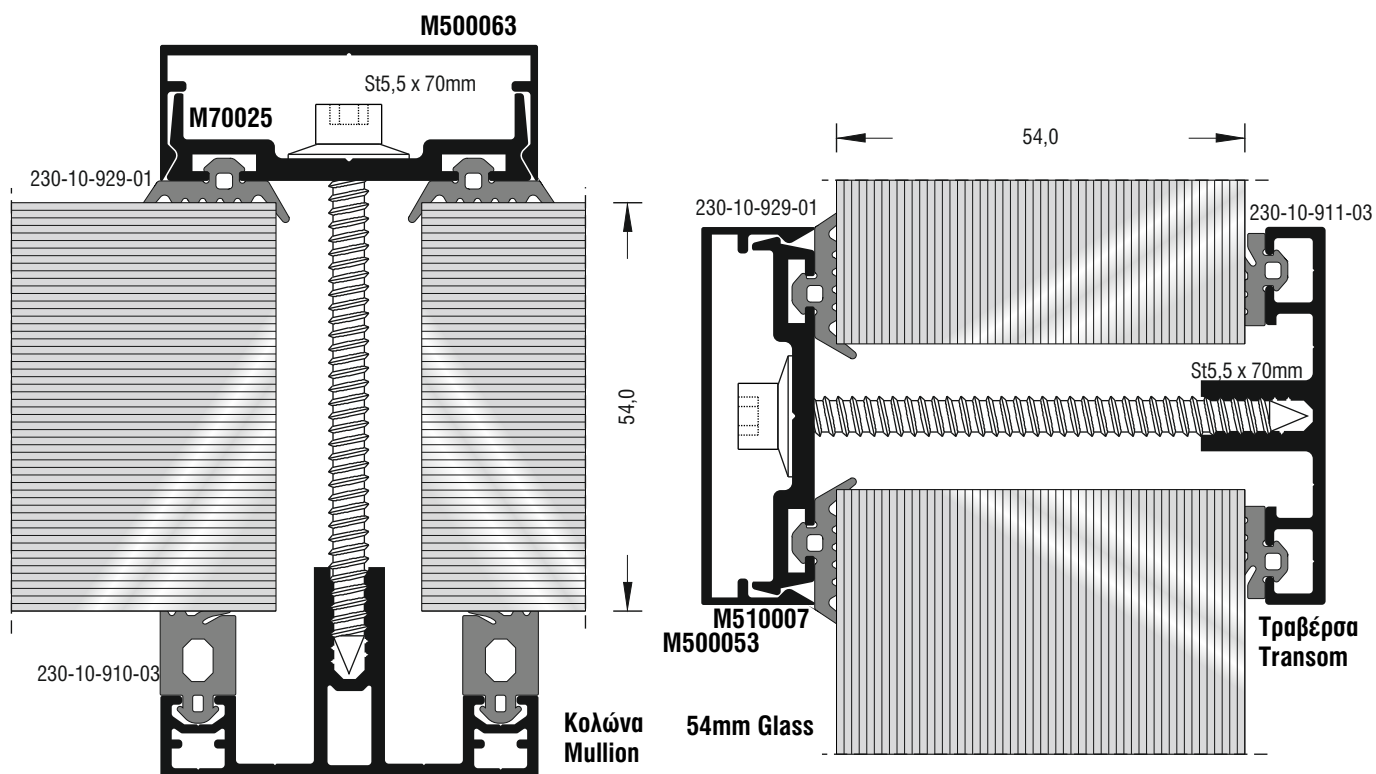


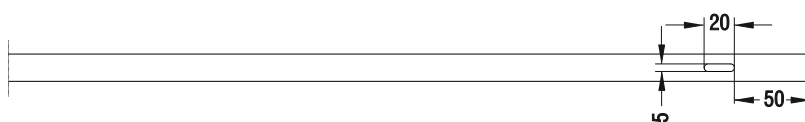
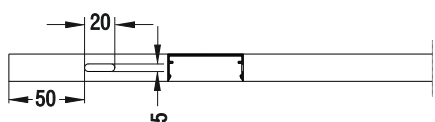
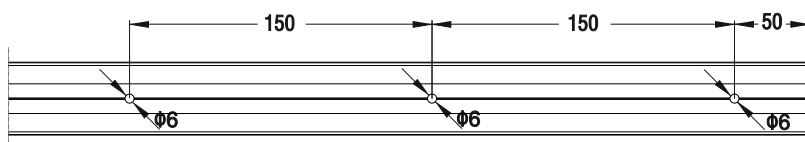
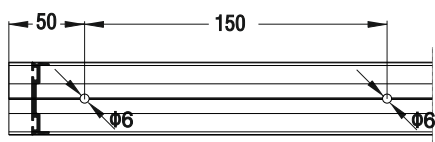
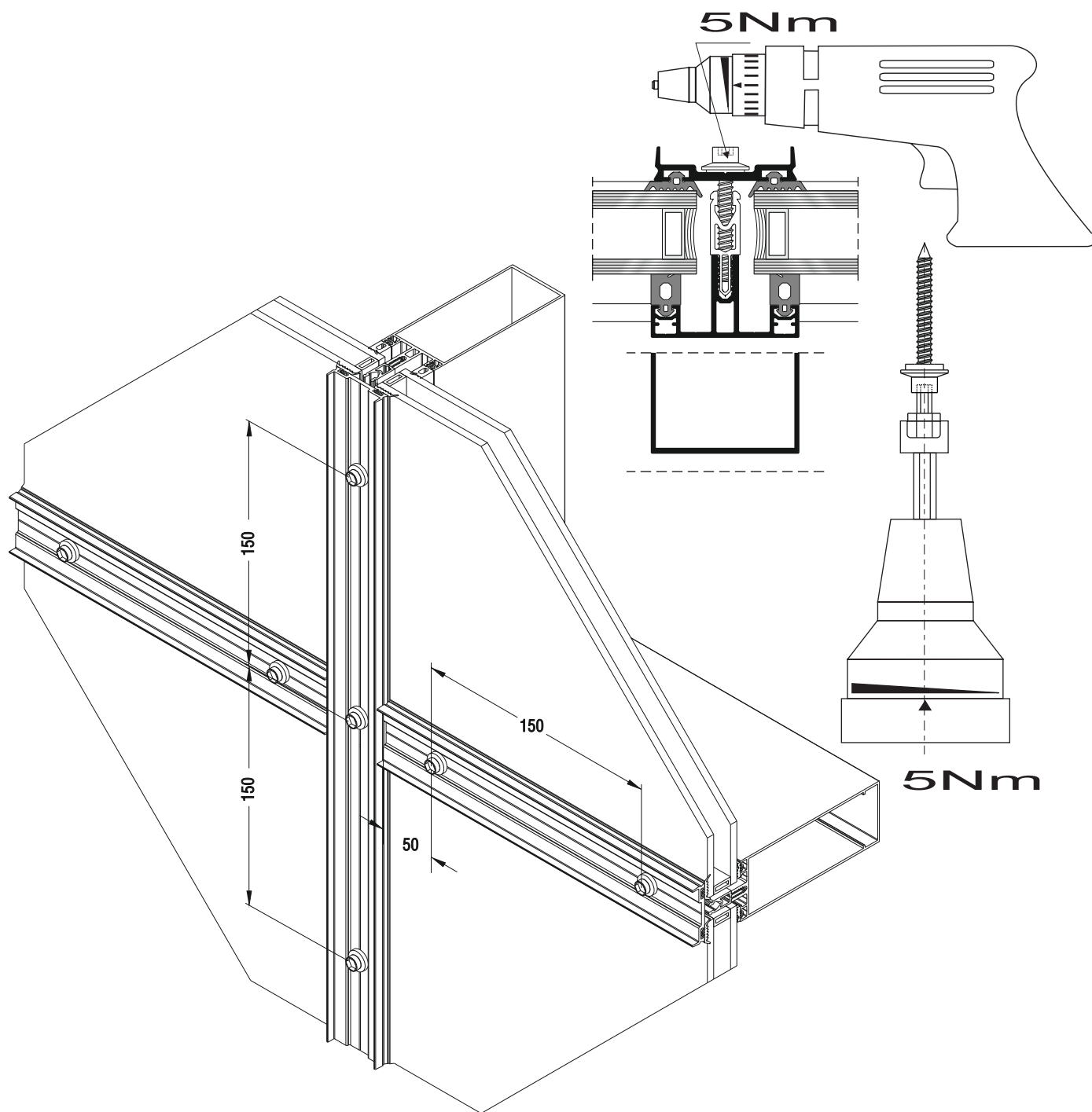






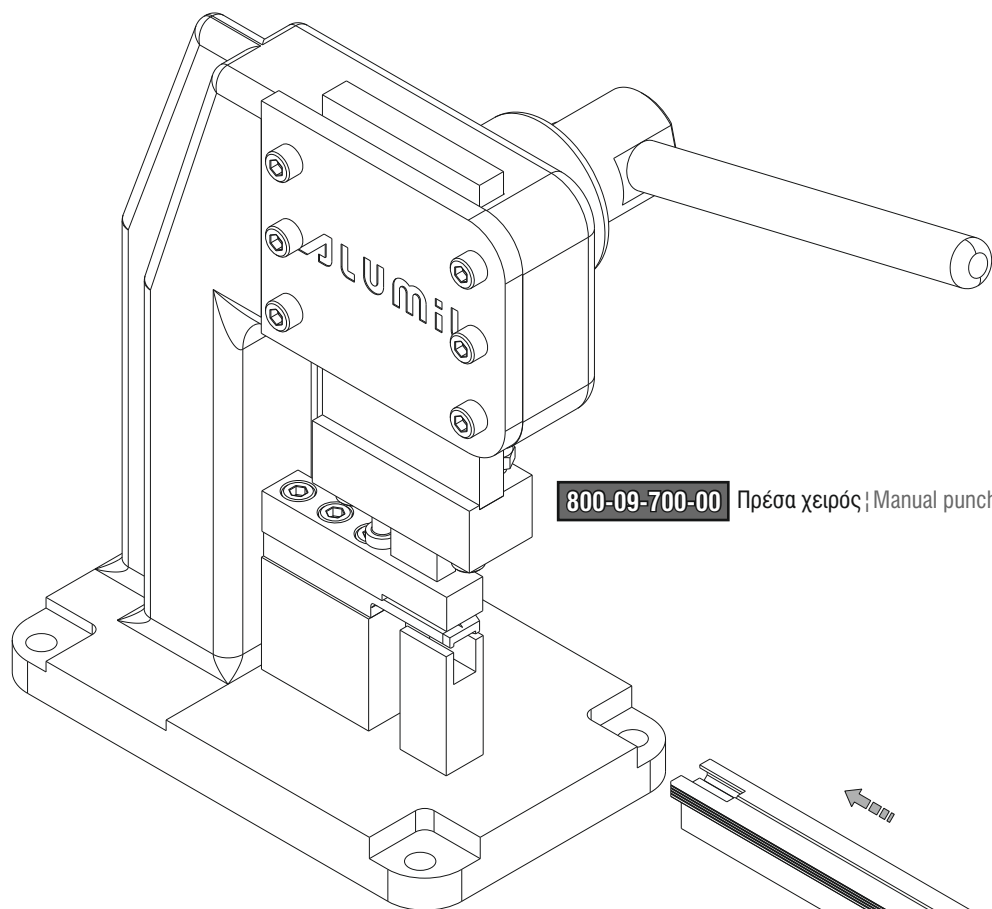




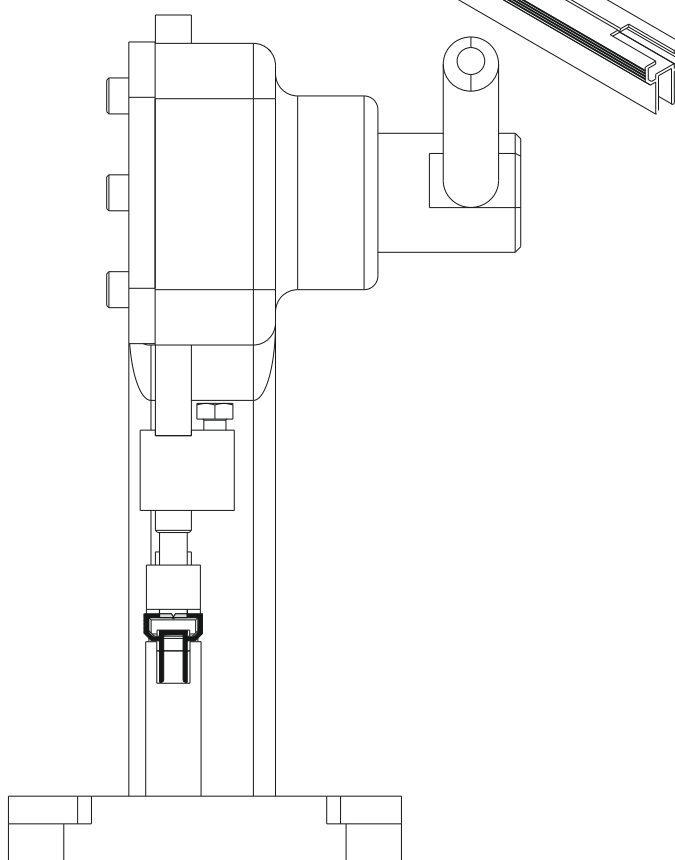
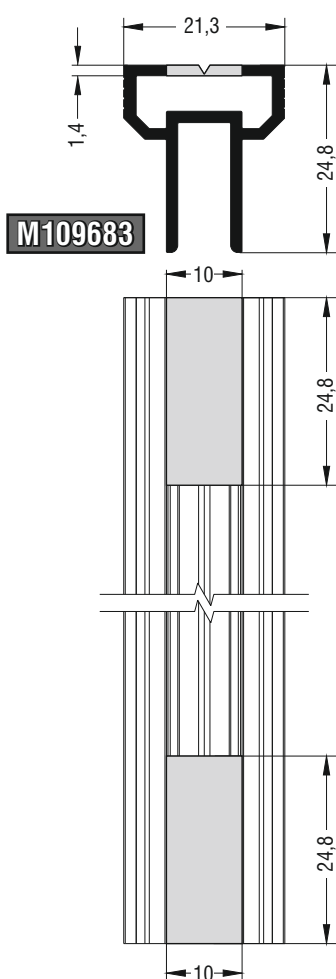


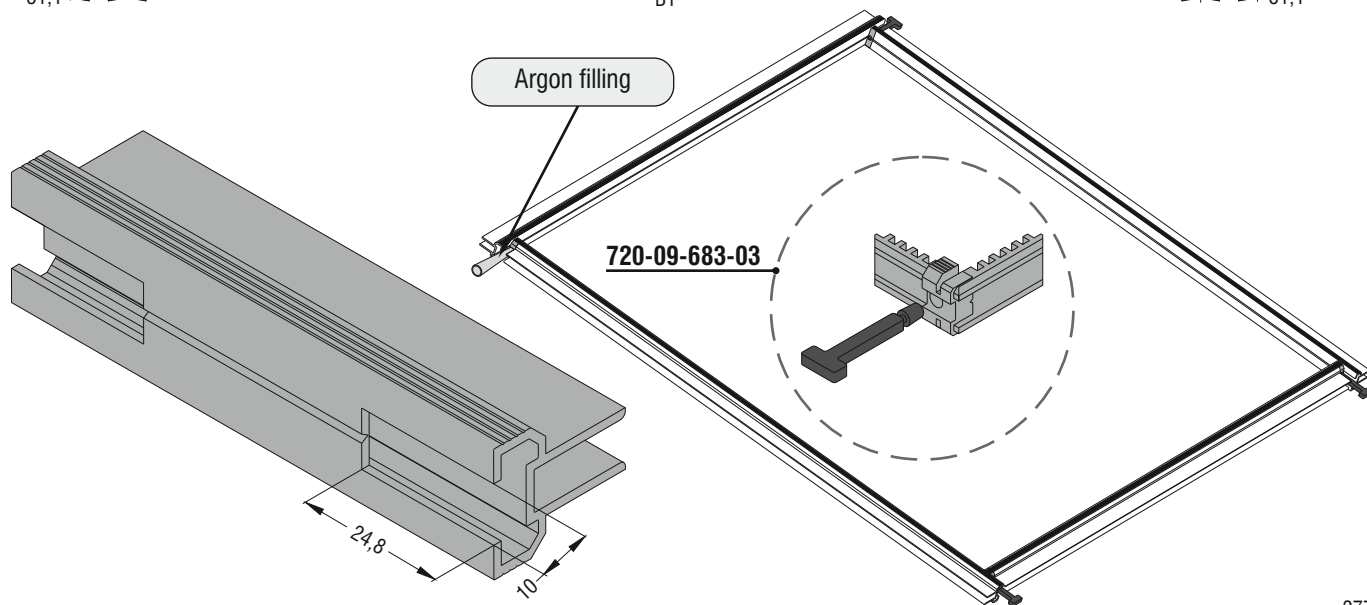
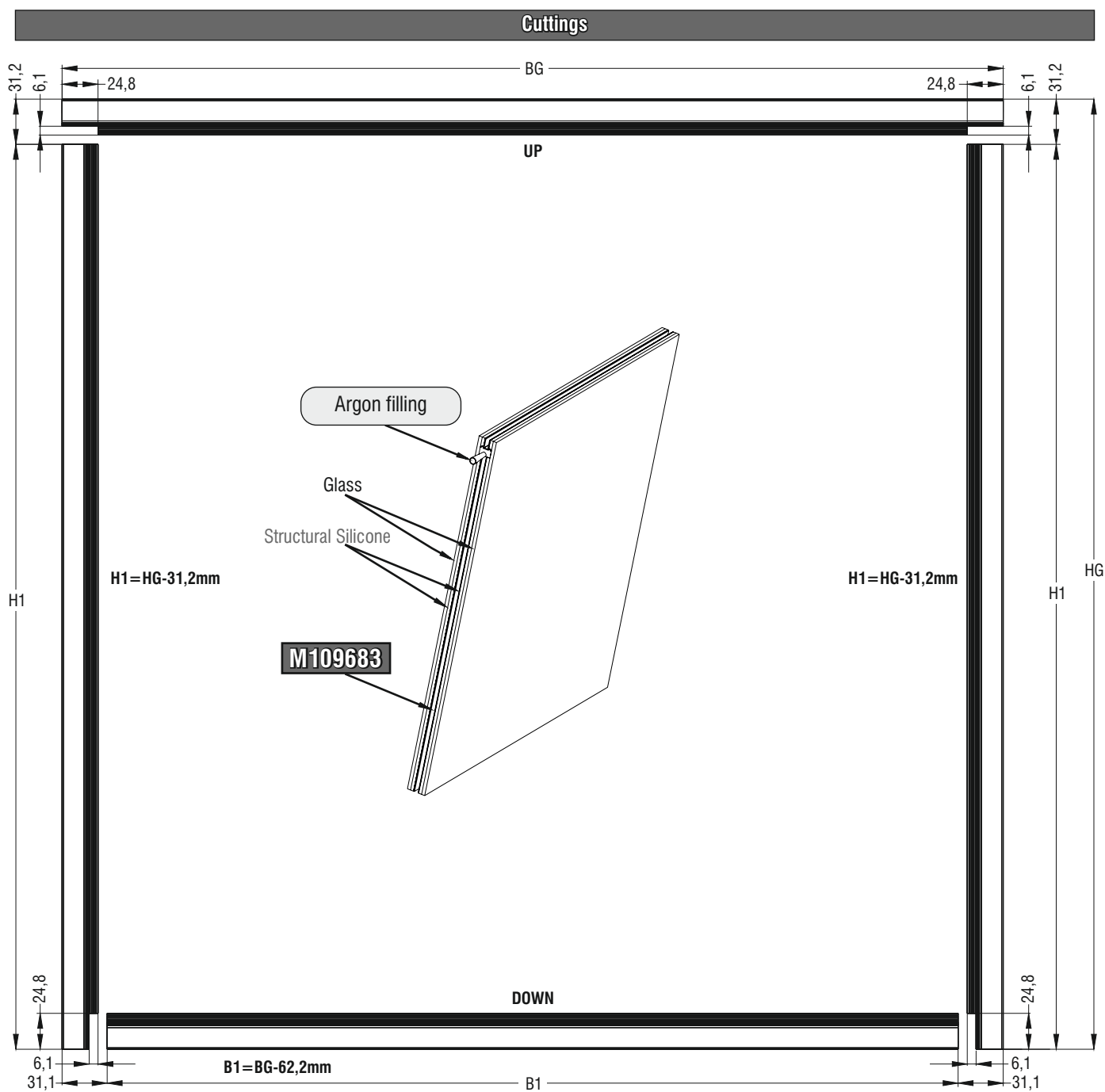


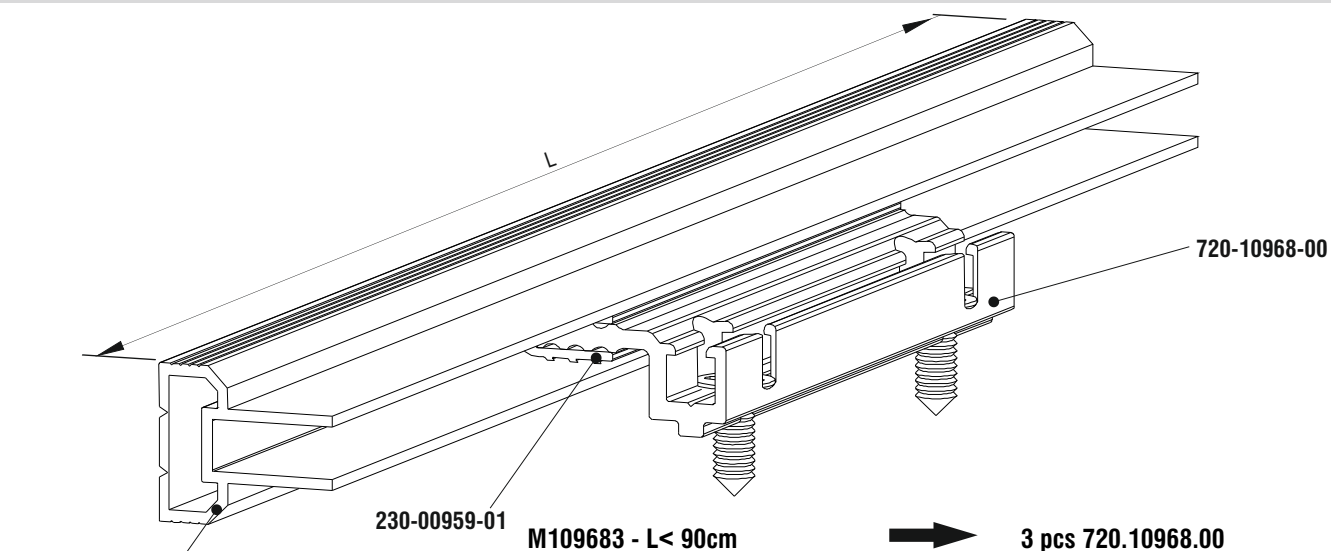
Κατεργασία αποστάτη υάλωσης υαλοπίνακα | Glazing spacer machining



800-09-700-00 Πρέσα χειρός | Manual punch press







M109683

230-00959-01

M109683 - L < 90cm



3 pcs 720.10968.00

M109683 - L = 90cm - 120cm



4 pcs 720.10968.00

M109683 - L = 120cm - 150cm



5 pcs 720.10968.00

M109683 - L = 150cm - 180cm



6 pcs 720.10968.00

M109683 - L = 180cm - 210cm



7 pcs 720.10968.00

M109683 - L = 210cm - 240cm

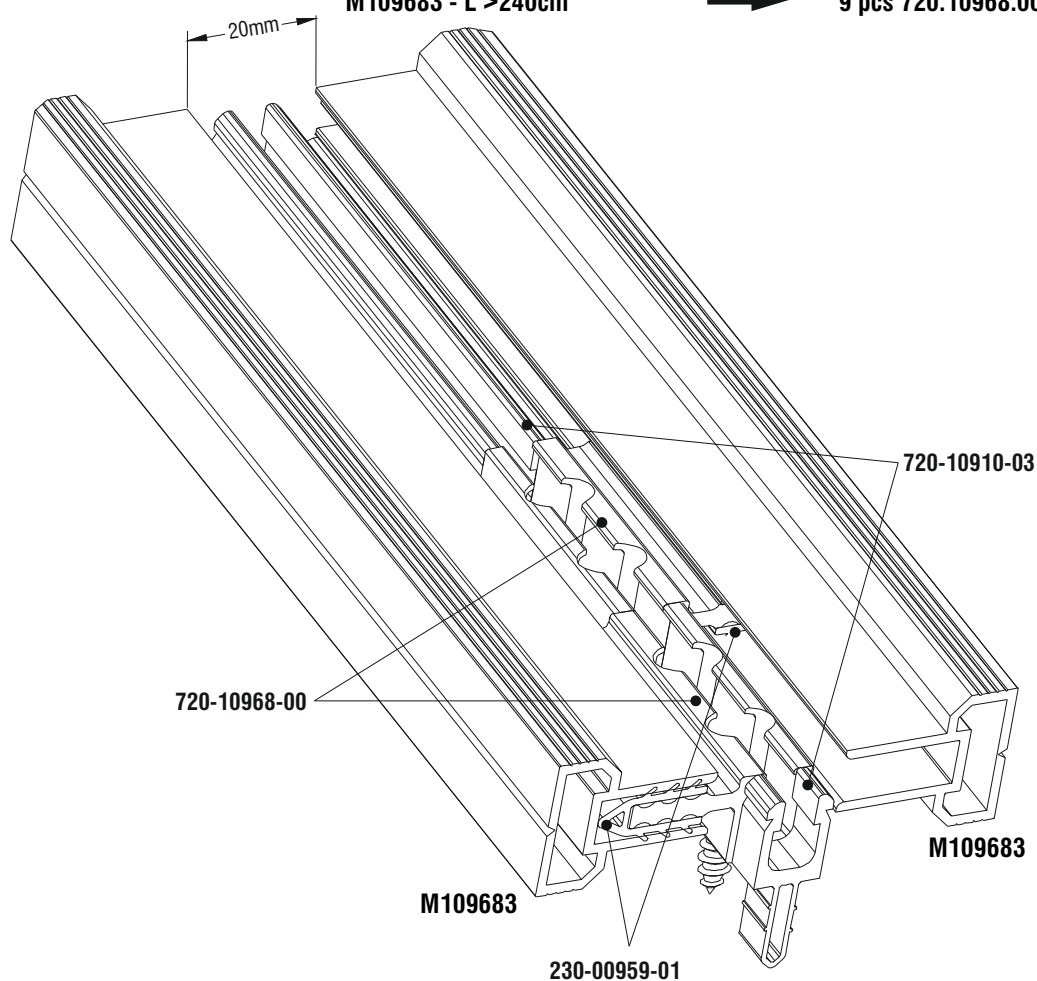


8 pcs 720.10968.00

M109683 - L > 240cm



9 pcs 720.10968.00 (or more)



720-10968-00

720-10910-03

M109683

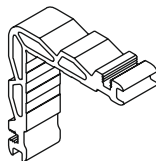
230-00959-01

Εξαρτήματα - Ελαστικά Accessories - Gaskets

113-11-077-00 (10,9x8,3mm)
113-11-196-00 (10,9x20mm)
113-11-266-00 (10,9x27mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

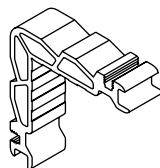


Γωνία σύνδεσης με διπλό χτύπημα
Double crimp corner cleat

113-13-121-00 (13,2x20mm)
113-13-196-00 (13,2x12,5mm)
113-13-274-00 (13,2x27mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

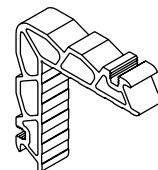


Γωνία σύνδεσης με διπλό χτύπημα
Double crimp corner cleat

113-15-060-00 (15,6x6,9mm)
113-15-156-00 (15,6x15,9mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

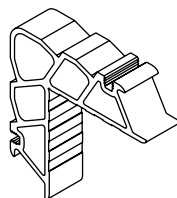


Γωνία σύνδεσης με διπλό χτύπημα
Double crimp corner cleat

113-23-046-00 (23x5mm)
113-23-196-00 (23x19,8mm)
113-23-270-00 (23x27mm)
113-23-345-00 (23x34,8mm)
113-23-355-00 (23x35,9mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

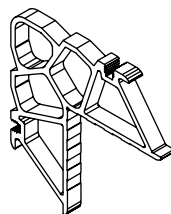


Γωνία σύνδεσης με διπλό χτύπημα
Double crimp corner cleat

113-33-056-00 (33,2x6mm)
113-33-121-00 (33,2x12,3mm)
113-33-156-00 (33,2x15,9mm)
113-33-196-00 (33,2x19,8mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

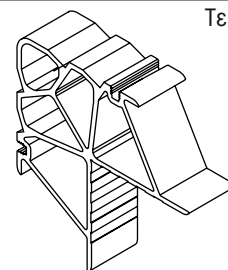


Γωνία σύνδεσης με διπλό χτύπημα
Double crimp corner cleat

113-43-056-00 (43,4x6mm)
113-43-220-00 (43,4x22,4mm)
113-43-295-00 (43,4x29,9mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

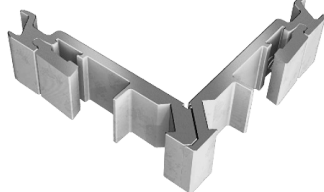


Γωνία σύνδεσης με διπλό χτύπημα
Double crimp corner cleat

125-13-196-00 (13,2x19,8mm)
125-13-274-00 (13,2x27mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

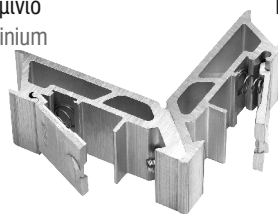


Γωνία σύνδεσης μηχανική
Mechanical corner cleat

125-23-196-00 (23x19,8mm)
125-23-270-00 (23x27mm)
125-23-345-00 (23x34,8mm)
125-23-355-00 (23x35,9mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

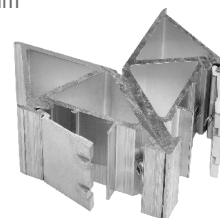


Γωνία σύνδεσης μηχανική
Mechanical corner cleat

125-43-220-00 (43,4x22,4mm)
125-43-295-00 (43,4x29,9mm)

Αλουμίνιο
Aluminium

Τεμάχιο
Piece



Γωνία σύνδεσης μηχανική
Mechanical corner cleat

140-11-190-00

Χυτό αλουμίνιο
Cast aluminium

Τεμάχιο
Piece



Γωνία σύνδεσης χυτή 10,9x20mm
Mechanical corner cleat 10,9x20mm

140-11-260-00

Χυτό αλουμίνιο
Cast aluminium

Τεμάχιο
Piece

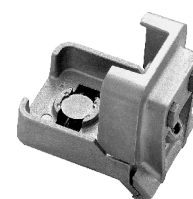


Γωνία σύνδεσης χυτή 10,9x27mm
Mechanical corner cleat 10,9x27mm

140-23-270-00

Χυτό αλουμίνιο
Cast aluminium

Τεμάχιο
Piece



Γωνία σύνδεσης χυτή 23x26,8mm
Mechanical corner cleat 23x26,8mm

180-11-801-00 Black

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Γωνία επιπεδότητας | Alignment corner

180-20-010-03 Black

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Γωνία επιπεδότητας | Alignment corner

180-25-005-00 Black

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Γωνία επιπεδότητας | Alignment corner

180-25-010-00 Black

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Γωνία επιπεδότητας | Alignment corner

180-25-150-00 Μαύρο | Black

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece

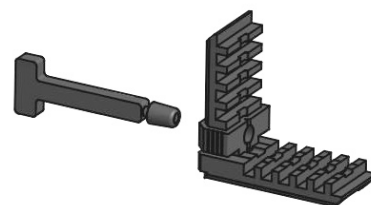


Γωνία επιπεδότητας | Alignment corner

720-09-683-03 Black

Πολυαμίδιο | Polyamide

Σετ | Set


 Πλαστική γωνία σύνδεσης spacer
Plastic corner for spacer

470-11-837-91

 Γαλβανισμένος
χάλυβας

100 τεμάχια / πακέτο

Galvanized steel

100 pieces / package


 Πείρος γωνιών σύνδεσης
με διπλό χτύπημα 4,5x7,1mm
Double crimp corner cleat pin 4,5x7,1mm

470-11-840-00

Ατσάλι | Steel

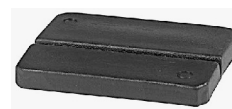
Τεμάχιο | Piece


 Καρφωτικό για πείρο γωνιών σύνδεσης
με διπλό χτύπημα
Pin center punch

 290-00-002-00 (2mm πράσινο / green)
290-00-003-00 (3mm καφέ / brown)
290-00-004-00 (4mm κόκκινο / red)
290-00-005-00 (5mm μαύρο / black)

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Τακάκι τζαμιού | Glazing wedge

290-11-002-00

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Γέφυρα τακαρίσματος | Setting block

290-11-003-00

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Γέφυρα τακαρίσματος | Setting block

290-11-004-00

Πολυαμίδιο | Polyamide

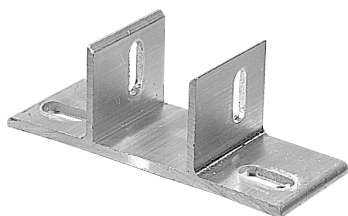
Τεμάχιο | Piece



Γέφυρα τακαρίσματος | Setting block

700-92-200-00

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

“Π” αγκύρωσης 50mm οριζόντιες τρύπες
“U” structural bracket 50mm horizontal holes

700-92-201-00

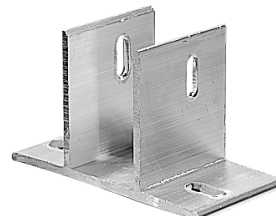
Αλουμίνιο
Aluminium

Τεμάχιο
Piece

“Π” αγκύρωσης 50mm κάθετες τρύπες
“U” structural bracket 50mm vertical holes

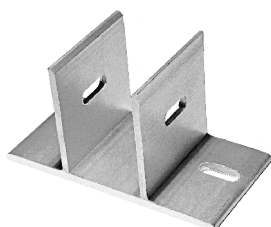
700-92-300-00

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

“Π” αγκύρωσης 97mm οριζόντιες τρύπες
“U” structural bracket 97mm horizontal holes

700-92-301-00

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

“Π” αγκύρωσης 97mm κάθετες τρύπες
“U” structural bracket 97mm vertical holes

700-92-500-00

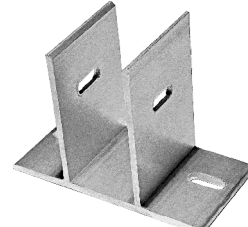
Αλουμίνιο
Aluminium

Τεμάχιο
Piece

“Π” αγκύρωσης 150mm οριζόντιες τρύπες
“U” structural bracket 150mm horizontal holes

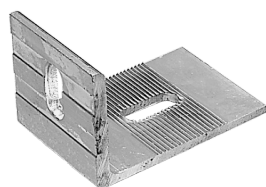
700-92-501-00

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

“Π” αγκύρωσης 150mm κάθετες τρύπες
“U” structural bracket 150mm vertical holes

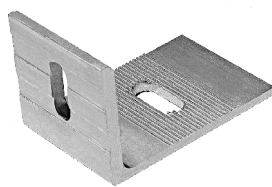
700-92-400-00

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

Γωνία αγκύρωσης 91mm οριζόντιες τρύπες
“L” structural bracket 91mm horizontal holes

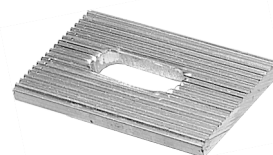
700-92-401-00

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

Γωνία αγκύρωσης 91mm κάθετες τρύπες
“L” structural bracket 91mm vertical holes

700-92-100-00

Αλουμίνιο
Aluminium

Τεμάχιο
Piece

Λάμα Ø12 για “Π” και γωνίες αγκύρωσης
Fastening plate Ø12 for structural brackets

700-50-004-00

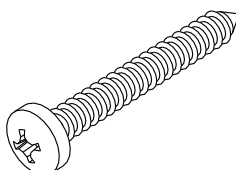
Αλουμίνιο
Aluminium

Τεμάχιο
Piece

Δακτύλιος για “Π” και γωνίες αγκύρωσης
Ring for structural brackets

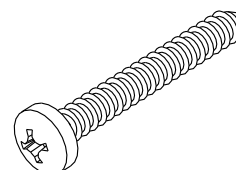
762-38-058-00

ZINC

1000 τεμάχια / πακέτο
1000 pieces / package

Λαμαρινόβιδα κεφαλωτή 4,2x16mm ISO7049
Square socket paned screw 4,2x16mm ISO7049

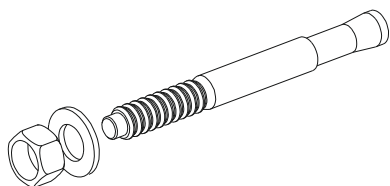
762-38-112-00

A2 INOX

1000 τεμάχια / πακέτο
1000 pieces / package

Λαμαρινόβιδα κεφαλωτή 4,2x38mm ISO7051
Square socket paned screw 4,2x38mm ISO7051

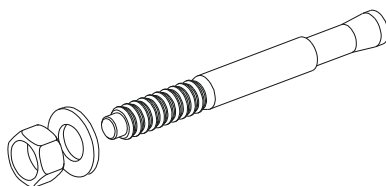
769-12-080-00

250 τεμάχια/πακέτο 250 pieces/package


Μεταλλικό παρέμβυσμα μπετού 12x80mm
Steel anchor plug 12x80mm

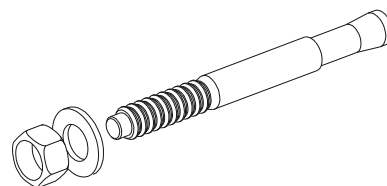
769-12-100-00 (12x100mm)
769-12-120-00 (12x120mm)

200 τεμάχια/πακέτο 200 pieces/package


Μεταλλικό παρέμβυσμα μπετού
Steel anchor plug

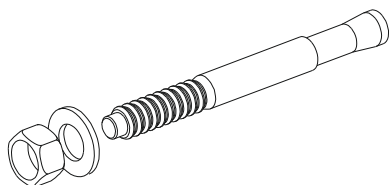
769-12-150-00

150 τεμάχια/πακέτο 150 pieces/package


Μεταλλικό παρέμβυσμα μπετού 12x150mm
Steel anchor plug 12x150mm

769-12-180-00

30 τεμάχια/πακέτο 30 pieces/package


Μεταλλικό παρέμβυσμα μπετού 12x180mm
Steel anchor plug 12x180mm

762-96-519-01 (St5,5x19mm)
762-96-525-01 (St5,5x25mm)
762-96-530-01 (St5,5x30mm)
762-96-535-01 (St5,5x35mm)
762-96-538-01 (St5,5x38mm)
762-96-540-01 (St5,5x40mm)
762-96-545-01 (St5,5x45mm)
762-96-550-01 (St5,5x50mm)
762-96-555-01 (St5,5x55mm)
762-96-556-01 (St5,5x60mm)
762-96-565-01 (St5,5x65mm)
762-96-557-01 (St5,5x70mm)

A2 INOX


Βίδα τύπου ISO4762 TX TYPE C
Socket screw ISO4762 TX TYPE C

762-75-516-01

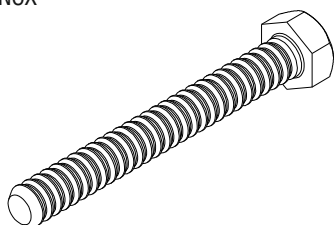
A2 INOX

Τεμάχιο
Piece

Ροδέλα στεγανοποίησης Ø7/Ø16
Stainless washer Ø7/Ø16

762-21-210-01

A2 INOX


Βίδα με εξάγωνο κεφάλι 12x100mm DIN931
Hex cap screw 12x100mm DIN931

896-80-122-01

A2 INOX

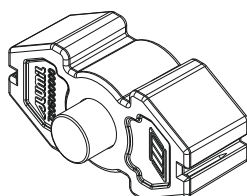

Περικλόχλιο με οδόντωση M12 DIN6923
Hex flange nut M12 DIN6923

762-73-012-01

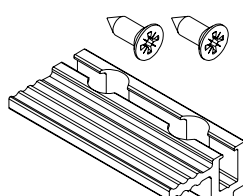
A2 INOX


Αστεροειδείς ροδέλα ασφαλείας M12 DIN6798-A
Stainless Serrated Washer DIN6798-A

720-50-000-00
Αλουμίνιο
Aluminium

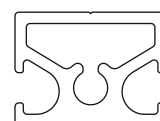
Τεμάχιο
Piece

Σύνδεσμος τραβέρσας χυτός
Transom cast T-clip

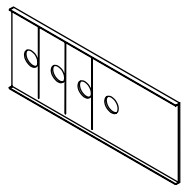
720-10-968-00
Αλουμίνιο
Aluminium

Τεμάχιο
Piece

Κλειδωμα για structural M6-M7
Locking for structural M6-M7

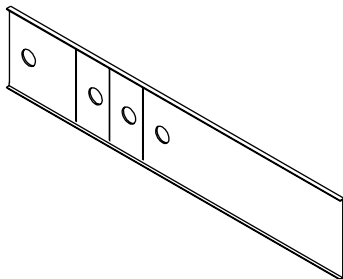
720-50-102-00

PVC

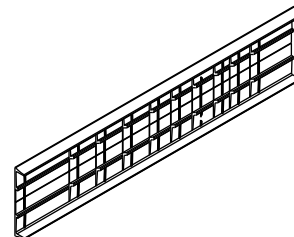
3 μέτρα / μπάρα
3 meters / bar

PVC προφίλ τελειώματος υαλοπετάσματος 20mm/3m / Curtain wall additional finishing PVC profile 20mm/3m

710-71-417-00


Τάπα τραβέρσας M70014-M70017
End cap for transoms M70014-M70017

710-71-820-03


Τάπα τραβέρσας M70018-M70020
End cap for transoms M70018-M70020

710-70-097-00


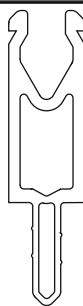
Τάπα για συνδεσμο M77097
End cap for M700097

710-70-029-00


Τάπα συνδεσμου κολωνα-κολωνα
End cap for mullion-mullion connector

720-10-400-00

PVC


Μέτρα
Meters

Βέργα θερμοδιακοπής υαλοπετάσματος 25mm/3m
Insulating bar for curtain walls 25,4mm/3m

720-10-600-00

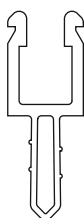
PVC


Μέτρα
Meters

Βέργα θερμοδιακοπής υαλοπετάσματος 21,4mm/3m
Insulating bar for curtain walls 21,4mm/3m

720-10-910-03

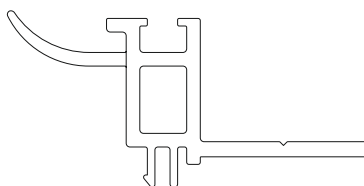
PVC


Μέτρα
Meters

Βέργα θερμοδιακοπής υαλοπετάσματος 14mm/3m
Insulating bar for curtain walls 14mm/3m

720-10-931-01

PVC



Μέτρα | Meters

PVC Πρόσθετο τραβέρσας & κολώνας
για μονό τζάμι / PVC profile for single glazing

720-00-950-00

Ανοξείδωτο | Inox

Τεμάχιο | Piece



Δεξί ψαλίδι προβαλλόμενου 930mm
(παράλληλη προβολής) | Right scissor 930mm
for top hung window (parallel opening)

720-00-950-10

Ανοξείδωτο | Inox

Τεμάχιο | Piece



Αριστερό ψαλίδι προβαλλόμενου 930mm
(παράλληλη προβολής) | Left scissor 930mm
for top hung window (parallel opening)

720-92-001-00

Ανοξείδωτο
Inox

Ζεύγος
Pair


Ψαλίδι προβαλλόμενου (μέγιστο φορτίο 80kg)
Top hung project out hinge (80kg maximum load)

720-92-002-00

Ανοξείδωτο
Inox

Ζεύγος
Pair


Ψαλίδι προβαλλόμενου (μέγιστο φορτίο 130kg)
Top hung project out hinge (130kg maximum load)

720-93-002-02 Λευκό / White
720-93-002-03 Μαύρο / Black

Αλουμίνιο | Aluminium

Σέτ | Set

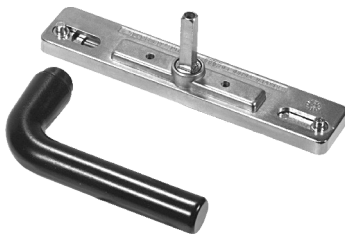


Χειρολαβή προβαλλόμενου VECALU 25mm
Top hung handle VECALU 25mm

720-93-102-03

Αλουμίνιο | Aluminium

Σέτ | Set



Χειρολαβή προβαλλόμενου
Handle for top hung window

720-93-003-00

Αλουμίνιο | Aluminium

Σέτ | Set



Αντίκρουσμα χειρολαβής VECALU 9mm
Keeper for VECALU handle 9mm

720-93-103-00

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece



Φωλιά χειρολαβής 720-93-102-03
Locking plate for handle 720-93-102-03

310-11-501-02 Λευκό | White
310-11-501-03 Μαύρο | Black
310-11-501-04 Γκρι | Grey
310-11-501-06 Καφέ | Brown
310-11-501-43 Μπεζ | Beige
310-11-501-44 Μπλέ | Blue

Πολυαμίδιο | Polyamide

Τεμάχιο | Piece

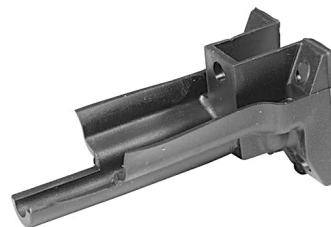


Τάπα απορροής | Weep hole end cap

710-70-003-00 Black

EPDM

Τεμάχιο | Piece



Υδατολεκάνη απορροής ενδιάμεση
Water evacuation middle position

770-00-400-02 Λευκό / White

Τεμάχιο | Piece



Σιλικόνη Νο2
Silicone sausage No2

720-90-045-00 (45mm)
720-90-060-00 (60mm)
720-90-100-00 (100mm)
720-90-150-00 (150mm)

20 μέτρα / ρολό

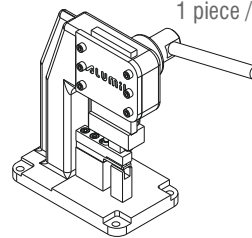
20 meters / roll



Ταινία βουτυλίου για στέγες
Aluminium - butyl tape

800-09-700-00

1 τεμάχιο / πακέτο
1 piece / package



Πρεσάκι χειρός για κατεργασία spacer
Manual punch press for spacer machining

800-07-058-00

1 τεμάχιο / πακέτο
1 piece / package



Πρεσάκι αέρος M7
Pneumatic punch machine M7

230-10-910-03 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters



Λάστιχο κολώνας | Mullion gasket

230-10-911-03 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters



Λάστιχο τραβέρσας | Transom gasket

230-10-801-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters

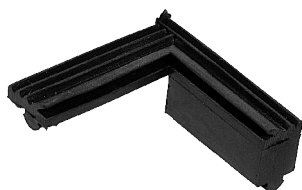


Λάστιχο κολώνας | Mullion gasket

255-10-911-01 Μαύρο | Black

EPDM | EPDM

Τεμάχιο | Piece


 Αριστερή βουλκανισμένη γωνία λάστιχου
230-10-911-03 | Left vulcanized corner
for 230-10-911-03 gasket

255-10-912-01 Μαύρο | Black

EPDM | EPDM

Τεμάχιο | Piece


 Δεξιά βουλκανισμένη γωνία λάστιχου
230-10-911-03 | Right vulcanized corner
for 230-10-911-03 gasket

230-10-929-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters

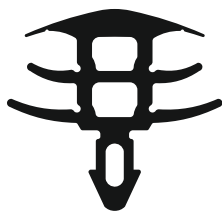


Λάστιχο σφιγκτήρα | Pressure plate gasket

230-10-971-03 Μαύρο | Black

EPDM | EPDM

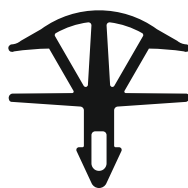
Μέτρα | Meters


 Λάστιχο στεγάνωσης για Structural
Structural sealing gasket

230-10-969-03 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters


 Λάστιχο στεγάνωσης για Structural
Structural sealing gasket

230-10-916-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters

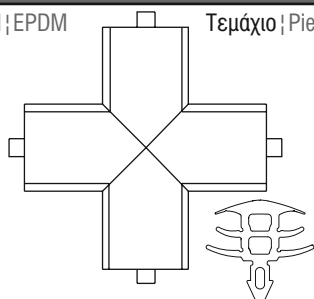


Λάστιχο σφιγκτήρα | Pressure plate gasket

255-10-971-03 Black

EPDM | EPDM

Τεμάχιο | Piece


 Βουλκανισμένος σταβρός λάστιχου 230-10-971-03
Vulcanized cross for 230-10-971-03 gasket

230-94-100-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters



Λάστιχο φούσκα κολώνας | Mullion gasket

767-00-602-01 Black

EPDM | EPDM

Μέτρα | Meters


 Λάστιχο εσωτερικής πόρτας
Gasket for internal door

230-10-914-01 Μαύρο | Black

ELAPRENE | ELAPRENE

Μέτρα | Meters



Λάστιχο φούσκα | Gasket

230-10-956-01 Black

EPDM | EPDM

Μέτρα | Meters


 Λάστιχο κάσας προβαλλόμενου παράθυρου
Top hung window frame gasket

230-65-005-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters


 Λάστιχο κάσας προβαλλόμενου παράθυρου
Top hung window frame gasket

210-11-000-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters

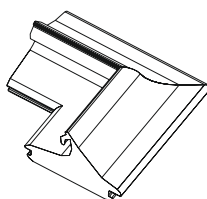


Κεντρικό λάστιχο | Central seal gasket

250-11-011-01 Μαύρο | Black

EPDM | EPDM

Τεμάχιο | Piece


 Βουλκανισμένη γωνία κεντρικού λάστιχου
210-11-000-01 | Vulcanized corner
for 210-11-000-01 central seal gasket

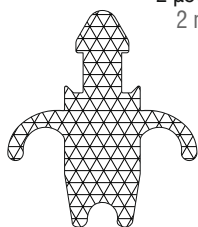
220-00-930-03 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters


 Ελαστικό φτερού κάσας 3,5mm
Seal gasket 3,5mm for frame

720-50-100-00

 2 μέτρα / μπάρα
2 meters / bar

 Θερμομονωτικό αφρώδες προφίλ
29x25x2000mm
Insulating foam profile 29x25x2000mm

220-11-001-01 Μαύρο

EPDM | EPDM

Μέτρα | Meters


 Ελαστικό φτερού κάσας 2mm
Seal gasket frames 2mm

220-11-002-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters



Λάστιχο φτερού | Seal gasket

200-01-154-11 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters



Λάστιχο για πηχάκι | Glazing bead gasket

250-11-170-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters


 Λάστιχο πρόσθετου M11170
M11170 beauty profile gasket

250-11-270-01 Μαύρο | Black

EPDM | EPDM

Μέτρα | Meters


 Λάστιχο πρόσθετου M11670
M11670 beauty profile gasket

200-06-860-01 Μαύρο | Black
200-06-860-12 Γκρι | Grey

EPDM | EPDM Μέτρα | Meters



Λάστιχο τζαμιού έξω | Outside glazing gasket

200-01-035-01 Μαύρο | Black

EPDM | EPDM Μέτρα | Meters



Λάστιχο τζαμιού μέσα | Inner glazing gasket

200-04-023-01 (2-3mm) Μαύρο | Black
200-04-045-01 (4-5mm) Μαύρο | Black
200-04-067-01 (6-7mm) Μαύρο | Black

EPDM | EPDM Μέτρα | Meters



Λάστιχο τζαμιού μέσα | Inner glazing gasket

230-91-103-01 Μαύρο | Black

EPDM | EPDM Μέτρα | Meters



Ελαστικό υαλοπετάσματος σφιγτήρα 2mm
Curtian wall gasket for pressure plate 2mm

230-94-250-03 Black

EPDM | EPDM Μέτρα | Meters



Ελαστικό υαλοπετάσματος φύλλα 22mm
Curtain wall gasket sash 22mm

230-50-051-01 Μαύρο | Black

EPDM | EPDM Μέτρα | Meters



Ελαστικό υαλοπετάσματος σφιγτήρα
Curtian wall gasket for pressure plate

230-50-052-03

EPDM | EPDM Μέτρα | Meters



Ελαστικό - νεροχύτης τραβέρσας
Transom water evacuation gasket

230-50-018-01 Μαύρο

EPDM | EPDM Μέτρα | Meters



Ελαστικό υαλοπετάσματος σφιγτήρα M500018
Curtian wall gasket for pressure plate M500018

230-00-917-01 Μαύρο | Black

EPDM | EPDM Μέτρα | Meters



Ελαστικό υαλοπετάσματος
Curtian wall gasket

230-00-959-01 Black

EPDM | EPDM Μέτρα | Meters



Ελαστικό αρμού διαστολής 6mm για λάμα
Expansion joint gasket 6mm blade

210-15-000-01 Μαύρο | Black

EPDM | EPDM Μέτρα | Meters



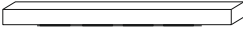
Κεντρικό λάστιχο | Central seal gasket

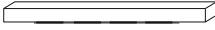
230-95-008-01 Μαύρο | Black

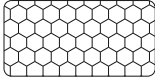
EPDM | EPDM Μέτρα | Meters



Ελαστικό σφήνα (11-13mm)
Wedge gasket

250-65-016-01	
PE	Μέτρα Meters
	
Αυτοκόλλητο μονωτικό 14 X 2mm Self-adhesive insulation 14 X 2mm	

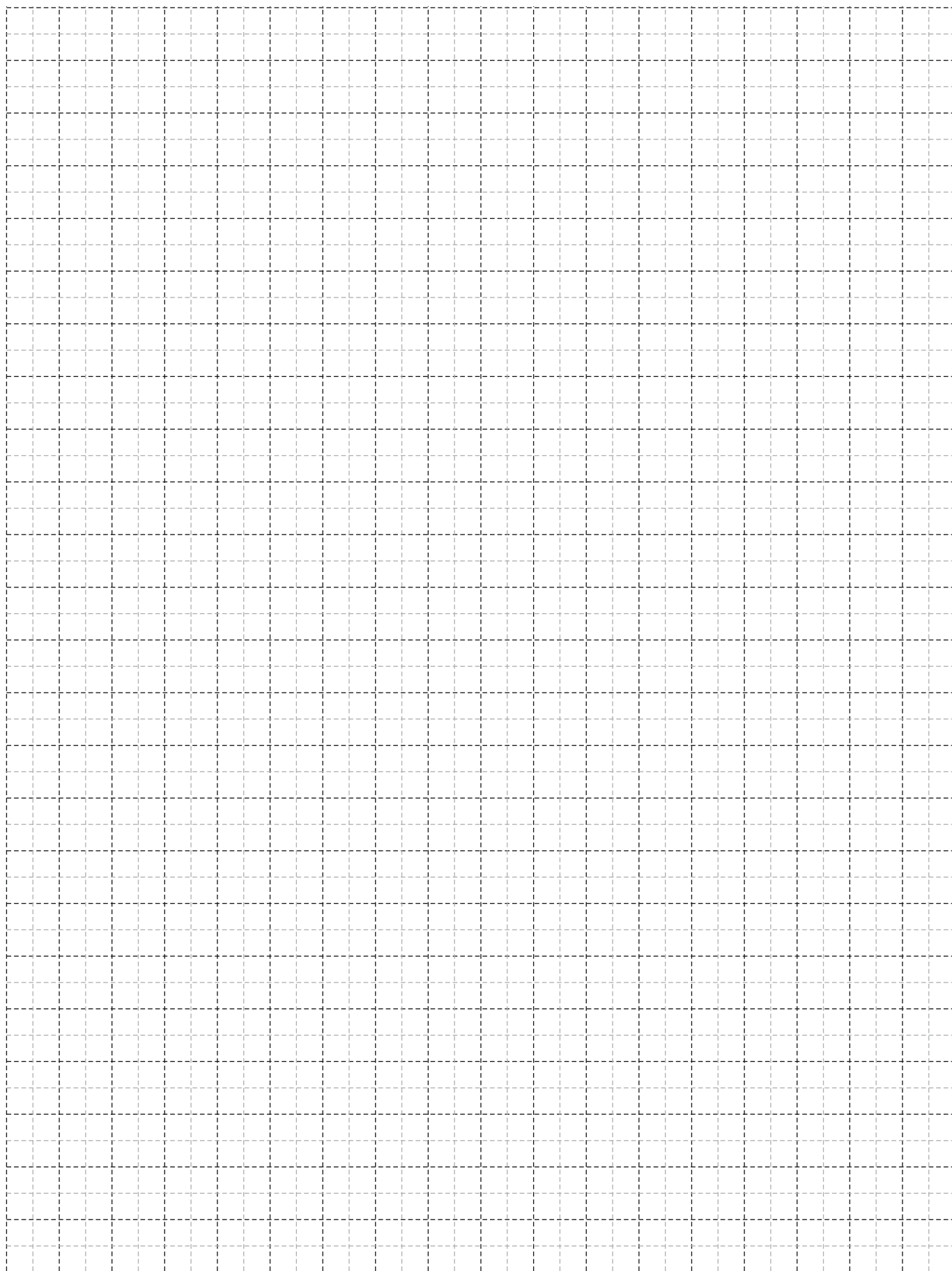
720-94-600-00	
PE	Μέτρα Meters
	
Αυτοκόλλητο μονωτικό 10 X 2mm Self-adhesive insulation 10 X 2mm	

720-18-075-03 (18 x 7,5mm) Μαύρο/Black 720-18-105-03 (18 x 10,5mm) Μαύρο/Black	
Σφουγγάρι Foam	Μέτρα Meters
	
Ταινία αυτοκόλλητη μονής όψης One side adhesive tape	

200-08-002-01 (2mm) EPDM Μαύρο (400 μέτρα / ρολό) 200-00-202-03 (2mm) PVC Μαύρο (200 μέτρα / ρολό) 200-08-003-01 (3mm) EPDM Μαύρο (300 μέτρα / ρολό) 200-00-203-03 (3mm) PVC Μαύρο (150 μέτρα / ρολό) 200-08-004-01 (4mm) EPDM Μαύρο (250 μέτρα / ρολό) 200-00-204-03 (4mm) PVC Μαύρο (150 μέτρα / ρολό) 200-08-005-01 (5mm) EPDM Μαύρο (150 μέτρα / ρολό) 200-00-205-03 (5mm) PVC Μαύρο (100 μέτρα / ρολό) 200-08-006-01 (6mm) EPDM Μαύρο (100 μέτρα / ρολό) 200-00-206-03 (6mm) PVC Μαύρο (80 μέτρα / ρολό) 200-08-007-01 (7mm) EPDM Μαύρο (80 μέτρα / ρολό) 200-00-207-03 (7mm) PVC Μαύρο (80 μέτρα / ρολό) 200-08-008-01 (8mm) EPDM Μαύρο (60 μέτρα / ρολό) 200-00-208-03 (8mm) PVC Μαύρο (60 μέτρα / ρολό) 200-08-010-01 (10mm) EPDM Μαύρο (60 μέτρα / ρολό) 200-00-210-03 (10mm) PVC Μαύρο (60 μέτρα / ρολό)	
Ελαστικό σφήνα	

720-27-150-00 (6,4mm x 6mm) Μαύρο/Black	
10 μέτρα / ρολό	10 meters / roll
	
Ταινία αυτοκόλλητη μονής όψης Vito glazing mount 400	

200-08-002-01 (2mm) EPDM Black (400 meters / roll) 200-00-202-03 (2mm) PVC Μαύρο (200 meters / roll) 200-08-003-01 (3mm) EPDM Black (300 meters / roll) 200-00-203-03 (3mm) PVC Μαύρο (150 meters / roll) 200-08-004-01 (4mm) EPDM Black (250 meters / roll) 200-00-204-03 (4mm) PVC Μαύρο (150 meters / roll) 200-08-005-01 (5mm) EPDM Black (150 meters / roll) 200-00-205-03 (5mm) PVC Μαύρο (100 meters / roll) 200-08-006-01 (6mm) EPDM Black (100 meters / roll) 200-00-206-03 (6mm) PVC Μαύρο (80 meters / roll) 200-08-007-01 (7mm) EPDM Black (80 meters / roll) 200-00-207-03 (7mm) PVC Μαύρο (80 meters / roll) 200-08-008-01 (8mm) EPDM Black (60 meters / roll) 200-00-208-03 (8mm) PVC Μαύρο (60 meters / roll) 200-08-010-01 (10mm) EPDM Black (60 meters / roll) 200-00-210-03 (10mm) PVC Μαύρο (60 meters / roll)	
Wedge gasket	



Στατικά Static

General Remarks

The following data and tables are provided as a guide for calculating wind loads, snow loads, and dead loads for various aluminum constructions. This information has been developed by engineers and is intended to be used by engineers as a supplement and not as a replacement to the European-Union building codes and standards, the national building codes and standards specific to each country or the general conditions and technical reports that apply to any particular project. Load bearing requirements and reinforcements must be specified according to individual calculations. All calculations and specifications should be made by a registered/authorize architect or engineer or company that has experience with curtain wall design in your local area. We do not assume any liability for calculations made using the following information. These calculations do not replace the necessary structural engineering surveys.

Mullion Calculations

Moment of inertia formula for the mullions

In Aluminium curtain wall systems, the choice of the profile to be used at a particular structure is based on the calculation of the required Moment of Inertia (Mol) of the aluminium profiles. The mullion must be stiff enough not to deform excessively when is subjected to the maximum design loads. The amount of mullion bending should be small enough to prevent the glazing to crack. The main loading of the mullions is due to the wind pressure. It is assumed that each mullion is loaded by the force that half glass panel transmits to it on one side, and half glass panel on the other side, resulting in rectangular loading (see figure below). The mullions can be supported in different ways, and the corresponding formula for the Moment of Inertia (Mol) must be used during calculations. Here we will consider three different mullion support configurations:

In the following equations:

I: Required Moment of Inertia of the mullion (cm⁴)

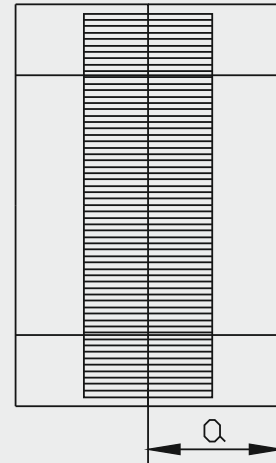
W: Wind load (kN/m²)

L: Length (m)

E: Young's Modulus of Elasticity (Gpa)

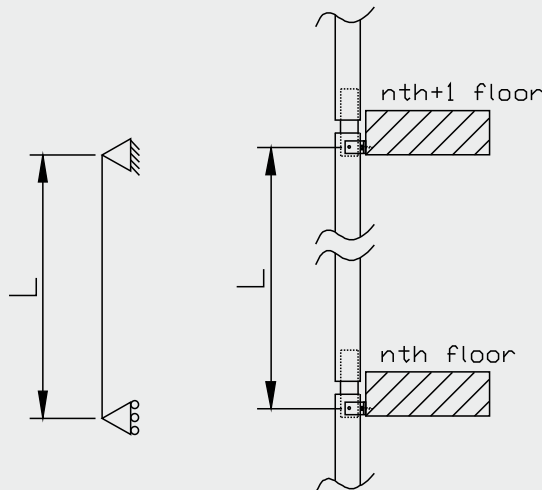
a: Distance between mullions (m)

F: ή 0,015 m whichever is smaller
(glazing requirement-see below)



One end simply supported, with rolling support at the other end.

$$I = \frac{5 \times W \times a \times L^4}{384 \times E \times F} \times 100$$



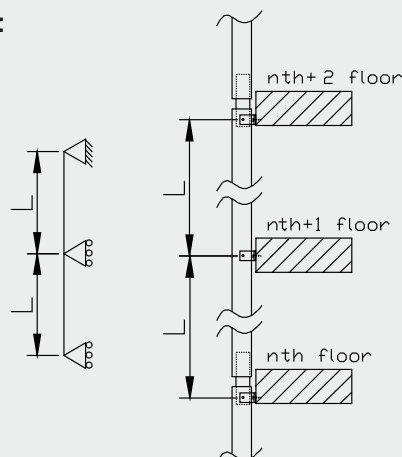
This is the typical support case for curtain wall mullions that span from floor to floor at a multistory building. The top end of the mullion can pivot around the screw that connects it with the structural bracket, and the lower end can slide on the insert that connects it with the mullion below.

Mullion Calculations

One end simply supported, and rolling support at the middle and at the other end:

$$I = \frac{5 \times W \times a \times L^4}{922 \times E \times F} \times 100$$

In this case we support the mullion with a support bracket at the middle, situated at the intermediate floor, if the mullion spans two floors. Alternatively the middle bracket can be fixed on a steel beam, mounted horizontally in the space between two floors. Note that the length L in this case is the distance between the support points and not the total mullion length.



One end simply supported, with a rolling support near the simple support, and a rolling support at the other end. Here we have two cases:

If

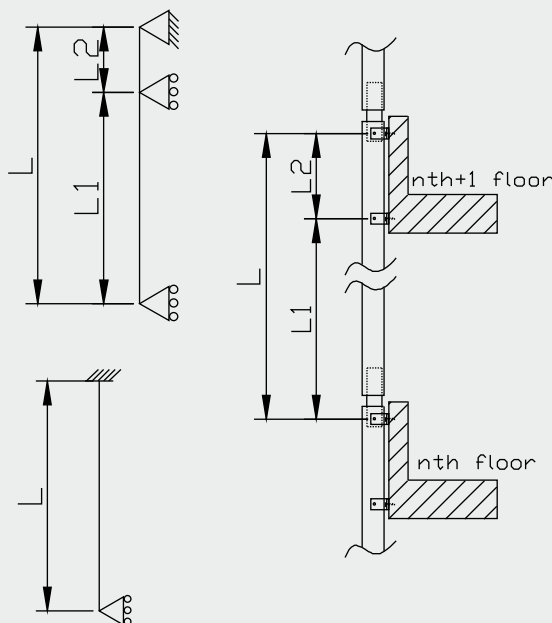
$$\frac{L_2}{L_1} \geq 0.2$$

$$I = \frac{W \times a \times L_1^2}{384 \times E \times F} \times (9 \times L \times L_1 - 3 \times L^2 - 4 \times L_1^2) \times 100$$

This formula can be used in the case where there is a reinforced concrete wall section at each floor. This allows the mullion to be supported at three points, two of them being close to each other at the top, and one at the bottom.

If

$$\frac{L_2}{L_1} < 0.2 \quad I = \frac{W \times a \times L^4}{185 \times E \times F} \times 100$$



In this case the upper end of the mullion is essentially fixed. This can be achieved using two brackets quite close to each other, or by using one bracket which is big enough to accommodate two holes and two mounting screws along the direction of the length of the mullion.

Wind Pressure Value (W)

The value of the wind pressure to be used in the calculations depends primarily on the height from the floor level where the curtain wall is situated. As a guideline, the wind pressure values with respect to the structure height are given in the table below:

Building height (m)	Wind pressure (kN/m ²)
0 - 8	0,5
8 - 20	0,8
20 - 100	1,1

Wind Pressure Value (W)

In some cases a correction factor must be used, to take into account specific environmental conditions. As a design rule, the wind pressure caused by a certain wind speed is given by the equation:

Where:

W : Wind load (kN/m²)

V : Design (maximum) wind speed (km/hr)

$$W = \frac{483 \times V^2}{10^7}$$

Allowable Deflection (F)

In accordance with EN 13830: 2003

The curtain walling shall be sufficiently rigid to resist the declared wind loads for serviceability (5.2.3. c), both positive and negative, when tested in accordance with EN 12179. It shall transfer the declared wind loads to the building's structure, safely, via the fixings intended for that purpose. The declared wind load results from testing in accordance with EN 12179.

Under the declared wind loads the maximum frontal deflection of the curtain walling's framing members shall not exceed L/200, or 15 mm, whichever is the less, when measured between the points of support or anchorage to the building's structure, in compliance with EN 13116.

Transom Calculations

The transom loading is mainly due to the weight of the glazing along the vertical direction, and due to the wind load horizontally.

Required Glazing Thickness

For single glazing, the minimum thickness is calculated using the following equations:

$$\frac{D_g}{D_s} \leq 3 \quad e = \sqrt{\frac{1000 \times D_g \times D_s \times W}{72}}$$

$$\frac{D_g}{D_s} > 3 \quad e = \frac{L \times \sqrt{1000 \times W}}{4.9}$$

Where:

e : Minimum theoretical glass thickness (mm)

W : Wind load (kN/m²)

D_s : The smaller glazing dimension (width or length) (m)

D_g : The greater glazing dimension (width or length) (m)

in accordance with EN 13830: 2003

The curtain walling shall sustain its self-weight plus any attachments incorporated into it by original design. It shall transfer the weight to the building structure, safely, via the fixings intended for that purpose.

Self-weights shall be determined in accordance with EN 1991-1-1.

The maximum deflection of any main horizontal framing from vertical loads shall not exceed L/500 or 3 mm, whichever is the less.

Always consult the glazing manufacturer when calculating the required glazing thickness and maximum allowable dimensions.

In case that a double glazing is the minimum total thickness of both glass panels will be equal to the minimum single glazing thickness multiplied by 1.5. For a Triplex glazing the minimum total thickness of both glass panels will be equal to the minimum single glazing thickness multiplied by 1.7.

Glazing Weight

After selecting the glass thickness to be used, the total weight of the glazing can be calculated: we have 2.5kg per m² of glazing area per mm of glass thickness. For example, a 10mm thick glass (or a double glazing with 5 + 5 or 4 + 6 mm glass panels) will weight 25 kg per m². Always consult with glazing manufacturing for glazing weight and maximum glazing panel size.

Moment of Inertia Formula for the Transom

The transom is supported by two fixed supports at both ends.

Bending in the vertical plane

The required Mol for the transom for bending in the vertical plane (due to the weight of the glazing) is given by the equation:

$$I_y = \frac{G \times a}{48 \times E \times F_T} \times (3 \times L^2 - 4 \times a^2)$$

Bending in the horizontal plane

The required Mol for the transom for bending in the horizontal plane (due to the wind pressure) is given by the equation (fixed support at both ends):

$$I_x = \frac{W \times H \times a^4}{384 \times E \times F} \times 100$$

In the above equations:

I_x = Required Moment of Inertia of the transom for bending in the horizontal plane (cm⁴)

I_y = Required Moment of Inertia of the transom for bending in the vertical plane (cm⁴)

W = Wind load (kN/m²)

G = Total glazing weight (kg)

H = Glazing height (m)

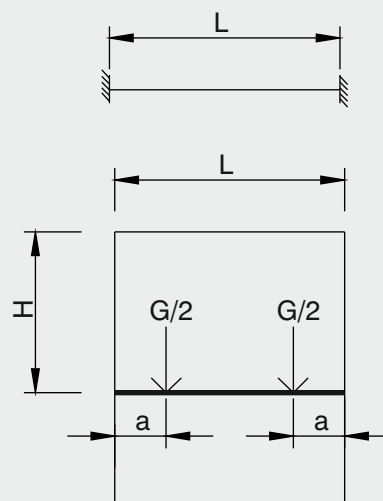
a = Distance of the glazing support wedge from the transom end (a = 0,15m)

L = Width of glazing (m)

E = Young's Modulus of Elasticity (GPa)

$$F_t = \frac{L}{500} \text{ , or } 0,003\text{m} \text{ , whichever is smaller (EN 13830)}$$

$$F = \frac{L}{200} \text{ , or } 0.015\text{m} \text{ , whichever is smaller (EN 13830)}$$



Procedure for the static pre-dimensioning of facade profiles

1. Determine the required moment of inertia for mullion and transom based on wind loads and installation height.
2. Determine the required moment of inertia (deflection) for transom based on insert element weight and centre-to-centre distances.
3. Verify whether dimensioning of T-bracket and glass retainer is sufficient with regard to requirements.

The sequence of procedure may be changed, but all items for static pre-dimensioning must be checked!

Calculation Examples

The following pages give examples of various situations and how to calculate the required moment of inertia for mullions and transoms. After determining the required values you should choose the correct profile or profile combination from the profile load bearing chart on the Table 7.7.

Example of a calculation for a uniform load with two supports

Mullion pre-dimensioning

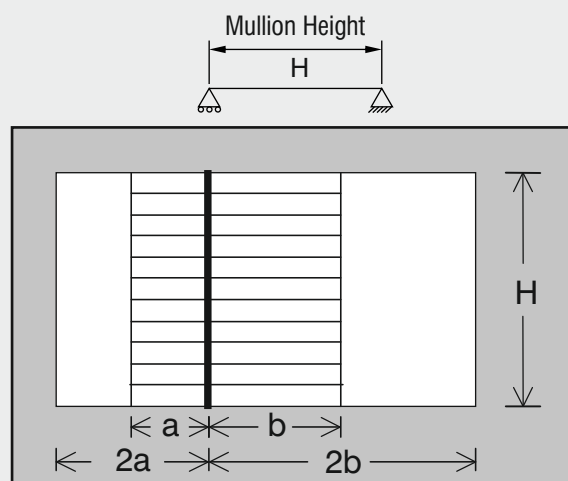
Installation height	15m
Correction factor	$F_w = 1,6$
Glass width	2a
Glass width	2b
Height between supports	H
Load width (Case C)	a
Load width (Case A)	b

Required I_x in accordance with table 1

$$I_{x,a} = 30,1 \text{ cm}^4$$

$$I_{x,b} = 75,3 \text{ cm}^4$$

$$I_{x,\text{total}} = 105,4 \text{ cm}^4$$



$$I_{x,\text{req}} = F_w * I_{x,\text{total}} = 1,6 * 105,4 \text{ cm}^4 = 168,7 \text{ cm}^4$$

Transom pre-dimensioning

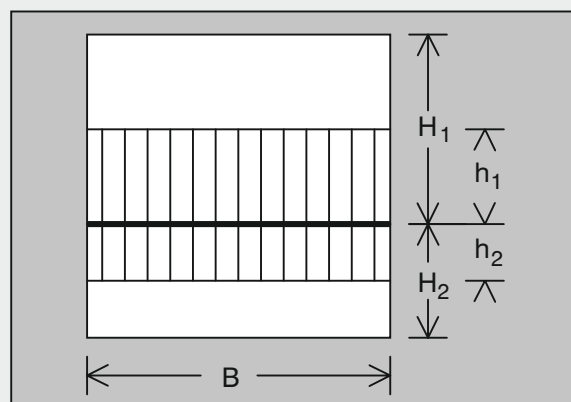
Installation height	15m
Correction factor	$F_w = 1,6$
Glass width	200cm
Glass height	H1
Glass height	H2
Load width (Case C)	h1
Load width (Case C)	h2

Required I_x in accordance with table 1

$$I_{x,1} = 14,9 \text{ cm}^4$$

$$I_{x,2} = 7,4 \text{ cm}^4$$

$$I_{x,\text{total}} = 22,3 \text{ cm}^4$$



$$I_{x,\text{req}} = F_w * I_{x,\text{total}} = 1,6 * 22,3 \text{ cm}^4 = 35,7 \text{ cm}^4$$

Table 1 : Required moment of inertia I_x for a uniform load with two supports
Modulus of elasticity aluminium = 7000kN / cm⁴ Deflection fmax=l / 200 or ≤ 15mm

$$I_x = \frac{5 W a H^4}{384 E f}$$

W = Dynamic wind pressure kN / m²

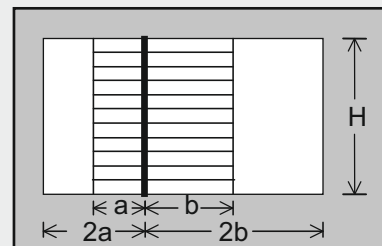
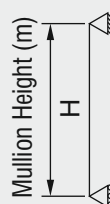
a = Load width (cm)

b = Load width (cm)

H = Height between brackets (cm)

E = Modulus of elasticity = 7000kN / cm⁴

f = Maximum deflection ≤ 15mm



H = Mullion height (cm)

2a = Width between mullions (cm)

2b = Width between mullions (cm)

Load width (cm)

Height (cm)

	20	30	40	50	60	70	80	90	100	110
100	0,4	0,6	0,7	0,9	1,1	1,3	1,5	1,7	1,9	2,0
110	0,5	0,7	1,0	1,2	1,5	1,7	2,0	2,2	2,5	2,7
120	0,6	1,0	1,3	1,6	1,9	2,3	2,6	2,9	3,2	3,5
130	0,8	1,2	1,6	2,0	2,5	2,9	3,3	3,7	4,1	4,5
140	1,0	1,5	2,0	2,6	3,1	3,6	4,1	4,6	5,1	5,6
150	1,3	1,9	2,5	3,1	3,8	4,4	5,0	5,7	6,3	6,9
160	1,5	2,3	3,0	3,8	4,6	5,3	6,1	6,9	7,6	8,4
170	1,8	2,7	3,7	4,6	5,5	6,4	7,3	8,2	9,1	10,1
180	2,2	3,3	4,3	5,4	6,5	7,6	8,7	9,8	10,8	11,9
190	2,6	3,8	5,1	6,4	7,7	8,9	10,2	11,5	12,8	14,0
200	3,0	4,5	6,0	7,4	8,9	10,4	11,9	13,4	14,9	16,4
210	3,4	5,2	6,9	8,6	10,3	12,1	13,8	15,5	17,2	18,9
220	4,0	5,9	7,9	9,9	11,9	13,9	15,8	17,8	19,8	21,8
230	4,5	6,8	9,1	11,3	13,6	15,8	18,1	20,4	22,6	24,9
240	5,1	7,7	10,3	12,9	15,4	18,0	20,6	23,1	25,7	28,3
250	5,8	8,7	11,6	14,5	17,4	20,3	23,3	26,2	29,1	32,0
260	6,5	9,8	13,1	16,3	19,6	22,9	26,2	29,4	32,7	36,0
270	7,3	11,0	14,6	18,3	22,0	25,6	29,3	33,0	36,6	40,3
280	8,2	12,3	16,3	20,4	24,5	28,6	32,7	36,8	40,8	44,9
290	9,1	13,6	18,1	22,7	27,2	31,8	36,3	40,8	45,4	49,9
300	10,0	15,1	20,1	25,1	30,1	35,2	40,2	45,2	50,2	55,2
310	11,5	17,2	22,9	28,6	34,4	40,1	45,8	51,5	57,3	63,0
320	13,0	19,5	26,0	32,5	39,0	45,5	52,0	58,5	65,0	71,5
330	14,7	22,1	29,4	36,8	44,1	51,5	58,8	66,2	73,5	80,9
340	16,6	24,9	33,1	41,4	49,7	58,0	66,3	74,6	82,9	91,1
350	18,6	27,9	37,2	46,5	55,8	65,1	74,4	83,7	93,0	102,3
360	20,8	31,2	41,7	52,1	62,5	72,9	83,3	93,7	104,1	114,6
370	23,2	34,9	46,5	58,1	69,7	81,3	93,0	104,6	116,2	127,8
380	25,9	38,8	51,7	64,6	77,6	90,5	103,4	116,4	129,3	142,2
390	28,7	43,0	57,4	71,7	86,1	100,4	114,8	129,1	143,4	157,8
400	31,7	47,6	63,5	79,4	95,2	111,1	127,0	142,9	158,7	174,6
410	35,0	52,6	70,1	87,6	105,1	122,6	140,2	157,7	175,2	192,7
420	38,6	57,9	77,2	96,5	115,8	135,1	154,4	173,6	192,9	212,2
430	42,4	63,6	84,8	106,0	127,2	148,4	169,6	190,8	212,0	233,2
440	46,5	69,7	93,0	116,2	139,4	162,7	185,9	209,2	232,4	255,6
450	50,9	76,3	101,7	127,1	152,6	178,0	203,4	228,8	254,3	279,7
460	55,5	83,3	111,0	138,8	166,6	194,3	222,1	249,9	277,6	305,4
470	60,5	90,8	121,0	151,3	181,5	211,8	242,0	272,3	302,6	332,8
480	65,8	98,7	131,7	164,6	197,5	230,4	263,3	296,2	329,1	362,1
490	71,5	107,2	143,0	178,7	214,5	250,2	286,0	321,7	357,4	393,2
500	77,5	116,3	155,0	193,8	232,5	271,3	310,0	348,8	387,5	426,3
550	113,5	170,2	227,0	283,7	340,4	397,2	453,9	510,6	567,4	624,1
600	160,7	241,1	321,4	401,8	482,1	562,5	642,9	723,2	803,6	883,9

Note: When calculating the required moment of inertia for steel, you should multiply the value on Tables 7.1-7.6 by 0,33 to compensate for the modulus of elasticity of steel. (E=21000 kN/cm²)

Table 1 : Required moment of inertia I_x for a uniform load with two supports
 Modulus of elasticity aluminium = 7000kN / cm⁴ Deflection $f_{max}=l / 200$ or $\leq 15mm$

$I_x \text{ Required} = (I_{xa} + I_{xb}) * F_w$
 I_{xa} = Moment of inertia from table 5a
 I_{xb} = Moment of inertia from table 5a
 F_w = Correction factor from table 5b

This chart is made for a dynamic wind pressure of 0,5kN/m .
 A correction factor "Fw" must be used in order to calculate the
 required dynamic wind pressure.

Table 1B

Height above ground (m)	Wind pressure (kN/m ²)	Factor F_w
0 - 8	0,5	1,0
8 - 20	0,8	1,6
20 - 100	1,1	2,2
> 100	1,1	2,6

Load width (cm)

	120	130	140	150	160	170	180	190	200	210
100	2,2	2,4	2,6	2,8	3,0	3,2	3,3	3,5	3,7	3,9
110	3,0	3,2	3,5	3,7	4,0	4,2	4,5	4,7	5,0	5,2
120	3,9	4,2	4,5	4,8	5,1	5,5	5,8	6,1	6,4	6,8
130	4,9	5,3	5,7	6,1	6,5	6,9	7,4	7,8	8,2	8,6
140	6,1	6,6	7,1	7,7	8,2	8,7	9,2	9,7	10,2	10,7
150	7,5	8,2	8,8	9,4	10,0	10,7	11,3	11,9	12,6	13,2
160	9,1	9,9	10,7	11,4	12,2	13,0	13,7	14,5	15,2	16,0
170	11,0	11,9	12,8	13,7	14,6	15,5	16,4	17,4	18,3	19,2
180	13,0	14,1	15,2	16,3	17,4	18,4	19,5	20,6	21,7	22,8
190	15,3	16,6	17,9	19,1	20,4	21,7	23,0	24,2	25,5	26,8
200	17,9	19,3	20,8	22,3	23,8	25,3	26,8	28,3	29,8	31,3
210	20,7	22,4	24,1	25,8	27,6	29,3	31,0	32,7	34,5	36,2
220	23,8	25,7	27,7	29,7	31,7	33,7	35,7	37,6	39,6	41,6
230	27,2	29,4	31,7	33,9	36,2	38,5	40,7	43,0	45,3	47,5
240	30,9	33,4	36,0	38,6	41,1	43,7	46,3	48,9	51,4	54,0
250	34,9	37,8	40,7	43,6	46,5	49,4	52,3	55,2	58,1	61,0
260	39,2	42,5	45,8	49,0	52,3	55,6	58,8	62,1	65,4	68,7
270	43,9	47,6	51,3	54,9	58,6	62,2	65,9	69,6	73,2	76,9
280	49,0	53,1	57,2	61,3	65,3	69,4	73,5	77,6	81,7	85,8
290	54,4	59,0	63,5	68,0	72,6	77,1	81,7	86,2	90,7	95,3
300	60,3	65,3	70,3	75,3	80,4	85,4	90,4	95,4	100,4	105,5
310	68,7	74,4	80,2	85,9	91,6	97,3	103,1	108,8	114,5	120,3
320	78,0	84,5	91,0	97,5	104,0	110,5	117,0	123,5	130,0	136,5
330	88,2	95,6	102,9	110,3	117,7	125,0	132,4	139,7	147,1	154,4
340	99,4	107,7	116,0	124,3	132,6	140,9	149,1	157,4	165,7	174,0
350	111,7	121,0	130,3	139,6	148,9	158,2	167,5	176,8	186,1	195,4
360	125,0	135,4	145,8	156,2	166,6	177,0	187,5	197,9	208,3	218,7
370	139,4	151,1	162,7	174,3	185,9	197,5	209,2	220,8	232,4	244,0
380	155,1	168,1	181,0	193,9	206,9	219,8	232,7	245,6	258,6	271,5
390	172,1	186,5	200,8	215,2	229,5	243,9	258,2	272,5	286,9	301,2
400	190,5	206,3	222,2	238,1	254,0	269,8	285,7	301,6	317,5	333,3
410	210,3	227,8	245,3	262,8	280,3	297,9	315,4	332,9	350,4	367,9
420	231,5	250,8	270,1	289,4	308,7	328,0	347,3	366,6	385,9	405,2
430	254,4	275,6	296,8	318,0	339,2	360,4	381,6	402,8	424,0	445,2
440	278,9	302,1	325,4	348,6	371,8	395,1	418,3	441,6	464,8	488,0
450	305,1	330,5	356,0	381,4	406,8	432,2	457,7	483,1	508,5	533,9
460	333,1	360,9	388,7	416,4	444,2	472,0	499,7	527,5	555,2	583,0
470	363,1	393,3	423,6	453,8	484,1	514,4	544,6	574,9	605,1	635,4
480	395,0	427,9	460,8	493,7	526,6	559,5	592,5	625,4	658,3	691,2
490	428,9	464,7	500,4	536,2	571,9	607,6	643,4	679,1	714,9	750,6
500	465,0	503,8	542,5	581,3	620,0	658,8	697,5	736,3	775,0	813,8
550	680,9	737,6	794,3	851,1	907,8	964,5	1021,3	1078,0	1134,8	1191,5
600	964,3	1044,6	1125,0	1205,4	1285,7	1366,1	1446,4	1526,8	1607,1	1687,5

Note: When calculating the required moment of inertia for steel, you should multiply the value on Tables 7.1-7.6 by 0,33 to compensate for the modulus of elasticity of steel. ($E=21000 \text{ kN/cm}^2$)

Table 2 : Required moment of inertia I_x for a uniform load with three supports
Modulus of elasticity aluminium = 7000kN / cm⁴ Deflection $f_{max}=I / 200$ or ≤ 15 mm

$$I_x = \frac{5 W a H^4}{922 E f}$$

W = Dynamic wind pressure kN / m²

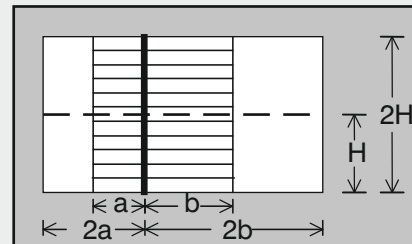
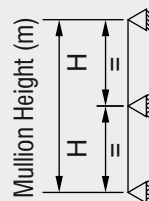
a = Load width (cm)

b = Load width (cm)

H = Height between brackets (cm)

E = Modulus of elasticity = 7000kN / cm⁴

f = Maximum deflection ≤ 15 mm



H = Mullion height (cm)

2a = Width between mullions (cm)

2b = Width between mullions (cm)

Load width (cm)

	20	30	40	50	60	70	80	90	100	110
250	2,0	3,0	4,0	5,0	6,1	7,1	8,1	9,1	10,1	11,1
260	2,4	3,5	4,7	5,9	7,1	8,3	9,4	10,6	11,8	13,0
270	2,7	4,1	5,5	6,9	8,2	9,6	11,0	12,4	13,7	15,1
280	3,2	4,8	6,3	7,9	9,5	11,1	12,7	14,3	15,9	17,5
290	3,7	5,5	7,3	9,1	11,0	12,8	14,6	16,4	18,3	20,1
300	4,2	6,3	8,4	10,5	12,6	14,6	16,7	18,8	20,9	23,0
310	4,8	7,2	9,5	11,9	14,3	16,7	19,1	21,5	23,8	26,2
320	5,4	8,1	10,8	13,5	16,2	19,0	21,7	24,4	27,1	29,8
330	6,1	9,2	12,2	15,3	18,4	21,4	24,5	27,6	30,6	33,7
340	6,9	10,4	13,8	17,3	20,7	24,2	27,6	31,1	34,5	38,0
350	7,8	11,6	15,5	19,4	23,3	27,1	31,0	34,9	38,8	42,6
360	8,7	13,0	17,3	21,7	26,0	30,4	34,7	39,0	43,4	47,7
370	9,7	14,5	19,4	24,2	29,0	33,9	38,7	43,6	48,4	53,2
380	10,8	16,2	21,5	26,9	32,3	37,7	43,1	48,5	53,8	59,2
390	11,9	17,9	23,9	29,9	35,8	41,8	47,8	53,8	59,7	65,7
400	13,2	19,8	26,4	33,1	39,7	46,3	52,9	59,5	66,1	72,7
410	14,6	21,9	29,2	36,5	43,8	51,1	58,4	65,7	73,0	80,3
420	16,1	24,1	32,1	40,2	48,2	56,2	64,3	72,3	80,4	88,4
430	17,7	26,5	35,3	44,1	53,0	61,8	70,6	79,5	88,3	97,1
440	19,4	29,0	38,7	48,4	58,1	67,8	77,4	87,1	96,8	106,5
450	21,2	31,8	42,4	52,9	63,5	74,1	84,7	95,3	105,9	116,5

Note:

The longest bar available from Alumil is 750cm. Therefore it is unnecessary to calculate a mullion height greater than 750cm. This means the height between the support brackets for a three support load must be less than or equal to 375cm. For dimensions greater than those found on tables 5a and 6a, please consult with the engineering department at your local Alumil supplier.

Note: When calculating the required moment of inertia for steel, you should multiply the value on Tables 7.1-7.6 by 0,33 to compensate for the modulus of elasticity of steel. (E=21000 kN/cm²)

Table 2 : Required moment of inertia I_x for a uniform load with three supports
Modulus of elasticity aluminium = 7000kN / cm⁴ Deflection $f_{max}=l / 200$ or $\leq 15mm$

$I_x \text{ Required} = (I_{xa} + I_{xb}) * F_w$
 I_{xa} = Moment of inertia from table 5a
 I_{xb} = Moment of inertia from table 5a
 F_w = Correction factor from table 5b

This chart is made for a dynamic wind pressure of 0,5kN/m .
 A correction factor "Fw" must be used in order to calculate the required dynamic wind pressure.

Table 2B

Height above ground (m)	Wind pressure (kN/m ²)	Factor F_w
0 - 8	0,5	1,0
8 - 20	0,8	1,6
20 - 100	1,1	2,2
> 100	1,1	2,6

Load width (cm)

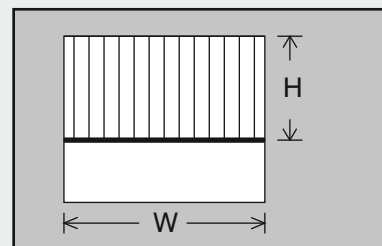
	120	130	140	150	160	170	180	190	200	210
250	12,1	13,1	14,1	15,1	16,1	17,1	18,2	19,2	20,2	21,2
260	14,2	15,3	16,5	17,7	18,9	20,1	21,2	22,4	23,6	24,8
270	16,5	17,8	19,2	20,6	22,0	23,3	24,7	26,1	27,4	28,8
280	19,0	20,6	22,2	23,8	25,4	27,0	28,6	30,2	31,7	33,3
290	21,9	23,7	25,6	27,4	29,2	31,0	32,9	34,7	36,5	38,4
300	25,1	27,2	29,3	31,4	33,5	35,6	37,7	39,7	41,8	43,9
310	28,6	31,0	33,4	35,8	38,2	40,5	42,9	45,3	47,7	50,1
320	32,5	35,2	37,9	40,6	43,3	46,0	48,7	51,4	54,2	56,9
330	36,7	39,8	42,9	45,9	49,0	52,1	55,1	58,2	61,2	64,3
340	41,4	44,9	48,3	51,8	55,2	58,7	62,1	65,6	69,0	72,5
350	46,5	50,4	54,3	58,1	62,0	65,9	69,8	73,6	77,5	81,4
360	52,0	56,4	60,7	65,1	69,4	73,7	78,1	82,4	86,7	91,1
370	58,1	62,9	67,8	72,6	77,4	82,3	87,1	92,0	96,8	101,6
380	64,6	70,0	75,4	80,8	86,2	91,5	96,9	102,3	107,7	113,1
390	71,7	77,7	83,6	89,6	95,6	101,6	107,5	113,5	119,5	125,5
400	79,3	85,9	92,6	99,2	105,8	112,4	119,0	125,6	132,2	138,8
410	87,6	94,9	102,2	109,5	116,8	124,1	131,3	138,6	145,9	153,2
420	96,4	104,5	112,5	120,5	128,6	136,6	144,6	152,7	160,7	168,7
430	105,9	114,8	123,6	132,4	141,3	150,1	158,9	167,7	176,6	185,4
440	116,1	125,8	135,5	145,2	154,9	164,5	174,2	183,9	193,6	203,3
450	127,1	137,7	148,3	158,5	169,4	180,0	190,6	201,2	211,8	222,4

Note: When calculating the required moment of inertia for steel, you should multiply the value on Tables 7.1-7.6 by 0,33 to compensate for the modulus of elasticity of steel. ($E=21000 \text{ kN/cm}^2$)

Table 3 : Required moment of inertia I_y for dead loads on transom
Modulus of elasticity aluminium = 7000kN / cm⁴ Deflection fmax=l / 500 or ≤ 3mm

G = Force of glass (Kp)
a = Distance to glazing support (15cm)
H = Glass height (cm)
W = Glass width (cm)
E = Modulus of elasticity = 7000kN/cm⁴
f = Maximum deflection l / 500 ή ≤ 3mm

$$I_{y, \text{req}} = \frac{G}{24 E f} a (3l^2 - 4a^2)$$



Glass width (cm) This chart is for glazing thickness 12mm (6/12/6 ή 6/15/6)

	20	30	40	50	60	70	80	90	100	110
100	0,0	0,1	0,3	0,5	0,7	1,0	1,3	1,7	2,1	2,6
110	0,0	0,1	0,3	0,5	0,8	1,1	1,5	1,9	2,3	2,8
120	0,0	0,2	0,3	0,6	0,9	1,2	1,6	2,1	2,6	3,1
130	0,0	0,2	0,4	0,6	0,9	1,3	1,7	2,2	2,8	3,4
140	0,0	0,2	0,4	0,7	1,0	1,4	1,9	2,4	3,0	3,6
150	0,0	0,2	0,4	0,7	1,1	1,5	2,0	2,6	3,2	3,9
160	0,0	0,2	0,5	0,8	1,2	1,6	2,1	2,7	3,4	4,1
170	0,0	0,2	0,5	0,8	1,2	1,7	2,3	2,9	3,6	4,4
180	0,0	0,2	0,5	0,9	1,3	1,8	2,4	3,1	3,8	4,7
190	0,0	0,3	0,5	0,9	1,4	1,9	2,5	3,3	4,0	4,9
200	0,0	0,3	0,6	1,0	1,4	2,0	2,7	3,4	4,3	5,2
210	0,0	0,3	0,6	1,0	1,5	2,1	2,8	3,6	4,5	5,4
220	0,0	0,3	0,6	1,1	1,6	2,2	2,9	3,8	4,7	5,7
230	0,1	0,3	0,7	1,1	1,7	2,3	3,1	3,9	4,9	6,0
240	0,1	0,3	0,7	1,2	1,7	2,4	3,2	4,1	5,1	6,2
250	0,1	0,3	0,7	1,2	1,8	2,5	3,3	4,3	5,3	6,5
260	0,1	0,3	0,7	1,3	1,9	2,6	3,5	4,4	5,5	6,7
270	0,1	0,4	0,8	1,3	2,0	2,7	3,6	4,6	5,7	7,0
280	0,1	0,4	0,8	1,4	2,0	2,8	3,7	4,8	6,0	7,2
290	0,1	0,4	0,8	1,4	2,1	2,9	3,9	5,0	6,2	7,5
300	0,1	0,4	0,9	1,4	2,2	3,0	4,0	5,1	6,4	7,8
310	0,1	0,4	0,9	1,5	2,2	3,1	4,1	5,3	6,6	8,0
320	0,1	0,4	0,9	1,5	2,3	3,2	4,3	5,5	6,8	8,3
330	0,1	0,4	0,9	1,6	2,4	3,3	4,4	5,6	7,0	8,5
340	0,1	0,4	1,0	1,6	2,5	3,4	4,5	5,8	7,2	8,8
350	0,1	0,5	1,0	1,7	2,5	3,5	4,7	6,0	7,4	9,1
360	0,1	0,5	1,0	1,7	2,6	3,6	4,8	6,2	7,7	9,3
370	0,1	0,5	1,1	1,8	2,7	3,7	5,0	6,3	7,9	9,6
380	0,1	0,5	1,1	1,8	2,8	3,8	5,1	6,5	8,1	9,8
390	0,1	0,5	1,1	1,9	2,8	3,9	5,2	6,7	8,3	10,1
400	0,1	0,5	1,1	1,9	2,9	4,0	5,4	6,8	8,5	10,4
410	0,1	0,5	1,2	2,0	3,0	4,1	5,5	7,0	8,7	10,6
420	0,1	0,6	1,2	2,0	3,0	4,2	5,6	7,2	8,9	10,9
430	0,1	0,6	1,2	2,1	3,1	4,3	5,8	7,4	9,2	11,1
440	0,1	0,6	1,3	2,1	3,2	4,4	5,9	7,5	9,4	11,4
450	0,1	0,6	1,3	2,2	3,3	4,5	6,0	7,7	9,6	11,6
460	0,1	0,6	1,3	2,2	3,3	4,6	6,2	7,9	9,8	11,9
470	0,1	0,6	1,3	2,3	3,4	4,7	6,3	8,0	10,0	12,2
480	0,1	0,6	1,4	2,3	3,5	4,8	6,4	8,2	10,2	12,4
490	0,1	0,6	1,4	2,4	3,5	4,9	6,6	8,4	10,4	12,7
500	0,1	0,7	1,4	2,4	3,6	5,0	6,7	8,6	10,6	12,9
550	0,1	0,7	1,6	2,7	4,0	5,6	7,4	9,4	11,7	14,2
600	0,1	0,8	1,7	2,9	4,3	6,1	8,0	10,3	12,8	15,5

Note: When calculating the required moment of inertia for steel, you should multiply the value on Tables 7.1-7.6 by 0,33 to compensate for the modulus of elasticity of steel. (E=21000 kN/cm²)

Table 3 : Required moment of inertia I_x for dead loads on transom
 Modulus of elasticity aluminium = 7000kN / cm⁴ Deflection $f_{max}=l / 500$ or $\leq 3mm$

$I_{y, req} = I_y * F_w$

I_y = Required moment of inertia from table 7a

F_w = Correction factor from table 7b

Table 3B : Correction factor F_w

Glazing thickness	Factor F_w	Glazing thickness	Factor F_w
6	0,50	16	1,33
8	0,67	18	1,50
10	0,80	20	1,67
12	1,00	22	1,83
14	1,16	24	2,00

Glass width (cm) This chart is for glazing thickness 12mm (6/12/6 ή 6/15/6)

	120	130	140	150	160	170	180	190	200	210
100	3,1	3,6	4,2	4,9	5,9	7,1	8,5	9,9	11,6	13,5
110	3,4	4,0	4,7	5,4	6,5	7,8	9,3	10,9	12,8	14,8
120	3,7	4,4	5,1	5,8	7,1	8,5	10,1	11,9	13,9	16,1
130	4,0	4,7	5,5	6,3	7,7	9,2	11,0	12,9	15,1	17,5
140	4,3	5,1	5,9	6,8	8,3	10,0	11,8	13,9	16,3	18,8
150	4,6	5,5	6,4	7,3	8,9	10,7	12,7	14,9	17,4	20,2
160	4,9	5,8	6,8	7,8	9,5	11,4	13,5	15,9	18,6	21,5
170	5,3	6,2	7,2	8,3	10,1	12,1	14,4	16,9	19,7	22,9
180	5,6	6,6	7,6	8,8	10,7	12,8	15,2	17,9	20,9	24,2
190	5,9	6,9	8,0	9,3	11,2	13,5	16,1	18,9	22,1	25,6
200	6,2	7,3	8,5	9,7	11,8	14,2	16,9	19,9	23,2	26,9
210	6,5	7,6	8,9	10,2	12,4	14,9	17,7	20,9	24,4	28,2
220	6,8	8,0	9,3	10,7	13,0	15,6	18,6	21,9	25,5	29,6
230	7,1	8,4	9,7	11,2	13,6	16,4	19,4	22,9	26,7	30,9
240	7,4	8,7	10,2	11,7	14,2	17,1	20,3	23,9	27,9	32,3
250	7,7	9,1	10,6	12,2	14,8	17,8	21,1	24,9	29,0	33,6
260	8,0	9,5	11,0	12,7	15,4	18,5	22,0	25,9	30,2	35,0
270	8,4	9,8	11,4	13,1	16,0	19,2	22,8	26,9	31,4	36,3
280	8,7	10,2	11,9	13,6	16,6	19,9	23,7	27,9	32,5	37,7
290	9,0	10,6	12,3	14,1	17,2	20,6	24,5	28,8	33,7	39,0
300	9,3	10,9	12,7	14,6	17,8	21,3	25,4	29,8	34,8	40,4
310	9,6	11,3	13,1	15,1	18,4	22,0	26,2	30,8	36,0	41,7
320	9,9	11,7	13,5	15,6	18,9	22,8	27,0	31,8	37,2	43,0
330	10,2	12,0	14,0	16,1	19,5	23,5	27,9	32,8	38,3	44,4
340	10,5	12,4	14,4	16,6	20,1	24,2	28,7	33,8	39,5	45,7
350	10,8	12,7	14,8	17,0	20,7	24,9	29,6	34,8	40,6	47,1
360	11,1	13,1	15,2	17,5	21,3	25,6	30,4	35,8	41,8	48,4
370	11,4	13,5	15,7	18,0	21,9	26,3	31,3	36,8	43,0	49,8
380	11,8	13,8	16,1	18,5	22,5	27,0	32,1	37,8	44,1	51,1
390	12,1	14,2	16,5	19,0	23,1	27,7	33,0	38,8	45,3	52,5
400	12,4	14,6	16,9	19,5	23,7	28,4	33,8	39,8	46,4	53,8
410	12,7	14,9	17,4	20,0	24,3	29,2	34,6	40,8	47,6	55,2
420	13,0	15,3	17,8	20,5	24,9	29,9	35,5	41,8	48,8	56,5
430	13,3	15,7	18,2	20,9	25,5	30,6	36,3	42,8	49,9	57,8
440	13,6	16,0	18,6	21,4	26,0	31,3	37,2	43,8	51,1	59,2
450	13,9	16,4	19,1	21,9	26,6	32,0	38,0	44,8	52,3	60,5
460	14,2	16,8	19,5	22,4	27,2	32,7	38,9	45,8	53,4	61,9
470	14,5	17,1	19,9	22,9	27,8	33,4	39,7	46,8	54,6	63,2
480	14,8	17,5	20,3	23,4	28,4	34,1	40,6	47,8	55,7	64,6
490	15,2	17,8	20,7	23,9	29,0	34,8	41,4	48,7	56,9	65,9
500	15,5	18,2	21,2	24,4	29,6	35,6	42,3	49,7	58,1	67,3
550	17,0	20,0	23,3	26,8	32,6	39,1	46,5	54,7	63,9	74,0
600	18,6	21,8	25,4	29,2	35,5	42,7	50,7	59,7	69,7	80,7

Note: When calculating the required moment of inertia for steel, you should multiply the value on Tables 7.1-7.6 by 0,33 to compensate for the modulus of elasticity of steel. ($E=21000 \text{ kN/cm}^2$)

Pre-dimensioning of a three-hinged frame

Load tables based on a uniform of 1 kN/m²

Required moment of inertia fir rafter due to wind load, snow load and dead weight with roof inclination (normal area, no corners or edges)

$E = 7000 \text{ kN/cm}^2$

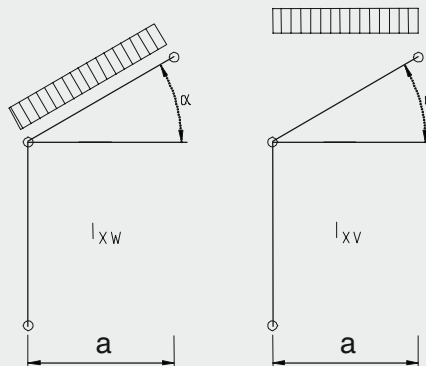
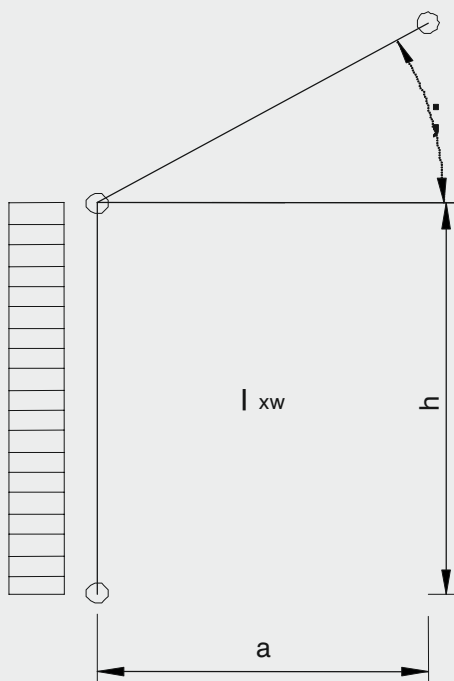


Table 4 : Moment of inertia for various inclinations

Inclination	15°		30°		45°		60°	
System depth a (m)	I _{xw} rafter cm ⁴	I _{xw} rafter cm ⁴	I _{xw} rafter cm ⁴	I _{xw} rafter cm ⁴	I _{xw} rafter cm ⁴	I _{xw} rafter cm ⁴	I _{xw} rafter cm ⁴	I _{xw} rafter cm ⁴
0,5	0,8	0,7	1,1	0,8	2,0	1,0	5,6	1,4
0,6	1,3	1,2	1,9	1,4	3,4	1,7	9,6	2,4
0,7	2,1	2,0	2,9	2,2	5,4	2,7	15,3	3,8
0,8	3,2	3,0	4,4	3,3	8,1	4,0	22,9	5,7
0,9	4,5	4,2	6,3	4,7	11,5	5,8	32,5	8,1
1,0	6,2	5,8	8,6	6,4	15,8	7,9	44,6	11,2
1,1	8,2	7,7	11,4	8,6	21,0	10,5	59,4	14,9
1,2	10,7	10,0	14,8	11,1	27,3	13,6	77,1	19,3
1,3	13,6	12,7	18,9	14,2	34,7	17,3	98,1	24,5
1,4	17,0	15,9	23,6	17,7	43,3	21,7	122,5	30,6
1,5	20,9	19,5	29,0	21,7	53,3	26,6	150,7	37,7
1,6	25,4	23,7	35,2	26,4	64,6	32,3	182,9	45,7
1,7	30,4	28,4	42,2	31,7	77,5	38,8	219,3	54,8
1,8	36,1	33,7	50,1	37,6	92,1	46,0	260,4	65,1
1,9	42,5	39,6	58,9	44,2	108,3	54,1	306,2	76,6
2,0	49,5	46,2	68,7	51,5	126,3	63,1	357,1	89,3
2,1	57,3	53,5	79,6	59,7	146,2	73,1	413,4	103,4
2,2	65,9	61,5	91,5	68,6	168,1	84,0	475,4	118,8
2,3	75,3	70,3	104,5	78,4	192,0	96,0	543,2	135,8
2,4	85,6	79,9	118,8	89,1	218,2	109,1	617,1	154,3
2,5	96,7	90,3	134,2	100,7	246,6	123,3	697,5	174,4
2,6	108,8	101,5	151,0	113,3	277,4	138,7	784,6	196,2
2,7	121,9	113,7	169,1	126,8	310,7	155,3	878,7	219,7
2,8	135,9	126,8	188,6	141,5	346,5	173,2	980,0	245,0
2,9	151,0	140,9	209,5	157,2	384,9	192,5	1088,8	272,2
3,0	167,2	156,0	232,0	174,0	426,2	213,1	1205,4	301,3
3,1	184,5	172,1	256,0	192,0	470,2	235,1	1330,0	332,5
3,2	202,9	189,3	281,5	211,1	517,2	258,6	1462,9	365,7
3,3	222,5	207,6	308,8	231,6	567,2	283,6	1604,3	401,1
3,4	243,4	227,1	337,7	253,3	620,4	310,2	1754,6	438,7
3,5	265,5	247,7	368,4	276,3	676,7	338,4	1914,1	478,5
3,6	288,9	269,5	400,8	300,6	736,4	368,2	2082,9	520,7
3,7	313,6	292,6	435,2	326,4	799,5	399,7	2261,3	565,3
3,8	339,8	317,0	471,4	353,6	866,1	433,0	2449,6	612,4
3,9	367,3	342,7	509,6	382,2	936,3	468,1	2648,2	662,0
4,0	396,3	369,7	549,9	412,4	1010,2	505,1	2857,1	714,3
4,1	426,8	398,2	592,1	444,1	1087,8	543,9	3076,8	769,2
4,2	458,9	427,3	636,4	477,4	1169,1	584,6	3308,1	826,5
4,3	492,3	459,3	683,1	512,3	1254,9	627,5	3549,4	887,4
4,4	527,5	492,1	731,9	548,9	1344,5	672,3	3802,9	950,7
4,5	564,2	526,4	782,9	587,2	1438,3	719,1	4068,1	1017,0
4,6	602,7	562,3	836,3	627,2	1536,3	768,2	4345,4	1086,3
4,7	642,9	599,8	892,0	669,0	1638,7	819,4	4635,0	1158,7
4,8	684,8	638,9	950,2	712,6	1745,5	872,8	4937,1	1234,3
4,9	728,5	679,7	1010,8	758,1	1856,9	928,5	5252,2	1313,0
5,0	774,0	722,2	1073,9	805,5	1973,0	986,5	5580,4	1395,1

Note: When calculating the required moment of inertia for steel, you should multiply the value on Tables 7.1-7.6 by 0,33 to compensate for the modulus of elasticity of steel. ($E=21000 \text{ kN/cm}^2$)

Required mullion moment of inertia due to uniform load
(with $f_{perm} = h/300$) with load 1 kN/m^2 and width 1m



Kink height h (m)	I_{xw} mullion cm^4
1,0	5,6
1,1	7,4
1,2	9,6
1,3	12,3
1,4	15,3
1,5	18,8
1,6	22,9
1,7	27,4
1,8	32,5
1,9	38,3
2,0	44,6
2,1	51,7
2,2	59,4
2,3	67,9
2,4	77,1
2,5	87,2
2,6	98,1
2,7	109,8
2,8	122,5
2,9	136,1
3,0	150,7
3,1	166,2
3,2	182,9
3,3	200,5
3,4	219,3
3,5	239,3
3,6	260,4
3,7	282,7
3,8	306,2
3,9	331,0
4,0	357,1

Calculation parameters

B = Load width (m)

q = Dynamic pressure according to DIN 1055, part 4

Building height 0 - 8m $q = 0,5 \text{ kN/m}^2$

Building height 8 - 20m $q = 0,8 \text{ kN/m}^2$

Building height 20 - 100m $q = 1,1 \text{ kN/m}^2$

q_s = Snow load in accordance with DIN 1055, part 5, in dependence on the location

q_E = Dead weight in accordance with DIN 1055, part 1, in dependence on the insert element

K_s = Diminution factor for snow load in accordance with DIN 1055, part 5

g = Load conversion factor for dead weight with sloping roofs

c_p = Aerodynamic pressure coefficient in accordance with DIN 1055, part 4

Roof inclination	15°	30°	45°	60°
k_s	1,0	1,0	0,6	0,1
g	1,035	1,155	1,414	2,000
c_p	Factor according to the valid standard			

List of loads for final dimensioning of three-hinged frame loads
Mullion dimensioning

For the type of load "wind pressure" the result is as follows:

$$l_{req, mullion} = B \cdot l_{xw mullion} \cdot q \cdot (c_p \cdot 1,25)$$

For the type of load "wind suction" the result is as follows:

$$l_{req, mullion} = B \cdot l_{xw mullion} \cdot q \cdot c_p$$

Rafter dimensioning

For the type of load "dead weight" and "snow load":

$$l_{req, rafter} = B \cdot [l_{xv rafter} \cdot (g \cdot q + k_s \cdot q_s)]$$

For the type of load "dead weight" and 0,5 "snow load" and "wind load":

$$l_{req, rafter} = B \cdot [l_{xv rafter} \cdot g (q_E + 0,5 \cdot k_s \cdot q_s) + (l_{xw rafter} p \cdot c \cdot 1,25 \cdot q)]$$

Μόνο για πίεση ανέμου (κλίση στέγης που υπερβαίνει τις 25 °), διαφορετικά 1,0

For the type of load "dead weight" and 0,5 "snow load" and "wind load":

$$l_{req, rafter} = B \cdot [l_{xv rafter} \cdot (g \cdot q + k_s \cdot q_s) + (0,5 \cdot l_{xw rafter} \cdot c_p \cdot 1,25 \cdot q)]$$

Μόνο για πίεση ανέμου (κλίση στέγης που υπερβαίνει τις 25 °), διαφορετικά 1,0

For the type of load "wind suction" - "dead weight":

$$l_{erf, rafter} = B \cdot (l_{xv rafter} \cdot c_p suction \cdot q + l_{xv rafter} \cdot g \cdot q_E)$$

The maximum value of the determined results is decisive for the pre-dimensioning of the three-hinged frame!

Calculation example

Given:

Load width B	= 1m	Φορτίο ανέμου q	= 0,5kN/m ²
System depth a	= 3,5m	Pressure coefficient vertical Cp	= 0,8
Folding height h	= 2,2m	Pressure coefficient sloping area Cp	= 0,6 DIN 1055 chapter 4 table, 12
Roof inclination	= 15°	Snow load qs	= 0,75kN/m ²
Glass thickness	= 14m	Diminishing factor ks	= 1,00 DIN 1055 chapter 5 table, 1
		Dead weight qE	= 0,39kN/m ² (glass weight + profile weight)
		Load conversion factor g	= 1,035

Mullion dimensioning

For the type of load "wind pressure" the result is as follows:

$$I_{req, mullion} = B \cdot l_{xw mullion} \cdot q \cdot (c_p \cdot 1,25)$$

$$I_{req, mullion} = 1 \cdot 59,4 \cdot 0,5 \cdot (0,8 \cdot 1,25) = 29,7 \text{ cm}^4$$

Υπολογισμός διαστάσεων επιτεγίδας (ή τραβέρσα κεκλιμένης στέγης)

For the type of load "dead weight" and "snow load" the result is as follows:

$$I_{req, rafter} = B \cdot [l_{xv rafter} \cdot (g \cdot qE + k_s \cdot q_s)]$$

$$I_{req, rafter} = 1 \cdot [247,7 \cdot (1,035 \cdot 0,39 + 1,00 \cdot 0,75)] = 285,8 \text{ cm}^4$$

For the type of load "dead weight" and 0,5 "snow load" and "wind load":

$$I_{req, rafter} = B \cdot [l_{xv rafter} \cdot (g \cdot q + 0,5 \cdot k_s \cdot q_s) + (l_{xw rafter} \cdot 1 \cdot 1,25 \cdot q)]$$

$$I_{req, rafter} = 1 \cdot [247,7 \cdot (1,035 \cdot 0,39 + 0,5 \cdot 1,00 \cdot 0,75) + (265,5 \cdot (-0,6) \cdot 1 \cdot 0,5)] = 113,2 \text{ cm}^4$$

For the type of load "dead weight" and 0,5 "snow load" and "wind load":

$$I_{req, rafter} = B \cdot [l_{xv rafter} \cdot (g \cdot q + k_s \cdot q_s) + (0,5 \cdot l_{xw rafter} \cdot 1 \cdot 1,25 \cdot q)]$$

$$I_{req, rafter} = 1 \cdot [247,7 \cdot (1,035 \cdot 0,39 + 1,00 \cdot 0,75) + (265,5 \cdot (-0,6) \cdot 1 \cdot 0,5)] = 245,9 \text{ cm}^4$$

For the type of load "wind suction" - "dead weight" (to be calculated only in case of relevant wind suction forces):

$$I_{eq, rafter} = B \cdot (l_{xv rafter} \cdot c_p \text{ suction} \cdot q \cdot g \cdot l_{xv rafter} \cdot g \cdot qE)$$

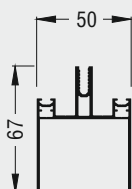
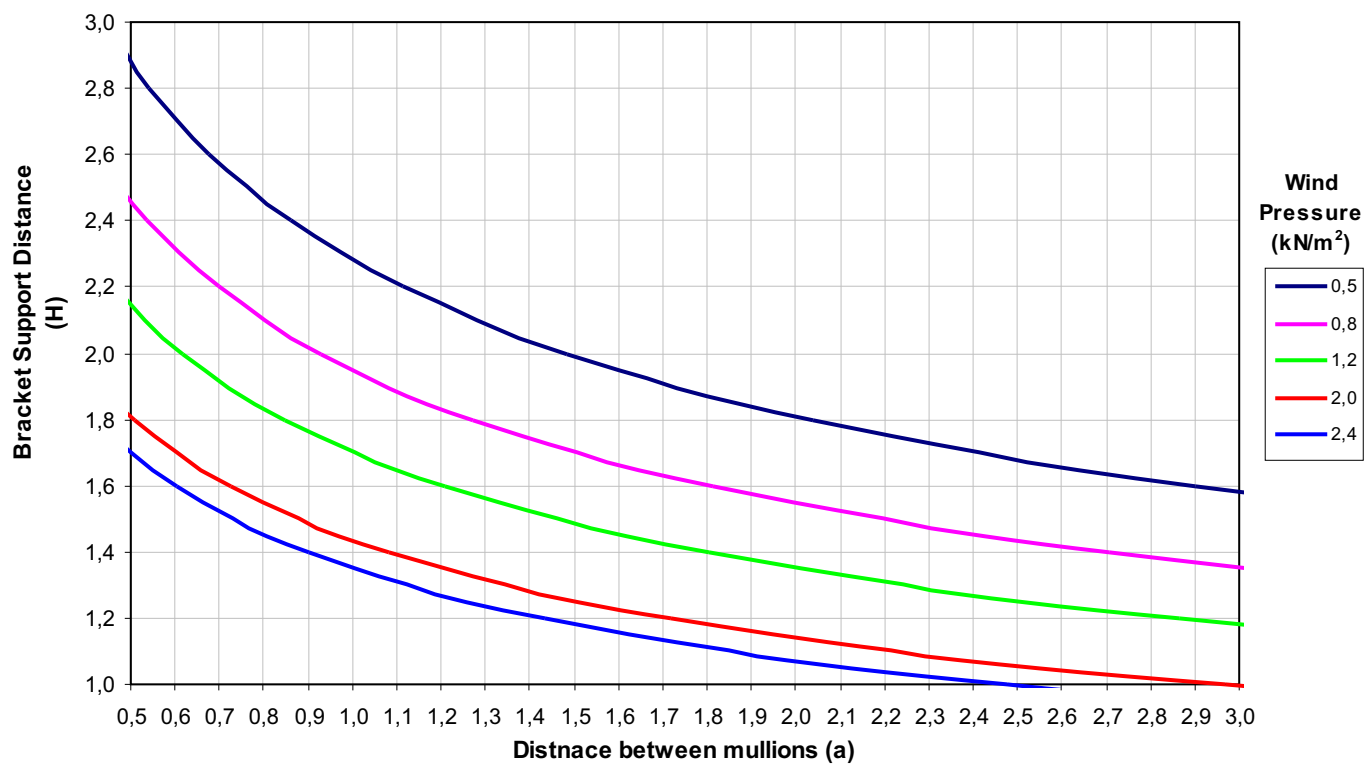
$$I_{eq, rafter} = 1 \cdot (247,7 \cdot (-0,6) \cdot 0,5 - 247,7 \cdot 1,035 \cdot 0,39) = 174,3 \text{ cm}^4$$

From the type of load with the highest requirements the following results with regard to pre-dimensioning:

$$I_{yreq} = 285,8 \text{ cm}^4$$

Wind load charts for mullions

M70002



$I_x = 22,2 \text{ cm}^4$
 $I_y = 14,9 \text{ cm}^4$

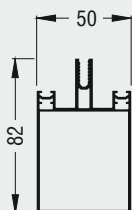
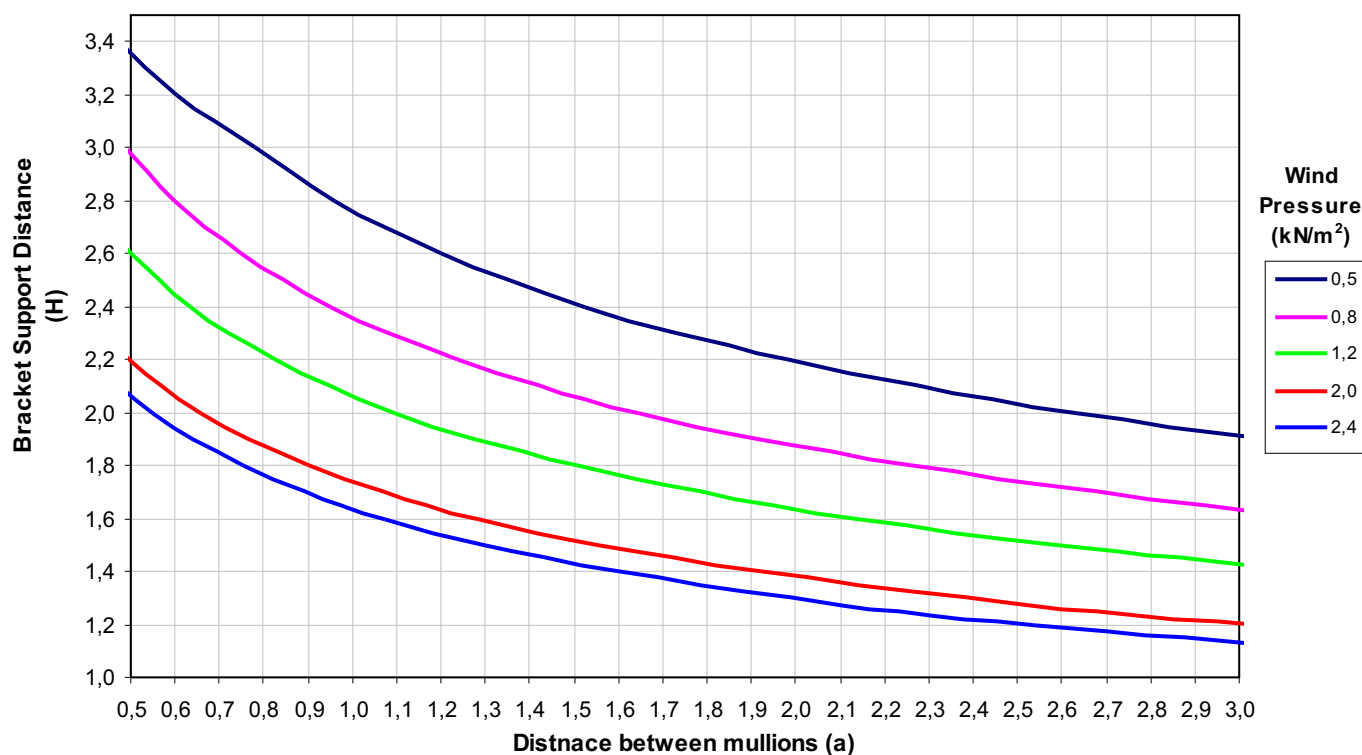
M70002

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70003



$I_x = 39,3 \text{ cm}^4$
 $I_y = 17,8 \text{ cm}^4$

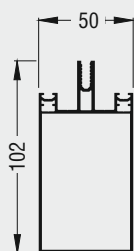
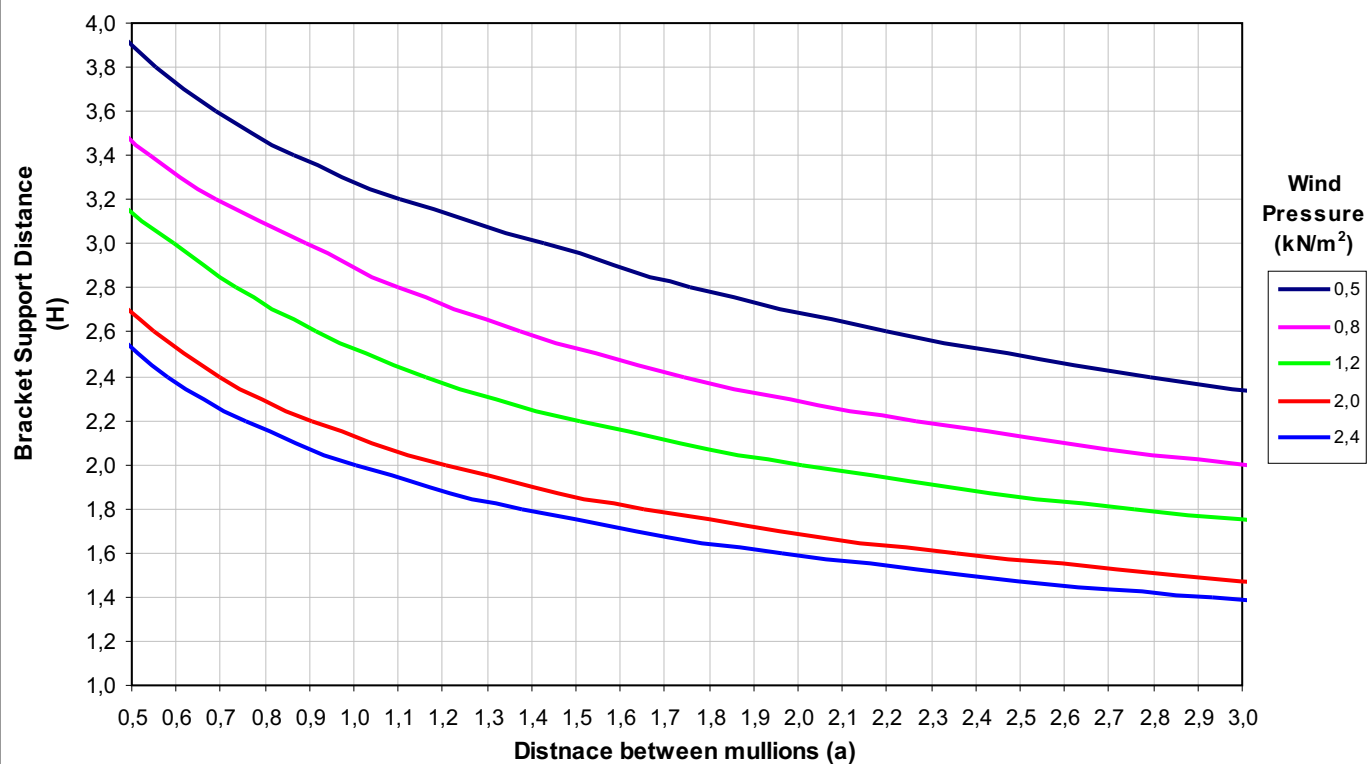
M70003

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70004



$I_x = 72,0 \text{ cm}^4$
 $I_y = 21,8 \text{ cm}^4$

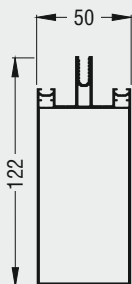
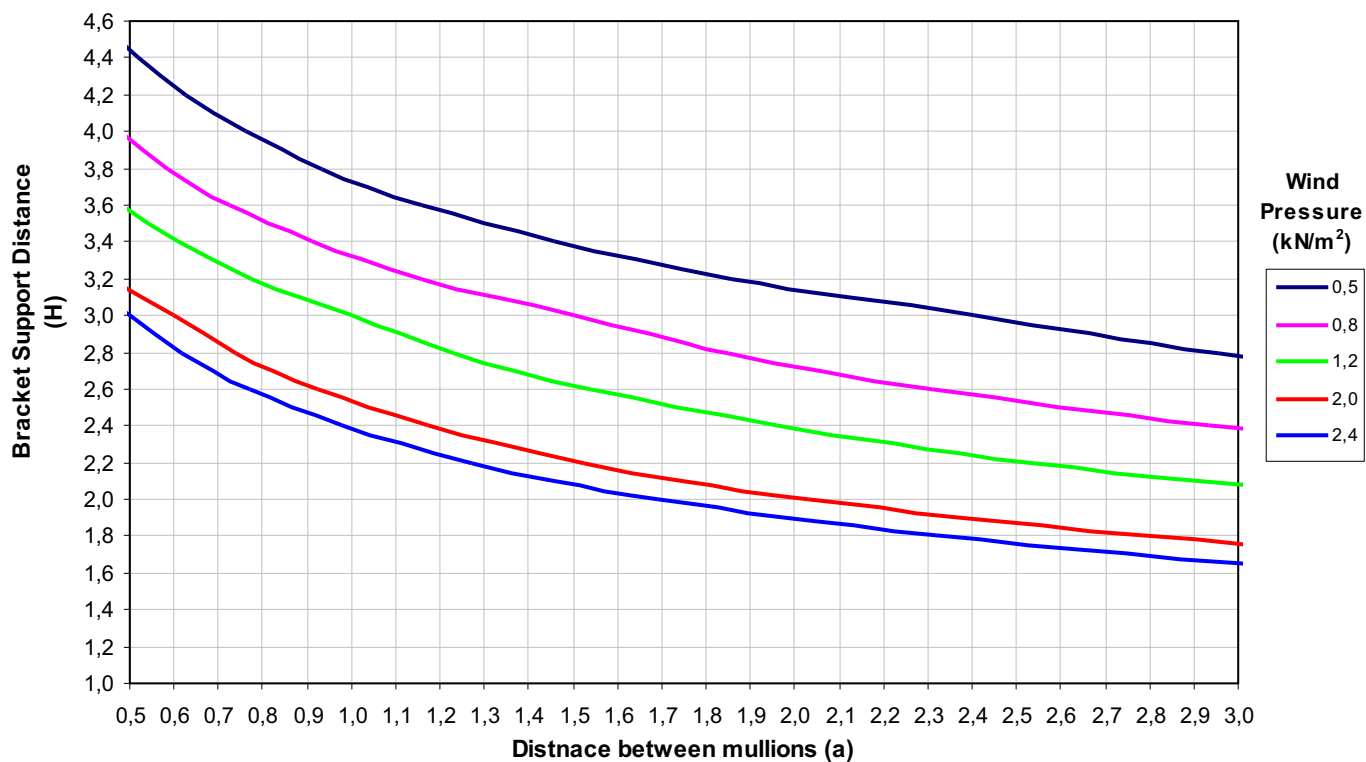
M70004

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70005



$$I_x = 120,9 \text{ cm}^4$$

$$I_y = 25,9 \text{ cm}^4$$

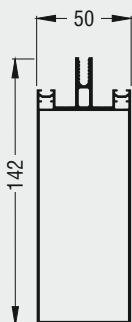
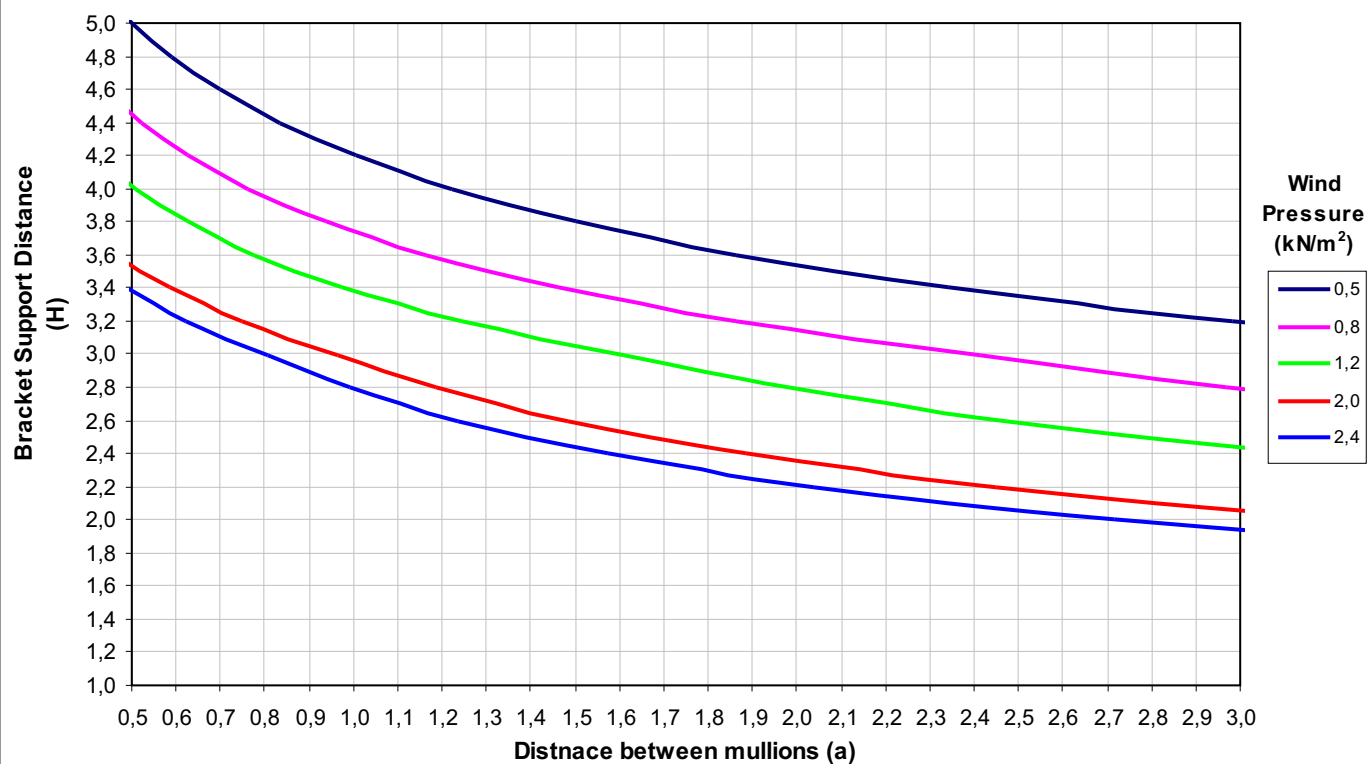
M70005

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70006



$I_x = 193,4 \text{ cm}^4$
 $I_y = 30,4 \text{ cm}^4$

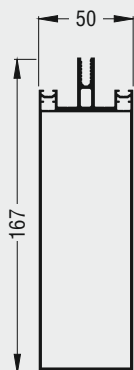
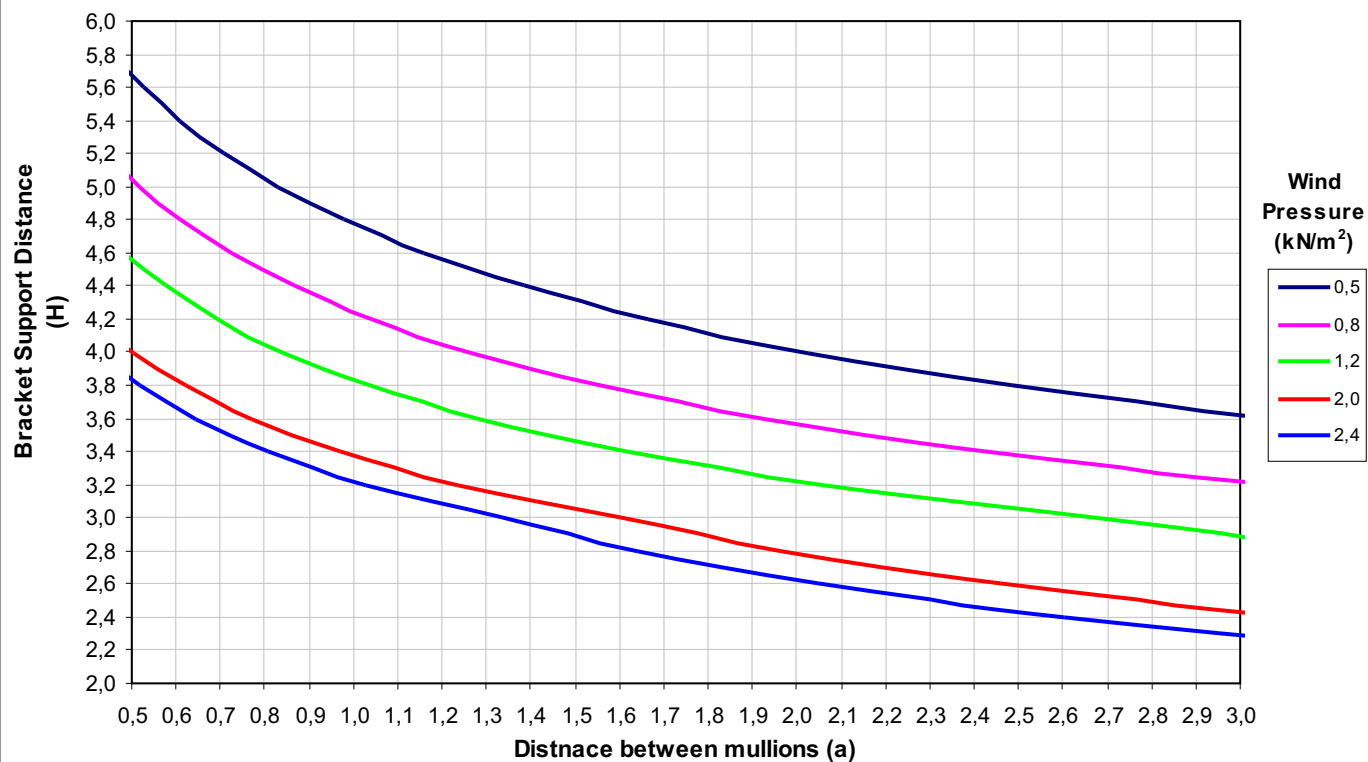
M70006

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70007



$$I_x = 318,3 \text{ cm}^4$$

$$I_y = 35,9 \text{ cm}^4$$

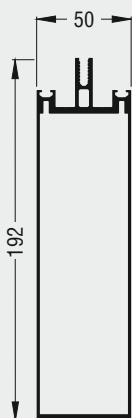
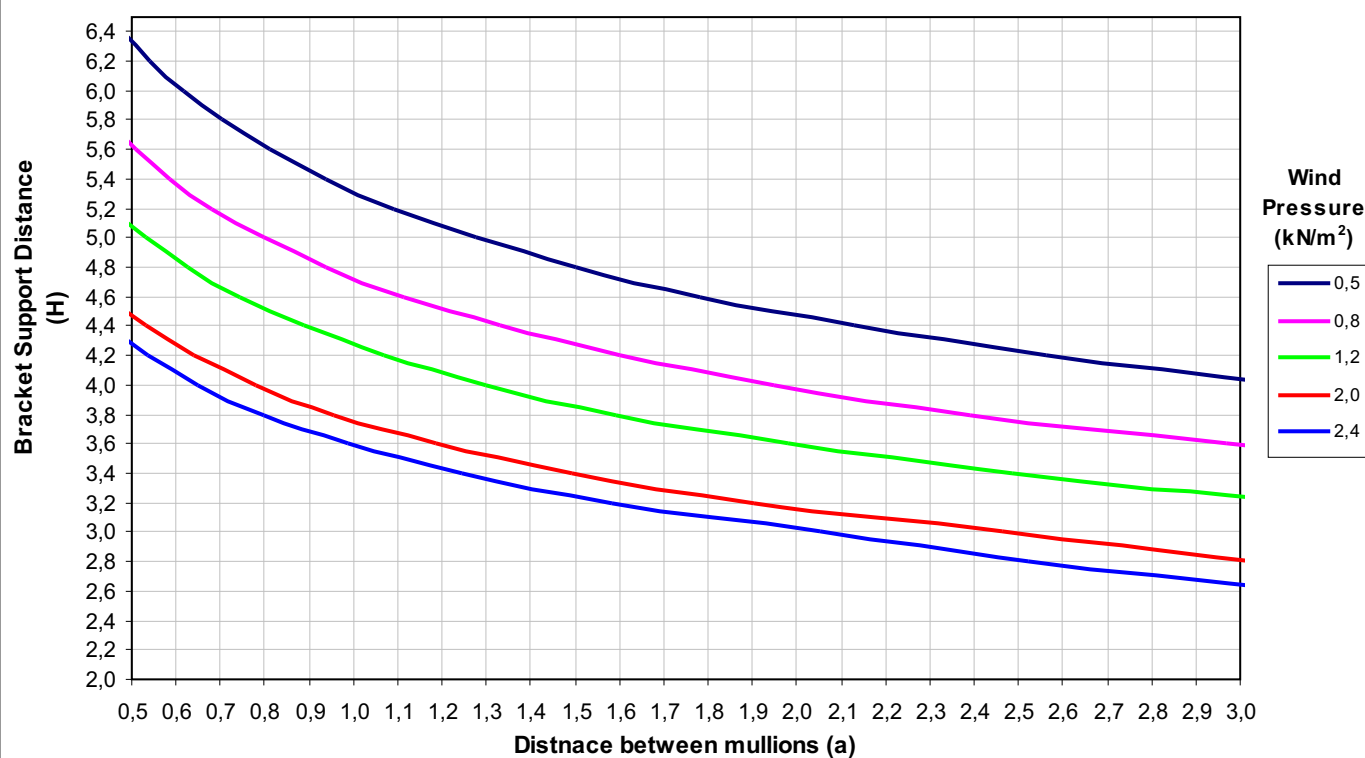
M70007

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70034



$$I_x = 505,2 \text{ cm}^4$$

$$I_y = 43,1 \text{ cm}^4$$

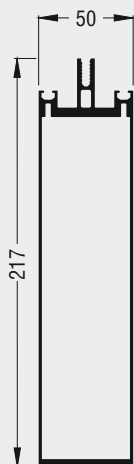
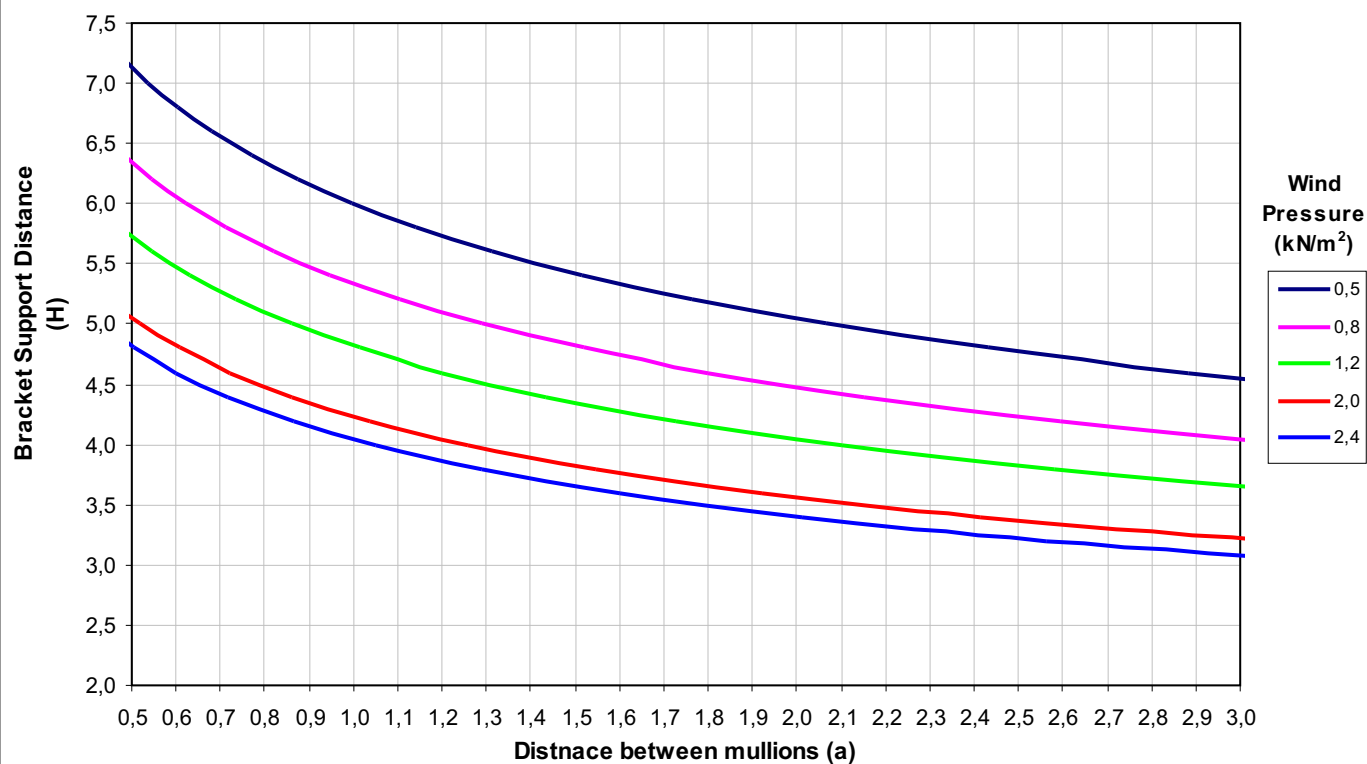
M70034

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70008



$I_x = 805,0 \text{ cm}^4$
 $I_y = 49,9 \text{ cm}^4$

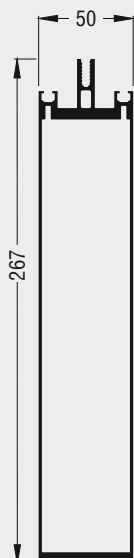
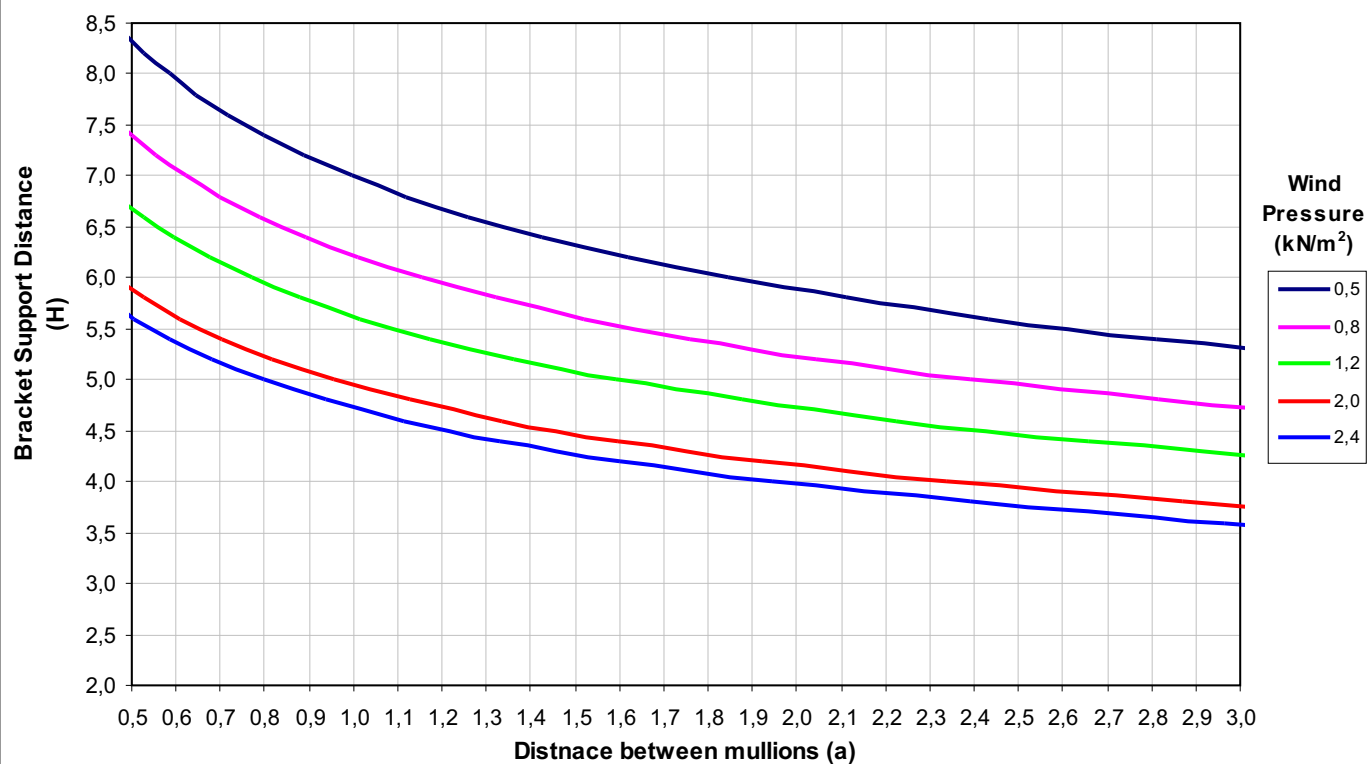
M70008

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Wind load charts for mullions

M70009



$$I_x = 1475,2 \text{ cm}^4$$

$$I_y = 61,0 \text{ cm}^4$$

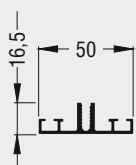
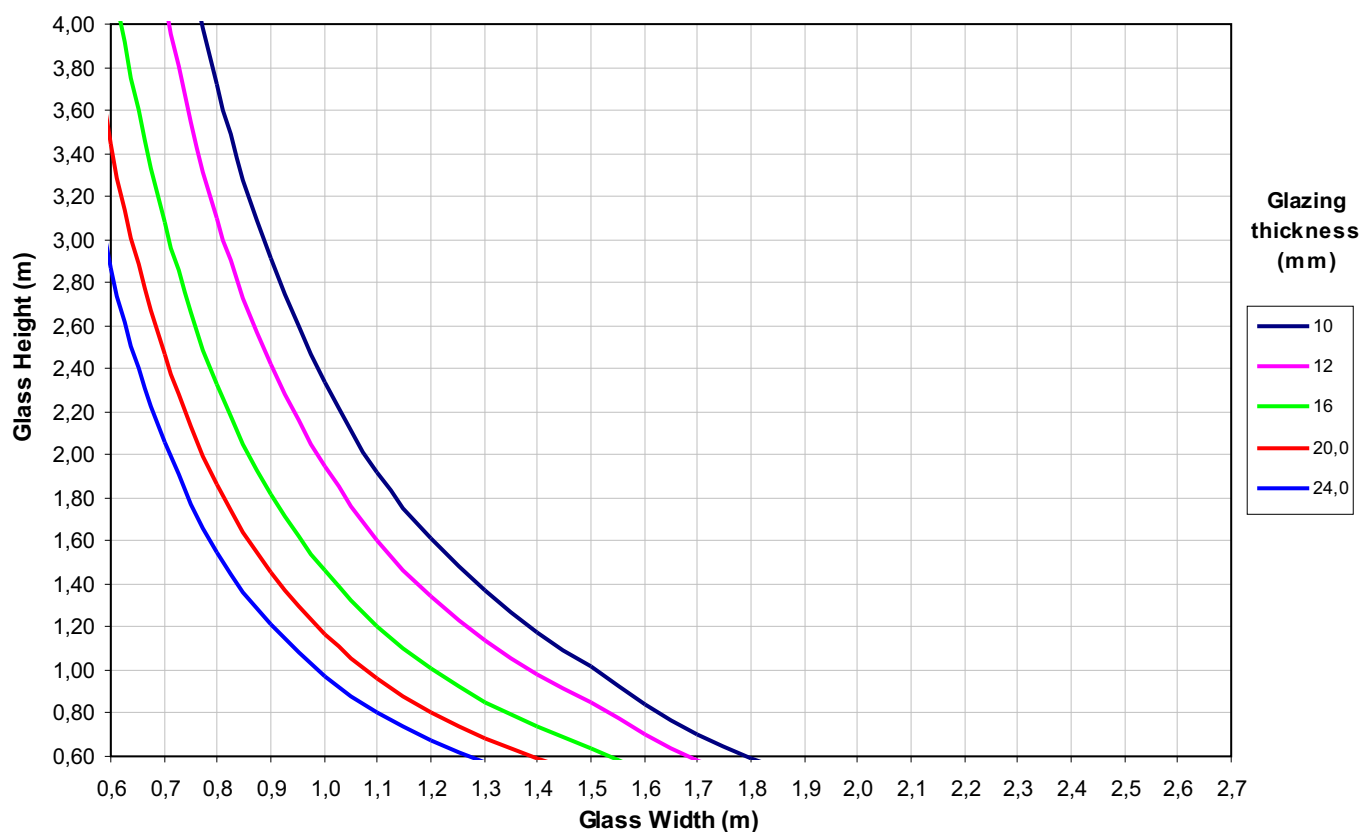
M70009

Note: The distance "H" is the distance between support points and is not necessarily the mullion height.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Dead load charts for transoms

M70010



$$I_x = 0,4 \text{ cm}^4$$

$$I_y = 3,8 \text{ cm}^4$$

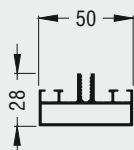
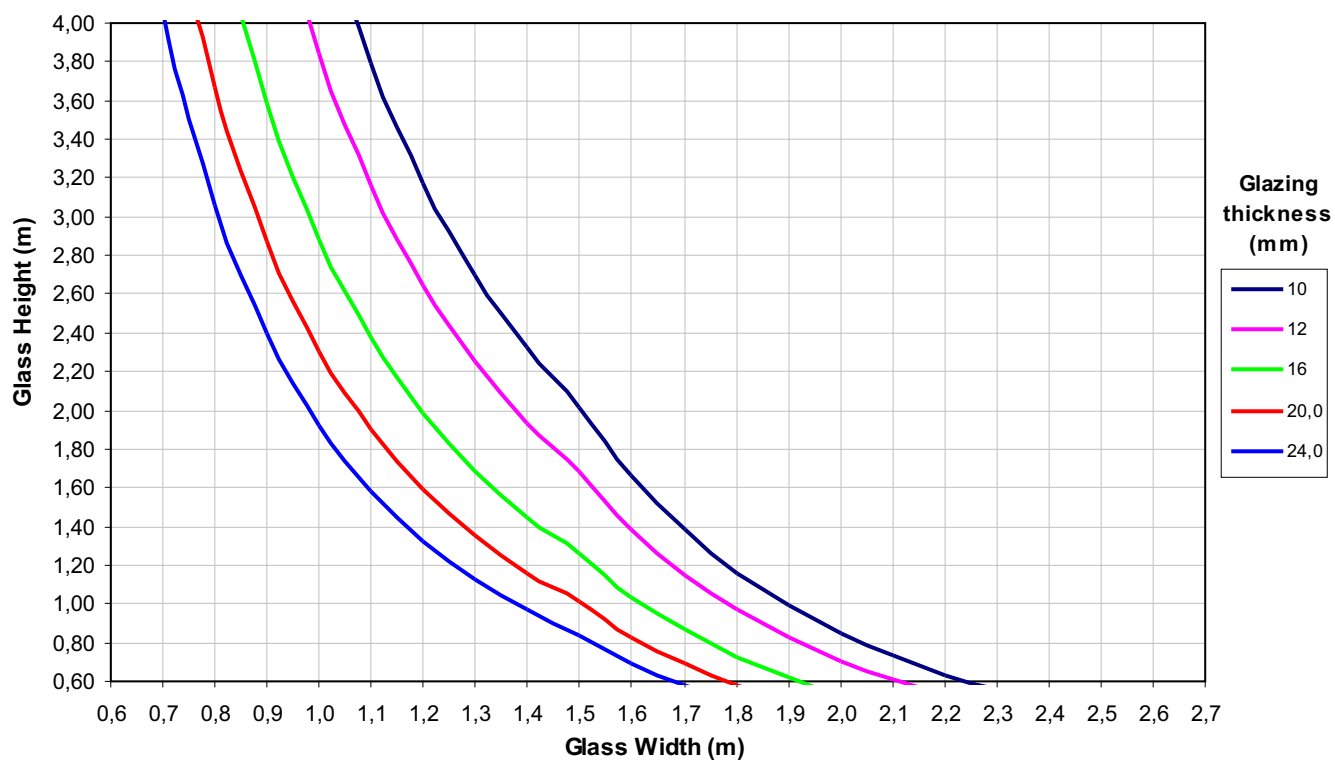
M70010

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Dead load charts for transoms

M70011



$$I_x = 2,0 \text{ cm}^4$$

$$I_y = 7,5 \text{ cm}^4$$

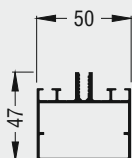
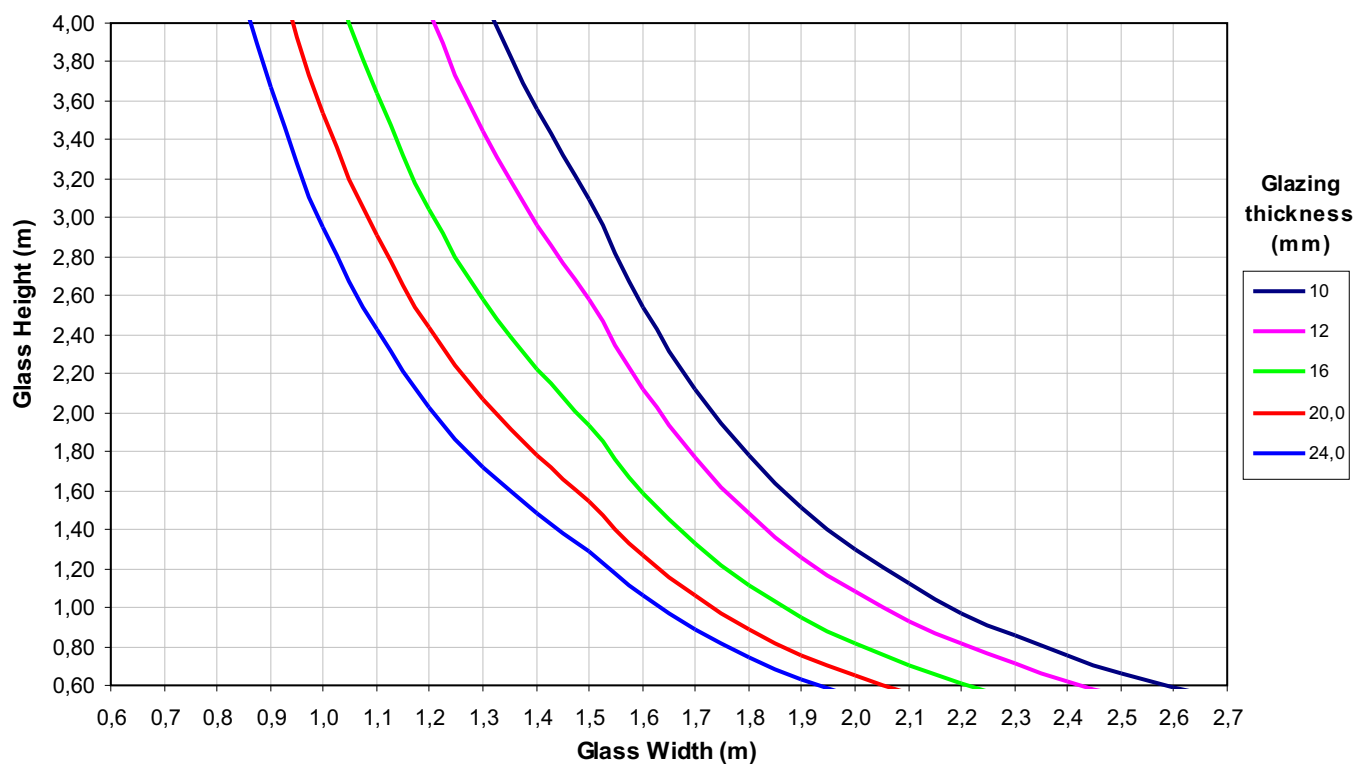
M70011

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Dead load charts for transoms

M70012



$$I_x = 9,0 \text{ cm}^4$$

$$I_y = 11,5 \text{ cm}^4$$

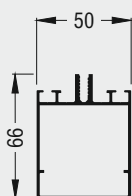
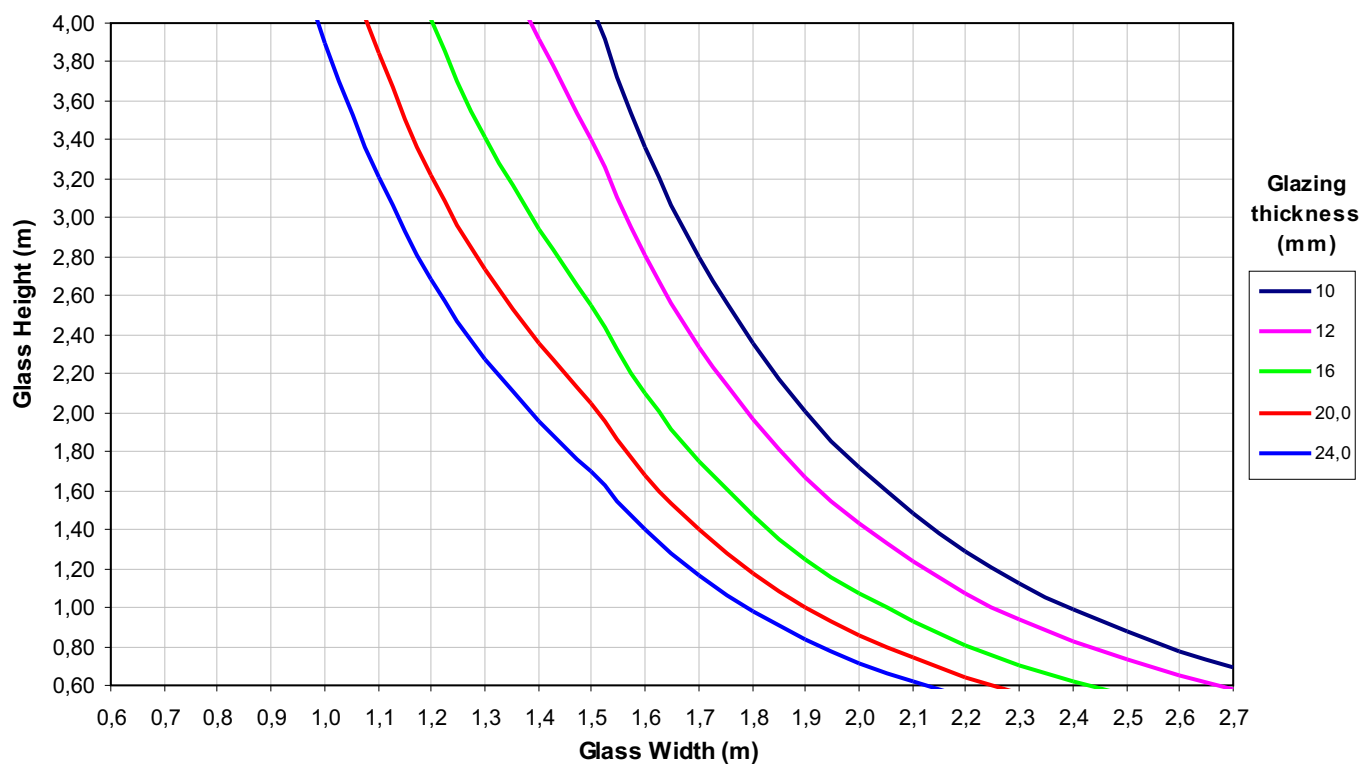
M70012

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Dead load charts for transoms

M70013



$$I_x = 22,9 \text{ cm}^4$$

$$I_y = 15,2 \text{ cm}^4$$

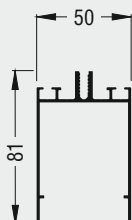
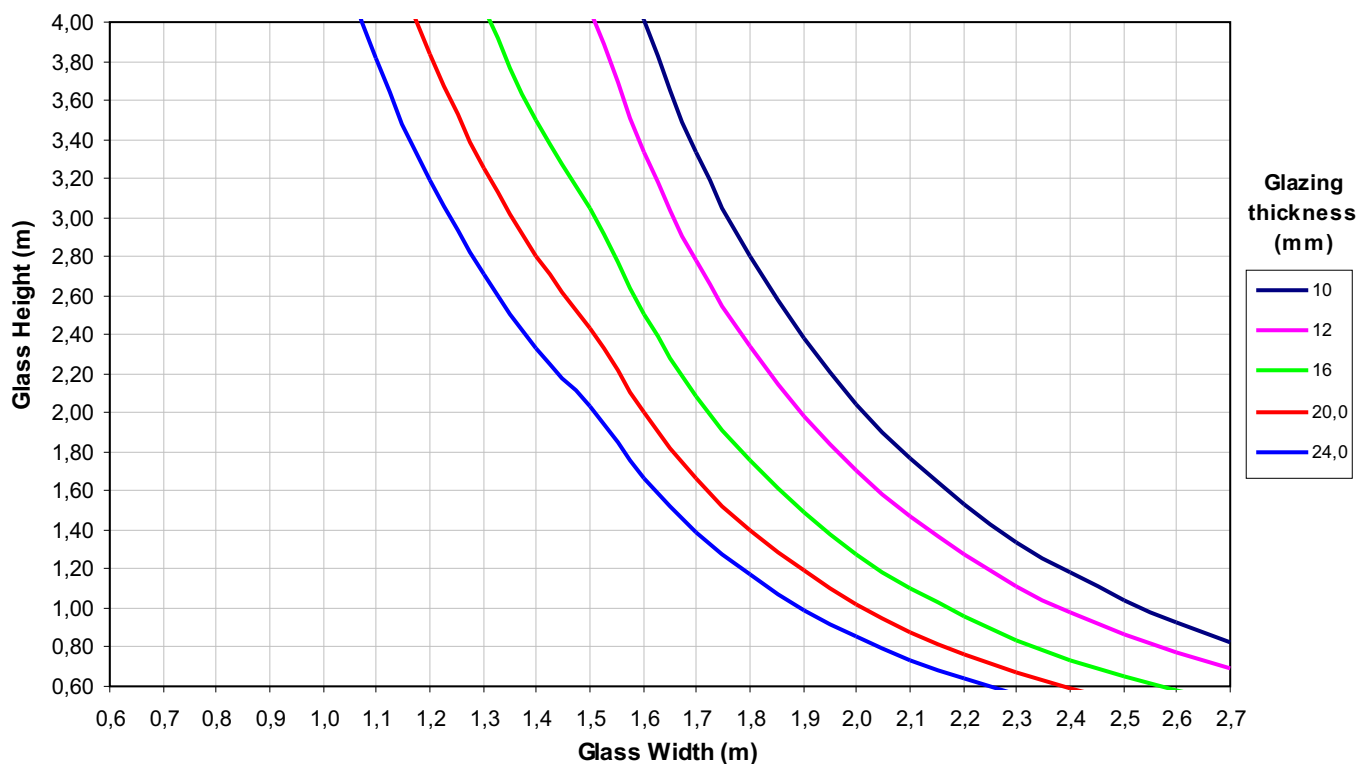
M70013

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Dead load charts for transoms

M70014



$$I_x = 39,7 \text{ cm}^4$$

$$I_y = 18,1 \text{ cm}^4$$

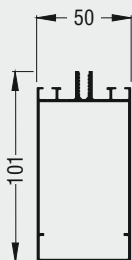
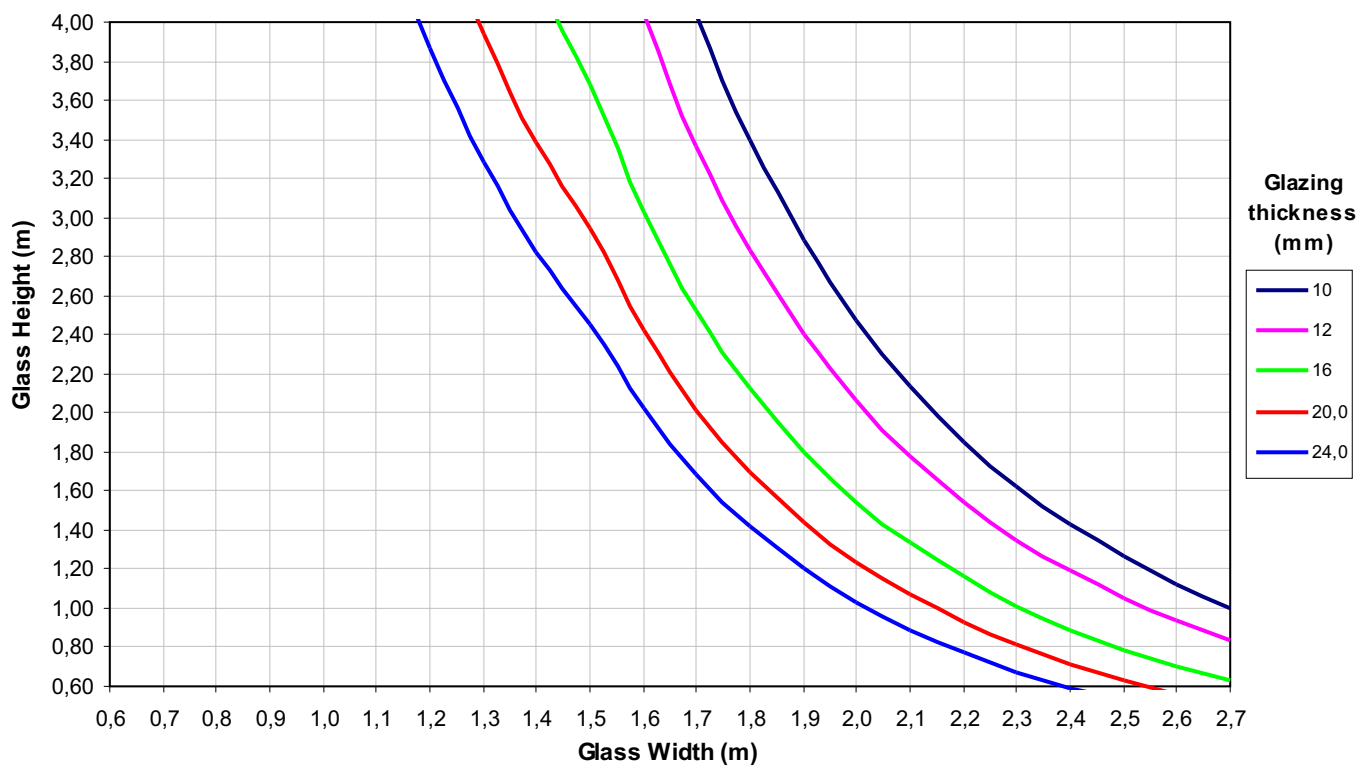
M70014

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Dead load charts for transoms

M70015



$$I_x = 70,1 \text{ cm}^4$$

$$I_y = 21,9 \text{ cm}^4$$

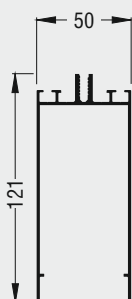
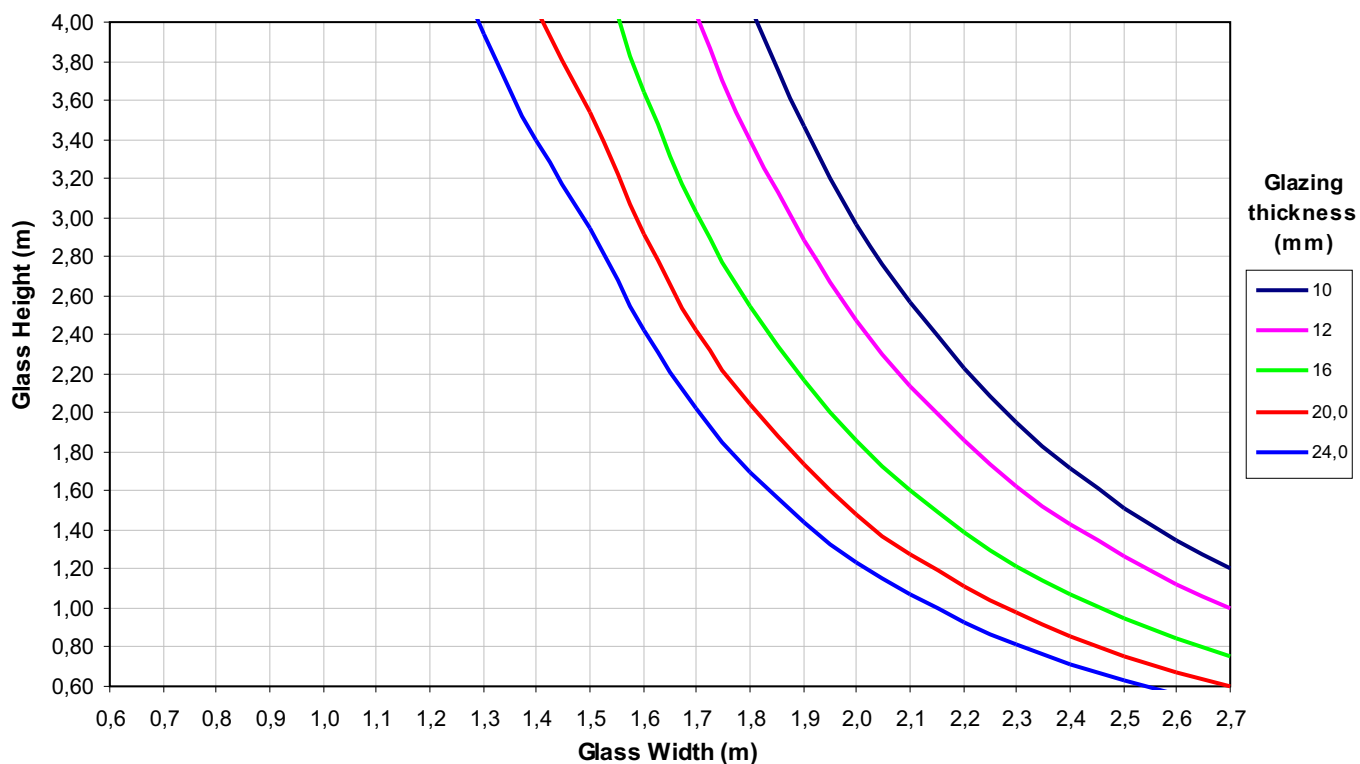
M70015

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{max} = 1/200$

Dead load charts for transoms

M70016



$$I_x = 113,8 \text{ cm}^4$$

$$I_y = 26,3 \text{ cm}^4$$

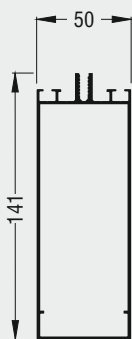
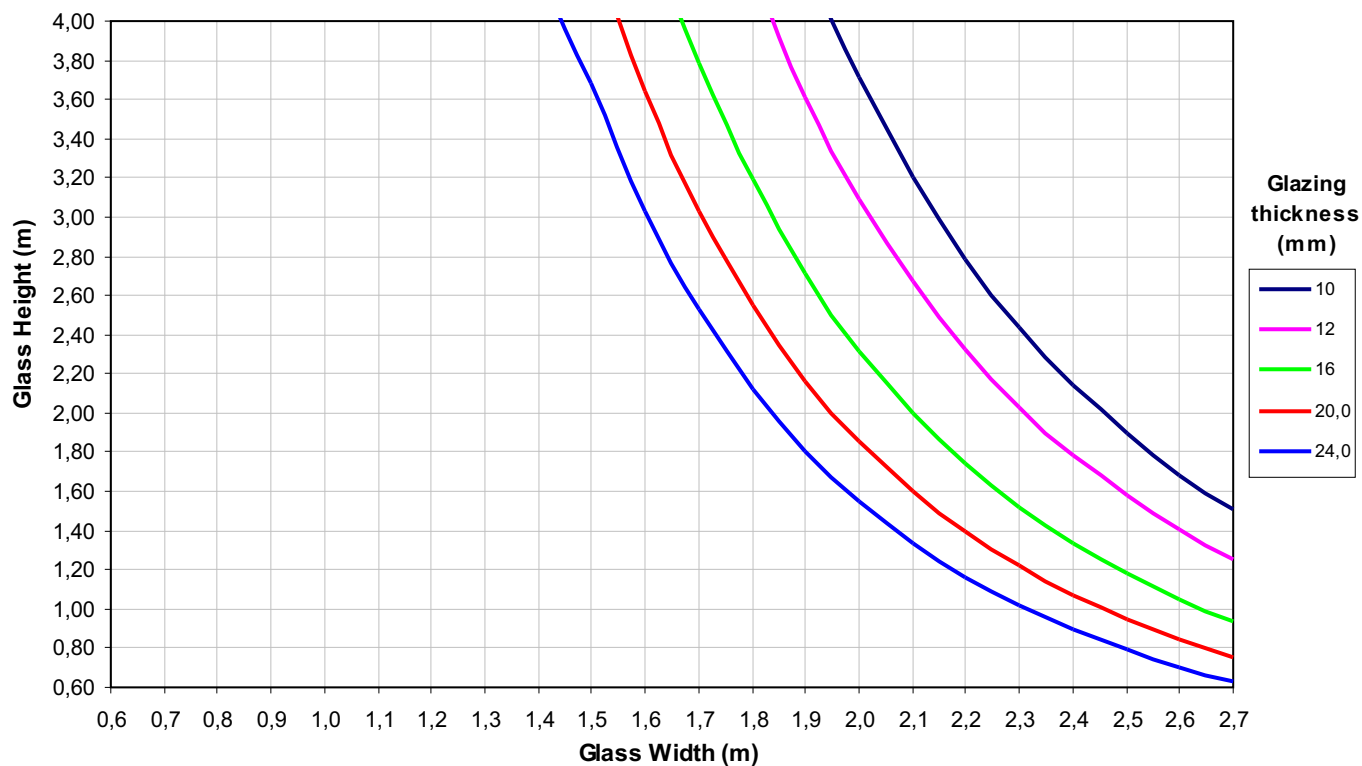
M70016

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Dead load charts for transoms

M70017



$$I_x = 176,4 \text{ cm}^4$$

$$I_y = 32,9 \text{ cm}^4$$

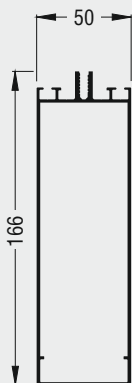
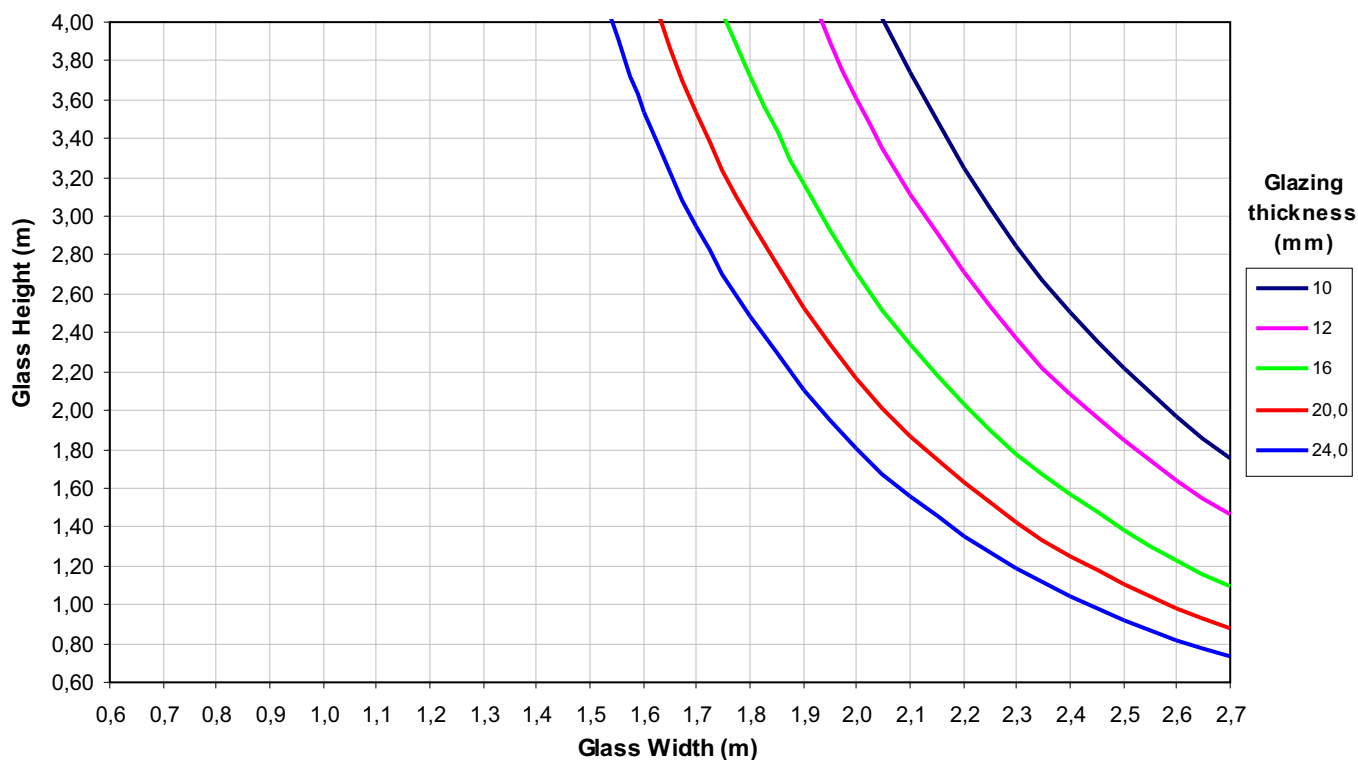
M70017

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Dead load charts for transoms

M70018



$$I_x = 271,4 \text{ cm}^4$$

$$I_y = 38,4 \text{ cm}^4$$

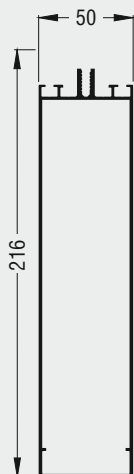
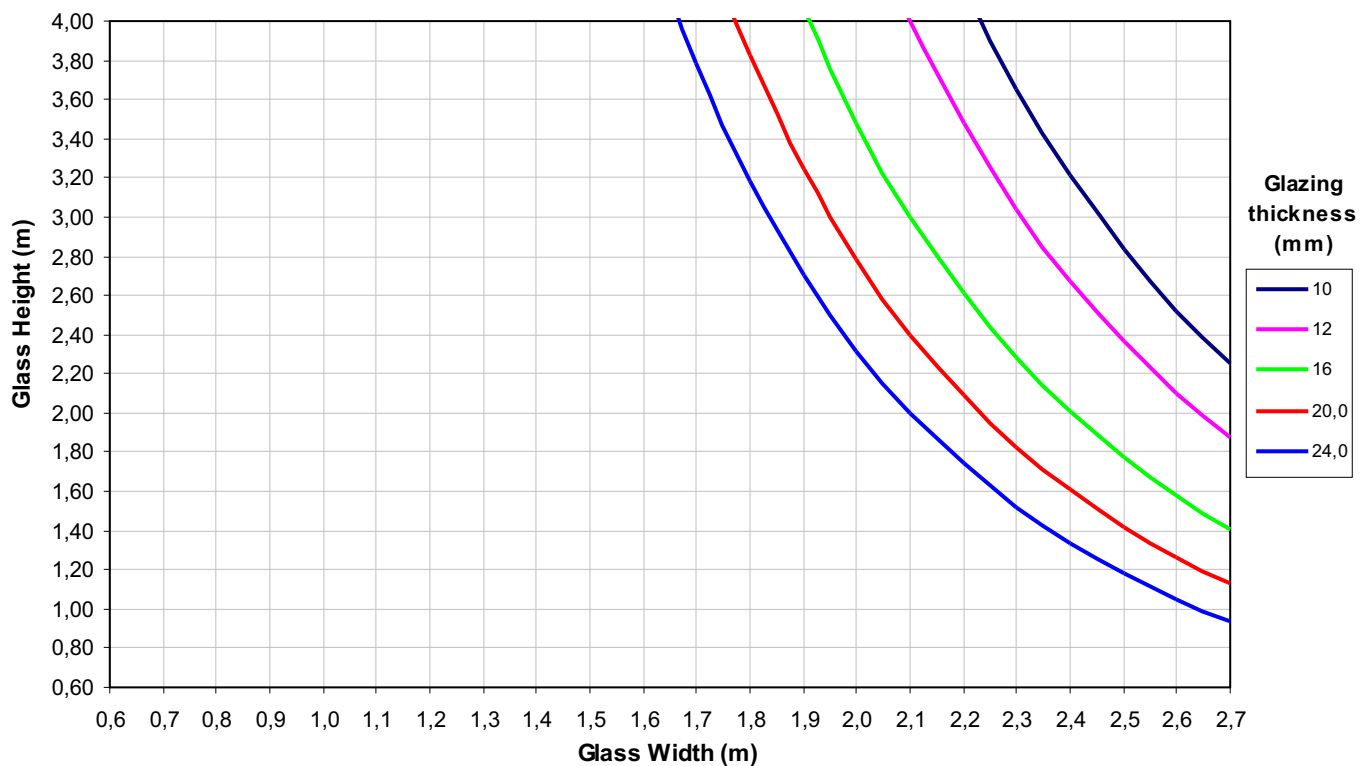
M70018

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Dead load charts for transoms

M70019



$$I_x = 545,3 \text{ cm}^4$$

$$I_y = 49,3 \text{ cm}^4$$

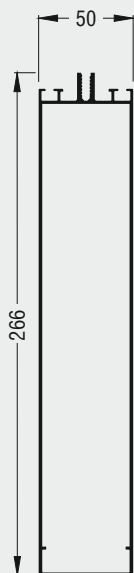
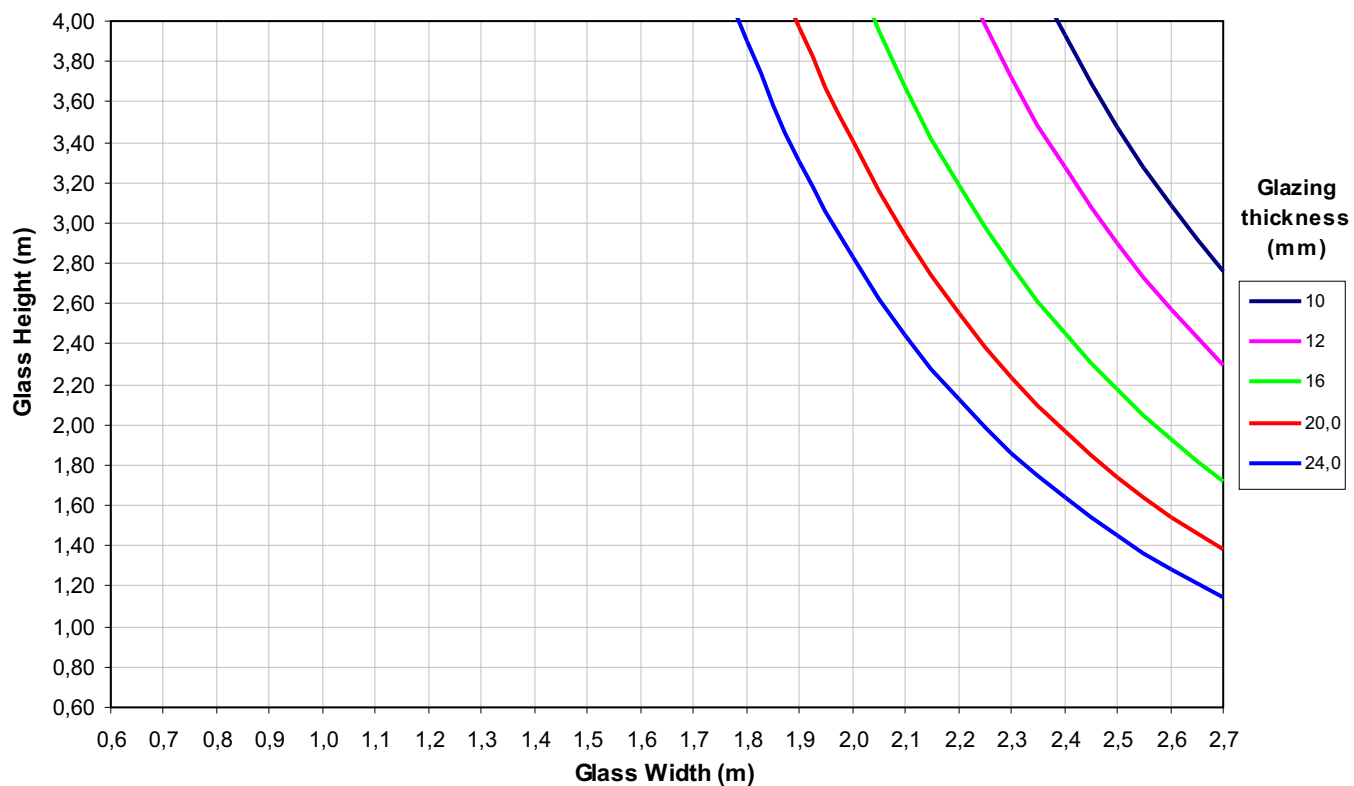
M70019

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium (E = 7000 kN/cm²) and f max = 1/200

Dead load charts for transoms

M70020



$$I_x = 951,1 \text{ cm}^4$$

$$I_y = 60,3 \text{ cm}^4$$

M70020

Note: The glass thickness does not include the thickness of the spacer.
The density of the glass is assumed to be 2600 Kg/m³.

Valid for aluminium ($E = 7000 \text{ kN/cm}^2$) and $f_{\text{max}} = 1/200$

Standards
Building codes and reference material

EN 1990:	(Eurocode 0) Basis of structural design
EN 1991:	(Eurocode 1) Actions on structures
EN 1992:	(Eurocode 2) Design of concrete structures
EN 1993:	(Eurocode 3) Design of steel structures
EN 1994:	(Eurocode 4) Design of composite steel and concrete
EN 1995:	(Eurocode 5) Design of timber structures
EN 1996:	(Eurocode 6) Design of masonry structures
EN 1997:	(Eurocode 7) Geotechnical design
EN 1998:	(Eurocode 8) Design of structures for earthquake
EN 1999:	(Eurocode 9) Design of aluminium structures
EN 14351-1 -	Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics;
EN 13830 -	Curtain walling - Product standard;
EN 1279-1 -	Glass in building - Insulating glass units - Part 1: Generalities, dimensional tolerances and rules for the system description;
EN 1279-2 -	Glass in building - Insulating glass units - Part 2: Long term test method and requirements for moisture penetration;
EN 1279-3 -	Glass in building - Insulating glass units - Part 3: Long term test method and requirements for gas leakage rate and for gas concentration tolerances
EN 1279-4 -	Glass in building - Insulating glass units - Part 4: Methods of test for the physical attributes of edge seals
EN 1279-5 -	Glass in building - Insulating glass units - Part 5: Evaluation of conformity
EN 1279-6 -	Glass in building - Insulating glass units - Part 6: Factory production control and periodic tests;
DIN 4109 -	Sound insulation in buildings; requirements and testing
DIN 1055-1 -	Action on structures - Part 1: Densities and weights of building materials, structural elements and stored materials
DIN 1055-2 -	Design Loads for Buildings; Soil Characteristics; Specific Weight, Angle of Friction, Cohesion, Angle of Wall Friction
DIN 1055-3 -	Actions on structures - Part 3: Self-weight and imposed load in building
DIN 1055-4 -	Actions on structures - Part 4: Wind loads
DIN 1055-5 -	Actions on structures - Part 5: Snowloads and ice loads
DIN 1055-6 -	Actions on structures - Part 6: Design loads for buildings and loads in silo bins
DIN 1055-7 -	Actions on structures - Part 7: Thermal actions
DIN 1055-8 -	Actions on structures - Part 8: Actions during execution
DIN 1055-9 -	Actions on structures - Part 9: Accidental actions
DIN 4113-1 -	Aluminium constructions under predominantly static loading; static analysis and structural design
DIN 4113-1/A1 -	Aluminium constructions under predominantly static loading - Part 1: Static analysis and structural design; Amendment A1
DIN 4113-2 -	Aluminium constructions under predominantly static loading - Part 2: Static analysis, structural design and execution of welded constructions
DIN V 4113-3 -	Aluminium constructions under predominantly static loading - Part 3: Execution and qualification of constructors
EN 674 -	Glass in building - Determination of the thermal transmittance (U value) - Guarded hot plate method;
EN 673 -	Glass in building - Determination of thermal transmittance (U value) - Calculation method (including Amendment A1:2000 + Amendment A2:2002);
BS 8118-1:1991 -	Structural use of aluminium. Code of practice for design (Structural design, Design, Aluminium, Aluminium alloys, Structural members, Structural systems, Loading, Construction materials, Deformation, Corrosion protection, Joints, Joining processes, Approval testing, Acceptance (approval), Metal sections, Beams, Plate girders, Fatigue, Stress, Static loading, Reports, Safety measures, Design calculations)
ENV 1627 -	Windows, doors, shutters - Burglar resistance - Requirements and classification;
EN 1627 -	Burglar resistant construction products (not for precast concrete parts) - Requirements and classification;

Standards
Building codes and reference material

- EN ISO 10077-1 - Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1: General (ISO 10077-1:2006);
- EN ISO 10077-2 - Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2: Numerical method for frames (ISO/FDIS 10077-2:2003);
- EN ISO 12567-1 - Thermal performance of windows and doors - Determination of thermal transmittance by hot box method - Part 1: Complete windows and doors (ISO 12567-1:2000);
- EN ISO 12567-2 - Thermal performance of windows and doors - Determination of thermal transmittance by hot box method - Part 2: Roof windows and other projecting windows (ISO 12567-2:2005);
- EN 12210 - Windows and doors - Resistance to wind load - Classification (includes Corrigendum AC:2002);
- EN 12758 - Glass in building - Glazing and airborne sound insulation - Definitions and determination of properties;
- DIN 4108-1 - Thermal insulation in buildings; quantities and units
- DIN 4108-2 - Thermal protection and energy economy in buildings - Part 2: Minimum requirements to thermal insulation
- DIN 4108-3 - Thermal protection and energy economy in buildings - Part 3: Protection against moisture subject to climate conditions; Requirements and directions for design and construction
- DIN 4108-4 - Thermal insulation and energy economy in buildings - Part 4: Hygrothermal design values
- DIN 4108-6 - Thermal protection and energy economy in buildings - Part 6: Calculation of annual heat and energy use
- DIN 4108-7 - Thermal insulation and energy economy of buildings - Part 7: Airtightness of building, requirements, recommendations and examples for planning and performance
- DIN 4108-10 - Thermal insulation and energy economy in buildings - Application-related requirements for thermal insulation materials - Part 10: Factory made products
- EN 13050 - Curtain walling - Watertightness - Laboratory test under dynamic condition of air pressure and water spray;
- EN 12179 - Curtain walling - Resistance to wind load - Test method
- EN 13116 - Curtain walling - Resistance to wind load - Performance requirements;
- EN 13241-1:2003 - Industrial, commercial and garage doors and gates. Product standard. Products without fire resistance or smoke control characteristics
- EN 949 - Windows and curtain walling, doors, blinds and shutters - Determination of the resistance to soft and heavy body impact for doors;
- EN 14019 - Curtain Walling - Impact resistance - Performance requirements;
- EN 1364 - Fire resistance tests for non-loadbearing elements: Curtain walling - Full configuration (complete assembly);
- EN 1670 - Building hardware - Corrosion resistance - Requirements and test methods;
- EN 12152 - Curtain walling - Air permeability - Performance requirements and classification;
- EN 12153 - Curtain walling - Air permeability - Test methods;
- EN 12154 - Curtain walling - Watertightness - Performance requirements and classification;
- EN 12155 - Curtain walling - Watertightness - Laboratory test under static pressure;
- EN 12179 - Curtain walling - Resistance to wind load - Test method;
- EN 12365-1 - Building hardware - Gaskets and weatherstripping for doors, windows, shutters and curtain walling - Part 1: Performance requirements and classification;

Γενικές Πληροφορίες General Information

Γενικές Πληροφορίες

1. Το αλουμίνιο ως δομικό υλικό

Με την μέθοδο της διέλασης το αλουμίνιο έχει την δυνατότητα να δημιουργεί πολύπλοκες διατομές με ανοχές ακριβείας. Το αλουμίνιο μπορεί να μορφοποιηθεί σε πραγματικά απεριόριστο αριθμό μοναδικών προφίλ, καθένα από τα οποία ικανοποιεί ειδικές δομικές και αισθητικές απαιτήσεις. Αυτή η ικανότητα του υλικού να προσφέρει απεριττες και καλαίσθητες λύσεις σε ιδιαίτερα πολύπλοκα σχεδιαστικά προβλήματα το οδήγησε στην ηγετική θέση που κατέχει σήμερα. Το αλουμίνιο επιλέγεται για το εξωτερικό των κτιρίων γιατί είναι σταθερό, ανθεκτικό στη διάβρωση και ελαφρύ μέταλλο. Μια από τις πιο δελεαστικές ιδιότητες του αλουμινίου για τον μηχανικό, είναι ο καταπληκτικός λόγος αντίστασης/βάρους. Στα 2,7 gr/cm³, το αλουμίνιο είναι 66% πιο ελαφρύ από τον χάλυβα. Επίσης είναι ανθεκτικό σε ψαθυρή θραύση. Όταν γίνεται σύγκριση μεταξύ κατασκευών αλουμινίου και κατασκευών χάλυβα, ο μεγαλύτερος συντελεστής ελαστικότητας του αλουμινίου σημαίνει ότι ο λόγος βάρους 1:2 επιτυγχάνεται εύκολα. Ακόμη, μπορεί να κατεργαστεί με υψηλές ταχύτητες κοπής και οι συγκολλητές συνδέσεις δεν είναι απαραίτητες. Αυτά τα πλεονεκτήματα συμβάλλουν στην μείωση των χρόνων κατασκευής. Τα προφίλ που συνθέτουν τα συστήματα της Alumil είναι από κράμα EN AW 6060 σύμφωνα με το εναρμονισμένο πρότυπο (EN) 755-1. Τα μηχανικά χαρακτηριστικά συμμορφώνονται με το πρότυπο EN 755-2, με συντελεστή ελαστικότητας 70kN/mm². Οι ανοχές βασίζονται στο EN 755-3.

2. Επαφή με άλλα υλικά

2.1 Μέταλλα

Όταν δύο μέταλλα με διαφορετική ηλεκτροαρνητικότητα (electro-negativity) έρχονται σε επαφή σε υγρό περιβάλλον, το πιο ηλεκτροαρνητικό από τα δύο, μέταλλο, υφίσταται μια ηλεκτρική και οξειδωτική τάση. Το αλουμίνιο είναι περισσότερο ηλεκτροαρνητικό συγκρινόμενο με τα άλλα μέταλλα. Ο εκτεθειμένος (απροστάτευτος) χάλυβας, οξειδώνεται και επιτίθεται στο αλουμίνιο. Για να αποφευχθεί η διάβρωση του αλουμινίου, θα πρέπει να τοποθετείται μεταξύ των δύο μετάλλων ένα μονωτικό διαχωριστικό. Αντιθέτως, η επαφή με τον ανοξειδωτο χάλυβα, από όσα γνωρίζουμε μέχρι σήμερα, δεν φαίνεται να βλάπτει το αλουμίνιο. Η επαφή με τον χαλκό και τα κράματά του είναι εξαιρετικά επιζήμια για το αλουμίνιο και η προστασία με επιφανειακή μόνωση αυτών των δύο υλικών απαιτείται. Τέλος και ο μόλυβδος είναι πιο ηλεκτροθετικός από το αλουμίνιο και θα πρέπει να μονώνεται επίσης.

2.2 Ξύλο

Τα περισσότερα είδη ξυλείας δεν έχουν επιβλαβείς επιπτώσεις στο αλουμίνιο. Ορισμένα είδη ξυλείας όμως, όπως η δρύς και η καρυδιά, παράγουν οξέα τα οποία προσβάλλουν και φθείρουν το αλουμίνιο. Αυτά τα φαινόμενα παρατηρούνται κυρίως σε συνθήκες αυξημένης υγρασίας στο περιβάλλον ή όταν το ξύλο δεν είναι αρκετά στεγνό. Συνιστάται η μόνωση με την χρήση ασφαλτούχου χρώματος. Επίσης όταν το ξύλο υποβάλλεται σε επεξεργασίες για την προφύλαξη του από την υγρασία και τα έντομα, θα πρέπει να ελέγχεται ότι οι χημικές ουσίες που χρησιμοποιούνται για την κατεργασία δεν είναι επιβλαβείς για το αλουμίνιο. Προϊόντα που στην σύνθεσή τους περιέχεται στεατικός χαλκός, άλατα υδραργύρου και φθοριοϋδρες ενώσεις, είναι πολύ επιβλαβή για το αλουμίνιο και θα πρέπει να αποφεύγονται.

2.3 Ασβέστης/Τσιμέντο

Σε συνθήκες υγρασίας, ο ασβέστης ή το τσιμέντο αντιδρούν με το αλουμίνιο (ακόμη και όταν είναι ανοδιωμένο) αποκαλύπτοντας επιφανειακές λευκές κηλίδες στην επιφάνεια του μετάλλου μετά τον καθαρισμό. Συνιστάται να προστατεύεται το αλουμίνιο κατά την τοποθέτηση με το προστατευτικό φιλμ της Alumil.

General Information

1. Aluminium as a fabrication material

Aluminium has the capability of being extruded into complex shapes to exact tolerances. Aluminium can be formed into literally thousands of unique profiles, each one able to meet a number of specific structural and aesthetic requirements. It is this capability to provide simple elegant solutions to extremely complex design problems that has led to aluminium's enduring appeal. Aluminium is chosen for outdoor use because it is a stable, corrosion-resistant and light weight metal. One of aluminium's primary appeals to a specifier is its exceptional strength to weight ratio. At 2.7g/cm³, aluminium is 66% lighter than steel. It is also far less susceptible to brittle fractures. Indeed, when aluminium and steel structures are compared, aluminium's greater modulus of elasticity means that weight ratios of 1:2 are easily attained. It can also be processed at high cutting speeds and welded connections are not necessary. These advantages help to reduce fabrication time. Alumil constructions are realized with aluminium profiles extruded in the alloy EN AW 6060 according to EN 755-1. The mechanical characteristics conform to the standard EN 755-2, with a modulus of elasticity of 70GPa. The tolerances are based on EN 755-3.

2. Contact with other materials

2.1 Metals

When two metals of differing electro-negativity values come into contact in humid conditions, an electrical couple is formed giving rise to oxidizing effects at the expense of electro-negative metal of the couple. In order to avoid severe corrosion effects, an insulating barrier should be placed between the two metals. Contact with stainless steel has not been found to be harmful to aluminium to date. Contact with copper and its alloys is extremely harmful to aluminium. It is absolutely necessary to insulate these two metals. Lead should be insulated as well.

2.2 Timber

Most timbers have no harmful effects on aluminium. Some such as walnut however, produce acids which attack and damage aluminium. These effects occur especially in humid conditions or when the timber is not sufficiently dry. Insulation is recommended by using a bituminous paint. When you treat timber against humidity and insects you should check that the chemical substances used in the treatment are not harmful to aluminium. Products containing copper salts, mercury salts, and fluoride compounds are very harmful to aluminium and should be avoided.

2.3 Lime/Cement

In humid conditions, limestone or cement reacts with aluminium (even when anodized) revealing superficial white spots on the surface of the metal after cleaning. It is advisable to protect the aluminium during installation with ALUMIL protective foil.

3. Επιφανειακή επεξεργασία

Είναι διαθέσιμα τα παρακάτω χρώματα:

Αποχρώσεις ανοδίσωσης:

Φυσικό ματ χρώμα
Μπρούτζινο χρώμα
Ειδικές αποχρώσεις ανοδίσωσης

Η διαδικασία ανοδίσωσης γίνεται σύμφωνα με τις προδιαγραφές της EWAA-EURAS.

Χρώματα ηλεκτροστατικής βαφής:

Λευκό
Καφέ
Χρώματα RAL
Χρώματα SABLE

Η διαδικασία της ηλεκτροστατικής βαφής γίνεται σύμφωνα με τις προδιαγραφές της Qualicoat.

4. Αποθήκευση

Για την αποφυγή επιφανειακών φθορών πρέπει να παίρνονται οι παρακάτω προφυλάξεις:

- 4.1 Τα προφίλ να αποθηκεύονται σε χώρο που δεν υπάρχει υγρασία
- 4.2 Να αποφεύγεται οποιαδήποτε επαφή με χάλυβα, προστατεύοντας τα προφίλ με χαρτί συσκευασίας ή πλαστική μεμβράνη. Σε υγρές περιοχές σκουριά και ρινίσματα χάλυβα μπορούν να προκαλέσουν φθορές στην επιφανειακή επεξεργασία.
- 4.3 Τα προφίλ πρέπει να αποθηκεύονται σε οριζόντια θέση με τρόπο που να αποκλείεται η πιθανότητα φθοράς ή γρατσουνίσματος κατά την μετακίνησή τους.
- 4.4 Τα προφίλ να αποθηκεύονται συσκευασμένα.

5. Συντήρηση του αλουμινίου

Τόσο το ανοδιωμένο όσο και το ηλεκτροστατικά βαμμένο αλουμίνιο, πρέπει να καθαρίζονται σε τακτά διαστήματα. Σε ημιαστικές μη παραθαλάσσιες περιοχές που δεν επηρεάζονται από επιθετικά περιβαλλοντικά φαινόμενα όπως ατμοσφαιρική ρύπανση ή αλατώδες περιβάλλον, ο καθαρισμός μπορεί να γίνεται μαζί με τον καθαρισμό των τζαμιών. Για τον καθαρισμό του αλουμινίου συνιστάται η χρήση χλιαρού νερού και ενός «μαλακού» απορρυπαντικού που να μην είναι όξινο και να μην περιέχει αμμωνία. Μετά, πρέπει να ξεβάζεται επιμελώς με νερό και να στεγνώνεται με ένα μαλακό απορροφητικό πανί. Σε αστικές ή παραθαλάσσιες περιοχές, ο καθαρισμός του αλουμινίου πρέπει να γίνεται πιο συχνά και με πολύ μεγάλη επιμέλεια. Οι επιφάνειες αλουμινίου που δεν εκτίθενται στην βροχή πρέπει να καθαρίζονται με μεγαλύτερη συχνότητα από τις εκτεθειμένες στην βροχή. Αν το νερό και τα μαλακά απορρυπαντικά δεν επαρκούν για τον καλό καθαρισμό του αλουμινίου, υπάρχουν και ειδικά για το αλουμίνιο απορρυπαντικά. Αυτά τα απορρυπαντικά περιέχουν ελαφρώς λειαντικά ψήγματα και μπορούν να χρησιμοποιηθούν σε συνδυασμό με ένα συνθετικό πανί καθαρισμού. Σε όλες τις περιπτώσεις είναι πολύ σημαντικό να ξεπλένονται καλά οι επιφάνειες και να στεγνώνονται επιμελώς, ειδικά οι γωνίες και τα προφίλ που έρχονται σε επαφή με το έδαφος. Για την προστασία και την επιμήκυνση του κύκλου ζωής του αλουμινίου, όλα τα προφίλ που βάφονται στα βαφεία της ALUMIL υποβάλλονται σε βελτιωτική επεξεργασία επιφάνειας SEASIDE CLASS, διαθέσιμο από την ALUMIL.

3. Surface treatment

The following colours are available:

Anodised finish:

Natural colour etched
Bronze colour
Special anodised colours

The anodising process is carried out according to the EWAA-EURAS regulations.

Painted finish:

White
Brown
RAL colours
Sable colours

The painting process is carried out in accordance to Qualicoat regulations.

4. Storage

To avoid superficial damage the following precautions should be taken:

- 4.1 Store the profiles in a dry area
- 4.2 Avoid any contact with steel by protecting the profiles with wrapping paper or plastic foil. In humid areas rust and steel burr can damage the surface finish.
- 4.3 Store the profiles horizontally in such a way as to eliminate the possibility of damaging or scratching the profiles while removing them.
- 4.4 Store the profiles in batches.

5. Aluminium maintenance

Both anodised and painted aluminium should be cleaned on a regular basis. For urban not littoral areas that are not subjected to aggressive elements like air pollution or salty air, it is sufficient to clean the aluminium whenever you clean the glass. Warm water should be used with a dilute of a non-aggressive, non-acetous detergent without ammonia for cleaning the aluminium. Then you should thoroughly rinse the aluminium with clear water and dry using an absorbing cloth. In urban areas or areas near to the sea, the aluminium should be cleaned more often and more thoroughly. Areas that are not exposed to rainfall should be cleaned more frequently than other surfaces. If water and mild detergents are not enough to clean the aluminium fenestrations there are detergents that have been specially developed for aluminium surfaces. These detergents contain light abrasive elements and can be used with a synthetic cleaning cloth. In all cases it is important to completely rinse surfaces with clear water and dry them thoroughly, especially the corners and the bottom profile. In order to protect and increase the life cycle of the aluminium, it may be treated with a very thin clear coat of water resistant film available from ALUMIL.

Χρήσιμα Ευρωπαϊκά πρότυπα και προδιαγραφές | Useful European standards and reference material

EN 10211	Θερμικές γέφυρες σε κτιριακές κατασκευές - Ροές θερμότητας και επιφανειακές θερμοκρασίες - Μέρος 1-2 Thermal bridges in building construction - Heat flows and surface temperatures - Detailed calculations (ISO 10211:2007) Parts 1-2
EN 12020-1	Αλουμίνιο και κράματα αλουμινίου - Διελασμένο προφίλ ακριβείας από κράματα EN AW-6060 και EN AW-6063 - Μέρος 1: Τεχνικές συνθήκες για έλεγχο και παράδοση Aluminium and aluminium alloys - Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 - Part 1: Technical conditions for inspection and delivery
EN 12020-2	Αλουμίνιο και κράματα αλουμινίου - Διελασμένο προφίλ ακριβείας από κράματα EN AW-6060 και EN AW-6063 - Μέρος 2: Ανοχές διαστάσεων και μορφή Aluminium and aluminium alloys - Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 - Part 2: Tolerances on dimensions and form
EN 12046	Δυνάμεις χειρισμού - Μέθοδος δοκιμής - Μέρος 1-2 Operating forces - Test method - Part 1: Windows Part 2: Doors
EN 12152	Υαλοπετάσματα - Αεροδιαπερατότητα - Απαιτήσεις επιδόσεων και ταξινόμηση Curtain walling - Air permeability - Performance requirements and classification
EN 12153	Υαλοπετάσματα - Αεροπερατότητα - Μέθοδος δοκιμής Curtain walling - Air permeability - Test method
EN 12154	Υαλοπετάσματα - Υδατοστεγανότητα - Απαιτήσεις απόδοσης και ταξινόμηση Curtain walling - Watertightness - Performance requirements and classification
EN 12155	Υαλοπετάσματα - Υδατοστεγανότητα - Εργαστηριακή δοκιμή υπό στατική πίεση Curtain walling - Watertightness - Laboratory test under static pressure
EN 12179	Υαλοπετάσματα - Αντίσταση στην ανεμοπίεση - Μέθοδος δοκιμής Curtain walling - Resistance to wind load - Test method
EN 12207	Παράθυρα και πόρτες - Αεροπερατότητα - Ταξινόμηση Windows and doors - Air permeability - Classification
EN 12208	Παράθυρα και πόρτες - Υδατοπερατότητα - Ταξινόμηση Windows and doors - Watertightness - Classification
EN 12210	Παράθυρα και πόρτες - Αντίσταση στην ανεμοπίεση - Ταξινόμηση Windows and doors - Resistance to wind load - Classification
EN 12211	Παράθυρα και πόρτες - Αντίσταση στην ανεμοπίεση - Μέθοδος δοκιμής Windows and doors - Resistance to wind load - Test method
EN 12400	Παράθυρα και πόρτες - Μηχανική ανθεκτικότητα - Απαιτήσεις και ταξινόμηση Windows and pedestrian doors - Mechanical durability - Requirements and classification
EN 12519	Παράθυρα και πόρτες για πεζούς - Ορολογία Windows and pedestrian doors - Terminology
EN 12567	Θερμική απόδοση παραθύρων και θυρών - Προσδιορισμός της θερμικής μετάδοσης με τη μέθοδο θερμής πλάκας - Μέρος 1 Thermal performance of windows and doors - Determination of thermal transmittance by hot box method - Part 1-2
EN 13049	Παράθυρα - Κρούση με μαλακό και βαρύ σώμα - Μέθοδος δοκιμής, απαιτήσεις ασφαλείας και ταξινόμηση Windows - Soft and heavy body impact - Test method, safety requirements and classification
EN 13115	Παράθυρα - Ταξινόμηση μηχανικών ιδιοτήτων - Φορτία που εξασκούνται κάθετα, κατά την στρέψη και κατά την λειτουργία Windows - Classification of mechanical properties - Racking, torsion and operating forces
EN 13141	Αερισμός κτιρίων - Δοκιμές επίδοσης συστατικών μερών / προϊόντων για αερισμό κατοικιών - Μέρος 1-8 Ventilation for buildings - Performance testing of components/products for residential ventilation Parts 1-8

Χρήσιμα Ευρωπαϊκά πρότυπα και προδιαγραφές | Useful European standards and reference material

EN 13123	Παράθυρα, πόρτες και εξώφυλλα - Αντίσταση στις εκρήξεις - Απαιτήσεις και ταξινόμηση - Μέρος 1-2 Windows, doors and shutters - Explosion resistance - Requirements and classification Parts 1-2
EN 13124	Παράθυρα, πόρτες και εξώφυλλα - Αντοχή σε εκρήξεις - Μέθοδοι δοκιμής - Μέρος 1-2 Windows, doors and shutters - Explosion resistance - Test method Parts 1-2
ENV 13420	Παράθυρα - Συμπεριφορά μεταξύ διαφορετικών κλιμάτων - Μέθοδος δοκιμής Windows - Behaviour between different climates - Test method
EN 13501	Ταξινόμηση δομικών προϊόντων και στοιχείων σχετικά με την φωτιά - Μέρος 1-5 Fire classification of construction products and building elements Parts 1-5
EN 13541	Ύαλος για δομική χρήση - Υαλοστάσια ασφαλείας - Δοκιμές για ταξινόμηση της αντίστασης σε πίεση λόγω έκρηξης Glass in building - Security glazing - Testing and classification of resistance against explosion pressure
EN 14351	Παράθυρα και πόρτες - Πρότυπο προϊόντος, χαρακτηριστικά επίδοσης - Μέρος 1: Παράθυρα και εξωτερικά συστήματα θυρών για πεζούς χωρίς χαρακτηριστικά πυραντίστασης ή/και διαρροής καπνού Windows and doors - Product standard, performance characteristics
EN 14600	Συστήματα θυρών και ανοιγόμενα παράθυρα με χαρακτηριστικά πυραντίστασης ή/και ελέγχου καπνού - Απαιτήσεις και ταξινόμηση Doorsets and openable windows with fire resisting and/or smoke control characteristics - Requirements and classification
EN 14608	Παράθυρα - Προσδιορισμός της αντίστασης σε κατακόρυφο φορτίο Windows - Determination of the resistance to racking
EN 14609	Παράθυρα - Προσδιορισμός της αντίστασης σε στατική στρέψη Windows - Determination of the resistance to static torsion



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