



**AKROLL**  
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- ۲- دارای علامت امنیت‌دارد ایران
- ۳- واحد نمونه صنعتی استان مرکزی در سال ۱۴۰۰
- ۴- واحد نمونه صنعتی استان مرکزی در سال ۱۴۰۰
- ۵- واحد نمونه صنعتی کشوری سال ۹۶
- ۶- واحد نمونه صنعتی استان مرکزی در سال ۹۵
- ۷- واحد ساعی و تلاشگر استان مرکزی در سال ۹۵
- ۸- واحد نمونه صنعتی استان مرکزی در سال ۹۴
- ۹- واحد نمونه صنعتی استان مرکزی در سال ۹۲
- ۱۰- واحد نمونه صنعتی استان مرکزی در سال ۹۰



**Alumroll Novin co.**

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## صناعات آلوم روول نوین

- بزرگترین صادرکننده مقاطع آلومینیومی ایران
- اولین و بزرگترین صادرکننده مقاطع آلومینیومی به کشورهای مشترک المنافع (CIS)
- رشد ۱۰۰ درصدی صادرات در سال ۱۴۰۱ نسبت به سال گذشته
- تنها صادرکننده مقاطع آلومینیومی به آفریقا و اروپا
- تنها صادرکننده محصولات آلومینیومی به سوریه
- عضویت در اتاقهای مشترک بازارگانی

## ALUMROLL NOVIN CO.

- The biggest Aluminum Profile Exporter of Iran
- The First and the Biggest Aluminum Exporter to CIS Countries
- 100 percent growth of Export Rate of 2022 in compare to the last year
- The Solo Exporter of Aluminum Profiles to Europe and Africa
- The Solo Exporter of Aluminum Products to Syria
- Member of Joint Chambers of Commerce (between Iran and other countries)

• Italy	• ایتالیا
• Germany	• آلمان
• Iraq	• عراق
• Turkey	• ترکیه
• Bahrain	• بحرین
• Afghanistan	• افغانستان
• Turkmenistan	• ترکمنستان
• Armenia	• ارمنستان





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## Introduction of ALUMROLL NOVIN CO.



The background of Sanaye Alumroll Novin Co. in field of aluminium dates back to 1973, when the Alumroll factory was established in Arak. At that time, Alumroll factory used to be named as one of the greatest producers of aluminium profiles in Iran and middle east for many years, by using the best and latest aluminium billetcasting and homogenizing systems and SCHOLEAMANN modern extrusion presses.

However, with increasing the market's quality/quantity demand, the existing facilities of the company was not sufficient to meet the expectations of the customers and it ceded a part of the market to its competitors.

After Iranian government cession of the company to the private sector in 2008, the technical and commercial facilities of Paradise Aluminium Industries – new owner – was utilized to restart the production lines, modernization of machineries and adding new production equipment including powder coating lines and extrusion presses, the company regained its position in production of aluminum products, not only in architectural applications, but also in industrial and non-constructional sections, under the new name of 'Sanaye Alumroll Novin Co.'

Anyway, due to expanding of using aluminium metal in different industries and vital need to enhance the quality of aluminium products by means of establishing modern and up-to-date production lines and latest technologies in order to meet the local and international market demands, preventing raw-sale, increasing value-added and obtaining the capability of competition in international markets, and since the company was located in an urban area and it was not possible to develop the production spaces, the initial studies of construction of the first and the biggest exclusive aluminum industrial town of the country started in an area of 36 hectares. Around 25 hectares of this area is allocated to Sanaye Alumroll Novin company and the rest is for Ravan Godaz Pardis company. The first phase of Sanaye Alumroll Novin Company has 70% progress and the rest of the project is underway. Furthermore, after technical and commercial negotiations with a large number of reputable global suppliers of machineries and technologies in the field of Aluminium, the first phase of Ravan Godaz Pardis company was started with construction of 21,000 square meter of production halls, and importing various machineries and production lines afterwards. This plan included updating and upgrading production plants including cast house, die shop, extrusion, anodizing, powder coating and sublimation and know-how transfer in different fields based on which the first phase has been completed and is in operation.



**صنايع آلومرول نوين**  
**ALUMROLL NOVIN CO.**  
بزرگترین تولید کننده انواع محصولات آلومینیومی کشور  
تداعی قدرت و صلابت بخش خصوصی

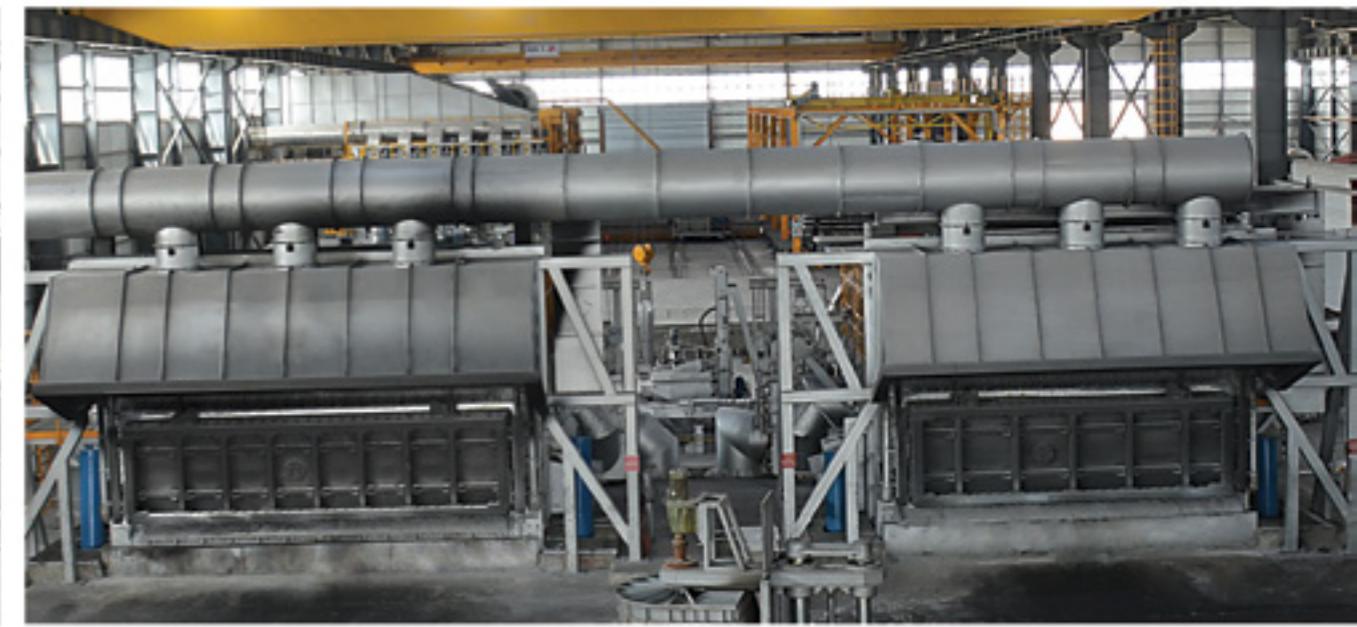
سابقه فعالیت شرکت صنايع آلومرول نوين در حوزه صنعت آلومینیوم کشور به حدود سال ۱۳۵۲ شمسی و احداث کارخانه آلومرول در اراک باز می‌گردد. در آن زمان، کارخانه آلومرول با بکارگیری مدرن‌ترین و به روزترین سیستم‌های ریخته گری و هموژنایزینگ بیلت آلومینیوم و نیز پرسهای مدرن آکستروژن Schloemann، یکی از بزرگترین تولید کنندگان مقاطع آلومینیومی در ایران و خاورمیانه لقب گرفت و سالها یعنوان برترین تولید کننده مقاطع آلومینیومی ساخته‌مانی در کل کشور مطرح بود. اما با افزایش تقاضای کیفی و کمی مقاطع آلومینیومی در صنایع مختلف، امکانات موجود در این شرکت نتوانست پاسخگوی تمام این نیازها باشد. لذا گوی رقابت را به برخی از رقبای داخلی و خارجی واگذار کرد. با واگذاری کارخانه آلومرول به بخش خصوصی در سال ۱۳۸۶ و با بهره‌گیری از توان فنی و بازارگانی صنايع آلومینیوم پرديس و نيز بهينه سازی و بهيود شريطي كيفي و فني خطوط توليد قديمی و همچنین الفزون خطوط توليد رنگ پودري و آکستروژن جديد به مجموعه، اين شرکت تحت عنوان صنايع آلومرول نوين، نه تنها در بخش ساختمان، که در مایر صنایع دیگر نيز توانست مجدداً به سطح اول تولید کنندگان محصولات آلومینیومی باز گردد.

با این حال با توجه به گسترش روزافزون استفاده از فلز آلومینیوم در صنایع گوناگون و لزوم افزایش كيفيت محصولات آلومینیومی و كاهش بهای تمام شده اين محصولات از طريق استقرار خطوط توليد پيشرتفته و به روز دنيا و وارد فن آوری‌های نوين اين صنعت، بمنظور تأمین نيازمندی‌های بازارهای داخلی و خارجی، جلوگيري از خام فروشي، ايجاد ارزش افزوده بالا و دستيابي به توان رقابت در بازارهای صادراتي و توجه به اين نكته که محل فعلی شرکت در محدوده شهری واقع شده و امكان توسيع فضاهاي توليدی برای آن وجود نداشت، از سال ۱۳۸۸ مطالعات اوليه مربوط به به احداث اولين و بزرگترین شهرک اختصاصي صنعت آلومینیوم کشور را در زميني به مساحت ۳۶ هكتار در شهرک صنعتي شماره ۳ اراک آغاز نمود که ۲۵ هكتار از آن به عنوان سايت شرکت صنايع آلومرول نوين و ۱۱ هكتار آن نيز جهت طرح توسيعه شرکت روان گزار پرديس اختصاص داده شده اميست که فاز اول مجموعه صنايع آلومرول نوين تا ۷۰٪ به بهره برداري رسيده و ادامه پروژه نيز در حال انجام مي باشد. همچنين، عمليات ساخت شرکت روان گزار پرديس در فاز اول با زيربنائي به مساحت ۲۱،\*\*\* متر مربع و در همين رابطه، پس از مذاكره با بزرگترین و معترضين تأمین کنندگان انواع ماشين‌آلات و فن آوری‌های صنعت آلومینیوم در دنيا و الجام بازدیدهای متعدد فنی و بازارگانی، اقدام به واردات ماشين‌آلات گوناگون در قالب طرح توسيعه هولدينگ آلومرول نمود. اين طرح، شامل بروزرسانی و نوسازی واحدهای مختلف از جمله ریخته گری، قالب‌سازی، آکستروژن، آنودايزينگ، رنگ پودري و طرح چوب و انتقال تكنولوژي در بخش‌های مختلف مي‌گردد که براساس آن، فاز اول طرح اجرا شده و هم اکنون به بهره‌برداری رسيده است.

In the framework of the first phase of development plan, the 30 ton and 50 ton capacity tiltable melting/holding furnaces, 160 ton/day capacity airslip billet casting system, 240 ton/day capacity aluminium billet homogenizing plant with automatic stackers and de-stackers, cutting, marking, bundling and packing and weighting systems were installed.

The machineries of this plant use the latest technology in the world, including:

- Regenerative burners for better thermal performance and saving energy up to 30%
- Furnace atmosphere control system
- Porous plugs for degassing from the bottom of the furnaces
- Airslip casting system for 6 to 10 inch billets which has been used for the first time in Iran
- Fully automatic billet stackers and de-stackers
- Batch type 40 ton/batch capacity homogenizing furnaces
- Homogenizing stabilizer system with 40 ton/batch capacity cooling cabinets
- Long and short billet cutting systems
- Robotic bundling section
- Automatic marking and weighing devices



واحد ریخته گری  
Casting Plant

فاز اول طرح توسعه شامل راهاندازی کوره‌های ذوب و نگهدارنده کج شونده ۳۰ و ۵۰ تنی آلومینیوم، سیستم ریخت بیلت آلومینیومی به روش ایراسلیپ (airslip) به ظرفیت ۱۶ تن در روز، واحد هموزنایزینگ بیلت‌های آلومینیومی به ظرفیت ۲۴ تن در روز و سیستم کامل جابجایی، برش، مارکینگ، بسته بندی و توزین بیلت‌های ریخت شده در این واحد است.

ماشین آلات راهاندازی شده در این بخش از جدیدترین فناوری‌های روز دنیا بهره می‌برند که از آن جمله می‌توان به استفاده از مشعل‌های Regenerative，سیستم کنترل اتمسفر کوره و گازدایی از کف کوره (Porous Plugs)، برای کوره‌های ذوب و نگهداری، بکارگیری دستگاه ریخت بیلت آلومینیوم به صورت کاملاً اتوماتیک، کوره‌های هموزنایزینگ بیلت‌های ۶ تا ۱۴ اینچ، تجهیزات انبارش و جابجایی بیلت آلومینیوم به صورت کاملاً اتوماتیک، همراه سیستم خنک کننده و تثبیت کننده عملیات هموزنایزینگ، و میکروپردازی بیلت آلومینیوم به روش هریک به ظرفیت ۴۰ تن به همراه کاملاً اتوماتیک اشاره کرد.



واحد ساخت قالب‌های اکسیتروژن این مجموعه، از نظر وسعت، امکانات و ظرفیت یکی از واحدهای کم نظیر در کشور است که با بهره‌گیری از برترین فولادهای گرم‌کار اروپایی (ویژه مساخت قالب‌های اکسیتروژن که بطور مستقیم توسط واحد بازرگانی خارجی مجموعه تأمین می‌گردد)، ابزارآلات و نرم افزارهای پیشرفته طراحی، شبیه‌سازی و اصلاح قالب و تجهیزات مدرن CNC و با استفاده از تخصص واحد مهندسی، قادر به طراحی، ساخت و نگهداری انواع قالب‌های صنعتی و ساختمانی مورد نیاز صنعت اکسیتروژن تا قطر ۶۰۰ میلیمتر است.

همچنین، با توجه به اهمیت انجام صحیح فرایند عملیات حرارتی و نیتراسیون بر روی قالب‌های اکسیتروژن و تأثیر آن بر کیفیت و طول عمر آنها، عملیات حرارتی با استفاده از کوره‌های مدرن بر روی قالب‌ها انجام می‌شود. ضمن آنکه به منظور بهبود کیفیت سطحی پروفیل‌های اکسیترویدی و افزایش طول عمر قالب‌ها، فرایند نیتراسیون با استفاده از مدرن ترین کوره‌های نیتراسیون منطبق بر آخرین فناوری و استانداردهای روز دنیا در داخل خود مجموعه صورت می‌پذیرد.

The company's die shop is unique in the country in terms of work space, equipment and capacity. Using high quality European hot work tool steel bars (especial for making extrusion dies) purchased directly by foreign trade department of the company, modern software for designing, simulating the dies and CNC machineries, together with the expertise of the engineering department, the company is capable to design, manufacture and maintain all kind of industrial and architectural extrusion dies, required in the field of extrusion industry, up to a diameter of 600 mm.

Furthermore, taking the importance of correct heat treatment and nitration process on extrusion dies and its essential effect on their quality and lifetime into consideration, the heat treatment process is done on extrusion dies by modern furnaces. In addition, to reach the surface hardness of extrusion dies the nitriding process is performed by the most modern gas nitration furnace inside the company in accordance with the latest international standards.



واحد اکسیتروزن  
Extrusion Plant

از تجهیزات موجود در این بخش می‌توان به کوره‌های پیشگرم بیلت با طول بلند، میسیستم برش گرم بیلت (Hot Shear, Hot Sow) کوره‌های پیشگرم قابل بصورت Batch Type. مجموعه‌ای از پرس‌های اکسیتروزن اروپایی شامل دو دستگاه پرس اکسیتروزن ۱۴۵۰ تنی ۵ و ۶ اینچ، دو دستگاه پرس اکسیتروزن ۲۰۰۰ تنی ۷ و ۸ اینچ، یک دستگاه پرس اکسیتروزن ۲۵۰۰ تنی ۸ و ۱۰ اینچ و یک دستگاه پرس اکسیتروزن ۳۱۵۰ تنی ۱۰ و ۱۲ اینچ، مجهز به جدیدترین سیستم‌های هیدرولیک و اتوماسیون، سیستم کوئنچینگ مقاطع تولیدی، کنترل دمای پروفیل خروجی و بکارگیری میزهای اکسیتروزن مجهز به دبل پولر، دستگاههای استرج و برش نیمه اتوماتیک اشاره کرد. خطوط اکسیتروزن این مجموعه قادر به تولید مقاطع آلومینیومی در گروههای الیازی ۱۰۰۰ تا ۷۰۰۰ تا عرض ۴۰۰ میلی‌متر می‌باشد.

همچنین کوره‌های ایجینگ به ظرفیت ۲۴ تن برای پروفیل‌های آلومینیومی تا طول ۱۴ متر در مجموعه مستقر شده و در حال بهره‌برداری می‌باشد.

Log preheating furnaces with hot shears/hot saws, batch type die heating ovens, complete set of European extrusion presses including 2 x 1450 ton 5-6 inch, 2 x 2000 ton 7-8 inch, 1 x 2500 ton 8-10 inch and 1 x 3150 ton 10-12 inch machines equipped with latest hydraulic and automation systems, quenching systems, run-out tables equipped with double pullers, semi-automatic stretcher and cold saw machines are used in extrusion lines in order to produce aluminium sections in alloy groups 1000-7000 with the maximum width of 400 mm. in addition, the ageing process is done in 24 ton/batch capacity ageing ovens for the profiles to the length of 14 m.





### واحد آنودایزینگ

Anodizing Plant

امروزه با گسترش روزافزون استفاده از پروفیل‌های آلومینیومی بخصوص در صنایع ساختمانی و همچنین صنایع دیگر و تغییر ژاله بازار و انتظار مشتریان برای برخورداری از بهترین کیفیت تولیدی، فرایند پوشش سطحی مقاطع آلومینیوم به روش آنودایزینگ طبیعی (نقره‌ای) و رنگی، به یکی از بخش‌های اصلی چرخه تولید پروفیل‌های آلومینیومی مبدل شده است که علاوه بر نقش فنی و تکنیکی، آن را به یکی از جنبه‌های دکوراتیو و تزئینی مقاطع آلومینیومی مبدل ساخته است. برخورداری از یک واحد آنودایزینگ با فناوری روز دنیا هنگامی اهمیت بیشتری پیدا می‌کند که انجام این فرایند، نیازمند کنترل دانه‌ی کاله پارامترهای مربوطه از جمله میزان جریان برق، ضخامت لایه پوششی، یکنواختی رنگ و لزوم استفاده از مواد شیمیایی با کیفیت بسیار بالا و کنترل ترکیب شیمیایی آن در آنودایزینگ مقاطع آلومینیومی می‌باشد. یکی از مشکلاتی که بسیاری از واحد‌های آنودایزینگ با آن مواجه هستند، عدم امکان کنترل یکنواختی رنگ است که حتی با وجود بکارگیری، فاکتورهای تابث آنودایزینگ، به دلیل دستی بودن عملیات و وجود خطاهای انسانی، دررسیاری از موارد قابل کنترل نیست.

با درگ این موضوع و بمنظور ارائه کیفیتی در خود انتظارات مشتریان و دستیابی به میزان تولید مورد نیاز، این شرکت نسبت به راه اندازی خط آنودایزینگ تمام اتوماتیک به ظرفیت ۶۰ تن در روز از معتبرترین مسازنده اروپایی خطوط آنودایزینگ نموده است. این واحد، بزرگترین و پیشرفت‌هایی وارد آنودایزینگ مقاطع آلومینیومی در کشور و یکی از چند نمونه انجشت‌شمار این خط در منطقه خاورمیانه و غرب آسیا است، که با بهره‌گیری از جدیدترین فناوری روز دنیا، قادر به انجام عملیات التکتروکالرینگ، پولیش شیمیایی مقاطع آلومینیومی و عملیات آبکاری به روش غوطه‌وری در چهار رنگ مختلف بصورت همزمان می‌باشد. علاوه بر این، با بهره‌گیری از تجهیزات گوناگون قادر به انجام پوشش آنودایز با طرح‌های مختلف بر روی مقاطع مختلف آلومینیومی می‌باشد.

Nowadays, with expanding the use of aluminium profiles in construction and other industries together with the evolution of aluminium market and extensive changes in taste and demands of customers, the natural anodizing and electro coloring surface treatment processes are considered as one of the most important parts of aluminium profile production chain. These procedures not only have technical and protective roles, but also are one of the decorative aspects of aluminium profiles. Having a modern anodizing plant becomes even more important when it is understood that achieving required quality needs permanent control on all relevant parameters like electric current, anodizing layer thickness and color uniformity and high quality chemicals together with chemical composition control.

One of the problems which many of anodizing plants face is the failure in controlling the color uniformity, which cannot be solved even with utilizing the anodizing fixed factors, due to the manual nature of the operations and human errors.

Realizing this and to meet the quality appropriate to the demand of customers and achieve the required production capacity, the company installed a fully automatic anodizing line with capacity of 60 tons per day, manufactured by most reliable European supplier. As the biggest and newest one, this QUALANOD authenticable plant is the pioneer of quality/quantity in the country and one of the few samples of this line in the middle east and west Asia regions, which can provide different surface treatment processes on aluminium profiles such as electro coloring, chemical polishing, immersion coloring in four different colors simultaneously. In addition, by utilizing various machineries / devices, it is able to perform anodization coating with various patterns on different sections.



واحد عملیات حرارتی و کار سرد با دراختیار داشتن سه دستگاه کوره عمودی عملیات حرارتی اتحالی (Solution Treatment) مجهز به سیستم کونینج با سرعت بالا، پیشرفت‌هایی از روش‌های گردش هوا و اندازه گیری کنترل یکنواختی دما، سیستم جدایش گازهای احتراق از محفوظه بارگیری کوره، قادر به انجام انواع عملیات حرارتی اتحالی برروی کلیه مقاطع از آلیاژهای نوردی و ریختگی آلومینیوم تا طول ۳/۵ متر و عرض ۱ متر می‌باشد و همچنین در این واحد کوره‌های ایجینگ برقی و گازی با سیستم گردش هوا یکنواخت و کنترل دقیق دما به منظور انجام پیرسختی انواع آلیاژهای آلومینیوم مورد استفاده قرار می‌گیرد.

This plant utilizes 3 sets of vertical solution treatment furnaces, equipped with high speed quenching system, advanced air circulation and temperature uniformity controlling methods and combustion air separation system from load chamber, enabling it to perform solution heat treatment process on all roll milling and casting alloys to the length of 3.5 meters and width of 1 meter. In addition, electrical and gas heated ageing furnaces equipped with uniform air circulation and temperature precise control are used to perform ageing process on different aluminium alloys.

## Anodizing Plant





### واحد دکورال Sublimation Plant

به کارگیری مقاطع آلومینیومی در صنعت ساختمان و دکوراسیون داخلی، لزوم ایجاد تنوع در فرایند رنگ را ایجاد می‌نماید که در همین راستا می‌توان به فرایند ایجاد طبیعی اشاره کرد. همچون طرح چوب، مرمر، گل و حتی مناظر طبیعی اشاره کرد. در این روش ابتدا با استفاده از رنگی‌های پلی‌اورتان مقاوم در برابر هوایدگی، پوششی بر روی سطح مورد نظر ایجاد گردیده و در مرحله بعد، در گوشه‌هایی به دمای  $200^{\circ}\text{C}$  در ۱۰ دقیقه، طرح مورد نظر موجود بر روی فیلم کشیده شده روی پروفیل، با استفاده از حرارت بر روی پوشش رنگ تثبیت می‌گردد. واحد دکورال مجموعه با به کارگیری جدیدترین و مدرن‌ترین تجهیزات تمام اتوماتیک دکورال ساخت شرکت SEF ITALIA قادر به تولید روزانه  $30\text{ tons}$  انواع مقاطع و صفحات آلومینیومی با طرح‌های متعدد می‌باشد.

The application of aluminium profiles in construction industry and interior architecture necessitates to create diversity in painting, among which wood, marble, flowers and even natural landscapes can be mentioned. This process is generally named as sublimation. In this method, the desired surface is first covered by polyurethane weathering resistant materials. Then the film containing the desired design is pulled over the profile. Profiles are heated for 10 minutes in  $200^{\circ}\text{C}$  in special furnaces, in order to stabilize the design on the powder coating layer. The sublimation unit of the company uses very modern fully automatic machineries made by SEF ITALIA, to produce  $30\text{ tons/day}$  of various aluminium sections and plates with different designs.



### واحد رنگ پودری Powder Coating Plant

پکی دیگر از روش‌های پوشش سطحی مقاطع آلومینیوم، استفاده از ترکیبات پلیمری به صورت پاشش پودرهای پلی‌استر و اپوکسی پلی‌استر به روش الکترواستاتیک بر روی سطح و فراوری پودر در کوره‌های پخت در دمای  $180^{\circ}\text{C}$  تا  $200^{\circ}\text{C}$  درجه سانتی‌گراد است. با توجه به تنوع بنای رنگها و طرح‌های پودر، با این روش می‌توان گستره وسیعی از گزینه‌ها در پوشش سطحی را در اختیار مصرف کنندگان قرار داد. این مجموعه با در اختیار داشتن دو واحد پیشرفته رنگ پودری به روش الکترواستاتیک، شامل تجهیزات مدرن پاشش و کوره‌های پخت رنگ، بزرگترین و مجهزترین واحد رنگ پودری کشور است که علمیات پوشش رنگ بر روی انواع مقاطع آلومینیومی تا طول  $14\text{ meters}$  و ظرفیت  $60\text{ tons}$  را در رنگ‌ها و طرح‌های مختلف اجرا می‌کند.



One of the other methods of surface coating of aluminium profiles is using polymer compositions by spraying polyester and epoxy polyester powders electrostatically on profile surfaces and processing the powder in baking furnaces in the temperature of  $180\sim200^{\circ}\text{C}$ . Due to unlimited variety of colors and designs of powders, this process offers a wide range of options to the customers. The 2 electrostatic powder coating plants of the company are the biggest and most equipped powder coating plants in the country and perform powder coating of aluminium profiles to the length of  $14\text{ meters}$  and capacity of  $60\text{ tons}$  per day in different colors and designs.

جدا از تجهیزات تولیدی که برای دستیابی به ظرفیت و مرغوبیت مورد نیاز لازم است، کنترل کیفیت و بهبود مستمر آن نیز همواره از دغدغه‌های این مجموعه بوده است. به ویژه آنکه این مجموعه وظیفه تأمین مواداولیه و محصولات مورد نیاز طیف وسیعی از صنایع گوناگون را برآسانس استانداردهای مختلف برآورده دارد که برآوردن این تعهدات، جز از طریق اجرای دستورالعمل‌های دقیق کیفی و ناظرت دائمی برکلیه فرایندهای تولیدی ممکن نیست. در همین راستا، کارشناسان کنترل کیفی این مجموعه با استفاده از انواع تجهیزات لازم و ارتباط دائم ای با آزمایشگاه مجموعه، هریک از فرایندهای تولید و محصولات آن را در چهارچوب استانداردهای مربوطه مورد بازرسی و کنترل دقیق قرار می‌دهند تا از تطابق آن با الزامات کیفی اطمینان حاصل گردد. به منظور حصول اطمینان از کیفیت محصولات تولیدی، واحد کنترل کیفی مجموعه از آزمایشگاه‌های مجهر متالورژی، شیمیابی و رنگ پودری برخوردار است که علاوه بر مواد اولیه ورودی به مجموعه، نسبت به کنترل کیفی کلیه محصولات تولید شده در خطوط تولید برآسانس استانداردهای بین‌المللی و مشخصات فنی مورد نیاز اقدام می‌نماید تا از کسب رضایت‌مندی مشتریان و تداوم بهبود کیفی محصولات تولیدی مجموعه اطمینان حاصل گردد.

آزمایشگاه متالورژی مجموعه یکی از مهم‌ترین آزمایشگاه‌های کشور در صنعت آلومینیوم است که با در اختیار داشتن تجهیزات زیر قادر به بررسی کلیه خواص متالورژیکی، فیزیکی و مکانیکی مواد فلزی می‌باشد:

- دستگاه اندازه‌گیری هیدروزن بصورت برخط (Online) ساخت معتبرترین سازنده اروپایی که برای اندازه‌گیری و کنترل میزان هیدروزن موجود در مذاب آلومینیوم بکار می‌رود

- دستگاه کوانتمتری با قابلیت شناسایی و اندازه‌گیری کمترین مقادیر بیش از ۳۰ عنصر مؤثر در آلیاژهای مختلف آلومینیوم

- دستگاه تست کشش، فشار و خمش به منظور اندازه‌گیری خواص مکانیکی آلیاژهای تولیدی
- دستگاه میکروسکوپ متالوگرافی و پلاریزاسیون جهت بررسی ساختار مواد و مقاطع تولیدی
- دستگاه برش و یوایشر دوقلوی اتوماتیک جهت آماده نمونه‌های متالوگرافی
- دستگاه آزمون اوتتراسونیک جهت بررسی غیر مخرب عیوب داخلی مقاطع

- دستگاه اندازه‌گیری هدایت الکتریکی

- دستگاه سختی سنج تابت و پرتابل جهت آزمون سختی مقاطع آلومینیومی

- دستگاه‌های متنوع و دقیق اندازه‌گیری ابعادی

- دستگاه میکرو-هاردنس برای اندازه‌گیری سختی سطحی قالب‌های اکستروژن

- دستگاه اسپری نمک به منظور بررسی میزان مقاومت سطح یوشش‌داده شده در برای خوردگی

- دستگاه فام سنج به منظور بازرسی کیفیت رنگ

- دستگاه سنجش برآقیت برای اندازه‌گیری میزان برآقیت رنگ

- دستگاه کراس کات برای کنترل چسبندگی رنگ پودری روی سطح پروفیل

- دستگاه ضخامت سنج با بت کنترل ضخامت لایه رنگ

در آزمایشگاه شیمی واحد آنودایزینگ، عوامل مؤثر بر فرایند از جمله غلظت عناصر شیمیابی موجود در وان‌های مختلف به طور دائم اندازه‌گیری می‌شود تا با کنترل پارامترهای فرایند، مخصوصی با کیفیت تولید شده و در اختیار مشتریان قرار گیرد. علاوه بر آن، با استفاده از جدیدترین تجهیزات، طیف رنگ آنودایز رنگ، ضخامت لایه آنودایزینگ و همچنین کیفیت لایه سیل ایجاد شده مطابق با استاندارد QUALANOD به طور دائم اندازه‌گیری و کنترل می‌شود.

آزمایشگاه رنگ پودری نیز با در اختیار داشتن گان‌ها و کوره‌های آزمایشگاهی، رنگ‌های ورودی به شرکت را قبل از ارسال به خط تولید بررسی قرار می‌دهد. از دیگر آزمایش‌های این قسمت می‌توان به کنترل ضخامت لایه رنگ پوشش شده، میزان برآقیت و بررسی میزان چسبندگی رنگ به پروفیل بر اساس استاندارد QUALICOAT اشاره نمود که به کمک بهترین تجهیزات خردباری شده از معترضین شرکت‌های اروپایی، به صورت دائم تحت آزمایش و کنترل قرار می‌گیرد. در همین رابطه و با توجه به سطح کیفی محصولات، این مجموعه گواهینامه‌های IMS، گواهینامه فنی از وزارت راه و شهرسازی و همچنین گواهینامه‌های ISO ۹۰۰۱، ISO ۱۴۰۰۱ و ISO ۴۵۰۰۱ را دریافت نموده است.

## واحد تولید پروفیل‌های ترمال بریک

Thermal Break Profiles Production line

در این واحد تولید پروفیل‌های ترمال بریک که در صنعت ساختمان مورد استفاده قرار می‌گیرند، انجام می‌گردد. در این واحد، جای‌گذاری نوار پلی‌آمید در پروفیل‌های آلومینیومی و دوخت آن به صورت کاملاً اتوماتیک انجام می‌شود. از نکات مهم تولید پروفیل‌های ترمال بریک، کیفیت نوار پلی‌آمید بکاررفته و نیز کیفیت فرایند دوخت پروفیل است، بگونه‌ای که نوار پلی‌آمید بطور صحیح و محکم در پروفیل آلومینیومی قرارگرفته و دوخت می‌شود، این موضوع به کمک استفاده از ماشین‌آلات مدرن و مجهر و نوارهای پلی‌آمید با کیفیت بالا که توسط دستگاه‌های خردباری شده و در داخل خود مجموعه تولید می‌گردد، میسر شده است. کیفیت فرایند دوخت از طریق نمونه‌گیری مداوم از پروفیل‌های تولیدی و انجام آزمون در دستگاه‌های مخصوص از طریق اعمال فشار برشی بررسی و کنترل می‌گردد.

علاوه بر آن، به منظور حصول اطمینان از کیفیت نوار پلی‌آمید مورد نیاز، این مجموعه نسبت به خرید دو خط اکستروژن این نوع نوارها و قالب‌های مربوطه از یکی از تولیدکنندگان معترض خارجی اقدام نموده و تولید آن در داخل مجموعه و با مرغوب ترین مواد اولیه انجام می‌گردد.

The thermal break profiles used in construction industry are produced in this line. The knurling, inserting polyamide strings and sewing process are done fully automatically. One of the most important factors in manufacturing thermal break profiles is the quality of the polyamide profiles and sewing process, so the polyamide string to be inserted inside aluminium profile correctly and tight. This advantage has been achieved by means of advanced machineries and improving the quality of the polyamide strips by producing them inside the holding, according to the international standards. The quality of sewing process is inspected through continuous sampling and testing in special devices by applying appropriate pressures and checking the results.

In addition, in order to ensure the quality of needed polyamide sections, the company installed two polyamide extrusion lines, purchased from one of the reliable suppliers. So the required sections are produced inside the company from the best raw materials.

Beside the production facilities which are needed to achieve the desired capacity, quality control and continuous improvement has always been of the company's concerns. Especially, when this company is responsible for supplying materials and products to a wide range of industries, based on various standards. Fulfilling these expectations is possible only through implementation of precise quality instructions and permanent monitoring of production procedures. In this company, the quality control experts are responsible for monitoring and inspecting all production procedures and their products from beginning to the end in frame of appropriate standards, to ensure that any process and product comply with quality requirements. Considering the scope of company's production activities, the quality control unit employs advanced metallurgy, chemistry and powder coating laboratories in which in addition to the input raw materials, the quality of all produced products of production lines are inspected according to the international standards and customer requirements in order to ensure customers satisfaction and continuous improvement of production procedures.

The metallurgy laboratory of the company is one of the most advanced samples of the country in the field of aluminium which is able to investigate all metallurgical, physical and mechanical specifications of metallic materials, using the following equipment:

- Online hydrogen measuring device produced by one of the most reliable European manufacturers for measuring and controlling hydrogen content in liquid aluminium
- Advanced quantometer device able to identify and measure the lowest amount of more than 30 effective elements of aluminium alloys
- Tension, pressure and bending test device in order to check the mechanical specifications of casted alloys
- Metallography and polarization microscope to check the microstructure of produced materials and sections
- Automatic twin cutting and polishing device for preparation of metallography samples
- Ultrasonic test device for nondestructive test of internal defects
- Electrical conductivity measuring device
- Stationary and portable hardness testers for checking the hardness of aluminium sections
- Various and precise dimensional measuring equipment
- Microhardness device in order to control the hardness of surface of the aluminium dies
- The salt spray machine in order to control the quality of the powder coating layer against corrosion
- Color-meter device for inspection of the color quality and specifications
- Glossy-meter device for checking the gloss of the colors
- The cross-cut device to check the stickiness of the powder coating to the aluminium profile surface
- The thickness-meter device for measuring the thickness of the powder coating layer

In Chemistry laboratory, the effective factors of the process especially the content of chemicals in the tanks is measured continuously to meet the quality demanded by customer and required by the standards. In addition, the electro anodizing color spectrum, the anodizing layer thickness and the quality of sealing layer is controlled continuously by means of advanced equipment and according to QUALANOD standard requirements.

Furthermore, in the powder coating laboratory, the quality of the input powders is controlled by laboratory spraying guns and ovens before sending to production lines. Moreover, the thickness of powder coating layer, gloss value and powder adhesion to the metal surface according to the QUALICOAT standard are other tests performed in this laboratory.

Due to the high quality of the products, this holding, as an IMS qualified complex, this holding has been able to achieve technical certification of the ministry of roads and urban development ISO 9001, ISO 14001 and ISO 45001 standards.





## لوجستیک Logistics

In order to maintain an on time delivery and prevent any damage to the products during transportation, the company uses its wide transportation network including trailers, trucks and pickups not only for covering domestic deliveries, but also for sending the products to different countries such as Iraq, Afghanistan, Turkey, Armenia, Turkmenistan and ...

به منظور تحویل به موقع محصولات و جلوگیری از بروز هرگونه آسیب حین حمل و نقل آن، مجموعه با استفاده از شبکه گسترده لجستیک خود شامل انواع تریلر، کامیون و کامیونت علاوه بر پوشش مشتریان داخل کشور، حمل محصولات صادراتی خود را به کشورهای مختلف از جمله عراق، افغانستان، ترکیه، ارمنستان، ترکمنستان و ... به انجام می‌رساند.

## تحقیق و توسعه Research and Development

In addition to achieving the latest machineries, equipment and technologies around the world in the field of producing aluminium sections, the R&D department of the company try to provide the customers with the best services through constant connection with reputable production companies and the provider centers of technical knowledge and know-how transfer, around the world.

One of the company main goals within the framework of the R&D activities is providing new systems for constructional and architectural profiles and their accessories based on climate, geography and culture of Iran and according to the latest international standards. To this end, a team of experts of the company was assigned to conduct extensive studies for designing and executing of those systems in consultation with most reliable Iranian and non-Iranian companies, led to design of a series of new profile systems. In the near future, the manufacturing, production and standard tests will be completed and the systems will be available for construction companies and other end-users via ORGADATA software.

علاوه بر دستیابی به جدیدترین تجهیزات، ماشینآلات و فناوری‌های روز دنیا در زمینه تولید مقاطع آلومینیومی کارشناسان بخش تحقیق و توسعه این مجموعه در راستای ارائه بهترین خدمات به مشتریان بطور مستمر با معتبرترین شرکت‌های تولیدی و مجموعه‌های ارائه کننده دانش فنی و انتقال تکنولوژی در سراسر دنیا در ارتباط بوده و همواره در تلاش برای بهبود مستمر تکنولوژی و محصولات تولیدی مجموعه می‌باشد.

یکی از اهدافی که در چهارچوب تحقیق و توسعه در این مجموعه مدنظر بوده است، ارائه می‌سیستم‌های پروفیل ساختمانی شامل مقاطع در و پنجره و نمای ساختمان و سایر مقاطع وابسته با توجه شرایط جغرافیایی، اقلیم و فرهنگ ایرانی و البته منطبق با آخرین استانداردهای بین‌المللی می‌باشد. درهای راستا، تأمین از متخصصین مجموعه مطالعات گسترده‌ای را برای طراحی و اجراء سیستم‌های جدید با مشاوره معتبرترین شرکت‌های داخلی و خارجی آغاز نمود که نهایتاً به طراحی مسربی جدید می‌سیستم‌های پروفیل منتهی شده است. که به زودی مراحل ساخت و تولید و اجرای این می‌سیستم‌ها از طریق به منظور تسهیل در امر ماخت و اجرای این می‌سیستم‌ها از طریق نرم افزار Orgadata به سازندگان می‌سیستم‌های ساختمانی ارائه می‌گردد.

## تحقيق و توسعه Research and Development

## واحد ماشین سازی Parts and Machineries Manufacturing Plant

یکی از اهدافی که در عقد قرارداد خرید ماشین‌آلات و تجهیزات با تأمین کنندگان خارجی دنبال می‌شود علاوه بر بهره‌گیری از دانش فنی موجود برای ساخت و استفاده از ماشین‌آلات و بکارگیری تجربه کارشناسان مجموعه در اجراء و تأمین تجهیزات با بهترین کیفیت، اجراء این پروژه‌ها بصورت مشترک با تأمین کنندگان خارجی است. به این معنا که تنها بخش‌هایی از خطوط تولید و ماشین‌آلات که در داخل کشور قابل ساخت نبوده و یا تجهیزاتی که در داخل کشور یافت نمی‌شود توسط طرف خارجی تأمین و دیگر بخش‌ها از جمله سازه فلزی و تجهیزات گوناگون توسط شرکت صنایع آلومرول نوین و مطابق با مشخصات فنی و نظرات تأمین کننده اصلی ساخته می‌شود که انجام این موضوع موجب انتقال تکنولوژی طراحی و ساخت این تجهیزات و افزایش توان فنی شرکت می‌گردد. درهای راستا، مجموعه از مال ۱۳۹۶، اقدام به راهاندازی واحد ماشین‌سازی خود نمود. با بهره‌گیری از مهندسین مجرب و متخصص، علاوه بر واحد طراحی مهندسی پیشرفته، با به کارگیری انواع تجهیزات ساخت سازه‌های فلزی، اعم از دستگاه‌های برش، تراش، ارد، جوش، سنگرزی و تست و یک واحد رنگ‌کاری مستقل، امکان طراحی و ساخت بخش‌های گوناگون مربوط به پروژه‌های ساخت و نوسازی تجهیزات را فراهم نموده است.

One of the desired goals of implementing production lines through international non-Iranian suppliers, in addition to the improve the know-how of construction of the machineries and using the existing knowledge in the holding, in order to procure the best and highest quality machineries, is to create joint projects, through which only those critical parts and accessories that cannot be manufactured or found locally are supplied by foreign supplier and other parts such as steel structures and different components will be provided by Alumroll, according to technical specifications and under supervision of supplier. That facilitates designing and manufacturing know-how transfer and increasing technical capability of this company. For this purpose, this company launched its parts and machineries manufacturing plant, in 2017. This plant performs all designing and manufacturing activities for different parts of its construction and renovation projects, using a wide range of facilities like cutting, lathe, welding, grinding, test and painting machineries.

## High-reflectivity

This characteristic feature makes aluminium a very efficient material for light management. Aluminium shading devices can be used to reduce the need for air conditioning in summer.

## Fire safety

Aluminium does not burn and therefore is classified as a noncombustible construction material (European Fire Class A1). Aluminium alloys will nevertheless melt at around 650 C, but without releasing harmful gases.

## No release of dangerous substances

Several studies have proved that aluminium building products do not present a hazard to occupants or the surrounding environment. Aluminium building products have no negative impact, either on indoor air quality or on soil, surface and groundwater.

## Optimal security

Where high security is required, specially designed, strengthened aluminium frames can be used. While the glass for such applications may well be heavy, the overall weight of the structure remains manageable thanks to the light weight of the aluminium frames.

## Alloys

Aluminium in its pure form is a very soft metal. Thanks to the addition of alloying elements such as copper, manganese, magnesium, zinc, etc. and thanks to suitable production processes, the physical and mechanical properties can be varied in a wide range to satisfy the requirements of a large number of different applications. AKROLL profiles are extruded from the following alloys:

EN AW-1050 [ Al 99.5]

EN AW-6060 [ Al Mg Si]

EN AW-6063 [Al Mg0,7 Si]

EN AW-6061 [Al Mg1 Si Cu]

EN AW-6005 [Al Si Mg]

EN AW-6082 [Al Si1 Mg Mn]

The most common aluminium alloy which is used by AKROLL is EN AW 6063. Here are the properties of this alloy:

قابلیت بازتاب بالا  
این ویژگی مشخص، آلمینیوم را به یک ماده بسیار کارآمد برای مدیریت نور تبدیل می‌کند. می‌توان از سیستم سایه‌بان آلمینیومی برای کاهش نیاز به تهویه مطبوع در تابستان استفاده کرد.

## ایمنی آتش

آلومینیوم نمی‌سوزد بنابراین به عنوان یک مصالح ساختمانی غیرقابل احتراق دسته بندی می‌شود (کلام اروپایی آتش- Al). با این وجود آلیاژهای آلمینیوم در دمای ۶۵ درجه سانتیگراد بدون انتشار گازهای خطرناک ذوب می‌شوند.

## عدم آلودگی محیط زیستی

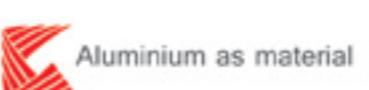
مطالعات متعدد ثابت کرده است که محصولات ساختمانی آلمینیومی خطری برای مسکن‌ها یا محیط اطراف ندارند. این محصولات هیچ تأثیر منفی چه بر کیفیت هوای داخل خانه و چه بر روی خاک و آبهای سطحی و زیرزمینی ندارند.

## امنیت مطلوب

در مواردی که امنیت بالایی مورد نیاز است، می‌توان از فریم‌های آلمینیومی تقویت شده با طراحی خاص استفاده کرد. در حالی که شیشه برای چنین کاربردهایی ممکن است منگین باشد، اضافه وزن سازه را می‌توان با وزن کم فریم‌های آلمینیومی کنترل کرد.

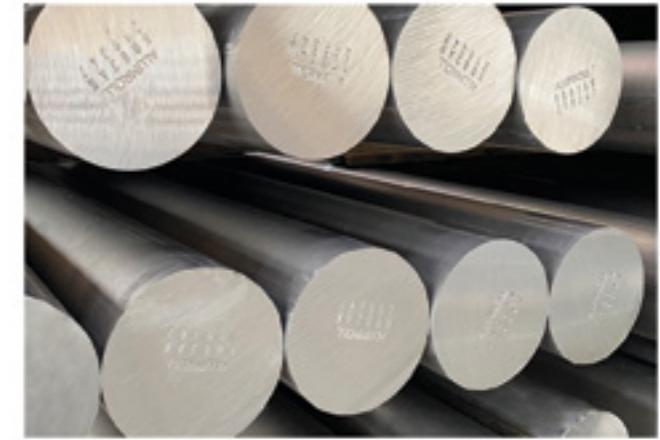
## آلیاژها

آلومینیوم به صورت خالص یک فلز بسیار نرم است. به لطف افزودن عناصر آلیاژی مانند مس، منگنز، منیزیم، روی و غیره و با بهره‌گیری فرآیندهای مناسب تولید، می‌توان خواص فیزیکی و مکانیکی را در طیف وسیعی تغییر داد تا نیاز رنج وسیعی از کاربردهای مختلف را برآورده سازد. پروفیل‌های مورد استفاده برای اکسترود آکرول از آلیاژهای ذیل می‌باشد:



آلومینیوم یک فلز بسیار جوان (نو-ظہور) است که برای اولین بار در سال ۱۸۵۴ استخراج شد. به طور تجاری از سال ۱۸۸۶ به عنوان یک فلز گران‌بها تولید شد و تولید صنعتی آن برای برنامه‌های عمرانی در دهه ۱۹۵۰ گسترش یافت. امروزه آلمینیوم نقش کلیدی در بایانی ساختمان‌های جدید و نوسازی واحدهای قدیمی ایقا می‌کند و با توجه به خواص عملکردی خود در بحث انرژی، ایمنی و راحتی ساختمان‌های جدید نقش آفرینی می‌کند.

Aluminium is a very young metal, extracted for the first time in 1854. Commercially produced as a precious metal from 1886, its industrial production for civil applications only achieved wide use in the 1950's. Now aluminium plays a key role for the sustainability of new buildings and the renovation of existing ones. Thanks to its performance properties aluminium contributes to the energy performance, safety and comfort of new buildings.



**مزایای آلمینیوم**  
The advantages of aluminium

## انعطاف پذیری در طراحی

فرآیند اکسترودن طیف وسیعی از اشكال و مقاطع را ارائه می‌دهد و به طراحان اجازه می‌دهد تا کاربردهای متعددی را در یک پروفیل ادغام کنند.

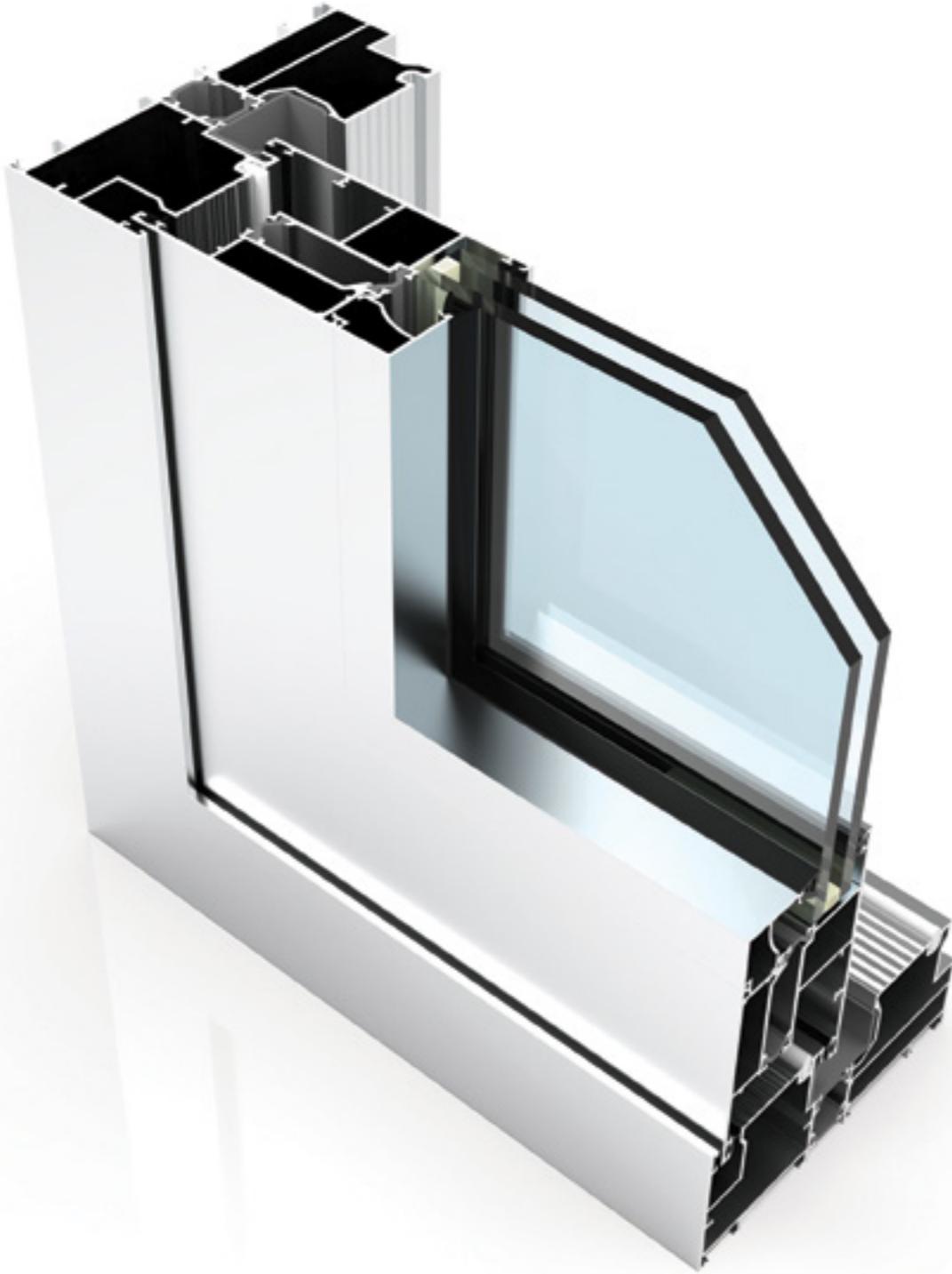
## طول عمر بالا

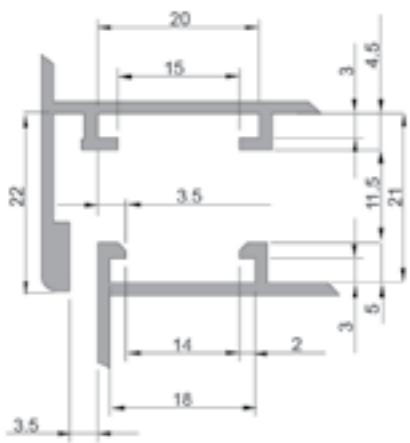
محصولات ساختمانی آلمینیوم از آلیاژهایی ساخته شده‌اند که مقاومت به خودگی در برابر آب و هوا و همچنین مقاومت بالا در برابر اثرات مضر اشعه ماده‌های بنفسش داشته که عملکرد مطلوبی را در مدت زمان طولانی تضمین می‌کند.

## نسبت استحکام به وزن بالا

به لطف استحکام و سختی ذاتی این فلز، پنجره‌ها و پروفیل‌های نمای ساختمان آلمینیومی می‌توانند بسیار ظرفی طراحی گردد. که این امر مسبب کاهش وزن سازه، حمل و نقل و جابجایی آسان‌تر و کاهش خطر صدمات ناشی از کار می‌شود.

 Thermal Break Systems  
ALN 400 & ALN 500 Series

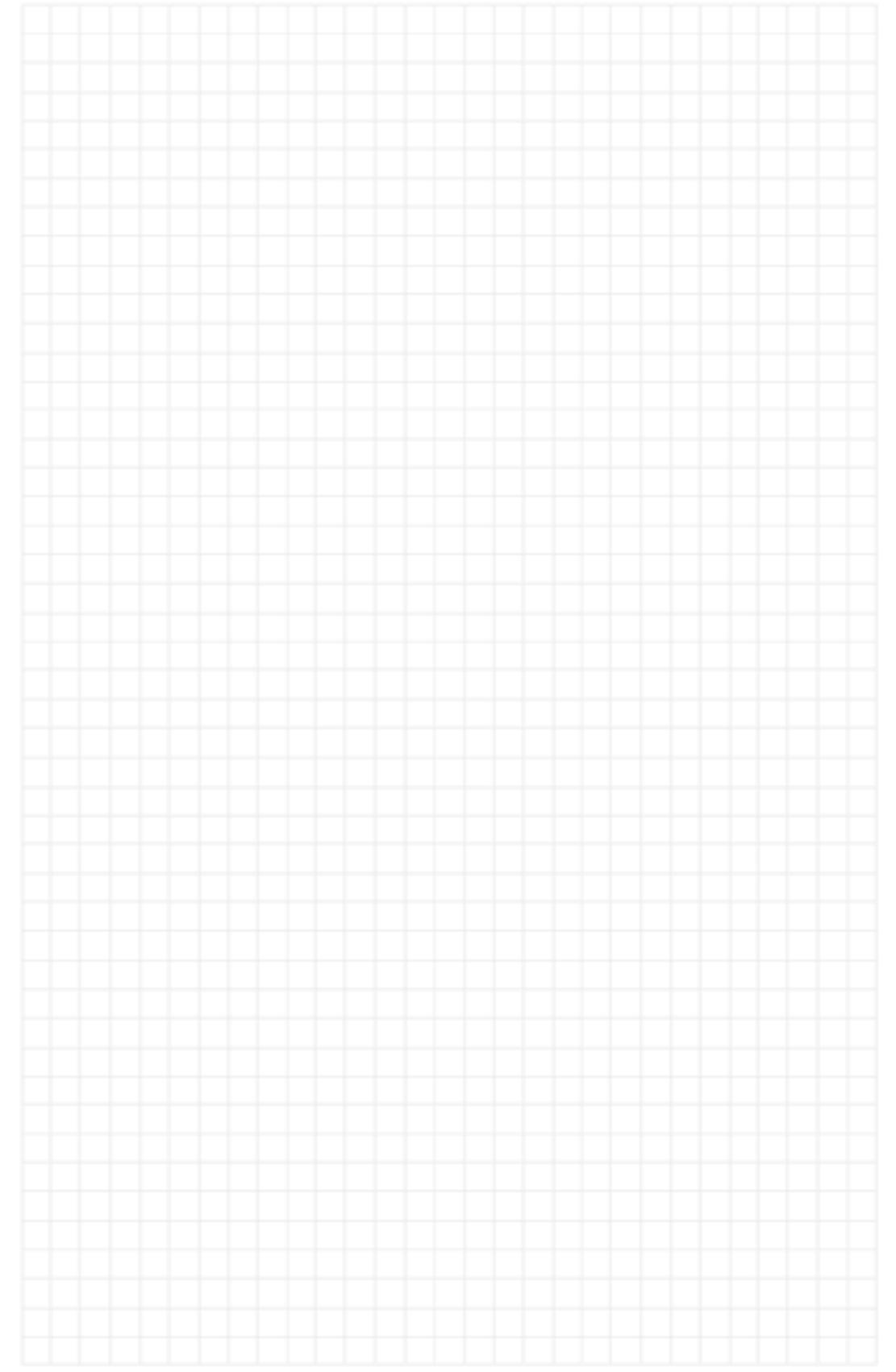
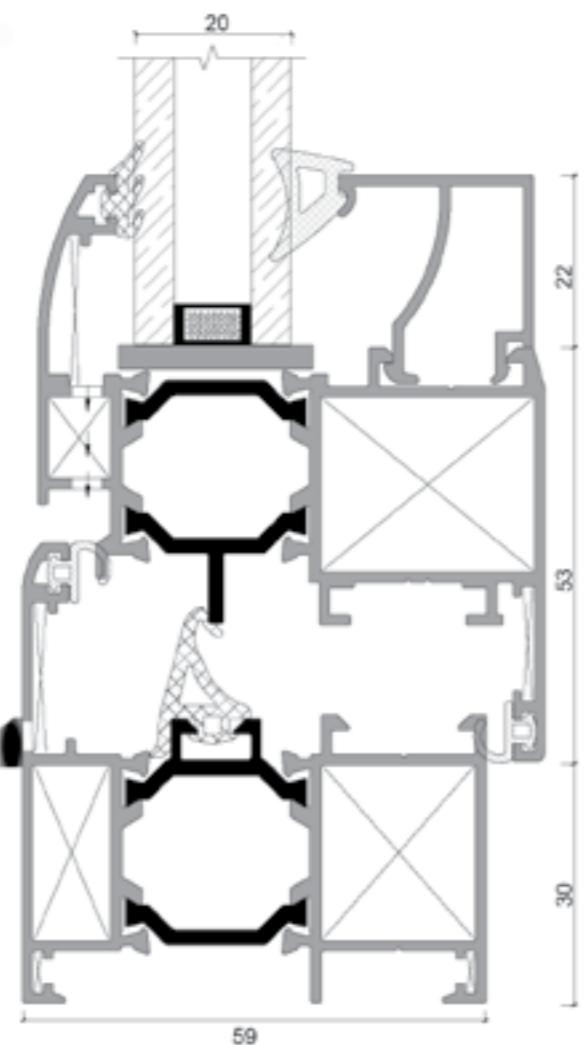




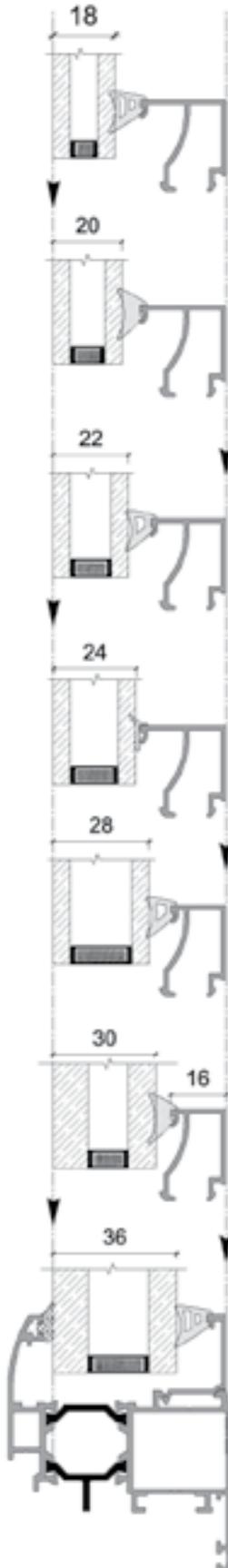
Euro Groove Section

### Hinged System 60 Series

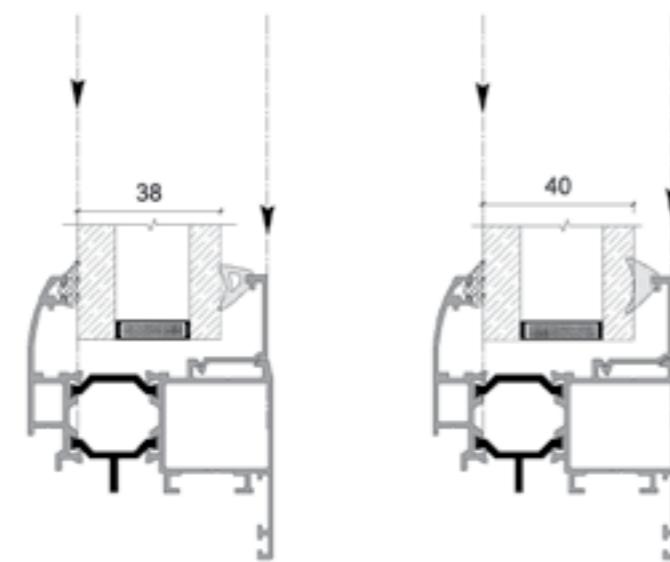
- . Profile width: 60 - 77 mm
- . Vent width: 65 mm
- . Wall thickness: 1.3 - 1.4 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 18 - 40 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Isulation bar : Polyamide Width 24 mm
- . Thermal permeability :  $U_f = 2.58 \text{ w/mk}$
- . Safety drainage system
- . Various typologies



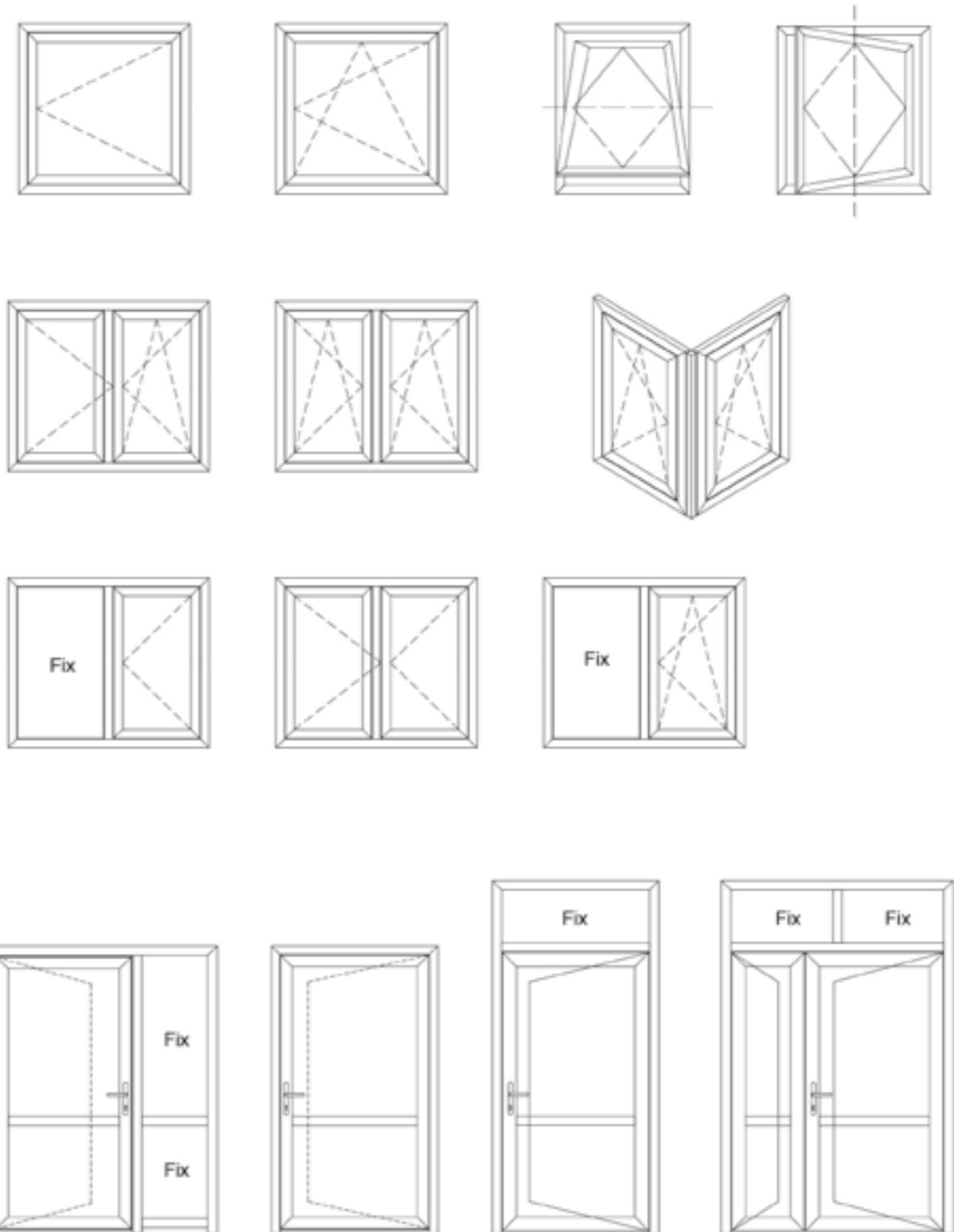
## Hinged System 60 Series Glazing Table



Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
18 mm	EP-021	MO68	ALN-421
20 mm	EP-016	MO68	ALN-421
22 mm	EP-016	MO68	ALN-323
24 mm	EP-015	MO68	ALN-421
28 mm	EP-019	MO68	ALN-423
30 mm	EP-016	MO68	ALN-423
36 mm	EP-021	MO68	ALN-424
38 mm	EP-019	MO68	ALN-424
40 mm	EP-016	MO68	ALN-424



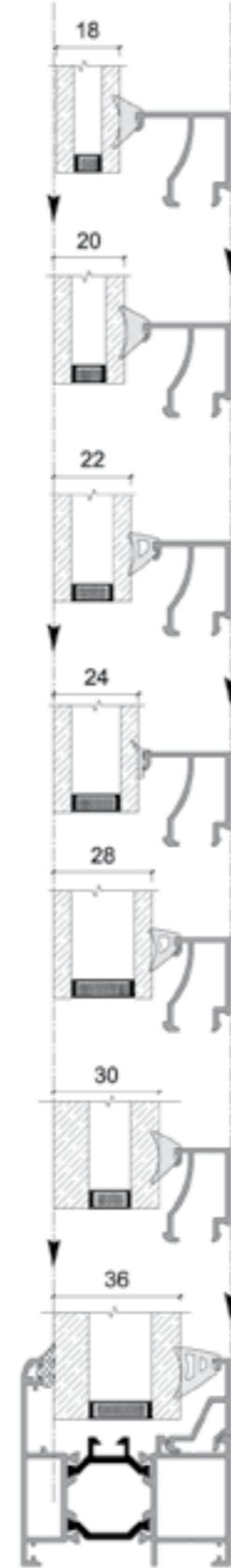
## Hinged System 60 Series Typologies



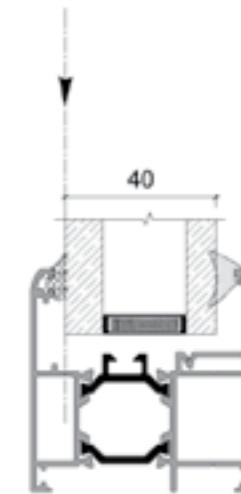
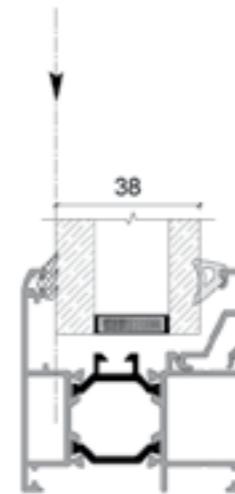
Hinged System 60 Series  
Profile & Accessories Information

$I_x: 8.15 \text{ cm}^4$	$I_y: 18.2 \text{ cm}^4$
Frame : ALN-400	Frame : ALN-409
A: PCP-22/19 mm B: PCP-22/9 mm C: fuji 2000 D: MO 19	A: PCP-42/19 mm B: PCP-42/9 mm C: fuji 2000 D: MO 19
Weight: 1210 gr/m	Weight: 1755 gr/m
$I_x: 11.37 \text{ cm}^4$	$I_y: 27.09 \text{ cm}^4$
Frame : ALN-408	Frame : ALN-466
A: PCP-22 / 19 mm B: fuji 2000 C: MO 19	A: PCP-22 / 19 mm B: fuji 2000 C: MO 19
Weight: 1397 gr/m	Weight: 1435 gr/m

Hinged System 60 Series  
Glazing Table

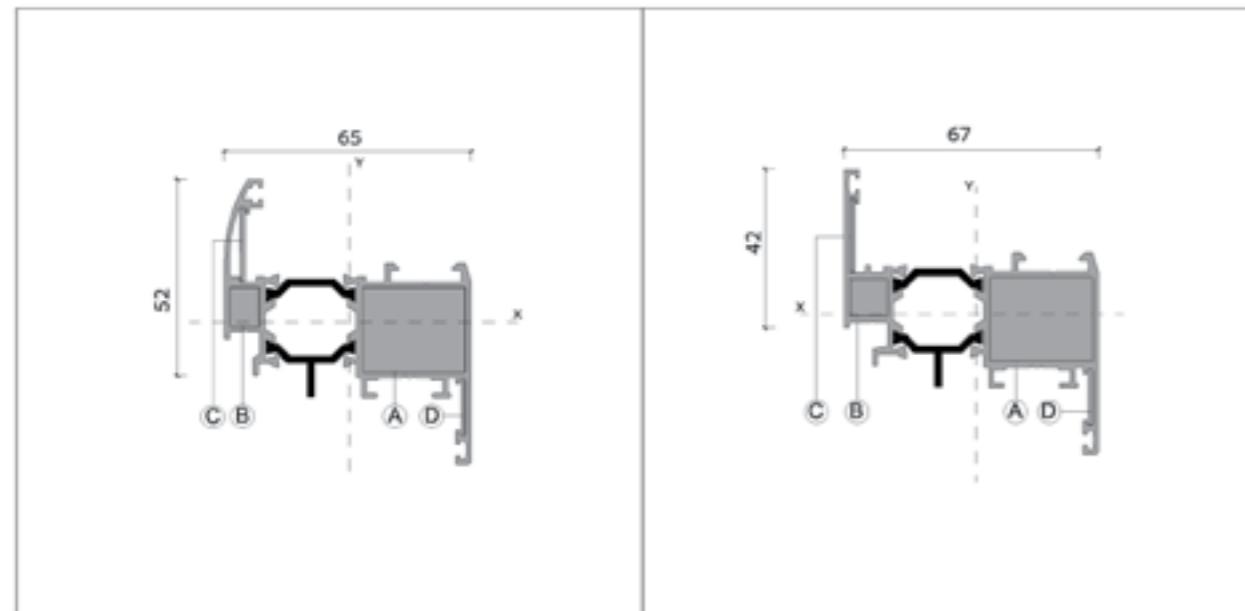


Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
18 mm			
20 mm			
22 mm			
24 mm			
28 mm			
30 mm			
36 mm			
38 mm			
40 mm			

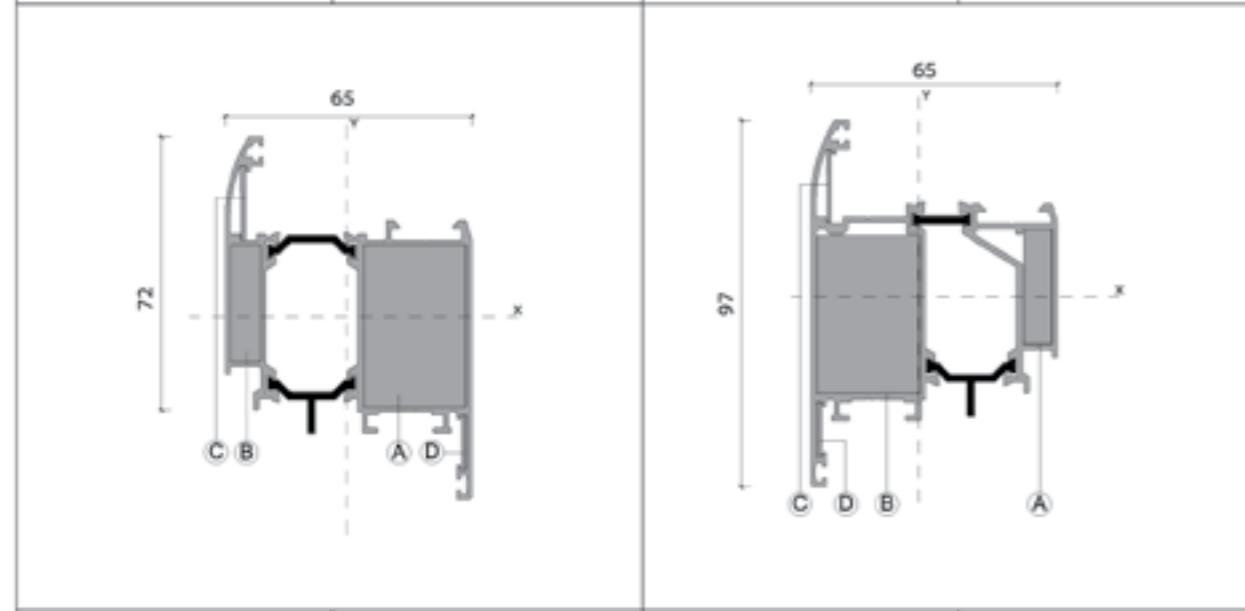


## Hinged System 60 Series

Profile & Accessories Information



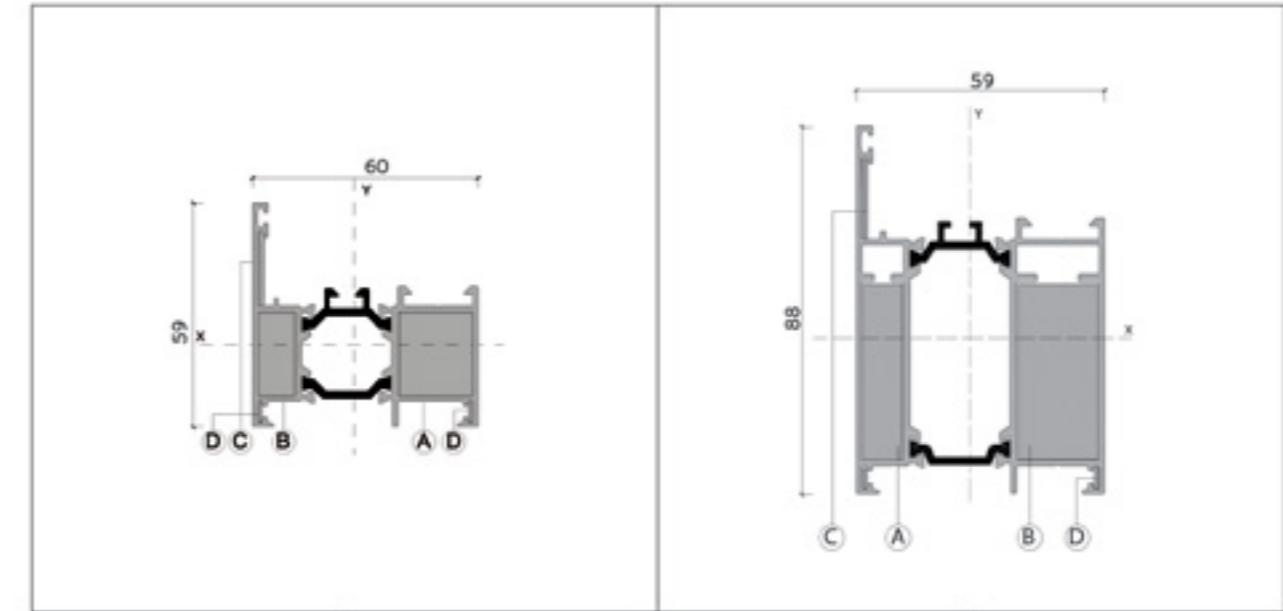
$I_x: 11.21 \text{ cm}^4$	$I_y: 24.05 \text{ cm}^4$	$I_x: 10.27 \text{ cm}^4$	$I_y: 25.02 \text{ cm}^4$
Sash : ALN-401	A: PCP-22 / 26 mm B: PCP-10 / 7 mm	Sash : ALN-416	A: PCP-22 / 26 mm B: PCP-10 / 9 mm
Weight: 1334 gr/m	C: fuji 2000 D: MM77	Weight : 1327 gr/m	C: fuji 2000 D: MM77



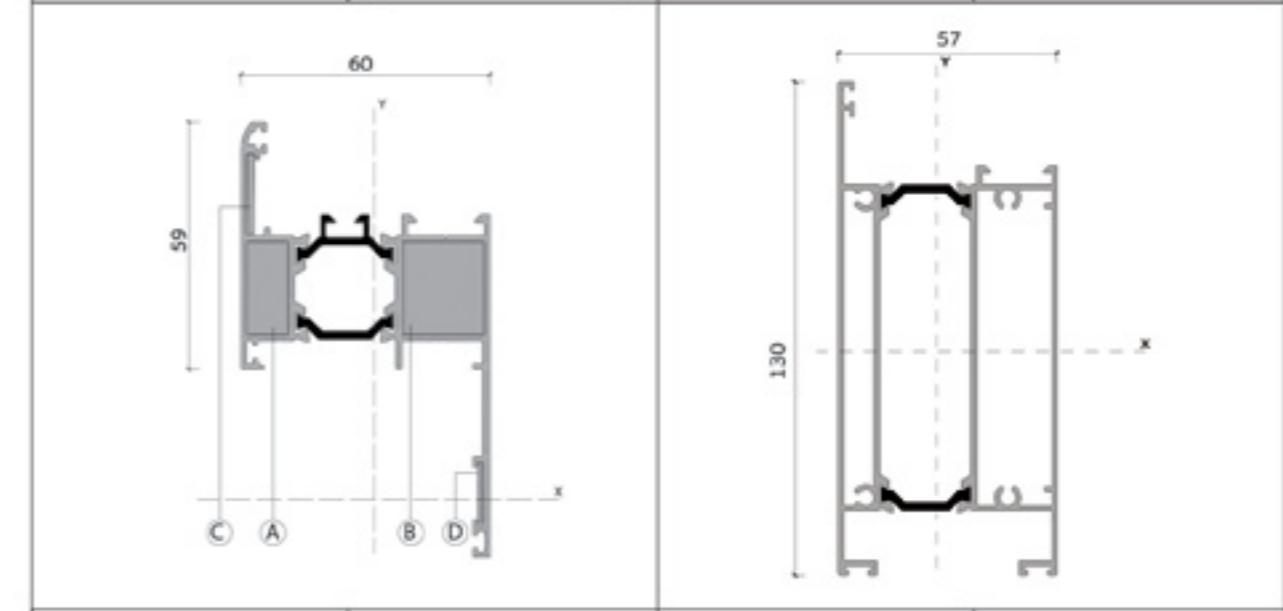
$I_x: 27.62 \text{ cm}^4$	$I_y: 30.97 \text{ cm}^4$	$I_x: 29.94 \text{ cm}^4$	$I_y: 30.41 \text{ cm}^4$
Sash : ALN-402	A: PCP-42 / 26 mm B: PCP-30 / 7 mm	Sash : ALN-403	A: PCP-30 / 7 mm B: PCP-42 / 26 mm
Weight: 1640 gr/m	C: fuji 2000 D: MM77	Weight: 1706 gr/m	C: fuji 2000 D: MM77

## Hinged System 60 Series

Profile & Accessories Information

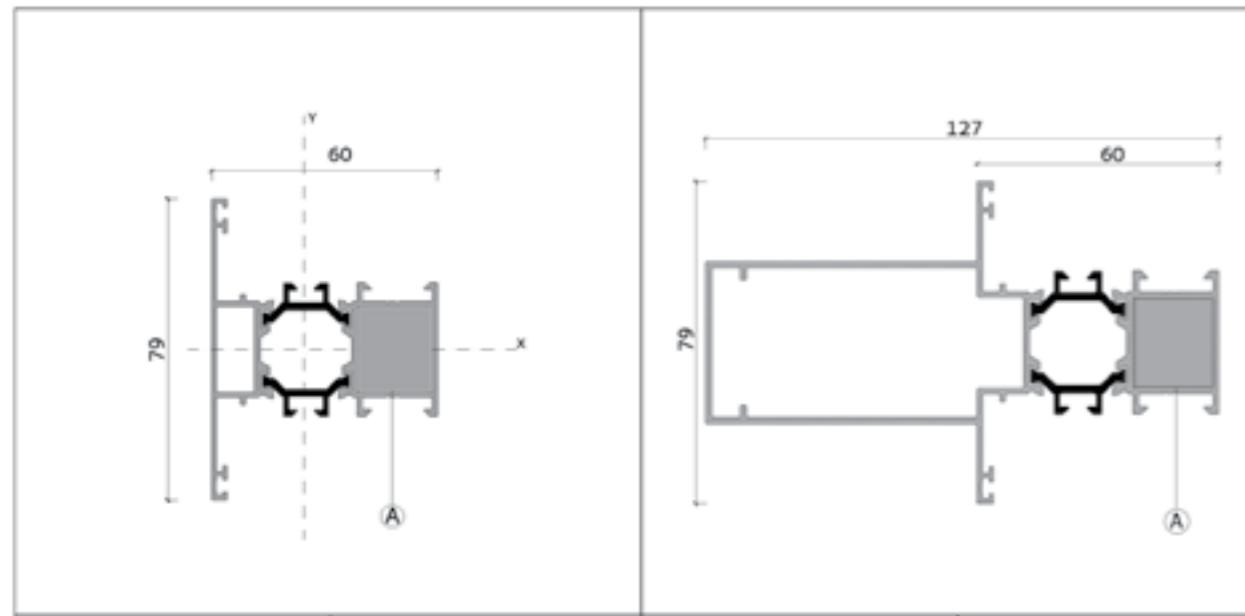


$I_x: 7.49 \text{ cm}^4$	$I_y: 17.91 \text{ cm}^4$	$I_x: 30.52 \text{ cm}^4$	$I_y: 27.72 \text{ cm}^4$
Frame : ALN-415	A: PCP-22/19 mm B: PCP-22/9 mm	Frame : ALN-440	A: PCP-42 / 9 mm B: PCP-42 / 19 mm
Weight : 1191gr/m	C: fuji 2000 D: MO 19	Weight: 1760 gr/m	C: fuji 2000 D: MO 19

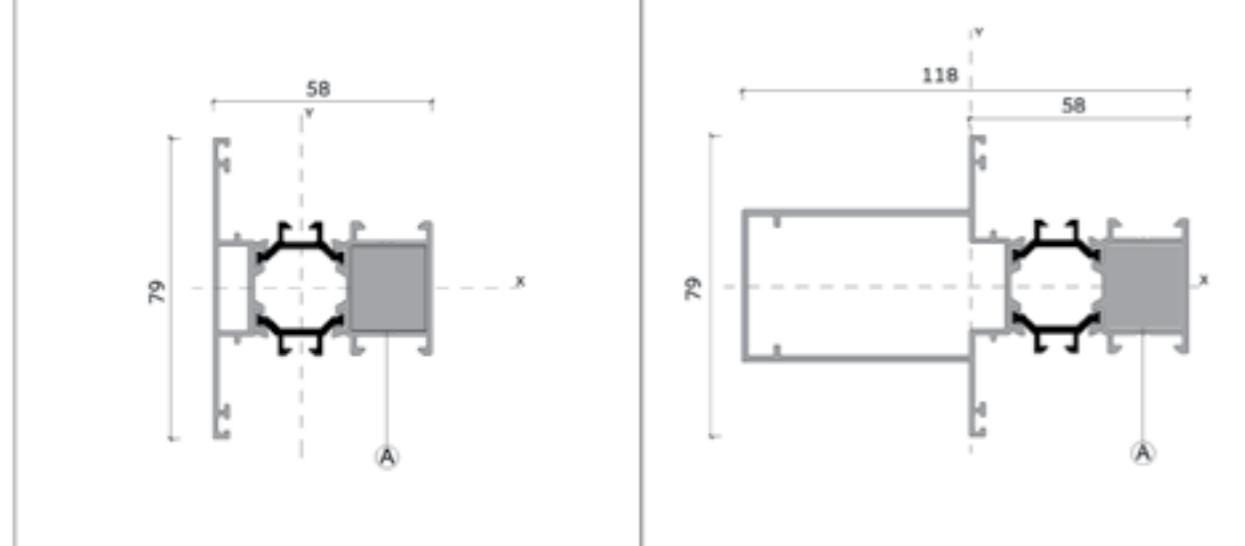


$I_x: 24.34 \text{ cm}^4$	$I_y: 25.25 \text{ cm}^4$	$I_x: 101.67 \text{ cm}^4$	$I_y: 37.42 \text{ cm}^4$
Frame : ALN-449	A: PCP-22/9 mm B: PCP-22/19 mm	Profile : ALN-410	A: -
Weight : 1440 gr/m	C: fuji 2000 D: MM77	Weight: 2335 gr/m	B: -

Hinged System 60 Series  
Profile & Accessories Information

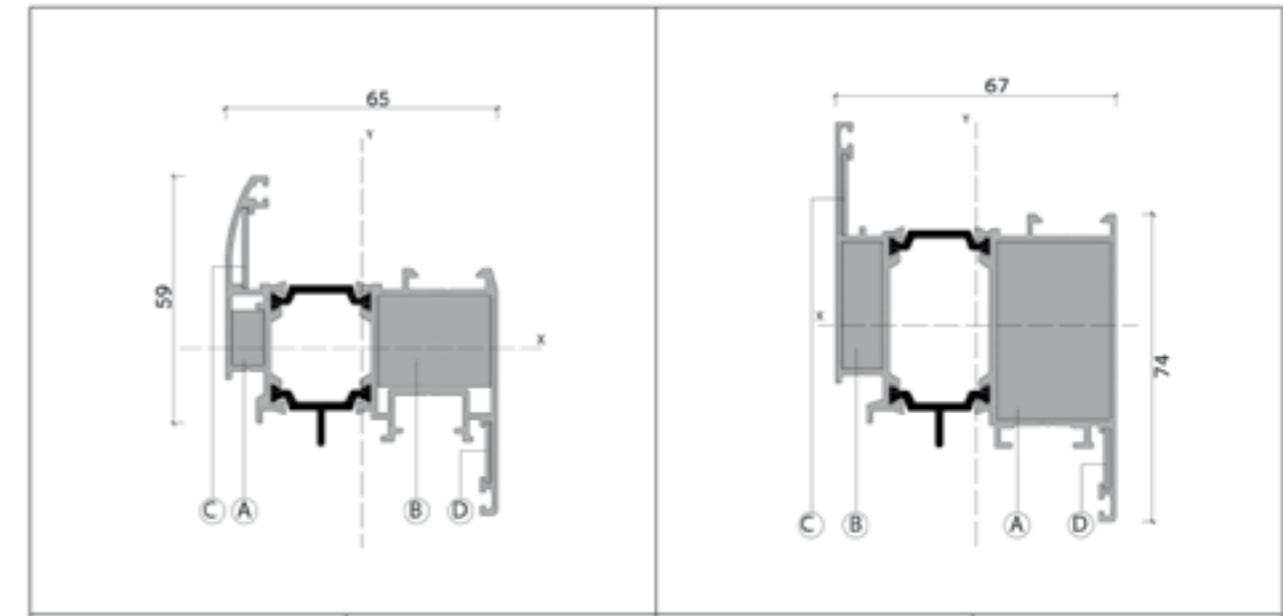


$I_x: 11.04 \text{ cm}^4$	$I_y: 19.22 \text{ cm}^4$	$I_x: 19.27 \text{ cm}^4$	$I_y: 100.3 \text{ cm}^4$
Flat Transom: ALN-417	A: ALN-445	Flat Transom: ALN-465	A: ALN-445
Weight: 1092 gr/m	B: -	Weight: 1938 gr/m	B: -

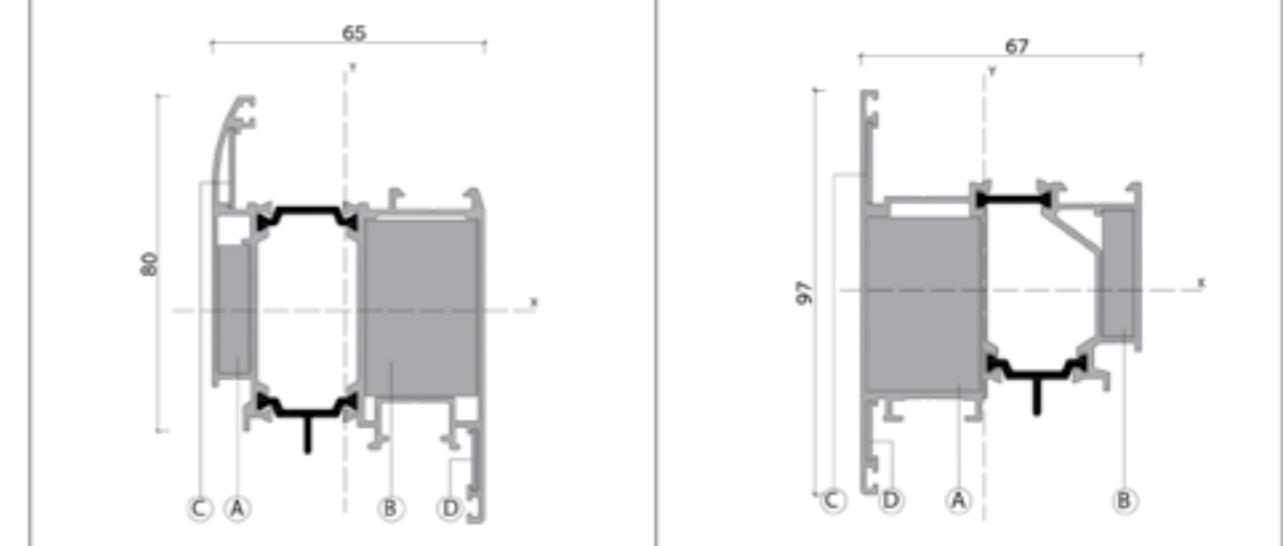


$I_x: 10.97 \text{ cm}^4$	$I_y: 17.85 \text{ cm}^4$	$I_x: 18.41 \text{ cm}^4$	$I_y: 82.72 \text{ cm}^4$
Transom: ALN-406	A: ALN-445	Transom: ALN-420	A: ALN-445
Weight: 1275 gr/m		Weight: 1867 gr/m	B: -

Hinged System 60 Series  
Profile & Accessories Information

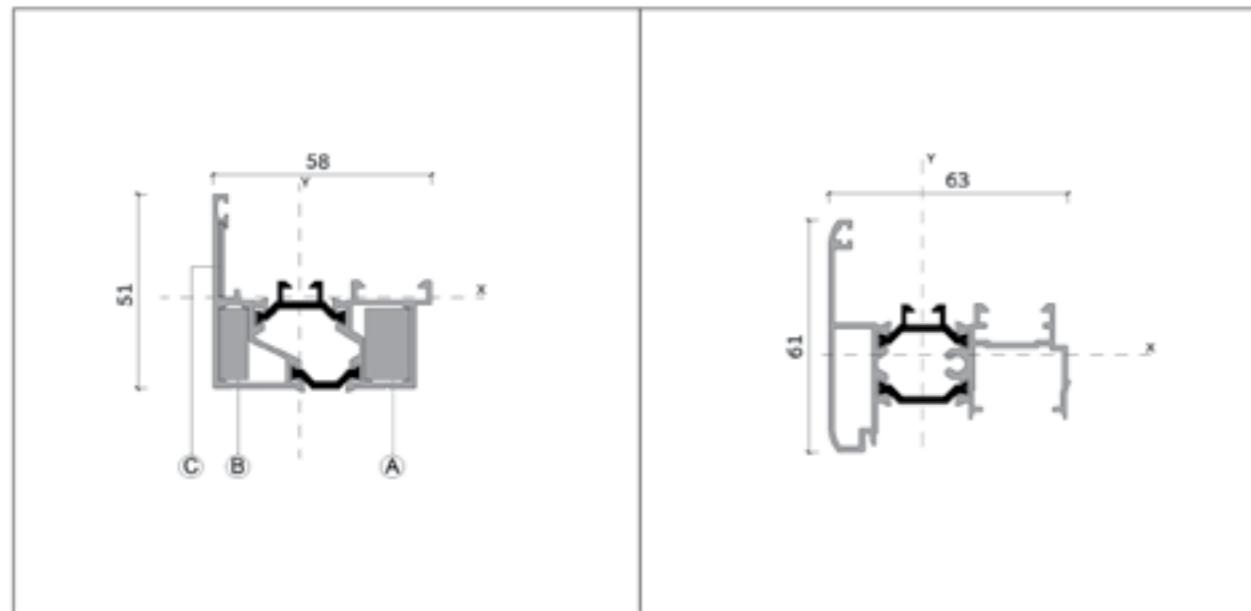


$I_x: 14.95 \text{ cm}^4$	$I_y: 26.89 \text{ cm}^4$	$I_x: 25.70 \text{ cm}^4$	$I_y: 32.28 \text{ cm}^4$
Sash: ALN-498	A: PCP-42 / 26 mm B: PCP-22 / 26 mm	Sash: ALN-441	A: PCP-42 / 26 mm B: PCP-30 / 9 mm
Weight: 1499 gr/m	C: fuji 2000 D: MM77	Weight: 1640 gr/m	C: fuji 2000 D: MM77

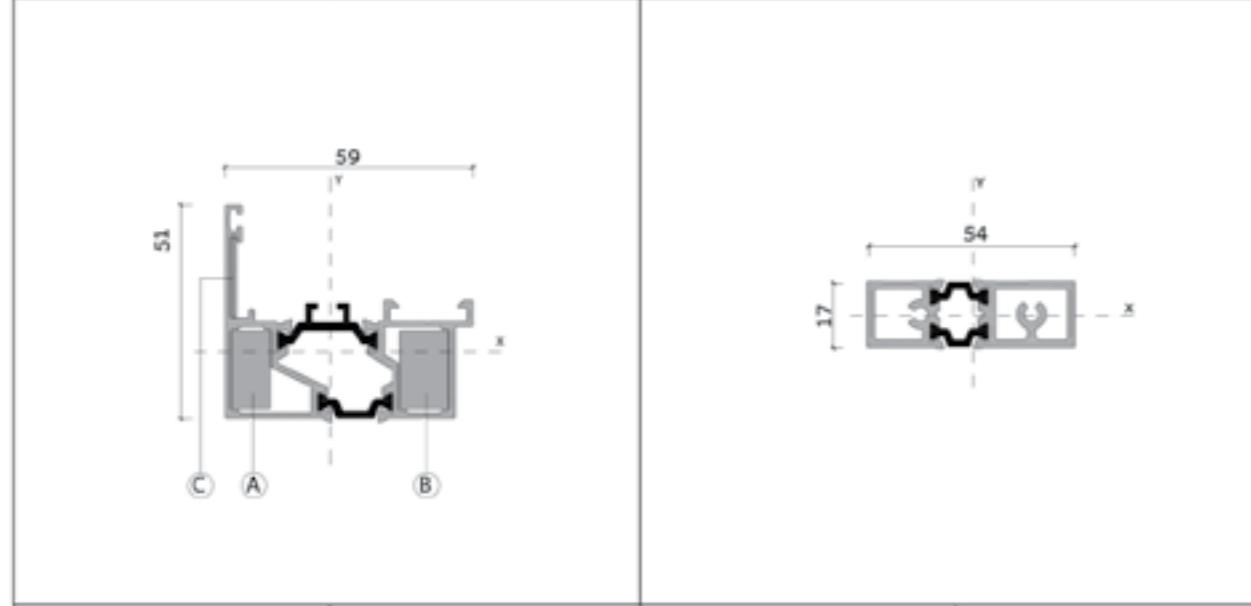


$I_x: 35.97 \text{ cm}^4$	$I_y: 12.70 \text{ cm}^4$	$I_x: 28.23 \text{ cm}^4$	$I_y: 32.79 \text{ cm}^4$
Sash: ALN-499	A: PCP-30 / 7 mm B: PCP-42 / 26 mm	Sash: ALN-447	A: PCP-42 / 26 mm B: PCP-30 / 7 mm
Weight: 1827 gr/m	C: fuji 2000 D: MM77	Weight: 1701 gr/m	C: fuji 2000 D: MM77

Hinged System 60 Series  
Profile & Accessories Information

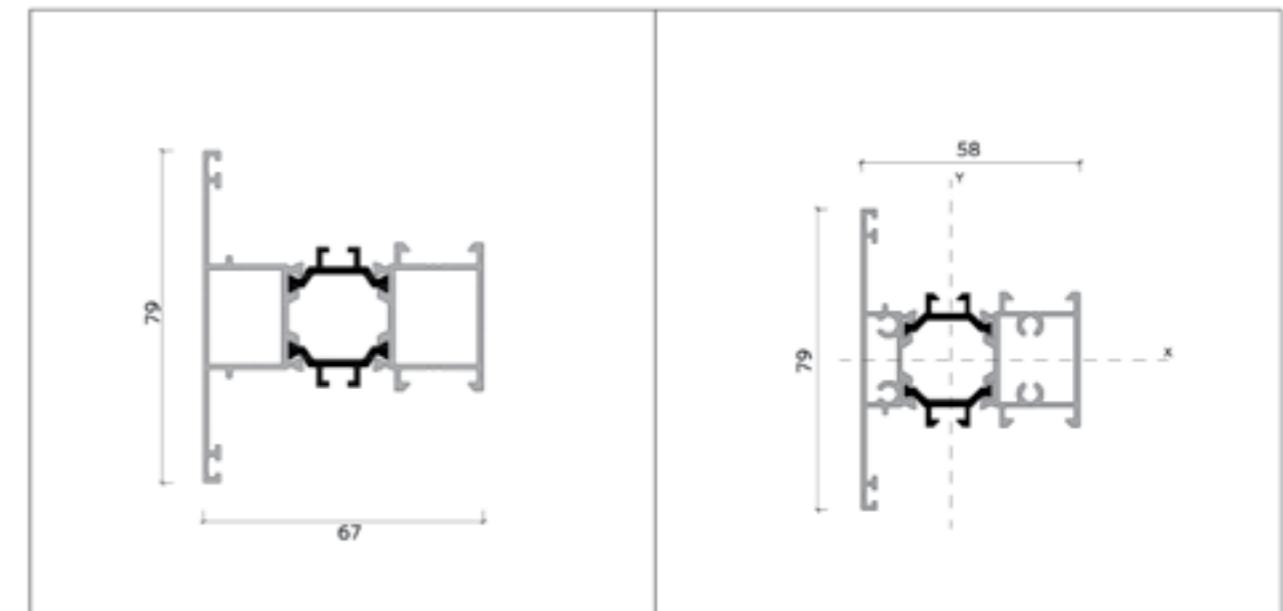


$I_x: 5.52 \text{ cm}^4$	$I_y: 13.29 \text{ cm}^4$	$I_x: 6.85 \text{ cm}^4$	$I_y: 16.75 \text{ cm}^4$
Profile : ALN-418	A: PCP-19 / 11 mm 	Profile : ALN-405	A: -
Weight : 1101 gr/m	B: PCP-19 / 7 mm 	Weight : 1196 gr/m	B: -

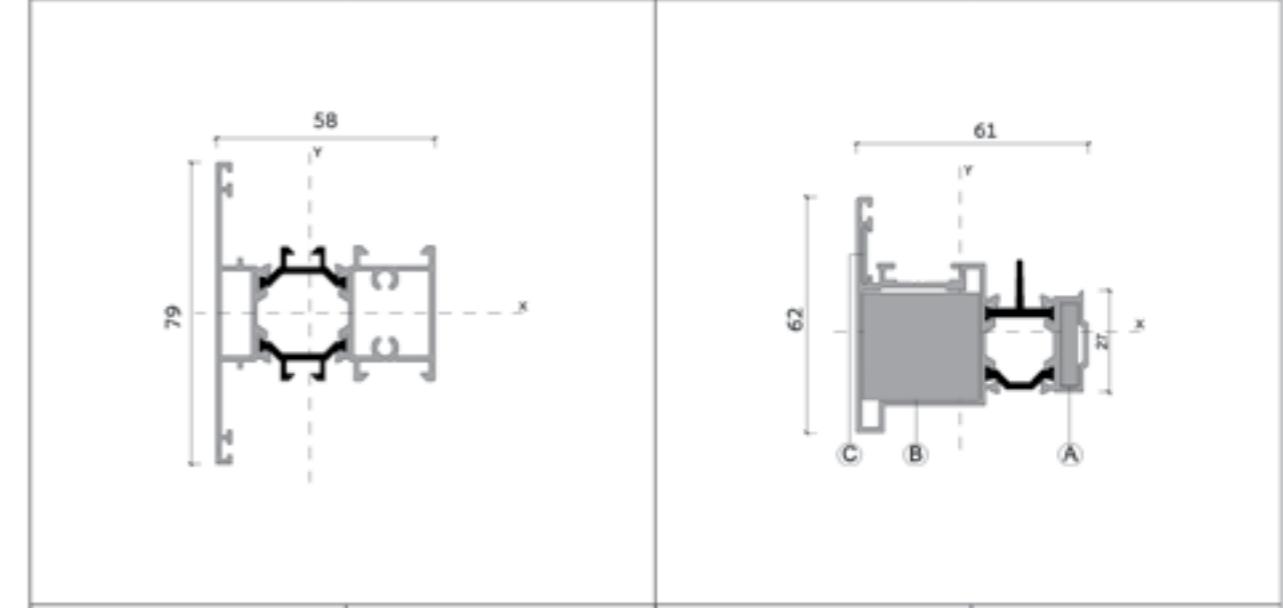


$I_x: 5.54 \text{ cm}^4$	$I_y: 14.03 \text{ cm}^4$	$I_x: 1.19 \text{ cm}^4$	$I_y: 10.46 \text{ cm}^4$
Profile : ALN-448	A: PCP-19 / 9 mm 	Profile : ALN-419	A: -
Weight : 1128 gr/m	B: PCP-19 / 11 mm 	Weight : 1016 gr/m	B: -

Hinged System 60 Series  
Profile & Accessories Information



$I_x: 11.32 \text{ cm}^4$	$I_y: 25.23 \text{ cm}^4$	$I_x: 11.33 \text{ cm}^4$	$I_y: 19.87 \text{ cm}^4$
Transom : ALN-494	A: -	Transom : ALN-407	A: -
Weight : 1355 gr/m	B: -	Weight : 1406 gr/m	B: -



$I_x: 11.20 \text{ cm}^4$	$I_y: 19.08 \text{ cm}^4$	$I_x: 8.61 \text{ cm}^4$	$I_y: 17.92 \text{ cm}^4$
Transom : ALN-404	A: -	Pivot : ALN-411	A: PCP-22 / 4 mm 
Weight: 1353 gr/m	B: -	Weight : 1232 gr/m	B: PCP-28 / 30 mm 
			C: MM77 (AKW-810)

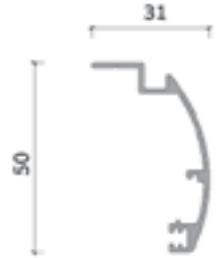
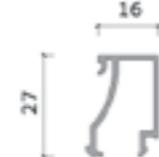
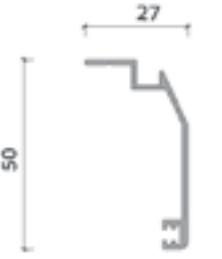
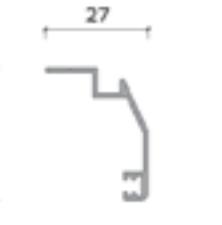
Hinged System 60 Series  
Profile & Accessories Information

Profile : ALN-425	Weight: 1057 gr/m	Profile : ALN-229	Weight: 192 gr/m
Profile : ALN-426	Weight: 208 gr/m	Profile : ALN-228	Weight: 135 gr/m
Profile : ALN-427	Weight: 208 gr/m	Profile : ALN-429	Weight: 235 gr/m

Hinged System 60 Series  
Profile & Accessories Information

$I_x: 22.95 \text{ cm}^4$	$I_y: 22.95 \text{ cm}^4$	$I_x: 12.02 \text{ cm}^4$	$I_y: 12.13 \text{ cm}^4$
Coupling : ALN-468	A: -	Coupling : ALN-413	A: -
Weight : 1714 gr/m	B: -	Weight : 1214 gr/m	B: -
$I_x: -$	$I_y: -$	$I_x: 30.79 \text{ cm}^4$	$I_y: 33.53 \text{ cm}^4$
Coupling : ALN-469	A: -	Coupling : ALN-414	A: -
Weight : 337 gr/m	B: -	Weight : 1720 gr/m	B: -

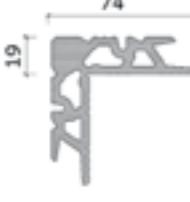
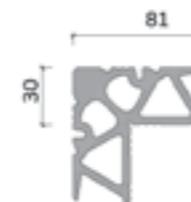
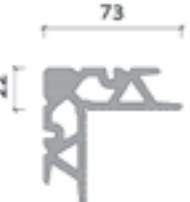
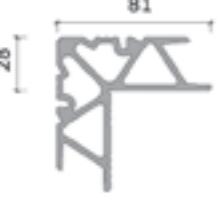
**Hinged System 60 Series**  
Profile & Accessories Information

	31		16
Flange profile: ALN-219	Weight : 362 gr/m	Glazing beads: ALN-423	Weight : 281 gr/m
	27		5
Flange profile: ALN-221	Weight : 302 gr/m	Glazing beads: ALN-321	Weight : 224 gr/m
	27		22
Flange profile: ALN-222	Weight : 254 gr/m	Glazing beads: ALN-323	Weight : 302 gr/m

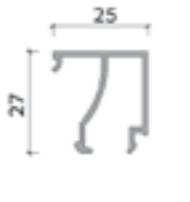
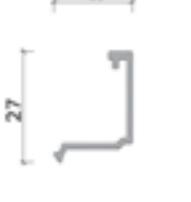
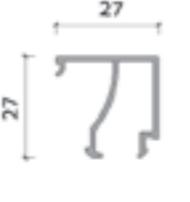
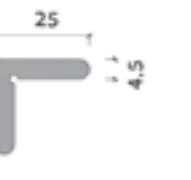
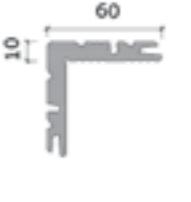
**Hinged System 60 Series**  
Profile & Accessories Information

	12		9
Profile : ALN-428	Weight: 219 gr/m	Profile : ALN-442	Weight: 118 gr/m
	12		16
Profile : ALN-430	Weight: 230 gr/m	Profile : ALN-443	Weight : 75.6 gr/m
	18		19.6
Transom bar profile: ALN-445	Weight: 742 gr/m	Profile : ALN-331	Weight: 140 gr/m

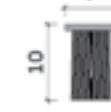
Hinged System 60 Series  
Profile & Accessories Information

			
Corner Joint: PCP-19	Weight : 3499 gr/m	Corner Joint: PCP-30	Weight : 4539 gr/m
			
Corner Joint: PCP-22	Weight : 3718 gr/m	Corner Joint: PCP-42	Weight : 5133 gr/m
			
Corner Joint: PCP-28	Weight : 3429 gr/m	Corner Joint: fuji 2000	Weight : -

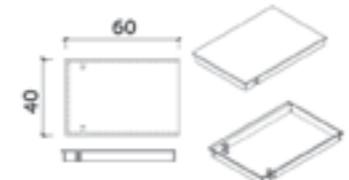
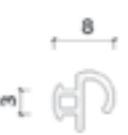
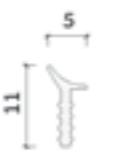
Hinged System 60 Series  
Profile & Accessories Information

			
Glazing beads: ALN-421	Weight : 313 gr/m	Glazing beads: ALN-424	Weight : 167 gr/m
			
Glazing beads: ALN-422	Weight : 321 gr/m	Profile : ALN-444	Weight : 344 gr/m
			
Corner Joint: MO19 399012	Weight: 533 gr/m	Corner Joint: PCP-10	Weight : 2454 gr/m

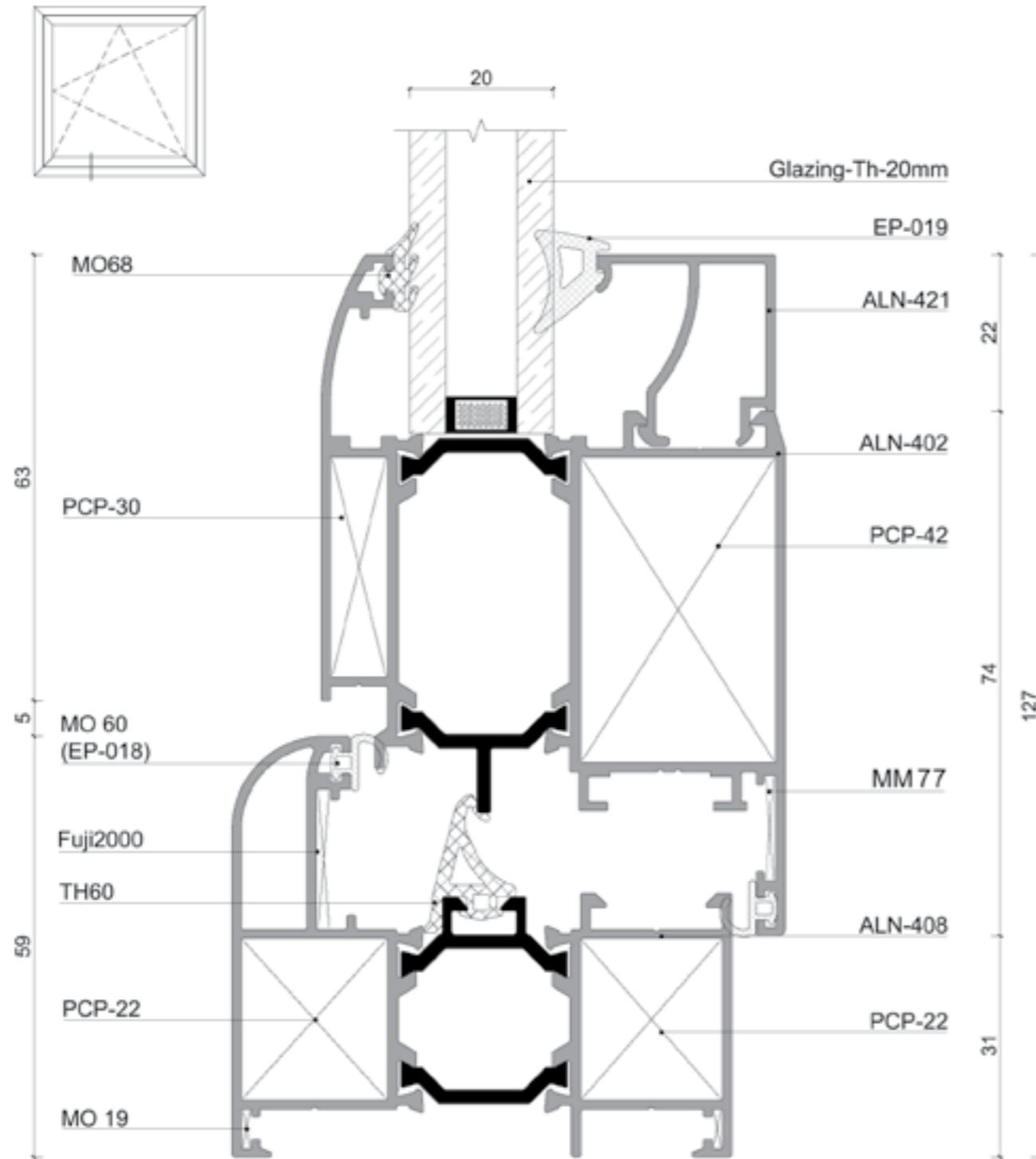
**Hinged System 60 Series**  
Profile & Accessories Information

	12		17
Gasket: MO68	Weight : 48 gr/m	Gasket: TH60	Weight : 101 gr/m
	7		
PB7-3P-50-700	Weight: -	Gasket: mo 60-1	Weight : 26 gr/m
	10		37 1 14
PB7-3P-70-1000	Weight: -	Corner Joint: MM 77	Weight : -

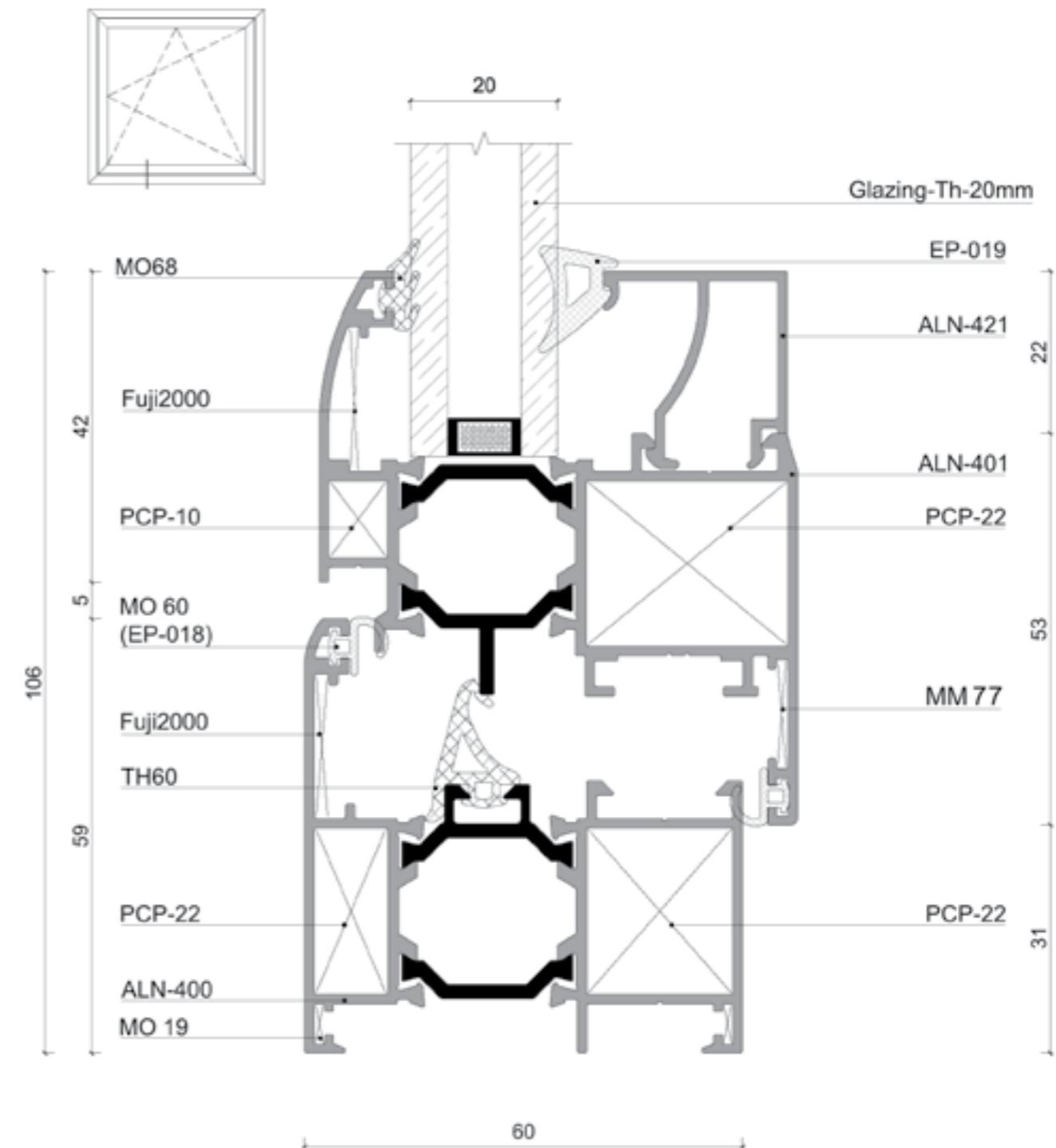
**Hinged System 60 Series**  
Profile & Accessories Information

	40		8
Cap : AKW-904		Gasket: EP-018	Weight : 27 gr/m
	11		7
Gasket: EP-015	Weight : 21 gr/m	Gasket: EP-019	Weight : 61 gr/m
	15		9
Gasket: EP-016	Weight : 77 gr/m	Gasket: EP-021	Weight : 80 gr/m

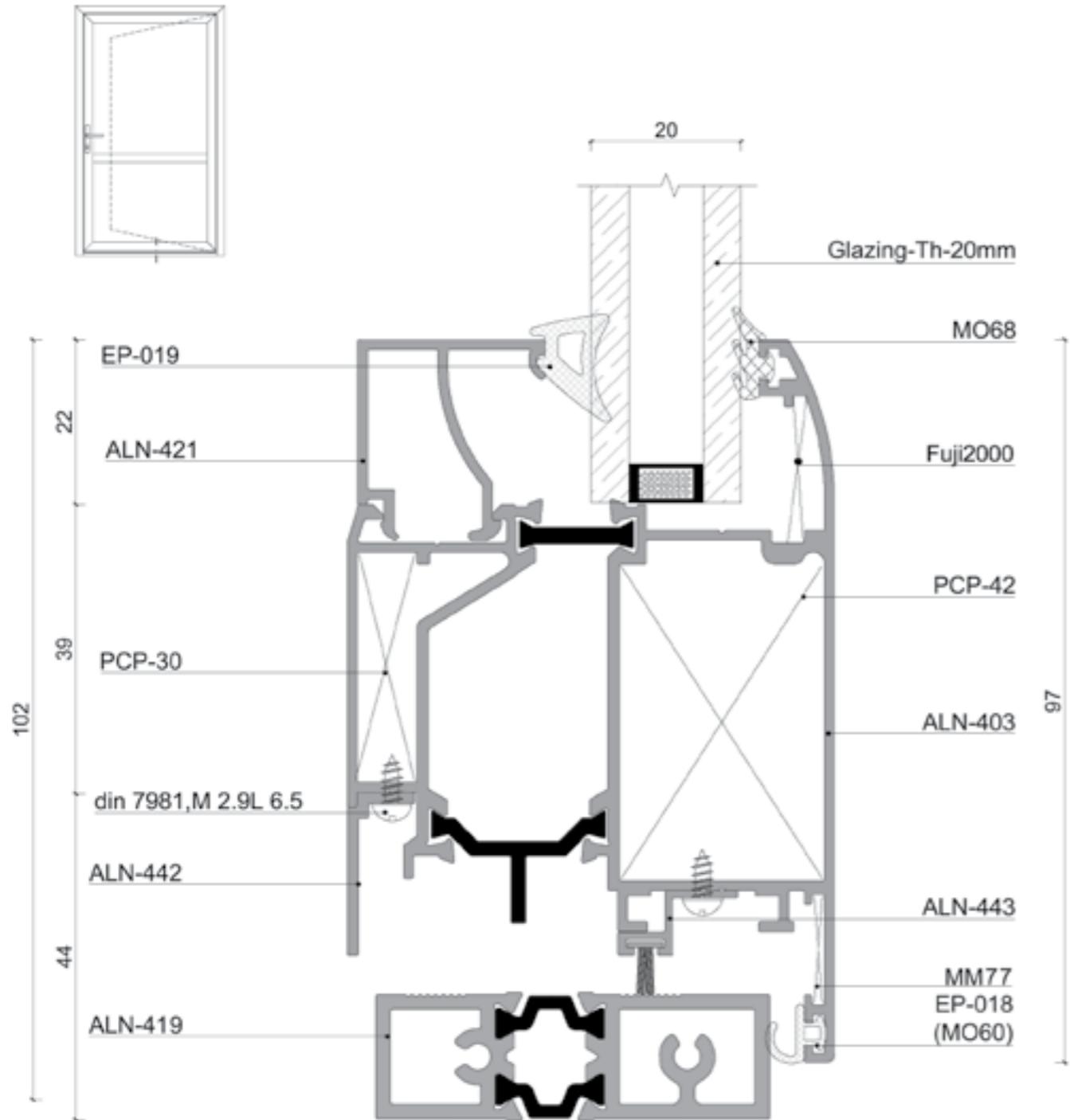
Hinged System 60 Series  
Fabrication Details



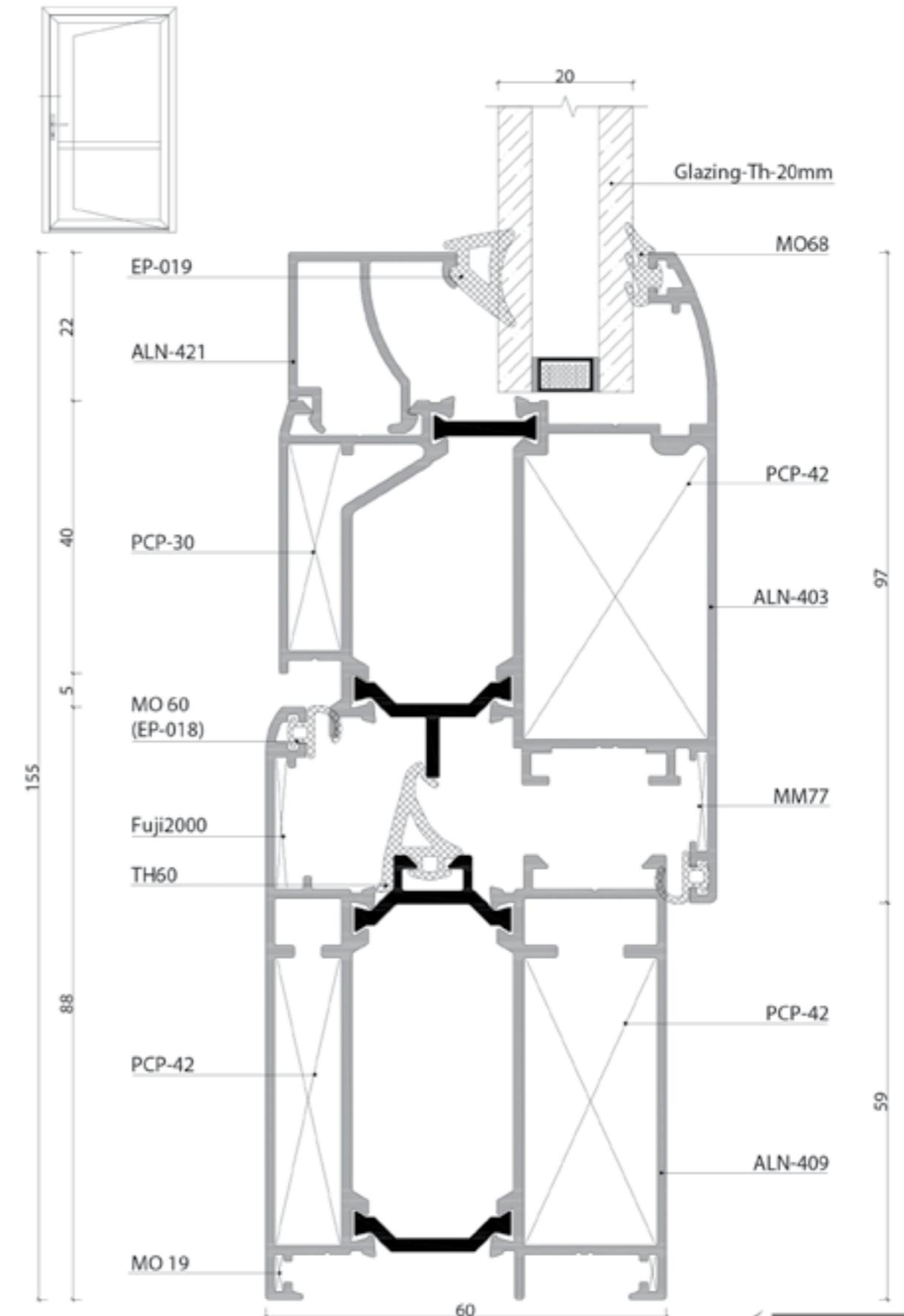
Hinged System 60 Series  
Fabrication Details



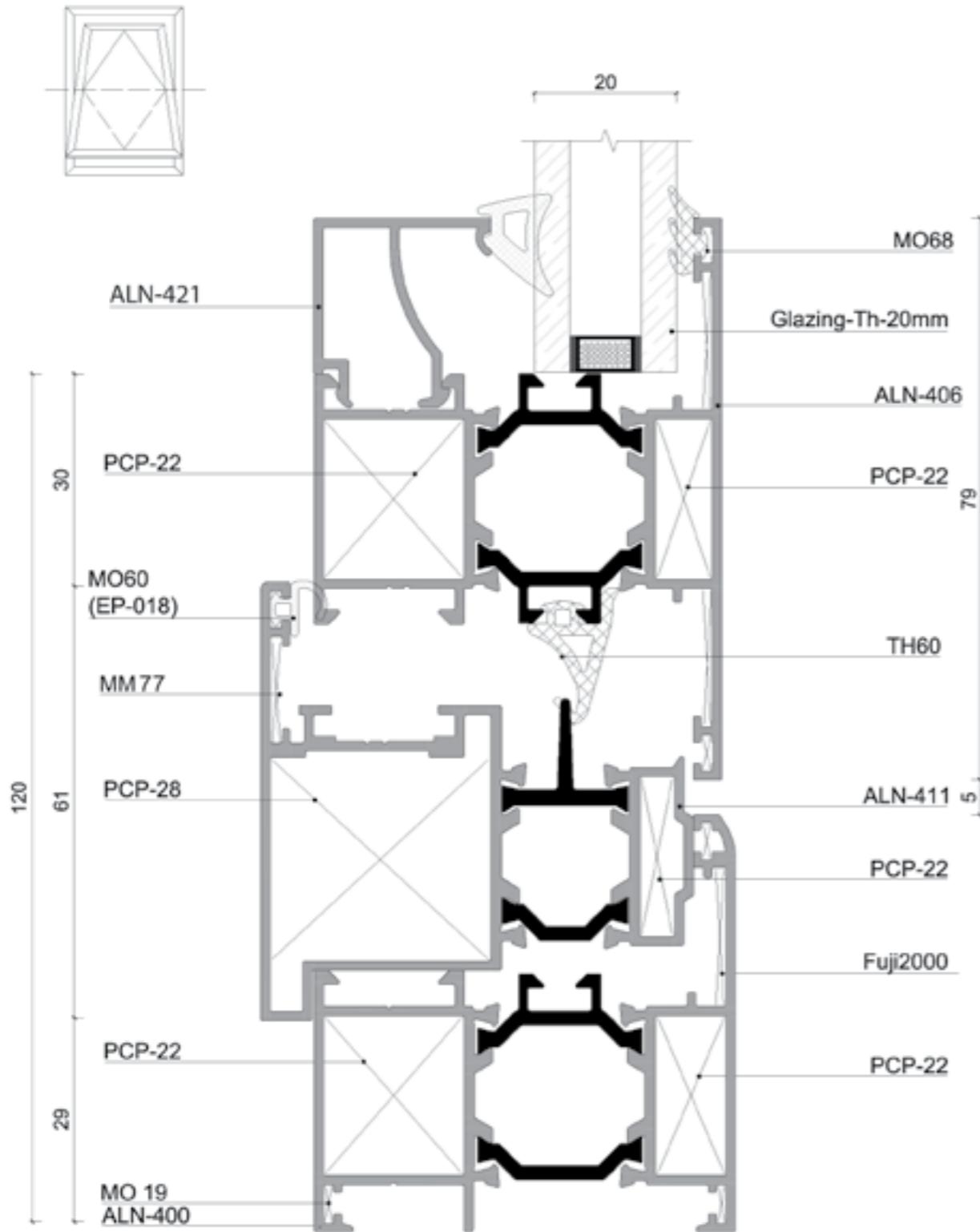
Hinged System 60 Series  
Fabrication Details



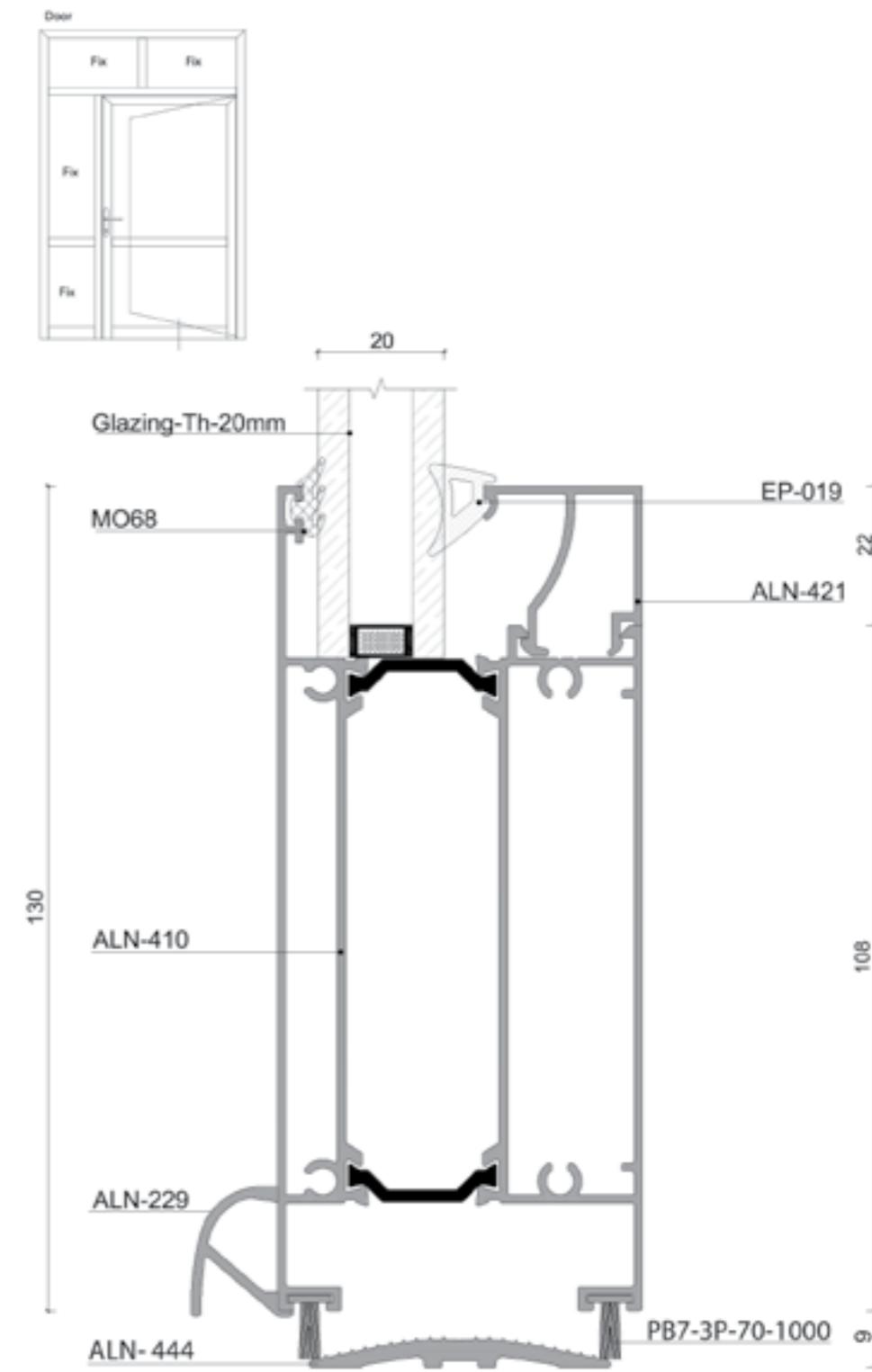
Hinged System 60 Series  
Fabrication Details



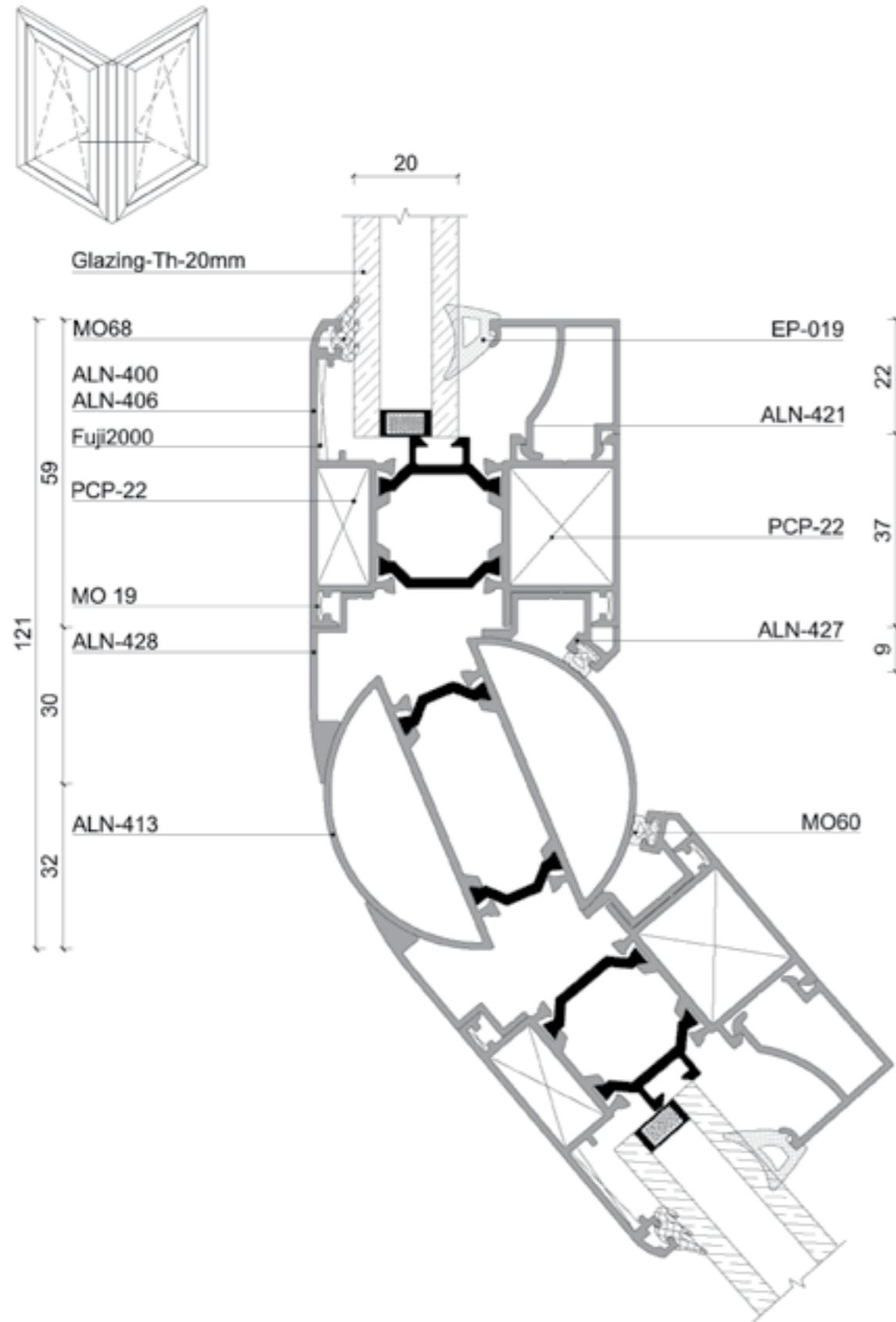
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Fabrication Details



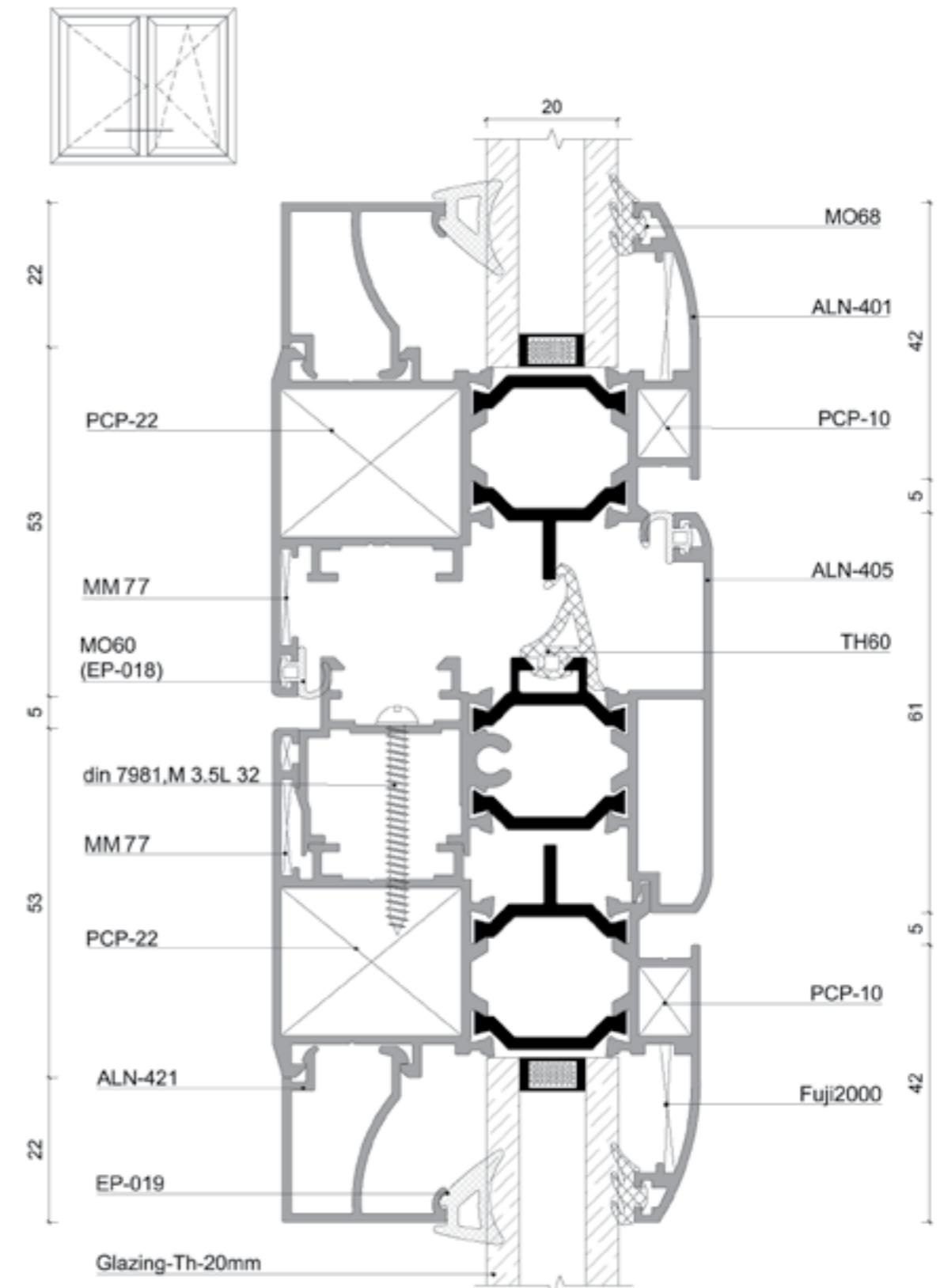
Hinged System 60 Series  
Fabrication Details



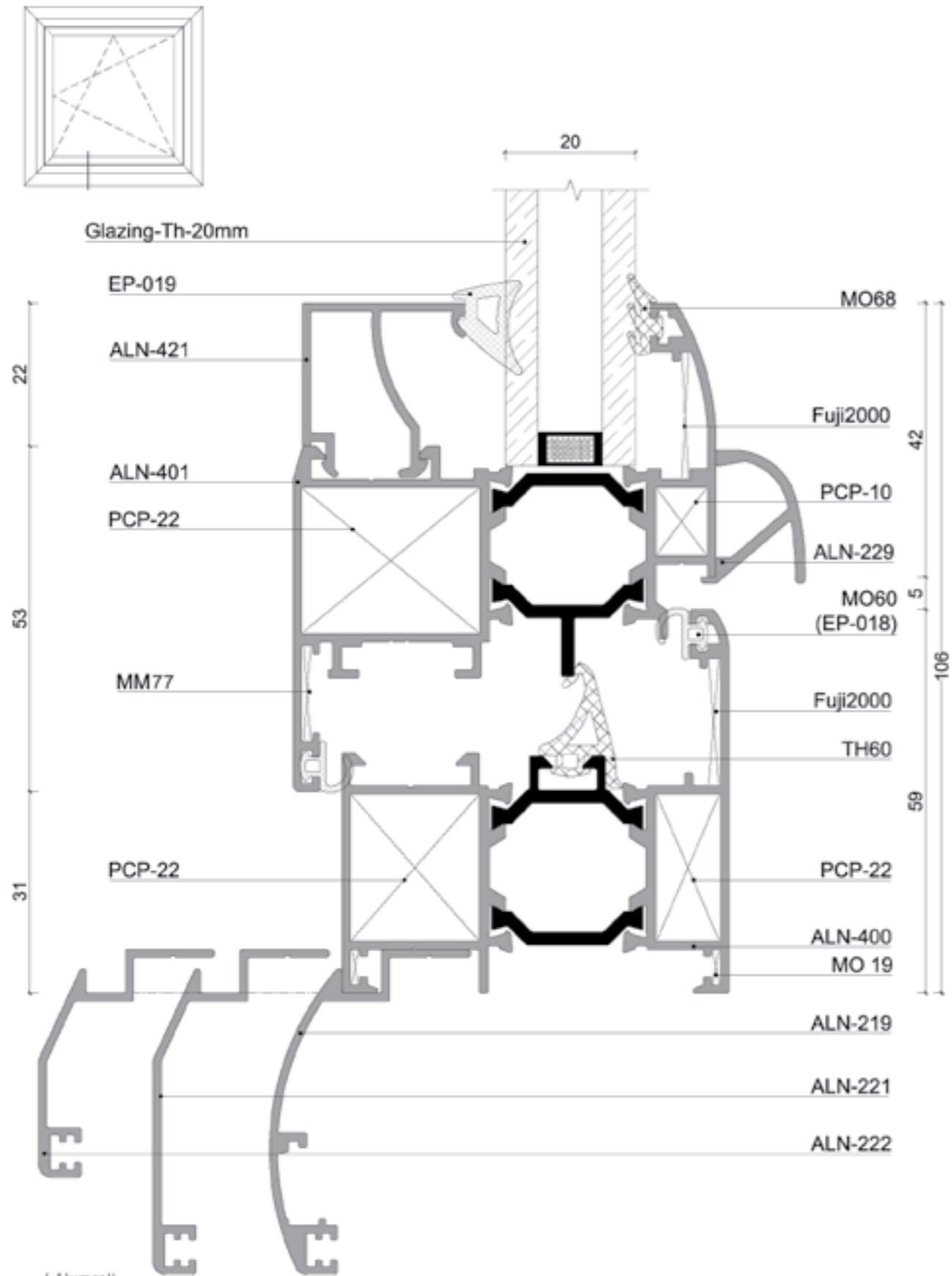
Hinged System 60 Series  
Fabrication Details



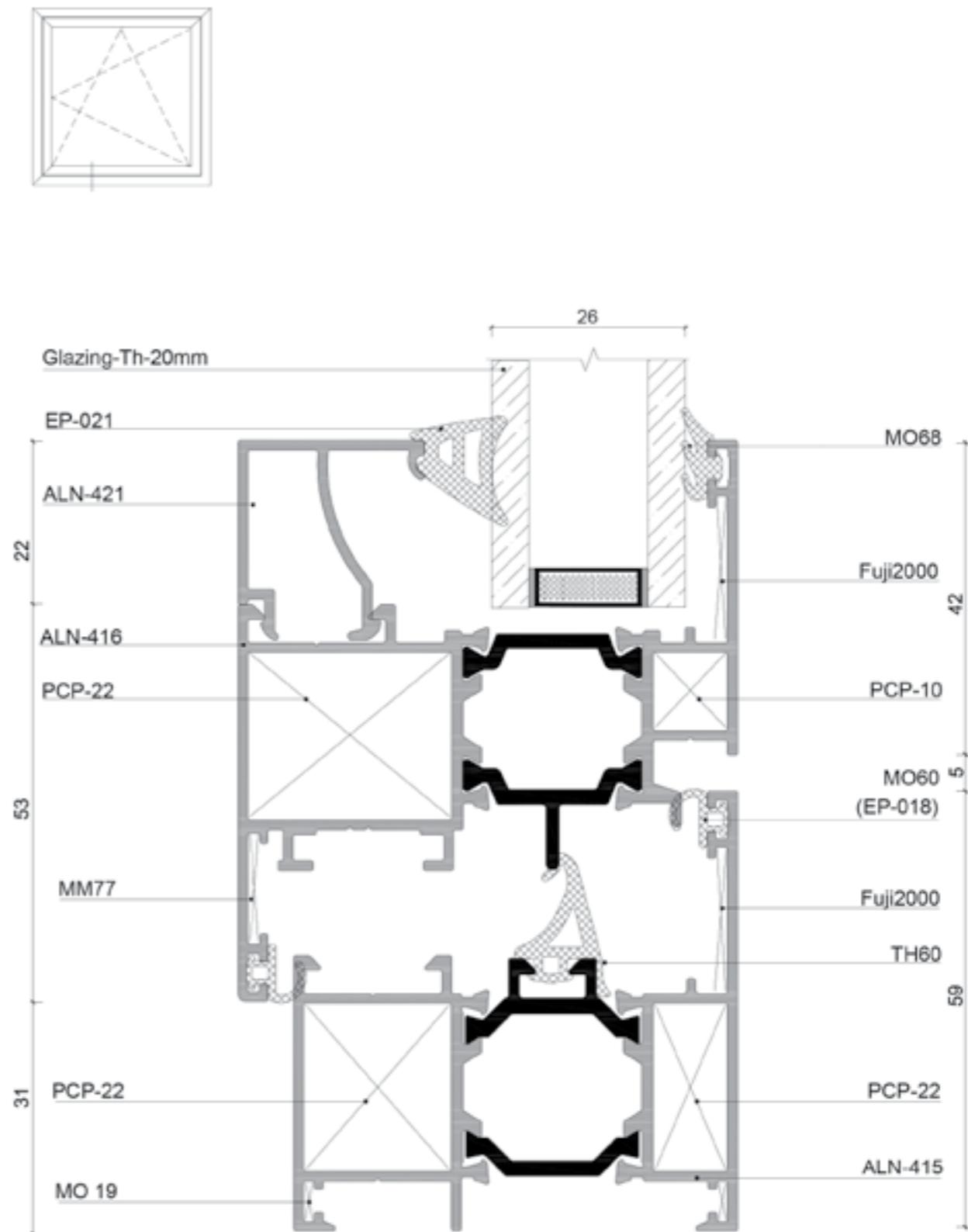
Hinged System 60 Series  
Fabrication Details



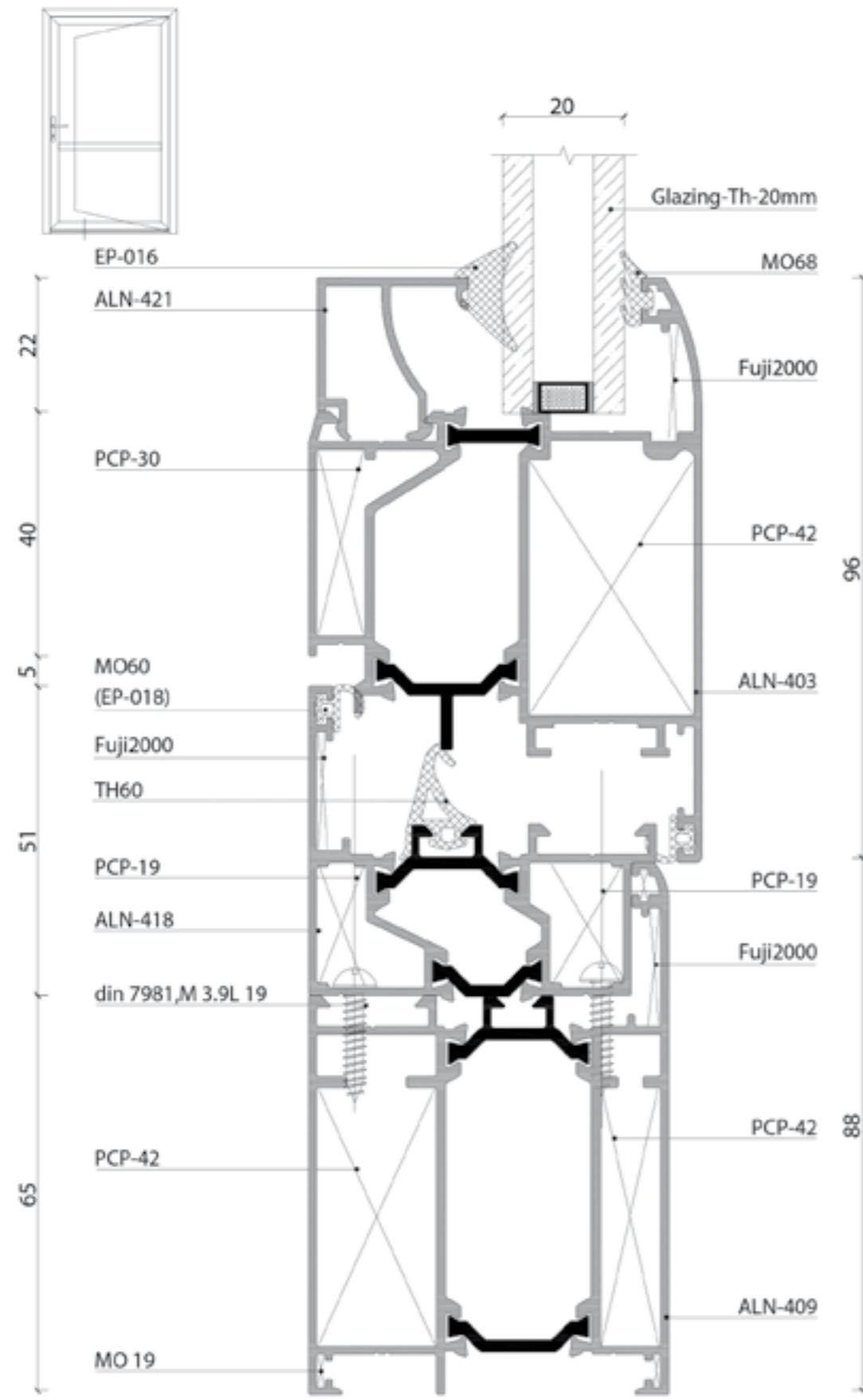
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Fabrication Details



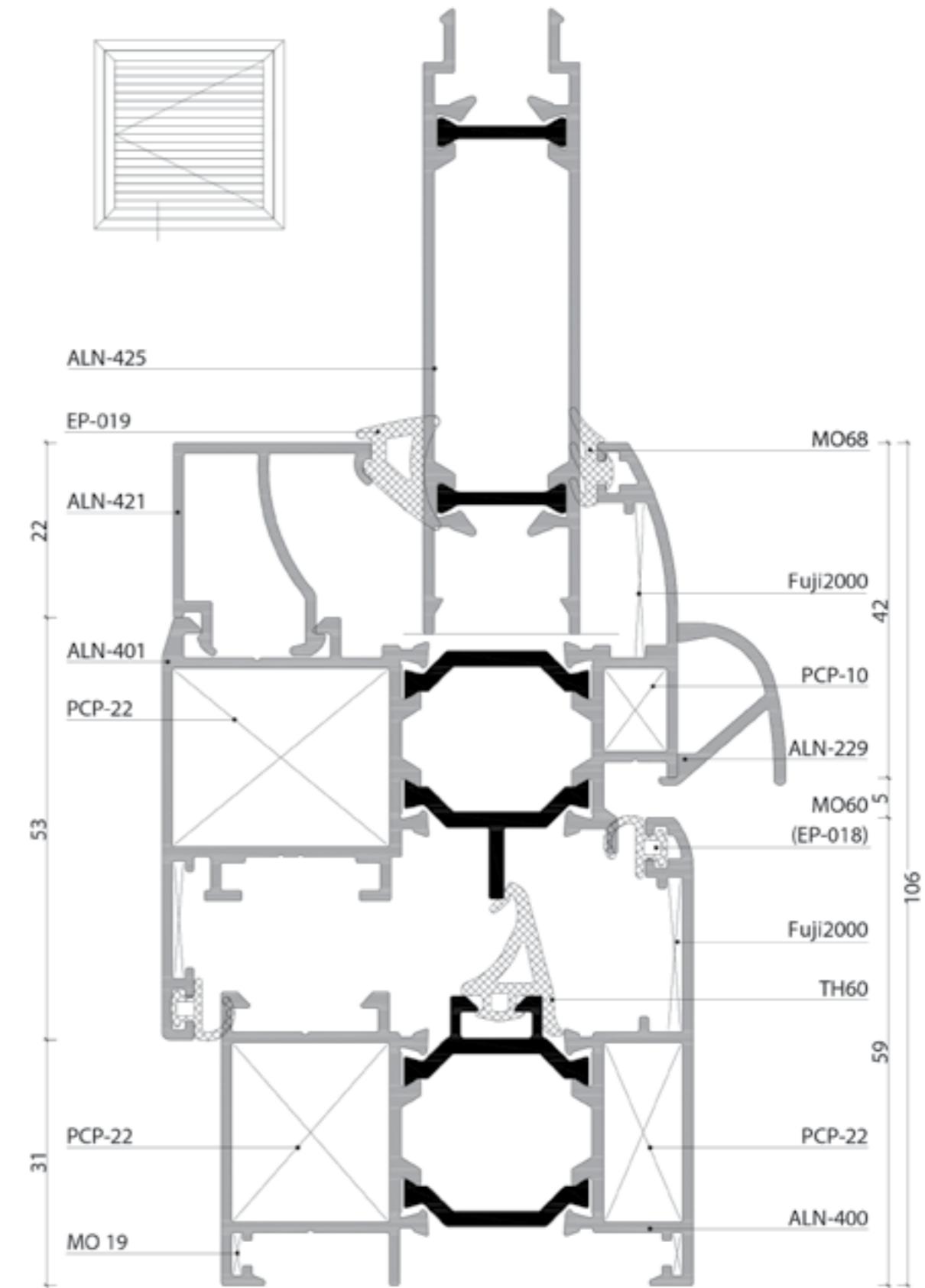
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Fabrication Details



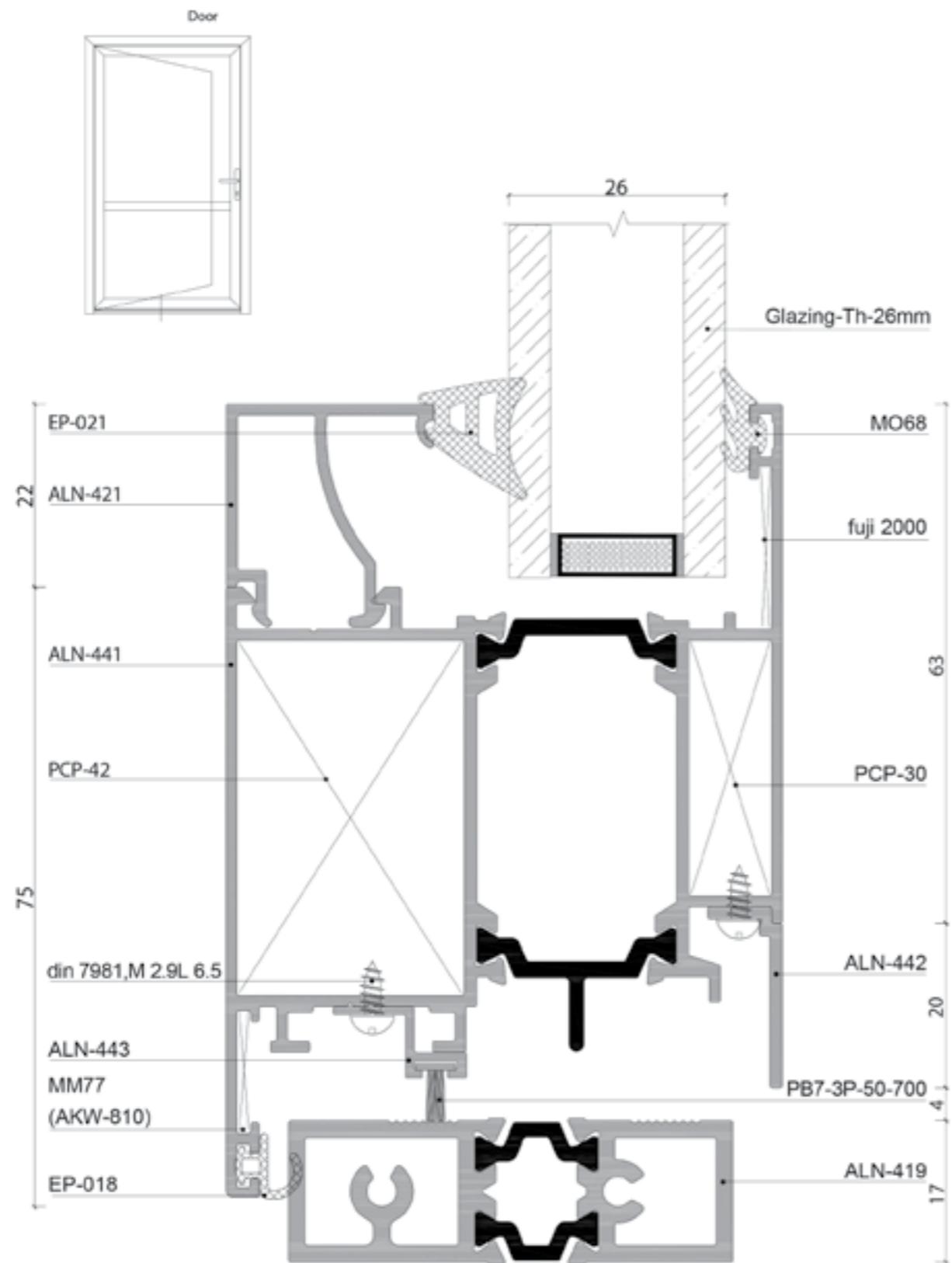
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Fabrication Details



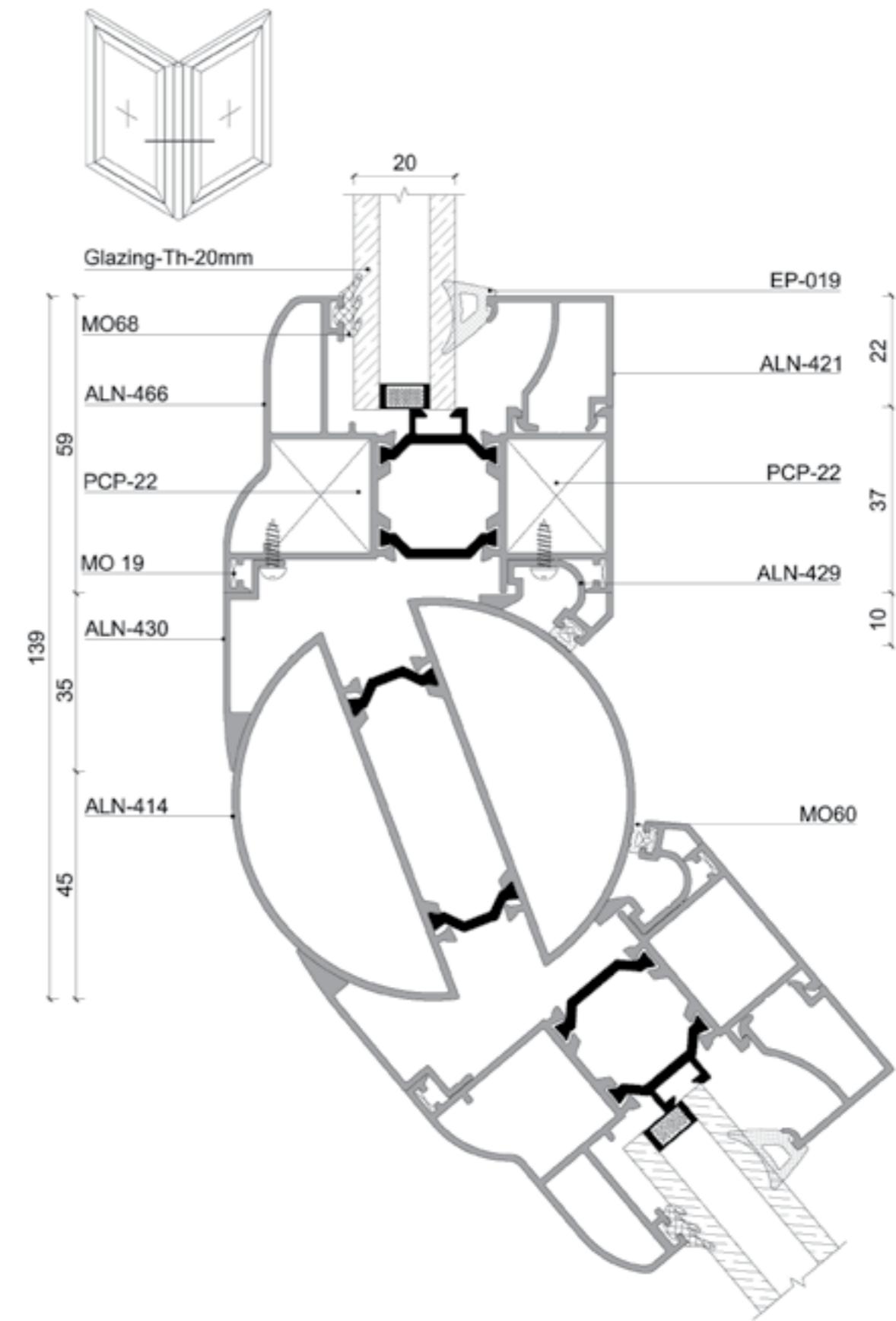
Hinged System 60 Series  
Fabrication Details



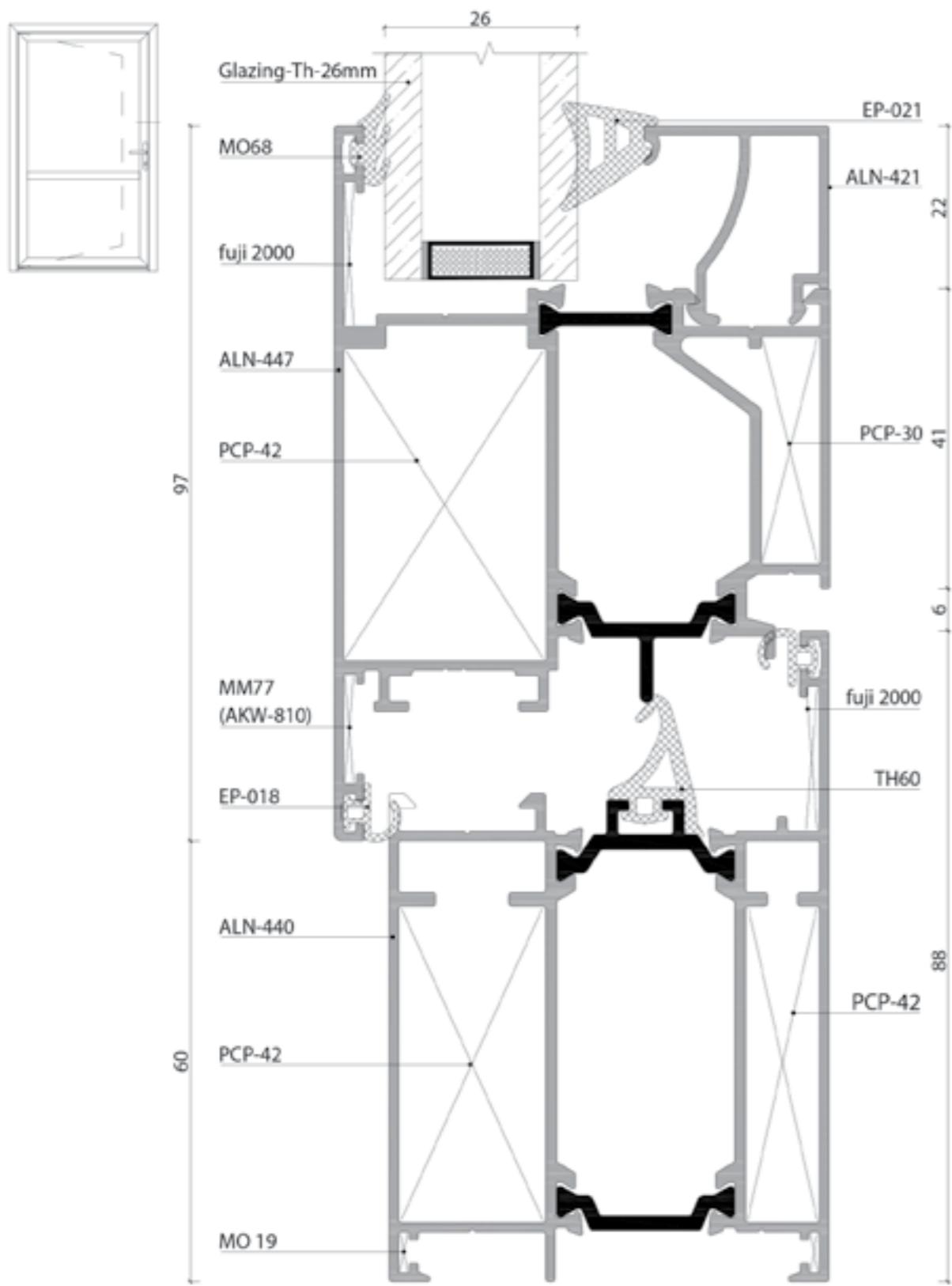
Hinged System 60 Series  
Fabrication Details



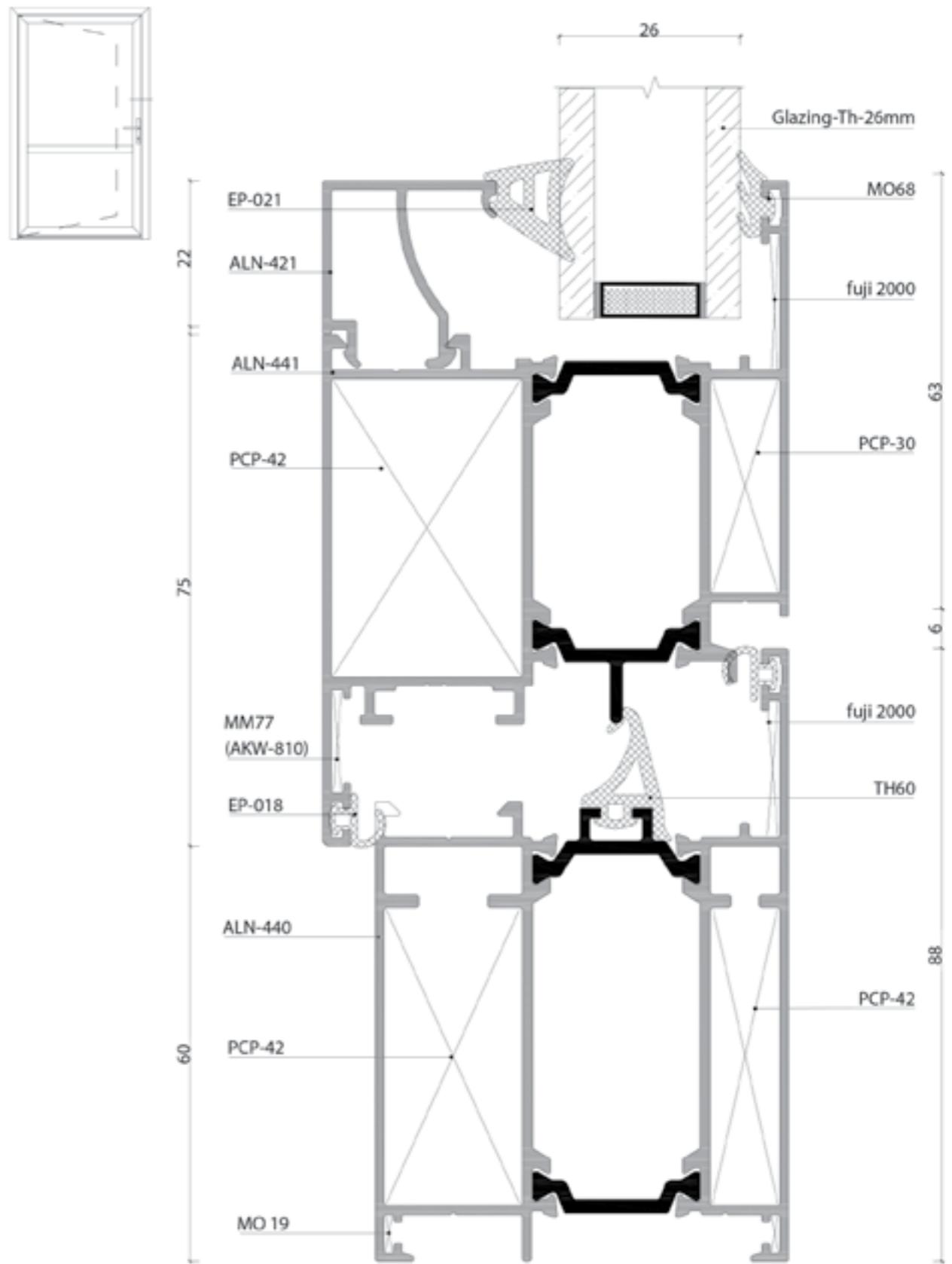
Hinged System 60 Series  
Fabrication Details



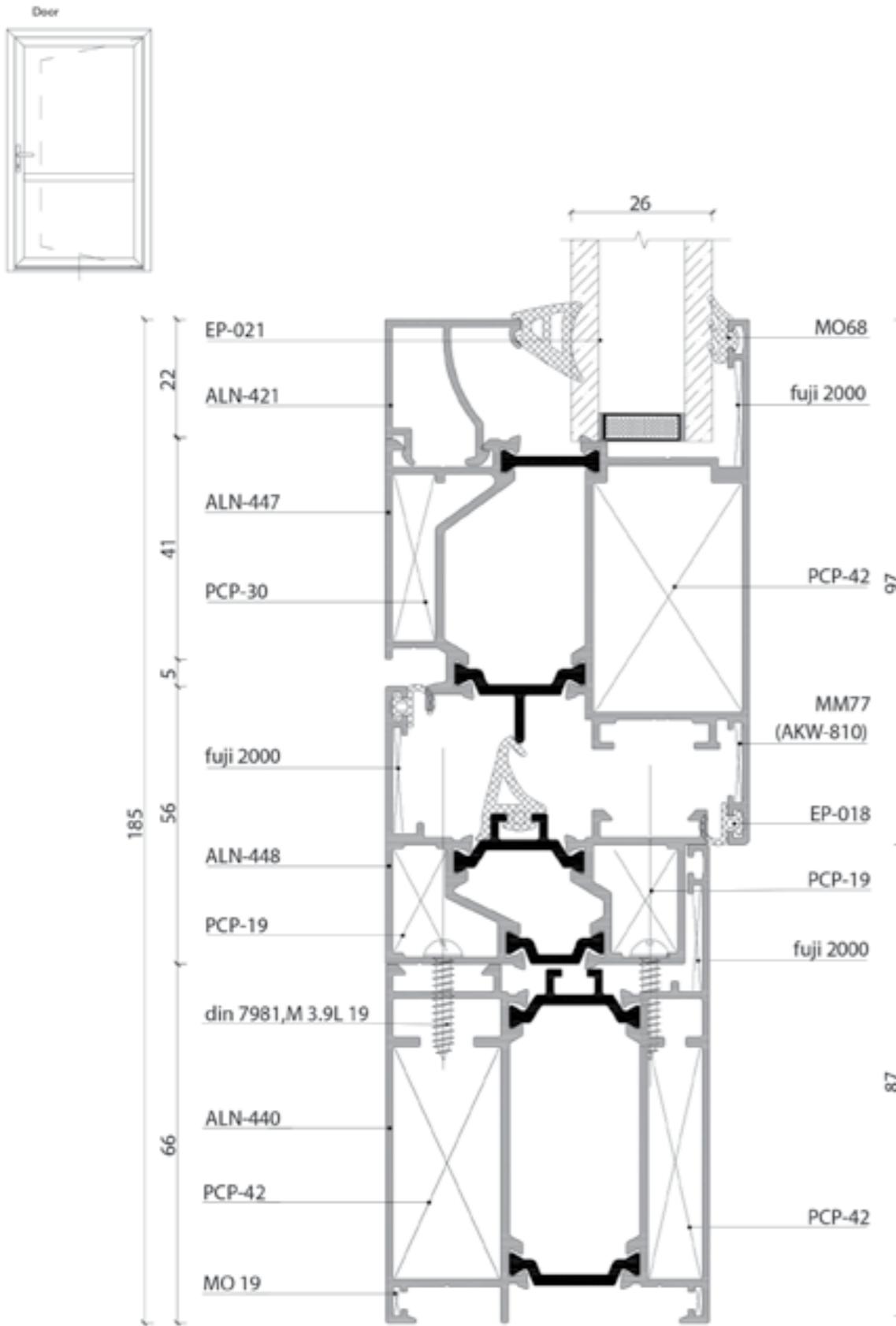
Hinged System 60 Series  
Fabrication Details



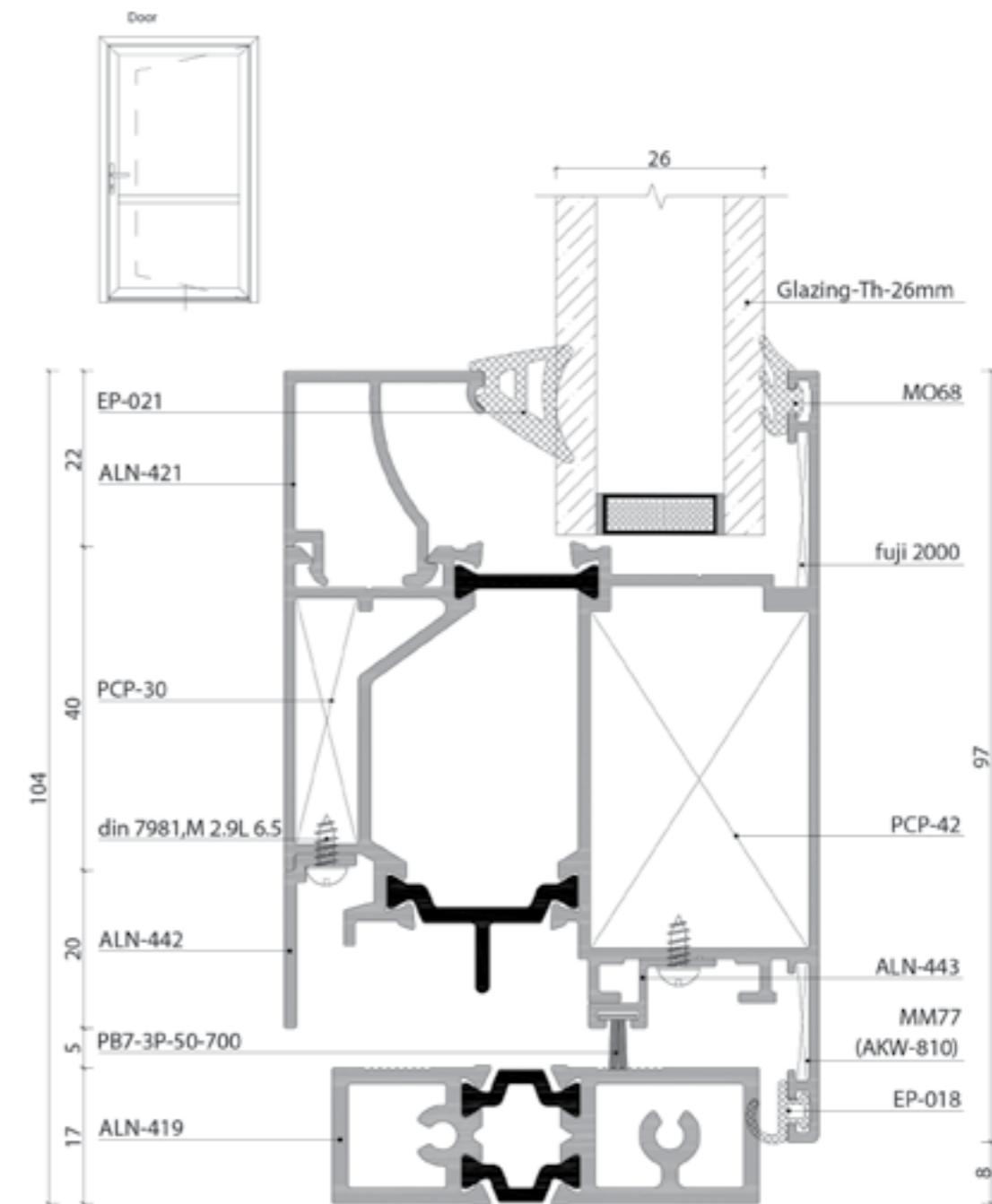
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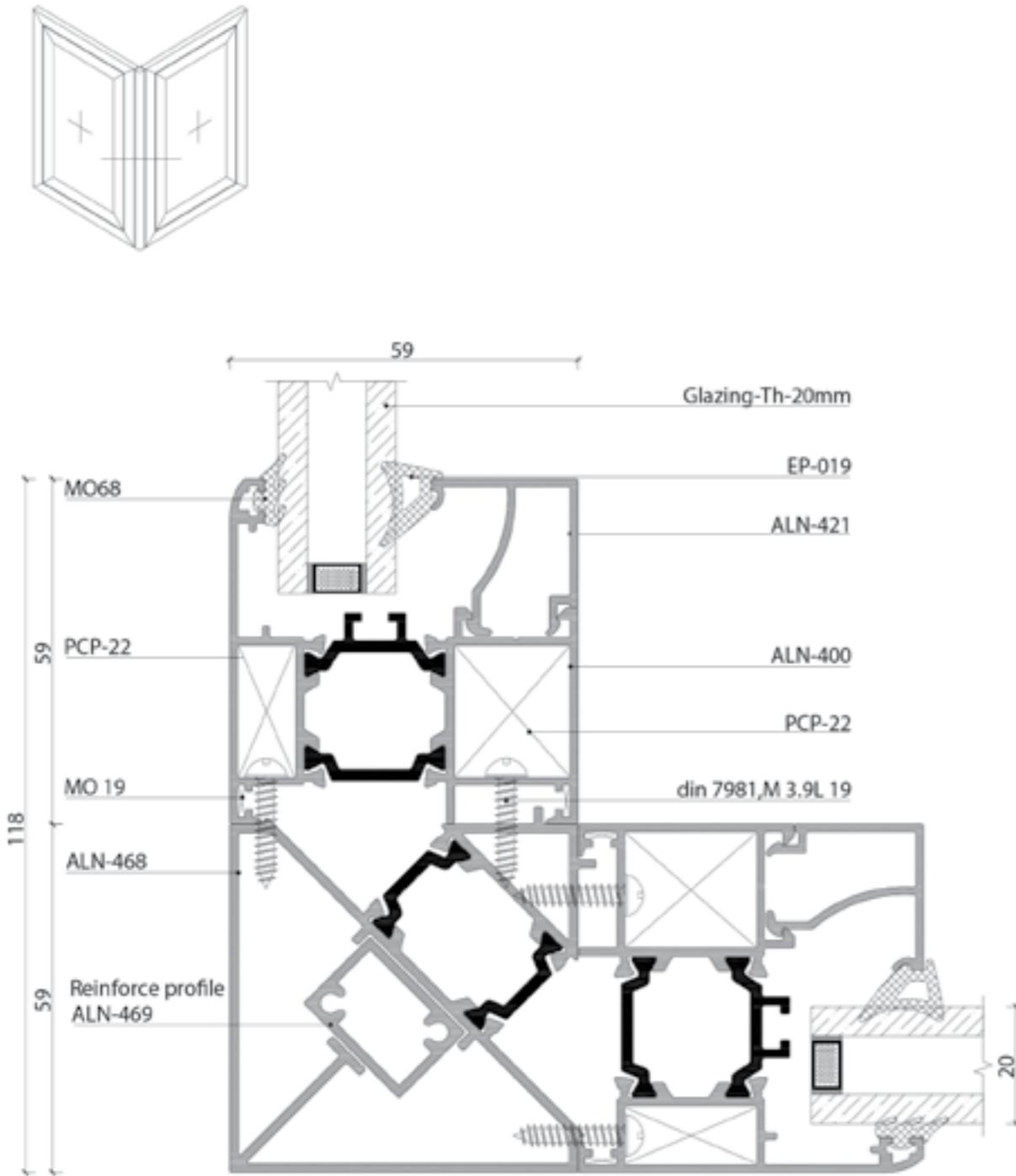
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Fabrication Details



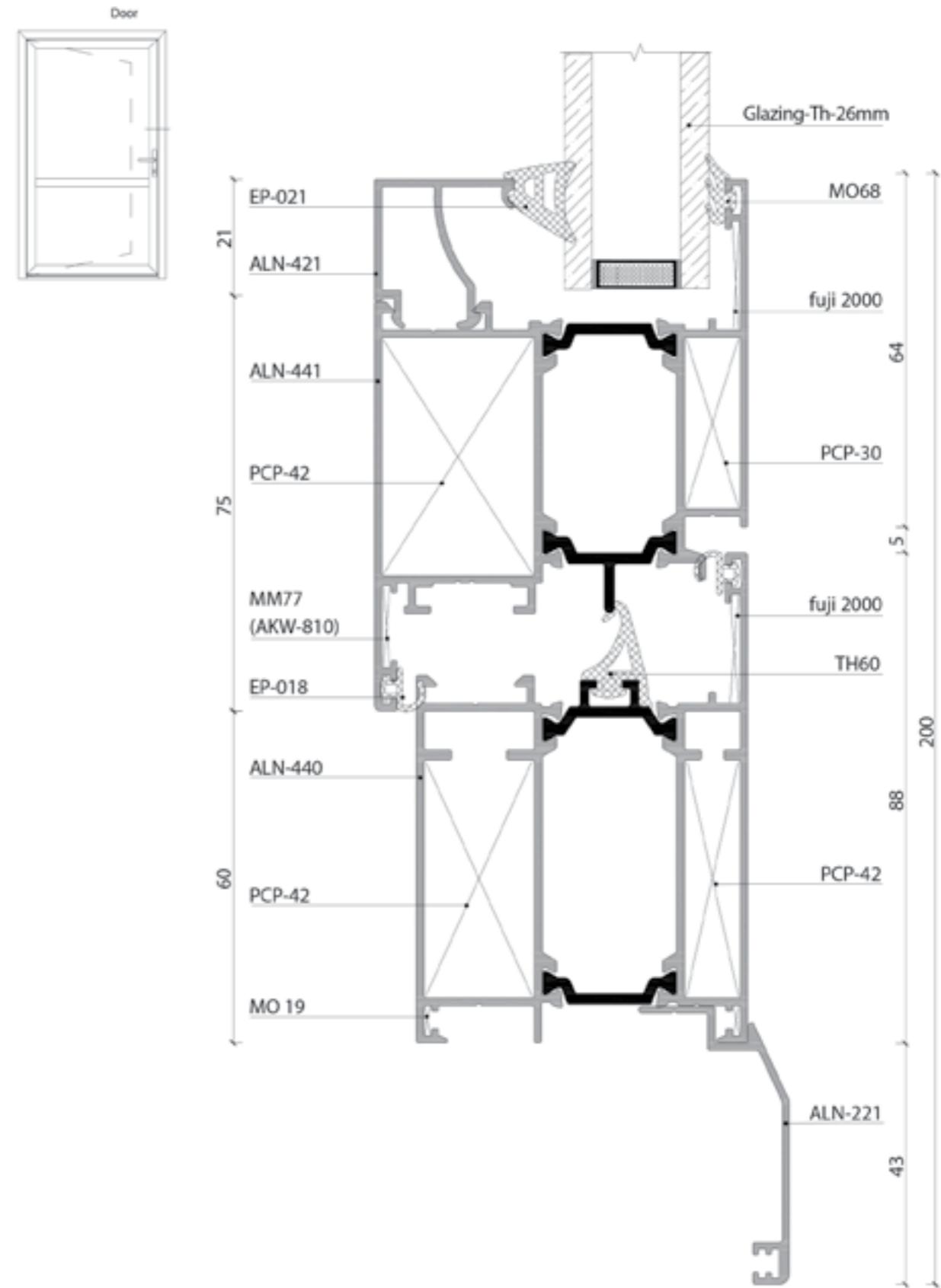
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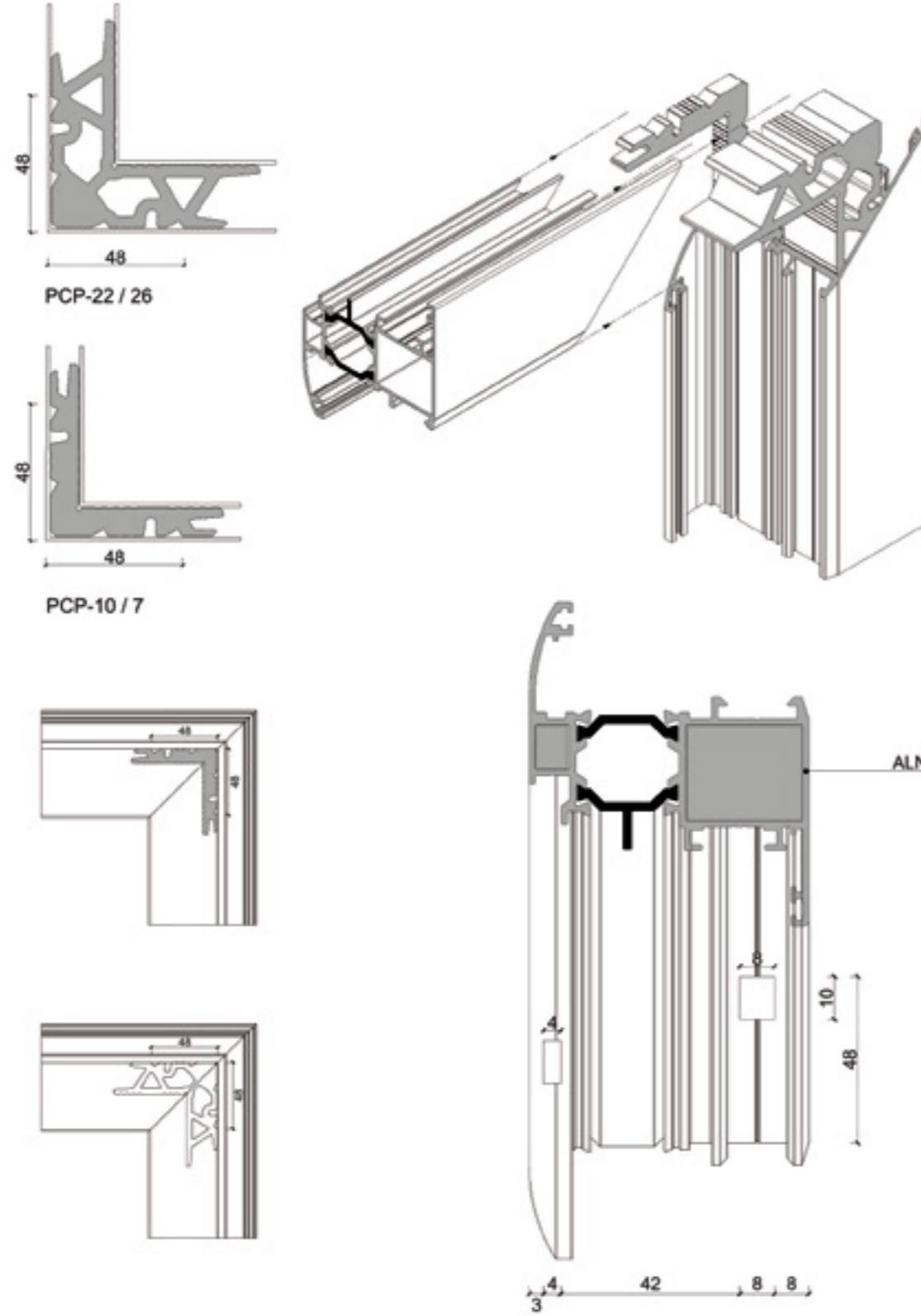
Hinged System 60 Series  
Fabrication Details



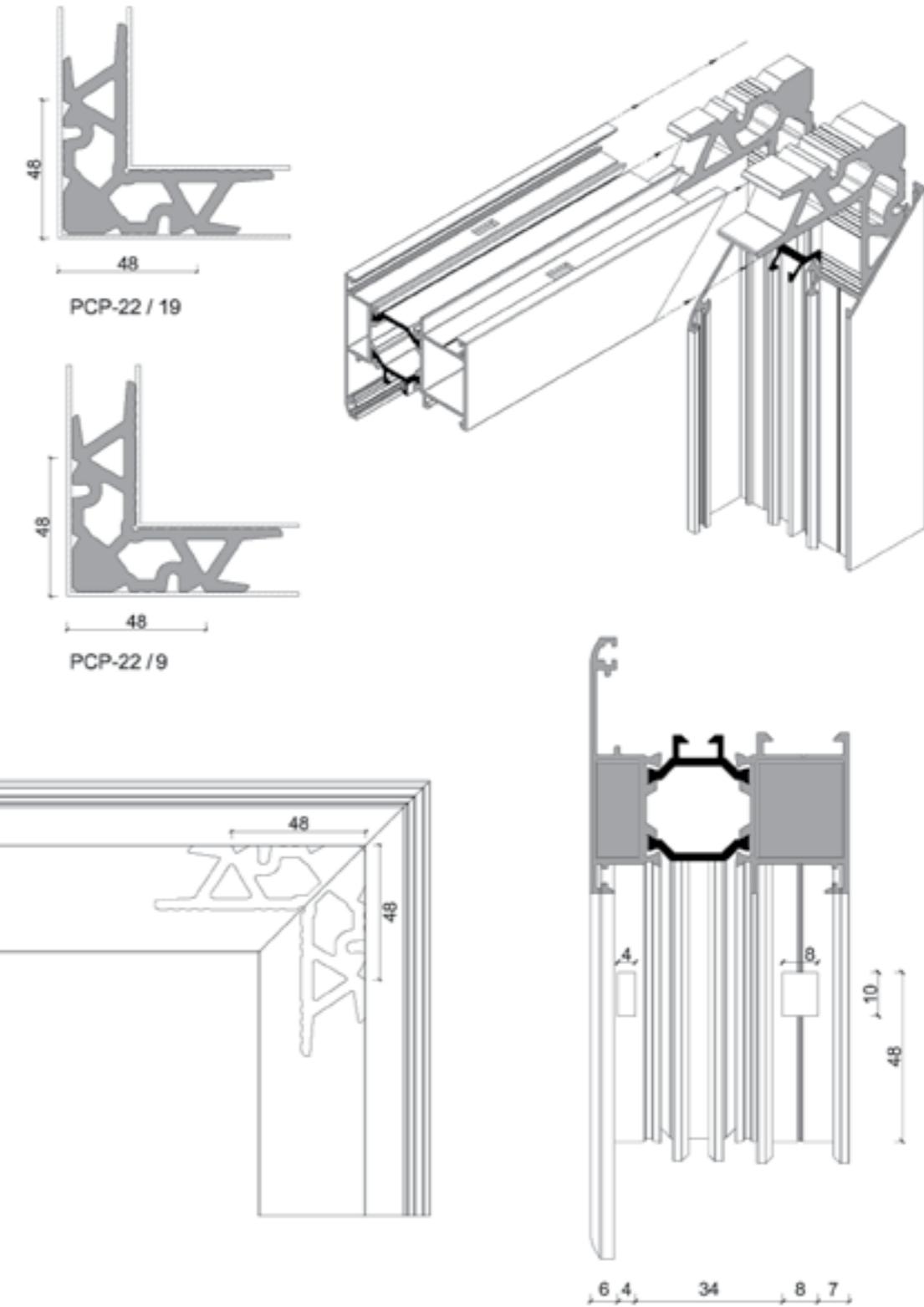
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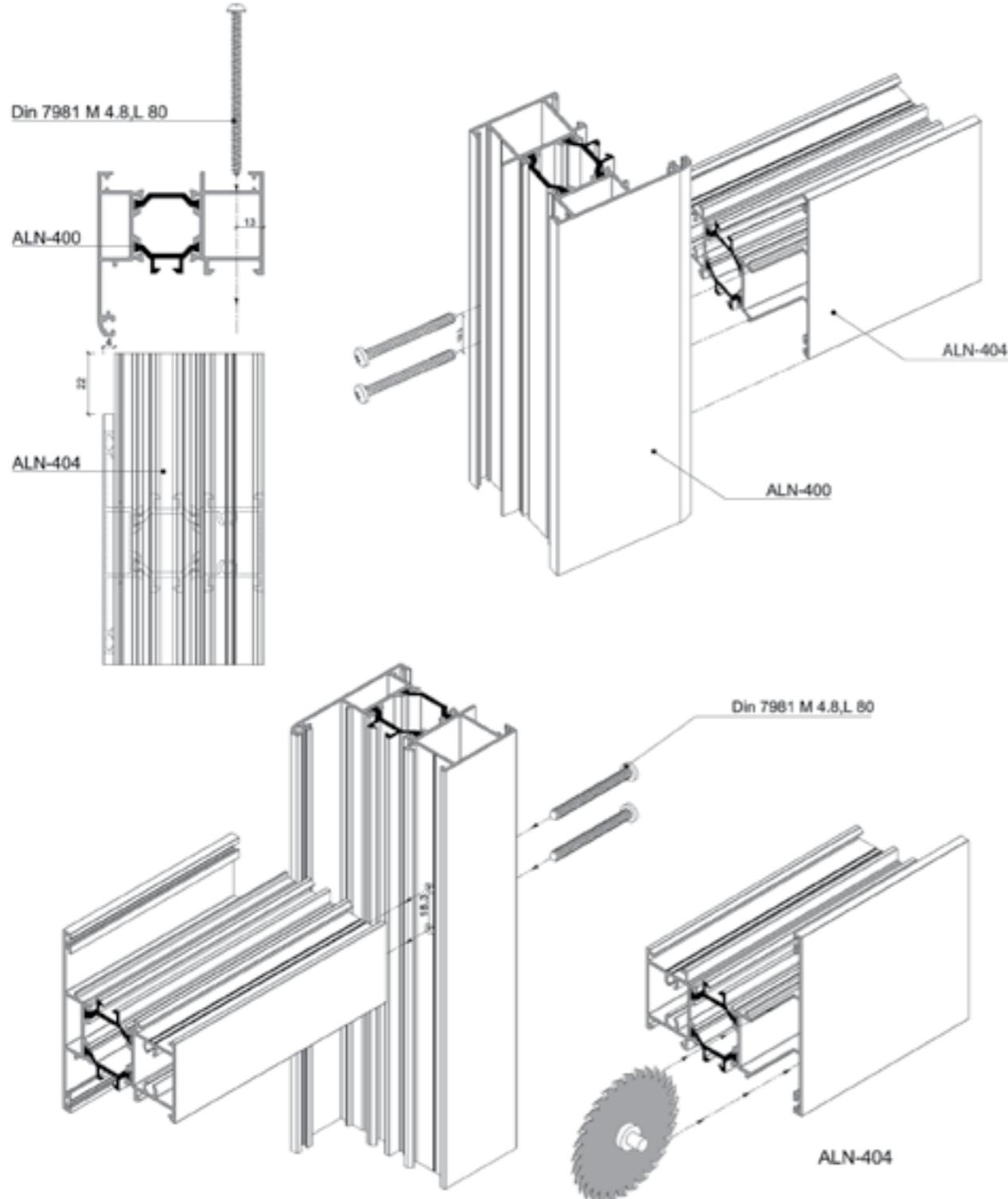
Hinged System 60 Series  
Assembly Drawing



Hinged System 60 Series  
Assembly Drawing

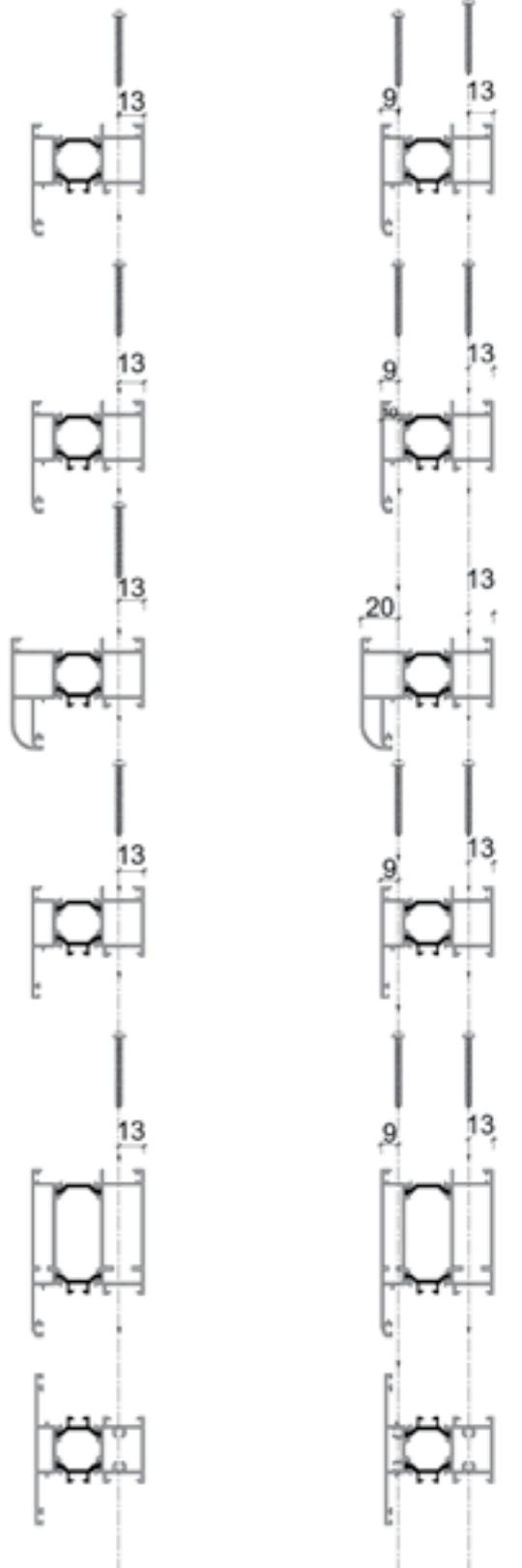
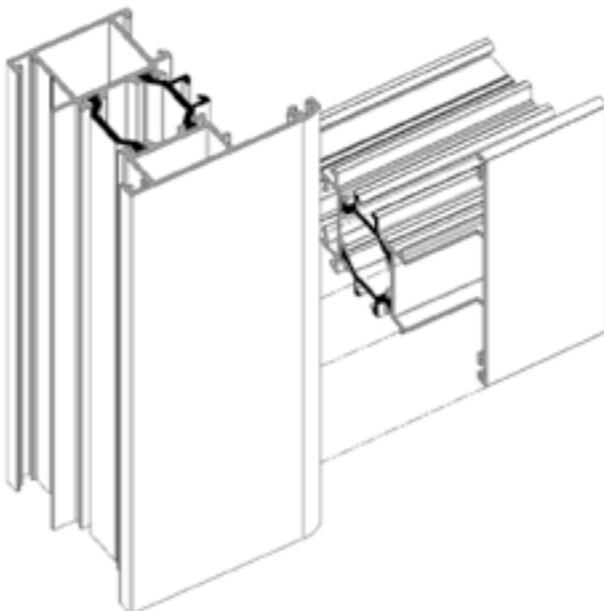


Hinged System 60 Series  
Assembly Drawing

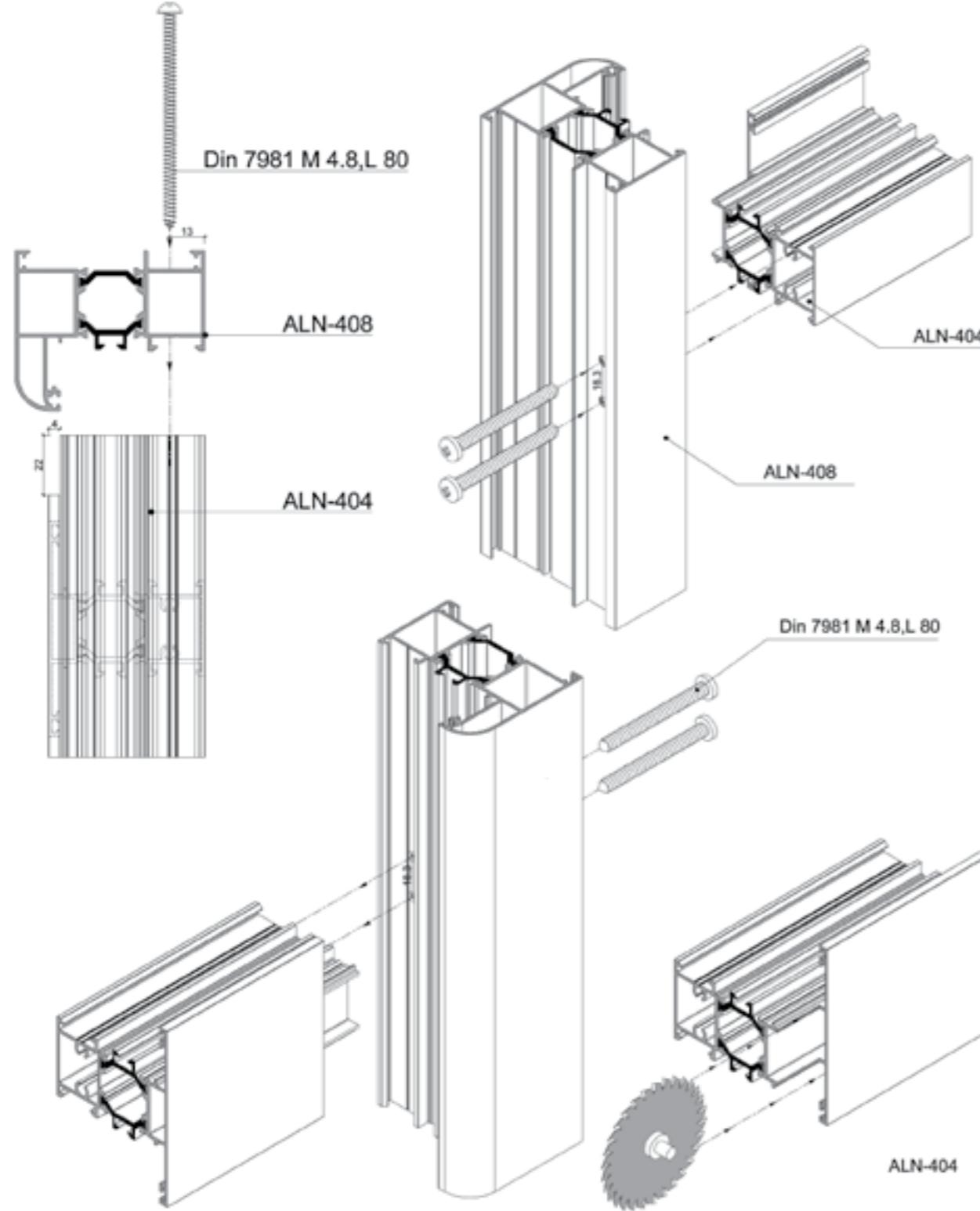


Hinged System 60 Series  
Assembly Drawing

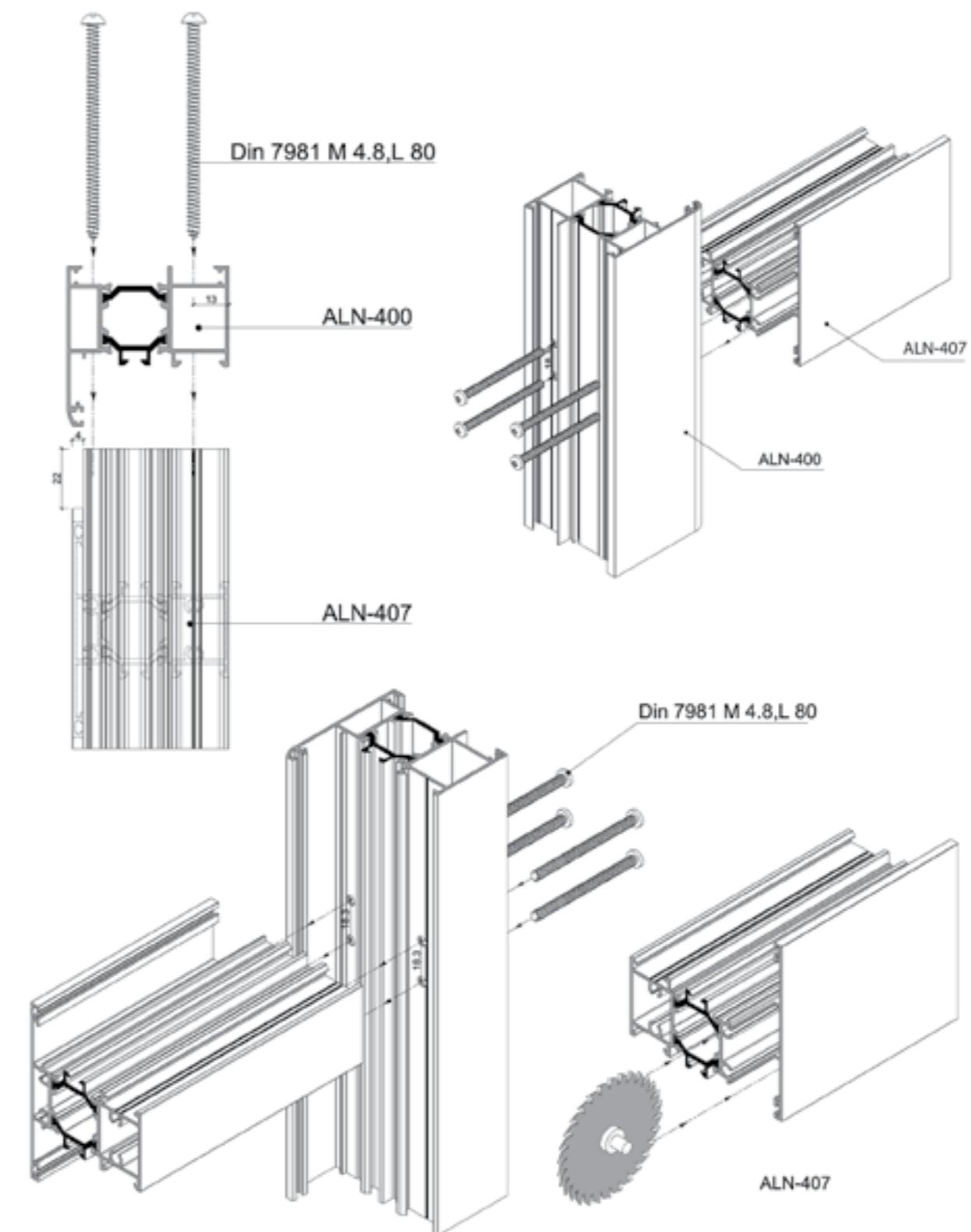
Connection - frame to transom



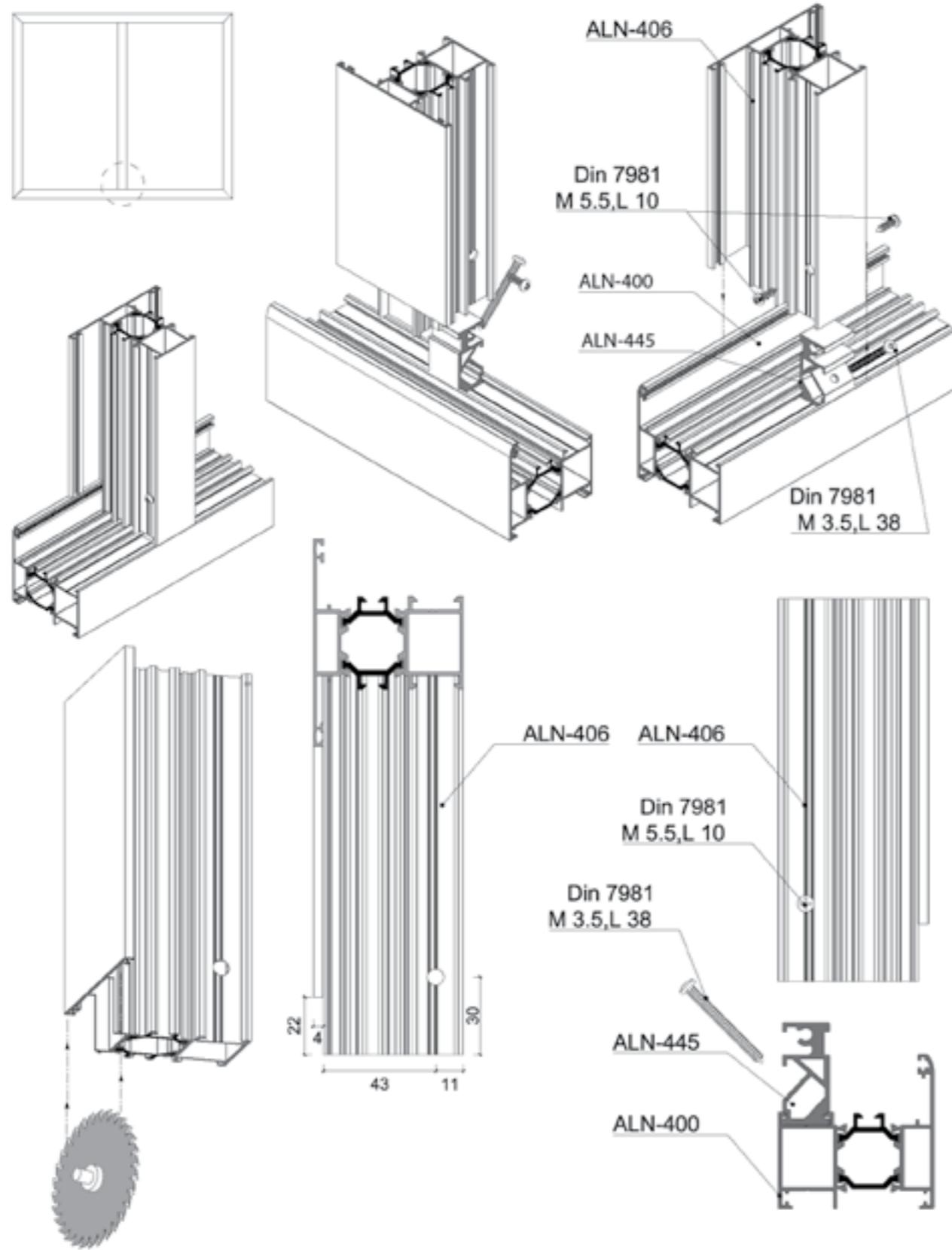
Hinged System 60 Series  
Assembly Drawing



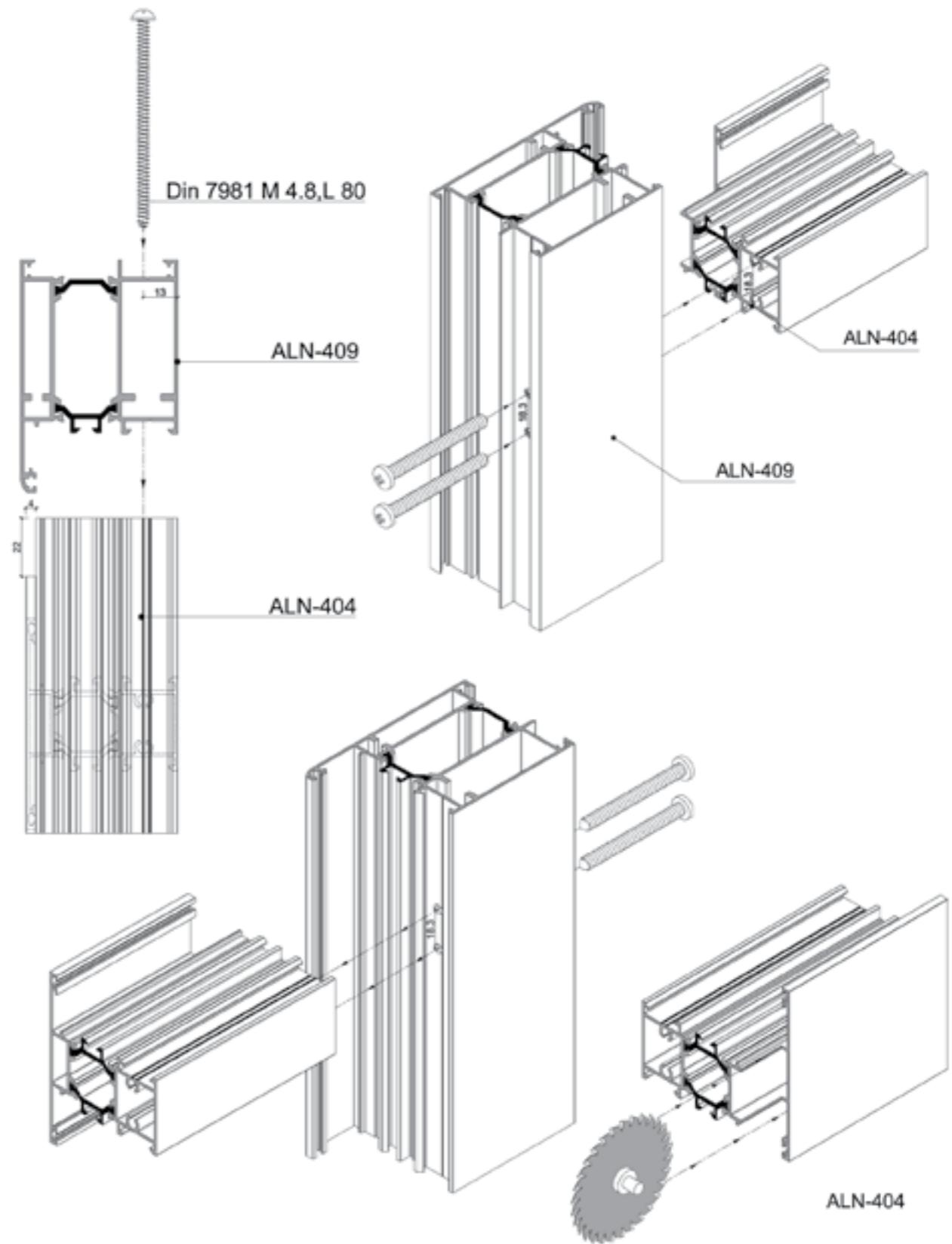
Hinged System 60 Series  
Assembly Drawing



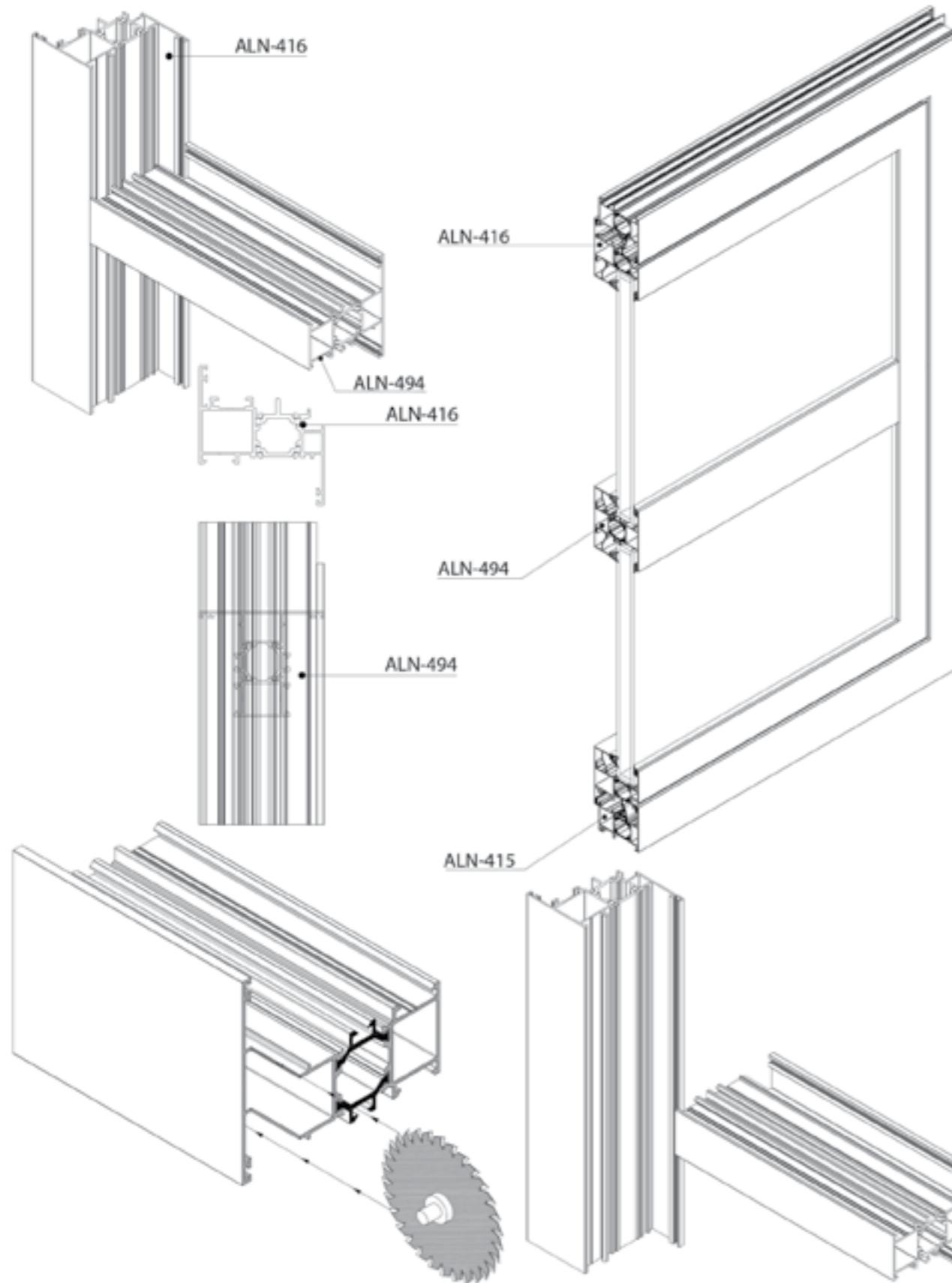
Hinged System 60 Series  
Assembly Drawing



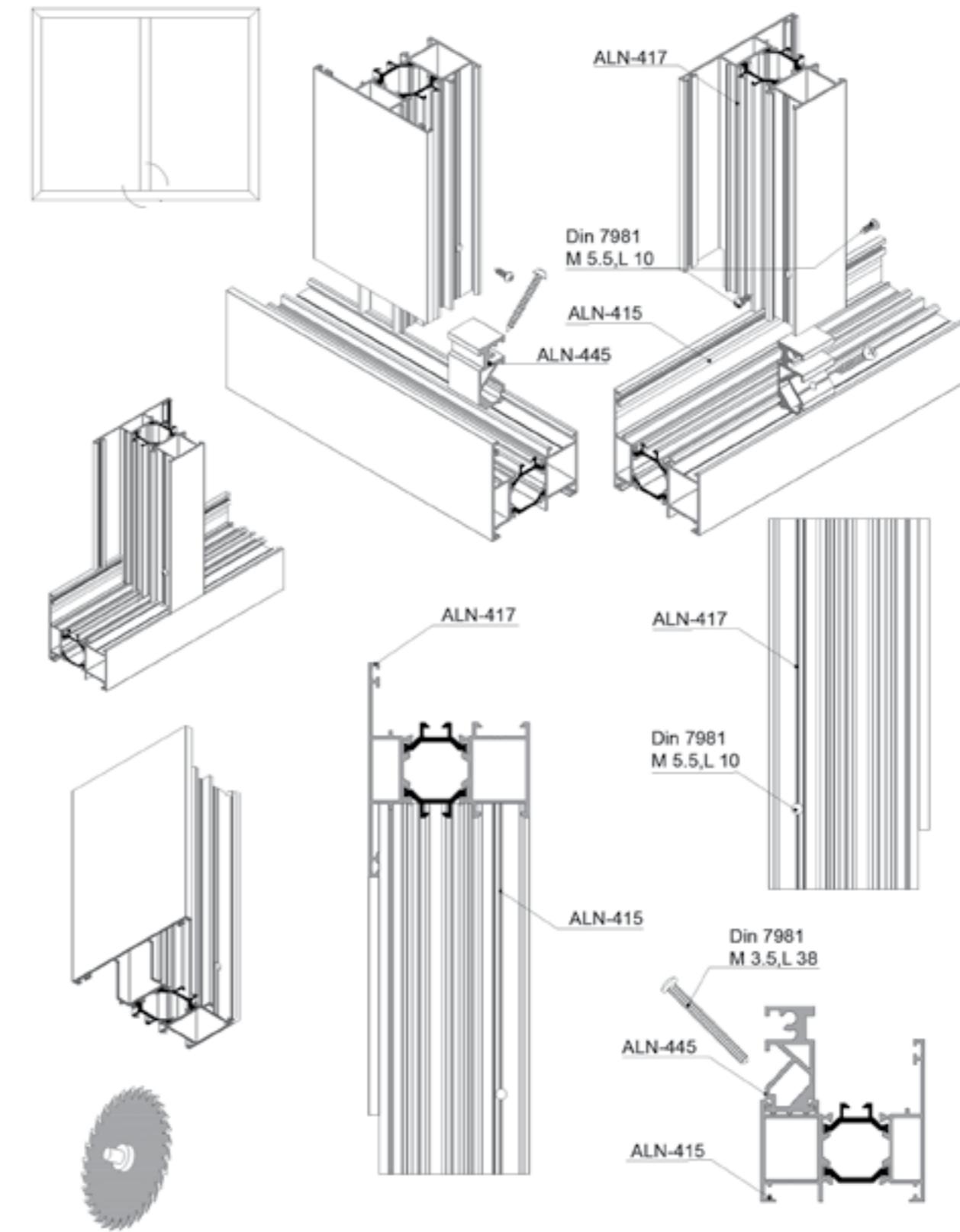
Hinged System 60 Series  
Assembly Drawing



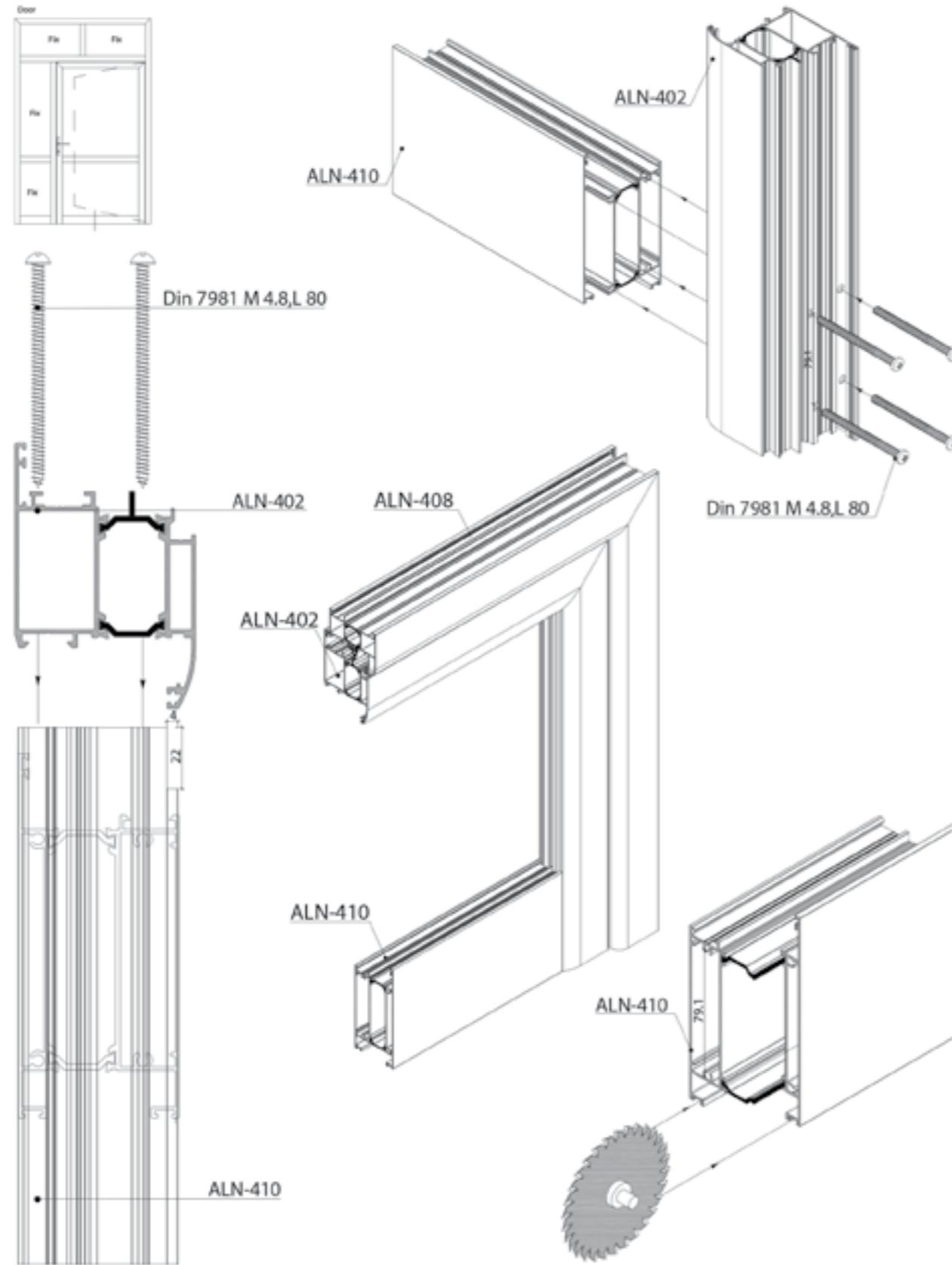
Hinged System 60 Series  
Assembly Drawing



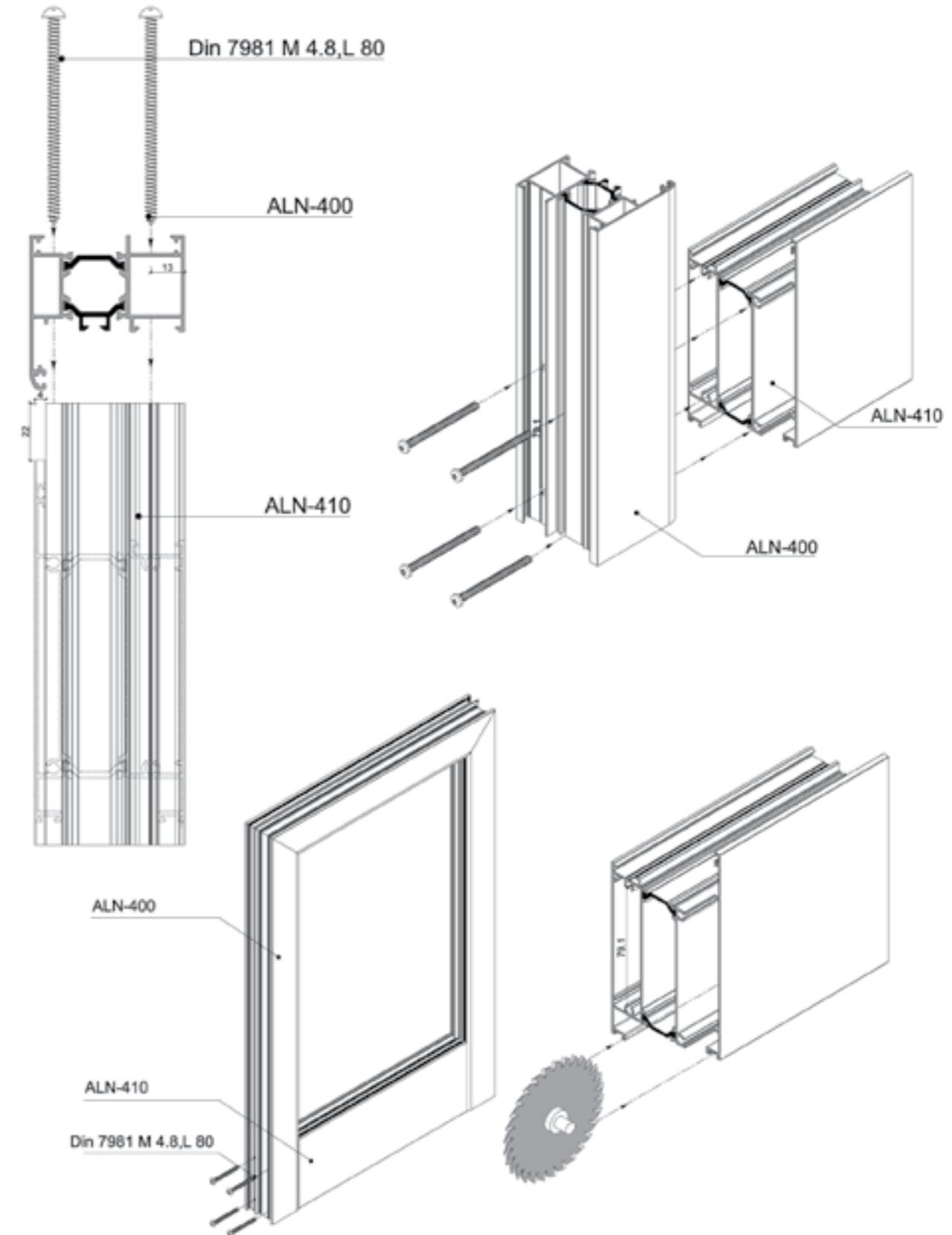
Hinged System 60 Series  
Assembly Drawing



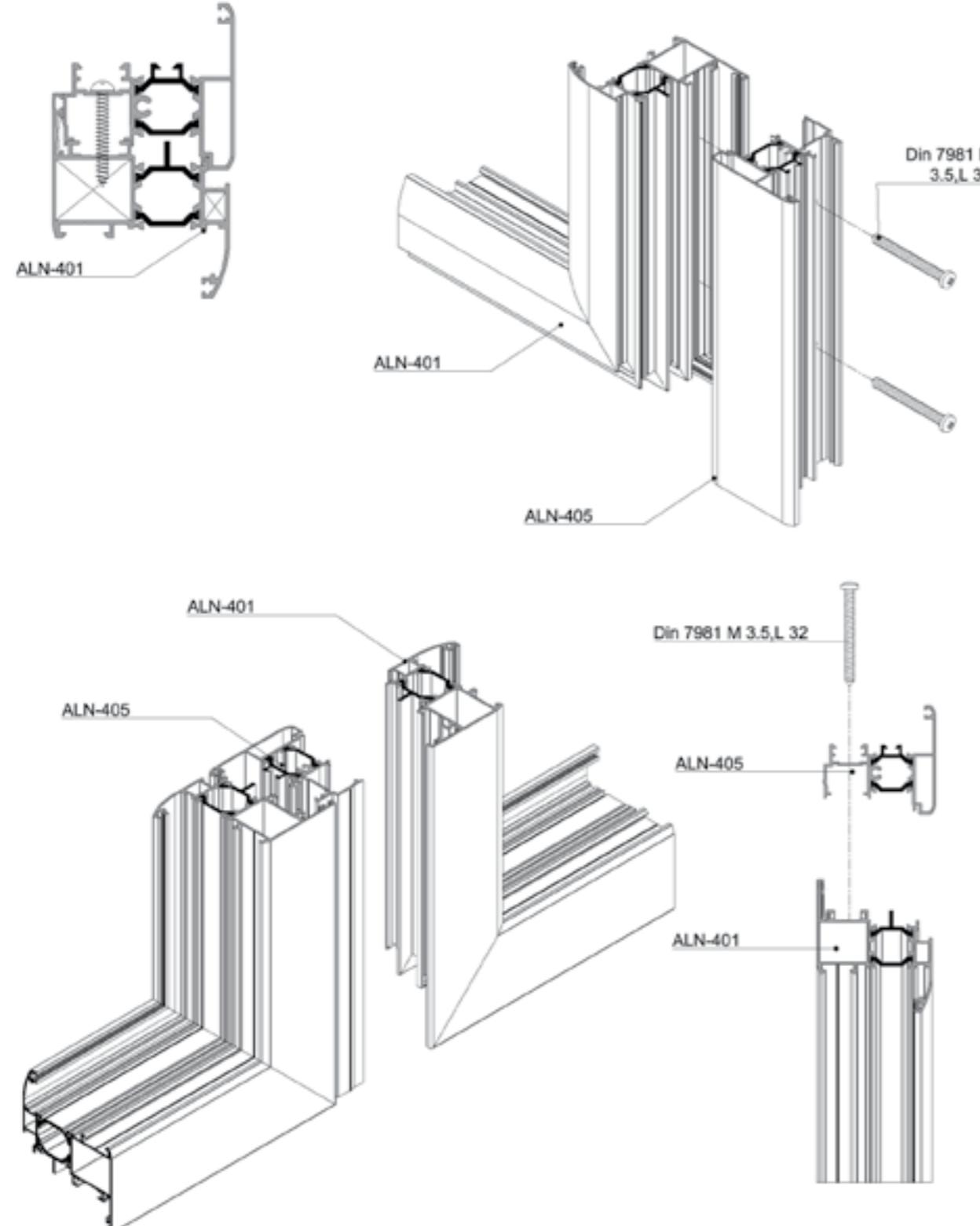
Hinged System 60 Series  
Assembly Drawing



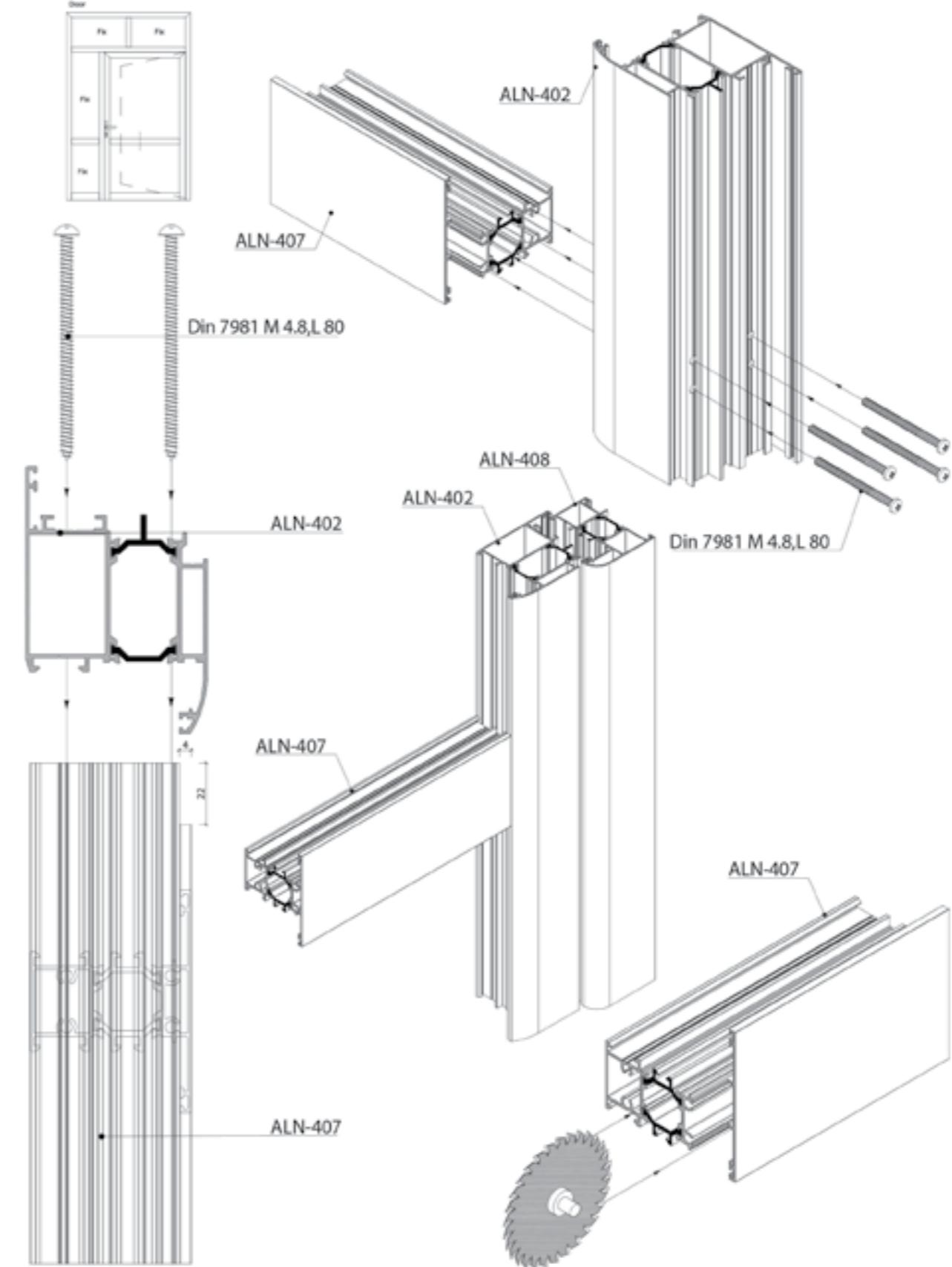
Hinged System 60 Series  
Assembly Drawing



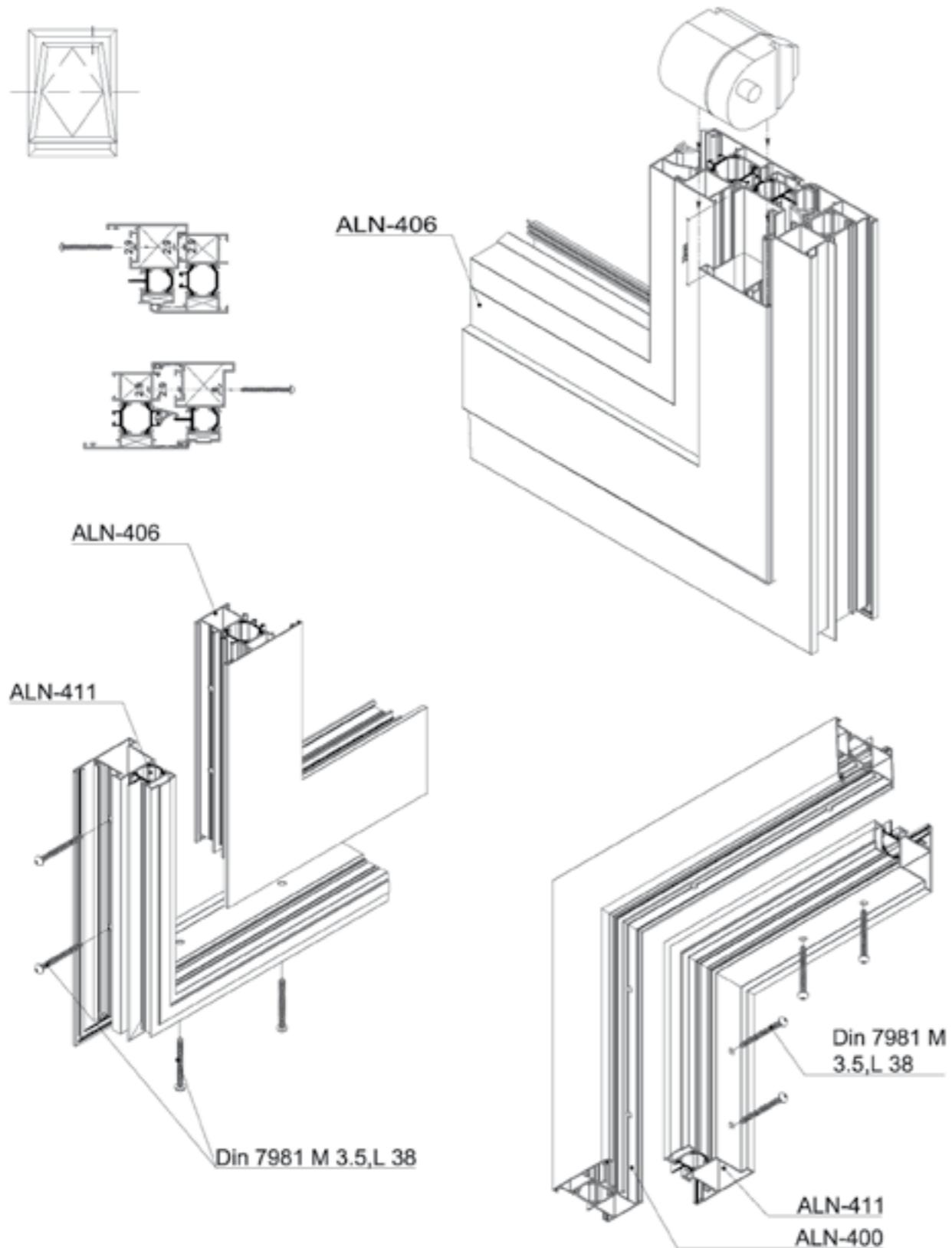
Hinged System 60 Series  
Assembly Drawing



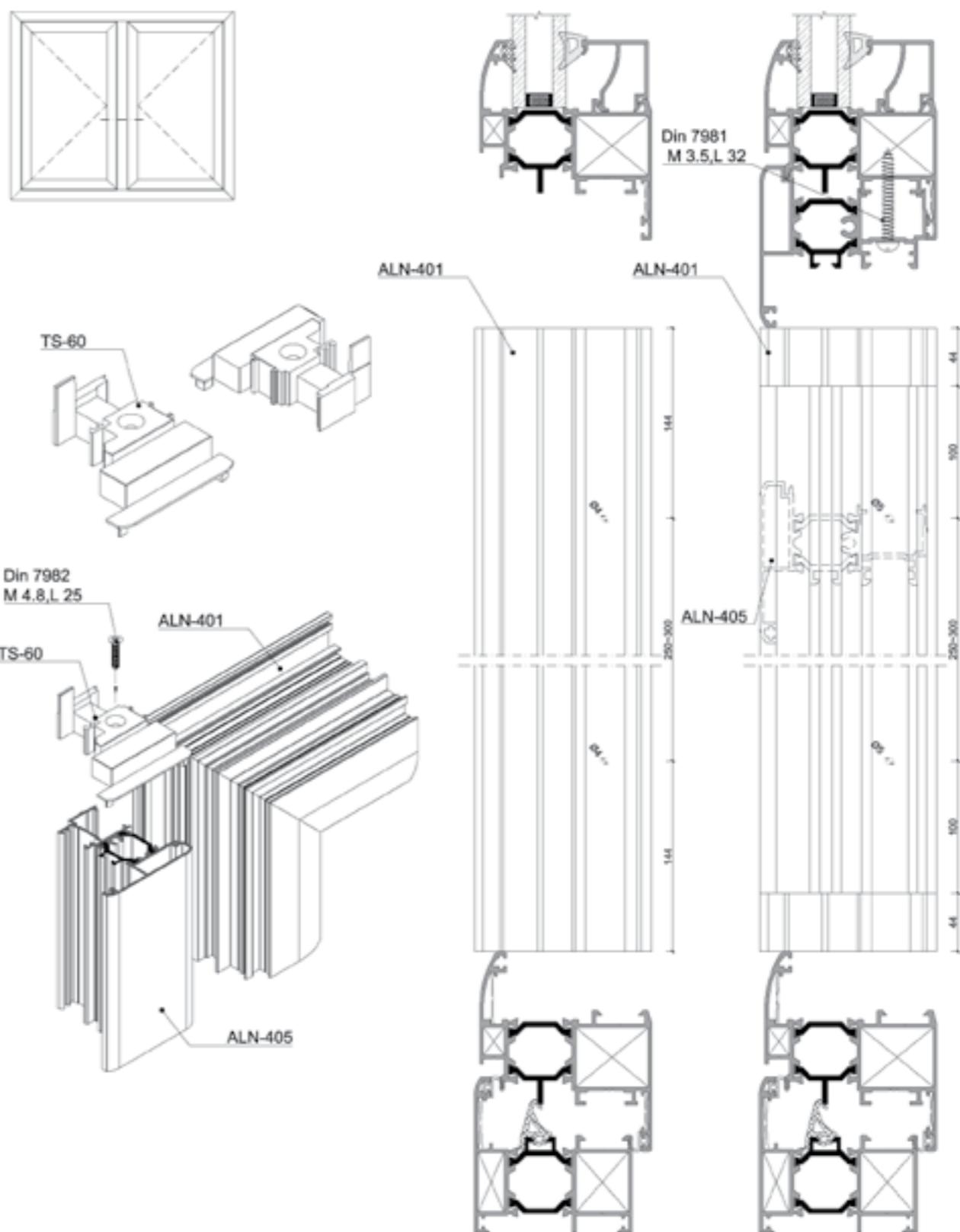
Hinged System 60 Series  
Assembly Drawing



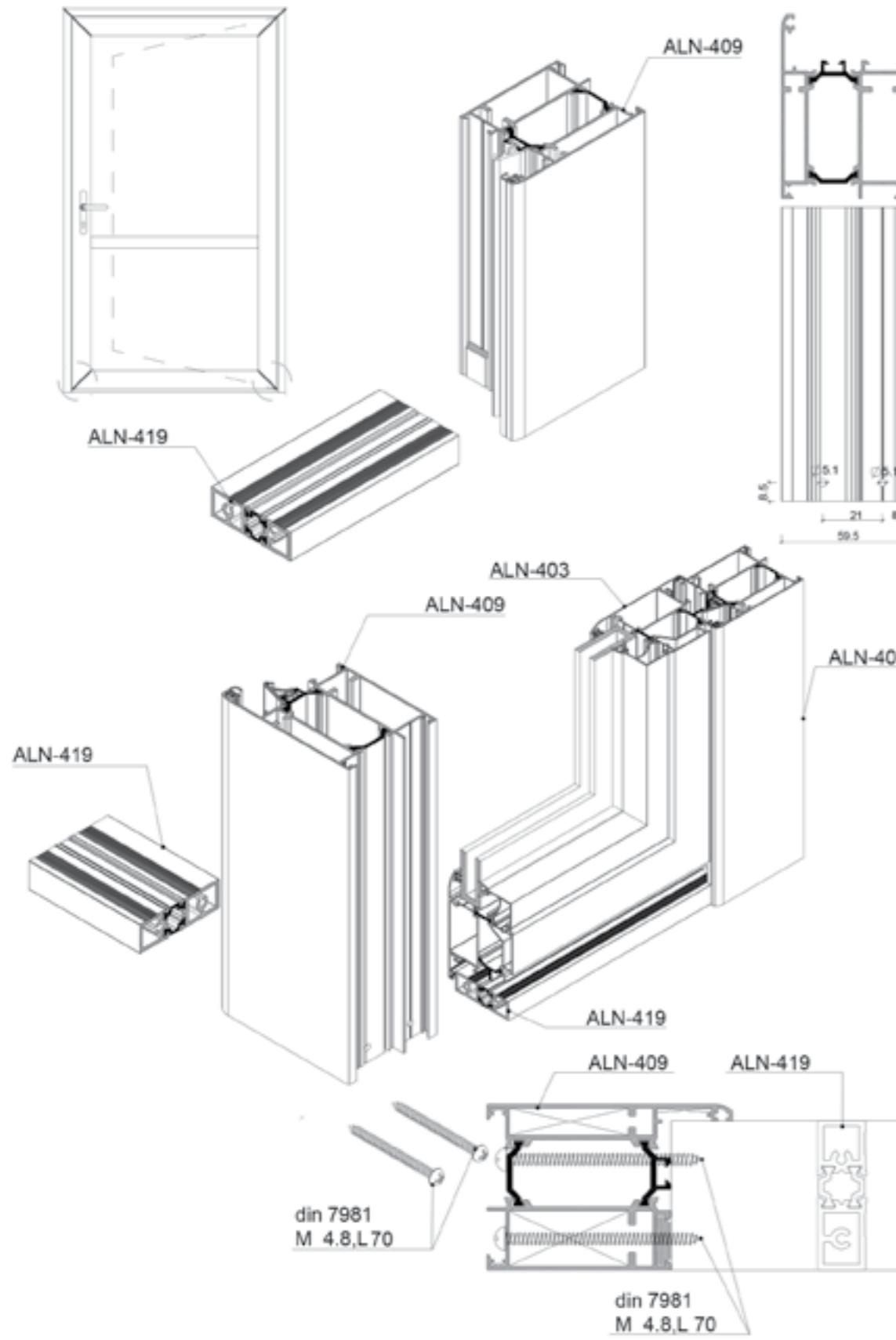
Hinged System 60 Series  
Assembly Drawing



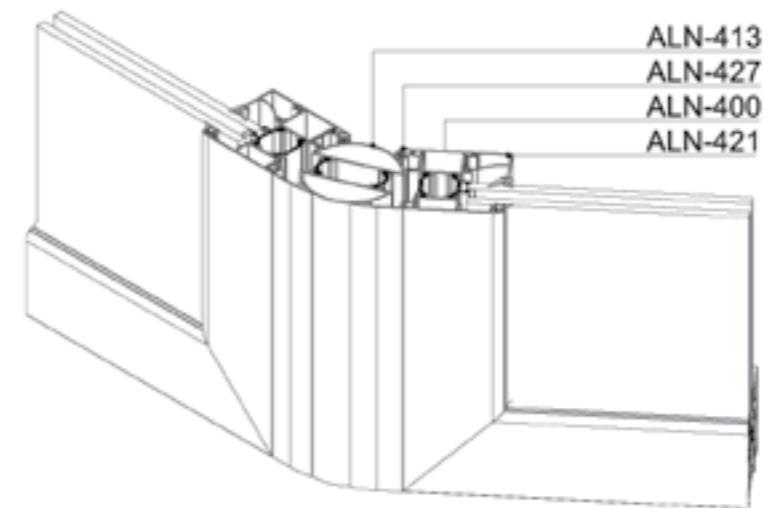
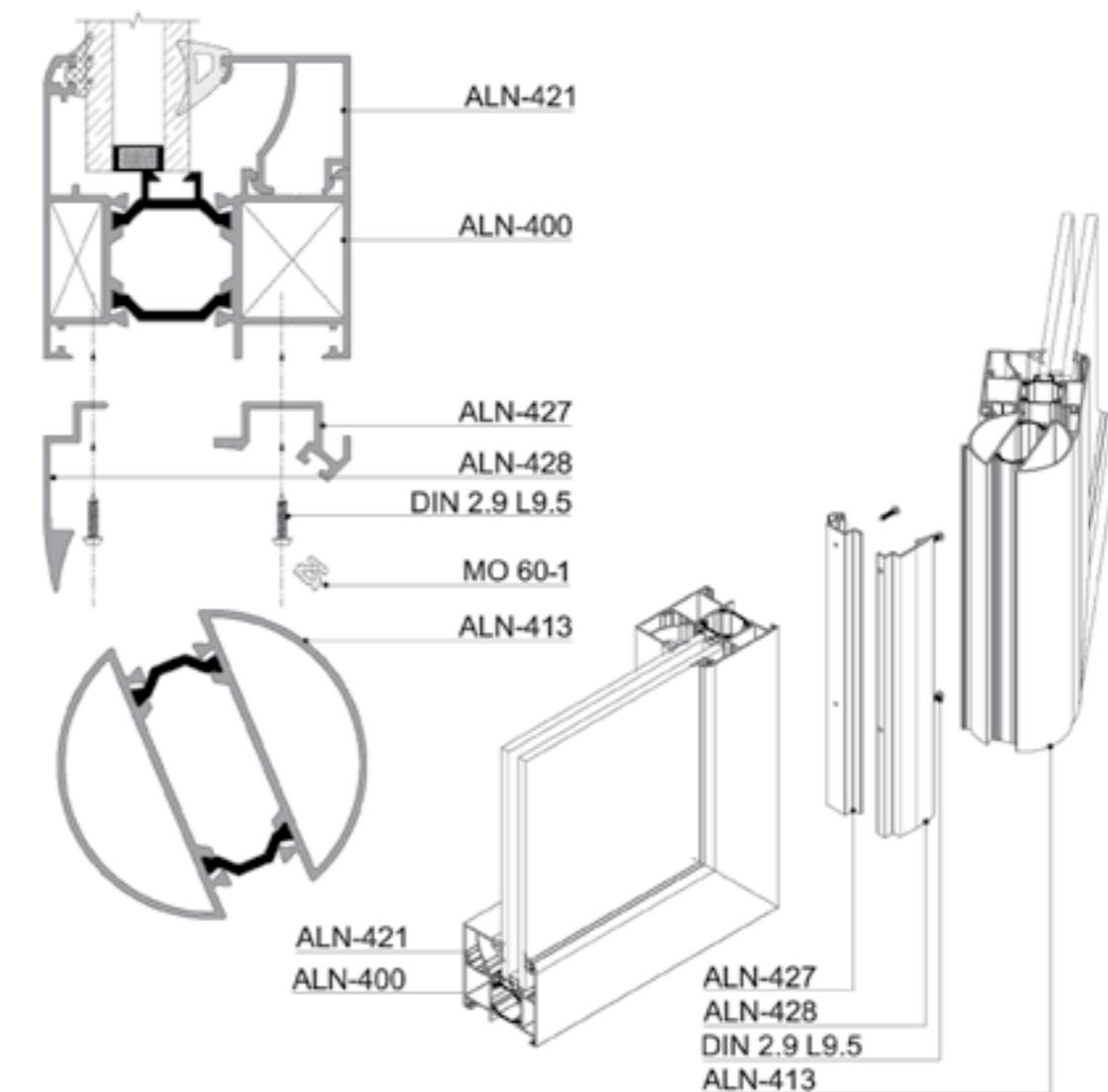
Hinged System 60 Series  
Assembly Drawing



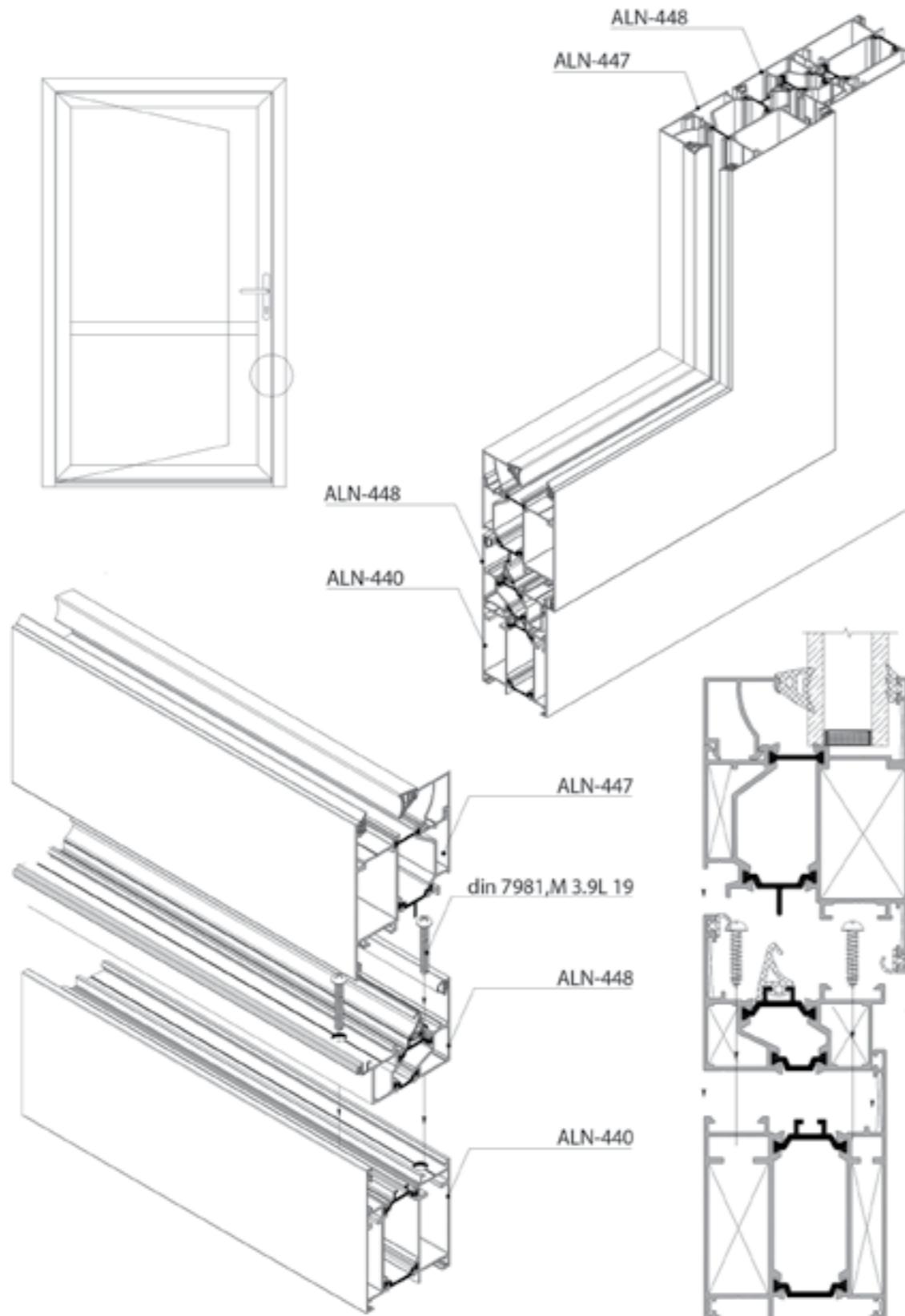
Hinged System 60 Series  
Assembly Drawing



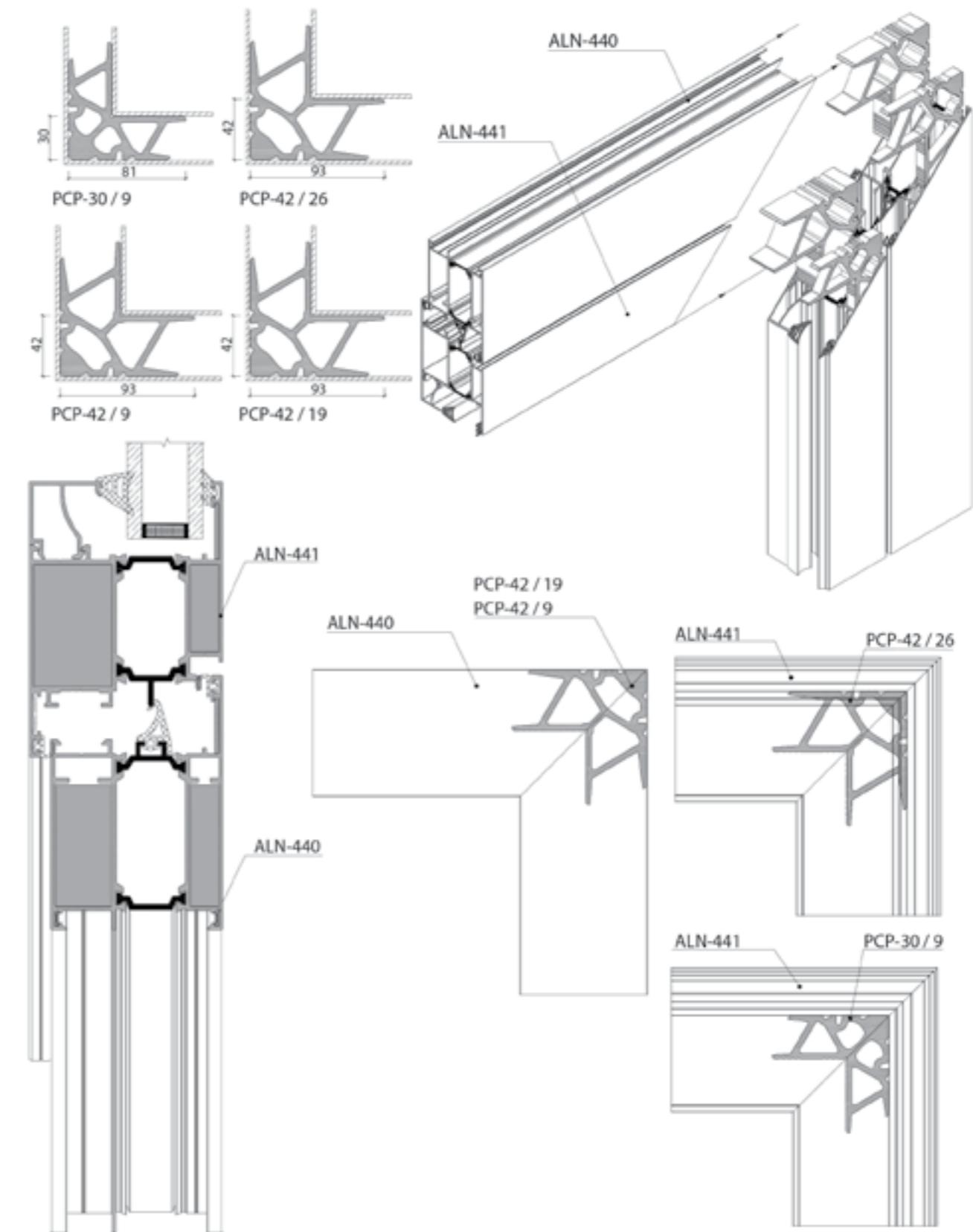
Hinged System 60 Series  
Assembly Drawing



Hinged System 60 Series  
Assembly Drawing

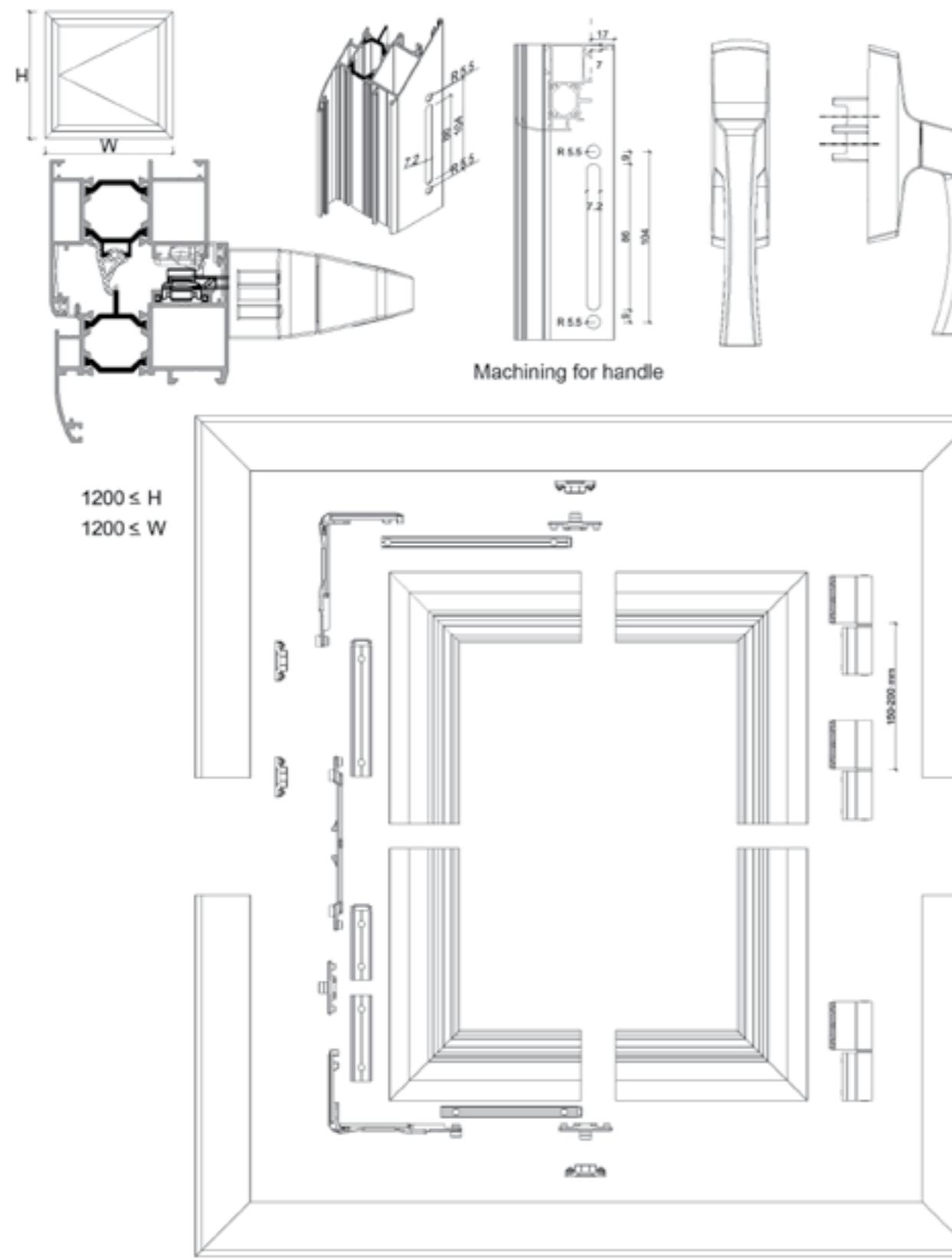


Hinged System 60 Series  
Assembly Drawing



## Hinged System 60 Series

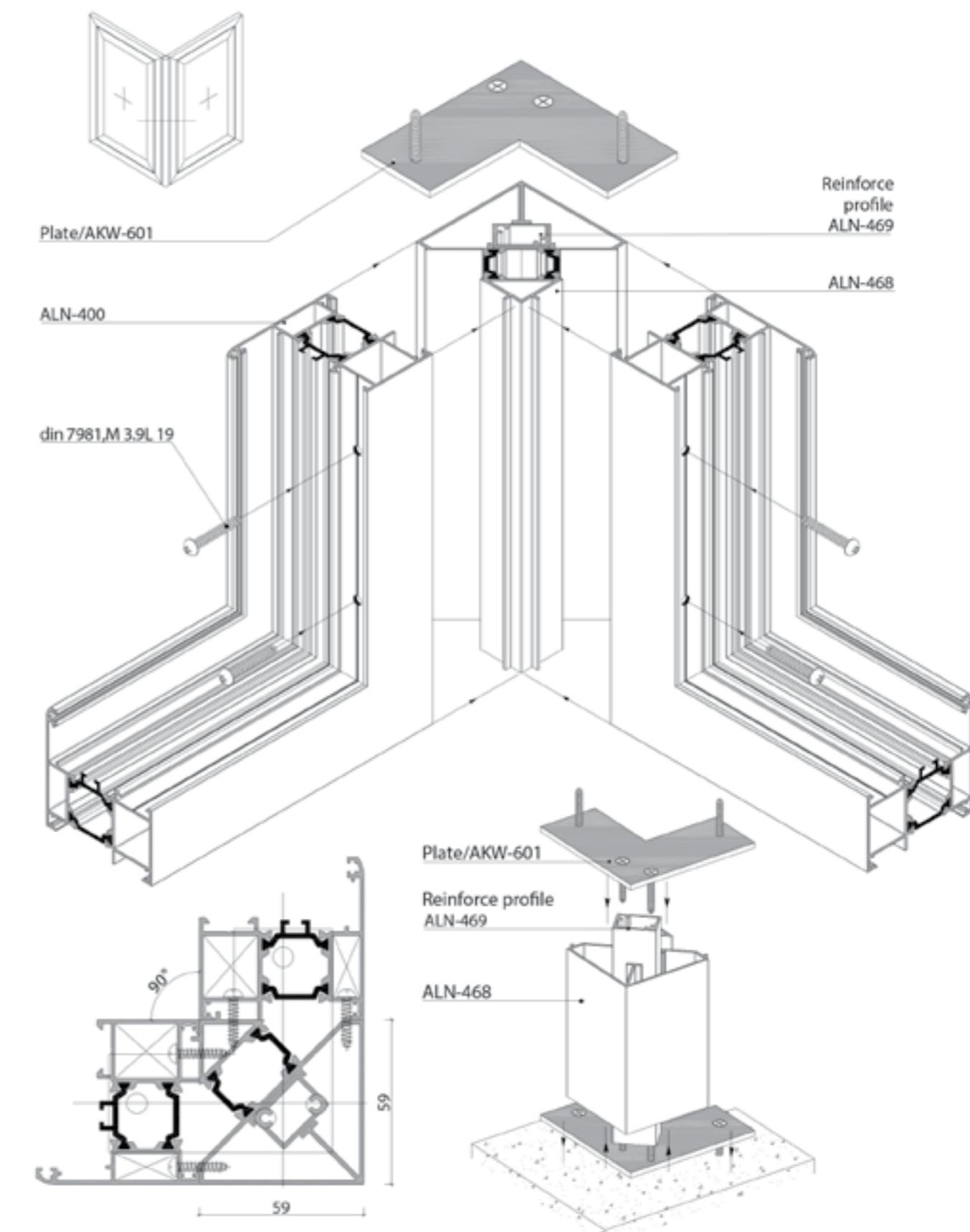
## Hardware Installation



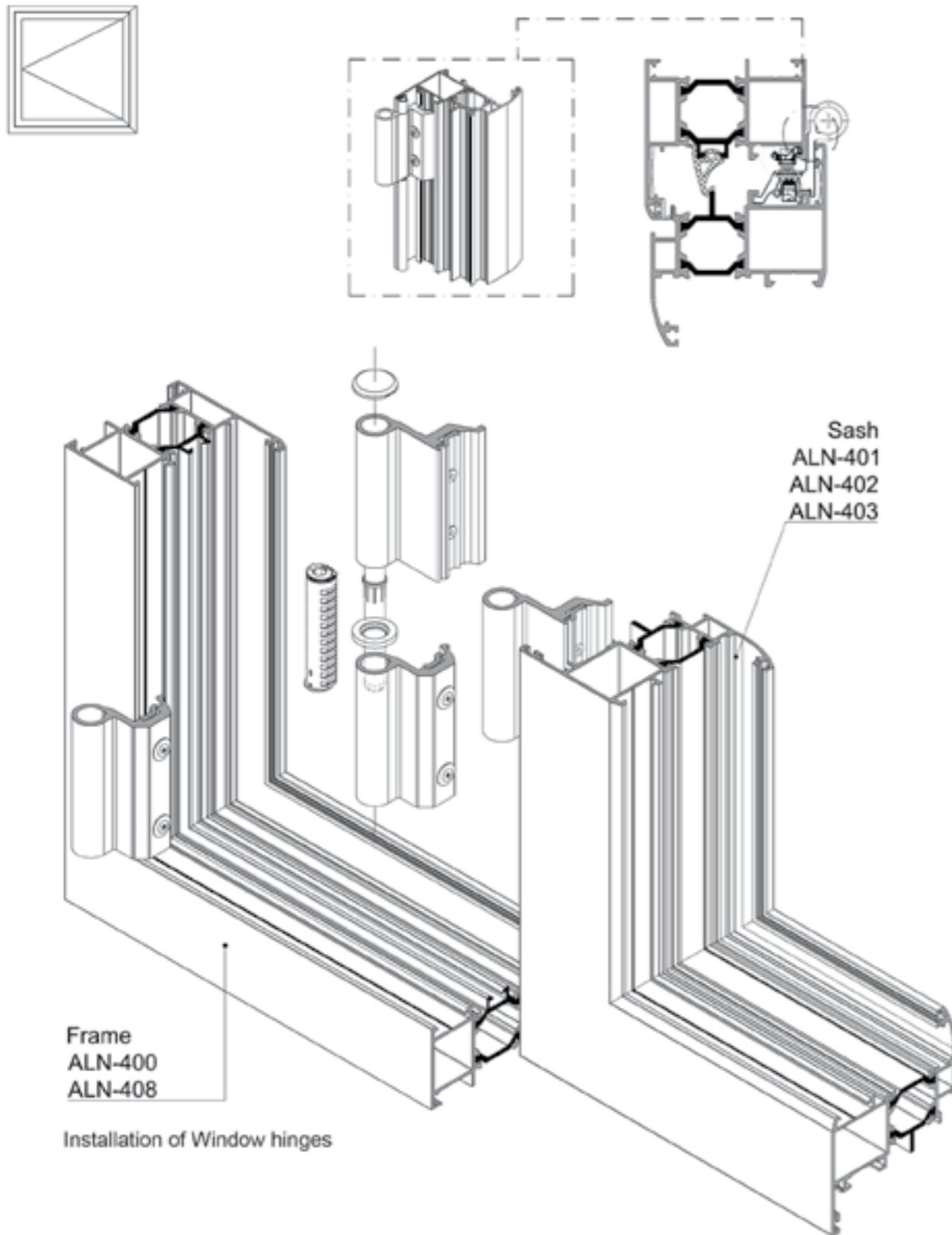
## Installation of turn hardware

Hinged System 60 Series

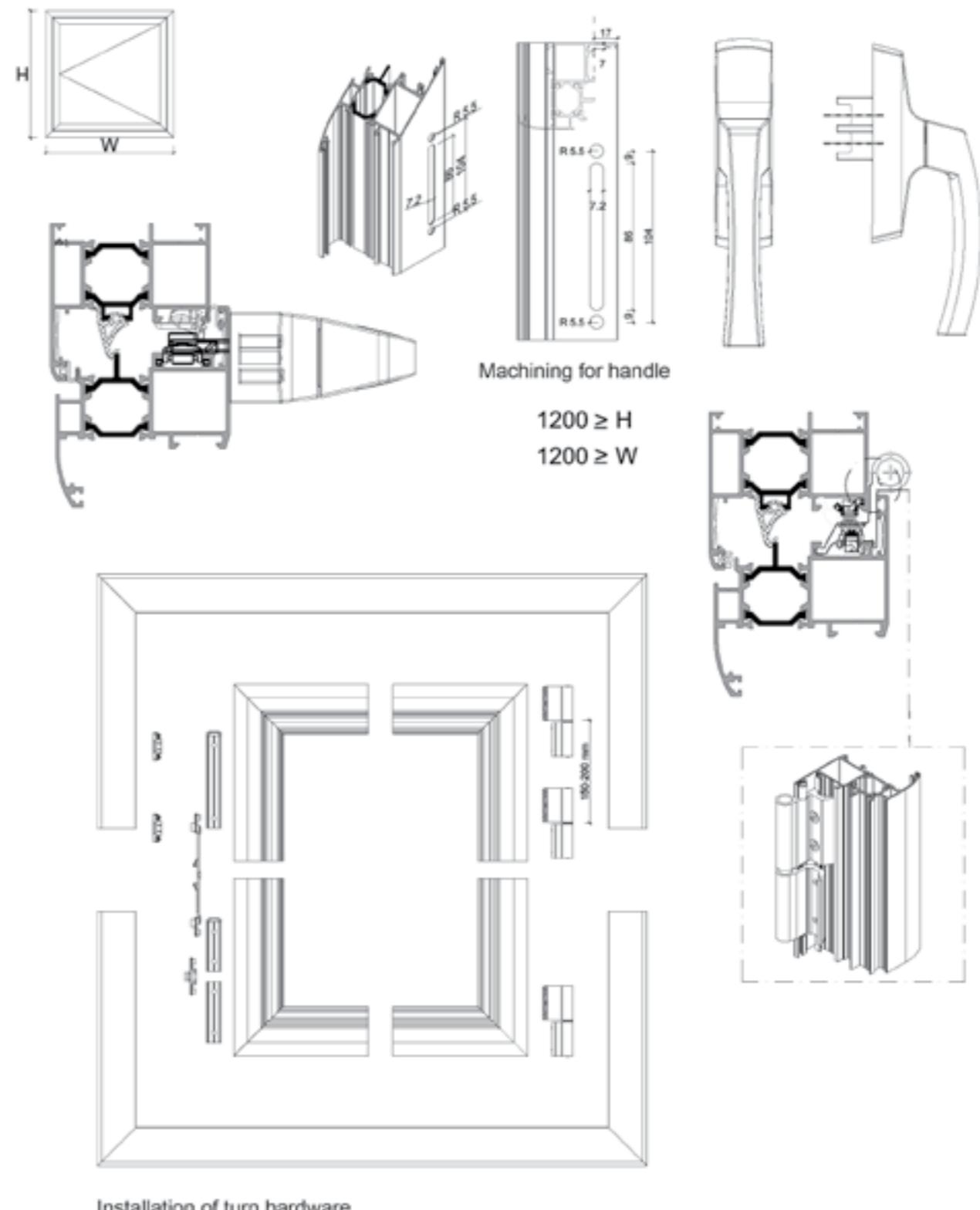
Assembly Drawing



Hinged System 60 Series  
Hardware Installation



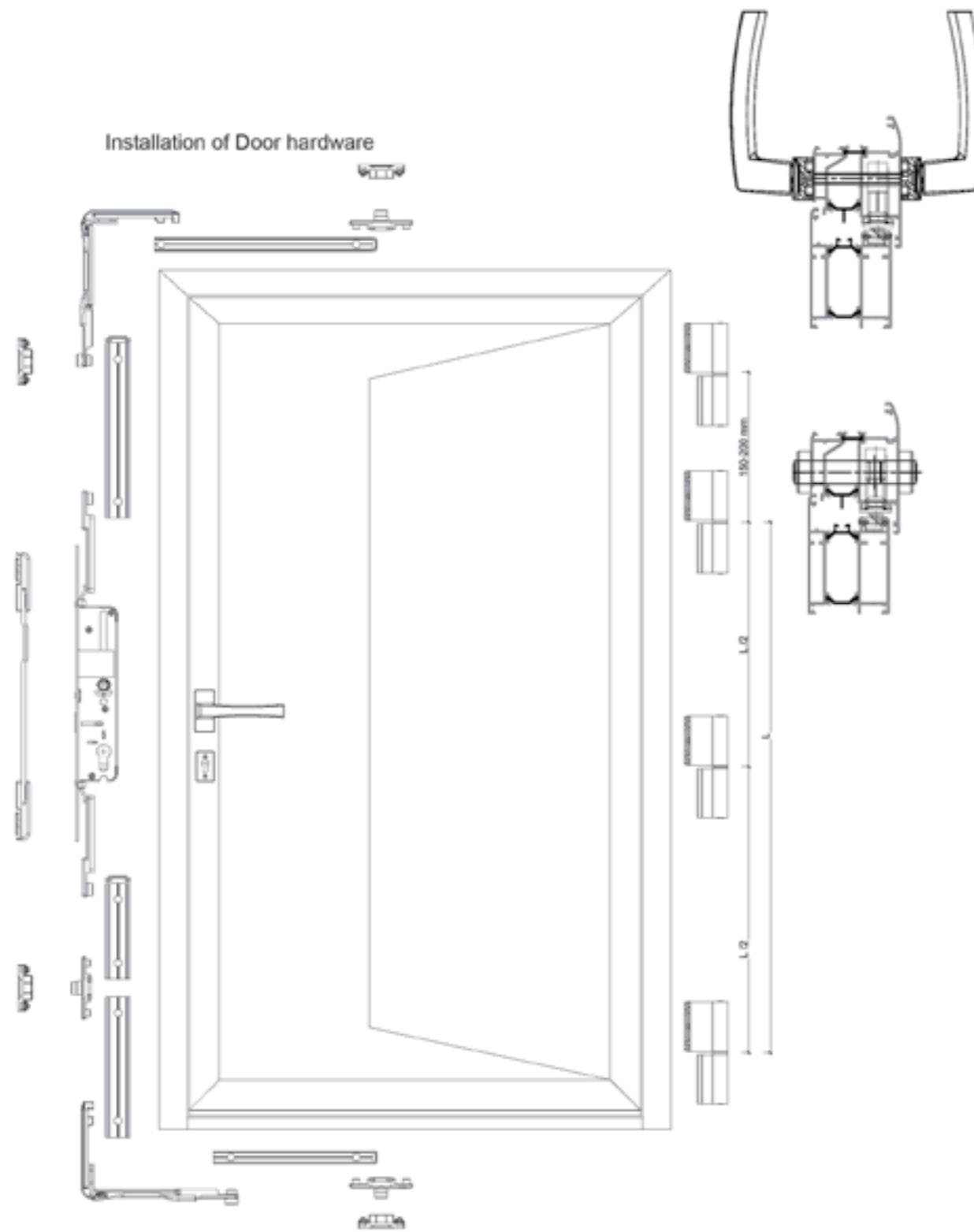
Hinged System 60 Series  
Hardware Installation



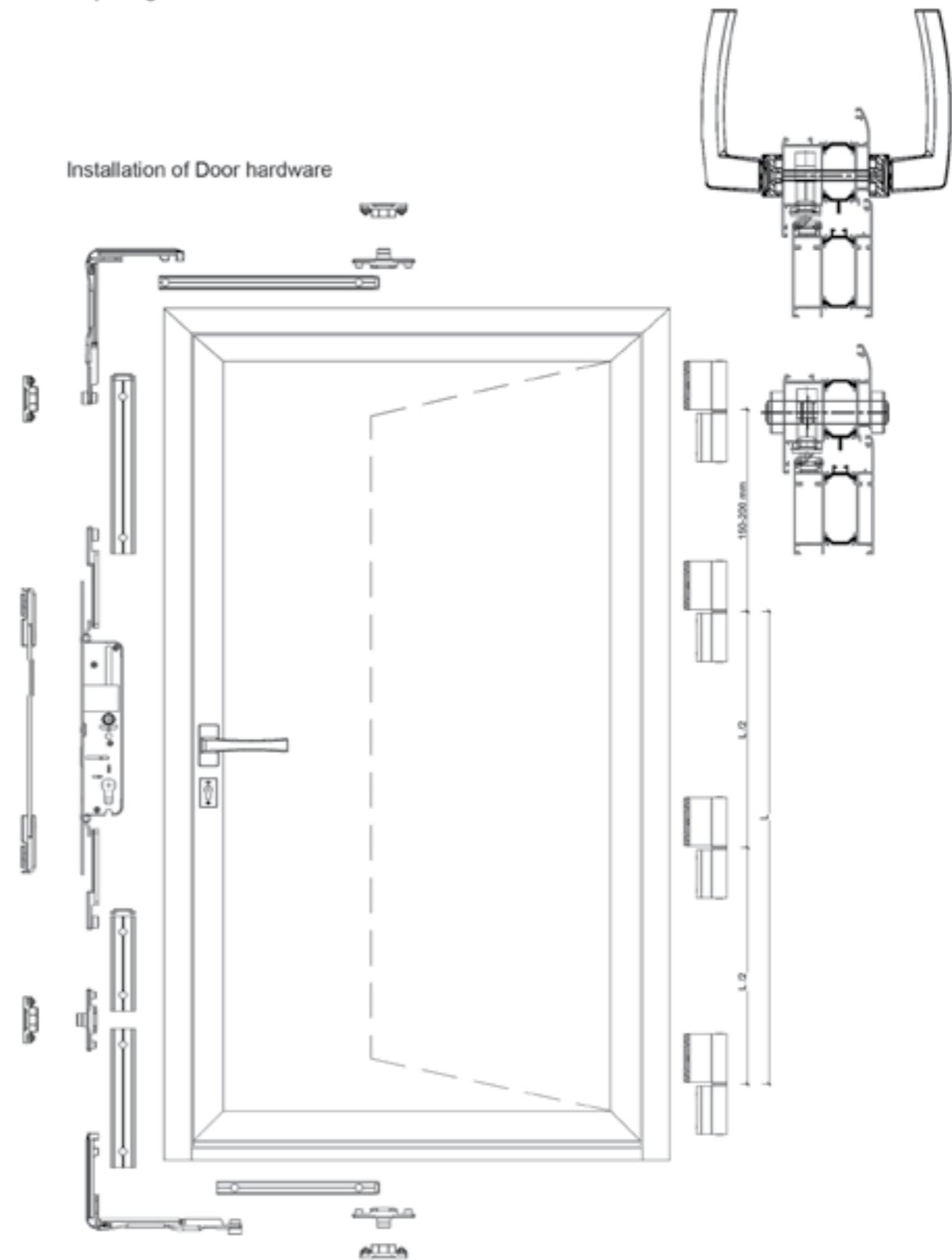
**Hinged System 60 Series**  
Hardware Installation

Inward opening

Installation of Door hardware



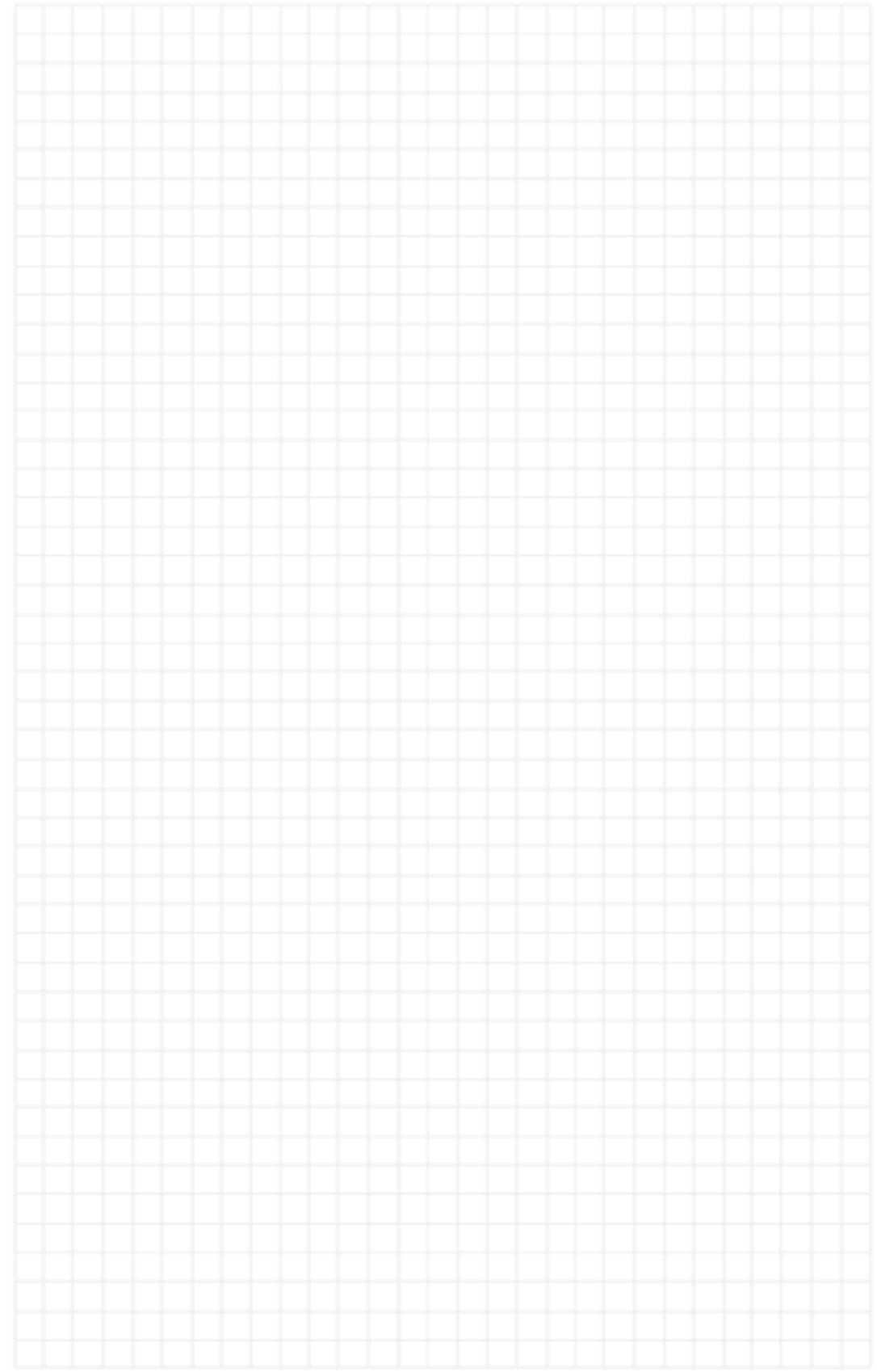
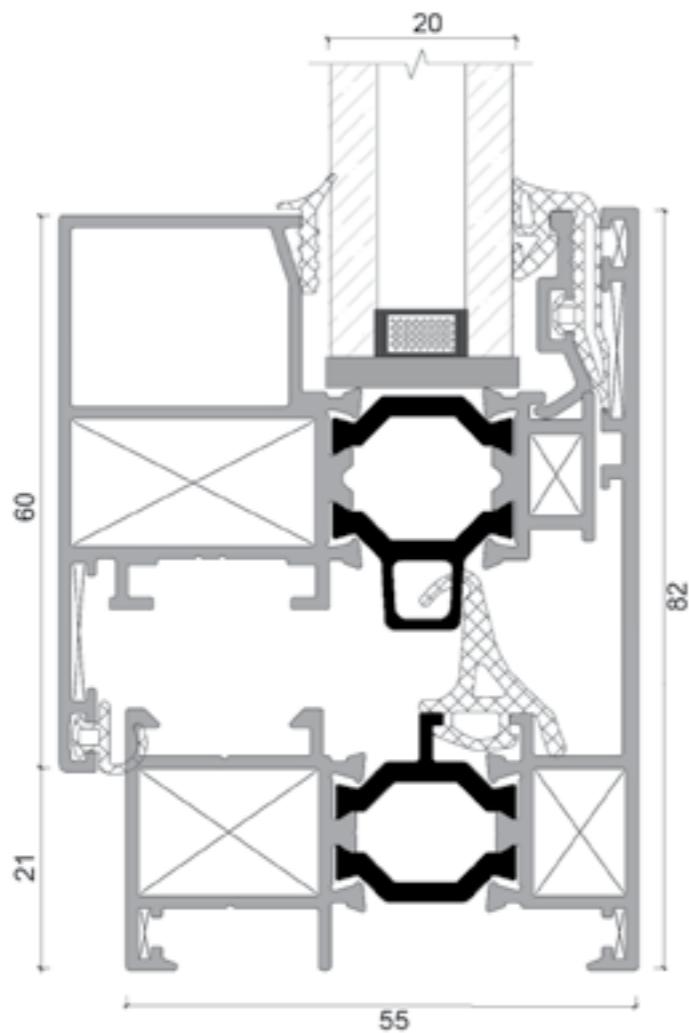
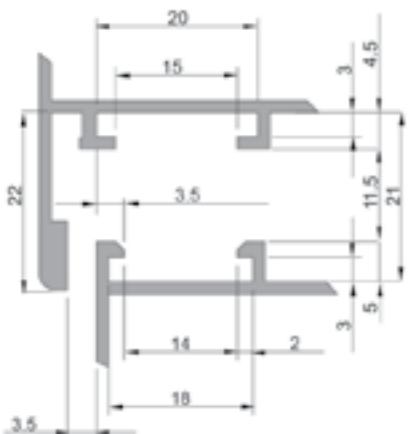
Installation of Door hardware



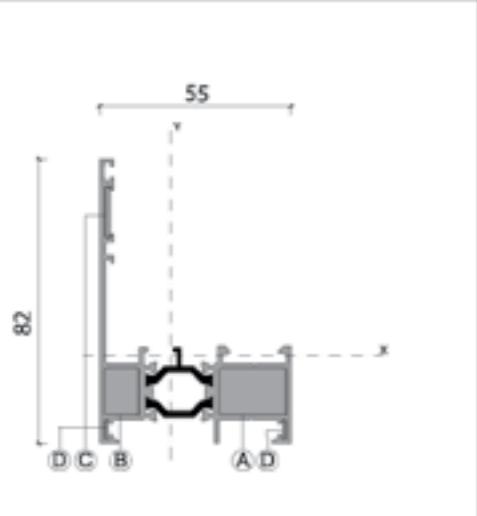
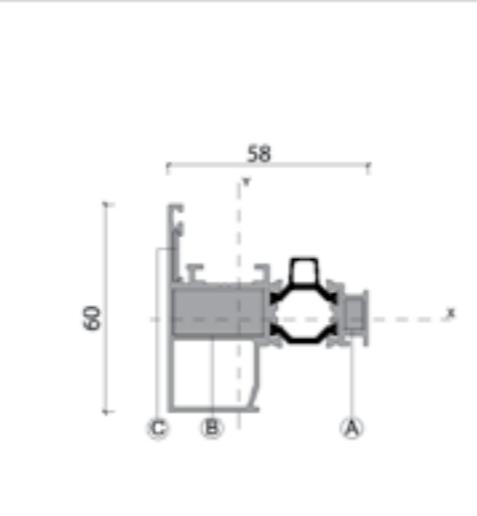
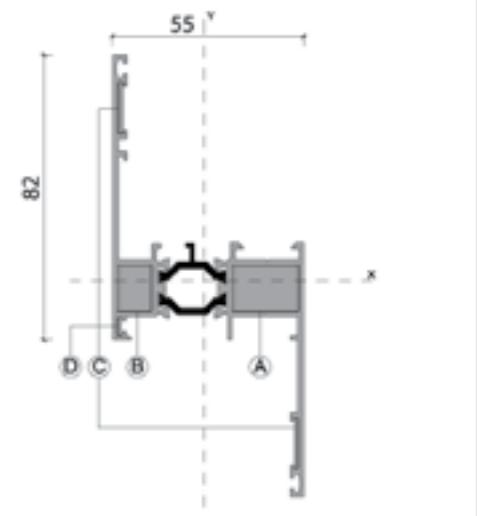
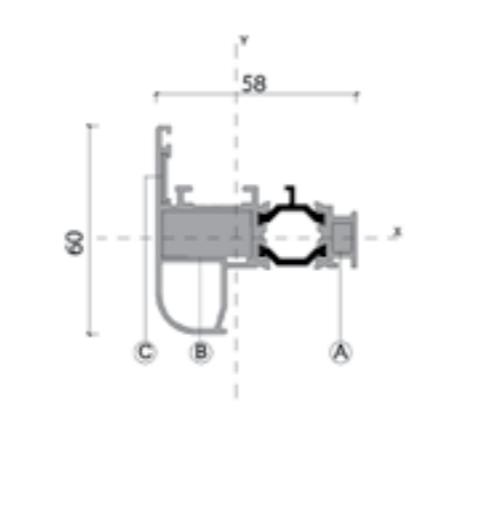


### Hidden vent System 55 Series

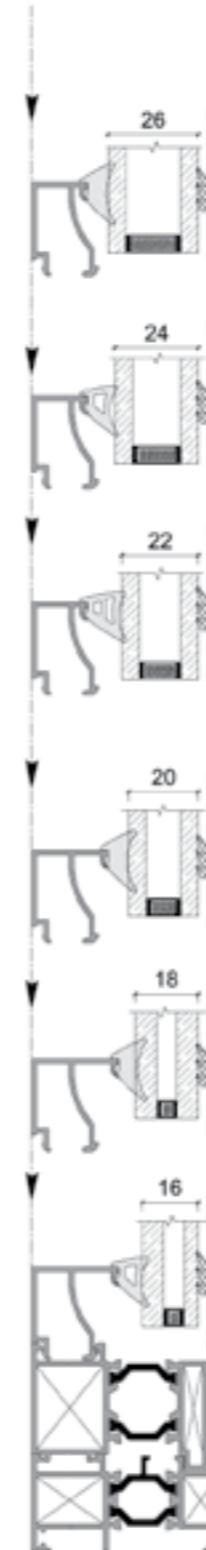
- . Profile width: 55 mm
- . Vent width: 58 mm
- . Wall thickness: 1.3 - 1.4 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 16 - 26 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Isulation bar : Polyamide Width 20 mm
- . Safety drainage system
- . Various typologies



Hidden vent System 55 Series  
Profile & Accessories Information

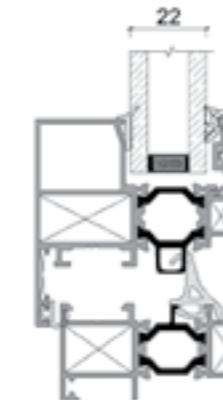
			
$I_x: 17.72 \text{ cm}^4$	$I_y: 15.70 \text{ cm}^4$	$I_x: 7.50 \text{ cm}^4$	$I_y: 13.94 \text{ cm}^4$
Frame : ALN-431	A: PCP-13 / 18 mm B: PCP-13 / 9 mm	Sash : ALN-433	A: PCP-8 / 5 mm B: PCP-13 / 26 mm
Weight: 1199 gr/m	C: MM77 (AKW-810)	Weight: 1209 gr/m	C: MM77 (AKW-810)
D: MO 19		D: MO 19	
			
$I_x: 36.15 \text{ cm}^4$	$I_y: 23.50 \text{ cm}^4$	$I_x: 6.50 \text{ cm}^4$	$I_y: 13.63 \text{ cm}^4$
Frame : ALN-432	A: PCP-13 / 18 mm B: PCP-13 / 9 mm	Sash : ALN-434	A: PCP-8 / 5 mm B: PCP-13 / 25 mm
Weight: 1425 gr/m	C: MM77 (AKW-810)	Weight: 1155 gr/m	C: MM77 (AKW-810)
D: MO 19		D: MO 19	

Hidden vent System 55 Series  
Glazing Table



Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead	
16 mm		EP-019	MO68	ALN-421
18 mm		EP-016	MO68	ALN-421
20 mm		EP-016	MO68	ALN-323
22 mm		EP-021	MO68	ALN-423
24 mm		EP-019	MO68	ALN-423
26 mm		EP-016	MO68	ALN-423

Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead	
22 mm		EP-015	51927	ALN-438



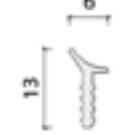
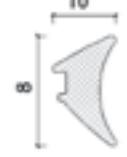
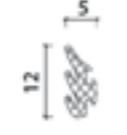
Hidden vent System 55 Series  
Profile & Accessories Information

Glazing bead: ALN-439	Weight : 235 gr/m	Glazing bead: ALN-421	Weight : 313 gr/m
profile: ALN-331			
Glazing bead: ALN-423		Weight : 281 gr/m	
Glazing bead: ALN-323	Weight : 302 gr/m	Glazing bead: ALN-438	Weight : 122 gr/m

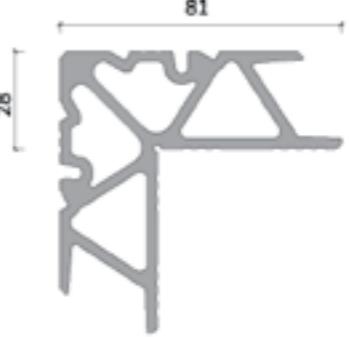
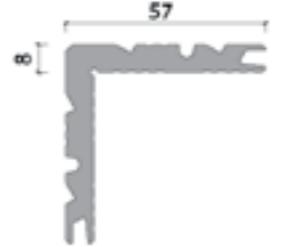
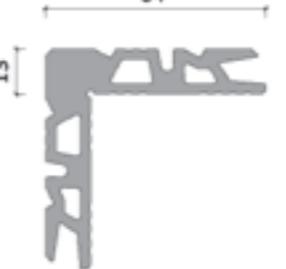
Hidden vent System 55 Series  
Profile & Accessories Information

$I_x: 3.30 \text{ cm}^4$	$I_y: 9.27 \text{ cm}^4$	$I_x: 41.83 \text{ cm}^4$	$I_y: 17.79 \text{ cm}^4$
Profile : ALN-435	A: PCP-24 / 18 mm	Transom : ALN-437	A: ALN-446
Weight: 943 gr/m		B: PCP-24 / 3 mm	Weight : 1467 gr/m
			B: -
$I_x: 22.03 \text{ cm}^4$	$I_y: 16.15 \text{ cm}^4$		
Transom : ALN-436	A: ALN-446		
Weight : 1297 gr/m	B: -	Transombar profile: ALN-446	Weight : 1414 gr/m

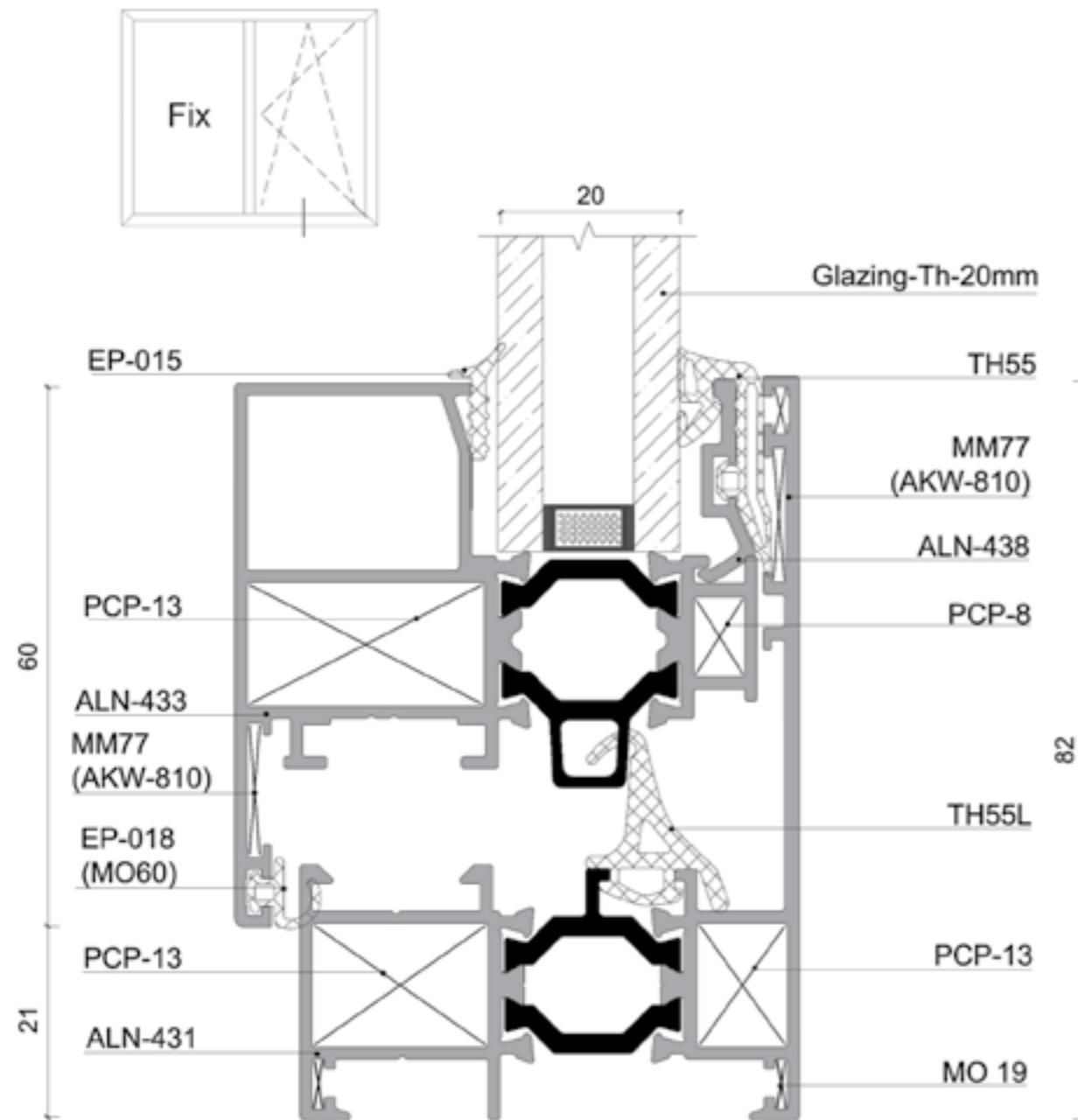
**Hidden vent System 55 Series**  
Profile & Accessories Information

	6		13
Gasket: EP-015	Weight : 21 gr/m	Gasket: EP-021	Weight : 80 gr/m
	10		25
Gasket: EP-016	Weight : 77 gr/m	Gasket: TH55 lk	Weight : 112 gr/m
	8		17
Gasket: EP-018	Weight : 77 gr/m	Gasket: TH55L	Weight : 152 gr/m
	5		
Gasket: MO68	Weight : 46 gr/m		

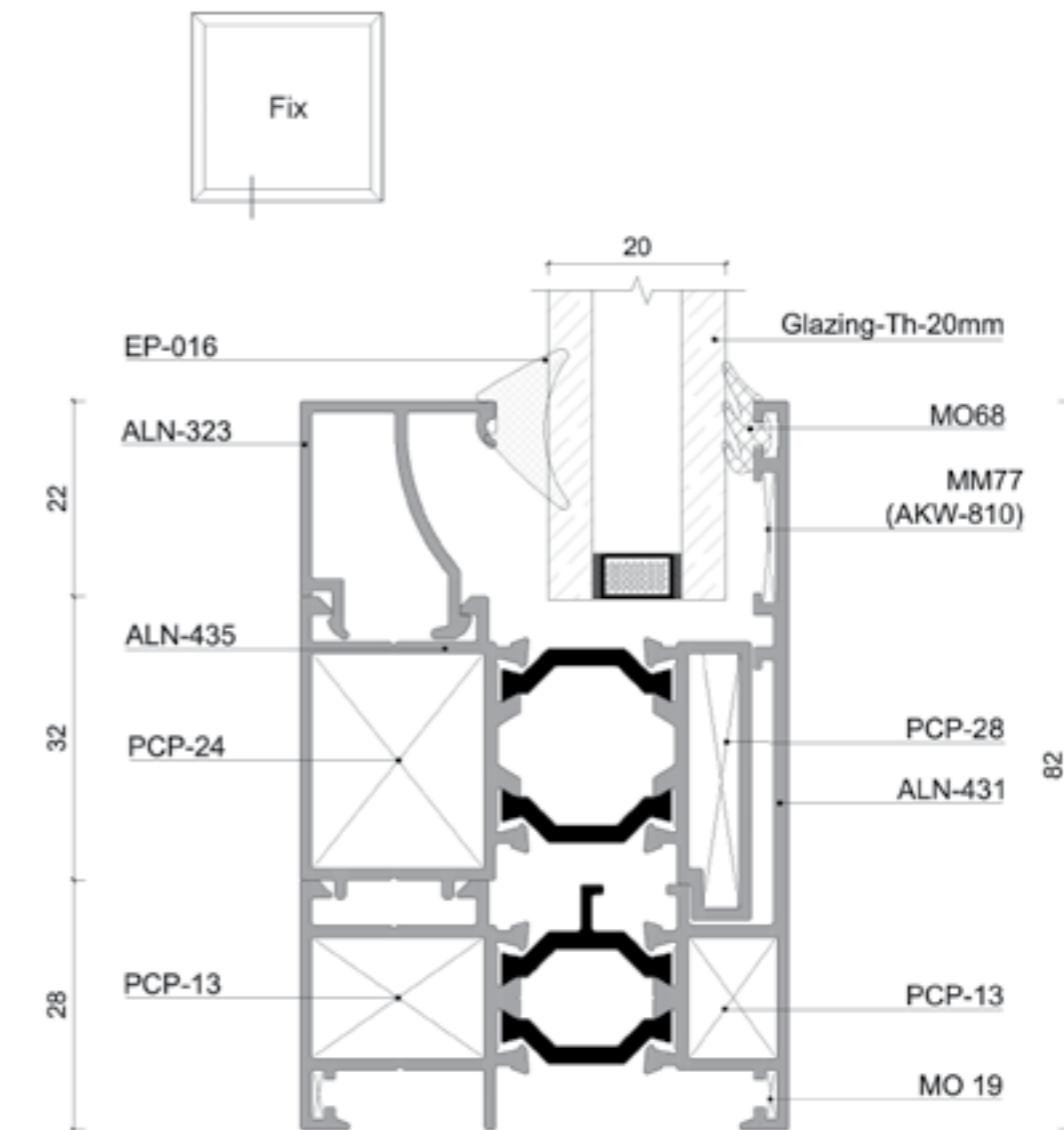
**Hidden vent System 55 Series**  
Profile & Accessories Information

	81		73
Corner Joint: PCP-28	Weight : 3429 gr/m	Corner Joint: PCP-24	Weight : 2918 gr/m
	57		25
Corner Joint: PCP-8	Weight : 1947 gr/m	Corner Joint: MO19399012	Weight: -
	64		37
Corner Joint: PCP-13	Weight : 2673 gr/m	Corner joint: MM 77	Weight : -

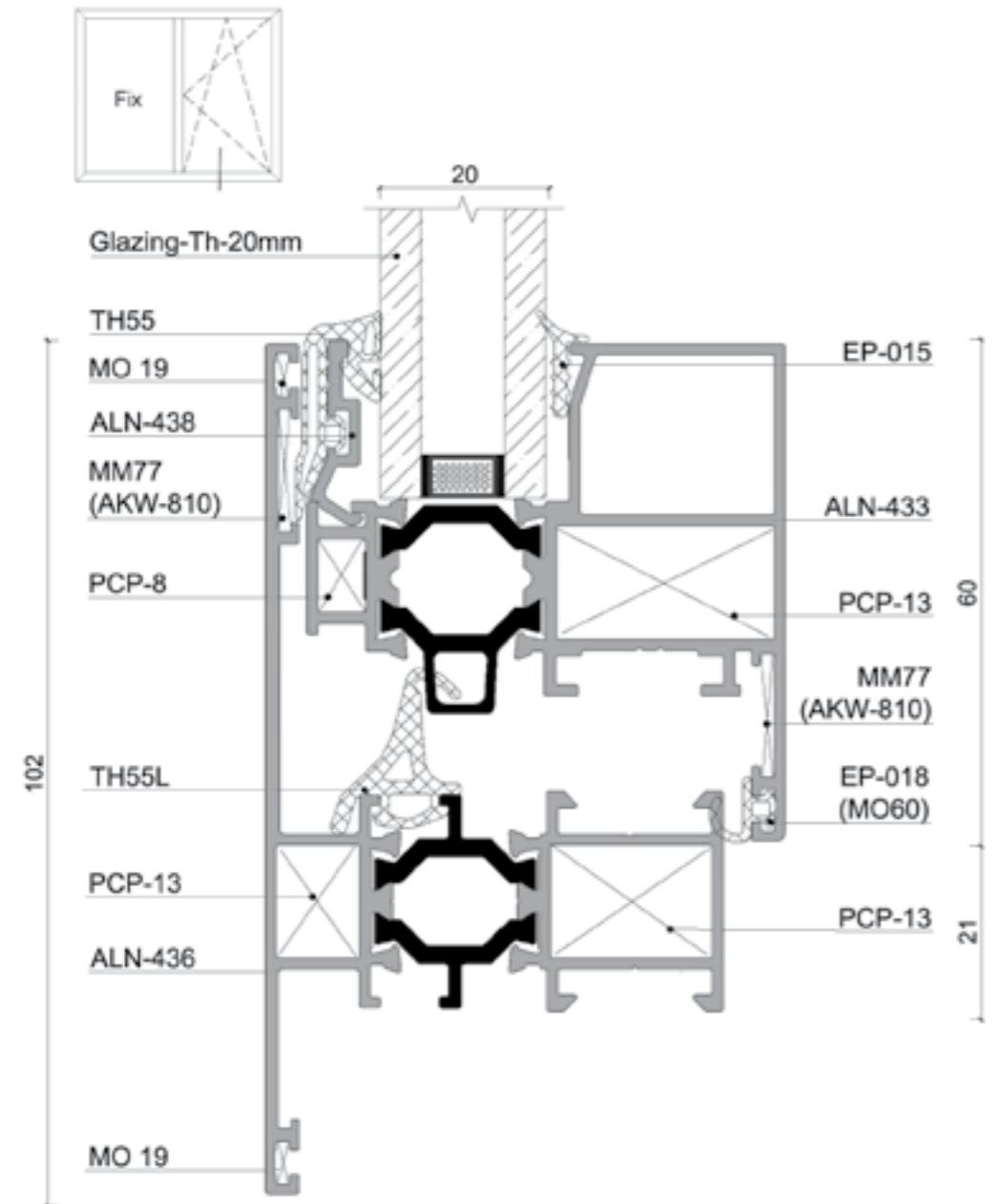
Hidden vent System 55 Series  
Fabrication Details



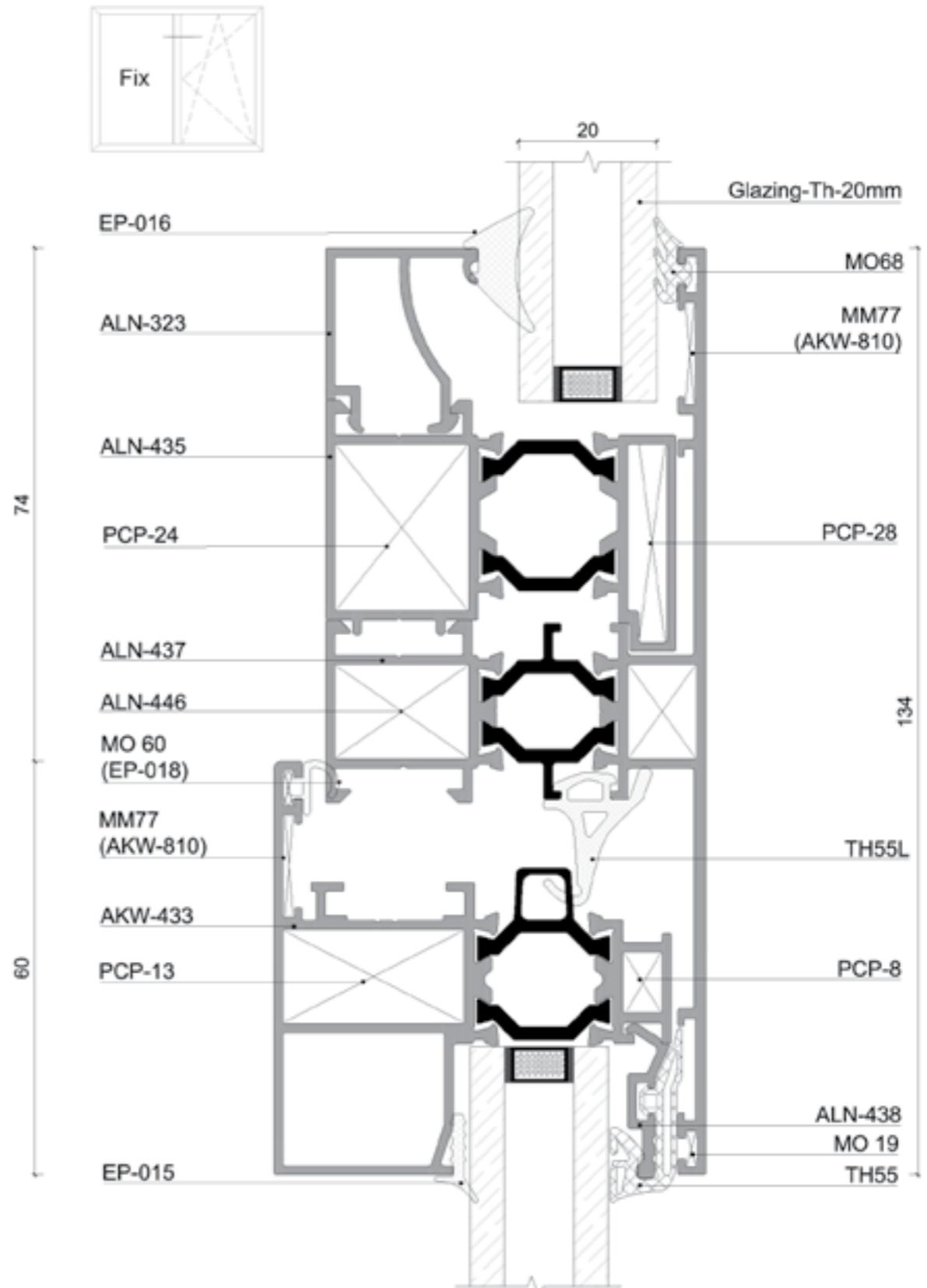
Hidden vent System 55 Series  
Fabrication Details



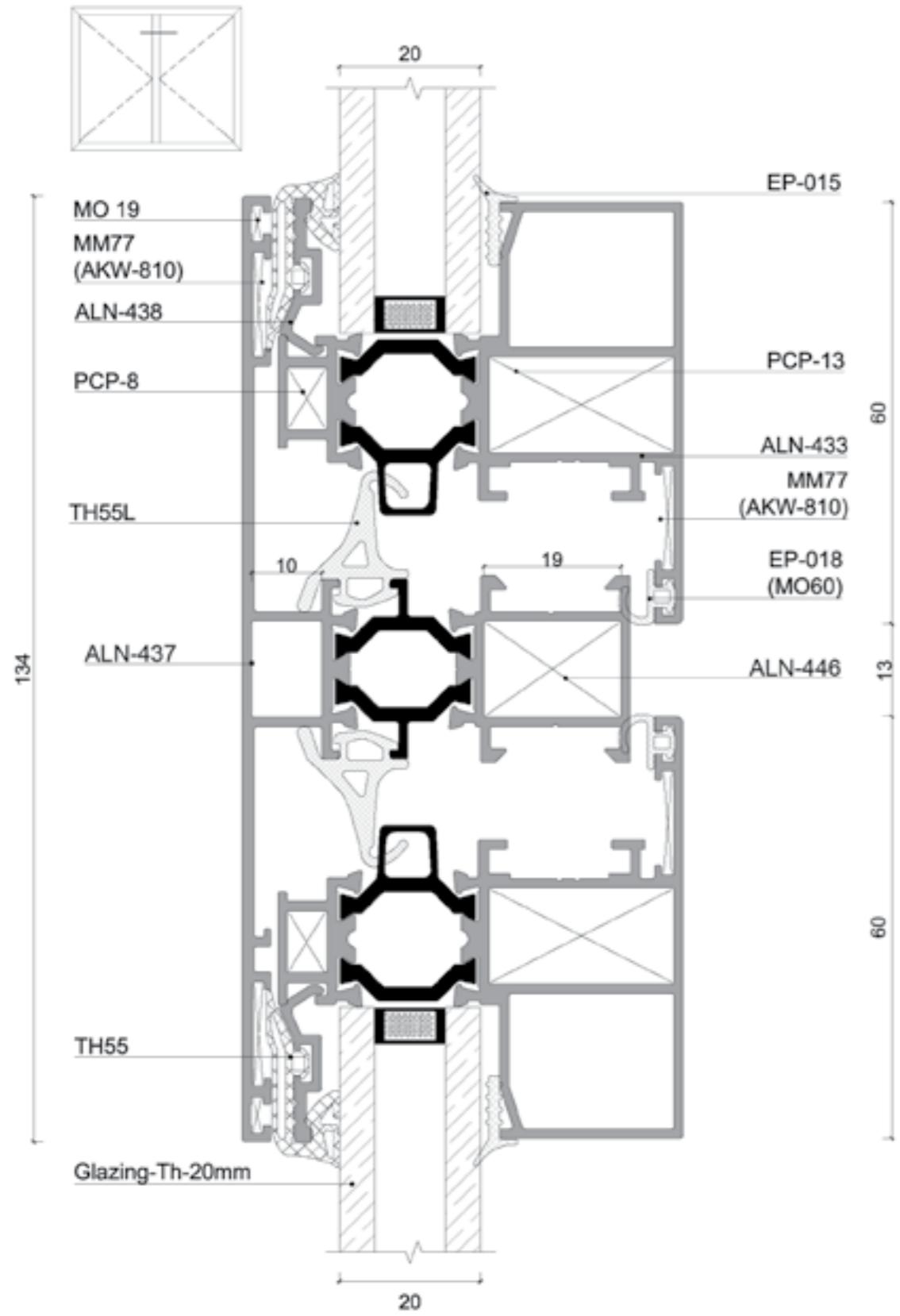
Hidden vent System 55 Series  
Fabrication Details



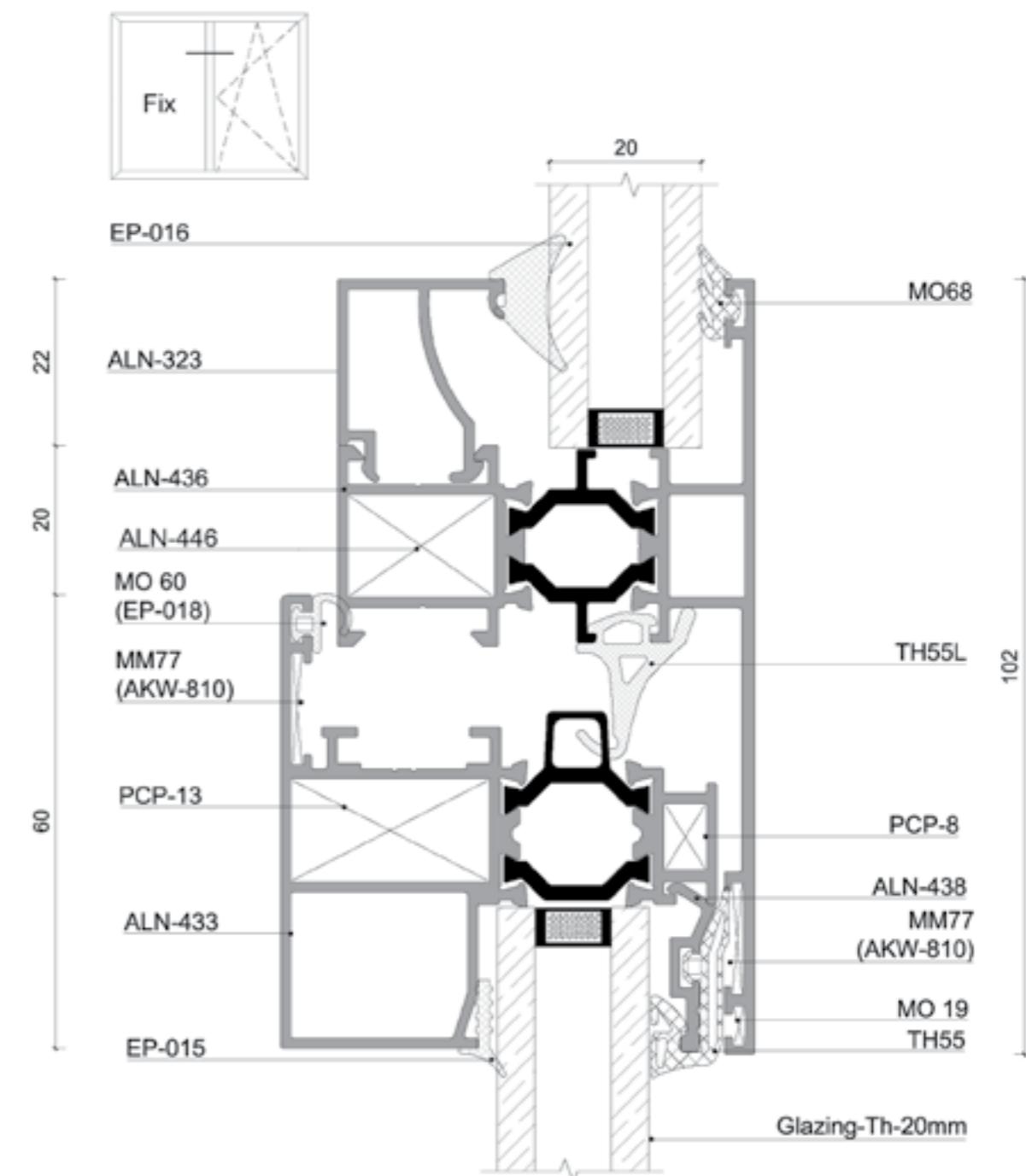
Hidden vent System 55 Series  
Fabrication Details



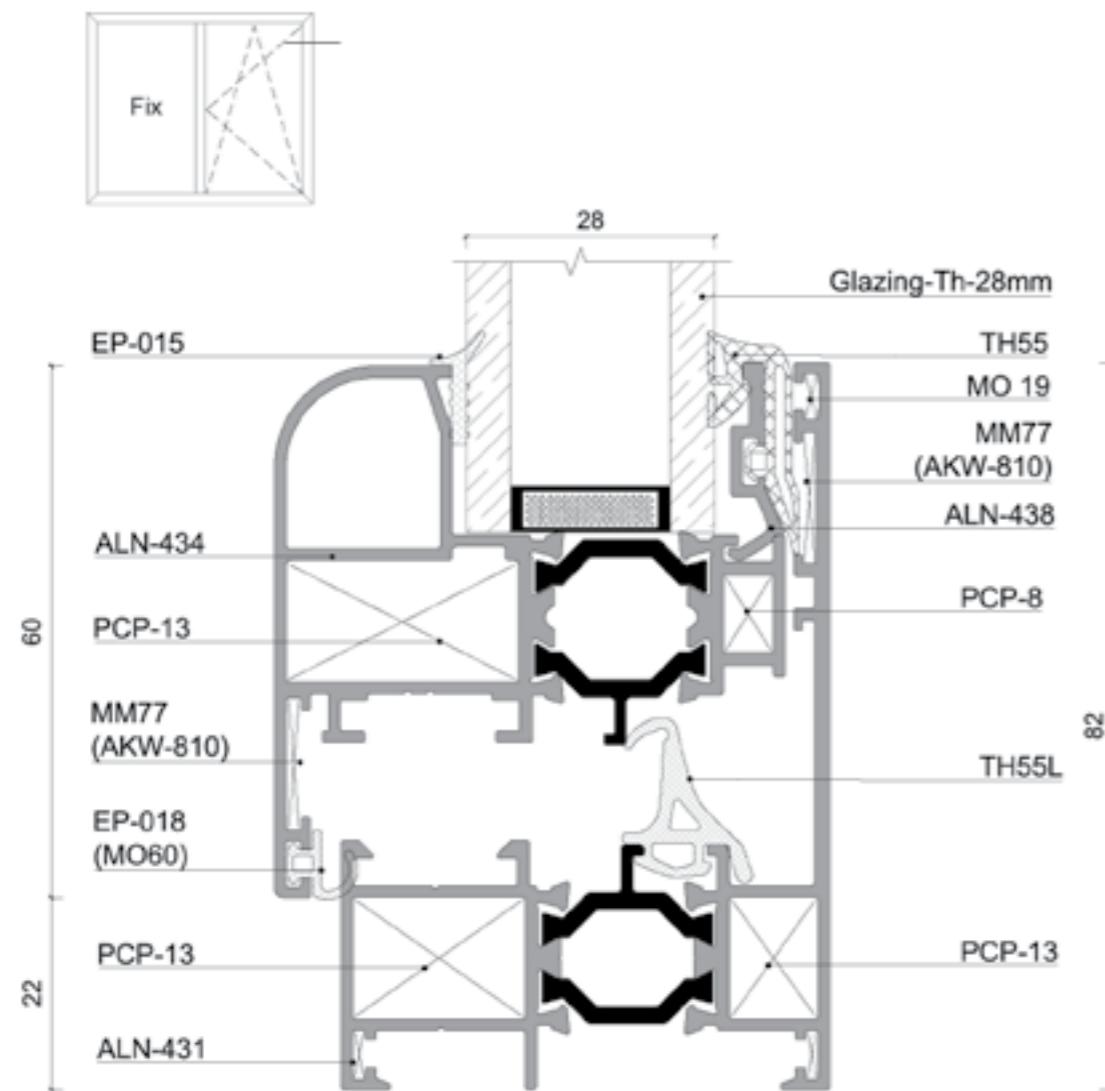
Hidden vent System 55 Series  
Fabrication Details



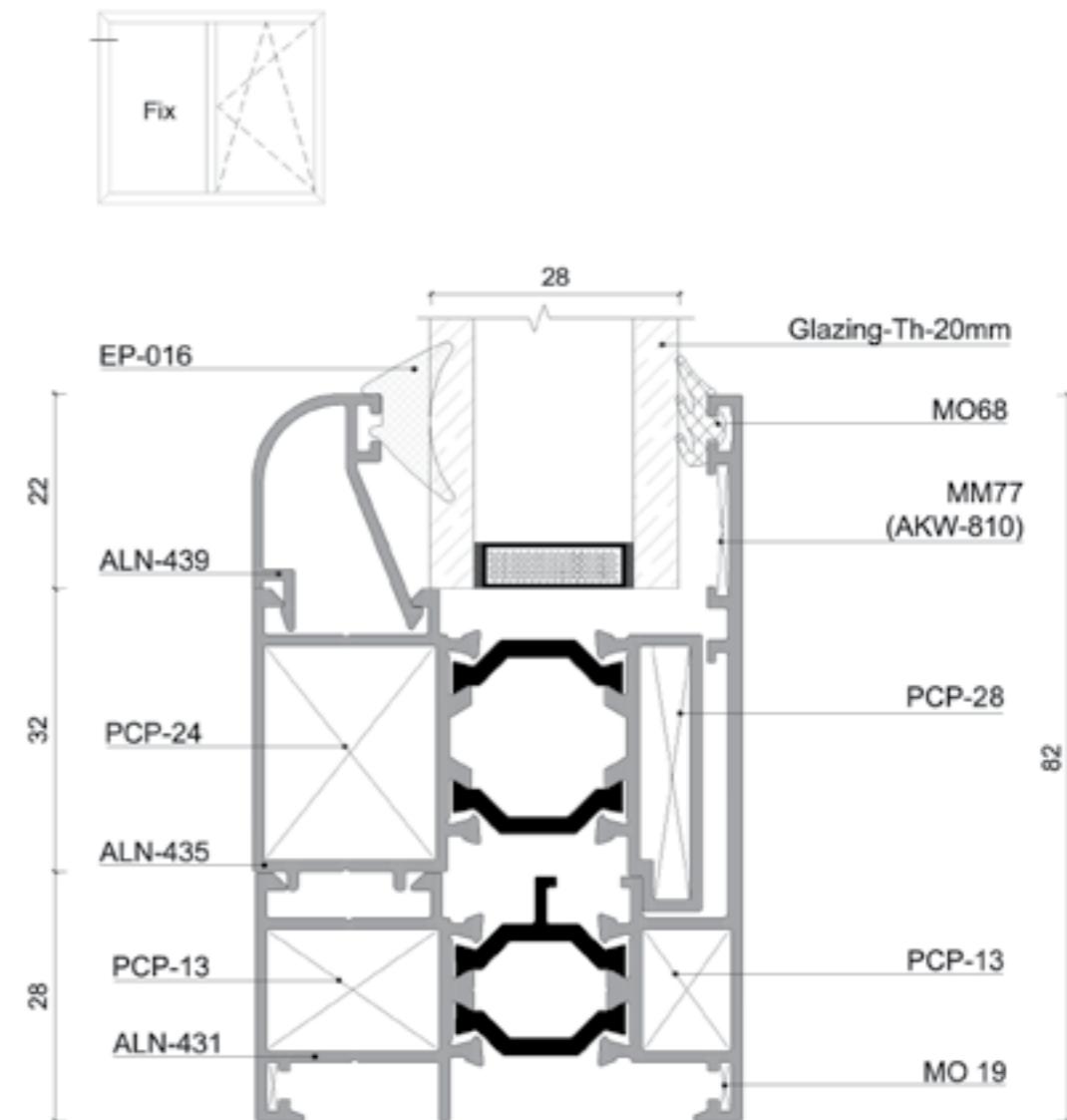
Hidden vent System 55 Series  
Fabrication Details



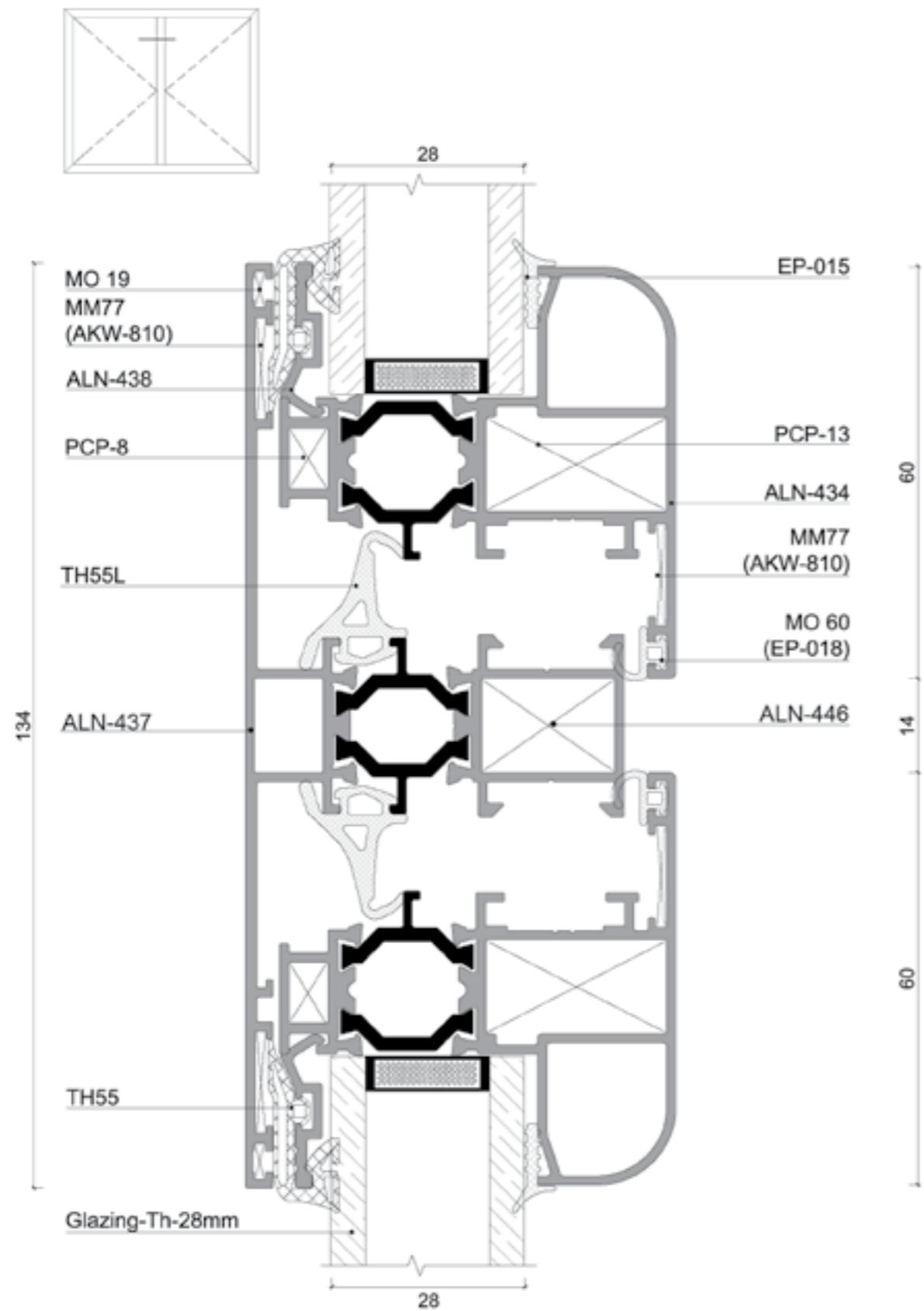
Hidden vent System 55 Series  
Fabrication Details



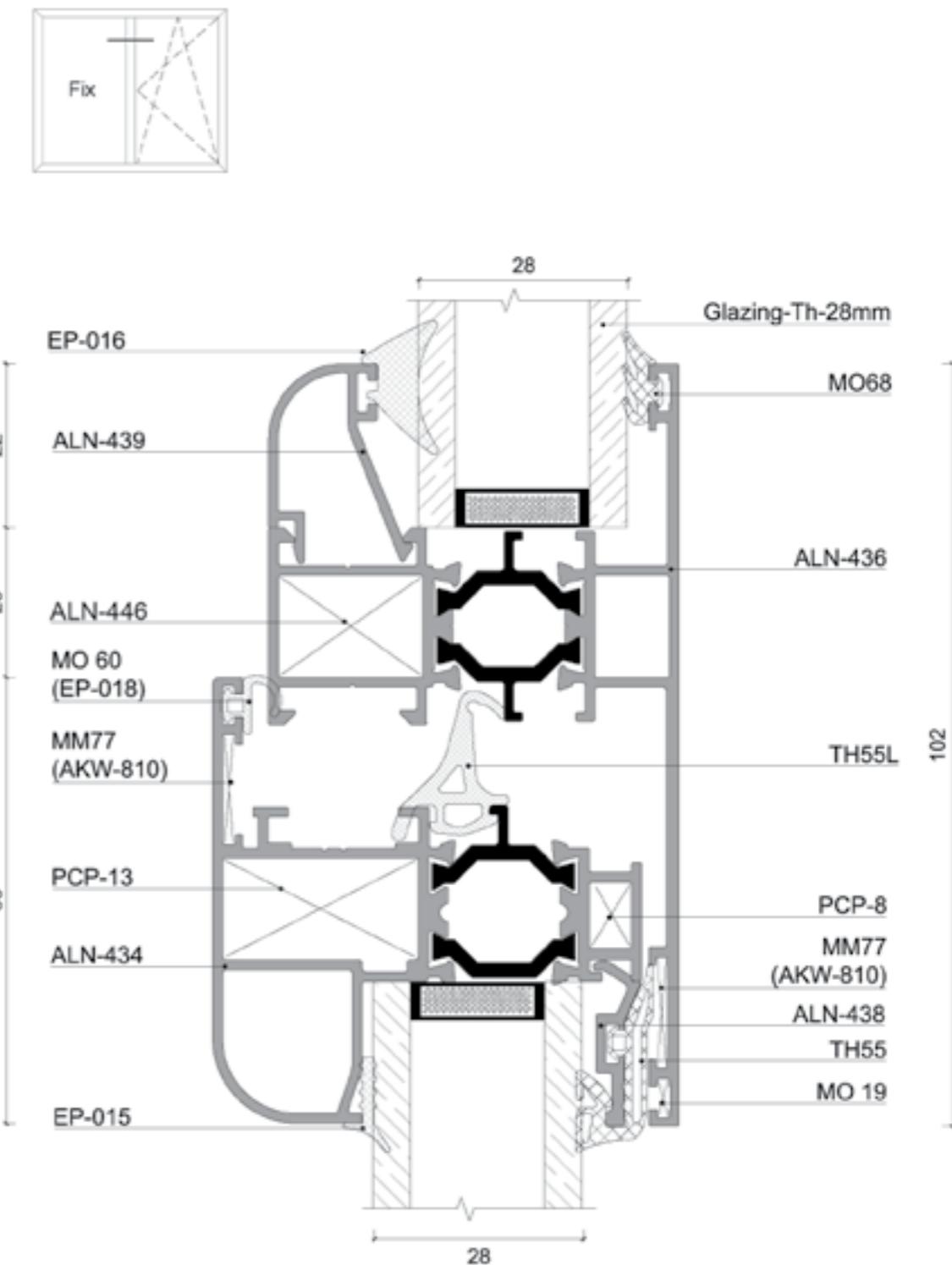
Hidden vent System 55 Series  
Fabrication Details



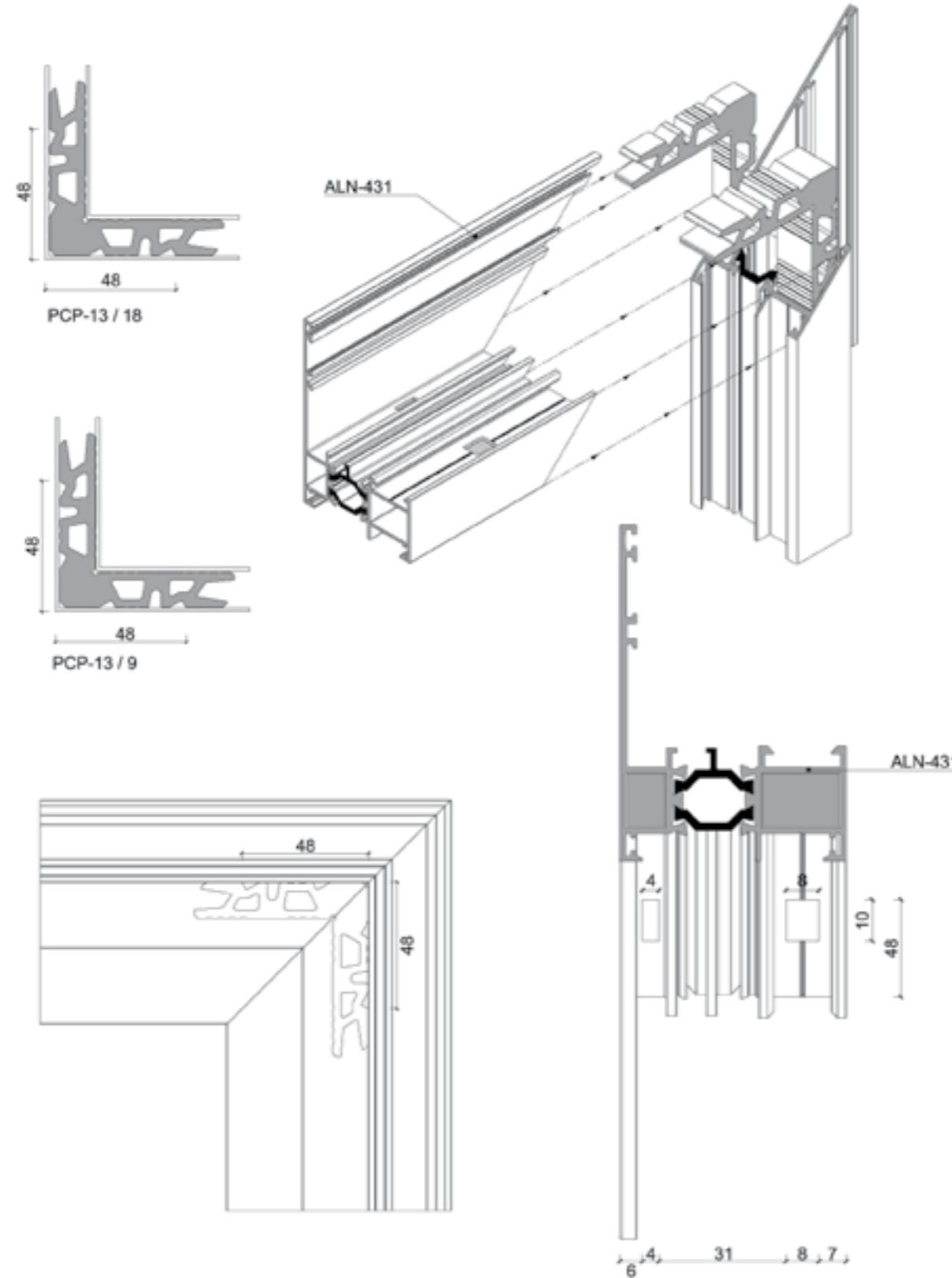
Hidden vent System 55 Series  
Fabrication Details



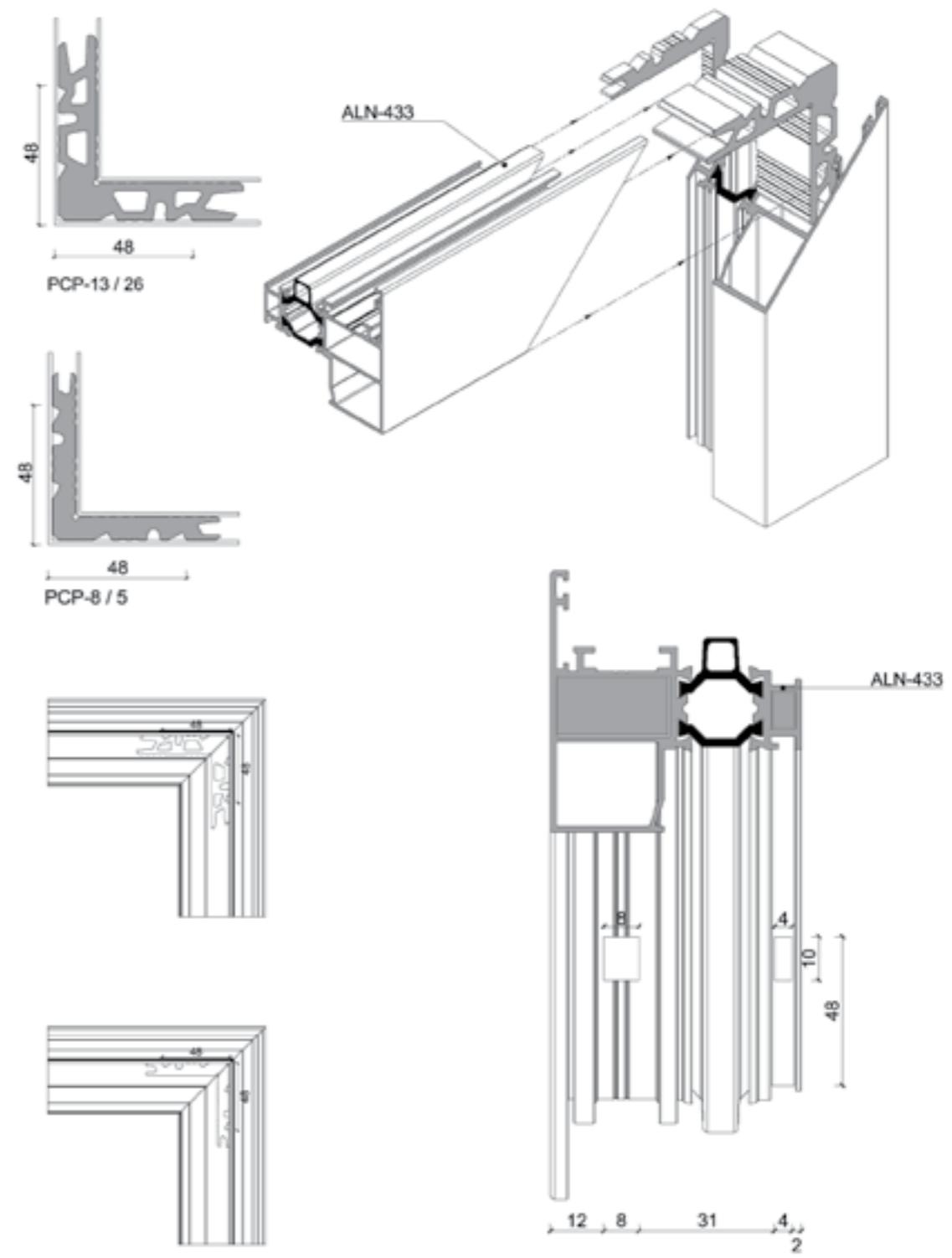
Hidden vent System 55 Series  
Fabrication Details



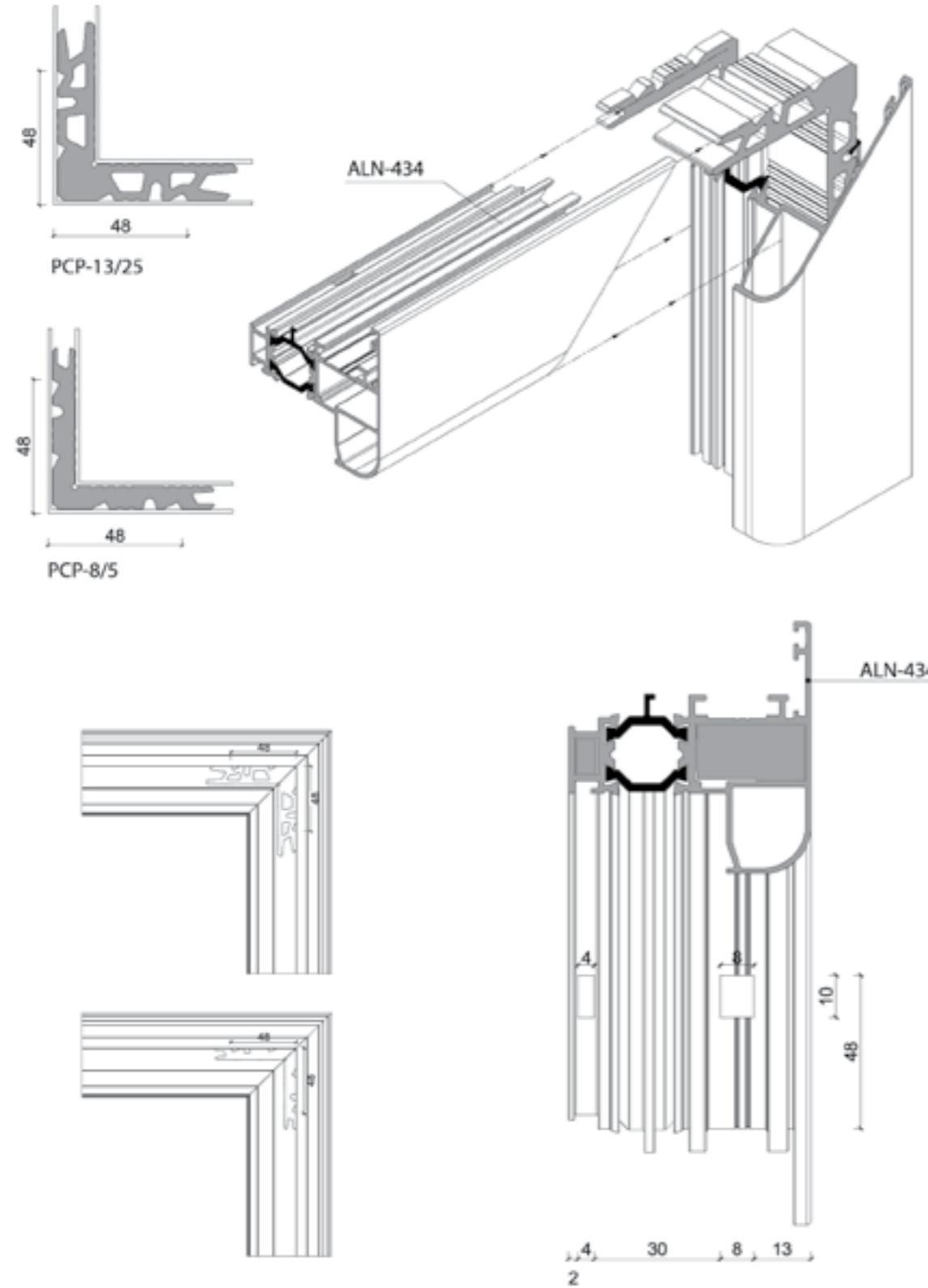
Hidden vent System 55 Series  
Assembly Drawing



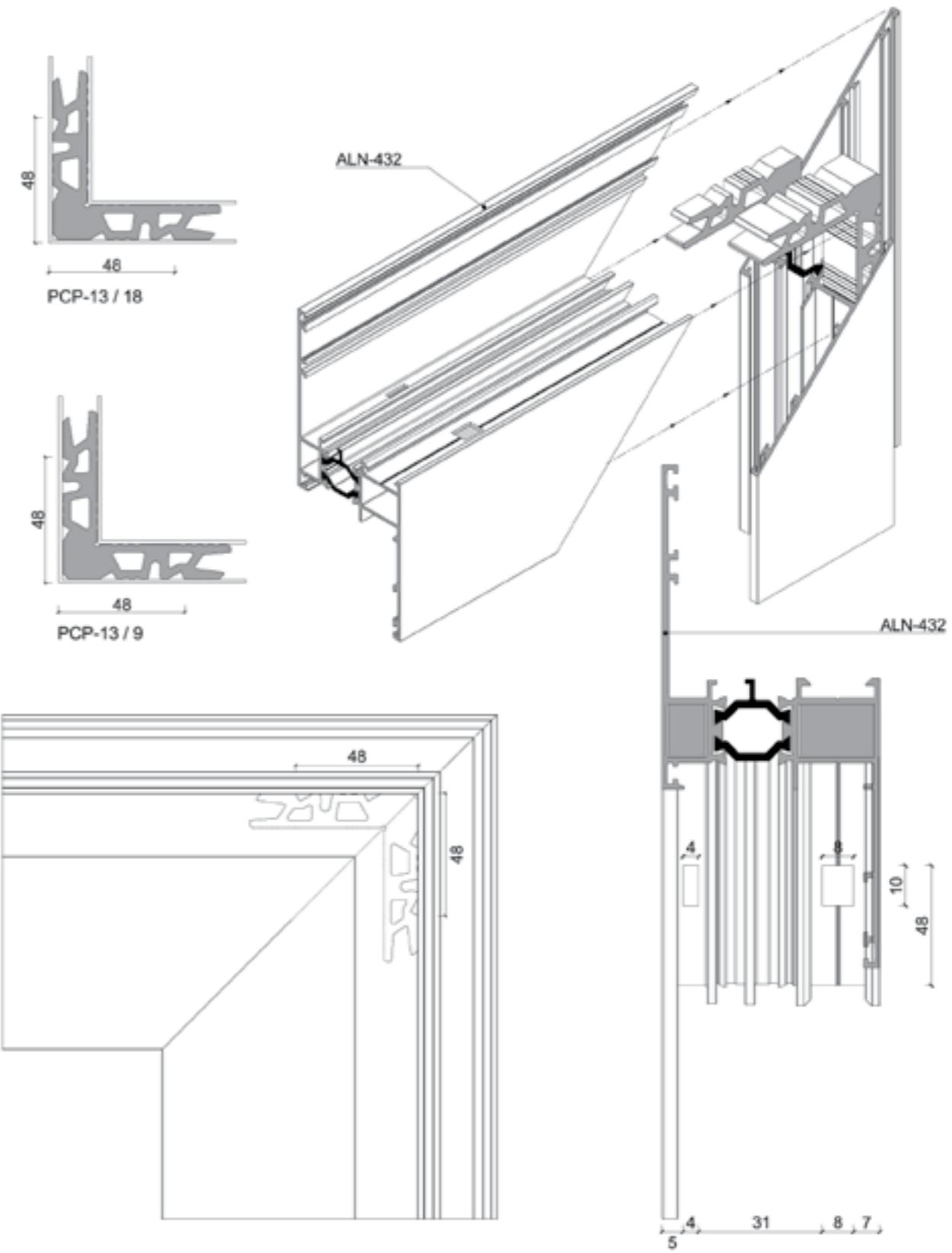
Hidden vent System 55 Series  
Assembly Drawing



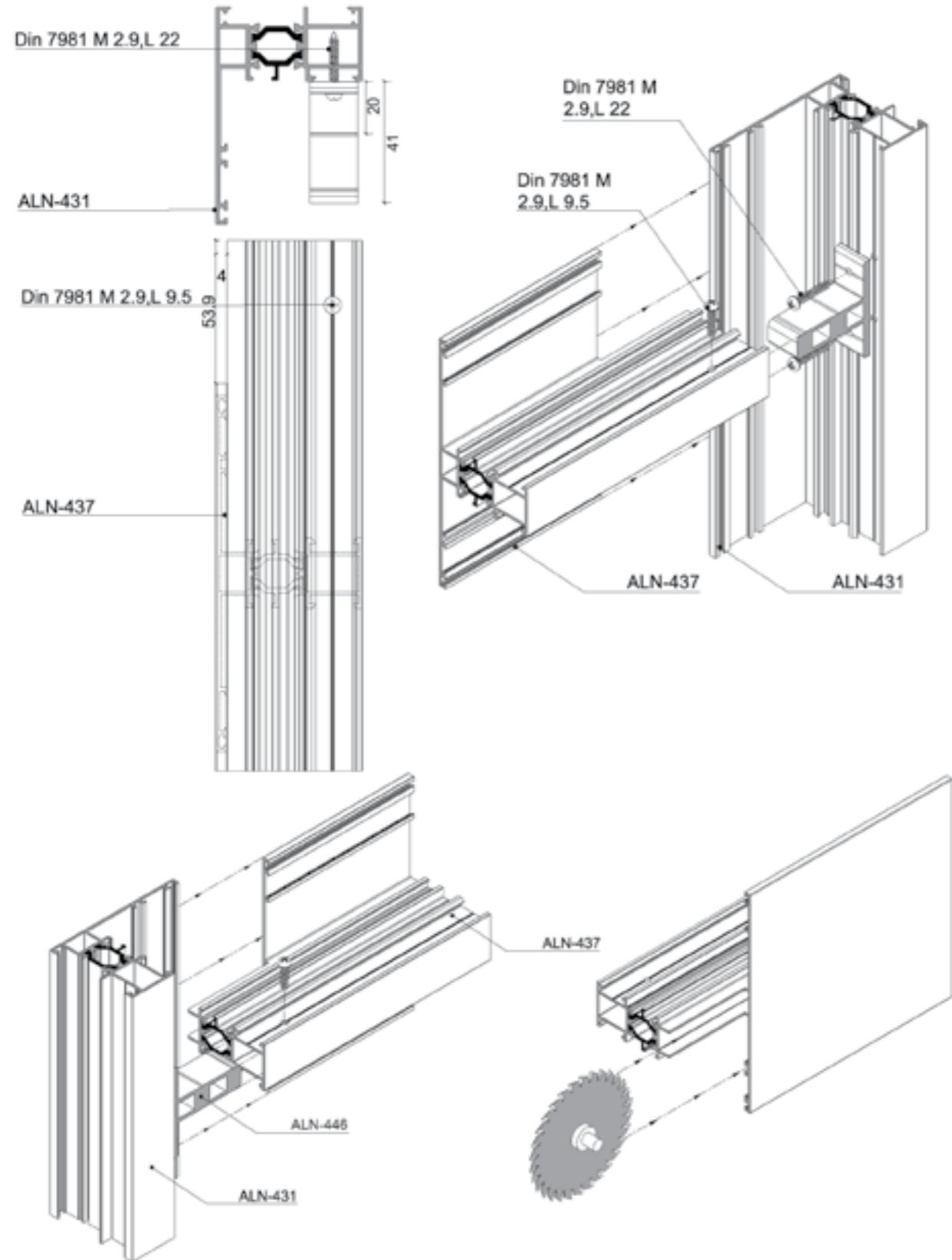
Hidden vent System 55 Series  
Assembly Drawing



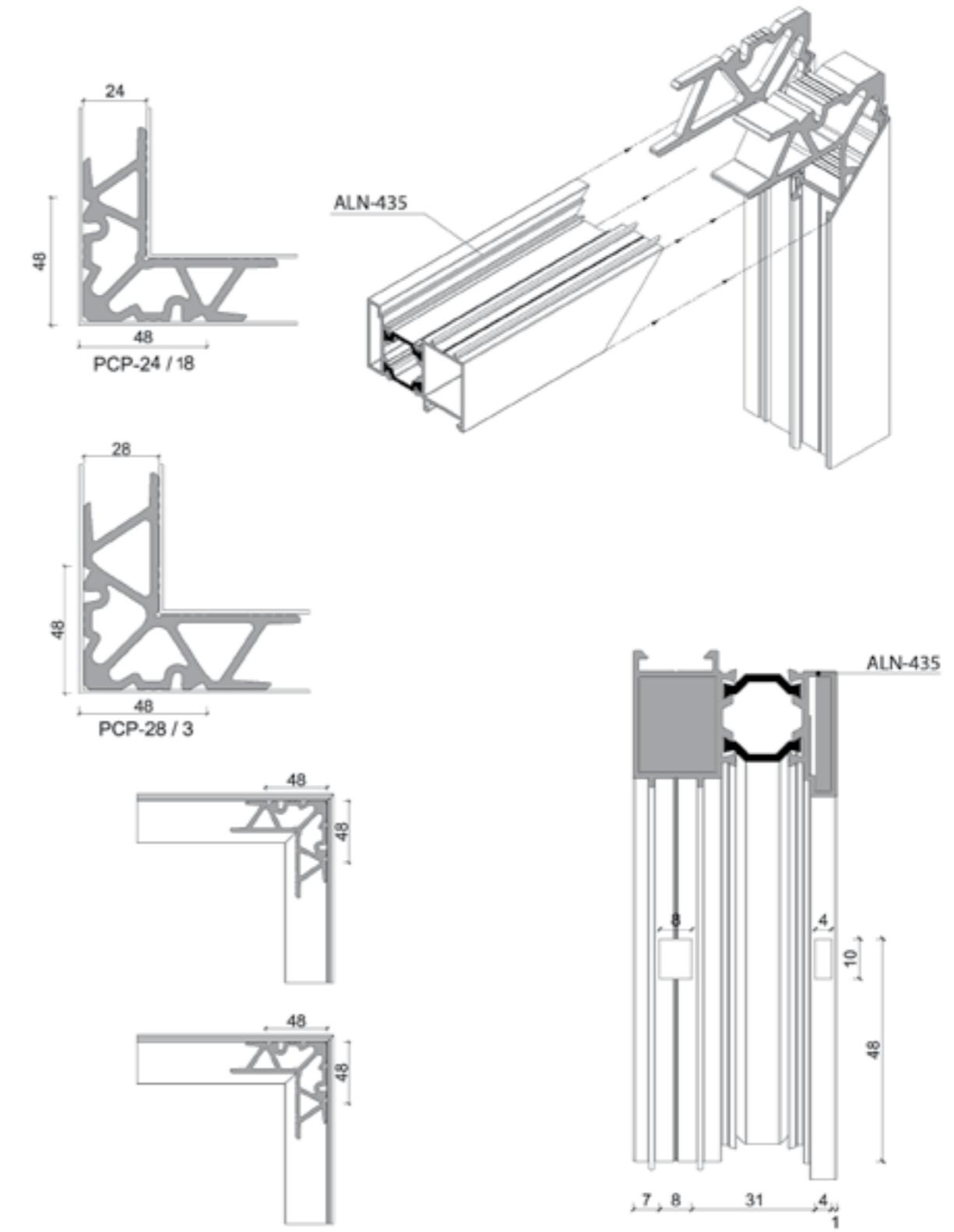
Hidden vent System 55 Series  
Assembly Drawing



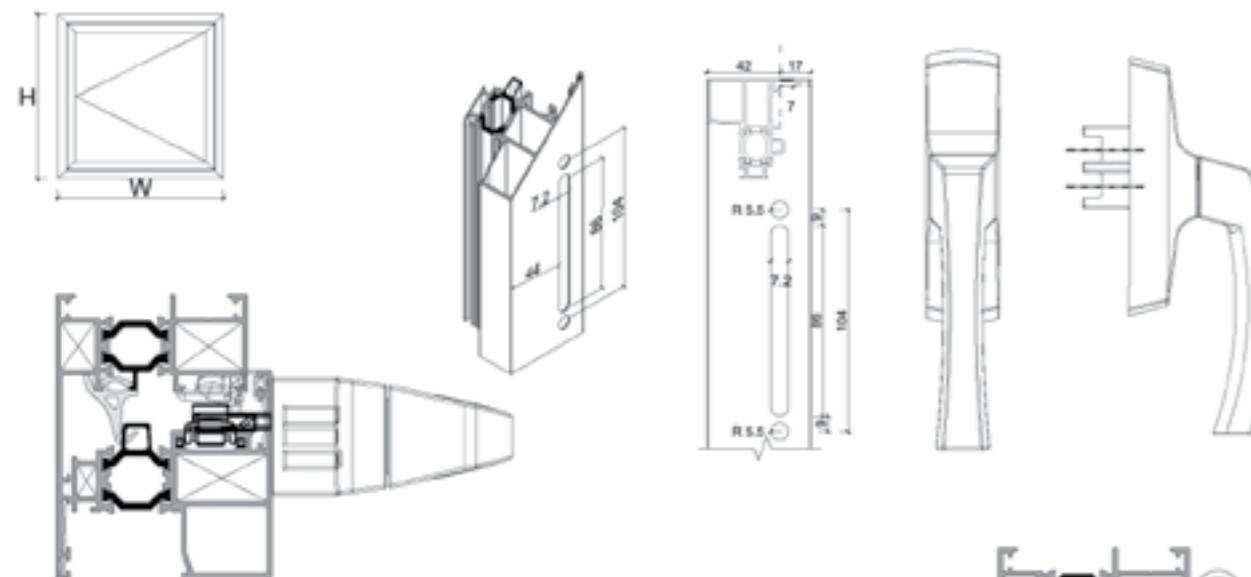
Hidden vent System 55 Series  
Assembly Drawing



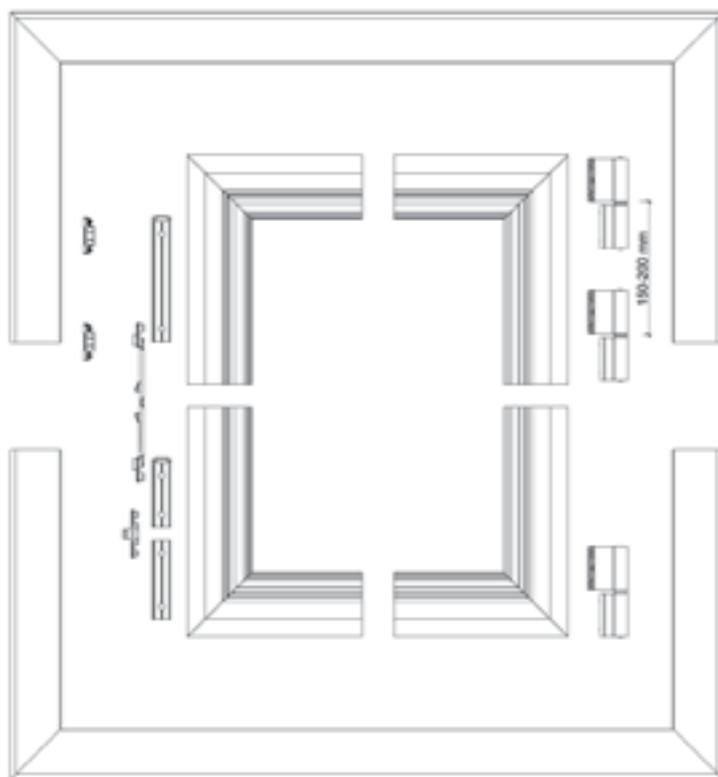
Hidden vent System 55 Series  
Assembly Drawing



### Hidden vent System 55 Series Hardware Installation

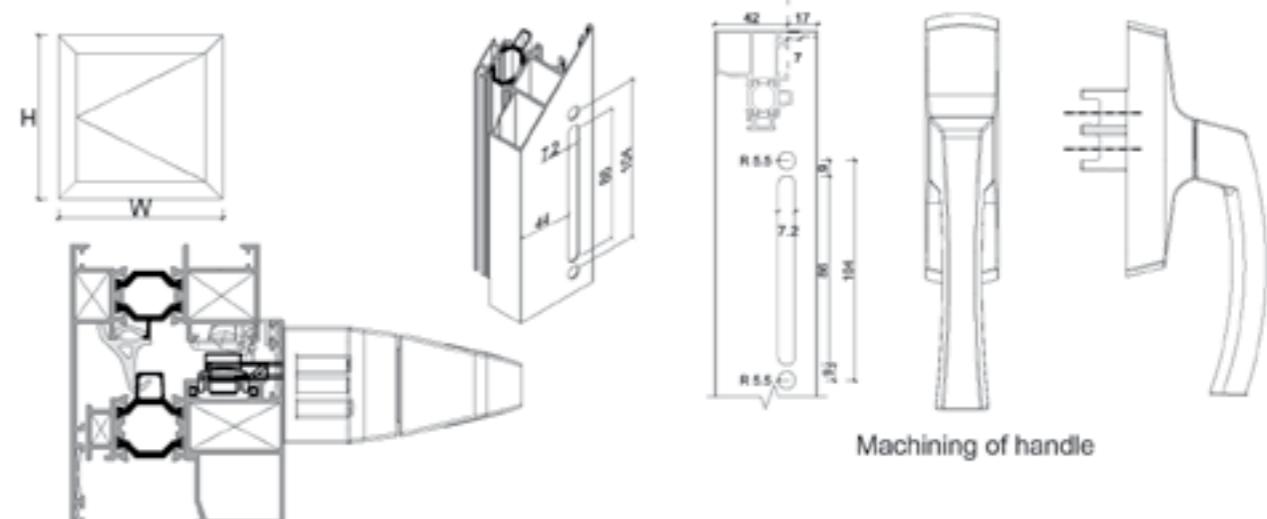


$1200 \geq H$   
 $1200 \geq W$

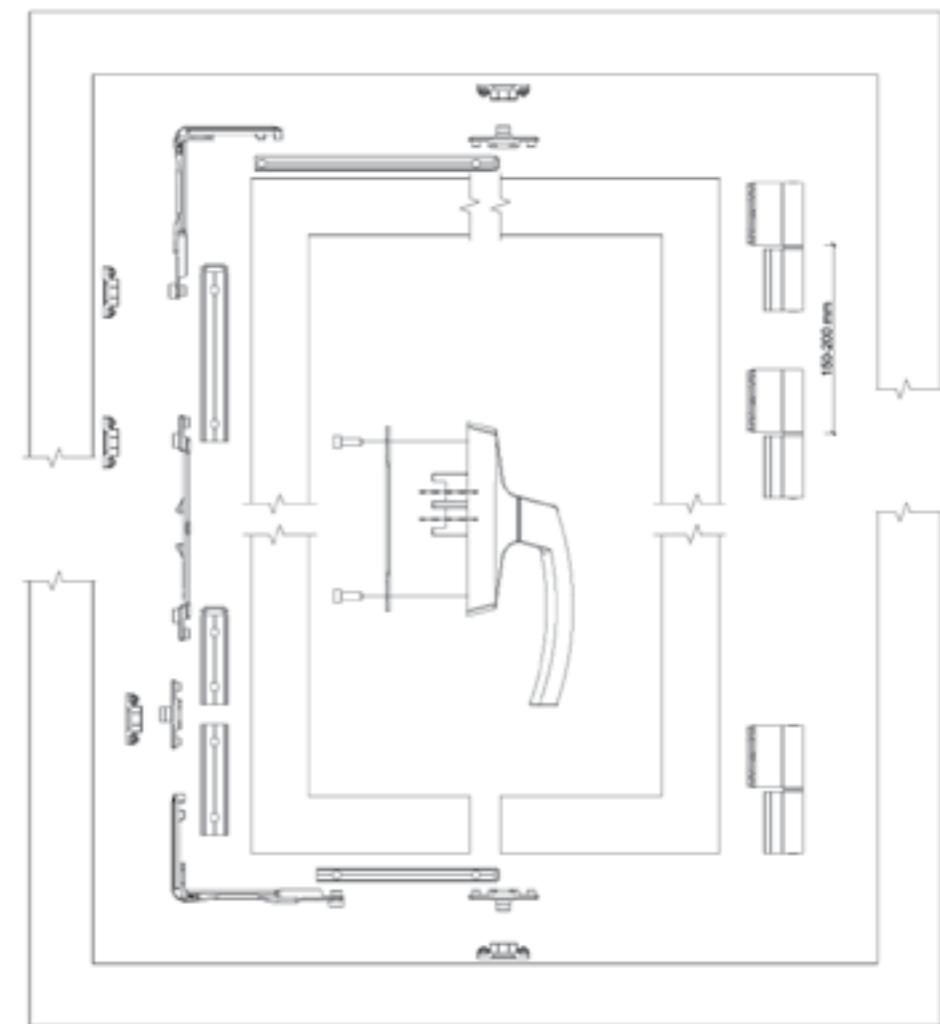


Installation of turn hardware

### Hidden vent System 55 Series Hardware Installation



$1200 \leq H$   
 $1200 \leq W$

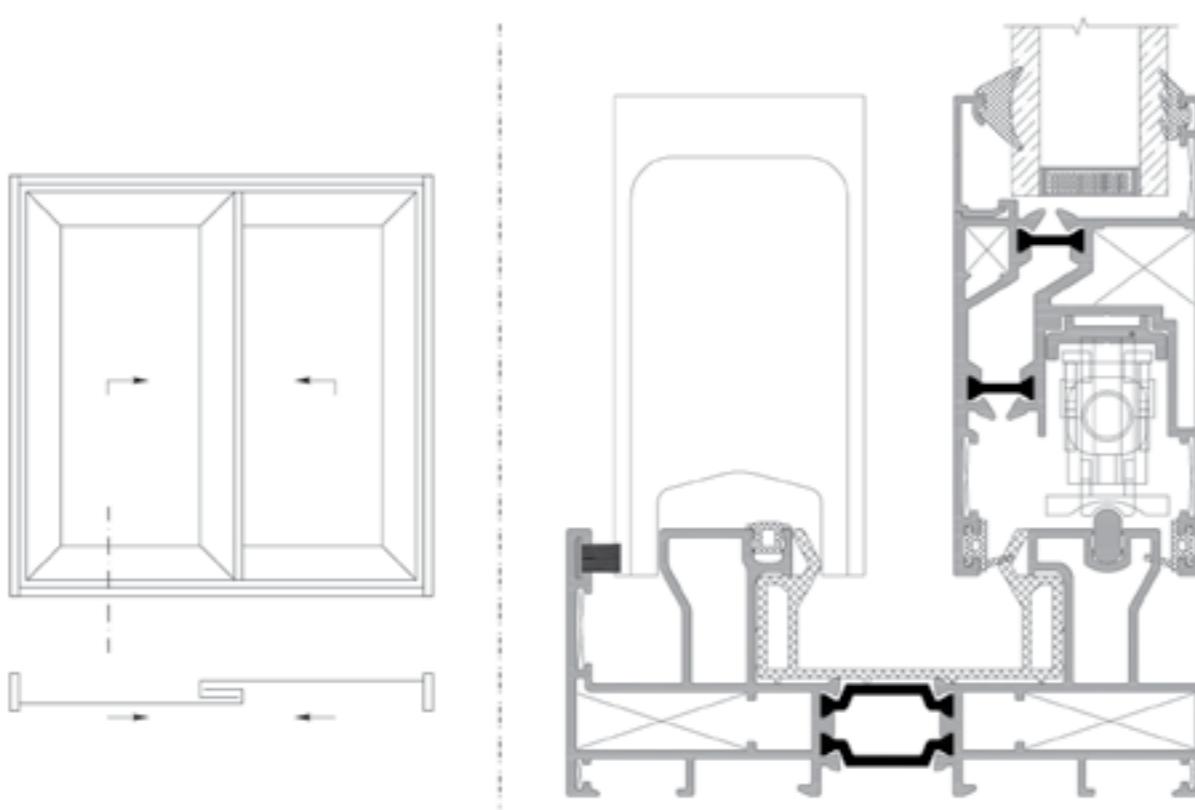


Turn hardware installation

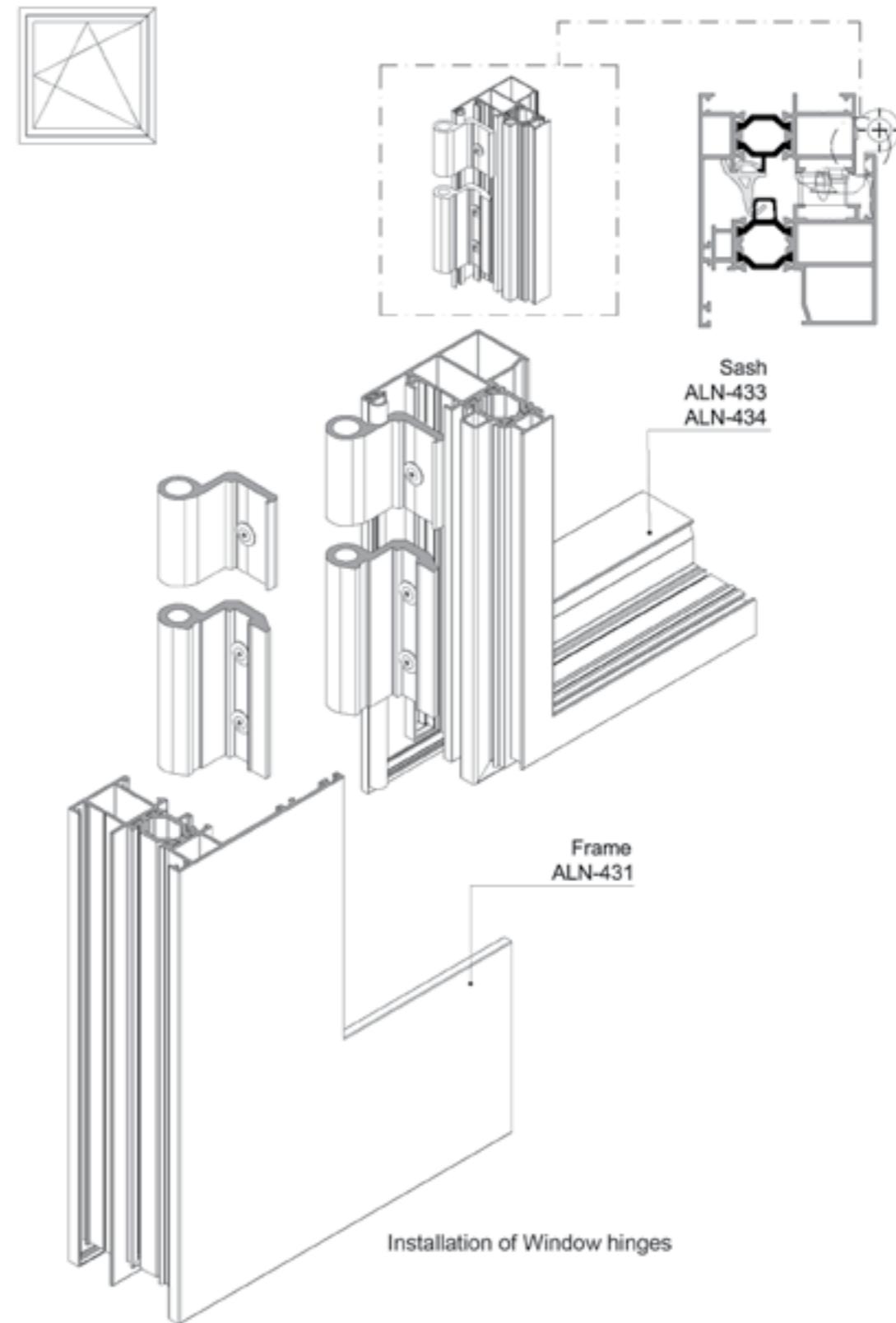


### Lift & Slide System 115 Series

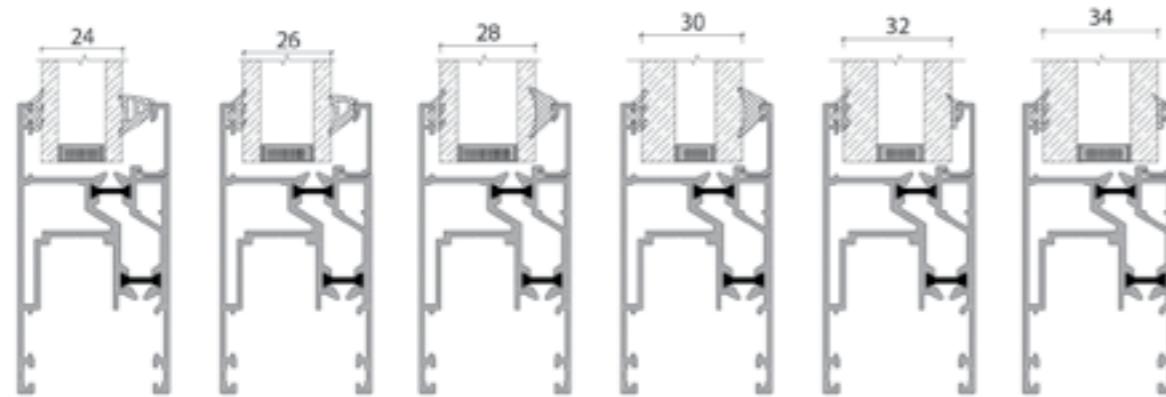
- . Profile width: 115 mm
- . Vent width: 24 mm
- . Wall thickness: 24 - 34 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 24 - 34 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Isulation bar : Polyamide Width 24 mm
- . Thermal permability :  $U_f = 2.58 \text{ w/mk}$
- . Safety drainage system
- . Various typologies



### Hidden vent System 55 Series Hardware Installation

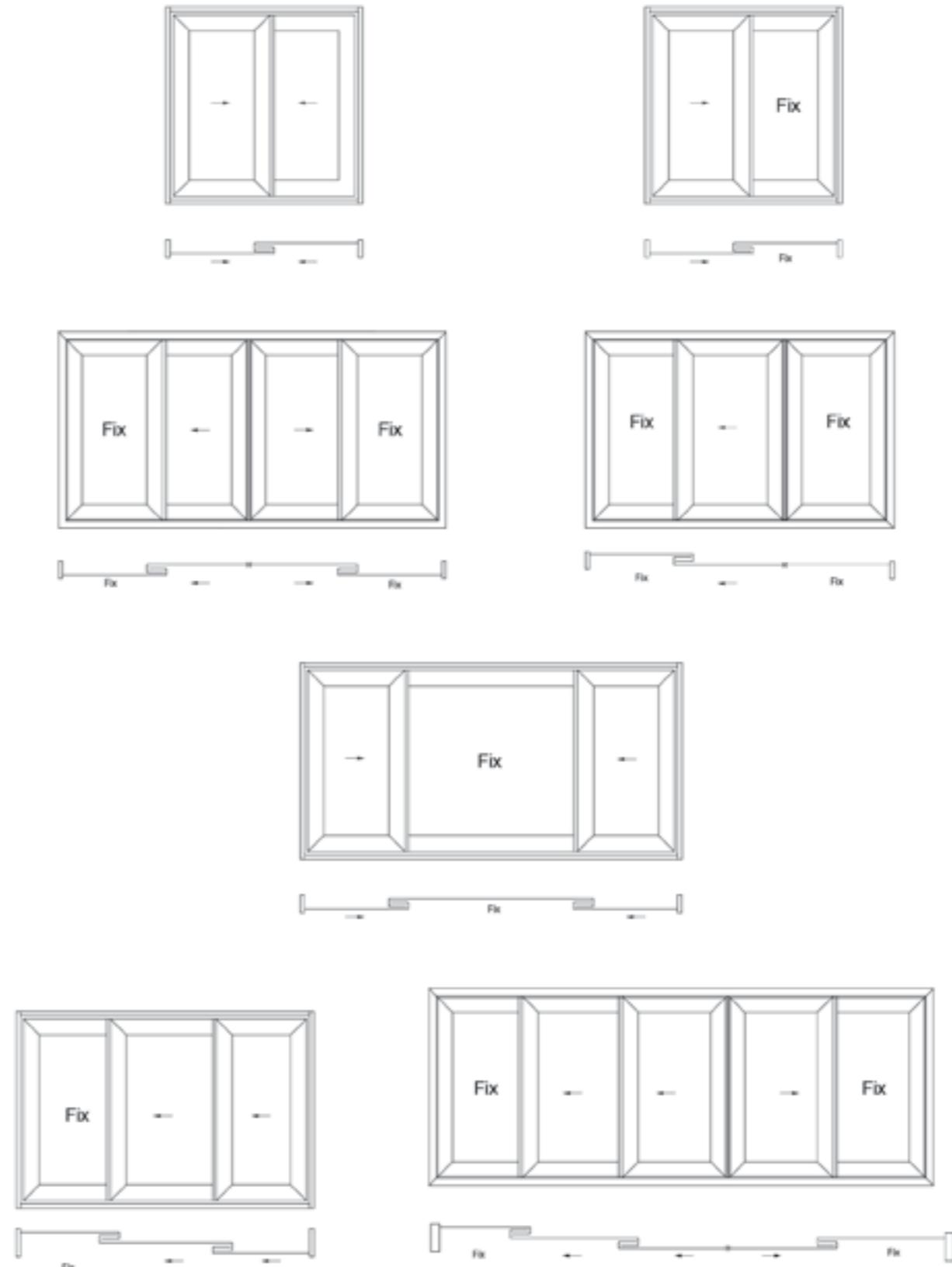


Lift & Slide System 115 Series  
Glazing Table



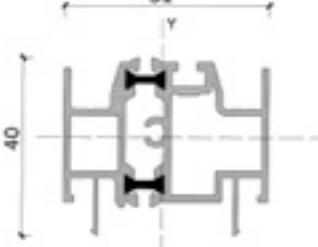
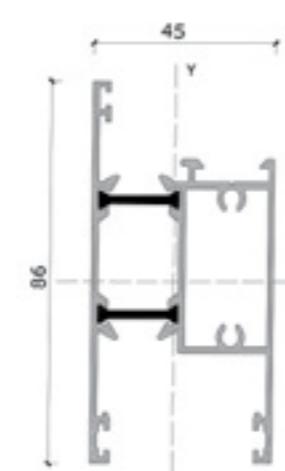
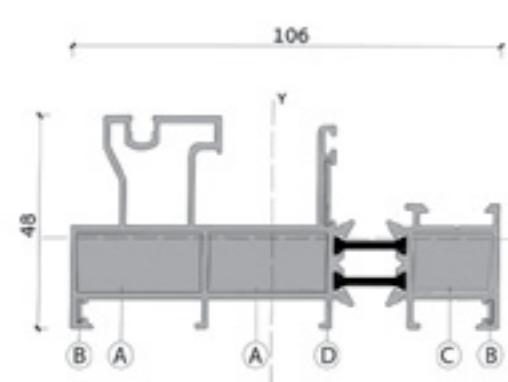
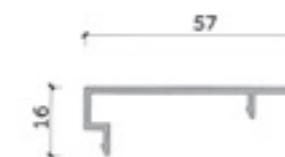
Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
24 mm		Ø	ALN-460
26 mm		Ø	ALN-460
28 mm		Ø	ALN-460
30 mm		Ø	ALN-461
32 mm		Ø	ALN-460
34 mm		Ø	ALN-461

Lift & Slide System 115 Series  
Typologies



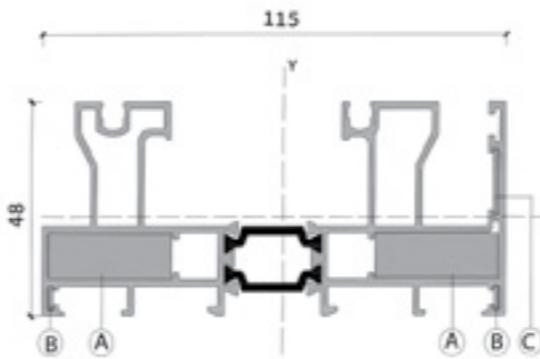
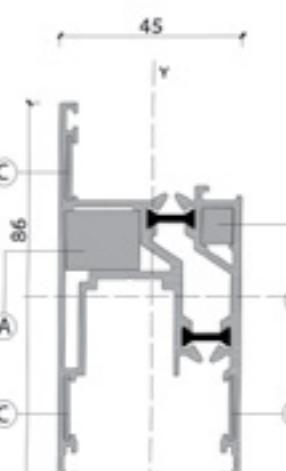
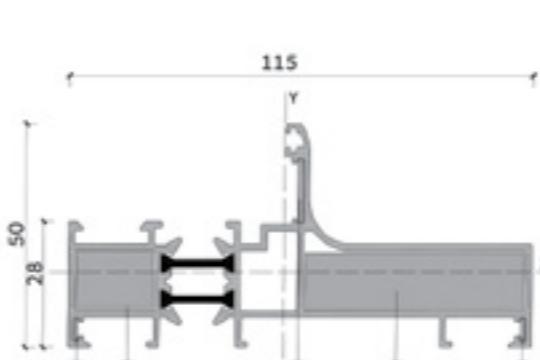
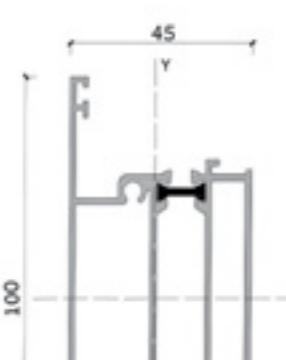
## Lift & Slide System 115 Series

Profile & Accessories Information

			
$I_x: 4.84 \text{ cm}^4$	$I_y: 10.40 \text{ cm}^4$	$I_x: 14.50 \text{ cm}^4$	$I_y: 25.60 \text{ cm}^4$
Profile : ALN-505	-	Transom : ALN-507	-
Weight : 1258 g/m	-	Weight : 1485 g/m	-
			
$I_x: 11.60 \text{ cm}^4$	$I_y: 73.90 \text{ cm}^4$		
Frame : ALN-506	A: PCP-13 / 30 mm		
	B: MO19(399012)		
Weight : 1994 g/m	C: PCP-13 / 19 mm		
	D: MM77	Cover: ALN-510	
		Weight: 332 g/m	

## Lift & Slide System 115 Series

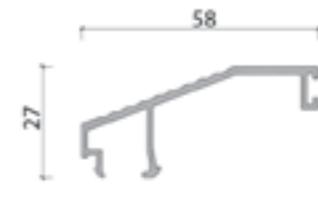
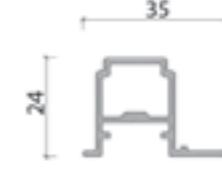
Profile & Accessories Information

			
$I_x: 17.40 \text{ cm}^4$	$I_y: 114.00 \text{ cm}^4$	$I_x: 17.20 \text{ cm}^4$	$I_y: 26.00 \text{ cm}^4$
Frame : ALN-500	A: PCP-10 / 30 mm	sash: ALN-503	A: PCP-13 / 18 mm
	B: MO19(399012)		B: PCP-8 / 7 mm
Weight : 2316 g/m	C: MM77	Weight : 1757 g/m	C: MM77
			
$I_x: 7.20 \text{ cm}^4$	$I_y: 71.50 \text{ cm}^4$	$I_x: 15.20 \text{ cm}^4$	$I_y: 36.50 \text{ cm}^4$
Frame : ALN-502	A: PCP-13 / 19 mm	Transom : ALN-504	-
	B: MO19(399012)		
Weight : 1780 g/m	C: PCP-13 / 54 mm	Weight : 1720 g/m	-
	D: MM77		

**Lift & Slide System 115 Series**  
Profile & Accessories Information

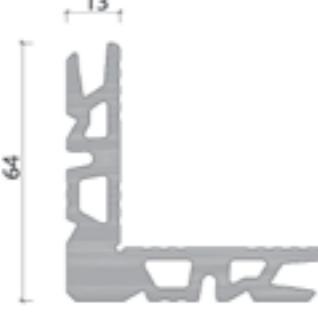
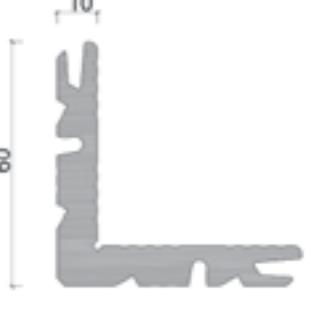
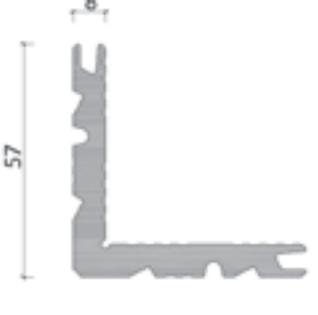
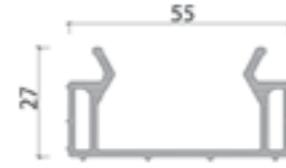
			
Glazing bead : ALN-474	Weight: 170 gr/m	Glazing bead : ALN-421	Weight: 313 gr/m
			
Glazing bead : ALN-460	Weight: 127 gr/m	Glazing beads: ALN-323	Weight: 302 gr/m
			
Glazing bead : ALN-461	Weight: 119 gr/m	Flange profile: ALN-222	Weight: 254 gr/m

**Lift & Slide System 115 Series**  
Profile & Accessories Information

			
Cover: ALN-511	Weight: 535 gr/m	Adjoining profile: ALN-514	Weight: 135 gr/m
			
Cover: ALN-512	Weight: 484 gr/m	Adjoining profile: ALN-515	Weight: 203 gr/m
			
Adjoining profile: ALN-513	Weight: 427 gr/m	Profile: ALN-489	Weight: 221 gr/m

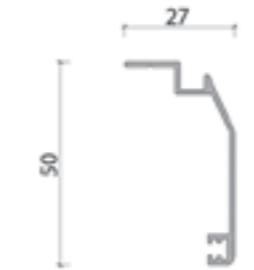
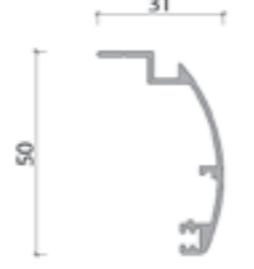
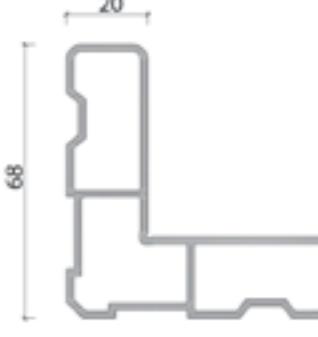
### Lift & Slide System 115 Series

Profile & Accessories Information

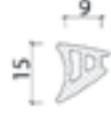
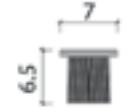
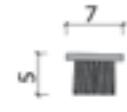
	Corner Joint: PCP13	Weight: 2672 gr/m	Gutter: UTTS115 60027	Weight: –
	Corner Joint: PCP-10	Weight: 2454 gr/m	Cover: 60025	Weight: –
	Corner Joint: PCP-8	Weight: 1947 gr/m	Gasket: MOCTS115 60028	Weight: –
	27	55		

### Lift & Slide System 115 Series

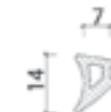
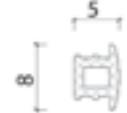
Profile & Accessories Information

	Flange profile: ALN-221	Weight: 302 gr/m	Fly screen: ALN-207	Weight: 448 gr/m
	Flange profile: ALN-219	Weight: 362 gr/m	Rail: ALN-462	Weight: 119 gr/m
	Profile: ALN-228	Weight: 135 gr/m		Corner Joint: PCP-20
			20	Weight: 1377 gr/m
50	27	53	15	5
60	10	50	31	10
57	8	50	62	5
19	48	15	21	20

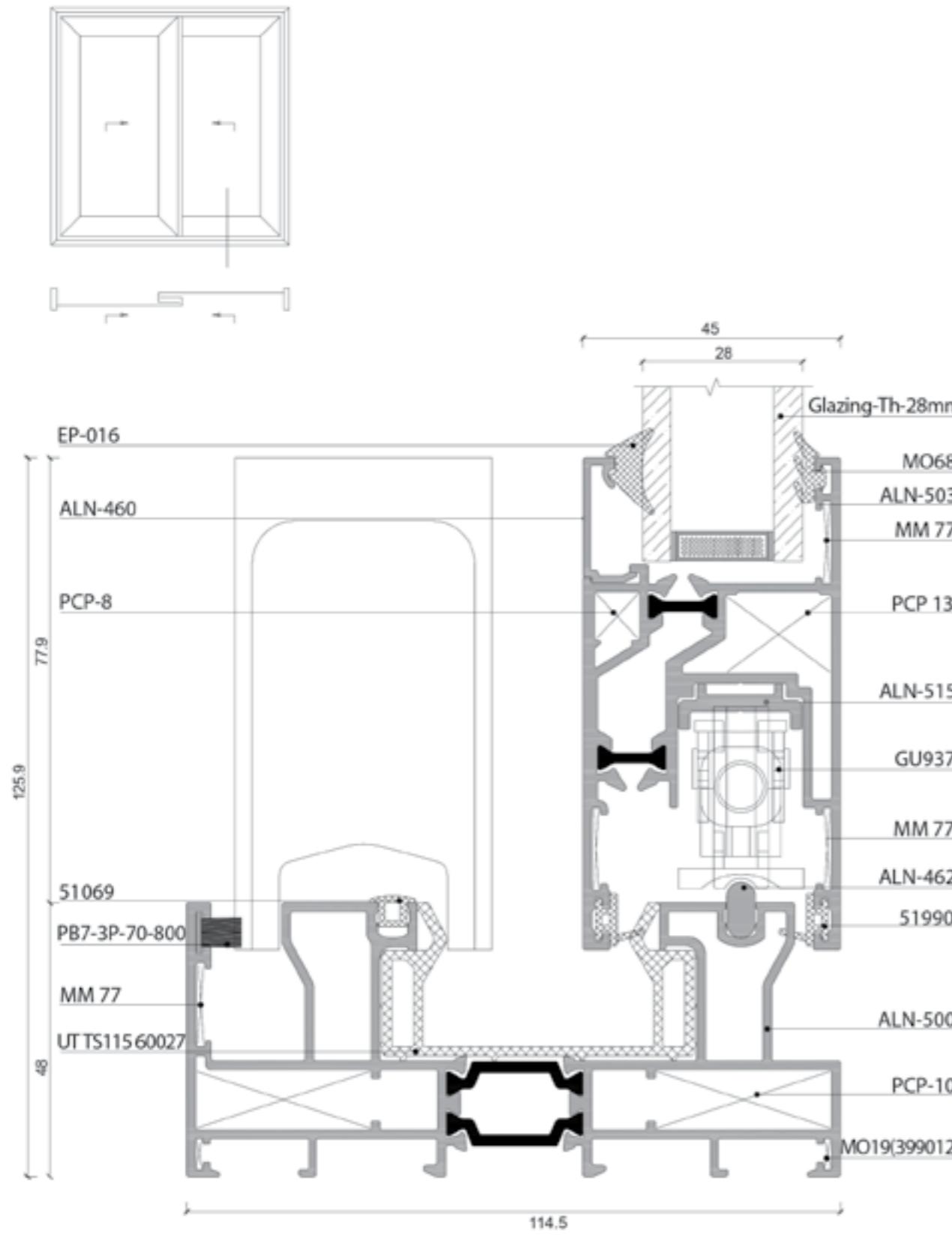
**Lift & Slide System 115 Series**  
Profile & Accessories Information

			
Gasket: EP-021	Weight: 80 gr/m	PB7-3P-70-800	Weight: -
			
PB7-3P-70-650	Weight: -		
			
PB7-3P-70-500	Weight: -		

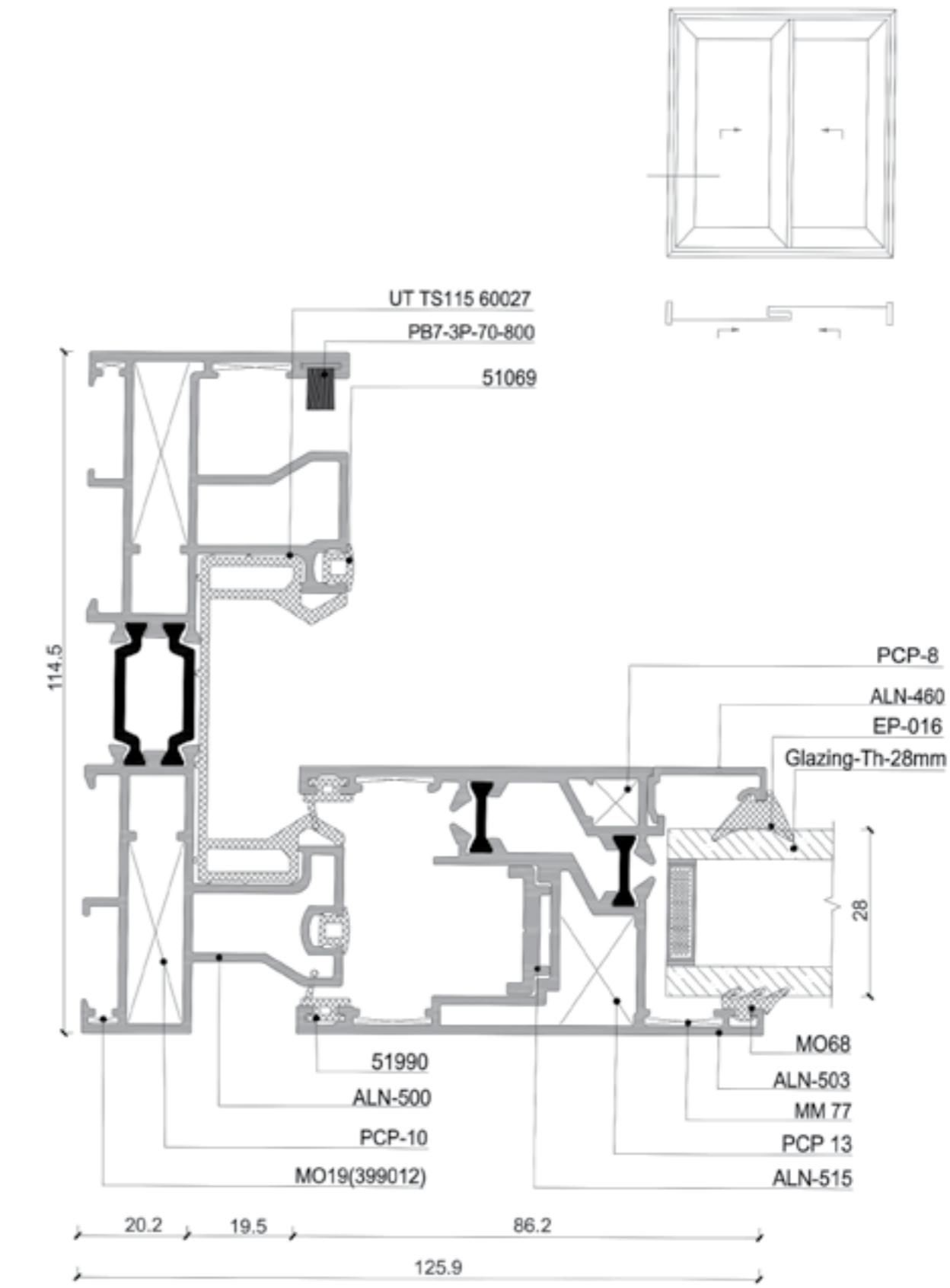
**Lift & Slide System 115 Series**  
Profile & Accessories Information

			
Gasket: EP-019	Weight: 61 gr/m	Gasket: MO68	Weight: 48 gr/m
			
Gasket: EP-018	Weight: 27 gr/m	Gasket: 51990	Weight: 34 gr/m
			
Gasket: EP-016	Weight: 77 gr/m	Gasket: 51069	Weight: 27 gr/m

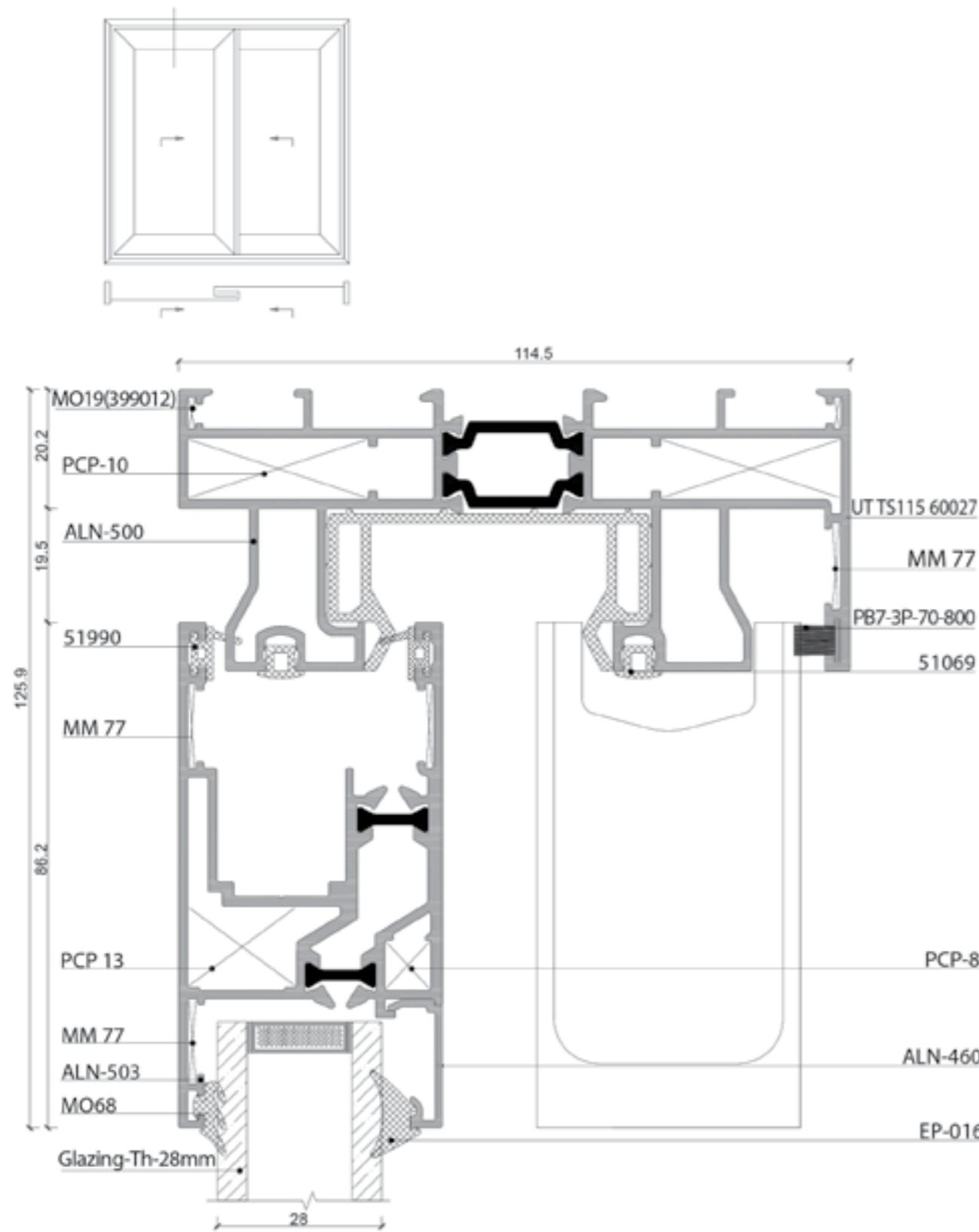
Lift & Slide System 115 Series  
Fabrication Details



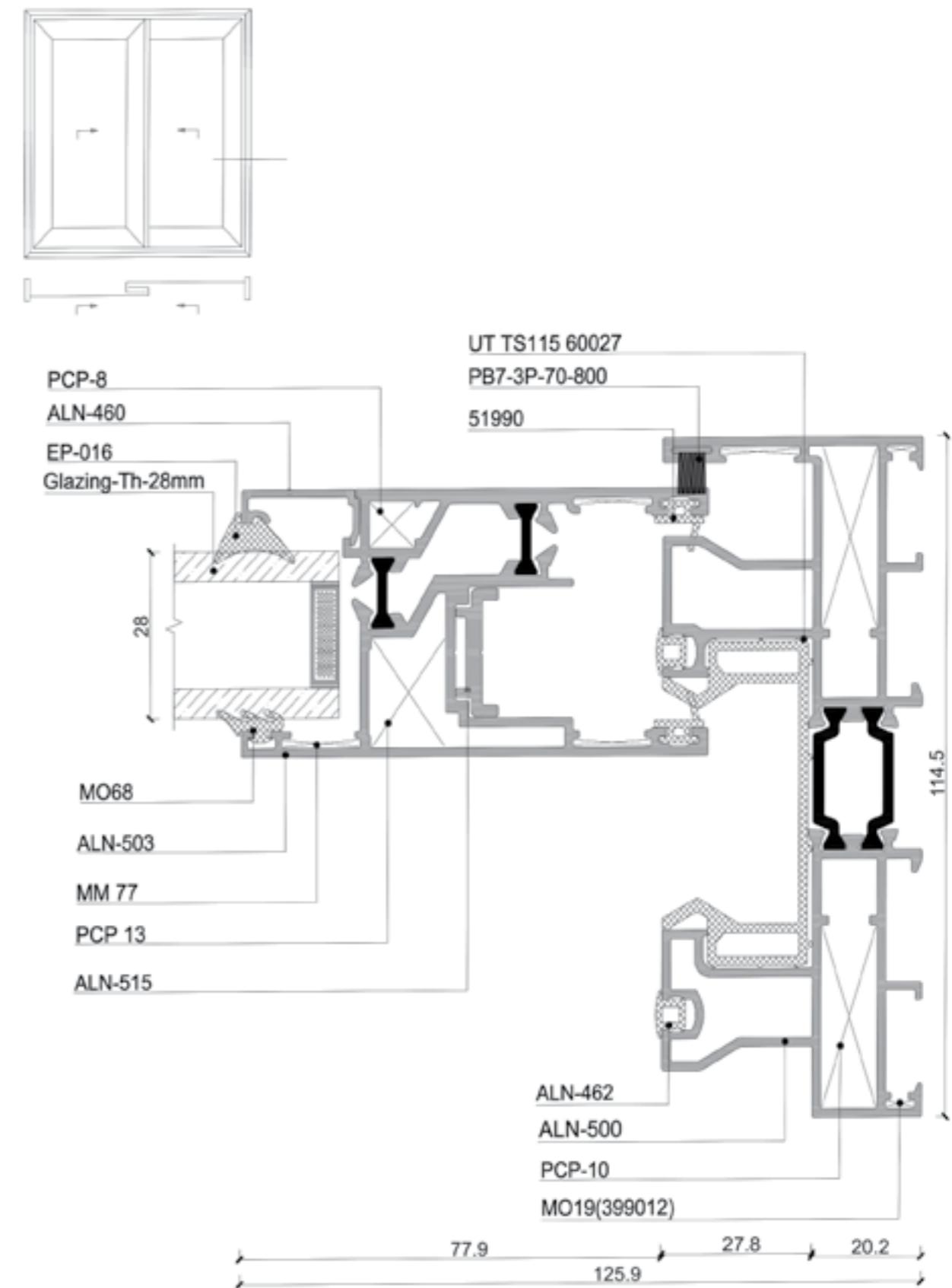
Lift & Slide System 115 Series  
Fabrication Details



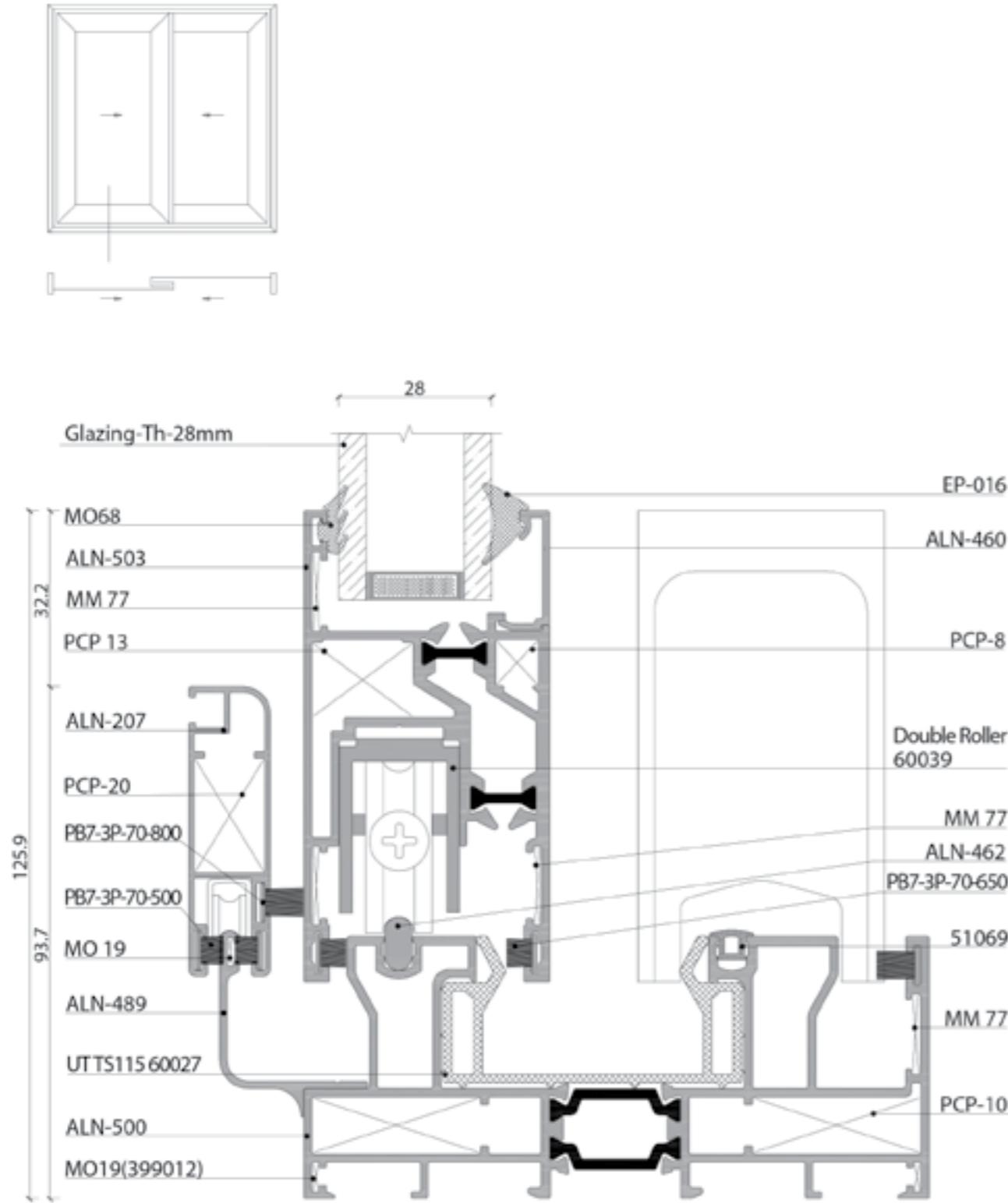
Lift & Slide System 115 Series  
Fabrication Details



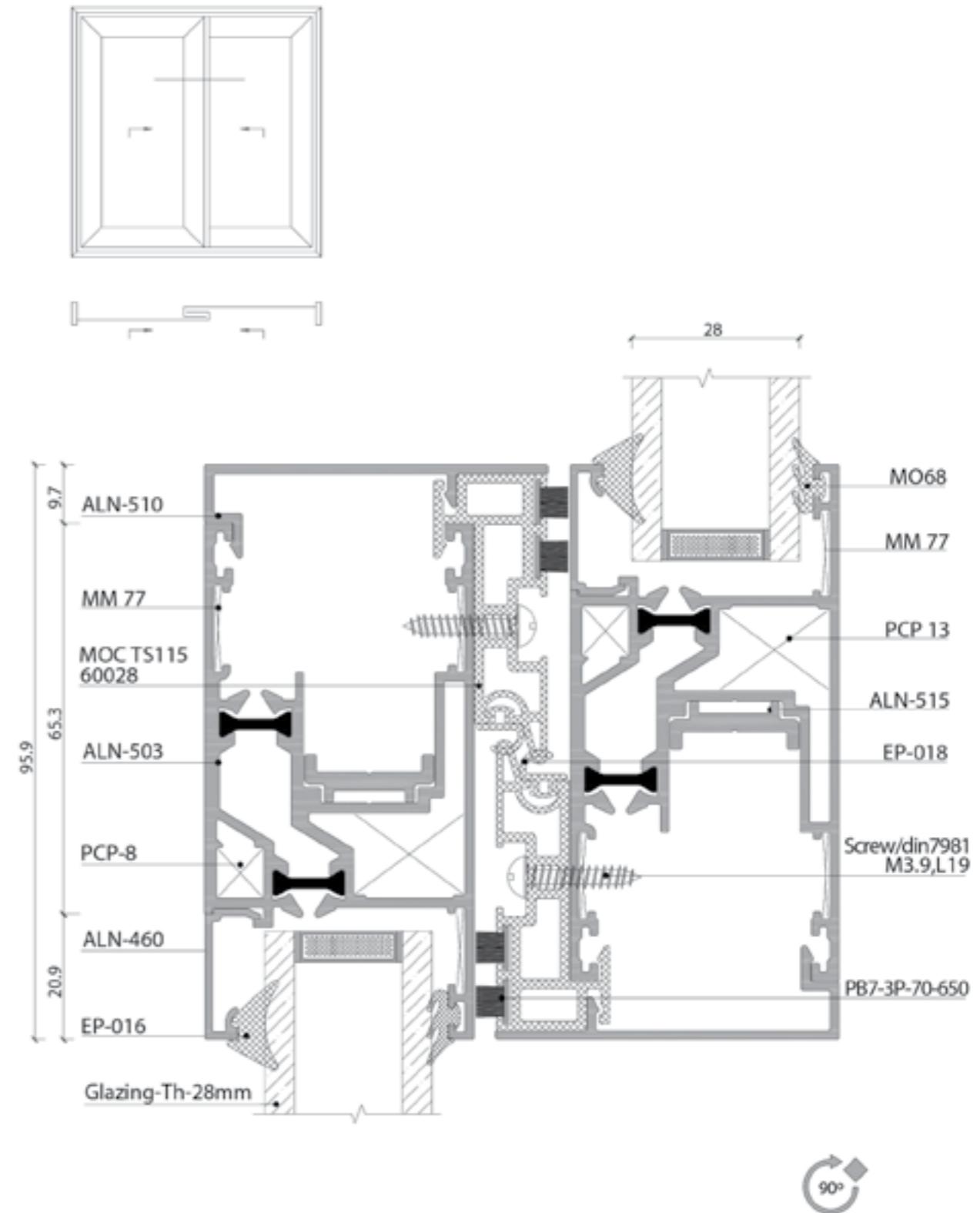
Lift & Slide System 115 Series  
Fabrication Details



Lift & Slide System 115 Series  
Fabrication Details

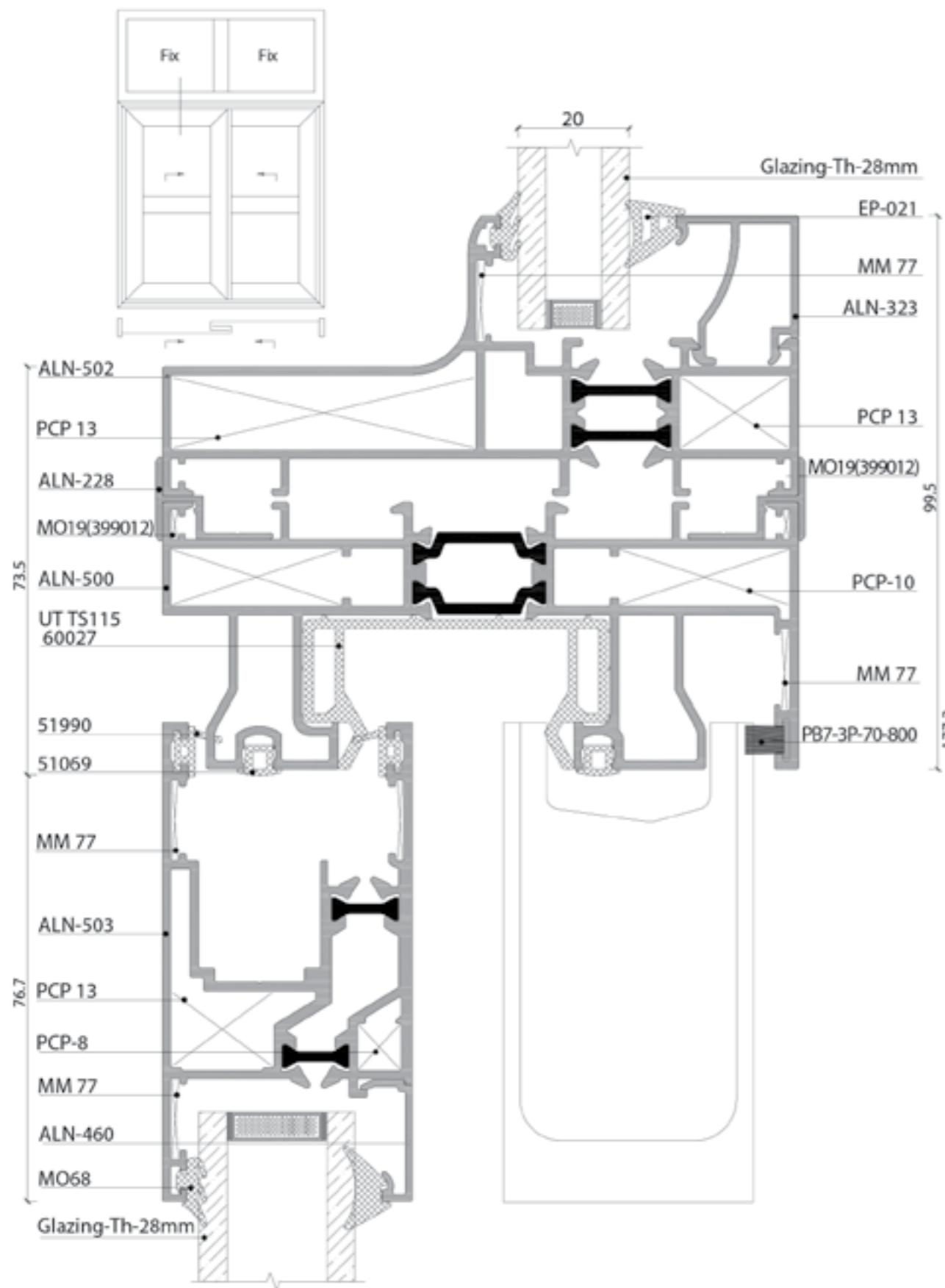


Lift & Slide System 115 Series  
Fabrication Details



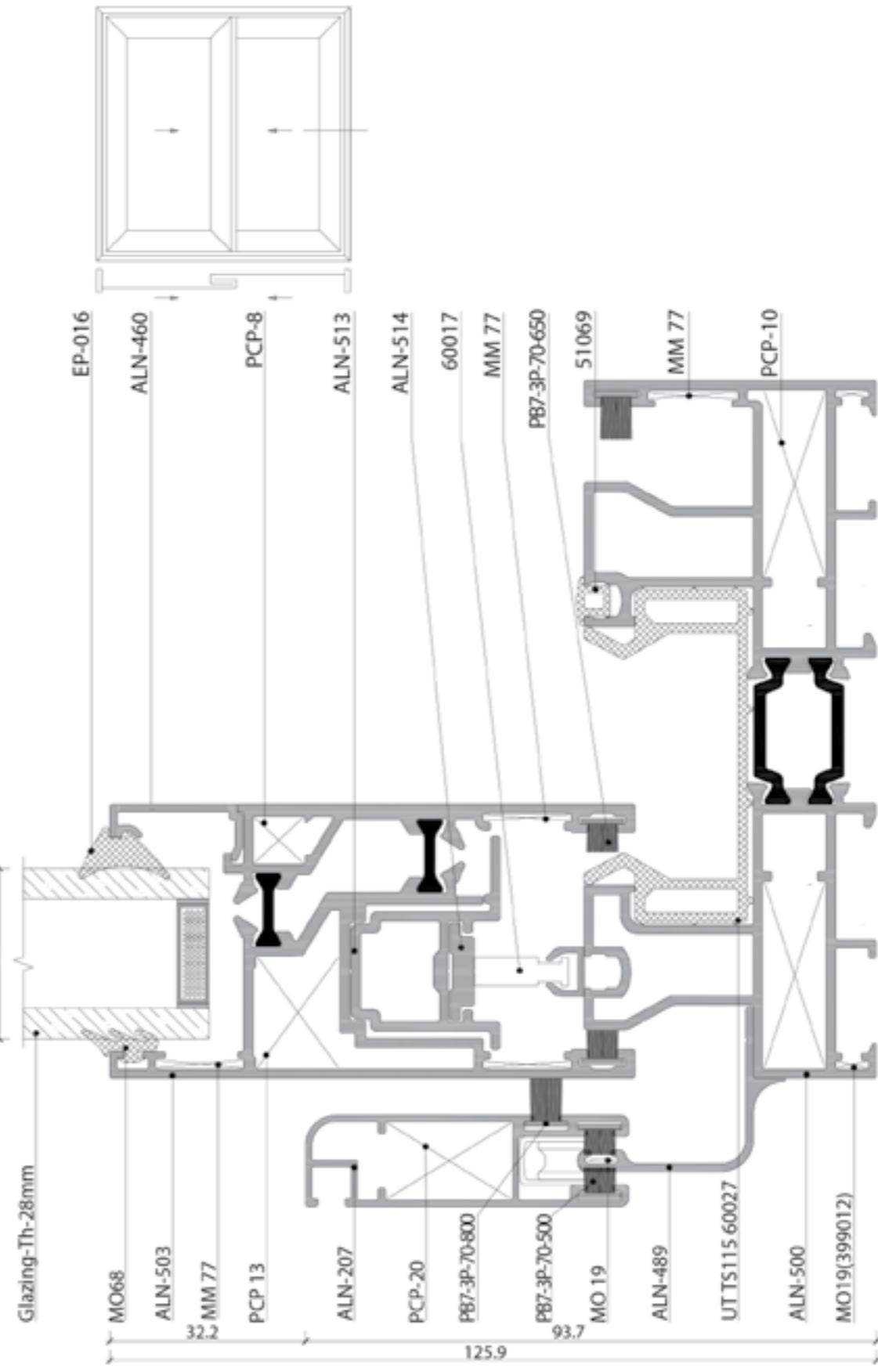
### Lift & Slide System 115 Series

Fabrication Details

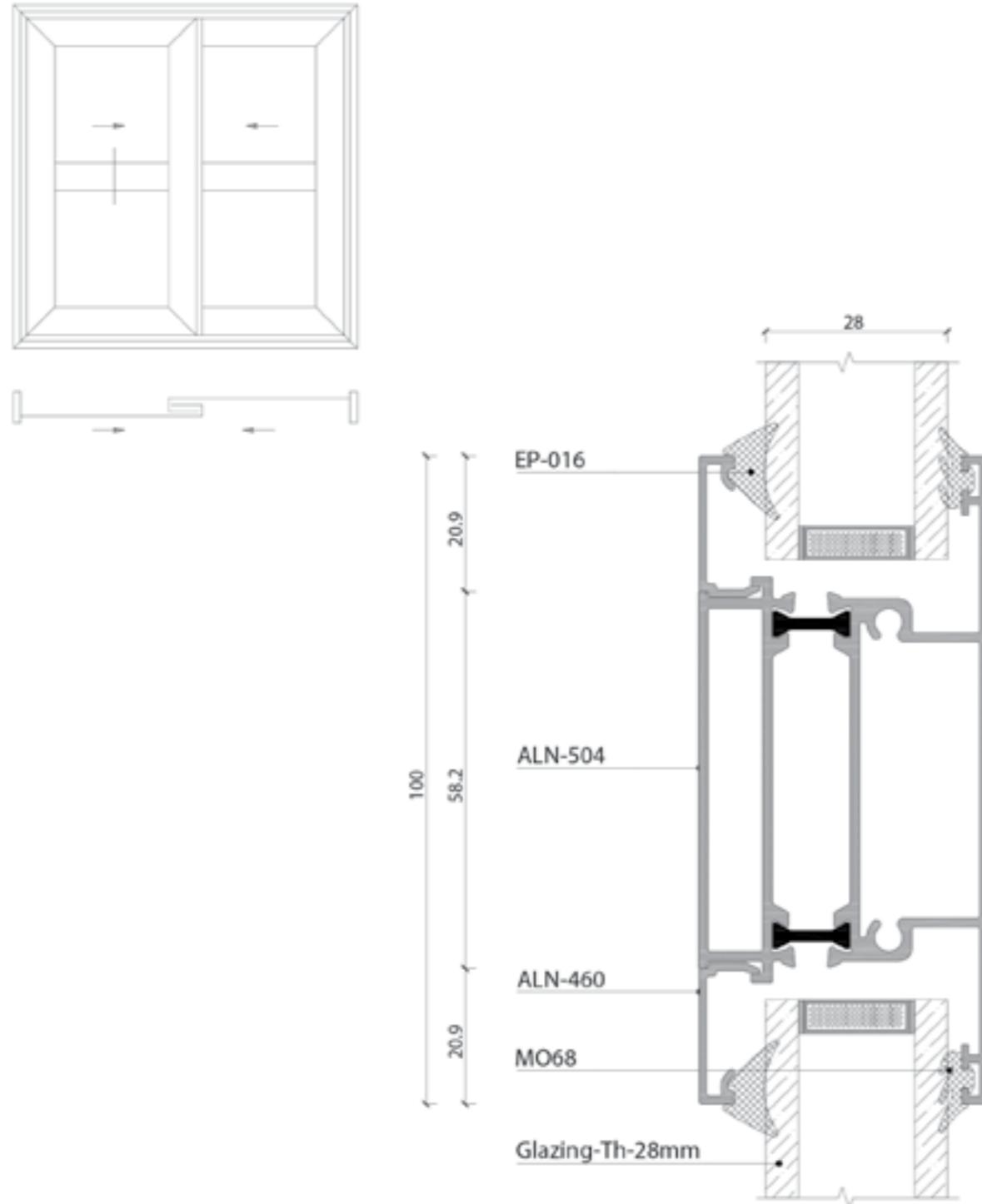


### Lift & Slide System 115 Series

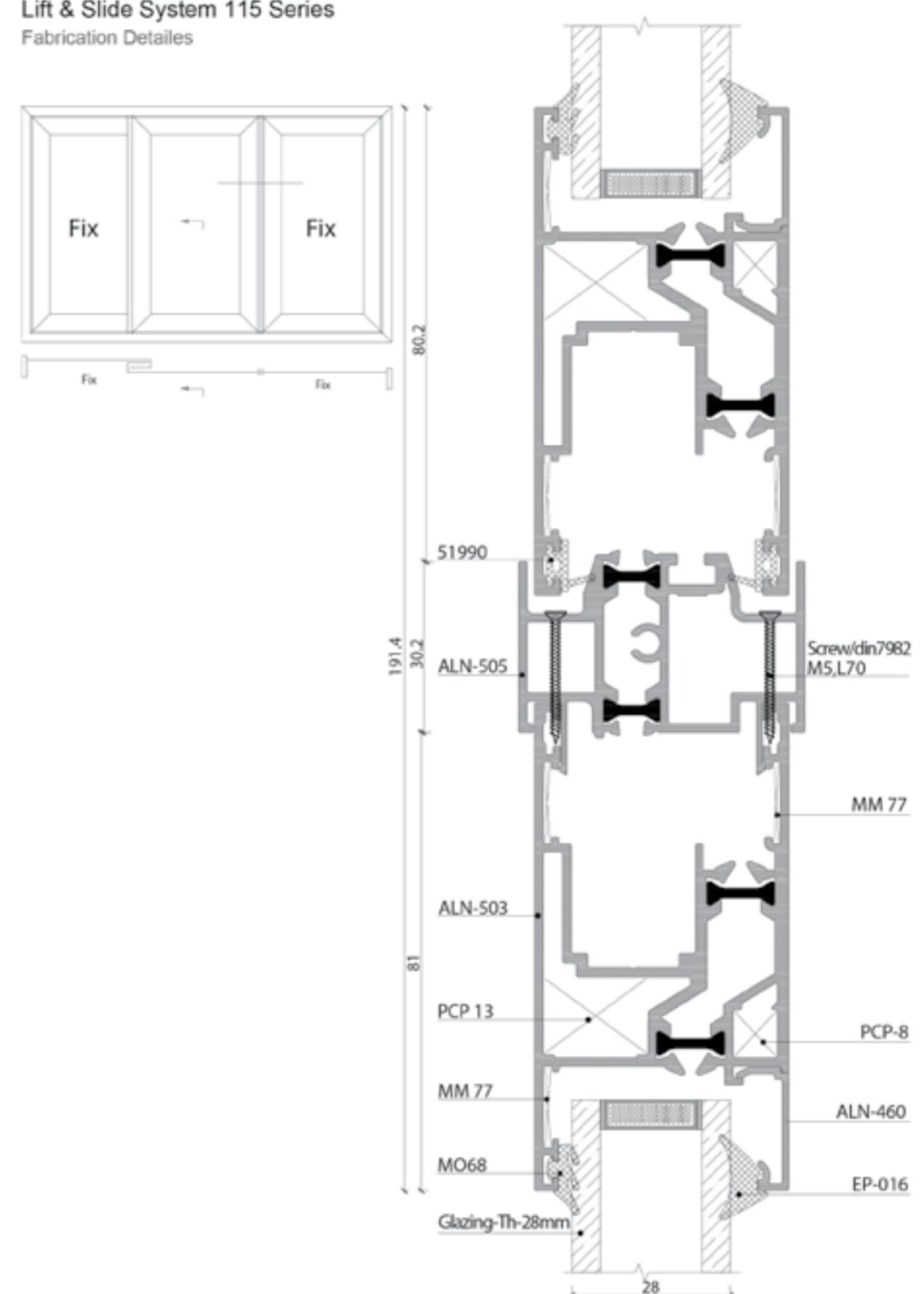
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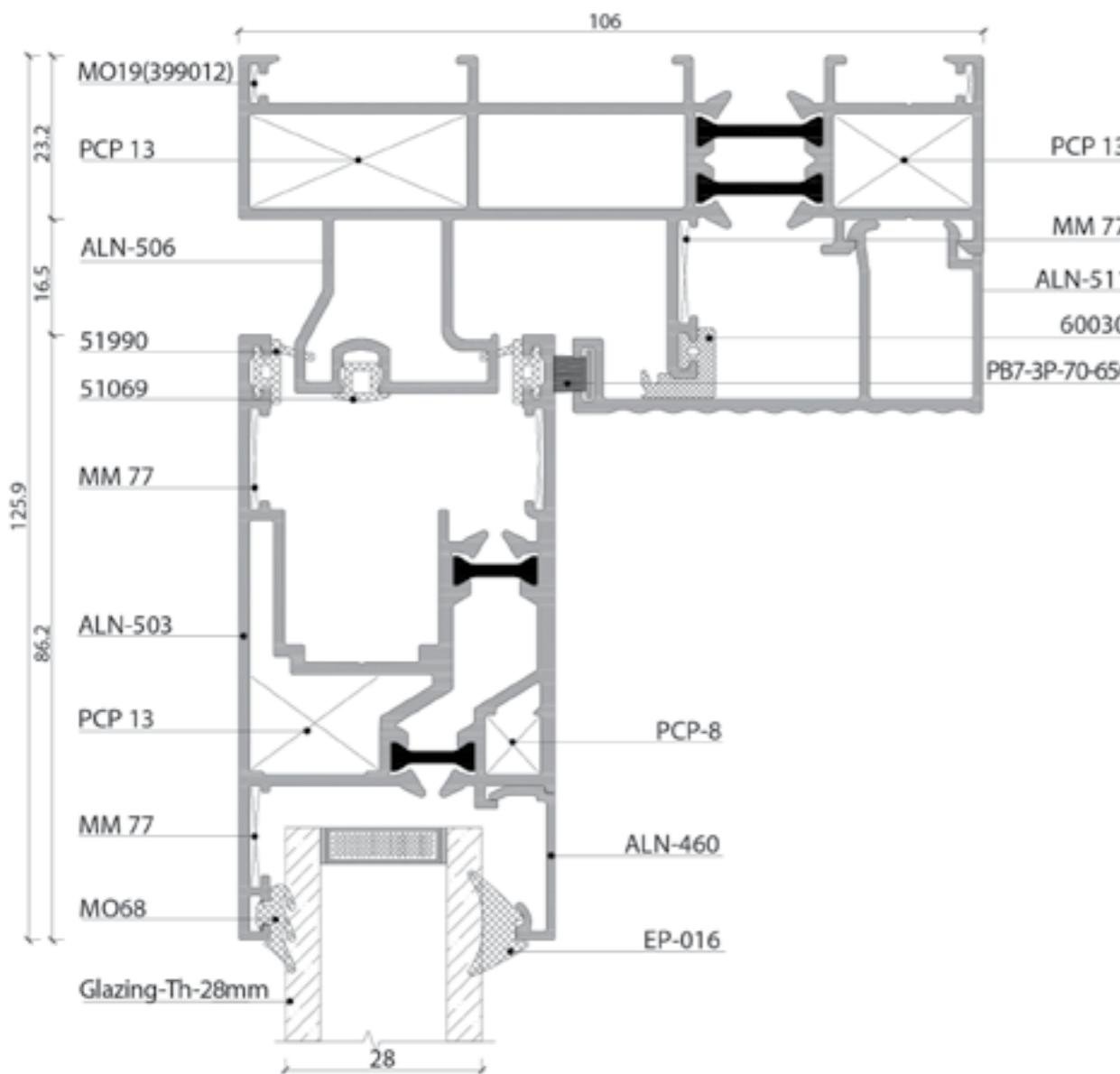
Lift & Slide System 115 Series  
Fabrication Details



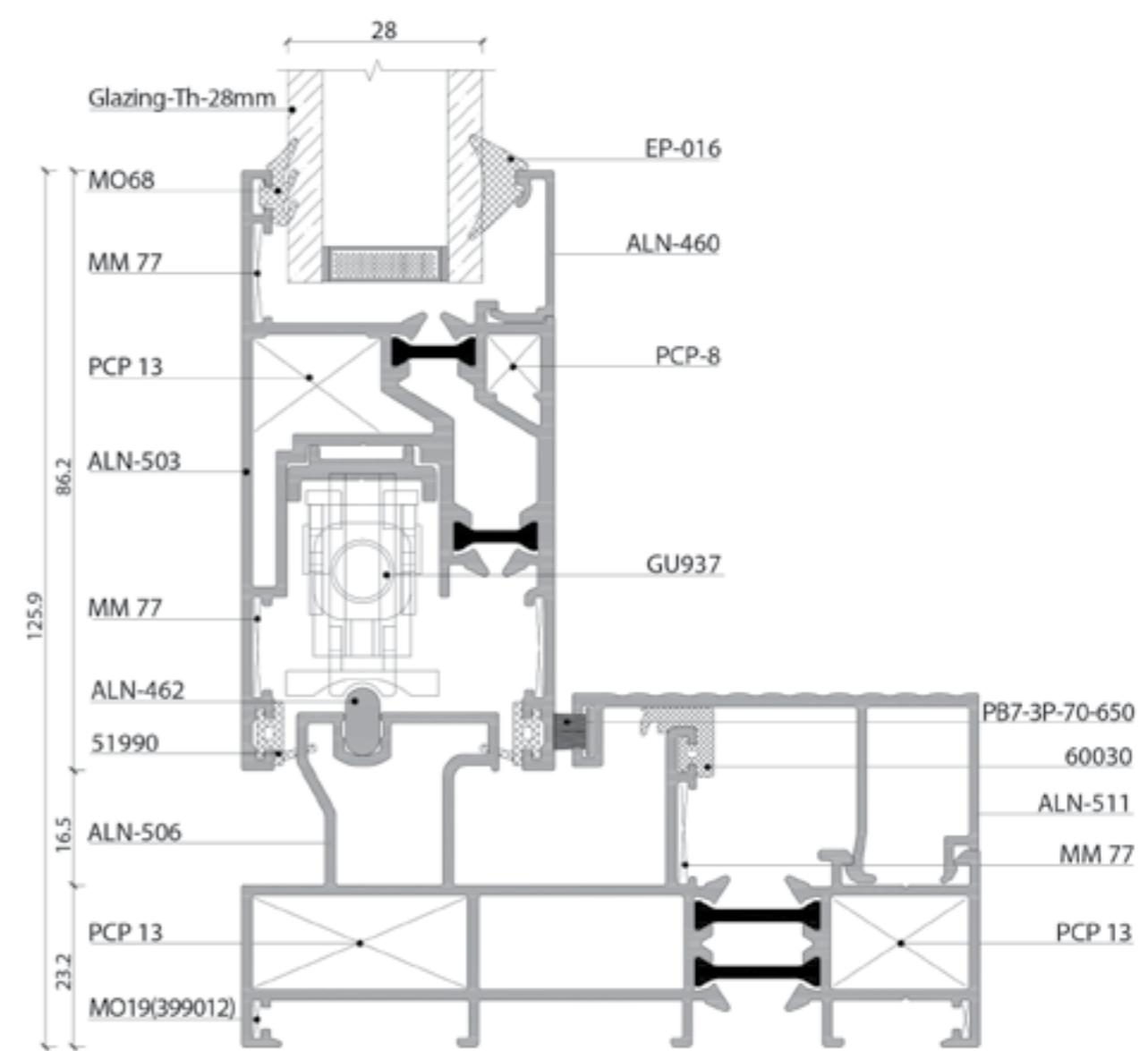
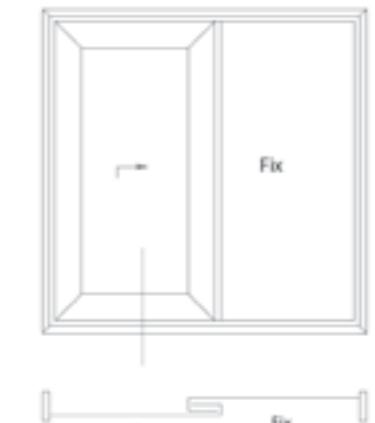
Lift & Slide System 115 Series  
Fabrication Details



Lift & Slide System 115 Series  
Fabrication Details

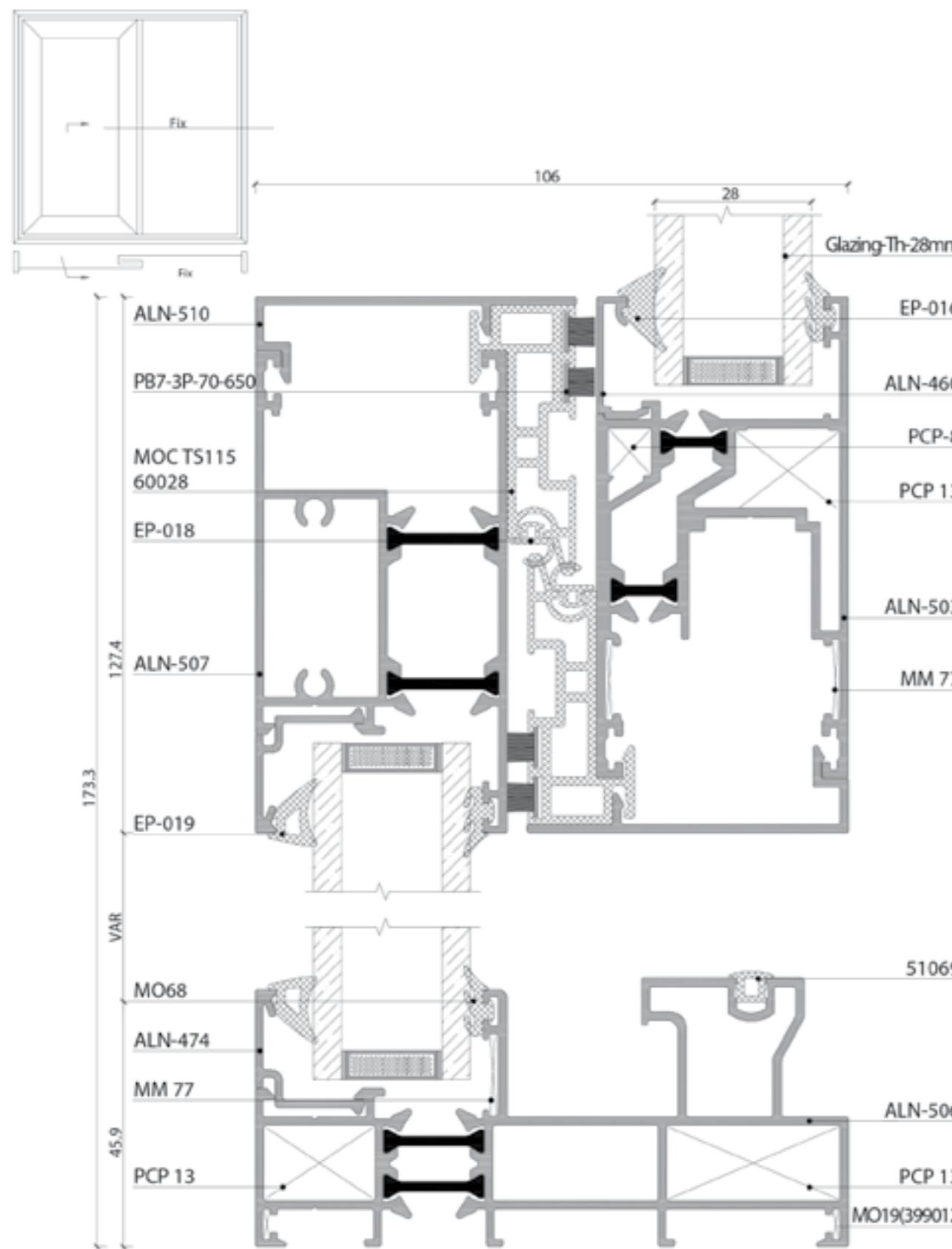


Lift & Slide System 115 Series  
Fabrication Details



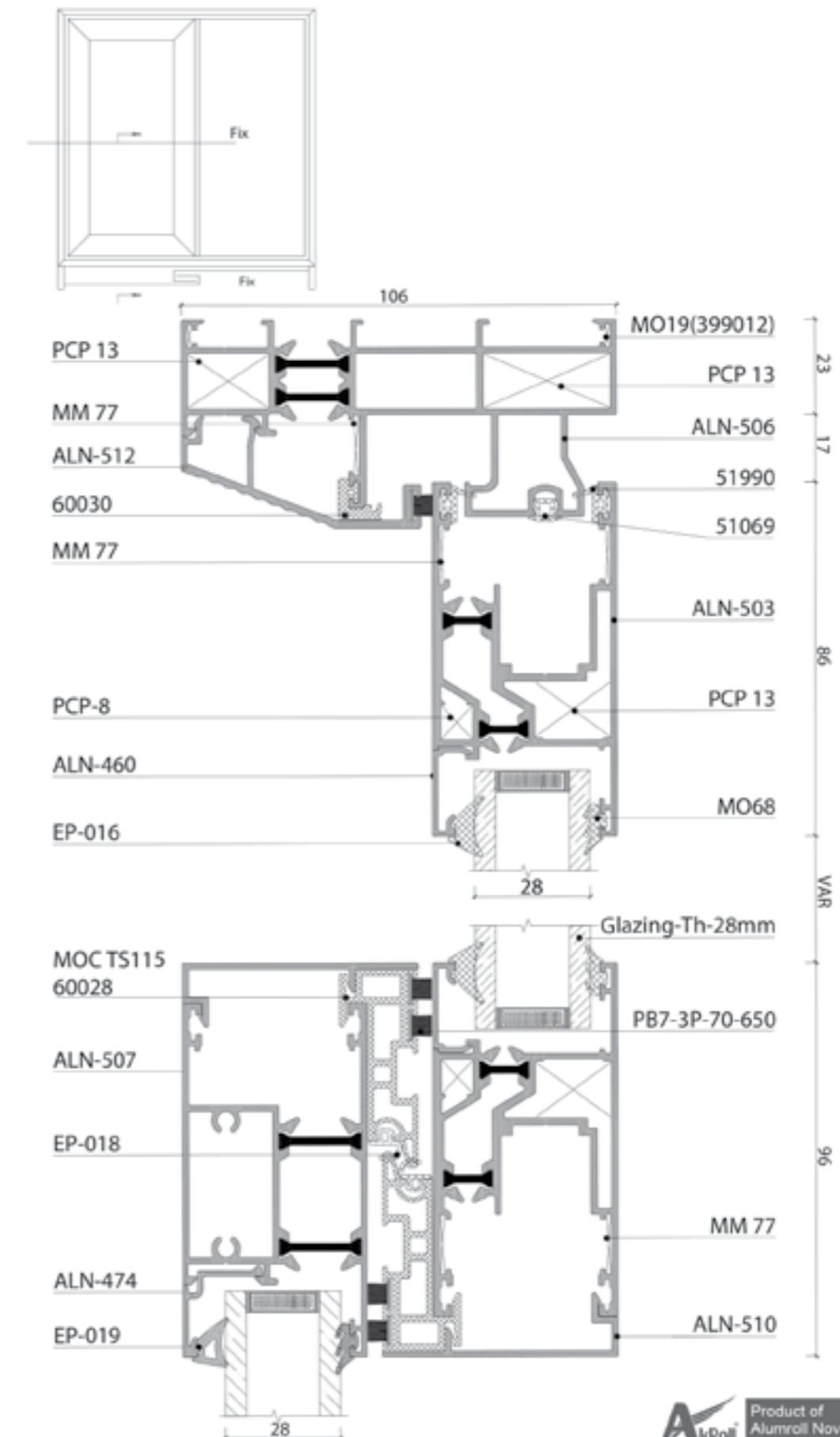
### Lift & Slide System 115 Series

Fabrication Details



### Lift & Slide System 115 Series

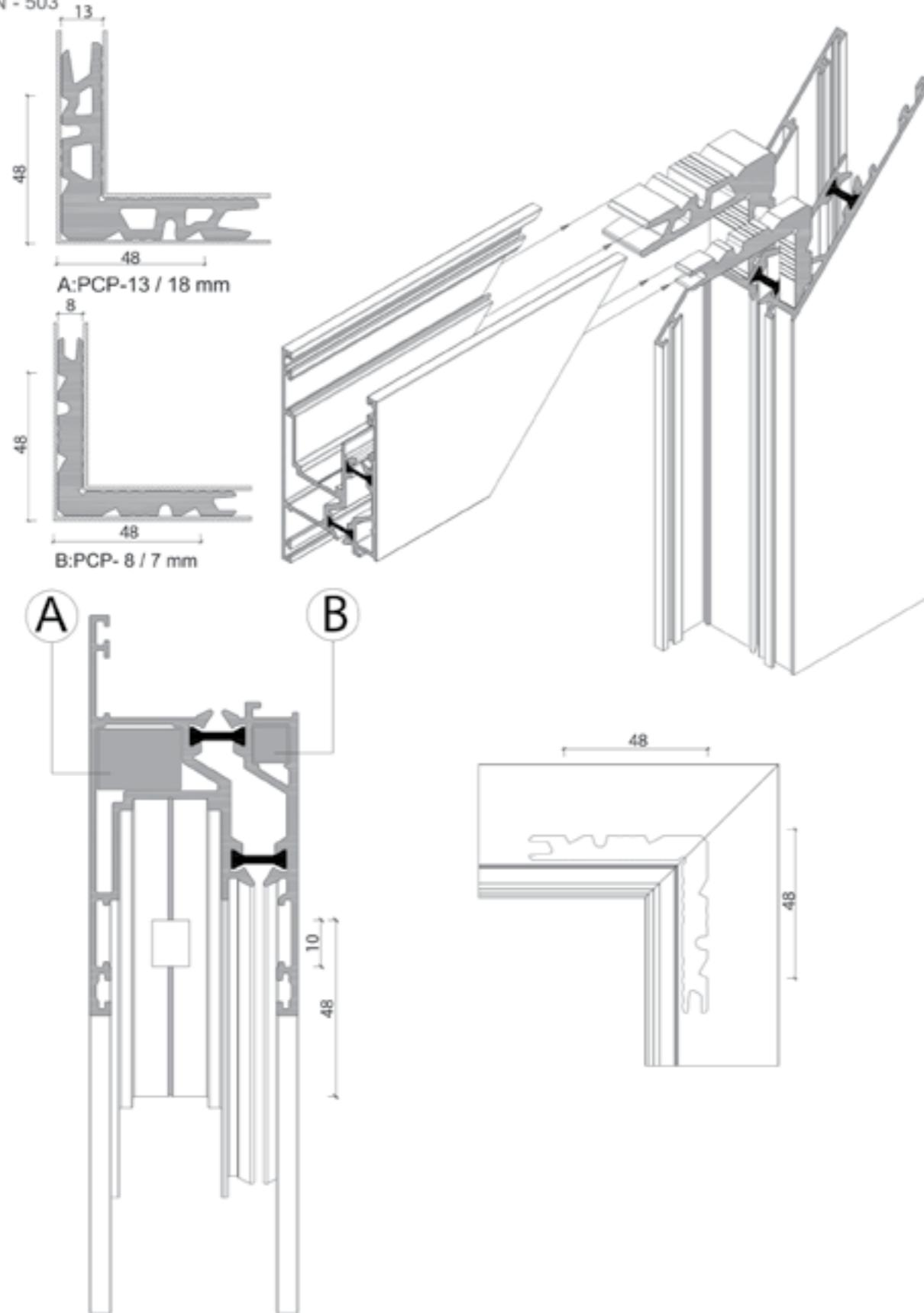
Fabrication Details



### Lift & Slide System 115 Series

Assembly Drawing

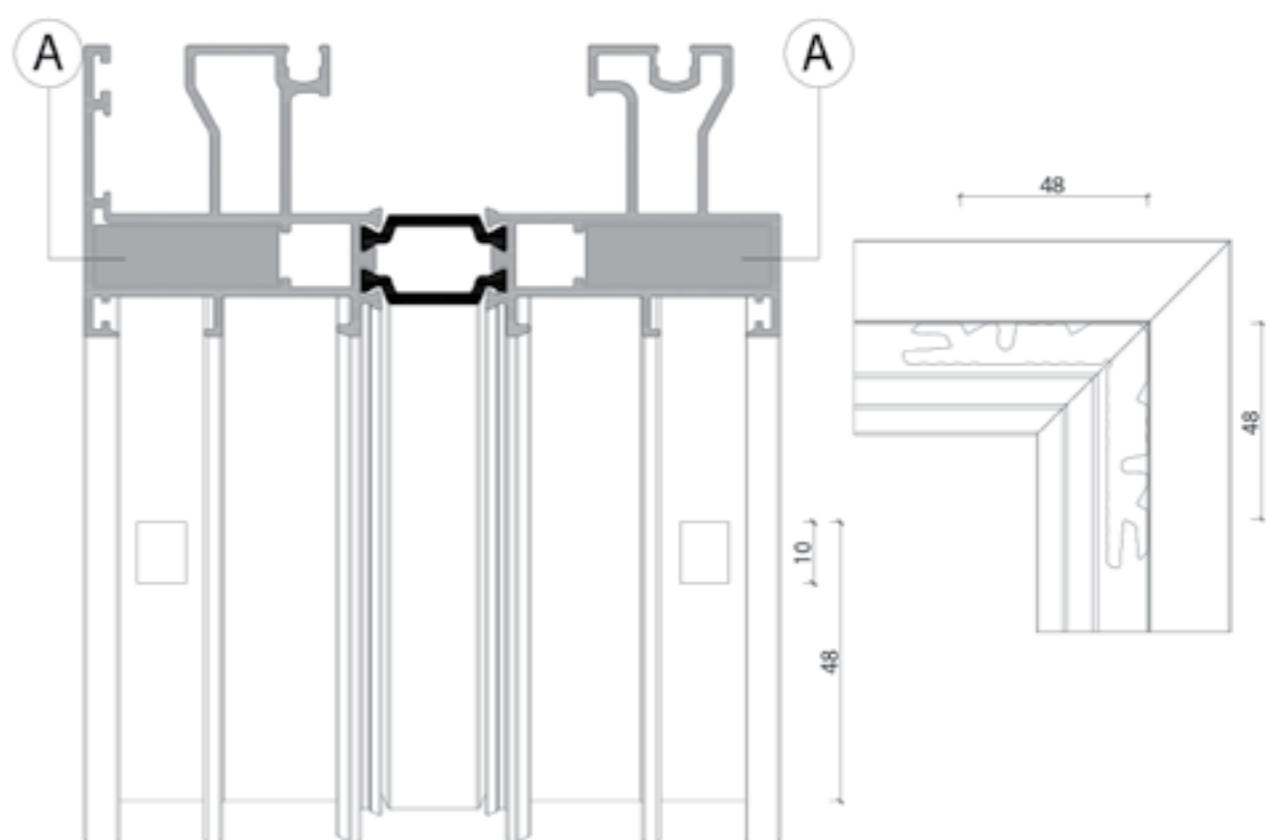
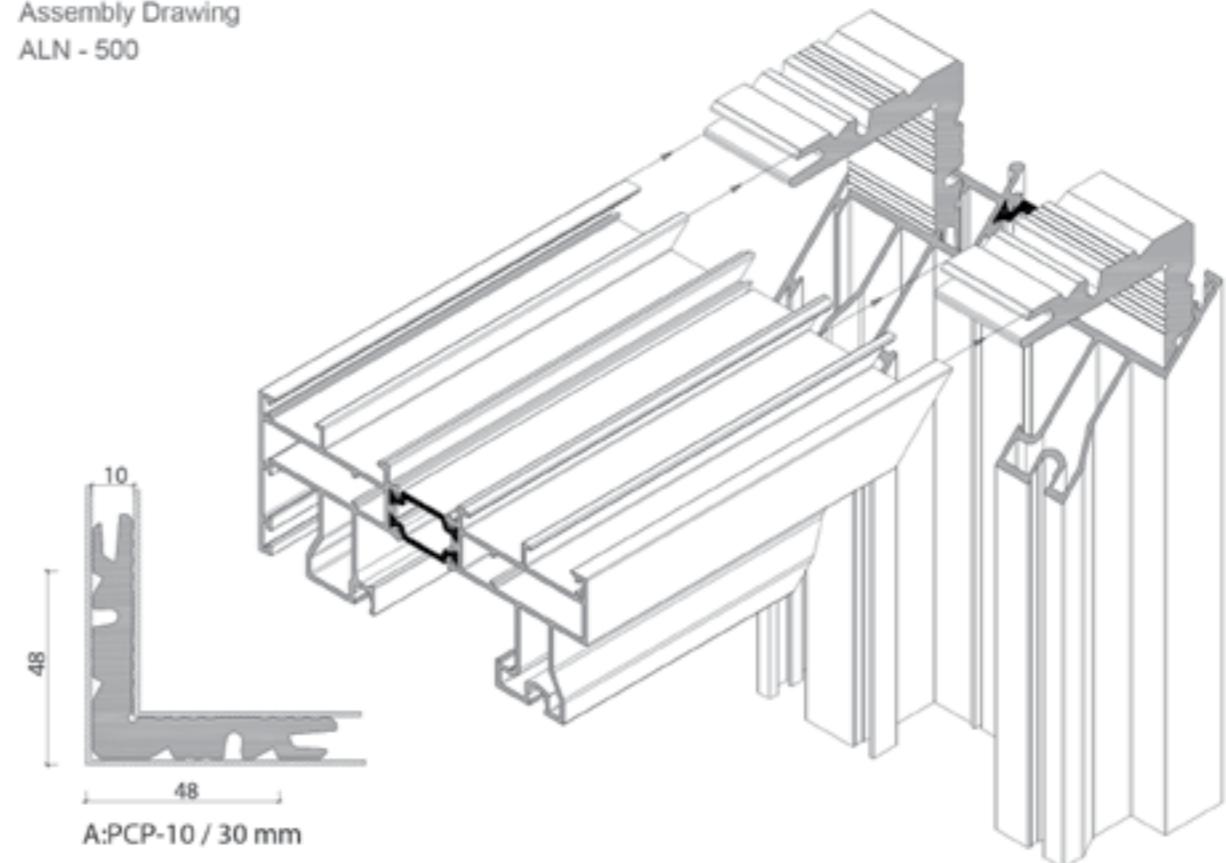
ALN - 503



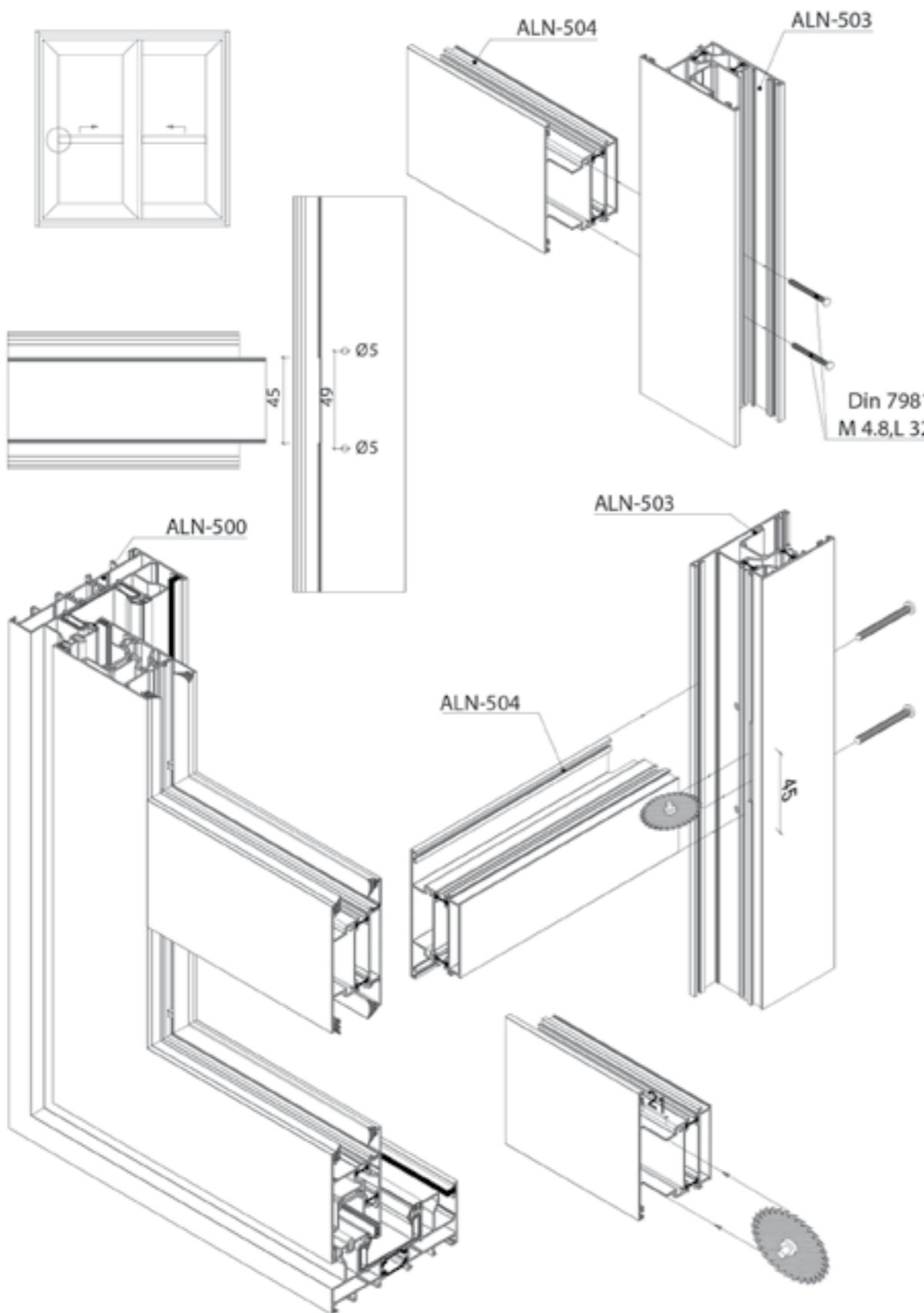
### Lift & Slide System 115 Series

Assembly Drawing

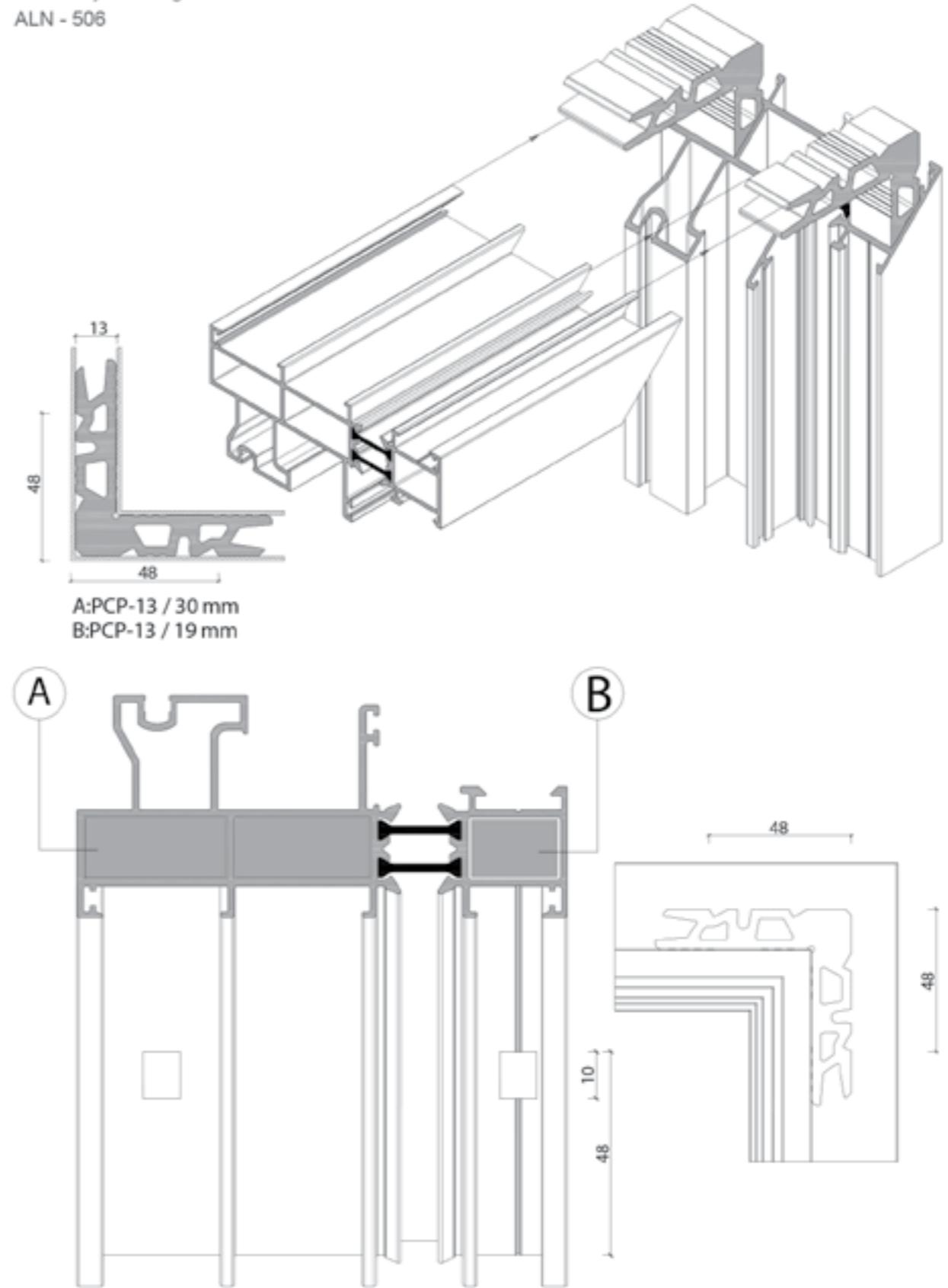
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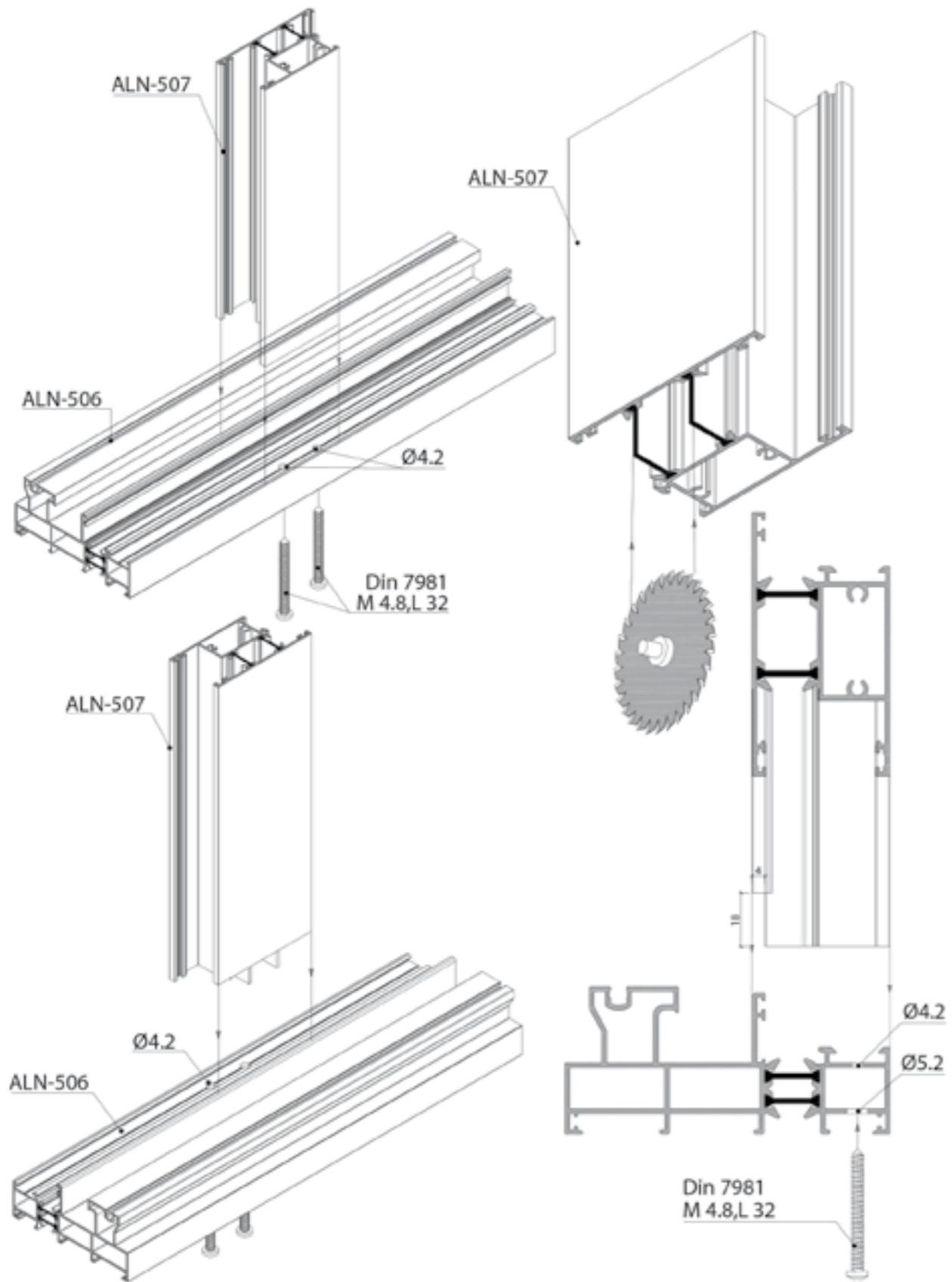
Lift & Slide System 115 Series  
Assembly Drawing



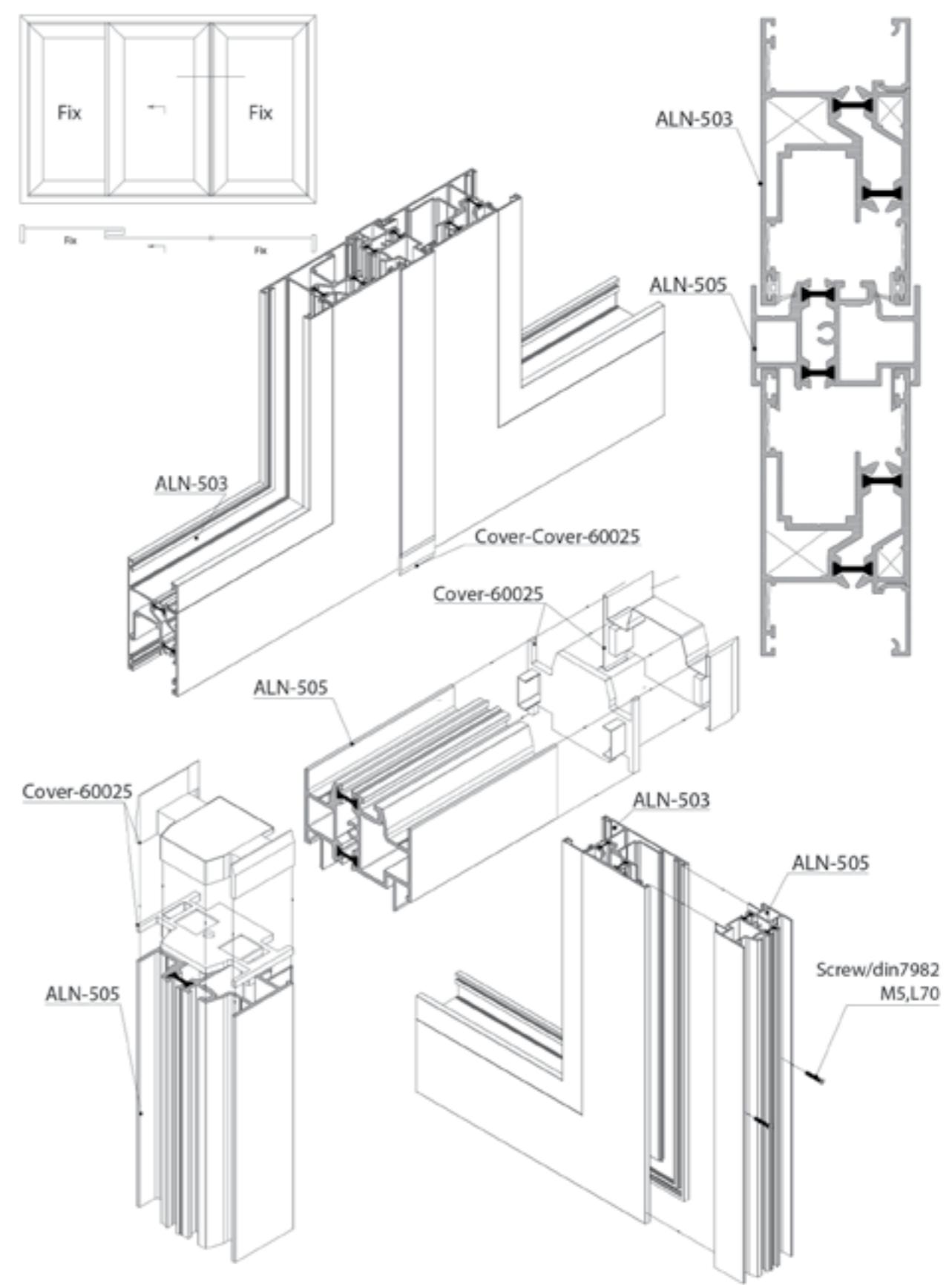
Lift & Slide System 115 Series  
Assembly Drawing  
ALN - 506



Lift & Slide System 115 Series  
Assembly Drawing



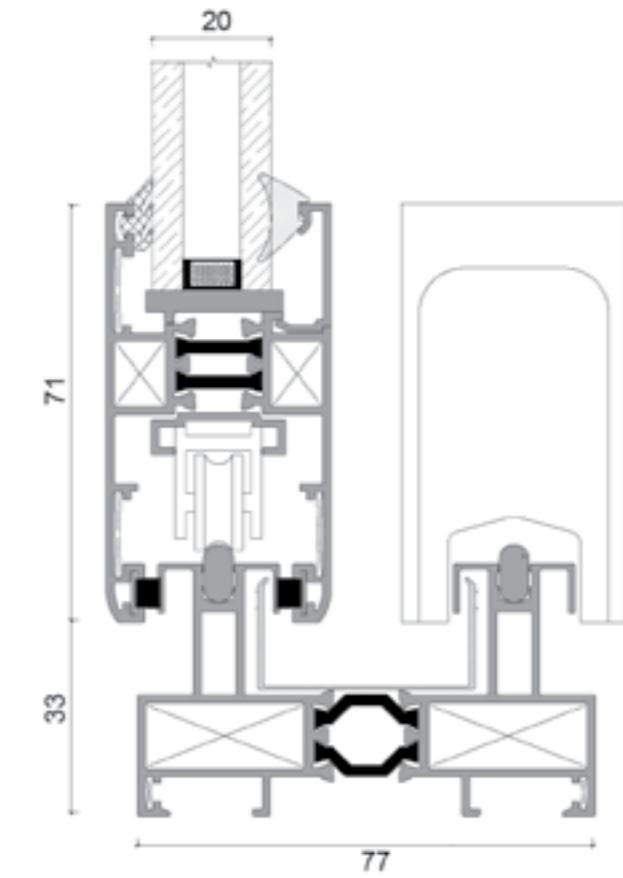
Lift & Slide System 115 Series  
Assembly Drawing



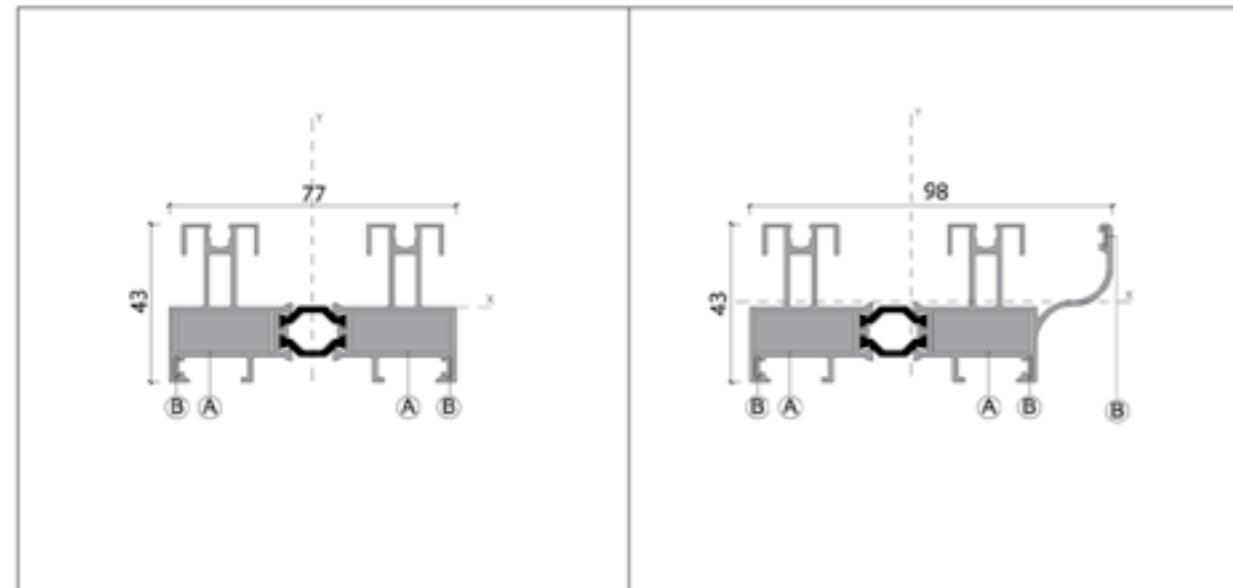


### Slide System 77 Series

- . Profile width: 77 - 110 mm
- . Vent width: 38 mm
- . Wall thickness: 1.3 - 1.4 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 18 - 26 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Isulation bar : Polyamide Width 18 mm
- . Safety drainage system
- . Various typologies



**Slide System 77 Series**  
Profile & Accessories Information



$I_x: 8.40 \text{ cm}^4$

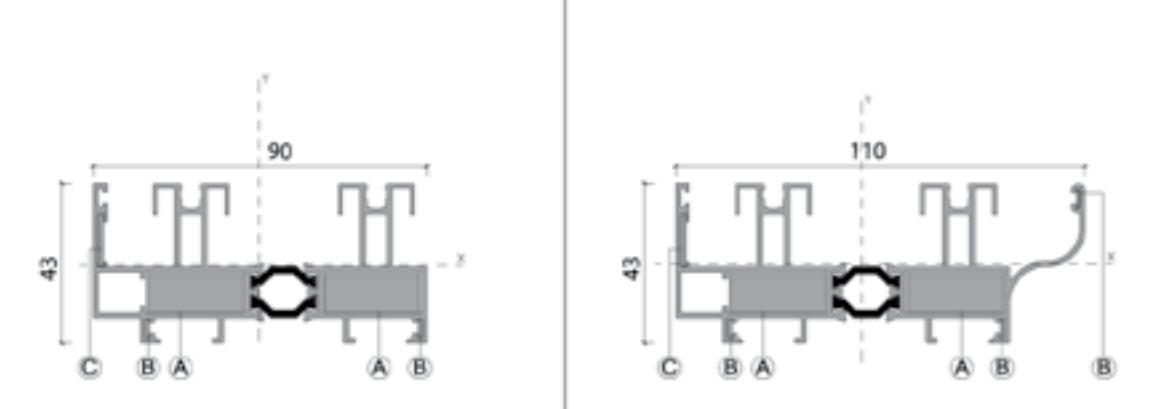
Frame : ALN-451

Weight: 1485 gr/m

$I_y: 32.54 \text{ cm}^4$

Frame : ALN-452

Weight: 1640 gr/m



$I_x: 9.53 \text{ cm}^4$

Frame : ALN-453

Weight: 1696 gr/m

$I_y: 49.22 \text{ cm}^4$

Frame : ALN-454

Weight: 1850 gr/m

A: PCP-11 / 26 mm

A: PCP-11 / 26 mm

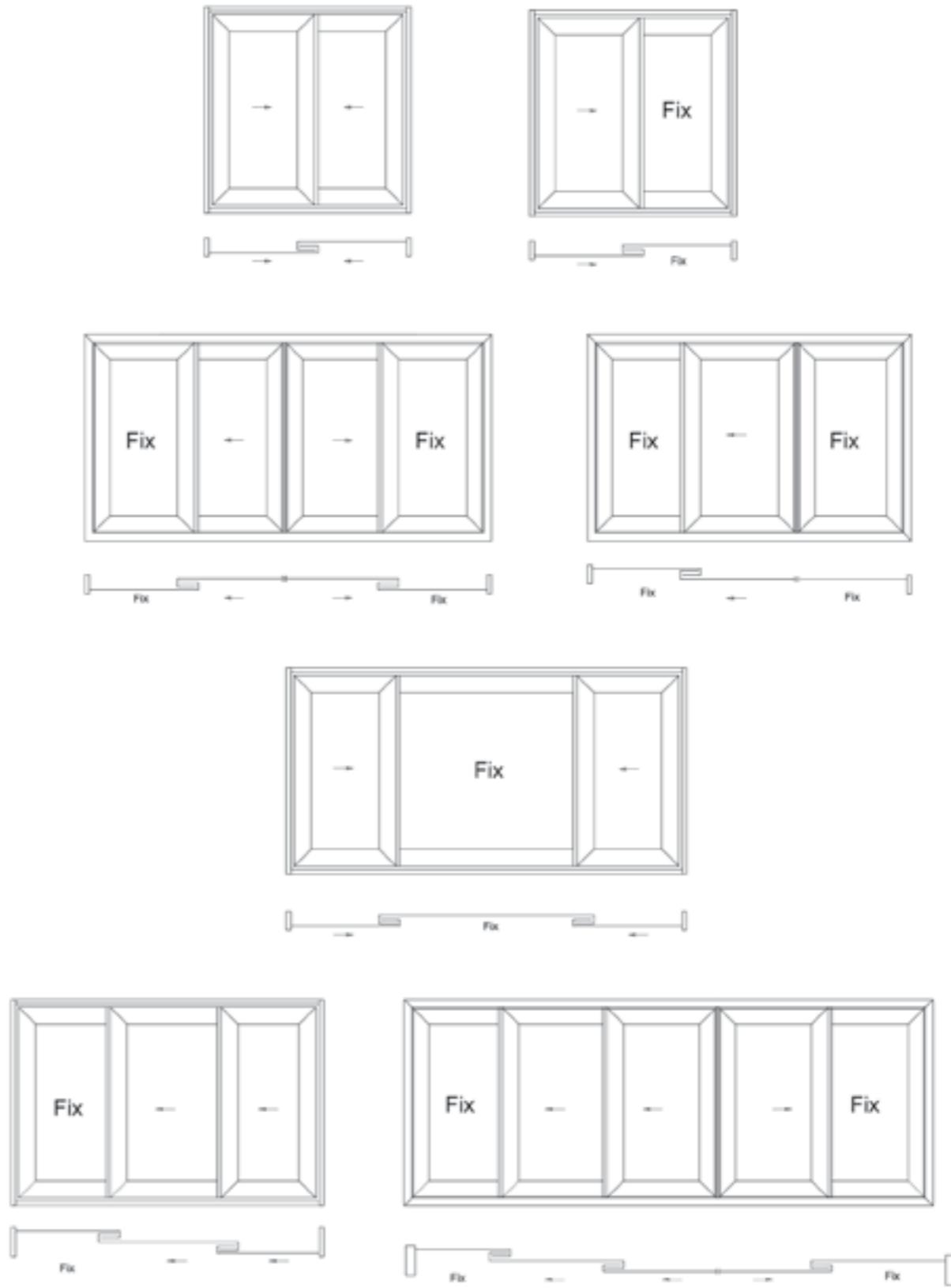
B: MO19(399012)

B: MO19(399012)

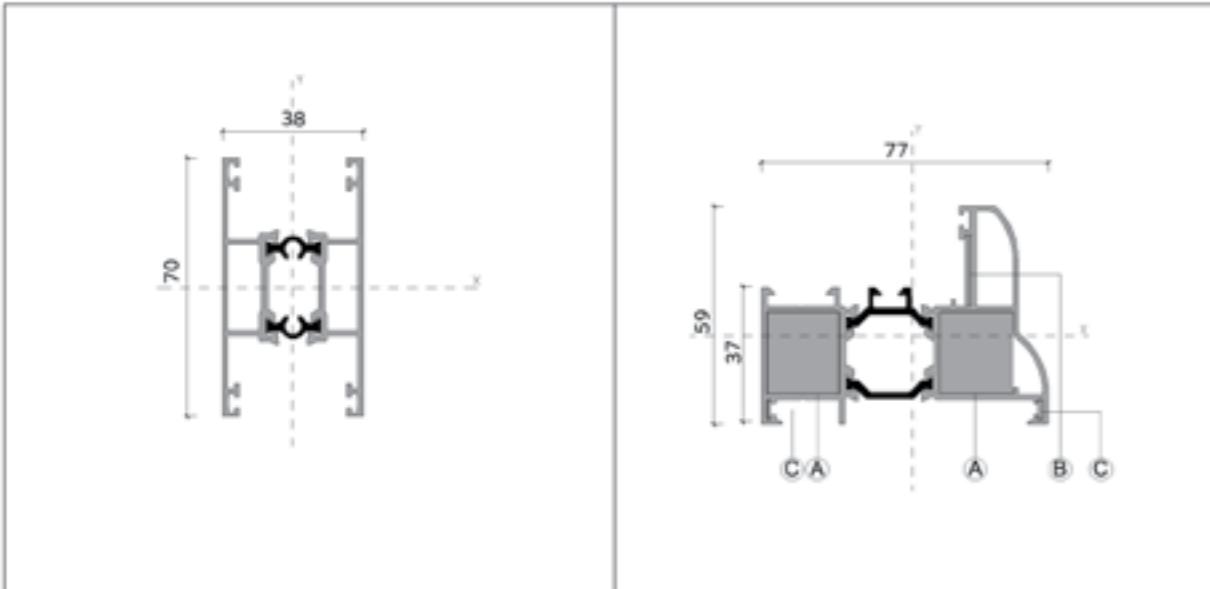
C: MM 77

C: MM 77

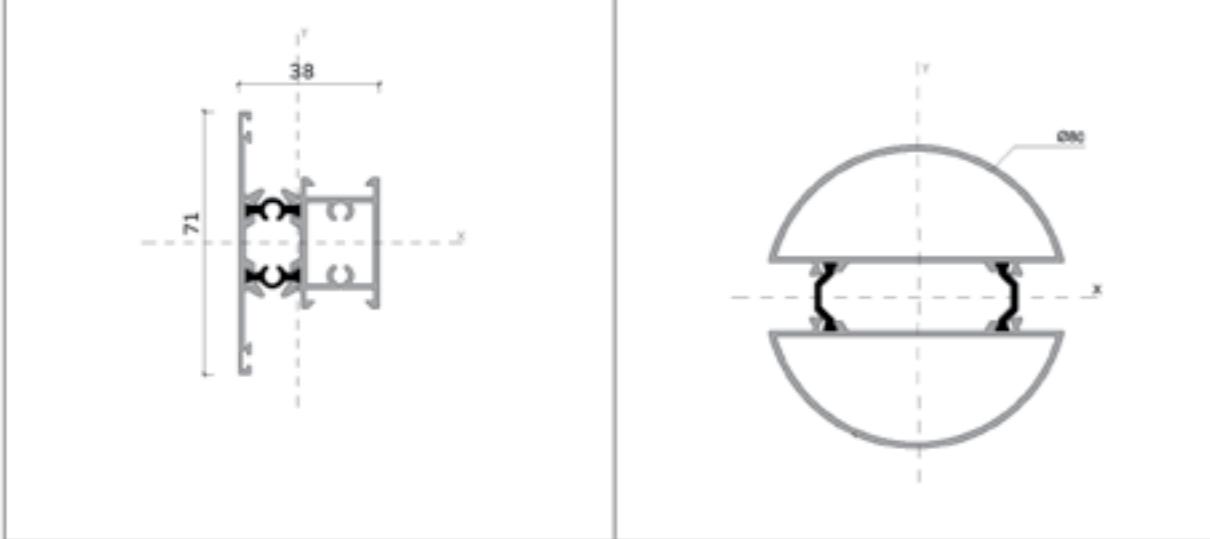
**Slide System 77 Series**  
Typologies



Slide System 77 Series  
Profile & Accessories Information

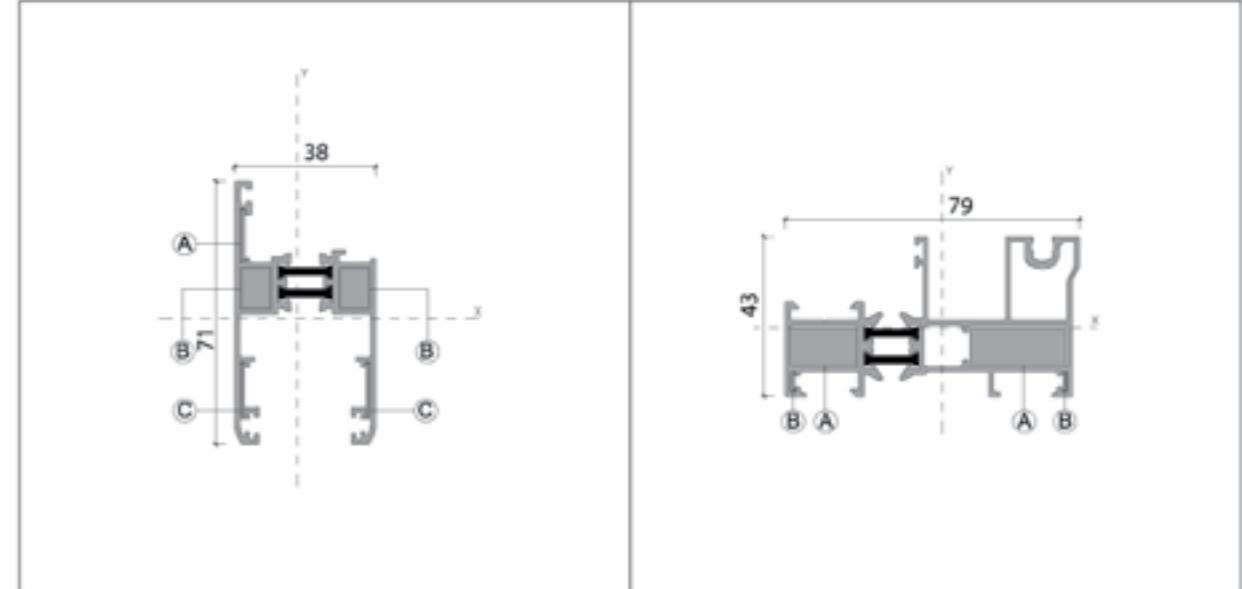


$I_x: 14.53 \text{ cm}^4$	$I_y: 9.12 \text{ cm}^4$	$I_x: 11.62 \text{ cm}^4$	$I_y: 29.73 \text{ cm}^4$
Transom : ALN-459	-	Profile: ALN-466	A: PCP-22 / 19 mm B: fuji 2000 C: MO 19
Weight: 1270 gr/m	-	Weight: 1435 gr/m	

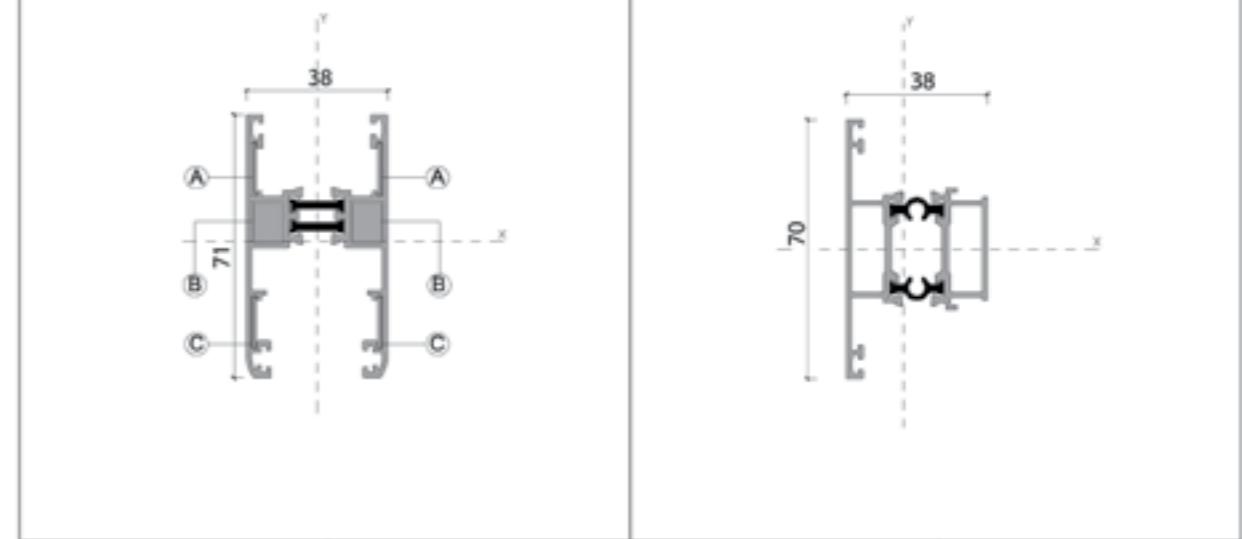


$I_x: 8.50 \text{ cm}^4$	$I_y: 7.10 \text{ cm}^4$	$I_x: 30.79 \text{ cm}^4$	$I_y: 33.53 \text{ cm}^4$
Transom : ALN-471	-	Coupling : ALN-414	-
Weight: 1166 gr/m	-	Weight: 1720 gr/m	-

Slide System 77 Series  
Profile & Accessories Information

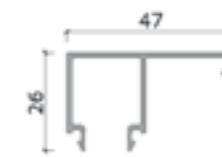
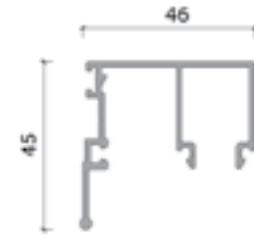
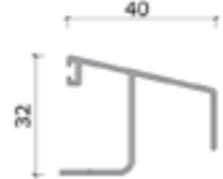
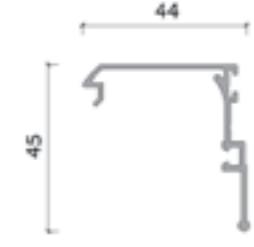
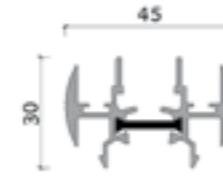


$I_x: 12.40 \text{ cm}^4$	$I_y: 8.04 \text{ cm}^4$	$I_x: 7.53 \text{ cm}^4$	$I_y: 31.76 \text{ cm}^4$
Sash : ALN-455	A: MM 77 B: PCP-11 / 8 mm C: MM 77	Monorail Frame: ALN-470	A: PCP-11 / 26 mm B: PCP-11 / 17 mm C: MO19(399012)
Weight: 1068 gr/m		Weight: 1475 gr/m	

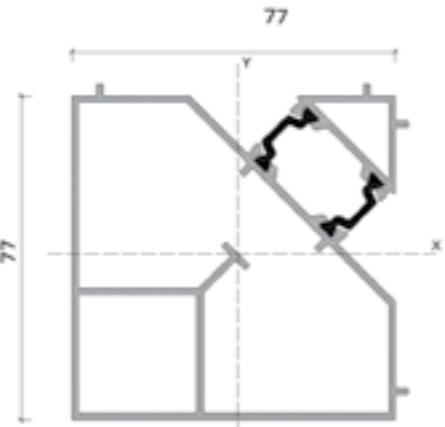
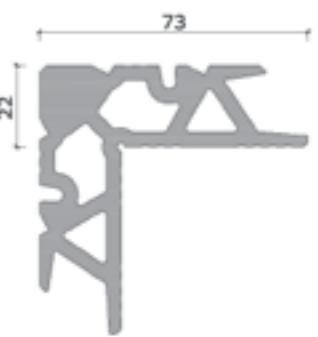
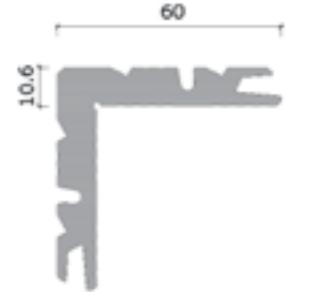
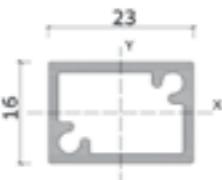
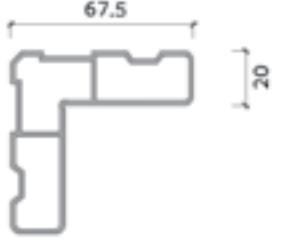


$I_x: 15.44 \text{ cm}^4$	$I_y: 9.43 \text{ cm}^4$	$I_x: 8.78 \text{ cm}^4$	$I_y: 6.21 \text{ cm}^4$
Sash : ALN-456	A: MM 77 B: PCP-11 / 8 mm C: MM 77	Transom: ALN-458	-
Weight: 1163 gr/m		Weight: 1076 gr/m	-

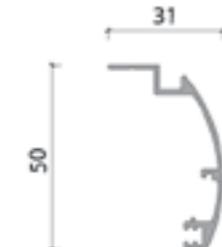
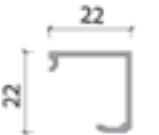
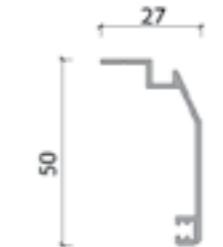
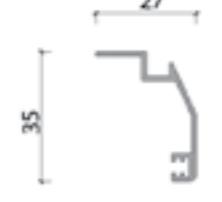
**Slide System 77 Series**  
Profile & Accessories Information

	Cap: ALN-472	Weight: 413 gr/m		Fly screen : ALN-207	Weight: 448 gr/m
	Cap: ALN-473	Weight: 634 gr/m		Cap : ALN-361	Weight: 370 gr/m
	Interlock: ALN-457	Weight: 435 gr/m		Adjoining profile : ALN-464	Weight: 749 gr/m

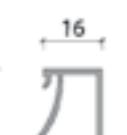
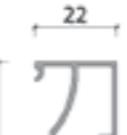
**Slide System 77 Series**  
Profile & Accessories Information

	I <sub>x</sub> : 52.86 cm <sup>4</sup>	I <sub>y</sub> : 52.86 cm <sup>4</sup>	Corner joint: PCP-22
Coupling : ALN-467	A: -	Weight : 3718 gr/m	
Weight: 2185 gr/m	B: -	Corner Joint: PCP11	
	I <sub>x</sub> : -	I <sub>y</sub> : -	Corner Joint: PCP 20
Coupling : ALN-469	A: -	Weight: 337 gr/m	Weight: 1377 gr/m
	B: -	Corner Joint: PCP 20	Weight: 1377 gr/m

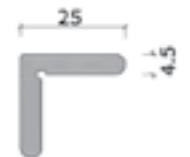
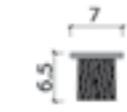
**Slide System 77 Series**  
Profile & Accessories Information

			
Glazing bead : ALN-461	Weight: 119 gr/m	Flange profile: ALN-219	Weight : 362 gr/m
			
Glazing bead : ALN-463	Weight: 178 gr/m	Flange profile: ALN-221	Weight : 302 gr/m
			
Glazing bead : ALN-474	Weight: 170 gr/m	Flange profile: ALN-222	Weight : 254 gr/m

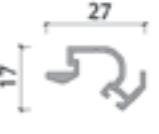
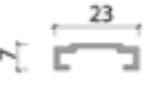
**Slide System 77 Series**  
Profile & Accessories Information

			
Glazing beads: ALN-321	Weight : 224 gr/m	Glazing beads: ALN-423	Weight 281 gr/m
			
Glazing bead : ALN-323	Weight : 302 gr/m	Glazing bead: ALN-424	Weight : 167 gr/m
			
Glazing bead : ALN-421	Weight: 313 gr/m	Glazing bead : ALN-460	Weight: 127 gr/m

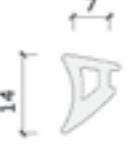
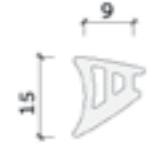
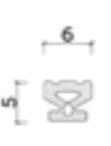
**Slide System 77 Series**  
Profile & Accessories Information

			
Rail : ALN-462	Weight: 119 gr/m	Gasket : MO 60(Jenta)	Weight: 39 gr/m
			
Corner Joint: MM77 399138	Weight: -	Gasket : 51990	Weight: 34 gr/m
			
Corner Joint: MO19 (399012)	Weight: -	PB7-3P-70-650	Weight: -

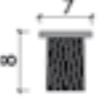
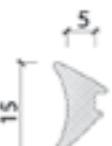
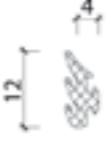
**Slide System 77 Series**  
Profile & Accessories Information

			
Profile : ALN-228	Weight: 135 gr/m	profile: ALN-475	Weight : 275 gr/m
			
Profile : ALN-331	Weight: 140 gr/m	Profile : ALN-429	Weight : 235 gr/m
			
Profile : ALN-384	Weight: 140 gr/m	Profile : ALN-430	Weight : 230 gr/m

**Slide System 77 Series**  
Profile & Accessories Information

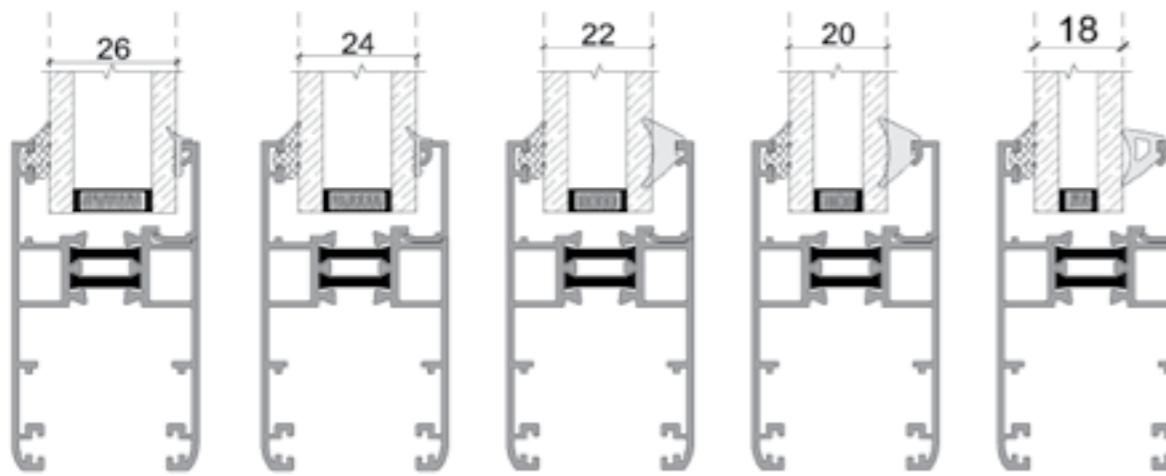
	Gasket: EP-019	Weight: 61 gr/m		Gasket: 51069	Weight: 27 gr/m
	Gasket: EP-021	Weight: 80 gr/m		Gasket: MO 60	Weight: 26 gr/m
	Gasket: MOC 77	Weight: 131gr/m		Gasket: UT 77-51064	Weight: 70 gr/m

**Slide System 77 Series**  
Profile & Accessories Information

	PB7-3P-70-800	Weight: –		Gasket: EP-016	Weight: 77 gr/m
	PB7-3P-70-500	Weight: –		Gasket: EP-015	Weight: 21gr/m
	Gasket: MO68	Weight: 38 gr/m		Gasket: EP-018	Weight: 27 gr/m

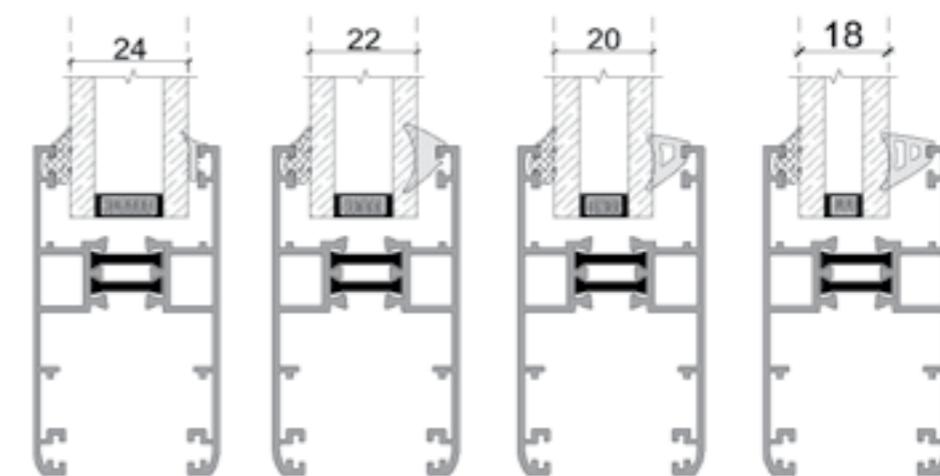
Slide System 77 Series  
Glazing Table

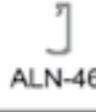
ALN-455



Slide System 77 Series  
Glazing Table

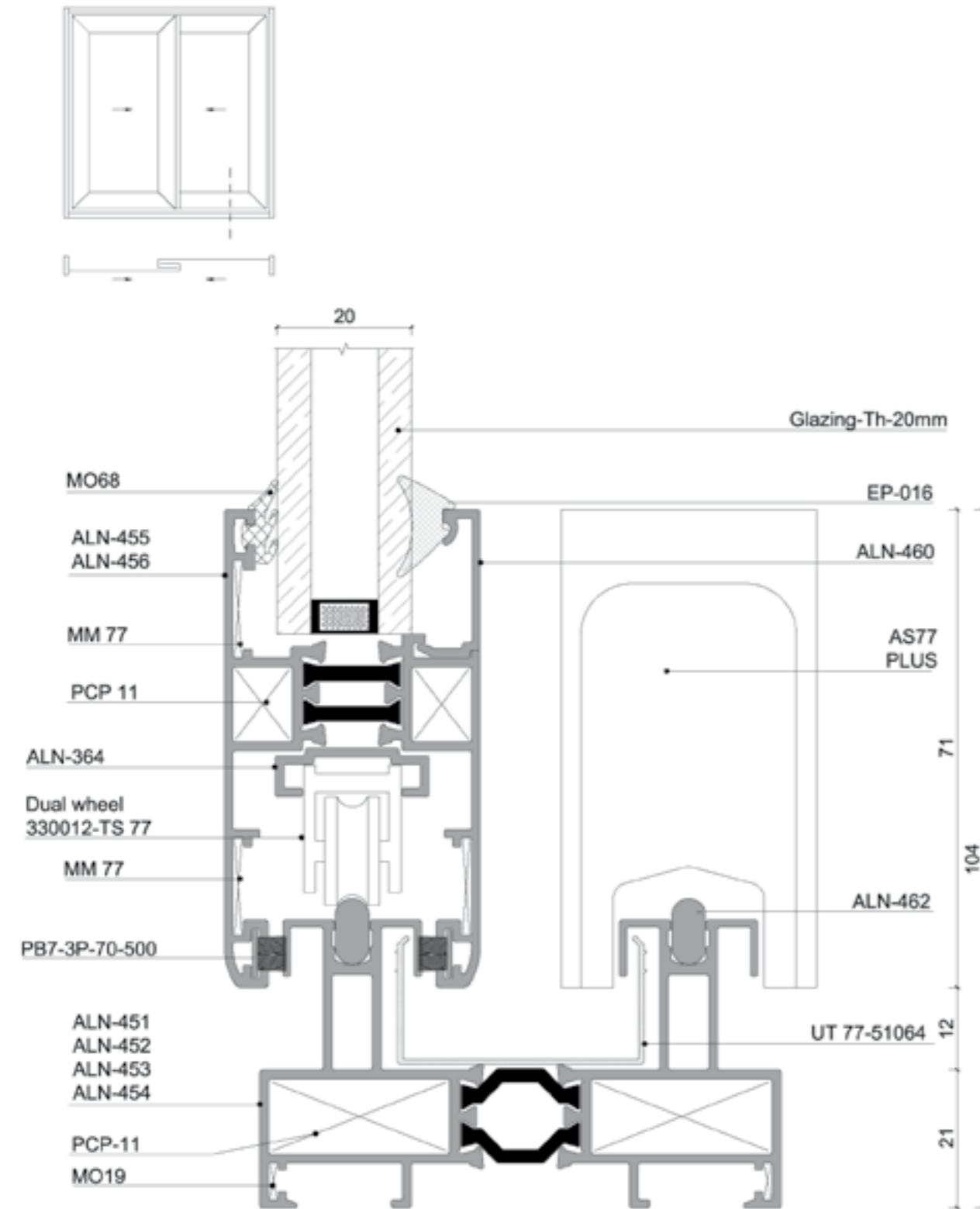
ALN-456



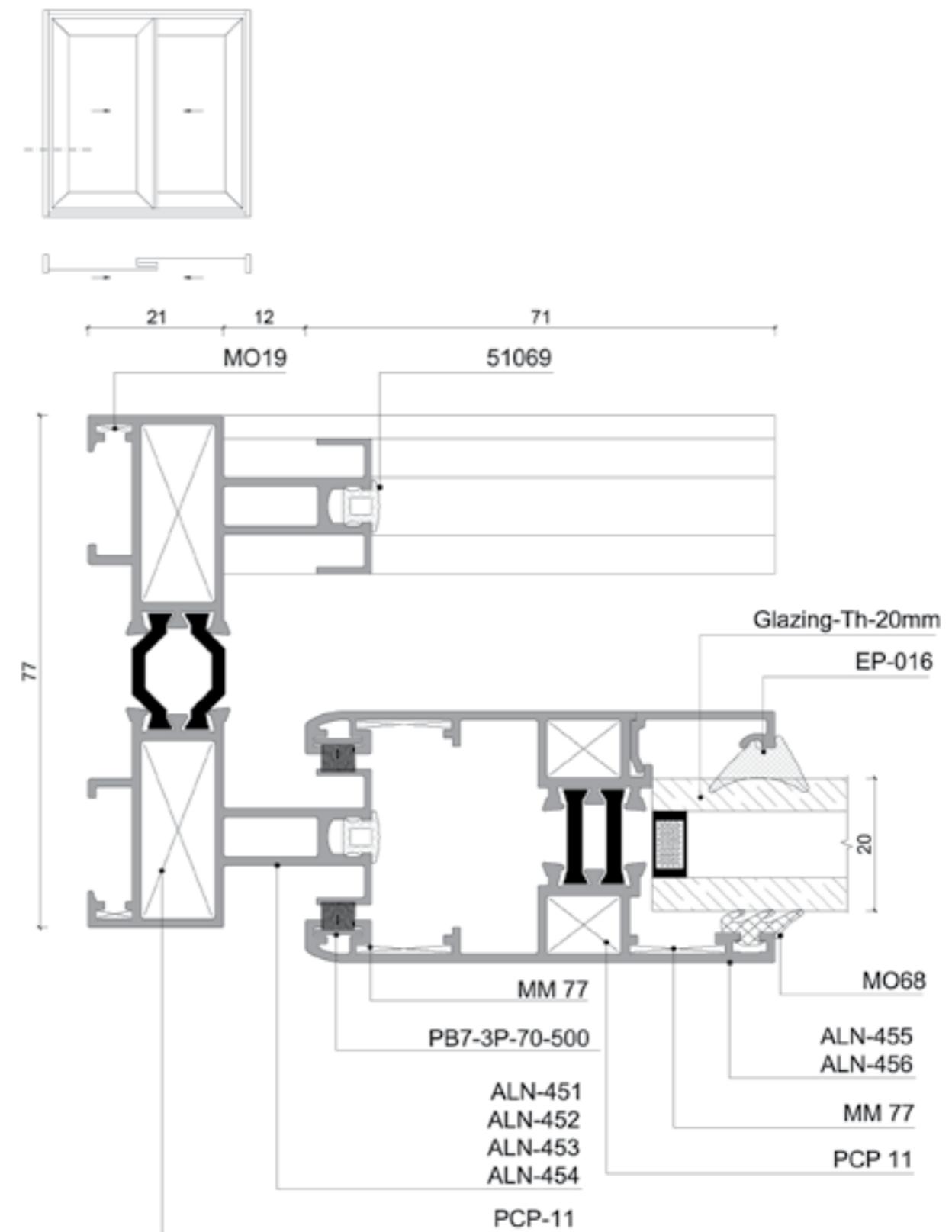
Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
18 mm	 EP-019	 MO68	 ALN-460
20 mm	 EP-016	 MO68	 ALN-460
22 mm	 EP-016	 MO68	 ALN-461
24 mm	 EP-015	 MO68	 ALN-460
26 mm	 EP-015	 MO68	 ALN-461

Glazing Thickness	Gasket Inside	Gasket Outside
18 mm	 EP-021	 MO68 3 mm
20 mm	 EP-019	 MO68
22 mm	 EP-016	 MO68
24 mm	 EP-015	 MO68

Slide System 77 Series  
Fabrication Details

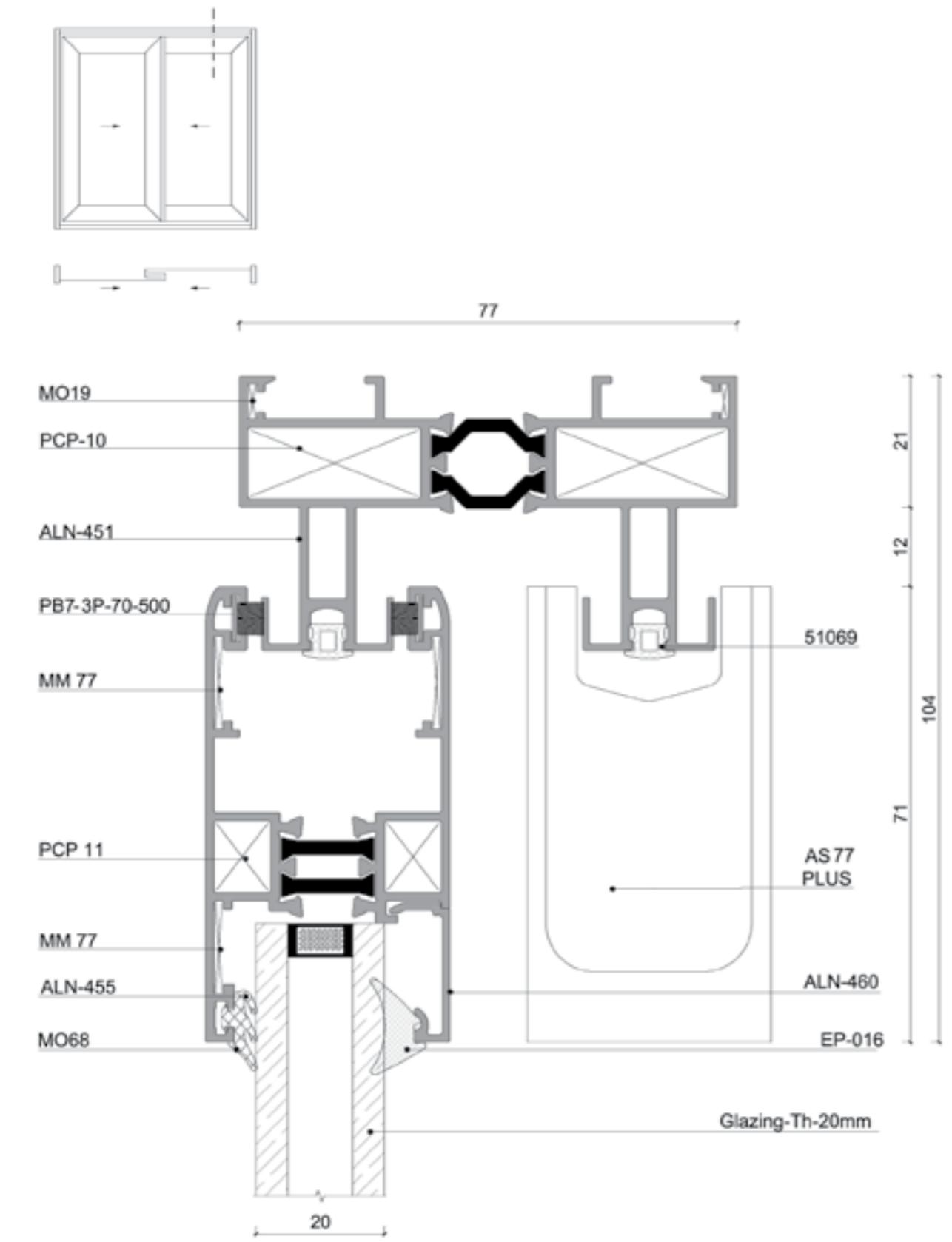


Slide System 77 Series  
Fabrication Details



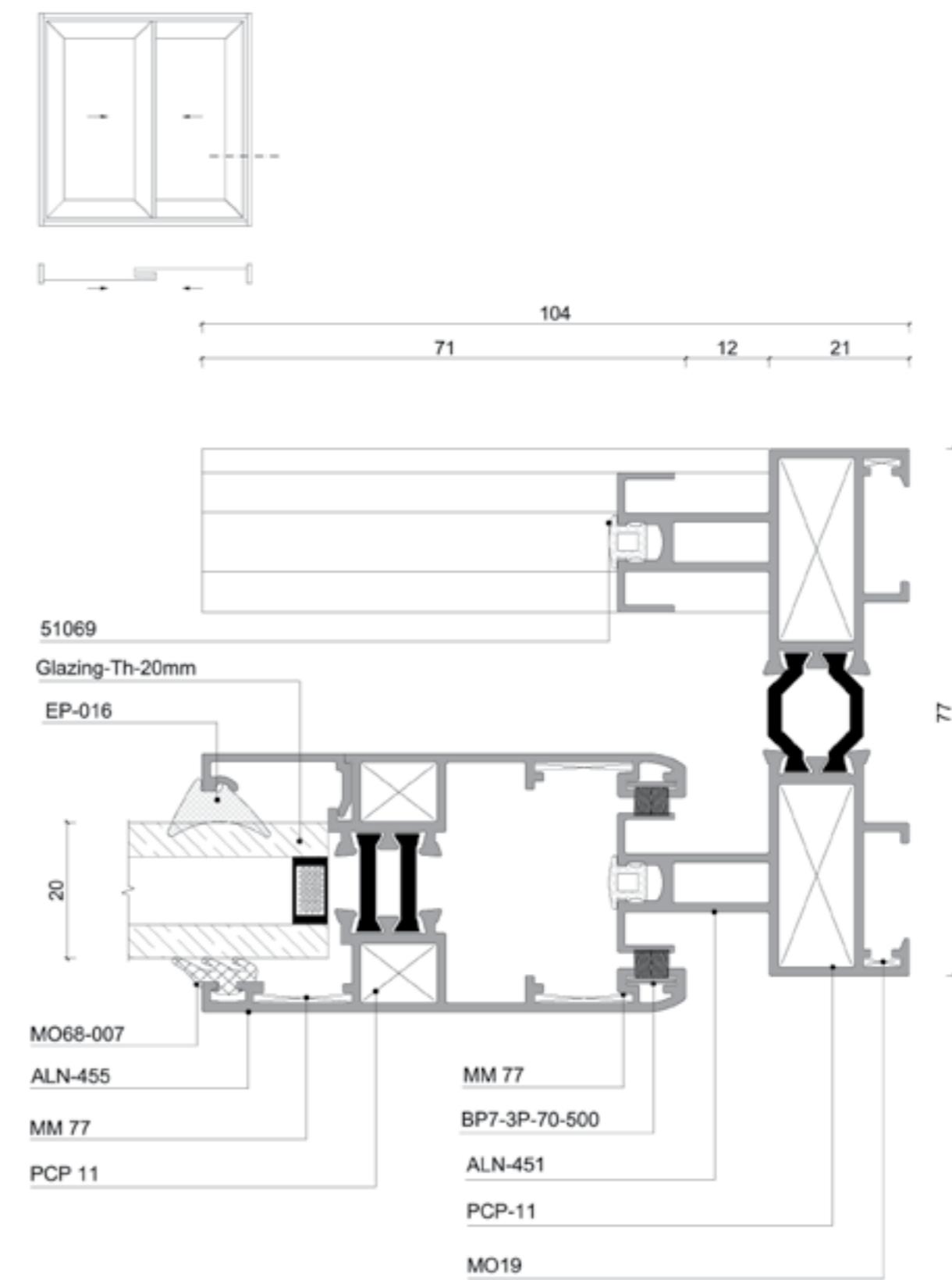
### Slide System 77 Series

Fabrication Details

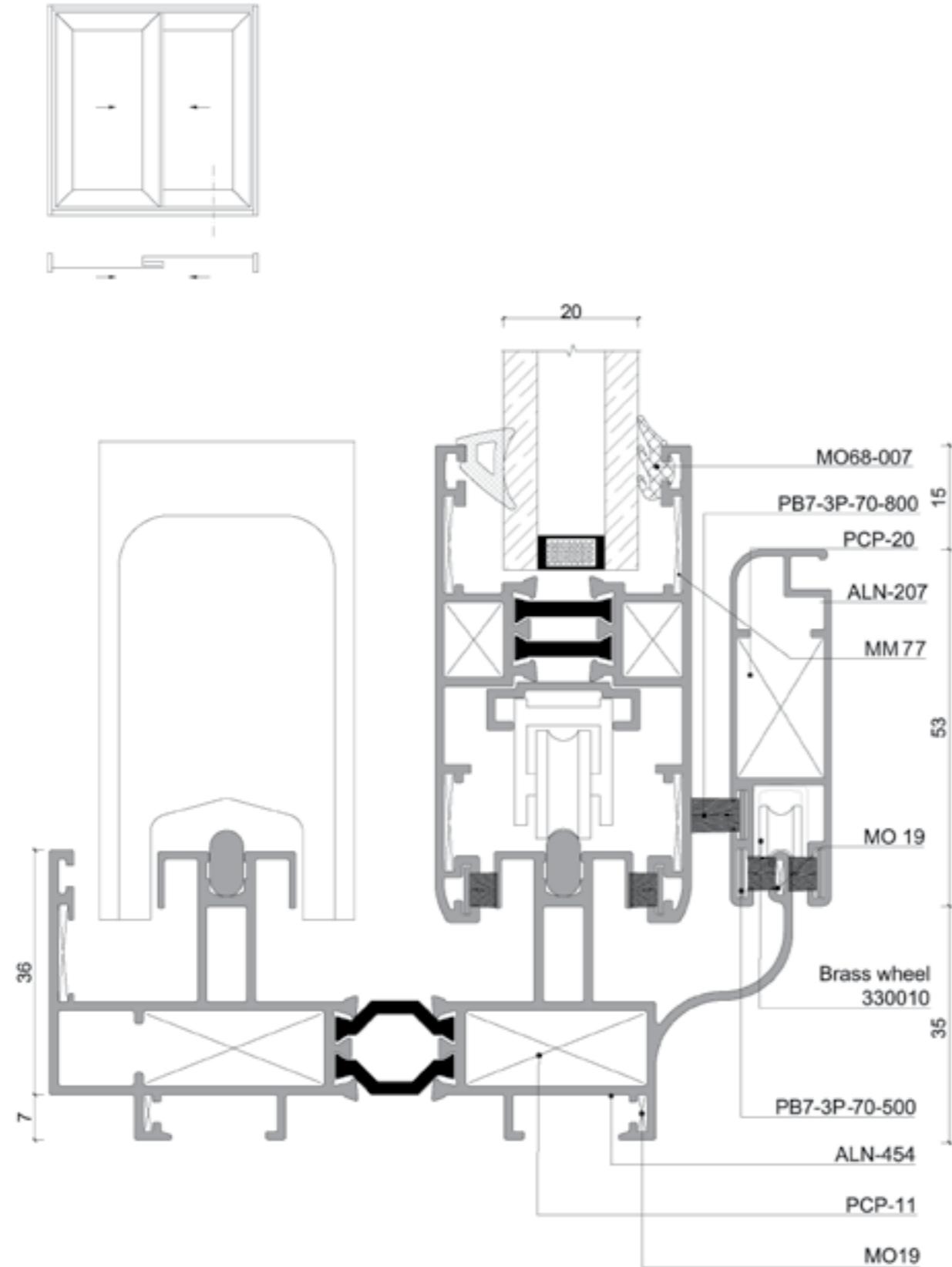


### Slide System 77 Series

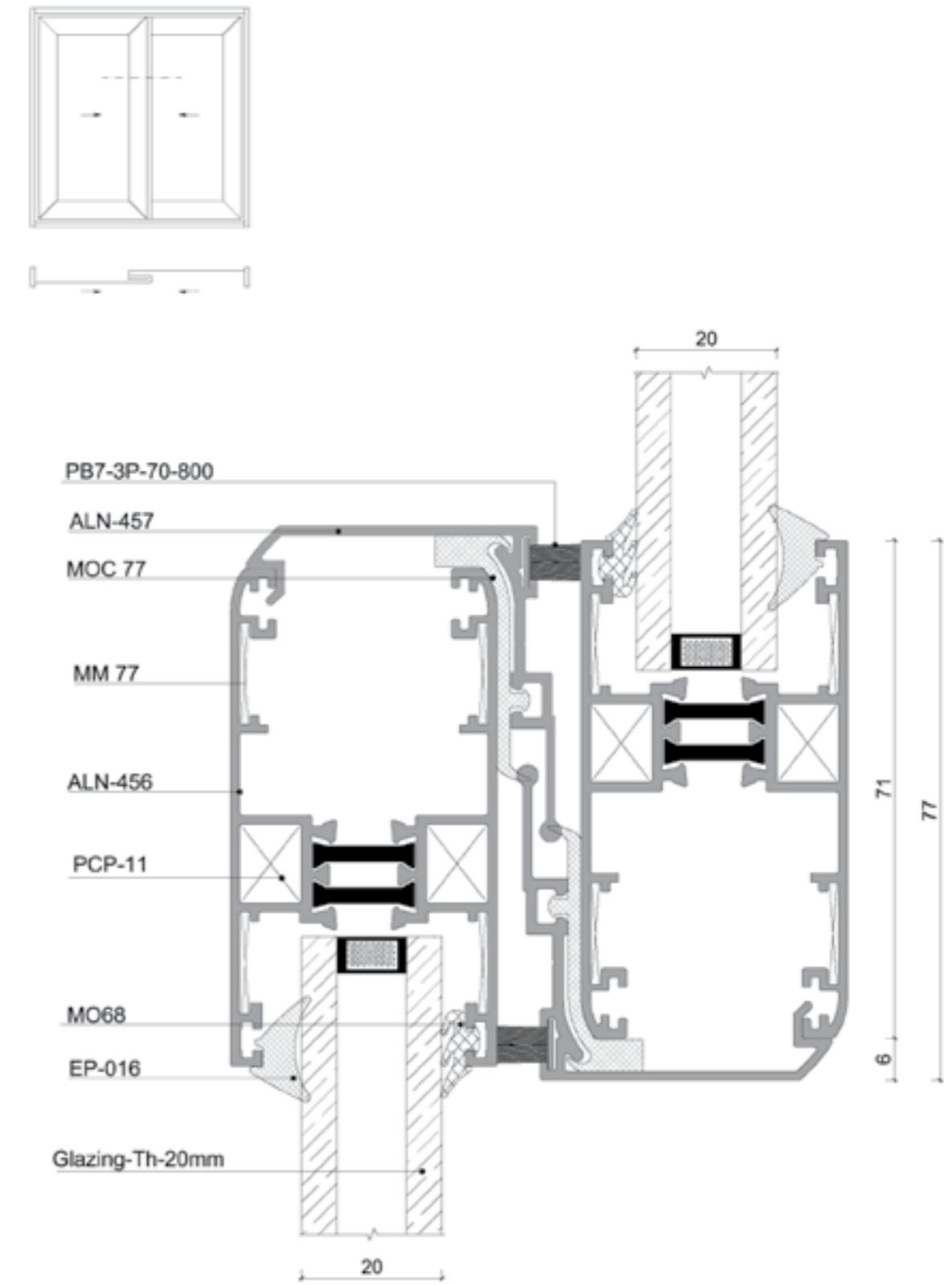
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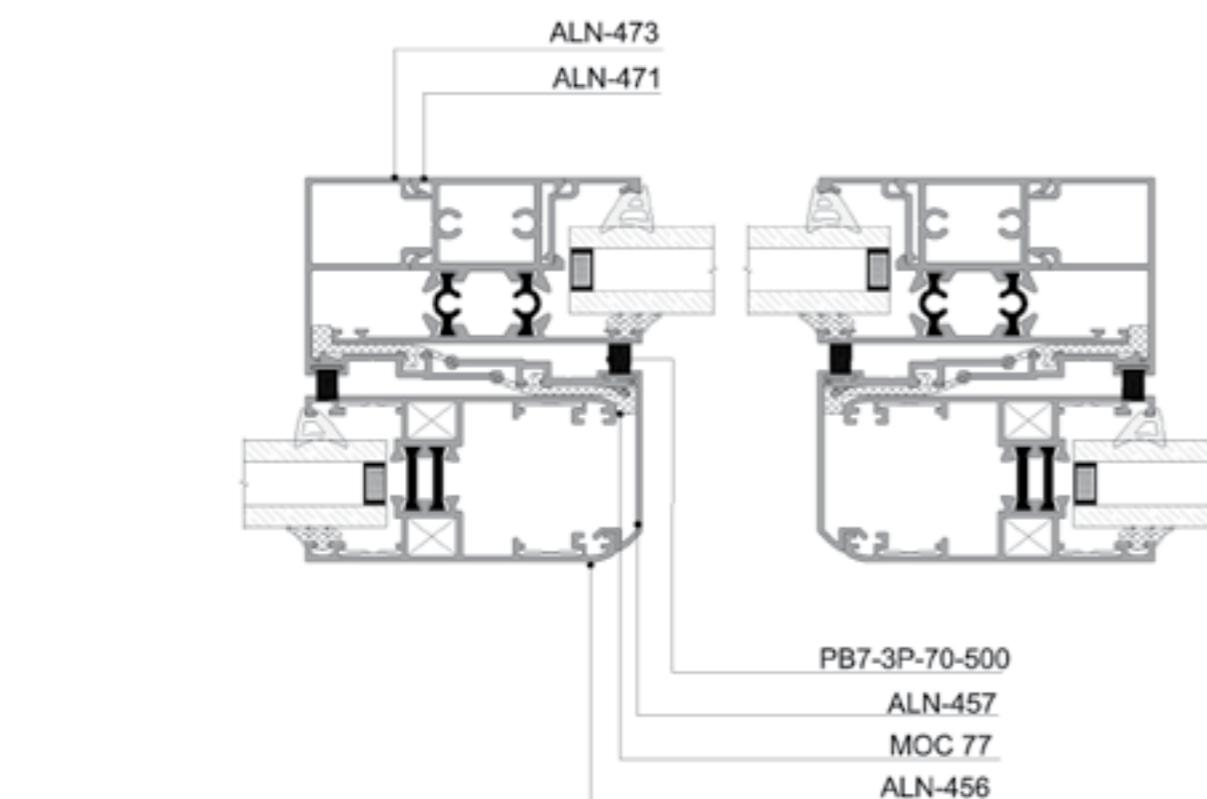
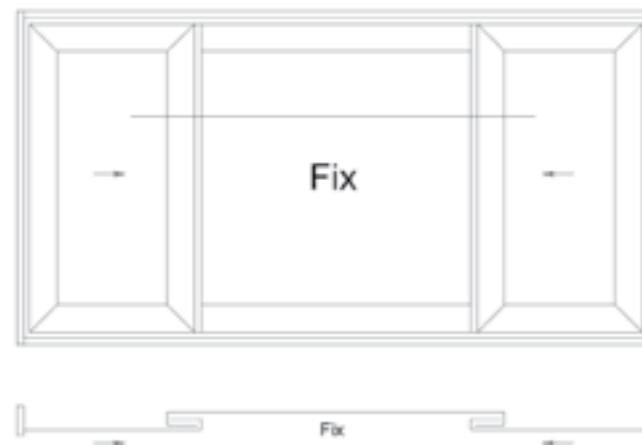
Slide System 77 Series  
Fabrication Details



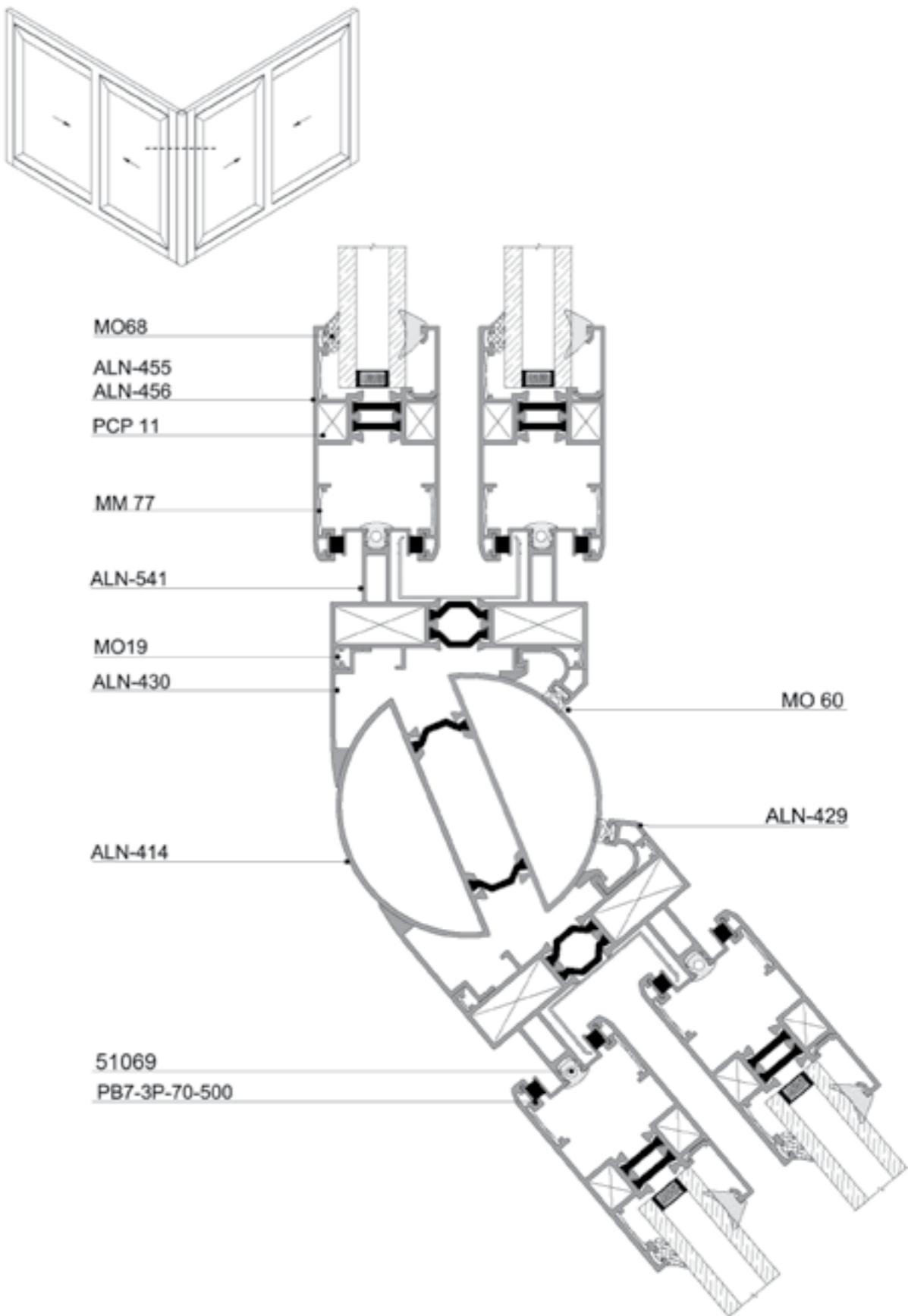
Slide System 77 Series  
Fabrication Details



**Slide System 77 Series**  
Fabrication Details

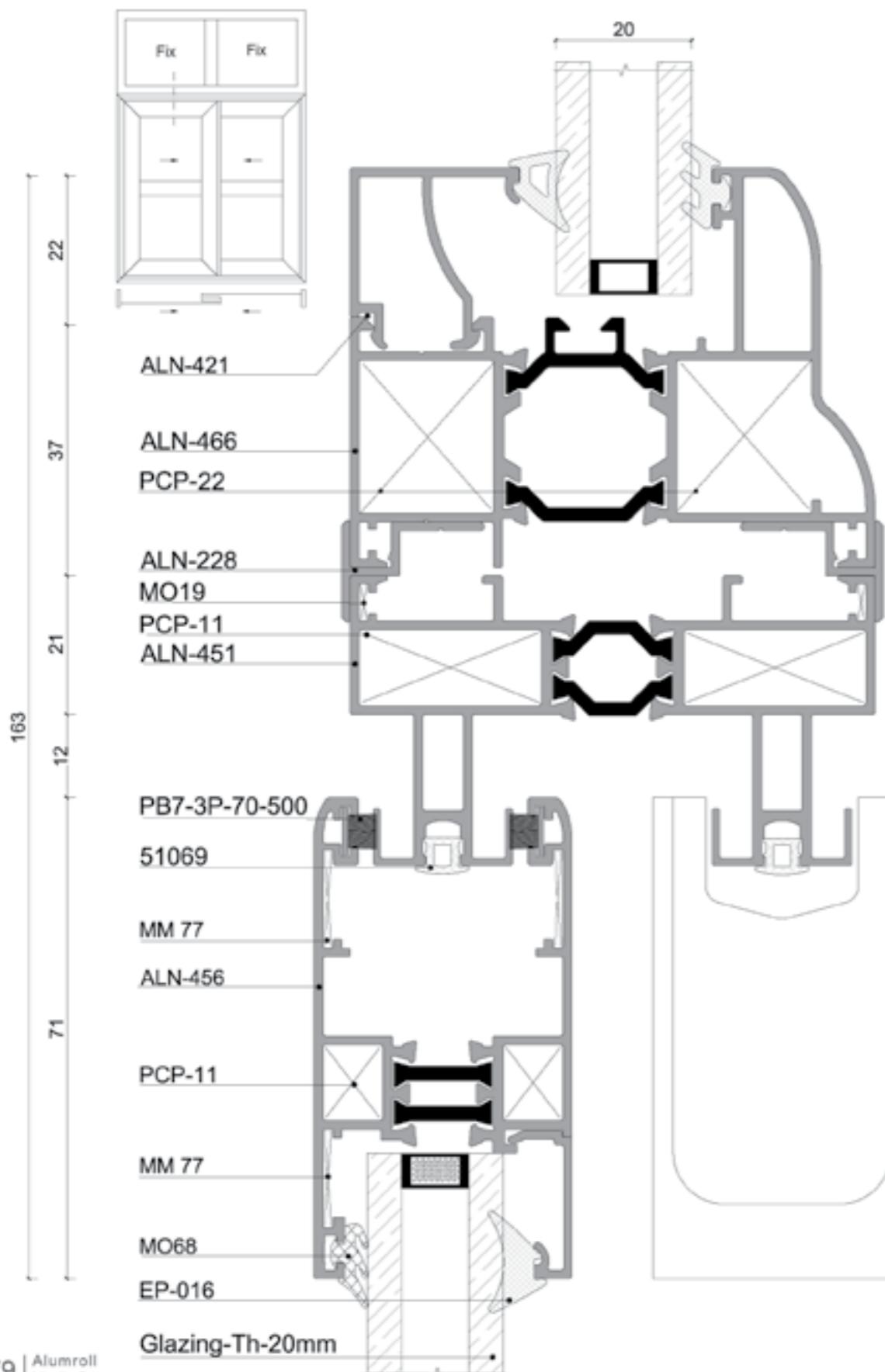


**Slide System 77 Series**  
Fabrication Details



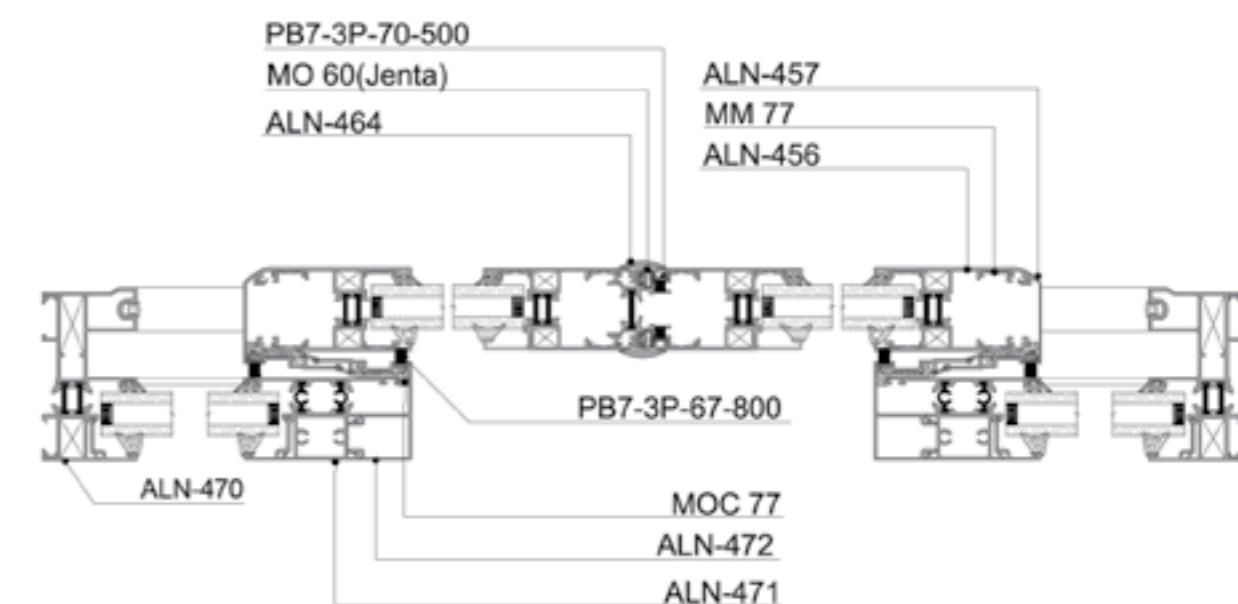
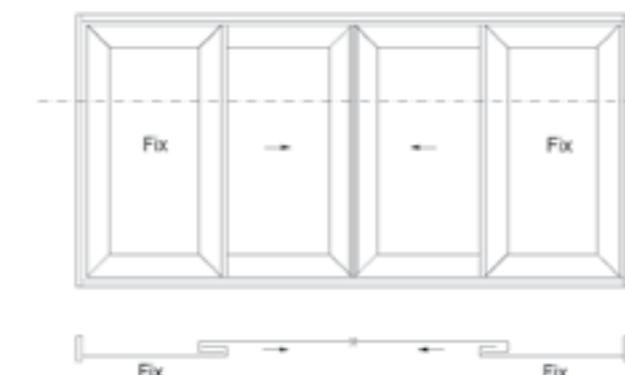
### Slide System 77 Series

Fabrication Details

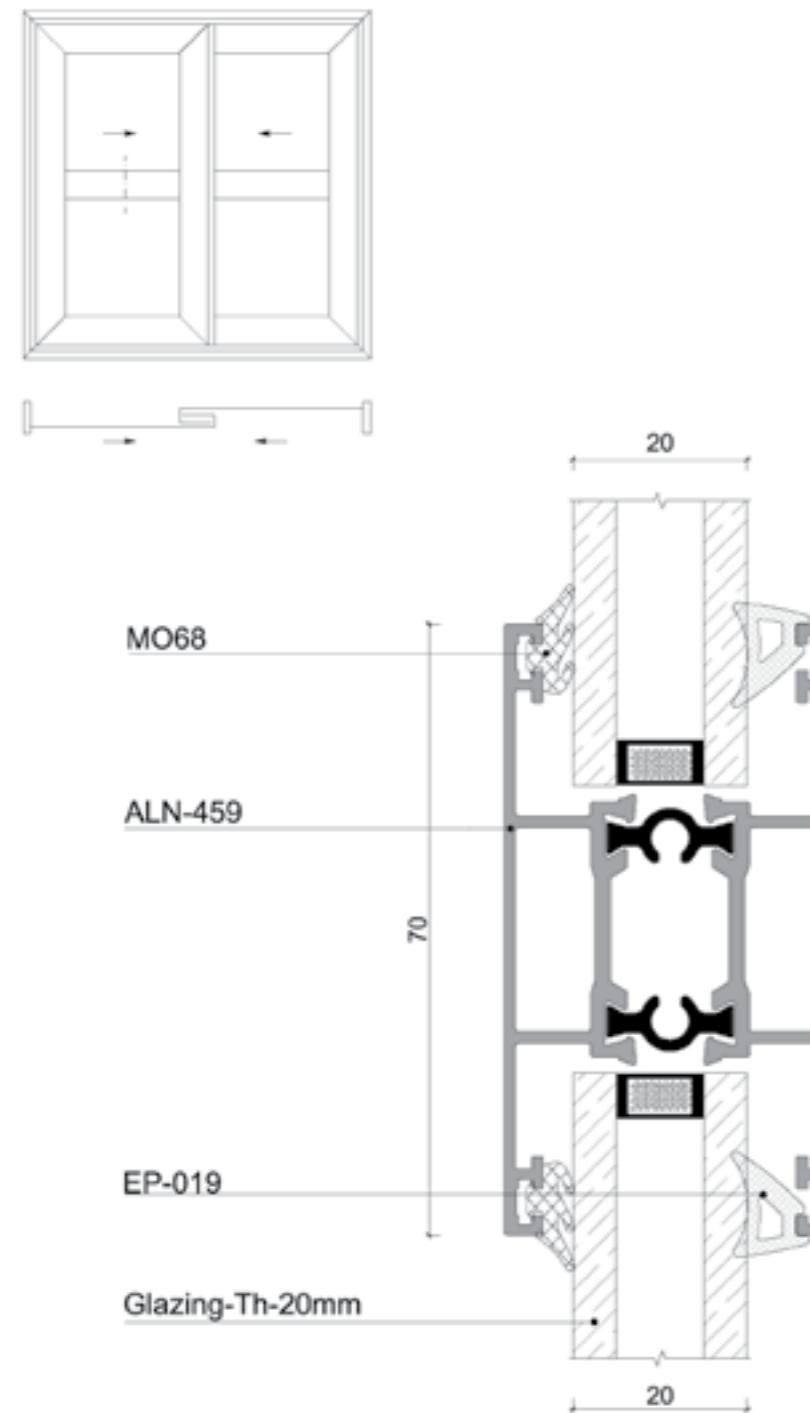


### Slide System 77 Series

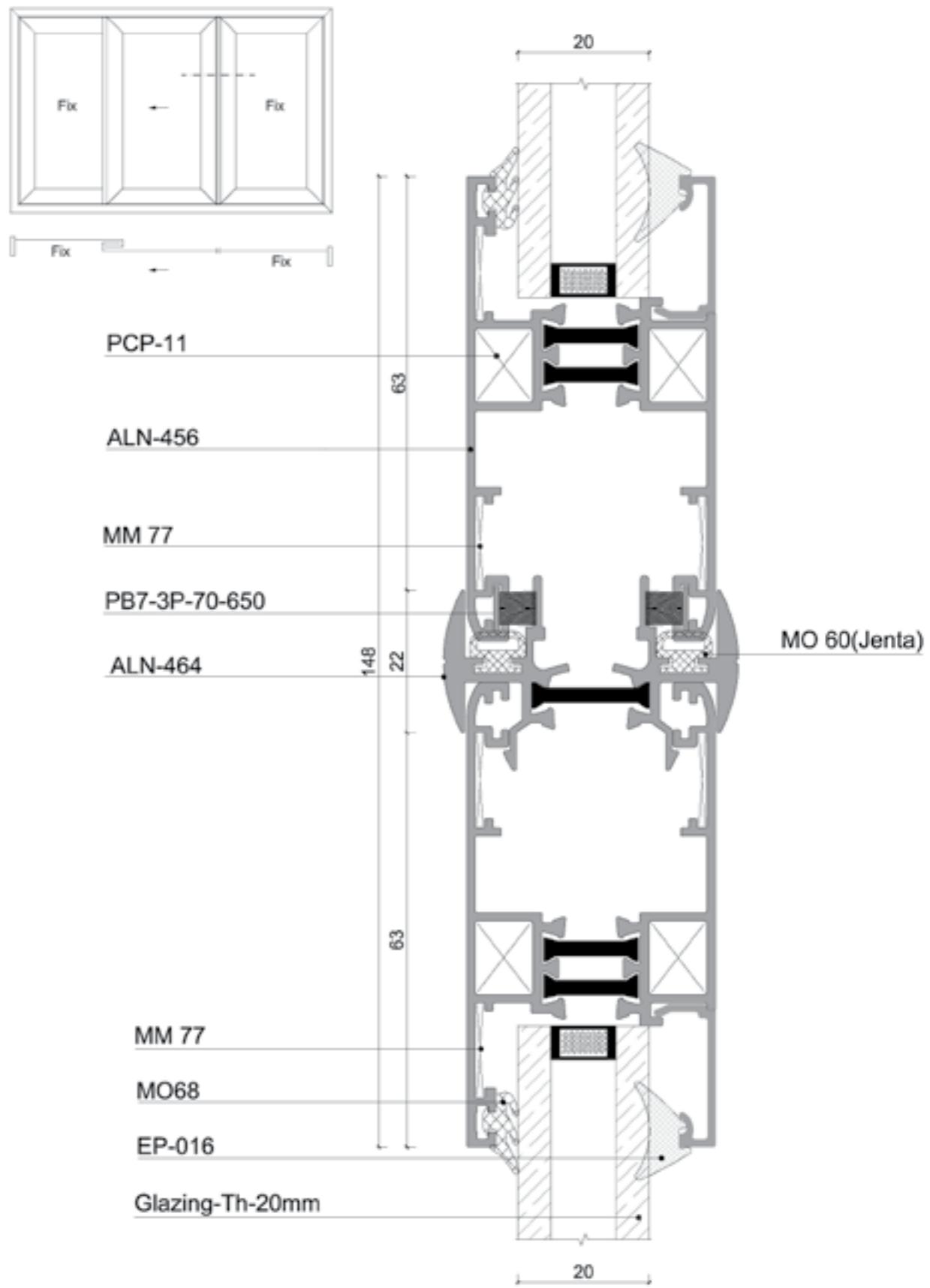
Fabrication Details



**Slide System 77 Series**  
Fabrication Details

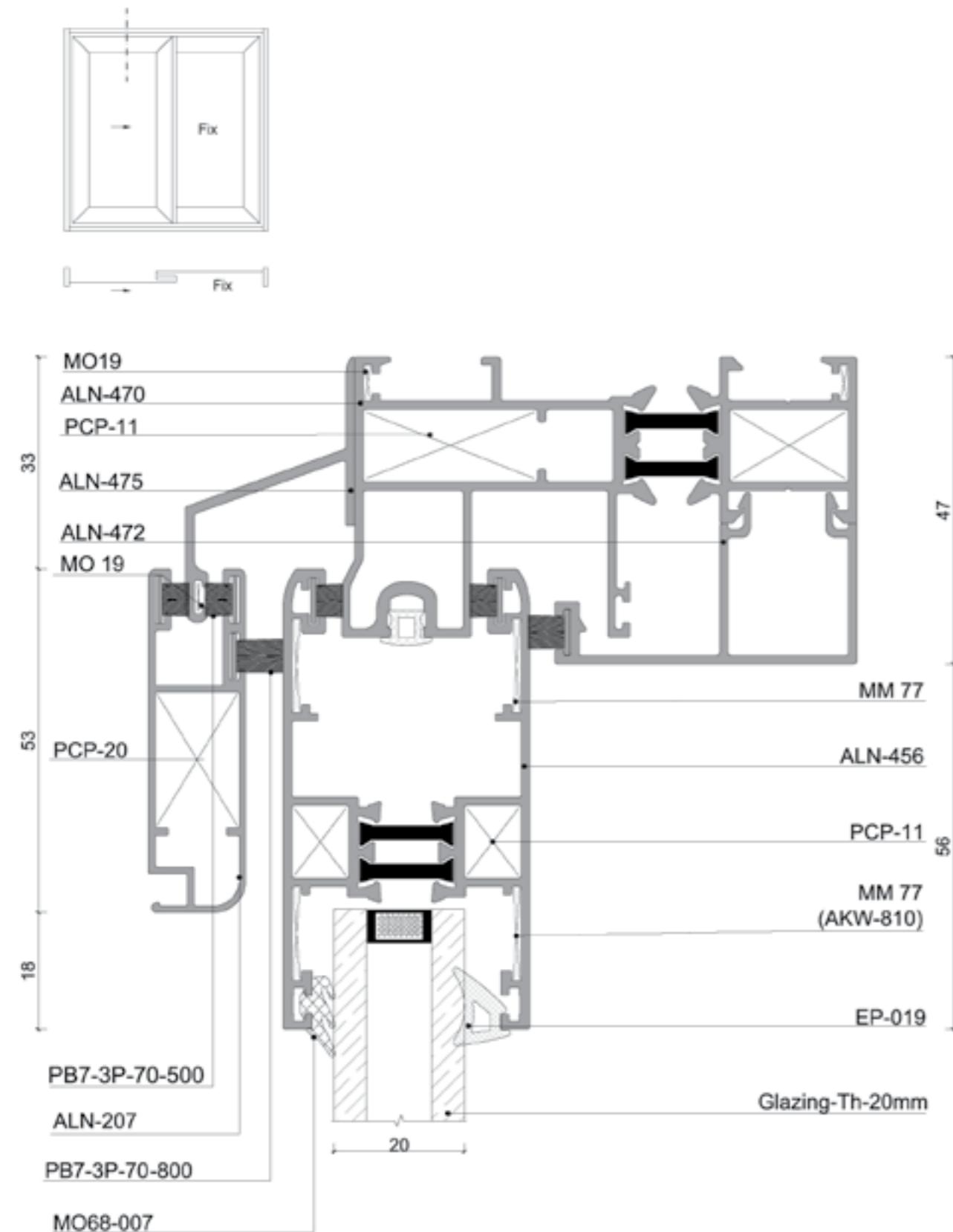


**Slide System 77 Series**  
Fabrication Details



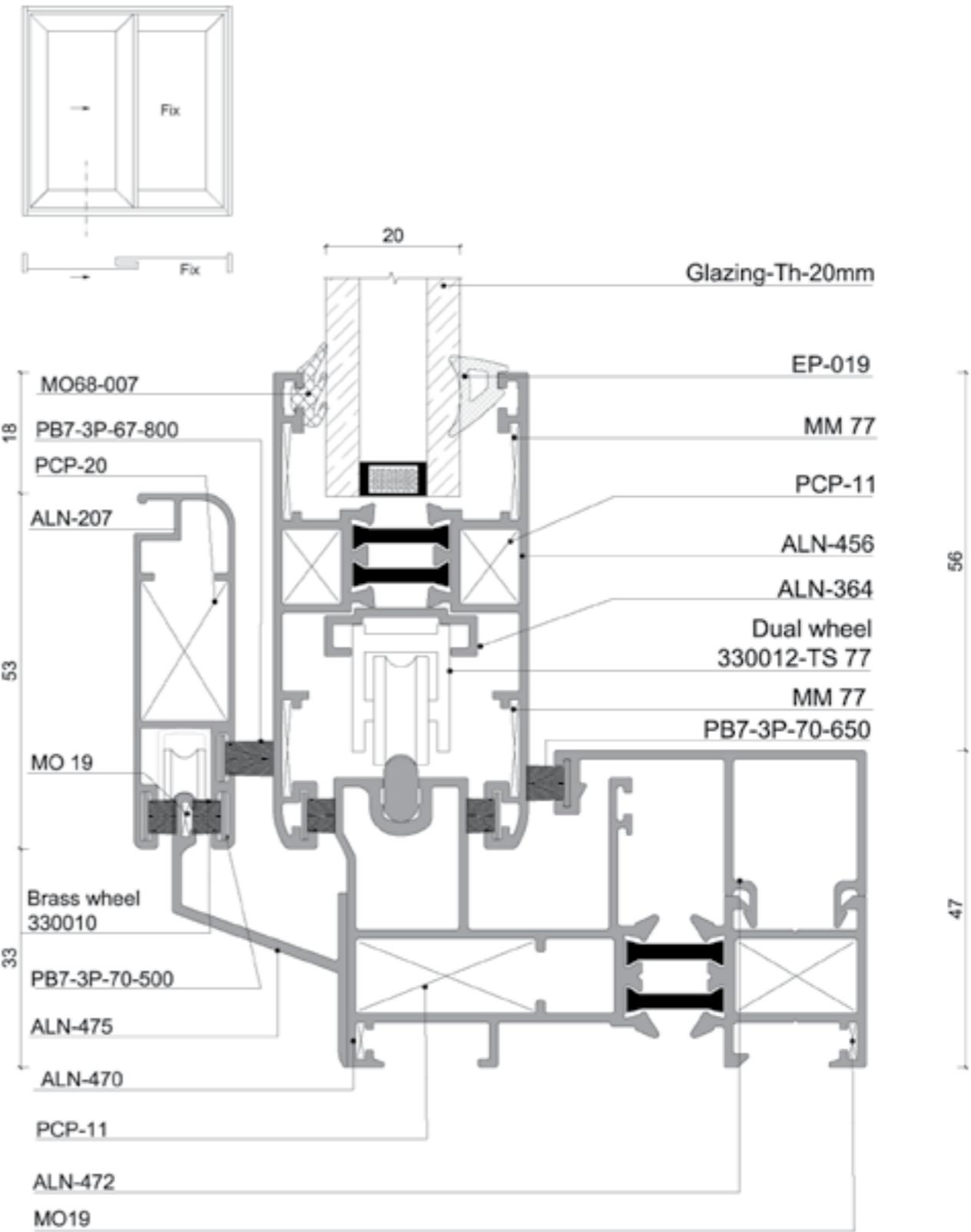
Slide System 77 Series

## Fabrication Details

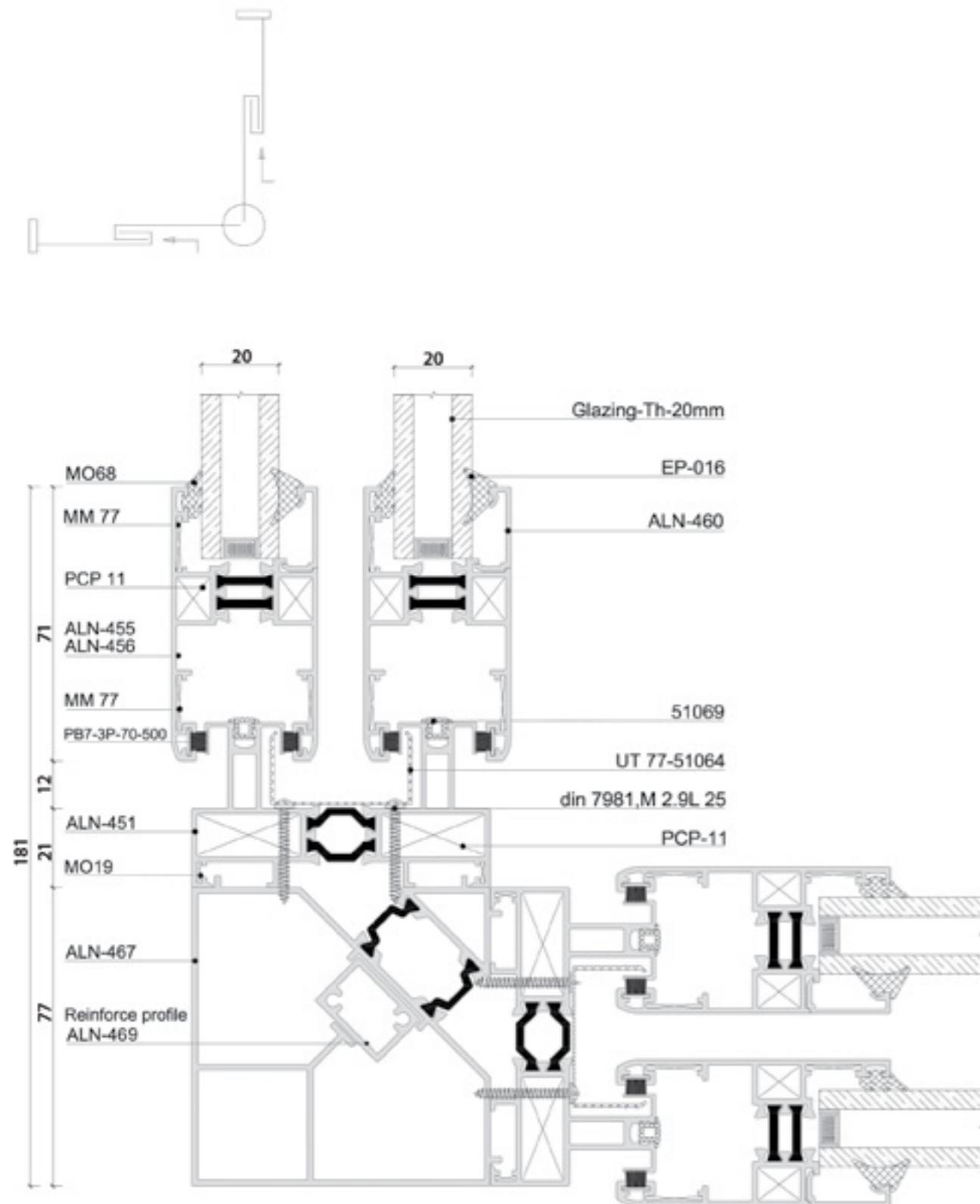


Slide System 77 Series

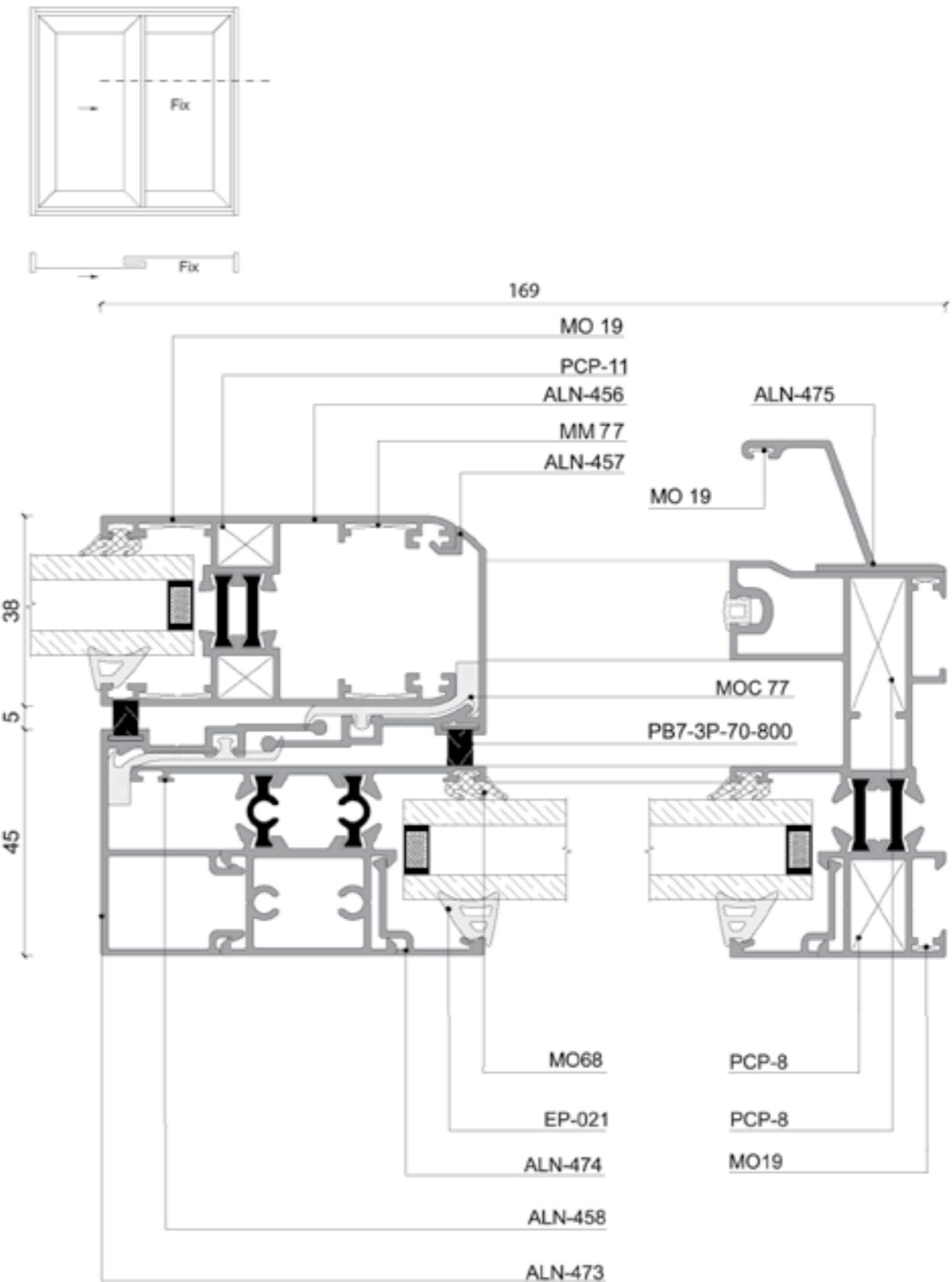
## Fabrication Details



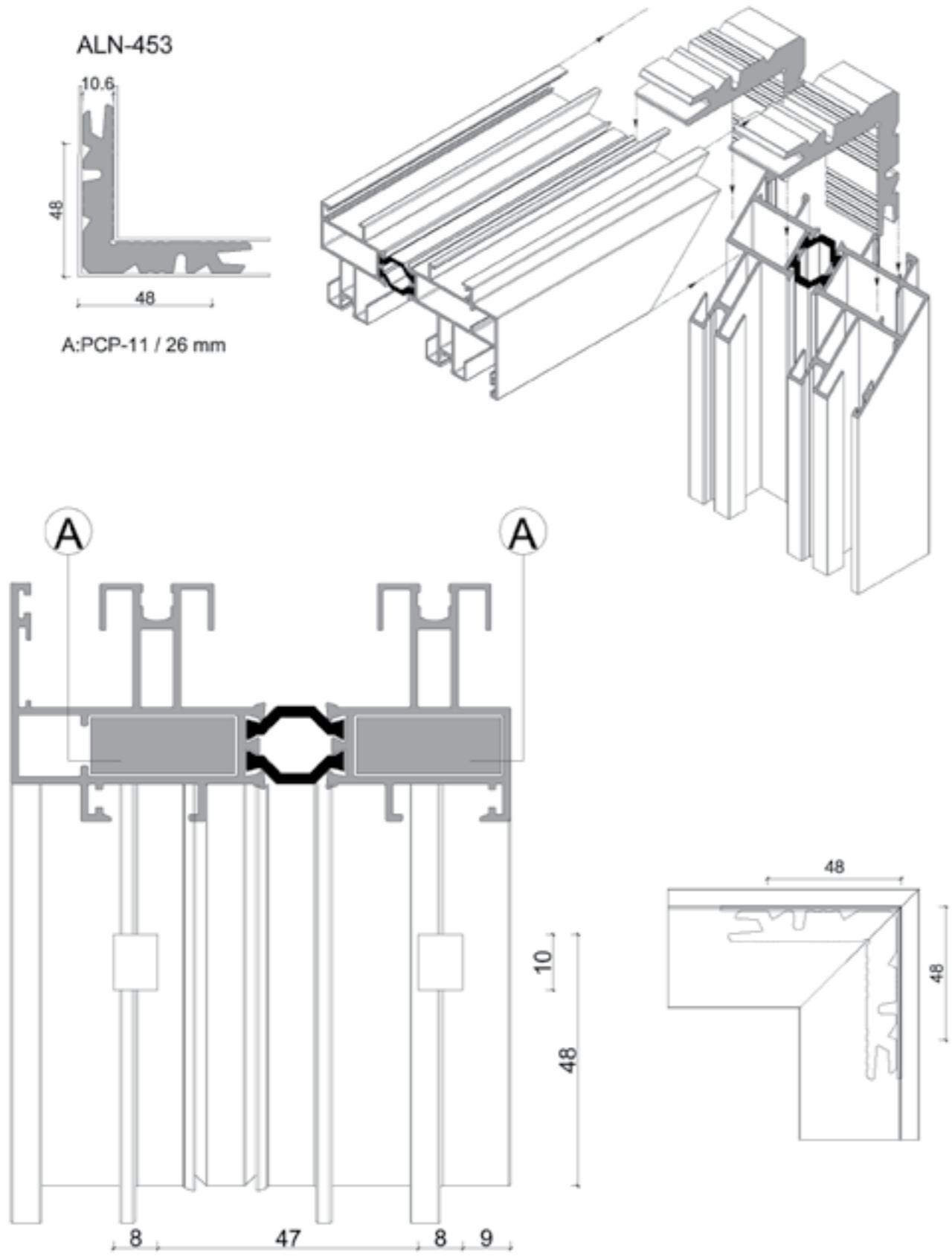
Slide System 77 Series  
Fabrication Details



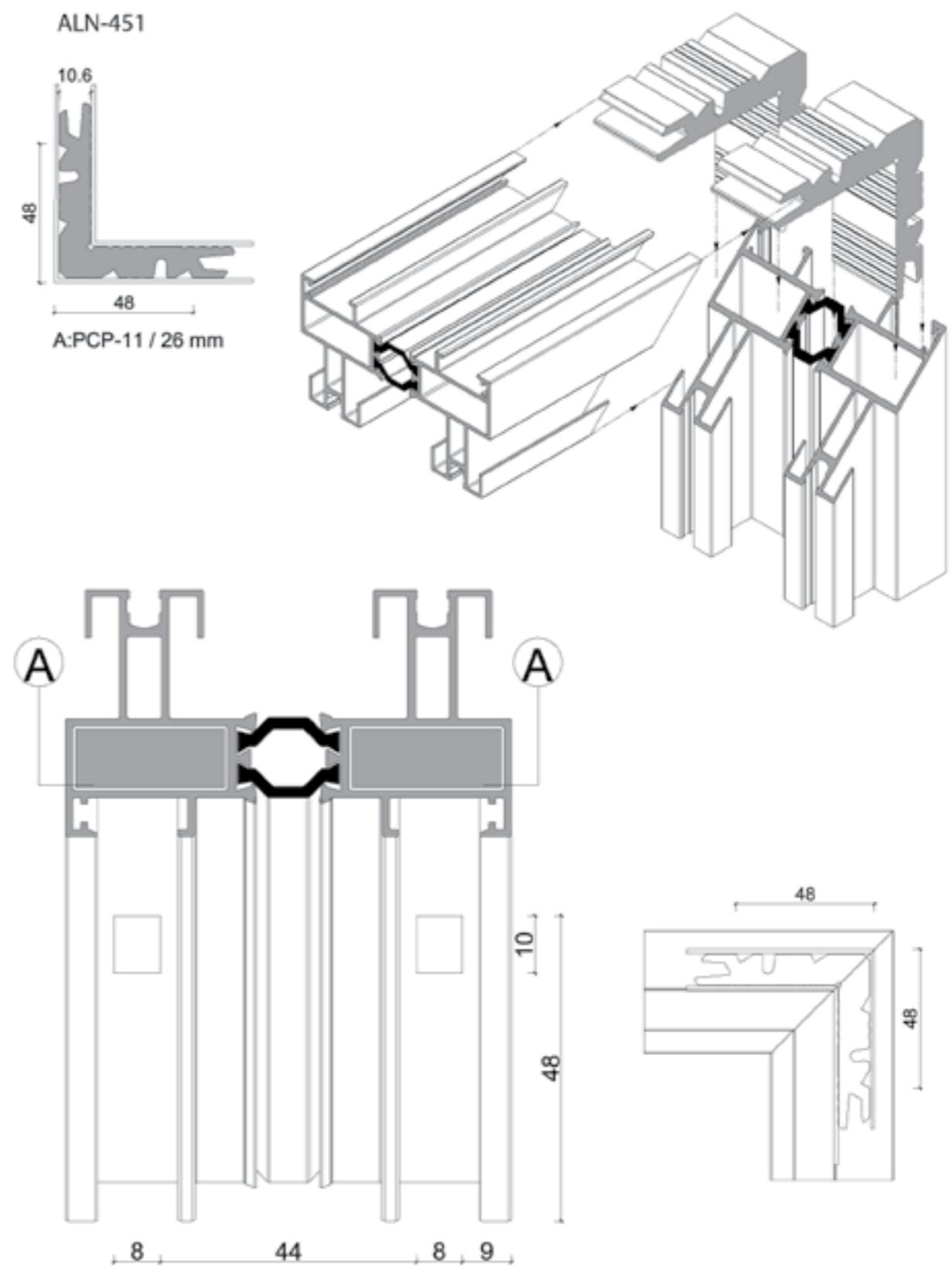
Slide System 77 Series  
Fabrication Details



Slide System 77 Series  
Assembly Drawing

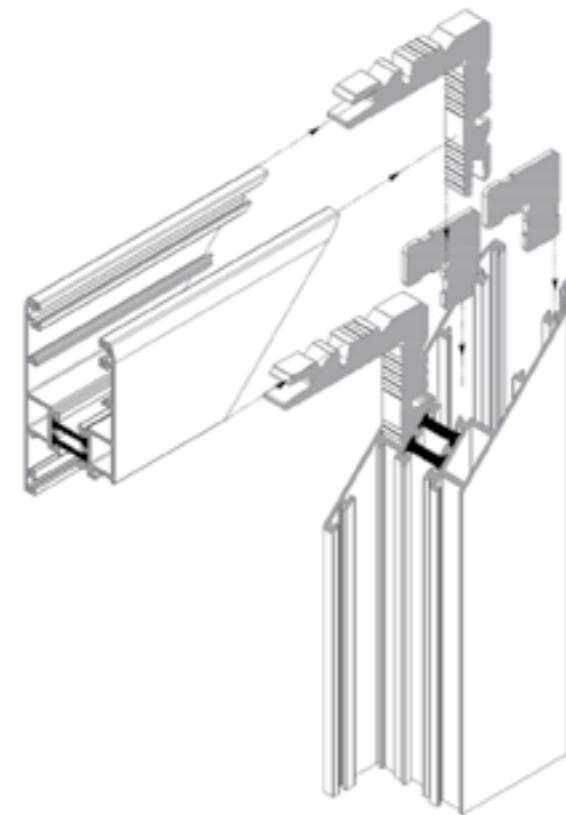


Slide System 77 Series  
Assembly Drawing



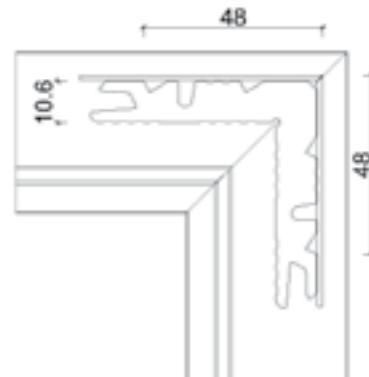
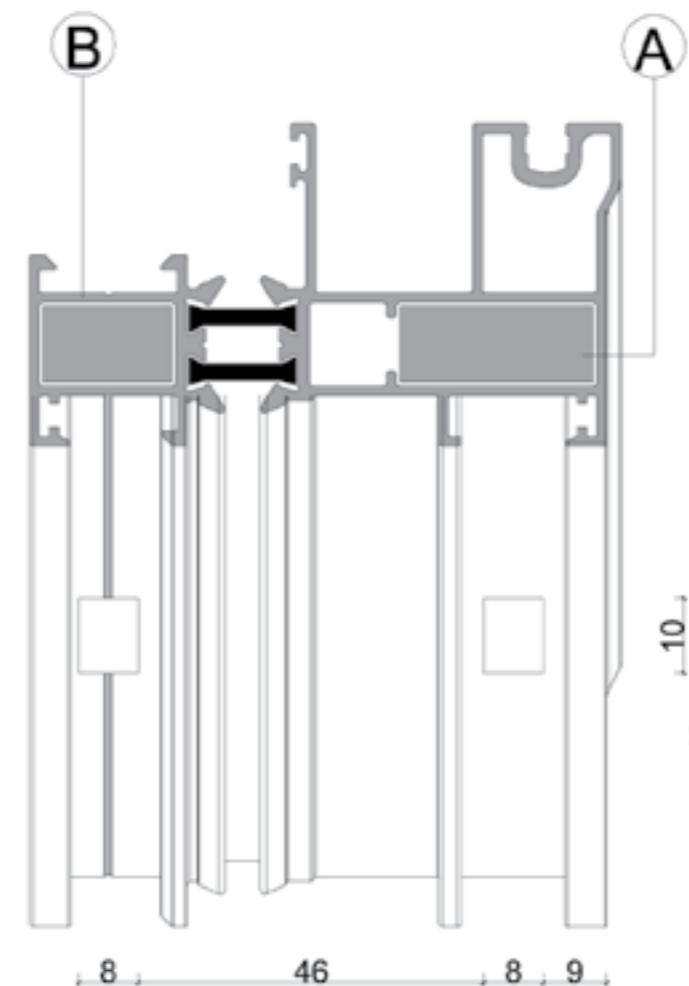
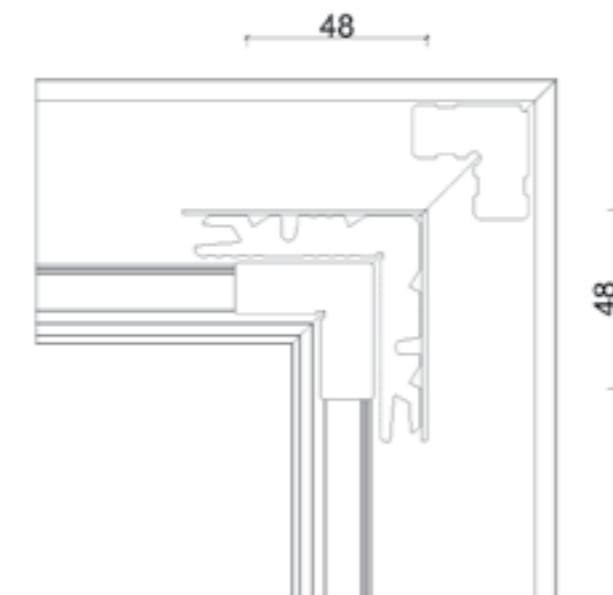
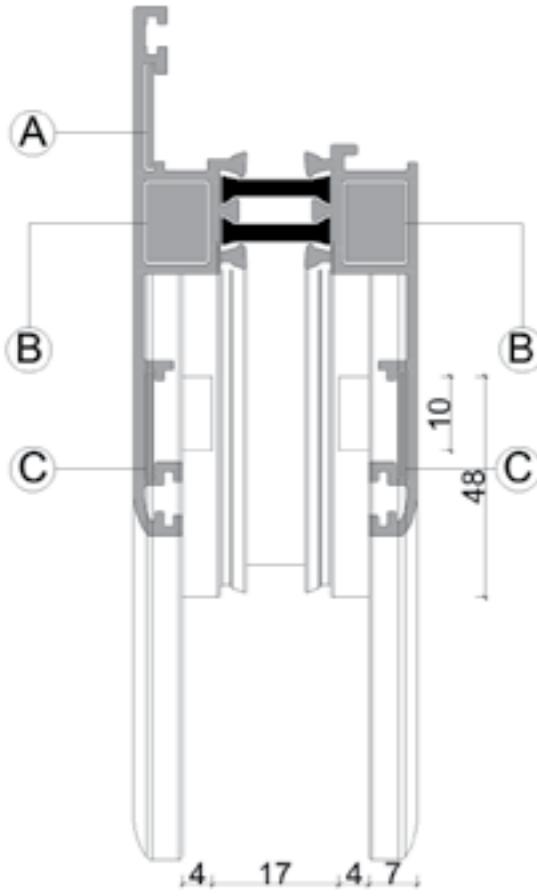
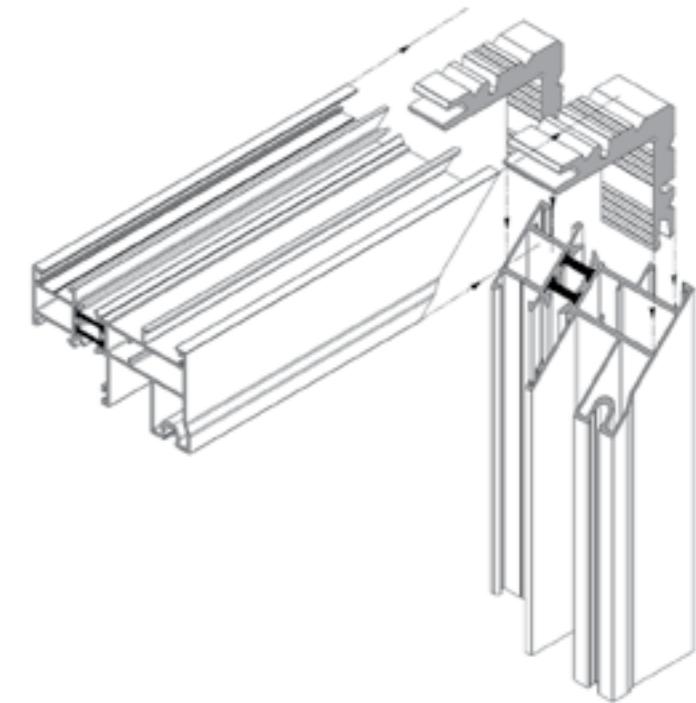
Slide System 77 Series  
Assembly Drawing

ALN-455



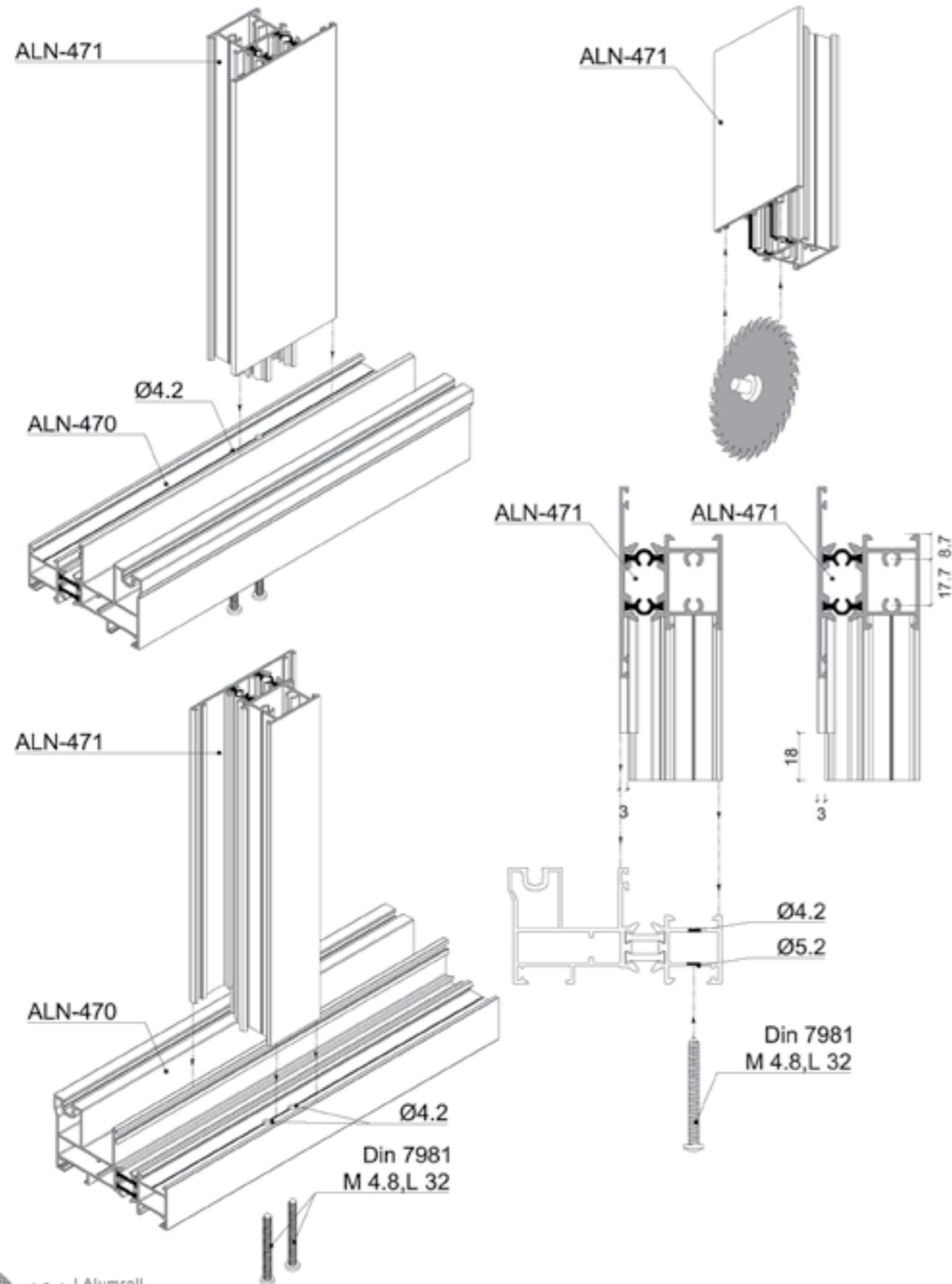
Slide System 77 Series  
Assembly Drawing

ALN-470



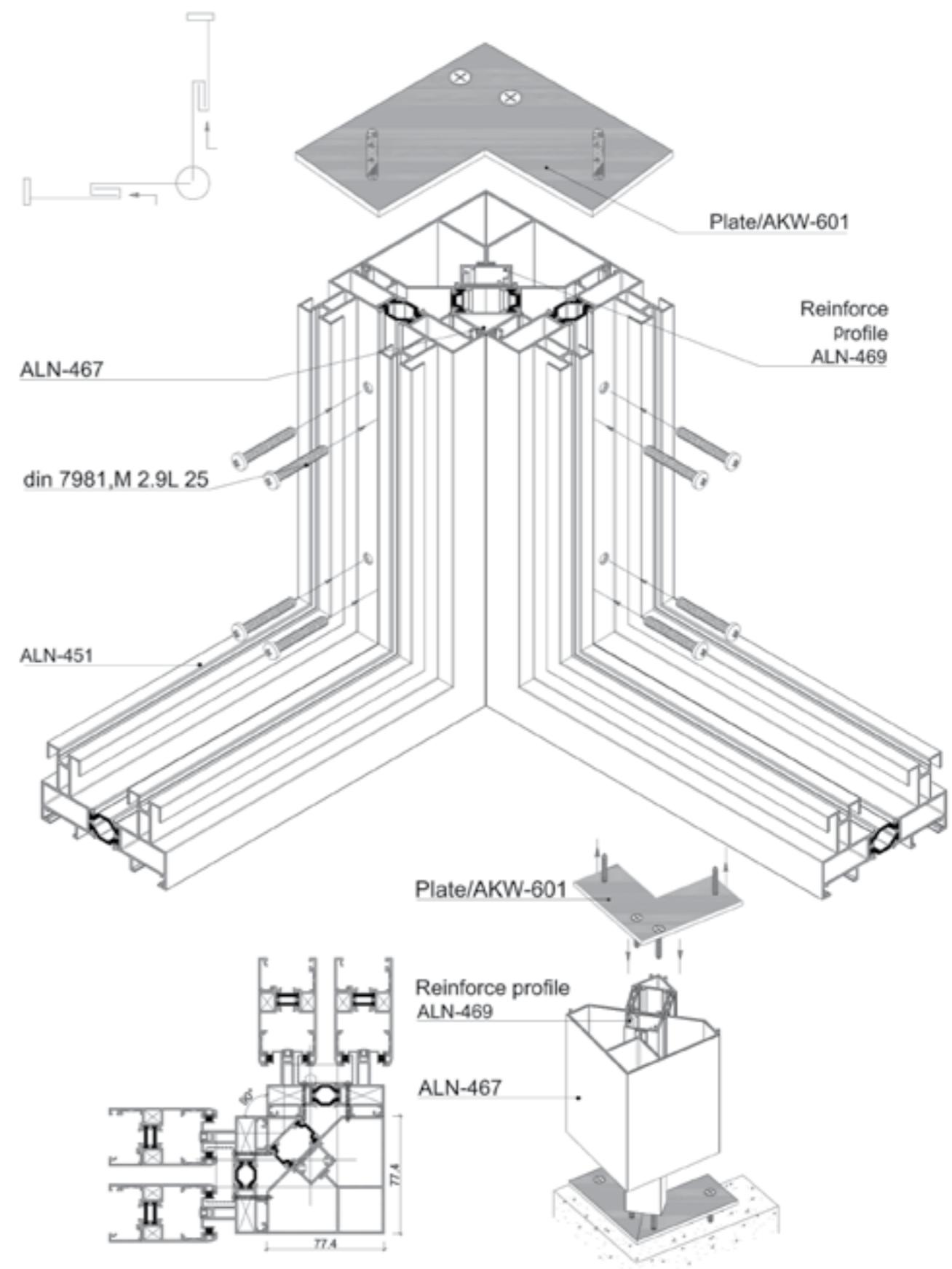
### Slide System 77 Series

Assembly Drawing



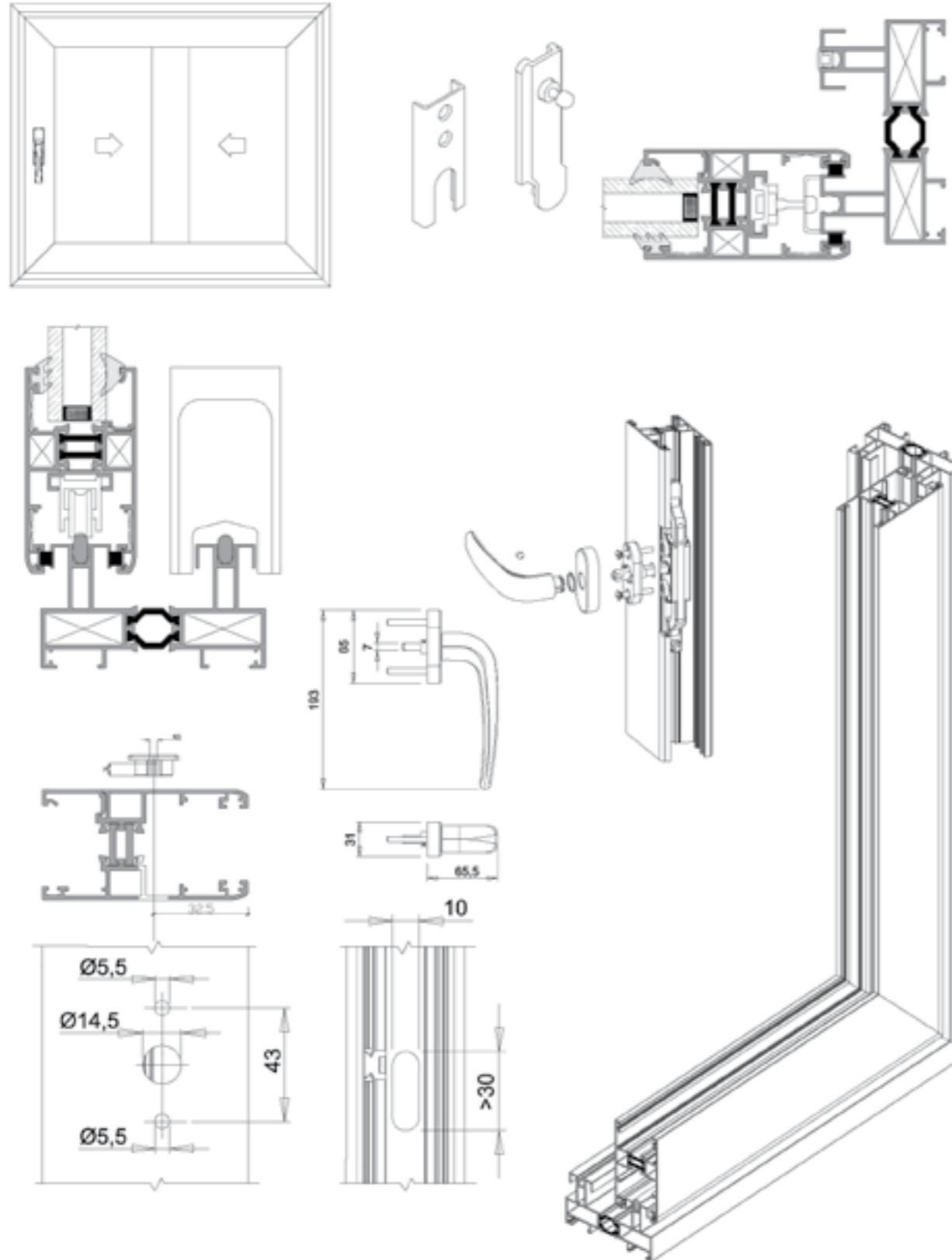
### Slide System 77 Series

Assembly Drawing



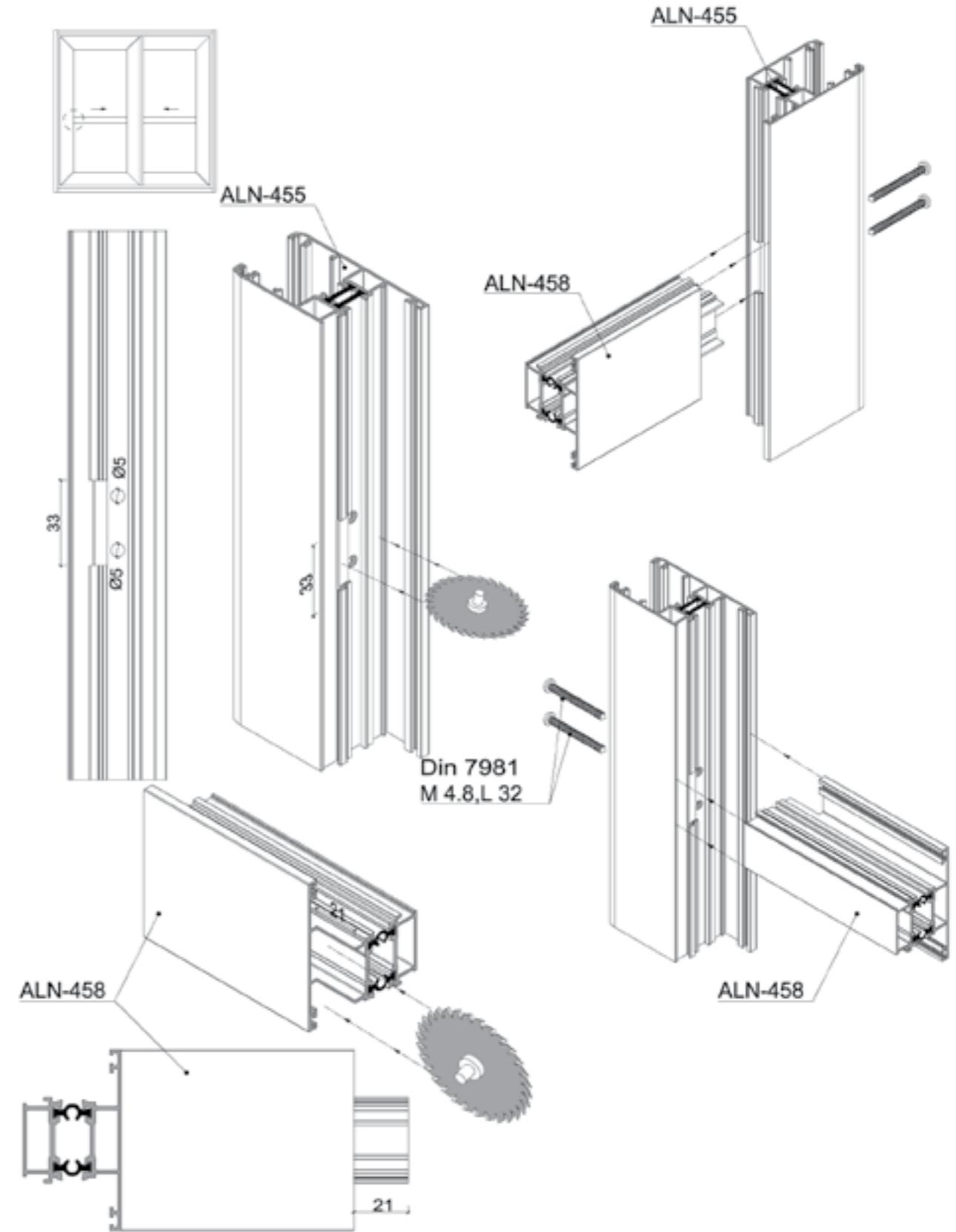
Slide System 77 Series

## Hardware Installation



Slide System 77 Series

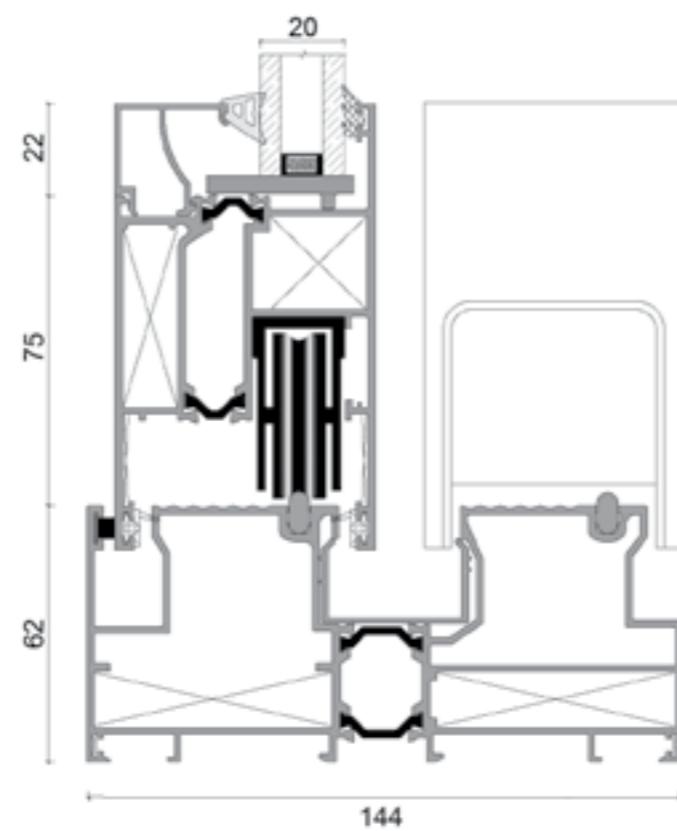
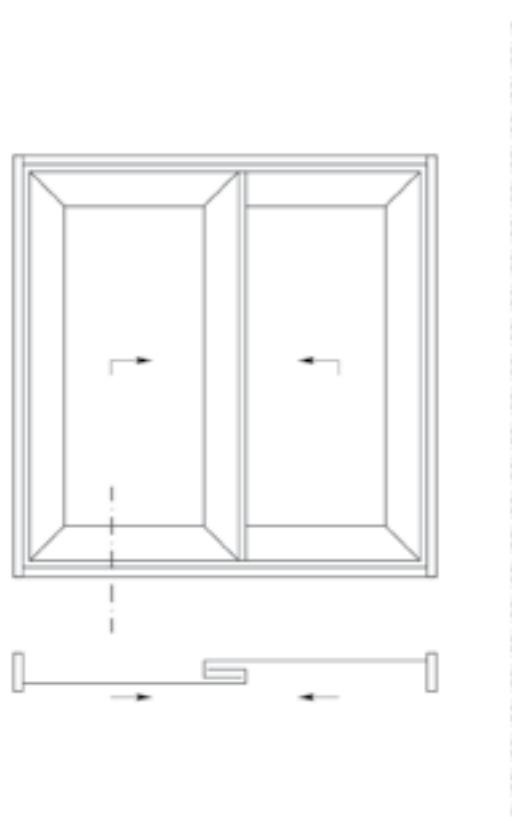
## Assembly Drawing



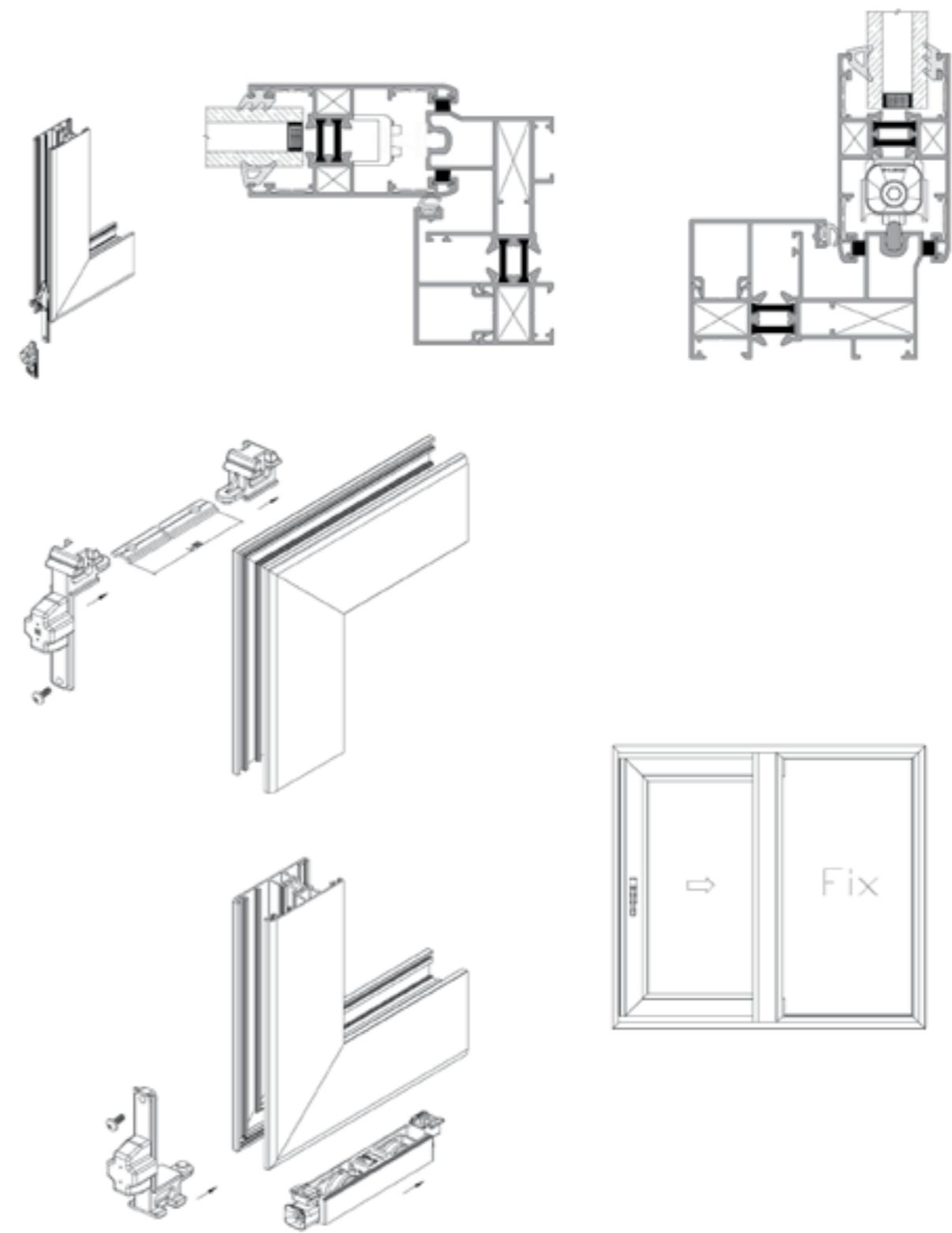


### Lift & Slide System 143 Series

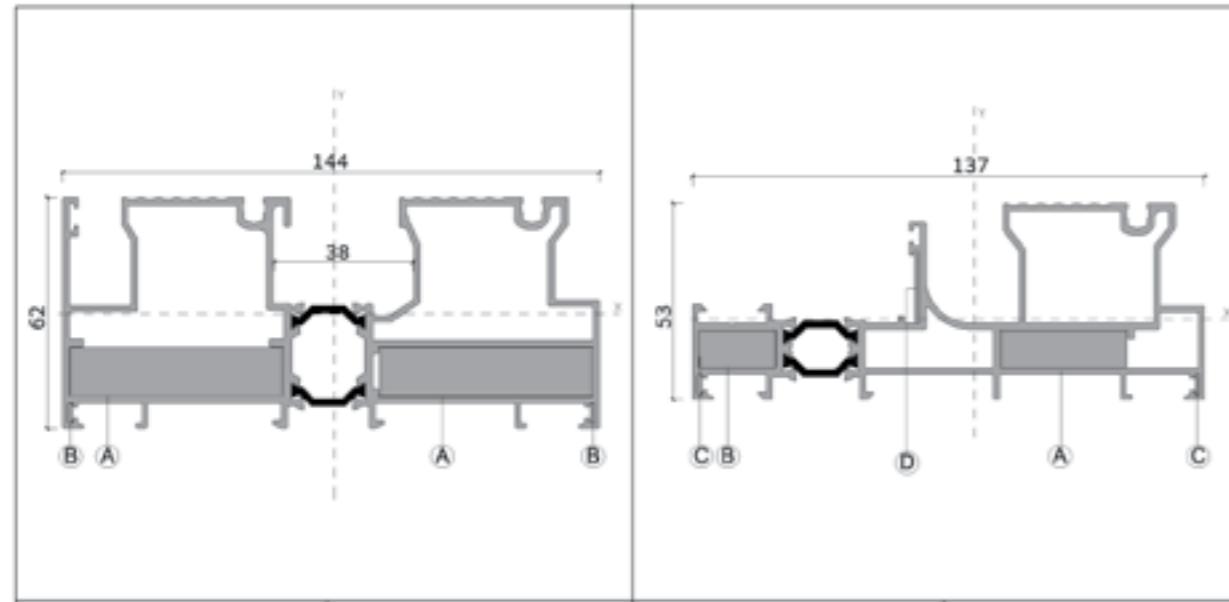
- . Profile width: 143 - 218 mm
- . Vent width: 62 mm
- . Wall thickness: 1.6 - 1.7 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 20 - 30 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Isulation bar : Polyamide Width 20 mm
- . Safety drainage system
- . Various typologies



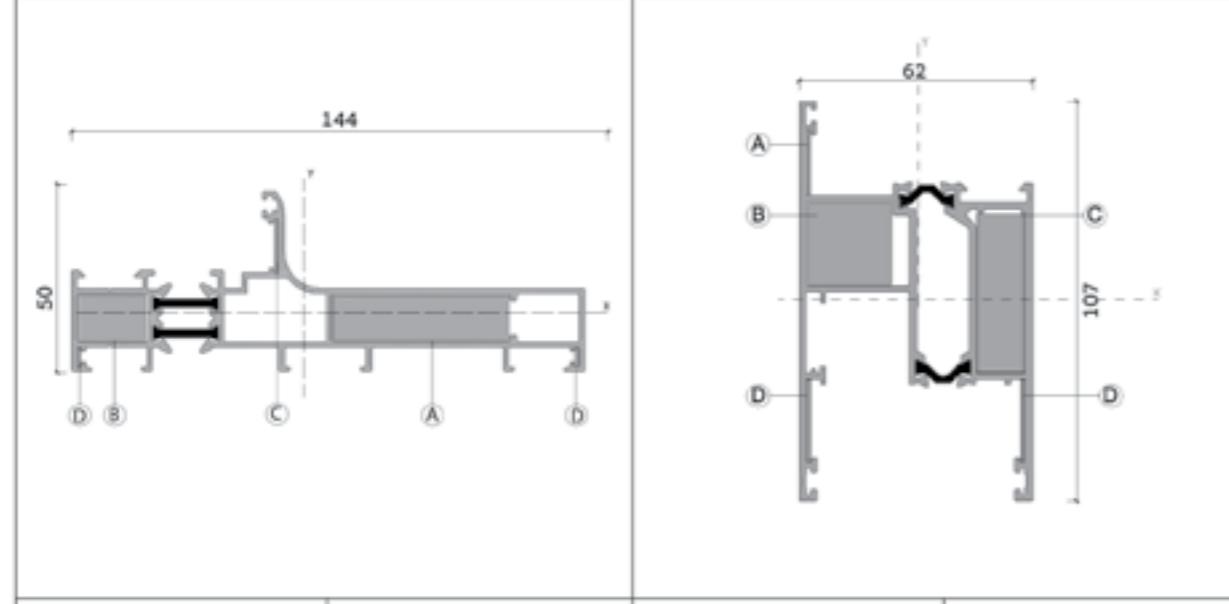
### Slide System 77 Series Hardware Installation

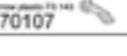


Lift & Slide System 143 Series  
Profile & Accessories Information

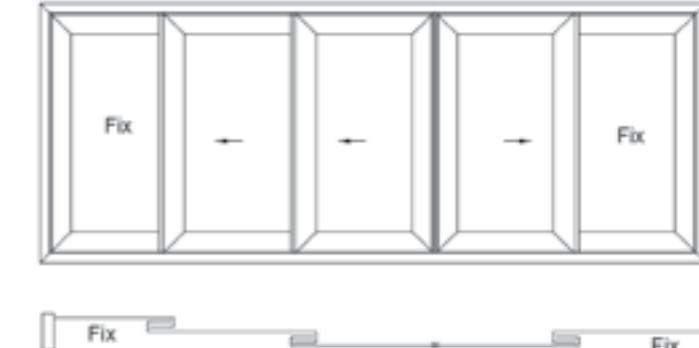
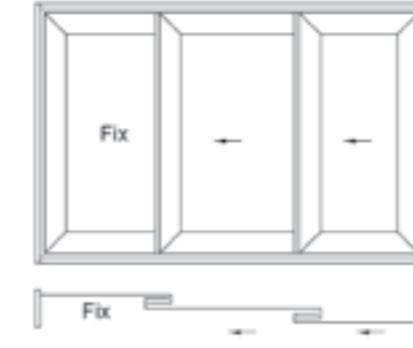
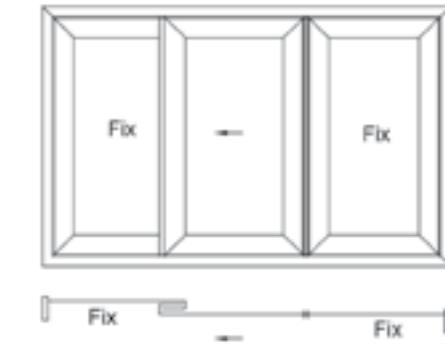
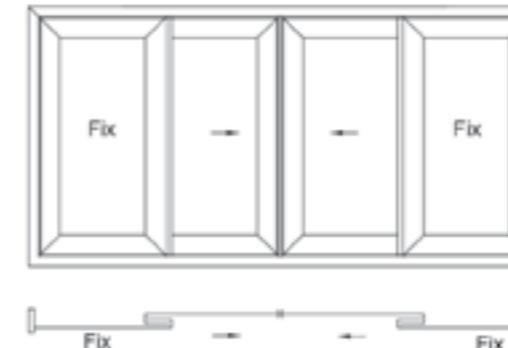


$I_x: 47.26 \text{ cm}^4$	$I_y: 238.10 \text{ cm}^4$	$I_x: 20.64 \text{ cm}^4$	$I_y: 152.73 \text{ cm}^4$
Frame : ALN-480	A:PCP-13/56.5 mm 	Monorail Frame: ALN-490	A: PCP-10 / 33.5 mm 
Weight: 3220 gr/m	B: MO19(399012) 	Weight: 2540 gr/m	B: PCP-10 / 19.8 mm 

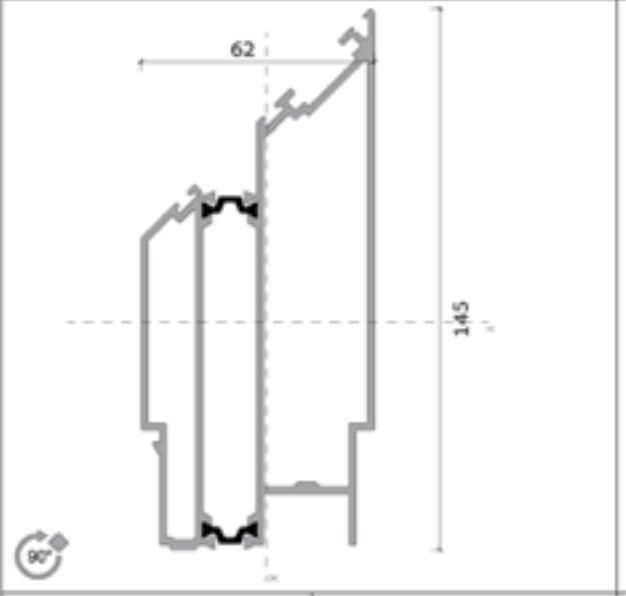
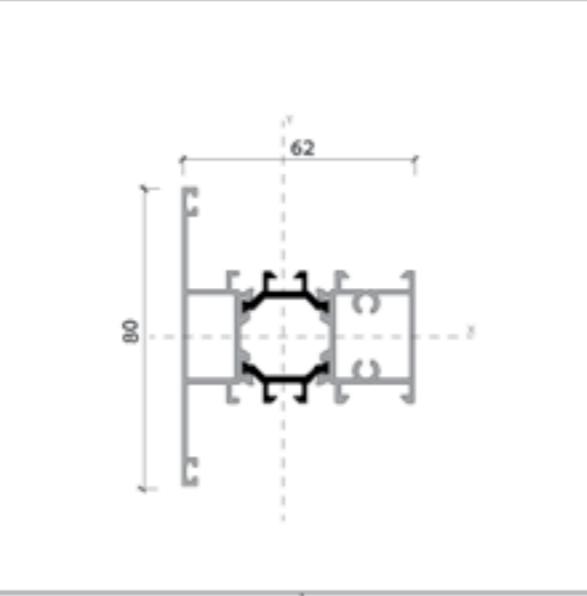
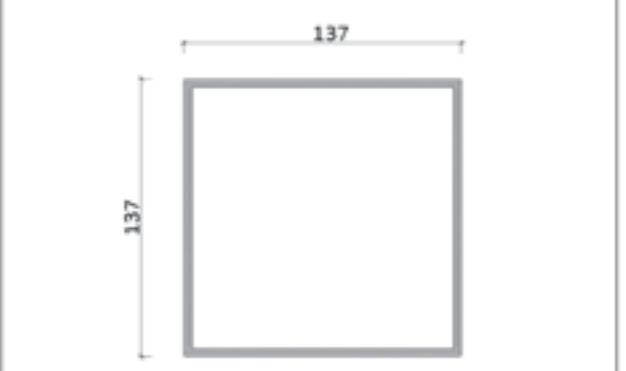
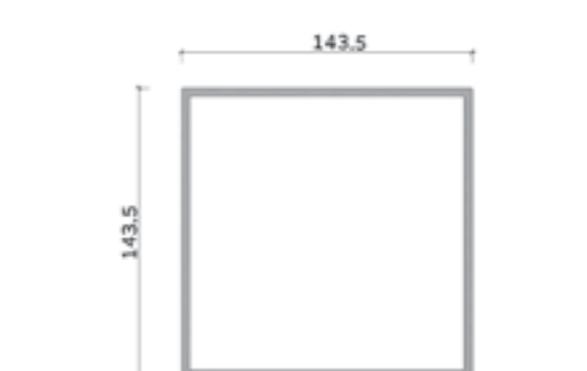


$I_x: 8.29 \text{ cm}^4$	$I_y: 139.22 \text{ cm}^4$	$I_x: 53.13 \text{ cm}^4$	$I_y: 44.22 \text{ cm}^4$
A: PCP-13 / 49 mm 	Sash : ALN-484	A:  370108	B: PCP-22/22mm 
Frame : ALN-482	C: MM77 	Weight: 2272 gr/m	C: PCP-42/12mm  370107

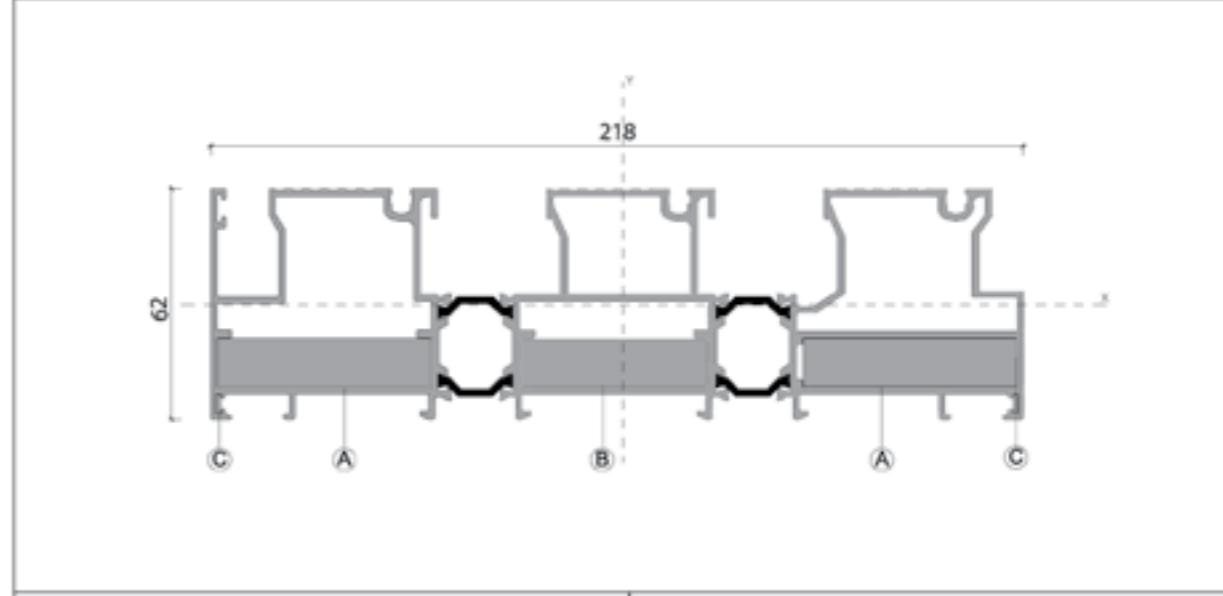
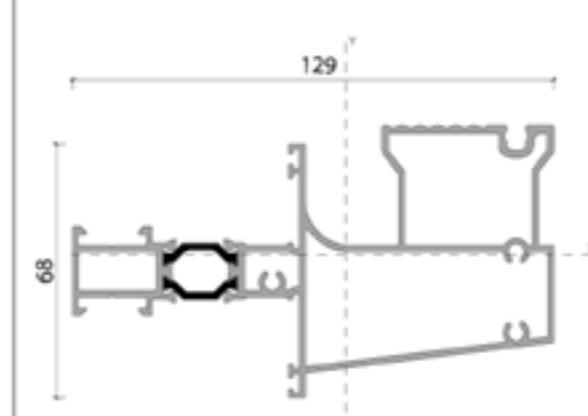
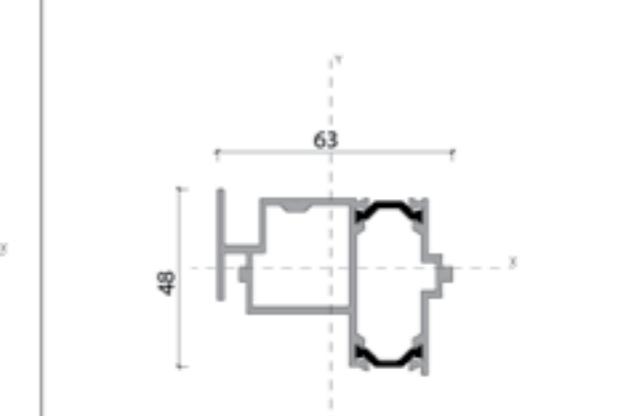
Lift & Slide System 143 Series  
Typologies



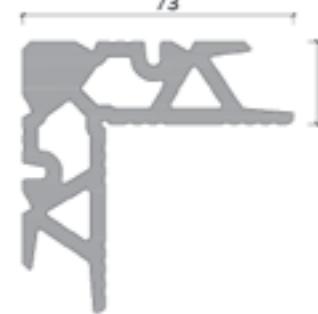
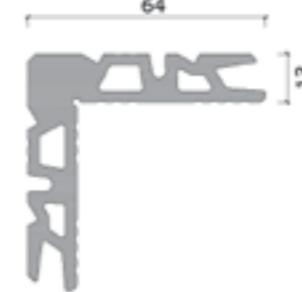
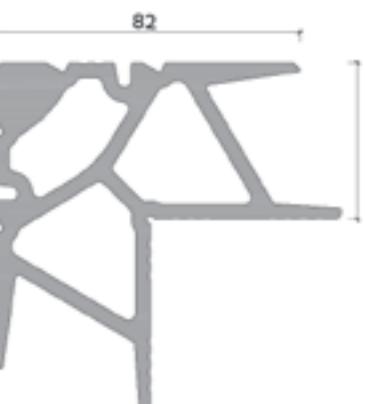
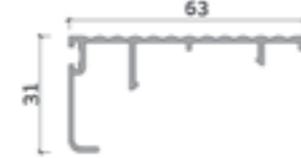
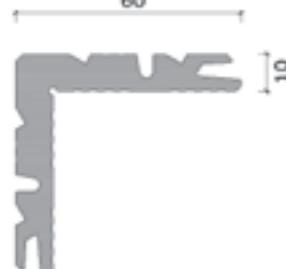
Lift & Slide System 143 Series  
Profile & Accessories Information

			
$I_x: 51.01 \text{ cm}^4$	$I_y: 186.49 \text{ cm}^4$	$I_x: 11.57 \text{ cm}^4$	$I_y: 22.89 \text{ cm}^4$
Corner Profile: ALN-483	-	Transom : ALN-487	-
Weight: 3003 gr/m	-	Weight: 1417 gr/m	-
			
			
$I_x: 51.01 \text{ cm}^4$	$I_y: 186.49 \text{ cm}^4$	$I_x: 11.57 \text{ cm}^4$	$I_y: 22.89 \text{ cm}^4$
Profile: ALN-476	-	Profile: ALN-477	-
Weight: 5764 gr/m	-	Weight: 6046 gr/m	-

Lift & Slide System 143 Series  
Profile & Accessories Information

			
$I_x: 68.88 \text{ cm}^4$	$I_y: 757.90 \text{ cm}^4$		
Triple Rail Frame: ALN-481	A: PCP-13 / 56 mm	B: PCP-13 / 49 mm	C: MO19(399012)
Weight: 4824 gr/m			
			
			
$I_x: 32.16 \text{ cm}^4$	$I_y: 138.4 \text{ cm}^4$	$I_x: 8.31 \text{ cm}^4$	$I_y: 18.56 \text{ cm}^4$
Transom : ALN-491	-	Profile : ALN-488	-
Weight: 2591 gr/m	-	Weight: 1387 gr/m	-

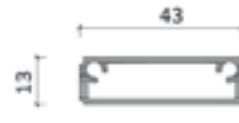
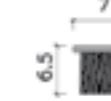
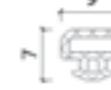
Lift & Slide System 143 Series  
Profile & Accessories Information

	73	22		64	13
Corner Joint: PCP-22	Weight: 3718 gr/m	Corner Joint: PCP13	Weight: 2673 gr/m		
	82	42		63	31
Corner: PCP-42	Weight: 5133 gr/m	Cap: ALN-486	Weight: 499 gr/m		
	60	10		71	32
Corner: PCP-10	Weight: 2454 gr/m	Cap: ALN-492	Weight: 759 gr/m		

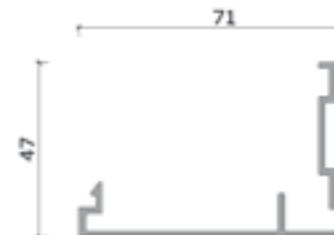
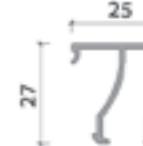
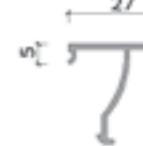
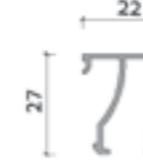
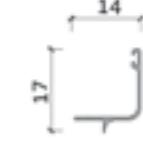
Lift & Slide System 143 Series  
Profile & Accessories Information

	83		19
$I_x: 51.01 \text{ cm}^4$	$I_y: 186.49 \text{ cm}^4$	$I_x: 11.57 \text{ cm}^4$	$I_y: 22.89 \text{ cm}^4$
Gutter :ALN-478	-	Cap : ALN-479	-
Weight: 1393 gr/m	-	Weight: 580 gr/m	-
	86		40
Cap : ALN-496	-	$I_x: 20.78 \text{ cm}^4$	$I_y: 9.71 \text{ cm}^4$
Weight: 86 gr/m	-	Profile : ALN-495	-
-	-	Weight: 891 gr/m	-

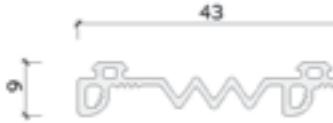
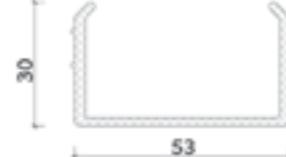
Lift & Slide System 143 Series  
Profile & Accessories Information

			
Profile : ALN-493	Weight: 467 gr/m	PB7-3P-70-650	Weight: -
			
Rail : ALN-462	Weight: 119 gr/m	Gasket : MO 60	Weight: 26 gr/m
			
Profile : ALN-228	Weight: 135 gr/m	Gasket : 51990	Weight: 34 gr/m

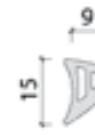
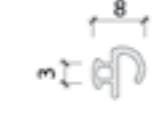
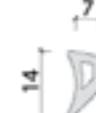
Lift & Slide System 143 Series  
Profile & Accessories Information

			
Cap: ALN-485	Weight: 694 gr/m	Glazing beads: ALN-421	Weight: 321 gr/m
			
Profile : ALN-331	Weight: 139 gr/m	Glazing beads: ALN-422	Weight: 321 gr/m
			
Glazing beads: ALN-323	Weight: 302 gr/m	Profile: ALN-489	Weight: 221 gr/m

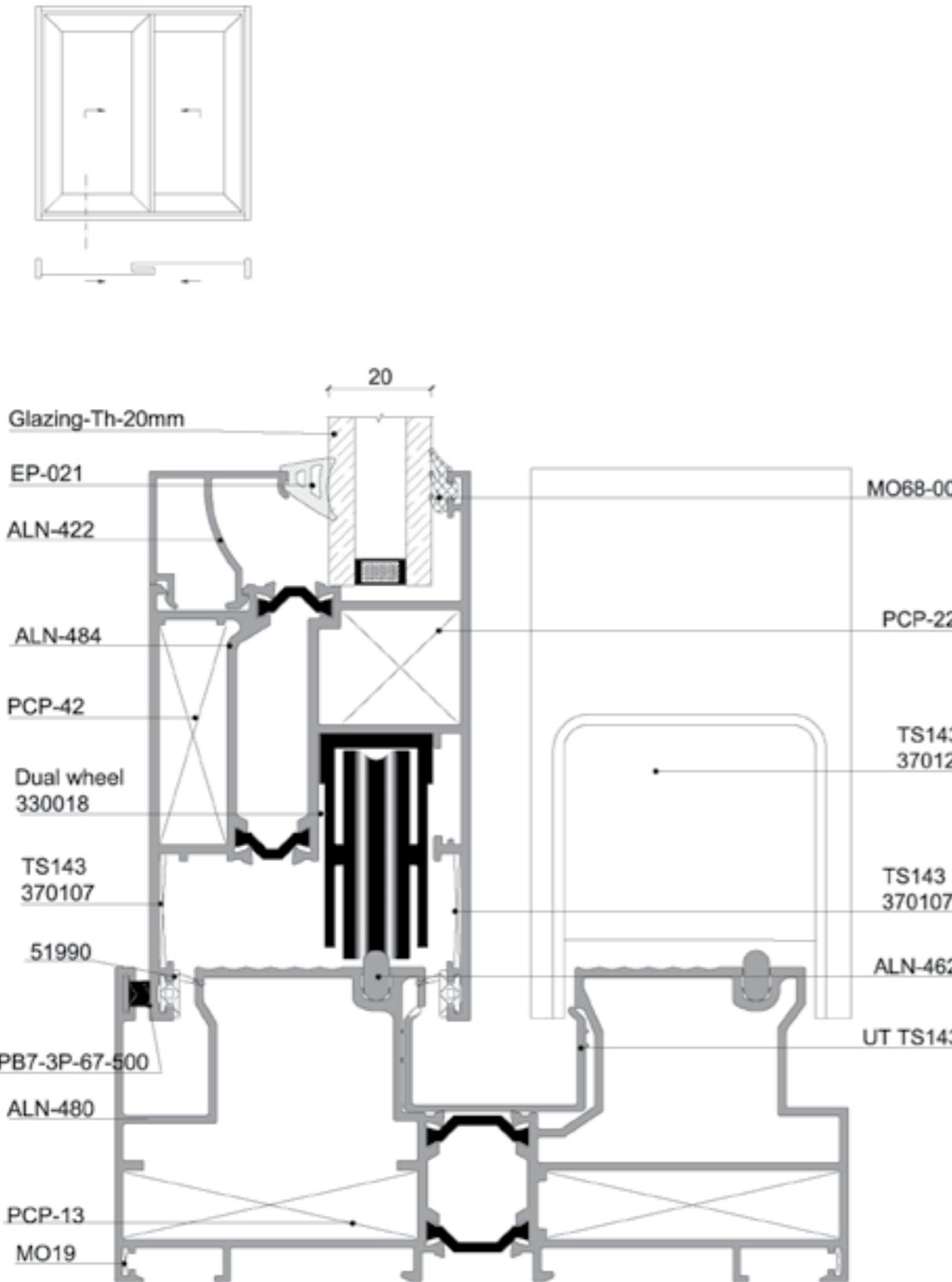
Lift & Slide System 143 Series  
Profile & Accessories Information

			
Gasket: Corner gasket 60019	Weight : 134 gr/m	Corner: MM77	Weight: -
			
Gasket: Corner gasket 60018	Weight : 44 gr/m	Gasket: UTTS143	Weight: 318 gr/m
			
PB7-3P-70-500	Weight: -	Gasket: Rubber 20794	Weight: 429 gr/m

Lift & Slide System 143 Series  
Profile & Accessories Information

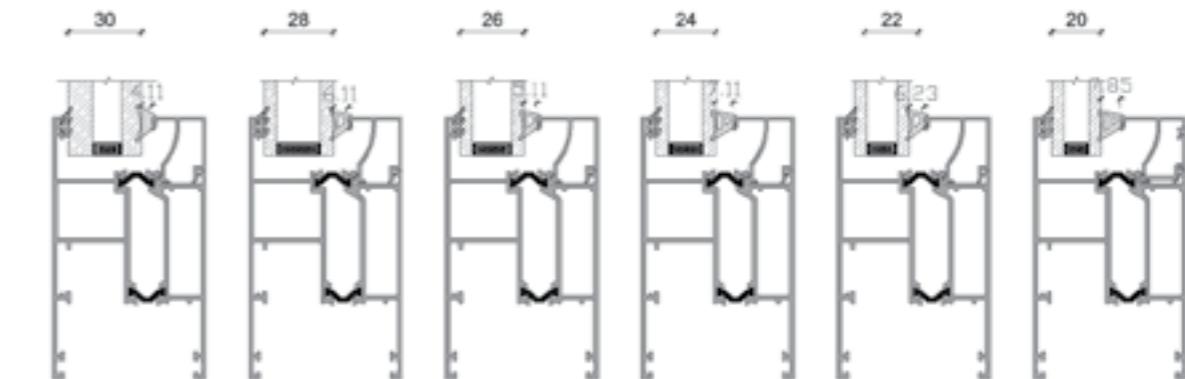
			
Gasket: MO68	Weight : 48 gr/m	Gasket: EP-021	Weight : 80 gr/m
			
Gasket: 51069	Weight: 27 gr/m	Gasket: EP-018	Weight : 27 gr/m
			
Gasket: EP-019	Weight : 61 gr/m	Gasket: TH-75/51056	Weight : 161 gr/m

Lift & Slide System 143 Series  
Fabrication Details



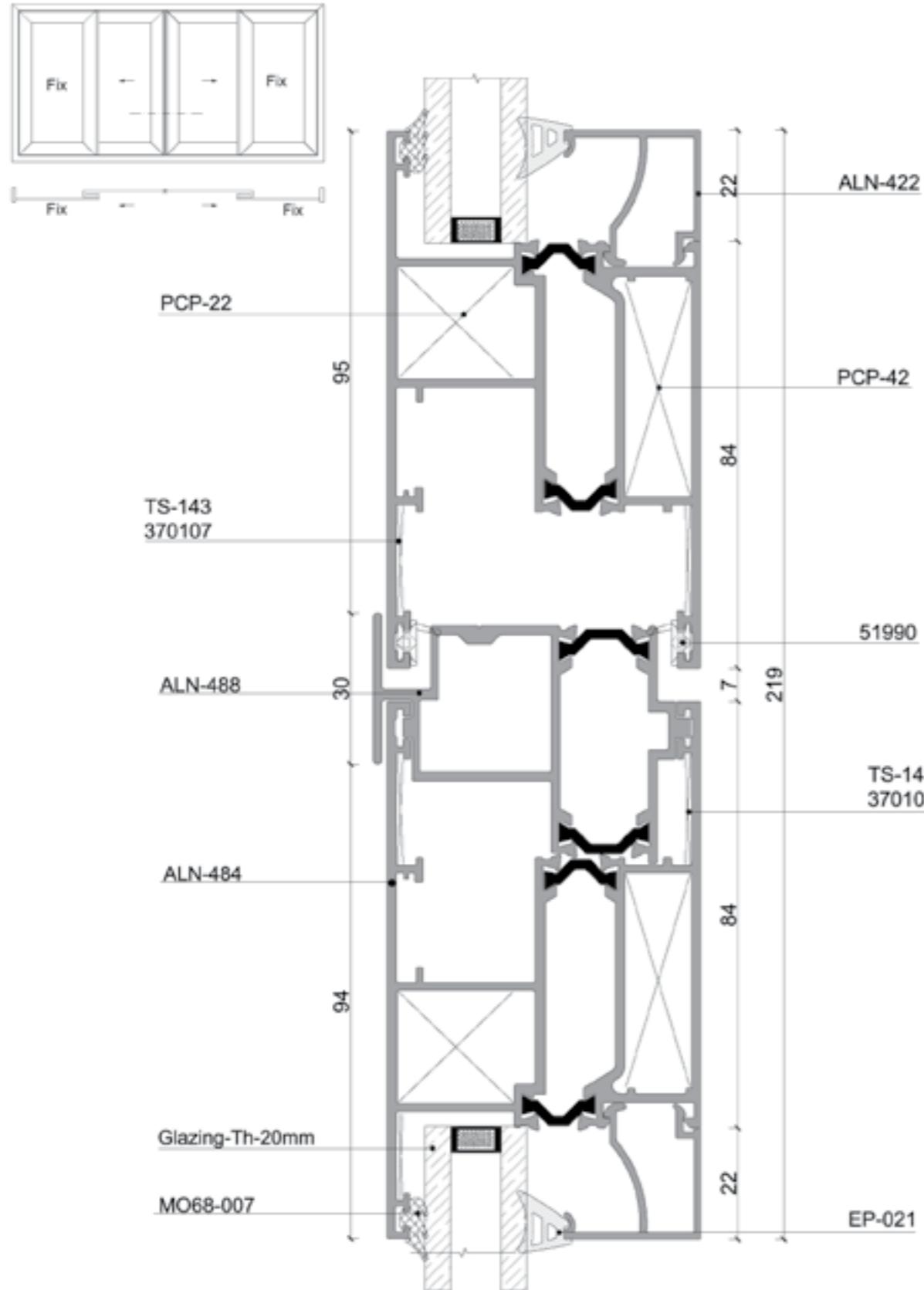
Lift & Slide System 143 Series  
Glazing Table

ALN-484

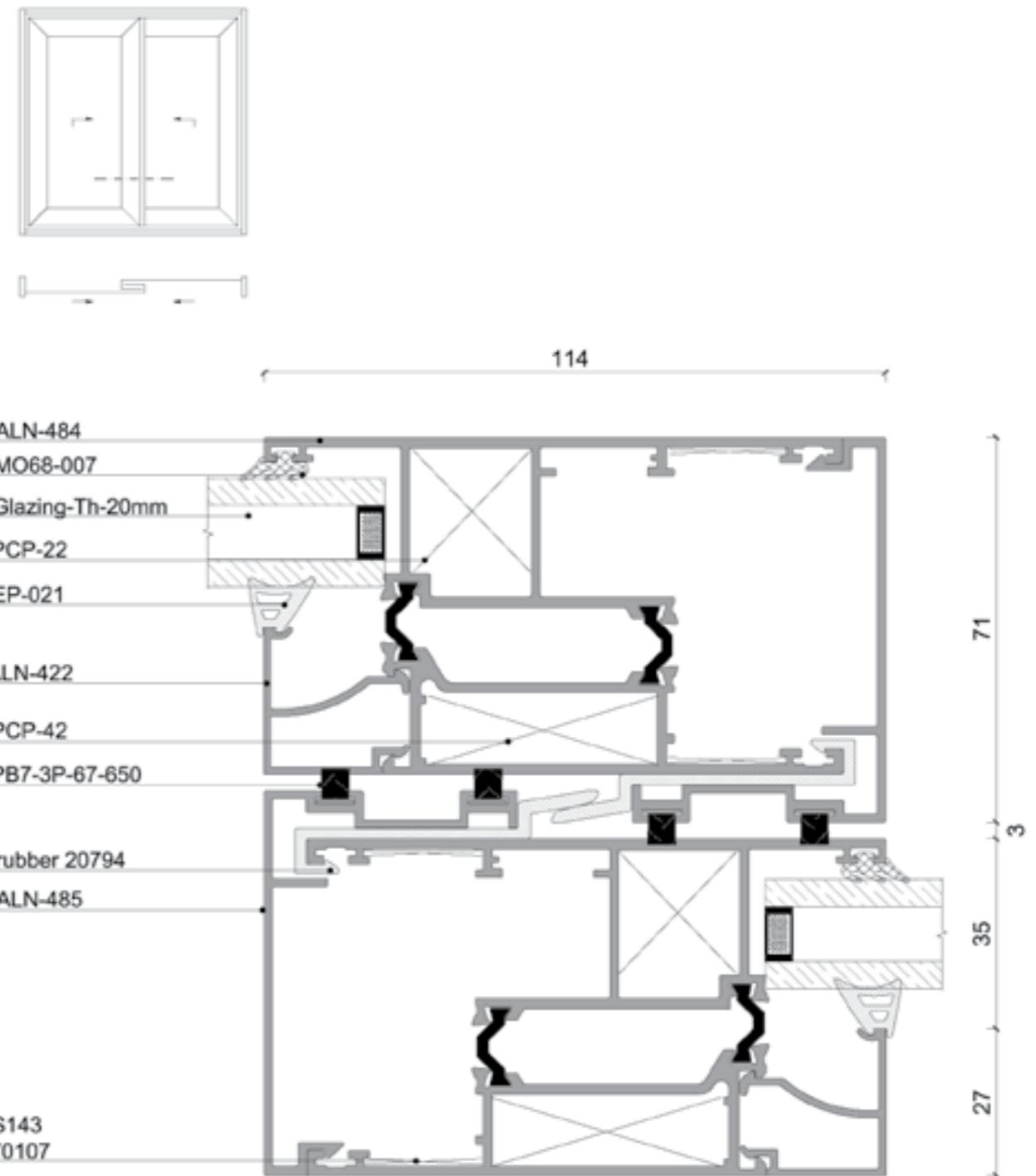


Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
20 mm	EP-021	MO68	ALN-422
22 mm	EP-019	MO68	ALN-422
24 mm	EP-021	MO68	ALN-421
26 mm	EP-019	MO68	ALN-421
28 mm	EP-019	MO68	ALN-323
30 mm	EP-016	MO68	ALN-323

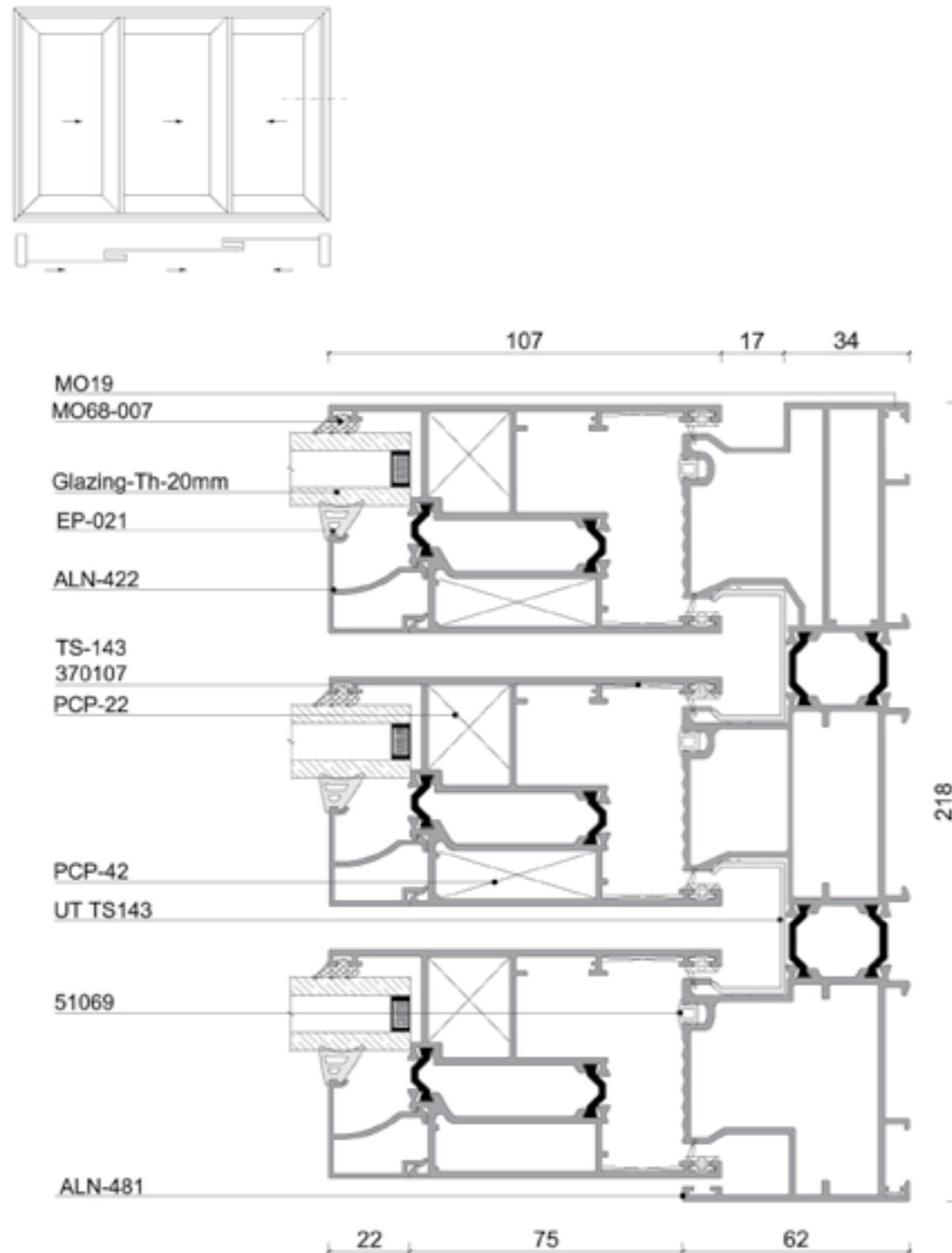
Lift & Slide System 143 Series  
Fabrication Details



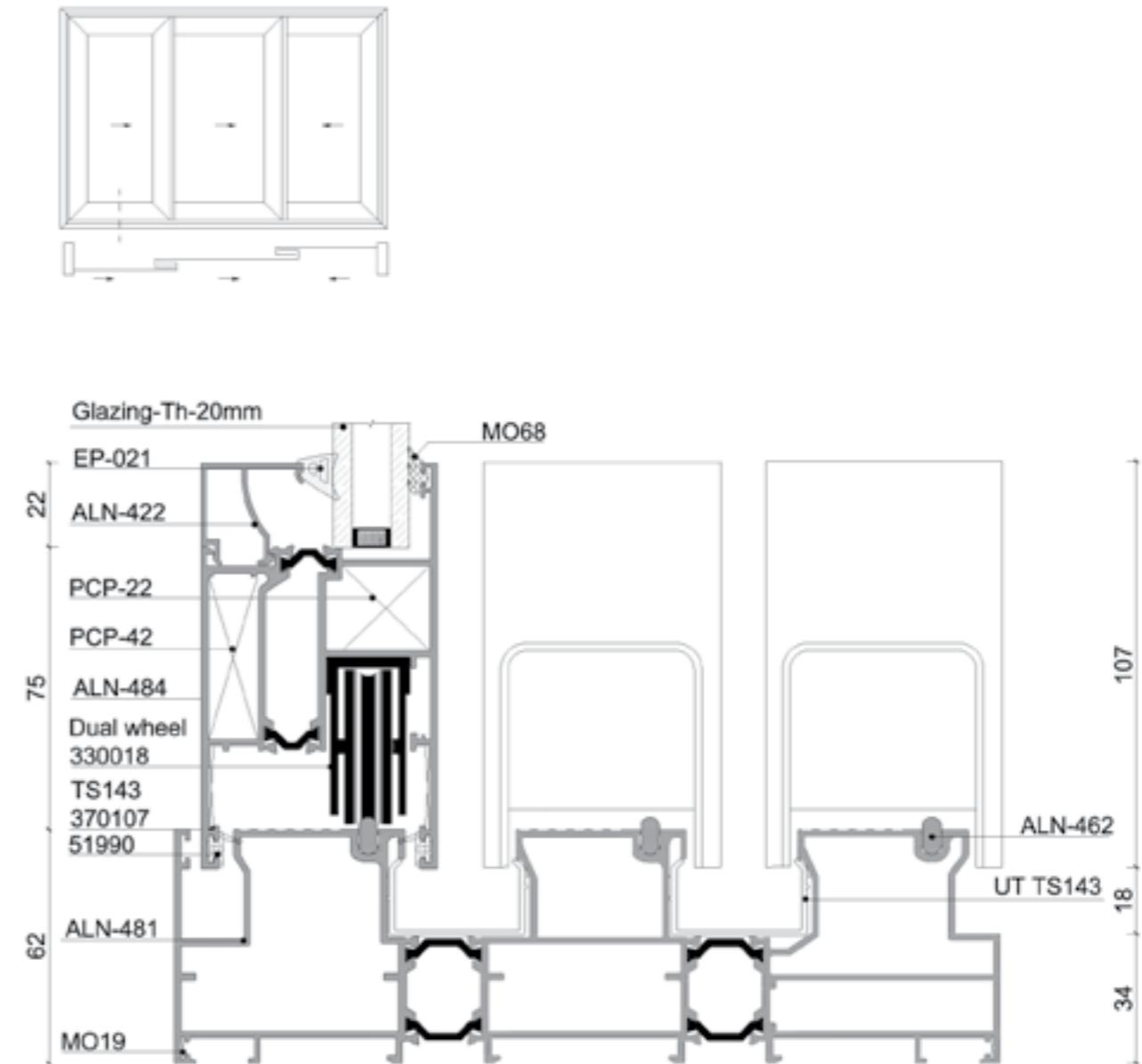
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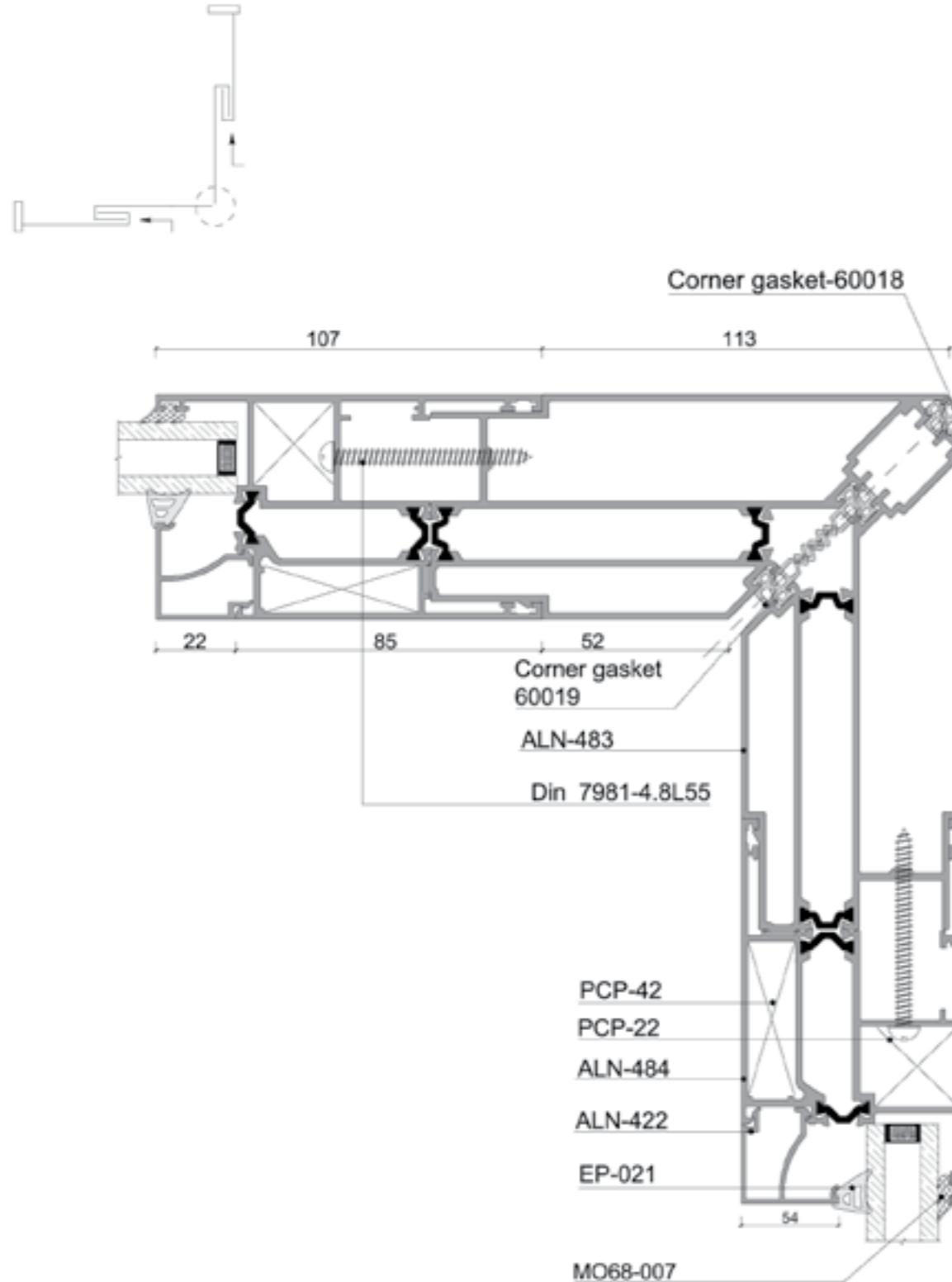
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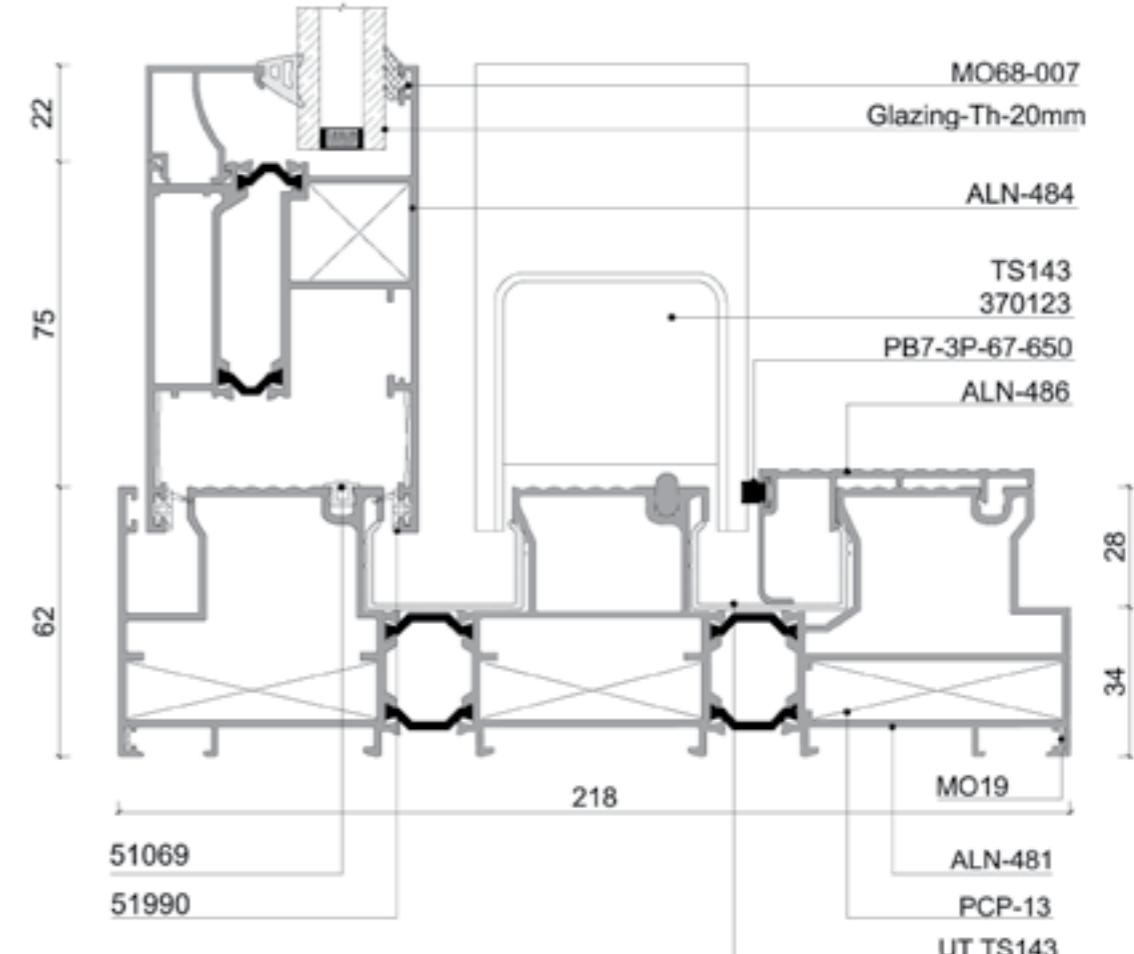
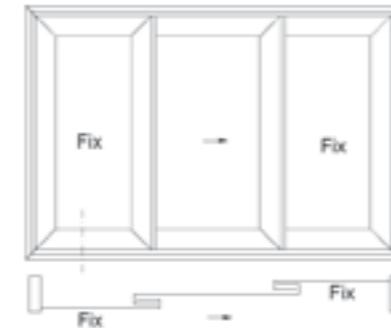
Lift & Slide System 143 Series  
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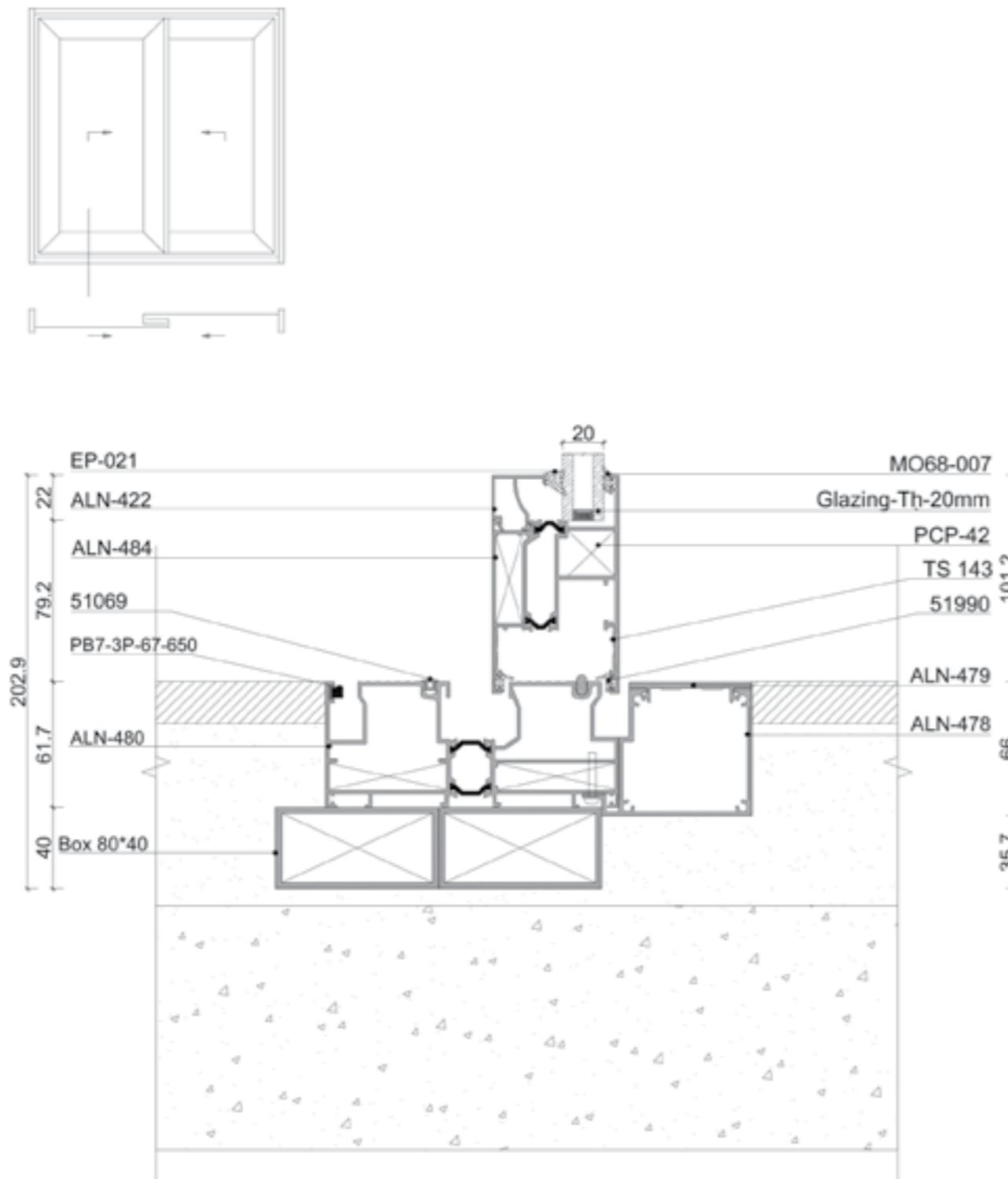
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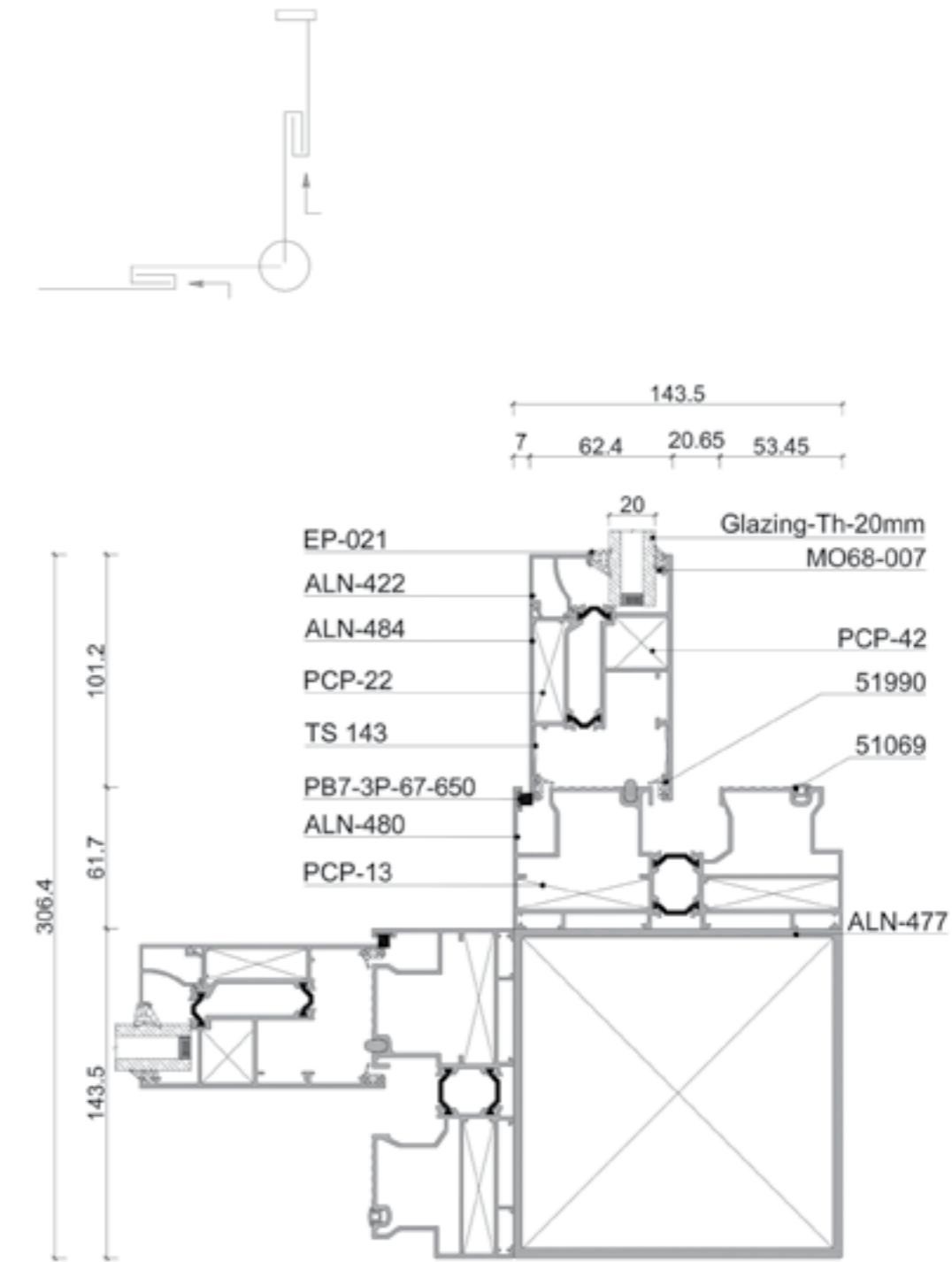
Lift & Slide System 143 Series  
Fabrication Details



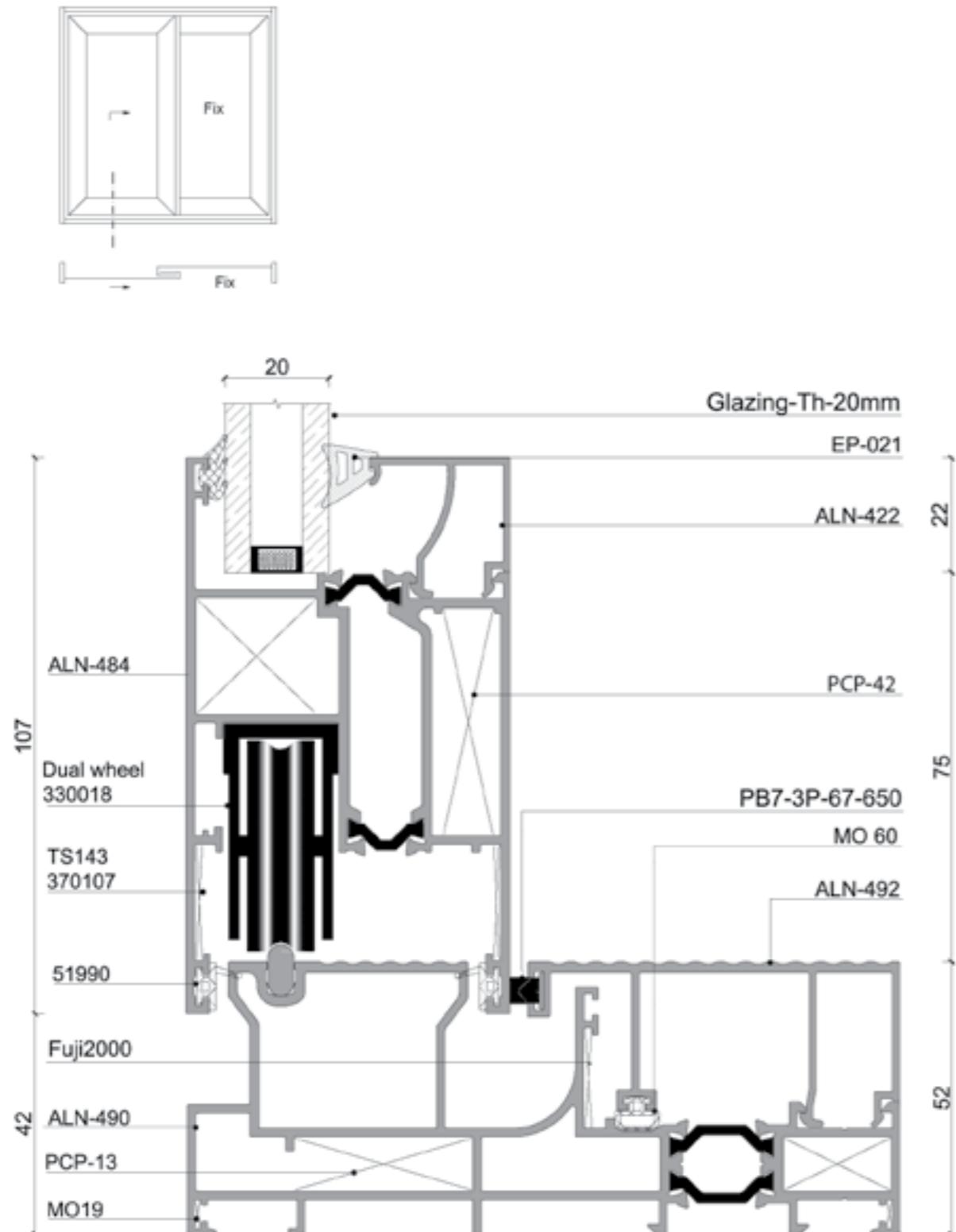
Lift & Slide System 143 Series  
Fabrication Details



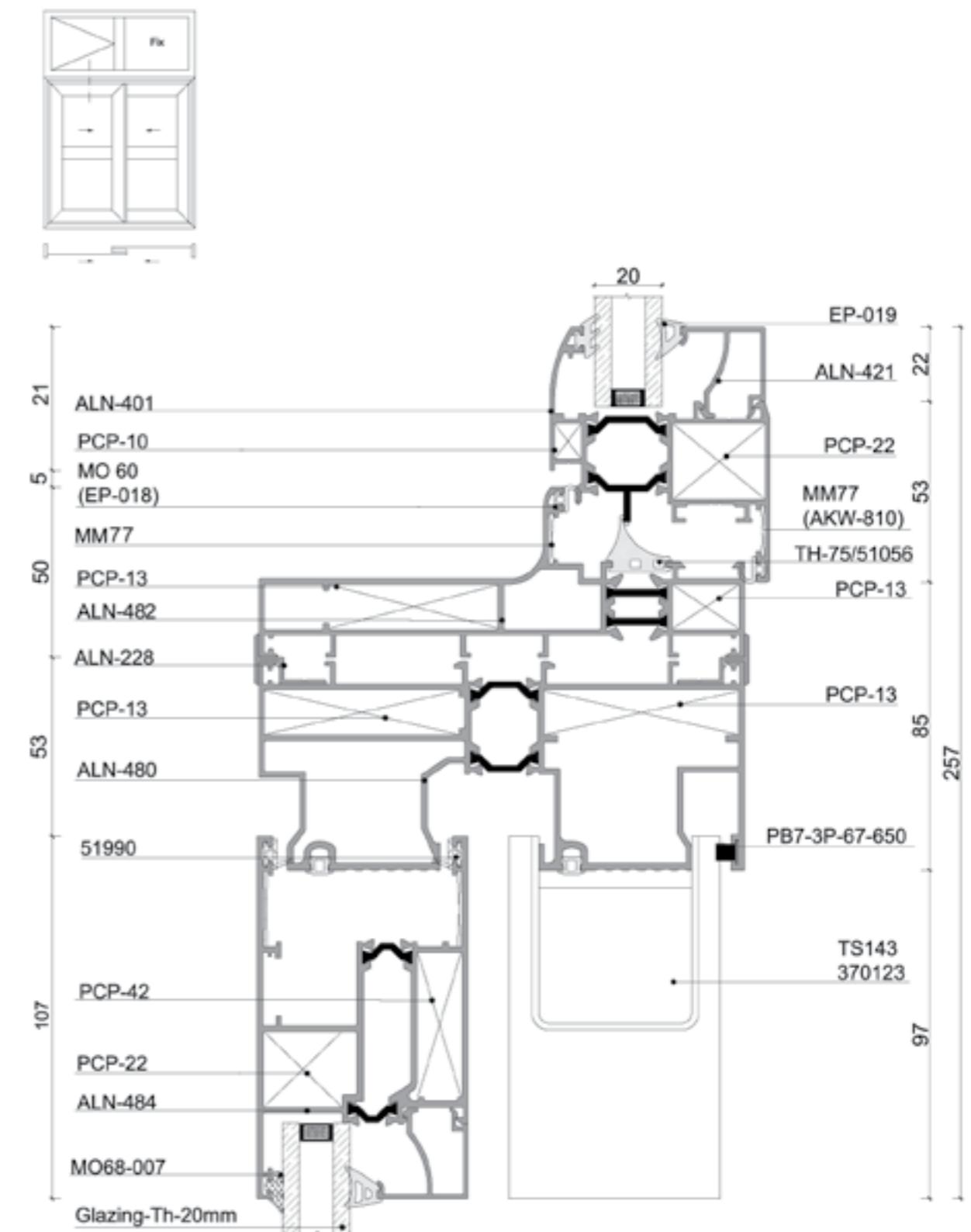
Lift & Slide System 143 Series  
Fabrication Details



Lift & Slide System 143 Series  
Fabrication Details

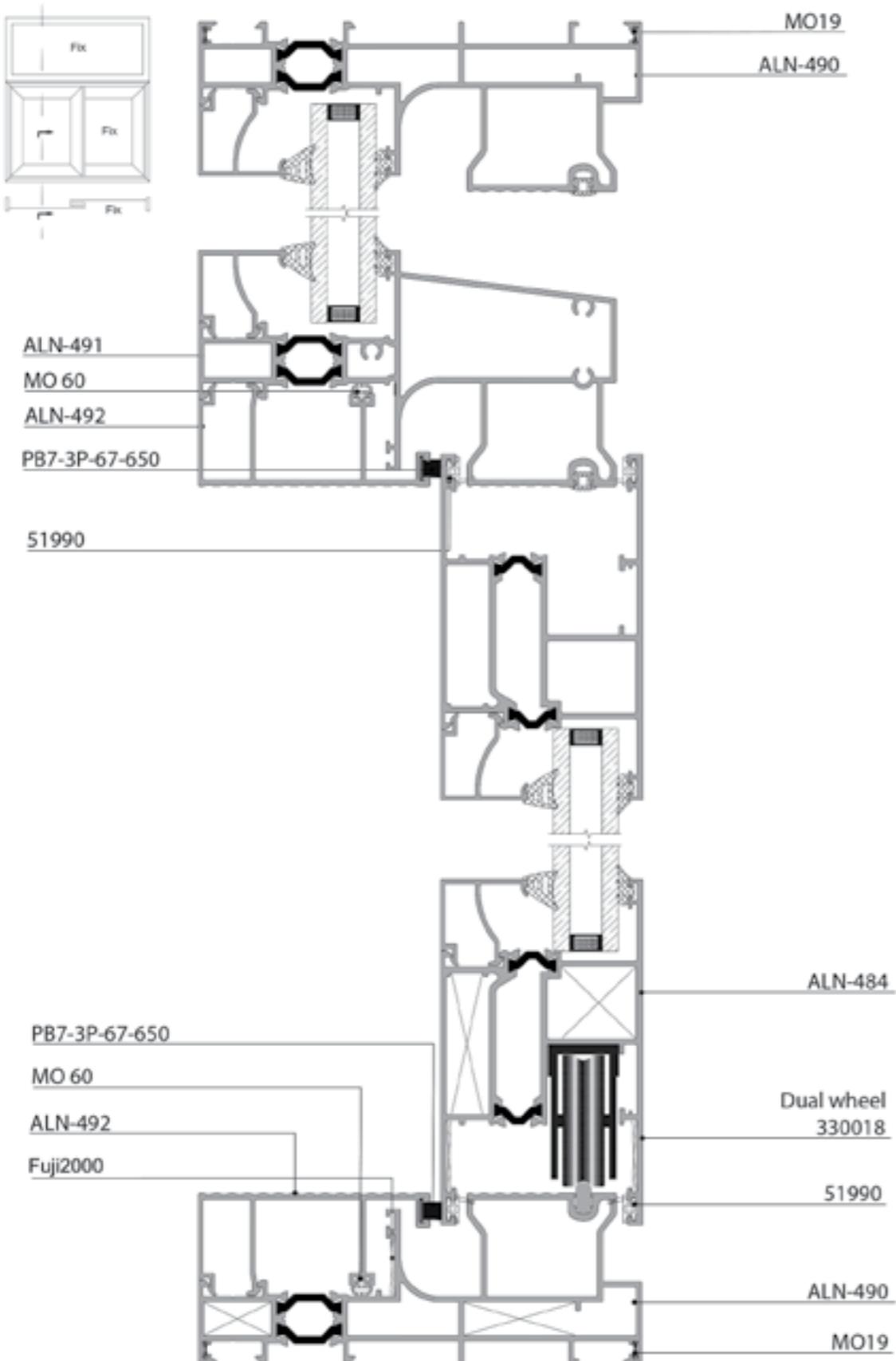


Lift & Slide System 143 Series  
Fabrication Details



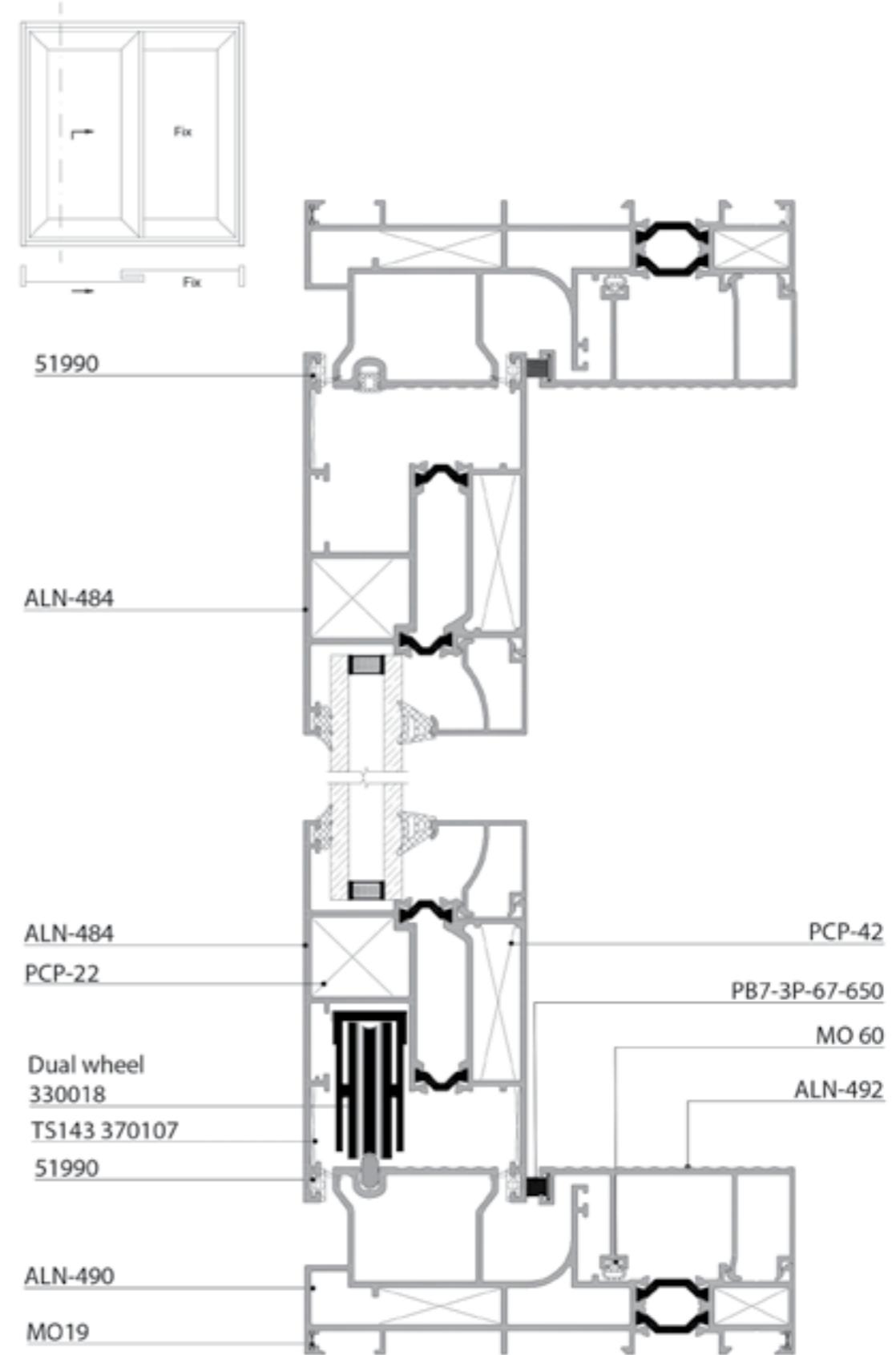
### Lift & Slide System 143 Series

Fabrication Details

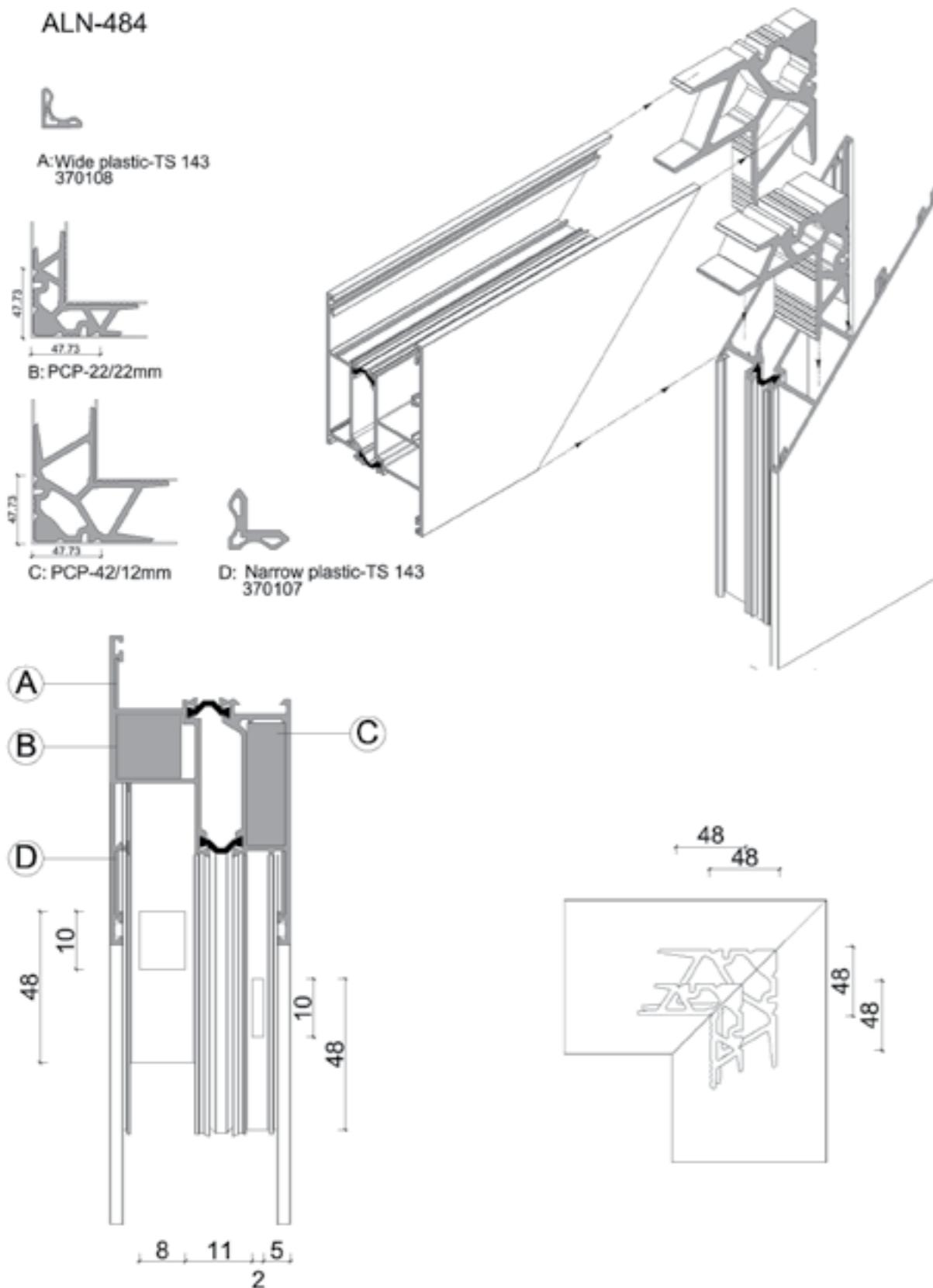


### Lift & Slide System 143 Series

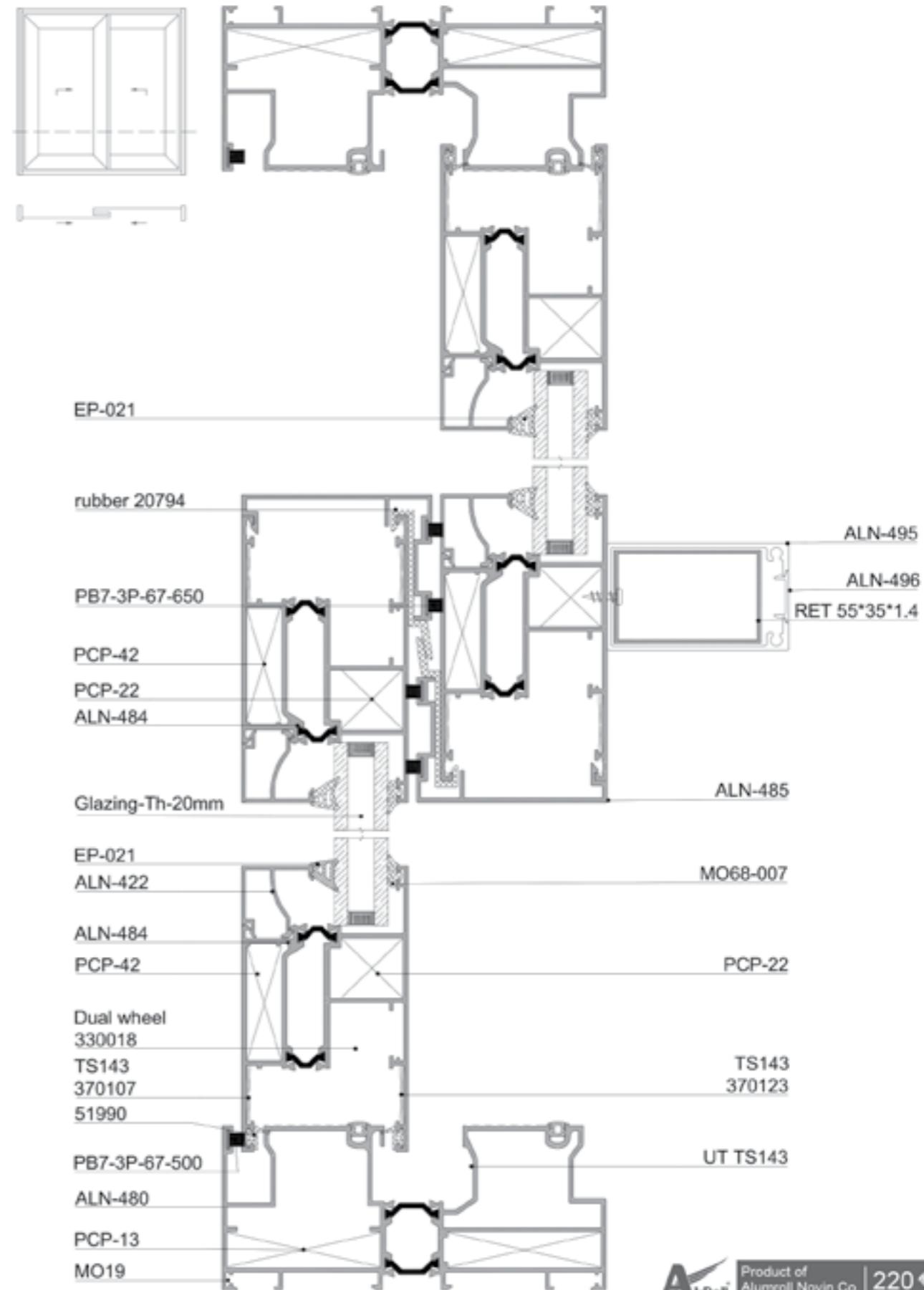
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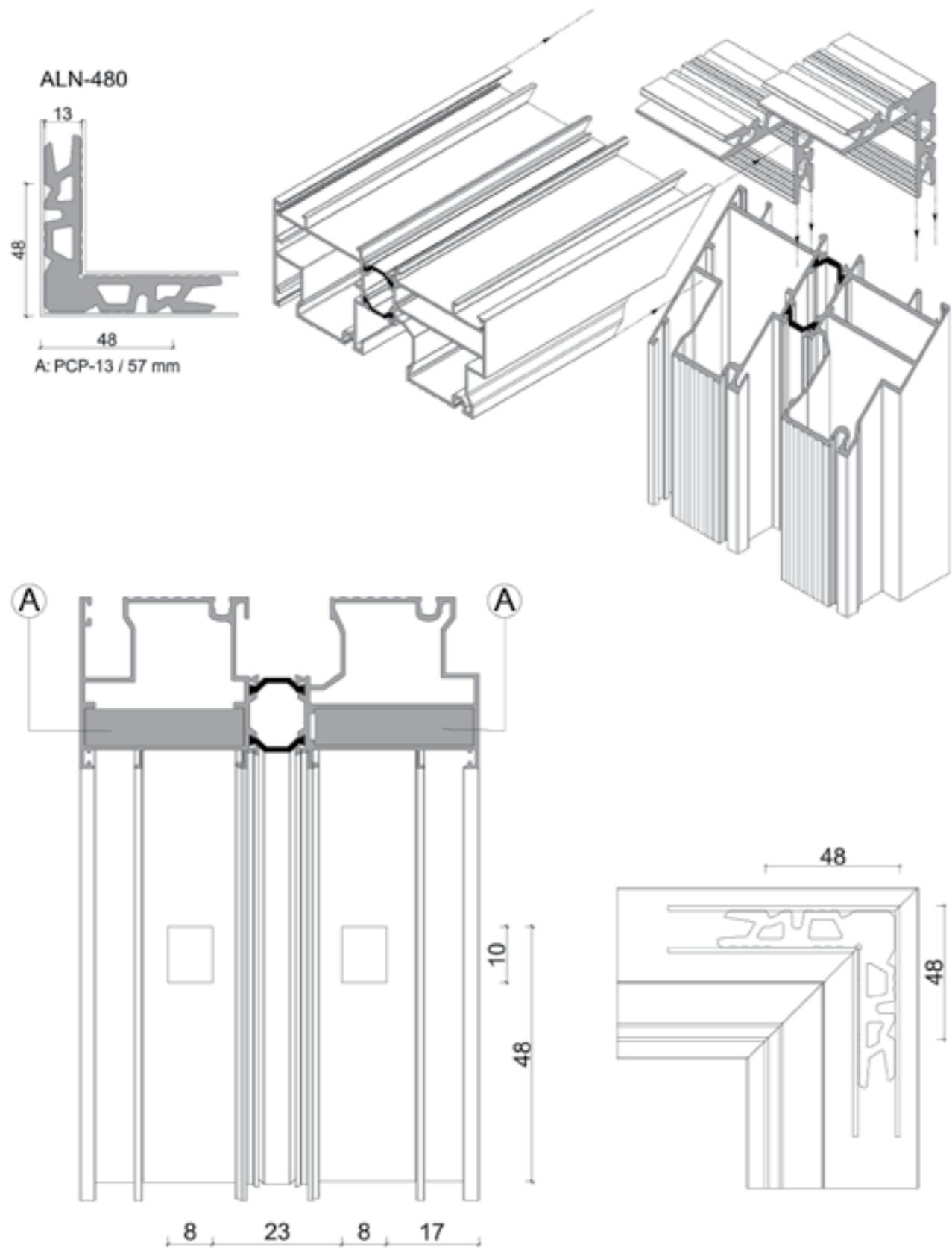
## Lift & Slide System 143 Series Assembly Drawing



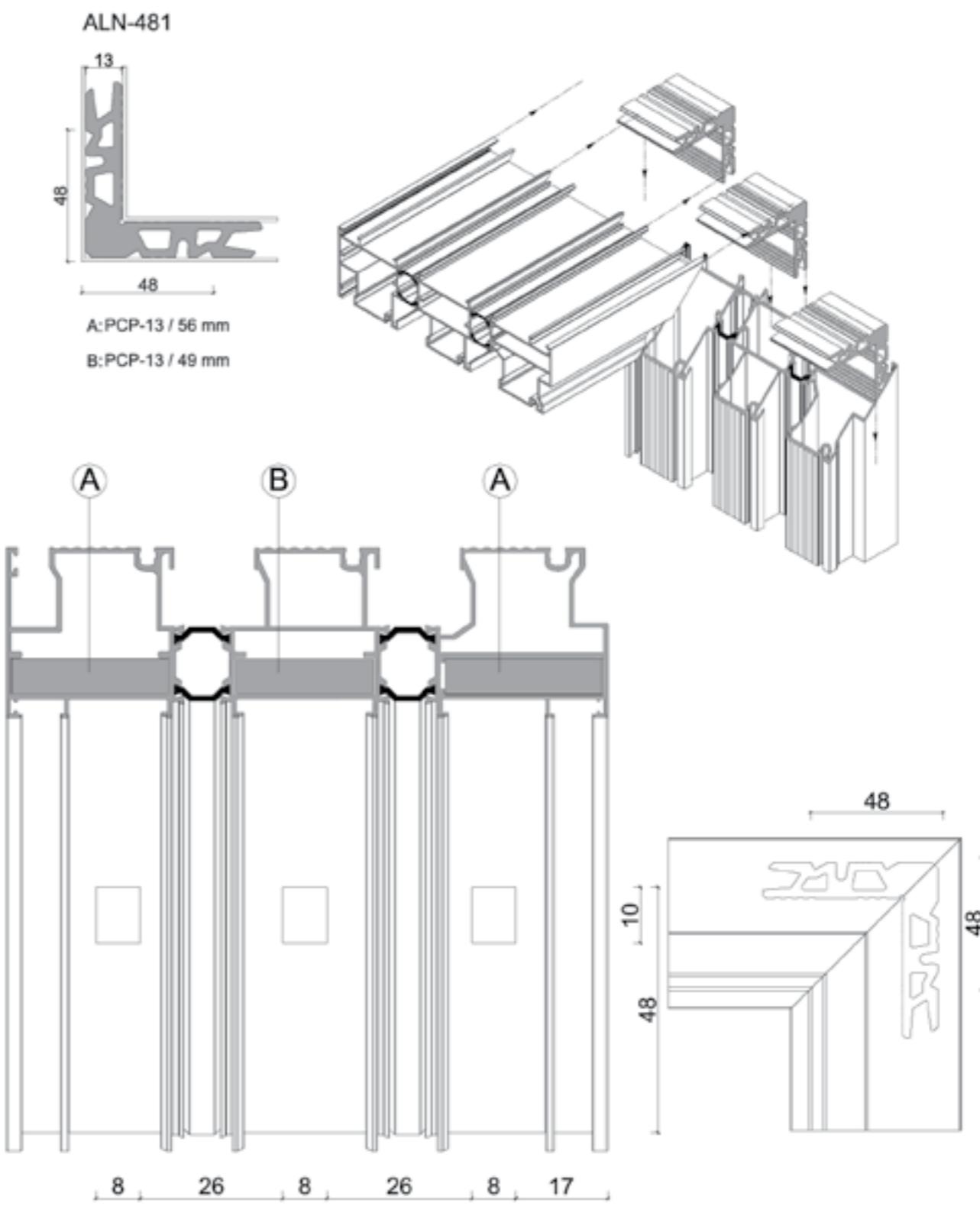
#### Lift & Slide System 143 Series Fabrication Details



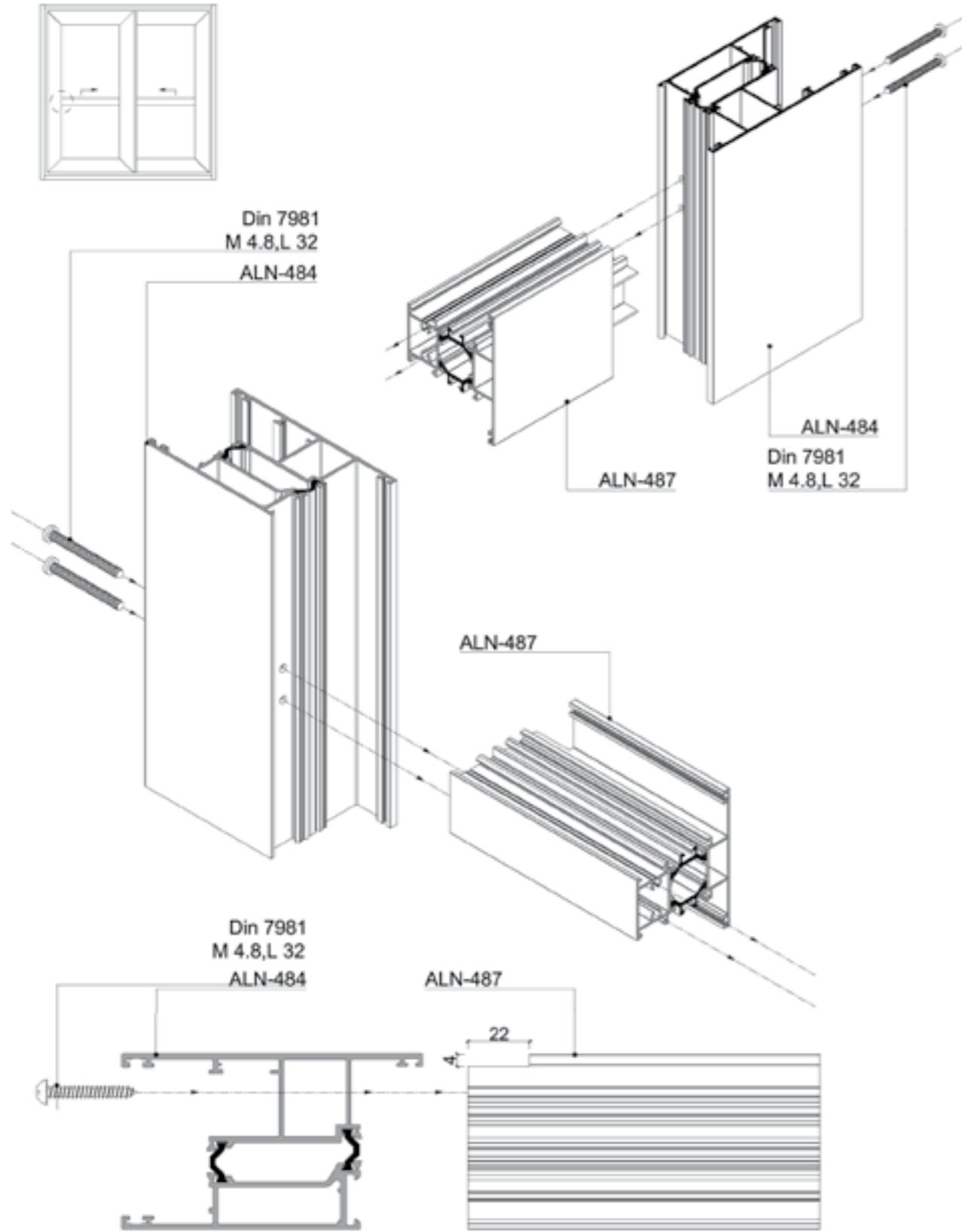
Lift & Slide System 143 Series  
Assembly Drawing



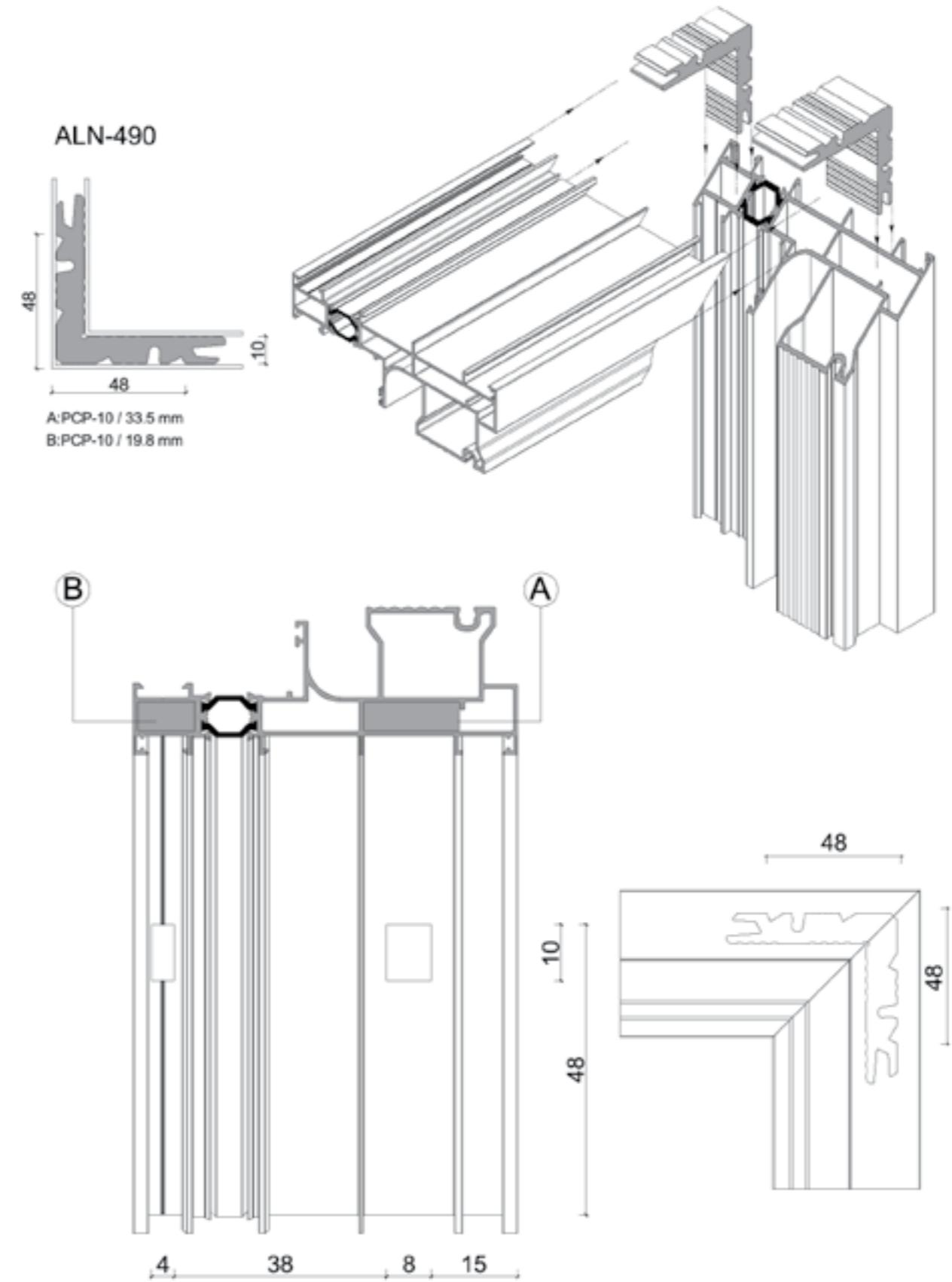
Lift & Slide System 143 Series  
Assembly Drawing



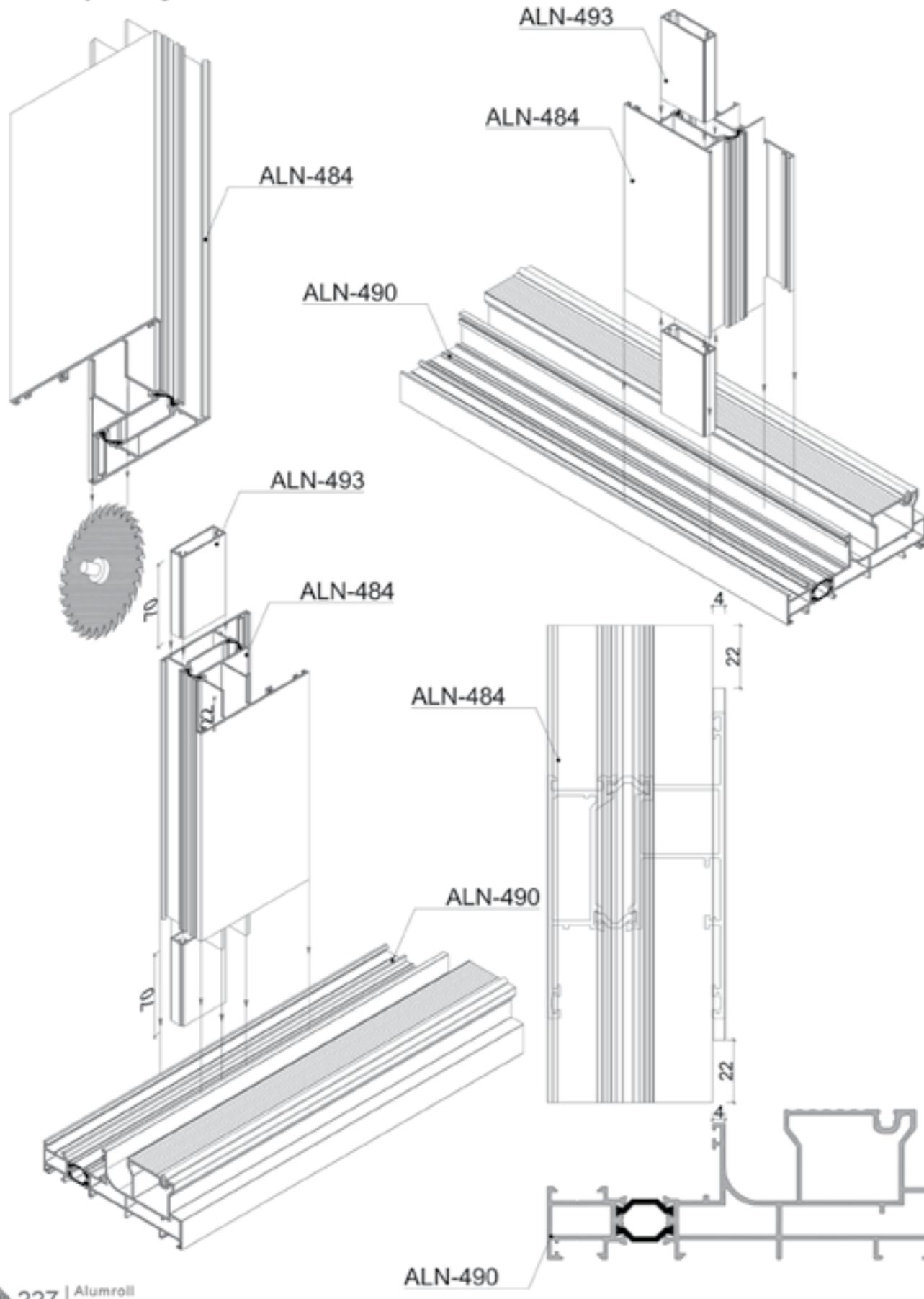
Lift & Slide System 143 Series  
Assembly Drawing



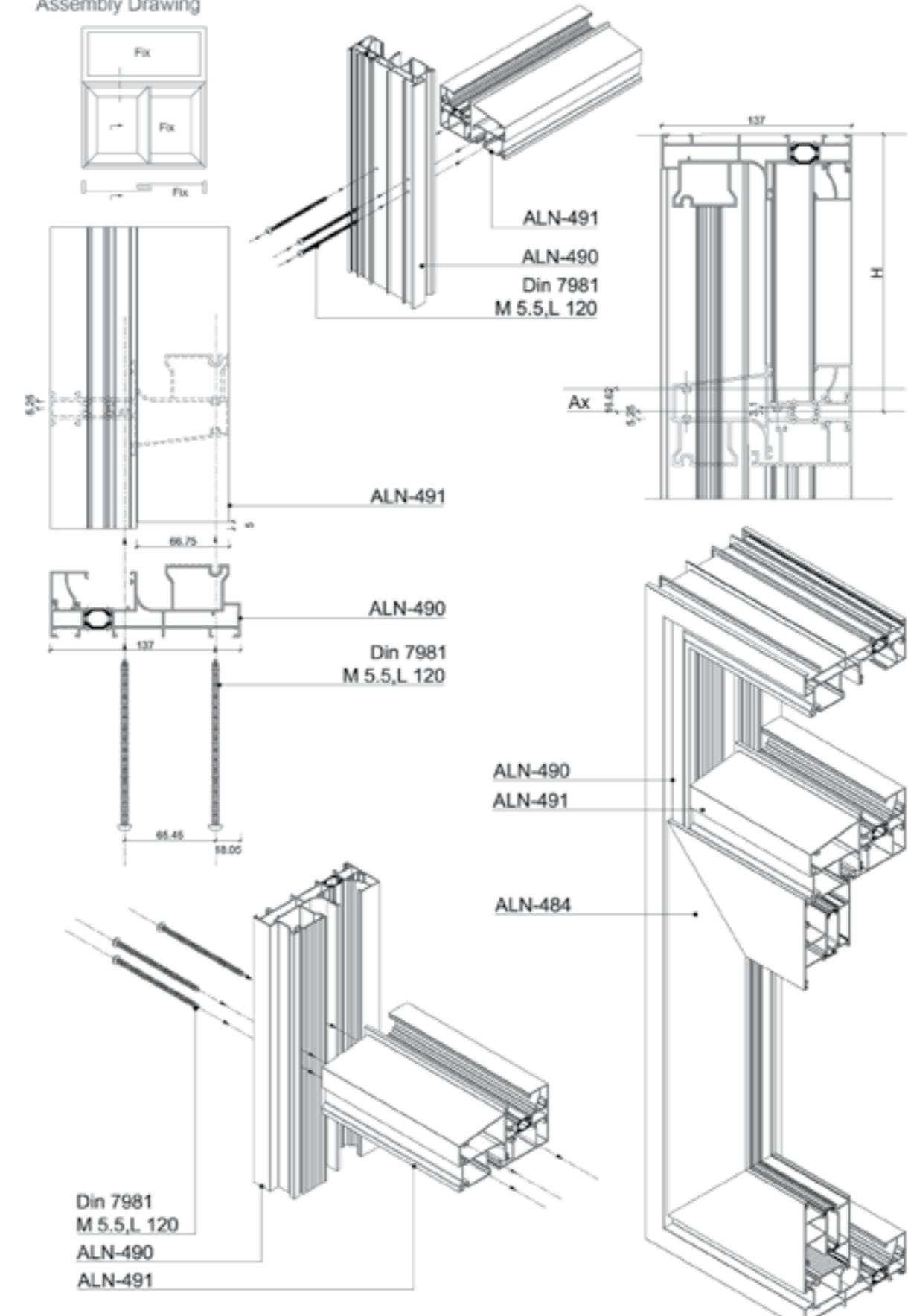
Lift & Slide System 143 Series  
Assembly Drawing



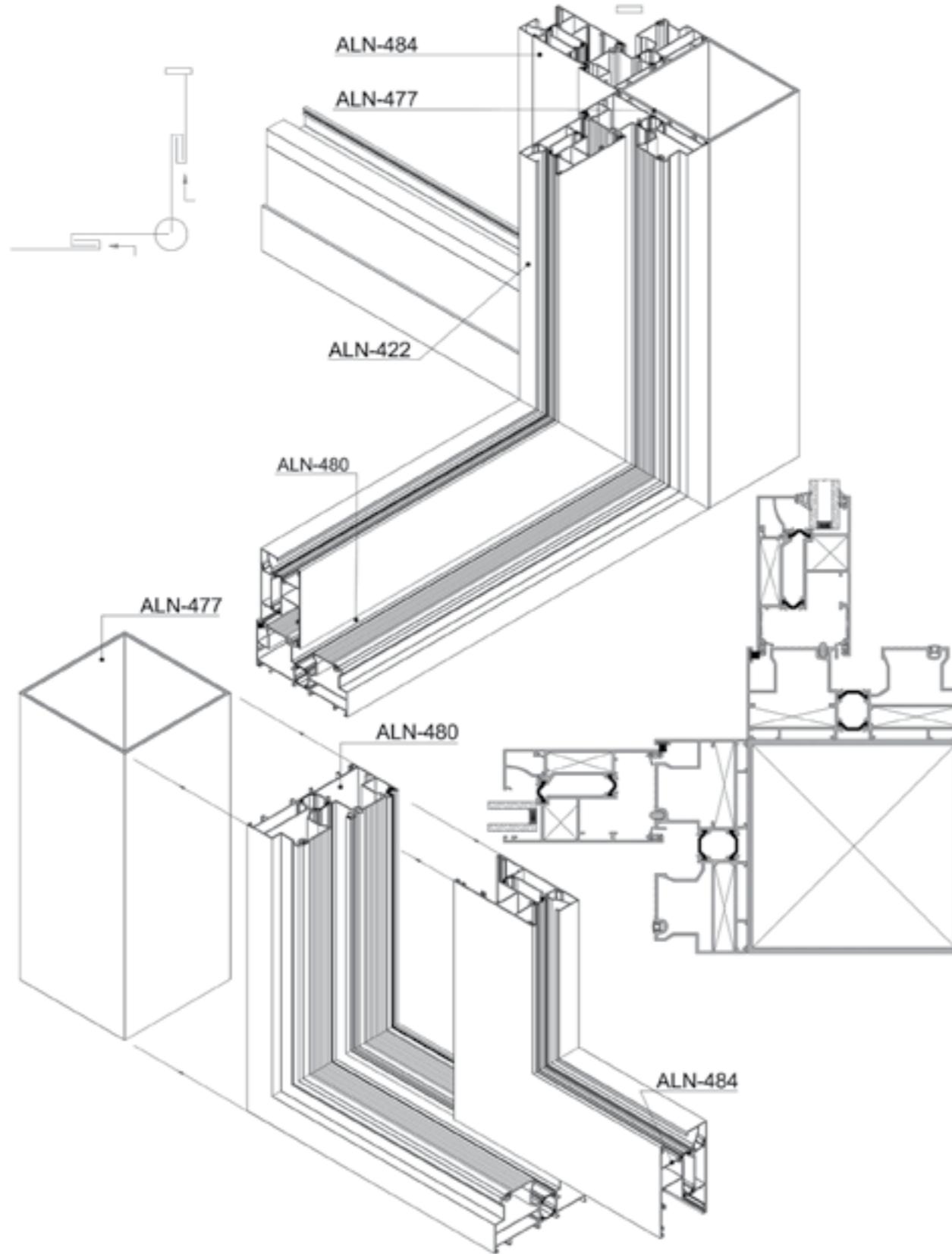
Lift & Slide System 143 Series  
Assembly Drawing



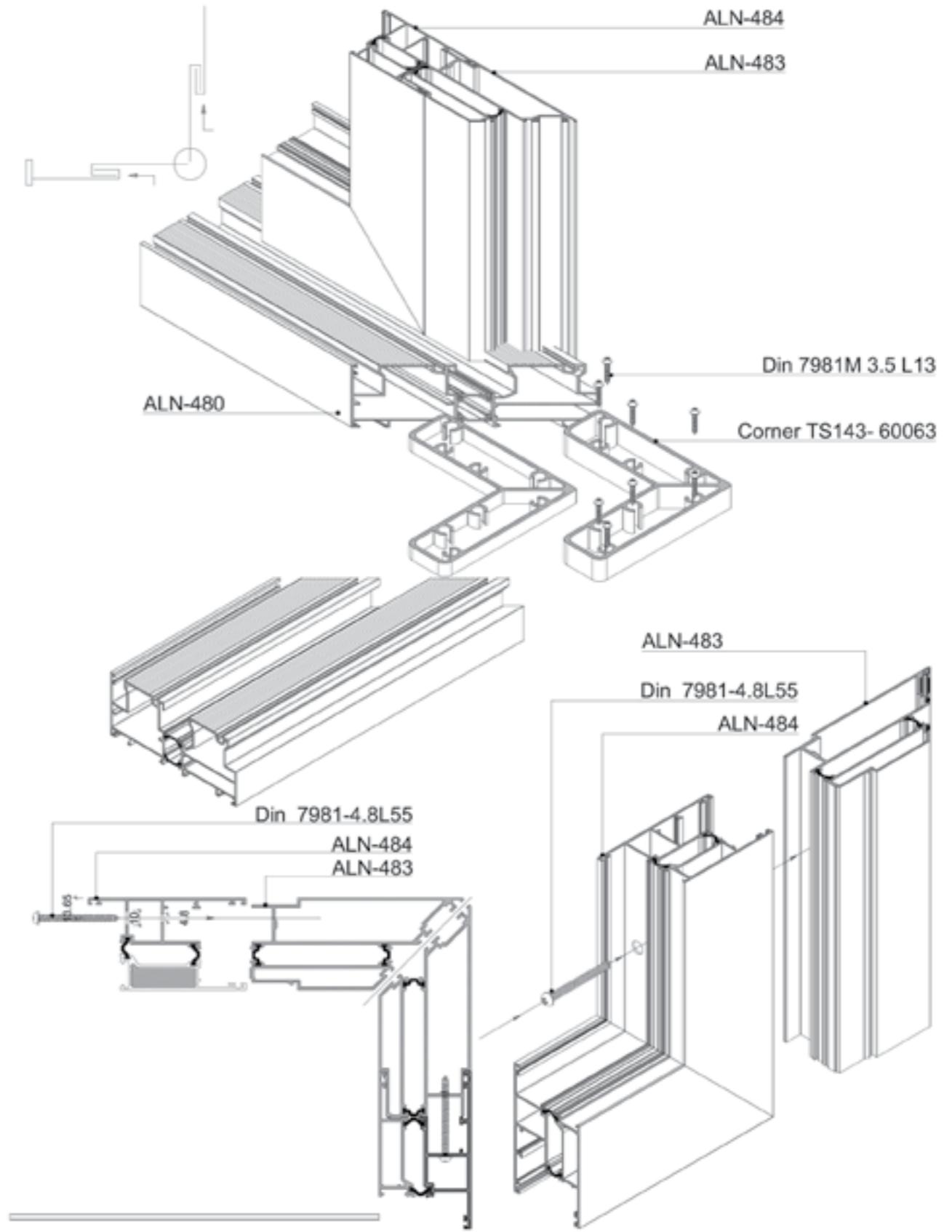
Lift & Slide System 143 Series  
Assembly Drawing



Lift & Slide System 143 Series  
Assembly Drawing

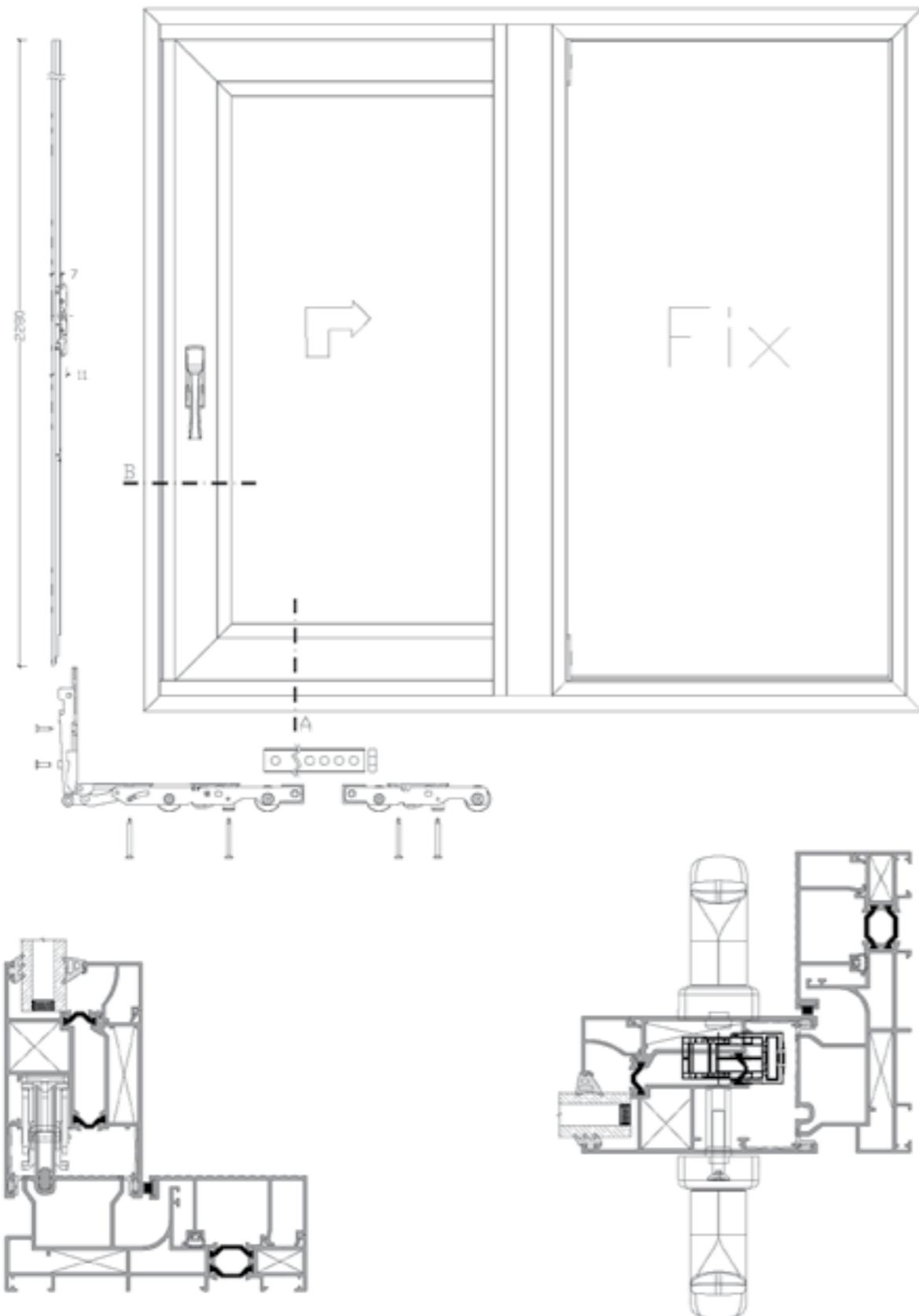


Lift & Slide System 143 Series  
Assembly Drawing



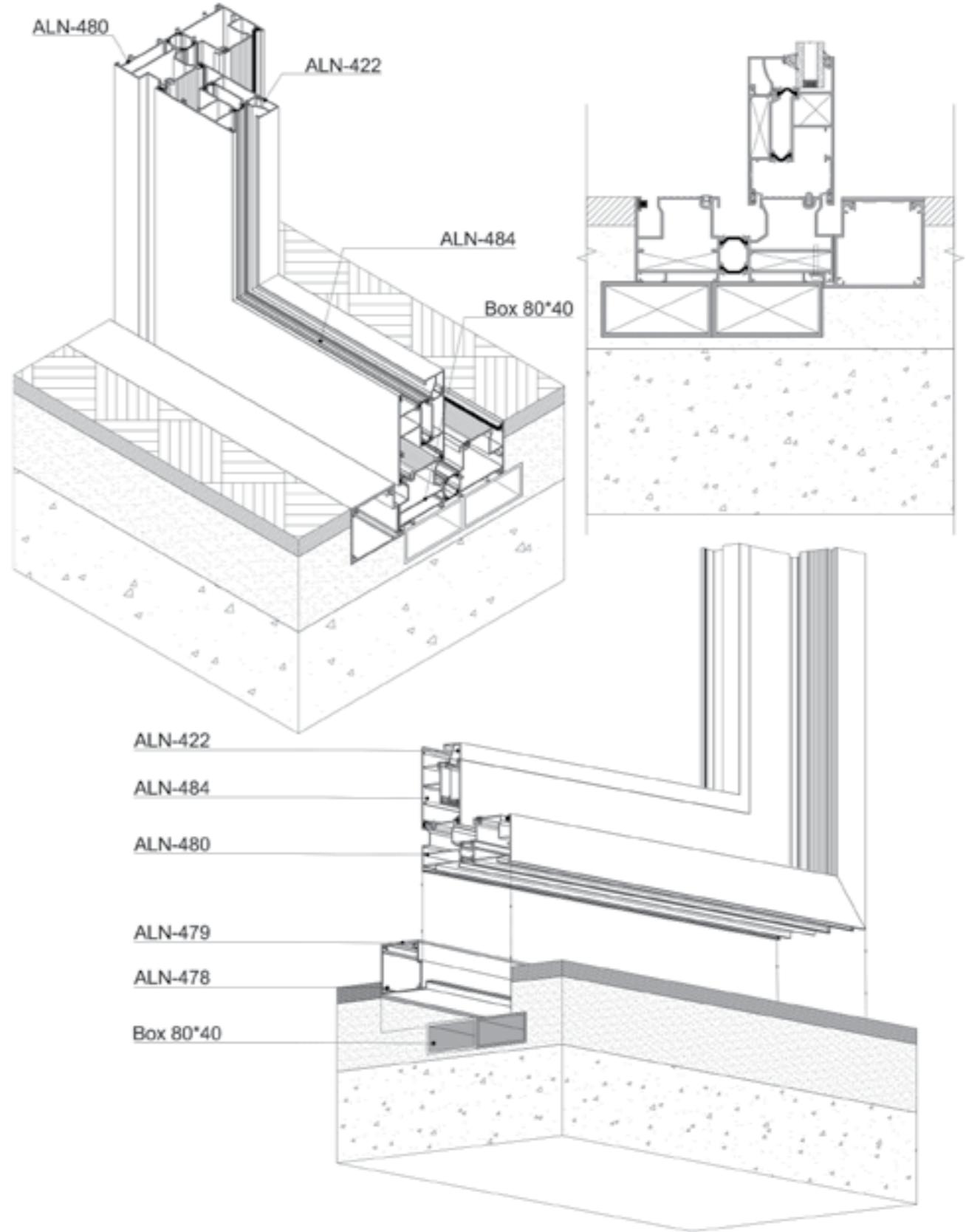
### Lift & Slide System 143 Series

Hardware Installation

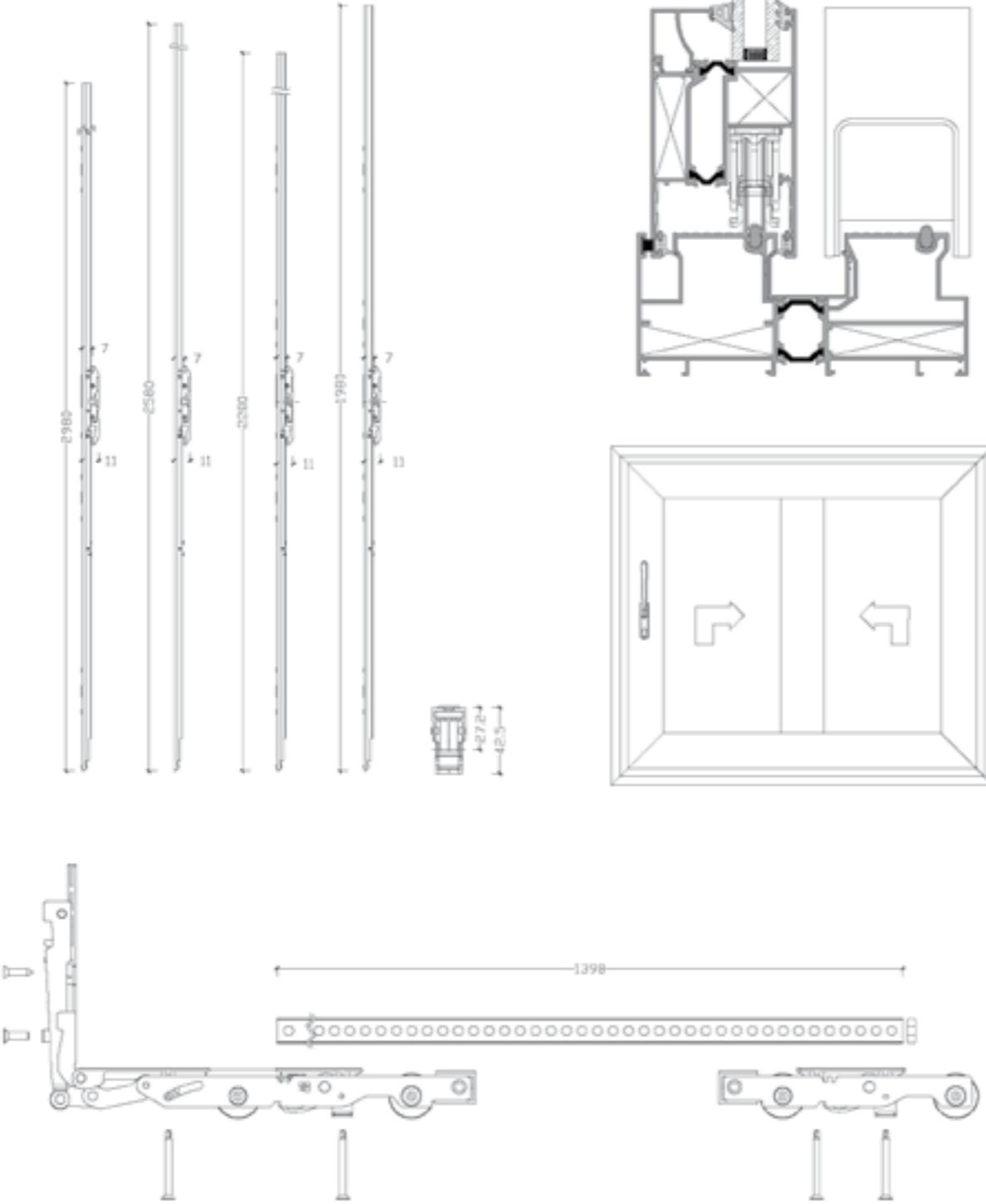


### Lift & Slide System 143 Series

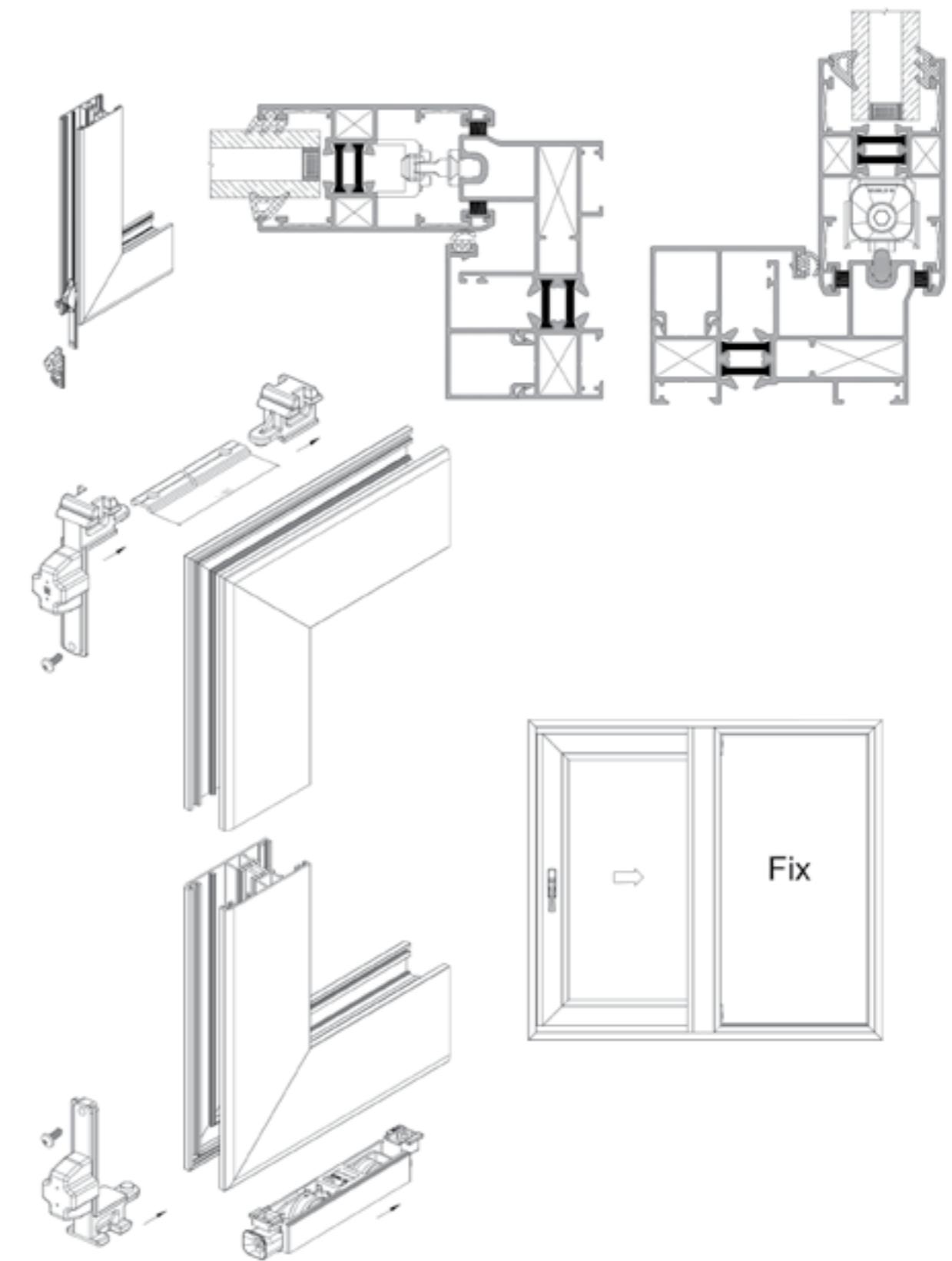
Assembly Drawing



Lift & Slide System 143 Series  
Hardware Installation



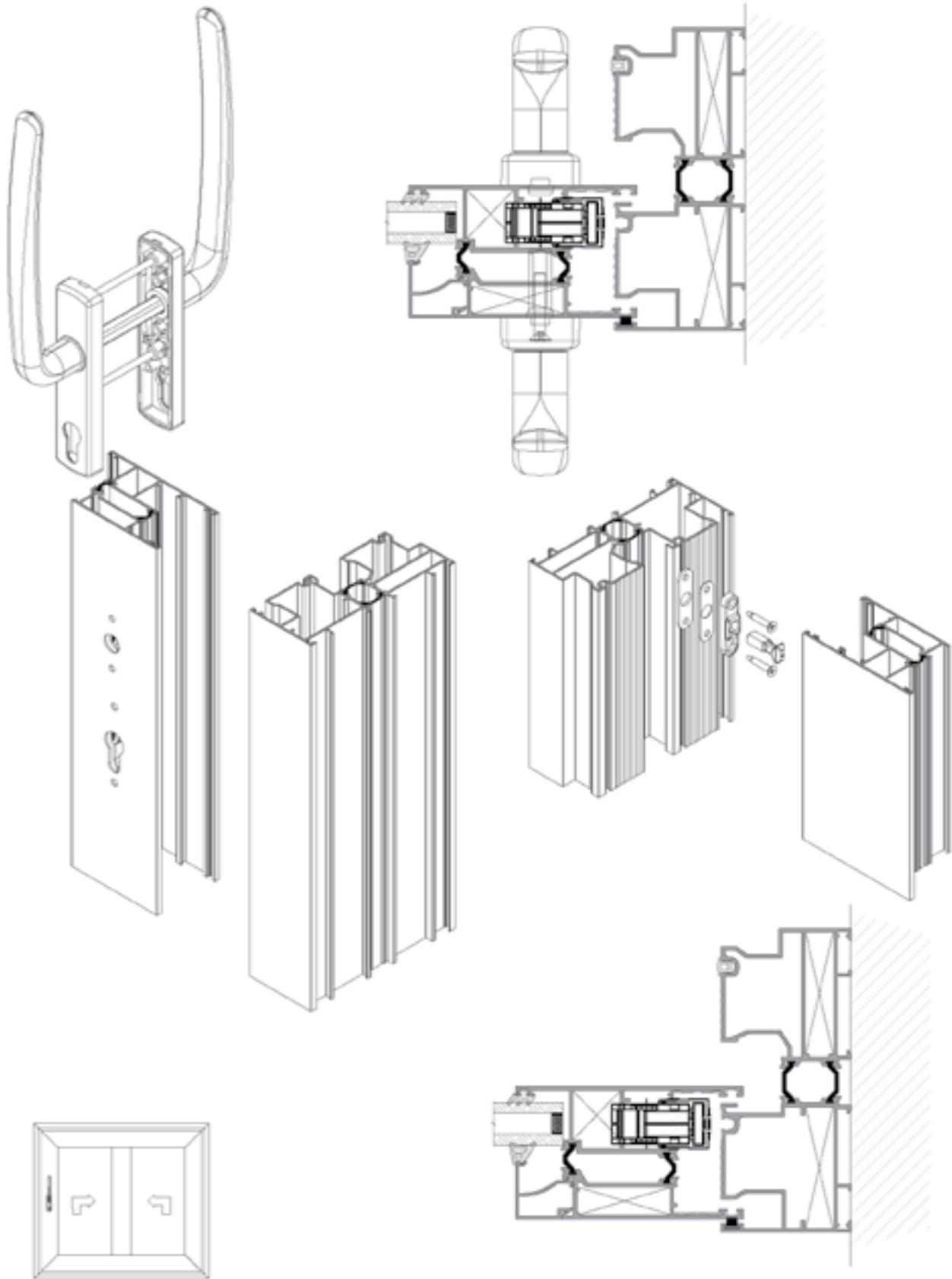
Lift & Slide System 143 Series  
Hardware Installation





**ALN 300**  
Normal Systems

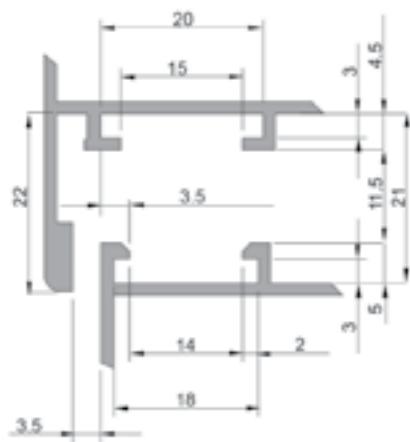
#### Lift & Slide System 143 Series Hardware Installation



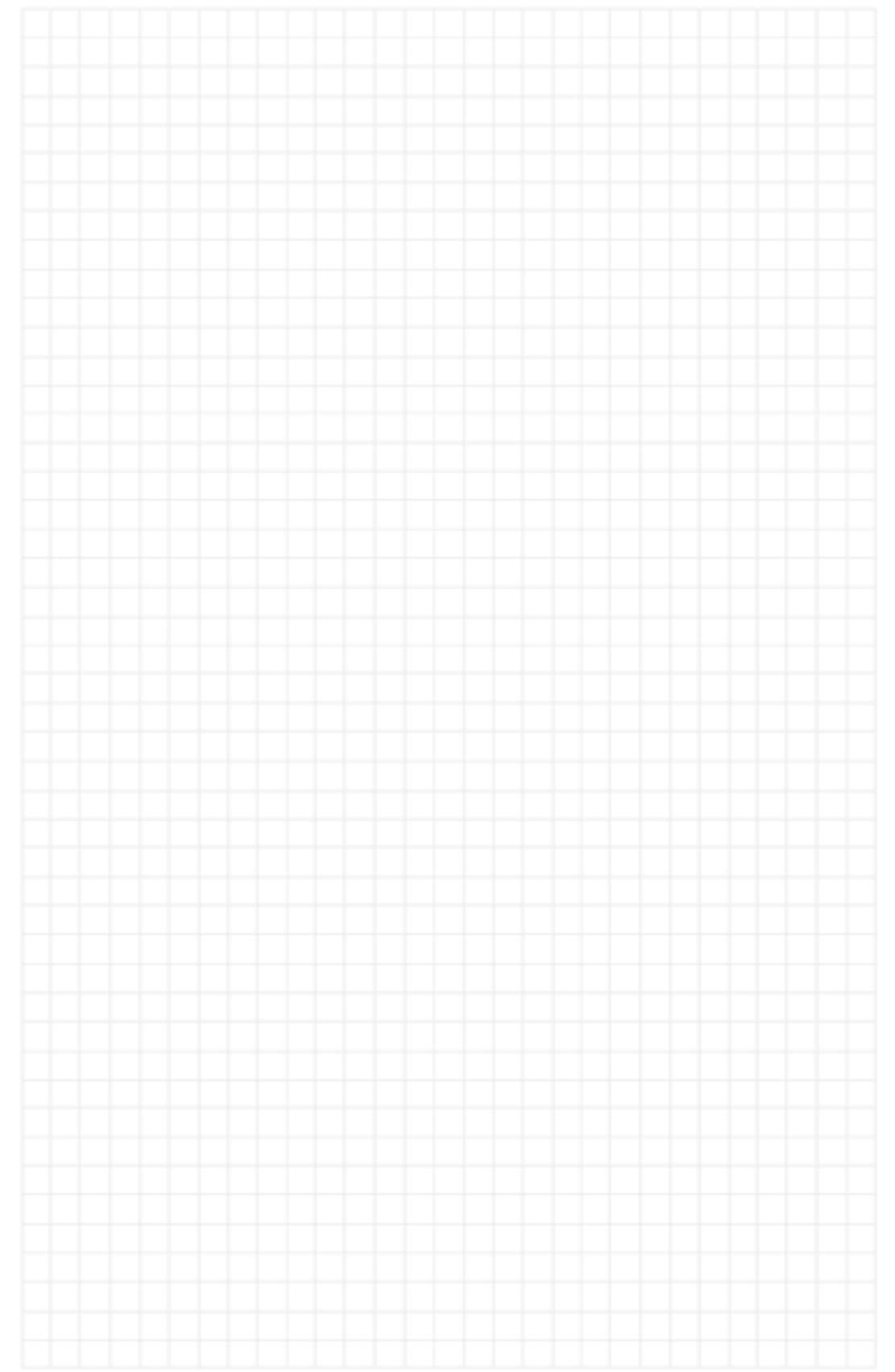
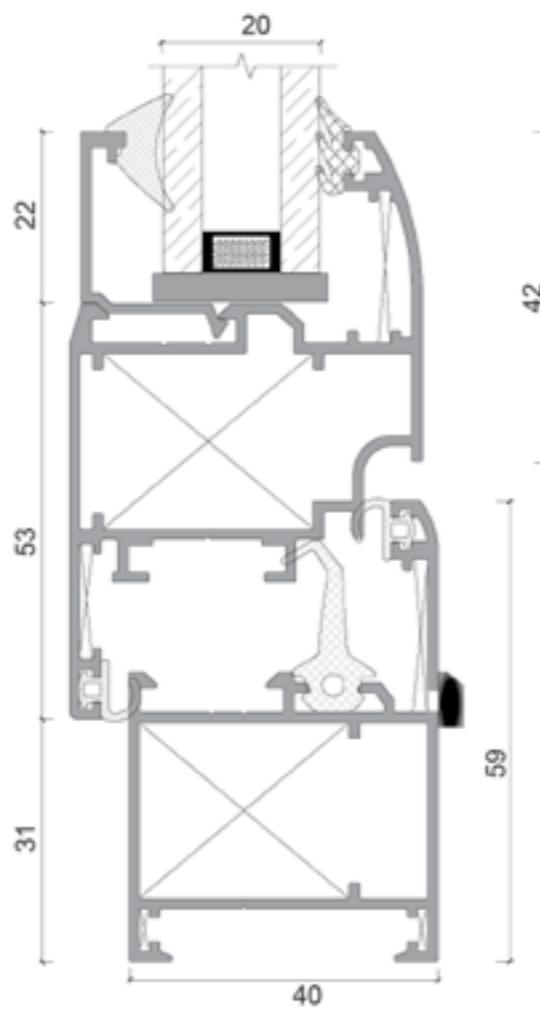


### Hinged System 40 Series

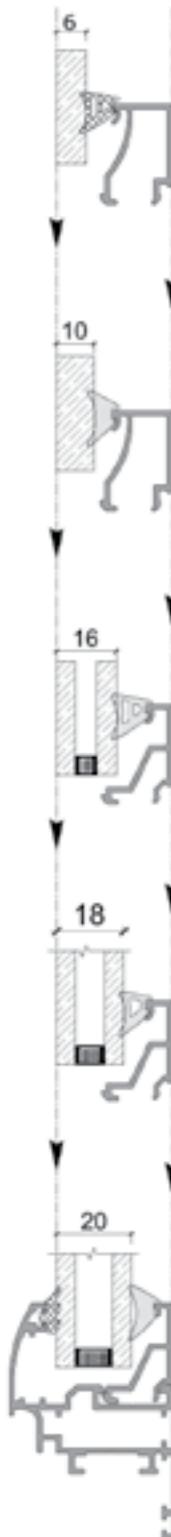
- . Profile width: 40 - 77 mm
- . Vent width: 45 mm
- . Wall thickness: 1.3 - 1.4 mm
- . Rubber description: EPDM DIM 7863
- . Glass thickness: 6 - 24 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Safety drainage system
- . Various typologies



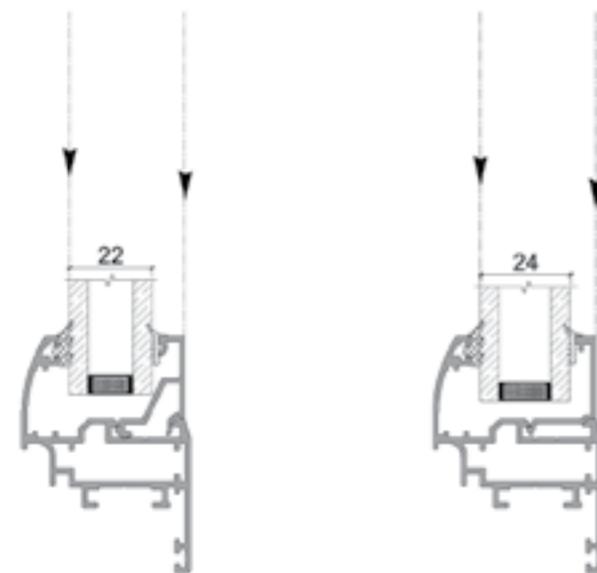
Euro Groove Section



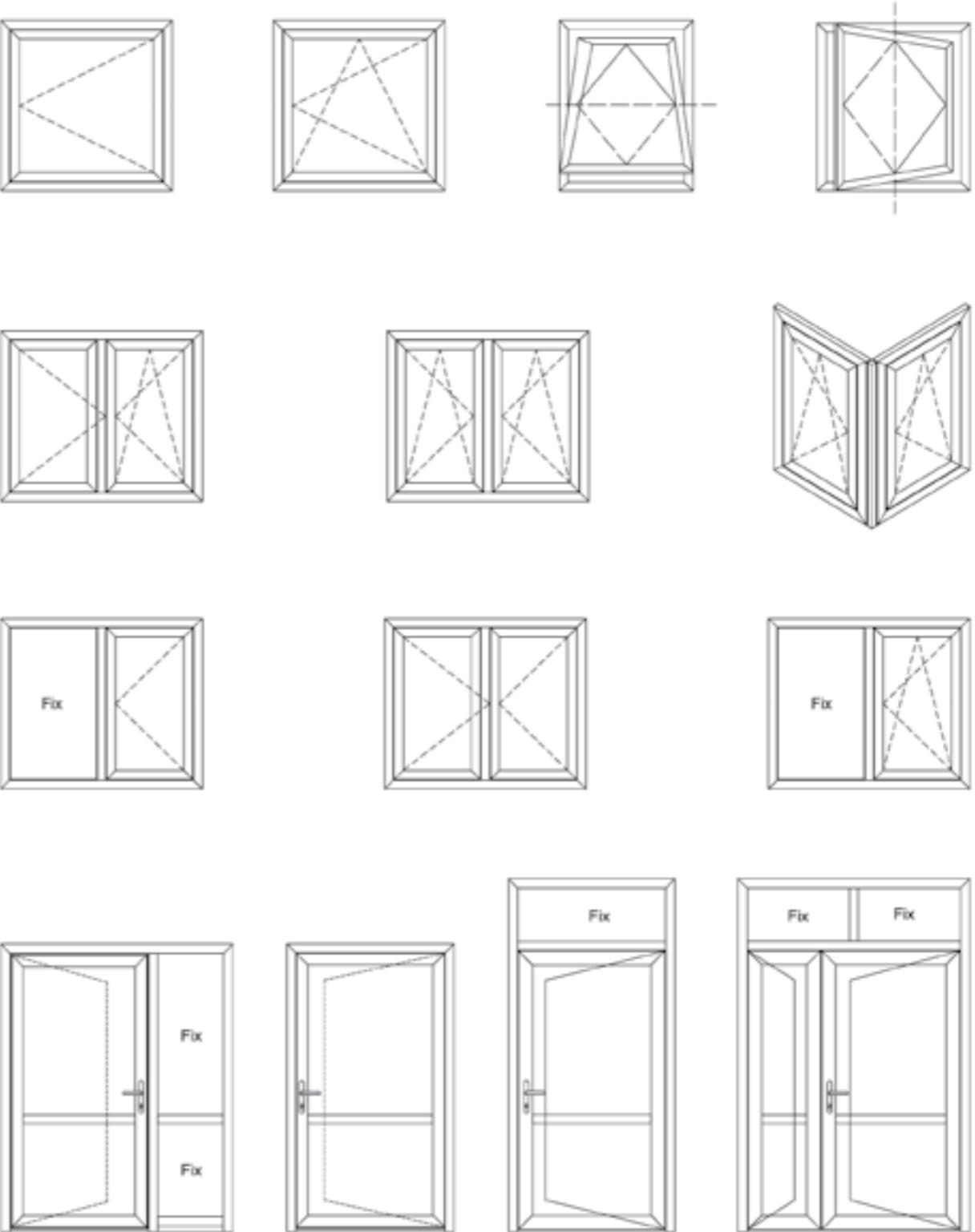
Hinged System 40 Series  
Glazing Table



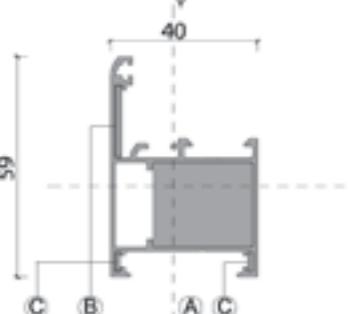
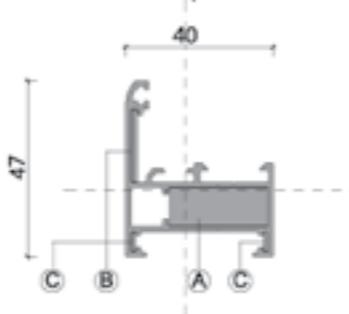
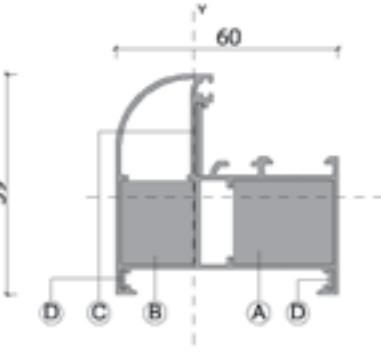
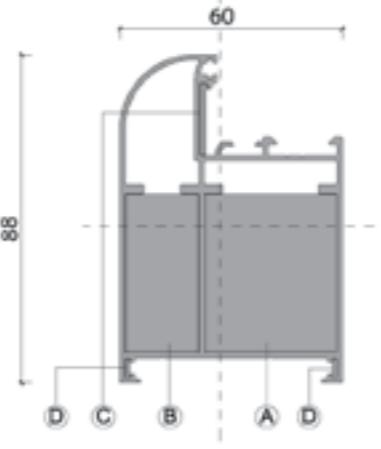
6 mm	7.5 mm	8 mm	ALN-423
EP-021	EP-021	MO68-007	ALN-423
10 mm	4.5 mm	6 mm	ALN-423
EP-016	EP-016	MO68-007	ALN-423
16 mm	7.5 mm	6 mm	ALN-322
EP-021	EP-021	MO68-007	ALN-322
18 mm	5.5 mm	6 mm	ALN-322
EP-019	EP-019	MO68-007	ALN-322
20 mm	4.5 mm	6 mm	ALN-321
EP-016	EP-016	MO68-007	ALN-321
22 mm	1.9 mm	6 mm	ALN-322
EP-015	EP-015	MO68-007	ALN-322
24 mm	1.9 mm	6 mm	ALN-424
EP-015	EP-015	MO68-007	ALN-424



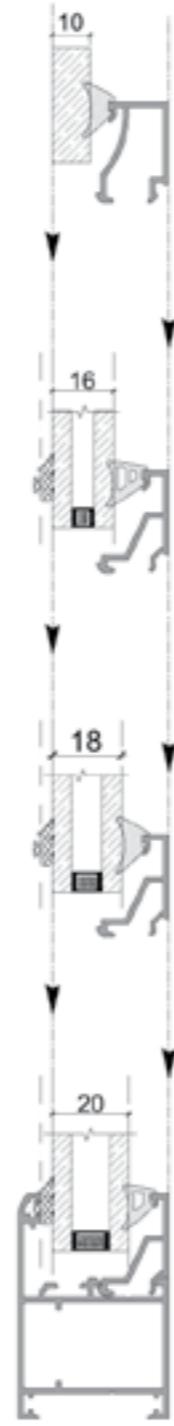
Hinged System 40 Series  
Typologies

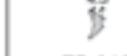
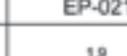


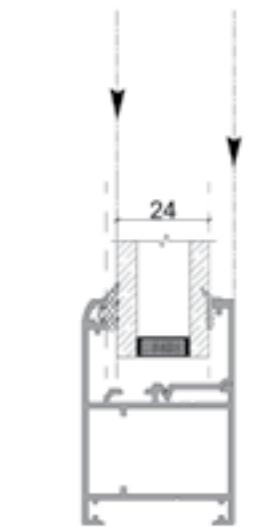
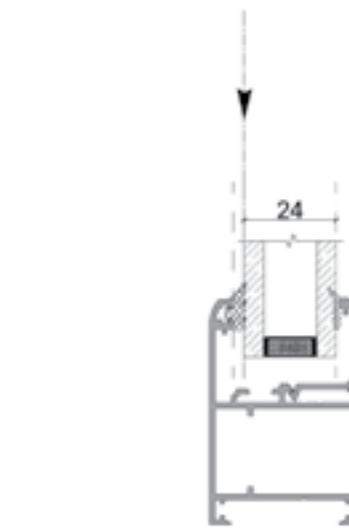
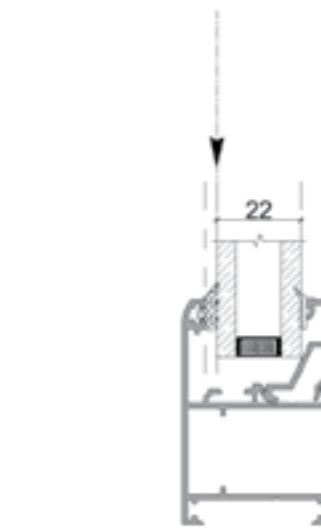
Hinged System 40 Series  
Profile & Accessories Information

			
$I_x: 7.25 \text{ cm}^4$	$I_y: 6.41 \text{ cm}^4$	$I_x: 3.53 \text{ cm}^4$	$I_y: 5.23 \text{ cm}^4$
Frame : ALN-300	A: PCP-22/26 mm 	Frame : ALN-307	A: PCP-10 / 26 mm 
B: fuji 2000 	B: fuji 2000 	C: fuji 2000 	Weight: 670 gr/m
Weight: 755 gr/m	C: MO 19 	C: MO 19 	
			
$I_x: 11.53 \text{ cm}^4$	$I_y: 15.34 \text{ cm}^4$	$I_x: 37.32 \text{ cm}^4$	$I_y: 23.52 \text{ cm}^4$
Frame : ALN-306	A: PCP-22 / 26 mm 	Frame : ALN-308	A: PCP-42 / 26 mm 
B: PCP-22 / 19 mm 	B: PCP-42 / 19 mm 	C: fuji 2000 	C: fuji 2000 
Weight: 1060 gr/m	D: MO 19 	D: MO 19 	

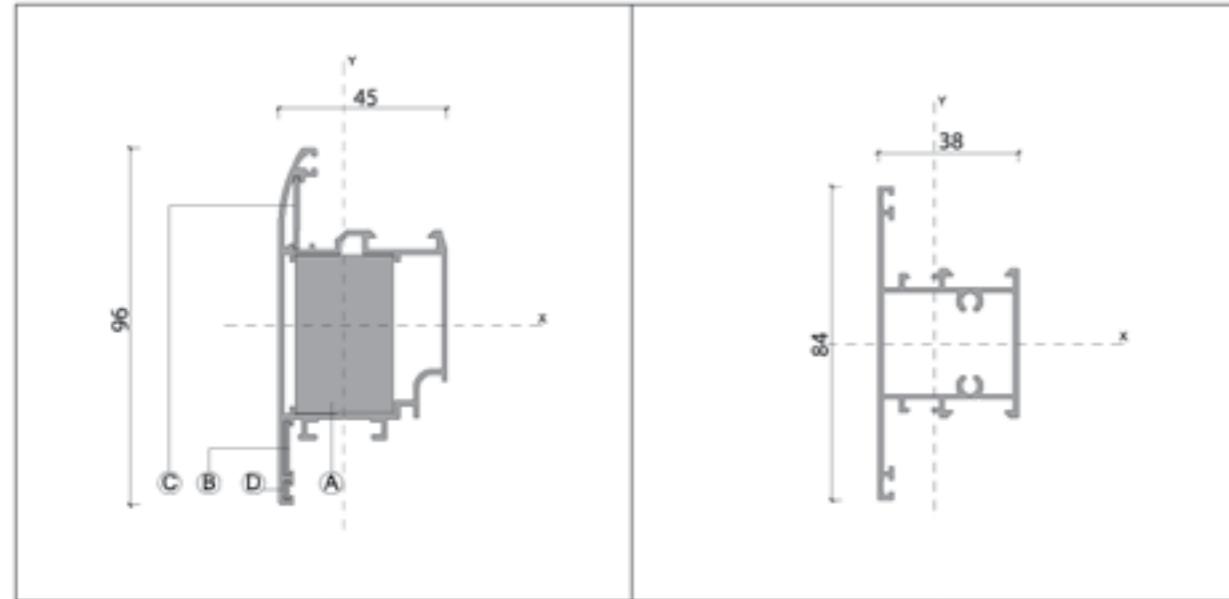
Hinged System 40 Series  
Glazing Table



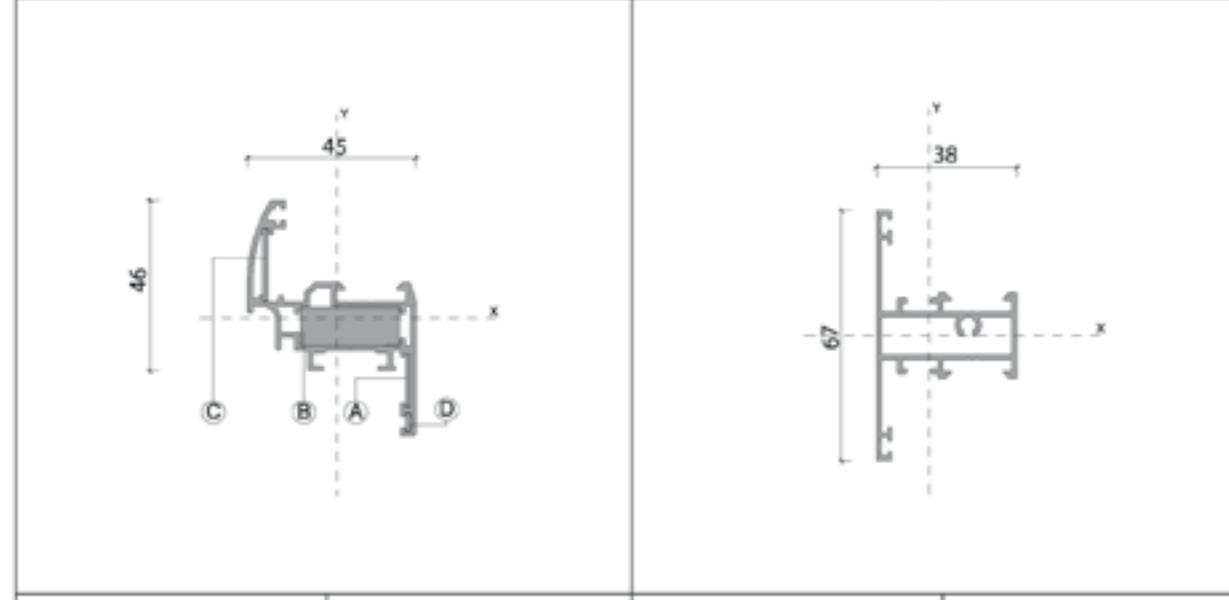
10 mm		EP-016	MO68-007	ALN-423
16 mm		EP-021	MO68-007	ALN-322
18 mm		EP-016	MO68-007	ALN-322
20 mm		EP-021	MO68-007	ALN-321
22 mm		EP-015	MO68-007	ALN-322
24 mm		EP-015	MO68-007	ALN-424



Hinged System 40 Series  
Profile & Accessories Information

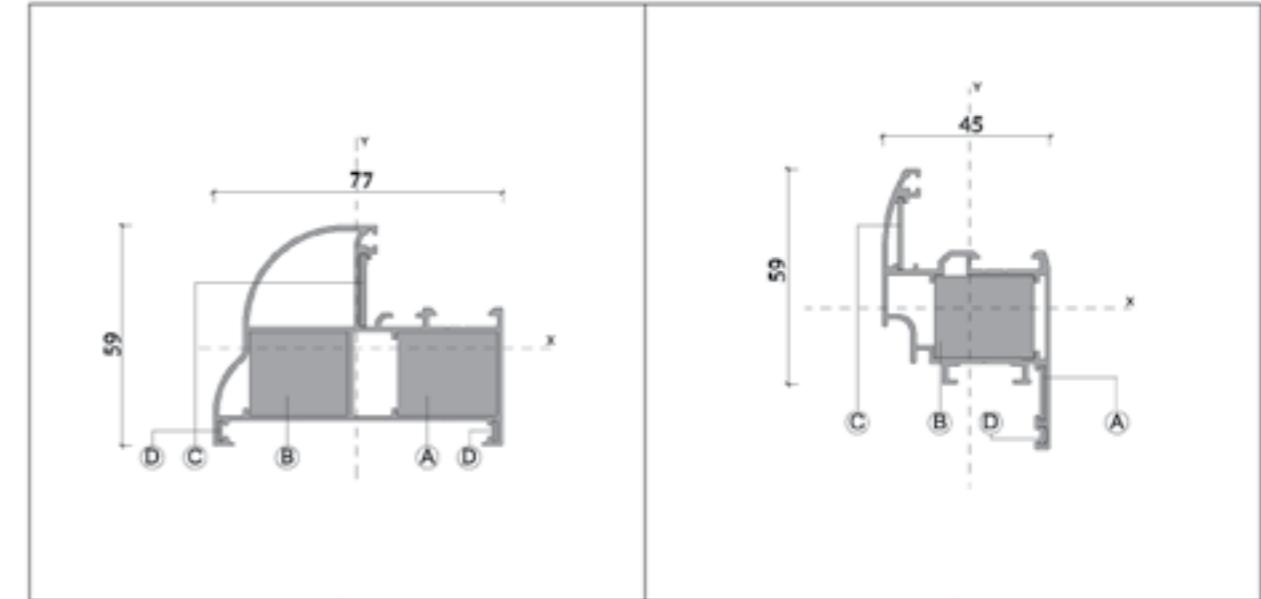


$I_x: 25.54 \text{ cm}^4$	$I_y: 11.07 \text{ cm}^4$	$I_x: 13.50 \text{ cm}^4$	$I_y: 6.71 \text{ cm}^4$
Sash : ALN-303	A: PCP-42 / 26 mm B: MM 77	Transom : ALN-304	A: -
Weight: 1070 gr/m	C: fuji 2000 D: MO 19	Weight: 930 gr/m	B: -

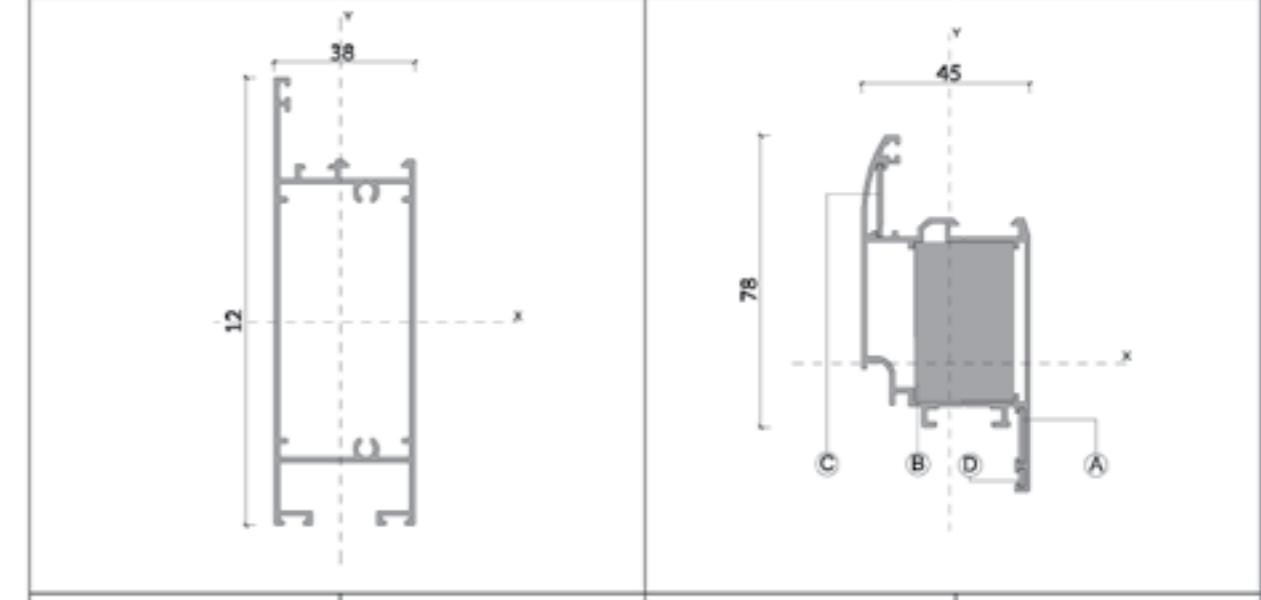


$I_x: 5.88 \text{ cm}^4$	$I_y: 7.81 \text{ cm}^4$	$I_x: 5.76 \text{ cm}^4$	$I_y: 5.03 \text{ cm}^4$
Sash : ALN-309	A: MM 77 B: PCP-10 / 26 mm	Transom : ALN-311	A: -
Weight: 830 gr/m	C: fuji 2000 D: MO 19	Weight: 770 gr/m	B: -

Hinged System 40 Series  
Profile & Accessories Information



$I_x: 13.29 \text{ cm}^4$	$I_y: 25.98 \text{ cm}^4$	$I_x: 11.04 \text{ cm}^4$	$I_y: 9.55 \text{ cm}^4$
Frame : ALN-366	A: PCP-22/26 mm B: PCP-22/26 mm	Sash : ALN-301	A: MM 77 B: PCP-22 / 26 mm
Weight: 1250 gr/m	C: fuji 2000 D: MO 19	Weight: 930 gr/m	C: fuji 2000 D: MO 19



$I_x: 63.82 \text{ cm}^4$	$I_y: 11.55 \text{ cm}^4$	$I_x: 25.53 \text{ cm}^4$	$I_y: 12.08 \text{ cm}^4$
Profile : ALN-310	A: -	Sash : ALN-302	A: MM 77 B: PCP-42 / 26 mm
Weight: 1295 gr/m	B: -	Weight: 1075 gr/m	C: fuji 2000 D: MO 19

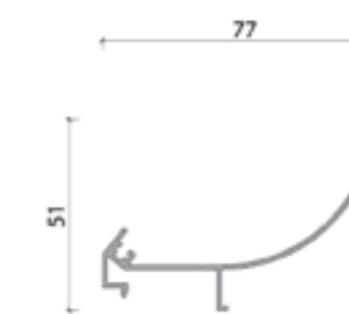
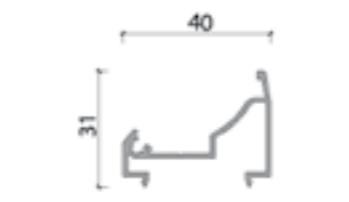
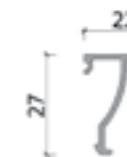
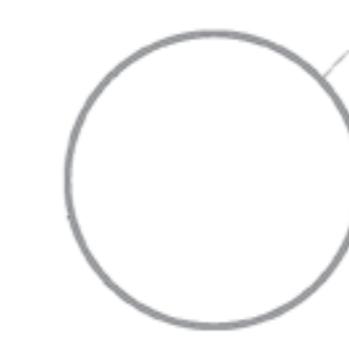
Hinged System 40 Series  
Profile & Accessories Information

Fly screen : ALN-207	Weight: 448 gr/m
$I_x: 7.76 \text{ cm}^4$	$I_y: 5.26 \text{ cm}^4$
Profile : ALN-315	A: PCP-22 / 34 mm
Weight: 821 gr/m	B: fuji 2000
Profile : ALN-215	Weight : 648 gr/m
$I_x: 1.00 \text{ cm}^4$	$I_y: 2.33 \text{ cm}^4$
Profile : ALN-316	A: -
Weight: 343 gr/m	B: -
Flange profile: ALN-219	Weight : 362 gr/m

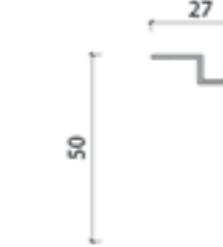
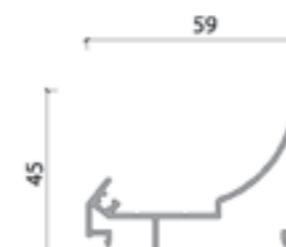
Hinged System 40 Series  
Profile & Accessories Information

$I_x: 6.84 \text{ cm}^4$	$I_y: 6.04 \text{ cm}^4$
Profile : ALN-305	A: -
Weight: 870 gr/m	B: -
$I_x: 4.73 \text{ cm}^4$	$I_y: 4.14 \text{ cm}^4$
Profile : ALN-313	A: PCP-22 / 30 mm
Weight: 607 gr/m	B: Fuji2000
Profile : ALN-312	A: -
Weight: 608 gr/m	B: -
$I_x: 0.86 \text{ cm}^4$	$I_y: 2.62 \text{ cm}^4$
Profile : ALN-314	A: PCP-28 / 25 mm
Weight: 751 gr/m	B: MM 77

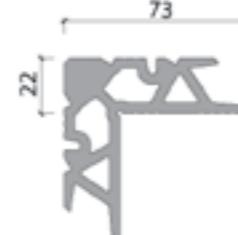
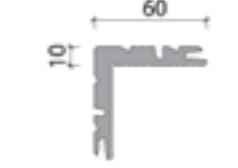
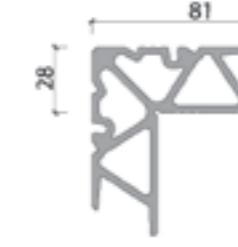
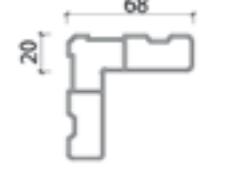
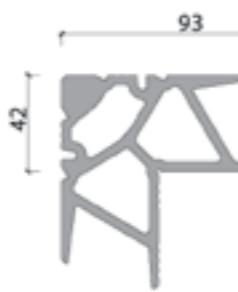
Hinged System 40 Series  
Profile & Accessories Information

		Glazing beads: ALN-321	Weight : 224 gr/m	Profile : ALN-326	Weight : 613 gr/m
		Glazing beads: ALN-322	Weight : 224 gr/m	Profile : ALN-327	Weight : 367 gr/m
		Glazing beads: ALN-323	Weight : 302 gr/m	Profile : ALN-328	Weight : 999 gr/m

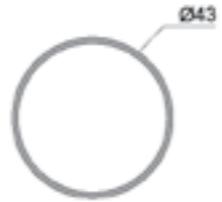
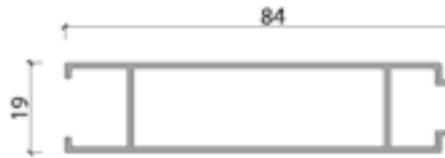
Hinged System 40 Series  
Profile & Accessories Information

	Flange profile: ALN-221	Weight : 302 gr/m	Profile : ALN-228	Weight: 135 gr/m
	Flange profile: ALN-222	Weight : 254 gr/m	profile: ALN-229	Weight : 192 gr/m
	Profile : ALN-225	Weight : 548 gr/m	Profile : ALN-230	Weight: 192 gr/m
				

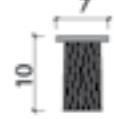
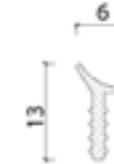
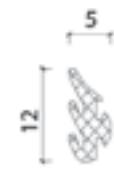
Hinged System 40 Series  
Profile & Accessories Information

			
profile: ALN-444	Weight : 344 gr/m	Corner joint: PCP-22	Weight : 3718 gr/m
			
Corner joint: PCP-10	Weight : 2454 gr/m	Corner Joint: PCP-28	Weight : 3429 gr/m
			
Corner joint: PCP 20	Weight : 1375 gr/m	Corner joint: PCP-42	Weight : 5133 gr/m

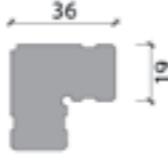
Hinged System 40 Series  
Profile & Accessories Information

			
Profile : ALN-329	Weight : 525 gr/m	Profile : ALN-412	Weight : 691 gr/m
			
Profile : ALN-331	Weight : 140 gr/m	Glazing beads: ALN-424	Weight : 167 gr/m
			
profile: ALN-332	Weight : 113 gr/m	profile: ALN-443	Weight : 76 gr/m

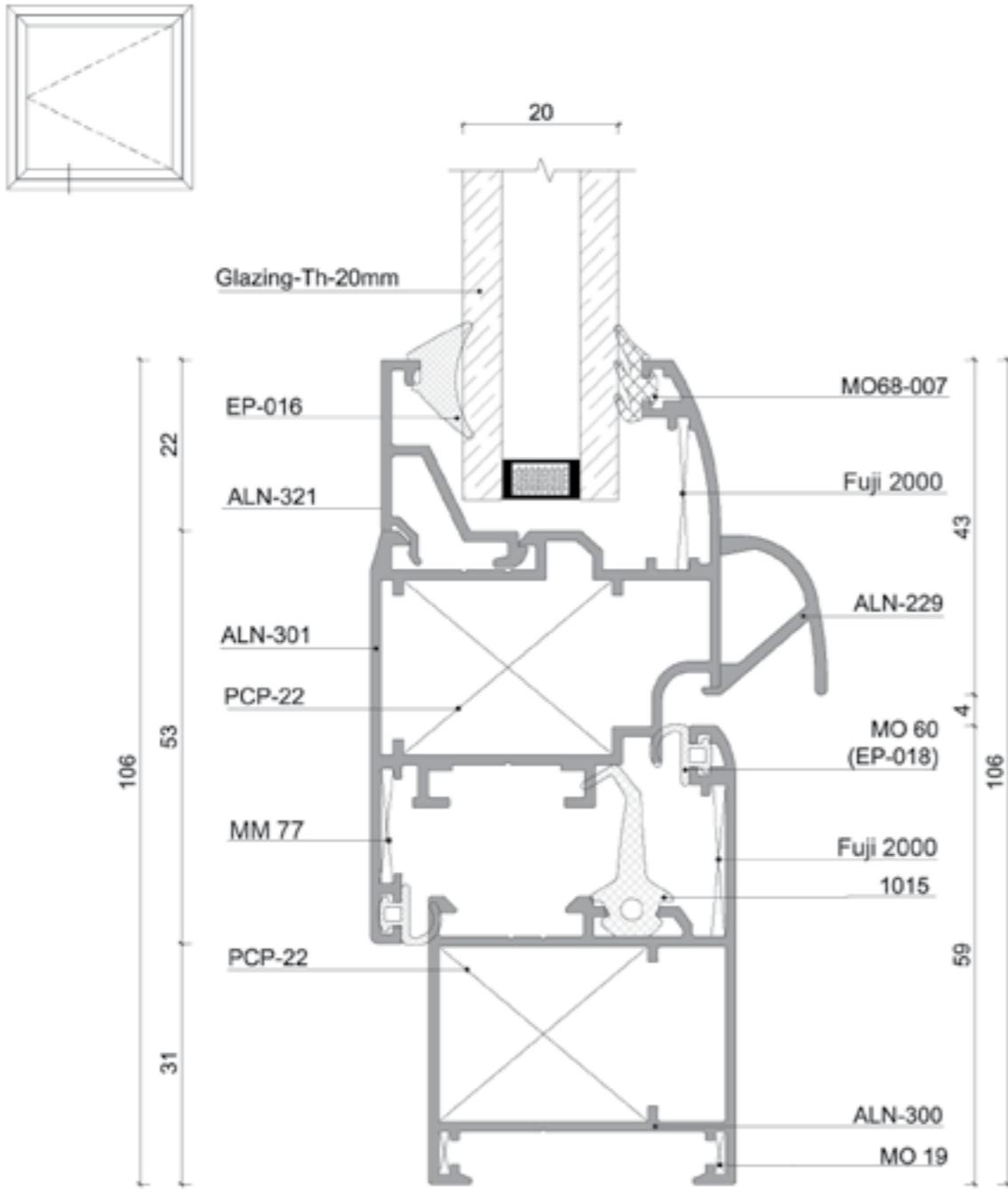
Hinged System 40 Series  
Profile & Accessories Information

			
PB7-3P-70-1000	Weight: –	Gasket: EP-015	Weight: 21 gr/m
			
Gasket: 1015	Weight: 116 gr/m	Gasket: EP-019	Weight: 61 gr/m
			
Gasket: MO68	Weight: 48 gr/m	Gasket: EP-016	Weight: 77 gr/m

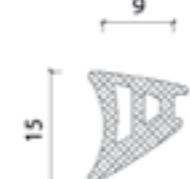
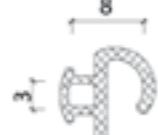
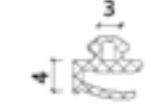
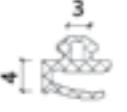
Hinged System 40 Series  
Profile & Accessories Information

			
Corner joint: MM 77	Weight: –	Corner Joint: Fuji 2000	Weight: –
			
Corner joint: AKW-804	Weight: –	PB7-3P-70-500	Weight: –
			
Corner: MO 19	Weight: –	PB7-3P-50-700	Weight: –

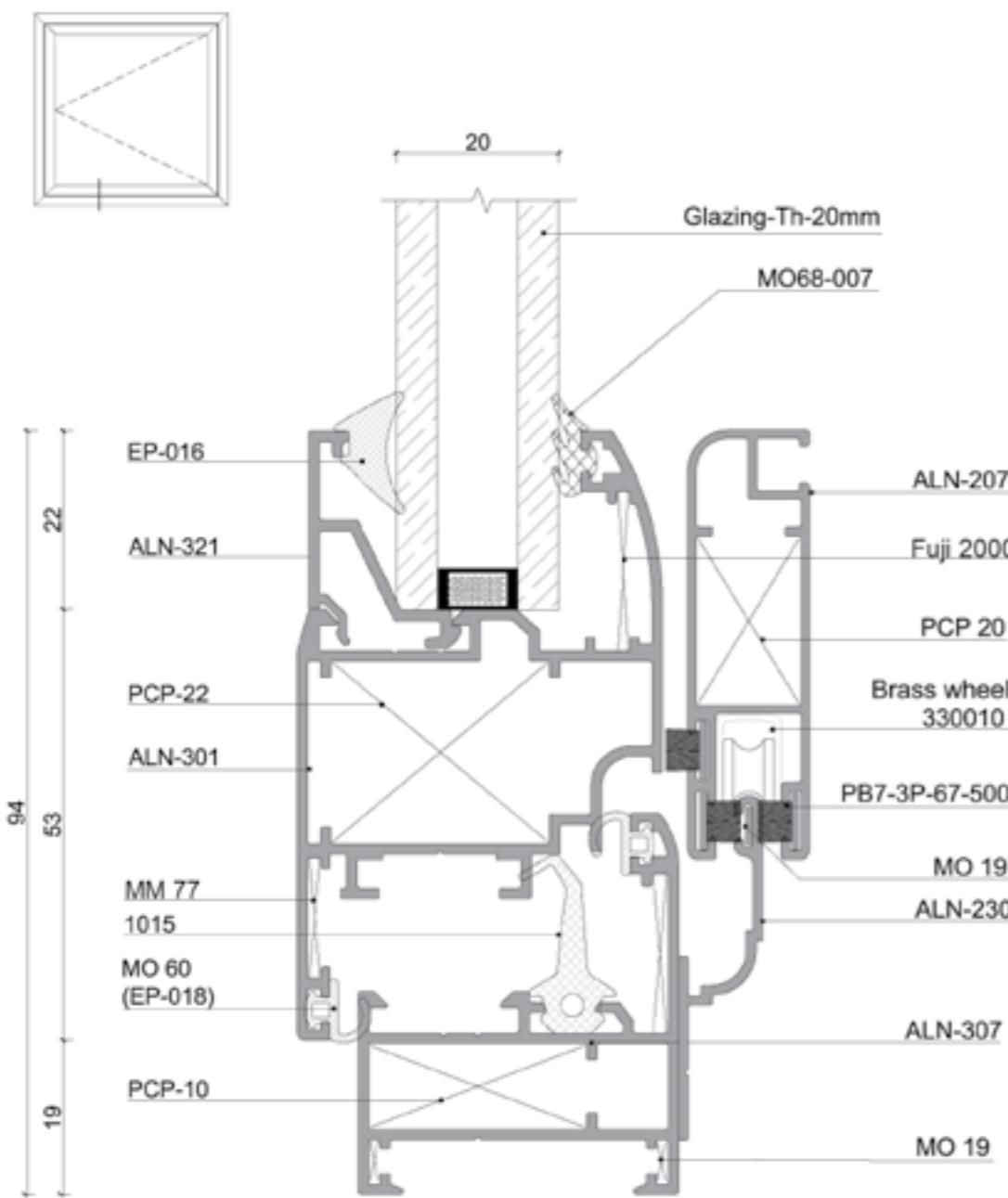
Hinged System 40 Series  
Fabrication Details



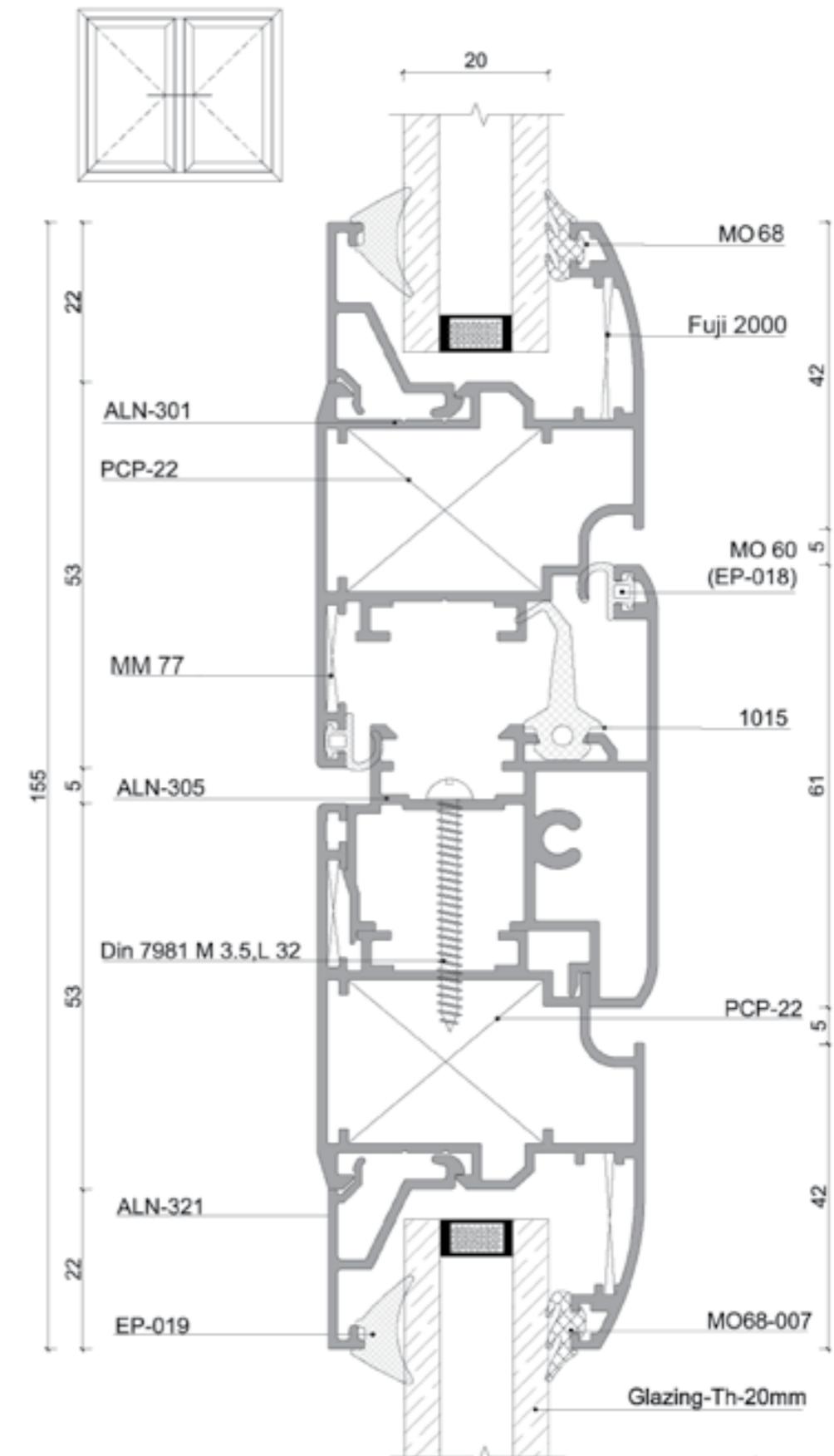
Hinged System 40 Series  
Profile & Accessories Information

	Gasket: EP-021	Weight : 80 gr/m
	Gasket: MO 60 EP-018	Weight : 27 gr/m
	Gasket: mo 60	Weight : 26 gr/m
	Gasket: 3523801	Weight: 35 gr/m

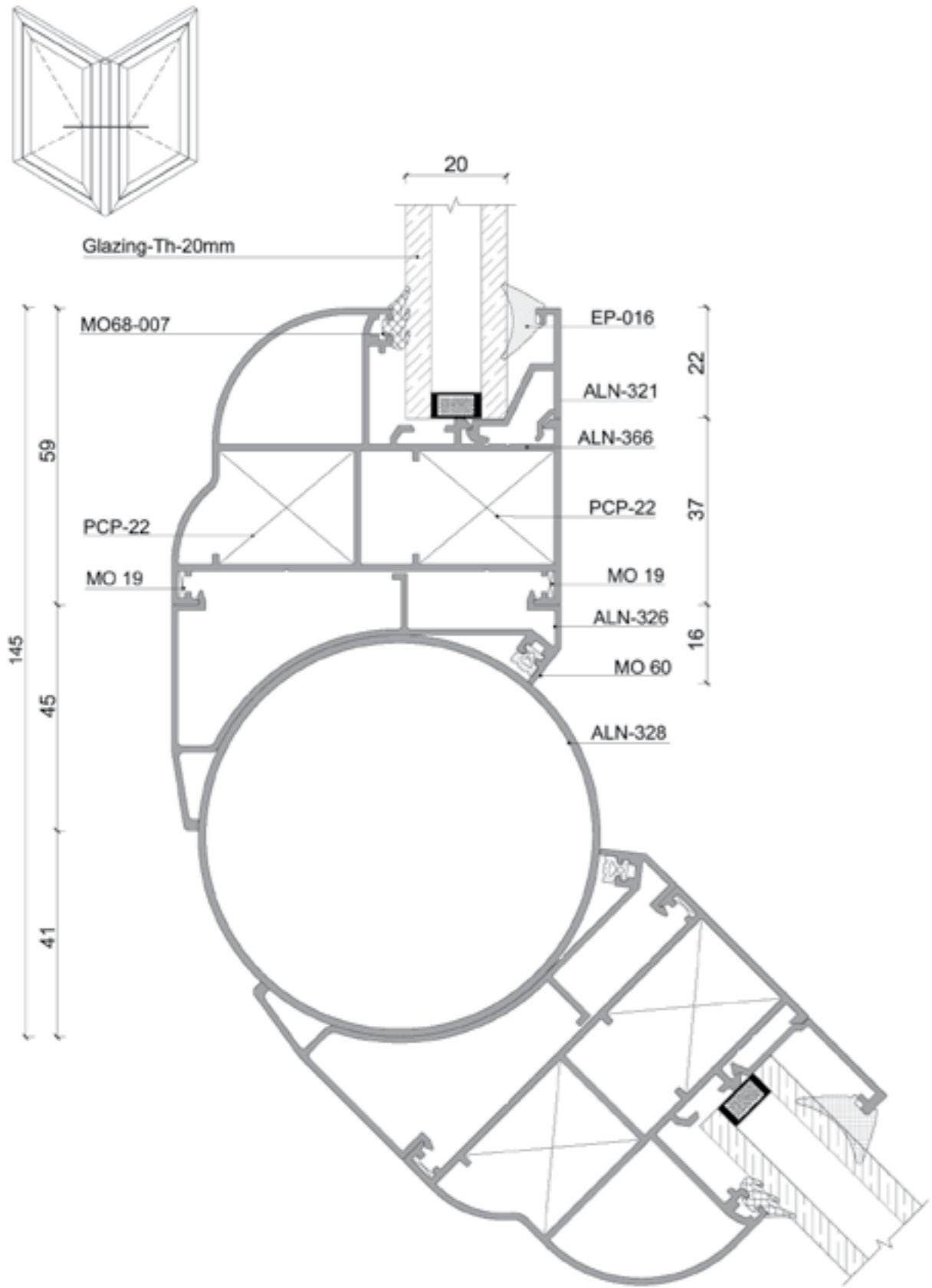
## Hinged System 40 Series



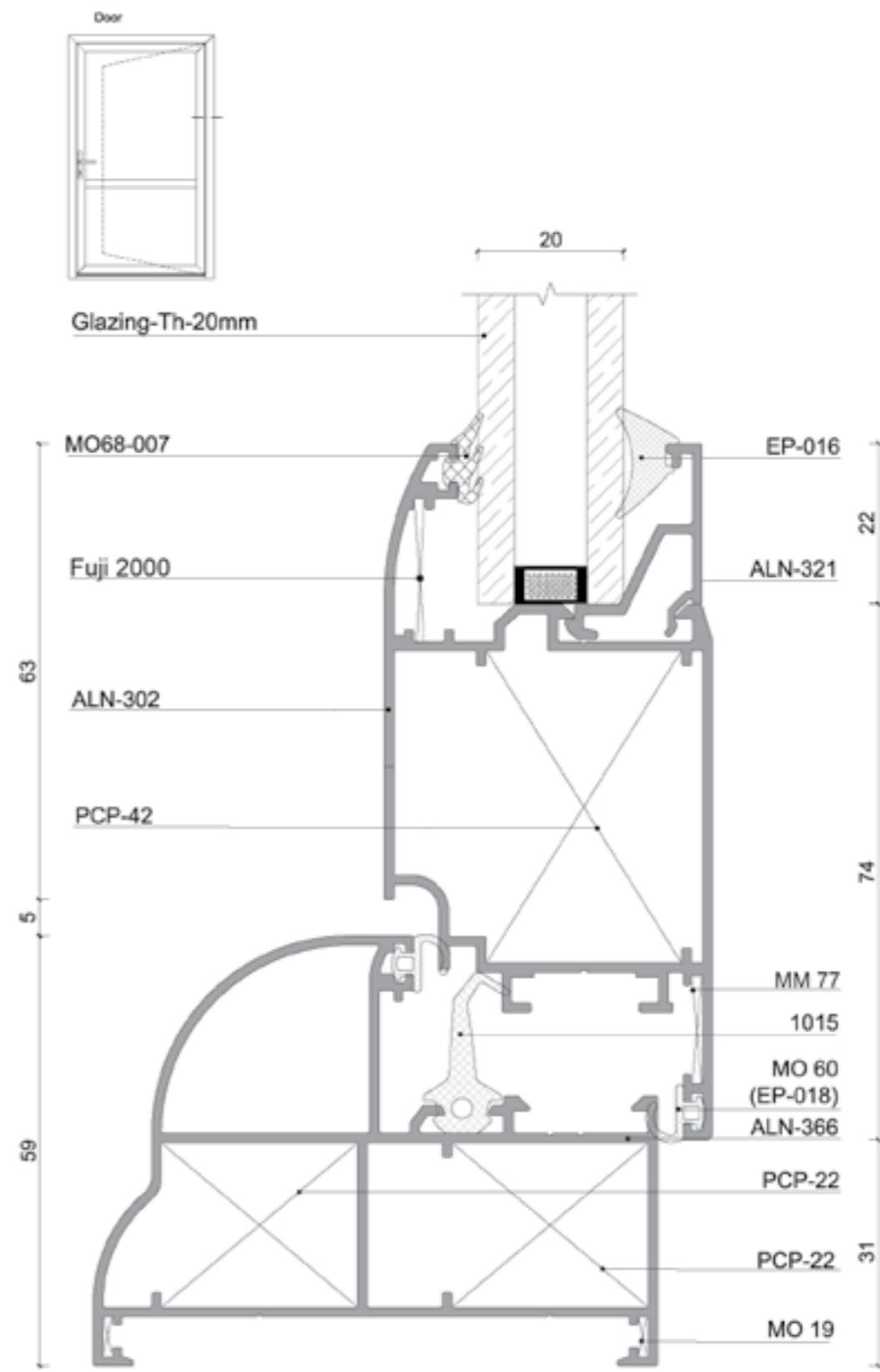
## Hinged System 40 Series



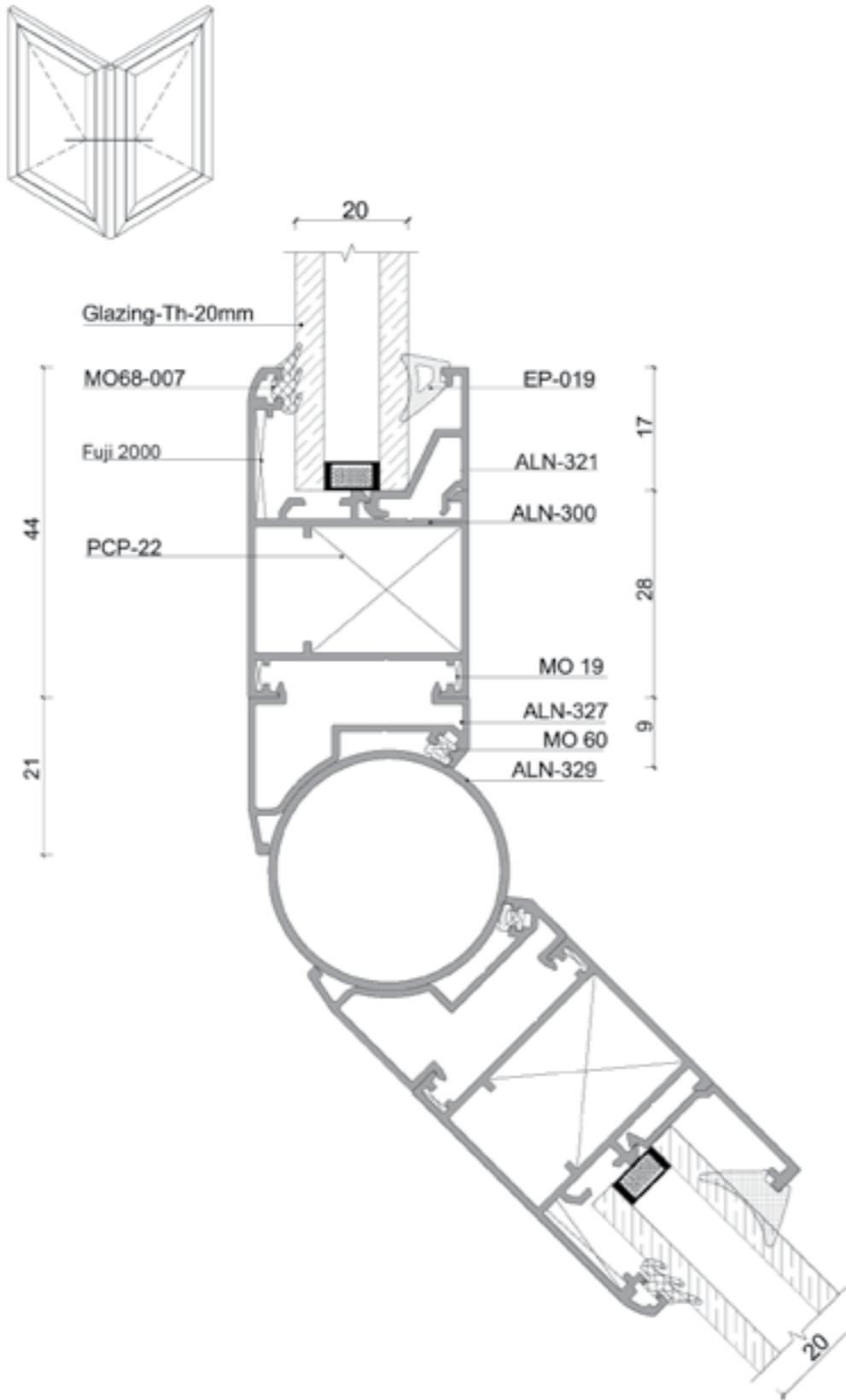
Hinged System 40 Series  
Fabrication Details



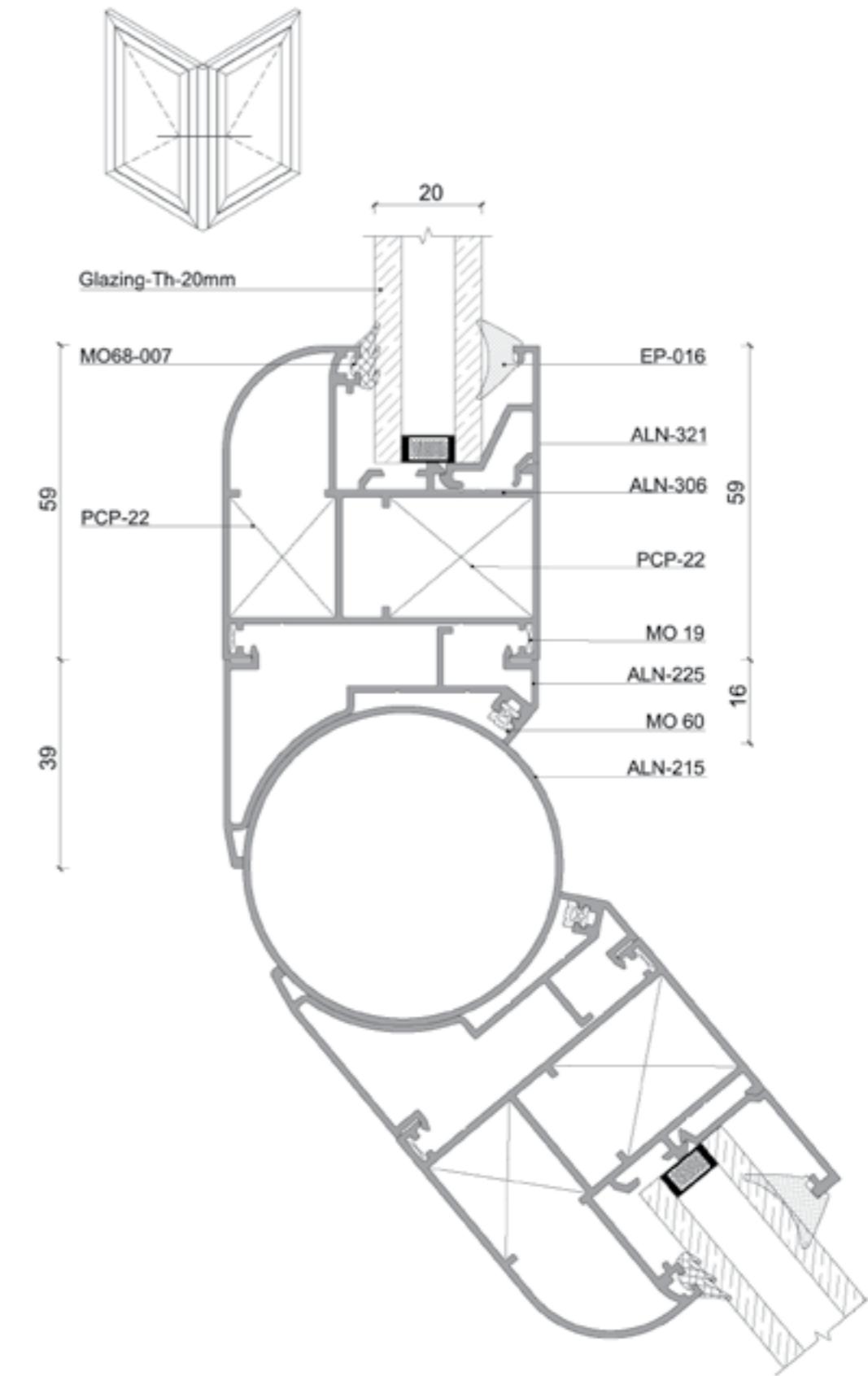
Hinged System 40 Series  
Fabrication Details



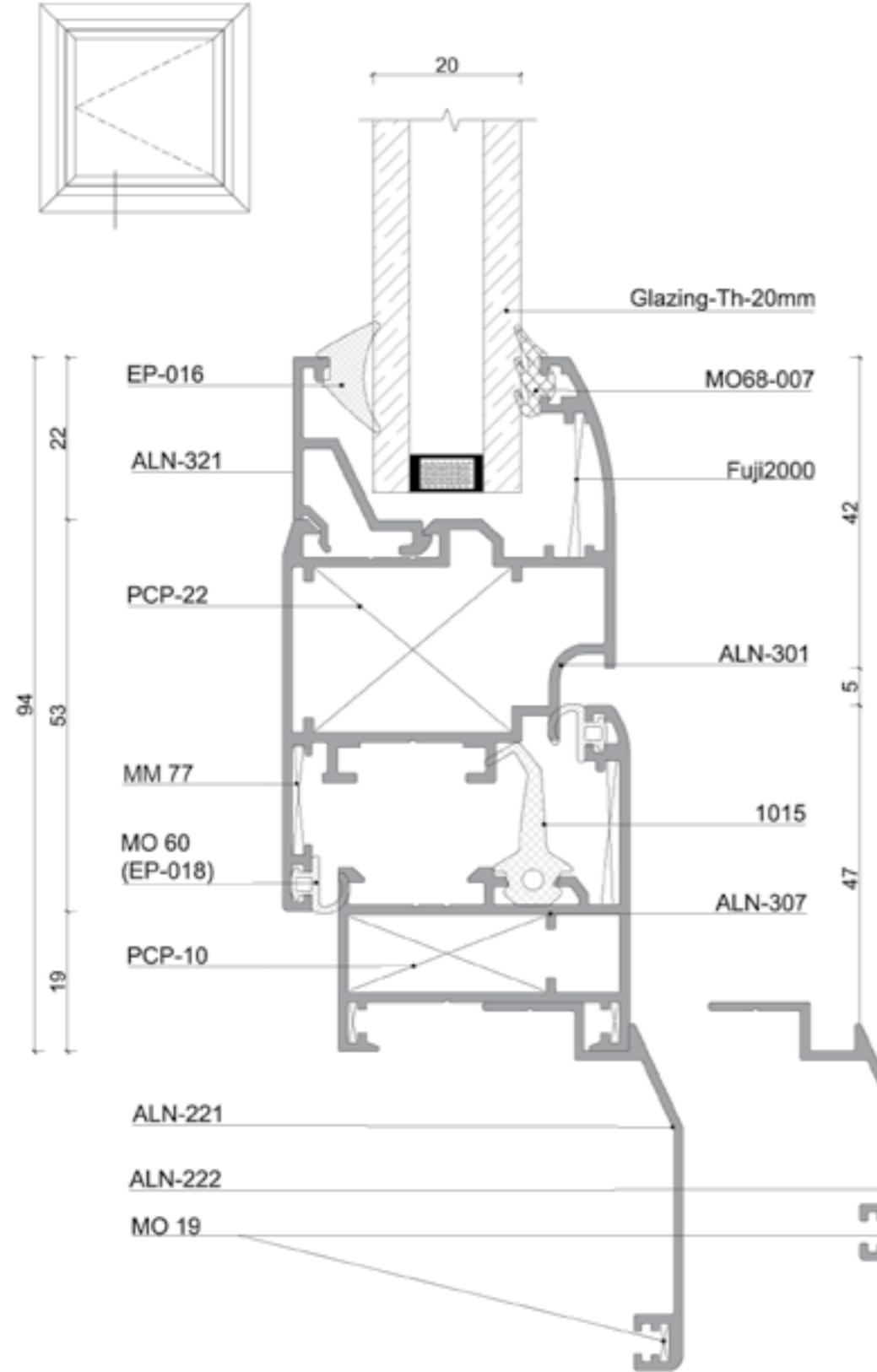
Hinged System 40 Series  
Fabrication Details



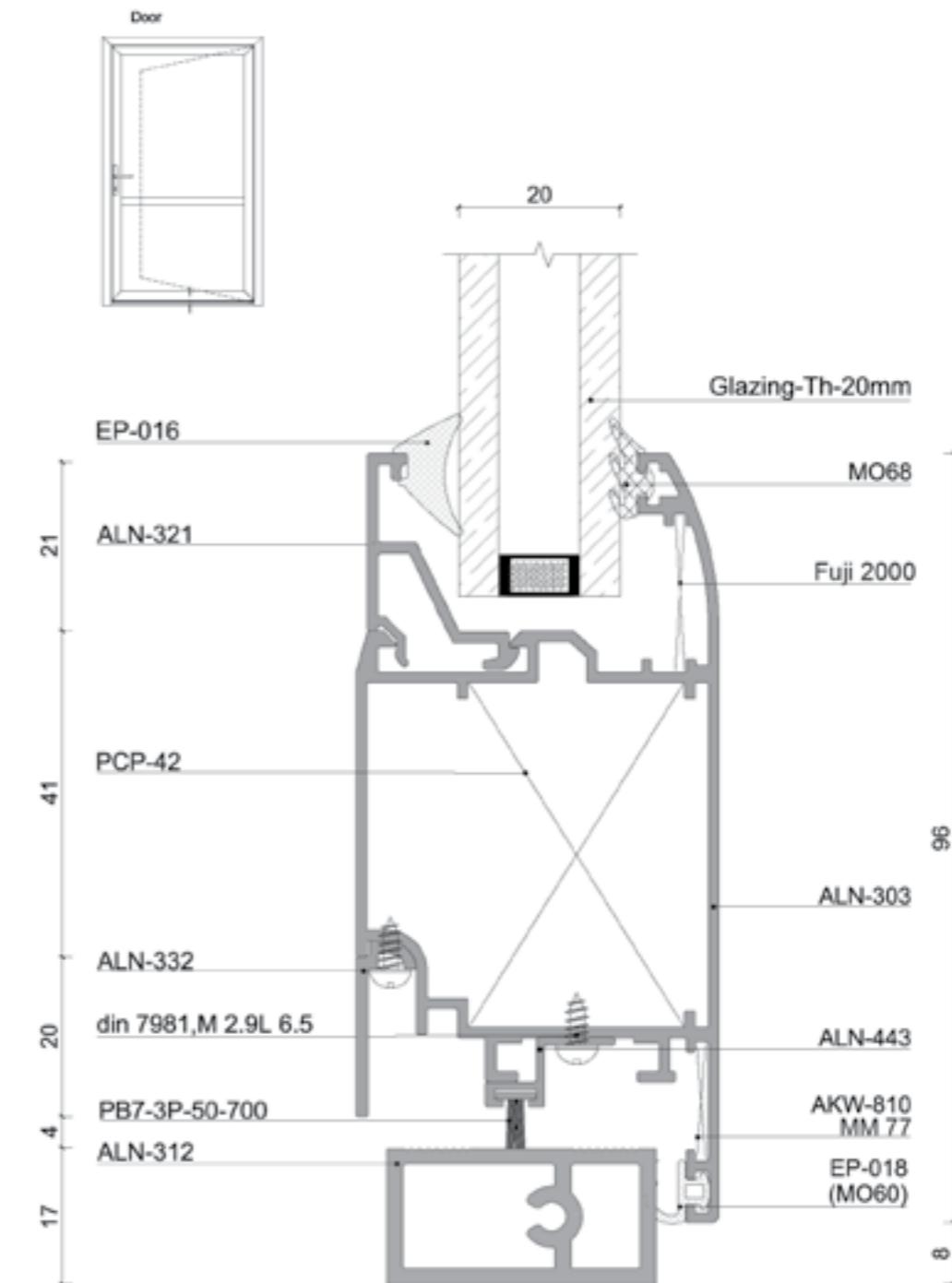
Hinged System 40 Series  
Fabrication Details



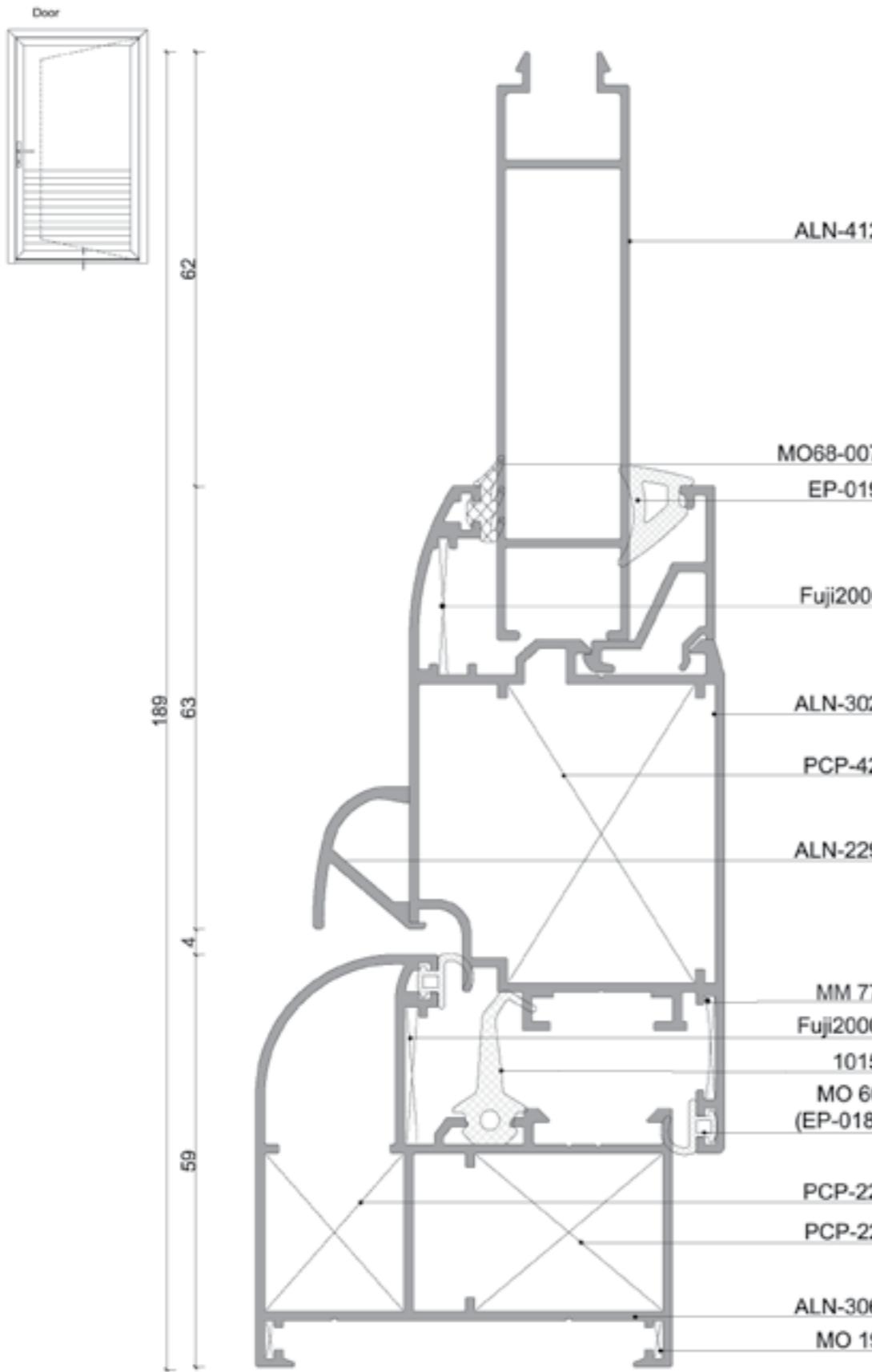
Hinged System 40 Series  
Fabrication Details



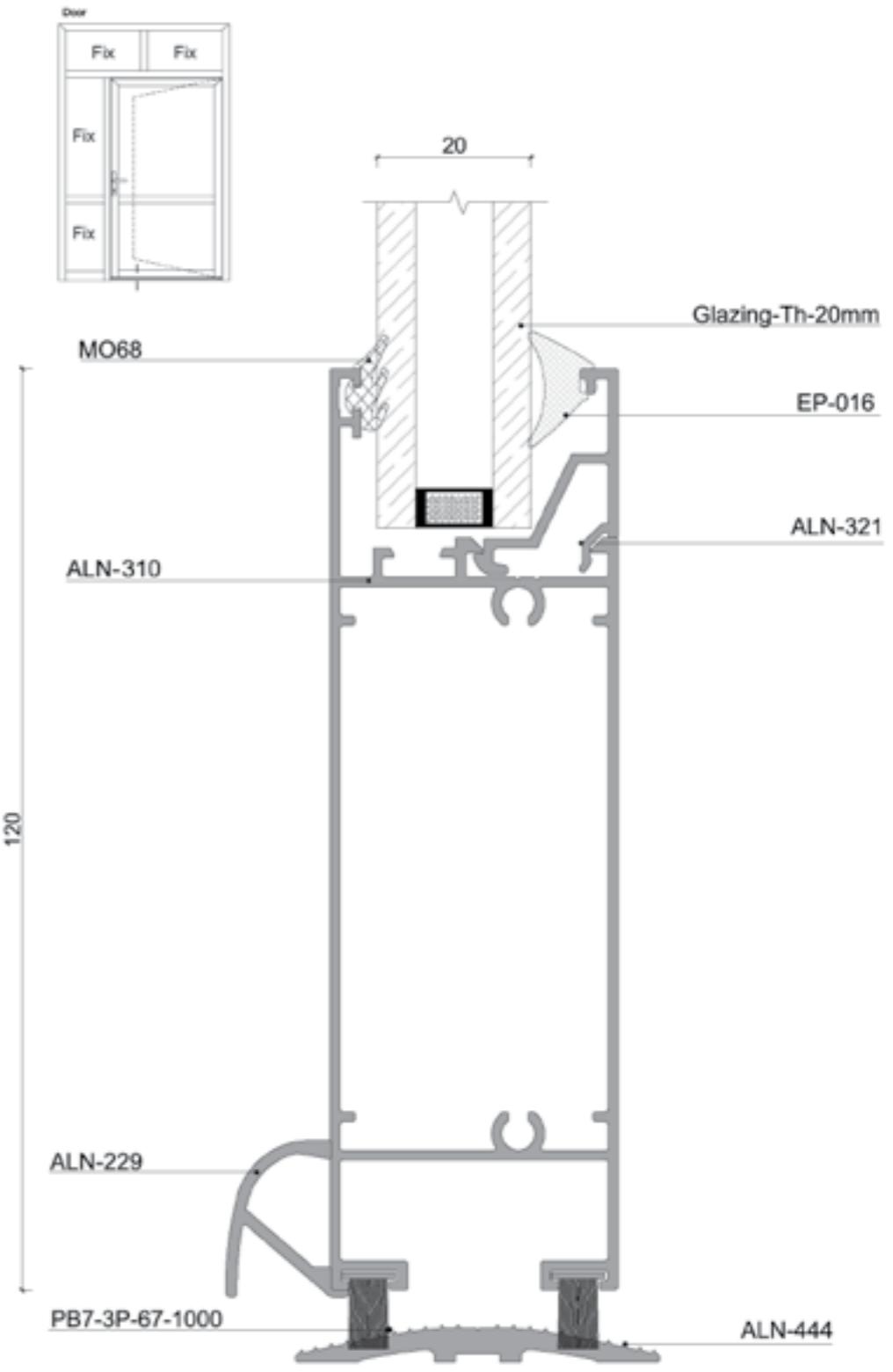
Hinged System 40 Series  
Fabrication Details



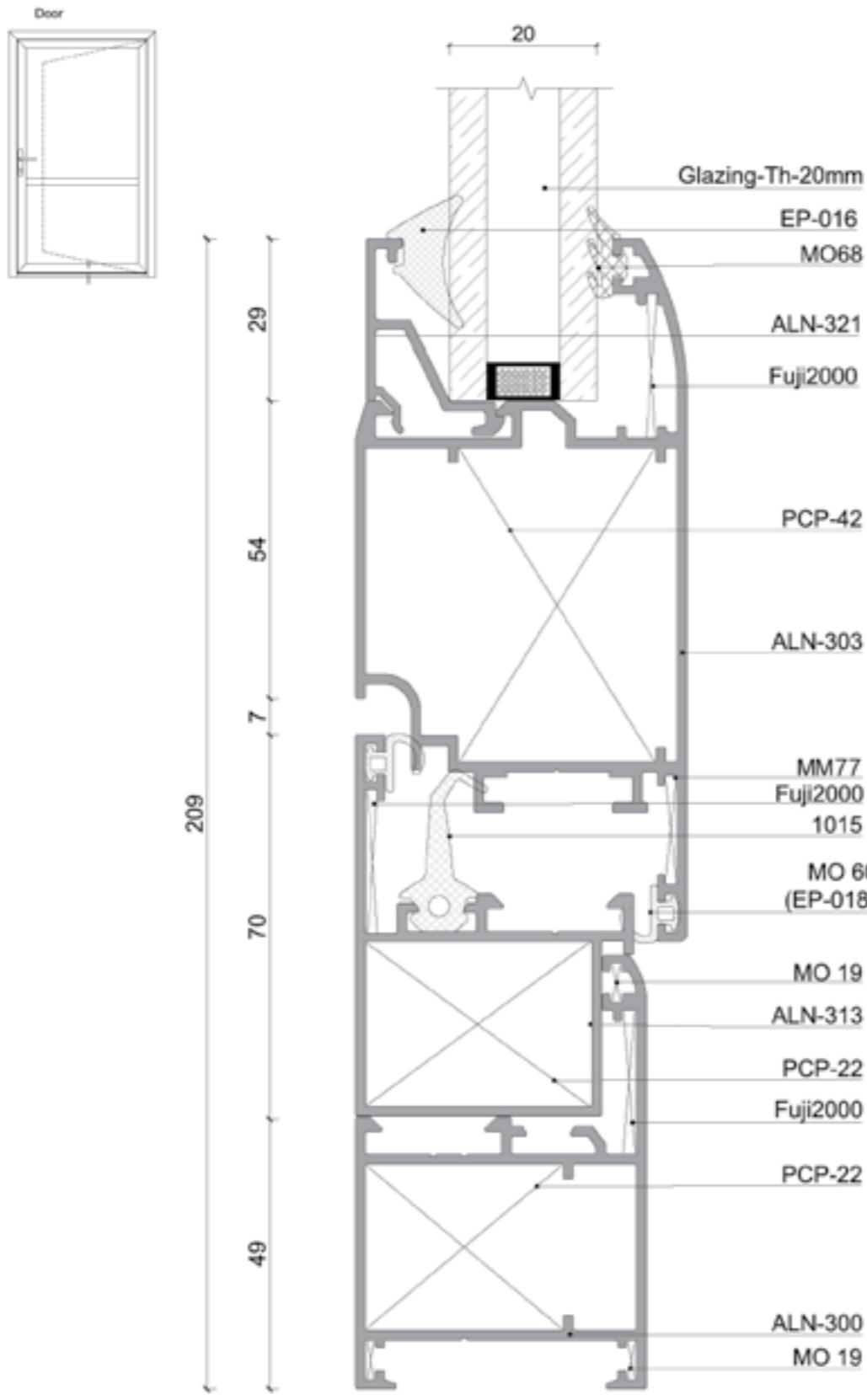
Hinged System 40 Series  
Fabrication Details



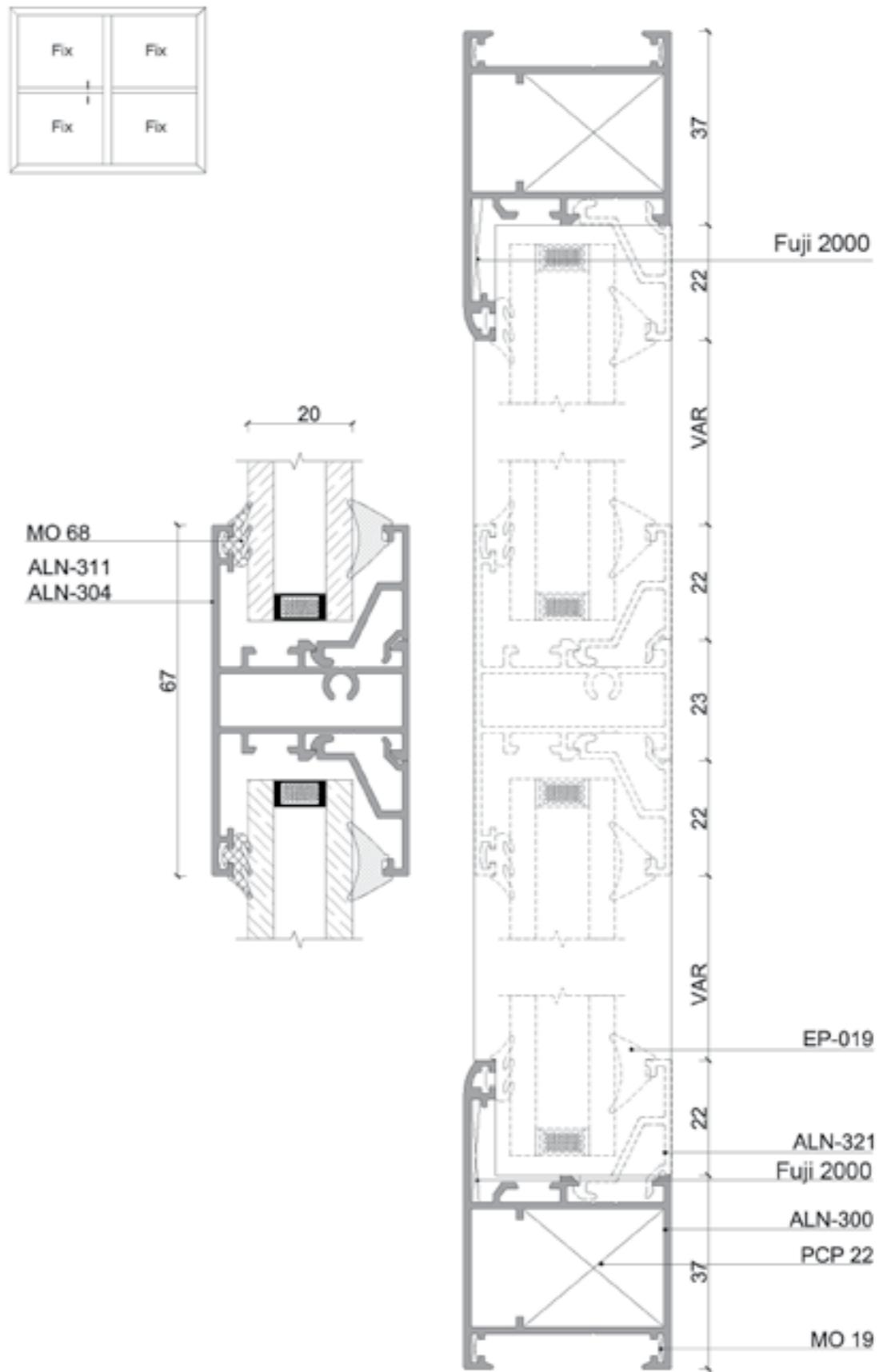
Hinged System 40 Series  
Fabrication Details



Hinged System 40 Series  
Fabrication Details

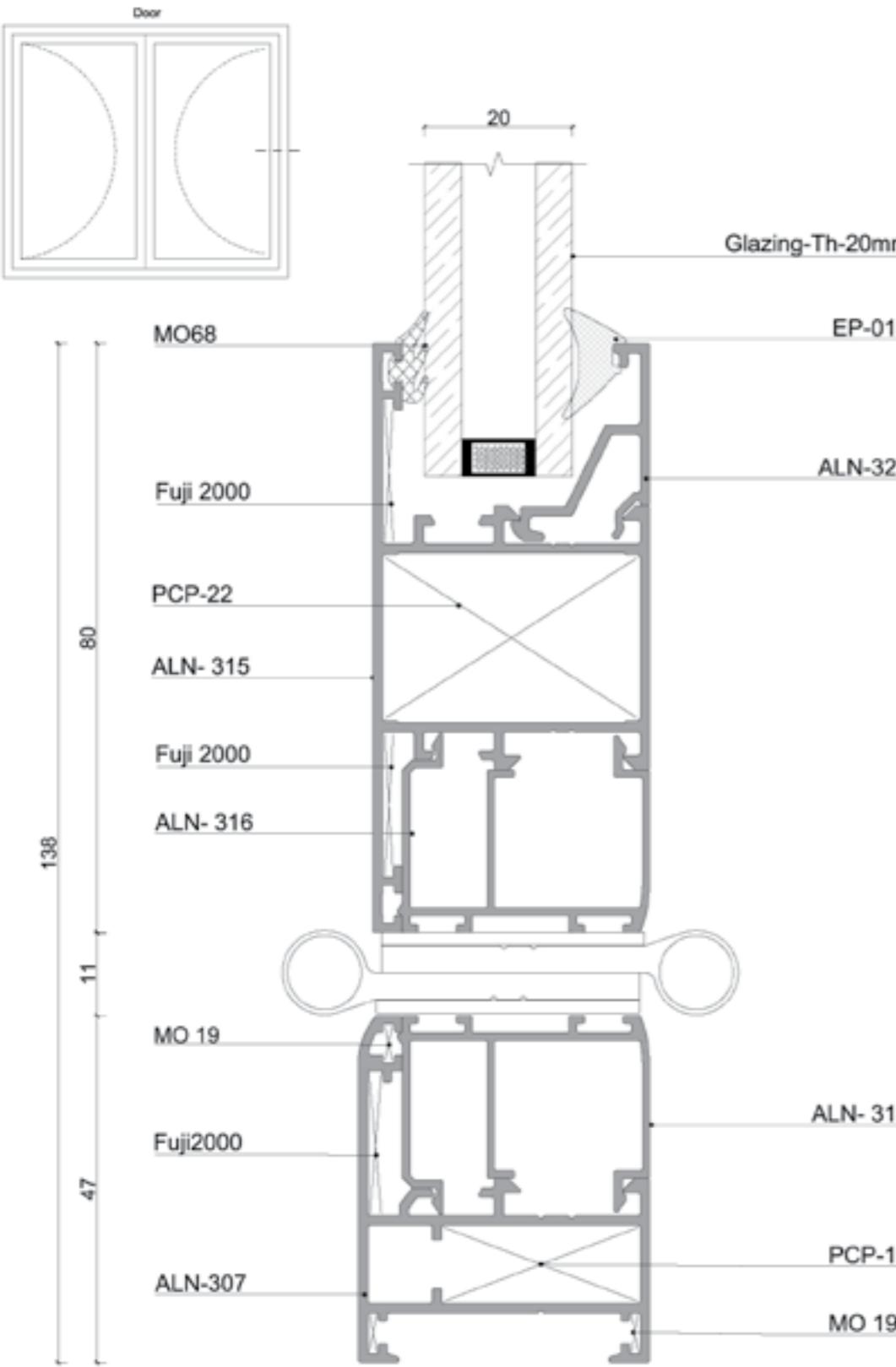


Hinged System 40 Series  
Fabrication Details

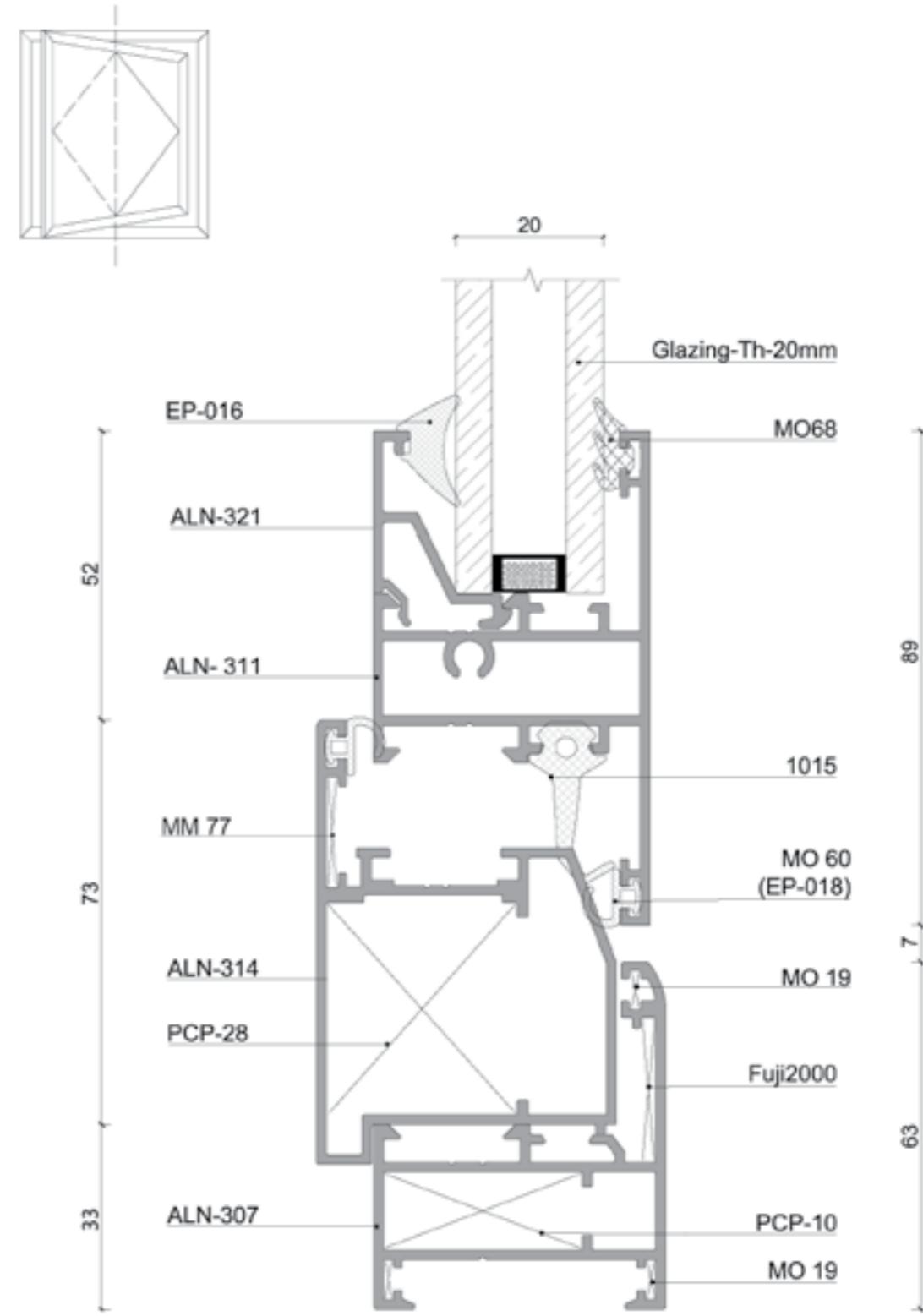




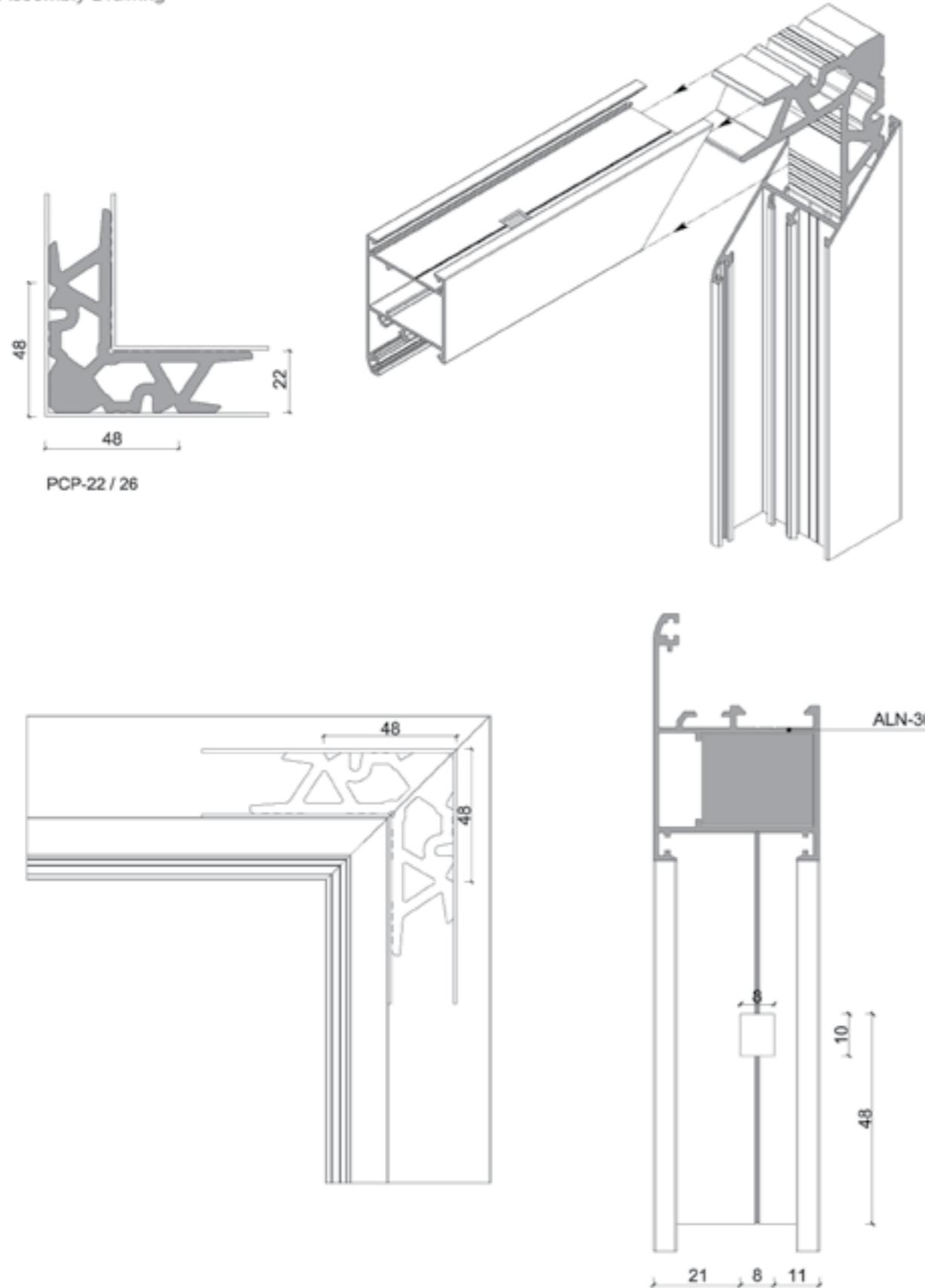
Hinged System 40 Series  
Fabrication Details



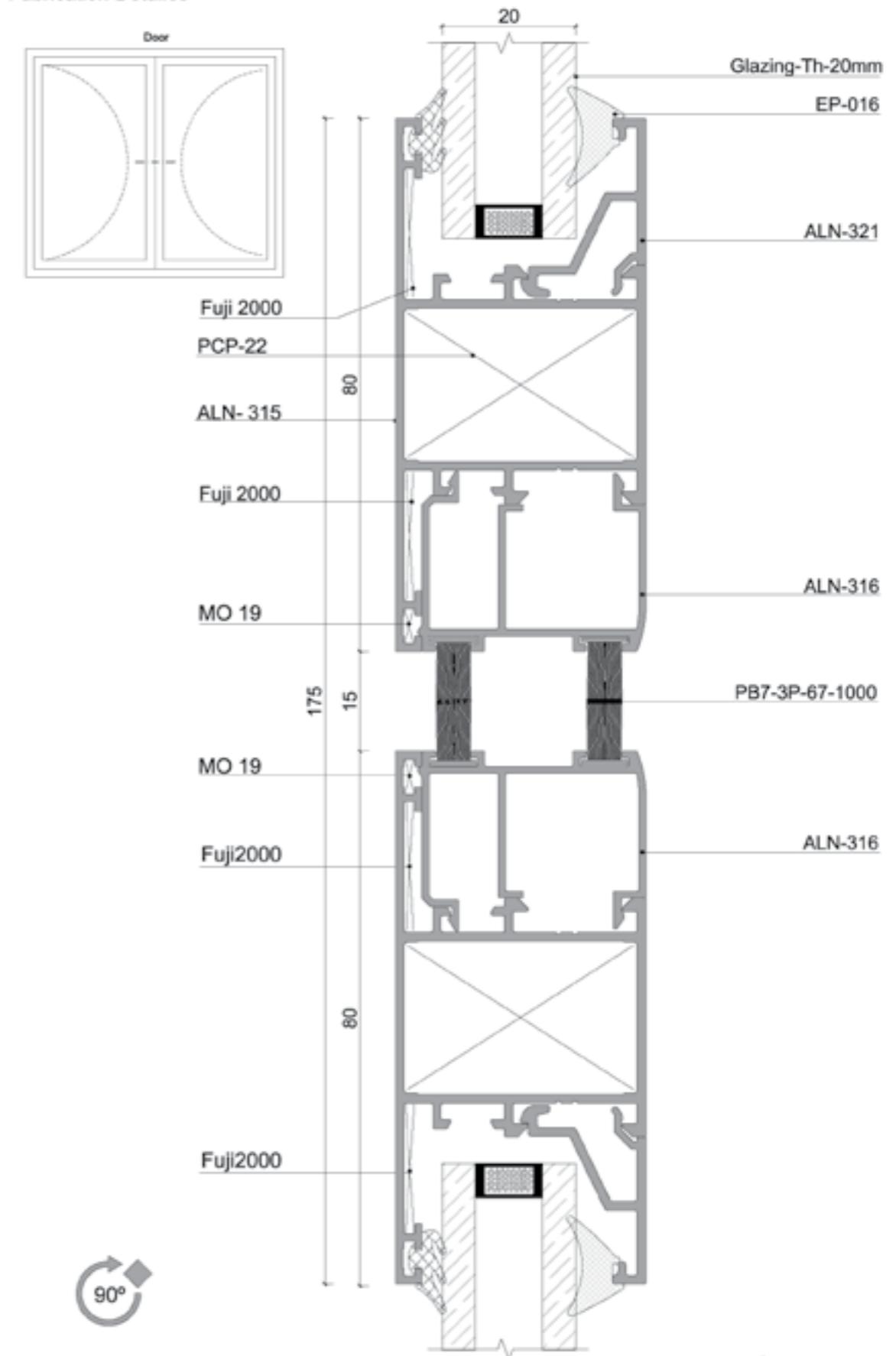
Hinged System 40 Series  
Fabrication Details



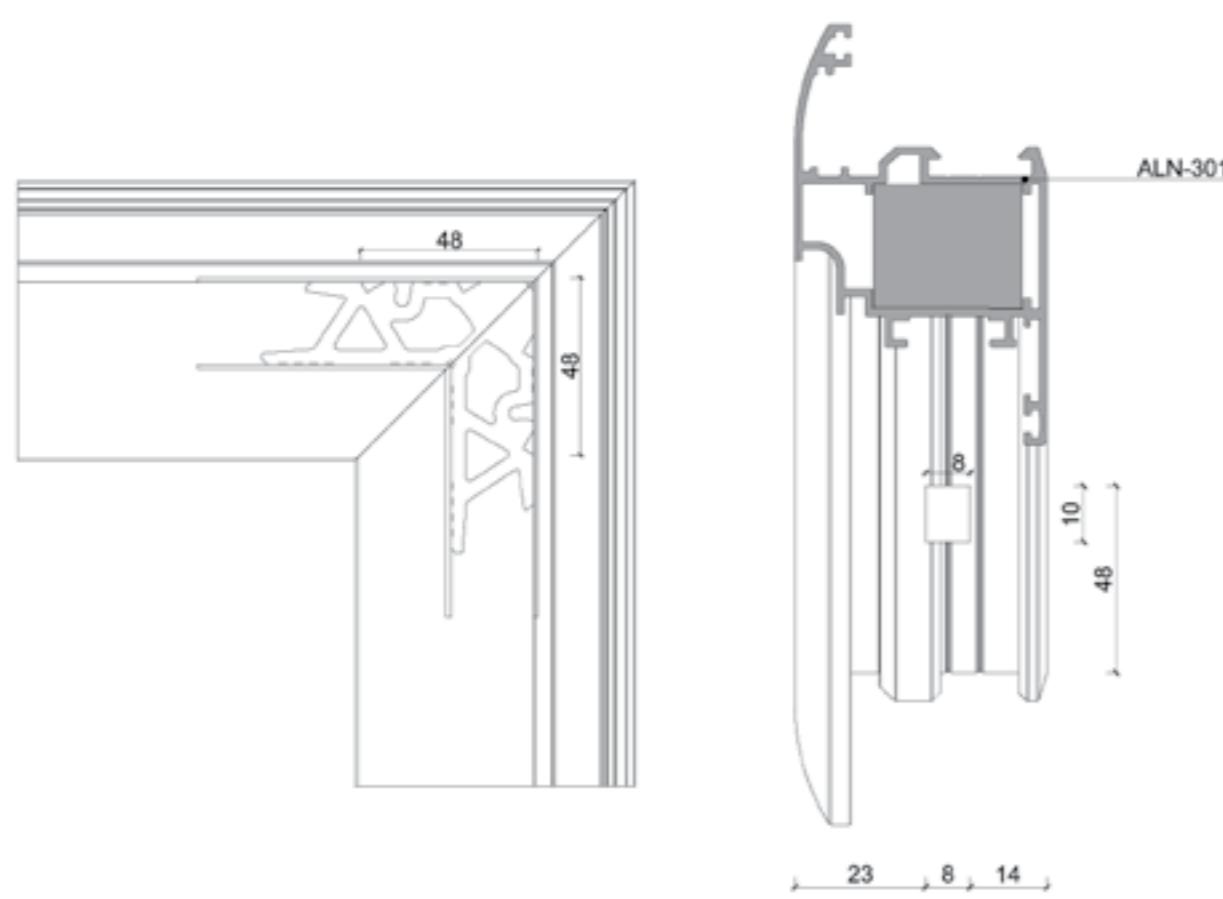
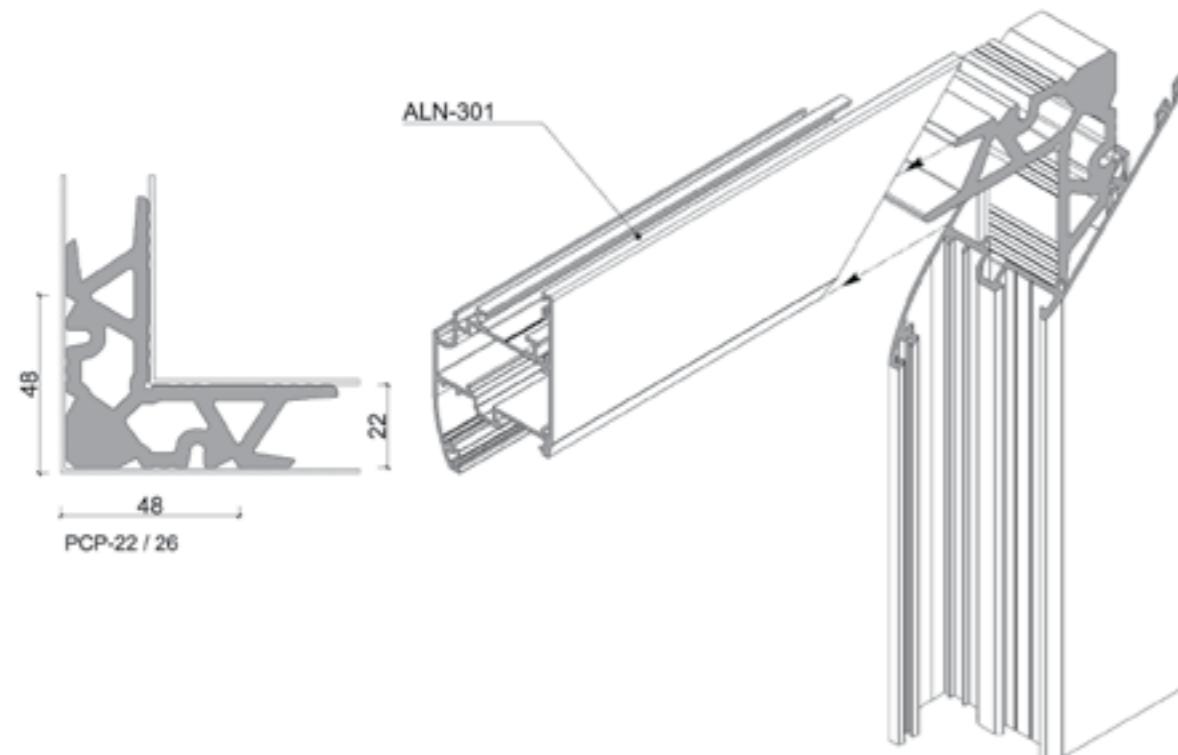
Hinged System 40 Series  
Assembly Drawing



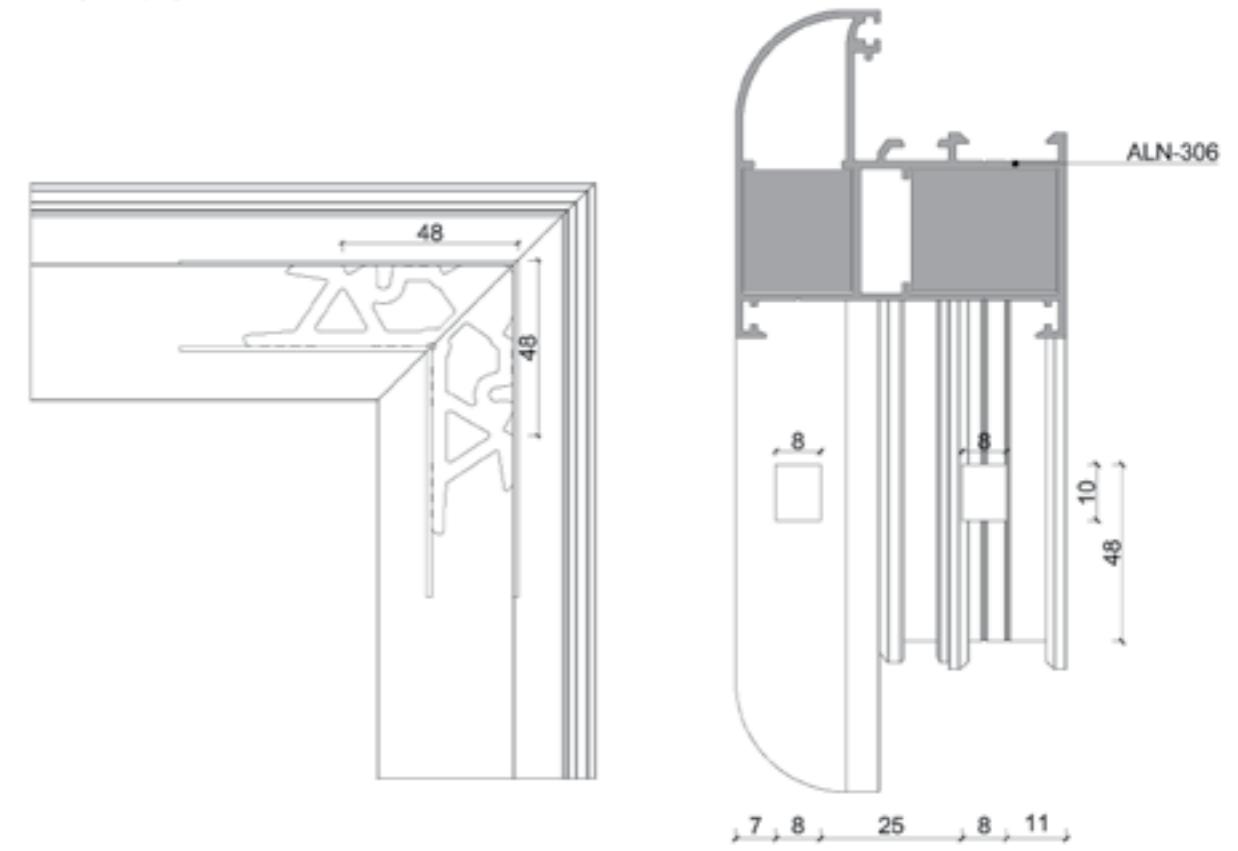
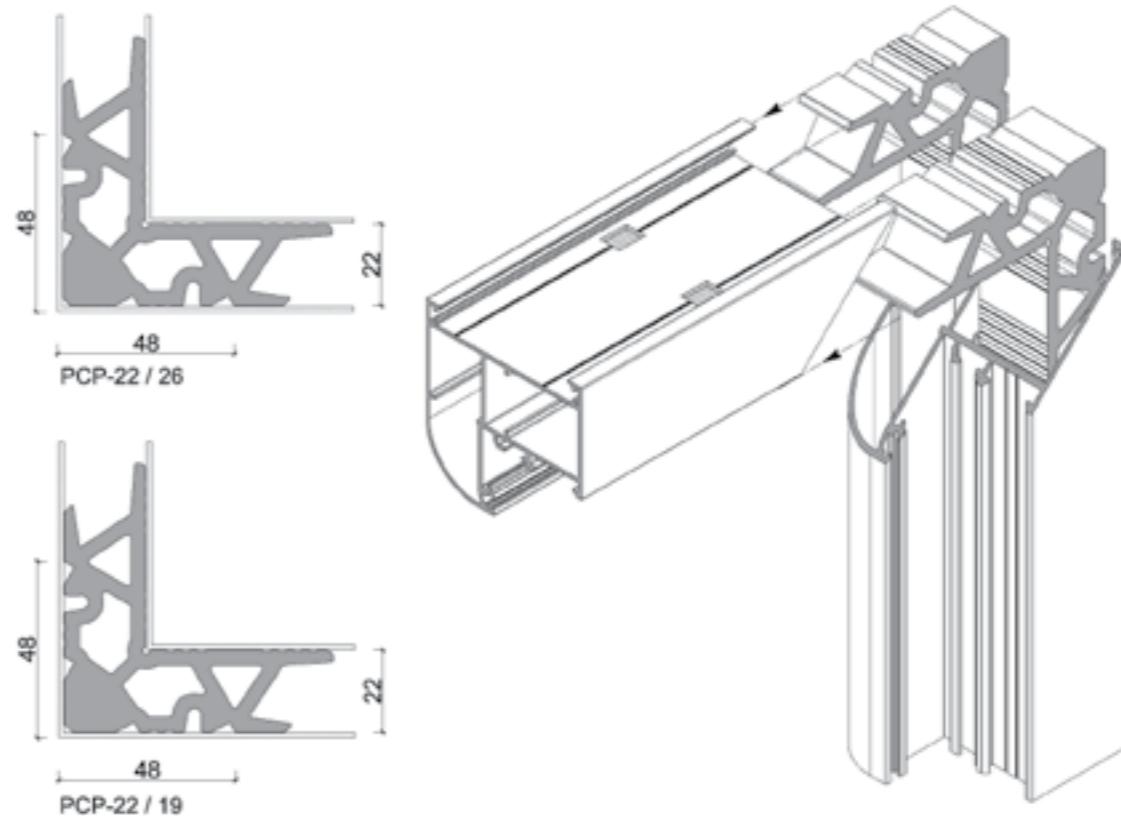
Hinged System 40 Series  
Fabrication Details



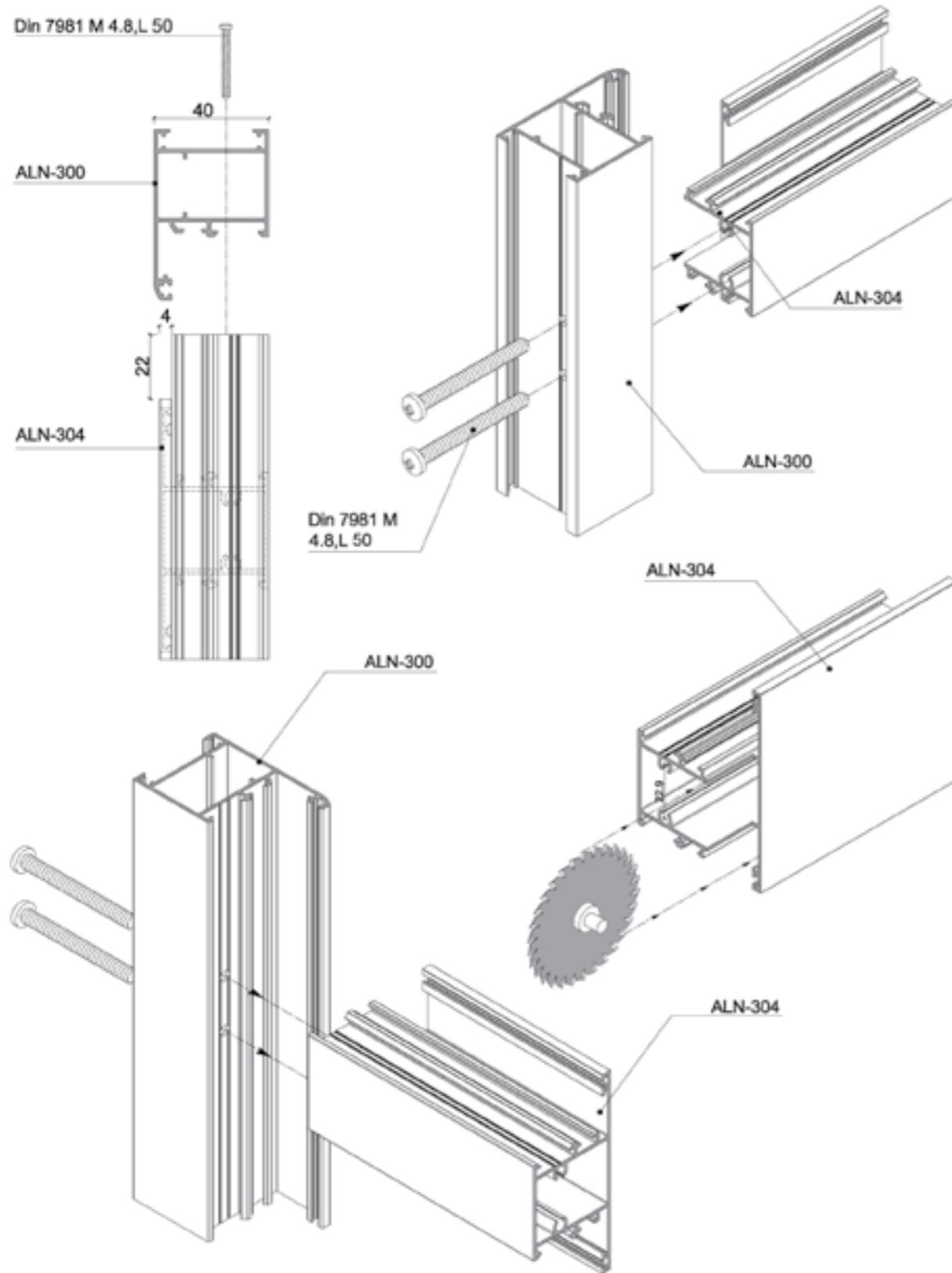
Hinged System 40 Series  
Assembly Drawing



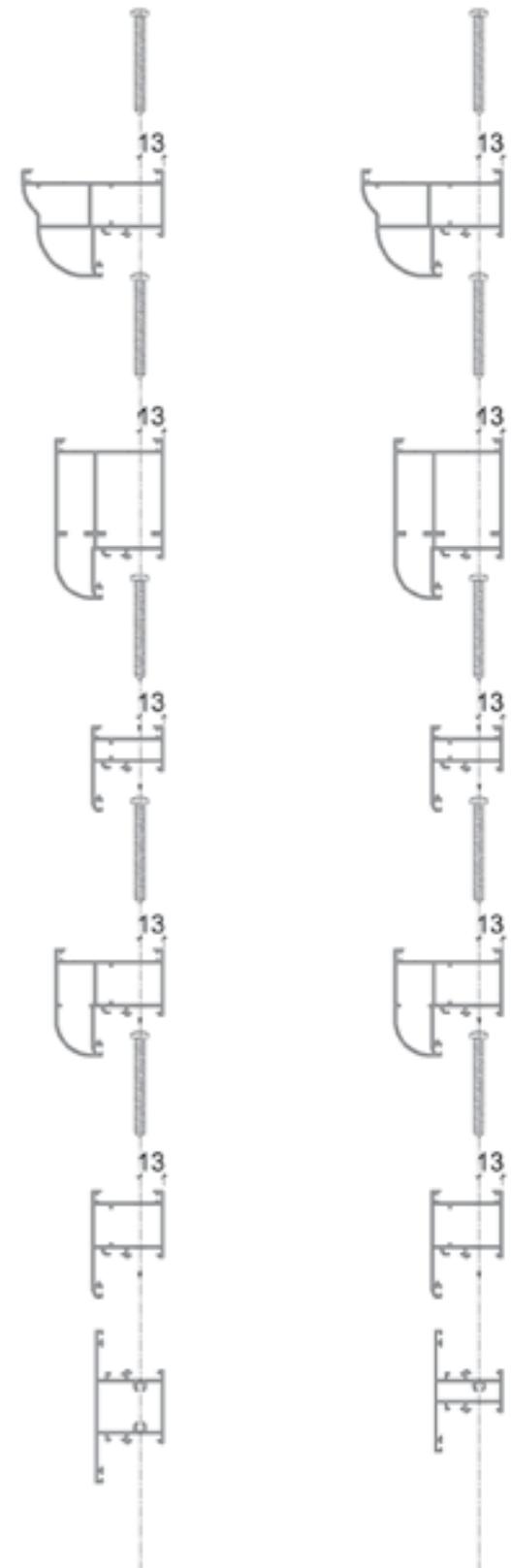
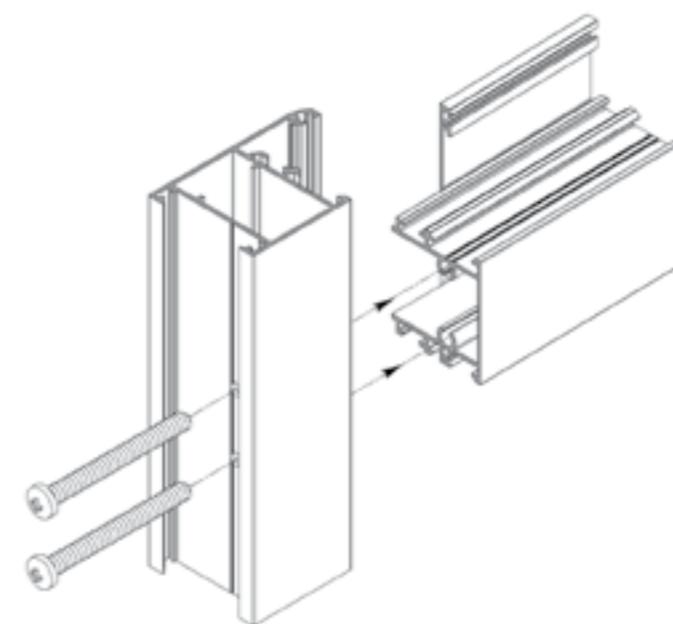
Hinged System 40 Series  
Assembly Drawing



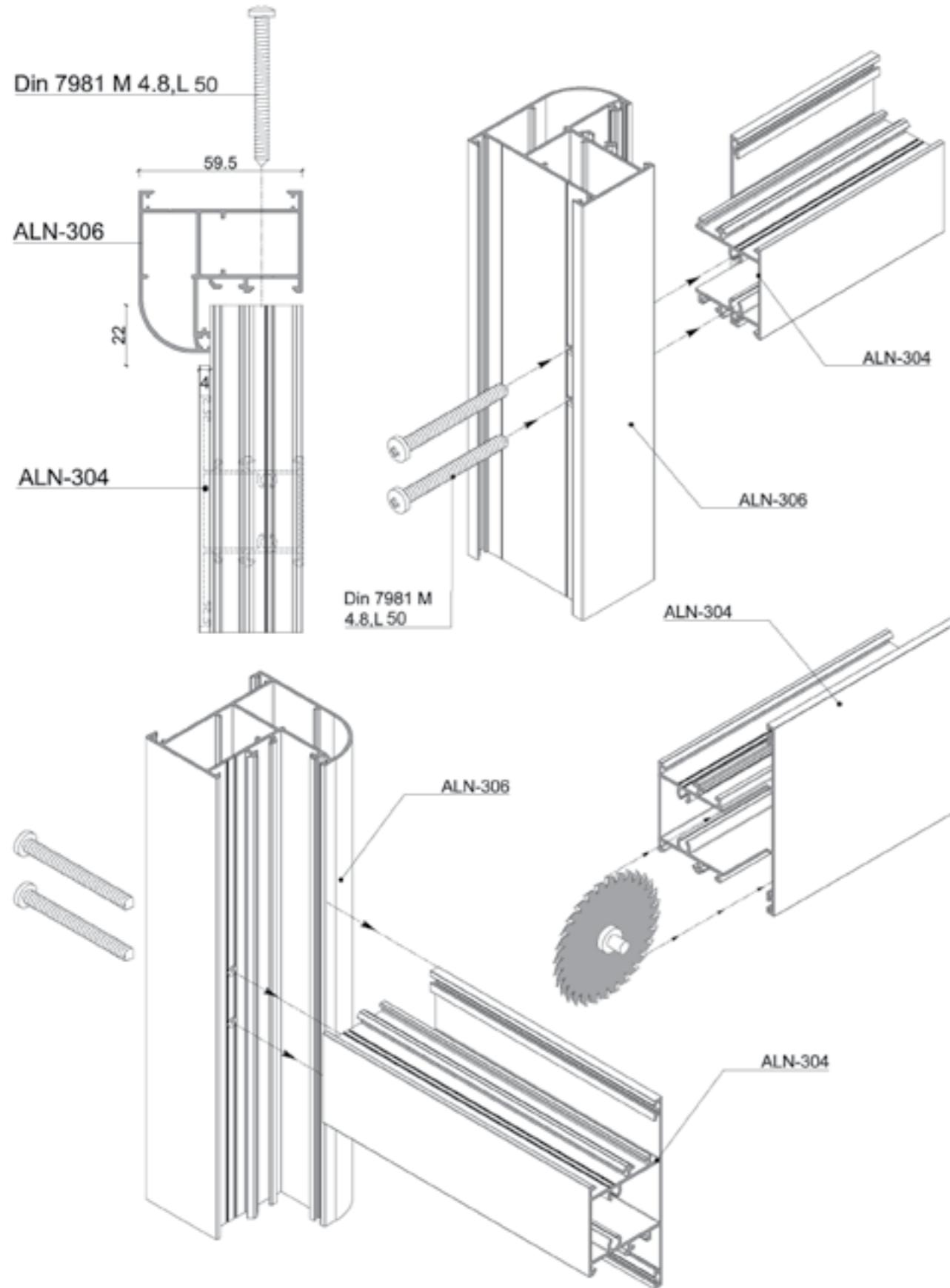
Hinged System 40 Series  
Assembly Drawing



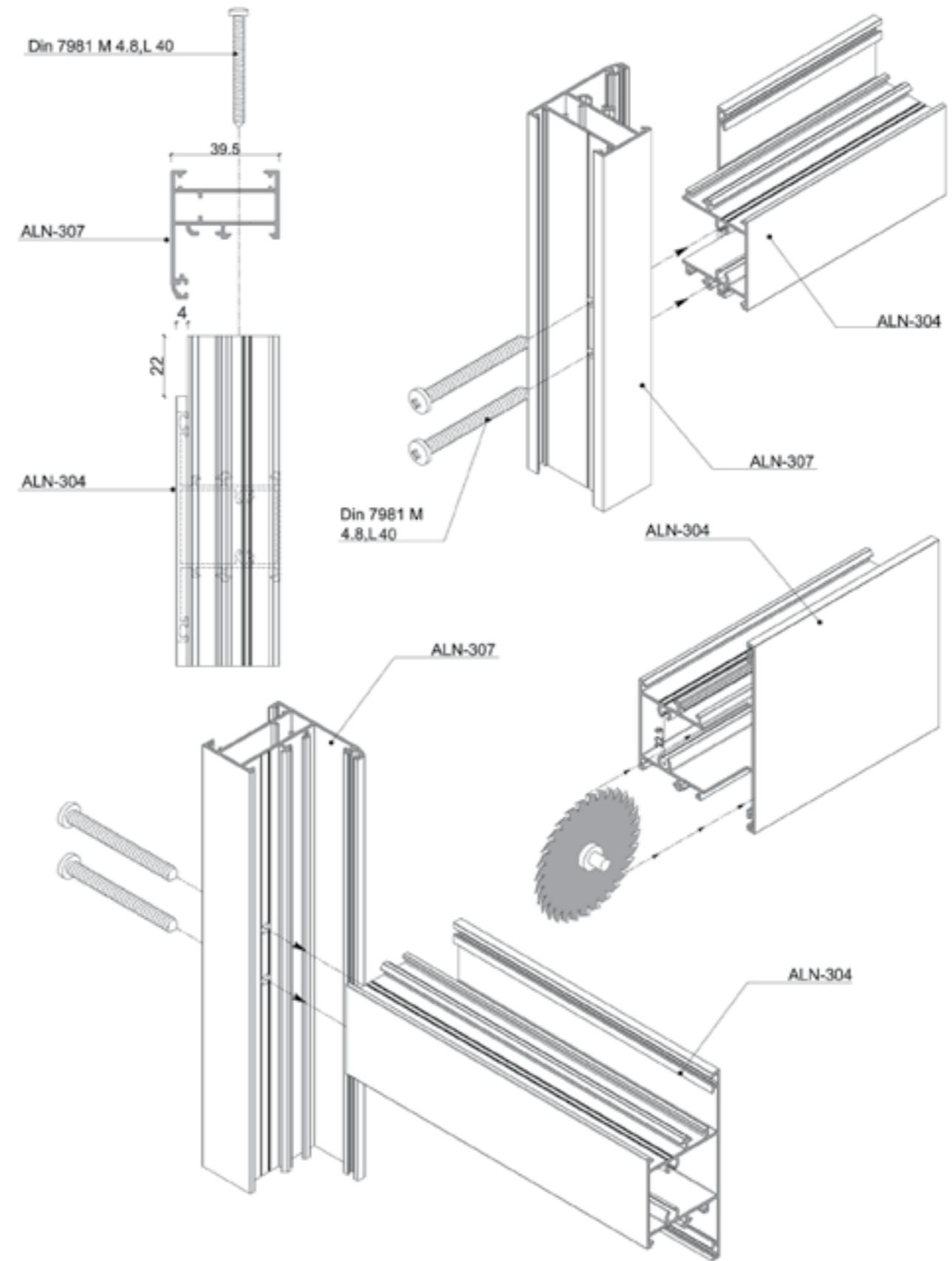
Hinged System 40 Series  
Connection - frame to transom



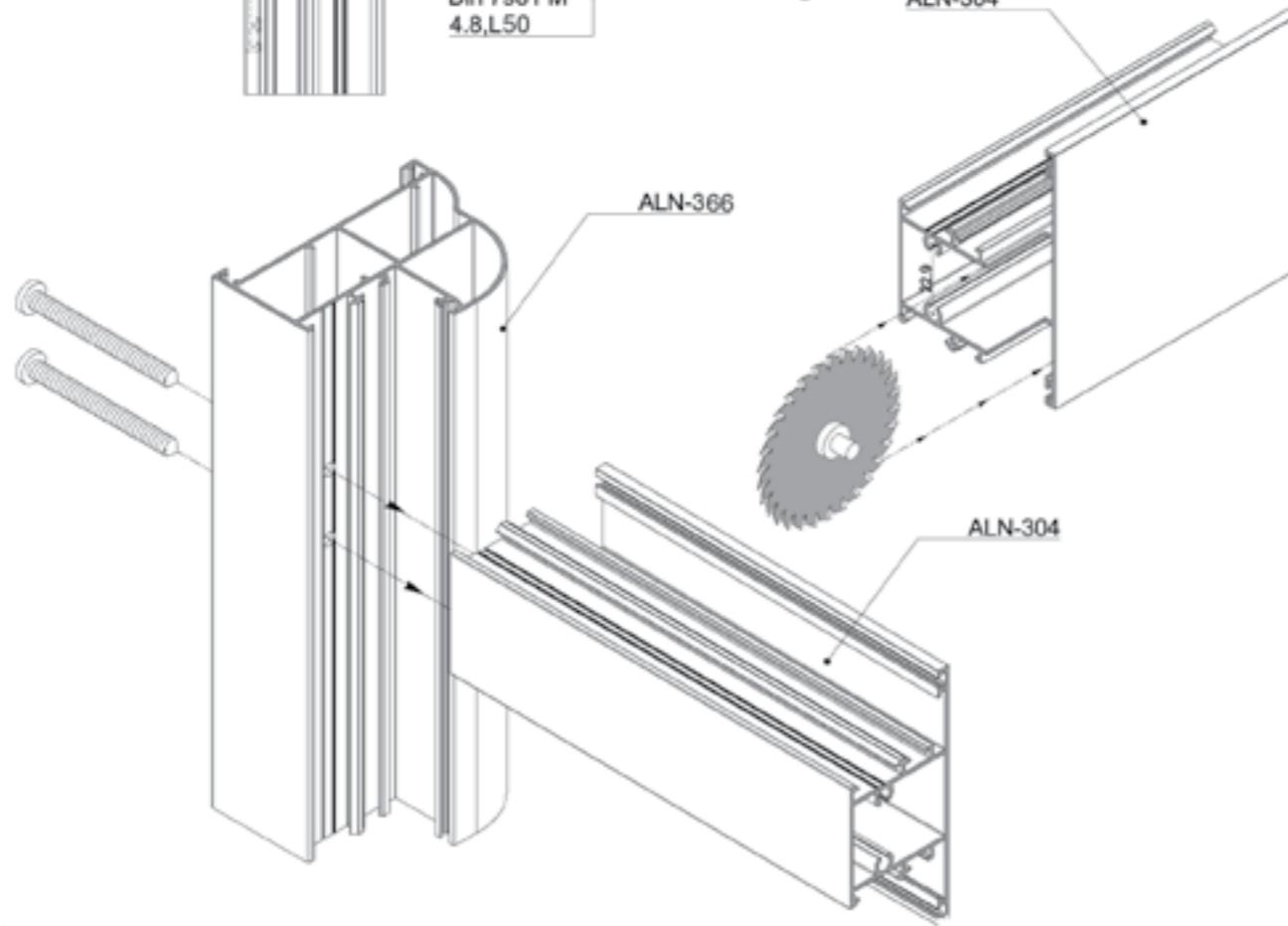
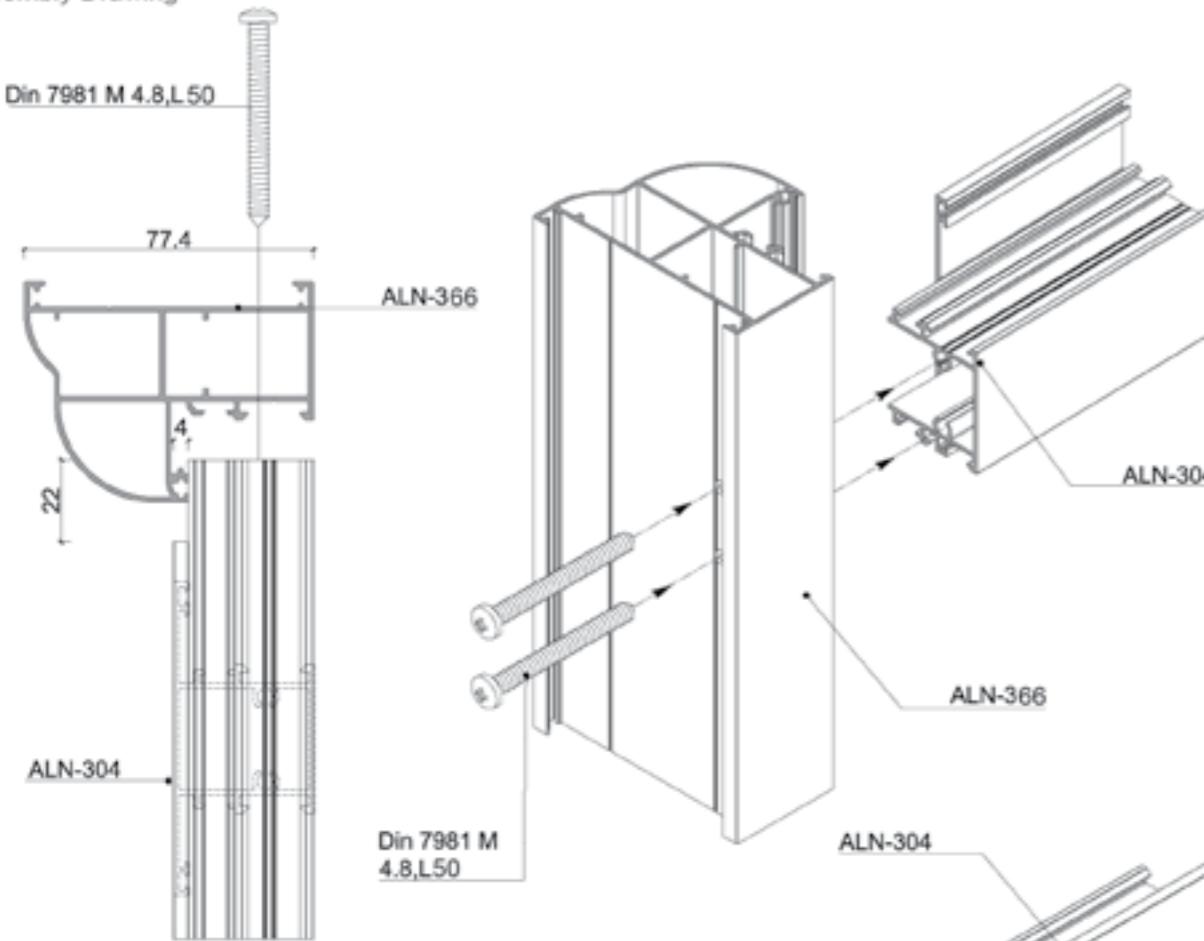
Hinged System 40 Series  
Assembly Drawing



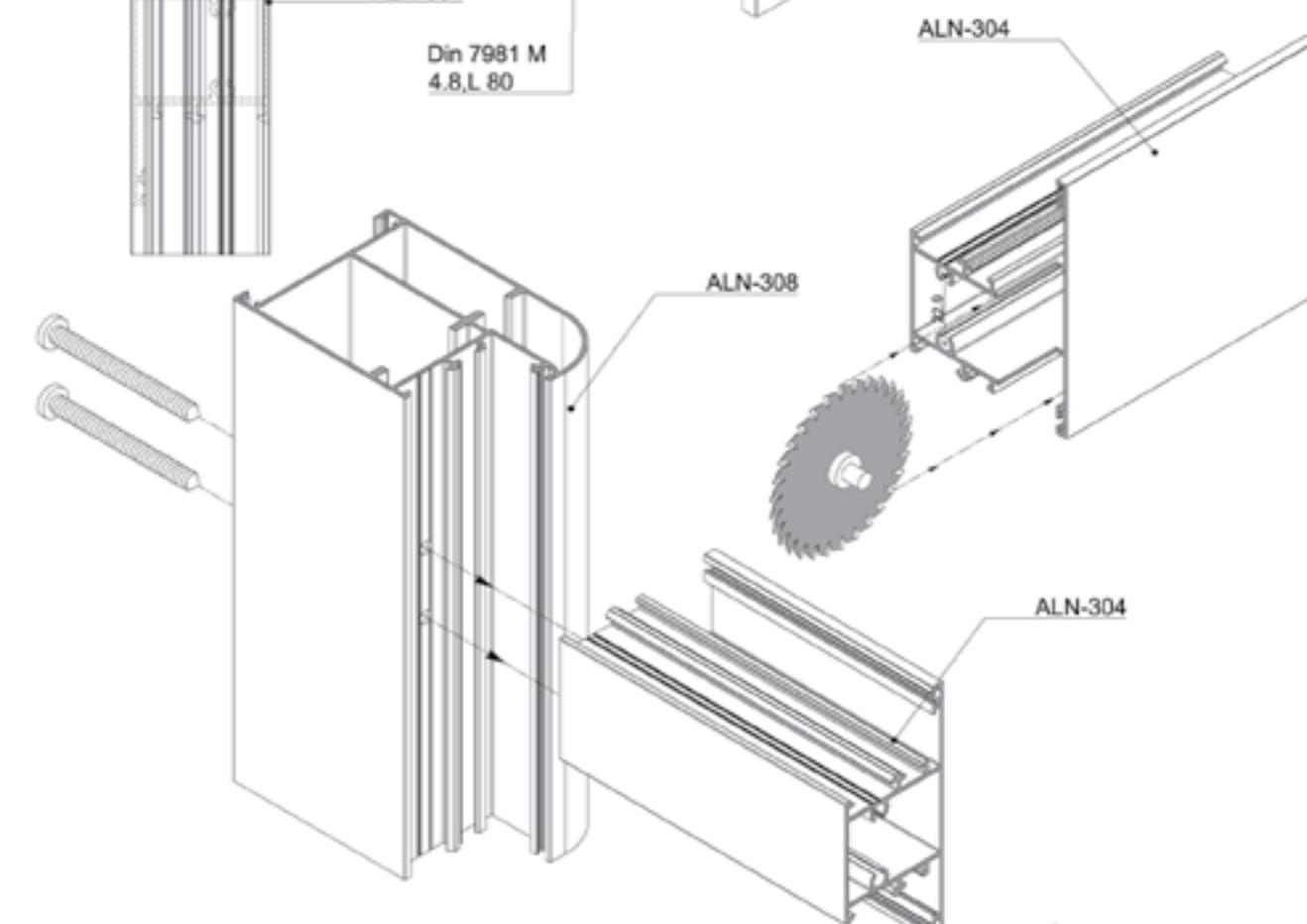
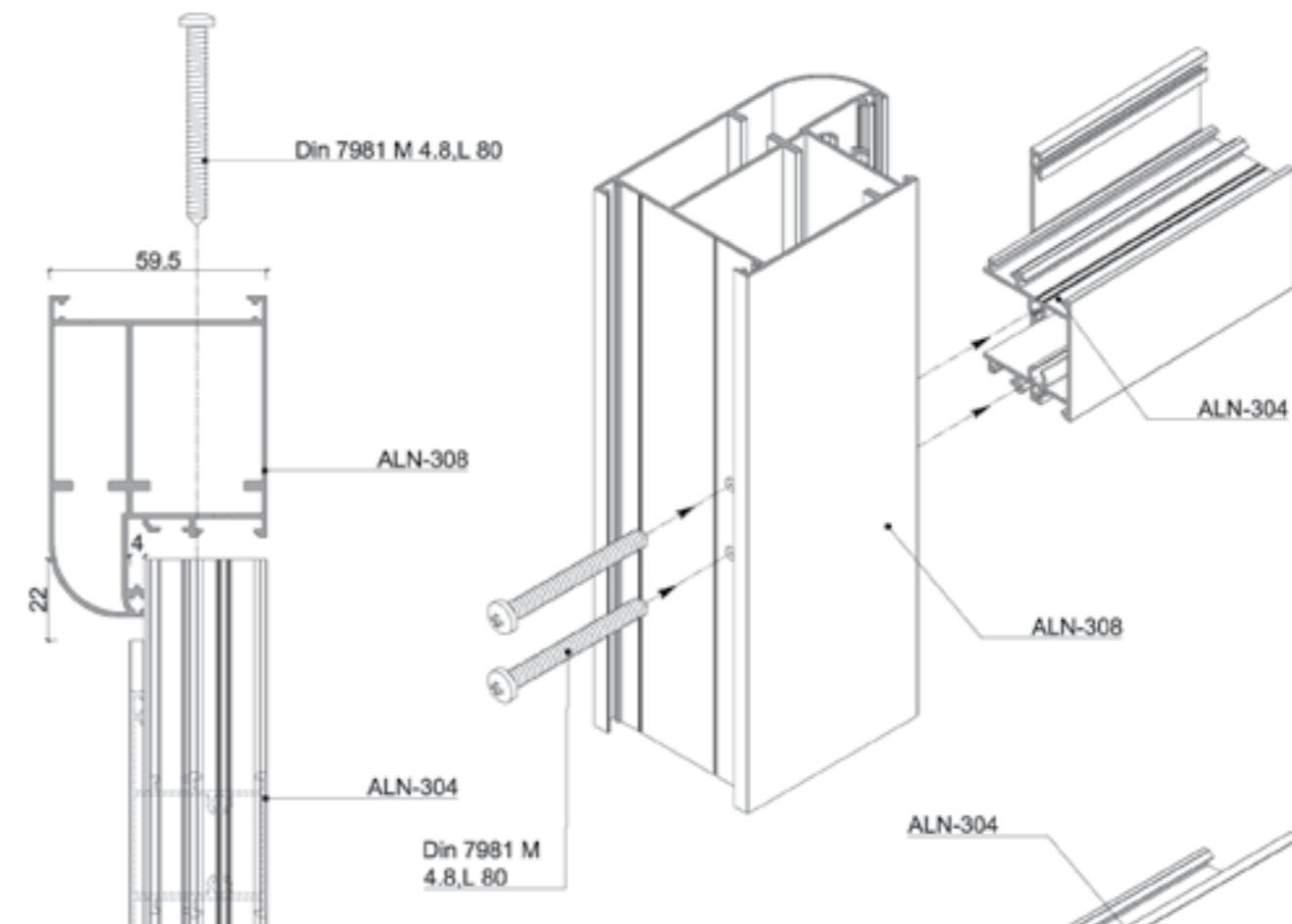
Hinged System 40 Series  
Assembly Drawing



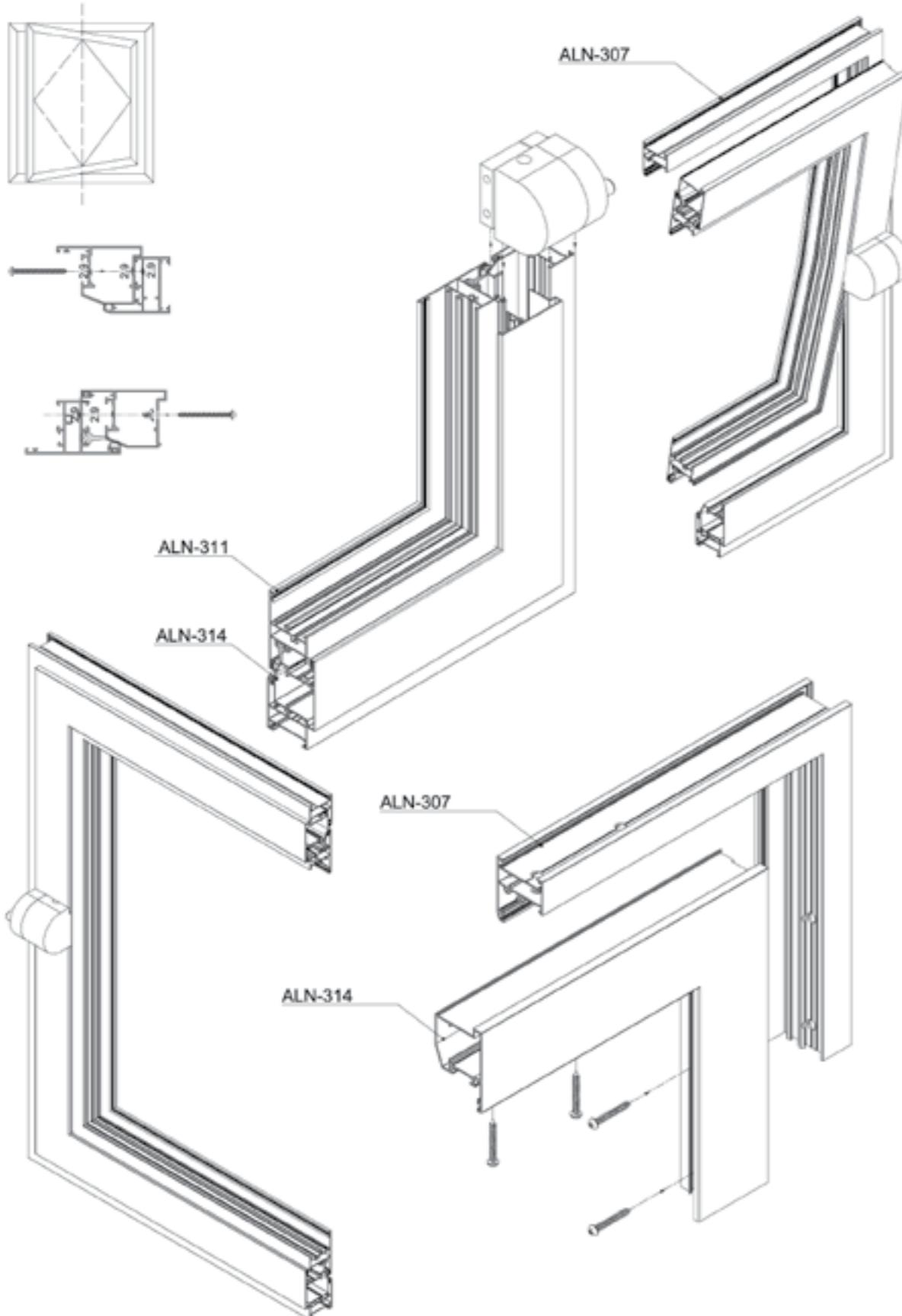
Hinged System 40 Series  
Assembly Drawing



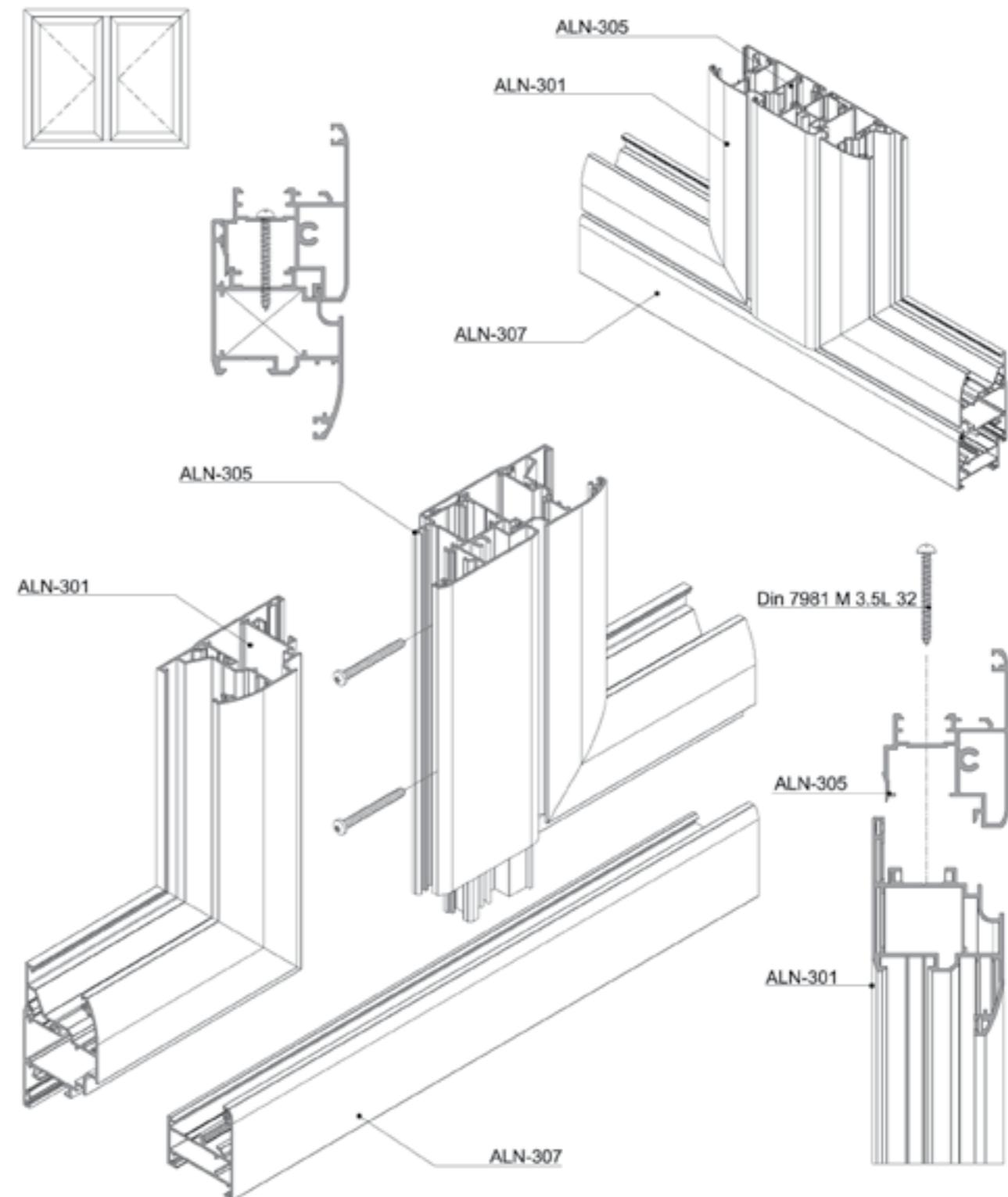
Hinged System 40 Series  
Assembly Drawing



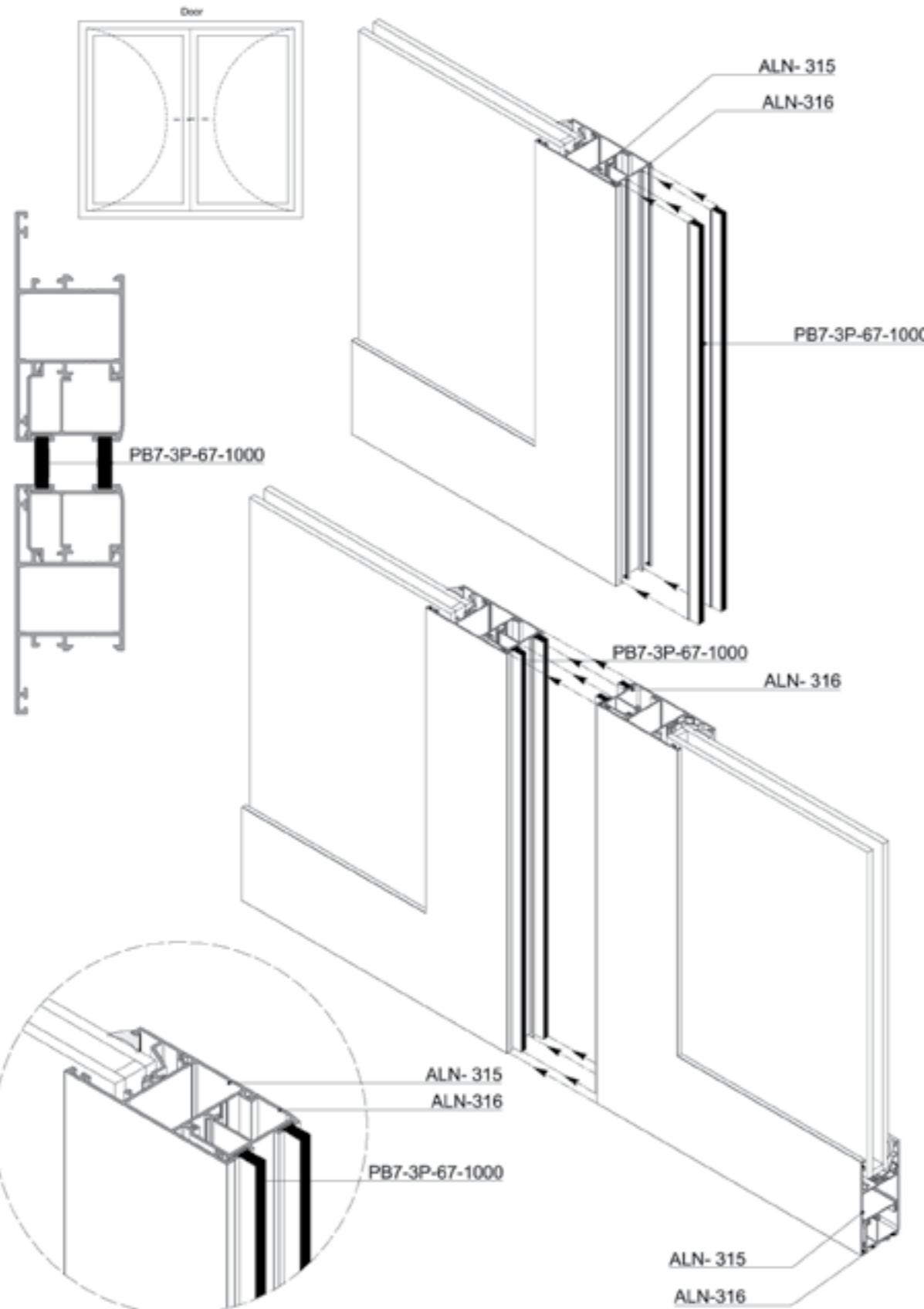
Hinged System 40 Series  
Assembly Drawing



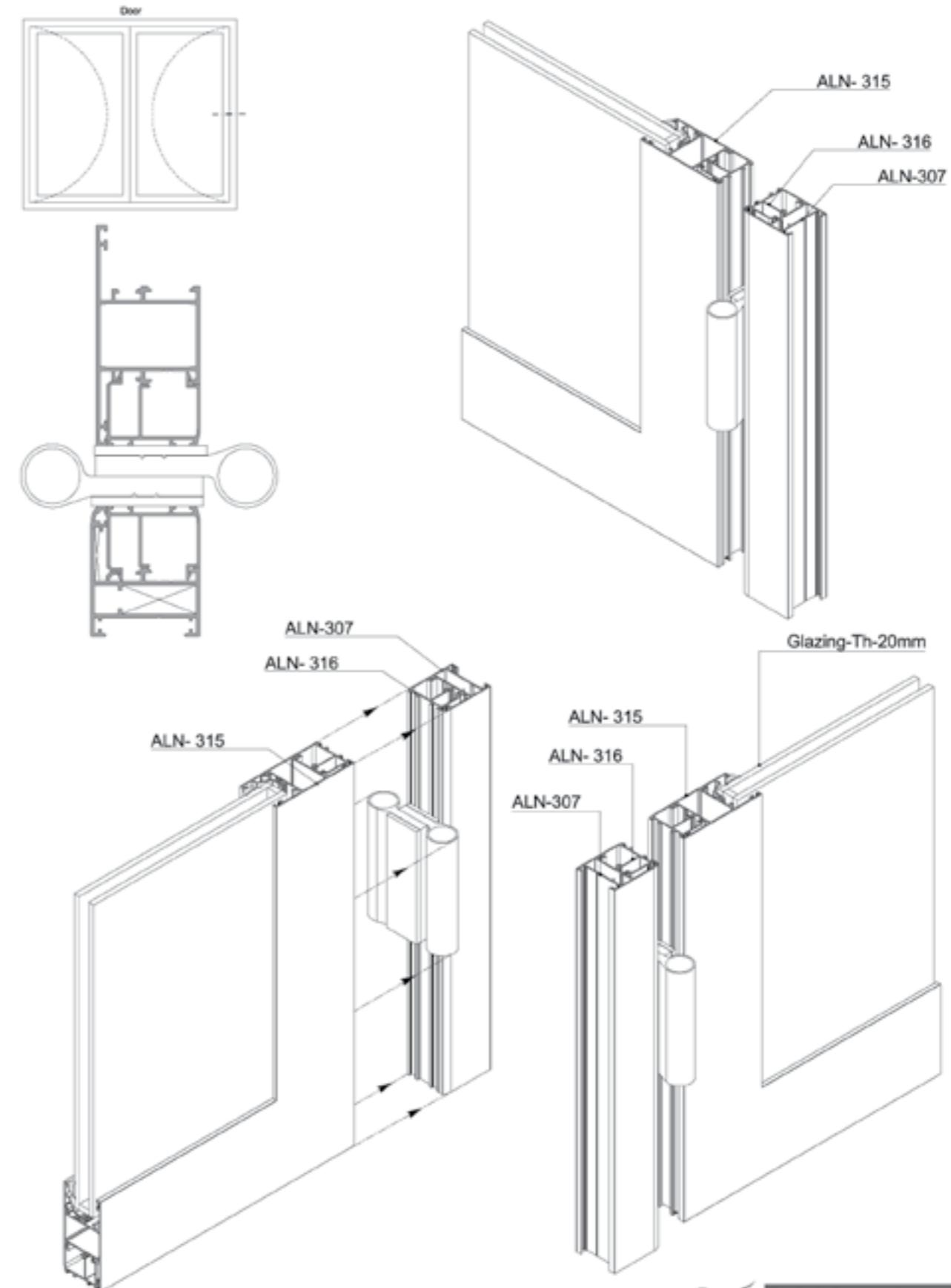
Hinged System 40 Series  
Assembly Drawing



Hinged System 40 Series  
Assembly Drawing

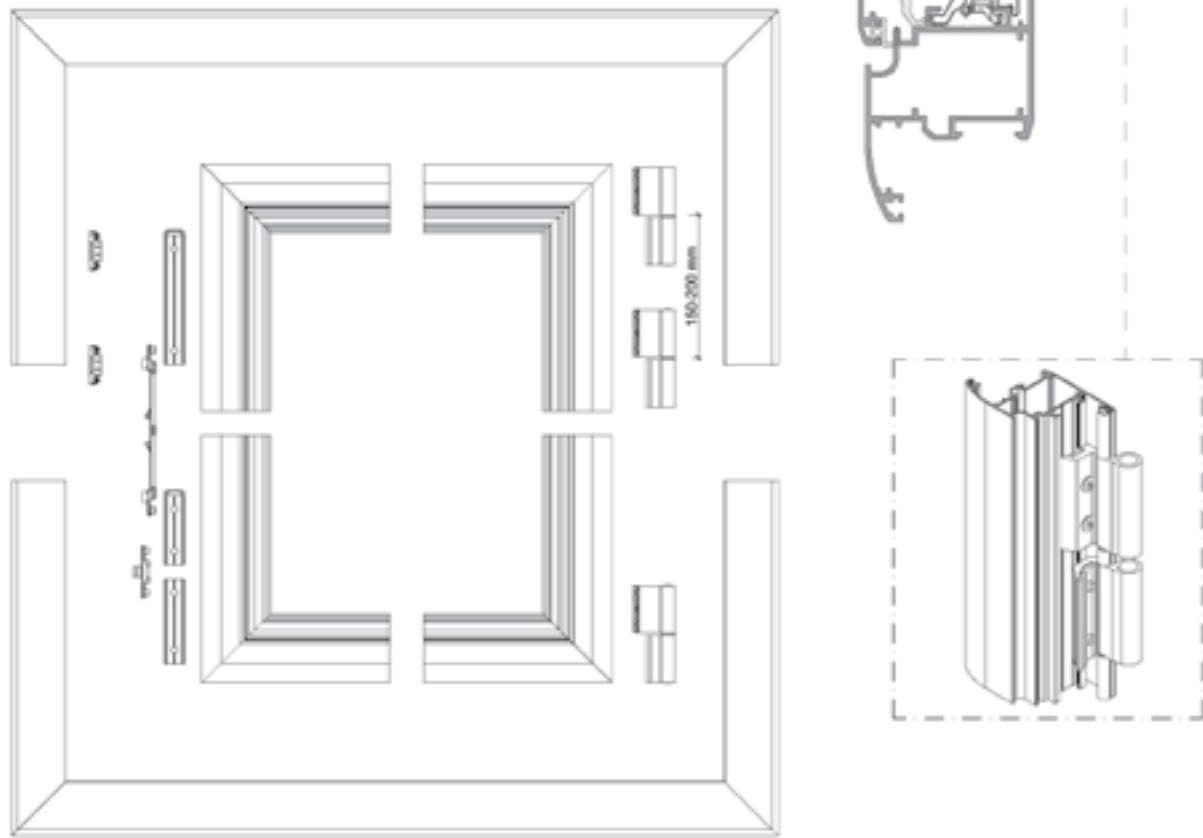
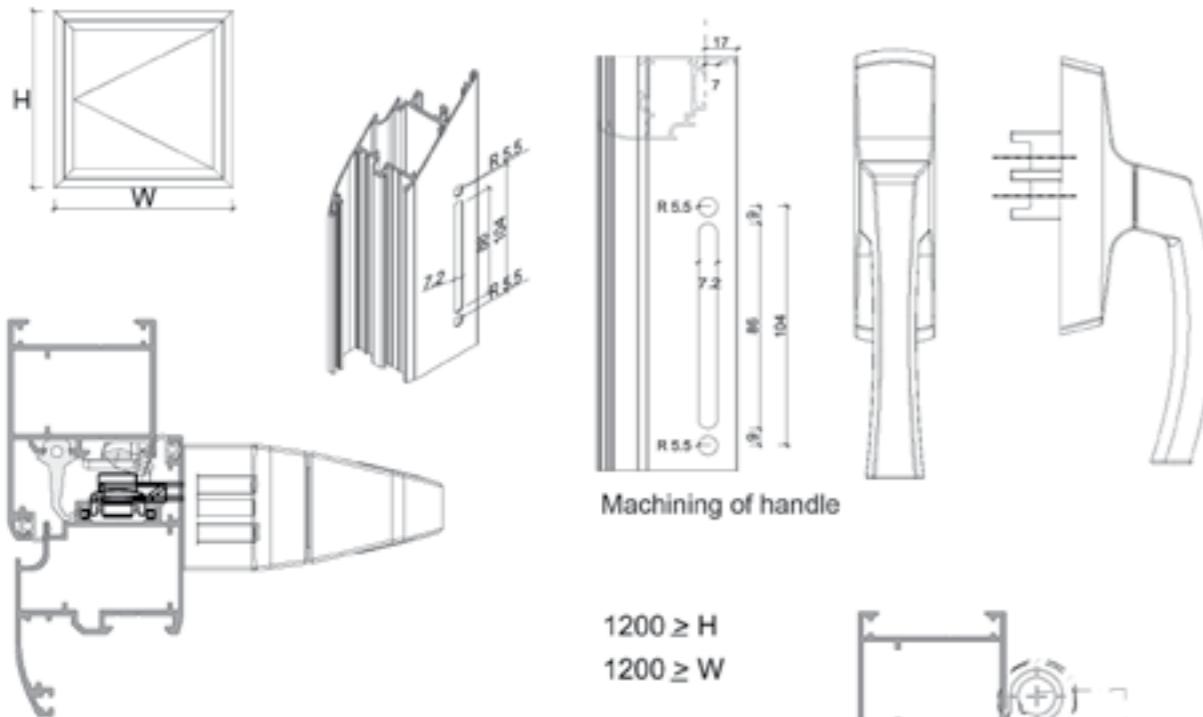


Hinged System 40 Series  
Assembly Drawing



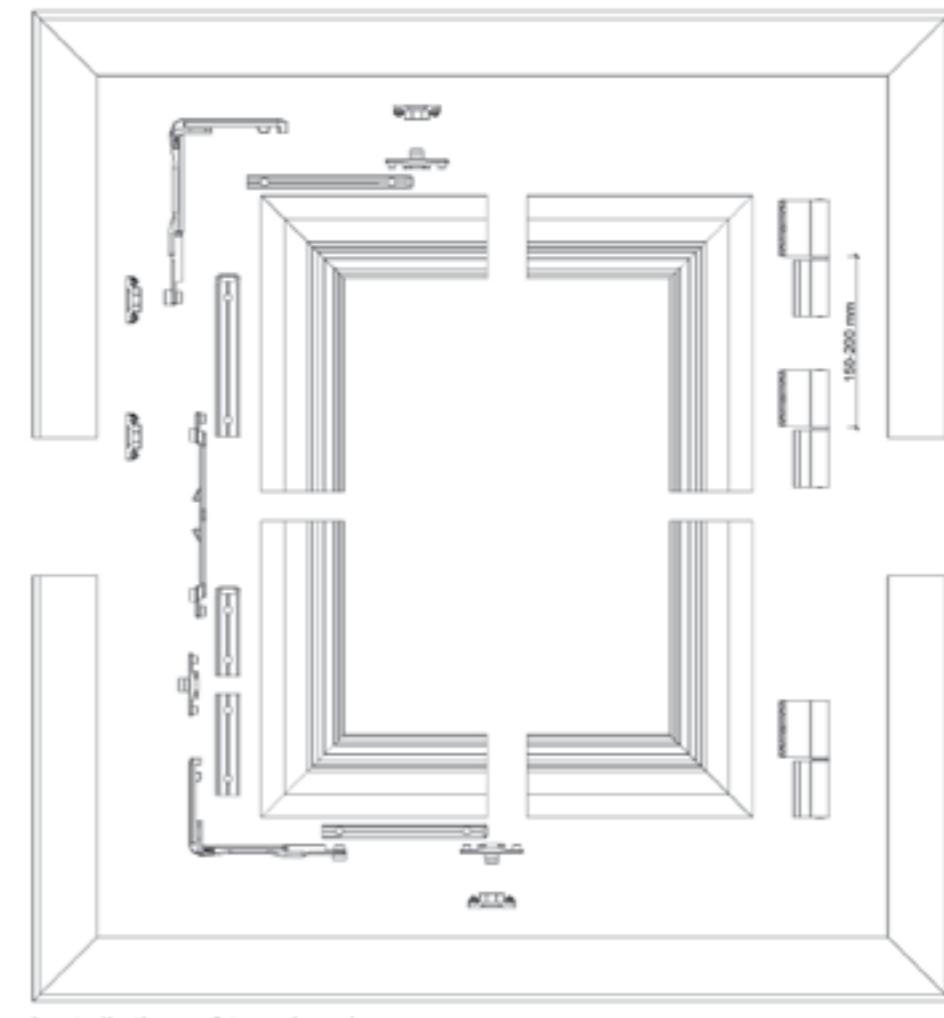
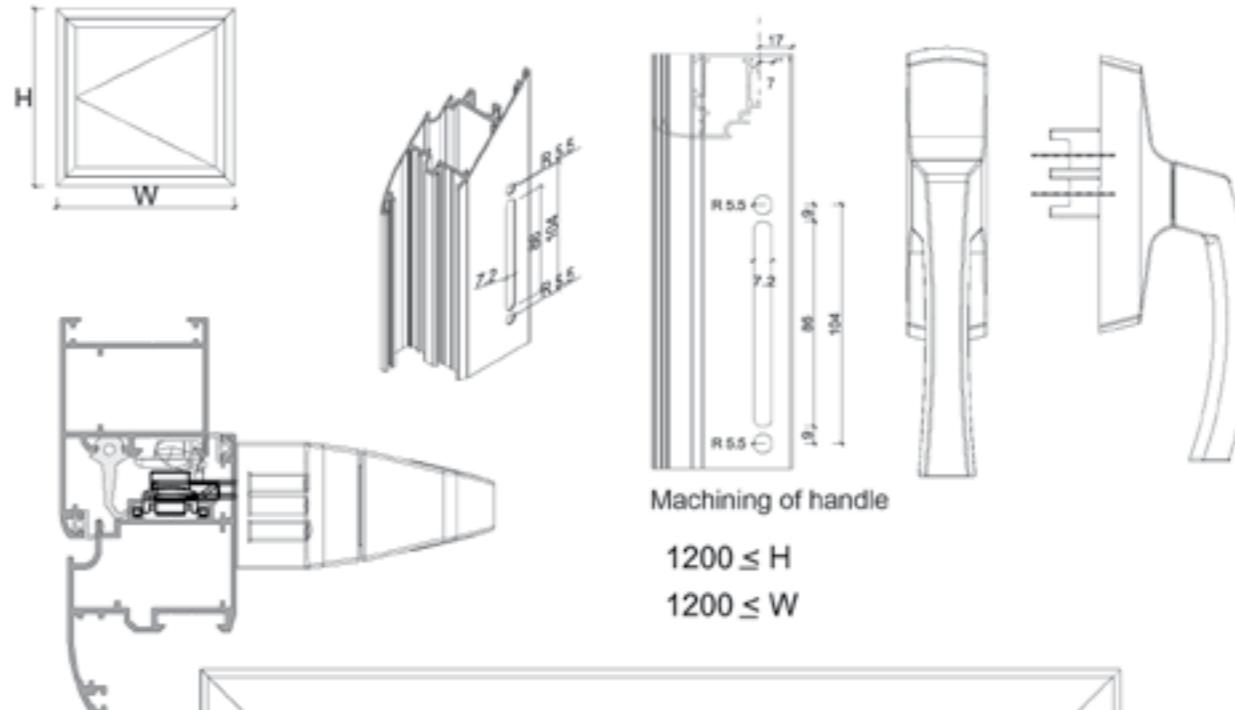
### Hinged System 40 Series

Hardware Installation



### Hinged System 40 Series

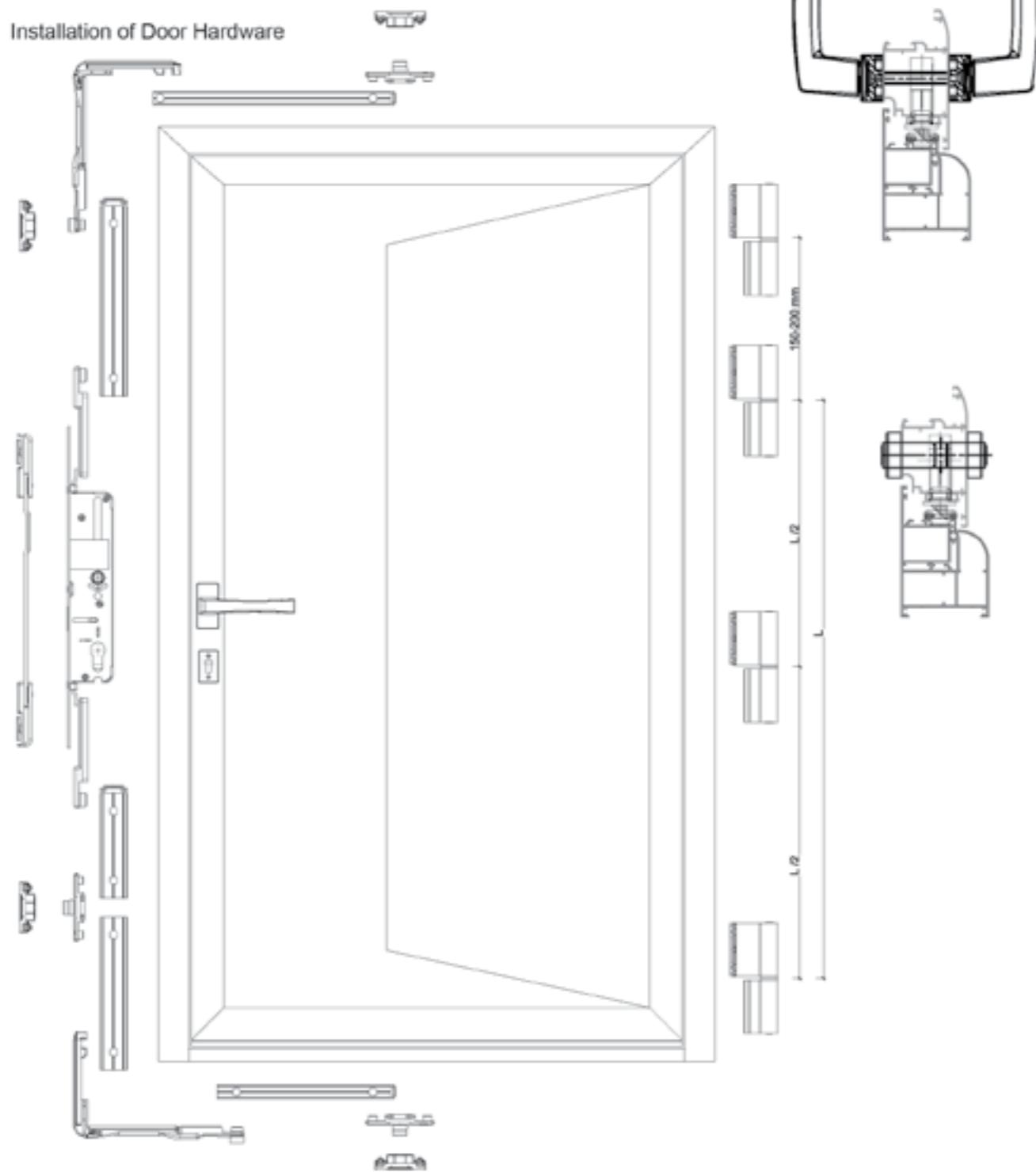
Hardware Installation



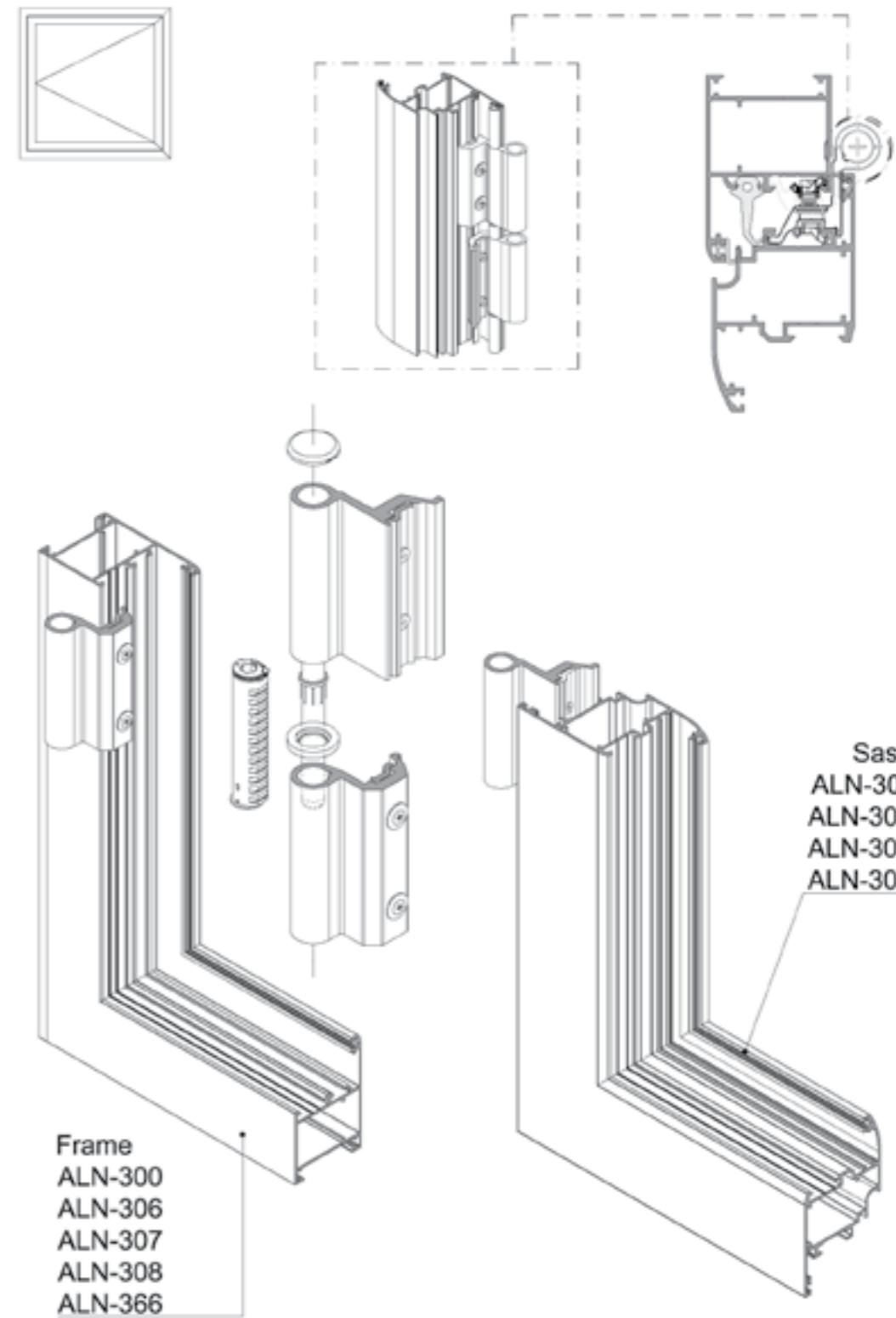
## Hinged System 40 Series Hardware Installation

Outward Opening

Installation of Door Hardware



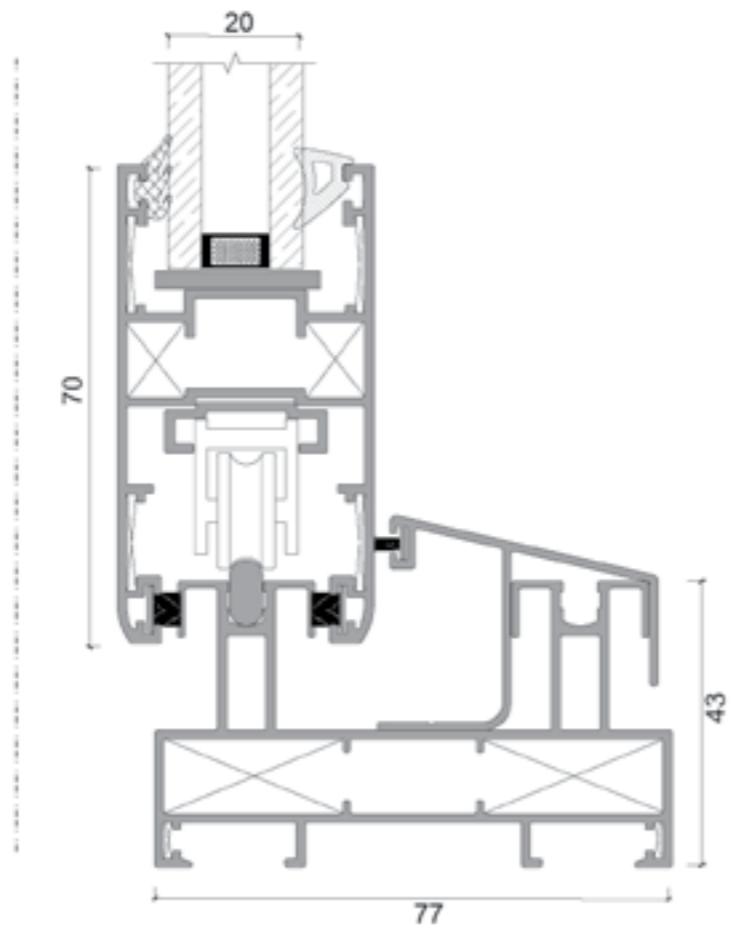
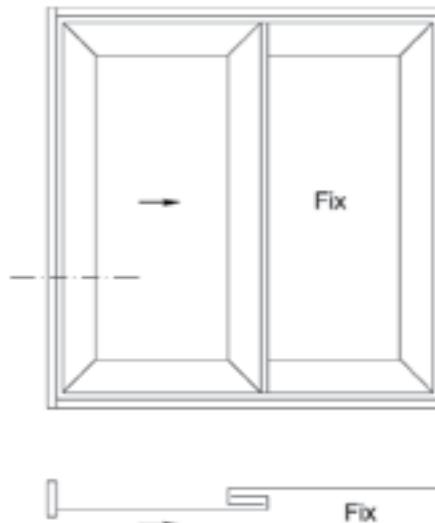
## Hinged System 40 Series Hardware Installation





### Slide System 77 Series

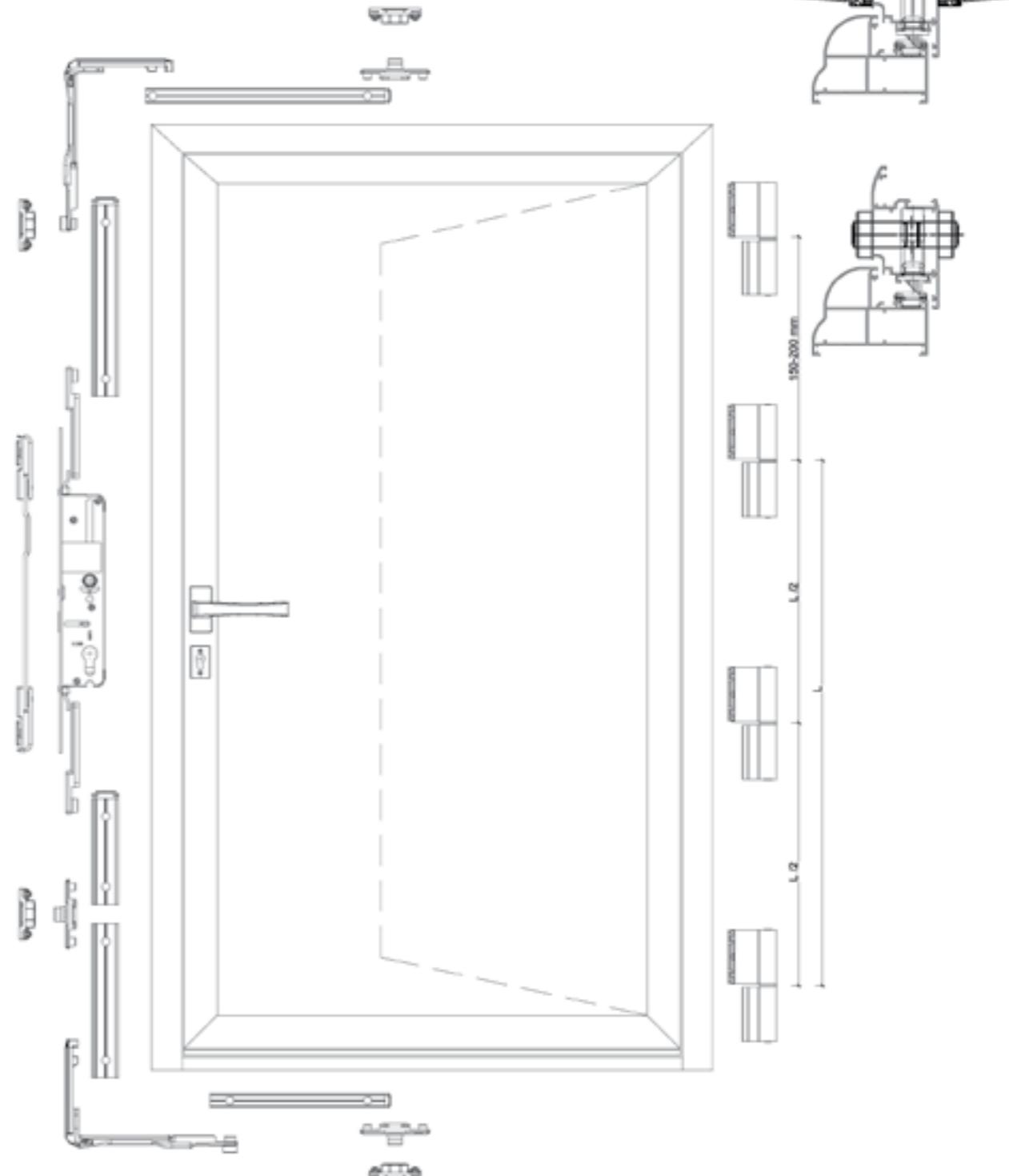
- . Profile width: 77 - 110 mm
- . Vent width: 38 mm
- . Wall thickness: 1.3 - 1.4 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 4 - 24 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Safety drainage system
- . Various typologies



### Hinged System 40 Series Hardware Installation

Inward Opening

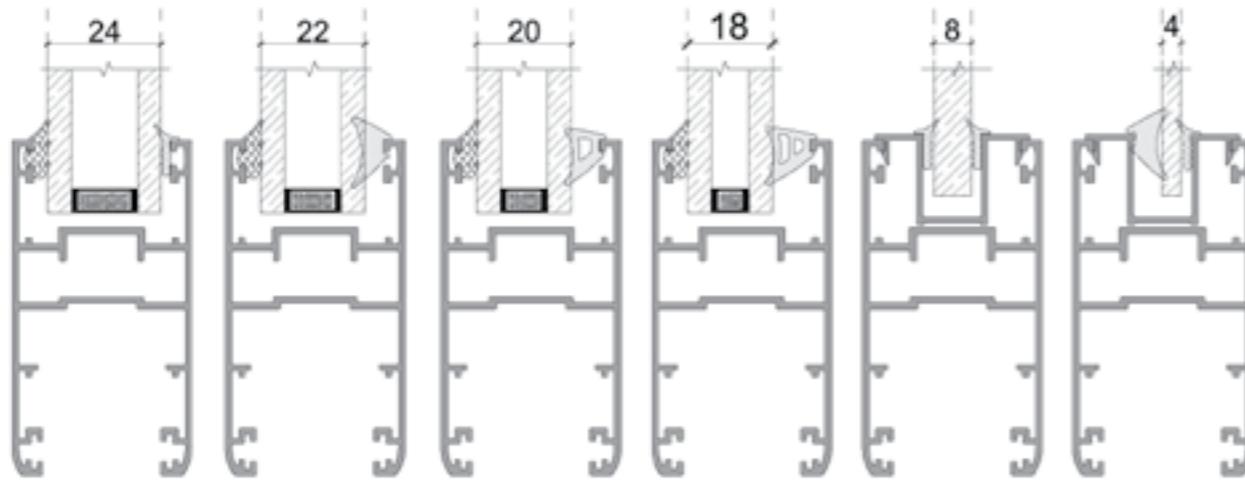
#### Installation of Door Hardware



### Slide System 77 Series

Glazing Table

**ALN-356**

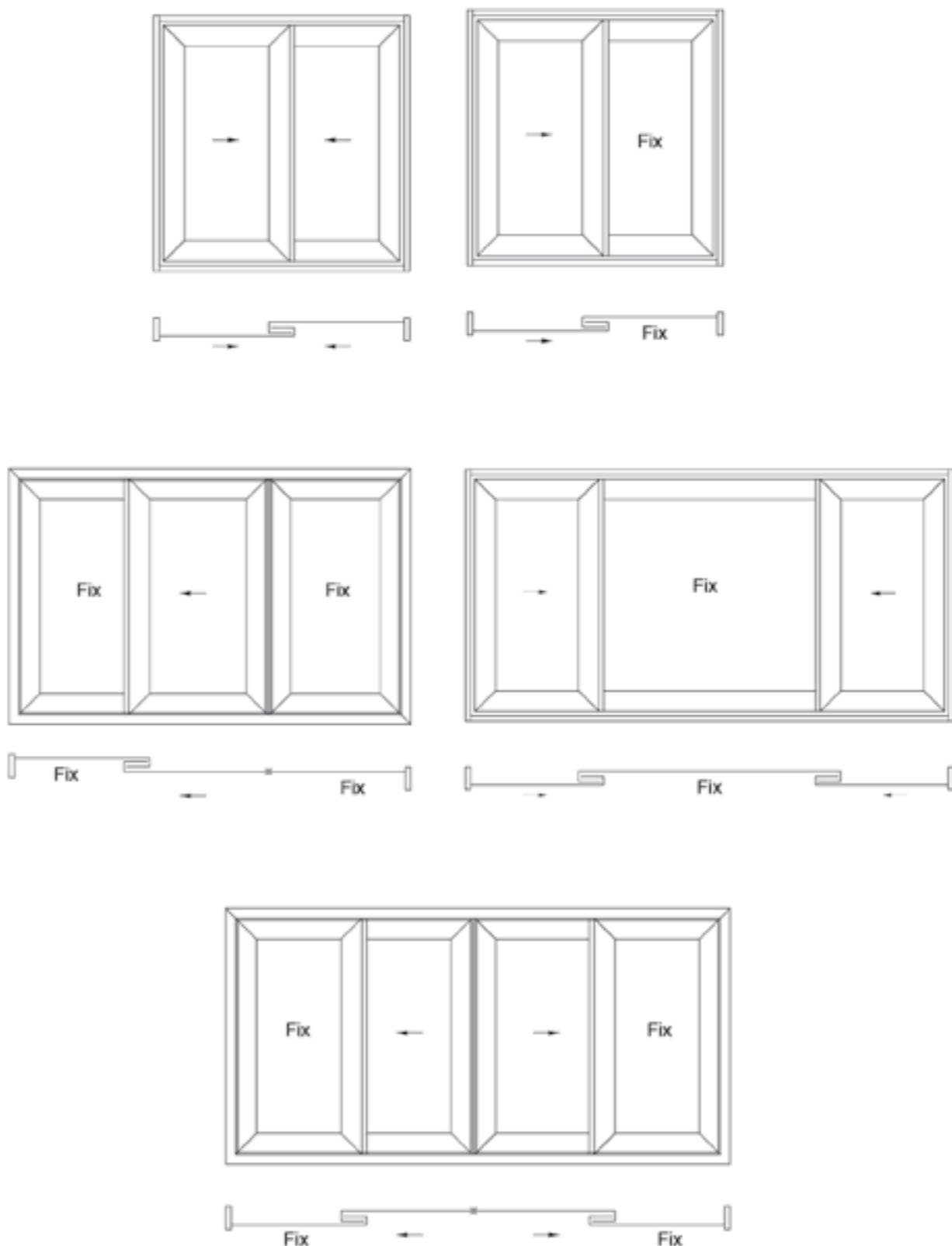


Glazing Thickness	Gasket Inside	Gasket Outside
18 mm	EP-021	MO68
20 mm	EP-019	MO68
22 mm	EP-016	MO68
24 mm	EP-015	MO68

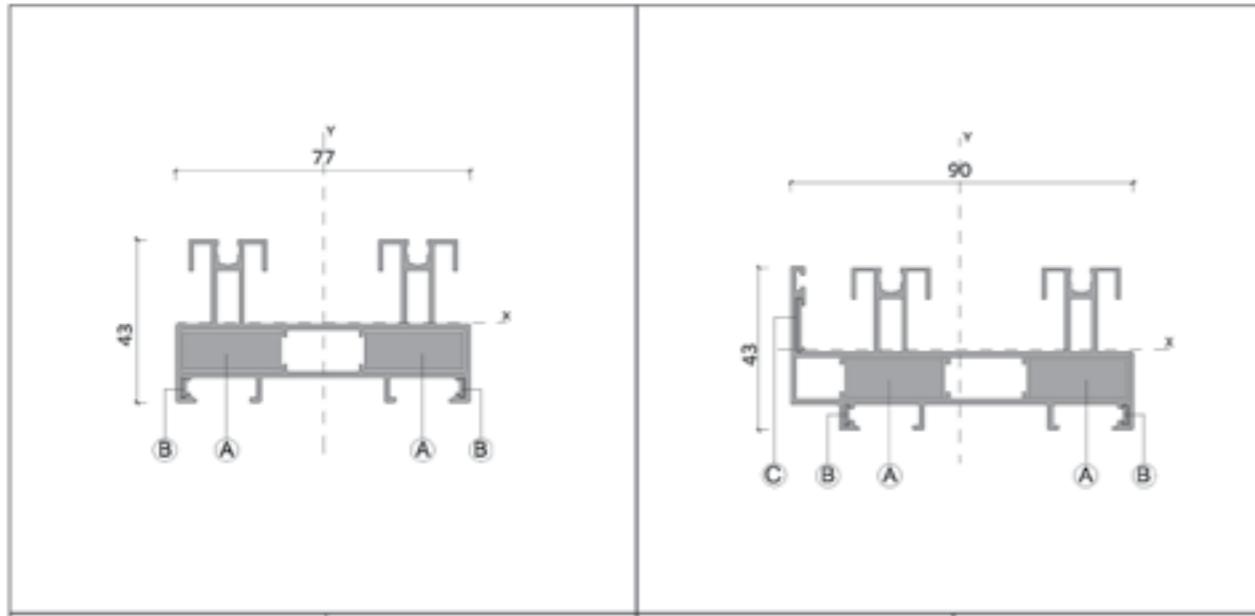
Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
8 mm	EP-015	EP-015	ALN-362
4 mm	EP-015	EP-016	ALN-362

### Slide System 77 Series

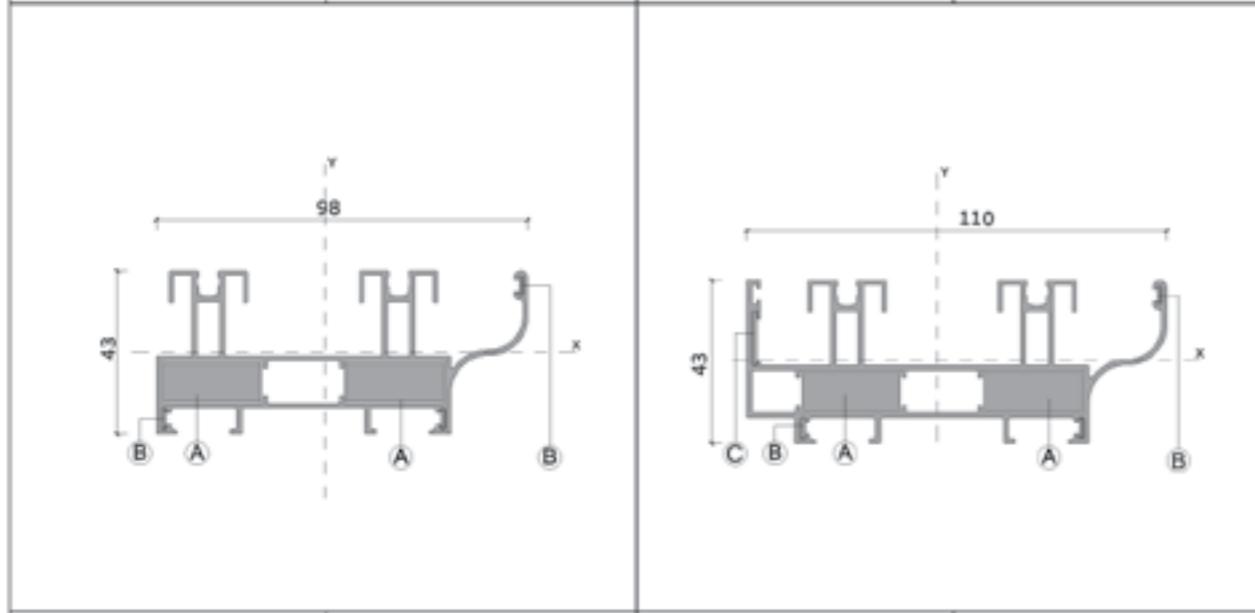
Typologies



Slide System 77 Series  
Profile & Accessories Information



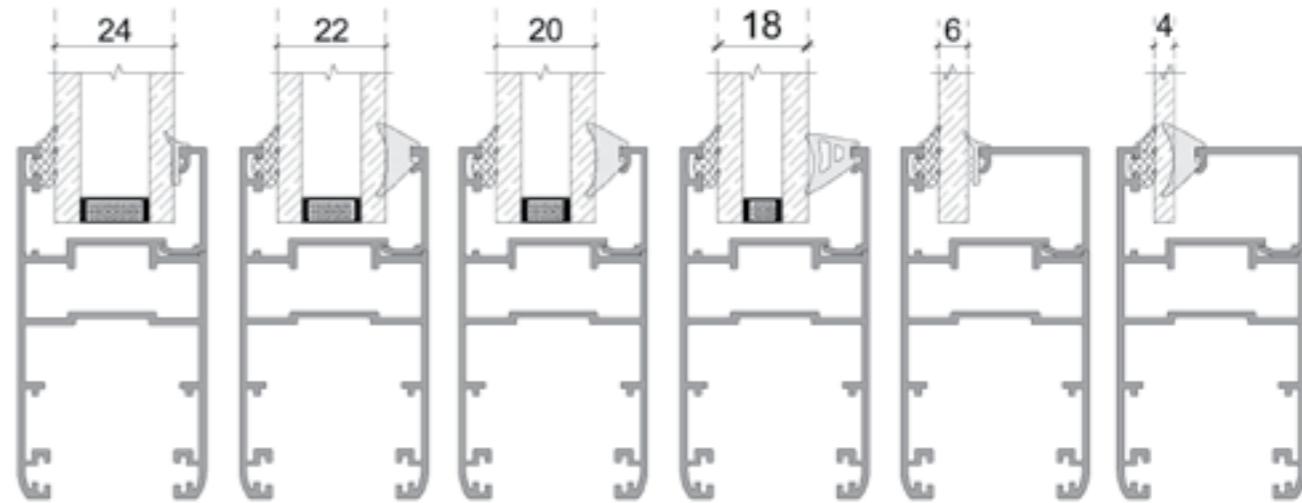
$I_x: 8.40 \text{ cm}^4$	$I_y: 32.54 \text{ cm}^4$	$I_x: 9.04 \text{ cm}^4$	$I_y: 47.04 \text{ cm}^4$
Frame : ALN-351	A: PCP-11 / 26 mm	Frame : ALN-353	A: PCP-11 / 26 mm
Weight: 1320 gr/m	B: MO 19 (399012)	Weight: 1528 gr/m	B: MO 19 (399012)



$I_x: 8.98 \text{ cm}^4$	$I_y: 46.66 \text{ cm}^4$	$I_x: 10.15 \text{ cm}^4$	$I_y: 67.82 \text{ cm}^4$
Frame : ALN-352	A: PCP-11 / 26 mm	Frame : ALN-354	A: PCP-11 / 26 mm
Weight: 1477 gr/m	B: MO 19 (399012)	Weight: 1685 gr/m	B: MO 19 (399012)

Slide System 77 Series  
Glazing Table

ALN-355



Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
4 mm	EP-016	MO68	ALN-463
6 mm	EP-015	MO68	ALN-463
18 mm	EP-019	MO68	ALN-461
20 mm	EP-016	MO68	ALN-460
22 mm	EP-016	MO68	ALN-461
24 mm	EP-015	MO68	ALN-460

**Slide System 77 Series**  
Profile & Accessories Information

Flange profile: ALN-219	Weight : 362 gr/m
$I_x: 13.29 \text{ cm}^4$	$I_y: 25.98 \text{ cm}^4$
Frame : ALN-366	A: PCP-22/26 mm
B: fuji 2000	
Weight: 1250 gr/m	D: MO 19
Fly screen : ALN-207	Weight : 448 gr/m
Flange profile: ALN-221	Weight : 302 gr/m
Flange profile: ALN-222	Weight : 254 gr/m

**Slide System 77 Series**  
Profile & Accessories Information

$I_x: 12.41 \text{ cm}^4$	$I_y: 7.80 \text{ cm}^4$
Sash: ALN-355	A: PCP-11 / 8 mm
Weight: 912 gr/m	B: MM77
$I_x: 9.27 \text{ cm}^4$	$I_y: 5.50 \text{ cm}^4$
Transom: ALN-358	—
Weight: 805 gr/m	—
$I_x: 15.62 \text{ cm}^4$	$I_y: 9.26 \text{ cm}^4$
Sash: ALN-356	A: PCP-11 / 8 mm
Weight: 1029 gr/m	B: MM77
$I_x: 15.13 \text{ cm}^4$	$I_y: 8.58 \text{ cm}^4$
Transom : ALN-359	—
Weight: 1010 gr/m	—

**Slide System 77 Series**  
Profile & Accessories Information

Profile : ALN-360	Weight: 203 gr/m	Profile : ALN-363	Weight: 197 gr/m
Profile : ALN-361	Weight: 370 gr/m	Profile : ALN-364	Weight: 140 gr/m
Glazing beads: ALN-362	Weight : 254 gr/m	Glazing beads: ALN-424	Weight : 167 gr/m

**Slide System 77 Series**  
Profile & Accessories Information

Profile : ALN-228	Weight: 135 gr/m	Profile: ALN-328	Weight: 613 gr/m
Glazing beads: ALN-321	Weight : 224 gr/m	Profile: ALN-328	Weight : 999 gr/m
Glazing beads: ALN-322	Weight : 238 gr/m	Cap : ALN-357	Weight : 432 gr/m

**Slide System 77 Series**  
Profile & Accessories Information

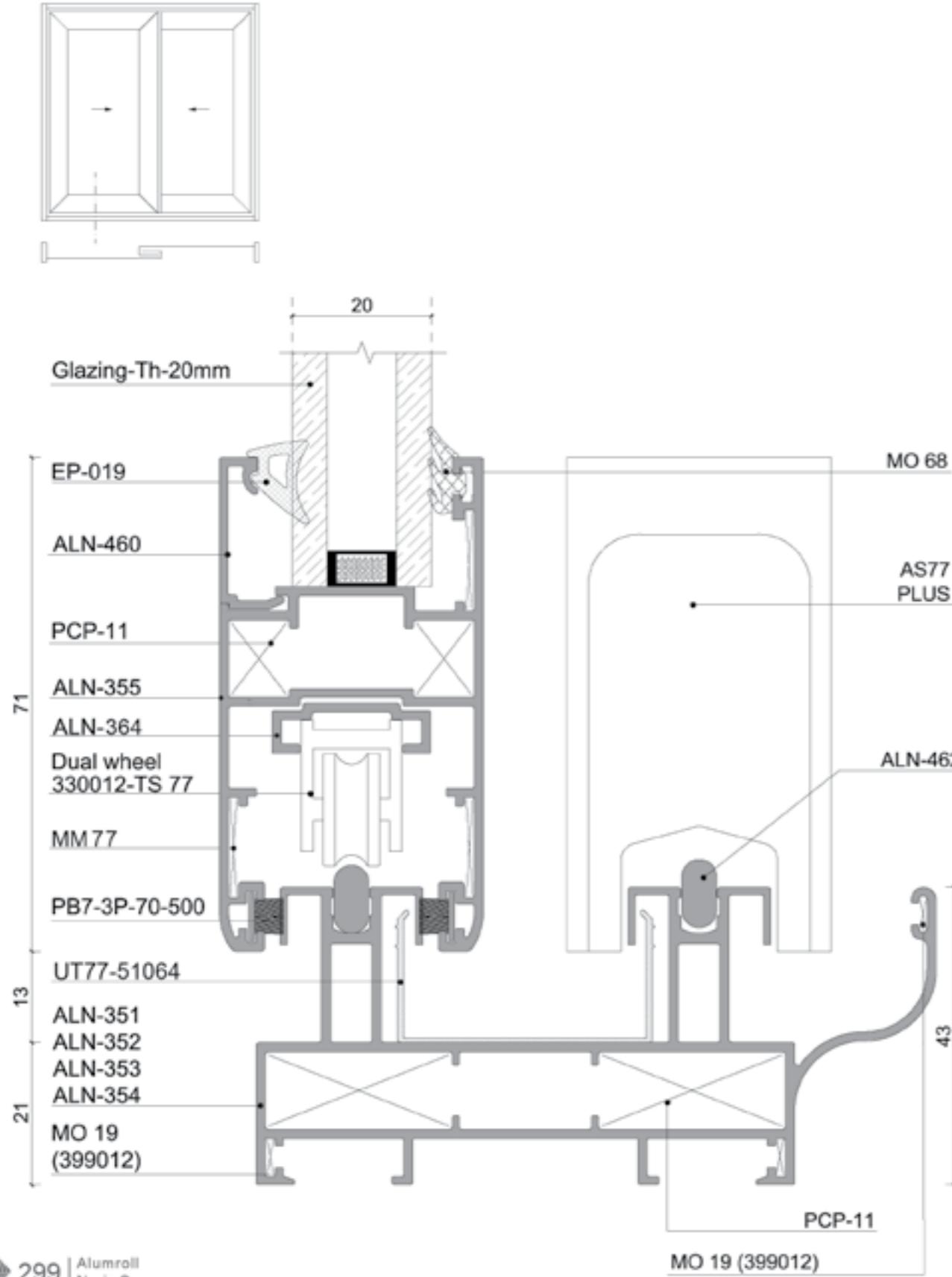
Corner joint: PCP 20	Weight : 1375 gr/m	Gasket: EP-015	Weight : 21 gr/m
Corner joint: PCP-22	Weight : 3718 gr/m	Gasket: EP-016	Weight : 77 gr/m
Rail : ALN-462	Weight: 119 gr/m	Gasket: EP-018	Weight : 27 gr/m

**Slide System 77 Series**  
Profile & Accessories Information

Glazing beads: ALN-460	Weight : 127 gr/m	Corner joint: MO 19 (399012)	Weight: -
Glazing beads: ALN-461	Weight : 119 gr/m	Corner joint : MM77	Weight: -
Glazing beads: ALN-463	Weight : 178 gr/m	Corner joint : PCP11	Weight: 2549 gr/m

### Slide System 77 Series

Fabrication Details

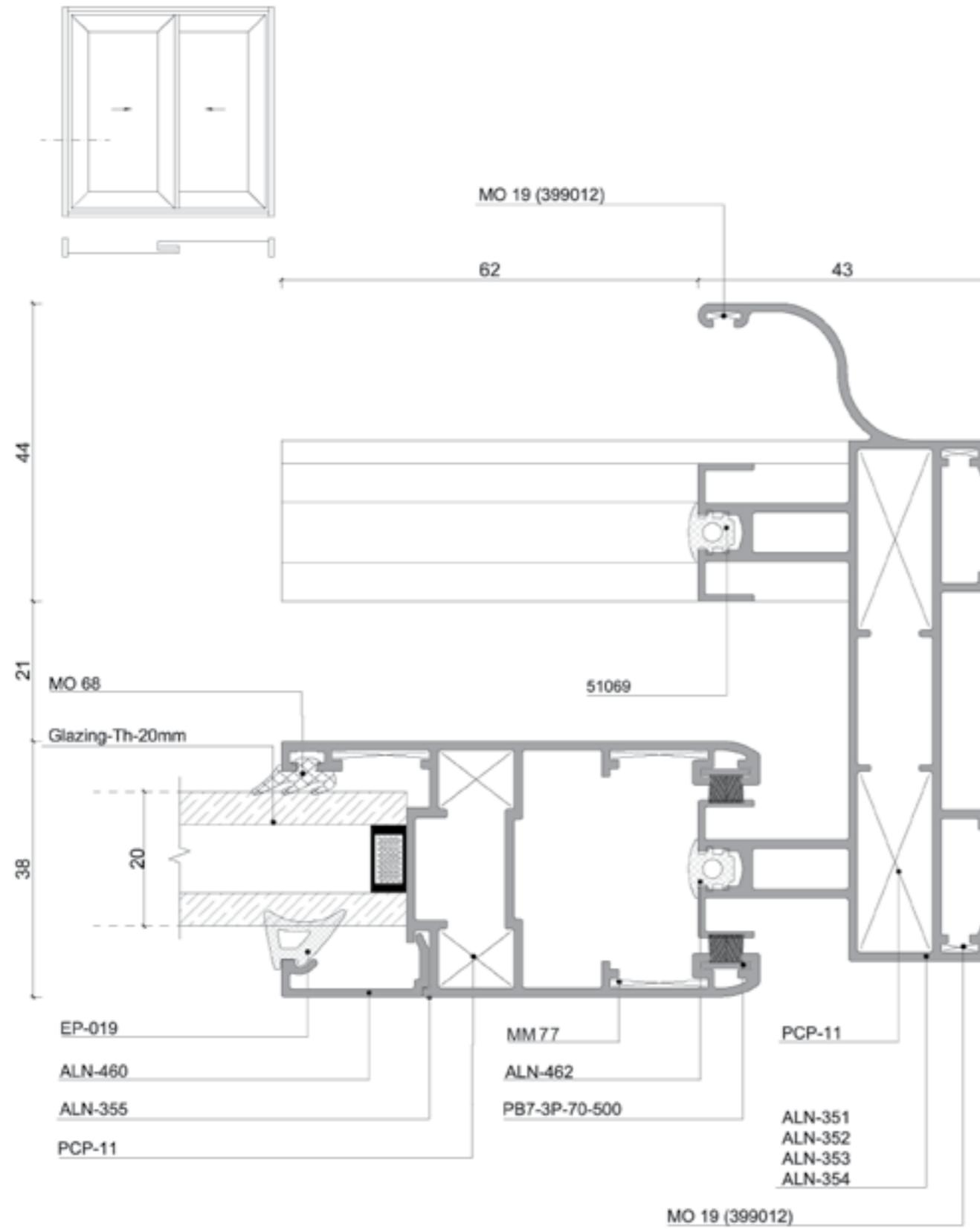


### Slide System 77 Series

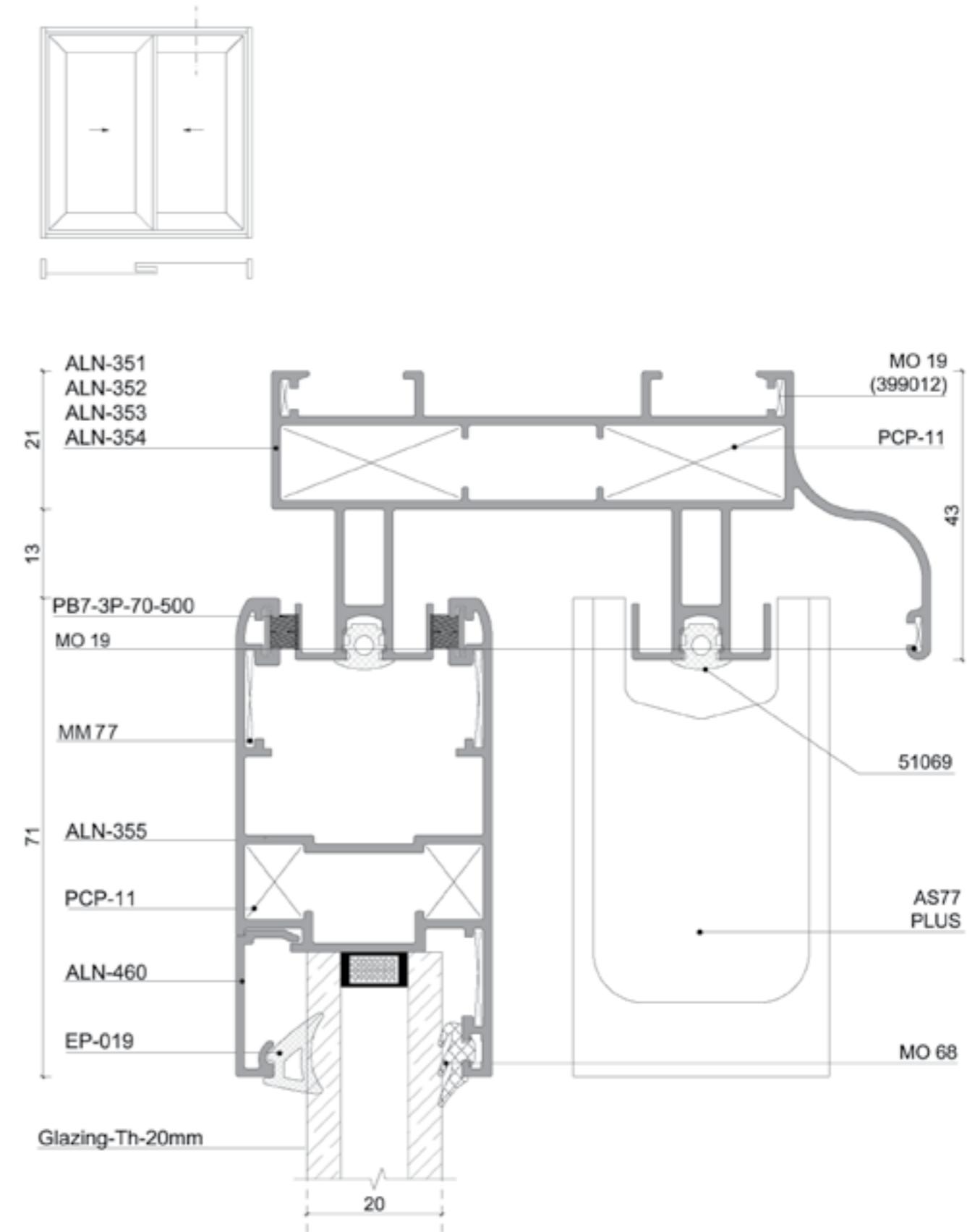
Profile & Accessories Information

26	29	7	5
Gasket: EP-021	Weight : 80 gr/m	Gasket: PB7-3P-70-500	Weight : -
11	25	8	7
Gasket: MO68	Weight : 46 gr/m	Gasket: PB7-3P-70-800	Weight : -
5	5	5	5
Gasket : MO 60	Weight: 26 gr/m	Gasket: PB7-3P-50-500	Weight : -

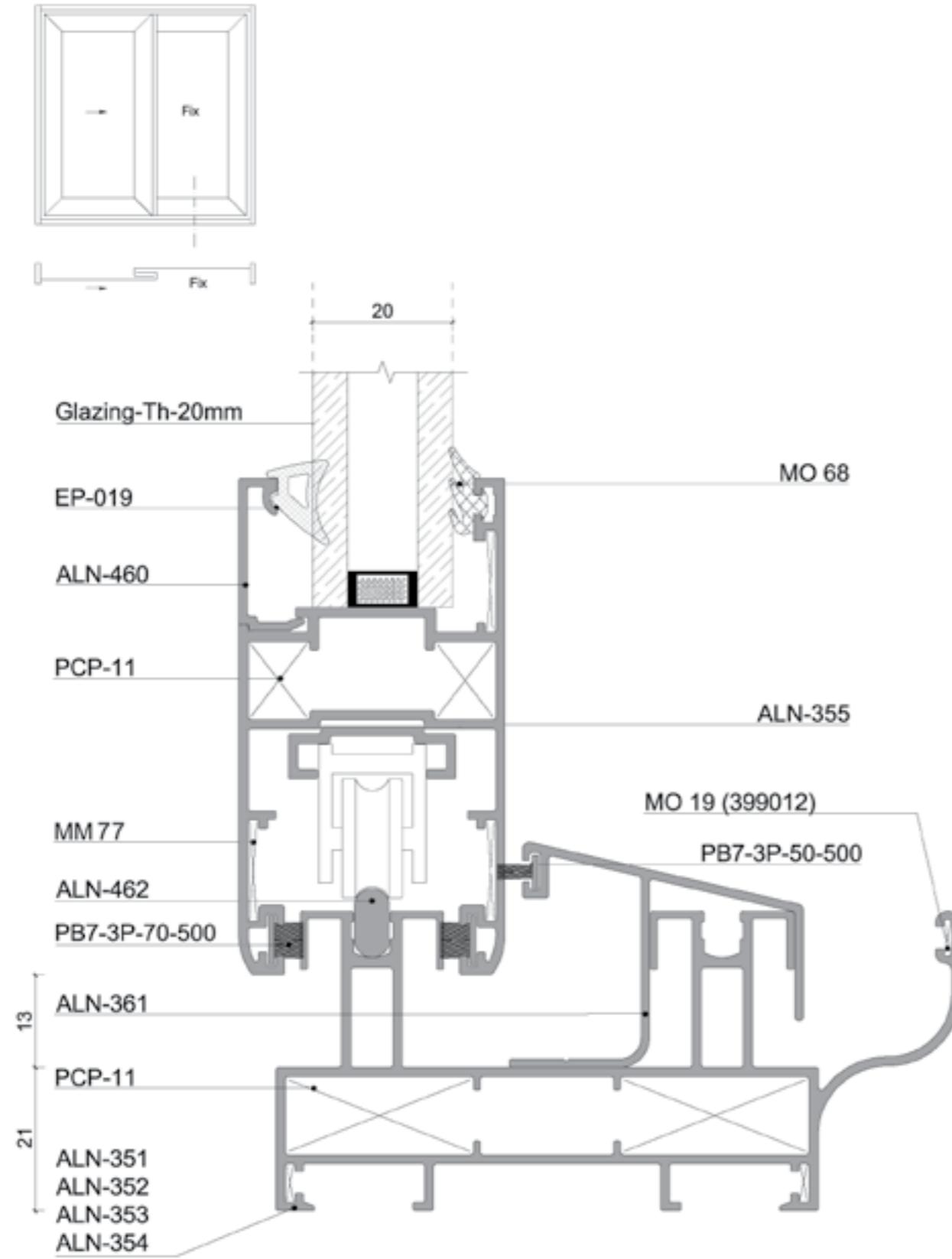
Slide System 77 Series  
Fabrication Details



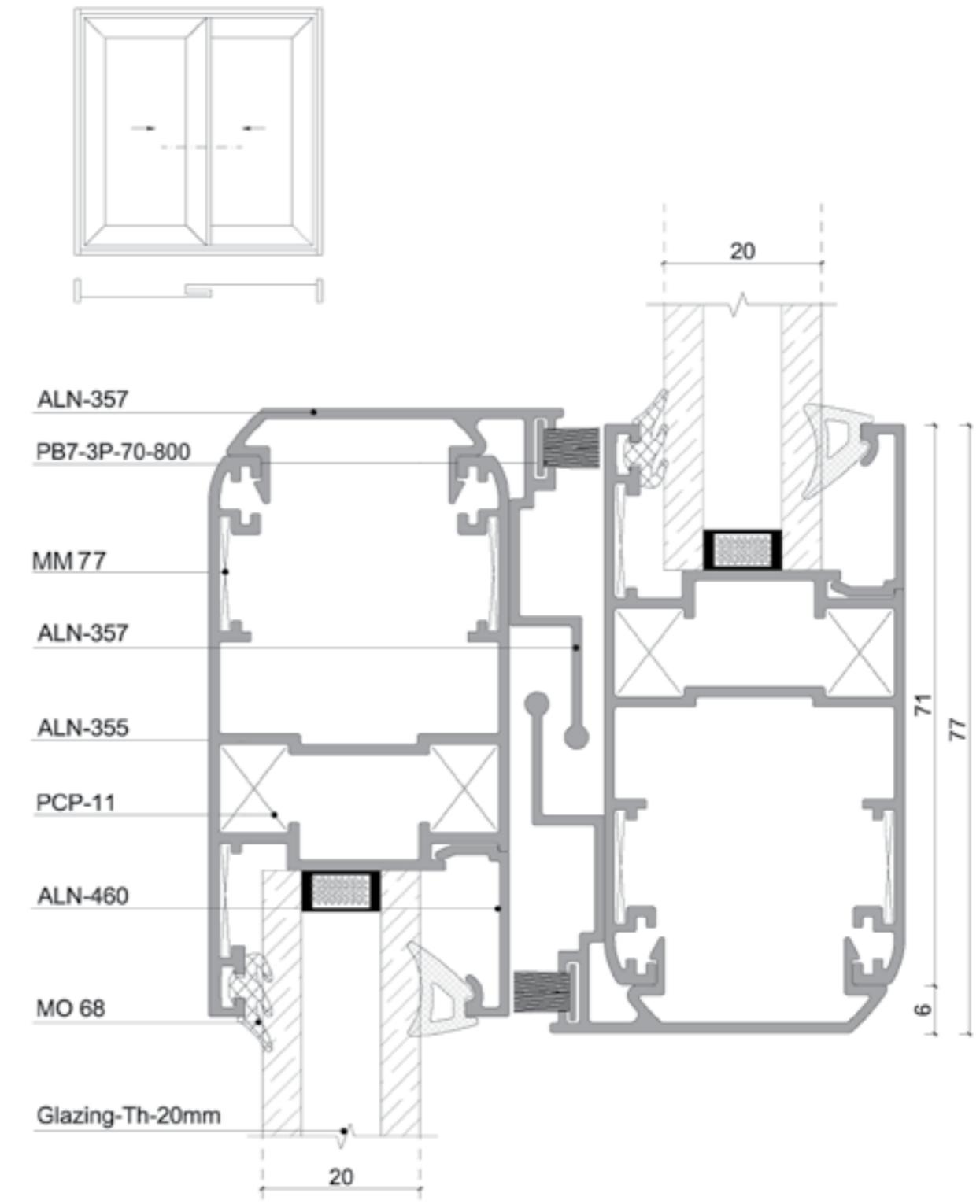
Slide System 77 Series  
Fabrication Details



Slide System 77 Series  
Fabrication Details

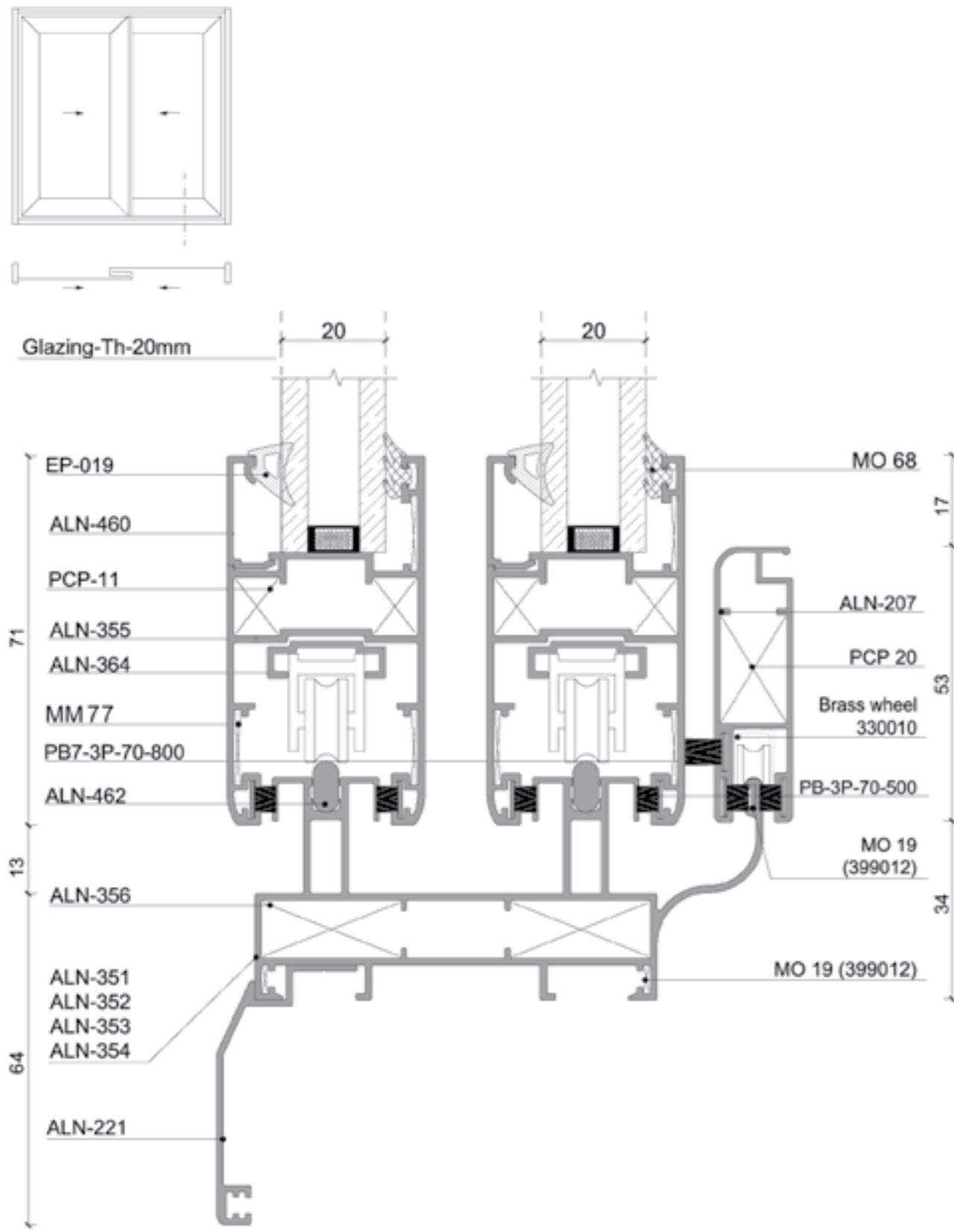


Slide System 77 Series  
Fabrication Details



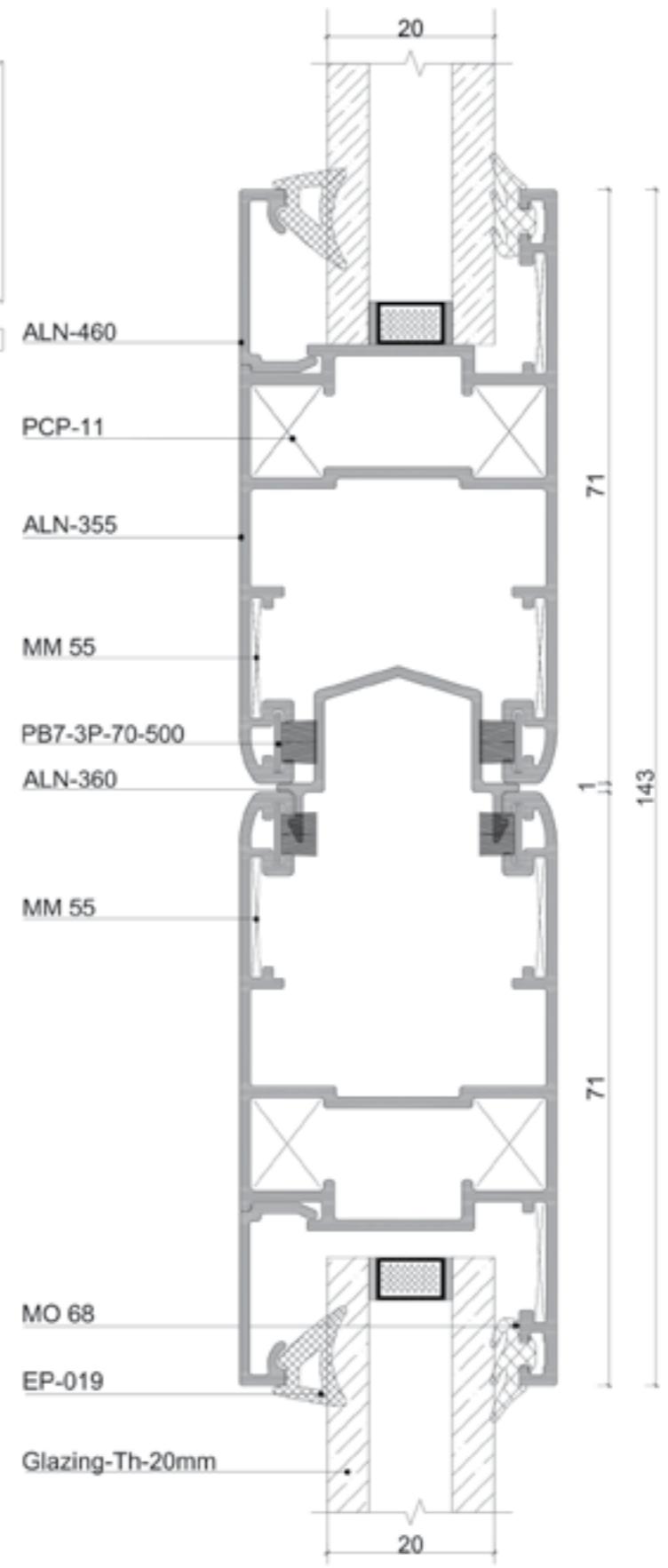
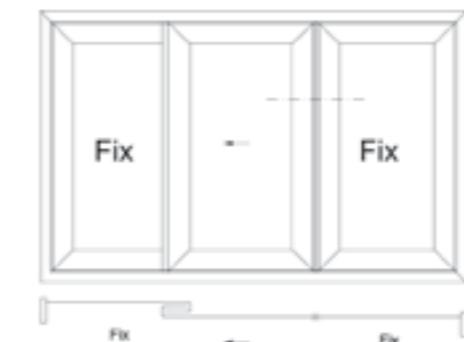
### Slide System 77 Series

Fabrication Details



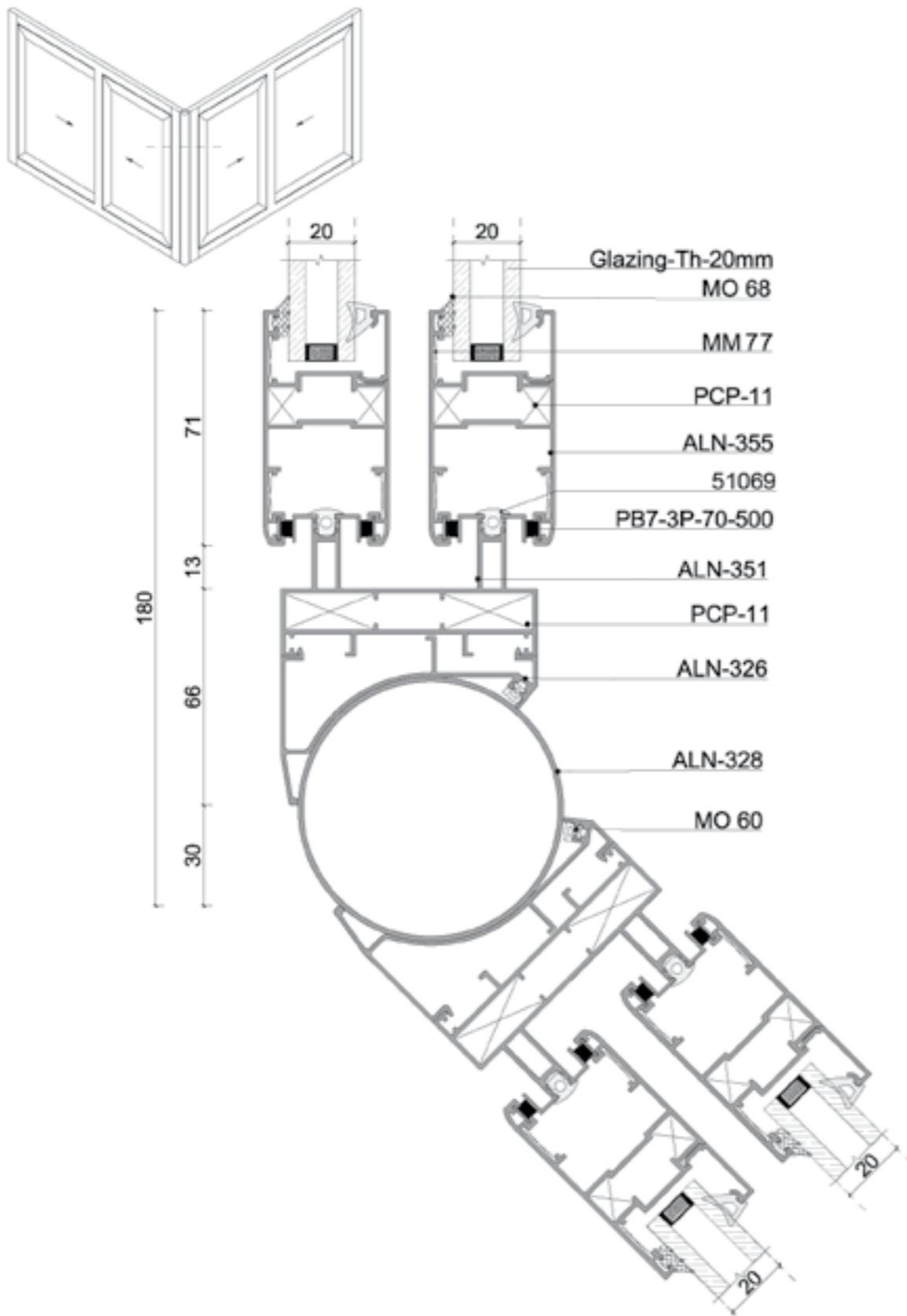
### Slide System 77 Series

Fabrication Details



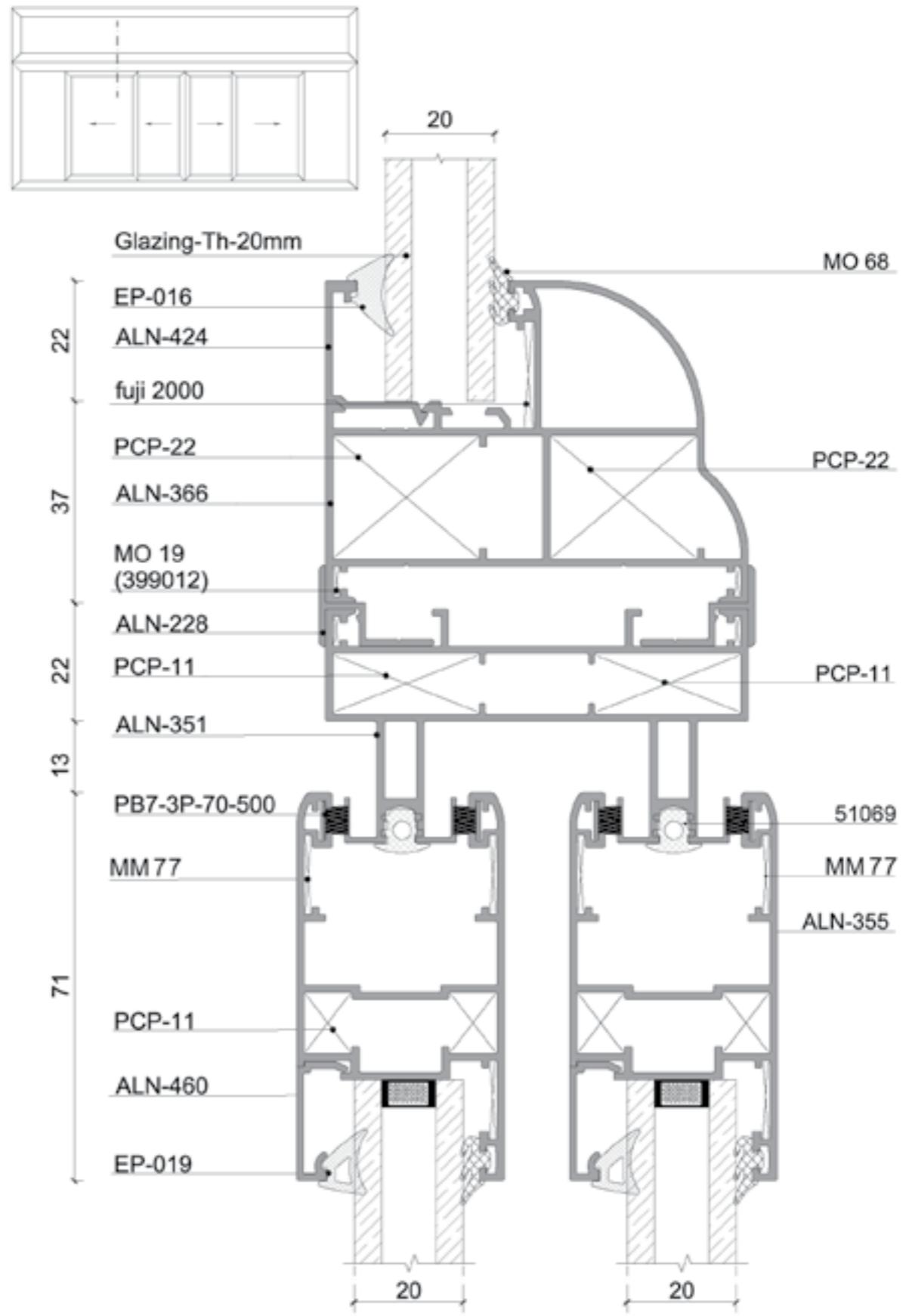
### Slide System 77 Series

Fabrication Details

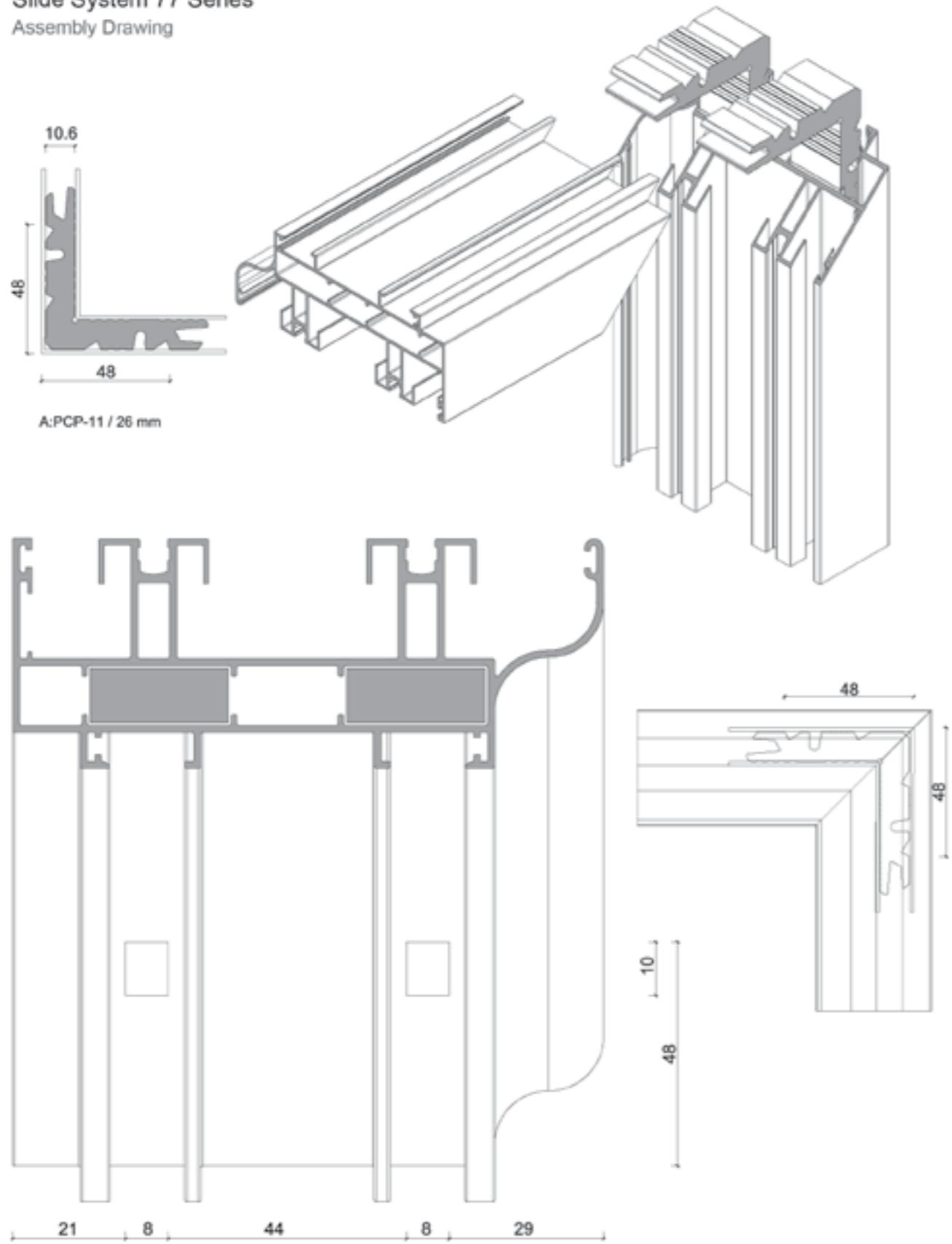


### Slide System 77 Series

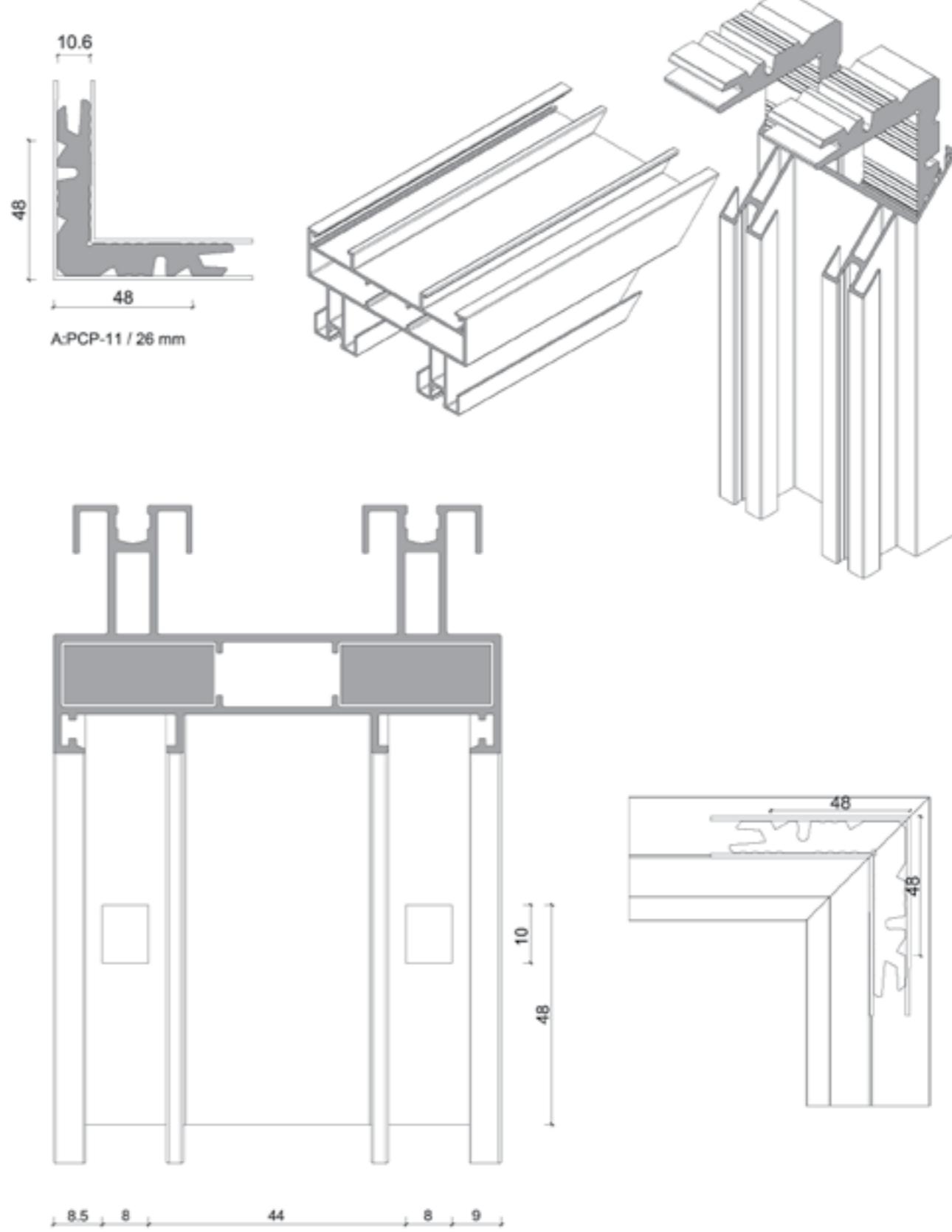
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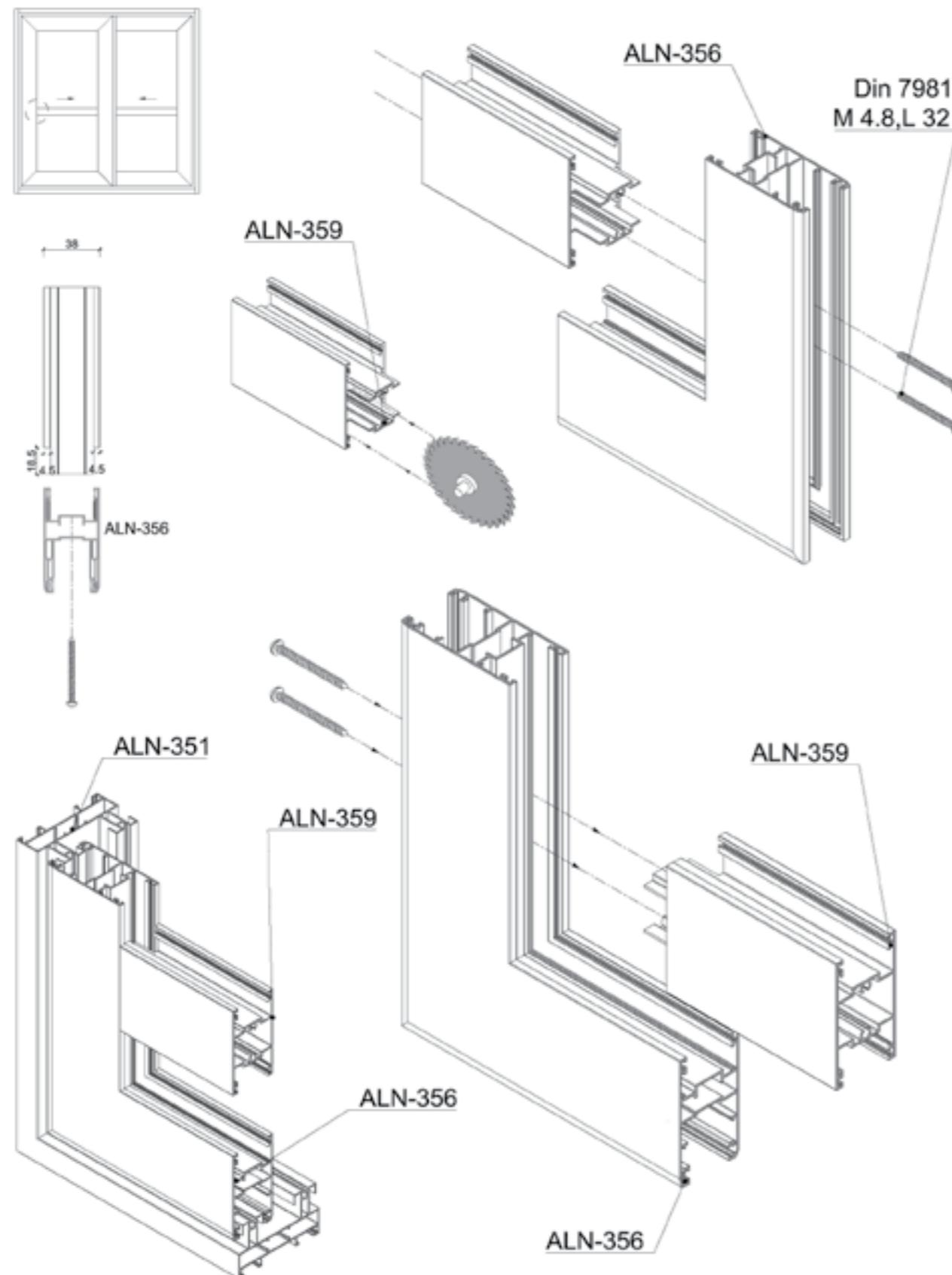
Slide System 77 Series  
Assembly Drawing



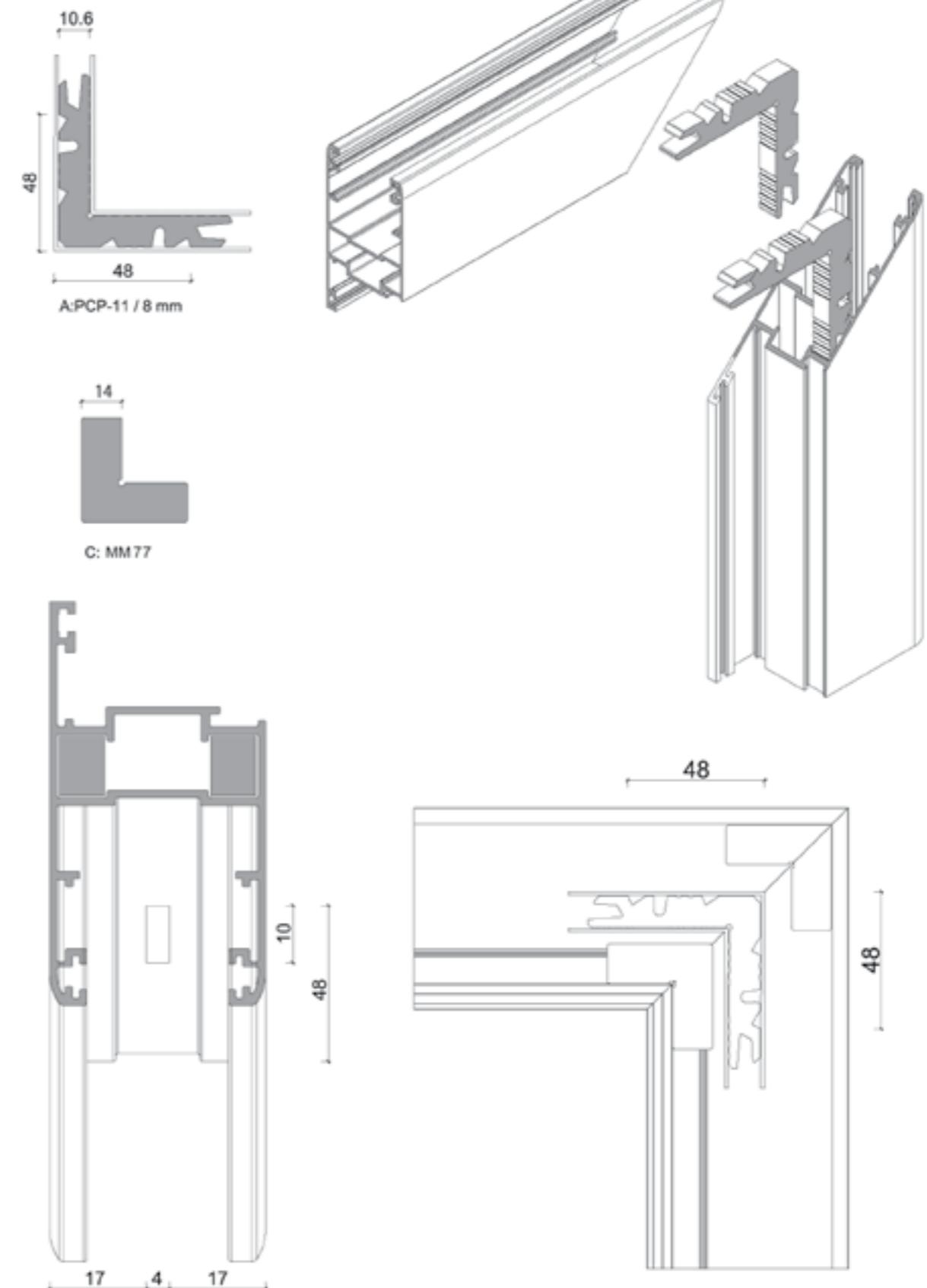
Slide System 77 Series  
Assembly Drawing



Slide System 77 Series  
Assembly Drawing

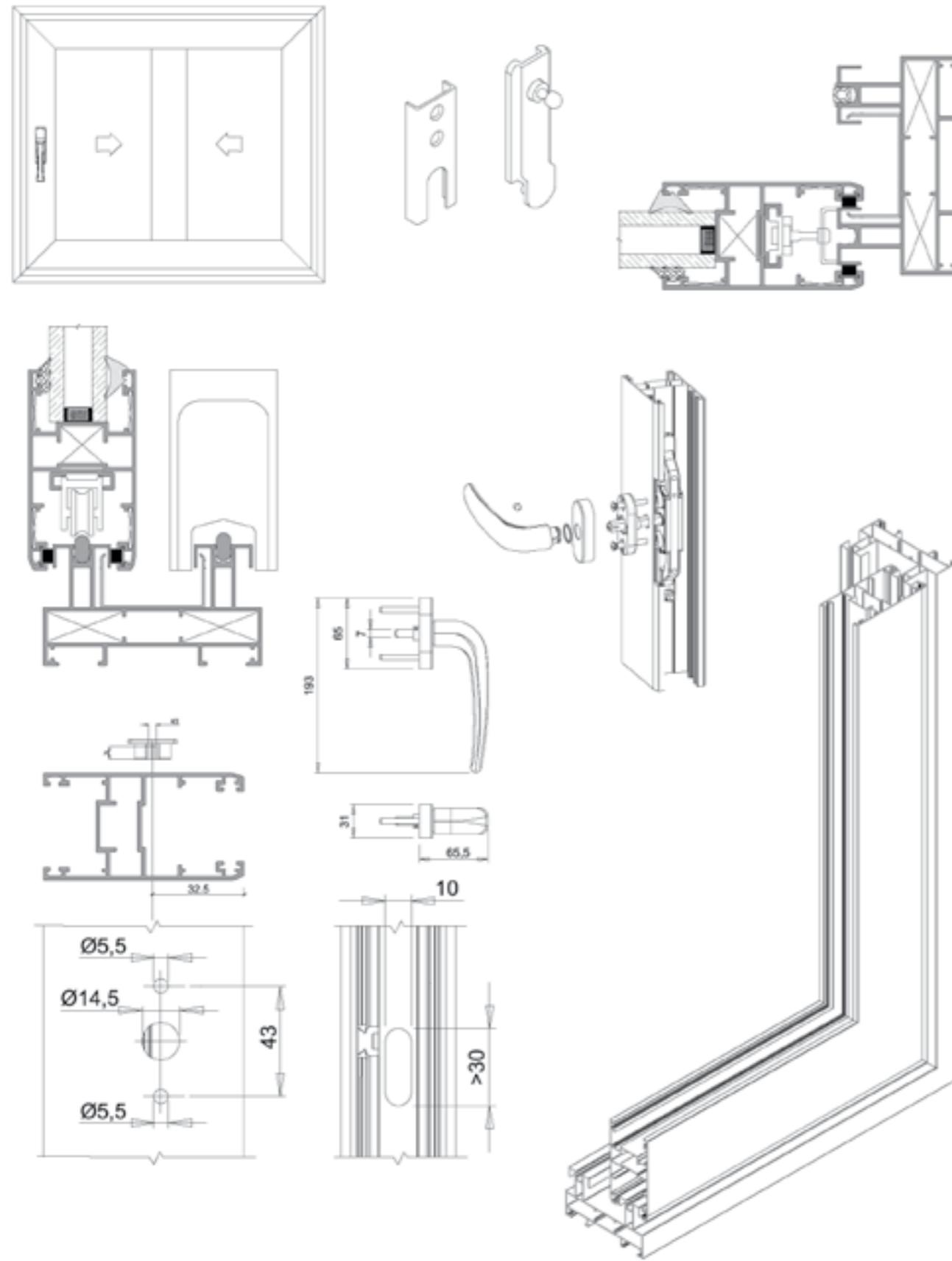


Slide System 77 Series  
Assembly Drawing



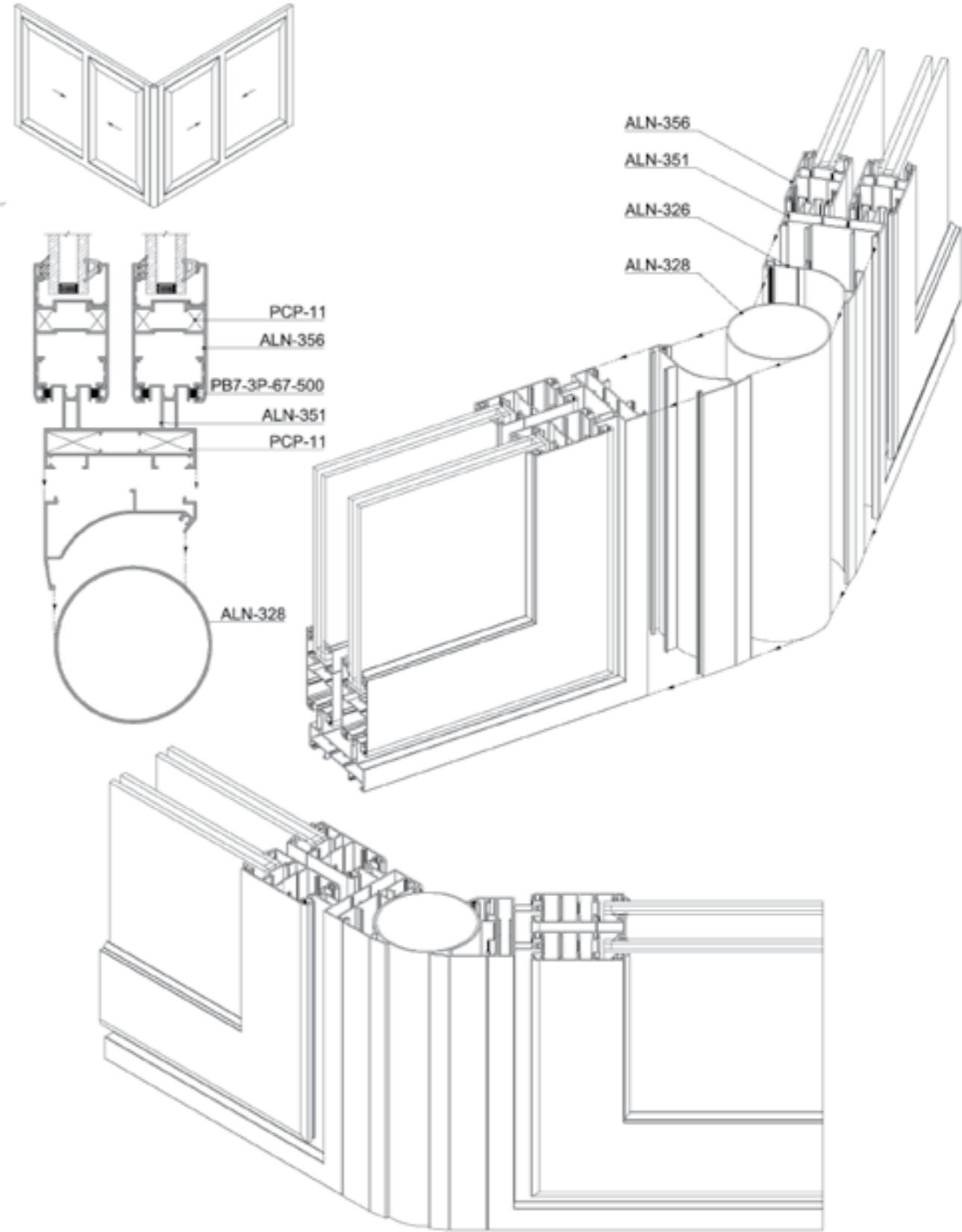
Slide System 77 Series

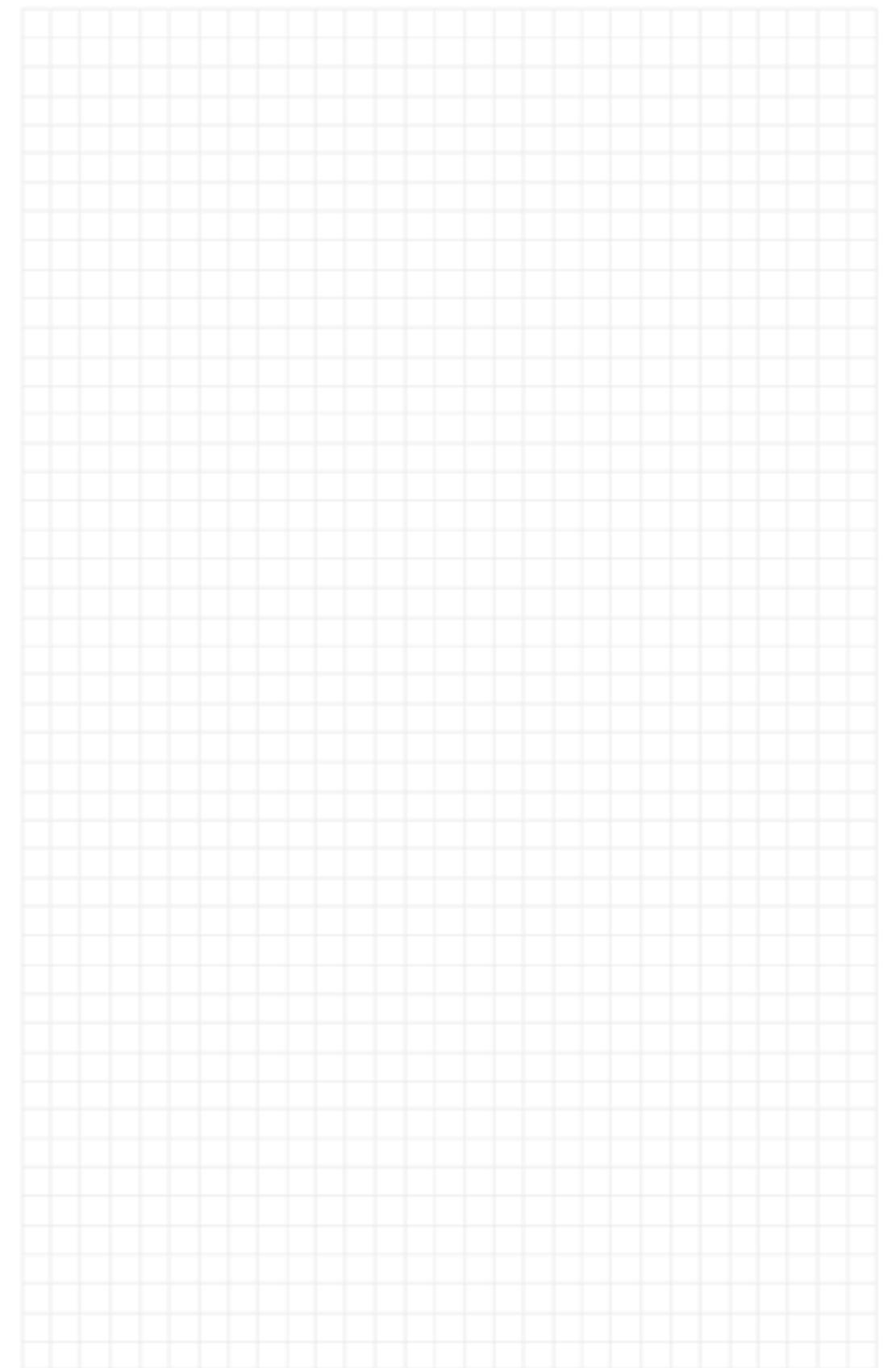
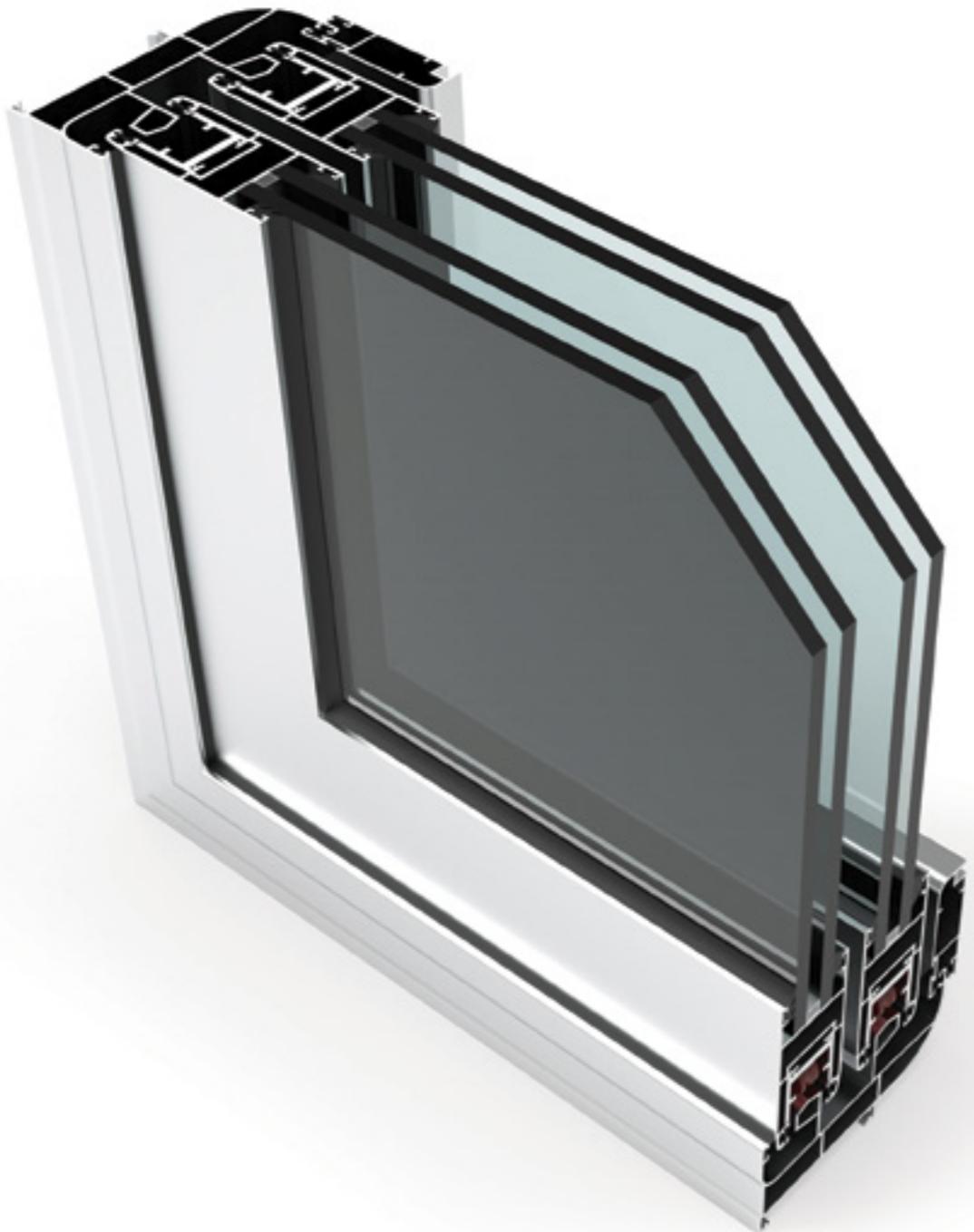
## Hardware Installation



Slide System 77 Series

## Assembly Drawing

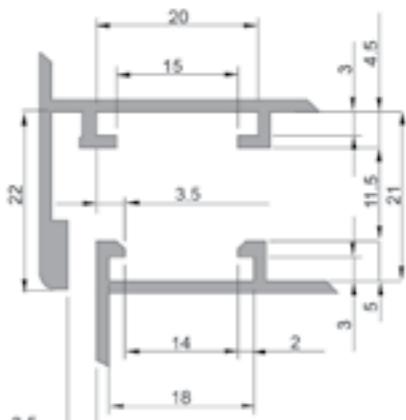




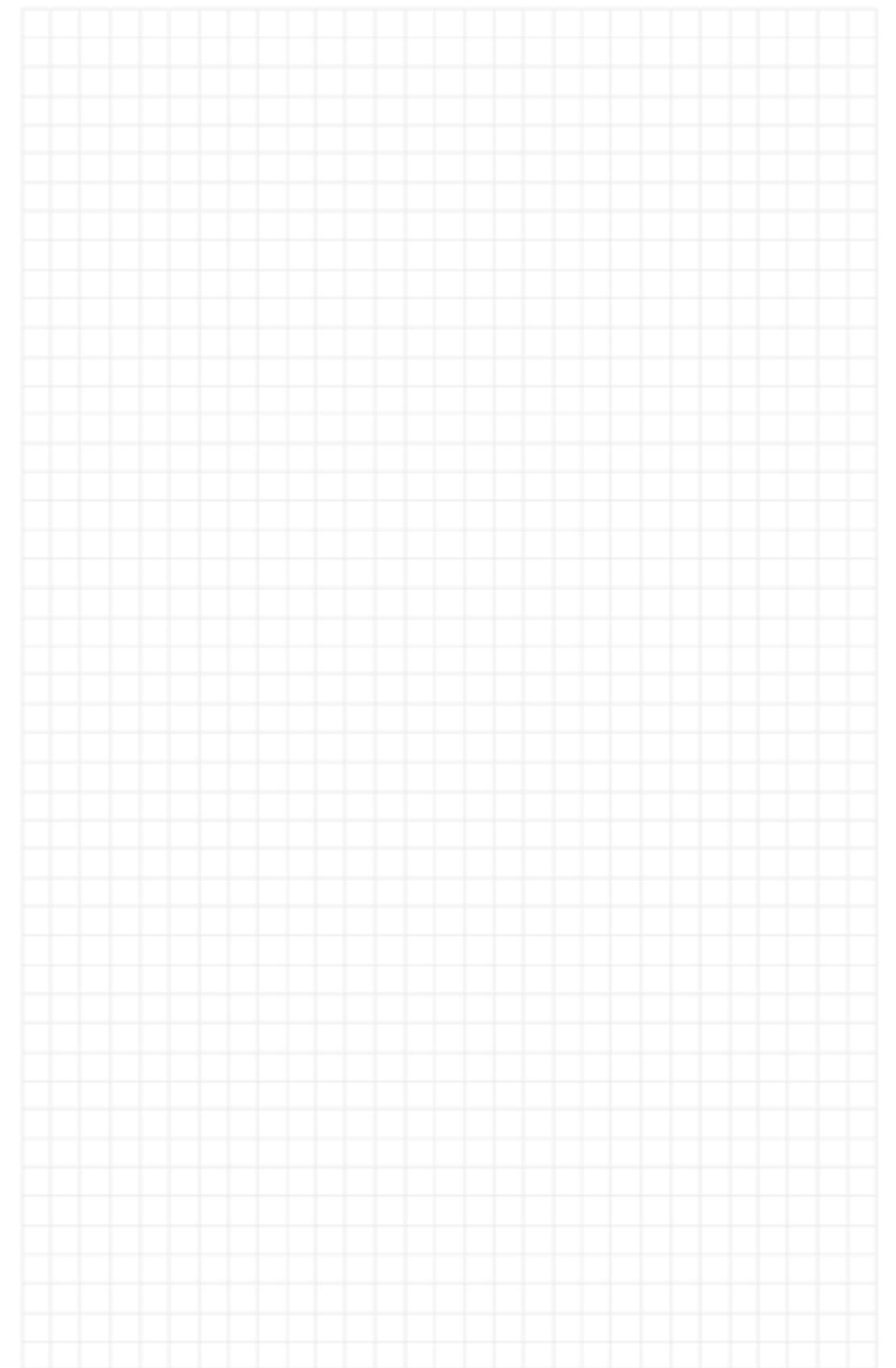
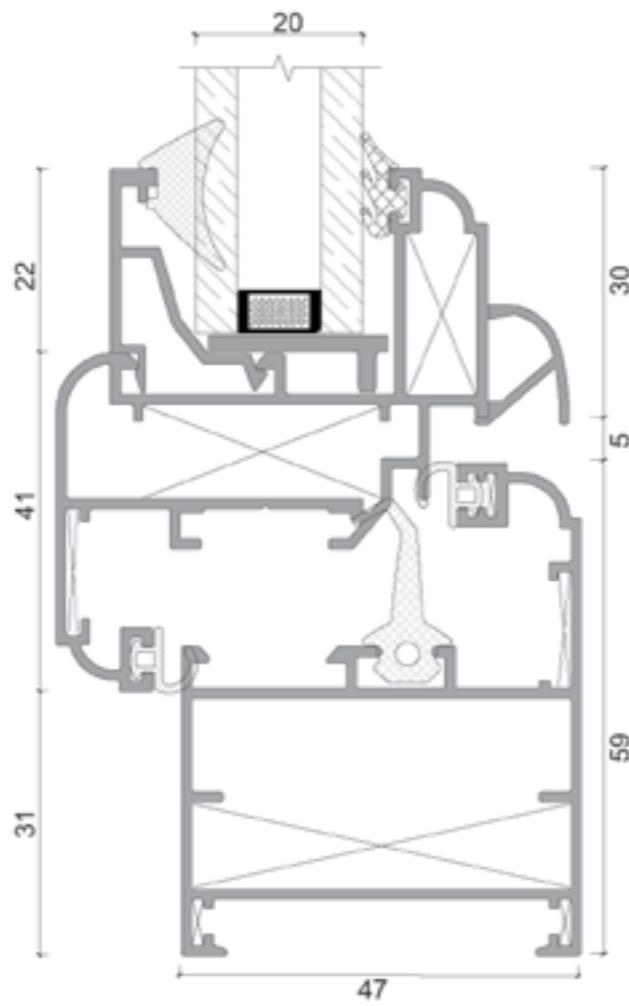


### Hinged System 47 & 59 Series

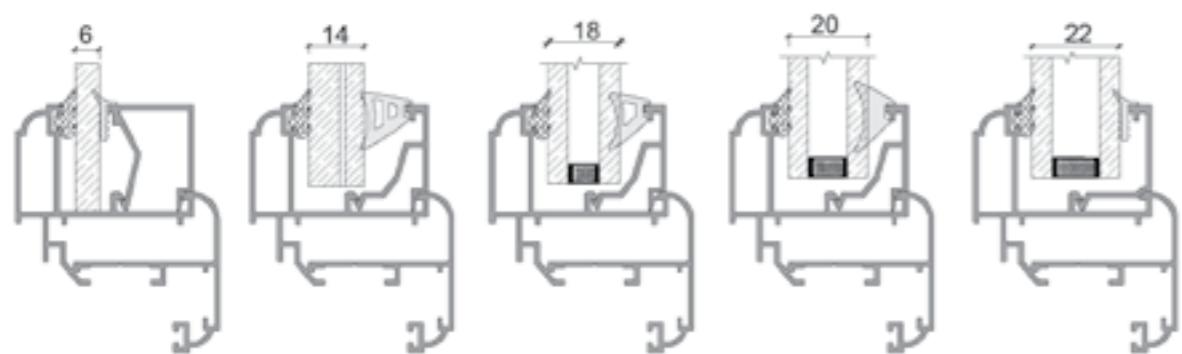
- . Profile width: 47,59 mm
- . Vent width: 52 mm
- . Wall thickness: 1.2 - 1.3 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 6 - 22 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Safety drainage system
- . Various typologies



Euro Groove Section

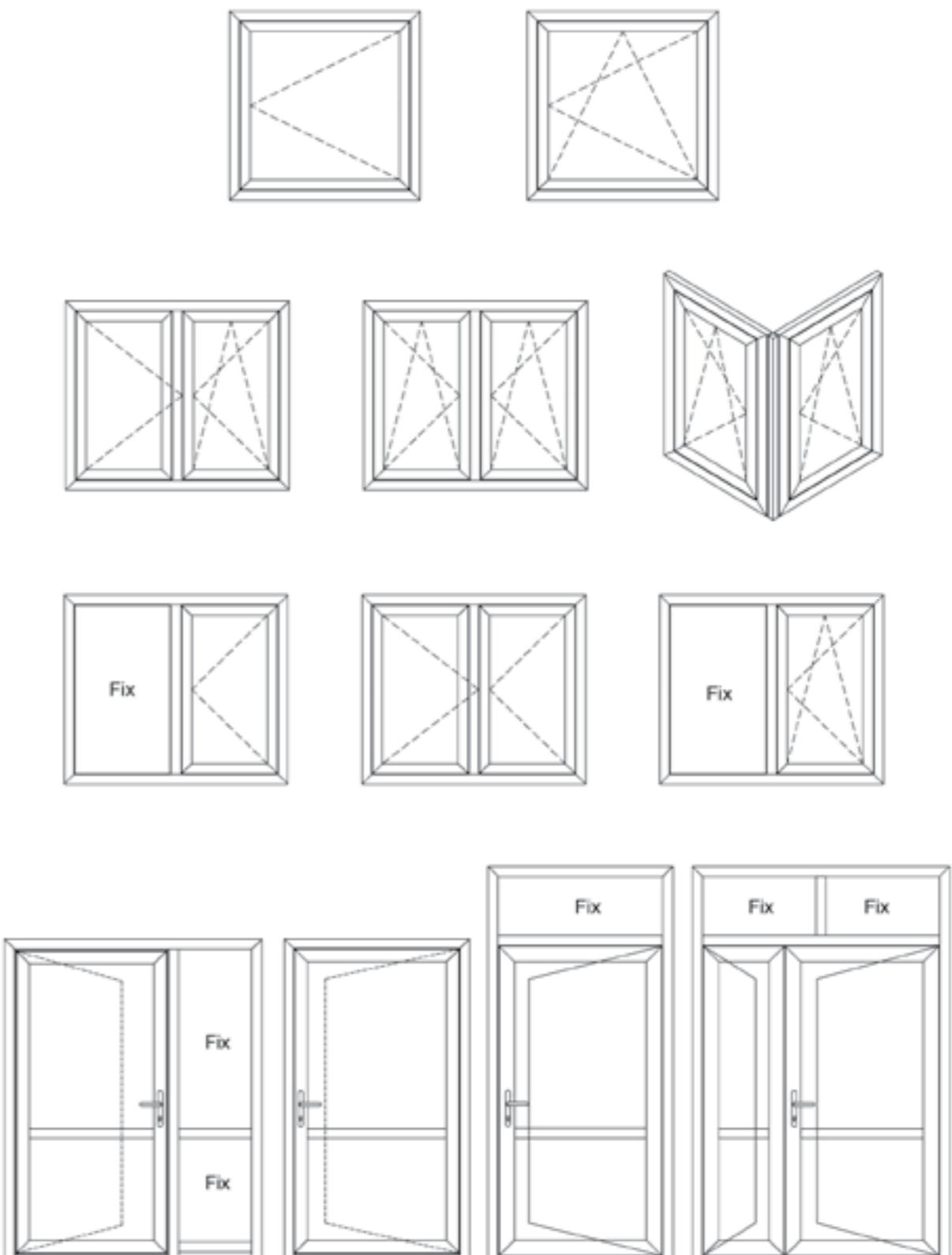


Hinged System 47 & 59 Series  
Glazing Table

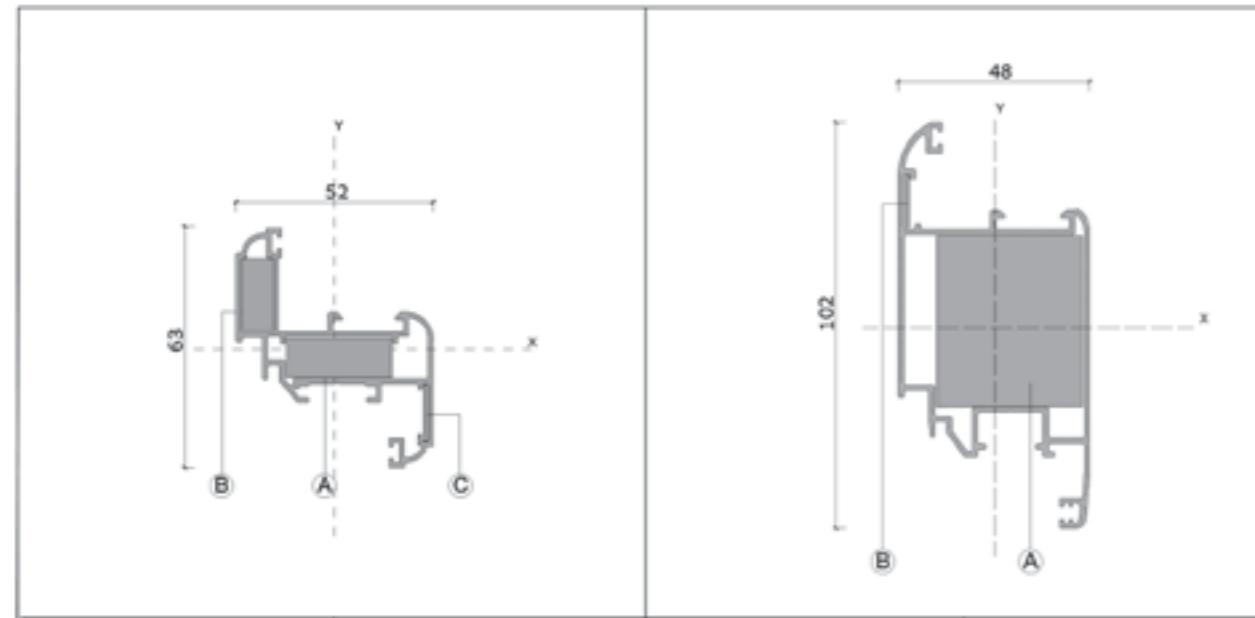


Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
6 mm	EP-015	MO68	ALN-214
14 mm	EP-021	MO68	ALN-213
18 mm	EP-019	MO68	ALN-213
20 mm	EP-016	MO68	ALN-213
22 mm	EP-016	MO68	ALN-424

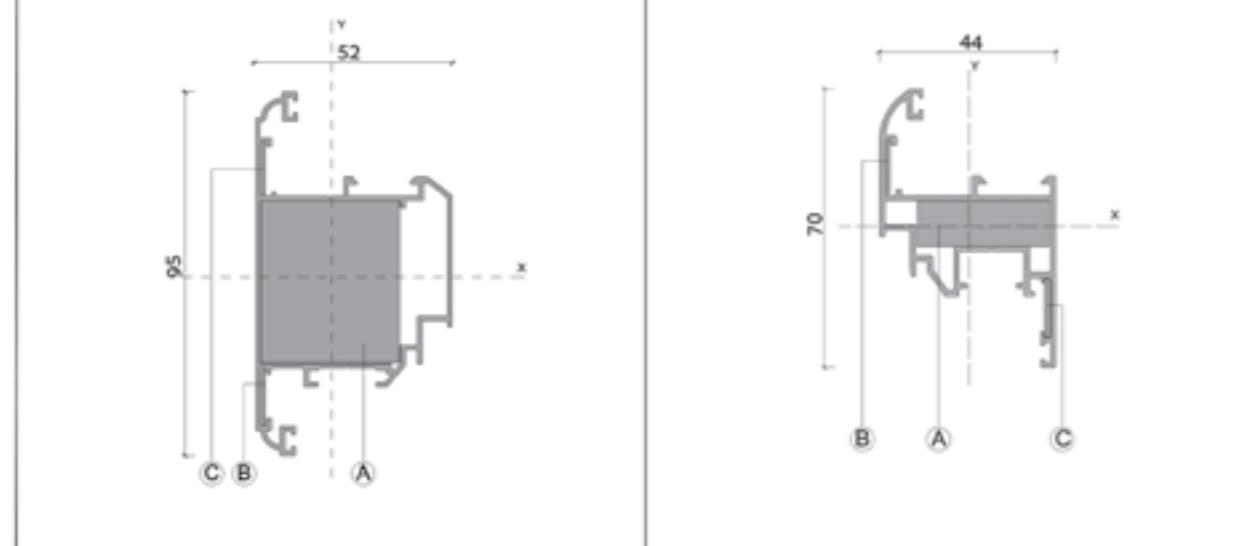
Hinged System 47 & 59 Series  
Typologies



Hinged System 47 & 59 Series  
Profile & Accessories Information

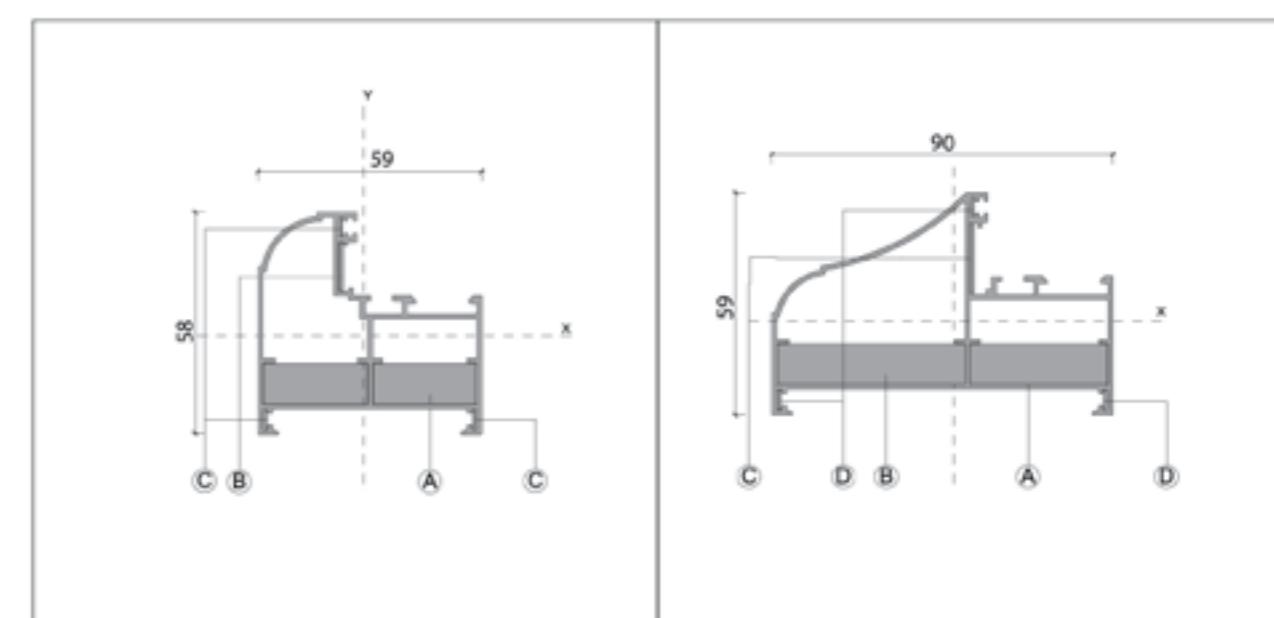


$I_x: 7.43 \text{ cm}^4$	$I_y: 10.16 \text{ cm}^4$	$I_x: 34.56 \text{ cm}^4$	$I_y: 15.12 \text{ cm}^4$
Sash : ALN-216	A: PCP-11 / 27 mm	B: PCP-19 / 8 mm	C: MM 55
Weight: 880 gr/m			
		Weight: 1182 gr/m	B: fuji 2013

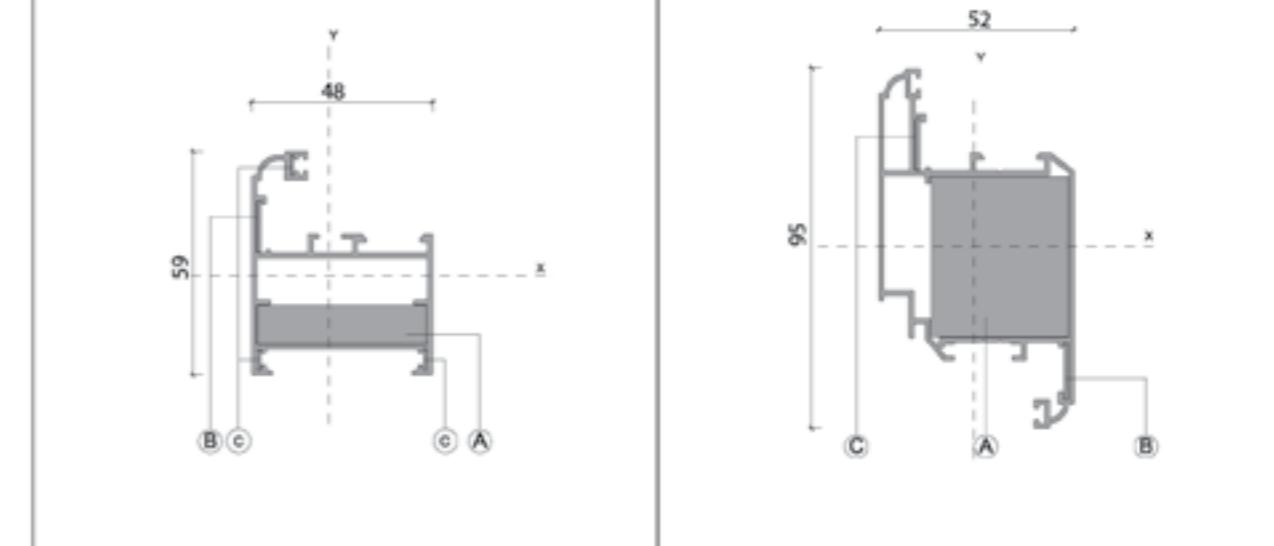


$I_x: 27.15 \text{ cm}^4$	$I_y: 13.75 \text{ cm}^4$	$I_x: 8.55 \text{ cm}^4$	$I_y: 8.55 \text{ cm}^4$
Sash : ALN-223	A: PCP-42/36mm	Sash : ALN-261	A: PCP-11 / 32 mm
Weight: 1055 gr/m	B: MM 55	B: fuji 2013	C: MM 55

Hinged System 47 & 59 Series  
Profile & Accessories Information

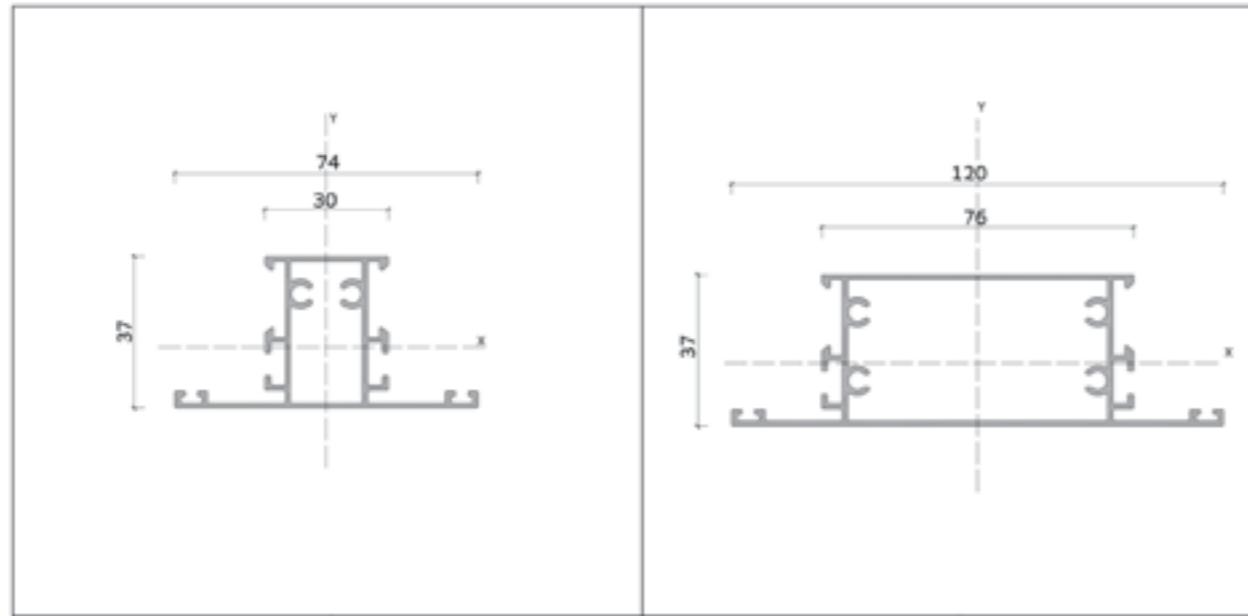


$I_x: 10.93 \text{ cm}^4$	$I_y: 14.33 \text{ cm}^4$	$I_x: 11.96 \text{ cm}^4$	$I_y: 35.26 \text{ cm}^4$
Frame : ALN-208	A: PCP-11 / 26 mm	Frame : ALN-243	A: PCP-11 / 36 mm
Weight: 990 gr/m	B: fuji 2013	C: fuji 2000	B: PCP-11/49 mm

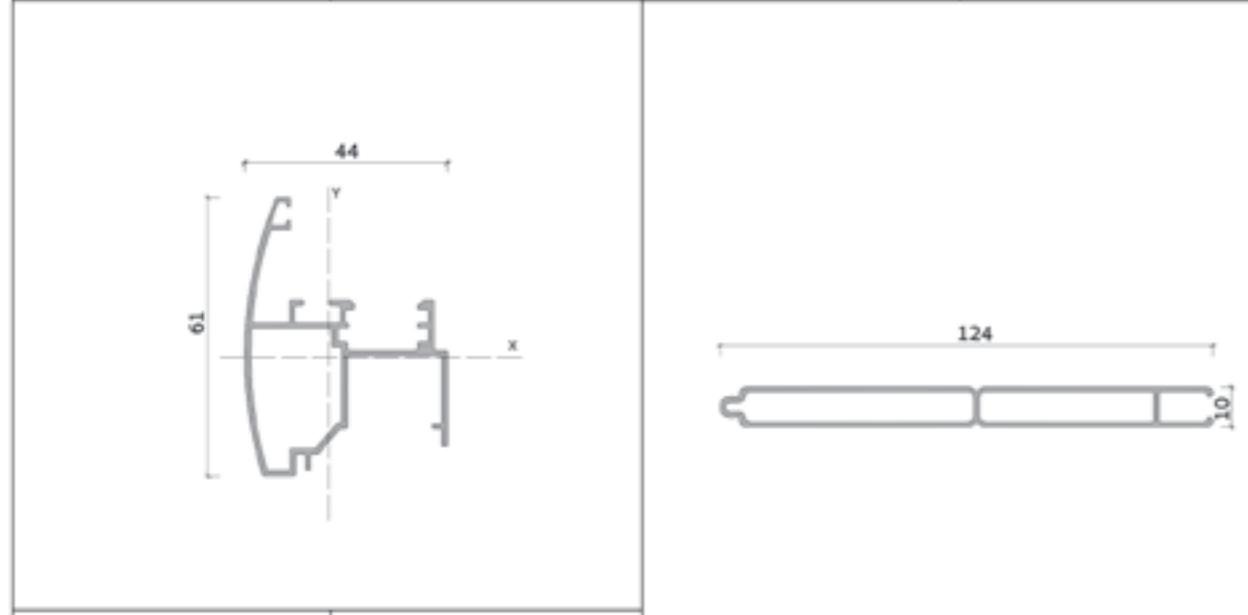


$I_x: 8.91 \text{ cm}^4$	$I_y: 9.71 \text{ cm}^4$	$I_x: 29.28 \text{ cm}^4$	$I_y: 15.59 \text{ cm}^4$
Frame : ALN-217	A: PCP-10 / 44 mm	Sash : ALN-209	A: PCP-42 / 35 mm
Weight: 830 gr/m	B: fuji 2013	B: MM 55	C: fuji 2013

Hinged System 47 & 59 Series  
Profile & Accessories Information

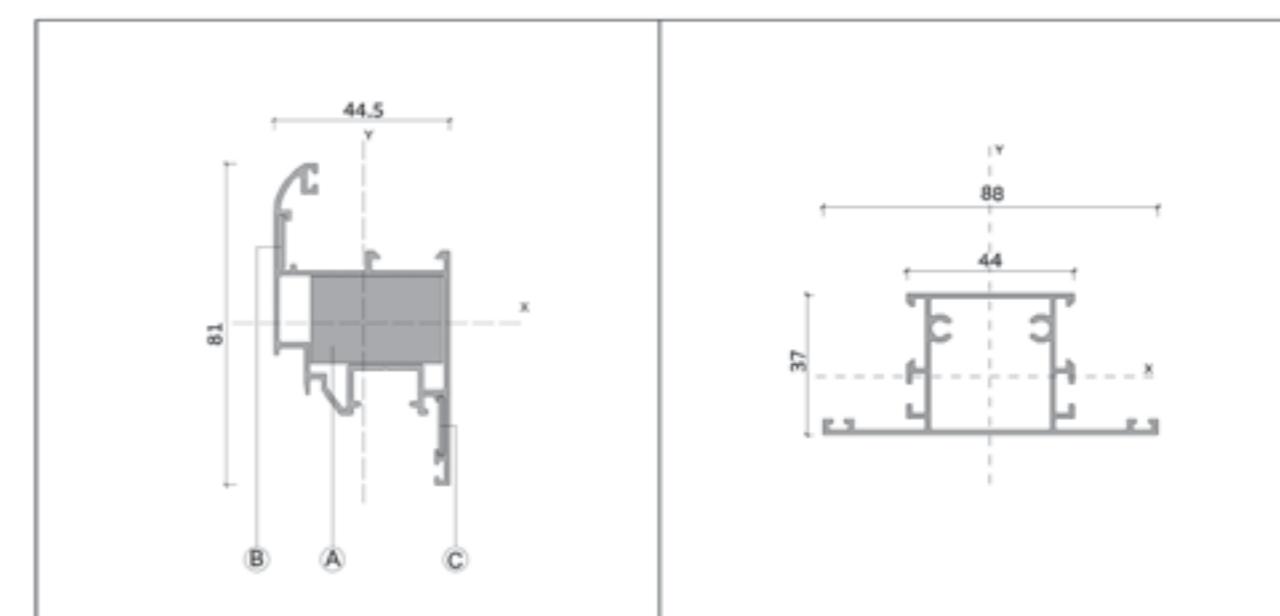


$I_x: 5.77 \text{ cm}^4$	$I_y: 8.47 \text{ cm}^4$	$I_x: 9.51 \text{ cm}^4$	$I_y: 49.88 \text{ cm}^4$
Transom : ALN-248	A: -	Transom : ALN-245	A: -
Weight: 851 gr/m	B: -	Weight: 1242 gr/m	B: -

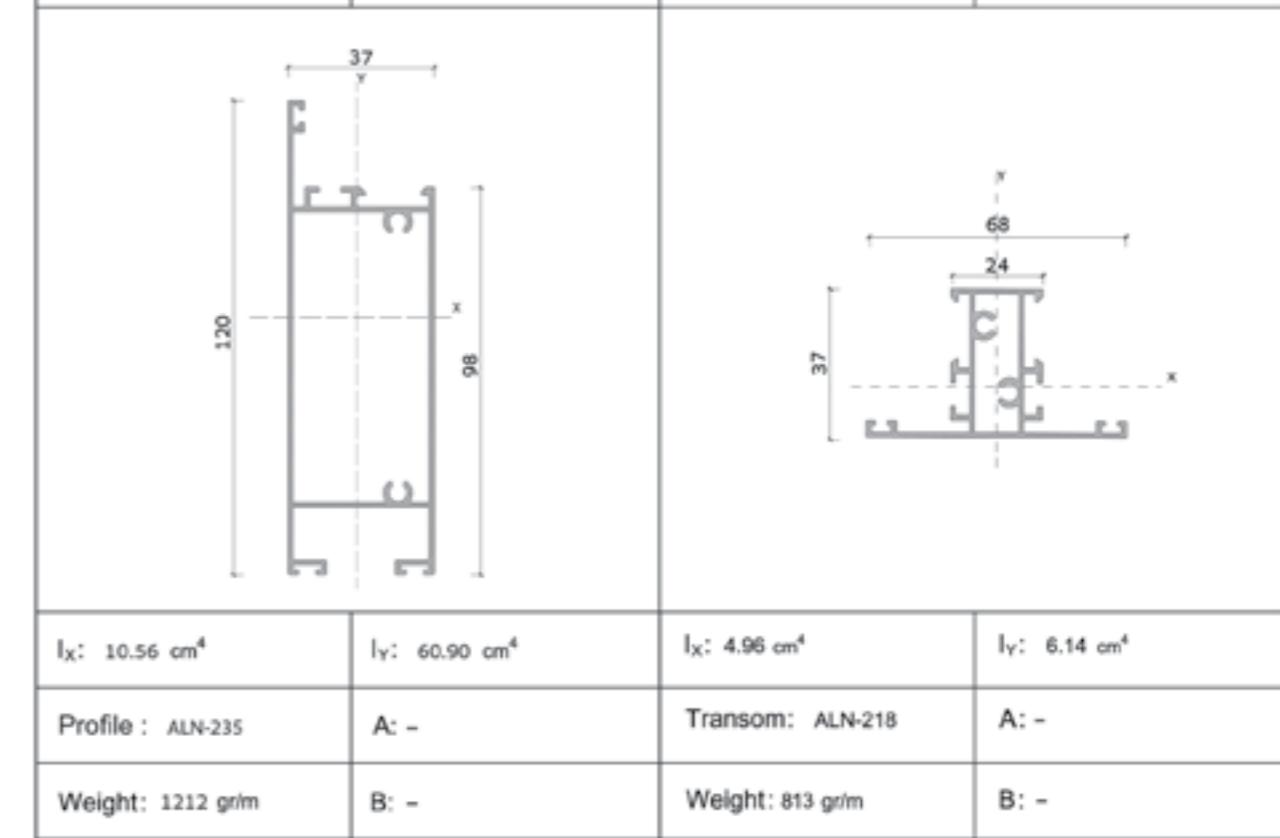


$I_x: 5.53 \text{ cm}^4$	$I_y: 5.77 \text{ cm}^4$		
Profile : ALN-210	A: -	Profile : ALN-212	Weight: 870 gr/m
Weight: 700 gr/m	B: -		

Hinged System 47 & 59 Series  
Profile & Accessories Information

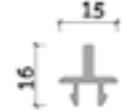
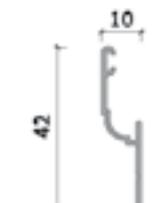
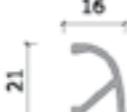


$I_x: 14.33 \text{ cm}^4$	$I_y: 9.88 \text{ cm}^4$	$I_x: 6.90 \text{ cm}^4$	$I_y: 16.10 \text{ cm}^4$
Sash : ALN-262	A: PCP-22/ 32 mm	Transom : ALN-211	A: -
	B: fiji 2013		
Weight: 851 gr/m	C: MM 55	Weight: 940 gr/m	B: -

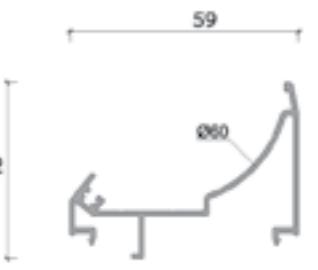
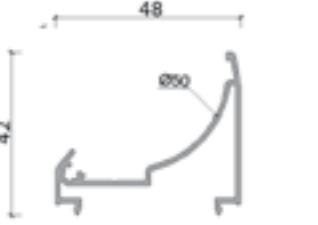
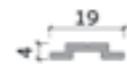


$I_x: 10.56 \text{ cm}^4$	$I_y: 60.90 \text{ cm}^4$	$I_x: 4.96 \text{ cm}^4$	$I_y: 6.14 \text{ cm}^4$
Profile : ALN-235	A: -	Transom: ALN-218	A: -
Weight: 1212 gr/m	B: -	Weight: 813 gr/m	B: -

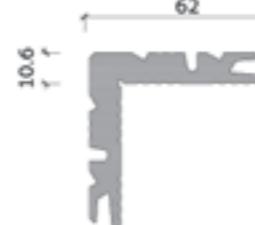
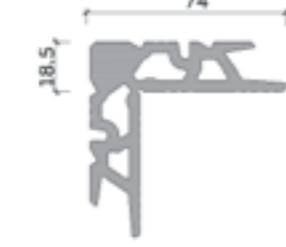
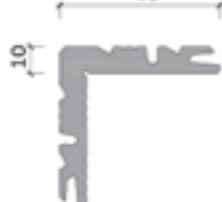
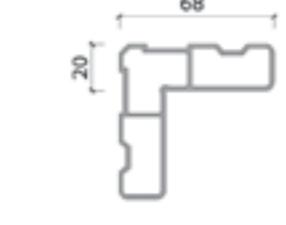
Hinged System 47 & 59 Series  
Profile & Accessories Information

			
Profile : ALN-228	Weight : 135 gr/m	Profile : ALN-257	Weight : 149 gr/m
			
Profile : ALN-230	Weight : 195 gr/m	Profile : ALN-444	Weight : 344 gr/m
			
Profile : ALN-241	Weight : 194 gr/m	Profile : ALN-229	Weight : 190 gr/m

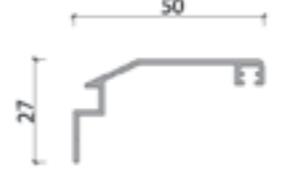
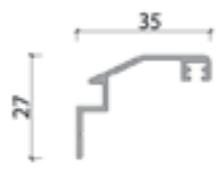
Hinged System 47 & 59 Series  
Profile & Accessories Information

			
Profile : ALN-227	Weight : 540 gr/m	Profile : ALN-225	Weight : 548 gr/m
			
Profile : ALN-215	Weight : 648 gr/m	Profile : ALN-226	Weight : 456 gr/m
			
Profile : ALN-224	Weight : 110 gr/m	Profile : ALN-424	Weight : 169 gr/m

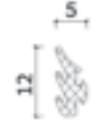
Hinged System 47 & 59 Series  
Profile & Accessories Information

	Weight : 270 gr/m		Weight : 2550 gr/m
	Weight : -		Weight : 3499 gr/m
	Weight : 2455 gr/m		Weight : 1375 gr/m

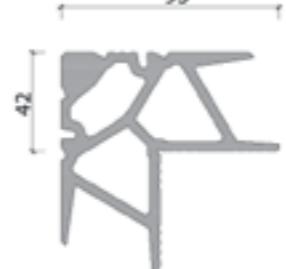
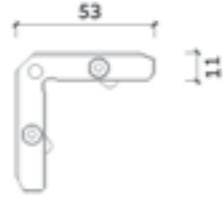
Hinged System 47 & 59 Series  
Profile & Accessories Information

	Weight : 300 gr/m		Weight : 255 gr/m
	Weight: 448 gr/m		Weight : 360 gr/m
	Weight: 626 gr/m		Weight : 210 gr/m

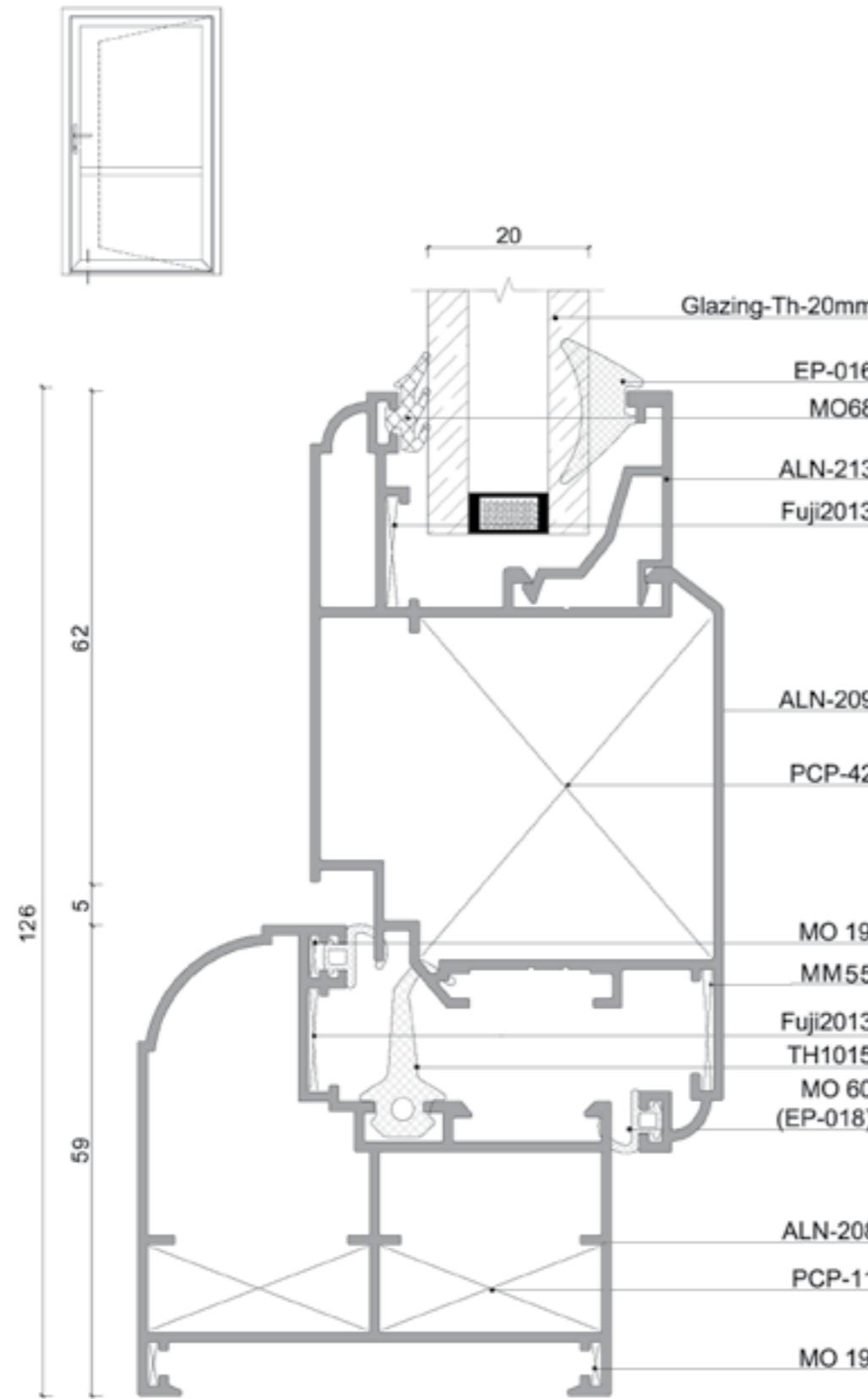
Hinged System 47 & 59 Series  
Profile & Accessories Information

	Gasket: MO68	Weight : 48 gr/m		Gasket: 1015	Weight : 116 gr/m
	Gasket: EP-018	Weight : 27 gr/m		PB7-3P-70-500	Weight: -
	Gasket: 3523801	Weight : 35 gr/m		Gasket: Mo 60	Weight : 26 gr/m

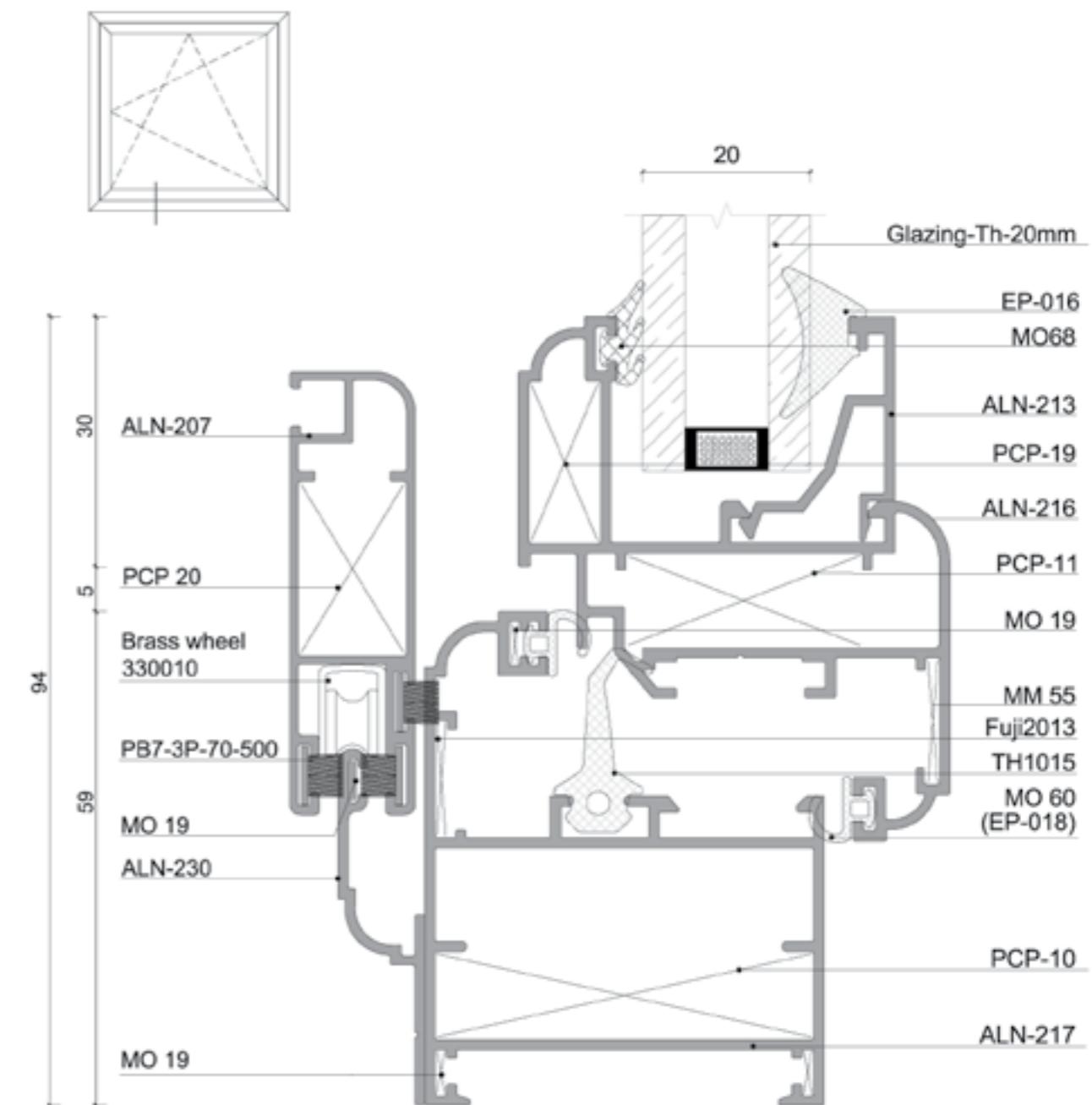
Hinged System 47 & 59 Series  
Profile & Accessories Information

	Corner joint: PCP-42	Weight : 5130 gr/m <sup>2</sup>		Gasket: EP-016	Weight : 77 gr/m
	Corner Joint: Fuji 2013	Weight : -		Gasket: EP-019	Weight : 61 gr/m
	Gasket: EP-015	Weight : 21 gr/m		Gasket: EP-021	Weight : 80 gr/m

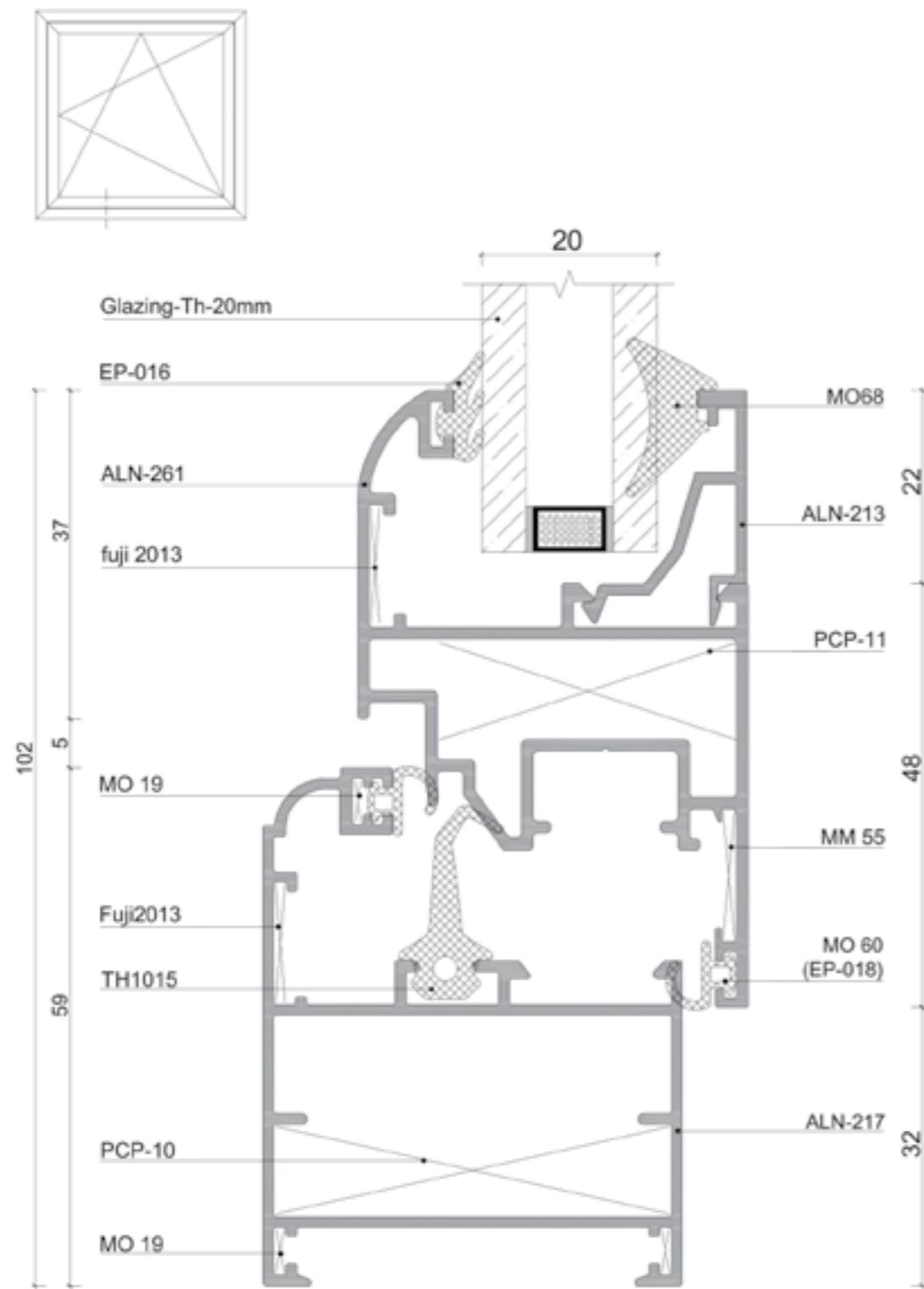
Hinged System 47 & 59 Series  
Fabrication Details



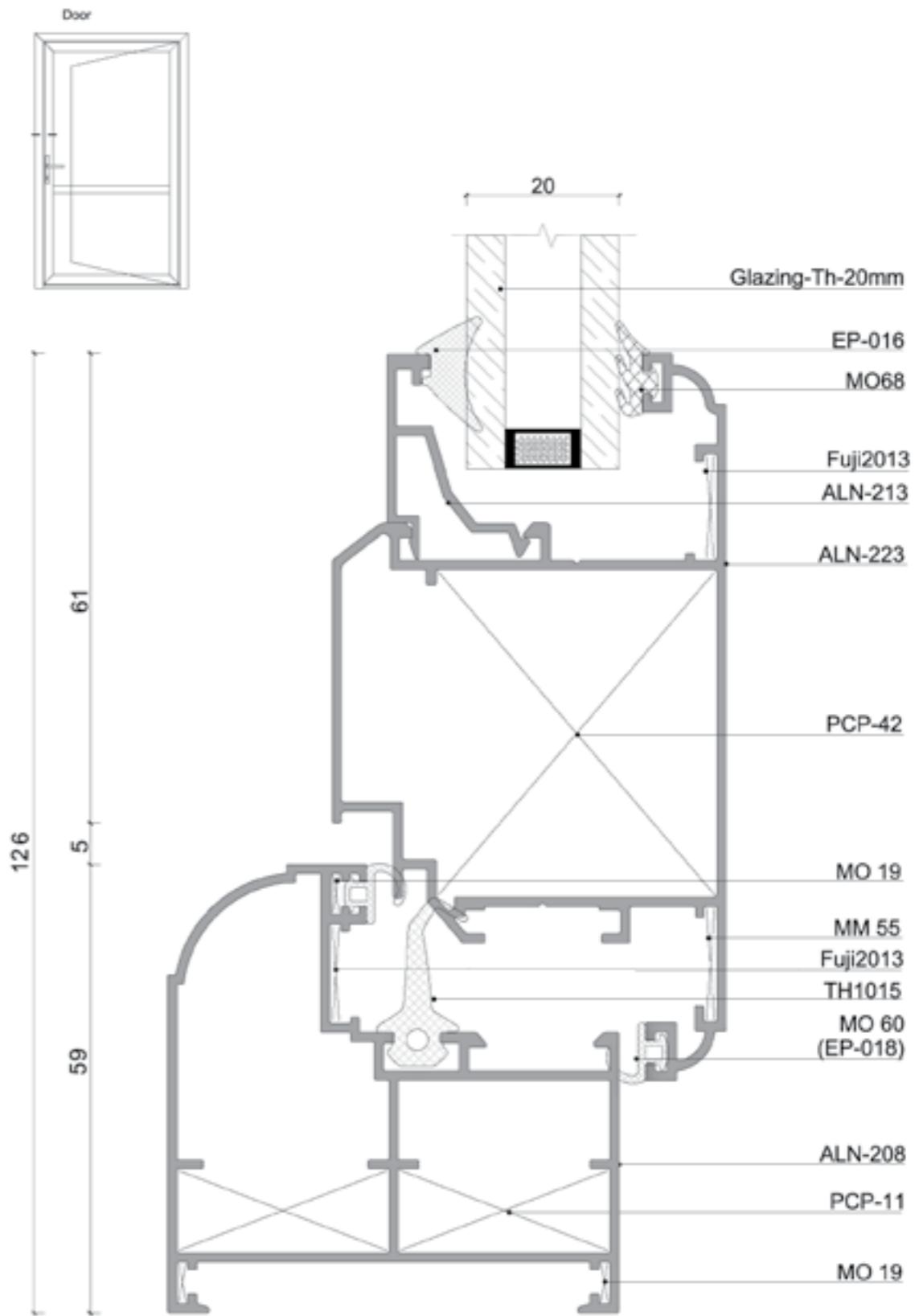
Hinged System 47 & 59 Series  
Fabrication Details



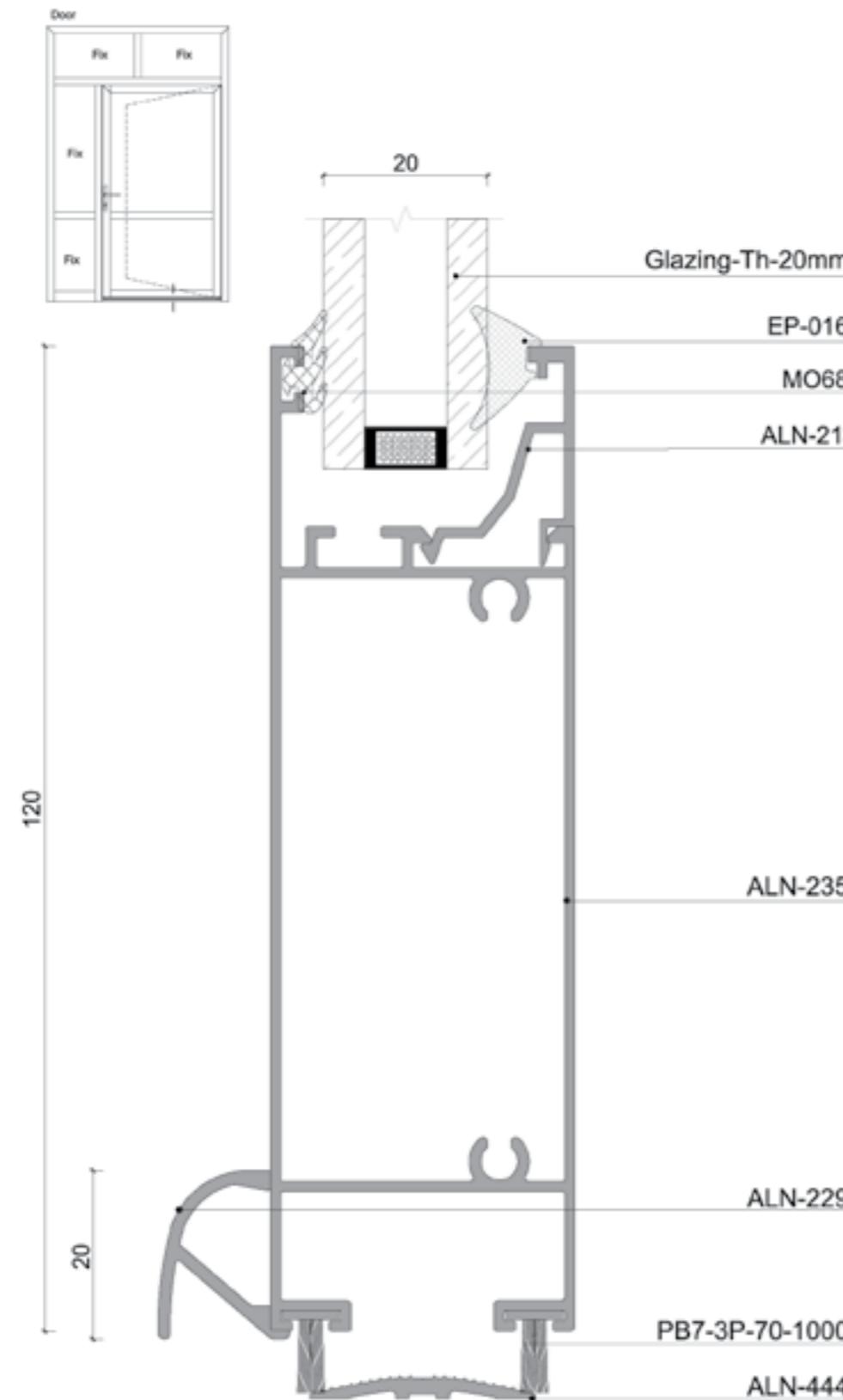
Hinged System 47 & 59 Series  
Fabrication Details



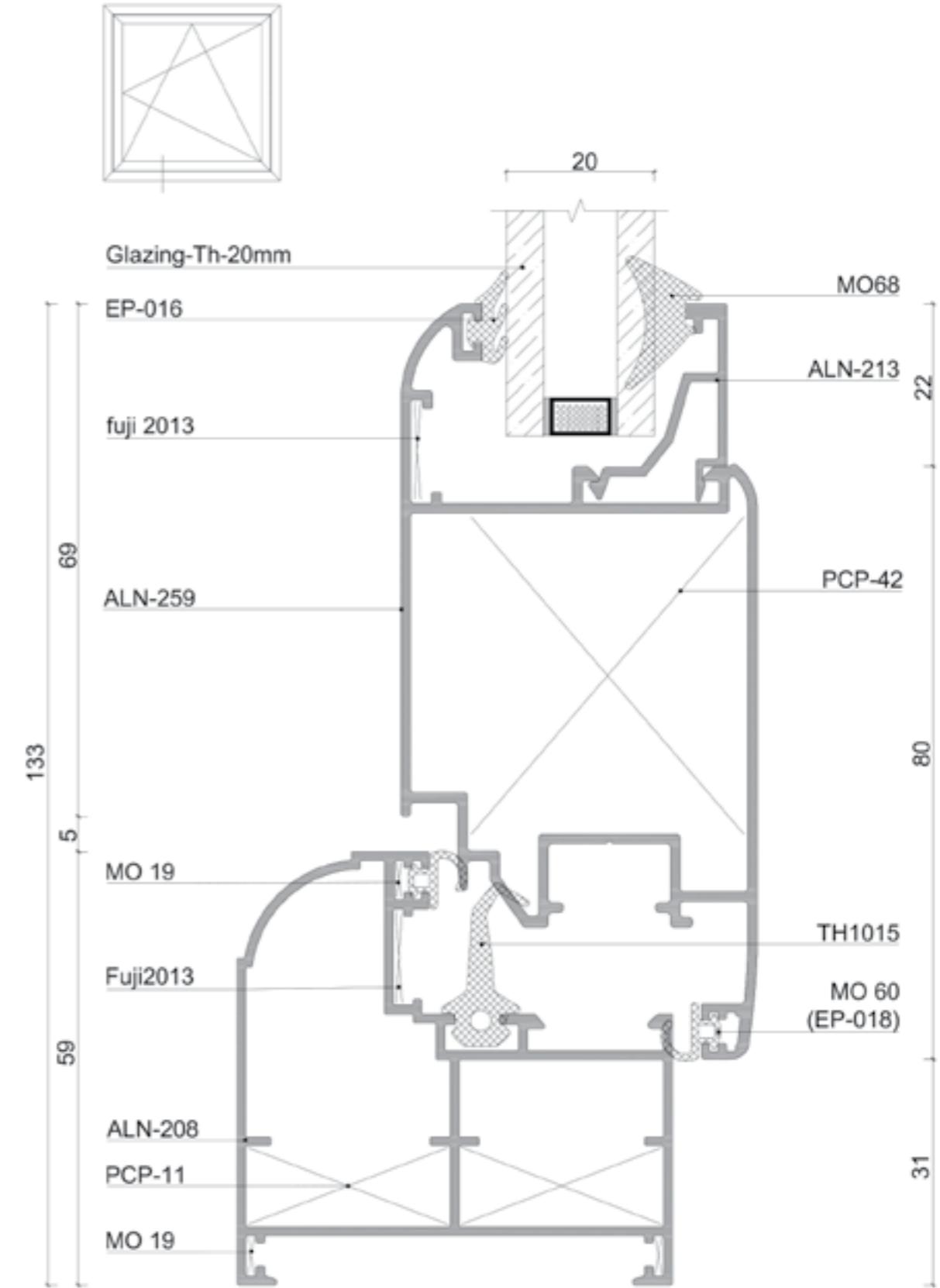
Hinged System 47 & 59 Series  
Fabrication Details



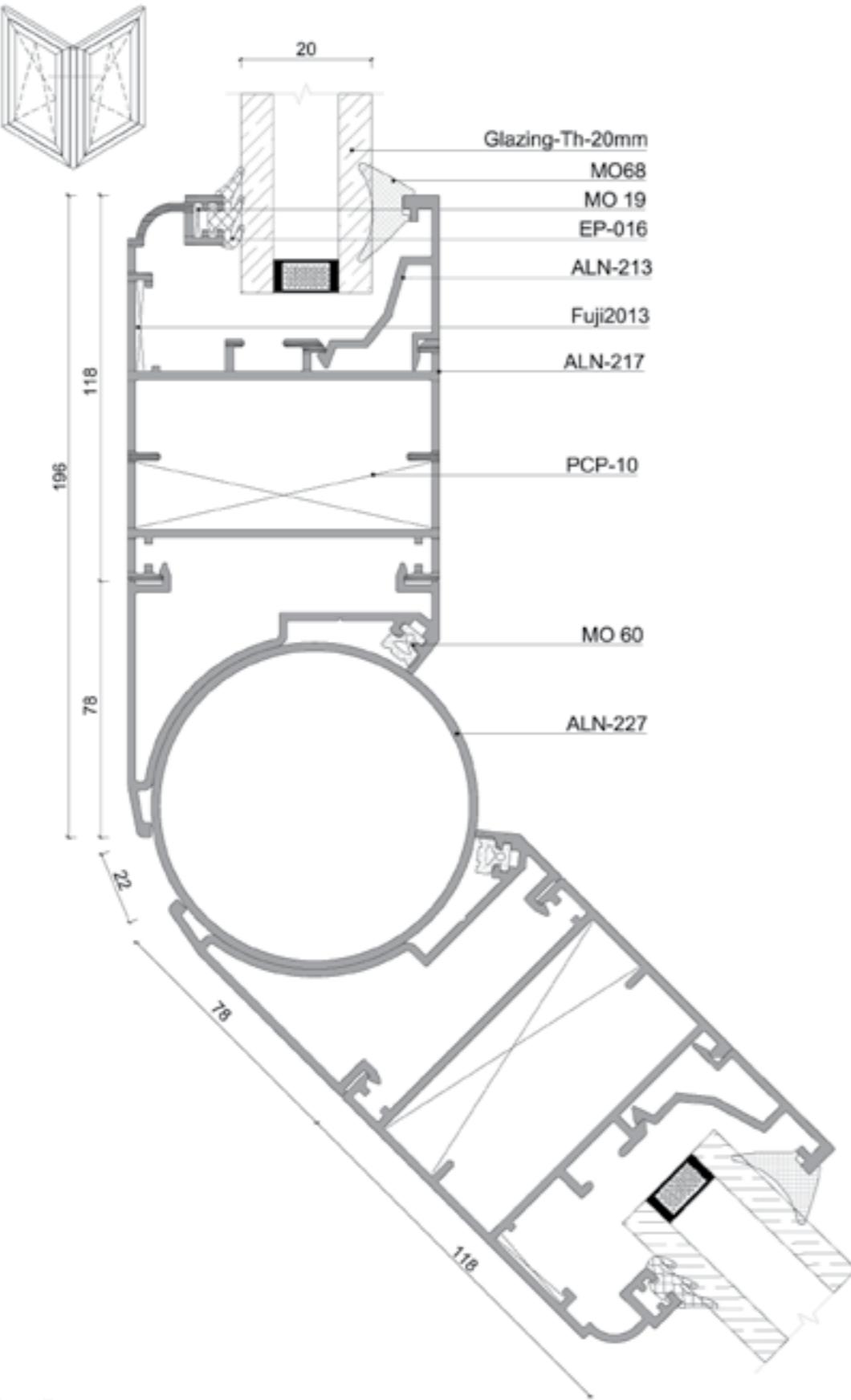
Hinged System 47 & 59 Series  
Fabrication Details



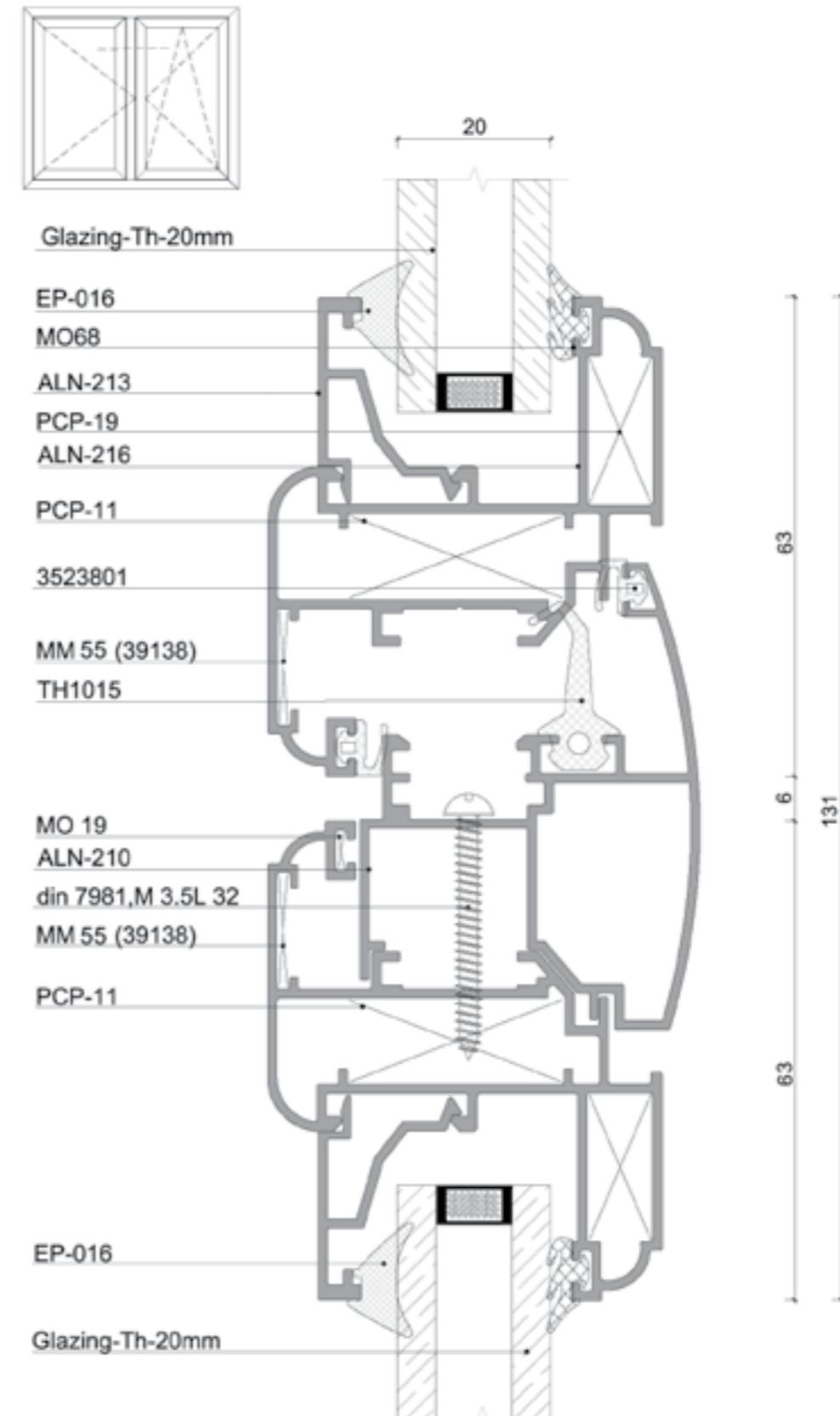
Hinged System 47 & 59 Series  
Fabrication Details



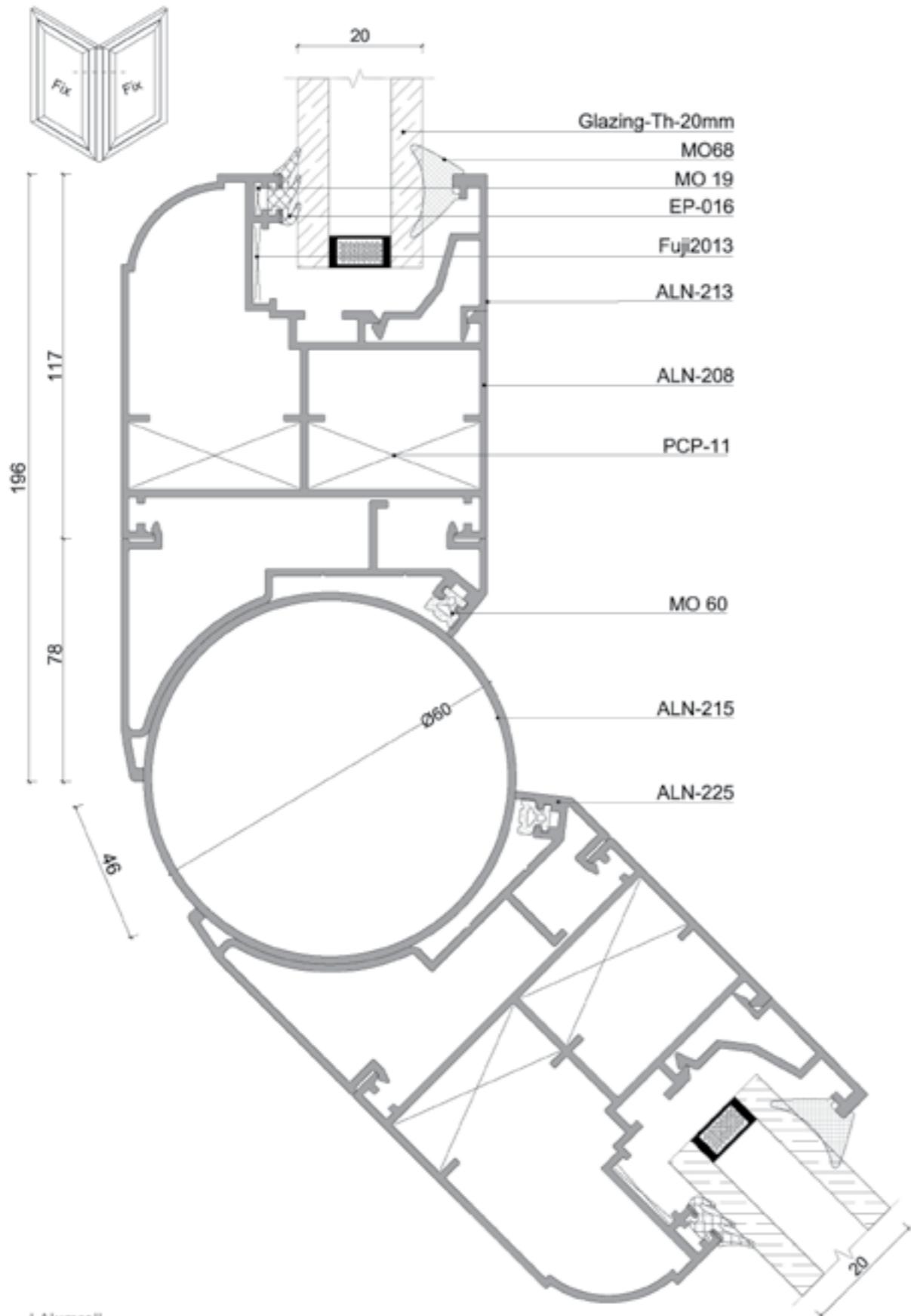
Hinged System 47 & 59 Series  
Fabrication Details



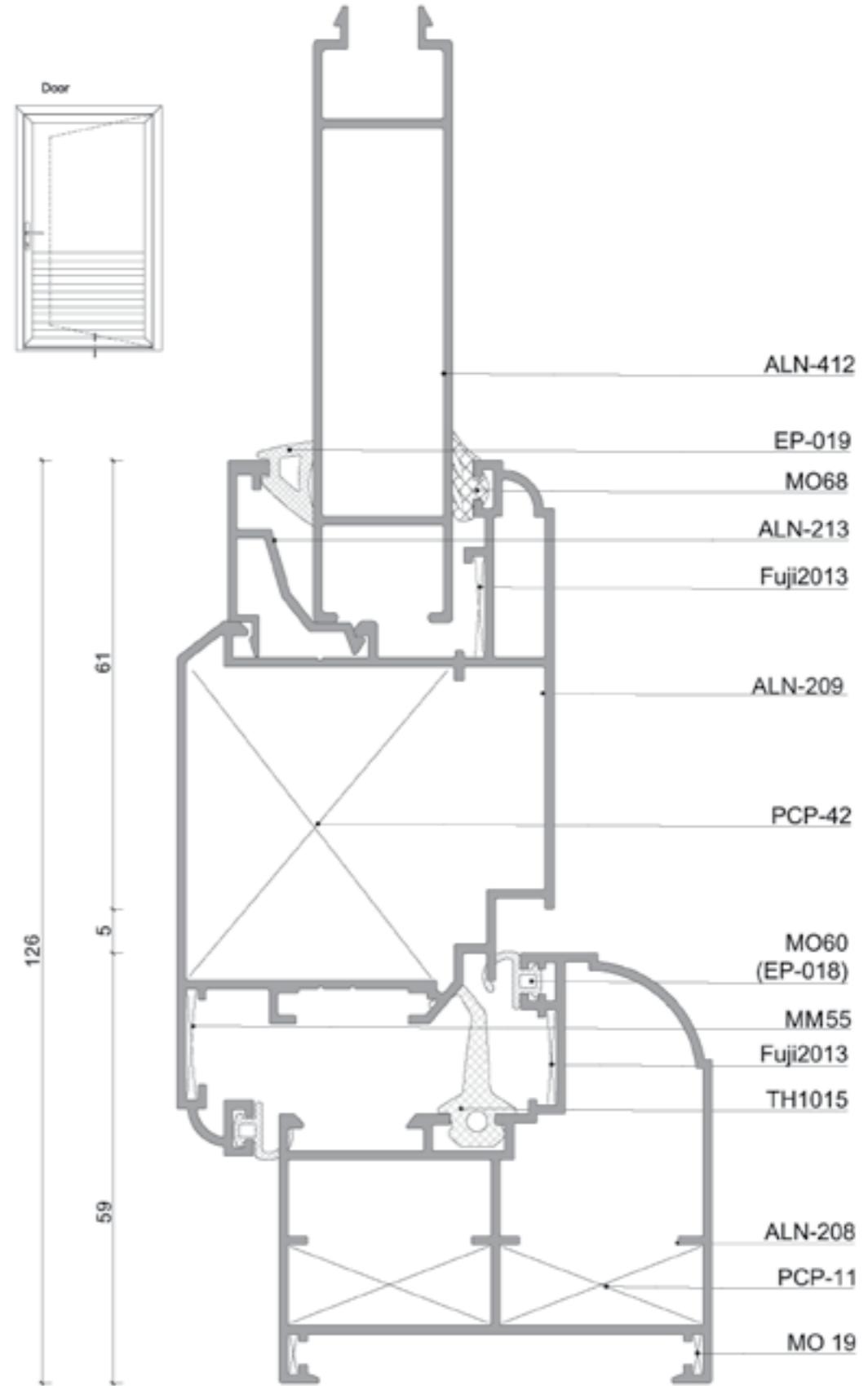
Hinged System 47 & 59 Series  
Fabrication Details



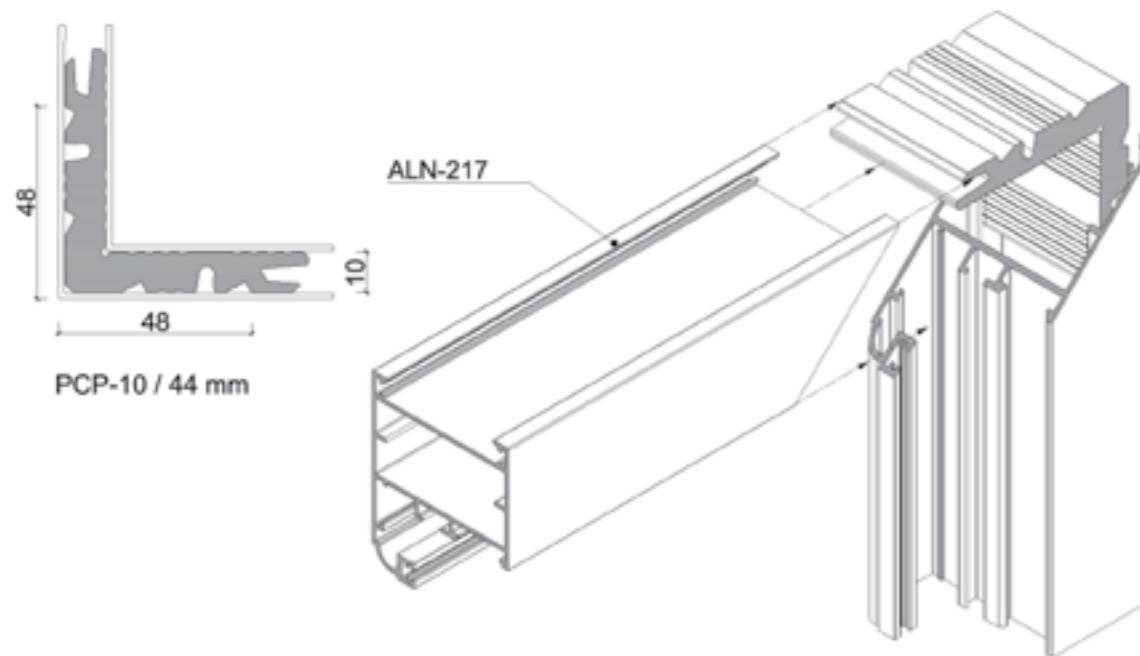
Hinged System 47 & 59 Series  
Fabrication Details



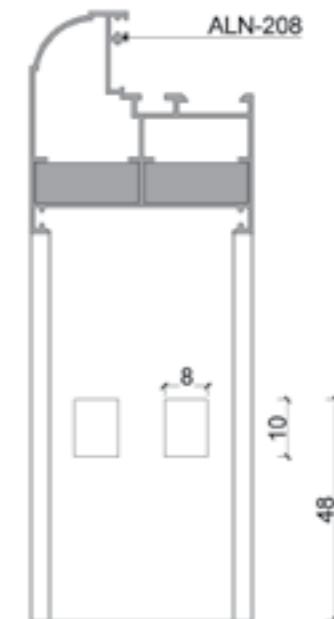
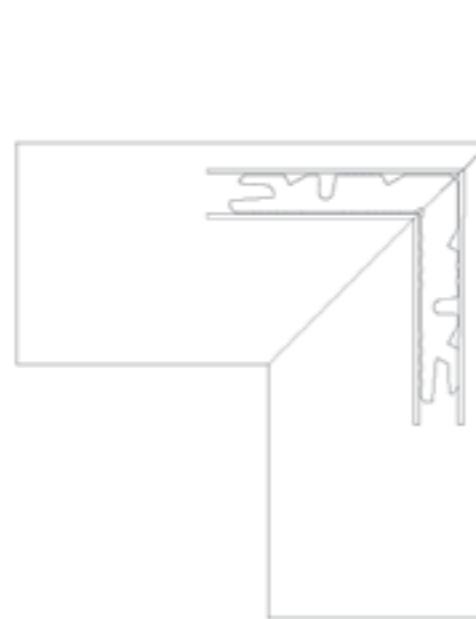
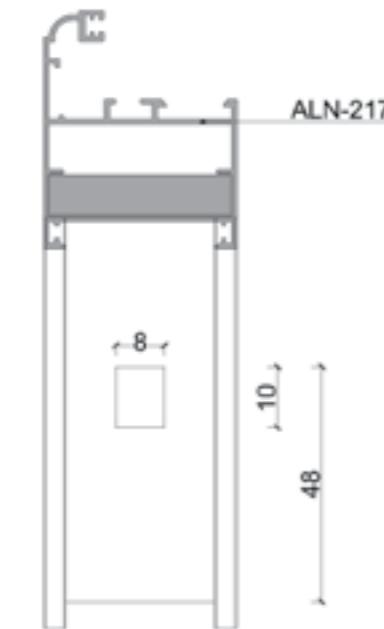
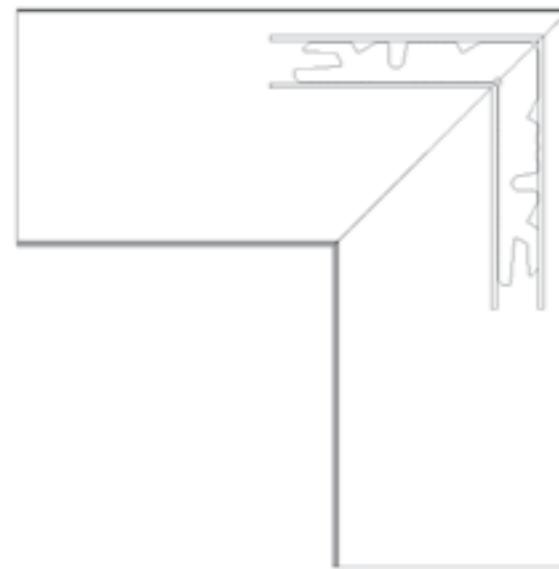
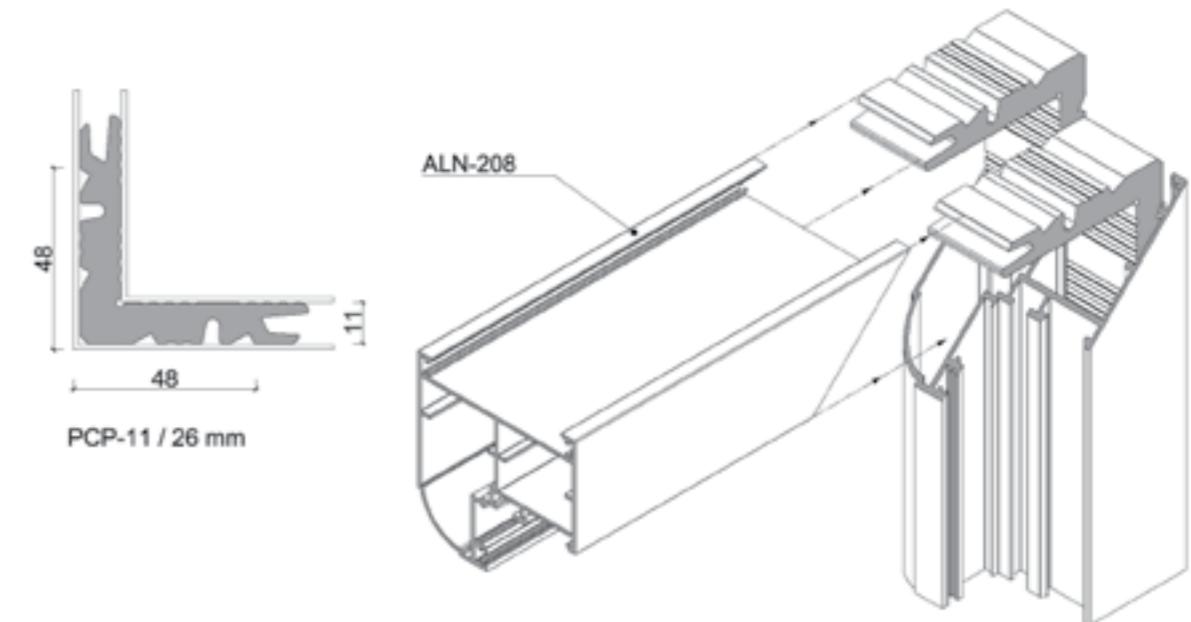
Hinged System 47 & 59 Series  
Fabrication Details



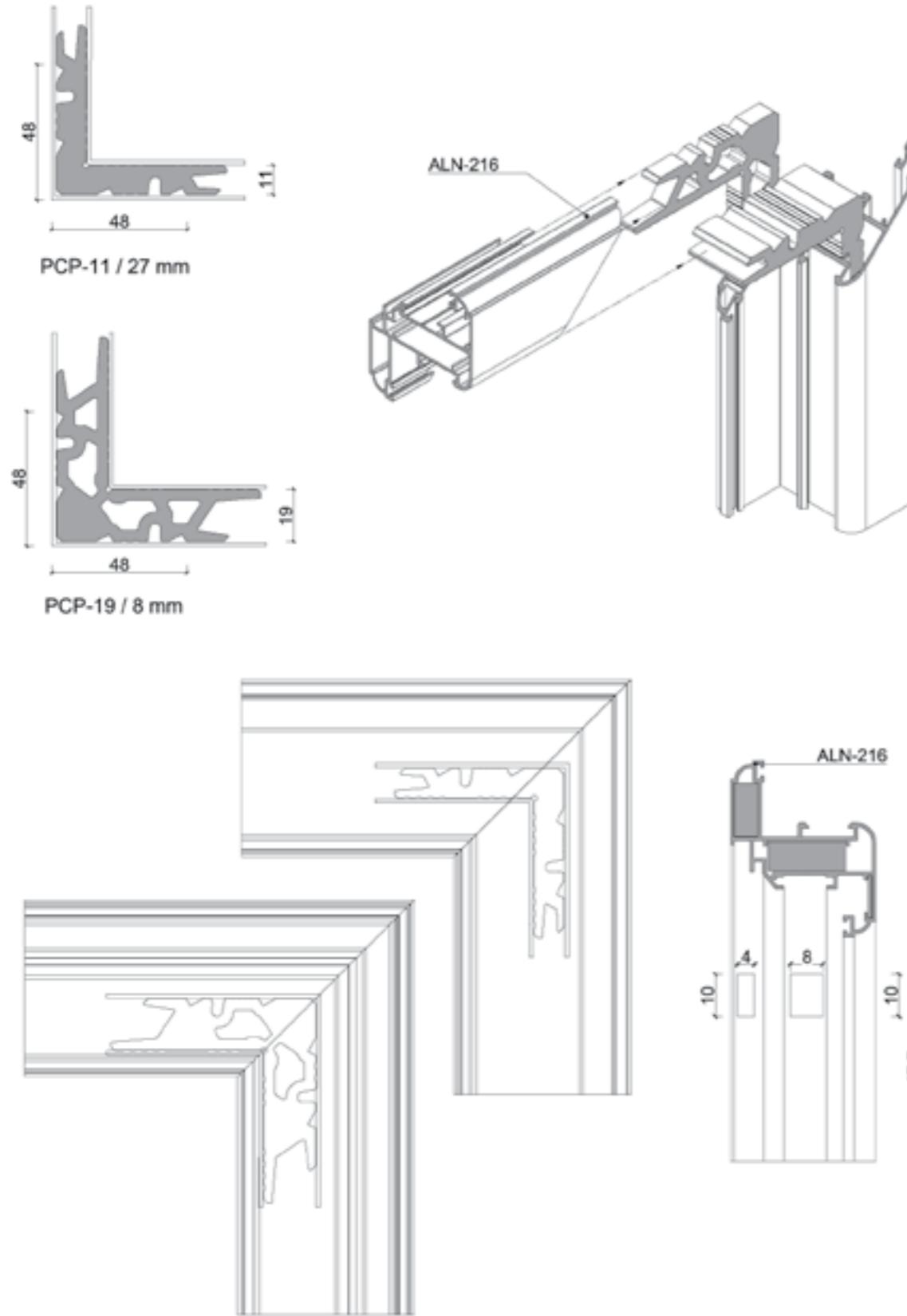
Hinged System 47 & 59 Series  
Assembly Drawing



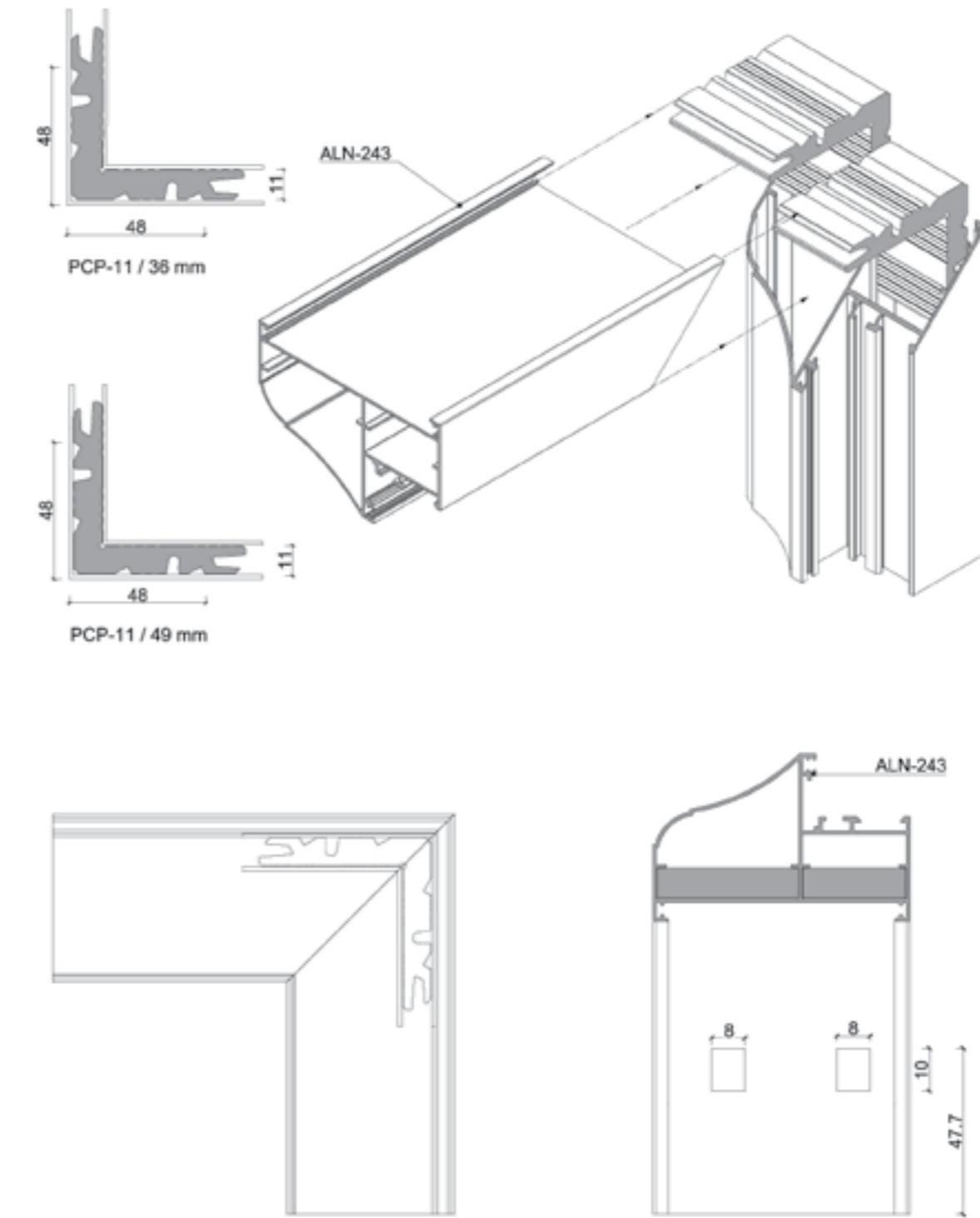
Hinged System 47 & 59 Series  
Assembly Drawing



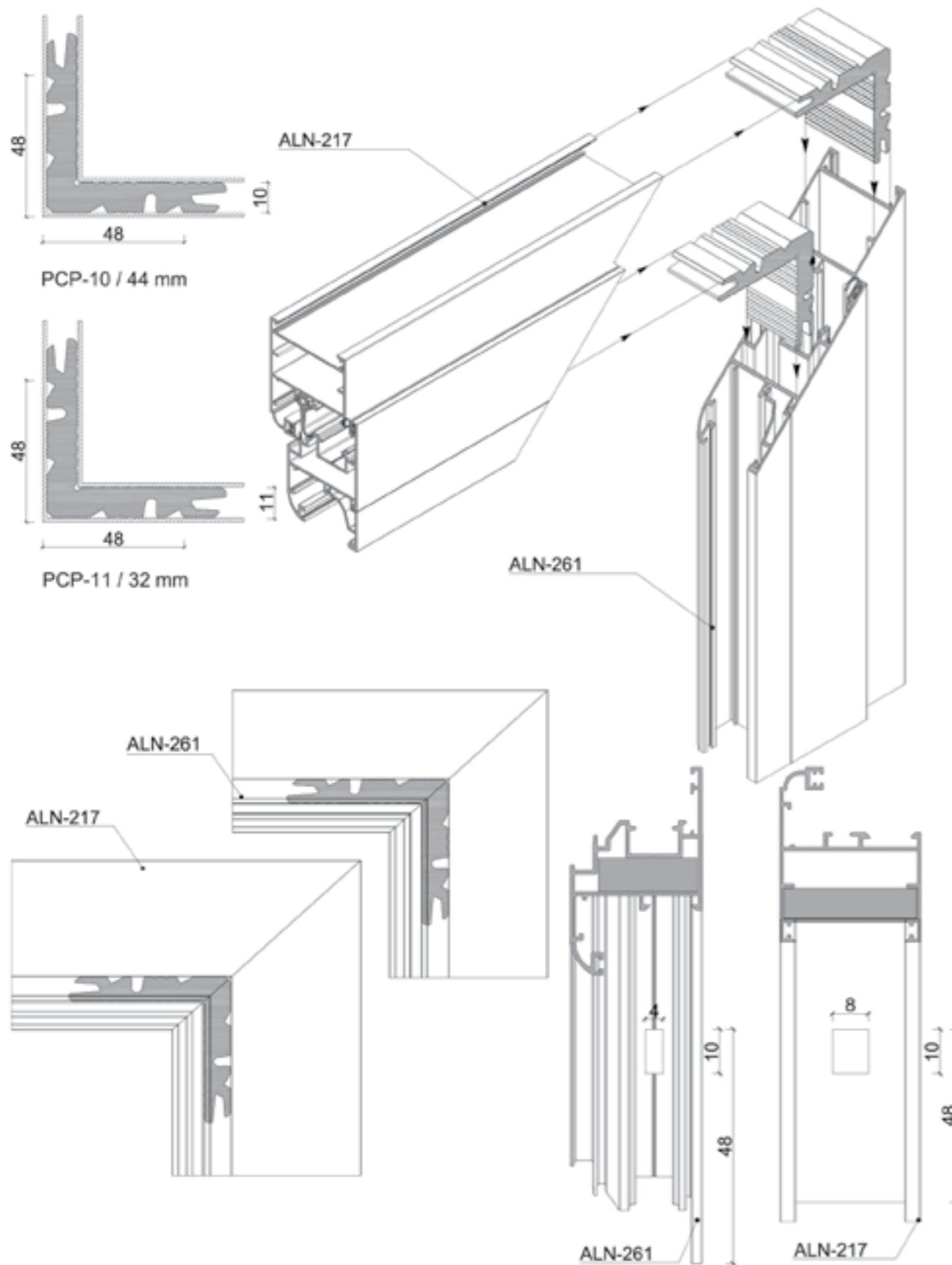
Hinged System 47 & 59 Series  
Assembly Drawing



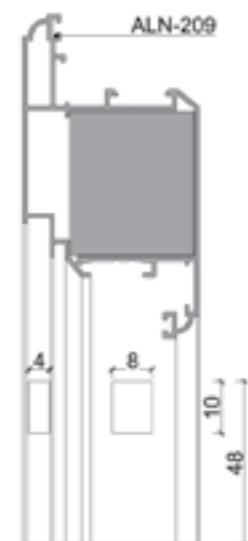
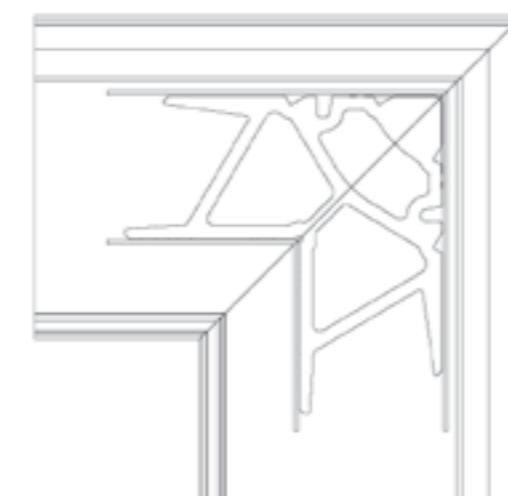
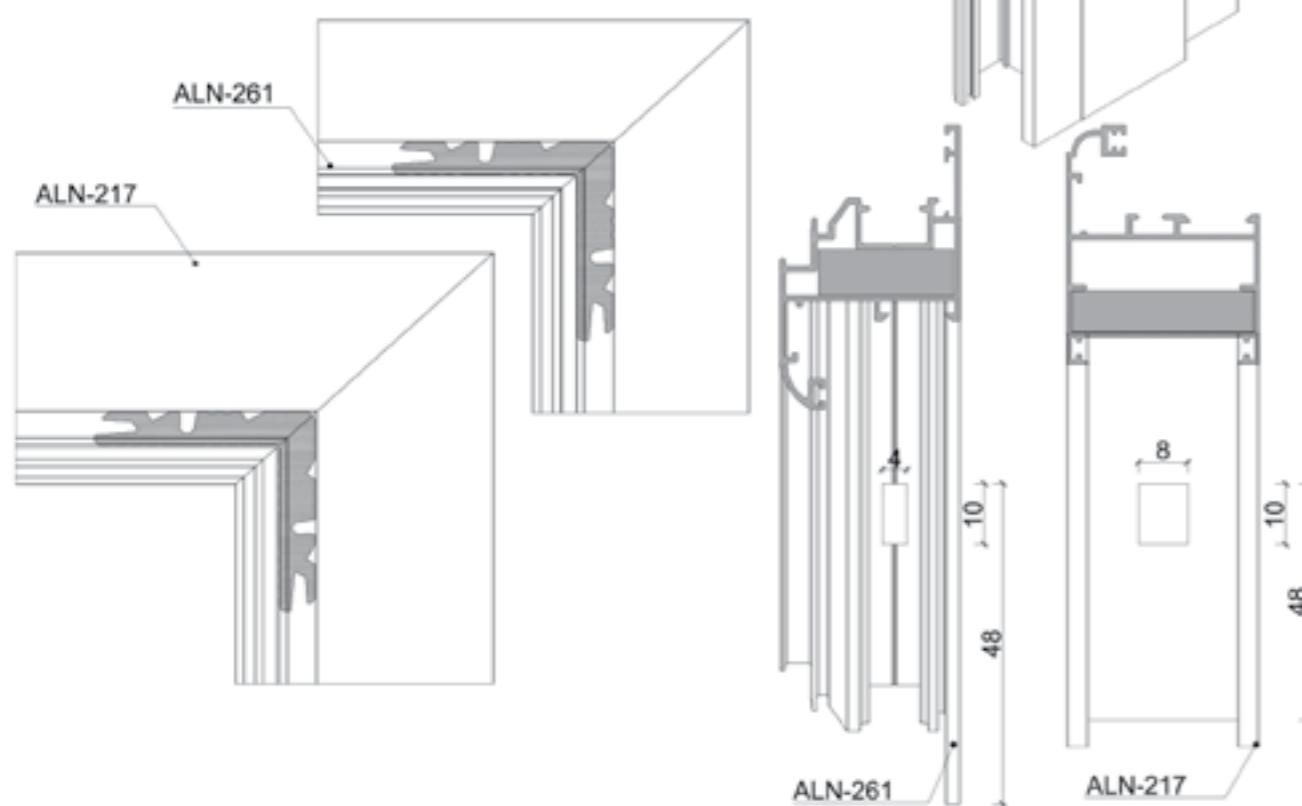
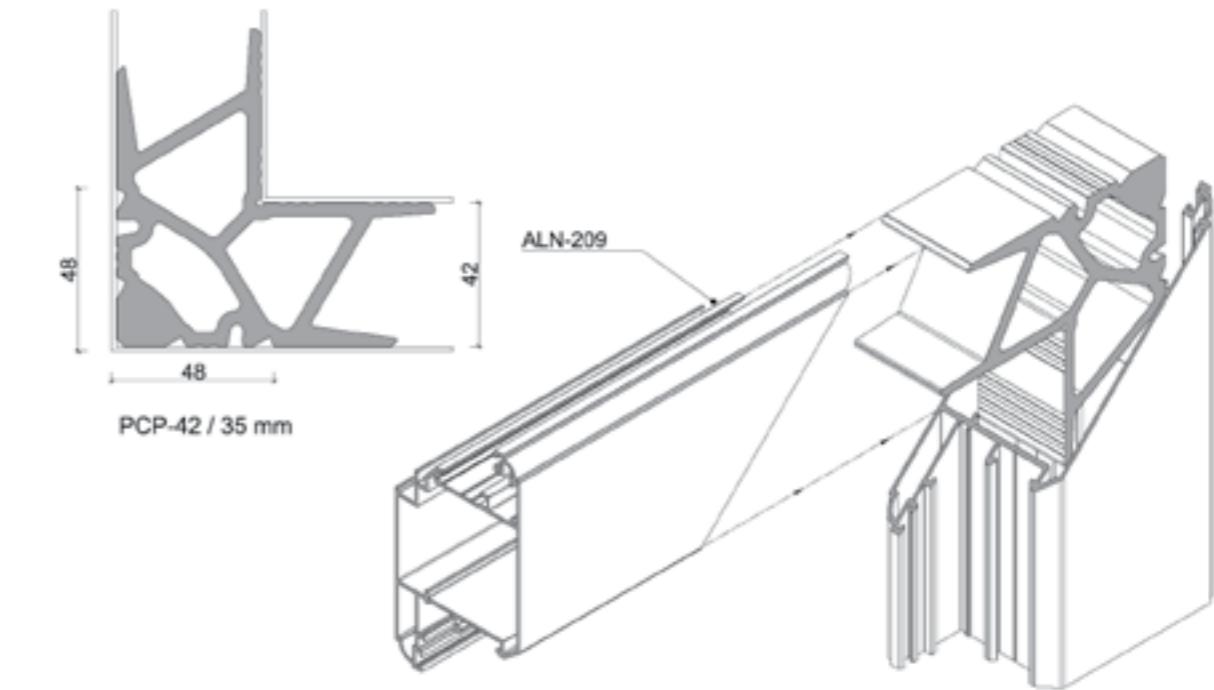
Hinged System 47 & 59 Series  
Assembly Drawing



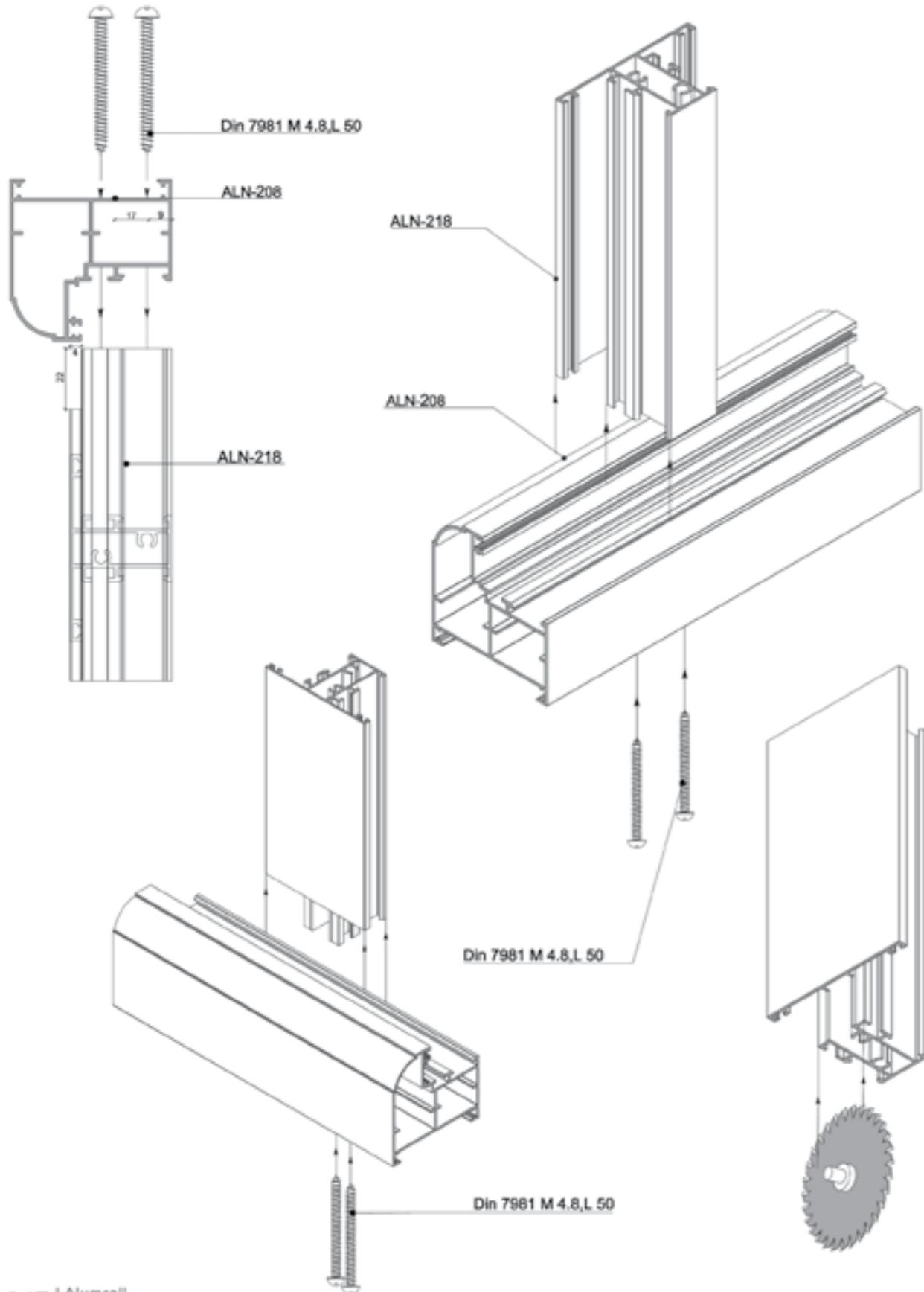
Hinged System 47 & 59 Series  
Assembly Drawing



Hinged System 47 & 59 Series  
Assembly Drawing

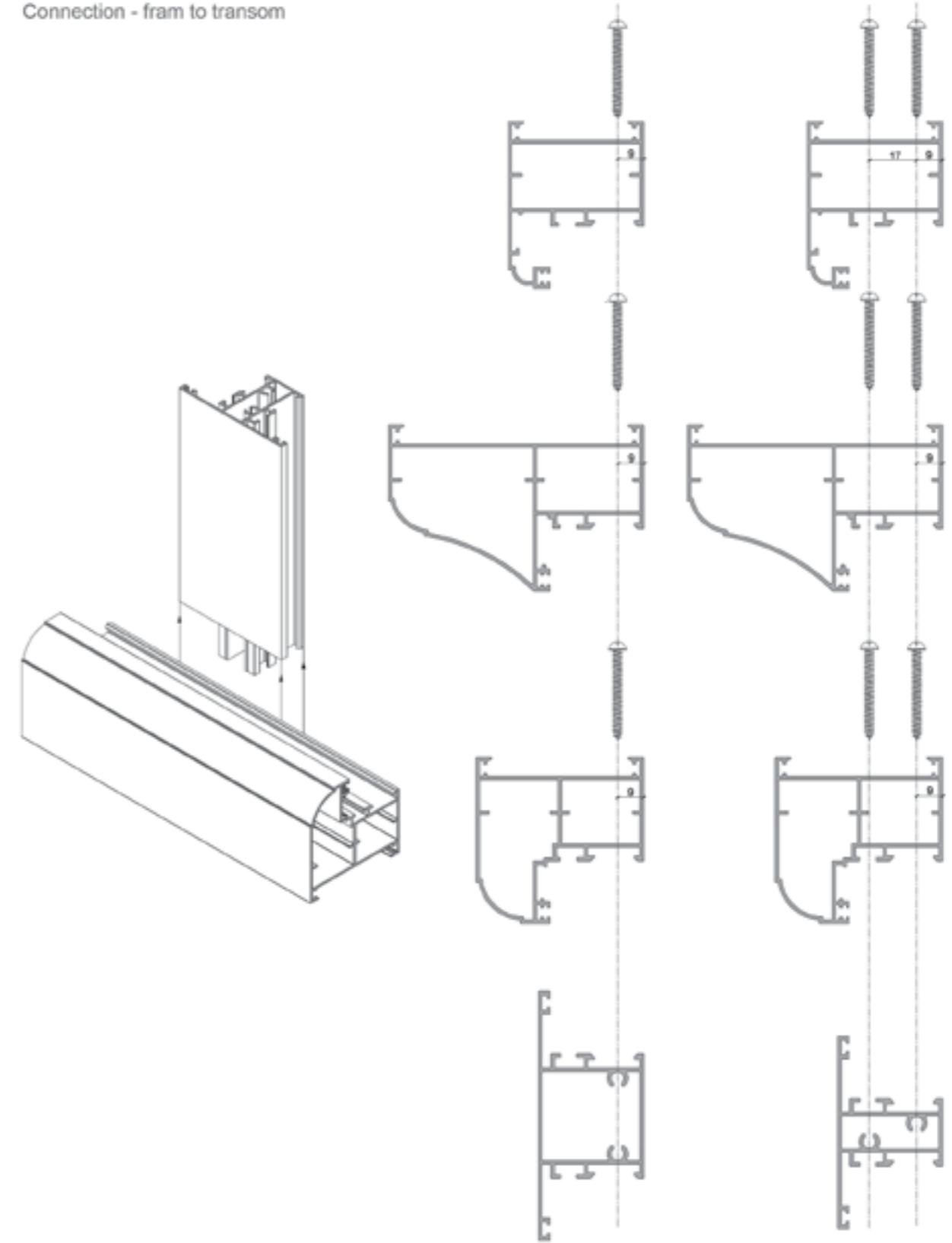


Hinged System 47 & 59 Series  
Assembly Drawing

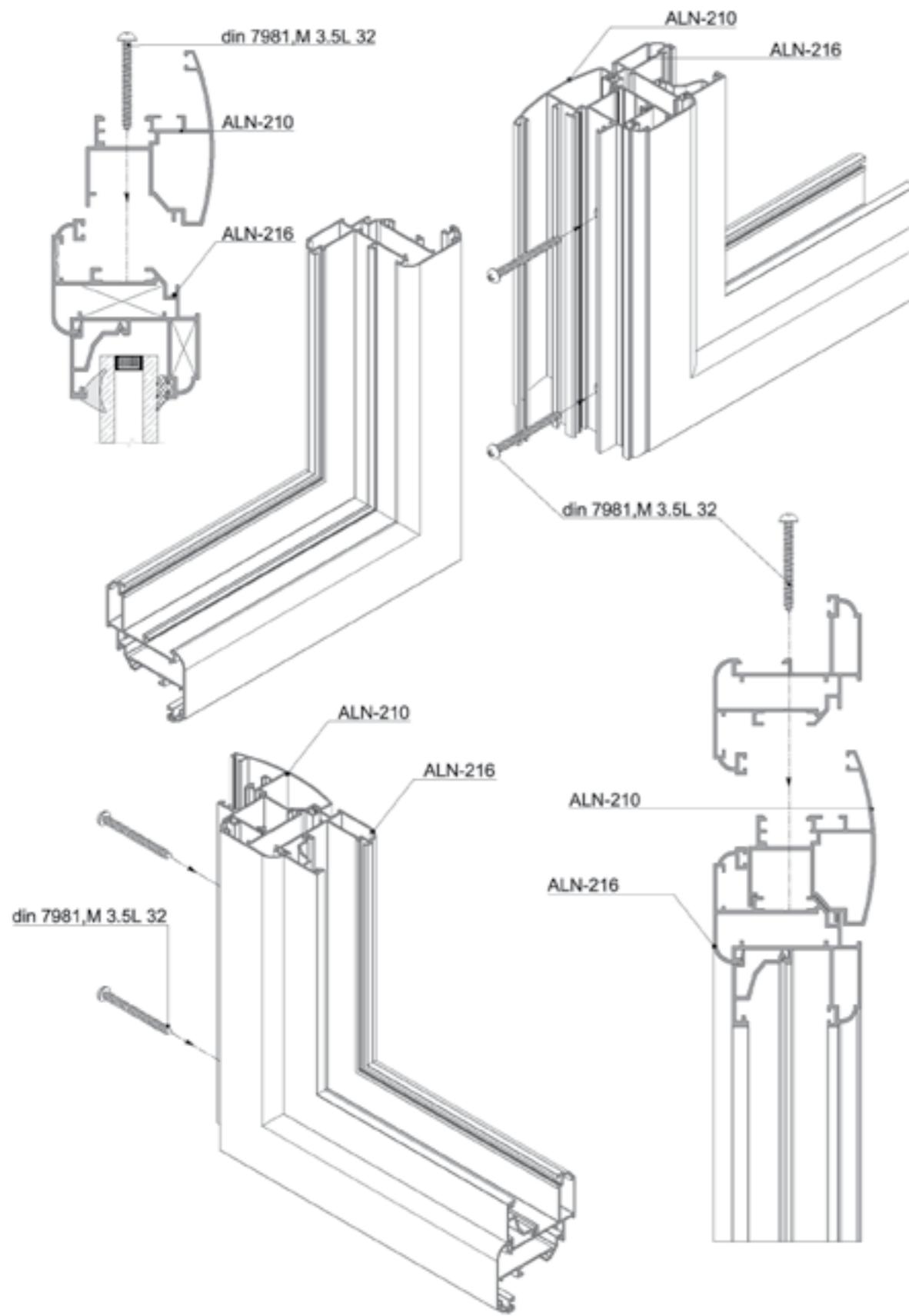


Hinged System 47 & 59 Series  
Assembly Drawing

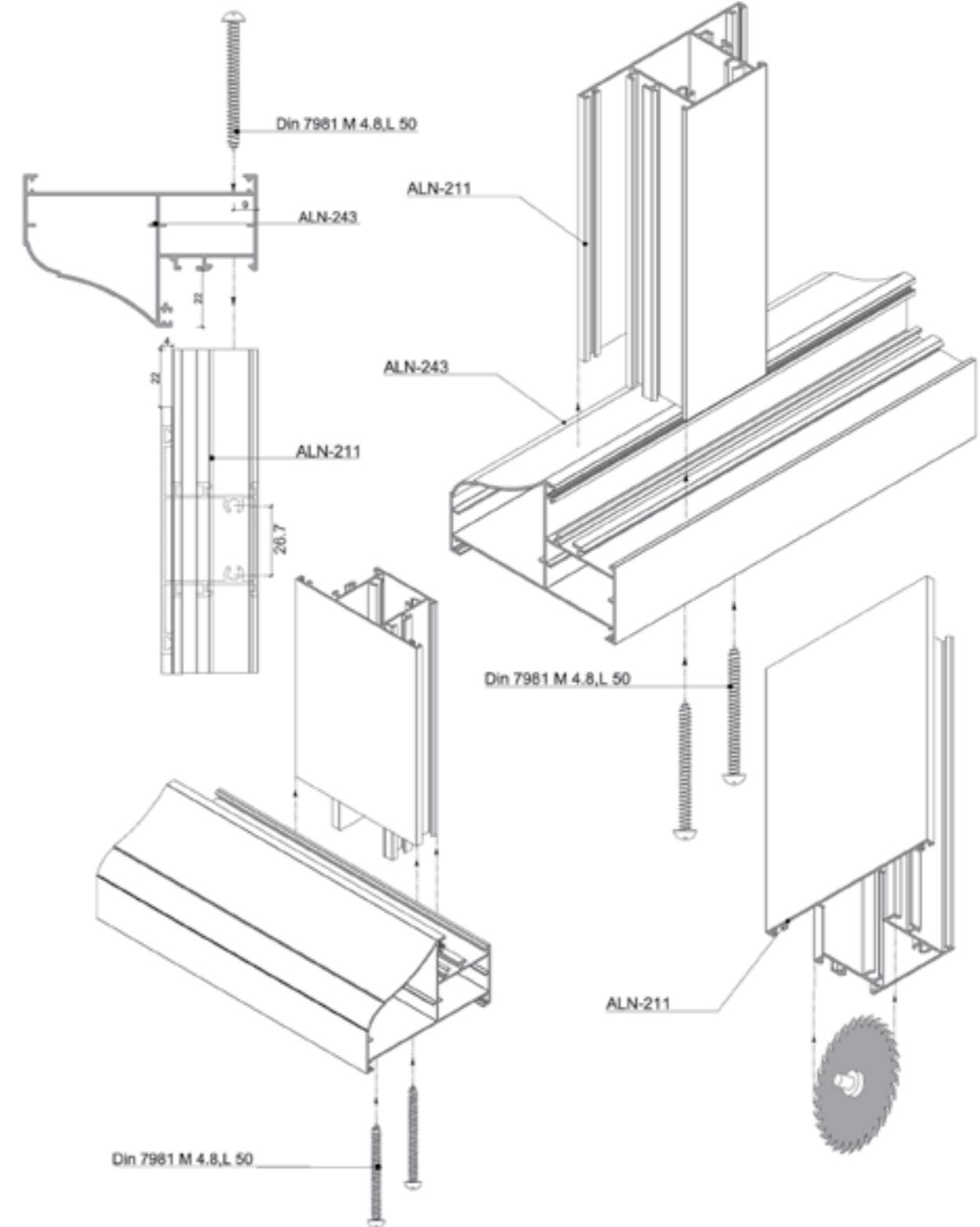
Connection - fram to transom



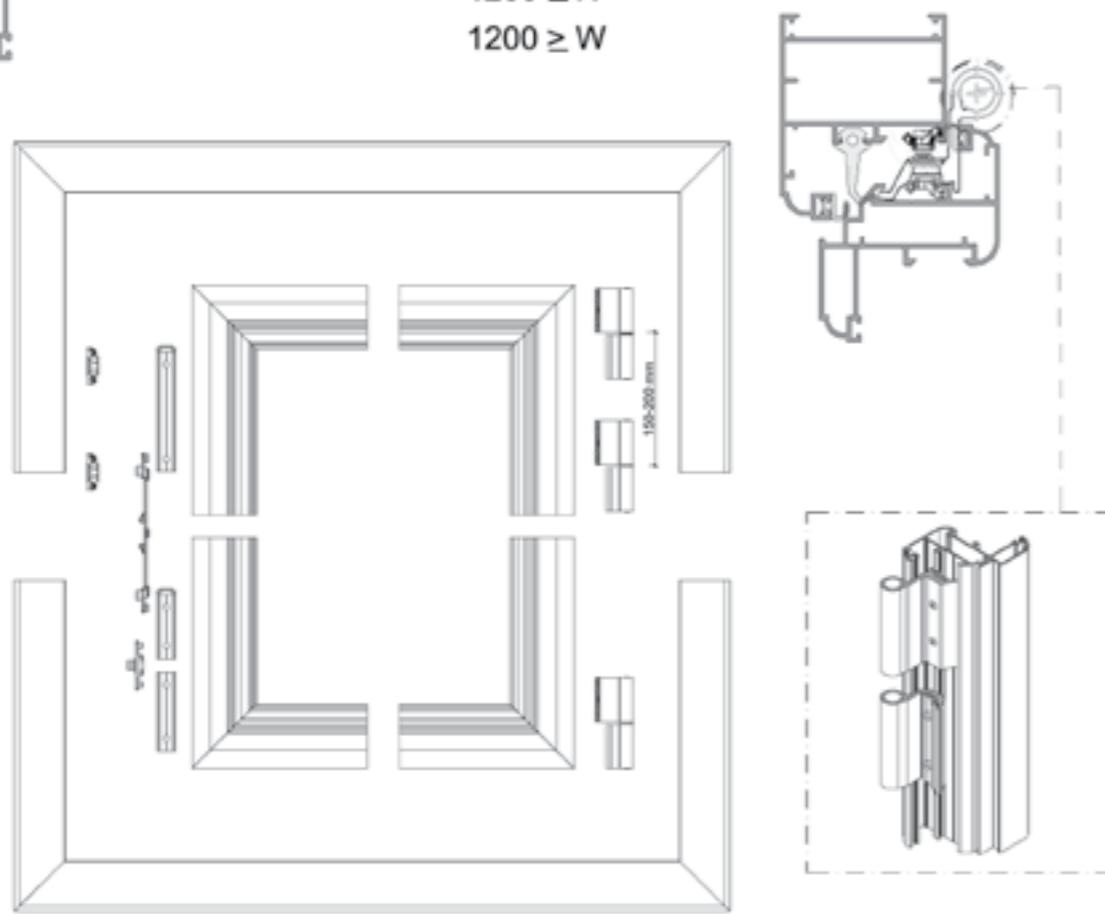
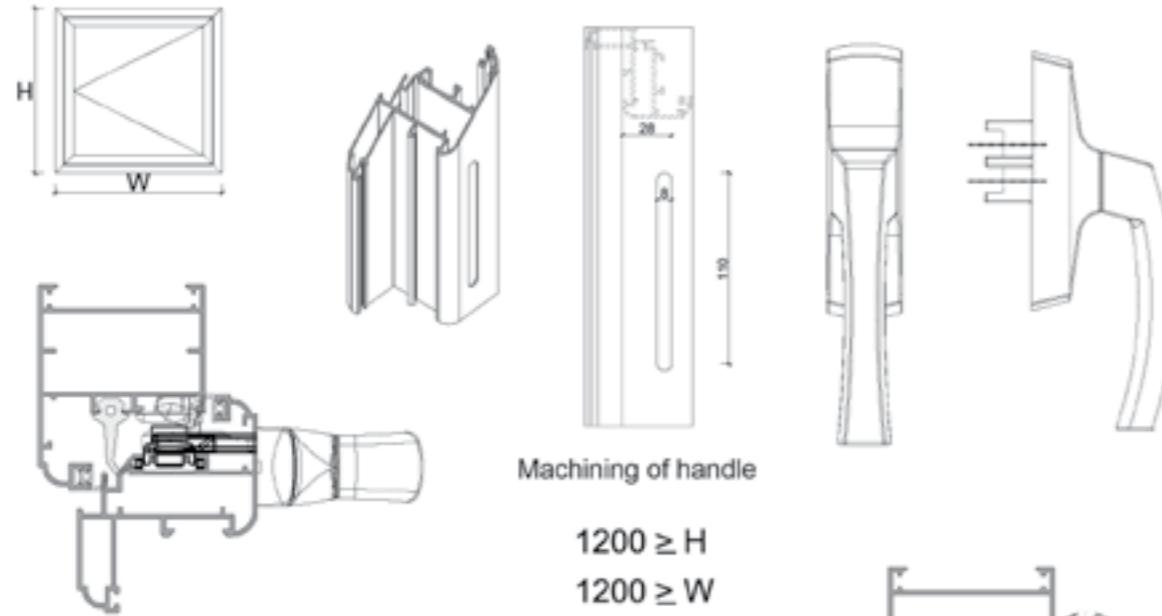
Hinged System 47 & 59 Series  
Assembly Drawing



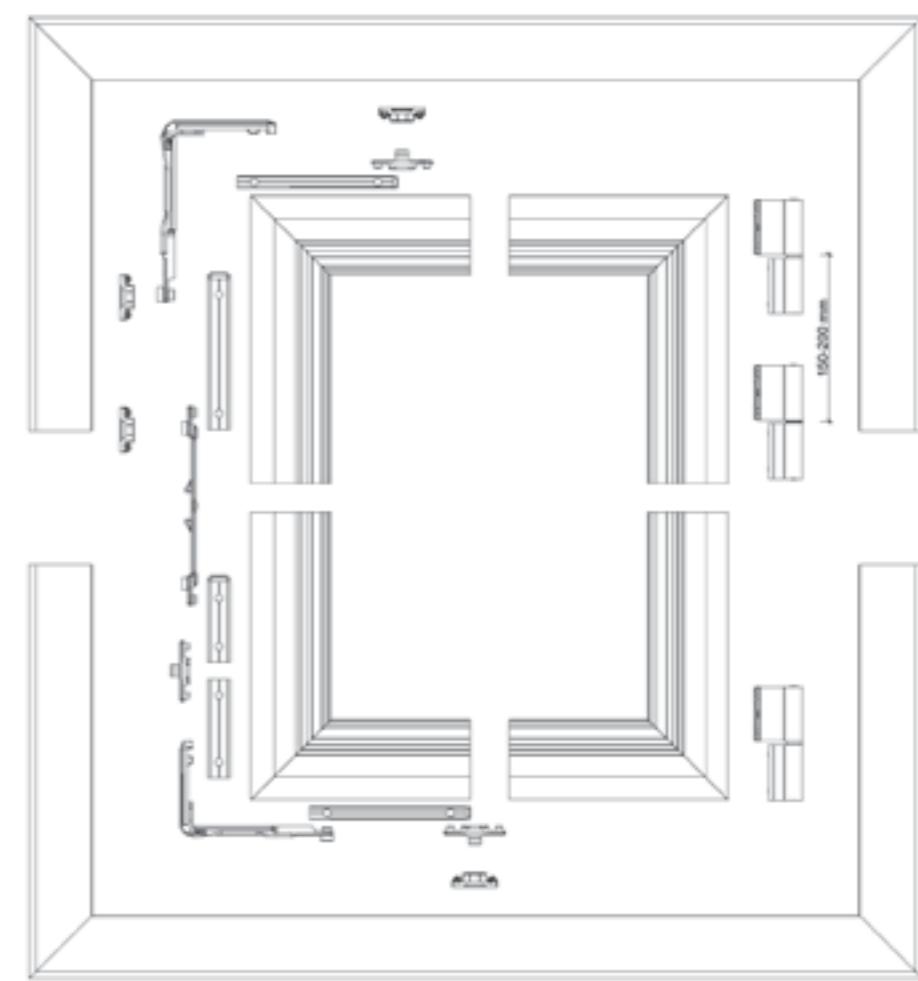
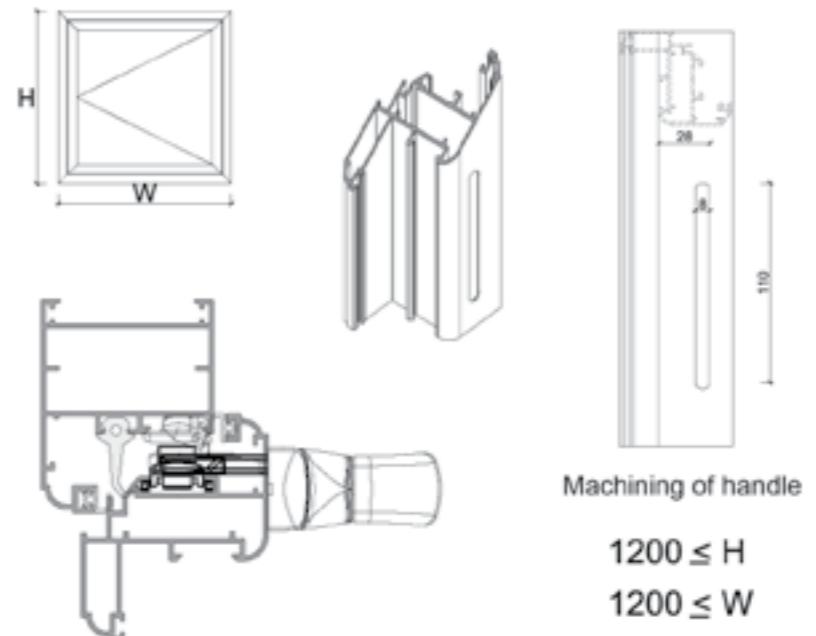
Hinged System 47 & 59 Series  
Assembly Drawing



Hinged System 47 & 59 Series  
Assembly Drawing

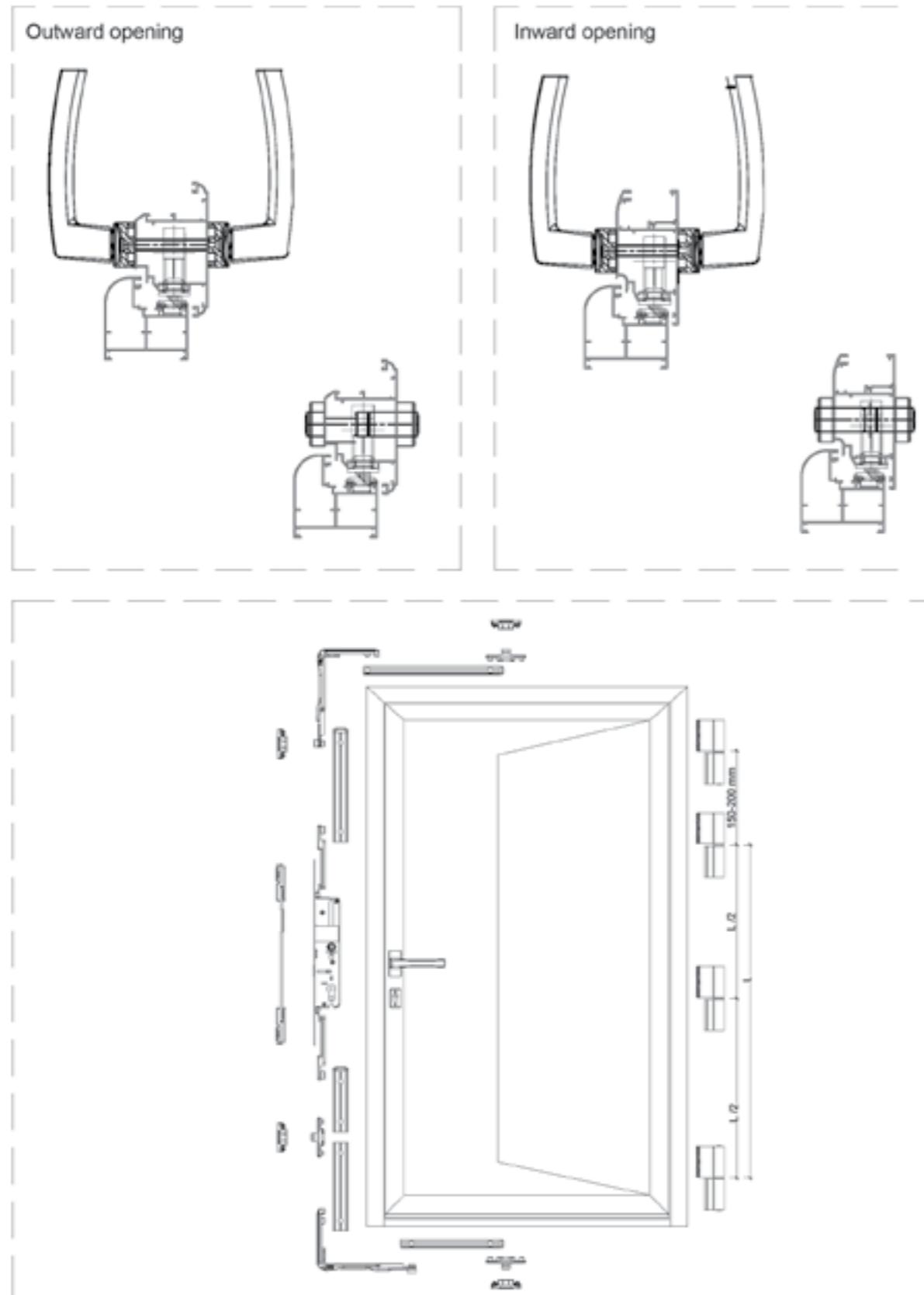


Hinged System 47 & 59 Series  
Hardware Installation

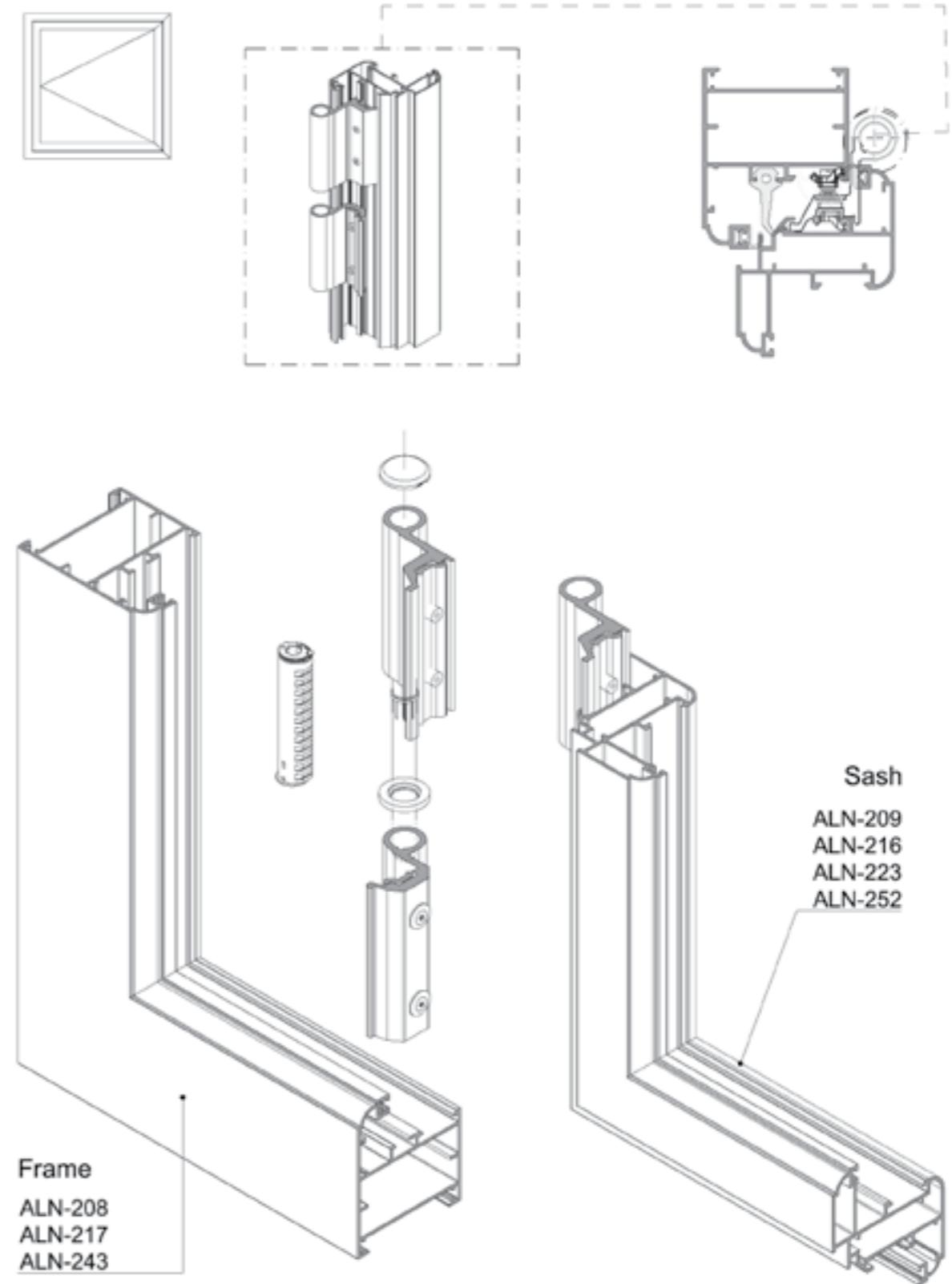


Installation of turn hardware

Hinged System 47 & 59 Series  
Hardware Installation



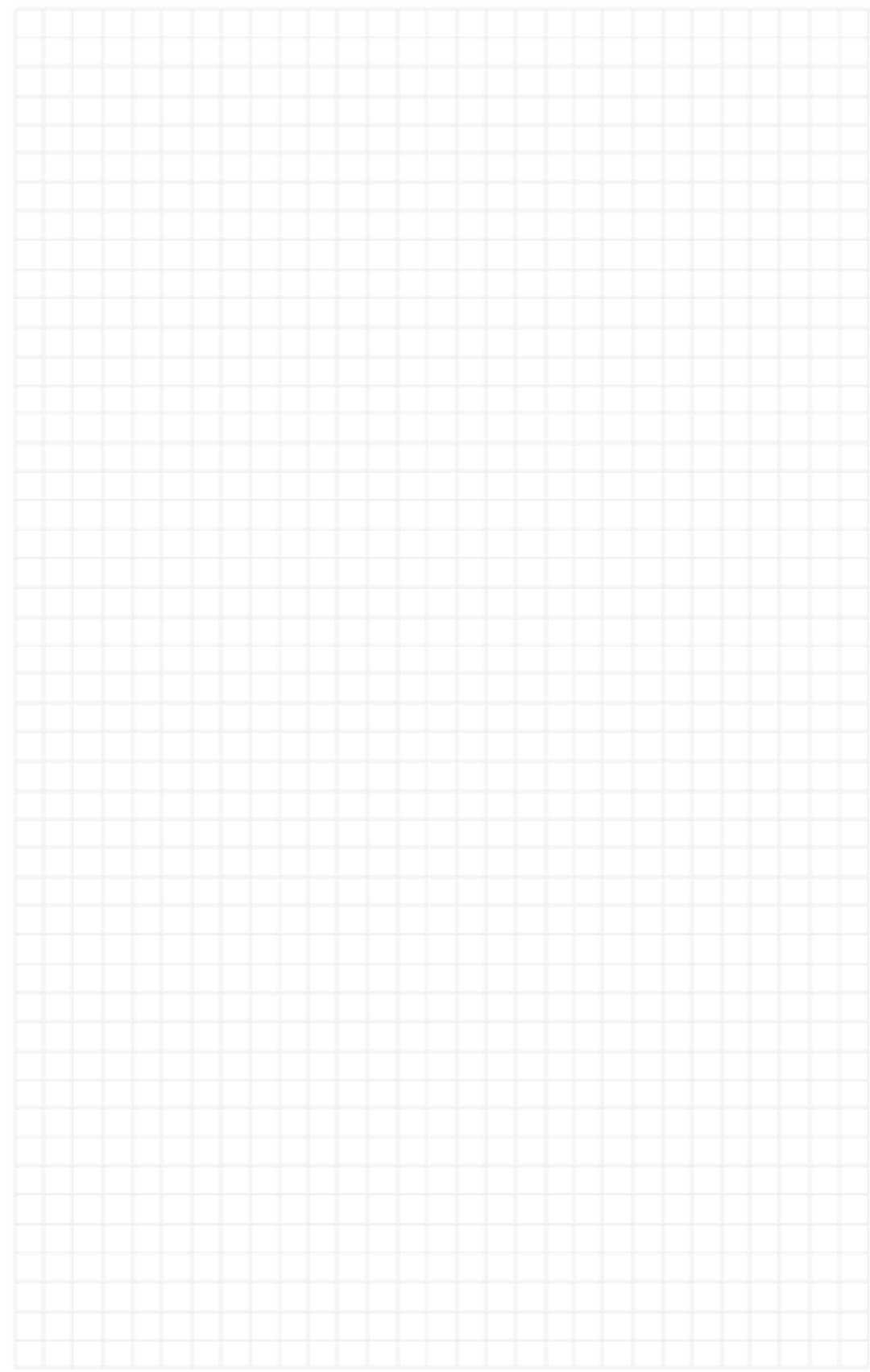
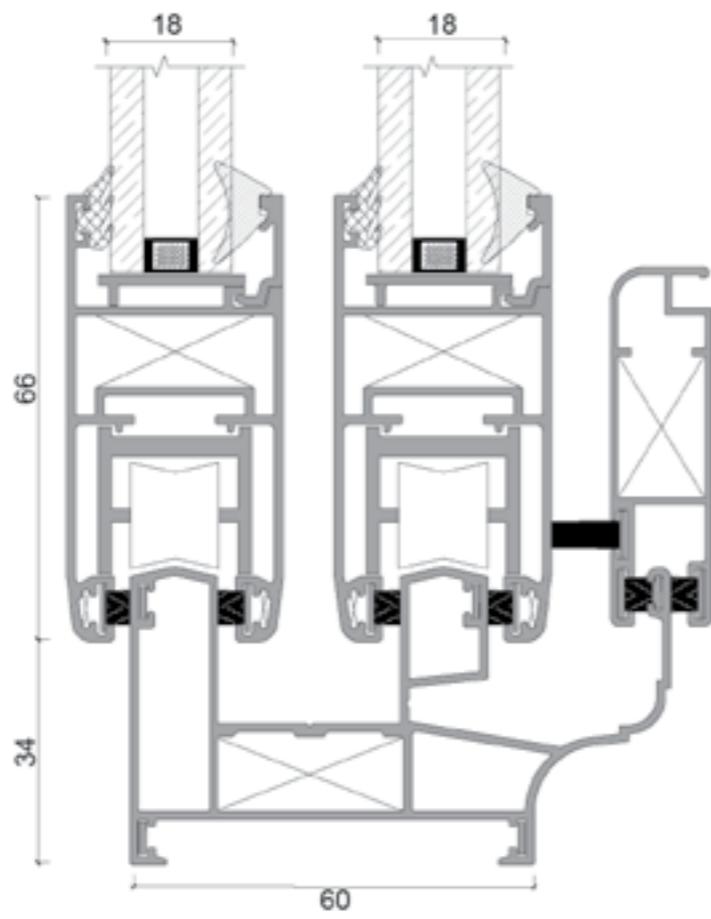
Hinged System 47 & 59 Series  
Hardware Installation





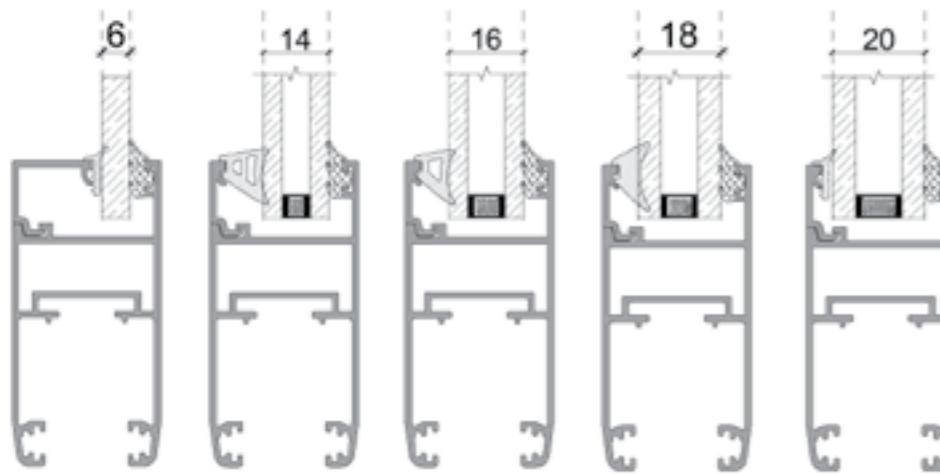
### Slide System 60 Series

- . Profile width: 60 - 100 mm
- . Vent width: 32 mm
- . Wall thickness: 1.2 - 1.3 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 6 - 20 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Safety drainage system
- . Various typologies



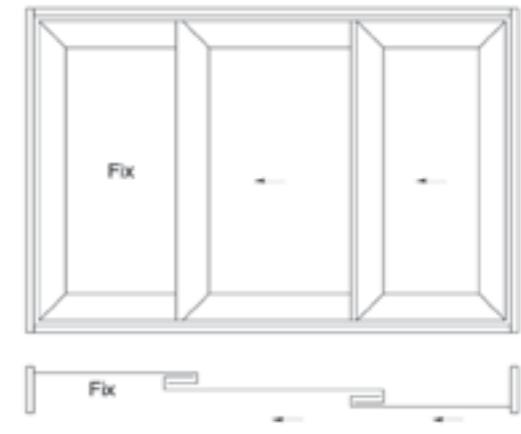
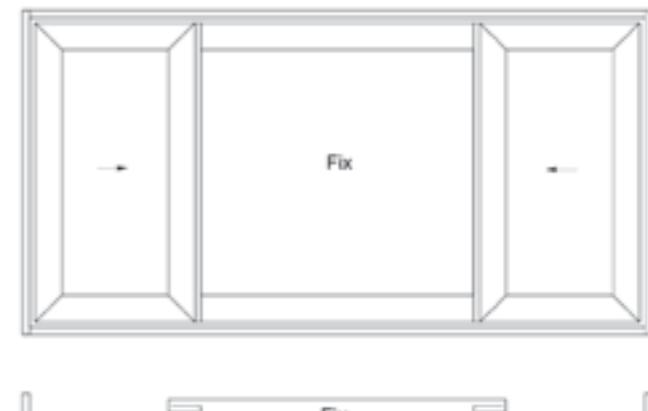
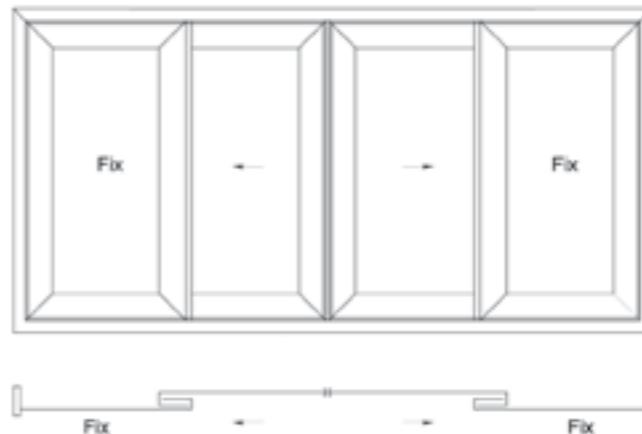
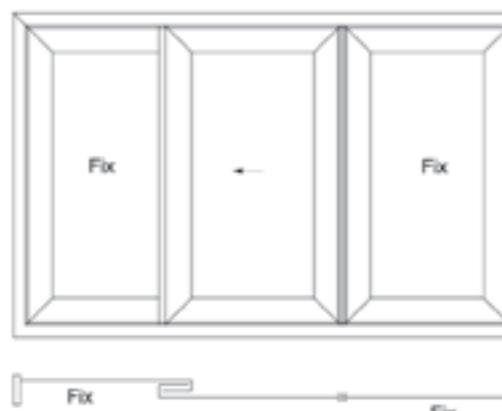
Slide System 60 Series  
Glazing Table

ALN-231



Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
6 mm	1.9	6	ALN-234
14 mm	7.5	6	ALN-233
16 mm	5.5	6	ALN-233
18 mm	4.5	6	ALN-233
20 mm	1.9	6	ALN-233

Slide System 60 Series  
Typologies



Slide System 60 Series  
Profile & Accessories Information

$I_x: 7.45 \text{ cm}^4$	$I_y: 40.72 \text{ cm}^4$	$I_x: 7.45 \text{ cm}^4$	$I_y: 37.62 \text{ cm}^4$
Frame : ALN-200	A: PCP-11/27 mm	Frame : ALN-237	A: PCP-10 / 26 mm
Weight: 1323 gr/m	B: MO19	Weight: 1350 gr/m	B: MO19
$I_x: 6.85 \text{ cm}^4$	$I_y: 26.36 \text{ cm}^4$	$I_x: 8.19 \text{ cm}^4$	$I_y: 50.67 \text{ cm}^4$
Frame : ALN-201	A: PCP-10 / 26 mm	Frame : ALN-238	A: PCP-11/29 mm
Weight: 1172 gr/m	B: MO19	Weight: 1428 gr/m	B: MO19

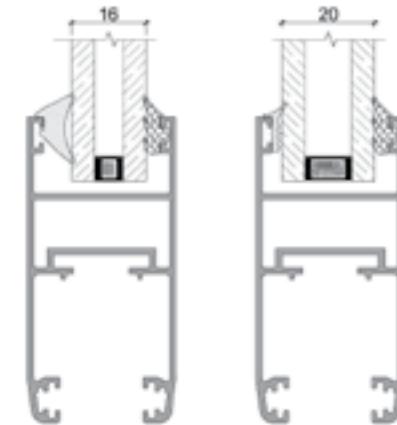
Slide System 60 Series  
Glazing Table

ALN-203  
ALN-236

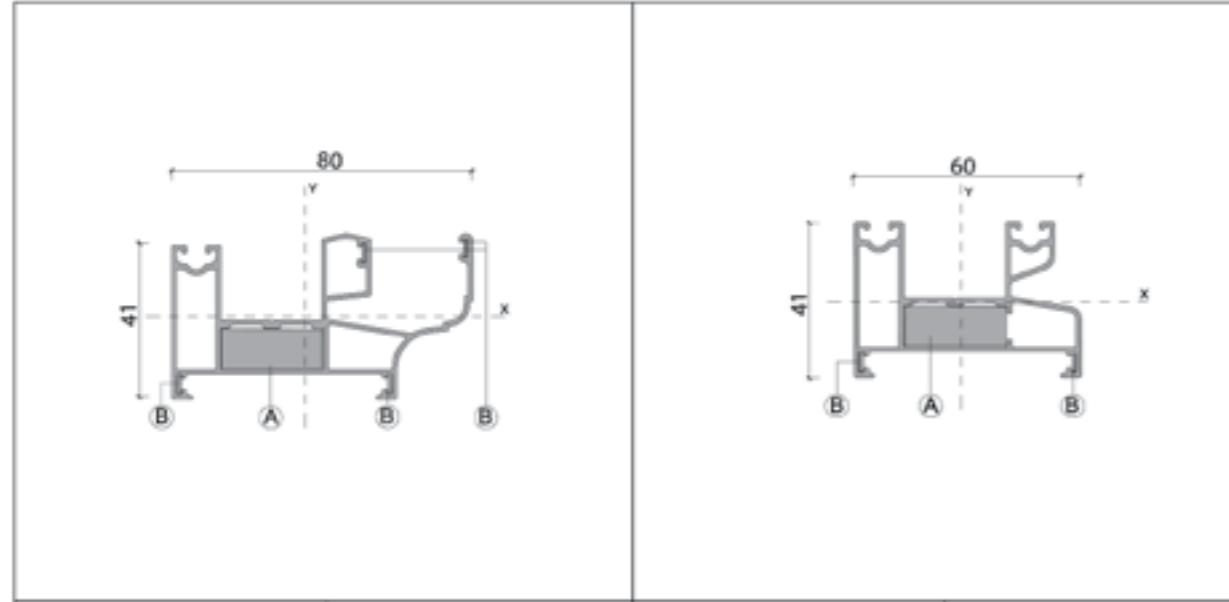
Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Adapter
8 mm	EP-015	EP-015	ALN-206



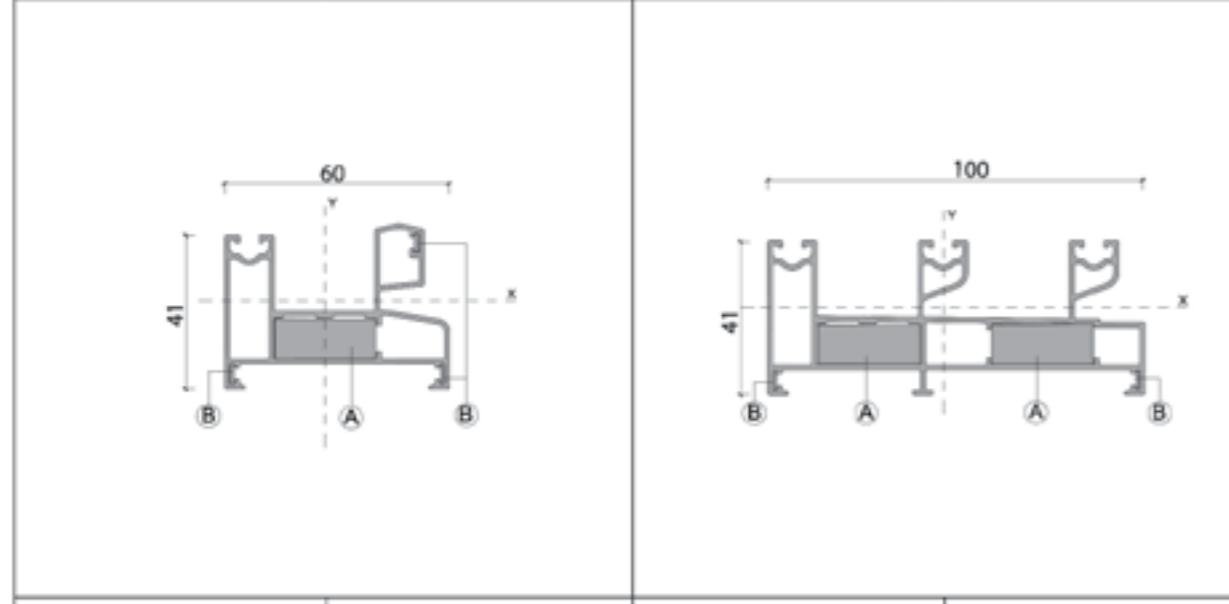
Glazing Thickness	Gasket Inside	Gasket Outside
16 mm	EP-016	MO68
20 mm	EP-015	MO68



**Slide System 60 Series**  
Profile & Accessories Information

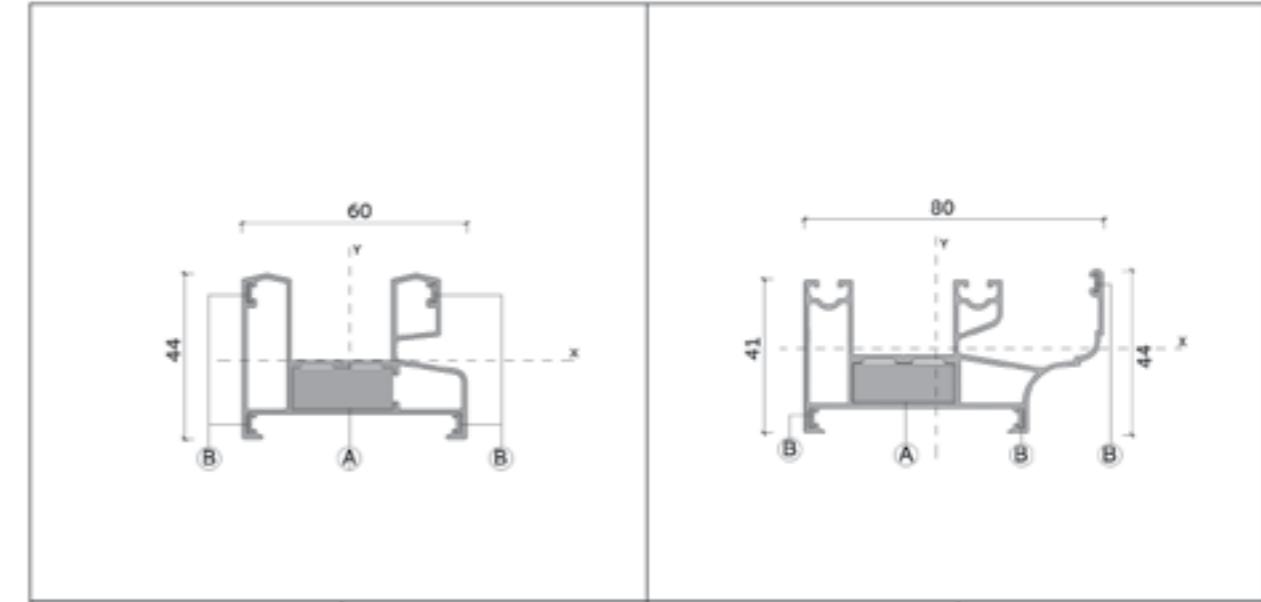


$I_x: 6.19 \text{ cm}^4$	$I_y: 25.28 \text{ cm}^4$	$I_x: 5.25 \text{ cm}^4$	$I_y: 14.82 \text{ cm}^4$
Frame : ALN-254	A: PCP-10 / 26 mm	Frame : ALN-256	A: PCP-10 / 26 mm
Weight: 1107 gr/m	B: MO19	Weight: 977 gr/m	B: MO19

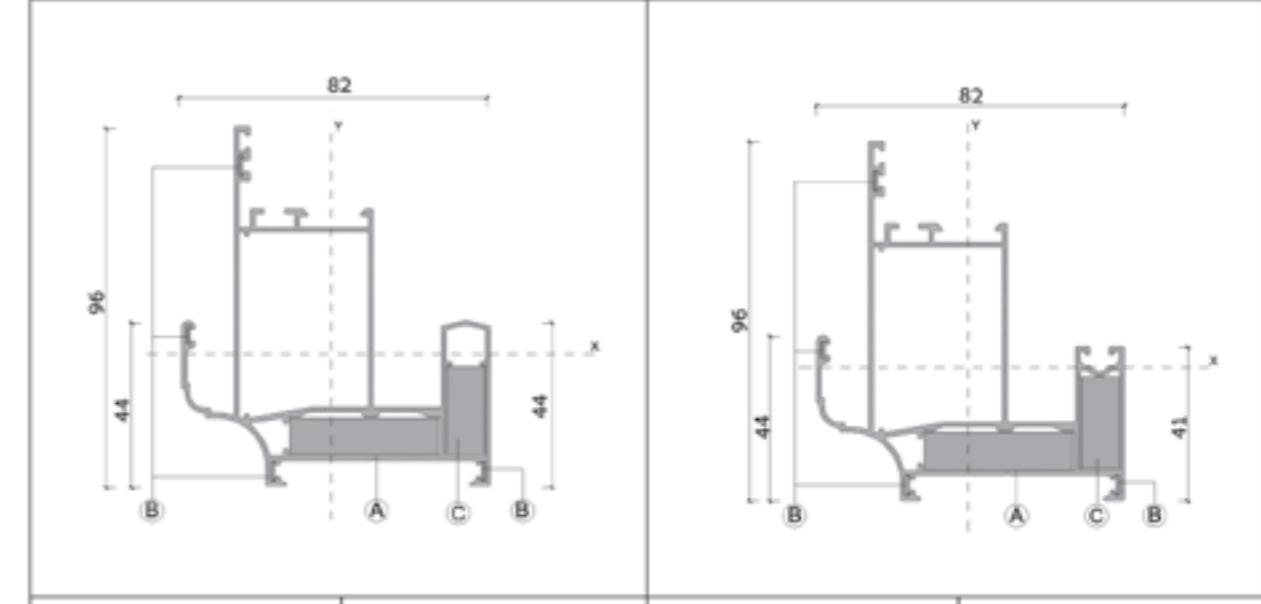


$I_x: 5.66 \text{ cm}^4$	$I_y: 15.04 \text{ cm}^4$	$I_x: 8.03 \text{ cm}^4$	$I_y: 58.69 \text{ cm}^4$
Frame : ALN-255	A: PCP-10 / 26 mm	Triplerail Frame: ALN- 258	A: PCP-10 / 26 mm
Weight: 983 gr/m	B: MO19	Weight: 1536 gr/m	B: MO19

**Slide System 60 Series**  
Profile & Accessories Information

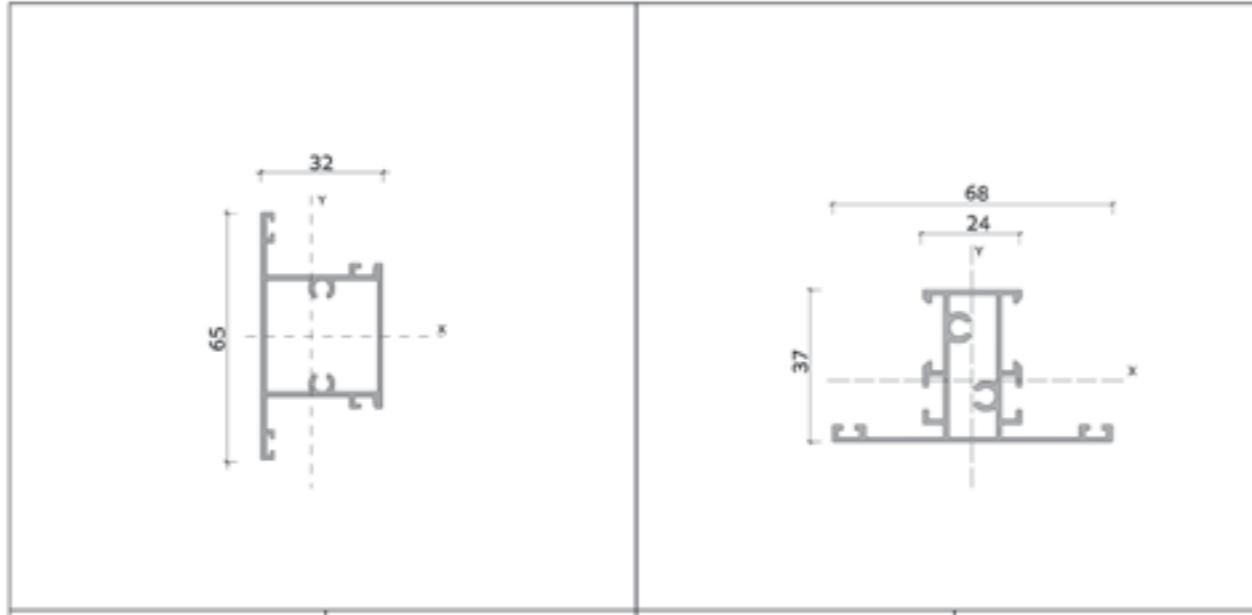


$I_x: 6.05 \text{ cm}^4$	$I_y: 15.15 \text{ cm}^4$	$I_x: 6.07 \text{ cm}^4$	$I_y: 26.09 \text{ cm}^4$
Frame: ALN-239	A: PCP-10 / 26 mm	Frame: ALN-249	A: PCP-10 / 26 mm
Weight: 983 gr/m	B: MO19	Weight: 1166 gr/m	B: MO19

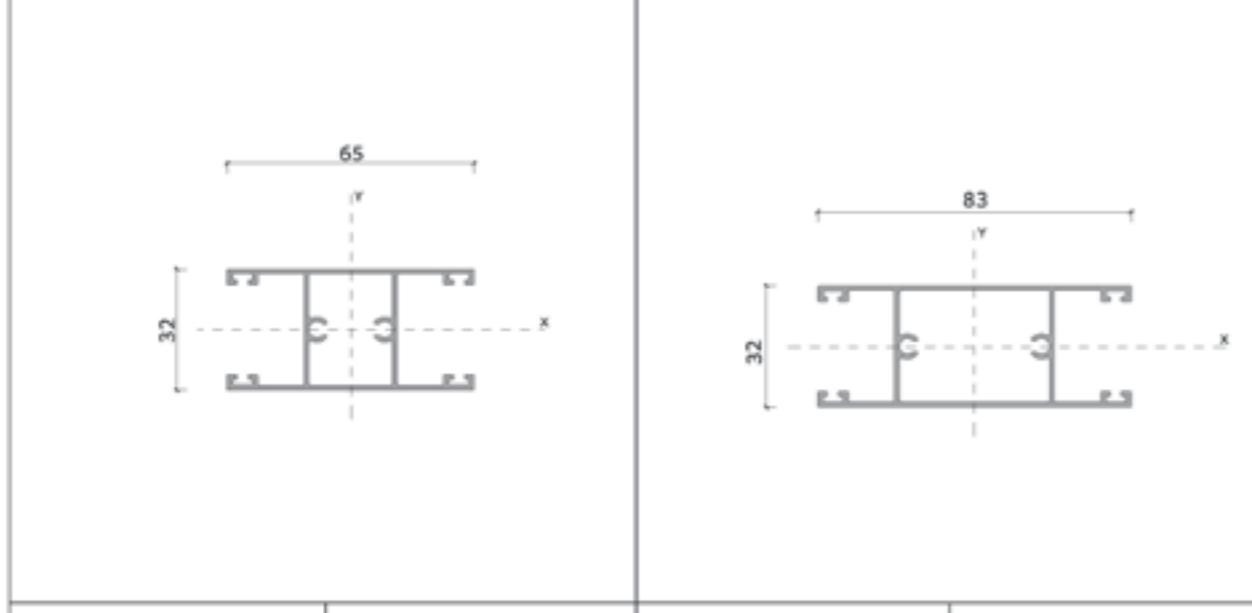


$I_x: 39.18 \text{ cm}^4$	$I_y: 38.59 \text{ cm}^4$	$I_x: 39.11 \text{ cm}^4$	$I_y: 38.40 \text{ cm}^4$
Monorail Frame: ALN-246	A: PCP-10 / 40 mm	Monorail Frame: ALN-253	A: PCP-10 / 40mm
B: MO19	B: MO19	B: MO19	B: MO19
C: PCP- 24 / 10 mm	Weight: 1620 gr/m	C: PCP- 24 / 10 mm	Weight: 1620 gr/m

**Slide System 60 Series**  
Profile & Accessories Information

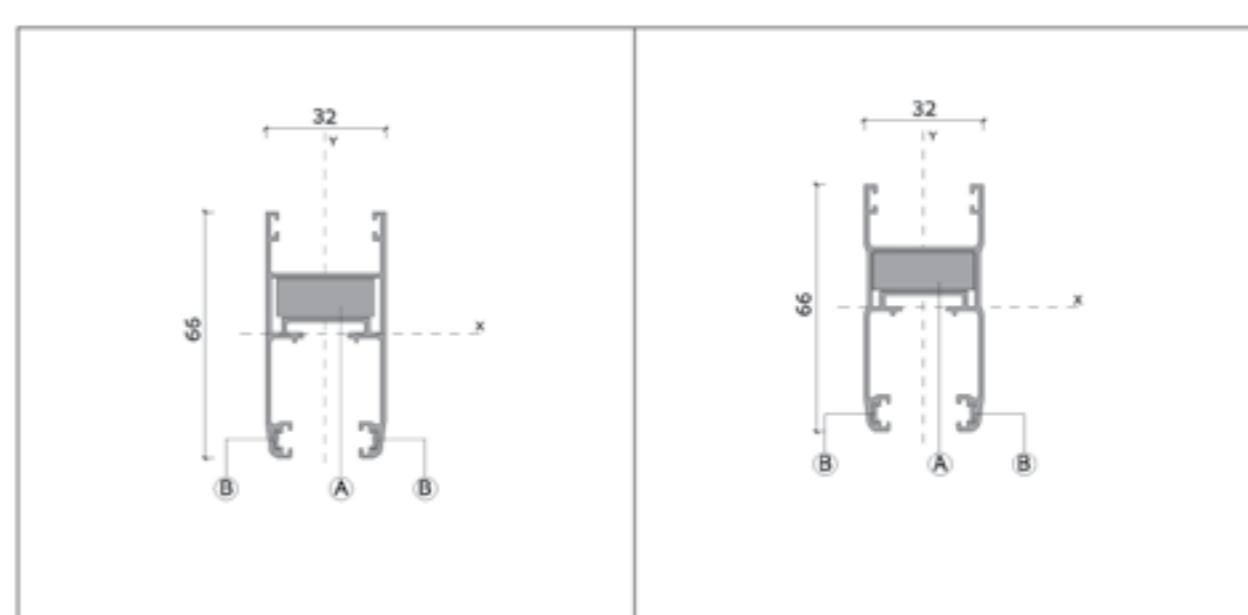


$I_x: 7.46 \text{ cm}^4$	$I_y: 3.94 \text{ cm}^4$	$I_x: 4.96 \text{ cm}^4$	$I_y: 6.14 \text{ cm}^4$
Transom: ALN-232	—	Transom: ALN-218	—
Weight: 721 gr/m	—	Weight: 813 gr/m	—

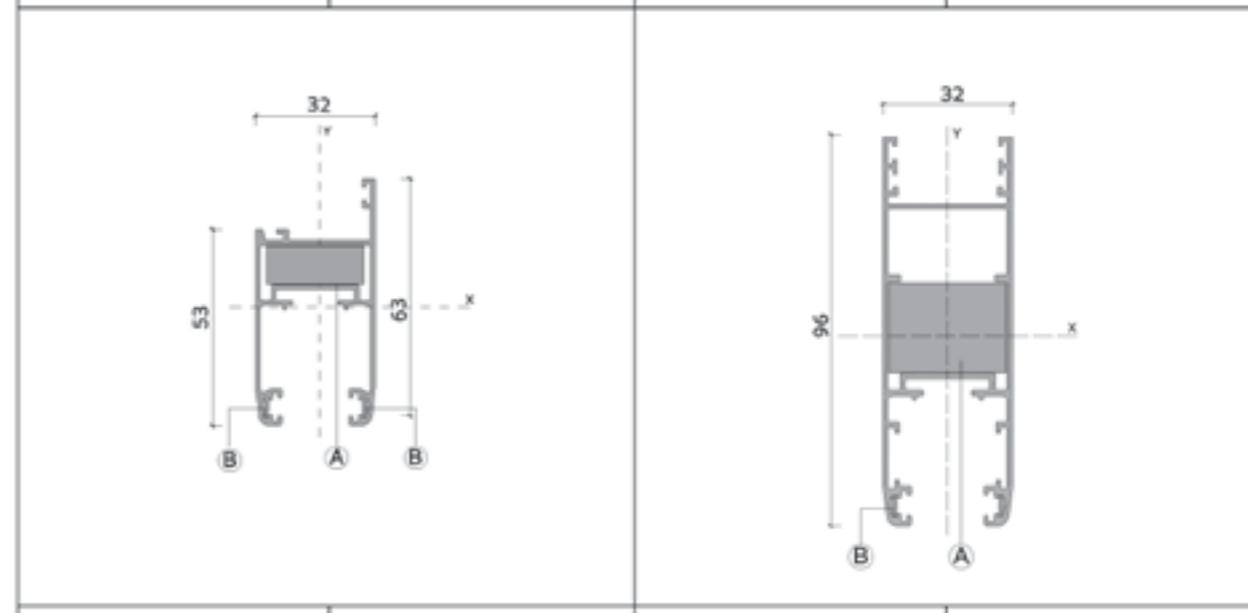


$I_x: 5.03 \text{ cm}^4$	$I_y: 10.37 \text{ cm}^4$	$I_x: 6.03 \text{ cm}^4$	$I_y: 21.30 \text{ cm}^4$
Transom: ALN-240	—	Transom: ALN-202	—
Weight: 805 gr/m	—	Weight: 918 gr/m	—

**Slide System 60 Series**  
Profile & Accessories Information



$I_x: 11.20 \text{ cm}^4$	$I_y: 5.52 \text{ cm}^4$	$I_x: 11.18 \text{ cm}^4$	$I_y: 5.34 \text{ cm}^4$
Sash : ALN-203	A: PCP-10 / 26 mm	Sash : ALN-236	A: PCP-10 / 26 mm
Weight: 872 gr/m	B: MO19	Weight: 867 gr/m	B: MO19



$I_x: 9.64 \text{ cm}^4$	$I_y: 5.01 \text{ cm}^4$	$I_x: 35.77 \text{ cm}^4$	$I_y: 7.59 \text{ cm}^4$
Sash : ALN-231	A: PCP-10 / 26 mm	Sash : ALN-260	A: PCP-22 / 28 mm
Weight: 832 gr/m	B: MO19	Weight: 1179 gr/m	B: MO19

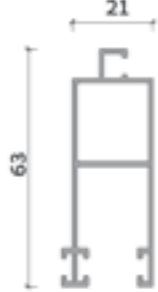
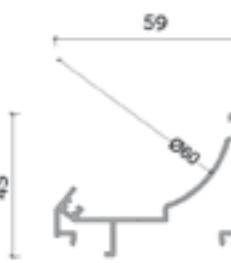
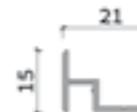
**Slide System 60 Series**  
Profile & Accessories Information

Profile : ALN-205	Weight: 176 gr/m	Profile: ALN-242	Weight: 116 gr/m
Profile : ALN-206	Weight: 232 gr/m	Profile : ALN-257	Weight: 149 gr/m
Profile: ALN-241	Weight: 194 gr/m	Profile : ALN-224	Weight: 113 gr/m

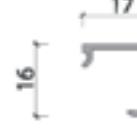
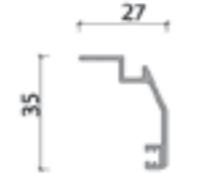
**Slide System 60 Series**  
Profile & Accessories Information

Cap : ALN-263	Weight: 363 gr/m	Cap : ALN- 204	Weight : 313 gr/m
Corner Joint: PCP 20	Weight: 1375 gr/m	Cap: ALN-244	Weight : 319 gr/m
Corner: MO 19 399012	Weight : -	Cap: ALN-247	Weight: 386 gr/m

**Slide System 60 Series**  
Profile & Accessories Information

			
Fly screen: ALN-220	Weight: 626 gr/m	Rail: ALN-462	Weight: 119 gr/m
			
Profile: ALN-225	Weight : 548 gr/m	Profile: ALN-228	Weight: 135 gr/m
			
Profile: ALN-215	Weight : 648 gr/m	Gasket: EP-015	Weight : 21 gr/m

**Slide System 60 Series**  
Profile & Accessories Information

			
Flange profile: ALN-219	Weight : 362 gr/m	Glazing bead : ALN-234	Weight: 143 gr/m
			
Flange profile: ALN-221	Weight : 302 gr/m	Glazing bead : ALN-233	Weight: 95 gr/m
			
Flange profile: ALN-222	Weight : 254 gr/m	Fly screen :ALN-207	Weight: 443 gr/m



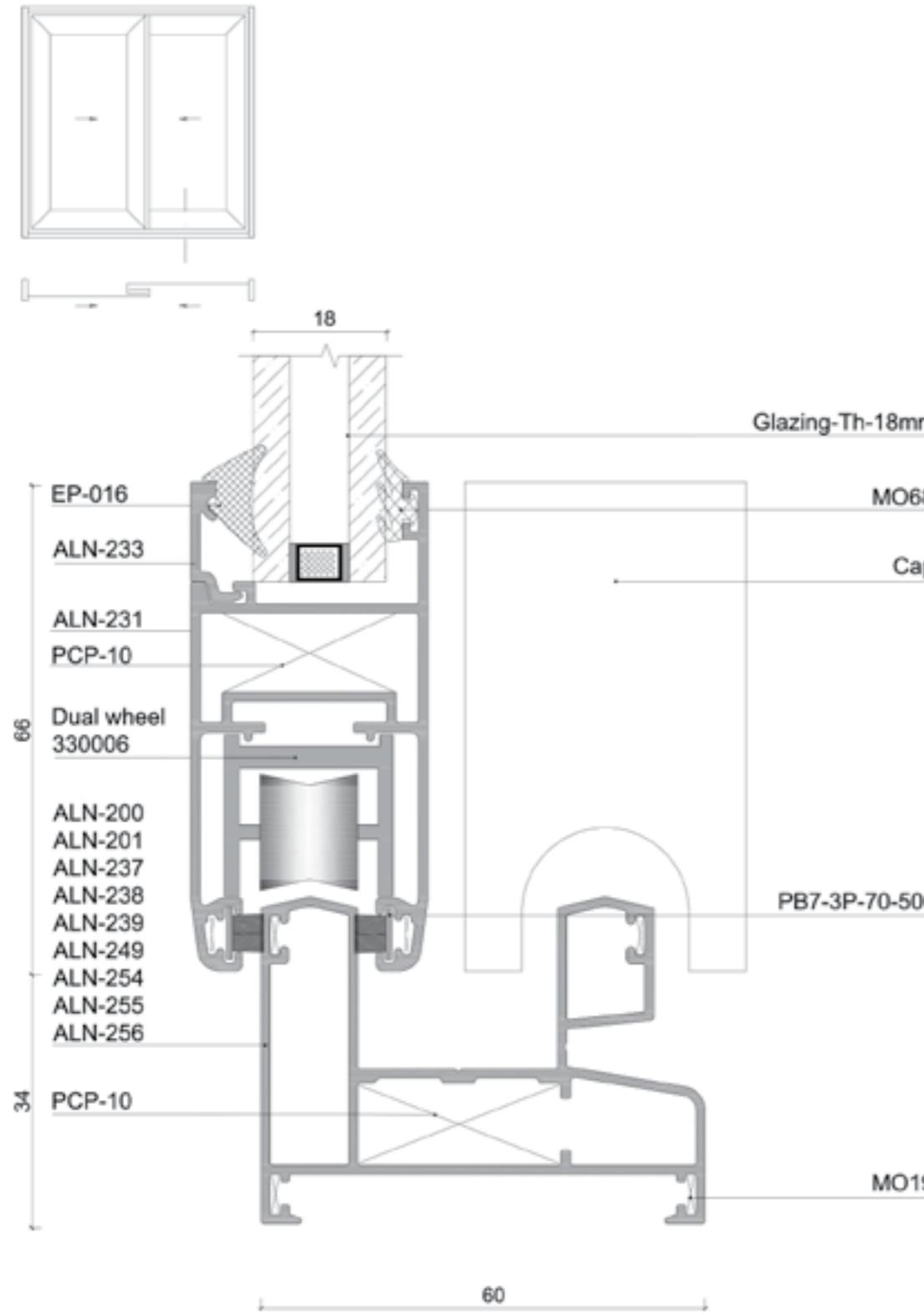
**Slide System 60 Series**  
Profile & Accessories Information

	Corner: PCP-24	Weight: 3918 gr/m
	Corner: PCP10	Weight: 2454 gr/m
	Corner: PCP11	Weight: 2549 gr/m

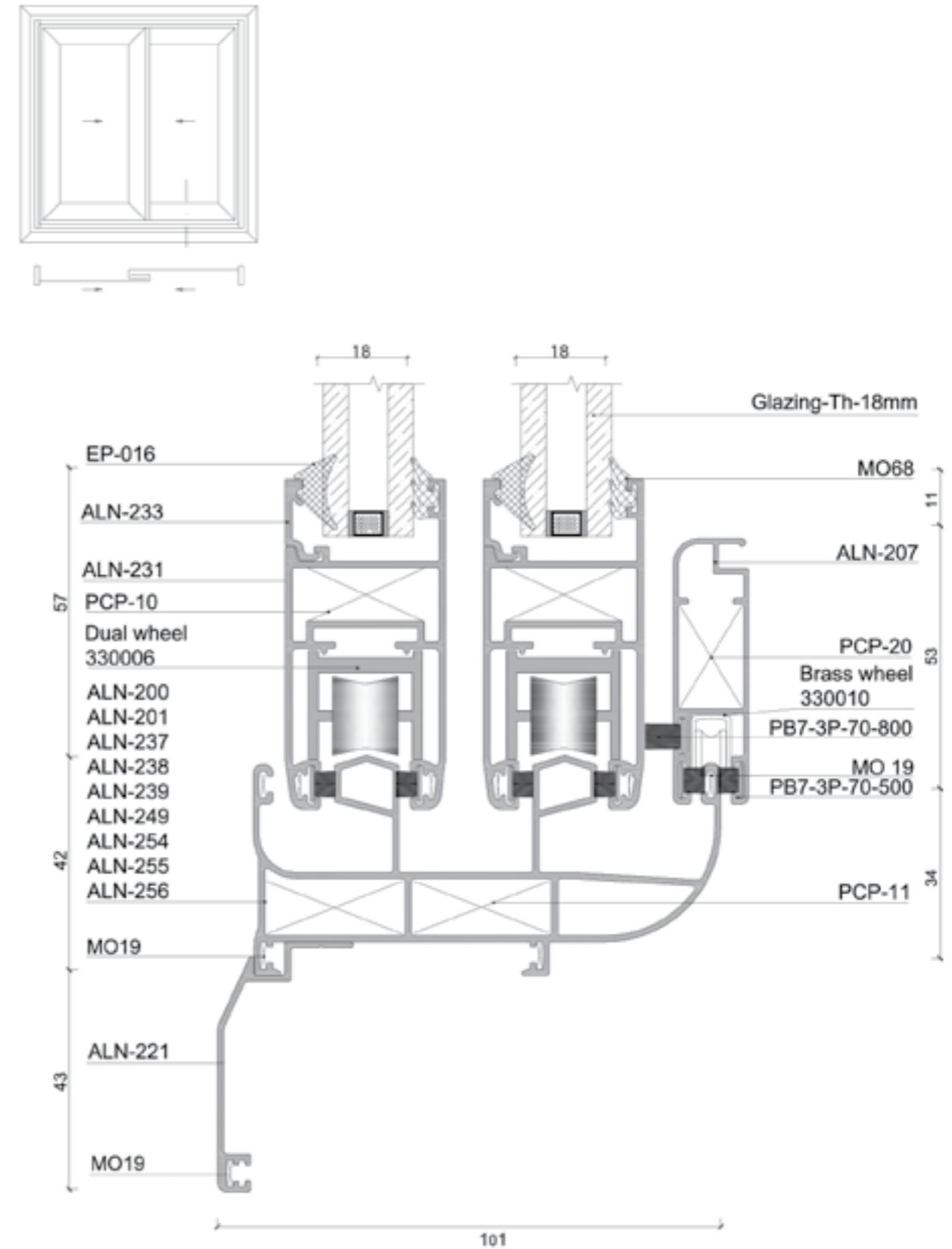
**Slide System 60 Series**  
Profile & Accessories Information

	Gasket: EP-016	Weight: 77 gr/m		Gasket: PB7-3P-70-650	Weight: 21 gr/m
	Gasket: EP-021	Weight: 80 gr/m		Gasket: PB7-3P-70-500	Weight: --
	Gasket: MO68	Weight: 46 gr/m		Gasket: MO 60-1	Weight: 26 gr/m

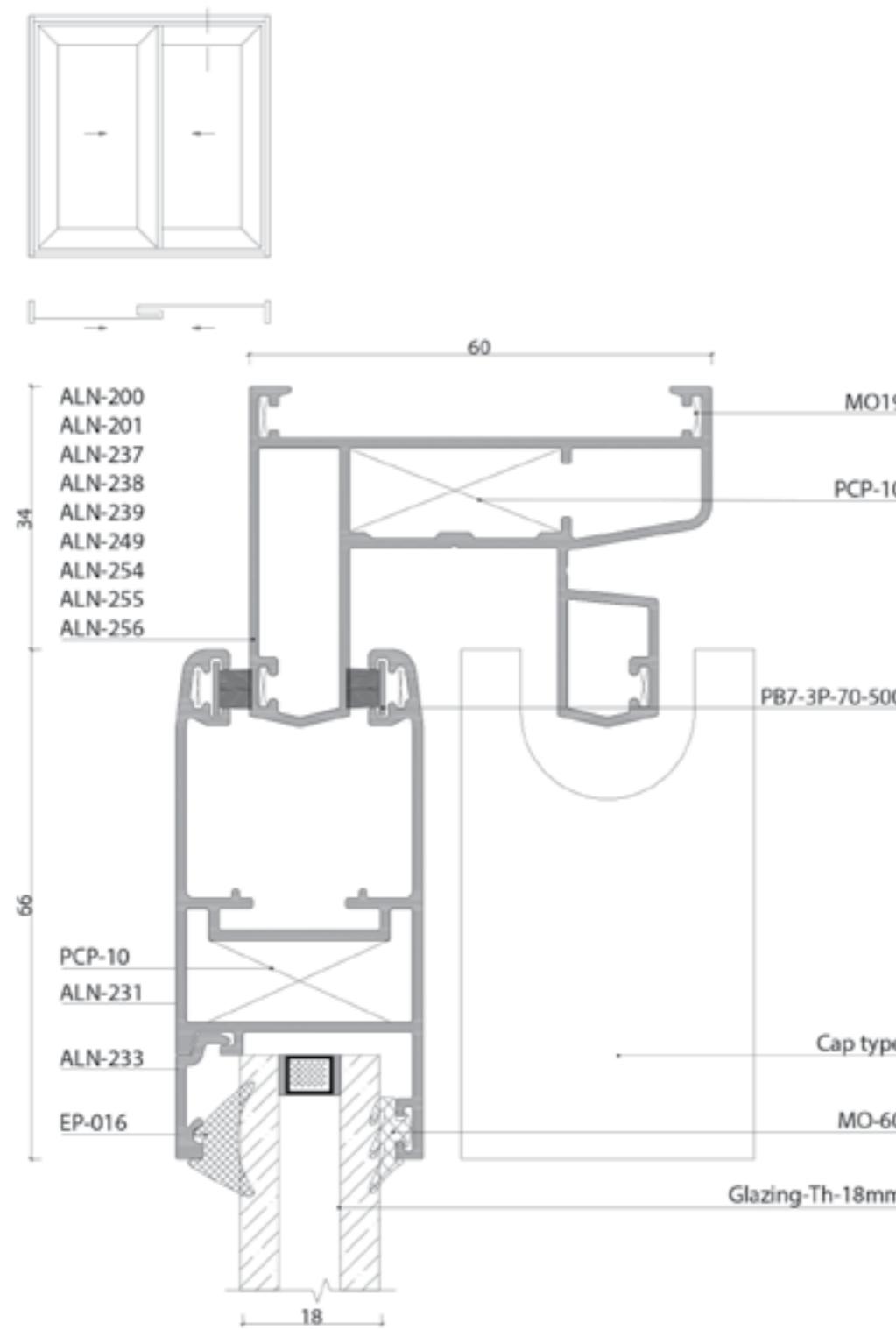
Slide System 60 Series  
Fabrication Details



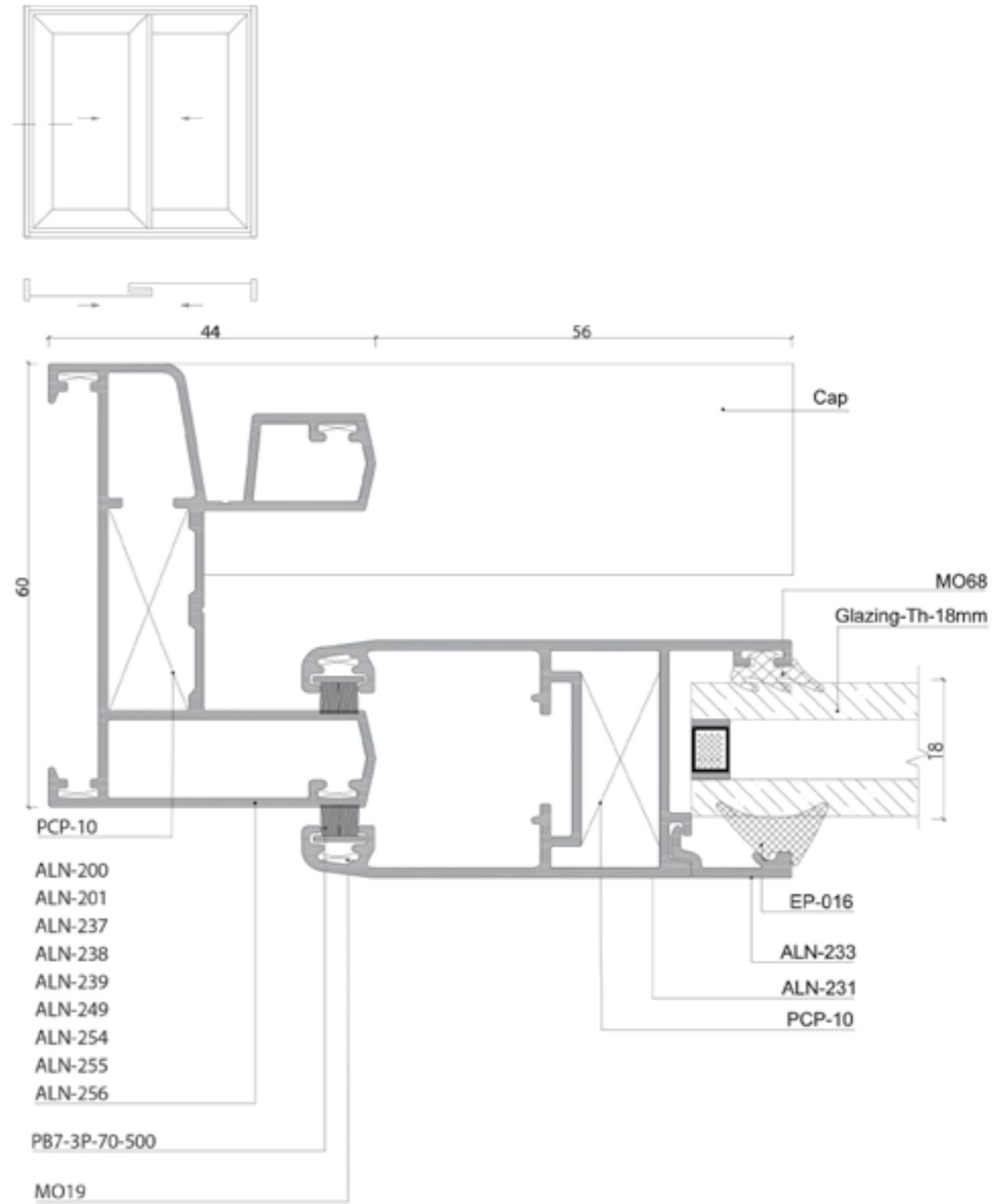
Slide System 60 Series  
Fabrication Details



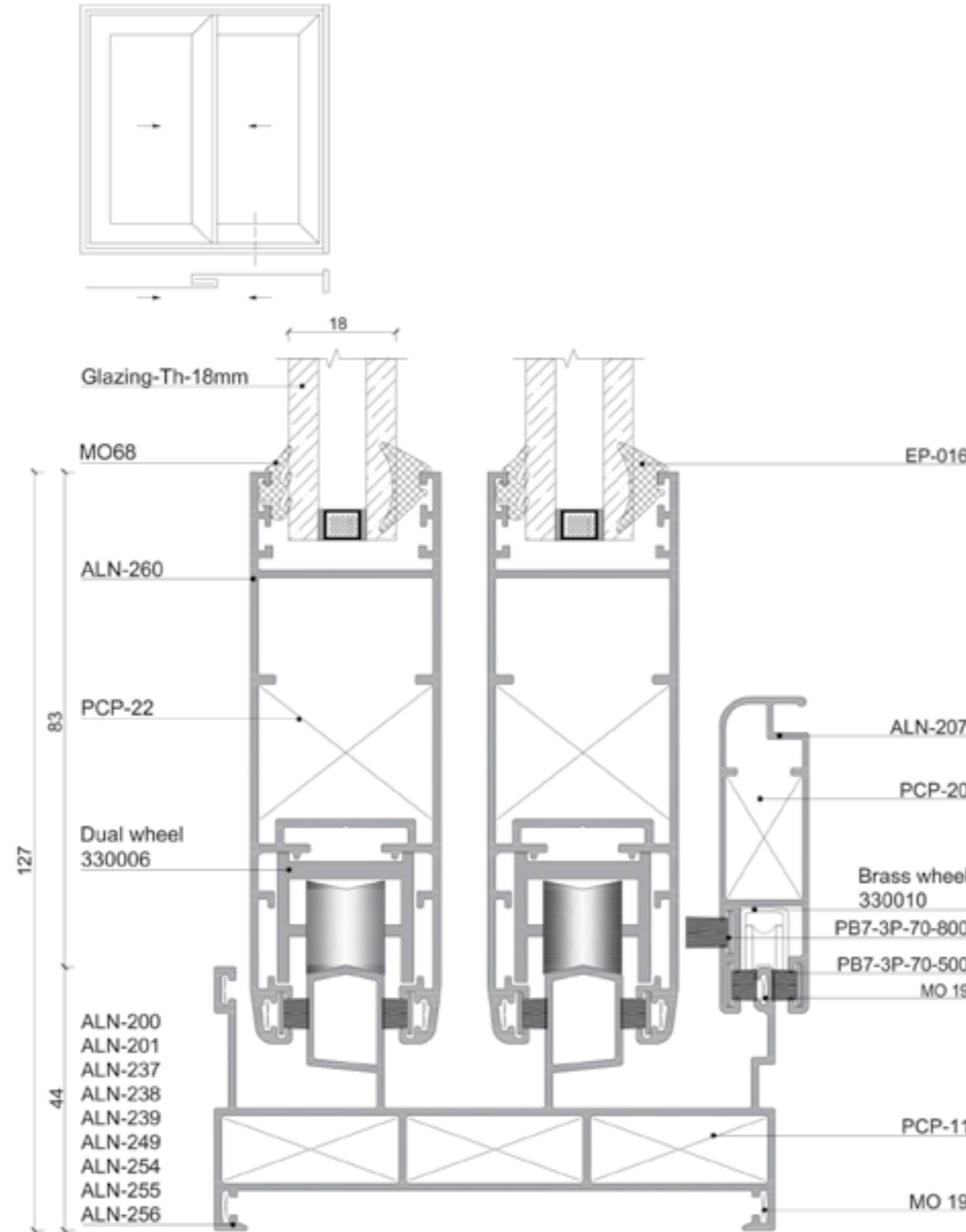
Slide System 60 Series  
Fabrication Details



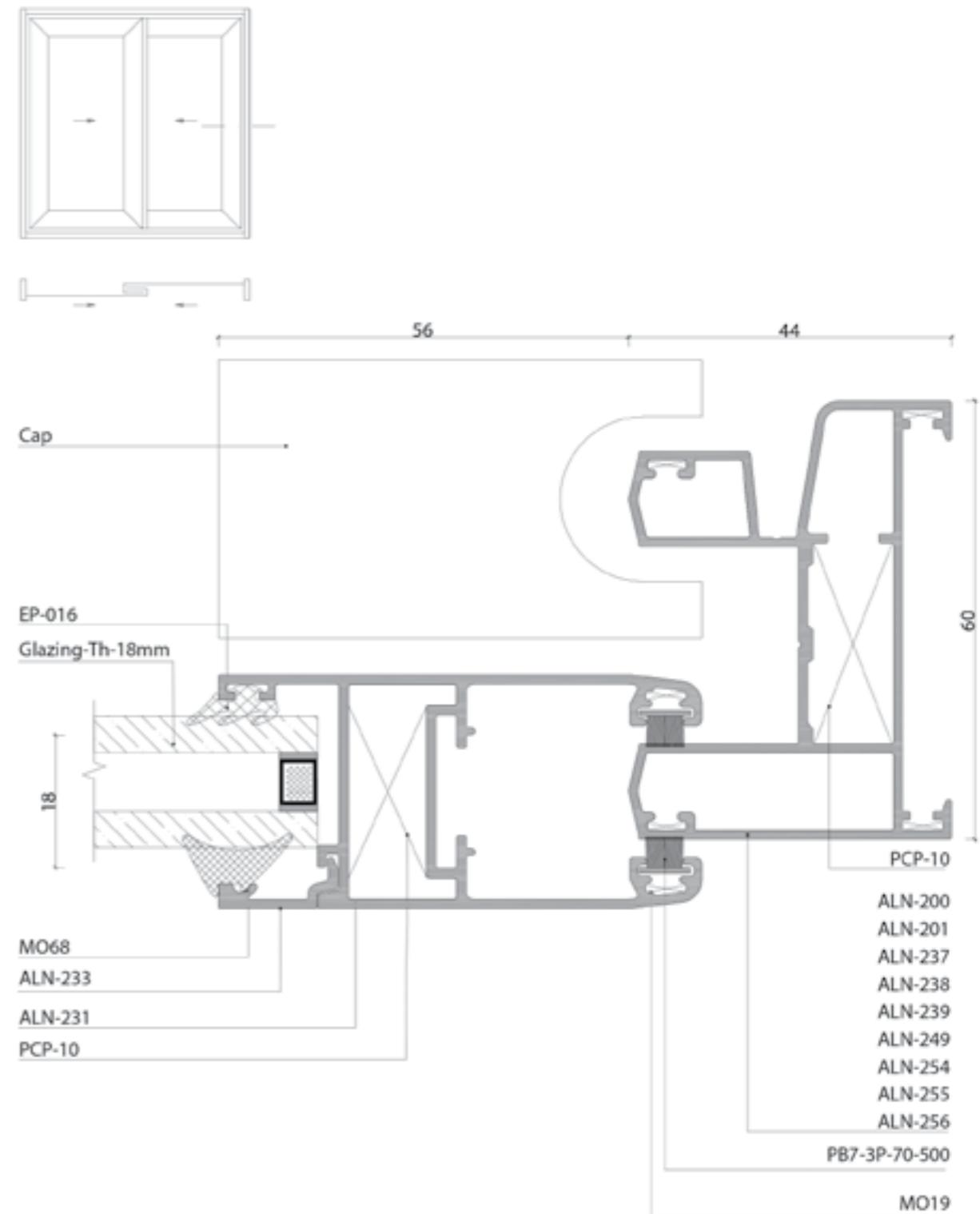
Slide System 60 Series  
Fabrication Details



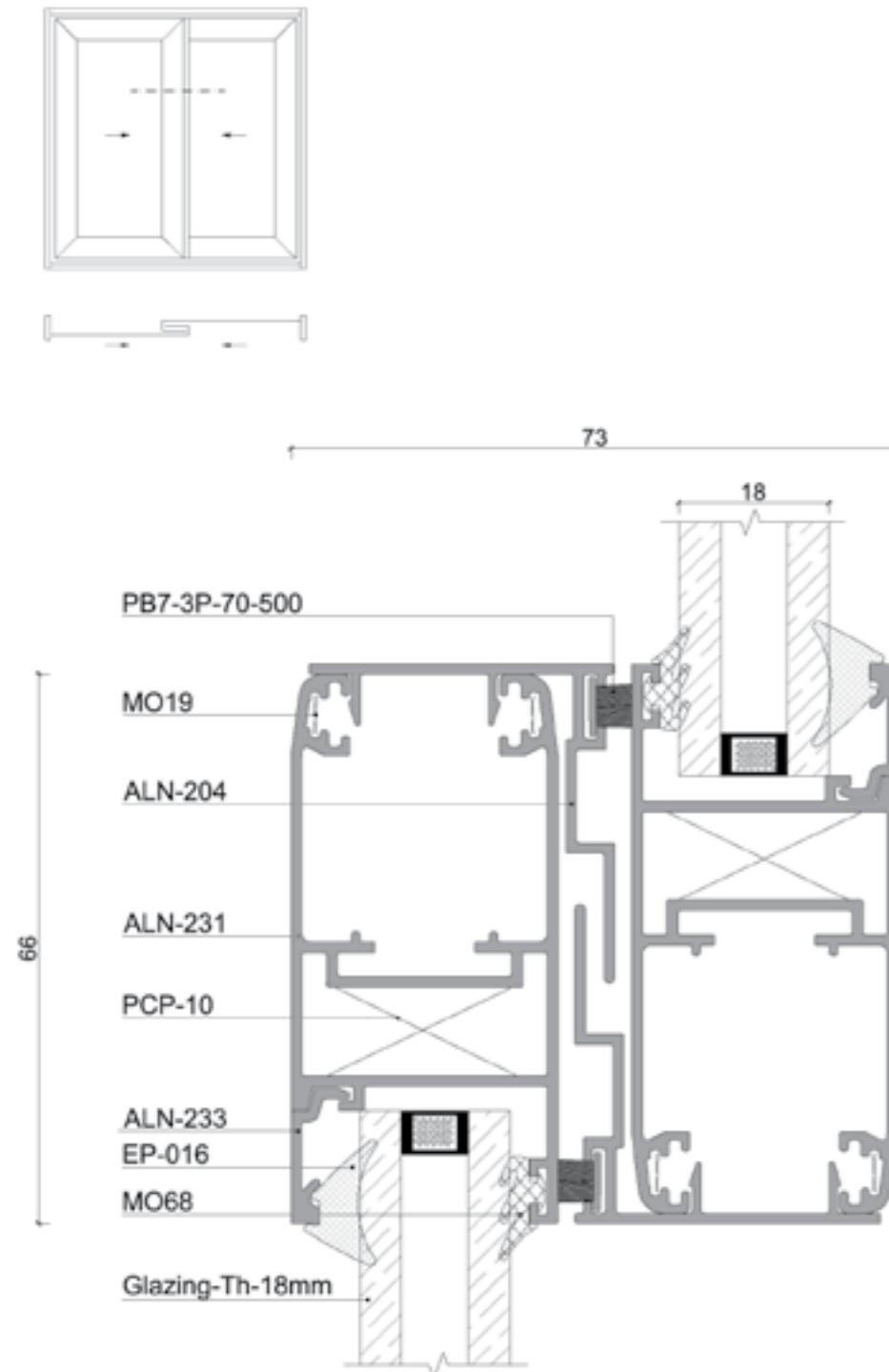
Slide System 60 Series  
Fabrication Details



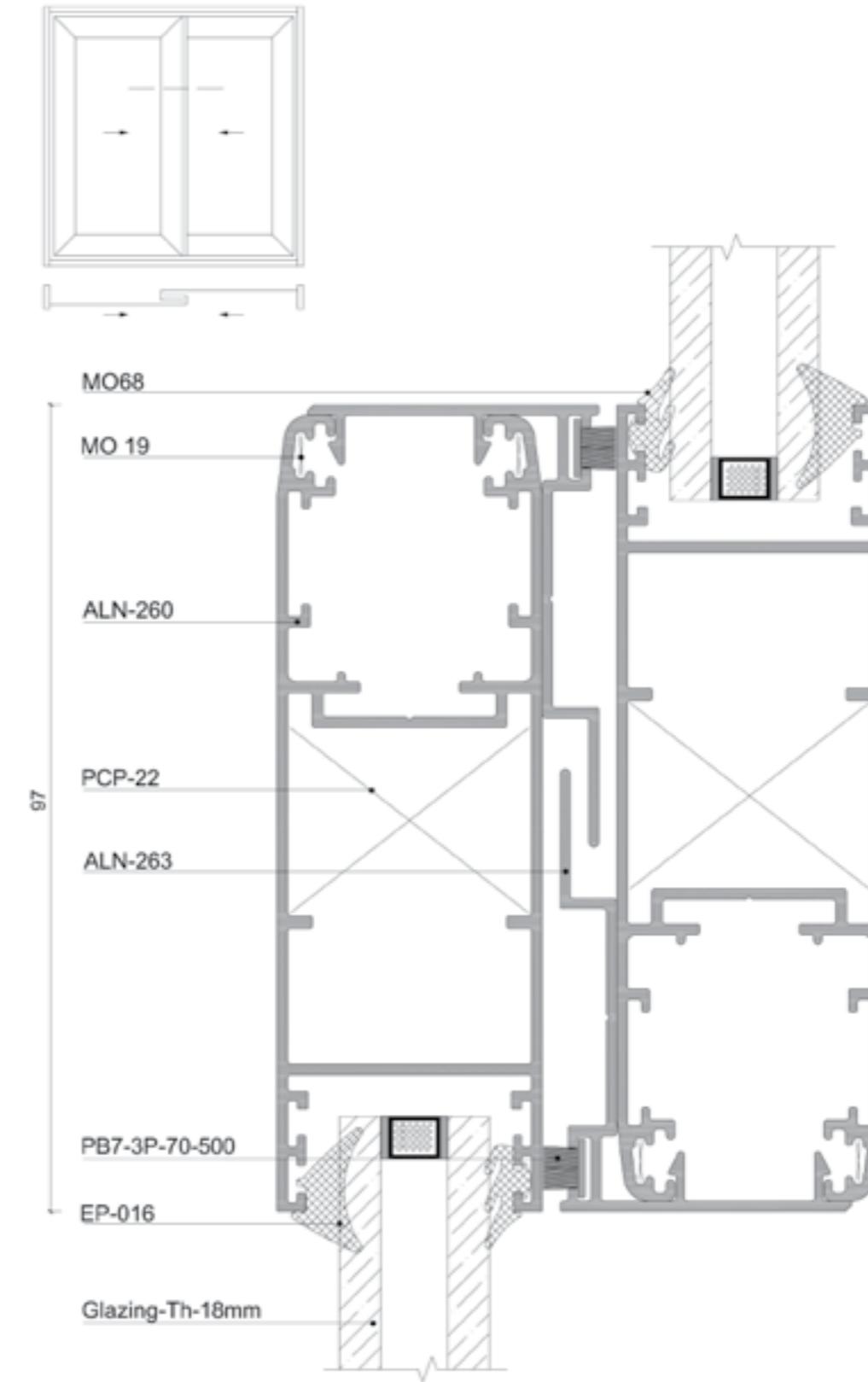
Slide System 60 Series  
Fabrication Details



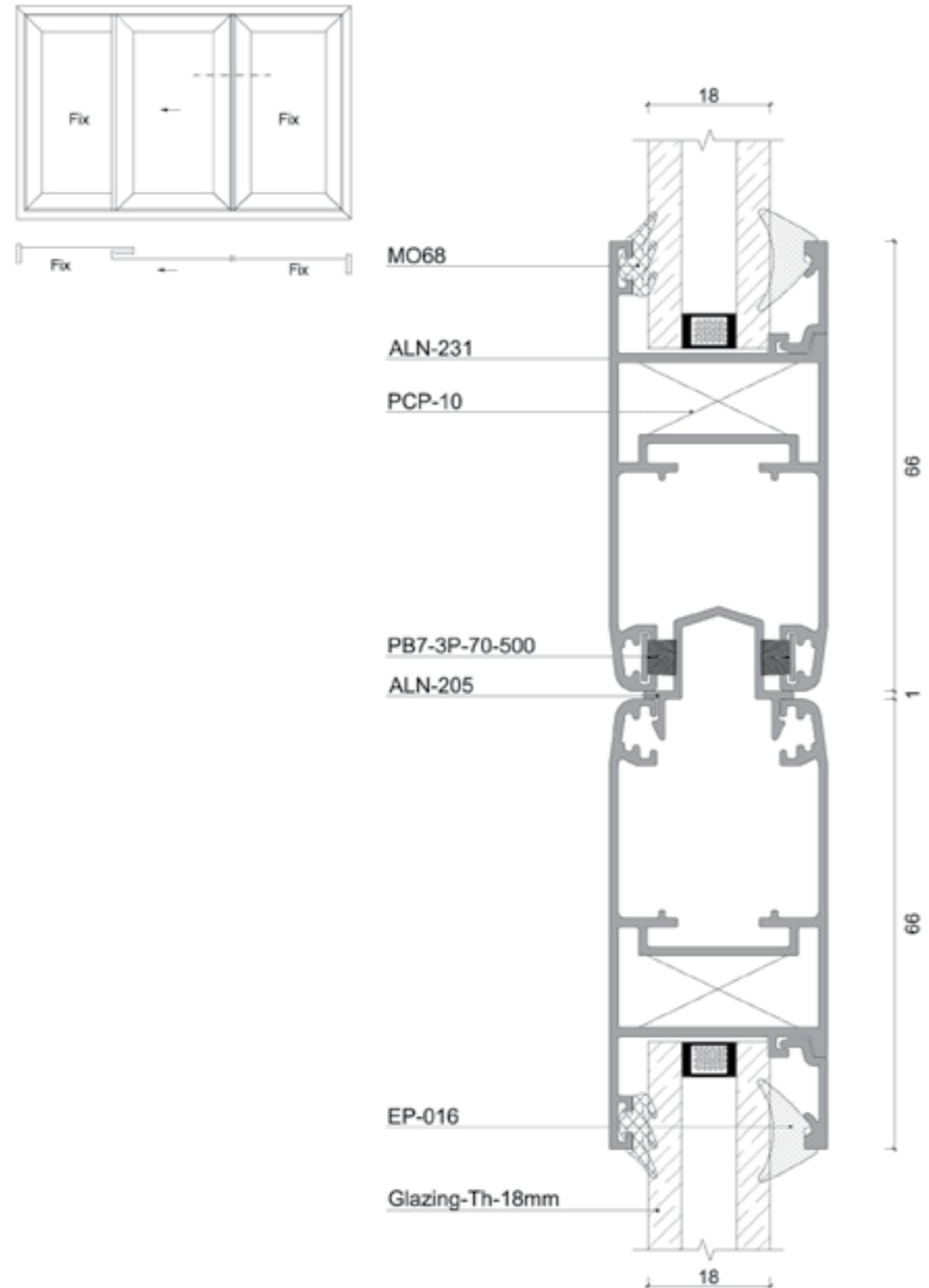
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Fabrication Details



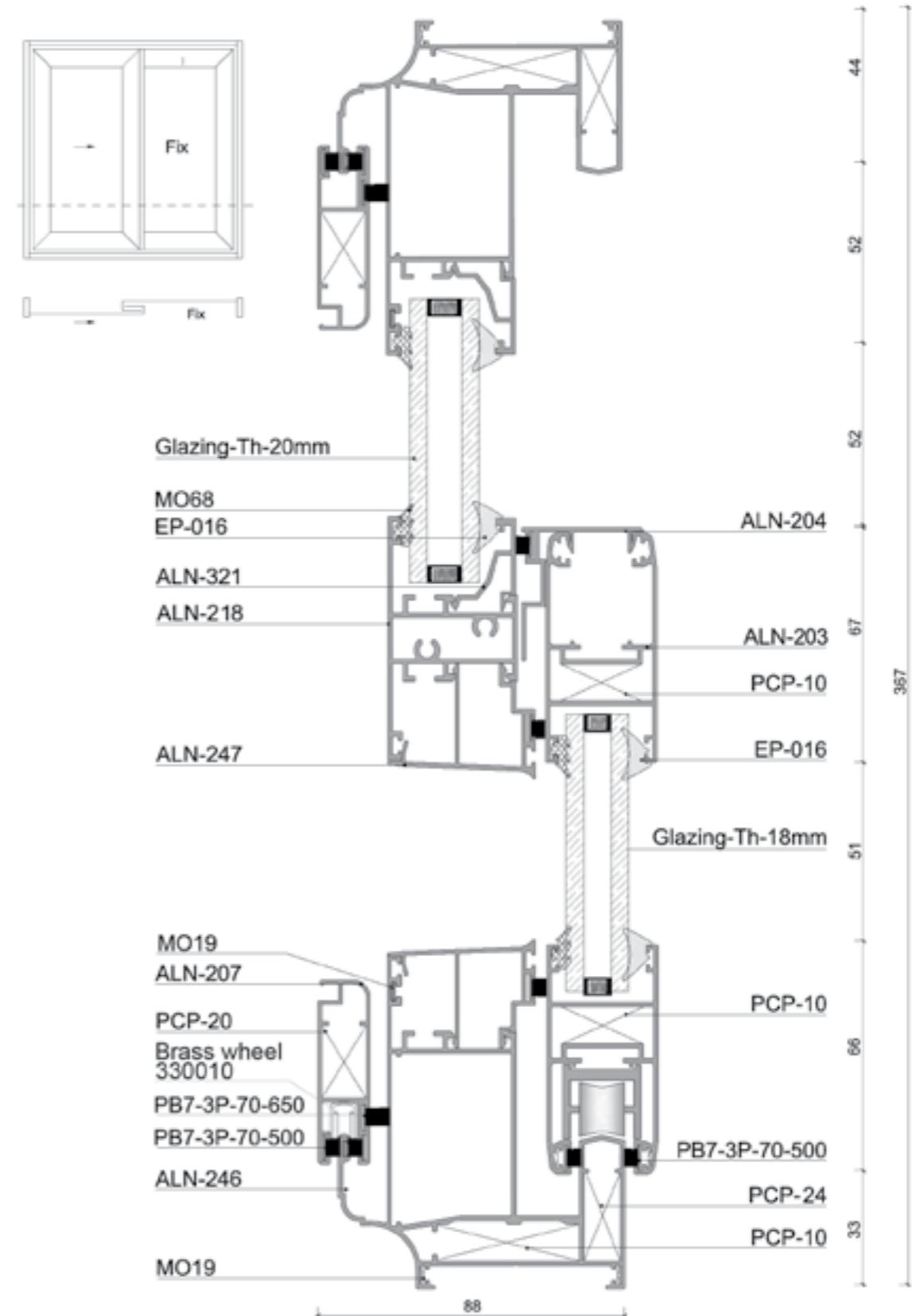
Slide System 60 Series  
Fabrication Details



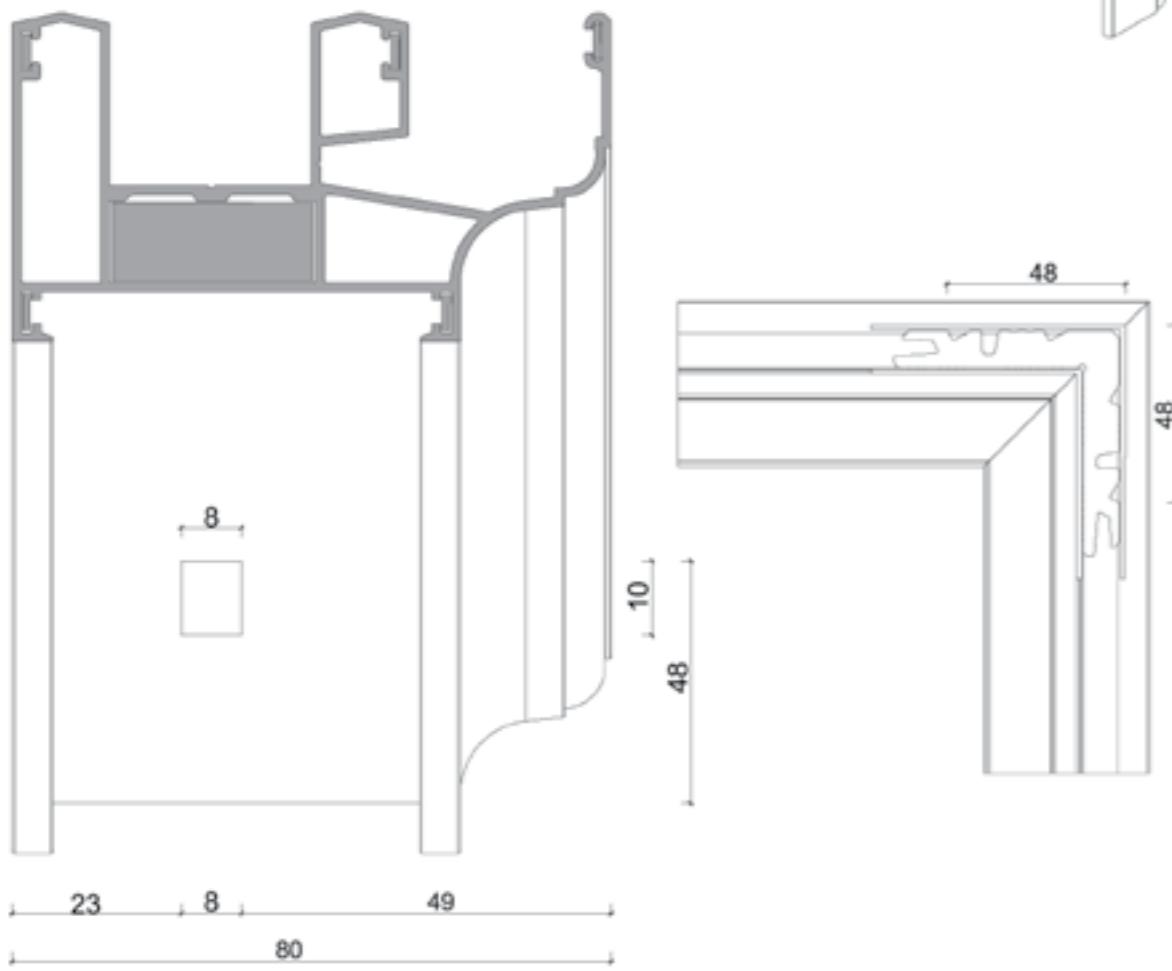
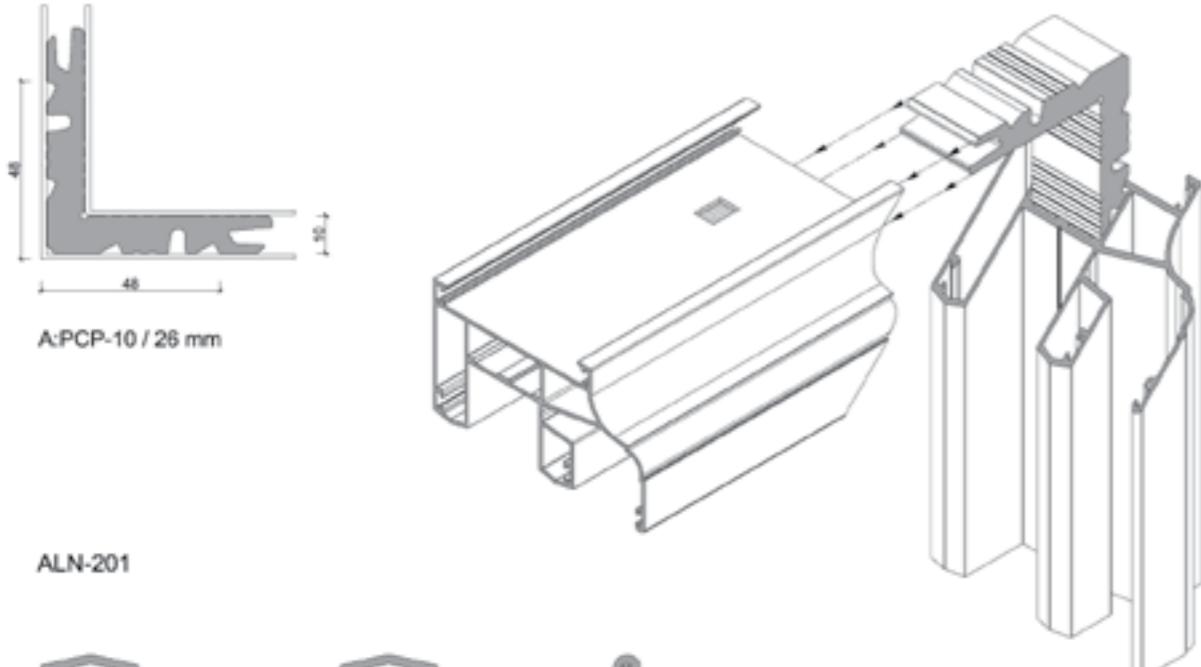
Slide System 60 Series  
Fabrication Details



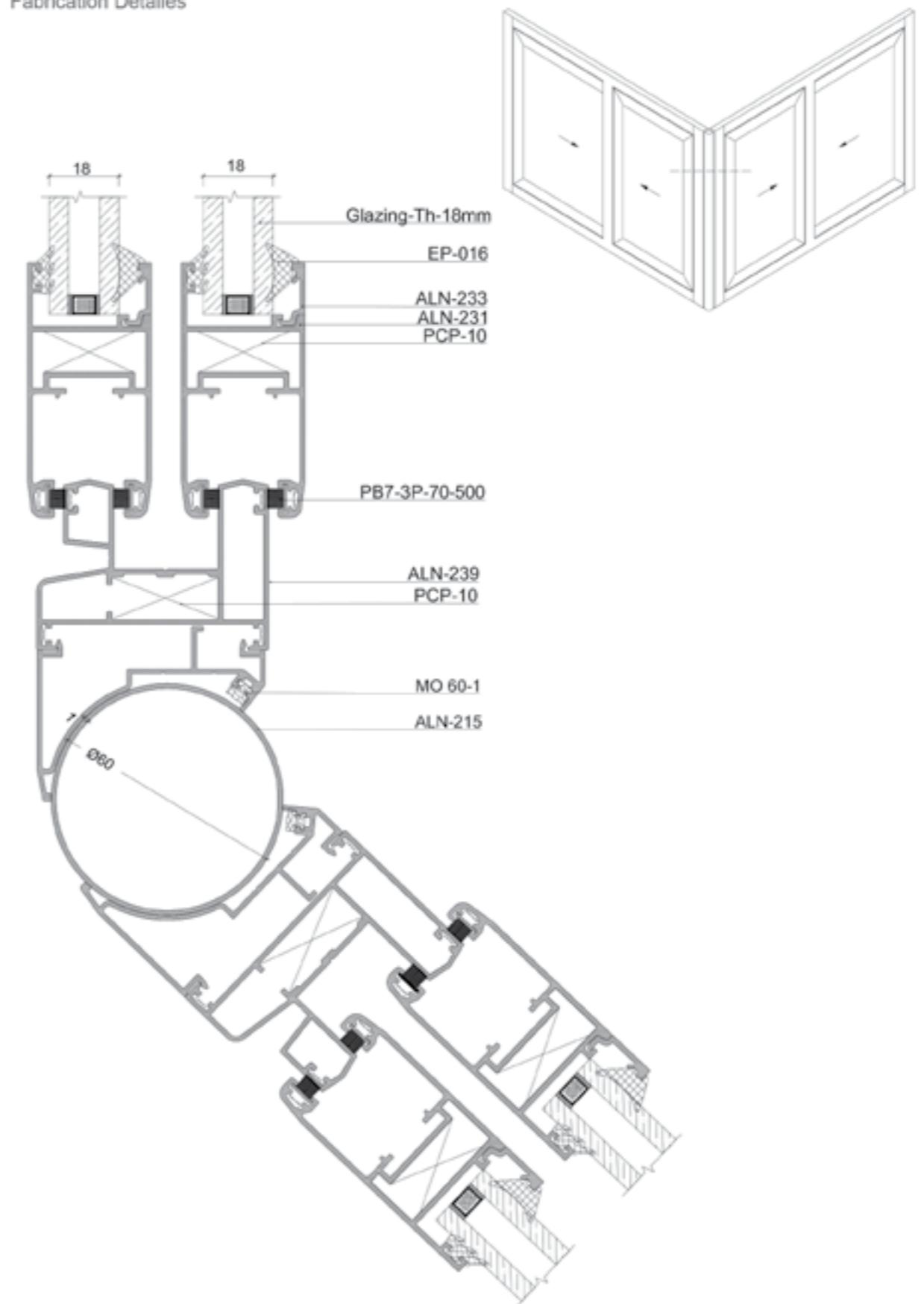
Slide System 60 Series  
Fabrication Details



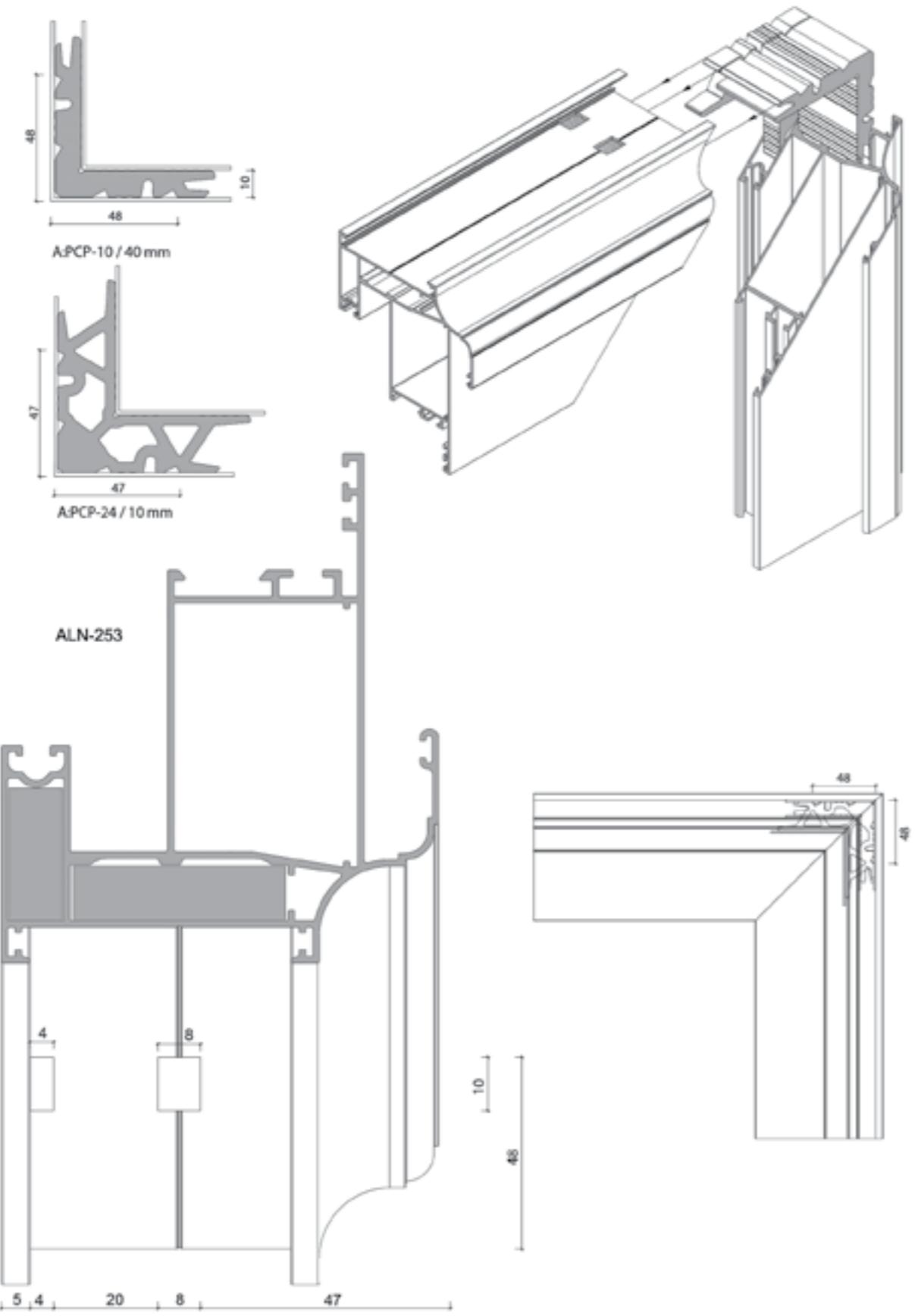
Slide System 60 Series  
Assembly Drawing



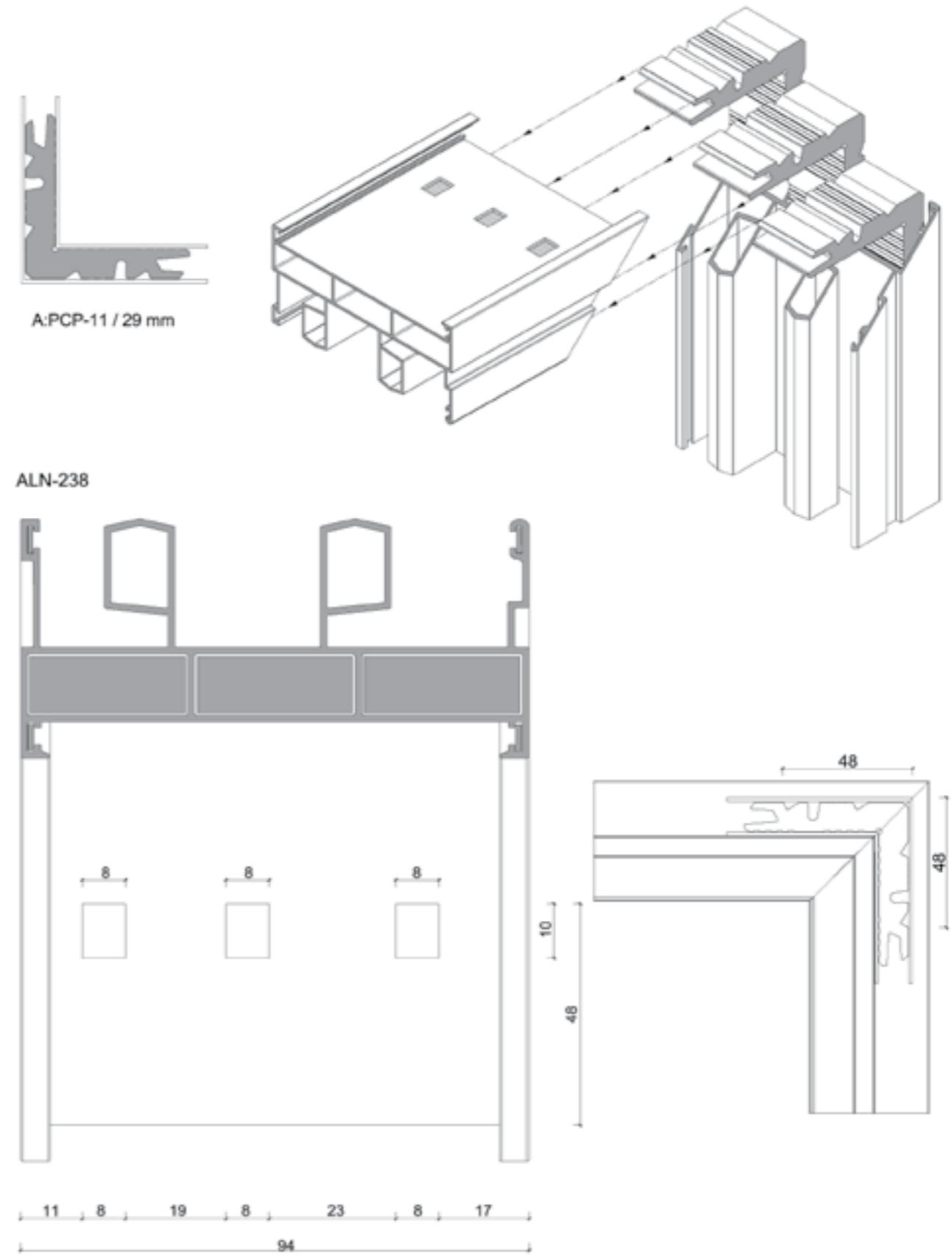
Slide System 60 Series  
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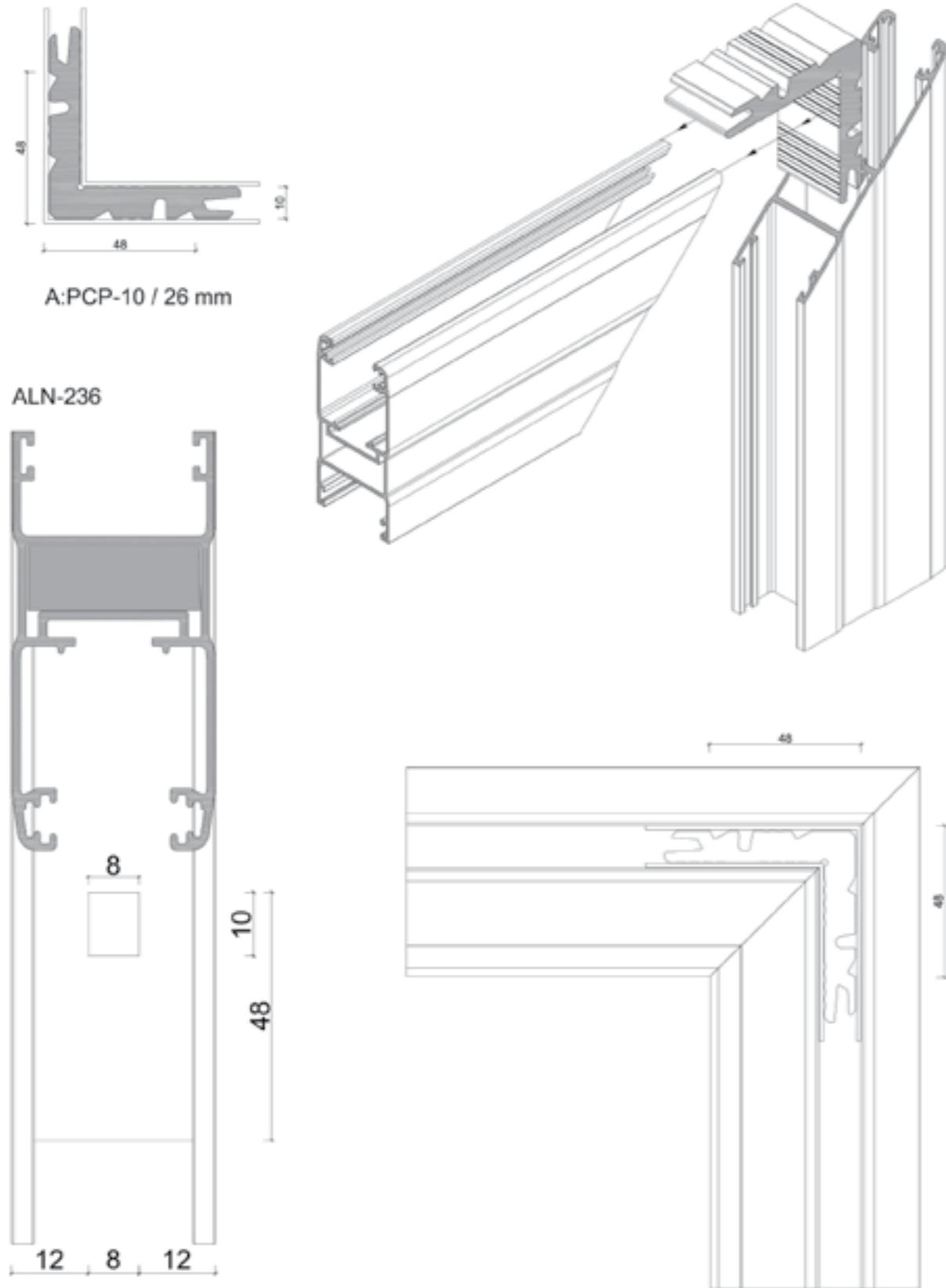
Slide System 60 Series  
Assembly Drawing



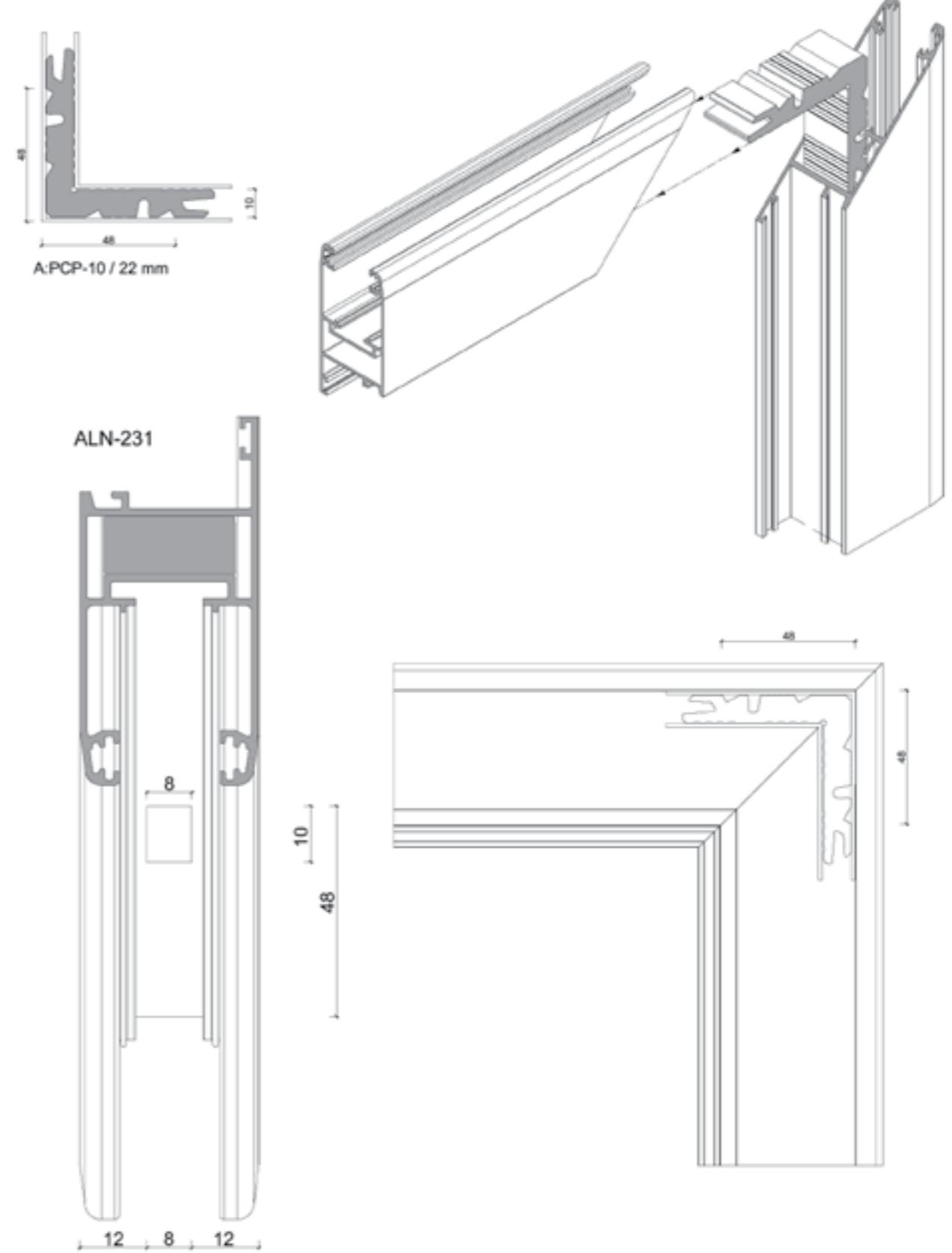
Slide System 60 Series  
Assembly Drawing



Slide System 60 Series  
Assembly Drawing

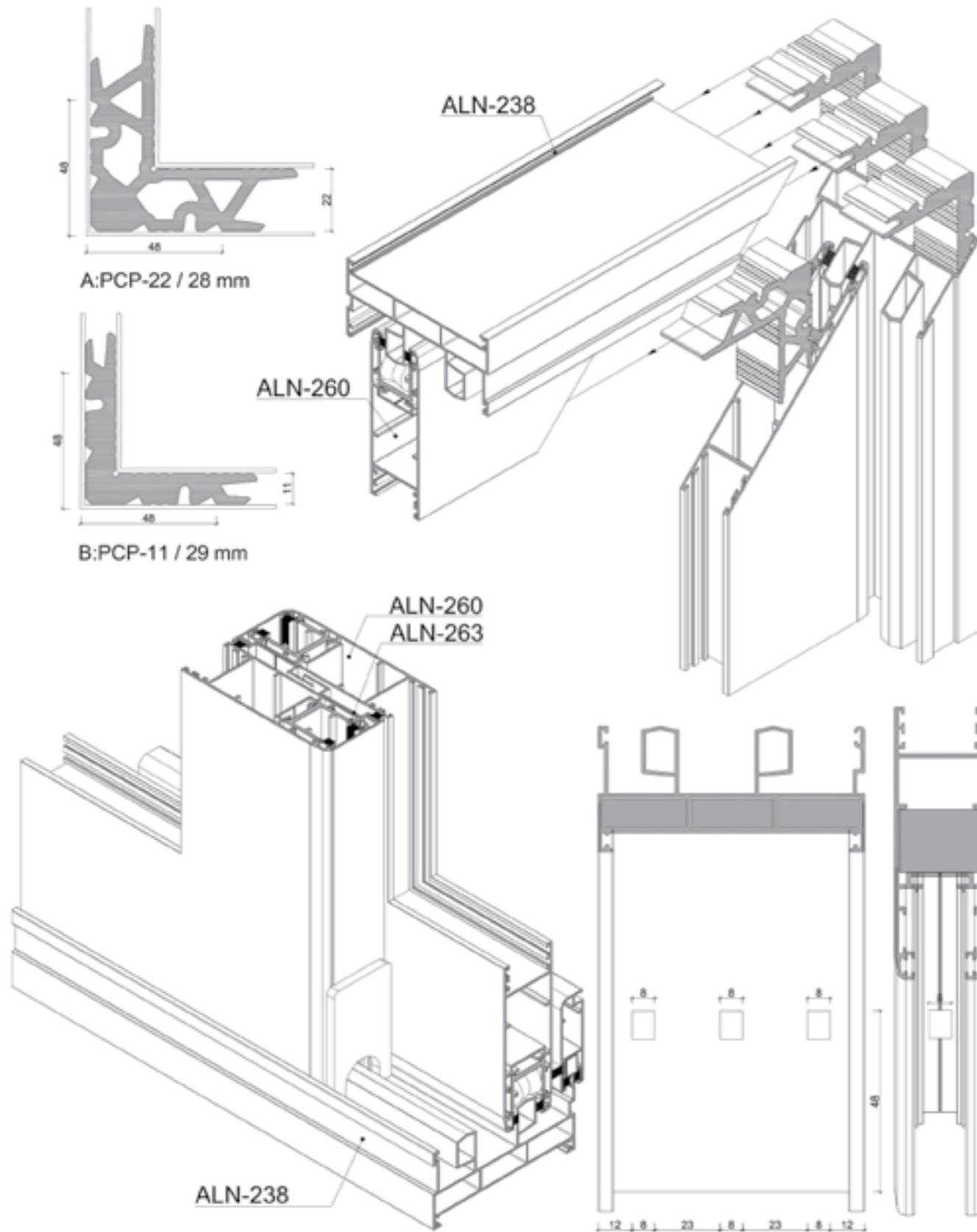


Slide System 60 Series  
Assembly Drawing



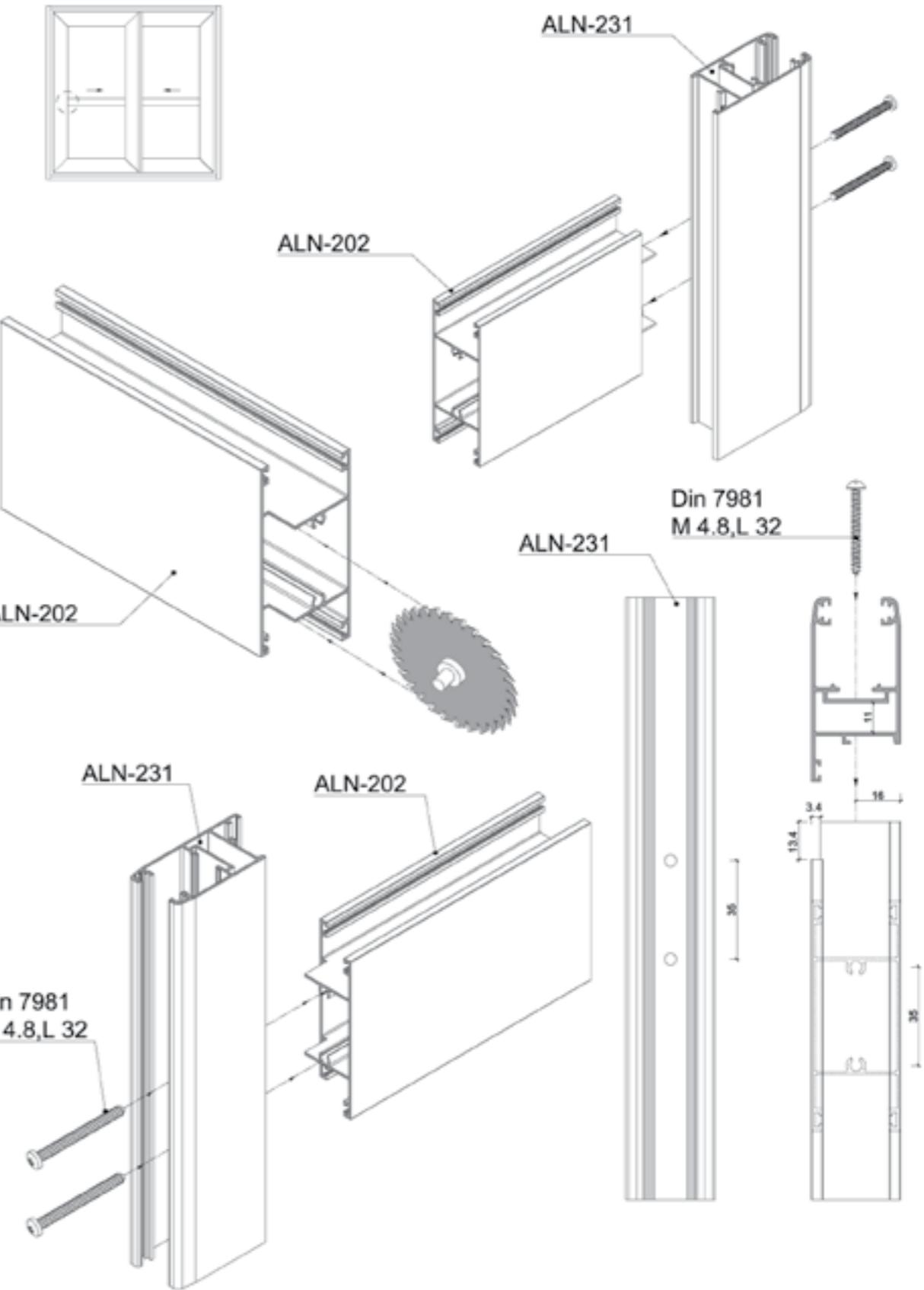
Slide System 60 Series

#### Fabrication Details



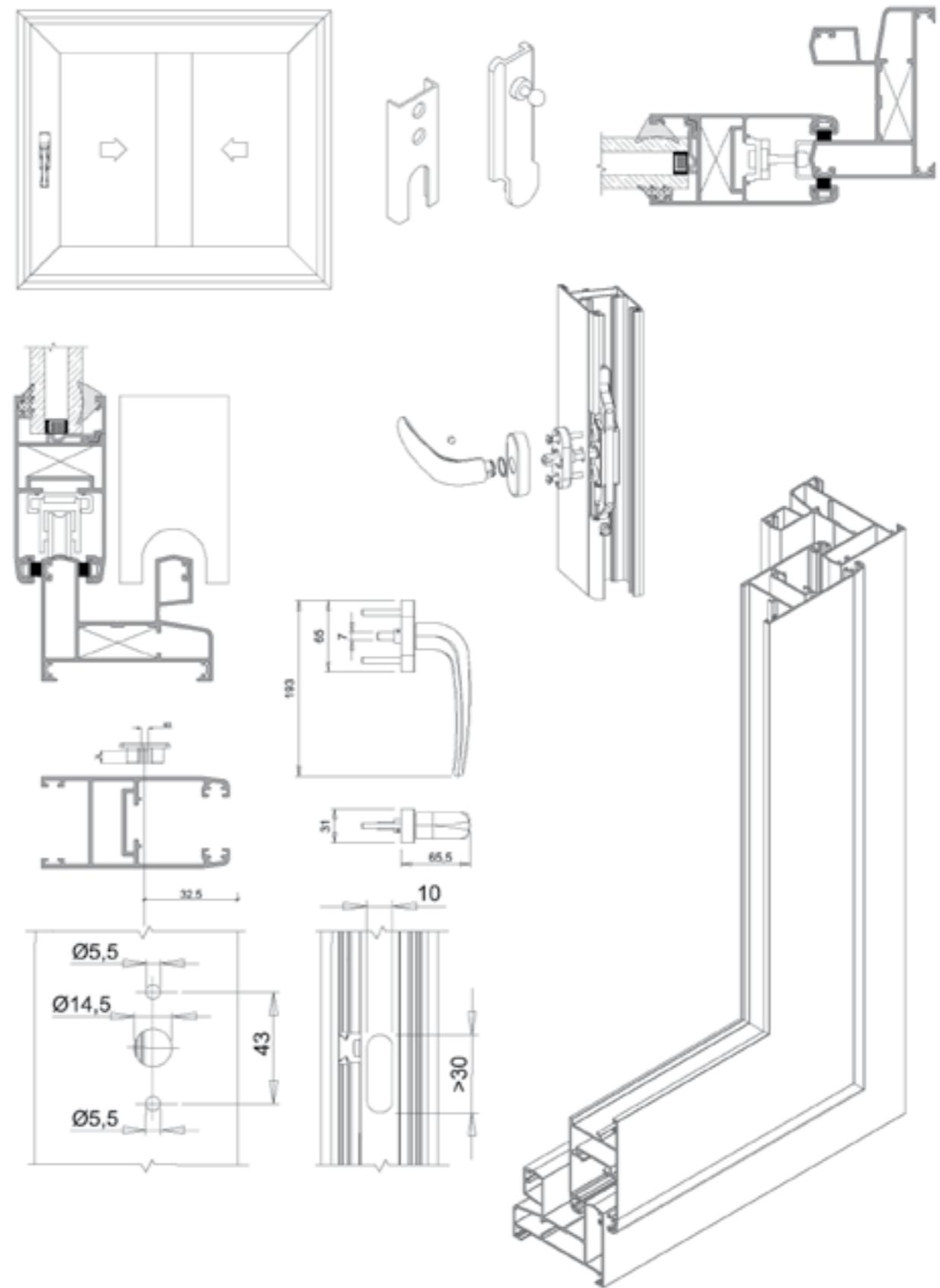
Slide System 60 Series

Assembly Drawing





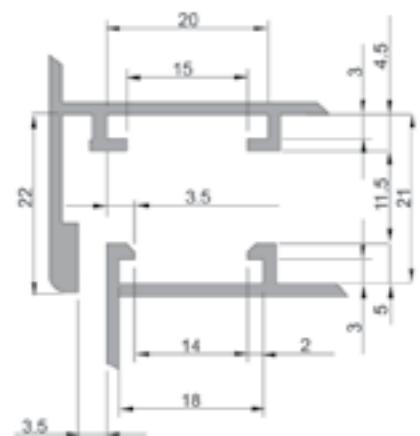
Slide System 60 Series  
Hardware Installation



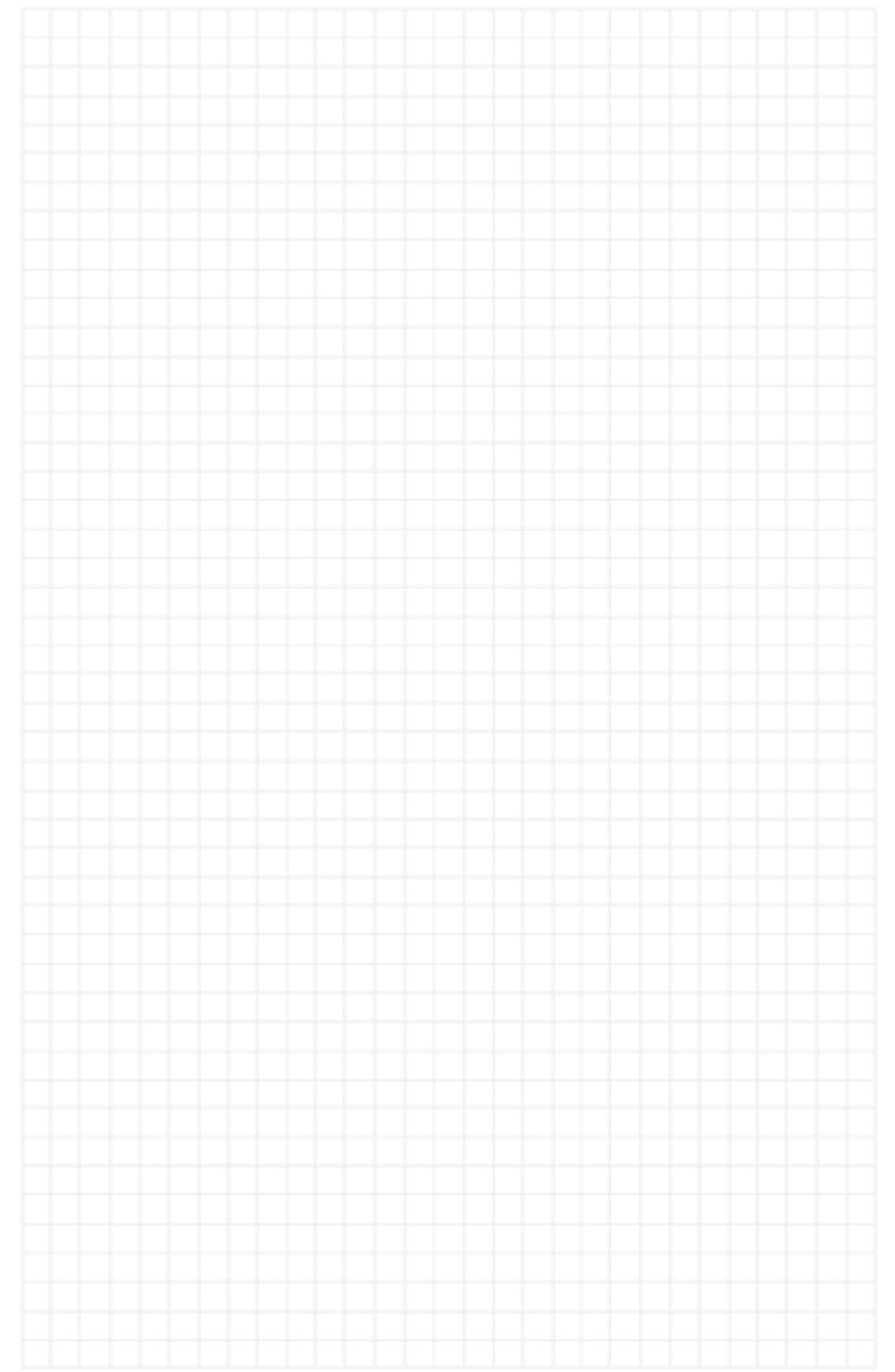
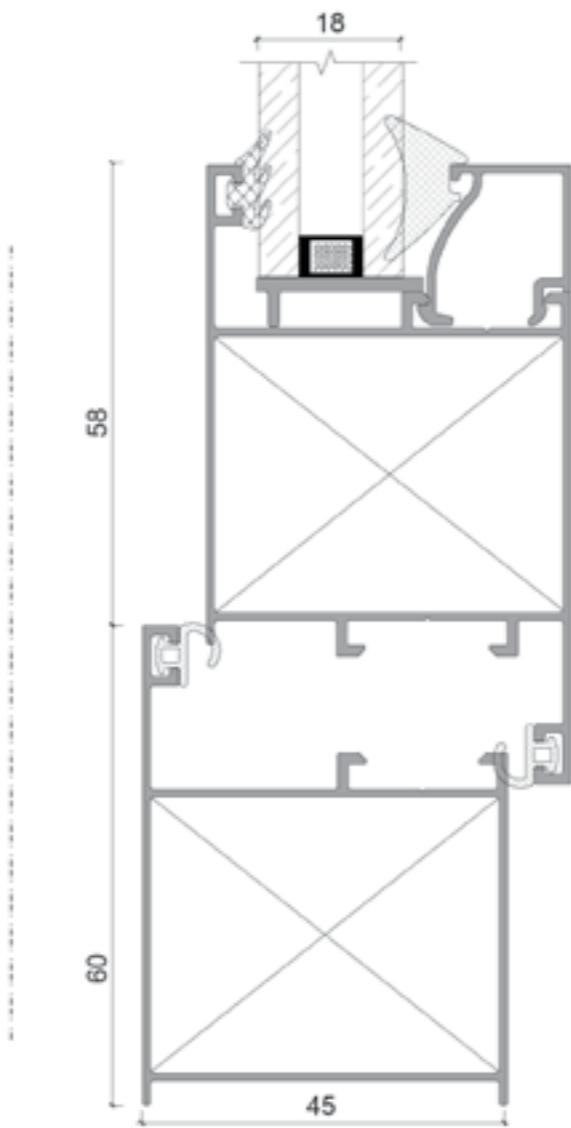


### Light Hinged System 45 Series

- . Profile width: 45 mm
- . Vent width: 45 mm
- . Wall thickness: 1 - 1.1 mm
- . Rubber description: EPDM DIN 7863
- . Glass thickness: 6 - 18 mm
- . Aluminum alloy extrusion: EN AW 6063 T5
- . Safety drainage system
- . Various typologies



Euro Groove Section

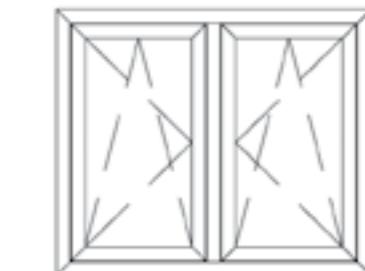
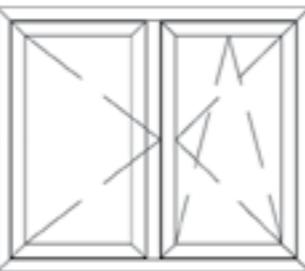
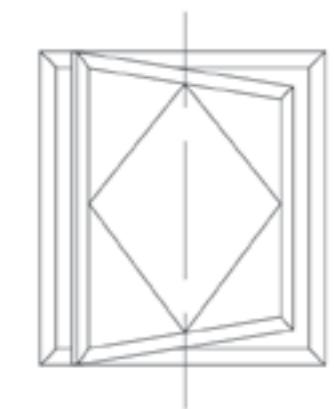
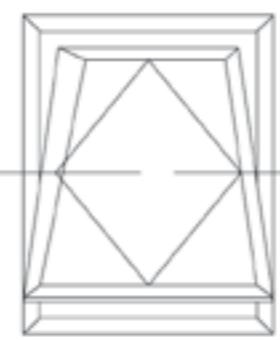
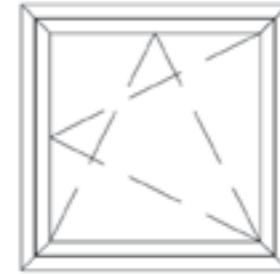
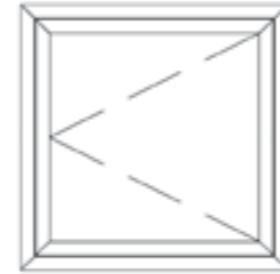


Light hinged System 45 Series  
Glazing Table

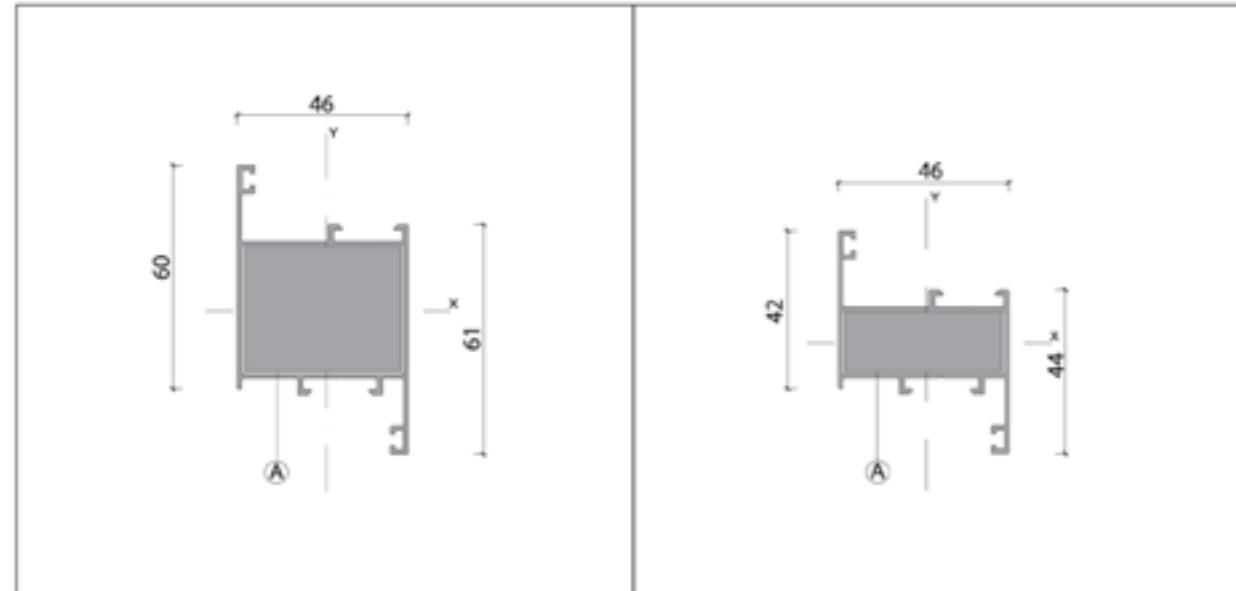


Glazing Thickness	Gasket Inside	Gasket Outside	Glazing Bead
6 mm	EP-1008	MO68	ALN-112
14 mm	EP-021	MO68	ALN-113
16 mm	EP-019	MO68	ALN-113
18 mm	EP-016	MO68	ALN-113

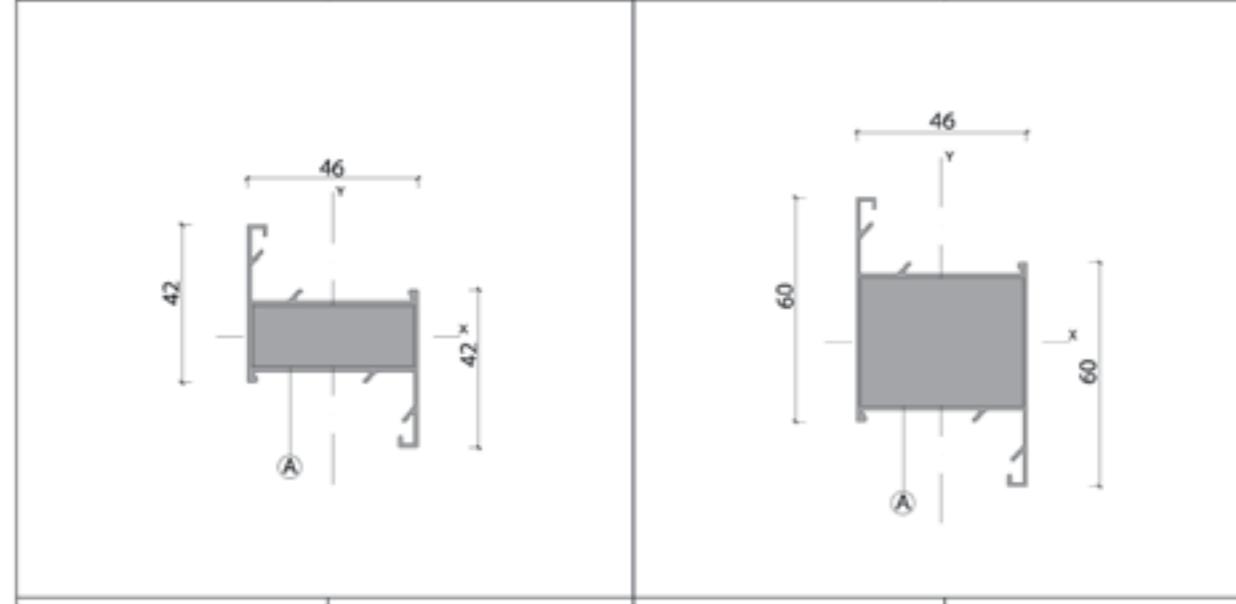
Light hinged System 45 Series  
Typologies



**Light hinged System 45 Series**  
Profile & Accessories Information

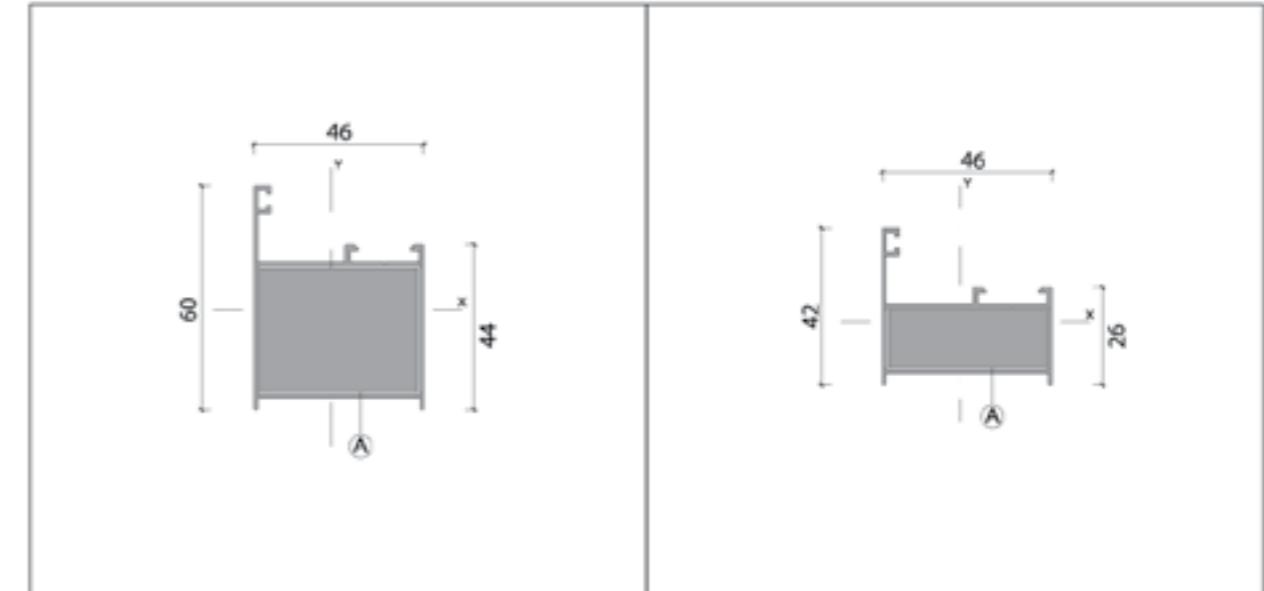


$I_x: 11.33 \text{ cm}^4$	$I_y: 8.60 \text{ cm}^4$	$I_x: 4.58 \text{ cm}^4$	$I_y: 6.89 \text{ cm}^4$
Sash: ALN-101	A: PCP- 34 / 43 mm	Sash: ALN-106	A: PCP- 16 / 43 mm
Weight: 702 gr/m	—	Weight: 607 gr/m	—

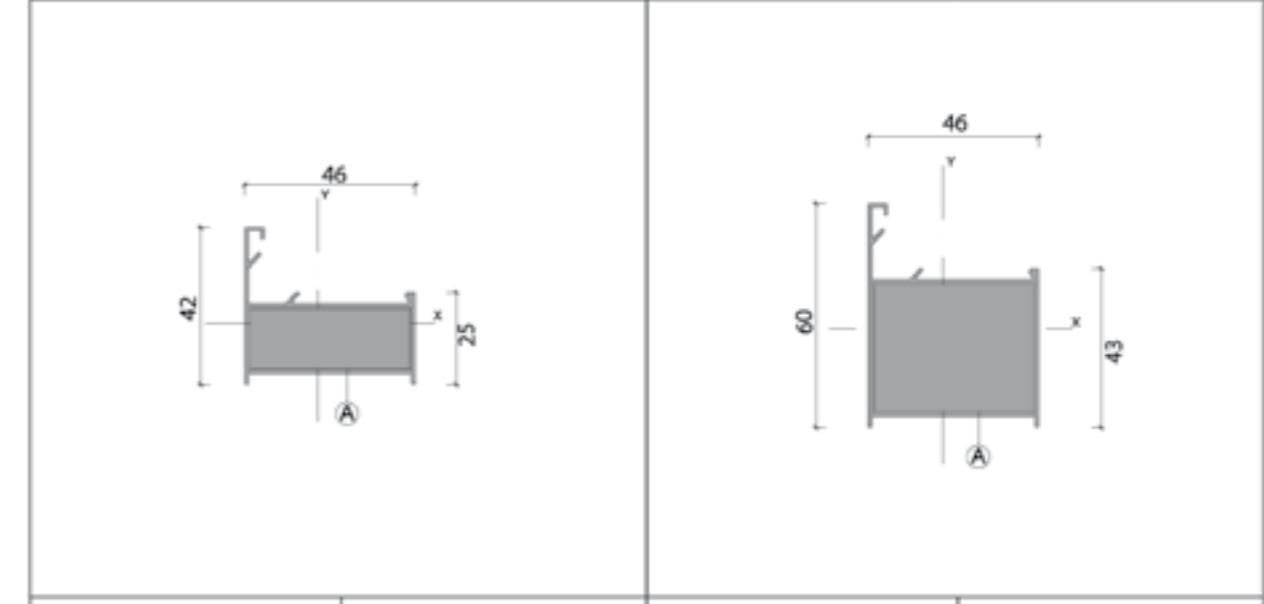


$I_x: 3.87 \text{ cm}^4$	$I_y: 6.23 \text{ cm}^4$	$I_x: 9.54 \text{ cm}^4$	$I_y: 7.81 \text{ cm}^4$
Sash: ALN-156	A: PCP- 16 / 43 mm	Sash: ALN-151	A: PCP- 34 / 43 mm
Weight: 513 gr/m	—	Weight: 599 gr/m	—

**Light hinged System 45 Series**  
Profile & Accessories Information

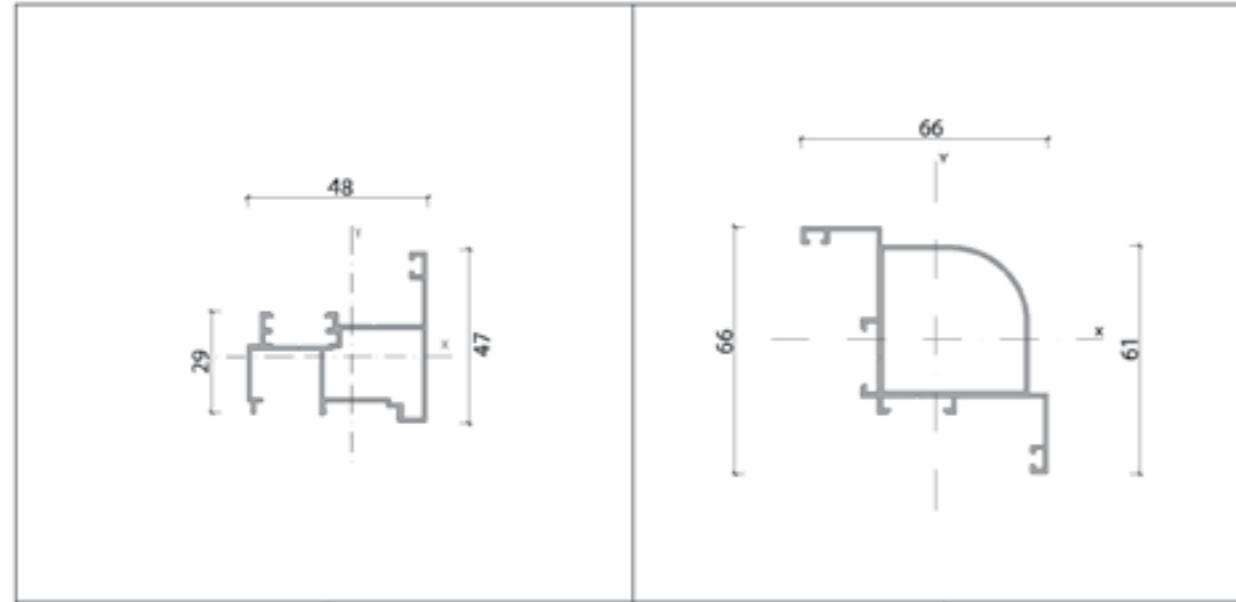


$I_x: 6.94 \text{ cm}^4$	$I_y: 7.04 \text{ cm}^4$	$I_x: 2.32 \text{ cm}^4$	$I_y: 5.25 \text{ cm}^4$
Frame: ALN-100	A: PCP- 34 / 43 mm	Frame: ALN-105	A: PCP- 16 / 43 mm
Weight: 580 gr/m	—	Weight: 483 gr/m	—

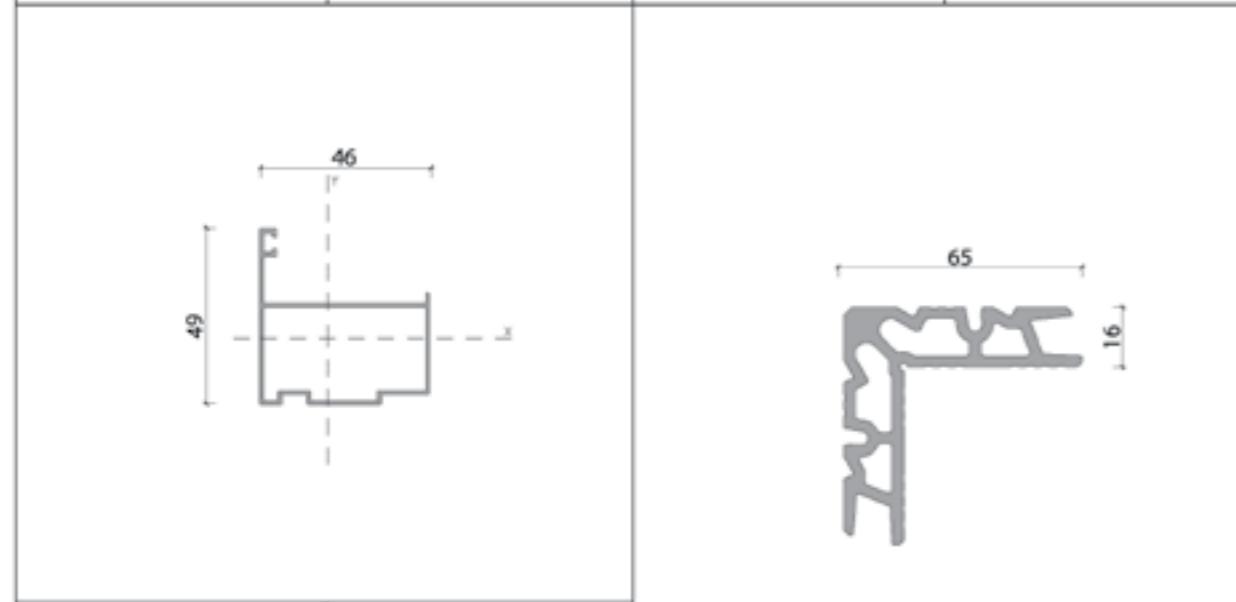


$I_x: 2.06 \text{ cm}^4$	$I_y: 4.66 \text{ cm}^4$	$I_x: 6.10 \text{ cm}^4$	$I_y: 6.30 \text{ cm}^4$
Frame: ALN-155	A: PCP- 16 / 43 mm	Frame: ALN-150	A: PCP- 34 / 43 mm
Weight: 421 gr/m	—	Weight: 508 gr/m	—

**Light hinged System 45 Series**  
Profile & Accessories Information

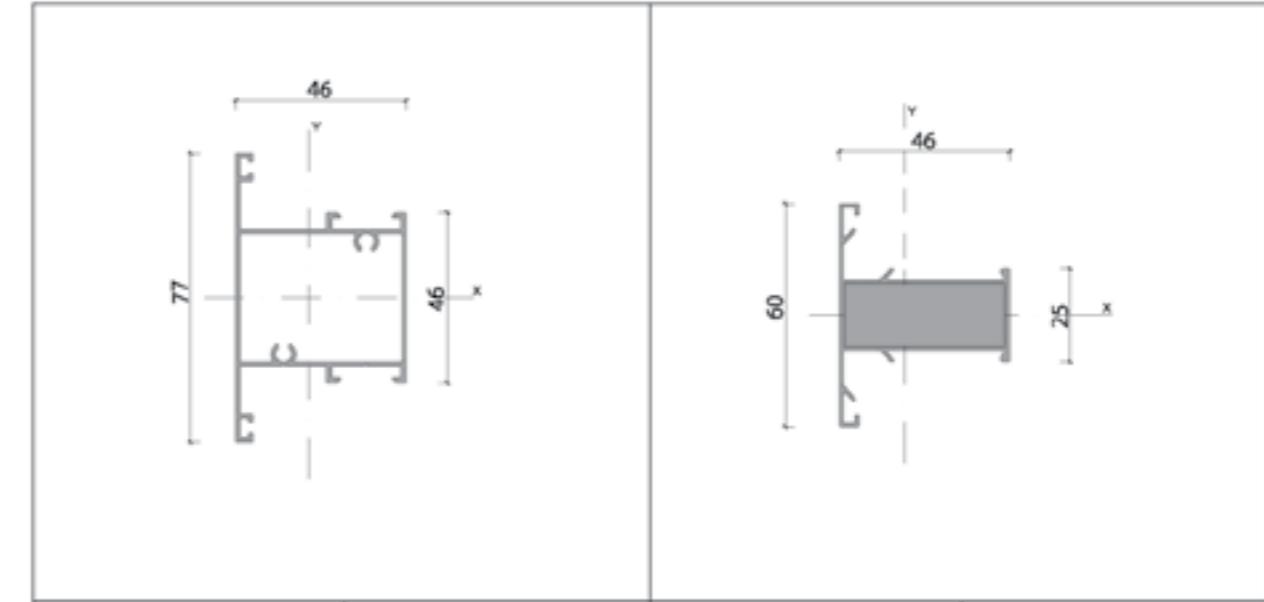


$I_x: 3.03 \text{ cm}^4$	$I_y: 6.50 \text{ cm}^4$	$I_x: 10.90 \text{ cm}^4$	$I_y: 10.90 \text{ cm}^4$
Profile: ALN-103	—	Profile: ALN-109	—
Weight: 591 gr/m	—	Weight: 794 gr/m	—

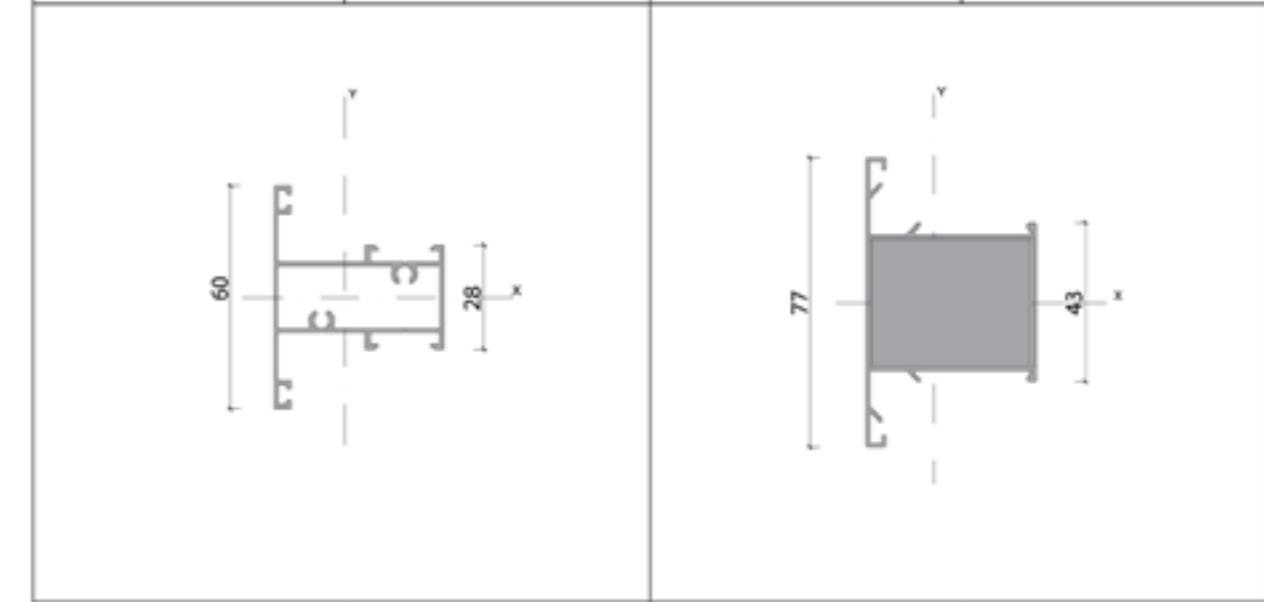


$I_x: 3.72 \text{ cm}^4$	$I_y: 5.46 \text{ cm}^4$	Corner joint: PCP 16	
Profile: ALN-108	—	Weight: 497 gr/m	—
Weight: 2387 gr/m	—	Weight: 2387 gr/m	—

**Light hinged System 45 Series**  
Profile & Accessories Information

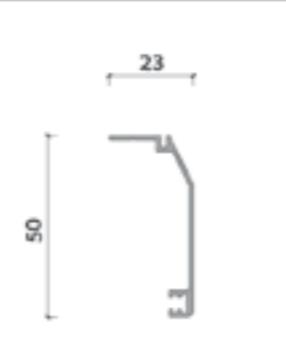
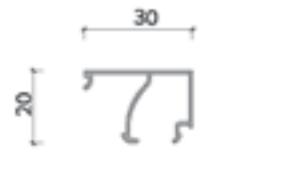
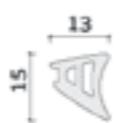
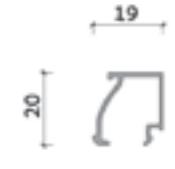
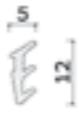


$I_x: 11.80 \text{ cm}^4$	$I_y: 8.74 \text{ cm}^4$	$I_x: 3.87 \text{ cm}^4$	$I_y: 5.67 \text{ cm}^4$
Transom: ALN-102	—	Transom: ALN-157	A: ALN-118/43
Weight: 761 gr/m	—	Weight: 513 gr/m	—

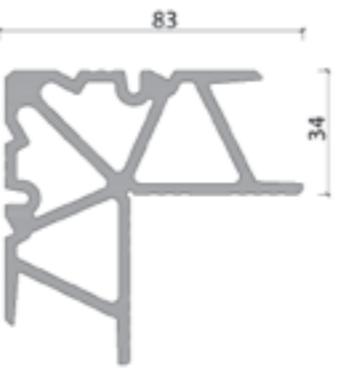
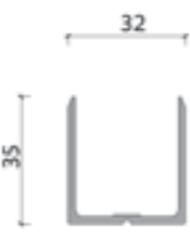
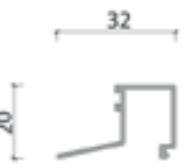
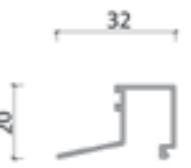


$I_x: 4.65 \text{ cm}^4$	$I_y: 6.95 \text{ cm}^4$	$I_x: 9.54 \text{ cm}^4$	$I_y: 7.33 \text{ cm}^4$
Transom: ALN-107	—	Transom: ALN-152	A: ALN-117/43
Weight: 667 gr/m	—	Weight: 599 gr/m	—

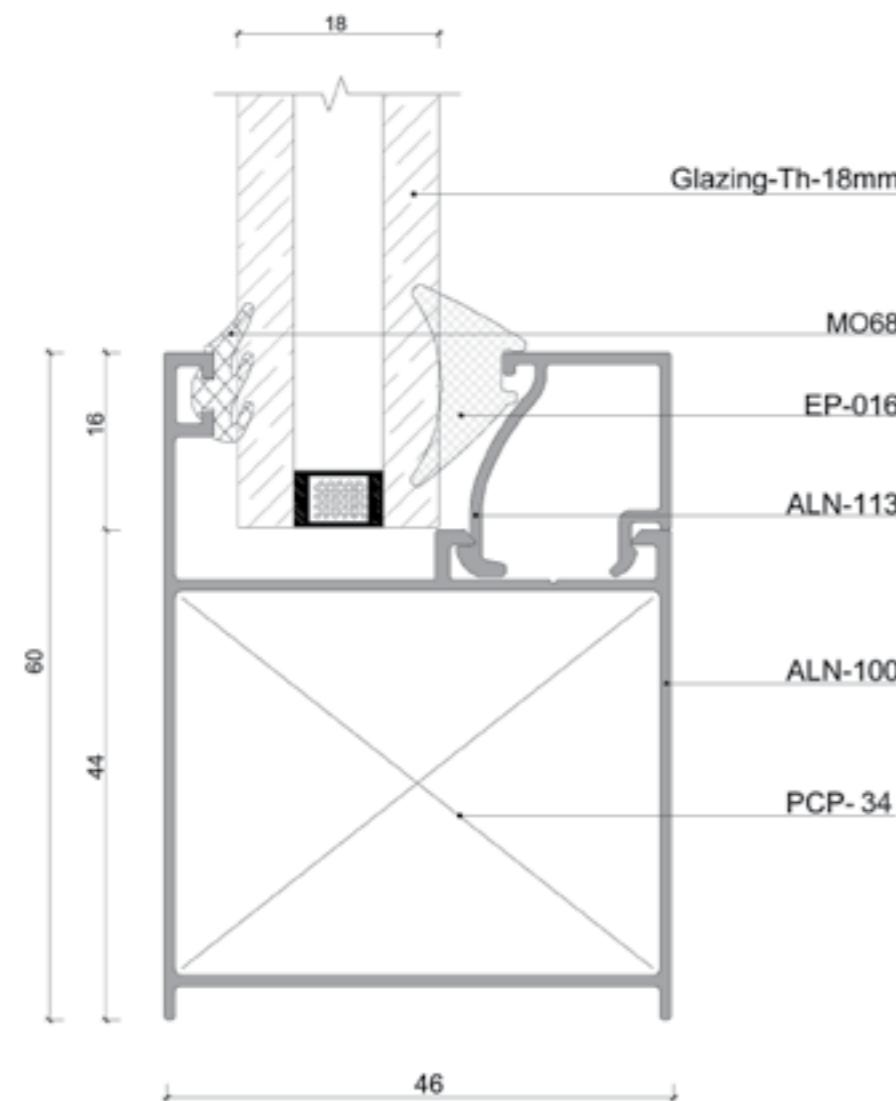
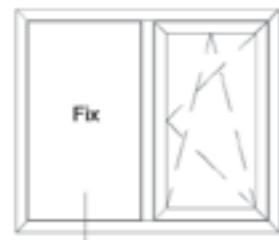
**Light hinged System 45 Series**  
Profile & Accessories Information

			
Profile: ALN-212	Weight: 872 gr/m	Flange profile: ALN-119	Weight: 278 gr/m
			
Glazing bead: ALN-112	Weight: 229 gr/m	Gasket: EP-021	Weight: 80 gr/m
			
Glazing bead: ALN-113	Weight: 178 gr/m	Gasket: 1008	Weight: 34 gr/m

**Light hinged System 45 Series**  
Profile & Accessories Information

			
Corner joint: PCP 34	Weight: 3505 gr/m	Profile: ALN-110	Weight: 211 gr/m
			
Transom bar profile: ALN-117	Weight: 532 gr/m	Profile: ALN-111	Weight: 211 gr/m
			
Transom bar profile: ALN-118	Weight: 429 gr/m	Profile: ALN-224	Weight: 110 gr/m

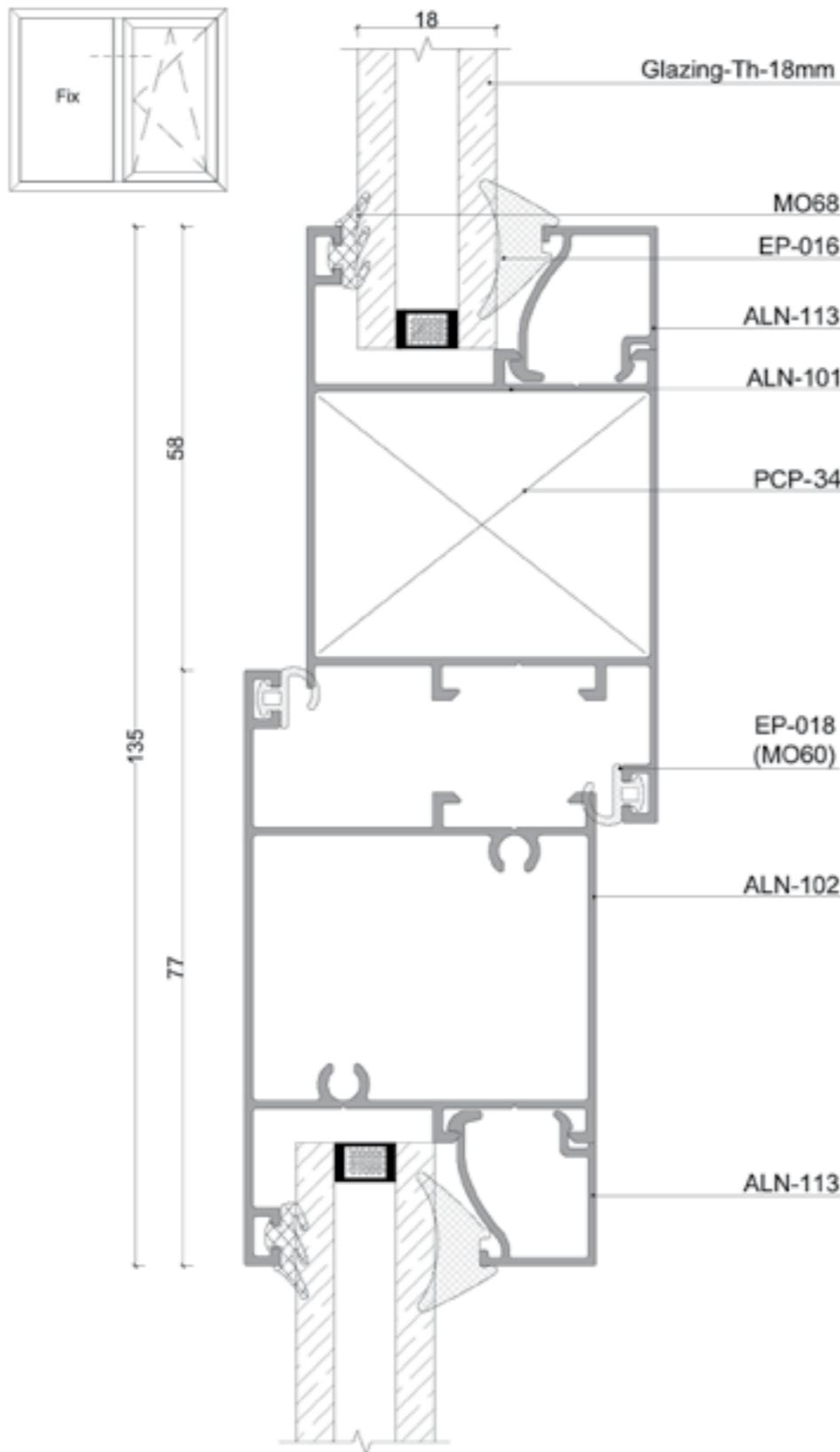
**Light hinged System 45 Series**  
Fabrication Details



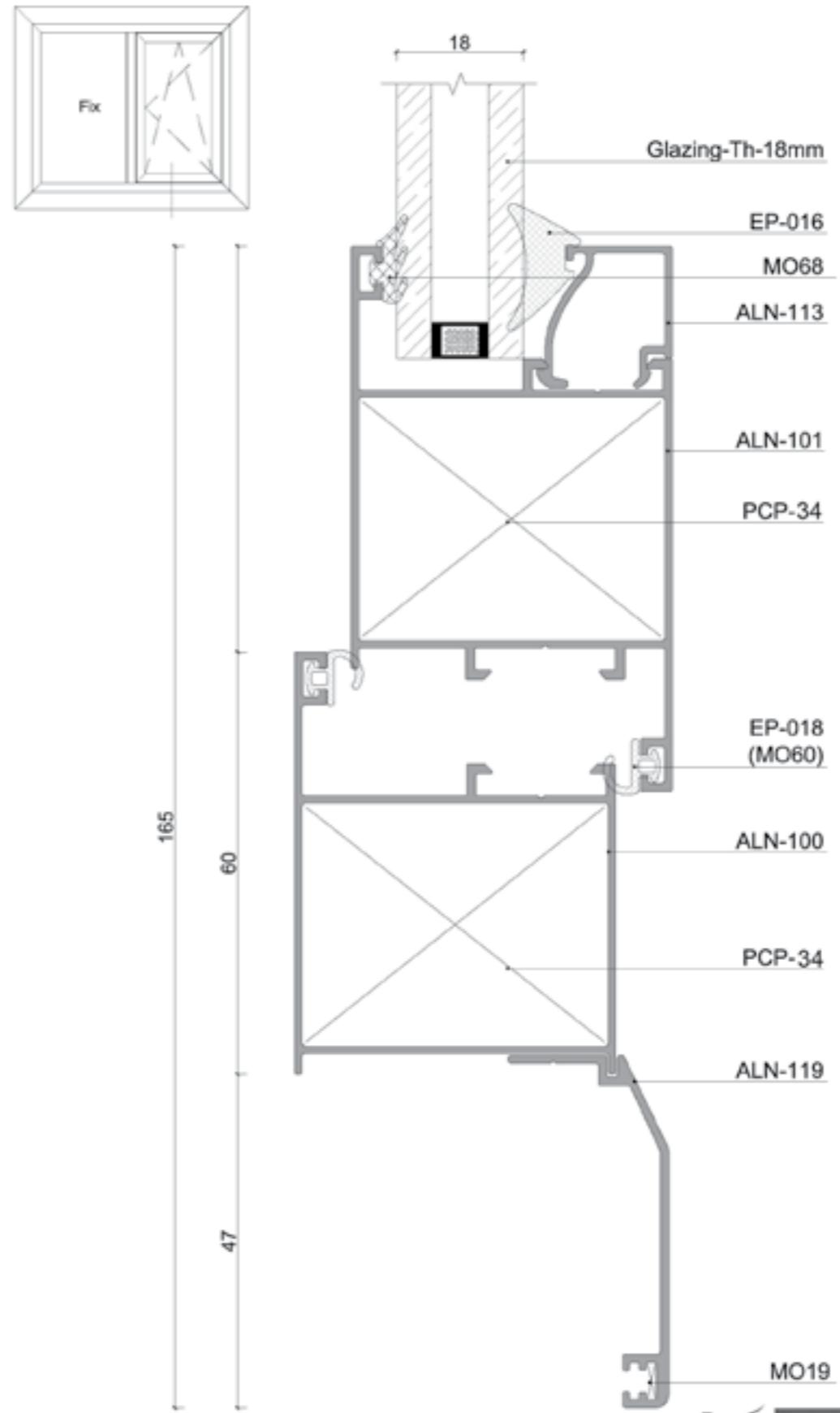
**Light hinged System 45 Series**  
Profile & Accessories Information

	5		8
Gasket: EP-016	Weight: 77 gr/m	Gasket: EP-018	Weight: 27 gr/m
	7		6
Gasket: EP-019	Weight: 61 gr/m	Gasket: MOB	Weight: 21 gr/m
	5		7
Gasket: MO68	Weight: 48 gr/m	Gasket: MOS	Weight: 32 gr/m

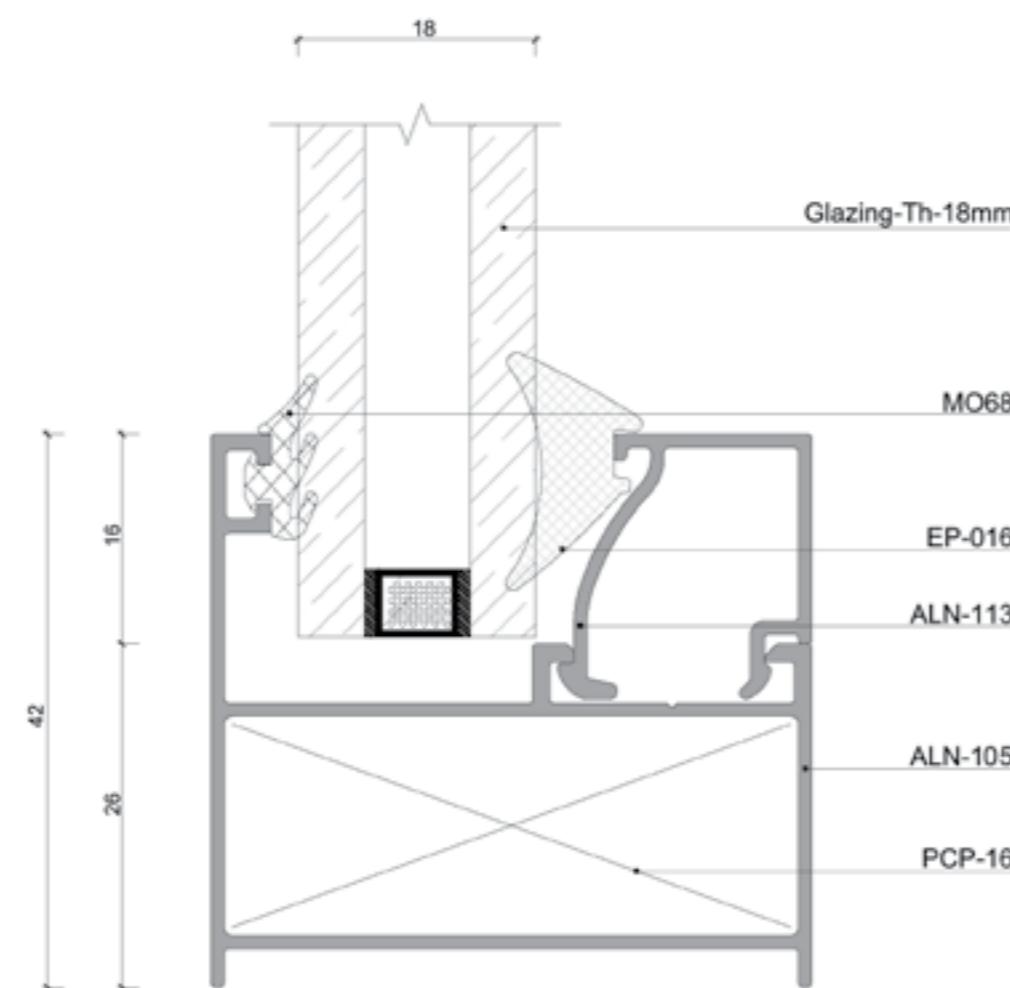
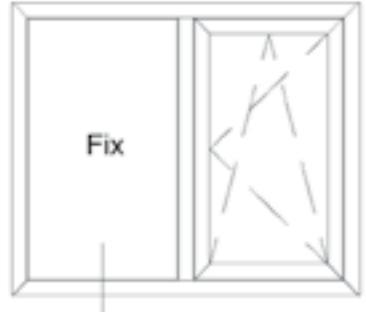
**Light hinged System 45 Series**  
Fabrication Details



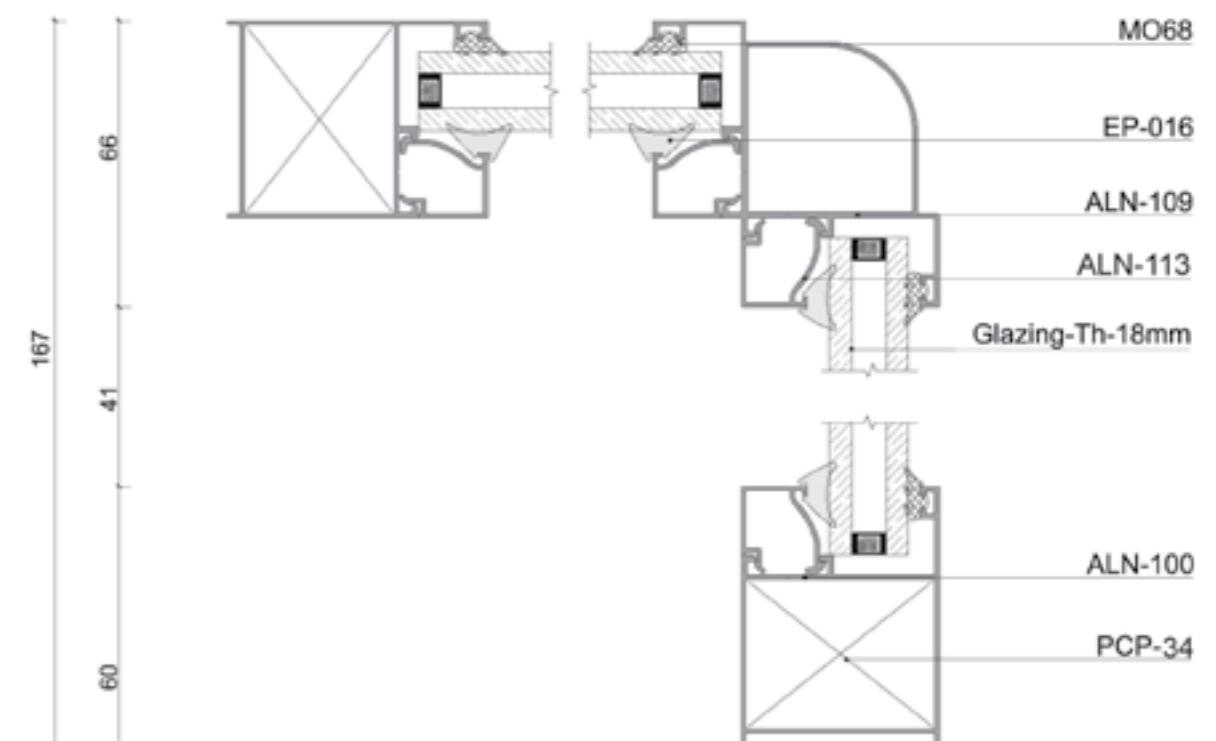
**Light hinged System 45 Series**  
Fabrication Details



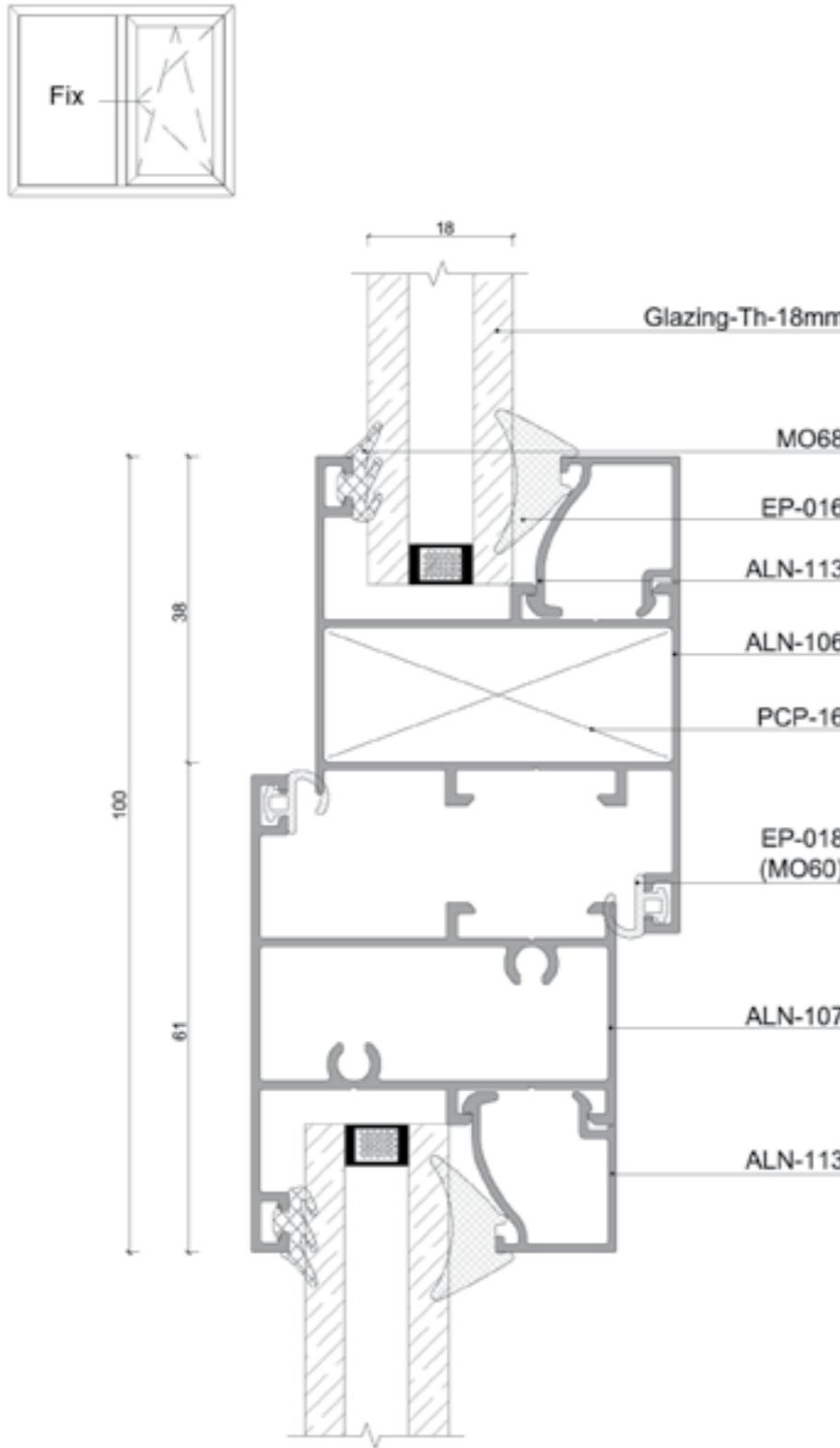
**Light hinged System 45 Series**  
Fabrication Details



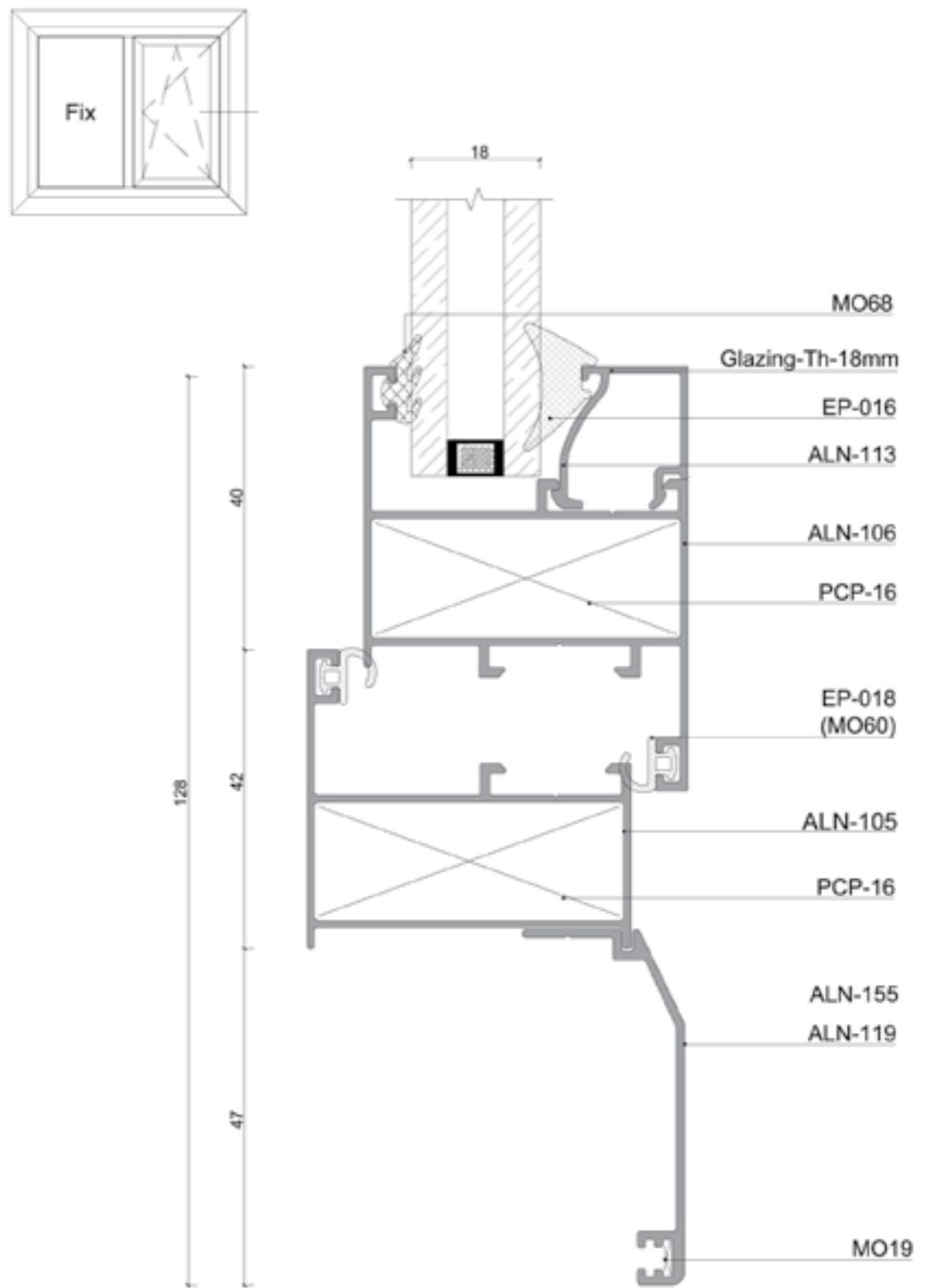
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Fabrication Details



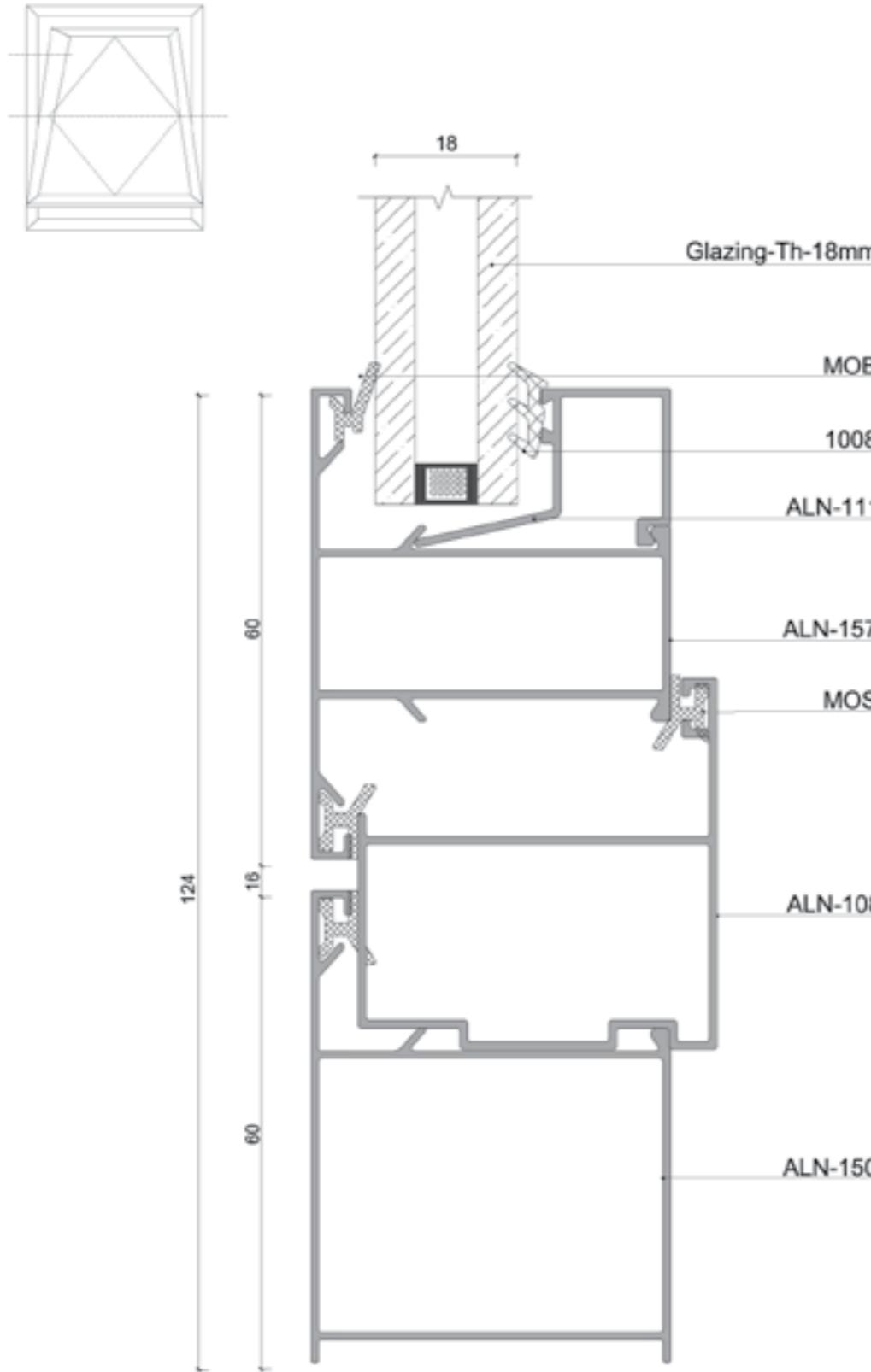
**Light hinged System 45 Series**  
Fabrication Details



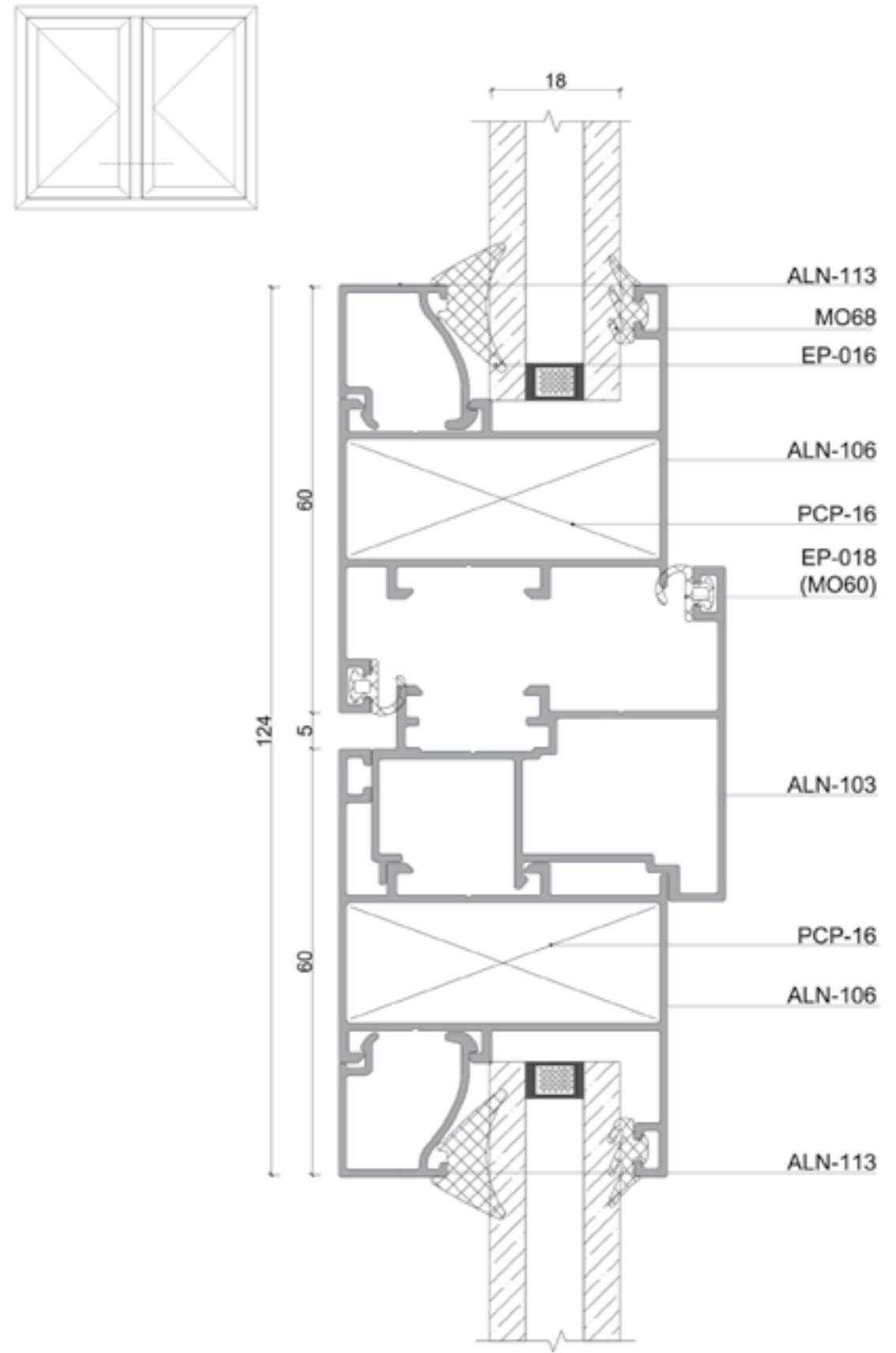
**Light hinged System 45 Series**  
Fabrication Details



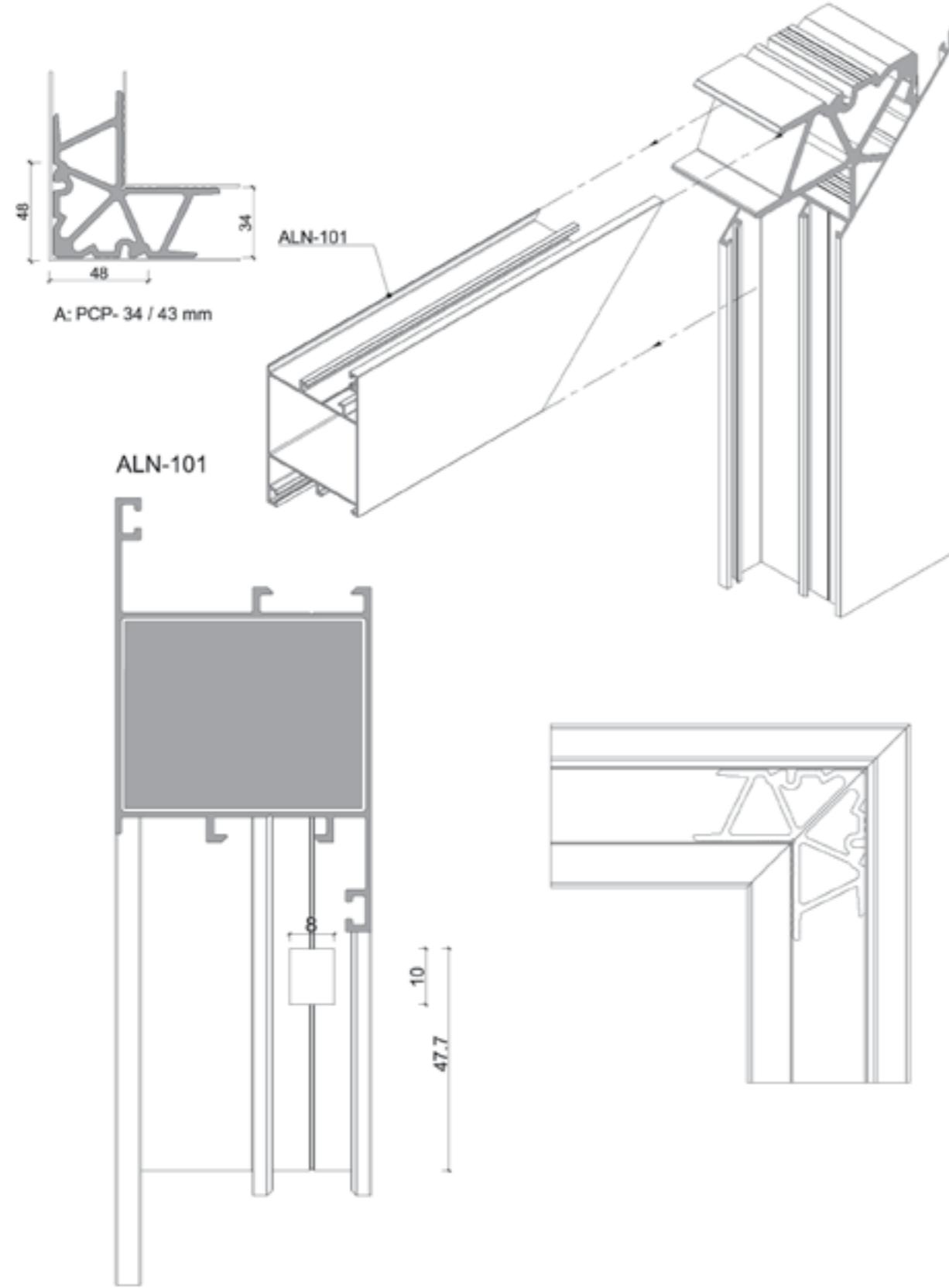
Light hinged System 45 Series  
Fabrication Details



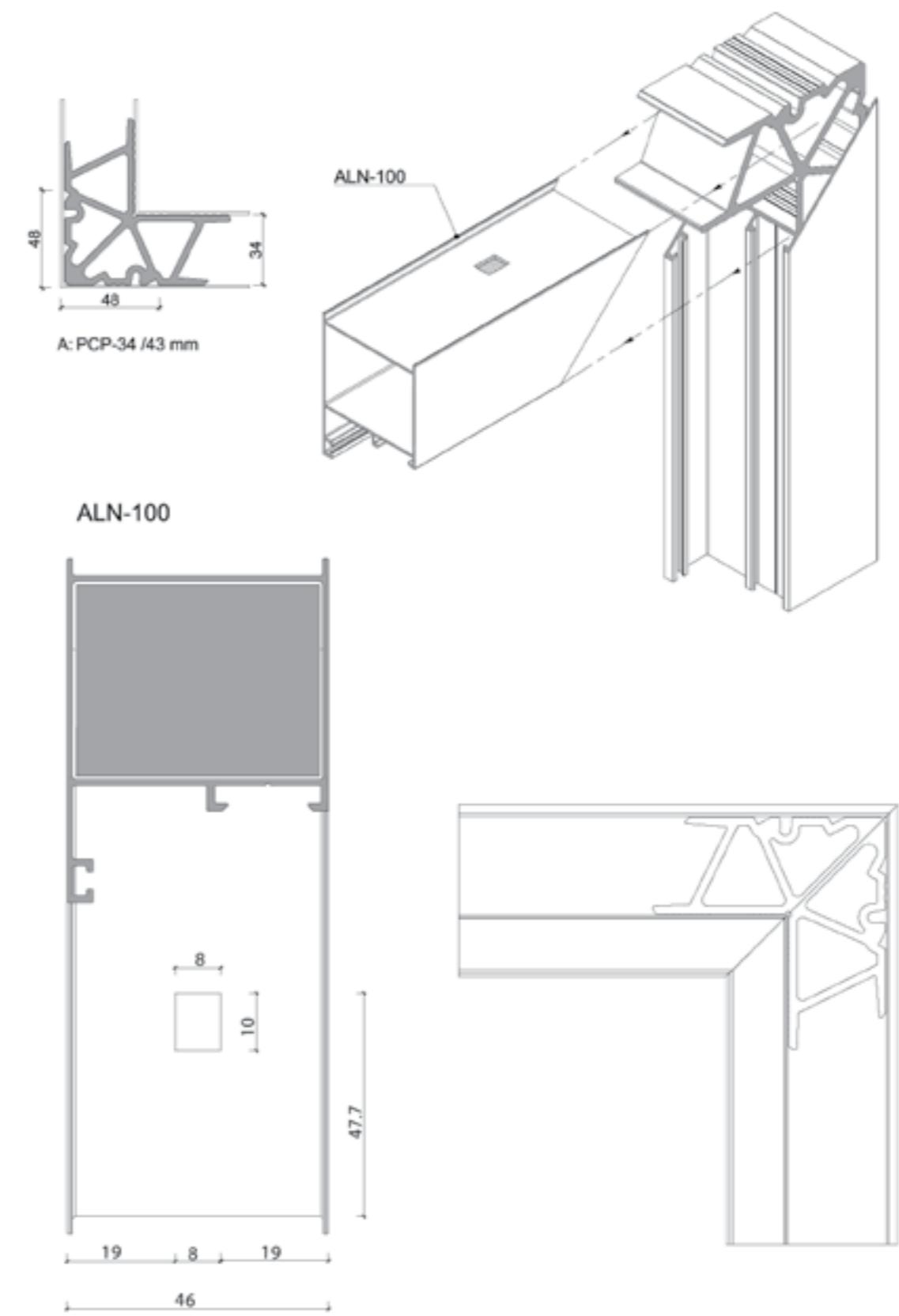
Light hinged System 45 Series  
Fabrication Details



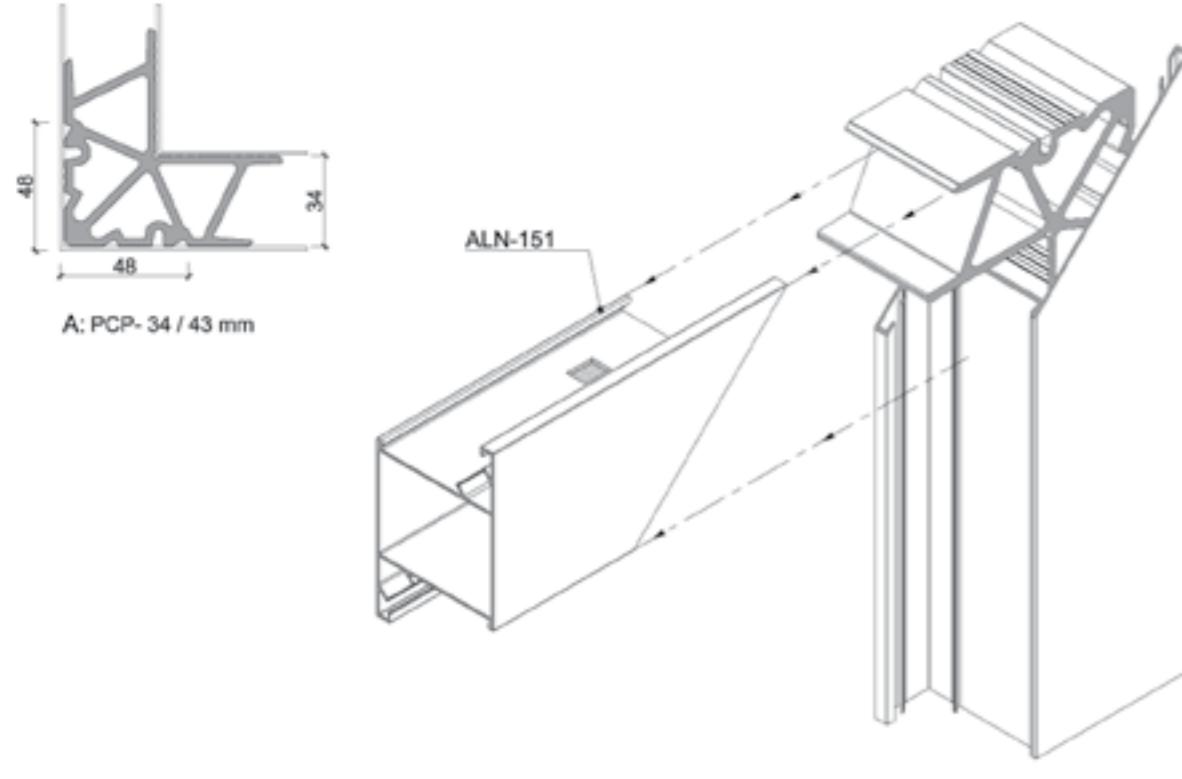
**Light hinged System 45 Series**  
Assembly Drawing



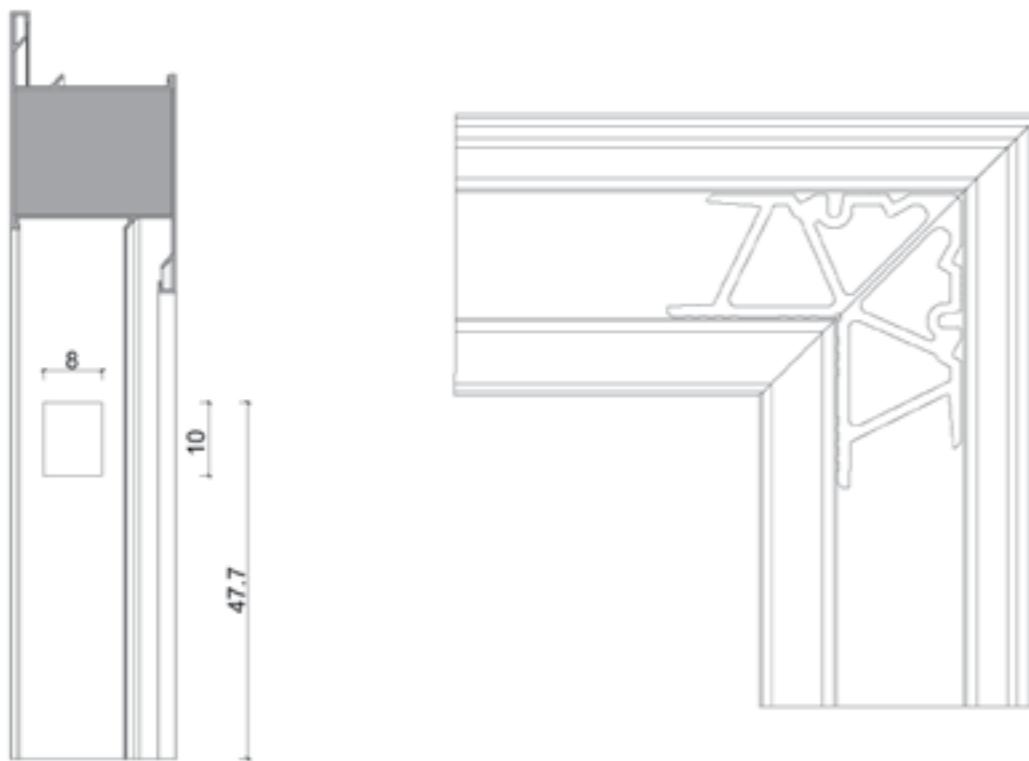
**Light hinged System 45 Series**  
Assembly Drawing



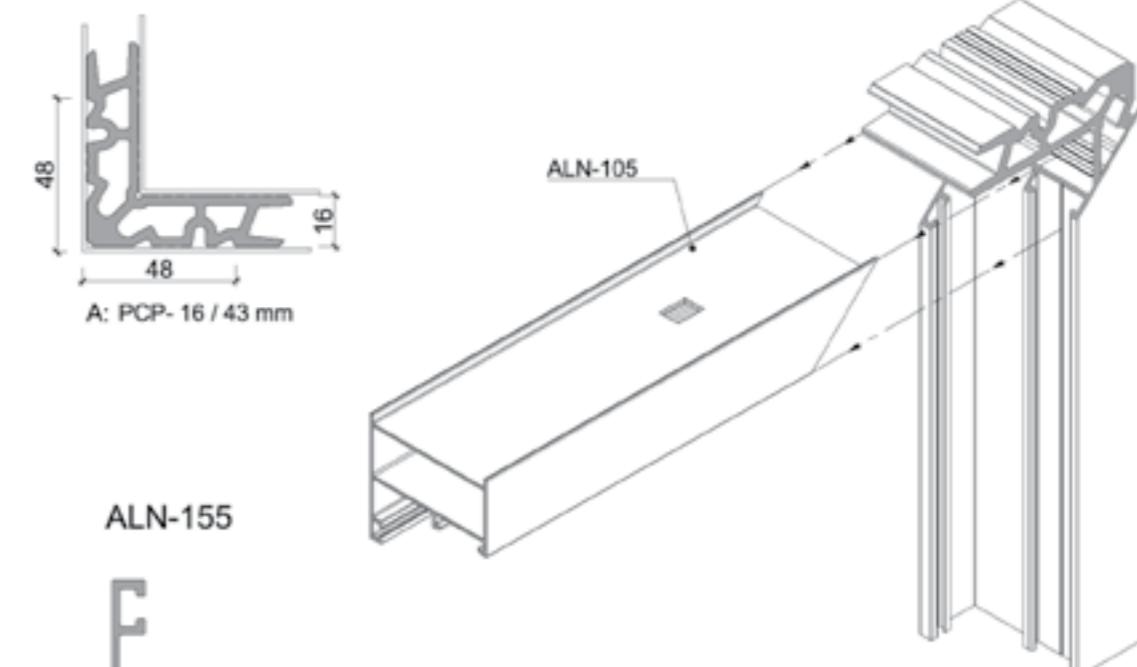
Light hinged System 45 Series  
Assembly Drawing



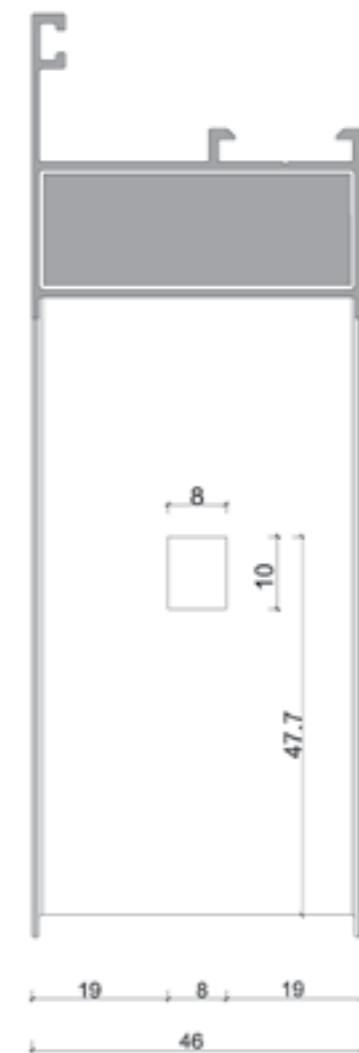
ALN-151



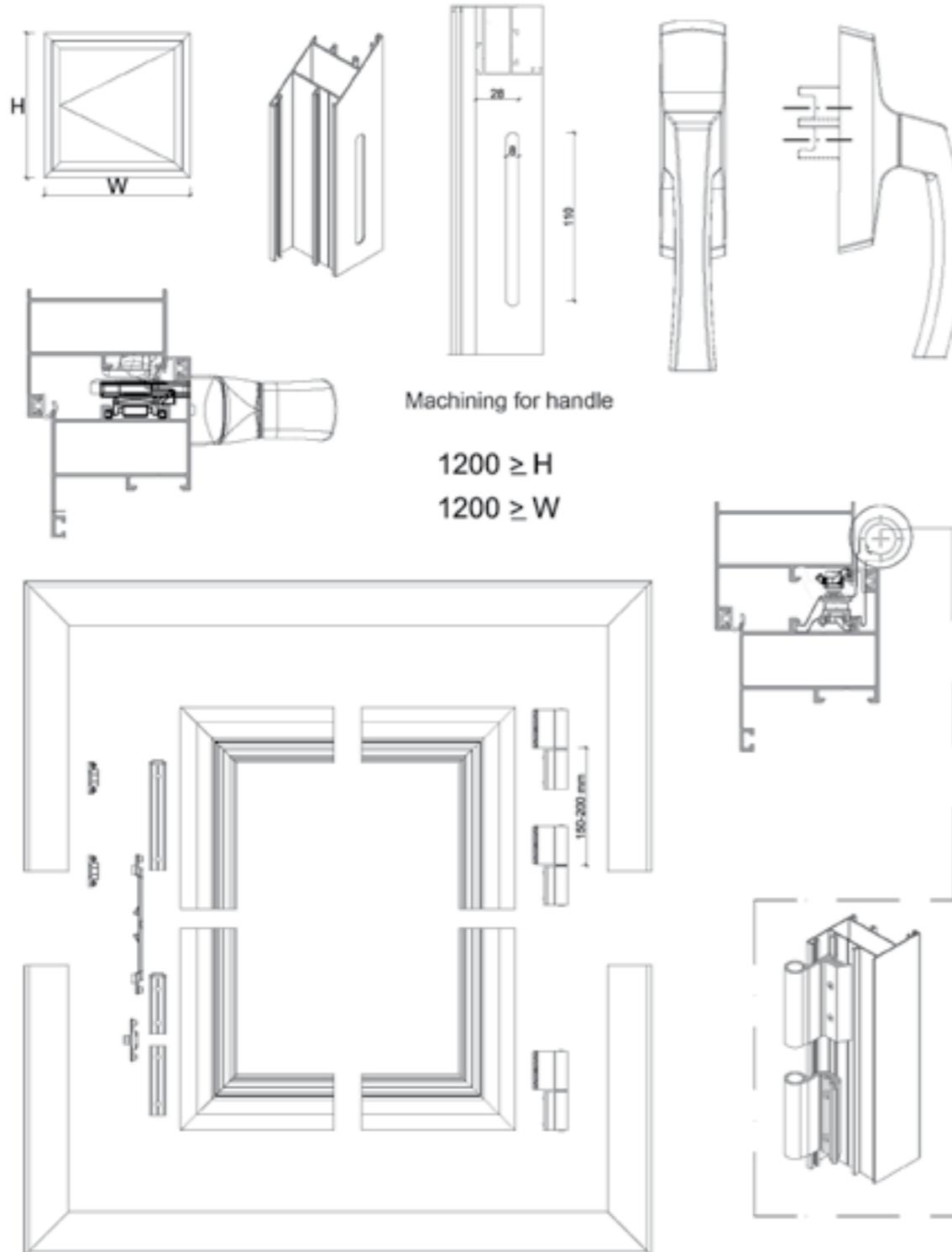
Light hinged System 45 Series  
Assembly Drawing



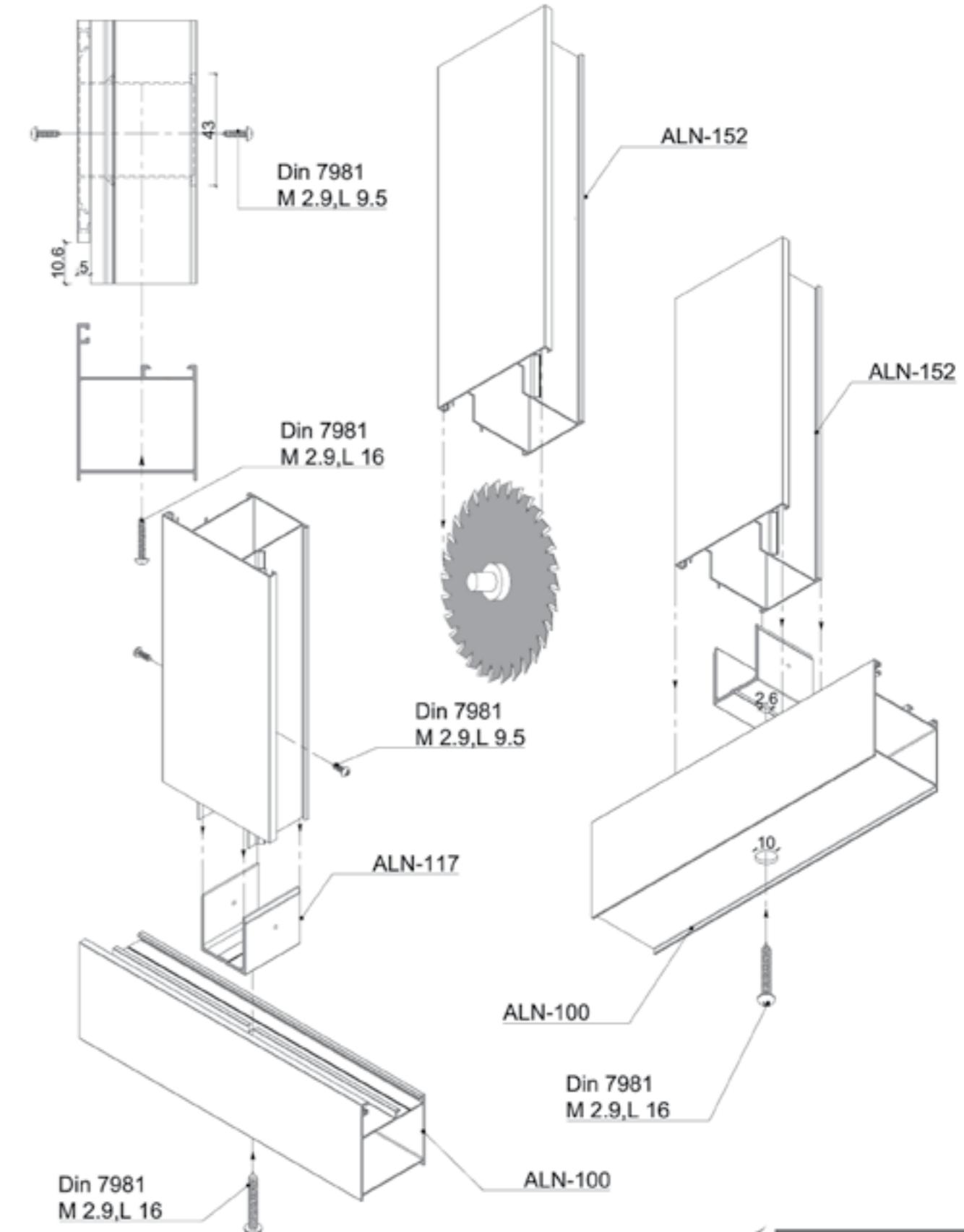
ALN-105



**Light hinged System 45 Series**  
Hardware Installation



**Light hinged System 45 Series**  
Assembly Drawing

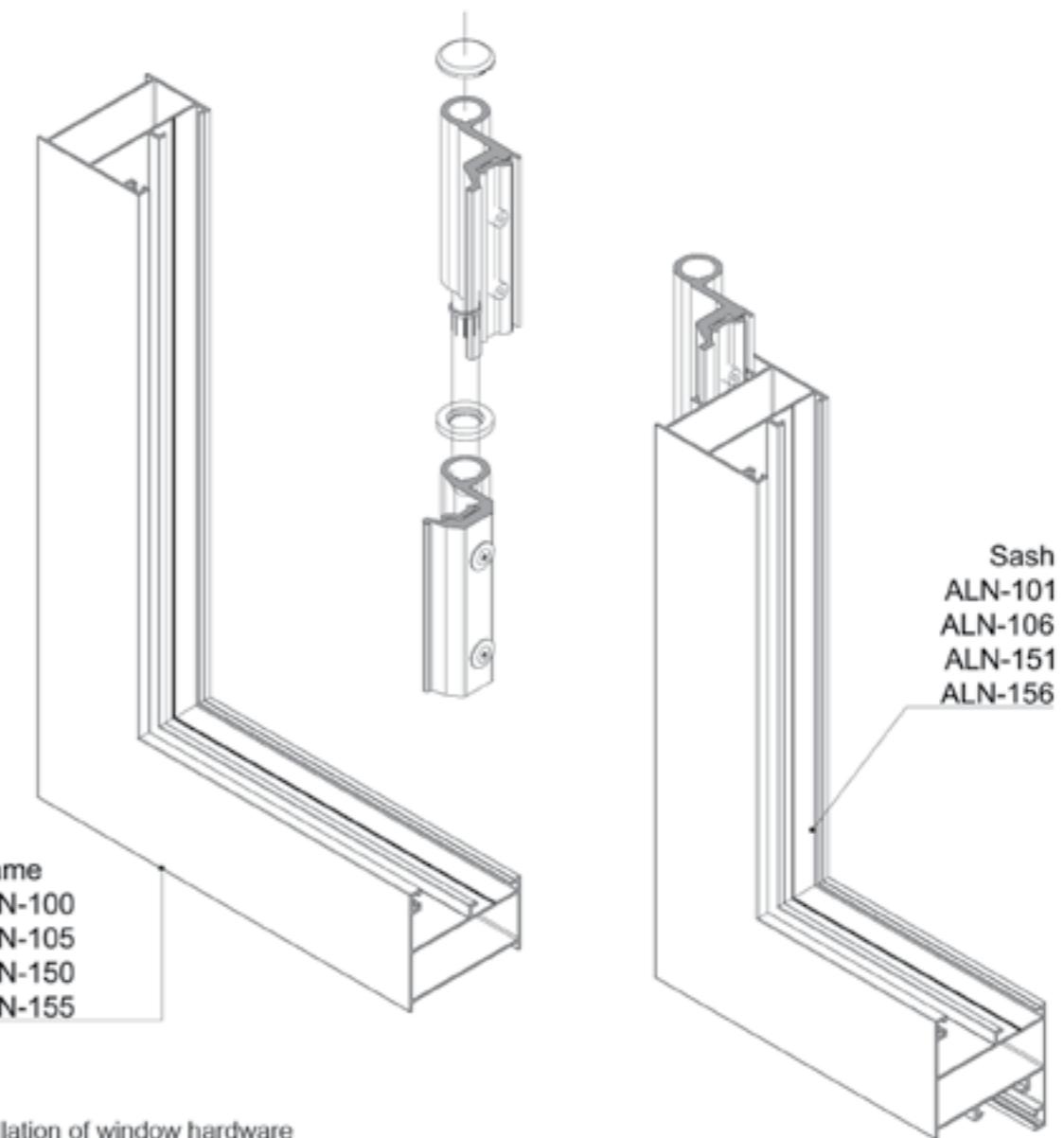
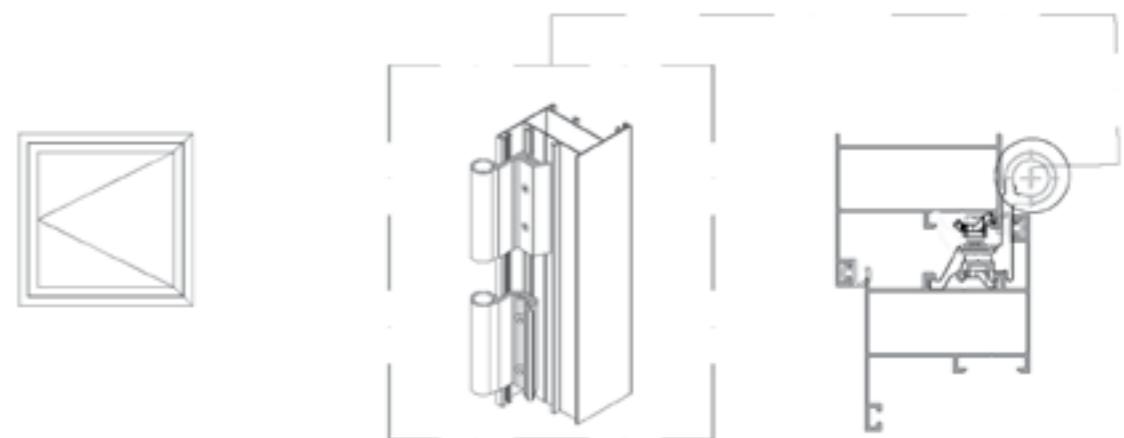




# Facade System



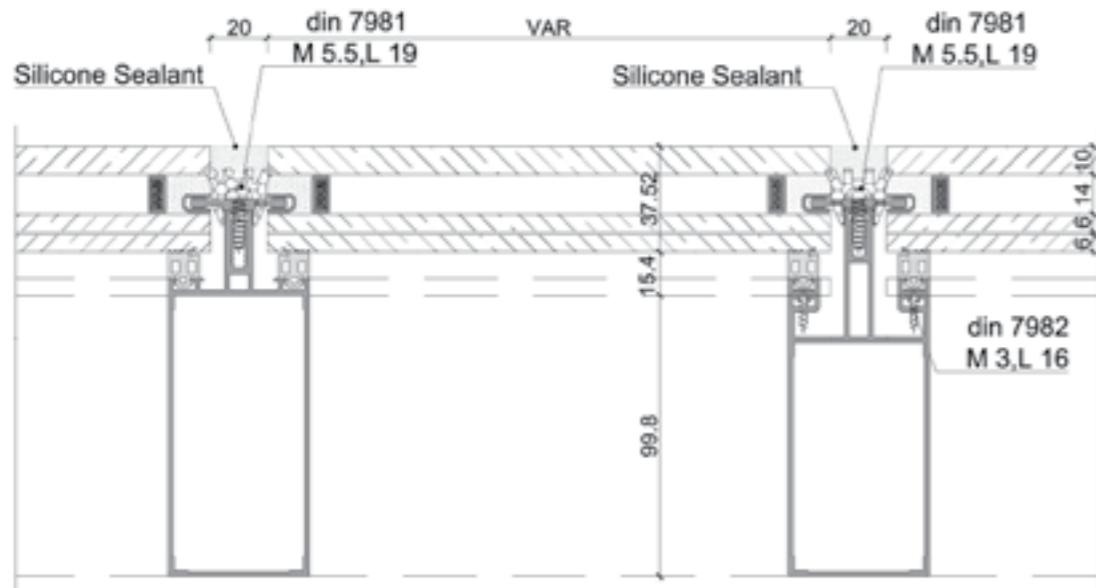
Light hinged System 45 Series  
Hardware Installation



Installation of window hardware

## SG System

Glazing table



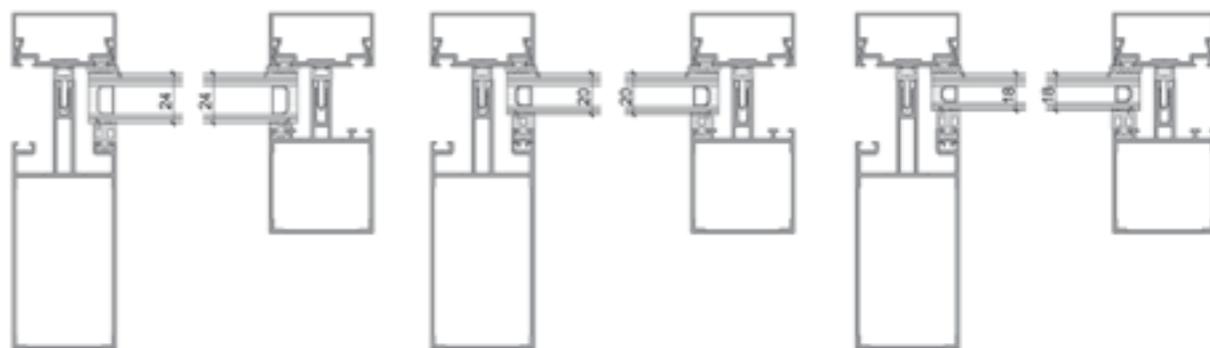
Straight Detail - Glazing Thikness 38 mm

IMAGES	DESCRIPTION	CODE
	Mullion	FCD-102
	Transom	FCD-107
	Clamp	FCD-140
	U-Channel	FCD-139
	Ledge Sealing	AK-825
	Distance Profile Mullion	FCD-136
	Glazing Gasket - Mullion	EP-005
	Glazing Gasket - Transom	EP-005

## Face Cap System

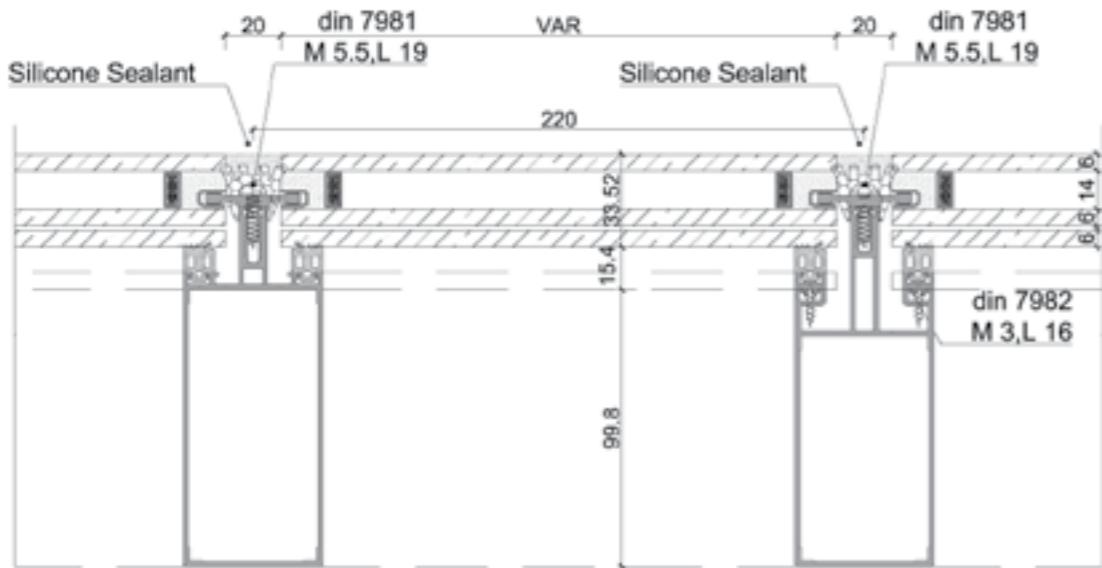
Glazing table

Glazing Thickness	34 mm	30 mm	28 mm	26 mm	24 mm	20 mm	18 mm
Gasket Pressure Plate							
Gasket Mullion							
Gasket Trunsom							
Distance Profile Mullion				-	-	-	-
Distance Profile Trunsom				-	-		
Auxiliary Profile Mullion							
Auxiliary Profile Trunsom							
Leveling Plate Trunsom							
Glass support Trunsom							



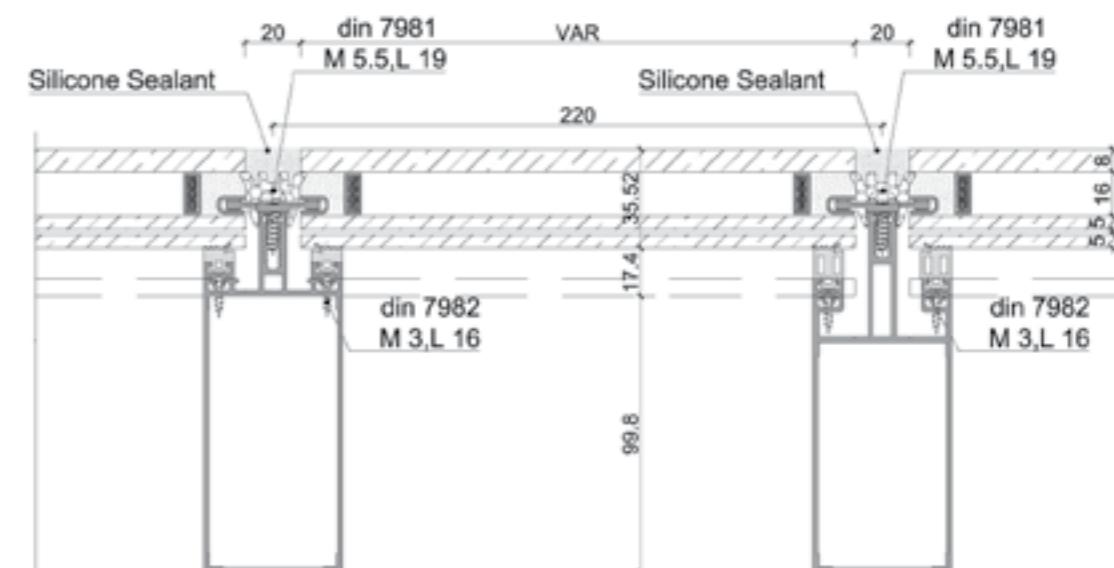
## SG System

Glazing table

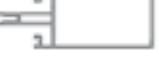


## SG System

Glazing table



### Straight Detail - Glazing Thikness 34 mm

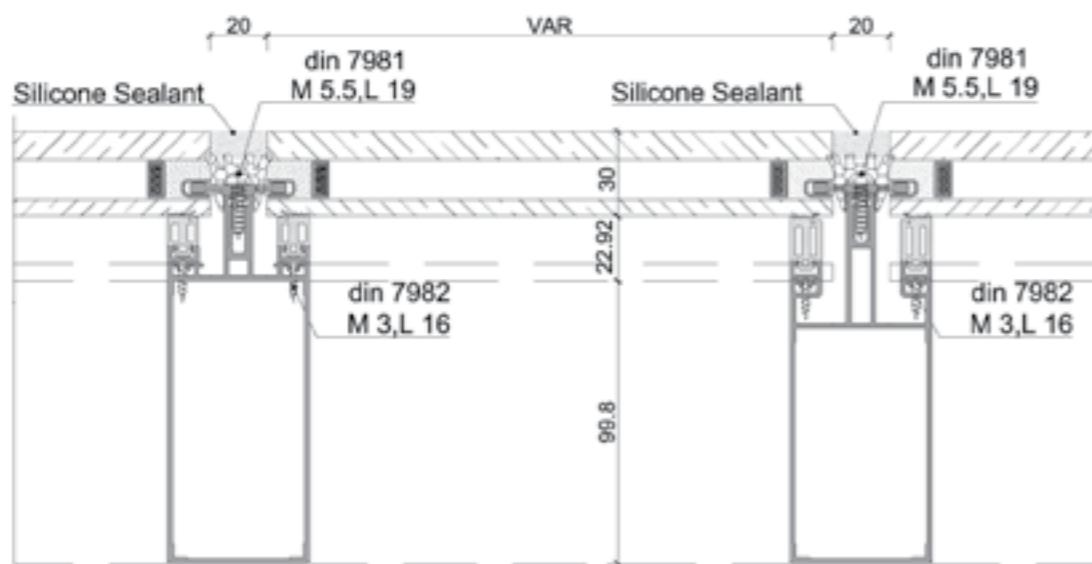
IMAGES	DESCRIPTION	CODE
	Mullion	FCD-102
	Transom	FCD-107
	Clamp	FCD-140
	U-Channel	FCD-139
	Ledge Sealing	AK-825
	Distance Profile Mullion	FCD-136
	Glazing Gasket - Mullion	EP-005
	Glazing Gasket - Transom	EP-005

### Straight Detail - Glazing Thikness 36 mm

IMAGES	DESCRIPTION	CODE
	Mullion	FCD-102
	Transom	FCD-107
	Clamp	FCD-140
	U-Channel	FCD-139
	Ledge Sealing	AK-825
	Distance Profile Mullion	FCD-136
	Glazing Gasket - Mullion	EP-003
	Glazing Gasket - Transom	EP-006

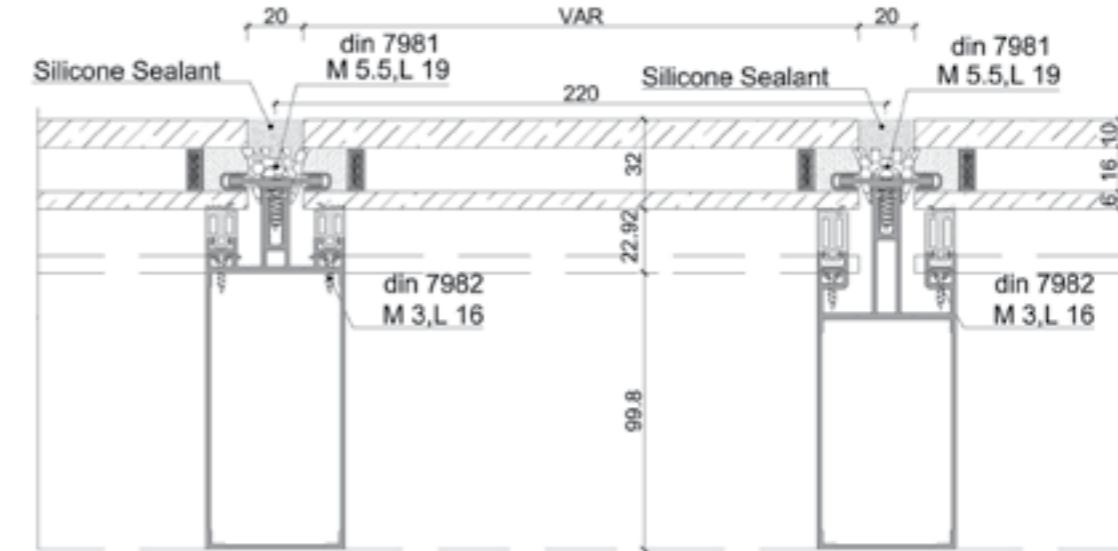
### SG System

Glazing table



### SG System

Glazing table



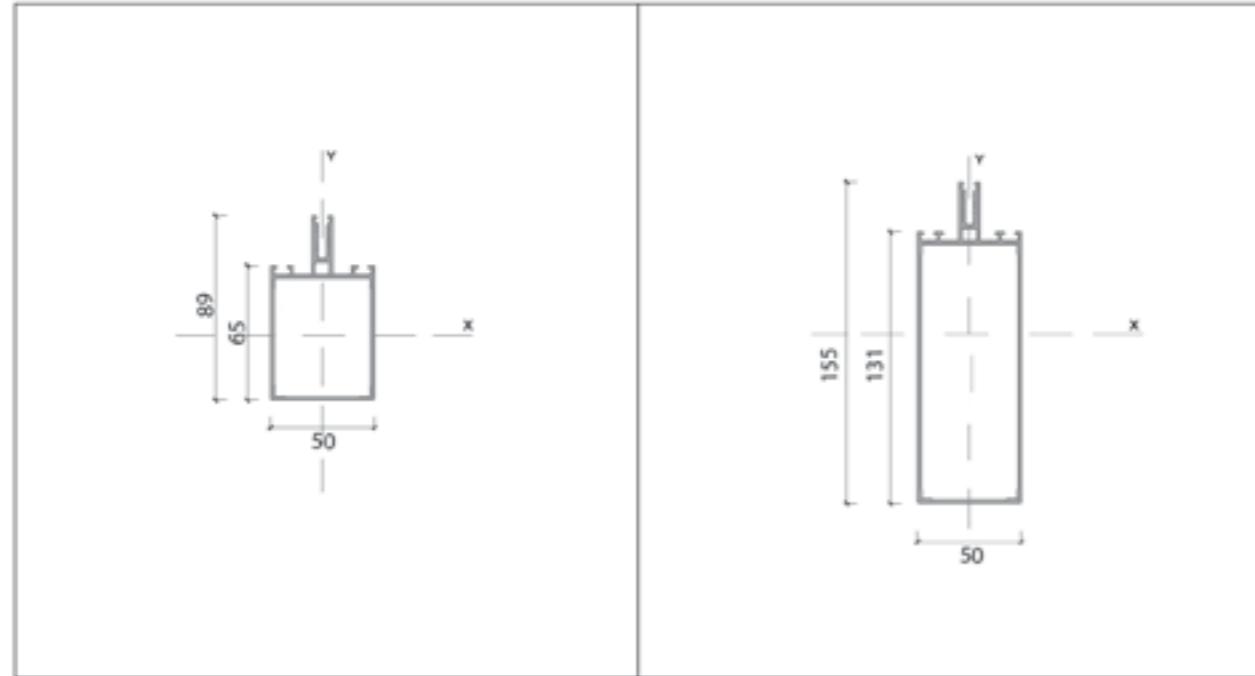
#### Straight Detail - Glazing Thickness 30 mm

IMAGES	DESCRIPTION	CODE
	Mullion	FCD-102
	Transom	FCD-107
	Clamp	FCD-140
	U-Channel	FCD-139
	Ledge Sealing	AK-825
	Distance Profile Mullion	FCD-137
	Glazing Gasket - Mullion	EP-006
	Distance Profile Transom	FCD-136
	Glazing Gasket - Transom	EP-008

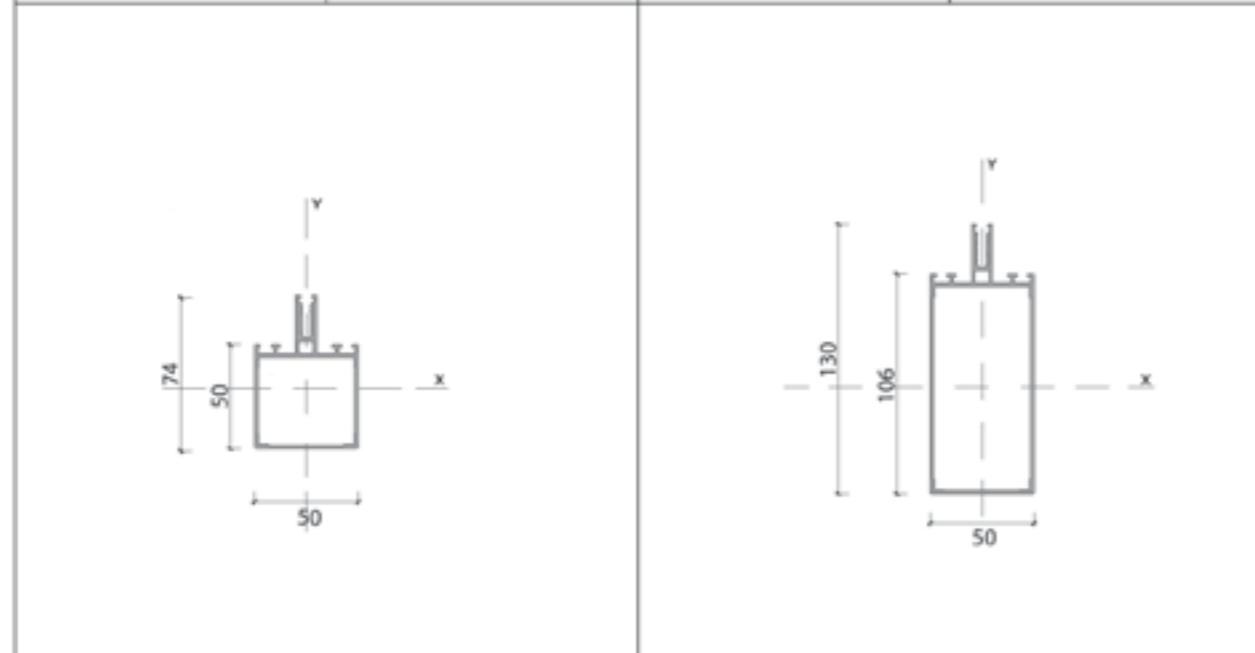
#### Straight Detail - Glazing Thickness 32 mm

IMAGES	DESCRIPTION	CODE
	Mullion	FCD-102
	Transom	FCD-107
	Clamp	FCD-140
	U-Channel	FCD-139
	Ledge Sealing	AK-825
	Distance Profile Mullion	FCD-137
	Glazing Gasket - Mullion	EP-006
	Distance Profile Transom	FCD-136
	Glazing Gasket - Transom	EP-008

Face cap, SG and Frameless Systems  
Profile & Accessories Information

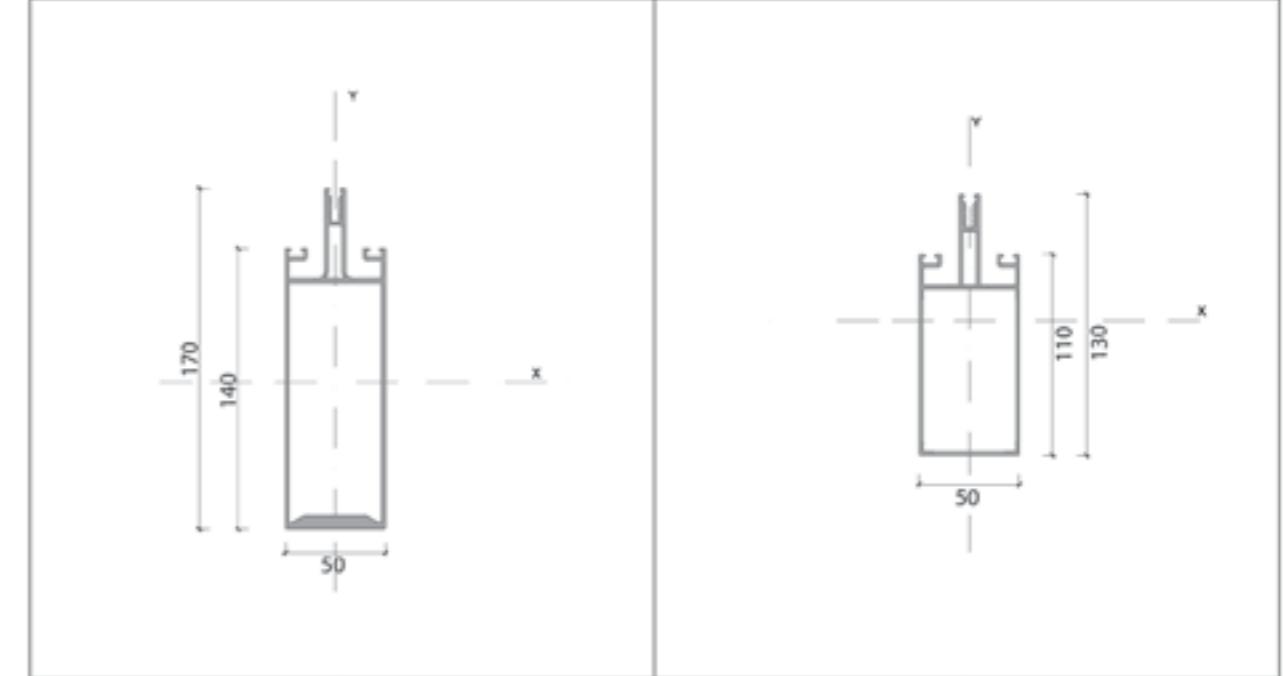


$I_x: 42.61 \text{ cm}^4$	$I_y: 16.52 \text{ cm}^4$	$I_x: 197.87 \text{ cm}^4$	$I_y: 28.89 \text{ cm}^4$
Transom: FCD-104	Weight: 1480 gr/m	Transom: FCD-106	Weight: 2049 gr/m

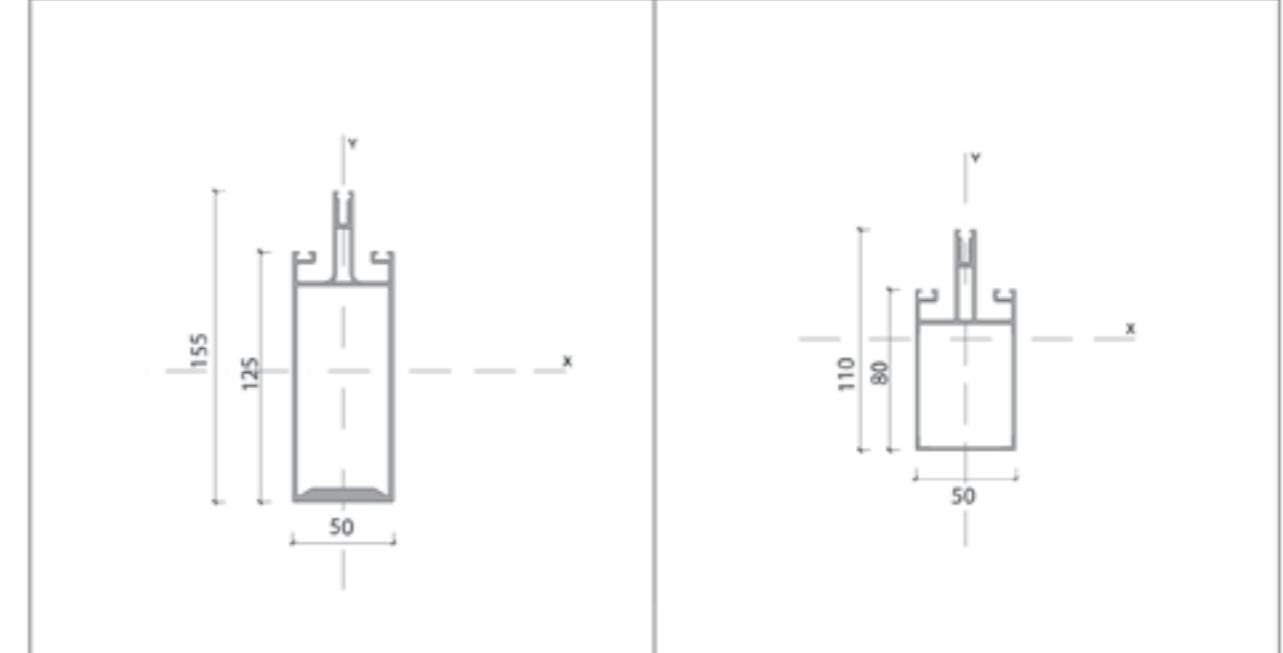


$I_x: 25.19 \text{ cm}^4$	$I_y: 13.70 \text{ cm}^4$	$I_x: 122.36 \text{ cm}^4$	$I_y: 24.20 \text{ cm}^4$
Transom: FCD-105	Weight: 1350 gr/m	Transom: FCD-107	Weight: 1833 gr/m

Face cap, SG and Frameless Systems  
Profile & Accessories Information



$I_x: 385.32 \text{ cm}^4$	$I_y: 39.79 \text{ cm}^4$	$I_x: 115.99 \text{ cm}^4$	$I_y: 24.73 \text{ cm}^4$
Mullion: FCD-100	Weight: 3156 gr/m	Mullion: FCD-102	Weight: 1998 gr/m



$I_x: 299.75 \text{ cm}^4$	$I_y: 36.33 \text{ cm}^4$	$I_x: 71.96 \text{ cm}^4$	$I_y: 20.98 \text{ cm}^4$
Mullion: FCD-101	Weight: 2994 gr/m	Mullion: FCD-103	Weight: 1825 gr/m

**Face cap, SG and Frameless Systems**  
Profile & Accessories Information

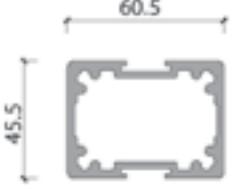
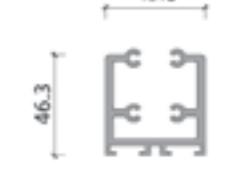
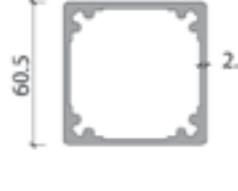
Pressure Plat : FCD-110	Weight : 516 gr/m	Cover Cap : FCD-113	Weight : 421 gr/m
Pressure Plat : FCD-111	Weight : 470 gr/m	Cover Cap : FCD-114	Weight : 340 gr/m
Cover Cap : FCD-112	Weight : 370 gr/m	Cover Cap : FCD-115	Weight : 421 gr/m

**Face cap, SG and Frameless Systems**  
Profile & Accessories Information

$I_x: 65.99 \text{ cm}^4$	$I_y: 19.33 \text{ cm}^4$	$I_x: 2.19 \text{ cm}^4$	$I_y: 3.61 \text{ cm}^4$
Transom: FCD-108		Weight: 1609 gr/m	Transom: FCD-135
		Weight: 737 gr/m	
$I_x: 108.53 \text{ cm}^4$	$I_y: 108.55 \text{ cm}^4$	Cover Cap : FCD-109	Weight : 1307 gr/m
Corner Profile : FCD-134		Weight: 2773 gr/m	

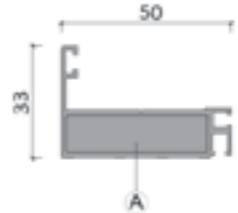
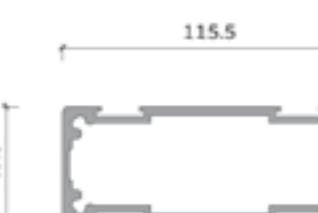
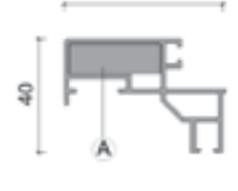
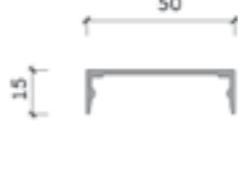
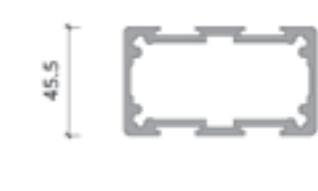
## Face cap, SG and Frameless Systems

Profile & Accessories Information

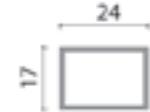
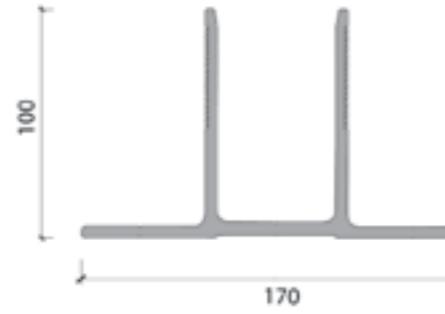
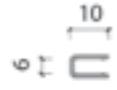
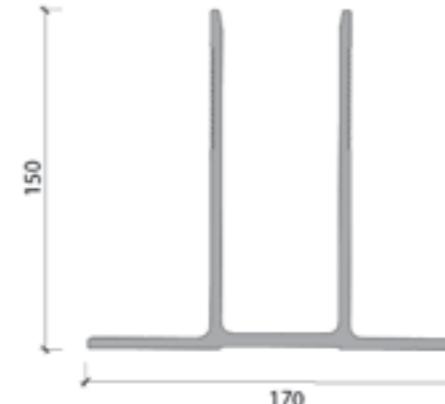
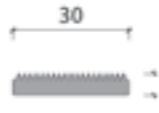
	60.5		45
Expansion Joint Profile: FCD-124	Weight : 2130 gr/m	Expansion Joint Profile: FCD 127	Weight: 1590 gr/m
	45.6		45.50
Expansion Joint Profile : FCD-125	Weight : 1785 gr/m	Expansion Joint Profile: FCD 128	Weight: 1393 gr/m
	2.5		6.5
Expansion Joint Profile : FCD-126	Weight : 2165 gr/m	Connector Real Profile: FCD 129	Weight: 378 gr/m

## Face cap, SG and Frameless Systems

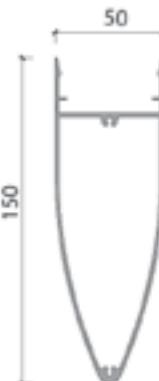
Profile & Accessories Information

	50		115.5
Ventilation: FCD-116	A: PCP-10/40.7 mm	Weight : 624 gr/m	Expansion Joint Profile : FCD-121
Weight : 880 gr/m			Weight : 3119 gr/m
	55		100.5
Ventilation: FCD-117	A: PCP-10/31.2 mm	Weight : 880 gr/m	Expansion Joint Profile : FCD-122
Weight : 2835 gr/m			Weight : 2457 gr/m
	50		80.5
Cover Cap : FCD-118	Weight : 329 gr/m	Expansion Joint Profile : FCD-123	Weight : 2457 gr/m

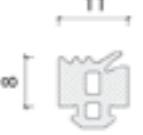
Face cap, SG and Frameless Systems  
Profile & Accessories Information

			
Profile : FCD-138	Weight : 211 gr/m	Profile : FCD-141	Weight : 4860 gr/m
			
U-Channel : FCD-139	Weight : 62 gr/m	Profile : FCD-142	Weight : 6210 gr/m
			
Clamp: FCD-140	Weight : 191 gr/m	Profile : FCD-143	Weight : 378

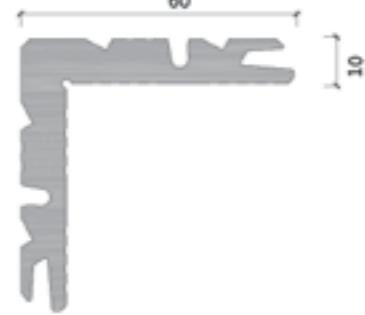
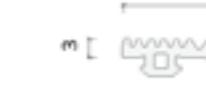
Face cap, SG and Frameless Systems  
Profile & Accessories Information

			
Angular Expansion Joint Profile: FCD-130	Weight : 1670 gr/m	Cover Cap : FCD-133	Weight : 1671 gr/m
			
Cover Cap : FCD-131	Weight : 1264 gr/m	Adaptor: FCD-136	Weight: 97 gr/m
			
Cover Cap : FCD-132	Weight : 1636 gr/m	Adaptor: FCD-137	Weight: 104 gr/m

**Face cap, SG and Frameless Systems**  
Profile & Accessories Information

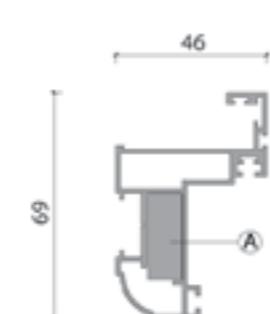
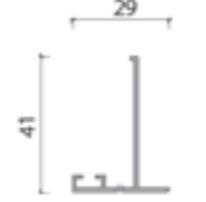
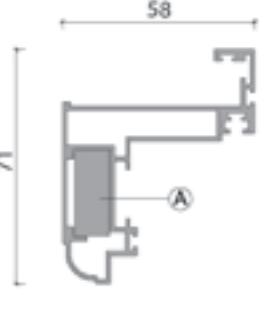
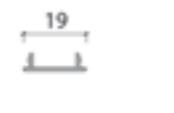
	11		11
Gasket: EP-003	Weight: 91 gr/m	Gasket: EP-006	Weight: 137gr/m
	11		11
Gasket: EP-004	Weight: 109 gr/m	Gasket: EP-008	Weight: 153 gr/m
	11		8
Gasket: EP-005	Weight: 121 gr/m	Gasket: EP-018	Weight: 27 gr/m

**Face cap, SG and Frameless Systems**  
Profile & Accessories Information

	33		60
Glass support: FCD-144	Weight: 232 gr/m	Corner: PCP-10	Weight: 2454 gr/m
	45		15
Glass support: FCD-145	Weight: 292 gr/m	Gasket: EP-001	Weight: 66 gr/m
	118		11
Profile: FCD-146	Weight: 1336 gr/m	Gasket: EP-002	Weight: 60 gr/m

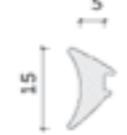
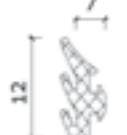
## Face cap, SG and Frameless Systems

Profile & Accessories Information

			
Profile : FCD-150	A: PCP-11/25.7 mm	Profile : FCD-153	A: PCP-11/25.7 mm
Weight : 1156 gr/m		Weight : 969 gr/m	
			
			
Profile : FCD-151	A: PCP-11/25.7 mm	Profile : FCD-154	Weight : 265 gr/m
Weight : 1021 gr/m			
			
			
Profile : FCD-152	A: PCP-11/25.7 mm	Profile : FCD-155	Weight : 86 gr/m
Weight : 1102 gr/m			

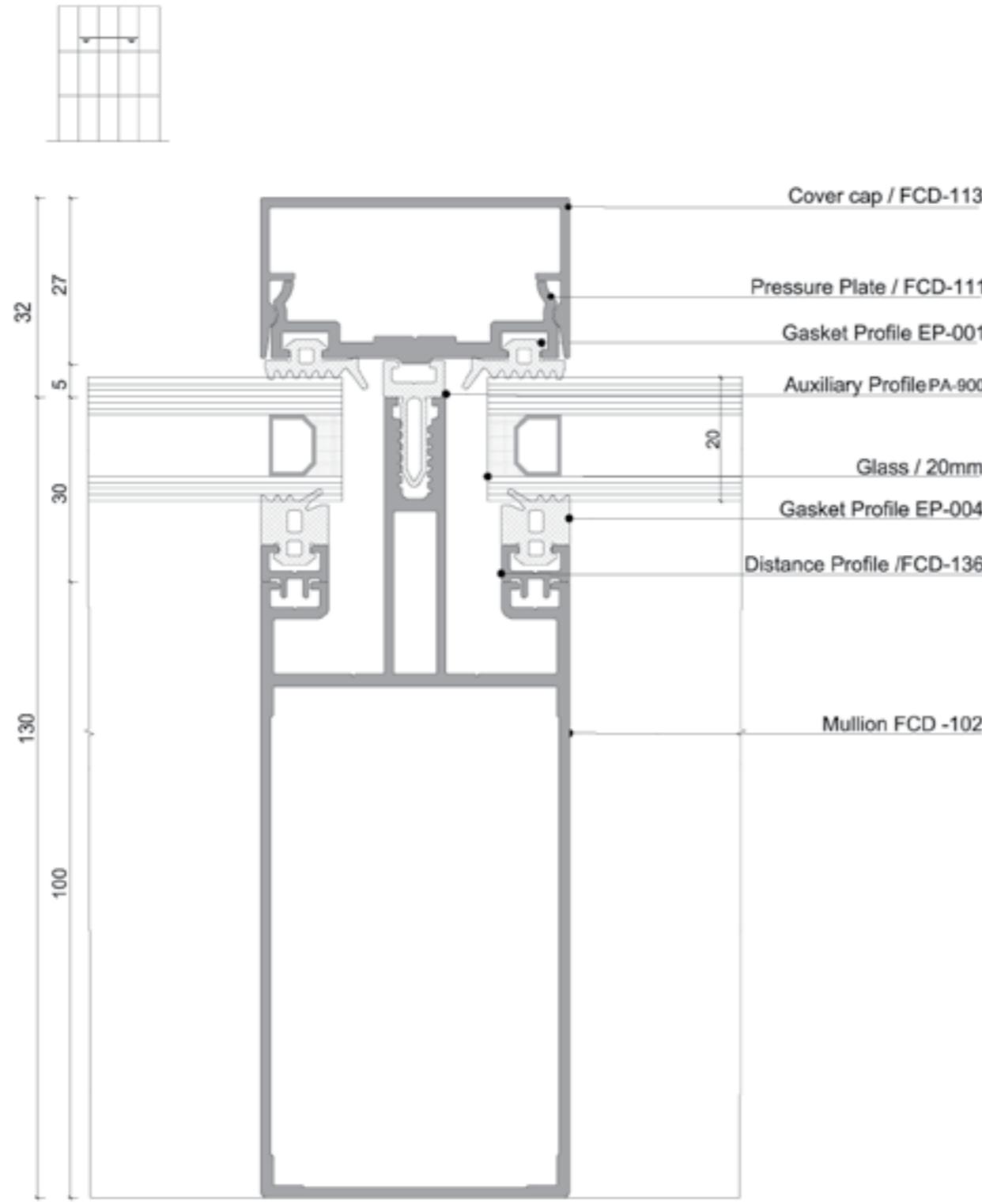
## Face cap, SG and Frameless Systems

Profile & Accessories Information

			
Gasket: EP-016	Weight : 77 gr/m	Polyamide: PA-902	Weight: 105gr/m
			
			
Gasket: MO68	Weight: 46 gr/m	Polyamide : PA-905	Weight: 164 gr/m
			
			
Polyamide: PA-900	Weight: 78 gr/m	Polyamide: PA-906	Weight: 172 gr/m

Face cap, SG and Frameless Systems  
Fabrication Details

Vertical Section

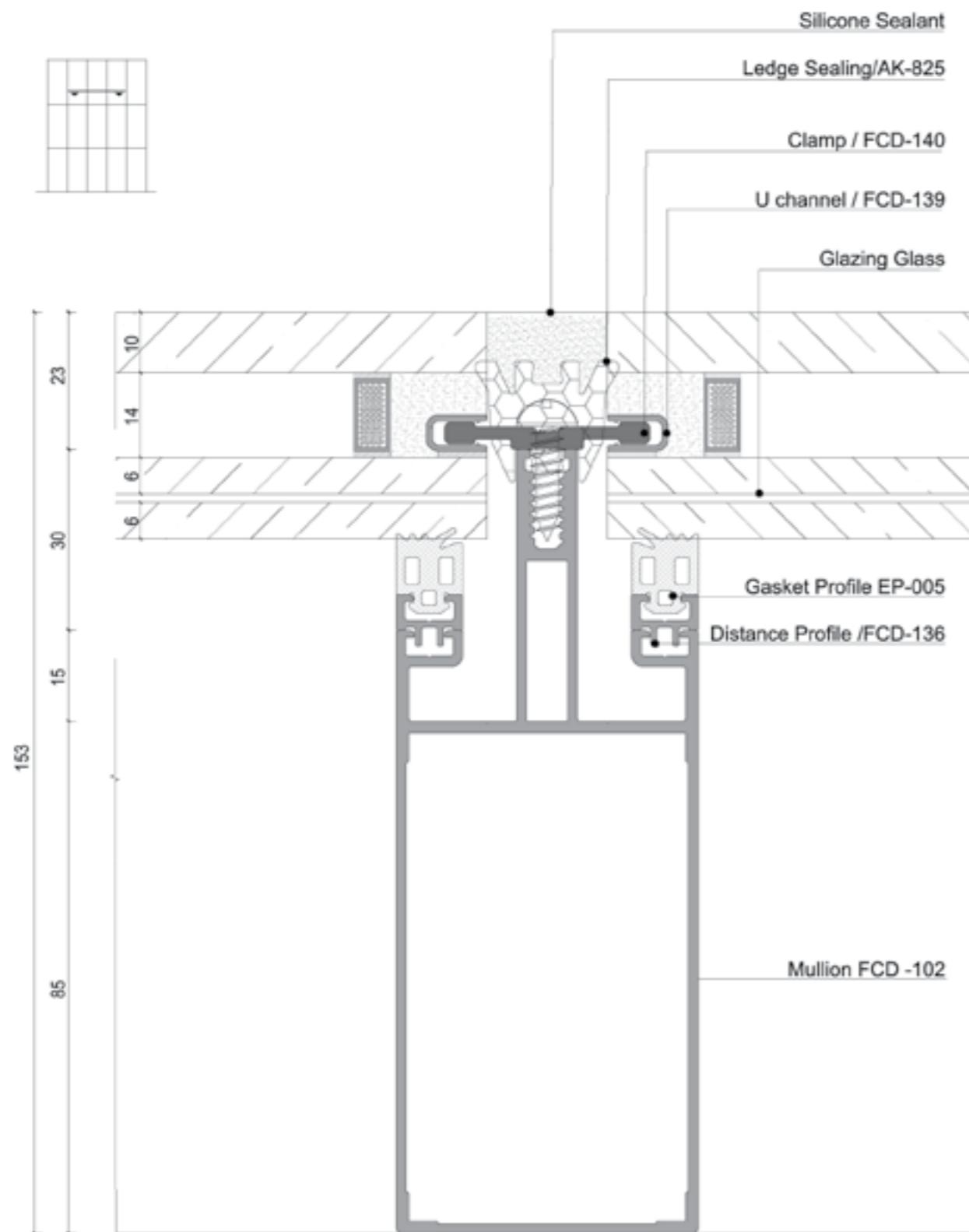


Face cap, SG and Frameless Systems  
Profile & Accessories Information

Profile : FCD-156	Weight : 556 gm/m	Corner Joint: PCP11	Weight: 2549 gm/m
Profile : FCD-157	Weight : 265 gm/m	Leveling Plat : AK-P04	Weight: -
Profile : ALN-331	Weight : 141 gm/m	Leveling Plat : AK-P08	Weight: -

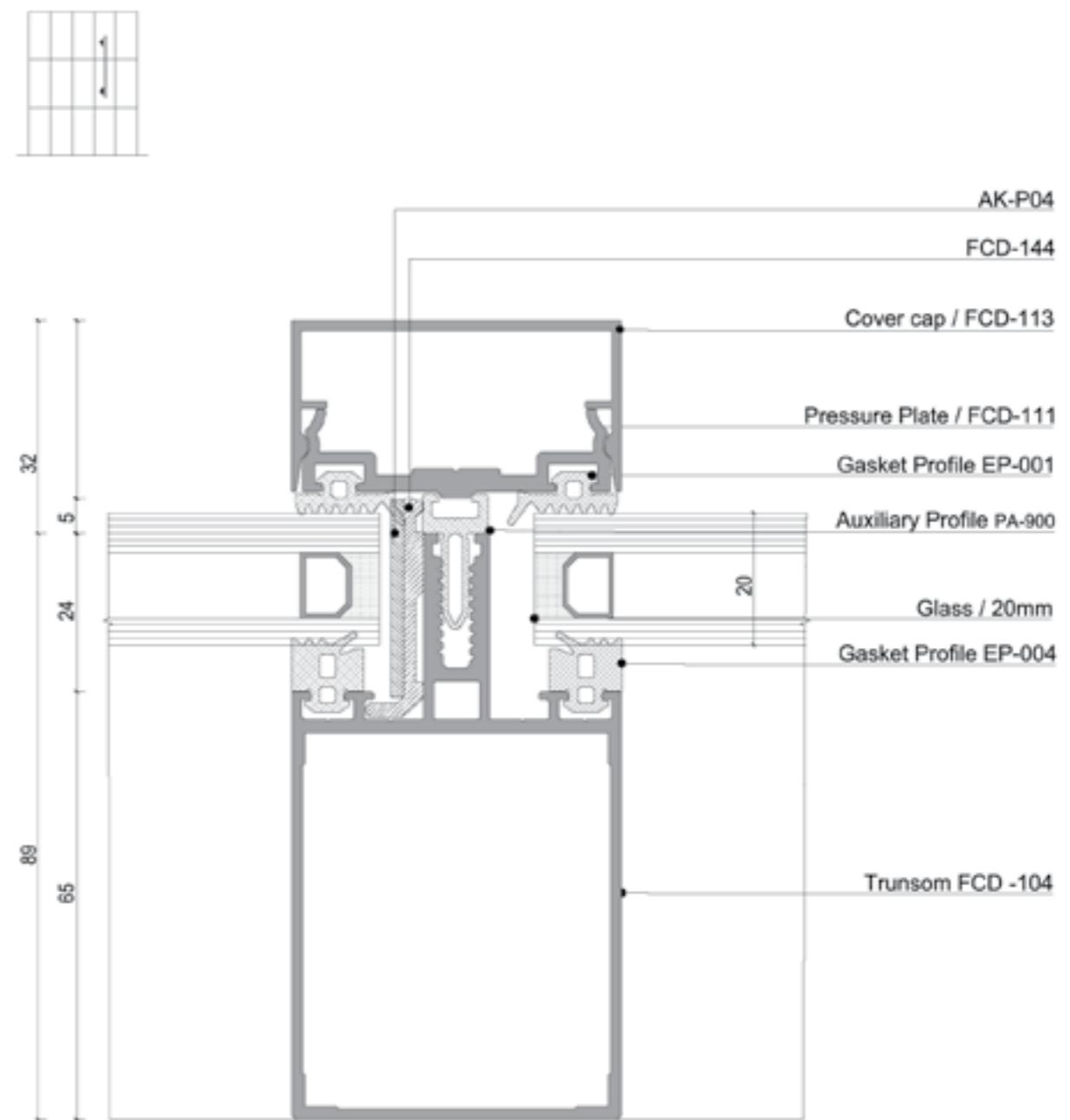
**Face cap, SG and Frameless Systems**  
Fabrication Details

Vertical Section

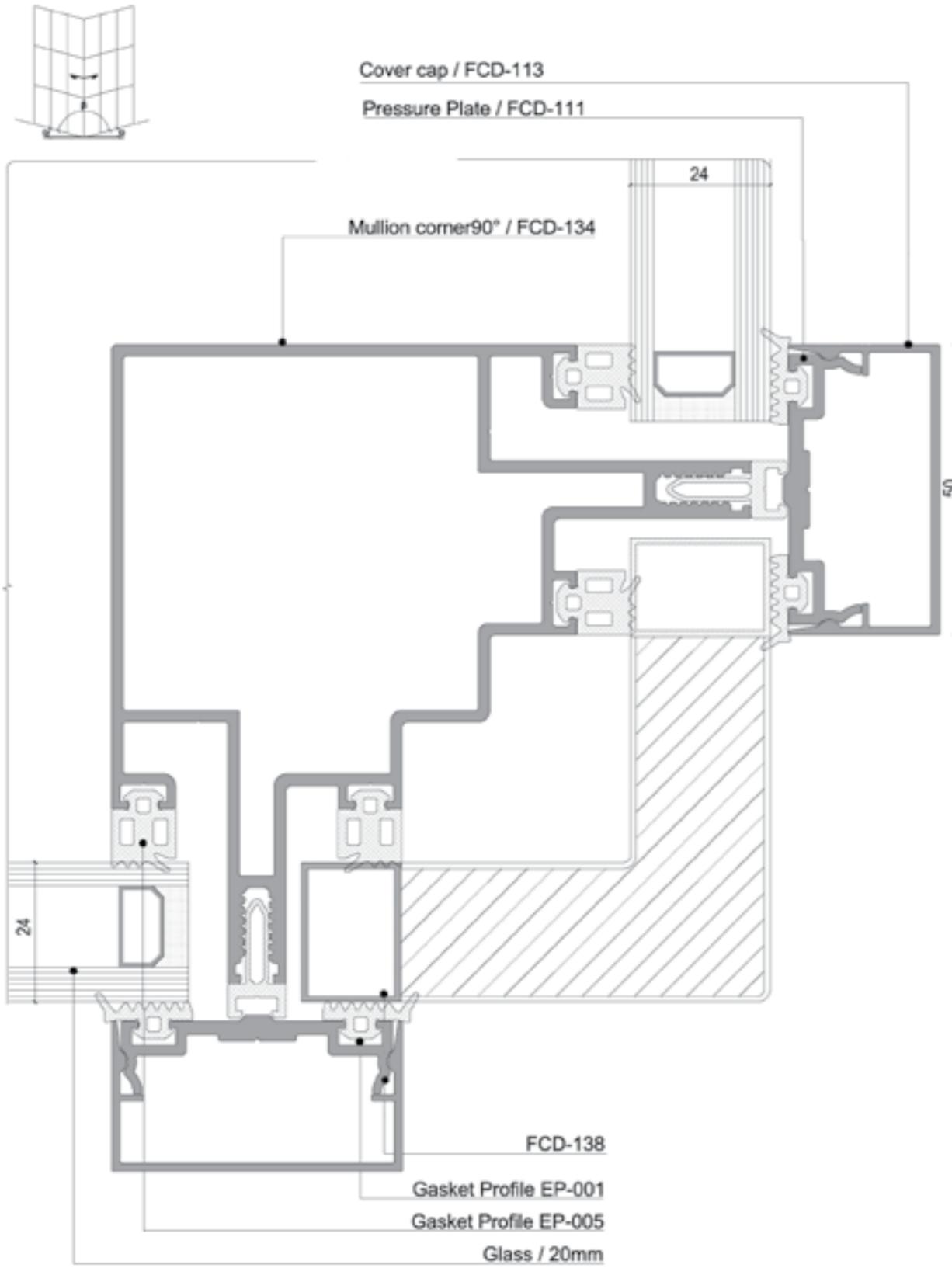


**Face cap, SG and Frameless Systems**  
Fabrication Details

Horizontal Section

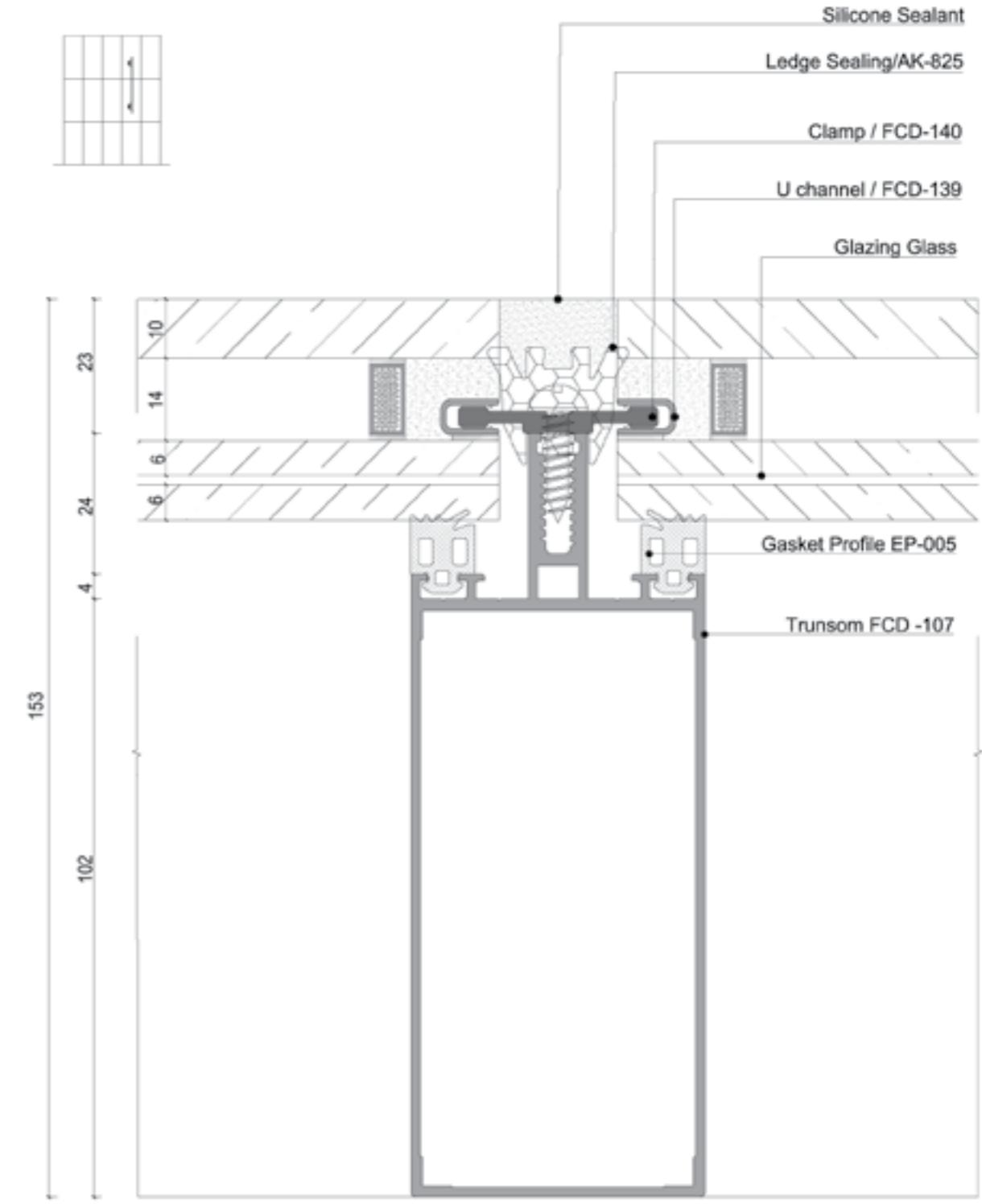


Face cap, SG and Frameless Systems  
Fabrication Details



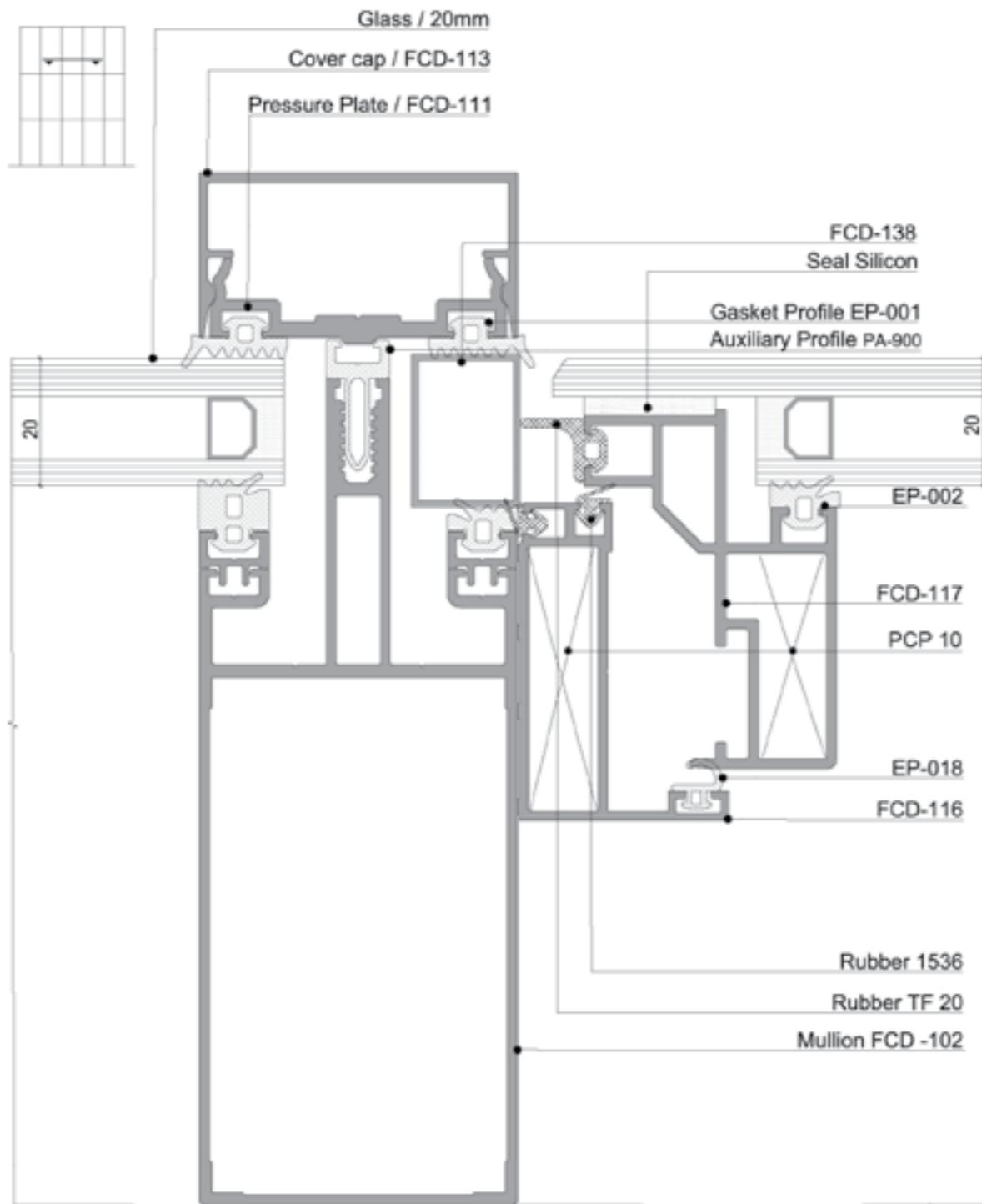
Face cap, SG and Frameless Systems  
Fabrication Details

Horizontal Section

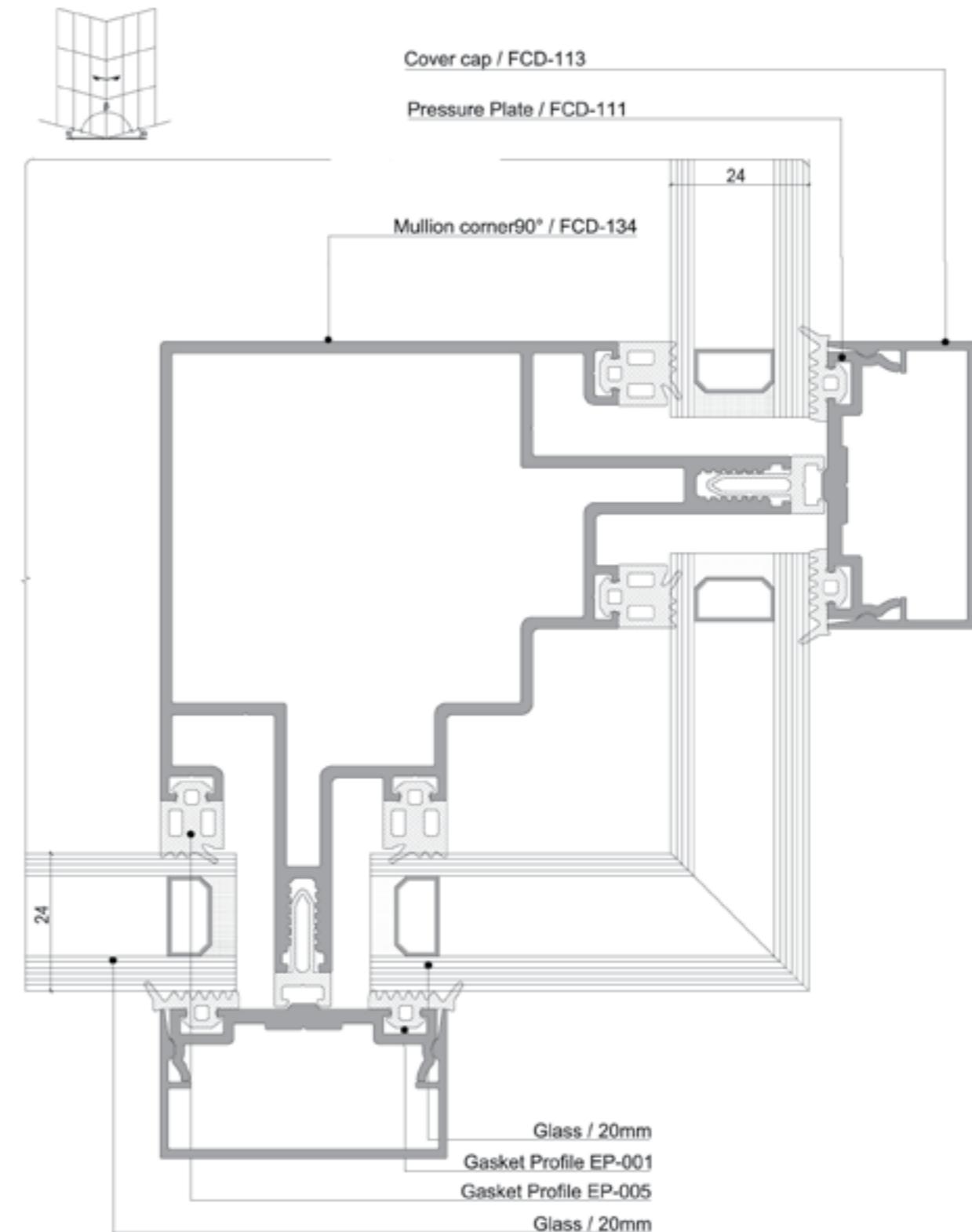


**Face cap, SG and Frameless Systems**  
Fabrication Details

**Vertical Section  
Oppening System**

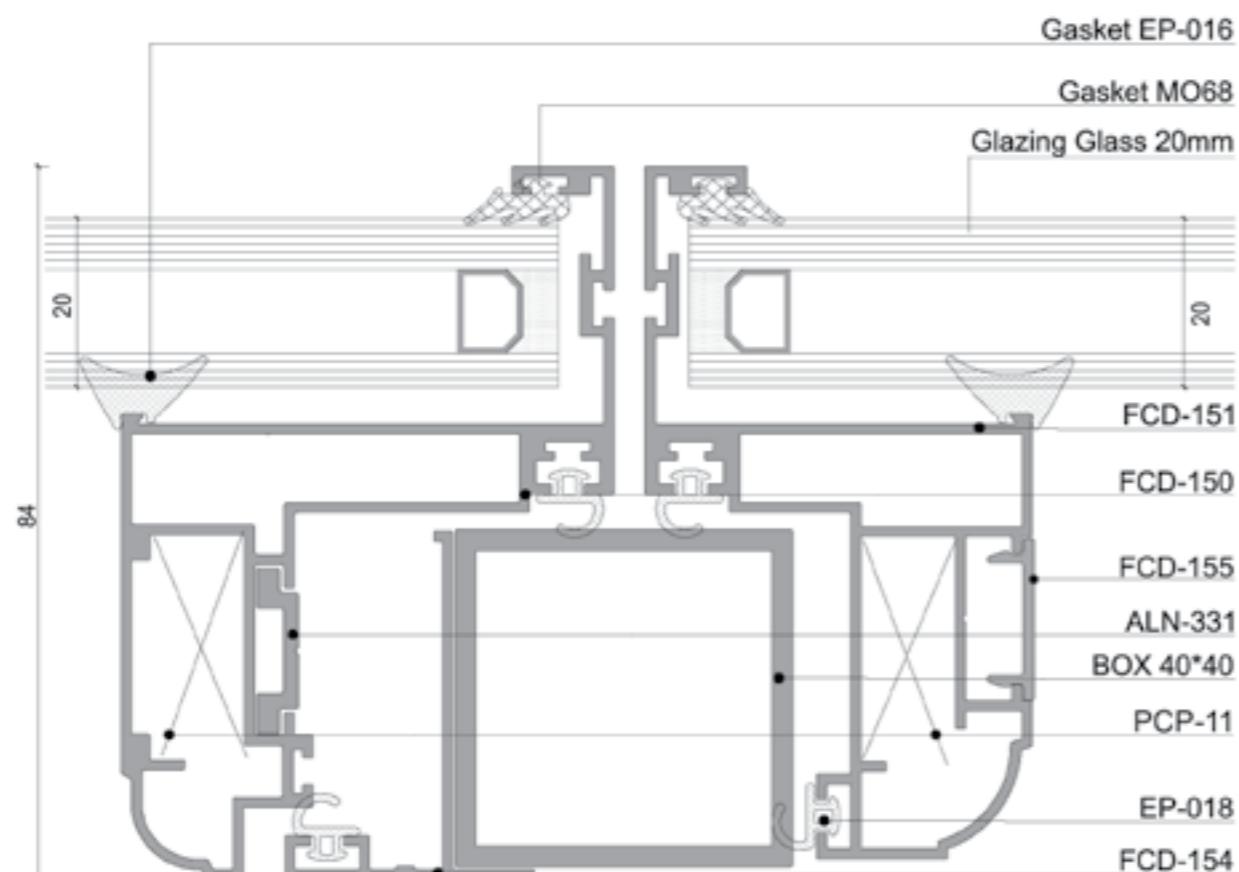


**Face cap, SG and Frameless Systems**  
Fabrication Details



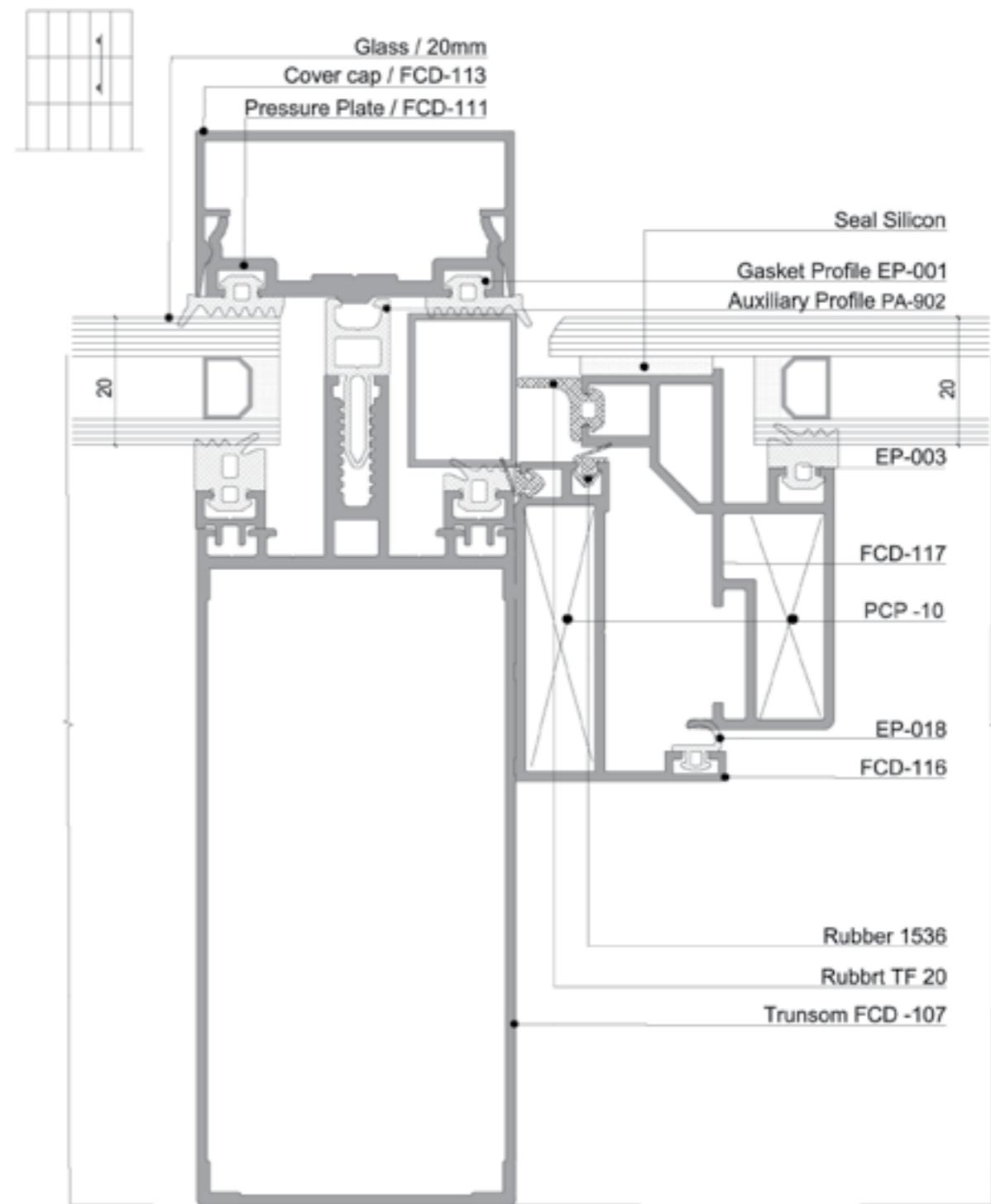
Face cap, SG and Frameless System  
Fabrication Details

Oppening Section



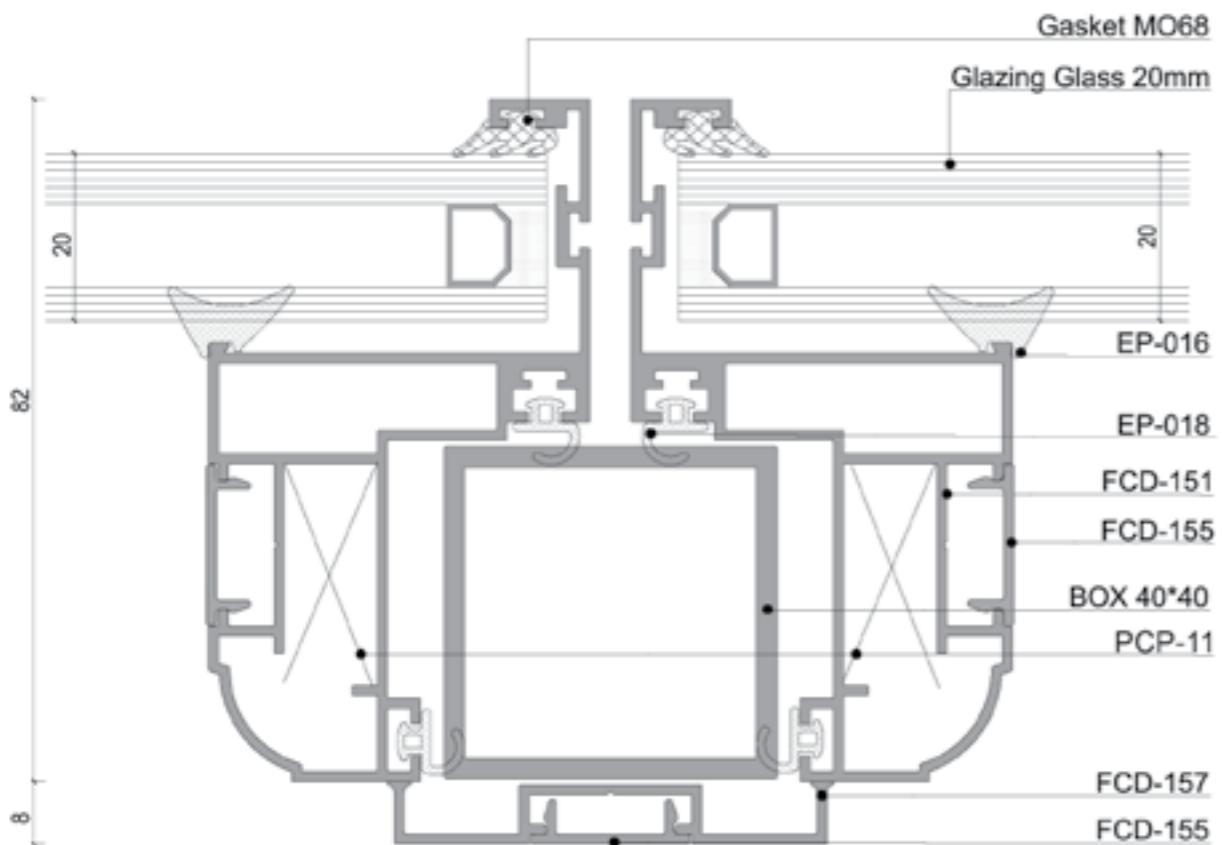
Face cap, SG and Frameless Systems  
Fabrication Details

Horizontal Section  
Oppening System



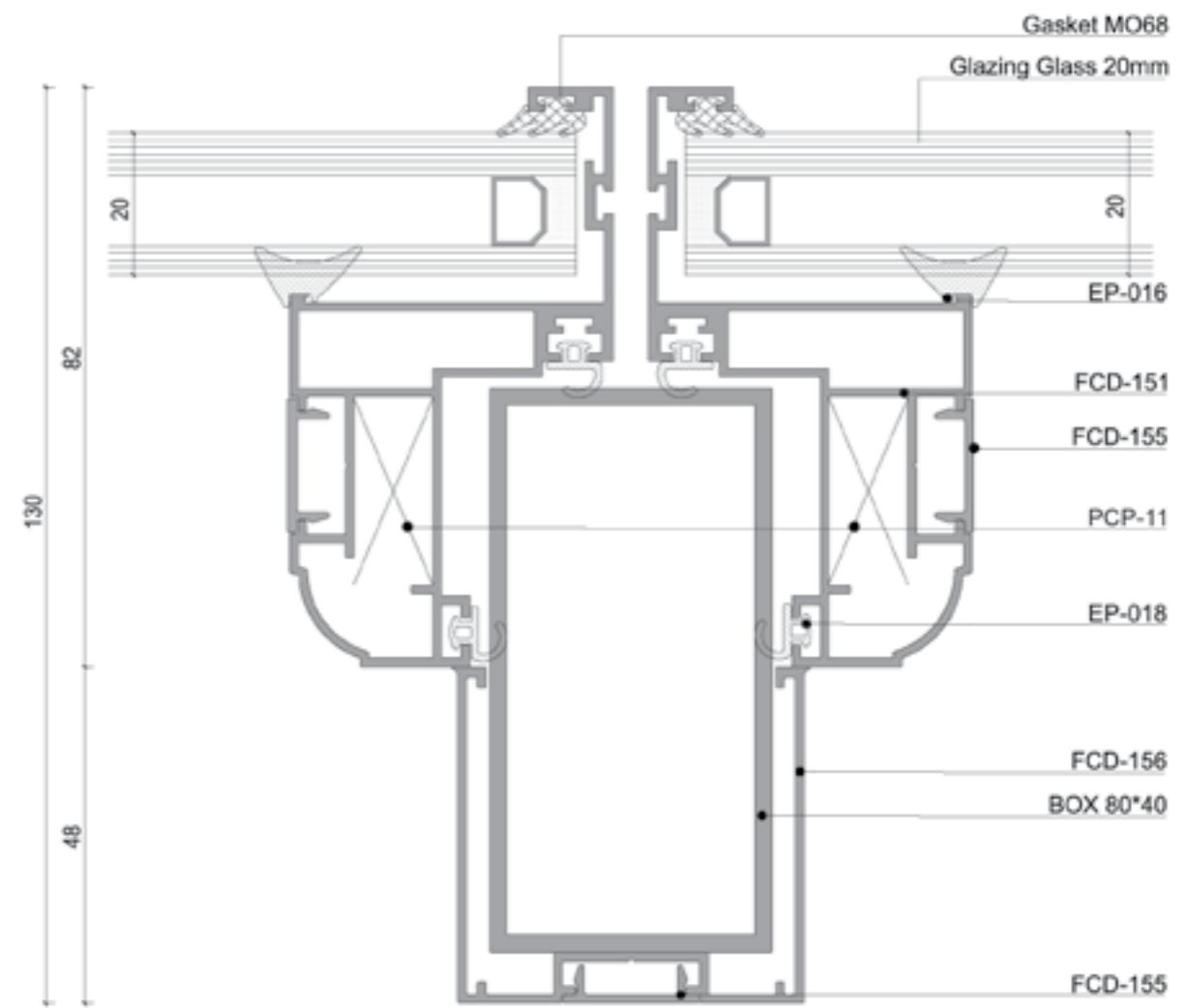
## Face cap, SG and Frameless System Fabrication Details

## Fixed Section



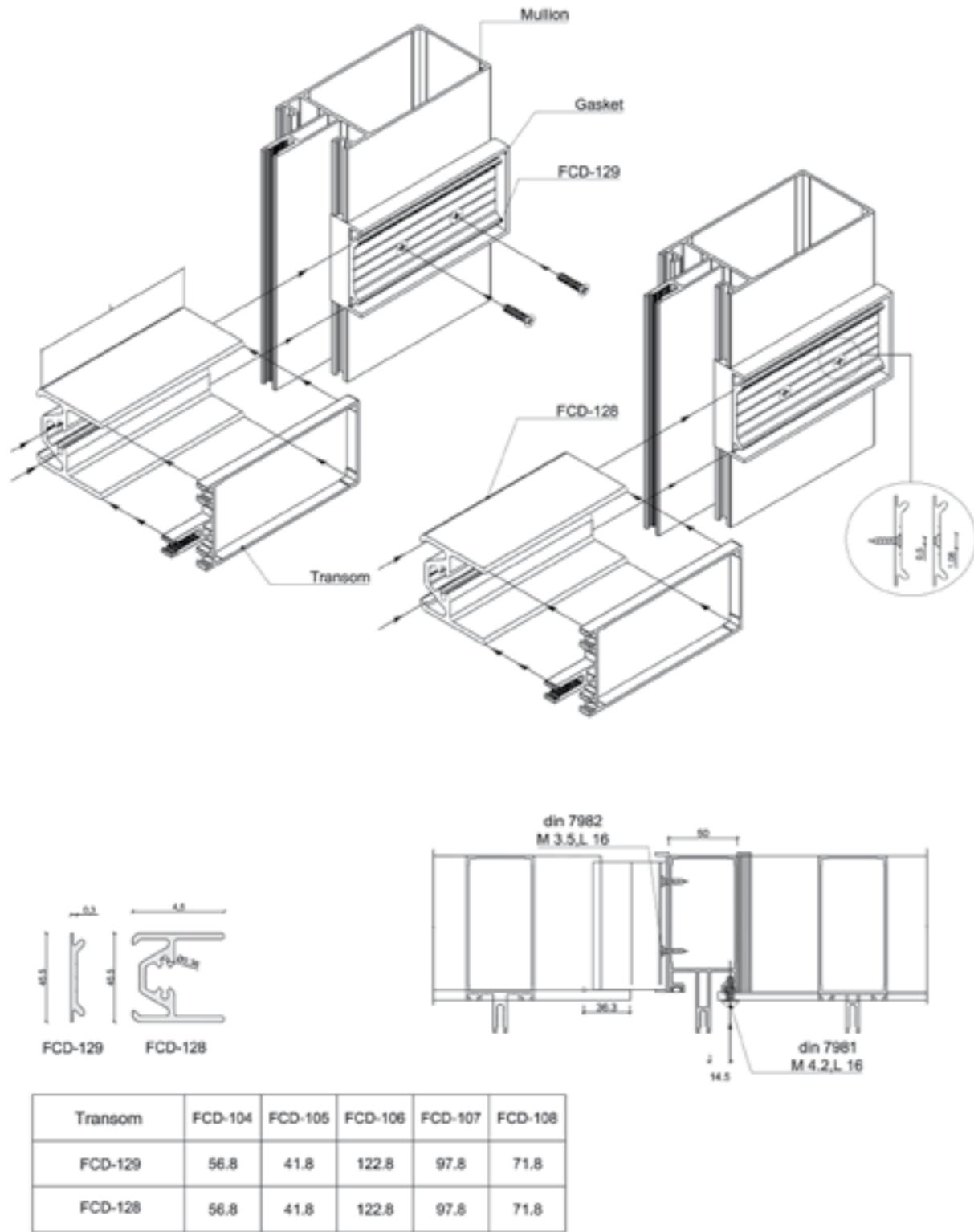
## Face cap, SG and Frameless System Fabrication Details

## Fixed Section



Face cap, SG and Frameless System  
Assembly Drawing

Mullion and Transom jointing elements, Type C1



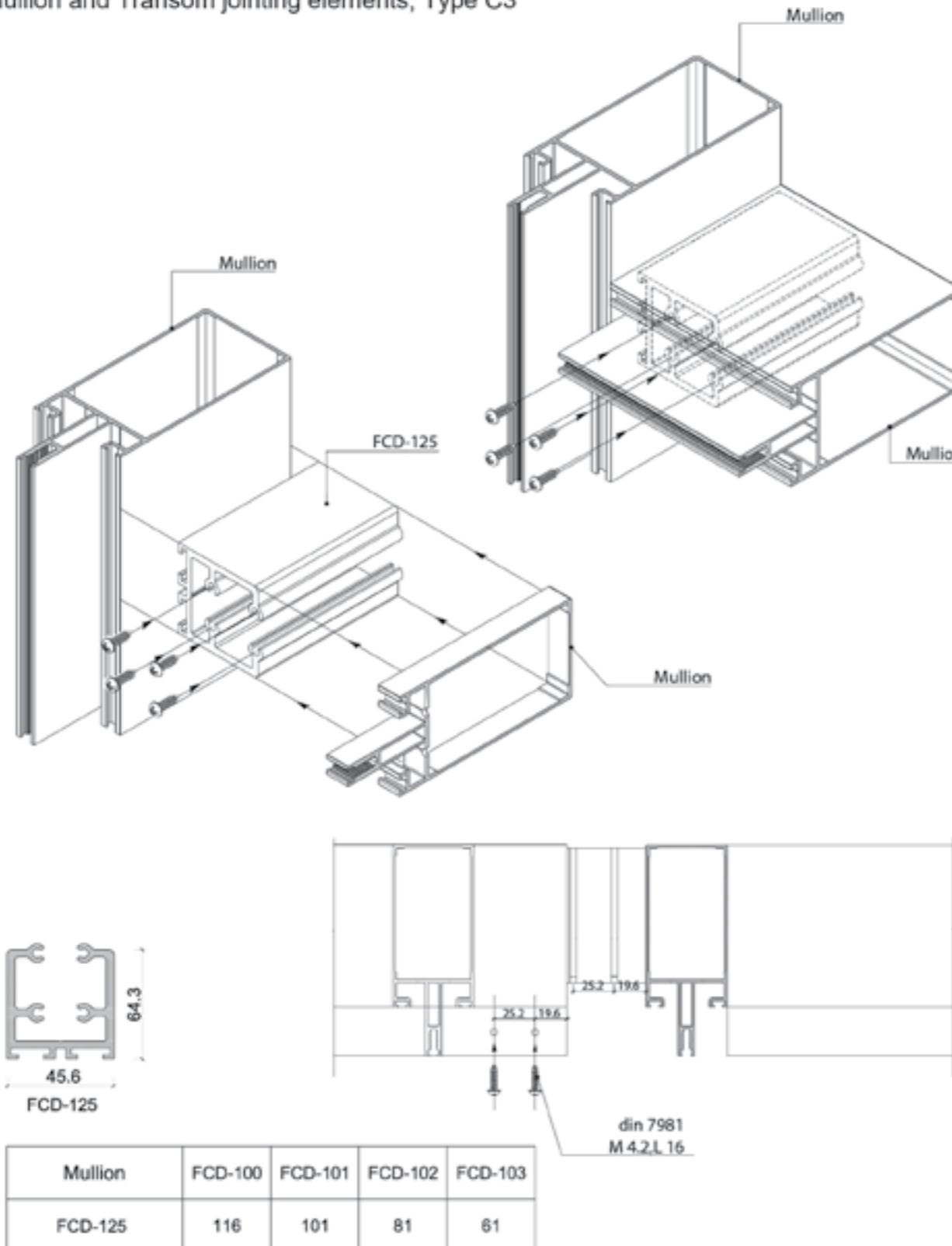
Face cap, SG and Frameless System

**Mullion and Expansion Joint Profile**

IMAGES	DESCRIPTION Mullion	IMAGES	DESCRIPTION Expansion Joint Profile
	FCD-100		FCD-121
	FCD-101		FCD-122
	FCD-102		FCD-123
	FCD-103		FCD-124
	FCD-134		FCD-126

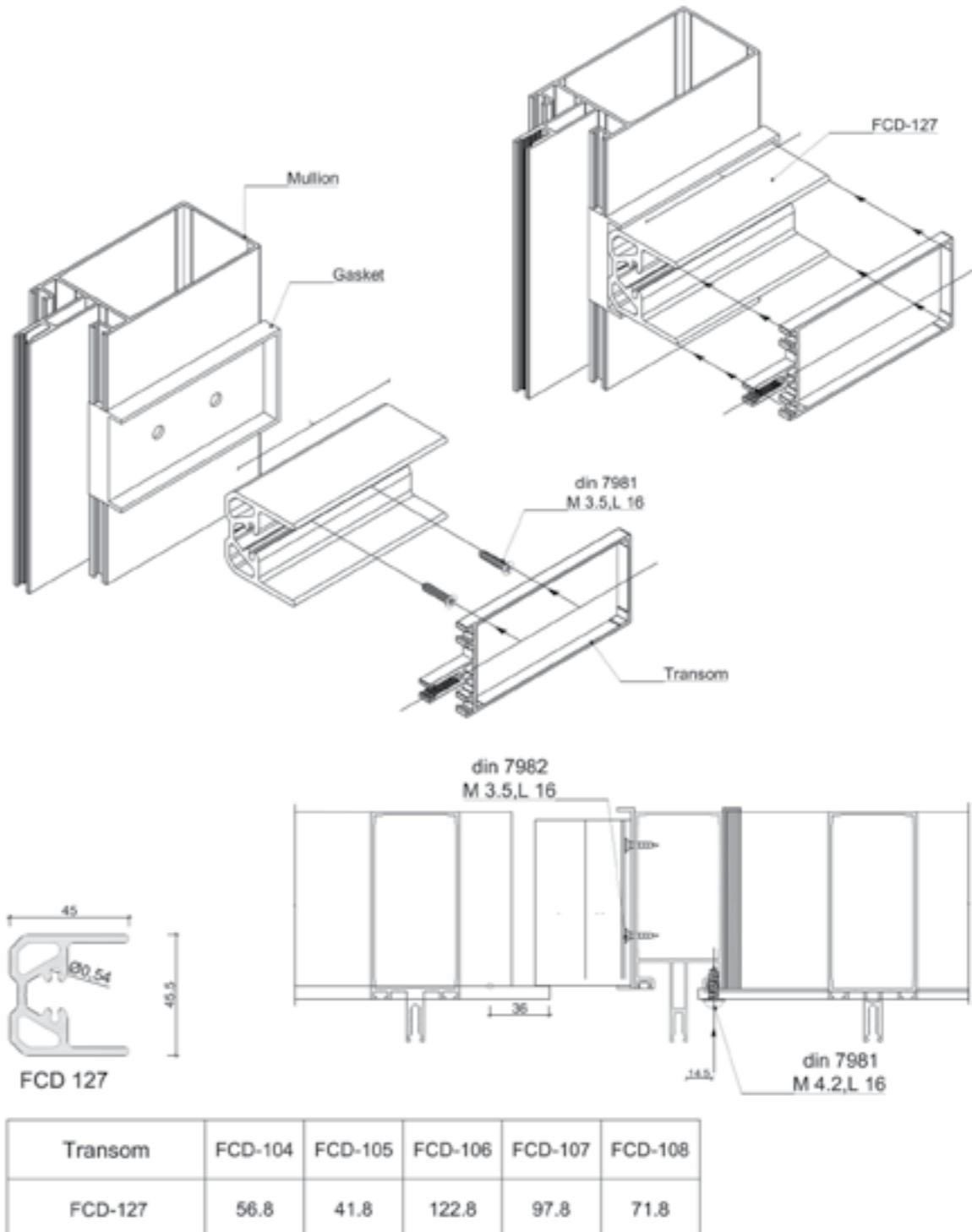
**Face cap, SG and Frameless System**  
Assembly Drawing

Mullion and Transom jointing elements, Type C3



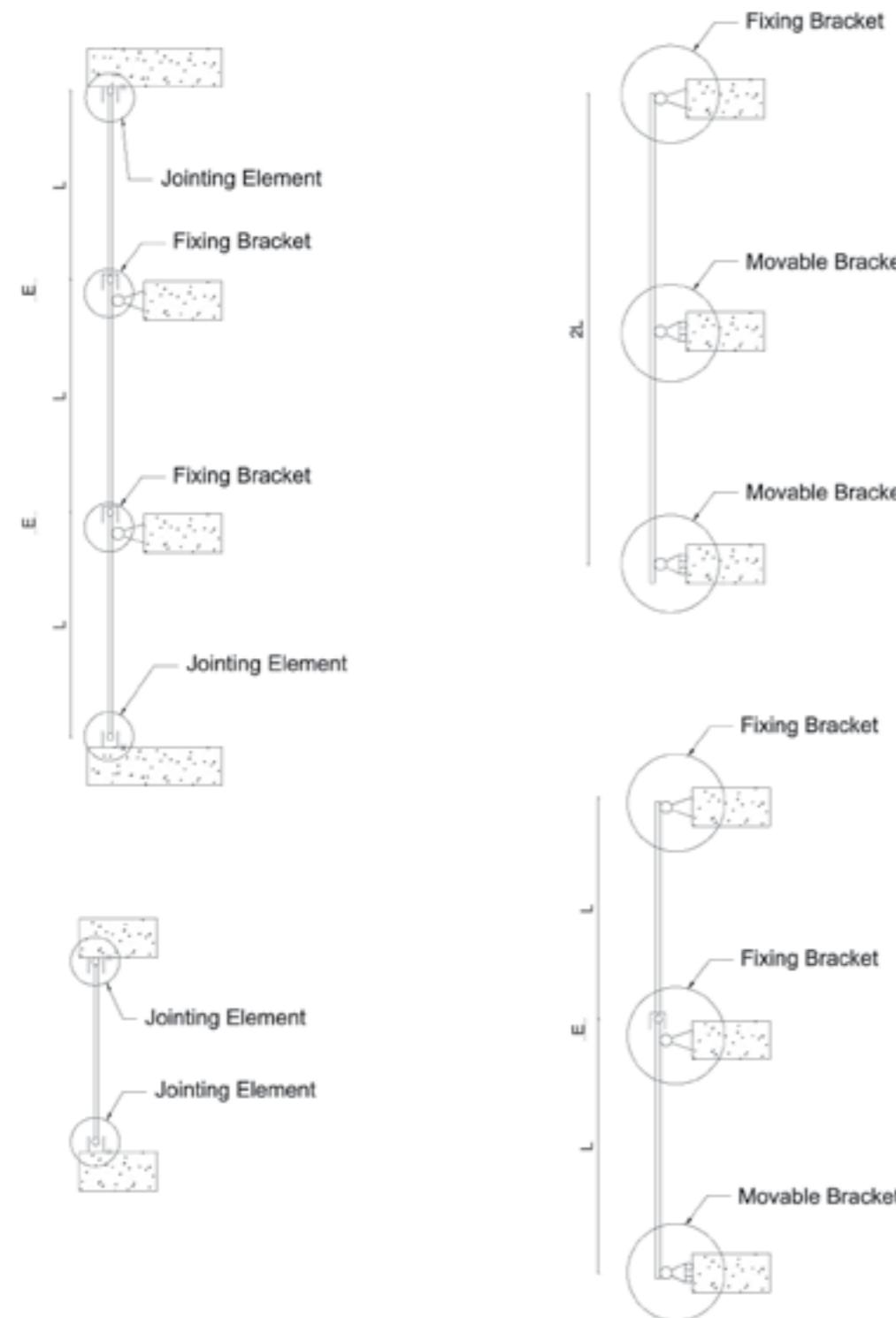
**Face cap, SG and Frameless System**  
Assembly Drawing

Mullion and Transom jointing elements, Type C2



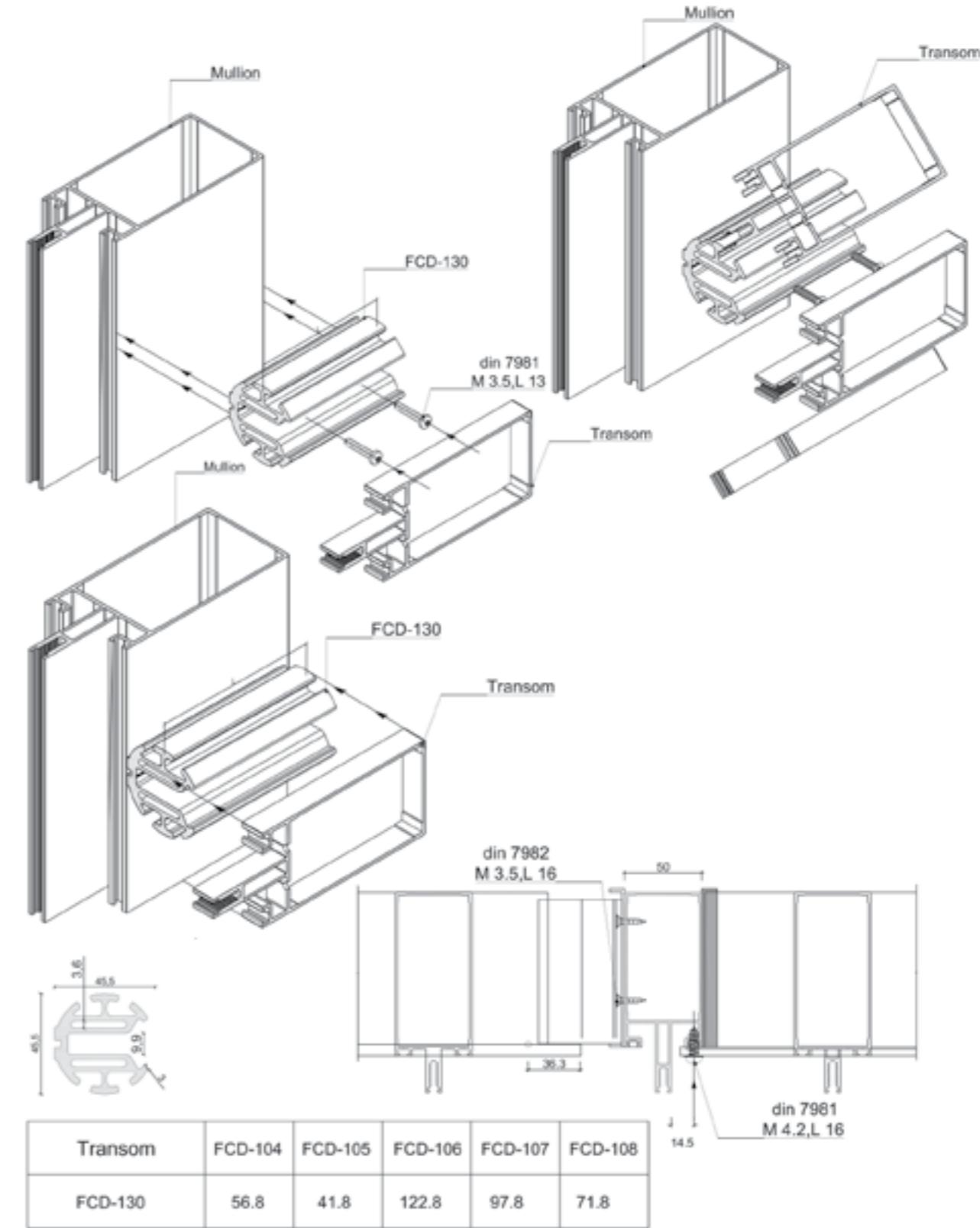
Face cap, SG and Frameless System  
Assembly Drawing

Definition of Support



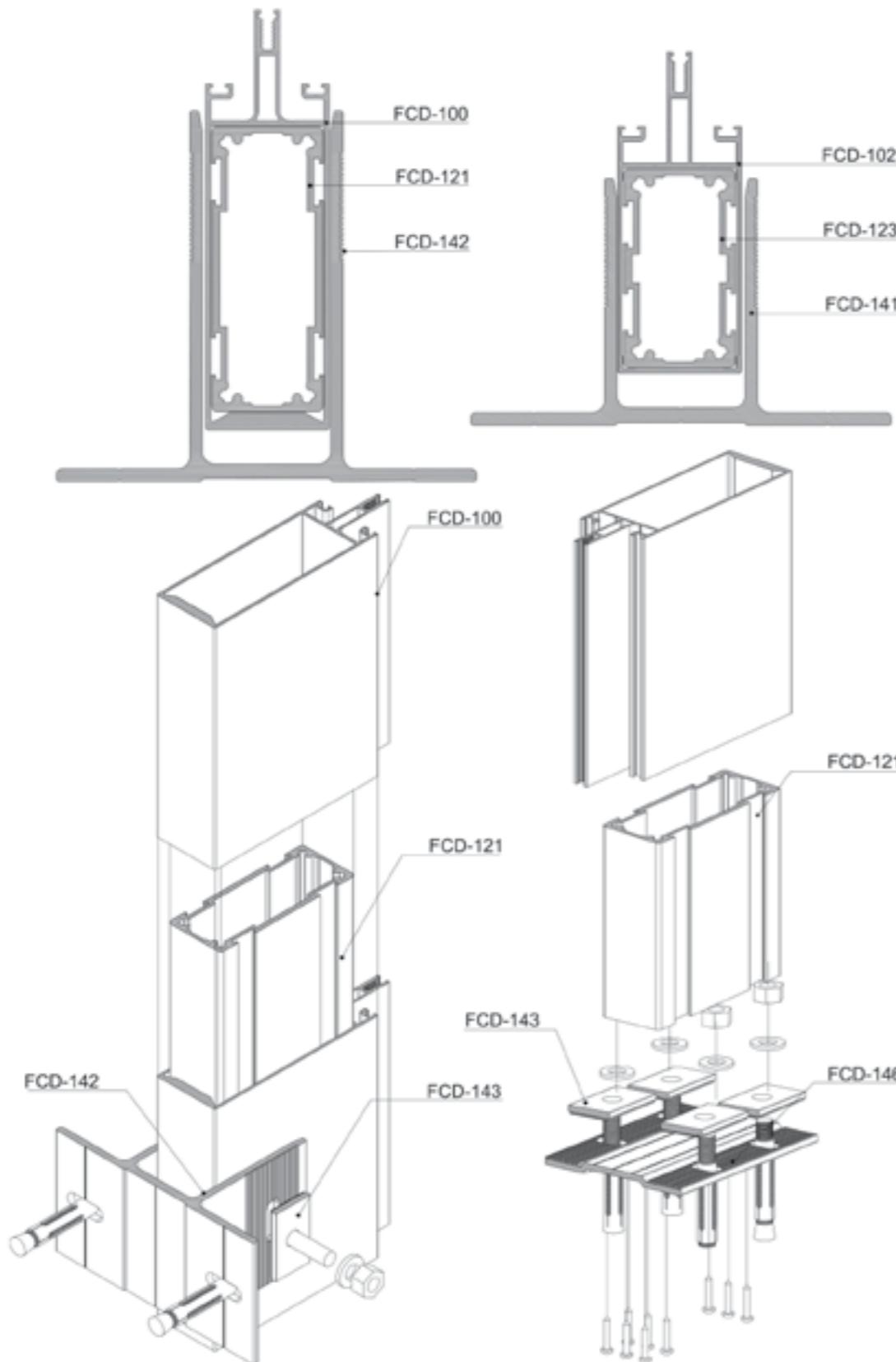
Face cap, SG and Frameless System  
Assembly Drawing

Mullion and transom jointing elements, angular type



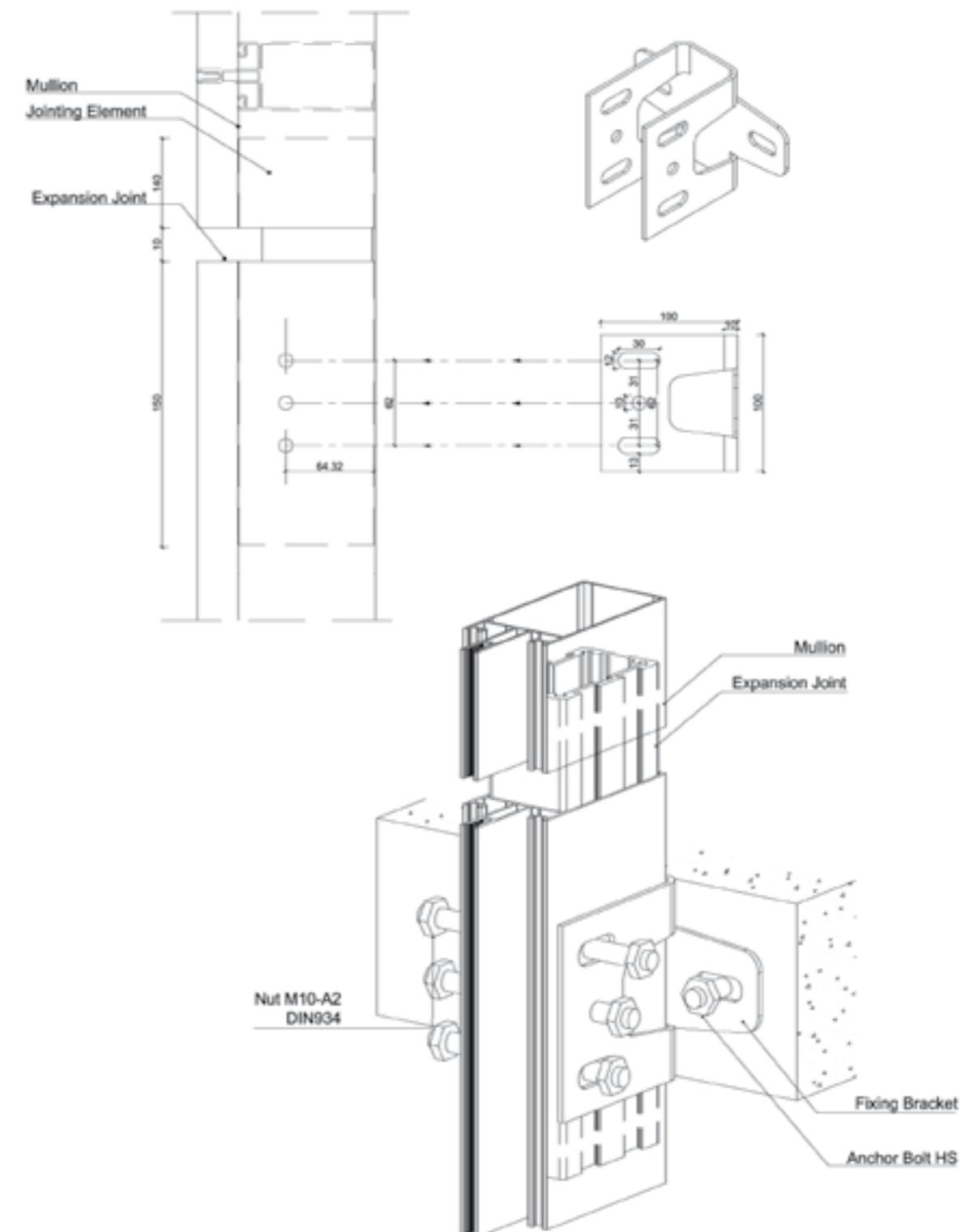
Face cap, SG and Frameless System  
Assembly Drawing

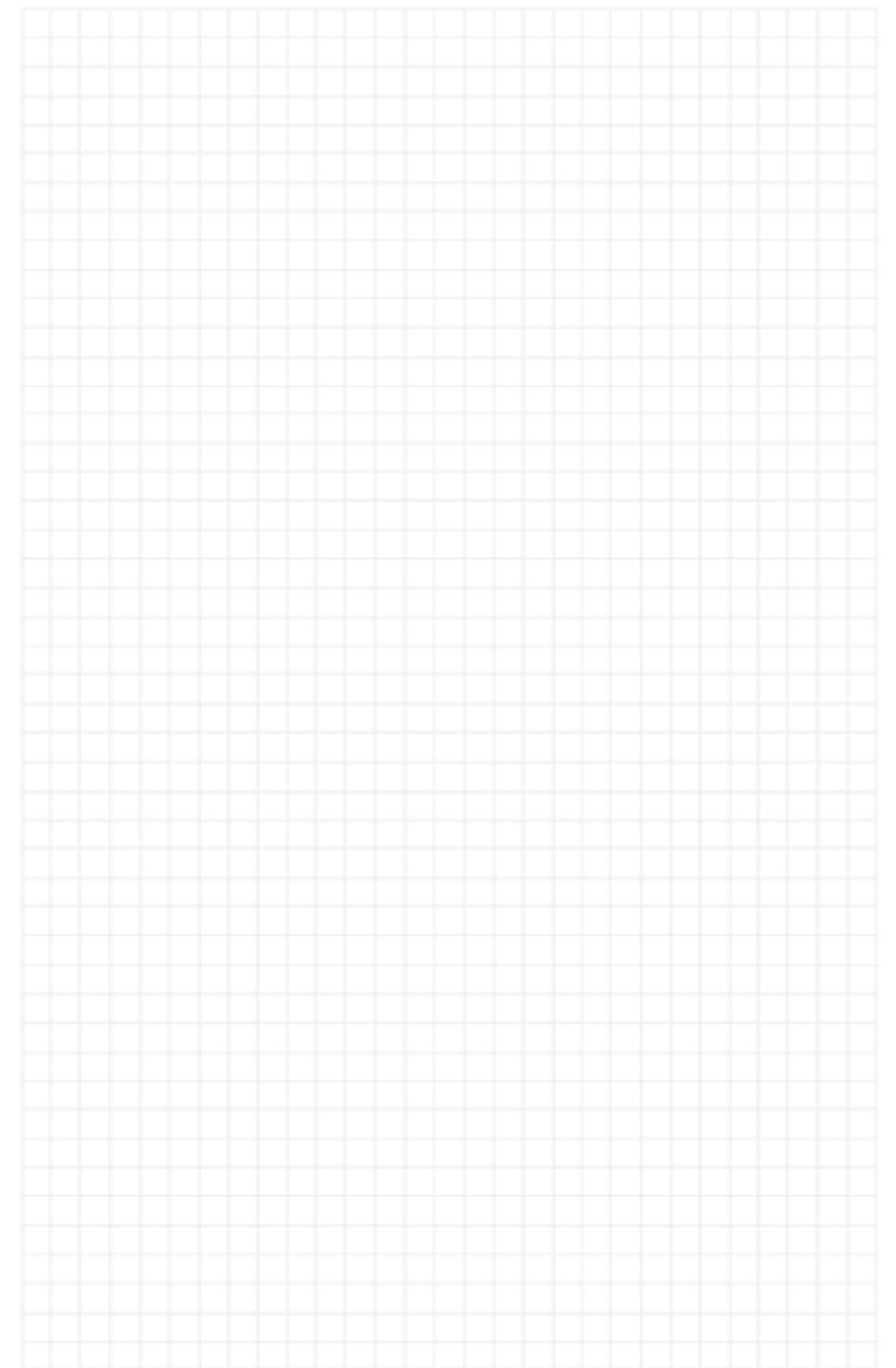
Bracket and Mullion Jointing Element



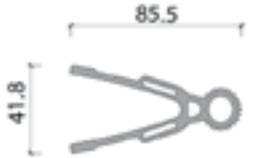
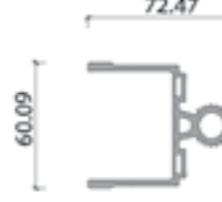
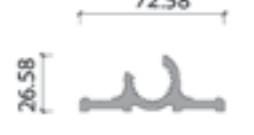
Face cap, SG and Frameless System  
Assembly Drawing

Bracket and Mullion Jointing Element

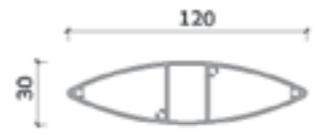
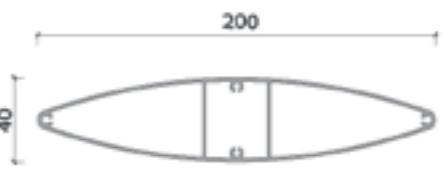
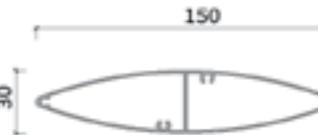
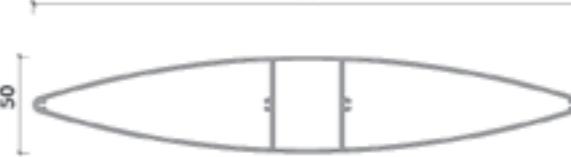




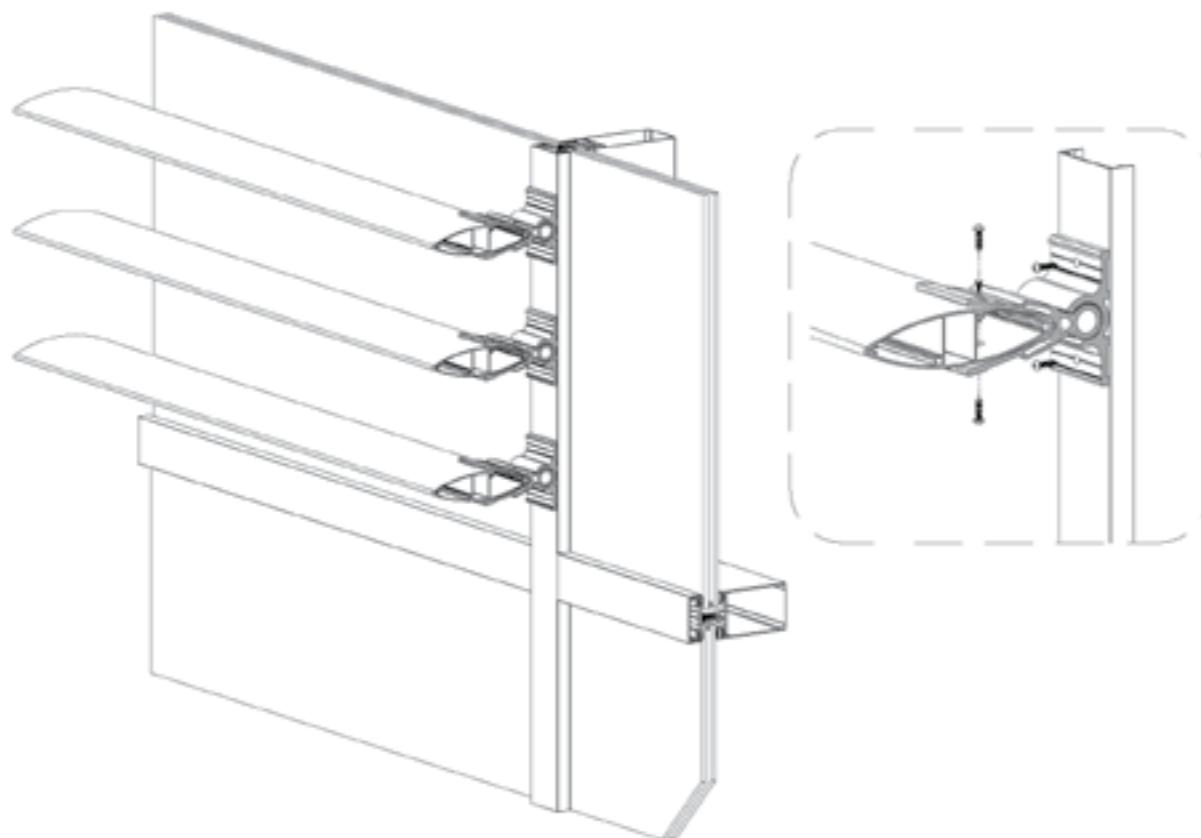
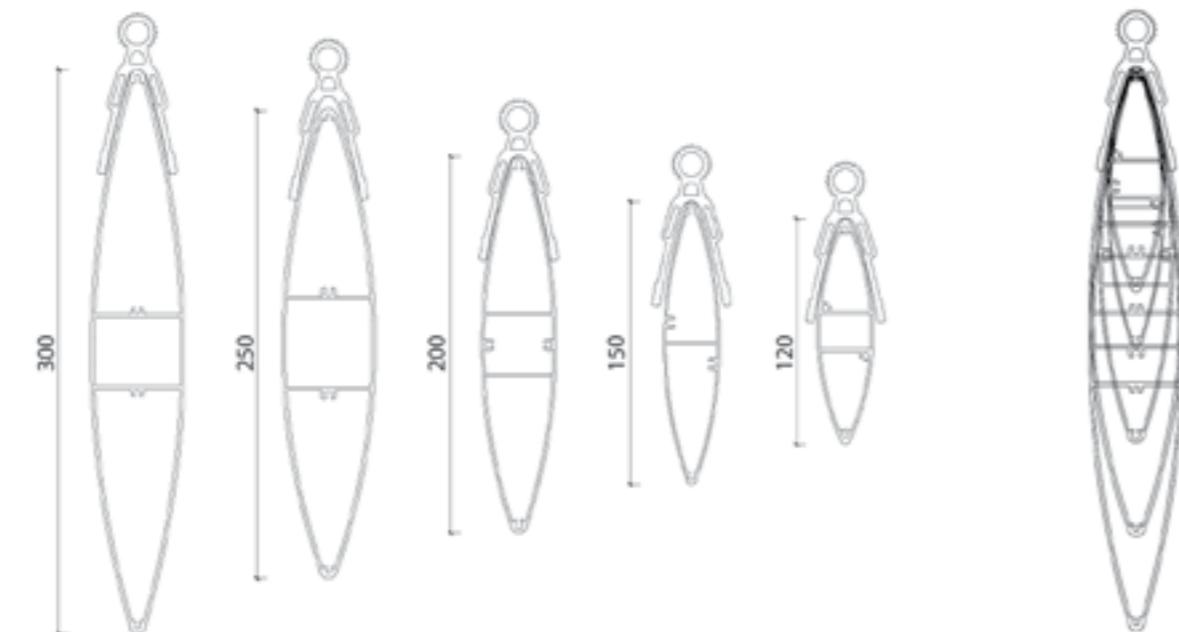
**Louver System**  
Profile & Accessories Information

			
Profile: ALS-105	Weight : 2868 gr/m		
			
Profile: ALS-111	Weight: 1859 gr/m	Profile: ALS-113	Weight : 1902 gr/m
			
Profile: ALS-112	Weight: 1295 gr/m		

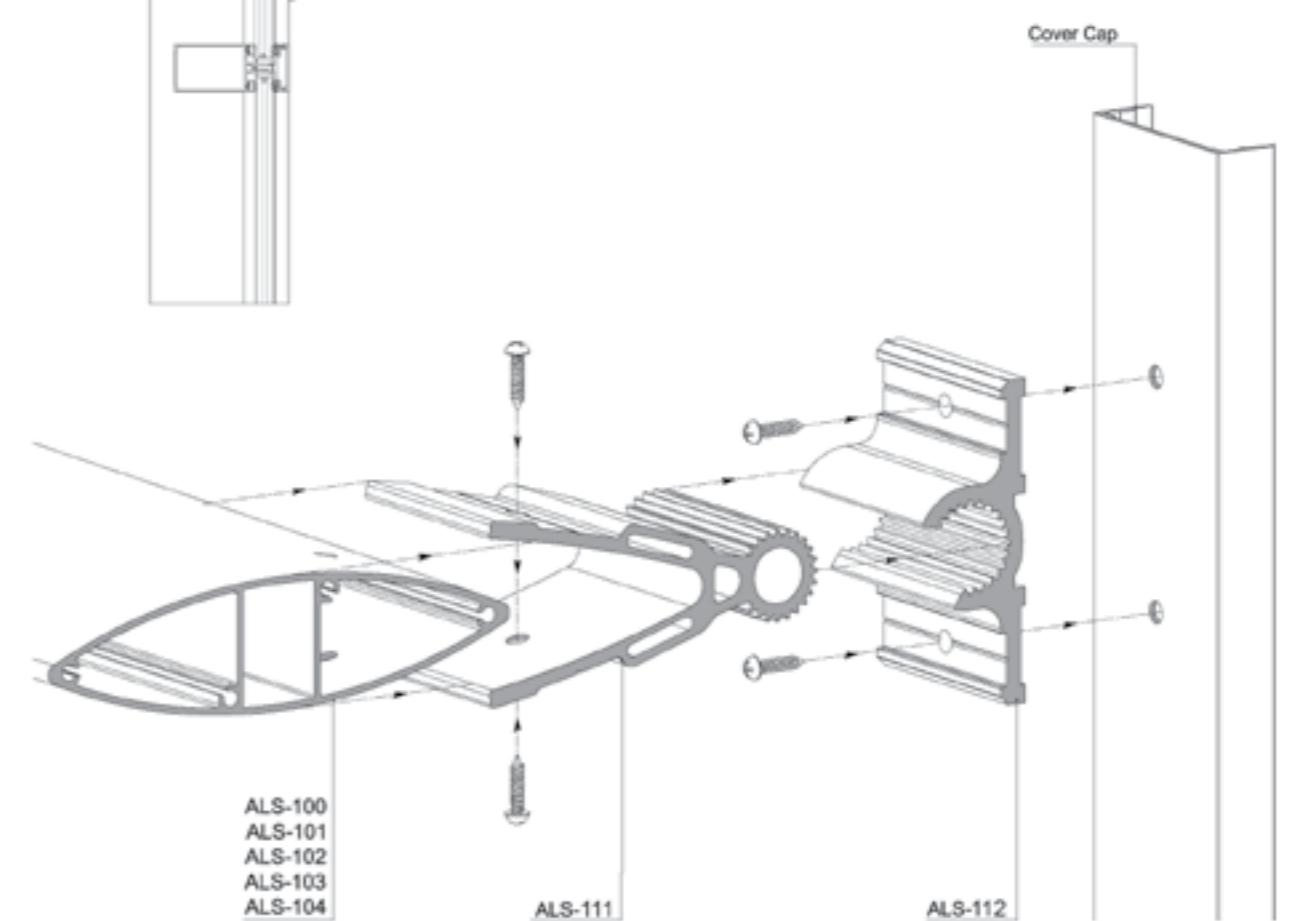
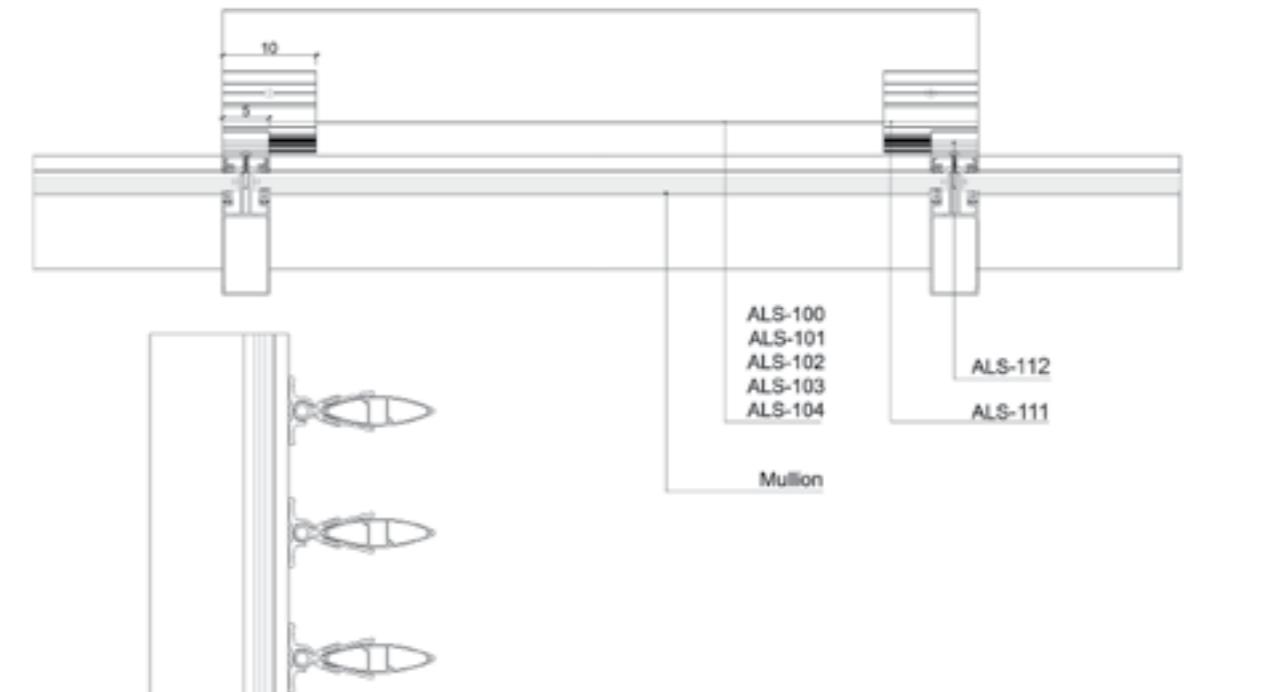
**Louver System**  
Profile & Accessories Information

			
Profile: ALS-100	Weight: 1338 gr/m	Profile: ALS-102	Weight: 2117 gr/m
			
Profile: ALS-101	Weight: 1226 gr/m	Profile: ALS-103	Weight: 3031 gr/m
			
Profile : ALS-104	Weight : 3570 gr/m		

**Louver System**  
Assembly Drawing



**Louver System**  
Assembly Drawing

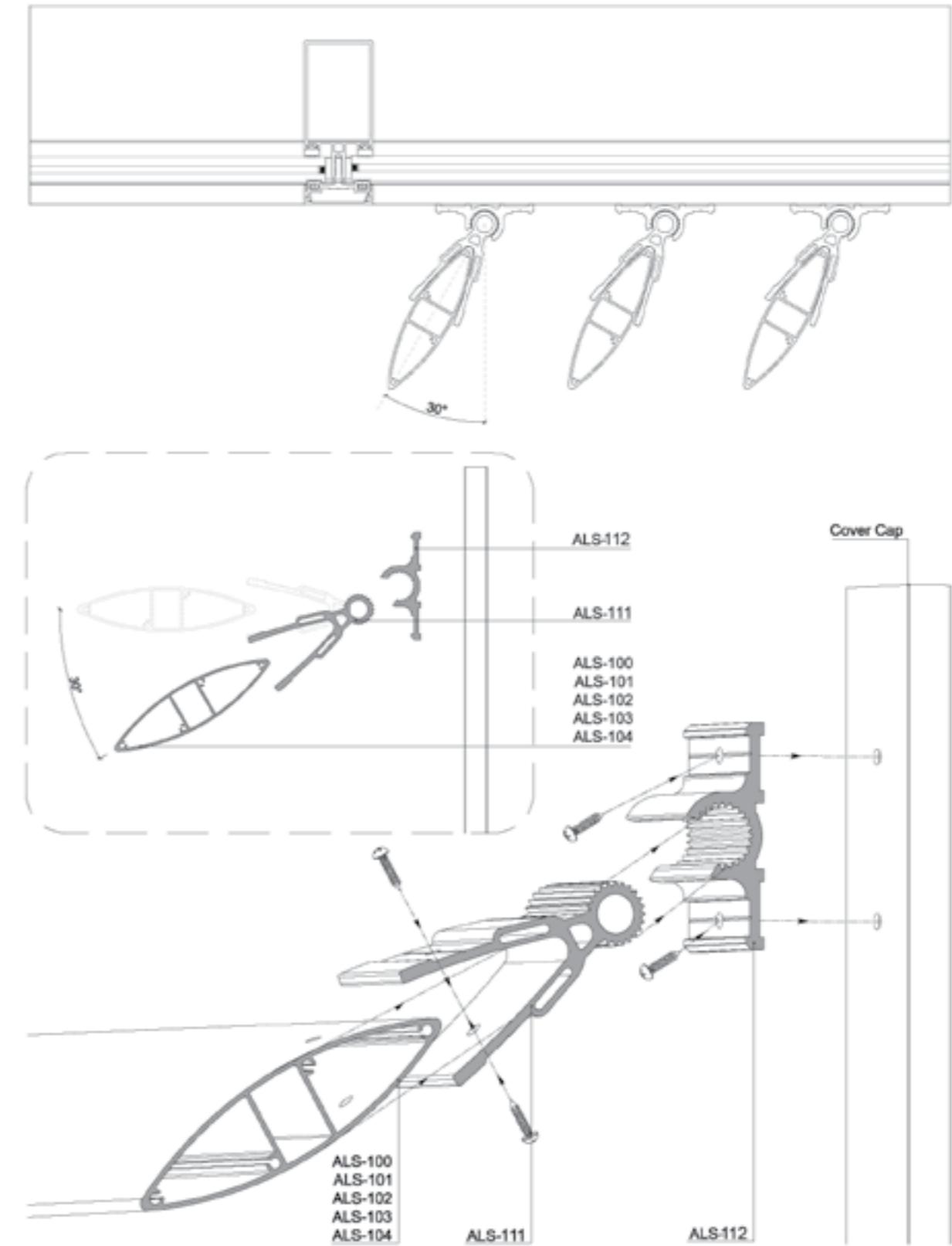


# Balustrade System

Handrail & Glass Supporting System



Louver System  
Assembly Drawing



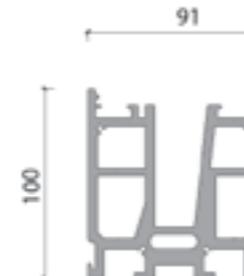
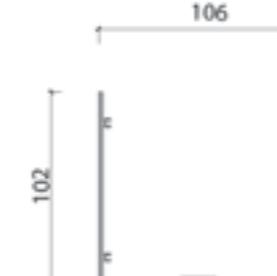
**Handrail & Glass supporting System**  
Profile & Accessories Information

Profile : BLS-106	Weight : 721 gr/m	Profile : BLS-122	Weight : 872 gr/m
Profile : BLS-107	Weight : 1277 gr/m	Profile : BLS-123	Weight : 880 gr/m
Profile : BLS-121	Weight : 1469 gr/m	Profile : BLS-124	Weight : 737 gr/m

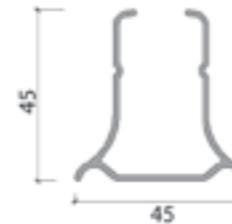
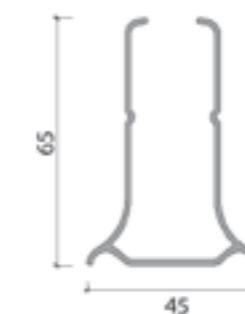
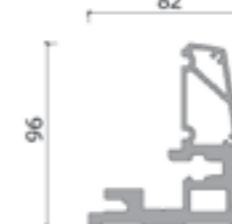
**Handrail & Glass supporting System**  
Profile & Accessories Information

Profile : BLS-100	Weight : 618 gr/m	Profile : BLS-103	Weight : 370 gr/m
Profile : BLS-101	Weight : 745 gr/m	Profile : BLS-104	Weight : 81 gr/m
Profile : BLS-102	Weight : 489 gr/m	Profile : BLS-105	Weight : 184 gr/m

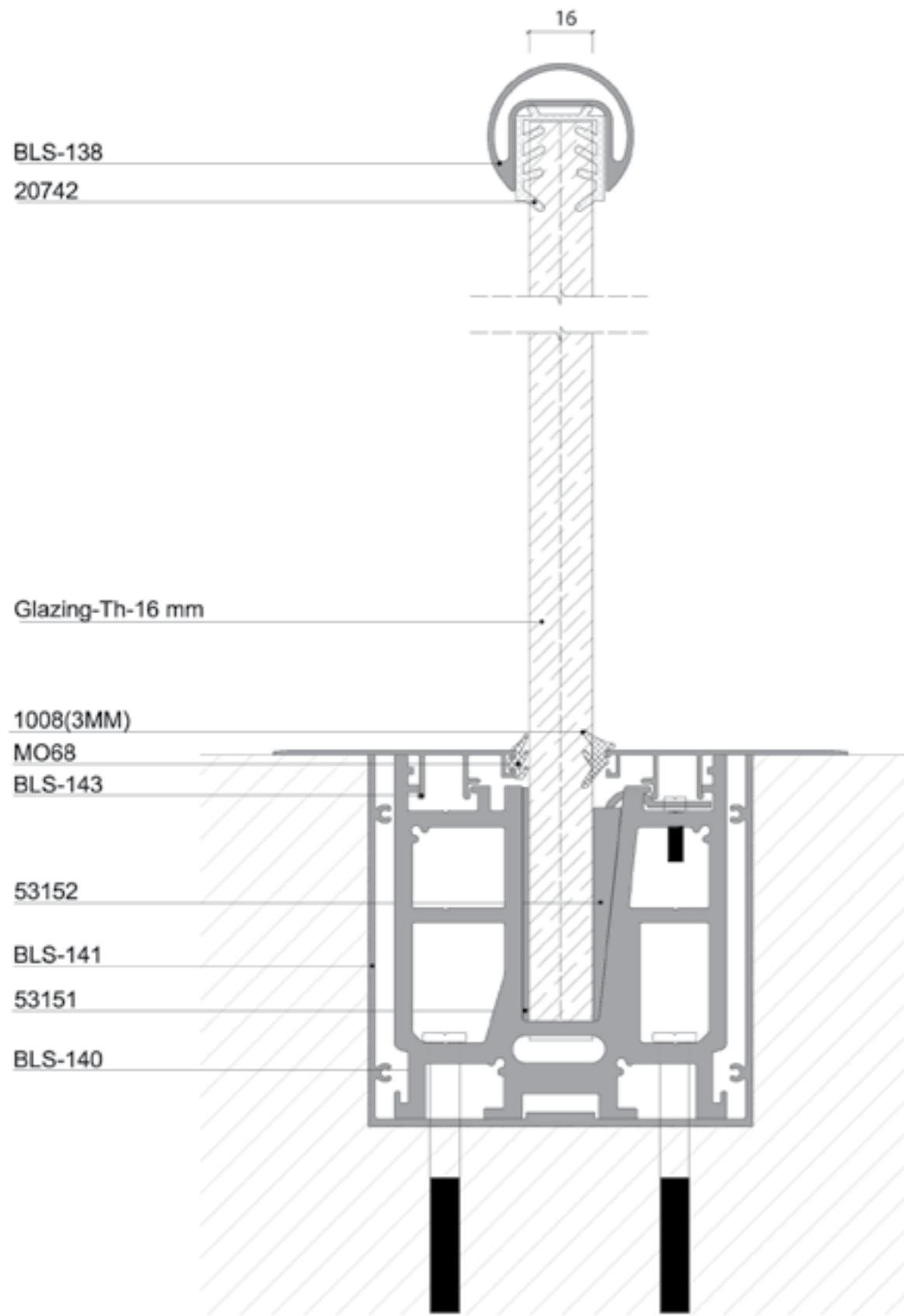
**Handrail & Glass supporting System**  
Profile & Accessories Information

			
Profile : BLS-136	Weight : 2595 gr/m	Profile : BLS-140	Weight : 8294 gr/m
			
Profile : BLS-137	Weight : 419 gr/m	Profile : BLS-141	Weight : 1796 gr/m
			
Profile : BLS-138	Weight : 767 gr/m	Profile : BLS-142	Weight : 610 gr/m

**Handrail & Glass supporting System**  
Profile & Accessories Information

			
Profile : BLS-125	Weight : 192 gr/m	Profile : BLS-132	Weight : 551 gr/m
			
Profile : BLS-126	Weight : 84 gr/m	Profile : BLS-133	Weight : 192 gr/m
			
Profile : BLS-131	Weight : 702 gr/m	Profile : BLS-135	Weight : 4841 gr/m

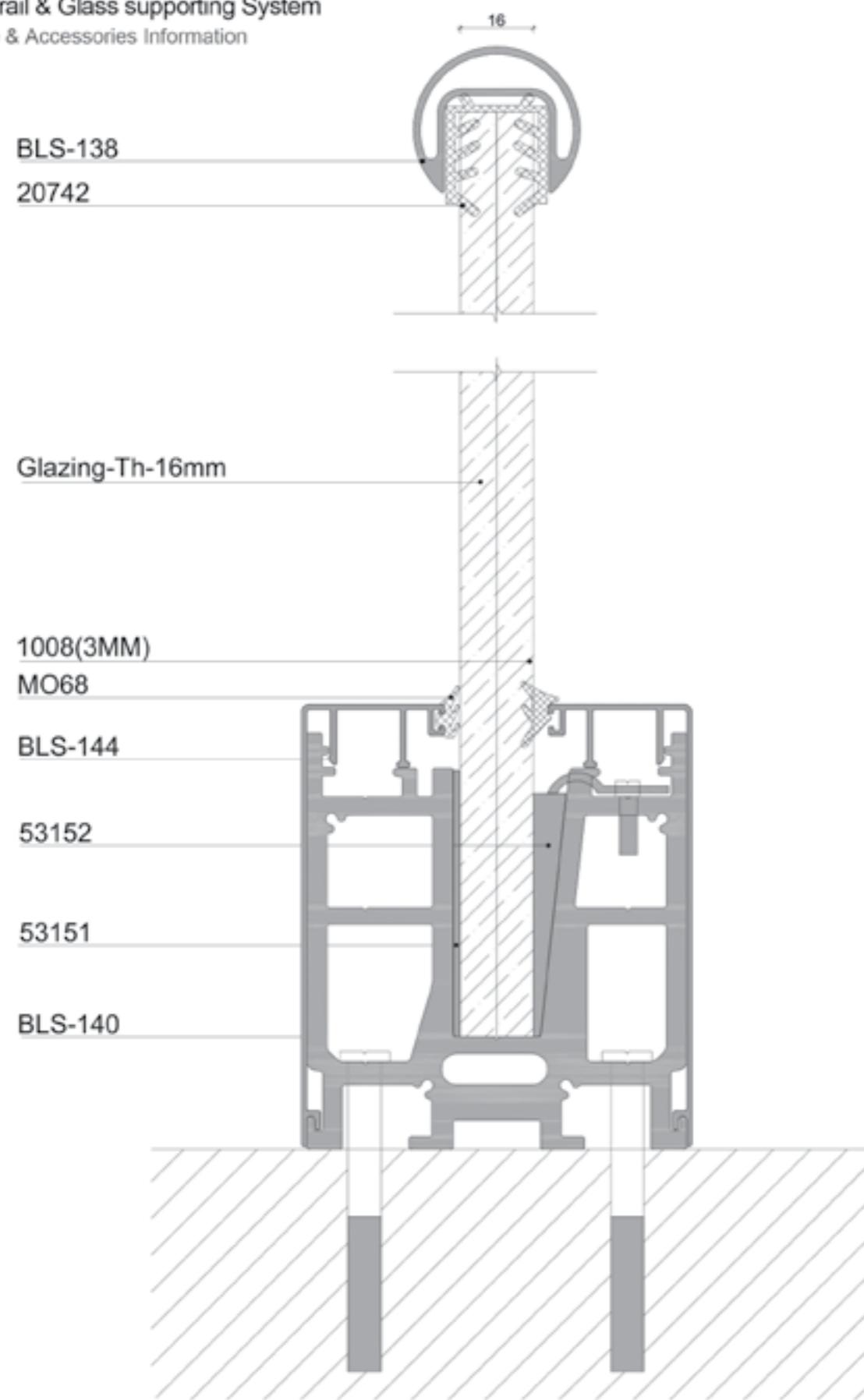
Handrail & Glass supporting System  
Profile & Accessories Information



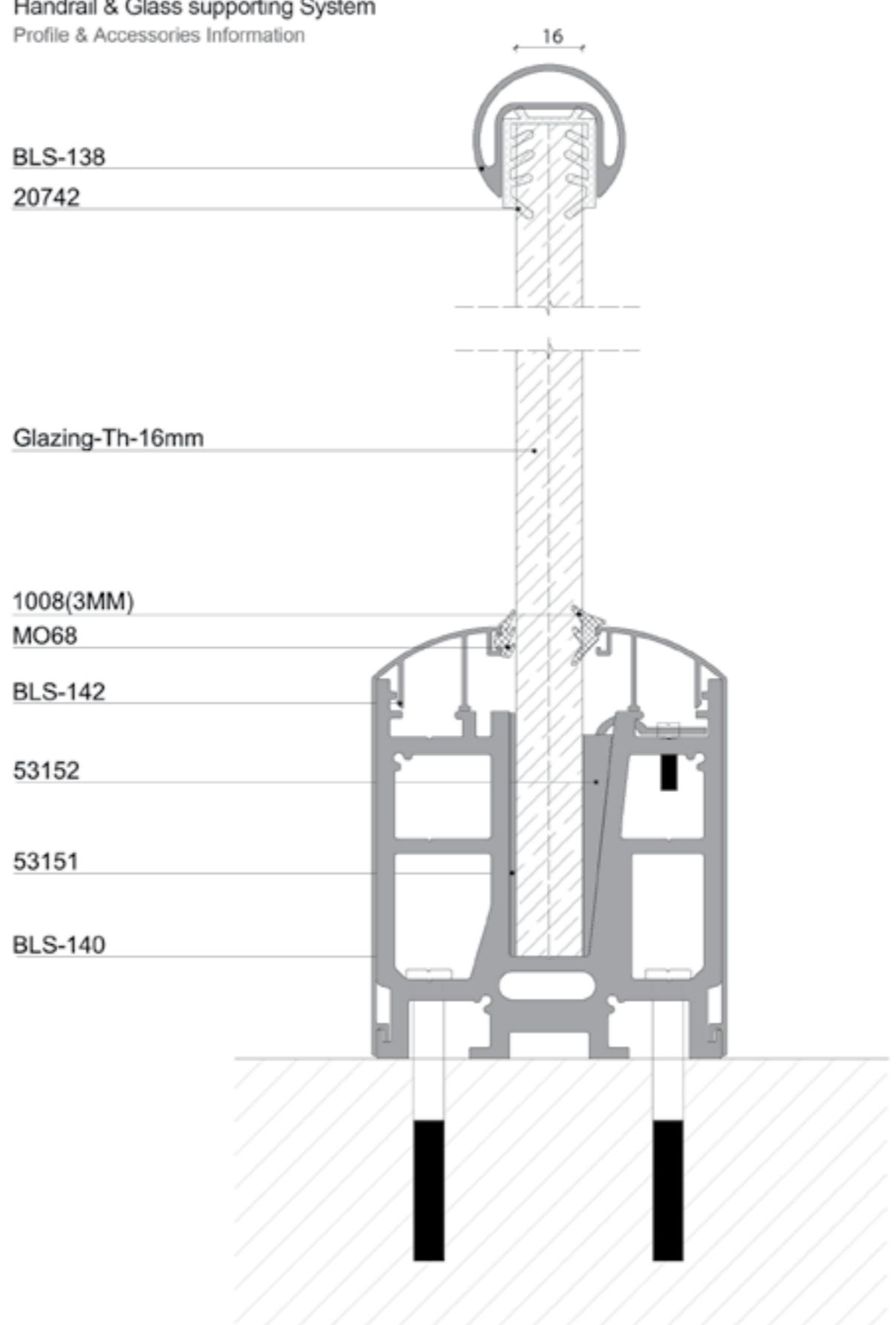
Handrail & Glass supporting System  
Profile & Accessories Information

Profile : BLS-143	Weight : 362 gr/m	Profile : EP-015	Weight : 21 gr/m
Profile : 20742	Weight : 79 gr/m	Profile : 20737	Weight : 36 gr/m
Profile : BLS-144	Weight : 599 gr/m	Profile : 20737	Weight : 36 gr/m
Profile : 1008(3MM)	Weight : 75 gr/m	Profile : MO68	Weight : 46 gr/m

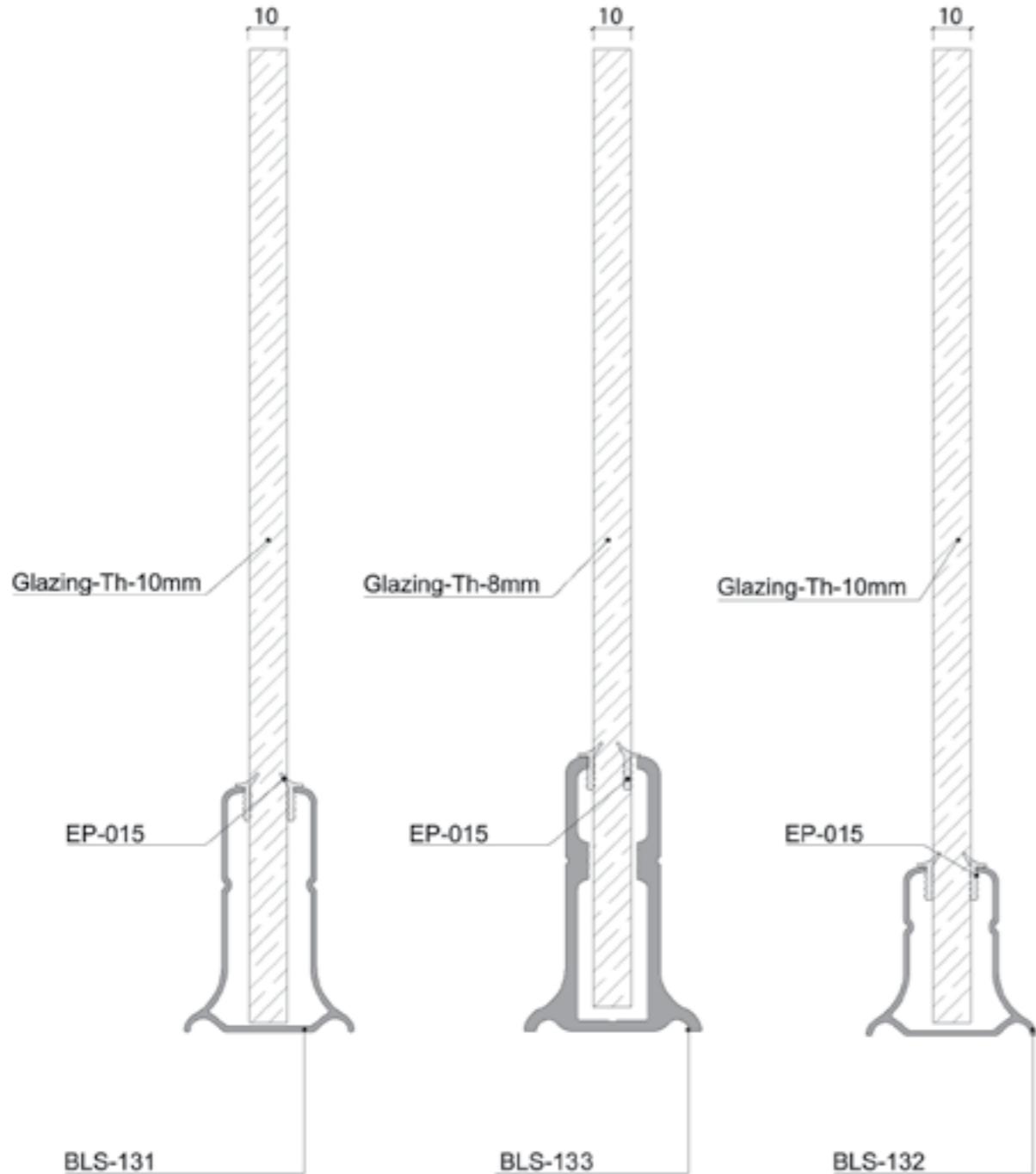
Handrail & Glass supporting System  
Profile & Accessories Information



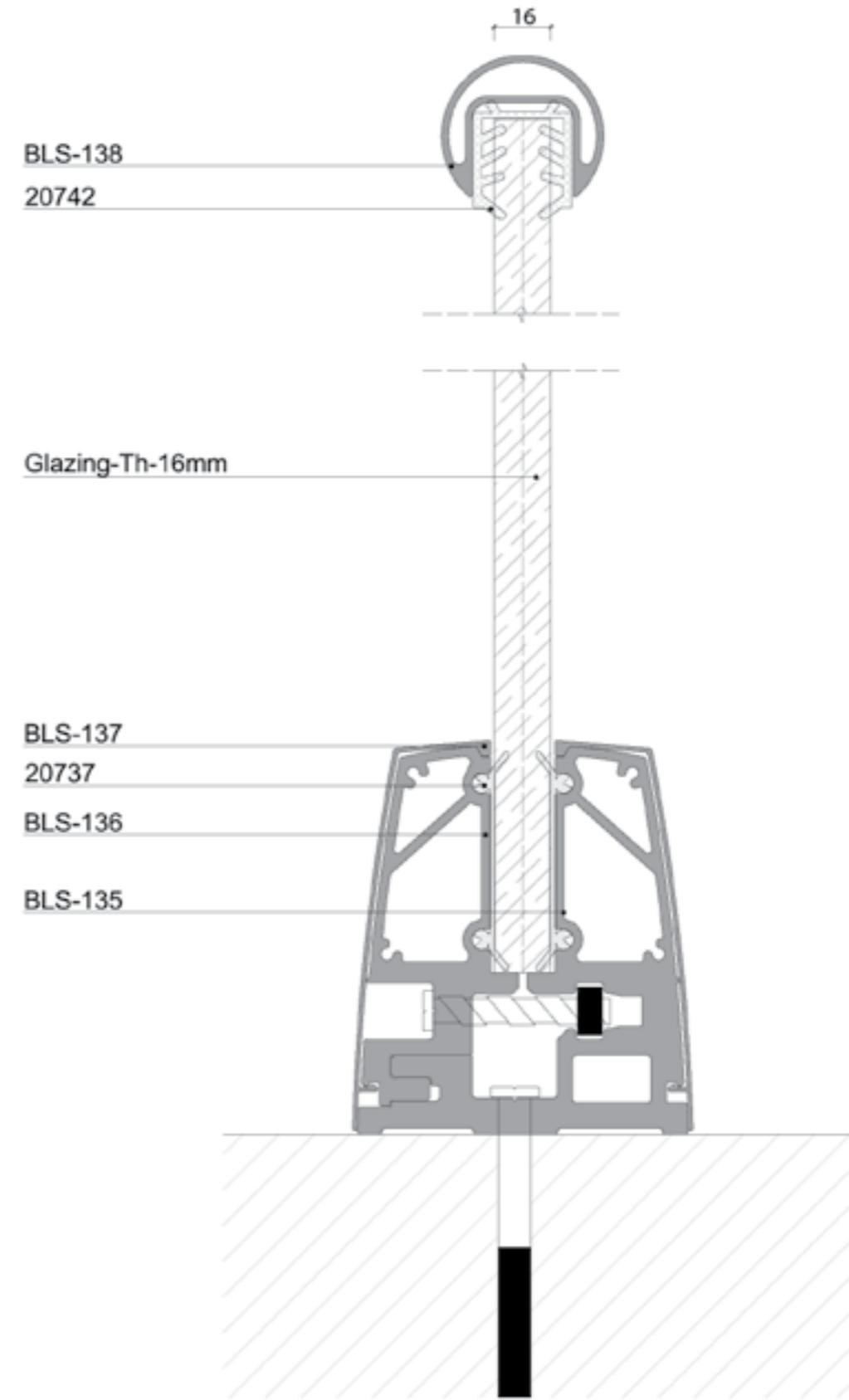
Handrail & Glass supporting System  
Profile & Accessories Information



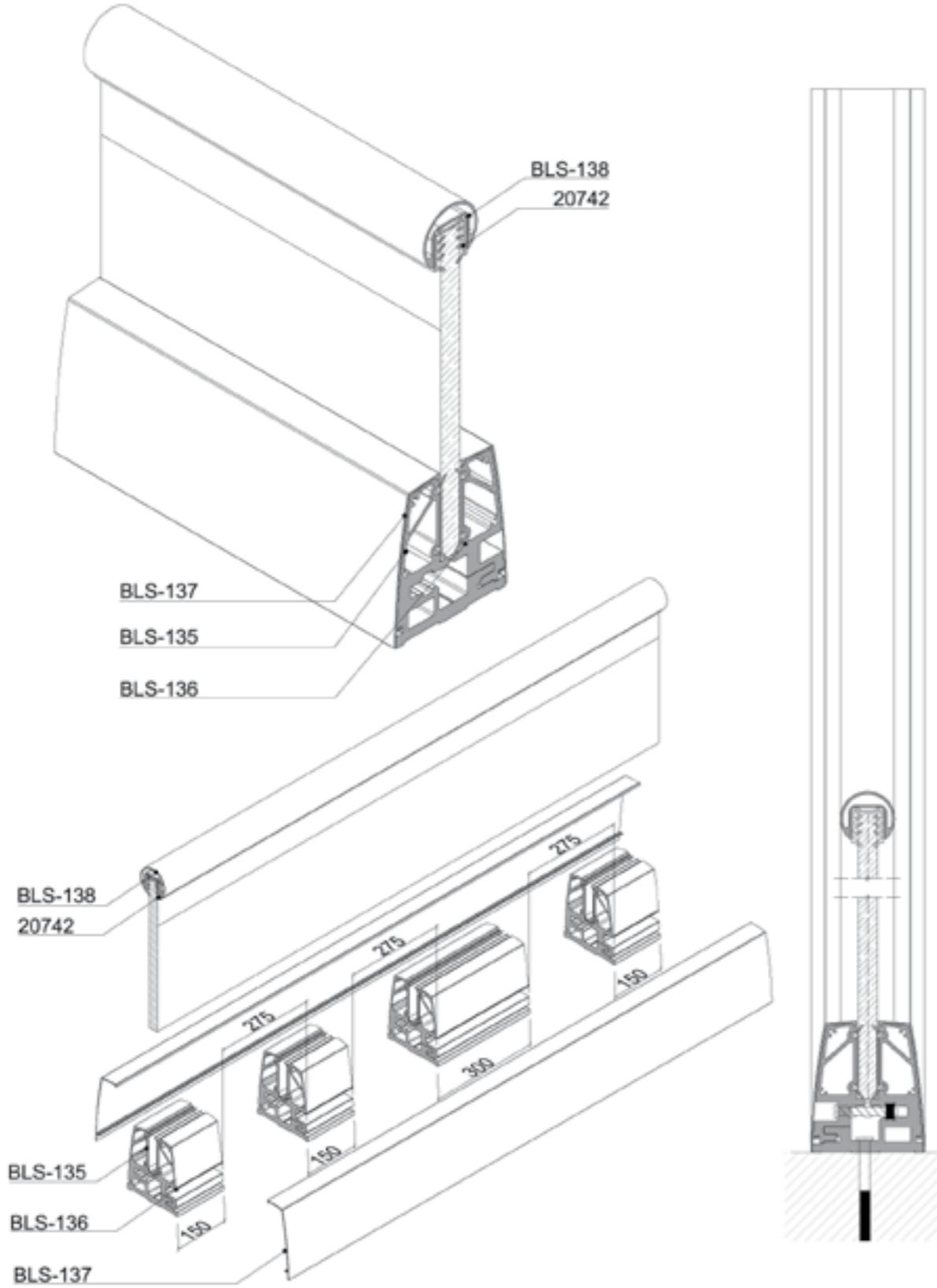
**Handrail & Glass supporting System**  
Profile & Accessories Information



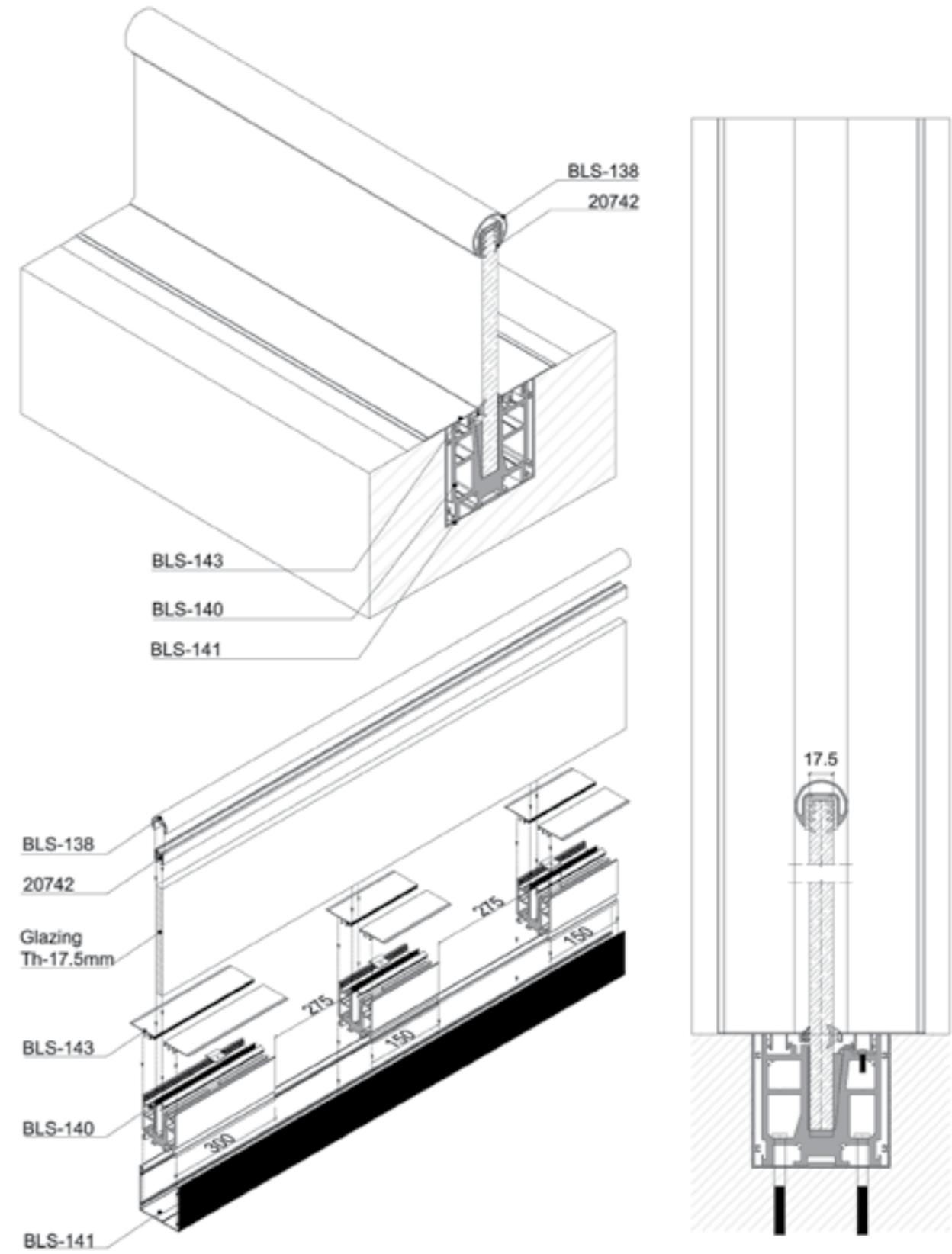
**Handrail & Glass supporting System**  
Profile & Accessories Information



**Handrail & Glass supporting System**  
Profile & Accessories Information

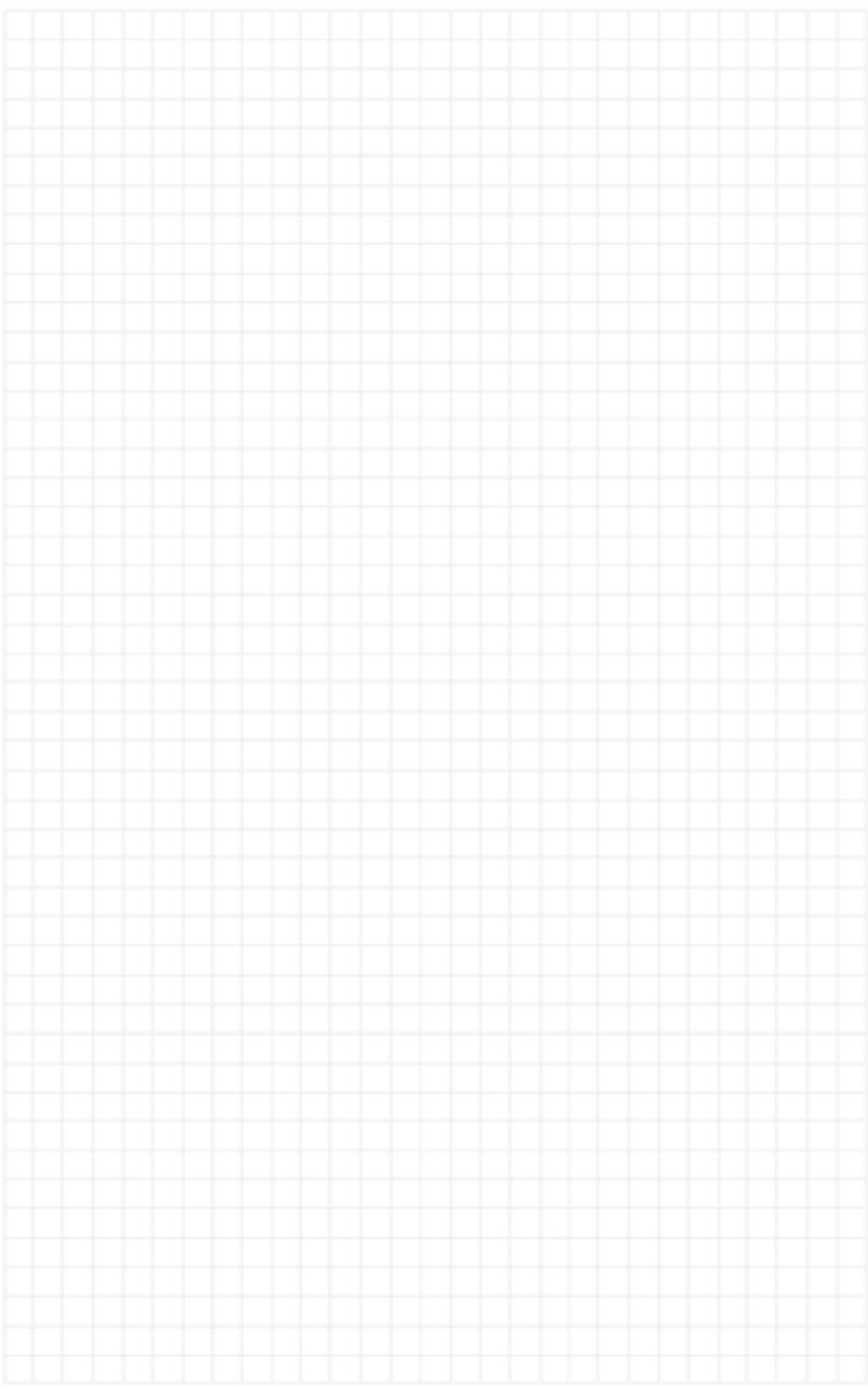


**Handrail & Glass supporting System**  
Profile & Accessories Information

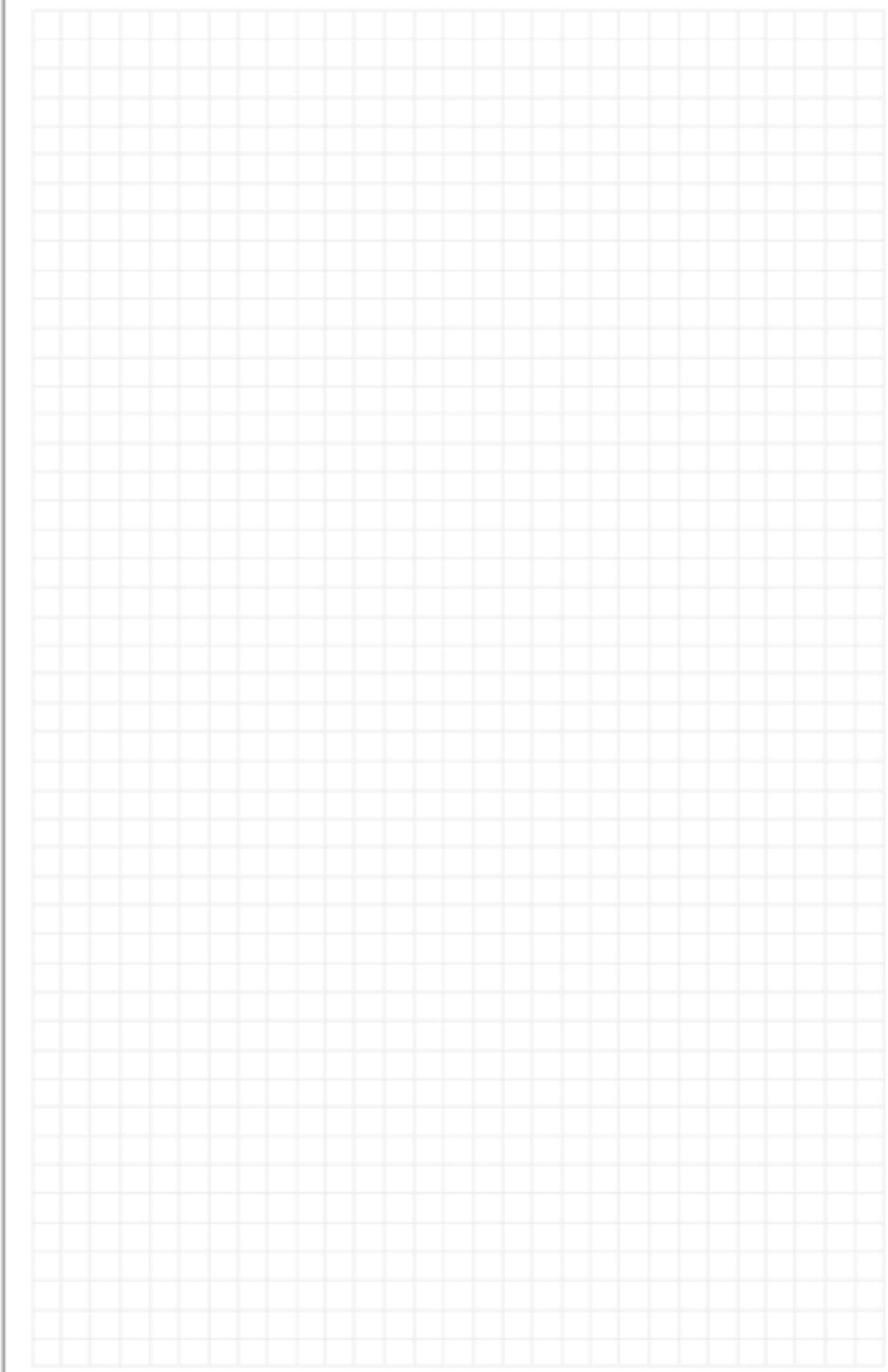




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