



## Window and Door System







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## The Roto Group

Superior technology — for improved comfort in every building

People around the world put their trust in us because we are the industry leader. They know that we will provide them with **individual, efficient and safe system solutions** and **comprehensive services**.

### **Our future has an origin**

Since 1935, the name Roto represents innovation and technological progress in system components for the construction industry. Today, with our broad corporate portfolio, two divisions, and 6000 employees in more than 30 countries, Roto Frank offers the best German window and door technology throughout the world.

Our roots are in Germany, with headquarter near Stuttgart and 6 production bases in Germany for different products.

### **Specialists in the markets**

Roto Group consistently focuses on expertise and to provide diversified service portfolios from specialised business divisions to meet the challenges of our day.

Our comprehensive product range has been present on enormous buildings, through windows, doors, curtainwall and other elements, and providing excellent functionality, flexibility and reliability to millions of families and end-users with satisfaction and improved living quality.

### **Especially valuable - Authenticity**

The values shared by both Roto divisions create an authentic corporate identity which has enabled our Group to become the industry leader.

No matter which Roto division you deal with as a customer, you will always benefit from added value. It is this added value that forms the ideal foundation for the success of your cooperation with Roto.

### **Your needs are our incentive**

Based on our principle of market leadership, we strive to consolidate and extend the success of Roto continuously in every market with endless effort from our professional and dynamic team worldwide.

The customers' needs and expectations inspire us at all times.



As an established traditional corporation with a broad portfolio of services, Roto consistently adjusts all of its business activities to meet the changing needs of our customers.



Top:  
The Roto FTT headquarters in Leinfelden-Echterdingen, Germany

Bottom:  
The Roto DST headquarters in Bad Mergentheim, Germany

## German Made German Quality Standards

Our service portfolio offers extraordinary business opportunities to our **business partners**. The solutions we strive for are based on **German quality standards**.

### **German quality standards that you can count on**

We are the technological leader for our industry. Our on-going success is often attributed to our down-to-earth approach, realism, continuity, consistency and reliability. We believe that this is an encouraging and compelling endorsement of our commitment.

We guarantee that in the services and products associated with the Roto name, you will find German quality standards, regardless of where you are in the world when you deal with Roto.



### **Close to the customer creates added value**

Each country is unique. Professional expertise and an extensive intercultural understanding of the history and customs of people in different countries are vital to understanding the needs of our customers around the world.

However, we do not merely seek to understand, we strive to become valued partners. Roto teams in every country always work closely with the customer and are engaged with, understand and are interested in the specific challenges of a given market.

Numerous national Roto competence and development centres ensure that practical solutions can be found within short turnaround times. This means that you can benefit from our broad range of services and intelligent solutions.

### **Understand more - Achieve more**

We believe that the key to shared success is based on working together with trust.

That is why we pay close attention to what our customers and employees have to say. We are proactive and plan ahead. We always discuss matters with our partners openly and as equals.

After all, one of our primary objectives is to be the best possible partner for everyone who wants to work with or for Roto.

Roto services are rated as "german made" German standards, which are based on shared core values, define the entire value-added chain.





# Roto

Close to the customer -- Worldwide



Roto Frank Latina SA  
Buenos Aires (AR)



Roto Frank Belarus  
Minsk (BY)



Roto Frank Ferrures  
Saint Avold (FR)



Roto Frank S.A.  
Nivelles (BE)



Roto Frank Georgien  
Tbilissi (GE)



Roto Frank Latvija  
Jurmala (LV)



Roto Frank Brasil Ltd.  
Santa Catarina (BR)



Roto Frank Roof Windows and Hardware Ltd  
Rugby (GB)



Roto Frank Litauen  
Vilnius (LT)



Roto Fasco Canada Inc.  
Mississauga, Ontario (CA)



Roto Frank Asia - Pacific Liaison Office India  
Mumbai (IN)



Roto Frank Asia-Pacific Pte. Ltd.  
Singapore (SG)  
Regional headquarter



Roto Frank Constructional Hardware Co. Ltd.  
Peking (CN)



Roto Frank Asia - Pacific Representative Office Indonesia  
Jakarta (ID)



Roto Frank Mexico S de RL de CV  
Queretaro (MX)



Roto Frank AG  
Leinfelden / Velbert (DE)



Roto Frank Italia  
Meolo (IT)



Roto Frank Austria GmbH  
Kalsdorf (AT)



Roto Frank Ehitusrautised OÜ  
Tallinn (EE)



Roto Frank Kasachstan  
Almaty (KZ)



Roto Frank  
Warschau (PL)





**Roto Romania S.R.L.**  
Bukarest (RO)



**ООО Roto Frank**  
Moskau (RU)



**Roto Frank Ltd. Sti.**  
Istanbul (TR)



**Roto Frank GmbH**  
Dietikon (CH)



**Roto Elzett Certa Kft.**  
Lövö / Sopron (HU)



**Roto Frank of America Inc.**  
Chester (US)



**Roto Elzett Kft.**  
Bratislava (SK)



**Roto Frank Asia-Pacific Representative Office Vietnam**  
Hanoi (VN)



**Roto Frank S.A.**  
Montmelo (ES)



**Roto Frank Okucia Budowlane Sp. z**  
Kiew (UA)

■ Subsidiary

■ Authorized Distributor in Asia-Pacific

## Roto Asia - Pacific

Pioneer and Market Leader in the Asian fenestration industry with more than 20 years of market presence.



Roto entered the Asian market in the 1990s and brought the German window and door technology to **China, Japan, South Korea and Southeast Asia.**

After over 20 years of market presence, Roto Frank has not only created an excellent marketing team in Asia, but also built up a professional technical team to provide extensive support, one of the main reasons why so many companies choose Roto as their partner.

In 2008 Roto Frank Asia-Pacific Pte. Ltd. in Singapore was established to be able to meet the growing demand in the Asia-Pacific region. Customers from Mongolia to New Zealand, South Korea to Sri Lanka and everywhere in-between are looked after by the Sales and Technical Team in Singapore.

Roto hardware for windows & doors provides perfect product solutions adaptable to many different profiles and opening types. Based on the high-quality manufacturing process and the premium materials used Roto provides a 10 years functional warranty on its hardware.

Roto is a highly regarded solution provider within the industry of European technology for Aluminum, PVC, Timber and Alu-Timber windows, doors and curtain walls in Asia.

Based on its decades of knowledge in the window and door industry Roto launched the innovative Rotoi window & door system in 2011. The design of the system is based on the market demand in Asia-Pacific. It is engineered according to highest German manufacturing principles while keeping the regional climatic challenges and local application preferences in mind.

Rotoi has been the preferred choice of numerous projects and has become a successful and reliable high level window & door system.

## System Training Center



In order to provide our customers with the best possible service and to extend in-depth technical training in a fabrication environment, Roto has established training centers in Shanghai (2012) and Singapore (2016).

The centers show the complete production process of aluminium windows and doors such as: profile cutting, punching, end-milling, crimping, gluing and the installation of hardware accessory, in order to build a standard platform for high quality German window & door systems.

The main functions of the training centers are:

1. To provide technical training on the Rotoi system for business partners to enable them to understand the concept of the system design, system software and system technical drawings.
2. To implement training for workers of business partners, to ensure that they can master the system processing and to teach the key points of each production step.
3. To support our R&D department.
4. To act as a show platform for the system.



## Roto ITC International Technology Center



The Roto International Technology Centre, an in-house test center, is located on the grounds of the headquarters of Roto in Leinfelden, Germany. It is certified by DAKKS according to DIN EN ISO/IEC 17025 and it authorised to perform accredited testing of windows & doors and its accessories.

The test centre, equipped with the most advanced testing equipment, although located at the Roto site, is an autonomous facility to enable objective testing.

The Rotoi system profits from the full access to the test center together with the support of the R&D team. Different combinations of profile,

glass, accessories and hardware have been tested and analysed over to accumulate a large amount of data which enables us to identify the optimal combinations for the system.

Spot tests of finished Rotoi products are a standard of the strict Roto testing procedure to assure constant quality.





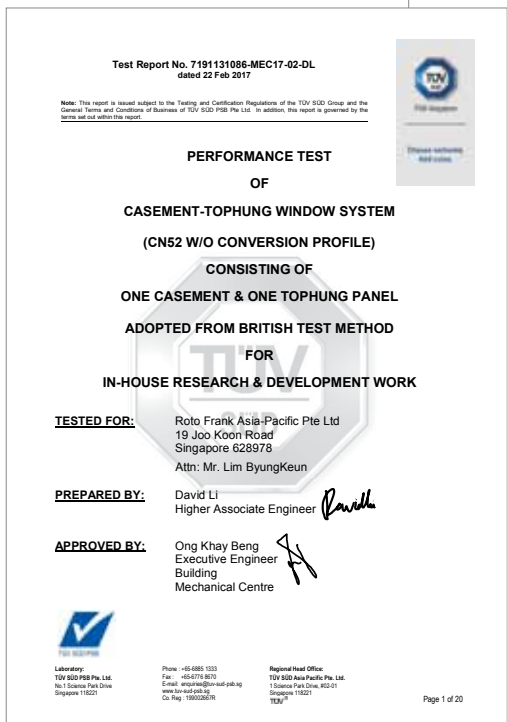
Certified Lab Roto ITC



ISO14001



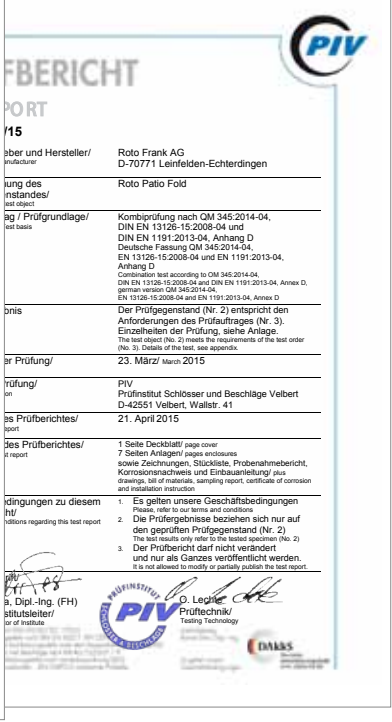
10 Years Functional Warranty



PSB Test Report for Rotoi System



ift certificate for hardware system



PIV certificate for hardware system





## **Rotoi** System Overview

Based on its decades of knowledge in the window and door industry Roto developed the Rotoi window & door system. The design of the system is based on the market demand in Asia-Pacific and engineered according to the highest German manufacturing principles while keeping the regional climatic challenges and local application preferences in mind.

Rotoi not only brings a new level of safety, function, comfort and design to a building but also is another step to "Green Building". With this Singapore Green Mark approved system, a broad range of applications can be realised, from tilt&turn to casement windows, sliding and folding doors and much more.

The Rotoi Solution Centre in Singapore and Roto Object Business Centre Germany are your reliable partner for Roto Product in efficient implementation of your projects. They are ready to realise your version.







The Rotoi System includes thousands of profiles and accessories. It contains non-thermal break and thermal break series. The profiles are made according to European Standard EN573 and EN12020.

Opening Type	Non-Thermal break	Thermal break
Outward opening window	CN52	C520
Inward opening window & door	FN52	FT520 FT620 FT720
Sliding window & door	PN100 PN145	P520 P700

## CN52 - Outward Opening Window System

CN52 is designed to fulfill high performance requirement and to satisfy the visual requirements of slim frame.

It offers the possibility to complete the glazing work of entire window to at room side and keep the most possible slim sight surface.

The "dual channel" design enhances the flexibility and stability of hardware application.



■ CN52 standard frame



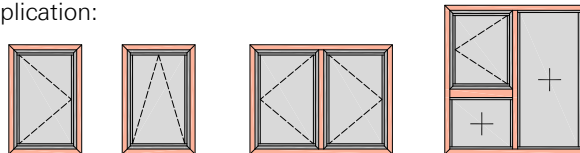
■ CN52 frame w. conversion profile







■ Main Characteristics:

- Multi-chamber structure of main profiles and closed-chamber glazing bead
- Dual corner joint on both sash and frame enhance the stability of entire window
- Hardware are positioned in designed grooves to ensure the security and stability in practice
- 2 outer frame design to satisfy different function and visual requirement
- Flexible glass option with thickness from 5 to 24mm

■ Typical Application:



	Performance	Test Method & Classification	Result	Ref.Perssure (Pa)
	Air Tightness	BS EN 1026 BS EN12207	Class 4	600
	Water Tightness	BS EN 1027 BS EN12208	E900	900
	Wind Load	BS EN 12211 BS EN 12210	BE3500	3500
	Acoustic	ASTM E 90	STC 36	

Performance could be variable depending on window size and configuration.

## FN52W - Inward Opening Window System



FN52W window system is developed to allow the typical European inward opening window to cope with the extreme climate in Asia-Pacific region.

Equipped with the most reliable hardware from Roto, the inventor of Tilt & Turn, it embodies the descent of German window technology and brings the comfort to the end-users.

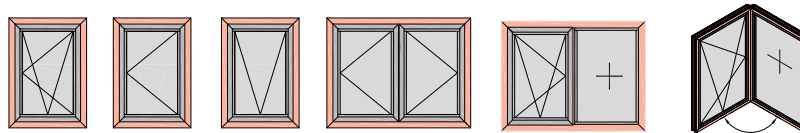
### ■ FN52W







### ■ Main Characteristics:

- Flushed frame and sash on outside surface
- Multi-chamber structure of main profiles and close-chamber glazing bead
- Dual corner joint on both sash and frame enhance the stability of entire window
- European standard hardware groove
- Flexible glass option with thickness from 5 to 32mm

### ■ Typical Application:



	Performance	Test Method & Classification	Result	Ref. Pressure (Pa)
	Air Tightness	BS EN 1026 BS EN12207	Class 4	600
	Water Tightness	BS EN 1027 BS EN12208	E900	900
	Wind Load	BS EN 12211 BS EN 12210	BE3500	3500
	Acoustic	ASTM E 90	STC 39	

Performance could be variable depending on window size and configuration.

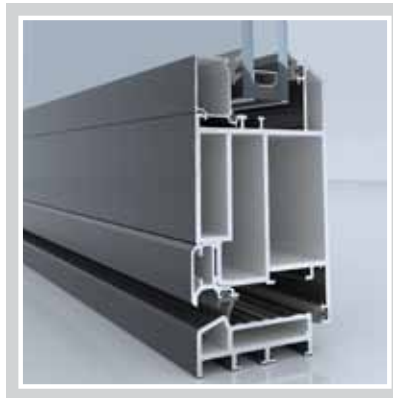


## FN52D - Door System



FN52D door system is designed to meet the needs of residential and commercial buildings.

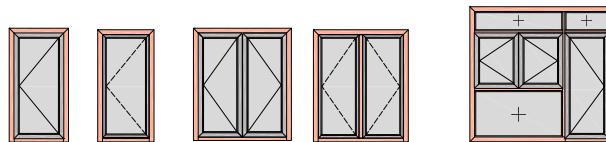
It could be integrated with CN52 and FN52W and the solid profile structure supports the large size application.







■ Main Characteristics:

- Solid designed profile structure with 2mm wall thickness
- Multi-chamber design improves the strength and insulation, and allows special hardware solution to improve the performance
- Dual corner joint on both sash and frame to enhance the stability
- To satisfy the most opening type with small nos.of profile sections
- Option on threshold with high tightness or easy access
- Flexible glass thickness from 5~24mm
- Max sash weight 160kg
- Max sash height 2800mm

■ Typical Application:



	Performance	Test Method & Classification	Result	Ref.Perssure (Pa)
	Air Tightness	BS EN 1026 BS EN12207	Class 4	600
	Water Tightness	BS EN 1027 BS EN12208	8A	450
	Wind Load	BS EN 12211 BS EN 12210	BE3500	3500
	Acoustic	ASTM E 90	STC 36	

Performance could be variable depending on window size and configuration.

## FN52D - Patio Door System

Tilt & Slide, Parallel & Slide and Fold & Slide door can be made with the same profile range and different hardware solutions.



■ Tilt & slide door



■ Fold & slide door



■ Inward & outward opening door



## PN145(INOWA) - High Performance Sliding Door Exclusively from Roto



PN145 sliding door system is equipped with patented Roto INOWA hardware. It's setting a new standard when it comes to door tightness and is therefore ideal for buildings challenged by storm and torrential rain.

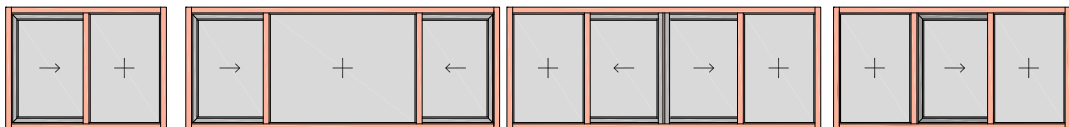
The patent hardware system located at all 4-side of the sash could be easily operated by one hand.



■ Main Characteristics:

- Solid structure with functional multi-chamber
- Crimped sash joint ensures the stability and screw joint frame offers flexibility to transportation of large size unit.
- Synchronized 4-side seal and hardware mechanism around sash ensures the excellent tightness and security
- Easy access threshold and replaceable PA track
- Exchangeable glazing bead allows glass thickness 5~24mm
- Max.sash weight 150kg
- Max.sash height 2800mm
- Max sash width 1500mm

■ Typical Application:



	Performance	Test Method & Classification	Result	Ref.Perssure (Pa)
	Air Tightness	BS EN 1026 BS EN12207	Class 4	600
	Water Tightness	BS EN 1027 BS EN12208	E900	900
	Wind Load	BS EN 12211 BS EN 12210	B5	2000
	Acoustic	ASTM E 90	STC 36	

Performance could be variable depending on window size and configuration.



### **Tight seal**

#### **Remains tightly sealed even in stormy weather**

PN145 Sliding door brings light into living rooms or business premises, provide a smooth transition from indoor to outdoor areas and save space. The tightly sealed sliding system PN145, with the smart hardware Roto Patio Inowa, now ensures a high degree of comfort. No other provides a better seal!

#### **A storm outside and a feel - good climate indoors at all times**

PN145 with Roto Patio Inowa is setting new standards when it comes to window and door tightness and is therefore ideal for use in high-rise buildings where high wind loads occur. This system is guaranteed to remain tightly sealed even in thunderstorms where gusts of wind and torrential rain are hitting the glass and window frame directly. There is no trace of draughts or rattling sashes - thanks to this unique technology.



## PN100 - InLine Sliding Window and Door System



PN100 inline sliding system is developed towards the needs in Asian market, that give consideration to strength, tightness, reliability and cost efficiency at the same time.

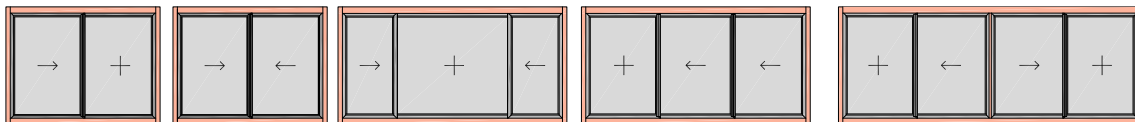
The hardware system from Roto improve the overall performance of sliding greatly.



■ Main Characteristics:

- Window and door share the same frame
- Both 2-track and 3-track frame are available
- Crimped sash joint improves the sash stability and the frame could be assembled at site for easy transportation.
- Sloped frame surface and clip-on outer track made the water drain out easier and faster
- Replaceable PA track gives smooth sash movement
- Exchangeable glazing bead allows glass from 5~20mm
- Compatible with most fly screen solutions at room side or outside

■ Typical Application:



	Performance	Test Method & Classification	Result	Ref.Perssure (Pa)
	Air Tightness	BS EN 1026 BS EN12207	Class 2	600
	Water Tightness	BS EN 1027 BS EN12208	7A	300
	Wind Load	BS EN 12211 BS EN 12210	C5	2000
	Acoustic	ASTM E 90	STC 34	

Performance could be variable depending on window size and configuration.

## C520 - Outward Opening Window System

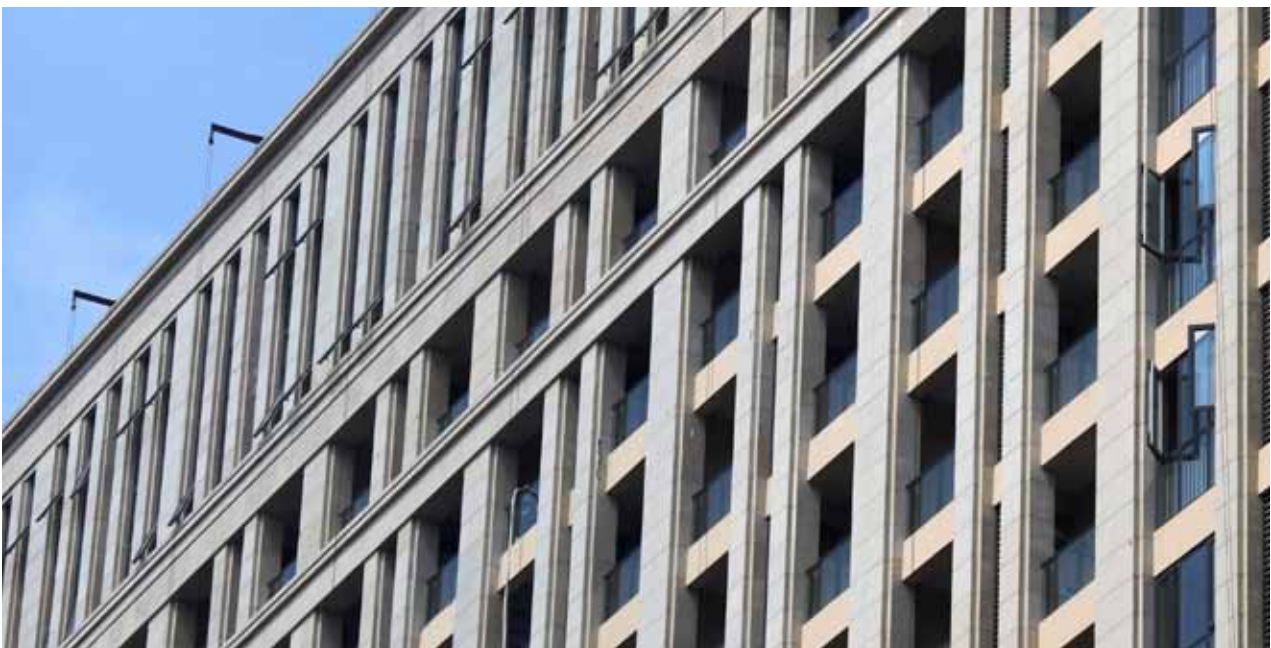


The thermal break version of CN52 to enhance the thermal insulation performance with U-values of  $2.5\text{W/m}^2\cdot\text{K}$ .

■ Indoor flush with the overlap



■ Indoor overlap height



## FT520 - Inward Opening Window and Door System

The thermal break version of FN52W and FN52D are to enhance the thermal insulation performance with U-values of 2.4W/m<sup>2</sup>·K. FT520 includes FT520W and FT520D. It could realize various opening types such as turn-only and tilt & turn window, inward opening door, outward opening door, tilt & slide door, fold & slide and etc.



■ FT520W



■ FT520D for door





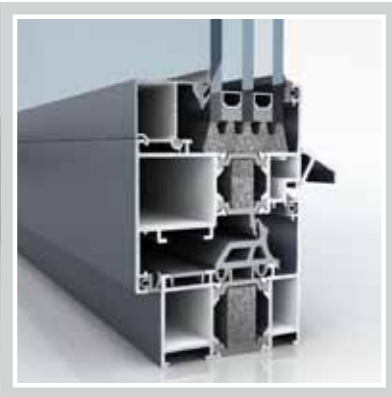
## FT620 and FT720 - Inward Opening Window System

The upgraded version of FT520 on thermal insulation performance, which integrated with larger and sophisticated thermal design. It is the premium range for all kinds of inward opening windows and doors to satisfy high requirement of energy saving.

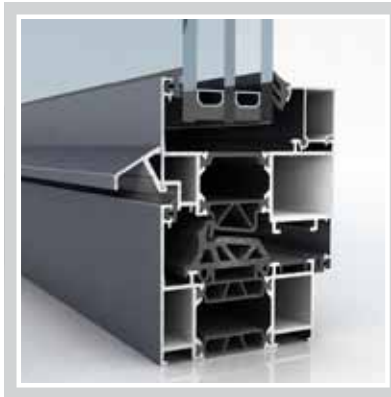
■ FT620W  
Tilt-turn window



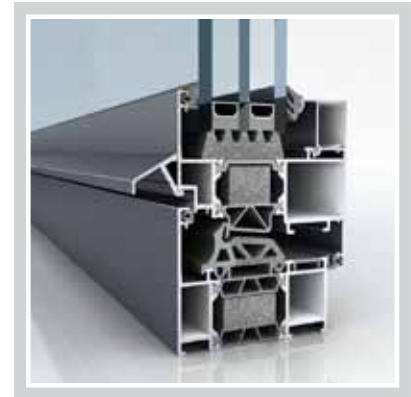
■ FT620W Hi  
High heat insulation structure



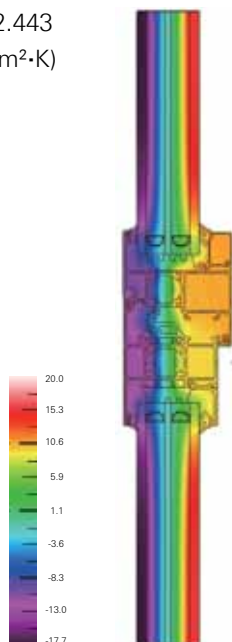
■ FT720W  
Tilt & turn window



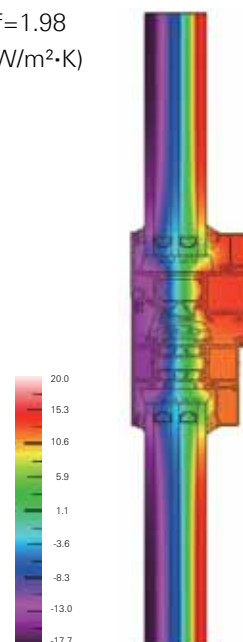
■ FT720W Hi  
High heat insulation structure



■  $U_f=2.443$   
( $W/m^2 \cdot K$ )



■  $U_f=1.98$   
( $W/m^2 \cdot K$ )



## P520 & P700 - Sliding Door System



P520 door system can realise both inline sliding and lift&Slide within the same series through different hardware solution.

The maximal load capacity of one inline sliding sash is 150kg. The Lift&Slide offers 150kg and 300kg sash load option according to the needs.



P700 Lift&Slide door system is the upgraded version of P520 Lift&Slide to satisfy heavier sash with up to 400kg weight, or higher wind load requirement.





Villa(Shangri-la), East China



School, East China



Commercial and Residential Complex, Australia



Hotel(Hilton), East China



Commercial and Residential Complex, Mexico



Commercial and Residential Complex, Australia



Apartment, South China



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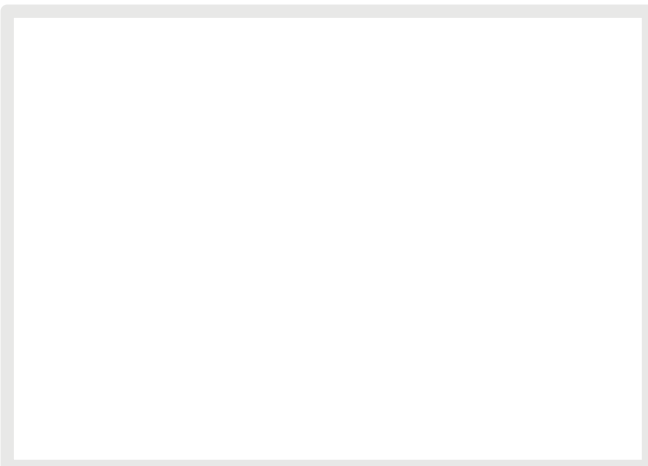
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