CYNOSURE











Assre Plasto stands proud with prestigious certifications from ISO, Shriram, SGS, and CIPET, ensuring world-class quality, durability, and safety in every UPVC profile we manufacture. These recognitions are a testimony to our commitment towards delivering .innovative, reliable, and globally trusted solutions for homes and projects across India



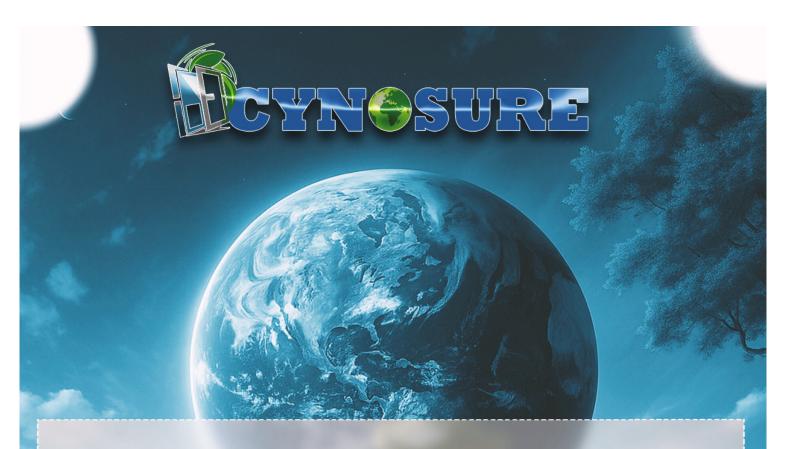
Windows & Doors

At Assre Plasto, we craft world-class UPVC windows and doors that blend strength, durability, and timeless elegance. With advanced technology and precision engineering, we deliver products designed .to withstand every season while enhancing modern living spaces Trusted by builders, architects, and homeowners across India, our profiles ensure superior performance, energy efficiency, and unmatched style. Innovation and quality — are at the heart of everything we do .because your home deserves nothing less than the best



www.cynosurewindow.com





A better world is possible tomorrow We are working to be..

At Cynosure, we believe that sustainability is not just about reducing our carbon footprint — it is about taking a balanced approach that includes environmental, social, and economic responsibilities.

With this belief, we carry out our operations across all areas of our business while staying committed to a sustainable future.

We adopt a working model that respects the environment, supports long-term progress, and serves the future of both our nation and the planet.

Every investment we make and every product we manufacture is aligned with our sustainability-driven strategy — so that together, we can build a better tomorrow.





With consistent growth since its inception, Assre Plasto has emerged as one of the promising manufacturers of uPVC solutions in India. Headquartered in Malda, West Bengal, the company specializes in high-quality uPVC profiles, windows, and door systems, designed for durability, aesthetics, and energy efficiency.

Assre Plasto operates with a state-of-the-art production unit equipped with advanced machinery and stringent quality control processes. With a focus on both residential and commercial markets, we serve diverse sectors including:

- Construction
- Real Estate Projects
- Institutional Buildings
- Retail Showrooms
- Hospitality Sector
- Interior & Architectural Applications

To ensure fast, solution-oriented service, Assre Plasto has developed a strong network of channel partners, dealers, and fabricators across All India.

With the expansion of our brand 'Cynosure', dedicated exclusively to profile dealerships, we are further strengthening our logistics and service capabilities. Our mission is to deliver world-class uPVC solutions that combine performance, style, and sustainability, powering the infrastructure of tomorrow.



Why Cynosure?



Good Mechanical Strength

The abrasion resistance. lightness and good mechanical strength and toughness of uPVC profiles used in the production of windows and doors provide very important technical advantages in its use in building and construction applications.



Fire Resistance

uPVC is naturally difficult to ignite. Its ignition temperature is high, and combustion stops immediately once the heat source is removed. This fire-resistant property makes uPVC particularly suitable for applications such as windows, doors, and surface coatings.



uPVC is resistant to weathering. chemical rot, corrosion, shock and abrasion For this reason, it is preferred by custorners in products exposed too air and in places where many different longevity is desired.



LCA

The environmental impact of uPVC has been found to be positive when compared to other materials used in the production of window profiles and doors according to LCA (Life Cyde Assessment) analysis.



Energy Efficient

In buildings. 28 percent of energy escapes through the windows. The heat transniissåon coefficient of uPVC material is better and a strong insulation material against sound. humidity and similar external effects.



Sustainable

Construction materials such as upvc window,
Door and Profile can be reused at the end
of their life. With this feature, uPVC provides
significant benefits in terms of environment and
economy.



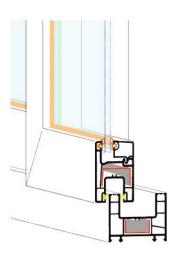


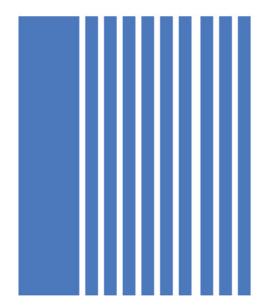
Sliding Window

Smooth operation, sleek design, and space-saving – ideal for modern homes.

Features

Easy glide | Multi-lock | Weather resistant | Slim profile







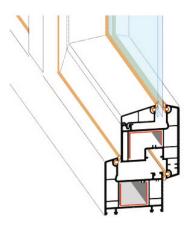


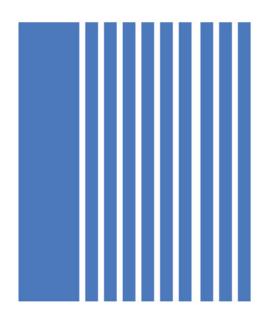
Casement Window

Designed for better ventilation and full openable frames.

Features

Friction hinges | Airtight sealing | Strong locking system







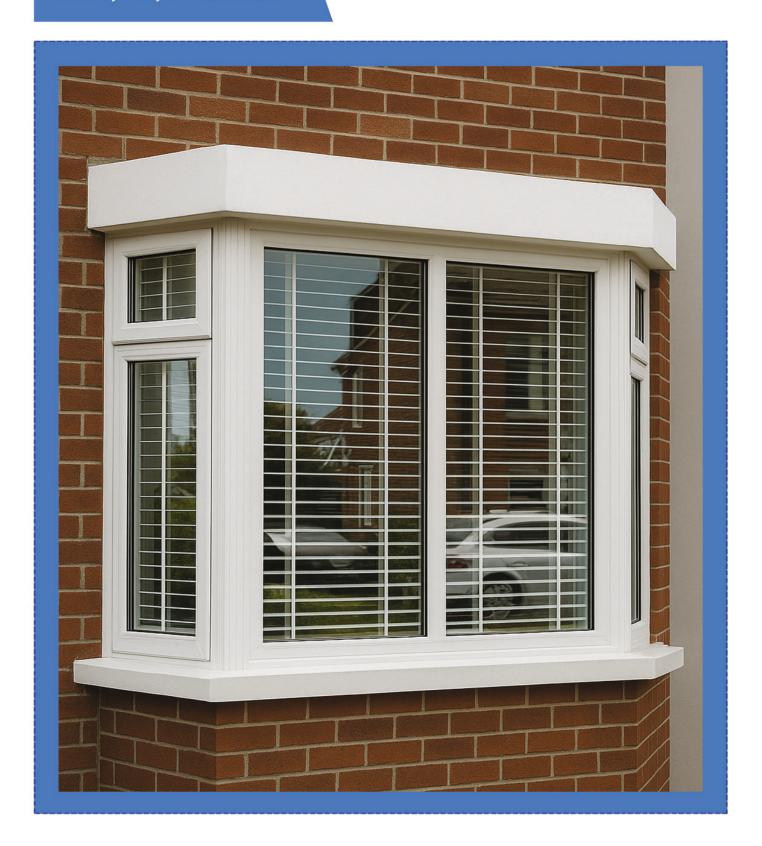


Villa Window

Premium window for independent homes with integrated mesh & grill options.

Features

Security + Style + Ventilation



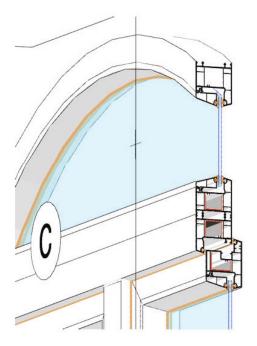


Arch Window

Adds elegance and character with curved architectural appeal.

Features

Custom-made | Architectural beauty | Curve-safe technology



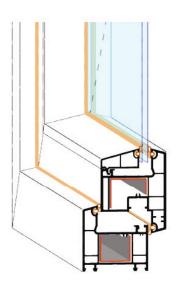


Tilt & Turn Window

Dual-mode operation for ventilation and security.

Features

Tilt mode | Turn mode | 3-in-1 functionality



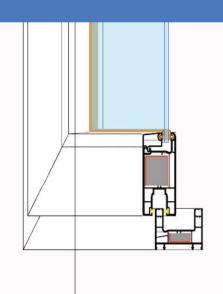


Sliding Door

Ideal for balconies and large openings. Smooth movement with modern look.

Features

Multiple-track options | Heavy-duty rollers | Toughened glass compatibility







Casement Door

Classic hinged door with strong profile for main entrances and interiors.

Features

High security | Strong hinges | Elegant finish



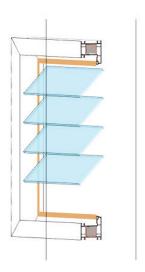


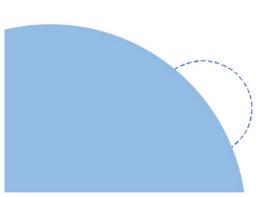
Louver

Best for ventilation-focused areas like toilets, shafts, and kitchens.

Features

Slat width | Opening angle control | Insect mesh optional









DURABILITY



INSULATION



SECURITY



ELEGANCE



CYNOSURE Windows

FOR EVERY CLIMATE



Cynosure Color Option



White

Classic luxury look

Experience the elegance of natural wood with the durability of uPVC. Golden Oak finish brings warmth and sophistication to your space, making it ideal for both modern villas and traditional homes. A perfect harmony of beauty and performance.



Mahagoni

Classic Heritage Look

Bring timeless elegance to your windows and doors with the Mahagoni finish. Inspired by antique wood textures, this deep reddish-brown tone gives your space a classic and royal aesthetic while maintaining modern performance.



Golden Oak

Natural Charm, Timeless Appeal

Experience the elegance of natural wood with the durability of uPVC. Golden Oak finish brings warmth and sophistication to your space, making it ideal for both modern villas and traditional homes. A perfect harmony of beauty and performance.



Walnut

Deep Luxury, Rich Texture

Add a touch of grandeur with our rich Walnut finish. Known for its deep, bold tones and luxurious wood grain, this color enhances interiors that demand distinction and class. Best suited for premium homes and offices.



Sandy Grey

Modern Elegance, Urban Tone

Perfect for contemporary homes and minimalist design lovers, Sandy Grey offers a smooth and balanced shade that complements glass facades, metal frames, and urban interiors. Understated, yet premium.



Sandy Black

Bold Sophistication

For those who want to make a bold statement, Sandy Black is the perfect choice. Its matte finish and deep tone add contrast and drama to any setting — delivering both strength and style in one powerful package.

All finishes are UV-resistant, long-lasting, and crafted with precision to match your architectural vision

CYNOSURE

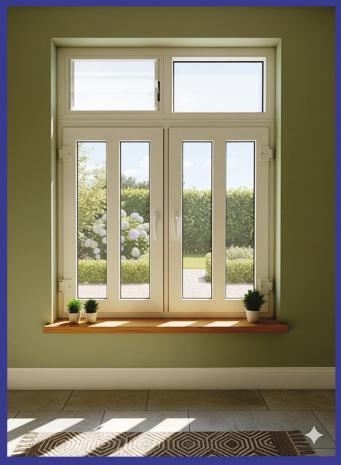




modern door designs with a wide range of **styles and finishes**

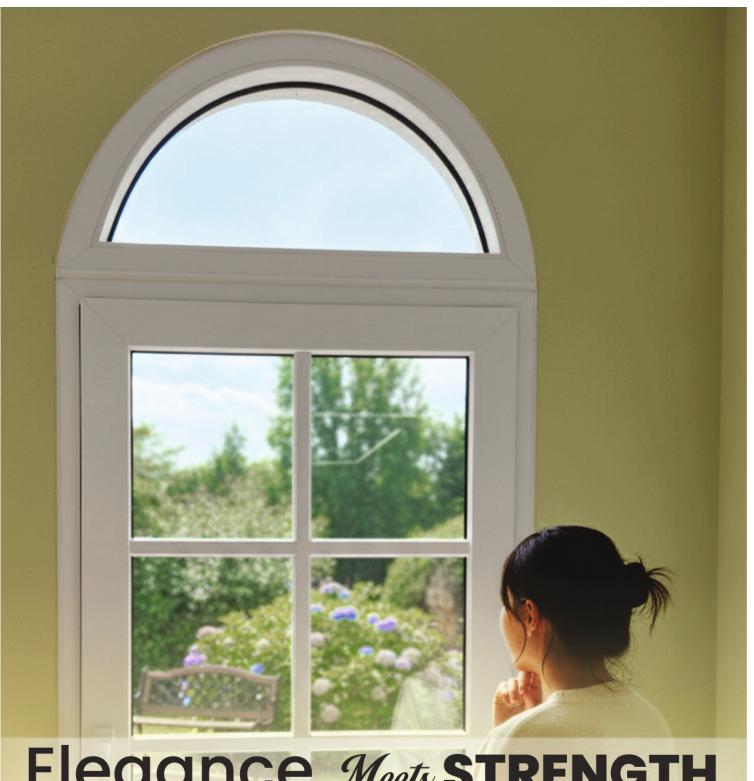
CYNOSURE











Elegance Meets STRENGTH

Premium UPVC Windows for Timeless Comfort & **Lasting Durability**





" CYNOSURE " PROFILE RANGE OVERVIEW

CASEMENT PREMIUM SERIES

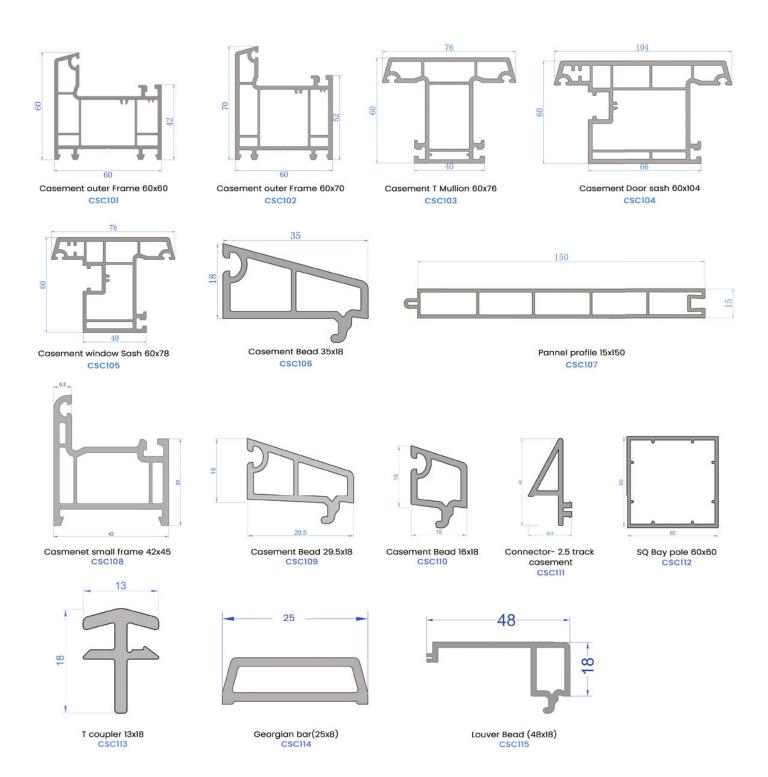
SLIDING ROYAL SERIES {60}

SLIDING PREMIUM SERIES {55}

"CYNOSURE" uPVC Profiles, made from globally sourced premium raw materials, are engineered for strength, durability, and all-weather performance. With multi-chamber design, they offer thermal insulation, soundproofing, and UV resistance, making them ideal for Indian conditions. As demand for energy-efficient, low-maintenance windows grows rapidly, CYNOSURE is expanding its presence across West Bengal & India, becoming a trusted choice for builders, architects, and homeowners.



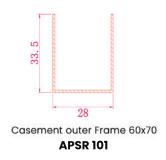
CASEMENT PREMIUM SERIES

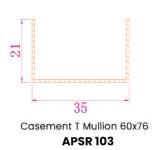


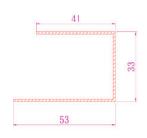


CASEMENT PREMIUM SERIES REINFORCEMENTS

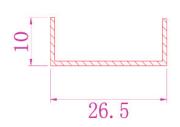












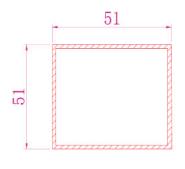
Casement Door sash 60x104

APSR 104

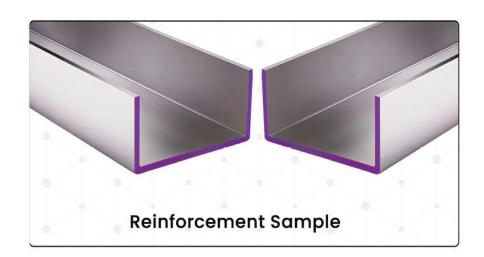
Casement window Sash 60x78 **APSR 105**

Casmenet small frame 42x45

APSR 108



SQ Bay pole 60x60 APSR 112



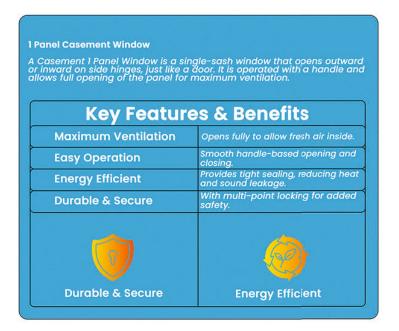
Reinforced uPVC Windows - Benefits

- Superior Strength Steel reinforcement prevents bending, warping, and ensures long-lasting durability.
- Enhanced Security Stronger frame structure makes break-ins far more difficult.
- Ideal for Large Windows Perfect solution for big sliding or casement windows.
- Weather & Rust Resistant Withstands heat, rain, and humidity without damage.
- Low Maintenance & Long Life No painting, no corrosion, just lasting performance.



CASEMENT PREMIUM SERIES WINDOWS



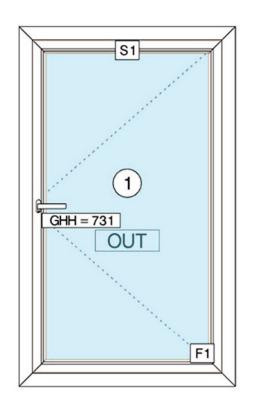




2 Panel Casement Window A Casement 2 Panel Window consists of two sashes placed side by side, hinged on the outer frames. Both panels can open outward (or inward), allowing wide ventilation and an elegant look. Key Features & Benefits Stylish & Balanced Design | Two panels create a symmetrical and premium appearance. Wide Opening | Both panels can open fully for maximum airflow and natural light. Can be opened partially or fully, as per need. High Security | Multi-point locking system ensures strong protection. Durable & Secure | Energy Efficient

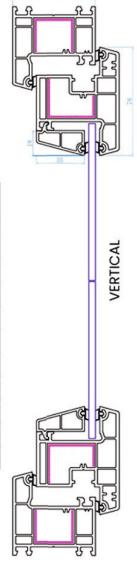


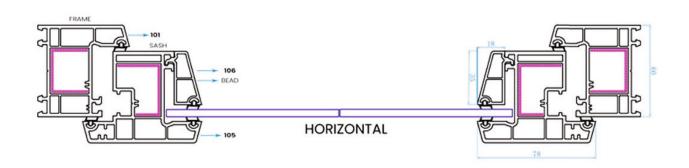
CASEMENT WINDOW ELEVATION AND SECTION DETAILS



1 PANEL OUTWARD OPENABLE CASEMENT WINDOW

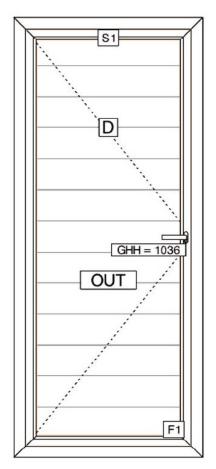
| PROFILE COLOR | WHITE |
|-------------------|-----------------------------------|
| MESH TYPE | NO |
| CASEMENT SASH | OUTWARD SASH 60MM×78MM |
| SASHRI | RI-14MM×27MM×33MM×14MM×16MM-1.5MM |
| OUTER FRAME | CASEMENT OUTER FRAME 60MM × 60MM |
| FRAME RI | RI-23.5MM × 28MM × 23.5MM – IMM |
| LOCKING TYPE | SINGLE-POINT |
| HANDLE TYPE | S2-COCKSPUR HANDLE LEFT |
| HANDLE COLOR | WHITE |
| FRICTION STAY | 20° |
| OPENING DIRECTION | LEFT-HAND |





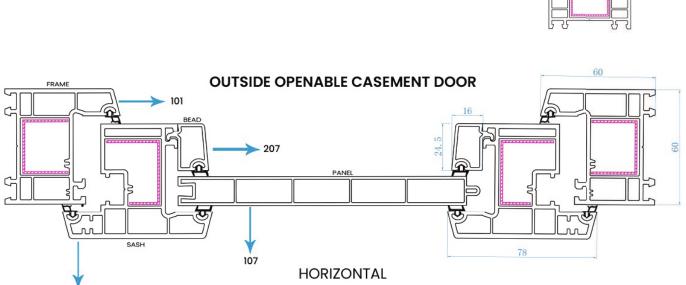


CASEMENT DOOR ELEVATION AND SECTION DETAILS



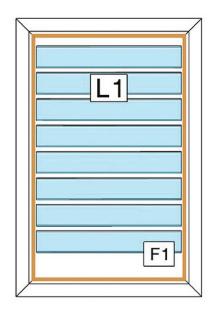
105

| DOOK | SPECIFICATIONS |
|-------------------|-----------------------------------|
| PROFILE COLOR | WHITE |
| MESH TYPE | NO |
| CASEMENT SASH | OUTWARD SASH 60MM×78MM |
| SASH RI | RI-14MM×27MM×33MM×14MM×16MM-1.5MM |
| OUTER FRAME | CASEMENT OUTER FRAME 60MM × 60MM |
| FRAME RI | RI-23.5MM × 28MM × 23.5MM – 1MM |
| LOCKING TYPE | SINGLE-POINT |
| HANDLE TYPE | S1-COCKSPUR HANDLE |
| HANDLE COLOR | WHITE |
| FRICTION STAY | 20" |
| OPENING DIRECTION | RIGHT-HAND |
| PANEL / GLASS | PANEL |





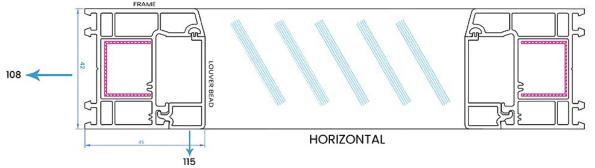
LOUVER FIXED ELEVATION AND SECTION DETAILS



LOUVERS

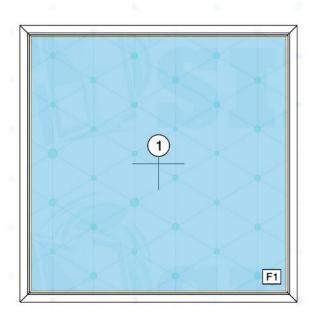
| LOUVERS SPECIFICATIONS | |
|------------------------|-----------------------------------|
| PROFILE COLOR | WHITE |
| MESH TYPE | NO |
| CASEMENT FRAME | CASEMENT OUTER FRAME 42MM × 29MM |
| SASH RI | RI-14MM×27MM×33MM×14MM×16MM-1.5MM |





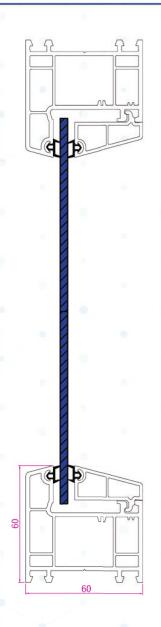


CASEMENT FIXED WINDOW ELEVATION AND SECTION DETAILS



CASEMENT FIXED WINDOW

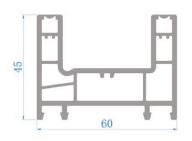
| WINDOW SPECIFICATIONS | |
|-----------------------|-------------------------------|
| PROFILE COLOR | WHITE |
| FRAME | OUTER FRAME 60MM X 60MM |
| FRAME RI | Ri-23.5Mm X 28Mm X 23.5Mm-1Mm |
| MESHTYPE | NO |



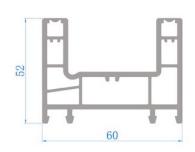




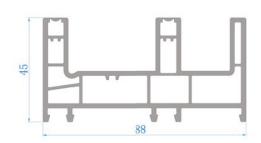
SLIDING ROYAL SERIES {60}



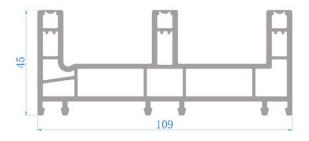




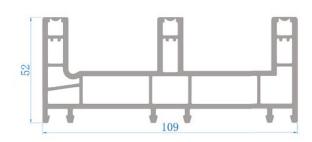
Sliding 2 track outer rame 60x52 CSS201A



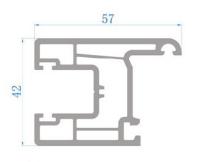
Sliding 2.5 track outer rame 88x45 CSS202



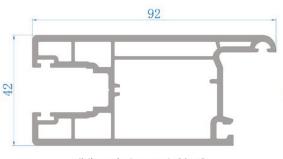
Sliding 3 track outer rame 109x45 CSS203



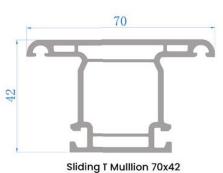
Sliding 3A track outer rame 109x52 CSS203A



Sliding window Sash 57x42 CSS204

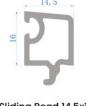


Sliding window Sash 92x42 CSS205

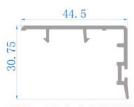


Sliding Bead 24.5x16 CSS207

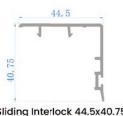
24.5



Sliding Bead 14.5x16 (15mm Panel) CSS208



Sliding Interlock 44.5x30.75 CSS209

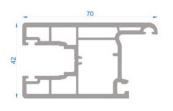


CSS206

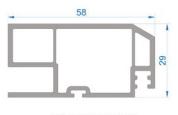
Sliding Interlock 44.5x40.75 CSS210



SLIDING ROYAL SERIES {60}



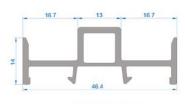
Sliding Intermediate Sash 70x42 CSS211



Sliding Mesh sash 58x29 CSS212



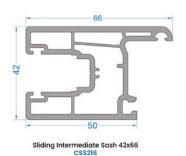
Sliding DG Bead 11.5x16 CSS213



Inline Adopter 14x46 CSS214



Sliding Interlock 44.5x46 CSS215



SLIDING ROYAL SERIES (60) REINFORCEMENTS



Sliding all Frame (201-201A-202-203-203A)



Sliding Window Sash 57 x 42 (APSR204)



Sliding T Mullion 70x42

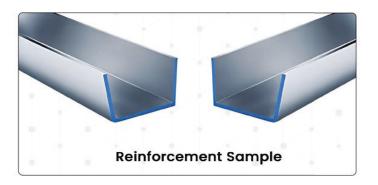


Sliding Intermediate Sash 70x42 (APSR211)





Sliding Intermediate Sash 42x66 (APSR216)

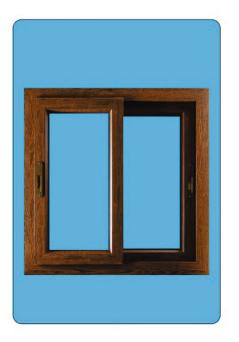


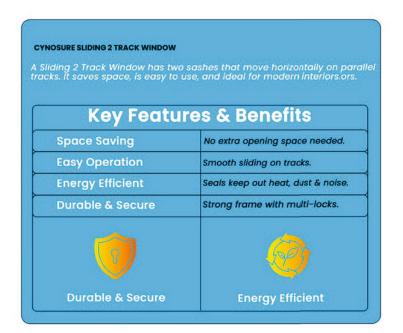
Reinforced uPVC Windows - Benefits

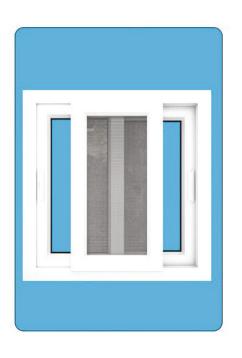
- Superior Strength Steel reinforcement prevents bending, warping, and ensures long-lasting durability.
- Enhanced Security Stronger frame structure makes break-ins far more difficult.
- Ideal for Large Windows Perfect solution for big sliding or casement windows.
- Weather & Rust Resistant Withstands heat, rain, and humidity without damage.
- Low Maintenance & Long Life No painting, no corrosion, just lasting performance.

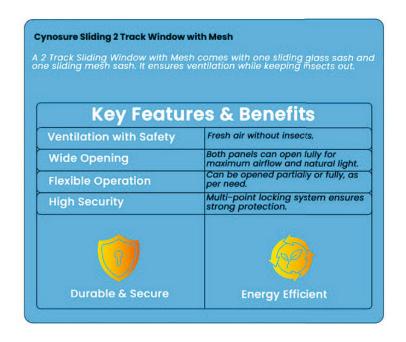


SLIDING ROYAL SERIES (60) WINDOW



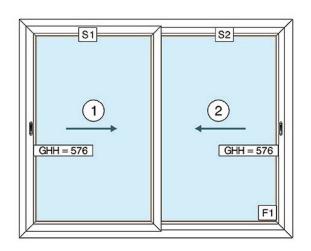






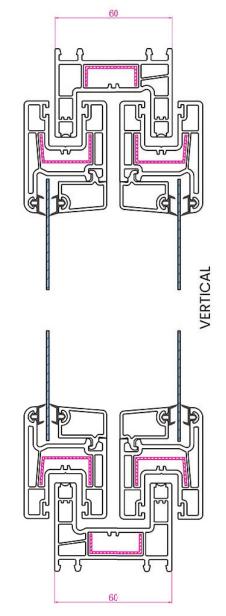


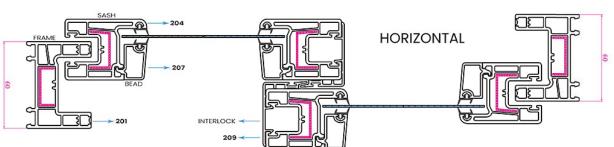
SLIDING 2 TRACK ELEVATION AND SECTION DETALIS



SLIDING 2 TRACK WINDOW

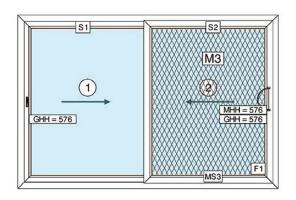
| WINDOW SPECIFICATIONS | |
|-----------------------|---|
| PROFILE COLOR | WHITE |
| MESH TYPE | NO |
| SLISING SASH | Sliding window Sash 57x42 |
| SASH RI | RI-14MM X 26MM X14MM-1.5MM |
| SLIDING TRACK | Sliding 2 track outer rame 60x45 |
| TRACK RI | RI-10MM X 26.5MM X 10MM-1MM |
| LOCKING TYPE | SINGLE-POINT |
| HANDLE TYPE | TYPE : S1-SLD TOUCH LOCK LEFT TYPE : S1-SLD TOUCH LOCK RIGHT |
| HANDLE COLOR | WHITE |
| GUIDE RAIL | ALUMINIUM GUIDE RAIL(PLASTO-GR) |
| ROLLER | SINGLE WHEEL WITH GROOVE |





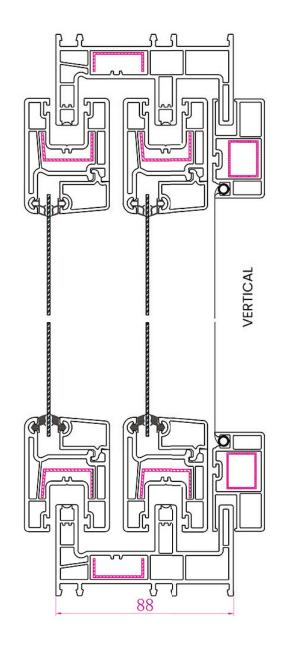


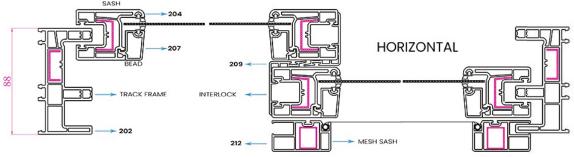
SLIDING 2.5 TRACK WITH MESH ELEVATION AND SECTION DETALIS



SLIDING 2.5 TRACK WINDOW

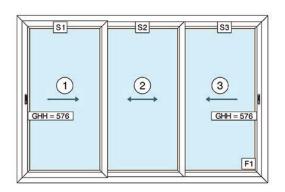
| WINDOW SPECIFICATIONS | |
|-----------------------|---|
| PROFILE COLOR | WHITE |
| INTERLOCK | INTERLOCK 44.5MM X 30.75MM |
| SLISING SASH | Sliding window Sash 57x42 |
| SASH RI | RI-14MM X 26MM X14MM-1.5MM |
| SLIDING TRACK | 2.5T Frame 88Mm X 45Mm |
| TRACK RI | RI-10MM X 26.5MM X 10MM-1MM |
| LOCKING TYPE | SINGLE-POINT |
| HANDLE TYPE | TYPE: S1-SLD TOUCH LOCK LEFT TYPE: S1-SLD TOUCH LOCK RIGHT |
| HANDLE COLOR | WHITE |
| GUIDE RAIL | ALUMINIUM GUIDE RAIL(PLASTO-GR) |
| ROLLER | FLY MESH ROLLER SINGLE WHEEL WITH GROOVE |
| FLYMESH SASH | 0.5 MESH SASH 29MM X 58MM |
| FLY MESH RI | RI-23MM X 26MM X 23MM-1.5MM |
| ESH HANDLE TYPE | S3-SLD C HANDLE |





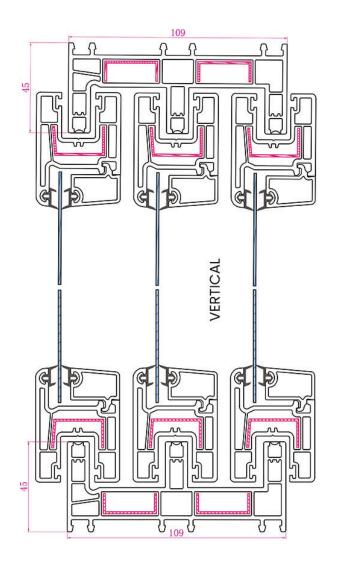


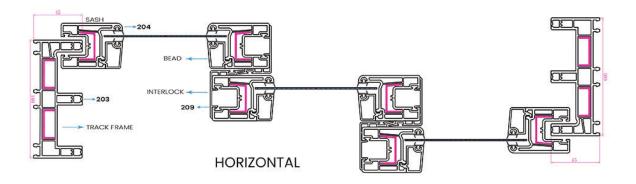
SLIDING 3 TRACK ELEVATION AND SECTION DETAILS



SLIDING 3 TRACK WINDOW

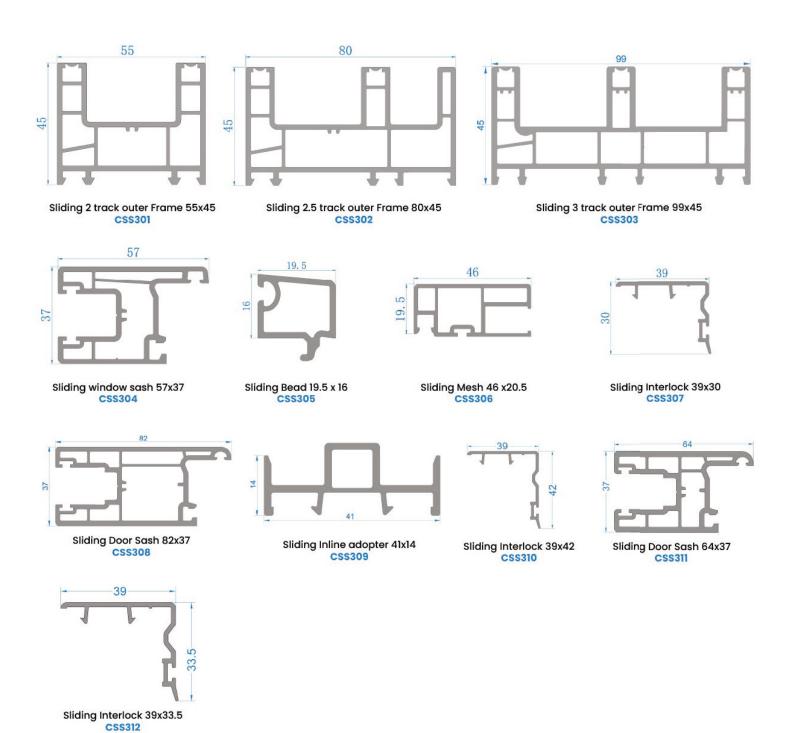
| PROFILE COLOR | WHITE |
|---------------|---|
| INTERLOCK | INTERLOCK 44.5MM X 30.75MM |
| SLISING SASH | Sliding window Sash 57x42 |
| SASH RI | RI-14MM X 26MM X14MM-1.5MM |
| SLIDING TRACK | Sliding 3 track outer rame 109x45 |
| TRACK RI | RI-10MM X 26.5MM X 10MM-1MM |
| LOCKING TYPE | SINGLE-POINT |
| HANDLE TYPE | TYPE : S1-SLD TOUCH LOCK LEFT TYPE : S1-SLD TOUCH LOCK RIGHT |
| HANDLE COLOR | WHITE |
| GUIDE RAIL | ALUMINIUM GUIDE RAIL (PLASTO-GR) |
| ROLLER | SINGLE WHEEL WITH GROOVE |







SLIDING PREMIUM SERIES {55}





SLIDING PREMIUM SERIES {55} REINFORCEMENTS



Sliding 2 Track outer frame 55x45 (APSR301)



Sliding 2.5 Track outer frame 80x45 (APSR302)



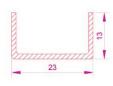
Sliding 3 Track outer frame 99x45 (APSR303)



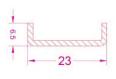
(APSR304)

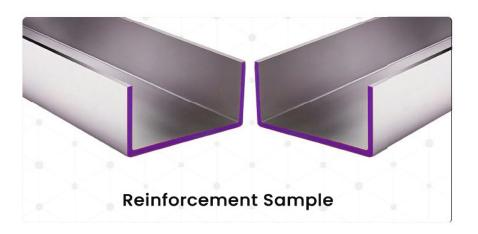






Sliding Door sash 82x37 (APSR308)





Reinforced uPVC Windows - Benefits

- 🛮 Superior Strength Steel reinforcement prevents bending, warping, and ensures long-lasting durability.
- Enhanced Security Stronger frame structure makes break-ins far more difficult.
- Ideal for Large Windows Perfect solution for big sliding or casement windows.
- Weather & Rust Resistant Withstands heat, rain, and humidity without damage.
- Low Maintenance & Long Life No painting, no corrosion, just lasting performance.

LAMINATION COLOURS





SLIDING PREMIUM SERIES {55} WINDOW





SEVERAL BENEFITS



LEAD FREE



FIRE RESISTANT



TERMITE PROOF



ECO FRIENDLY



WEATHER RESISTANT



PREVENTS RAINWATER SEEPAGE



NOISE CONTROL



ENERGY SAVING



UV PROTECTION



LOW MAINTENANCE



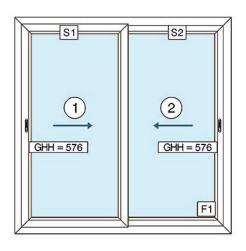
PREVENTS DUST BUILDUP



POLLUTION RESISTANT

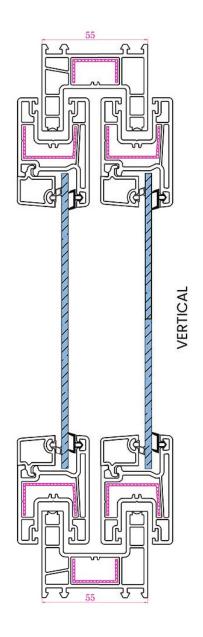


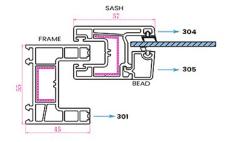
SLIDING 2 TRACK ELEVATION AND SECTION DETAILS

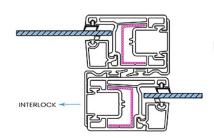


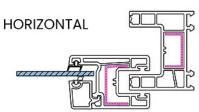
SLIDING 2 TRACK WINDOW

| WINDOW SPECIFICATIONS | |
|-----------------------|---|
| PROFILE COLOR | WHITE |
| INTERLOCK | INTERLOCK 39MM X 30MM |
| SLISING SASH | Sliding Sash 37Mm X 57Mm |
| SASH RI | RI-16.5MM X 27.5MM X 16.5MM-1.5MM |
| SLIDING TRACK | 2T Frame 55Mm X 45Mm |
| TRACK RI | RI-12MM X 23.5MM X 12MM-1MM |
| LOCKING TYPE | SINGLE-POINT |
| HANDLE TYPE | TYPE : S1-SLD TOUCH LOCK LEFT TYPE : S1-SLD TOUCH LOCK RIGHT |
| HANDLE COLOR | WHITE |
| GUIDE RAIL | ALUMINIUM GUIDE RAIL(PLASTO-GR) |
| ROLLER | SINGLE WHEEL WITH GROOVE |



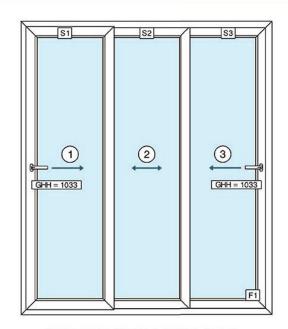






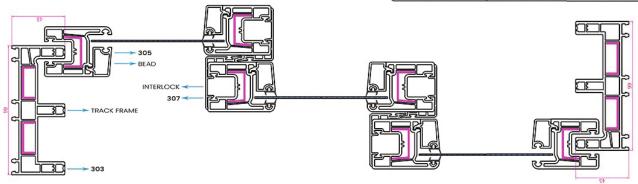


SLIDING 3 TRACK DOOR ELEVATION AND SECTION DETAILS



SLIDING 3 TRACK DOOR

| WINDO | W SPECIFICATIONS | | | | |
|---------------|--|--|--|--|--|
| PROFILE COLOR | WHITE | | | | |
| INTERLOCK | INTERLOCK 39MM X 30MM | | | | |
| SLISING SASH | Sliding Sash 37Mm X 82Mm | | | | |
| SASH RI | ; RI-23MM X 23MM X 23MM-1.5MM | | | | |
| SLIDING TRACK | Sliding 3 track outer Frame 99Mm X 45Mr | | | | |
| TRACK RI | RI-12MM X 23MM X 12MM-1MM | | | | |
| LOCKING TYPE | MULTI-POINT | | | | |
| HANDLE TYPE | S1-ESPAG HANDLE WITHOUT KEY S3-ESPAG HANDLE WITHOUT KEY | | | | |
| HANDLE COLOR | WHITE | | | | |
| GUIDE RAIL | ALUMINIUM GUIDE RAIL(PLASTO-GR) | | | | |
| ROLLER | DOUBLE WHEEL ADJUSTABLE WITH GROOVE | | | | |





Bead Compatibility Guide

COMPATIBILITY AT A GLANCE

Each profile code is listed separately with its recommended bead for Glass, Panel, and Mesh.

| FRAME / SASH CODE | APPLICATION | BEAD FOR GLASS | | | BEAD FOR PANEL | BEAD FOR MESH |
|-------------------|---------------------------------------|----------------|----------------------------------|-----------|-------------------|------------------|
| | | 5,6 MM | 8,10,12 MM | DGU GLASS | DEAD I ON I AIREE | DEAD I ON MEDIT |
| CWC104 C | CASEMENT DOOR SASH | CWC106 | CWC109 | CWC305 | CSS207 (24.5) | <u> </u> |
| | | | | CWC208 | | |
| CWC105 | CASEMENT WINDOW SASH | CWC106 | CWC109 | CWC305 | CSS207 (24.5) | |
| | | | | CWC208 | | |
| CWC108 CASEMENT S | 0.405.45.45.03.44.45.(45.45.4.45.02.) | CWC207 | CWC305 CWC110 (6,10MM) (10MM) | CWC305 | CSS207 (24.5) | |
| | CASEMENT SMALL FRAME (VENTILATOR) | | | CWC208 | | - |
| CWS204 | SLIDING WINDOW SASH | CWS207 | CWS305 | CWS208 | CSS208 (14.5) | CSC106 (35X18) |
| CWS205 | SLIDING DOOR SASH | CSS207 | CSS305 | CSS208 | CSS208 (14.5) | CSC106 (35X18) |
| CWS211 | SLIDING INTERMEDIATE SASH | CSS207 | CSS305 | CSS208 | CSS208 (14.5) | CSC106 (35X18) |
| CWS304 | SLIDING WINDOW SASH | CSS305 | CSS208 | CSS305 | CSS208 (14.5) | CSC109 (29.5X18) |
| CWS308 | SLIDING DOOR SASH | CSS305 | CSS208 | CSS305 | CSS208 (14.5) | CSC109 (29.5X18) |



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Reach out for quotes, dealer partnerships, technical assistance, or custom solutions. Our team will respond with the best guidance and transparent pricing.

Sales & Quotes

Dealer/Project Enquiry

After-Sales Support

Custom Fabrication













INSTALATION PROCESS



STEP BY

STEP GUIDE

TO YOUR NEW

WINDOW & DOOR









Dealer Benefits & **Branding Support**

Let's grow together — expand your business with trust, transparency, and top-tier products.

Showroom Branding Kit:-

Standees, banners, glow signboards, etc.



Digital Promotions Support:-

Social media shoutouts, local ad support



Bulk Purchase Rewards:-

Gifts, incentives, recognition





Training & Sales Support:-

Technical know-how & sales pitch support







Tensile Strength Test (IS 13360 Part 5/Sec 1:1992, ISO 527 Equivalent)

Definition:

Tensile strength is the maximum amount of tensile (pulling or stretching) stress a uPVC material can withstand before breaking or failing. It is determined by pulling a specimen until fracture occurs.

Standard Reference:

This test is conducted as per IS 13360 Part 5/Sec 1:1992 (equivalent to ISO 527), which defines the specimen shape, testing procedure, and calculation method for consistent and comparable results.

Unit:

The result is expressed in megapascals (MPa), where: 1 MPa = 1 N/mm

Formula:

● Tensile Strength (IS 13360) shows how strong a uPVC profile is when stretched — a direct measure of its mechanical toughness and reliability.



Tensile strength directly affects product safety, durability, performance, and cost-effectiveness. Poor tensile strength can lead to product failure, customer dissatisfaction, or safety hazards.



Weld Strength Test (IS 17953:2023)

Weld Strength Test (IS 17953:2023)

The weld strength test, as described in IS 17953:2023, is a standard method used to determine the mechanical strength of welded corners and T-joints in uPVC profiles (commonly used for windows and doors).

In this test, profile specimens are welded at $90^{\circ} \pm 1^{\circ}$. The welded joint is then subjected to tensile or bending forces at a controlled speed (50 ± 5 mm/min) until failure occurs. The failure load (N) is recorded and the failure stress (MPa) is calculated based on the specimen geometry. The average value from at least three samples is reported.

Purpose

To ensure welded joints in uPVC profiles have adequate strength and stability.

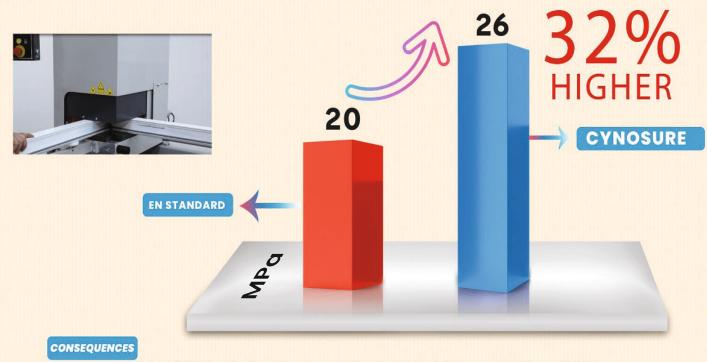
To verify that welding quality and material formulation meet Indian durability and safety requirements.

Consequence of Low Weld Strength:

Poor corner and joint stability.

Cracks or deformation during transportation and installation.

Reduced durability and higher risk of joint failure under load, wind pressure, or long-term use.



Insufficient weld strength may result in cracks at welded corners and panel joints, particularly during window transit and installation, leading to premature failure and reduced product reliability.



Vicat Softening Temperature (IS 13360 Part 6 Sec 1:1992)

Definition

The Vicat Softening Temperature is the temperature at which a flat-ended needle penetrates 1 mm into the surface of a plastic specimen under a specified load, as per IS 13360.

Test Principle

A specimen is placed under a 1 mm² needle.

A constant load of 10 N or 50 N is applied.

Heated at a controlled rate (50 °C/hr or 120 °C/hr).

The temperature at 1 mm penetration = VST value.

Why It Matters

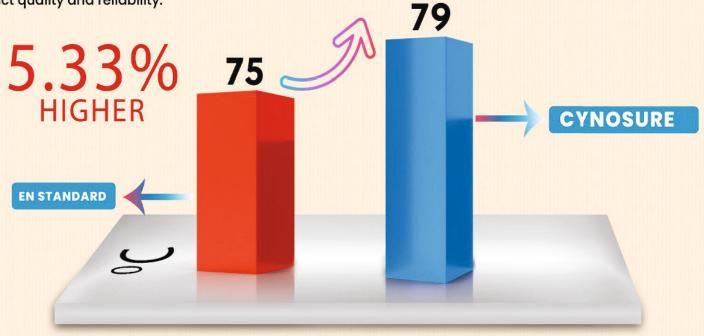
Ensures uPVC windows & doors resist deformation under heat and direct sunlight.

Higher VST = better thermal resistance & long-term durability.

Recommended: VST > 75 °C for tropical climates like India.

In Short

VST indicates how much heat a uPVC profile can withstand before softening — a key benchmark of product quality and reliability.





Heat Reversion Test (IS 16943:2018)

Definition

Heat Reversion is the change in length (shrinkage) of a uPVC profile when it is exposed to heat in a controlled environment. This test checks the dimensional stability of uPVC profiles under high temperature conditions.

Test Method

A profile specimen of specified length is cut.

Kept in a hot air oven at 100 ± 2 °C for 1 hour.

After cooling to room temperature, the change in length is measured.

Reversion % Formula

Reversion(%)=
$$\frac{L_0 - L_1}{L_0} \times 100$$

Where:

$$L_{\it 0=Original\ Lenth\ (mm)}$$

$$L_{1=Lenth\ After\ heating\ (mm)}$$

Requirement as per IS 16943:2018

Heat Reversion shall not exceed 2% for uPVC profiles.





Heat Aging Test (IS 16943:2018)

Definition

Heat Aging is a test conducted to check how well uPVC profiles retain their physical and mechanical properties when exposed to elevated temperatures for a prolonged period.

Test Method

uPVC profile samples are placed in a hot air oven at 100 ± 2 °C.

Exposure time: 150 ± 2 hours (approx. 6 days).

After aging, the samples are cooled to room temperature.

Then impact strength, colour, surface finish, and brittleness are examined.

Requirement as per IS 16943:2018

No cracks, chalking, or discoloration should be visible.

Mechanical properties (especially impact resistance) must not fall below the minimum specified values.





Flexural Modulus of Elasticity Test (IS 13360 Part 5/Sec 5:1992, ISO 178 Equivalent)

Definition

The flexural modulus is the ratio of stress to strain when a uPVC specimen is bent under load. It measures the stiffness and resistance to bending of the material.

Test Principle

A rectangular uPVC specimen is placed on two supports.

A load is applied at the center (three-point bending).

The specimen bends, and the stress-strain curve is recorded.

The slope of the curve = Flexural Modulus (MPa).

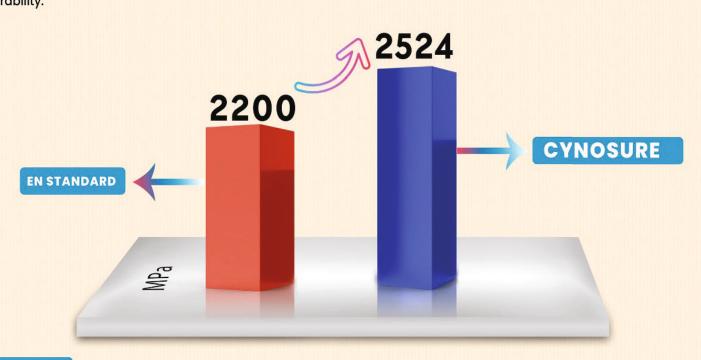
Why It Matters

Higher Flexural Modulus = better rigidity, dimensional stability, and load-bearing capacity.

Ensures windows & doors do not deform under wind pressure or installation stress.

In Short

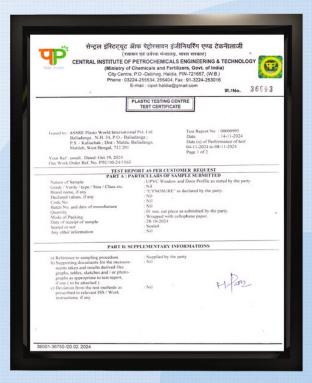
Flexural Modulus shows how stiff and stable a uPVC profile is under bending loads, directly linked to strength and durability.





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Industry Standards











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