Contents

PERFORMANCE SPECIFICATION

1. Sliding window system/frameless look window

The object of the invitation to tender is the manufacture, delivery and installation of thermally insulated sliding windows as specified below.

2. Design features

- Frameless look sliding window design with an inflatable gasket.
- The façade glazing, i.e. fixed elements and sliding window, are fitted flush with the floor and ceiling.
- The installation depth of the entire construction, i.e. fixed element with sliding window, is 173 mm.
- The seal between the fixed and moving sliding window uses an all-round inflatable gasket.
- The integrated compressor operates quietly and does not require maintenance throughout its service life.
- Structural deflection of up to 40 mm can be absorbed using special dilating brackets.
- The glazing gasket on the inside and outside is made from EPDM and fitted without interruption on four sides, pushed in and glued at the top centre.
- All system fittings and the gasket have a warranty period of 10 years.
- Reference products: **air-lux SW 75 / Schüco AS AL 75** or equivalent

Proof of delivery
Air-Lux Technik AG
Breitschachenstrasse 52
9032 Engelburg, Switzerland

3. All-glass design

- Frameless sliding window construction with all-glass design.
- The two-side step glass is fixed to the outside of the sliding window.
- The steps of the insulating glass must be laminated ‘opaque’; i.e. the bond must not be visible from the outside.

4. Profiling/profile system

- The vertical profiles (including frame and sliding sash) have a visible face width of 66 mm.
  Frame widths at wall and ceiling connections can be adapted to the specific building conditions. Available profile widths range from 85 mm to 250 mm.
- The main profiles are multi-chamber hollow aluminium sections with an edge radius of ≤ 0.5 mm.
- Mullion and transom profiles are thermally insulated and match the design and alignment of the system’s main profiles.
- Composite profiles are manufactured at the system supplier’s factory. Both the extrusion plant and the composite manufacturer must be certified in accordance with ISO 9000 standards.
- Structural performance of the metal/plastic composite profiles must be verified according to the IfBt guideline.
- The suitability of the thermal break (insulation web) must be confirmed by a general building authority test certificate.
- The thermal break is made from recycled polyamide (PA 6.6) with 25% glass fibre content and a front insert of hot-melt adhesive wire.

- All composite profiles provide a continuous thermal insulation layer within both frame and sash profiles.
- The sliding window system is compatible with the Schüco AWS 75 SI+ window system.
- To meet specific structural requirements (e.g. wind load, suction), the installation depth can be increased using an internal reinforcing post. Depth and wall thickness of this post depend on the required structural performance. The visible face width of 66 mm remains unchanged.
- The bottom running rail is made from extruded aluminium and includes milled drainage slots of sufficient size for effective rainwater discharge.
- Glass elements with thicknesses ranging from 28 mm to 60 mm can be installed.

5. Fittings

- All fittings must be supplied as durable, high-quality components made from light metal, stainless steel, or plastic. They shall be appropriately sized and engineered to withstand the expected mechanical loads.
- Butt joints between profiles shall incorporate system-specific aluminium connectors that fill the hollow chambers. Adhesive bonding must be applied in controlled and limited quantities to ensure structural integrity and long-term performance.

6. Rollers

- A minimum of two rollers and guide rollers are provided for each sliding sash and in accordance with the static requirements.
- Each roller unit consists of a fixed-bearing profile roller with dual-sided gap seals. The assembly is permanently lubricated and designed to be maintenance-free.
- The load-bearing capacity of each individual roller is at least 800 kg.
- All associated components such as feeders, guide rollers, locking elements, running tracks, and fasteners are manufactured from corrosion-resistant stainless steel.

7. Drive

- The drive system consists of an electric motor and control electronics, fully integrated within the upper horizontal profile (chamber dimension: 95 mm).
- A motorised configuration is recommended for sliding sashes with a weight exceeding 600 kg.
- All drive components are accessible from the interior via a detachable light-alloy cover profile mounted on the upper frame section.
- The drive includes a programmable safety cut-off and adjustable speed parameters.
- Operation of the sliding sash is achieved via a fibreglass-reinforced toothed belt system.

8. Motorized Threshold

- A motorised threshold system can be installed to provide a barrier-free floor transition.
- The threshold unit (single or multi-part, depending on requirements) includes its own drive mechanism and closes the floor recess—created when the sliding sash is opened—by deploying an upward-swinging flap element.
- Operation of the threshold is automatically controlled based on the position of the sliding window.
- The drive and mechanical components are mounted externally in front of the sliding element and housed within a protective aluminium enclosure (79 × 118 mm) beneath the exterior surface.
- The system is equipped with a reversing safety cut-off to ensure safe operation.

9. Bar slider/filler trim

- To ensure a barrier-free transition over the recessed aluminium threshold profiles when the sliding windows are open, horizontally movable, non-slip, and walkable bar sliders shall be used.
- Rollers, guide rollers, support components, substructure profiles, and related parts for the bar sliders shall be made of corrosion-resistant stainless steel.
- In the closed position, the bar sliders are parked in front of the fixed glazing units, as defined in the detailed planning specifications.
- Optionally, the bar sliders may be moved or parked beneath the fixed filler trim profiles. In this configuration, the sliders are positioned approximately 5–7 mm below the frame level, as they rest under the flush-mounted filler trim.
- The filler trims must be removable to allow access for cleaning and maintenance of the running tracks.

10. Function/operation

9.1 Manual

- Pressing the push button triggers the control unit to deflate the gasket and release the locking bolt.
- Once the integrated LED in the push button lights up red, the sliding sash can be moved manually, smoothly, and without resistance.
- To close the window, the sash must be moved fully into its closed position, with the sash frame aligned flush with the fixed element.
- Pressing the push button again triggers the control unit to reinflate the gasket and engage the locking bolt.
- In the event of a power failure, the sliding window can be closed manually. The system automatically locks the sash once it reaches the fully closed position.

9.2 Motorized

- Pressing the push button triggers the control unit to deflate the gasket, unlock the bolt, and automatically open the sliding sash.
- The opening process can be interrupted at any time by pressing the button again.
- If no further input is given, the sash will open fully.
- If the motion is stopped, the sash can be closed by briefly pressing the button (approx. 1 second), or opened fully by pressing and holding the button for more than 3 seconds.
- The drive settings (e.g. speed, acceleration, deceleration) is configured by a service technician during commissioning, together with the on-site electrician or automation specialist. This service must be included in the subcontractor’s scope of work.
- The safety cut-off is based on force limits, which are individually set for both opening and closing during commissioning.
- If required for safety, a deadman function can be implemented. This allows the sash to operate automatically up to a defined point, after which continued movement requires the button to be held down.
  Example: The sash stops 400 mm before reaching the closed position and must then be closed manually by holding the button.
- In the event of a power failure, the sash can be closed manually. It will automatically lock once it reaches the fully closed position.

9.3 Automated via building management system

- The sliding window can be operated either via the standard push button with integrated LED status display or through integration into a building management system (BMS).
- If BMS integration is required, coordination with the façade subcontractor, site electrician, and/or automation specialist is essential.
- In case of power failure, the window can be closed manually. It locks automatically when the sash reaches the fully closed position.

11. Control options

- **Signals from the building control system to the sliding window (per window, dry contacts):**
- Standard control contact (e.g. frame-mounted push button) with the following sequence: ‘OPEN’ (>3s) / Stop / ‘CLOSED’ (<1s)
- Central ‘CLOSED’ contact
- Central ‘OPEN’ contact
- Partial opening contact
- Control for opening to a predefined ventilation gap
- Button lock contact
  (If active, local push-button operation is disabled (indicated by fast flashing LED))
- Maximum voltage: 30 V DC
- Maximum contact load: 0.5 W
- Commissioning is to be carried out jointly by the façade and electrical subcontractors. Control integration must be implemented using dry contacts of the respective BMS. Coordination with MEP planners and electrical installers is required to define conduit routing, cable types, and control points.

12. Status display/responses to building

- The status of the sliding window is indicated via an integrated LED in the push button. The following statuses are displayed:

  1. LED off → Sliding window closed and locked
  2. LED on → Sliding window unlocked/open
  3. LED flashing → Fault detected

  - Faults can be acknowledged by pressing the button for 20 seconds.The following signals can be reported back to the building management system via dry contacts:
  - Window closed and locked (not VdS-certified)
  - Motor fault (runtime exceeded)
  - Gasket fault
  - All faults are additionally signalled via the flashing LED in the push button.

13. Conduits

- For each sliding unit, M20 conduits must be routed to the designated connection point in the frame as defined by the system supplier.
- **Required per unit:**
- Power supply 230 V AC / 50–60 Hz → M20 conduit

- **Optional connections:**
- Alarm feedback / Button lock → M20 conduit to corresponding system
- BMS control connection → M20 conduit to BMS interface

14. Cable types

- Power supply: 100–130 V AC or 200–240 V AC, 50–60 Hz (e.g. 3 × 1.5 mm², LNPE)
- External control signal cables: e.g. U72 / G51, shielded (number of cores depending on system setup)
- Alarm interface: to be coordinated with security or electrical planner (e.g. U72 / G51)

15. Power data

Per sliding window unit:

- Voltage: 100–130 V AC / 200–240 V AC (LNPE)
- Power consumption: 5 W (standby) / max. 100 W (operation)
- Frequency: 50–60 HzCircuit protection: Minimum 6 A, typically 13 A / C-type breaker (1 fuse for up to 10 units)

16. Verification

- The subcontractor shall provide static calculations for the entire system, including fixing methods and structural posts where required.
- All necessary tests and certifications must be included in pricing and scheduling.
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17. Installation/assembly

- A minimum floor structure height of 150 mm is required.
- The thermal substructure consists of a continuous, pressure-resistant insulation board made of compressed rigid polyurethane foam.
- The substructure includes a multi-folded 2 mm stainless steel sheet with welded brackets for external shading and/or drainage channels.
- Side closures allow for waterproofing using liquid-applied membranes (cold-applied) or bitumen-based materials (hot-applied).
- Frame elements are anchored in pre-welded U-profiles.
- Flat roof membranes are connected on-site directly to the 2 mm stainless steel base.
- All connections are to be made vapour-tight on the interior side and watertight on the exterior.

18. Thermal protection

- All details must be designed to ensure effective thermal insulation and prevent condensation.
- Any unavoidable condensation must be controlled to avoid structural or material damage.

19. Technical values

- Air permeability: EN 12207: 1999-11, up to class 4 (600 Pa)
- Driving rain impermeability: EN 12208: 1999-11, up to class E1500 (1500 Pa)
- Noise insulation: Up to 43 dB
- Wind load: EN 12210: 1999/AC: 2002-80, up to class C4/B4
- Intrusion resistance: up to RC3
- Bullet-proof: Special design up to resistance class BR4-NS
- Thermal insulation: EN 10077-1, from 0.8 W/m2K with UG 0.6 W/m2K
- Operating force: EN 13115/2001-07, class 1
- Overrun ift Guideline BA-01/1 up to class 6

Reference product: **air-lux SW 75 / Schüco AS AL 75**

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