**Construction Description**

Profile series for the production of wood-aluminium systems with the same wood thickness on the door sash and frame system AC20 DI (inward opening), AC20 DO (outward opening).

**Technical Requirements and System-Specific Verifications**

The aluminium profiles are available in EN AW-6060 T66 in anodised quality and in accordance with DIN EN 755 and DIN EN 12020. The execution must be in accordance with the relevant standards and guidelines, the recognised rules of technology and the information provided by the system provider.

Driving rain resistance class 7a

Air permeability class 3\*.

Suitability for RAL-tested system verification

Suitable for anti-fall glazing according to

DIN 18008-4, category A,C2,C3 including test certificate.

\* must also be for the invisibly screwed glazing bead if this is carried out.

Thermal insulation of the frame e.g. spruce, U - values according to DIN 10077-2:2003-10, Uf = 1.4 – 1.8 W/m²K depending on profile geometry.

**Required Basic System**

**Wood Construction**

The wood construction is to be executed according to the requirements of DIN 68121. The sashes must be provided with milled glazing bead, fixed glazing with screwed glazing bead. The system must allow invisibly screwed fixed glazing beads.

Design of fixed glazing:

Glazing bead invisibly screwed

The insulating glass edge seal is accommodated on two sides in the wooden rebate.

Grooves in the wooden profiles to take up the aluminium profiles are not permitted.

**Aluminium Frame**

A system is to be offered in which the frame and sash are designed with 90 degree overlaps in angular optics. The frame profile height must be 10 mm. It must be possible to design the system with either a flush or offset sash to the frame.

The following design is planned:

flush sash

surface offset sash

Sash profiles are to be designed with a hollow chamber to increase rigidity in the glazing area. Drainage of the rebate area takes place through concealed punching in the lower profile crosspiece. As an option, visible drainage must be possible with an aluminium cover cap in the

same colour as the aluminium frame. It must be possible to design the aluminium frames with either mechanical or welded joints.

The following design is provided:

Welded connection

Mechanical connection

**Fixing of the Aluminium Frame**

The aluminium frame is attached to the wooden frame using removable turn and turn clip holders made of high-quality, temperature-resistant plastics such as impact-resistant modified POM. Turn holders are always used for the sash. Stress-free expansion of the aluminium cladding towards the wooden part and full rear ventilation of the gap between the wooden and aluminium frame must be ensured. The gap must therefore be at least 4 mm. For exact dimensional positioning, the holders must be prepared with cast-in spacer nubs.

**Gaskets**

On the inside there is a circumferential overlap seal on the sash and on three sides there is a central seal that hinges on the frame.

On the outside, it must be possible to provide glazing with a circumferential APTK dry glazing seal. The sealing lip on the glass must not be visible wider than 5 mm. Wedge seals as external glazing gaskets are not permitted. On the inside, it must be possible to provide dry glazing with APTK seals in graduated seal thicknesses. It must be possible to design the system as wet glazing on both the outside and inside.

The following design is planned:

Outside

Wet glazing

Inside

Dry Glazing

Design of the aluminium threshold to be barrier-free with thermal break. Overall height in installed condition 20 mm. The required driving rain tightness class 1350 Pa (according to EN 12208) and the air permeability class 3 (according to EN 12207) must be verified with a test certificate from a recognised test institute.

The thermal insulation in combination with door plinth, in case of wood species spruce, 78 mm thickness from Uf= 1.3 to 1.6 W/m²K depending on the plinth height must be proven. The threshold must be designed in such a way that rainwater is drained off to the outside and no water can get the interior of the building.

The aluminium part of the threshold is to be made of EN AW 6060, T66 (formerly AlMgSi 0.5, F22 ) in anodised quality, manufactured by extrusion according to DIN EN 12020 and DIN EN 755.

 The surface finishing is to be produced as anodised surface in E6/EV1 according to DIN 17611.

The thermal break is to be produced as a PVC-free plastic profile in ABS quality.

Execution and installation must be carried out in accordance with the relevant standards and guidelines, the generally recognised rules of technology and the specifications of the system provider.

**Construction**

**Threshold**

The threshold must be underpinned with aluminium in the tread area and thus be sufficiently stable.

There must be stops in the area of the internal overlap seal on the threshold.

If necessary, it must be possible to connect the threshold to the upright wooden frame using metal threshold holders. The upright wooden frame is optionally mounted directly on the threshold using appropriate APTK filler pieces without counter profiling. The joint must be sealed with end-grain wood and joint sealant according to the system specifications.

For installation on the concrete slab, system-bound heat-insulating plastic adapter profiles or substructure insulation profiles are to be used, which can be adjusted to the required height by doubling them up.

Height of the required Doubling up:

To fix APTK System building connection foils in the floor area, corresponding profile grooves must be provided in the substructure profiles.

If the threshold height is less than 150 mm according to DIN 18195-9, additional measures such as drainage channels in front of the threshold or canopies are provided by the building planners.

Planned threshold height:

Threshold to be offered: Gutmann Weser 65/75/95 /20 TI or similar

For doors opening outwards Weser 75/20 TI

or equivalent.

Offered ground sill:

Excluded are wooden windows with metal cover and rain rail, as well as constructions which are covered on the room side with wooden profiles.

For reasons of recycling, foamed profile systems are not permitted.

**Aluminium Solid Door Panel AC20 DI, AC20 DO**

made of 3 mm sheet metal blank with four-sided circumferential carrier profile frame.

The fixing is done by means of a carrier profile frame which is adapted to the AC20 FL and AC20 OR systems:

FL 9.8879 Offset 16 mm (AC20 OR)

FL 41.14 Offset 22 mm (AC20 OR)

TP 58.8 Flush 14 mm (AC20 FL)

**Mounting of Aluminium Solid Door Panel**

The aluminium door panel is attached to the wooden frame by means of removable turn and turn-clip holders made of high-quality, temperature-resistant plastics such as impact-resistant modified POM. A stress-free expansion of the aluminium door sheet to the wooden part must be ensured. For exact dimensional positioning, the holders must be prepared with cast-in spacer nubs.

**General Remarks:**

max. size: width ≤ 1500 mm, height ≤ 3000 mm

min. size: width ≤ 900 mm, height ≤ 1800 mm

Standard metal sheet thickness 3 mm

Any shape (round, curved, rectangular) can be designed as a lighting cut-out.

For door leaves without a light cut-out, an additional support profile is attached vertically in the centre.

The guidelines of the system provider of GUTMANN Bausysteme GmbH, Weissenburg, Germany, apply as the basis for the execution.

Alternative execution according to architects Detail-------

**Glazing**

**Technical data**

Light transmission TL: \_\_\_\_ (%)

Total energy permeability g: \_\_\_\_ (%)

Light reflection outside RLa: \_\_\_\_ (%)

U-value Ug: \_\_\_\_\_\_ (W/m²K)

Sound insulation Rw: \_\_\_\_ (dB)

Light and energy values according to DIN EN 410.

The Ug-value indicated was calculated according to DIN EN 673.

**Thermal insulation of elements (Uw) according to ENEV:** Regulation on energy-saving thermal insulation and energy-saving systems engineering in buildings.

Heat transfer coefficient of the door element

Ud = W/m²K