# INSTALLATION MANUAL

IZOKOMPAKT Insulated Chimney System


**Rīga – 2023**

# Glossary

## Main Chimney Components

- **Insulated Chimney** (Twin-Wall Chimney) — A chimney system consisting of two concentric pipes (a "pipe-in-pipe" design). The space between the inner and outer pipes is filled with a layer of non-combustible insulation, typically rockwool. This design ensures the inner flue heats up quickly for stable draft and maintains a low temperature on the outer surface, making the chimney fire-safe for passing through walls and ceilings.
- **Tee-Piece** — A chimney component used to connect a heating appliance to the vertical chimney stack and to provide access for cleaning and condensate drainage.
- **Condensate Drain** — The part of the chimney (usually the bottom cap of the tee-piece) designed to collect and drain condensate.
- **Inspection Hatch** (Cleanout Door) — A special opening in the chimney, sealed with an airtight door, intended for inspecting and cleaning the inner flue.
- **Roof Flashing** — An assembly that provides a weatherproof seal where the chimney penetrates the roof structure.
- **Storm Collar** — A component installed on the chimney pipe above the roof flashing to protect the joint from precipitation.
- **Inner Liner** — The primary stainless steel flue of the chimney that is in direct contact with combustion gases.
- **Outer Casing** — The external shell of the chimney that protects the insulation.

## Installation and Structural Terms

- **Condensate-Flow Assembly** — A method for assembling vertical components where the upper pipe is inserted inside the lower pipe. This allows condensate and precipitation to flow freely down the inner wall of the chimney without leaking out through the joints.
- **Smoke-Flow Assembly** — A method for assembling horizontal components where the upper pipe is fitted over the lower pipe. This prevents combustion gases from leaking out through the joints.
- **Wall Bracket** — The main structural component for securing the chimney to a wall.
- **Support Brace Kit** — An additional bracket used to reinforce the structure when there is a large distance between the chimney and the wall.
- **Rigid Stays** — Metal rods used to secure the tall section of the chimney above the roof and protect it from wind load.
- **Bracket Spacing** — The maximum permissible distance between brackets when securing the chimney to a wall.
- **Roof Ridge** — The upper horizontal edge of a pitched roof.

## Technical Specifications and Safety

- **Clearance to Combustibles** — The minimum permissible distance from the outer surface of the chimney to combustible building materials.
- **Temperature Class (T200, T450, T600)** — The maximum operating temperature of the flue gases for which the chimney is designed.
- **Sootfire Resistance (G)** — A characteristic indicating that the chimney can withstand a short-term temperature increase during a soot fire in the flue.

## Steel Grades and Materials

- **EN 1.4404** (AISI 316L) — An acid-resistant stainless steel with added molybdenum. It has very high resistance to corrosion, acids, and high temperatures. It is considered the best choice for inner chimney liners, especially for modern boilers that produce aggressive condensate.

- **EN 1.4301** (AISI 304) — The most common grade of stainless steel with good corrosion resistance. Suitable for most chimneys used with wood-burning stoves and fireplaces in dry operating conditions.
- **EN 1.4016** (AISI 430) — A stainless steel with a lower content of alloying elements compared to the 300 series. It is magnetic and is mainly used for the outer casing of the chimney, where there is no direct contact with flue gases and aggressive environments.
- **DX51+Z275** — A marking for galvanized structural steel. The DX51 designation indicates the steel grade for cold forming, and Z275 indicates the density of the zinc coating (275 g/m²), which provides reliable protection against corrosion. In chimney systems, it is used for the outer casing, often with a subsequent powder coating.

## Standards and Certification

- **CE Marking** — (from the French Conformité Européenne — "European Conformity") is a special mark applied to a product. It certifies that the product complies with the essential requirements of the directives and harmonized standards of the European Union. For the consumer, this means that the chimney has undergone a safety assessment and is approved for sale in the EU.
- **EN 1856-1** — This is the key European standard that sets the requirements for metal system chimneys. It regulates everything from materials and construction to testing methods, marking, and performance characteristics, such as temperature class and clearance to combustibles. Compliance with this standard ensures that the chimney is reliable and safe to use

# Properties of the Insulated Chimney System

**Unique product type identification number:** IZOKOMPAKT stainless steel chimney elements with lining

**Intended use of the product:** For the evacuation of combustion products from heating appliances into the atmosphere

**Manufacturer:** SIA "Akvilon", Reg. No. 50003057361, Latvia, Riga, Mazā Rencēnu iela 6, LV-1073

**System of assessment and verification of constancy of performance of the construction product in accordance with Annex V to the Construction Products Regulation:** System 2+

**Harmonised technical specification:** EN 1856-1:2009

**Notified certification body:** SIA "Inspecta Latvia", NB 1325 (1325-CPR-3413)

Declared Performance Characteristics:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IZOKOMPAKT 200** | **EN 1856-1** | **T200** | **P1** | **W** | **$V_m$** | **L20050-60** | **O(00)** |
| **IZOKOMPAKT 200 plus** | **EN 1856-1** | **T200** | **P1** | **W** | **$V_m$** | **L50050-60** | **O(00)** |
| **IZOKOMPAKT 450** | **EN 1856-1** | **T450** | **N1** | **D** | **$V_m$** | **L20050-60** | **G(100)** |
| **IZOKOMPAKT 450 plus** | **EN 1856-1** | **T450** | **N1** | **D** | **$V_m$** | **L50050-60** | **G(100)** |
| **IZOKOMPAKT 600** | **EN 1856-1** | **T600** | **N1** | **D** | **$V_m$** | **L20050-60** | **G(100)** |
| **IZOKOMPAKT 600 plus** | **EN 1856-1** | **T600** | **N1** | **D** | **$V_m$** | **L50050-60** | **G(100)** |
| **IZOKOMPAKT NORDIC PIPE 450** | **EN 1856-1** | **T450** | **N1** | **D** | **$V_m$** | **L20050-60** | **G(100)** |
| **IZOKOMPAKT NORDIC PIPE 450 plus** | **EN 1856-1** | **T450** | **N1** | **D** | **$V_m$** | **L50050-60** | **G(100)** |
| **IZOKOMPAKT NORDIC PIPE 600** | **EN 1856-1** | **T600** | **N1** | **D** | **$V_m$** | **L20050-60** | **G(100)** |
| **IZOKOMPAKT NORDIC PIPE 600 plus** | **EN 1856-1** | **T600** | **N1** | **D** | **$V_m$** | **L50050-60** | **G(100)** |

- **Applicable standard**
- **Temperature class**
*(T200-200°C, T450-450°C, T600-600°C)*
- **Pressure class**
*(N1-40 Pa, P1-200Pa)*
- **Condensate resistance**
*(W- wet conditions, D- dry conditions)*
- **Corrosion resistance**
*(Vm - based on material type and thickness)*
- **Inner liner specification**
*(L50 - EN 1.4404, L20 - EN 1.4301)*
- **Sootfire resistance and clearance to combustible materials**
*(G: yes or O: no)*

# 1. Description of the Insulated Chimney System

**IZOKOMPAKT** is a modular system of insulated chimneys, consisting of an inner liner made of EN 1.4404 or EN 1.4301 grade stainless steel, a 50 mm thick fire-resistant rockwool insulation layer, and an outer casing made of stainless steel, galvanized steel, painted steel, or powder-coated steel. The chimneys are designed for both internal and external installation.

The insulated chimney system is safe and easy to use, certified, CE marked, and complies with the requirements of the current EU standard LVS EN-1856-1:2009.

The system is suitable for heating appliances that burn gas, solid, and liquid fuel, provided that the flue gas exhaust temperature does not exceed the requirements set by the chimney manufacturer, including the correct selection of steel grade, thickness, and operating conditions (wet or dry). The chimney must be selected in accordance with the heating appliance manufacturer's requirements and current building regulations.

**Main characteristics of IZOKOMPAKT systems:**

| |
|---|
| ***IZOKOMPAKT T200*** – A twin-wall chimney system designed for gas and liquid fuel heating appliances with wet operating conditions (W) that do not produce soot. The system is not resistant to sootfire (O), the clearance to combustible materials is 0 mm, and the operating flue gas temperature is up to 200°C (class T200). The inner liner is made of EN 1.4301 steel, with 50 mm rockwool insulation; the outer casing is made of EN 1.4016, EN 1.4301, EN 1.4404, or DX51+Z275 steel, or painted steel. In IZOKOMPAKT T200 plus systems, the inner liner is made of EN 1.4404 steel. |
| ***IZOKOMPAKT T450*** – A twin-wall chimney system for gas, liquid, and solid fuel heating appliances with dry operating conditions (D). The system is resistant to sootfire (G), the clearance to combustible materials is 100 mm, and the operating flue gas temperature is up to 450°C (class T450). The inner liner is made of EN 1.4301 steel, with 50 mm rockwool insulation; the outer casing is made of EN 1.4016, EN 1.4301, EN 1.4404, or DX51+Z275 steel, or painted steel. In IZOKOMPAKT T450 plus systems, the inner liner is made of EN 1.4404 steel. |
| ***IZOKOMPAKT T600*** – A twin-wall chimney system for gas, liquid, and solid fuel heating appliances with dry operating conditions (D). The system is resistant to sootfire (G), the clearance to combustible materials is 100 mm, and the operating flue gas temperature is up to 600°C (class T600). In ceiling and floor penetrations, an additional ventilated air gap must be created. The inner liner is made of EN 1.4301 steel, with 50 mm rockwool insulation; the outer casing is made of EN 1.4016, EN 1.4301, EN 1.4404, or DX51+Z275 steel, or painted steel. In IZOKOMPAKT T600 plus systems, the inner liner is made of EN 1.4404 steel. |
| ***IZOKOMPAKT NordicPipe 450*** – A twin-wall chimney system for gas, liquid, and solid fuel heating appliances with dry operating conditions (D). The system is resistant to sootfire (G), the clearance to combustible materials is 100 mm (100), and the operating flue gas temperature is up to 450°C (class T450). The inner liner is made of EN 1.4301 steel, with 50 mm rockwool insulation; the outer casing is made of powder-coated DX51+Z275 steel in accordance with ISO 9001:2000 standards. In IZOKOMPAKT NORDIC PIPE 450 plus systems, the inner liner is made of EN 1.4404 steel. |
| ***IZOKOMPAKT NordicPipe 600*** – A twin-wall chimney system for gas, liquid, and solid fuel heating appliances with dry operating conditions (D). The system is resistant to sootfire (G), the clearance to combustible materials is 100 mm (100), and the operating flue gas temperature is up to 600°C (class T600). In ceiling and floor penetrations, an additional ventilated air gap must be created. The inner liner is made of EN 1.4301 steel, with 50 mm rockwool insulation; the outer casing is made of powder-coated galvanized steel in accordance with ISO 9001:2000 standards. In IZOKOMPAKT NORDIC PIPE 600 plus systems, the inner liner is made of EN 1.4404 steel. |

## 2. Installation Rules for the Insulated Chimney System

Adherence to the installation rules for the IZOKOMPAKT insulated system as set forth in this manual, as well as general occupational safety and fire safety requirements, is a condition of the manufacturer's warranty. The installation rules described in this manual apply only to IZOKOMPAKT chimneys with diameters from 80 mm to 250 mm.

**Warning! When selecting a suitable chimney system, you must consider current legislation and the manufacturer's installation requirements.**

All installation materials used must be non-combustible and corrosion-resistant. The total height of the chimney from the appliance's grate to the flue gas outlet must not be less than 5 m. The chimney can be installed both vertically and horizontally. The horizontal section of the chimney must not exceed 2000 mm, and the minimum required slope must be 20 mm per 1000 mm. A separate chimney or flue must be installed for each stove or fireplace. Two heating appliances may be connected to a single flue if they are located in the same apartment and on the same floor. When connecting two flues, a 12 cm thick dividing wall must be installed to a height of at least one meter, measured from the bottom of the connection

The height of the chimney above the roof covering is determined by the following conditions (see Fig. 2.1.):

- If the chimney is less than 1.5 m from the roof ridge, it must be 0.5 m higher than the ridge;
- If the chimney is between 1.5 m and 3 m from the roof ridge, it must not be lower than the ridge;
- If the chimney is more than 3 m from the roof ridge, its top must not be lower than a line drawn from the ridge at an angle of 10° to the horizontal.
- The top of the chimney must be located no lower than 0.5 m above the roof covering (this also applies to buildings with flat roofs).

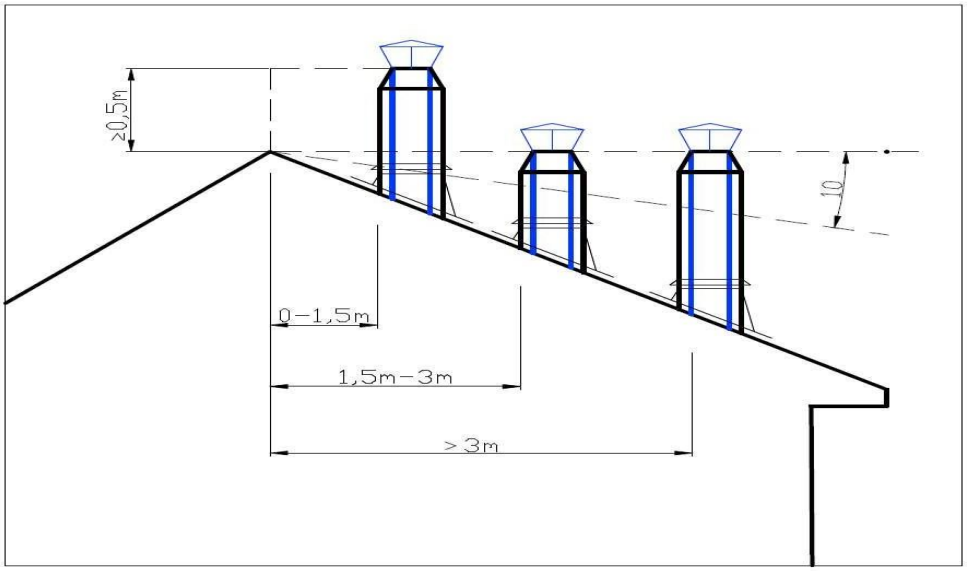


*Fig. 2.1* **Height of the chimney above the roof**

The maximum unsupported length of the chimney above the roof is 1500 mm. If the chimney is taller, a **Rigid Roof Brace Kit** must be installed. Attaching television and radio antennas to the chimney is prohibited.

When installing an IZOKOMPAKT T450, T600 class chimney through intermediate floors, an opening must be made. The dimensions of the opening are calculated based on the required minimum clearance to combustible or low-flammability materials — 100 mm (see Fig. 2.2). The opening must be filled with heat-resistant insulation. For IZOKOMPAKT T600 systems, an additional ventilated air gap must be created around the outer casing of the chimney at the floor penetration point to prevent overheating and premature wear of the pipes.

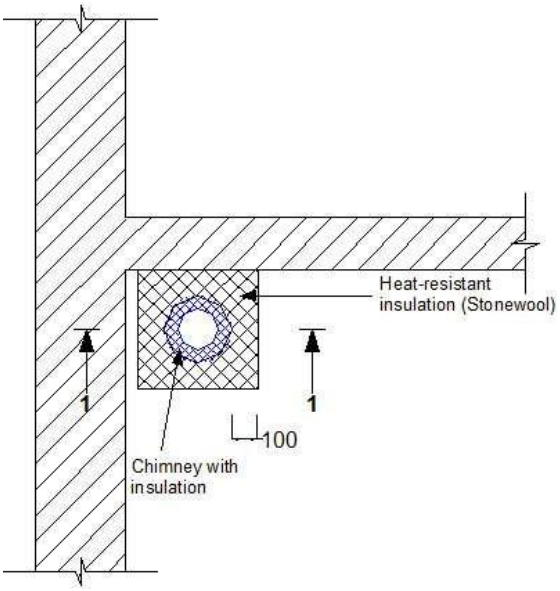


*Fig 2.2.* **Minimum clearance to combustible materials**

A decorative plate should be installed below the opening in the wall/floor to prevent the insulation layer from falling out. The decorative plate consists of 2 parts, is installed around the chimney pipe, and is secured with screws (See Fig. 2.3). Round decorative plates are supplied as a single piece and must be installed during the chimney assembly process.

It is not permitted to install chimney components in such a way that their joints are located inside walls or floors..

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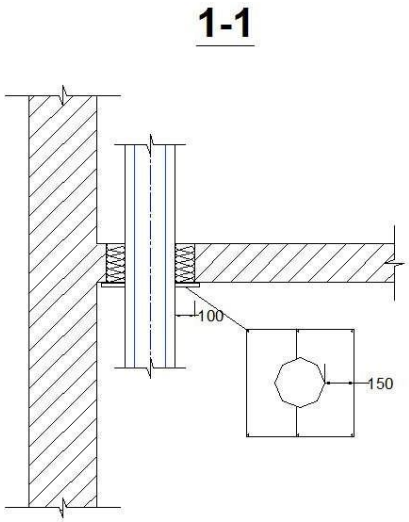


*Fig 2.3* **Decorative plate in the ceiling/wall structure**

If an IZOKOMPAKT T450, T600 class chimney passes through a roof assembly, the space between the outer surface of the chimney and the roof structure must be filled with a layer of heat-resistant insulation with a minimum thickness of 100 mm (see Fig. 2.4).

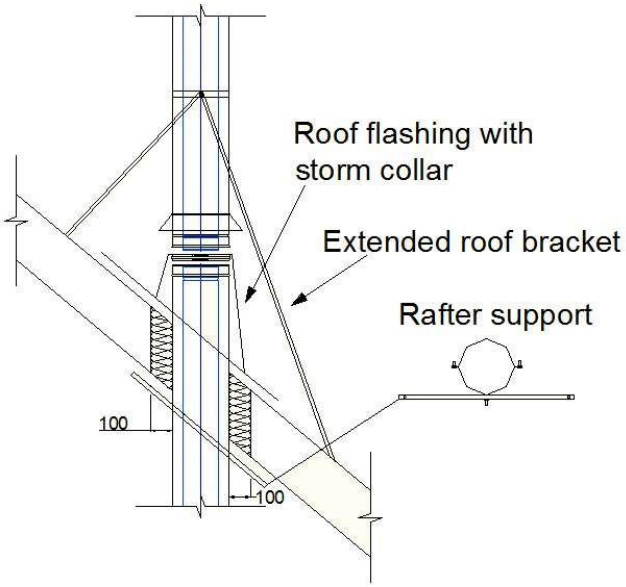


*Fig. 2.4* **Roof structure assembly**

The pass-through element is connected to the roof; the connection method depends on the type of roof covering. The chimney pipe must be pre-aligned to the center of the pass-through element.

When installing the roof pass-through element into the roof covering, it is recommended to extend its upper plate to the ridge element or to install it in accordance with the technological requirements of the roof covering manufacturer.

A storm collar must be installed above the pass-through element to prevent precipitation from entering the chimney. The joint between the chimney and the storm collar should be additionally sealed with roofing sealant. The installation of the roof pass-through element must be carried out by a qualified roofer.

To secure the chimney structure to beams/floors, fasteners must be installed (see Fig. 2.4.). Fastening should be done at each floor, at the roof, or at intervals not exceeding 2 m.

It is necessary to ensure that the visible portion of the insulated chimney inside the room has a minimum length of 300 mm (see Fig. 2.5.).

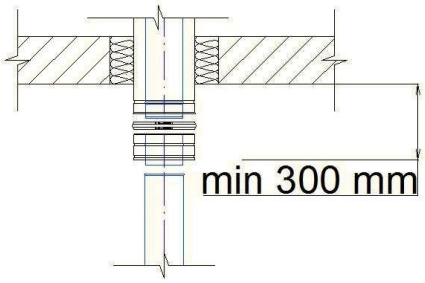


*Fig. 2.5* **Fire-safe distance from the ceiling/roof structure**

Vertical chimney sections (or sections with a 45° tee-piece branch) up to 250 mm in diameter are connected using the condensate-flow assembly method (against the direction of flue gas flow), with the arrow on the component pointing up, in the direction of the smoke. The joints are secured with wide connecting clamps or rivets, using 4-6 rivets per joint. Pipes with a diameter over 250 mm must be secured with both rivets and wide connecting clamps; the number of rivets per joint ranges from 6 to 16, depending on the pipe diameter. Stainless steel rivets (A2, A4) must be used; the use of other materials is prohibited. The inner joint of the chimney must be sealed with fire-resistant sealant. Ensure that the inner liner of the chimney is fully connected and hermetically sealed. Connecting clamps are necessary for additional strengthening and sealing of the chimney joints (see Fig. 2.6).

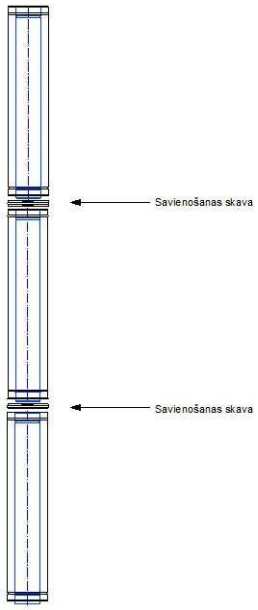


*Fig. 2.6* **Connection of chimney elements by fastening with connecting clamps**

The horizontal section from a 90° tee-piece is installed using the smoke-flow assembly method (in the direction of flue gas flow), with the arrow pointing towards the heating appliance. The tee-piece comes with a cover adapter that can be removed and moved to the end of a horizontal extension pipe to cover the insulation wool. Adapters and the bottom caps of the condensate drain do not have to be riveted; band clamps can be used for easier servicing.

Chimney components are manufactured individually; they are either connected one by one from the bottom up, or assembled into sections on the ground and installed as a single piece. The length of an assembled section must not exceed 4000 mm.

Chimneys are secured with wall brackets (see Fig. 2.7.) at a distance of 50-800 mm from the wall. According to the test reports from the manufacturer, SIA "Akvilon", the bracket spacing must not exceed 2.0 m. The fastening of brackets to the load-bearing wall should be carried out in accordance with the properties and technology suitable for the specific wall structure. At a distance of more than 500 mm from the wall, it is recommended to use a support bracket.

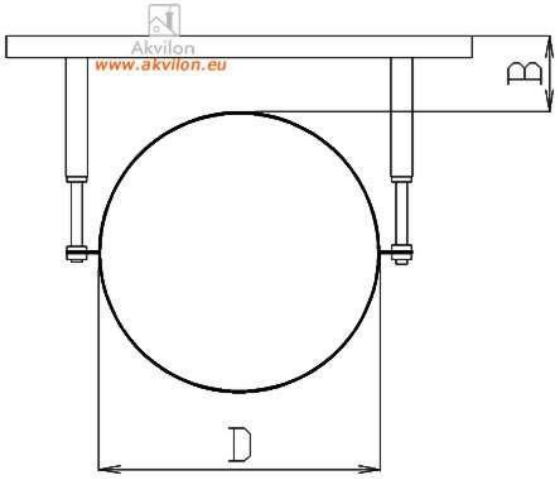


*Fig. 2.7* **Wall bracket design**

## 3. Chimney Inspection, Cleaning, and Storage

During installation, chimneys must be installed in such a way as to ensure easy access for cleaning, maintenance, and inspection. Inspection hatches with a diameter no smaller than the chimney diameter must be installed in the chimneys. In short, straight chimneys up to 7 m in length, inspection hatches are not required.

During installation, a visual inspection of the chimney modules should be carried out. They must be clean, dry, and free from damage.

The bottom part of the chimney or the tee-piece with a condensate drain or damper must be freely accessible for servicing and must not pose a danger to the surroundings. A container for collecting condensate or a drainage system must be connected to the condensate drain.

Before inspecting the chimney, it is necessary to ensure that there are no foreign objects or packaging residues inside the flue. The inspection is performed using burning paper.

Chimney inspection and cleaning must be carried out by a professional chimney sweep. The chimney should be inspected/cleaned at least twice a year: before the start of the heating season and once during the season, or more often if necessary.

During the inspection, the visual condition of the chimney and its joints is assessed; if any damage is found, the defective parts must be replaced.

The cleanliness of the flue and the draft should be checked through the inspection hatch. If soot or a blockage is visible inside the flue, or if there is no draft in the chimney, it must be cleaned from the top. Non-metallic tools intended for cleaning stainless steel chimneys should be used.

Chimney components from SIA "Akvilon" must be transported in a strictly vertical position, using any type of covered vehicle. Placing cargo on top of the chimney components is prohibited. Chimney components should be stored in a dry, indoor space; contact with atmospheric precipitation is not permissible.

# 5. Contacts


**Office, warehouse:**
**Address:** Mazā Rencēnu iela 6, Rīga
**E-mail:** info@akvilon.lv
**Phone:** +371 26336845

**SIA Akvilon**
**Office/Physical address:** Mazā Rencēnu iela 6, Rīga, LV1073
**Legal address:** Rīga, Kr. Barona iela 29-8, LV-1011
**VAT payer number:** LV50003057361 | **Registration number:** 50003057361

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