

Operation and Maintenance Manual

ASTA Modular Stairs



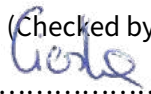
Piotr Abram

(Prepared by)



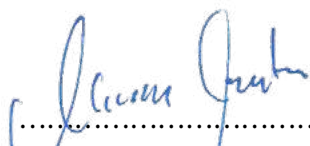
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Revision History Table

No.	NAME AND SURNAME	DEPARTMENT	DATE OF CHANGE	SCOPE OF CHANGE	REMARKS
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1. General Guidelines

Before commencing any assembly work on modular stairs consisting of prefabricated components, carefully read this Operation and Maintenance Manual (hereinafter referred to as the O&M Manual). The O&M Manual provides information on the assembly, operation, maintenance, and safety requirements related to the use of the stairs. The O&M Manual is intended for individuals assembling the modular stairs themselves, users of the modular stairs, and technical/maintenance personnel responsible for servicing the stairs at the installation site. During the assembly, disassembly, operation, and maintenance of the stairs, the guidelines contained in this O&M Manual as well as applicable health and safety regulations must always be followed.

2. Purpose of the O&M Manual

The purpose of this O&M Manual is to provide information on the assembly, disassembly, operation, maintenance, and safe use of ASTA modular stairs.

3. Intended Use of Modular Stairs

ASTA modular stairs have been developed in accordance with EN 1090 and EN ISO 14122 standards. ASTA stairs intended for self-assembly may be used in the following types of buildings:

- Single-family residential buildings and farmstead developments, including duplex apartments.
- Built-in and detached garages (multi-space garages) and service buildings where no more than 10 people are employed.
- In all buildings, regardless of their intended use, as stairs providing access to basements, technical rooms, and utility attics.
- Outside and inside buildings, provided they are not located on main circulation routes.
- The stairs are not intended for use in buildings where collective occupancy by more than 50 people is anticipated.
- The stairs are not intended for use in buildings designed for access by persons with disabilities.

The limiting dimensions of permanent stairs used in buildings with different intended uses under Polish law are presented in Table 1. The customer should verify the legal requirements applicable in their country.

	Maximum riser height [m]	Minimum clear tread width [m]
	[m]	[m]
Single-family residential buildings, farmstead developments, and duplex apartments	0,19	0,8
Built-in and detached garages (multi-space garages) and service buildings employing up to 10 people	0,19	0,9
In all buildings, regardless of their intended use, for stairs leading to basements, technical rooms, and non-habitable attics	0,2	0,8

Table 1. Limiting dimensions of permanent stairs in buildings with different intended

The permitted balustrade heights for stairs and landings are shown in Table 2.

	Minimum balustrade height, measured to the top of the handrail [m]	Maximum clearance or opening size between balustrade infill elements [m]
Single-family residential buildings and interiors of duplex apartments	0,9	Not regulated
Multi-family residential buildings, collective housing buildings, educational facilities, healthcare facilities, and social care institutions	1,1	0.12

Table 2. Permitted balustrade heights for stairs and landings.

4. Technical Description

1. Permissible Uniformly Distributed Load 2kN/m²
2. Permissible Concentrated Load – 1,5kN na pow. 200x200mm
3. Permissible Guardrail Load – 0,3kN/m
4. Clear Width – 900mm
5. Overall Width – 968mm
6. Step Dimensions – 900x260mm
7. Stair Height Depending on the Number of
 - Standard – H = 340-2800
 - With Support – Hmax = 3800 mm
8. Step Height – S = 170-200 mm
9. Material – S355JR, S235JR steel
10. Corrosion Protection Coatings (as ordered):
 - Hot-dip galvanizing
 - Shot blasting and powder coating

The number of steps in a single flight of stairs shall not exceed 14. Installation of up to 19 steps is permitted when a support is provided beneath the 5th step.

Guardrails shall be installed on stairways with more than 3 steps.

Stair handrails shall be positioned at least 50 mm away from the wall to which the stairs are attached.

Guardrails shall be installed on both sides of the stairs. If the stairs are installed adjacent to a wall, a guardrail may be installed on one side only, provided that the stairs are anchored to the wall.

System components shall not be installed separately on other structures. The use of stair treads other than those intended for the ASTA modular stair system by TLC is not permitted.

Replacement of connecting elements such as bolts, nuts, washers, and system screws with components other than those supplied with the product is not permitted.

5. Health and Safety

Assembly of ASTA modular stairs may only be carried out by a person who has familiarized themselves with the instructions contained in this Operation and Maintenance Manual (O&M Manual).

- a) Persons performing assembly work should be in good health.
- b) Persons carrying out assembly work should be:
 - sober and well-rested,
 - wearing appropriate work clothing,
 - equipped with suitable personal protective equipment for the tasks being performed, including fall protection equipment such as safety harnesses with a waist belt or safety harnesses with a safety lanyard attached to permanent structural elements.
- c) Persons responsible for assembly should also:
 - inspect the technical condition of the structure or equipment on which the work is to be performed (including the condition of permanent structural elements or devices used for attaching safety lines and personal fall protection equipment, their stability, load-bearing capacity, and protection against unforeseen changes in position; for example, verify whether metal scaffolding has been properly grounded),
 - prepare and simultaneously inspect the condition of fall protection equipment,
 - ensure that electrical cables are properly secured.
- d) After completing the work, the person carrying out the assembly should:
 - secure the work area in such a way that it does not create any hazards,
 - clean and organize the work area and verify that all tools and auxiliary equipment have been returned to their designated places.

e) The following are prohibited:

- being on the structure before all bolted connections have been tightened to the specified torque values,

Table 3. Recommended tightening torque values (Md) for bolts, screws, and nuts [Nm].

Thread Size		Tightening Torque Md	Strength Class
Diameter d	Skok P		
[mm]	[mm]	[Nm]	
M8 Bolt	1,25	26,9	8.8
M10 Bolt	1,5	46,3	8.8
M12 Bolt	1,75	79,0	8.8

- being on the structure without installed guardrails,
- assembling the structure contrary to the assembly instructions,
- replacing structural fastening components with non-approved substitutes.

6. Inspection and Maintenance

TLC Sp. z o.o. (the Guarantor) provides a warranty for the supplied steel components, provided they are used as intended and the following requirements regarding periodic inspections, cleaning, and maintenance are observed. The warranty period depends on the aggressiveness of the environment in which the steel components are used and is determined individually.

The warranty covers cases of corrosion, discoloration, loss of adhesion of the zinc or paint coating, peeling of the coating, blistering, and flaking. In the case of powder coating, the warranty additionally covers defects consisting of chalking of the coating.

The warranty does not cover mechanical, chemical, or other damage; damage resulting from fire, acts of vandalism, military actions, disasters or catastrophes; damage caused by normal wear and aging of components; damage to the protective coatings of structural elements used for access purposes (steps, landings, guardrails, handrails); or defects resulting from exposure to high temperatures,

defects resulting from improper use and/or use contrary to the intended purpose of the components, modifications and repairs carried out without the Guarantor's approval and/or using methods not submitted to and accepted by the Guarantor, failure to perform periodic inspections, and failure to carry out regular cleaning and maintenance are also excluded from warranty coverage.

Any defect covered by the warranty must be reported in writing within 14 days of its discovery. A condition for accepting a warranty claim is the submission by the claimant of a document confirming the completion of the service (invoice or VAT invoice). The Guarantor undertakes to review all properly submitted claims within 14 days of their receipt. The rectification of defects recognized during the claims review process will be carried out within a timeframe and under conditions agreed upon with the Customer.

INSPECTION, CLEANING AND MAINTENANCE OF STAINLESS STEEL COMPONENTS

Steel components made of stainless steel shall be subject to periodic inspections 1–2 times per year. Responsibility for carrying out these inspections rests entirely with the User's technical service personnel. The inspections do not require the presence of the Guarantor's representative. Their purpose is to assess the technical condition of the components through visual inspection, verification of welded joints and bolted connections, and checking for signs of corrosion, damage to mechanical coatings, or other defects that may affect the service life of the components. If any of the above-mentioned irregularities are identified, corrective actions should be taken in consultation with the Guarantor. As a rule, depending on the circumstances of the inspection, the User should prepare a report describing the technical condition of the components on the inspection date and, where necessary, include appropriate recommendations.

Where components are used outdoors and are therefore directly exposed to weather conditions (e.g. rainfall), stainless steel components generally do not require cleaning, as they are kept clean by natural rainfall. In the event of insufficient rainfall over an extended period, regular washing and cleaning of the components is recommended. These activities are intended to remove contaminants such as dirt, dust, and deposits which, if left on the stainless steel surface for too long, may cause corrosion or discoloration.

For components installed inside buildings, where there is no exposure to weather conditions, regular washing and cleaning are recommended. These activities are intended to remove contaminants that, if left on the stainless steel surface for too long, may cause corrosion and discoloration, while also maintaining an attractive appearance, particularly in the case of architectural elements.

For cleaning stainless steel components, it is best to use warm water with soap or a mild detergent, such as dishwashing liquid. After washing, rinse the components thoroughly with clean water and wipe them dry. Additionally, the components may be protected with a special maintenance agent intended for stainless steel products.

If discoloration marks are observed that cannot be removed by normal washing, the Guarantor should be contacted to determine the appropriate method of removal. The frequency of washing should be adjusted according to environmental conditions and the requirements of the facility. Cleaning agents containing acids, chlorine compounds, salts, strong acids or alkalis, abrasive powders, and other substances with corrosive properties should not be used. Abrasive cleaning pads should also be avoided. In case of any doubts regarding cleaning and maintenance methods, the User should contact the Guarantor's Representative.

INSPECTION, CLEANING AND MAINTENANCE OF HOT-DIP GALVANIZED STEEL COMPONENTS

Steel components protected against corrosion by hot-dip galvanizing shall be subject to periodic inspections. Inspections should be carried out once a year. Responsibility for conducting these inspections rests entirely with the User's technical service personnel and does not require the presence of the Guarantor's representative. The purpose of periodic inspections is to assess the technical condition of the components, verify the condition of welded and bolted connections, and check for any signs of corrosion, mechanical damage, or other defects that may affect the service life of the components. If any of the above-mentioned irregularities are identified, corrective actions should be taken in consultation with the Guarantor. As a rule, depending on the circumstances of the inspection, the User should prepare a report describing the technical condition of the components on the inspection date and, where necessary, include appropriate recommendations.

For galvanized steel components used outdoors and therefore directly exposed to weather conditions, the components are generally kept clean by natural rainfall. In the event of insufficient rainfall over an extended period, regular washing and cleaning are recommended. These activities are intended to remove contaminants such as dirt, dust, and deposits which, if left on the galvanized surface for too long, may cause corrosion and adversely affect both the technical condition and service life of the components.

For components installed indoors, regular washing and cleaning are recommended. These activities are intended to remove contaminants which, if left on the surface for too long, may cause corrosion, while also maintaining an attractive appearance, particularly in the case of architectural elements.

To clean galvanized steel components, first rinse the structure with water to remove loose contaminants. For proper cleaning, use water with a mild dishwashing detergent and soft cloths, sponges, or brushes made of synthetic materials. Brushes or scouring pads with abrasive surfaces should not be used. After washing, rinse the components thoroughly with clean water and wipe them dry. When determining the cleaning frequency, consideration should be given to environmental exposure conditions and aesthetic requirements.

Steel components protected against corrosion by hot-dip galvanizing do not require maintenance. If any mechanical damage to the zinc coating is observed, the User should contact the Guarantor's Representative to determine the appropriate repair method.

INSPECTION, CLEANING AND MAINTENANCE OF POWDER-COATED STEEL COMPONENTS

Powder-coated steel components shall be subject to periodic inspections once a year. Responsibility for conducting these inspections rests entirely with the User's technical service personnel and does not require the presence of the Guarantor's representative. The purpose of periodic technical inspections is to assess the technical condition of the components, verify welded and bolted connections, and check for any chipping, peeling, loss of coating adhesion, corrosion spots, mechanical damage, or other defects and/or damage that may affect the service life of the components. If any of the above-mentioned irregularities are identified, corrective actions should be taken in consultation with the Guarantor. As a rule, depending on the circumstances of the inspection, the User should prepare a report describing the technical condition of the components on the inspection date and, where necessary, include appropriate recommendations.

For powder-coated steel components used outdoors and therefore directly exposed to weather conditions, washing and cleaning are generally not required, as the components are kept clean by natural rainfall. In the event of insufficient rainfall over an extended period, washing and cleaning are recommended. These activities are intended to remove contaminants such as dirt, dust, and deposits which, if left on the surface for too long, may impair the aesthetic appearance and cause corrosion, directly affecting the technical condition and service life of the components.

For components installed indoors, regular washing and cleaning are recommended. In addition to removing contaminants which, if left on the surface for too long, may cause corrosion, these activities are intended to maintain an attractive appearance, particularly in the case of important architectural elements.

Improper cleaning is the most common cause of damage to powder coatings. It is recommended that cleaning be carried out with particular care and in accordance with the following rules:

- (1) During the cleaning process, the temperature of the coating and the water used must not exceed 25°C.
- (2) The use of aggressive cleaning agents is prohibited, including solvents such as esters, ketones, aldehydes, aromatic hydrocarbons, glycol ethers, chlorinated hydrocarbons, detergents of unknown origin, etc.
- (3) Contaminated surfaces should first be cleaned using a mild detergent that does not react with the coating type for more than one hour, after which the surface must be immediately rinsed with clean water and wiped dry.
- (4) To remove stubborn dirt, a soft nylon cloth may be used.
- (5) The use of abrasive cleaning agents, wire brushes, and scouring pads is prohibited.

The frequency of cleaning should be adjusted according to environmental exposure conditions and aesthetic requirements. In all cases where there are doubts regarding cleaning procedures, the User should contact the Guarantor's Representative.

If mechanical damage to the paint coating is observed, the User should contact the Guarantor's Representative to determine the appropriate repair method.

INSPECTION, CLEANING AND MAINTENANCE OF OILED OR VARNISHED WOODEN COMPONENTS

Components made of oiled or varnished wood shall be subject to periodic inspections once a year. Responsibility for conducting these inspections rests entirely with the User's technical service personnel and does not require the presence of the Guarantor's representative. The purpose of periodic technical inspections is to assess the technical condition of the components, check for cracks, inspect welded and bolted connections, and identify any mechanical damage or other defects and/or damage that may affect the service life of the components. If any of the above-mentioned irregularities are identified, corrective actions should be taken in consultation with the Guarantor. As a rule, depending on the circumstances of the inspection, the User should prepare a report describing the technical condition of the components on the inspection date and, where necessary, include appropriate recommendations.

Wooden components made of oiled or varnished wood, such as handrails and treads, should only be used indoors. In the rooms where such components are installed, normal humidity and temperature conditions should be maintained. Direct exposure to sunlight (e.g. through windows) should be avoided. Failure to comply with these recommendations will result in drying out of the components and loss of warranty protection.

Components made of oiled or varnished wood require periodic maintenance. Maintenance and cleaning should be carried out several times a year or as needed.

Wood should be cleaned with a dry or slightly damp cloth made of a soft material. These activities are intended to remove contaminants such as dirt, dust, and deposits which, if left on the surface for too long, may impair the aesthetic appearance of the components and cause permanent staining, directly affecting their technical condition and service life. Handrails and treads made of oiled wood should be re-treated with maintenance oil every six months to keep them in good condition. These activities also help maintain an attractive appearance, particularly in the case of important architectural elements.

Cleaning oiled wood with detergents is prohibited, as it may discolor the surface. To remove difficult stains, a piece of fine steel wool may be used, followed by the application of a wood-cleaning product for oiled wood and light polishing of the surface. Stains may also be removed using a damp cloth soaked in a dishwashing liquid solution (1 teaspoon of liquid per 1 litre of water), then wiped dry with a clean cloth, always following the grain direction of the wood.

Any wet stains should be removed from wooden surfaces immediately. Stains and contamination, such as food residues, should not be left to dry but should be removed as soon as possible.

To remove minor scratches and dents, lightly sand the damaged area with fine sandpaper (grit 240–320) and then locally apply a new layer of oil or varnish.

In all cases where there are doubts regarding the cleaning of components, the User should contact the Guarantor's Representative. If more significant mechanical damage to the paint coating is observed, the User should contact the Guarantor's Representative to determine the appropriate repair method.

7. Declaration of Performance

A Declaration of Performance is supplied by TLC with every modular staircase. An example of such a document is presented below.

DECLARATION OF PERFORMANCE

No.

1. Unique identification code of the product type: **XX-XXXXX-X**
2. Type, batch or serial number or any other element allowing identification of the construction product, as required under Article 11(4):
XXXXXX ZN / RAL
3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as envisaged by the manufacturer:
XXXXXX
4. Name, registered trade name or registered trade mark and contact address of the manufacturer, as required under Article 11(5):
**TLC Sp. z o.o.
ul. Chopina 25N
38-300 Gorlice**
5. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:
System 2+
6. In case of the declaration of performance concerning a construction product covered by a harmonised standard:
**Notified body TUV SUD POLSKA Sp. z o.o., identification number 2527,
performed the initial inspection of the manufacturing plant and of factory production control
and the continuous surveillance, assessment and evaluation of factory production control
in system 2+ and issued the certificate of conformity of the factory production control
No. 2527-CPR-1A / 96.00**
7. Declared performance:

Essential characteristics	Performance	Harmonised technical specification
Dimensional tolerances	Class 1	EN 1090-1:2009+A1:2011
Weldability	S235J2 acc. to 10025-2 S355J2 acc. to 10025-2	EN 1090-1:2009+A1:2011
Resistance to brittle fracture	27 J at temp. minus 20°	EN 1090-1:2009+A1:2011
Reaction to fire	Material classified: Class A1	EN 1090-1:2009+A1:2011
Release of cadmium	Property not confirmed by testing	EN 1090-1:2009+A1:2011
Radioactivity	Property not confirmed by testing	EN 1090-1:2009+A1:2011
Durability	Surface preparation according to EN 1090-2, preparation degree P3, galvanizing according to EN ISO 1461; for details, see product specification.	EN 1090-1:2009+A1:2011

8. The performance characteristics of the product specified in Sections 1 and 2 are consistent with the performance declared in Section 7. This Declaration of Performance is issued under the sole responsibility of the manufacturer specified in Section 4.

9. Execution Class EXC2.

_____ – Quality Control System Representative

Gorlice, date:

(Signature:)

8. Transport and Storage

During transport, system components shall be properly secured to prevent mechanical damage and damage to the protective anti-corrosion coating. Components such as stair modules, treads, and posts should be packed on a rigid base, such as a Euro pallet, with soft material (e.g. foam) placed between individual components. The secured components should then be fixed to the pallet using straps, taking care not to damage edges during strapping. Handrails and cross-members should be separated by soft material (e.g. foam) and then strapped together in a way that prevents movement relative to each other. Small components should be stored in rigid, closed packaging (boxes). All system components should be stored in dry indoor conditions.

9. Disposal

Packaging materials and worn-out products should be collected, recovered, or disposed of in accordance with applicable recommendations and the requirements set out in the Waste Directive of 30 May 2018 (EU) 2018/851, as amended.