LIGHT-WEIGHT STEEL STRUCTURES

INDUSTRIAL STAIRS
GUARD RAILS & STAIRS STEPS
BALUSTRADES
TLC IN BRIEF

> Scandinavian tradition and experience
> Modern Polish production plant
> In-house design and technological offices
> 7 sales offices in Poland, Sweden and the United Kingdom
> High quality, timely delivery, partnership

We believe that better future begins with a vision, and innovative designs are the common concern for man and environment. TLC merges talent and passion for creation. We design, produce and assemble light steel structure products.

High quality of our products is confirmed with the TÜV Sud certificate issued for the Company Production Control for compliance with the EN 1090 standard. As building products, they meet the requirements of European Resolution 305/2011 (CPR). All TLC products have CE markings.
SCANDINAVIAN KNOW-HOW IN METAL PRODUCTION

> EXPERIENCED TEAM OF ENGINEERS

> COMPREHENSIVE SUPPORT FOR LARGE DEVELOPMENTS
TECHNICAL STAIRS
TECHNICAL LADDERS
A customised design ensures perfect suitability to the place of installation and guarantees easy assembly.

TECHNICAL STAIRS: used in industrial buildings such as production and warehouse halls or shopping malls. High-quality materials and customised design ensure meeting the current criteria of safety by the steel stairs. Each component of the stairs is hot galvanised according to EN ISO 1461 (DIN 50976) and spray painted or powder coating to the RAL palette standard. Stairs are robust and resistant to mechanical damages, at the same time being light-weight, which guarantees fast and easy assembly and dismantling. The steps and landings of the stairs have WEMA grates set, with anti-slippery strips or chequered or perforated sheet plate.

Landing grates and other materials for steps and platforms
Pressure-welded landing grate made according to the requirements of the DIN 24537 standard is most often used as the filling material for steps, landings and platforms. Hot galvanisation compliant with the EN ISO 1461 standard is the default anti-corrosion protection. Other variants of the filling material: landing grates, hot-welded or pressed grates with additional anti-slippery surface, riffled sheet plate, ribbed sheet plate, architectural concrete, concrete for ceramic or natural stone tiles, natural stone, wood.

Technical ladders
Technical ladders are welded or screwed structures made of steel or aluminium and suitable to overcome level differences in installations, rooms and industrial, storage and commercial buildings. Hot-dip galvanised or powder painted, also in warning colours. Light-weight structure allows quick and easy assembly.

Coating technology
The silver zinc colour is the basic finishing of the surface, resulting from dipping steel structures in liquid zinc. Optionally, the structure made of galvanised profiles is powder or spray painted. The process of preparation of the surface ensures excellent adherence of painting coat. The elements of the structure are first covered with the primer, and then with the topcoat.

Variants
The external parts of the stairs may be encased with the staircase made of system profiles of profiled sheet plate or sandwich panels. The lower part of the stairs may also be encased with fixed fencing, e.g. made of openwork panels, along with a system locked wicket. Our proprietary design office allows execution of customised projects and professional technical consulting. We also design and produce landing staircases, fan stairs and mixed designs.
The structures resistant to crowd pressure, high load and fire impact.

EVACUATION STAIRS: used in public and multi-family residential buildings as external evacuation stairs. Location of this type of stairs outside of the building is the cheapest, simplest and fastest method of adjusting it to rigorous fire safety requirements and regulations. Steel evacuation stairs feature high strength and resistance to mechanical damages. They are developed with a special view on meeting the most strict requirements of safety standards. The stairs are fully hot galvanised according to EN ISO 1461 (DIN 50976), as well as spray painted with anti-corrosion paint systems compliant with the EN ISO 12944-5 standard, painted to secure the structure against fire (with swelling paints) or powder coated. The structures are available in RAL palette colours. WEMA grates fitted with anti-slippery strips are the filling material. Lightweight structure guarantees fast and easy assembly.

Landing grates and other materials for steps and platforms
The welded landing grate forms the filling material for steps, landings and platforms. Architectural concrete, stone, wood, ceramics, ribbed or perforated sheet plate may also be used.

Guard rail
The industrial or children-safe types. Non-standard guard rails may be installed, e.g. made of stainless steel.

Anti-corrosion protection
Zinc coat and spray or powder painting.

Coating technology
The silver zinc colour is the basic finishing of the surface, resulting from dipping steel structures in liquid zinc. Optionally, the structure made of galvanised profiles is powder or spray painted. The process of preparation of the surface ensures excellent adherence of painting coat. The elements of the structure are first covered with the primer, and then with the topcoat.

Variants
The stairs may be encased with the external staircase made of system fencing panels or sandwich panels, along with a system locked wicket.
SPIRAL STAIRS
(WINDING)
Evacuation stairs: functional and safe.

SPIRAL STAIRS: light-weight, innovative designs perfectly matching new and repaired buildings. Minimal area necessary for the assembly is the advantage of the structure. Their spiral form of the stairs prevents falls from accidental tripping, as the rail is the natural protection.

Landing grates and other materials for steps and platforms
The welded landing grate forms the filling material for steps, landings and platforms. Architectural concrete, stone, wood, ceramics, ribbed or perforated sheet plate may also be used.

Guard rail
The industrial or children-safe types. Non-standard guard rails may be installed, e.g. made of stainless steel.

Anti-corrosion protection
Coat zinc and powder painting.

Colours
Silver (zinc). Other RAL palette colours are available.

Coating technology
The silver zinc colour is the basic finishing of the surface, resulting from coating steel structures in liquid zinc (in the hot galvanisation process). Optionally, the structure made of galvanised profiles is powder or spray painted. The process of preparation of the surface ensures excellent adherence of painting coat. The elements of the structure are first covered with the primer and then with the topcoat.

Variants
The external parts of the stairs may be encased with the staircase made of system profiles of profiled sheet plate or sandwich panels. The lower part of the stairs may also be encased with fixed fencing, e.g. made of openwork panels, along with a system locked wicket.
CONTAINER STAIRS
Maximising container area.

The modular structure means fast connection of the elements in order to achieve the required length of the stairs. Low weight allows their installation without cranes, even in case of two or three storeys. The structure is fully hot galvanised according to EN ISO 1461 (DIN 50976).

Landing grates and other materials for steps and platforms

WEMA grates with anti-slippery strips constitute the standard filling material. Steps and landings may be made of ribbed anti-slippery sheet plate.

Guard rails

Industrial type. Made of Ø 42.4 [mm] bent pipes.

Anti-corrosion protection

Coat zinc and powder painting.

Variants

The terrace may be built on the container with platforms made of hot-welded landing grates and provided with staircase encasing, e.g. made of fencing or sandwich panels, along with canopies above the landings and stair flights.

Assembly

Simple assembly with tools used to make screw connections. The pole and stringer alloys at the “zero” level are screwed down to the foundation with chemical anchor bolting and screws. No welding necessary. The stairs are provided in kits for easy assembly.
GUARD RAILS
& STAIR STEPS
T1001 – industrial, made of bent pipes, 42.4 [mm] diameter

T1002 – safe for children
Filling: horizontal rods, pipes, flat bars, vertical rods, flat bar, glass, perforated sheet plate, wood or mesh.

T1003 and T1004 decorative balustrade
Ground stainless steel is the basic structural material for decorative balustrades. It may be replaced with polished stainless steel, painted steel black, aluminium, brass or wood. The standard filling of the balustrade comes in the form of rods, pipes or cords of stainless steel, installed in various designs.

Easy assembly – the structure is ready for assembly. The proper matching of the elements at the production stage and the enclosed documentation allow easy assembly with basic tools.

TLC Assembly – Comprehensive order support.
Production according to the requirements of the DIN 24537 standard. Hot galvanisation compliant with the EN ISO 1461 standard is the default anti-corrosion protection.

The basic structural material is galvanised steel, selected types of grate are also available made of stainless steel and aluminium.

Variants:

> landing grates made of pressed grate,
> hot-welded or pressed grates with additional anti-slippery surface,
> full ribbed sheet plate,
> riffled and riffled sheet plate,
> architectural concrete,
> concrete for ceramic or natural stone tiles,
> natural stone,
> wood.

The most often used mesh sizes and cross sections of load-bearing flat bars in welded grates:

- standard grates,
- grates in stock, additional payment required,
- custom grates, additional payment required, longer waiting time

<table>
<thead>
<tr>
<th>MESH SIZE</th>
<th>LOAD-BEARING FLAT BAR „H“ X „G“ [MM]</th>
</tr>
</thead>
<tbody>
<tr>
<td>„a“ x „b“ axes [mm]</td>
<td>25x2</td>
</tr>
<tr>
<td>15,0 x 76,2</td>
<td>●</td>
</tr>
<tr>
<td>21,6 x 24,0</td>
<td>●</td>
</tr>
<tr>
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</tr>
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</tr>
<tr>
<td>34,3 x 76,2</td>
<td>●</td>
</tr>
<tr>
<td>34,3 x 101,6</td>
<td>●</td>
</tr>
<tr>
<td>34,3 x 101,6 offshore</td>
<td>●</td>
</tr>
<tr>
<td>43,2 x 101,6 offshore</td>
<td>●</td>
</tr>
</tbody>
</table>
**Attested steel in S235 or S355 grades**

Load-bearing elements of the structure.

**Stainless steel** - in 1.4301 and 1.4401 grades, ground. Intended mostly for elements of balustrades, Wema grates, profile grates and sheet plate for steps and stair landings.

**WEMA grate** - hot-welded or pressed, with various mesh size and load-bearing flat bar size. Steps, platforms and landings of the stairs.

**Profiled grate in various sections** - better anti-slippery properties, lower clearance, lower weight.

**Ribbed sheet plate** used instead of WEMA grates.

**Flat sheet plate** used on stair steps, platforms and landings, ready for lining, ceramic or stone tiles.

**Concrete or terrazzo** - steps and landings may be made of reinforced concrete and concrete with grit / terrazzo.

**Wood** - various types of wood used for steps, platforms and handrail grips. Finishing of wood surface: oil, lacquer.

**Aluminium** and its alloys: alternative for steel.
Glass balustrades feature high-strength glass produced in the quenching process. Safe and modern solutions for public spaces.

TLC cooperates with leading suppliers of glass and fixing systems, ensuring the highest quality of the installed elements. We offer a wide range of solutions and comprehensive support for specific projects.

**Design and fast assembly**
TLC offers professional technical consulting, preparation of the concept and the design documentation with 3D software. TLC offers assembly of balustrades executed by specialised assembly teams. We have gained our knowledge and experience in the execution of the leading developments in Poland. The modular fixing system enables easy and fast assembly.

**Variants**
TLC offers balustrades with full glazing or with individually designed glass filling. The basic structure is made of stainless steel or aluminium. Handrails are most often made of wood or stainless steel and are available in many types and designs.
POWDER PAINT SHOP
Spray coating  anti-corrosion coating systems in accordance with DIN EN ISO 12944-5. Selection of paints and the thickness of the layer depends on the environment, where the structure will be installed. Preparing the surface for painting by blast cleaning to the required purity class.
Colours - RAL, NCS
Finishes - matt, semi-gloss, gloss

Powder coating is a process of coating metal with a plastic finish applied in powder form and baked to a fluid state to bond it to the metal surface. The powder coating process involves three basic steps – surface preparation (Sa 2½ by ISO 8501-1) or chemical pre-treatment, powder application and curing.
Colours - RAL, NCS
Finishes – matt, semi-gloss, gloss, metallic, structural paints

Fireproof coating (intumescent paint) intumescent coatings are widely used to protect steelwork in cellulosic fire conditions for fire resistance periods of 30 and 60 minutes, and are increasingly being used for periods of 90 minutes. In some instances, coatings can achieve 120 minutes fire resistance.

Fire zinc (Immersion method according to EN ISO 1461) provide a continuous, impervious metallic barrier that prevents moisture from contacting steel. However, since zinc gradually corrodes due to its much slower degradation in the presence of water and atmospheric pollutants in open air applications, barrier life is proportional to coating thickness. The application of paint over the zinc coating, known as a duplex system, can also extend barrier coating longevity.

Galvanizing process provides fabricated steel items with excellent protection against corrosion. The nature of the immersion process provides good edge protection and complete coverage of the outer surface area as well as inner protection of hollow parts. In general, a zinc coating of at least 60-70 μm is applied.