

Technical Specifications and Recommendations

Dear Customer.

These Technical Specifications are based on our experience in supplying perforated materials. Please read them carefully as they may help you understand some of the important details when selecting a particular material and when using it correctly.

A customer ordering a predefined design is considered to have knowledge of the use of these products. If you are unclear, please contact us.

All advice and recommendations provided herein or in consultation with us ("Recommendations") are based on our experience and operating conditions or those of some of our customers. These Recommendations are provided as general information only and should not be considered exhaustive or complete.

We are not responsible for the accuracy of the Recommendations if they are made under operating conditions other than those on which the Recommendations are based. We are also not responsible for any damage resulting from implementing the Recommendations in an incorrect manner or by an insufficiently qualified person.

When deciding whether to apply the Recommendations, we recommend that you assess the specific operating conditions and evaluate whether our Recommendations are suitable for your situation. Always consult a professional if you have any doubts about the accuracy or completeness of our Recommendations.

Need help with anything?

Contact us: shop@perfolinea.cz

Perforated sheets

- Perforated sheets are manufactured in accordance with DIN 24041.
- The tolerances for external dimensions are in accordance with the above standard and the dimensional standards for metallurgical materials EN10025, EN10029, EN10051, EN10131, EN10088.
For standard stock positions in standard formats 1000 × 2000 mm, 1250 × 2500 mm and 1500 × 3000 mm, input sheets and coils are not trimmed. The perforated sheets can then be up to 5 mm wider and longer than the normal tolerance of the input raw material. This sheet expansion is caused by perforation and depends on the size of the holes and their density, as well as the thickness and quality of the raw material.
- Sheets are cut to order with a tolerance of ± 3 mm up to a thickness of 2 mm. Sheets with a thickness greater than 2 mm are cut with a tolerance of ± 5 mm. If you have other requirements, please specify them in the order or provide a drawing with dimensions. There must be mutual agreement or approval of the test sample.

- In order to avoid tool breakage and cracking, especially in the case of smaller holes, the hole punches are made in a straddle manner (double spacing between the punches). This results in the first and last row of holes being incomplete.
- The punch may break during perforation. This will result in several missing holes. If perforated sheets are used as decorative elements, please specify this requirement in the order.
- Perforating by stamping produces burrs on the reverse side. These burrs can be pushed back into the hole during straightening. If the function of the perforated sheet is affected, or if the perforated sheet is to be used as a decorative element, please specify this requirement in the order.

Technical recommendations:

- Perforated sheets made from pre-galvanized sheets have untreated inner cut edges of the holes and cut edges of the sheets. These perforated sheets cannot be used outdoors or in other oxidizing environments without further surface finish.
- Steel sheets with galvanic zinc surface protection are also not suitable to be used outdoors or in other oxidizing environments. It is necessary to apply a second coat of paint or clear varnish.
- Surface protection of steel sheets with a single layer of baked powder paint is not suitable to be used outdoors or in other oxidizing environments. Pre-treatment by galvanizing, cathodolysis or the use of perforated sheets made of galvanized sheet metal is necessary.
- Hot-dip galvanizing is the longest lasting protection. It can be performed on perforated sheets with holes larger than 10 mm and with sheet thicknesses of 1.5 mm or more. This finish is purely for the protection of steel sheets. It cannot be considered a decorative element. White rust, which is caused by oxidation of zinc surfaces, is not a defect of the product. Partially sealed holes, various irregularities and blanks resulting from galvanizing are not a defect of the product.
- When perforating, a cutting oil that does not contain substances that cannot be degreased (silicone) is used as standard for lubrication and cooling. If a non-greasy surface is required, please specify this requirement in the order. Sheets will be lubricated with a vanishing oil that will leave a minimal trace.
- Surface scratches can occur during the production of perforated sheets due to the sheets being twisted directly on the machine during perforation. These mostly involve thicker sheets with a thickness of over 2 mm. If a flawless surface is required, please specify this requirement when ordering the production. If agreed, the sheets will be covered with a protective film or they will be straightened several times during the punching process.
- It is recommended to apply hot-dip galvanizing to the edging sections when using them as frames for perforated sheets, expanded metal sheets and mesh screens for outdoor use. It is necessary to galvanize the frame from edging sections and sheets or mesh screens separately and then to assemble and paint them if necessary.

Expanded metal

- Expanded metal is manufactured in accordance with DIN 791.
- The tolerances for external dimensions are in accordance with the above standard and the dimensional standards for metallurgical materials EN10025, EN10029, EN10051, EN10131, EN10088.
- For standard stock positions in standard formats 1000 × 2000 mm, 1250 × 2500 mm and 1500 × 3000 mm, input sheets and coils are not trimmed. Sheets of expanded metal then have the following tolerances:
 - Width tolerance +20 mm / -10 mm
 - Length tolerance +100 mm / -0 mm

Sheets are cut to order with a tolerance of ± 3 mm up to a thickness of sheets 2 mm. Sheets made from sheet thickness greater than 2 mm are cut with a tolerance of ± 5 mm. If you have other requirements, please specify them in the order or provide a drawing with dimensions.

Technical recommendations:

- Expanded metal made from pre-galvanized sheets has untreated inner cut edges of the holes. Such expanded metal cannot be used outdoors or in other oxidizing environments without further surface finish.
- Steel expanded metal sheets with galvanic zinc surface protection are also not suitable to be used outdoors or in other oxidizing environments. It is necessary to apply a second coat of paint or clear varnish.
- Surface protection of steel sheets with a single layer of baked powder paint is not suitable to be used outdoors or in other oxidizing environments. Pre-treatment by galvanizing, cathodolysis or the use of expanded metal made of galvanized sheet metal is necessary.
- Hot-dip galvanizing is the longest lasting protection. It can be performed on expanded metal with holes larger than 8 mm and with sheet thicknesses of 1 mm or more. The smallest opening suitable for galvanizing is for example TR 22 × 12 mm, TR 28 × 10 mm, TQ 20 × 15 mm and larger. This finish is purely for the protection of steel expanded metal sheets. It cannot be considered a decorative element. White rust, which is caused by oxidation of zinc surfaces, is not a defect of the product. Partially sealed holes, various irregularities and blanks resulting from galvanizing are not a defect of the product.
- During the production of expanded metal, the compound tools produce small protrusions that appear on each opening. If ceiling panels or other decorative elements are to be produced from expanded metal that will not be further coated, please specify this requirement in the enquiry or order. These are especially stainless steel and aluminium expanded metal sheets.
- Expanded metal can be bent into ceiling panels and other shapes. Unfortunately, the shape and size of the opening makes the bend move to the point of least resistance. Bending tolerances can therefore be up to ± 5 mm. If more precise dimensions are required, we will make a sample and measure the actual values.

Floor gratings and stair treads

- The production of grates is in accordance with DIN 24 537, the production of stair treads with DIN 24 531. Dimensional tolerances are according to RAL-GZ 638.
- Gratings and treads are mostly made of S235 structural steel (also available in stainless steel 1.4301/1.4571, aluminium and Corten steel, etc.).

Technical recommendations:

- Surface finish of structural steel products:
 - o No surface finish (raw) – surface corrosion may occur – if clean steel is required, this must be specified in the order!
 - o Hot-dip galvanizing – the most used finish type – very good corrosion protection. It cannot be considered as a design, it is only a protection against material degradation – minor irregularities, patterns, blanks or white rust is not a defect of the product).
- Surface finish of stainless steel products:
 - o No surface finish (natural) – such gratings are suitable for further processing by the customer (e.g. further welding, cutting) – it is assumed that the final surface finish will be made by the customer after all welding and ironworking procedures have been completed (brown patches on welds, cut/ground edges will sooner or later start to turn black!).
 - o Pickling – final product – restoration of the anti-corrosion layer, uniform matt surface.
 - o Electropolishing – design and highly chemically resistant – uniform glossy surface.

Welded mesh screens and fencing

Welded mesh screens and fencing offer a wide range of applications. They are suitable for the production of transport pallets, machine guard fencing, partition walls in locker rooms, interior decoration, property fencing, animal cages and aviaries.

Welded mesh screens

- Stock positions of welded mesh screens are made of smooth, raw wire, steel grade 11.
- Standard stock formats are 2000 × 1000 mm and 3000 × 1500 mm.
- Welded mesh screens have loose ends, i.e. overlaps.
- Welded mesh screen spacing is measured from the mesh centres.

- Tolerances for stock positions of welded mesh screens are $\pm 3\text{mm}$
- Welded mesh screens can be welded into frames or inserted into our special edging sections “WE30-3”, gap width 3 mm; steel DD11-DD14/S235; format $1.5 \times 30 \times 30 \times 3100$ mm.
- Welded mesh screens can be made in other designs and formats than standard stock positions. This includes, for example, custom manufacturing in stainless steel or galvanized wire.
- In the case of welded mesh screens made of galvanized wire, the surface layer of the wire is disturbed due to the production technology. The same service life as in case of hot-dip galvanizing cannot be expected. The surface of galvanized wire cannot be considered as a final finish, but is only used as a base for further surface finish. Welded galvanized wire mesh screens are not suitable for more design-intensive applications – they are not used as a “visual element”. The surface of galvanized wire mesh screens can be grey, oxidized, have white patterns, etc. There are brownish weld patches at the crossing points.
- Uneven layers of zinc may form when hot-dip galvanizing welded mesh screens. The corners can be socketed, have so-called blanks, etc. The surface of hot-dip galvanized mesh screens may be grey, oxidized, have white patterns, etc., which is not a defect. They are not suitable for more design-intensive application – they are not a visual element. Hot dipped zinc is not a visual finish and serves only as corrosion protection; white rust is not a defect.
- Hot-dip galvanizing quality is according to DIN EN ISO 1461.
- Stainless steel welded mesh screens are made of stainless steel with no finish (natural). They are matt and there are brownish weld patches at the crossing points.
- Tolerances for custom-made welded mesh screens are flexible. That is, according to production possibilities.
- Welded mesh screens are not “supervised”. This means that they are not subjected to technical tests, as they are only semi-finished products intended for further processing by the customer.

Fencing

- Fencing types: crimped mesh and pressure-locked mesh.
- Mesh opening sizes are measured in terms of clearance.
- Fencing is made of steel wire, material grade 11, galvanized wire or stainless steel. This is a custom production only; it is not a stock assortment.
- In the case of fencing made of galvanized wire the surface layer of the wire is disturbed due to the production technology (crimping). The surface of galvanized wire cannot be considered as a final finish, but is only a base for further surface finish. Galvanized fencing is not suitable for more design-intensive applications, it is not used as a so-called “visual element”. The surface of galvanized wire fencing can be grey, oxidized, have white patterns, etc.

- Hot-dip galvanizing is unsuitable for fencing because high temperatures cause deformation.
- Tolerances for fencing are flexible, i.e. according to production possibilities.
- Fencing is not supervised. This means that it is not subjected to technical tests, it is only semi-finished products intended for further processing.