

**HOT-ROLLED STEEL SHEETS, PLATES AND COILS**

**Prefabrications, Shop primed plates**

Shop priming gives steel temporary corrosion protection for the transport period, short-term storing and workshop processing. In engineering workshop operation it improves the cleanliness of working environment and occupational safety. Cutting and welding shop-primed plates is easy. Moreover, the adherence of spatters on the steel structure is significantly decreased.

#### Applications

- Construction of tanks
- General machine engineering
- Construction of pressure equipment
- Shipbuilding
- Offshore projects

#### • Product description

Ruukki's shop-primed plate is primed with red zinc silicate shop primer or iron epoxy shop primer. By separate agreement, other shop primers are available, too. The plates are always shot-blasted before shop-priming. Generally, both sides of the plate are primed, but upon request it is possible to carry out the treatment on one side only. In addition to this, also precision cut plate products, cut shapes, bent plate products, as well as wide flats can be delivered shop-primed. The minimum weight of a plate to be shop-primed is 2000 - 5000 kg, depending on the plate thickness. In addition to "shop primer", the term "prefabrication primer" is also used.

#### • Dimensional ranges, tolerances and steels grades

Shop-primed plate products are manufactured from heavy plate in the dimensions stated in table 1.

**Table 1.**  
**Shop-primed plates, general dimensions <sup>1)</sup>**

	Dimension ranges mm
Thickness	5 – 150
Width	800 – 3300
Length	2500 – 19500

<sup>1)</sup> Within the general dimensions, the steel grade specific minimum and maximum dimensions are determining.

Other dimensions than those presented in the table can be delivered upon special request. Plate products over 7 mm thickness can be delivered shop-primed only on one side. Upon request, plates can also be delivered with shot blasting treatment only. Tolerances on dimensions and shape for hot-rolled heavy plates in accordance with the EN 10029 standard can be used for the corresponding tolerances of shop-primed plate as applicable.

#### • Shop priming and shot blasting preceding it

Prior to shop priming, plates are pre-heated and shot-blasted with steel grit to the Sa 2 ½ preparation grade in accordance with standard ISO 8501-1. Plates are shot-blasted to a surface roughness that provides the best possible adhesion for a shop primer. Typically, the surface profile ( $R_z$ ) is 30 to 70  $\mu\text{m}$ . The actual priming takes place immediately after shot blasting.

#### • Recommended shop primers

A shop primer is a thin primer coat, spread automatically upon the shot-blasted steel surface, to provide the steel with temporary protection against corrosion for the duration of transport, storage and workshop processing.

On the basis of their excellent anticorrosion properties, recommended shop primers are zinc silicate and iron oxide epoxy shop primers, which come in a red hue as standard colour.

Typical properties of a zinc silicate shop primer include:

- The average value of the dry film target thickness is  $16 \mu\text{m} \pm 5 \mu\text{m}$  (measured on a smooth steel surface<sup>1)</sup>).
- Excellent anti-corrosion properties.
- Plates that are treated with this shop primer are exceptionally good to weld and cut.

Typical properties of an iron oxide epoxy shop primer include:

- The average value of the dry film target thickness is  $21 \mu\text{m} \pm 5 \mu\text{m}$  (measured on a smooth steel surface<sup>1)</sup>).
- Good anti-corrosion properties.
- Plates that are treated with this shop primer are good to weld and cut.

Upon request, plates and plate products can also be delivered treated with other than the above-mentioned shop primers.

<sup>1)</sup> The dry film thickness of every single shop primer coat is measured from the surface of a smooth steel strip painted with the shop primer in question - the steel strip is made of cold-rolled steel. By doing so, the accurate dry film target thickness of the shop primer is achieved.

- **Markings**

After shop-priming, plates are dried in a drying oven prior to ink-marking. The general data relating to the customer's order are marked on the primed plate in white. The customer's own, specified identification data can also be added to the marking. Markings are usually made on the front part of the plate only, but they can also be added to the other end of the plate when necessary. Minimum marking is used when only the most essential plate identification data is marked on the plate. The markings are described in the Markings and packing data sheet.

- **Delivery data**

The delivery time for a shop-primed plate product is 1 week longer than that of a plate without surface treatment. This applies to the above-mentioned general types of shop primer. Using other types of shop-primers may extend the delivery time. Prefabrication treatments operations specified for the primed plate product upon order - such as bending, flame cutting or bevelling - will also increase the delivery time. Information on the delivery and packing of the products are indicated in the Markings and packing data sheet.

- **Use and storage**

Shop-primed plate products must be stored in a dry environment protected from moisture. No water shall remain on top of the plate, or any humidity concentrate on the plate surface.

The most recommendable and effective way to prevent harm from moisture is to store the products indoors. The use of appropriate dunnage in storing is essential. It is recommended that plate products are stored in a slightly slanted position to prevent any standing water on the plates. It is also recommended to store shop-primed plates separately from other materials. If it is necessary to store shop-primed plates outdoors, harm from moisture should be prevented by covering the plates, paving the storage area with gravel, etc.

Prior to final surface treatment of the shop-primed plate products, the steel surfaces must be cleansed thoroughly. Shot blasting is recommended. The shop primer is not a true primer, i.e. ground coat, but expressly a temporary protection against corrosion for the duration of transport, storage and workshop processing.

These instructions for the handling and storage of shot-blasted and shop-primed plate products apply to the buyer, user and the manufacturer alike.

- **Further information**

More detailed information on the usage, properties and environmental impacts of shop primers is available from the shop primer manufacturer.

Ruukki is a metal expert you can rely on all the way, whenever you need metal based materials, components, systems or total solutions. We constantly develop our product range and operating models to match your needs.

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