

## Installation of WELDA® Anchor Plate

### Installation of WELDA® Anchor Plates at the precast factory or on the construction site

WELDA® Anchor Plates are installed to the planned positions before or during casting of concrete.

The precise position of the anchor plate is indicated on the design drawings. Anchor plates can be fixed on the formwork or on the reinforcement by nails, glue, double-sided tape, or clamps. If steel mould is used fixing using magnets is possible. Upon request, WELDA® Anchor Plates can also be supplied with nail holes for easier fixing. If the anchor plates are fixed to formwork special attention should be paid to achieve the required post-concreting tolerances.

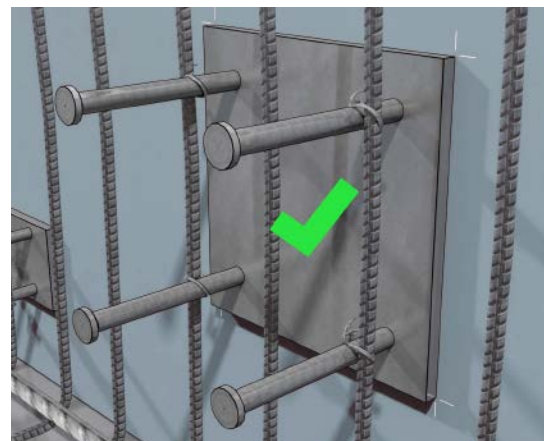
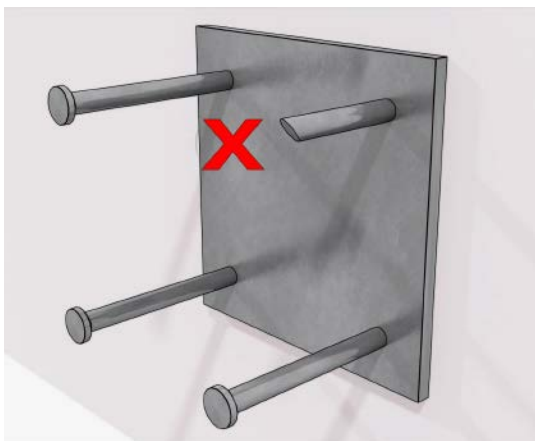
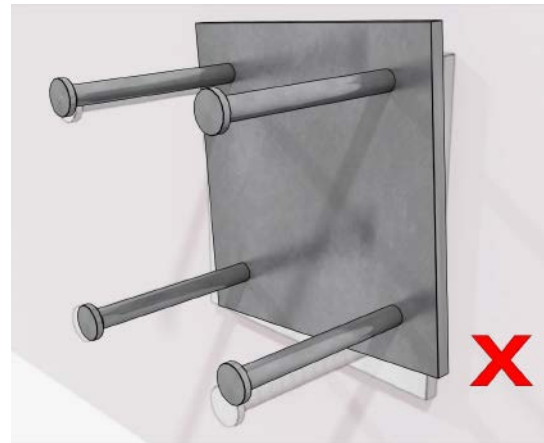
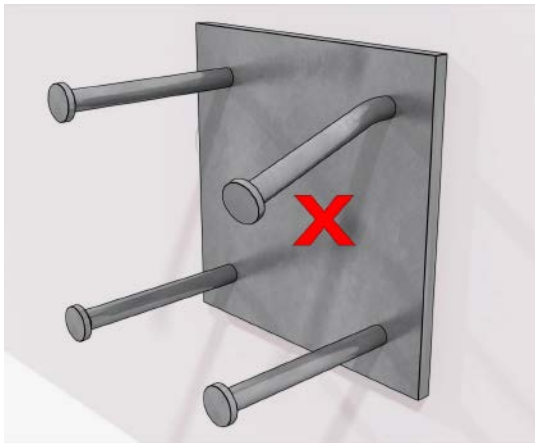
It is not allowed to bend or cut the headed studs or anchors to make the plate fit the reinforcement. The anchoring of WELDA® Anchor Plates is based on the concrete cone, which is due to the headed studs. Bending or cutting the anchors reduces the resistance of the anchor plates because it downsizes the concrete cone.

Before concreting it is good to check the position of the anchor plate. Keeping tight planar tolerances reduces risk of concrete flush to cover the surface of the anchor plate during concreting.

In casting, the dropping height of the concrete should be kept as small as possible. This ensures that the mass stays even and the anchor plate is not exposed to great impelling forces. Close attention should be paid during casting and compacting to ensure that the position of anchor plates stays unchanged.

The concrete under the heads of headed studs or anchors, as well as under the base plate, should be properly compacted. If a vibrator is used for compacting, contact between the anchor plate and the vibrator is to be avoided. Especially bigger horizontal anchor plates are to be provided with air holes to enable adequate compacting under the plate area.

Only when the concrete has been hardened and reached the design strength can the anchor plate be loaded.



## Welding to anchor plates on site

Normally, the steel component is welded to the WELDA® Anchor Plate after casting when the concrete has hardened. Peikko can carry out welding of additional steel components to the anchor plate at factory by request, if the formwork preparation permits this before casting.

Welding to the anchor plates on site is carried out in accordance with the designer's drawings, the execution specification, and any additional instructions applying to matters such as inspections. The designs must include information on the qualification and quality level requirements, the execution classification and surface treatments, the materials used, and the extent of testing for welds.

For execution classifications of EXC2 and above, the company must have a welding coordinator with sufficient technical knowledge on the construction site. The welding coordinator is responsible for guiding and supervising welding and for welding-related documentation, such as qualifications and welding procedure specifications. Worksite welding must comply with the EN 1090-2 standard and the accompanying national annexes and reference standards, as well as other standards that may be associated with welding work (such as the EN ISO 17660-1 standard when welding reinforcing steel).

Welding must follow welding procedures and working methods that result in an adequate quality level as required by the welding class. The following must be taken into consideration when welding load-bearing joints and fastening joints:

- The steel is cleaned of ice, snow, moisture, rust, paint, grease, or other dirt and possible galvanization.
- Moisture must be removed from the area that is being welded. This can be achieved by heating e.g. using a gas flame just before.
- For MAG welding, care must be taken to protect the welding site from wind, as the shielding gas is vulnerable to the effect of wind.
- The welding electrodes and other welding additives must be dry and stored in accordance with the manufacturer's instructions.
- Welding should begin in the center of the structure and proceed toward the edges unless a different order is specified in the welding plan.
- The free movement of other structural components should be enabled during welding insofar as is possible.
- If structural components have preheat heat requirement, the components shall be heated according to the welding procedure specification (WPS).
- If the temperature is below +5°C, it is advisable to use preheating to all items being welded.
- At low working temperatures (below 0°C) or in humid conditions, the steel that is being welded must be preheated to a temperature of +50°C.
- Due to the risk of brittle fractures, preheating is more important when sturdier components are being welded.
- Preheating must also be carried out during tack welding in accordance with WPS.
- Sufficient welding power should be used and, for manual metal arc welding with covered electrodes, the electrodes must have the correct diameter in relation to the size of the weld bead.
- Excessive heat input should be avoided to prevent damage to the concrete structure beneath and to avoid excessive deformation of the plate and formation of tension.
- The welder must hold valid welder certification applying to the welding work in question and corresponding to the EN ISO 9606-1 standard, as well as the EN ISO 17660-1 standard for applications such as welding concrete reinforcements. The certification must be inspected and approved by the welding coordinator.

Table 19. Recommendations for welding consumables with common steel grades.

Material of the steel part	Material welded on the steel part		
	S235, S355	1.4301	1.4401
S235, S355	GMAW: G3Si1 FCAW: T 42 4 M M 1 H10 SMAW: E 42 4 B 42 H5	GMAW: G 23 12 LSi SMAW: E 23 12 L R 3 2	GMAW: G 23 12 2 L SMAW: E 23 12 2 L R 3 2
1.4301	GMAW: G 23 12 LSi SMAW: E 23 12 L R 3 2	GMAW: G 19 9 L Si SMAW: E 19 9 L R 1 2	GMAW: G 19 12 3 L Si SMAW: E 19 12 3 L R 1 1
1.4401	GMAW: G 23 12 2 L SMAW: E 23 12 2 L R 3 2	GMAW: G 19 12 3 L Si SMAW: E 19 12 3 L R 1 1	GMAW: G 19 12 3 L Si SMAW: E 19 12 3 L R 1 1

GMAW = Gas Metal Arc Welding (MAG Welding)

SMAW = Shielded Metal Arc Welding (Welding with stick electrode)

FCAW = Flux Core Arc Welding