

Welding instructions for adapter edge

General Description

There are two types of adapter edge: FILLET weld and BUTT weld.

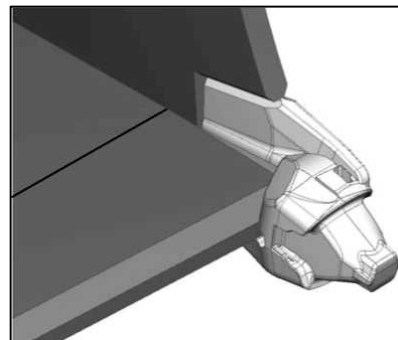
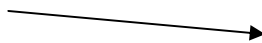
The FILLET weld adapter edges are overlapped onto the blade at the bottom as indicated in the attached figure.

The BUTT weld adapter edges conform the corner of the bucket, and are welded to the blade by an extension integrated in the adapter, similar to the profile of the blade, which must be cut for proper placement.

Both models are attached to the side of the bucket by means of an extension located at the top of the adapter. This is why the necessary cuts must be made on the side to position the adapter properly.

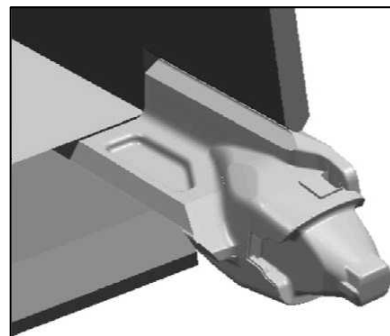
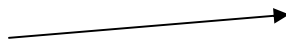
FILLET weld adapter edge

Blade limit



BUTT weld adapter edge

Blade limit

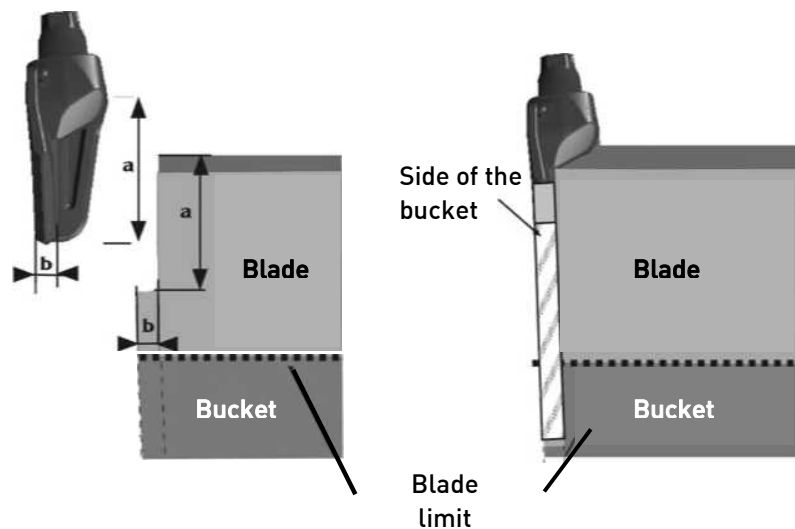


FILLET weld adapter edge

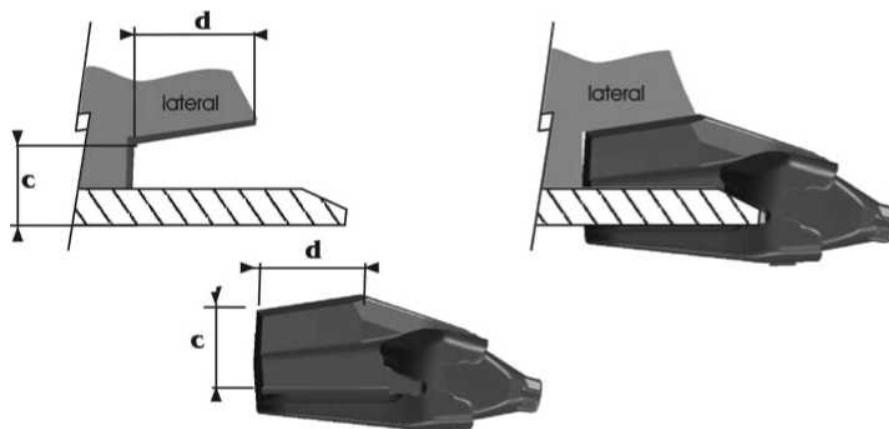
1. Preparation and cutting of the bucket

- Preheat the blade and side of the bucket to 120°-200° C (250-400°F) before the cutting operation. A gas torch is recommended.
- Make the cut in the blade and bucket as indicated in the attached diagrams.

Plan view



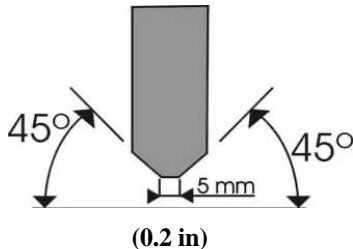
Elevation view



Note: The side of the bucket should go up the top of the blade, as indicated in the diagrams. If you want the blade to act as a butt with the side of the bucket, cuts "a" and "b" "need not be made in the blade.



Bevel the cut edges on the blade and the side of the bucket to ensure proper welding. These bevels should be made at 45°, giving a flange of 5 mm (0.2 inches).



Clean the areas to be welded, eliminating paint, grease, rust and other elements that may give rise to bubbles and gas release during the welding. Use a metal brush and slight grinding in areas where this is regarded as necessary.

2. Pre-heating:

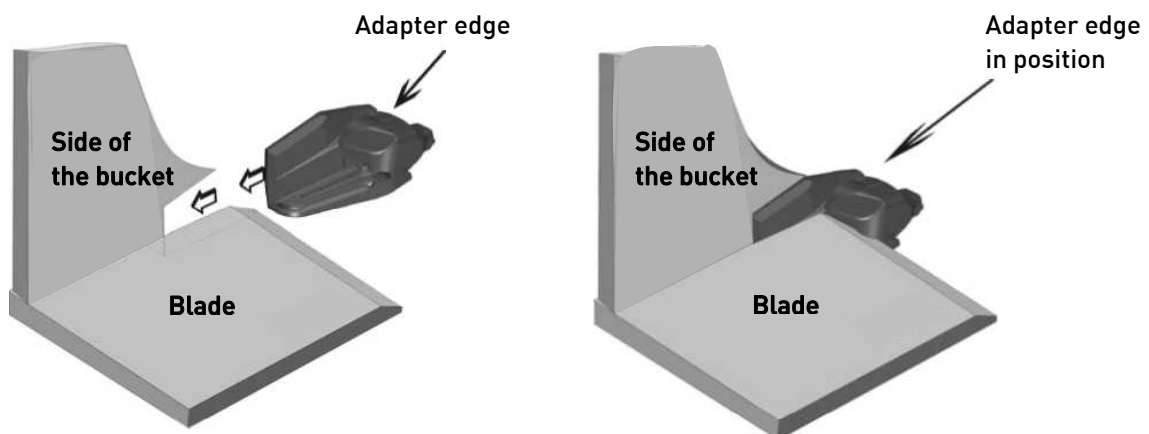
Heat the area to be welded preferably with a gas torch. The blade must be heated from bottom to top to make sure that the heat will penetrate throughout. This is necessary to avoid residual stress in the welding, cracks caused by embedded hydrogen or hardening of the weld bead caused by a self-tempering effect.

Check that the temperatures of the areas to be welded are between 140° and 180°C (280-360°F). We recommend the use of heat pencils or radiation or contact pyrometers. By way of guidance, the heat dissipated by the parts should be the maximum heat supported by the bare hand at a distance of 15 cm (6 inches) from the piece.

Avoid draughts of air that cause the welded areas to cool quickly and the dispersion of gases generating bubbling and splashing.

3. Positioning of the adapter:

Place the adapter edge in the blade as indicated in the attached diagram, so that it forms a stop with the inner surface area of the blade and with the outside edge of it.



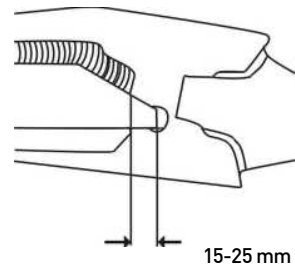


Note: Do not adjust fully against the lip of the blade, you must allow for some play in the exhaust that will permit the free deformation caused by the weld stresses.

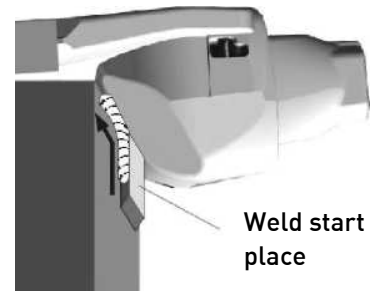
4. Welding

Position the surface area to be welded horizontally so that the operator can work properly. To this end the bucket must be rotated so that the areas to be welded can be positioned properly.

Start welding at a distance of 15 to 25 mm (0.6-1 inches) on the edge of the blade. Never weld on the edge of the blade.

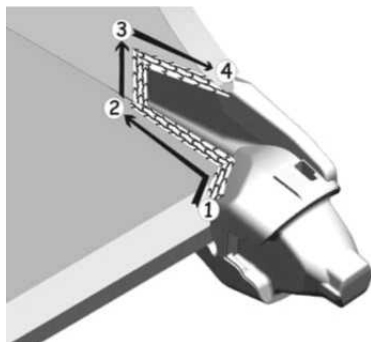


Use weld start plates in the areas where this is indicated in the attached figure.

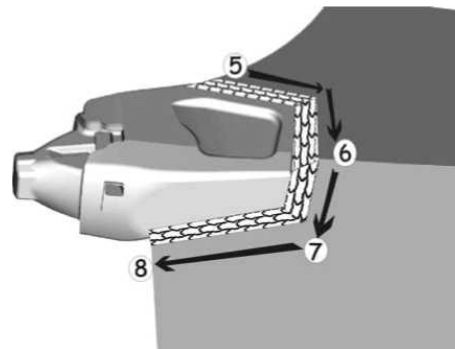


Follow the order and direction of the weld beads indicated in the following graphics:

View towards the inside of the bucket



View towards the outer and bottom area of the bucket



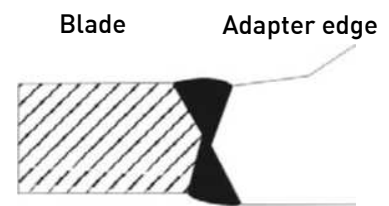


Note: Weld beads on the same section should always go in the same direction and avoid breaks in the weld beads

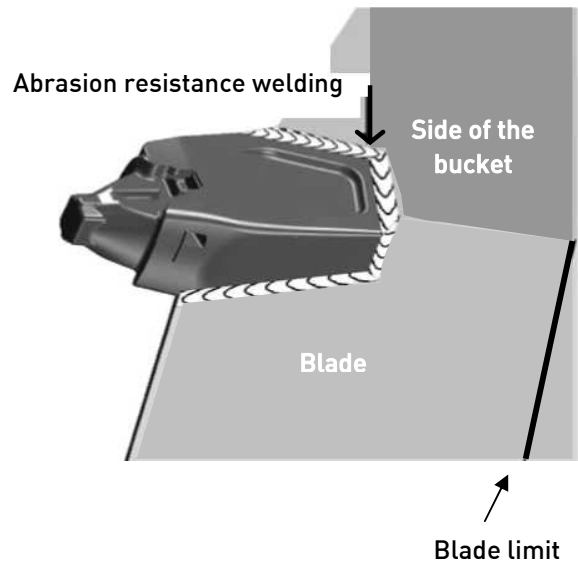
Note: Hammer faulty weld beads to clean scales and reduce residual stress.

5. Thickness of the weld beads

Cover completely the space between the edges to be welded with solder until the latter reaches and slightly surpasses the surface area defined by these edges, to prevent wear. In any case, never do more than 30 mm (1.2 inches) thickness on each side.



Apply a thicker weld bead or with abrasion resistance to the lower parts and to the joints that are exposed on the outside of the bucket

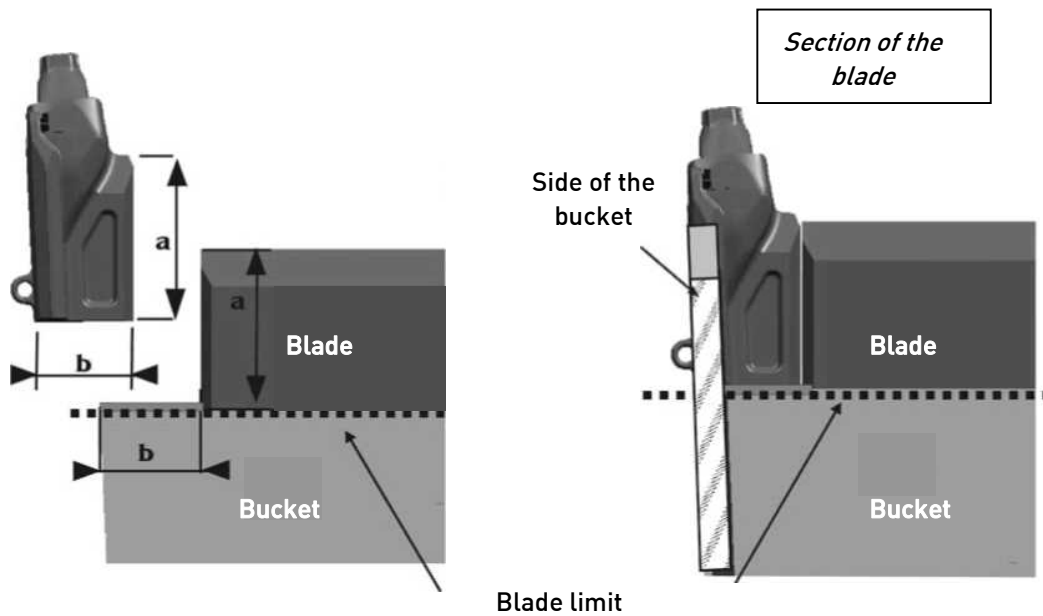


Adapter edge full

1. Preparation and cutting of the bucket

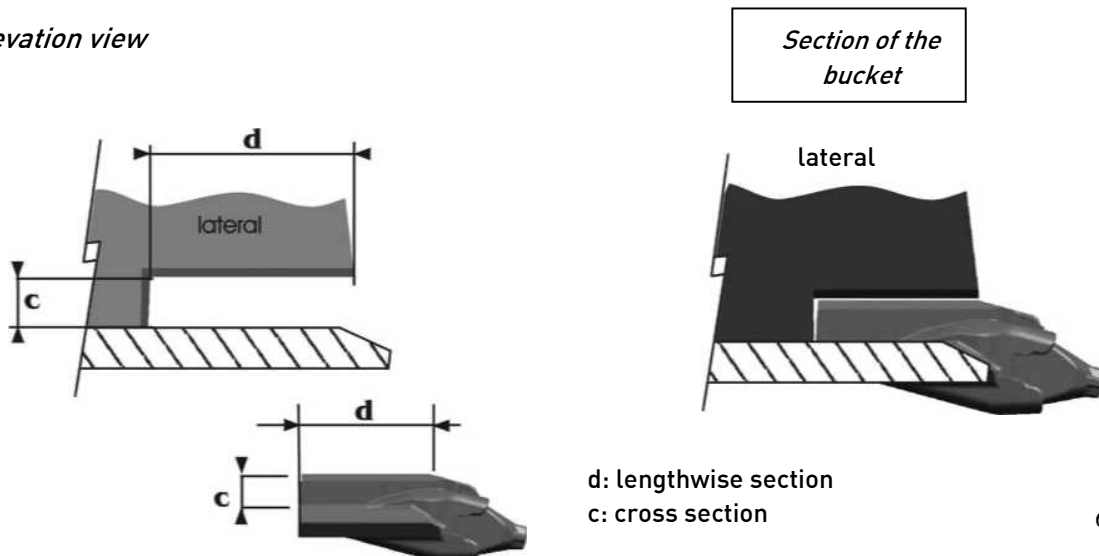
- Preheat the blade and side of the bucket to 120°-200°C (250-400°F) before the cutting operation. We recommend the use of a gas torch.
- Make the cuts in the blade and side of the bucket as indicated below

Plan view



a: lengthwise section
b: cross section

Elevation view





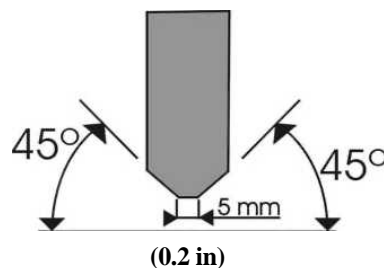
Note: The side of the bucket should go up the top of the blade, as indicated in the diagrams. If you want the blade to act as a butt with the side of the bucket the cuts should be made as follows:

Cross section of the blade = b – thickness of the side of the bucket

Cross section of the side of the bucket = c + thickness of the blade

The longitudinal cuts are maintained as in the previous case.

- Bevel the cut edges on the blade and the side of the bucket to ensure proper welding. These bevels should be made at 45° , giving a flange of 5 mm (0.2 inches).



- Clean the areas to be welded, eliminating paint, grease, rust and other elements that may give rise to bubbles and gas release during the welding. Use a metal brush and slight grinding in areas where this is regarded as necessary.

2. Pre-heating

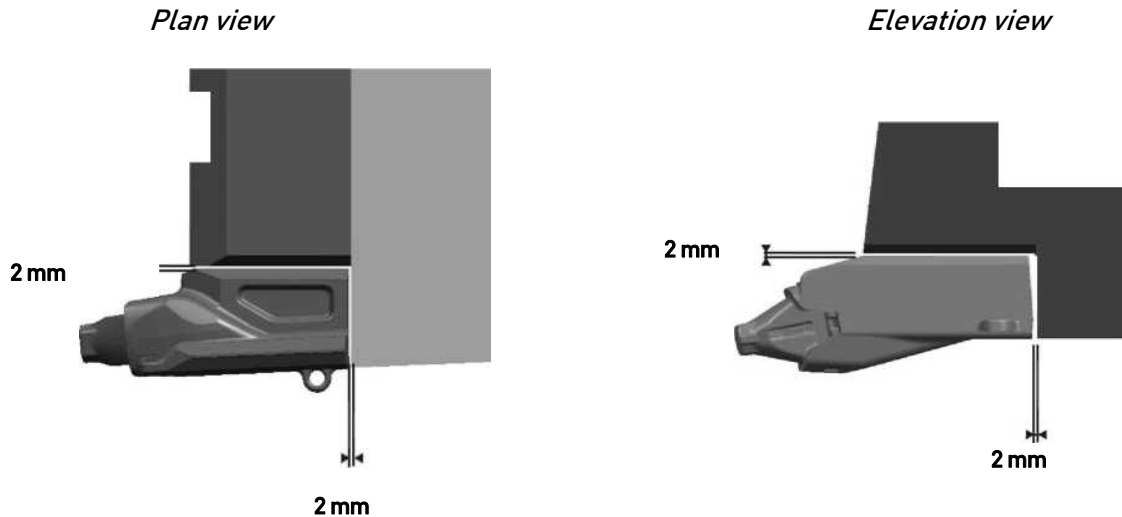
- Heat the area to be welded preferably with a gas torch. The blade must be heated from bottom to top to make sure that the heat will penetrate throughout. This is necessary to avoid residual stress in the welding, cracks caused by embedded hydrogen or hardening of the weld bead caused by a self-tempering effect.

- Check the temperatures of the areas, which need to be welded between 140° and 180°C (280 - 360°F). We recommend the use of heat pencils or radiation or contact pyrometers. By way of guidance, the heat dissipated by the parts should be the maximum heat supported by the bare hand at a distance of 15 cm (6 inches) from it.

- Avoid draughts of air that cause the welded areas to cool quickly and the dispersion of gases generating bubbling and splashing.

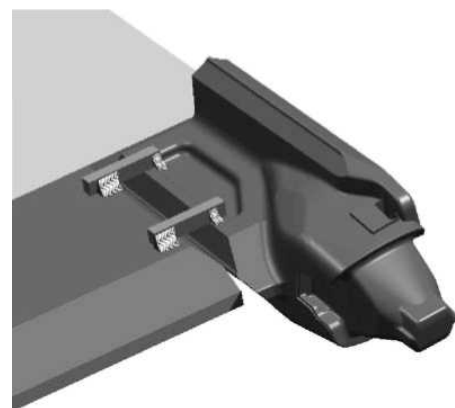
3. Positioning of the adapter

- Place the adapter edge so that the contact with the knife and the side of the bucket is as close as possible, leaving a space of 2 mm (0.01 inches) between the edges to be welded.



The area at the top of the blade should be flush with the adapter when there is a thickness difference between the blade and the prolongation of the adapter edge.

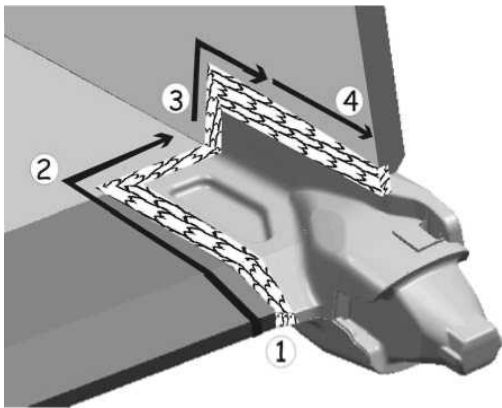
Note: For placing, use welding spots that will be removed as you weld. We also recommend the use of support bars welded temporarily at the top to secure the part to the blade.



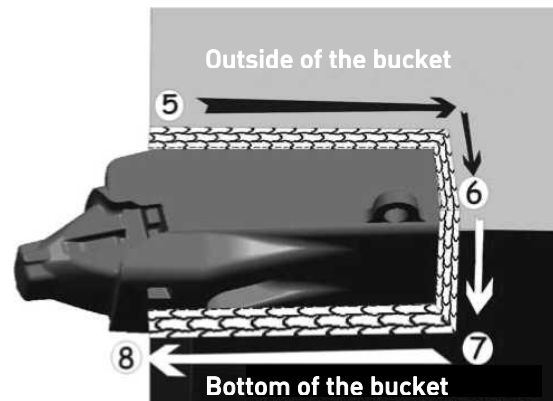
4. Order and direction of welding

- Position the surface area to be welded horizontally so that the operator can work properly. To this end the bucket must be rotated so that the areas to be welded can be positioned properly
- Follow the order and direction of the weld beads indicated in the following graphics.

View towards the inside of the bucket



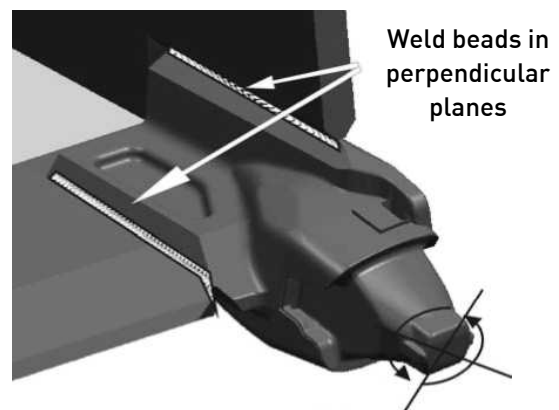
View at the bottom of the bucket



Note: In large parts, to prevent the adapter edge from rotating during welding due to the stress caused, it is advisable to secure the parts firmly by applying a bead on two planes perpendicular to each other.

Note: The weld beads of the same section should always go in the same direction and to avoid breaks in the weld beads

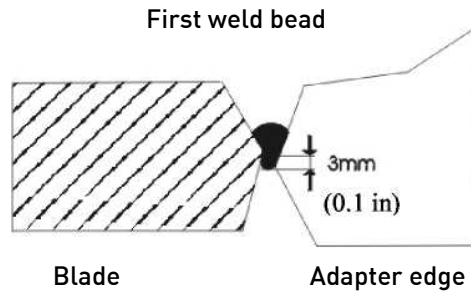
Note: Hammer the weld beads to clean scales and reduce residual stress



Restricted rotation

5. Thickness of the weld beads

Weld in such a way that the first bead penetrates at the bottom of the welded ends

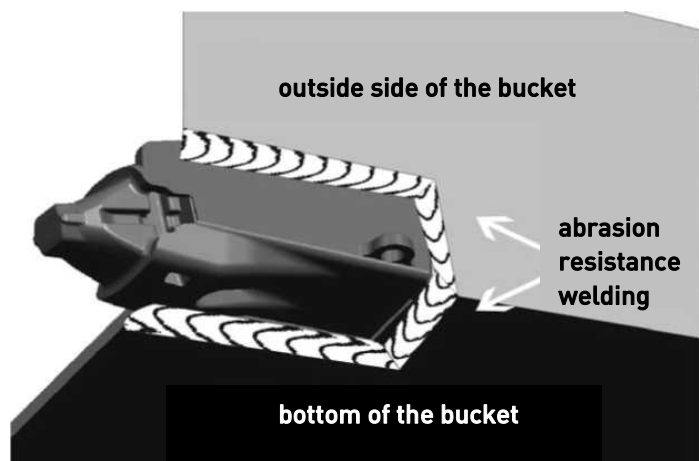


Cover completely the space between the edges to be welded with solder until it reaches and slightly surpasses the surface defined by these edges, to prevent wear. In any event, never do more than 30 mm (1.2 inches) of thickness on each side.



Apply a thicker weld bead or with abrasion resistance to the bottom parts and to the joints exposed on the outside of the bucket.

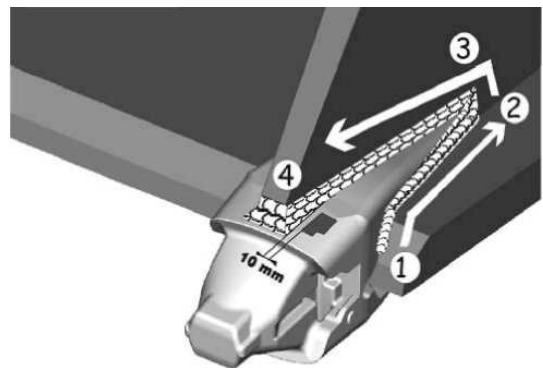
NOTE: Reduce the number of weld beads to a minimum. Extra welding increases the concentration of stress and the risk of breakages and detachment of the areas welded.



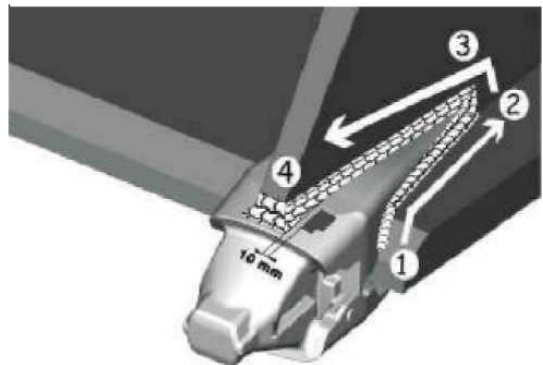
Adapter centre adapted on side of the bucket

Maintain a minimum distance of 10 mm (0.4 inches) between the weld bead and the hole of the pin as indicated in the attached figures.

Short blade side. When the side of the bucket does not surpass the size of the hole of the pin.



Long blade side. When the side of the bucket is prolonged to the end of the adapter edge, surpassing the size of the hole of the pin.



NOTE: For any other type of placement of the adapter edge, such as for example, displaced towards the inside of the bucket, always maintain a minimum distance of 10 mm (0.4 inches) from the weld with regard to the housing of the pin.

Weld following the order indicated in the figure, and in the same way on the opposite side. The bottom area welding method does not vary with regard to that of the central adapters.

Central adapter on the side of the bucket in cases of extreme abrasion

- The blade should protrude from the bucket as indicated in the figure.
- Fit the adapter slightly displaced towards the inside of the bucket, not centred with the side.
- Rotate the adapter 3° to 4° towards the outside of the bucket, as indicated in the figure.

