PRODUCT INSTRUCTION
ONE-SHOT
ALUMINOTHERMIC RAIL WELDING PROCESS
A120 CRANE RAIL

- A120 CRANE RAIL
- OXYGEN AND PROPANE PREHEAT
- ONE-SHOT CRUCIBLE
- STEMMING PASTE

Railtech Australia Limited
Po Box 6211
Acacia Ridge DC
Queensland 4110
Australia
Telephone: 07 3344 5444
Facsimile: 07 3344 5377
Email: sales@railtech.com.au
ACN 003 043 034
CONSUMER RESPONSIBILITY STATEMENT

Please note. It is the responsibility of the consumer to ensure that a current copy of Work instructions/Procedures is being used for all Railtech Australia Boutet Welding Processes.

Railtech Australia Limited will not be liable for any claim whatsoever for procedures being used not in accordance with the relevant current Work Instruction Procedures.

NOTE 1: PROPANE

Definition of Propane should be read by the following specification:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Propane</td>
<td>&gt; 85%</td>
</tr>
<tr>
<td>Other Hydrocarbons</td>
<td>&lt; 15%</td>
</tr>
</tbody>
</table>

For example:

**Handigas™** Gas Code No’s 110, 113
Bulk Gas Code No’s 761, 762, 764

from BOC are within the allowable specification.

NOTE 2: USE OF GENERIC HARDWARE

Since Railtech Australia Limited is constantly reviewing technology associated with welding processes, we will not accept any warranty claims against our product if generic hardware is used for our welding processes.

Generic hardware, is any component not manufactured or approved by Railtech Australia Limited for welding Railtech aluminothermic welding processes.

If you require any further information please do not hesitate to contact us at

**Railtech Australia Limited**
P.O. Box 6211
Acacia Ridge D.C., QLD 4110
Telephone: 61 7 33445444
Fax: 61 7 33445377
Email: sales@railtech.com.au
SPECIFIC PROCEDURE FOR
WELDING OF A120 CRANE RAIL

1 ADJUSTING THE JOINT

Fix the gap at 25+/-2mm

The railhead must have 0.5mm of peak at each end of the 1m straight edge.

Alignment: The 1m straight edge must continuously touch the gauge face of the railhead. Similar care should be taken with web and foot alignment.

2 WELDING KIT

1 Pair of sand moulds
1 Sand base plate
1 Deflector plug
1 Welding portion

3 SETTING THE BASE PLATE IN POSITION

Note: *(Before fitting the base plate to the rail, it is advisable to check that the two mould halves fit the rail. If necessary, rub the moulds onto the rail to ensure they are a neat fit)*

Place the mould base on the steel base plate.

Apply clay cement (tube) along the 2 grooves of the base plate to allow for a seal on the rail.

Position the base plate under the rail and centre it on both sides of the weld gap.

Tighten the locating bolts onto the foot of the rail.
4  SETTING THE MOULDS

Place the moulds into the steel jacket.

Fit each mould on the rail, taking care to centre them on the weld gap.

Fit the mould clamp over the moulds and tighten the mould clamp.

Place a cardboard cover on top of the mould to prevent any foreign objects falling into the weld cavity.

5  APPLYING STEMMING PASTE

Apply stemming paste to seal the base plate under the foot of the rail.

Using your fingers, force the paste into the groove around the rail profile to ensure a good seal.

6  SETTING THE PREHEATING TORCH POSITION

**Railtech Crane Rail hardware:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 oxy-propane* preheat torch</td>
<td>1</td>
</tr>
<tr>
<td>1 adjustable torch support</td>
<td>1</td>
</tr>
<tr>
<td>1 Crane Rail base plate</td>
<td>1</td>
</tr>
<tr>
<td>1 Crane rail mould clamp</td>
<td>1</td>
</tr>
<tr>
<td>1 Railtech 22 hole preheat tip</td>
<td>1</td>
</tr>
<tr>
<td>1 propane check gauge</td>
<td>1</td>
</tr>
<tr>
<td>1 oxygen regulator</td>
<td>1</td>
</tr>
<tr>
<td>1 propane* regulator</td>
<td>1</td>
</tr>
<tr>
<td>1 Pair side plates</td>
<td>1</td>
</tr>
<tr>
<td>10m of propane* hose</td>
<td>1</td>
</tr>
<tr>
<td>10m of Oxy hose</td>
<td>1</td>
</tr>
</tbody>
</table>

Fit the preheat torch to the support and centre the tip in the moulds.

Tighten the support on the rail and remove the preheat torch from the torch support.

Ensure the support is set in the **HIGH** position.

The distance between the preheat tip and the rail head is 60mm.

* Refer Note 1, Page 1
7 SET UP THE CRUCIBLE

Open the portion bag and pour the portion into the one-shot crucible

Take care that the entire portion is emptied from the bag.

Place an unlit starter in the top of the portion, place the lid on top of the crucible and place the crucible in a safe area until ready for use.

8 PREHEATING THE RAIL ENDS

It is essential that propane * and oxygen hoses be 10mm inside diameter.

Partially open the propane * valve on the Harris handle and light the torch with a suitable flint gun.

Progressively open the propane and oxygen valves until the propane * valve is fully opened and a neutral flame is established

The propane * pressure must be 0.4 bar at the propane check-gauge and oxygen 3.0 bar at the oxygen regulator.

Fit the preheat torch to the support and centre the tip in the moulds.

Close the oxygen tap until a popping sound is heard.

Progressively open the oxygen until the flame stops popping and a neutral flame is obtained.

Preheat the rail for approximately 20 minutes or until rail ends are cherry red.

* Refer Note 1, Page 1
9  REACTION

On completion of the preheat, place the pouring plug into the top of the mould and press lightly to ensure it is firmly in position.

Place the One-shot crucible on top of the moulds.

Ignite the charge using a starter fuse.

One minute after the metal has poured into the mould, remove the crucible and slag tray from the moulds.

10  DEMouldING AND SHEARING

Wait approximately 6 minutes after the pour before removing the mould jackets.

Break the mould away and commence shearing the weld after approximately 8 minutes.

Be careful that molten metal does not run out.

It is recommended to shear the weld with a shearing machine equipped with crane rail shear blades.

11  REMOVING THE RISERS

The risers can be removed with a hot cut chisel or broken off after they have cooled.

12  GRINDING

Grind to the rail to profile as per required specification.