ARITERM

INSTALLATION INSTRUCTIONS

ARIMAX TPYM Conveyor stoker

TABLE OF CONTENTS

System description

The Arimax TPYM is a conveyor stoker intended for Finnish fuels, which is installed in places designed for a boiler house conveyor. Fuels suitable for the stoker include wood chip, briquettes, peat and also pellets and, under certain circumstances, grain.

These instructions only deal with mechanical components included in the delivery and hydraulic installation. Building and concreting work and their planning are not included in the conveyor delivery.

Read the instructions carefully, even at the planning stage. Installation is done in two stages, before and after the final concreting of the stoker base.

The stoker can be built from 2-4 conveyor pushers of 8 different lengths. In this way, several stoker bases of different sizes (9 – 40m²) can be selected. There are 6 different models of hydraulic unit, depending on the requirement. The conveyors are controlled by Arimatic control system.

The stoker augers belonging to the conveyor control the optical level guard in the intermediate tank. When more fuel is required, the stoker auger starts up. If the stoker auger does not bring enough fuel within a set period of time, the conveyor pushers also start. This prevents fuel from getting stuck in the stoker auger.

Noteworthy aspects of design

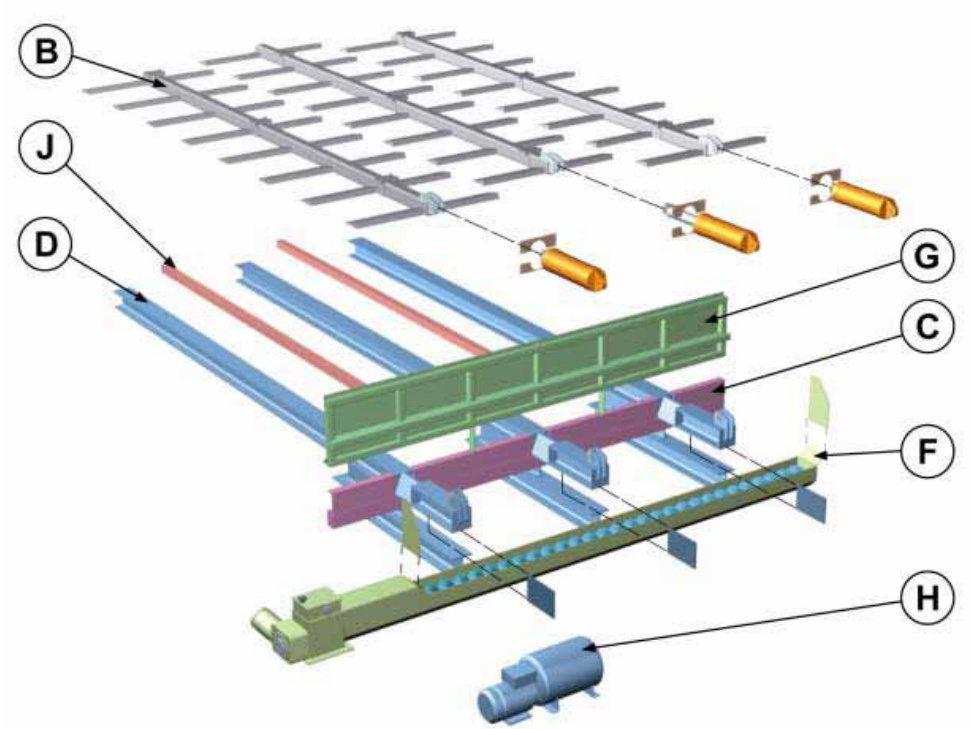
The following points are essential in the planning of a plant:
- sufficient space for the fuel stoker and its means of refilling
- unhindered access to service points
- size and location of doors and hatches, taking into account the servicing, repair and part-changing measures for the equipment
- building and fire regulations concerning the building
- ventilation and risks of freezing
- capacity for expansion if required
- A chief designer and supervisor must be appointed for parts requiring a building permit
  Further information about the local building authority.

When planning a solid fuel plant, we recommend that you always consult experts.

PARTS INCLUDED IN THE DELIVERY

The following parts are included in the delivery. The scope of the delivery may vary on a case-by-case basis. In these instructions, the limit of the delivery is in the flange coupling of the intermediate tank. The letters refer to the drawings (TPYM-1003e).

- bottom beams (2-4pcs) D
- edge beam (length according to number of pushers) C
- conveyor pusher rods with cylinders (2-4pcs) B
  and the control tunnels required to fasten them
- partition (according to number of pushers) G
- stoker auger with geared motor F
- hydraulic mechanism H
- counter-pushers (1-3pcs/rod gap) (option) E



The following parts are not part of the delivery: hydraulic pipes, valves, hoses and connectors, wall structures not including the partition element (G), concreting components, adjusting shims (A) required for levelling the beams, conveyor control centre, electrical installation accessories.

Tools and equipment required

a. welding equipment
b. angle grinder
c. levelling device
d. lifting, moving and mounting tools
e. normal manual tools

Installation base (bottom casting)

The conveyor system is installed on a purpose-built concrete base. The recommended method is to make a bottom casting out of concrete and to sink supports into it for the bottom beams. The surface of the base must be straight and level for the successful levelling of the beams. See diagram TPYM-1003e.

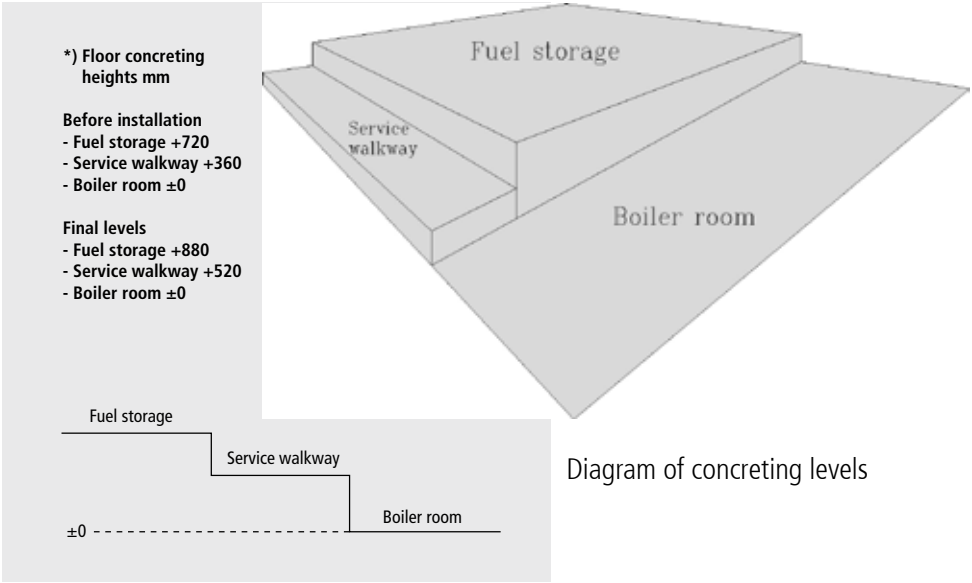


Diagram of concreting levels

The concreting can also be done at the same time but then the supporting installation for the bottom beams must be ensured in some other way.

Recommendation: There is a risk of moist fuel freezing at cold times of the year, which would result in a break in the fuel feed and consequent interruption of operations. This can be prevented by installing underfloor heating in the stoker's concrete base. If necessary, the floor can then be constantly kept at a temperature that ensures that no freezing takes place.

Bottom beams

Lift the bottom beams into position. The correct positioning of the beams is important from the point of view of the installation and operation of stoker's other parts. Begin with the beam nearest to the discharge end.

Check the level and position of the beams in relation to each other and to the boiler.

Once the beams are in position, weld them onto the supports in the concrete base.

Place the edge beam in position. Weld it tight.

Install the stoker auger in position against the edge beam. Pleaase note the space required to install the rear end of the stoker auger.

INSTALLATION

Push the auger housing into position from the ends of the H-beams.

PLEASE NOTE! Always check the measurements before carrying out final welding.

Before installing the stoker auger, fit the wall elements into position as you align them.

This will ensure that the stoker auger is set in the correct longitudinal position.

After you have installed the stoker auger, fit the bottom beam supporting plates.

Weld them in position.

Second concrete base

After installation and mounting of the bottom- and edge beams, the final floor levels must be cast in concrete. To ensure smooth movement of the pushers, the stoker surface must be made as straight and even as possible. The surface of the casting must be as even as possible in relation to the level of the upper surface of the bottom beams.

Supports for any counter-pushers that may be used should also be installed in the concrete base (pictured – a U-beam in between bottom beams).
The dimensioning of reinforcement used in the concreting must be based on the instructions of the structural designer.

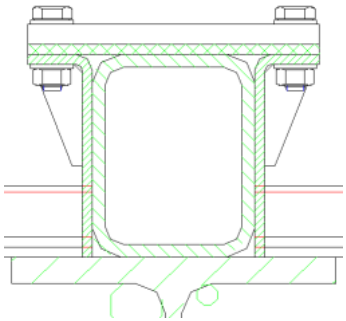
Bottom beams concreted to the floor. Pictured also cylinders, cylinder seals, rear wall elements and ready-fitted hydraulics.
It is advisable to install these after the pusher rods and wall element.

Conveyor pusher rods

Fit the conveyor pusher rods in position on top of the bottom beams and fasten the cylinders to the brackets on the pushers and bottom beams.

When the piston rods are in the inner position, place the control tunnels on top of the rods and fit them so that they are not in the path of the blades when the pusher rod moves backwards and forwards (300 mm). The distance between the upper edge of the pusher and the tunnel is about 10 mm.

The bolts of the control tunnel cover should be pretightened before installation. Weld the control tunnels to the bottom beams in the concrete casting by the outer edges only, as shown in picture TPYM1003e.
Ensure that the control tunnels do not restrict the movement of the pusher.



INSTALLATION

Partition

Install the partition on top of the edge beam at the level of the outer edge (see picture) and weld the feet in position. The ends of the partition should support the wall structures. All mountings must be carefully done, because the weight of the fuel on the partition is great.

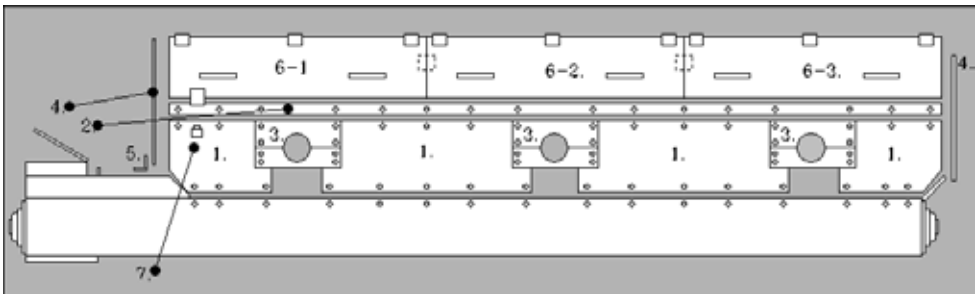
Build the roof of the service area in situ over the partition. The corner of the roof should be designed so that there is enough room for service work.

Build the other wall structures of the stoker in accordance with the structural plan.

Auger housing walls and covers

Mount the auger housing elevating walls (1), the edge strip (2) and the cylinder seals (3) in position with bolts. Fit the auger housing end plates (4) into position at the ends of the auger housing and weld tight. Also weld the mounting panel support (5) to the end on the side of the auger motor. See figure TPYM-1003e.

Install the stoker auger covers (6) and weld them to the hinges on the horizontal beams of the stoker partition.
Note the order of installation!

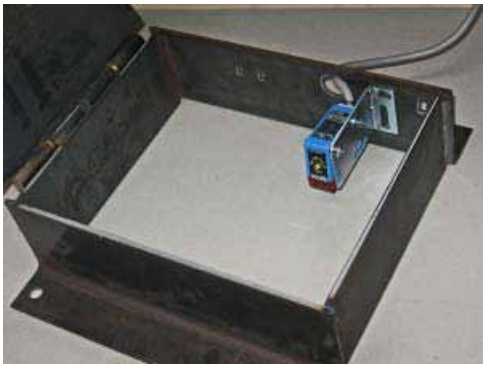


INSTALLATION

Fit the limit switch (7) to the end on the auger motor side under the stoker auger cover baffle. This switch is a safety item and stops the stoker operation if something on the cover opens.

Fit the hopper cover and its frame hinge-side in the direction of the stoker.
On the intermediate tank service hatch cover, install the limit switch that acts as a blockage monitor and the optical sensor that checks the fuel level (see picture). Connect these to the plant's automation system.

Fit the photocell sensor to the frame using the accompanying corner piece as shown in the picture. In this way, the position of the identification point at the surface of the fuel can easily be adjusted and the sensor distance adjustment scale is at hand.



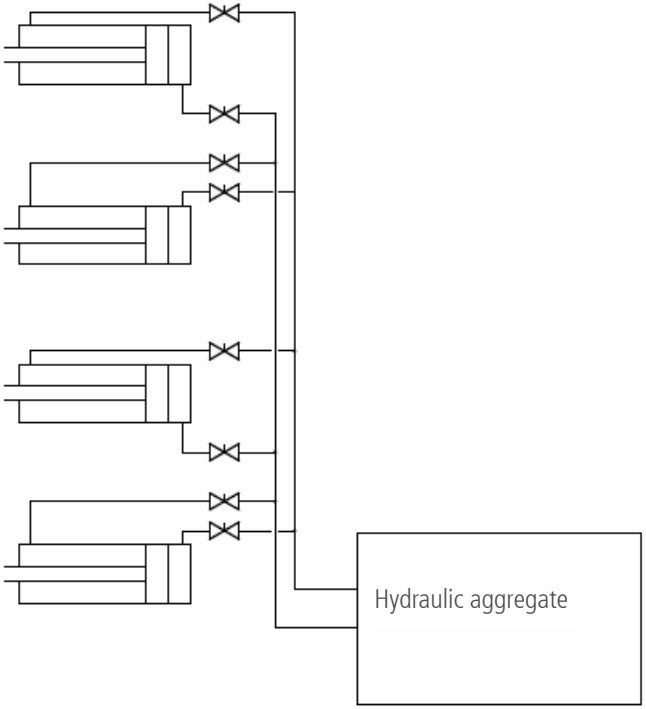
Adjust the identification distance with a screwdriver. Turning the adjusting screw anti-clockwise moves the indicator point on the upper scale clockwise.
The identification distance is usually correct when the point is at 1 o'clock.

Hydraulics

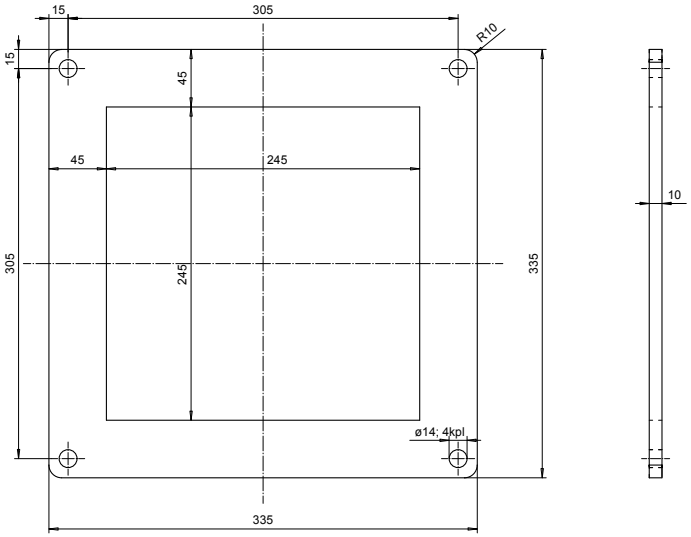
Fit the hydraulic mechanism in a suitable place, for example the boiler room. Place a drainage vessel under the mechanism, in case of oil leaks. From a point of view of operation and maintenance, we recommend that you install it in a heated space, so that the oil in the mechanism is always viscous in order to ensure that the system is less stressed in cold weather.

Install the hydraulic hoses and pipes in accordance with the accompanying installation diagram. Note the cross-connection allowing every second cylinder to move in a different direction!

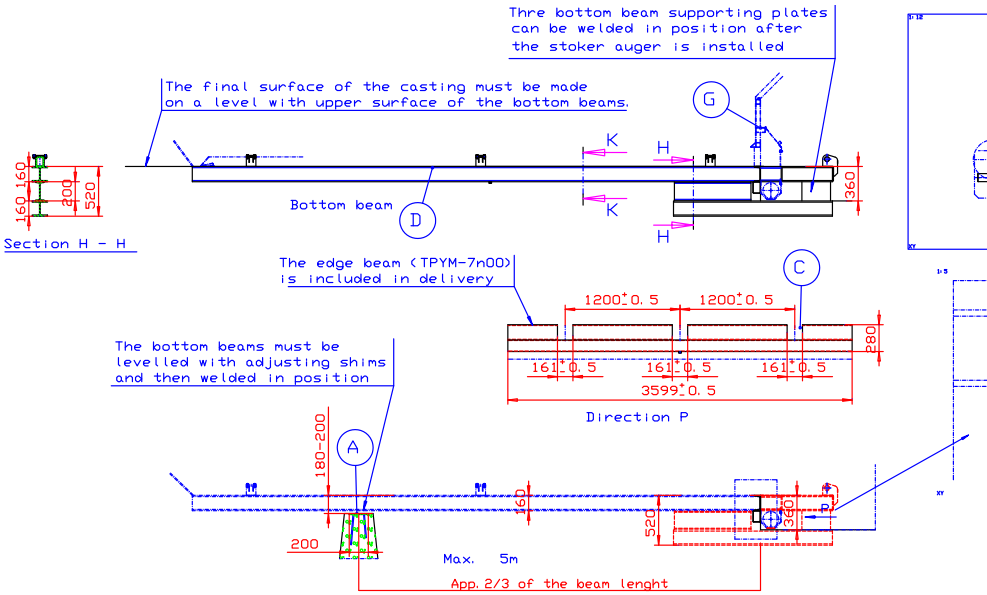
Refill the oil tank of the hydraulic mechanism. Fill one cylinder at a time by closing the valves of the other cylinders. Make sure that the oil tank always has enough oil! If not, the pump may suffer damage. Bleed the system as described in the Operating Instructions.

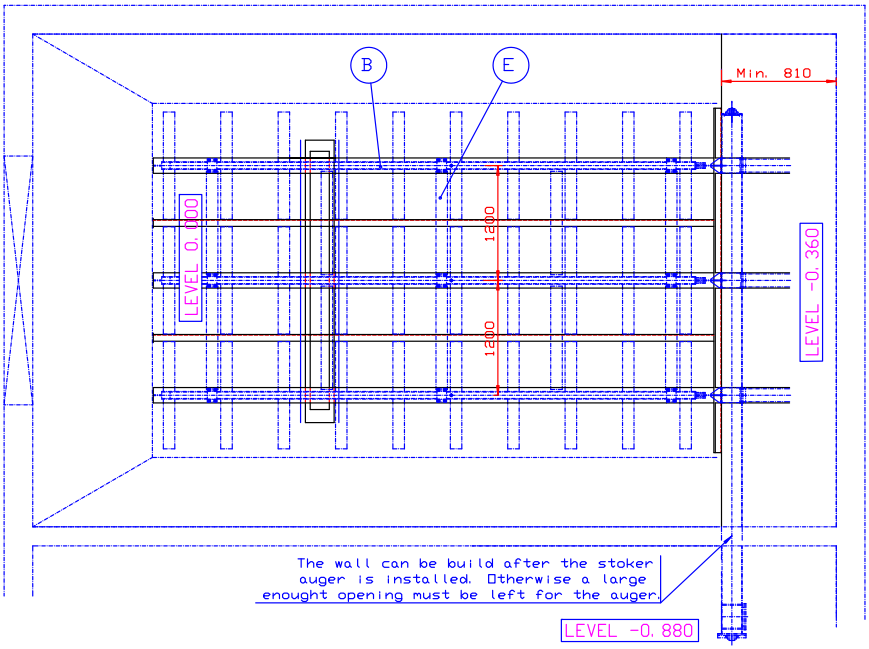


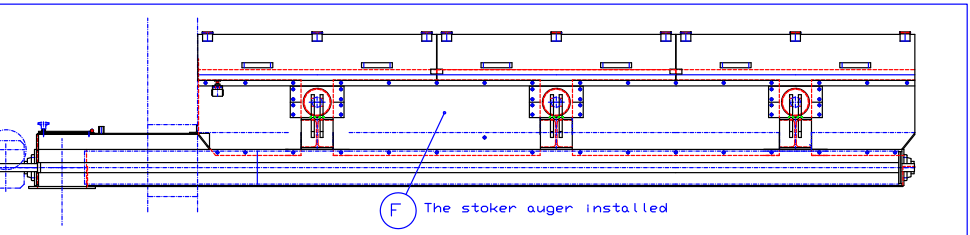
DRAWING: FEEDING FUNNEL FLANGE CONNECTION

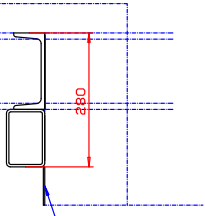


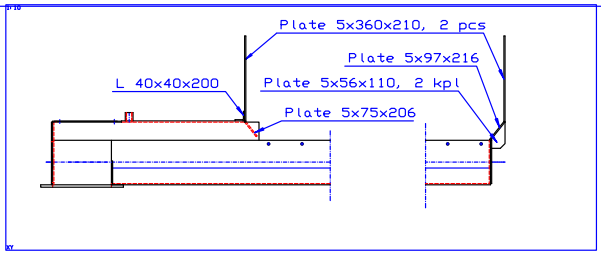
DRAWING: TPYM 1003e

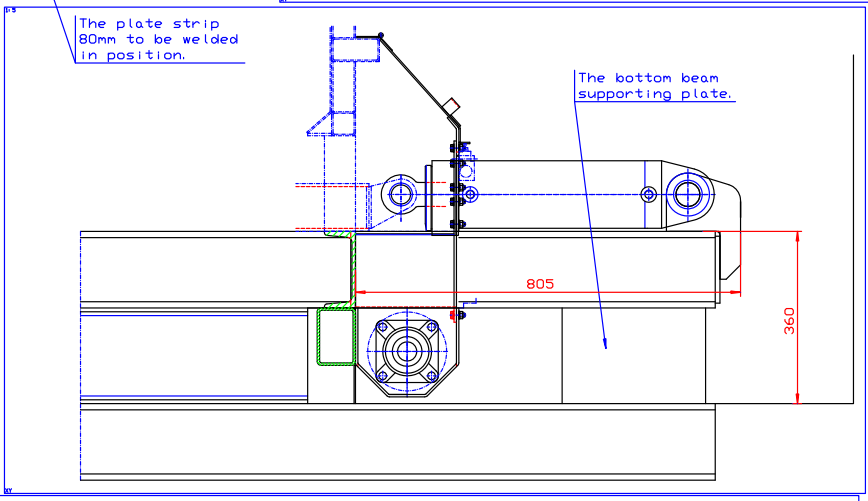


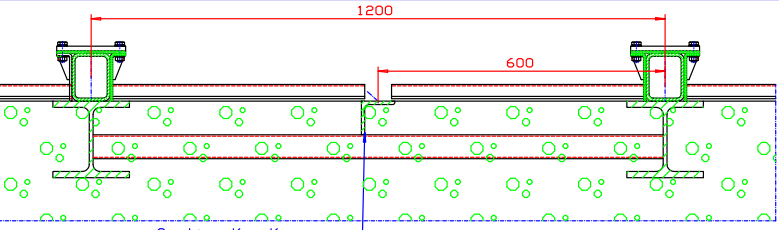












Section K - K

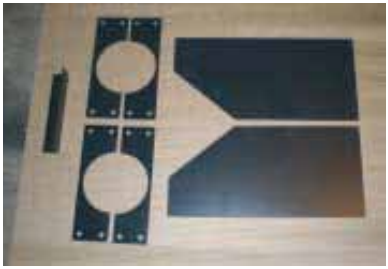
e welding supports are needed
en using counter-pushers (recommended).
e beam, e.g. L70, is not part of
e delivery.

EQUIPMENT DESCRIPTION

1. Optical level guard (is included in burner delivery)
2. Cylinder seals, end plates and mounting support
3. Cylinder sleeves
4. Elevating wall edges
5. Parapet
6. Edge strip
7. Control tunnels
8. Nuts and screws
9. Gear motor
10. Limit switch
11. Elevating wall and mounting support
12. Elevated hatch
13. Pusher rods and bottom beams
14. Pusher cylinders
15. Hydraulic unit
16. Hydraulic oil
17. Stoker partition

1.

2.



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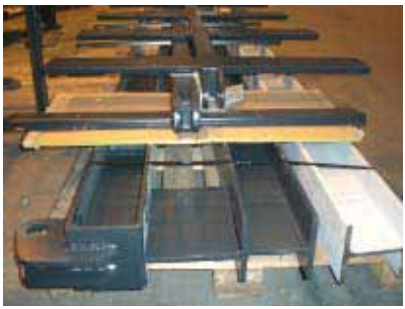

14.

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NOTES

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