

# CNC S.A.S HYDROGEN WARRNING



**PLEASE READ THE FOLLOWING AS IT HAS IMPORTANT INFORMATION: FIRE AND EXPLOSION HAZARD!!!!**

**Subject: Aluminum cutting with plasma on water table.**

When a plasma cutter is used to cut aluminum on a water table, a chemical reaction between the aluminum dust and the water generates hydrogen gas. If the gas is free to dissipate, the hydrogen does not accumulate and create a hazardous situation.

Hydrogen gas may be formed and trapped under aluminum work pieces when the aluminum is cut underwater or while using a water table. **DO NOT** cut aluminum alloys underwater or on a water table unless the hydrogen gas can be eliminated or dissipated.

**Trapped hydrogen gas can be ignited by the cutting torch and could or will cause an explosion.**

Additional information on procedures for cutting aluminum can be found in industry publications and on the internet. Because hydrogen is a highly flammable gas, a build-up of hydrogen that is not properly dissipated can cause a hydrogen explosion, which can result in serious bodily injury or death and significant damage to the cutting table. Such incidents have been reported in the industry.

**This Notice emphasizes the importance of proper set-up and process when cutting aluminum on a water table and informs users of some ways to minimize the hydrogen hazard.**

**!!! Never adjust water level while system is cutting if aluminum is present in water or when cutting Aluminum !!!**

**!!! Always Cycle the water level with compressed air at least once before cutting (if aluminum dust or debris are present in water) to release hydrogen buildup in water table if the system was left sitting for any period of time !!!**

## Pan-type water tables (Non-Dual Chamber)

- Only cut aluminum in a well ventilated area.
- Allow adequate ventilation of the water table during the time between cutting sheets. (Recommended minimum time is five minutes.)
- The sheet should be above the water level by no less than 2 inches when being cut (so the sheet is not in contact with the water), provide ventilation under the sheet to prevent hydrogen build-up. This can be done with air bubblers or other aeration systems installed in the water.

## Dual-chamber water tables

### For the upper pan on any dual-chamber water table:

- Follow the preceding instructions for pan-type water tables.

### For the lower chamber, generally:

- Cycle the water table at least once before cutting (if aluminum dust or debris are present in water) to release hydrogen buildup in water table if the system was left sitting for any period of time and after each aluminum sheet-cutting operation by adding compressed air to the lower chamber to move the water to the upper pan and then immediately release the air in the lower chamber. Depending on the geometry of the water table, the compressed air should dilute the hydrogen and carry it out of the chamber when it is vented. It is critical to vent the lower chamber quickly, before the hydrogen and air separate. **Make sure that no ignition source is nearby when venting and that the area is well ventilated. DO NOT ADJUST WATER LEVEL OR CYCLE WATER TABLE WHILE SYSTEM IS CUTTING!! THIS WILL CAUSE AND EXPLOSION IF ALUMINUM IS BEING CUT OR ALUMINUM IS PRESENT IN WATER!!**

***FLUSH OUT THE BOTTOM CHAMBER TO REMOVE ALUMINUM DUST AND DEBRIS AND CLEAN THE TOP WATER BED OUT OFTEN AS BUILDUP OCCURS. THE ALUMINUM IN THE WATER REMOVES THE OXYGEN IN THE WATER AND LEAVES THE HYDROGEN TO DISPERSE FROM THE WATER INTO THE AIR. HYDROGEN WILL BUILDUP IN NON VENTED AREAS!!!***