## Keep Solvents In and Workers Out!

Motor-driven metal degreasing tank covers reduce emissions and improve safety . . .

> By TOM O'CONNOR Manager of Metal Products A&A Manufacturing Co., Inc. New Berlin, Wisconsin

ight environmental regulations and more stringent safety laws have forced the manufacture of degreasing tanks that are safer for both employees and the environment. One way this can be accomplished is with motor-driven roll-up metal covers. Covering tanks when not in use reduces emissions because it prevents fumes from escaping. Also, covers can be designed to support a person's weight when necessary. These covers can be used for plating, painting or other dip-type tanks as well.

Previously, degreasing tanks were equipped with hinged metal lids or roll-up canvas covers, primarily to prevent solvent evaporation losses when the tank was not in use. Canvas covers did not protect employees or objects from falling into the tank. Hinged metal lids collected fumes that employees breathed when they opened the covers.

Emissions standards now call for concentrations of less than 50 ppm in the degreasing tank and freeboard that is 100 pct of tank width.

At Williams Metalfinishing, Inc., Sinking Spring, Pennsylvania, a covered degreasing tank with a cold trap to contain solvent vapors was installed as part of a conversion to a more environmentally friendly solvent. The firm degreases a variety of aluminum, brass, stainless steel and other metal parts as part of its specialized contract polishing services. While most parts are cleaned after polishing, some oily parts may also

DEGREASING TANK covers meet in the center while parts are submerged.

## COVERS retract to provide an opening for loading and unloading.

receive a preliminary degreasing. Previously, the company used a 1,1,1-trichloroethane conventional degreasing tank. President Bob Williams says that concerns over the ozone-depleting properties of 1,1,1 and increasing regulations on its use led to the switch to trichloroethylene.

"I knew I could not switch from 1,1,1 to trichloroethylene without upgrading my old degreaser or starting from scratch," he explained. Upgrading the firm's existing tank to meet emissions standards was not as practical or cost-effective in the long term as replacing the tank with a more efficient unit.

Mr. Williams decided on a Cold Trap® vapor degreaser from Ultra-Kool, Inc., Gilbertsville, Pennsylvania. Unlike conventional heated solvent tanks, degreasing is done in a vapor bath that is protected and contained by a cold inversion blanket. Solvent consumption has been reduced at least 40 pct. After a basket of parts is lowered into the vapor zone, an additional solvent spray completes the degreasing operation. The cold inversion blanket prevents most of the solvent fumes from escaping.

"We lower parts into the vapor zone, close the cover and turn the side sprays on. When parts are clean, we shut the spray off and lift the parts up into the freeboard zone where there is no vapor. After a few minutes we open the cover. Little vapor is emitted," Mr. Williams said.

To cover the tank during operation, two covers move in from the ends of the tank toward the center. Previously, a single cover was used on this batch-type tank and only closed up to the chain hoist that held the part basket in the center. The two-part cover closes in from both ends up to the chain. A rubber seam makes it possible to close the tanks almost completely around the chain while the basket is submerged.

The vapor degreasing unit requires greater depth than an immersion tank because of the vapor zone and the cooling or refrigeration coils that form the vapor barrier. While the top of the tank must extend a certain amount above floor level (generally 42 inches) to prevent people from falling in, setting the degreasing tank into a pit can provide additional protection and accessibility.

Mr. Williams noted that setting the unit into an 80-inch-deep pit eliminated the need for workers to climb stairs to a platform and also acted as a natural containment to capture any leaking trichloroethylene. An exhaust fan removes the heavier-than-air solvent fumes from the pit.

Although there are several types of tank covers, roll-up, motor-driven metal covers are the most versatile and practical for the batch-type operations at Williams Metalfinishing. Motorization makes it easy to open and close covers and the roll-up design takes up little space when the cover is retracted.

One way to comply with stricter environmental laws and protect workers is to cover the degreasing tank. It keeps the fumes in, protecting workers and preventing emissions. **PF** 

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