



3M Industrial Adhesives and Tapes Case Study

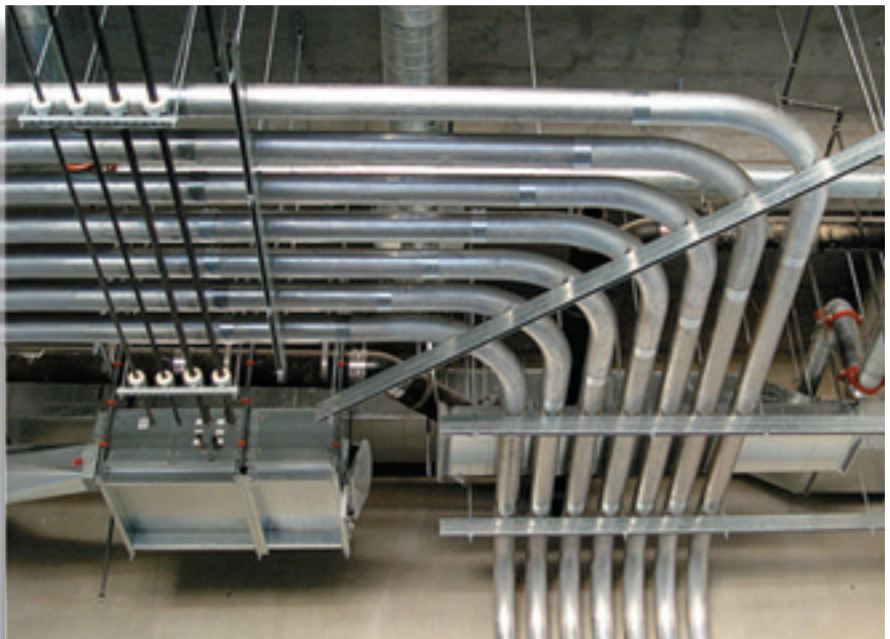
FEATURED IN THIS ISSUE: 3M™ VHB™ TAPE

Unique leak-proof beverage chase with easy assembly and smooth pull-through for fluid lines.

Colombo Sales and Engineering, Ferndale, MI, combines its own innovative design and assembly tools with 3M™ VHB™ Double-Coated Foam Tape for a cost-effective BeverageChase® System for arenas, restaurants, hotels, and other facilities. A “beverage chase” or conduit contains plastic beverage lines and sometimes copper coolant lines used in the delivery of beer, liquor, soda, and CO2 from remote bulk storage locations to the bar or service counter. The plastic lines often must be pulled through the chase over great distances horizontally, up and down, and around corners and bends. The lines are typically wrapped in insulation and pulled through as a bundle.

With VHB tape at the chase joints, the interior of the chase is smooth for easy pull-through. Assembly of the chase is easy, fast, and neat.

Bernard Licata, VP of Business Development for Colombo, explains, “If you have a chase that’s 600 feet long for example, the amount of tubing you’re pulling gets heavy. Chase joints must be smooth so you don’t catch and tear the insulation. That’s very important on a beer line where hot spots can cause foaming. Joints must also be strong to bear the weight, and leak proof to contain any possible condensation or line leaks. Bend radii anywhere along the chase must also be great enough to prevent binding.”



Cost-effective and easy-to-install BeverageChase® System combines Colombo innovative design and assembly tools with 3M™ VHB™ Double Coated Foam Tape for arenas, restaurants, hotels, and other facilities.

Colombo provides a custom packaged system that is ready to install at a specific facility. The package includes aluminum conduit of the proper diameter, lengths and bend radii; unique conduit alignment tool for assembly ease; thin gauge steel coupling bands; and die-cut strips of VHB tape.

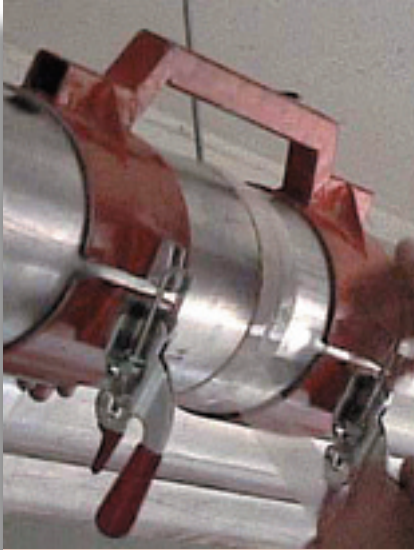
“We use VHB tape for several reasons,” says Licata. “It has high shear strength. It seals against leaks. And it’s neat and easy to apply. We also include

splice/pull boxes if needed. But with the pull tolerance of our chase, the number of boxes are either reduced or eliminated in most cases.”

During assembly of the chase, the ends of the aluminum conduits to be joined are aligned and held in place with the special Colombo alignment tool. The pre-cut VHB tape is centered over the seam and wrapped around the chase with a 3/16" to 1/4" overlap. The acrylic adhesive tape bonds on contact and fills

"We use VHB tape for... high shear strength... seals against leaks"

StructuralJoin samples withstood an average 574.7 pounds of pull



Unique Colombo alignment tool holds aluminum conduit in place while high strength 3M™ VHB™ Double Coated Foam Tape is applied to bond and seal the seam.

any small gaps between the conduit ends. The tape liner is pulled off exposing the second side of adhesive. A flexible steel coupling band is placed around the chase and over the tape. The tape bonds the steel to the aluminum. Flanges at each end of the coupling band meet and are bolted together.

In 3M testing, the patent pending Colombo StructuralJOIN™ was subjected to a 200-pound pull test with no physical damage to the joint. Colombo tested the same StructuralJOIN samples with 40 psi of air and found no leakage, and then asked 3M to test samples to destruction. The StructuralJOIN samples withstood an average 574.7 pounds of pull before initial separation.

At Ford Field, home of the Detroit Lions, BeverageChase with up to 650' runs holds the weight of up to 12 beer lines after having withstood the stresses

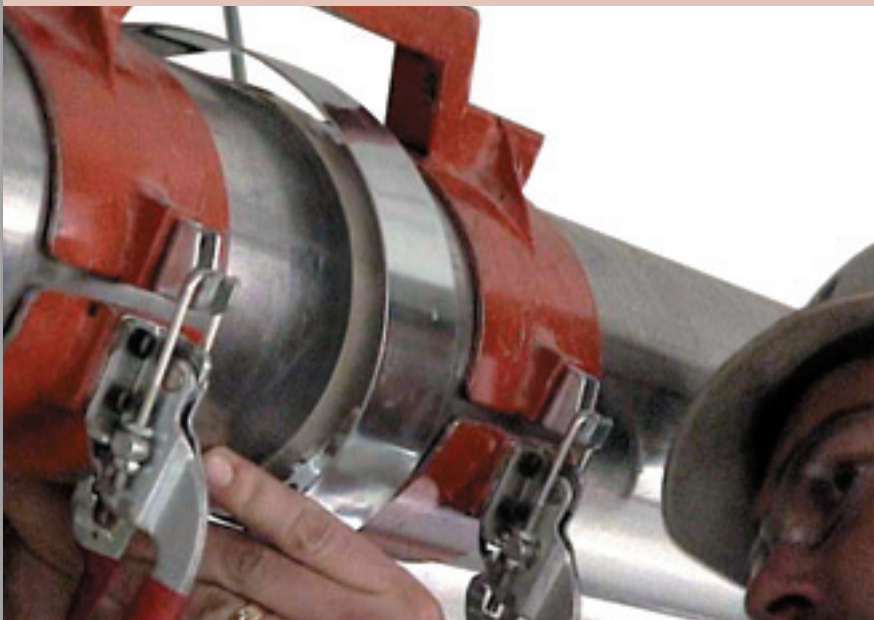
of installation. "With that much weight over that distance," says Licata, "it took 8 to 10 construction workers to handle the trunk-line and feed it through the chase. There was also a winch pulling with about 3,000 pounds of force."

The BeverageChase System, a recent advance building on Colombo's 30 years experience in pneumatic tube systems, is already at work coast-to-coast in such places as the University of California Save Mart Fresno Arena, Westin Hotel, Detroit, and Hard Rock Casino, Tampa, Florida. Licata says that in developing the chase they were looking for a product that would "give contractors everywhere a system that's easier and faster to install."

Many contractors agree.

Glacier Design Systems, Inc. is a distributor/installer for beverage systems with headquarters in Garden Grove, CA. Scott Clarkson, President, compares the Colombo BeverageChase to installation of PVC chase and concludes, "With PVC we used a 2-part epoxy that was

Flexible steel coupling band is placed around the chase and over the 3M™ VHB™ Tape. The tape bonds the steel band to the aluminum conduit for a leak-proof joint.



Colombo BeverageChase® System is smooth inside for easy pull through. Joint strength holds the weight of multiple lines and withstands pull-through stresses.

"The job is much faster with the 3M VHB tape"

very messy. We would slide a union sleeve over the chase while the adhesive was still wet, and the adhesive would drip. The job is much faster with the 3M VHB tape. A neat, one step process."

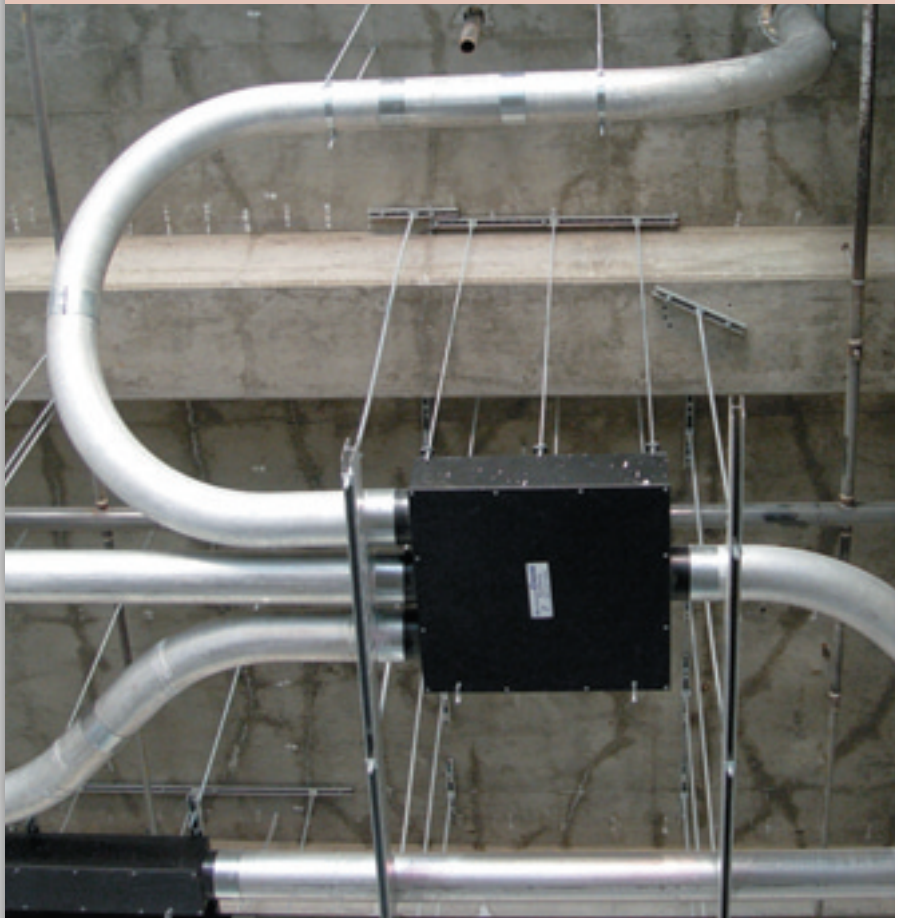
According to Licata, Colombo does not recommend PVC conduit for above ground or underground beverage chase because it is brittle and tends to crack and fissure under stress.

In recalling a casino installation in southern California, Clarkson notes, "A huge soda job. The smooth inner surface of the Colombo chase was a gigantic benefit for pulling soda tube bundles. PVC ridges were always a problem for snagging the insulation."

Clarkson also remembers a posh Los Angeles hotel where the chase hung in an underground garage over guest cars. "Installation ease was a factor," Clarkson says, "but in that particular instance the big advantage of tape was no leaks or condensation from the seams. Our customer didn't want anything dripping on a black Mercedes."

On the other side of the country, Mona Electric Group Incorporated, Clinton, MD, is one of the largest privately owned commercial electrical contractor on the East Coast. Gary Nycum, Senior Project Manager, states, "Our experience had been in power conduits when we were asked to do the beverage chase at The Charlie Palmer Steakhouse in Washington D.C. Colombo sent absolutely everything we needed in a box – the right lengths, bends, tools, and instructions. I've been in this business for 20 years and the Colombo systems went up as easy as anything I can think of."

The Colombo packaged system includes splice/pull boxes when needed as shown here. With the pull tolerance of the BeverageChase® System, however, longer single beverage lines can be pulled through with fewer or no splice/pull boxes in most cases.



Up the coast in Edgewater, NJ, at All American Contracting, Mark Eakley, a 30-year veteran job supervisor, describes installation challenges at the Newark Airport. "It was a retrofit where the chase had to go above acoustic ceiling tile and down along pre-existing columns. The Port Authority wouldn't allow PVC and we couldn't chance the possibility of glue compromising adjacent conditions. Tape worked out really well because glue would have been a mess."

In conclusion, Licata notes, "From concept to every component – alignment tool to 3M VHB tape – we've designed our system to instill confidence for everyone from start to finish. That's the architects, consultants, designers, MEP engineers, beverage companies, installers, and ultimately the end users, owners, and operators of the facility."



Industrial Business
Industrial Adhesives and Tapes Division
3M Center, Building 21-1W-10, 900 Bush Avenue
St. Paul, MN 55144-1000

© 3M 2003