

When Quality Matters...

Do you believe all load-transfer diamond plate products are created equal?

Evaluating the quality of a diamond plate for load-transfer is essential, if you are the distributor, salesperson, contractor or owner. Without this process you cannot be confident in the product you are selling, installing or depending on over the life-cycle of the concrete slab. Will they pass inspection? Or could they be rejected from the job and delay construction?

At a glance, samples from different manufacturers may look similar, but not all diamond products are created equal. Years of diamond-shape plate dowel success has helped optimize material selection and ideal manufacturing tolerances. Here are some ways to evaluate and select the best diamond sleeves and plates.

Consider how the plates are manufactured. Does it matter if the plates are sheered or sawn to length? Absolutely! By sawing plates to size, consistency is ensured. BoMetals saws hot rolled A36 steel plates for our QuicDiamond™ System. Some of our competitors shear plates which then require de-burring by hand, reducing consistency and resulting in some edges being more irregular than others. Remaining burrs not only can easily cut the hands



Poor quality packaging is an indicator of sacrificing quality and may make it difficult for your product to arrive safely intact.

of the installers, but can also cause friction restricting the needed free movement for expansion and contraction. Plates which bind can lock the joint and create an adjacent crack or cause one of the surrounding joints to become a troublesome joint that can have a negative affect on adjacent joints.

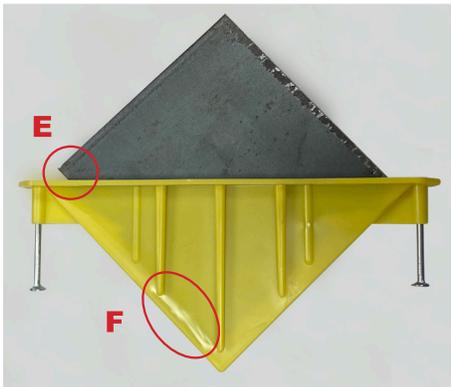
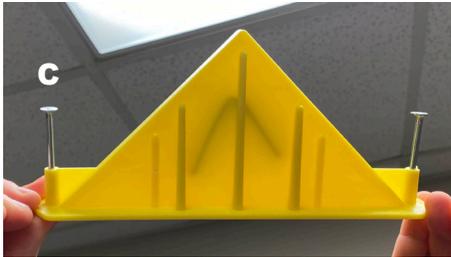
PROPER EVALUATION CRITERIA

- Verify quality of raw materials
- Best practices in manufacturing process were used
- Consistency of products
- Location of manufacturing
- Packaging of products

Knowing the location of the manufacturing facility is important to note. Not only are inferior manufacturing standards possible, but even the raw material may be of a lesser grade. BoMetals manufactures all of our QuicDiamond™ plates in Carrollton, Georgia and guarantees our steel to meet the A36 standards. Check the country of origin. If the packaging of a product doesn't indicate Made in the USA, the goods are probably of foreign origin, likely Mexico. The quality of a these products is almost certainly inferior to the standards of products made in the USA. Poor quality packaging can also be an indicator of a willingness to sacrifice quality or disinterested in how your material arrives.

All plastic sleeves are not the same either. Be sure to examine the quality of the raw materials, manufacturing standards and where the production of the sleeves takes place. BoMetals always uses ABS in the manufacturing of our QuicDiamond™ sleeves. Material selection can be a major factor in the performance of the product.

Inferior Diamond Sleeve



A The inferior product is easily identified by the large ribs, an attempt to provide strength.

B QuicDiamond™ sleeves constructed from ABS plastic are thick enough to not compress during use.

C The thin wall material, in inferior diamonds is demonstrated by its transparency.

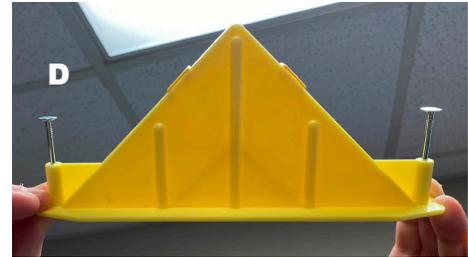
D The QuicDiamond™ sleeve is consistently thicker, evidenced by its opacity.

E This corner should not be exposed when the diamond is fully inserted.

F Inconsistent thickness of the sleeve will cause compression so that the diamond doesn't fully insert into the sleeve.

G The rigid QuicDiamond™ sleeve permits proper insertion of the diamond revealing only one corner.

QuicDiamond™ Sleeve



— Continued from other side

When ABS plastic is used it reduces the amount of compression on the pocket sleeve through the stresses of hydration. The quality control we employ at BoMetals ensures every sleeve is precisely the same. The ABS sleeves should allow the plates to be inserted into the pockets after the concrete is in place and finished.

If a sleeve is made of polystyrene, compression and shrinkage during curing of the concrete can impede the ease of inserting the diamond when the time comes. Discovery of plates which are not inserted fully or are improperly positioned and unable to move as necessary at this stage is costly. Plates which are too tight in the pocket can cause joints to lock. Plates which are too loose can result in differential deflection across the joint. When the steel is forced in an overly-snug compressed sleeve, the construction joint can become restrained, and out of joint cracking will become an issue.

Sleeves manufactured outside of the USA do not undergo the rigorous scrutiny of our sleeves. If the fit between the sleeve and plate is too loose, the differential deflection across the joint will create a target area for joint spalling and joint failure leading to costly repairs and downtime.

Mitigating the differential deflection across joints is the key component to the durability and service life of concrete slabs on ground. ACI and other industry standards have shown optimal slab performance is when differential deflection is less than 20-mils for standard fork trucks with rubber tires and 10-mils for fork trucks with small diameter hard wheels.

BoMetals, inc.[®]
concrete and masonry accessories

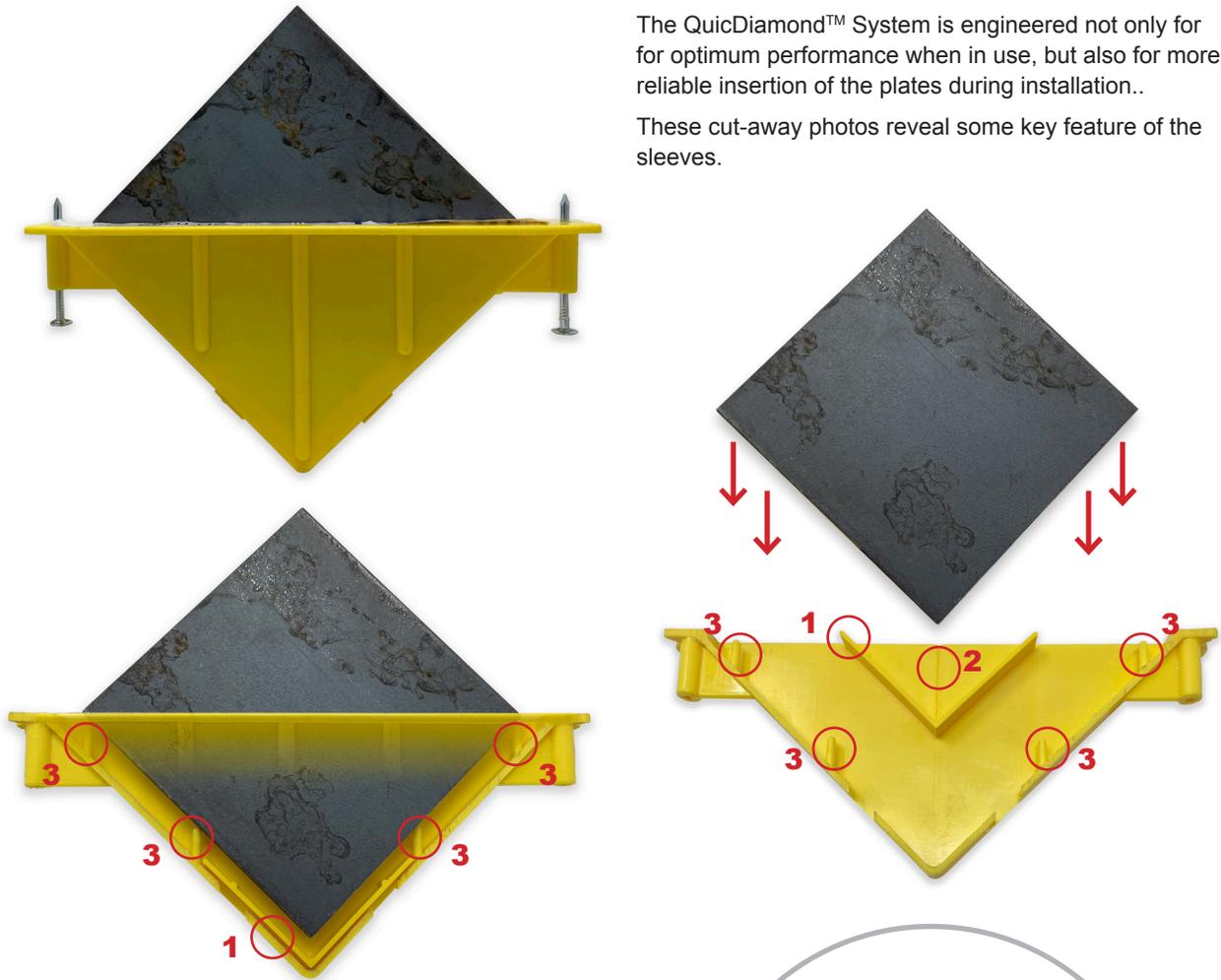
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QuicDiamond™ Sleeves Designed for Better Performance

The QuicDiamond™ System is engineered not only for optimum performance when in use, but also for more reliable insertion of the plates during installation..

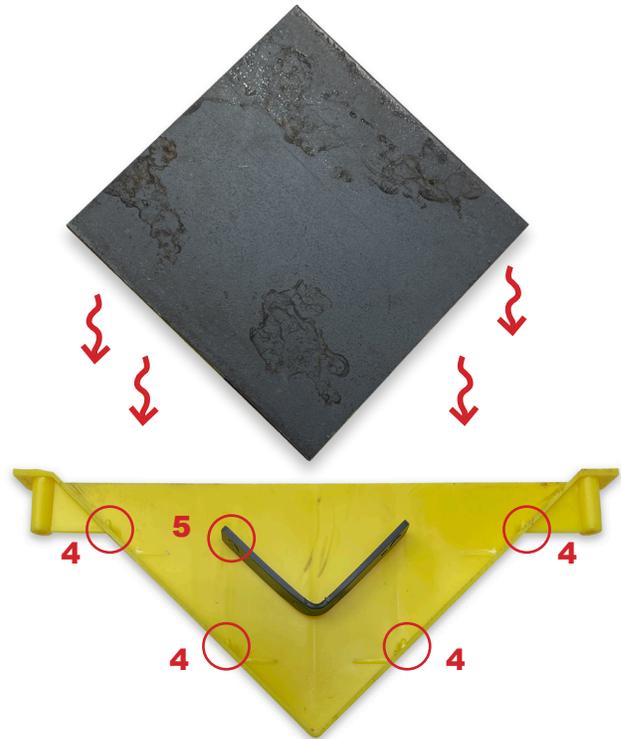
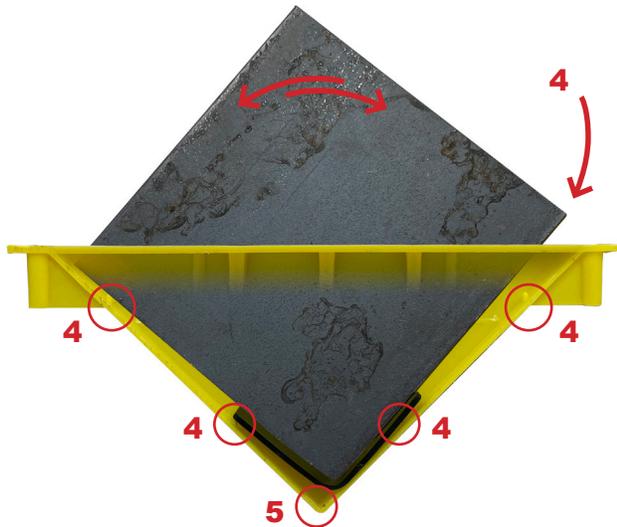
These cut-away photos reveal some key feature of the sleeves.



- 1:** The V-Guide serves two functions. Until the diamond plates are inserted the V-Guide prevents crushing of the plate under the weight of the concrete pour. The V-Guide at the throat of the sleeve helps guide the plate to the center of the sleeve. The V-Guide nests between the large crush tabs allowing proper positioning of the plate.
- 2:** A small groove directs a wide V-Guide to remain centered as the plate is inserted into the sleeve.
- 3:** The large crush tabs on either side holds the plate in alignment and allows side-to-side movement without the joint opening first.

Design Failures of Inferior Sleeves

These cut-away photos reveal what is lacking in some sleeves on the market.



4: The undersized crush tabs are ineffective at allowing complete insertion of the plate leaving a corner of the plate outside of the sleeve.

5: The V-Guide inside the sleeve offers significantly less protection from the already thin sleeve being crushed when concrete is poured. (See page 2 - item F) There is no groove or means to guide the plate to the proper location allowing too much movement while inserting the plate.

6: The V-Guide is too wide to fit between the undersized crush tabs and the plate cannot be completely seated into the sleeve. Unless the plate is perfectly centered when inserted, the V-Guide can shift slightly and only one side catches on the crush tab. This leaves a second corner of the plate outside the sleeve and concrete will lock the plate and the diamond is certain to fail.

