Pool Shell Cracking
Why It Occurs and What to Do About It

Although it might alarm you to have a crack in the pool (similar to seeing a sheetrock crack in your house), cracks in the pools have been repaired with success many times.

The soil conditions in this area can be difficult. This can be seen by the large cracks on driveways, sidewalks, and even on the highway. These soil conditions can exert an extreme amount of pressure on a pool shell, which can sometimes cause cracking to occur. We try to prevent separation after cracking by putting more steal in the foundation. Generally, 2-3 times more steel is used in pools after cracking then in driveways. These soil conditions can also cause settling or lifting of the pool to occur —settling or lifting may cause the pool to be unleveled, but typically does not cause any further problems.
Usually when this occurs, it is the finish surface cracking, not the Gunite shell. This type of cracking usually does not leak. If leaking does occur, the crack can usually be repaired without draining the pool.

Depending on the atmospheric conditions, you will lose up to ½" of water per 24 hour period from evaporation. Most of the time it will be less than this amount, but if it is more than ½", the pool may have a leak.

To determine if the crack are losing water —you can test using one of these two methods:

1. **Dye Test Method**—Perform a dye test on the crack to determine if the crack is losing water. Pool professionals use a syringe with dye, but homeowners can use the phenol red test solution that is in their test kit (used to test pH levels in pools). Start by placing a few drops next to the crack and watching to see if the dye is pulled through the crack. From there you can determine if the crack is leaking.

2. **Bucket Test Method**—Another method of determining if a pool is leaking is by doing a bucket test. To perform a bucke test:

   Fill the pool to the normal level
   Fill a bucket with pool water and place on the top step of the pool
   Mark the level in the pool and the bucket
   Measure the water levels in the bucket and the pool after 24 hours
   If the pool loss is greater than the bucket loss then there is a leak

Types of Cracks & Crack Repairs
Small superficial cracks are called check cracks or crazing. This is normal due to the cement shrinking or flexing of the supporting structure, and should not be considered a deficiency. The most common cause for crazing is if the pool is finished on a hot, dry or windy day, or if it took too long to fill the pool. Check cracks and crazing are quite normal and very rarely, if ever, leak. If the crazing is unacceptable or seem to be more than normal, consult the plaster company. They are able to create a plaster slurry and fill in these cracks. Major cracks or structure cracks are caused by soil movement. There are few ways that these can be repaired.

Plaster repair, apply plaster into crack. This will not prevent the crack from reappearing.

Pool Putty the crack to stop the leak. This is typically not a permanent repair (depending on further pool movement), but this repair can be done under water.
Caulking the Crack, the pool is drained, the crack is sawcut and a polyurethane caulk is applied.
Epoxy Injection—This method is where the crack is saw cut, sealant ports are installed and epoxy is applied under pressure into the sealant ports. Once the crack is full of epoxy the excess is smoothed out. This repair works very well and oftentimes, there will be no other trouble from this crack. One drawback is that unless the pool is going to be re-plastered the pool repair will show up as a grey line where the crack once was.

Torque Lock Staples—This method uses both the epoxy injection along with steel staples that are saw cut and inserted into the pool shell and epoxy over. This method is typically for more severe cracks.

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909 Dallas Drive • Denton, TX 76205

www.gohlkepools.com