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# Guide to Epoxy Grouting

Installation procedures described here are as specific as possible but cannot cover all variations in applications and field conditions. More detailed information on installation procedures is found in installation bulletins or by contacting BASF.

## Foundation Preparation

1. Epoxy grout should be placed only on properly cured foundations.
2. The concrete surface must be chipped to expose sound aggregate and to ensure that all laitance and weak float is removed.
3. The concrete base shall be clean, dry, and free of oil, wax and other contaminants.
4. If an anchor bolt sleeve is to be filled, be sure all water is removed.
5. If the anchor bolt sleeve is to be left ungrouted, seal the bolt hole with felt, foam rubber or other means.
6. Cover all shims, anchor bolts and leveling screws with putty or clay to keep the grout from adhering. Use model clay, glazing putty or anything of a putty consistency which will stick but not harden.
7. Shade the foundation from summer sunlight for at least 24 hours before and 48 hours after grouting.

## Plate and Equipment Preparation

1. The bonding surfaces of the base or plate to be grouted should be sandblasted to "white metal" and be free of coatings, wax, grease or scale. Other mechanical methods such as grinding or sanding are also effective but do not produce as high a bond strength as sandblasting.
2. Since the grout will come up at least 1/2–3/4" (13–19 mm) onto the equipment, it may be advisable to mask above this area with masking tape.
3. To permit easy clean up, wax or cover all surfaces where the grout may splash.

## Forming

1. Moderately sized equipment should utilize a head form sloped at 45° to enhance the grout placement. A movable head box may be a way to help the flow of the grout and minimize forming costs.
2. NOTE: 5–6" (127–152 mm) clearance is recommended at the area where the grout is to be placed.
3. Forms should extend a minimum of 3/4" (19 mm) higher than the bottom of the equipment being grouted.
4. Large non-supporting grout areas should be eliminated wherever possible.
5. Protect the foundation and equipment from rain or moisture.
6. Areas not to be grouted must be sealed off.
7. Forms must be liquid tight. They may be sealed with putty or caulking. Seal wood forms to vertical concrete surfaces by applying putty or caulk below top of concrete, then press form into place.
8. It is desirable to place forms within a maximum of 6" (152 mm) and a minimum of 1" (25 mm) from the edge of each individual base, rail or sole plate being grouted.
9. Expansion joints will reduce the possibility of cracking. On multiple sole plate installations each sole plate may be isolated.

## Deep Pour Recommendations

Where a deep pour is necessary, 1/2" (13 mm) rebar on 12–18" (305–457 mm) centers may be used to minimize stress cracking. The top tier should be located about 2" (51 mm) below the equipment base. A bottom tier should be located about

2" (51 mm) above the foundation surface. Additional tiers, if required, should be spaced equal distances in the grout pour with vertical supports as required.

## Tools

1. Clean and dry a mortar mixer (3–6 ft<sup>3</sup> size). A cement mixer is also acceptable, but it may mix in a greater amount of air.
2. Clean and dry a wheelbarrow and buckets or shovels for transporting the grout.
3. Plenty of rags for wiping hands and tools.
4. A pail for solvent (T-430, xylol, lacquer thinner) for cleaning hands and tools.
5. Rubber gloves.

## Grout

1. Aggregate must be completely dry. It should be stored under cover and on pallets.
2. In cold weather, store in a warm place for at least 24 hours; 70° F (21° C) is preferred.
3. In hot weather, store in a relatively cool shaded area.

## Mixing

1. Do not add solvent, water or any other material to the grout.
2. Do not alter the liquid to hardener proportions.
3. Pour the hardener into a pail of grout liquid and stir until well mixed (approximately three minutes).
4. Pour the mixed liquid and hardener into the mixer.
5. Add the grout aggregate one bag at a time and mix until completely wet.

## Placement Temperature

### HOT WEATHER GROUTING

Avoid high temperatures while grouting. If the packaged grout is above 90° F (32° C), chill the sealed pails of grout liquid in a tub of ice, or cover the pails with water-soaked burlap. When grouting under hot conditions, it is necessary to cool the grout below 70° F (21° C). Provide shade from summer sunlight for at least 24 hours before and 48 hours after grouting.

### COLD WEATHER GROUTING

Temperatures below 60° F (16° C) make the grout stiff and hard to handle; cure time is significantly increased. See specific data sheet for minimum grouting temperature. In general, epoxy grouting is not recommended below 45° F (7° C). If heating is required, an enclosure (typical materials are polyethylene or canvas) should be erected around the equipment and foundation to be grouted. Forced air or infrared heaters may be used to provide the necessary heat to increase the base plate and foundation temperatures above 50° F (10° C).

## Working Time

The following chart is a guide for the working time of a fresh grout mix at various ambient temperatures. The working time of an epoxy grout mix begins when the hardener is added to the liquid. Do not let liquid and hardener stand without adding aggregate.

TEMPERATURE	WORKING TIME
90° F (32° C)	50–60 minutes
70° F (21° C)	90–120 minutes
50° F (10° C)	120–150 minutes

## Grout Placement

1. For flat bottom plates and bases, the grout should be poured from one side through to the other across the short dimension.
2. When grouting closed areas, start at one end of the form and fill the cavity completely as you advance toward the other end to prevent air entrapment.
3. MBT Protection and Repair grouts flow well, however, low foundation and ambient temperatures decrease flowability. Strapping will assist movement of grout in low clearance applications. Do not vibrate grout.

4. Check frequently for leaks. Leaks do not selfseal. If not stopped they will cause voids.
5. If a multi-pour installation is necessary, consult your BASF representative and Installation Bulletin.

## Curing

1. Epoxy grouts develop high compressive strengths in as little as 12 hours and develop nearly 100% of their ultimate strength in seven days. See individual product data sheets for specific curing rates.
2. Curing rates are retarded at lower temperatures.
3. Curing can be accelerated in many cases through the addition of an accelerator designed for use with the particular grout. See individual accelerator data sheets or contact a local BASF representative.
4. For most epoxy grouts, curing will not occur below 40° F (4° C).

## Cracking

1. Epoxy-based grouts will sometimes develop cracks. Cracking is generally caused by thermal stresses and temperature differences from season to season, as well as operating to non-operating temperatures.
2. Cracking often occurs on the shoulder surface near sharp corners of the baseplate and at anchor bolts. Horizontal edge cracks may occur just below the grout-concrete interface, especially in outdoor installations.
3. In most cases cracking does not impact the support and alignment performance of the grout. If there is concern regarding the likelihood of cracks allowing oil or chemical contamination of the concrete substrate, the cracks should be filled with a grout binder.

## Finishing and Clean Up

A smooth finish may be obtained by spraying or brushing the surface with Solvent T-435. Best results can be obtained by smoothing the surface several times just prior to the hardening of the grout surface. Clean tools and mixer with ketone solvents or xylol.

