MASTER® BUILDERS SOLUTIONS

Application Guide for MasterSeal CR 435

Joint Design

- The number of joints and the joint width should be designed for a maximum of ±25% movement.
- In joints up to 12mm in width, ratio of width to depth is 1:1. In joints exceeding 12mm in width, ratio of width to depth is 2:1.
- Maximum joint width for MasterSeal CR 435 should be ~40mm.
- Sealant depth must be controlled by closed cell backer rod or soft open cell backer rod. Where the joint depth does not permit the use of backer rod, a bond-breaker (polyethylene strip) must be used to prevent three-point bonding.
- To maintain the recommended sealant depth, install backer rod by compressing into channel without stretching it lengthwise. Backer rod should be about 3mm larger in diameter than the width of the joint to allow for compression. Soft open cell backer rod should be approximately 25% larger in diameter than the joint width. Backer rod becomes an integral part of the joint. The sealant does not adhere to it, and no separate bond-breaker is required. Do not prime or puncture the backer rod.
- Use only the correct backer rod size. The use of multiple smaller backer rods or the use of part width or cut down backer rods, will lead to premature joint failure with incorrect sealant thicknesses and excessive joint widths
- Depth of backer rod needs to take account of meniscus on sealant and compression of rod for correct thickness of sealant, which is measured in the middle of the joint.

Width of Joint	Thickness of sealant	Depth of meniscus	Depth of backer rod
5	5	2	7
10	10	3	13
12	12	3	15
15	10	3	13
20	10	5	15

- If joint width varies by more than 2mm choose a sealant depth aligned to the largest width.

Surface Preparation

- Surfaces must be structurally sound, dry, clean, free of dirt, moisture, loose particles, oil, grease, asphalt, tar, paint, wax, rust, waterproofing, curing and bond breaking compounds, and membrane materials.
- Concrete, Stone and other masonry
- Clean by grinding, sandblasting, or wire brushing to expose a sound surface free of contamination and laitance.

  - For previously sealed joints
    - Remove all old material by mechanical means. If joint surfaces have absorbed silicone oils as the previous sealant was a silicone, remove sufficient concrete to ensure a clean surface.
    - A test area should be checked to ensure that the adhesion will be acceptable or the priming system chosen is sufficient.

  - Wood
    - New and weatherproof wood must be clean and sound.
    - Abrade away paint to bare wood to ensure good adhesion.
    - Any coating that cannot be removed must be tested to verify adhesion or to determine an appropriate primer.

  - Metal
    - Remove scale, rust and coatings from metal to expose a bright white surface.
    - Metals such as copper and brass are often protected with a clear lacquer and this should be removed mechanically before application of primer or sealant
    - Remove protective coatings as well as any chemical residue or film.

Priming

- MasterSeal CR 435 is generally considered a non-priming sealant, but special circumstances or substrates (e.g. certain protective coatings on aluminium) may require a primer.
- MasterSeal CR 435, when subject to constant immersion in water, may require a primer. It is the user's responsibility to check the adhesion of the cured sealant on typical test joints at the project site if it is suspected surfaces are contaminated. (Refer to Technical Data Sheet on Primer MasterSeal P 692).
- Apply primer full strength with a brush or clean cloth. A light, uniform coating is sufficient for most surfaces, porous surfaces require a somewhat heavier although not excessive coat.

- Allow primer to tack off before applying MasterSeal sealants. Depending on temperature and humidity, primer will be tack free in 15 to 120 minutes.
- Priming and sealing must be done on the same work day.

Application

- Sealant gun should be clean and the plungers move easily along the frame.
- The catch plate should release easily so the pressure on the sealant can be released as required.
- Check that the pigment has not settled in the grey component and if it has stand upside down for a few hours and give the cartridge a shake until the grey part is homogeneous. Not doing this will not affect the performance but will result in a lighter colour.
- Cut nozzle of the static mixer at a 30-45 degree angle to allow easy filling of the joint.
- Nozzle should be approximately 3mm smaller in diameter than the width of the joint to allow the nozzle to be placed in the joint.
- Taping the sides of the joint reduces the mess needed to cleaned up and will give a cleaner looking joint after curing.
- Apply the sealant when the temperature is within the application window. The fast cure rate makes it unnecessary to be concerned with constant or rising temperature.
- The MasterSeal CR 435 will gel in about 5 minutes at 250C and it is important to tool off and remove the tape before this happens. Sealant will be fully cured after 3 days but gains 80% of its mechanical properties in 1 hour.
- Tooling with a flat tool like a spatula or paint scraper will create an even surface. The material is quite liquid and will find its own level. Soapy water and or solvents do not enhance the tooling and may make the sealants more prone to dust pick up.
- The nozzle can be reused if to be used immediately on a new cartridge. Material will gel in the nozzle within 5 minutes and the nozzle should be discarded if this happens and they cannot be cleaned.

Figure 1 - The twin cartridge and application gun and static mixer.

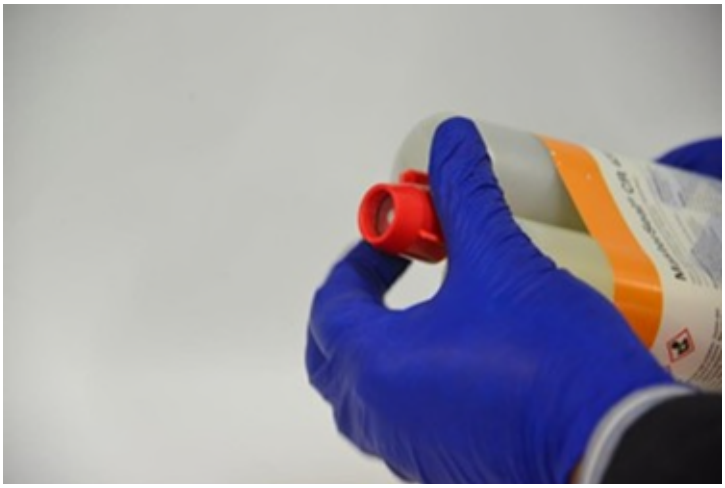

Figure 2 - Remove end cap from cartridge by screwing it off and remove the washer that holds the plug in place.

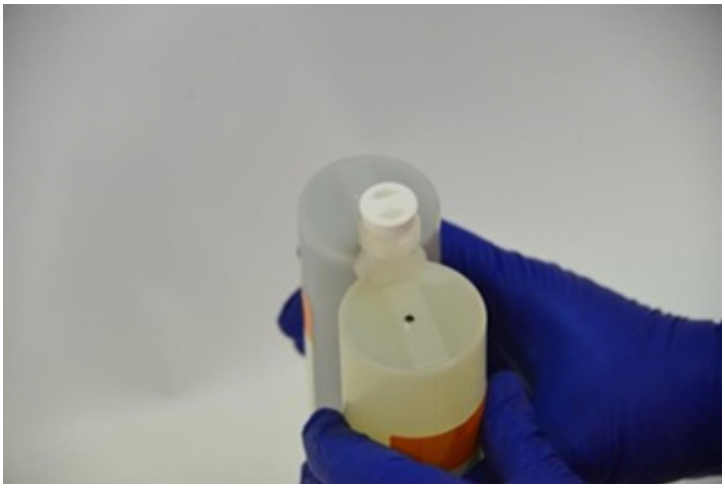

Figure 3 - The white plug is re-useable and needs to be removed before putting on the static mixer.

Figure 4 - Cartridge with the white plug removed ready for the static mixer to be installed.

Figure 5 - Insert the static mixer into red cap and slide down to the thick end.

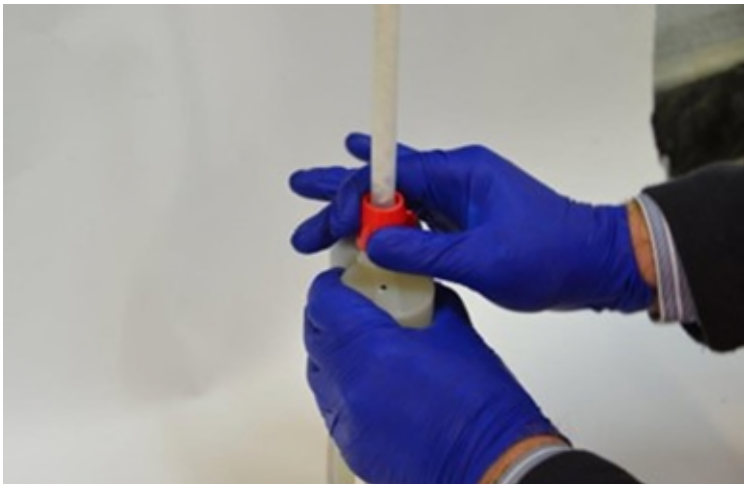

Figure 6 Push the thick end onto the top of the cartridge and use the red cap to screw into place. Ensure the static mixer is properly seated before screwing on.

Figure 7 - Insert the cartridges into the gun ensuring the red cap is on the outside and the plungers are lined up with the cartridges.

Figure 8 - Hold cartridges vertically to ensure any air in the cartridges is at the top and begin to extrude the material until it starts filling the static mixer. Note the reaction has started and the material in the static mixer will harden if left.

Figure 9 - The material will become a homogeneous grey colour by the time it is at the end of the nozzle and is now ready to use. Multiple cartridges can be gunned through one static mixer as long as the material has not gelled.

Figure 10 - Gun material into the joint with smooth presses of the trigger to fill the joint.

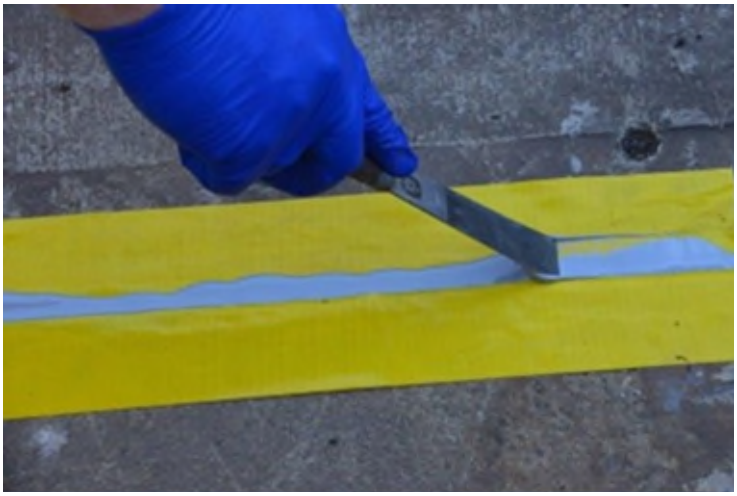

Figure 11 - Tool off the joint within 3 minutes of gunning the sealant.

Figure 12 - Remove tape as soon as tooling is complete

Figure 13 - Leave joint to cure and return to service after 1 hour

Figure 14 - Withdraw plunger by releasing the catch plate and remove the cartridge from the gun.

Figure 15 - Screw off the static mixer while holding the cartridge with the static mixer facing up

Figure 16 – Remove the static mixer and locking nut.

Figure 17 - Replace the white plug ensuring it is pressed home.

Figure 18 - Remove the red nut from the static mixer and discard the static mixer

Figure 19 - Replace the metal washer in the red cap to secure the white plug.

Figure 20 - Replace the red cap, washer on the cartridge and screw to secure the white plug.

Figure 21 - The cartridge can be stored for later use as the components will last as long as they are not mixed.

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