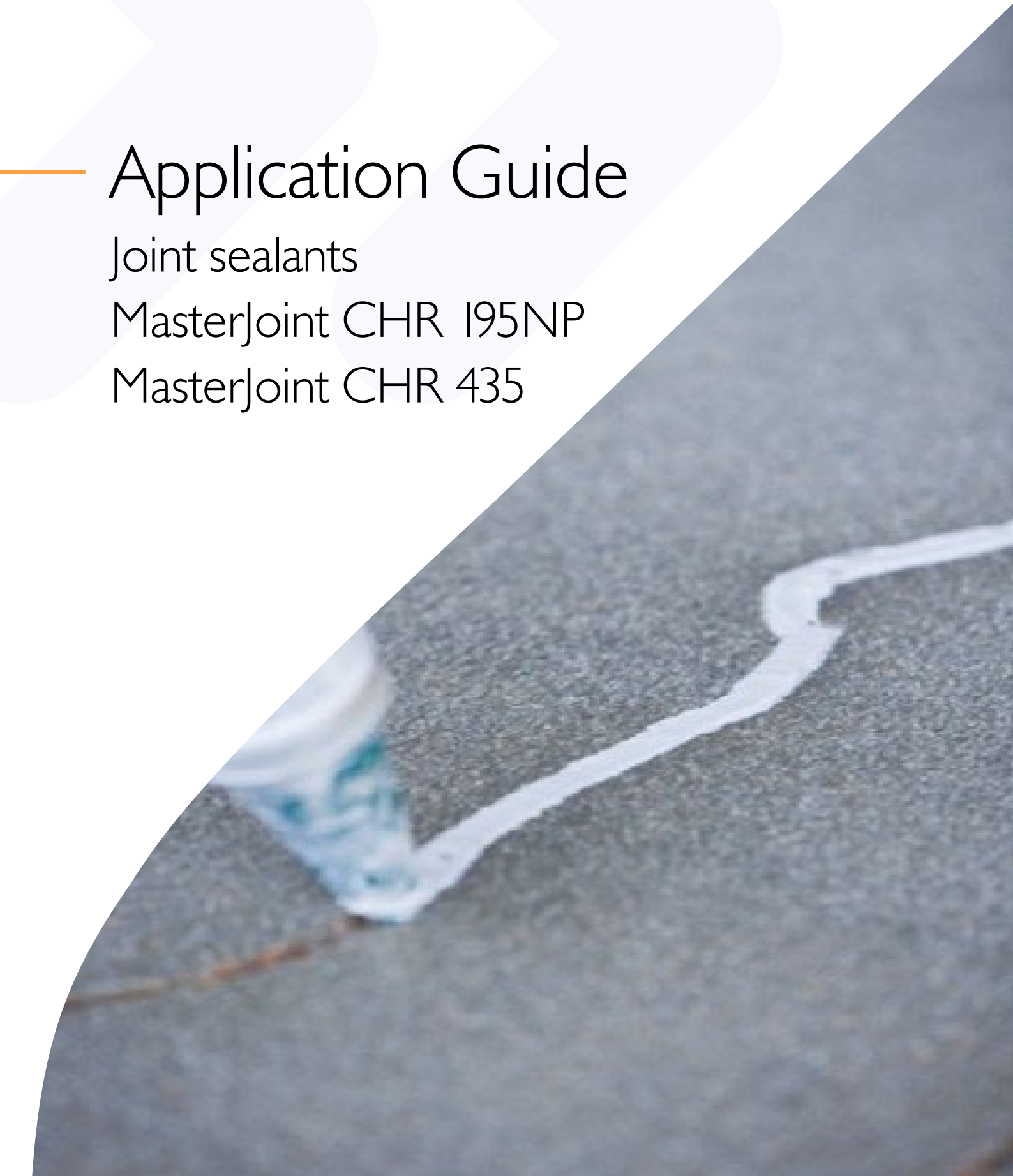


Application Guide

Joint sealants

MasterJoint CHR I95NP

MasterJoint CHR 435



GENERAL.....	2
Products and Packaging	2
Application Requirements.....	3
Joint Design	3
APPLICATION	4
Surface Preparation.....	4
Priming	5
PRODUCTS.....	6
MasterJoint PRI 695.....	6
MasterJoint CHR 195NP	7
MasterJoint CHR 435	10
Overview.....	13
Other construction systems application guides.....	13

GENERAL

This application guide applies to the MB Solutions Australia Ltd Sealing joint system, known as **MasterJoint CHR** (formerly known as MasterSeal CR). This application guide shall be read in conjunction with all project specifications (including drawings), by others, and the current material technical data sheets (TDS) and safety data sheets (SDS).

Products and Packaging

Renamed Brand	Description	Size
MasterJoint CHR 195NP	one component, moisture curing, thixotropic aliphatic polyurethane sealant	20x 600ml sausage per Box
MasterJoint CHR 435	Two component hybrid polyurea sealant	15 x 600ml dual cartridges + 5 static mixers per carton
MasterJoint PRI 695	one component, solvent-based polyurethane primer and adhesion promoter	10kg kit (Part I: 5kg Part B: 15kg)



Application Requirements

- **Training:** All work must be conducted by adequately trained and skilled subcontractors under appropriate supervision.
- **Safety:** Always ensure the appropriate use of adequate PPE (gloves, goggles, long sleeves etc) and comply with all other safety related requirements when applying Master Builders materials.
- **Quality Systems:** The applicator shall operate under a fully compliant quality system, to ensure the on-site quality of applied material. The applicator shall keep fully documented work records for all works undertaken.
- **Quality Control:** If after application and/or testing, any applied material is deemed as unsatisfactory by the specifying consulting engineer and/or MB Solutions Australia Ltd, it may need to be rectified at the applicator's cost.
- **Weather:** No product application work is to be carried out in temperatures below 5°C or above 35°C, unless special precautions are taken.
- **Continuity of Process:** All applications shall be done in continuous operations.
- **Useful Sources:** ICRI (International Concrete Repair Institute) Concrete Surface Profile Chips (CSP I-10)- Technical Guideline No. 310.2R-2013

Joint Design

- The number of joints and the joint width should be designed for a maximum of $\pm 25\%$ 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 195 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

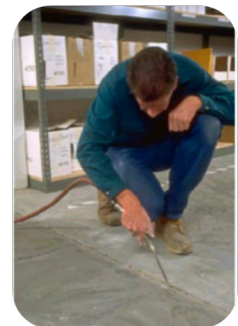
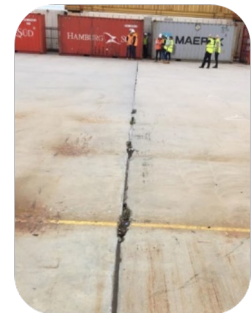
- If joint width varies by more than 2mm choose a sealant depth aligned to the largest width.

APPLICATION

Surface Preparation

Concrete Substrate

- 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.
- Clean by grinding, sandblasting, or wire brushing to expose a sound surface free of contamination and laitance.
- Immediately prior to the application of the MasterJoint CHR systems, the surface must be cleaned with a brush or a vacuum cleaner to remove all loose particles and dust. Ensure the substrate has properly cured and the concrete is profile free, no ridges or troughs, etc. Mechanically remove efflorescence before proceeding.
- Repair the damaged section of joints walls, especially on vertical surfaces, and carry out any necessary repairs in good time prior to application of primer. "Bagging up" should be carried out using a suitable MasterCrete repair mortar or MasterStrength epoxy adhesives.
- To vertical surfaces, all form release agent must be removed prior to applying any adhesive.
- 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.
- Aluminium window frames are frequently coated with a clear lacquer that must be removed before the application of MasterJoint CHR sealant, preferably by wiping the window frames with a clean cloth moistened with MasterCoat THI 955. Remove any other protective coatings or finishes that could interfere with adhesion by mechanical means if necessary.
- Powder coatings that are typical on aluminium window frames will generally require priming with MasterJoint PRI 695. When a protective coating has been specified on metal, contact Master Builders Solutions Technical Representative before applying MasterJoint CHR sealant.
- Ensure adequate masking off the outside edges of the joint and that joint is clear of any debris. This masking allows the joint edge to be regular and clean to make the joint look neater.



Priming

- MasterJoint CHR 195NP AND 435 is generally considered a non-priming sealant, but special circumstances or substrates (e.g. certain protective coatings on aluminium) may require a primer.
- MasterJoint CHR sealants, 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 MasterJoint PRI 695).
- 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.

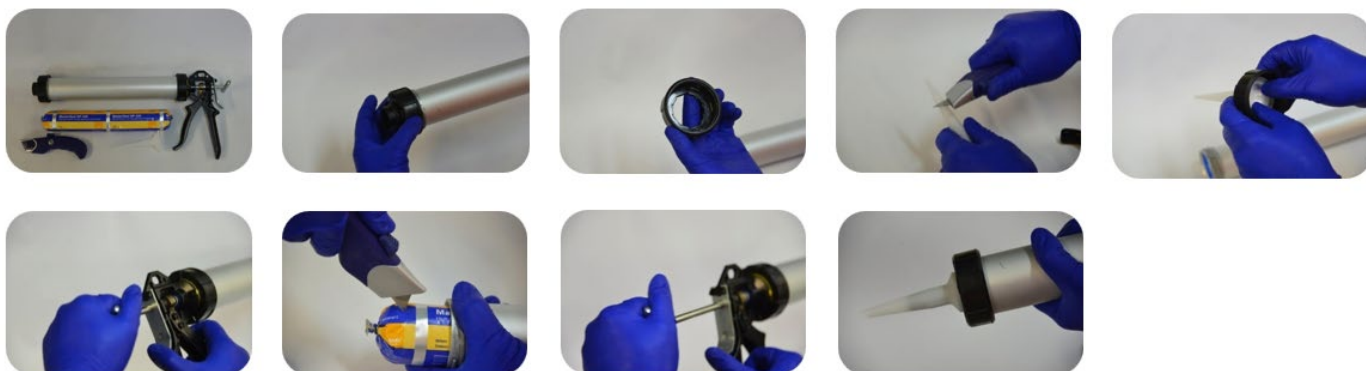
PRODUCTS

MasterJoint PRI 695

- MasterJoint PRI 695 is a solvent base, single component, moisture curing polyurethane primer and adhesion promoter for use with MasterJoint CHR Polyurethane and Polyurea sealants.
- MasterJoint PRI 695 is designed for use as an adhesion promoting primer on MasterJoint sealant especially for immersion applications as well as security applications when pick resistant properties is expected.
- MasterJoint PRI 695 is supplied in working packs. No mixing is necessary before application. Any material that is gelled should be discarded.
- The temperature of the substrate must be at least 3 °C above the dew point and for at least 4 hours after application (at 15°C).
- Prior to application, MasterJoint PRI 695 should be conditioned to a temperature of 15° to 25° C.
- The application temperature to be > 5 to 35°C.
- Apply by a brush or small roller followed by back rolling. It is important to apply MasterJoint PRI 695 thinly and to avoid ponding. A light, uniform coating is sufficient for most surfaces, porous surfaces require a somewhat heavier although not excessive coat.
- The curing time of the material is influenced by the humidity and the ambient and substrate temperatures. At low humidity and low temperatures, the chemical reaction is slowed down, this lengthens the curing time and the re-coating intervals. At high humidity and high temperatures, the chemical reaction is accelerated thus the time frames mentioned above are shortened accordingly. If the maximum recoating times are exceeded, MasterJoint PRI 695 should be reapplied.
- Following application, the material should be protected from direct contact with water which will impair adhesion to the subsequent coat. Ensure that the solvent contained in the material is allowed to flash off completely before applying the subsequent coat.
- Allow primer to tack off before applying MasterJoint CHR sealants. Depending on temperature and humidity, primer will be tack free in 15 to 120 minutes.
- The consumption of MasterJoint PRI 695 is between 0.05 and 0.1 L/m depending on the condition and porosity of the substrate.
- MasterJoint PRI 695 will foam if applied too thickly and this will cause de-bonding between primer and subsequent coats.
- The above consumption figures are intended as a guide only and may be higher on very rough or porous substrates.

MasterJoint CHR I95NP

- MasterJoint CHR I95NP comes ready to use. Apply by professional caulking gun.
- Do not open sausages, until preparatory work has been completed.
- Sealant gun should be clean, and the plunger move easily along the barrel.
- Remove end cap from sealant gun by screwing it off.
- Remove centre of cap if universal nozzle is to be used.
- Cut nozzle to at an approximate 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.
- Insert universal nozzle into cap and ensure it has snapped into place.
- The catch plate should release easily so the pressure on the sealant can be released as required.
- Push on the catch plate to release the plunger and pull back to bring plunger back to the trigger end of the gun.
- Insert sausage into the gun until only the top is sticking out.
- Cut a vertical slit in the sausage about 25mm long.
- It is not necessary to remove the top of the sausage for the sealant to be extruded properly.
- Using the above method when the sausage is exhausted the empty skin can be extruded into the rubbish without handling keeping the operator and the gun cleaner.
- Screw on the cap and begin to squeeze the trigger until the sealant is visible in the nozzle.
- To stop the extrusion push on the catch plate to release the pressure.
- It may be necessary to pull back on the plunger to stop the flow.
- Taping the sides of the joint reduces the mess needed to be cleaned up and will give a cleaner joint after curing.



- Apply the sealant when the temperature is constant or rising. This will put less stress on the sealant when it skins and can avoid splits in the surface caused by the joint. The rising temperature will close the joint up putting less stress on the uncured sealant.
- Fill joints from deepest point to the surface.
- Insert the nozzle into the prepared joint and with the nozzle just touching the backer rod squeeze out the sealant allowing it to extrude around the nozzle and draw the nozzle back along the joint whilst gently continually extruding the sealant.
- After filling the joint tool off to create a smooth concave surface and ensure the sealant is filling the joint.
- Tooling with a slightly convex tool like a round ended spatula will create an even meniscus which will enhance the ability of the sealant to cope with the movement. 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 cleaned at the end of the day's work or if allowed to cure and the cured material pulled out.
- Remove the protective tape from the sides of the joint before the sealant skins.
- Leave joint to cure. Cure rate is approximately 1mm per day for the MasterJoint CHR I95NP. Protect the sealants from extreme conditions in the first 2-3 days if possible.



Estimating Data

Joint Size (mm)	Metres per litre	Metres per 600ml Sausage
5 x 5	40	24
10 x 10	10	6
12 x 12	6.95	4.17
15 x 7.5	8.88	5.33
20 x 10	5.00	3.0
25 x 12.5	3.20	1.92
30 x 15	2.22	1.33



Useful Notes

- Do not allow uncured MasterJoint CHR I95NP to come into contact with alcohol-based materials or solvents.
- Do not apply MasterJoint CHR I95NP in the vicinity of uncured silicone or modified silicone sealants.
- MasterJoint CHR I95NP should not come in contact with oil-based caulking, polysulfides or fillers impregnated with oil, asphalt or tar.
- All security applications require priming.

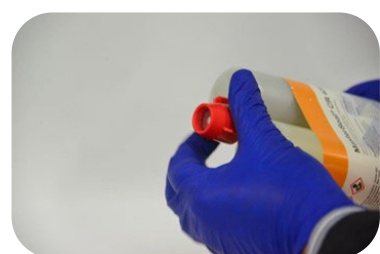
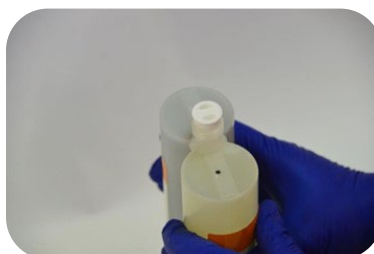
- When MasterJoint CHR 195NP is to be used in areas subject to water immersion, cure for 21 days at 25°C and 50% relative humidity.
- Do not use in swimming pools or other submerged conditions where the sealant will be exposed to strong oxidizers.
- Avoid submerged conditions where water temperatures will exceed 50°C.
- Protect unopened sausages from heat and direct sunshine.
- In cool or cold weather, store container at room temperature for at least 24 hours before using.
- Do not apply over freshly treated wood; treated wood must have weathered for at least 6 months.
- Low temperatures will extend curing times.
- Substrates such as copper, stainless and galvanized typically require the use of a primer; MasterJoint PRI 695 is acceptable. An adhesion test is recommended for any other questionable substrate.

Curing

- The cure of MasterJoint CHR 195NP varies with temperature and humidity.
- The following times assume 23°C, 50% relative humidity, and a joint 12mm width by 6mm depth.
 - Skins - overnight or within 24 hours
 - Functional within 3 days
 - Full cure in approximately 1 week
 - Immersion service: 21 days

MasterJoint CHR 435

- 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.
- MasterJoint CHR 435 comes in a 300ml:300ml side by side cartridge and is mixed when extruded through a static mixer. Apply by professional dual cartridge gun.
- Remove end cap from cartridge by screwing it off and remove the washer that holds the plug in place.
- The white plug is re-useable and needs to be removed before putting on the static mixer.
- Cartridge with the white plug removed ready for the static mixer to be installed.



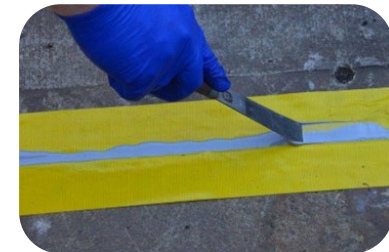
- Insert the static mixer into red cap and slide down to the thick end.
- Push the thick end onto the top of the cartridge and use the red cap to screw into place. Ensure the static mixer is properly seated before screwing on.
- Insert the cartridges into the gun ensuring the red cap is on the outside and the plungers are lined up with the cartridges.



- 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.
- 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.
- 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.
- Taping the sides of the joint reduces the mess needed to be 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.
- Gun material into the joint with smooth presses of the trigger to fill the joint.
- Tool off the joint within 3 minutes of gunning the sealant.
- 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 MasterSeal CR 435 will gel in about 5 minutes at 25°C, and it is important to tool off and remove the tape before this happens. Remove tape as soon as tooling is complete.
- Sealant will be fully cured after 3 days but gains 80% of its mechanical properties in 1 hour.
- Leave joint to cure and return to service after 1 hour.
- 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.
- Withdraw plunger by releasing the catch plate and remove the cartridge from the gun.
- Screw off the static mixer while holding the cartridge with the static mixer facing up.
- Remove the static mixer and locking nut. Replace the white plug ensuring it is pressed home.



- Remove the red nut from the static mixer and discard the static mixer.
- Replace the metal washer in the red cap to secure the white plug.
- Replace the red cap, washer on the cartridge and screw to secure the white plug.
- The cartridge can be stored for later use as the components will last as long as they are not mixed.



Estimating Data

Joint Size (mm)	Metres per litre
5 x 5	40
10 x 10	10
12 x 12	7
15 x 7.5	9
20 x 10	5.00



Useful Notes

- Do not allow uncured MasterJoint CHR 435 to come into contact with alcohol-based materials or solvents.
- MasterJoint CHR 435 should not come in contact with oil-based caulking, polysulfides or fillers impregnated with oil, asphalt or tar.
- Protect unopened containers from heat and direct sunshine.
- MasterJoint CHR 435 can be applied below freezing temperatures only if substrates are completely dry, free of ice or frost, and clean.

Curing

- The cure of MasterJoint CHR 435 is independent of the ambient temperature and will gel in 3 - 4 minutes.
- The material will be trafficable in about 1 hour and suitable for full chemical contact in 24 hours.
- Cure is independent of joint thickness.

Overview

- MasterJoint CHR 195NP is a one component, moisture curing, thixotropic aliphatic polyurethane sealant for security and institutional uses requiring elasticity, abrasion and puncture resistance, with superior color integrity.
- MasterJoint CHR 195NP can be used in both Horizontal and vertical surfaces for seamless sealing.
- MasterJoint CHR 195NP Approved to AS/NZS 4020:2018 (tested to the maximum exposure level) - suitable for contact with potable water.
- MasterJoint CHR 435 is a two component, chemically curing, hybrid polyurea sealant.
- Active, exterior and interior joints that demand extreme chemical resistance.
- MasterJoint CHR 435 can be used on horizontal applications including trafficable surfaces on floors and bunds. Substrates include concrete, polyurethane concrete, novalac epoxies and chemically resistant epoxies.

Other construction systems application guides

- MasterCrete: "Cementitious concrete repair" Application Guide
- MasterFill ER: "Epoxy crack repair and injection" Application Guide
- MasterJoint 930: "FPO joint sealing system" Application Guide
- MasterJoint 910: "Hydro-swelling waterbars for construction joints" Application Guide
- MasterFill PR: "PU injection systems" Application Guide
- MasterStrength LAM/FIB/BAR/ANC: "CFRP structural strengthening" Application Guide
- MasterFlux: "Cementitious grouts" Application Guide
- MasterFlux ER: "Epoxy grouts" Application Guide
- MasterShield AKS: "Chemical resistant HDPE liner" Application Guide
- MasterShield CHR 360: "Chemical resistant Novalac coating" Application Guide
- MasterShield AC: "Anti-carbonation coatings" Application Guide
- MasterShield CI: "Impregnants and corrosion inhibitors" Application Guide
- MasterShield CP: "Galvanic cathodic protection systems" Application Guide
- MasterGeo: "Geotechnical Soil nails and anchors" Application Guide

Disclaimer

Application Guide MasterJoint CHR-ANZ V2-1225

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The technical information and application advice given in this MB Solutions Australia Pty Ltd publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use and for ensuring that the application and use of the product is in accordance with the manufacturer's guidelines and recommendations.

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