

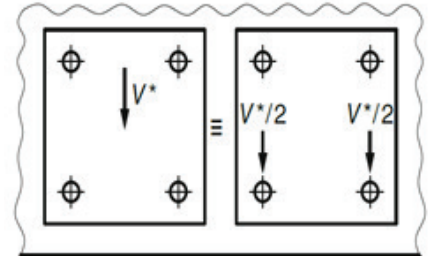
# Annular Gap Filling Washer

Date	25/10/2024
Reference	TDS04182

## What is an Annular Gap

An annular gap is the empty space between the drilled hole in the base plate (clearance hole) and the anchor shaft. The clearance hole is always larger than the anchor shaft to provide for an easy installation. In connections with multiple rows of anchors loaded in shear close to an edge this unfilled annular gap can result in the shear load being taken up by the front row of anchors closest to the edge only rather than all rows of anchors in the connection.

The design method in AS 5216:2021 considers this by distributing the applied shear load on the base plate to the front row of anchors only.



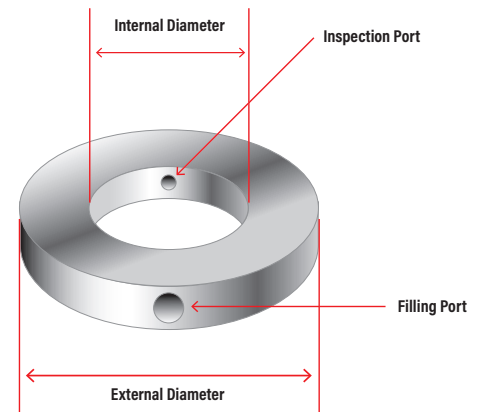
AS 5216:2021 - Four fasteners with a shear load perpendicular to a nearby edge

## How is an Annular Gap filled

An Annular Gap Washer is a means of filling the annular space in the clearance hole with high strength epoxy or mortar with compressive strength greater than 40 MPa such as Ramset Chemset™. Filling the annular gap ensures a rigid connection with the applied shear load being transferred from the baseplate and distributed evenly to all the anchors, increasing the seismic and static shear load performance.

## Product Range

Part Number	Internal Diameter	External Diameter	Additional Fixture thickness	Coating
AGWM10WN	12 mm	26 mm	5 mm	10um Zinc Plate
AGWM12WN	14 mm	28 mm	5 mm	10um Zinc Plate
AGWM16WN	17 mm	34 mm	5 mm	10um Zinc Plate
AGWM20WN	21 mm	41 mm	5 mm	10um Zinc Plate
AGWM24WN	25 mm	48 mm	5 mm	10um Zinc Plate



## Compatibility

The following Ramset Chemical adhesives have been independently tested and may be used to fill the Ramset Annular Gap Washer: ChemSet 801 Xtrem XC2, ChemSet Reo502 Plus, ChemSet Epcon G5 Pro, ChemSet Epcon C6 Plus, Epcon C8 Xtrem, ChemSet 101 Plus.

Internal Diameter (mm)	Anchor Type	AnkaScrew Xtrem			TruBolt Xtrem				SpaTec Xtrem		Chemset Anchor Stud				
		8	10	12	M10	M12	M16	M20	M10	M12	M10	M12	M16	M20	M24
12	AGWM10WN	X			X						X				
14	AGWM12WN		X			X						X			
17	AGWM16WN			X			X		X				X		
21	AGWM20WN							X		X				X	
25	AGWM24WN													X	

## Compliance

Ramset Annular gap washer filling system has been independently tested by Swinburne university in accordance with EAD 330232-01-0601 MECHANICAL FASTENERS FOR USE IN CONCRETE



i-Expert now integrated with an annular gap filled option to optimise the shear capacity for groups of anchors  
<https://ramset.com.au/resources-hub/i-expert/>

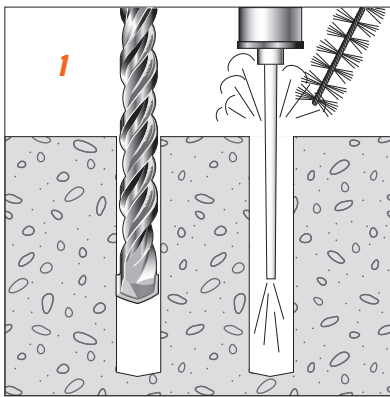
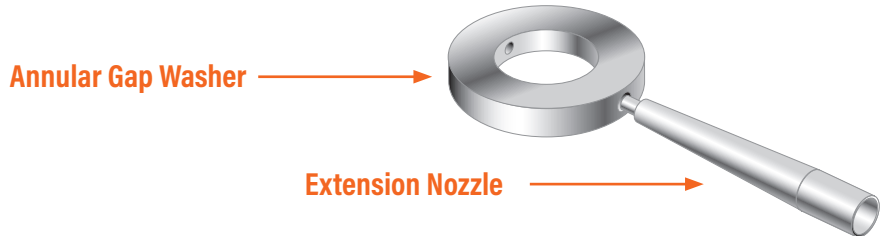


**For further information, please contact Ramset™**  
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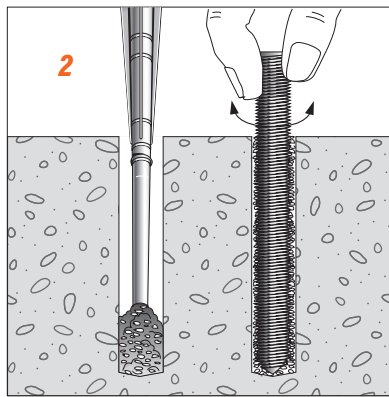
# Annular Gap Filling Washer Installation Instructions

Date	25/10/2024
Reference	TDS04182

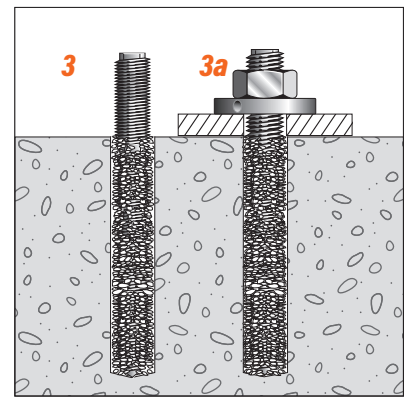
## Steps 1 to 6



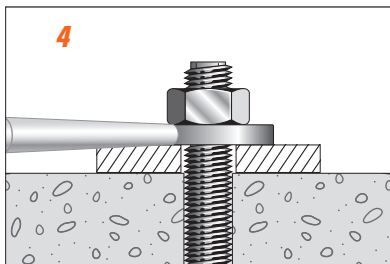
1. Drill and clean hole as per anchor installation instructions.



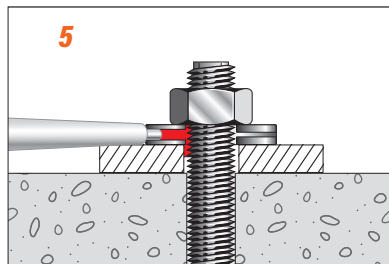
2. For Chemical Anchors: Insert nozzle to bottom of hole. Inject adhesive, gradually withdrawing nozzle until 3/4 full. Insert Anchor Stud or threaded rod to bottom of hole while rotating it to avoid trapping air. Load fixing when adhesive has cured.



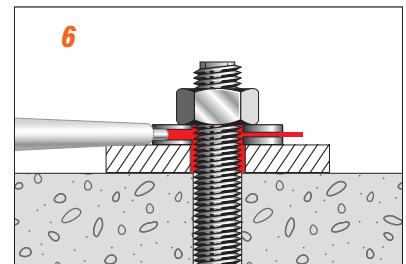
3a. For Chemical Anchors, once cured install Annular Gap Washer, standard washer and nut above steel fixture and apply specified tightening torque.  
3b. For Mechanical Anchors install anchor through Annular Gap Washer and apply specified tightening torque.



4. Firmly attach the extension nozzle onto the end of chemical mixing nozzle.



5. Insert the extension nozzle into the Annular Gap Washer and start pumping chemical.



6. Continue pumping chemical until it extrudes out of the second smaller port. The Annular Gap is now filled.

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