# TDS | 1052.1

## FILLING WASHERS

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# FILLING WASHER & ANNULAR GAP

Filling washers are used when filling the gap around a fastener, this gap is also known as the "annular gap". The annular gap is a void between the clearance hole in the base plate and the fastener. The clearance hole is designed and specified larger than the fastener to prevent anchor damage and ease during installation. Filling of the annular gap around the fastener provides increased shear performance in both static and seismic applications. This is most beneficial in connections with multiple fasteners near an edge and loaded in shear perpendicular to the edge. Shear loads are then transferred from the base plate and distributed evenly across all fasteners not only the fasteners near the edge.

In seismic shear applications filling of the annular gap increases shear performance with $a_{gap}$ reduction factor increased from 0.5 to 1.0 as detailed in AEFAC TN10 (PREQUALIFICATION & DESIGN REQUIREMENTS FOR FASTENINGS UNDER SEISMIC ACTIONS)

The ICCONS filling washer can be used with all the ICCONS Injection systems when filling the annular gap of a fastener connection if the adhesive (mortar) compressive strength exceeds 40 MPa as specified in AS 5216.

## FILLING WASHER

**For use with all ICCONS adhesive Injection Systems**

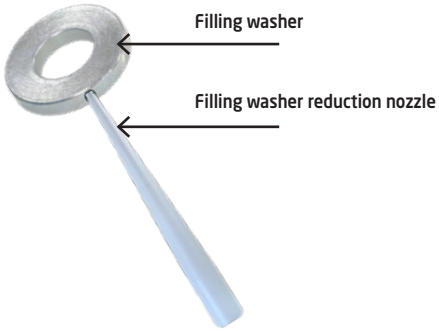
The filling washer enables filling of the annular gap as the final step to set the anchor. Designed for use in seismic applications for increased shear loads. When choosing an anchor, observe that the fixture thickness of the anchor must be reduce by 5mm.

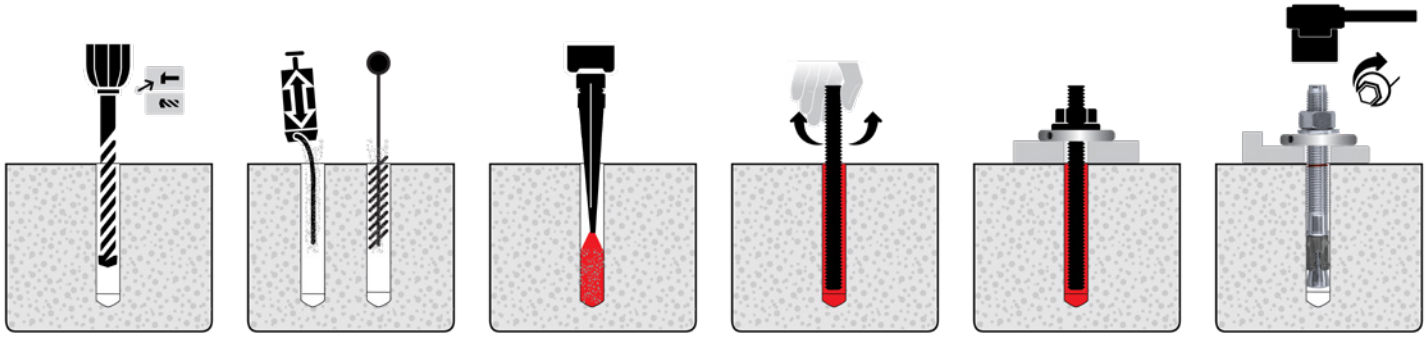
| Zinc Part No. | Galvanised Part No. | Stainless Steel Part No. | Description | Size (mm) | Washer Internal Ø (mm) | Washer Outer Ø (mm) | Washer Thickness (mm) | Nozzles Included Per Pack | Pack size |
|---|---|---|---|---|---|---|---|---|---|
| **CFW08** | **CFW08G** | **CFW08SS** | M8 filling washer | M8 | 9 | 23 | 5 | 10 | 20 |
| **CFW10** | **CFW10G** | **CFW10SS** | M10 filling washer | M10 | 12 | 26 | 5 | 10 | 20 |
| **CFW12** | **CFW12G** | **CFW12SS** | M12 filling washer | M12 | 14 | 28 | 5 | 10 | 20 |
| **CFW16** | **CFW16G** | **CFW16SS** | M16 filling washer | M16 | 17 | 34 | 5 | 5 | 10 |
| **CFW20** | **CFW20G** | **CFW20SS** | M20 filling washer | M20 | 21 | 41 | 5 | 5 | 10 |

## FILLING WASHER REDUCTION NOZZLE

| Part No. | Description | Pack size |
|---|---|---|
| **CNOZFWR** | Mixing nozzle reduction | 1 |

## INSTALLATION



**DRILL HOLE**
With the correct diameter carbide drill bit, drill a hole into the base material to the correct depth using a hammer drill in rotary and hammer mode.

**CLEAN HOLE**
Clean hole in accordance with manufacturers installation instructions for the given product

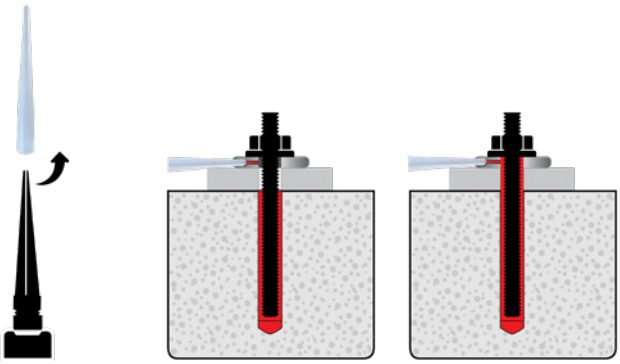
**INSTALL**
For adhesive anchors, insert the nozzle to the bottom of the hole. Inject adhesive while gradually withdrawing the nozzle until the hole is minimum 2/3 full.

Insert the anchor stud or threaded rod to the bottom of the hole while rotating it to avoid trapping air.

**ADHESIVE ANCHORS**
Once cured, install the Filling Washer, standard washer, and nut above the fixture, then apply the specified tightening torque.

**MECHANICAL ANCHORS**
Install the anchor through the Filling Washer and apply the specified tightening torque.

### INSTRUCTIONS BELOW APPLY TO ADHESIVE AND MECHANICAL ANCHORS



**ATTACH**
Firmly attach the reduction nozzle onto the end of the adhesive mixing nozzle.

**INSERT**
Insert the reduction nozzle into the Filling Washer and begin injecting the adhesive.

**FILL**
Fill washer until adhesive extrudes out from the washer or fixture. Clean any excess adhesive, the filling washer in now complete.

**INSTALLATION IS NOW COMPLETED.**

Applications requiring the filling of the annular gap can be designed using ICCONS DESIGN PRO Software.

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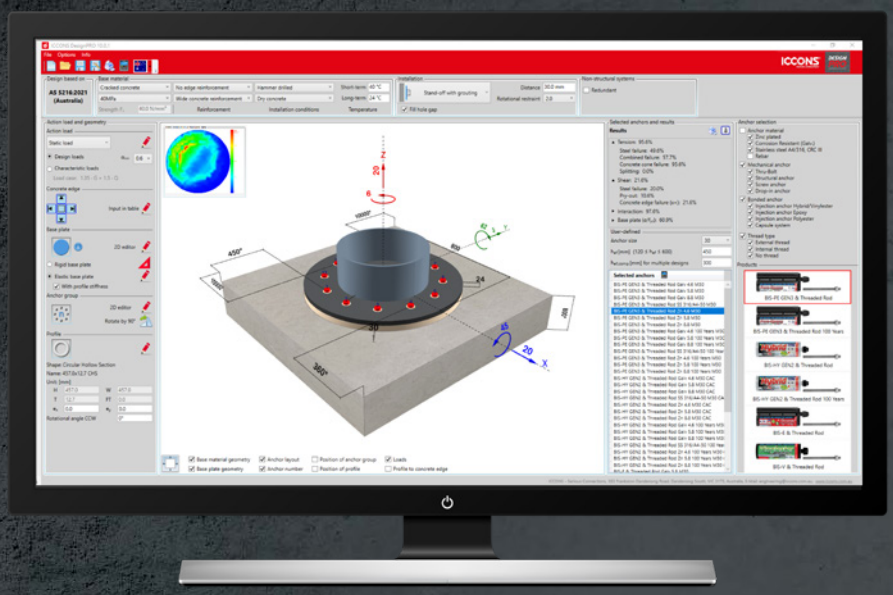
DESIGN PRO
ADVANCED ANCHOR DESIGN SOFTWARE



# Download DesignPRO

AS5216:2021 COMPLIANT NCC ANCHOR DESIGN

## IT'S EASY AND FREE

- ✓ Fast software download and its easy and FREE!
- ✓ ICCONS® DesignPRO Anchoring Software complying with AS 5216:2021
  - Includes Design of fastenings under seismic actions
  - Includes Design of redundant non-structural system
  - Combined loading and displacement calculations
- ✓ Unique all-in-one screen interface with easy data input and results display
- ✓ Interactive 3D model display for clear anchor and baseplate layout including rotation functionality
- ✓ Integrated FEA (Finite Element Analysis) for quick base plate thickness calculations
- ✓ Offers design solutions for rigid and elastic baseplates
- ✓ Flexible custom anchor and base plate geometry design for complex shapes and applications
- ✓ Utilises Australian steel profiles and material grades
- ✓ All product and all failure modes individually checked for precise anchor analysis and selection
- ✓ Summary or detailed design report options available to save or print

**FREE DOWNLOAD for DesignPRO using the following link**
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