

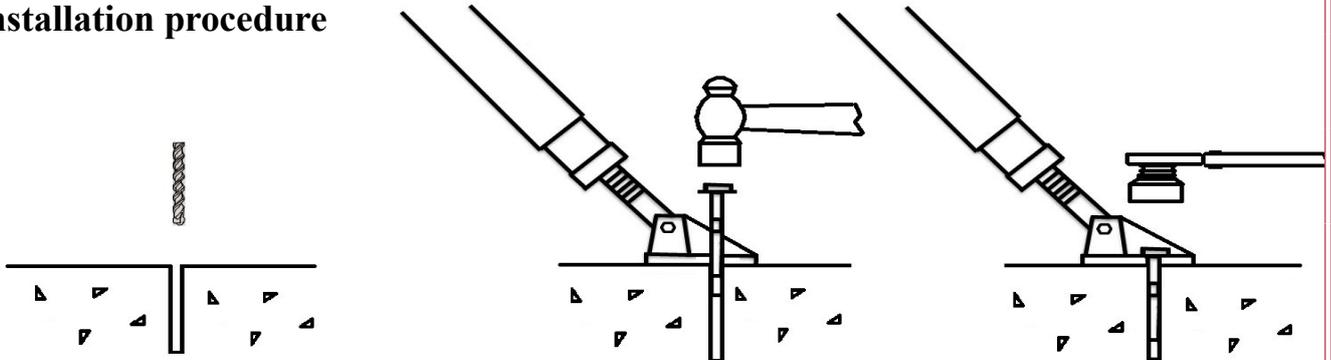
Compliance statement



TP-M14/20x115 Mechanical (Expansion) Anchor

This mechanical anchor is used to attach TiltPro Braces and Lifting Plates to concrete panels or slabs, and it is tested to comply with the performance requirements of **AS 3850.1:2015**.

Installation procedure



a) Using a **20 mm** masonry drill bit, drill to required depth into slab or panel. Minimum drill depth **80%** of concrete thickness. Minimum embedment depth **95 mm**.

b) Blow away debris and concrete dust from hole and tap anchor completely into the hole with steel hammer.

c) Use torque wrench to tighten anchor to a torque of **150 Nm**. Maximum fixture thickness **20 mm**. Minimum anchor spacing **240 mm** (nominal). Minimum edge distance **300 mm**.

From laboratory test of TiltPro mechanical anchors, the following results were calculated for their ultimate strength in 20 MPa concrete:

T_{ult} = Ultimate Tensile Strength = **33.74 kN**, WLL in tension = **15.0 kN**.

S_{ult} = Ultimate Shear Strength = **53.10 kN**, WLL in shear = **23.6 kN**.

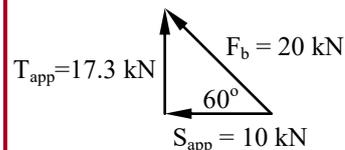
For TiltPro lifting plate with 200 mm anchor spacing, WLL in tension = **12.5 kN**

WLL in shear = **19.7 kN**

The Australian standard AS 3850.1:2015 Clause A 9.6.3 specifies the applied Tension load T_{app} and the applied Shear load S_{app} on the mechanical anchor must satisfy the following relationship:

$$T_{app}/(1.5 T_{ult}/FS)^{1.5} + (S_{app}/(1.5 S_{ult}/FS))^{1.5} \leq 1$$

Where FS = Factor of safety = 2.25.



TiltPro braces are usually set at 60° as shown in the above sketch and the number of braces per panel are selected so that a maximum of 20 kN is applied on each brace due to wind force, which result in $T_{app} = 17.3$ kN and $S_{app} = 10$ kN. Substituting these values into the above relationship gives $0.82 \leq 1$. As a result, TiltPro's mechanical anchors comply with Australian Standard AS 3850.1:2015.



Testing of TiltPro Mechanical Anchor.