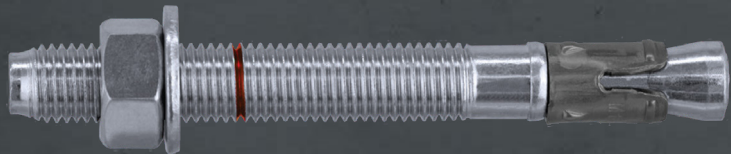




TDS | 1031.9

THRU-BOLT™ PRO STUD ANCHOR



THRU-BOLT™ PRO





THRU-BOLT™ PRO STUD ANCHOR

□ CARBON STEEL ZINC CLEAR

■ CARBON STEEL SHERARDISED (GALVANISED)

ICCONS® Thru-Bolt™ PRO is a pre-assembled torque controlled mechanical stud anchor, which when tightened draws the tapered end of the bolt into the expander clip expanding it to create expansion forces against the wall of the hole.

- Torque controlled high performance anchor
- Through fixing for fast installation
- Engineered clip for optimum expansion and anti-rotation
- Red ETA embedment depth mark providing ease of installation on site
- Available in zinc and Sherardised corrosion resistant finish
- ETA assessed – ETA 20/0900
- Uncracked and cracked concrete assessed
- AS 5216 compliant
- Seismic C1 and C2 assessed Zinc and Sherardised
- Fire assessed (zinc and Sherardised finish)
- Identification code on bolt head for easy traceability.

| Thru-Bolt™ Pro Zinc Clear Part No. | Thru-Bolt™ Pro-G Sherardised (Galvanised) Part No. | Description | Drill Diameter (mm) | Min. Drill Depth (mm) | Min. Anchor Embedment (mm) | Clearance Hole in Fixture (mm) | Max. Fixture Thickness (mm) | Head / Socket Size (mm) | Installation Torque (Nm) | ETA Option | SEISMIC Assessment | Fire Resistance Rating | ETA Option | qty. | qty. |
|--|---|-------------|---------------------------|-----------------------------|----------------------------------|---|-----------------------------------|----------------------------------|--------------------------------|------------|-----------------------|------------------------------|---------------|------|------|
| TB08080 | TB08080G | 8 x 80mm | 8 | 60 | 55 | 9 | 14 | 13 | 15 | Option 1 | C1 | | 50 | 500 | |
| TB08100 | TB08100G | 8 x 100mm | | | | | 34 | | | | | | 50 | 500 | |
| TB10090 | TB10090G | 10 x 90mm | 10 | 75 | 68 | 12 | 10 | 17 | 40 | Option 1 | C1 & C2 | | 25 | 250 | |
| TB10120 | | TB10120G | | | | | 10 x 120mm | | | | | | 40 | 25 | 250 |
| TB12100 | TB12100G | 12 x 100mm | 12 | 85 | 80 | 14 | 4 | 19 | 60 | Option 1 | C1 & C2 | | 25 | 200 | |
| TB12110 | TB12110G | 12 x 110mm | | | | | 14 | | | | | | 25 | 150 | |
| TB12120 | TB12120G | 12 x 120mm | | | | | 24 | | | | | | 25 | 150 | |
| TB12140 | TB12140G | 12 x 140mm | | | | | 44 | | | | | | 25 | 150 | |
| TB12150* | TB12150G* | 12 x 150mm | | | | | 54 | | | | | | 25 | 150 | |
| TB12180 | TB12180G | 12 x 180mm | | | | | 84 | | | | | | 25 | 100 | |
| TB12200* | TB12200G* | 12 x 200mm | 104 | 25 | 100 | | | | | | | | | | |
| TB16125 | TB16125G | 16 x 125mm | 16 | 105 | 97 | 18 | 8 | 24 | 100 | Option 1 | C1 | | 25 | 100 | |
| TB16140 | TB16140G | 16 x 140mm | | | | | 23 | | | | | | 25 | 50 | |
| TB16150 | TB16150G | 16 x 150mm | | | | | 33 | | | | | | 25 | 50 | |
| TB16190 | TB16190G | 16 x 190mm | | | | | 73 | | | | | | 25 | 50 | |
| TB20160 | TB20160G | 20 x 160mm | | | | | 22 | | | | | | 25 | 50 | |
| TB20200 | TB20200G | 20 x 200mm | | | | | 62 | | | | | | 10 | 40 | |
| | | | | | | | | | | | | | 10 | 20 | |

* Available in New Zealand



THRU-BOLT™ PRO-SS STUD ANCHOR

■ STAINLESS STEEL 316 (A4)

ICCONS® Thru-Bolt™ PRO is a pre-assembled torque controlled mechanical stud anchor, which when tightened draws the tapered end of the bolt into the expander clip expanding it to create expansion forces against the wall of the hole.


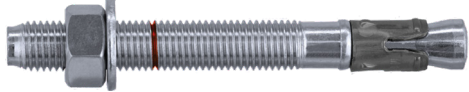



- Torque controlled high performance anchor
- Through fixing for fast installation
- Engineered clip for optimum expansion and anti-rotation
- Red ETA embedment depth mark providing ease of installation on site
- Available corrosion resistant Stainless Steel 316
- ETA assessed - ETA 20/0900
- Uncracked and cracked concrete assessed
- AS 5216 compliant
- Seismic C1 and C2 assessed
- Fire assessed (Stainless Steel)
- Identification code on bolt head for easy traceability

| Thru-Bolt™ Pro-SS Stainless Steel 316 (A4) Part No. | Description | Drill Diameter (mm) | Min. Drill Depth (mm) | Min. Anchor Embedment (mm) | Clearance Hole in Fixture (mm) | Max. Fixture Thickness (mm) | Head / Socket Size (mm) | Installation Torque (Nm) | ETA Option | SEISMIC Assessment | qty. | qty. |
|---|---------------------|---------------------------|-----------------------------|----------------------------------|---|-----------------------------------|----------------------------------|--------------------------------|------------|-----------------------|------|------|
| TB08075SS | 8 x 75mm | 8 | 60 | 55 | 9 | 8 | 13 | 15 | Option 1 | n/a | 50 | 500 |
| TB08100SS | 8 x 100mm | | | | | 33 | | | | | 50 | 500 |
| TB10065SS | 10 x 65mm - no ETA | 10 | 60 | 50 | 12 | 5 | 17 | 30 | n/a | n/a | 25 | 250 |
| TB10090SS | 10 x 90mm | | 75 | 68 | | 9 | | | | | 25 | 250 |
| TB10120SS | 10 x 120mm | | 39 | 25 | | 250 | | | | | | |
| TB12080SS | 12 x 80mm - no ETA | 12 | 85 | 80 | 14 | 3 | 19 | 60 | Option 1 | C1 & C2 | 25 | 250 |
| TB12100SS | 12 x 100mm | | | | | 3 | | | | | 25 | 200 |
| TB12120SS | 12 x 120mm | | | | | 23 | | | | | 25 | 150 |
| TB12140SS | 12 x 140mm | | | | | 43 | | | | | 25 | 150 |
| TB12150SS* | 12 x 150mm | | | | | 53 | | | | | 25 | 150 |
| TB12180SS | 12 x 180mm | | | | | 83 | | | | | 25 | 100 |
| TB12200SS* | 12 x 200mm | | | | | 103 | | | | | 25 | 100 |
| TB16105SS | 16 x 105mm - no ETA | 16 | 85 | 75 | 18 | 10 | 24 | 100 | n/a | n/a | 25 | 100 |
| TB16125SS | 16 x 125mm | | 7 | 25 | 100 | | | | | | | |
| TB16140SS | 16 x 140mm | | 22 | 25 | 50 | | | | | | | |
| TB20125SS | 20 x 125mm - no ETA | 20 | 100 | 90 | 22 | 10 | 30 | 200 | n/a | n/a | 10 | 60 |
| TB20160SS | 20 x 160mm | | 125 | 114 | | 21 | | | | | 10 | 40 |

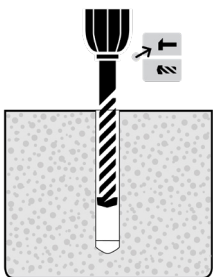
* Available in New Zealand



ETA ASSESSED RANGE

| Code | Size | Components | Material |
|---|--|---|---|
| THRU-BOLT™ PRO-G | M8 - M20  | Wedgebolt Clip Nut Washer | Carbon steel, sherardised $\geq 40 \mu\text{m}$ Stainless steel DIN 934, sherardised $\geq 40 \mu\text{m}$ DIN 125, DIN 9021, sherardised* $\geq 40 \mu\text{m}$ |
| THRU-BOLT™ PRO | M8 - M20  | Wedgebolt Clip Nut Washer | Carbon steel, galvanised $\geq 5 \mu\text{m}$ Carbon steel, sherardised $\geq 15 \mu\text{m}$ DIN 934, galvanised $\geq 5 \mu\text{m}$ DIN 125, DIN 9021, galvanised $\geq 5 \mu\text{m}$ |
| THRU-BOLT™ PRO-SS | M8 - M20  | Wedgebolt Clip Nut Washer | Stainless steel, grade A4 Stainless steel, grade A4 galvanised $\geq 5 \mu\text{m}$ ISO 4042 Zn5/An/T0 Stainless steel, grade A4 with antifriction coating DIN 125, DIN 9021, DIN 440 stainless steel, grade A4 |
| TBITM6-10 Thru-Bolt installation Tool M6 TO M10 |  | Tool for anchor installation using percussion hammer drilling machine | |
| TBITM12-20 Thru-Bolt installation Tool M12 TO M20 |  | | |

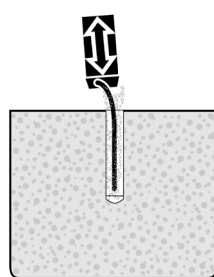
* Sherardising is a process of galvanisation of ferrous metal surfaces, also called dry galvanising. The process involves heating the steel up to 500°C in a closed rotating drum that contains metallic zinc dust.



INSTALLATION

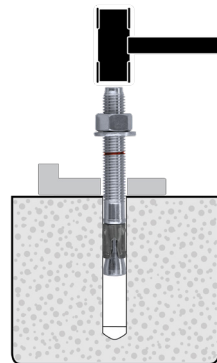
DRILL HOLE

Use drill in hammer mode. Drill to specified diameter and depth for the required size.



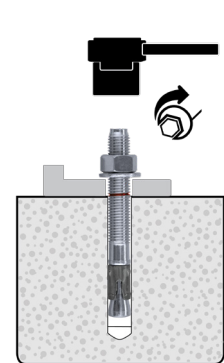
BLOW AND CLEAN

Clean the drill hole completely of dust and debris.
Use blow pump.



INSTALL

Insert the anchor in the hole until the red ring mark is flat with the concrete surface.
Use hammer or Thru-bolt installation tool if required;
The installation may be done through the fixture baseplate.



APPLY TORQUE

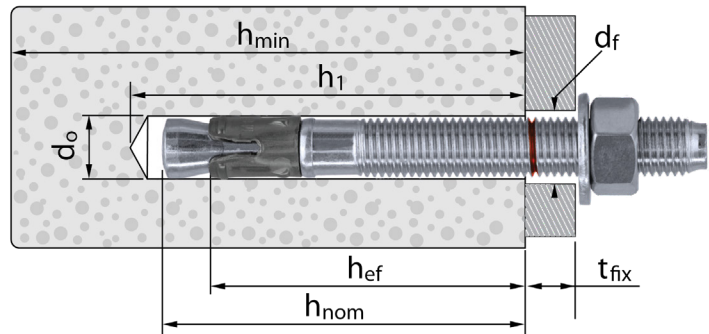
Apply nominal installation torque using a torque wrench.
Once installed verification of the total length of the anchor can be made through the letter on the head.



THRU-BOLT™ PRO STUD ANCHOR

□ CARBON STEEL ZINC CLEAR

■ CARBON STEEL SHERARDISED (GALVANISED)



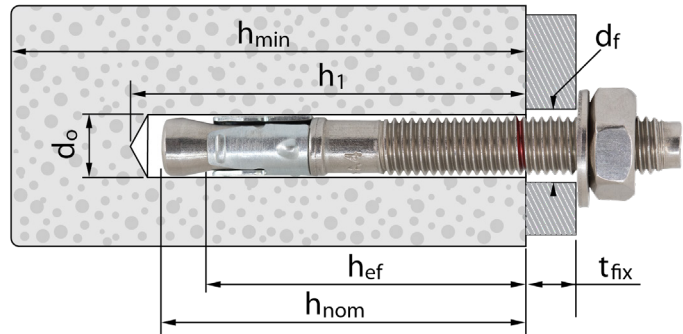
| Thru-Bolt™ Pro Zinc Clear Part No. | Thru-Bolt™ Pro-G Sherardised (Galvanised) Part No. | Size | Nominal diameter of drill bit d _s (mm) | Fixture Clearance d _i (mm) | Installation Torque T _{inst} (Nm) | Minimum concrete thickness | | Drill hole depth h ₁ (mm) | Embedment depth h _{em} (mm) | Effective depth h _{ef} (mm) | Fixture thickness t _{fix} (mm) | Max Critical spacing S _c (mm) | Critical edge distance C _e (mm) | Spacing min. S _{min} (mm) | Edge distance min. C _{min} (mm) |
|--|---|------------|---|--|---|--|---|---|---|---|--|--|--|---|--|
| | | | | | | Zinc Clear h _{min} (mm) | Sherardised h _{min} (mm) | | | | | | | | |
| TB08080 | TB08080G | 8 x 80mm | 8 | 9 | 15 | 80 | 100 | 60 | 55 | 48 | 14 | 144 | 72 | 50 | 50 |
| TB08100 | TB08100G | 8 x 100mm | | | | | | | | | 35 | | | | |
| TB10090 | TB10090G | 10 x 90mm | 10 | 12 | 40 | 90 | 120 | 75 | 68 | 60 | 10 | 180 | 90 | 60 | 60 |
| TB10120 | | 10 x 120mm | | | | | | | | | 40 | | | | |
| TB12100 | TB12100G | 12 x 100mm | 12 | 14 | 60 | 150 | 140 | 85 | 80 | 70 | 4 | 210 | 105 | 70 | 70 |
| | TB12110G | 12 x 110mm | | | | | | | | | 14 | | | | |
| TB12120 | TB12120G | 12 x 120mm | | | | | | | | | 24 | | | | |
| TB12140 | TB12150G | 12 x 150mm | | | | | | | | | 44 | | | | |
| | TB12180G | 12 x 180mm | | | | | | | | | 54 | | | | |
| | TB12200G | 12 x 200mm | 84 | | | | | | | | | | | | |
| TB16125 | TB16125G | 16 x 125mm | 16 | 18 | 100 | 130 | 170 | 105 | 97 | 85 | 8 | 255 | 128 | 128 | 128 |
| | | 16 x 140mm | | | | | | | | | 23 | | | | |
| TB16140 | TB16150G | 16 x 150mm | | | | | | | | | 33 | | | | |
| TB16190 | TB16190G | 16 x 190mm | | | | | | | | | 73 | | | | |
| | | 16 x 125mm | | | | | | | | | 8 | | | | |
| TB20160 | TB20160G | 20 x 160mm | 20 | 22 | 200 | 150 | 200 | 125 | 114 | 100 | 22 | 300 | 150 | 150 | 150 |
| TB20200 | TB20200G | 20 x 200mm | | | | | | | | | 62 | | | | |

* Sherardising is a process of galvanisation of ferrous metal surfaces, also called dry galvanising. The process involves heating the steel up to 500°C in a closed rotating drum that contains metallic zinc dust.



THRU-BOLT™ PRO STUD ANCHOR

■ STAINLESS STEEL 316 (A4)



| Thru-Bolt™ Pro-SS Stainless Steel 316 (A4) Part No. | Size | Nominal diameter of drill bit d (mm) | Fixture Clearance d (mm) | Installation Torque T (Nm) | Minimum concrete thickness h (mm) | Drill hole depth h (mm) | Embedment depth h (mm) | Effective depth h (mm) | Fixture thickness t (mm) | Max Critical spacing S (mm) | Critical edge distance C (mm) | Spacing min. S (mm) | Edge distance min. C (mm) |
|---|------------|--|----------------------------|------------------------------|-------------------------------------|---------------------------|--------------------------|--------------------------|----------------------------|---|---------------------------------|-----------------------|-----------------------------|
| TB08075SS | 8 x 75mm | 8 | 9 | 15 | 100 | 60 | 55 | 48 | 8 | 144 | 72 | 42 | 47 |
| TB08100SS | 8 x 100mm | | | | | | | | 33 | | | | |
| TB10065SS | 10 x 65mm | 10 | 12 | 30 | 120 | 60 | 50 | 42 | 5 | Size is not part of ETA Assessment and not compliant with AS 5216, for design in accordance with simplified design method please refer to TDS 1007. | | | |
| TB10090SS | 10 x 90mm | | | | | | | | 9 | | | | |
| TB10120SS | 10 x 120mm | | | | | | | | 39 | | | | |
| TB12080SS | 12 x 80mm | 12 | 14 | 60 | 140 | 65 | 60 | 50 | 3 | Size is not part of ETA Assessment and not compliant with AS 5216, for design in accordance with simplified design method please refer to TDS 1007. | | | |
| TB12100SS | 12 x 100mm | | | | | | | | 23 | | | | |
| TB12120SS | 12 x 120mm | | | | | | | | 43 | | | | |
| TB12140SS | 12 x 140mm | | | | | | | | 53 | | | | |
| TB12150SS* | 12 x 150mm | | | | | | | | 83 | | | | |
| TB12180SS | 12 x 180mm | | | | | | | | 103 | | | | |
| TB12200SS* | 12 x 200mm | | | | | | | | | | | | |
| TB16105SS | 16 x 105mm | 16 | 18 | 100 | 170 | 85 | 75 | 63 | 10 | Size is not part of ETA Assessment and not compliant with AS 5216, for design in accordance with simplified design method please refer to TDS 1007. | | | |
| TB16125SS | 16 x 125mm | | | | | | | | 7 | | | | |
| TB16140SS | 16 x 140mm | | | | | | | | 22 | | | | |
| TB20125SS | 20 x 125mm | 20 | 22 | 200 | 200 | 100 | 90 | 76 | 10 | Size is not part of ETA Assessment and not compliant with AS 5216, for design in accordance with simplified design method please refer to TDS 1007. | | | |
| TB20160SS | 20 x 160mm | | | | | | | | 21 | | | | |
| | | | | | | 125 | 114 | 100 | 21 | 300 | 150 | 100 | 90 |



THRU-BOLT™ PRO DESIGN RESISTANCE CAPACITIES

Parameters: Qualification based on AS 5216

Concrete: 20 MPa

Conditions: Single anchor, no edge distance, min recommended concrete thickness



THRU-BOLT™ PRO

Design Resistance Capacities - 20 MPa

| Diameter | Embedment Depth (mm) | Effective Depth (mm) | Uncracked concrete Tension N _{Rd} (kN) | Cracked concrete Tension N _{Rd} (kN) | Uncracked Concrete Shear V _{Rd} (kN) | Cracked concrete Shear V _{Rd} (kN) |
|----------|----------------------|----------------------|---|---|---|---|
| M8 | 55 | 48 | 5.0 | 3.3 | 8.8 | 7.6 |
| M10 | 68 | 60 | 10.7 | 6.0 | 13.9 | 13.9 |
| M12 | 80 | 70 | 16.7 | 10.7 | 20.2 | 20.2 |
| M16 | 97 | 85 | 23.3 | 16.7 | 37.7 | 36.0 |
| M20 | 114 | 100 | 32.8 | 20.0 | 58.5 | 45.9 |



THRU-BOLT™ PRO-G

Design Resistance Capacities - 20 MPa

| Diameter | Embedment Depth (mm) | Effective Depth (mm) | Uncracked concrete Tension N _{Rd} (kN) | Cracked concrete Tension N _{Rd} (kN) | Uncracked Concrete Shear V _{Rd} (kN) | Cracked concrete Shear V _{Rd} (kN) |
|----------|----------------------|----------------------|---|---|---|---|
| M8 | 55 | 48 | 5.0 | 3.3 | 8.8 | 7.6 |
| M10 | 68 | 60 | 10.7 | 6.0 | 13.9 | 13.9 |
| M12 | 80 | 70 | 19.2 | 10.7 | 20.2 | 20.2 |
| M16 | 97 | 85 | 23.3 | 16.7 | 37.7 | 36.0 |
| M20 | 114 | 100 | 32.8 | 20.0 | 58.5 | 45.9 |



THRU-BOLT™ PRO-SS

Design Resistance Capacities - 20 MPa

| Diameter | Embedment Depth (mm) | Effective Depth (mm) | Uncracked concrete Tension N _{Rd} (kN) | Cracked concrete Tension N _{Rd} (kN) | Uncracked Concrete Shear V _{Rd} (kN) | Cracked concrete Shear V _{Rd} (kN) |
|----------|----------------------|----------------------|---|---|---|---|
| M8 | 55 | 48 | 8.0 | 5.7 | 9.5 | 7.6 |
| M10 | 68 | 60 | 10.7 | 9.3 | 15.1 | 15.1 |
| M12 | 80 | 70 | 16.0 | 10.6 | 21.9 | 21.9 |
| M16 | 97 | 85 | 21.4 | 15.0 | 42.8 | 30.0 |
| M20 | 114 | 100 | 27.3 | 19.1 | 54.7 | 38.3 |

THRU-BOLT™ PRO SEISMIC DESIGN RESISTANCE CAPACITIES

Parameters: Qualification based on AS 5216 / EN 1992:4

Concrete: 20 MPa

Conditions: Single anchor, no edge distance, min recommended concrete thickness



THRU-BOLT™ PRO

C1 Seismic

Design Resistance Capacities - ($a_{gap} = 1.0$)

| Diameter | Embed. Depth (mm) | Effective Depth (mm) | Tension N _{Rd} (kN) | Shear V _{Rd} (kN) |
|----------|-------------------|----------------------|------------------------------|----------------------------|
| M8 | 55 | 48 | 3.3 | 6.2 |
| M10 | 68 | 60 | 5.9 | 9.8 |
| M12 | 80 | 70 | 10.7 | 14.2 |
| M16 | 97 | 85 | 15.3 | 26.4 |
| M20 | 114 | 100 | 19.5 | 39.0 |



THRU-BOLT™ PRO

C2 Seismic

Design Resistance Capacities - ($a_{gap} = 1.0$)

| Diameter | Embed. Depth (mm) | Effective Depth (mm) | Tension N _{Rd} (kN) | Shear V _{Rd} (kN) |
|----------|-------------------|----------------------|------------------------------|----------------------------|
| M10 | 68 | 60 | 2.6 | 9.8 |
| M12 | 80 | 70 | 6.1 | 14.2 |
| M20 | 114 | 100 | 14.0 | 39.0 |



THRU-BOLT™ PRO-G

C1 Seismic

Design Resistance Capacities - ($a_{gap} = 1.0$)

| Diameter | Embed. Depth (mm) | Effective Depth (mm) | Tension N _{Rd} (kN) | Shear V _{Rd} (kN) |
|----------|-------------------|----------------------|------------------------------|----------------------------|
| M8 | 55 | 48 | 3.3 | 5.3 |
| M10 | 68 | 60 | 6.0 | 10.0 |
| M12 | 80 | 70 | 10.7 | 15.1 |
| M16 | 97 | 85 | 15.3 | 28.3 |
| M20 | 114 | 100 | 19.5 | 39.0 |



THRU-BOLT™ PRO-G

C2 Seismic

Design Resistance Capacities - ($a_{gap} = 1.0$)

| Diameter | Embed. Depth (mm) | Effective Depth (mm) | Tension N _{Rd} (kN) | Shear V _{Rd} (kN) |
|----------|-------------------|----------------------|------------------------------|----------------------------|
| M12 | 80 | 70 | 3.9 | 14.2 |
| M16 | 97 | 85 | 10.9 | 26.4 |
| M20 | 114 | 100 | 11.5 | 39.0 |

NOTE: Performance data in the above tables has been derived using the relevant published ETA (ETA 20/0900). For detailed calculations please download the ICCONS Software - DesignPRO @ www.iccons.com.au/software/anchor-design-software.



THRU-BOLT™ PRO SEISMIC DESIGN RESISTANCE CAPACITIES

Parameters: Qualification based on AS 5216 / EN 1992:4

Concrete: 20 MPa

Conditions: Single anchor, no edge distance, min recommended concrete thickness



THRU-BOLT™ PRO-SS

C1 Seismic

Design Resistance Capacities - ($a_{gap} = 1.0$)

| Diameter | Embed. Depth (mm) | Effective Depth (mm) | Tension NRd (kN) | Shear VRd (kN) |
|----------|-------------------|----------------------|------------------|----------------|
| M10 | 68 | 60 | 4.3 | 8.5 |
| M12 | 80 | 70 | 6.6 | 15.4 |
| M16 | 97 | 85 | 9.7 | 30.6 |
| M20 | 114 | 100 | 11.4 | 36.4 |



THRU-BOLT™ PRO-SS

C2 Seismic

Design Resistance Capacities - ($a_{gap} = 1.0$)

| Diameter | Embed. Depth (mm) | Effective Depth (mm) | Tension NRd (kN) | Shear VRd (kN) |
|----------|-------------------|----------------------|------------------|----------------|
| M10 | 68 | 60 | 2.0 | 8.5 |
| M12 | 80 | 70 | 2.2 | 15.4 |
| M16 | 97 | 85 | 8.8 | 30.6 |
| M20 | 114 | 100 | 8.7 | 36.4 |

NOTE: Performance data in the above tables has been derived using the relevant published ETA (ETA 20/0900).

For detailed calculations please download the ICCONS Software - DesignPRO @ www.iccons.com.au/software/anchor-design-software.

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