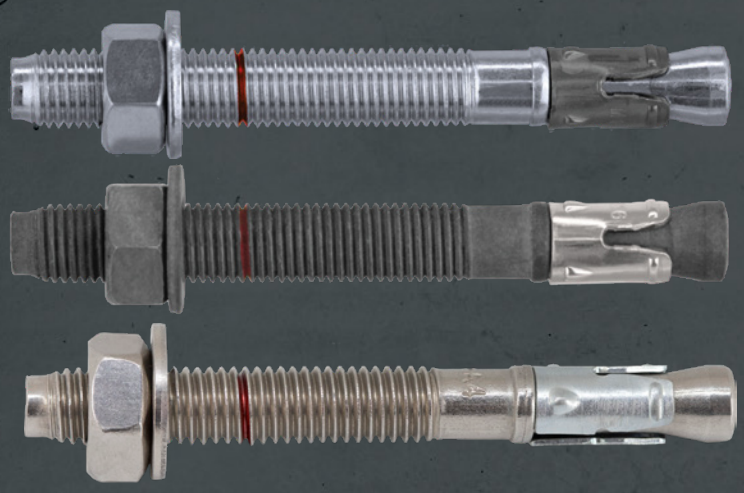
TDS | 1031.8

THRU-BOLT™ PRO
STUD ANCHOR



THRU-BOLT™ PRO

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THRU-BOLT™ PRO STUD ANCHOR

Zinc Clear & Sherardised

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 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.
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		10 x 90mm	10	75	68	12	10	17	40	Option 1	C1&C2	25	250
	TB10090G										C1	25	250
TB10120		10 x 120mm					40				C1&C2	25	250
	TB10120G										C1	25	250
TB12100	TB12100G	12 x 100mm	12	85	80	14	4	19	60	Option 1	C1&C2	25	200
	TB12110G	12 x 110mm					14					25	150
TB12120	TB12120G	12 x 120mm					24					25	150
TB12140	TB12140G	12 x 140mm					44					25	150
TB12180	TB12180G	12 x 180mm					84					25	100
TB16125		16 x 125mm	16	105	97	18	8	24	100	Option 1	C1	25	100
	TB16125G										C1&C2	25	100
TB16140		16 x 140mm					23				C1	25	50
	TB16140G										C1&C2	25	50
	TB16150G	16 x 150mm					33					25	50
TB16190		16 x 190mm					73				C1	25	50
	TB16190G										C1&C2	25	50
TB20160	TB20160G	20 x 160mm	20	125	114	22	22	30	200	Option 1	C1&C2	10	40
TB20200	TB20200G	20 x 200mm					62					10	200

THRU-BOLT™ PRO-SS STUD ANCHOR

Stainless Steel

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

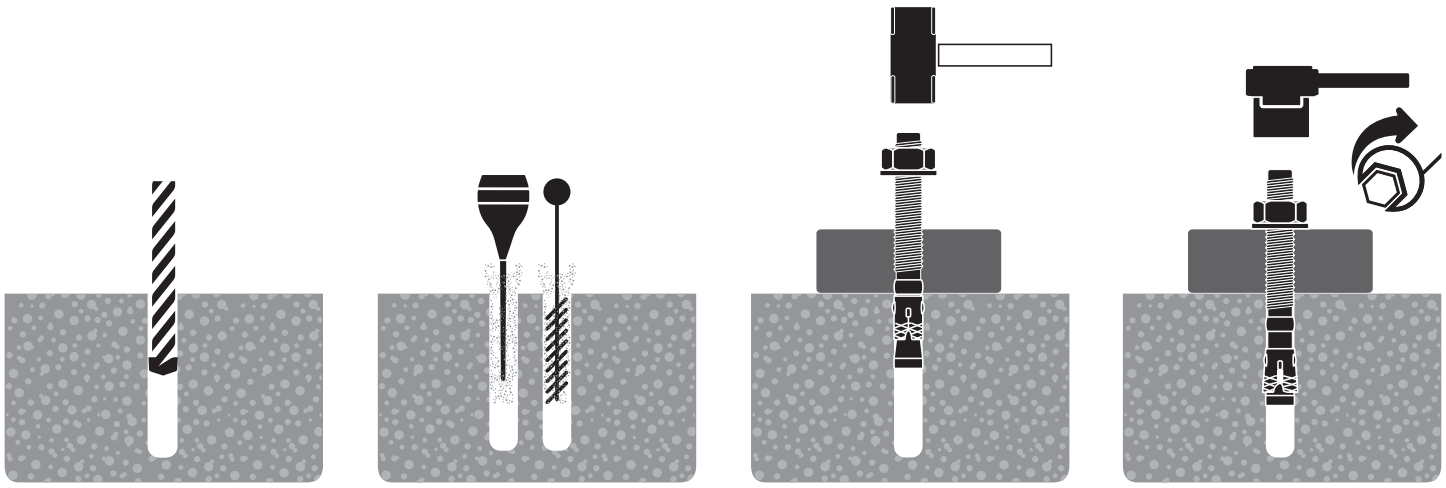
THRU-BOLT™ PRO-SS Stainless Steel Part No.	Description	Drill Diameter (mm)	Min. Drill Depth (mm)	Min. Anchor Embedment (mm)	Clearance Hole in Fixture (mm)	Max. Fixture Thickness (mm)	Head/Socket Size (mm)	Installation Torque (Nm)	ETA Option	SEISMIC Assessment	qty.	qty.
TB08075SS	8 x 75mm	8	60	55	9	8	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			Option 1	C1 & C2	25	250
TB10120SS	10 x 120mm					39					25	250
TB12080SS	12 x 80mm - no ETA	12	65	60	14	3	19	60	n/a	n/a	25	250
TB12100SS	12 x 100mm		85	80		3			Option 1	C1 & C2	25	200
TB12120SS	12 x 120mm					23					25	150
TB12140SS	12 x 140mm					43					25	150
TB12180SS	12 x 180mm					83					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		105	97	18	7			Option 1	C1 & C2	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			Option 1	C1 & C2	10	40

ETA assessed range

Code	Size	Components	Material
THRU-BOLT™ PRO-G	**M8 - M20** 	Wedgebolt Clip Nut Washer	Carbon steel, sherardised ≥ 40 µm Stainless steel DIN 934, sherardised ≥ 40 µm DIN 125, DIN 9021, sherardised* ≥ 40 µm
THRU-BOLT™ PRO	**M8 - M20** 	Wedgebolt Clip Nut Washer	Carbon steel, galvanised ≥ 5 µm Carbon steel, sherardised ≥ 15 µm DIN 934, galvanised ≥ 5 µm DIN 125, DIN 9021, galvanised ≥ 5 µm
THRU-BOLT™ PRO- SS	**M8 - M20** 	Wedgebolt Clip Nut Washer	Stainless steel, grade A4 Stainless steel, grade A4 galvanised ≥ 5 µm 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 **TBITM12-20** Thru-Bolt installation Tool M12 TO M20	 	Tool for anchor installation using percussion hammer drilling machine	

* 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



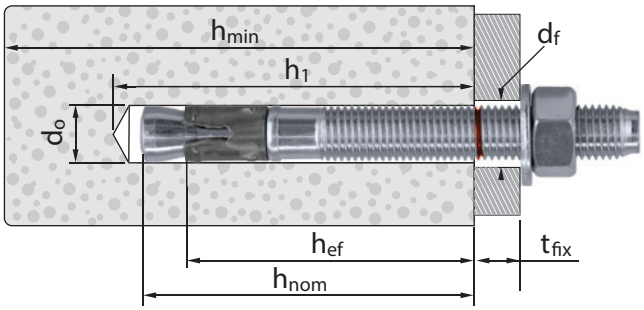
1. **DRILL HOLE**
   Use drill in hammer mode. Drill to specified diameter and depth for the required size.
2. **BLOW AND CLEAN**
   Clean the drill hole completely of dust and debris.
   Use blow pump and brush.
3. **INSTALL**
   Insert the anchor in the hole until the red ring mark is flat with the concrete surface.
   Use hammer or Thru-bolt installation tool if required;
   The installation may be done through the fixture baseplate.
4. **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

Zinc Clear

THRU-BOLT™ PRO-G STUD ANCHOR

Sherardised

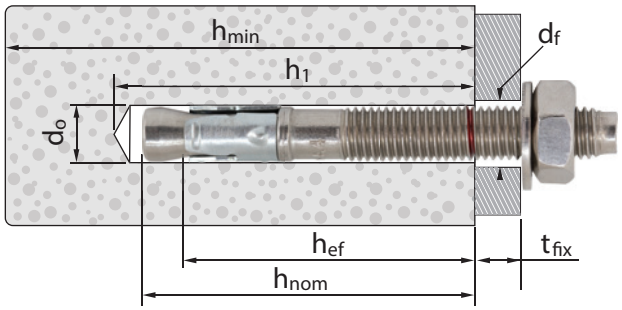


THRU-BOLT™ PRO Zinc Clear Part No.	THRU-BOLT™ PRO-G Sherardised Part No.	Size	Nominal diameter of drill bit d_o (mm)	Fixture Clearance d_f (mm)	Installation Torque T_{inst} (Nm)	Minimum concrete thickness h_{min} (mm) Zinc Clear	Minimum concrete thickness h_{min} (mm) Sherardised	Dill hole depth h_1 (mm)	Embedment depth h_{nom} (mm)	Effective depth h_{ef} (mm)	Fixture thickness t_{fix} (mm)	Max Critical spacing S_{cr} (mm)	Critical edge distance C_{cr} (mm)	Spacing min. S_{min} (mm)	Edge distance min. C_{min} (mm)
TB08080	TB08080G	8 X 80	8	9	15	80	100	60	55	48	14	144	72	50	50
TB08100	TB08100G	8 X 100		9	15			60	55	48	34	144	72	50	50
TB10090	TB10090G	10 X 90	10	12	40	90	120	75	68	60	10	180	90	60	60
TB10120	TB10120G	10 X 120		12	40			75	68	60	40	180	90	60	60
TB12100	TB12100G	12 X 100	12	14	60	105	140	85	80	70	4	210	105	70	70
	TB12110G	12 x 110		14	60			85	80	70	14	210	105	70	70
TB12120	TB12120G	12 X 120		14	60			85	80	70	24	210	105	70	70
TB12140	TB12140G	12 X 140		14	60			85	80	70	44	210	105	70	70
TB12180	TB12180G	12 X 180		14	60			85	80	70	84	210	105	70	70
TB16125	TB16125G	16 X 125	16	18	100	130	170	105	97	85	8	255	128	128	128
TB16140	TB16140G	16 X 140		18	100			105	97	85	23	255	128	128	128
	TB16150G	16 x 150		18	100			105	97	85	33	225	128	128	128
TB16190	TB16190G	16 X 190		18	100			105	97	85	73	255	128	128	128
TB20160	TB20160G	20 X 160	20	22	200	150	200	125	114	100	22	300	150	150	150
TB20200	TB20200G	20 X 200		22	200			125	114	100	62	300	150	150	150

* 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-SS STUD ANCHOR

316 Stainless Steel



THRU-BOLT™ PRO-SS Stainless Steel Part No.	Size	Nominal diameter of drill bit d_o (mm)	Fixture Clearance d_f (mm)	Installation Torque T_{inst} (Nm)	Minimum concrete thickness h_{min} (mm)	Dill hole depth h_1 (mm)	Embedment depth h_{nom} (mm)	Effective depth h_{ef} (mm)	Fixture thickness t_{fix} (mm)	Max Critical spacing S_{cr} (mm)	Critical edge distance C_{cr} (mm)	Spacing min. S_{min} (mm)	Edge distance min. C_{min} (mm)
TB08075SS	8 x 75mm	8	9	15	100	60	55	48	8	144	72	42	47
TB08100SS	8 x 100mm		9	15		60	55	48	33	144	72	42	47
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		12	30		75	68	60	9	180	90	47	52
TB10120SS	10 x 120mm		12	30		75	68	60	39	180	90	47	52
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		14	60		85	80	70	3	210	105	57	62
TB12120SS	12 x 120mm		14	60		85	80	70	23	210	105	57	62
TB12140SS	12 x 140mm		14	60		85	80	70	43	210	105	57	62
TB12180SS	12 x 180mm		14	60		85	80	70	83	210	105	57	62
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		18	100		105	97	85	7	255	128	75	75
TB16140SS	16 x 140mm		18	100		105	97	85	22	255	128	75	75
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		22	200		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 N_{Rd} (kN)	Shear V_{Rd} (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 N_{Rd} (kN)	Shear V_{Rd} (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).
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