

Hybrid GEN²

ICCONS
Serious Connections

TDS 2018.3

BIS-HY GEN2

NEW!

NEXT GENERATION HYBRID ADHESIVES

100+
YEAR DESIGN LIFE



COMPLIES WITH
AS 5216
FOR POST-INSTALLED
FASTENINGS

DONE AND
DUSTLESS



TECHNICAL
MANUAL

www.iccons.com.au





Table of Contents

BIS-HY GEN2, Hybrid

Features/Conditions of Use/Temperature Range	3
--	---

Threaded Rod

Installations Procedures.....	4
Curing Times.....	4
Specification/Design in Acc. with EN 1992-4:2018, AS 5216:2021 and TR055	5
Seismic Resistance	14

Rebar

Installation Procedures	18
Curing Times.....	18
Specification/Design in Acc. with EN1992-4:2018, AS 5216:2021 and TR055	19
Seismic Resistance	24

General

BIS-HY GEN2 Hybrid Mortar Properties	26
BIS-HY GEN2 Hybrid Chemical Resistance	27



Hybrid Injection Adhesive ETA Option 1 Assessed for Cracked & Non-Cracked Concrete



Threaded Rod M8 - M30 Rebar Dowels Ø8 - Ø32 mm

ROD: Steel 5.8 and 8.8 Zinc Plated and Hot Dip Galvanized, Stainless Steel A4-50 and A4-70, High Corrosion Resistant Steel 1.4529

Rebar: EN 1992-1-1:2004 + AC:2010 Annex C



Features

- NEW!** ETA Assessed for the Installation in Flooded Holes
- NEW!** No Cleaning required for Hollow Drilling
- NEW!** Extended Seismic C2 Range: M12 - M24
- For Extreme Loads
- Fast Curing
- Styrene Free
- Low VOC: A+ Rating
- Fire Rated
- Leed Tested
- Potable Water Approved
- Supported By ICCONS[®] DesignPro Software

Temperature Range

B+Btec BIS-HY GEN2 injection mortar may be applied in the temperature ranges given below. An elevated base material temperature leads to a reduction of the bond resistance.

Max. long term base material temperature: Long term elevated base material temperatures are roughly constant over significant periods of time.

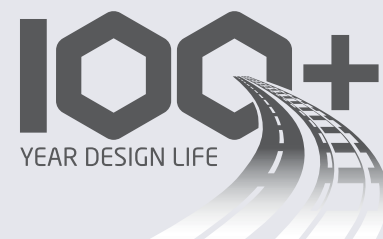
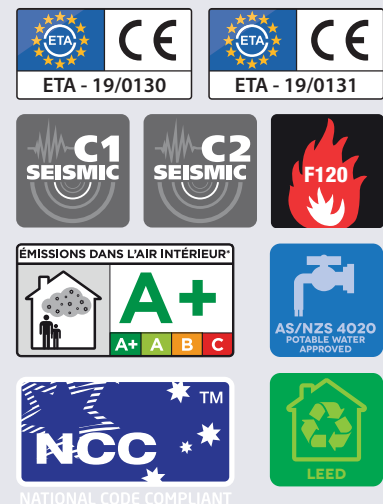
Max. short term base material temperature: Short term elevated base material temperatures are those that occur over brief intervals, e.g. as a result of diurnal cycling.

Temperature Range	Temperature Base Material	Max. Long Term Base Material Temperature	Max. Short Term Base Material Temperature
Temp. Range I	-40°C to +40°C	+24°C	+40°C
Temp. Range II	-40°C to +80°C	+50°C	+80°C
Temp. Range III	-40°C to +120°C	+72°C	+120°C
Temp. Range IV	-40°C to +160°C	+100°C	+160°C

Conditions of Use

- Installation in Cracked & Non-Cracked Concrete C20/25 to C50/60
- For Anchor Rods M8-M30, Rebar Ø8-32 mm and Threaded Sleeves M6-M20
- Seismic Action C1: M8-M30, Ø8-32 mm
- Seismic Action C2: M12 - M24
- For Hammer/Air drilled Holes
- Installation in Dry and Wet Holes
- Installation in Flooded Holes
- Overhead Installation allowed.

Approvals & Test Reports

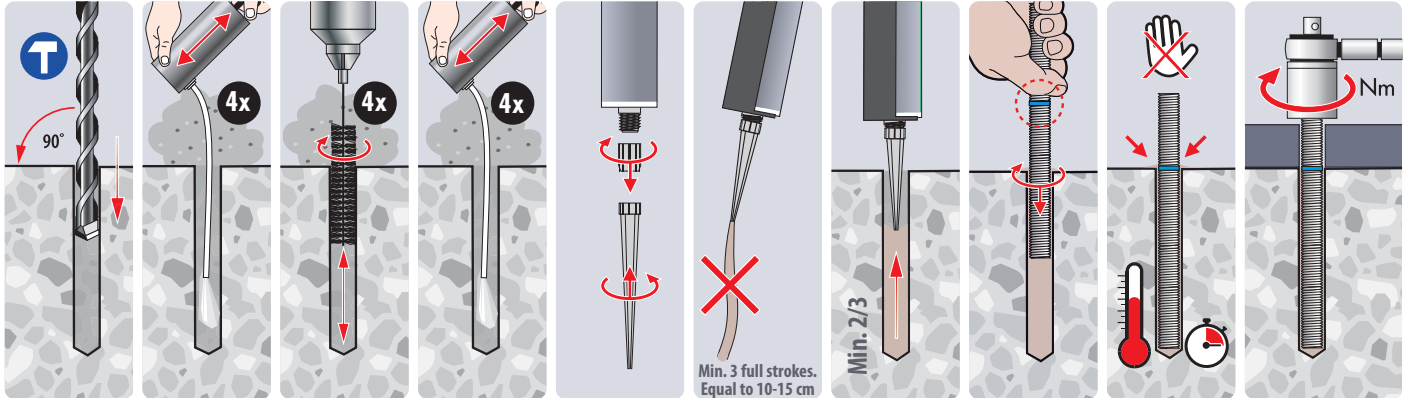




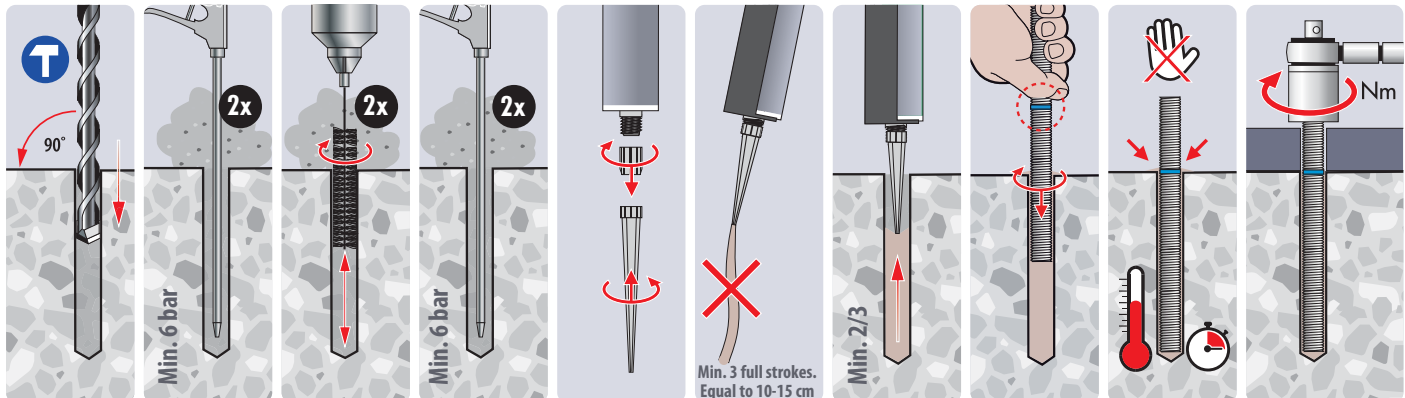
BIS-HY GEN2

Installation Procedures (Hand Pump Cleaning)

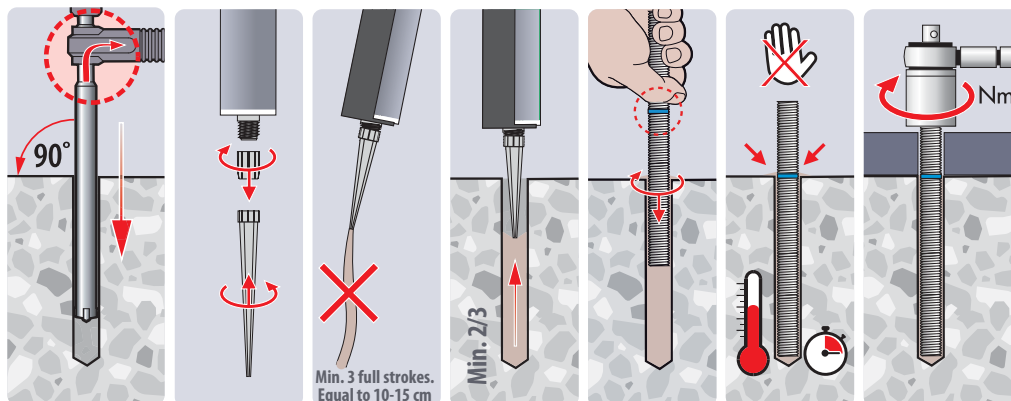
Hand Pump Cleaning for bore hole diameter $d_0 \leq 20\text{mm}$, bore hole depth $h_0 \leq 10d_{\text{nom}}$ and Non-Cracked Concrete only.



Installation Procedures (Compressed Air Cleaning)



Installation Procedures (Hollow Drilling) - Heller Duster Expert Hollow Drill Bits



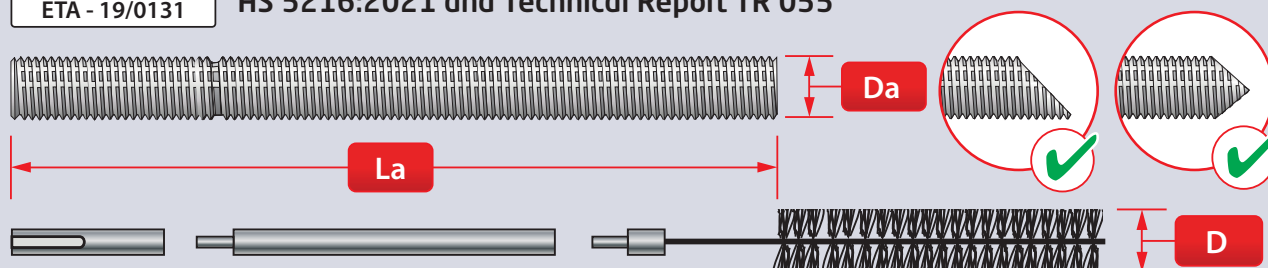
Curing Times¹⁾

Temperature ²⁾	°C	-5 to -1	0 to +4	+5 to +9	+10 to +14	+15 to +19	+20 to +29	+30 to +40
Processing/Working Time		50 min	25 min	15 min	10 min	6 min	3 min	2 min
Curing Time Dry Holes		5 h	3,5 h	2 h	1h	40 min	30 min	30 min
Curing Time Wet Holes		10 h	7 h	4 h	2h	80 min	60 min	60 min

1) Cartridge Temperature must be between +5°C and +40°C. 2) Concrete Temperature



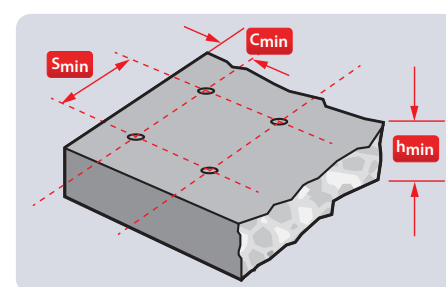
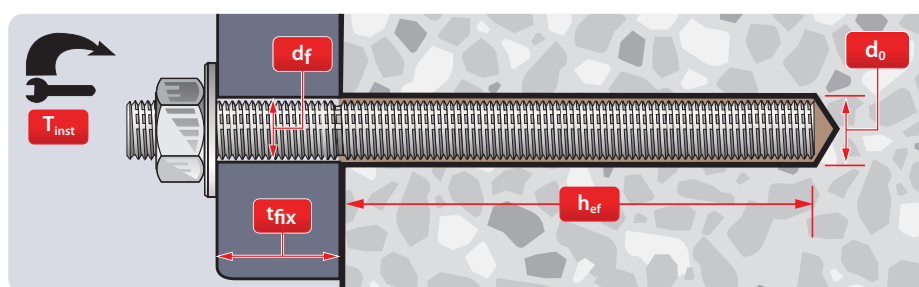
Specification Data for the use in Cracked & Uncracked Concrete and Hammer/Air Drilled Holes according to EN 1992-4:2018, AS 5216:2021 and Technical Report TR 055



Installation Dimensions

Anchor Size	D_a		m8	m10	m12	m16	m20	m24	m27	m30
Anchor Rod Length	L_a	[mm]	110	130	160	190	260	300	340	360
Min. Eff. Anchorage Depth	$h_{ef,min}$	[mm]	60	60	70	80	90	96	108	120
Max. Eff. Anchorage Depth	$h_{ef,max}$	[mm]	160	200	240	320	400	480	540	600
Anch. Depth for Calculation	$h_{ef,calc}$	[mm]	80	90	110	125	170	210	250	280
Hole Diameter	d_o	[mm]	10	12	14	18	22	28	30	35
Diameter Clearance Hole in the Fixture ¹⁾										
- Prepositioned Installation	d_f	[mm]	9	12	14	18	22	26	30	33
- Push through installation	d_f	[mm]	12	14	16	20	24	30	33	40
Fixture Height	$t_{fix} \leq$	[mm]	20	30	35	45	70	65	70	50
Max. Torque Moment ²⁾	$T_{inst} \leq$	[Nm]	10	20	40	60	100	170	250	300
Required Volume per cm Embedment Depth	V_s	[ml/cm]	0,44	0,59	0,75	1,09	2,25	2,87	3,72	4,37

1) For application under seismic loading the diameter of clearance hole in the fixture shall be at maximum $d + 1$ mm or alternatively the annular gap between fixture and anchor rod shall be filled force-fit with mortar. 2) Max. recommended torque moment to avoid splitting failure during installation with minimum spacing and edge distance



Member Thickness, Edge Distance & Spacing

Anchor Size	D_a		m8	m10	m12	m16	m20	m24	m27	m30
Min. Member Thickness	h_{min}	[mm]	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$			$h_{ef} + 2d_o$				
Min. Edge Distance	C_{min}	[mm]	35	40	45	50	60	65	75	80
Min. Spacing	S_{min}	[mm]	40	50	60	75	95	115	125	140

Steel Brush Dimensions

Anchor Size	D_a		m8	m10	m12	m16	m20	m24	m27	m30
Brush Diameter	D	[mm]	11,5	13,5	15,5	20	24	30	31,8	37
Min. Brush Diameter	D_{min}	[mm]	10,5	12,5	14,5	18,5	22,5	28,5	30,5	35,5
Piston Plug	#	[-]	No piston plug required			18	22	28	30	35

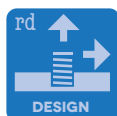


BIS-HY GEN2

Static and quasi-static resistance for a service life of 50 years (for a single anchor)

All data in this section subject to:

- Correct setting (see setting instructions).
 - No edge distance and spacing influence.
 - Standard embedment depth, as specified in the 'Installation Dimensions' table ($H_{ef,calc}$).
 - Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
 - Temperature range II: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
 - Shear loads are calculated without the influence of a lever arm.
 - $\psi_{sus} = 1,0$ according EN 1992-4:2018; eq. 7.14a and AS 5216:2021 section 6.2.5.2.
 - Recommended loads are with overall partial safety factor for action $\gamma_G = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations



Design Resistance Dry/Wet Holes (Compressed Air Cleaning)

Steel Decisive

Non-Cracked Concrete		D_a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N_{Rd}	[kN]	12,0	19,3	28,0	45,8	72,7	99,8	129,6	153,7
	Shear	V_{Rd}	[kN]	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
Steel 8.8	Tensile	N_{Rd}	[kN]	19,3	28,0	37,8	45,8	72,7	99,8	129,6	153,7
	Shear	V_{Rd}	[kN]	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
A4-50	Tensile	N_{Rd}	[kN]	6,3	10,1	14,7	27,6	43,0	61,9	80,4	98,3
	Shear	V_{Rd}	[kN]	3,8	6,3	8,8	16,4	25,6	37,0	48,3	58,8
A4-70	Tensile	N_{Rd}	[kN]	13,9	21,9	31,6	45,8	72,7	99,8	-	-
	Shear	V_{Rd}	[kN]	8,3	12,8	19,2	35,3	55,1	79,5	-	-

Cracked Concrete		D_a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N_{Rd}	[kN]	9,4	14,1	22,1	32,1	50,9	69,9	90,7	107,6
	Shear	V_{Rd}	[kN]	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
Steel 8.8	Tensile	N_{Rd}	[kN]	9,4	14,1	22,1	32,1	50,9	69,9	90,7	107,6
	Shear	V_{Rd}	[kN]	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
A4-50	Tensile	N_{Rd}	[kN]	6,3	10,1	14,7	27,6	43,0	61,9	80,4	98,3
	Shear	V_{Rd}	[kN]	3,8	6,3	8,8	16,4	25,6	37,0	48,3	58,8
A4-70	Tensile	N_{Rd}	[kN]	9,4	14,1	22,1	32,1	50,9	69,9	-	-
	Shear	V_{Rd}	[kN]	8,3	12,8	19,2	35,3	55,1	79,5	-	-

Design Resistance Dry/Wet Holes (Hollow Drilling)

Steel Decisive

Non-Cracked Concrete		D_a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N_{Rd}	[kN]	12,0	19,3	28,0	38,2	60,6	83,2	108,0	128,0
	Shear	V_{Rd}	[kN]	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
Steel 8.8	Tensile	N_{Rd}	[kN]	19,0	23,3	31,5	38,2	60,6	83,2	108,0	128,0
	Shear	V_{Rd}	[kN]	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
A4-50	Tensile	N_{Rd}	[kN]	6,3	10,1	14,7	27,6	43,0	61,9	80,4	98,3
	Shear	V_{Rd}	[kN]	3,8	6,3	8,8	16,4	25,6	37,0	48,3	58,8
A4-70	Tensile	N_{Rd}	[kN]	13,9	21,9	31,5	38,2	60,6	83,2	-	-
	Shear	V_{Rd}	[kN]	8,3	12,8	19,2	35,3	55,1	79,5	-	-



Design Resistance Dry/Wet Holes (Hollow Drilling, Cont'd)

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd}	[kN]	7,8	11,8	18,4	26,7	42,4	58,2	75,6	89,6
	Shear	V _{Rd}	[kN]	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
Steel 8.8	Tensile	N _{Rd}	[kN]	7,8	11,8	18,4	26,7	42,4	58,2	75,6	89,6
	Shear	V _{Rd}	[kN]	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
A4-50	Tensile	N _{Rd}	[kN]	6,3	10,1	14,7	26,7	42,4	58,2	75,6	89,6
	Shear	V _{Rd}	[kN]	3,8	6,3	8,8	16,4	25,6	37,0	48,3	58,8
A4-70	Tensile	N _{Rd}	[kN]	7,8	11,8	18,4	26,7	42,4	58,2	-	-
	Shear	V _{Rd}	[kN]	8,3	12,8	19,2	35,3	55,1	79,5	-	-

Design Resistance Flooded Holes

Steel Decisive

Non-Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd}	[kN]	12,0	19,3	27,0	32,7	51,9	71,3	92,6	109,8
	Shear	V _{Rd}	[kN]	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
Steel 8.8	Tensile	N _{Rd}	[kN]	16,3	20,0	27,0	32,7	51,9	71,3	92,6	109,8
	Shear	V _{Rd}	[kN]	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
A4-50	Tensile	N _{Rd}	[kN]	6,3	10,1	14,7	27,6	43,0	61,9	80,4	98,3
	Shear	V _{Rd}	[kN]	3,8	6,3	8,8	16,4	25,6	37,0	48,3	58,8
A4-70	Tensile	N _{Rd}	[kN]	13,9	20,0	27,0	32,7	51,9	71,3	-	-
	Shear	V _{Rd}	[kN]	8,3	12,8	19,2	35,3	55,1	79,5	-	-

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd}	[kN]	6,7	10,1	15,8	22,9	36,3	49,9	64,8	76,8
	Shear	V _{Rd}	[kN]	7,2	12,0	16,8	31,2	48,8	70,4	92,0	112,0
Steel 8.8	Tensile	N _{Rd}	[kN]	6,7	10,1	15,8	22,9	36,3	49,9	64,8	76,8
	Shear	V _{Rd}	[kN]	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
A4-50	Tensile	N _{Rd}	[kN]	6,3	10,1	14,7	22,9	36,3	49,9	64,8	76,8
	Shear	V _{Rd}	[kN]	3,8	6,3	8,8	16,4	25,6	37,0	48,3	58,8
A4-70	Tensile	N _{Rd}	[kN]	6,7	10,1	15,8	22,9	36,3	49,9	-	-
	Shear	V _{Rd}	[kN]	8,3	12,8	19,2	35,3	55,1	79,5	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department engineering@iccons.com.au for further information.



BIS-HY GEN2



Recommended Loads Dry/Wet Holes (Compressed Air Cleaning)

Non-Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	[kN]	8,6	13,8	20,0	32,7	51,9	71,3	92,6	109,8
	Shear	V _{rec}	[kN]	5,1	8,6	12,0	22,3	34,9	50,3	65,7	80,0
Steel 8.8	Tensile	N _{rec}	[kN]	13,8	20,0	27,0	32,7	51,9	71,3	92,6	109,8
	Shear	V _{rec}	[kN]	8,6	13,1	19,4	36,0	56,0	80,6	105,1	128,0
A4-50	Tensile	N _{rec}	[kN]	4,5	7,2	10,5	19,7	30,7	44,2	57,4	70,2
	Shear	V _{rec}	[kN]	2,7	4,5	6,3	11,7	18,3	26,4	34,5	42,0
A4-70	Tensile	N _{rec}	[kN]	9,9	15,7	22,5	32,7	51,9	71,3	-	-
	Shear	V _{rec}	[kN]	6,0	9,2	13,7	25,2	39,4	56,8	-	-

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	[kN]	6,7	10,1	15,8	22,9	36,3	49,9	64,8	76,8
	Shear	V _{rec}	[kN]	5,1	8,6	12,0	22,3	34,9	50,3	65,7	80,0
Steel 8.8	Tensile	N _{rec}	[kN]	6,7	10,1	15,8	22,9	36,3	49,9	64,8	76,8
	Shear	V _{rec}	[kN]	8,6	13,1	19,4	36,0	56,0	80,6	105,1	128,0
A4-50	Tensile	N _{rec}	[kN]	4,5	7,2	10,5	19,7	30,7	44,2	57,4	70,2
	Shear	V _{rec}	[kN]	2,7	4,5	6,3	11,7	18,3	26,4	34,5	42,0
A4-70	Tensile	N _{rec}	[kN]	6,7	10,1	15,8	22,9	36,3	49,9	-	-
	Shear	V _{rec}	[kN]	6,0	9,2	13,7	25,2	39,4	56,8	-	-

Recommended Loads Dry/Wet Holes (Hollow Drilling)

Non-Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	[kN]	8,6	13,8	20,0	27,3	43,3	59,4	77,2	91,5
	Shear	V _{rec}	[kN]	5,1	8,6	12,0	22,3	34,9	50,3	65,7	80,0
Steel 8.8	Tensile	N _{rec}	[kN]	13,6	16,7	22,5	27,3	43,3	59,4	77,2	91,5
	Shear	V _{rec}	[kN]	8,6	13,1	19,4	36,0	56,0	80,6	105,1	128,0
A4-50	Tensile	N _{rec}	[kN]	4,5	7,2	10,5	19,7	30,7	44,2	57,4	70,2
	Shear	V _{rec}	[kN]	2,7	4,5	6,3	11,7	18,3	26,4	34,5	42,0
A4-70	Tensile	N _{rec}	[kN]	9,9	15,7	22,5	27,3	43,3	59,4	-	-
	Shear	V _{rec}	[kN]	6,0	9,2	13,7	25,2	39,4	56,8	-	-

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	[kN]	5,6	8,4	13,2	19,1	30,3	41,6	54,0	64,0
	Shear	V _{rec}	[kN]	5,1	8,6	12,0	22,3	34,9	50,3	65,7	80,0
Steel 8.8	Tensile	N _{rec}	[kN]	5,6	8,4	13,2	19,1	30,3	41,6	54,0	64,0
	Shear	V _{rec}	[kN]	8,6	13,1	19,4	36,0	56,0	80,6	105,1	128,0
A4-50	Tensile	N _{rec}	[kN]	4,5	7,2	10,5	19,1	30,3	41,6	54,0	64,0
	Shear	V _{rec}	[kN]	2,7	4,5	6,3	11,7	18,3	26,4	34,5	42,0
A4-70	Tensile	N _{rec}	[kN]	5,6	8,4	13,2	19,1	30,3	41,6	-	-
	Shear	V _{rec}	[kN]	6,0	9,2	13,7	25,2	39,4	56,8	-	-



Recommended Loads Flooded Holes

Non-Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	[kN]	8,6	13,8	19,3	23,4	37,1	50,9	66,1	78,4
	Shear	V _{rec}	[kN]	5,1	8,6	12,0	22,3	34,9	50,3	65,7	80,0
Steel 8.8	Tensile	N _{rec}	[kN]	11,6	14,3	19,3	23,4	37,1	50,9	66,1	78,4
	Shear	V _{rec}	[kN]	8,6	13,1	19,4	36,0	56,0	80,6	105,1	128,0
A4-50	Tensile	N _{rec}	[kN]	4,5	7,2	10,5	19,7	30,7	44,2	57,4	70,2
	Shear	V _{rec}	[kN]	2,7	4,5	6,3	11,7	18,3	26,4	34,5	42,0
A4-70	Tensile	N _{rec}	[kN]	9,9	14,3	19,3	23,4	37,1	50,9	-	-
	Shear	V _{rec}	[kN]	6,0	9,2	13,7	25,2	39,4	56,8	-	-

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	[kN]	4,8	7,2	11,3	16,4	26,0	35,6	46,3	54,9
	Shear	V _{rec}	[kN]	5,1	8,6	12,0	22,3	34,9	50,3	65,7	80,0
Steel 8.8	Tensile	N _{rec}	[kN]	4,8	7,2	11,3	16,4	26,0	35,6	46,3	54,9
	Shear	V _{rec}	[kN]	8,6	13,1	19,4	36,0	56,0	80,6	105,1	128,0
A4-50	Tensile	N _{rec}	[kN]	4,5	7,2	10,5	16,4	26,0	35,6	46,3	54,9
	Shear	V _{rec}	[kN]	2,7	4,5	6,3	11,7	18,3	26,4	34,5	42,0
A4-70	Tensile	N _{rec}	[kN]	4,8	7,2	11,3	16,4	26,0	35,6	-	-
	Shear	V _{rec}	[kN]	6,0	9,2	13,7	25,2	39,4	56,8	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department engineering@iccons.com.au for further information.

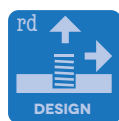


BIS-HY GEN2

Static and quasi-static resistance for a service life of 100 years (for a single anchor)

All data in this section subject to:

- Correct setting (see setting instructions).
 - No edge distance and spacing influence.
 - Standard embedment depth ($h_{ef,calc}$), as specified in the 'Installation Dimensions' table.
 - Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
 - Temperature range I: (max. long/short term temperature $+24^\circ\text{C}/+40^\circ\text{C}$).
 - Temperature range II: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
 - Shear loads are calculated without the influence of a lever arm.
 - $\psi_{SUS} = 1,0$ according EN 1992-4:2018; eq. 7.14a and AS 5216:2021 section 6.2.5.2.
 - Recommended loads are with overall partial safety factor for action $\gamma_G = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.



Design Resistance Dry/Wet Holes (Hammer Drilled - CAC)

Steel Decisive

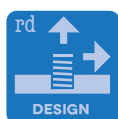
Non-Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd}	(kN)	12,00	19,30	28,00	45,80	72,69	99,80	129,64	153,66
	Shear	V _{Rd}	(kN)	8,80	13,60	20,00	37,60	59,20	84,80	110,40	134,40
Steel 8.8	Tensile	N _{Rd}	(kN)	19,30	28,00	37,80	45,80	72,69	99,80	129,64	153,66
	Shear	V _{Rd}	(kN)	12,00	18,40	27,20	50,40	78,40	112,80	147,20	179,20
A4-50	Tensile	N _{Rd}	(kN)	6,30	10,10	14,70	27,60	43,00	61,89	80,42	98,25
	Shear	V _{Rd}	(kN)	3,80	6,30	8,80	16,40	25,63	36,98	48,32	58,82
A4-70	Tensile	N _{Rd}	(kN)	13,90	21,90	31,60	45,80	72,70	99,80	-	-
	Shear	V _{Rd}	(kN)	8,30	12,80	19,20	35,30	55,10	79,49	-	-

Design Resistance Dry/Wet Holes (Hammer Drilled - CAC only)

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd}	(kN)	7,40	11,30	17,97	27,20	46,29	68,61	90,75	107,56
	Shear	V _{Rd}	(kN)	8,80	13,60	20,00	37,60	59,20	84,80	110,40	134,40
Steel 8.8	Tensile	N _{Rd}	(kN)	7,40	11,30	17,97	27,20	49,26	68,61	90,75	107,56
	Shear	V _{Rd}	(kN)	12,00	18,40	27,20	50,40	78,40	112,80	147,20	179,20
A4-50	Tensile	N _{Rd}	(kN)	6,30	10,10	14,70	27,20	43,01	61,89	80,42	98,25
	Shear	V _{Rd}	(kN)	3,80	6,30	8,80	16,40	25,63	36,98	48,32	58,82
A4-70	Tensile	N _{Rd}	(kN)	7,40	11,30	17,97	27,20	46,29	68,61	-	-
	Shear	V _{Rd}	(kN)	8,30	12,80	19,20	35,30	55,13	79,49	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS® DesignPro software or contact ICCONS® engineering department engineering@iccons.com.au for further information.



Design Resistance Flooded Holes (Hammer Drilled - CAC)

Steel Decisive

Non - Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd}	(kN)	12,00	19,30	27,00	32,70	51,92	71,29	92,60	109,76
	Shear	V _{Rd}	(kN)	8,80	13,60	20,00	37,60	59,20	84,80	110,40	134,40
Steel 8.8	Tensile	N _{Rd}	(kN)	16,30	20,00	27,00	32,70	51,92	71,29	92,60	109,76
	Shear	V _{Rd}	(kN)	12,00	18,40	27,20	50,40	78,40	112,80	147,20	179,20
A4-50	Tensile	N _{Rd}	(kN)	6,30	10,10	14,70	27,60	43,01	61,89	80,42	98,25
	Shear	V _{Rd}	(kN)	3,80	6,30	8,80	16,40	25,63	36,98	48,32	58,82
A4-70	Tensile	N _{Rd}	(kN)	13,90	20,00	27,00	32,70	51,92	71,29	-	-
	Shear	V _{Rd}	(kN)	8,30	12,80	19,20	35,30	55,13	79,49	-	-

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd}	(kN)	5,30	8,10	12,80	19,50	33,06	49,01	64,82	76,83
	Shear	V _{Rd}	(kN)	8,80	13,60	20,00	37,60	59,20	84,80	110,40	134,40
Steel 8.8	Tensile	N _{Rd}	(kN)	5,30	8,10	12,80	19,50	33,06	49,01	64,82	76,83
	Shear	V _{Rd}	(kN)	12,00	18,40	27,20	50,40	78,40	112,80	147,20	179,20
A4-50	Tensile	N _{Rd}	(kN)	5,30	8,10	12,80	19,50	33,06	49,01	64,82	76,83
	Shear	V _{Rd}	(kN)	3,80	6,30	8,80	16,40	25,63	36,98	48,32	58,83
A4-70	Tensile	N _{Rd}	(kN)	5,30	8,10	12,80	19,50	33,06	49,01	-	-
	Shear	V _{Rd}	(kN)	8,30	12,80	19,20	35,30	55,13	79,49	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department engineering@iccons.com.au for further information.

TDS 2018.3



BIS-HY GEN2

Static and quasi-static resistance for a service life of 100 years (for a single anchor)

All data in this section subject to:

- Correct setting (see setting instructions).
 - No edge distance and spacing influence.
 - Standard embedment depth ($h_{ef,calc}$), as specified in the 'Installation Dimensions' table.
 - Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
 - Temperature range I: (max. long/short term temperature $+24^\circ\text{C}/+40^\circ\text{C}$).
 - Temperature range II: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
 - Shear loads are calculated without the influence of a lever arm.
 - $\psi_{SUS} = 1,0$ according EN 1992-4:2018; eq. 7.14a and AS 5216:2021 section 6.2.5.2.
 - Recommended loads are with overall partial safety factor for action $\gamma_G = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.



Recommended Loads Dry/wet Holes (Hammer Drilled)

Non-Cracked Concrete		D _a		M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N _{rec}	(kN)	8,57	13,79	20,00	32,71	51,92	71,29	92,60	109,76
	Shear	V _{rec}	(kN)	6,29	9,71	14,29	26,86	42,29	60,57	78,86	96,00
Steel 8.8	Tensile	N _{rec}	(kN)	13,79	20,00	27,00	32,71	51,92	71,29	92,60	109,76
	Shear	V _{rec}	(kN)	8,57	13,14	19,43	36,00	56,00	80,57	105,14	128,00
A4-50	Tensile	N _{rec}	(kN)	4,50	7,21	10,50	19,71	30,71	44,21	57,44	70,18
	Shear	V _{rec}	(kN)	2,71	4,50	6,29	11,71	18,31	26,41	34,51	42,01
A4-70	Tensile	N _{rec}	(kN)	9,93	15,64	22,57	32,71	51,93	71,29	-	-
	Shear	V _{rec}	(kN)	5,93	9,14	13,71	25,21	39,36	56,78	-	-

Recommended Loads Dry/Wet Holes (Hammer Drilled - CAC only)

Cracked Concrete		D _a		M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N _{rec}	(kN)	5,29	8,07	12,84	19,43	33,06	49,01	64,82	76,83
	Shear	V _{rec}	(kN)	6,29	9,71	14,29	26,86	42,29	60,57	78,86	96,00
Steel 8.8	Tensile	N _{rec}	(kN)	5,29	8,07	12,84	19,43	35,19	49,01	64,82	76,83
	Shear	V _{rec}	(kN)	8,57	13,14	19,43	36,00	56,00	80,57	105,14	128,00
A4-50	Tensile	N _{rec}	(kN)	4,50	7,21	10,50	19,43	30,72	44,21	57,44	70,18
	Shear	V _{rec}	(kN)	2,71	4,50	6,29	11,71	18,31	26,41	34,51	42,01
A4-70	Tensile	N _{rec}	(kN)	5,29	8,07	12,84	19,43	33,06	49,01	-	-
	Shear	V _{rec}	(kN)	5,93	9,14	13,71	25,21	39,38	56,78	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS® DesignPro software or contact ICCONS® engineering department engineering@iccons.com.au for further information.



Recommended Loads Flooded Holes (Hammer Drilled)

Non - Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	(kN)	8,57	13,79	19,29	23,36	37,09	50,92	66,14	78,40
	Shear	V _{rec}	(kN)	6,29	9,71	14,29	26,86	42,29	60,57	78,86	96,00
Steel 8.8	Tensile	N _{rec}	(kN)	11,64	14,29	19,29	23,36	37,09	50,92	66,14	78,40
	Shear	V _{rec}	(kN)	8,57	13,14	19,43	36,00	56,00	80,57	105,14	128,00
A4-50	Tensile	N _{rec}	(kN)	4,50	7,21	10,50	19,71	30,72	44,21	57,44	70,18
	Shear	V _{rec}	(kN)	2,71	4,50	6,29	11,71	18,31	26,41	34,51	42,01
A4-70	Tensile	N _{rec}	(kN)	9,93	14,29	19,29	23,36	37,09	50,92	-	-
	Shear	V _{rec}	(kN)	5,93	9,14	13,71	25,21	39,38	56,78	-	-

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{rec}	(kN)	3,79	5,79	9,14	13,93	23,61	35,01	46,30	54,88
	Shear	V _{rec}	(kN)	6,29	9,71	14,29	26,86	42,29	60,57	78,86	96,00
Steel 8.8	Tensile	N _{rec}	(kN)	3,79	5,79	9,14	13,93	23,61	35,01	46,30	54,88
	Shear	V _{rec}	(kN)	8,57	13,14	19,43	36,00	56,00	80,57	105,14	128,00
A4-50	Tensile	N _{rec}	(kN)	3,79	5,79	9,14	13,93	23,61	35,01	46,30	54,88
	Shear	V _{rec}	(kN)	2,71	4,50	6,29	11,71	18,31	26,41	34,51	42,02
A4-70	Tensile	N _{rec}	(kN)	3,79	5,79	9,14	13,93	23,61	35,01	-	-
	Shear	V _{rec}	(kN)	5,93	9,14	13,71	25,21	39,38	56,78	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department **engineering@iccons.com.au** for further information.

TDS 2018.3



BIS-HY GEN2

Seismic resistance for a service life of 50 years (for a single anchor)

All data in this section subject to:

- Correct setting (see setting instructions).
- No edge distance and spacing influence.
- Standard embedment depth, as specified in the 'Installation Dimensions' table.
- Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
- Temperature range I: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
- Shear loads are calculated without the influence of a lever arm.
- $\alpha_{gap} = 1,0$ (using special filling washer according ETA-19/0131 Annex A 3).
- Increasing factors for concrete ψ_c : C25/30 to C50/60 = **1,0**



Design Resistance Dry/Wet Holes in case of seismic performance category C1 (Compressed Air Cleaning)

Steel Decisive

Cracked Concrete		D_a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	$N_{Rd,eq,C1}$	[kN]	9,4	14,1	22,1	27,3	43,3	59,4	77,1	91,4
	Shear	$V_{Rd,eq,C1}$	[kN]	5,0	8,4	11,8	21,8	34,2	49,3	64,4	78,4
Steel 8.8	Tensile	$N_{Rd,eq,C1}$	[kN]	9,4	14,1	22,1	27,3	43,3	59,4	77,1	91,4
	Shear	$V_{Rd,eq,C1}$	[kN]	8,4	12,9	19,0	35,3	54,9	79,0	103,0	125,4
A4-50	Tensile	$N_{Rd,eq,C1}$	[kN]	6,3	10,1	14,7	27,3	43,0	59,4	77,1	91,4
	Shear	$V_{Rd,eq,C1}$	[kN]	2,6	4,4	6,2	11,5	17,9	25,9	33,8	41,2
A4-70	Tensile	$N_{Rd,eq,C1}$	[kN]	9,4	14,1	22,1	27,3	43,3	59,4	-	-
	Shear	$V_{Rd,eq,C1}$	[kN]	5,8	9,0	13,5	24,7	38,6	55,6	-	-

Design Resistance Dry/Wet Holes in case of seismic performance category C1 (Hollow Drilling)

Steel Decisive

Cracked Concrete		D_a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	$N_{Rd,eq,C1}$	[kN]	7,8	11,8	18,4	22,7	36,0	49,5	64,3	76,2
	Shear	$V_{Rd,eq,C1}$	[kN]	5,0	8,4	11,8	21,8	34,2	49,3	64,4	78,4
Steel 8.8	Tensile	$N_{Rd,eq,C1}$	[kN]	7,8	11,8	18,4	22,7	36,0	49,5	64,3	76,2
	Shear	$V_{Rd,eq,C1}$	[kN]	8,4	12,9	19,0	35,3	54,9	79,0	103,0	125,4
A4-50	Tensile	$N_{Rd,eq,C1}$	[kN]	6,3	10,1	14,7	22,7	36,0	49,5	64,3	76,2
	Shear	$V_{Rd,eq,C1}$	[kN]	2,6	4,4	6,2	11,5	17,9	25,9	33,8	41,2
A4-70	Tensile	$N_{Rd,eq,C1}$	[kN]	7,8	11,8	18,4	22,7	36,0	49,5	-	-
	Shear	$V_{Rd,eq,C1}$	[kN]	5,8	9,0	13,5	24,7	38,6	55,6	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS® DesignPro software or contact ICCONS® engineering department **engineering@iccons.com.au** for further information.



Design Resistance Flooded Holes in case of seismic performance category C1

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	N _{Rd,eq,C1}	[kN]	6,7	10,1	15,8	19,5	30,9	42,4	55,1	65,3
	Shear	V _{Rd,eq,C1}	[kN]	5,0	8,4	11,8	21,8	34,2	49,3	64,4	78,4
Steel 8.8	Tensile	N _{Rd,eq,C1}	[kN]	6,7	10,1	15,8	19,5	30,9	42,4	55,1	65,3
	Shear	V _{Rd,eq,C1}	[kN]	8,4	12,9	19,0	35,3	54,9	79,0	103,0	125,4
A4-50	Tensile	N _{Rd,eq,C1}	[kN]	6,3	10,1	14,7	19,5	30,9	42,4	55,1	65,3
	Shear	V _{Rd,eq,C1}	[kN]	2,6	4,4	6,2	11,5	17,9	25,9	33,8	41,2
A4-70	Tensile	N _{Rd,eq,C1}	[kN]	6,7	10,1	15,8	19,5	30,9	42,4	-	-
	Shear	V _{Rd,eq,C1}	[kN]	5,8	9,0	13,5	24,7	38,6	55,6	-	-



Design Resistance Dry/Wet Holes in case of seismic performance category C2 (Compressed Air Cleaning)

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 8.8	Tensile	N _{Rd,eq,C2}	[kN]	-	-	10,0	14,7	23,5	24,3	-	-
	Shear	V _{Rd,eq,C2}	[kN]	-	-	16,9	24,9	39,9	41,3	-	-
A4-70	Tensile	N _{Rd,eq,C2}	[kN]	-	-	10,0	14,7	23,5	24,3	-	-
	Shear	V _{Rd,eq,C2}	[kN]	-	-	13,5	24,7	38,6	41,3	-	-

Design Resistance Dry/Wet Holes in case of seismic performance category C2 (Hollow Drilling)

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 8.8	Tensile	N _{Rd,eq,C2}	[kN]	-	-	8,3	12,2	19,6	20,2	-	-
	Shear	V _{Rd,eq,C2}	[kN]	-	-	16,9	24,9	39,9	41,3	-	-
A4-70	Tensile	N _{Rd,eq,C2}	[kN]	-	-	8,3	12,2	19,6	20,2	-	-
	Shear	V _{Rd,eq,C2}	[kN]	-	-	13,5	24,7	38,6	41,3	-	-

Design Resistance Flooded Holes in case of seismic performance category C2

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 8.8	Tensile	N _{Rd,eq,C2}	[kN]	-	-	7,1	10,5	16,8	17,3	-	-
	Shear	V _{Rd,eq,C2}	[kN]	-	-	16,9	24,9	39,9	41,3	-	-
A4-70	Tensile	N _{Rd,eq,C2}	[kN]	-	-	7,1	10,5	16,8	17,3	-	-
	Shear	V _{Rd,eq,C2}	[kN]	-	-	13,5	24,7	38,6	41,3	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department **engineering@iccons.com.au** for further information.

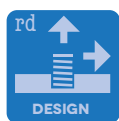


BIS-HY GEN2

Seismic resistance for a service life of 100 years (for a single anchor)

All data in this section subject to:

- Correct setting (see setting instructions).
- No edge distance and spacing influence.
- Standard embedment depth ($h_{ef,calc}$), as specified in the 'Installation Dimensions' table.
- Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
- Temperature range I: (max. long/short term temperature $+24^\circ\text{C}/+40^\circ\text{C}$).
- Temperature range II: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
- Shear loads are calculated without the influence of a lever arm.
- $\alpha_{gap} = 1,0$ (using special filling washer according ETA-19/0131 Annex A 3).
- Increasing factors for concrete ψ_c : C25/30 to C50/60 = 1,0



Design Resistance Dry/Wet Holes in case of seismic performance category C1 (Hammer Drilled - CAC)

Steel Decisive

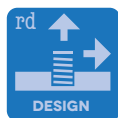
Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	$N_{Rd,eq,C1}$	(kN)	9.38	14.14	22.12	27.27	43.25	59.38	77.13	91.43
	Shear	$V_{Rd,eq,C1}$	(kN)	6.16	9.52	14.00	26.32	41.44	59.36	77.28	94.08
Steel 8.8	Tensile	$N_{Rd,eq,C1}$	(kN)	9.38	14.14	22.12	27.27	43.25	59.38	77.13	91.43
	Shear	$V_{Rd,eq,C1}$	(kN)	8.40	12.88	19.04	35.28	54.88	78.96	103.04	125.44
A4-50	Tensile	$N_{Rd,eq,C1}$	(kN)	6.29	10.14	14.69	27.27	43.00	59.38	77.13	91.43
	Shear	$V_{Rd,eq,C1}$	(kN)	2.65	4.41	6.18	11.47	17.94	25.88	33.82	41.18
A4-70	Tensile	$N_{Rd,eq,C1}$	(kN)	9.38	14.14	22.12	27.27	43.25	59.38	-	-
	Shear	$V_{Rd,eq,C1}$	(kN)	5.83	8.97	13.46	24.68	38.59	55.64	-	-

Design Resistance Flooded Holes in case of seismic performance category C1 (Hammer Drilled)

Steel Decisive

Cracked Concrete		D _a		m8	m10	m12	m16	m20	m24	m27	m30
Steel 5.8	Tensile	$N_{Rd,eq,C1}$	(kN)	6.70	10.10	15.80	19.48	30.89	42.42	55.10	65.30
	Shear	$V_{Rd,eq,C1}$	(kN)	6.16	9.52	14.00	26.32	41.44	59.36	77.28	94.08
Steel 8.8	Tensile	$N_{Rd,eq,C1}$	(kN)	6.70	10.10	15.80	19.48	30.89	42.42	55.10	65.30
	Shear	$V_{Rd,eq,C1}$	(kN)	8.40	12.88	19.04	35.28	54.88	78.96	103.04	125.44
A4-50	Tensile	$N_{Rd,eq,C1}$	(kN)	6.29	10.10	14.69	19.48	30.89	42.42	55.10	65.30
	Shear	$V_{Rd,eq,C1}$	(kN)	2.65	4.41	6.18	11.47	17.94	25.88	33.82	41.18
A4-70	Tensile	$N_{Rd,eq,C1}$	(kN)	6.70	10.10	15.80	19.48	30.89	42.42	-	-
	Shear	$V_{Rd,eq,C1}$	(kN)	5.83	8.97	13.46	24.68	38.59	55.64	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS® DesignPro software or contact ICCONS® engineering department engineering@iccons.com.au for further information.



Design Resistance Dry/Wet Holes in case of seismic performance category C2 (Hammer Drilled - CAC)

Steel Decisive

Cracked Concrete		Dα		M8	M10	M12	M16	M20	M24	M27	M30
Steel 8.8	Tensile	$N_{Rd,eq,C2}$	(kN)	-	-	9.95	14.66	23.50	24.28	-	-
	Shear	$V_{Rd,eq,C2}$	(kN)	-	-	14.10	24.92	38.66	35.38	-	-
A4-70	Tensile	$N_{Rd,eq,C2}$	(kN)	-	-	9.95	14.66	23.50	24.28	-	-
	Shear	$V_{Rd,eq,C2}$	(kN)	-	-	11.22	24.68	37.35	35.38	-	-

Design Resistance Flooded Holes in case of seismic performance category C2 (Hammer Drilled)

Steel Decisive

Cracked Concrete		Dα		M8	M10	M12	M16	M20	M24	M27	M30
Steel 8.8	Tensile	$N_{Rd,eq,C2}$	(kN)	-	-	7.11	10.47	16.79	17.34	-	-
	Shear	$V_{Rd,eq,C2}$	(kN)	-	-	14.10	24.92	38.66	35.38	-	-
A4-70	Tensile	$N_{Rd,eq,C2}$	(kN)	-	-	7.11	10.47	16.79	17.34	-	-
	Shear	$V_{Rd,eq,C2}$	(kN)	-	-	11.22	24.68	37.35	35.38	-	-

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department engineering@iccons.com.au for further information.

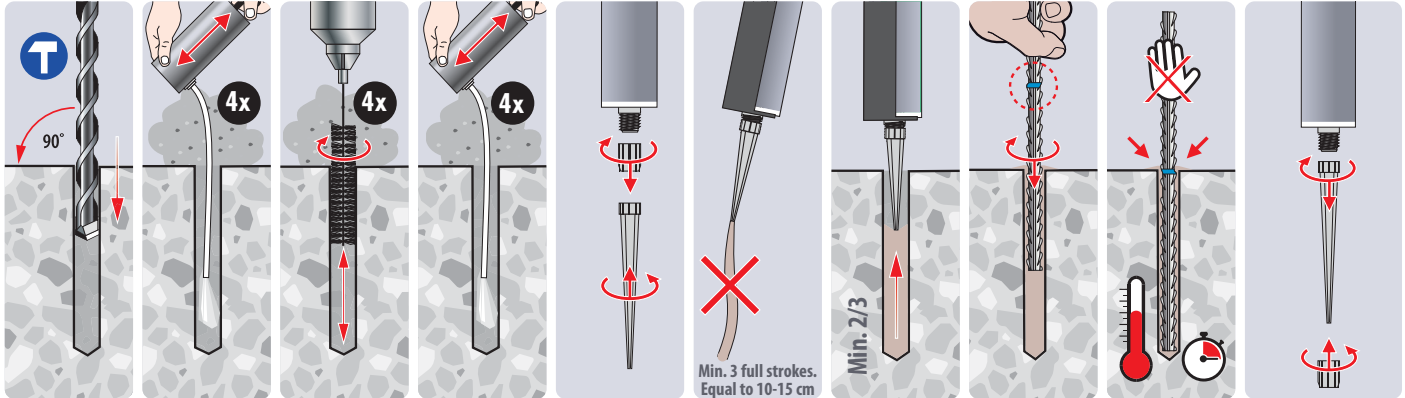
TDS 2018.3



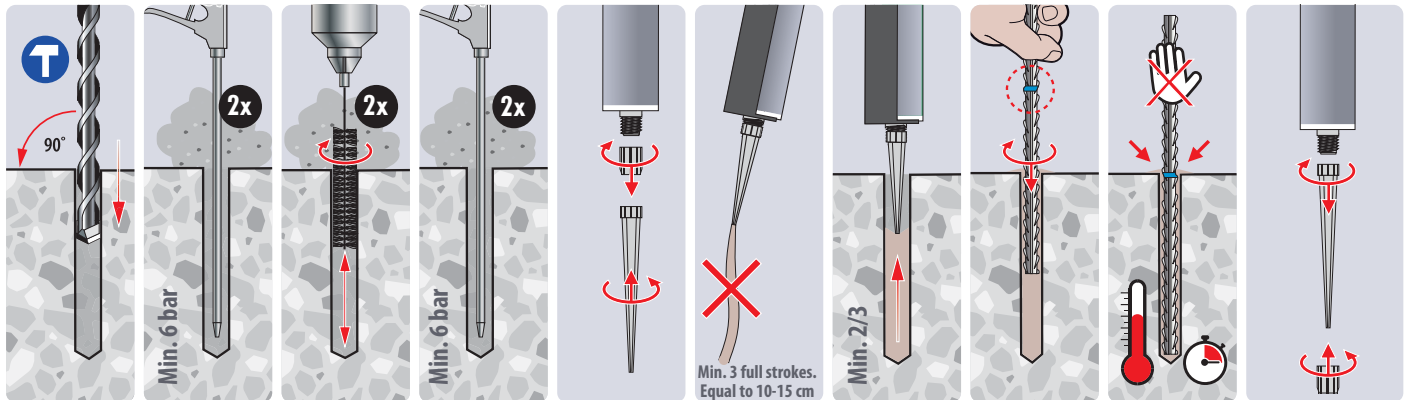
BIS-HY GEN2

Installation Procedures (Hand Pump Cleaning)

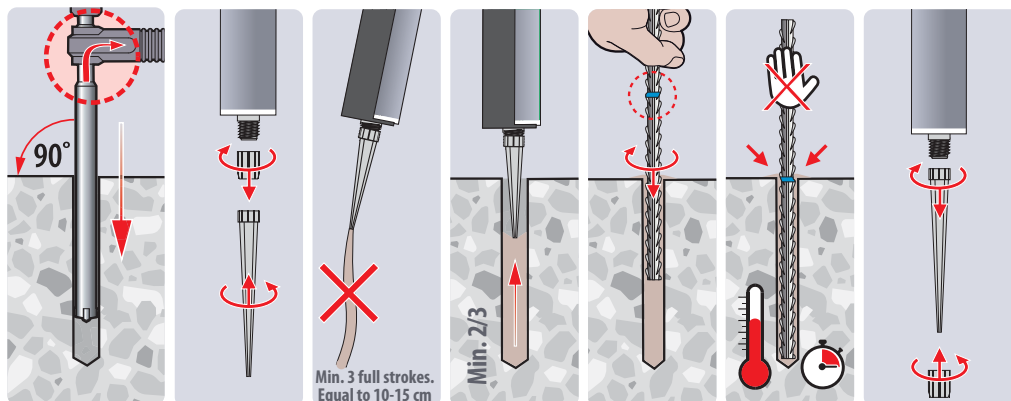
Hand Pump Cleaning for bore hole diameter $d_0 \leq 20\text{mm}$, bore hole depth $h_0 \leq 10d_{\text{nom}}$ and Non-Cracked Concrete only.



Installation Procedures (Compressed Air Cleaning)



Installation Procedures (Hollow Drilling) - Heller Duster Expert Hollow Drill Bits



Curing Times¹⁾

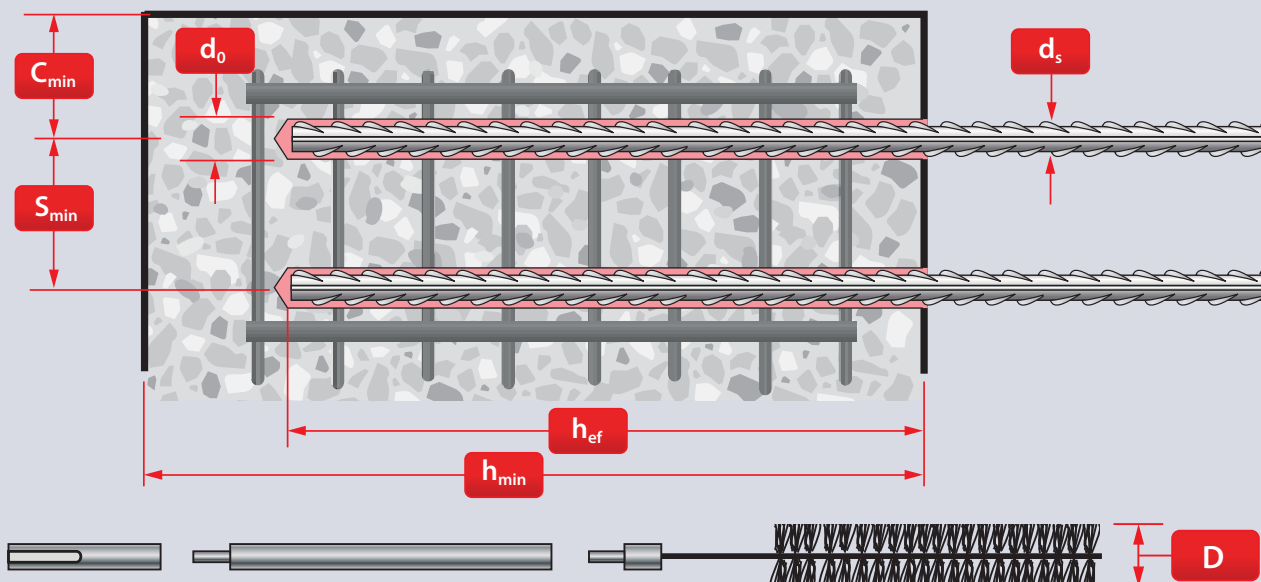
Temperature ²⁾	°C	-5 to -1	0 to +4	+5 to +9	+10 to +14	+15 to +19	+20 to +29	+30 to +40
Processing/Working Time		50 min	25 min	15 min	10 min	6 min	3 min	2 min
Curing Time Dry Holes		5 h	3,5 h	2 h	1h	40 min	30 min	30 min
Curing Time Wet Holes		10 h	7 h	4 h	2h	80 min	60 min	60 min

1) Cartridge Temperature must be between +5°C and +40°C. 2) Concrete Temperature



Specification Data for the use in Cracked & Uncracked Concrete and Hammer/Air Drilled Holes according to EN 1992-4:2018 , AS 5216:2021 and Technical Report TR 055

For Post-Installed Rebar Connections Design in Accordance with AEFAC Technical Note and AS 3600 please refer to ICCONS Doc: BIS-HY GEN2-REBAR-Post-Installed-AEFAC-Tech-Note



Installation Dimensions

Rebar Size	d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
Min. Eff. Anchorage Depth	$h_{ef,min}$	[mm]	60	60	70	75	80	90	96	100	112	128
Max. Eff. Anchorage Depth	$h_{ef,max}$	[mm]	160	200	240	280	320	400	480	500	560	640
Hole Diameter	d_0	[mm]	12	14	16	18	20	25	32	32	35	40
Required Volume per cm Embedment Depth	V_s	[ml/cm]	0,75	0,90	1,06	1,21	1,36	2,12	4,22	3,76	4,16	5,43

Member Thickness, Edge Distance & Spacing

Rebar Size	d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
Min. Member Thickness	h_{min}	[mm]	$h_{ef} + 30 \text{ mm}$ $\geq 100 \text{ mm}$		$h_{ef} + 2d_0$							
Min. Edge Distance	C_{min}	[mm]	35	40	45	50	50	60	70	70	75	85
Min. Spacing	S_{min}	[mm]	40	50	60	70	75	95	120	120	130	150

Steel Brush & Piston Plug Dimensions

Rebar Size	d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
Brush Diameter	D	[mm]	13,5	15,5	17,5	20,0	20,0	27,0	34,0	34,0	37,0	43,5
Min. Brush Diameter	D_{min}	[mm]	12,5	14,5	16,5	18,5	20,5	25,5	32,5	32,5	35,5	40,5
Piston Plug	#	--	No piston plug required			18	20	25	32	32	35	40

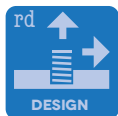


BIS-HY GEN2

Static and Quasi-static resistance for a service life of 50 years (for a single rebar)

All data in this section subject to:

- Correct setting (see setting instructions).
 - No edge distance and spacing influence.
 - Minimum and maximum embedment depth, as specified in the 'Installation Dimensions' table.
 - Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
 - Temperature range I: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
 - Shear loads are calculated without the influence of a lever arm.
 - $\psi_{sus} = 1,0$ according EN 1992-4:2018; eq. 7.14a and AS 5216:2021 section 6.2.5.2.
 - Recommended loads are with overall partial safety factor for action $\gamma_G = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.



Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS® DesignPro software or contact ICCONS® engineering department engineering@iccons.com.au for further information.

Design Resistance Dry/Wet Holes (Compressed Air Cleaning)

Steel Decisive

Non-Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,min}$	[kN]	14,1	15,2	19,2	21,3	23,5	28,0	30,8	32,8	38,9	47,5
	Tensile Max.	$N_{Rd,max}$	[kN]	19,7	30,9	44,4	60,5	79,0	123,4	177,7	192,8	241,9	316,0
	Shear Min.	$V_{Rd,min}$	[kN]	9,2	14,4	20,7	28,2	36,9	56,0	61,7	65,6	77,7	95,0
	Shear Max.	$V_{Rd,max}$	[kN]	9,2	14,4	20,7	28,2	36,9	57,6	82,9	90,0	112,9	147,4

Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,min}$	[kN]	5,5	6,9	10,6	14,3	16,4	19,6	21,6	23,0	27,2	33,2
	Tensile Max.	$N_{Rd,max}$	[kN]	14,7	23,0	36,2	53,4	69,7	108,9	156,8	183,3	229,9	300,3
	Shear Min.	$V_{Rd,min}$	[kN]	9,2	13,8	20,7	28,2	32,9	39,2	43,2	45,9	54,4	66,5
	Shear Max.	$V_{Rd,max}$	[kN]	9,2	14,4	20,7	28,2	36,9	57,6	82,9	90,0	112,9	147,4

Design Resistance Dry/Wet Holes (Hollow Drilling)

Steel Decisive

Non-Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,min}$	[kN]	11,7	12,7	16,0	17,8	19,6	23,3	25,7	27,3	32,4	39,6
	Tensile Max.	$N_{Rd,max}$	[kN]	19,7	30,9	44,4	60,5	79,0	123,4	177,7	192,8	241,9	316,0
	Shear Min.	$V_{Rd,min}$	[kN]	9,2	14,4	20,7	28,2	36,9	56,0	61,7	65,6	77,7	95,0
	Shear Max.	$V_{Rd,max}$	[kN]	9,2	14,4	20,7	28,2	36,9	57,6	82,9	90,0	112,9	147,4

Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,min}$	[kN]	4,6	5,8	8,8	11,9	13,7	16,3	18,0	19,1	22,7	27,7
	Tensile Max.	$N_{Rd,max}$	[kN]	12,3	19,2	30,2	44,5	58,1	90,8	130,7	152,7	191,6	250,2
	Shear Min.	$V_{Rd,min}$	[kN]	9,2	13,8	20,7	28,2	32,9	39,2	43,2	45,9	54,4	66,5
	Shear Max.	$V_{Rd,max}$	[kN]	9,2	14,4	20,7	28,2	36,9	57,6	82,9	90,0	112,9	147,4

Design Resistance (Flooded Holes)

Steel Decisive

Non-Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,min}$	[kN]	10,1	10,9	13,7	15,2	16,8	20,0	22,0	23,4	27,8	33,9
	Tensile Max.	$N_{Rd,max}$	[kN]	19,7	30,9	44,4	60,5	79,0	123,4	177,7	192,8	241,9	316,0
	Shear Min.	$V_{Rd,min}$	[kN]	9,2	14,4	20,7	28,2	36,9	56,0	61,7	65,6	77,7	95,0
	Shear Max.	$V_{Rd,max}$	[kN]	9,2	14,4	20,7	28,2	36,9	57,6	82,9	90,0	112,9	147,4



Design Resistance (Flooded Holes, Cont'd)

Steel Decisive

Cracked Concrete		d _{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	N _{Rd,min}	[kN]	3,9	4,9	7,5	10,2	11,7	14,0	15,4	16,4	19,4	23,7
	Tensile Max.	N _{Rd,max}	[kN]	10,5	16,5	25,9	38,1	49,8	77,8	112,0	130,9	164,2	214,5
	Shear Min.	V _{Rd,min}	[kN]	9,2	13,8	20,7	28,2	32,9	39,2	43,2	45,9	54,4	66,5
	Shear Max.	V _{Rd,max}	[kN]	9,2	14,4	20,7	28,2	36,9	57,6	82,9	90,0	112,9	147,4



Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department engineering@iccons.com.au for further information.

Recommended Loads Dry/Wet Holes (Compressed Air Cleaning)

Non-Cracked Concrete		d _{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	N _{rec,min}	[kN]	10,1	10,9	13,7	15,2	16,8	20,0	22,0	23,4	27,8	33,9
	Tensile Max.	N _{rec,max}	[kN]	14,1	22,0	31,7	43,2	56,4	88,2	126,9	137,7	172,8	225,7
	Shear Min.	V _{rec,min}	[kN]	6,6	10,3	14,8	20,2	26,3	40,0	44,1	46,9	55,5	67,8
	Shear Max.	V _{rec,max}	[kN]	6,6	10,3	14,8	20,2	26,3	41,1	59,2	64,3	80,6	105,3

Cracked Concrete		d _{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	N _{rec,min}	[kN]	3,9	4,9	7,5	10,2	11,7	14,0	15,4	16,4	19,4	23,7
	Tensile Max.	N _{rec,max}	[kN]	10,5	16,5	25,9	38,1	49,8	77,8	112,0	130,9	164,2	214,5
	Shear Min.	V _{rec,min}	[kN]	6,6	9,9	14,8	20,2	23,5	28,0	30,8	32,8	38,9	47,5
	Shear Max.	V _{rec,max}	[kN]	6,6	10,3	14,8	20,2	26,3	41,1	59,2	64,3	80,6	105,3

Recommended Loads Dry/Wet Holes (Hollow Drilling)

Non-Cracked Concrete		d _{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	N _{rec,min}	[kN]	8,4	9,1	11,4	12,7	14,0	16,7	18,4	19,5	23,1	28,3
	Tensile Max.	N _{rec,max}	[kN]	14,1	22,0	31,7	43,2	56,4	88,2	126,9	137,7	172,8	225,7
	Shear Min.	V _{rec,min}	[kN]	6,6	10,3	14,8	20,2	26,3	40,0	44,1	46,9	55,5	67,8
	Shear Max.	V _{rec,max}	[kN]	6,6	10,3	14,8	20,2	26,3	41,1	59,2	64,3	80,6	105,3

Cracked Concrete		d _{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	N _{rec,min}	[kN]	3,3	4,1	6,3	8,5	9,8	11,7	12,9	13,7	16,2	19,8
	Tensile Max.	N _{rec,max}	[kN]	8,8	13,7	21,5	31,8	41,5	64,8	93,4	109,1	136,8	178,7
	Shear Min.	V _{rec,min}	[kN]	6,6	9,9	14,8	20,2	23,5	28,0	30,8	32,8	38,9	47,5
	Shear Max.	V _{rec,max}	[kN]	6,6	10,3	14,8	20,2	26,3	41,1	59,2	64,3	80,6	105,3

Recommended Loads (Flooded Holes)

Non-Cracked Concrete		d _{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	N _{rec,min}	[kN]	7,2	7,8	9,8	10,9	12,0	14,3	15,7	16,7	19,8	24,2
	Tensile Max.	N _{rec,max}	[kN]	14,1	22,0	31,7	43,2	56,4	88,2	126,9	137,7	172,8	225,7
	Shear Min.	V _{rec,min}	[kN]	6,6	10,3	14,8	20,2	26,3	40,0	44,1	46,9	55,5	67,8
	Shear Max.	V _{rec,max}	[kN]	6,6	10,3	14,8	20,2	26,3	41,1	59,2	64,3	80,6	105,3

Cracked Concrete		d _{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	N _{rec,min}	[kN]	2,8	3,5	5,4	7,3	8,4	10,0	11,0	11,7	13,9	17,0
	Tensile Max.	N _{rec,max}	[kN]	7,5	11,8	18,5	27,2	35,6	55,6	80,0	93,5	117,3	153,2
	Shear Min.	V _{rec,min}	[kN]	6,6	9,9	14,8	20,2	23,5	28,0	30,8	32,8	38,9	47,5
	Shear Max.	V _{rec,max}	[kN]	6,6	10,3	14,8	20,2	26,3	41,1	59,2	64,3	80,6	105,3

TDS 2018.3

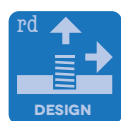


BIS-HY GEN2

Static and quasi-static resistance for a service life of 100 years (for a single rebar)

All data in this section subject to:

- Correct setting (see setting instructions).
 - No edge distance and spacing influence.
 - Minimum and maximum embedment depth, as specified in the 'Installation Dimensions' table.
 - Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
 - Temperature range I: (max. long/short term temperature $+24^\circ\text{C}/+40^\circ\text{C}$).
 - Temperature range II: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
 - Shear loads are calculated without the influence of a lever arm.
 - $\psi_{\text{SUS}} = 1,0$ according EN 1992-4:2018; eq. 7.14a and AS 5216:2021 section 6.2.5.2.
 - Recommended loads are with overall partial safety factor for action $\gamma_G = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.



Design Resistance Dry/Wet Holes (Hammer Drilled - CAC)

Steel Decisive

Non-Cracked Concrete		D_{nom}		$\varnothing 10$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 24$	$\varnothing 28$	$\varnothing 32$
B500B	Tensile Min.	$N_{\text{Rd,min}}$	(kN)	15,24	19,20	23,47	28,00	30,85	38,87	47,49
	Tensile Max.	$N_{\text{Rd,max}}$	(kN)	30,00	43,57	77,86	121,43	174,29	237,86	310,00
	Shear Min.	$V_{\text{Rd,min}}$	(kN)	14,00	20,66	36,00	56,00	61,70	77,75	94,99
	Shear Max.	$V_{\text{Rd,max}}$	(kN)	14,00	20,66	36,00	56,67	81,33	110,67	144,67

Design Resistance Dry/Wet Holes (Hammer Drilled)

Steel Decisive

Cracked Concrete		D_{nom}		$\varnothing 10$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 24$	$\varnothing 28$	$\varnothing 32$
B500B	Tensile Min.	$N_{\text{Rd,min}}$	(kN)	5,66	7,92	12,06	15,08	19,30	26,27	33,25
	Tensile Max.	$N_{\text{Rd,max}}$	(kN)	18,83	27,14	48,23	67,02	96,45	131,36	171,57
	Shear Min.	$V_{\text{Rd,min}}$	(kN)	11,30	15,83	24,13	30,16	38,60	52,54	66,49
	Shear Max.	$V_{\text{Rd,max}}$	(kN)	14,00	20,67	36,00	56,67	81,33	110,67	144,67

Design Resistance Flooded Holes (Hammer Drilled)

Steel Decisive

Non-Cracked Concrete		D_{nom}		$\varnothing 10$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 24$	$\varnothing 28$	$\varnothing 32$
B500B	Tensile Min.	$N_{\text{Rd,min}}$	(kN)	10,89	13,70	16,76	20,00	22,03	27,77	33,92
	Tensile Max.	$N_{\text{Rd,max}}$	(kN)	30,00	43,60	77,86	121,43	174,29	237,86	310,00
	Shear Min.	$V_{\text{Rd,min}}$	(kN)	14,00	20,66	36,00	56,00	61,70	77,75	94,99
	Shear Max.	$V_{\text{Rd,max}}$	(kN)	14,00	20,70	36,00	56,67	81,33	110,67	144,67

Design Resistance Flooded Holes (Hammer Drilled)

Steel Decisive

Cracked Concrete		D_{nom}		$\varnothing 10$	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 24$	$\varnothing 28$	$\varnothing 32$
B500B	Tensile Min.	$N_{\text{Rd,min}}$	(kN)	4,04	5,66	8,62	10,77	13,79	18,77	23,75
	Tensile Max.	$N_{\text{Rd,max}}$	(kN)	13,45	19,38	34,45	47,87	68,89	93,83	122,55
	Shear Min.	$V_{\text{Rd,min}}$	(kN)	11,30	15,83	24,13	30,16	38,60	52,54	66,49
	Shear Max.	$V_{\text{Rd,max}}$	(kN)	14,00	20,67	36,00	56,67	81,33	110,67	144,67

TDS 2018.3



Recommended Loads Dry/Wet Holes (Hammer Drilled)

Non-Cracked Concrete		D _{nom}		ø10	ø12	ø16	ø20	ø24	ø28	ø32
B500B	Tensile Min.	N _{rec,min}	(kN)	10,89	13,71	16,76	20,00	22,04	27,76	33,92
	Tensile Max.	N _{rec,max}	(kN)	21,43	31,12	55,61	86,74	124,49	169,90	221,43
	Shear Min.	V _{rec,min}	(kN)	10,00	14,76	25,71	40,00	44,07	55,54	67,85
	Shear Max.	V _{rec,max}	(kN)	10,00	14,76	25,71	40,48	58,09	79,05	103,34

Recommended Loads Dry/Wet Holes (Hammer Drilled)

Cracked Concrete		D _{nom}		ø10	ø12	ø16	ø20	ø24	ø28	ø32
B500B	Tensile Min.	N _{rec,min}	(kN)	4,04	5,66	8,61	10,77	13,79	18,76	23,75
	Tensile Max.	N _{rec,max}	(kN)	13,45	19,39	34,45	47,87	68,89	93,83	122,55
	Shear Min.	V _{rec,min}	(kN)	8,07	11,31	17,24	21,54	27,57	37,53	47,49
	Shear Max.	V _{rec,max}	(kN)	10,00	14,76	25,71	40,48	58,09	79,05	103,34

Recommended Loads Flooded Holes (Hammer Drilled)

Non-Cracked Concrete		D _{nom}		ø10	ø12	ø16	ø20	ø24	ø28	ø32
B500B	Tensile Min.	N _{rec,min}	(kN)	7,78	9,79	11,97	14,29	15,74	19,84	24,23
	Tensile Max.	N _{rec,max}	(kN)	21,43	31,14	55,61	86,74	124,49	169,90	221,43
	Shear Min.	V _{rec,min}	(kN)	10,00	14,76	25,71	40,00	44,07	55,54	67,85
	Shear Max.	V _{rec,max}	(kN)	10,00	14,79	25,71	40,48	58,09	79,05	103,34

Recommended Loads Flooded Holes (Hammer Drilled)

Cracked Concrete		D _{nom}		ø10	ø12	ø16	ø20	ø24	ø28	ø32
B500B	Tensile Min.	N _{rec,min}	(kN)	2,89	4,04	6,16	7,69	9,85	13,41	16,96
	Tensile Max.	N _{rec,max}	(kN)	9,61	13,84	24,61	34,19	49,21	67,02	87,54
	Shear Min.	V _{rec,min}	(kN)	8,07	11,31	17,24	21,54	27,57	37,53	47,49
	Shear Max.	V _{rec,max}	(kN)	10,00	14,76	25,71	40,48	58,09	79,05	103,34

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department engineering@iccons.com.au for further information.



BIS-HY GEN2

Seismic resistance for a service life of 50 years (for a single rebar)

All data in this section subject to:

- Correct setting (see setting instructions).
- No edge distance and spacing influence.
- Minimum and maximum embedment depth, as specified in the 'Installation Dimensions' table.
- Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
- Temperature range I: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
- Shear loads are calculated without the influence of a lever arm.
- $\alpha_{gap} = 1,0$ (using special filling washer according ETA-19/0131 Annex A 3).
- Increasing factors for concrete ψ_c : C25/30 to C50/60 = **1,0**



Design Resistance Dry/Wet Holes in case of seismic performance category C1 (Compressed Air Cleaning)

Steel Decisive

Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,eq,min}$	[kN]	5,5	6,9	10,6	12,7	14,0	16,7	18,4	19,5	23,1	28,3
	Tensile Max.	$N_{Rd,eq,max}$	[kN]	14,7	23,0	36,2	53,4	69,7	108,9	156,8	183,3	229,9	300,3
	Shear Min.	$V_{Rd,eq,min}$	[kN]	6,5	10,1	14,5	19,8	23,7	28,3	31,2	33,2	39,3	48,0
	Shear Max.	$V_{Rd,eq,max}$	[kN]	6,5	10,1	14,5	19,8	25,8	40,3	58,1	63,0	79,0	103,2

Design Resistance Dry/Wet Holes in case of seismic performance category C1 (Hollow Drilling)

Steel Decisive

Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,eq,min}$	[kN]	4,6	5,8	8,8	10,6	11,6	13,9	15,3	16,3	19,3	23,5
	Tensile Max.	$N_{Rd,eq,max}$	[kN]	12,3	19,2	30,2	44,5	58,1	90,8	130,7	152,7	191,6	250,2
	Shear Min.	$V_{Rd,eq,min}$	[kN]	6,5	10,1	14,5	19,8	23,7	28,3	31,2	33,2	39,3	48,0
	Shear Max.	$V_{Rd,eq,max}$	[kN]	6,5	10,1	14,5	19,8	25,8	40,3	58,1	63,0	79,0	103,2

Design Resistance in case of seismic performance category C1 (Flooded Holes)

Steel Decisive

Cracked Concrete		d_{nom}		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B (D500N)	Tensile Min.	$N_{Rd,eq,min}$	[kN]	3,9	4,9	7,5	9,1	10,0	11,9	13,1	13,9	16,5	20,2
	Tensile Max.	$N_{Rd,eq,max}$	[kN]	10,5	16,5	25,9	38,1	49,8	77,8	112,0	130,9	164,2	214,5
	Shear Min.	$V_{Rd,eq,min}$	[kN]	6,5	10,1	14,5	19,8	23,7	28,3	31,2	33,2	39,3	48,0
	Shear Max.	$V_{Rd,eq,max}$	[kN]	6,5	10,1	14,5	19,8	25,8	40,3	58,1	63,0	79,0	103,2

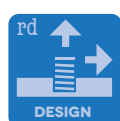
Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS® DesignPro software or contact ICCONS® engineering department **engineering@iccons.com.au** for further information.



Seismic resistance for a service life of 100 years (for a single rebar)

All data in this section subject to:

- Correct setting (see setting instructions).
- No edge distance and spacing influence.
- Minimum and maximum embedment depth, as specified in the 'Installation Dimensions' table.
- Concrete C20/25, $f_{ck} = 20 \text{ N/mm}^2$.
- Temperature range I: (max. long/short term temperature $+24^\circ\text{C}/+40^\circ\text{C}$).
- Temperature range II: (max. long/short term temperature $+50^\circ\text{C}/+80^\circ\text{C}$).
- Shear loads are calculated without the influence of a lever arm.
- $\alpha_{gap} = 1,0$ (using special filling washer according ETA-19/0131 Annex A 3).
- Increasing factors for concrete ψ_c : C25/30 to C50/60 = 1,0



Design Resistance Dry/Wet Holes in case of seismic performance category C1 (Hammer Drilled)

Steel Decisive

Cracked Concrete		D_{nom}		$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 24$	$\phi 28$	$\phi 32$
B500B	Tensile Min.	$N_{Rd,eq,min}$	(kN)	6,91	10,56	13,96	16,66	18,35	23,13	28,26
	Tensile Max.	$N_{Rd,eq,max}$	(kN)	23,02	36,19	69,66	108,91	156,73	229,88	300,25
	Shear Min.	$V_{Rd,eq,min}$	(kN)	9,80	14,47	25,20	33,32	36,71	46,26	56,52
	Shear Max.	$V_{Rd,eq,max}$	(kN)	9,80	14,47	25,20	39,67	56,93	77,47	101,27

Design Resistance Flooded holes in case of seismic performance category C1 (Hammer Drilled)

Steel Decisive

Cracked Concrete		D_{nom}		$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 24$	$\phi 28$	$\phi 32$
B500B	Tensile Min.	$N_{Rd,eq,min}$	(kN)	4,94	7,54	9,97	11,90	13,11	16,52	20,19
	Tensile Max.	$N_{Rd,eq,max}$	(kN)	16,44	25,85	49,76	77,79	111,95	164,20	214,47
	Shear Min.	$V_{Rd,eq,min}$	(kN)	9,80	14,47	25,20	33,32	36,71	46,26	56,52
	Shear Max.	$V_{Rd,eq,max}$	(kN)	9,80	14,47	25,20	39,67	56,93	77,47	101,27

Combined tension and shear loading in accordance with AS 5216:2021 please refer to ICCONS[®] DesignPro software or contact ICCONS[®] engineering department **engineering@iccons.com.au** for further information.

TDS 2018.3



BIS-HY GEN2

*Hybrid Injection Adhesive
ETA Option 1 Assessed
for Cracked & Non-Cracked
Concrete*

**Material Properties &
Chemical Resistance**



BIS-HY GEN2 Mortar Properties

B+BTec BIS-HY GEN2 injection mortar may be applied in cracked and non-cracked concrete, lightweight-concrete, aerated-concrete and natural stone (Attention! natural stone, can discolour, this shall be checked in advance. In the table below the physical properties of the B+BTec BIS-HY GEN2 are listed.

Properties	Test Method	Result
UV resistance		Pass
Watertightness	DIN EN 12390-8	0 mm
Temperature stability		≤ 160°C
Density		1780 kg/m ³
Compressive strength	DIN EN 196-1	122 N/mm ²
Tensile strength	DIN EN ISO 527-2	14,9 N/mm ²
Flexural strength	DIN EN 196-1	22,2 N/mm ²
E-modulus	DIN EN ISO 527-2	8300 N/mm ²
Shrinkage	DIN 52450	< 0,2 %
Hardness Shore A	DIN EN ISO 868	97,6
Electrical resistance	DIN IEC 93	7,2 x 10 ¹³ Ωm
Thermal conductivity	DIN EN 993-15	1,06 W/m·K
Thermal heat capacity	DIN EN 993-15	1.090 J/kg·K



BIS-HY GEN2 Chemical Resistance



Chemical Agent	Concentration	Resistant	Not resistant
Acetic acid	10	■	
Acetone	100		■
Ammonia, aqueous solution	5	■	
Benzyl Alcohol	100		■
Chlorinated lime	10	■	
Citric acid	10	■	
Chlorine water, swimming pool	all	■	
Demineralised Water	100	■	
Diesel oil	100	■	
Ethanol	100		■
Ethyl Acetate	100		■
Formic acid	100		■
Fuel Oil	100	■	
Gasoline (premium grade)	100	■	
Glycol (Ethylene glycol)	100		■
Hydraulic fluid	100	■	
Hydrogen peroxide	10		■
Isopropyl alcohol	100		■
Lactic acid	10	■	
Linseed oil	100	■	
Lubricating oil	100	■	
Nitric acid	10		■
Methanol	100		■
Phosphoric acid	10	■	
Potassium Hydroxide ph 13.2	100	■	
Salt (Calcium Chloride)	100	■	
Sea water, salty	100	■	
Sodium carbonate	10	■	
Sulfuric acid	10	■	



BIS-HY GEN2

Know DesignPRO

KNOW

NEXT GEN ANCHOR DESIGN SOFTWARE FOR THE PROFESSIONAL WHO WANTS COMPLIANT SOLUTIONS!

ICCONS® Anchor Design Software - Design in accordance with the latest Australian Fastening Standard AS 5216:2021.

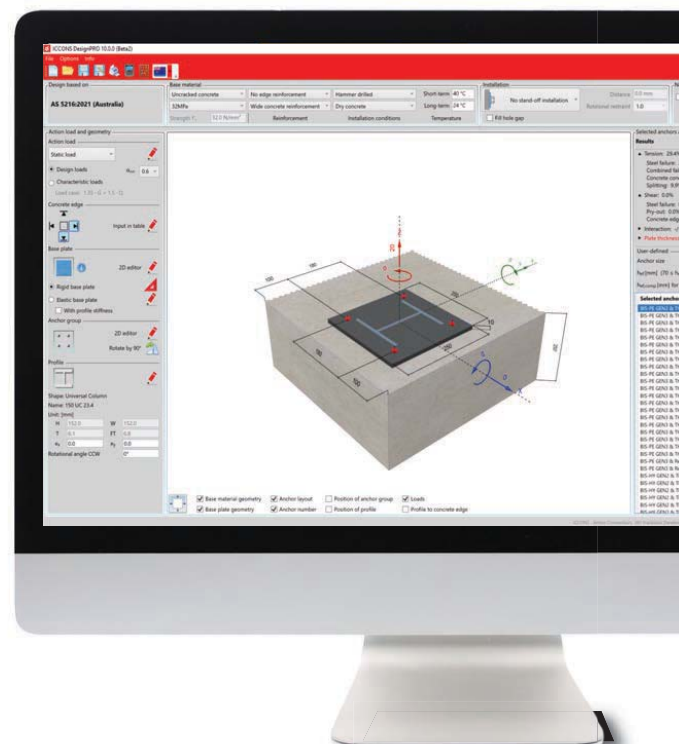
ICCONS® DesignPRO is an innovative 3D visual user interface anchor design software program developed to assist engineers and designers with complex fastening projects in accordance with AS 5216:2021 for safety critical applications. **ICCONS®** DesignPRO is a powerful anchor design software program offering a fast and efficient solutions tool for the construction industry. **ICCONS®** DesignPRO utilises a simple all-in-one screen format making it a user-friendly environment to input all application parameters. Using **ICCONS®** DesignPRO also ensures your are complying with the National Construction Code (NCC) for the design of post-installed fastenings into concrete.

ICCONS® DesignPRO includes a comprehensive range of adhesive and mechanical fastening solutions which hold current European Technical Assessments (ETA). The software offers intuitive selection of a range of products including adhesive epoxies and hybrid options as well as heavy duty expansion anchors and screwbolt type solutions. No matter what the application requirements demand, **ICCONS®** DesignPRO provides effective solutions and detailed reports that can be downloaded in pdf format in accordance with AS 5216:2021 providing clear documentation and traceability for any project.

KNOW

WHY TO USE ICCONS® DESIGN PRO

- ✓ Fast software download and its FREE!
- ✓ 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



TDS 2018.3

Know ICONX

KNOW

INTELLIGENT BUSINESS PLATFORM

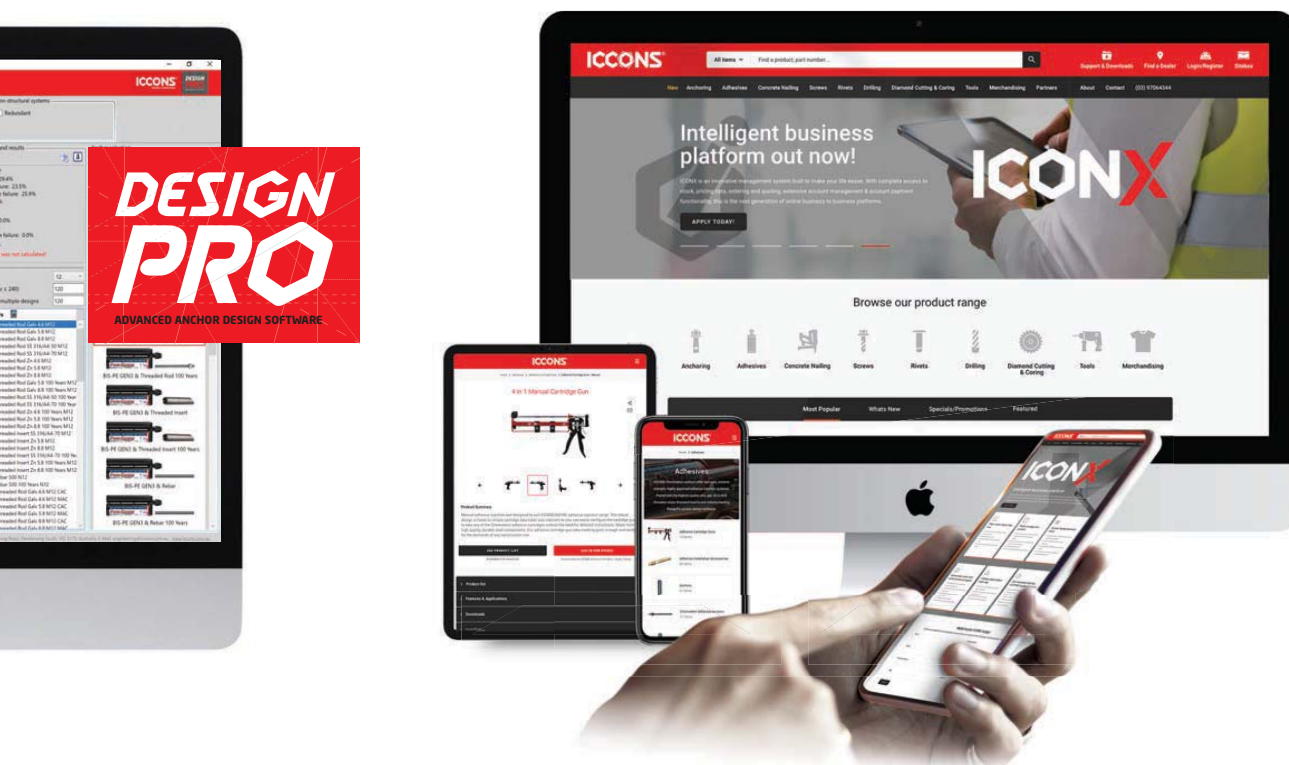
- ✓ Utilizes Australian steel profiles and material grades
- ✓ All product and all failure modes individually checked for precise anchor analysis and selection
- ✓ Summary or detailed design report options available to save or print

ICCONS[®] DesignPRO is the next generation in anchoring design software for engineers, designers and specifiers looking for fastening solutions complying with AS 5216:2021. ICCONS[®] DesignPRO is available for FREE DOWNLOAD using the following link www.iccons.com.au/software/design-pro

For further support, training and information please contact the ICCONS[®] engineering team at engineering@iccons.com.au

Developed exclusively for our account customers, **ICONX** is an innovative management system that is built to make your life easier. With complete access to stock and pricing data, ordering and quoting functionality, extensive account management, and account payment functionality, this is the next generation in online business to business platforms

- ✓ Locate ICCONS[®] extensive dealer Network
- ✓ Nationwide On-Site and Online technical support
- ✓ Extensive product information
- ✓ Access to product brochures
- ✓ Access tech data sheets and SDS
- ✓ Keep up-to-date with the world of ICCONS[®]
- ✓ Access ICCONS[®] Adhesive Volume Calculator
- ✓ Download ICCONS[®] DesignPRO software
- ✓ And so much more!



TDS 2018.3



BIS-HY GEN2

NOTES:

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



VICTORIA - HEAD OFFICE

383 Frankston-Dandenong Road, Dandenong South,
Victoria, 3175
P: 03 9706 4344
F: 03 9768 3329
E: sales@iccons.com.au

NSW Branch

Unit A, 17 Seddon Street, Bankstown,
New South Wales, 2200
P: 02 9791 6869
F: 02 9790 8404
E: salesnsw@iccons.com.au

QLD Branch

42-44 Nealdon Drive, Meadowbrook,
Queensland, 4131
P: 07 3200 6455
F: 07 3299 7548
E: salesqld@iccons.com.au

FAR NORTH QUEENSLAND Branch

41 Corporate Crescent, Garbutt,
Queensland 4814
P: 07 2111 3453
E: salesfnq@iccons.com.au

S.A Branch

29-31 Weaver Street, Edwardstown,
South Australia, 5039
P: 08 8234 5535
F: 08 8354 4689
E: salessa@iccons.com.au

W.A. Branch

90 Christable Way, Landsdale,
Western Australia, 6065
P: 08 6305 0008
F: 08 6305 0011
E: saleswa@iccons.com.au

NORTHERN TERRITORY

Unit 2, 14 Menmuir Street, Winnellie,
Northern Territory 0820
P: 08 8947 2758
F: 08 8947 2758
E: salesnt@iccons.com.au

NEW ZEALAND

Sesto Fasteners
5E Piermark Drive, Rosedale, Auckland,
New Zealand 0630
P: +64 09 415 8564
E: sestofasteners@gmail.com

ICCONS (Thailand) Co. Ltd.

55 Phetkasem 62/3, Bangkhuae,
Bangkok 0160
P: + 66 2 801 0764
F: + 66 2 801 0764
M: + 66 8 1 710 8745
E: icconsthailand@iccons.com.au