



25/0740

TDS | 2018.4

HYBRID GEN2 BIS-HY GEN2

Hybrid
GEN²





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HYBRID GEN2 BIS-HY GEN2

HYBRID INJECTION ADHESIVE ETA OPTION 1
ASSESSED FOR CRACKED & NON-CRACKED
CONCRETE.

ANCHOR COMPONENTS

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

- ETA Assessed for the Installation in Flooded Holes
- No Cleaning required for Hollow Drilling
- 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

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
- Diamond drilled holes

ADDITIONAL APPROVALS & TEST REPORTS

- ETA 25/0740
- ETA 25/0741
- ETA 25/0742
- ETA 25/1217

TEMPERATURE RANGE

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

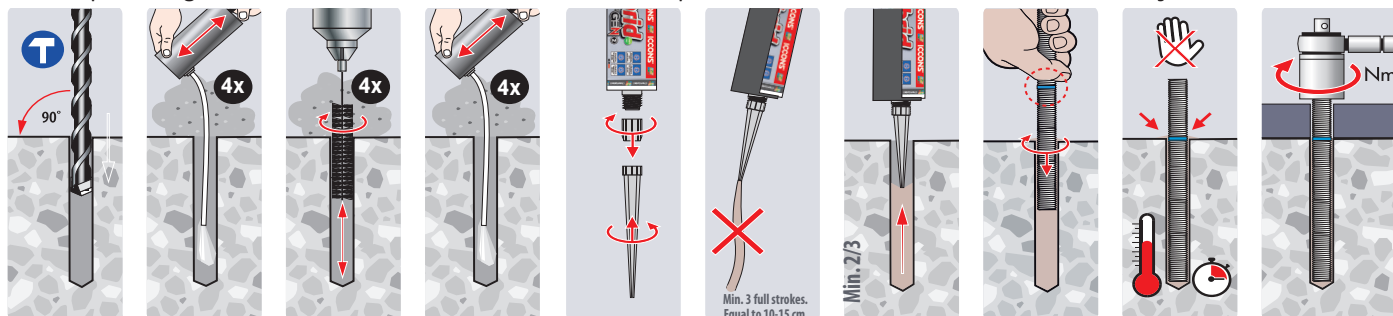


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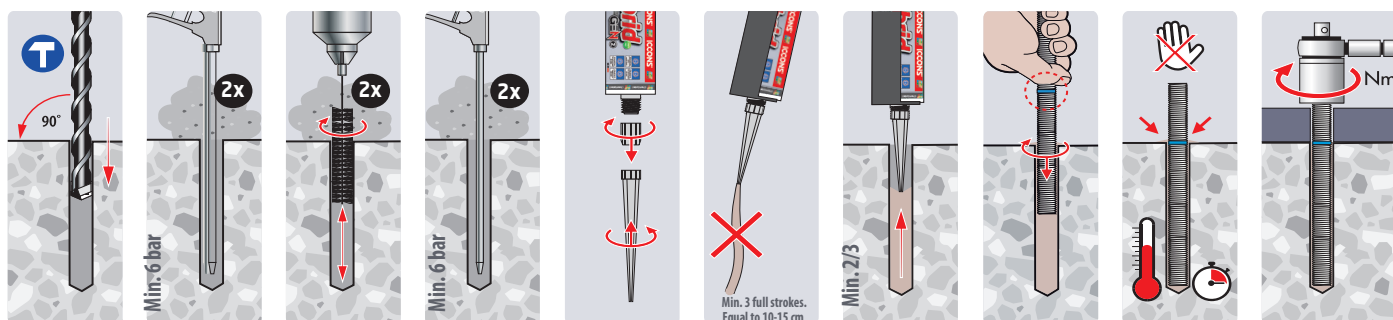
INSTALLATION PROCEDURES

HAND PUMP CLEANING

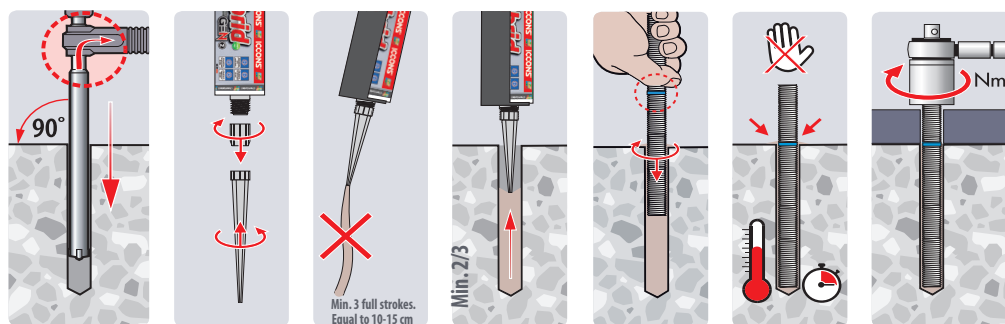
Hand Pump Cleaning for bore hole diameter $d_0 \leq 20\text{mm}$, bore hole depth $h_0 \leq 10d_{nom}$ and Non-Cracked Concrete only.



COMPRESSED AIR CLEANING



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	1 h	40 min	30 min	30 min
Curing Time Wet Holes		10 h	7 h	4 h	2 h	80 min	60 min	60 min

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

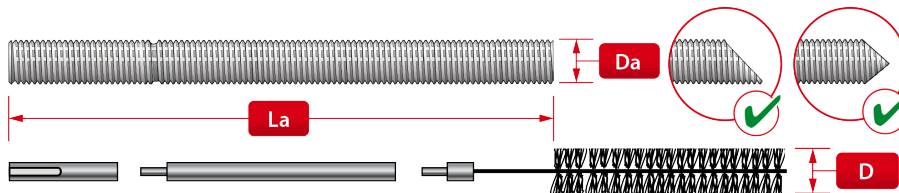
² Concrete Temperature



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ETA - 25/0740

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

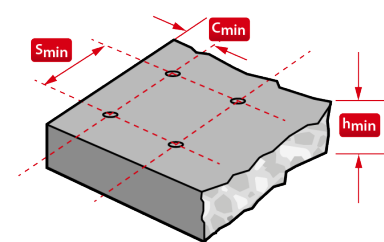
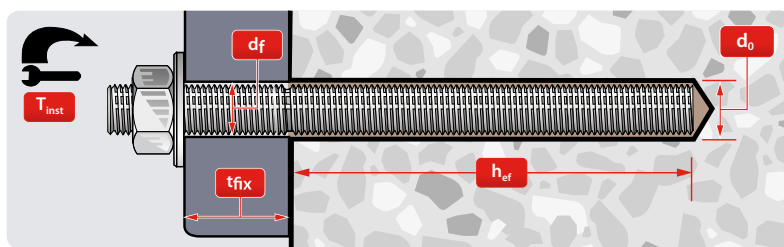


INSTALLATION DIMENSIONS

Anchor Size	D _a	Unit	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
Anchorage 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 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
Max. Fixture Height	T _{fix} ≤	(mm)	15	20	30	40	55	55	70	50
Max Torque Moment ²	T _{inst} ≤	(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 the clearance hole in the fixture shall be at maximum d + 1 mm, or alternatively, the annular gap between the 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	Unit	M8	M10	M12	M16	M20	M24	M27	M30
Min. Member Thickness	h _{min}	(mm)	h _{ef} + 30 mm ≥ 100 mm				h _{ef} + 2do			
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	Unit	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



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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 ($h_{ef,calc}$), as specified in the 'Installation Dimensions' table.
 - 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 to EN 1992-4:2018; eq. 7.14a. and AS 5216.
 - 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 _s	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N _{Rd}	(kN)	12	19.3	28	45.8	72.7	99.8	129.6	153.7	
	Shear	V _{Rd}	(kN)	7.2	12	16.8	31.2	48.8	70.4	92	112	
Steel 8.8	Tensile	N _{Rd}	(kN)	19.3	28	37.8	45.8	72.7	99.8	129.6	153.7	
	Shear	V _{Rd}	(kN)	12	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	61.9	80.4	98.3	
	Shear	V _{Rd}	(kN)	3.8	6.3	8.8	16.4	25.6	37	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 _s	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	16.8	31.2	48.8	70.4	92	112	
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	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	61.9	80.4	98.3	
	Shear	V _{Rd}	(kN)	3.8	6.3	8.8	16.4	25.6	37	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	-	-	



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DESIGN RESISTANCE DRY/WET HOLES (HOLLOW DRILLING)



Steel Decisive

Non-Cracked Concrete				D_s	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N_{Rd}	(kN)		12	19.3	28	38.2	60.6	83.2	108	128
	Shear	V_{Rd}	(kN)		7.2	12	16.8	31.2	48.8	70.4	92	112
Steel 8.8	Tensile	N_{Rd}	(kN)		19	23.3	31.5	38.2	60.6	83.2	108	128
	Shear	V_{Rd}	(kN)		12	18.4	27.2	50.4	78.4	112.8	147	179.2
A4-50	Tensile	N_{Rd}	(kN)		6.3	10.1	14.7	27.6	43	61.9	80.4	98.3
	Shear	V_{Rd}	(kN)		3.8	6.3	8.8	16.4	25.6	37	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	-	-



Cracked Concrete				D_s	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	16.8	31.2	48.8	70.4	92	112
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	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	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_s	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N_{Rd}	(kN)		12	19.3	27	32.7	51.9	71.3	92.6	109.8
	Shear	V_{Rd}	(kN)		7.2	12	16.8	31.2	48.8	70.4	92	112
Steel 8.8	Tensile	N_{Rd}	(kN)		16.3	20	27	32.7	51.9	71.3	92.6	109.8
	Shear	V_{Rd}	(kN)		12	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	61.9	80.4	98.3
	Shear	V_{Rd}	(kN)		3.8	6.3	8.8	16.4	25.6	37	48.3	58.8
A4-70	Tensile	N_{Rd}	(kN)		13.9	20	27	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_s	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	16.8	31.2	48.8	70.4	92	112
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	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	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. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information.



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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	27.3	43.3	59.4	77.2	91.5
	Shear	V _{rec}	(kN)		5.1	8.6	12	22.3	34.9	50.3	65.7	80
Steel 8.8	Tensile	N _{rec}	(kN)		13.8	20	27	32.7	51.9	71.3	92.6	109.8
	Shear	V _{rec}	(kN)		8.6	13.1	19.4	36	56	80.6	105.1	128
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
A4-70	Tensile	N _{rec}	(kN)		9.9	15.7	22.5	32.7	51.9	71.3	-	-
	Shear	V _{rec}	(kN)		6	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	22.3	34.9	50.3	65.7	80
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	56	80.6	105.1	128
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
A4-70	Tensile	N _{rec}	(kN)		6.7	10.1	15.8	22.9	36.3	49.9	-	-
	Shear	V _{rec}	(kN)		6	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	27.3	43.3	59.4	77.2	91.5
	Shear	V _{rec}	(kN)		5.1	8.6	12	22.3	34.9	50.3	65.7	80
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	56	80.6	105.1	128
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
A4-70	Tensile	N _{rec}	(kN)		9.9	15.7	22.5	27.3	43.3	59.4	-	-
	Shear	V _{rec}	(kN)		6	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	64
	Shear	V _{rec}	(kN)		5.1	8.6	12	22.3	34.9	50.3	65.7	80
Steel 8.8	Tensile	N _{rec}	(kN)		5.6	8.4	13.2	19.1	30.3	41.6	54	64
	Shear	V _{rec}	(kN)		8.6	13.1	19.4	36	56	80.6	105.1	128
A4-50	Tensile	N _{rec}	(kN)		4.5	7.2	10.5	19.1	30.3	41.6	54	64
	Shear	V _{rec}	(kN)		2.7	4.5	6.3	11.7	18.3	26.4	34.5	42
A4-70	Tensile	N _{rec}	(kN)		5.6	8.4	13.2	19.1	30.3	41.6	-	-
	Shear	V _{rec}	(kN)		6	9.2	13.7	25.2	39.4	56.8	-	-



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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	22.3	34.9	50.3	65.7	80
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	56	80.6	105.1	128
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
A4-70	Tensile	N _{rec}	(kN)		9.9	14.3	19.3	23.4	37.1	50.9	-	-
	Shear	V _{rec}	(kN)		6	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	35.6	46.3	54.9
	Shear	V _{rec}	(kN)		5.1	8.6	12	22.3	34.9	50.3	65.7	80
Steel 8.8	Tensile	N _{rec}	(kN)		4.8	7.2	11.3	16.4	26	35.6	46.3	54.9
	Shear	V _{rec}	(kN)		8.6	13.1	19.4	36	56	80.6	105.1	128
A4-50	Tensile	N _{rec}	(kN)		4.5	7.2	10.5	16.4	26	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
A4-70	Tensile	N _{rec}	(kN)		4.8	7.2	11.3	16.4	26	35.6	-	-
	Shear	V _{rec}	(kN)		6	9.2	13.7	25.2	39.4	56.8	-	-

Combined Tension and Shear Loading in accordance with AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information.



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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°C/+40°C)
 - Temperature range II: (max. long/short term temperature +50°C/+80°C).
 - Shear loads are calculated without the influence of a lever arm.
 - $\psi_{susc} = 1.0$, according to EN 1992-4:2018; eq. 7.14a and AS 5216.
 - 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_s	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N_{Rd}	(kN)	12	19.3	28	45.8	72.69	99.8	129.64	153.66
	Shear	V_{Rd}	(kN)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.4
Steel 8.8	Tensile	N_{Rd}	(kN)	19.3	28	37.8	45.8	72.69	99.8	129.64	153.66
	Shear	V_{Rd}	(kN)	12	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	61.89	80.42	98.25
	Shear	V_{Rd}	(kN)	3.8	6.3	8.8	16.4	25.63	36.98	48.32	58.82
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	79.49	-	-

DESIGN RESISTANCE DRY/WET HOLES (HAMMER DRILLED - CAC ONLY)



Steel Decisive

Cracked Concrete			D_s	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N_{Rd}	(kN)	7.4	11.3	17.97	27.2	46.29	68.61	90.75	107.56
	Shear	V_{Rd}	(kN)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.4
Steel 8.8	Tensile	N_{Rd}	(kN)	7.4	11.3	17.97	27.2	49.26	68.61	90.75	107.56
	Shear	V_{Rd}	(kN)	12	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	27.2	43.01	61.89	80.42	98.25
	Shear	V_{Rd}	(kN)	3.8	6.3	8.8	16.4	25.63	36.98	48.32	58.82
A4-70	Tensile	N_{Rd}	(kN)	7.4	11.3	17.97	27.2	46.29	68.61	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.13	79.49	-	-

Combined Tension and Shear Loading in accordance with AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information.



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DESIGN RESISTANCE FLOODED HOLES (HAMMER DRILLED - CAC)



Non-Cracked Concrete				Steel Decisive							
D_s				M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N_{Rd}	(kN)	12	19.3	27	32.7	51.92	71.29	92.6	109.76
	Shear	V_{Rd}	(kN)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.4
Steel 8.8	Tensile	N_{Rd}	(kN)	16.3	20	27	32.7	51.92	71.29	92.6	109.76
	Shear	V_{Rd}	(kN)	12	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	43.01	61.89	80.42	98.25
	Shear	V_{Rd}	(kN)	3.8	6.3	8.8	16.4	25.63	36.98	48.32	58.82
A4-70	Tensile	N_{Rd}	(kN)	13.9	20	27	32.7	51.92	71.29	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.13	79.49	-	-



Cracked Concrete				Steel Decisive							
D_s				M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	N_{Rd}	(kN)	5.3	8.1	12.8	19.5	33.06	49.01	64.82	76.83
	Shear	V_{Rd}	(kN)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.4
Steel 8.8	Tensile	N_{Rd}	(kN)	5.3	8.1	12.8	19.5	33.06	49.01	64.82	76.83
	Shear	V_{Rd}	(kN)	12	18.4	27.2	50.4	78.4	112.8	147.2	179.2
A4-50	Tensile	N_{Rd}	(kN)	5.3	8.1	12.8	19.5	33.06	49.01	64.82	76.83
	Shear	V_{Rd}	(kN)	3.8	6.3	8.8	16.4	25.63	36.98	48.32	58.83
A4-70	Tensile	N_{Rd}	(kN)	5.3	8.1	12.8	19.5	33.06	49.01	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.13	79.49	-	-

Combined Tension and Shear Loading in accordance with AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information.



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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°C/+40°C).
- Temperature range II: (max. long/short term temperature +50°C/+80°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.
- Recommended loads are with overall partial safety factor for action $\Psi_G = 1.4$.

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	32.71	51.92	71.29	92.6	109.76
	Shear	V_{rec}	(kN)	6.29	9.71	14.29	26.86	42.29	60.57	78.86	96
Steel 8.8	Tensile	N_{rec}	(kN)	13.79	20	27	32.71	51.92	71.29	92.6	109.76
	Shear	V_{rec}	(kN)	8.57	13.14	19.43	36	56	80.57	105.14	128
A4-50	Tensile	N_{rec}	(kN)	4.5	7.21	10.5	19.71	30.71	44.21	57.44	70.18
	Shear	V_{rec}	(kN)	2.71	4.5	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
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	56	80.57	105.14	128
A4-50	Tensile	N_{rec}	(kN)	4.5	7.21	10.5	19.43	30.72	44.21	57.44	70.18
	Shear	V_{rec}	(kN)	2.71	4.5	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. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information.



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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	78.4
	Shear	V _{rec}	(kN)	6.29	9.71	14.29	26.86	42.29	60.57	78.86	96
Steel 8.8	Tensile	N _{rec}	(kN)	11.64	14.29	19.29	23.36	37.09	50.92	66.14	78.4
	Shear	V _{rec}	(kN)	8.57	13.14	19.43	36	56	80.57	105.14	128
A4-50	Tensile	N _{rec}	(kN)	4.5	7.21	10.5	19.71	30.72	44.21	57.44	70.18
	Shear	V _{rec}	(kN)	2.71	4.5	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	46.3	54.88
	Shear	V _{rec}	(kN)	6.29	9.71	14.29	26.86	42.29	60.57	78.86	96
Steel 8.8	Tensile	N _{rec}	(kN)	3.79	5.79	9.14	13.93	23.61	35.01	46.3	54.88
	Shear	V _{rec}	(kN)	8.57	13.14	19.43	36	56	80.57	105.14	128
A4-50	Tensile	N _{rec}	(kN)	3.79	5.79	9.14	13.93	23.61	35.01	46.3	54.88
	Shear	V _{rec}	(kN)	2.71	4.5	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. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information.



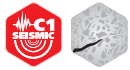
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SEISMIC RESISTANCE FOR A SERVICE LIFE OF 50 YEARS (FOR A SINGLE ANCHOR)

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.
- $a_{gap} = 1.0$ (using special filling washer according ETA-25/0740 Annex A 3).
- Increasing factor 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)



Cracked Concrete				Steel Decisive							
D_s				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	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	35.3	54.9	79	103	125.4
A4-50	Tensile	$N_{Rd,eq,C1}$	(kN)	6.3	10.1	14.7	27.3	43	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	13.5	24.7	38.6	55.6	-	-

DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1 (HOLLOW DRILLING)



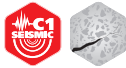
Cracked Concrete				Steel Decisive							
D_s				M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	$N_{Rd,eq,C1}$	(kN)	7.8	11.8	18.4	22.7	36	49.5	64.3	76.2
	Shear	$V_{Rd,eq,C1}$	(kN)	5	8.4	11.8	21.8	34.2	49.3	64.4	78.4
Steel 8.8	Tensile	$N_{Rd,eq,C1}$	(kN)	7.8	11.8	18.4	22.7	36	49.5	64.3	76.2
	Shear	$V_{Rd,eq,C1}$	(kN)	8.4	12.9	19	35.3	54.9	79	103	125.4
A4-50	Tensile	$N_{Rd,eq,C1}$	(kN)	6.3	10.1	14.7	22.7	36	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	49.5	-	-
	Shear	$V_{Rd,eq,C1}$	(kN)	5.8	9	13.5	24.7	38.6	55.6	-	-

Combined Tension and Shear Loading in accordance with AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information



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DESIGN RESISTANCE FLOODED HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1



Steel Decisive

Cracked Concrete				D _s	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	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	35.3	54.9	79	103	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	13.5	24.7	38.6	55.6	-	-

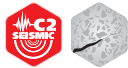
DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C2 (COMPRESSED AIR CLEANING)



Steel Decisive

Cracked Concrete				D _s	M8	M10	M12	M16	M20	M24	M27	M30
Steel 8.8	Tensile	N _{Rd,eq,C2}	(kN)		-	-	10	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	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 _s	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 _s	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. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information



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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, 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°C/+40°C).
- Temperature range II: (max. long/short term temperature +50°C/+80°C).
- Shear loads are calculated without the influence of a lever arm.
- $a_{gap} = 1.0$ (using special filling washer according to ETA 25/0740 Annex A 3).
- Increasing factor 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_s		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	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)	8.4	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	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_s		M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	Tensile	$N_{Rd,eq,C1}$	(kN)	6.7	10.1	15.8	19.48	30.89	42.42	55.1	65.3
	Shear	$V_{Rd,eq,C1}$	(kN)	6.16	9.52	14	26.32	41.44	59.36	77.28	94.08
Steel 8.8	Tensile	$N_{Rd,eq,C1}$	(kN)	6.7	10.1	15.8	19.48	30.89	42.42	55.1	65.3
	Shear	$V_{Rd,eq,C1}$	(kN)	8.4	12.88	19.04	35.28	54.88	78.96	103.04	125.44
A4-50	Tensile	$N_{Rd,eq,C1}$	(kN)	6.29	10.1	14.69	19.48	30.89	42.42	55.1	65.3
	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)	6.7	10.1	15.8	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. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information



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DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C2 (HAMMER DRILLED - CAC)

Steel Decisive

Cracked Concrete		D _a		M8	M10	M12	M16	M20	M24	M27	M30
Steel 8.8	Tensile	N _{Rd,eq,C2}	(kN)	-	-	9.95	14.66	23.5	24.28	-	-
	Shear	V _{Rd,eq,C2}	(kN)	-	-	14.1	24.92	38.66	35.38	-	-
A4-70	Tensile	N _{Rd,eq,C2}	(kN)	-	-	9.95	14.66	23.5	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		D _a		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)	-	-	14.1	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	-	-



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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 ($h_{ef,calc}$), 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 $-40^\circ\text{C}/+40^\circ\text{C}$).
 - 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.
 - Recommended loads are with overall partial safety factor for action $\Psi_c = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

DESIGN RESISTANCE DRY/WET HOLES & FLOODED HOLES (DIAMOND DRILLED)



Steel Decisive

Cracked Concrete			D_s	M10	M12	M16	M20	M24
Steel 5.8	Tensile	N_{Rd}	(kN)	16.0	21.8	32.1	50.9	69.9
	Shear	V_{Rd}	(kN)	13.6	20.0	37.6	59.2	84.8
Steel 8.8	Tensile	N_{Rd}	(kN)	16.0	21.8	32.1	50.9	69.9
	Shear	V_{Rd}	(kN)	18.4	27.2	50.4	78.4	112.8
A4-70	Tensile	N_{Rd}	(kN)	16.0	21.8	32.1	50.9	69.9
	Shear	V_{Rd}	(kN)	12.8	19.2	35.3	55.1	79.5

RECOMMENDED LOADS DRY/WET HOLES & FLOODED HOLES (DIAMOND DRILLING)



Cracked Concrete			D_s	M10	M12	M16	M20	M24
Steel 5.8	Tensile	N_{rec}	(kN)	11.4	15.6	22.9	36.4	49.9
	Shear	V_{rec}	(kN)	9.7	14.3	26.9	42.3	60.6
Steel 8.8	Tensile	N_{rec}	(kN)	11.4	15.6	22.9	36.4	49.9
	Shear	V_{rec}	(kN)	13.1	19.4	36.0	56.0	80.6
A4-70	Tensile	N_{rec}	(kN)	11.4	15.6	22.9	36.4	49.9
	Shear	V_{rec}	(kN)	9.1	13.7	25.2	39.4	56.8



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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 ($h_{ef,calc}$), 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 $-40^\circ\text{C}/+40^\circ\text{C}$).
 - 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.
 - Recommended loads are with overall partial safety factor for action $\Psi_c = 1,4$.
- The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

DESIGN RESISTANCE DRY/WET HOLES & FLOODED HOLES (DIAMOND DRILLED)



Steel Decisive

Non-Cracked Concrete			D_s	M10	M12	M16	M20	M24
Steel 5.8	Tensile	N_{Rd}	(kN)	19.3	28.0	45.8	72.7	99.8
	Shear	V_{Rd}	(kN)	13.6	20.0	37.6	59.2	84.8
Steel 8.8	Tensile	N_{Rd}	(kN)	24.3	35.4	45.8	72.7	99.8
	Shear	V_{Rd}	(kN)	18.4	27.2	50.4	78.4	112.8
A4-70	Tensile	N_{Rd}	(kN)	21.9	31.6	45.8	72.7	99.8
	Shear	V_{Rd}	(kN)	12.8	19.2	35.3	55.1	79.5

RECOMMENDED LOADS DRY/WET HOLES & FLOODED HOLES (DIAMOND DRILLING)



Non-Cracked Concrete			D_s	M10	M12	M16	M20	M24
Steel 5.8	Tensile	N_{rec}	(kN)	13.8	20.0	32.7	51.9	71.3
	Shear	V_{rec}	(kN)	9.7	14.3	26.9	42.3	60.6
Steel 8.8	Tensile	N_{rec}	(kN)	17.4	25.3	32.7	51.9	71.3
	Shear	V_{rec}	(kN)	13.1	19.4	36.0	56.0	80.6
A4-70	Tensile	N_{rec}	(kN)	15.6	22.6	32.7	51.9	71.3
	Shear	V_{rec}	(kN)	9.1	13.7	25.2	39.4	56.8

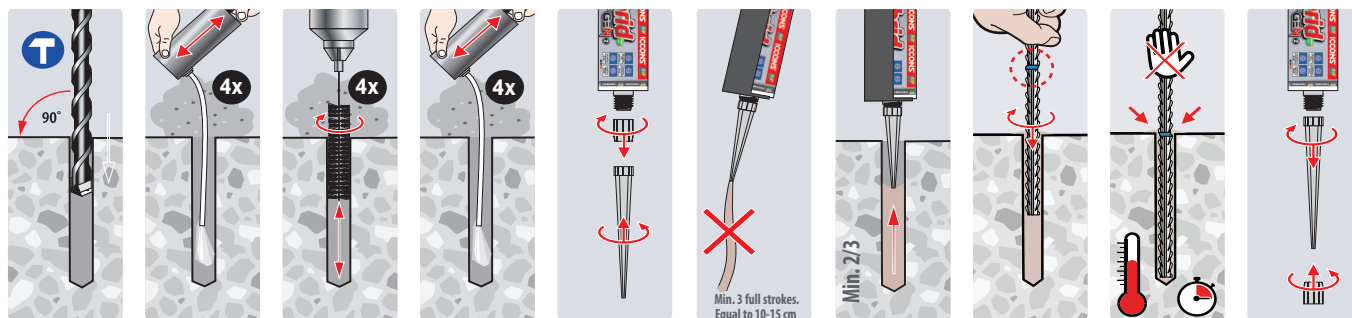


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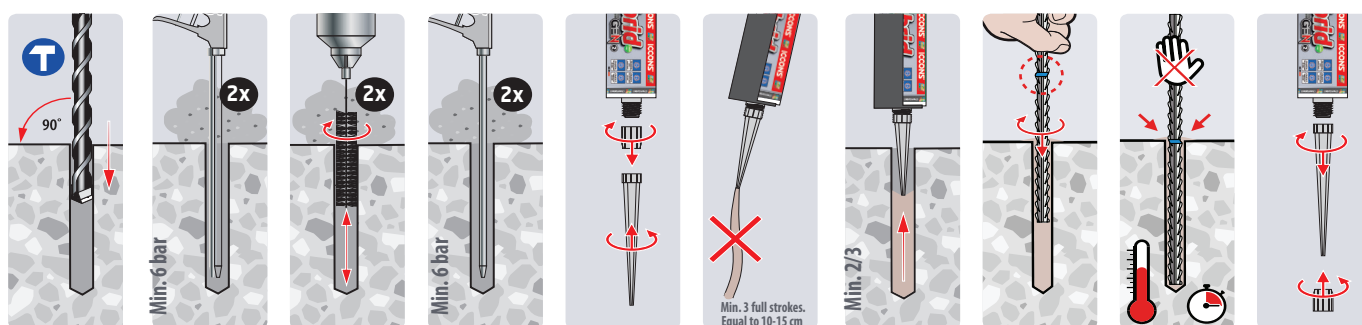
INSTALLATION PROCEDURES

HAND PUMP CLEANING

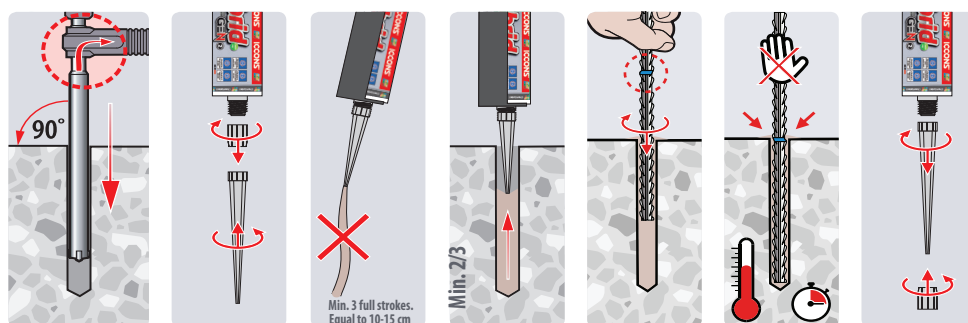
Hand Pump Cleaning for bore hole diameter $d_0 \leq 20\text{mm}$, bore hole depth $h_0 \leq 10d_{\text{nom}}$ and Non-Cracked Concrete only.



COMPRESSED AIR CLEANING



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	1 h	40 min	30 min	30 min
Curing Time Wet Holes	10 h	7 h	4 h	2 h	80 min	60 min	60 min

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

² Concrete Temperature

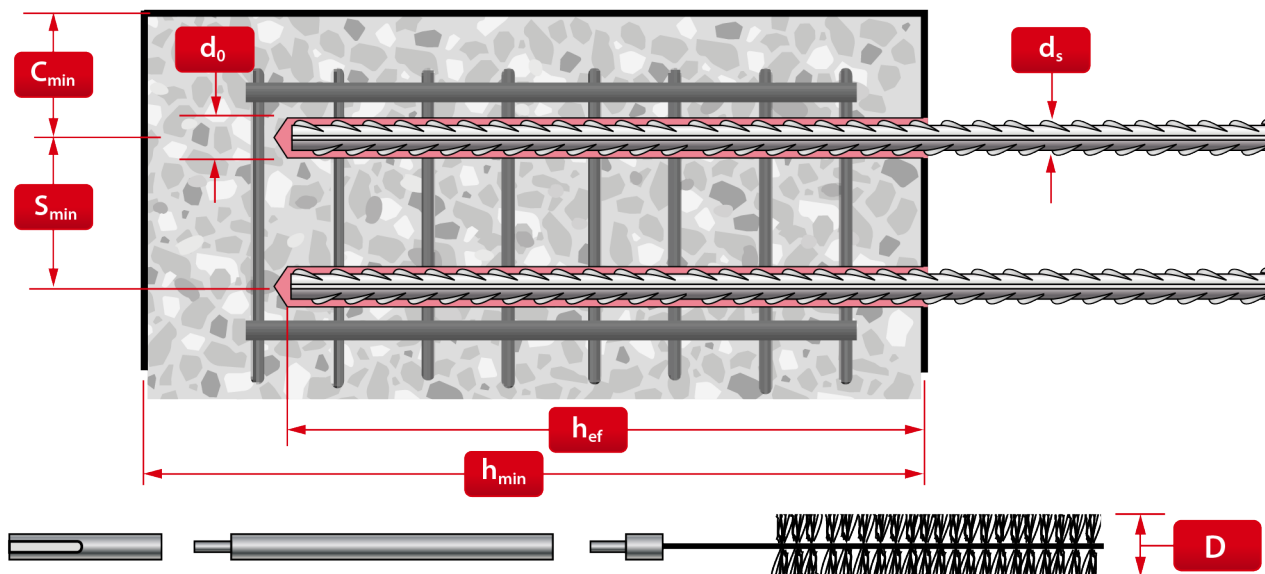


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ETA - 25/0740

SPECIFICATION DATA FOR THE USE IN CRACKED & UNCRACKED CONCRETE AND HAMMER/AIR DRILLED HOLES ACCORDING TO EN 1992-4:2018 , AS 5216 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}	Unit	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_o	(mm)	12	14	16	18	20	25	32	32	35	40
Required Volume per cm Embedment Depth	V_s	(ml/cm)	0.75	0.9	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}	Unit	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
Min. Member Thickness	h_{min}	(mm)	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$			$h_{ef} + 2d_o$						
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 DIMENSIONS

Rebar Size	d_{nom}	Unit	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
Brush Diameter	D	(mm)	13.5	15.5	17.5	22	22	27	34	34	37	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



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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°C/+80°C).
- Shear loads are calculated without the influence of a lever arm.
- $\Psi_{\text{SUS}} = 1.0$ according to EN 1992-4:2018; eq. 7.14a and AS 5216.
- Recommended loads are with overall partial safety factor for action $\Psi_G = 1.4$.

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_{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	30.8	32.8	38.9	47.5
	Tensile Max.	$N_{Rd,max}$	(kN)	19.7	30.9	44.4	60.5	79	123.4	177.7	192.8	241.9	316
	Shear Min.	$V_{Rd,min}$	(kN)	9.2	14.4	20.7	28.2	36.9	56	61.7	65.6	77.7	95.4
	Shear Max.	$V_{Rd,max}$	(kN)	9.2	14.4	20.7	28.2	36.9	57.6	82.9	90	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	27.2	33.2
	Tensile Max.	$N_{Rd,max}$	(kN)	14.7	23	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	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	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	123.4	177.7	192.8	241.9	316
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.4	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.4	20.7	28.2	36.9	57.6	82.9	90	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	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	112.9	147.4

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



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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	22	23.4	27.8	33.9
	Tensile Max.	N _{Rd,max}	(kN)	19.7	30.9	44.4	60.5	79	123.4	177.7	192.8	241.9	316
	Shear Min.	V _{Rd,min}	(kN)	9.2	14.4	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	V _{Rd,max}	(kN)	9.2	14.4	20.7	28.2	36.9	57.6	82.9	90	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)	3.9	4.9	7.5	10.2	11.7	14	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	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	112.9	147.4

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



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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	22	23.4	27.8	33.9
	Tensile Max.	N _{rec,max}	(kN)	14.1	22	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	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	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	130.9	164.2	214.5
	Shear Min.	V _{rec,min}	(kN)	6.6	9.9	14.8	20.2	23.5	28	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	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	N _{rec,max}	(kN)	14.1	22	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	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	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	14.3	15.7	16.7	19.8	24.2
	Tensile Max.	N _{rec,max}	(kN)	14.1	22	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	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	11	11.7	13.9	17
	Tensile Max.	N _{rec,max}	(kN)	7.5	11.8	18.5	27.2	35.6	55.6	80	93.5	117.3	153.2
	Shear Min.	V _{rec,min}	(kN)	6.6	9.9	14.8	20.2	23.5	28	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

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



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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°C/+40°C).
 - Temperature range II: (max. long/short term temperature +50°C/+80°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.
 - Recommended loads are with overall partial safety factor for action $\Psi_G = 1.4$
- 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}	Ø10	Ø12	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		15.24	19.2	23.47	28	30.85	38.87	47.49
	Tensile Max.	$N_{Rd,max}$	(kN)		30	43.57	77.86	121.43	174.29	237.86	310
	Shear Min.	$V_{Rd,min}$	(kN)		14	20.66	36	56	61.7	77.75	94.99
	Shear Max.	$V_{Rd,max}$	(kN)		14	20.66	36	56.67	81.33	110.67	144.67

DESIGN RESISTANCE DRY/WET HOLES (HAMMER DRILLED)

Steel Decisive

Cracked Concrete				d_{nom}	Ø10	Ø12	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		5.66	7.92	12.06	15.08	19.3	26.27	33.25
	Tensile Max.	$N_{Rd,max}$	(kN)		18.83	27.14	48.23	67.02	96.45	131.36	171.57
	Shear Min.	$V_{Rd,min}$	(kN)		11.3	15.83	24.13	30.16	38.6	52.54	66.49
	Shear Max.	$V_{Rd,max}$	(kN)		14	20.67	36	56.67	81.33	110.67	144.67

DESIGN RESISTANCE FLOODED HOLES (HAMMER DRILLED)

Steel Decisive

Non-Cracked Concrete				d_{nom}	Ø10	Ø12	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		10.89	13.7	16.76	20	22.03	27.77	33.92
	Tensile Max.	$N_{Rd,max}$	(kN)		30	43.6	77.86	121.43	174.29	237.86	310
	Shear Min.	$V_{Rd,min}$	(kN)		14	20.66	36	56	61.7	77.75	94.99
	Shear Max.	$V_{Rd,max}$	(kN)		14	20.7	36	56.67	81.33	110.67	144.67

DESIGN RESISTANCE FLOODED HOLES (HAMMER DRILLED)

Steel Decisive

Cracked Concrete				d_{nom}	Ø10	Ø12	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		4.04	5.66	8.62	10.77	13.79	18.77	23.75
	Tensile Max.	$N_{Rd,max}$	(kN)		13.45	19.38	34.45	47.87	68.89	93.83	122.55
	Shear Min.	$V_{Rd,min}$	(kN)		11.3	15.83	24.13	30.16	38.6	52.54	66.49
	Shear Max.	$V_{Rd,max}$	(kN)		14	20.67	36	56.67	81.33	110.67	144.67



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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	22.04	27.76	33.92
	Tensile Max.	N _{rec,max}	(kN)		21.43	31.12	55.61	86.74	124.49	169.9	221.43
	Shear Min.	V _{rec,min}	(kN)		10	14.76	25.71	40	44.07	55.54	67.85
	Shear Max.	V _{rec,max}	(kN)		10	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	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	169.9	221.43
	Shear Min.	V _{rec,min}	(kN)		10	14.76	25.71	40	44.07	55.54	67.85
	Shear Max.	V _{rec,max}	(kN)		10	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	14.76	25.71	40.48	58.09	79.05	103.34

Combined Tension and Shear Loading in accordance with AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information



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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°C/+80°C).
- Shear loads are calculated without the influence of a lever arm.
- $a_{gap} = 1.0$ (using special filling washer according to ETA 25/0740 Annex A 3).
- Increasing factor for concrete $\Psi_c = C25/30$ to $C50/60 = 1.0$

DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1 (COMPRESSED AIR CLEANING)



Cracked Concrete				Steel Decisive									
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	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	$N_{Rd,eq,max}$	(kN)	14.7	23	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
	Shear Max.	$V_{Rd,eq,max}$	(kN)	6.5	10.1	14.5	19.8	25.8	40.3	58.1	63	79	103.2

DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1 (HOLLOW DRILLING)



Cracked Concrete				Steel Decisive									
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
	Shear Max.	$V_{Rd,eq,max}$	(kN)	6.5	10.1	14.5	19.8	25.8	40.3	58.1	63	79	103.2

DESIGN RESISTANCE IN CASE OF SEISMIC PERFORMANCE CATEGORY C1 (FLOODED HOLES)



Cracked Concrete				Steel Decisive									
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	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	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
	Shear Max.	$V_{Rd,eq,max}$	(kN)	6.5	10.1	14.5	19.8	25.8	40.3	58.1	63	79	103.2

Combined Tension and Shear Loading in accordance with AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information



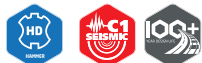
25/0740

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°C/+40°C).
- Temperature range II: (max. long/short term temperature +50°C/+80°C).
- Shear loads are calculated without the influence of a lever arm.
- $a_{gap} = 1.0$ (using special filling washer according to ETA 25/0740 Annex A 3).
- Increasing factor for concrete $\Psi_c = C25/30$ 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}	Ø10	Ø12	Ø16	Ø20	Ø24	Ø28	Ø32
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)	9.8	14.47	25.2	33.32	36.71	46.26	56.52
	Shear Max.	$V_{Rd,eq,max}$	(kN)	9.8	14.47	25.2	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}	Ø10	Ø12	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,eq,min}$	(kN)	4.94	7.54	9.97	11.9	13.11	16.52	20.19
	Tensile Max.	$N_{Rd,eq,max}$	(kN)	16.44	25.85	49.76	77.79	111.95	164.2	214.47
	Shear Min.	$V_{Rd,eq,min}$	(kN)	9.8	14.47	25.2	33.32	36.71	46.26	56.52
	Shear Max.	$V_{Rd,eq,max}$	(kN)	9.8	14.47	25.2	39.67	56.93	77.47	101.27

Combined Tension and Shear Loading in accordance with AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information



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HYBRID INJECTION ADHESIVE ETA OPTION 1 ASSESSED FOR CRACKED & NON-CRACKED CONCRETE

MATERIAL PROPERTIES & CHEMICAL RESISTANCE

BIS-HY GEN2 MORTAR PROPERTIES

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 BIS-HY GEN2 are listed.

Properties	Test Method	Result
UV resistance		Pass
Water tightness	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 × 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



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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	✓	



NOTES

Lined area for notes.



AS 5216

Compliant NCC Anchor Design



Design of fastenings
under seismic actions



Design of redundant
non-structural
systems



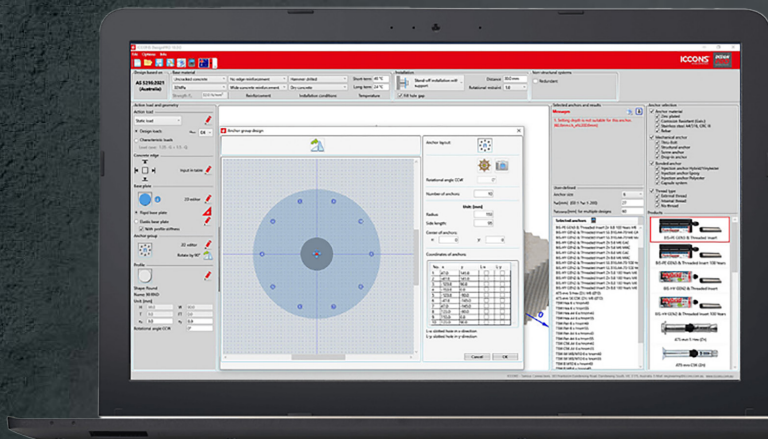
Combined loading
and displacement
calculations



Unique all-in-one
screen interface with
easy data input and
results display

- Interactive 3D model display for clear anchor and baseplate layout including rotation functionality
- Integrated FEA (Finite Element Analysis) for quick base plate thickness calculations
- Offers design solutions for rigid and elastic baseplates
- Flexible custom anchor and base plate geometry design for complex shapes and applications

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



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ICCONS® PTY LTD

VICTORIA - Head Office

383 Frankston Dandenong Rd,
Dandenong South,
Victoria, 3175
P: 03 9706 4344

NSW Branch

Unit A, 17 Seddon Street,
Bankstown,
New South Wales, 2200
P: 02 9791 6869

QLD Branch

42-44 Nealdon Dr,
Meadowbrook,
Queensland, 4131
P: 07 3200 6455

FNQ Branch

41 Corporate Crescent,
Garbutt,
Queensland, 4814
P: 07 2111 3453

S.A Branch

29-31 Weaver Street,
Edwardstown,
South Australia, 5039
P: 08 8234 5535

W.A. Branch

90 Christable Way,
Landsdale,
Western Australia, 6065
P: 08 6305 0008

N.T Branch

Unit 1, 14 Menmuir Street,
Winnellie,
Northern Territory, 0820
P: 08 8947 2758

NEW ZEALAND

SESTO FASTENERS

5E Piermark Drive,
Rosedale, Auckland,
New Zealand, 0632
P: +64 9415 8564
E: sestofasteners@gmail.com

THAILAND

ICCONS® (Thailand) Co. Ltd.

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