ICCONS®

25/0454

TDS | 2021.4

PURE-EPOXY BIS-PE GEN3

Pure-Epoxy GEN3

W: **www.iccons.com.au** E: **engineering@iccons.com.au**

25/0454

PURE-EPOXY BIS-PE GEN3

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

AS 5216 COMPLIANT

THREADED RODS/REBAR

- M8 - M30/Ø8 - 32 mm

RODS

- 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
- Significantly Higher Loads especially @ Higher Temperatures
- 100 Year Design Life
- Increased Embedment Depths
- Slow Curing
- Low VOC: A+ Rating
- Fire Rated
- Leed Tested
- Potable Water Approved
- DesignPRO support

USE CONDITIONS

- 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
- For Hollow Drilled Holes
- For Diamond Drilled Holes
- Installation in Dry and Wet Holes
- Installation in Flooded Holes
- Overhead Installation allowed.

APPROVALS & TEST REPORTS

- ETA 25/0454

TEMPERATURE RANGE

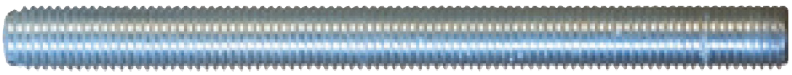
BIS-PE GEN3 injection mortar may be applied in the temperature ranges given below. An elevated base material temperature leads to a reduction of the bond resistance.

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 +72°C	+50°C	+72°C

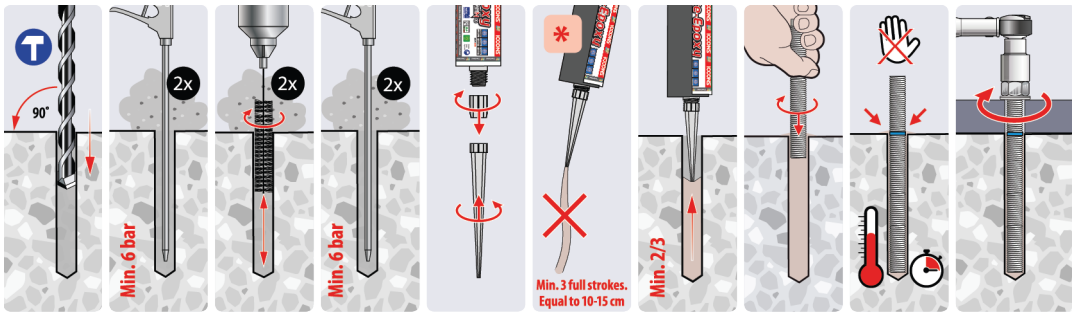
25/0454

THREADED RODS



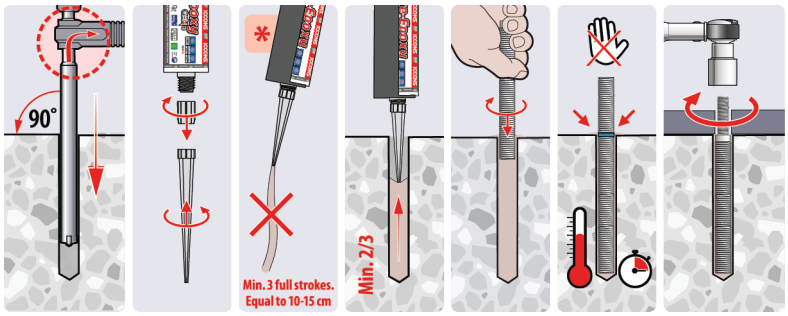
INSTALLATION PROCEDURES

HAMMER DRILLING



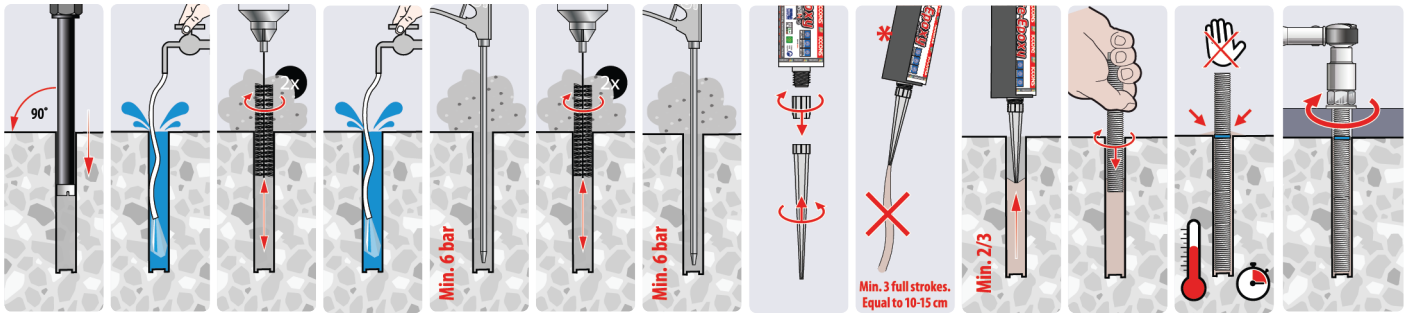
*Sqeeze out seperately a minimum of 3 full strokes (Equal to 10-15 cm) until the mortar shows a consistent colour.

HOLLOW DRILLING



*Sqeeze out seperately a minimum of 3 full strokes (Equal to 10-15 cm) until the mortar shows a consistent colour.

DIAMOND DRILLING



*Sqeeze out seperately a minimum of 3 full strokes (Equal to 10-15 cm) until the mortar shows a consistent colour.

CURING TIMES[1]

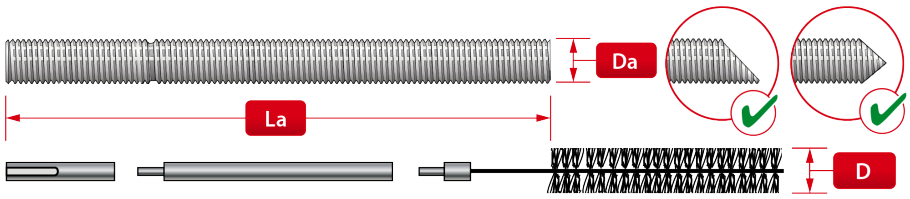
Temperature[2] °C	0 to +4	+5 to +9	+10 to +14	+15 to +19	+20 to +24	+25 to +34	+35 to +39	+40
Processing Working Time	90 min	80 min	60 min	40 min	30 min	12 min	8 min	8 min
Curing Time Dry Holes	144 h	48 h	28 h	18 h	12 h	9 h	6 h	4 h
Curing Time Wet Holes	288 h	96 h	56 h	36 h	24 h	18 h	12 h	8 h

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

25/0454

ETA - 25/0454

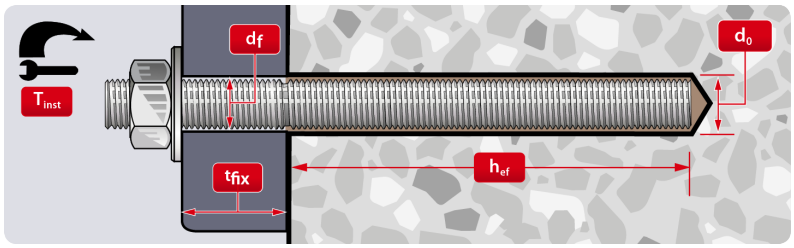
Specification Data for the use in Cracked & Uncracked Concrete according to EN 1992-4:2018, AS 5216 and Technical Report TR 055

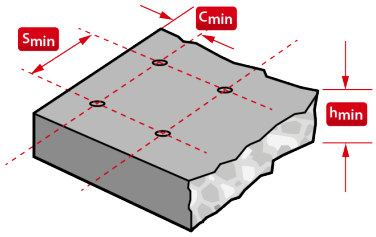


INSTALLATION DIMENSIONS

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	$T_{fix} \leq$	(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	1.53	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	35

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C / +40°C).
- Shear loads are calculated without the influence of a lever arm.
- Ψ_{sus} = 1.0, according to EN 1992-4:2018; eq. 7.14a.
- Recommended loads are with overall partial safety factor for action γ_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)

Steel Decisive

Non-Cracked Concrete			D_a	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)	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	72.7	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	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_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	9.4	13.2	23.5	32.1	50.9	69.9	90.7	107.6
	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)	9.4	13.2	23.5	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	13.2	23.5	32.1	50.9	69.9	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information.

25/0454

DESIGN RESISTANCE FLOODED HOLES (HAMMER DRILLED)

Steel Decisive

Non-Cracked Concrete			D_a	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)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.4
Steel 8.8	**Tensile**	N_{Rd}	(kN)	19.3	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	147.2	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	31.5	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_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	7.8	11	19.6	26.7	42.4	58.2	75.6	89.6
	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)	7.8	11	19.6	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	19.6	26.7	42.4	58.2	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

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)	8.6	13.8	20	32.7	51.9	71.3	92.6	109.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
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	9.4	16.8	22.9	36.3	49.9	64.8	76.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	6.7	9.4	16.8	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	9.4	16.8	22.9	36.3	49.9	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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)	8.6	13.8	20	27.3	43.3	59.4	77.2	91.5
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	13.8	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	7.9	14	19.1	30.3	41.6	54	64
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	5.6	7.9	14	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	7.9	14	19.1	30.3	41.6	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

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	19.3	28	45.8	72.7	99.8	129.6	153.7
	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	72.7	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_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	9.4	13.2	23.5	32.1	50.9	69.9	90.7	107.6
	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)	9.4	13.2	23.5	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	13.2	23.5	32.1	50.9	69.9	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

25/0454

DESIGN RESISTANCE FLOODED 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	19.3	28	38.2	60.6	83.2	108	128
	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)	17.9	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	147.2	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	31.5	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_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	7.8	11	19.6	26.7	42.4	58.2	75.6	89.6
	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)	7.8	11	19.6	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	19.6	26.7	42.4	58.2	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

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	32.7	51.9	71.3	92.6	109.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
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	9.4	16.8	22.9	36.3	49.9	64.8	76.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	6.7	9.4	16.8	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	9.4	16.8	22.9	36.3	49.9	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

25/0454

RECOMMENDED LOADS FLOODED 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	31.8	50.5	69.3	90	106.7
	Shear	V_{rec}	(kN)		6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)		12.8	18	26.3	31.8	50.5	69.3	90	106.7
	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	31.8	50.5	69.3	-	-
	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)		5.6	7.9	14	19.1	30.3	41.6	54	64
	Shear	V_{rec}	(kN)		6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)		5.6	7.9	14	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	7.9	14	19.1	30.3	41.6	-	-
	Shear	V_{rec}	(kN)		6	9.2	13.7	25.2	39.4	56.8	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

DESIGN RESISTANCE DRY/WET HOLES (DIAMOND DRILLING)

Steel Decisive

Non-Cracked Concrete			D_a	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)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.4
Steel 8.8	**Tensile**	N_{Rd}	(kN)	19.3	26.4	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	-	-

DESIGN RESISTANCE FLOODED HOLES (DIAMOND DRILLED)

Non-Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	12	19.3	28	32.7	51.9	71.3	92.6	109.8
	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)	16.6	22	31.5	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	21.9	31.5	32.7	51.9	71.3	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

RECOMMENDED LOADS DRY/WET HOLES (DIAMOND DRILLED)

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	32.7	51.9	71.3	92.6	109.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	13.8	18.8	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	-	-

RECOMMENDED LOADS FLOODED HOLES (DIAMOND DRILLED)

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	23.4	37.1	50.9	66.1	78.4
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	12.0	15.7	22.5	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	15.7	22.5	23.4	37.1	50.9	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

25/0454

BIS-PE GEN3 - DIAMOND DRILLED

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C / +40°C).
- Shear loads are calculated without the influence of a lever arm.
- Ψ_{sus} = 1.0, according to EN 1992-4:2018; eq. 7.14a. and AS 5216:2021; eq 6.2.5.2.
- Recommended loads are with overall partial safety factor for action γ_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 (DIAMOND DRILLED)

Steel Decisive

Cracked Concrete			D_a	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	32.1	50.9	69.9	90.7	107.6
	Shear	V_{Rd}	(kN)	37.6	59.2	84.8	110.4	134.4
Steel 8.8	**Tensile**	N_{Rd}	(kN)	32.1	50.9	69.9	90.7	107.6
	Shear	V_{Rd}	(kN)	50.4	78.4	112.8	147.2	179.2
A4-50	**Tensile**	N_{Rd}	(kN)	27.6	43.0	61.9	80.4	98.3
	Shear	V_{Rd}	(kN)	16.4	25.6	37.0	48.3	58.8
A4-70	**Tensile**	N_{Rd}	(kN)	32.1	50.9	69.9	-	-
	Shear	V_{Rd}	(kN)	35.3	55.1	79.5	-	-

DESIGN RESISTANCE FLOODED HOLES (DIAMOND DRILLED)

Steel Decisive

Cracked Concrete			D_a	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	24.7	42.0	62.2	83.3	101.8
	Shear	V_{Rd}	(kN)	37.6	59.2	84.8	110.4	134.4
Steel 8.8	**Tensile**	N_{Rd}	(kN)	24.7	42.0	62.2	83.3	101.8
	Shear	V_{Rd}	(kN)	49.4	78.4	112.8	147.2	179.2
A4-50	**Tensile**	N_{Rd}	(kN)	24.7	42.0	61.9	80.4	98.3
	Shear	V_{Rd}	(kN)	16.4	25.6	37.0	48.3	58.8
A4-70	**Tensile**	N_{Rd}	(kN)	24.7	42.0	62.2	-	-
	Shear	V_{Rd}	(kN)	35.3	55.1	79.5	-	-

25/0454

RECOMMENDED LOADS DRY/WET HOLES (DIAMOND DRILLED)

Cracked Concrete			D_s	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{rec}	(kN)	22.9	36.4	49.9	64.8	76.9
	Shear	V_{rec}	(kN)	26.9	42.3	60.6	78.9	96.0
Steel 8.8	**Tensile**	N_{rec}	(kN)	22.9	36.4	49.9	64.8	76.9
	Shear	V_{rec}	(kN)	36.0	56.0	80.6	105.1	128.0
A4-50	**Tensile**	N_{rec}	(kN)	19.7	30.7	44.2	57.4	70.2
	Shear	V_{rec}	(kN)	11.7	18.3	26.4	34.5	42.0
A4-70	**Tensile**	N_{rec}	(kN)	22.9	36.4	49.9	-	-
	Shear	V_{rec}	(kN)	25.2	39.4	56.8	-	-

RECOMMENDED LOADS FLOODED HOLES (DIAMOND DRILLED)

Cracked Concrete			D_s	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{rec}	(kN)	17.6	30.0	44.4	59.5	72.7
	Shear	V_{rec}	(kN)	26.9	42.3	60.6	78.9	96.0
Steel 8.8	**Tensile**	N_{rec}	(kN)	17.6	30.0	44.4	59.5	72.7
	Shear	V_{rec}	(kN)	35.3	56.0	80.6	105.1	128.0
A4-50	**Tensile**	N_{rec}	(kN)	17.6	30.0	44.2	57.4	70.2
	Shear	V_{rec}	(kN)	11.7	18.3	26.4	34.5	42.0
A4-70	**Tensile**	N_{rec}	(kN)	17.6	30.0	44.4	-	-
	Shear	V_{rec}	(kN)	25.2	39.4	56.8	-	-

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C/+40°C).
- Shear loads are calculated without the influence of a lever arm.
- a_{gap} = 1.0 (using special filling washer according ETA-25/0454 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/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)	9.4	13.2	22.5	27.3	43.3	59.4	77.1	91.4
	Shear	$V_{Rd,eq,C1}$	(kN)	6.2	9.5	14	26.3	41.4	59.4	77.3	94.1
Steel 8.8	**Tensile**	$N_{Rd,eq,C1}$	(kN)	9.4	13.2	22.5	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	13.2	22.5	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 FLOODED HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1 (HAMMER/HOLLOW DRILLING)

Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	$N_{Rd,eq,C1}$	(kN)	7.8	11	18.8	22.7	36	49.5	64.3	76.2
	Shear	$V_{Rd,eq,C1}$	(kN)	6.2	9.5	14	26.3	41.4	59.4	77.3	94.1
Steel 8.8	**Tensile**	$N_{Rd,eq,C1}$	(kN)	7.8	11	18.8	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	18.8	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 EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C2 (HAMMER/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)	-	-	16	20.1	35.6	53.8	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	19	34.2	54.9	79	-	-
A4-70	**Tensile**	$N_{Rd.eq,C2}$	(kN)	-	-	16	20.1	35.6	53.8	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	13.5	24.7	38.6	55.6	-	-

DESIGN RESISTANCE FLOODED HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C2 (HAMMER/HOLLOW DRILLING)

Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 8.8	**Tensile**	$N_{Rd.eq,C2}$	(kN)	-	-	13.4	16.8	29.7	44.9	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	19	34.2	54.9	79	-	-
A4-70	**Tensile**	$N_{Rd.eq,C2}$	(kN)	-	-	13.4	16.8	29.7	44.9	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	13.5	24.7	38.6	55.6	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C/+40°C).
- Shear loads are calculated without the influence of a lever arm.
- Ψ_{sus} = 1.0 EN 1992-4:2018; e.q 7.14a.
- Recommended loads are with overall partial safety factor for action Ψ_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)

Steel Decisive

Non-Cracked Concrete			D_a	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)	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	72.7	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	-	-

DESIGN RESISTANCE FLOODED HOLES (HAMMER DRILLED)

Non-Cracked Concrete			D_a	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)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.4
Steel 8.8	**Tensile**	N_{Rd}	(kN)	19.3	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	147.2	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	31.5	38.2	60.6	83.2	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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)	8.6	13.8	20	32.7	51.9	71.3	92.6	109.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
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	-	-

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)	8.6	13.8	20	31.8	50.5	69.3	90	106.7
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	12.8	18	26.3	31.8	50.5	69.3	90	106.7
	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	31.8	50.5	69.3	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

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	19.3	28	45.8	72.7	99.8	129.6	153.7
	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	72.7	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	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

DESIGN RESISTANCE FLOODED 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	19.3	28	38.2	60.6	83.2	108	128
	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)	17.9	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	147.2	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	31.5	38.2	60.6	83.2	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

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	32.7	51.9	71.3	92.6	109.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
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	-	-

RECOMMENDED LOADS FLOODED 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	31.8	50.5	69.3	90	106.7
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	12.8	18	26.3	31.8	50.5	69.3	90	106.7
	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	31.8	50.5	69.3	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

DESIGN RESISTANCE DRY/WET HOLES (HAMMER/HOLLOW DRILLING)

Steel Decisive

Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	8.7	12.3	20.7	31.4	50.9	69.9	90.7	107.6
	Shear	V_{Rd}	(kN)	8.8	13.6	20	37.6	59.2	84.8	110.4	134.6
Steel 8.8	**Tensile**	N_{Rd}	(kN)	8.7	12.3	20.7	31.4	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)	8.7	12.3	20.7	31.4	50.9	69.9	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

DESIGN RESISTANCE FLOODED HOLES (HAMMER/HOLLOW DRILLING)

Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{Rd}	(kN)	7.3	10.2	17.3	26.2	42.4	58.2	75.6	89.6
	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)	7.3	10.2	17.3	26.2	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	26.2	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)	7.3	10.2	17.3	26.2	42.4	58.2	-	-
	Shear	V_{Rd}	(kN)	8.3	12.8	19.2	35.3	55.1	79.5	-	-

RECOMMENDED LOADS DRY/WET HOLES (HAMMER/HOLLOW DRILLING)

Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{rec}	(kN)	6.2	8.8	14.8	22.4	36.3	49.9	64.8	76.8
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	6.2	8.8	14.8	22.4	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)	6.2	8.8	14.8	22.4	36.3	49.9	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

RECOMMENDED LOADS FLOODED HOLES (HAMMER/HOLLOW DRILLING)

Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	N_{rec}	(kN)	5.2	7.3	12.3	18.7	30.3	41.6	54	64
	Shear	V_{rec}	(kN)	6.3	9.7	14.3	26.9	42.3	60.6	78.9	96
Steel 8.8	**Tensile**	N_{rec}	(kN)	5.2	7.3	12.3	18.7	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	18.7	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)	5.2	7.3	12.3	18.7	30.3	41.6	-	-
	Shear	V_{rec}	(kN)	6	9.2	13.7	25.2	39.4	56.8	-	-

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C / +40°C).
- Shear loads are calculated without the influence of a lever arm.
- a_{gap} = 1.0 (using special filling washer according to ETA 25/0454 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/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)		9.4	13.2	22.5	27.3	43.3	59.4	77.1	91.4
	Shear	$V_{Rd,eq,C1}$	(kN)		6.2	9.5	14	26.3	41.4	59.4	77.3	94.1
Steel 8.8	**Tensile**	$N_{Rd,eq,C1}$	(kN)		9.4	13.2	22.5	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	13.2	22.5	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 FLOODED HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1 (HAMMER/HOLLOW DRILLING)

Cracked Concrete				D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 5.8	**Tensile**	$N_{Rd,eq,C1}$	(kN)		7.8	11	18.8	22.7	36	49.5	64.3	76.2
	Shear	$V_{Rd,eq,C1}$	(kN)		6.2	9.5	14	26.3	41.4	59.4	77.3	94.1
Steel 8.8	**Tensile**	$N_{Rd,eq,C1}$	(kN)		7.8	11	18.8	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	18.8	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 EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C2 (HAMMER/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)	-	-	16	20.1	35.6	53.8	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	19	34.2	54.9	79	-	-
A4-70	**Tensile**	$N_{Rd.eq,C2}$	(kN)	-	-	16	20.1	35.6	53.8	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	13.5	24.7	38.6	55.6	-	-

DESIGN RESISTANCE FLOODED HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C2 (HAMMER/HOLLOW DRILLING)

Cracked Concrete			D_a	M8	M10	M12	M16	M20	M24	M27	M30
Steel 8.8	**Tensile**	$N_{Rd.eq,C2}$	(kN)	-	-	13.4	16.8	29.7	44.9	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	19	34.2	54.9	79	-	-
A4-70	**Tensile**	$N_{Rd.eq,C2}$	(kN)	-	-	13.4	16.8	29.7	44.9	-	-
	Shear	$V_{Rd.eq,C2}$	(kN)	-	-	13.5	24.7	38.6	55.6	-	-

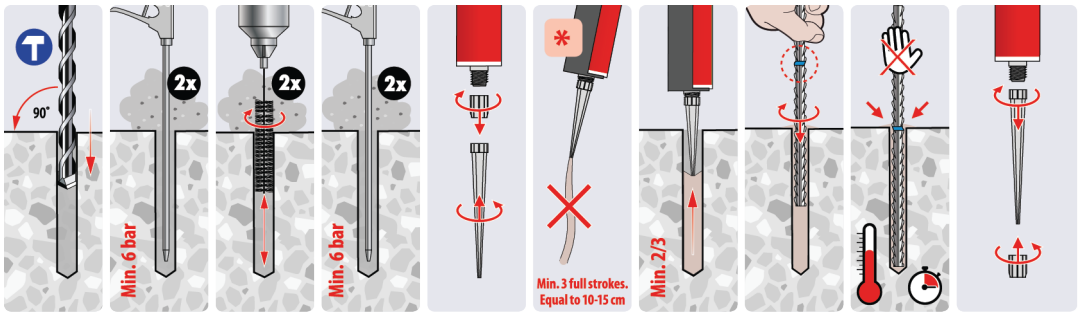
Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

REINFORCING BARS

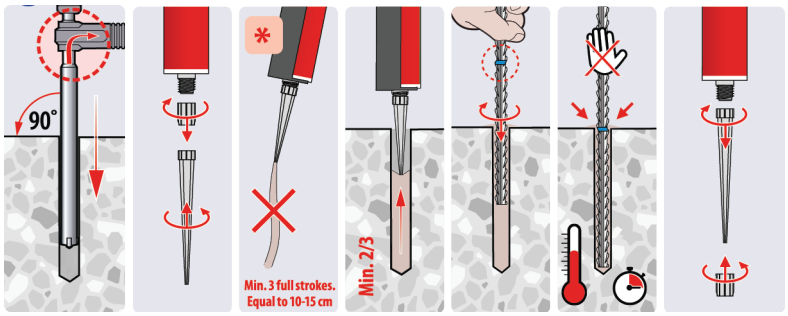
INSTALLATION PROCEDURES

HAMMER DRILLING



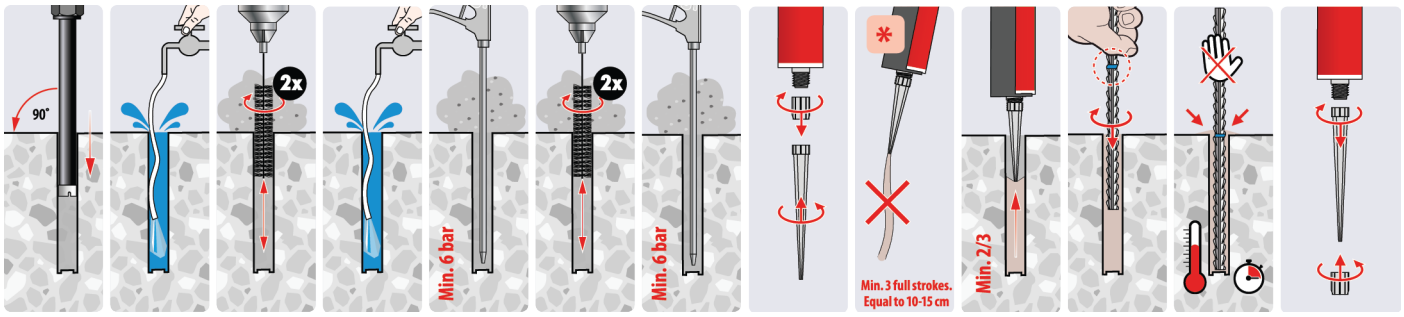
*Sqeeze out seperately a minimum of 3 full strokes (Equal to 10-15 cm) until the mortar shows a consistent colour.

HOLLOW DRILLING



*Sqeeze out seperately a minimum of 3 full strokes (Equal to 10-15 cm) until the mortar shows a consistent colour.

DIAMOND DRILLING



*Sqeeze out seperately a minimum of 3 full strokes (Equal to 10-15 cm) until the mortar shows a consistent colour.

CURING TIMES[1]

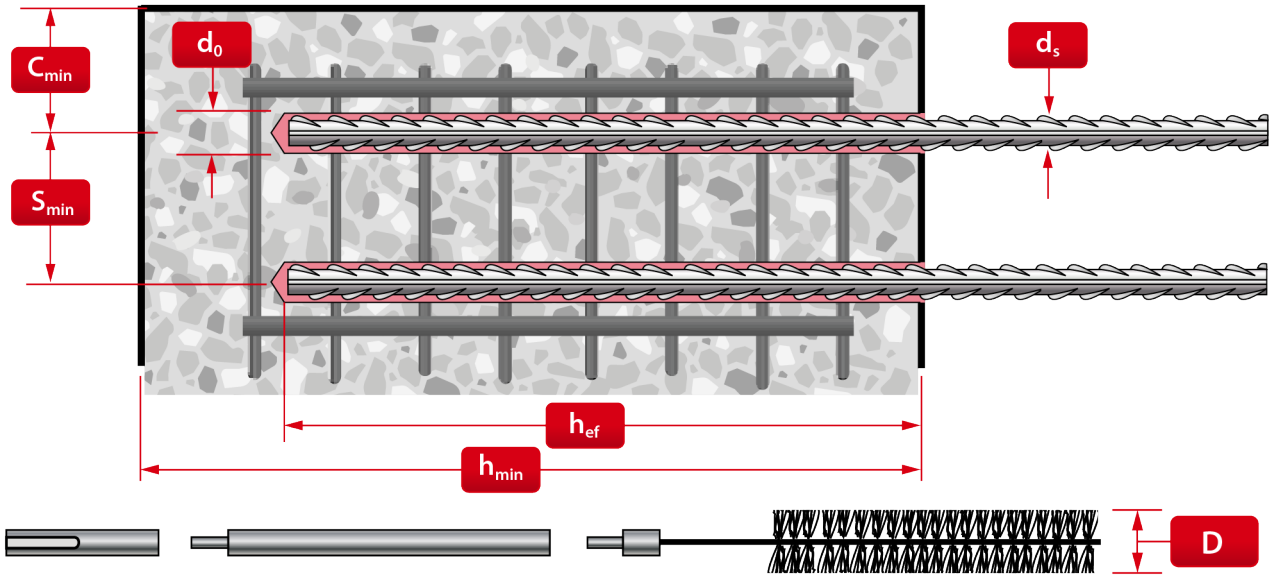
Temperature[2] °C	0 to +4	+5 to +9	+10 to +14	+15 to +19	+20 to +24	+25 to +34	+35 to +39	+40
Processing Working Time	90 min	80 min	60 min	40 min	30 min	12 min	8 min	8 min
Curing Time Dry Holes	144 h	48 h	28 h	18 h	12 h	9 h	6 h	4 h
Curing Time Wet Holes	288 h	96 h	56 h	36 h	24 h	18 h	12 h	8 h

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

25/0454

ETA - 25/0454

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



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)	10	12	12	14	14	16	18	20	25	32	32	35	40
Required Volume per cm Embedment Depth	V_s	(ml/cm)	0.34	0.75	0.41	0.90	0.49	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 mm ≥ 100 mm		h_{ef} + 2do							
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	20	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

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C / +40°C).
- Shear loads are calculated without the influence of a lever arm.
- Ψ_{sus} = 1.0 according to EN 1992-4:2018; eq. 7.14a.
- Recommended loads are with overall partial safety factor for action Ψ_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)

Steel Decisive

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		15.2	15.2	19.2	21.3	23.5	28	30.8	32.8	38.9	47.5
	Tensile Max.	$N_{Rd,max}$	(kN)		19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	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	Tensile Min.	$N_{Rd,min}$	(kN)		7	8.8	13.4	14.9	16.4	19.6	21.6	23	27.2	33.2
	Tensile Max.	$N_{Rd,max}$	(kN)		18.8	29.3	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	32.9	39.2	43.2	45.9	54.4	66.5
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

DESIGN RESISTANCE FLOODED HOLES (HAMMER DRILLED)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		12.7	12.7	16	17.8	19.6	23.3	25.7	27.3	32.4	39.6
	Tensile Max.	$N_{Rd,max}$	(kN)		19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	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	Tensile Min.	$N_{Rd,min}$	(kN)		5.9	7.3	11.2	12.4	13.7	16.3	18	19.1	22.7	27.7
	Tensile Max.	$N_{Rd,max}$	(kN)		15.6	24.4	42.7	58.2	76	118.7	170.9	185.4	232.6	303.8
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	32.9	39.2	43.2	45.9	54.4	66.5
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

RECOMMENDED LOADS DRY/WET HOLES (HAMMER DRILLED)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		10.9	10.9	13.7	15.2	16.8	20	22	23.4	27.8	33.9
	Tensile Max.	$N_{rec,max}$	(kN)		14	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		5	6.3	9.6	10.7	11.7	14	15.4	16.4	19.4	23.7
	Tensile Max.	$N_{rec,max}$	(kN)		13.4	20.9	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	23.5	28	30.8	32.8	38.9	47.5
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

RECOMMENDED LOADS FLOODED HOLES (HAMMER DRILLED)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		9.1	9.1	11.4	12.7	14	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	$N_{rec,max}$	(kN)		14	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		4.2	5.2	8	8.9	9.8	11.7	12.9	13.7	16.2	19.8
	Tensile Max.	$N_{rec,max}$	(kN)		11.2	17.5	30.5	41.5	58.4	84.8	122.1	132.5	166.2	217
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	23.5	28	30.8	32.8	38.9	47.5
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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	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)		19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	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	Tensile Min.	$N_{Rd,min}$	(kN)		7	8.8	13.4	14.9	16.4	19.6	21.6	23	27.2	33.2
	Tensile Max.	$N_{Rd,max}$	(kN)		18.8	29.3	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	32.9	39.2	43.2	45.9	54.4	66.5
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

DESIGN RESISTANCE FLOODED HOLES (HOLLOW DRILLING)

Steel Decisive

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		10.9	12.7	16	17.8	19.6	23.3	25.7	27.3	32.4	39.6
	Tensile Max.	$N_{Rd,max}$	(kN)		19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	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	Tensile Min.	$N_{Rd,min}$	(kN)		5.9	7.3	11.2	12.4	13.7	16.3	18	19.1	22.7	27.7
	Tensile Max.	$N_{Rd,max}$	(kN)		15.6	24.4	42.7	58.2	76	118.7	170.9	185.4	232.6	303.8
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	32.9	39.2	43.2	45.9	54.4	66.5
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

RECOMMEDED LOADS DRY/WET HOLES (HOLLOW DRILLING)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	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	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		5	6.3	9.6	10.7	11.7	14	15.4	16.4	19.4	23.7
	Tensile Max.	$N_{rec,max}$	(kN)		13.4	20.9	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	23.5	28	30.8	32.8	38.9	47.5
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

RECOMMEDED LOADS FLOODED HOLES (HOLLOW DRILLING)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		7.8	9.1	11.4	12.7	14	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	$N_{rec,max}$	(kN)		14	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		4.2	5.2	8	8.9	9.8	11.7	12.9	13.7	16.2	19.8
	Tensile Max.	$N_{rec,max}$	(kN)		11.2	17.5	30.5	41.5	54.3	84.8	122.1	132.5	166.2	217
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	23.5	28	30.8	32.8	38.9	47.5
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

DESIGN RESISTANCE DRY/WET HOLES (DIAMOND DRILLED)

Steel Decisive

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	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)		19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

DESIGN RESISTANCE FLOODED HOLES (DIAMOND DRILLED)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		11.7	12.7	16	17.8	16.8	20	22	23.4	27.8	33.9
	Tensile Max.	$N_{Rd,max}$	(kN)		19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

RECOMMEDED LOADS DRY/WET HOLES (DIAMOND DRILLED)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	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	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

RECOMMEDED LOADS FLOODED HOLES (DIAMOND DRILLED)

Non-Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		8.4	9.1	11.4	12.7	12	14.3	15.7	16.7	19.8	24.2
	Tensile Max.	$N_{rec,max}$	(kN)		14	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C / +40°C).
- Shear loads are calculated without the influence of a lever arm.
- a_{gap} = 1.0 (using special filling washer according ETA 25/0454 Annex A 3).
- Increasing factor for concrete Ψ_G = C25/30 to C50/60= 1.0

DESIGN RESISTANCE DRY/WET HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1

Steel Decisive

Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd.eq,min}$	(kN)	7	8.8	11.4	12.7	14	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	$N_{Rd.eq,max}$	(kN)	18.8	29.3	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd.eq,min}$	(kN)	6.4	10.1	14.5	19.8	25.8	33.3	36.7	39	46.3	56.5
	Shear Max.	$V_{Rd.eq,max}$	(kN)	6.4	10.1	14.5	19.8	25.8	40.3	58	63	79.1	103.2

DESIGN RESISTANCE FLOODED HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1

Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd.eq,min}$	(kN)	5.9	6.4	8.1	9	9.9	11.8	13	13.8	16.4	20
	Tensile Max.	$N_{Rd.eq,max}$	(kN)	15.6	24.4	42.7	58.2	76	110.6	145.4	154.5	183.2	223.8
	Shear Min.	$V_{Rd.eq,min}$	(kN)	6.4	10.1	14.5	19.8	25.8	33.3	36.7	39	46.3	56.5
	Shear Max.	$V_{Rd.eq,max}$	(kN)	6.4	10.1	14.5	19.8	25.8	40.3	58	63	79.1	103.2

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C / +40°C).
- Shear loads are calculated without the influence of a lever arm.
- Ψ_{sus} = 1.0 according EN 1992-4:2018; eq. 7.14a.
- Recommended loads are with overal partial safety factor for action Ψ_G = 1.4 The partial safety factors for action depend on the type of loading and shall ne taken from national regulations.

DESIGN RESISTANCE DRY/WET HOLES (HAMMER DRILLED)

Steel Decisive

Non-Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)	15.2	15.2	19.2	21.3	23.5	28	30.8	32.8	38.9	47.5
	Tensile Max.	$N_{Rd,max}$	(kN)	19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)	9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)	9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

DESIGN RESISTANCE FLOODED HOLES (HAMMER DRILLED)

Non-Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)	12.7	12.7	16	17.8	19.6	23.3	25.7	27.3	32.4	39.6
	Tensile Max.	$N_{Rd,max}$	(kN)	19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)	9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)	9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

RECOMMENDED LOADS DRY/WET HOLES (HAMMER DRILLED)

Non-Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)	10.9	10.9	13.7	15.2	16.8	20	22	23.4	27.8	33.9
	Tensile Max.	$N_{rec,max}$	(kN)	14	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)	6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)	6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

RECOMMENDED LOADS FLOODED HOLES (HAMMER DRILLED)

Non-Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)	9.1	9.1	11.4	12.7	14	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	$N_{rec,max}$	(kN)	14	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)	6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)	6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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	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)	19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)	9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)	9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

DESIGN RESISTANCE FLOODED HOLES (HOLLOW DRILLING)

Non-Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)	10.9	12.7	16	17.8	19.6	23.3	25.7	27.3	32.4	39.6
	Tensile Max.	$N_{Rd,max}$	(kN)	19.6	31	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)	9.2	14.5	20.7	28.2	36.9	56	61.7	65.6	77.7	95
	Shear Max.	$V_{Rd,max}$	(kN)	9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

RECOMMENDED LOADS DRY/WET HOLES (HOLLOW DRILLING)

Non-Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	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	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)	6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)	6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

RECOMMENDED LOADS FLOODED HOLES (HOLLOW DRILLING)

Non-Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)	7.8	9.1	11.4	12.7	14	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	$N_{rec,max}$	(kN)	14	22.2	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)	6.5	10.3	14.8	20.2	26.3	40	44.1	46.9	55.5	67.8
	Shear Max.	$V_{rec,max}$	(kN)	6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

DESIGN RESISTANCE DRY/WET HOLES (HAMMER/HOLLOW DRILLING)

Steel Decisive

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		6.5	8.2	13.2	14.9	16.4	19.6	21.6	23	27.2	33.2
	Tensile Max.	$N_{Rd,max}$	(kN)		17.4	27.2	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	32.9	39.2	43.2	45.9	54.4	66.5
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

DESIGN RESISTANCE FLOODED HOLES (HAMMER/HOLLOW DRILLING)

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd,min}$	(kN)		5.4	6.8	11	12.4	13.7	16.3	18	19.1	22.7	27.7
	Tensile Max.	$N_{Rd,max}$	(kN)		14.5	22.7	37.7	51.3	67	104.7	150.8	163.6	205.3	268.1
	Shear Min.	$V_{Rd,min}$	(kN)		9.2	14.5	20.7	28.2	32.9	39.2	43.2	45.9	54.4	66.5
	Shear Max.	$V_{Rd,max}$	(kN)		9.2	14.5	20.7	28.2	36.9	57.6	82.9	90	112.9	147.4

RECOMMENDED LOADS DRY/WET HOLES (HAMMER/HOLLOW DRILLING)

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		4.7	5.8	9.4	10.7	11.7	14	15.4	16.4	19.4	23.7
	Tensile Max.	$N_{rec,max}$	(kN)		12.4	19.4	31.7	43.2	56.4	88.1	126.8	137.8	172.9	225.6
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	23.5	28	30.8	32.8	38.9	47.5
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

RECOMMENDED LOADS FLOODED HOLES (HAMMER/HOLLOW DRILLING)

Cracked Concrete				d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{rec,min}$	(kN)		3.9	4.9	7.9	8.9	9.8	11.7	12.9	13.7	16.2	19.8
	Tensile Max.	$N_{rec,max}$	(kN)		10.4	16.2	26.9	36.7	47.9	74.8	107.7	116.9	146.6	191.5
	Shear Min.	$V_{rec,min}$	(kN)		6.5	10.3	14.8	20.2	23.5	28	30.8	32.8	38.9	47.5
	Shear Max.	$V_{rec,max}$	(kN)		6.5	10.3	14.8	20.2	26.3	41.1	59.2	64.3	80.7	105.3

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

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 N/mm².
- Temperature range I: (max. long/short term temperature +24°C / +40°C).
- Shear loads are calculated without the influence of a lever arm.
- a_{gap} = 1.0 (using special filling washer according ETA-25/0454 Annex A 3).
- Increasing factor for concrete Ψ_G = C25/30 to C50/60= 1.0

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

Steel Decisive

Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd.eq,min}$	(kN)	7	8.8	11.4	12.7	14	16.7	18.4	19.5	23.1	28.3
	Tensile Max.	$N_{Rd.eq,max}$	(kN)	18.8	29.3	44.4	60.5	79	123.4	177.6	192.9	242	315.9
	Shear Min.	$V_{Rd.eq,min}$	(kN)	6.4	10.1	14.5	19.8	25.8	33.3	36.7	39	46.3	56.5
	Shear Max.	$V_{Rd.eq,max}$	(kN)	6.4	10.1	14.5	19.8	25.8	40.3	58	63	79.1	103.2

DESIGN RESISTANCE FLOODED HOLES IN CASE OF SEISMIC PERFORMANCE CATEGORY C1 (HAMMER/HOLLOW DRILLING)

Cracked Concrete			d_{nom}	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø24	Ø25	Ø28	Ø32
B500B	Tensile Min.	$N_{Rd.eq,min}$	(kN)	5.9	6.4	8.1	9	9.9	11.8	13	13.8	16.4	20
	Tensile Max.	$N_{Rd.eq,max}$	(kN)	15.6	24.4	42.7	58.2	76	110.6	145.4	154.5	183.2	223.8
	Shear Min.	$V_{Rd.eq,min}$	(kN)	6.4	10.1	14.5	19.8	25.8	33.3	36.7	39	46.3	56.5
	Shear Max.	$V_{Rd.eq,max}$	(kN)	6.4	10.1	14.5	19.8	25.8	40.3	58	63	79.1	103.2

Combined Tension and Shear Loading in accordance with EN 1992-4:2018 and AS 5216. Please refer to ICCONS® DesignPRO software or contact ICCONS® engineering department at engineering@iccons.com.au for further information

25/0454

BIS-PE GEN3 MORTAR PROPERTIES

BIS-PE GEN3 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-PE GEN3 are listed.

Properties	Test Method	Result
Compressive strength	EN 196-1	122 N/mm²
Flexural strength	EN 196-1	66.0 N/mm²
Axial tensile strength	DIN EN ISO 527-2	44.2 N/mm²
E modulus	DIN EN ISO 527-2	6,300 N/mm²
Elongation at fracture	DIN EN ISO 527-2	1%
Degree of shrinkage	DIN 52450	≤ 1.4‰
Hardness Shore A	DIN EN ISO 868	99.4
Hardness Shore D	DIN EN ISO 868	86.1
Density	-	≤ 1.5 kg/dm³
Thermal conductivity	DIN EN 993-15	0.50 W/mK
Heat capacity	DIN EN 993-15	1,350 J/kgK
Electrical resistance	DIN IEC 93	$8.0 \cdot 10^{12}$ Ω

BIS-PE GEN3 CHEMICAL RESISTANCE

The resistance of the BIS-P GEN3 injection mortar to chemical substances is given in the table below. The data in this table are applicable to brief periods of chemical contact with fully cured adhesive (e.g. temporary contact with adhesive during a spill).

Chemical Agent	Concentration	Resistant	Not Resistant
Acetic acid (Vinegar)	40		✖
Acetone	10		✖
Ammonia, aqueous solution	5	✔	
Aniline	100		✖
Beer	100	✔	
Benzine (kp 100-140°F)	100	✔	
Benzene	100		✖
Boric Acid, aqueous solution		✔	
Calcium carbonate, suspended in water	All	✔	
Calcium chloride, suspended in water		✔	
Calcium hydroxide, suspended in water		✔	
Carbon tetrachloride	100	✔	
Caustic soda (Sodium hydroxide)	40	✔	
Citric acid	All	✔	
Chlorine	All	✔	
Diesel oil	100	✔	
Ethyl alcohol, aqueous solution	50		✖
Formaldehyde, aqueous solution	30	✔	
Formic acid (Methanoic acid)	100		✖
Formic acid (Methanoic acid)	10	✔	
Freon		✔	

25/0454

Chemical Agent	Concentration	Resistant	Not Resistant
Fuel Oil		✔	
Gasoline (premium grade)	100	✔	
Glycol (Ethylene glycol)		✔	
Hydrogen peroxide	30		✖
Hydrochloric acid (Muriatic acid)	Conc.		✖
Isopropyl alcohol	100		✖
Lactic acid	All		✖
Laitance		✔	
Linseed oil	100	✔	
Lubricating oil	100	✔	
Magnesium chloride, aqueous solution	All	✔	
Methanol	100		✖
Motor oil (SAE 20 W-50)	100	✔	
Nitric acid	10		✖
Oleic acid	100	✔	
Perchloroethylene	100	✔	
Petroleum	100	✔	
Phenol, aqueous solution (Carbonic acid)	8		✖
Phosphoric acid	85	✔	
Phosphoric acid	10	✔	
Potash lye (Potassium hydroxide, 10% and 40% solutions)		✔	
Potassium carbonate, aqueous solution	All	✔	
Potassium chlorite, aqueous solution	All	✔	
Potassium nitrate, aqueous solution	All	✔	
Sodium carbonate, aqueous solution	All	✔	
Sodium chloride, aqueous solution	All	✔	
Sodium phosphate, aqueous solution	All	✔	
Sodium silicate	All	✔	
Sulfuric acid	30		✖
Tartaric acid	All	✔	
Tetrachloroethylene	100	✔	
Toluene	100		✖
Turpentine	100	✔	
Trichloroethylene	100		✖

NOTES

DESIGN PRO
ADVANCED ANCHOR DESIGN SOFTWARE

AS 5216 COMPLIANT NCC ANCHOR DESIGN

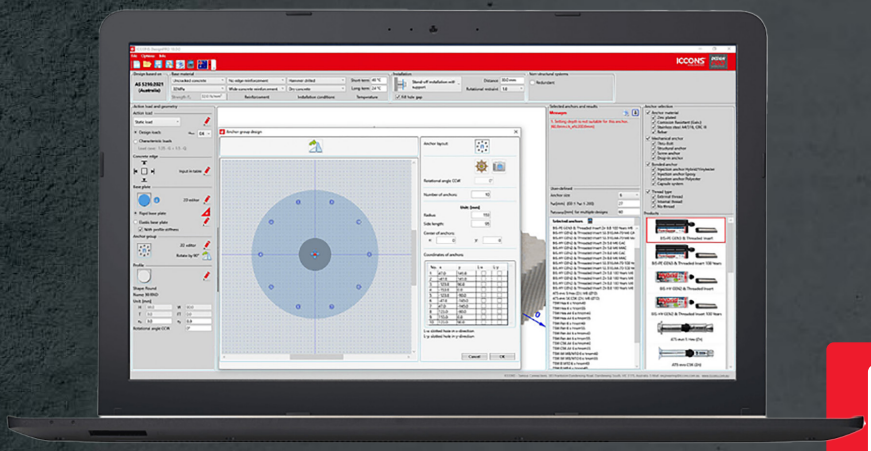
Design of fastenings under seismic actions

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



Scan to download **DesignPRO**

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,
Bangkhae, Bangkok
Thailand, 0160
P: **+ 66 2 801 0764**
F: **+ 66 2 801 0764**
M: **+ 66 8 1 710 8745**
E: **icconsthailand@iccons.com.au**