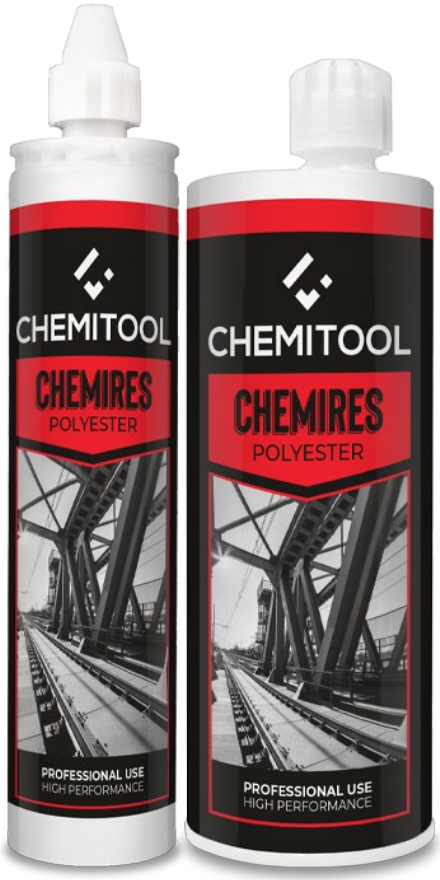
CHEMIRES POLYESTER CHEMICAL ANCHOR



CHEMIRES Polyester Chemical Anchor is a two component chemical anchoring injection system. A formulation derived from epoxy acrylate resin with high bond strength, developed principally to anchor threaded rods into concrete, and for masonry and hollow wall installations.

- ✓ **Easy application**
- ✓ **For medium loads**
- ✓ **Use in outdoor**
- ✓ **High solids content**
- ✓ **Easy extrusion and injection**
- ✓ **Can be applied horizontally or vertically**
- ✓ **Quick-drying**

APPLICATIONS

It can be used in concrete, tiles and hollow concrete blocks in a wide range of applications: fixing doors, balconies, guardrails, blinds, awnings, aerials, signs and industrial machinery.

INDICATIONS

Before injection, the expiration date of the product, the resistance of the support and the temperature of use must be checked. The application and adjustment of the product are only possible before it hardens.
This product should be stored between +5˚C and +25˚C.
Avoid direct sunlight.
The Shelf life of the product is 18 months from the manufacture date.

SAP	ml		EAN
CH080002	410	12	5601866276698
CH080003	300	15	5608907338544

Note: The technical information provided, either verbally or in writing, is based on our current knowledge and should be considered as collaboration without commitment. The use of the product is beyond our control, thus, we rule out any responsibility for its improper use. The customer is responsible to confirm and validate (by testing) if the product is suitable for the process and the type of use in question. Our purpose is exclusively to guarantee the quality of the products, according to our standards.

TECHNICAL DATA

Loads, Edge and Spacings based on Characteristic bond strengths - Showing steel failure

	Characteristic Resistance (kN)		Design Resistance (kN)		Recommended Load (kN)		Characteristic distances (mm)			Min Edge and Spacing (mm)		Hole Diameter concrete (mm)	Hole Diameter fixture (mm)	Max Torque (Nm)
Size (mm)	Tension N_{rk}	Shear V_{rk}	Tension N_{rd}	Shear V_{rd}	Tension N_{rec}	Shear V_{rec}	Edge $C_{cr,N}$	Spacing $S_{cr,N}$	Edge $C_{cr,V}$	C_{min}, S_{min}	Nominal Embedment (mm)			
8	14.85		6.87		4.91						60	10	9	10
	19.00	9.00	9.17	7.20	6.55	5.14	80	160	80	40	80			
	19.00		12.70		9.07						160			
10	16.57		7.67		5.48						60	12	12	20
	24.85	15.00	11.50	12.00	8.22	8.57	100	200	90	50	90			
	30.20		20.10		14.36						200			
12	21.82		10.10		7.22						70	14	14	40
	34.29	21.00	15.88	16.80	11.34	12.00	120	240	110	60	110			
	43.80		29.20		20.86						240			
16	31.54		14.60		10.43						80	18	18	80
	49.28	39.00	22.81	31.20	16.30	22.29	160	320	125	80	125			
	81.60		54.40		38.86						320			
20	41.20		19.07		13.62						90	24	22	120
	77.82	61.00	36.03	48.80	25.73	34.86	200	400	180	100	170			
	127.40		84.90		60.64						400			
24	46.31		21.44		15.31						100	28	26	160
	97.26	88.00	45.03	70.40	32.16	50.29	225	450	220	120	210			
	183.60		122.40		87.43						480			
30	57.70		26.71		19.08						120	35	32	200
	134.66	142.50	62.34	114.00	44.53	81.43	260	520	280	150	280			
	292.00		194.50		138.93						600			

= steel failure

Partial safety factor = 1.5

Design Resistance used with various stud strengths, material and rebar

5.8 Grade Steel Studding

Stud Diameter	Hole Diameter	Embedment Depth hef																				h_{ef} failure	$F_{d,s}$ design load
(mm)	(mm)	60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720	(mm)	(kN)
8	10	6.9	8.1	9.2	10.4	11.5	12.7															110	12.7
10	12	7.7	9.0	10.3	11.6	12.9	14.2	15.5	16.7	18.0	20.1											156	20.1
12	14		10.8	12.4	13.9	15.5	17.0	18.6	20.1	21.6	24.7	29.2										189	29.2
16	18			15.5	17.4	19.4	21.3	23.2	25.2	27.1	31.0	38.7	46.5	54.2	54.4							281	54.4
20	24			17.1	19.2	21.4	23.5	25.6	27.8	29.9	34.2	42.7	51.3	59.8	68.4	84.9						398	84.9
24	28					21.5	23.6	25.8	27.9	30.1	34.4	43.0	51.6	60.2	68.8	86.0	103.2					569	122.4
27	32						25.2	27.5	29.8	32.1	36.6	45.8	55.0	64.1	73.3	91.6	109.9	123.7				695	159.1
30	35							27.1	29.4	31.7	36.2	45.2	54.3	63.3	72.4	90.5	108.6	122.2	135.7			860	194.5
Depth (mm)		60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720		

8.8 Grade Steel Studding

Stud Diameter	Hole Diameter	Embedment Depth hef																				h_{ef} failure	$F_{d,s}$ design load
(mm)	(mm)	60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720	(mm)	(kN)
8	10	6.9	8.1	9.2	10.4	11.5	12.7	13.8	15.0	16.1	18.4	19.5										170	19.5
10	12	7.7	9.0	10.3	11.6	12.9	14.2	15.5	16.7	18.0	20.6	25.8										240	30.9
12	14		10.8	12.4	13.9	15.5	17.0	18.6	20.1	21.6	24.7	30.9	37.1									291	45.0
16	18			15.5	17.4	19.4	21.3	23.2	25.2	27.1	31.0	38.7	46.5	54.2	61.9							433	83.7
20	24			17.1	19.2	21.4	23.5	25.6	27.8	29.9	34.2	42.7	51.3	59.8	68.4	85.5						612	130.7
24	28					21.5	23.6	25.8	27.9	30.1	34.4	43.0	51.6	60.2	68.8	86.0	103.2					876	188.3
27	32						25.2	27.5	29.8	32.1	36.6	45.8	55.0	64.1	73.3	91.6	109.9	123.7				1069	244.8
30	35							27.1	29.4	31.7	36.2	45.2	54.3	63.3	72.4	90.5	108.6	122.2	135.7			1323	299.2
Depth (mm)		60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720		

10.9 Grade Steel Studding

Stud Diameter	Hole Diameter	Embedment Depth hef																				h_{ef} failure	$F_{d,s}$ design load
(mm)	(mm)	60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720	(mm)	(kN)
8	10	6.9	8.1	9.2	10.4	11.5	12.7	13.8	15.0	16.1	18.4											236	27.2
10	12	7.7	9.0	10.3	11.6	12.9	14.2	15.5	16.7	18.0	20.6	25.8										334	43.1
12	14		10.8	12.4	13.9	15.5	17.0	18.6	20.1	21.6	24.7	30.9	37.1									405	62.6
16	18			15.5	17.4	19.4	21.3	23.2	25.2	27.1	31.0	38.7	46.5	54.2	61.9							603	116.6
20	24			17.1	19.2	21.4	23.5	25.6	27.8	29.9	34.2	42.7	51.3	59.8	68.4	85.5						852	182.0
24	28					21.5	23.6	25.8	27.9	30.1	34.4	43.0	51.6	60.2	68.8	86.0	103.2					1220	262.2
27	32						25.2	27.5	29.8	32.1	36.6	45.8	55.0	64.1	73.3	91.6	109.9	123.7				1489	341.0
30	35							27.1	29.4	31.7	36.2	45.2	54.3	63.3	72.4	90.5	108.6	122.2	135.7			1842	416.7
Depth (mm)		60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720		

A4-70 Stainless Steel Studding

Stud Diameter	Hole Diameter	steel failure																				h_{ef} failure	$F_{d,s}$ design load
		Embedment Depth hef																					
(mm)	(mm)	60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720	(mm)	(kN)
8	10	6.9	8.1	9.2	10.4	11.5	12.7	13.7														119	13.7
10	12	7.7	9.0	10.3	11.6	12.9	14.2	15.5	16.7	18.0	20.6	21.7										169	21.7
12	14		10.8	12.4	13.9	15.5	17.0	18.6	20.1	21.6	24.7	30.9	31.6									204	31.6
16	18			15.5	17.4	19.4	21.3	23.2	25.2	27.1	31.0	38.7	46.5	54.2	58.8							304	58.8
20	24			17.1	19.2	21.4	23.5	25.6	27.8	29.9	34.2	42.7	51.3	59.8	68.4	85.5						429	91.7
24	28					21.5	23.6	25.8	27.9	30.1	34.4	43.0	51.6	60.2	68.8	86.0	103.2					615	132.1
27	32						25.2	27.5	29.8	32.1	36.6	45.8	55.0	64.1	73.3	80.2					1	350	80.2
30	35							27.1	29.4	31.7	36.2	45.2	54.3	63.3	72.4	90.5	98.1				1	434	98.1
Depth (mm)		60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720		

*1 = Tensile strength 500N/mm2

A4-80 Stainless Steel Studding

Stud Diameter	Hole Diameter																					h_{ef} failure	$F_{d,s}$ design load
		Embedment Depth hef																					
(mm)	(mm)	60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720	(mm)	(kN)
8	10	6.9	8.1	9.2	10.4	11.5	12.7	13.8	15.0	15.7												136	15.7
10	12		9.0	10.3	11.6	12.9	14.2	15.5	16.7	18.0	20.6	24.8										193	24.8
12	14		10.8	12.4	13.9	15.5	17.0	18.6	20.1	21.6	24.7	30.9	36.1									233	36.1
16	18			15.5	17.4	19.4	21.3	23.2	25.2	27.1	31.0	38.7	46.5	54.2	61.9							347	67.2
20	24			17.1	19.2	21.4	23.5	25.6	27.8	29.9	34.2	42.7	51.3	59.8	68.4	85.5						491	104.8
24	28					21.5	23.6	25.8	27.9	30.1	34.4	43.0	51.6	60.2	68.8	86.0	103.2					615	132.1
27	32						25.2	27.5	29.8	32.1	36.6	45.8	55.0	64.1	73.3	80.2					2	350	80.2
30	35							27.1	29.4	31.7	36.2	45.2	54.3	63.3	72.4	90.5	98.1				2	434	98.1
Depth (mm)		60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	480	540	600	660	720		

High bond reinforcing bars Fyk=500N/mm2

Rebar Diameter	Hole Diameter																					h_{ef} failure	$F_{d,s}$ yield load
		Embedment Depth hef																					
(mm)	(mm)	60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	500	560	640	720	800	(mm)	(kN)
8	12	6.1	7.1	8.1	9.1	10.1	11.1	12.2	13.2	14.2	16.2											216	21.9
10	14	7.3	8.5	9.7	10.9	12.1	13.3	14.6	15.8	17.0	19.4	24.3										281	34.1
12	16		9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.2	20.8	25.9	31.1									379	49.2
16	20			12.7	14.3	15.9	17.5	19.1	20.7	22.3	25.5	31.9	38.2	44.6	51.0							549	87.4
20	25			13.6	15.3	17.0	18.7	20.4	22.1	23.8	27.1	33.9	40.7	47.5	54.3	67.9						805	136.6
25	30					17.8	19.5	21.3	23.1	24.9	28.4	35.5	42.6	49.7	56.8	71.0	88.8					1107	196.5
28	35						20.6	22.5	24.4	26.2	30.0	37.5	45.0	52.5	60.0	75.0	93.7	104.9				1429	267.8
32	40								25.5	27.4	31.4	39.2	47.1	54.9	62.7	78.4	98.0	109.8	125.5			1783	349.7
Depth (mm)		60	70	80	90	100	110	120	130	140	160	200	240	280	320	400	500	560	640	720	800		

*1= Tensile strength 500N/mm2 *2= Tensile strength 700N/mm2

Characteristic and Design Load resistances based on characteristic bond strengths for hef 4d (min. embedment) to 20d

	Non Cracked Concrete						Cracked Concrete						
	Characteristic Resistance (kN)		Design Resistance (kN)		Recommended Load (kN)		Characteristic Resistance (kN)		Design Resistance (kN)		Recommended Load (kN)		Nominal Embed-ment
Size (mm)	Tension N_{rk}	Shear V_{rk}	Tension N_{rd}	Shear V_{rd}	Tension N_{rec}	Shear V_{rec}	Tension N_{rk}	Shear V_{rk}	Tension N_{rd}	Shear V_{rd}	Tension N_{rec}	Shear V_{rec}	(mm)
8	14.85	9.00	6.87	7.20	4.91	5.14	Not Applicable		Not Applicable		Not Applicable		60
	19.80		9.17		6.55								**80**
	39.60		18.33		13.10								160
10	16.57	15.00	7.67	12.00	5.48	8.57	Not Applicable		Not Applicable		Not Applicable		60
	24.85		11.50		8.22								**90**
	55.22		25.56		18.26								200
12	21.82	21.00	10.10	16.80	7.22	12.00	Not Applicable		Not Applicable		Not Applicable		70
	34.29		15.88		11.34								**110**
	74.82		34.64		24.74								240
16	31.54	39.00	14.60	31.20	10.43	22.29	Not Applicable		Not Applicable		Not Applicable		80
	49.28		22.81		16.30								**125**
	126.17		58.41		41.72								320
20	41.20	61.00	19.07	48.80	13.62	34.86	Not Applicable		Not Applicable		Not Applicable		90
	77.82		36.03		25.73								**170**
	183.10		84.77		60.55								400
24	46.31	88.00	21.44	70.40	15.31	50.29	Not Applicable		Not Applicable		Not Applicable		100
	97.26		45.03		32.16								**210**
	222.30		102.92		73.51								480
30	57.70	142.50	26.71	114.00	19.08	81.43	Not Applicable		Not Applicable		Not Applicable		120
	134.66		62.34		44.53								**280**
	288.56		133.59		95.42								600

Table notes : see back page

Bond Strength Factors

Concrete Strength N/mm2	C15/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Non-Cracked fc =	0.97	1.00	1.02	1.04	1.07	1.10	1.12	1.15

Influence of environmental conditions in non cracked concrete

		M8	M10	M12	M16	M20	M24	M30
Temp I 40°C / 24°C	Dry and Wet	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Temp II 80°C / 50°C	Dry and Wet	0.90	0.88	0.87	0.86	0.85	0.84	0.82

Select concrete strength and environmental condition and apply to bond strength table on page 4

Characteristic and Design Load resistances for REBAR based on characteristic bond strengths for hef 4d (min. embedment) to 20d

	Non Cracked Concrete						Cracked Concrete						
	Characteristic Resistance (kN)		Design Resistance (kN)		Recommended Load (kN)		Characteristic Resistance (kN)		Design Resistance (kN)		Recommended Load (kN)		Nominal Embed-ment
Rebar ø	Tension N_{rk}	Shear V_{rk}	Tension N_{rd}	Shear V_{rd}	Tension N_{rec}	Shear V_{rec}	Tension N_{rk}	Shear V_{rk}	Tension N_{rd}	Shear V_{rd}	Tension N_{rec}	Shear V_{rec}	(mm)
8	12.87	13.95	6.13	9.30	4.38	6.64	Not Applicable		Not Applicable		Not Applicable		60
	17.16		8.17		5.84								**80**
	34.33		16.35		11.68								160
10	15.40	21.45	7.33	14.30	5.24	10.21							60
	23.10		11.00		7.86								**90**
	51.38		24.47		17.48								200
12	19.20	31.05	9.14	20.70	6.53	14.79							70
	30.18		14.37		10.27								**110**
	65.86		31.36		22.40								240
16	26.98	55.50	12.85	37.00	9.18	26.43							80
	42.15		20.07		14.34								**125**
	107.90		51.38		36.70								320
20	31.20	86.55	14.86	57.70	10.61	41.21							90
	58.93		28.06		20.04								**170**
	138.68		66.04		47.17								400
25	37.56	135.00	17.89	90.00	12.78	64.29							100
	78.87		37.56		26.83								**210**
	187.78		89.42		63.87								500
28	44.82	168.75	21.34	112.50	15.24	80.36							112
	112.06		53.36		38.12								**280**
	224.11		106.72		76.23								560
32	52.32	220.95	24.91	147.30	17.80	105.22							128
	130.79		62.28		44.49								**320**
	261.58		124.56		88.97								640

Table notes : see back page

Bond Strength Factors – REBAR

Influence of concrete strength on combined pull out and concrete cone resistance

Concrete Strength N/mm2 (MPa)	C15/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Non-Cracked fc =	0.97	1.00	1.02	1.04	1.07	1.10	1.12	1.15

Influence of environmental conditions in non cracked concrete

		Ø 8	Ø 10	Ø 12	Ø 16	Ø 20	Ø 25	Ø 28	Ø 32
Temp I 40°C / 24°C	Dry and Wet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Temp II 80°C / 50°C	Dry and Wet	0.90	0.90	0.88	0.88	0.86	0.86	0.84	0.84

Table notes: see back page

Material Properties for grades of threaded rod

	Stud Grade 8.8		Stud Grade 10.9		Stud Grade A4-70		Stud Grade A4-80	
Stud Diameter (mm)	$N_{rk,\,s}$ (kN)	$N_{rd,\,s}$ (kN)	$N_{rk,\,s}$ (kN)	$N_{rd,\,s}$ (kN)	$N_{rk,\,s}$ (kN)	$N_{rd,\,s}$ (kN)	$N_{rk,\,s}$ (kN)	$N_{rd,\,s}$ (kN)
M8	29.2	19.5	38.1	27.2	25.6	13.7	29.2	15.6
M10	46.4	30.9	60.3	43.1	40.6	21.7	46.4	24.8
M12	67.4	44.9	87.7	62.6	59.0	31.6	67.4	36.0
M16	125.6	83.7	163.0	116.4	109.9	58.8	125.7	67.2
M20	196.1	130.7	255.0	182.1	171.5	91.7	196.0	104.8
M24	282.5	188.3	367.0	262.1	247.1	132.1	293.0	132.1
M30	448.8	299.2	583.0	416.4	280.5	150.0	392.7	210.0

	Stud Grade 8.8		Stud Grade 10.9		Stud Grade A4-70		Stud Grade A4-80	
Stud Diameter (mm)	$V_{rk,\,s}$ (kN)	$V_{rd,\,s}$ (kN)	$V_{rk,\,s}$ (kN)	$V_{rd,\,s}$ (kN)	$V_{rk,\,s}$ (kN)	$V_{rd,\,s}$ (kN)	$V_{rk,\,s}$ (kN)	$V_{rd,\,s}$ (kN)
M8	14.6	11.7	19.0	15.2	12.8	8.2	14.6	9.4
M10	23.2	18.6	30.2	24.1	20.3	13.0	23.2	14.9
M12	33.7	27.0	43.8	35.1	29.5	18.9	33.7	21.6
M16	62.8	50.2	81.6	65.3	55.0	35.2	62.8	40.3
M20	98.0	78.4	127.4	101.9	85.8	55.0	98.0	62.8
M24	141.2	113.0	183.6	146.8	123.6	79.2	141.2	90.5
M30	224.4	179.5	291.5	215.9	140.3	89.9	196.4	125.9

Rebar Diameter (mm)	Rebar BSt 500 to DIN 488 $N_{rk,s}$ (kN)	Rebar BSt 500 to DIN 488 $N_{rd,s}$ (kN)	$V_{rk,s}$ (kN)	$V_{rd,s}$ (kN)
8	28.0	20.0	14.0	9.3
10	43.0	30.7	21.5	14.3
12	62.0	44.3	31.0	20.7
14	85.0	60.7	42.5	28.3
16	111.0	79.3	55.5	37.0
20	173.0	123.6	86.5	57.7
25	270.0	192.9	135.0	90.0
32	442	315.7	221	147.3

Effect of Anchor Spacing - Tension

Anchor Spacing	Stud / Rebar Diameter						
(mm)	8	10	12	16	20	24	30
40	0.64						
50	0.67	0.63					
60	0.70	0.65	0.63				
70	0.73	0.67	0.64				
80	0.76	0.69	0.66	0.63			
90	0.79	0.72	0.68	0.64			
100	0.82	0.74	0.70	0.65	0.63		
120	0.87	0.79	0.74	0.68	0.65	0.63	
150	0.96	0.86	0.80	0.73	0.68	0.65	0.63
160	1.00	0.88	0.82	0.74	0.70	0.66	0.64
175		0.92	0.85	0.76	0.71	0.68	0.65
200		1.00	0.90	0.80	0.74	0.71	0.68
225			0.95	0.84	0.77	0.74	0.70
240			1.00	0.86	0.79	0.76	0.72
250				0.87	0.80	0.77	0.73
275				0.91	0.83	0.80	0.75
280				0.92	0.84	0.80	0.76
300				0.95	0.86	0.82	0.78
320				1.00	0.88	0.85	0.80
350					0.92	0.88	0.83
400					1.00	0.94	0.88
425						0.97	0.90
450						1.00	0.93
480							0.96
520							1.00

Effect of Edge Distance - Tension

Edge Distance	Stud / Rebar Diameter						
(mm)	8	10	12	16	20	24	30
40	0.64						
50	0.73	0.63					
60	0.82	0.70	0.63				
70	0.90	0.77	0.68				
80	1.00	0.84	0.74	0.63			
90		0.91	0.80	0.67			
100		1.00	0.86	0.71	0.63		
110			0.92	0.76	0.66		
120			1.00	0.80	0.70	0.64	
140				0.89	0.77	0.68	0.63
160				1.00	0.84	0.76	0.66
180					0.91	0.84	0.72
200					1.00	0.92	0.78
225						1.00	0.86
250							0.94
260							1.00

Effect of Edge Distance - Shear

Edge Distance	Stud / Rebar Diameter						
(mm)	8	10	12	16	20	24	30
40	0.25						
50	0.44	0.30					
60	0.63	0.48	0.30				
70	0.81	0.65	0.44				
80	1.00	0.83	0.58	0.40			
90		1.00	0.72	0.53			
100			0.86	0.67	0.35		
110			1.00	0.80	0.44		
125				1.00	0.58	0.35	
140					0.72	0.45	0.30
160					0.91	0.58	0.36
180					1.00	0.71	0.47
200						0.84	0.59
225						1.00	0.74
250							0.88
280							1.00

MINIMUM CURING TIME

Concrete temperature (°C)	-10*	-5*	5	15	25	35
Gel - Working time (min)	50	40	20	9	5	3
Min. Curing time in dry concrete	240	180	90	60	30	20
Min. Curing time in wet concrete	x2	x2	x2	x2	x2	x2

* Resin temperature must be at least 20ºC.

- Full cure 24hours.

- All specifications based on supplied mixer

TEMPERATURE RANGES

Temperature Range	Concrete Service Temperature	Maximum Long Term Concrete Temp	Maximum Short Term Concrete Temp
Range I	-40°C to +40°C	+24°C	+40°C
Range II	-40°C to +80°C	+50°C	+80°C

Service temperature range: Range of ambient temperatures after installation and during the lifetime of the anchor.

Short term temperature: Temperatures within the service temperature range which vary over short intervals, e.g. day/night cycles and freeze/thaw cycles.

Long term temperature: Temperature, within the service temperature range, which will be approximately constant **over significant periods of time.**

Long term temperatures will include constant or near constant temperatures, such as those experienced in cold stores or next to heating installations.

PHYSICAL PROPERTIES

	N/mm2	Test Method
Compressive Strength	43,5	EN ISO 604 / ASTM 695
Flexural Strength	14.1	EN ISO 178 / ASTM 790
Flexural Modulus	2589.6	EN ISO 178 / ASTM 790
Tensile Strength	7.4	EN ISO 527 / ASTM 638
E Modulus	4365.5	EN ISO 527 / ASTM 638
VOC Content	A+ Rating	-

NOTES

PAGE 2 and 3:

Typical characteristic and design resistance performance with 5.8 grade studding and associated installation data

All data is based on correct installation - see instructions

No influence of edge and spacing

Minimum base material thickness hef +30mm >100mm for M8 to M12 and for M16 to M30 hef +2 d

h_{ef} range minimum or 4d whichever is greatest to 20d

Concrete strength C20/25 - f_c cube = 25N/mm (25MPa)

5.8 grade stud

Temperature range i maximum long term / short term temperature +24/40ºC

PAGE 3 and 4:

Design Resistance with various stud strengths, material and rebar

Note 1 for stainless steel tensile strength is 500N/mm^2 (500MPa)

Note 2 for stainless steel tensile strength is 700N/mm^2 (500MPa)

Data shown below the minimum embedment depth is for reference only.

PAGE 5 and 6:

Characteristic and Design Load resistances based on characteristic bond strengths for hef 4d (minimum embedment) to 20d

All data is based on correct installation - see instructions

No influence of edge and spacing

Minimum base material thickness hef +30mm >100mm for M8 to M12 and for M16 to M30 hef +2 d

h_{ef} range minimum or 4d whichever is greatest to 20d

Concrete strength C20/25 - f_c cube = 25N/mm (25MPa)

Temperature range i maximum long term / short term temperature +24/40ºC

PAGE 7:

Material Properties for grades of other threaded rod and rebar

All grades shown for information

M30 studding is 8.8 grade instead of 5.8 grade

M30 for A4-70 tensile strength of 500N/mm2 (500MPa), instead of 700N/mm2 (700MPa)

Safety factor is 1.5 tension and 1.25 shear for all carbon steel

Safety factor is 1.56 for stainless steel, up to M24, M30 and M36 is 2.0

Safety factor is 1.4 tension and 1.5 shear for BSt 500 rebar

Partial Safety Factors for pages 2,3,4,5,6,7,8, 9:

1.8 for all sizes studs

1.8 for all sizes rebar