XCHEM® PRO

V401 VINYLESTER

Complies with **AS 5216** and **NCC** (National Construction Code)

WORKING LIFE 100+ YEARS ETA

*Pending approval

V401 XCHEM® PRO VINYLESTER 300 | 420 ml

Description

A two-component chemical anchoring injection system.
A formulation derived from vinylester resin, possessing high bond strength and developed principally to anchor threaded studs and rebar into concrete.

Applications	Highlights	
• Cracked and non-cracked concrete • Natural stone* • Solid and hollow masonry • Aerated concrete	CRACKED	NON-CRACKED
	MASONRY	COLOUR TECH

Features	
• Fast working times for early loading in time-sensitive applications • Styrene-free for indoors and in enclosed spaces • Use in wet or flooded holes • Dustless drilling	• High durability • Chemical resistance • Used for studs, rebar and masonry • Colour change technology • Nine helical mixing deflectors inside nozzle†

Material	VE VINYLESTER
Finish	VE VINYLESTER 300 / 420 ML CARTRIDGE

* Natural stone not included in ETA. Tensile load capabilities may vary in natural stone. Preliminary tests prior to application are recommended.

ETA AS 5216

FAST CURING

FIRE RATED



†Use with Nozzle MCXND3



Heavy Duty

USE IN CONCRETE STRUCTURAL APPLICATIONS WHERE LOADING IS CRITICAL.

ETA	CE	OPT 1	24/0507
		OPT 7	
		REBAR	24/0506
		MASONRY	24/0504

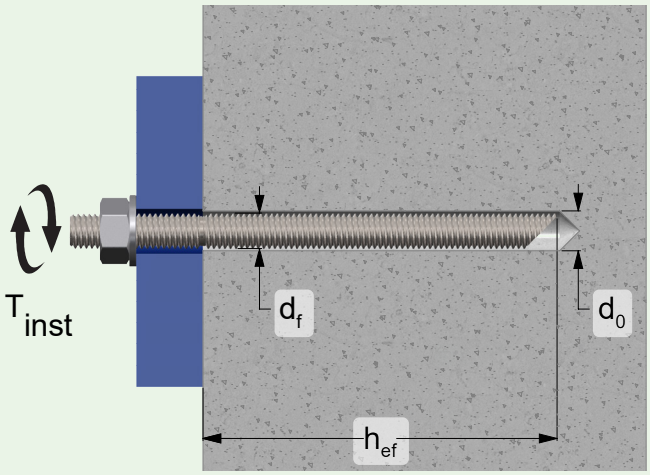
A+	LEED	WRAS APPROVED MATERIAL
VOC / A+ GRADE	LEED TESTED	POTABLE WATER

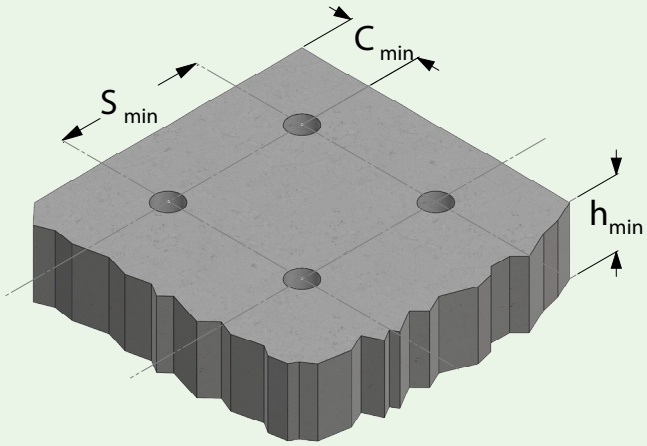
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XCHEM® PRO

V401 VINYLESTER





Installation Parameters

		M8	M10	M12	M16	M20	M24
Effective Anchor Depth	h_{ef} (mm)	60–96	60 –120	70–144	80–192	90–240	100–288
Hole Diameter	d_0 (mm)	10	12	14	18	22	28
Fixture Hole	d_f (mm)	9	12	14	18	22	26
Max. Torque	T_{inst} (Nm)	10	12	20	40	70	90

Member Thickness, Edge Distance and Spacing

		M8	M10	M12	M16	M20	M24
Min. Concrete Thickness	h_{min} (mm)	h_{ef} + 30mm ≥100mm			h_{ef} + 2 d_0		
Min. Edge Distance	C_{min} (mm)	35	40	45	50	60	65
Min. Spacing	S_{min} (mm)	40	40	60	75	95	115

Chemical Volume Calculator*

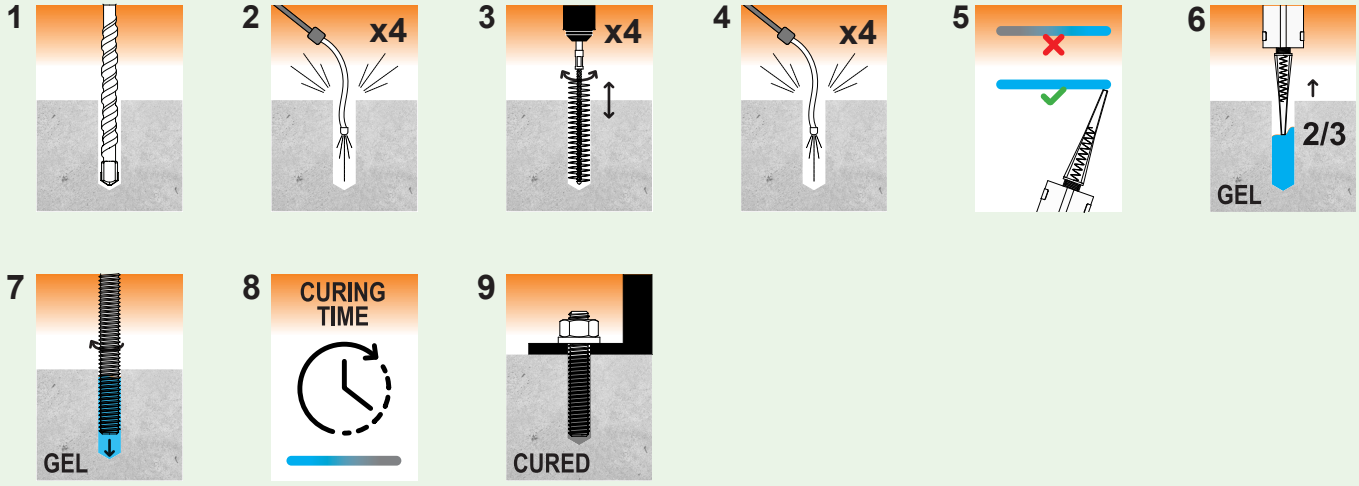
		M8	M10	M12	M16	M20	M24
Volume of Chemical per cm of Hole Depth	mL / cm	0.5	0.8	1.0	1.7	2.5	4.1
Standard Hole Depth	mm	80	90	110	125	170	210
Volume Required for Standard Hole	mL	4	7	11	21	43	86
Total Holes per 300 mL Tube		68	42	25	13	7	3
Total Holes per 420 mL Tube		95	59	35	19	9	5

*Volume calculation based on 2/3 standard hole depth filled and 5% product waste due to initial and residual mixing.

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Installation



Refer to technical assessment (**ETA**) document for full installation.

Use with **MCXND3**





Working and curing times (minutes)

Base Material Temp.	0°C–9°C	10°C–19°C	20°C–29°C	30°C–40°C
Gel Working Time	20	9	5	3
Curing Time Dry Concrete	90	60	30	20
Curing Time Wet Concrete	180	120	60	40

Note: resin temperature must be at least 20°C.

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- **Design Resistance:** ultimate Design loads in kN for single anchor in C20/25.
  Temperature 24°C average–40°C maximum (short-term temperature)
  No influence of edge distances or anchor spacing considered.
- **Shear Loads:** steel strength without lever arm.

Design Resistance Dry/Wet Hammer-Drilled Holes

Steel Decisive

Non-cracked Concrete			M8	M10	M12	M16	M20	M24
Embedment Depth (mm)			80	90	110	125	170	210
5.8	Tension	N_{Rd} [kN]	9.8	12.5	18.3	22.6	36.3	50.9
	Shear	V_{Rd} [kN]	7.2	12.0	16.8	31.2	48.8	70.4
8.8	Tension	N_{Rd} [kN]	9.8	12.5	18.3	22.6	36.3	50.9
	Shear	V_{Rd} [kN]	12.0	18.4	27.2	50.4	78.4	112.8
A4-70	Tension	N_{Rd} [kN]	9.8	12.5	18.3	22.6	36.3	50.9
	Shear	V_{Rd} [kN]	8.3	12.8	19.2	35.3	55.1	79.5
A4-80	Tension	N_{Rd} [kN]	9.8	12.5	18.3	22.6	36.3	50.9
	Shear	V_{Rd} [kN]	11.3	17.3	25.6	47.4	73.7	106.0

Cracked Concrete			M8	M10	M12	M16	M20	M24
Embedment Depth (mm)			80	90	110	125	170	210
5.8	Tension	N_{Rd} [kN]	3.1	4.4	5.5	8.3	14.1	21.0
	Shear	V_{Rd} [kN]	7.2	12.0	16.8	31.2	48.8	70.4
8.8	Tension	N_{Rd} [kN]	3.1	4.4	5.5	8.3	14.1	21.0
	Shear	V_{Rd} [kN]	12.0	18.4	27.2	50.4	78.4	112.8
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Design Resistance Dry/Wet Hollow/Vacuum-Drilled Holes

Steel Decisive

Non-cracked Concrete			M8	M10	M12	M16	M20	M24
Embedment Depth (mm)			80	90	110	125	170	210
5.8	Tension	N_{Rd} [kN]	6.2	8.7	13.7	22.2	37.7	50.9
	Shear	V_{Rd} [kN]	7.2	12.0	16.8	31.2	48.8	70.4
8.8	Tension	N_{Rd} [kN]	6.2	8.7	13.7	22.2	37.7	50.9
	Shear	V_{Rd} [kN]	12.0	18.4	27.2	50.4	78.4	112.8
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- **Shear Loads:** steel strength without lever arm.
- **Working Loads**: in kg for single anchor in C20/25.
  Temperature 24°C average–40°C maximum (short-term temperature)
  No influence of edge distances or anchor spacing considered.
  Calculated as Design Resistance/1.4 for both Tension and Shear.

Working Load Dry/Wet Hammer-Drilled Holes

Steel Decisive

Non-cracked Concrete			M8	M10	M12	M16	M20	M24
Embedment Depth (mm)			80	90	110	125	170	210
5.8	Tension	N_{Rw} [kg]	710	900	1330	1640	2640	3700
	Shear	V_{Rw} [kg]	520	870	1220	2270	3550	5120
8.8	Tension	N_{Rw} [kg]	710	900	1330	1640	2640	3700
	Shear	V_{Rw} [kg]	870	1330	1980	3660	5700	8210
A4-70	Tension	N_{Rw} [kg]	710	900	1330	1640	2640	3700
	Shear	V_{Rw} [kg]	600	930	1400	2560	4010	5780
A4-80	Tension	N_{Rw} [kg]	710	900	1330	1640	2640	3700
	Shear	V_{Rw} [kg]	820	1250	1860	3440	5360	7710

Cracked Concrete			M8	M10	M12	M16	M20	M24
Embedment Depth (mm)			80	90	110	125	170	210
5.8	Tension	N_{Rw} [kg]	220	310	390	600	1020	1520
	Shear	V_{Rw} [kg]	520	870	1220	2270	3550	5120
8.8	Tension	N_{Rw} [kg]	220	310	390	600	1020	1520
	Shear	V_{Rw} [kg]	870	1330	1980	3660	5700	8210
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	Shear	V_{Rw} [kg]	600	930	1400	2560	4010	5780
A4-80	Tension	N_{Rw} [kg]	220	310	390	600	1020	1520
	Shear	V_{Rw} [kg]	820	1250	1860	3440	5360	7710

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Working Load Dry/Wet Hollow/Vacuum-Drilled Holes

Steel Decisive

Non-cracked Concrete			M8	M10	M12	M16	M20	M24
Embedment Depth (mm)			80	90	110	125	170	210
5.8	Tension	N_{Rw} [kg]	450	630	990	1610	2740	3700
	Shear	V_{Rw} [kg]	520	870	1220	2270	3550	5120
8.8	Tension	N_{Rw} [kg]	450	630	990	1610	2740	3700
	Shear	V_{Rw} [kg]	870	1330	1980	3660	5700	8210
A4-70	Tension	N_{Rw} [kg]	450	630	990	1610	2740	3700
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Cracked Concrete			M8	M10	M12	M16	M20	M24
Embedment Depth (mm)			80	90	110	125	170	210
5.8	Tension	N_{Rw} [kg]	220	310	530	700	1200	1520
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	Shear	V_{Rw} [kg]	870	1330	1980	3660	5700	8210
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Characteristic Performance in Aerated Concrete

Compressive Strength of Material ≥ 6 MPa
Temp. Range -40°C to 40°C



Size	Condition	Dry, internal conditions	Wet conditions	All conditions
	h_{ef} (mm)	Tension (kN)	Tension (kN)	Shear (kN)
M8	80	2.5	2.5	6
M10	90	4.0	3.5	10
M12	100	5.0	4.5	
M16		6.5	5.5	

Note: the values are valid for steel 5.6 or greater. For steels 4.6 and 4.8, multiply shear by 0.8

Typical Performance for Solid Masonry

Compressive Strength of Material ≥ 18MPa
Density ρm ≥ 1600kg/m³
Temp. Range -40°C to 40°C

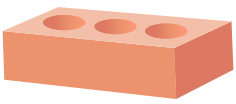


Size	Installation Parameters							Characteristic Resistance		Service Loads	
	Drill Hole Ø d_0	Max Ø Hole in Fixture d_{fix}	Min Edge C_{min}	Min Spacing S_{min}	Drill Depth h_1	Embedment Depth h_{ef}	Installation Torque T_{inst}	Tension N_{rk}	Shear V_{rk}	Tension F_N	Shear F_V
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(kN)	(kN)	(kg)	(kg)
M6	8	7	120	240	85	80	1	4	2	116	58
M8	10	9									
M10	12	12	127.5	255	90	85		5	6	146	175
M12	14	14									

Note: safety factor of 3.5 applies for service loads

Typical Performance for Hollow Masonry

Compressive Strength of Material ≥ 6MPa
Density ρm ≥ 900kg/m³
Temp. Range -40°C to 40°C



Size	Installaton Parameters								Characteristic Resistance		Service Loads	
	Drill Hole Ø d_0	Sleeve Size	Max Ø Hole in Fixture d_{fix}	Min Edge C_{min}	Min Spacing S_{min}	Drill Depth h_1	Embedment Depth h_{ef}	Installation Torque T_{inst}	Tension N_{rk}	Shear V_{rk}	Tension F_N	Shear F_V
	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(Nm)	(kN)	(kN)	(kg)	(kg)
M6	12	12 x 80	7	100	120	85	80	2	0.75	1.5	22	44
M8			9									
M10	16	16 x 85	12			90	85		1.5		44	
M12			14									

Note: safety factor of 3.5 applies for service loads

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Packaging

300 / 420 mL tube.

Storage

18 months (from 5–25°C) or at lower temperatures for shorter periods of time (e.g. during transport).
Higher temperatures shorten storage life. Store the cans in an upright position. Avoid direct sunlight.

Health, safe handling and disposal information

Additional information on safety, safe handling instructions, personal protective equipment and disposal information is in a safety data sheet. Safety data sheets are available at **hobson.com.au**



Warning



(A,B)

NOTE: Instructions contained in this document are based on Hobson's research and experience.
However, due to specific conditions and working methods, preliminary tests prior to any application of XCHEM™ products are recomended.

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