



Vinylester Fast Cure Resin

Specification

WINTER GRADE



JFEA410SFW

ETA 15/0704
Option 1 for Cracked and Non-Cracked Concrete

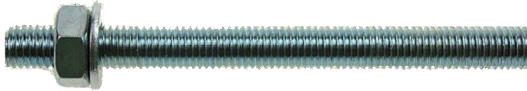
Product Information

The Vinylester 2 Part injection resin is suitable for use in solid concrete, solid brickwork and natural stone as well as hollow materials using a suitable sleeve. It can be used for installing threaded studs, rebar or internal threaded sockets. **Can be used down to -10°C**

Features

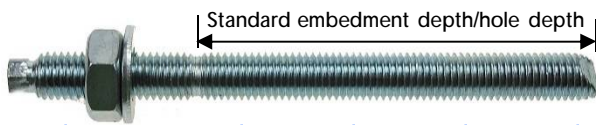
Expansion free
High loads
Close Spacing and Edge Distance
Can be used in dry and wet conditions and in flooded holes

Range Data



Grade 5.8 Plain End Studs
Zinc plated & clear passivated min 5µm

| Part Number | Thread Diam | Stud Length | Drill Hole Diam. | Fixture Clearance Hole | Shallow Embedment | | Deep Embedment | | Tightening Torque |
|--------------|-------------|-------------|------------------|------------------------|---------------------------|--------------------|---------------------------|--------------------|-------------------|
| | | | | | Maximum Fixture Thickness | Minimum Hole Depth | Maximum Fixture Thickness | Minimum Hole Depth | |
| | | mm | mm | mm | mm | mm | mm | mm | Nm |
| JSTUD08150PE | M8 | 150 | 10 | 10 | 80 | 64 | 44 | 96 | 10 |
| JSTUD10105PE | M10 | 105 | 12 | 12 | 13 | 80 | 10 | 120 | 20 |
| JSTUD10150PE | | 150 | | | 58 | | 20 | | |
| JSTUD10200PE | | 200 | | | 108 | | 70 | | |
| JSTUD12110PE | M12 | 110 | 14 | 14 | 25 | 96 | 10 | 85 | 40 |
| JSTUD12150PE | | 150 | | | 39 | | 50 | | |
| JSTUD12200PE | | 200 | | | 89 | | 41 | | |
| JSTUD16110PE | M16 | 110 | 18 | 18 | 10 | 128 | - | 192 | 80 |
| JSTUD16250PE | | 250 | | | 102 | | 38 | | |
| JSTUD16350PE | | 350 | | | 202 | | 138 | | |
| JSTUD20200PE | M20 | 200 | 22 | 22 | 16 | 160 | 6 | 170 | 150 |
| JSTUD20400PE | | 400 | | | 216 | | 136 | | |



Grade 5.8 Chisel End Studs
Zinc plated & clear passivated min 5µm

| Part Number | Thread Diam | Stud Length | Drill Hole Diam. | Fixture Clearance Hole | Fixture Thickness | Hole Depth | Minimum Base Material Thickness | Tightening Torque |
|-------------|-------------|-------------|------------------|------------------------|-------------------|------------|---------------------------------|-------------------|
| | | mm | mm | mm | mm | mm | mm | Nm |
| JSTUD08110 | M8 | 110 | 10 | 10 | 18 | 80 | 110 | 10 |
| JSTUD10130 | M10 | 130 | 12 | 12 | 25 | 90 | 120 | 20 |
| JSTUD12160 | M12 | 160 | 14 | 14 | 34 | 110 | 140 | 40 |
| JSTUD16190 | M16 | 190 | 18 | 18 | 45 | 125 | 155 | 80 |
| JSTUD20260 | M20 | 260 | 22 | 22 | 55 | 170 | 215 | 150 |
| JSTUD24300 | M24 | 300 | 26 | 26 | 55 | 210 | 265 | 200 |
| JSTUD30380 | M30 | 380 | 32 | 32 | 55 | 280 | 350 | 275 |

For other Chisel Point Stud finishes use the following suffixes

Hot Dipped Galvanised = G, High Tensile = HT, Stainless Steel A2 = SS, Stainless Steel A4 = SSA4



WINTER GRADE

Loads for Standard Embedment Depth

Non-Cracked concrete

| Performance Data (20/25 Non-Cracked Concrete) | | | | | | | | | |
|---|---------------------------|-------|---|-------|--|-------|-----------------|----------------------|-------|
| Thread Diam | Characteristic Resistance | | Design Resistance (γ_{Ms} from ETA) | | Approved Resistance ($\gamma_F=1.4$) | | Design Spacing | Design Edge Distance | |
| mm | kN | | kN | | kN | | mm | mm | |
| | Tensile | Shear | Tensile | Shear | Tensile | Shear | Tensile & Shear | Tensile | Shear |
| 8 | 19.9 | 9.0 | 11.9 | 7.1 | 8.5 | 5.1 | 180 | 95 | 70 |
| 10 | 28.2 | 15.0 | 15.7 | 11.9 | 11.2 | 8.5 | 235 | 120 | 110 |
| 12 | 39.3 | 21.0 | 21.8 | 16.7 | 15.5 | 12.0 | 270 | 135 | 130 |
| 16 | 56.5 | 39.0 | 31.3 | 31.0 | 22.4 | 22.2 | 350 | 180 | 240 |
| 20 | 90.7 | 61.0 | 50.4 | 48.6 | 36.0 | 34.7 | 430 | 215 | 315 |
| 24 | 126.6 | 88.0 | 68.0 | 70.3 | 49.2 | 50.2 | 480 | 240 | 415 |
| 30 | 145.1 | 140.0 | 69.1 | 112.0 | 49.3 | 80.0 | 515 | 260 | 520 |

Shear Loads towards a free edge for all embedment depths are for single anchors where Spacing $\geq 3 \times$ Edge Distance

Cracked concrete

| Performance Data (20/25 Cracked Concrete) | | | | | | | | | |
|---|---------------------------|-------|---|-------|--|-------|-----------------|----------------------|-------|
| Thread Diam | Characteristic Resistance | | Design Resistance (γ_{Ms} from ETA) | | Approved Resistance ($\gamma_F=1.4$) | | Design Spacing | Design Edge Distance | |
| mm | kN | | kN | | kN | | mm | mm | |
| | Tensile | Shear | Tensile | Shear | Tensile | Shear | Tensile & Shear | Tensile | Shear |
| 10 | 14.1 | 15.0 | 7.8 | 11.9 | 5.5 | 8.5 | 235 | 120 | 110 |
| 12 | 20.7 | 21.0 | 11.5 | 16.7 | 8.2 | 12.0 | 270 | 135 | 130 |
| 16 | 31.4 | 39.0 | 17.4 | 31.0 | 12.4 | 22.2 | 350 | 175 | 235 |
| 20 | 48.0 | 61.0 | 26.7 | 48.6 | 19.0 | 34.7 | 430 | 215 | 315 |
| 24 | 71.2 | 88.0 | 39.5 | 70.3 | 28.2 | 50.2 | 480 | 240 | 415 |

Shear Loads towards a free edge for all embedment depths are for single anchors where Spacing $\geq 3 \times$ Edge Distance

Minimum Base Material Thickness

M8, M10, M12 & M16 = Embedment Depth + 30mm ≥ 100 mm.

M20 & M24 = Embedment Depth + 2 x Drill Hole Diameter

For variations in structure thickness, reduced spacing and edge calculations download the free [Anchor Calculation Program](http://www.jcpfixings.co.uk) from www.jcpfixings.co.uk

WINTER GRADE

Loads for Non-Cracked Concrete

Shallow Embedment (8 x Thread Diameter)

| Performance Data (20/25 Concrete) | | | | | | | | | | |
|-----------------------------------|-----------------|---------------------------|-------|---|-------|--|-------|-----------------|----------------------|-------|
| Thread Diam | Embedment Depth | Characteristic Resistance | | Design Resistance (γ_{Ms} frpm ETA) | | Approved Resistance ($\gamma_F=1.4$) | | Design Spacing | Design Edge Distance | |
| mm | mm | kN | | kN | | kN | | mm | mm | |
| | | Tensile | Shear | Tensile | Shear | Tensile | Shear | Tensile & Shear | Tensile | Shear |
| 8 | 64 | 17.6 | 9.0 | 9.8 | 7.2 | 7.0 | 5.1 | 170 | 100 | 70 |
| 10 | 80 | 25.1 | 12.0 | 13.9 | 11.9 | 9.9 | 8.5 | 230 | 115 | 110 |
| 12 | 96 | 34.3 | 21.0 | 19.1 | 16.7 | 13.6 | 12.0 | 275 | 140 | 140 |
| 16 | 125 | 56.5 | 39.0 | 31.4 | 31.2 | 22.4 | 22.2 | 350 | 180 | 240 |
| 20 | 160 | 85.4 | 61.0 | 47.4 | 48.6 | 33.8 | 34.7 | 425 | 215 | 315 |
| 24 | 192 | 115.8 | 88.0 | 58.9 | 70.3 | 42.0 | 50.2 | 430 | 225 | 415 |
| 30 | 240 | 124.0 | 140.0 | 59.2 | 112.0 | 42.2 | 80.0 | 515 | 260 | 520 |

Deep Embedment (20 x Thread Diameter with Grade 8.8 threaded rod)

(M8, M10 & M12 depth limited by steel strength)

| Performance Data (20/25 Concrete) | | | | | | | | | | |
|-----------------------------------|-----------------|---------------------------|-------|---|-------|--|-------|-----------------|----------------------|-------|
| Thread Diam | Embedment Depth | Characteristic Resistance | | Design Resistance (γ_{Ms} frpm ETA) | | Approved Resistance ($\gamma_F=1.4$) | | Design Spacing | Design Edge Distance | |
| mm | mm | kN | | kN | | kN | | mm | mm | |
| | | Tensile | Shear | Tensile | Shear | Tensile | Shear | Tensile & Shear | Tensile | Shear |
| 8 | 130 | 29.0 | 15.0 | 19.3 | 12.0 | 13.7 | 8.5 | 180 | 95 | 95 |
| 10 | 180 | 46.0 | 23.0 | 30.6 | 18.4 | 21.8 | 13.1 | 215 | 115 | 120 |
| 12 | 225 | 67.0 | 34.0 | 44.6 | 27.2 | 31.8 | 19.4 | 270 | 140 | 150 |
| 16 | 320 | 144.7 | 63.0 | 80.4 | 50.4 | 57.4 | 36.0 | 355 | 180 | 220 |
| 20 | 400 | 213.6 | 98.0 | 118.6 | 78.4 | 84.7 | 56.0 | 430 | 215 | 290 |
| 24 | 480 | 289.5 | 141.0 | 160.8 | 112.8 | 114.8 | 80.5 | 500 | 255 | 365 |
| 30 | 600 | 311.0 | 224.0 | 148.1 | 179.2 | 105.7 | 128.0 | 515 | 300 | 510 |

Shear Loads towards a free edge for all embedment depths are for single anchors where Spacing $\geq 3 \times$ Edge Distance

Minimum Base Material Thickness

M8, M10, M12 & M16 = Embedment Depth + 30mm ≥ 100 mm.

M20, M24 & M30 = Embedment Depth + 2 x Drill Hole Diameter

WINTER GRADE

Influence of concrete strength (Cracked concrete loads only)

| Concrete strength | | C20/25 | C30/37 | C40/50 | C50/60 |
|-------------------|-------------------|--------|--------|--------|--------|
| Cylinder | N/mm ² | 20 | 30 | 40 | 50 |
| Cube | N/mm ² | 25 | 37 | 50 | 60 |
| Factor | | 1.0 | 1.12 | 1.23 | 1.30 |

Minimum curing time

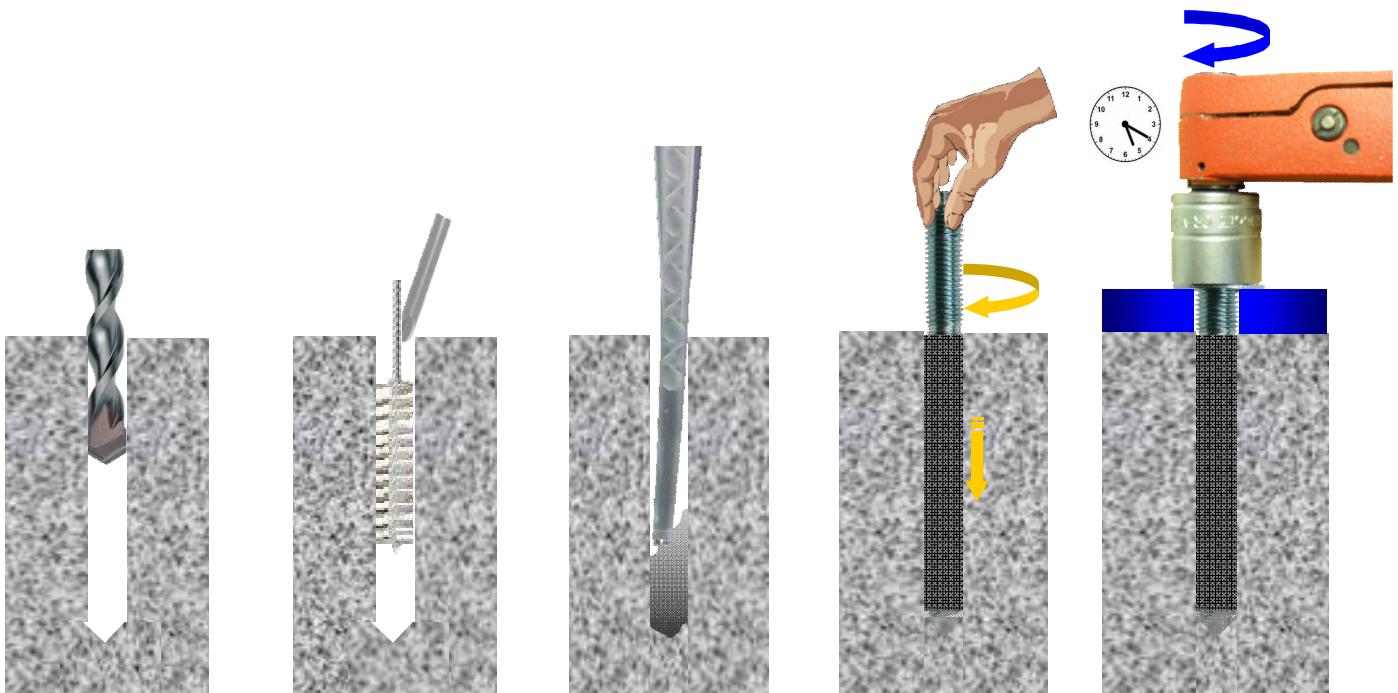
Cartridges must be conditioned to a minimum of +5°C

| Temperature | Gel Time | Cure Time |
|-------------|-------------|-----------|
| -10 to -5°C | 50 mins | 12hrs |
| -5 to 0°C | 15 mins | 100 mins |
| 0 to +5°C | 10 mins | 75 mins |
| +5 to +20°C | 5 mins | 50 mins |
| +20°C | 100 seconds | 20 mins |

Gel time refers to highest temperature in range
Load time refers to lowest temperature in range

Steel Design resistance for single anchor

| | | M8 | M10 | M12 | M16 | M20 | M24 | |
|---------|----|------|------|------|------|-------|-------|-----------------------------|
| Tensile | kN | 12.0 | 19.3 | 28.0 | 52.6 | 82.0 | 118.0 | Grade 5.8 |
| | | 19.3 | 30.6 | 44.6 | 84.0 | 130.6 | 188.0 | Grade 8.8 |
| | | 13.6 | 21.5 | 31.0 | 57.8 | 90.5 | 130.0 | Stainless Steel Grade A4-70 |
| Shear | kN | 7.2 | 12.0 | 16.8 | 31.2 | 48.7 | 70.4 | Grade 5.8 |
| | | 12.0 | 18.4 | 27.2 | 50.4 | 78.4 | 112.8 | Grade 8.8 |
| | | 8.3 | 12.8 | 19.2 | 35.2 | 55.1 | 79.4 | Stainless Steel Grade A4-70 |



Drill correct diameter hole to correct depth

Clean hole
Blow x 2,
Brush x 2
Blow x 2
Brush x 2
Blow x 2

Attach nozzle to cartridge
Extrude first part to waste until an even colour is achieved
Fill hole 1/3 to 1/2 full starting from the bottom of the hole

Insert stud by hand using a downward twisting motion

Allow resin to cure
Attach fixture
Tighten with torque wrench to recommended torque