

TeCk CAST 5043009 CERTIFICATION REPORT

Date: June 28, 2018
Project: TeCk Cast 5043009 Review
Client: Vertemax Inc.
Dist.: Jesus Munoz, Managing Director

No.Pages: 2
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Background:

JADE Plus was retained by Vertemax Inc. to review supporting documentation and test results for the TeCk Cast 5043009 cast-in guard anchor and certify it for use on construction sites in Ontario. This review is limited to the cast-in guard anchor only.

Overview:

The review was conducted as per the Ontario Regulation (O. Reg.) 213/91 *Occupational Health and Safety Act and Regulation for Construction Projects*. This regulation states that a guardrail system shall be capable of resisting anywhere along the length of the system the following loads when applied separately, without exceeding the allowable unit stress for each material used:

1. A point load of 675 N applied in a lateral direction to the top rail.
2. A point load of 450 N applied in a vertical downward direction to the top rail.
3. A point load of 450 N applied in a lateral or vertical downward direction to the intermediate rail, or midway between the top rail and the toe board.
4. A point load of 225 N applied in a lateral direction to the toe board. O. Reg. 145/00, s. 14.

This regulation additionally states that the distance between any two (2) adjacent posts of the guardrail system may be greater than 2.4 metres only if the system is capable of resisting the loads specified above increased in proportion to the greater distance between posts. O. Reg. 443/09, s. 2 (2).

Discussion:

The following are minimum requirements for the TeCk Cast 5043009 cast-in guard anchor:

- Specified compressive strength of concrete: 25 MPa
- Concrete thickness: 203mm
- Clear distance to any edge: 100mm

The worst case lateral shear force and bending moment applied to the TeCk Cast 5043009 cast-in guard anchor are both governed by load requirement 1 listed above. Based on the product documentation provided by Vertemax Inc. the posts used with the cast-in guard anchor have a maximum height of 1.8m (5'-10⁷/₈") and can be installed at a maximum spacing of 2.7m (8'-10⁵/₁₆"). The following hand calculation was performed to determine the maximum bending moment that would need to be applied during a load test to meet the requirements of O. Reg. 213/91:

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19 Baldwin St
Tillsonburg, ON N4G 2K3
tel 519-842-9500 fax 855-495-2120



Professional Engineers
Ontario

jadeplus.ca

Testing Facility

150 Southgate Drive
Guelph, ON N1G 4P5

$$\text{Bending Moment (M)} = 675 \text{ N} * (2.7\text{m}/2.4\text{m}) * 1.8\text{m} = 1\,366 \text{ Nm}$$

The lateral load and bending moment applied during the load test were 2 838 N and 2 838 Nm respectively as listed in the test documents provided by Vertemax Inc. These loads meet and exceed the requirements of O. Reg. 213/91. JADE Plus performed hand calculations to verify the test results.

Conclusion:

The TeCk Cast 5043009 cast-in guard anchor meets and exceeds the requirements of O. Reg. 213/91 and can be used on construction sites in Ontario when installed as described above and as per Vertemax's installation instructions. Ensure product is used, maintained and inspected according to Vertemax's recommendations.

Prepared By:



Jason Richards, P. Eng.

Encl.: TeCk Cast 5043009 product specifications and test results

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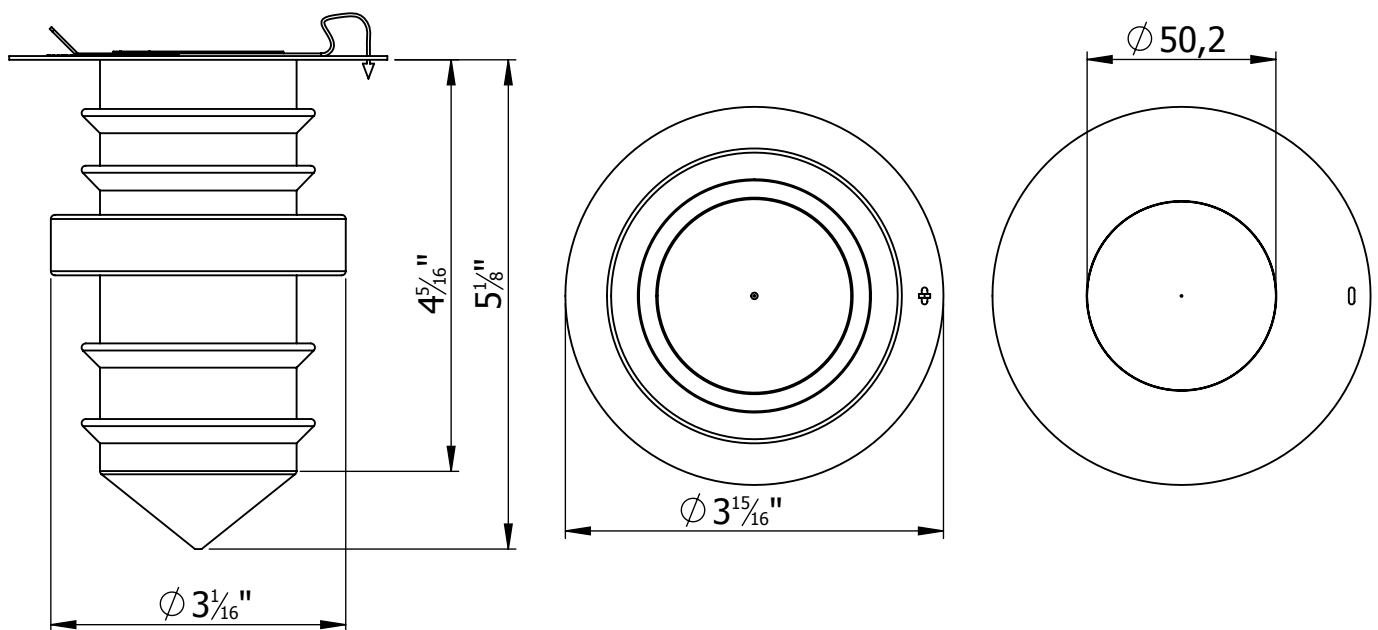
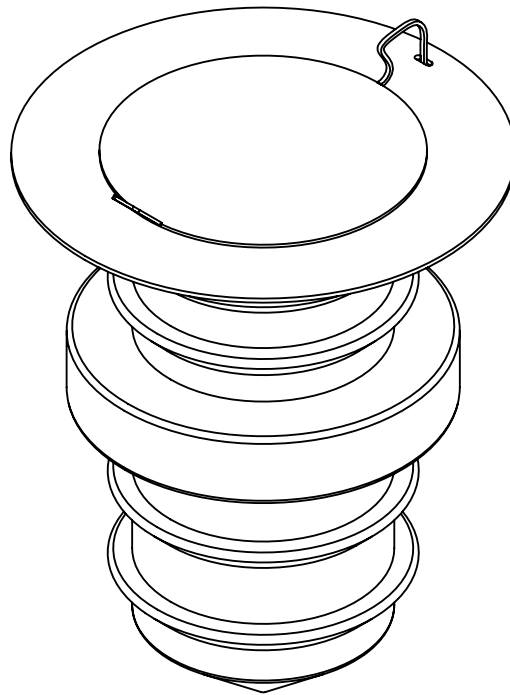
TD 5043009-CA

Name: TeCK Cast
 Weight: 0.081 lbs
 Standard: EN 13374-A; COHS; OSHA;
 ANSI/ASSE
 Material: PE Plastic
 Dimensions: imperial



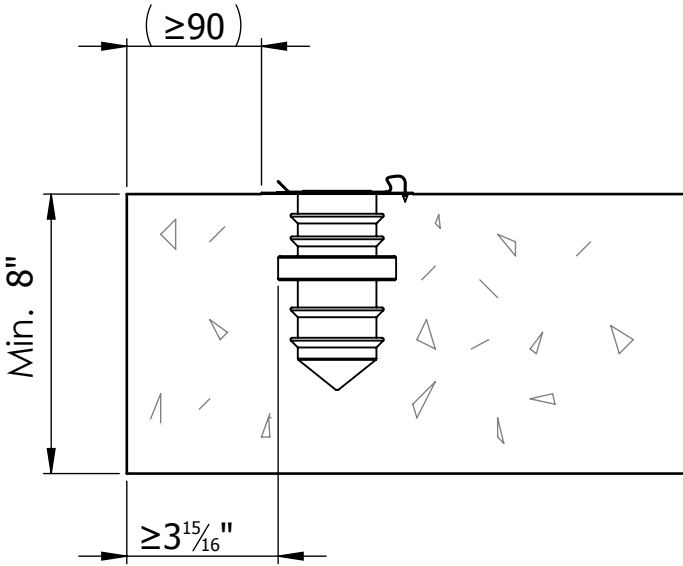
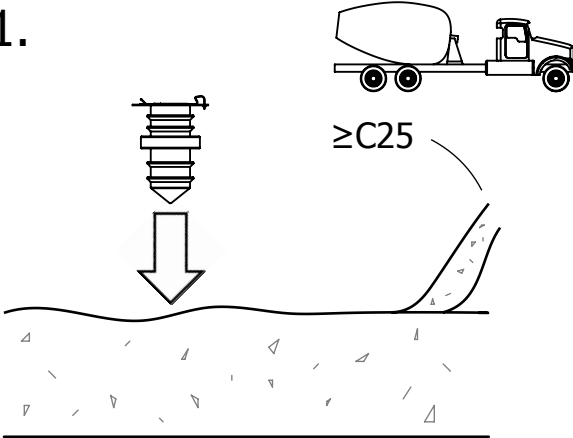
This Technical Document must always be used in conjunction with **vertemax's General Qualifications** -See below

1. Always plan your work and installation
2. Always select the right equipment
3. Always regularly inspect your system

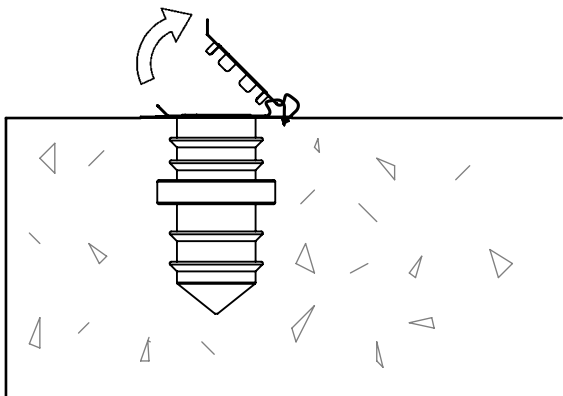


www.vertemax.com

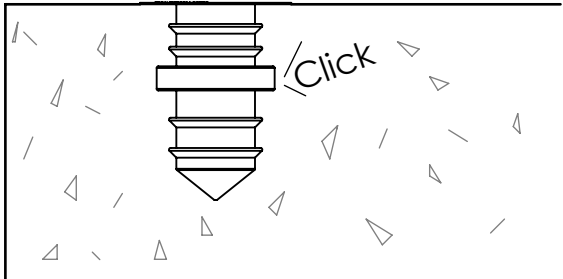
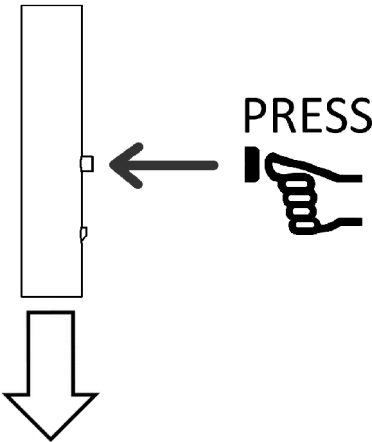
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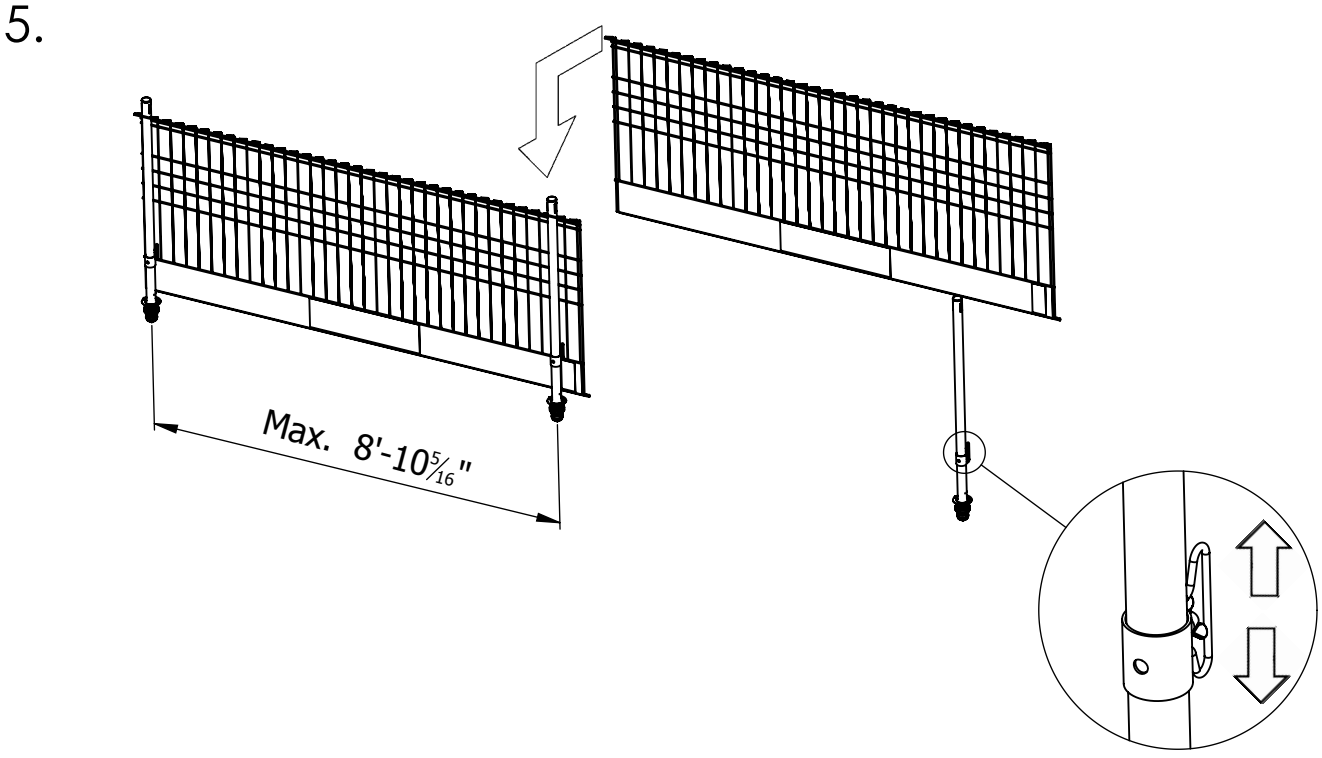
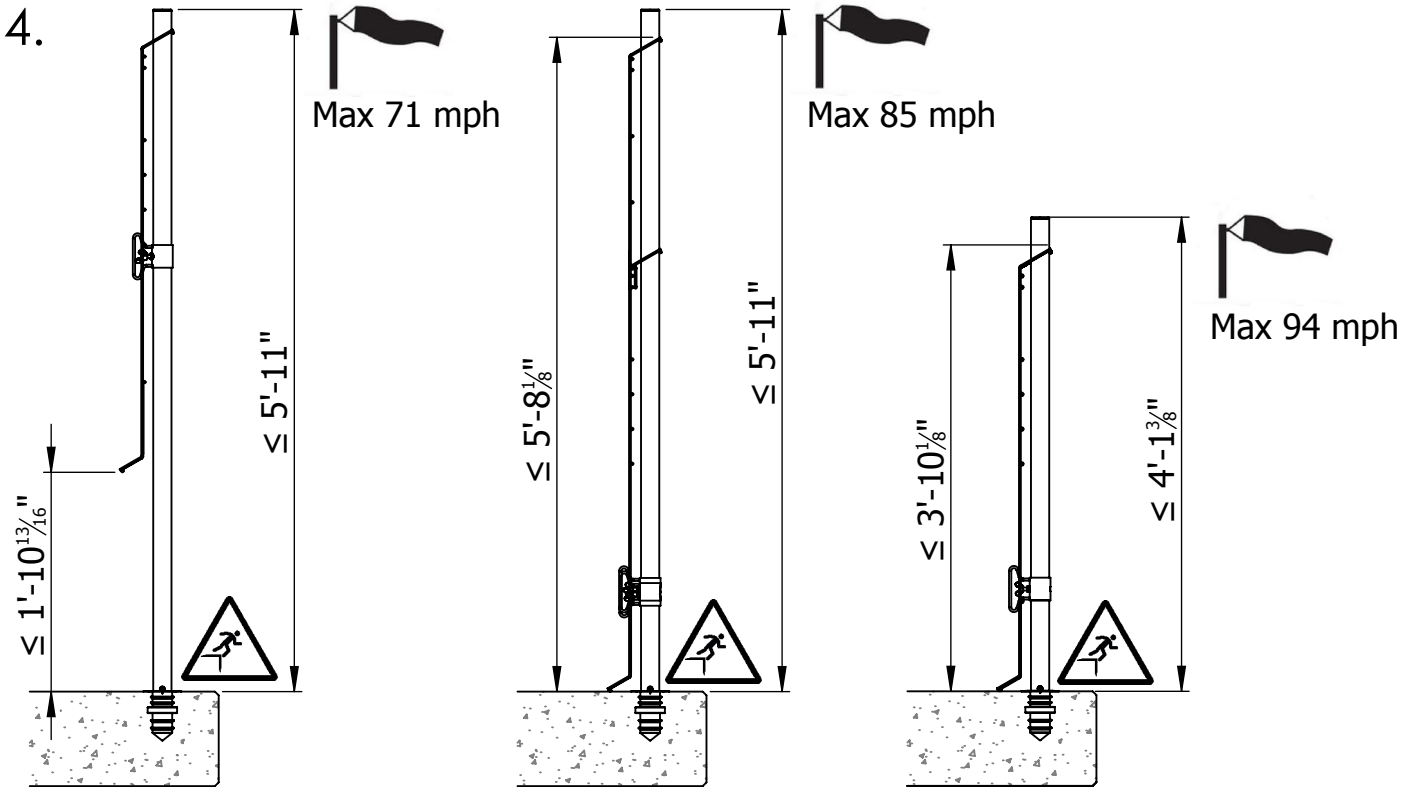
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3.



TD 5043009-CA



General Qualifications



These General Qualifications are applicable to all vertemax products and must always be read in conjunction with each products Technical Documentation (TD).










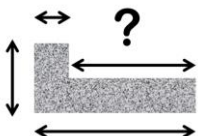
General



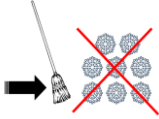



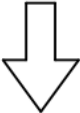

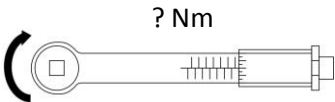
- Always check general product condition before use
- If in doubt always ask by contacting a representative of vertemax
- Reject any damaged or rusty components
- vertemax products and systems provide temporary protection during construction activity.
- vertemax products are NOT tested or intended:
 - to withstand impact by any vehicle,
 - to support or provide control of the public,
 - for the containment of bulk materials.






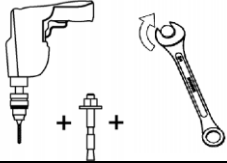


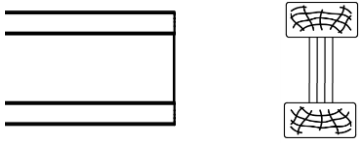
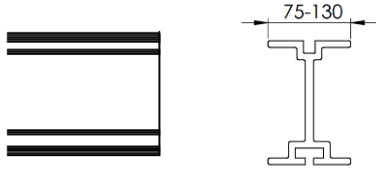
Always Plan your works

- Take note of location, proximity to permanent and temporary hazard structures.
- Take note of dimensions, layout and access areas.
- Always identify both the fall hazard for the installer and the falling materials hazard for persons and property below.
- These identified hazards should also be considered on dismantling.
- vertemax strongly recommends seeking competent Work at Height advice if in any doubt about the installer's or other's safety.
- Note the component weight as given on the TD sheets and ensure suitable handling equipment is available.
- Ensure local site Risk Assessment / Method Statement detail is observed and followed.

<p>Fixing selection</p> <ul style="list-style-type: none"> • All fixings should be confirmed as suitable for the chosen application site. • Material type and thickness, edge proximity, depth of embedment, and proximity to other fixings, all impact the strength of a fixing. Please refer to manufacturer's instructions for fixing guidance and limitation. • The dimensions for installation and the load capacity should be confirmed by the fixing manufacturer for each application. • Competent fixings advice should be sought if in any doubt.
<p>Fine mesh containment</p> <ul style="list-style-type: none"> • Note that the addition of any fine containment mesh (such as on barriers or safety nets) increases the wind load attracted to the supports. • Technical advice must be sought before any such addition.
<p>Weather</p> <ul style="list-style-type: none"> • vertemax products and systems can be adversely impacted by significant wind speeds. Please note limitations on product TD and take any recommended remedial action. If in doubt, contact a vertemax representative. • If in doubt, cease work, and use additional protection measures as required. • All safety systems should be kept clear of ice and snow.
<p>Inspection</p> <ul style="list-style-type: none"> • All installed systems should be checked at least once every 7 days by a competent person, to ensure its continued integrity and that there are no signs of any potential failing. • We recommend that these checks are recorded in a site log. • Please ensure any defective product identified during inspection is replaced immediately.
<p>Loading</p> <ul style="list-style-type: none"> • Any vertemax products subjected to loading, or used in anger, should be assessed to ensure it continues to provide the necessary protection. If this involves removing from service you must ensure the area is otherwise protected. • The system should then be fully inspected, any components replaced as necessary, and the installation confirmed as fit for continued use by a competent person.
<p>Storage</p> <ul style="list-style-type: none"> • vertemax recommends the use of its own storage and transit solutions. • Take careful note of lifting and loading limits. • All components should be stored in a manner that limits any detrimental environmental effect due to weather or corrosive substances.
<p>Traceability</p> <ul style="list-style-type: none"> • All vertemax products are traceable.

Key		
	Symbol	Meaning
1.		Tech Data
2.		If in doubt, check online @ www.vertemax.com
3.		If in doubt call vertemax Ltd on +1-905-502-5732
4		Always Check/ Always confirm
5		Fall Hazard
6		Do this
7		Don't do this
8		Be Aware
9		Recycle damaged materials
10		Recommended Distance

11		Secure yourself against falling
12		Protect those below from falling equipment
13		Catch fan – Keep Clean from snow
14		Sheer Load
15		Tensile Load
16		Moment Load
17		Max Wind Load
18		Check Weekly
19		Insert
20		Install
21		Torque Spanner and settings

22		Flat Head Screwdriver
23		Cross Head/Phillips Screwdriver
24		Tighten
25		Untighten
26		Tighten by hand
27		Drill and Select appropriate anchor
28		Floor/General
29		Concrete slab/floor
30		Timber Beam
31		Alu Beam