Standard Guidelines for Product Review

Concrete Anchors, Resin

Section 00535.10

November, 2016

DEPARTMENT OF TRANSPORTATION

Construction Section

800 Airport Road SE
Salem, OR 97301-4798
503/986-3059

Concrete Anchors, Resin- 00535.10

Process – Submit the following:

- Preliminary Information for Product Evaluation Form.
- Independent Test Results showing compliance with Specs listed below. Please include the raw test data.
- Legible copy of the MSDS.
- Spec Data Sheet.
- Detailed installation instructions.
- List of Limitations and Precautions.
- Certification that the resin tested is identical to that being submitted to ODOT for review.
- Certification that all resins supplied to us with this product name will be chemically identical to that which was originally submitted.

Specifications:

There are two categories for this type of product: High Strength and Low Strength. We require comprehensive testing covering pull-out resistance and creep for all chemical concrete anchor products, prior to approval. The required tests are static tension test in accordance with ASTM E 488 and creep resistance in accordance with ICC AC308. All tests for static tension must include the following anchor sizes (Five test samples per size):

MINIMUM PULLOUT LOADS FOR **HIGH STRENGTH** ANCHORS

AASHTO M314			Grade 60 Rebar	
DIA inches (mm)		Grade 105 Force lbs (kN)	Size	Force lbs (kN)
1/2	(12.7)	15,300 (68)	#4 (13)	14, 390 (64)
3/4	(19.1)	36,000 (160)	#6 (19)	31,700 (141)
1	(25.4)	65,400 (291)	#8 (25)	56,650 (252)

Concrete compressive strengths shall be approximately 4000 psi (28 MPa) or greater.

Tests shall be performed by or witnessed by an independent testing agency. Test reports shall be legible and reproducible.

Our "Qualified Products List" reflects only those resin-bonded anchors whose acceptable test results have been submitted and approved by the Oregon Department of Transportation. Only those products on the "Qualified Products List" will be used on Oregon Department of Transportation projects.

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After the required test results have been submitted and accepted, you will no longer need to submit test results for individual projects. However, some projects may require field performance testing.

For each individual project the following information shall be supplied to the engineer by the contractor, as follows:

- A statement certifying the resin formulation proposed for use on the project is the same formulation used in the qualifying tests.

- Mill test certifications verifying the strengths of material used in the manufacture of the anchors.

Our review of proposed products will include verifying the required embedment depth. The embedment depths used in the qualifying tests may be used by the Department as a guide to determine whether the proposed embedment is reasonable.

If your product is not able to meet the above requirements it could be listed as a low strength resin bonded anchor, and would have to meet the following minimum pullout loads. Testing should be as previously described.

MINIMUM PULLOUT LOADS FOR **LOW STRENGTH** ANCHORS

Grade 55	
DIA inches (mm)	Force lbs (kN)
1/2 (12.7)	9,670 (43)
3/4 (19.1)	22,500 (100)
1 (25.4)	40,900 (182)

AASHTO – ASTM Conversion Chart

AASHTO M314	ASTM
Grade 36	A307 or F1554
Grade 55	F1554
Grade 105	A193 (Grade B7), A449, or F1554

Grade 36 and Grade 55 Anchors -- use either “Low Strength” or “High Strength” resins.
Grade 105 Threaded Rod and Grade 60 Rebar – Use “High Strength” resin only.

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We will use standard review embedment depths. You are free to use other embedment depths as you see fit, but we will pro-rate them to the standard review depths listed below. For these tests, any two sizes can be less than 100% of the required strength at the review depth, but not less than 95% of that required strength.

Low Strength

DIA inches (mm)	Review Depth
1/2 (12.7)	5.00”
3/4 (19.1)	8.75”
1 (25.4)	13.2”

High Strength – Grade 105 Threaded Rod

DIA inches (mm)	Review Depth
3/8 (9.5)	3.25”
1/2 (12.7)	4.60”
5/8 (15.9)	6.00”
3/4 (19.1)	7.50”
7/8 (22.2)	9.20”
1 (25.4)	10.9”
1-1/4 (31.8)	13.1”

High Strength – Grade 60 Rebar

Size	Review Depth
#4 (13)	5.30”
#5 (16)	6.40”
#6 (19)	7.50”
#7 (22)	8.80”
#8 (25)	10.2”

Submit all documentation to:

Oregon Department of Transportation
Product Evaluation Coordinator
800 Airport Rd SE
Salem OR 97301-4798