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### nVent LENTON TERMINATOR AND LENTON ULTIMATE HEADED REINFORCING BAR AND MECHANICAL ANCHORAGE SYSTEMS IN CONCRETE

CSI Section:

03 21 00 Reinforced Steel

#### 1.0 RECOGNITION

nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems recognized in this report have been evaluated for use as a mechanical anchorage to develop steel reinforcing bars (rebar). The structural properties of the LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems were evaluated for compliance with the following codes and regulations:

- 2018, 2015, 2012, 2009 and 2006 International Building Code® (IBC)
- 2018, 2015, 2012, 2009 and 2006 International Residential Code® (IRC)
- Building Code Requirements for Structural Concrete (ACI® 318-14, -11, -08 and -05)
- 2017 City of Los Angeles Building Code (LABC) – attached Supplement
- 2017 City of Los Angeles Residential Code (LARC) – attached Supplement

#### 2.0 LIMITATIONS

Use of the nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems recognized in this report is subject to the following limitations:

**2.1** Headed bar systems shall be installed in accordance with the IBC®, manufacturer’s installation instructions and this report. Where conflicts occur, the more restrictive shall govern.

**2.2** Anchorage system calculations and installation details shall be submitted to the building official for approval and shall be prepared by a registered design professional when required by the statutes of the jurisdiction in which the project is to be constructed.

**2.3** Where required, special inspections shall be provided in accordance with Chapter 17 of the IBC®. Duties of the special inspector shall include verification of grade and size of reinforcement bar, head identification and installation of the headed bar system.

**2.4** To satisfy minimum concrete cover requirements specified in Section 20.6.1 of ACI 318-14, or Section 7.7 of ACI® 318-11, -08, or -05, the head is considered part of the bar.

**2.5** nVent LENTON headed bar heads recognized in this report are produced in Solon, OH.

#### 3.0 PRODUCT USE

**3.1 General:** nVent LENTON Terminator (D6, D16, & D14) and LENTON Ultimate (DR16 & DR14) are mechanical devices for use as headed bars and mechanical anchorage to develop steel reinforcing bars in tension in lightweight and normal-weight concrete as an alternative to standard hooks or to reduce development lengths of straight deformed reinforcing bars in reinforced concrete. ACI 318-14 Section 19.2.4, ACI 318-08 and ACI 318-11 Section 8.6, and ACI 318-05 Section D.3.4, provide details on how to account for use of lightweight concrete.

nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems comply with the requirements of the 2014, 2011, 2008 and 2005 editions of ACI 318; the 2018, 2015, 2012, 2009 and 2006 IBC; and the 2018, 2015, 2012, 2009 and 2006 IRC. The nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems are suitable for use on grades of reinforcing bars complying with ASTM® A615 and ASTM A706 as listed in Tables 1 and 5 of this report, respectively. Additionally, both systems comply with Sections 20.2.1.6, 25.4.4, and 25.4.5 of ACI 318-14 and Section 12.6 of ACI 318-08 and -11, including Annex A1 and Class HA heads of ASTM A970.

#### 3.2 Design:

**3.2.1 Limitations on Obstructions:** Limitations on obstructions and interruptions in deformation patterns in front of the bearing surface of the head shall comply with Figure R3.5.9 as noted in ACI® 318-08 or ASTM® A970-13a and -09 as noted in Section 20.2.1.6 of ACI 318-14 and Section 3.5.9 of ACI 318-11.

**3.2.2 Development Length:** When utilizing the equation in Section 25.4.4.2 of ACI 318-14 and Section 12.6.2 of ACI 318-08 or -11 to calculate development length (Figure R25.4.4.2a of ACI 318-14 and R12.6(a) of ACI 318-08 or -11), the registered design professional shall verify that the

*The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.*





proposed heads are listed in [Tables 1 and 5](#) of this report as ASTM A970 compliant, as applicable; maximum compressive design strength of the concrete does not exceed 6,000 psi (41.37 MPa) and conditions referenced in Section 25.4.4.1 of ACI 318-14 and Section 12.6.1 of ACI 318-08 or -11 are observed.

Development lengths specified for the development and splices of reinforcement do not require a strength reduction factor in accordance with Section 25.4.1.3 of ACI 318-14 and Section 9.3.3 of ACI 318-11 or -08.

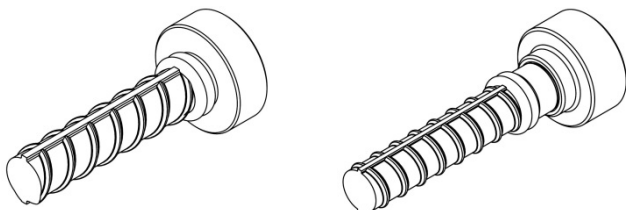
When these design conditions have not been met, anchorage shall be designed in accordance with Chapter 17 of ACI 318-14 and Appendix D of ACI 318-08 or -11 or designed otherwise to the satisfaction of the registered design professional and approved by the building official.

**3.2.3 Termination of Headed Bars:** When designed in accordance with Section 25.4.4.2 of ACI 318-14 and Section 12.6.2 of ACI 318-08 or -11, longitudinal headed deformed bars extending from a beam or a slab terminating at a support member, such as a column should extend through the joint to the far face of the confined supporting member in accordance with Figure R25.4.4.2b of ACI 318-14 Commentary and Figure R12.6(b) of ACI 318-08 or -11.

**3.3 Installation General:** nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems shall be installed in accordance with ERICO's installation instructions, the IBC, applicable code sections of ACI 318 and this evaluation report. Where conflicts occur, the more restrictive shall govern.



nVent LENTON Terminator heads are attached to the reinforcing bar utilizing internal taper threads within the head mating with taper threaded bar ends prepared by a fabricator approved by ERICO.



nVent LENTON Ultimate heads and components are attached to the reinforcing bar by a friction forging process. For certain bar sizes, a male taper threaded component (MT12) may be attached to the reinforcing bar and then an nVent LENTON Terminator head is subsequently attached (illustration shown in section 3.3). The MT12 component is compatible with and can be used with all nVent LENTON Terminator heads.

## 4.0 PRODUCT DESCRIPTION

**4.1 nVent LENTON Terminator** is a headed reinforcing bar system used to mechanically anchor No. 4, 1/2-inch-diameter (12 mm) through No. 18, 2 1/4-inch-diameter (57 mm) reinforcing steel bars. The nVent LENTON taper threaded system utilizes a 6-degree tapered thread with a varying thread pitch of 1.25 mm, 2.0 mm, or 3.5 mm, depending on the reinforcement size. Product dimensions in [Figure 1](#) illustration of this report are listed in [Tables 2, 3, and 4](#) for the nVent LENTON Terminator D6, D16, and D14, respectively. Net bearing area of the D6 and D16 heads exceed four times the nominal cross-sectional area of the reinforcing bar. Net bearing area of the D14 head exceeds nine times the nominal cross-sectional area of the reinforcing bar.

**4.2 nVent LENTON Ultimate DR16 and DR14 Series** is a headed reinforcing bar system used to mechanically anchor No. 4, 1/2-inch-diameter (12 mm) through No. 18, 2 1/4-inch-diameter (57 mm) reinforcing steel bars. Product dimensions in [Figure 2](#) illustration of this report are listed in [Tables 6 and 7](#) for the nVent LENTON Ultimate DR16 and DR14, respectively. Net bearing area of the DR16 head exceeds four times the nominal cross-sectional area of the reinforcing bar. Net bearing area of the DR14 head exceeds nine times the nominal cross-sectional area of the reinforcing bar.

## 4.3 Material information

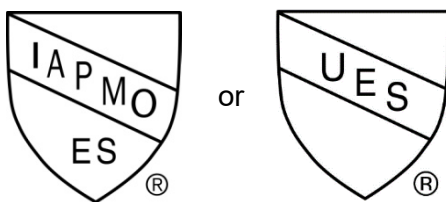
**4.3.1 Anchor Heads:** nVent LENTON Terminator and nVent LENTON Ultimate heads and components are manufactured from steels listed in [Table 1 and Table 5](#) of this report, respectively.

**4.3.2 Steel Reinforcing Bars:** Reinforcing steel bars shall comply with the grades of ASTM A706 and ASTM A615 as listed in [Table 1](#) of this report. Coatings complying with AASHTO® M 284, ASTM A775, ASTM A934, and ASTM A767 shall be applied prior to threading or in a manner as not to interfere with proper thread engagement.



## 5.0 IDENTIFICATION

All nVent LENTON Terminator and LENTON Ultimate headed reinforcing bars are packaged with a label bearing the manufacturer's mark or logo, the unique heat code identification, and the letter "H" to indicate that the heads have been produced to the ASTM A970 Annex A1 specification. Packaging labels for the headed deformed bars shall include the manufacturer or a registered trademark, model or name of the product, the IAPMO Uniform ES Mark of Conformity, and the Evaluation Report Number (ER-0188) to identify the products recognized in this report. A die-stamp label may also substitute for the label. Either Mark of Conformity may be used as shown below:



**IAPMO UES ER-0188**

## 6.0 SUBSTANTIATING DATA

**6.1** Data was submitted in accordance with IAPMO®-UES Evaluation Criteria for Headed and Mechanically Anchored Deformed Reinforcement Bars in Tension (EC 006-2021), approved August 2021.

**6.2** Test reports are from laboratories in compliance with ISO/IEC 17025.

## 7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on nVent LENTON Terminator and LENTON Ultimate headed reinforcing bar and mechanical anchorage systems to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.5 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)



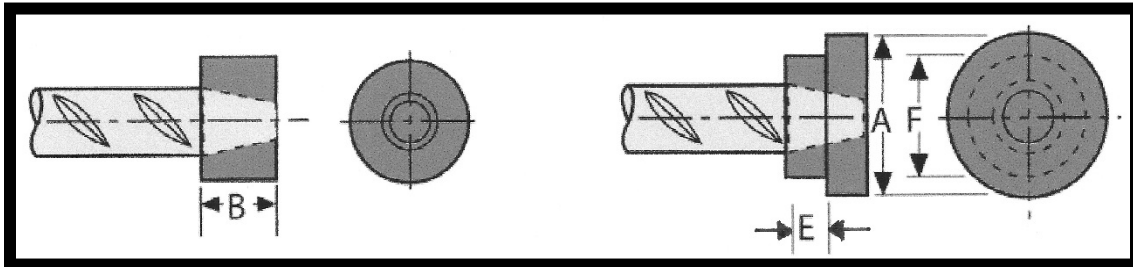
**TABLE 1: nVent LENTON TERMINATOR D6, D16, & D14 SPECIFICATIONS**

Series and Part Number Suffix	Material Grade	ASTM® A970 Compliant	Rebar Material	Rebar Sizes
nVent LENTON Terminator D6	AISI 1141 (or equivalent)	ASTM A970-09 ASTM A970-12 ASTM A970-13a	ASTM A706 Gr. 60 & 80 ASTM A615 Gr. 60, 75, & 80	#4 to #18 <sup>1</sup>
nVent LENTON Terminator D6	AISI 1141 (or equivalent)	ASTM A970-07 <sup>1</sup>	ASTM A706 Gr. 60 & 80 ASTM A615 Gr. 60, 75, & 80	#4 to #18 <sup>1</sup>
nVent LENTON Terminator D16	AISI 1141 (or equivalent)	ASTM A970-09 ASTM A970-12 ASTM A970-13a	ASTM A706 Gr. 60 & 80 ASTM A615 Gr. 60, 75, & 80	#4 to #18 <sup>1</sup>
nVent LENTON Terminator D16	AISI 1141 (or equivalent)	ASTM A970-07 <sup>1</sup>	ASTM A706 Gr. 60 & 80	#4 to #18 <sup>1</sup>
			ASTM A615 Gr. 60, 75, & 80	
		ASTM A970-06	ASTM A706 Gr. 60 & 80	#4 to #18 <sup>1</sup>
			ASTM A615 Gr. 60	
ASTM A615 Gr. 75 & 80	#5 & #10			
nVent LENTON Terminator D14	AISI 1141 (or equivalent)	ASTM A970-09 ASTM A970-12 ASTM A970-13a	ASTM A706 Gr. 60 & 80 ASTM A615 Gr. 60, 75, & 80	#4 to #18 <sup>1</sup>
nVent LENTON Terminator D14	AISI 1141 (or equivalent)	ASTM A970-07 <sup>1</sup>	ASTM A706 Gr. 60 & 80	#4 to # 18 <sup>1</sup>
			ASTM A615 Gr. 60, 75, & 80	
		ASTM A970-06	ASTM A706 Gr. 60 & 80	#4 to #18 <sup>1</sup>
			ASTM A615 Gr. 60	
ASTM A615 Gr. 75 & 80	#5 & #10			

<sup>1</sup> Note: Anchorage shall be designed in accordance with ACI 318-14 Chapter 17, ACI 318-08/-11 Appendix D, or designed otherwise to the satisfaction of the registered design professional and approved by the building official for heads compliant with ASTM A970-07, Grade 75 reinforcement bar, Grade 80 reinforcement bar, or for reinforcement bar sizes that exceed No.11.



Figure 1: nVent LENTON Terminator – D6/D16/D14 Series



- A = Large Diameter
- B = Length of nVent LENTON Terminator Head & Bar Engagement
- E = Length of Small Step (when applicable)
- F = Small Diameter (when applicable)

Table 2: nVent LENTON Terminator – D6 Series

Reinforcement Bar Designation				Part Number	"A"		"B"		"E"		"F"	
In/lb	Metric (mm)	Canadian	Soft Metric		in	mm	in	mm	in	mm	in	mm
4	12	10M	13	EL12D6	1-3/8	35	9/16	14	–	–	–	–
5	16	15M	16	EL16D6	1-1/2	38	7/8	22	–	–	–	–
6	20	20M	19	EL20D6	1-7/8	48	1-1/8	29	–	–	–	–
7	22	–	22	EL22D6	2	51	1-1/4	32	–	–	–	–
8	25	25M	25	EL25D6	2-1/4	57	1-3/8	35	–	–	–	–
9	28	30M	29	EL28D6	2-3/4	70	1-1/2	38	–	–	–	–
10	32	–	32	EL32D6	3	76	1-9/16	40	–	–	–	–
11	36	35M	36	EL36D6	3-1/4	83	1-11/16	43	–	–	–	–
–	40	–	–	EL40D6	3-3/4	95	2-1/2	64	1	25	2-5/16	76
14	43	45M	43	EL43TD6	4	102	2-1/8	54	1	25	2-1/2	76
–	50	–	–	EL50TD6	4-1/2	114	2-9/16	65	1	25	2-15/16	76
18	57	55M	57	EL57TD6	5-1/8	130	2-3/4	70	1	25	3	76

NOTE 1: Thread does not need to be flush with end of nVent LENTON Terminator. Thread may be +/- 2 threads from the backside of head.  
 NOTE 2: Net bearing area ( $A_{brg}$ ) exceeds 4 times the area of the bar ( $A_{br}$ ).



**Table 3: nVent LENTON Terminator – D16 Series**

Reinforcement Bar Designation				Part Number	"A"		"B"		"E"		"F"	
In/lb	Metric (mm)	Canadian	Soft Metric		in	mm	in	mm	in	mm	in	mm
4	12	10M	13	EL12D16	1-3/8	35	3/4	19	–	–	–	–
5	16	15M	16	EL16D16	1-1/2	38	15/16	24	–	–	–	–
6	20	20M	19	EL20D16	1-7/8	48	1-3/8	35	–	–	–	–
7	22	–	22	EL22D16	2	51	1-7/16	38	–	–	–	–
8	25	25M	25	EL25D16	2-1/4	57	1-9/16	40	–	–	–	–
9	28	30M	29	EL28D16	2-3/4	70	1-5/8	42	–	–	–	–
10	32	–	32	EL32D16	3	76	1-3/4	46	–	–	–	–
11	36	35M	36	EL36D16	3-1/4	83	2-1/16	52	–	–	–	–
–	40	–	–	EL40D16	3-3/4	95	2-1/4	58	1	25	2-5/16	59
14	43	45M	43	EL43TD16	4	102	2-5/8	67	1	25	2-1/2	64
–	50	–	–	EL50TD16	4-1/2	114	2-13/16	71	1	25	2-15/16	75
18	57	55M	57	EL57TD16	5-1/8	130	3-5/16	84	1	25	3-1/8	80

NOTE 1: Thread does not need to be flush with end of nVent LENTON Terminator. Thread may be +/- 2 threads from the backside of head.

NOTE 2: Net bearing area ( $A_{brg}$ ) exceeds 4 times the area of the bar ( $A_{br}$ ).





**Table 4: nVent LENTON Terminator – D14 Series**

Reinforcement Bar Designation				Part Number	"A"		"B"		"E"		"F"	
In/lb	Metric (mm)	Canadian	Soft Metric		in	mm	in	mm	in	mm	in	mm
4	12	10M	13	EL12D14	1-3/4	45	11/16	18	–	–	–	–
–	14	–	–	EL14D14	1-3/4	45	13/16	21	–	–	–	–
5	16	15M	16	EL16D14	2	55	15/16	24	–	–	–	–
–	18	–	–	EL18D14	2-1/2	60	1-1/8	29	–	–	–	–
6	20	20M	19	EL20D14	2-1/2	65	1-3/8	35	–	–	–	–
7	22	–	22	EL22D14	2-3/4	70	1-7/16	38	–	–	–	–
8	25	25M	25	EL25D14	3-1/4	80	1-9/16	40	–	–	–	–
9	28	30M	29	EL28D14	3-3/4	95	1-5/8	42	1	25	1-11/16	43
–	30	–	–	EL30D14	3-3/4	95	2-1/16	52	1	25	1-3/4	44
10	32	–	32	EL32D14	4	105	1-3/4	46	1	25	1-7/8	48
–	34	–	–	EL34D14	4-3/8	110	2-3/16	55	1	25	2	51
11	36	35M	36	EL36D14	4-1/2	115	2-1/16	52	1	25	2-1/16	52
–	38	–	–	EL38D14	4-3/4	120	2-1/8	53	1	25	2-3/16	56
–	40	–	–	EL40D14	5	130	2-1/4	58	1	25	2-5/16	59
14	43	45M	43	EL43TD14	5-1/2	150	2-5/8	67	1-5/16	34	2-1/2	61
–	50	–	–	EL50TD14	6-1/2	160	2-13/16	71	1-5/16	33	3-1/8	77
18	57	55M	57	EL57TD14	7-1/4	190	3-5/16	84	1-5/8	41	3-1/8	80

NOTE 1: Thread does not need to be flush with end of nVent LENTON Terminator. Thread may be +/- 2 threads from the backside of head.

NOTE 2: Net bearing area ( $A_{brg}$ ) exceeds 9 times the area of the bar ( $A_{br}$ ).



### TABLE 5: nVent LENTON Ultimate DR16 AND DR14 SPECIFICATIONS

Series and Part Number Suffix	Material Grade	ASTM® A970 Compliant	Rebar Material	Rebar Sizes
<b>nVent LENTON Ultimate DR16</b>	AISI 1045 <sup>2</sup> (or equivalent)	ASTM A970-13a, -12, -09, -07 <sup>1</sup> , -06	ASTM A706 Grades 60 and 80; A615 Grades 60, 75, and 80	#4 to #18 <sup>1</sup>
<b>nVent LENTON Ultimate DR14</b>	AISI 1045 <sup>2</sup> (or equivalent)	ASTM A970-13a, -12, -09, -07 <sup>1</sup> , -06	ASTM A706 Grades 60 and 80; A615 Grades 60, 75, and 80	#4 to #18 <sup>1</sup>

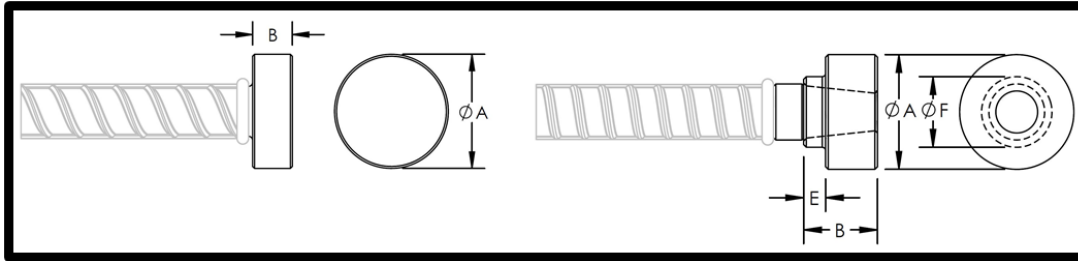
<sup>1</sup> Note: Anchorage shall be designed in accordance with ACI 318-14 Chapter 17, ACI 318-08/-11 Appendix D, or designed otherwise to the satisfaction of the registered design professional and approved by the building official for heads compliant with ASTM A970-07, Grade 75 reinforcement bar, Grade 80 reinforcement bar, or for reinforcement bar sizes that exceed No.11.

<sup>2</sup> Note: For nVent LENTON Ultimate headed bars with MT12 male taper thread component and nVent LENTON Terminator head, the material grade for MT12 is as noted in Table 5 and nVent LENTON Terminator head is as noted in Table 1 of this report.





**Figure 2: nVent LENTON Ultimate - DR16/DR14 Series**



**A** = Large Diameter  
**B** = Length of nVent LENTON Ultimate Head or nVent LENTON Terminator Head & Bar Engagement  
**E** = Length of Small Step (when applicable)  
**F** = Small Diameter (when applicable)

**Table 6: nVent LENTON Ultimate – DR16 Series**

Reinforcement Bar Designation				Part Number	"A"		"B"		"E"		"F"	
In/lb	Metric (mm)	Canadian	Soft Metric		in	mm	in	mm	in	mm	in	mm
4	12	10M	13	LU12DR16	1-3/8	35	19/32	15	-	-	-	-
5	16	15M	16	LU16DR16	1-3/4	45	19/32	15	-	-	-	-
6	20	20M	19	LU20DR16	2	51	19/32	15	-	-	-	-
7	22	-	22	LU22DR16	2-1/4	57	19/32	15	-	-	-	-
8	25	25M	25	LU25DR16	2-1/2	64	25/32	20	-	-	-	-
9	28	30M	29	LU28DR16	2-3/4	70	25/32	20	-	-	-	-
10	32	-	32	LU32DR16	3	76	25/32	20	-	-	-	-
11	36	35M	36	LU36DR16	3-1/4	83	31/32	25	-	-	-	-
-	40	-	-	LU40DR16	3-3/4	95	31/32	25	-	-	-	-
-	40	-	-	EL40D16 LU40MT12	3-3/4	95	2-1/4	58	1	25	2-5/16	59
14	43	45M	43	LU43DR16	4	102	1-3/16	30	-	-	-	-
14	43	45M	43	EL43TD16 LU43TMT12	4	102	2-5/8	67	1	25	2-1/2	64
-	50	-	-	LU50DR16	4-1/2	114	1-1/4	32	-	-	-	-
-	50	-	-	EL50TD16 LU50MT12	4-1/2	114	2-13/16	71	1	25	2-15/16	75
18	57	55M	57	LU57DR16	5-1/8	130	1-13/32	36	-	-	-	-
18	57	55M	57	EL57TD16 LU57TMT12	5-1/8	130	3-5/16	84	1	25	3-1/8	80

NOTE 1: Thread does not need to be flush with end of nVent LENTON Terminator. Thread may be +/- 2 threads from the backside of head.

NOTE 2: Net bearing area ( $A_{brg}$ ) exceeds 4 times the area of the bar ( $A_{br}$ ).



**Table 7: nVent LENTON Ultimate – DR14 Series**

Reinforcement Bar Designation				Part Number	"A"		"B"		"E"		"F"	
In/lb	Metric (mm)	Canadian	Soft Metric		in	mm	in	mm	in	mm	in	mm
4	12	10M	13	LU12DR14	1-3/4	45	19/32	15	=	-	-	-
5	16	15M	16	LU16DR14	2	51	19/32	15	-	-	-	-
6	20	20M	19	LU20DR14	2-1/2	64	19/32	15	-	-	-	-
7	22	-	22	LU22DR14	2-3/4	70	19/32	15	-	-	-	-
8	25	25M	25	LU25DR14	3-1/4	83	25/32	20	-	-	-	-
9	28	30M	29	LU28DR14	3-3/4	95	25/32	20	-	-	-	-
9	28	30M	29	EL28D14 & LU28MT12	3-3/4	95	1-5/8	42	1	25	1-11/16	43
10	32	-	32	LU32DR14	4	102	25/32	20	-	-	-	-
10	32	-	32	EL32D14 & LU32MT12	4	102	1-3/4	46	1	25	1-7/8	48
11	36	35M	36	LU36DR14	4-1/2	114	31/32	25	-	-	-	-
11	36	35M	36	EL36D14 & LU36MT12	4-1/2	114	2-1/16	52	1	25	2-1/16	52
-	40	-	-	LU40DR14	5	127	31/32	25	-	-	-	-
-	40	-	-	EL40D14 & LU40MT12	5	127	2-1/4	58	1	25	2-5/16	59
14	43	45M	43	LU43DR14	5-1/2	140	1-3/16	30	-	-	-	-
14	43	45M	43	EL43TD14 & LU43TMT12	5-1/2	140	2-5/8	67	1-5/16	34	2-1/2	61
-	50	-	-	LU50DR14	6-1/2	165	1-1/4	32	-	-	-	-
-	50	-	-	EL50TD14 & LU50TMT12	6-1/2	165	2-13/16	71	1-5/16	33	3-1/8	77
18	57	55M	57	LU57DR14	7-1/4	184	1-13/32	36	-	-	-	-
18	57	55M	57	EL57TD14 & LU57TMT12	7-1/4	184	3-5/16	84	1-5/8	41	3-1/8	80

NOTE 1: Thread does not need to be flush with end of nVent LENTON Terminator. Thread may be +/- 2 threads from the backside of head.

NOTE 2: Net bearing area ( $A_{brg}$ ) exceeds 9 times the area of the bar ( $A_{br}$ ).



## CITY OF LOS ANGELES SUPPLEMENT

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### nVent LENTON TERMINATOR AND LENTON ULTIMATE HEADED REINFORCING BAR AND MECHANICAL ANCHORAGE SYSTEMS IN CONCRETE

#### CSI Section:

03 21 00 Reinforced Steel

#### 1.0 RECOGNITION

nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems described in ER-0188 and this 2017 LABC and LARC supplemental report have been evaluated for use as mechanical anchorage to develop steel reinforcing bars (rebar). The nVent LENTON Terminator and LENTON<sup>®</sup> Ultimate headed bar and mechanical anchorage systems have been evaluated for structural performance properties, subject to the requirements in ER-0188 and this 2017 LABC and LARC supplemental report. nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems were evaluated for compliance with the following codes and regulations:

- 2017 City of Los Angeles Building Code (LABC)
- 2017 City of Los Angeles Residential Code (LARC)

#### 2.0 LIMITATIONS

Use of the nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems recognized in this supplement is subject to the following limitations:

**2.1** Calculations and specifications verifying compliance with the nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems shall be submitted to plan check engineer at the time of permit application. nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems calculations shall be prepared by a Civil or Structural Engineer registered in the State of California.

**2.2** Periodic special inspection shall be provided by The Registered Deputy Inspector in accordance with Section

1705 of the 2017 LABC during installations of the nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems.

**2.3** The fabricator of the steel for the nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems shall be required to maintain a detailed procedure for material control and suitable procedures and records attesting that the specified material has been furnished. The applicable ASTM designation or coating, as applicable, shall be included in each packaging assembly prior to shipment from the fabricator's plant. The fabricator's identification mark designation shall be established and on record prior to fabrication. Steel that is not identifiable from marking and test records shall be tested to determine conformity to this report. The fabricator shall furnish an affidavit of compliance and test data shall be provided upon request.

**2.4** Minimum concrete cover shall be provided in accordance with Section 1808.8.2 of the 2017 LABC. Concrete cover shall be measured from the outer surface of the End Anchors for Reinforcing Bar's head.

**2.5** The nVent LENTON Terminator and LENTON Ultimate headed bar and mechanical anchorage systems shall be installed in accordance with the applicable code, manufacturer's installation instructions, and this supplement. A copy of the manufacturer's installation instructions shall be available on site for all Registered Deputy Inspectors.

**2.6** nVent LENTON Ultimate headed bar and mechanical anchorage systems to be installed shall be selected at the jobsite by the Registered Deputy Inspector or by the building inspector and shall be tested by an approved testing agency in accordance with Section 1703 of the LABC. The test shall be conducted on each different rebar size and the frequency of tests shall be as follows: one out of the first ten splices; one out of the next ninety splices; one out of the next one hundred splices. nVent LENTON Ultimate headed bar and mechanical anchorage systems shall develop in tension, as required, at least 100 percent of the specified tensile strength of the steel reinforcing bar as per ASTM A970.

If failure of the tested headed anchors should occur prior to obtaining 100-percent of the specified tensile strength, the 25-percent of all headed anchors shall be tested. If failure of the tested headed anchor occurs with testing of the 25-percent requirement, as stated above, then all headed anchors shall be rejected.

**2.7** This supplement expires concurrently with ER-0188.

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