

CONNECT AND PROTECT

nVent LENTON Swaged Terminator

For Rebar Anchorage

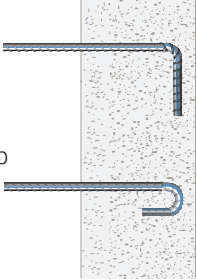
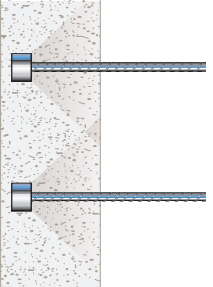



nvent

LENTON

Hooked Rebar Anchorage vs. nVent LENTON Swaged Terminator

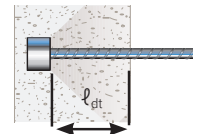
For many years, the traditional method of providing shear reinforcement and connecting roof/column and beam/column connections has been with hooked rebar anchorage. Many structural engineers, architects and specifiers have discovered, this method of anchorage has very few advantages. Explore the reasons why you should consider the nVent LENTON Swaged Terminator – your efficient alternative for hooked rebar anchorage.

WHICH SYSTEM IS MORE RELIABLE AND ECONOMICAL?

Hooked Rebar Anchorage	Terminator
<ul style="list-style-type: none"> Requires longer development lengths <ul style="list-style-type: none"> Increases rebar congestion Restricts flow of larger aggregates Hidden costs <ul style="list-style-type: none"> The larger the bar, the longer the lap Inhibits rebar placement <ul style="list-style-type: none"> Increases rebar placing costs Jeopardizes job site safety <ul style="list-style-type: none"> Increases safety hazards through exposed rebar Restricts removal of column forms and shaft casings <ul style="list-style-type: none"> Labor intensive 	<ul style="list-style-type: none"> Eliminates rebar hook <ul style="list-style-type: none"> Simplifies bar placement Minimizes development lengths <ul style="list-style-type: none"> Reduces congestion up to 27% Simplifies concrete placement <ul style="list-style-type: none"> Better concrete consolidation More embedment options <ul style="list-style-type: none"> Greater design flexibility Faster installation <ul style="list-style-type: none"> Lowers in-place cost Standard product dimensions <ul style="list-style-type: none"> Minimal detailing required
	
<p>Vs.</p>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Reliable</p> </div> <div style="text-align: center;">  <p>Economical</p> </div> </div>	

HOW TERMINATOR WORKS

The Terminator design builds on the extensive testing conducted for headed anchors. Most recently the American Concrete Institute (ACI®) published Building Code Requirements (318-19) defining the development of headed and mechanically anchored deformed bars in tension (Section 25.4.4). Additionally, the International Building Code (IBC®) references ACI 318.



ASTM A706 and A615 Grade 60 Uncoated Bar					
Development Lengths (l_{dt}) for Headed Rebar (ACI 318-19, 25.4.4), inch					
Bar Size		Concrete Compressive Strength, psi			
ASTM	mm	3,000	5,000	7,500	10,000
#4	12	6	6	6	6
#5	16	6	6	6	6
#6	20	8	7	6	6
#7	22	10	9	8	7
#8	25	12	11	10	8
#9	28	14	13	12	10
#10	32	17	16	14	12
#11	36	20	18	16	14

*Modification factors ψ_e , ψ_p , ψ_o set to 1.0. ψ_c calculated per 25.4.4.3

**Embedment depths rounded up to nearest whole inch.

ASTM A706 and A615 Grade 80 Uncoated Bar					
Development Lengths (l_{dt}) for Headed Rebar (ACI 318-19, 25.4.4), inch					
Bar Size		Concrete Compressive Strength, psi			
ASTM	mm	3,000	5,000	7,500	10,000
#4	12	6	6	6	6
#5	16	8	7	7	6
#6	20	11	10	8	7
#7	22	13	12	11	9
#8	25	16	15	13	11
#9	28	19	17	15	13
#10	32	23	21	18	16
#11	36	27	24	21	18

*Modification factors ψ_e , ψ_p , ψ_o set to 1.0. ψ_c calculated per 25.4.4.3

**Embedment depths rounded up to nearest whole inch.

Faster Rebar Placement & Reduced Rebar Congestion

WHY TERMINATOR?

Code changes have significantly increased the amount of rebar required, while at the same time, designers are striving for more compact structural elements. This results in rebar congestion and placement problems. The Terminator answers these challenges by eliminating the majority of rebar embedment lengths required, while reducing job-site related labor hours.

The Terminator provides an alternative to hooked rebar, anchor or stop nut for rebar passing through a pile plank or structural steel element. The front face of the Terminator is designed to carry the full tension load of the rebar when the anchor is bearing against concrete or structural steel.

Terminator is designed for use in concrete with ASTM A615/A706 grades 60 and 80, ENV10080, BS4449, AS3102, and other international grades of rebar in sizes #4 (12 mm) through #18 (57 mm). The Terminator requires no special training, minimizes detailing and is ideal for all types of concrete construction projects. The system is supplied through a network of local rebar fabricators utilizing standard nVent LENTON equipment.

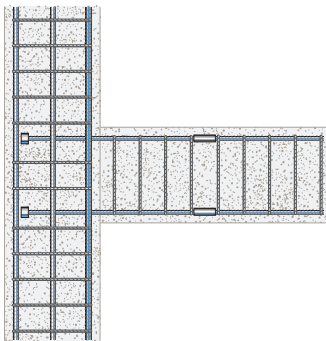
Terminator is designed to meet the requirements of ACI® 318 as an alternate to hooked rebar anchorage.

ACI 318 Section 25.4.5.1 states: "Any mechanical attachment or device capable of developing f_y of reinforcement is allowed, provided that test results showing the adequacy of such attachment or device are approved by the building official."

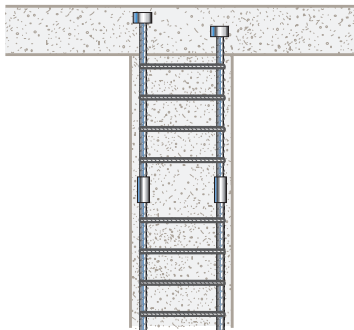


Applications

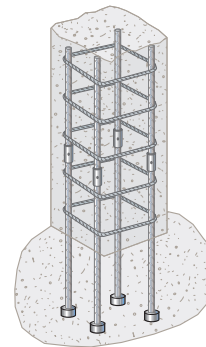
Beam/Column



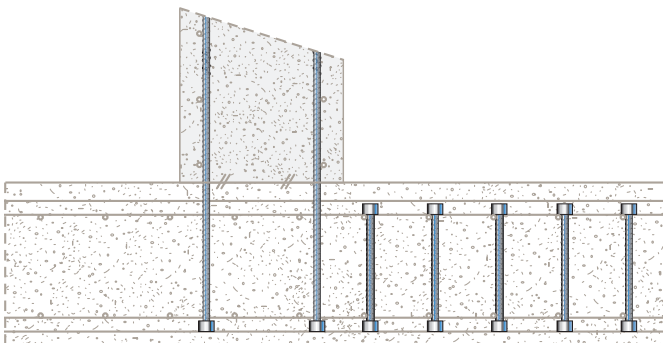
Roof/Column



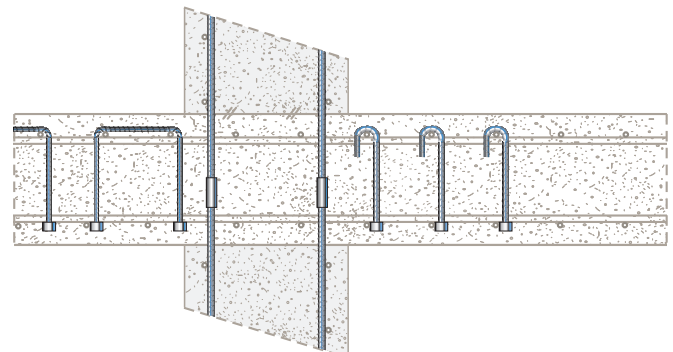
Piles/Caissons



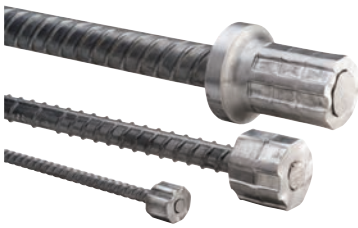
Base Slabs



Intermediate Floor Slabs



Why nVent LENTON Swaged Terminator



The nVent LENTON Swaged Terminator System utilizes high-speed cold forging technology to quickly attach the Terminator (head) to the reinforcing steel bar. The system is designed to maximize operator safety, product performance and shop efficiency. Integrated safety controls and guarding ensures operator safety. The tooling is designed to be lightweight, making tool changes safer and easier than similar systems. Tool changes and operator training takes only a few minutes.

PRODUCT PERFORMANCE

- Available in two size ranges: The DT14 head area exceeds 10x bar area (net 9x) and the DT16 head area exceeds 5x bar area (net 4x)
- Permanently secured, will not loosen or fall off during transportation or installation
- System is robust allowing for the inherent variability of rebar while maintaining the highest level of performance
- Both the DT16 and DT14 swaged terminators are designed to meet Caltrans Ultimate performance with A706 grade 60 rebar, ASTM A970 Classes A, HA, and B performance with A706 and A615 grade 60 and grade 80 rebar
- IAPMO UES Evaluation Report: IAPMO® -UES ER-0188

HIGH SPEED/HIGH OUTPUT

- Machine cycle time is 20-25% faster than similar systems
- High output equipment option available for sizes #4-#7
- Easy release tooling
 - No hammer required to free part from dies, thus, reducing operator fatigue
 - No lubricating of the die set

LIGHTWEIGHT DOVETAIL TOOLING WITH QUICK CHANGEOVER IN MIND

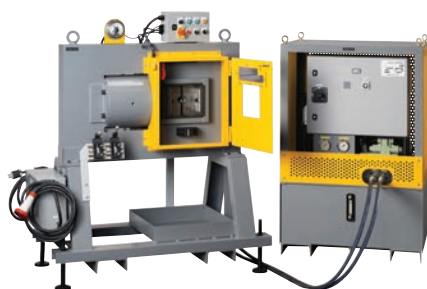
- Changing part sizes takes only minutes
- Only four bolts and two tools required for part changes
- Segmented tooling reduces die weight, thus, reducing potential injuries during die changes
- Color coded tooling eliminates mistakes
- Pneumatic bar stop eliminates need for manual adjustments and reduces operator fatigue

SAFE AND EASY TO OPERATE

- Integrated safety controls and guarding ensures operator safety
- Emergency stop with reset located at operator station
- Lighted die space
- Tooling is designed with generous radii, eliminating sharp edges on the final formed product

EASY TO INSTALL

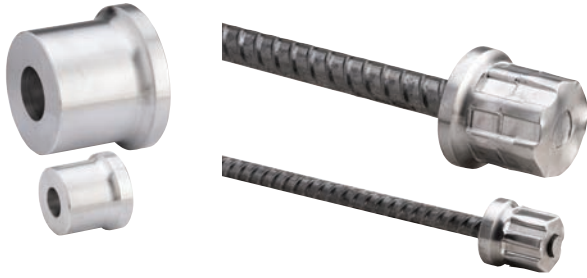
- Quick connect hydraulic and electrical fittings
- Transformer mounted on machine



DT16 Terminator, Plain

The nVent LENTON Swaged Terminator system is designed to maximize operator safety and product performance while increasing shop productivity. The system is robust, allowing for the inherent variability of rebar while maintaining the highest level of performance.

The DT16 head area exceeds 5x bar area (net 4x). The system is designed to meet Caltrans Ultimate performance with A706 grade 60 rebar, ASTM A970 Classes A, HA, and B performance with A706 and A615 grade 60 and grade 80 rebar.



Features

- Eliminates reinforcing bar hooks and simplifies bar placement with greater design flexibility
- Minimizes embedment lengths and reduces congestion
- Simplifies concrete placement
- Terminators are permanently secured to the bar and will not loosen or fall off during transportation
- Fast installation makes them ideal for high-volume shear ties

Finish: Plain

Material: Steel

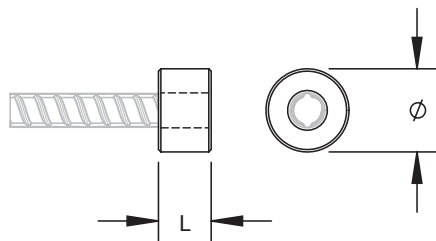
100% U.S. Domestic Content: Yes



Catalog Number	Rebar Size, Metric	Rebar Size, US	Length (L)		Diameter 1 (Ø1)		Unit Weight		Box Quantity
			inch	mm	inch	mm	lb	kg	
LS12DT16D	12	#4	0.88	22	1.38	35	0.3	0.14	100
LS16DT16D	16	#5	1.06	27	1.75	44	0.6	0.27	50
LS20DT16D	20	#6	1.50	38	1.94	49	1.0	0.45	42
LS22DT16D	22	#7	1.50	38	2.38	60	1.5	0.70	20
LS25DT16D	25	#8	1.75	44	2.75	70	2.5	1.12	12
LS28DT16D	28	#9	1.94	49	2.88	73	2.8	1.29	12
LS32DT16D	32	#10	2.19	56	3.38	86	4.5	2.04	6
LS36DT16D	36	#11	2.44	62	3.81	97	6.5	2.94	5

Designed to Meet: ACI 318; AS3600; ASTM A970; Caltrans Ultimate (A706 Grade 60)

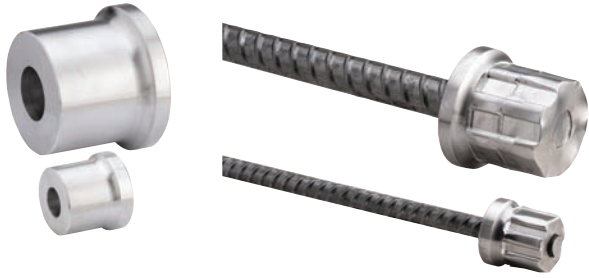
Terminator sizes #14 (LS43DT16D) and #18 (LS57DT16D) available soon. Contact your local sales representative for more information.



DT14 Terminator, Plain

The nVent LENTON Swaged Terminator system is designed to maximize operator safety and product performance while increasing shop productivity. The system is robust, allowing for the inherent variability of rebar while maintaining the highest level of performance.

The DT14 head area exceeds 10x bar area (net 9x). The system is designed to meet Caltrans Ultimate performance with A706 grade 60 rebar, ASTM A970 Classes A, HA, and B performance with A706 and A615 grade 60 and grade 80 rebar.



Features

- Eliminates reinforcing bar hooks and simplifies bar placement with greater design flexibility
- Minimizes embedment lengths and reduces congestion
- Simplifies concrete placement
- Terminators are permanently secured to the bar and will not loosen or fall off during transportation
- Fast installation makes them ideal for high-volume shear ties

Finish: Plain

Material: Steel

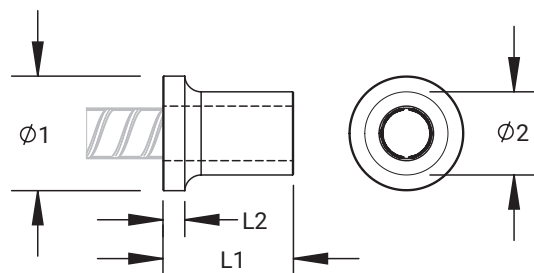
100% U.S. Domestic Content: Yes



Catalog Number	Rebar Size, Metric	Rebar Size, US	Diameter 1 (Ø1)		Diameter 2 (Ø2)		Length 1 (L1)		Length 2 (L2)		Unit Weight		Box Quantity
			inch	mm	inch	mm	inch	mm	inch	mm	lb	kg	
LS12DT14D	12	#4	1.63	41	1.38	35	1.51	38	0.31	8	0.6	0.27	50
LS16DT14D	16	#5	2.00	51	1.75	44	1.77	45	0.38	10	1.1	0.49	30
LS20DT14D	20	#6	2.38	60	1.94	49	2.25	57	0.38	10	1.7	0.77	20
LS22DT14D	22	#7	2.88	73	2.38	60	2.32	59	0.41	10	2.7	1.21	12
LS25DT14D	25	#8	3.25	83	2.75	70	2.58	66	0.41	10	4.0	1.80	8
LS28DT14D	28	#9	3.75	95	2.88	73	2.91	74	0.46	12	5.0	2.28	6

Designed to Meet: ACI 318; AS3600; ASTM A970; Caltrans Ultimate (A706 Grade 60)

Terminator sizes #10 (LS32DT14D) and #11 (LS36DT14D) available soon. Contact your local sales representative for more information.



A Look at nVent LENTON Concrete Reinforcement Products



nVent LENTON has been a pioneer in the concrete construction industry for more than 40 years. We changed rebar splicing, first with CADWELD mechanical connections, then with the nVent LENTON mechanical splicing system – the #1 mechanical connector in the world. nVent now offers a wide range of mechanical splices for almost any construction need:

- nVent LENTON CADWELD – Premier mechanical splicing system
- nVent LENTON Form Saver – Ideal for segmental pours
- nVent LENTON Interlok – Ideal for precast structures
- nVent LENTON Quick Wedge – Ideal for quick retrofit
- nVent LENTON Speed Sleeve – Ideal for compression situations
- nVent LENTON Terminator – Ideal alternative to hooked rebar anchorage
- nVent LENTON Swaged Terminator – Ideal alternative for high-volume hooked rebar anchorage
- nVent LENTON Connect – Ideal for in-situ splices
- nVent LENTON Ultimate – Ideal for high-strain, fatigue and nuclear performance requirements

The entire nVent LENTON line of mechanical rebar splices has replaced many conventional splicing systems, such as welding and lap splicing. Unlike butt welding, nVent LENTON products require no special training or external power source, are quicker to install and inspect, reduce crane time, improve the tensile strength of the splice and can be installed in any weather.

As your rebar splicing specialist, nVent offers you the expertise you need for all your rebar splicing projects.

nVent Engineered Electrical & Fastening Solutions is a leading global manufacturer and marketer of superior engineered products for niche electrical, mechanical and concrete applications. These nVent products are sold globally under a variety of market-leading brands: nVent ERICO welded electrical connections, facility electrical protection, and rail and industrial products; nVent CADDY fixing, fastening and support products; nVent ERIFLEX low voltage power and grounding connections; and nVent LENTON engineered systems for concrete reinforcement.

For more information on nVent ERICO, CADDY, ERIFLEX and LENTON, please visit nVent.com/LENTON.

TERMINATOR

How to Order:

To order the correct Terminator for your construction applications, please contact your local nVent customer care representative.

How to Specify:

Specific: Rebar terminations shall be nVent LENTON Swaged Terminator as manufactured by nVent.

Generic: The rebar terminations shall meet building code requirements, as required, by local norms/codes. The rebar terminations should be a swaged-on type anchor manufactured from high quality steel. Terminators should be installed to the manufacturer's requirements. The Terminators shall be manufactured using registered quality systems around the world.

WARNING

nVent products shall be installed and used only as indicated in nVent's product instruction sheets and training materials. Instruction sheets are available at nVent.com/LENTON and from your nVent customer service representative. Improper installation, misuse, misapplication or other failure to completely follow nVent's instructions and warnings may cause product malfunction, property damage, serious bodily injury and/or death, and void your warranty.



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