



BOLLARD WAREHOUSE™

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BATAVIA, IL 60510

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GENERAL WARNINGS AND CAUTIONARY STATEMENTS **COLLAPSIBLE BOLLARDS**

In order to safely and effectively use any Bollard Warehouse product, please read and understand the General Warnings and Cautionary Statements contained below. If you have any questions about any of these General Warnings and Cautionary Statements, or about any aspect of Bollard Warehouse products or literature, please contact Bollard Warehouse at 877-727-7347, or email at sales@bollardwarehouse.com.



Bollard selection and placement based on vehicle weight, speed and other site specific factors to be determined by owner.



Failure to utilize Bollard Warehouse authorized parts, or modifications to the Bollard Warehouse products, or failure to follow the recommended installation procedures, will result in your warranty being null and void.



Read and fully understand the installation instructions before attempting to install any Bollard Warehouse bollard product.



Substitution of components may impair the proper function of Bollard Warehouse bollards products. If you need replacement parts, please contact Bollard Warehouse at the number and email above.



Always ensure that the lock pin is locked into place in the upright position with all collapsible bollards.



WARNING: Failure to return collapsible bollard to upright, locked position immediately after use poses a significant hazard.



Replacement lock pins are available for purchase at Bollard Warehouse. For purchase of replacement lock pins or other components, please contact Bollard Warehouse at the number or email above.



CAUTION: Lock pin must always be secured with padlock when bollard is in upright position.



For maximum effectiveness of Bollard Warehouse bollard products, be sure to properly maintain bollards by replacing any damaged, corroded or missing components, and reapply paint as required to maximize visibility. Failure to properly maintain product can negatively impact the bollards performance over time.



To ensure visibility of bollards, be sure to apply all decals that are provided with the product, and in the manner recommended by Bollard Warehouse.

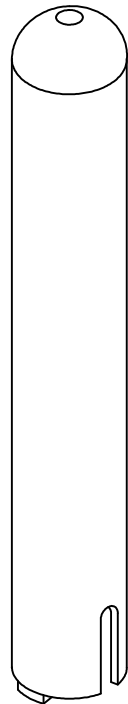
If in doubt **CALL** Bollard Warehouse 877-727-7347

ROUND POST HELIX LOCK BOLLARD SERIES

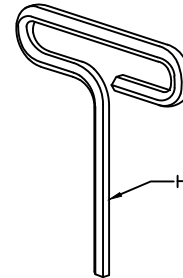
REV	BY	DATE	DESCRIPTION
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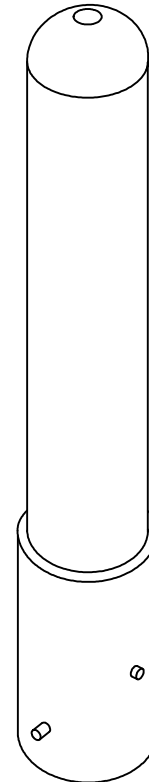
BOLLARD POST POWDER COATED



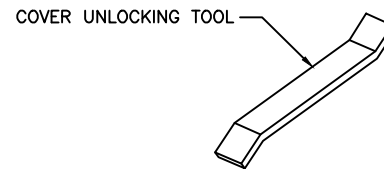
ANCHOR SLEEVE COVER (HDG)



HEX T-HANDLE WRENCH



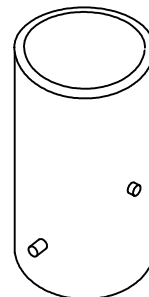
FINISHED GRADE



COVER UNLOCKING TOOL



ANCHOR SLEEVE COVER (HDG)



ANCHOR SLEEVE (HDG)

BOLLARD INSTALLED POSITION

BOLLARD REMOVED POSITION

7			
6			
5			
4			
3			
2			
1	---	---	---

ITEM	PART NUMBER	QTY.	DESCRIPTION
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BILL OF MATERIAL

This Drawing shall not be used nor reproduced except when authorized in writing by TrafficGuard Direct.

Bollard Warehouse www.bollardwarehouse.com P.O. Box 298 Batavia, IL 60510 Bus: 888-290-6420 Fax: 888-290-6422	NAME: HELIXLOCK BOLLARD INSTALL	USED IN: ---	ACTION: ---	BY: ---	DRAWING NUMBER: ---	
	1. DO NOT SCALE FROM DRAWING 2. UNITS ARE IN INCHES UNLESS OTHERWISE NOTED 3. DIMENSIONING BASED ON ASME Y14.5M-1994	TOLERANCE: 0.0X ± 0.01 0.00X ± 0.06 ANGULAR ± 1° FRACTION ± 1/16	DESIGN: ---	DRAWING: DBE	SCALE: ---	DATE: 01/16/12
	CHECKED: ---	DATE: ---	COPYRIGHT: ---	SHEET: 1 of 1	SIZE: ---	---

PLASTIC BOLLARD ANCHORAGE SYSTEM

DESIGN AND CONSTRUCTION SPECIFICATIONS, NOTES AND DESIGN SCHEDULE

1. THE DESIGN LOAD IS A STATIC LOAD LOCATED AT 27 INCHES ABOVE GRADE THAT SHOULD CAUSE FAILURE OF THE BOLLARD.
2. THE MAXIMUM EARTH PRESSURE VALUE IS SHOWN AT DESIGN STATIC LOAD AND THE OWNER SHOULD VERIFY THAT THE EARTH IS ADEQUATE.
3. OTHER ANCHORAGE SYSTEMS MAY CAUSE PREMATURE FAILURE OF THE BOLLARD BY ROTATION OF THE ANCHORAGE.
4. THE WATER/CEMENT RATIO SHOULD BE ABOUT 0.50 TO CREATE GOOD QUALITY STIFF CONCRETE WHEN MIXED WITH THE PROPER AMOUNT OF SAND AND AGGREGATE. THIS SHOULD PROVIDE A STIFF CONCRETE. TOO MUCH WATER WILL WEAKEN THE CONCRETE TO LESS THAN SPECIFIED AND COULD INFILTRATE THE FRENCH DRAIN AND CAUSE THE DRAIN TO NOT FUNCTION.
5. AUGER THE 8 INCH DIAMETER HOLE TO THE REQUIRED DEPTH. IF CAVE IN AT THE TOP INSTALL A SHORT LENGTH OF SONOTUBE. IF NEEDED SAW CUT THE TOP PAVING PRIOR TO AUGERING.
6. DROP THE THREE INCHES OF ROCK TO THE BOTTOM OF THE HOLE TO FORM THE FRENCH DRAIN.
7. INSTALL THE ANCHOR SLEEVE AND FOUNDATION DRAIN ASSEMBLY PLUMB AND SECURED IN PLACE WITH A GRADE LEVEL 2x4 AND WIRES. SEE SHEET ONE FOR DETAILS.
7. CAREFULLY POUR THE CONCRETE IN THE AUGERED HOLE AROUND THE ANCHOR SLEEVE AND FOUNDATION PVC/DRAIN PIPE (NOT INSIDE THE PIPES). DO NOT ALLOW EARTH TO ENTER THE CONCRETE. PLUNGE A ROD INTO THE CONCRETE IN THE HOLE TO REMOVE VOIDS WITH A #4 REBAR.
8. PIER HEIGHT AND HOLE DEPTH SHOULD BE SET TO ALLOW THE BOTTOM OF THE PIER TO BE BELOW THE LOCAL REQUIRED FOUNDATION FROST DEPTH. THIS DEPTH IS SET BY LOCAL AREA BUILDING OFFICIALS.
9. BOLLARD WAREHOUSE WILL PROVIDE THE HDG (HOT DIP GALVANIZED) STEEL ANCHOR SLEEVE WHEN PURCHASED. THE OWNER SHALL PROVIDE ALL OTHER MATERIALS AND THE INSTALLATION.

DESIGN SCHEDULE

$$Q \text{ MAX (HORIZONTAL EARTH PRESSURE)} = \frac{23,328 \times P}{D \times C \times C} = \text{xxxx PSF}$$

BOLLARD MODEL	DESIGN LOAD P	BOLLARD Fb PSI	EARTH Q MAX	PIER HEIGHT C	PIER HOLE DIA. D	PVC DRN LENGTH	PIER CONCRETE	FRENCH DRAIN
4536PL	800 #	3500 PSI	4050 PSF	24 INCH	8 INCH	15 INCH	0.44 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	2572 PSF	30 INCH	8 INCH	21 INCH	0.56 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	1800 PSF	36 INCH	8 INCH	27 INCH	0.68 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	1323 PSF	42 INCH	8 INCH	33 INCH	0.80 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	1013 PSF	48 INCH	8 INCH	39 INCH	0.92 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	800 PSF	54 INCH	8 INCH	45 INCH	1.04 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	648 PSF	60 INCH	8 INCH	51 INCH	1.16 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	536 PSF	66 INCH	8 INCH	57 INCH	1.28 Cu Ft	0.09 Cu Ft
4536PL	800 #	3500 PSI	450 PSF	72 INCH	8 INCH	63 INCH	1.40 Cu Ft	0.09 Cu Ft

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Bus: 1.888.290.6420 Fax: 1.888.290.6422
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PLASTIC BOLLARD ANCHORAGE SYSTEM

DESIGN VEHICLE LOAD "P"
LOCATED AT 27 INCHES
ABOVE GRADE

INSTALL TOP OF CONCRETE PIER
WITH EMBEDDED HDG STEEL
ANCHOR SLEEVE AT GRADE

USE NOTED 8"
DIAMETER SONOTUBE
IF NEEDED TO AVOID
CAVE IN AT THE TOP

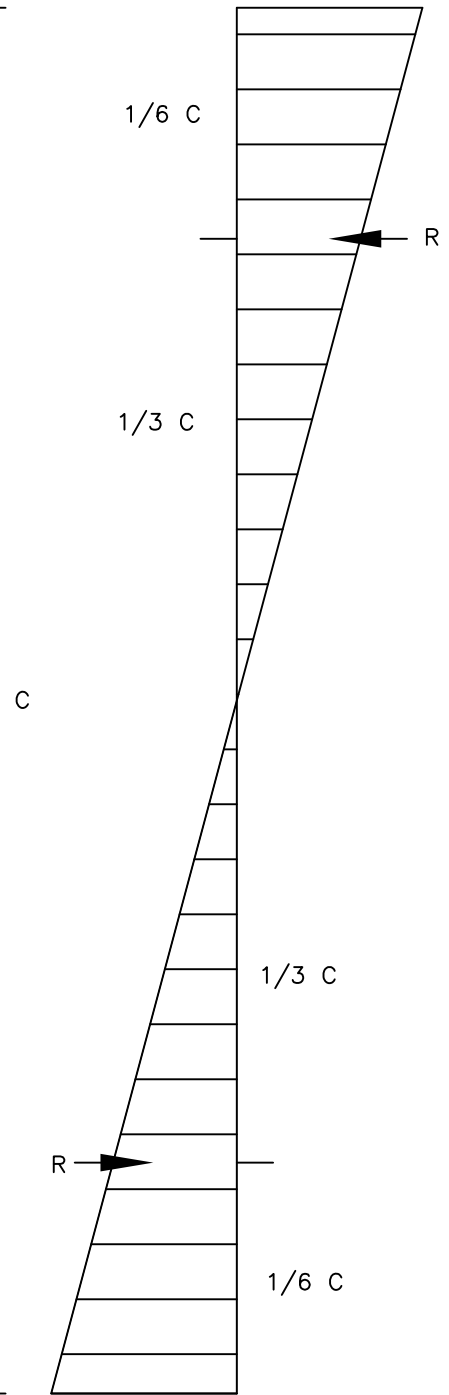
GALVANIZED STEEL
ROUND POST
ANCHOR SLEEVE
AT 12" LONG
PROVIDED BY
BOLLARD WAREHOUSE

3 INCH MINIMUM
PVC ENGAGEMENT

4000 PSI CONCRETE
8 INCH D (DIAMETER)
FOUNDATION PIER
AT NOTED NOTED
PIER HEIGHT C

4 INCH INSIDE DIA.
SCHEDULE 40 PVC
FOUNDATION & DRAIN
PIPE AT NOTED LENGTH

EARTH PRESSURE
POUNDS PER SQUARE FOOT
Q PSF



LOAD DIAGRAM

3 INCHES MINIMUM DEPTH ROCK
FRENCH DRAIN PIER BASE

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Model: AB4536PL - Copyright 2009 - Sheet 1 of 2

PIER ELEVATION SECTION NTS