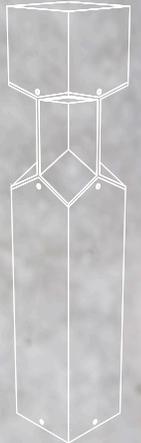




KNIGHT™ BOLLARD

PRODUCT DATA





Knight Bollards combine rustproof construction, a unique geometric design, and the striking aesthetic of the rest of the Knight family. Fixtures consist of a robust square column with the light source positioned above a beautifully detailed quadrant casting. Bollards can be specified for lighting only or with an optional embedded security core designed to protect buildings and public spaces against vehicle infringement. Standard Knight Bollards have a symmetrical lighting pattern.

MATERIAL & CONSTRUCTION DETAILS

INSTALLATION & MAINTENANCE

CONFIGURATIONS	FINISHES	LED LAMP & DRIVER	INSTALLATION
<ul style="list-style-type: none"> Column is 8" x 8" square (203 mm x 203 mm square) extruded aluminum with rounded corners. Head is comprised of an aluminum quadrant casting with aluminum lamp housing and four borosilicate glass lenses. Lenses can be replaced with opaque shields for asymmetrical distribution, if required. Standard height is 43.1" (1095 mm); shorter heights down to a minimum of 33" (838 mm) are available on a custom basis. Weight is 45 lbs (20.4 kg) Knight Bollards are available with an optional embedded security core that accommodates two mounting styles: deep set mounting achieves an S10-P1 security rating; shallow mounting achieves an S30-P1 security rating. 	<ul style="list-style-type: none"> For column and head powdercoat options see the Forms+Surfaces Powdercoat Chart for details. Custom RAL colors are available for an upcharge. Quadrant castings are Aluminum Texture powdercoat with polished outer edges. All quadrant casting surfaces are clear-coated. Due to the inherent nature of metal castings, gloss powdercoats are not offered for cast components. 	<ul style="list-style-type: none"> Custom LED light engine, featuring advanced LED technology with 16W, 3000K warm white and 4000K natural white LEDs. Two bollard options are available: 0-10V dimming (120-277 VAC input power) or phase dimming (120 VAC input power); -40°C to 90°C operating temperature. LED driver certifications include: IP66 (waterproof) enclosure, and Class 2 rated output (UL8750). 	<ul style="list-style-type: none"> Standard mounting is surface mount with 1/2"-13x18" galvanized steel J-bolt anchors. Security bollards with embedded security cores are available for an upcharge and can use either of two mounting styles: deep set or shallow mount. Installation of a surge protector as part of each unit's wiring is recommended. Stainless steel mounting hardware sold separately. Templates available upon request. See pages 2-3 for more information.
			MAINTENANCE
			<ul style="list-style-type: none"> Metal surfaces can be cleaned as needed, using a soft cloth or brush with warm water and a mild detergent. Avoid abrasive cleaners.

OPTIONAL SECURITY CORE

Site security is a major concern in today's unpredictable world. Public and private buildings, government facilities, campuses and public parks are all susceptible to accidental, as well as deliberate, vehicle infringement. Design professionals, city planners, facilities managers and engineers must now be increasingly sensitive to the safety and security requirements of public and private spaces. Security bollards placed at ingress points are an excellent way to guard against vehicle infringement while allowing pedestrian access.

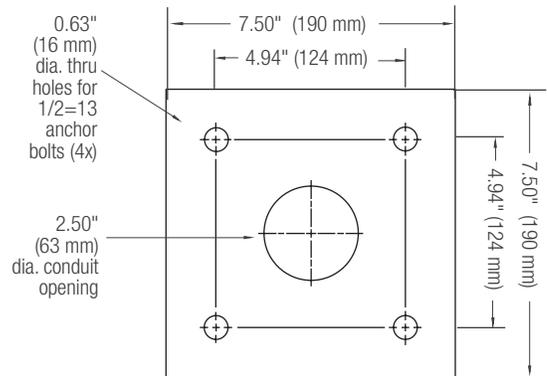
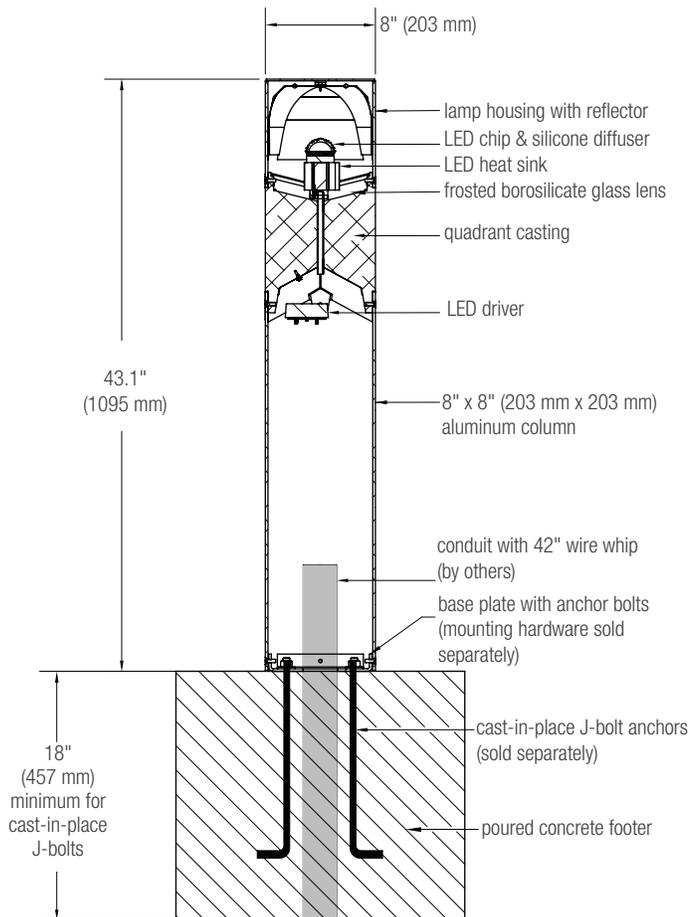
Most security bollards have taken the form of generic pipes and cylinders that offered little in the way of design or lighting functionality. An integral security solution is available as an optional enhancement to Forms+Surfaces' Knight lighting bollards. By adding a pre-engineered and fully-tested security core to the existing Knight design, we can offer a beautiful and efficient lighting bollard that also meets the stringent hi-impact crash requirements normally attained only with unattractive pipe barriers.

Knight SC30-P1 and S10-P1 security bollards have been tested using a Finite Element Analysis (FEA) by a professional engineering consultant. FEA is a software-based tool commonly used in the automotive industry and used extensively for crash test simulations. Tests were performed using our bollard set in permanent concrete footings and struck by a vehicle at a 90 degree impact. The impact simulation found the bollards to be successful in stopping a 5,000 lb. small passenger vehicle going 10 mph with less than one meter penetration.

Please contact us to discuss design and installation considerations for Knight bollards with security cores.



SURFACE MOUNT WITH J-BOLTS

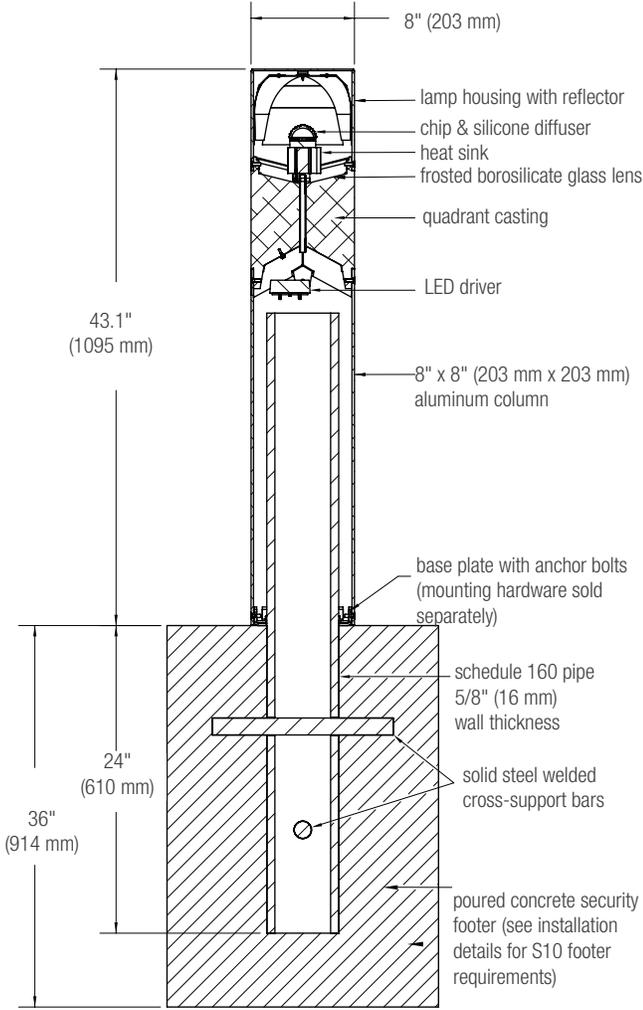


BASE PLATE DETAIL

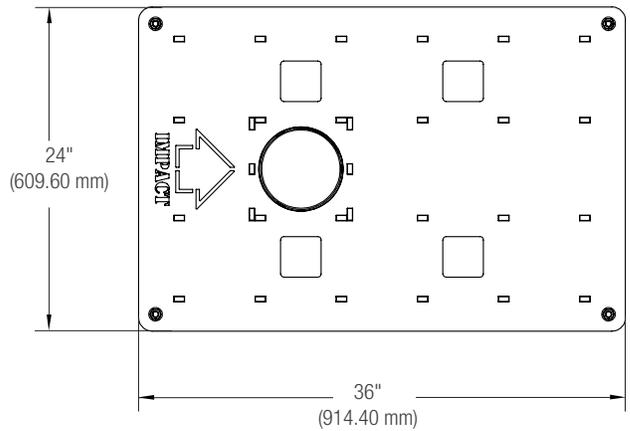
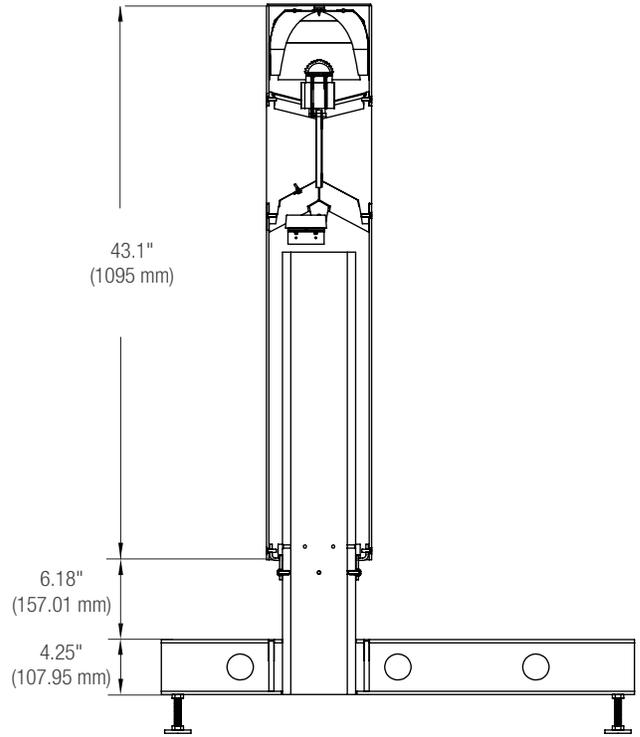


DEEP SET EMBEDDED S10-P1 SECURITY CORE

SHALLOW MOUNT EMBEDDED SC30-P1 SECURITY CORE



See page 2 for Base Plate Detail





LAMP DESCRIPTIONS

LAMP	DESCRIPTION	BASE	LUMINAIRE LUMENS*	B.U.G. RATING
3000K LED	16W custom LED light engine	N/A	362	B0-U2-G0
4000K LED	16W custom LED light engine	N/A	362	B0-U2-G0

*Luminaire lumens represents the absolute photometry for the luminaire, and indicates the lumens out of the entire fixture.

NOTE: Polar candela and isofootcandle plots can be found on the Knight Bollard product page on our website.

CERTIFICATION

- ETL and C-ETL listed for wet locations.

ENVIRONMENTAL CONSIDERATIONS

- Please refer to the Knight Bollard Environmental Data Sheet for detailed environmental impact information.
- Knight Bollard has high recycled content and is highly recyclable.
- Standard powdercoat finishes are no-VOC; Non-standard powdercoat finishes are no- or low-VOC, depending on color.
- Low maintenance.

MODEL NUMBERS AND DESCRIPTIONS

MODEL	DESCRIPTION
LBKNI-LED	Knight Bollard, custom LED light engine

PRODUCT OPTIONS

The following options are available for an upcharge

Upgrade to embedded deep set or shallow mount security core	Custom RAL powdercoat color
Add stainless steel mounting hardware	

LEAD TIME: 6 to 8 weeks. Shorter lead times may be available upon request. Please contact us to discuss your specific timing requirements.

PRICING: Please contact us at **800.451.0410** or **sales@forms-surfaces.com**. At Forms+Surfaces, we design, manufacture and sell our products directly to you. Our sales team is available to assist you with questions about our products, requests for quotes, and orders. Territory Managers are located worldwide to assist with the front-end specification and quoting process, and our in-house Project Sales Coordinators follow your project through from the time you place an order to shipment.

TO ORDER SPECIFY: Quantity, model, powdercoat color, LED color temperature, and mounting (surface mount or embedded security core). Quote/Order Forms are available on our website to lead you through the specification process in a simple checkbox format.