



DISTRIBUTION CENTER  
INSTALLED COST CASE STUDY

**BACKGROUND:** A distribution center received safety violations for fork lift damaged rack. The rack was unprotected against accidental collision and had received damage over the years, compromising its load ratings. The maintenance manager determined that single bollards were needed at four problem locations to prevent any new damage once the storage racks were replaced.

**OPTIONS:** At other locations in the past, the plant had installed embedded bollards to protect equipment, however over time some of those bollards had received damage and even cracked the concrete. The maintenance manager considered using Type 2 SlowStop® Bollards instead.

**ANALYSIS:** Understanding the performance benefits of SlowStop® Bollards, the manager was still initially hesitant due to higher purchase price of the rebounding bollards. A total installed cost analysis was performed.

**CORE EMBEDDED BOLLARDS**

Steel Pipe	4	€80	€320
Core Machine Rental	1	€175	€175
Diamond Core Bit	1	€160	€160
Concrete Bags	12	€5	€60
Paint	1	€20	€20
Labor Hours (2 men)	32	€80	€2,560
<b>TOTAL COST:</b>			<b>€3,295</b>

Notes:

Installation would need to occur on overtime due to coring  
Estimated time was two full days due to curing time.  
Core machine rental required



### SLOWSTOP® BOLLARDS

SlowStop Bollard Kits	4	€280	€1,120
New Hammerdrill Bit	1	€15	€15
Labor Hours (1 man)	3	€55	€165
<b>TOTAL COST:</b>			<b>€1,300</b>

#### Notes:

Installation with plant maintenance on straight time  
Time to install was less than ½ day with no curing or painting and minimal mess  
Hammerdrill tool owned by plant

### COST COMPARISON

SlowStop® Bollards were estimated to cost €2,244 less to install, or approximately 60% less.

**RESULTS:** The maintenance manager decided to install the SlowStop® Bollards. He was able to complete the job very rapidly without interference to operations. To date the bollards have performed as expected, protecting the rack without any damage to the foundation.

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