



What is the ABES 3p-Technology?

Help through ABES 3p-Technology

A complete repairs system

In 2001, ABES has launched 3p-Technology, a mounting system that allows a bollard that has been hit to be repaired in a very short time and in just a few steps.

The core of 3p-Technology is a junction piece with a predetermined breaking point.

Under the effect of an external force carried out by a car, a conventional bollard, including ground shell and locking mechanism, is seriously damaged or even destroyed.

This does not apply to bollards with 3p-Technology: their junction piece yields and breaks at the predetermined breaking point. Except for possible scratches on the bollard, every part, including the foundation and the pavement, remains intact. The junction piece is replaced, and in just a few minutes the bollard is ready for use again – without having lost any of its stability.

In numerous cities and municipal facilities, the 3p-Technology has become the standard mounting system.

It's not just bollards offering flexibility and easy assembly

While the 3p-Technology was originally developed for bollards, it is today also used in other street furniture, such as benches, bins and LED illuminated bollards, all of which enable the same easy assembly and maintenance.

In addition to simple maintenance, the system also offers further advantage:

Objects featuring the 3p-Technology are removable, giving you lots of freedom when it comes to design and layout. Bollards or benches can be easily removed during large events like Christmas markets or public gatherings, and reassembled afterwards in the blink of an eye.

All 3p-Technology products can similarly replace each other: the junction piece can be fitted onto any base, meaning you can easily replace a bin with a bollard if necessary.

Only the 3p-Technology can offer such design freedom!

THE PROBLEM

Defective bollards on the street

Crooked or broken bollards can be seen in every city. These pictures are certainly quite familiar. The replacement of conventional bollards is laborious, it takes a lot of manpower and time. This results in high costs.



Enter your repair costs and compare:

<https://abes-online.com/en/3p-technology/3p-cost-comparison/>

THE SOLUTION



Bollards with 3p-Technology

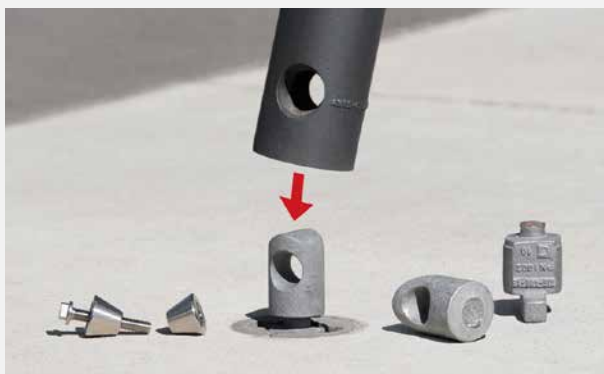
The ABES 3p-Technology is the solution. If the bollard has been rammed or knocked over by a vehicle, the junction piece with predetermined breaking point gives way.



Bollard hit by a car.



The replaceable junction piece breaks at the predetermined breaking point. The bollard and foundation with base generally remain intact.



The broken junction piece is replaced with a new one, and the bollard can be immediately reassembled.



More informations and videos:
<https://abes-online.com/en/3p-technologie/>

Advantages at a glance



COST ADVANTAGES IN CASE OF DAMAGE

- ✓ Cost savings up to 90% compared to all conventional and known bollards made of steel or cast aluminium
- ✓ Less than 3 minutes working time
- ✓ Bollards, foundations with floor sleeves and plaster usually remain intact

MOUNTING ADVANTAGES

- ✓ Quick replacement with simple tools on site
- ✓ Removable
- ✓ Absolutely accurate and firm



SIMPLIFIED STORAGE

ONE single ground shell for all products with 3p-Technology

- ✓ Easy stockpiling
- ✓ Less storage space
- ✓ Lower storage costs

All ABES bollards, lighting bollards, waste containers, etc. can be mounted alternately on the same ground shell.



The 3p-Technology and its individual parts



STANDARD

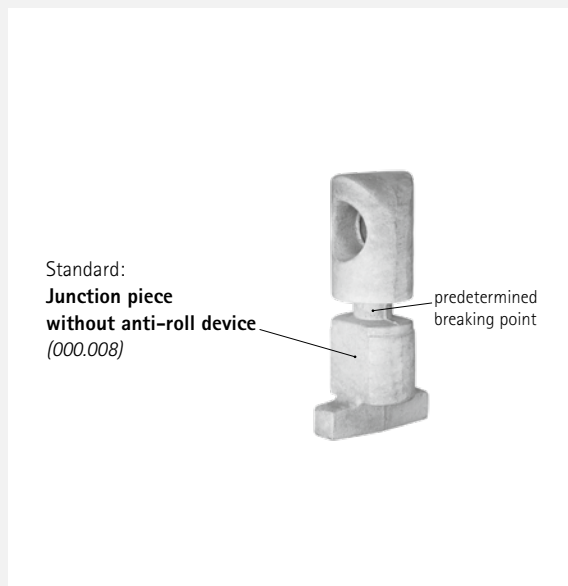
CLAMPING CONE SET with hex head screw

- Tightens the system firmly

Consisting of: M12 hexagonal head screw, N1 clamping cone without internal thread, N2 clamping cone with internal thread or N1 with M12 nut

Material: stainless steel 1.4301

Before installation, it's recommended to lubricate hex head screw and nut with a special ceramic paste. Please inquire! We will be happy to advise you.



STANDARD

JUNCTION PIECE WITH PREDETERMINED BREAKING POINT without anti-roll device

- Links bollard to the ground shell
- Breaks at the predetermined breaking point when damaged by a vehicle
- Can be instantly replaced if damaged

Material: cast iron, galvanised



STANDARD

GROUND SHELL 300 mm

- Extremely robust component for long-lasting concrete embedment

Material: cast iron, galvanised

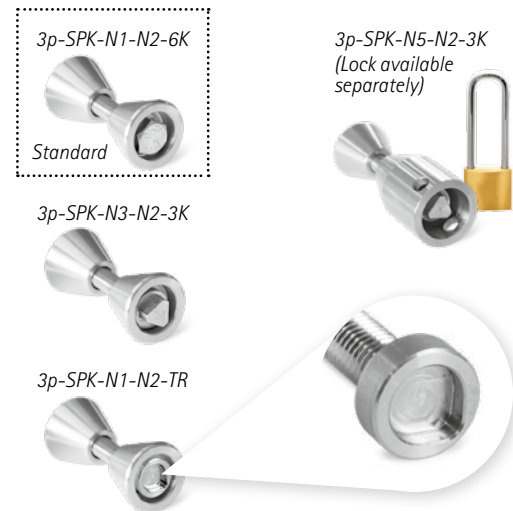
Note: In order to prevent the interruption of the construction process, the ground shells can be delivered in advance, if requested.

OPTIONS

3p-SPK-N3-N2-3K Clamping cone set with triangular head screw

3p-SPK-N5-N2-3K Clamping cone set with lengthened clamping cone (N5)
Additional protection with a padlock in order to prevent unauthorised removal (e.g. fire brigade padlock), possible use with triangular head screw or with hex head screw

3p-SPK-N1-N2-TR Clamping cone set with ABES bolt (Drop shaped)
Special head screw with drop shaped drive
Can only be opened with an optional special tools; hence protection against unauthorised opening with standard tools (utility model protection)

**OPTIONS**

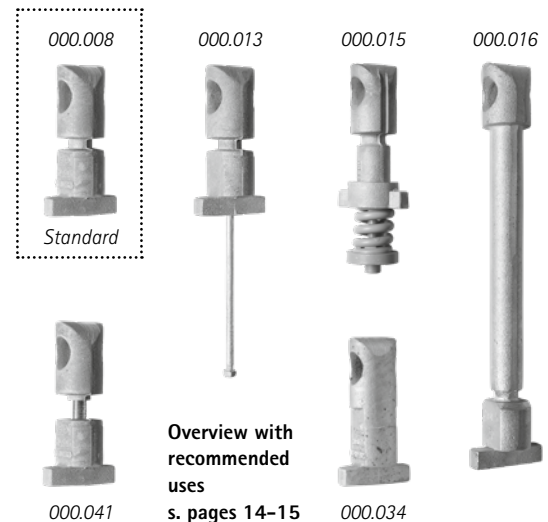
000.013 Junction piece with anti-roll device
The metal rod prevents the bollard from rolling away

000.015 Junction piece with steel spring (3p-Flex)
The bollard returns to its initial position after impact (8-10° tilt), and only breaks if the breaking load is exceeded

000.016 Junction piece with extended connection (3p-High)
Allows to open and close the locking mechanism with long fire brigade triangular keys without a break

000.034 Junction piece without predetermined breaking point
Solid protection for people and objects

000.041 Height-adjustable junction piece
· Height can be adjusted with a threaded rod
· Compensates for the gap between bollard and ground shell, if it ends below level, e.g. with paving stones of different heights

**OPTIONS**

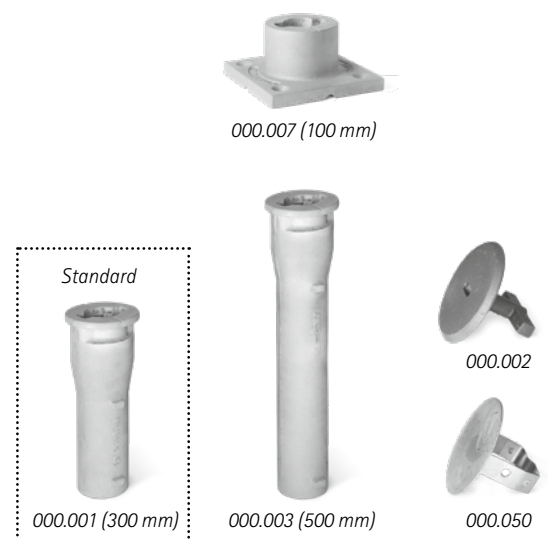
000.003 Ground shell 500 mm
For additional stability on unstabilised subsoil, cobblestone pavement etc.



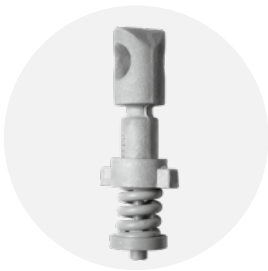



000.007 Ground shell 100 mm
As special solution in case of small mounting depth, e.g. car parks, bridges etc.

Ground shell cover
Reduces risk of tripping, prevents soiling





000.002 Cast aluminium

000.050 S235 Steel with spring, hot-dip galvanised



Removable <u>WITH</u> predetermined breaking point			
3p-Technologie			
	Junction piece <u>without</u> anti-roll device 000.008 (Standard) 	Junction piece <u>with</u> anti-roll device 000.013 	Junction piece <u>with steel spring (3p-Flex)</u> 000.015 
Properties when hit by a vehicle	<ul style="list-style-type: none"> Breaks at the predetermined breaking point 	<ul style="list-style-type: none"> Breaks at the predetermined breaking point Metal rod prevents the bollard from rolling away (e.g. on slopes) 	<ul style="list-style-type: none"> 8–10° flexure, bollard returns to original position after impact The predetermined breaking point yields if the spring is overexpanded
Recommended areas of application	<ul style="list-style-type: none"> Parked cars/Stationary traffic Inner-city traffic Parking places 	<ul style="list-style-type: none"> On slopes Parked cars/Stationary traffic Inner-city traffic Parking places 	<ul style="list-style-type: none"> Parked cars/Stationary traffic Delivery traffic Parking places
Features	<ul style="list-style-type: none"> Flexible, since removable (with predetermined breaking point) Low repair costs after impacts 		
Removable	Yes		
Repair costs after impacts	Minor		
Vehicle damage after impacts	Minor to medium		
			

Removable WITHOUT predetermined breaking point

3p-Technology	3p-Snaplock
<p>Junction piece <u>without</u> predetermined breaking point</p> <p>000.034</p> 	<p>Triangular or cylinder lock</p> 
<ul style="list-style-type: none"> ▪ High resistance to impacts (suitable for protecting objects and people) 	<ul style="list-style-type: none"> ▪ Higher resistance to impacts, due to the absence of a predetermined breaking point
<ul style="list-style-type: none"> ▪ Protecting people/objects ▪ Multiple consecutive rows can be used as simple object protection 	<ul style="list-style-type: none"> ▪ Critical locations, where the removal has to be done quickly in case of emergency
<ul style="list-style-type: none"> ▪ Flexible, since removable (without predetermined breaking point) ▪ High resistance to impacts 	<ul style="list-style-type: none"> ▪ Self-latching, thus allowing a quick insertion ▪ Available for most steel or cast aluminium models (also with cast emblem) ▪ Hybrid ground shell, also suited for every 3p product with a predetermined breaking point
Yes	Yes
High	High
High	High
	

An overview of the 3p-Technology

Street furniture with 3p-Technology comes in all kinds of versions, each offering specific advantages depending on the purpose.

(LED) bollards and bins with predetermined breaking point are very inexpensive to repair. If they get damaged, the junction piece breaks at the predetermined breaking point, and can be replaced very quickly. The pavement does not generally require any work.

Street furniture objects with predetermined breaking point are also very flexible to replace. If necessary, they can be removed or replaced quickly and very easily with other street furniture.

If you are looking to provide particular protection for certain areas, we recommend bollards without predetermined breaking point. Not only are they flexible and inexpensive, they are also extremely robust. Unlike bollards with predetermined breaking point, the junction piece does not break. This makes the bollard a stable obstacle. This version – especially if two or three rows of bollards are set up behind one another – is particularly useful for protecting people and objects, e.g. to prevent vehicles from driving into pedestrian zones or areas close to pedestrians. Please keep in mind, however, that the foundations, bollards, ground shells and paving stones are very likely to be (severely) damaged or destroyed.

As you can see, the options offered by 3p-Technology are as varied as the requirements for street furniture. In addition to the versions with and without predetermined breaking point, there are also 3p-Technology products with flexible steel springs and with or without anti-rollaway features. Standard fixed installation is of course also possible.

Contact us; we'll be glad to advise you on the various 3p-Technology options.



Bundesanstalt für Straßenwesen (Federal Highway Research Institute)



Report n° V4 – 61/2002 dated Sep 13, 2002
on the

Characteristics of a bollard system regarding the effort required for repair

APPLICATION

Applicant: ABES Büro Deutschland
Zur Ehreneiche 3
57250 Netphen

Application date: 27 August 2002

Subject of application: Confirmation of the effort required to repair a damaged bollard



1 | Bollard before damage



2 | Damaged bollard

MATERIAL

Description*: **Metropol bollard with 3p-Technology including:**

- Ground shell n° 000.001, ductile cast iron GGG, embedded at ground level
- Junction piece, ductile cast iron GGG, with hexagon bolt and nut M12, stainless steel 1.4301, n° 000.008
- Clamping cone, stainless steel 1.4301, Nr. 000.004
- Anchor, galvanised steel ST37, n° 000.013
- Bollard, cast iron GG 20, n° 001.003

Serial number: None

Condition: New

*provided by applicant



3 | Bollard system after damage

The junction piece yields, the bollard falls over and is held to the ground shell by an anchor. The bollard itself, the ground shell and the foundations do not show any visible signs of damage (see figure 3).

The bollard is mounted with a new junction piece within 3 minutes (see figure 4 and figure 5). After repair, the bollard is firmly fixed in place.



4 | Junction piece: damaged (right) and replacement (left)



5 | Repairing the bollard

TEST

A properly installed Metropol bollard with 3p-Technology is damaged by a car (see figure 1 and figure 2).



(Dipl.-Phys. U. Ellmers)
Oberregierungsrat

(Dipl.-Phys. D. Heuzeroth)
Regierungsrat