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Break bollard

The invention relates to a break bollard comprising a hollow central post with an enlarged cap and a sole plate, which sole plate is mounted on a base plate adapted to be secured to a stationary support construction, and a single central replaceable screwed bolt which extends with clearance through an opening in the sole plate, the bolt having a weakened region of incipient fracture.

It is conventional for such bollards - called "break bollards", and whose aim it is, in case a given force exerted thereon by a vessel is exceeded, that the bollard attachment can collapse in order to thus prevent

calamities - to provide anchoring bolts through which the base plate is secured to the stationary support construction, with a weakened region of incipient fracture. Said region should then lie underneath the nut through which the base plate is pressed down on said support construction by tightening said nut. In case of collapse of the weakened region of incipient fracture of the anchoring bolts, elaborate operations are necessary in this known embodiment for again anchoring the bollard in its original state. The anchoring bolts have to be replaced so that substantial breaking operations in the stationary support construction are required.

It is the object of the invention to provide an improvement so that after collapse of the weakened region of incipient fracture the original, anchored state can be restored in a very simple and inexpensive manner.

To this effect such a break bollard according to the invention is characterized in that the screwed bolt has a head located inside the post and a screw-threaded shank which engages a screw-threaded opening in the base plate, the portion between the head and the shank being designed in such a manner that, with the base plate anchored and after collapse of the weakened region of incipient fracture located between said portion and the head of the bolt, a tool can engage that portion from outside of the post for loosening the screwed connection.

Means may be provided centring the sole plate on the base plate. Preferably the means comprises a ring welded onto the base plate.

Such a central screwed bolt should be made of particularly strong steel, e.g. C45. Via the central cavity inside the post, whereon a removable cover is installed, the head of the central screwed bolt can be tightened when anchoring the post on the base plate. In the event that the central bolt in the weakened region of incipient fracture is collapsed it is possible to loosen and remove the screwed bolt by engagement of the said portion between the head and the shank adapted for loosening the engagement of said screwed bolt. Subsequently the removed screwed bolt is replaced by a new one in order to anchor the post together with the sole plate again on the base plate. Said centering means ensures that the sole plate occupies the correct, properly centered position on the base plate. In other words it is thus ensured that the radial clearance around the weakened region of incipient fracture and around the said portion for loosening the screwed connection is uniformly present all around. As a result for the purpose of said loosening in the contemplated manner, a particular tool can engage

unimpededly the said portion.

One embodiment of a break bollard according to the invention will now be described, by way of example, with reference to the accompanying drawing, wherein

Fig. 1 is a diagrammatic top view of a break bollard; and

Fig. 2 is a side view with sectioned portions indicating only one of the four anchoring bolts for the base plate on the stationary support construction and with omission of said support construction.

A break bollard 1 comprises a hollow post 2, the central cavity of which is closed at the top by means of a stationary cap 3 with a removable cover 17 and at the bottom by a sole plate 4 welded onto the post 2. The post assembly 2, 3, 4 is screwed onto a base plate 6 by means of a central screwed bolt 5 of steel grade C45. Said base plate 6 in its turn is anchored through four anchoring bolts 7 to a stationary support construction, not shown, e.g. of concrete. The anchoring bolts 7 comprise at the bottom a cross member 8 which, in case the stationary support construction consists of concrete, together with the major portion of the shank of the anchoring bolt 7 is embeded in concrete. As shown in Figure 2, a nut 9 is provided for tightening the base plate 6 on the stationary support

construction. In Figure 1 the anchoring bolts are not shown, but only the passages 10 for the four anchoring bolts 7.

The central anchoring or attachment screwed bolt 5 by which the sole plate 4, welded onto the bottom of the post 2, is solidly screwed onto the base plate 6, comprises a head 11 with two diametrically opposite flattened portions. By means of a suitable wrench the screwed bolt 5 can thus be tightened by engagement via the central cavity in the post 2, naturally after removal of the detachable cover 17 from the cap 3. Extending from the head 11 is a weakened shank region of incipient fracture 12 and from said region extends an engagement portion 13 having a similar shape to and provided with two diametrically opposite flattened portions as head 11 but smaller in the radial and also axial directions. The radial extension of the portion 13, however, is larger than a screw-threaded lower bolt shank portion 14 of the screwed bolt, which extends from portion 13.

The weakened shank region of incipient fracture 12 and the engagement portion 13 extend with radial clearance within a central passage 15 for the screwed bolt 5 in the sole plate 4. A centering ring 16, welded onto the base plate 6 and within which the sole plate 4 exactly fits, ensures the proper centering of the sole plate and hence likewise the above clearance all around, so that in case

of collapse of the weakened region of incipient fracture 12, engagement of the portion 13 can take place for loosening the rest of the screwed bolt 5, viz. the shank portion 14 with the portion 13. When the post 2 with its sole plate 4 has again been positioned and fitted in the centering ring 16, a new central screwed bolt 5 can be screwed-in in order to restore the normal anchored state of the post on the base plate.

* C L M S *

CLAIMS

1. A break bollard comprising a hollow, central post with an enlarged cap and a sole plate, which sole plate is mounted on a base plate adapted to be secured to a stationary support construction, and a single central replaceable screwed bolt which extends with clearance through an opening in the sole plate, the bolt having a weakened region of incipient fracture, wherein the screwed bolt has a head located inside the post and a screw-threaded shank which engages a screw-threaded opening in the base plate, the portion between the head and the shank being designed in such a manner that, with the base plate anchored and after collapse of the weakened region of incipient fracture located between said portion and the head of the bolt, a tool can engage that portion from outside of the post for loosening the screwed connection.

2. A break bollard as claimed in claim 1, wherein means is provided centering the sole plate on the base plate.

3. A break bollard is claimed in claim 2, wherein the means comprises a ring welded onto the base plate.

4. A break bollard substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.