**HYDRAULIC RISING BOLLARD TECHNICAL SPECIFICATIONS**

**The revelation of this rising bollard will be used to control unauthorized vehicle entrances in places where required middle security applications.**

1. **The rising section of the bollards should have 220 mm diameter with shape of a cylinder and the wall thickness of the cylinder should be minimum 14 mm.**
2. **The top lids of the barriers should be made of cast aluminum.**
3. **The height of the bollards should be 700 mm and the height of the rising section should be 500 mm. The combined rising bollards should operate synchronized with each other.**
4. **Rising bollards active surface should be covered with 2 mm CR 304 stainless steel. After this process, welding marks should be hidden with electropolishing. The rising bollards shall never be chrome coated or hard chrome coated.**
5. **The color of the rising bollard should be rustproof color.**
6. **The section under the ground, all components and screws should be hot dipped galvanized.**
7. **There should 20 mm LED lights at the top section of the rising bollards to warn the drivers.**
8. **The color of the LED lights should be red color. These red LED lights should alert during upraise and going down operations. While the rising bollards are in open position, the LED lights should be on.**
9. **The bottom frame should have 10 pieces of drainage holes in 10 mm diameter to discharge the rain water.**
10. **There should be minimum 2 dust felts between the outer frame and the moving section of the rising bollard.**
11. **The endurance strength of the bollards should be minimum 7.5 tons. The bollards and the pistons inside the bollards should not be damaged under high tonnage vehicles and should normally operate.**
12. **The manufacturer should present the drawings and certificates of 400.000 newton endurance strength to the administrators.**
13. **The control card of the rising bollard system should be programmable logic controller. These controllers should be capable of integration with featured manual and digital components.**
14. **The operation scenario should be capable of integration with all kind of access systems and should not cause any extra cost.**
15. **If required, the rising bollards should automatically operate in certain times of the day and night. For example; the bollards should open at 10:00 am in the morning to close the street for vehicle traffic and the bollards should close at 20:00 pm in the evening to open the street for vehicle traffic.**
16. **The rising bollard system should operate integrated with all kinds of access systems as remote controllers, button access, coins, digital pulses, analog pulses and plate reading systems.**
17. **The system should be consisting of necessary basic facilities and software to be controlled from one control center.**
18. **The hydraulic motor of the system should have 380 V. Ac 50 Hz power supply. There should be a motor protection process and operating without up and down limit features on microprocessor or PLC.**
19. **The control panel should have flasher lamp, loop detector, remote controller and front-rear outputs.**
20. **There should be installed fuses and solenoid valves for motor protection. Also there should be made thermic protection for solenoid valves.**
21. **There should be a hydraulic lock system to prevent lowering the bollards. All hydraulic components, valves, pumps and solenoid valves should be made up of with European brands, ISO, CE and TSE norms and standards.**
22. **Double, triple, four ways, fivefold and sestet bollards should operate synchronized from a central separator. All the separators should be Italian brands.**
23. **The hydraulic pipes should be R2 reinforced spiral steel wire, underground type, inside and outside rubber isolated. There should not be used metal or copper pipes.**
24. **The operation speed of the bollards should be between 4-8 seconds. Automatic closing time should be adjustable between 1-50 seconds.**
25. **In case of power outages, the system should operate manually and there should be an optional manual hydraulic pump to open and close the system.**
26. **There should not be any lights at the top lid. All alert lights should be around bollards. If solar power lights are required for the system, there should be 10 mm embedded cast steel solar receptor protectors. By this way, the crossing vehicles would not damage the solar components and the receptors would not bother the drivers.**
27. **The system should have an oil pressure indicator, oil temperature indicator and a level measure indicator.**
28. **The type of the hydraulic oil should be number 46 hydraulic oil.**
29. **The capacity of the hydraulic tank should be 32 liters.**
30. **The rising bollards should be consisting of three parts. 1. Moving section. 2. Aluminum outer flange. 3. Outer casing; in case of a technical repairing or maintenance, the outer casing should be able to carry 1 meter away from the place without removing the pipes or breaking the concrete floor.**
31. **There should be excavated 500 mm width and 800 mm depth of a pit to install the bollards and the bollards should be installed after scaling the bollards height with each other.**
32. **3 inches pipes should be used during the installation of the rising bollards. These pipes should be installed separated for each bollard. By this way, the hydraulic pipes would be installed inside the spiral pipes and would have longer duration.**
33. **The C35 concrete should be poured after scaling the bollards, installation of the LED power supply cabling and spiral pipes installation.**
34. **Inclusive the combination panel which is consisting of hydraulic and electrical components, should be electrostatics paint after hot dipped galvanization. All these elements should be inside a main unit cabinet.**
35. **The main unit should have a deadlock and by this way unauthorized people might not be tampering the system.**
36. **The dimensions of the main cabinet should be 900x700x600 mm. On the left side, right side and front side of the cabinet should have ventilation windows with pollen and air filters.**
37. **The remote controllers of the system should have different codes to be protected against to replications.**
38. **All the hydraulic components should have ISO and CE certifications.**
39. **All hydraulic unit current drawings and hydraulic piston drawings should be presented to the administrators with an additional file.**
40. **The electrical drawings which are necessary should be presented to the administrators.**
41. **The manufacturer should have ISO and CE certifications.**
42. **The manufacturer should have 2 years of warranty documents and present these documents to administrators.**