

Broughton Controls Ltd

Model 930 – Defender V Gate

Typical Product and Performance Specification

The BCL Defender model 930 is intended for the highest security sites: military bases, embassies, airports, financial centres, etc. These units are designed to PAS 68/69 2007 impact criteria test successfully stopping a 7.5 tonne vehicle travelling at 80 KPH and denying access to the vehicle whilst remaining fully operational.

Construction

The model 930 V Gate is a purpose built unit which is suitable for 4 mtr road widths, and provides an imposing vehicle attack face.

The gate is a nominal 2000 high and the gate frame consists of 200x200x8 RHS grade S355 steel with an impact beam located 600mm from ground level.

The gate is infilled with tubular steel of 48.3 x 4 CHS the front face can be clad as an option with 25x75x3 galvanised weld mesh.

The impact is transferred to the gate posts by six V section impact brackets specifically designed to dissipate the forces to the gate post and ultimately to the unique star foundation steelwork.

The gate posts are manufactured in 300x300x16 RHS grade S355 locally reinforced in the impact dissipation areas with 10mm plate.

Gate base plates are 600x600x50 with eight M30 High tensile Bolt fixing down positions.

Gate hinges are substantial structures consisting of four fifty diameter pins located in heavy duty deep groove ball bearings, permanently sealed for reliability during service.

The gates are buttressed at 45 degrees to the impact with a 120x120x8 superstructure support members. These are fixed directly to the gate hinge post and bolted to the foundation star frame with a 500x500x30 base plate with six M30 High tensile Bolt fixing down positions.

Below ground a steel sub-structure provides a unique foundation fixing frame which provides enormous strength to the overall gate design. This replaces a more traditional expensive fabricated rebar reinforcement system and allows quick and easy installation once the star frame is in place. The foundations are a very modest 600 deep which allows installation in sites where a deeper foundation is prohibitive.

The gates are operated with two hydraulic cylinders located at high level for security. Hydraulic hoses are hidden within the gate posts and run directly to the hydraulic power pack operating system, which is located within a secure IP55 enclosure within 15metres of the gate base. The gates can be operated by all forms of access control equipment, opening and closing times are a maximum of 15 seconds.

The gates are locked in the closed position with a mechanical hook lock; this prevents either of the leaves from opening if a forced entry is attempted. The lock can only be opened with the correct leaf opening sequence being activated.

The gate is zinc powder primed and painted using TBC.

PASS 68 impact criteria test successfully stopping a 7.5 tonne vehicle travelling at 80 KPH ,the gate achieved negative penetration of the payload and operated again after the test.

Protection

The gate can be offered in any standard RAL colour. Special colours can be supplied if specified at time of order.

Operation

Operation may be controlled by push button activated by staff supervising the gate directly or via CCTV with adequate views of the vehicle gate itself, and the approaches to the vehicle gate. It is recommended that safety signs and safety vehicle induction loops and stop/go red/green traffic lights be installed with any gate system not under constant manned supervision. Adequate lighting levels should be maintained around the area of the vehicle gate system.

Passage through the gate should only occur once it has been verified that the gate is fully open, we recommended that pedestrians, motorcycles and pedal-cycles **should not** be allowed to pass over the loop system, adequate signs to this effect, as well as an alternative secure pedestrian entrance should be provided.

The control circuitry provides optional outputs for traffic lights for both directions; a red light is shown for both directions at any time the gate is the closed position. In addition, built in delays may be programmed to minimise risk to users anticipating passage prior to a safe condition existing. The recommended dimensions for the layout of detection loops, card access readers (if fitted) and free exit or entry loops should be followed. It is recommended that CCTV coverage, with a recording facility be provided for any unsupervised gate and that the current status of traffic lights is included within the video recording.

Performance

The frame structures are designed to spread any impact load widely across the foundation and have designed-in resilience to absorb a large amount of impact energy without deformation of the frames or damage to hinge pins and or foundations. In addition the impact frame will accept a measure of deformation without detriment to continued operation

As standard, opening and closing is a maximum of 15 seconds.

Specification

This specification relates to a nominal 4230 clear opening gate unless otherwise stated; dimensions are dependant upon the specific configuration and options provided. Broughton Controls reserves the right to modify specifications in line with continual development and improvement processes.

Clear Opening Width	4230 between gate posts
Gate nominal height	2000 mm
Overall height	2240 including hydraulic cover
Finish/Protection	TBC
Hydraulic Cylinders	High pressure, double acting cylinders, 210mm maximum stroke with polypropylene seals.
Control Cabinet	IP55 rating with security key locking, standard unit size is 1200 x 800 x 400mm. Zinc primed and polyester powder coated. Within this cabinet is another housing containing the electronic controls this is also security locked.
Distance, cabinet to gate	Maximum distance 15 Metres using extended hydraulic lines.
Power supply	Standard 400 VAC, 3 phase plus neutral 50 Hz 10A supply, or 230 Vac, single phase 50Hz 15A supply.
Control system	Control circuits operate at 24V dc.
Hydraulic system	Nominal operating pressure 50-75 bar (750-1250psi) pump rating 200bar (3000psi), hoses and fittings 700 bar (<10,000psi).
Opening time	Nominally 15 seconds.
Closing time	Adjustable 15 seconds
Motor	1.5 KW electric motor with integral cooling fan, 3.8 Amps at 400 VAC or 8.5 Amps at 230 VAC.
Loops	DC coupled, plug in modules, programmable for frequency, +ve/-ve edge triggered, sustained output etc.
Operating temperature	-25 to +70 degrees C. Standard units.
Hydraulic Oil type	BCL32W or similar and approved.
Hydraulic Oil quantity	18 litres typical.

Weight each gate leaf	750 Kg typical.
Weight of total gate	2000 Kg typical.
Weight star frame	1750 Kg typical.
Weight control cabinet	60Kg typical.