

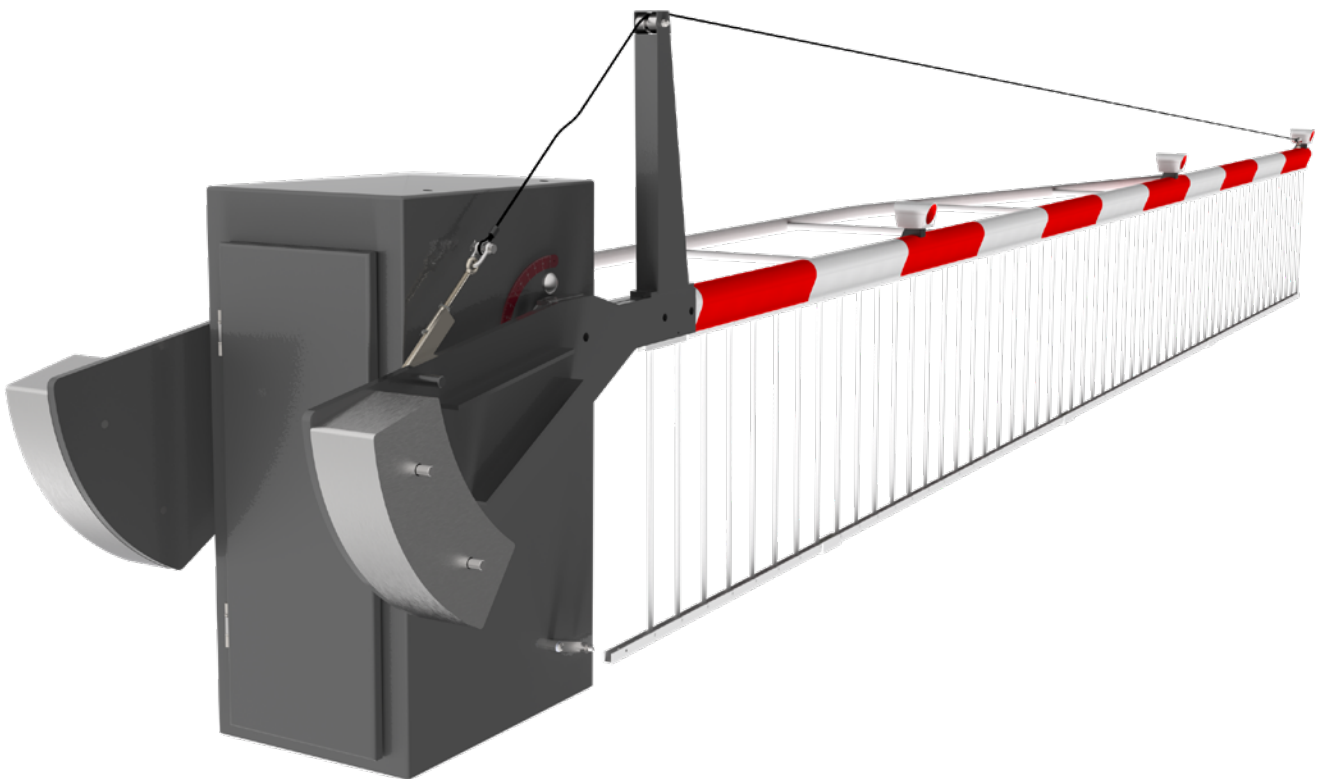


# RAIL SYSTEMS™

HYDRAULIC TECHNOLOGIES

# MK2 LEVEL CROSSING BARRIER

*Your choice for safe, reliable and high performance barrier systems*



# WHATS IS A BARRIER?

## Barrier History

Prior to 1985 the main barrier machine in operation within the UK was the MK1 GW Machine. This machine consisted of a cabinet, side arm and boom, powered by a hydraulic unit conforming to the BR985 Specification, a unit which was designed and manufactured by Smiths Industries Company Ltd.

In 1985 British Rail introduced the BR843 MK2 specification, which was intended to improve the design requirements, performance and addressing any known design and performance issues of the MK1 G&W machine.

In 1990 Smith Industries launched and obtained approval for the MK2 barrier machine which has now been in operation ever since.

In 2001 with the purchase of Smith Industries by Hydraulic Technologies Rail Systems all designs, manufacturing and grandfather rights were transferred.

Since 2001, Rail Systems has committed to improving the design, manufacturing process and performance of the barrier fit for the modern digital railway.

## What is a Barrier and What's it used for?

A level crossing barrier, also known as a railroad crossing barrier or boom gate (in some regions), is a safety device used at intersections between a road or pathway and a railway track. The primary purpose of a level crossing barrier is to prevent vehicles, pedestrians, and cyclists from crossing the railway tracks when a train is approaching or passing through the crossing.

## How does it work?

- When a train is approaching the crossing or passing through, the level crossing barrier is in a raised position, allowing vehicles and pedestrians to cross the tracks.
- When the railway signal system detects the presence of a train within a certain distance from the crossing, it activates the level crossing barrier warning system.
- The warning system usually includes flashing lights, warning bells, and, in some cases, a road traffic signal that indicates that the crossing is about to close.
- After the warning system has been activated for a few seconds to alert approaching vehicles and pedestrians, the level crossing barrier begins to descend or close across the road or pathway.
- Once the barrier is fully closed, it creates a physical barrier that prevents any further vehicular or pedestrian movement across the tracks.
- The level crossing barrier remains closed until the train has passed and the railway signal system determines that it is safe to reopen the crossing.
- After the train has cleared the crossing and the signal system indicates that it is safe to do so, the level crossing barrier is raised, allowing traffic and pedestrians to continue crossing the tracks.

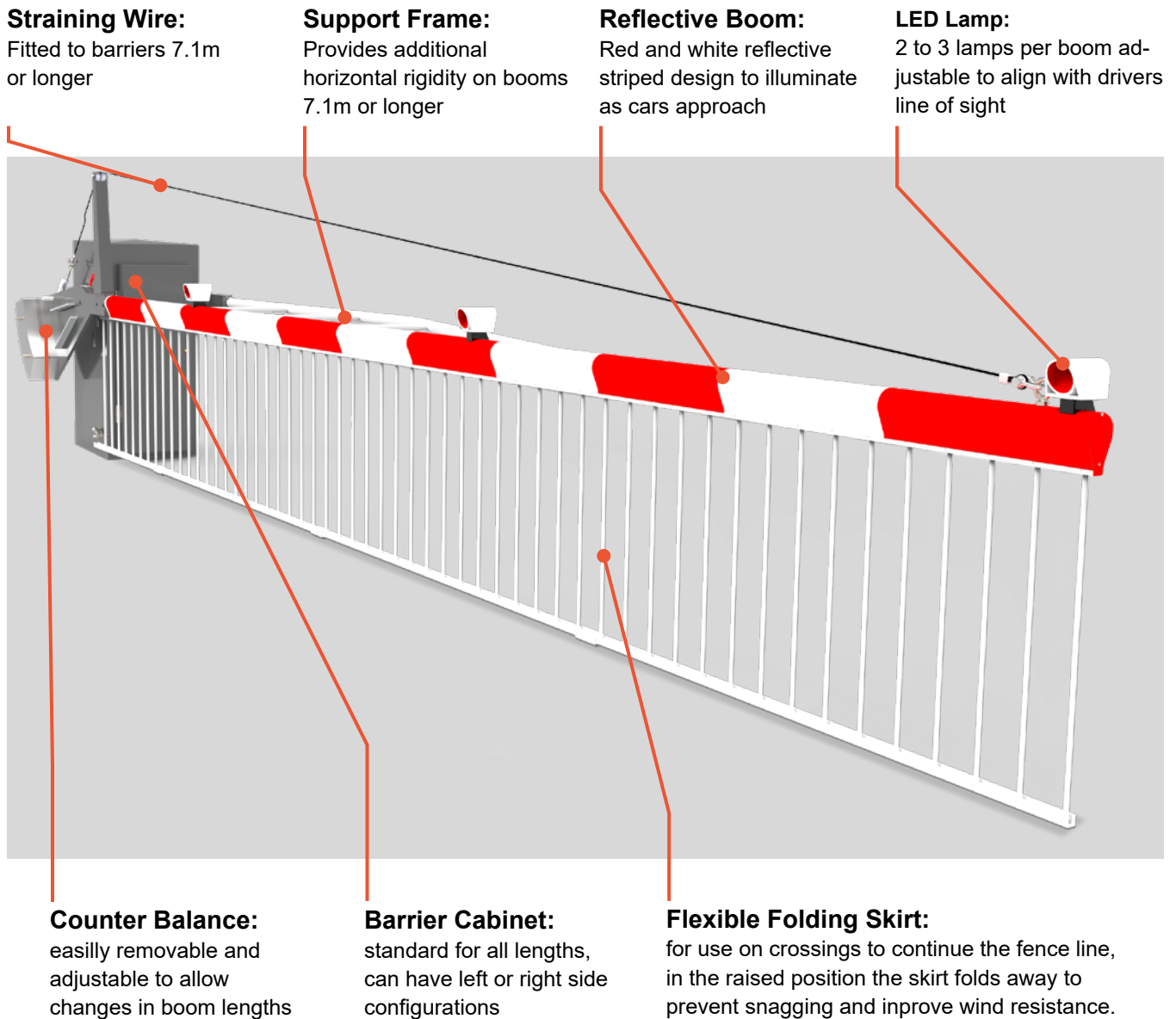
# WHAT ARE THE BENEFITS?

## What are the benefits of a Rail Systems Crossing Barrier?

- Long standing experience manufacturing barriers for over 30 years.
- Serviceable life of 20 years.
- Available in Left or Right hand accommodating for full road closure (MCB)
- Standard “normally-closed” units are designed to fail safe and will lower in the event of a power outage.
- Units can be supplied with the anti-lift valve deactivated to allow for manual operation in rural automatic half barrier (AHB) locations
- Can be supplied with boom lengths from 3.6 m to 9.1 m.
- Booms can be supplied with and without a skirt, in line with location fence line requirements.
- Built-in dampening system, eliminates the need for a boom tip end pogo stick to be fitted.
- LED lights fitted to the boom assembly with easy directional adjustment.
- The boom is designed to plastically deform during an impact, if impact is great the boom will knock off by design and protect the cabinet from damage. This allows the crossing to quickly return to full operation while minimizing cost of repair.
- Using adaptor plates, existing generation of barriers can be replaced with the newer Rail Systems barriers.



# BARRIER - GENERAL ASSEMBLY



Rail Systems manufacture the widely used BR843 for the UK and Ireland. This system consists of a robust cabinet housing, hydraulic power pack and a boom including counter weights, reflectors and lamps. Variants can come with or without skirting and in left and right hand orientations.

Typically for a crossing consisting of two barriers one left and one right hand variants are used. For a complete level crossing two left hand and two right hand variants are used.

The resting position is when the boom is lowered blocking road/footpath traffic. When activated the lamps will flash while the boom arm is fully raised allowing flow of road traffic and pedestrians access through the level crossing.

The boom is raised or lowered within 10 seconds, this is true for all available boom length arranging from 3.6m to 9.1m.

# BARRIER BOOM ASSEMBLY



## Whats a Boom?

The boom assembly is the physical barrier which is used to obstruct road access to the rail network.

- Available in lengths 3.6m to 9.1m.
- For boom assemblies longer than 7.1m are supplied with a support frame and straining wire.
- Each boom can be supplied with or without a skirt, depending on crossing type requirements.
- Reflective red and white stickers along with between 2 to 3 LED lights ensure high visibility low lighting and in rural locations.
- A flexible and foldable skirt, along and overall boom design provides a aerodynamic profile, ensuring operation during windy conditions both in the raised position as well as during normal operation.
- If the boom is struck, it is designed to detach from the side arm assembly preventing excess damage, allowing quick re-instatement of the crossing back into normal service.
- Extensive spares available for retrospective repairs and maintenance.
- Booms are normally held in the raised position at 85 degrees and are fully lowered to 0 Degrees, when the crossing is desired to be closed.



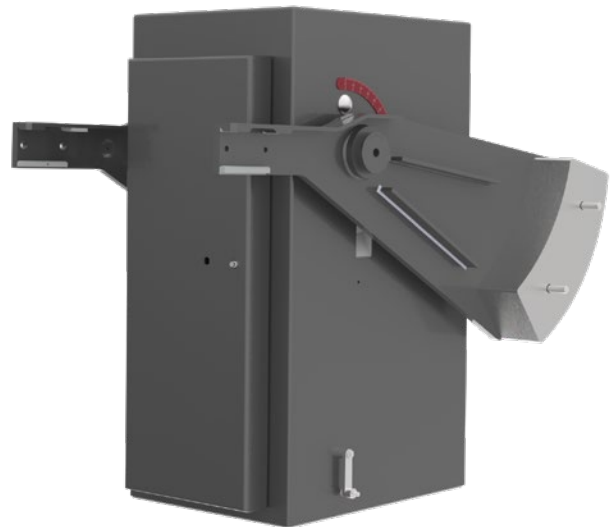
# BARRIER CABINET ASSEMBLY

Barrier cabinets are used to hold all electrical and hydraulic assemblies and components.

- Coded welded construction used in the manufacturing.
- Choice of left hand or right handed assembly to meet location requirements.
- In-line construction with quick disconnection of the barrier pack power supply.
- 4-way controllers directly link to booms shaft to provide boom position verification.
- Rear door in-built proximity microswitch to ensure un-planned manual activation.
- Adjustable Up-stop assembly in place to ensure that power packs hydraulic pressure remains locked when in the raised position.
- Replaceable door hinges that can also be retrospective.
- Built in heater prevents internal condensation build up.
- The design of the side arm ensures in the event of a loss of power the boom will “FAIL SAFE” and fully lower.
- External surfaces can be supplied in various colour schemes to meet customer requirements
- Extensive spares available.



**Barrier cabinet internal assembly**



**Barrier cabinet external assembly**

# BARRIER POWER PACK

Barrier power-pack, fits within the cabinet assembly, driving the boom via a pivoting action between the base of the cabinet and the operating lever arm. The power pack can be manually operated by withdrawing the handle assembly and engaging a hydro-mechanical break.

- 24vdc power supply, with a normal working current at 15Amps.
- 50bar average working pressure, maximum working pressure of 150bar.
- Anti-lift valve fully integrated and can be deactivated by the operator.
- Internal flow control valve and damper mechanism, which operates between 8-12 degrees during decent, provides a smooth lowering motion.
- Self contained reservoir holding 10 litres of oil.
- Can be supplied with a Normally Open (NO) valve (Grey tank) fitted which ensures the boom lowers in the event of any electrical supply issues, or with a Normally Closed (NC) valve version (Blue Tank) which requires power for the boom to be lowered.
- Quick connection via the use of four bolts and two spiral pins.
- Fully Serviceable by Rail Systems.



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