



Second Severn Crossing Bridge - Rapid Access Train



Street CraneXpress Ltd designed and installed an under deck maintenance train system to carry 4 maintenance engineers and their equipment to anywhere under the second Severn crossing bridge. The "RAT" (Rapid Access Train) allows workers carry out their work on the three access gantries, two pylons and the ten stations (including one at each Abutment) of the bridge.

The train consists of a "tractor" (the engine compartment), the cabin which seats up to 4 persons, and the trailer for carrying the equipment. The entire system has a loading capacity of 2400kg SWL (400kg in the cabin and 2000kg on the trailer).

Street CraneXpress also supplied a 1 tonne SWL chain hoist for loading large items into the train, and so the train itself is fitted with front doors to accommodate these larger loads. In addition to this, the train also has a lateral sliding door for loading lightweight items by hand.

The train has a maximum speed of 1.5m/s along most of the track, and 1.0m/s in pre-determined sections which are automatically restricted for safety reasons. These sections include; before

and inside the stations; around the joint areas; and inside the pylon stations. As the train enters the station, a pre-limit switch slows the train down to automatically bring it to a halt.

A number of further safety features are included to ensure that the train runs smoothly, safely and effectively:

For general operation, the train is fitted with control desks facing in either direction, complete with joysticks to control speed and a dead-man switch to bring the train to a complete halt in the event of an emergency.

In case of a power failure, the train is fitted with an emergency override drive system, which allows the train to be driven to the nearest station on a back-up battery supply.

The entrances to each station are fitted with gates to protect the edge of the platform, which operate automatically as the train approaches or leaves the station.

Finally, the entire system was programmed so that the maintenance train and the lifting equipment for loading cannot be operated simultaneously.