

# Charging Machines



Traversing   Pass-Over   Rotary  
Single Sided   &   Double Sided

Northern Combustion Systems Limited (NCS) supply bespoke charging machines for the heat treatment sector, designed to the needs of the customer. Full design, manufacture, installation, commissioning and training can be provided.

The main objective of the charger is to safely transfer the load in the shortest time from opening the furnace door to total immersion of the load into the quench which is critical. This can be achieved in less than 30 seconds depending on speed and size of the facility.

NCS have a selection of charging machines to offer but also can work with clients to develop new designs for their dedicated application.

Charging machines designed and manufactured by NCS have included load capacities up to 20 tonnes S.W.L. Our technical staff also have experience in the installation of a 50 tonne S.W.L. charging machine.



## Traversing - Charging Machine

This traversing charger is a traditional style with a cab man rider, traversing side to side of the furnaces, quench and loading tables picking and placing the tray in various positions to enable the load to be heated and cooled in a controlled manner.

The example shown has a capacity of 4 tonnes S.W.L. The charging machine traverses on rails. The charger forks run out into and onto the furnace hearth, quench tank or loading table.



The charging machine can remove the load from the furnace and immersing the load in the critical quench time.

Password protection can be provided to restrict charger use. The charger operates in either manual or automatic mode by the operator friendly touch screen 'HMI'. In manual mode the operator will control the charger by pressing the relevant command buttons. In automatic mode the operator will select an operation button on the HMI. In automatic mode the operator rides the charger to observe only, in control of the failsafe foot pedal only, 'dead man's switch'. All movements are interlocked with the foot pedal.



The signals from the charger to operate the furnace doors and the quench table can be hard wired or via wireless PROFINET communication.





## Pass-over - Charging Machine

A pass-over style charging machine has been developed for loading and unloading of a furnace in-line quench tank. The example shown with a capacity of 20 tonne

S.W.L. designed for a restricted space, relevant to the load requirements. The pass-over charging machine is fully automated and 4-wheel drive.

The operator transfers the load to the furnace trays positioned on a loading table to the side of the facility. The operator exiting the fenced off facility, activates new or preprogrammed heat treatment cycles from an adjacent control room.

This furnace charging machine is capable of carrying a 12m x 3m load tray with a 20 tonne load over a 12 metre distance picking and placing the tray in various positions to enable the load to be heated and cooled in a controlled manner.

The charging machine has the facility to travel on rails along the main factory shop width, with the top car extending from the main car 13 metres, also with the facility to hydraulically raise and lower to allow loads to be placed into position.

The time for opening the door to total immersion of the load into the quench is critical. Due to the long distance of travel this was achieved in less than 45 seconds.



## Rotary - Charging Machine

This rotary charger is automatic manrider, traversing and rotating. The example shown has a capacity of 20 tonnes S.W.L. The charging machine traverses on rails and has the capability of 180° rotation. The charger forks run out onto the furnace hearth, quench tank or loading table picking and placing the tray in various positions to enable the load to be heated and cooled in a controlled manner.

The charging machine can remove the load from the furnace and immerse the load in the critical quench time, under 45 seconds.

Password protection can be provided to restrict charger use. The charger operates in either manual or automatic mode by the operator friendly touch screen 'HMI'. In manual mode the operator will control the charger by pressing the relevant command buttons. In automatic mode the operator will select an operation button on the HMI. In automatic mode the operator rides the charger to observe only, in control of the failsafe foot pedal only, 'dead man's switch'. All movements are interlocked with the foot pedal.

The signals from the charger to operate the furnace doors and the quench table can be hard wired or via wireless PROFINET communication.





## Single Sided - Charging Machine

Single sided charging machine to suit a range of capacities are provided for loading and unloading of furnaces. The forklift style eliminates wear within the furnace preventing downtime for maintenance of hearth runners. This charging machine is 4-wheel drive and fully automated.

The time for opening the door to total immersion of the load into the quench is critical. Due to the long distance of travel this was achieved in less than 45 seconds.



## Double Sided - Charging Machine

Double sided charging machine to suit a range of capacities are provided for loading and unloading of furnaces. This centrally positioned charging machine serves two furnaces positioned at the ends of the charger track. The forklift style eliminates wear within the furnace preventing downtime for maintenance of hearth runners. This charging machine is 4-wheel drive and fully automated.

