

## MULTI-PURPOSE BOX OVEN



### FEATURES OF THE APPLIANCE IN THE PHOTO

Heating Method:	electric resistance heating
Power:	140 kW
Chamber Dimensions (mm):	900x650x1200
Max. Operating Temperature:	1000 °C
Temperature Accuracy in an Oven Chamber:	± 5 °C
Batch Weight:	600 kg
Thermal Insulation:	refractory fireclay lining
Controls:	PLC, PC
Data Logging:	PC, full documentation
Application:	case hardening of gearbox parts

## MULTI-PURPOSE BOX OVEN



Description:	<p>This is a fully gas-tight, directly heated box oven integrated with a cooling and hardening chamber. When the door is opened, the charge is loaded in a basket from the feed conveyor on the cooling chamber conveyor by a mechanical feeder. The external door is then closed and the cooling chamber is filled with a protective atmosphere. Then, the fire resistant door between the cooling chamber and the oven chamber opens, allowing the chain-belt conveyor (in the cooling chamber conveyor) to pass the charge from the lock chamber into the oven chamber. The charge is heated by radiant tubes or heating resistors in the oven, while the gas inside the oven is circulated by a fan in the oven top. On completion of the heating and diffusion cycles, the door opens again and the chain-belt conveyor pulls the charge back through the lock chamber onto an elevator platform in the cooling chamber. The elevator platform then descends, submerging the charge into a hardening fluid. The bottom part of the cooling chamber accommodates a hardening vat, allowing the hardening process to be performed without any exposure to the ambient atmosphere. An agitator is used to maintain a uniform temperature distribution in the hardening fluid. The cooling chamber can also be fitted with a circulation fan to cool the carburised parts without hardening while under a protective atmosphere. When cooled or hardened, the charge is unloaded by the chain-belt conveyor through the open door onto the external loading conveyor. It is possible to use a dual cooling chamber design that enables the next charge to be loaded into the oven, while the previous one is still being cooled, which increases oven capacity. It is a highly sophisticated piece of equipment that is capable of performing complex heat treatment processes, and can be fitted with various accessories to create a self-contained process line with excellent productivity. Accessories include a preparatory roller table, handling trolley, washer, pre-heating oven, tempering furnace and deep-freezing unit. The line can be manually operated or fully automatic.</p>
Applications:	<p>Sophisticated heat treatment of mass-produced steel products (components, machine parts, etc.) or the heat treatment of consecutive batches in the same oven but under different protective atmospheres (e.g. bright annealing, normalisation, case hardening, nitrocementation, etc.)</p>
Buying Criteria:	<p>Process objective, heat treating temperature and temperature accuracy, a time/temperature curve of the heat treating process, dimensions and weight of products, method of loading and unloading, the equipment required for loading and unloading, protective atmosphere requirements, heat treatment capacity requirement (kg/h), oven operating hours, heating method requirements (gas or electrical), etc.</p>