Multi-Purpose Retort Furnaces

IVA Schmetz multi-purpose retort furnaces feature a high level of **flexibility** and **automation**. Thanks to integration of all major system elements – drives, quenching bath, if appropriate the switchgear and similar components – the furnace system is very **compact** and suitable for installation in very confined areas. The field of application extends to numerous thermochemical processes such as carburizing, carbonitriding, nitrocarburizing and nitriding, as well as to hardening under inert gas with quenching in oil or in water emulsions, and to various annealing processes.

The switchgear and regulating system is equipped with a **freely-programmable control unit** as standard equipment. Process regulation and control is automatic driven. A connection for external process control systems can be provided on request

IVA Schmetz multi-purpose retort furnaces can also be equipped with an oil-heating bath on request. This extends the field of application to hardening of hot-work and cold-work steel materials. Use of state-of-the-art construction materials - for example low heat-retaining insulation - permits economical application of dynamic processes, such as post-annealing.

Contact us

info@ivaschmetz.com

+49 2373 686 309

	RM 100	RM 200
Max. charge weight (kgs)	100	200
Charge measurements (mm) Diameter Height	 400 400	 500 500
Charging height when mounted in a pit (mm)	1,100	1,100
Required space for furnace system including oil bath (mm) Width Height Length	 2,300 3,600 2,900	 2,500 3,800 3,300
Nominal furnace temperature (°C)	1 060	1 060
Heating capacity (kW)	30	50
Power connection (kVA)	45	65
Oil bath capacity (m3)	1	1,5
Max. oil bath temperature (°C)	180	180
Furnace weight (kg)	3,500	4,500

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Example technical specification RM300

No.	Main features	
1	Controlled Atmosphere Heat Treatment Furnace	
2	Working temperature	1060 °C
3	Power total connection	80 kVA
4	Connection voltage	220 V, 480 V
5	Frequency	60 Hz
6	Heating power	51 kW
7	Working load capacity	200 kg
8	Retort Volume	365 liters
9	Volume of locks	660 liters
10	Temperature homogeneity	+ - 3,5 °C
	Oil Cooling System	
1	Volume	1190 liters
2	Service temperature	40 °C
3	Temperature after short-term cooling.	80 °C
4	Cooling medium	Oil

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Documentation that accompanies the furnace

No.	Document
1	Operation and maintenance manual in original language and a simple translation into Spanish
2	Operation and programming manual of control systems in original language and a simple translation into Spanish.
3	List of parts, spare parts and consumables in the original language and a simple translation into Spanish.
4	Diagrams of electrical, electronic, hydraulic and mechanical circuits in the original language and a simple translation into Spanish.
5	Schematic diagrams of the furnace, cooling system, peripheral equipment, as well as mechanical guides of 5 installation in the original language and a simple translation into Spanish.
6	List of Codes of the heat treatment programs for each of the parts indicated in Annex "A".
7	Letter of guarantee against manufacturing defects and/or hidden defects for two years.
8	Manual of alarms, common faults and solution procedures in original language and a simple translation into Spanish.
9	Document certifying compliance with the standards: NOM-043-SEMARNAT-1993, NOM-052-SEMARNAT-2005 and NOM-002-ECOL-1996 or an international one that is within the ranges of national standards such as CE declaration.

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No.	Attribute: Controlled Atmosphere Heat Treatment Unit.
1	Electric heating based on resistors
2	Semi-automatic operation and liftable floor.
3	Heat treatment of bulk or small parts made of alloyed or non-alloyed case-hardened steel.
4	Heat treatment: Tempering, gas carburizing, carbonitriding, hardening in oil
5	Auxiliary gases for heat treatments: nitrogen, acetone, ammonia and methanol.
6	Acustic Alarm for Process Interruption and Completion of Heat Treatment Cycle and Shutdown Function automatic and rest between loads.
7	Fan for uniform circulation of gas.
8	Furnace control panel with IP54 or higher protection, computer with keyboard and LCD screen and printer, for programming, graphical display of the cycle and parameters of the heat treatment in real time, alarms and historical records, open and closed valves, cooling status, pressure indicators, amperage, gas flow and all those that are necessary for the system to operate safely and efficiently, as well as cooling system of the integrated panel.
9	Secondary control panel at the front of the oven with visual indicators of the parts in operation and the cycle and stages of operation of the furnace, as well as the controls of operation of the furnace.
10	High precision temperature control system.
11	Integrated water cooling system.
12	Buffer tank for treatment gases (supplied by customer).
13	Hydraulic thrust loading device or similar system.
14	Furnace on top of the heat treatment unit and gas-proof retort.
15	Retort: round stainless steel sheet metal construction
16	High-precision oxygen measurement probe with zirconium oxide.
17	LP gas-based waste gas burning equipment and air pump for gas washing.
18	Rolling table and lifting mechanism.
19	Gas leak alarm system with acoustic alarm
20	Safety system for pressure release.
21	Equipped with thermal insulation, structured by modules that allow easy maintenance.
22	The furnace retort enclosure able to hold various loads placed in the baskets (supplied by customer)
No.	Attribute: Oil Cooling System
1	Integrated tempering bath in the lower part of the furnace
2	Chiller to control and lower the temperature of the oil.
3	Quench oil for cooling.