



# HM403T

## TRANSFORMER

### SEMI-AUTOMATIC UNIT

HM403T is a semi-automatic, three-channel heat treatment units for preheating and annealing metal workpieces. Because of the design it's light and easy to use. Stainless steel casing gives long lifetime. Maintenance work is minimized because of use of thyristors in power output control. As request the unit can be delivered with contactor controlled version.



**HEATMASTERS®**  
*the wizards of metal*



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## PROGRAMMING ALTERNATIVES

HM403T has three conventional controllers for temperature regulation. The controllers operate with or without a thermocouple. Temperature is registered on a separate temperature recorder. The signal lights for HM403T will indicate any disturbances in the electrical network and/or the heating resistors. Locating the disturbance is easy and therefore problems can be solved fast.

## SIGNAL LIGHT SYSTEM

HM403T has a signal light system, which assists the user to know the operating status of the device and heating elements.

Three white lights indicate the status of the electrical network phases.

A large green light indicates that the unit is connected to the electrical network.

Red lights indicate the condition of the heating resistors.

## PROGRAM REGULATORS

HM403T has three processor regulators, which are used for adjusting heat treatment parameters.

When using a thermocouple, the regulator shows the temperature and the following parameters can be adjusted:

- Heating rate [ $^{\circ}\text{C}/\text{h}$ ]
- Holding temperature [ $^{\circ}\text{C}$ ]

Temperature is recorded by a separate temperature recorder.

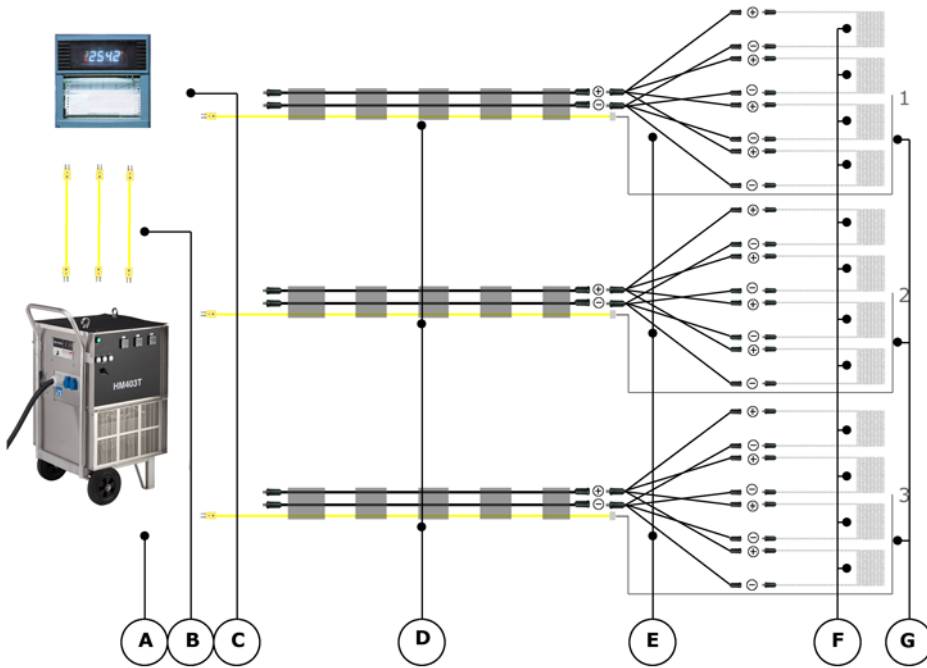
If the thermocouple is not in use, the percentage system is applied, whereby the heating power is regulated in a percentage ratio and the temperature is measured with an external measuring device.

**HM403T Back**



## BASIC EQUIPMENT HM403T

Basic equipment combination includes items mentioned in table below



**Secondary cables are marked with channel number to avoid wrong connections.**

**Cables are also marked with heating unit's serial number, so they are following the machine everywhere.**

**If a temperature chart is required mechanical or Heatmasters' full digital recorder is connected to heat unit**

## HM403T EQUIPMENT

Qty	Code	Product
A	1	1001506 HM403T preheating unit
D	3	1101010 Secondary cable st-50-12,5 - L = 12,5m - power cables Ø50mm <sup>2</sup> - compensating cable cables binded together with shrink plastic and marked with channel numbers.
E	6	1102006 Splitter-4-16-2,0 - L = 2,0m, Ø16mm <sup>2</sup> - 4-way - Connectors Dinse or camlock
F	12	200xxxx Heating elements
B	3	1200506 Compensating cable-13,5 Between heating unit and recorder L = 13,5m
C	1	2200526 JUMO logoprint 500 Temperature recorder
T/C	1600804	Thermocouple wire

## ACCESSORIES USED WITH HM403T UNIT

Following optional accessories are available for HM403T heat treatment equipment:

Code	Product
1100510	HM403/406 Primary extension set-15 L = 15m, including connectors
1101026	Secondary cable extension set-50-12,5 - L = 12,5m - power cables Ø50mm <sup>2</sup> - compensating cable L = 13,0 m - connectors Cables binded together with shrink plastic and marked with channel number
1101034	Secondary cable extension set-50-25,0 - L = 25,0m - (+/-) power cables Ø50mm <sup>2</sup> - compensating cable L = 26,0 m - connectors Cables binded together with shrink plastic and marked with channel number
3002017	Timer for HM403T heating unit
2200526	JUMO logoprint 500 Temperature recorder - six channels - multipen writer
2200527	TG-35 Protection case for temperature recorder

## HM403T TECHNICAL DATA

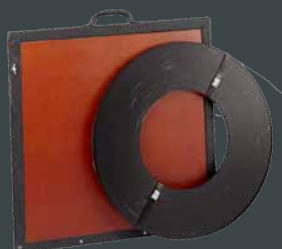
Connection voltage	400V/3-phase/50Hz
Heating power	40 kVA; ED 100%
Fuse	63A slow
Secondary voltage	70V
Main switch	With ground fault (circuit) interrupter
Heating channels	3x200A
Additional outputs	2 x 230V, 10A
Heating elements	12 heating elements with maximum power of 3,45kW can be connected. Four elements per channel
Temperature range	20 ... 999 °C
Control system	Three process controllers
Alarm system	Signal lights
Dimensions	
Length, mm	600
Width, mm	600
Height, mm	1020
Weight, kg	145



**HM190 T/C attachment unit including leather case**



**Thermocouple wire**



**Steel band and the case**

## TOOLS NEEDED IN THE HEAT TREATMENT WORK

Following tools and consumables are necessary in most heat treatment operations with HM403T and other heat treatment units:

Code	Product
1500510	HM190 T/C attachment unit including leather case
1600804	T/C wire-K-0,8-871, Thermocouple wire, k-type, Ø0,8mm, heat resistance up to 870 °C, 1 coil = 300m
1600805	T/C wire-K-0,8-1427, Thermocouple wire, k-type, Ø0,8mm, heat resistance up to 1400 °C, 1 coil = 300m
1700502	Band tensioner
1700504	Band clip sealer
1700506	Steel band 0,5x16mm
1700507	Case for steel band
1700508	Band clip (2000 pc/pack)
1801506	Class fiber cloth, in preheating works
1800505	Mineral wool PV100-VM50, in post weld heat treatment works



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