Hydrogen Analyzer H-500

General Information

Determination of hydrogen using the heat extraction method is a special requirement for the characterization of steel, steel alloys, copper and other metals. ELTRA's H-500 is designed for the rapid and accurate determination of hydrogen in these materials.

The H-500 analyzer uses the heat extraction technique and is equipped with a resistance furnace with quartz tube. The temperature can be set up to 1000 °C in steps of 1 °C. The usual working range of the H-500 is about 900° to 1000° C.

ELTRA's H-500 can be customized to the requirements of the user. The analyzer carries up to two different sensitivities of the detectors to allow highest precision for a variety of applications.

Application Examples

alloys, copper, steel, ...

Product Advantages

- hydrogen determination with heat extraction technique for determination of residual hydrogen
- high-capacity thermal conductivity cell
- easy calibration with standards or gas dosing
- precise measurements even for low concentrations
- for samples of up to 10 g and 0.8 x 6 cm size
- powerful software (multilingual, customized display, export of results)
- low maintenance
- robust design allows usage in production control and laboratory

Features

Measured elements	hydrogen
Samples	metals, steel
Furnace alignment	horizontal / tilting function
Sample carrier	-
Field of application	engineering / electronics, glass / ceramics, steel / metallurgy
Furnace	resistance furnace with quartz tube, adjustable up to 1000 °C (operating temperature 900 - 1000 °C)
Detection method	thermal conductivity
Maximum sample size	ø 13 x 60 mm
Typical analysis time	3 - 15 min
Chemicals required	magnesium perchlorate, Schuetze reagents, sodium hydroxide
Gas required	nitrogen 99.995 % pure (2 - 4 bar /

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	30 - 60 psi)
Power requirements	230 V, 50/60 Hz, 2 A, max. 450 W
Dimensions (W x H x D)	75 x 52 x 60 cm
Weight	~ 40 kg
Required equipment	PC, monitor, balance (resolution 0.0001g)
Optional accessories	voltage stabilizer 5 KVA

Function Principle

Operating the H-500 is simple and safe. After weighing the sample on the interfaced electronic, the weight is transferred to the connected PC. It is also possible to enter the weight manually via the H-500 software. The sample is placed into the cold zone of the horizontally positioned furnace.After starting the analysis, the furnace is rotated upwards for the sample to fall into the hot zone. By adding nitrogen as carrier gas hydrogen diffuses out and is carried into a sensitive thermal conductivity cell. The typical analysis time is about 3 to 15 minutes. Detector signals and instrument parameters are displayed during analysis. Evaluation of the signals and display of the results are done automatically; the data can be transferred to a laboratory information management system (LIMS). The H-500 requires minimum maintenance. The particle filters and chemicals which need to be maintained are easily accessible

Order Data

ELTRA H-500

ELTRA H-500

(Please order PC, monitor, balance and consumables (starter-kit, anhydrone, sodium hydroxide, schuetze reagent) separately)

Measuring ranges at 500 mg sample weight

88100-2016	H-500 (ID tube: 13 mm) 0.01 - 50 ppm H | 20 - 1,000 ppm H
88100-2018	H-500 (ID tube: 17 mm) 0.01 - 50 ppm H | 20 - 1,000 ppm H

Further measuring range combinations on request

Required accessories

PC, Monitor, Balance

71015	Computer with Intel Core i5-8400 Processor, 256 GB SSD; 8 GB RAM; Windows 10 operating system; keyboard; mouse
88400-0584	Monitor, TFT (23.8")
88600-0002	Balance (resolution 0.0001 g)
88400-0592	Printer (HP LaserJet Pro M254nw)

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Required consumables / chemicals for first operations

88500-0012	Starter-kit (2 quartz boats, 50 g glass wool)
90200	Anhydrone (magnesium perchlorate), 454 g
90210	Sodium hydroxide, 500 g
90270	Schuetze reagent, 100 g

Further options and consumables

Accessories (Hardware)

88200-9000	Carrier gas purification furnace, without filling (please order filling and quartz wool separately)
72080	Nitrogen regulator, 1 piece

Chemicals (fillings for glass and quartz tubes)

90200	Anhydrone (magnesium perchlorate), 454 g
90210	Sodium hydroxide, 500 g
90270	Schuetze reagent, 100 g
90426-1001	Filling for carrier gas purification furnace (suitable for one filling)
90332	Glass wool, 50 g
92610	Tube of high vacuum grease, 35 g

Spatulas, tweezers, spoons and tongs

88400-0229	Tweezers (160 mm), curved, 1 piece
88400-0472	Tweezers (145 mm), straight, 1 piece
88400-0475	Set with 6 spatula and 1 tweezers, for multiple weighing procedures

Tools for storage, transporting and weighing

36121	Quartz boat, 74 x 22 x 10 mm, 1 piece, for weighing pins
88400-0477	Weighing boat, 1 piece, for weighing and usage of granulates
88400-0509	Metal pan, 1 piece, for storage of used crucibles, boats

Tools for maintenance

88400-0473	Powder funnel (plastics), 1 piece, for easy filling of chemical tubes
88400-0489	Rubber plug 14 x 20 x 24 mm, 1 piece, for sealing small glass tubes like 88400-0006
88400-0490	Rubber plug 29 x 35 x 30 mm, 1 piece, for sealing big glass tubes like 09090
71010	Brush, 16 mm, 1 piece, for cleaning balance from dust

Calibration materials

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Calibration materials may show slight variations depending on the current lot. To see the current certification please visit www.ELTRA.com.

91110	Steel, 100 balls, gold plated, 1 g each, >1.9 ppm H

Spare and wear parts ELTRA H-500 (88100-2016 configuration)

Front side

11064	Reagent tube (set of 2)
11185	Paper filter (set of 10)
11480	Adjustable restrictor
15083	Flow display 15l/h
15085	Flow meter 130l/h
47000-8000	Maintenance kit
47200	Holder
47470	Combustion tube
70230	O-ring 9 x 3 mm (required O-ring for quartz and glass tubes)
72010	Pressure gauge
78010	Main power switch

Please note: Every analyzer requires PC, monitor, balance and some consumables (crucibles, chemicals) which have to be ordered separately