



ALSP *plus*

For determination of the density index

MOBILE TEST UNIT
ALSP plus



- USER FRIENDLY
- MOBIL
- PROCESS RELIABLE



AL-SCHMELZE-MESSTECHNIK
MELT MEASURING TECHNOLOGY



MOBILE TEST UNIT ALSP *plus*

APPLICATION

Metallic and non-metallic impurities, as well as hydrogen and oxides, may negatively affect the quality of an aluminium melt. By measuring the density index, it is possible to define, control and optimise the process of cleaning the melt, thereby improving the quality. In this way, the consistently high quality of the melt is assured and the reject rate effectively reduced.

Alloy AlSi7Mg0,3
Transfer ladle 400 kg



before impeller treatment
vacuum sample 80 mbar, density index 13,64%



after impeller treatment 12 min.
vacuum sample 80 mbar, density index 0,55%

Mobile Test Unit ALSP plus is used to cast two melt samples to compare the densities: one sample solidifies in a defined vacuum of 80 mbar and the other sample at atmospheric pressure. The Electronic Density Index Balance MK 3000 **automatically** determines the specific density of the two samples according to the Archimedean principle and then the density index. The density index represents the percentage difference in density of the produced samples. The lower the density index, the cleaner the melt.

The design of ALSP plus allows for comfortable and efficient operation. The storage option for the supplied pouring ladle, as well as the water vessel embedded in the worktop for cooling the density samples prepared, are in the immediate vicinity of the operator. The balance stands loosely on the test unit and can optionally be placed elsewhere. The base of the unit offers three large storage compartments. Due to the smooth-running and heat-resistant castors, ALSP plus can be used flexibly at different casting stations or furnaces.

Crucible pre-heating chamber

ALSP plus includes a crucible pre-heating chamber that allows density index samples to be always prepared under the same conditions:

- The sample crucibles are always heated to 200°C, to prevent the accumulation of humidity in the crucible coating, which could have a negative effect on the sample.
- The pre-heated crucible allows the atomically dissolved hydrogen in the melt to develop its full pore potential.

For more information, have a look at our website: www.mk-gmbh.de

PC SOFTWARE

- Saving of measurements
- Use of statistical process control (SPC)
- Analysis and assessment of data by means of various filters for the density index results
- Printable reports, export of results to MS Excel



ALSP plus

SPECIAL FEATURES

- Long lifespan due to sturdy design
- Flexible use at different casting stations or furnaces
- Process reliability through fully electronic control
 - Fully automatic control of vacuum to 80 mbar
 - Leakage indicator
 - Cycle counter
- Exact calculation of density to four decimal places (0,0000 g/cm³)
- Vessel for cooling density samples provided and shelf and storage space
- Crucible pre-heating chamber: greater accuracy of measurement
- Capable of 100% calibration



Leakage indicator



Cycle counter

PRODUCT EXTENSIONS

DROSS TEST



- Additional process for visual assessment of Al samples
- Pressure step 80 mbar (density index)
- Pressure step 30 mbar (Straube-Pfeiffer test for the assessment of the sample interior regarding hydrogen pores and oxides)
- Pressure step final 6 ± 3 mbar (dross test to assess the sample surface regarding oxides and other impurities)

MEMORY BOX



- Sturdy and convenient storage medium
- Storage of up to 500 density index results directly at the workstation
- Transfer and analysis of data by supplied PC software
- Manual input of charge number and alloy type possible
- Automatic recording of date, time, density index and all intermediate results

DROSS TEST R&D



As Dross Test, but in total of 6 pressure steps:

- Pressure step 80/30/final mbar and
- 3 additional pressure steps in the range 140 - final mbar (to be defined by the customer when placing the order)
- Key switch for interlocking the pressure steps

SHOCK ABSORBING PLATE



- Protection of the balance by minimising external factors, such as shocks and vibrations
- Powder-coated steel swing plate with cut-out for cable routing
- 4 rubber feet
- Mounting holes for mk dust protection case

DUST PROTECTION CASE



- Protection of the balance from contamination in the foundry
- Sturdy powder-coated construction of steel sheet with cable lead-through
- Cover with gas-pressure damping
- Large impact-proof plexiglas window
- Aluminium handle

TECHNICAL DATA

Design:

Mobile Test Unit of powder-coated hot galvanised steel sheet with three storage compartments, two fixed and two guiding wheels with brake

Dimensions: W 1.020 x D 700 x H 1.360 mm

Weight: approx. 115 kg

Power connection:

Power cable with plug, 230 VAC, 1400 VA, 50-60 Hz, (115 VAC available on request)

Power consumption: 1400 VA

Vacuum pump:

Oil-lubricated vacuum pump

Timer:

Electric short-period timer (1-99 min. or endless = 00) integrated in display

Vacuum chamber upper part:

Incl. safety inspection glass

Heater: Fixed temperature $200^{\circ}\text{C} \pm 10^{\circ}\text{C}$

Weighing range: 3.000 g

Resolution: 0,01 g

Stabilising time: 3 sec.

Ambient temperature: 10-50°C

PRODUCT LINE



Combi Package plus consists of 3VT plus incl. crucible pre-heating chamber and MK 3000 for determination of the density index



Thermal Analysis TA 12.13 for determination of grain refinement and modification for the evaluation of mechanical properties



ALSP highline incl. crucible pre-heating chamber for determination of grain refinement and modification for the evaluation of mechanical properties

ABOUT US

We are a medium-sized, privately owned company established in 1984. We are located in the Westerwald region of Germany, about 100 km from Frankfurt, and design and build a range of high-quality aluminium melt test equipment for the foundry industry. Our products are the result of expertise and experience acquired over many years of close association with the aluminium industry. Besides manufacturing our equipment, we also provide customer services such as commissioning, maintenance and calibration of our test equipment, supported by our comprehensive spare parts inventory.

Our customers all over the world are served by us personally as well as by a team of representatives operating worldwide.

SERVICES

- Device demonstration
- Provision of rental units
- Commissioning and device instructions
- Staff training
- Maintenance and calibration service
- Spare and wear parts
- IT support



CERTIFIED ACCORDING TO
DIN EN ISO 9001 | DIN EN ISO 14001



MANAGING DIRECTOR Nicolas Knoche

"Our vision is to become the worldwide leader in the design and manufacture of aluminium melt testing technology and in service to our customers."

Are you interested in technical consultancy and a demonstration on your premises? We look forward to your inquiry. Please check our website if a local representative is available in your country. Otherwise, please contact us directly for further support.

For more information, have a look at our website: www.mk-gmbh.de

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