

NEWS

AUTUMN 2017

PRODUCT NEWS AND INFORMATION

DEAR CUSTOMER AND
INTERESTED PARTIES,



in the current issue, we would like to thank all customers, business partners and friends for a little „look back“ at our 3 day company event, which contributed to the success of our event. Packed with information, technical demonstrations, lectures and valuable conversations, our guests were able to take a look behind the scenes in order to convince themselves of our innovative technology and the high quality of our work. Special thanks to our fantastic **CMWTEC** team and the sales partners who have supported us so great.

Stay interested, sincerely

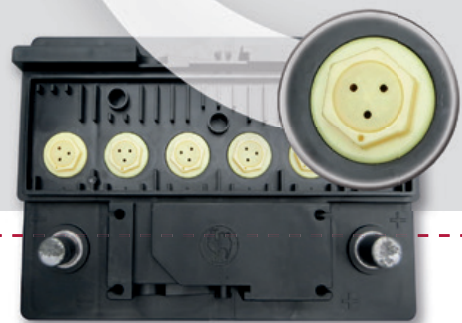
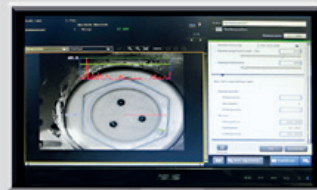


Ingrid Wipperfurth
(Managing Director)

NEW SOLUTION

CONTACTLESS PLUG HEIGHT AND GEOMETRY CONTROL SYSTEM

New Solution for our Plug Insertion Height Control. Due to new requirements from the market we designed a NEW contactless plug height control system as an integrated part of our Plug Insertion Machine. This new system consists of a camera which allows us to test batteries in pass through, to avoid touching the surface of the battery. The advantage is not only the contactless measuring, it's also the chance to check difficult battery designs with all kind of plug geometries and lid designs.



PROLOG

CMWTEC as a supplier of automatic filling machines in general and AGM and GEL batteries in particular is always striving to offer its products at the highest level of technology. The dissertation of the company founder Walter Wipperfurth in his doctorate at the TU Berlin with the topic „The importance of electrolyte distribution in battery cells“ is also mentioned in this context. Within this connection, experiments were undertaken, among other things, in the newly created experimental laboratory, which dealt with the infiltration of electrolyte in AGM batteries. The following is an extract from the dissertation and from a professional publication.

SCIENTIFIC PAPER

EFFECT OF ELECTROLYTE TEMPERATURE ON INFILTRATION IN AGM BATTERIES

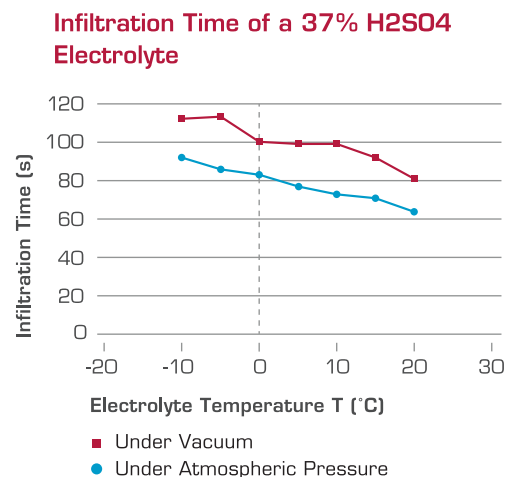
The filling of AGM batteries is especially problematic due to the special construction of the battery with separators made of glass fleece. At the same time, there is the demand for the shortest possible infiltration period for both economic and technological (sulphation) reasons. In addition to the compression and porosity of the separators and the pressure in the battery cell during infiltration, the viscosity and density of the electrolyte, as well as their temperature behavior, have a significant influence on the infiltration time. This had to be researched, in order to take the necessary measures on the processes.



The infiltration experiments were carried out under normal pressure as well as under vacuum of about 100 mbar. The cells of open AGM batteries (without cover) were filled with electrolyte 7 of different temperatures [-10°C, -5°C,

0°C, 5°C, 10°C, 15°C, 20°C] and water of 20°C and the time was measured during the infiltration. The cells were filled in a sufficient time interval so that they could cool down and thus a mutual influence could be excluded.

The determined time values for the electrolyte show a similar course as density and viscosity.



This means that when the temperature drops, the infiltration time becomes longer and increases significantly in the range of + 20°C to -10°C by about 37.5%. Since filling machines are usually tested by the manufacturer for safety reasons, not with electrolyte, but with water, the fact that infiltration with water is 35% shorter is important for the assessment of machine performance.

CONCLUSION

By cooling, the sulfation during infiltration is reduced or also prevented, which is required by the battery manufacturers. On the other hand, the infiltration time of the cooled electrolyte is prolonged. If this disadvantage is to be excluded, it is necessary to cool the battery accordingly before the infiltration process and infiltrate the electrolyte at 20°C.

CMWTEC EVENT DAY'S

A SUCCESSFUL EVENT WITH A VARIED PROGRAM



From 3rd to 5th of May, CMWTEC opened the doors for three very special event days: The sales training for our sales representatives, an In-House-Presentation for interested and new customers as well as an open door day, for our vendors, business partners and friends to have a look insight into our work.

SALES TRAINING – ACTIVE PARTNERSHIP

CMWTEC and its sales representatives met for a training and information exchange. We trained our Sales Team to inform about new products and advantages of the existing machines and upcoming developments. So that the support for our customers is given locally when they have face to face meetings at the clients offices. We had a full day of activities in theory and practice in the workshop. Representatives from South Korea, China, South America, Russia, and Europe where present. The evening closed with a nice Dinner in an old farm Barbecue Restaurant with fun and good entertainment

IN-HOUSE-PRESENTATION – QUALITY TO TOUCH AND PROFESSIONAL LECTURES THAT INSPIRE

We invited our customers and interested parties to see our Finishing Line Equipment with a Live Presentation. More than 40 guests from all over the world like China, Russia, Turkey, Korea and Germany where present when we started this event with a Morning Session of Professional lectures. Speakers of the TU Berlin, with topics around the battery test like "Impedance spectroscopy on Lead Acid batteries" from Prof. Julia Kowal, or "Challenges of short circuit testing in

battery assembly lines" from Dipl. Ing. Tony Schröer were able to provide our guests with expertise information. After Lunch buffet the focus was of the live presentation of our Machines:

- Double Station Acid Initial Filling Machine
- Single Station Acid Leveling Machine
- Washing & Drying Machine
- High Rate Discharge Test Machine
- High Voltage Leakage Test Machine
- Final Air Leak Test Machine
- Battery Handling System

Together with our business Partners from Digatron Electronics, ETL Prüftechnik, Kitzinger, Accumalux, Frötek and Neogramm, we could demonstrate live the



latest technology for Battery Finishing Line and Battery Laboratory Equipment. Thank you all, who made this day successful for our customers.

OPEN DOOR DAY – A VIEW BEHIND THE SCENERY OF CMWTEC

The last full day was dedicated to our vendors, business partners, families and friends who wanted to know how we work, what are we doing. We also had the opportunity to present the opening of our new extended workshop with laboratory. With over 150 guests on this day it was a successful celebration to show everyone what the name

CMWTEC stands for. A company with tradition, heart and soul, good employees and innovative products.

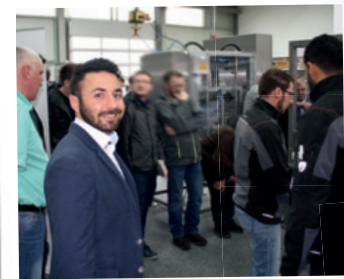


IMPRESSIONS OF OUR EVENT...





WE WOULD LIKE TO
THANK OUR CUSTOMERS,
FRIENDS AND BUSINESS
PARTNERS WHO HAVE
CONTRIBUTED TO
THE SUCCESS OF
THIS EVENT



CMWTEC EMPLOYEES

THE SALES TEAM OF CMWTEC

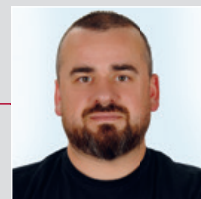
THE SALES TEAM led by Michael Wipperfurth, sales manager of CMWTEC. His team works locally and he visits our customers worldwide. These sales bases are an important part of our strategy for growth and presence worldwide. Experience, technical know-how and 100% support is the driving force behind this team when the projects become reality and our customers need solutions.



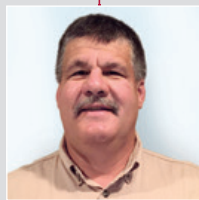
MICHAEL WIPPERFÜRTH
Sales Manager CMWTEC



TONY SCHRÖER
Europe and Middle East
(Ibomag GmbH)



YUSUF KARAAHMETOGLU
Russia



GLEN HANSON
North America
East Coast
(Hanson Group)



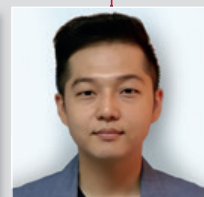
JI MA
China and South Asia



DAVID BORTONI
South America
(Sorfin Yoshimura Ltd.)



T.C. PARK
South Korea
(Worldtec Korea)



D.H. PARK
South Korea