Changes in article Measurement technologies for permanent magnets

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| Page / column | Change |
| 1 / 1 | Deletion of “the” |
| 1 / 1 | Change from “on order” to “to obtain” |
| 1 / 2 | Change from “presented” to “discussed” |
| 3 / 1 | Change from “Despite the fact that” to “Even though” |
| 3 / 2 | Change from “Foner or Vibrating Sample Magnetometer” to “Foner or vibrating sample magnetometer (VSM)” |
| 3 / 2 | Adding of mostly and changing of “centers” in “centres” |
| 4 / 1 | Adding of “To collect data like mentioned before, different calculations and integration must be conducted, important parameters are the coil constant, the demagnetization factor and the volume of the analyzed magnet. Based on the easily comprehensible measurement process, insert the magnet between both coils and reset the measured Field to zero, afterwards the magnet is rotate by 180°. By turning the magnet inside the coils, the magnetic field is turned by 180°, too, as a result the HHC can measure the signal completely [18].” In chapter 4.4 |
| 4 / 1 | Adding of chapter 4.5 Hall probe  The Hall Probe is used to measure the magnetic field strength or flux density, as well as being deployed as a sensor device in various applications. The inherent Hall Generator consists of a semiconducting material and is passed by a control current. If a magnetic field is applied perpendicularly to the measurement surface of the Hall Probe, the Lorentz Force is acting upon the moving charge carriers passing the generator. The Lorentz Force is expressed as:  (4)  where q is the particle charge, v is the particle velocity and B is the magnetic flux density.  The resulting force is pushing the charge carriers sideways, thus enabling the measurement of the corresponding Hall Voltage UH, which is expressed by:  (5)  where RH is the Hall constant, I is the passing control current, B is the magnetic flux density and d is the thickness of the Hall Generator [19, 20]  During the measurement with Hall probes, the user has to consider the sensitivity of the measuring device. The volume of the Hall generator itself is of crucial importance, as indicated in (5). The flux density B itself is a temperature-dependent parameter. [21] |
| 4 / 2 | Addition in Chapter 4.7 3D Mapper  Most beneficial of such 3D mappers is the measurement of complete systems on the one hand and on the other hand the visualization of all magnetic components. Therefore, it is possible to evaluate e.g. the field distribution in a magnetic system or to analyze the magnetic pole symmetry in a multiple magnet. All these measurements are performed with a 3-axis hall probe. Besides the magnetic measurements such kind of measurement equipment can be used with other sensors, for example to detected cracks within the magnet-body or to measure the dimensions of the analyzed samples. The sensors can be changed via a plug-and-play system and the measured data can be combined to one system for a detailed analysis.  The so called defectoscope can identify cracks and inhomogeneities within magnetized and unmagnetized magnets by using an eddy current measurement probe. The probe measures the eddy-current distribution and create a visual scan of the surface to show the defects [25,26]. |
| 5 / 1 | Adding of chapter “Measurement results”  All explained measurement technologies have the same in common, they are used to examine the magnetic properties of a magnet or a magnetic system in an open or closed circuit. The compliance of the special magnetic properties are important indicators for the quality monitoring for magnet suppliers and essential for customer applications. The choice of the measurement technology is according to the parameter which are evaluated and the framework which is given. Generally, the measured results can be divided into two. The first group is for mass production where the parts are only differentiated between good and no good items and sorted accordingly. So, no there is no further evaluation of the collected data. These kind of measurement methods are very cost sensitive and high output of analyzed permanent magnets is required.  The second group is the polar opposite, the elicitation of measurement results for research and development purpose. These data are analyzed in a very detailed way, as they are required for further improvement and modifications of the material or the application |
| 7 / 2 | Adding further literature  [25] [You Guang Guo](http://ieeexplore.ieee.org/search/searchresult.jsp?searchWithin=%22Authors%22:.QT.%20YouGuang%20Guo.QT.&newsearch=true); [Jian Guo Zhu](http://ieeexplore.ieee.org/search/searchresult.jsp?searchWithin=%22Authors%22:.QT.%20Jian%20Guo%20Zhu.QT.&newsearch=true); [Zhi Wei Lin](http://ieeexplore.ieee.org/search/searchresult.jsp?searchWithin=%22Authors%22:.QT.%20Zhi%20Wei%20Lin.QT.&newsearch=true);  Jin Jiang Zhong, [IEEE Transactions on Magnetics](http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=20)  [Volume: 41 Issue: 10](http://ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=32516), 2005 Measurement and modeling of core losses of soft magnetic composites under 3-D magnetic excitations in rotating motors  [26] [W. Xin](https://www.researchgate.net/scientific-contributions/2133130714_W_Xin?_sg=wTTkXUtt7p0IQ77qt3SHeyIZ2nBoL_5P1ZvjR76uygZgArroQcBiHwHZhdxdVqzHpy2T0-4.Cb5ljSZ2Q4OASJVRIHkYfWGeY_BCBD1B07sk155qnZMxJWHtZSmtslXR7RAPpQlFOkOKMe7jTg77Tdd2F_Twvw) [K. Ding](https://www.researchgate.net/scientific-contributions/2133145953_K_Ding?_sg=wTTkXUtt7p0IQ77qt3SHeyIZ2nBoL_5P1ZvjR76uygZgArroQcBiHwHZhdxdVqzHpy2T0-4.Cb5ljSZ2Q4OASJVRIHkYfWGeY_BCBD1B07sk155qnZMxJWHtZSmtslXR7RAPpQlFOkOKMe7jTg77Tdd2F_Twvw) Chinese Journal of Scientific Instrument 38(6):1474-1481 2017 Magnetic measurement method on structure fatigue damage based on the material magnetic characteristics |