

File reference:  
IND2016/0018

Authors:  
ETR3 Dr. Frank Blömeling, 040 8557 2273

Date:  
25/10/2016

### Brief review report

Conceptional check and evaluation of the computations performed on the influence of degassing and separating systems on the power consumption of typical heating and cooling circuits

TÜV NORD EnSys GmbH & Co. KG has conceptionally checked the process for computation of the achievable energy saving effects resulting from use of Reflex degassing and separation systems as presented in the working report /1/ and likewise evaluated the achieved results.

According to the presented concept, in a preceding step the worsening of the heat transfer is first calculated for different heat exchanger types due to gases contained in the heat transfer medium and dirt deposits, and then characterised by use of efficiency factors. To reproduce the results, we created a simplified example computational model for the leading case of underfloor heating which was based on the calculation specifications of DIN 1264 /2/. Additionally we have checked selected partial results for plausibility. In this way we have assured ourselves of the understandability of the efficiency factors.

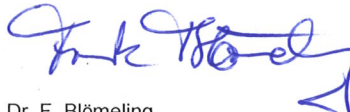


In a further step the annual energy consumption of three reference buildings was calculated. Here a simplified approach for quantitative determination of possible energy savings was followed /1/. Our plausibility check reveals that the simplified approach leads to potential energy savings that are greater than those resulting from the approach created by us. The size of the deviations is case-specific and thus can only be roughly determined. Consequently we cannot quantitatively confirm the determined energy savings. It is however confirmed that the saving effects are fundamentally present. In this sense, the calculated potential savings are to be interpreted as an upper limit.

The precise scope of the checks and detailed information about the evaluation results are presented in our review report /3/.

/1/ ifes GmbH, *Bewertung des Einsatzes von Reflex Entgasungssystemen zur Steigerung der Effizienz von Heizungs- und Kaltwasseranlagen mittels dynamischer Anlagen- und CFD-Strömungssimulation (AP2 & AP3 & AP4)*, Ergebnisbericht, Revision 04 vom 24/06/2016

/2/ Deutsche Norm, *DIN EN 1264 „Raumflächenintegrierte Heiz- und Kühlsysteme mit Wasserdurchströmung“*, September 2011

/3/ TÜV NORD EnSys GmbH & Co. KG, *Konzeptionelle Prüfung und Bewertung der erzielten Ergebnisse der von der Firma ifes GmbH durchgeführten Berechnungen zum Einfluss von Entgasungs- und Abscheidesystemen auf die Leistungsaufnahme typischer Heiz- und Kühlkreisläufe*, Stellungnahme vom 25/10/2016, IND2016/0018

Expert  Dr. F. Blömeling	Group  H. Rebohm	Department  Dr. B. Klüver
---	---	--