

**engineering, manufacturing, sales:**

- membrane and industrial keyboards
- enclosures and front panels
- CNC sheet-metal forming
- touchscreen solutions
- system integration

**surface technology:**

- varnishing
- powder coating
- screen, pad and digital printing
- grinding, brushing, blasting
- EMI-/ESD-coating

✓ **express service** 5 – 10 – 15 working days

✓ **certified to DIN EN ISO 9001, DIN EN ISO 13485 (medicine) and DIN EN ISO 14001 (environment)**

**RICHARD  
WÖHR®**  
GMBH

## CUSTOMER INFORMATION | KDI00011

**Date: 18.01.2011**

### **„Compliance of color shades/reproducibility“**

With regard of frequently asked questions concerning the above-named topic we wish to inform you that:

The human eye can distinguish 10 million color shades. But the visual assessment depends a lot on the viewer itself (ability of color perception, age, mood etc.) and external influences such as environmental brightness and color or the object itself. In addition to that, human abilities to put color impressions into words or to document differences are limited. Coating and printing of components are amenable to the law of batch production (comparable with wall papers, woools...), whereby especially PANTONE color shades entail difficulties with the compliance of color shades due to their low opacity and the thereby required overprinting. Regarding this, RAL and HKS shades should be preferred due to their better opacity.

Aggravatingly, especially in case of decor foils for foil keyboards, there's also the problem of falsification of the printed color shade, caused by back printing of the matted material. In practice, always color shade deviations (delta e-value) to an original are sent and no absolute values. If you desire tightened color shade releases, possibly with a measurement report, you have to inform us right at the inquiry stage, but at the latest when placing the order, because such a demand has to be considered already in the stage of development. The customer and the provider have to agree on the permitted color shade deviations as well as on a measurement method, whereby the tolerances depend both on the demands and the technical possibilities (see also DIN 42 115 item 7.3.3 „colors“).

### **If you have further questions – please contact us!**

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