



## Technical Bulletin No. 1

### Electroconductive Casters (ESD-Casters)

If plastic materials, which are used to produce our casters, are set in pure version, they are not electroconductive. To let them be electroconductive, we have to add adequate additives. Usually these are very fine steel fibres, which build an electroconductive meshwork inside. Additionally it is essential, that enough and homogeneous distributed steel fibre endings are on the surface of these electroconductive parts. Only to treads of soft wheels there will be added carbon instead of steel fibres to achieve a sufficient conductivity.

Due to high differences between the density of plastic materials and steel fibres as well as complex flowing processes during injection moulding it is technically not easy to reach an adequate homogeneous distribution of the steel fibres in the melted mass. Because of that there are detected relatively high fluctuations of electrical conductivity of these electroconductive components. On hard wheels of electroconductive casters usually there will be detected considerably lower conductivity in the closer environment of the injection points and on opposed areas due to the orientation of the steel fibres in these areas caused by fluid mechanical effects. In using four to five casters on a piece of furniture, means eight to ten wheels, sufficient over-all conductivity is always warranted. In case of electroconductive casters we recommend therefore, according to our standard, to implement always both wheels electroconductive.

Our electroconductive casters comply with DIN EN 12528 standard and respectively with DIN EN 12529 standard. Those standards mean that an electroconductive caster may have a bleeder resistance of maximum 10 kOhm. In most cases the determined bleeder resistances lay considerably beneath this value. As it is not easy to measure this bleeder resistance a process is described in DIN EN 12527 which has to be adhered exactly in determining this value. Casters will be marked according to standard with a yellow flash on the wheels.

Because of the technically difficult manufacturing process and the herewith combined fluctuations in electrical conductivity, the requirements for antistatic casters (bleeder resistance from at least 100 kOhm and maximum 10.000 kOhm), mentioned in above standards, may not be fulfilled. Consequently no antistatic casters according to these standards may be offered.

We would also like to point out, that using electroconductive casters only makes sense and is effective in combination with appropriate flooring. Further there should be taken care of the cleanliness of the caster treads. Soiling of the caster treads may enhance the bleeder resistance in such a way that a secure operation won't be warranted.