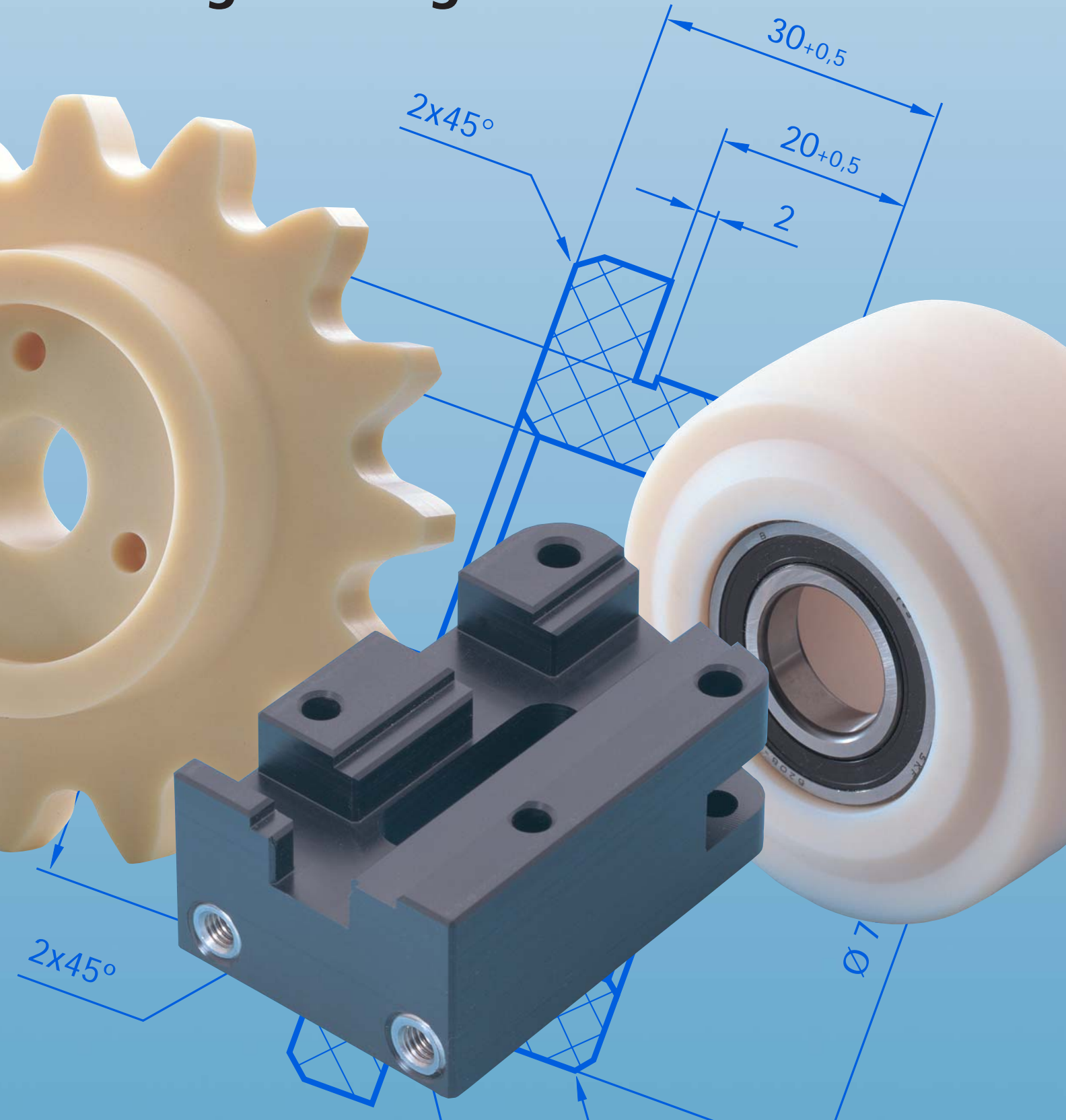
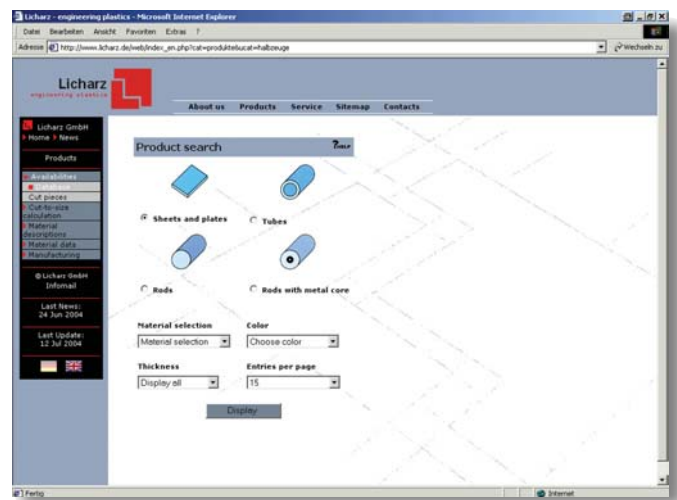




Designing with engineering Plastics



Licharz on the web



Storage information

Information for material-related handling of plastics at receipt and in storage

The material properties and special features of plastics described in the previous sections clearly illustrate that plastic products can suffer unwanted quality losses due to environmental effects.

Therefore to maintain the high quality and functionality of our products – also over longer periods – several factors should be considered when handling and storing them.

1. Plastics become brittle at low temperatures and become hard, less elastic and sensitive to impact. In this condition the danger of breaking or splitting through external forces is very high – especially for finished products. Cold plastic products should never be thrown, shaken or dropped.
2. The properties of plastics can change due to weathering effects. The material properties can suffer irreversible negative effects through sunlight, atmospheric oxygen and moisture (e.g. bleaching and/or oxidation of the surface, water absorption, etc.). If the products are subject to direct sunlight or one-sided heat, there is a danger of permanent deformation through heat expansion and released internal residual stresses. Therefore finished products should not be stored outdoors and semi-finished products should be stored outdoors for as short a period as possible.
3. Plastics have scratch sensitive surfaces. Sharp edges on shelves, nails in pallets, large dirt particles between the products and other sharp objects can cause scratches and/or grooves, which in turn can cause breakage and notching. When transporting and storing plastic products it should be ensured that the surface remains scratch and groove free and that no rough particles are allowed to adhere to the surface.
4. Not all plastics are equally resistant to chemicals, solvents, oils or fats. Several are attacked by these substances, which can lead to surface opacity, swelling, decomposition and permanent changes in the mechanical properties. Therefore, substances that can attack and damage plastics must be kept away from the products during storage.
5. Plastics are subject to reversible dimensional changes when affected by extreme temperature fluctuations due to shrinking or expansion. Dimension checks can only be carried out immediately on receipt of the goods if the products are at room temperature ($\approx +23^{\circ}\text{C}$). Products with a higher or lower temperature could produce incorrect measured values due to shrinkage or expansion of the plastic. Too warm/cold products must be stored temporarily in a dry place and be brought up/down to room temperature before dimensions are checked.
6. Because of the production process, plastics, and finished products manufactured from them, can have residual stresses, in spite of annealing. These have a tendency to relax when the products are stored for long periods and subjected to temperature effects (e.g. direct sunlight). Polyamides also tend to absorb water when the humidity is high, which in turn causes the volume to increase. These processes are generally accompanied by dimensional and shape changes due to deformation.

Therefore for long-term storage we recommend closed boxes and constant conditions (\approx standard climate $+23^{\circ}\text{C}/50\% \text{RH}$). The expected dimensional and shape changes are thus kept to a minimum and generally have no effect on the function of the product.



Our machining capabilities:

- CNC milling machines, workpiece capacity up to max. 2000 x 1000mm
- 5-axis CNC milling machines
- CNC lathes, chucking capacity up to max. 1560 mm diameter and 2000 mm long
- Screw machine lathes up to 100mm diameter spindle swing
- CNC automatic lathes up to 100mm diameter spindle swing
- Gear cutting machines for gears starting at Module 0,5
- Profile milling (shaping and molding)
- Circular saws up to 170mm cutting thickness and 3100mm cutting length
- Four-sided planers up to 125mm thickness and 225mm width
- Thickness planers up to 230mm thickness and 1000mm width



We process:

- Polyamide
- Polyacetal
- Polyethylene terephthalate
- Polyethylene 1000
- Polyethylene 500
- Polyethylene 300
- Polypropylene
- Polyvinyl chloride (hard)
- Polyvinylidene fluoride
- Polytetrafluoroethylene
- Polyetheretherketone
- Polysulphone
- Polyether imide

- PA
- POM
- PET
- PE-UHMW
- PE-HMW
- PE-HD
- PP-H
- PVC-U
- PVDF
- PTFE
- PEEK
- PSU
- PEI

Examples of parts:

- Rope sheaves and castors
- Guide rollers
- Deflection sheaves
- Friction bearings
- Slider pads
- Guide rails
- Gear wheels
- Sprocket wheels
- Spindle nuts
- Curved feed tables
- Feed tables
- Feed screws
- Curved guides
- Metering disks
- Curved disks
- Threaded joints
- Seals
- Inspection glasses
- Valve seats
- Equipment casings
- Bobbins
- Vacuum rails/panels
- Stripper rails
- Punch supports

Information on how to use this documentation

All calculations, designs and technical details are only intended as information and advice and do not replace tests by the users in regard to the suitability of the materials for specific applications. No legally binding assurance of properties and/or results from the calculations can be deduced from this document. The material parameters stated here are not binding minimum values, rather they should be regarded as guiding values. If not otherwise stated, they were determined with standardised samples at room temperature and 50% relative humidity. The user is responsible for the decision as to which material is used for which application and for the parts manufactured from the material. Hence, we recommend that practical tests are carried out to determine the suitability before producing any parts in series.

We expressly reserve the right to make changes to this document. Errors excepted.
You can download the latest version containing all changes and supplements as a pdf file at www.licharz.de.

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For further information, detailed catalogs are available:

- Information on Licharz machining capabilities of component parts
- Brochure „Material Guiding Values/chemical Resistance“
- Product information on semi-finished products of PA, POM und PET
- Delivery programme

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