Large external planet gear measurement standard (PTB, Germany)

The large gear measurement standard is designed matching to the large ring gear measurement standard. The measurement standard can be used for both profile and helix measurements. Three different helix angles and hands of helices allow the standard to be universally used. It provides six boreholes for Pt100 temperature sensors for monitoring the temperature distribution inside the workpiece. Further it has a supporting plate as well as holes for eye bolts to handle the workpiece.

Each of the six gear flanks have been calibrated according to existing standards and guidelines (e.g. ISO 1328-1). For all the profiles the total deviation F_α, the form deviation $f_{f\alpha}$ and the slope deviation $f_{H\alpha}$ have been evaluated. Equivalently, the helices are calibrated in terms of F_β, $f_{f\beta}$ and $f_{H\beta}$. In all this gives 36 calibrated parameters describing the large gear measurement standard.

Geometry parameters	
Helix angle / hand	0° / spur; 10° / left; 20° / right
Number of teeth	14 / 13 / 13
Normal module	18 mm
Pressure angle	20°
Facewidth	430 mm
Diameter of baseplate	400 mm
Weight	187 kg

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