Device for direct laser recording of diffractive optical elements consists of a recording laser, a spindle with a motor, an optical disk with a photoresist layer placed on the spindle, an objective lens with a laser focusing drive, a laser of the autofocus system, and a linear drive - positioner, control computer. Additionally, it includes an angular reference encoder for forming sector marks and a laser digital interference rangefinder with absolute coordinate readout, which is connected to the positioner.