**TECHNICAL SPECIFICATION OF A LABORATORY THREE-ROLL MILL FOR PIGMENT GRINDING**

The laboratory three-roll mill should be designed for grinding pigment pastes used in offset, flexographic, or screen printing inks—whether water-based, oxidative, or UV/LED cured.

The device should ensure a consistent particle size distribution of the pigment while maintaining repeatable homogeneity of this distribution.

The three-roll mill should be appropriately sized and weighted for the laboratory space where it is intended to be placed—on a laboratory bench (size requirements are described later in the specification)—and suitable for working with small quantities of product.

The device should meet the following technical parameters:

* Maximum dimensions (including protruding elements): length 400 mm × width 500 mm × height 500 mm
* Required throughput range: from 0.01 l/h to 5 l/h
* Maximum weight of the three-roll mill: 50 kg
* Roll type (material): ceramic/steel with chrome coating
* Ink operating temperature: 15–40 °C
* Roll length: 100–200 mm
* Roll diameter: 40–80 mm
* Minimum speed ratio of successive rolls: 3:1.5:1
* Operating viscosity range: 2–100 Pa·s

The device should include the following components:

* 3 ceramic rolls
* Plastic/metal side guides
* Scraper knife
* Emergency stop button
* Display showing operating parameters of the three-roll mill
* Control panel with at least roll speed adjustment
* Drip tray
* EU power plug

Due to the small quantities of material being processed, the three-roll mill does not need a cooling system.

The three-roll mill should feature smooth speed adjustment of the rolls.