

Design and Build a Batik Fabric Dyeing Machine for Small and Medium-Scale Batik Industries

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ABSTRACT

Sleman Regency is one of the 5 Level II Regions in the Special Region of Yogyakarta Province which has business potential in the form of batik handicrafts. Generally, this batik work business is in a small and medium scale company, some are even a home industry. Several companies in the Sleman Regency area produce batik crafts which include written, stamped (full print) batik, and combinations. Generally, the process carried out in producing batik is still done manually.

There are two work stations in the written batik production area, namely batik and coloring. Based on initial observations made at the coloring station, information was obtained that at this station there were 3 operators, with 7 hours of work per day. The coloring activity is carried out every day, with the number of dyed fabrics being around 100 – 150 sheets/day. Especially during the dyeing process for dyestuffs and color locking, two tubs made of wood are used with the same shape and mechanism of use. Based on observations of the work methods carried out, each process must be carried out by two operators. Each operator will hold one end of the cloth, then the operator will alternately dip the cloth from end to end. For each sheet of cloth, each operator must dip his hand into the tub 5 - 15 times.

The dyeing process takes about 4 hours of the total dyeing process per day. Because these processes require a minimum of 2 operators, the process will not run in parallel with the current number of operators. Furthermore, if only 1 operator is present, this coloring process will stop completely. The operator's posture during the immersion process causes complaints of discomfort to the operator. Operators will feel discomfort in several body segments, namely in the neck, shoulders, waist, hips, wrists, fingers, and thighs. Based on this, in order to maintain work productivity and occupational health, it is necessary to make an effort to change some of the manual processes to a manual

Kata Kunci: batik and coloring, discomfort , dyeing process