

## **Achieving Superior Functional, Aesthetic and Economic Values for Coverlet Fabrics Using Yarn Compact Twister with (DUO POT SYSTEM)**

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### ***Abstract:***

A group of single threads was selected from the remains of threads in textile factories with different specifications, the most important of which are colors that suit the nature and properties of the coverlets, which represent a great burden on the technical design office in choosing the best method to benefit from them, and reducing the stagnant stock, which amounts to several tons annually, which returns a positive return. Economically and environmentally, it affects the industrial enterprise and society, numbering (19) threads. The application and compact twisting process was then performed in one stage on the SAVIO SIRIUS Compact Twister (EDS) M/C with DUO POT SYSTEM to produce (12) unconventional twisted threads (Z/S) with a low twist count ( 8) Barmats/inch, and using them as weft threads on a double-armed flexible rapier loom using simple weaving structures to produce coverlets in the linear meter style to develop the innovative and aesthetic thought of the fabrics produced, as well as the level of artistic taste and sense of aesthetic values among the consumer due to the properties the produced threads possess that add many From the aesthetic appearances of the coveralls to their integration with the functional properties to form the aesthetic properties of the fabrics, in addition to the low cost, which benefits the industrial establishment, the consumer and the environment. Then, many laboratory tests were conducted in the weft direction on the (12) samples of the produced coveralls, which are: fabric tensile strength (kg/5cm), fabric elongation percentage (%), weight loss percentage after 1000 friction cycles (%), estimated Fabrics on water absorption (degrees), weight per square meter (g/m<sup>2</sup>). Then the correlation coefficient and the equation of the regression line were found for the relationship between the product number of weft angle angle and the results of various laboratory tests to study the extent of their impact on the functional properties of the fabrics produced. The research concluded that: The non-traditional coverlets produced enjoy unprecedented rates of tensile strength, elongation, and abrasion resistance. With friction in the direction of the weft, the ability to absorb, and a variable weight, it also has a shiny appearance, in addition to a new texture that is not available in other traditional coverlets available in the market resulting from the diversity of research variables, in addition to the low cost, which helps in its economic popularity.

### ***Keywords:***

Domestic Fabrics, Coverlet Fabrics, Compact Twister with (DUO POT SYSTEM), Single Yarns Remnants, Up Cycling

### ***References:***

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### ***Paper History:***

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