

## 5. CONCLUSION

The air-velocity profile repeats itself along the weft-insertion axis, though there is an increasing trend for a few relay nozzles. The air velocity along the weft-insertion axis with the new system is much less than that reported for a profiled-reed or confusor system of air-jet weft insertion. The vertical component of air velocity near the jet axis is more than one-third of its horizontal component in the weft-insertion direction.

Schlieren photographs and Pitote-tube measurements confirm the large variation in the quality of relay nozzles in terms of the variation between two holes of any nozzles and the variation between different nozzles. Apart from manufacturing defects, the defects are sometimes due to choking of the nozzle holes with oil and dust.

The main nozzle imparts a higher tension in a stationary yarn than the relay nozzles for shorter yarn lengths. But, as the yarn length in the air-jet increases, the effect of the relay nozzles is greater.

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