

Human-factor and Ergonomics in Bottling Lines

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Abstract : Filling and packaging lines for bottling of beverages into glass, PET or aluminum containers require specialized expertise and a different configuration of equipment like - Filler, Warmer, Labeller, Crater/Recrater, Shrink Packer, Carton Erector, Carton Sealer, Date Coder, Palletizer, etc. Over the period of time, the packaging industry has evolved from manually operated single station machines to highly automated high-speed lines. Human factor and ergonomics have gained significant consideration in this course of transformation. A pre-requisite for such bottling lines, irrespective of the container type and size, is to be suitable for multi-format applications. It should also be able to handle format changeovers with minimal adjustment. It should have variable capacity and speeds, for providing great flexibility of use in managing accumulation times as a function of production characteristics. In terms of layout as well, it should demonstrate flexibility for operator movement and access to machine areas for maintenance. Packaging technology during the past few decades has risen to these challenges by a series of major breakthroughs interspersed with periods of refinement and improvement. The milestones are many and varied and are described briefly in this paper. In order to have a brief understanding of the human factor and ergonomics in the modern packaging lines, this paper, highlights the various technologies, design considerations and statutory requirements in packaging equipment for different types of containers used in India.

Keywords : human-factor, ergonomics, bottling lines, automated high-speed lines

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