



IS 3906 : 2024 Crop Protection Equipment — Hand-Operated Knapsack Sprayer, Piston Type — Specification and Test Code (Fifth Revision)

Sprayers are essential equipment in agriculture used for the effective and **controlled application of pesticides**. They allow for **even distribution**, ensuring pests are managed efficiently while **minimizing waste and environmental impact**. By covering large areas quickly, sprayers save time and labour costs and reduce the risk of chemical exposure for operators.

Among various types, the **knapsack sprayer** is especially popular for small to medium fields. It's a portable device with a **tank** worn like a **backpack**, allowing farmers to reach confined areas and apply pesticides with precision. The **hand-pumped mechanism** maintains consistent pressure for **uniform spraying**, making it **cost-effective** and ideal for **targeted pest control**.

The Indian Standard IS 3906 : 2024 specifies material, performance, constructional and other requirements including safety of piston type hand-operated knapsack sprayer which used for even and uniform spraying of pesticides. Key performance specifications includes **minimum discharge rate** of **500ml/minute**, **minimum volumetric efficiency** of **85 percent**. Key constructional parameters included **capacity of tank** between **10 to 20 litres**, minimum length and width of **strap** as **800 mm** and **38 mm** respectively for easy carriage of the sprayer. The **mass** of the empty **tank** is also limited to **8 kg**. For **safety** of users/farmers, the standard also mandates the manufacturer to **supply a set of masks, hand gloves** and **safety goggle** along with the sprayer.

Along with specifications, the standards also cover the **performance testing** of the sprayers including **discharge rate test, volumetric efficiency test, endurance test**, test for various **components** to establish the performance of the sprayer.