Coffee Technology

INSTANT (SOLUBLE) COFFEE PLANTS
Instant Coffee Processing

The coffee extract quality is predominately determined by the coffee bean grade, blend, the utilised roasting parameters, the extraction technology and the utilised extraction mode. SPX e&e Series offers individual process solutions designed to maximise the operational flexibility with respect to end-product quality, while meeting the desired capacity.

In the extraction process, soluble solids and aromas are efficiently extracted, and the coffee aroma is carefully recovered to maximise the retention of the desired aromas. After the extraction process, the coffee extract is clarified to remove sediments, and concentrated using an evaporator, which is operated under vacuum, whereby the coffee extract is concentrated under low temperature. The recovered aromas are mixed with the concentrated coffee extract to meet the desired taste profile. The standardised aroma-rich coffee extract can either be bottled-off or spray dried / freeze dried.

**FREEZE DRIED COFFEE**

During the process of manufacturing freeze dried coffee granules, water is removed by sublimation at low temperatures since the operational pressure within the drying tunnel corresponds to deep vacuum, enabling the best possible end-product quality. Freeze drying of coffee extract can be divided into the following main processing steps:

**PRE-FREEZING, EXTRACT GASIFICATION (FOAMING), FREEZING AND GRANULATION**

The coffee extract is gasified with N₂ / CO₂ and subsequently pre-frozen to a viscous liquid and solidified on a freezing belt. The frozen extract, of which over 50% is water, is milled and classified into the desired granule size range. These processing steps influence key end-product properties, such as color, bulk density and granule size.

**FREEZE DRYING**

Due to the very low product temperatures during the sublimation (drying) process, the aroma retention is maximised, resulting in a premium quality end-product.

SPX e&e Series offers both batch and continuous freeze drying systems, based on either tray-system or a belt system.

All SPX e&e Series plants are designed to meet the most stringent sanitary requirements.
ADVANTAGES OF SPX e&e Series INSTANT COFFEE PROCESSING TECHNOLOGY

Each SPX e&e Series instant (soluble) coffee plant supplied is operator-friendly and specifically designed to meet the desired end-product capacity, quality and powder/granule morphology. The instant coffee capacity range offered by SPX is 50 – 1,500 kg/h.

The special features are:

- Aroma stripping before extraction for premium aroma recovery
- Multiple extractor designs
  1. A short and wide-body extractor for both finely and coarsely ground roasted coffee, to obtain high production yields and premium coffee extract.
  2. A conventional extractor for obtaining standard production yields and standard coffee extract quality
- Different extraction modes depending on the desired coffee extract quality and optimum use of water and steam.
- Aroma recovery from the aroma-rich extract
- Off-flavour removal after hydrolysed extraction mode
- Extract clarification for sediment-free coffee extract
- Different evaporator designs (multi-effect Plate Heat Evaporators or multi-effect Falling-Film Evaporators) with or without finisher
- Batch and continuous freeze drying systems, based on either a tray-system or belt-system
- Control of freeze dried end-product properties, i.e. colour, bulk density, granule size and solubility

SPX e&e Series offers also further services in the field of coffee, such as decaffeination of green beans and steaming of green coffee beans.

Please contact us for receiving additional information.
About SPX

Based in Charlotte, North Carolina, SPX Corporation (NYSE: SPW) is a global Fortune 500 multi-industry manufacturing leader.

For more information, please visit www.spx.com.

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SPX reserves the right to incorporate our latest design and material changes without notice or obligation.

Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing. Please contact your local sales representative for product availability in your region. For more information visit www.spx.com and www.extraction.de.

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e&e-500-GB-version01-2013-issued09-2013
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