

DRYING TECHNOLOGY

EVAPORATION TECHNOLOGY

EXTRACTION TECHNOLOGY



DEVEX Verfahrenstechnik GmbH, located in Warendorf/Germany, is a company featuring 25 years of experience in the areas of extraction, evaporation, vacuum and freeze drying and the respective process engineering.

We partner with the food, pharmaceutical and cosmetics industry as well as coffee and tea manufacturers all over the world.

DEVEX processes serve to produce e.g. various extracts, active ingredients, flavorings and aromas from plant materials, refined proteins of animal origin; coffee concentrate and freeze dried coffee powder from both Robusta or Arabica beans. DEVEX dryers process fruit juice and vegetable juice concentrates to precious native powders or granulates.

DEVEX plants extract, concentrate, distillate, sterilize, gently dry and much more.

We plan and calculate, design and construct, we install and commission.

All tailor-made and „made in Germany“.

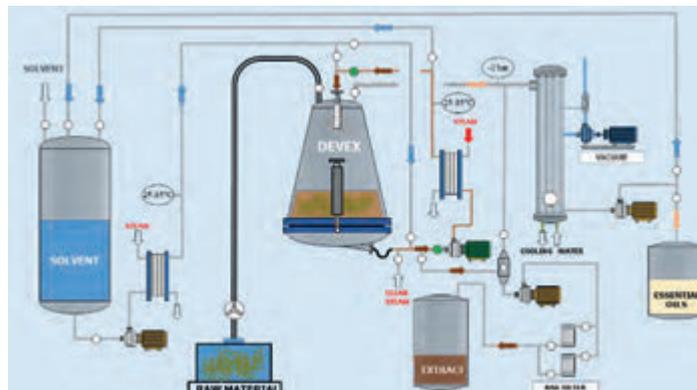
References throughout the world underline the capability and reliability of **DEVEX** plants.



DEVEX Extraction

Extraction Plant Applications:

- Standard Extractors, vacuum-proof up to 0.5 barg or 3 barg
- High Pressure Extractors up to 40 barg
- Extractor sizes 20 Liter - 10 m³
- 1-effect and multistage Extraction
- ATEX / Non-ATEX
- Pilot Extraction Plants
- tailor-made Designs



Extraction Process:

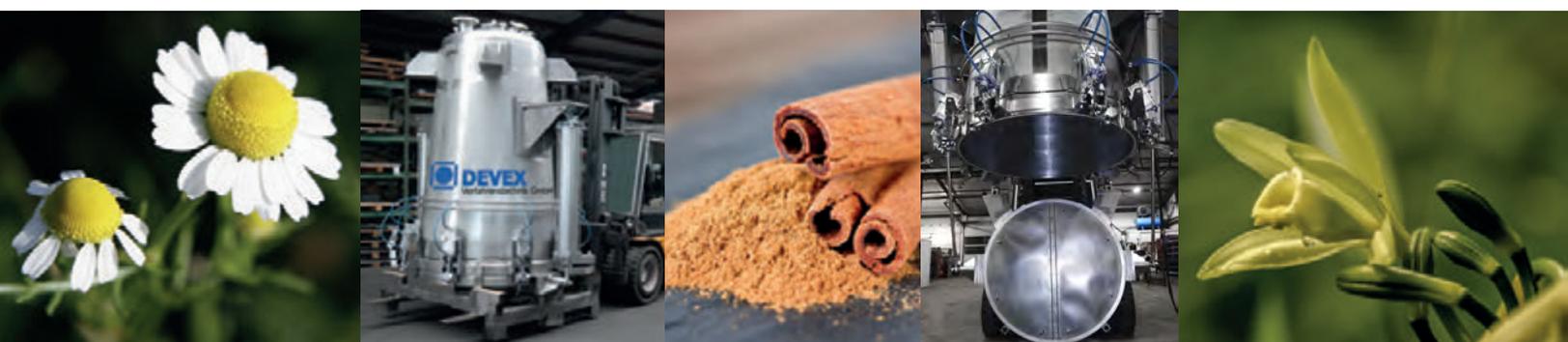
- liquid-solid extraction
- liquid-liquid extraction
- liquid gas
- steam distillation
- incl. option of Vacuum Stripping



Products:

- coffee, tea, leaves, roots, barks, spices, fruit, seeds, herbs, medicinal plants

CE-Certification, FDA, GMP, AD 2000



DEVEX has gained a wide experience in the design, manufacturing and installation of Extraction Plants and the equipment for continuous and batch recovery of essential oils, oleoresins, aromas, natural extracts and proteins.

Easy raw material discharge and fast cleanability make the operation of the systems comfortable in regard to the production as well as product changeover.

DEVEX supplies Extraction Plants for the Pharmaceutical Industry, Chemical Industry, Food Industry and Cosmetics Industry.

DEVEX Evaporation

Evaporation Plant Applications:

- Plate Evaporators
- Tube Evaporators
- Flash Evaporators
- High Concentrators
- Pilot Evaporation Plants

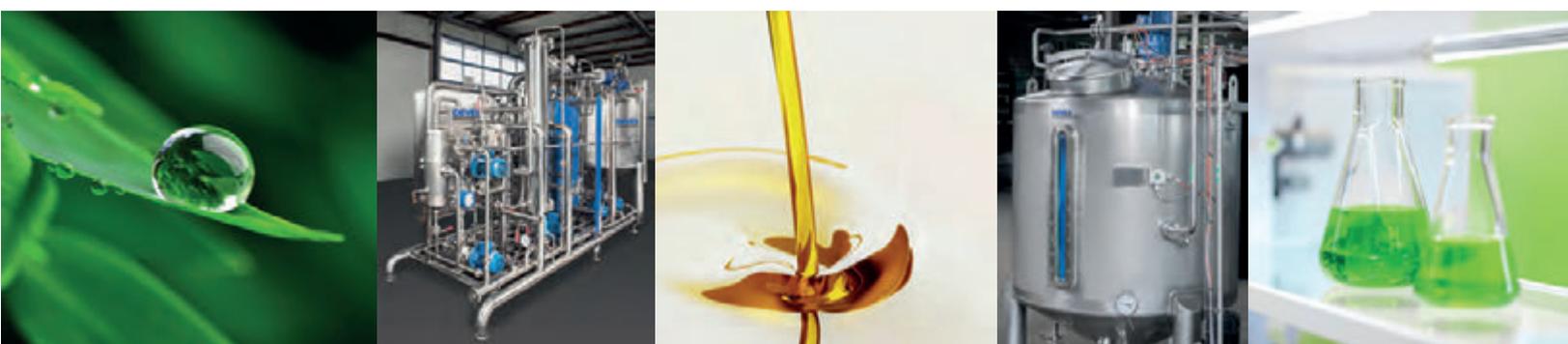
Evaporation processes:

- falling film
- rising film
- solvent recovery
- incl. option of thermal vapor compressor

Products:

- herbal extracts, medicinal plants
- coffee, tea, instant concentrates
- fruit and vegetable concentrates
- aromas and colorings etc.

CE-Certification, PED, FDA, GMP



DEVEX designs, builds and sells complete production lines: Our key technologies are Extraction Plants for the recovery of extracts, Evaporation Plants for the extract concentration and Vacuum Belt Dryers for the production of granulates or powders.

Evaporation plants are often integrated in the extraction and vacuum drying process. However, they can also be run individually.

DEVEX supplies Evaporation Plants for the Pharmaceutical Industry, Chemical Industry, Food Industry and Cosmetics Industry.

DEVEX Drying

Dryer Types:

- Continuous Vacuum Belt Dryer
- Continuous Vacuum Freeze Belt Dryer
- Vacuum Drying Cabinets
- Pilot Vacuum Dryer

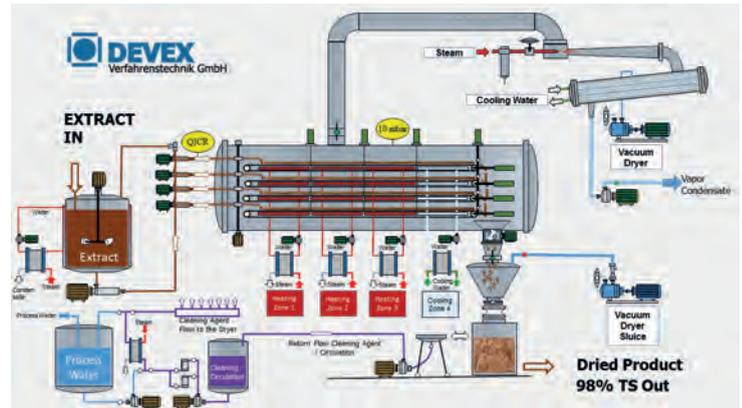
Drying Processes:

- vacuum drying
- liquid freeze drying
- freeze drying of lumpy products / solids
- native drying without use of additives

Gentle drying of miscellaneous products:

- plant extracts
- fruit juice concentrates
- malt beverages
- pharmaceutical products
- hydrolyzed vegetable proteins (HVP)
- instant coffee

CE-Certification, FDA, GMP, AD 2000



DEVEX The vacuum drying technology is one of the most economical and most gentle drying methods. Due to the vacuum very low water evaporation temperatures can be reached. Aroma, product color and bulk density can specifically be influenced by the process.

Vacuum Belt Dryers are used in the Pharmaceutical Industry, Food Industry and Chemical Industry.

DEVEX Vacuum Belt Dryers are designed for the continuous operation with liquid or solid products. The dried granulate is also quasi-continuously discharged and can be removed under cleanroom conditions (GMP). After the drying process, the product can be ground, filled and packaged.

DEVEX Coffee Technology

The instant coffee process:

The quality of coffee extract is primarily defined by the quality and blend of the coffee bean. This again is related to the specifications of the processing steps, e.g. roasting and grinding, the extraction type as well as aroma recovery and final drying.

DEVEX offers individual process concepts, developed for a maximum operational flexibility in consideration of the final product quality and the required capacity.

During the extraction process, soluble solids and aromas are highly efficiently extracted and the coffee aromas are gently obtained to achieve the desired aroma profile.

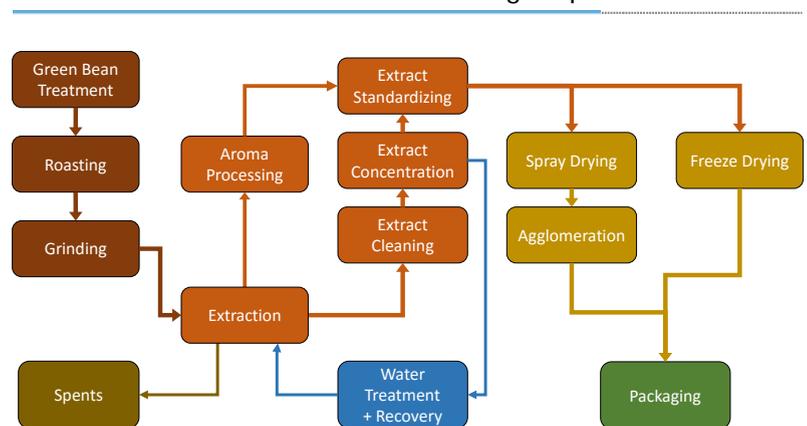
The extraction process is then followed by the clarification of the coffee extract. Afterwards, the extract is concentrated under vacuum at gentle temperatures.

The generated aromas are then mixed with the extracted concentrate to adjust to required flavor.

This standardized aromatic coffee extract can either be bottled or spray or freeze dried.

CE-Certification, PED, FDA, GMP

Instant Coffee Processing Steps



All plants for the production of instant coffee supplied by **DEVEX** meet the highest hygienic requirements. This applies to processing lines for soluble (instant) spray dried coffee powder as well as it applies to process lines for freeze dried coffee granulate.

A modern and reliable state-of-the-art technology is used for all production stages of the **DEVEX** plants.

Every **DEVEX** plant for the production of instant coffee is user-friendly and specifically designed so that it meets the requirements to the final product quantity, quality and the powder/granulate morphology.

DEVEX offers instant coffee plant capacities from 50 – 1,500 kg/h.



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