Crown Model III Solvent Extractor

CROWN

EST. 1878

World Leader
in Oilseed and
Oil Processing

The Crown Model III Solvent Extractor – designed to meet your production requirements

The Crown Design

The Crown Model III Continuous Loop, Shallow Bed Extractor is a variation of the proven, Model II Extractor.

It offers the benefits of lower power requirements, excellent component life, ease of operation and the capability of higher operating capacities. The Crown continuous loop, shallow bed design is the most efficient of several methods of extracting vegetable oils from oil-bearing seeds. It performs by dissolving oil from the prepared material with solvent and is capable of processing a wide variety of products.

Points to Remember

- Over 15 of the 125 Crown Extractors installed worldwide are Model III's.
- Proven design – ten years of reliable, operation, backed by a company established in 1878.
- A daily capacity of up to 4,000 rated tons per day of prepared soybeans per extractor. Also, available in small capacities or for processing specialty products.
- Extractor operates continually on a wide variety of products – the direct extraction of soybeans, cottonseed, wheat germ, sunflower, coffee, corn germ, and prepress extraction on rapeseed, peanuts, sunflower, copra and various other special products.

Advantages of the Crown Extractor

- Unique, shallow flake bed promotes excellent solvent contact, rapid drainiage, more complete extraction with a wider variety of products and allows for utilization of fragile flakes with higher fines content.
- Expanders are not required to promote drainiage as are necessary in deep bed extractors.
- Flake bed is turned completely over – allows solvent to contact flakes from all sides.
- Uniform, low solvent carryover to DT saves energy.
- Self-cleaning drainiage screens - stationary, vee-bar screens are wiped clean by the continuously - moving bed of material.
- Completely automatic control of miscella reservoir levels.
- Constant volume of hexane in process.
- Incline of chain before discharge eliminates possibility of solvent overflow to DT.
- Overflow to reservoirs controls bed surface flooding caused by poor material discharge.
- Continuous discharge of flakes improves desolventizer performance.

Unique Advantages of the Model III

- Higher capacities.
- Longer component life.
- Easier, less frequent chain adjustments and better mainshaft seals.
- Positive discharge allows elimination of the discharge shaker mechanism and drive.
- Less pocketing of bed behind flights in final wash area due to downflow tail section.
- Lower drive torque and power.
- Smoother mechanical operation with difficult products.

The Crown Model III Extractor

Material is fed into the extractor through an inlet hopper on top. The material bed in the Model

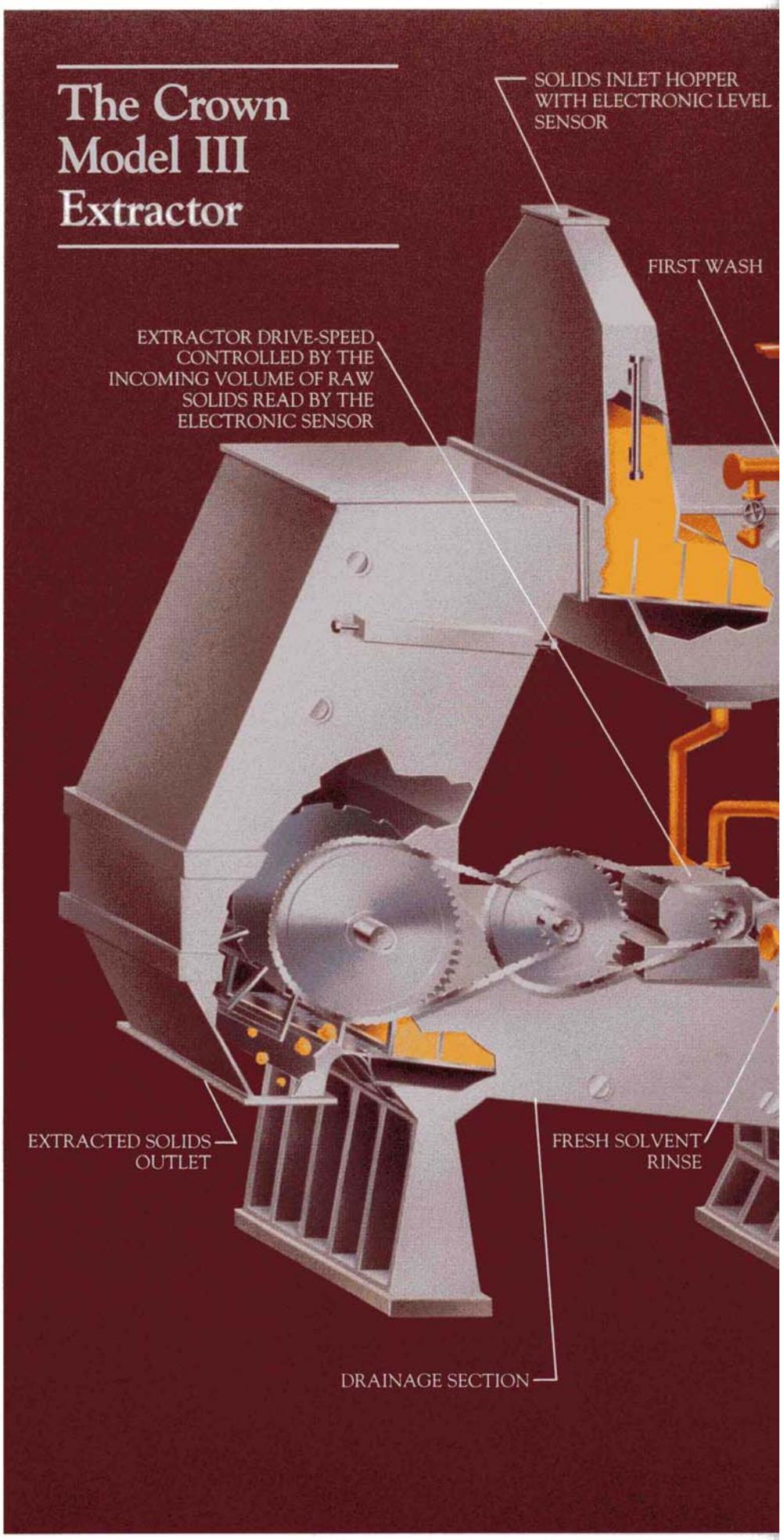
III moves in the opposite direction to the Model II Extractor. Because it does not convey material up in the tail section it can handle material with a higher bulk density than occurs in a typical oil mill. The material is discharged smoothly and undisturbed from the extractor by gravity. There is no mechanical discharge system, thus eliminating one drive in comparison to the Model II.

The Model III shares the long proven automatic level control system that has been one of the major operating advantages of all Crown extractors. This system is especially effective when used with computer systems as an accurate "feed-forward" capacity signal used in control.

After the material forms a uniform bed in the extractor it is conveyed toward the curved "tail" section, countercurrent to the miscella.

On a typical extractor there are seven stages of miscella ranging from about 2% oil concentration to full miscella of approximately 25%. The miscella discharges from the extractor through a hydroclone. The hydroclone "scrubs" the fines from the miscella before being pumped further to the distillation system. The solids are completely turned over during travel through the tail section. (Therefore, both sides of the solids have been washed with solvent or miscella.) The special design of the discharge section virtually eliminates the possibility of excess solvent carryover to the DT should a flooded condition occur. Also, this design eliminates the possibility of steam entering from the DT and contacting the screens to cause corrosion or poor drainage.

The Crown Model III Extractor



Hydroclone
The Crown Hydroclone removes the final traces of fines from the full miscella. The miscella can be pumped directly to the evaporation system.

HYDROCLONE MISCELLA CLARIFIER

FULL MISCELLA OUTLET

COUNTERCURRENT RECYCLE STAGES

Bar Screen
The flake bed acts as a brush — it continually sweeps the stationary Bar Screen clean of flow-obstructing fines.

FINAL RECYCLE

SELF-CLEANING STATIONARY VEE-BAR SCREENS

COUNTERCURRENT RECYCLE STAGES