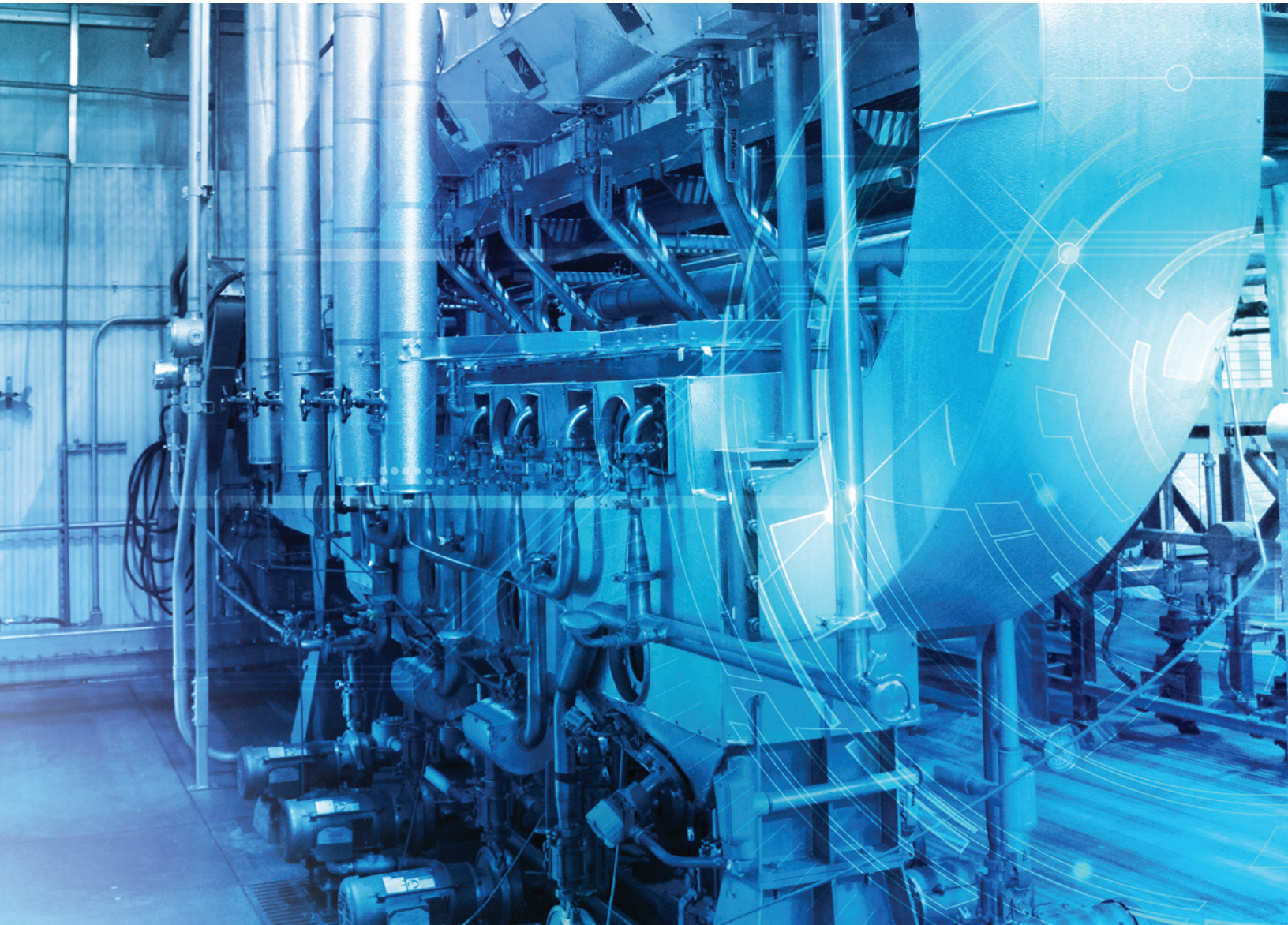


Pioneering **Extractor** Technology. Complete Lifecycle Support.



Partner with CPM's Crown to Optimize Your Processes.

Feeding, Fueling & Building a Better World.





ANALYTICAL LAB



PREPARATION



EXTRACTION



LIQUIDS

Achieve your Potential with CPM Crown's Global Innovation Center

Establish your competitive advantage with Crown's Global Innovation Center. Our fully functional 15,000 square foot plant offers piloting capabilities from benchtop lab scale to multiple tons per day of production, simulating real life and enabling you to develop and test new product concepts in a confidential and controlled environment. With Crown's Global Innovation Center, technical expertise, R&D and full lifecycle process, we provide guidance and support at every step from feasibility, trials and custom processing to commercial-sized operations and aftermarket services.

Crown's Global Innovation Center offers:

- **Proprietary Process Development:** Engineer unique, better processes
- **Proof of Concept:** Explore new products, new feedstocks and improve go/no-go decisions
- **Analytical Testing:** Capabilities for every step of the process
- **Highly Instrumented:** Collect and act on insights from PLC & Data Historian
- **Scalability:** Go from benchtop to commercialization with confidence

Optimize your processes

Reduce downtime, increase efficiencies, accelerate speed to market and more. We offer comprehensive optimization solutions from testing and analysis to process and technology development to help you identify new ways to operate faster and better.

Train your workforce

Boost productivity, processing capabilities, equipment longevity and plant safety by building and expanding the knowledge and skills of your employees with classroom and hands-on education in real-world environments.

Leverage Crown's R&D experts

Tap into the product lifecycle expertise of Crown's R&D engineers. Our experts not only design and engineer equipment, they also possess the deep process knowledge required to drive your operation forward.

OILSEED TYPES *(not a comprehensive list)* :

- Soybean
- Sunflower
- Canola/Rapeseed
- Corn Germ
- Palm Kernel
- Cottonseed

No One Knows Extraction Better Than Crown

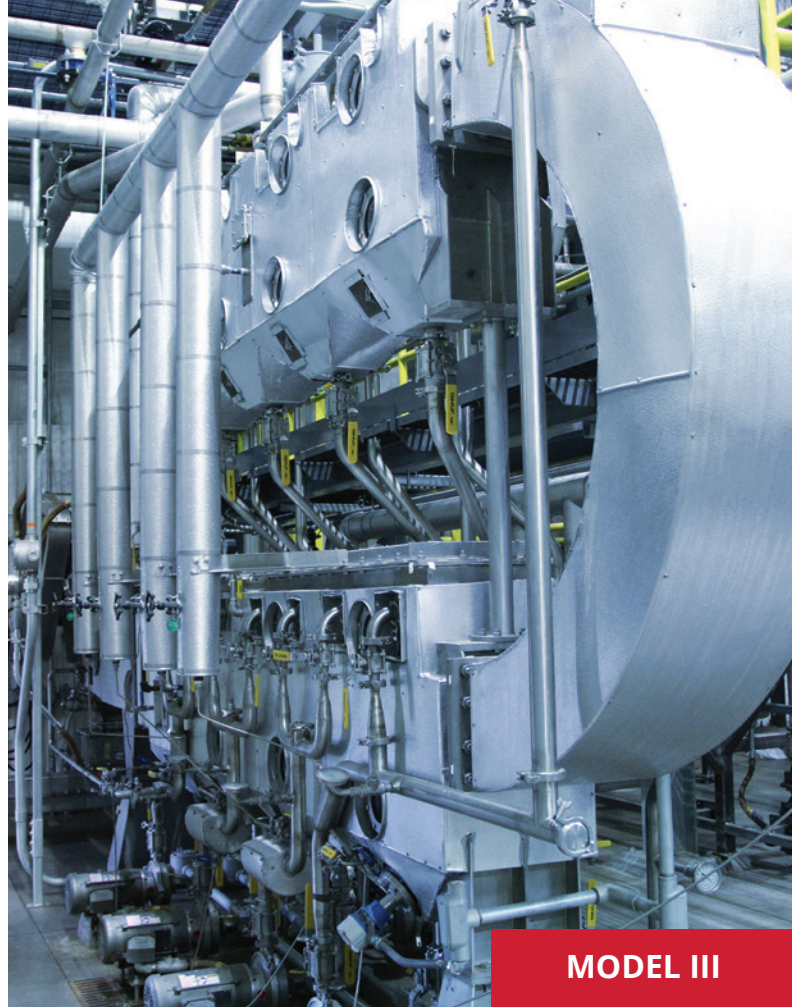
Optimize your total cost of production by partnering with Crown, the global leader with 75+ years in oilseeds and innovative continuous process design. We are known for our proprietary high-efficiency extraction technology that offers quick start up and long-term ease of operation and maintenance. Crown's continuous and counter-current extractors are the reliable, low-cost choice for improving product recovery from feed material while reducing solvent use. Crown customers have exclusive access to our Global Innovation Center, the only facility of its kind in the world. At the GIC, we help determine which extraction technology is the ideal match for your specific needs and facilitate your move to continuous operation.

Solid/Liquid Extraction uses solvents to dissolve and remove a soluble fraction from an insoluble, permeable solid. This process is also described as leaching or washing. Crown is a world-leading designer of solid/liquid extraction equipment that is used globally in Oilseeds, Nutraceuticals, Specialty Chemicals, Textiles, and other industries. Whether you are processing:

- Traditional oilseeds like soy, canola and cottonseed
- Specialty chemicals like silica gels and catalysts
- Nutraceuticals such as borage, ginko biloba, saw palmetto or algae
- Recycled textiles from the shop floor or landfill
- Or working with a new product that's never been extracted before

Crown's robust Model III, Model IV and Model V extractors can process and test any oilseed or other input.

Improve product recovery and reduce solvent use with Crown's **one-of-a-kind** extraction technology.



MODEL III

MODEL III PERCOLATION EXTRACTOR

Ideal for high-volume extractions, the Crown Model III Percolation Extractor is a continuous-loop, counter-current, shallow-bed extractor that's extremely reliable and forgiving—even under adverse conditions. The unique shallow, wide and long flake bed promotes excellent solvent contact, percolation and rapid drainage, allowing more complete extraction for the widest possible range of products. Its screen-cleaning technology eliminates plant shutdowns.

Materials processed *(not a comprehensive list):*

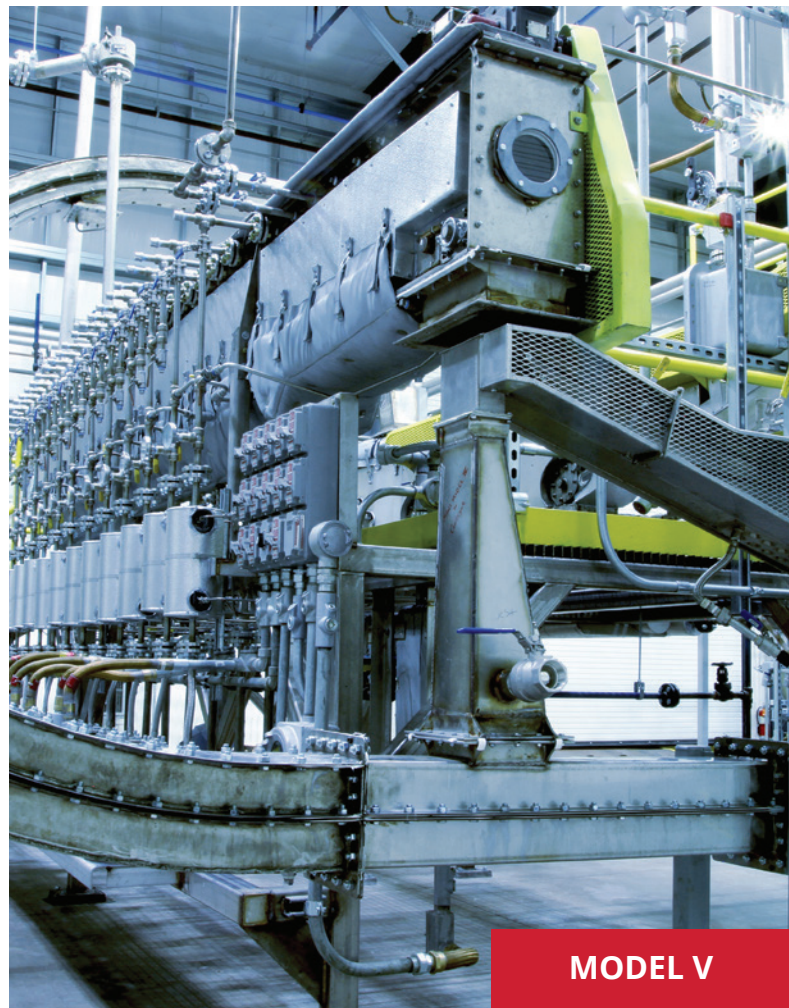
- Vegetable oil seeds
- Vegetable proteins
- Wood chips
- Ground stumps
- Bagasse
- Citrus fibers and other products that drain well

Model III Advantages

- En-masse conveyors minimize product breakage
- Gentle flight motion over stationary relieved screens prevent screen plugging
- Sloped outlet design promotes good drainage
- Low solvent carry-over reduces steam and hexane consumption in the Desolventizer-Toaster (DT)
- Vapor-tight design for operation with volatile solvents
- High throughputs. Suggest capacities to suit your application: .25 to 9000 TPD.
- Gentle complete bed turnover maximizes solvent contact and percolation without damaging meal
- Self-cleaning V-bar screens maximize drainage without the need for screen cleaning mechanisms
- Easy to assemble, expand or relocate
- Robust design and slow internal speeds result in long component life
- Automatic extractor feeding assures 100% filling without operator control or intervention
- Continuous, non-mechanized discharge to the spent flake conveyor for trouble-free operation
- Expanders not required for efficient operation even when processing delicate or poor-draining materials
- Two methods for increasing capacity: add expanders (for 20-25% increased capacity) and extend the extractor (for another 20-25% increase)
- Surging of DT eliminated, resulting in improved overall plant operation
- Integrated tail wash increases retention time
- Continuous counter-current extraction reduces solvent-to-feed ratio significantly compared to batch extraction
- Continuous operation eliminates need for operators to manually charge and discharge the extractor



MODEL IV



MODEL V

MODEL IV IMMERSION EXTRACTOR

For granular or coarse products that sink in solvent, or products that are too fine or coarse for percolation-type extractors, the Model IV Immersion Extractor processes virtually any product with a density greater than the solvent. Rather than using screens, which limit efficiency, the Model IV's basic horizontal fabrication houses a unique, patented "en-masse"-type conveyor system, which draws the material along the smooth extractor bottom. There, it is totally immersed in solvent flowing from the other direction. This eliminates problems with keeping the solids wetted.

Materials processed *(not a comprehensive list):*

- Plant-based protein concentrates (soy, canola, sunflower)
- Algae
- Hemp / hemp seeds
- Botanicals
- Metallic gels
- Contaminated soils

MODEL V PERCOLATION EXTRACTOR

The Model V Single-level Percolation Extractor has a shallow bed extractor that is used for brewing tea and other applications where open access and clean-in-place is required. The Model V is a continuous- and counter-current extractor that can be converted to co-current operation should the application require it. It is a great option for lower throughput amounts.

Materials processed *(not a comprehensive list):*

- Flakes
- Crushed beans
- Flavors
- Leafy materials and many others

Model IV Advantages

- Complete immersion ensures good product contact with the solvent
- Complete bed turnover prevents solids compaction and packing
- Gentle motion and bed turnover minimizes product breakage
- Vapor-tight design for operation with volatile solvents

Model V Advantages

- En-masse conveyors minimize product breakage
- Gentle paddle motion over stationary relieved screens prevent screen plugging
- Easy clean / clean-in-place design
- Vapor-tight design for operation with volatile solvents

We are the ONE
proven partner with a
commercialization lens.

Working Together for **a Better World.**



Our Expertise Is Rooted In Our Experience

CPM's Crown has been a world leader in developing equipment and innovative technologies to meet the world's demand for sustainable solutions, improving efficiencies, and meeting customer requirements in the oilseed processing space for 75+ years.

Deep Field Experience

- Nearly 750 installations in over 75 countries
- Our team has over 1,000 years combined operational experience in the industries we serve – many have planned and executed annual shutdowns, managed operations and maintenance budgets, and built and expanded plants

Your Trusted Advisor

- Tailored and consultative approach
- Flexible
- TCO approach (Total Cost of Ownership = Value)
- Safety and sustainability mindset
- Lifecycle partner – our Aftermarket team supports you every step of the way

Crown's experience, knowledge and the resources of the Global Innovation Center enable you to get to market faster and achieve your growth and profitability goals with new and innovative products.



From risk management to environmental management, Crown applies a global lens to your operations. Count on our problem-solving expertise to help fulfill your sustainability commitments.

Partner with Crown on your key initiatives:

- Carbon footprint reductions
- Clean manufacturing
- Emissions & energy reductions
- Operational performance
- Regenerative agriculture
- Renewable resources
- Social responsibility
- Supply chain resiliency
- Sustainability
- Zero waste targets

Regardless of your extraction needs, gain the competitive advantage with Crown's expertise, equipment and world-class Global Innovation Center.

Feeding, Fueling and Building **a Better World.**



crownsales@cpm.net | +1.651.639.8900 | crowniron.com | OneCPM.com