



# Lifecycle360



Your Single-Source Support Services

## LIFECYCLE 360

# Comprehensive Lifecycle Support You Can Trust



**CPM | Crown's Lifecycle360** is a comprehensive suite of support solutions designed to help you and your team streamline and optimize the full lifecycle of your facility, from pre-engineering to long-term maintenance needs. Our global team of field service specialists has assessed, supported, installed, commissioned and started up thousands of projects and facilities worldwide. Our experience enables you to take control of your operations and:

- increase efficiencies
- reduce costs
- predict maintenance needs and equipment updates
- develop, test, scale and commercialize innovative ideas
- build employee knowledge and confidence
- avoid costly hassles, including unplanned shutdowns

### A Consultative Approach

CPM | Crown is a proven, trusted advisor who is ready to work with you to design the ideal support package for your operations. Every opportunity is unique, and our specialists have the experience that enables them to develop the ideal solutions that fit within your specific parameters. Each Lifecycle360 support service is optimal at a different stage of a plant's lifecycle and can be engaged à la carte or in combination with the final equipment, parts or technology package.

### Global Reach With a Local Touch

Our diverse, talented support specialists live and work around the world and have helped plan and execute projects in many countries. Their experience and sensitivity enable us to navigate different cultures and languages every day. We are ready to support you no matter the location.

Lifecycle360 is the ideal complement for our robust, innovative equipment. Having our support will give you the peace of mind that comes from knowing you are maximizing the potential of your team and your operations.

Piloting/Testing/Global Innovation Center



Pre-Engineering



**CONSULTATIVE,  
TRUSTED  
ADVISOR**



Construction Support



Automation

Training



Maintenance Support

Optimizing



**LIFECYCLE 360**

Global Innovation Center

Confidential Development, Testing and Commercialization for Your Next Innovation

### **Lifecycle360 Innovation Services**

**For customers seeking a state-of-the-art piloting and testing facility to help them meet goals for product development, process improvements, product and process commercialization, speed to market, employee performance and more.**

The CPM|Crown Global Innovation Center (GIC) is the world's premier piloting and testing facility for oilseed, renewable fuels and specialty processing industries featuring solid/liquid extraction, desolventization, drying and refining technologies. Our 15,000 square foot, fully functional pilot plant, analytical lab and training center sets the standard for new innovations and safety, giving you access to real-world testing capabilities in a controlled, confidential and low-risk environment.

At the GIC, customers work side-by-side with Crown's engineering, piloting and R&D teams to develop and test new product concepts and simulate new processing strategies from benchtop lab scale to multiple tons per day of continuous production.

As your trusted, problem-solving partner, we offer the right environment, expertise and technology to help you make new investments with confidence, bring new products to market faster, and save you time and money.

### **Piloting and Testing Services**

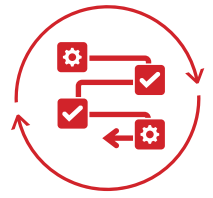
The GIC has best-in-class equipment and resources for testing and piloting in:

- Preparation
- Extraction
- Specialty extraction (including Hemp CBD Oil)
- Desolventizing
- Drying
- Deodorizing
- Refining
- Fat splitting
- Renewable diesel/SAF pretreatment

### **Benefits**

- Explore new products, new feedstocks and improve go/no-go decisions
- Gather data on test samples created at the GIC that enable you to move from benchtop to commercialization with confidence
- Bring products to market faster
- Engineer unique, better processes
- Troubleshoot existing equipment
- Test and integrate operational advancements
- Increase accuracy of cost estimates
- Gain better control over your processes
- Single-source testing and piloting facility – we have capabilities for every step of the process
- Collect and act on insights from PLC & Data Historian





**LIFECYCLE 360**

## Pre-Engineering Services

Technology Deep Dive for Investment Confidence

### Lifecycle360 Pre-Engineering Services

For companies working through a progressive stage gate approval process for their projects who need firmer cost proposals and engineering deliverables.

CPM | Crown's Pre-Engineering Services include Conceptual Engineering and Pre-Engineering packages to increase ROI confidence in process technology, scope and final budget. Our progressive engineering service packages leverage 145 years of our commercial, operational, R&D and Innovation Center expertise to increase the likelihood of project success.

#### Pre-Engineering Services

##### Conceptual Engineering:

- Block flow diagrams
- High-level utility requirements
- Facility footprint
- Flowsheet with key pieces of equipment
- Proposal for process-related equipment

##### Pre-Engineering:

- Preliminary Process Flow Diagrams (PFDs) with mass and energy balance
- Preliminary Piping and Instrumentation Diagram (P&ID)
- Preliminary motor and instrument lists
- Preliminary equipment list
- Firm proposal for process-related equipment

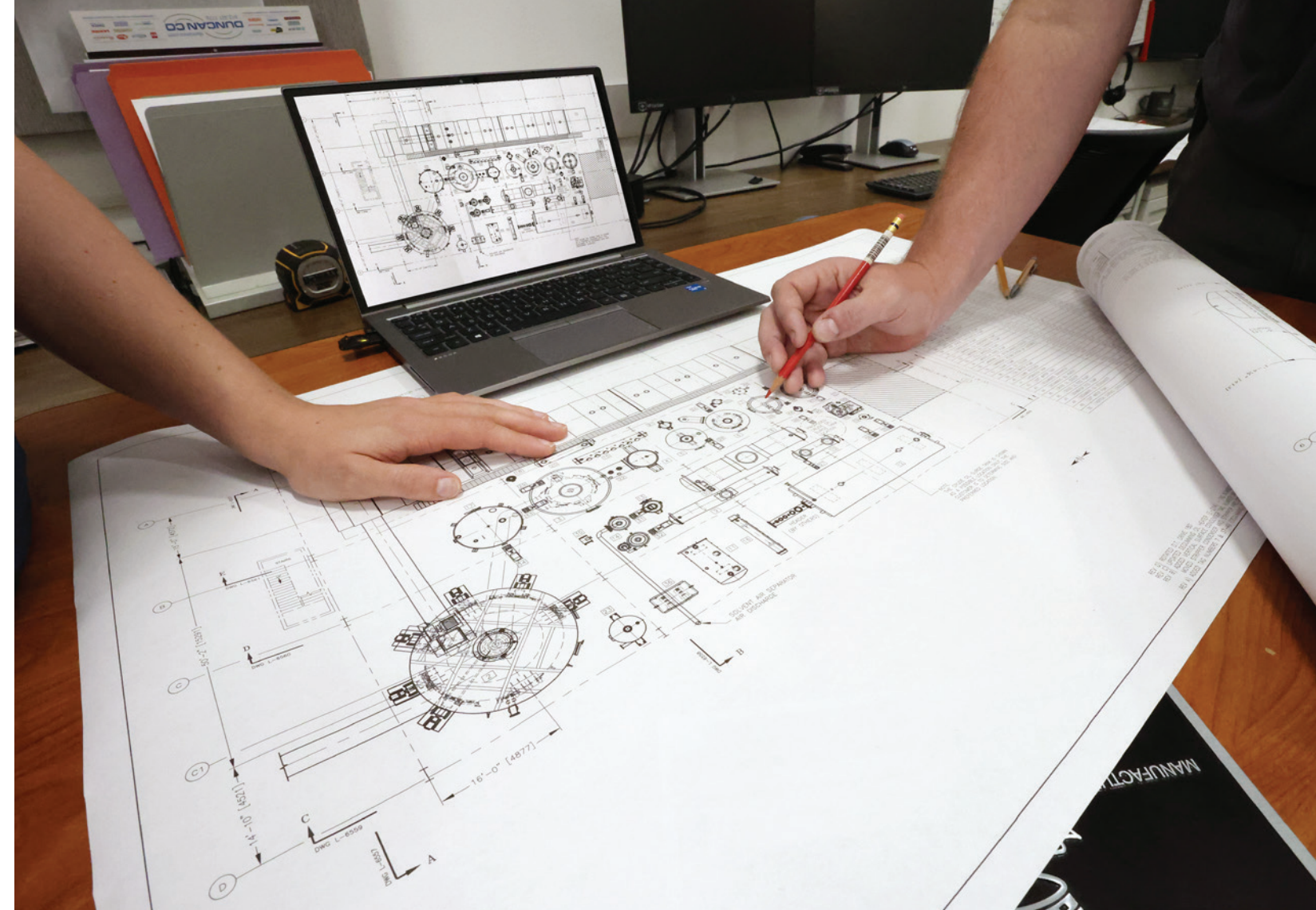
#### Benefits

##### Conceptual Engineering:

- Engage with commercial subject matter experts (SMEs) to better understand project scope and get budget quotes
- Multiple process configuration options evaluated
- Enables +/- 50% investment confidence

##### Pre-Engineering:

- Engage with operational SMEs to better understand scope, get budget quotes and get better-quality deliverables
- Enables +/- 20% investment confidence





**LIFECYCLE 360**

## Construction Support Services

Less Construction Hassle. Reach Profitability Sooner.

### Lifecycle360 Construction Support Services

**For clients executing projects involving our technology who want to achieve faster startup timelines, low-hassle startups, reduced re-work and change-order costs, and faster business returns.**

Avoid the frustration, miscommunication and confusion that delays plant construction. CPM | Crown's consultative Construction Support provides the resources and experience to streamline overall project planning, giving your facility the best start possible. Our global Construction Support Team includes over 40 mechanical, process, automation and training specialists who have helped deliver thousands of projects and facilities worldwide. No one knows our technology better than we do.

With up-front consultation, organization and planning, you will quickly gain time and cost savings. Expect more efficient mechanical and automation check-outs, more effective commissioning and better startups.

#### Construction Support Services

##### Consultation and Support:

- Assessments
- Installation Planning
  - EPC Bid Package Planning
  - EPC Training
- Equipment Installation Support
  - Mechanical Check-outs
- Parts Organization
- Process Commissioning and Startup
- Process Hazard Analysis Technical Support

##### Benefits

- Maximize investment
- Better awareness and coordination throughout the process
- Reduce emergencies and construction change orders
- Save frustration with trouble-free startups
- Avoid miscommunication and confusion
- Facilitates continuity with aftermarket services





# LIFECYCLE 360 Automation Services

## Secure Automation Backed by Unmatched Experience

### Lifecycle360 Automation Services

**For clients seeking to upgrade their automation to achieve production, safety, environmental, and financial goals.**

CPM | Crown's Automation Support is your single source for managing all aspects of process automation anywhere in the world. Coupling our deep process knowledge with our hardware, instrument and software automation expertise, we deliver solutions that typically result in paybacks in less than 2 years.

In addition to providing real-time data for better process control, Crown's Automation Support integrates the Industrial Internet of Things, resulting in additional upsides including remote monitoring capabilities, trending, predictive and preventative maintenance, and enhanced safety.

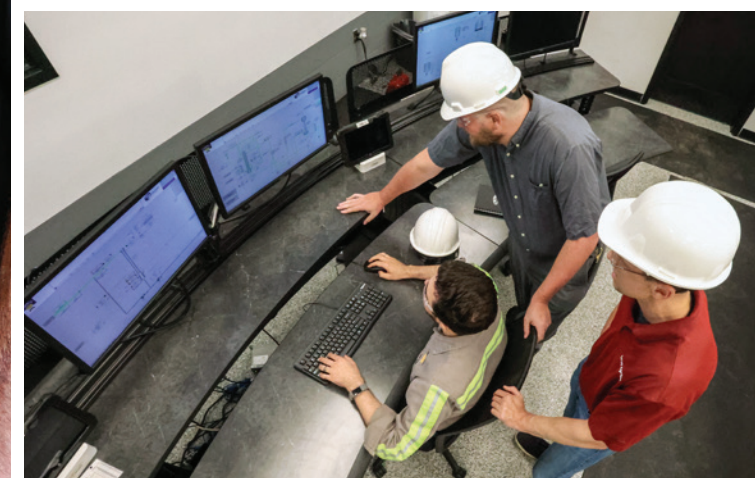
Make decisions with confidence and have peace of mind knowing that your automation is secure. With our Automation Services, you'll also avoid the hassles of staying current with updates: as your operation grows and technology advances, we will ensure that your automation hardware and software remain on the cutting edge.

### Automation Services

- Assessments and optimized recommendations
- Controls and instrumentation upgrades
- Safety and hazard analysis
- Programming and HMI designs
- Integrated Industrial Internet of Things
- Process commissioning and startup support
- Upgrade services

### Benefits

- Typical payback in less than 2 years
- Make data-driven, real-time decisions
- Peace of mind knowing that your operation is running at max efficiency
- Simplification – save time and reduce hassles of coordinating services
- Coordinated out-of-the-box solutions minimize ramp-up time, resulting in greater time savings
- Single solutions provider leaves no gaps in strategic planning and execution





# LIFECYCLE 360 Training Services

## Specialized Team Training for Safe, Smooth, Efficient Operations

### Lifecycle360 Training Services

**For customers who are facing the loss of experienced employees retiring out of the workforce and who are encountering frustrations in training and retaining engaged employees.**

CPM | Crown has created a dedicated team of professional training specialists to help our customers' employees overcome knowledge gaps in plant operation. Our Training Services ensure your employees are competent and confident in maintaining and operating our technology as designed, leading to a safe, thriving and professional work environment where employees want to stay. Employee training increases plant safety, efficiency, operational consistency and product quality.

When needed, our Training Specialists can draw from over 200 subject matter experts to teach oilseed plant theory, design, operation, maintenance, startups and shutdowns. We emphasize hands-on experiential learning so that your employees can apply their knowledge directly to your plant operations.

The training location is flexible - we will come to your plant, or your team can come to our world-class Global Innovation Center (GIC). At the GIC, we offer

immersive, real-world operation experience in our continuous operation pilot plant and facility, which includes preparation, extraction, plant-based proteins (white flakes and concentrates), refining, bleaching, biofuels pretreatment, and deodorizing.

### Training Services

- Training needs assessment
- On-site professional training
  - Classroom
  - Hands-on field training
- CPM | Crown Global Innovation Center and Training Facility
- Training modules include:
  - All CPM | Crown processes and technology
  - Plant theory, operation, safety, maintenance and automation
- Training modules selected based on customer needs and audience level (basic, advanced, custom)
- Access to specialized training from over 200 subject matter experts

### Benefits

- High-impact training from dedicated team of professional training specialists
- Employee training increases plant safety and promotes efficient plant operation and consistent product quality
- Higher employee confidence, job satisfaction and retention
- Employees understand the fundamentals underlying plant and equipment operation, improving real-time decision making
- Dynamic, experiential learning on real operating equipment





**LIFECYCLE 360**

## Maintenance Support Services

Maximize Uptime, Reduce Costs with Comprehensive Maintenance

### Lifecycle360 Maintenance Support Services

For clients purchasing and operating CPM | Crown technology who want to maximize plant operations (capacity, quality, reliability, equipment and parts lifespan, employee engagement, etc.), achieve more uptime and enjoy best-in-class maintenance costs.

CPM | Crown collaborates with you to enhance your team's ability to inspect, assess, plan, troubleshoot, support and improve the lifecycle of your plant. Our mechanical, process and automation field service specialists have designed, delivered, installed and maintained thousands of projects and facilities worldwide while applying regional sensitivity around culture, language and relationships.

Achieve your cost and production goals by maximizing plant uptime. Crown Maintenance Support provides unparalleled partnership and expertise when caring for the heart of your plant.

### Maintenance Support Services

#### Consultation and Support:

- Site assessments
- Preventative maintenance plan development
- Shutdown pre-planning and technical support
- Steam purge support to minimize prep time for annual hot work
- Coordination with CPM for retrofits, service enhancements and expansions
- Plant and equipment inspections (mechanical integrity, process, parts wear, inventory evaluation)
  - Parts organization and installation support
  - Asset management guidance
  - Critical spare identification
- Periodic maintenance, process review and follow-up

#### Benefits

- Maximize facility uptime
- Proactive, predictive planning minimizes surprises and costs
  - Minimize unplanned shutdowns
  - Get the correct parts when you need them
- Maximize life of equipment and parts
  - Minimize replacement cost through long-term planning – no more expediting
  - Better parts inventory management
  - Stay current with the newest, improved parts and equipment







# LIFECYCLE 360

## Optimizing Services

### Unlock Your Plant's Full Potential

#### Lifecycle360 Optimizing Services

**For customers with plants over 10 years old who want holistic process improvements that will increase yields and quality, and lead to savings in energy, capacity, water usage, and effluent.**

CPM | Crown's Optimizing Services unleash the full power of our unmatched processing and design experience, deep engineering acumen, industry subject matter expertise, process simulation tools, and our ability to design and deliver the final technology solution. We utilize state-of-the-art process simulation software to identify return-on-investment savings and process improvements. Customers typically receive payback on this service in under 2 years.

With our Optimizing Services, real-world processors have realized returns including:

- 5-15% energy savings
- 5-25% water and effluent reductions
- 2-5% raw material savings
- 2-10% capacity increases

Utilizing our comprehensive library of unit operations, we customize our modeling software to accurately model the real-world operating conditions in your facility, which allows us to pinpoint where you can enhance the efficiency of your operation, discover gaps in technology and automation, and calculate the financial returns of recommended interventions. This data will enable you to make informed decisions about your next steps in plant improvements, and we will be ready to support you by designing and delivering the necessary technology and automation.

#### Optimizing Services

- Assessments
- Analysis
- Modeling
- Debottlenecking
- Delivering both the engineered solution and the recommended equipment/technology

#### Benefits

- Improve yields, capacity, and energy, water and waste usage
- Achieve environmental goals and overcome environmental challenges (reduce utilities consumption, decrease water usage, minimize wastewater)
- Holistic overview of whole facility (interactions between upstream and downstream equipment)
- Identify and resolve equipment/process inefficiencies
- Payback typically < 2 years



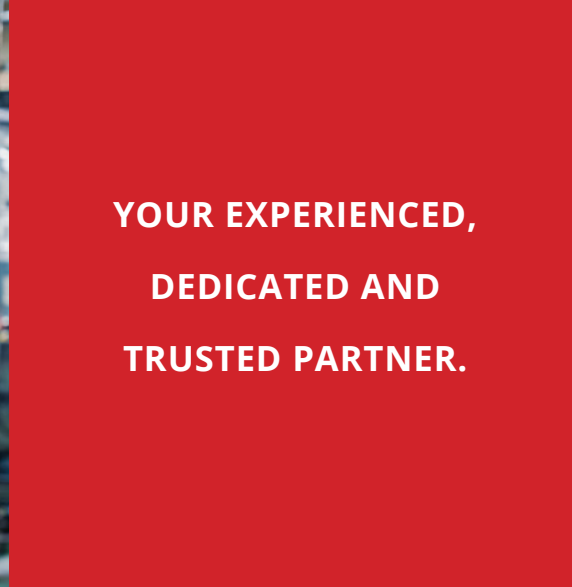
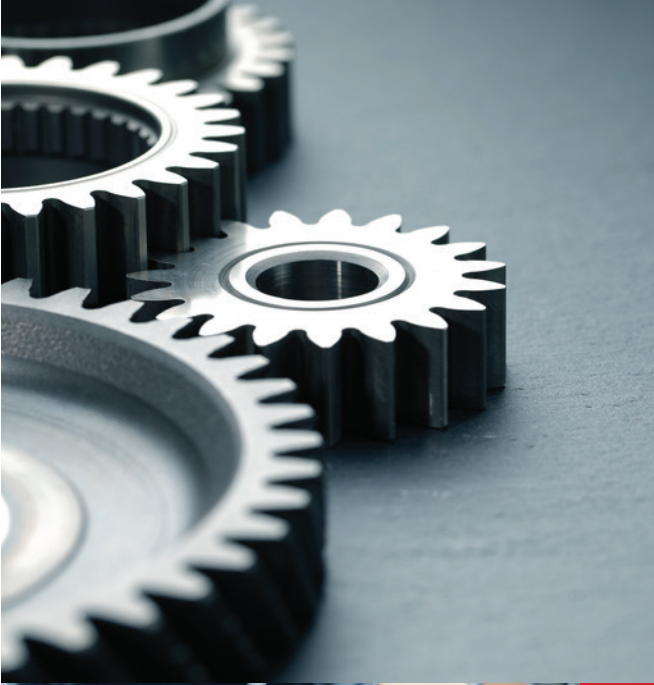
## LIFECYCLE 360

# Achieve Your Best Results with Our Trusted Lifecycle360 Support Specialists

**When you combine CPM | Crown's robust equipment and technology with our Lifecycle360 Support Services,**

you will have peace of mind knowing that an experienced, dedicated and trusted partner has your back at every stage of your plant's lifecycle, from design to full-scale production and maintenance.

Our engineers and experts are unmatched and offer you over 1,000 years combined experience in the oilseed, renewable fuels and specialty processing industries. Don't carry the burden of coordinating services from different companies who don't know our equipment as well and who lack our breadth of knowledge and capabilities. We are your single source for the planning, coordination and support that will help secure the success of your investment and help you gain the edge on your competition.



**YOUR EXPERIENCED,  
DEDICATED AND  
TRUSTED PARTNER.**



# Working together for **a better world.**



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
- Emissions and energy reductions
- Operational performance

- Regenerative agriculture
- Renewable resources
- Social responsibility
- Supply chain resiliency
- Sustainability
- Zero waste targets

Gain the competitive advantage with Crown's expertise, equipment and world-class Global Innovation Center.

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



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