



# KINETICS CB 200

## High Capacity Chemical Blending System (with 500L blend tanks)

- Accurate— Proven blending and measuring technologies to meet stringent process requirements
- Economical— More cost-effective than buying pre-mixed chemistries
- Efficient— Configured to meet high volume manufacturing requirements

### SYSTEM OVERVIEW

Kinetics chemical blending systems provide a winning combination of blending accuracy and capacity required to meet a variety of process and productivity requirements. Based on proven weight-based blending technology, the Kinetics CB 200 is a high-capacity blending system, with a maximum blend capacity of 15,000 liters per day. The blending algorithm controls the quantity of chemical constituents introduced into each load cell-mounted blend tank. An optional flow-rate-based blending module is available, where each chemical is introduced by time into the blend tank at a pre-determined flow rate. The chemical blend is thoroughly mixed by recirculating through a pump and conductivity monitoring loop. The measured conductivity is continually compared to the pre-determined conductivity set-point, which has been calibrated to chemical concentration. The blend tank continues to circulate the mixture until the desired concentration level is reached. Consisting of two (2) blend tanks and one or two day tanks, the CB 200 can continually blend chemical in one blend tank, while simultaneously transferring qualified blend to the day tank. For dispensing blended chemistry to the fab, the Kinetics CD 100 or CD 200 dispense system can be utilized alongside the chemical blending system.

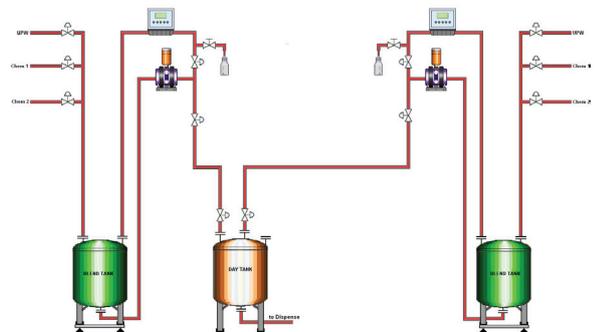
### KEY FEATURES:

- Total blend capacity of 9000, 12,000 or 15,000 liters
- High-accuracy load cells for precise blending
- User-selected blend recipes
- Absolute blend accuracy of 0.1, 0.01 or 0.003 weight percent, depending on specific configuration
- Up to three (3) chemical constituents, plus DI water
- Dual-cell conductivity monitor
- Diaphragm or centrifugal blend circulation pumps
- Polypropylene cabinet material
- DI/N<sub>2</sub> maintenance services for pumps and filters. DIW spray gun

### OPTIONS:

- Flow meter-based blending module
- Alternative metrology packages - auto-titration, index of refraction, or sonic velocity
- Cabinet for blend tanks, up to 500 L
- Pump stroke and leak detection
- Radar level sensor in day tank
- Sampling compartment

### PROCESS FLOW DIAGRAM



Configuration showing two weight-based blend tanks, on-line metrology, and a single day tank

### RELIABILITY

- MTBF > 4500 Hours
- MTBA > 2500 Hours
- MTTR < 2 Hours
- Availability > 99.9%

# TECHNICAL DATA

## CONTROLS

- Allen-Bradley SLC 500 or Siemens S7 series PLC
- Allen-Bradley Panelview 550 or Siemens TP177B HMI, displaying:
  - System P&ID status
  - Alarm and warning screens
  - Blend and flush recipe and calibration screens (password-protected)
  - Distribution valve box status
  - Maintenance screens (password-protected)
- Connectivity to factory control system

## SAFETY FEATURES

- Segregated electrical and chemical compartments
- Local and remote EMO
- Cabinet leak detection and door interlocks
- Audible and visual warnings and alarms
- Transparent door panels for viewing

## FACILITY REQUIREMENTS

UTILITY	REQUIREMENT	CONNECTION TYPE
Chemical Inlet (1, 2 or 3)	8 GPM @ 30 psi (30 LPM @ 2 barg)	¾" PFA Flare
DI Water	14 GPM @ 45 psi (50 LPM @ 3 barg)	1" PFA Flare
N <sub>2</sub>	2 SCFM @ 90 psi (3.5 Nm <sup>3</sup> /hr @ 6 barg)	½" SS Swagelok
CDA	15 SCFM @ 90 psi (26 Nm <sup>3</sup> /hr @ 6 barg)	¾" SS Swagelok
Exhaust—blend module	152 SCFM @ 2" H <sub>2</sub> O (258 Nm <sup>3</sup> /hr @ 2" H <sub>2</sub> O)	6" Pipe Flange
Exhaust—blend tank cabinet (each)	153 SCFM @ 2" H <sub>2</sub> O (259 Nm <sup>3</sup> /hr @ 2" H <sub>2</sub> O)	6" Pipe Flange
Process Drain	5.5 GPM @ 30 psi (40 LPM @ 3 barg)	1" FNPT, polypropylene
Cabinet Drain	Gravity	1" FNPT or DN15 butt weld, polypropylene
Power <sup>1</sup>	100 to 240VAC, 50-60 Hertz, 15 amps	¾" Conduit

<sup>1</sup>Power requirements higher for magnetically-levitated centrifugal pumps; consult factory

## SPECIFICATIONS

PARAMETER	CAPABILITY
Application	Acids, Bases, Oxidizers
Accuracy, Absolute weight %	Three options available: <ul style="list-style-type: none"> <li>• Level 1 &lt; 0.1 wt. %</li> <li>• Level 2 &lt; 0.01 wt. %</li> <li>• Level 3 &lt; 0.0033 wt. %</li> </ul>
Number of Chemical Inputs	2 or 3, plus DI water
Number of Day Tanks	1 standard, 2 optional
Day Tank Sizes	9000, 12,000 or 15,000 liters
Blend Tank Sizes	500 or 1000 Liters
Number of Tank Sizes	1 standard, 2 optional
Cabinet Materials	Polypropylene
Cabinet Footprint, blend module (WxDxH)	68" x 48" x 75" (1710mm x 1200mm x 1900mm)
Footprint, blend tank cabinet (each cabinet)	52" x 48" x 75" (1300mm x 1200mm x 1900mm)
Component Materials—Economy Set (standard)	<ul style="list-style-type: none"> <li>• PTFE valves</li> <li>• PE pumps and pulse dampeners (PTFE diaphragms)</li> <li>• PFA tubing and fittings</li> <li>• Polypropylene filter housings</li> <li>• HDPE or PE blend and day tanks</li> </ul>
Component Materials—Performance Set (optional)	<ul style="list-style-type: none"> <li>• PFA or PTFE valves</li> <li>• PTFE pumps and pulse dampeners</li> <li>• PFA tubing and fittings</li> <li>• PFA filter housings</li> <li>• PFA or PTFE-lined blend and day tanks</li> </ul>