



# DAIRY-CHEM<sup>Plus</sup>

## Teat Dip Mixing and Dosing Systems

The KNIGHT Dairy-Chem Plus teat dip blending systems are designed to produce factory quality dairy farm hygiene chemistries in real time as they are consumed by the dairy farm. This simple yet sophisticated system relies on advanced patent pending flow metering and embedded control software technology to produce consistent high quality teat dips from concentrate. The Dairy-Chem Plus can produce a variety of dairy cow udder treatment solutions including Iodine, Chlorine Dioxide and Chlor Hexidine tailor made to current farm conditions. Dairy Chem Plus's valuable reporting tools gather useful data to better monitor parlor procedures, track usage, and assure optimal utter hygiene.



Increased Profits

Factory Quality Dips

Data Management Reports

Rugged/Reliable Performance

- Increased profitability by blending on-site from concentrate
- Easily adjust your iodine or emollient concentrations depending on herd conditions
- Blend unique teat dip formulations not available in factory ready to use form
- Change formulations in an instant using concentrates already on the farm
- Precise and controlled metered blending with patent pending flow meter technology
- Reporting software allows for complete monitoring of usage, costs, trends, alarms, and production

# KNIGHT<sup>®</sup>

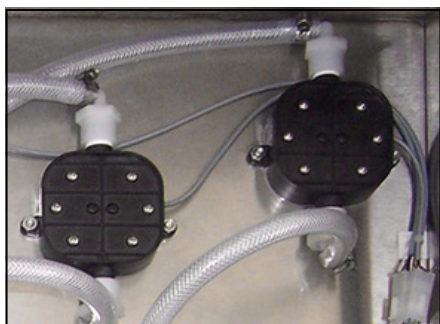
INDUSTRIAL SYSTEMS

## Precise and Accurate "Smart Dosing"

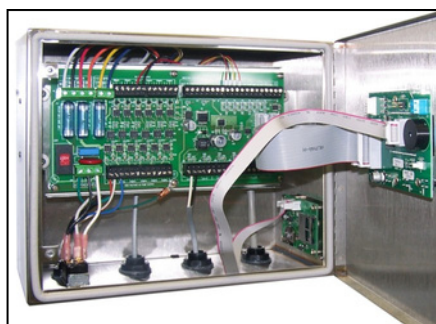
The Dairy-ChemPlus flowmeter "Smart Dosing" volumetric based formulation blending is superior to any water powered chemical blending system. Consider these important performance advantages over water powered pumping solutions:

- "Smart" control software and flow meter feed back does not allow formulations to vary from the prescribed recipe
- Out of product conditions (pumping air) produce an immediate alarm message and system shut down to prevent use of improper dip on cows
- Concentrates are metered to +/- 2% accuracy
- Fluid line components will not corrode
- Flow meter feed back provides precise chemical usage data for managing teat dip usage and enforcing good teat health processes
- Commercial dairy farmers desire useful information to control their costs and enforce good herd management practices.

## Features and Benefits



**Precise, Controlled Blending**  
Patent pending elliptical gear flow meter controlled formulating functions provide accurate concentrate/water blending and dispensing control for a wide variety of Iodine and Chlorine Dioxide based ready to use teat dip formulations



**Main Controller**  
State of the art microprocessor based digital blending controller includes SD card based programming and report retrieval. Highly reliable electric diaphragm pumps deliver precise fluid volumes based on flow meter signals and formulation composition

|                             |                |                     |
|-----------------------------|----------------|---------------------|
| Print    Save to Excel File |                |                     |
| Farm:                       | Test Farm      | Report Date: (Free) |
| System ID#:                 | 0000000        | 1/1/2011            |
| Formula Name                | Iodine         | Emolient            |
| Shift1 06:00 AM             | 37.486         | 0.000               |
| Shift2 11:30 AM             | 49.981         | 0.000               |
| Shift3 03:00 PM             | 37.486         | 0.000               |
| Shift4 08:00 PM             | 49.981         | 0.000               |
| <b>Total</b>                | <b>174.935</b> | <b>0.000</b>        |

**Data Management Reports**  
Data Management Reports detail every batch of finished teat dip solution produced and provide actual consumption related data to help you control costs, enforce consistent product usage and promote effective teat hygiene practices



**Blended Teat Dip**  
Blended teat dip solutions are freshly made to your specific requirements and pumped into a storage tank. A float switch mounted in the storage tank triggers the system to blend and replace the solution used when levels get low.

**.25% - 1%**  
**.50% - 5%**  
**1% - 10%**

**On Site Teat Dip Blending**  
"On the fly" teat dip formulation modifications using the same set of chemical concentrates eliminate the need to swap chemical supplies when conditions change. Just recalibrate the system to the desired formulation and start making dip.



**Increased Profitability**  
Producing factory quality teat dips on the farm from concentrate dramatically reduces your delivery costs since you no longer ship water. You also reduce the frequency of delivery.

## Programming

Precise and reliable automatic teat dip blending made possible by patent pending flow meter and "smart" control software.

The system can be programmed for the first time using the Dairy-Chem Plus user interface panel or by programming a system setup file using the Dairy-Chem Plus PC software and uploading the settings to the system using an SD card.



### CHANGE PASSCODE

Formulations and all program parameters are pass code protected.

### TEST FLOW METER 1 UP TO START/STOP

This is your primary troubleshooting tool for diagnosing flow related alarm conditions. Use this screen only after you have calibrated the pump.

### TRANSFER SETUP "UP" TO START

Setup files with formulations and all run parameters can be created using the DC Plus PC software then uploaded via the SD card

### BLEND VOLUME P1 IN PARTS: 01.00

TeatDip formulations are programmed as fluid "parts" (3:1, 5:1, 1:1, etc.)

### CAL. VOL. 0444 ML P1 [UP] TO START

Flow meter calibrations are done on site by measuring the chemical concentrate flow rates as measured by the flow meter

### TEST BATCH

After calibration a test batch can be run and measured as a secondary calibration check

### TEST BLEND 01XBL "UP" TO START

Use this function to test the final teat dip solution for accuracy/stability

### ENTER REPORT DATE RANGE

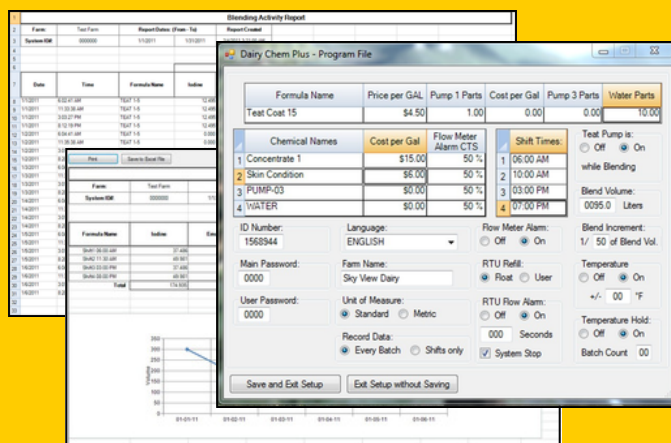
Logged data can be downloaded from the system for viewing in the PC application or in Excel. Select the date range required for your report.

### RTU REFILL IS: STARTED BY USER / FLOAT

Depending on how the system is to be used the teat dip blending process can be started by the user (user start mode) for filling dip cups or jugs or by the storage tank float (float start mode) when levels fall below the desired tank level.

## Windows Based System Management Tools

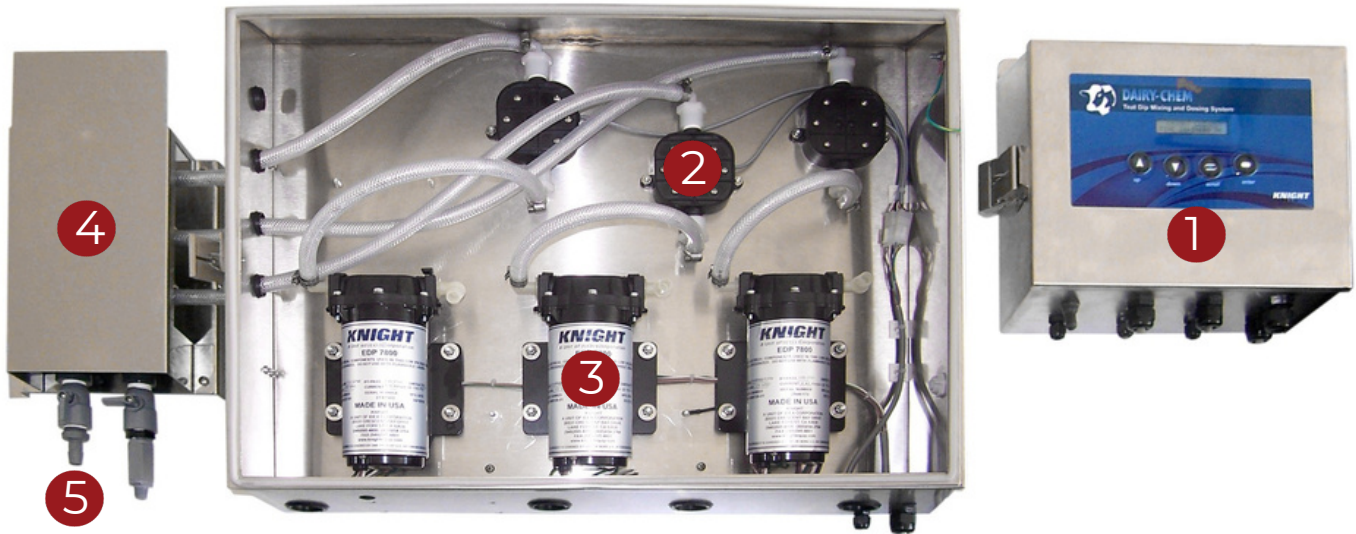
The dairy farm industries first on farm data logging teat dip blending system provides critical usage data including teat dip consumption, user activity, trends, production times, and costs. This critical information will help management gain control of overall teat dip usage and identify shift by shift variations that can adversely effect teat hygiene.



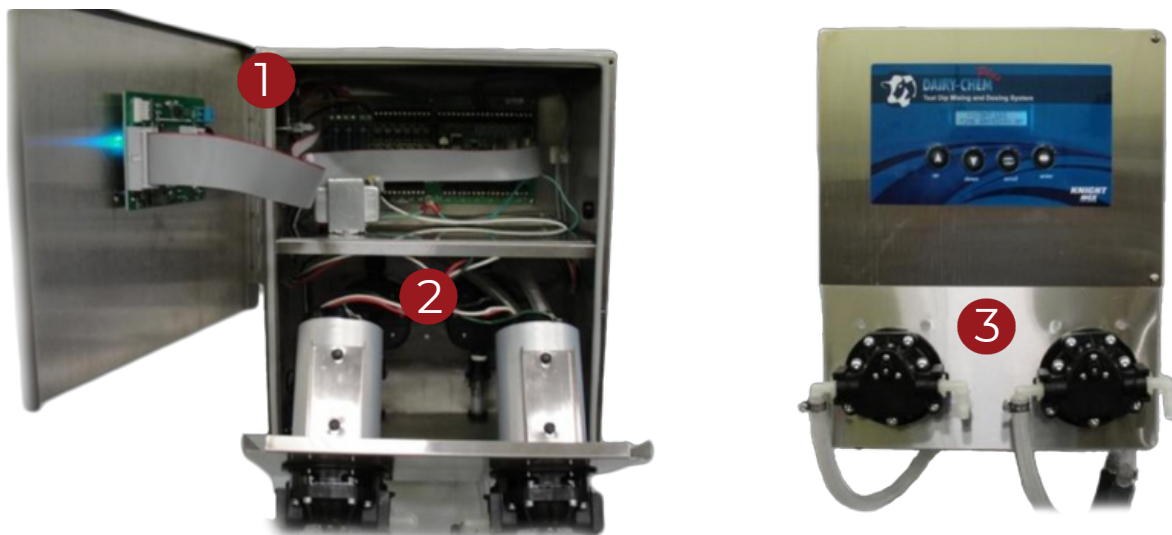
Useful reports include the following data:

- Track total teat dip usage and compare it to daily targeted usage
- Monitor teat dip usage by each milking shift
- Record date and time teat dip is produced
- Precise ingredients blended into each batch
- Alarm codes for out of product conditions

## Dairy-Chem Plus 3 Part System Components (7667090)



## Dairy-Chem Plus CD 2 Part System Components (7667120, 7667130, 7667140)



- ① Mixing/Dosing Controller with I/O board , Memory Module and SD Card drive
- ② Elliptical Gear Flow Meters on pump discharge lines provide volumetric feedback to controller as chemical and water are pumped in accordance with the teat dip formulas
- ③ Reliable electric diaphragm pumps dispense teat dip fluid components anytime the storage tank float switch triggers a refill sequence
- ④ Integral static mixer assembly receives chemical concentrates and water and creates the necessary agitation and turbulence required to produce a well mixed and stable ready to use formulation. (7667090 Only)
- ⑤ Ball valves connected to static mixing manifold allow concentrate calibration or finished teat dip pumping into the storage tank. (7667090 Only)

## Optional Components



- ① 11 gallon water tank with float valve provides a consistent source of water for water based formulations.
- ② Optional 11 gallon RTU storage tank with dual horizontal floats, cover, and stainless steel wall bracket. Use for 50-50 Chlorine Dioxide based dips or small farm Iodine dip storage
- ③ Optional 1 Liter RTU tank with dual horizontal floats with suction and discharge ports and overflow fitting. (800ml working volume)
- ④ Optional Air Regulator/Solenoid Valve for delaying transfer of product during batching sequence

## ORDERING INFORMATION

### Dairy-Chem Plus

| Part Number | Description                                                                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7667090     | 3 Part System: Two Chemical Concentrate + Water Teat Dip Blending System: Two .4 GPM(1.5 LPM) chemical pumps, One 1.5 GPM(5.7 LPM) water pump, water tank w/float and filter, tank mounting shelf, PVDF flow meters, controller, static mixer and mounting kit. |
| 7667120     | 2 Part System: Two Chemical Concentrate Teat Dip Blending System: Two 1.5 GPM(5.7 LPM) EDP pumps, with PVDF flow meters, controller and mounting kit.                                                                                                           |
| 7667130     | 2 Part System: Two Chemical Concentrate Teat Dip Blending System: One 1.5 GPM(5.7 LPM) & One .4 GPM(1.5 LPM) EDP pumps, with PVDF flow meters, controller and mounting kit.                                                                                     |
| 7667140     | 2 Part System: Two Chemical Concentrate Teat Dip Blending System: Two .4 GPM(1.5 LPM) EDP pumps, with PVDF flow meters, controller and mounting kit.                                                                                                            |

### Options

| Part Number | Description                                                                      |
|-------------|----------------------------------------------------------------------------------|
| 7667052     | Air Solenoid/Regulator kit for 7667090                                           |
| 7667056     | Air Solenoid/Regulator Kit for 7667120, 7667130, 7667140                         |
| 7667053     | One Liter RTU tank w/ dual floats, wall bracket and fittings                     |
| 7667054     | 11 Gallon RTU tank w/ dual floats, wall bracket and fittings                     |
| 7667028     | 11 Gallon water tank w/ float assembly, fittings, wall bracket and mounting kit. |
| 7110196     | Temperature Probe (comes standard w/7667090)                                     |
| 7600871     | Level Switch Kit w/50' cable for bulk tank, 1/2" NPT                             |

#### KNIGHT LIMITED WARRANTY

Knight controls and pump systems are warranted against defects in material and workmanship for a period of ONE YEAR. All Electronic Control Boards have a TWO YEAR warranty. Warranty applies only to the replacement or repair of such parts when returned to the factory with a KRA number, freight prepaid and found to be defective upon factory inspection. Rubber and synthetic rubber parts such as "O" rings, diaphragms, squeeze tubing and gaskets are considered expendable and are not covered under warranty. Warranty does not cover liability resulting from performance of this equipment nor the labor to replace this equipment. Product abuse or misuse voids warranty. Knight products are not for use in potentially explosive environments. Any use of our equipment in such an environment is at the risk of the user. Knight does not accept any liability in such circumstances.

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