

State of California
Department of Food and Agriculture
Division of Measurement Standards

Certificate Number: 3999(a)-02
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California Type Evaluation Program
Certificate of Approval
for Carbon Dioxide and Cryogenic Liquid Measuring Devices

For:

Precision Turbine Flowmeter
Model: SPX-CB-NL-X-X/X*
Flow Rates: See Below

* See Page 2 for specific suffix designations and descriptions

Submitted by:

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Standard Features and Options

Lightweight hydraulically balanced rotor
Standard end fittings
Standard pick-up coil (temperature range -430 °F to +450 °F)
Constructed of stainless steel

Flow Meter Size (in)	Liquid Range (GPM)	Liquid Range Lbs/min (CO ₂)	Product
SP 5/8	2 to 16	12 to 130	Cryogenic or Carbon Dioxide Liquids
SP 3/4	2.5 to 29	16 to 250	Cryogenic or Carbon Dioxide Liquids
SP 1	4 to 75	35 to 635	Cryogenic or Carbon Dioxide Liquids
SP 1 1/4	6 to 93	50 to 788	Cryogenic or Carbon Dioxide Liquids
SP 1 1/2	8 to 150	68 to 1100	Cryogenic or Carbon Dioxide Liquids
SP 2	25 to 225	213 to 1900	Cryogenic or Carbon Dioxide Liquids

NOTE: All meters must be permanently marked to show the designated maximum and minimum discharge rates

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: May 2, 2002

Mike Cleary, Director

Sponsler Co., Inc
Precision Turbine Flowmeter
Model: SPX-CB-NL-X-X/X

Application: For use in metering liquid carbon dioxide and cryogenic liquids.

Identification: The required information is stamped on the metal body of the meter.

Model Designation:

SPX-CB-NL-X-X/X						
Name	Size (in)	Bearing Type	Rotor Type	Endfitting Type	Fabrication Material	
SP	X	CB	NL	X	X	X
Sponsler	5/8 3/4 1 1 1/4 1 1/2 2	Cryo Ball Bearing	304 Nickel Liquid	NTP = A AN = B 150C = C 150S = D 300C = E 300S = F Triclover = G Grayloc = H Swagloc = I Wafer = W	304 = 4 316 = 6 316l = 6l	Boss = X

Sealing: The pick-up coil and temperature probe are secured individually by a wire security seal threaded through holes in the respective connector backshell and threaded coupling nut.

Operation: As product flows through a turbine flowmeter, rotor blades inside the flowmeter rotate through the magnetic field of the magnetic pick-up coil, thereby generating electrical pulses. The number and frequency of these pulses correspond to the amount of product and flow rate respectively. The compensator corrects the value for temperature/density changes and sends the information to the register/ticket printer.

Test Conditions: This certificate supersedes Certificate of Approval Number 3999-93 and is issued to include liquid CO₂ with lbs/min unit of measure. The Model SP2-CB-NL-B/4 carbon dioxide meter interfaced to a Sponsler Model T575N-TC truck totalizer was submitted for field evaluation and tested gravimetrically. The emphasis of the evaluation was on device design, performance, and permanence. Initial tests were conducted at several flow rates ranging from 537 lbs/min to 1047 lbs/min. These tests were repeated after approximately 75 days and 11 000 000 pounds of throughput. The flow rates for the 2" meter were changed from the original certificate at the request of the manufacturer. The previous test conditions are listed below for reference.

Certificate of Approval Number 3999-93: This certificate was issued to reflect a change to a new model numbering system in addition to consolidate a family of meters based upon separate reference certificates issued to each meter.

Results of the evaluations and information provided by the manufacturer indicate the device complies with applicable requirements.

Type Evaluation Criteria Used: Title 4, California Code of Regulations, 2002 Edition

Tested By: Earl Jenkins 3999-93, Charlie Nelson and Dan Reiswig 3999(a)-02

Information Update Reviewed By: Norman Ingram (CA)