



Baldwin™ -Series Digital Coolers

For CEMS and Process Analysis



Making Analysis Possible



Reliable

Accurate

Configurable

Serving a Wide Range of Applications

Perma Pure's coolers are an enabling technology for CEMS and monitoring.

POWER GENERATION • PETROCHEMICAL • REFINERIES • INCINERATION • INDUSTRIAL

Perma Pure's thermo-electric coolers are used by leading continuous emissions monitoring systems suppliers, industries and governments. We are proud to partner with our broad and diverse customer base to meet the latest SOx and NOx requirements, making the world healthier and cleaner. Our commitment to protect life starts with a focus on quality and partnership with our customers to meet the challenges of demanding applications while making the world safer and healthier.

Baldwin™-Series Digital Thermo-Electric Coolers

New Digital Control System, Same Reliable Performance

The new Baldwin™-Series **digital** thermo-electric coolers by Perma Pure are a powerful combination of the proven track record of Baldwin™-Series classic coolers with a new digital control system. This combination ensures reliable performance for high flow rate, high ambient temperature, and high water volume applications.



Features of Baldwin™-Series digital thermo-electric coolers include:

- Reliable dedicated Digital Control System keeps your system operating efficiently
- Advanced P.I.D. control algorithm increases temperature control precision to maintain analysis accuracy
- Continuous display of temperature eliminates guess work – a quick look tells it all
- Alarm outputs provide alarm interface capability for your data acquisition system as well as direct control of sample pumps
- Configurable for simple control of multiple sample streams
- Individual water slip sensors and alarm outputs safeguard against upset conditions
- Gas stream temperature output allows direct monitoring, eliminating guess-work
- Autosensing, 115 or 230 VAC models
- MODBUS for remote monitoring

All Baldwin™-Series coolers use thermo-electric elements (Peltiers) to cool the sample gas to the desired dew point temperature. Condensate can be removed as it forms by an available peristaltic pump.

Features of all Baldwin™-Series coolers include:

- Dependable water removal
- Alarm relays protect analyzers
- Low maintenance
- EZ-Clean twist-apart impingers (Optional)
- Single or dual sample streams
- Durinert coated impingers (Optional)



Three Models With Standard Capacities Ranging from 0 to 20 LPM

Model	Standard Capacity	Impingers		Dimensions (H x W x D)	Weight
		Passive	Active		
M115D	0-2 LPM (0-4 SCFH)	—	1 x 5 in	13 x 7 x 11 in (33 x 18 x 29 cm)	15 lbs (7 kg)
M325D	2-4 LPM (4-9 SCFH)	1 x 5 in	1 x 5 in	13 x 7 x 11 in (33 x 18 x 29 cm)	17 lbs (8 kg)
M425D	3-5 LPM (7-11 SCFH)	—	2 x 5 in	13 x 7 x 11 in (33 x 18 x 29 cm)	17 lbs (8 kg)
5210D	3-8 LPM (6-17 SCFH)	1 x 10 in	1 x 10 in	15 x 11 x 11 in (38 x 28 x 28 cm)	27 lbs (12 kg)
8210D	4-10 LPM (8.5-21.2 SCFH)	—	2 x 10 in	15 x 13 x 12 in (38 x 33 x 30 cm)	38 lbs (18 kg)
20410D	10-20 LPM (21-42 SCFH)	2 x 10 in	2 x 10 in	15 x 13 x 12 in (38 x 33 x 30 cm)	39 lbs (18 kg)

Intelligent Product Numbering System

Follow the below 5 steps to determine your product number.

Step 1: Select Model (Required)

M115D	4C-M115D
M325D	4C-M325D
M425D	4C-M425D
5210D	4C-5210D
8210D	4C-8210D
20410D	4C-20410D

Step 2: Select Voltage (Required)

Auto Sensing (M115D, M325D, and M425D Only)	0
115 VAC, 50/60 Hz (5210D, 8210D, and 20410D only)	1A
230 VAC, 50 Hz (5210D, 8210D, and 20410D only)	2A

Step 3: Select Impingers (Required)

10" Stainless Steel, EZ Clean Twist-Apart Impingers (5" for M115D, M325D, and M425D)	ES
10" Glass Impingers, threaded with fittings (5" for M115D, M325D, and M425D)	G
10" Kynar Impingers (5" for M115D, M325D, and M425D)	K
10" Stainless-Duriner coated, EZ Clean Twist-Apart Impingers (5" for M115D, M325D, and M425D)	ED

Step 4: Select NJ Thermocouple Option (Stainless Steel and Stainless-Duriner Coated Impingers Only)

New Jersey thermocouple temperature sensor; lead wires only (M115D, M325D, M425D, 5210D, and 20410D only)	NJ
New Jersey thermocouple temperature sensor, series configuration (8210D only)	T1
New Jersey thermocouple temperature sensor, parallel configuration (8210D only)	T2

Step 5: Select Water Slip Sensor Option

Water slip sensor with inline flow holder; 1/4" Kynar tube fittings	WS
Water slip sensors with inline flow holder; 1/4" Kynar tube fittings, parallel configuration (8210D only)	WP

Example Product Number

4C-8210D	1A	ES	T1	WS
Cooler	Voltage	Impingers	NJ Thermocouple	Water Sensor

Complete Family of Sample Gas Conditioning Systems



Nafion™-Based Gas Sample Conditioning Systems

Perma Pure is the exclusive manufacturer of Nafion™ tubing, a highly-selective permeation membrane. While traditional coolers will reduce unwanted humidity from many sample gas streams, certain applications require the membrane drying power of Nafion™ to properly remove enough water vapor without dissolving water soluble acid gases.

Our Nafion™-based solutions take advantage of the material's unique properties that allow the removal of water vapor without dissolving water soluble acid gases. Removal of humidity improves accuracy of measurements by eliminating interference. It also reduces maintenance expenses by protecting the analyzer and other components, as well as eliminating or lowering the temperature of the heated line.



Filters, Scrubbers & More

Perma Pure also offers additional products for your sample gas conditioning system, including:

- Particulate/Coalescing Filters
- Inertial Bypass Filters
- Ammonia Scrubbers
- Acid Scrubbers
- Heatless Air Dryer



Baldwin™-Series Coolers

In addition to the Baldwin™-Series digital thermo-electric coolers, Perma Pure offers a full-range of coolers, including:

- Baldwin™-Series Digital Thermo-Electric Coolers
- SO₃ Aerosol Removal Cooler
- eCool™
- Complete Sample Conditioners
- Baldwin™-Series Heated Filter Probes
- Flow Control Drawer
- Portable Products for Stack Testers
- SDS Supplemental Drying System (Nafion™-Based)

