

WEATHER

Self-Aspirated Radiation Shield

Model 8141



Overview

The Self-Aspirated Radiation Shield is designed to house temperature and humidity probes in an environment protected from the thermal effects of solar radiation and precipitation. This shield is typically used in applications where the AC power required by motor-aspirated radiation shields is not available.

The design allows air to rise through the shield for constant circulation, and provides protection for the probe from direct and scattered radiation, and from contact with precipitation.

Models

Three models are available to accommodate several temperature and relative humidity probes. A threaded hex plug adapter or retainer secures the probe inside the shield, while providing easy access to the probe at time of calibration. The 8141-D shield may be sourced from either RM Young or Dwyer.

Features

The shield is constructed of 10 thermoplastic discs that block direct and reflected solar radiation from all angles, while permitting air flow past the probe arising from convection and wind. The disc material is specially formulated for high reflectivity and low thermal conductivity, and is resistant to ultraviolet light for improved weatherability.

- Material specially formulated for high reflectivity and low thermal conductivity
- Resistant to UV light

Mounting

The shield mounts to a vertical mast or tower leg with an outside diameter of 25–50 mm (1" to 2") [RM Young] or 19–38 mm (0.75" to 1.5") [Dwyer]. Mounting hardware and the hex plug adapter or retainer are included.

Ordering Information

Part Number	Probes Supported	Young	Dwyer
8141-A	Model 5120 humidity probe, Model 5129 and 5140 temperature/humidity probes	1	
6141-B	Model 4470, 4480, and 4500 series of temperature probes	2	
8141-D	Model 5190 series of temperature/humidity probes	3	4
81413	Young Adapter Plug: 0–12 mm		
81414	Young Adapter Plug: 15 mm		

1. Includes a mounting adapter compatible with the Model 5120 humidity probe and the Models 5129 and 5140 temperature/humidity probes
2. Includes a mounting adapter for mounting the Model 4470, 4480, and 4500 series temperature probes
3. Includes a mounting adapter for use with the Model 5190 series of temperature/humidity probes
4. Includes mounting retainer for the Model 5190 series temperature/relative humidity probes



Self-Aspirated Radiation Shield

Specifications

Parameter		Specification
Mounting Capacity	8141-A	1 Humidity Probe, or 1 combination Temperature/Humidity Probe
	8141-B	1 Temperature Probe
	8141-D	1 combination Temperature/Humidity Probe
Radiation Error @ 1080 W/m ² (depends on solar radiation intensity and wind speed)		0.7° F (0.4° C) rms @ 6.7 mph (3 m/s) 1.3° F (0.7° C) rms @ 4.5 mph (2 m/s) 2.7° F (1.5° C) rms @ 2.2 mph (1 m/s)
Material		UV stabilized white thermoplastic
Environmental		
Operating Temperature Range		-50° to +50°C (-58° to +122°F)
Mechanical		
Mounting	Young	U-bolt fitting for vertical pipe O.D. 25–50 mm (1–2")
	Dwyer	U-bolt fitting for vertical pipe O.D. 19–38 mm (0.75–1.5")

Dimensions & Weights

Size (with mounting bracket)	Young	260 mm × 163 mm (10.25" H × 6.4"D)
	Dwyer	130 mm × 269 mm (5.125" D × 10.58" H)
Weight	0.7 kg (1.5 lb)	
Shipping Dimensions	286 × 203 × 152 mm (11.25" × 8" × 6")	
Shipping Weight	1.4 kg (3 lb)	

Overview

The Self-Aspirated Radiation Shield is designed to house temperature and humidity probes in an environment protected from the thermal effects of solar radiation and precipitation. This shield is typically used in applications where the AC power required by motor-aspirated radiation shields is not available.

The design allows air to rise through the shield for constant circulation, and provides protection for the probe from direct and scattered radiation, and from contact with precipitation.

Models

Three models are available to accommodate several temperature and relative humidity probes. A threaded hex plug adapter or retainer secures the probe inside the shield, while providing easy access to the probe at time of calibration. The 8141-D shield may be sourced from either RM Young or Dwyer.

Features

The shield is constructed of 10 thermoplastic discs that block direct and reflected solar radiation from all angles, while permitting air flow past the probe arising from convection and wind. The disc material is specially formulated for high reflectivity and low thermal conductivity, and is resistant to ultraviolet light for improved weatherability.

- Material specially formulated for high reflectivity and low thermal conductivity
- Resistant to UV light

Mounting

The shield mounts to a vertical mast or tower leg with an outside diameter of 25–50 mm (1" to 2") [RM Young] or 19–38 mm (0.75" to 1.5") [Dwyer]. Mounting hardware and the hex plug adapter or retainer are included.

Self-Aspirated Radiation Shield

Ordering Information

Part Number	Probes Supported	Young	Dwyer
8141-A	Model 5120 humidity probe, Model 5129 and 5140 temperature/humidity probes	1	
6141-B	Model 4470, 4480, and 4500 series of temperature probes	2	
8141-D	Model 5190 series of temperature/humidity probes	3	4
81413	Young Adapter Plug: 0-12 mm		
81414	Young Adapter Plug: 15 mm		

1. Includes a mounting adapter compatible with the Model 5120 humidity probe and the Models 5129 and 5140 temperature/humidity probes
2. Includes a mounting adapter for mounting the Model 4470, 4480, and 4500 series temperature probes

3. Includes a mounting adapter for use with the Model 5190 series of temperature/humidity probes
4. Includes mounting retainer for the Model 5190 series temperature/relative humidity probes



Self-Aspirated Radiation Shield

Specifications

Parameter		Specification
Mounting Capacity	8141-A	1 Humidity Probe, or 1 combination Temperature/Humidity Probe
	8141-B	1 Temperature Probe
	8141-D	1 combination Temperature/Humidity Probe
Radiation Error @ 1080 W/m ² (depends on solar radiation intensity and wind speed)		0.7° F (0.4° C) rms @ 6.7 mph (3 m/s) 1.3° F (0.7° C) rms @ 4.5 mph (2 m/s) 2.7° F (1.5° C) rms @ 2.2 mph (1 m/s)
Material		UV stabilized white thermoplastic
Environmental		
Operating Temperature Range		-50° to +50°C (-58° to +122°F)
Mechanical		
Mounting	Young	U-bolt fitting for vertical pipe O.D. 25-50 mm (1-2")
	Dwyer	U-bolt fitting for vertical pipe O.D. 19-38 mm (0.75-1.5")

Dimensions & Weights

Size (with mounting bracket)	Young	260 mm × 163 mm (10.25" H × 6.4"D)
	Dwyer	130 mm × 269 mm (5.125" D × 10.58" H)
Weight	0.7 kg (1.5 lb)	
Shipping Dimensions	286 × 203 × 152 mm (11.25" × 8" × 6")	
Shipping Weight	1.4 kg (3 lb)	